



Nordic meeting on implementation of the national annex for Eurocodes - Harmonisation and green potentials

22 11 2024
Helle Redder Momsen

Nordic Sustainable
Construction



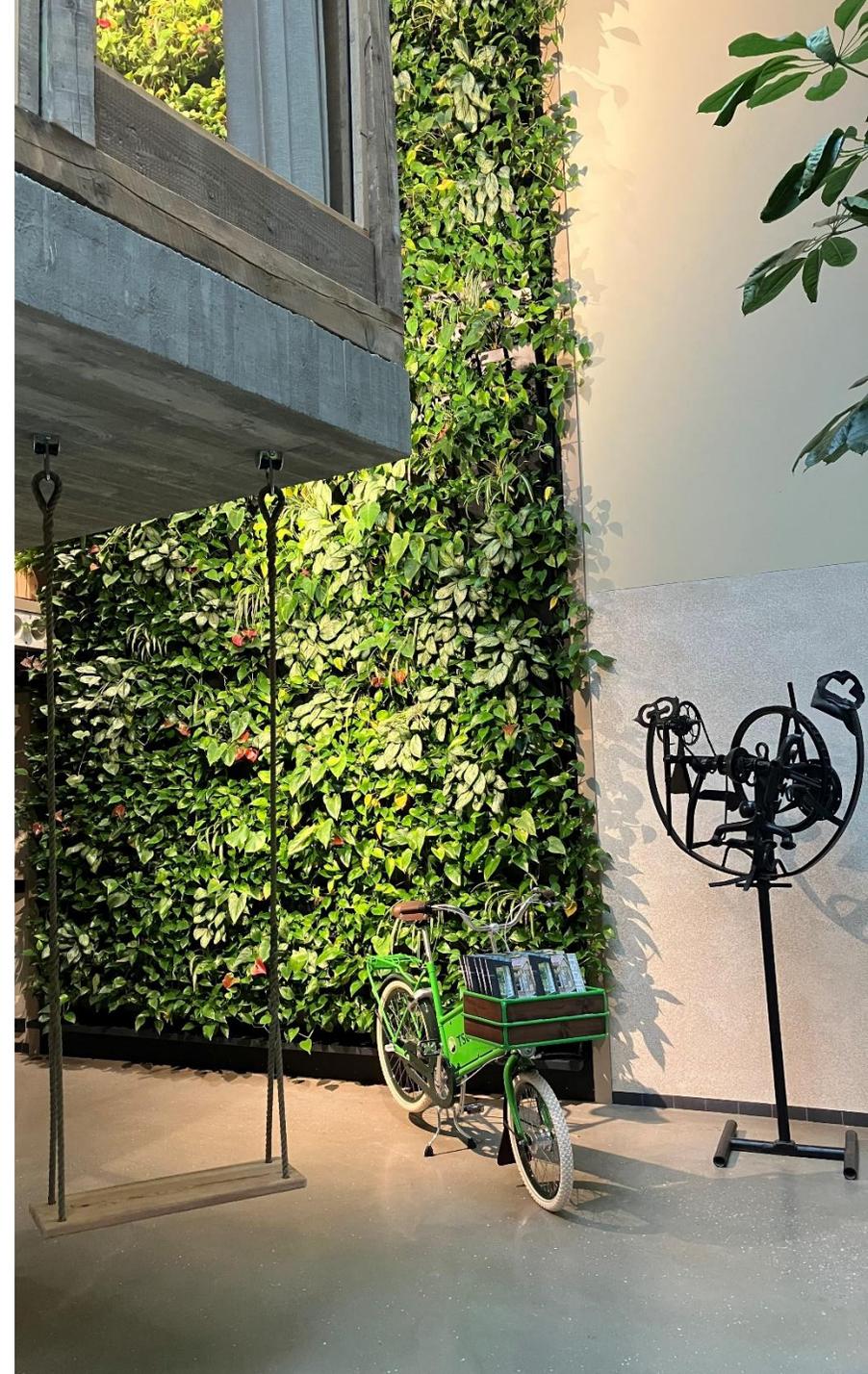
Today's agenda

a) Welcome and purpose of the meeting, Helle Redder Momsen

The following persons will present the indicative results from their groups' work.
After each presentation there is 4 min for reflection:

1. Nordic mirror group to TC250 acts as steering group and reports to representatives from authorities: Collection of reports on harmonization and/or green potentials of Eurocodes (all parts), Dag Burgos
2. Basis of structural and geotechnical design, Part 1 (EN 1990-1), Jochen Köhler
3. Climatic actions (wind, snow, temperature) (EN 1991), Svend Ole Hansen
4. Traffic loads (EN 1991), Heikki Lilja
5. Design of Concrete structures (EN 1992), Linh Cao Hoang
6. Design of Steel structures (EN 1993, main parts), Wylliam Husson
7. Design of Masonry structures (EN 1996) , Adrian Bergsagel Malvåg
8. Geotechnical design (EN 1997), Gunilla Franzen

a) Next steps and sum up of the meeting, Helle

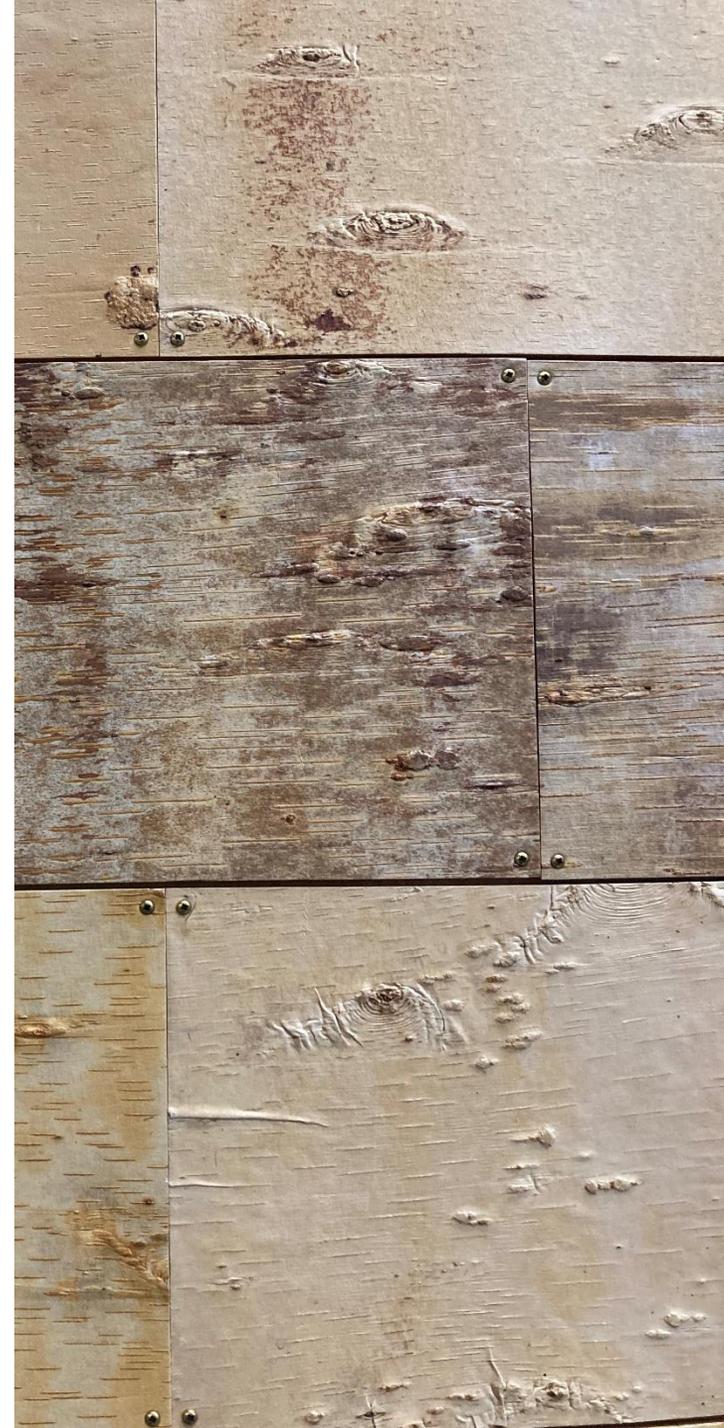


*Nordic
coordination group
(follows TC 250)*



Status of the work

- a) The group was established about 5 years ago and has had very few formal meetings in the latest years
 - Coordination activities shifted to specific Eurocodes
- b) Informal communication between the Nordic delegates in TC 250 meetings.



Indicative potentials for harmonization

There is indications that there are potentials for harmonization in:

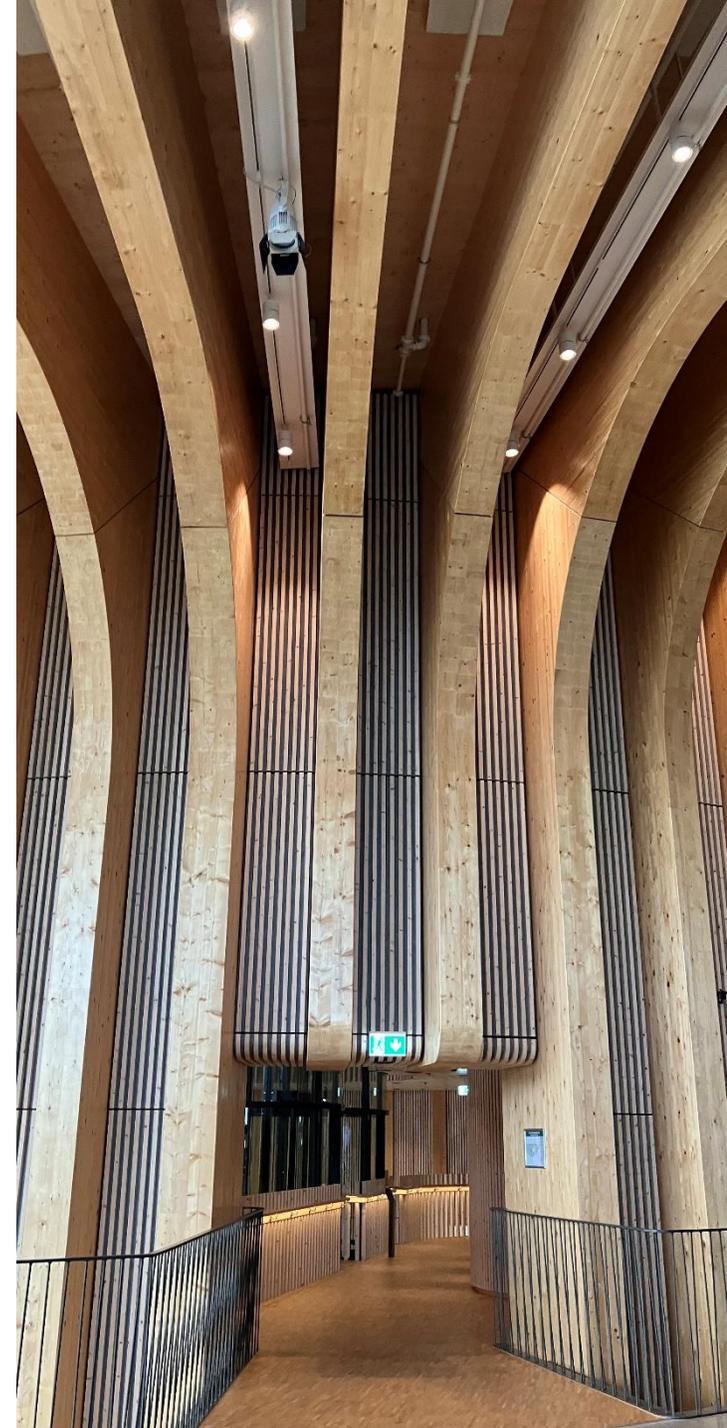
- a) Safety levels - and to some extent format of verification cases?
- b) Climatic actions?
- c) Bridges – national annexes for bridge specific Eurocodes or bridge specific parts
- d) Coordination of efforts applicable for all material Eurocodes
- e) Background documentation – sharing
- f) Development of strategies related to implementation of national annexes



Indicative potentials for harmonization with green benefits

There is indications that there are potentials for harmonization and green benefits in:

- a) Support an efficient interaction between authorities and standardization organizations in Nordic countries with the aim to develop more sustainable regulations and standards.

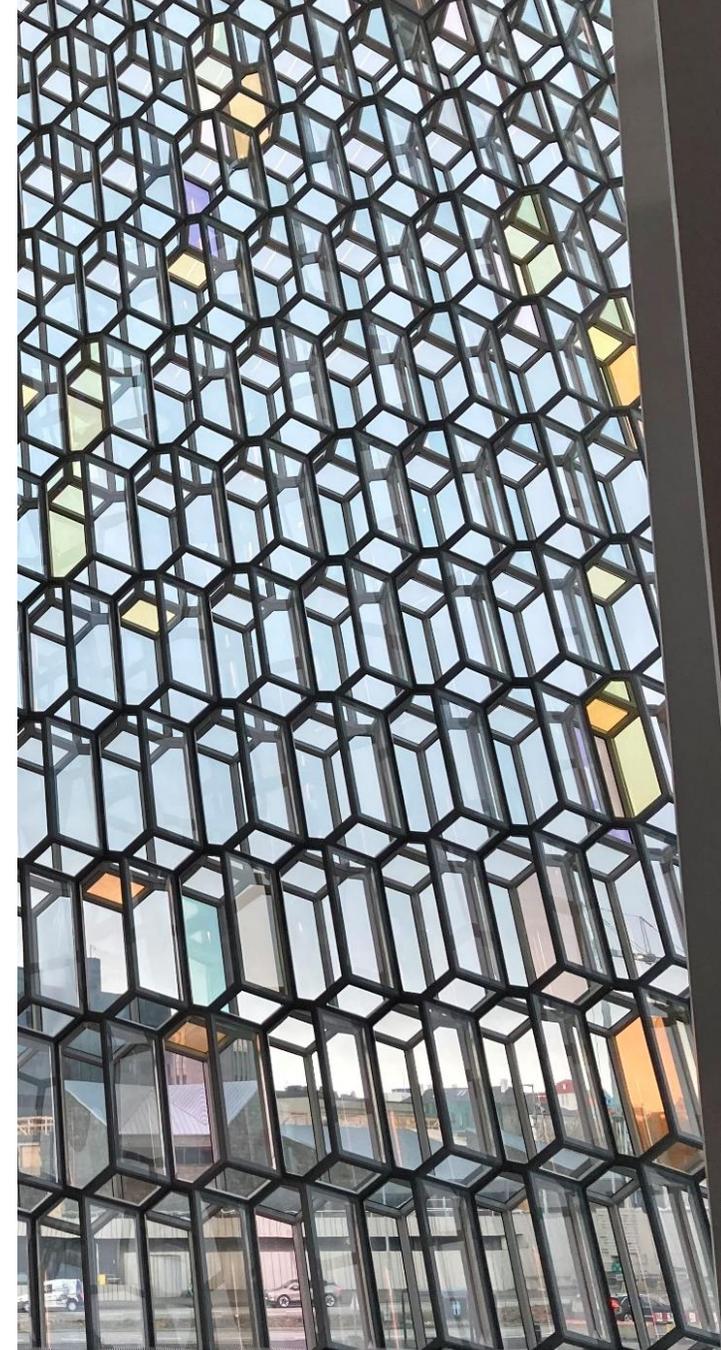


Evaluation of the ideas and if you have other input/ideas

If you should prioritise the previous indications for potentials you in the group have identified, which would you prioritise?

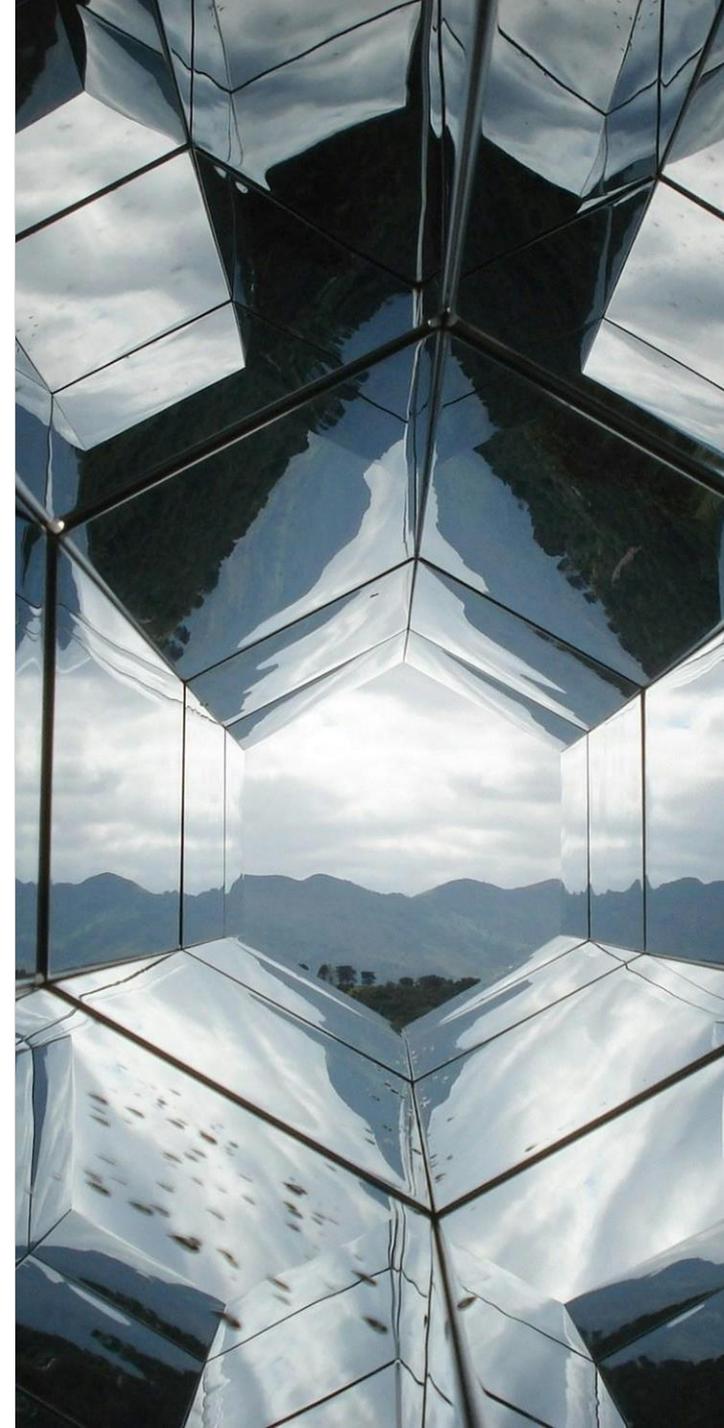
You can prioritise them all and if possible a few words on why would be of great help.

- a) Work with information sharing across Nordic countries
- b) Share strategies for development of national annexes



Who contributed?

- The presentation was prepared by Dag Burgos (NOR) Norway and Hans Henrik Christensen (DK)



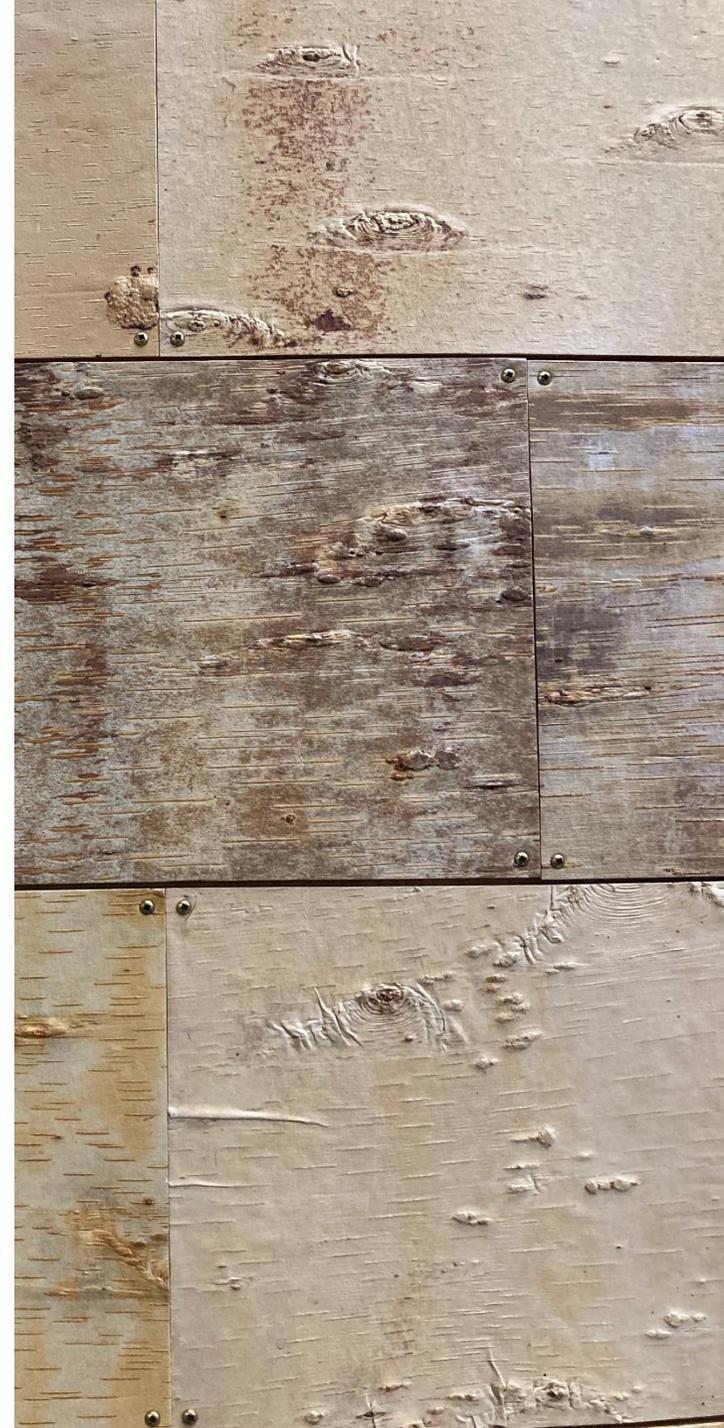
Basis of structural and geotechnical design

Part 1 (EN 1990-1)



Status of the work

- a) The group has met 3 times
- b) A document has been coauthored by Jochen Köhler (NO) and John D. Sørensen (DK) highlighting the potential of coordination in order to support sustainable development have been discussed.



Indicative potentials for harmonization with green benefits

- Based on the large importance of the built environment that is regulated by the Eurocodes,
- In regard to safety and successful societal development,
- But also the tremendous amount of materials flow in construction.



Indicative potentials for harmonization with green benefits

There is indications that there are potentials for harmonization in:

- Uniform Reliability Through Calibration
- Reevaluating Required Reliability Levels
- Incorporating Material Partial Safety Factors
- Updating and harmonizing maps for climatic actions
- Enhanced Quality Control



Description and evaluation of the potentials

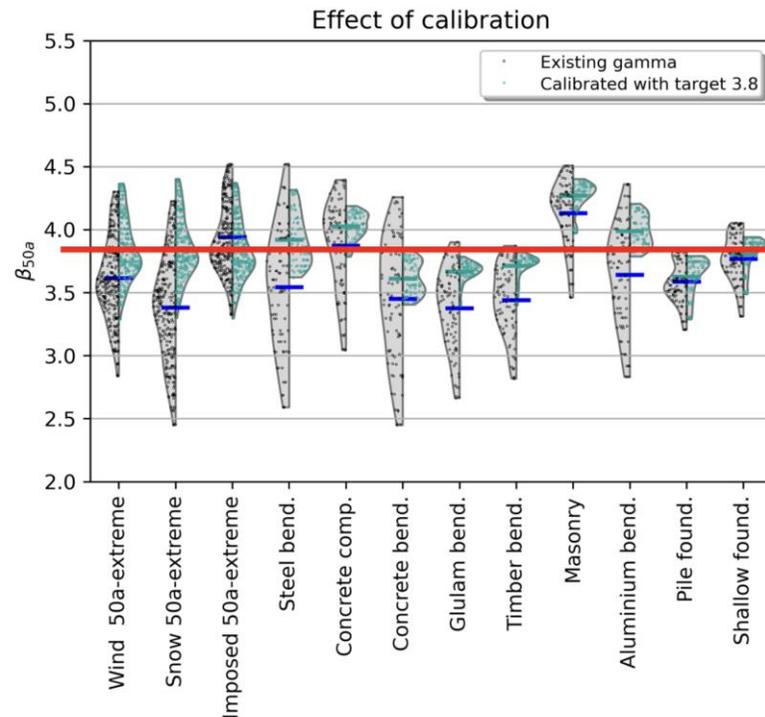
Green Potential: High

Work load: Medium-High

- Uniform Reliability Through Calibration
- ✓ A reliability-based calibration approach for load partial safety factors ensures a **more uniform reliability level**.
- ✓ Differentiating these factors for imposed loads and climatic actions (e.g., wind and snow) **can reduce overuse of materials and improve structural reliability**.

$$\gamma_G = 1.35$$

$$\gamma_Q = 1.5$$



$\gamma_G =$	1.19
$\gamma_{Q,wind} =$	1.94
$\gamma_{Q,snow} =$	2.35
$\gamma_{Q,imp} =$	1.60

Indicative Results !



Description and evaluation of the potentials

Green Potential: High

Work load: High + Research needed

- Reevaluating Required Reliability Levels
- ✓ Lowering required reliability levels could enhance sustainability by considering factors like emissions alongside cost efficiency and safety.
- ✓ While Eurocodes currently optimize for costs and safety, **integrating sustainability** metrics may justify reduced reliability levels, though further research is needed.



Description and evaluation of the potentials

Green Potential: High

Work load: Medium-High

- Incorporating Material Partial Safety Factors
- ✓ Including the calibration of material partial safety factors can **enhance the uniformity of reliability levels** across both materials and loads.
- ✓ Task in **collaboration** with the material Eurocodes.



Description and evaluation of the potentials

Green Potential: High
Work load: High

- Updating and harmonizing maps for climatic actions
- ✓ Snow and wind load maps should be updated to account for the anticipated effects of climate change.
- ✓ Future climatic action maps should utilize digital representation, ensuring consistency across country borders.
- ✓ In coordination with group EN 1991.



Description and evaluation of the potentials

Green Potential: High
Work load: Medium

- Enhanced Quality Control
- ✓ Increasing quality control measures may also be considered to improve overall reliability and sustainability in structural design.
- ✓ To be seen together with point 2) Safety Level.



Priority List

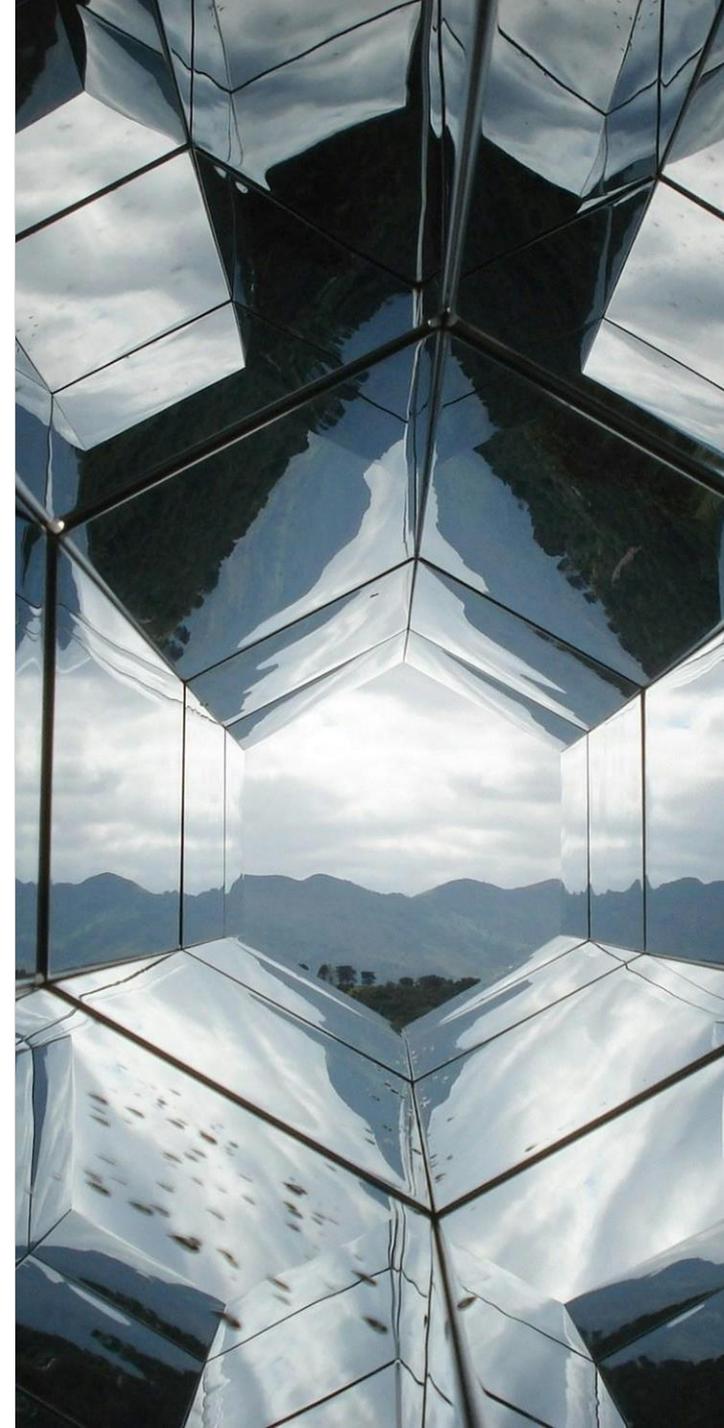
There is indications that there are potentials for harmonization in:

1. Uniform Reliability Through Calibration Green Potential: High
Work load: Medium-High
2. Updating and harmonizing maps for climatic actions Green Potential: High
Work load: High
3. Incorporating Material Partial Safety Factors Green Potential: High
Work load: Medium-High
4. Reevaluating Required Reliability Levels Green Potential: High
5. Enhanced Quality Control Work load: Medium-High



Conclusion

- Coordinated adoption of these strategies can achieve a balance between structural safety, material efficiency, and sustainability.
- Implementation across the entire application domain of the Eurocodes would result in significant positive impacts.
- However, a systematic lack of funding for standardization-related research and consulting poses a major obstacle to realizing this potential.



Who contributed?

- The presentation is prepared by Jochen Köhler, Norway, based on the group discussion and the corresponding personal interpretation.
- The group consists of participants from Denmark (2), Finland (3), Island (2), Norway (3) and Sweden (4)



Reflections



Eurocode 1: Climatic actions on structures - Part:

EN 1991-1-3 General actions – Snow loads

EN 1991-1-4 General actions – Wind actions

EN 1991-1-5 General actions – Thermal actions

EN 1991-1-9 General actions – Atmospheric icing

Svend Ole Hansen



Status of the work

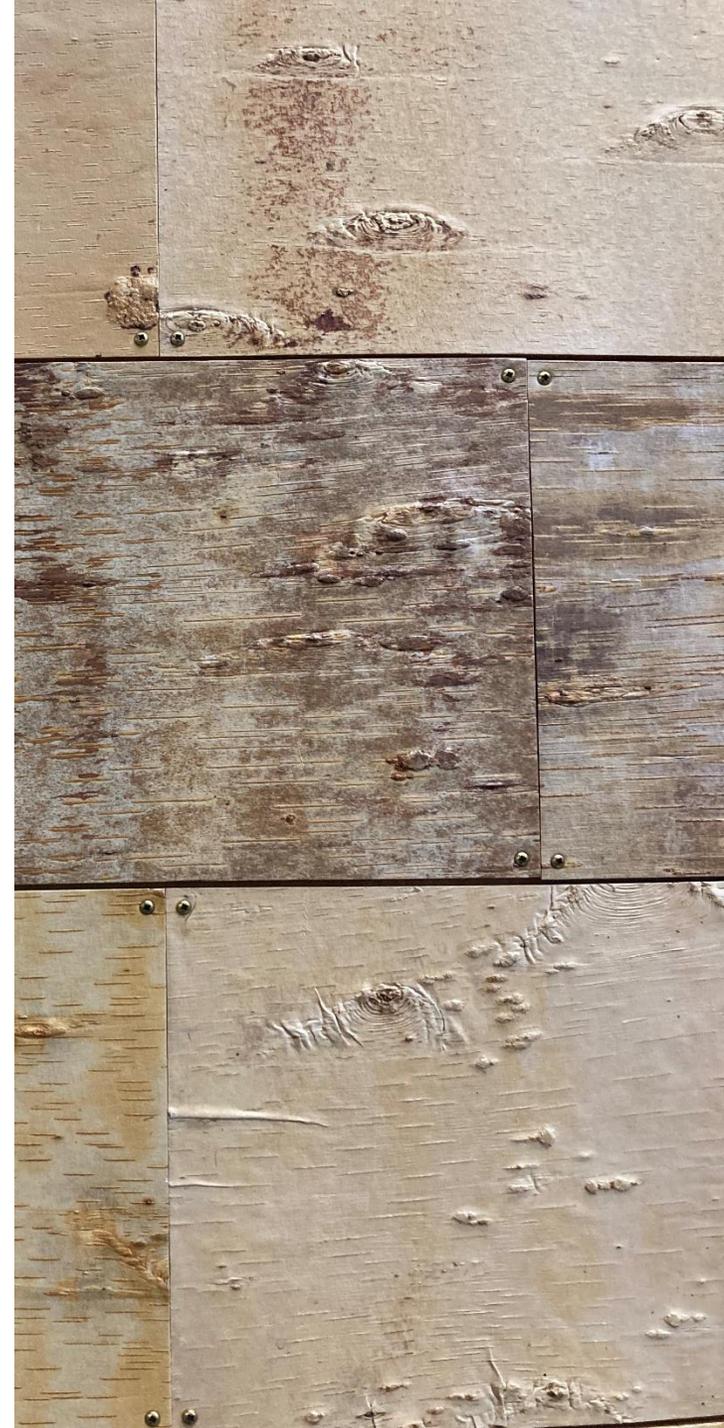
Eurocodes on climatic actions expected to be available in 2025.

National Annexes expected to be published in 2026-2027.

a) The Nordic group on National Annexes for Eurocodes on climatic actions has met four times:

- January 1, 2024
- May 5, 2024
- August 28, 2024
- October 22, 2024

b) Next meeting - December 5, 2024

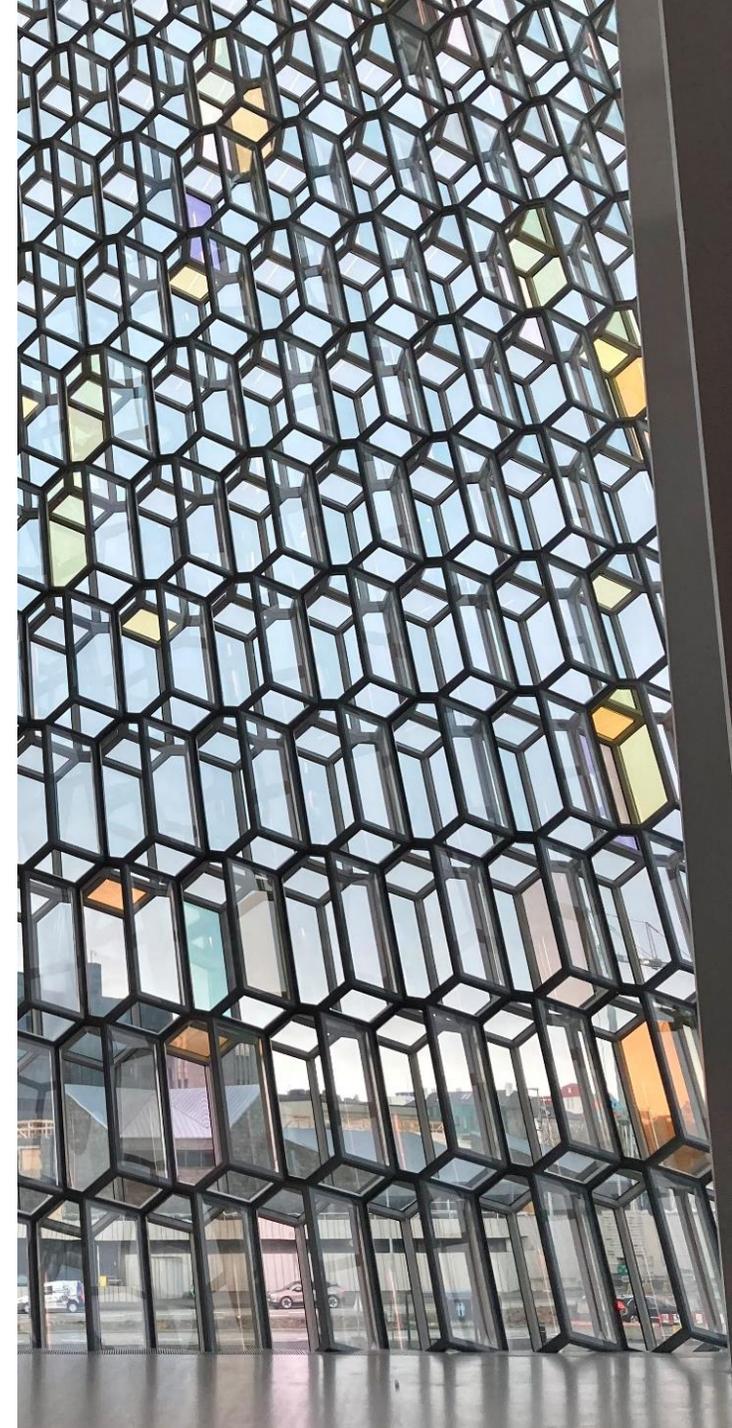


Potentials for harmonization

Potentials for harmonization of the basic climatic parameters:

- a) s_k characteristic value of snow load on the ground
- b) $v_{b,0}$ fundamental values of the basic wind velocity
- c) T_{\min} and T_{\max} annual minimum and annual maximum shade air temperature, respectively
- d) $i_{b,0}$ fundamental values of the basic ice deposit

Other NDP's for climatic actions



Basic wind velocities

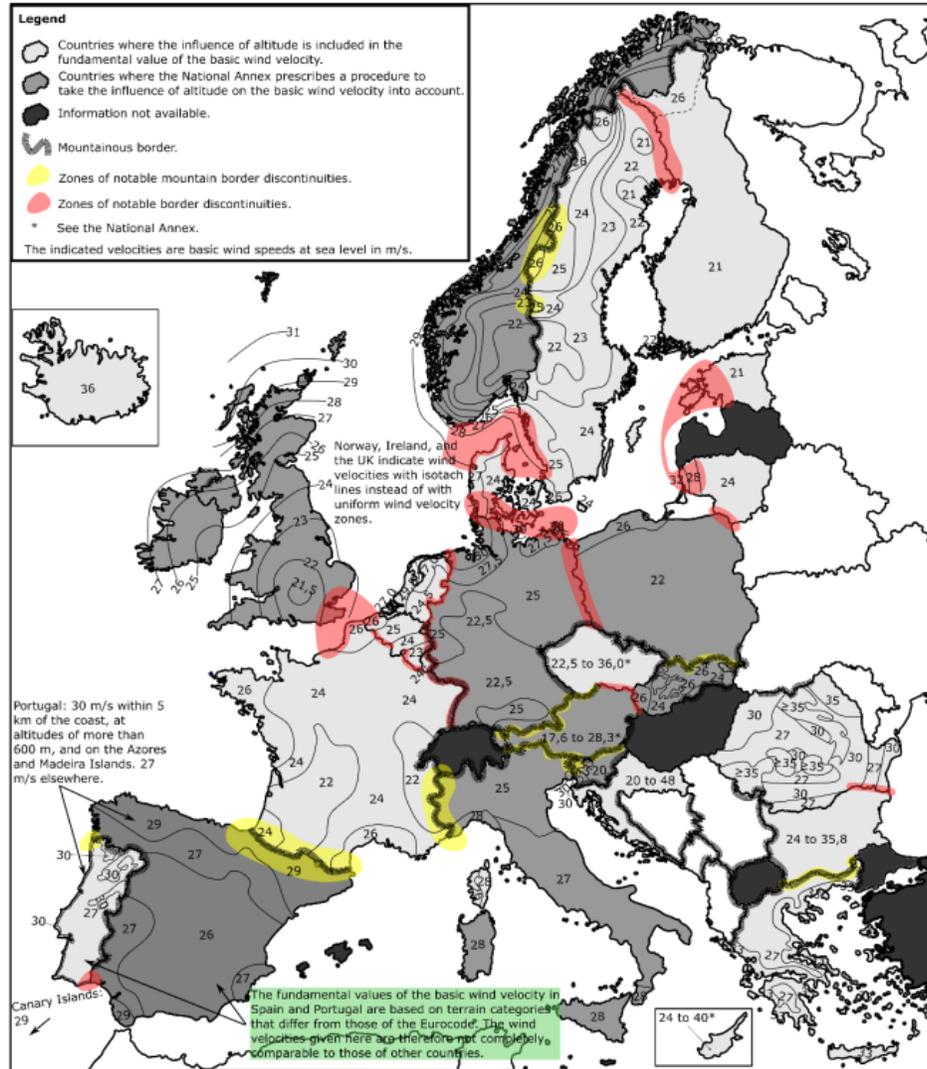


Figure A.1 — Fundamental values of the basic wind velocity, $v_{b,0}$.



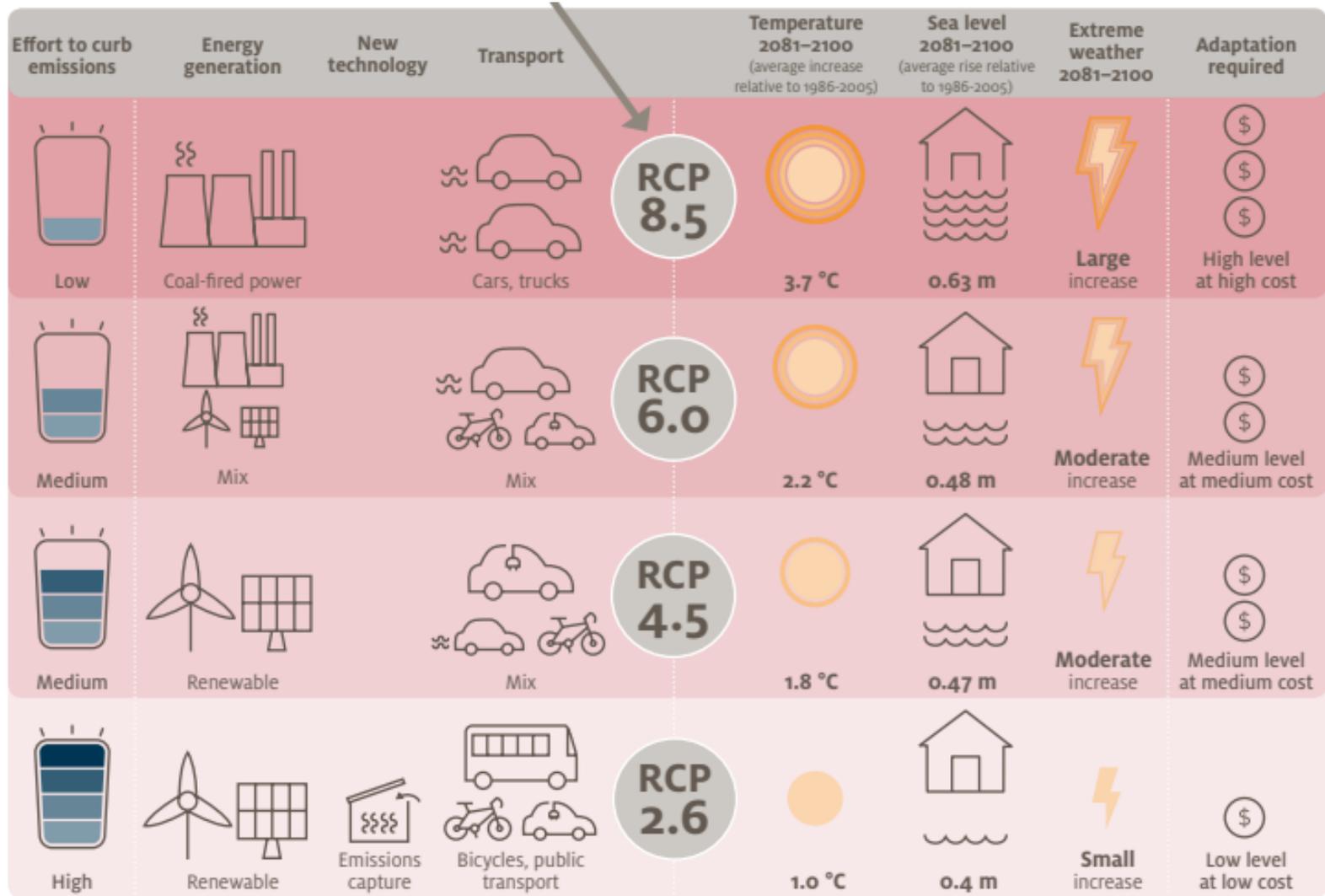
Climate changes

Klimaatlas, the Danish Climate Atlas

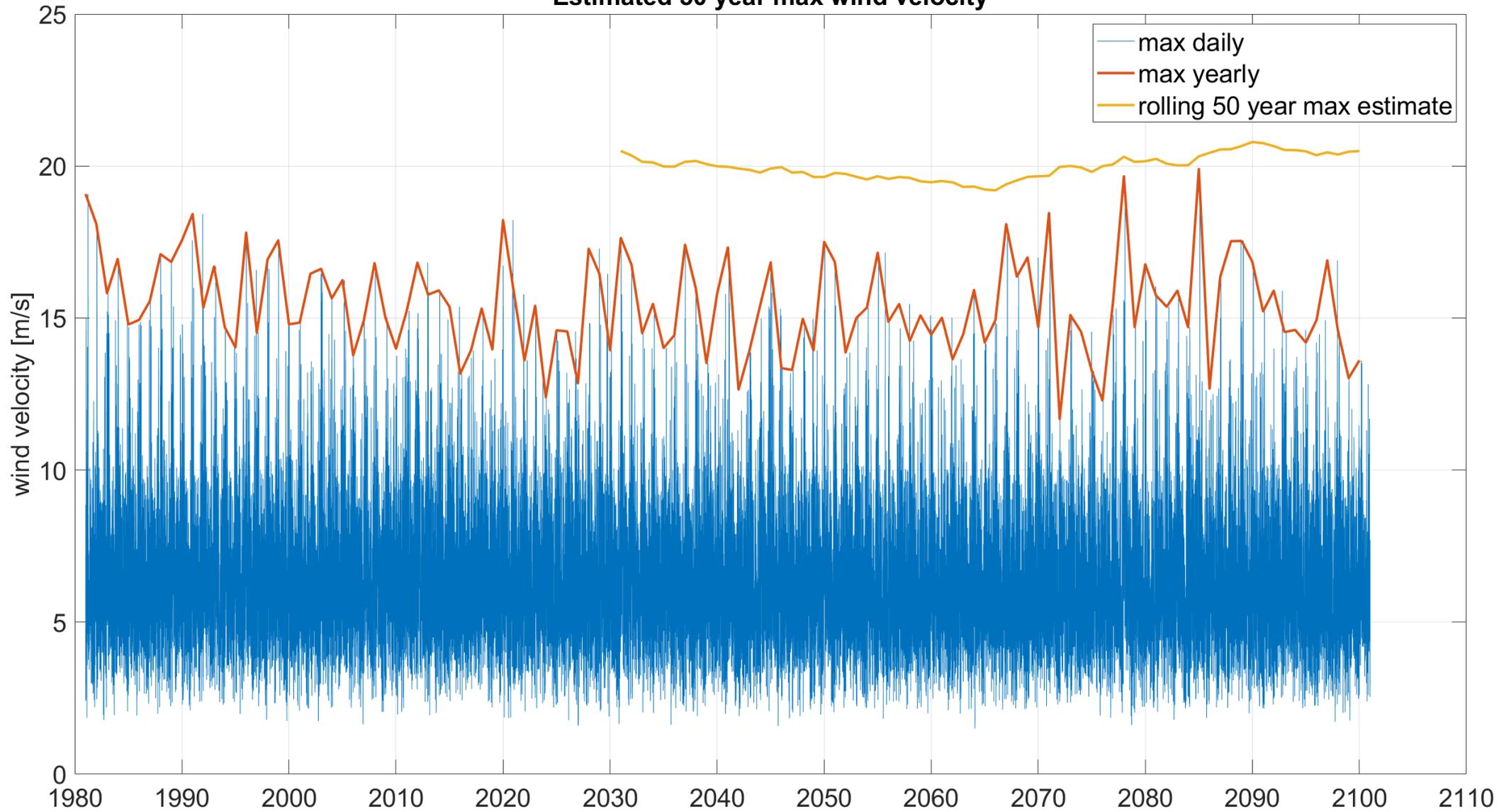
DMI Report 24-11

June 2024

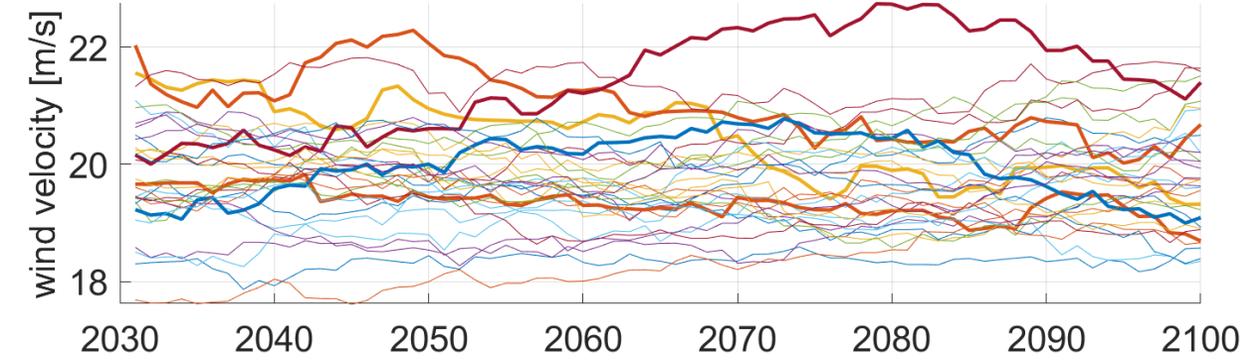




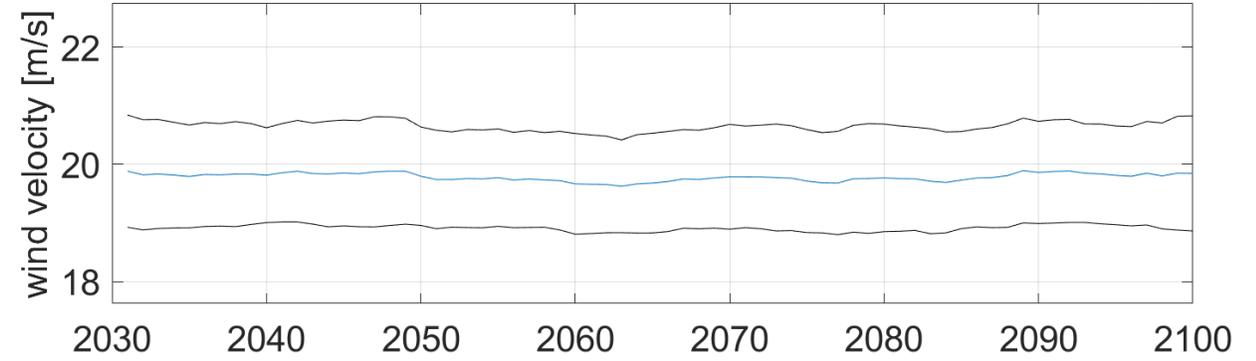
Estimated 50 year max wind velocity



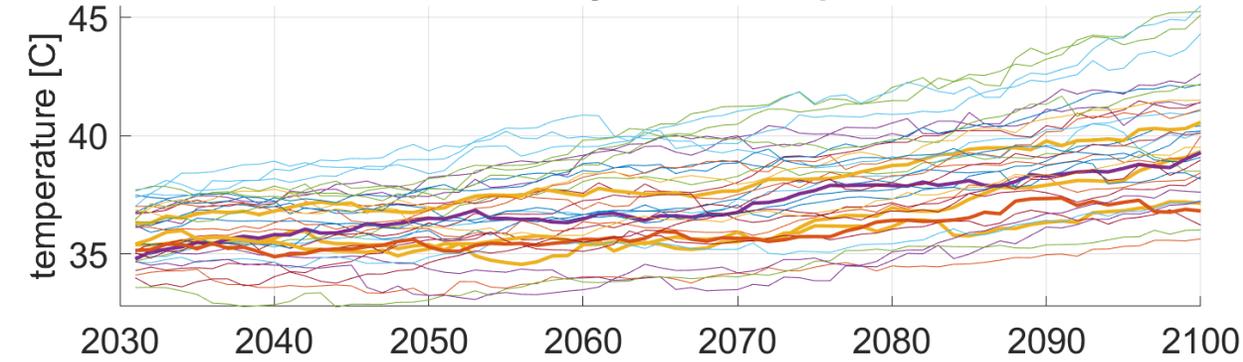
Estimated 50 year max wind velocity



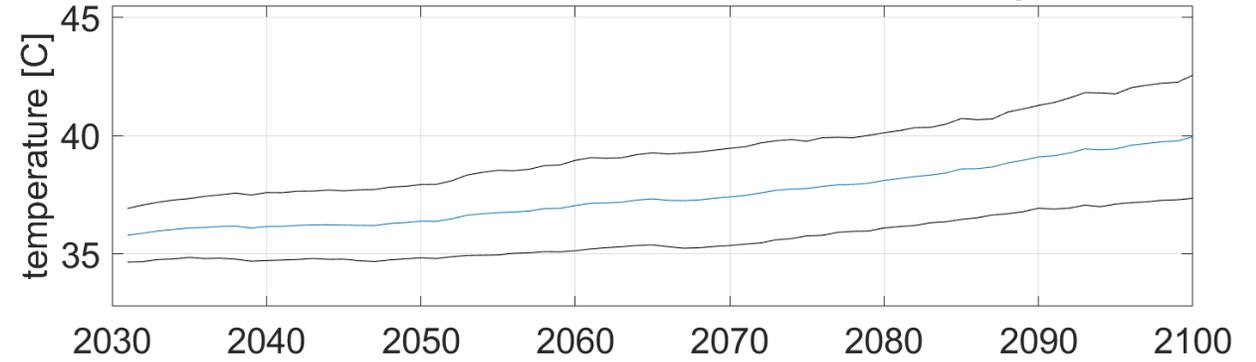
Mean and standard deviation of estimated max wind velocity



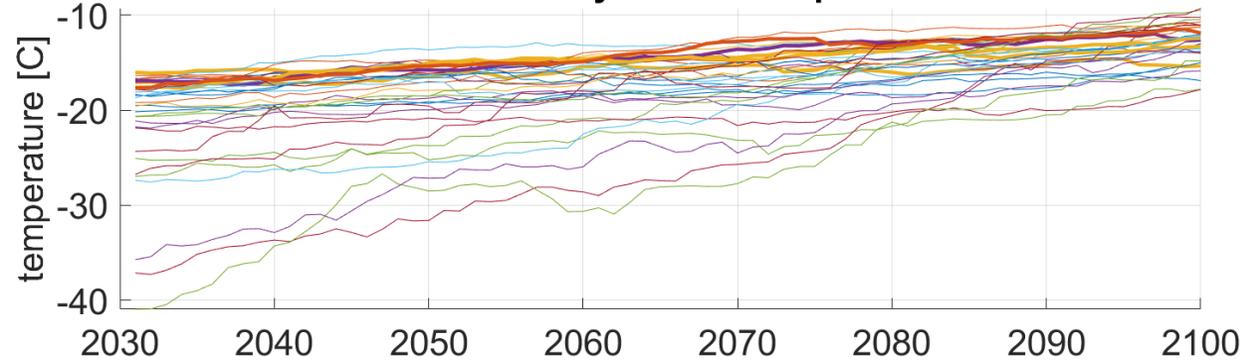
Estimated 50 year max temperature



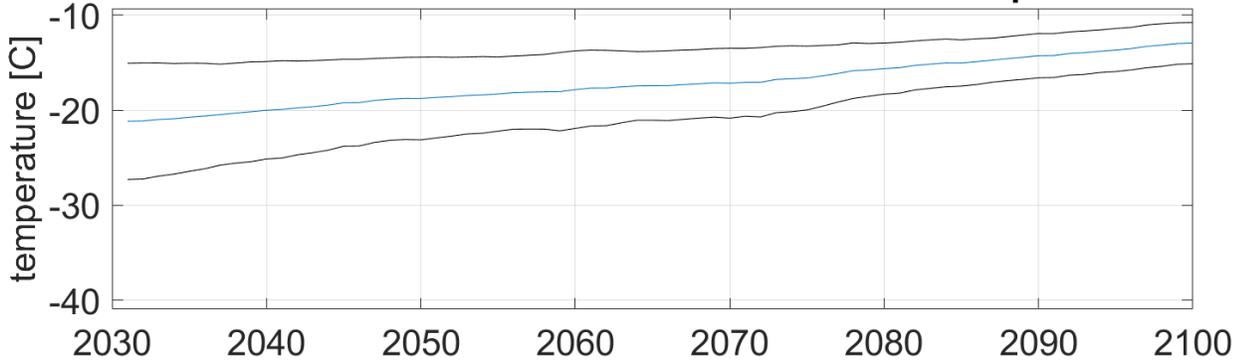
Mean and standard deviation of estimated max temperature



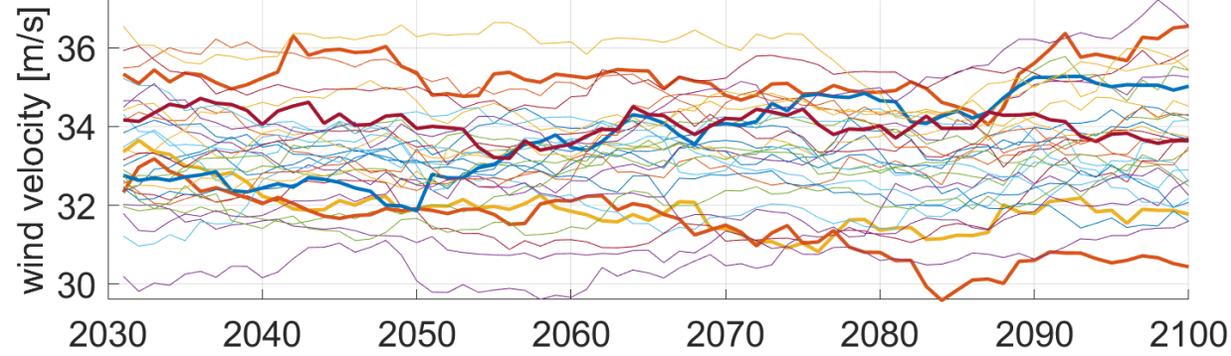
Estimated 50 year min temperature



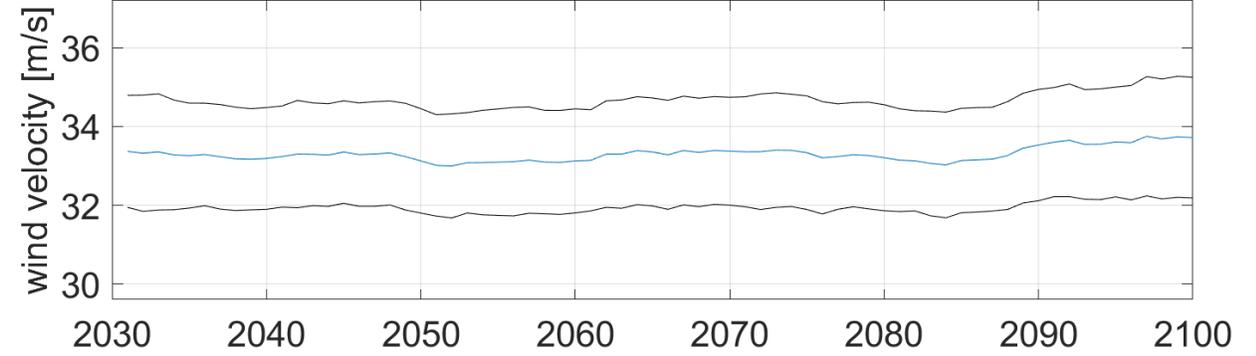
Mean and standard deviation of estimated min temperature



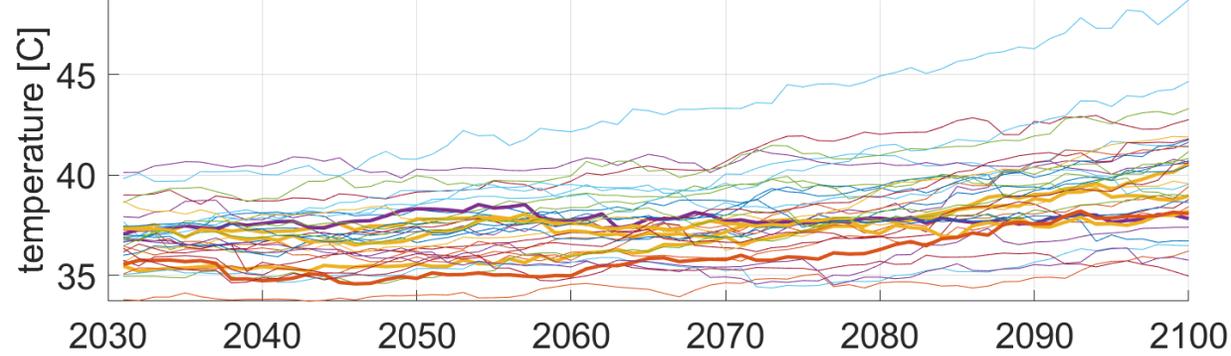
Estimated 50 year max wind velocity



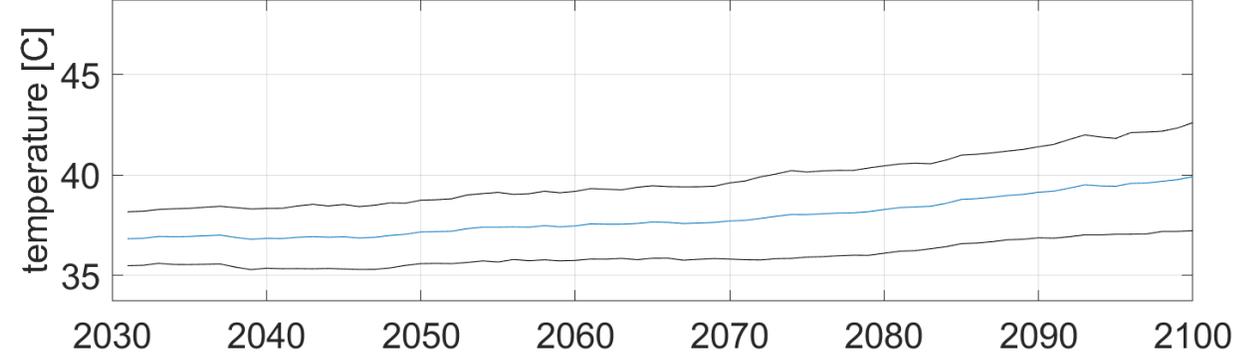
Mean and standard deviation of estimated max wind velocity



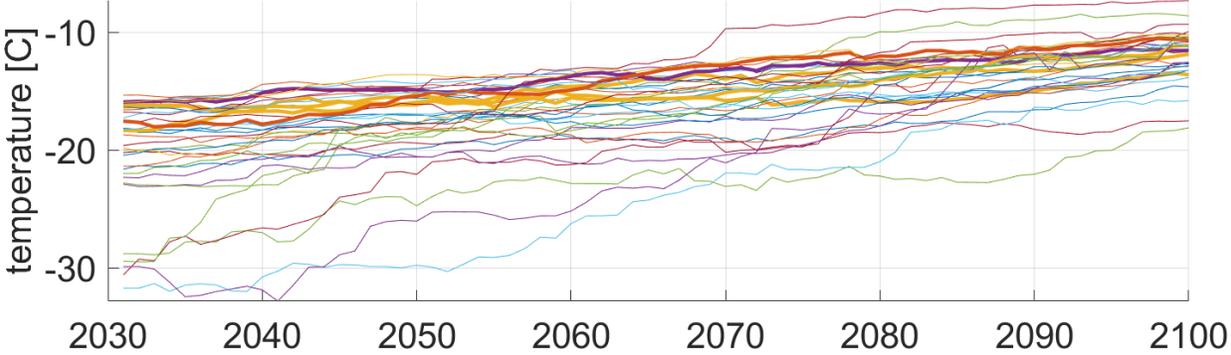
Estimated 50 year max temperature



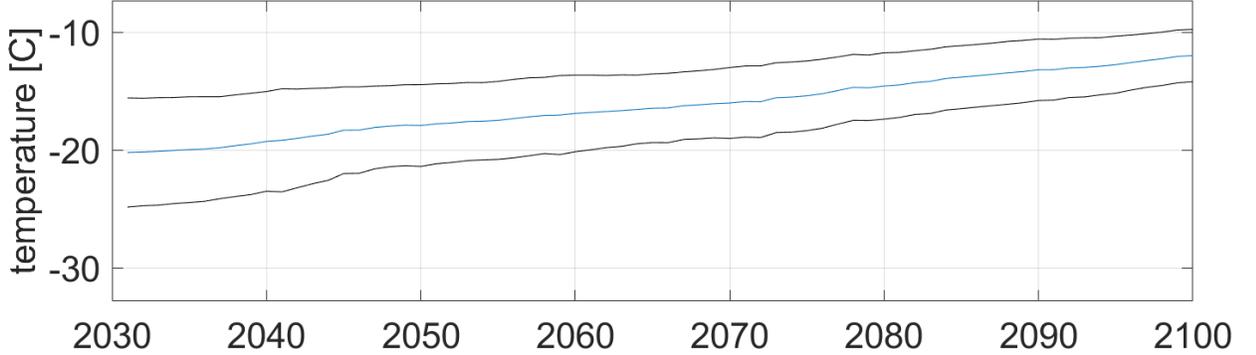
Mean and standard deviation of estimated max temperature



Estimated 50 year min temperature



Mean and standard deviation of estimated min temperature



Climate changes

Huge benefit of Nordic cooperation for inclusion of climate changes in the basic climatic parameters.



Indicative potentials for harmonization with green benefits

- a) Basic climatic parameters - avoid jumps at borders. Other NDP's.
- b) Until now the basic climatic parameters have been based on measurements alone. In the new National Annexes, the basic climatic parameters will also be based on climate models
- c) Applications of climate models across borders
- d) Nordic cooperation gives the background for more optimized and thereby accurate values compared to values determined individually by each Nordic country
- e) Less conservatism means less use of material
- f) Nordic cooperation on climatic actions will provide a very large impact because most structures are exposed to these loadings
- g) The impact will be huge compared to the effort

Overall conclusion: Nordic cooperation will give significant green benefits



Who contributed

- Norway (~4 participants)
- Sweden (~4 participants)
- Finland (~3 participants)
- Iceland (~2 participants)
- Denmark (~3 participants + Svend Ole Hansen – Chairman of committee on Nordic cooperation for NA to Eurocode 1 on climatic actions)



Reflections



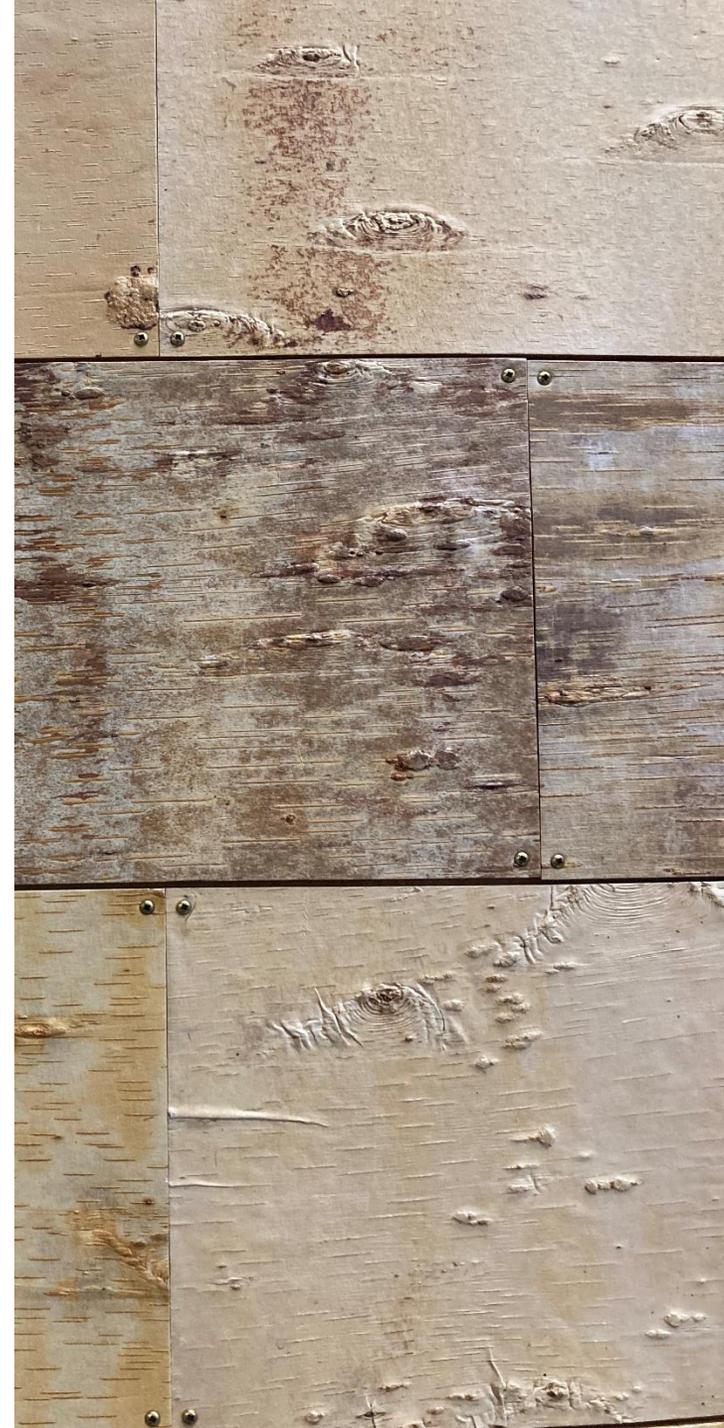
Traffic loads (EN 1991-2)

Heikki Lilja



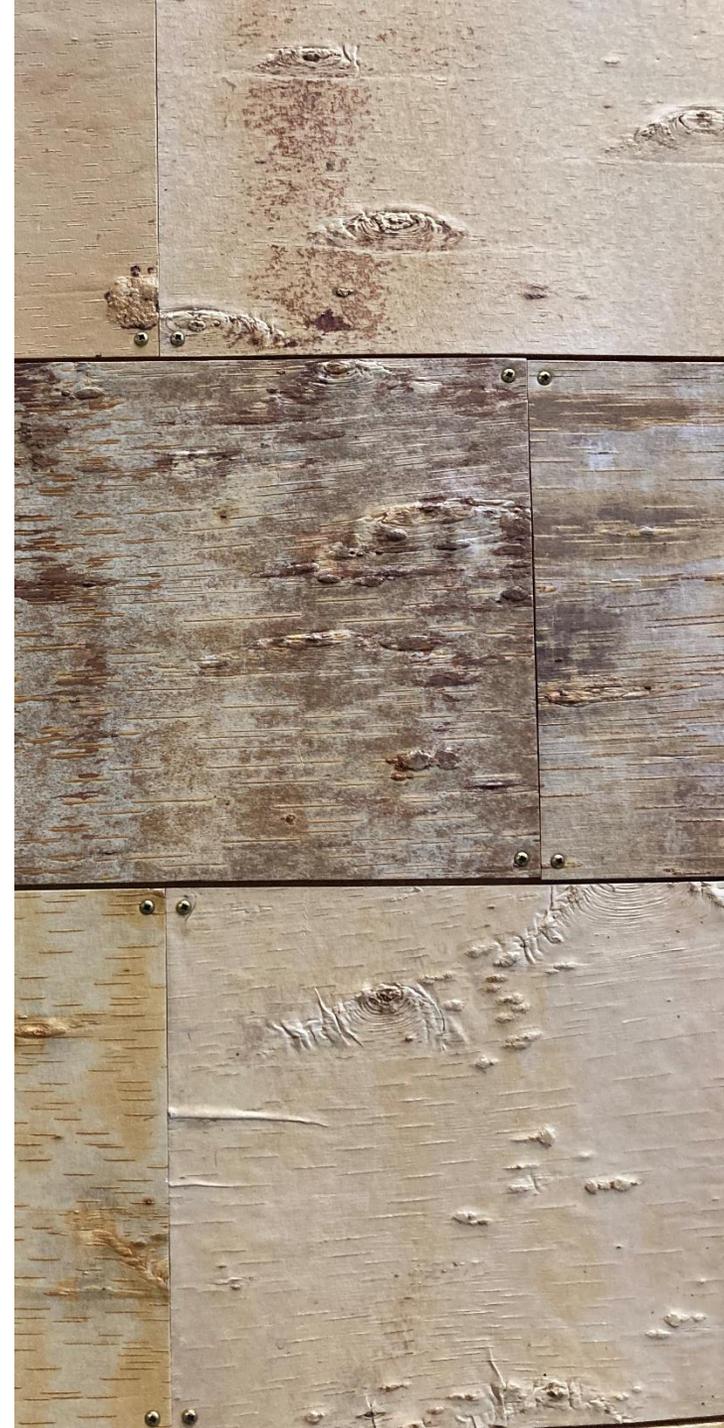
Status of the work

- The group has met 11 times (latest 18th September 2024, next 24th January 2025) – Scope extended to cover bridges in general
- “Full harmonization” has not been discussed in the group
- Now we are concentrating on National Annexes for
 - EN1991-2 (**Traffic loads**)
 - EN1990-1 Annex A.2 (**Design basis for bridges**)
 - Annex G (Bearings)
 - Annex H (Vibration of footbridges)



Status of the work

- There are **185 NDPs** in these two standards (and hundreds of other details to discuss), so the group can handle only a very small fraction of the content
- Goal is more to find common interpretation of the code (and to share best practices), but some accidental harmonization may and will happen
- Without funding no project (=real effort)... that's how world works unfortunately → **is funding possible?**



Indicative potentials for harmonization

- “The new material”
 - Bearings
 - common way of handling these would make procurement process easier and reduce risks involved
 - Footbridge vibrations
 - best practices and examples needed (Clients are often not competent)
- “Same same but different” load combinations (Table A.2.7....A.2.11)
 - Full harmonization close to impossible
 - Common understanding would be a good goal
- Common approach for traffic load models
 - Calibration of load models (static, fatigue, the new geo-models, assessment loads) → this is a huge task though, not possible on voluntary basis...



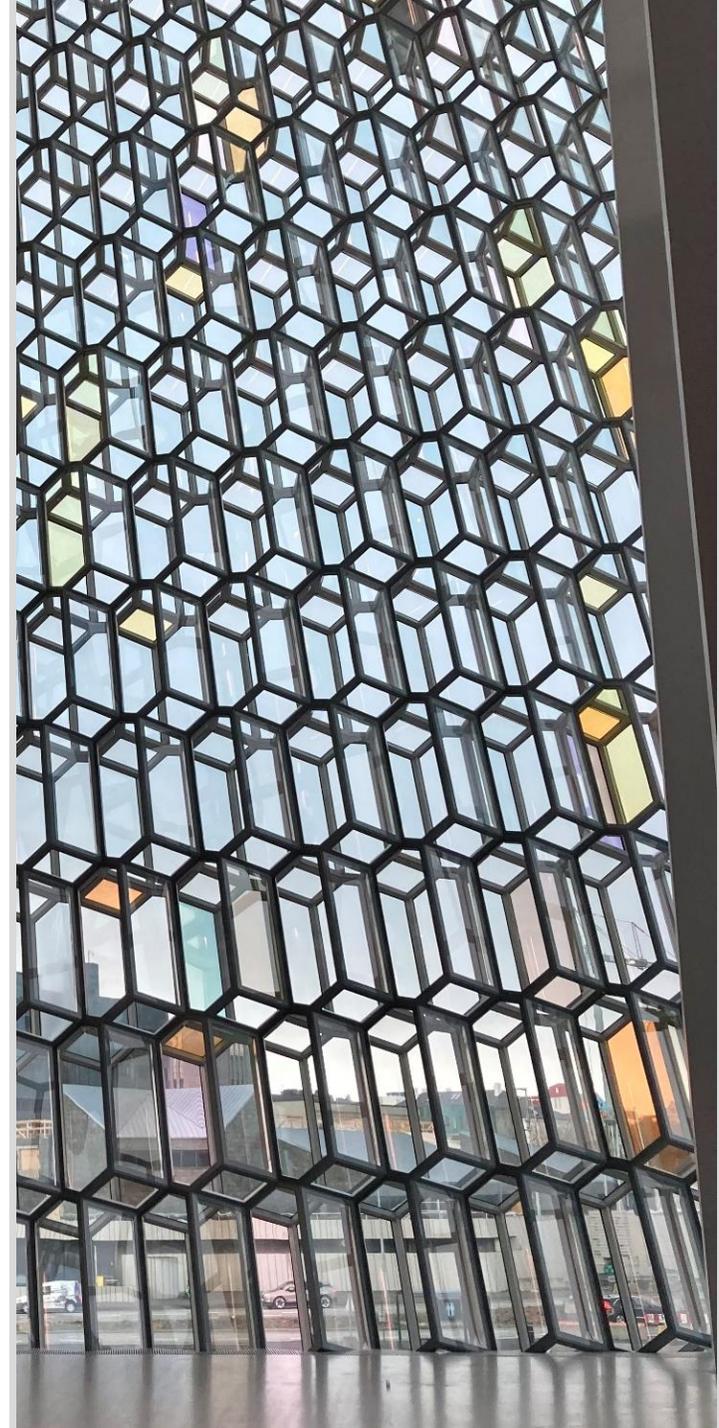
Indicative potentials for harmonization with green benefits

- It might be better idea to make design clearer (ease of use), rather than going into details
 - The savings from many small details can be overshadowed by many small “safe sided decisions” or one big mistake because people are not sure how to use codes (not always so straight-forward to interpret the hundreds of requirements)
- Sustainability possibilities (and risks as well) are in existing bridges (EN1990-2)
 - New ideas needed before the flood of defective bridges (from 60-70s)
 - How to extend the service life in a safe manner?
 - We need more in-depth information about our traffic for assessment of existing bridges (data exists, but no cooperation at the moment, nor funding)



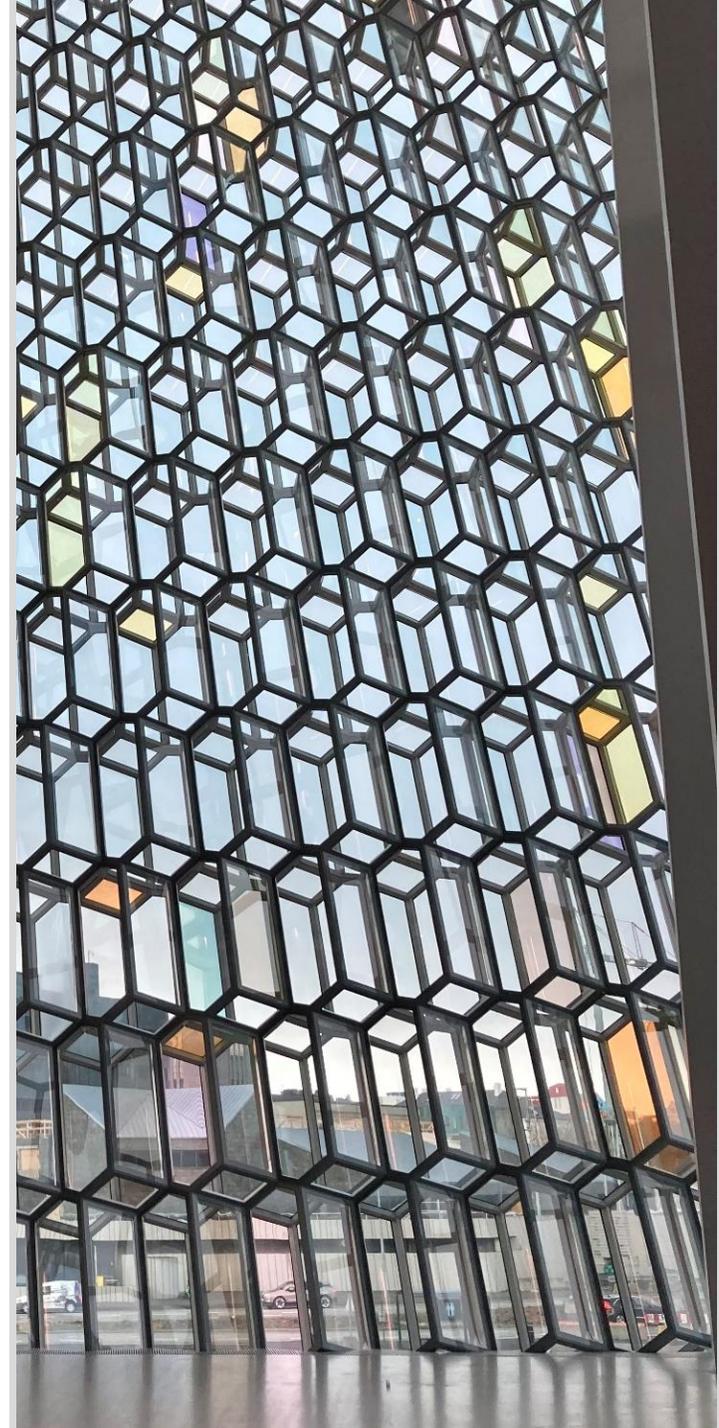
Evaluation of the ideas and if you have other input/ideas

- Enhance ease of use
 - Education to engineers, how to get message thorough “overnight”?
- Best practice papers for new material and central topics?
- Traffic load research, made with same principles
 - To calibrate various load models
 - 1st step towards “uniform reliability”?



Experience on cross-country cooperation

- Needs a consultant from each country (does the dirty work)
- Needs a decision maker (that can make decisions) from each administration.
- Without these nothing happens between meetings (since people in administrations are too busy)



Heikki Lilja
(Chair of “the Nordic bridge EN-group”
Convenor of TC250/SC10/WG2 Bridges)

heikki@heikkililjaconsulting.com



Reflections



Design of Concrete Structures

Part 1-1 (EN 1992-1-1)



Who contributed?

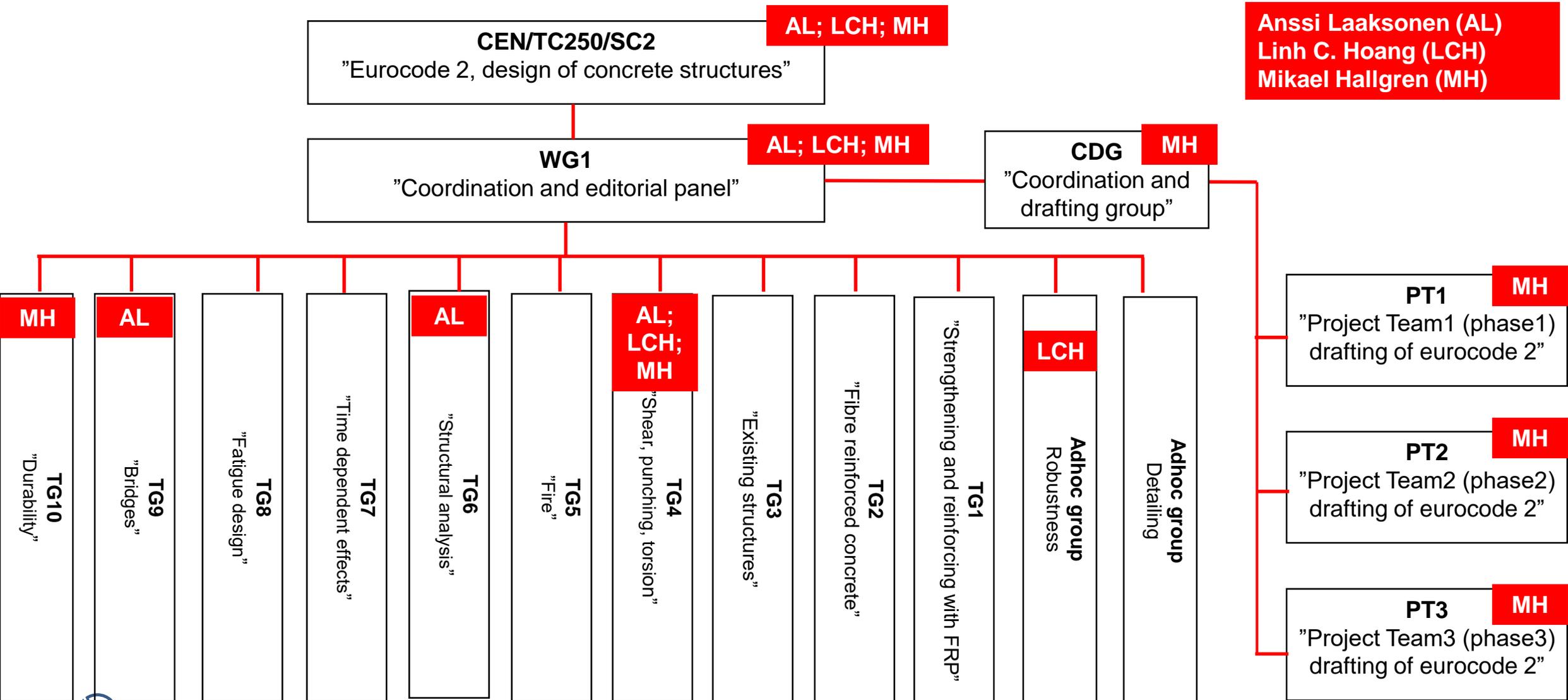
Linh C. Hoang, Professor, DTU, Denmark

Mikael Hallgren, Adjunct Professor, KTH & Development Manager, Tyréns, Sweden

Anssi Laaksonen, Professor, Tampere University, Finland



Participation in development of EC2

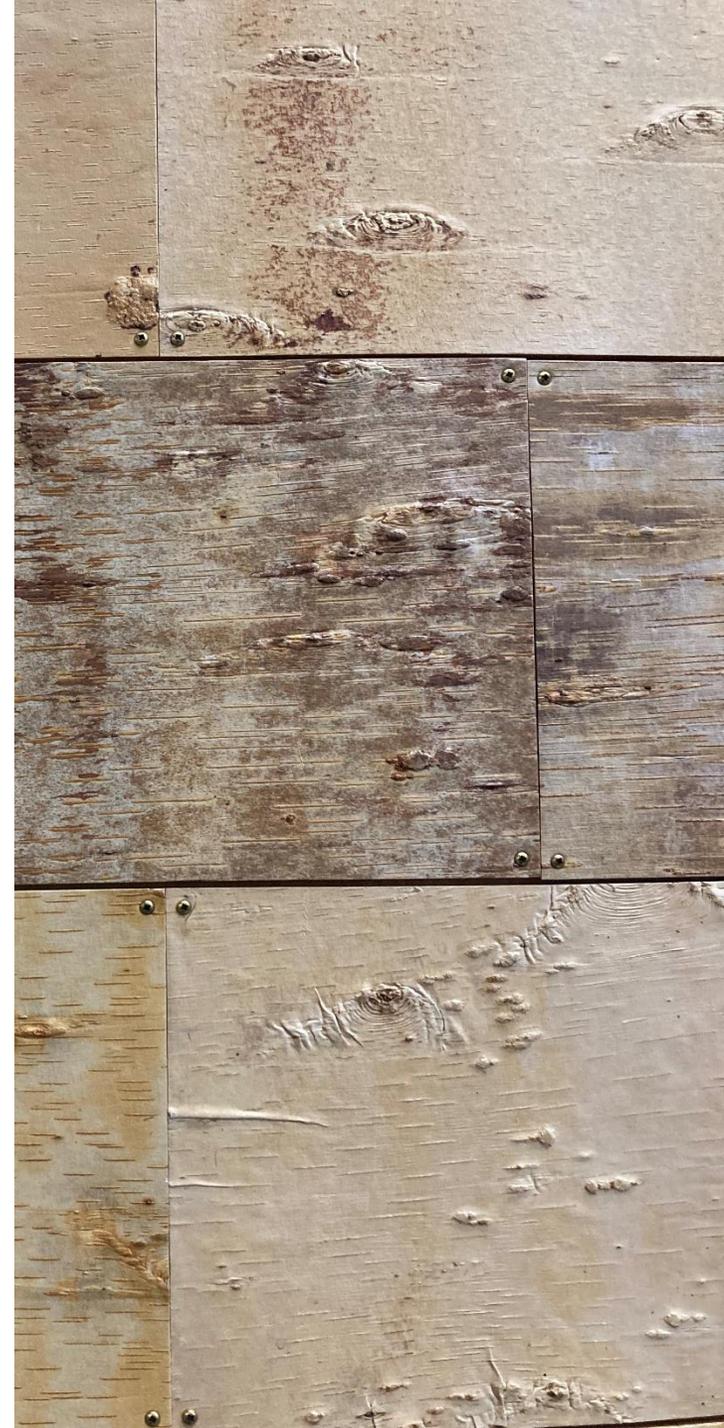


Anssi Laaksonen (AL)
Linh C. Hoang (LCH)
Mikael Hallgren (MH)



Status of the work

- a) A full Nordic Eurocode 2 Group has not yet been established, but three key persons (from Sweden, Finland and Denmark), all involved in the development of the new EC2, had a first meeting (29/10-2024) to discuss the potential for Nordic harmonization
- b) On a bilateral level, Finland & Sweden are already collaborating on harmonization of the National Annexes to the new Eurocodes with regards to concrete bridges



Indicative potentials for harmonization

Almost all the appr. 100 NDPs could potentially be harmonized within the Nordic countries, e.g.:

- Tables with material parameters
- Tables related to exposure classes
- Parts of tables with detailing requirements/ minimum reinforcement (with respect for different construction traditions)
- Anchorage and lap lengths of reinforcing bars



Indicative potentials for harmonization with green benefits

Potentials for fully or partially harmonization include:

- Increased reference age for strength conformity (from 28 to 91 days to better exploit potential of “green concretes”)
- Design provisions for recycled aggregate concrete structures (to improve material circularity)
- Exposure Resistance Classes (for potentially better assessment of durability)
- Use of non-metallic reinforcement (FRP) and stainless steel reinforcement (for durability and longevity of concrete structures)
- Anchorage & lap lengths (for less usage of steel)
- Minimum reinforcement to control of maximum allowable crack width in the development phase (for less usage of steel)
- Assessment of existing concrete structures (for re-use of existing buildings and structures)
- Improvement of partial safety factors with increased quality assurance and/or testing of materials (for material savings)



Indicative potentials for harmonization with green benefits

Some low hanging fruits, that can easily be changed/harmonized with little work and great impact:

- Increased reference age for strength conformity
- Anchorage & lap lengths
- Minimum reinforcement to control of maximum allowable crack width in the development phase

Harmonization which would require more work but could have significant impact:

- Exposure Resistance Classes (collaboration also takes place within **Nordic Panel of Concrete Standardisation**)
- Assessment of existing concrete structures



Reflections

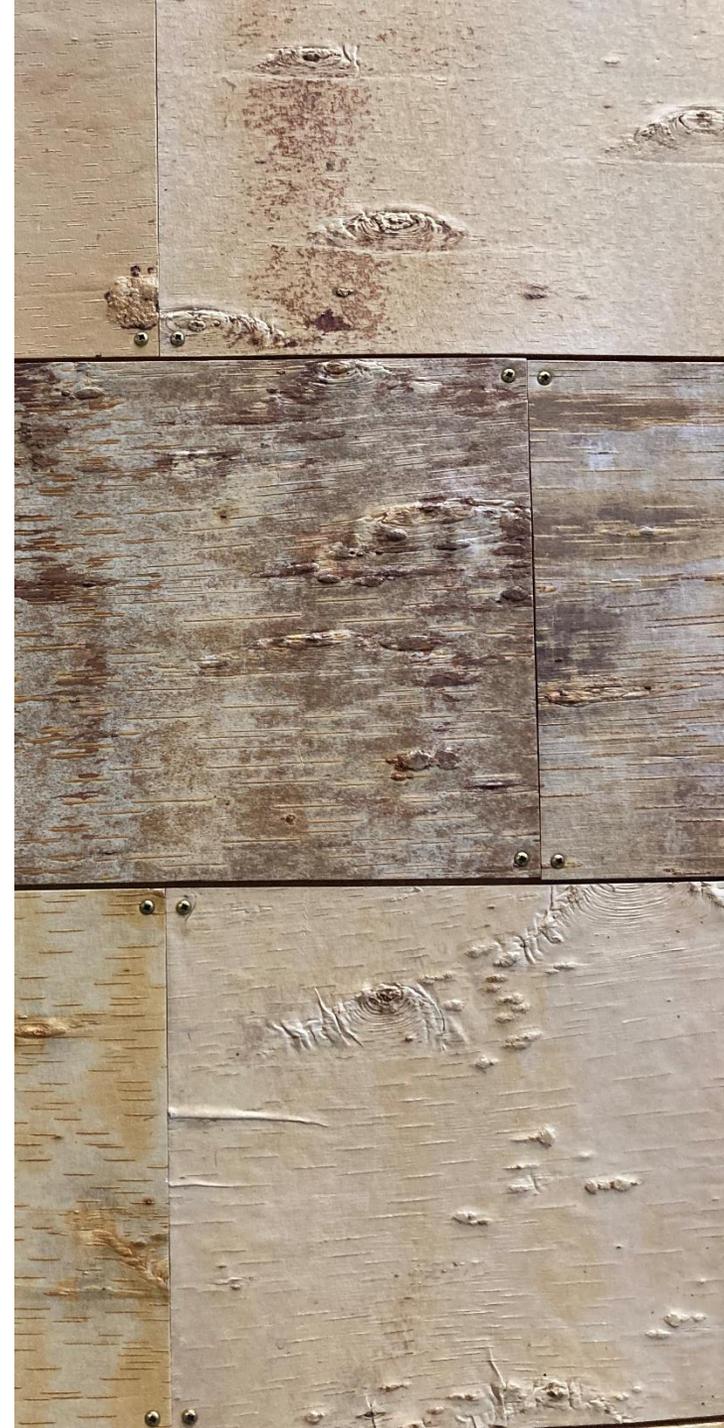


Eurocode 3: Design of steel structures (EN 1993)



Status of the work

- a) The group has met 2 times and discussed the different regulations in respective countries as well as strategies for harmonization of national annexes.
- b) Focus has been on technical issues. No specific discussion on green benefits



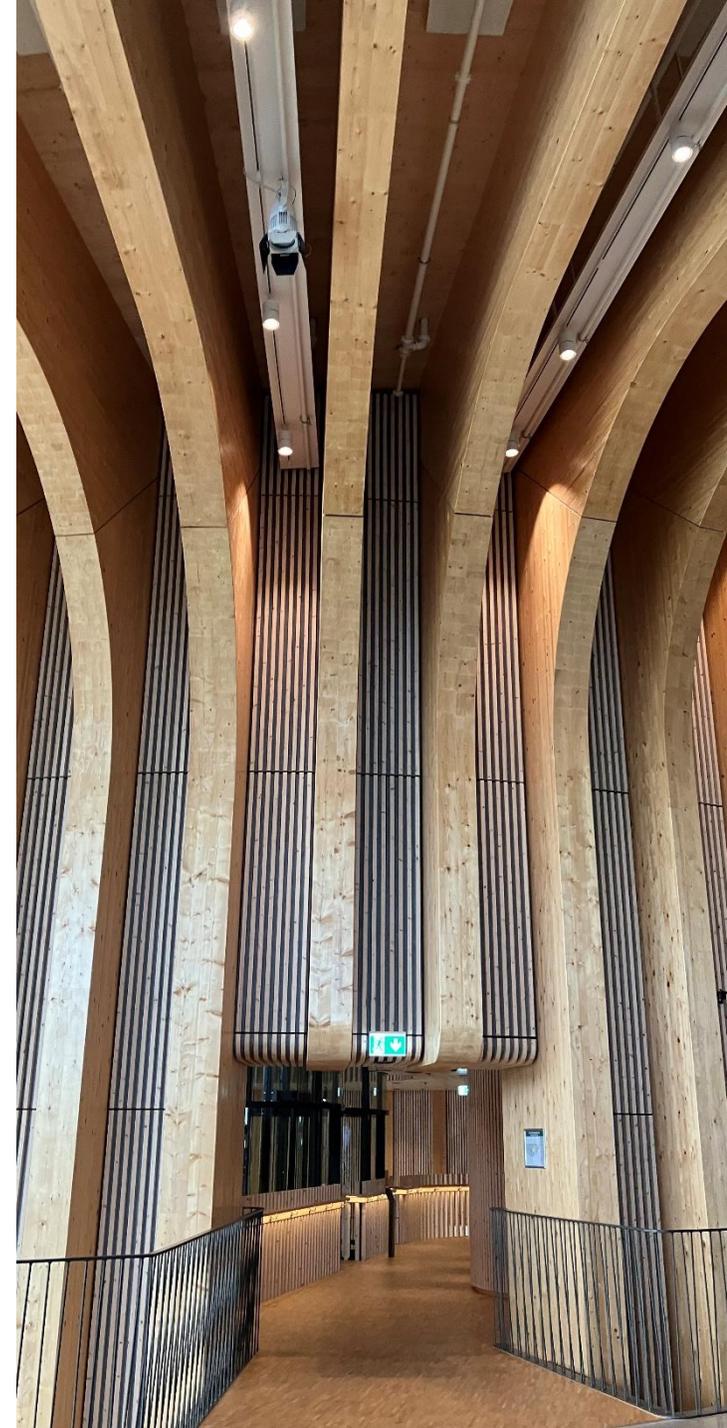
Indicative potentials for harmonization

There is some potential for collaboration on specific issues. However, the general strategies are very different.



Indicative potentials for harmonization with green benefits

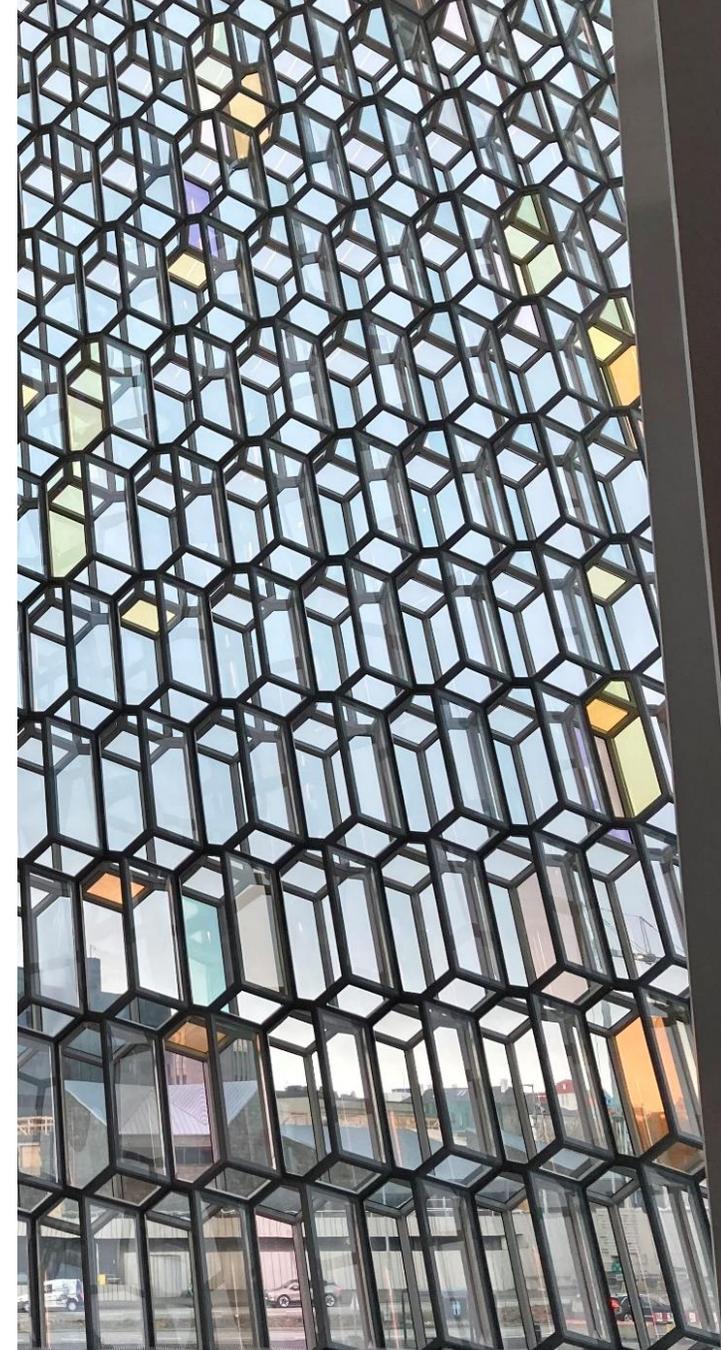
The partial coefficients vary in the Nordic countries.
Smaller partial coefficients can lead to more optimized constructions.
(savings opportunities around 4-5%)



Evaluation of the ideas and if you have other input/ideas

The design rules are already optimized.
Greater green benefits can be found elsewhere:

- a) Design for **reasonable requirements**
(Review procurement rules? In particular from governmental actors, infrastructure projects)
- b) Actually **optimize the structures** to attain 100% utilization
(Increase competence/confidence? Can it become a requirement?)
- c) Use **reclaimed material**
- d) Use **material with higher strength**



Who contributed?

- Wyllyam Husson, SIS TK188, Sweden.



Reflections

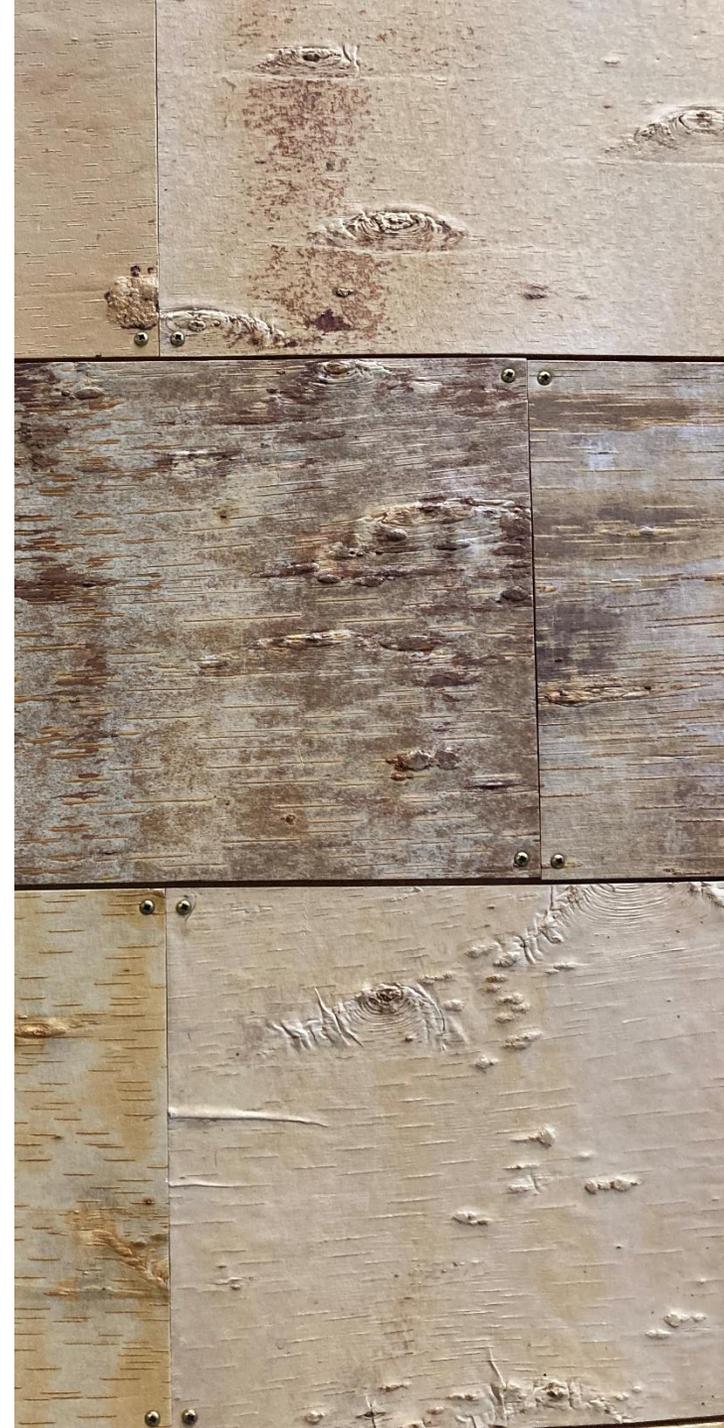


*Design of Masonry
structures*
(EN 1996)



Status of the work

- a) The Nordic coordination group on Eurocode 6 met on October 28th
- b) Based on the meeting discussion, we have concluded the following:
 - 1) Nordic harmonization is possible, but unlikely due to lack of resources/funding
 - 2) Coordination group meetings are either way useful, and we will continue to meet regularly to exchange information and status on National work



Indicative potentials for harmonization

There are potentials for harmonization in the whole of the National Annexes to Eurocode 6. Common values are unlikely, but common ground and methods could be found.

Some areas, for instance the Danish material factor coordination between different materials, unique Finnish brick types, and differing climates, hinder common Nordic values.

Norway will look to Eurocode recommendations and the Finnish National annex for the development of the second-generation NAs.

Nordic harmonization towards common ground beyond this is unlikely, due to lack of funding towards such a project.



Indicative potentials for harmonization with green benefits

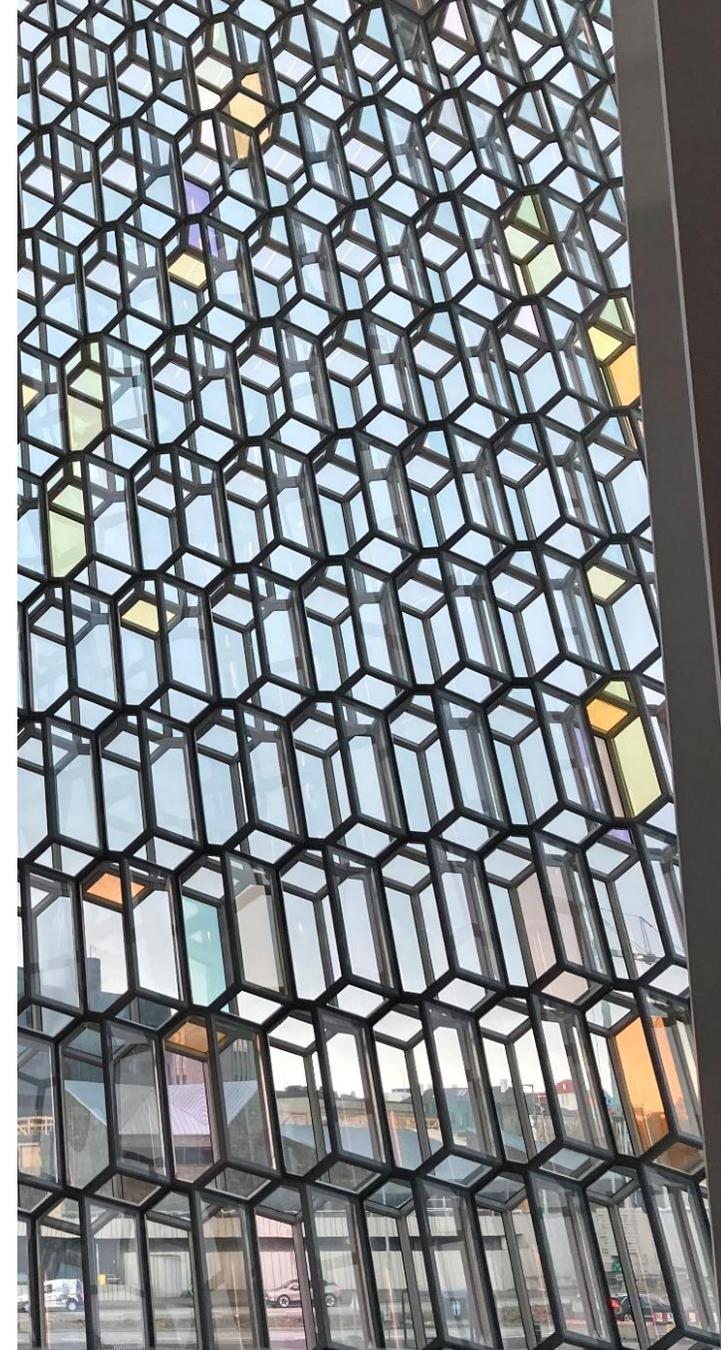
There are potentials for harmonization and green benefits in:

- a) Reuse of masonry units.
- b) Renovation of existing masonry structures. Older buildings cannot be retrofitted to be in full accordance with Eurocode 6. National standards from before Eurocode 6 or other methods must be used. Potential for standardization of this field is large.



Evaluation of the ideas and if you have other input/ideas

- a) Norway will look to the Finnish NA for material factors and strength calculation
- b) Overall Nordic harmonization is unlikely
- c) Nordic coordination group meetings will continue



Who contributed?

- Adrian Bergsagel Malvåg (NO)
- Karl Vincent Høiseth (NO)
- Poul Dupont Christiansen (DK)
- Auli Lastunen (FI)
- Antti Taivalkangas (FI)



Reflections



NORDIC COOPERATION GIVES RESULTS

G. Franzén¹, A. Eggen², O. Møller³, P. Tolla⁴ and D. R. Hauksson⁵

KEYWORDS

Eurocode 7, NMGEC7, National Annex

ABSTRACT

The Nordic Mirror Group on Eurocode 7 was established in the year 2014, to influence the development of the second generation of Eurocode 7 on the European level and facilitate implementation within the Nordic countries. Our two-day meetings twice a year have been a well-attended forum for sharing national praxis and experience, creative discussions, finding the common base, and identifying the main items to influence. The goal has been to make sure that the second generation of Eurocode 7 is developed with consideration of Nordic geology, climate, and praxis.

The result? Ten years later, there is a long list of items that the Nordic team as a coordinated group has influenced, by assisting each other with arguments and input, for example, the content of FprEN 1997-2 Ground properties, the inclusion of a chapter on rock bolts and another chapter on groundwater control and an annexe on buckling of piles. The paper will give details on these items and others. In addition, the paper will give a first outline of the next challenge that the Nordic team has taken on – a common Nordic national annex for Eurocode 7.

1. EUROCODE 7 – A COMMON EUROPEAN TOOL FOR DESIGN

As geotechnical engineers, we are influenced by a broad spectrum of standards. However, the Eurocodes have a unique position with its mandate to serve as a reference design code, implying that all member states must accept the design according to EN Eurocode and withdraw any conflicting national standards. The Member States of the EU and EFTA have decided that these technical rules (Eurocodes) should serve as reference documents; 1) to prove

¹ GeoVerkstan, Kungsbacka, Sweden. gunilla.franzen@geoverkstan.se

² Veidekke, Oslo, Norge. astri.eggen@veidekke.no

³ Aarsleef, Åhus, Denmark. nom@aarsleef.com

⁴ FTIA, Helsinki, Finland. panu.tolla@ftia.fi

⁵ VSO Consulting, Reykjavik, Iceland. david@vso.is

Nordic Mirror Group on Eurocode 7 - Geotechnical design

2024-11-22

G. Franzén, O. Møller, P. Tolla,
A. Eggen, D.R. Hauksson

Ten years of cooperation



Two-day meetings Twice a year since 2014
24th meeting in 4 and 5 of December

In total 70 people on the member list.



Potential for harmonisation Is a common Nordic National Annex for EN 1997 possible?



EN 1997-1
Common Nordic Annex
Results 2024-05-31

National Standard Body
Logo

Page 2 of 38

- Sharing experiences and analyses
- Not all NDPs will be equal in our countries, but at least we know why!
- We aim to continue to discuss common National Annex for EN 1997-2 Ground properties and EN 1997-3 Geotechnical Structures

	To be discussed next meeting		Discussed 23 rd meeting		
Overview of national choices and NCCI ¹					
Clause	Subject	Choice		NCCI/Guidance	
		Nordic ²	National ³	Nordic	National
4.1.2.2(1) table 4.1	Geotechnical complexity class	Default	NO	Annex C	
4.1.2.3(3) table 4.2	Relationship GC, GCC, CC	Default	NO	Start with CC3/GCC3	
4.1.3(1) table 4.3	Examples of geotechnical structures in different Consequence Classes	Default	NO, FI	Clarify landslide, road	
4.1.4(2)	Design measures to enhance robustness	None added	DK	Clarify concept	
4.1.5(1) table 4.4	Design service life categories of geotechnical structures	Default + Footnote anchors	FI	Design service life vs sustainability	
4.1.8(3) table 4.5	Minimum DQL, DCL, IL	Default		Clarify DQL	
4.2.3.2(2)	Measures to validate the Geotechnical	Default			

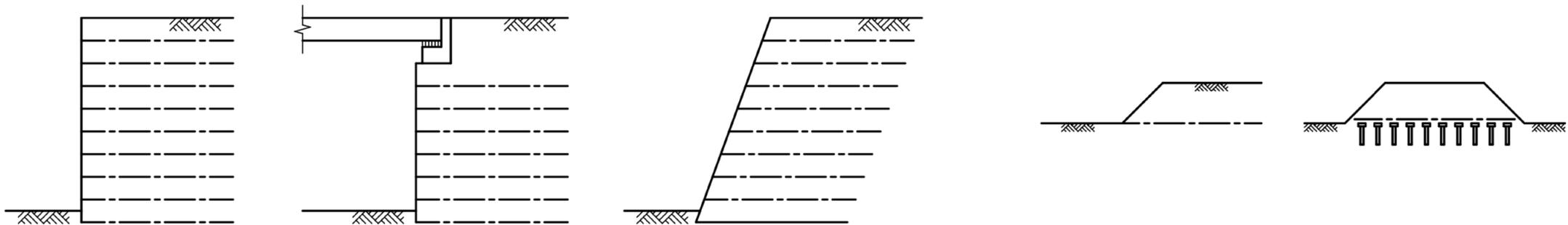


Green Potential Reinforced Fill

EN 1997-1, 4.1.7 Sustainability

(3) Potential strategies for designing geotechnical structures for enhanced sustainability should include:

- optimize quantities of materials used;
- utilization of renewable material;
- inclusion of geothermal elements in the geotechnical structure;
- re-use of structural elements;
- re-use of excavated material within the construction site;



Increased re-use of excavated material, by adding reinforcement

Green Potential Common strategies for environmental influences

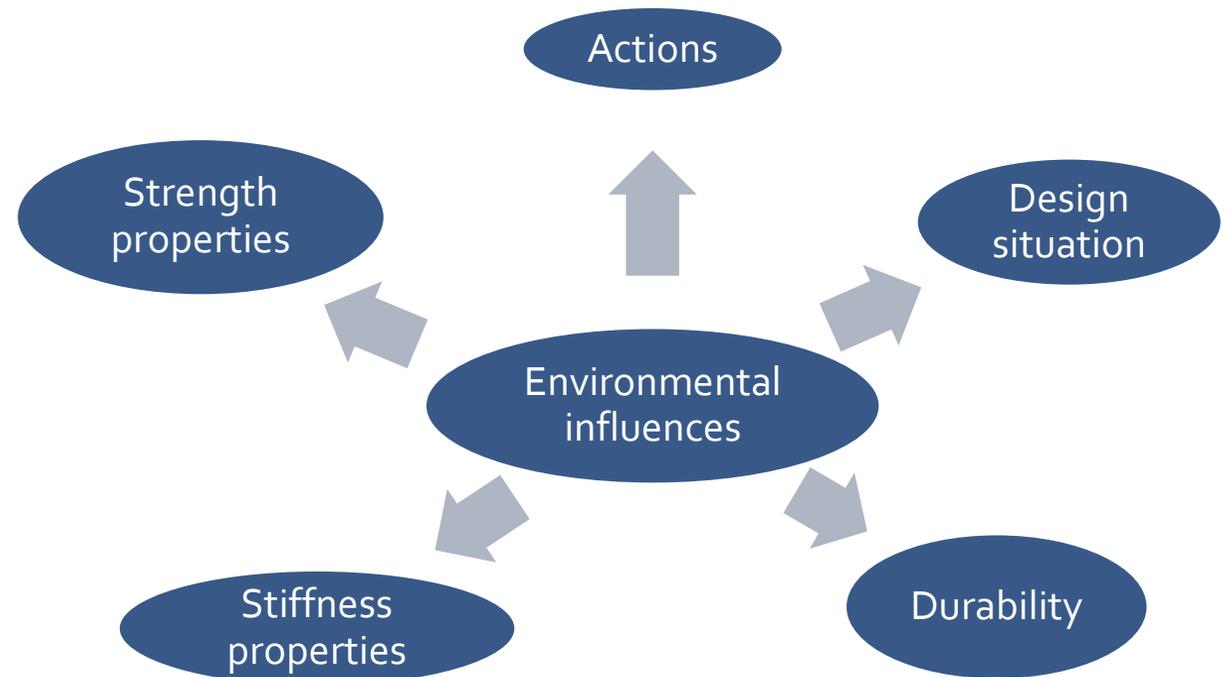
- Prognosis of climate change included in environmental influences
- Need strategies for how to consider environmental influences on action, design situation, durability, strength and stiffness
- Environmental influences? Weather effects? Climate action? Inconsistency in wording causes discussion

4.1.4 Robustness

(1) EN 1990:2023, 4.4 shall apply.

NOTE 1 For most geotechnical structures, design in accordance with the Eurocodes provides an adequate level of robustness without the need for any additional design measures to enhance robustness.

NOTE 2 Appropriate prognosis of climate change affecting the geotechnical structure during its design service life is considered in 4.3.1.4.



EN 1997-1,
4.3.1.4

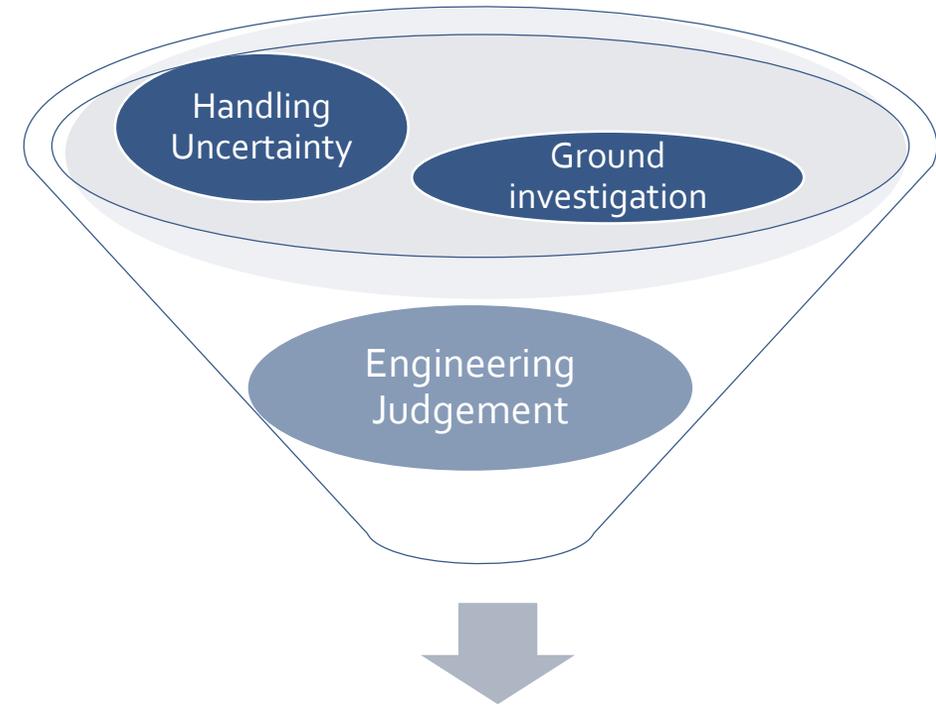


Green Potential

Increased knowledge of the site,
minimise uncertainty and use of
engineering judgement.

Less overdesign and greener!

2nd Generation gives possibilities:
Geotechnical Category, Numerical Models, Ground
investigation, Prescriptive rules, Observational method,
consequence factors (k_F , k_M , k_R), verification cases, Reliability-
based design....



Less overdesign "Greener"

We need to add Nordic guidance to fully exploit the ground's potential as a building material to achieve a safe, functional, durable, robust, sustainable structure that is also economical!

NMGEC7

Cooperation for the future



Reflections



The Nordics Aim to be Leading in Sustainable Construction

- 13.8.2024: Nordic Ministers of Housing and Construction meet In Gothenborg
- Conclusion: Wish for more Nordic collaboration on construction to contribute to the Nordic Vision 2030
- The Ministers identified 4 themes a new programme should concentrate on:
 - Climate
 - Circularity
 - Digitalisation
 - EU (cross cutting)
- Details in this article: [The Nordics Aim to be Leading in Sustainable Construction | Nordic Sustainable Construction](#)



See you?

Nordic Sustainable Construction Symposium 2024

December 4th
13.00 - 18.00
Sign up now!

 Nordatlantens Brygge
Strandgade 91
1401 København K

[More info - www.nordicsustainableconstruction.com](http://www.nordicsustainableconstruction.com)

Welcome and introduction to Nordic Sustainable Construction	Helle Redder Momsen Head of Secretariat, Nordic Sustainable Construction
The Nordic Vision 2030: The Construction Sector's Role in Advancing Climate, Energy, and Digital Transformation	Dan Koivulaakso Head of Department for Growth and Climate, The Nordic Council of Ministers and The Nordic Council
Nordic Collaboration and Europe - Prioritising existing buildings for people and climate	Zsolt Toth Team Lead, Building Performance Institute of Europe
Conclusions, results and future perspectives from 5 work packages + panel debate and Q&A	1. Nordic Harmonisation of LCA 2. Circular Business models and Procurement 3. Sustainable construction materials and Architecture 4. Emission-free Construction Sites 5. Competences for reuse in construction
The wicked problem of Nordic collaboration on sustainable construction	Sigge Winther Nielsen Director, Institute for Wicked Problems (INVI)
Networking	Discuss climate friendly construction



Contents

Foreword by Karen Ellemann, Secretary General of the Nordic Council of Ministers	5
Contribution from Ursula von der Leyen, President of the European Commission	7
Nordic Sustainable Construction (history of the programme)	8
Key takeaways on:	
 Nordic Harmonisation of Life Cycle Assessment	13
 Circular Business Models and Procurement	25
 Sustainable Construction Materials and Architecture	37
 Emission-Free Construction Sites	55
 Competences for Reuse in Construction and Programme Secretariat	71
Who is behind Nordic Sustainable Construction?	87
Afterword - is future-proof construction possible? By Helle Redder Momsen, Head of Secretariat	93
About this publication	96



Questions



Ministry of the
Environment Finland



Nordic
Innovation

Form
Design
Center



Government of Iceland
Ministry of Infrastructure



Danish Authority of
Social Services and Housing



Want to stay updated?

Sign up to our Newsletter ([link](#))

Did you hear the new podcast "Sustainable Building Sagas ([link](#))"

Follow us on LinkedIn www.linkedin.com/company/nordicsustainableconstruction

Visit our website www.nordicsustainableconstruction.com

