



Moving to a performance-based concrete standard Exposure Resistance Classes (ERCs)

ERMCO Technical Committee Seminar

23 March 2021

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EUROPEAN READY MIXED CONCRETE ORGANIZATION
ASSOCIATION EUROPEENNE DU BETON PRET A L'EMPLOI
EUROPÄISCHER TRANSPORTBETONVERBAND



Where ERCs do come from?

Olaf Assbrock

ERMCO Technical Committee

23 March 2021

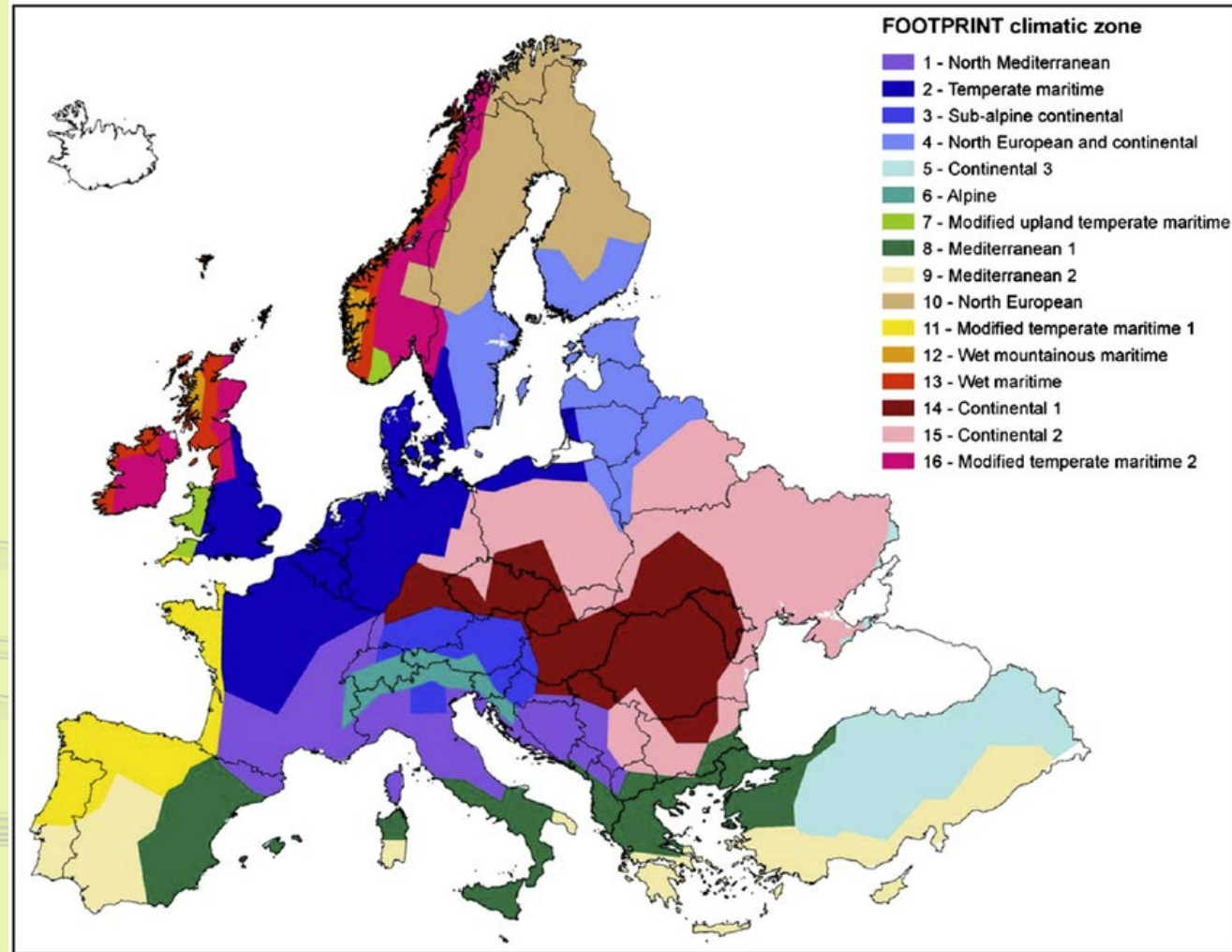
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Where ERCs do come from?

Durability of concrete in the structure!

Where ERCs do come from?



Source: PubMed

Where ERCs do come from?

A wireframe architectural drawing of a building structure, rendered in a light green color. The drawing shows the skeletal framework of a multi-story building with various rooms and structural elements. The word "Experience!" is overlaid in the center of the drawing.

Experience!

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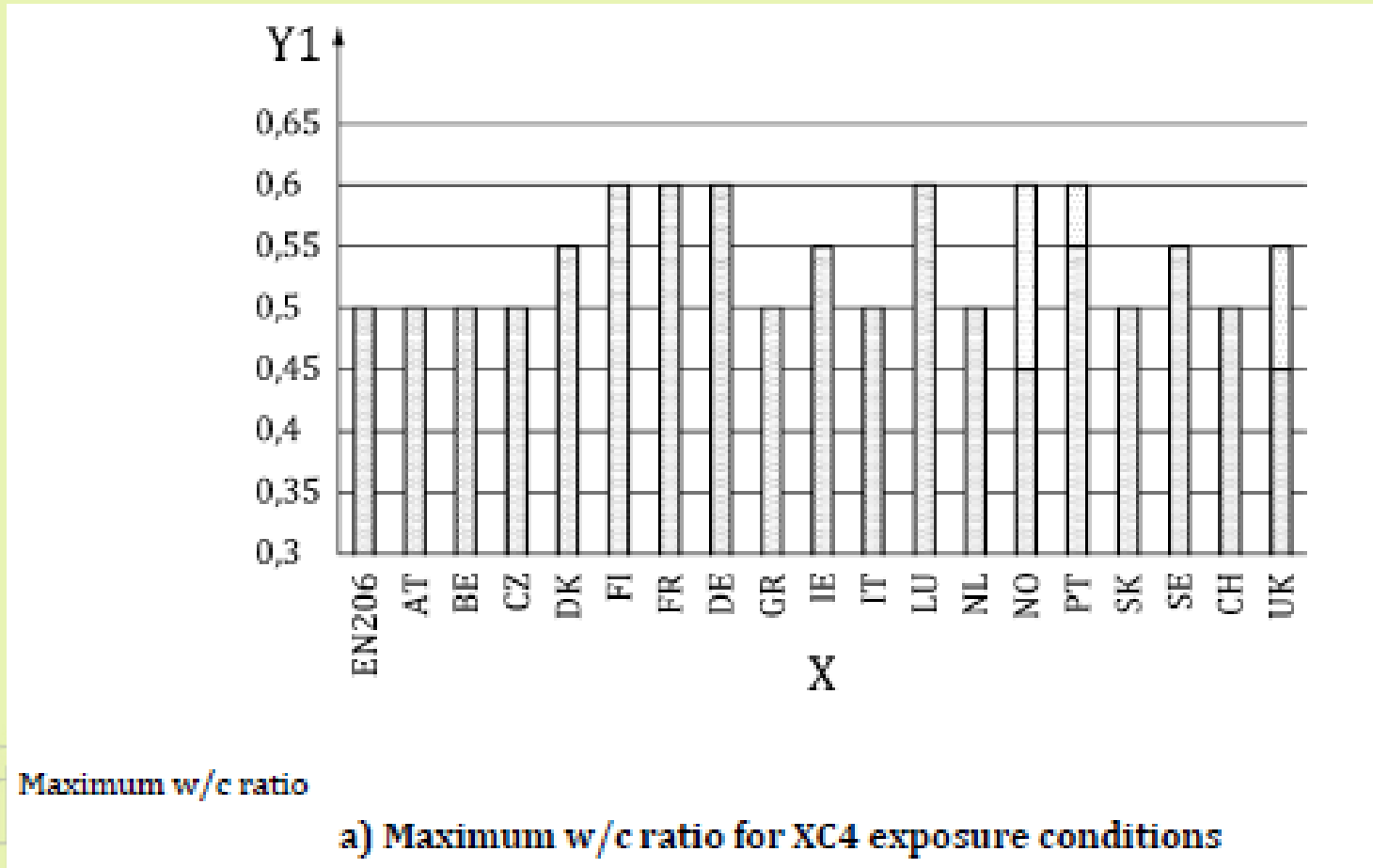
Where ERCs do come from?

Past and Today: Durability ensured successfully by

Prescriptive (Deemed to Satisfy DtS) rules

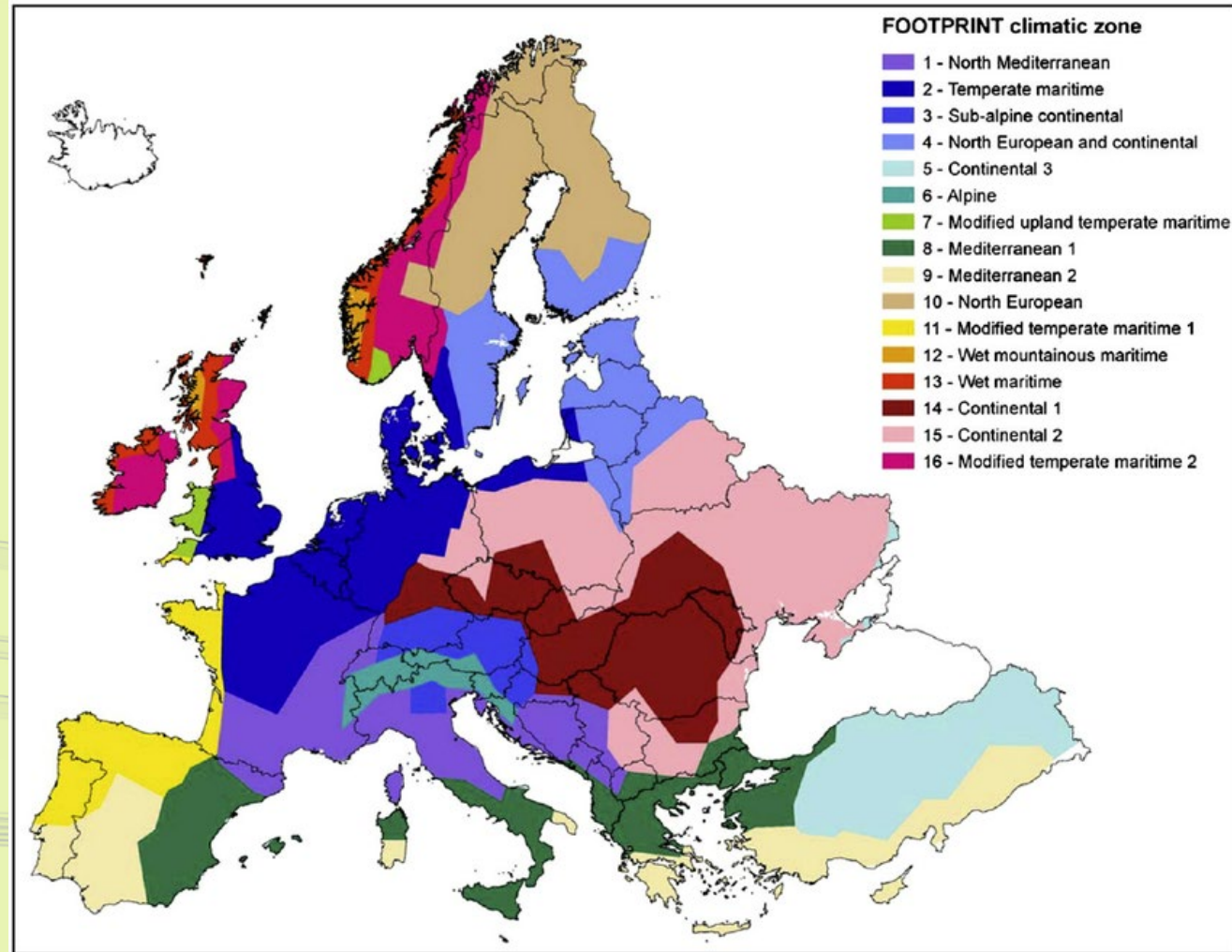
- Limiting values of concrete composition and choice of constituents
- Concrete cover
- Curing

Where ERCs do come from?



Source: CEN TR 15868

Where ERCs do come from?



Source: PubMed

Where ERCs do come from?

Future: Durability to be ensured by

(Lab)Performance of concrete against durability by Resistance classes

- The concrete is standardized by ERCs, not the climate
- National rules for application
- Exposure Classes EC → Exposure Resistance Class
- Concrete cover
- Curing

Where ERCs do come from?

or



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Where ERCs do come from?

Durability to be ensured by

Prescriptive (Deemed to Satisfy DtS) rules

- Limiting values of concrete composition and constituents
- CEM constituents
- Concrete cover
- Curing

Where ERCs do come from?

Facts

- Chance for further harmonization
- Open the door to a full performance-based standard
- Performance test still not available for all properties
- How to declare conformity?



Questions and Conclusions

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Exposure Resistance Classes (ERCs)

Conclusions – Risks and Chances

- Concrete 'over specification' by the designer
- Limited choice of constituents
- Knowledge of experts
- Competence in concrete design → Consultancy to the client
- Individual performance → Competition

Exposure Resistance Classes (ERCs)

Conclusions for ERMCO

- Reference test and criteria for ERC classification
- Criteria for Initial Type Testing
- Factory Production Control and Conformity