

Advisory Note

Second Generation Eurocodes

Summary

This is an advisory note regarding the upcoming Eurocode changes with the publication of the second generation of the construction design and verification codes to be used in Europe. This is a brief update to practicing engineers and graduate engineers. I will not be going into the detail of each code but will deal with the rationale for the publication, its procedure, and timeline.

Background

You are probably aware that the current Eurocode version was published gradually part by part and occasionally with updates and amendments dated from the early 2000s. The current version was based on ENVs that were published around 1995 as experimental or prototype codes of practice that were proposed to eventually be used throughout the European Union at that time. This was to overcome the plethora of National codes in Europe that were considered to be a barrier to trade.

In Ireland the current version of the Eurocode with its amendments and corrigenda superseded the previous published codes of practice that were generally based upon the British Standards publications and supplemented where necessary by publications prepared by the National Standards Authority of Ireland to present alternative methods to be used in Ireland.

The Eurocodes as published are the recommended standards for use in Ireland; they are published as a voluntary code of practice, but the adjudication of dispute in a building contract is measured against the requirements of the appropriate Eurocode irrespective of which code was actually used in the design. The verification will always be through the Eurocode procedures and requirements. Most engineers in authority will therefore adopt the appropriate Eurocode as a matter of course to avoid double handling the design process.

Second Generation Eurocodes

The second-generation Eurocodes are published to update general practice throughout Europe. They are prepared in an attempt to be simpler in use and include the current approved peer reviewed research in each discipline. To include new materials, combinations of materials, connections, work or execution and test methods.

At first sight the documents appear larger, with more pages than before but this is as a result of including more material and the resolution of critical aspects of design. Also, there are methods of more detailed analysis of the behaviour of the element or global arrangement of the structural members. These methods do not and are not intended to be used for all projects, but the methods and procedures should be selected to fit the current project at the designer's discretion. Such detailed methods have been moved into a large number of Annexes that explain the derivation or alternative methods given in the main body of the document.

The Structural Eurocodes comprise the following standards generally consisting of a number of Parts:

- EN 1990, Eurocode — Basis of structural and geotechnical design
- EN 1991, Eurocode 1 — Actions on structures
- EN 1992, Eurocode 2 — Design of concrete structures
- EN 1993, Eurocode 3 — Design of steel structures
- EN 1994, Eurocode 4 — Design of composite steel and concrete structures
- EN 1995, Eurocode 5 — Design of timber structures
- EN 1996, Eurocode 6 — Design of masonry structures
- EN 1997, Eurocode 7 — Geotechnical design
- EN 1998, Eurocode 8 — Design of structures for earthquake resistance
- EN 1999, Eurocode 9 — Design of aluminium structures
- New parts are under development, e.g. Eurocode for design of structural glass

Several Technical Specifications and Technical Reports are in preparation to cover aspects that need to be further researched but could not be completed in the time available.

Parts have also been developed to cover aspects such as the treatment of existing or historic structures to comply with the Eurocode requirements for durability, rigidity, and sustainability etc.

Timeline

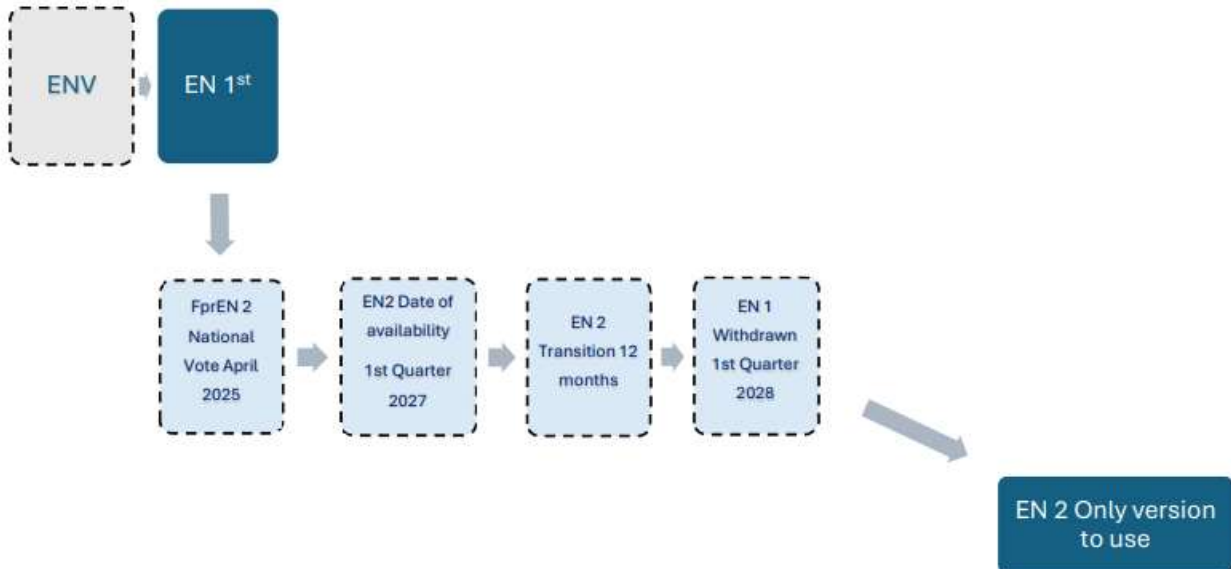


Figure 1: Procedure for final approval

The procedure adopted by European CEN and approved by Ireland is as follows:-

- **FprEN** Documents are the final print version for national approval. These should be available for public comment on or near 1st April 2025 when they are issued by CEN for formal national approval. NSAI will make copies available for comment and collect comments from interested parties. They will collate the comments, form an opinion on whether to approve the document, and return the national decision to CEN.
- CEN will then go through the national comments making any necessary typographical changes necessary before final print versions are ready. Technical changes are not admissible at this stage.
- The date of availability will vary from nation to nation. Ireland has decided to make all of them available at the same time to avoid national confusion regarding which version should be used.
- Each nation must consider the items noted in the document as Nationally Determined Parameters [NDPs] and issue a National Annex for each part of the Eurocode to notify the value of the NDPs to be used in that nation. Ireland will prepare such a document for buildings and structures to be constructed in Ireland. Practitioners are reminded that the NDP to use in a design is that published by the Country where the structure will finally be executed and put to use.
- Some of these National Application documents exist in draft form.
- The 12-month transition period is to allow familiarisation and teaching material to be brought up to date in good time, and to allow in house training to be completed.
- A date will be set in the first quarter of 2028 for the current version of the Eurocode to be withdrawn and the new second generation Eurocode will become the national code of compliant practice.