Experiences from decided climate regulation from the industry

Nordic Sustainable built

Christian Mølholm and Marcus Hedman
Sept 2024

NREP

Agenda

- Intro to NREP
- Ambitions and Targets on decarbonisation
- Status – decarbonisation
- LCA – what's the problem?
- Methodology landscape – varies across countries
  Variables:
  - Market decarbonization
  - Area definitions
  - Methodologies
  - Building parts
  - Biogen CO2

- Solutions
- Reflections

Urban Partners

Nrep is part of Urban Partners, a platform of vision-aligned, differentiated, investment strategies shaped around urban problem solving.

Urban Partners invests to help cities win the battles for our future. We do this via a family of strategies, sharing the same vision and values. In addition to Nrep, the remaining two are:

- **2150** is a venture capital firm investing in the sustainable reshaping of the broad urban environment.
- **Velo Capital** provides flexible real estate credit solutions, helping its customers focus on sustainable assets.

Investing to reimagine – and decarbonize – real estate.

+400
multi-disciplinary professionals

+500
real estate investments

€19bn
AuM

Multi-disciplinary team
Nrep has a diverse team of approximately 400 professionals and a long-standing deep local presence in our key target markets.

Experience
In total we have made more than 500 real estate investments, of which approximately half have been exited. Nrep currently has approx. €19bn in AuM.

Gradual growth
Since inception, Nrep has methodically grown its team capabilities and network of close collaboration with external partners, while expanding and deepening our sectoral and geographic footprint.

Our concepts address structural challenges

Residential				Care	Office	Logistics
Affordable student community-living Students face an extreme lack of affordable well-located student housing in all the Nordic capitals and main university cities.	**Flexible affordable serviced living** Young people in the Nordic capital cities are struggling to find affordable and decent living conditions.	**Multi-family rental** The lack of suitable affordable rentals in the main cities is at the core of many pressing life challenges for people.	**Mixed-generation community living** Loneliness and isolation are major contributors to poor health and mortality for senior people in the Nordics.	**Homelike care homes** With a growing elderly population, the lack of assisted living communities is causing physical and mental health problems for the elderly in need.	**Serviced, flexible office spaces** Future offices must cater for companies in change, offer services and work environments that are healthy and modern and support team collaboration.	**Modern efficient logistics facilities** As the demand for logistics continues to rise, it is essential to ensure that it is managed sustainability.
UMEUS STUDENT CO-LIVING	NOLi Studios	juli living	PLUS HUSENE	ALTURA	woods	LOGICENTERS
UMEUS provides modern community-based student living at affordable prices in the Nordic capitals and university cities	Noli Studios services the growing need for flexible, socially connected yet affordable studios in central locations	Nrep's largest business is activity focused on providing rental apartments and row-houses	Multigenerational community-based living housing solution for active seniors and young families	Altura partners with local municipalities to address the growing yet underserved need for quality care homes	Our offices in central locations have been designed with users' needs in mind. They offer places where people feel good.	Modern efficient centers, pioneering sustainability and focusing on locations that minimize driving distances

On an ambitious decarbonization journey – engaging with SBTi to pioneer framework for decarbonizing the built environment

We seek to decarbonize at scale to move our industry from contributing to the largest challenge of our generation, to be part of the solution.

With years of experience from pioneering projects, exploring ways to eliminate CO2-emissions, we are extending our impact through commercial scale of decarbonizing solutions to accelerate change in the wider industry.

Our commitment is urgent, long-term and for real.

Piloting industry-wide SBTi guidance
We are selected among only 15 firms globally to pilot Science Baset Targets initiative's new SBTi's Buildings Guidance and Target-Setting Tool.

Targets based on SBTi's framework
As a continuation of the pilot, continuing our industry-leading decarbonization journey, we will align our current decarbonization roadmap to the upcoming SBTi Buildings Guidance.

Long-term focus on decarbonization has positioned us as a frontrunner in addressing the climate crisis in a commercially attractive way

Design-stage LCAs implemented on all projects, drives better commercial decisions

Underwriting model with decarbonization integrated (quota, tax, uplift) provides action incentives

Digital integration in our real estate portfolio is step-changed, allowing us to track, trace and optimise

Building by building intervention, based on tried and tested set of green asset management levers

99%
embodied GHG

...upfront embodied emissions are aligned with the Paris 1.5° agreement[1]

84%
operational GHG

...of operational emissions aligned are aligned with the Paris 1.5° agreement[2]

~2/3
of our assets

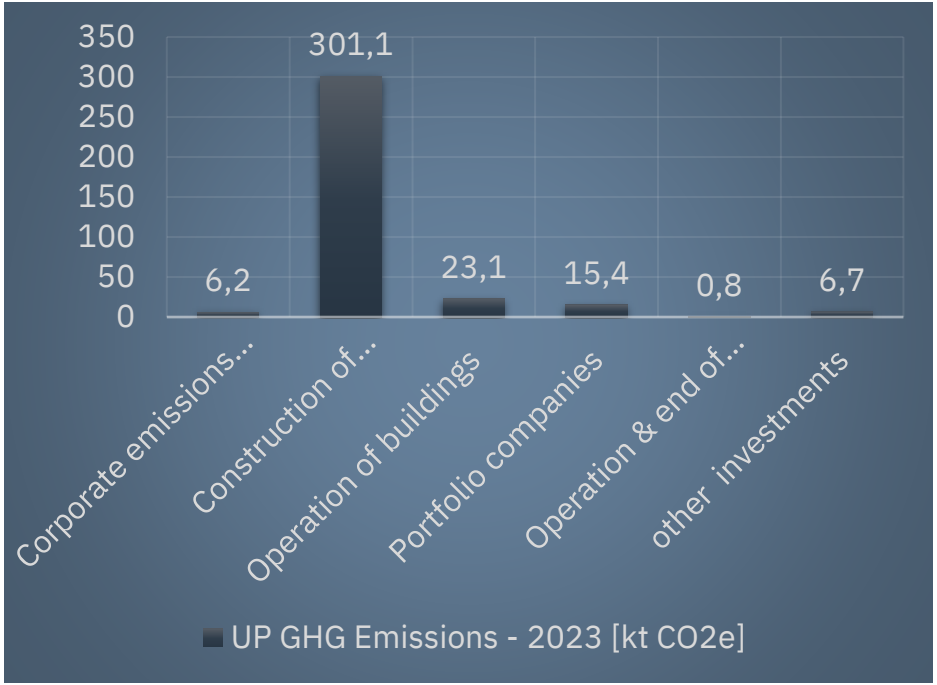
...are onboarded to real time data coverage, monitoring energy consumption

92%
assets with Climate Action Template

... tangible, asset-level decarbonization plans, incl. costs, savings and value uplift

1. According to the SBTi draft building sector guidance pathway on upfront embodied emissions, Nrep's upfront embodied emissions intensity was 6.6 kg/m²/y in 2023.
2. According to the CRREM 1.5 degrees pathway on operational emissions

URBAN PARTNERS/NREP - Status on decarbonization



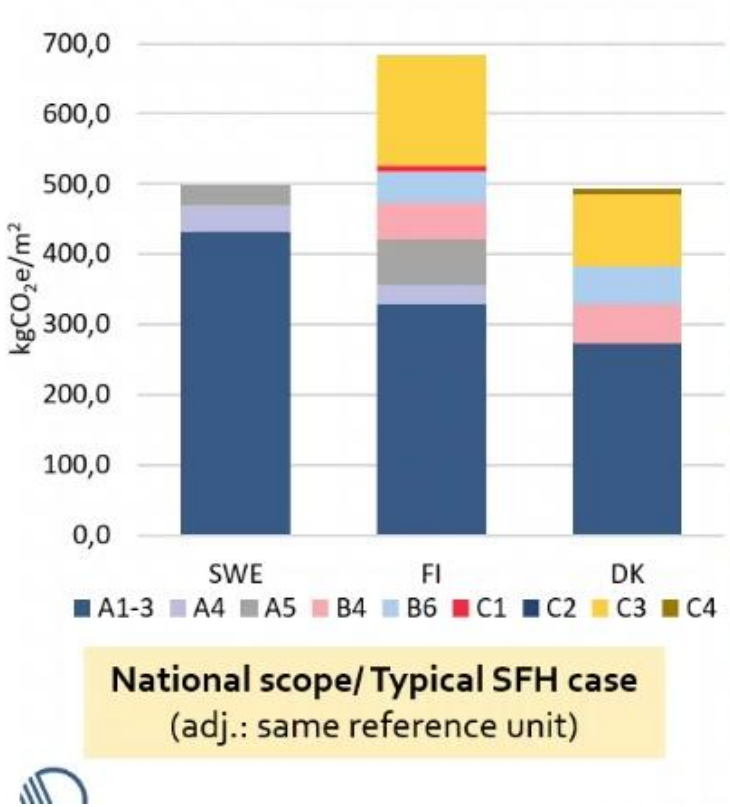
- Majority of emission are from NREP activities
- More than 80% of emissions are from new construction activities

Challenges

Methodology landscape – varies across countries

Challenges

- We cannot compare results cross borders
- Solutions and conclusions might be drawn on false assumptions?
- We are forced to use a local consultant, understanding the local methodology
- Loss of transparency
- Higher cost
- Loss of efficiency



LCA simulation data from Sweco study

Variables

- Area definitions
- Building parts included
- Biogen CO2
- EPD type – generic vs specific
- Constant EPD improvements

Area definitions

Area definitions vary, ie
- GFA – Gross floor area
- GIA – Gross internal area (CREEM)
- “net heated area“

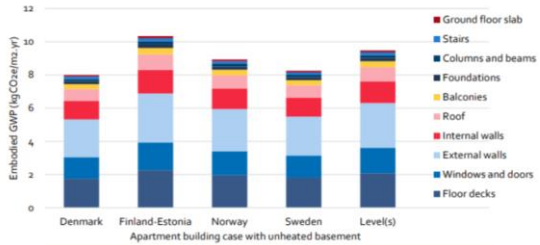
In all countries we need LCA consultant to report LCA result variations:
- National standard
- SBTi

And remember that numbers may not compare

Country/ Region	(in place or proposed) Regulation	RSP	Floor area definition	External wall thickness	Within the building enclosure: Primary functions	Secondary functions (e.g. circulation areas, storage)	Internal walls and columns	Basement/ cellar	Stairs	Comm facilities (in multi units, i staircase lift, vertical voids)
Denmark	Danish Building regulation (BR18) – embodied part	50	GFA	√	√	√	√	if ceiling height > 1.25 m	√	count for a floor
Denmark	Danish Building regulation (BR18) – operational part	50	HFA	√	√[2]	√[2]	√	if ceiling height > 1.25 m	-	count for a floor
Estonia	Proposed method for climate declaration (2021)	50	HFA	-	√[2]	√[2]	√	√[2]	√	√
Finland	Proposed method for climate declaration (2021)	50	HFA	-	√[2]	√[2]	√	√[2]	√	√
Iceland	Method under development (2023)	50	HFA (official) & GFA (additional)	√	√	√	√	√	√	√
Norway	TEK17	50	GFA	√	√	√	√	included if > 1.9m high for a width of ≥ 0.6m	-	-
Sweden	Climate Declaration 2022	N/A	GFA	√	√	√	√	√	√	-
Europe	Level(s) – Office	50	IPMS 3 UFA	-	√	√	√	if in exclusive use	-	-
Europe	Level(s) – Residential	50	IPMS 3B UFA	-	√	√	√	√ separate item	only on ground floor	-

Method Reference area unit

- Big differences, implications for basements, balconies, etc.
- normalizing results per resident or building user could help account for how efficiently the space is used



LCA results normalized (scope, data) using different reference area units; Nordic countries & LEVEL(s)

Nordic Sustainable Construction

Biogenic CO2 – how to calculate uptake and end of life emissions

Upfront (A-modules)
SBTi and Swedish klimatdeklarationen sets biogenic uptake to zero.

End-of-life (C-modules)
Most countries includes C-modules where all biogenic carbon is released to the atmosphere again. SBTi and Sweden doesn't include C-modules, no impact on biogenic carbon since it's not included in the A-modules

Benefits and loads beyond the system boundary (D-modules)
No country has limit values for D-modules.

Germany: An LCA for a wood product might assume a 60-70% recycling rate based on national data.
Netherlands: An LCA might assume a 75-80% recycling rate for wood due to strong national policies on recycling.

Conclusions
Here is a big need for a harmonized stand point. Is it reasonable to assume all biogenic carbon uptake to be released again within 50 years?

What is the approach going forward in the Nordic countries?

Has no effect, D-modules not being included in national LCA-scopes

EPD type - example

Concrete hollow core slab

34% lower

Generic Danish EPD

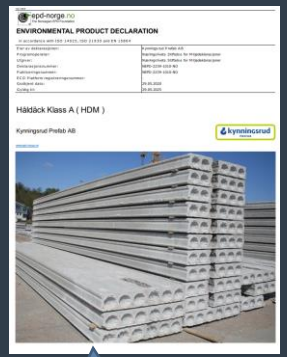

epddanmark

LCA resultater

Huldæk 22 cm tyk, 6-10 forspændingsliner

51,06 kg CO2/m2

Kynningsrud EPD


epd-norge.no

ENVIRONMENTAL PRODUCT DECLARATION

Håldäck Klass A (HDM)

Kynningsrud Prefab AB

kynningsrud

33,4 kg CO2/m2

CLT (Cross laminated timber)

49% lower

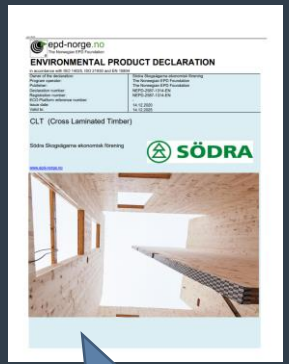
Generic Danish EPD


epddanmark

EPD

67 kg CO2/m3

Södra EPD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ENVIRONMENTAL PRODUCT DECLARATION

CLT (Cross Laminated Timber)

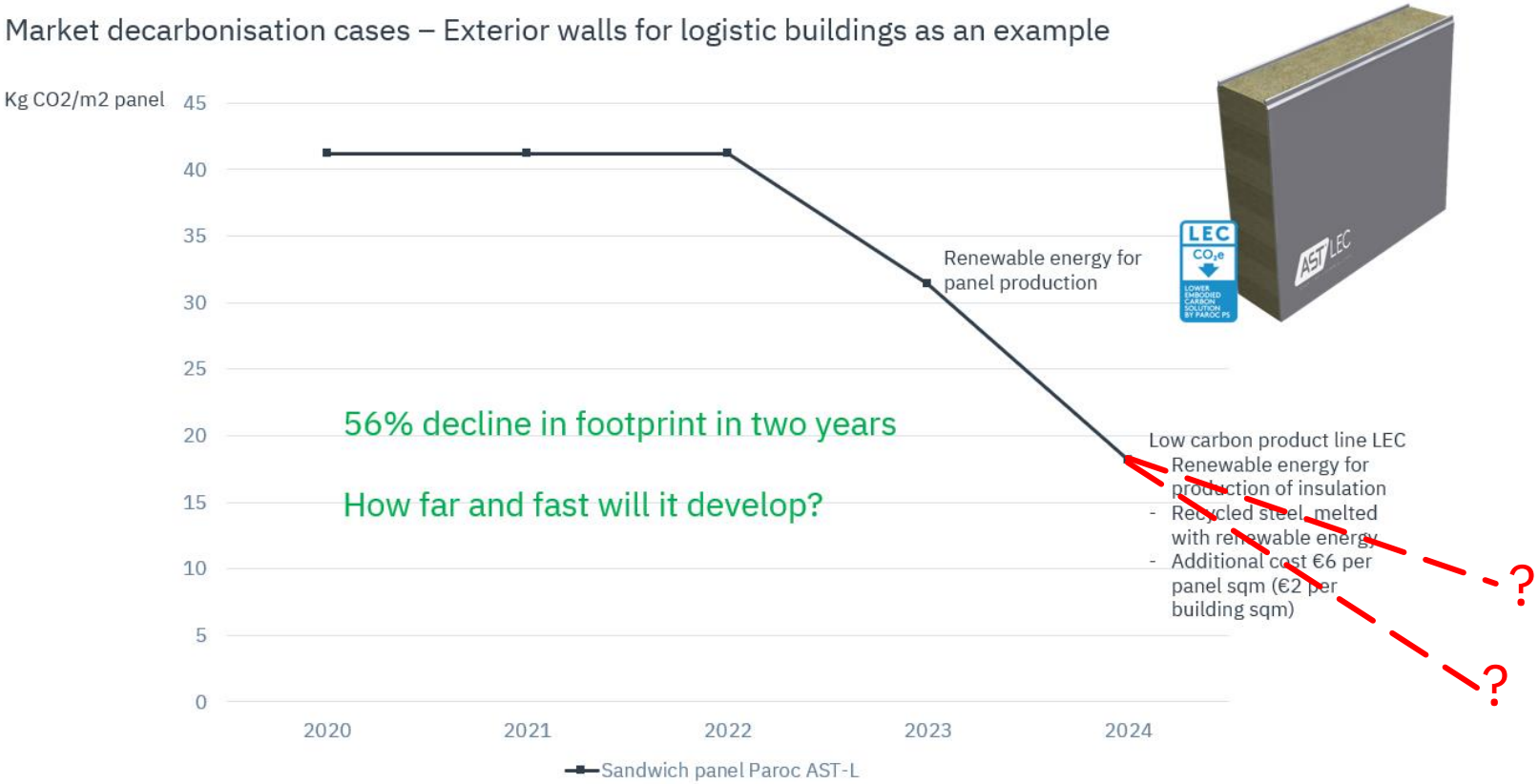
SÖDRA

34 kg CO2/m3

NREP

Constant EPD improvements - example

Market decarbonisation cases – Exterior walls for logistic buildings as an example

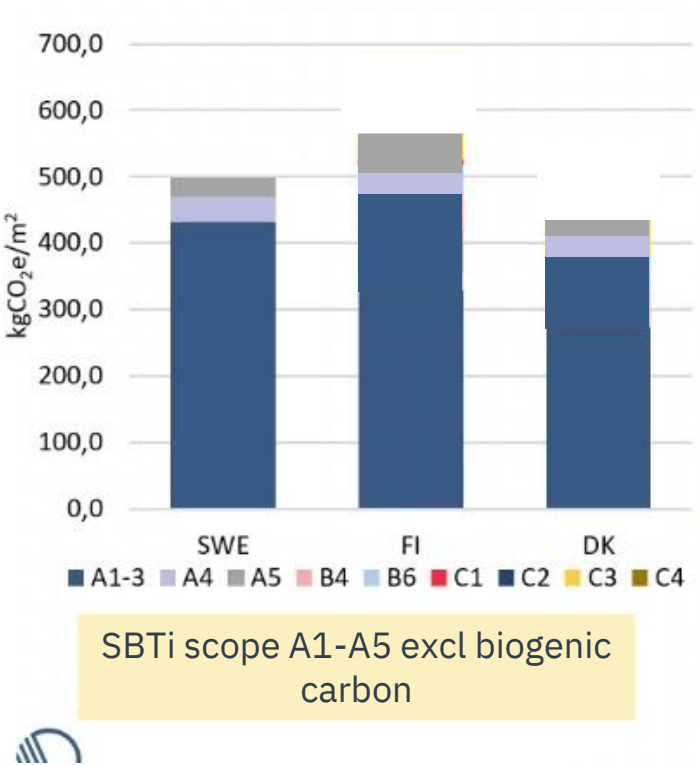


Solutions

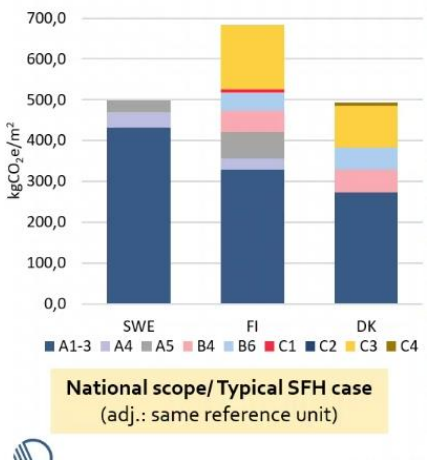
Methodology landscape – varies across countries

Solution

- Implementation of the SBTi methodology and target setting
- One methodology used for all markets – non- dependent on national regulations
- Many upsides, but some downsides in form of the need to do both national and SBTi calculations in each market. And the reduced scope, only covering A1-A5



SBTi scope A1-A5 excl biogenic carbon

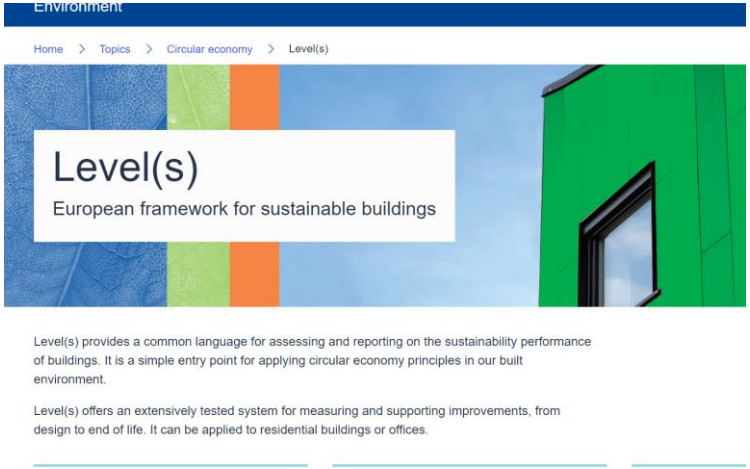


LCA simulation data from Sweco study

NREP

Reflections

- Need for an European harmonization of LCA methodology?
  - Loss of transparency – many numbers circulate…
- LCA's are based on variables with many assumptions and many results
- Are significant emissions missing, ie from existing building stock being renovated/retrofitted?
  - 60-70 % of all new materials are for renovation/retrofitting building (Source: Boverket)



Experiences with climate regulation

From Norway

Ben Toscher, PhD

Head of Sustainability

Ben.toscher@norgeshus.no

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About Norgeshus AS

- **Franchise concept** which consists of over 150 **independent** contractors/developers across the entirety of Norway + Faroe Islands + Iceland
- **Norgeshus AS** develops a concept which consists of architecture, engineering, tools, services, marketing, IT infrastructure and housing catalogues (++)
- Engineering office with 40+ **engineers & architects**
- Our contractors have built over 25,000 housing units over the past 35 years
- Our contractors build everything from kindergartens to single family homes (SFH) – ca. **1.000 housings units per year**
- First among our competitors to calculate climate declarations for all the SFH and cabins in **our catalogues**

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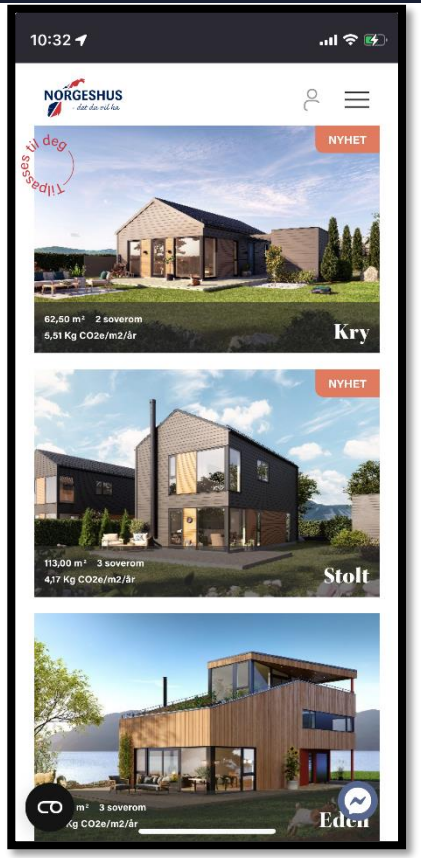
Our experience with voluntary climate declarations based upon Norwegian building code (TEK17)

- Used in marketing communications
- Based on TEK17/NS3720
- Not required for SFH in Norway (yet)
- Desire to be in front of change
- Desire to build up competence of our 40+ engineers & architects
- Greenhouse gas accountings (A1-A3, A4, A5, B2, B4) for 85 housing models



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Example declaration – reports for use by us and interested customers…

01.feb.24

1. Velg husmodell: Dråpen

2. Velg diagram: Klimafotavtrykk - kg CO2e / m2 BTA / år - per bygningsdel

Klimagassregnskap til kataloghusene (2023)

som de er prosjekterte.

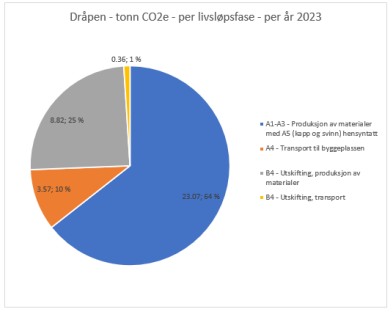
NORGESHUS – det du må ha.

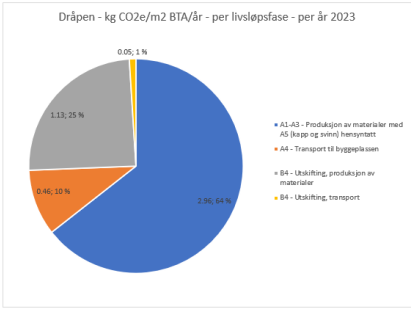
Dråpen - Klimafotavtrykk - per år 2023

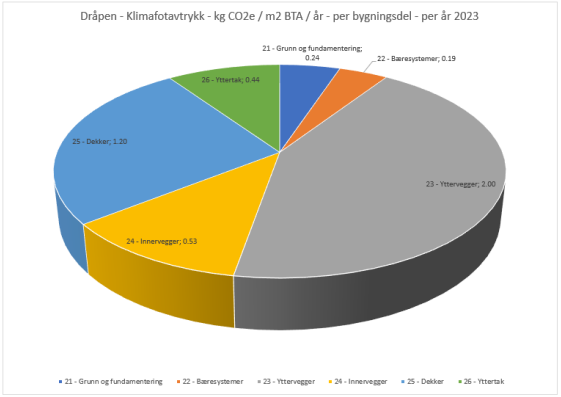
Areal

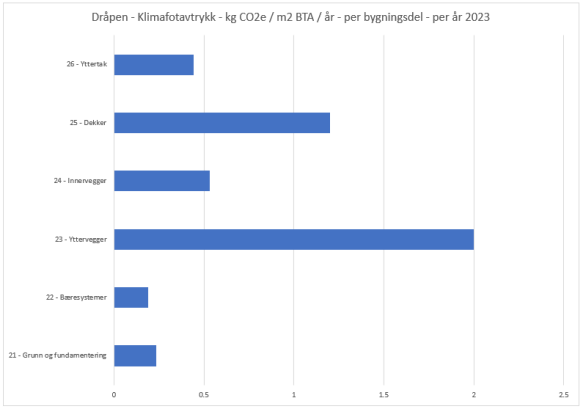
m2 BTA	155.65
m2 BRA	141.5
m2 H-BRA	139.8

	% av klimafotavtrykket	kg CO2e over 50 år	tonn CO2e over 50 år	kg CO2e/m2 BTA/år	kg CO2e/m2 BRA/år
21 - Grunn og fundamentering	5.11 %	1831	1.83	0.24	0.26
22 - Bæresystemer	4.15 %	1488	1.49	0.19	0.21
23 - Yttervegger	43.47 %	15572	15.57	2.00	2.20
24 - Innervegger	11.60 %	4155	4.15	0.53	0.59
25 - Dekker	26.08 %	9343	9.34	1.20	1.32
26 - Yttertak	9.58 %	3430	3.43	0.44	0.48
Total	**100.00 %**	**35819**	**35.82**	**4.60**	**5.06**









Dråpen - tonn CO2e - per livsløpsfase - per år 2023	
on av materialer med A5 (kapp og svinn) hensyntatt	23.07
A4 - Transport til byggeplassen	3.57
B4 - Utskifting, produksjon av materialer	8.82
B4 - Utskifting, transport	0.36
Dråpen - kg CO2e/m2 BTA/år - per livsløpsfase - per år 2023	
on av materialer med A5 (kapp og svinn) hensyntatt	2.96
A4 - Transport til byggeplassen	0.46
B4 - Utskifting, produksjon av materialer	1.13
B4 - Utskifting, transport	0.05

Our experiences & findings

- Calculated according to current regulations in Norway
- LCA tool (Reduzer) & their default assumptions for transport
- Manually extracting data from EPDs takes time & can lead to errors (expiraration dates, scientific notation, product variants, etc)
- Average carbon footprint for our 45 houses: **4.16 kg** CO2e / m2 / year, cabins: **3.83 kg** CO2e / m2 / year according to TEK17 guidelines
  - *Gross floor area, 50 year lifetime, A1-A3, A4, A5 (waste), B2, B4*
- Some specific findings…

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Building upwards can reduce kg CO2e / m2 (usable area)

Lund Moderne:

Usable area: 105 m2
Built-up area: 118 m2
4.92 kg CO2e / m2 usable area / year
28.29 tons CO2e over 50 years

Lundås Moderne:

Usable area: 168 m2
Built-up area: 120 m2
3.12 kg CO2e / m2 usable area / year
28.81 tons CO2e over 50 years

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Foundations, cement, and carbon footprint…

Fauna:

Usable area: 69.9 m2
Built-up area: 76.9 m2
6.15 kg CO2e / m2 GFA/ year
(higher CO2e / m2 than 98% of other houses)
23.64 tons CO2e over 50 years
(lower total CO2e than 95% of other houses)

Fauna with steel pier foundations:

Usable area: 69.9 m2
Built-up area: 76.9 m2
4.51 kg CO2e / m2 GFA/ year
17.32 tons CO2e over 50 years

Are we concerned about kg / m2, or total carbon footprint?

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So, what are the implications?

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Obstacles

- **Inexperience** with carbon numbers and what they mean
- Cost/benefit of a declaration– **little perceived value** unless the building owner wants to reduce carbon footprint…
- Not currently a requirement for **all buildings**
- Instantaneous oxidation of biogenic carbon (as required in Norway) leads to **confusion** about the environmental benefits of tree-based products
  - End of life (C) is excluded in TEK17…

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What can make it easier for developers and others?

- Clear, nonpartisan signals and committments about upcoming regulatory **requirements**
  - *Future delegated acts under articles 7.3 & 7.5 in EPBD will be helpful to illustrate significance of limit values*
- Threshold levels based upon **bottom-up** building stock monitoring (see *Decarbonisation of the Building Stock* report)
- National database to submit climate declarations in machine readable format (i.e. Sweden & Iceland)
- Once limit values are in place, reporting requirements **early in project planning (building permit phase?)** to avoid unwanted surprises
- Standardized, **machine-readable** EPDs

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Harmonization for increased digitalization?

- Mandatory EPDs (before CPR in 2030?)
- Mandatory publication of **machine-readable** environmental data in a database
- Requirement to submit declaration in machine-readable format (XML?) to a central database

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What should be the focus of harmonization?

- **Biogenic carbon** and its treatment influence results
- **GWP indicator** should be harmonised (but this depends upon treatment of biogenic carbon and inclusion av C-modules) –
- **Uniform** conservative methodology (e.g. +25%) for generic data
- **System boundaries** & subsequent impact on limit values (B6)
- Seperate threshold values for **scenario based modules** (B6) (see *Decarbonisation of the Building Stock)*
- If not agreement on threshold values, then agreement on **template for machine readable declarations** (normalisation units, building elements, modules etc)
- Kg m2 / **usable area**? Or **built up area**? Or **total kg?**
- Standardized assumptions for transport (A4), waste (A5), emissions factors for energy carriers, etc
- Facilitation of «Apple to apple» comparisons (building elements, modules)

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Thank you for your time

Ben.toscher@norgeshus.no

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SKANSKA

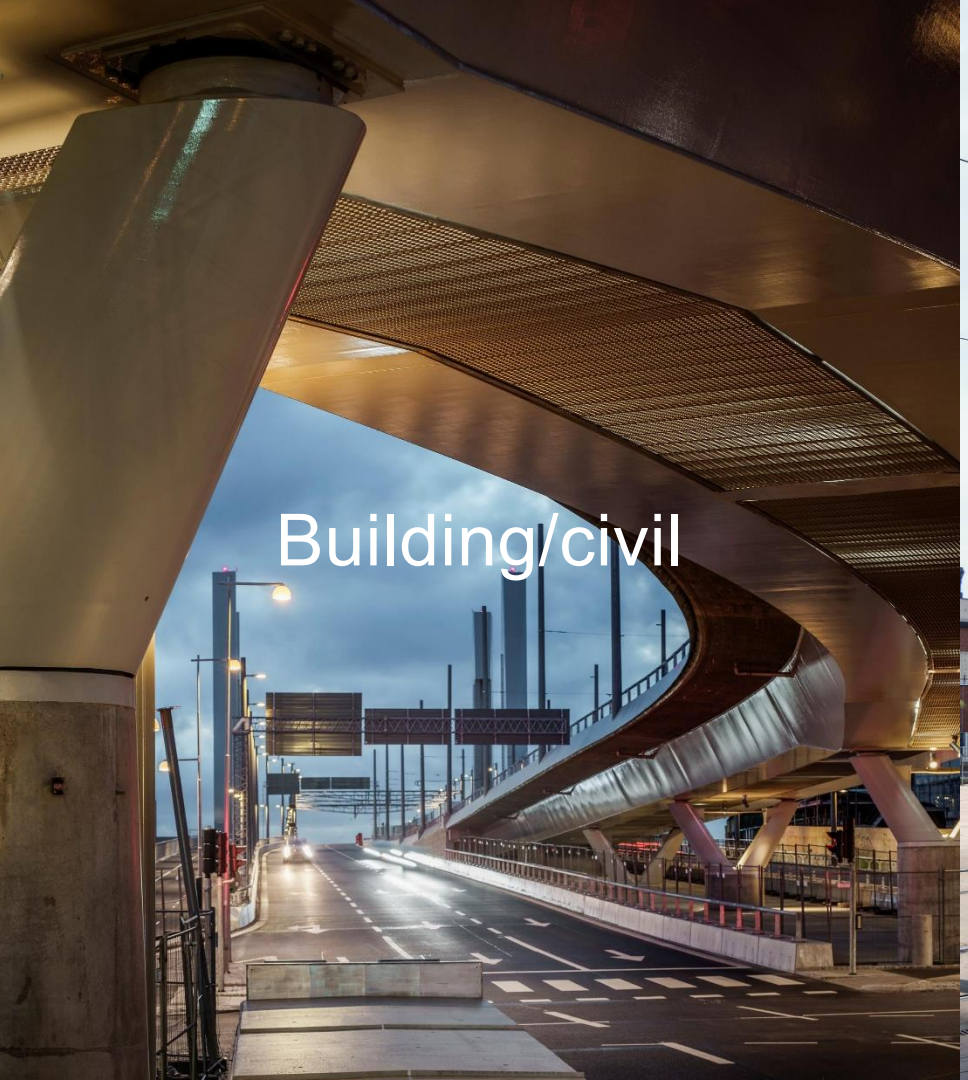
Climate declaration – Possibilities and challenges

Jeanette Sveder Lundin
Specialist, Skanska Sweden
240911

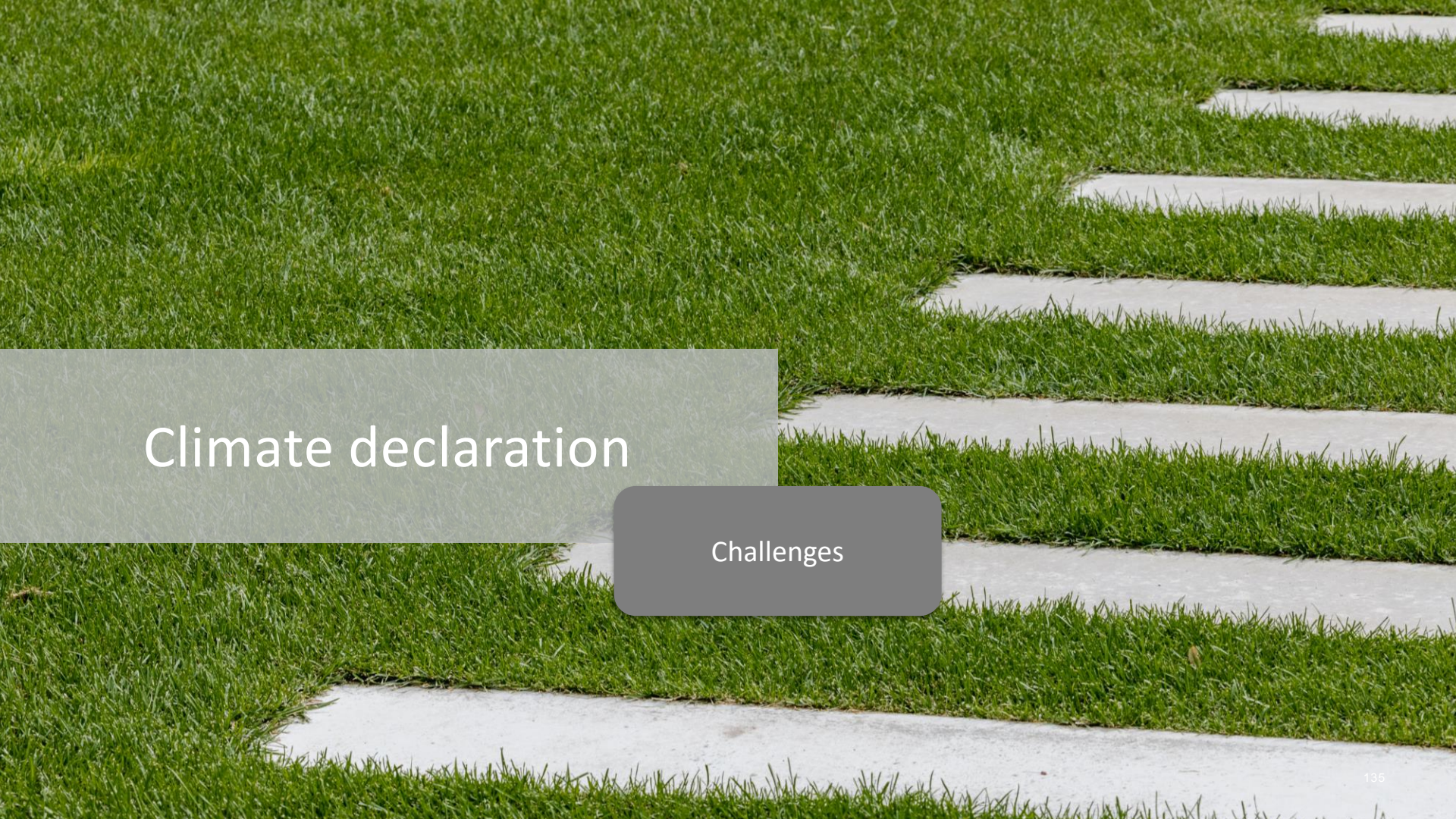
Skanska in brief

- One of the world's leading project development and construction groups
- 2022 revenue of SEK 162 bn
- 28,000 employees

Average revenue (2018-2022)


Building/civil


Project development



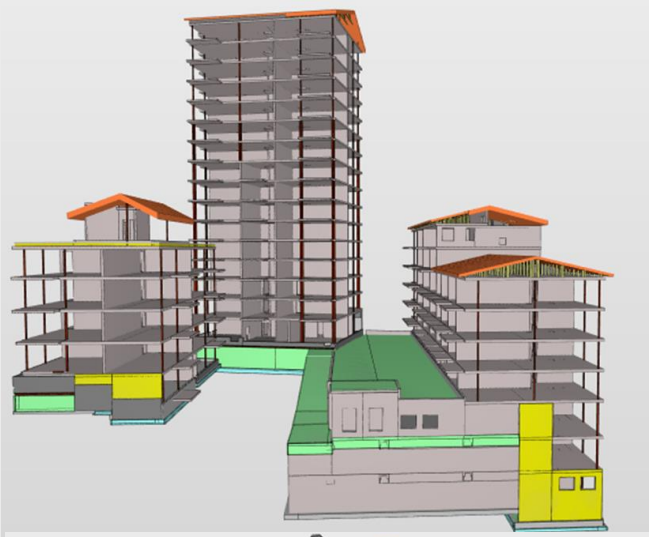
Climate declaration

Challenges


320 kg CO_2 /m^2
Good or bad?
"I have found the best tool on the market!
It gives the lowest CO_2"

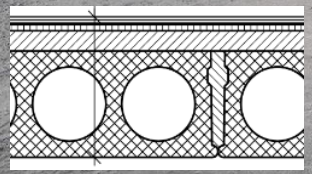
What is included in the declaration?

- What is 100 % of a building?
- What is 100% load-bearing structural parts?



Included or not?

1 m^2 HDF 120/27



HDF element
Concrete
Concrete pump
Screed

Benämning	Anmärkning	Förän kod	Á-mgd/m2	Enhe
Bjälklag av betongelement HDF 120/27		0	1,000	m2
85mm pågjutningsbetong SKB special	SKB enl. VSA...	0	1,000	m2
Betongpump M42	inkl. etableri...	0	0,085	m3
7mm avjämningsmassa TM Express K		0	1,000	m2

As built

- Changes during the building process
- Amount of material, in each building
- Waste
- Verifications

Indatablad klimatdeklaration Hovås Tak	
Datum	2024-03-25
Leverantör	Skanska Industrial Solutions AB
Underskrift	
Namnförtydligande	Abdulrahman Akram

Konstruktionsdel	Klimatförbättrad	Betongkvalitet	Exponeringsklass	Nettomängd för projeket	Densitet om mängd i m^3	A1-A3 GWP-GHG	Klimatpåverkan A1-A3	Transportavstånd från fabrik till arbetsplats	Typ av bränsle	EPD	
	ja /nej	Till exempel: C35/45, C32/40 XF3, tork 40 C45/55	Till exempel: XC4, XS2, XD2, XF1, XA1	Enhet (m^3)	kg/m^3	kg CO_2e/ ton	kg CO_2e	kilometer	Till exempel: HVO100, FAME100, Diesel, el	Registreringnummer EPD	ID Dotter-EPD (EPD bifogas som PDF)
Bottenplatta/grundkonstruktion	nej	C30/37 S4 16 Luft	XC4, XD2, XS2, XF2, XA2	40	2360	289,13	27293,872	17,5	Diesel	NEPD-4430-3694-SE	5000000986
Bottenplatta/grundkonstruktion	nej	C32/40 S4 16	XC4, XF1	98	2363	287,92	66674,786	17,5	Diesel	NEPD-4430-3694-SE	5000000990
Bjälklag plan 10-11	nej	C32/40 SF2 16	XC4, XF1	93	2310	321,86	69145,184	17,5	Diesel	NEPD-4430-3694-SE	5000001981
Bjälklag plan 10-11	nej	C35/45 SF2 16	XC4, XF1, XA1	258	2316	349,99	209128,82	17,5	Diesel	NEPD-4430-3694-SE	5000001982
Bottenplatta/grundkonstruktion	ja	C32/40 S5 16	XC4, XF1, XA1	66	2403	190,71	30246,225	17,5	Diesel	NEPD-4430-3694-SE	5000001005
Bjälklag badrum plan 09-16	ja	Tork 34 C35/45 S3 16 Luft	XC4, XD3, XS3, XF2, XA3	99	2234	283,88	62784,604	17,5	Diesel	NEPD-4430-3694-SE	5000001983

Competence

Environmental Product Declaration

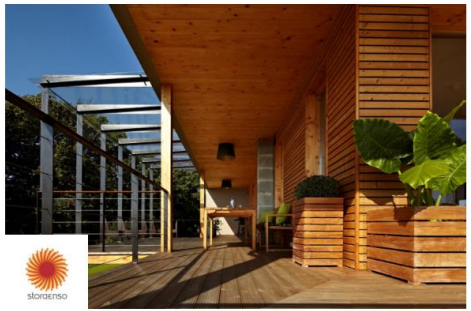
In accordance with ISO 14025 and EN 15804 for:

ThermoWood®

by

Stora Enso

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02155
ECO Platform registration number:	00001286
Publication date:	2020-08-03
Revision date:	2021-02-10
Valid until:	2026-02-11



Potential environmental impact – 1m³ Thermowood®

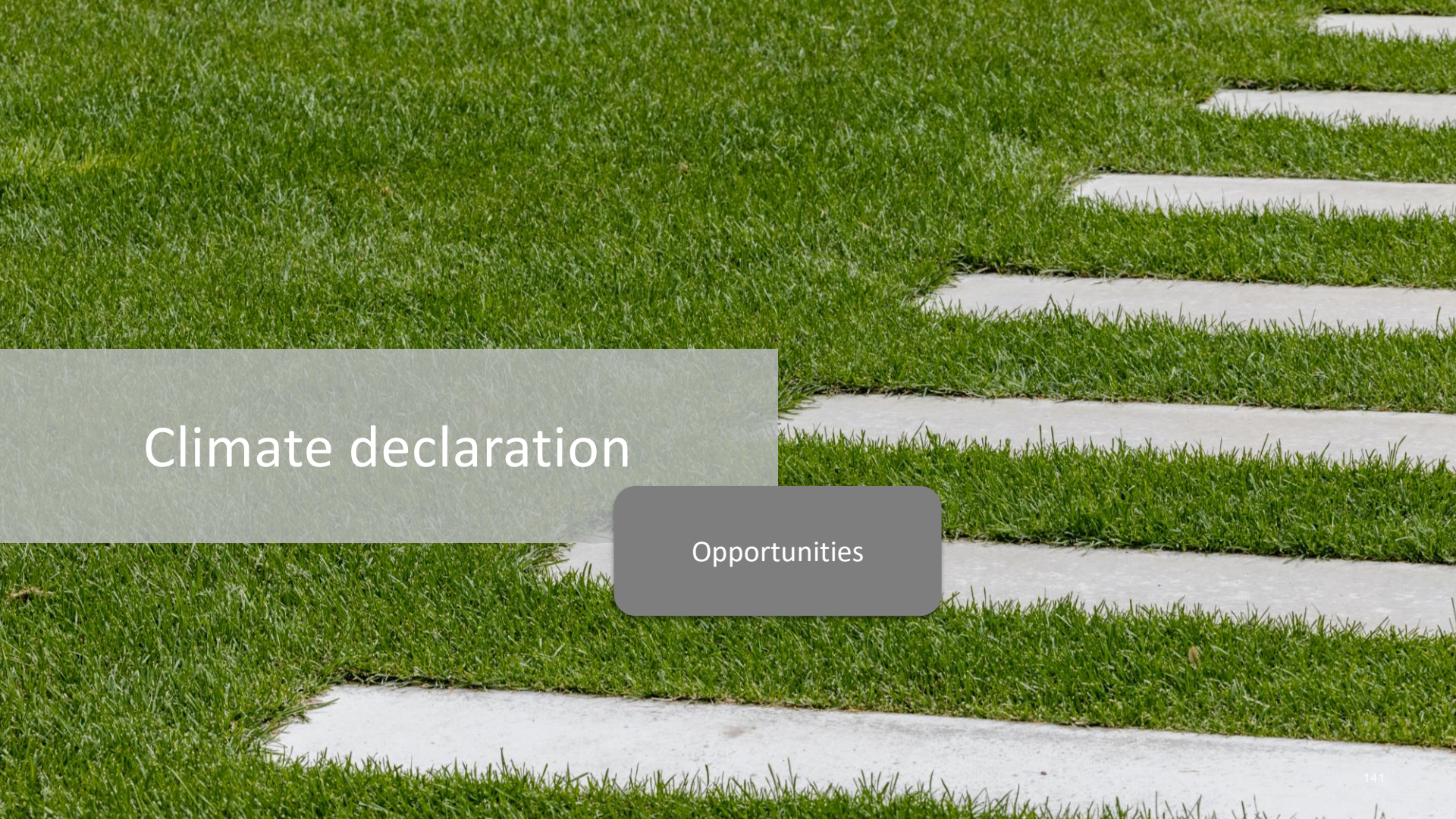
INDICATOR		UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	Fossil	kg CO_2 eq.	8,42E+00	1,30E+01	5,67E+01	**7,81E+01**
	Biogenic *	kg CO_2 eq.	-7,44E+02*	5,31E-03	1,10E-01	**-7,44E+02***
	Land use and land transformation	kg CO_2 eq.	2,18E-01	3,54E-03	3,24E-02	
	TOTAL *	kg CO_2 eq.	-7,35E+02*	1,30E+01	5,68E+01	**-6,66E+02***

Additional required impact indicator acc. PCR 2019:14

This indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide emissions and uptake and biogenic carbon stored in the product. This indicator support comparability with EPDs based on the previous version of EN 15804 (EN 15804:2012+A1:2013).

Environmental performance – product / construction stage

INDICATOR	UNIT	A1	A2	A3	TOTAL A1-A3
GWP-GHG (acc. IPPC 2013)	kg CO_2 eq.	8,41E+00	1,28E+01	5,66E+01	7,77E+01



Climate declaration

Opportunities

Opportunities

- Digitalization
- Standardisation
- Win-Win!

FÖRETAGEN Bli medlem Företagarservice Statistik Kontakt Medlemsföretag Om oss Mina sidor Englis

Nya krav på digital rapportering av klimatdata

Byggbranschens krav på digital rapportering av klimatdata ökar; både från myndigheter, kunder och andra intressenter. Med anledning av detta ställer sig nu branschens aktörer bakom branschstandarden för digitala följesedlar (BEAst Supply 4.0).

Publicerad: 2023-10-30

Startsida / Nyheter / Nya krav på digital rapportering av klimatdata

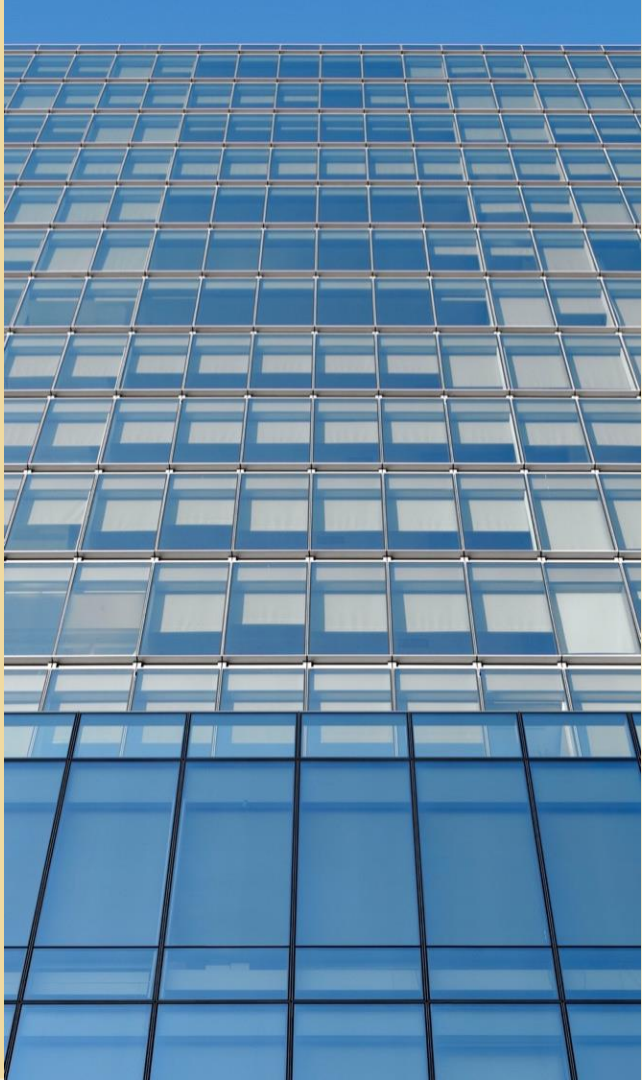
Lars Redtzer, chef för branschutveckling på Byggföretagen, uppmanar byggentreprenörer att tillämpa branschstandarden BEAst Supply 4.0 för digitala följesedlar i sin klimatrapportering.

Climate declaration

Needs

Harmonization/clarification

- Supervision
- Building parts
- Verified data, quality indicator
- Result for each module (GWP-GHG) Transparency/common scenarios
- The quality of EPDs
- Predictable



Thank you

Jeanette Sveder Lundin

+46 10- 448 15 36
jeanette.sveder.lundin@skanska.se

More on upcoming regulation

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Finland

Maria Tiainen
Senior specialist, Ministry of the Environment
maria.e.tiainen@gov.fi

Climate declaration and limit values

- Status: Climate declaration under notification 28.6.2024-1.10.2024, TRIS: 2024/0348/FI

  Construction act amendment under notification 11.6.2024-12.9.2024, TRIS: 2024/0310/FI
- Enters into force on 1 January 2026 (degree on climate declaration and degree on limit values)
- As-built phase: climate declaration to be prepared for the final inspection
- Scope: terraced houses; apartment blocks; office buildings and health centres; commercial buildings, department stores, shopping centres, wholesale and retail trade buildings, market halls, theatres, opera, concert and conference buildings, cinemas, libraries, archives, museums, art galleries and exhibition venues; tourist accommodation buildings, hotels, residential homes, senior housing, residential care homes and medical care institutions; educational buildings and kinder gardens; sports halls; hospitals; storage buildings, transport buildings, swimming pools and ice rinks with a net heated area of more than 1 000 square metres.

  Excluded: e.g. small family buildings, renovation projects, extensions

Climate declaration and life cycle assessment

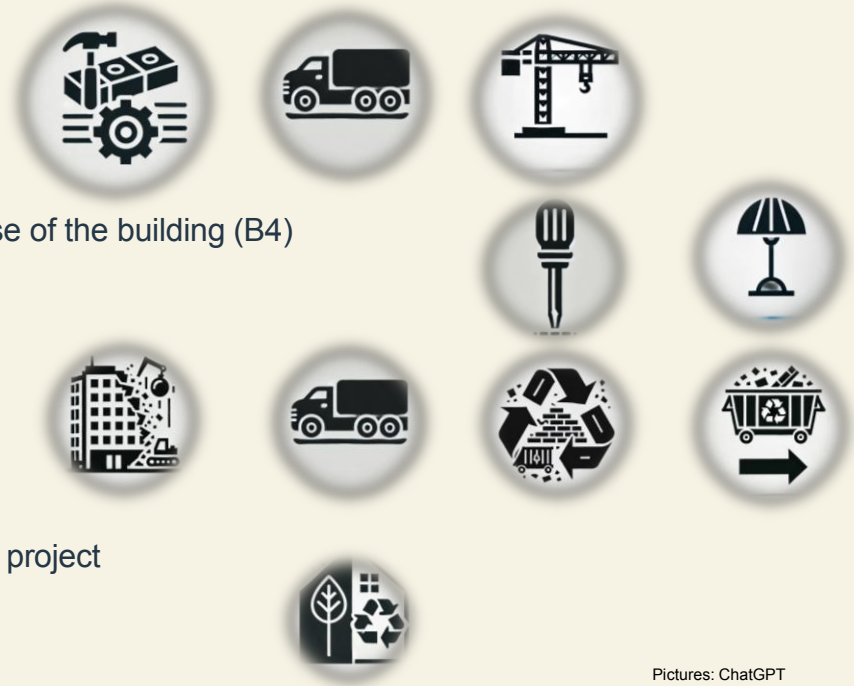
- The low-carbon assessment shall include both a carbon footprint and a carbon handprint assessment.
  - This assessment shall cover:

A
- manufacture of construction products (A1-3)
- transport of construction products (A4)
- site operations (A5)

B
- replacements of construction products during use of the building (B4)
- the energy use of the building (B6)

C
- demolition of the building (C1)
- transport of demolition waste (C2)
- treatment of demolition waste (C3)
- final disposal of demolition waste (C4)

- the potential climate benefits of the construction project



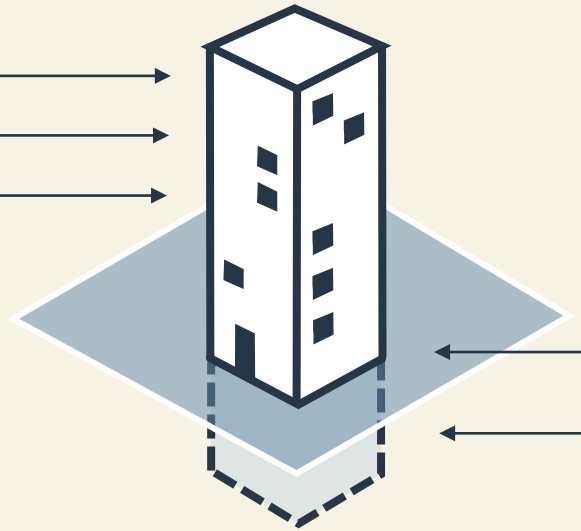
Pictures: ChatGPT

Scope of the low-carbon assessment

Carbon footprint of a building
$kgCO_2e/m^2/a$

Load –bearing frame
Complementary parts
Building services

Limit values



Carbon footprint of the building site
$kgCO_2e/m^2/a$

Structures of the area
Underground structures

Carbon handprint

- Includes avoided and eliminated greenhouse gas emissions.
- The components of the carbon handprint are not aggregated and are not deducted from the carbon footprint
- Components of carbon handprint
  - Re-use
  - Recycling
  - Surplus renewable energy
  - Carbon storage
  - Carbonation

Limit values for carbon footprint

- Limit values will be set for each category of intended use of buildings
- Limit values could take into account specific situations in which achieving a value below the limit value would be particularly difficult

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Thank you!

REPUBLIC OF ESTONIA
MINISTRY OF CLIMATE

Carbon footprint regulation in Estonia

Hannamary Seli
Head of Sustainable Construction
Ministry of Climate

11.09.2024

Estonian approach

01.07.2025

Carbon footprint calculation

new buildings
>1000 m2

01.01.2030

Carbon footprint calculation

all new buildings

01.01.2030

Limit values

all new buildings

Draft regulation

Tools and education

- Material emission factor database
  - Developed by TalTech in co-operation with members of Association of Construction Material Producers of Estonia
  - Published in Sept 2024
- Calculation tool
  - Carbon footprint calculator is being developed by TalTech
  - Published in Sept-Oct 2024
- Educational courses coming up

Next steps

Carbon footprint of buildings

2024: Regulation of carbon footprint calculation methodology (*in preparation*)

2024: An ongoing project to work out initial limit values

2025: Updating material CO2e database

2025: New delegated act by COM (EPBD)

2026: Readiness to update methodology

2027: Publication of a roadmap detailing the introduction of limit values on the total cumulative LC GWP of all new buildings

2030: Limit values in force for new buildings

Carbon footprint of infrastructure*

2025: Development of infrastructure carbon footprint calculation methodology

2025: Updates of material emission factor database

2026: Development of regulations

2030: Carbon footprint calculation for road construction projects

*Road construction

Useful sources

- https://kliimaministeerium.ee/elukeskkond-ringmajandus/energiatohusus-ja-keskkonnasaast/hoone-susinikujalajalg
- https://livekluster.ehr.ee/ui/ehr/v1/document/susinikujalajalg
- www.ghg.ee
- www.kasvuhoonegaasid.ee
- https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024L1275&qid=1715256617895

Republic of Estonia
Ministry of Climate

Carbon footprint regulation in Estonia

Hannamary Seli
Head of Sustainable Construction
Ministry of Climate
Hannamary.seli@kliimaministeerium.ee

11.09.2024

Nordic Climate Forum for Construction

Iceland‘s pathways to sustainable construction

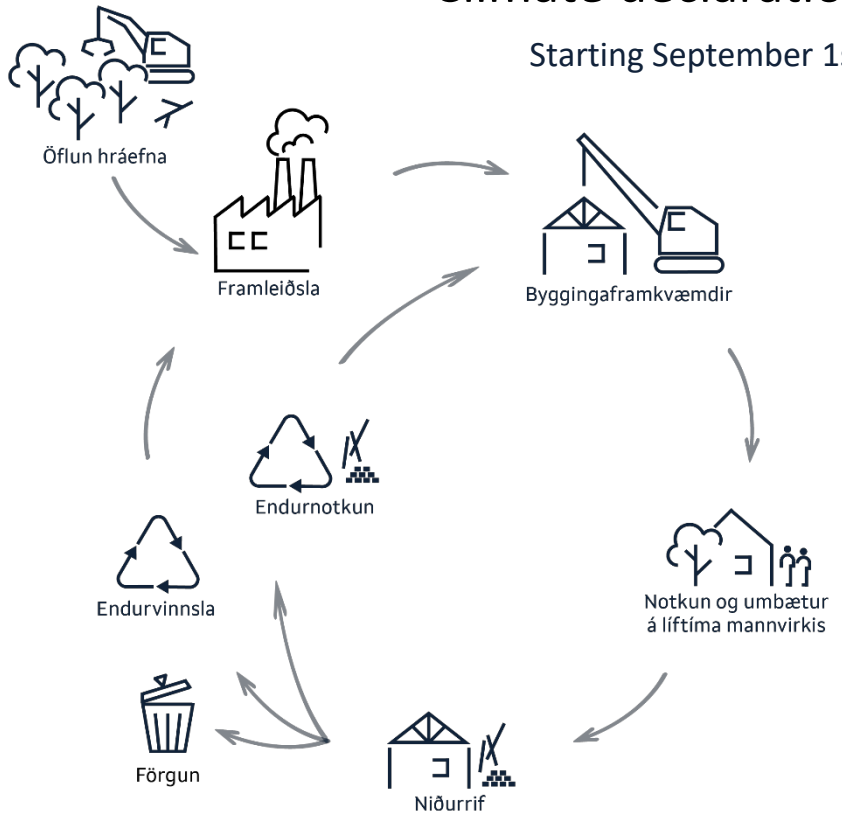
Elín Þórólfsdóttir

Upcoming regulation

A1-A3	Product Stage
A4	Transport
A5	Construction installation process
B1	
B2	
B3	
B4	Refurbishment
B5	
B6	Operational energy use
B7	
C1	End of life stages
C2	
C3	
C4	
D	Beyond the system boundary

Climate declaration - LCA

Starting September 1st, 2025



Results of LCA analysis

Niðurstöður LCA greiningar

Skjal sem inniheldur niðurstöður lífsferilsgreininga er hlaðið upp í lokaskrefi umsóknar.

Hér fyrir neðan skal skrá helstu niðurstöður úr lífsferilgreiningu byggingarinnar. Niðurstöður skulu sundurliðaðar eftir fasa þar sem við á. Eining losunar skal gefin upp á fermetra á ári [kg CO2-ígilda á m2 á ári], það skal miða fermetra fjölda við brúttó fermetra.

A1-A3 *
A1-A3

A4 *
A4

A5 *
A5

B4 *
B4

B6 *
B6

C1-C4 *
C1-C4

Samtals kg CO2-íg v/ fasa A-C *
In total kg CO2e/square meters/year

D *
D

4 / 9

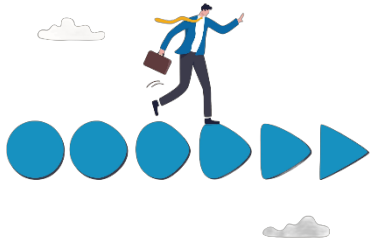
Icelandic Average Values for LCA Phases

Average data available for use when specific data isn't accessible

Includes values for:

- A1-A3: Technical systems like elevators, renewable energy, ventilation
- A4: Transport to site (19.79 kgCO2-eq/m²)
- A5: Construction process (42.5 kgCO2-eq/m²)
- C1-C4: End of life (43.75 kgCO2-eq/m², with breakdowns)
- Emission factors for energy use provided for B6 phase

Adjustment Period



1.september 2025

Education: Information page at HMS.is Courses by educational institutions

Experience: Meetings with professionals Presentations to stakeholders

Incentives: Role models Encouragement through collaboration

Circular economy

Review of building regulation

- Implementing circular economy principles in all aspects of construction
- Comprehensive review of building regulations with a focus on circular economy
- Establishing material standards and promoting the use of recyclable and reusable building materials

Roadmap for Shaping the Research Environment in Construction

Released in March 2024, this roadmap outlines the key actions needed to enhance the research environment in construction, with a focus on sustainability

Overview of 16 Actions in Three Key Areas

1. **Research environment**	2. **Dissemination of research results and experiences from the market**	3. **Testing of construction products**
• Analysis of what we need to study? • Analysis of which equipment we have and what we need to have	• Establish efficient publication of technical instructions • Establish a system for harmonized technical specifications (NS 3420)	• The public sector supports the implementation of accredited testing by establish a cooperation with notified bodies in neighboring countries • Development of the regulatory framework to encourage reuse of construction products
• Analysis of what it costs to perform these studies and where could the money come from? • Analysis and proposals presented of what the ideal setup for a research environment when all parameters above are considered?		

Icelandic Sustainable Constructions Roadmap to 2030

Thank you

End of morning session

The recording can be found at Nordic Sustainable Constructions

Lunch break 12.30-13.30

Foto: Adobe Stock

Program afternoon

13.30	**Introduction to round table discussions**
13.40	**Round table discussion 1** What to focus on in our continued work for Nordic harmonisation of regulation?
14.40	Coffee break
14.50	**Round table discussion 2** What is important input from the Nordic countries for EU regulation?
15.50	**Sum up** and next Nordic Climate Forum for Construction 2025
16.00	**End**
17.00	Dinner at Studio

Purpose of today's roundtable discussions

Boverket

Your task:

- Share your knowledge
- Show on key factors
- Make suggestions

Our task:

- Collect information for Nordic harmonization.
- Engage with the industry, researchers and government.
- Create a network for continued work.

Structure of today's roundtable discussions

- 45 min: Discussions
- 15 min: The participants writes down their answers

Practical steps

- You must have a computer / tablet with you.
- Connect to network
- Log in to the webpage with the questionnaire –
- Every table has an moderator - Start the discussion!
- The moderator will announce when 10 min is left.
- Time for writing down your answers.
- IMPORTANT! Send your answers after the **second** session.

Start the discussion

13.30	**Introduction to round table discussions**
13.40	**Round table discussion 1** What to focus on in our continued work for Nordic harmonisation of regulation?
14.40	Coffee break
14.50	**Round table discussion 2** What is important input from the Nordic countries for EU regulation?
15.50	**Sum up** and next Nordic Climate Forum for Construction 2025
16.00	**End**
17.00	Dinner at Studio

Sum up

Nordic Climate Forum for Construction 2025 in Denmark