



Joint Committee
on Structural Safety

Workshop on Assessment of Existing Structures

28th and 29th January 2021

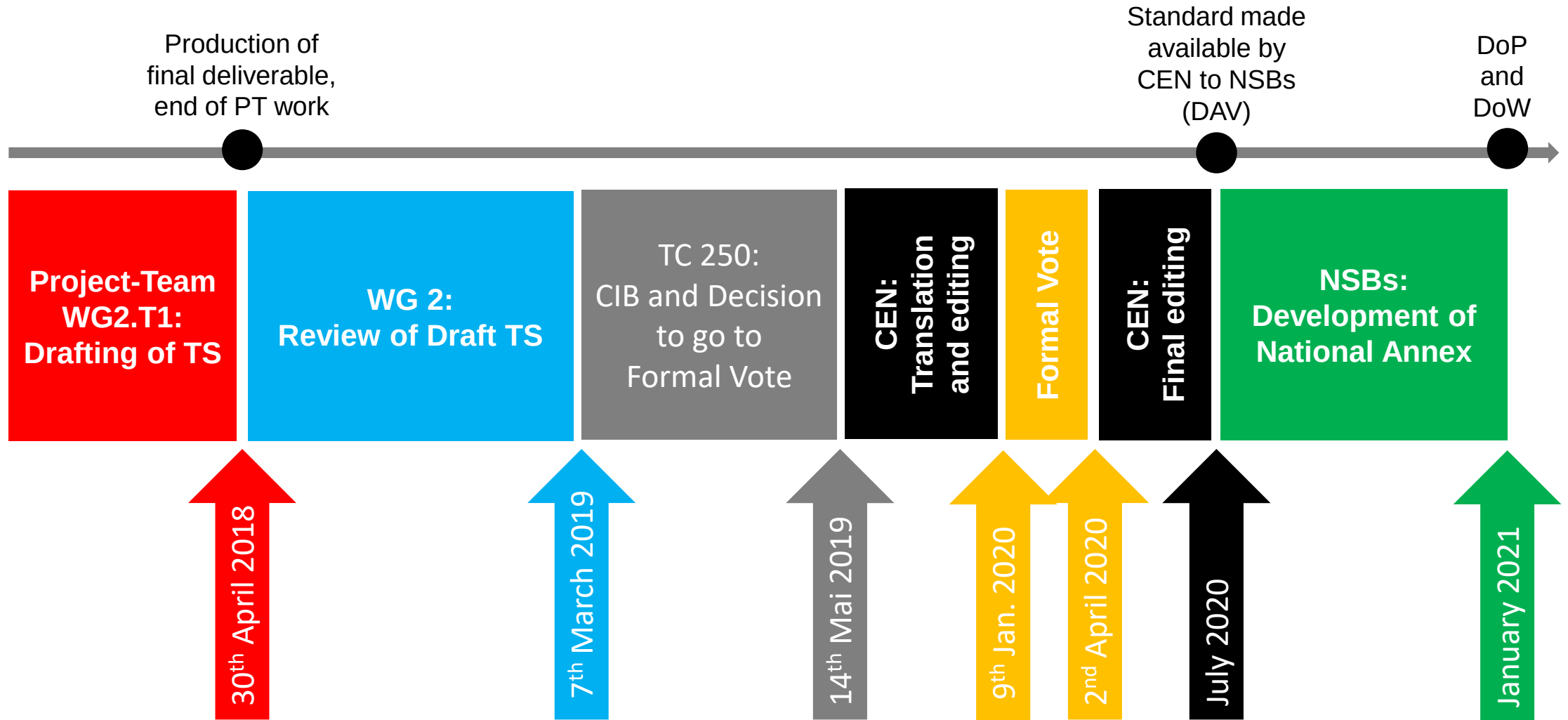
Standardization for Assessment of Existing Structures
Evolution from TS to Eurocode

Part 1 – Finalization of Technical Specification

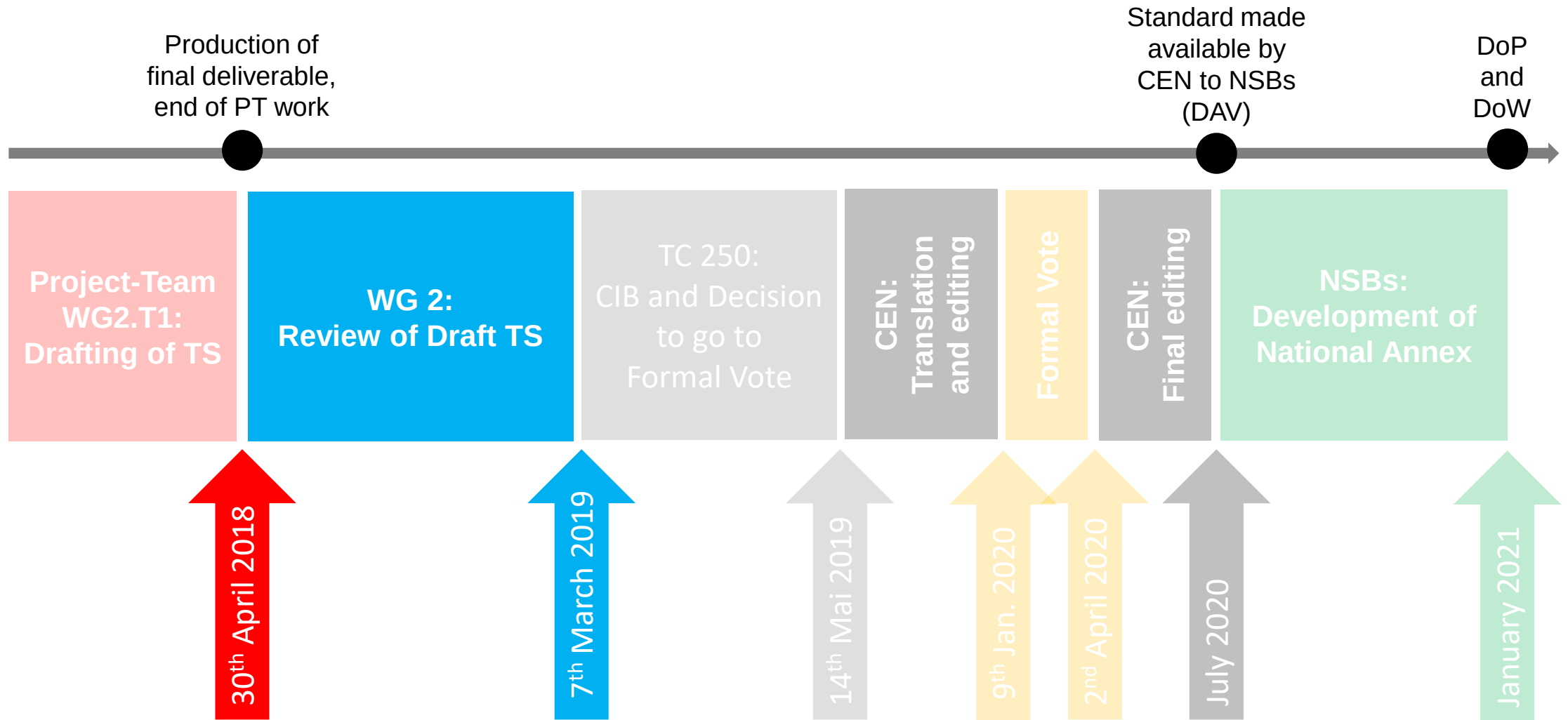
Thomas P. Lang

Thomas Lang Consulting GmbH

Timeline



Timeline



WG 2: Review of Draft TS

- Further elaboration of WG2.T1-Draft of TS in order to be ready to issue it to WG 2 for approval during 13th meeting on 7th March 2019:
 - Reach consensus on technical content
 - Fulfil formal requirements according to CEN Internal Regulations and TC 250 policy guidelines
- Constitution of Convenor's Advisory Panel (CAP) within WG 2:
 - Convenor and 4 members of WG 2
- Supported by:
 - Chairman of TC 250
 - Technical Reviewer of TC 250

WG 2: Review of Draft TS

1. Scope

- setting the link with **EN 1990:2002**
- clarifying what the CEN/TS provides in terms of actions for assessment complementing **EN 1991** and principles for the assessment of the structural resistance
- clarifying that rules on how to initiate the assessment and undertake interventions are **not** covered

Content

European Foreword

Introduction

1 Scope

2 Normative References

3 Terms definitions and symbols

4 Principles of assessment

5 Assessment process

6 Assessment based on past performance

7 Assessment by calculation

8 Basic variables and updating

9 Structural modelling, updating and analysis

10 Verifications

11 Interventions

Annex A Flowchart of assessment processes and interventions

Annex B Updating procedure

Annex C Target reliability and partial factors

Annex D Assessment of heritage structures

WG 2: Review of Draft TS

4. Principles of assessment

- Reliability management
- Methods of assessment (clear distinction between assessment by calculation and assessment based on past performance)
- Assessment situations
- Using available information
- Updating available information
- Structures with new elements and retained elements (new principles for approaches to projects comprising both new elements and retained elements from an existing structure)
- Assessment of heritage structures

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WG 2: Review of Draft TS

5. Assessment process

- Initiating the assessment
- Agreeing the assessment scope and objectives
- Developing the assessment approach
- Establishing the structural condition
- Undertaking the assessment (preliminary assessment, detailed assessment and plausibility check)
- Reporting the assessment findings (including identification of need for interventions)

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Introduction

1 Scope

2 Normative References

3 Terms definitions and symbols

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8 Basic variables and updating

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WG 2: Review of Draft TS

6. Assessment based on past performance
(new separate section)
7. Assessment by calculation
(separate from section 6)
8. Basic variables and updating
(restructured to follow EN 1990:2002 structure)
 - geometrical data
 - actions and environmental influences
 - material and product properties

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6 Assessment based on past performance

7 Assessment by calculation

8 Basic variables and updating

9 Structural modelling, updating and analysis

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WG 2: Review of Draft TS

9. Structural modelling, updating and analysis
(including load testing and monitoring)

10. Verifications

- Partial factor method
- Assessment value method
- Probabilistic method
- Risk assessment method

11. Intervention

(including immediate interventions)

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WG 2: Review of Draft TS

Annexes (all informative):

- A** Flowchart of assessment process and intervention
(updated)
- B** Updating procedure
(editorial update)
- C** Target reliability and partial factors
(updated according to section 10)
- D** Assessment of heritage structures
(aligned to the main text)

Content

European Foreword
Introduction
1 Scope
2 Normative References
3 Terms definitions and symbols
4 Principles of assessment
5 Assessment process
6 Assessment based on past performance
7 Assessment by calculation
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WG 2: Review of Draft TS

- Main topics under discussion:
 - Definition of existing structure
 - Structures with new and retained elements
 - Standardization of assessment process
 - Assessment based on past performance
 - Practical use of verification methods other than partial factor method
- WG 2 agreed to issue New Draft of TS to TC 250 to proceed to **Formal Vote**

Content

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Introduction

1 Scope

2 Normative References

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4 Principles of assessment

5 Assessment process

6 Assessment based on past performance

7 Assessment by calculation

8 Basic variables and updating

9 Structural modelling, updating and analysis

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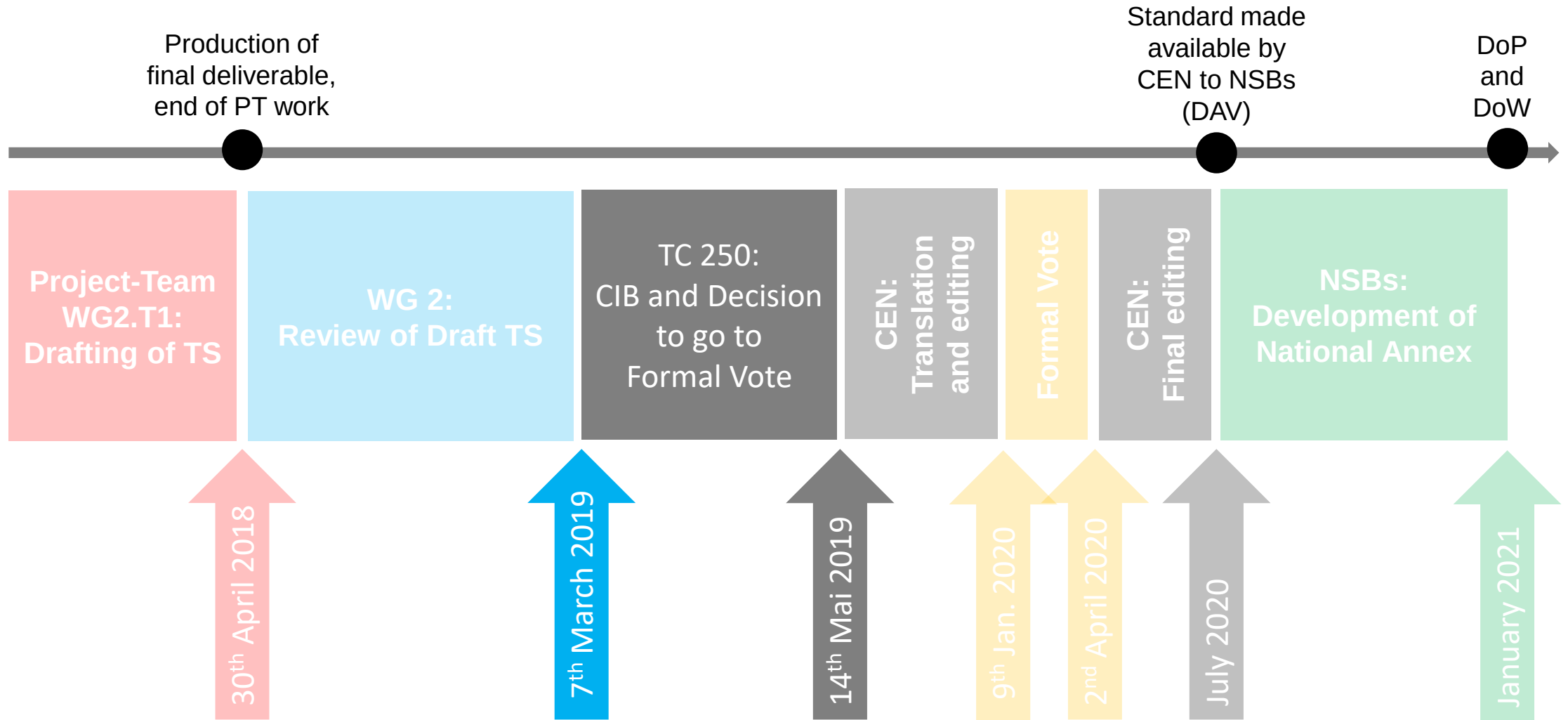
Annex A Flowchart of assessment processes and interventions

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Timeline



TC 250: CIB and Decision to go to Formal Vote

- According to CEN IR, for TS:
 - **NO** public enquiry
 - Directly go to Formal Vote
- Decision of Chairman of TC 250 to hold a **CIB** before going to Formal Vote



Document : CEN/TC 250 N 2177

Date : 19 March 2019

To the Members of CEN/TC 250
Structural Eurocodes

Secretariat of CEN/TC 250
Direct tel: +44 20 8996 7421
Email: tracey.wilkins@bsigroup.com

Subject: Letter regarding prCEN/TS Assessment of Existing Structures proceeding to Formal Vote

Dear Members,

As you will be aware, for the past three years, CEN/TC 250 Working Group 2 has been engaged in the development of a CEN Technical Specification (TS) on the *Assessment of Existing Structures*. I am pleased to advise you that at their recent meeting, held in Brussels on the 6-7 March 2019, WG 2 agreed to recommend that the draft TS proceeds to formal vote by CEN/TC 250.

A copy of the draft prCEN/TS *Assessment of Existing Structures*, prepared by CEN/TC 250/WG 2, has been provided to CEN/TC 250 as document N 2176.

At the meeting of CEN/TC 250 in Amersfoort in November 2018, it was agreed that because the proposed TS has been developed by a working group rather than a sub-committee and because there is no CEN enquiry for TS, prior to launching the formal vote, CEN/TC 250 would be asked for its agreement to proceed to formal vote and would also invited to raise any major 'show-stopper' issues that could potentially lead to a negative vote.

CEN TC 250 is therefore holding a committee internal ballot (CIB) to ask these questions, the closing date for which is the 30 April 2019.

It is important to recognise that, with M/515 Project Team WG2.T2 now having started working within Phase 4 of the work programme on the conversion of the draft CEN TS to EN status, there is considerable urgency to stabilise the CEN TS. For this reason, we are not seeking feedback on general improvements that CEN members believe could be made to the TS. However, through the CIB we are providing the opportunity for CEN members to highlight any issues that they believe Project Team WG2.T2 should take into account in the development of the EN content on assessment of existing structures.

It is also highlighted that, in accordance with CEN Internal Regulations Part 2, Clause 11.3.1.1, the status of a TS is explained as follows:

A Technical Specification (TS) is a normative document made available by CEN/CENELEC in at least one of the three official languages. A Technical Specification is established by a technical body and approved by the CEN/CENELEC national members in accordance with 11.3.3.2. The Technical Specification is announced and made available at national level, but conflicting national standards may continue to exist.

TC 250: CIB and Decision to go to Formal Vote

- Questions to be answered in **CIB**:
 - Do you agree that the draft CEN TS (...) may proceed to formal vote?
 - Are there any major technical concerns with the draft CEN TS that could lead you to vote negatively (...)? If so, please provide details.
 - Are there any matters that you would like CEN/TC 250/WG 2 to take into account in its ongoing work to convert the TS text to EN status? If so, please provide details



CEN/TC 250 N 2176

CEN/TC 250
Structural Eurocodes

Email of secretary: tracey.wilkins@bsigroup.com
Secretariat: BSI (United Kingdom)

Draft prCEN/TS Assessment of Existing Structures

Document type: Other committee document

Date of document: 2019-03-19

Expected action: INFO

Background:

Committee URL: <https://cen.iso.org/livelink/livelink/open/cen/250>

TC 250: CIB and Decision to go to Formal Vote

- Result of **CIB**:
 - National Members **unanimously** agreed to go to Formal Vote
 - 1 National Member raised a major concern (conflict with National Building Regulations)
 - 9 National Members submitted comments (consistency with EN1990, definitions, target reliability levels, assessment methods, etc.)
- Decision of Chairman of TC 250:
Go to Formal Vote



CEN/TC 250 N 2176

CEN/TC 250
Structural Eurocodes

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Secretariat: BSI (United Kingdom)

Draft prCEN/TS Assessment of Existing Structures

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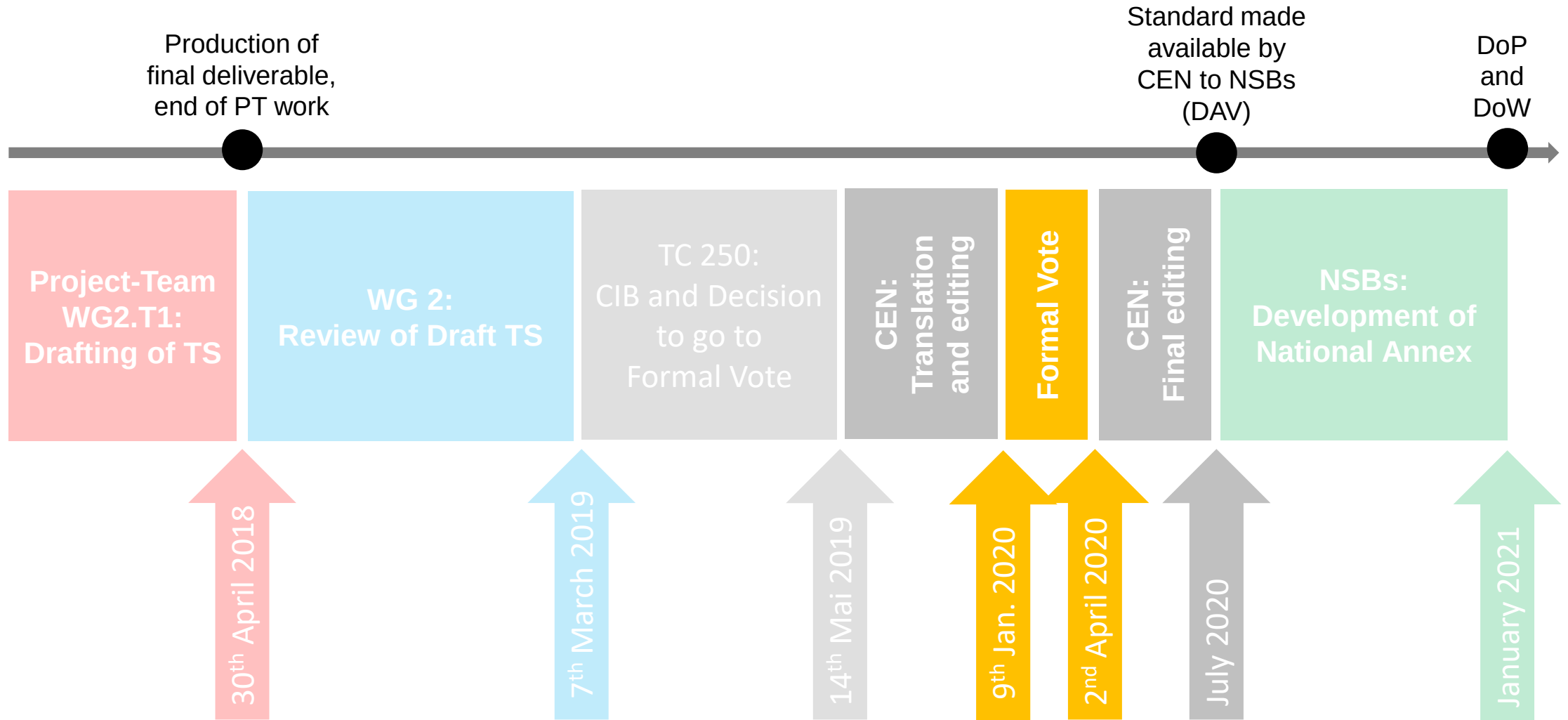
Date of document: 2019-03-19

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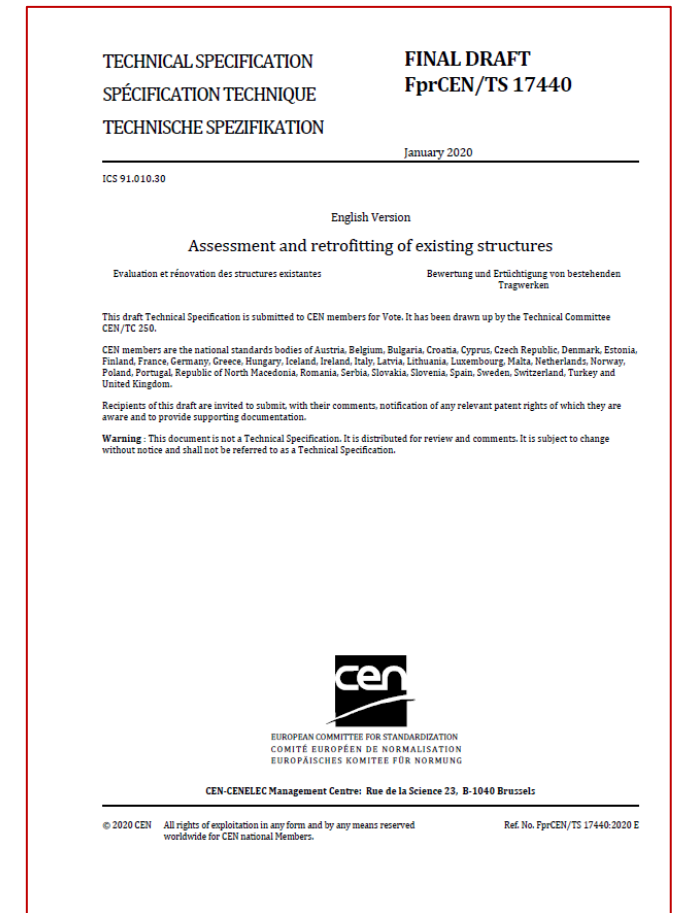
Formal Vote

- First deliverable within Mandate **M/515** going for formal vote
- Formal Vote period: **12 weeks** (9/1/2020 – 2/4/2020)
- Result of Formal Vote on **FprCEN/TS 17440**
Assessment and retrofitting of existing structures:
 - National Members approving: 22
 - National Members disapproving: 0
 - Number of Members approving: 100 % (requirement ≥ 55 %)
 - Weighted percentage of Population approving: 100 % (requirement ≥ 65 %)
 - Approval of implementation period

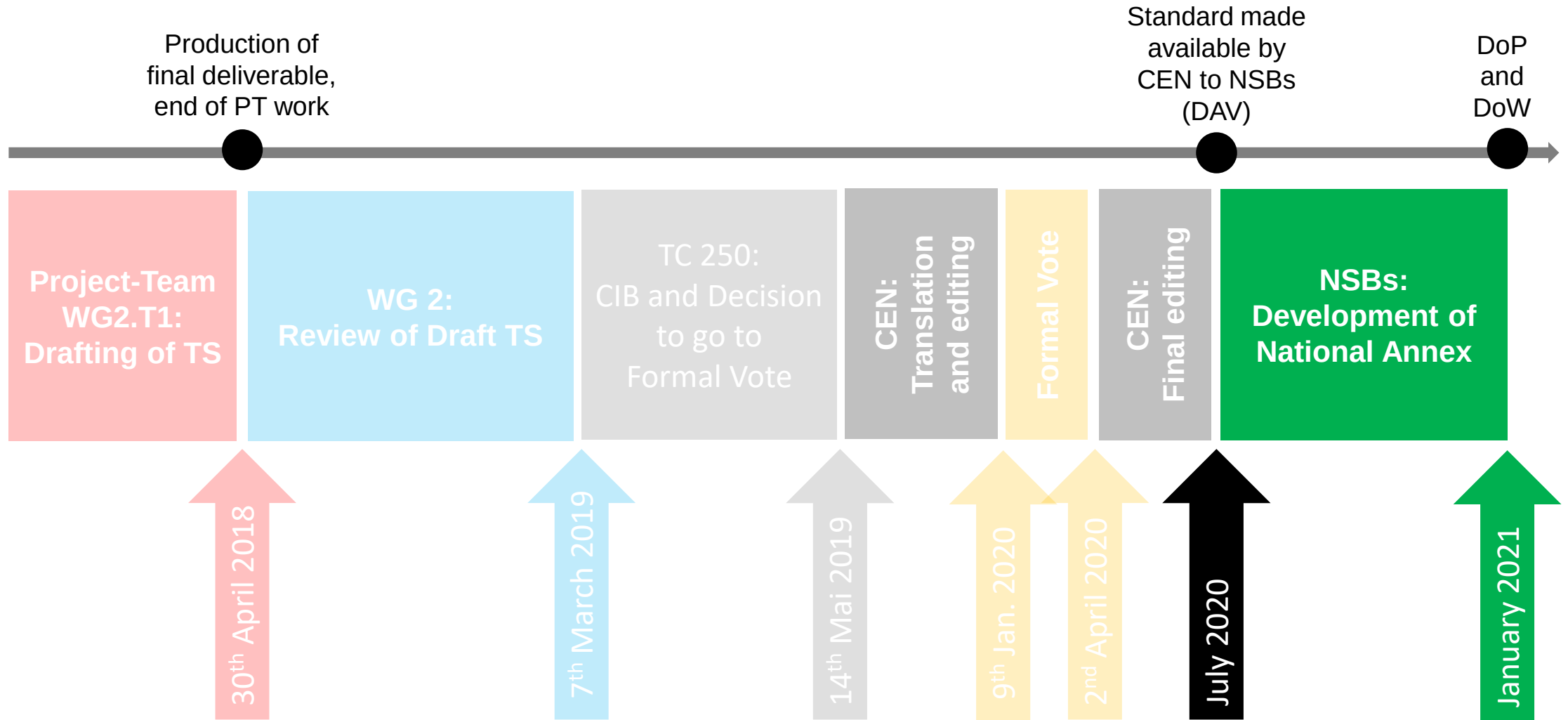
TECHNICAL SPECIFICATION SPÉCIFICATION TECHNIQUE TECHNISCHE SPEZIFIKATION	FINAL DRAFT FprCEN/TS 17440
January 2020	
ICS 91.010.30	
English Version	
Assessment and retrofitting of existing structures	
Evaluation et rénovation des structures existantes	Bewertung und Errichtung von bestehenden Tragwerken
This draft Technical Specification is submitted to CEN members for Vote. It has been drawn up by the Technical Committee CEN/TC 250.	
CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.	
Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.	
Warning: This document is not a Technical Specification. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Technical Specification.	
	
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Formal Vote

- 4 National Members submitted comments (only editorial)
- The definitive text of **CEN/TS 17440** was made available after incorporation of editorial comments in July 2020 (DAV).
- NSBs have an opportunity to provide a National Annex.



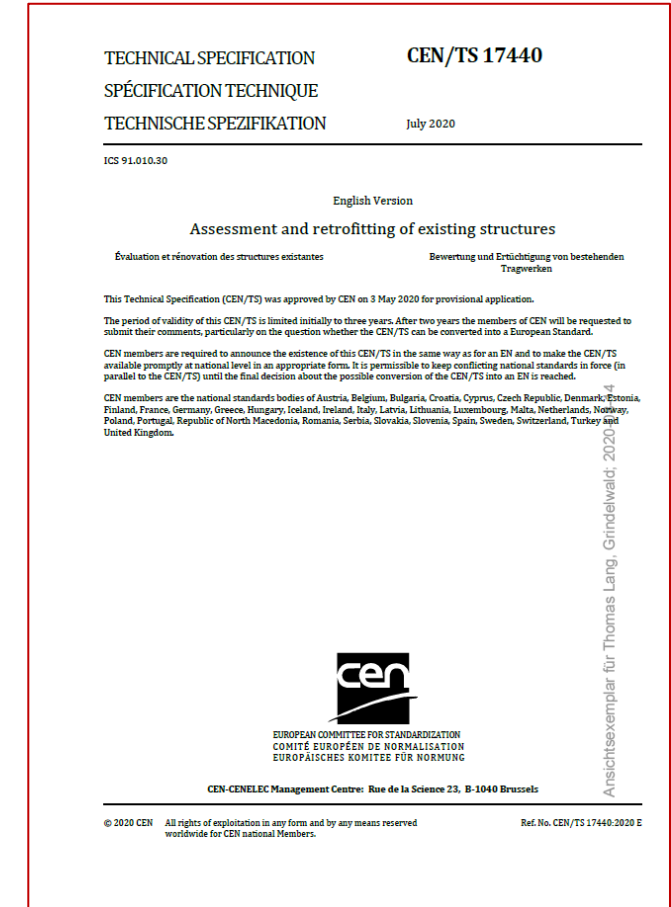
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NSBs: Development of National Annex

- Implementation period:
 - Date of Availability (DAV) : July 2020
 - Date of Publication (DOP) : DAV+6 Months
 - Date of Withdrawal (DOW) : DAV+6 Months
- Frontpage of TS:

CEN members are required (...) to make the CEN/TS available promptly at national level in an appropriate form.
It is permissible to **keep conflicting national standards** in force (in parallel to the CEN/TS)...
- Only UK and FR are working on NA to the TS so far



JCSS

Joint Committee
on Structural Safety

www.jcss-lc.org