



**BUSINESS PLAN**  
**CEN/TC 250**  
**STRUCTURAL EUROCODES**  
**EXECUTIVE SUMMARY**

**Scope**

CEN/TC 250 covers the standardization of structural and geotechnical design rules for building and civil engineering works taking into account the relationship between design rules and the assumptions to be made for materials, execution and control.

**Background**

In 1975, the Commission of the European Community decided on an action programme in the field of construction based on Article 95 of the Treaty of Rome. The objective of the programme was the elimination of technical obstacles to trade and the harmonisation of technical specifications. For 15 years, the Commission, with the help of a steering committee containing representatives of EU member states, oversaw the development of the Eurocodes programme, which led to the publication of an initial set of European codes in the 1980s.

In 1989 the special agreement between CEN and the European Commission and EFTA transferred the preparation and publication of the Eurocodes to CEN, thus providing the Eurocodes with a future status of European EN standards. The agreement specified that the Eurocodes were intended to serve as reference documents to be recognised by authorities of the Member States for the following purposes:

- As a means for enabling building and civil engineering works to comply with the Essential Requirements 1, 2 and 4 of the Construction Products Directive (89/106/EEC), mechanical resistance and stability, safety in case of fire and safety in use; now replaced by the Construction Products Regulation (EU/305/2011) with Basic Requirements for Construction Works 1, 2 and 4<sup>1</sup>.
- As a basis for specifying public construction and related engineering service contracts. Works Directive (EU Directive 2014/24 contracts for public works, public supply and public service), which covers procurement by public authorities of civil engineering and building works and the Services Directive (EU Directive 2006/123 on services in the Internal Market), which covers public procurement of services. In addition, EU Directive 2014/23 concerns the award of concession contracts.
- As a framework for drawing up harmonised technical specifications for construction products.

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<sup>1</sup> The Construction Products Regulation has also introduced Basic Requirement 7 on the sustainable use of natural resources

The Structural Eurocodes were first available as European pre-standards (ENVs) and then converted to the full European standards (ENs). Publication of each of the various EN Eurocode Parts started in 2002 and was complete in 2006, for adoption by the CEN members. Full implementation of this first generation of EN Eurocodes was scheduled for 2010. In May 2010, the European Commission (EC), Enterprise and Industry Directorate-General, sent the Programming Mandate M/466 EN to CEN concerning the Structural Eurocodes. The purpose of this mandate was to initiate the process of further evolution of the Eurocode system, incorporating both new and revised Eurocodes.

As the technical committee responsible for the preparation of European rules for structural and geotechnical design (Structural Eurocodes), CEN/TC 250 prepared a reply to M/466 on behalf of CEN that was issued to the Commission in June 2011. In December 2012, the EC, Enterprise and Industry Directorate-General, sent a further Mandate M/515 EN, inviting CEN to develop a detailed standardisation work programme using the reply to mandate M/466 as a basis.

In 2013, CEN/TC 250 developed a detailed work programme incorporating the requirements of Mandate M/515 EN. This work programme, which forms the focus for the future activities of CEN/TC 250, comprises four overlapping phases and will lead to the publication of the second generation of EN Eurocodes. However, CEN/TC 250 recognises the importance of stability for users of the Eurocodes and these revised and extended standards are not expected to be published prior to 2020.

In December 2015, the European Commission confirmed funding for Phase 1 of the CEN/TC 250 work programme under Mandate M/515. In January 2017 and January 2018, the European Commission confirmed funding for Phase 2 and Phases 3 and 4 respectively. Through an open call for experts, Project Teams were established to undertake the specific tasks in M/515 Phases 1 to 4. Their work is on-going.

## **Benefits**

The benefits of the Structural Eurocodes include: providing a common understanding regarding the design of structures between owners, operators and users, designers, contractors and manufacturers of construction products; facilitating the exchange of construction services between Member States; providing a common basis for research and development in the construction sector; allowing the preparation of common design aids and software; and increasing the competitiveness of the European civil engineering firms, contractors, designers and product manufacturers in their world-wide activities.

## Priorities

The current priorities for CEN/TC 250 include:

**(i) The successful delivery of the work programme developed in response to Mandate M/515 EN.**

This work includes revisions to the existing codes to cover:

- improving the ease of use of the Eurocodes, particularly for day-to-day calculations,
- increased harmonisation through a reduction in National Determined Parameters, or convergence of values used,
- aspects of the assessment, re-use and retrofitting of existing structures,
- strengthening of the requirements for robustness.

The work programme includes the development of a new Structural Eurocode on Glass and the treatment of atmospheric icing and actions from waves and currents on coastal structures in the Eurocodes family, based on ISO Standards. It also includes steps towards the development of new Eurocodes on membrane structures and structural applications of Fibre Reinforced Polymers (FRP).

Systematic reviews of all existing Eurocode parts are being undertaken. The results of these reviews are being used to inform the development of the second generation of EN Eurocodes.

**(ii) Essential maintenance of the existing Eurocodes**

Significant maintenance to the existing EN Eurocodes (through the publication of new amendments) is not expected during the period while the development of the next generation of EN Eurocodes is being undertaken. However, CEN/TC 250 will respond to any emergent safety issues through the publication of amendments to the existing Standards if necessary.

**(iii) Promotion of the Structural Eurocodes**

CEN/TC 250 supports efforts of the European Commission to promote the use of the Structural Eurocodes, including promotion outside the member states of the European Community.

## 1 . BUSINESS ENVIRONMENT OF THE CEN/TC 250

### 1.1 Description of the Business Environment

The 59 Structural Eurocodes parts produced by CEN/TC 250 provide rules for basis of design, actions on structures, geotechnical design as well as structural design rules for the use of all the major materials i.e. concrete, steel, composite steel and concrete, timber, masonry, and aluminium. On that basis the design rules can be used for a majority of building and engineering structures utilizing the different materials covering also earthquake resistance.

Note: CEN BT decision C54/2018 approved the request from CEN/TC 250 to withdraw EN 1993-4-3:2007 Eurocode 3: Design of steel structures – Part 4-3: Pipelines as presented in CEN/TC 250 N 1932.

Structural Eurocodes are equally applicable to whole structures and to individual elements of structures (products).

Standardization in the structural design field across national boundaries enables a greater flow of technical expertise, information and products between countries and lead to greater cooperation and harmonization in the building and civil engineering market place particularly in the field of design of whole structures (consulting engineers) and the design of structural elements (product manufacturers) as well as in competitiveness and fairness of tendering - 'the level playing field'.

Political, economic, social, technical, legal and international factors that either directly require some or all of the standardization activities proposed by CEN/TC 250, or significantly influence the way these activities are carried out are the following:

- The relationship with the Construction Products Regulation (CPR) particularly Basic Requirement for Construction Works 1: Mechanical resistance and stability and Basic Requirement for Construction Works 2: Safety in case of fire and Basic Requirement for Construction Works 4: Safety in use.
- The importance of the Structural Eurocodes is not only its relevance to structural design rules for buildings and civil engineering structures in the 33 CEN Members but also on the international scene.
- This work is closely monitored by CEN Members under ISO in order to minimize differences in their design practices and in order to achieve greater harmonization between CEN and ISO Members. Greater ISO/CEN co-operation is foreseen.

## **1.2 Quantitative Indicators of the Business Environment**

The construction industry is hugely significant to the European economy. It is generally accepted that it accounts for some 6-7 % of total European GDP and employs approaching 15 million people.

Analysis reported by the European Commission in impact assessment SEC (2008) 1900 has identified the total annual value of the European construction market as over 1,800 €Billion, with design services making up 75 €Billion.

Furthermore, the use of the Eurocodes extends outside the European economy. The Standards are currently being implemented by countries in Asia and Africa, and are being incorporated into design requirements used in Middle East. Dialogue is ongoing with Russia and interest has been expressed by many other countries around the world.

## **2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC**

Structural Eurocodes prepared by CEN/TC 250 enable Design Engineers to utilize harmonized design rules for structures and hence assist in eliminating barriers to trade. The benefits and opportunities of adopting the Eurocodes include:

- provide a common understanding regarding the design of structures between owners, operators and users, designers, contractors and manufacturers of construction products
- facilitate the exchange of construction services between countries
- facilitate the marketing and use of structural components and kits of parts in Member

**States**

- a common basis for research and development in the construction sector
- allow the preparation of common design aids and software
- increase the competitiveness of the civil engineering firms, contractors, designers and product manufacturers in their world-wide activities.

Furthermore, the intended impacts and associated benefits of the current CEN/TC 250 work programme for the development of the second generation of EN Eurocodes are summarized in the table below:

<b>Impact</b>	<b>Benefit</b>
User confidence in Eurocodes retained as they remain state-of-the-art documents	This is an essential underpinning requirement for the Eurocodes to remain credible standards of the highest reputation, promoting confidence in their use within Europe and adoption elsewhere around the world. Increased user-friendliness in comparison with the first generation of Eurocodes will reflect best practice in standards development.
Improved efficiency of design processes and reduced barriers to entry through enhanced user friendliness	The design market has an annual worth of 75€Billion. Every 0.1% efficiency saving in design processes would therefore yield a 75€Million annual saving. Enhanced user friendliness will reduce barriers to entry and aid opportunities for small and medium sized enterprises.
Improved harmonization across member states, through e.g. reduction in NDPs and different design methods	Improved harmonization will reduce barriers to trade of products and services.
Use of new methods and new materials. Enhanced coverage of robustness	This will enable the latest technologies and knowledge to be applied in a way that is acceptable for practitioners, promoting cost effectiveness and sustainability in design, and innovation.
Relevant sustainability consideration incorporated within design requirements	This supports European Community objectives, including those for energy saving and waste accrual.
Climate change consideration embraced within Eurocodes	This will provide increased resilience of long-life infrastructure assets to potential climatic changes. It is very cost effective to address such risks at the design stage rather than through later retrofitting. Such an approach also reduces user disruption and environmental impacts.
Incorporation of initial requirements for assessment and retrofit of existing structures	This supports the effective and sustainable management of existing infrastructure, providing a consistent technical framework across member states as a platform for future R&D and appropriate harmonization, enabling the sustainable life extension of existing assets.

### **3 PARTICIPATION IN THE CEN/TC**

All the CEN national members are entitled to nominate delegates to CEN Technical Committee, its eleven Subcommittees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions.

Over recent years TC 250 Sub-committees (TC-SCs) and Working Groups (TC-WGs) have established a complex structure of subordinate groups (sub-groups) to support them in their work. The latest CEN/TC 250 substructure list is available in the [01. Public information](#) folder on Livelink.

To participate in the activities of CEN/TC 250 and its subordinate groups, please contact the national standards organization in your country.

### **4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT**

#### **4.1 Defined objectives of the CEN/TC**

The Structural Eurocodes programme was initiated by the European Commission with the objective of establishing a set of common technical rules for the design of building and civil engineering works to ultimately replace the differing rules in force in the various Member States. This objective remains.

Structural Eurocodes prepared by CEN/TC 250 enable Design Engineers to utilize harmonized design rules for structures and hence assist in eliminating barriers to trade.

For the Structural Eurocodes to remain world-class Standards, it is essential that they are periodically revised to reflect changes to the state of the art, enhanced user-friendliness, latest innovations and the needs of the market.

In addition to the development and maintenance of the Eurocodes, CEN/TC 250 supports efforts of the European Commission to promote the use of the Structural Eurocodes, including promotion outside the member states of the European Community.

#### **4.2 Identified strategies to achieve the CEN/TC's defined objectives.**

In order to achieve its objectives, CEN/TC 250 operates 11 Sub-committees and 5 Working Groups to cover all aspects of structural design with different materials and under different loading and environmental conditions. These Sub-committees (SCs) and Working Groups (WGs) are as follows in the figure 1 below.

The Chairmen and Convenors and the Secretaries and Professional Standardization Supports of the SCs and WGs are spread across many of the CEN Members in order to achieve greater co-operation and harmonization.

CEN/TC 250 recognises the on-going essential relationship between Eurocodes and National Regulations and encourages the participation of regulators in its work and in continuous formal and informal consultation.

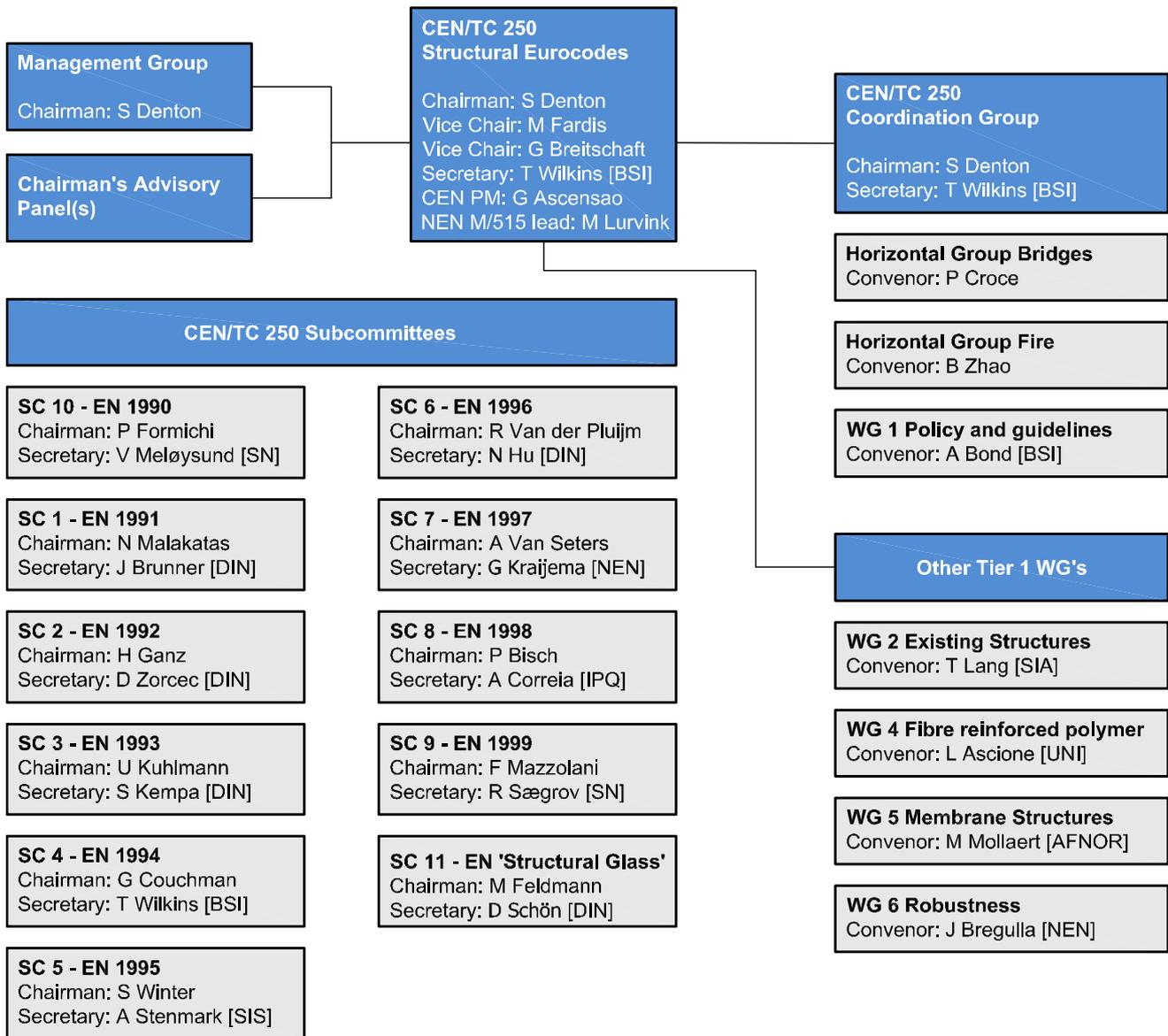


Figure 1: CEN/TC 250 Organogram (July 2020)

CEN/TC 250 also strongly recognizes its responsibilities to ensure consistency throughout Eurocodes in both technical and presentational aspects and the essential requirement to communicate and cooperate with other bodies in the construction industry. The Co-ordination Group and specialist Horizontal Groups within CEN/TC 250 are critical in furthering consistency.

The TC and all Sub-committees have formed liaisons with relevant related product and material TCs in CEN and with appropriate external bodies such as EOTA. The Co-ordination Group (CEN/TC 250/-/1) under CEN/TC 250 meets on a regular basis in order to co-ordinate various aspects of the Eurocodes. Two further Horizontal Groups currently cater for Co-ordination in Fire matters and Bridges, as illustrated above. It is anticipated that the WGs on existing structures and robustness may transition to operating in a horizontal mode during the delivery of the CEN/TC 250 Work Programme.

Details of the CEN/TC 250 strategy are included in the Policy Guidelines and Procedures document N 1250, available in the [01. Public information](#) folder on Livelink, (developed from earlier guidance in N 250 and N 600) prepared for the guidance and use of the many experts directly involved in the development of Structural Eurocodes.

N 1250 sets out the technical design philosophy and gives guidance on procedures, consultation, administration aspects, programming and drafting. It emphasizes the fundamental need for user-friendliness and use of current state-of-the-art design methods. N 250 and N 600 are still applicable for any amendments to the first generation of EN Eurocodes.

### **4.3 Environmental aspects**

Environmental aspects are addressed within the Eurocodes through the definition of relevant environmental actions and the requirements for achieving durability. Furthermore, M/515 EN requires the preparation of a technical report on how to adapt the Eurocodes to take into account the relevant impacts of future climate change and the consideration of sustainability issues. Although CEN/TC 250 does not lead on sustainability matters within CEN, the provisions of the Eurocodes can impact on sustainability.

### **5 Factors affecting completion and implementation of the CEN/TC work programme**

The technical input for the work of CEN/TC 250 is carried out by a considerable number of experts in various fields including academics, regulators, design consultants and constructors by direct participation, consultation, experimental application and comment.

The European Commission (EC) has made funds available for the four phases in the execution of mandate M/515. This funding pays for part of the work carried out by the experts, co-ordinators, Chairmen and Secretariats but much of the support comes from the organizations and institutions that employ the experts for their day to day work.

Targets can generally be met so long as this support for the people involved continues to be available and organizations continue to support their experts for this work.

A major concern within CEN/TC 250 is the need to sustain a high level of co-operation/liaison with other related CEN TCs to ensure that design requirements are only given in the Structural Eurocodes or, in exceptional circumstances where they are included in other Standards, that they are fully compatible and do not conflict with the Eurocodes. In July 2014, CEN BT decision C36/2014 Structural and geotechnical design rules: CEN/TC 250 'Structural Eurocodes' and other CEN/TCs was approved, which reconfirmed that CEN/TC 250 has the overall responsibility for structural and geotechnical design rules for buildings and civil engineering. In response to BT 36/2014, 60 CEN TCs dealing with construction products or related to construction works have been contacted by CEN/TC 250 with the objective to strengthen existing liaisons and to establish new ones throughout the development of the second generation of EN Eurocodes.

The published suite of Eurocodes incorporates a considerable number of Nationally Determined Parameters (NDPs) allowing countries to decide on safety levels, and to give national geographic and climatic data, in National Annexes. These NDPs were a vital tool in achieving international consensus and enabling the standards to be implemented within national legal frameworks. All M/515 tasks concerned with existing Eurocode parts include a requirement to reduce the number of NDPs and enable better consensus on values adopted by Countries. In support of this effort, BT has previously supported the availability of National Annexes for CEN/TC 250 Sub-Committees and Working Groups through decision BT C105/2013. Currently, 1316 National Annexes have been provided from 28 European countries to support the work programme. CEN/TC 250 decision 37/2018 'Eurocodes – Continued use of National Annexes in CEN/TC 250 Documents' was taken during the 54th plenary meeting on the 22 – 23 November 2018. This was ratified through CEN BT decision 20/2019 taken on the 11 April 2019 whereby agreeing that deliverables developed by CEN/TC 250 under mandate M/515 shall retain the same capabilities for National Annexes as established in the first generation of EN Eurocodes, with a reminder to CEN/TC 250 that the ultimate goal consists in developing standards in line with the global relevance policy, in that they refer to essential differences rather than national differences (geographic, climate, seismic risks, etc.) and therefore expects CEN/TC 250 to reduce the number of national determined parameters and to eliminate them over time, in line with M/515.

Inter-relationship with regulatory matters is also an on-going issue, as is the timely and accurate translation of the Eurocodes.