

Date: 31 August 2018

## **To the Members of CEN/TC 250 *Structural Eurocodes***

### **N 1250 POLICY GUIDELINES AND PROCEDURES (Version 7a)**

**Note 1** This document provides the policy guidelines and procedures to be followed in preparing EN Eurocode Parts in response to EU Commission Mandate M/515. This dated version provides information relevant to the Project Teams for the work programme for M/515.

**Note 2** This document is derived from N 250 and N 600. The structure of N 250 has been simplified while including relevant aspects of N 600. The previous version of N 250 G Rev 2 from 2007, together with N 600, Rev1, gives the substantive policy guidelines and procedures used for the first generation of EN 1990 - EN 1999.

**Note 3** This version contains editorial improvements on version V7 as emerged from feedback from Project Teams under M/515 and to align the content with the Chairman's Briefing Notes CBN 2018-1 Informative annexes, document, CEN/TC 250 N 1948 and CBN 2018-2 Guidance on verb forms for users, document CEN/TC 250 N 1949, as agreed during the CEN/TC 250 meeting in Oslo through decision 13/2018...

## Record of changes made to N 1250 in version (7a) dated 2018.08.31

1. Requirement to present terms and definitions in alphabetical order has been removed, see 7.4(2). Alphabetical order would be lost when translated into French and German.
2. Typos in 8.5.2(3) corrected (the term “formulae” had to be used rather than “math”).
3. In 8.6.2(4)b the sentence “although reference to dated standards should be avoided” has been removed as reference to dated standards may be needed when making reference to specific clauses.
4. Figure A.1 has been updated with the latest CEN/TC 250 Organisation structure.
5. The text on Information annexes presented in Annex D4 and Annex D6 has been updated to align with CBN 2018-1 CEN/TC 250 N 1948.
6. Guidance on the interpretation of verb forms provided in 8.2.3 and Annex D4 has been confirmed in CBN 2018-2 CEN/TC 250 N 1949.

## Record of changes made to N 1250 in version 7 dated 2018.03.08

1. 6 restructured into four sub-clauses to cover NDPs (6.1), National Annexes (6.2), NCCI (6.3) and project-specific criteria (6.4). 6.1 has been restructured to include old 6.1 and 6.2.4; 6.3 corresponds to old 6.2.5 Additional Information; 6.4 is a new clause.
2. 7 “Style of the EN Eurocodes” has been split into two sections, 7 “Style of EN Eurocode clauses” and 8 “Style of EN Eurocode provisions” to clarify (i) the standard text to be provided in the initial clauses of the EN Eurocodes and the style of Annexes, particularly Informative Annexes, and (ii) the style of provisions.
3. The new 7 “Style of EN Eurocode clauses” covers:
  - a. European Foreword, Introduction and Common sequence of clauses (7.1): new text provided on European Foreword and Introduction; clarification of the use of the words ‘section’ and ‘clause’ in the EN Eurocodes;
  - b. Clause 1 Scope (7.2): new clause which clarifies the text to be provided in the Scope of EN Eurocodes;
  - c. Clause 2 Normative references (7.3): new clause which clarifies the introductory text that should be used at the start of this clause;
  - d. Clause 3 Terms definitions and symbols (7.4): this includes old 7.7.2 and 7.7.3, clarifies how terms and definitions should be ordered, and the use of SI units;
  - e. Clause 4 Basis of Design (7.5): new clause introducing the framework developed to enhance consistency of clauses 4 across EN Eurocode parts;
  - f. Annexes (7.6): this includes old 7.8.1 and 7.8.2, provides guidance on sequencing Annexes (7.6.1), clarifies how annexes should be introduced in the main text (7.6.2), and clarifies how reference to Informative Annexes should be made (7.6.3); .
  - g. Use of Technical Specifications to support EN Eurocodes (7.7): this corresponds to old 7.9.
4. The new 8 “Style of EN Eurocode provisions” covers:
  - a. Neutrality (8.1): this corresponds to old 7.1;
  - b. Verbal forms to be used for the expression of provisions in EN Eurocodes (8.2). This is restructured into four clauses. 8.2.1 corresponds to old 7.2; 8.2.2 corresponds to old 7.3; 8.2.3 includes amended wording of the definitions of ‘should’, ‘may’ and ‘can’, following consensus from the CEN/TC 250 informal group set up at the CEN/TC 250 meeting in

Berlin 16-17 November 2017; 8.2.4 clarifies the use of “P” to introduce statements of principle and provides an alternative approach to ensure that the correct verbal forms are used by means of abbreviations;

- c. Use of two-part description for clauses, tables and figures (8.3): this corresponds to old 7.6;
  - d. Tables in Notes (8.4): new clause providing guidance on use of tables in Notes;
  - e. Formulae (8.5): new clause which clarifies the wording to be used to introduce formulae in the main text (8.5.1) and symbols after formulae (8.5.2);
  - f. References to other standards (8.6). This is restructured into three clauses. General (8.6.1) contains text taken from old 7.5 on how to refer to other standards and non-normative documents; Product standards (8.6.2) corresponds to old 7.5; Execution standards (8.6.3) corresponds to old 7.10;
5. Use of conditional expressions (8.7): new clause providing guidance on use of conditional expressions;
  6. Figures (8.8): new clause clarifying the rules to be followed for figures.
  7. D3 Model European Foreword [to be finalised]
  8. D4 Model Introduction
  9. D5 Update and addition of common contents for clause 4 Basis of Design.
  10. D6 Content at the start of an Informative Annex

### **Record of changes made to N 1250 in version 6a dated 2017.06.07**

1. Reintroduced clause in 5.3 (3) from N 1250 version 5 with pre-existing clause renumbered and split into 5.3 (4) and 5.3 (5).

### **Record of changes made to N 1250 in version 6 dated 2017.06.01**

1. Reintroduced clause 6.2.3 'Decision on the application of informative annexes' from N 1250 version 4 with pre-existing clauses renumbered.
2. Added an additional paragraph 7.5 (2) 'Reference to other standards' with pre-existing clauses renumbered.
3. Updated CEN/TC 250 Organization Structure in annex A.
4. Added CEN BT decisions 53/2016 and 27/2017 to annex B.
5. Updated annex F 'Use of verb forms' following the publication of CEN-CENELEC Internal Regulations Part 3:2017.
6. Examples of background documents are provided in annex H.
7. Minor changes to 7.4 (1) 'Meaning of verbal forms' to address potential ambiguities with alignment with CEN-CENELEC Internal Regulations Part 3.

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# 1. Introduction and purpose of guidelines

(1) These guidelines give the objectives, the principles and the means by which the second generation of Eurocodes is to be achieved. They are to be used for implementing the response from CEN/TC 250 to the EU Commission's Mandate M/515.

Note 1 All the information in this document about procedures etc. follows the CEN Internal Regulations (CEN IR), and associated guidance, especially in Supporting Documents, available at <http://boss.cen.eu/reference%20material/RefDocs/Pages/default.aspx>. The only exception is a derogation to permit two-part numbering for figures, tables and formulae. In addition, it has been agreed that paragraph numbers shall be retained in the text.

Note 2 This document itself conforms as far as possible to the guidance contained within it.

(2) A general guide to European standardisation (the Vademecum) is available at: [http://ec.europa.eu/growth/single-market/european-standards/vademecum/index\\_en.htm](http://ec.europa.eu/growth/single-market/european-standards/vademecum/index_en.htm). This Vademecum compiles key documents from the European Commission on European standardisation policy and related practice. It provides guidance without having legal status.

(3) These guidelines (including the Annexes) should be followed by CEN/TC 250 Subcommittees (SC), Working Groups (WG), Horizontal Groups (HG), Task Groups (TG) and Project Teams (PT) revising existing Eurocodes and extending the scope of the structural Eurocodes with new EN Eurocode Parts. The Technical Committee (TC) itself will have regard to these principles in its overview and management of the work.

Note 3 New SCs may now only be created by exception by CEN/BT so the responsibility for new work having the scope of a subcommittee may be assigned to a new WG that reports directly to CEN/TC 250. However, some of the rules of procedure for WGs are different to those for SCs but for the purposes of CEN/TC 250 have been aligned with those for SCs. Existing SCs may have new subordinate WGs of experts.

Note 4 TGs and PTs are not part of the formal CEN hierarchy but have been created by CEN/TC 250 according to specific conditions defined below.

(4) When an EN Eurocode Part is being revised a draft of the new version will be prepared as a prEN and published for national enquiry. Depending on the response the draft may be approved as EN or amended as an FprEN for Formal Vote by CEN members.

(5) In the cases of the development of EN Eurocode Parts covering (i) the Assessment and retrofitting of existing structures; (ii) Structural Glass; (iii) Membrane Structures; (iv) Fibre Reinforced Polymer Structures, a stepwise procedure shall be followed whereby a JRC Science and Policy report is prepared first, followed by a CEN Technical Specification (TS) and finally, after a period of trial use and comment, a new EN Eurocode Part.

Note 5 The full procedure for converting a CEN TS to a CEN EN is given in CEN-CENELEC Internal Regulations Part 2 (CEN IR 2).

Note 6 The stepwise procedure was approved by Resolution of CEN/TC 250: Resolution 255 (CEN/TC 250, Malta, 20th and 21st November 2008):

Subject: Development of new technical Parts of the Eurocodes for Glass, FRP and Membrane Structures.

CEN TC 250 agrees that the development of new Parts of the Eurocodes on Glass, FRP and Membrane structures should be achieved in steps, as follows:

1. Preparation of technical rules in the form of technical recommendations as 'Scientific and Technical Reports'<sup>1</sup> by for example JRC.
2. After acceptance of the 'Scientific and Technical Report'<sup>1</sup> by TC 250, adaptation of it into a CEN Technical Specification.
3. Upon the agreement of CEN TC 250, conversion of the CEN Technical Specification into a Eurocode Part.

The resolution was agreed by unanimity.

<sup>1</sup> Designation changed subsequently to Science and Policy Report.

(6) In respect of the drafting, editing and publication of documents (at TS or EN stage) the objective is to achieve what is good and practicable, quickly within agreed timescales, rather than incur delays by seeking theoretical “perfection”. Repeated and belated attempts to incorporate last minute research results or alternative ideas must be avoided.

## 2. The objectives of the Eurocodes and their status

(1) As stated in the EU Commission's original objectives for the first generation of Eurocodes, which remain current, the intention of the EN Eurocodes programme is to establish a set of common technical rules for the design of building and civil engineering works, to replace the differing rules previously in force in the various Member States.

Note 1 In this document reference to the EU Commission includes the EFTA Secretariat.

(2) The Eurocodes have been developed to enable the design of construction works (building and civil engineering works) to comply with Basic Requirement for Construction Works 1 (mechanical resistance and stability) and partially Basic Requirement for Construction Works 2 (safety in case of fire), and Basic Requirement for Construction Works 4<sup>1</sup> (safety in use) of the Construction Products Regulation EU/305/2011 and to determine the performance of structural construction products.

Note 2 The relationship with structural construction products requires CEN/TC 250 to observe CEN BT Decision C36/2014, reproduced in Annex B, and to define clearly the interface between the Eurocodes and Product and Execution Standards.

(3) Application of the Eurocodes in the EU Member States supports the Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market (“Services Directive”). Disparities in design/calculation methods of the national building regulations constitute impediments to the free circulation of engineering and architectural services within the Community. The implementation of the Eurocodes should facilitate the provision of services in the field of construction engineering and architecture by creating conditions for a harmonised system of general rules. To ensure their application over time, the Eurocodes need to be updated to take into account developments on the market (new materials, products, methods, etc.).

(4) As a basis for specifying public construction and related engineering service contracts. Works Directive (EU/2014/24, contracts for public works, public supply and public service), covers procurement by public authorities of civil engineering and building works, and the Services Directive (EU/ 2006/123 on services in the Internal Market), covers public procurement of services. They state that contracting authorities must allow the use of European Standards, like the EN Eurocodes, in tenders falling within the remit of these Directives. Common design/calculation rules for infrastructure and other construction works facilitate the circulation of goods and persons in the internal market. Thus, they contribute towards creating conditions for extended competition for public contracts. In addition, EU Directive 2014/23 concerns the award of concession contracts.

(5) These codes are also being implemented for use in a number of third countries outside the EEA where, in addition to the direct benefits for the countries themselves, their use is expected to contribute towards an improved competitiveness of the European construction industry.

(6) The development of the second generation of Structural Eurocodes will be undertaken focusing on users’ needs. CEN/TC 250 has unanimously agreed a position paper on enhancing the ease of use of the Eurocodes, reproduced in Annex G. Ten categories of users have been identified. However, whilst all users of the Eurocodes are important, it is not possible to fulfil all their aspirations simultaneously. Therefore, a primary target audience has been identified to focus drafting efforts. The primary target audience for the Eurocodes evolution is “Practitioners – Competent engineers”. This audience will take precedence if conflicts with needs of other audiences arise. Competent engineers are civil, structural and geotechnical engineers, typically qualified professionals with experience able to work independently in relevant fields. Statements of intent setting out the aims of CEN/TC 250 to meet the needs of other users are presented in Figure 3 of Annex G.

The Construction Products Regulation has also introduced Basic Requirement 7 on the sustainable use of natural resources

Note 3 Certification of “competent engineers” is a national prerogative and not within the scope of CEN/TC 250 and the Eurocodes.

(7) CEN/TC 250 aims to encourage the optimisation of input and comment from all potential users. All sectors in each Member State should be provided with the ongoing opportunity to make input to their National Standards Body and hence, via National Delegations, to CEN/TC 250 and its SCs and WGs. CEN/TC 250 has also established liaisons with other CEN and ECISS Technical Committees (TCs) and with recognised European professional and trade bodies.

(8) It is important to recognise that there is a clear and vital distinction between design codes and national regulations. CEN/TC 250 is fully aware that the harmonisation of National Regulations is not within the scope of the National and European Standards Bodies. CEN/TC 250 is responsible for, and committed to, the formulation of documents, which can be implemented without amendment in all Member States. These Policy Guidelines point the way to resolving this matter by a combination of Eurocodes drafting and action at National level.

### 3. The role of CEN/TC 250

#### 3.1. Responsibilities in CEN

3.1.1 The formal hierarchy of responsibilities in CEN is given in CEN-CENELEC Internal Regulations Part 2.

3.1.2 For the purposes of these guidelines for CEN/TC 250, the position may be summarised as follows:

(1) **CEN/TC 250 Chairman.** It is the responsibility of CEN/TC 250 and its Chairman to manage all the work, including establishment of general policies, programmes and strategies for the structural Eurocodes, and to oversee their implementation. Annex A provides the management arrangements, including a Management Group, established to deliver the programme on time. They will support and guide the SCs and WGs in achieving the policy objectives in the drafting work. The status and relationship of the Eurocodes to other TCs is given in BT Decision C36/2014 in Annex B.

(2) **CEN/TC 250 Vice Chairman.** The CEN/TC 250 Vice Chairman supports the CEN/TC 250 Chairman, acting as a champion of the vision and objectives for the next generation of EN Eurocodes. The Vice Chairman serves as a member of the core management team for the work of CEN/TC 250, confirming that it is proceeding in line with agreed objectives and supporting corrective measures if required. The Vice Chairman make take responsibility for specific actions or initiatives agreed with the Chairman, which may include, for example, chairing a ‘Chairman’s Advisory Panel’ on a specific subject. The Vice Chairman may deputise for the Chairman.

(3) **Responsibilities of the CEN/TC 250 Secretary.** The Secretary, appointed by the member holding the Secretariat, shall in consultation with the Chairman ensure that the Technical Committee functions efficiently and, in particular, that agreed timetables are kept to. The Secretary is responsible for ensuring that the CEN/CENELEC Internal Regulations are followed. The Secretary shall maintain strict impartiality and be independent of any national point of view. The Secretary has no voting rights. The Secretary shall deal with requests from the CEN-CENELEC Management Centre for examination of new ISO/IEC publications to see if they are suitable as reference documents. The Secretary shall ensure that CEN/CENELEC publications are periodically reviewed. The Secretary shall keep files on Technical Committee work in hand and shall hand these over in good order if the Secretariat changes. The Secretary shall ensure that documents are in accordance with the CEN-CENELEC Internal Regulations – Part 3 (CEN IR 3) before transmission of the draft to the CEN-CENELEC Management Centre for initiating the CEN/CENELEC enquiry and formal vote.

(4) **Coordination Group.** CEN/TC 250 has established CEN/TC 250/-/1, the Coordination Group (CG), to provide technical and programme coordination, both in relation to maintenance and the development of new EN Eurocode Parts. The CG has established HGs for Bridges (HGB) and for Fire (HGF).

(5) **Subcommittees and Working Groups, and their Chairmen and Convenors.** The responsibilities of SCs and WGs, and their Chairmen or Convenors, are to undertake and manage the work delegated to them by CEN/TC 250 within their terms of reference and agreed timescales. They have a vital responsibility for establishing technical policies, strategies and coordination of matters exclusive to their work (without overriding established CEN/TC 250 general policies, etc.) but must refer wider matters to the TC or CG. They also have responsibility for liaison and cooperation with the other CEN/TC 250 SCs, WGs, related TCs in CEN, and other European and International Standards Organisations, as well as with relevant European professional and trade Associations.



## **3.2. Subordinate groups to CEN/TC 250 Subcommittees and Working Groups**

(1) CEN/TC 250 passed decision 354 in London, May 2014, deciding the following:

- A CEN/TC 250 Subcommittee (TC-SC) may choose to operate, at any time, a subordinate structure of Working Groups (SC-WGs) and below them Task Groups (SC-WG-TGs). A CEN/TC 250 Working Group (TC-WG) may choose to operate, at any time, a subordinate structure of Task Groups (TC-WG-TGs). All such subgroups shall have a number, title and clear terms of reference. The title should succinctly explain the purpose of the sub-group. The number, title, Terms of Reference and name of Convenor shall be notified to CEN/TC 250 via the Secretariat of CEN/TC 250.
- Responsibility for the technical work of Project Teams (PTs) created in response to Mandate M/515 will reside with the relevant TC-SC / TC-WG. The TC-SC / TC-WG may choose to delegate certain tasks to their sub-groups at any time. Project Teams (PTs) shall report directly to the relevant TC-SC / TC-WG on technical matters. Sub-groups shall not extend the scope of the work of a PT.

## **3.3. Appointments and reappointments**

### **3.3.1 Reappointment Chairman and Convenors**

(1) CEN/TC 250 passed decision 422 on the 23 May 2016, deciding that the appointment of TC, SC, WG and HG Chairpersons or Convenors shall always be for an initial 3 years, and when the term of appointment of a Chairperson or Convenor is due to expire, and the incumbent is prepared to extend their tenure, the approach for re-appointment shall follow the relevant CEN rules, with the following guidance applied:

- I. The relevant Secretary may propose re-appointment after 3 years without seeking alternative candidates;
- II. Re-appointment after 6 years should only occur after alternative candidates have been sought by the relevant Secretary and the TC/SC/WG/HG provided an opportunity to consider all potential candidates;
- III. Appointments should be undertaken with due consideration to providing continuity during key phases of the delivery of the CEN/TC 250 work programme, and also the importance of effective succession planning.

### **3.3.2 HG Convenors**

(1) CEN/TC 250 passed decision 353 in London, May 2014, deciding that the procedure for the appointment of HG Convenors shall be for nominees for the role of Convenor to be sought within the membership of the HG. A recommendation for the Convenor should be made by the HG for decision by CEN/TC 250.

## **3.4. Responsibilities of CEN/TC 250, and its SCs, WGs, HGs and PTs in response to Mandate M/515**

(1) M/515 requires at least one additional structural Eurocode and substantial additions to the existing codes to cover:

- assessment, re-use and retrofitting of existing structures,
- strengthening of the requirements for robustness,
- improving the practical use for day-to-day calculations
- new Eurocode on: structural glass.

(2) The response from CEN/TC 250 to fulfil the requirements of M/515 is contained in CEN/TC 250 N 993.

(3) The Commission has accepted the quotation from CEN and provided funds, initially to assist the first phase of the work programme. This quotation, together with the call for experts undertaken to establish Project Teams (see clause 5), establishes the following responsibilities in connection with the execution of the mandate:

a) NEN Staff members

In accordance with the CEN transfer agreement between BSI (as CEN/TC 250 secretariat) and NEN, NEN will have responsibility for professional management support in the form of administrative, operational, reporting and accounting services for the execution of the grant agreement.

NEN will:

- provide general project management;
- serve as a member of the CEN/TC 250 Management Group;
- undertake a call for tender for experts (by means of a dedicated web site);
- subcontract with the phase 1 experts (approximately 220 contracts);
- monitor and steer the progress of the phase 1 tasks by contract management;
- coordinate financial work between CEN/TC 250 and CEN CENELEC Management Centre; and undertake interim and final reporting.

These activities will be performed in close collaboration with the CEN/TC 250 Management Group and BSI.

b) CEN/TC 250 Chairman

The CEN/TC 250 Chairman's responsibilities in connection with the execution of the mandate include:

- setting a clear vision and priorities for the evolution of the Eurocodes, agreed with CEN/TC 250, and communicating this vision effectively with stakeholders across Europe;
- establishing and maintaining the overall leadership and governance framework for the execution of the mandate;
- preparation for and chairing meetings of CEN/TC 250 plenary, the CEN/TC 250 CG and the CEN/TC 250 management group;
- provision of support and leadership to SC and WG Chairmen in their tasks for Mandate M/515;
- liaison with the European Commission and CEN on behalf of CEN/TC 250;
- review of Project Team progress reports, and implementation of any corrective actions if required;
- review of draft deliverables; and,
- participation in meetings as required to support the execution of the mandate and ensure effective communications with stakeholders both within and outside CEN/TC 250 structure.

c) CEN/TC 250 Subcommittee (SC) Chairman and Working Group (WG) Convenors

As key leaders in the CEN/TC 250 organisation structure, the role of SC/WG Chairmen and Convenors in overseeing and coordinating work done by the Project Teams will be essential to the successful execution of the mandate. Their responsibilities include:

- communicating the clear vision and priorities for the evolution of the Eurocodes, agreed with CEN/TC 250, to their SC/WG;
- supporting the overall leadership and governance framework for the execution of the mandate;
- ensuring that the work of Project Teams aligns with the objectives of the mandate and the requirements of CEN/TC 250 and the relevant SC/WG;
- preparation for and chairing meetings of SC/WGs;
- active participation in CEN/TC 250 plenary and the CEN/TC 250 Coordination Group meetings;
- participation in Project Teams as an ex-officio member, providing technical leadership when required;
- review and approval of Project Team progress reports, and agreement of any corrective actions required with CEN/TC Chairman;
- preparation of SC/WG progress reports, in particular identifying any significant risks to delivery and technical coordination matters requiring resolution;
- review of draft deliverables; and,
- participation in meeting as required to support the execution of the mandate and ensure effective coordination of cross-cutting issues.

d) Project Team Leaders

The responsibilities of Project Team Leaders are to:

- lead the Project Team and coordinate the input from its members;
- communicate the vision and priorities for the evolution of the Eurocodes, agreed with CEN/TC 250, to their Project Team;
- ensure that the work of the Project Team aligns with the objectives of Mandate M/515 and the requirements of CEN/TC 250 and the relevant Subcommittee (SC), Working Group (WG) or Horizontal Group (HG);
- plan the delivery of the task and drive delivery to programme;
- organize and chair (face-to-face and online) meetings of the Project Team;

- present and discuss the result of the work within the responsible SC/WG or HG, when required;
- evaluate and report on comments received from SC/WG/HG or through the enquiry process;
- review and incorporate proposals from the SC/WG/HG in the drafts, ensuring consistency and coherence with the rest of the draft; and,
- prepare progress and final reports.

The Project Team Leader shall inform NEN of any event or risk liable to substantially affect the contribution of the Project Team to the CEN/TC 250 work programme and/or delay delivery to the required timetable.

#### e) Project Team Members

Project Team members will be recognized experts who collectively provide the portfolio of skills and knowledge required to successfully deliver each Project Team's task. They will be responsible for working together and with the Project Team Leader to deliver the task requirements and support the Project Team Leader in fulfilling the Project Team Leader's responsibilities.

Project Team Members shall work proactively, collectively and collaboratively to:

- agree individual assignments and responsibilities within the Project Team;
- provide new technical draft texts, or corrections and/or amendments to existing texts for inclusion in the next generation of the Structural Eurocodes;
- provide contributions to background reports providing justification for technical choices made within the draft texts;
- provide suggestions and justification for the reduction of National Determined Parameters (NDPs);
- provide suggestions for the enhancement of the ease of use of the next generation of Eurocodes;
- ensure that the work of Project Team aligns with the objectives of Mandate M/515 and the requirements of CEN/TC 250 and the relevant Subcommittee (SC), Working Group (WG) or Horizontal Group;
- plan the delivery of those parts of the task assigned to them and achieve delivery to programme;
- when agreed, present and discuss the result of the work within the responsible SC/WG/HG;
- evaluate and report on comments received from SC/WG/HG or through the enquiry process;
- review and incorporate proposals from the SC/WG/HG in the drafts, ensuring consistency and coherence with the rest of the draft; and,
- contribute to progress and final reports.

Project Team Members shall inform the Project Team Leader of any event or risk liable to substantially affect or delay the delivery of the task.

(4) The mandate does not include maintenance related to existing clauses in the Eurocode standards; such work is covered by the previous mandates for the development of the Eurocodes. The guidance in N 250 and N 600 still applies to the amendment of existing standards. The preparation and implementation of the standardisation work resulting from M/515 should not be allowed to delay high-priority maintenance tasks related to the existing Eurocodes.

### 3.5. Meetings and communication

(1) When possible work of the TC, SCs and WGs shall be conducted by correspondence. All SCs and WGs are registered on CEN Livelink so as to provide transparency and to assist in rapid work progress and compliance with tight target dates.

Note 1 It is CEN policy that all TCs, SCs and WGs use Livelink as the means for document storage and access by members. CEN provides facilities for tele meetings.

(2) Meetings shall be held when necessary to have face-to-face discussion in order to reach decisions and agree the way forward. The dates for meetings should be arranged to meet agreed deadlines in the work-item programmes.

## 4. CEN/TC 250 Programme and prioritization

(1) The CEN/TC 250 work programme (Annex 1 of document CEN/TC 250 N 993) addresses all the requirements of M/515, supplemented by requirements established through extensive consultation with industry and other stakeholders. As such the overall work programme includes elements for which funding is sought from the EU Commission and elements that will be wholly funded from other sources, principally industry.

(2) The work programme is structured to comprise four overlapping phases. In the response a complete overview of all phases is included, with further detail provided for those tasks in Phase 1 that formed the basis for initial contractual discussions with the EU Commission. Details are provided of the organisational structure for the execution of the mandate and the means by which effective coordination will be assured. To maximise the benefit derived from the extensive existing network of active stakeholders, the organisational structure has been based upon the current CEN/TC 250 operating model.

(3) The CEN/TC 250 work programme comprises approximately 77 discrete tasks, all of which will be undertaken under the direction of one of CEN/TC 250's existing SCs, WGs or HGs. A summary of the deliverables for each task is provided in CEN/TC 250 N 993, together with a mapping between the explicit requirements of M/515 and the CEN/TC 250 work programme.

(4) The structure of the suite of Eurocodes is given in Annex C. Guidance on the structure of EN Eurocode Parts is given in 7 and Annex D.

(5) CEN/TC 250 established a CAP (Chairman's Advisory Panel) to prepare guidance on ease of use. Based on the work of the CAP, a position paper was developed and unanimously agreed by CEN/TC 250. This paper is reproduced in Annex G.

(6) An important part of the programme in response to M/515 is to reduce the number of Nationally Determined Parameters (NDPs) as far as possible. The concept of NDPs, the criteria for deciding to introduce them in an EN Eurocode Part and the manner of doing so are discussed below in clause 6 and in Annex E.

## 5. Setting up, briefing and managing project teams

### 5.1. Responsibility

(1) These tasks are being carried out by NEN, in contract to the Commission under the terms of FPA 2014, with technical input from CEN/TC 250 and its SCs, WGs and HGs. The documents for the Call for Tender documents for Phase 1 of the programme are in CEN/TC 250 N 1263.

### 5.2. Tender process

(1) The main milestones in the tender process are: Launch open Call for experts; deadline for submission of queries; deadline for tender submissions; completion of assessment of tenders by pre-selection panels; final assessment panel to make recommendations to EC/EFTA; confirmation of recommendation; award of contracts.

(2) The object of the evaluation process is to select individual experts to form the most capable team for the task. The MCTT (Most Capable team for the Task) will be determined by assessing the following criteria for potential teams as a whole (in order of importance):

- i. Expert technical coverage of the scope of the task;
- ii. Capabilities of individual candidates;
- iii. Sufficient expertise in Standards development;
- iv. Balance of professional background and experience (design, research, construction, etc.);
- v. Geographic coverage.

(3) The suitability of each Tenderer's nominated expert for membership of a Project Team will be assessed against the criteria set out in the Call. An Evaluation Panel (pre-selection panel) comprising suitably qualified experts without any conflicts of interest will be formed for each task. Each Evaluation Panel will undertake an assessment using their experience and judgment to form an opinion on each Tenderer's submission

and, on the basis of this assessment, make recommendations for the composition of each Project Team to achieve the MCTT.

(4) The Final Assessment Panel will review the recommendations from each of the Evaluation Panels holistically to confirm alignment with CEN/TC 250's objectives. The Final Assessment Panel will be responsible for making the final recommendation for the leadership and memberships of all Project Teams.

### **5.3. Background documents**

(1) It is a requirement of CEN/TC 250 that all future work, including revisions to existing parts and the preparation of new parts, will be accompanied by background documents. These background documents shall serve as a 'technical audit trail' to decisions taken in the standardisation process and will be made available via the CEN/TC 250 (Livelink) database of numbered documents, so that they will be accessible by members of CEN/TC 250 family of sub-committees and working groups. They will also be available to national mirror committees via their NSB to assist in the development of new National Annexes to the second generation of Eurocodes.

(2) The Project Teams shall therefore prepare background reports providing a brief technical commentary to any new or revised clauses including clear references to relevant source papers, reports, national standards etc. These documents should serve as working documents during the standardisation process and a record for the future.

(3) Specifically, Background reports shall satisfy the following:

- i. Background reports shall explain the technical reasons for all decisions to change the Eurocodes from the current published versions or introduce new material;
- ii. The level of detail provided should be commensurate with the complexity of the decision;
- iii. Where references are made to further detailed background information, such information shall either be publically available or be provided as an annex to the background report. Where reference material does not directly explain the decision taken, additional commentary shall be provided.
- iv. Where changes are made in response to systematic review comments, the comment reference should be noted;
- v. In developing background reports the inclusion of reference to the 'Ease of Use' principles being followed is encouraged.

(4) Model templates for background reports have been provided to Project Teams (examples are provided in Annex H).

(5) It is not intended that these reports would be suitable for direct publication, but will provide a valuable source of information for those developing guides, text books or other materials to support industry.

## **6. How to take account of regulatory and other external provisions**

### **6.1. Nationally Determined Parameters (NDP)**

#### **6.1.1 Use of Nationally Determined Parameters**

(1) The normal way in a European standard to take account of variations in national regulatory requirements that cannot be accommodated by harmonisation is by means of an A-deviation (see CEN-CENELEC Internal Regulations Part 3 Annex ZB). As this route is impractical for Eurocodes, because of the relatively large number of national requirements which are likely to be needed, the concept of Nationally Determined Parameters has been devised.

(2) The value of an NDP for use in a country can be given in a National Annex.

(3) Annex E explains how the concept of NDPs should be used in EN Eurocode Parts, including steps to be taken in drafting to minimise their number.

#### **6.1.2 How to refer to NDPs in EN Eurocode Parts**

(1) The following drafting principles shall be followed to introduce NDPs in line with CEN IR 3:

- (i) All references to National Annexes shall be contained in NOTES

- (ii) NOTES shall only contain statements of fact. They shall not contain the verbs shall, should or may.
- (iii) NDPs shall be clearly defined and specific. General references to the National Annex should be avoided, such as 'see National Annex'.

Examples of how NDPs should be referenced are presented in the examples below.

If cases are identified where it is not clear how the reference should be made, advice may be sought from CEN/TC 250 Management Group via the CEN/TC 250 Secretary.

Changes to the way NDPs are referenced do not need to be made for the 2<sup>nd</sup> drafts to be delivered in April 2017 for phase 1, but shall be done for final drafts and for drafts for subsequent phases.

*Example of case where a value is given:*

(1) The partial factor  $\gamma_{F, \text{fat}}$  shall be used for fatigue loads.

NOTE The value of  $\gamma_{F, \text{fat}}$  is 1.0 unless the National Annex gives a different value for use in a country.

*Example of a case where no value is given:*

(1)P In foundation design, limiting values shall be established for the foundation movements.

NOTE Permitted foundation movement can be set by the National Annex for use in a country.

*Example of reference to a table*

NOTE The values of  $\gamma_F$  are given in table X.X unless the National Annex gives different values for use in a country.

## 6.2. National Annexes

### 6.2.1 Definition

(1) National Standards implementing Eurocodes will comprise the full text of the Eurocode (including any annexes), as made available by CEN. It may be preceded by a National title page and National foreword, and may be followed by a National Annex.

### 6.2.2 Content of National Annexes

(1) The main purpose of a National Annex to an EN Eurocode Part is to give information on those parameters which are left open in the Eurocode for national choice (i.e. the Nationally Determined Parameters, see 6.1) to be used for the design of buildings and civil engineering works to be constructed in the country concerned. The precise terminology to be used for the information remains to be finalised but in broad terms are:

- values and/or classes where alternatives are given in the Eurocode,
- values to be used where a symbol only is given in the Eurocode,
- country specific data (geographical, climatic, etc.), e.g. snow map,
- the procedure to be used where alternative procedures are given in the Eurocode.

(2) In addition, a National Annex may give information on the decision of the Country about the application of an Informative Annex (of an EN Eurocode Part). A country may permit the use of an Informative Annex, may prohibit its use or may make use of it as a national requirement. More information on the content of Informative Annexes is given below in 7.6.

## 6.3. Additional Information (NCCI)

(1) Existing EN Eurocode Parts contain references to the concept of non-contradictory complementary information (often known as NCCI) to assist implementation. Guidance on the continued use of this concept is under discussion.

(2) There shall in any case be no reference to NCCI in the unalterable text of an EN Eurocode Part, i.e. in the text of the Eurocode made available by CEN.

## 6.4. Project-specific criteria

(1) In drafting clauses in which the nature of a project imposes specific requirements independent of any requirements by national authorities, a phrase of the following form should be used:

“(…) when / as / if specified by the relevant authority or agreed for a specific project by the relevant parties.”

(2) Generally, both “relevant authority” and “relevant parties” should be cited by the drafters and there should be a specific justification in any case this is not done.

## 7. Style of EN Eurocode clauses

### 7.1. European Foreword, Introduction and Common sequence of clauses

(1) The EN Eurocode Parts being developed under M/515 will be edited by CCMC before Formal Vote and before being made available. The software used by CCMC is predicated on a common sequence of clauses, primarily Foreword, Introduction and clauses 1-3, with Annexes at the end. As a result “*Basis of Design*” becomes clause 4 instead of clause 2 in existing Eurocodes. The resulting structure is given in Annex D, including for Fire Parts, and includes a common form of statement for the European Foreword and the Introduction.

(2) The content of the European Foreword and the Introduction for each EN Eurocode Part shall conform with the framework given in Annex D.

(3) The term ‘section’, as used in the first generation of Eurocodes, shall no longer be used. All subdivisions are termed ‘clause’ but it is not usually necessary to precede the number of a clause with the word ‘clause’.

### 7.2. Clause 1 Scope

(1) Clause 1 Scope shall conform to the framework given in Annex D.

(2) Clause 1.2 Scope of EN XXXX-X-X shall not list the clauses contained in the Eurocode part under consideration.

(3) Clause 1.3 Assumptions shall refer to the assumptions given in EN 1990 and to specific assumptions of the EN Eurocode part under consideration.

### 7.3. Clause 2 Normative references

(1) Clause 2 Normative references shall start with the introductory wording provided by CEN IR 3, 15.5.1.

### 7.4. Clause 3 Terms, definitions and symbols

(1) CEN IR 3 requires that all terms and definitions should be given in clause 3.1 Terms and definitions. They should not normally need to be referenced elsewhere in the text.

(2) Terms and definitions shall be numbered and may be grouped under themes.

(3) CEN IR 3 requires that all symbols should be given in clause 3.2 Symbols and abbreviations. A symbol shall have only one meaning in each EN Eurocode part. Symbols provided in EN Eurocode parts shall comply with the symbols in EN 1990 where possible. SI units shall be used. The whole suite of EN Eurocode Parts will be reviewed before finalisation to improve consistency of use of symbols.

(4) CEN IR3 clause 17.5 states that, unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order under clause 3.2.

(5) In clause 3.2 symbols need not be numbered.

### 7.5. Clause 4 Basis of design

(1) Clause 4 Basis of design should conform to the framework given in Annex D.

## 7.6. Annexes

### 7.6.1 Sequence of Annexes

(1) The order in which Annexes are arranged should suit the convenience of users of the standard.

**NOTE** The former requirement that "Annexes shall appear in the order in which they are cited in the text" has been deleted from IR3.

### 7.6.2 Introducing normative annexes in the main text

(1) A normative annex shall be introduced in a clause using 'shall' or similarly using a suitable expression that makes clear its normative status.

*Example*

The analysis shall be carried out as specified in Annex B. [*The status of Annex B is normative*].

**NOTE** See 7.6.3(6) for the introduction of informative annexes in the main text.

### 7.6.3 Specific rules on Informative Annexes

(1) As set out in CEN IR3, Informative Annexes may be used. In all cases, Informative Annexes shall be useful and useable. They shall not contain text book material and shall not contradict normative text.

(2) Where necessary to their purpose, Informative Annexes may contain requirements, recommendations and permission (i.e. they may use 'shall', 'should' and 'may'). Cases where this can be necessary include Informative Annex that cover optional design or testing methods.

(3) Where possible, annexes that use 'shall', 'should' and 'may' should be normative rather than informative.

(4) The use of Informative Annexes to present alternative methods should be avoided where this can be achieved without unduly impacting users. In alignment with the CEN/TC 250 position paper on reducing the number of NDPs (see N1250 Annex E), this must be done pragmatically and respectfully of national positions.

(5) The use of NDPs in Informative Annexes should be avoided. It can be acceptable in special cases, subject to the agreement of CEN/TC 250.

(6) Reference to Informative Annexes shall be given:

- i. in the Introduction to each EN Eurocode Part (see D4 in Annex D);
- ii. in the main text only in Notes, and shall be introduced in a way that does not imply that the annex has to be used;

(7) The start of each Informative Annex shall contain a clause that clarifies the use of the Informative Annex to users (see D6 in Annex D).

## 7.7. Use of Technical Specifications (TS) to support EN Eurocodes

(1) In the context of the development of EN Eurocode Parts under M/515 the use of Technical Specifications arises primarily as Step 2 in the step-by-step procedure being adopted for Assessment, Glass, FRP and Membrane Structures (see 1 (5) above).

(2) Technical Specifications may be proposed in other cases, typically for material that has not reached a sufficient level of maturity (including experience of its application) and consensus appropriate for publication as normative content in an EN.

(3) The widespread use of Technical Specifications to augment the Eurocodes is not encouraged as it can lead to confusion amongst users.

(4) The decision to develop a Technical Specification to support the Eurocodes is made by CEN/TC 250. Development of a TS should follow the guidance and procedures given in CEN IR 2.



## 8. Style of EN Eurocode provisions

### 8.1. Neutrality

(1) Eurocodes shall be drafted in strictly neutral terms. They should state requirements but not who has to implement them. Responsibility is a matter for legal provisions and commercial contracts. Consequently, the use of expressions like “the designer” shall be avoided.

(2) The rules set out in CEN IR 3 shall be followed unless CEN/BT has agreed a derogation, see Annex B.

(3) A consistent approach to drafting may be achieved using the template available from CCMC or as otherwise agreed with the Secretariat of the relevant SC.

### 8.2. Verbal forms to be used for the expression of provisions in EN Eurocodes

#### 8.2.1 *The basic requirement*

(1) This clause explains how verbal forms should be used to take account of the intentions of the drafters and the possible interpretation by users.

(2) The verbal forms set out in clause 7 of CEN IR 3:2017 reproduced in Annex F shall be applied. Guidance on their interpretation in the context of the EN Eurocodes is given in 8.2.3.

#### 8.2.2 *Choice of verbal forms in drafting*

(1) The choice of verbal form depends basically on whether a provision is a requirement or a recommendation but needs to be tempered by an understanding of the differing regulatory approaches in countries. Clause 7 of CEN IR 3:2017 gives the interpretation of the various forms, but further complementary guidance on their use follows, without in any way constituting derogation from CEN IR 3.

(2) Many countries regard structural design standards as recommendations for meeting performance requirements which are likely then to satisfy the legal responsibilities of the designer. In contrast, some countries make the use of such standards a *de facto* legal requirement while others embody such standards completely in national legislation.

(3) In choosing verbal forms to be used, it is necessary to recognise these differences. In many countries, it would be unacceptable for a structural design standard to give such strong provisions as to imply that they must all be followed. The use of “shall” for all provisions in a design standard therefore cannot be acceptable in such countries.

(4) Recognition of these differences is needed if a single text is to satisfy all the users. Every proposed use of “shall” and “should” shall be examined to ensure that the wording is no more onerous than necessary. The verbal form chosen should not unreasonably inhibit innovation.

(5) While the use of “shall, may and can” is usually very clear, “should” carries with it a sense of permission that an alternative procedure could be used in special cases where technical justified, subject to national regulation and any relevant contractual provisions.

(6) The nature of a Eurocode is different from that of a typical product standard which defines the performance requirements to be met. A product standard also states what is to be done to show that the product complies with the requirements. In contrast, the designer of construction works is given or knows the performance requirements for the works and uses design standards to help determine how the requirements are to be met.

(7) Nevertheless, consistent distinction between a requirement and a recommendation can be the subject of disagreement, even when both verbal forms have a place. Within a recommendation there may be requirements to be met if the outcome of the recommendation is to be achieved.

#### 8.2.3 *Meaning of verbal forms*

(1) Although CEN IR 3 explains how verbal forms should be interpreted, the choice of verbal form should be made using the following guidance:

“**shall**” expresses a requirement strictly to be followed and from which no deviation is permitted in order to comply with the Eurocodes.

“**should**” expresses a highly recommended choice or course of action. Subject to national regulation and/or any relevant contractual provisions, alternative approaches could be used/adopted where technically justified.

“**may**” expresses a course of action permissible within the limits of the Eurocodes.

“**can**” expresses possibility and capability; it is used for statements of fact and clarification of concepts.

“**is**” means a statement of certainty, a fact. It should be used sparingly, if at all.

#### **8.2.4 Use of “P” to introduce statements of principle**

(1) The first generation of Eurocodes used "P" to denote a clause containing a statement of principle with no alternative. This requirement is synonymous with the use of "shall". The continued use of P for requirements is therefore not considered necessary by some and there is ongoing debate about whether or not it should be retained in the published Eurocodes.

(2) It has been decided by TC 250 that "P" should be used during drafting as an aid to ensure that the correct verbal forms are used. As an alternative, the following abbreviations may be used to guide drafting:

<REQ> = requirement indicated with “shall”

<RCM> = recommendation indicated with “should”

<PER> = permission indicated with “may”

<POS> = possibility indicated with “can”

#### **8.3. Use of two-part description for clauses, tables and figures**

(1) The nature of EN Eurocode Parts means that formulae, tables and figures are used widely. In the interests of ease of use it is very helpful to be able to relate them implicitly to the clause that refers to them. CEN/BT therefore passed Decision C91/2014 (see Annex B) which allows the use of two-part numbering to include the clause number, as a derogation from CEN rules, e.g. Figure 3.2 as the second figure in clause 3.

#### **8.4. Tables in Notes**

(1) When a table is referred to in a Note, it shall be typed in the same font as the main text, not the reduced size use for the text of Notes.

(2) The numbering of tables in Notes shall be included in the sequence of numbering of the tables in the relevant clause.

(3) When the table is a Nationally Determined Parameter (which is typically the case for tables in notes), the title shall be followed by NDP in brackets, as in the following example.

*Example:*

NOTE The values of the partial factors  $\gamma_F$  are given in Table 4.5 (NDP) unless the National Annex of a country gives different values.

The title of the table shall then be:

**Table 4.5 (NDP) Values of the partial factors  $\gamma_F$**

## 8.5. Formulae

### 8.5.1 Introducing formulae

- (1) In line with CEN IR 3, formulae shall be referred to as *Formula (X)*, instead of *Expression (X)* or *Equation (X)*.
- (2) In line with CEN IR 3, if a formula is numbered it should be referred to in the text.

### 8.5.2 Symbols after formulae

- (1) For reasons of ease of use the meaning of the symbol may also be, and usually is, repeated when the symbol appears first in a clause.
- (2) Symbols are given under each formula in the order of occurrence in the formula.
- (3) Formulae should be prepared using MS Word Equation Editor 2007 and upwards, or MathType version 6.9 and upwards. The following format for Math is not accepted: Images; LaTeX; MathML.

## 8.6. References to other standards

### 8.6.1 Aim of references

- (1) The information obtained from standards referred to in an EN Eurocode Part should be consistent with the requirements specified in that Part. This technical compatibility should be achieved by active liaison between the responsible committees in accordance with BT decision C36/2014 (see Annex B). The CEN/TC 250 Secretary maintains a list of active liaisons which can be made available on request.
- (2) References to non-normative documents (e.g. textbooks, published research papers) should generally be avoided. Consequently, bibliographies should not typically be necessary.

### 8.6.2 Product standards

- (1) The best approach to referencing product standards remains under review by CEN/TC 250 and an *ad hoc* group has been established to prepare further recommendations. In the interim the guidance contained in paragraphs 3 to 6 should be followed with the understanding that all technical assumptions relating to material and product properties shall be set out clearly in each EN Eurocode Part and explained in the accompanying background report.
- (2) If there is complete consistency between the requirements stated in an EN Eurocode Part and the corresponding requirements in a product standard, the form of reference should be a simple statement following the guidance in CEN IR3 such as repeated in paragraph 4 below.

Note 1 The term “requirements” is used in product standards to include all aspects of performance of a product.

- (3) When the consistency between an EN Eurocode Part and a product standard is not clear or complete, the form of referencing will need to be more detailed so that the Eurocode Part, taken together with the product standard, achieves complete consistency. This could involve establishing requirements in an EN Eurocode Part, either in the clause dealing with terms and definitions or as a normative Annex; it could be presented in the form of a table or in text, as found to be most easy to use. Groups of requirements may be described, as a matter of convenience, as “categories”. Within the categories, limits of applicability of parameters may be given, if they are not included in the relevant product standard. Any use of categories in EN Eurocode Parts should not be confused with the use of levels, classes and thresholds in product standards in the sense of the Construction Products Regulation, although there may be a correspondence.

Note 2 As product standards will include or refer to relevant test methods for the requirements in the product standard the test methods should not be referred to in an EN Eurocode Part. If, for any reason, a test method for a property is not included or referenced in a product standard, the Eurocode Part may, itself, refer to a suitable test method.

- (4) References should be to European standards (EN), firstly to require that the standard is observed in relation to the manufacture of the product:

- product yyyy shall be produced in accordance with EN xxxx

and secondly by appropriate choice from the following:

(a) when properties required for a design are mirrored by the properties in a product standard use one of the phrases:

- the properties of [product] shall be in accordance with EN xxxx.
- the properties of [product] in category aaaa shall be in accordance with [the corresponding category zzzz] in EN xxxx.

**NOTE 3** The term category is used to define and represent a group of properties. It is used as a matter of convenience rather than as regulatory requirement.

(b) if the technical correspondence is less clear e.g because of the use of classes in product standards, a more direct link to specific clauses should be used:

- for [property] see a.b of EN xxxx.

(5) When suitable EN standards do not exist reference may be made to European Technical Specifications (TS) or European Assessment Documents (EAD). Given the product-specific nature of ETAs it may be possible, in order to avoid barriers to trade, to refer generically to other standards which satisfy the requirements of the European Assessment Document (EAD) on which the ETA is based. In that case it may be appropriate to give a definition of a “European Technical Product Specification” as: *“European Standard (EN), European Technical Specification (TS) or a transparent and reproducible assessment that complies with all the requirements of an EAD.”*

### 8.6.3 Execution standards

(1) Although it is not the role of CEN/TC 250 to prepare standards for execution CEN BT Decision C36/2014, reproduced in Annex B, requires CEN/TC 250 to define clearly the interface between the Eurocodes and Product and Execution Standards. Some existing EN Eurocode Parts contain limited guidance on execution because no other committee was able to prepare separate execution standards. However most EN Eurocode Parts are supported by separate standards for execution prepared by other committees.

(2) Work under M/515 has identified the need for stronger guidance on execution for timber structures. As an interim measure initial drafting is being carried out in CEN/TC 250 with the agreement of other potential lead CEN TCs and subject to a clarification to CEN/BT by CEN/TC 250 of the minimum requirements to be included in an execution standard so that assumptions made in design are realised in the constructed works.

(3) A final decision on responsibility and status for the guidance remains to be made.

## 8.7. Use of conditional expressions

(1) Where possible, conditional expressions (i.e. requirements or advice that require a specific condition to be met in order to be applied) should be presented following the structure indicated below:

If <condition >, <requirement/recommendation/permissible approach>

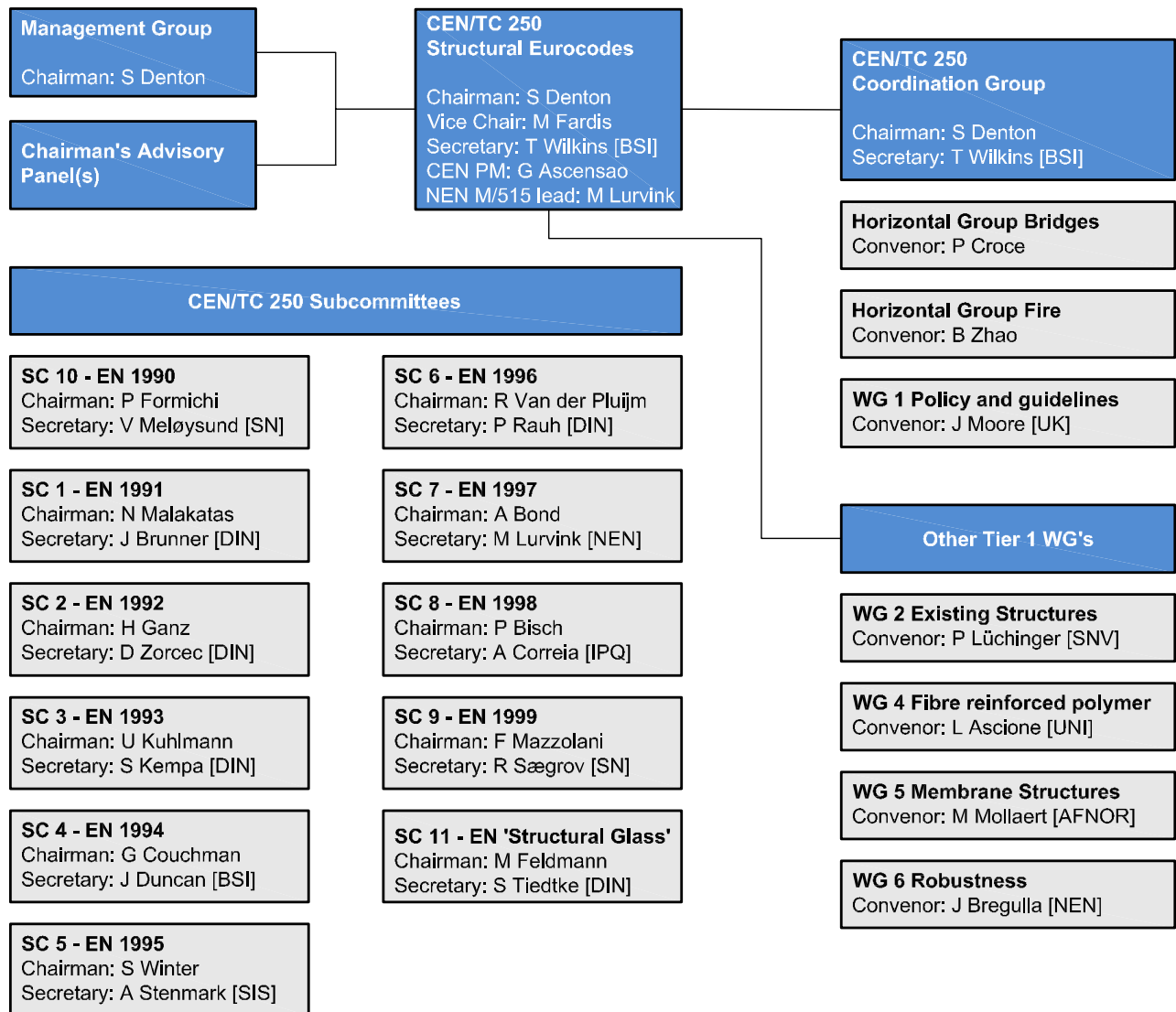
## 8.8. Figures

(1) Figures shall be in tiff or eps format, language neutral with a 600 dpi. The image boundaries shall not exceed 170 mm by 250 mm or 250 mm × 170 mm, depending on the object orientation. Sufficient space shall be provided within this area to accommodate the figure title, any comment concerning dimensions and a key (if required). The minimum CEN requirements for file formats and file naming conventions can be found in CEN-CENELEC [Drafting of European Standards – Electronic preparation](#). CEN-CENELEC Webinar on drawings, formulae and Tables <https://www.cencenelec.eu/news/videos/Pages/VIDEO-2016-039.aspx>.

**Note 1** Further clauses may be added to this document as the need arises by decision of CEN/TC 250.

# Annex A. Management of the work programme

(A1) Figure A.1 shows the current CEN/TC 250 Organization Structure



**Figure A.1 – CEN/TC 250 Organisation Structure**

(A2) The CEN/TC 250 Management Group oversees delivery of the TC 250 work programme. It comprises the Chairman, Vice Chairman, Secretary, CEN PM and NEN M/515 lead.

(A3) The overall CEN organisational structure and responsibilities for standardisation work is given in CEN IR 2 <https://boss.cen.eu/reference%20material/RefDocs/Pages/default.aspx>

## Annex B. CEN/BT Decisions concerning Structural Eurocodes

### (B1) Decision BT C36/2014

Subject: Structural and geotechnical design rules: CEN/TC 250 'Structural Eurocodes' and other CEN/TCs

BT

- noting

- Resolution BTS1 11/1992, BT 23/1992 and BT C2/2001 as given in Annex 1 to BT N 9545;
- CEN/TC 250 Decision 329 as given in annex 2 to BT N 9545;
- Mandate M/515 requirements for further development of the existing Eurocodes as well as development of new Eurocode parts;
- the need for coordination and consistency between product TCs and CEN/TC 250 'Structural Eurocodes',

- decides

- to confirm to CEN/TC 250 the overall responsibility for structural and geotechnical design rules for building and civil engineering;
- that CEN/TCs (products, execution) should refer in their standards (when possible) to the relevant Eurocodes parts, when reference to structural and geotechnical design rules are needed;
- that rules relating to structural and geotechnical design should only be included in standards under other CEN/TCs' responsibility following agreement with CEN/TC 250;
- that, in cases where rules relating to structural and geotechnical design have been included in standards by other CEN/TCs, a mode of cooperation should be established with CEN/TC 250 to transpose design rules to the relevant Eurocode part where agreed or, as a minimum, eliminate any incompatibilities or ambiguities,

- invites

- CEN/TC 250 to contact other CEN/TCs setting out their planned work programme and inviting the reconfirmation and/or establishment of effective liaisons between product TCs and CEN/TC 250 to support the implementation of this decision;
- CEN/TC 250 to report to CEN/BT at least annually on the effectiveness of coordination with other CEN/TCs as well as the existing liaisons;
- CEN/TCs (products, execution) having in their standards rules relating to structural and geotechnical design or developing rules relating to structural and geotechnical design to liaise closely with CEN/TC 250.

This decision is applicable as from: 2014-05-07

### (B2) Decision BT C91/2014

Subject: Drafting rules for future work of CEN/TC 250 'Structural Eurocodes'

- noting

- resolution BT S1 38/1994 as in Annex 1 to BT N 9670;
- CEN/TC 250 Decision 341 as given in Annex 2 to BT N 9670.

- agrees,

- that, EN Eurocodes developed under mandate M/515 may continue to use a numbering system for equations, figures and tables that adopts a two-part reference including the clause number;
  - stresses that this decision only applies for CEN/TC 250 standards developed under Mandate M/515

This decision is applicable as from 13 August 2014.

### (B3) Decision BT 53/2016

Subject: CEN/TC 250 - Ambiguity of scope

BT,

- noting the discussions at the 80th CEN/BT meeting on the AFNOR position paper (BT N 10491) and the CEN/TC 250 'Structural Eurocodes' response (BT N 10491a);

- asks CEN/TC 250 to clarify under which conditions an 'execution standard' would need to be prepared and to introduce that proposal at the level of the Sector Forum on Construction.

This decision is applicable as from: 2016-09-30

**(B4) Decision BT 27/2017**

Subject: CEN/TC 250 'Structural Eurocodes' – Change of scope

BT/TCMG, on behalf of BT,

- noting

- CEN/TC 250 'Structural Eurocodes' proposal for a clarification and change of its scope (draft BT C29/2017);

- the fundamental disagreement and related comments from AFNOR (Addendum to BT N 10655);

- the discussions at the 57th BT/TCMG meeting;

- approves the following modified scope for CEN/TC 250:

'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.'

This decision is applicable as from: 2017-04-06

## Annex C. EN Eurocode Parts

(C1) The titles and brief scopes for existing and proposed European Standards (EN) are given at:

[CEN – Technical Bodies – CEN/TC 250 Structural Eurocodes – Work Programme and Published Standards](#)

Note: During the development phase the details of title and scope may change.



# Annex D. Common clauses for EN Eurocode Parts

## D1 Common structure of EN Eurocode Parts

(1) The following common structure shall be used for Eurocode material parts, unless it is agreed that this will not be appropriate. Other Eurocodes shall utilise those components of the common structure that are relevant.

European Foreword<sup>1</sup>

Introduction<sup>2</sup>

1 Scope

1.1 Scope of EN XXXX

1.2 Scope of EN XXXX-X-X<sup>3</sup>

1.3 Assumptions<sup>3</sup>

2 Normative references

3 Terms, definitions and symbols

3.1 Terms and definitions

3.2 Symbols and abbreviations

4 Basis of Design<sup>4</sup>

5 Materials

6 Durability (or Groundwater<sup>3</sup>)

7 Structural (or Geotechnical<sup>3</sup>) Analysis

8 Ultimate Limit States

9 Serviceability Limit States

Additional optional clauses may be added as needed. Where they are relevant, the following sequence and naming of clauses should generally be used:

- Fatigue
- Detailing
- Joints and connections
- <other special requirements relevant to Eurocode part given appropriate clause name>
- Design assisted by testing (or Testing<sup>3</sup>)
- Reporting
- Annexes (Normative)
- Annexes (Informative)

<sup>1</sup>see D3 for more details

<sup>2</sup>see D4 for more details

<sup>3</sup>use as appropriate, particularly for EN 1997

<sup>4</sup>see D5 for more details

## D2 Common structure for EN Eurocode Fire Parts (EN 199x-1-2)

(1) The following common structure shall be used for Eurocode fire parts, unless it is agreed that this will not be appropriate.

European Foreword

Introduction

1 Scope

1.1 Scope of EN XXXX

1.2 Scope of EN XXXX-X-X

1.3 Assumptions

2 Normative references

3 Terms, definitions and symbols

3.1 Terms and definitions

3.2 Symbols and abbreviations

4 Basis of design<sup>1</sup>

5 Material properties<sup>1</sup>

5.1 General<sup>1</sup>

5.2 Thermal properties

5.3 Mechanical properties

6 Tabulated design data <Drafting Note: numbering and location of this clause under discussion>

7 Simplified design methods

8 Advanced design methods

9 Detailing

<sup>1</sup>Common text to be prepared by TC 250 HGF. Remaining clauses, if necessary, to be completed by material PTs.

### D3 Common European Foreword for EN Eurocode Parts

#### European Foreword

<Drafting note: A common foreword content is to be agreed by CEN/TC 250. This will align with IR 3:2017. A shorter Foreword for specific Eurocode parts is under consideration>

### D4 Common Introduction for EN Eurocode Parts

#### Introduction

**Introduction to EN XXXX-X-X** <Drafting note: Eurocode part number to be inserted here>

<Drafting note: This contains "Additional information specific to EN XXXX" taken from current Eurocode parts and revised as appropriate>

#### Verbal forms used in the Eurocodes

The verb "shall" expresses a requirement strictly to be followed and from which no deviation is permitted in order to comply with the Eurocodes.

The verb "should" expresses a highly recommended choice or course of action. Subject to national regulation and/or any relevant contractual provisions, alternative approaches could be used/adopted where technically justified.

The verb "may" expresses a course of action permissible within the limits of the Eurocodes.

The verb "can" expresses possibility and capability; it is used for statements of fact and clarification of concepts.

#### National standards implementing the Eurocodes

<Drafting note: This contains text from current Eurocodes>

**National annex for EN XXXX-X-X** <Drafting note: Eurocode part number to be inserted here>

This standard gives values within notes indicating where national choices can be made. Therefore the national standard implementing EN XXXX-X-X can have a National Annex containing all Nationally Determined Parameters to be used for the design of buildings and civil engineering works to be constructed in the relevant country.

National choice is allowed in EN XXXX-X-X through the following clauses:

<Drafting note: list of clauses to be compiled by Project Team>

National choice is allowed in EN XXXX-X-X on the application of the following informative annexes.

<Drafting note: list of annexes to be compiled by Project Team>

## D5 Contents for 4 Basis of Design

D5(1) Clause 4 *Basis of design* should be structured with the following sequence of titles for sub-clauses (i.e. two-level number, for example 4.1) when there is appropriate content. Similarly, for further sub-divisions (i.e. three-level number, for example 4.1.1) the items listed below should be selected as appropriate.

<b>4</b>	<b>BASIS OF DESIGN</b>
<b>4.1</b>	<b>Requirements</b>
	Basic requirements
	Structural / Geotechnical reliability
	Consequences of failure
	Robustness
	Design working life
	Durability
	Sustainability
	Quality management
<b>4.2</b>	<b>Principles of limit state design</b>
	General
	Design situations
<b>4.3</b>	<b>Basic variables</b>
	Actions and environmental influences
	Material and product properties
	Geometrical data
<b>4.4</b>	<b>Verification by the partial factor method</b>
	Design values of actions
	Design values of material properties
	Design values of geometrical data
	Design resistances
	Combination of actions
<b>4.5</b>	<b>Verification by (...)</b> <Drafting Note: this can be relevant to EN 1997>
<b>4.6</b>	<b>Design assisted by testing</b>
<b>4.7</b>	<b>&lt;As relevant&gt;</b>

## D6 Content at the start of an Informative Annex

D6(1) Each informative annex shall start with two clauses as indicated below. They clarify the use of an Informative Annex (A.1) and its scope and field of application (A.2).

**Annex A**  
**(informative)**  
**Title**

**A.1 Use of this Informative Annex**

(1) This Informative Annex provides complementary / supplementary guidance to [*specific clause(s)*] for [*subject*].

NOTE National choice on the application of this Informative Annex is given in the National Annex. If the National Annex contains no information on the application of this informative annex, it can be used.

**A.2 Scope and field of application**

(1) This Informative Annex covers / applies to / does not apply to \*\*\*\*\*

(2) This Informative Annex does not apply to \*\*\*\*\*

## Annex E. Nationally Determined Parameters (NDPs)

(E) This Annex reproduces document CEN/TC 250 N 1493 'Position paper on enhancing the ease of use of the Structural Eurocodes', ratified by CEN/TC 250 in decision 427/2016. The document sets out a three-step process for reducing the number of Nationally Determined Parameters (NDPs) to support decision making of CEN/TC 250, its SCs, WGs and HGs, together with Mandate M/515 project teams (PTs), engaged in drafting the second generation of Structural Eurocodes.

### **CEN/TC 250 N 1493 Position paper on reducing the number of Nationally Determined Parameters (NDPs) in the Structural Eurocodes**

#### **1. Purpose of this document**

This document presents the overall CEN/TC 250 approach and specific aspects of guidance for reducing the number of Nationally Determined Parameters (NDPs) in the Structural Eurocodes. Its purpose is to support decision making of CEN/TC 250 Sub-Committees (SCs), Working Groups (WGs), Horizontal Groups (HG) and Project Teams (PTs) engaged in drafting the second generation of Structural Eurocodes.

Given the complexity and sensitivity of the objective, balanced and respectful judgements need to be made about the application of the guidelines. The obligation on SCs, WGs, HGs and PTs is that the guidelines should be understood and taken into consideration, informed judgements made, and that decisions taken can be justified.

#### **2. Background**

Achieving a reduction in the number of NDPs in the Eurocodes is an agreed objective of CEN/TC 250 and a specific requirement of the European Commission Mandate M/515 for the development of the second generation of EN-Eurocodes.

For this reason, in the scope of tasks for Project Teams in the Call for Experts for Phase 1 of the CEN/TC 250 work programme, the following was included concerning the reduction of NDPs:

*“Nationally Determined Parameters (NDPs) allow Countries to decide on safety levels, and to give national geographic and climatic data, in National Annexes. The inclusion of NDPs in the published Eurocodes has been more extensive than was originally envisaged.*

*All tasks concerned with existing Eurocode parts include a requirement to work to reduce the number of NDPs and enable better consensus on values adopted by Countries. Guidance will be provided by CEN/TC 250 on the approach to be followed. However, it is expected that the work of Project Teams will be focused only on a proportion of the existing NDPs, as identified and agreed with the relevant SC, WG or HG.”*

Furthermore, in the relevant task definitions, Sub-task no. 1 in all Tasks of Project Teams engaged in the evolution of first generation Eurocode Parts to second generation ones, states:

*“Following guidance provided by CEN/TC 250, agree NDPs to consider for detailed review with the relevant SC/WG/HG. Develop proposals to reduce the number of NDPs and/or enable better consensus on values adopted by Countries to be achieved. Incorporate those proposals agreed with the relevant SC/WG/HG into task deliverables.”*

This paper is intended to provide the guidance referenced in the Call for Experts.

The issue of NDPs has been the subject of discussions in CEN/TC 250 and its SCs, WGs and HGs for several years. In support of developing the guidelines contained in this position paper, at its meeting in Dublin in May 2015, CEN/TC 250 agreed to the establishment of an ad hoc group to provide guidance on the definition of legitimate NDPs.

CEN/TC 250 has considered the recommendations contained in the final report of this ad hoc group [2], as well as the associated discussions at the CEN/TC 250 meeting in Lisbon in November 2015, and the

synthesis of these discussions presented by the CEN/TC 250 Chairman at that meeting [3], and has produced the guidelines presented in this paper.

Further background to the number of NDPs in the current generation of Eurocodes and their legal basis is included in CEN/TC 250 N 1493 Annex A.

### 3. Objectives and governing principles

CEN/TC 250 has three primary objectives associated with the treatment of NDPs during the development of the second generation of the Structural Eurocodes. These are:

1. To reduce the number of National Determined Parameters
2. To develop Standards that can be implemented by CEN members
3. To maintain consensus, evidenced through positive formal votes by CEN members

In support of these objectives, CEN/TC 250 has established the following principles to guide efforts to reduce the number of NDPs in the Eurocodes:

1. The development of the second generation of the Eurocodes is an 'evolution', thus the approach to reviewing NDPs should build from the basis for them set out in Guidance Paper L (see Annex A)
2. Some parameters must be NDPs, even if all countries agree on a specific value or choice
3. Some parameters are subject to variation for geographic or climatic reasons; these must be NDPs although the Eurocodes should be as clear as possible on how they are to be determined
4. Effort should be made to limit the number of other NDPs, but this must be done pragmatically and respectfully of national positions

### 4. Approach

The approach to reducing the number of NDPs comprises three steps. These are to be undertaken by SCs, WGs and HGs, in conjunction with their relevant PTs.

These three steps are directly applicable to the review of current NDPs during the revision of existing Eurocode parts.

The guidance underpinning each step is also applicable in the development of new Eurocode parts or where the introduction of a new NDP into an existing Eurocode part is being considered as a result of a change in scope or technical provisions.

#### 4.1 Step 1: Identification of parameters that must be NDPs

In the first step, all parameters that must be NDPs are to be identified. Such 'essential NDPs' are:

- partial factors for materials and actions,
- the probability of the design seismic action being exceeded in a structure's design reference period,
- the time of fire exposure,
- design accidental actions,
- classification of structures in Consequences Classes corresponding to different Reliability Classes and levels, taking into account quality management requirements

All essential NDPs shall be retained in the Eurocodes, thereby allowing them to be specified in National Annexes. The only exception to this are cases when an NDP was included in the current Eurocodes with a recommended value of 1.0 and there is consensus that it can be removed. This might arise, for example, where all countries have adopted the recommended value of 1.0 and other related NDPs such

as general partial factors for materials or actions provide an adequate basis to treat those matters within the competence of European member states.

#### **4.2 Step 2: Review of other NDPs**

All NDPs that are not classified as essential in Step 1 shall be reviewed in an effort to try to reduce their number. This review should be undertaken pragmatically, respecting the position of different CEN Members and seeking to understand why different opinions are held.

In undertaking this review, NDPs relating to the following are discouraged:

- technical issues, such as the choice of one mechanical model versus another, or one coefficient versus another in a resistance formulation;
- limits on geometric or similar parameters (e.g., size of cross section, upper or lower limits on reinforcement ratio or density) which have to do with limits of applicability of mechanical models;
- choice between advanced and simplified methods.

In addition, consideration should be given to eliminating NDPs that concern issues of performance that could be addressed at a project rather than national level. Consideration may also be given to using classes for some families of related NDPs. If such approaches are proposed, examples should be presented at the CEN/TC 250 Coordination Group to promote consistency.

#### **4.3 Step 3: Reporting**

Each SC, WG and HG shall report to CEN/TC 250 on the outcome of their efforts to reduce the number of NDPs. This shall be done by preparing a table listing the current NDPs and, as a minimum, identifying those deemed as essential, providing justification for the retention of other NDPs and confirming whether consensus has been reached on NDPs to be removed. This table shall also identify any new NDPs and why they are needed.

#### **References**

[1] CEN/TC 250 Mandate M/515 EN “Mandate for amending existing Eurocodes and extending The scope of Structural Eurocodes”, December 2012. (CEN/TC 250 document reference N993)

[2] CEN/TC 250 Ad Hoc Group on Reduction of NDPs. “Guidance for the definition of legitimate Nationally Determined Parameters (NDPs) in Structural Eurocodes”, October 2015. (CEN/TC 250 document reference N1362)

[3] CEN/TC 250 Chairman’s notes on the reduction of NDPs. Presentation given at CEN/TC 250 meeting Lisbon as a synthesis of discussions, November 2015. (CEN/TC 250 document reference N1403)



**A.1 Number of NDPs in the current generation of Eurocodes**

Table A.1 provides a summary of the number of NDPs in the current EN Eurocodes and their breakdown, relative to the number of Parts in each Eurocode and its total number of pages.

<b>Eurocode</b>	<b>No of Parts</b>	<b>No of Pages</b>	<b>No of NDPs</b>
<b>EN 1990</b>	1 + Annex A2	90 + 30	54
<b>EN 1991</b>	10	770	292
<b>EN 1992</b>	4	450	176
<b>EN 1993</b>	20	1250	236
<b>EN 1994</b>	3	330	42
<b>EN 1995</b>	3	225	21
<b>EN 1996</b>	4	300	31
<b>EN 1997</b>	2	340	42
<b>EN 1998</b>	6	600	103
<b>EN 1999</b>	5	500	58

**Table A.1: Analysis of NDPs in current Eurocodes**

**A.2 Legal basis of NDPs**

NDPs replaced the "boxed" values in the ENV-Eurocodes.

It is accepted by all those involved in the conversion of ENVs to the first generation of EN Eurocodes that the NDPs were invaluable in that phase as a means to overcome disagreement between CEN Member States on key issues and avoid impasse situations. In that sense, their use was beyond the original intention.

The original legal basis of the NDPs and their predecessors (the "boxed values" in the ENVs) is not wholly clear. However, their incorporation in the EN Eurocodes followed Guidance Paper L (GPL), which stated:

2.1.1. The determination of the levels of safety of buildings and civil engineering works and parts thereof, including aspects of durability and economy, is, and remains, within the competence of the Member States.

2.1.2 Possible difference in geographical or climatic conditions (e.g. wind or snow), or in ways of life, as well as different levels of protection that may prevail at national, regional or local level ... will be taken into account ... by providing choices in the EN Eurocodes for identified values, classes, or alternative methods, to be determined at the national level (named Nationally Determined Parameters). Thus allowing the Member States to choose the level of safety, including aspects of durability and economy, applicable to works in their territory.

2.1.3 When Member States lay down their Nationally Determined Parameters, they should:

- choose from the classes included in the EN Eurocodes, or
- use the recommended value, or choose a value within the recommended range of values, for a symbol where the EN Eurocodes make a recommendation, or

- when alternative methods are given, use the recommended method, where the EN Eurocodes make a recommendation,
- take into account the need for coherence of the Nationally Determined Parameters laid down for the different EN Eurocodes and the various Parts thereof.

Member States are encouraged to co-operate to minimize the number of cases where recommendations for a value or method are not adopted for their nationally determined parameters.

2.1.4 The Nationally Determined Parameters laid down in a Member State should be made clearly known to the users of the EN Eurocodes and other parties concerned, including manufacturers.

2.1.5 When EN Eurocodes are used for the design of construction works, or parts thereof, the Nationally Determined Parameters of the Member State on whose territory the works are located shall be applied.

Note: Any reference to a EN Eurocode design should include the information on which set of Nationally Determined Parameters was used, whether or not the Nationally Determined Parameters that were used correspond to the recommendations given in the EN Eurocodes.”

GPL was written in relation to the Construction Products Directive (CPD), to which it referred and was issued by the Commission. The CPD has been replaced by the Construction Product Regulation (CPR), and it is the Commission’s view that guidance papers are not relevant for a Regulation. However, the Guidance papers remain published documents from the Commission.

The documents applicable today are:

- The Construction Products Regulation (CPR) No. 305/2011
- The European Commission Recommendation on the implementation and use of Eurocodes for construction works and structural construction products, Document No. C(2003)4639 (called hereafter Commission Recommendation)

The introduction to Annex I of the Construction Products Regulation (CPR) states that:

“Construction works as a whole and in their separate parts must be fit for their intended use, taking into account in particular the health and safety of persons involved throughout the life cycle of the works. Subject to normal maintenance, construction works must satisfy these basic requirements for construction works for an economically reasonable working life.”

The Commission Recommendation states:

“For each Nationally Determined Parameter, the Eurocodes give a recommended value. However, Member States may choose a different specific value as the Nationally Determined Parameter, if they consider it necessary in order to ensure that building and civil engineering works are designed and executed in a way that does not endanger the safety of persons, domestic animals or property.”

It states also

“Member States should use the recommended values provided by the Eurocodes when nationally determined parameters have been identified in the Eurocodes. They should diverge from those recommended values only where geographical, geological or climatic conditions or specific levels of protection make that necessary.”

The excerpts from the Commission Recommendation, based themselves on GPL, represent a clear Commission basis for the NDPs.

## Annex F. Use of verbal forms

(F1) This Annex reproduces CEN Internal Regulation Part 3:2017 clause 7 Verbal forms for the expression of provisions.

### 7.1 General

The user of the document needs to be able to identify the requirements he/she is obliged to satisfy in order to claim compliance with a document. The user also needs to be able to distinguish these requirements from other types of provision where there is a choice (i.e., recommendations, permissions, possibilities and capabilities).

It is essential to follow rules for the use of verbal forms so that a clear distinction can be made between requirements, recommendations, permissions, possibilities and capabilities.

The first column of Tables 3 to 7 shows the preferred verbal form to be used to express each type of provision. The equivalent expressions given in the second column shall be used only in certain cases when the form given in the first column cannot be used for linguistic reasons.

Only singular forms are shown in Tables 3 to 7.

### 7.2 Requirement

See the definition given in 3.3.3.

The verbal forms shown in Table 3 shall be used to express requirements.

**Table 3 - Requirement**

Verbal form	Equivalent phrases or expressions for use in certain cases
shall	is to is required to it is required that has to only ... is permitted it is necessary needs to
shall not	is not allowed [permitted] [acceptable] [permissible] is required to be not is required that ... be not is not to be need not do not
EXAMPLE 1 Connectors shall conform to the electrical characteristics specified by IEC 60603-7-1.	

<p>Imperative mood: The imperative mood is frequently used in English to express requirements in procedures or test methods.</p> <p>EXAMPLE 2 Switch on the recorder.</p> <p>EXAMPLE 3 Do not activate the mechanism before...</p>
<p>Do not use "must" as an alternative for "shall". (This will avoid any confusion between the requirements of a document and external constraints – see 7.6).</p> <p>Do not use "may not" instead of "shall not" to express a prohibition.</p>

### 7.3 Recommendation

See the definition given in 3.3.4.

The verbal forms shown in Table 4 shall be used to express recommendations.

**Table 4 - Recommendation**

Verbal form	Equivalent phrases or expressions for use in certain cases
should	it is recommended that ought to
should not	it is not recommended that ought not to
<p>EXAMPLE Wiring of these connectors should take into account the wire and cable diameter of the cables defined in IEC 61156.</p>	
<p>In French, do not use "devrait" in this context.</p>	

### 7.4 Permission

See the definition given in 3.3.5.

The verbal forms shown in Table 5 shall be used to express permission.

**Table 5 - Permission**

Verbal form	Equivalent phrases or expressions for use in certain cases
may	is permitted is allowed is permissible
need not	it is not required that no ... is required

<p><b>EXAMPLE 1</b> IEC 60512-26-100 may be used as an alternative to IEC 60512-27-100 for connecting hardware that has been previously qualified to IEC 60603-7-3:2008.</p> <p><b>EXAMPLE 2</b> Within an EPB document, if the quantity is not passed to other EPB documents, one or more of the subscripts may be omitted provided that the meaning is clear from the context.</p>
<p>Do not use "possible" or "impossible" in this context.</p> <p>Do not use "can" instead of "may" in this context.</p> <p>Do not use "might" instead of "may" in this context.</p> <p>"May" signifies permission expressed by the document, whereas "can" refers to the ability of a user of the document or to a possibility open to him/her.</p> <p>The French verb "pouvoir" can indicate both permission and possibility. If there is a risk of misunderstanding, the use of other expressions is advisable.</p>

### 7.5 Possibility and capability

See the definitions given in 3.3.6 and 3.3.7.

The verbal forms shown in Table 6 shall be used to express possibility and capability

**Table 6 - Possibility and capability**

<b>Verb form</b>	<b>Equivalent phrases or expressions for use in certain cases</b>
can	<p>be able to</p> <p>there is a possibility of</p> <p>it is possible to</p>
cannot	<p>be unable to</p> <p>there is no possibility of</p> <p>it is not possible to</p>
<p><b>EXAMPLE 1</b> Use of this connector in corrosive atmospheric conditions can lead to failure of the locking mechanism.</p> <p><b>EXAMPLE 2</b> These measurements can be used to compare different sprayer setups on the same sprayer.</p> <p><b>EXAMPLE 3</b> Only the reverse calculation approach given in E.3 can be used for calculated energy performance.</p> <p><b>EXAMPLE 4</b> The sum over time can be related either to consecutive readings or to readings on different time slots (e.g. peak versus off-peak).</p>	

Do not use "may" instead of "can" in this context.

"May" signifies permission expressed by the document, whereas "can" refers to the ability of a user of the document or to a possibility open to him/her.

The French verb "pouvoir" can indicate both permission and possibility. If there is a risk of misunderstanding, the use of other expressions is advisable

## Annex G. Enhancing ease of use of the Structural Eurocodes

(G1) This Annex reproduces document CEN/TC 250 N 1239 which is the CEN/TC 250 position paper on enhancing the ease of use of the Structural Eurocodes.

### CEN/TC 250 N 1239 CEN/TC 250 position paper on enhancing the ease of use of the Structural Eurocodes

#### 1. Purpose of this document

This document presents the overall CEN/TC 250 vision, approach and specific aspects of guidance for enhancing the ease of use of the Structural Eurocodes. Its purpose is to support decision making of CEN/TC 250 Sub-Committees (SCs), Working Groups (WGs), Horizontal Groups (HGs) and Project Teams (PTs) engaged in drafting a more user-orientated second generation of Structural Eurocodes.

The guidelines presented in this paper are not intended to provide contractual requirements to SCs, WGs, HGs and PTs. Given the complexity of the objective and the inevitable tensions that can arise between competing demands, balanced judgements need to be made about the application of the guidelines. Thus, the obligation on SCs, WGs, HGs and PTs is that the guidelines should be understood and taken into consideration, informed judgements made and that decisions taken can be justified. This document needs to be read as a whole.

#### 2. Background

Improving the ease of use of the Eurocodes is an important issue discussed at some length by CEN/TC 250 and its subcommittees over recent years. It has also been of significant interest and concern in many CEN member countries. Enhancing the ease of use of the Eurocodes is a priority for CEN/TC 250 and a specific requirement of the European Commission Mandate M/515 issued to CEN in December 2012 [1]. CEN/TC 250 committed to improving the ease of use of the Eurocodes through Resolution 280 made in Helsinki in June 2010 and reproduced below.

To assist with this, in November 2013 CEN/TC 250 agreed to create a 'Chairman's Advisory Panel on ease of use' [2] (hereinafter called CAP) to develop recommendations for the approach to be taken to enhance the ease of use of the Eurocodes. The 15 members selected provided a balance between the Eurocodes stakeholders, with an emphasis on practitioners and individuals experienced in the development of the Eurocodes. Detailed information on the thorough and open process followed by the CAP to establish their recommendations on how the ease of use of the Structural Eurocodes can be enhanced is provided in the full CAP report [3].

CEN/TC 250 has considered the CAP recommendations, as well as comments and suggestions from CEN/TC 250 members [4], and has produced the guidelines presented in this paper.

#### RESOLUTION 280 (CEN/TC 250, Helsinki, 18th June 2010)

*Subject: CEN/TC 250 – simplification of Eurocodes*

*CEN/TC 250 acknowledges the challenge established in the Programming Mandate M/466 addressed to CEN in the field of the Structural Eurocodes to examine the potential for simplification of rules in the further development of the Eurocodes. CEN/TC 250 agrees to work towards achieving such simplification in the further development of the Eurocodes to support the ease of their use by designers through:*

- (i) improving the clarity;*
- (ii) simplifying routes through the Eurocodes;*
- (iii) limiting, where possible, the inclusion of alternative application rules;*
- (iv) avoiding or removing rules of little practical use in design;*

*CEN/TC 250 agrees that such simplification should be limited to the extent that it is technically justified and should seek to avoid additional and/or empirical rules for particular structure or structural-element types.*

***The resolution was agreed by unanimity.***

### 3. Vision: delivering long term confidence

At the time of its publication, the first generation of Structural Eurocodes was the most comprehensive and advanced suite of design standards in the world and an outstanding example of harmonisation across countries, structural materials and types of structure.

CEN/TC 250's ambition is to build upon this accomplishment. Whilst respecting the achievements of the past, our vision for the second generation of Structural Eurocodes is to create a more user-orientated suite of design standards that are recognised as the most trusted and preferred in the world.

Attaining this vision is a complex challenge. Nevertheless, long-term confidence in the Eurocodes is based on their ability to evolve. Enhancing the ease of use of the Eurocodes is an essential component of the process of evolution.

More than 500 000 practitioners and thousands of other users across Europe and other countries outside Europe will be affected by the evolution of the Eurocodes. CEN/TC 250 is committed to having their needs at the forefront of our minds throughout our work.

### 4. Approach: five pillars to enhance ease of use

The CEN/TC 250 approach to guide decision making of SCs, WGs, HGs and PTs involved in developing the second generation of Eurocodes is based on the five pillars presented in Fig. 1. They provide the overall framework and a transparent approach for enhancing the ease of use of the Eurocodes.

These pillars are connected. The statements of intent to meet users' needs have been translated into a series of governing principles. The application of these principles will be illustrated through relevant examples. Performance measures can be used, where appropriate, to assure that the intended objectives are being achieved. Finally, central management, governance and support will ensure that a focus on ease of use is sustained, interdependencies are recognised and responded to, and that emergent issues are addressed.

The five pillars have been derived from Recommendation 1 of the CAP [3] and the comments and suggestions from CEN/TC 250 members [4]. Guidelines on each pillar are presented in the next section.

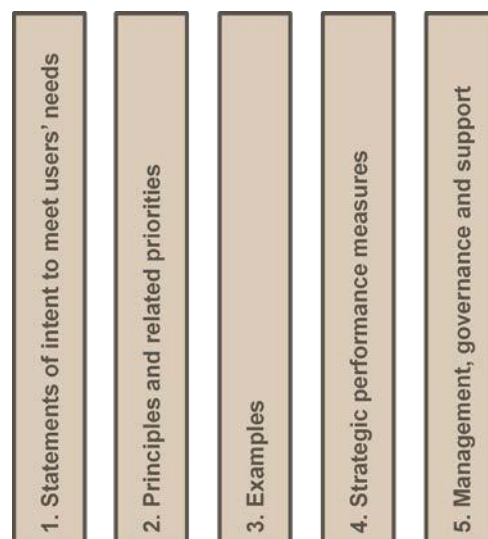


Figure 1: Five pillars to enhance ease of use of the Eurocodes



## 5. Guidelines: realising our ambitions

Five guidelines are given below to guide decision making in drafting a more user-orientated second generation of Eurocodes. These guidelines relate to each of the five pillars in Fig 1.

### 5.1 Statements of intent to meet users' needs

The development of the second generation of Structural Eurocodes will be undertaken focussing on users' needs. Ten categories of users have been identified. However, whilst all users of the Eurocodes are important, it is not possible to fulfil all their aspirations simultaneously. Therefore, a primary target audience has been identified to focus drafting efforts. The primary target audience will take precedence if conflicts with needs of other audiences arise.

The primary target audience for the Eurocodes evolution is "Practitioners – Competent engineers" as defined in Fig. 2. For all categories of users statements of intent setting out the aims of CEN/TC 250 are presented in Fig. 3.

PRIMARY TARGET AUDIENCE	DEFINITION
Practitioners – Competent engineers	Competent civil, structural and geotechnical engineers, typically qualified Professionals able to work independently in relevant fields

Figure 2: Primary target audience for the Eurocodes evolution

CATEGORIES OF EUROCODES' USERS	CEN/TC 250 STATEMENTS OF INTENT
Practitioners – Competent engineers [Primary target audience]	We will aim to produce Standards that are suitable and clear for all common design cases without demanding disproportionate levels of effort to apply them
Practitioners – Graduates	We will aim to produce Eurocodes that can be used by Graduates where necessary supplemented by suitable guidance documents and textbooks and under the supervision of an experienced practitioner when appropriate
Expert specialists	We will aim not to restrict innovation by providing freedom to experts to apply their specialist knowledge and expertise
Product Manufacturers	Working with other CEN/TCs we will aim to eliminate incompatibilities or ambiguities between the Eurocodes and Product Standards
Software developers	We will aim to provide unambiguous and complete design procedures. Accompanying formulae will be provided for charts and tables where possible
Educators	We will aim to use consistent underlying technical principles irrespective of the intended use of a structure (e.g. bridge, building, etc.) and that facilitate the linkage between physical behaviour and design rules
National regulator	We will endeavour to produce standards that can be referenced or quoted by National Regulations
Private sectors businesses	We will continue to promote technical harmonization across European markets in order to reduce barriers to trade
Clients	We will produce Eurocodes that enable the design of safe, serviceable, robust and durable structures, aiming to promoting cost effectiveness throughout their whole life cycle, including design, construction and maintenance
Other CEN/TCs	We will engage proactively to promote effective collaboration with those other CEN/TCs that have shared interests

Figure 3: Statements of intent to meet users' needs

## 5.2 Principles and related priorities

Governing principles to guide the drafting of a more user-orientated generation of Eurocodes are given in Table 1. These governing principles have been classified into primary general principles and secondary specific principles. If conflicts arise, primary general principles shall take precedence over secondary specific ones. Within the two classifications, the principles are not ordered. Balanced judgements will therefore need to be exercised if conflicts arise between principles within the primary or secondary classifications. These principles reflect best practice in the development of Standards, satisfy CEN/TC 250 Resolution 280, are consistent with CEN's Internal Regulations and focus on those decisions that are under the control of CEN/TC 250.

**Table 1: Principles and related priorities**

<p><b>General principles (primary)</b></p> <ol style="list-style-type: none"><li>1. Improving clarity and understandability of technical provisions of the Eurocodes</li><li>2. Improving accessibility to technical provisions and ease of navigation between them</li><li>3. Improving consistency within and between the Eurocodes</li><li>4. Including state-of-the-art material the use of which is based on commonly accepted results of research and has been validated through sufficient practical experience</li><li>5. Considering the second generation of the Eurocodes as an “evolution” avoiding fundamental changes to the approach to design and to the structure of the Eurocodes unless adequately justified</li></ol> <p><b>Specific principles (secondary)</b></p> <ol style="list-style-type: none"><li>6. Providing clear guidance for all common design cases encountered by typical competent practitioners in the relevant field</li><li>7. Omitting or providing only general and basic technical provisions for special cases that will be very rarely encountered by typical competent practitioners in the relevant field</li><li>8. Not inhibiting the freedom of experts to work from first principles and providing adequate freedom for innovation</li><li>9. Limiting the inclusion of alternative application rules</li><li>10. Including simplified methods only where they are of general application, address commonly encountered situations, are technically justified and give more conservative results than the rigorous methods they are intended to simplify</li><li>11. Improving consistency with product standards and standards for execution</li><li>12. Providing technical provisions that are not excessive sensitive to execution tolerances beyond what can be practically achieved on site</li></ol>
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The CAP has suggested targets and possible actions for each principle: they are illustrated in the final CAP report [3].

### 5.3 Examples

It will be valuable to illustrate the application of the governing principles through relevant examples to promote shared understanding and convergence of approach (e.g. through a better organisation of contents, better harmonisation, etc.).

In support of this effort, early in the evolution work, SCs, WGs and HGs will identify areas in their standards that present opportunities for enhancing ease of use following the principles in Table 1 and present tentative illustrations of how such improvement can be achieved. These examples will be developed through collaboration between SCs, WGs and HGs using the CEN/TC 250 CG as a forum for discussion.

Furthermore, under the coordination of WG1 early action will be taken on improving consistency between different Eurocode parts by using common structure and text.

### 5.4 Strategic performance measures

Understanding and assessing progress in applying the recommendations contained in this paper is important to provide confidence that CEN/TC 250's ambitions for enhancing the ease of use of the Eurocodes are being achieved.

Therefore, strategic performance measures may be used where merited and in collaboration with SCs, WGs and HGs to examine how the governing principles are being applied and to assess CEN/TC 250's progress towards our objective.

Suggestions for possible performance measures are provided in the final CAP report [3].

### 5.5 Management, governance and support

The CEN/TC 250 management group will be responsible for monitoring the overall application of the guidelines in this report. It will establish arrangements to assure that the recommendations of this report are implemented appropriately by SCs, WGs, HGs and PTs.

In support of this, issues of ease of use will be included in the SC/WG/HG report template and agenda for CG meetings to enable good practices and lessons learned to be shared and to promote consistency of implementation of the ease of use recommendations.

### References

- [1] CEN/TC 250 Mandate M/515 EN "Mandate for amending existing Eurocodes and extending the scope of Structural Eurocodes", December 2012
- [2] CEN/TC 250 Chairman's briefing note 2013/4. "Chairman's Advisory Panel on Ease of Use", November 2013
- [3] CEN/TC 250 Chairman's Advisory Panel. "Final report on enhancing ease of use of the Structural Eurocodes and reducing NDPs", December 2014
- [4] CEN/TC 250 "Summary of comments on the CAP short report and actions taken", January 2015

## **Annex H. Model Templates for Background Reports**

(H1) Examples of model templates for background documents have been circulated as word documents see CEN/TC 250 N 1682. Copies are available from the Secretary on request.

**(H2) CEN/TC 250 Background Report Template 1**

Date:	Document:	Project:
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Comment reference where applicable (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Subject	Change made	Background to change

**(H3) CEN/TC 250 Background Report Template 2**

Clause	Original Eurocode Text	New Eurocode text	Background for change
<b>1.1 Scope</b>			
<b>1.1 (1)</b>			
<b>1.1 (2)</b>			
<b>1.1 (3)</b>			

#### (H4) CEN/TC 250 Background Report Template 3

EN	
Subject	
Clause No./ Subclause No. Annex	
Reason for change	
Original content	
Change	
Background information	
Ease of use justification (See N1250 Annex G Table 1)	

## (H5) CEN/TC 250 Background Report Template 4

Example of conventions adopted for drafting EN 1997:202x

2 Basis of geotechnical design

2.1 Design requirements

2.1.1 Geotechnical **Category** **Hazard Classes**

<Geotechnical Categories to be replaced by Geotechnical Hazard Classes – see document SC7.T1.N004>

<GCs are meant to be used to establish minimum requirements for 1) the extent and content of geotechnical investigations, 2) calculations, and 3) construction control checks – can this be done better in a different way?>

(8)P In order to establish minimum requirements for the extent and content of geotechnical investigations, calculations and construction control checks, the complexity of each geotechnical design shall be identified together with the associated risks. In particular, a distinction shall be made between:

- light and simple structures and small earthworks for which it is possible to ensure that the minimum requirements will be satisfied by experience and qualitative geotechnical investigations, with negligible risk;
- other geotechnical structures.

<EN 1997-1 2.1(8)P> <REQ><to be deleted>

(1) The hazard associated with each geotechnical design situation shall be classified as high (Hazard Class 3, 'HC3'), medium (Hazard Class 2, 'HC2'), or low (Hazard Class 1, HC1).

<New><REQ><see document SC7.T1.N004>

(2) Partial material factors used in geotechnical design may be adjusted according to the Hazard Class by applying a hazard factor  $k_H$  as follows:

$$\gamma_M = k_H \times \gamma_{M,0}$$

where  $k_H = 1.15$  for HC3;  $k_H = 1.0$  for HC2; and  $k_H = 0.85$  for HC1; and  $\gamma_{M,0}$  = the value of the partial material factor that is recommended by this standard.

<New><PER><see document SC7.T1.N004>

### Key

<drafting note>

<New> = new clause

<EN 1997-1 2.1(8)P> = clause number in existing Eurocode 7

<REQ> = requirement ('shall')

<RCM> = recommendation ('should')

<PER> = permission ('may')

<POS> = possibility ('can')