Ease of use new EN 1993-1-8

If the revision progresses according to plan in 2020, a new version of EN 1993-1-8 will be implemented. In this process a number of steps must be taken. On the 23th of April 2018, a workshop was organized to check the ease of use of the draft version of this new standard, since one of the aims is improving user friendliness.

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During the workshop three exercises were done: a fin plate connection, a moment resistant connection and a column base under compression force, shear force and bending moment. Every exercise was made using the current EN 1993-1-8 followed by using the draft of the revised version of EN 1993-1-8. In the last part the participants answered questions about three different aspects of ease of use: the easiness to understand the standard, the easiness to find the answer and the structure itself. Furthermore they were asked whether they have further wishes to be implemented in the new version of EN 1993-1-8. The participants (41) were divided in five groups with senior and junior engineers and students (TU Delft).

Fin plate connection (*fig. 2*)

Old standard

According to the participants, the existing standard scored a 6 out of 10 points. The code has no clear roadmap, no clear figures and is not easy to understand to solve questions regarding to the simple connection. It is also not easy to find all answers in the standard. There is no clear process to find answers regarding simple connections. Regarding the structure, the code does not present the formulas in an order that follows the procedure of the calculations. Not everything that could be needed to answer the question is available in the standard.

Draft version

In the draft version, many improvements are made. This resulted in a score of 8 out of 10. Concerning the easiness to understand, the figures and annex C are very helpful. In the draft version, everything is easy to find except the full filled welds. Referrals within the chapter will lead to extra search work. Also the structure of the standard is improved. Some checks are still missing.

Moment connection (*fig. 3*)

Old standard

The old standard is sufficient to answer the questions about a moment connection. This led to a mark for this question of 6,5 out of 10, which makes it clear that there is room for improvement. The easiness to understand is good. However, some sketches and tables are not easily readable. Also some diagrams are not placed in the right other and some background information isn't complete. The structure to find information is complex and the standard does also not apply to standard bolt patterns. When the structure to find is a problem, it can be cause that understanding of the information will also become difficult.

Draft version

The draft version of the new standard has shown that improvements are also made for the moment connections. The improvement led to a higher mark: 7.5 (out of 10. To clarify matters figures are added. The layout of the standard and annexes contribute to the easiness to find information. The new structure is sufficient. However, when a guideline for checks will be added some more improvement can be made.

Column base (*fig. 4*)

Old standard

Information to answer questions about a column base is insufficient described in the standard. This led to a mark of 5 out of 10. To understand the standard, CUR or EC2 is needed according tot the participants of the workshop. The easiness to find information is not of a sufficient level due to the deviation of information over different chapters and the connection of this standard with the EC2. The deviation of information over different

chapters and Eurocodes results also in a bad structure of the standard.

Draft version

In the draft version of the new standard, many improvements are made regarding column base exercises. This resulted in an improvement of the mark from a 5 to a 7.5 out of 10. The overview in annex D is useful for the easiness to find information. For some persons the link to EC2 does not always make it easy. The structure and understanding of this part of the standard are also improved at a comparable level as the easiness to find information.

Conclusion

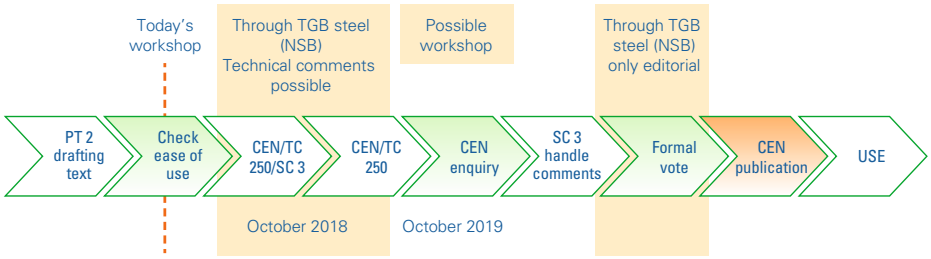
In general, it the conclusion can be made for all exercises many improvements are made. It can be useful to implement some of the comments in a new draft version of the code.

About the participants

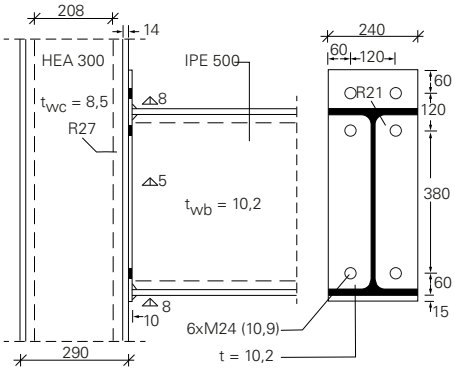
Two-thirds of the participants (41) had some experience with the standard. Half of the participants had experience with the design of connections other than EN 1993-1-8. The participants will use in that case mainly TGB connections, design guides, BS or SCI. Before the workshop, 33 participants (no students) did use the standard EN 1993-1-8 last year. Half of them did use the standard less than 5 times annually and the other group more than 5 times last year. Mainly computer programs as TS Raamwerken 2D Connections, spreadsheets, SCIA engineer and IDEA are used. The participants use also textbooks to design connections. In case of textbooks, SCI, ECCS or BmS books are used. Sometimes, participants make use of the company's best practices to make calculations for connections.

Wishlist participants

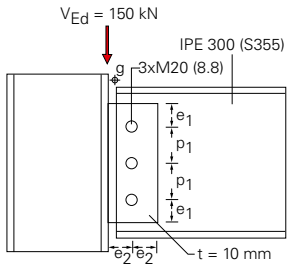
The participants want to know some background information of the standard. According to them, it can make things clear and it can be useful to know some principles of the standard. To get informed about the topic and the development of the standard: participants want to have a seminar, course and an article in a magazine. But there is clearly the most need for numerical examples regarding this topic. •



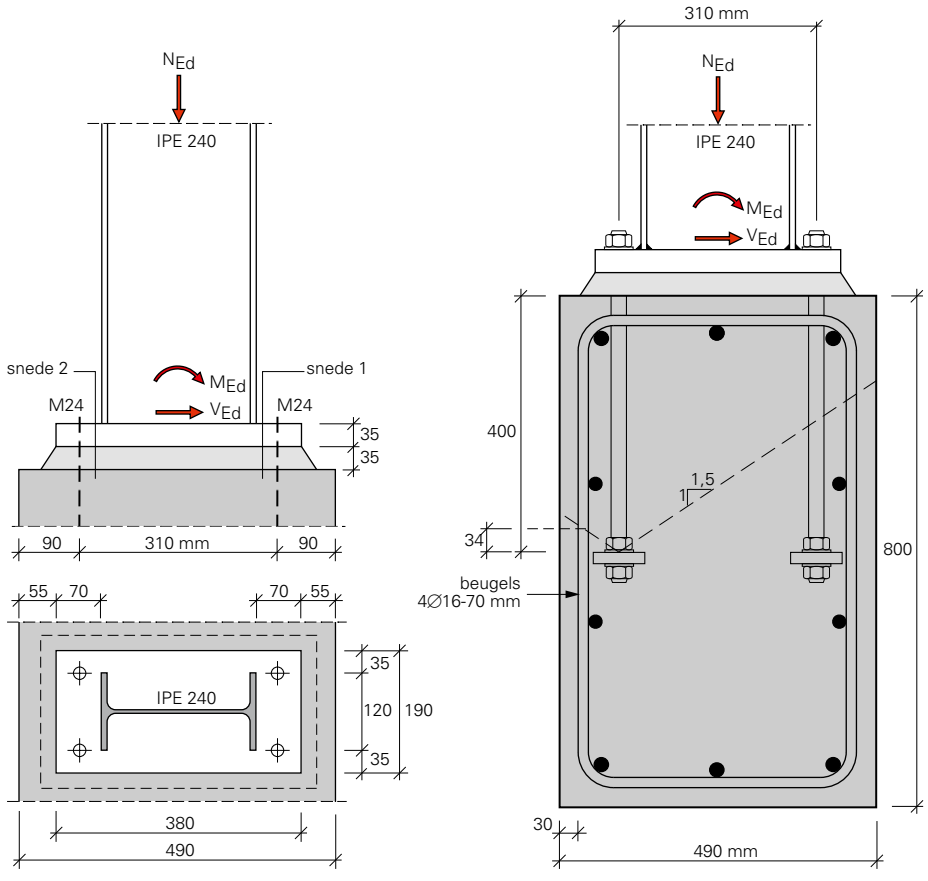
1. Time schedule new version of EN 1993-1-8.



2. Fin plate connection.



3. Required and available rotation.



4. Layout of a column base.