

Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes

T 3150

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ABSCHLUSSBERICHT

ZUM FORSCHUNGSPROJEKT DES DIBT

**HERSTELLUNG DER GRUNDLAGEN FÜR EINE ERFOLGREICHE
ÜBERFÜHRUNG DER ENV-EUROCODES IN EN-EUROCODES**

**UNTERSTÜTZUNG DES DEUTSCHEN VORSITZES
VON CEN/TC 250**

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Aachen, 11.07.2007

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1. AUFGABENSTELLUNG

1.1 Veranlassung

- (1) Im März 2000 übernahm Prof. Dr.-Ing. Horst Bossenmayer, damals Präsident des Deutschen Instituts für Bautechnik, den Vorsitz von CEN/TC 250.
- (2) CEN/TC 250 war beauftragt, die ENV-Eurocodes in EN-Eurocodes zu überführen.
- (3) Die ARGEBAU unterstützte den deutschen Vorsitz durch die Vergabe des Forschungsauftrages „Herstellung der Grundlagen für die erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes“ an den Lehrstuhl für Stahlbau der RWTH Aachen, um von dort aus sachliche und personelle Hilfe für den Vorsitzenden Prof. Bossenmayer bei der Durchführung der Aufgabe zu erhalten.
- (4) Dieser Bericht beschreibt in seinem Hauptteil die von der ARGEBAU beauftragten Tätigkeiten in den Jahren 2000 bis 2006. Darüber hinausgehende Arbeiten werden teilweise in den Anlagen dargestellt.

1.2 Vertraglicher Hintergrund der Überführung der ENV-Eurocodes in EN-Eurocodes

- (1) Grundlagen dieser Überführung waren zu Beginn:
 1. **CEN:** Votum der Nationalen Normeninstitute aufgrund einer CEN-Umfrage. Dieses Votum war mit technischen Vorschlägen und Kommentaren zu der Gestaltung und zum Inhalt der neuen EN-Eurocodes verbunden.

Anmerkung:

1. Die technischen Vorschläge und Kommentare gingen zum großen Teil über eine reine redaktionelle Bearbeitung der ENV-Eurocodes hinaus und verlangten, Schwächen der ENV-Eurocodes, die in ihrem technischen Inhalt und ihrem viel zu großen Volumen begründet waren, auszuräumen.
2. Die technischen Vorschläge und Kommentare waren zum großen Teil widersprüchlich. Dies erforderte wissenschaftliche Analysen und Aufbereitungen für Entscheidungen.

2. Verträge: a) zwischen Kommission und CEN MC

Vertrag	Beginn	Ende
BC/CEN/1997-38	22.12.1997	31.12.2005
BC/CEN/1998-11	18.11.1998	31.12.2005
BC/CEN/1999-20	20.12.1999	31.12.2006
BC/CEN/2000-16	20.12.2000	31.12.2008

Für die beiden ersten Verträge ergibt sich aus der Rückrechnung vom Vertragsende am 31.12.2005 her folgender Terminplan:

Status 73 (Implementierung):	Juni 2005
Status 64 (Datum der Verfügbarkeit):	Ende 2004
Formale Abstimmung abgeschlossen:	Juni 2004
Status 51 (Formale Abstimmung eingeleitet):	Ende 2003

b) zwischen CEN MC und BSI als Sekretariat von CEN/TC 250

c) zwischen BSI und den mitwirkenden Personen

(z.B. den Vorsitzenden und Mitgliedern von Projektgruppen)

Anmerkung:

1. Die Verträge zwischen der Kommission und CEN MC gingen bei den Leistungs-, Zeit- und Kostenvorstellungen davon aus, dass die Überführungsarbeit lediglich in der redaktionellen Überarbeitung der ENV-Eurocodes läge, und waren deshalb unrealistisch.
 2. Die Verträge a), b), c) wurden nicht nacheinander, sondern aus Zeitgründen etwa gleichzeitig und unabhängig voneinander verhandelt und abgeschlossen; daher waren die Verträge vor allem in den Leistungs- und Zeitvorstellungen nicht konsistent und führten bis heute zu bestehenden Schwierigkeiten zwischen den Vertragsparteien. Insbesondere die Kommission hält Zahlungen zurück.
- (2) Mit diesen Grundlagen und unterstützt durch die CEN-Regeln und eine CEN/TC 250 interne Arbeitsrichtlinie, die im CEN/TC 250-Dokument N 250 festgehalten und weitergeschrieben wurden, wurde die Überführungsarbeit begonnen.
- (3) Während der Überführungsarbeit kam das Leitpapier L „Anwendung und Nutzung der Eurocodes“ hinzu, das eine Vereinbarung zwischen der Kommission und den Mitgliedsländern zu der Beziehung zwischen den Eurocodes und den Bauprodukten darstellt und insbesondere die Doppelrolle der Eurocodes definiert, nämlich:
1. Rolle als Bezugsdokument für technische Spezifikationen für vorgefertigte Bauprodukte
 2. Rolle als Vertragsdokument für die Durchführung von Ingenieurleistungen für Bauwerke.

Anmerkung:

Die Entwicklung des Leitpapiers erforderte die Mitwirkung von CEN/TC 250, sowie der wichtigsten CEN/TC's, CEN/TC 229 und CEN/TC 135, die die Umsetzung durchführen sollten.

- (4) Das Leitpapier L veränderte die Arbeitsziele und den Arbeitsumfang der Vorsitzenden und Mitglieder der Projektgruppen gegenüber den Vorgaben in ihren Verträgen erheblich. Da keine nachträglichen Vertragsänderungen durchgeführt wurden, wurde zwischen allen Beteiligten die „freiwillige“ Einbeziehung des Leitpapiers L in die Grundlagen der Bearbeitung vereinbart.

Anmerkung:

1. Das Leitpapier L wurde wegen seiner „administrativen Sprache“ von den meisten Mitarbeitern in den CEN/TC's für Bauprodukte und vorgefertigte Bauteile nicht verstanden. Auch „CEN-Consultants“, die den CEN/TC's bei der Konkretisierung in EN-Standards behilflich sein sollten, hatten häufig eigenen Lernbedarf. Daraus entstand ein erheblicher Koordinierungsaufwand für CEN/TC 250.
2. Die Mandate, die die verschiedenen CEN/TC's für Bauprodukte und vorgefertigte Bauteile von der Kommission erhielten, waren häufig nicht in Übereinstimmung mit den Grundsätzen des Leitpapiers L und der Eurocodes. Daher war es notwendig, dass die CEN/TC's zusammen mit CEN/TC 250 und der Kommission die Mandate korrigierten und bisher fertiggestellte Entwürfe noch einmal überarbeiteten.
3. Eine weitere Konsequenz des Leitpapiers L war, dass in CEN/TC 250 die bisher fertiggestellten prEN-Eurocode-Entwürfe noch mal überarbeitet werden mussten, um Konsistenz mit den Anforderungen an den EN-Produktnormen und den Normen für vorgefertigte Bauteile herzustellen.

1.3 Analyse der ENV-Eurocodes zu Beginn der Arbeiten

- (1) Alle Eurocodes
- Eurocode 1 – Teil 1 – Grundlagen der Tragwerksplanung
 - Eurocode 1 – Teile 2-5 – Einwirkungen
 - Eurocode 2 bis 9 – Bemessungsregeln für verschiedene Baustoffe und Bauarten
- lagen im Jahre 2000 als ENV-Fassungen ENV 1991 bis ENV 1999 vor und waren für Testanwendungen veröffentlicht.
- (2) Das für die Eurocode-Bearbeitung zuständige CEN/TC 250 hatte das Mandat, auf der Grundlage von Einsprüchen und Stellungnahme die ENV-Fassungen in EN-Fassungen zu überführen, siehe Bild 1-1.

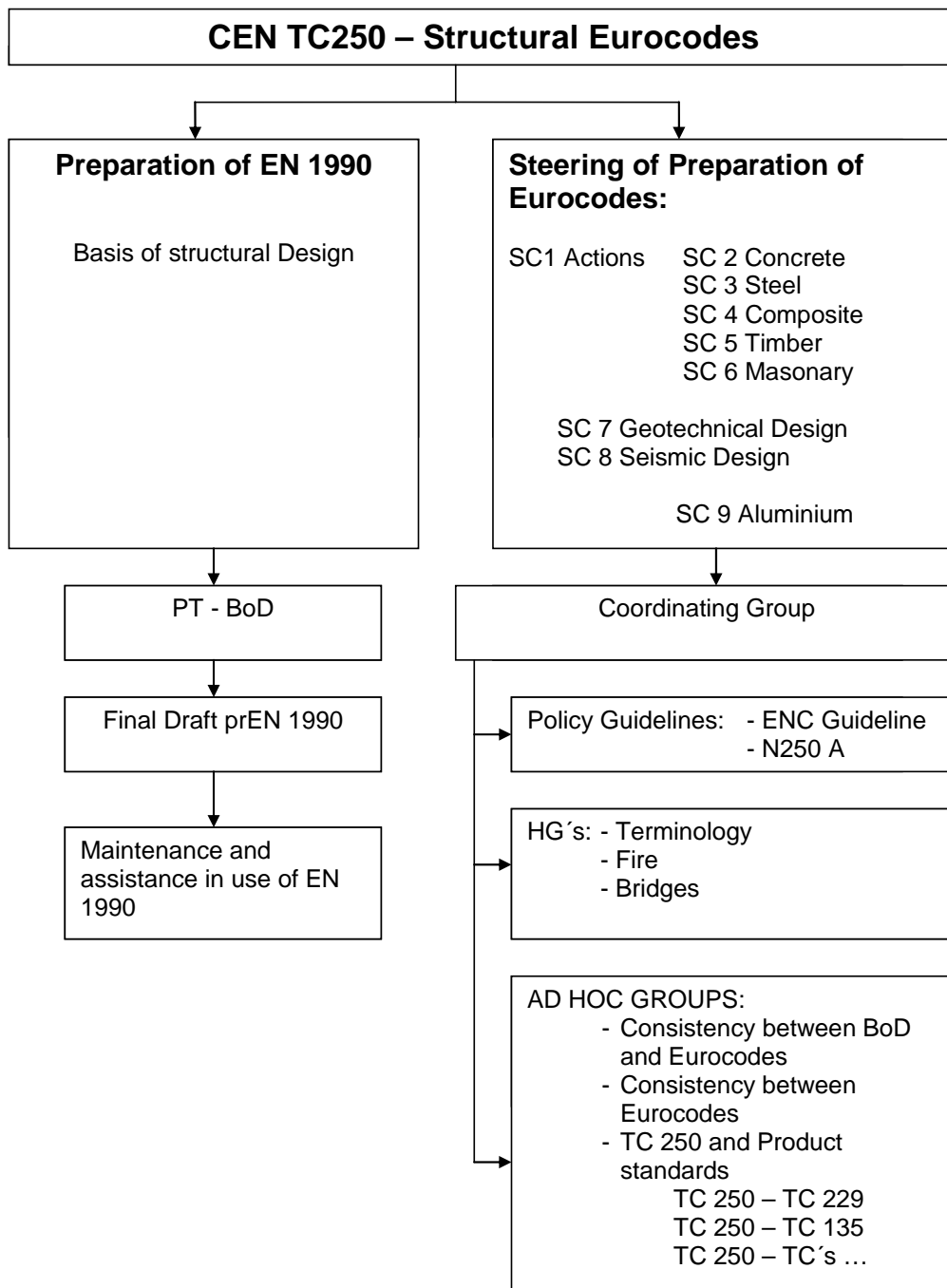


Bild 1-1: Organisation von CEN/TC 250

- (3) Dabei sollten die EN-Fassungen der Eurocodes zwei wesentlichen Zwecken dienen:
1. als Bezugsdokumente für die Erarbeitung von Baustoff- und Produktnormen sowie für Europäische Technische Zulassungen
 2. als Normenregelung für den Entwurf und die Berechnung von Bauwerken
- (4) Bei der Erstellung der EN-Fassungen der Eurocodes waren bestimmte Grundsätze zu beachten, die bei den bisherigen Planungen der Überführung noch nicht genügend deutlich und für alle Eurocodes verbindlich berücksichtigt worden waren:
- a) Die ENV-Eurocodes waren in ihren Teilen zeitlich aufeinanderfolgend hergestellt worden, und die neueren ENV-Teile korrigierten zum Teil Schwächen alter ENV-Teile. Es gab bisher kein allgemeinverbindliches durchgreifendes Ordnungssystem, mit dem Wiederholungen, Widersprüchlichkeiten der Regelungen u.a. verhindert werden und ein klares Bezugssystem für Produktnormen und Europäische Technische Zulassungen einerseits und den Entwurf und die Berechnung von Bauwerken andererseits hergestellt werden kann.
 - b) Die verschiedenen ENV-Eurocodes waren weitgehend selbständig von den jeweiligen Subcommittees hergestellt worden. Die Gliederungen waren verschieden. Gleiche Regelungsinhalte waren verschieden ausgedrückt. Die Regelungstiefe war sehr verschieden, z.B. war der Eurocode 9 für Aluminium weitgehend für das Fahrzeugwesen und weniger für das Bauwesen gedacht und deshalb anders gestaltet als andere Eurocodes.
 - c) Die Sicherheitskonzepte in den ENV-Eurocodes waren noch nicht bauweisenübergreifend einheitlich. Beispielsweise ging der Eurocode 2 von Sicherheitsbeiwerten an Werkstoffeigenschaften aus, der Eurocode 3 von Sicherheitsbeiwerten an den Formeln für die Beanspruchbarkeitsfunktionen, Eurocode 2, 3, 4 und 9 benutzten das CEB/EKS-System für Sicherheitsbeiwerte, während der Eurocode 7 das nationale dänische Sicherheitssystem in den Grundbau eingeführt hat, das mit dem CEB/EKS-System nicht kompatibel war. Daher wurden für den Grundbau mehrere Nachweise nach unterschiedlichen Sicherheitssystemen vorgeschrieben.
 - d) Zu den Ansprüchen der Mitgliedsländer, ihre eigenen Sicherheitsanforderungen in einem Eurocode-System mit Stufen und Klassen wiederzufinden, so dass es die notwendigen Niveauabgleichungen gibt, gab es bisher in den ENV-Eurocodes noch keinen übergreifenden Vorschlag, der auch die Handhabung zum Vollzug ermöglichte.
 - e) Die Folgerungen für die Praktikabilität der Handhabung, nämlich Reduktion des Regelungsvolumens und hinreichende Übersichtlichkeit und Überschaubarkeit der Regeln, damit die Notwendigkeit der Einschaltung von Sonderfachleuten (Consultants) vermieden wird, waren für die Überführung der ENV-Eurocodes in die EN-Eurocodes noch nicht hinreichend klargemacht.
 - f) Die Regelungsinhalte der ENV-Eurocodes waren auch noch nicht klar im Hinblick auf öffentlich-rechtliche Belange und privatrechtliche Belange, sowie auf Bezüge für unterschiedliche Anwendungen, z.B. Entwurf und Berechnung für den Hochbau, Brückenbau und Produktnormen und Zulassungen, gegliedert.
 - g) Zu wesentlichen Bemessungsprinzipien, z.B. wann mit Imperfektionen zu rechnen ist und wann nicht, oder ob bei den Kombinationsregeln für klimatische Einwirkungen Messergebnisse mit gleichzeitigem Auftreten berücksichtigt werden sollten, fehlten für die Überführung der ENV-Eurocodes in EN-Eurocodes noch werkstoff- und bauwesenübergreifende Einigungen, die besonders für Verbund- und Mischbauweisen erforderlich waren.

- (5) Die Überführungsarbeiten an den Eurocodes 1, 2, 3 und 4 für den Hochbau hatten bereits begonnen, jedoch ohne ausreichende Koordinierung seitens CEN/TC 250, welches auf die o.g. Fragen eingegangen wäre. Die Arbeiten an den Teilen der Eurocodes 1, 2, 3 und 4 für den Brückenbau standen kurz bevor.

1.4 Forschungsziele und Koordinierung

1.4.1 FORSCHUNGSZIELE UND KOORDINIERUNG IN DER ERSTEN PHASE 2000-2002

- (1) Der erste Finanzierungszeitraum bezog sich auf die Jahre 2000 bis 2002.
- (2) Er betraf besonders die Mitwirkung bei der Herstellung des Leitpapiers L und die erste Phase der Überführung der ENV-Eurocodes in EN-Eurocodes, die zunächst die Eurocodes 1, 2, 3 und 4 einschloss. Dabei wurden alle wichtigen Grundlagen gelegt (Kaltbemessung, Warmbemessung, Einwirkungen einschließlich Erdbeben), die auch für die weiteren Eurocodes gelten.
- (3) Die Arbeiten zielten daraufhin, die Grundlagen für Vorschläge, Entscheidungen und Vollzug für die Eurocode-Bearbeitung herzustellen, die es erlaubten, die verschiedenen Ziele der Eurocodes zu erreichen, die staatlichen Sicherheitsanforderungen zu erfüllen und zu sicher handhabbaren Bemessungsregeln zu kommen.
- (4) Im Vordergrund der Bearbeitungsziele standen:
 1. Erstellung von wissenschaftlichen Hintergrundberichten für die Erarbeitung der prEN 1990 – Grundlagen der Tragwerksplanung – mit Ausrichtung auf die Belange der Bauaufsicht, zunächst bezogen auf den Hochbau.
 2. Erarbeitung von Anforderungen, Empfehlungen, Erlaubnissen und Möglichkeiten sowie Feststellungen für die prEN 1990, die mit den Hintergrundberichten in Übereinstimmung stehen.
 3. Feststellung von Koordinierungsaufgaben, die die Durchgängigkeit der in prEN 1990 genannten Anforderungen, Empfehlungen, Erlaubnisse und Möglichkeiten sowie Feststellungen für den Hochbau in den weiteren Eurocodes bewirkten.
 4. Mitarbeit bei der Bearbeitung eines normativen Anhangs A1 speziell für den Hochbau.
 5. Mitwirkung bei der Bearbeitung von sinnentsprechenden Sprachfassungen der prEN 1990, die mit den Punkten 1. und 2. zusammenpassten.

(5) Die breite Zielsetzungen machte während der gesamten Projektdauer eine koordinierte Forschungsarbeit der verschiedenen betroffenen Bereiche erforderlich. Daher sind folgende Stellen einbezogen worden:

- | | | |
|----|---|---|
| 1. | - für Analysen aufgrund der
Mitarbeit bei der Eurocode-
Koordination, | Prof. Sedlacek & Mitarbeiter, RWTH Aachen |
| | - für Koordination der Ergeb-
nisfindung | |
| | - für Aufbereitung von Ent-
scheidungsvorlagen | |
| 2. | - Grundlagen der Bemessung | Prof. Grünberg, TU Hannover
Prof. Zilch, TU München
Prof. König, Uni Leipzig
Prof. Hosser, TU Braunschweig |
| | - Einwirkungen | Prof. König, Uni Leipzig
Prof. Hosser, TU Braunschweig
Prof. Sedlacek, RWTH Aachen
Prof. Curbach, TU Dresden |
| | - Massivbauweise | Dr. Litzner, Wiesbaden
Prof. Hegger, RWTH Aachen
Prof. Zilch, TU München |
| | - Stahlbau | Prof. Sedlacek, RWTH Aachen |
| | - Verbundbau | Prof. Hanswille, Uni Wuppertal
Prof. Kreuzinger, TU München |
| | - Holzbau | Prof. Winter, TU Leipzig |
| | - Mauerwerksbau | Prof. Jäger, TU Dresden |
| | - Geotechnik | Prof. Gudehus, TU Karlsruhe
Prof. Zilch, TU München
Prof. Katzenbach, TU Darmstadt |

1.4.2 FORSCHUNGSZIELE UND KOORDINIERUNG IN DER ZWEITEN PHASE 2003

- (1) Die Überführungsarbeiten am Eurocode – Grundlagen der Tragwerksplanung – sowie am Eurocode 1, Teil 1-1 – Wichten und Nutzlasten auf Decken und Dächern – waren mit der Herstellung der dreisprachigen Normenfassung und der formalen Abstimmung abgeschlossen.
- (2) Bei weiteren Eurocodes für Einwirkungen stand der Abschluss bevor.
- (3) Bei den für Produktnormen besonders wichtigen Teilen 1 der Eurocodes 2 bis 9 (Grundlagen und Hochbau) gab es noch erheblichen Koordinierungsbedarf sowohl hinsichtlich der Produktnormen für Baustoffe/Werkstoffe und Halbzeuge (z.B. nach EN 10025) als auch hinsichtlich der Produktnormen für fertige Baukomponenten, die auf die Eurocodes Bezug nehmen müssen (z.B. EN 1090).
- (4) Darüber hinaus lieferte die Entscheidung, die 3-Sprachfassungen der Eurocodes vor der formalen Abstimmung (also in Stufe 34) fertigzustellen, die Möglichkeit, Unzulänglichkeiten der Entwürfe in Form und Text im Rahmen der Vorbereitung der englischsprachigen Grundfassung für die Übersetzungen sowie im Rahmen der Übersetzungen selbst durch geeignete Koordinierung auszuräumen.
- (5) Die Teile 2 der Eurocodes 2 bis 9 (Brücken) lagen in Entwürfen vor, die ebenfalls noch nicht koordiniert waren, z.B. hinsichtlich der Regeln, die Bauweisen übergreifend anzuwenden sind (Behandlung der Vorspannung, Theorie II. Ordnung, Ermittlung der Spezifikationen für Lager, Fahrbahnübergänge und anderer Brückenausrüstungen, Mindestanforderungen für die Dauerhaftigkeit).
- (6) Die Teile 3 bis 5, die bei verschiedenen Eurocodes Regeln für Spezialbauten liefern sollen, waren noch in frühen Bearbeitungsstadien der Projekt Teams.
- (7) Standen im Zentrum der Arbeiten der ersten Phase in den Jahren 2000, 2001 und 2002 die Mitwirkung an der Herstellung des Guidance Papers L – Anwendung der Eurocodes – und dessen Anwendung auf die Arbeiten an den Eurocodes und auf die Koordinierung der Zusammenarbeit mit den Produkt-TC's – hier beispielsweise das Pilotprojekt für die Zusammenarbeit zwischen CEN/TC 250 (EN 1990) und CEN/TC 250/SC2 (EN 1992) und CEN/TC 229 für Betonfertigteile – so waren in der zweiten Phase die folgenden Arbeiten geplant:
 1. Unterstützung der CEN/TC 250/SC's bei der Kooperation mit den jeweiligen Produkt-TC's, z.B. durch Koordinierung von Beispielen für die CE-Kennzeichnung zwecks Überprüfung der Eignung von Produktnormen und Eurocodes.
 2. Erarbeitung von Anforderungen an Produkt-TC's, die sich mit besonderen Bemessungsregeln befassen (z.B. CEN/TC 167 für Lager, CEN/TC 147 für Krane, CEN/TC 129 für Glaskonstruktionen).
 3. Mitarbeit bei den normativen Anhängen A1 bis A6 zu EN 1990 für Brücken, Maste, Türme, Kamine, Silos, Tankbauwerke, Pipelines, Geotechnische Anlagen (z.B. Spundwände) und Tragkonstruktionen für Kranbauten.
 4. Mitarbeit bei der Schaffung des Anhangs E von EN 1990 für bauweisenübergreifende Regeln für den Brückenbau, z.B. für Lager und Fahrbahnübergangskonstruktionen.
 5. Mitarbeit bei einer koordinierten Revision der Eurocode-Entwürfe für die Übertragung in die 3-Sprachfassungen.
 6. Mitarbeit bei der Revision der Eurocode-Entwürfe in Bezug auf eine weitere Reduktion der Anzahl der National festzulegenden Parameter.

- (8) Besonders intensiv waren die Arbeiten im Jahr 2003 zu folgenden Punkten:
1. Bearbeitung von Beispielen für die CE-Kennzeichnung zur Überprüfung der Produktnormen und Eurocodes.
 2. Arbeiten zur Fertigstellung der 3-Sprachenfassung der Teile 1 (Grundnormen und Anwendung für den Hochbau) von
EN 1991
EN 1992
EN 1993
EN 1994
EN 1995
EN 1996
EN 1997
EN 1998
 3. Arbeiten an der Koordinierung der Bearbeitung der Teile 2 der Eurocodes
EN 1992
EN 1993
EN 1994
EN 1995
unter Berücksichtigung der Einwirkungsnormen und der geplanten Anhänge A2 und E zu EN 1990.

1.4.3 FORSCHUNGSZIELE UND KOORDINIERUNG IN DER DRITTEN PHASE 2004

- (1) Die besonders wichtigen Normen
- | | |
|--------------|---|
| EN 1992-1-1 | Betonbauten |
| EN 1992-1-2 | Betonbauten – Brandschutzteil |
| EN 1993-1-1 | Stahlbauten – Grundlagen und Hochbau |
| EN 1993-1-2 | Stahlbauten – Brandschutzteil |
| EN 1993-1-8 | Stahlbauten – Anschlüsse |
| EN 1993-1-9 | Stahlbauten – Ermüdung |
| EN 1993-1-10 | Stahlbauten – Stahlsortenwahl |
| EN 1994-1-1 | Verbundbau |
| EN 1994-1-2 | Verbundbau – Brandschutzteil |
| EN 1995-1-1 | Holzbau |
| EN 1995-1-2 | Holzbau – Brandschutzteil |
| EN 1996-1-1 | Mauerwerksbau |
| EN 1996-1-2 | Mauerwerksbau – Brandschutzteil (bis Juni 2004) |
| EN 1997-1 | Geotechnische Konstruktionen |
| EN 1998-1 | Bauen in seismischen Gebieten |
- waren fertig gestellt und bis auf EN 1996-1-2 der formalen Abstimmung unterzogen worden.

- (2) Die Fertigstellung der Brandschutzteile 1-2 für EN 1992, EN 1993, EN 1994, EN 1995 war zu Beginn des Jahres 2004 zu erwarten, ebenso für EN 1996 als letzter Normenteil im März 2004. Insgesamt waren damit 22 Eurocodeteile planmäßig fertiggestellt.
- (3) Für das Jahr 2004 verblieb die Fertigstellung aller restlichen Eurocode-Teile. Das waren die in den Verträgen BC/CEN/1990-20 und BC/CEN/2000-16 erfassten Teile, insgesamt 36 Eurocode-Teile. Diese betrafen besonders
- Brückenbauten: Teile 2 von EN 1992 / EN 1993 / EN 1994 / EN 1995 / EN 1996,
 - Maste, Türme und Kamine,
 - Silobauwerke, Tanks, Pipelines,
 - Pfähle und Spundwände,
 - Kranbahnkonstruktionen und Maschinenfundamente;
- sowie besondere Grundlagen wie für Platten- und Schalentragwerke, dünnwandige Blechkonstruktionen für Dach- und Wand, Edelstahl, Seilkonstruktionen etc.
- (4) Im Jahre 2004 fiel insbesondere die Fertigstellung folgender Teile an:
- | | |
|---------------------|---|
| EN 1990 – Anhang A2 | Brücken |
| EN 1991-1-7 | Außergewöhnliche Lasten |
| EN 1992-2 | Betonbrücken |
| EN 1993-1-5 | Stahlbauten – Plattenbeulen |
| EN 1993-1-11 | Stahlbauten – Seilkonstruktionen |
| EN 1993-2 | Stahlbrücken |
| EN 1993-3 | Stahlbauten – Maste, Türme Kamine |
| EN 1993-4 | Stahlbauten – Silos, Tanks, Pipelines |
| EN 1993-5 | Stahlbauten – Pfähle und Spundwände |
| EN 1994-2 | Verbundbrücken |
| EN 1995-2 | Holzbrücken |
| EN 1996-2 | Planung, Auswahl der Baustoffe und Ausführung von Mauerwerk |
| EN 1998-2 | Brücken in seismischen Gebieten |
- (5) Die Grundlagen zu folgenden Leistungen waren zur Unterstützung des Vorsitzes von CEN/TC 250 bei der Fertigstellung der Eurocodes zu bearbeiten:
1. Koordinierung der zusätzlichen Anhänge zu EN 1990 über die Anhänge A1 (Hochbau) und A2 (Brückenbau) hinaus,
 2. Koordinierung der restlichen Normen für die Einwirkungen auf Tragwerke,
 3. Koordinierung der Normen für den Brückenbau und für Seilkonstruktionen,
 4. Koordinierung der Normen für Maste, Türme, Kamine, Silos, Tanks, Pipelines, Pfähle, Spundwände und Kranbaukonstruktionen,
 5. Koordinierung der Regelung für Aluminiumbauwerke und Bauteile aus nicht rostendem Stahl,
 6. Koordinierung der Arbeiten an den zusätzlichen Regeln in Erdbebengebieten.
- Darüber hinaus fielen in verstärktem Maße Abstimmungen zwischen der Herstellung von ETAG's und von Produktnormen und der Eurocodes an, die durch Fragen der TC's für Produktnormen (z.B. Überprüfung von Entwürfen) und von EOTA ausgelöst wurden (z.B. Klassifizierung, Auswertung von Versuchen, Konsistenzfragen).

1.4.4 FORSCHUNGSZIELE UND KOORDINIERUNG IN DER VIERTEN PHASE 2005

- (1) Im Jahre 2005 wurden folgende Arbeiten erwartet:
 - Fertigstellung aller restlichen Eurocode-Teile,
 - Redaktionelle Überarbeitung vor und nach den formalen Abstimmungen,
 - Stellungnahmen zu Fragen bei der Ausarbeitung Nationaler Anhänge,
 - Fertigstellung von Berichtigungen und Ergänzungen zu bereits fertig gestellten Eurocode-Teilen,
 - Unterstützung anderer CEN/TC's und EOTA bei die Bemessung betreffenden Fragen,
 - Bereitstellung der Grundlagen für eine stärkere Harmonisierung der Eurocodes.
- (2) Die Grundlagen zu folgenden Leistungen waren zur Unterstützung des Vorsitzes von CEN/TC 250 bei der Fertigstellung der Eurocodes zu bearbeiten:
 1. Koordinierung der restlichen Anhänge A3 bis A6 zu EN 1990.
 2. Koordinierung der Fertigstellung der restlichen Eurocode-Teile.
 3. Koordinierung der redaktionellen Arbeiten an technisch fertig gestellten einzelnen Eurocode-Teilen, um die verschiedenen Eurocode-Teile untereinander und mit den gleichzeitig entstehenden Produktnormen konsistent zu machen.
 4. Auswertung von Nationalen Anhängen und Stellungnahmen zu Fragen der Mitgliedsländer und der Kommission, die zumeist im Rahmen der ENC-Gruppe aufgeworfen wurden und vor allem die mangelnde Konsistenz im europäischen Normensystem betrafen.
 5. Auswertung von Vorschlägen zu Berichtigungen und Ergänzungen der bereits fertig gestellten Eurocode-Teile.
 6. Stellungnahme zu Entwürfen von CEN/TC's für Produktnormen und von EOTA.
 7. Koordinierung von Vorschlägen zur Einarbeitung vereinheitlichter Regeln oder zur Reduktion von Alternativen in den Eurocodes.
- (3) Zur Sicherstellung der Weiterführung der technischen Arbeiten wurde eine Verbindung zum Joint Research Centre (JRC), einer Außenstelle der Kommission geschaffen, die dafür mit der für die Eurocodes zuständigen Abteilung DG ENTR eine administrative Vereinbarung zur Unterstützung von CEN/TC 250 bei der weiteren Pflege der Eurocodes, der weiteren Harmonisierung, Weiterentwicklung und Promotion schloss.
- (4) Die Förderung der ARGEBAU sollte Ende 2005 auslaufen, da der Vorsitz von Prof. Bossenmayer nach zwei Wahlperioden Ende März 2006 abgegeben werden sollte.
- (5) Die Zeitplanung ging davon aus, dass die von der Europäischen Kommission an CEN erteilten Aufträge zur Konversion der ENV-Eurocodes in EN-Eurocodes in diesem Zeitraum abgewickelt werden konnten. Dies ließ sich nun aber doch nicht in vollem Umfang realisieren, weil die von TC 250 durchzuführenden Arbeiten tatsächlich einen erheblich größeren Umfang angenommen hatten als ursprünglich erwartet. Dies hing im Wesentlichen damit zusammen, dass TC 250 neben der Konversion aufgrund von Vorgaben der Kommission und von CEN auch den Abgleich der Bemessungsregeln der Eurocodes mit den
 - Bemessungsregeln der anderen CEN/TC's sowie den
 - Bemessungsregeln in harmonisierten technischen Spezifikationen vorzunehmen hatte.

- (6) Überdies hatte die Kommission im Nachhinein die Vertragsbedingungen der „Order Vouchers“ für die Konversion so geändert, dass die letzte Zahlung an die Experten nicht mehr wie im ursprünglichen Vertrag vorgesehen nach Einreichung der Entwürfe bei CEN MC erfolgte, sondern erst nach Umsetzung der Normen in den Mitgliedsstaaten, frühestens aber nach Vorliegen der Stufe 64 (DAV); außerdem beendigte sie die Verträge 5 Jahre nach Vertragsabschluss. Dies erhöhte, in Verbindung mit den zusätzlichen Aufgaben, den Druck auf TC 250; alle Beteiligten mussten zu freiwilligen Mehrleistungen bewegt werden, und die Notwendigkeit der technisch-wissenschaftlichen Unterstützung vergrößerte sich erheblich.
- (7) Die veränderte Aufgabenstellung für TC 250 hat maßgeblich auch den Aufwand der technisch-wissenschaftlichen Unterstützung durch Prof. Sedlacek bestimmt und dazu geführt, dass die Überführung der ENV-Eurocodes in EN-Eurocodes bis zum Frühjahr 2007 dauerte. Es erschien daher zweckmäßig, den derzeitigen Vorsitz auch bis zu diesem Zeitpunkt zu verlängern, damit die Kontinuität gewahrt und ein sicherer Abschluss der Arbeiten gewährleistet werden konnte. Auf der Sitzung des TC 250 am 27./28. Oktober 2005 wurde ein entsprechender Vorschlag vom Sekretariat des TC 250 gemacht und der Vorsitzende in seinem Amt bis Ende Juni 2007 bestätigt.

1.4.5 FORSCHUNGSZIELE UND KOORDINIERUNG IN DER FÜNFTEN PHASE 2006/2007

- (1) Der Stand der Arbeiten war folgender:
- spätestens im Frühjahr 2006 würden alle 58 Eurocode-Teile die Stufe 49 erreicht haben und an CEN MC zur Einleitung der Formellen Abstimmung weitergeleitet sein.
 - Davon hatten ca. 50 % der Teile die Stufe 64 erreicht (DAV); spätestens Ende 2006/Anfang 2007 würden es alle sein.
 - Etwa für 20 CEN/TC´s und für EOTA waren „Liaisons“ zwischen TC 250 und den dortigen technischen Gremien zur Harmonisierung der Bemessungsregeln notwendig. Schwerpunkte sind Holzprodukte, Stahl- und Aluminiumprodukte, Betonprodukte, Glasprodukte, Lager und vorgefertigte Bausätze.
- (2) Die Arbeiten betrafen vor allem:
- 1. Abstimmungen zwischen CEN/TC´s für Produktnormen und CEN/TC 250 für Bemessungsnormen**
 - CEN/TC 135 Lieferrnormen und Ausführungsnormen für Stahl- und Aluminiumkonstruktionen
 - CEN/TC 229 Vorgefertigte Betonprodukte
 - CEN/TC 129 Glasprodukte
 - CEN/TC 128 Beleuchtungsmasten
 - CEN/TC 167 Produktnormen für Lager im Bauwesen
 - CEN/TC 340 Produktnorm für Bauwerkslagerungen in seismischen Gebieten
 - Weitere CEN/TC´s nach Annex N von Doc. CEN/TC 250/N250G, siehe Anlage 1
 - 2. Koordinierung der NDP´s**
 - EN 1999-1-3 Ermüdungsnachweise für Aluminiumprodukte
 - EN 1991-1-4 Windeinwirkungen
 - weitere Eurocode-Teile.

3. Beratung der Kommission (JRC Ispra)

- Definition von Prioritäten für die Implementierung der Eurocodes als Hilfestellung für die Kommission (JRC)
- Hilfe bei der Interpretation des Leitpapiers L und von Regeln in Bemessungsnormen und darauf abgestimmte Produktnormen.

1.5 Organisation der Arbeiten

- (1) Die Zuarbeit für den Vorsitzenden orientierte sich in allen Arbeitsphasen an der Organisation der Überführungsarbeiten der ENV-Eurocodes in die EN-Versionen nach Bild 1-2.

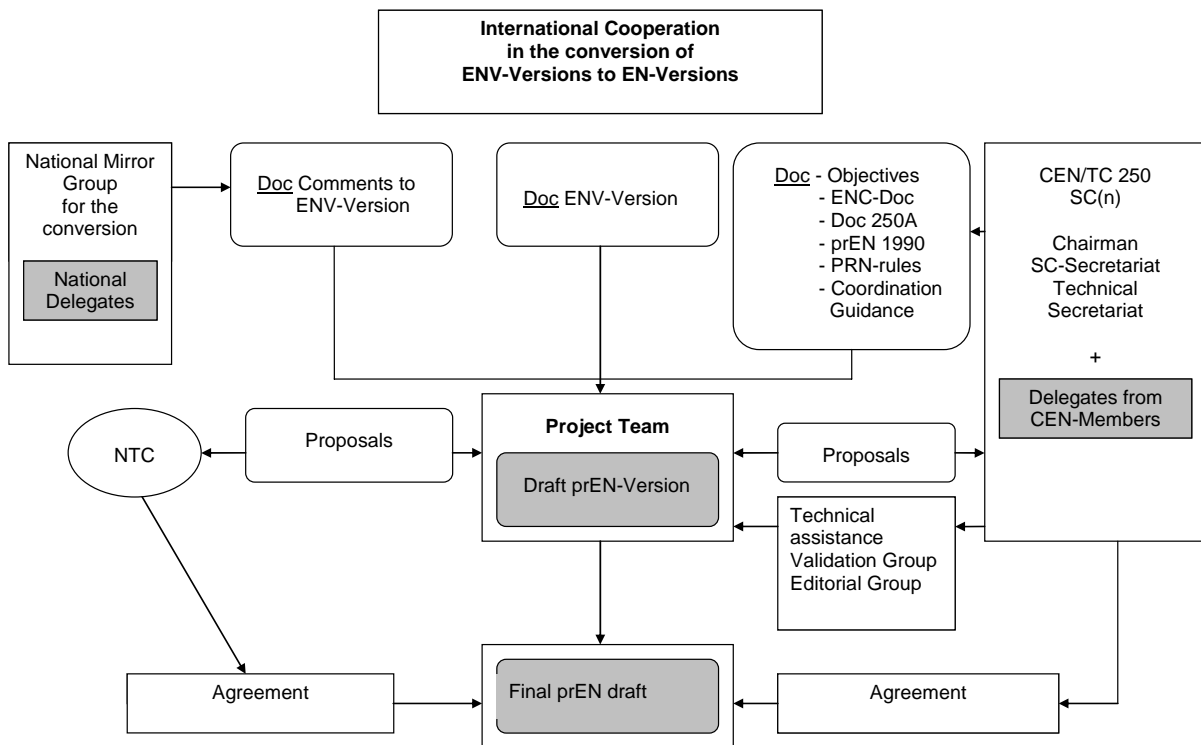


Bild 1-2: Organisation der Überführungsarbeiten

- (2) Für die Arbeiten wurde ein Betreuerkreis aus den Förderern gebildet.
- (3) Für die finanzielle Abwicklung wird ein Forschungskonto kostenfrei bei der RWTH Aachen geführt.
- (4) Die Organisation aller Arbeiten erfolgt durch Herrn Prof. Sedlacek und Mitarbeiter.
- (5) Prof. Bossenmayer entscheidet in Abstimmung mit dem Betreuerkreis die Zielsetzungen für die Arbeiten und über die Verwendung der Finanzmittel im Einzelnen.
- (6) Verantwortlich in werksvertraglichem Sinne für die Forschungsergebnisse ist Prof. Sedlacek, RWTH Aachen.

Der für das Projekt abgestellte Mitarbeiter ist Dr.-Ing K. Weynand, PSP – Prof. Sedlacek & Partner Technologien im Bauwesen GmbH, Aachen. Weiterhin arbeiten Mitarbeiter des Lehrstuhls für Stahlbau und Leichtmetallbau (ab 2005 Leitung Prof. Feldmann) an dem Projekt mit.

- (7) Die Finanzierung erfolgte durch öffentliche Mittel der ARGEBAU, verwaltet durch das DIBt, und industrielle und private Sponsoren.

2. ERGEBNISSE DER ARBEIT UNTER DEUTSCHEM VORSITZ

2.1 EN-Eurocodes und Europäische Standard-Familie

- (1) Die wesentlichen Ergebnisse der Arbeit unter deutschem Vorsitz sind folgende:
 1. Alle Eurocodes sind im Mai 2007 in der Drei-Sprachenfassung veröffentlicht.
 2. Es sind in CEN/TC 250 Gruppen zur Pflege der Eurocodes eingerichtet, die Druckfehler in den Eurocodes auflisten und Vorschläge für Änderungs- und Ergänzungsteile sammeln.
 3. Die Koordinierung von Bemessungsnormen und Produktnormen hat für wichtige Produktnormen (siehe Anlage 1) zum Erfolg geführt. Diese Erfolge werden anerkannt, so dass sich neue Produkt-TC's von vorneherein um Liaison mit CEN/TC 250 bemühen.
 4. Es ist eine gute Zusammenarbeit mit dem JRC in Ispra eingerichtet. Dieses Zentrum unterstützt:
 - die Datensammlung, die für die weitere Harmonisierung der Eurocodes wichtig ist
 - die Umsetzung der Eurocodes in der EU und EFTA durch Seminare, Workshops, Konferenzen
 - die für die europäische Bauwirtschaft wichtige Promotion der Eurocodes in Ländern außerhalb der EU und EFTA durch geeignete Promotionsmaßnahmen
 - TC 250 bei der Pflege, Weiterentwicklung und Finanzierung der künftigen Arbeiten an den Eurocodes.

2.2 Arbeit im CEN/TC 250

- (1) Der im Detail erreichte Fortschritt ist in den Protokollen der zweimal im Jahr stattfindenden CEN/TC 250 Sitzungen festgehalten, die diesem Bericht beigelegt sind, Anlage 2.
- (2) Auf diesen Sitzungen wurden auch die Ergebnisse weiterer Sitzungen, d.h. der zweimal im Jahr stattfindende Koordinierungsgruppensitzungen von CEN/TC 250, von Horizontalgruppensitzungen, Ad-hoc-Gruppen Sitzungen und Sitzungen der Subkomitees und deren Arbeitsgruppen sowie der Sitzungen der ENC-Gruppe vorgetragen.

2.3 Berichte an die Förderer

- (1) Die Förderer wurden nach jeder Arbeitsphase des Forschungsauftrags im Betreuerkreis über die Ergebnisse (Statusberichte) und Ziele der Arbeit (Anträge auf Weiterführung) informiert.
- (2) Dazu fanden Sponsorentreffen:
 - zur 1. Arbeitsphase am 27. Mai 2003
 - zur 2. Arbeitsphase am 22. September 2003
 - zur 3. Arbeitsphase am 27. September 2004
 - zur 4. Arbeitsphase am 20. Oktober 2005
 - zur 5. Arbeitsphase am 30. Januar 2007beim DIBt in Berlin statt.

Die Protokolle dieser Sponsorentreffen gehen aus Anlage 3 hervor.

- (3) Ein Gesamtüberblick aus der Sicht des Forschungsnehmers, der auch über den von der ARGEBAU geförderten Umfang hinausgeht und der einen Rückblick, eine Einordnung in das bauaufsichtliche Umfeld und die Vorstellung ausgewählter technischer Fragen enthält, geht aus dem Statusbericht in Anlage 4 hervor.

2.4 Mittelverwendung und Weiterführung der Arbeiten

- (1) Die Mittelverwendung erfolgte nach vorhergehender Zustimmung von Prof. Bossenmayer und wurde in Verwendungsnachweisen dokumentiert, die dem DIBt zur Prüfung und Abrechnung vorgelegt wurden.
- (2) Die finanzielle Unterstützung der RWTH Aachen durch die ARGEBAU lief zum 31.12.2006 aus. Dennoch wurden die Arbeiten durch die RWTH Aachen fortgeführt. Die Finanzierung dieser Arbeiten in 2007 wurde alleine aus Mitteln der Industrieförderung und aus Eigenmitteln des Forschungsnehmers bestritten, während die Reisekosten für Prof. Bossenmayer bis Ende Juni 2007 weiterhin von der ARGEBAU getragen werden.
- (3) Von drei Industrievertretern des Betreuerkreises wurde es für notwendig angesehen, eine Unterstützung des Vorsitzes von CEN/TC 250 auch nach dem Ausscheiden von Prof. Bossenmayer fortzuführen. Dazu wurden auch schon finanzielle Unterstützungen für das Jahr 2007 zugesagt (vgl. Anlage 3).

ANLAGE 1

CEN/TC 250 – Doc 250

CEN/TC 250 Liaisons

**Schedule of CEN and ECISS Technical Committees having
interdependence with structural Eurocodes**



Document: CEN/TC 250

N 250 G Rev 2

Ref: 7232: CEN/TC 250

Date: 20 March 2006

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

**POLICY GUIDELINES AND PROCEDURES
FOR CEN/TC 250 STRUCTURAL EUROCODES**

NOTE 1 This document is an update of the original document N 250 dated 28 May 1997, revision A dated August 1999 and revision B dated September 2000. It has been specifically adapted for use during the CONVERSION STAGE from ENV to EN and is generally based on previously issued documents, CEN/TC 250 resolutions, updated CEN rules and comments and observations from Members. The main changes from the original version are revision of Section 7 (N 250 C), the inclusion of Annexes G, H, J, K (revised in N 250 C), L (revised in N 250 C), M and N (revised in N 250 C), the inclusion of Annex P in N 250 C and the conversion of the document into electronic format. As this is considered a "living" document the latter change will enable it to be loaded onto the CEN web-site which, in future, will aid regular updating.

NOTE 2 This document should be made available to Convenors and members of Project Teams via Sub-Committee Secretariat.

NOTE 3 This document has been applied in EN 1990 and EN 1991-1-1, the first EN-Eurocodes.

NOTE 4 Changes made subsequent to N250C are listed after the Foreword.

Revisions:

N 250	-	Original 28 May 1997
Rev. A	-	August 1999
Rev. B	-	22 August 2000
Rev C		23 November 2001
Rev D		8 May 2002
Rev D Rev 1		13 June 2002
Rev E		6 May 2003
Rev E Rev 1		21 July 2003
Rev F		28 December 2003
Rev G		10 July 2006
Rev G Rev 1		11 October 2006
Rev G Rev 2		13 March 2007

Annex N

CEN/TC 250 Liaisons **Schedule of CEN and ECISS Technical Committees having interdependence with structural Eurocodes**

(1) An extremely important function of CEN/TC 250 is our ongoing liaison (or ‘Modes of Cooperation’) with other TCs responsible for performance standards for products under the CPD (harmonized standards) and with those dealing with material specifications and characteristics. We also continue to liaise with others (not necessarily within scope of CPD) where verification of reliability is required by calculation.

(2) The majority of relevant TCs have recognized the value of cooperation; liaison and/or parallel Working and appropriate relationships have been established.

(3) In summary, product and material TCs relate to Structural Eurocodes:

- as a means of verifying compliance of individual products (elements of structure),
- to achieve consistency of reliability etc, of inter-related products to be used in a single structure,
- to mutually agree consistent material property descriptions and values,
- to demonstrate consistency of reliability to procurers and regulators under safety and durability requirements,
- to improve functioning of the single market and remove barriers inherent in having a variety of different national design codes.

(4) The levels of coordination vary by need and cover joint working full exchange of documents and drafts, common membership, consultation as required, exchange of correspondence, etc., as appropriate.

(5) Coordination can be expected with the following TCs. They deal with construction products that are intended for permanent incorporation into construction works (building and civil engineering). The products are generally fabricated components and the committees require reference to Structural Eurocodes for actions (loadings) and/or the structural design of products. The materials characteristics are used in Eurocodes to determine factors and values for consistent use in design of products.

Legende:**besonders relevante TCs**

→ Schwerpunkt weiterer Schritte

← Schwerpunkt bisheriger Arbeiten

	CEN/TC 10	Passenger goods and service
	CEN/TC 33	Doors, windows, shutters and building hardware
	CEN/TC 38	Durability of wood and derived materials
	CEN/TC 50	Lighting columns and spigots
	CEN/TC 51	Cement and building limes
	CEN/TC 98	Lifting platforms
	CEN/TC 104	Concrete performance, production, placing and compliance criteria
	CEN/TC 112	Woodbased panels
	CEN/TC 121	Welding
	CEN/TC 124	Structural timber
	CEN/TC 125	Masonry units and tests
	CEN/TC 127	Fire safety in buildings
←	CEN/TC 128	Roof covering products and products for wall cladding
←	CEN/TC 129	Glass in building
	CEN/TC 132	Aluminium and aluminium alloys
	CEN/TC 154	Aggregates
	CEN/TC 166	Chimneys
←	CEN/TC 167	Structural bearings
→	CEN/TC 168	Chairs, ropes etc – Safety
	CEN/TC 175	Round and sawn timber
	CEN/TC 177	Prefabricated reinforced components of a.a concrete or lightweight concrete
	CEN/TC 185	Threaded and non-threaded mechanical fasteners and accessories
	CEN/TC 189	Geotextiles and related products
	CEN/TC 193	Adhesive
	CEN/TC 221	Metallic shop fabricated tanks
→	CEN/TC 226	Road equipment
←	CEN/TC 229	Precast concrete products
	CEN/TC 231	Mechanical vibration and shock
	CEN/TC 242	Passenger transportation by rope-safety
	CEN/TC 246	Natural stones
	CEN/TC 265	Site built metallic tanks for storage of liquids
	CEN/TC 266	Thermoplastic static tanks
	CEN/TC 267	Industrial piping and pipelines
	CEN/TC 277	Suspended ceilings
	CEN/TC 284	Greenhouse
	CEN/TC 287	Geographic information
→	CEN/TC 297	Free-standing industrial chimneys
	CEN/TC 303	Floor screeds and in-situ floorings
	CEN/TC 314	Mastic asphalt for waterproofing
	CEN/TC 315	Spectator facilities
	CEN/TC 323	Raised access floors
←	CEN/TC 340	Anti-seismic devices
→	ECISS/TC 10	Structural steels – qualities

ECISS/TC 11	Structural steel sections
ECISS/TC 13	Flat steel products
ECISS/TC 19	Concrete reinforcing steel
ECISS/TC 23	Steels for heat treatment, alloy steels

Legende:

besonders relevante TCs

→ Schwerpunkt weiterer Schritte

← Schwerpunkt bisheriger Arbeiten

(6) Other TCs related to construction works and requiring design input/agreement

	CEN/TC 12	Materials, equipment and offshore structures
	CEN/TC 53	Temporary works equipment
←	CEN/TC 135	Execution of steel structures
	CEN/TC 136	Sports, playground and recreational equipment
→	CEN/TC 147	Cranes – Safety
	CEN/TC 148	Continuous handling equipment and systems – Safety
	CEN/TC 151	Construction equipment and machines – Safety
→	CEN/TC 152	Fairground and amusement park machinery and structures – Safety
	CEN/TC 164	Water supply
	CEN/TC 165	Waste water engineering
	CEN/TC 210	GRP tanks and vessels
	CEN/TC 256	Railways applications
	CEN/TC 288	Execution of special geotechnical works
	CEN/TC 344	Steel static storage systems
	NEW	
→	CEN/TC 350	Sustainability of construction works

ANLAGE 2

Protokolle der CEN/TC 250 Sitzungen



Ref: 7232: CEN/TC 250

Date: 3 May 2000

**To the Members of CEN/TC 250
Structural Eurocodes****DRAFT REPORT OF SEVENTEENTH MEETING OF CEN/TC 250 HELD IN BRUSSELS
ON 9 - 10 MARCH 2000****1. OPENING THE MEETING**

The Chairman welcomed all the delegates to the 17th meeting of CEN/TC 250 and thanked the Belgian Ministry of Infrastructure and Communications for their kind hospitality in hosting the meeting.

M Courtois the general director of the Belgian Federal Administration welcomed the delegates on behalf of the hosts and the Belgian mirror committee for structural codes. He added that Belgium support the Eurocode programme and will publish the Eurocodes in French and Dutch languages.

Mr W LATHEUR welcomed the delegates of CEN/TC 250 to the Belgian Ministry of Infrastructure and Communications explained that due to an unfortunate illness of G LABEEUW he would personally undertake the coordination of administrative activities for the meeting.

A PLAKAS on behalf of those who attended thanked the Belgian Ministry of Infrastructure and Communications for organizing the interesting trip on the 8 March.

2. ROLL CALL

The Chairman noted that there are several new attendees to CEN/TC 250 meeting and also there are other members who are attending in various new capacities.

The three new Sub Committee Chairman are H GULVANESEAN (SC1), Prof T-U WECK (SC 6) and J KONIG (SC 5). Also new Secretaries, Messrs. ALBREKTSSON (SC1), BRUNDIN (SC 5) and GREENLEY (TC 250). Also in attendance was D ANDERSON who was deputizing for J STARK the Chairman of SC 4. The Chairman welcomed all delegates.

An attendance list is attached to this draft report (see Annex A)

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

S FERNANDEZ	- French language
U STOLZENBERG	- German language
S DESAI	- English language

4. ADOPTION OF AGENDA

The Chairman stated that it is crucial that attention is paid to the conversion programme timetable. Major slippage of the Eurocode programme would not be acceptable to either CEN or the Commission and would have dire consequences.

The Chairman noted that J-M CHABOUSSANT would make a presentation to CEN/TC 250 under item 12 of the agenda which would be at approximately 10.30 on the second day (10 March).

J MOREAU DE SAINT MARTIN raised the concerns of the French delegation regarding the matter of inconsistencies between Eurocodes. It was agreed that this item would be discussed further under item 6 of the Agenda.

The agenda was adopted without further amendment.

5. FOLLOW UP TO THE SIXTEENTH MEETING OF TC 250 IN HELSINKI

- a) The draft report (N 367) of the sixteenth meeting of CEN/TC 250 held in Helsinki on the 6 & 7 May 1999 was confirmed without amendment.
- b) The resolutions taken at the Helsinki meeting (N 366) were noted.
- c) There were no further issues raised by the delegates resulting from the Helsinki meeting.

6. COORDINATION GROUP MATTERS

The Chairman invited J MOREAU DE SAINT MARTIN to raise the French delegations concerns regarding the apparent inconsistencies between Eurocodes.

J MOREAU DE SAINT MARTIN added that France was not happy with the lack of perceived action with the Coordination Group regarding the resolution of inconsistencies. It was also noted that there are no reports to substantiate discussion and action according to the Report from the last Coordination Group meeting (CEN/TC 250/-/1 N 1359) which referred to discussions held at the Chairmen's meeting. N KREBS-OVERSEN commented that the Chairmen's meeting always discusses the matter of inconsistencies between codes.

G SEDLACEK added that there are inconsistencies between EC 2, EC 3 and EC 4 some of which are tolerable. However the Coordination Group should resolve those, which are not. He noted that it should be an objective of the Project Teams to produce written notes where inconsistencies are identified.

D ANDERSON noted that inconsistencies have been identified between EC 2 and EC 3 during drafting the parts of EC 4.

The Chairman stated that the Coordination Group must resolve these issues unless they are "points of principle", in which case they must be brought up to CEN/TC 250.

ACTION: CG members

P PIETERS reported that the CEN template, which is based on the ISO template, should be used during the conversion drafting. However, he would investigate the possibilities of having the template amended, with CEN Production Department, to facilitate Eurocode differences.

ACTION: PP

J E STRATFORD suggested that a library of email addresses should be created to provide a more rapid interchange of information.

ACTION: SECRETARIAT

7 CONVERSION OF EUROCODES FROM ENV TO EN

a) J E STRATFORD reported on behalf of the Secretariat, that of the 44 contracts issued under phase I Order Voucher (Budget year 1997), all Project Team experts had signed their contracts with the exception of 2. It was noted that there had been no contact with the experts who had not signed their contracts and it was the responsibility of the appropriate SC Chairmen to chase the experts.

J E STRATFORD commented that he would identify the experts to the appropriate Chairman after the meeting. It was also stated that there are several experts in Phase I Project Teams who have changed employment that will necessitate revisions to their contracts.

Regarding Phase II Order Voucher (Budget year 1998) there are 14 contracts outstanding where the experts have not signed their contracts. It was understood that there are a number currently being processed but there will be several which will require expediting by the SC Chairmen.

ACTION: JES/SC CHAIRMEN

J E STRATFORD tabled Document N 378 to highlight the changes in constitution of Project Team for prEN 1996-1-1 due to resignations of 2 PT members. Prof T-U WECK on behalf of CEN/TC 250/SC 6 proposed that Profs. Modena and Jager replace Messrs. Jensen and Kirtschig. The delegates agreed to the proposal by resolution

RESOLUTION 116

G MACCHI commented that there are problems of methodology within Project Teams and in order to avoid disputes the process must be transparent.

E CARVALHO for CEN/TC 250/SC 8 reported that Project Team for prEN 1998-1 also required changes in Constitution and proposed that Prof. Fehling should join the PT. M FARDIS endorsed this proposal. CEN/TC 250 agreed this change by resolution

RESOLUTION 117

It was reported that the Phase III Order Voucher (Budget year 1999) has been received from the Commission and consequently the membership of appropriate Project Teams should be nominated.

b) Document N 376 was tabled by the SECRETARIAT to propose a programme of Launch of Enquiries for the remaining 19 Eurocodes which will be under the Phase IV Order Voucher expected in January 2001.

It is proposed that programme of Enquiries will be completed by September 2001 which requires several ENV Enquiries to be launched up to 6 months early. This re-scheduling will enable all PTs to be working by December 2001 at the latest.

RESOLUTION 122

L BUTH requested that in future, proposals are issued by the SECRETARIAT before the meeting to allow sufficient time for discussion by National Standards Bodies, mirror committees.

ACTION: SECRETARIAT

T HAGBERG commented that the French translations are not available for ENV 1999 parts.

P PIETERS explained that DIN and AFNOR have agreed to provide, once during the preparation phase of the ENs, a translation into German and French, upon formal request by the TC (standard form to be found in the CEN System Handbook). If the translations are not available within 4 weeks after the request, Formal Vote may be launched in less than 3 languages (e.g. English only) as soon as possible.

c) J E STRATFORD tabled an update of N 335AA and commented that this is a very important "living" document. This had been updated in February 2000, to reflect the current situation as reported at the CG meeting in October 1999. It also includes a programme for the Phase IV work items on the assumption that document N 376 was approved.

J MOORE commented that this will require an update to annex E of N 250.

ACTION: JES

T-U WECK for CEN/TC 250/SC 6 stated that the first draft of EN 1996-1-2 is slightly behind schedule and would probably now be November 00 rather than October 00 although the stage 49 draft October 02 should be held.

D ANDERSON for CEN/TC 250/SC 4, noted that there is a requirement for lag to be introduced as the drafts of EC 4 must follow the drafts of EC 2 and EC 3 as there is a need for liaison between PTs. However it was agreed that there would be no changes to the programme at present and the situation would be closely monitored.

The CHAIRMAN reiterated that this is a very important document and it is essential that close attention is paid to the programme of conversion as it is vital to the existence of CEN/TC 250.

Analysing the details of the conversion programme, it was reported that there should have been four first drafts produced in 1999. However the conversion of ENV 1991-2-4 to prEN 1991-1-4 Wind actions has already slipped and is now scheduled for July 00.

H GULVANESEAN responded that the delay was mainly due to the volume of comments received at Enquiry. Whilst it is anticipated that the first draft (stage 32) will now be available in July 00, the final draft (stage 34) should remain on schedule for November 00.

P SPEHL commented that the PT is working very hard and thanks should be extended to the team for their effort.

G SEDLACEK reported as the PT Convenor that some of the slippage was due to the unavailability of an electronic version of ENV 1991-2-4, therefore this had to be re-established.

J BROZZETTI noted that there are 5 deliverables from ENV 1993-1-1 scheduled for March 00 (stage 32). Realistically only 2 will be available in March, the remaining 3 drafts will be available in April 00.

d) Project Teams for Phase III Document N 377

H GULVANESESIAN reported that the following experts are recommended for Phase III Project Teams as recommended by SC 1. These Project Teams include younger experts as a positive contribution for future continuity. The membership is recommended as follows:

prEN 1991-1-5 Thermal actions - Konig, Holicky, Luchinger, Mirambell, Raoul, Smith

prEN 1991-1-6 Execution - Neale, Calgario, Formichi, Markova, Sanchez-Sanchez, Sedlacek

prEN 1991-4 Silos and tanks - Neilsen, Aldstedt, Eibl, Ragneau, Rotter, Beurms

The members were informed that the constitution of the Project Team for the Bridges Eurocodes will be dealt with by correspondence. Concern was expressed regarding the Convenor of the HG for Bridges, H MATTIEU as to whether he intends to continue in the role. J-A CALGARIO agreed to establish the current situation with the Convenor and advise the SECRETARIAT as to whether a new contract should be issued.

J BROZZETTI for SC 3 informed the meeting that recommendations for the constitution of PTs for parts:

prEN 1993-1-3 , prEN 1993-1-4, prEN 1993-1-5, prEN 1993-3-1 and prEN 1993-3-2 will be dealt with at the SC 3 meeting in May.

D ANDERSON reporting for SC 4 commented that there will be a meeting in May in Kilarney where the SC will make it's recommendations.

J KONIG for SC 5 reported that the following experts are recommended for the PT to convert prEN 1995-2 Messrs. Kreuzinger, Boussaguet, Dyken, Gustafsson, Makipuro, Schickhofer

M FARDIS for SC 8 recommended the following experts for the Phase III PTs :

prEN 1998-3, Messrs. Pinto, Osmani, Elnashai, Coelho, plus an seismic expert from, Germany.

prEN 1998-6, Messrs Castellani, Anagnostopoulos, Mackenzie.

RESOLUTION 121

e) Resulting from the decision taken by Resolution (109) in Helsinki to launch the 2 year Enquiry for seven ENVs, the results for: ENV 1991-2-5, ENV 1991-2-6, ENV 1992-2, ENV 1993-1-3, ENV 1993-1-4, ENV 1998-1-4 and ENV 1998-3 were presented in tabled document CEN/TC 250 N 375.

All delegates to CEN/TC 250 approved the results and agreed to the conversion to prENs. Resolution 119 was taken accordingly.

RESOLUTION 119

f) CORRESPONDENCE RESOLUTION (N371)

Delegates of CEN/TC 250 discussed at length the correspondence resolution to re-appoint Dr H-U LITZNER as Chairman of CEN/TC 250/SC 2. The re-appointment was at the request of CEN/TC 250/SC 2 after a long discussion with the rationale that continuity was vitally important during the conversion process.

However whilst the talents of H-U LITZNER were fully recognized both technically and as a Chairman, the Swiss delegate P MATT stated that re-appointment for a further 3 years would be against CEN procedures, as he has already served 9 years.

In the interest of continuity and noting that the conversion of EC 2 drafts are at a critical phase it was agreed to re-appoint H-U LITZNER for a further 2+ years until July 2002. This will allow the drafts of prEN 1992-1-1 and prEN 1992-1-2 to reach stage 49.

RESOLUTION 120

Delegates discussed the question of continuity further. MACCHI commented that Italy are concerned that the draft prENs have changed considerably from the original ENVs. This is apparent where there have been changes in the Project Team and therefore he endorsed that continuity is vital. Concern was also expressed that any major changes should be discussed more widely, although delegates felt that this was not practicable and therefore must rely on the PT and SC members discretion.

N KREBS-OVERSEN responded that the ENV is the starting point for conversion and noted that this was discussed at the Chairmen's meeting before the CG meeting in October 1999. It was reported at the CG meeting that *"the key to success of the Conversion programme is that the Project Teams only consider National comments and should be pragmatic during their deliberations"*.

The CHAIRMAN emphasized that the start point for the conversion to a prEN is the ENV. J MOORE reminded the delegates that this has already been agreed and included, in document N 250 clause 6.2.

P LUCHINGER endorsed by D ANDERSON suggested that this may act as a timely reminder for SC Chairman to remind PT members of their responsibilities during the drafting.

H-U LITZNER whilst agreeing with the sentiments advised caution that changes may be necessary due to progress in technology which must be considered. He also noted that comments in some cases can be contradictory and some Team members prefer a textbook style Eurocode, and others prefer a more broad approach.

It was agreed that the SC Chairman must inform all PT members of the approach that the ENV is the starting point for conversion and that members must take a pragmatic approach to their deliberations and only consider National comments.

ACTION: ALL SC CHAIRMEN

8. CHAIRMANSHIP OF CEN/TC 250

The CHAIRMAN stated that he had been very proud to have lead CEN/TC 250 over the past 7 years but now felt it was an appropriate time for a change. As a result of his comments made at the Helsinki meeting the SECRETARIAT had identified two very strong candidates as his successor. Comments from members had reflected this view but overall expressed a preference for H BOSSENMAYER to be the next Chairman of CEN/TC 250.

Document N 390 was tabled accordingly, to propose H BOSSENMAYER as the Chairman of CEN/TC 250 for a 3 year period. The proposal was unanimously accepted.

The Committee also expressed its thanks to D LAZENBY for his leadership over the past 7 years.

RESOLUTION 118

It was agreed that D LAZENBY would continue to chair the meeting until item 14 of the agenda.

9. CEN/TC 250 BUSINESS PLAN

The CHAIRMAN commented that as with all businesses it is essential that there is a proper plan of the business and each TC should be considered as such.

It was noted that the Business Plan was amended from the original May 1999 document, at the CG meeting in October 1999. Further refinements were made by CEN Management Center in January 2000, prior to it being sent to CEN BT for approval. The Business Plan is currently being progressed by the BT and subject to approval, it will be circulated to the members as a CEN/TC 250 document.

ACTION: SECRETARIAT

P PIETERS commented that the Phase IV conversion items are not included in the Business Plan and that revisions should be made only every 2/3 years.

10. POLICY GUIDELINES AND PROCEDURES (N 250)

The Chairman reiterated that N 250 is a vitally important document to CEN/TC 250 and as a living document is constantly being updated. It is a guide to the work ethic of CEN/TC 250, covering aspects of motivation, procedures and information all necessary to produce acceptable Eurocodes. It is the responsibility of the SECRETARIAT to maintain the document and they must be advised of the necessity of any changes required as they evolve. It is essential that the PT members are advised of the contents of the document by the SC Chairmen/Secretaries.

The Secretariat would welcome constructive comments on the document and it is the intention that the document will be converted into electronic format for ease of distribution.

J MOREAU DE SAINT MARTIN (FR) commented that he had sent comments on a number of occasions and nothing had happened. The CHAIRMAN replying to the comment from France stated that all comments received had been considered by the drafting panel and incorporated when appropriate.

P SPEHL (BE) reported that Belgium wish to include Eurocodes in their regulations and therefore believes that the National Annexes should be normative in the country where they exist and not informative.

The CHAIRMAN responded that this is a matter for the regulators and not standardization and consequently not a matter for CEN/TC 250.

The members discussed at length the differences between harmonized standards, normative text and regulations. A PLAKAS questioned whether safety levels could be informative. Regarding National annexes P PIETERS stated that these must be complementary and not contradictory.

N KREBS-OVERSEN commented that the ENC Group has been formed to resolve these issues and to also cover issues of implementation and therefore this topic should not be debated by CEN/TC 250.

The CHAIRMAN agreed to take up with the ENC Group to ensure the concerns of CEN/TC 250 are fully understood.

ACTION: DWL

11. CONSISTENCY OF SAFETY

The Chairman commented that Consistency of Safety has always been a high level objective of CEN/TC 250. As reported at the CG meeting, the proposals of Messrs. SEDLACEK, HAGBERG and FRANK have in the main been incorporated into prEN 1990 where possible by the Basis of Design Project Team.

G SEDLACEK added that the inclusions have helped in reducing the inconsistencies in the draft and he felt there is no possibility of improving the draft at this moment. T HAGBERG suggested that there are inconsistencies remaining in the draft which could be eliminated by a meeting with the appropriate SC Chairmen.

H GULVANESEAN commented that the drafts have been circulated to the SC Chairman and CG members and the draft is now technically competent adding that the final draft (stage 34) is scheduled for May 00. However he agreed to meet with G SEDLACEK, T HAGBERG, J BROZZETTI and H-U LITZNER to eliminate the outstanding inconsistencies where possible.

ACTION: HG/GS/TH/JB/H-UL

H-U LITZNER added that the draft of prEN 1990 should be referred to as far as possible using the partial safety factors in the draft as a model. It was noted that the Precast concrete industry have produced a paper to express their views. H GULVANESEAN agreed that a note should be included in the final draft of prEN 1990 to cover the views expressed by the Precast Concrete Industry.

ACTION: HG

12. ENC GROUP

J-M CHABOUSSANT introduced his tabled report on the activities of the ENC Group. The ENC Group has been formed by the Commission to complement the work of CEN/TC 250 and provide a forum to examine the consequences of implementation of Eurocodes by Member States. It is a forum, which will allow Member States to express their concerns and explore possible compromise.

At the first meeting held in October 1999, a sub group of volunteers has been formed to produce a Guidance Paper on Eurocodes. The Guidance Paper will encompass topics such as the use of Eurocodes not only for design but also for the determination for harmonized product standards which are a major priority to the EC.

It is envisaged the ENC Group will provide a vehicle whereby differences between industries can be minimized. Also experiences and views can be shared between member states. This is especially applicable in the case of bridges which have already been designed and constructed using Eurocodes and there is a wealth of knowledge which can be shared.

J-M CHABOUSSANT noted that the Commission recognizes that there are concerns with the lack of resources for the maintenance of Eurocodes and may be willing to co-finance this. It was also noted that the EC have created an internet website for Eurocodes to which all members of CEN/TC 250 can have access.

The next ENC Group meeting will be at the commission on 10 & 11 May 2000.

The CHAIRMAN endorsed the formation of the ENC Group adding that it is a very important initiative by the Commission.

As the incoming Chairman, H BOSSENMAYER supported this view and added that in future there will be close liaison links formed between CEN/TC 250 and the ENC Group in order to promote Eurocodes.

13. BASIS OF DESIGN (prEN 1990, N 374 & N 381)

H GULVANESEAN reported on the progress of prEN 1990 referred members to document N 374 circulated in February. It was noted that this pre-stage 34 draft had changed in architecture from previous drafts to make a more balanced document by including the concepts and philosophies of the "Guidance" document N 250A.

It was reported that there had been many comments, the majority of which were of an editorial nature and a BSI editor has been working in close co-operation with the PT. The final meeting of the PT is expected to be at the end of March and the target date of May for the Stage 34 draft is still on schedule.

After discussion, members raised their concerns regarding the use of National annexes. P PIETERS commented that it is at the discretion of the CEN member body whether a National Annex is required. However, where modifications are necessary for geographical reasons or national regulations, these can be referred to nationally in an informative National Annex. P PIETERS agreed to consult the CEN editors for further clarification regarding Partial Safety Factor (γ) and circulate his findings to the members of CEN/TC 250 for information and for inclusion in the final draft of prEN 1990 (see Annex B)

ACTION: PP & SECRETARIAT

The draft will be approved or otherwise when the three language versions are available either by correspondence or at the next CEN/TC 250 meeting in November 2000 (whichever route is the most timely).

ACTION: SECRETARIAT & PT(BoD)

The resolutions taken thus far were presented to the meeting By S DESAI. It was noted that this would be the final meeting that Dr DESAI would be attending as a UK delegate. The members expressed their thanks to Dr DESAI for his contribution over the years and extended their warm wishes for his retirement.

At this point in the proceedings the CHAIRMAN invited Prof H BOSSENMAYER to take over as his successor and Chair the meeting.

Prof BOSSENMAYER thanked D LAZENBY for his excellent leadership over the last 7 years and reiterated the sentiments of D LAZENBY that we must publish the Eurocodes according to the programme and if necessary convince the member states to adopt them as design codes. He is confident that CEN/TC 250 will secure support from the Commission for the maintenance of the Eurocodes although this will necessitate commitment from the members.

14. SUB-COMMITTEE REPORTS

SC I (N 382) - H GULVANESEAN reported for SC 1 that L ALBREKTSSON has returned as the new Secretary to SC 1.

- a) prEN 1991-1-4 Wind actions. The draft is behind schedule and is now expected in July 00 as reported previously. However it is expected that the stage 34 draft should be available for the November meeting of CEN/TC 250.
- b) prEN 1991-1-1 First draft already circulated to SC and the stage 34 final draft will be available by May 00.
- c) prEN 1991-1-2 stage 32 draft is on schedule for June 00
- d) prEN 1991-1-3 is expected in June 00.

e) As a result of the 2 year Enquiry on the ENVs 1991-2-5 and 1991-2-6, the Project Teams will start their conversions in April/May 00. It was also noted that ISO 98 are producing drafts on "Atmospheric ice loading" and "Actions due to currents and waves" both of which will be eventually be incorporated as ISO/CEN documents.

SC 2 - H-U LITZNER reported that the first draft of prEN 1992-1-1 is expected soon and has slipped by 3 months although the stage 34 draft remains on schedule for Nov 01. Document N 386. The Project Team converting prEN 1992-1-2 is on target for a first draft by end July 00 which is 2/3 months ahead of schedule. The stage 34 draft is expected to be on target by October 01.

The major difficulties encountered by SC 2 have been the treatment of boxed values for partial safety factors.

SC 3 - J BROZZETTI reported that the 2 Project Teams are working well. As previously stated 2 of the 5 deliverables from the amended ENV 1993-1-1 will be available in first draft in March 00 and the remaining 3 will be available in April 00.

It was noted that the ratified texts of ENV 1993-1-6, ENV 1993-4-1, ENV 1993-4-2 and ENV 1993-4-3 all contained printing errors. P PIETERS/A GANESH agreed to investigate and take the appropriate corrective action.

ACTION: CEN CMC

A difficulty encountered by the Project Team has been the style and language of the comments received. Many comments were in the national language of respondent country and were based on the NAD. G SADLACEK recommended that all comments are presented in a standard format preferably electronically, in English and addressing specific clause with clarity and supported by a proposal.

This was agreed by the members and also added that the Project Team should ignore the NADs when submitted as stand alone comments.

SC 4 (N 391) - D ANDERSON reported on the activities of SC 4 as detailed in tabled document N 391, and it was noted that SC 4 have agreed that there will not be a separate Part 3 for buildings as this will be included in prEN 1994-1-1. The first SC draft for Part 1-1 (stage 32) will be circulated in March 00 and a revised version will be available for the SC 4 Kilarney meeting in May 00.

D ANDERSON commented that collaboration between the SC 4 Project Team and their counterpart PTs in SC 2 & SC 3 has been fruitful.

The Project Team for prEN 1994-1-2 started working in January 00 and are still considering the comments received on the ENV.

The Project Team for composite bridges is being formed and should start work in May 00.

SC 5 (N 384) - J KONIG reported that the stage 32 draft of prEN 1995-1-1 had been registered with CMC in June 99 and is on target to achieve stage 34 on schedule May 01. A large volume of technical comments were received from the Enquiry which necessitated that the PT concentrated only on technical matters, therefore editorially the draft may not totally comply with CEN drafting rules. This will be addressed in future drafts. One problem which was raised at the CG meeting in October 99 is the inclusion in prEN 1995-1-1 of laminated timber decks and glued in dowels which were not included in the ENV. On the advice of CEN, these inclusions were being discussed with the NTCs of SC 5, to ensure the Formal vote will not be jeopardized.

The Project Team for prEN 1995-1-2 has met three times and will include most of the comments from Enquiry in the stage 32 first draft which is on schedule for October 00. However the PT has identified inconsistencies in the ENV regarding timber connections, which it is hoped will be resolved by research which is being carried out in France.

The Project Team for the drafting of prEN 1995-2 is currently being formed with a view to starting work in June 00.

J KONIG commented that SC 5 has wherever possible used electronic mail to communicate. This has achieved significant benefits in the speed of drafting and therefore he recommends that CEN/TC 250 adopt a similar approach.

SC 6 (N 385) - T-U WECK referring to document N 385 reported that the Project Team drafting prEN 1996-1-1 have produced an initial draft and are on schedule to produce the stage 32 by November 00. It was noted that as previously discussed under item 7a), two new PT members have been recruited to replace Messrs. Jensen and Kitschig.

The Project Team for the conversion of prEN 1996-1-2 is working slightly behind schedule and the stage 32 draft will be available by November 00.

The Project teams for the Phase IV items (prEN 1996-1-3, prEN 1996-2 and prEN 1996-3 will not start working until 2001.

It was noted that since the last meeting of CEN/TC 250 B HASELTINE had resigned as Chairman. CEN/TC 250 expressed its thanks Mr Haseltine for his leadership of SC 6

RESOLUTION 123

SC 7 (N 388) - R FRANK reporting on SC 7 activities commented that the Project Team for prEN 1997-1 was well ahead of schedule and will reach stage 32 draft in April 00, some 8 months ahead of schedule. The draft will be discussed at next meeting of SC 7 in June 00.

It was noted that the ENVs for Parts 2 and 3 were published in April 1999 and July 1999 respectively, but the launch of 2 year Enquiry has now been synchronized through N 376 and the subsequent Resolution 122.

R FRANK also reported that the work on identification of soils and rock has been transferred to a sub-committee of ISO/TC 182 under the rules of the Vienna Agreement.

SC 8 (N 389) - M FARDIS reported that the Project Team for prEN 1998-5 has produced a stage 32 draft in December 1999.

The first draft of prEN 1998-1 is expected in April 00, which is one month ahead of target.

The Project Team for the conversion of prEN 1998-2 are expected to start work by April 00.

The membership of the PTs for prEN 1998-3 and prEN 1998-6 were agreed by Resolution 121 under item 7 d) of the meeting.

SC 9 - Although there was not a progress report on the activities of SC 9, T HAGBERG gave the following brief written report to the SECRETARIAT at the end of the meeting.

- "The two year enquiry will be launched in June 2000.
- The SC9 is not active for the time being
- Activities will be taken up to prepare an answer to the comments, and if it is decided to convert the ENV's into EN's. PT's will be created/established
- Terminations of contract for the EN's is not possible so far, reference is made to the discussion under item 7."

15. SECRETARIAT MATTERS

a) It was reported that Latvia, as an affiliate member, have requested attendance at meetings of SCs which have bridges Parts (i.e. SC 1, SC 2, SC 3, SC 4 SC 5 and SC 8). The SECRETARIAT will inform the respective SC Secretaries of the contact details.

ACTION: SECRETARIAT & SC SECRETARIES

b) Referring to the Order Voucher for the 2000 Budget Programme, J E STRATFORD commented that this will be applied for by DEVI in the near future.

ACTION: SECRETARIAT

c) It was reported that from the Secretary's meeting held on the morning of the 9 March, the SECRETARIAT agreed to develop a database of contact details including email addresses down to PT level.

ACTION: SECRETARIAT

d) All reports are requested to be sent to the SECRETARIAT at least 4 weeks before a meeting in order to facilitate circulation to the membership.

e) Referring to the tabled document N 379 "Continuation of External Liaisons", the members agreed with continuation of liaisons and a resolution was taken accordingly.

RESOLUTION 124

16 CEN/CS and BT MATTERS

A GANESH reported that the CEN Construction Sector Website has now been developed and could provide a useful vehicle for CEN/TC 250 to input. He agreed to investigate the possibilities.

ACTION: AG

17 ANY OTHER BUSINESS

a) J MOORE as leader of the UK delegation expressed the UK's thanks to S DESAI for his contribution to the work of CEN/TC 250.

b) J KRUPPA recommended that CEN/TC 177 should have liaison with the Fire part of EC 2 and agreed to discuss this matter at the next CG meeting.

18. ARRANGEMENT FOR FUTURE MEETINGS

It was agreed that the next meeting of CEN/TC 250 will be held in Berlin on 16 & 17 November 2000.

19. FINAL APPROVAL OF RESOLUTIONS

The resolutions were agreed without amendment (see document N 392)

20. CLOSE OF MEETING

The CHAIRMAN reiterated how delighted he was to take over the leadership of CEN/TC 250 and looked forward to a productive tenure of office. He emphasized that the pressure on the Conversion programme must be maintained, as this is the major opportunity for Eurocodes to become the design codes for Europe.

Thanks were extended once again to the hosts for their kind hospitality throughout the meeting and also the dinner on the previous evening.

He wished everyone a safe journey home and looked forward to the reunion at the eighteenth meeting of CEN/TC 250 in Berlin.



MALCOLM GREENLEY
For the BSI Secretariat of CEN/TC 250



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To the Members of CEN/TC 250
Structural Eurocodes

**DRAFT REPORT OF EIGHTEENTH MEETING OF CEN/TC 250
HELD IN BERLIN ON 16 - 17 NOVEMBER 2000**

1. OPENING THE MEETING

The Chairman welcomed all the delegates to the eighteenth meeting of CEN/TC 250. He extended a special welcome to Dr Breitschaft who was the Chairman of CEN/TC 250 between 1989 and 1993 and therefore the founding Chairman of Eurocodes.

The Chairman gave a brief history of the DIBt which was founded in 1968 based on an agreement between the Federal Republic of Germany and the 11 Laenders. The main function of DIBt is to grant national and European Technical Approvals for construction products on the basis of the CPD. Annually the DIBt issue some 3,500 Technical Approvals, a figure which is increasing due to the pro innovative attitude of the Construction Industry.

2. ROLL CALL

All members introduced themselves see attendance list (Annex A) of this draft report.

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

- J-A CALGARO - French language
- U STOLZENBERG - German language
- B HASELTINE - English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

The Chairman explained that this is the first CEN/TC 250 where he has been in charge of the full meeting and looked forward to a successful and fruitful meeting. Considering the overall work programme of the CEN/TC 250, there are some 58 individual codes which are and will be converted which equates to a considerable workload. It was noted that Eurocodes serve as design codes for works as well as the basis for harmonized product standards and technical approvals in Europe, therefore the main need for Eurocodes is to:

- a) Implement common design criteria across Europe.
- b) Facilitate the marketing and use of materials and products.

For clarity and focus, the Chairman added that the key objectives for conversion into Eurocodes must be:

consistent,
available on time and to programme (useless if the packages are delivered later than 2004/5).
scientifically based and technically competent.
user friendly.

The Chairman added that the experience gathered from the ENVs has been limited as they were not used extensively. However where feedback has been received, questions of safety have been detected and inconsistencies identified. Based on this knowledge and experience, the Chairman reiterated that technical changes during the conversion from the ENVs should be avoided if possible. However, if essential, especially for safety or necessary adaptations to the state of technique, are to be kept to a minimum.

The main item for this meeting is the decision as to whether prEN 1990 should go forward for Formal Vote. This is of vital importance to CEN/TC 250 as prEN 1990 is the head Eurocode and will become the model for all other Eurocodes especially in design consistency and a basis for factory production control.

This marks the start of the launch of the 1st generation of Eurocode ENs, which has taken 25 years to achieve, which is far too long. As Eurocodes are ongoing there will be need for later updating. The future maintenance of Eurocodes has been the subject of preliminary discussions with the Commission through the ENC Group and funding has been suggested as being possible.

Through discussions with the Commission it has been reiterated that there is a need for strong liaison with product TCs.

For political reasons, products need CE marking earlier than the availability of the Eurocode packages which are due in 2004. Therefore, there is a need to produce supporting documents to the product standards. In view of this requirement, the Chairman explained what "kick-off" actions have been initiated since the Brussels meeting of CEN/TC 250 in March 2000.

a) 6 July 2000 (Brussels) - liaison meeting with product TCs CEN/TC 229, CEN/TC 135, ECISS/TC 19 to discuss how product specifications can be based on Eurocodes.

b) 7 July 2000 (Milan) - Liaison with Italian Structural Engineers to allay their concerns that new concepts are being introduced during the conversion process. It was stressed at the meeting that deviation from a direct conversion is normally only for reasons of safety.

c) 14 & 15 September 2000 (Athens) - Co-ordination Group meeting where the main discussions were the elimination of inconsistencies within Eurocodes and to implement the appropriate action.

d) 9 & 10 October 2000 (Reykjavik) - CEN Construction Sector Network Conference where Chairman presented a paper to outline the work and actions of CEN/TC 250. The major decision made which effects CEN/TC 250 was that Product standards should be based on Eurocodes when needing design rules.

e) 16 October 2000 (Brussels) - ENC Group meeting, decision taken to initiate a pilot liaison between CEN/TC 229 and CEN/TC 250/SC 2. The first meeting will take place in Berlin on the 19 December 2000. It was also noted that the Commission have detailed their wishes in a Position Paper (ENC 020 rev. 1) which supports the expert liaison meetings. However the Commission insists that these liaisons will not delay harmonized product standards by more than 12 months.

ADOPTION OF AGENDA

As stated previously, the main topic of the meeting was to decide the suitability of prEN 1990 to go forward to Formal Vote (stage 49). The Chairman therefore decided that it would be prudent to move item 11 to the next item on the agenda to allow delegates sufficient time for their considerations.

In response to the comments from Jean MOREAU DE SAINT MARTIN on:

- a) Results of Correspondence Resolution 126 - this will be covered under item 5 b).
- b) New Work item for CEN/TC 250/SC 2 as requested by EOTA - this will be covered under item 12 a).

The agenda was adopted accepting the necessary changes. Prior to commencing the main business of CEN/TC 250, delegates raised their concerns and justified criticism at the unavailability of documents for the meeting. The Secretary explained that documents were issued as and when received although it is recognised that mailed hardcopies were taking up to three weeks to be delivered, due to the postal services across Europe and the subsequent distribution by the NSBs. It was agreed that the Secretary would prepare and circulate an updated document register to ensure all delegates were in receipt of the appropriate papers.

The Secretary added that prior to the next TC meeting, he would ensure that delegates are in receipt of all documents by means of electronic distribution. Initial discussions with CMC suggest that they have not reached a conclusion regarding the EDD (Electronic Document Distribution) system, that will be used, consequently this will take a considerable time to roll-out. It was therefore agreed that the Secretary investigates the possibility of creating a dedicated Eurocode web-site for document distribution. This web-site could also be used for the circulation of developing drafts which would be of considerable benefit to parallel Project Teams especially those which are material based.

ACTION : SECRETARY

11. BASIS OF DESIGN

Introducing the item, Haig GULVANESESIAN referred delegates to document N 400, which is the final version of prEN 1990 from the Project Team, for consideration by the members as to whether the draft is sufficiently mature to be approved to go forward for Formal Vote. As the Convenor of the BoD PT, Haig GULVANESESIAN explained that this draft was the culmination of a considerable amount of consultation during its development phase. Project Teams meetings were in excess of 10 plus additional meetings with NTCs where at least 75% attendance levels were recorded.

It was noted that the document has been developed from the base document ENV 1991-1 and the Project Team has followed the guidelines and policies stipulated in N 250.

The architecture of the document is as follows:

Sections 1 to 6 - applies to all structures

Annex A1 - Normative annex applicable to buildings only.

Annexes B to D - informative annexes of supporting information

Haig GULVANESESIAN stressed that every comment received had been considered and where possible, included during the conversion process. This included all comments discussed during the NTC meetings at which every country was represented and the comments incorporated as appropriate.

Where there is a choice of alternatives such as Equation 6.10 or Equation 6.10 a) or Equation 6.10 b) this will be decided in the respective countries National Annex.

Other key related documents which were considered during the deliberations were:

N 403 - revised Foreword for prEN 1990 dated 27/10/00

N 406 - Corrigendum to prEN 1990 as proposed by PT dated 31/10/00

N 407 - Comments from French delegation on prEN 1990 dated 31/10/00

N 419 - Background to Combination Rules dated 14/11/00

N 423 - Comments from Finland on N 419 (Tabled at meeting).

N 424 - Notes from Chairmen's meeting on 16/11/00 (Tabled at meeting)

N 425 - Comments from Denmark on N 400 (Tabled at meeting).

N 426 - Comments on revised Foreword from J Zwaard (Tabled at meeting)

Finally as Convenor of the Basis of Design Project Team, Haig GULVANESESIAN wished thanks to be recorded to the members of the PT for their considerable efforts in drafting this document. Also recognition of thanks was noted to Messrs. Siebke (Germany) and Mathieu (France) for their translation into the respective languages.

The CHAIRMAN endorsed these comments and requested that the leader of each national delegation comment on the draft.

The following comments are reported in order of the seating arrangements at the meeting:

SWITZERLAND - Peter Matt reported that the Swiss commission for structural codes at a recent meeting commended the PT for producing a good document and consequently it should go for Formal Vote (FV).

FRANCE - Jean MOREAU DE ST. MARTIN - Overall it is a very good document. France has a few suggestions to improve it further but will support it going for FV.

FINLAND - Jaakko HUUTANEN - Explained that the Finnish mirror group required changes which have now been corrected and Finland can now accept the document going to FV.

GREECE - Alexander PLAKAS - Document quite good although some detail requires clarification. General shape and content is satisfactory and accepts that the document goes forward to FV. Commenting on page 46 Note 2 regarding infrequent combinations for concrete bridges the note is too vague and clarification should be provided by SC 2 (bridges). Henri MATHIEU stated that no alternatives had been proposed.

ICELAND - H PALSSON - Agrees to the draft going forward to FV subject to supplementary comments should be considered before FV. It was agreed that the PT will consider all comments.

POLAND - as affiliates do not have voting rights, but M LAGODA agreed with the draft going to FV.

PORTUGAL - Eduardo CARVALHO stated that the Portuguese mirror group are happy with the improvements made to the draft and agree to it going forward to FV. However it was questioned as to how Annexes A2 Bridges and A3 Towers and masts will be incorporated. It was agreed that these will be published as amendments to prEN 1990.

GERMANY - Uwe STOLZENBERG commented that as prEN 1990 aligns very closely with the DIN equivalent, the German mirror group accept it going for FV.

SWEDEN - Elisabeth HELSING agreed that the draft should go to FV. However the definition of "informative" National Annex requires clarification as in the Foreword reference is made to it being "normative".

BELGIUM - Gilles LABEEUW commented that congratulations should be extended to the PT members who have produced a much better document now and Belgium agrees that it should go forward to FV. However it was requested that there is a need for Annexes A2 and A3 to be drafted as soon as possible. Also there are a few editorial problems with the proposed new Foreword and expressed concern that the National Annex is informative.

LUXEMBOURG - Jean-Baptiste SCHLEICH commented that the draft should go for FV. However, on page 22, clause 2.1, Principle 4, earthquake should be added. Clause 5.1.4 Principle 2 should be a Rule.

CZECH REPUBLIC - Milan HOLICKY agreed that the draft should go forward to FV. It was noted that there were a couple of small points, the inconsistent use of 'g' and the partial safety factors γ_{SD} is thought to be too high at 1.15.

NETHERLANDS - Leendert BUTH agreed with the draft going to FV but added that it is a CEN requirement that a collage of all comments and how they were treated should be made available. Haig GULVANESSIAN commented that as the document had evolved through several drafts it was not possible to produce such a document other than for the comments on the latest draft.

DENMARK - Niels KREBS-OVERSEN stated that Denmark were very satisfied with the technical content of the draft and agreed that it should go to FV. Commenting on the new Foreword, it was noted that the ψ factors had been removed, the application of informative annexes should be decided in the National Annex and "informative" should be deleted.

ITALY - Giorgio MACCHI commented that it is an excellent document and should go to FV. However in his opinion, the draft loses validity due to:

- a) analysis of imposed deformations - practical problem due to partial safety factors.
- b) 1.5.6.5 second order linear-elastic analysis should be deleted.

UNITED KINGDOM - Barry HASELTINE reported that the UK mirror committee agree to support the draft going to FV.

NORWAY - Thore HAGBERG commented that Norway accepts that whilst it is not ideal, it is the best compromise that could be achieved in the limited timescale. Therefore, Norway accepts the draft going to FV.

The CHAIRMAN thanked Haig GULVANESSIAN and the Project Team members for their work and requested that the comments made by the delegations are considered. Haig GULVANESSIAN should then report to the meeting, when a resolution will be taken.

5. FOLLOW-UP TO THE SEVENTEENTH MEETING OF TC 250 IN BRUSSELS

a) The draft report (N 396) of the seventeenth meeting of CEN/TC 250 held in Brussels on the 9 & 10 March 2000 was confirmed subject to the following comment:

Thore HAGBERG stated that the report under item 7 regarding the response from Paul Pieters did not accurately reflect the discussion. The problem for EC 9 is that the contract for the drafting of ENV 1999 cannot be completed because of the non availability of the French translations from AFNOR which are required by the Commission. The Secretary of SC 9 wrote to CMC prior to the Brussels meeting but as yet has not had the promised response. It was also noted that translations were promised by the end of September, to allow the contracts to be completed but this has not been the case. Jean MOREAU DE SAINT MARTIN agreed to take the matter up with AFNOR and report back to the CHAIRMAN who will if necessary, write to AFNOR.

Secretary's Note: Investigation after the meeting has revealed that CEN published the French versions of ENV 1999-1-1 and ENV 1999-2 in September 2000 and ENV 1999-1-2 in November 2000.

b)

i) Correspondence Resolution 125 (N 394)

It was noted that the correspondence resolution to merge prEN 1994-1-1 and prEN 1994-3 into prEN 1994-1-1 was agreed unanimously as reported in document N 395

ii) Correspondence Resolution 126 (N 397)

It was reported that of those who replied, all supported the recommendations of the Secretariat. Therefore the listed ENVs will be converted into prENs for formal vote after taking account of comments received during the ENV period.

Leendert BUTH remarked that the NETHERLANDS for ENV 1993-2, had voted for 1b) and not 4 as reported. Although the result remains unaltered, this changes voting for 1b) to 13 and 4 to zero (see Annex B for the corrected result).

c) There were no matters raised under this item of the agenda.

6. FOLLOW-UP TO THE NINETEENTH MEETING OF CO-ORDINATION GROUP MEETING IN ATHENS

a) The Secretary reported on the Co-ordination Group meeting held in Athens on 14 & 15 September 2000. Referring to document CEN/TC 250/-/1 N 1375 the SECRETARY commented that the main topic of discussion at the meeting was the elimination of inconsistencies and the implementation of an appropriate action plan.

The inconsistencies between Eurocodes had been identified at an Ad-hoc meeting held in Brussels in July 1998 where tasks had been allocated to various key members of the Co-ordination Group. At the Athens meeting these tasks were updated and extended to take account of subsequent developments (see Annexes B & C of N 1375). It was emphasised that positive actions must be transparent to members of CEN/TC 250 and the actions taken will be reported at future meetings at both CG and TC levels.

The other topics discussed were the finalisation of the draft of prEN 1990 (N 400) in preparation for this meeting which included a revision of the Foreword (N 403) and consideration of inclusions to the corrigendum (N 406).

For the members attending the 3rd ENC Group meeting in October and in particular Bari, HASELTINE as the CEN/TC 250 member on the Guidance Paper Volunteer Drafting Group, version 5 of ENC 011 (N 1361) was discussed at length.

b) Items for TC approval

The consideration of a new work item for CEN/TC 250/SC 2 was identified as requiring approval by CEN/TC 250. This will be discussed under item 12 of the agenda.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

John STRATFORD reporting for the Secretariat, stated that of the 44 contracts issued under Phase I Order Voucher (Budget year 1997), all Project Team experts had signed their contracts with the exception of 1.

For Phase II Order Voucher (Budget year 1998) - there are 6 contracts outstanding where the experts have not signed their contracts.

For Phase III Order Voucher (Budget year 1999) it was reported that contracts for the Project Team members approved by resolution at the Brussels meeting have all been sent out and several have been signed already.

For Phase IV Order Voucher (Budget year 2000), John STRATFORD suggested that SC Secretariats (SCs 1, 2, 3, 6, 7, 8 and 9) should start to consider the membership of the prospective Project Teams.

b) Review of Conversion programme

John STRATFORD reported that the conversion programme was going well (N 393), with most PTs working to target and some even in advance of target (SC 7 & 8). It was noted however, that the Secretariat had received a request from the Secretary of CEN/TC 250/SC 1 for an extension of six months on the target dates. This delay is mainly due to the voluminous comment and the controversial nature of opinions on the subject.

CEN/TC 250 agreed to a six month delay for prEN 1991-1-4 to achieve stage 34 Final Draft.

The Secretariat agreed to update N 393 to reflect the known status of conversion.

ACTION: SECRETARIAT

c) Confirmation of Phase III Project Teams

The membership of the following 8 Phase III, Project Teams were agreed by the delegates:

prEN 1992-2, prEN 1993-1-3, prEN 1993-1-4, prEN 1993-1-5, prEN 1993-2, prEN 1993-1-11, prEN 1993-7-2, prEN 1993-7-1,

Also agreed were the membership of two Project Teams under Phase IV. Commenting Haig GULVANESESIAN added that the project team for "Accidental actions" requires 7 members and in Project Team for Cranes there will be 3 members from Germany. Neither of these were considered to be a problem by the members of CEN/TC 250

prEN 1991-1-7, prEN 1991-3* (*This was incorrectly quoted as prEN 1991-4 in the resolution*)

RESOLUTION 128 was taken accordingly

Jean MOREAU DE SAINT MARTIN requested that in future the list of recommended Project Team members should be circulated to members of CEN/TC 250 prior to the meeting to enable consultation with National mirror committees. This was agreed by the SECRETARIAT however SC Chairmen were reminded to select their Project Team members as soon as possible to allow time for circulation.

ACTION: SECRETARIAT & SC CHAIRMEN

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Peter MATT requested clarification as to which Sub-Committee has the responsibility for steel cables recognising that whilst the material is steel, the design of product impacts primarily on other Eurocode parts such as prEN 1992-2 concrete bridges. It was explained that EC 3 are responsible for prEN 1993-1-11 but included in the Project Team is an expert on concrete bridges from EC 2.

Members attention was drawn to document N 411 which notes that Jacques BROZZETTI intends to resign as the Chairman of SC 3 at the end of 2000. Noting this with grateful thanks for his six year Chairmanship of SC 3, members of CEN/TC 250 unanimously accepted the recommendations of SC 3 to appoint Prof. Frank BIJLAARD to the post of Chairman of CEN/TC 250/SC 3 for a period of 3 years from 2001/01/01.

RESOLUTION 130 was agreed accordingly.

8. POLICY GUIDELINES AND PROCEDURES (N 250 B)

The SECRETARY reported that the Policy Guidelines document N 250 B is now available in electronic format. This is considered as a "living" document and as such will be regularly updated. It was noted from the CG meeting that it was decided to update the document on approval of the ENC Group Draft Guidance Paper. However as this approval has been delayed it was agreed that updating of N 250 B should proceed regardless. The update will include the clarification on the presentation of γ factors as described in Paul Pieters letter of 17 March 2000, see annex B of N 396. Jean MOREAU DE SAINT MARTIN raised the issue that the French comments had not been included in the draft and could see minimal changes since the original document. John MOORE as Convenor of the Ad-hoc Working Group responsible for updating N 250, stated that the WG did not meet but communicated primarily by email. The members of the group were John MOORE, Niels KREBS-OVERSEN, John STRATFORD, Jacques LARAVOIRE and it was believed that agreement had been reached between all the members.

As is typical when drafting guidelines and standards, all comments were considered but not all comments were appropriate for inclusion. Unfortunately, the reasons for the exclusion of particular comments were not documented and circulated to members of CEN/TC 250.

Jean MOREAU DE SAINT MARTIN remarked that future revision should be achieved through an Ad-hoc WG meeting rather than by email.

Niels KREBS-OVERSEN stated that whilst the WG had produced a good and useful document, the group should adopt a more proactive approach and meet in the first quarter of 2001.

John STRATFORD summarised the background to the document, that it was originally drafted for the preparation of ENVs and has since been updated to cover the conversion process. However there are now reasons for updating, such as the ENC Guidance paper, the Paul Pieters letter and the new model foreword for prEN 1990.

Barry HASELTINE added that in ENC 022 Draft Guidance Paper, Annex A is essentially a wish list from the Commission and whilst the document will not be finalised until July 2001, the only probable changes will be to annex A.

The CHAIRMAN emphasised that N 250 is for CEN/TC 250, and the SCs and PTs, whereas ENC 022 is for the Regulators, and whilst there should not be contradictory statements, we should review the document.

Gilles LABEEUW suggested that the revision should include a list of parameters which are nationally determined in the National Annex, a model National Annex and preferred values when range of values is given.

Jan STARK recognising that it is a good document for PTs suggested that the title requires improvement and the revision should take account of the conclusions made at the Chairmen's meeting (see N 424 tabled). After further discussion by the members, the CHAIRMAN decide the following action:

John MOORE should arrange an Ad-hoc WG meeting in January 2001 to review the content of N 250 B. Account should be taken of the latest version of ENC 022, review the proposals for Nationally Determined Parameters and review inconsistencies. As a significant commentator Jean MOREAU DE SAINT MARTIN should be invited to join the Ad-hoc WG. The WG should report back at the next CG meeting in Zurich on the 12/13 March 2001.

ACTION: JM/JES/NK-O/JL/JMDSM

John MOORE referred members to clause 7.8 of N 250 B, on the separation of Principles and Application Rules and added that it is vitally important during this phase of the conversion process. All SC and PT members should pay keen attention to this aspect during drafting.

ACTION: ALL SC AND PT MEMBERS

9. ELIMINATION OF INCONSISTENCIES

9 a) Report from the Ad-hoc Group

Jan STARK referred members to the tabled document N 424 which summarises the discussion of the Chairmen's' meeting held prior to the CEN/TC 250 meeting. He reported that at the CG meeting in Athens, it was agreed that he would chair an Ad-hoc Group to examine issues of inconsistency especially between the material dependent Eurocodes. To-date the Ad-hoc Group have met twice in Delft (October) and in Berlin (November).

Conclusions and actions of the Ad-hoc Group

Jan STARK added that the conclusions from the group were that subsequent to the publication of prEN 1990 a maintenance group should be formed to answer questions arising from publication and also to consider necessary amendments for the 5 year revision. Other areas which have been considered are

- a) treatment of SLS rules for material dependent codes;
- b) resolution of ambiguities between EQU and SLS must be transparent;
- c) durability for material dependent codes is to be harmonized;
- d) terminology is to be standardised between EC 2, EC 3, and EC 4;
- e) sway and non-sway frames are to be avoided in material dependent codes;
- f) sway imperfections should be harmonized across material dependent codes;
- g) rules for applying strain limitations for plastic resistance;
- h) non harmonisation of plastic hinge theory for EC 2 and EC 3.

It was also noted that a successful method of analysing the drafts of chapter 5 of material dependent codes is by flow chart. This approach will now be applied to the analysis of chapter 6.

It was noted that the Chairmen of SC 2, SC 3 and SC 4 have been given copies of the relevant PNE rules and a model for application of verbs from prEN 1990, to ensure differentiation between Principles and Application rules.

The Foreword, clause 1 and clause 2 developed and drafted by the Project Team for Basis of design will be used as the model for all other codes.

An area that the Ad-hoc Group believes is essential in the elimination of inconsistencies, especially for material dependent codes, is the access of drafts during preparation. Additionally, ENC Group documents and CEN/TC 250 and 250/-/1 should also be available to the code drafting Project Teams. The SECRETARIAT was requested to investigate the possibilities of creating a website to facilitate the availability of documents electronically, and report back to the CG meeting in March.

ACTION: SECRETARIAT

9 b) Report from the liaison meeting with Product TCs

The CHAIRMAN reported that in July, there had been an initial liaison meeting with representatives from selected product TCs (see document N 399). At that meeting, were representatives from TC 229 "Precast concrete products" and a further liaison is planned for the future. This will take place in Berlin on 19 December 2000 with members of CEN/TC 250/SC 2. Apparently TC 229 can't accept certain rules in Eurocode 2 and they can't wait for publication for reference purposes. Hopefully the meeting will find a suitable compromise but this must not be at the expense of safety. Hans-Ulrich LITZNER added that it is a basic question of authority, product TCs should not be able to dictate to SC experts when these matters have been agreed by the SCs who have been mandated to draft the documents.

It was agreed that the liaison between CEN/TC 250 and CEN/TC 229 should be used as a model for other product TCs.

Francesco BIASIOLI added that providing existing products are not excluded, there should be no major problems in gaining agreement.

Eduardo CAVARLHO questioned the table in Eurocode 2 on reinforcement steel. This was explained that it only covers normal and high strength steels and not special steel for seismic use.

Referring members to tabled document N 427 "CEN Construction Network Conference 2000", the CHAIRMAN reported that the main recommendations from the conference were that liaisons must be strengthened between Product TCs and CEN/TC 250. Through strengthened liaisons it is believed that interface issues will be resolved and it is recommended that the Ad-hoc liaison group between TC 250 and TC 229 should be used as a pilot. It was noted that the ENC Group should be informed of any issues relating to design requirements in Product Standards.

Jaap ZWART reported that the glass industry have expressed their concerns at the last ENC Group meeting in October.

The CHAIRMAN identified that a very important recommendation from the Conference was that product standards should introduce design requirements in normative annexes based on the latest Eurocodes drafts, and so far, still on the ENVs. As the Eurocode ENs are published, the product standard annexes should be aligned accordingly or deleted and substituted by references to the EN. It was noted that Mr VALLES, Chairman of TC 229 has proposed an agenda for the December meeting with SC2, which is optimistic. The Commission have requested that TC 250 and TC 229 resolve the differences within 12 months.

CMC will produce a list of priorities based on harmonized standards for liaison with other product TCs.

John STRATFORD noted that the SCs of CEN/TC 250 currently have 60+ liaisons involving 8 or 9 product TCs which will require design input from TC 250. Further actions will be reported at the next CEN/TC 250 meeting.

9 c) Report on liaison meeting at UNI with Italian Structural Engineers

The CHAIRMAN reported on the meeting of the 7 July 2000 in Milan with members of the Italian Structural Engineers at UNI. The meeting was necessary, to allay the concerns expressed by Italy, on the introduction of new technology during the conversion phase from ENVs to ENs. It was noted that there are difficulties in Italy to change legal regulations quickly.

However, the CHAIRMAN added that TC 250 don't believe the developing ENs are too far changed from the ENVs. Adding it is not in TC 250's interest for radical change as this is time consuming, unless there are safety implication issues.

Responding Giorgio MACCHI, thanked the CHAIRMAN for the initiatives of TC 250 and the successful exchange of opinion. He explained that in 1996, the Italian Government gave official status to drafts of EC 2 and EC 3 for experimental use in

parallel with the existing Italian codes. The approval was given to the ENVs from SC 2 and SC 3, based on the agreement with TC 250 that there would be minimal change from the ENVs to the ENs. Consequently, if there are major changes during the conversion, Italy will have to keep the ENVs, and the 3 years experience of Italian Structural Engineers will have been lost. Also if there are considerable changes then Eurocodes will be viewed as unstable by Italy. However, it is suggested that the 5 year revision, would be considered more appropriate to introduce significant changes.

It is therefore the request of Italy that the SCs and PTs should adopt a continuity approach and minimise the changes to the drafts during the conversion process.

John MOORE reminded members that the conversion process should only have major change which have been technically justified.

Peter MATT added that other countries may also wish to express their concerns, noting that in Switzerland there will be huge problems resulting from the introduction of major changes from the ENVs.

Giorgi MACCHI commented that Eurocodes will be considered unreliable not only by Italy but across Europe also, if significant changes are introduced. He therefore recommended that Italy's conclusions are accepted.

Hans-Ulrich LITZNER stated that he was against this approach in principle. Adding that in order to remove inconsistencies and to include National comment during conversion, technical changes will naturally result.

The CHAIRMAN concluding stated that he together with the SC Chairman and the respective Italian mirror committees must find a way to resolve these issues. The CHAIRMAN agreed to update members at the next CG meeting in March.

ACTION: CHAIRMAN/SC CHAIRMEN

SECRETARY'S NOTE:

The hosts, DIBt and DIN, kindly provided dinner for the delegates of CEN/TC 250, sponsored in conjunction with the following organizations:

BDBF, DB, VPI, DStV, DGfM, DGGT.

Jacques BROZZETTI as the "Senior" SC Chairman on behalf of the delegates thanked the hosts and the sponsors for their kind hospitality in providing an enjoyable evening. As he would be retiring as SC 3 Chairman before the next CEN/TC 250 meeting he extended his best wishes to Prof. Horst BOSSENMAYER and all members of CEN/TC 250 involved in the Eurocode Conversion Programme.

11. BASIS OF DESIGN (Continued)

From the previous days' discussion and comment, Haig GULVANESSIAN reported that the members of the PT have revised prEN 1990 taking "on board" as many comments as possible. As a consequence a revised draft of prEN 1990 was tabled as document N 428 which also incorporated the proposed corrigendum. Also tabled, as a result of the Project Teams overnight deliberations, was the revision of the proposed new Foreword N 403 A. Haig GULVANESSIAN explained that this draft will be subject to final editing, therefore he requested members to confine their comments to technical issues only.

After consideration of the revision drafted by the Project Team overnight, the members unanimously agreed that the draft of prEN 1990 should go forward to Formal Vote. The CHAIRMAN thanked all members for their positive comments and requested that they ensure their respective national committees give a similar positive commitment.

It was agreed that the Project Team would finalise the draft based on the comments agreed at the meeting and prepare the final draft for Formal Vote.

ACTION: HG AND PT (BOD)

RESOLUTION 127 was agreed unanimously

10. REPORT ON ENC GROUP

Barry HASELTINE updated members on the recent developments within the ENC Group and referred to the ENC 020 Rev.1 "Reminder of the Position of the Commission" document. It was noted that there is considerable support for Eurocodes from the Commission and Mr Leoz Arguilles has reaffirmed that CEN (TC 250) are the authority to draft the Eurocodes. It was also noted that the Commission supports the creation of Expert Liaison Groups between CEN/TC 250 and Product TCs to eliminate inconsistencies between Eurocodes and Product Standards. However these Liaison Groups shall not delay publication by more than 12 months.

The paper on the Position of the Commission is considered to be a bold document from the Commission and as such contains some useful information which should be included in the final version of the Guidance Paper ENC 022.

Barry HASELTINE referred members to his letter to the CHAIRMAN, tabled document N 422, and added that the Volunteer Drafting Group will finish the Guidance Paper in January in readiness for approval by the Standing Committee possibly in July 2001.

N 422 also includes a revised Chapter 7 for ENC 022 which is important as this provides the mechanism for drafting the Nationally Determined Annexes.

Barry HASELTINE highlighted other significant features of N 402 - ENC 022 version 6 "Draft Guidance Paper".

Chapter 8 defines the concept of packages and the practical implementation. Chapter 9 discusses the transitional arrangements for co-existence with national standards.

Annex A defines the instructions to TC 250, which must be checked to ensure there is no conflict with CEN rules and the Mandate. There will be a further opportunity to go back and revise this Annex as it does have consequences for TC 250, CEN and EOTA.

Noting that the Guidance Paper is for regulators, it is surprising that there is a lack of awareness of the work of TC 250 and of Eurocodes in general by the regulators.

Annex B gives guidance on withdrawal of conflicting national standards, showing a proposal that there will be 5 years from DAV of the last part of the package before withdrawal.

Annex F - the Volunteer Drafting Group are anxious to hear from countries who have performed calibration studies using the ENVs.

It was noted that the Commission are determined to have Eurocodes as transparent as possible.

Therefore it is their intention to make all countries Nationally Determined Values available on the Commission website.

The CHAIRMAN thanked Barry HASELTINE for his work in linking CEN/TC 250 with the regulators through the ENC Group.

12. SUB-COMMITTEE REPORTS

The SC Chairmen gave verbal reports to supplement their written reports:

SC 1 - Haig GULVANESESIAN stated that at the SC 1 meeting in Brussels in September prEN 1991-1-1 was unanimously approved by the members to be sent to CEN for launch of the Formal Vote.

It was noted there is a CEN/ISO document on Atmospheric Ice Loads which has been drafted by ISO/TC 98/SC 3. The SECRETARY was requested to check the current situation with the draft.

ACTION: SECRETARY

Haig GULVANESESIAN referred members to document N 413 and the request from CEN/TC 256 "Railway applications" to undertake the work on "Static loads and verification of dynamic behaviour" by the Project Team for prEN 1991-2.

Mr TSCHUMI of the Project Team is scheduled to meet with CEN/TC 256 to discuss the implications and will report to CEN/TC 250 through Jean-Armand CALGARO as the Convenor of the Project Team.

ACTION: J-AC

SC 2 - Hans-Ulrich LITZNER reported that SC 2 have received a request from EOTA to establish a Working Group under SC 2 to draft a standard entitled "Design of fastenings for cast-in-situ and post-installed systems". It was noted that a similar arrangement had been made previously from SC 2 for the work in drafting prEN 13391 "Mechanical tests for post-tensioning systems".

John STRATFORD informed members that it would be acceptable providing it is within the scope of TC 250 and approved by CEN /BT. It was also stated that if accepted as a WI, it would not be funded through the Eurocodes programme.

It is anticipated that the drafting will take approximately 2 years and should include all connections for prefabricated structural elements regardless of material. The work programme for the WG should also be agreed with SC 3 and SC 4 as it interfaces with both SCs.

Michael FARDIS added that SC 8 are keen to form a liaison with this WG.

After further discussion by the members a resolution was unanimously agreed

RESOLUTION 131.

SC 3 - Jacques BROZZETTI stated that there were no further comments to add to his written report N 409.

SC 4 - Jan STARK for SC 4 commented that the Fire part, prEN 1994-1-2 is on schedule. It was also noted that at the May meeting of SC 4, there were a number of resolutions which relate to the work of SC 3 and the principles for the design of web openings. This is an important issue for SC 4 in the design of composite beams for office buildings.

Gerhard SEDLACEK commented that this topic is addressed in an annex of the draft of prEN 1993-1-5.

Jan STARK also drew attention to an SC 4 resolution requesting CEN/TC 250 and HG-Fire to establish basic safety requirements.

ACTION: JK

SC 5 - Juergen Koenig reported that the work of SC 5 is running smoothly.

SC 6 - Tor-Ulf WECK commenting on SC 6 matters, stated that there are three ENVs which are out for review. On the assumption that they are to be converted through the normal Project Team route, it is his objective that conversion will be as fast as possible.

It was noted that at the next CEN/TC 250, Tor-Ulf WECK will make a proposal regarding combining the parts prEN 1996-1-1 and prEN 1996-1-3.

SC 7 - Roger FRANK commenting on the SC 7 report, document N 414 added that SC 7 are working well and Part 1 is six months in advance of schedule. It was also noted that SC 7 will be forming the Project Teams for prEN 1997-2 and prEN 1997-3 in March 2001 for endorsement by CEN/TC 250 at the June 2001 meeting.

SC 8 - Michael FARDIS commented there were no further comments to add to the SC 8 reports N 404 and N 416.

SC 9 - In the absence of Professor MAZZOLANI, Thore HAGBERG noted that the 2-year enquiry for the three parts of ENV 1999 finishes in December 2000. On the assumption that the result will be to convert to ENs, there will probably be a SC 9 meeting in the first quarter of 2001 to establish the Project Team membership.

Discussing the work of the Project Teams in general, Jean MOREAU DE SAINT MARTIN requested that the translations should be produced as soon as possible during the drafting of prENs and preferably before stage 34 is achieved.

13. SECRETARIAT MATTERS

John STRATFORD noted that Prof MAZZOLANI 's period of tenure as Chairman of SC 9 is up for renewal or change and agreed to contact Prof MAZZOLANI to establish the wishes of SC 9. Subject to the discussions, a resolution by correspondence will be circulated.

ACTION: SECRETARIAT

14. CMC and BT MATTERS.

The SECRETARY reported that he had agreed with CMC (Ashok GANESH) that there would be a page dedicated to Eurocodes on the CEN Construction Sector web-site. Unfortunately this will not be available for draft reports and general documents, but will have N 250 B, N 393 A and possibly the Business Plan for TC 250 on it. The SECRETARY added that he will be investigating other forms for the electronic distribution of documents (EDD) and possible creation of a web-site for posting developing drafts.

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The CHAIRMAN hoped for improved support for CEN/TC 250 from CMC in this area.

15. ANY OTHER BUSINESS

There were no issues raised under this item.

16. ARRANGEMENTS FOR FUTURE MEETINGS

Subject to confirmation, by Giorgio MACCHI, the next meeting (Nineteenth) of CEN/TC 250 will be held on 28th and 29th June 2001 in Milan.

Taking account of the Work Programme of CEN/TC 250, it was provisionally agreed, to hold the Twentieth meeting on 29th and 30th November 2001 at a venue to be agreed.

17. FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed unanimously by the members of CEN/TC 250 (see N 429) at the Berlin meeting:

RESOLUTION 127 - Approval of prEN 1990 to go forward to Formal Vote

RESOLUTION 128 - Approval of Project Team membership for prEN 1992-2, prEN 1993-1-3, prEN 1993-1-4, prEN 1993-1-5, prEN 1993-2, prEN 1993-1-11, prEN 1993-7-2, prEN 1993-7-1, prEN 1991-1-7, prEN 1991-3.

RESOLUTION 129 - Change to membership of Project Teams for prEN 1998-2 and prEN 1998-3.

RESOLUTION 130 - Approval of new Chairman of CEN/TC 250/SC 3

RESOLUTION 131 - Approval of formation of new WG under CEN/TC 250/SC 2 for the "Design of fastenings".

18. CLOSING OF MEETING

The Chairman thanked the delegates for their attendance of this meeting which has been very successful and the reports from the SCs is encouraging in that most are in advance of the work programme. The positive developments in the liaisons between Product TCs and CEN/TC 250 have been useful to all parties, and the elimination of inconsistencies will be ongoing.

With the support for prEN 1990 to go forward to Formal Vote, this meeting marks the "kick off" for the Eurocode EN programme.

Finally the CHAIRMAN reminded delegates to go back to their respective mirror committees and convince them to support prEN 1990 at Formal Vote.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



Ref: 7232:CEN/TC 250

Date: 2 August 2001

To the Members of CEN/TC 250
 Structural Eurocodes

**DRAFT REPORT OF NINETEENTH MEETING OF CEN/TC 250
 HELD IN MILANO ON 28 & 29 JUNE 2001**

1. OPENING THE MEETING

The delegates to the nineteenth meeting of CEN/TC 250 were welcomed by Mr Morelli, Director of UNI. As a Vice President of CEN, Mr Morelli explained the efficiency and productivity initiatives which have been introduced by CEN in order to produce European standards more effectively whilst recognizing the difficult challenges ahead. Mr Morelli wished CEN/TC 250 a successful meeting.

Prof. Macchi invited members to a dinner in Milano which was sponsored by his Italian structural engineering colleagues.

2. ROLL CALL

All members introduced themselves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

- | | | |
|---------------|---|------------------|
| J-A CALGARO | - | French language |
| U STOLZENBERG | - | German language |
| G HARDING | - | English language |

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

The Chairman in his introduction thanked the Commission, CEN, members of TC 250 and product TCs for supporting the work of CEN/TC 250 and the Eurocode Programme. It was noted that the Commission acknowledges the need for promotion, education research and maintenance of the Eurocodes.

The Chairman reiterated that Eurocodes are the common basis for structural design and for the procedures of Factory Production Control and Attestation of Conformity for construction products.

Whilst there are other possible design alternatives for structures, Eurocodes should be the only method for the structural design by calculation of construction products, under the CPD.

Reporting on the activities where CEN/TC 250 is involved, the CHAIRMAN stated that the ENC Group on Eurocodes is preparing a guidance paper on the "Application and Use of Eurocodes" which will be finalized for discussion at the meeting of the Standing Committee in December

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2001. The Commission and CEN are also supporting increased awareness of Eurocodes through conferences and seminars, which will also heighten their importance.

Reporting on liaison between Product TCs and CEN/TC 250, the CHAIRMAN commented that the Pilot project between CEN/TC 250 and 229 has produced a considerable improvement in co-operation. This will be supported on the second day of the meeting (Friday 29th) by the presentations of Messrs VALLÉS and MENEGOTTO from CEN/TC 229. There are other product TCs where liaison will be necessary, a list of where liaison is required has been prepared by Ashok GANESH which details some 46 TCs which could be related to Eurocodes. Ten product standards are approved as hENs and a further 24 are on the priority list of the CEN Task Force. Recognizing the difficulties of undertaking the liaisons whilst continuing with the work of CEN/TC 250, the CHAIRMAN stressed the importance of liaisons with product TCs. Work has already started with CEN/TC 177 and with EOTA who have several guidelines which require harmonization with Eurocodes.

Reporting on the progress of the Eurocode programme, the CHAIRMAN stated that to-date there have been a total number of 59 ENVs published, 51 have completed enquiry and the final 8 have the enquiry in progress. There are some 36 Project Teams working on conversion and a further 19 PTs will start this year to complete the Eurocode conversion programme.

The CHAIRMAN reporting on the specific activities of CEN/TC 250, stated that removal of inconsistencies between individual Eurocodes remains a main issue. Also, work is continuing to revise the Policy Guidelines document N 250, by the introduction of a model Foreword and Chapters 1 and 2. Examples will be established on the application of Eurocodes in relation to hENs, ENC Guidance Paper and CE marking regulations. It remains an objective to progress a Research and Maintenance programme with the Commission

Members were reminded that progress of the Eurocode Programme depends to a great extent on progress of the ENC Guidance Paper, N 250 and success with liaisons with other TCs. As these meetings are ongoing this has necessitated some papers being distributed extremely late for which apologies are given. However this is only to be a short transitional period and will result in better Eurocodes final drafts.

It was hoped that Pascal BAR from the Commission would attend this meeting but unfortunately he has another appointment. However, he does intend to attend the next TC 250 meeting in London in November. It was noted that the Chairman of TC 229 Michel VALLÉS and Prof MENEGOTTO, Chairman of the Ad-hoc liaison Group will attend the following day to make their presentations.

ADOPTION OF AGENDA

The agenda was adopted without change.

5. FOLLOW-UP TO THE EIGHTEENTH MEETING OF CEN/TC 250 IN BERLIN

- a) The draft report (N 432) of the eighteenth meeting of CEN/TC 250 held in Berlin on the 16 & 17 November 2001 was confirmed subject to the following comment:

Peter MATT stated that the report on page 10 line 5, under item 9 c) regarding the liaison meeting with Italian Structural Engineers, had incorrectly reported his remark. He requested that the report should be changed to the following "... in Switzerland there would be considerable problems should the foreseen changes be made."

Jan GIJSBERS referred to Page 4 and the comments made by the Netherlands requesting background information on how comments were addressed noted that the comments on the latest draft had not been circulated. Haig GULVANESSIAN agreed to circulate these.

Action: HG

b) RESOLUTIONS

The resolutions agreed at the Berlin meeting in document N 432 were approved without change. The SECRETARY reported that where members had responded to the correspondence resolutions circulated as documents N 431, N 445 N 447 all responses had been positive. Consequently the following resolutions were agreed:

i) Correspondence Resolution 132 (N 431)

CEN/TC 250 Structural Eurocodes

- considering the CEN/CENELEC Internal Regulations - Part 2, clause 6.2.3 which lays down the principles and the general provisions for derogation from standstill;
- having analysed the reasoning of the request for derogation;
- having followed the process guidance for the handling of derogation from standstill as given in CEN BOSS;

grants UNI derogation from standstill concerning WI 00250098 - prEN 1992-1-2 "Eurocode 2: Design of concrete structures - Part 1-2; General-structural fire design", in order to review UNI 9502 "Analytical fire resistance assessment of reinforced concrete and prestressed concrete structural elements".

It is understood that UNI will withdraw its standard (UNI 9502) and replace it by the corresponding EN 1992-1-2 when available.

ii) Correspondence Resolution 133 (N 445)

SUBJECT: CEN/TC 250 review of:

ENV 1991-2-7, ENV 1993-5, ENV 1996-1-3, ENV 1998-4, ENV 1999-1-1, ENV 1999-1-2, ENV 1999-2

The CEN/TC250

- considering the CEN/CENELEC Internal Regulations Part2, sub-clause 7.2, stating the actions to be taken after the review of an ENV;
- considering the result and the comments made during the review of the ENV's listed above.

Decides to convert these ENV's into prENs for formal vote after updating, taking into account the comments made during the ENV period and during the review. Standstill is hereby initiated.

Target dates for stage 49:

ENV 1991-2-7	March 2003
ENV 1993-5	September 2003
ENV 1996-1-3	May 2003
ENV 1998-4	April 2003
ENV 1999-1-1	March 2004
ENV 1999-1-2	March 2004
ENV 1999-2	March 2004

iii) Correspondence Resolution 134 (N 447)

SUBJECT: CEN/TC 250 review of:

ENV 1991-5, ENV 1992-3, ENV 1992-4, ENV 1996-2, ENV 1996-3

The CEN/TC250

- considering the CEN/CENELEC Internal Regulations Part2, sub-clause 7.2, stating the actions to be taken after the review of an ENV;
- considering the result and the comments made during the review of the ENVs listed above.

Decides to convert these ENVs into prENs for formal vote after updating, taking into account the comments made during the ENV period and during the review. Standstill is hereby initiated.

Target dates for stage 49:
ENV 1991-1-5 Sept 2003
ENV 1992-3*
ENV 1992-4 April 2004

ENV 1996-2 Sept 2003
ENV 1996-3 Sept 2003

*This will be merged into prEN 1992-1-1

c There were no matters raised under this item of the agenda.

6. FOLLOW-UP TO THE TWENTIETH MEETING OF CO-ORDINATION GROUP MEETING IN ZURICH

a To note the CG Draft Report (CG N 1386)

The CHAIRMAN commenting on the Zurich CG meeting added that the main topics discussed were the ongoing situations regarding liaisons with product TCs and the elimination of inconsistencies. Jean MOREAU DE SAINT MARTIN queried why the report had taken so long to circulate. The SECRETARY explained that about 80% had been drafted within two weeks for presentation at the Ad-hoc liaison meeting in early April. This provisional report had covered the important issues and had been circulated by some SCs as a provisional draft. Unfortunately other exceptional circumstances prevented the completion of the draft for another 6 weeks. However the SECRETARY hoped that for future reports, normality would be resumed.

b) Items for TC approval not covered by the Agenda

There was nothing to report under this item of the agenda.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

John STRATFORD referred members to tabled document N 453, regarding the current status of contracts for Project Team experts.

a) Phase 1 conversions (1997 Budget)

For the 7 conversion projects under Phase 1, 50 contracts were issued by BSI. This encompassed 11 Co-ordination contracts and 39 Expert contracts, which were sent out in summer 1998. With the exception of the following, all have been agreed and signed:-
PROF. K. ZILCH of TECHNISCHE UNIVERSITAT MUNCHEN for EN1992-1-1 remains outstanding.

Action: H-UL

b) Phase 2 conversions (1998 Budget)

For the 12 projects under Phase 2, 85 contracts were issued by BSI (14 Co-ordination and 71 Expert contracts) in the second quarter of 1999. However the following 4 contracts have not been returned:-

PROF.P. SETTI - POLITECNICO DI MILANO for EN1991-1-2
R. FILA - OESTERREICHISCHE BUNDESBAHLEN ABT for EN1991-2
PROF.C.MODENA - UNIVERSITY OF PADOVA for EN1996-1-1
C. HAHN - HAHN CONSULT GmbH for EN1996-1-2 (Convenor)

Action: HG & T-UW

c) Phase 3 conversions (1999 Budget)

For the 16 projects under the Phase 3 programme, a total of 93 contracts have been issued (9 Co-ordination and 84 Expert contracts) between June 2000 and April 2001. However there remain 2 co-ordination and 18 expert contracts outstanding. John STRATFORD agreed to liaise with the appropriate SC Chairmen, in order that the outstanding contracts are chased.

Action: JES & SC CHAIRMEN

d) Phase 4 conversions (2000 Budget)

For the 18 conversion projects under Phase 4, John STRATFORD reported that he anticipates that in the third quarter of 2001, BSI will issue 8 Co-ordination and approximately 100 Expert contracts. However this is dependent on results of the outstanding 2-year Enquiries, approval of Project Teams and receipt of Expert's details.

The CHAIRMAN requested that the appropriate SC Chairmen, in consultation with John STRATFORD, chase the outstanding contracts to ensure that they are signed and returned as soon as possible.

b) Review of Conversion programme

Members were referred to the recently circulated document N 455 for the Eurocode Conversion Programme. It was noted that this is an updated version of N 393 A based on the latest information from the SCs.

Jean MOREAU DE SAINT MARTIN commented that there could be problems created with the concurrent dates of interrelated Eurocodes, such as EC2, EC 3 and EC 4. Michael FARDIS added that EC 8 dates are not much later than the material dependent codes.

Tor-ULF WECK referring to the footnote to Phase 4 (2000 budget) commented that it is the intention of SC 6 to merge prEN 1996-1-3 with prEN 1996-1-1, but as yet, this has not been formally confirmed by a CEN/TC 250 resolution.

Members agreed the updated Work Schedule.

c) Confirmation of Phase 4 Project Teams

Members were referred to tabled document N 454 for Confirmation of the Project Teams for Phase 4 Conversions.

Haig GULVANESSIAN reported that there had been a change to the Project Team for Accidental Actions prEN 1991-1-7, Geoff HARDING (UK) replaces Stiefel as the Convenor of the Project Team. Hans-Ulrich LITZNER announced the experts who will participate in the Project Team for the conversion of prEN 1992-3 Liquid containment and retaining structures. Under the Convenorship of BEEBY (UK), the PT will be: BENEDETTI (IT), CORTADE (FR)), PICHLER (A), VAN BREUGEL (NL) and REINECK (DE) plus the ex officio members BOSSENMAYER and LITZNER.

RESOLUTIONS 135, 136 and 137 were agreed accordingly

Fredrico MAZZOLANI tabled two documents from the CEN/TC 250/SC 9 meeting in May (SC9-N120 & N121). It was reported that the SC 9 meeting agreed to create 4 Project Teams - PT 1-1a "Members", PT 1-1b "Connections", PT 1-2 "Fire" and PT 2 "Fatigue" comprising some 18 experts plus a further 3 permanently invited experts (not funded) and the 2 ex officio members to produce the 3 Eurocode parts

Members questioned the designation of the three projects under SC 9, noting that confusion could arise as Part 2 relates to bridges in other SCs. Members led by Jan STARK and Frans BIJLAARD suggested alignment with the other Eurocode Parts by re-numbering. It was agreed that this was a matter for the CG to decide and not CEN/TC 250 and it was suggested that Fredrico MAZZOLANI should present a SC 9 proposal at the next CG meeting in Paris (October).

RESOLUTION 138 was agreed, by members of CEN/TC 250.

8. RE-APPOINTMENT OF CHAIRMEN (SC 7 & SC 9)

Referring to document N 456, it was noted that the Chairmen of SC 7 & SC 9 have completed their 3 year tenure of office and are recommended by the respective SCs to be re-appointed. CEN/TC 250 agreed to reappoint Roger FRANK and Fredrico MAZZOLANI respectively for a further period of 3 years.

RESOLUTION 139 was agreed accordingly.

9 POLICY GUIDELINES AND PROCEDURES (N 250)

John MOORE as Convenor of WG 1 reminded members of CEN/TC 250 of the decision taken in Berlin in November 2000, that WG 1 should revise document N 250, to take account of the ENC Guidance Paper and assist PTs to eliminate inconsistencies during their code drafting. It was recognised that Project Teams required the information immediately.

WG 1 prepared document CG - N 1381 for the March meeting of the CG in Zurich. This document contained a revision of section 7, Annexes K and L of N 250 together with a new Annex P giving examples of the use of NDPs.

It was noted by John MOORE that WG 1, hope to have the revised N 250 (C) within two weeks which will include a revision of clause 7.1.3 based on Barry HASELTINE'S comments. Annex K includes a model Foreword based on the Foreword from prEN 1990.

Reporting on the discussions at the Chairmen's meeting, John MOORE referred to tabled document N 468 "Recommended contents for Sections 1 and 2 of EN Eurocodes".

Analysing the document John MOORE stated that Section 1 applies to all codes.

However at the Chairmen's meeting it was clarified that, in points 1.3 and 1.4 the proposed references to EN 1990 should not be restated but the appropriate reference should be stated.

Also a new sub-clause 1.6 "Symbols" was added.

Section 2 only applies to the material dependent codes (i.e. EC 2, EC 3, EC 4, EC 5, EC 6 and EC 9. John MOORE stated that in clause 2.3, third bullet point, this should be moved to sub-clause 2.4

Members were referred to N 466 "Model chapters, Foreword, Clauses 1 & 2 for prEN 1993-1-1" prepared by Gerhard SEDLACEK. It was agreed that in the sub-clause 1.6 Symbols, the sequence should be Latin upper case, Latin lower case, Greek upper case and Greek lower case. Typically in the case of the Fire codes, the Foreword and Section 1 would only apply.

Jean MOREAU DE SAINT MARTIN thanked John MOORE and WG 1 for their work in dealing with his comments. John MOORE stated that the objective of Annex P of N 1381 is for clarification for National Regulators when considering the Nationally Determined Parameters (NDPs).

In response to Joel Kruppa's question as to whether only part of an informative annex can be used, Barry HASELTINE explained that it has been recognized by the ENC Group that alternative design rules are permitted providing reliability can be demonstrated and any item designated as an NDP means that the design is in accordance with the Eurocode even if only part of the informative annex is used.

Members discussed at length the subject of NDPs and whether they should be considered normative even though the National Annex is Informative.

During the discussions it was identified that there is an editorial error in the model Foreword of N 1381 which would also appear in the final draft of prEN 1990 which is with CMC awaiting Formal vote. In clause 1.3 "National Standards implementing Eurocodes", a list of six Nationally Determined Parameters is given. However, it was recognized that the final two bullet points, are optional and may not be applicable to all Eurocodes. Therefore it was agreed that "and it may contain" should be inserted prior to:

- decisions on the application of informative annexes
- references to non-contradictory complementary information to assist the user to apply the Eurocode.

Ashok GANESH was requested to make the necessary changes to the Formal Vote draft prior to circulation.

Action: AG

Secretary's Note

Unfortunately the draft in CMC production was too advanced to allow changes to be made.

Consequently Members are recommended to make this editorial comment when voting which will ensure the draft is corrected in the ratified text.

10 ELIMINATION OF INCONSISTENCIES

a) Review of Progress

Referring to tabled document N 471, Jan STARK reported on the discussions which had taken place at the SC Chairmen's meeting prior to the CEN/TC 250 meeting. It was suggested that it may be more positive to state that it is "Looking for consistency". A number of inconsistencies have been identified in the material dependent codes, which have been re-examined to align with Eurocode 1 and prEN 1990.

As reported in N 1386 Report from Zurich CG, several meetings of the Ad-hoc Group plus the Chairmen's meetings have taken place where proposals have been discussed and agreed. (see the underlying document CG N 1379). However it was noted that the meetings have mainly been confined to representatives of SC 2, SC 3 and SC 4. Therefore it has been concluded that a complete harmonization across the entire suite of Eurocodes is not fully covered. However it has been recognized that there must be a mechanism to ensure consistency, noting that all decisions made regarding co-ordination matters must be clearly identified by resolution or in the CEN/TC 250 minutes.

Jan STARK reported that the harmonization of style and format of the draft prENs from SC 2, SC 3 and SC 4 will follow the recommendation of the Guidance document N 250 as encapsulated in prEN 1990 - Basis of structural design. It was agreed that each Sub-Committee Chairman is responsible to check the compliance of the PT draft with the agreed co-ordination decisions both from CEN/TC 250 and Sub-Committee level.

RESOLUTION 145 was agreed accordingly

Regarding the technical rules to be co-ordinated between SC 2, SC 3 and SC 4, Jan STARK commented on selected points of N 471.

Clear references must be included in the bridge parts (Part 2, in most Eurocode series) to the generic rules contained in the relevant Part 1 which are applicable to all structures.

It was noted that the consistency of rules for the global analysis of buildings was still a matter for discussion but structures designed to EC 2, EC 3 and EC 4 should use the same models for:

- sway imperfections
- geometrical shape of sway imperfections
- amount of sway imperfections for buildings

Jan STARK commenting on the sequence of the rules, stated that EC 2, EC 3 and EC 4 drafts should be harmonized with prEN 1992-1 as far as possible but warned that complete harmonization would be unlikely due to the timescale available.

It has been identified that clarification is necessary for the use of S_d and E_d for action effects.

Referring to whether S_d or E_d should apply in prEN 1990, Haig GULVANESSIAN, stated that it had been agreed some 8 years ago and E_d was agreed for the ENV. As no comment was received on this matter, during Enquiry, it cannot be changed now. Gerhard SEDLACEK and Haig GULVANESSIAN agreed to draft some guidance notes on the subject.

Action: GS/HG

Based on the problems encountered by the PT for prEN 1990 when using the CEN template and the processing of the final draft through CEN editing, procedures have been developed to assure the quality of final drafts. It is recognized that corruption of equations would have disastrous consequences to the entire Eurocode Programme.

- The responsible SC Chairman will endorse the final draft by signature before it is sent to CEN for processing.
- The final draft should refer to the ENs and not ENVs
- Equations or their presentation must not be modified by CEN Editors
- CEN Editors must agree all changes with the SC Chairman before the FV draft is issued.

Members discussed the problem at length and agreed that it is unacceptable that the technical content of the drafts can be changed without consultation and approved the drafting of a resolution.

RESOLUTION 143 was agreed.

At the Chairmen's meeting it was reiterated that all comments must be Nationally supported, individual's comments are not to be considered. Comment must be submitted through the relevant NSB after approval by the National mirror committee.

The CHAIRMAN endorsed this sentiment and **RESOLUTION 146** was agreed accordingly.

Members expressed concern that the proposed procedures also apply to documents approaching FV. which could cause delays and send the wrong messages to PTs that delays are acceptable. The CHAIRMAN stated that a slight delay for a harmonized Eurocode is much more preferable than the catastrophic scenario of a Eurocode containing mistakes and inconsistencies which would subsequently require correction. Therefore slight extension to target dates may be necessary in certain extenuating circumstances. Jan STARK supported by Han-Ulrich LITZNER considered that the converse would be more probable. Processes and dates should at least be maintained or even bettered, on the basis that procedures and responsibility is more clearly defined.

Gerhard SEDLACEK noted that whilst the overall responsibility for the co-ordination matters rests with CEN/TC 250, it has the authority to deputise the Co-ordination Group (CG).

Peter MATT suggested that given there are 62 drafts it is unlikely that there will be agreement on every one, therefore there should be a mechanism in place to arbitrate in cases of conflict.

Giorgio MACCHI on behalf of the Italian delegation expressed their concerns that competition between materials during the conversion process (ENV to EN) may lead to an overall reduction in safety of structures.

Any reduction in safety is not the wish of the users of Eurocodes and any compromise of safety could have major implications in terms of social costs compared with the minimal economic advantages in terms of the overall cost of the building and infrastructure.

Giorgio MACCHI gave a hypothetical example of the failure of one column in a building could lead to a catastrophic collapse of the total building. It is the belief of the Italian delegation that a better way for improvements in economy of structural design is through better control systems. Any reduction in of γ_m must be in conjunction with a change in the design rules.

Haig GULVANESEAN concurred, adding that the paper written by himself and Gerhard SEDLACEK on "Research needs", which might be of interest to the Commission, will take account of Giorgio MACCHI'S comments at the next revision in a few weeks time.

Action: GS/HG

Members discussed at length the comments from the Italian delegation and noted that in the vast majority of cases, failure is due to human errors in poor design or execution.

In principle all members agreed that safety must not be compromised solely for economic reasons, noting that improvements can be attained through better materials and control in manufacture.

Members agreed that advice or help should be offered to National Regulators who are tasked with setting γ_m factors for the National Annexes.

After further discussion, the CHAIRMAN noted that member states are free to set safety factors and CEN/TC 250 cannot decide this. However it was requested that a more detailed discussion should take place at the next CG meeting in October and requested the SECRETARY to include the topic in the CG Agenda.

Action: SECRETARY

10 b) Consideration of the formation of new HG - Generic rules

At the CG meeting in Zurich, it was proposed in the report on the "Elimination of inconsistencies" that the Ad-hoc group tasked with this work should be given the status of a Horizontal Group (HG - Generic rules). However members agreed with John MOORE that as the Ad-hoc Group had made good progress there was no need to create a new HG.

10 c) Report from Ad - hoc Group meeting

This item of the agenda was covered under item 10 a) and Jan STARK'S report on the elimination of inconsistencies.

10 d) Report on liaisons with Product TCs

Gerhard SEDLACEK and Thore HAGBERG presented document N 464 "Draft report on declared values for metallic products", together with examples of what products and kits could be considered.

The document has been further developed after discussions in the ad-hoc group drafting the Guidance Paper on Application and use of Eurocodes and in the TC 250 / TC 229 Liaison Group. The revised version "Basic rules for the declaration of properties of prefabricated structural components and their constituent materials accompanying CE-marking" is enclosed to these minutes (see Annex B)

In response to Frederico MAZZOLANI'S question Gerhard SEDLACEK confirmed that the Aluminium design codes of EC 9 will also be considered.

The CHAIRMAN welcomed Michel VALLÉS and Prof MENEGOTTO to the meeting of CEN/TC 250 and added that they have been invited to give presentations to the meeting.

Michel VALLÉS gave a presentation to explain the problems that CEN/TC 229 are experiencing with their product codes. The main problem relates to referencing design rules in product standards and the unavailability of the Eurocodes at the present time is causing delays to the harmonized product standards.

Citing the progress of prEN 13369 Common rules, it was noted that the work on this draft has stopped because of the problem of reference to Eurocode 2 (prEN 1992-1-1) which will not be available until December 2001 in the final draft form. The target date for the Formal vote draft of prEN 1992-1-1 is May 2002 which is the first publicly available draft that can be used for cross-referencing.

However prEN 13369 which has already passed CEN Enquiry is scheduled to be revised for a UAP draft by 26 February 2002 at the CEN/TC 229 SCG meeting. The unavailability of prEN 1992-1-1, means that this schedule can no longer be attained and work on the revision has stopped. As a consequence CEN/TC 229 have scheduled a new date of June 2002 for the formal vote draft, to coincide with their meeting on 24/25 06 2002.

It was noted that product standard drafts from CEN/TC 229, which haven't been sent to Enquiry, continue to be drafted using ENV 1992-1-1 as a reference.

Michel VALLÉS listed some 9 drafts which have already passed CEN Enquiry some time ago on which work has been suspended awaiting pending the availability of prEN 1992-1-1 (see annex C). Technically these drafts were completed 5 years ago but will not be sent for Formal Vote until May 2002 at the earliest. It was noted that the constraints on preparing harmonized product standards is that they must cover all products legally placed on the market in member countries.

Roger FRANK referring to prEN 12794 Precast concrete piles, questioned whether there should be a liaison formed between CEN/TC 229 drafting TG and SC 7 "Geotechnical". Michel VALLÉS commented that whilst there isn't a liaison at present he would be happy to have one, noting that all CEN/TC 229 drafts will be sent to CEN/TC 250. Michel VALLÉS agreed to send the latest draft of prEN 12794 to Roger FRANK for him to check whether liaison is required.

Action: RF/MV

Marco MENEGOTTO reported on the Joint Working Group of CEN/TC 250/ SC 2 and CEN/TC 229 which has been tasked by the Ad-hoc Liaison Group to draft a new chapter 12 for prEN 1992-1-1 on "additional rules for precast elements and structures".

Describing the background to the JWG work, Marco MENEGOTTO noted that there was an overlap of proposals between ENV 1992-1-1 and ENV 1992-1-3 which resulted in confusion. However as it has been decided to merge the ENVs into prEN 1992-1-1, this should remove the confusion. There were two requirements that designers in the precast industry required, those dealing directly with prefabrication require specific rules whereas others require specific references. As a compromise it was decided to introduce a new clause (12) into prEN 1992-1-1 rather than produce a separate standard.

Comprising 3 experts from CEN/TC 229 and 3 experts from CEN/TC 250/SC 2 under the Convenorship of Marco MENEGOTTO, it was reported that the JWG have worked from March 2001 to produce the draft amendments to prEN 1992-1-1, especially the new chapter 12. In general the JWG have reached agreement, however there are issues such as reinforcement which need to be resolved. It was also noted that concrete cover remains a delicate issue for legal reasons.

The new chapter 12 will be revised between July and September 2001 by the JWG, to take account of comments that have been received, in readiness for an objective review in September. Haig GULVANESSIAN agreed to assist the JWG in achieving their targets by providing partial factors from Basis of Structural Design.

Action: HG

There followed a general discussion by the members on the presentations of Michel VALLÉS and Marco MENEGOTTO and the success of the liaisons.

The CHAIRMAN in thanking Messrs VALLÉS and MENEGOTTO for their attendance at this CEN/TC 250 meeting noted that the instruction from the Commission to create a pilot liaison has been successful and hoped that liaison has been beneficial to CEN/TC 229 also.

11 ENC GROUP and SCC

Jean MOREAU DE SAINT MARTIN reported on the last meeting of the ENC Group on 15th & 16th March 2001, as Barry HASELTINE did not attend. Recognizing that design codes are not compulsory for member states, the discussion at the meeting was in the main on national regulations and the implication of the co-existence period.

It was noted that document N 450 Draft Guidance Paper (version 8) appears considerably different from previous versions. Whilst the content is essentially the same, it has been redrafted to be more "user friendly" and some annexes have been either deleted completely or incorporated into the body of the text.

The Volunteer Group had met on the 11 & 12 June to finalize up to Section 3 but this revision has not been circulated. Another meeting of the VG will take place on 11 & 12 July to complete sections 3 & 4 which will then enable a good draft (version 9?) to be available for the next ENC Group meeting in September. Subject to agreement at the ENC Group meeting the draft will be sent to the SCC for approval at their December meeting.

Barry HASELTINE emphasised that National provisions should avoid the permissive use of alternative rules as this will invalidate claims that the "design complies with the Eurocode" as it will only "comply with the Principles of the Eurocode". The design must comply with all applicable Eurocodes to claim compliance.

Explaining the Transitional arrangements of Annex B, Barry HASELTINE reported that depending on the package, from the availability of the Final draft (stage 49) of the first part to DOW could be between 5 years 6 months to a maximum of 9 years 6 months.

It was noted that Haig GULVANESSIAN and Barry HASELTINE will précis Section 4 "Future actions relating to Eurocode Programme" as this is considered as being too long.

Giles LABEEUW added that Nationally Determined Parameters do not replace old boxed values of the ENVs but are for safety only.

12 BASIS OF STRUCTURAL DESIGN

Haig GULVANESSIAN as Convenor of the PT BoD, reported that he had been informed by CMC that the draft will be circulated for Formal Vote in the third week of July, which will hopefully include the editorial change identified during the previous discussions under item 9.

It was reported that the Bridge part, Annex A.2, will be considered at the SC 1 meeting Madrid in October. PT BoD will check other annexes to ensure compatibility and then the draft of Annex A.2 will be circulated to members of CEN/TC 250 for voting at the November meeting.

Haig GULVANESSIAN commented that document N 465 on Research needs for the Structural Eurocodes prepared by Messrs Gulvanessian and Sedlacek, will be updated within one month and requested comments from members. It was agreed that the CHAIRMAN should send the revised document to Mr LEOZ ARGUILLES at the Commission as the recommendations from CEN/TC 250.

Action: CHAIRMAN

With reference to the other Annexes (A.3, A.4, A.5) to prEN 1990, Haig GULVANESSIAN added that whilst the exact programme is not known he will a covering letter to go with A.2.

Action: HG

Haig GULVANESSIAN reported on the activities that are being arranged to notify the public of the pending arrival of prEN 1990 and the suite of Eurocodes. The Commission together with Messrs

GULVANESSION, SEDLACEK, CALGARO, ZIEFERT and others are arranging a launch of prEN 1990. There are also lectures being arranged to take place in Pisa, Prague, London and Delft.

12 SUB-COMMITTEE REPORTS

As time did not permit detailed reports, SC Chairmen gave brief comments to supplement their written reports.

SC 1 -(N 452) - Haig GULVANESSION reported that ISO/TC 98 have just issued the FDIS of ISO 12194 "Atmospheric icing of structures" and suggested that it would be a suitable code to convert to an EN as it is applicable to SC 3 codes, in particular Towers and masts.

Jean MOREAU DE SAINT MARTIN suggested that the ISO/FDIS is not sufficiently mature to adopt as an EN without further work and therefore recommended that it should be considered as an ENV.

SC 2 - Hans-Ulrich LITZNER stated that there was nothing to add to the SC 2 report (N 470).

SC 3 - Frans BIJLAARD reported that prENs 1993-1-1, 1-8 and 1-9 are in the process of being finalized and are on time.

SC 4 - Jan STARK for SC 4 noted that there was a typographical error in his tabled report N 469, ENV 1994-2 should read "Composite Bridges" and not "Structural Fire Design" as stated

SC 5 - In addition to report N 457, Juergen Koenig reported the PT for prEN 1995-1-1 has achieved it's contractual obligations producing the stage 34 draft in May. Copies of the draft have been informally sent to AFNOR and DIN to get the translations underway. The vote on prEN 1995-1-1 is scheduled for November 2001 in line with the work programme. The Fire part prEN 1995-1-2 is on schedule for stage 34 in October 2001 and the stage 32 draft on the bridge part prEN 1995-2 is on schedule also for October 2001.

SC 6 - Tor-Ulf WECK referred members to the report of the CG meeting in March (Zurich) adding that only part of the voluminous comments received on prEN 1996-1-1 were addressed at the SC 6 meeting in Milan in March. The outstanding comments will be addressed at the next SC 6 meeting. However there has not been an opportunity to produce a comments database. It was noted that drafts of SC 6 will be sent electronically to heads of national delegations well in advance of the next SC 6 meeting.

The CEN/TC 250/SC 6 report for the period January to June 2001 is appended to this report (see Annex D).

SC 7 - Roger FRANK referred members to document N 460 adding that PT 1 will finalize the draft of prEN 1997-1(stage 34) in November which is approximately 6 months ahead of schedule. It was noted that the Project Teams for prEN 1997-2 and prEN 1997-3 approved in resolution 139 of this meeting will commence work in November 2001.

SC 8 - Michael FARDIS commented that in addition to his report (N 459) SC 8 have now received the stage 32 draft of Part 3 and all parts are now on schedule. Michael FARDIS added that he expects the stage 34 drafts for Parts 1 and 5 in November, however to check the compatibility of the SC 8 drafts, he requires the impacting drafts from the SC 2, SC 3, SC 4, SC 5 and SC 7. It was noted that SC 8 have formed good liaisons not only within the SCs of CEN/TC 250 but also with CEN/TC 229 and CEN/TC 167/SC 1 on anti-seismic structural bearings.

SC 9 - It was noted that the first meeting of SC 9 took place since approval to convert ENVs 1999-1-1, 1-2 and 2, in May 2001. At the meeting it was agreed to create four Project Teams as agreed in Resolution 141.

13 SECRETARIAT MATTERS

There was nothing further to report under this item.

14 CMC and BT MATTERS.

The SECRETARY reported that there will a Conference held in Brussels on the 4th and 5th of December 2001 on the topic of "Construction products for the single market: Expectations and Reality". Literature was made available at the meeting or alternatively information can be found at:

www.cenorm.be/news/conferences/construction.htm

15 ANY OTHER BUSINESS

There were no matters raised under this item.

16 ARRANGEMENTS FOR FUTURE MEETINGS

At the kind invitation of the UK delegation, the next meeting of CEN/TC 250 (twentieth) will be held on 26th and 27th of November 2001 at BSI, London.

The twenty-first meeting of CEN/TC 250 was provisionally arranged for 16th & 17th May 2002 possibly in the Netherlands.

It was also agreed that the twentieth meeting of the CEN/TC 250/-/1 CG will take in Paris on the 8th & 9th of October 2001 in Paris and the twenty-first CG meeting will take place on 14th and 15th March 2002 possibly in Cyprus.

17 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed unanimously by the members of CEN/TC 250 (see N 475) at the Milan meeting:

RESOLUTION 135 - Approval of the amended membership of the Project Team for prEN 1991-1-7

RESOLUTION 136 - Approval of Project Team membership for prEN 1992-3.

RESOLUTION 137 - Approval of Project Team membership for prEN 1993-1-6, prEN 1993-1-7, prEN 1993-4-1, prEN 1993-4-2, prEN 1993-4-3, prEN 1993-5 and prEN 1993-6

RESOLUTION 138 - Approval of Project Team membership for prEN 1996-1-3, prEN 1996-2 and prEN 1996-3.

RESOLUTION 139 - Approval of Project Team membership for prEN 1997-2 and prEN 1997-3.

RESOLUTION 140 - Approval of Project Team membership for prEN 1998-4

RESOLUTION 141 - Approval of Project Team membership for prEN 1999-1-1(a), prEN 1999-1-1(b), prEN 1999-1-2 and prEN 1999-2.

RESOLUTION 142 - Re-appointment of Sub-Committee Chairmen for SC 7 and SC 9.

RESOLUTION 143 - CMC Editing process.

RESOLUTION 144 - Numbering of prEN 1999 (Aluminium) parts.

RESOLUTION 145 - P.T. compliance with co-ordination agreements.

RESOLUTION 146 - National comments on prENs.

18 CLOSING OF MEETING

The Chairman thanked Giorgio MACCHI and the Italian delegation for their kind hospitality in hosting this meeting of CEN/TC 250. Summarizing the CHAIRMAN noted that progress is being

maintained despite the difficult environment and thanked especially the sub-committee Chairmen for their efforts in this direction. CEN/TC 250 is committed to resolving the problems of liaison with product TCs and elimination of inconsistencies, and requests all members to have as much bi-lateral contact as possible especially with the ENC Group and the relevant CEN/TCs. Finally, the CHAIRMAN thanked all delegates for their attendance at the meeting and looked forward to meeting them at the next CEN/TC 250 meeting in London.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTIETH MEETING OF CEN/TC 250 HELD IN
LONDON ON 26 & 27 NOVEMBER 2001**

1. OPENING THE MEETING

John MOORE as leader of the UK delegation welcomed the members to London noting that it is 10 years since CEN/TC 250 last met in London. It was announced that delegates were invited to dinner to be held at Imperial College in the evening. The dinner was sponsored by the following organizations: Department of Transport Local Government and the Regions (DTLR), British Cement Association (BCA), Babcie Consulting, BRE, and Steel Construction Institute (SCI). David Lazenby as Director of Standards at BSI welcomed the delegates to BSI adding that this is BSI's centenary year. He also recalled his fond memories of CEN/TC 250 as Chairman for 8 years. He explained that BSI is a global operation covering standards, quality systems assessment and inspection and testing and employing some 4500 staff. He noted that the topics on the agenda for this meeting appeared to be very similar to those that were being discussed when he was Chairman and implored CEN/TC 250 to speed up the process and start publishing Eurocodes. The CHAIRMAN endorsed these sentiments and declared the meeting open.

2. ROLL CALL

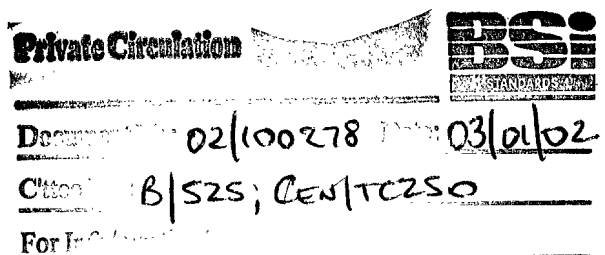
All members introduced themselves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

J-A CALGARO	-	French language
K. WEYNAND	-	German language
G HARDING	-	English language

CEN/TC 250 Secretariat -
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4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report thanked the UK for hosting the Twentieth meeting of CEN/TC 250 and added that the work on Eurocodes is proceeding well. Whilst TC 250 does have problems with certain Product TCs, which are being resolved, there are many others who are supportive and relying on Eurocode, therefore we should be optimistic.

The conversion work is ongoing however there is a burden on the Project Teams to harmonize Eurocodes with product standards and ETAs etc. The CHAIRMAN thanked all the SC Chairmen, delegates and experts who are working hard to produce the drafts and was pleased to note that two parts (EN 1990 and EN 1991-1-1) have now been approved as European Standards. He added that with several others progressing towards Formal Vote he expressed his optimism that the Eurocode Programme was well under way. Noting that the agenda was considerable he requested that reports should be as brief as possible and hoped there would not be long circular debate.

Referring to the resolution taken in Milan, the Chairman reiterated that it is the SC Chairmen's responsibility to accelerate the conversion programme. Adding that late solutions are useless they must be delivered now or they will have to be covered in the first revision of the code.

ADOPTION OF AGENDA

Jean MOREAU DE SAINT MARTIN commented that documents are still being received too late for meetings. This causes problems for the French mirror committee to establish the French view on issues. The SECRETARY agreed that documents are received late giving little possibility of circulation on time. However on the second day there will be a presentation on the Livelink electronic document distribution which will alleviate the delay, currently experienced with the pan European postal services.

The agenda was adopted without change.

5. FOLLOW-UP TO THE NINETEENTH MEETING OF CEN/TC 250 IN MILAN

a) The draft report (N 472) of the nineteenth meeting of CEN/TC 250 held in Milan on the 28 & 29 June 2001 was confirmed subject to the following comment:

Leonard BUTH commented that the background document to EN 1990 requested by Jan GIJSBERS has not been circulated and questioned whether it would be produced. Haig GULVANESSIAN as the Convenor of BOD PT added that the collage of comments with the PT's responses would be impossible to produce. This was due to the number of progressive revisions of the draft before it was finalized. As comments were received on most drafts, continual change was effective and the tracking of changes would be impossible. However Haig GULVANESSIAN offered any CEN Member wishing to know the treatment of their comment to contact him and/or the PT to discuss them on an individual basis.

It was reported that the EU sponsored lectures under the "Leonardo programme" on the application of Eurocodes in construction, has generated papers by Gerhard SEDLACEK,

Jana MARKOVA, Milan HOLICKY et al. These papers could be combined to form a background document which Haig GULVANESSIAN agreed to collate and circulate.

Action: HG

Leonard BUTH also raised the issue that in section 9 of the report it states that the Symbols should be stated in the sequence of Latin upper case, Latin lower case, Greek upper case and Greek lower case as in EN 1990. He believes that this is not in agreement with CEN rules or N 466, Ashok GANESH agreed to investigate and report back although he felt that this is not a major issue to the CEN Editors.

Action: AG

b) Resolutions

Subject to the following change requested by Joel KRUPPA, the resolutions agreed at the Milan meeting (document N 475) were approved.

Resolution No. 141 item c), Joel Kruppa commented that the Project Team for prEN 1999-1-2 should include himself as an ex-officio member of the PT. This was agreed to be corrected.

Action: JES

Giorgio MACCHI referring to document N 476 Resolution by Correspondence No. 147, noted that Italy's vote had not been registered. The SECRETARY responding added that he could only report on votes that he had been received and in this case he had not received anything from Italy. Eduardo CARVALHO added that Portugal had also voted but this was not reported. The SECRETARY confirmed that he had just received a fax from IPQ stating that they had voted within the deadline and confirmed their vote as 1B) for conversion of all items in the resolution.

Giorgio MACCHI added that Italy's vote for the EC 3 items would be 1B) and that he would check with UNI what the vote would be for the EC 7 items.

Action: GM

The SECRETARY agreed for completeness to re-circulate the resolution including the votes from Italy and Portugal, although these votes would only endorse the decision to convert via route 1B).

Action: SECRETARY

The SECRETARY reported that where members had responded to the correspondence resolutions circulated as document N 476 all responses had been positive. Consequently the following resolution was agreed:

Correspondence Resolution 147 (N 476)

CEN/TC 250 Structural Eurocodes

SUBJECT: CEN/TC 250 review of:
ENV 1993-1-6, ENV 1993-1-7, ENV 1993-4-1, ENV 1993-4-2, ENV 1993-4-3, ENV 1993-6, ENV 1997-2 and ENV 1997-3

The CEN/TC250

- considering the CEN/CENELEC Internal Regulations Part 2, sub-clause 7.2, stating the actions to be taken after the review of an ENV;
- considering the result and comments made during the review of the ENV's listed above.

Decides to convert these ENV's into prENs for formal vote after updating, taking into account the comments made during the ENV period and during the review. Standstill is hereby initiated.

Target dates for stage 49:

ENV 1993-1-6	March 2004	ENV 1993-4-3	July 2004
ENV 1993-1-7	March 2004	ENV 1993-6,	February 2004
ENV 1993-4-1	July 2004	ENV 1997-2	January 2004
ENV 1993-4-2	July 2004	ENV 1997-3	January 2004

c) All topics were covered by the agenda, therefore there was nothing further to discuss under this item of the agenda.

6. FOLLOW-UP TO THE TWENTY-FIRST MEETING OF CO-ORDINATION GROUP IN PARIS

a) To note the CG Draft Report (CG N 1414)

As the draft was only issued the week before the TC 250 meeting, the CHAIRMAN gave a verbal report on the proceedings of the CG meeting. It was noted that this was the first meeting of TC 250, that Pascal BAR from the Commission had attended, and it gave him an insight into the current status of Eurocode Conversion Programme. Noting the reports from the SC Chairmen, the CHAIRMAN highlighted the significant issues which were discussed from each SC.

b) Items for TC approval not covered by the Agenda

The CHAIRMAN reported that a significant discussion topic at the CG was the disagreement between EC 2 and EC 4. on thermal properties of concrete. This issue would be covered by Joel KRUPPA in his report, later in the meeting. (item 13)

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

John STRATFORD reported on the current status of contracts for Project Team experts.

i) Phase 1 conversions (1997 Budget)

With the exception of the following, all have been agreed and signed:-
 PROF. K. ZILCH of TECHNISCHE UNIVERSITAT MUNCHEN for EN1992-1-1 remains outstanding.

Action: H-UL

ii) Phase 2 conversions (1998 Budget)

The following 3 contracts have still not been signed and returned;-

R. FILA - OESTERREICHISCHE BUNDESBAHN for EN1991-2
PROF.C.MODENA - UNIVERSITY OF PADOVA for EN1996-1-1
C. HAHN - HAHN CONSULT GmbH for EN1996-1-2 (Convenor)

Action: T-UW

iii) Phase 3 conversions (1999 Budget)

There remain 17 experts who have yet to sign their contracts.

Action: JES & SC CHAIRMEN

iv) Phase 4 conversions (2000 Budget)

John STRATFORD reported that the SECRETARIAT still have 7 Project Teams to issue with contracts (6 from SC 3 and 1 from SC 4). As requested at the Paris meeting of the CG, SC Secretariats must supply the name of the expert (including email address) and the name and address of the organization to be the Contractor. The CHAIRMAN requested that the appropriate SC Chairmen, in consultation with John STRATFORD, expedite the outstanding contracts to ensure that they are signed and returned as soon as possible.

Action: H-UL/FB/JES

b) Review of Conversion programme

Members were referred to the recently circulated document N 455 Rev.1 noting that the achievement dates have been updated to align with N 486 from CMC. Also taken into consideration were the changes to the Target Dates resulting from decisions at the CG. Tor-Ulf WECK requested a change to Target Dates for prEN 1996-1-1, prEN 1996-1-2, and prEN 1996-1-3 for stage 49 from Oct. 02 to Dec. 02. This is due an International conference on Masonry being held in October 2002 which will provide a good forum for discussions on the drafts and act as a pre-meeting for SC 6. Furthermore a meeting of CEN/TC 250/SC 6 is scheduled for November 2002 when it is hoped the drafts will receive acceptance to go forward to Formal Vote.

Members discussed the reasons for delay between stage 34 and stage 49 drafts and agreed that the dates are "Targets" but recognized every effort should be made to achieve them.

c) Confirmation of Phase 4 Project Teams and any amendments to previous Phases.

John STRATFORD noted that under Phase 3, J Eibl had withdrawn from PT prEN 1991-4 and C Ruckenbrod will replace him, also P Racher replaces P Boussaguet in PT prEN 1995-2. The vacancy in PT prEN 1993-1-4 will be filled by H Stangenberg and the vacancy in PT prEN 1993-1-11 will be filled by B Gehlen.

For Phase 4 Project Teams, the following changes were noted to amend the resolutions agreed in Milan. Greiner replaces Cortade in PT prEN 1992-3 and V Escario replaces J Saez in PT prEN 1997-2.

RESOLUTION 148 was agreed accordingly.

John STRATFORD noted that Mr Kelly had retired and questioned whether there would be a replacement for him in PT prEN 1996-1-2. Tor-Ulf WECK commented that he would discuss this with the PT convenor (C HAHN)

Action: T-UW

8. SUB-COMMITTEE CHAIRMEN & HG CONVENORS

a) To confirm the re-appointment of the SC 8 Chairman.

Eduardo CARVALHO referred members to document N 477 noting that CEN/TC 250/SC 8 recommend that Michael FARDIS should be re-appointed Chairman of SC 8 for a further three years. CEN/TC 250 unanimously endorsed the proposal and agreed a resolution accordingly.

RESOLUTION 150

b) Appointment of new Convenor of HG - Bridges

The CHAIRMAN introduced the subject, referring members to the letter he had received from Henri MATHIEU (document N 496) via Jean MOREAU DE SAINT MARTIN. He reported that after receiving the letter, he had a long discussion with Henri MATHIEU, and concluded that this is a convenient point for him to retire from both an age and work perspective. As stated in his letter Henri MATHIEU, recommended that Jean-Armand CALGARO would be an ideal replacement.

Giorgio MACCHI endorsed the recommendation and noted that he had worked with Henri MATHIEU for many years and found him to be a man of exceptional intelligence. Adding that Henri MATHIEU had been responsible for two notable bulletins, which although drafted many years ago are still leading documents and even now are considered the standards to work to.

After discussion CEN/TC 250 endorsed the recommendations of Henri MATHIEU to appoint Jean-Armand CALGARO as Convenor of HG-Bridges. It was also agreed that an invitation should be extended to Henri MATHIEU to attend a celebration at the next TC 250 meeting in the Netherlands in May. The CHAIRMAN agreed to personally invite him.

Action: CHAIRMAN

RESOLUTION 151 was agreed.

9 POLICY GUIDELINES AND PROCEDURES (N 250)

John MOORE as Convenor of WG 1 updated members on the current situation with version C of N 250. Members of CEN/TC 250 were reminded of the discussions and recommendations for Annex K (document CG N 1381) from the Milan meeting with a request to WG 1 to circulate as soon as possible. The document (Annexes K, L & P and clause 7.3 to 7.9 and 7.16) was circulated to SC Chairman and Secretaries, at the beginning of August. However as Sub Committees were still asking questions it was decided to wait until the Paris CG for wider discussion.

At the CG, Jan STARK presented proposals for the model clauses of prEN 1994-1-1 and Jacques LARAVOIRE agreed that WG 1 would consider these and respond accordingly. In response to the proposals from Jan STARK, Annex K has been revised and was

circulated at the Chairmen's meeting on 26/11/01. However at the meeting, concern was expressed at the level of detail which Annex K now contains, it was noted that this is specific to Fire.

John MOORE stated that the proposed N 250 C, apart from revised Section 7 and Annexes K, L, M and N now contains a new Annex P giving examples on the use of Nationally Determined Parameters and National Annexes. It was also noted that Annex E has been removed and replaced with a reference to the latest revision of N 455, as this document is also considered a "living document" and therefore subject to change. Jean MOREAU DE SAINT MARTIN recognising the achievement of WG 1, questioned whether it will be modified by the ENC Guidance Paper and suggested that the CHAIRMAN should write a covering letter to the document.

Jan STARK suggested that ways of controlling the information and instruction to the PTs should be considered to ensure all PTs are working consistently.

Barry HASELTINE expressed his concern that some PT drafts will allow the National Annexes to produce National Codes. This practice should be stopped and he supported the concept of a covering letter from the CHAIRMAN in which this point is clarified.

The CHAIRMAN agreed to draft a covering letter

Action: CHAIRMAN

Referring to the document circulated at the Chairmen's meeting, John MOORE explained the framework of Annex K and recognised that clarification of the Fire part D is required, noting that this is additional to EN 1990 when appropriate.

Gerhard SEDLACEK added that it is ideal to use EN 1990 as this has passed Formal Vote and suggested examples should be developed which would be considered as good models.

Jan STARK added that based on his experiences with prEN 1994, the models from EN 1990 cannot be followed for material dependant codes. Jan STARK proposed that model sections should be developed specifically for SC 2, SC 3 and SC 4 and suggested that David Anderson at Warwick University should be consulted.

After further discussion it was agreed that John MOORE, Jacques LARAVOIRE and Joel KRUPPA would agree an amendment to Annex K, and electronically circulate the document for comment. This should be done within a two-week timescale before circulating to PT experts.

Action: JM/JL/JK

10. ELIMINATION OF INCONSISTENCIES

a) Review of progress in resolving Eurocode inconsistencies

Jan STARK reported that there were a number of points raised in ENVs, which were generally material dependant issues. The Chairmen of SC 2, SC 3 and SC 4 have met several times with a view to the elimination of inconsistencies and at each meeting have agreed actions. These agreed actions have been entrusted to the relevant sub-committee to implement through the PTs to eliminate inconsistencies.

The results of these deliberations resulted in the document produced at the Chairmen's meeting in Milan N 471A and the model sections for 1 & 2 in N 468. Jan STARK reported that the material dependant PTs have paid close attention to get them as close as possible to the model sections.

Paul LUECHINGER requested that members states contribute and supply him with limits or values of deformation. It was noted that Belgium, Czech Republic, Germany, Spain, Finland and Netherlands have already contributed.

Action: CEN/TC 250 Members

10 b) Report on liaison meetings with Product TCs

i) CEN/TC 229

Deputising for Hans-Ulrich LITZNER, Nary NARAYANAN reported that the liaisons between CEN/TC 250/SC 2 and CEN/TC 229 were productive and have been finalized to the satisfaction of all. Explaining the background it was noted that in order to overcome the problem of TC 229 introducing design rules into their product standards, a compromise was agreed by the inclusion of a new clause in prEN 1992-1-1. This new clause has been drafted in close co-operation with experts of TC 229, particularly Marco MENEGOTTO.

Gerhard SEDLACEK added that there has been a particular problem on specifying performance and γ values due to the multi-constituent nature of concrete. This is obviously much more simple with homogeneous materials.

Barry HASELTINE noted that there is a strong recognition of design values in the ENC Guidance Paper.

Peter MATT expressed concern that only ultimate strength was considered and thought that in CE marking and labelling of products where Eurocode designs had been used, matters such as concrete cover should be considered.

ii) CEN/TC 167

Gerhard SEDLACEK reported on discussions that have taken place between TC 250 and TC 167 Structural bearings. The draft of prEN 1337-5 "Pot bearings" has been checked against the Eurocode bridge drafts for consistency. The conclusion of the comparison is that both the Eurocode drafts and prEN 1337-5 should be amended. Gerhard SEDLACEK reported that there is not a clearly defined interface between bridge design and the design and technical specification of bearings. He recommended that all parts should be aligned as identified by the CEN consultant. These are now stopped awaiting further discussions between the TCs.

iii) EOTA

The CHAIRMAN reported that there had been two liaison meetings with EOTA, the first on 20 March 2001 with the Chairmen of the EOTA WGs for timber frame kits, anchors, stressed skin panels and nailing plate kits. The second meeting was held on 20th November 2001 with representatives of structural joint building kits, stair kits, timber frame kits and nailing plate kits.

The CHAIRMAN added that EOTA only have rules for the design of the kits e.g. stair kits. Both meetings were successful in explaining exactly what the ENC Guidance Paper contains. EOTA have expressed concern that they need their own design rules due to the need for flexibility in innovative designs. The CHAIRMAN believes that EOTA experts now understand and have asked TC 250 for help. Unfortunately we in TC 250 haven't the resources to help all liaison parties.

11 ENC GROUP and SCC

a) Barry HASELTINE reporting on the last meeting of the ENC Group stated that most of the discussion was on the Guidance Paper. It was also noted that whilst all SC

Chairmen are invited to attend there were very few in attendance and it was suggested that TC 250 should play a strong role at the ENC. Barry HASELTINE added that the ENC Group is not solely confined to drafting the Guidance Paper, future considerations are issues such as the impact of Eurocodes on Product standards. The next meeting of the ENC Group will be in the New Year.

b) Barry HASELTINE commented that he had just received the final draft of the Guidance Paper version 8.8 dated 27/11/01 which will be sent to the Standing Committee for final approval at the December meeting, hence achieving the objective. It was noted that the objectives were achieved largely due to the personal efforts of Pascal BAR who has improved the document considerably. Whilst noting that it is still a complicated document the extended definitions and extra references to other guidance documents have improved this version.

Secretary's Note: The Chairman advises me that "The Guidance Paper was adopted in the meeting of the SCC on 18/19 December 2001, except for Chapter 2.1.7 and footnote 34, where slight formal modifications need to be done by the Commission. Comment on the modification must be sent in by the end of January 2002 at the latest."

Barry HASELTINE highlighted some significant points in the latest revision of the ENC Guidance Paper:

2.1.6 National Provisions should avoid replacing any EN Eurocode provisions, e.g. Application Rules, by national rules (codes, standards, regulatory provisions, etc.).

If the National Annex permits deviation from the Eurocodes then the design will not be called "a design according to EN Eurocodes".

2.1.7 Refers to the Public Procurement Directive, which will include Eurocodes Parts when they are published.

2.2.8. No fundamental changes or new rules, should be included during the conversion from the ENV to EN, where there is insufficient, practical experience in Member States, as this may cause delay or objection.

2.3.4 A National Annex cannot change or modify the content of the EN Eurocode text in any way other than where it indicates that national choices may be made by means of Nationally Determined Parameters.

2.5 This section relates to "arrangements for the implementation of EN Eurocodes and period of co-existence with national codes" and has been redrafted for improved presentation. The section now emphasises that the maximum total permissible period for withdrawal; of conflicting National Standards is 5 years after the Date of Availability (DAV).

3 This section gives treatment and clarification on CE marking - structural products and elements under the CPD where there is an element of design and relation to Eurocodes.

3.3 Completely rearranged giving 3 methods of achieving CE marking

Method 1 - CE marking based on data of geometry and material properties only

Method 2 - CE marking based on design data calculated according to Eurocodes (including transitional arrangements)

Method 3 - Client's order

3.3.5 New Clause on "Attestation of conformity"

Notified Bodies (third parties) will check the design calculations for "mechanical resistance and stability" and "fire safety" during the initial type testing phase.

Annex A

This has been subject to editing but is generally the same

Giorgio MACCHI questioned how the definition periods in 2.5.4 would be implemented. Clarifying Barry HASELTINE stated that the Commission request member states to adapt their national provisions to align with Eurocodes during the co-existence period. Members discussed in general the confusion that exists regarding dates for drafts to sub-committees, coexistence period and implementation dates with respect to packages. Ashok GANESH referred members to document N 484, in which it is spelt out and noted that it is a common sense approach. The SECRETARY was requested to clarify the dates in the report.

The following key time-scale should apply, assuming the ideal:

Examination Period (CEN/TC250/SC) 2 months to 6 months (max) - Consider maturity and suitability of stage 34 draft from PT. Note: This consideration can be achieved by correspondence.

Process Period (CEN) 8 months - Translation into official CEN languages CEN Editing and Formal vote.

Date of Availability (DAV) (CEN) - Issue of ratified text after Formal Vote and inclusion of editorial comment. - Immediate.

National Calibration Period (Member States) 2 years - This period includes a 12 month translation into all EU languages. Member states define NDPs and draft National Annexes.

Publication of Eurocode with National Annex (NSB)

Co-existence period (Member bodies) - 3 years for last part of package

Date of Withdrawal (DOW) - (NSB) Withdrawal of conflicting National Standards

Note: Assuming no delay and voting is positive for all parts for the last package which includes prEN 1993-4-1, 4-2 and 4-3 (Target date stage 49 - July 2004), then the implementation of the full Eurocode Programme will be effective on which will include withdrawal of all National structural codes:

July 2004 + 8 months + 5 years = March 2010.

John MOORE noted that it had been the intention for the Commission to post the National Annexes on a website, however it was stated that the Commission have revised this concept due to copyright problems of publishing NAs.

c) EU Eurocode Launch

Barry HASELTINE reported that the Commission through Pascal BAR are to hold an official launch of Eurocodes, which was announced at the CG meeting in Paris. The date as yet has not been decided but it will either be June or October 2002. The Commission are preparing tenders for speakers and organizations to participate in running the event.

Secretary's Note: Subsequent to the meeting, Pascal BAR has suggested that the Seminar on Eurocodes may well be held at the Commission either on the 25th or 27th June 2002 in Brussels.

d) Packages of Eurocodes

Ashok GANESH referred members to document N 483 Rev.1 and noted that the document is based on the 17 packages identified by CEN/TC 250. Each package contains one critical part, which effectively controls the Date of Withdrawal (DOW) of conflicting National standards with all parts in the package. As noted previously, the document is based on a period of 5 years and 8 months between stage 49 and DOW. It was noted that this document will be the basis of Annex C in the Guidance Paper, which will be sent to the Standing Committee in December 2001, and consequently members should approve the framework of the document within 14 days and send comments to Ashok GANESH.

Action: TC 250 Members

Commenting on the document Tor-Ulf WECK noted that for Eurocode 6 it was as originally proposed, but now it is proposed that the two packages are merged into one. Jan STARK added that time is required to carefully check the packages, but questioned why SC3 parts control the packages of SC4, especially in the case of Package 4/1 (controlled by prEN 1993-1-5) compared with 3/1 (controlled by prEN 1991-1-7). Hafsteinn PALSSON suggested that the DAV should be added to the chart. Members supported this proposal and Ashok GANESH was requested to revise the document accordingly.

Action: AG

Jean MOREAU DE SAINT MARTIN noted that dates of 2009 and 2010 give a bad impression to the public and DAVs will focus and improve the impression of the Eurocode programme.

Peter MATT referring to the Formal Vote of EN 1990 and EN 1991-1-1 stated that Switzerland asked for 1 month derogation because the drafts were not available in the three official CEN languages, adding that the timing of the vote in the middle of the summer vacations was not satisfactory.

12 BASIS OF STRUCTURAL DESIGN

Haig GULVANESSIAN as Convenor of the PT BoD, briefly reported that every editorial comment received at Formal Vote will be considered, noting that comments of a technical nature will be considered at first revision.

Ashok GANESH confirmed that only editorial comments may be considered at Formal Vote. CEN send all comments to the Sub-Committee for their consideration and inclusion as appropriate.

After further discussion on whom has the responsibility to decide what comments are included, the CHAIRMAN requested a procedure to be developed for the next CG meeting in March 2002.

Action: SECRETARIAT

a) Annex A.2 Bridges

It was reported that the Bridge part, Annex A.2, should have been circulated 2 months ago however the decision to remove the dynamic modelling and comfort criteria on footbridges and move to prEN 1991-2, has caused the delay.

Jean-Armand CALGARO spoke concerning the need for EN 1990 Annex A.2 (Basis of Structural Design - Bridges) to be properly integrated with the programmes for other ENs necessary for bridge design i.e. EN 1990, EN 1991-1-1, EN 1991-1-2, EN 1992-2, EN 1993-2, EN 1994-2, EN 1995-2, EN 1998-2 and possibly EN 1997-1. From analysis of target dates for Formal Votes on other related bridge parts, Annex A.2 needs to be put for Formal Vote in mid to late 2002. To achieve this he suggested it should initially only deal with established design criteria. Areas which remain open for further research and experiment should be omitted at this stage e.g. vibration in footbridges. Such other items are likely to be included in Research and Development programmes and published initially as CEN Reports or separately as learned papers.

Haig GULVANESSIAN reported that the final PT draft of Annex A.2 will be circulated in mid March 2002 for members of CEN/TC 250 to decide at the May 2002 meeting. However as an interim measure it was decided that the latest draft should be sent to the SECRETARY for circulation and comment within 1 month.

Action: SECRETARY/HG/J-AC

Further discussion ensued regarding the responsibility for Annex A.2, noting that EN 1990 is the responsibility of CEN/TC 250 and not SC 1. It was also discussed that Annex A.2, which will be implemented as an amendment to EN 1990 has been undertaken without following the official procedures of CEN. It was recognized that a new Work Item and the time-scale must be created and a resolution was agreed accordingly.

RESOLUTION 152

b) Maintenance and Research Programme

Haig GULVANESSIAN reported that he and Paul LUECHINGER are working on the proposals which will be discussed at the next CG in March 2002. It is hoped that the concerns of Giorgio MACCHI will be addressed in a future revision of N 465. The CHAIRMAN added that the Commission are fully aware and he will be having discussions with Messrs LEOZ, VARDAKAS and BAR in January. that document N 465 on Research needs for the Structural Eurocodes prepared by Messrs GULVANESSIAN and SEDLACEK, will be updated within one month and requested comments from members. It was agreed that the CHAIRMAN should send the revised document to Mr LEOZ ARGUILLES at the Commission as the recommendations from CEN/TC 250.

Action: CHAIRMAN

13 SUB-COMMITTEE REPORTS

As time did not permit detailed reports, SC Chairmen were confined to brief comment on key topics in the respective SCs.

SC 1 -(N 485) - Haig GULVANESSIAN reported that at the Madrid meeting of SC 1 three drafts: prEN 1991-1-2 (Fire), prEN 1991-1-3 (Snow) and prEN 1991-2 (Traffic loads) were approved to go forward to Formal Vote. PrEN 1991-1-4 (Wind) received

provisional approval subject to further consultations and comment on the chapter on bridges and Annex D. It is expected that these conditions will be resolved by February. It was also noted that prEN 1991-1-5 (Thermal actions) is ahead of schedule by 6 months and all other drafts under the responsibility of SC 1 are on schedule.

Geoff HARDING as Convenor of PT prEN 1991-1-7 "Accidental actions" commented that document N 1409 (CG) by Gerhard SEDLACEK was useful for provoking discussion at the PT and enabled the PT to decide the content of the draft.

Members were reminded that prEN 1991-1-7 does not take account of malicious or terrorist damage, which would be impossible to predict over a life of 100+ years of a structure. However, general threshold rules will provide threshold robustness which is a reasonable safeguard for anticipate abuse of a structure. It was noted that in the UK comparisons have been made between buildings subjected to terrorist damage, which had been built to threshold rules and those which had not.

Risk analysis guidance is dealt with prEN 1991-1-7 and will also be covered in the first revision of EN 1990.

The CHAIRMAN commented that this topic will be discussed more fully at the next CG meeting and should be included on the agenda accordingly.

Action: SECRETARY

Gerhard SEDLACEK commenting on Accidental actions, added that climatic actions treated as accidental actions will stay in climatic codes, also traffic actions similarly will stay in prEN 1991-2. However erratic actions under bridges will be included in Accidental actions as will explosions. Gerhard SEDLACEK requested that all NTCs and NSBs are aware of the draft and should consider the implications to their respective national regulations.

It was noted that the next PT meeting will be in Leipzig (April 11 &12).

SC 2 - In the absence of Hans-Ulrich LITZNER, Nary NARAYANAN reported that there were no additional issues other than those reported under liaison with TC 229.

SC 3 - Frans BIJLAARD reported that the last meeting of SC 3 was in Winterthur. Drafts for prENs 1993-1-1, 1-8 and 1-9 and 3 were circulated 2 months before the meeting to get a general overview from the member countries. There was some written comment received but the drafts were considered generally acceptable. Frans BIJLAARD added that he is confident that the comments received can be resolved.

SC 3 have requested that any further comment on the drafts should be received by the end of 2001 when the PT will have finished their work. It will then be the Chairman of SC 3 to resolve the issues and move the drafts forward for approval at the next meeting of SC 3 in Vienna in April 2002.

SC 4 - Jan STARK for SC 4 referred to his report to the CG (N 1414) noted that SC 4 are now finalizing their draft of prEN 1994-1-1 in readiness for the PT1 meeting in December. However he expressed his concern that as EC 4 drafts have to follow their related drafts from EC 2 and EC 3, any changes they make will influence the EC 4 drafts.

Jan STARK referring to the 'Fire' part commented that work has been delayed due to the "thermal properties of concrete" debate on which a procedure to solve the problem has been agreed at the Chairmen's meeting. Assuming a satisfactory resolution to the problem, the final draft will be sent to SC 4 in February 2002. It was also noted that work on the 'Composite bridges' part prEN 1994-2 is ongoing and to schedule.

SC 5 - Juergen KOENIG referred members to his report N 482 and the subsequent Addendum, N 482 Add.

On a positive note it was stated that the stage 32 draft of the Timber Bridges part, prEN 1995-2, was circulated in October 2001, 4 months ahead of schedule.

However it was reported that problems have been encountered with prEN 1995-1-1 and 1995-1-2. These drafts initially suffered delays due to the need for re-editing to align with the model clauses of N 250. Unfortunately extensive comment was received from Germany on connections and from the UK on joints, racking resistance and editorial and issues on CE marking - which are of a political nature. As these comments were received 10 days before the meeting of SC 5 there was little chance of gaining approval for the drafts at the meeting. The action taken by SC 5 has been to form an Ad-hoc Group to solve the technical problems and the UK agreed to comprehensively edit the draft. It is anticipated that a new draft will be circulated in February 2002 for agreement at the next SC 5 meeting in April 2002.

Regarding prEN 1995-1-2, Fire part, this was rejected by the UK and Germany primarily due to the insufficient time to comment as the draft was circulated less than two months before the meeting. However concerns were expressed with the UK view as reported in N 482 Add. The draft will be revised and voted on at the April 2002 meeting of SC 5 when the UK delegation have indicated that they will endeavour to reach agreement.

SC 6 - As Tor-Ulf WECK had to leave before the end of the meeting, Barry HASELTINE, deputising, reported on the activities of SC 6.

It was noted that PT 5 (prEN 1996-3) will not start work until the contracts have been received and signed. This may delay the draft by up to six months.

The next meeting of SC 6 will be in early December 2001 where the stage 32 draft of prEN 1996-1-3 will be presented and discussed.

The Fire draft prEN 1996-1-2 is still presenting some problems regarding fire resisting times for different masonry walls and the calculation method which will be the topics for discussion at the SC 6 meeting. It was noted that prEN 1996-1-1 stage 34 draft for April 2002 is still on schedule.

SC 7 - Roger FRANK referred members to document N 488 adding that PT 1 will finalize the draft of prEN 1997-1(stage 34) in December which is approximately 6 months ahead of schedule.

It was noted that the Project Teams for prEN 1997-2 and prEN 1997-3 will commence work early in 2002.

Roger FRANK commented that the 6 months between stages 34 and 49 quoted in the programme, in his experience is insufficient, given the tasks and procedural requirements necessary.

SC 8 - As time did not permit Michael FARDIS to report, Eduardo CARVALHO as Secretary of SC 8 deputized in his absence. Referring to document N 495, it was stated that the stage 34 draft for prEN 1998-5 has recently been sent to CMC for registering. It was stated that February 2002, the next meeting of SC 8 will be too early for deciding on Formal Vote of prEN 1998-5. This will probably be decided at the Vienna meeting in June 2002.

Part 1 is currently being finalized as stage 34 and will be discussed at the February 2002 meeting of SC 8. All other drafts are on schedule.

SC 9 - Federico MAZZOLANI reporting on SC 9 activities stated that the experts approved at the Milan meeting were still awaiting their contracts. Referring to the Milan

meeting, it was stated that SC 9 want to divide the three ENVs of EC 9 to produce 5 prEN deliverables and a proposed resolution was suggested. The proposed drafts would be prepared as follows:

PT 1 Members (prEN 1999-1-1a) and Trapezoidal sheeting (prEN 1999-1-4)

PT 2 Connections (prEN 1999-1-1b) and Shells (prEN 1999-1-5)

PT 3 Fire (prEN 1999-1-2)

PT 4 Fatigue (prEN 1999-1-3)

Members discussed the proposal noting there is no extra funding to produce the additional drafts and also if agreed, these should not cause any delay to the programme. Concern was also noted as to how PT 1 and PT 2 would combine part a) and part b) into prEN 1999-1-1.

After further discussion and recognizing a procedural need to create new Work Items, Federico MAZZOLANI was requested to make a formal resolution from SC 9 for presentation and approval by CEN/TC 250 as requested at the CG meeting in Paris.

Action: FM

HG - FIRE - Joel KRUPPA reported on the disagreement between SC 2 and SC 4 on the Thermal properties of concrete as documented in his letter to the CHAIRMAN (document N 478) It was noted that originally the ENVs were in accord, but the disparity had been created during the 2 year Enquiry of ENV 1992-1-2. Comments were accepted by EC 2 and the PT for prEN 1992-1-2, used the new, less conservative values. Unfortunately the same comments were not made on the Enquiry for ENV 1994-1-2, and consequently EC 4 retained the original values in their equivalent draft.

Joel KRUPPA gave a presentation using an example of calculations applied to 100mm concrete slab (see Annex B) and based on his background document N 498.

It was proposed that a meeting with experts and Chairmen of SC 2 and SC 4 should be convened as soon as possible to resolve the situation. Also it was suggested that both SC 2 and SC 4 should use a single set of thermal properties.

Joel KRUPPA requested members comment within 14 days on the proposal.

Action: All Members

14 SECRETARIAT MATTERS

a) CEN/TC 250 Livelink website

The SECRETARY reported that this website had been available to all members of CEN/TC 250 since June/July this year. Each member had been given a username and password by email from CEN.

The SECRETARY introduced Barjinder BAL as the contact person for access, and a demonstration of the website was given to members. All members were strongly urged to access the site as it the only way to guarantee documents are distributed on time given the problems with the postal services within Europe.

Members were advised that the URL for the LIVELINK website is :

<http://138.81.11.44/LIVELINK/LIVELINK>

The SECRETARY reported that there had been problems with the site initially as the server is in Geneva at ISO and the technical management of the service is at CEN in Brussels. However, recently the site is now operating more efficiently. CEN/TC 250 are one of the thirteen TCs who have signed up to the pilot scheme.

The architecture of the site was demonstrated, showing the key folders, which contain the information. It was also demonstrated that through the audit facility, the SECRETARY has the ability to check who has visited a particular document. Disappointment was expressed at the few members who had actually accessed the site. Should any member have difficulty in accessing the website they should contact Barjinder in the first instance at:

barjinder.bal@bsi-global.com

b) Presentation on BSOL CEN/TC 250 website for PT drafts.

The SECRETARY introduced the rationale, why the BSI Secretariat had developed the site. It was noted that from discussions on the Elimination of inconsistencies, it had been identified that access to emerging drafts from parallel PTs would be beneficial to the PT drafters.

The SECRETARY introduced David RICHARDS of BSI who is responsible for managing the British Standards On-Line website. A handout was distributed to all delegates (see Annex C) and a presentation given, describing the architecture and protocol necessary for accessing the site. It is the intention that all PT members and members of CEN/TC 250 will have access to the site. However it was emphasised that it is for information and comparison only and comment is not encouraged or desirable as this may well have a negative impact on the PT drafters. There are also commercial implications as the drafts develop towards final draft, plus it was thought useful to upload approved drafts. Consequently the site will be restricted to only those stated.

In the next few weeks BSI will be issuing unique usernames and passwords to the experts. It was noted that it is the SC Secretary's responsibility to send the latest drafts they consider to be of significant change, to Barjinder BAL at the above email address, for uploading onto the site. It was also stated that all drafts should be sent in PDF format to ensure accuracy and quality.

Action: BSI/SC Secretaries

15 CMC and BT MATTERS.

It was noted that most issues had been discussed during other items and therefore there was no further discussion under this item.

16 ANY OTHER BUSINESS

There were no matters raised under this item.

17 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-first) will be held on 16th and 17th of May 2002 in the Netherlands, exact location of the venue will be advised. The twenty-second meeting of CEN/TC 250 was arranged for 21st & 22nd November 2002 in Stockholm at the kind invitation of the Swedish delegation.

It was also noted that the twenty-second meeting of the CEN/TC 250/-/1 CG will take place on 14th and 15th March 2002 in Nicosia Cyprus at the kind invitation of the Cyprus Chamber of Engineers and Architects. Also the twenty-third meeting of the CG has

provisionally been agreed for 26th & 27th September - in Madrid at the kind invitation of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc).

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed unanimously by the members of CEN/TC 250 (see N 501) at the London meeting:

RESOLUTION 148 - Approval of the amendments to Project Team memberships.

RESOLUTION 149 - Approval of CEN/TC 250 conversion target dates and achievements - update.

RESOLUTION 150 - Approval of re-appointment of Sub-Committee Chairman.

RESOLUTION 151 - Approval of Appointment of the Convenor of the HG Bridges.

RESOLUTION 152 - Approval of the Creation of an amendment to EN 1990.

18 CLOSING OF MEETING

The Chairman thanked John MOORE and the UK delegation for their kind hospitality in hosting this meeting of CEN/TC 250. He also thanked the SC Chairmen for their all efforts and the delegates for their attendance at the meeting and looked forward to meeting them at the next CEN/TC 250 meeting in the Netherlands.



Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- FIRST MEETING OF CEN/TC 250 HELD IN DEN
HAAG ON 16 & 17 MAY 2002**

1. OPENING THE MEETING

Bert NAGTEGAAL Manager of NEN Construction, welcomed the delegates to the twenty-first meeting of CEN/TC 250. He noted that this is the second time that CEN/TC 250 have held a meeting in Den Haag, the first in 1993. Since that meeting there has been good progress in the work of producing European structural design codes, all the ENVs have been agreed to be converted to ENs, and two have already been successfully agreed at Formal Vote. Bert NAGTEGAAL reported that in the Netherlands, attitudes have changed over the past few years and are now much more pro-active and positive towards Eurocodes, as the benefits of cost and having a single European standard are being recognized. This change in attitude by the Institutions and professional bodies is necessary for their successful implementation in the Netherlands. Best wishes were extended to the meeting in the hope that it is a pleasant and successful meeting.

It was also noted that there would be a dinner on the evening of the 16th May, hosted by the Dutch Concrete Association in co-operation with Ballast Nedam Engineering, Bouwen met Staal (Building in Steel), Dutch Masonry Association and TNO-Building research

2. ROLL CALL

All members introduced themselves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

C PATROUILLEAU	-	French language
G SEDLACEK	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report thanked Bert Nagtegaal, NEN and the Netherlands delegation for hosting the Twenty-first meeting of CEN/TC 250. Referring to document N 508, the CHAIRMAN reported that he is satisfied with the progress of the programme with 2 drafts having achieved stage 64, a further 3 at stage 49 and another 18 drafts between stages 34 and 49. This is indicative of progress being made by the Project Teams and endorsing that they are working effectively. The Project Teams are generally on target and in some cases ahead of schedule which the Commission are pleased with. The Commission support is ongoing with the publication of the Guidance Paper L since the last CEN/TC 250 meeting in London. The Commission's support will be an advantage to TC 250 in overcoming difficulties with Product TCs. The CHAIRMAN reported that since the last meeting, there have been detailed liaisons between TC 250 and the product TCs in particular: CEN/TCs 129, 135, 167, 177, 229 297 and ECISS TC 19 and EOTA WGs. These liaisons will be discussed in greater depth during the meeting. It was also noted that the Commission, through Pascal BAR and the ENC Group have organized a Eurocodes Conference at the Commission on the 25th June 2002 with over 200 delegates already registered by April.

Reporting on the twenty second CEN/TC 250/-/1 Co-ordination Group meeting held in Nicosia on the 14 & 15 March, the CHAIRMAN stated that these meetings are becoming more important and critical for Sub-Committee Chairmen to discuss their urgent needs. In Nicosia the meeting only managed to cover part of the agenda due to long and detailed discussions on open questions.

Other issues that were discussed at length in Nicosia was the harmonization of "Thermal Properties of Concrete", the resolution of which will be approved at this meeting.

Since the last meeting the CHAIRMAN noted that there is a new issue (D) of the CEN/TC 250 Policy Guidelines and Procedures document N 250, which is continually being improved and updated as a living document.

ADOPTION OF AGENDA

At the request of Tauno HIETANEN the Finnish proposal for discussion on "Determination of characteristic values of structural properties" documented in N 517, it was agreed that this would be discussed under item 12 of the agenda. It was also noted that document N 510 would be discussed under item 5c).

Subject to these two changes, the agenda was adopted without further amendment.

5. FOLLOW-UP TO THE TWENTIETH MEETING OF CEN/TC 250 IN LONDON

a) Report from London meeting (N 500)

Members discussed the draft report of the twentieth meeting of CEN/TC 250 held in London on the 26 & 27 November 2001 and confirmed the report subject to the following comment:

Joel KRUPPA stated that under item 13 of the report, his presentation in London related to two separate issues.

- Thermal properties of concrete
- Temperature criteria for insulation of real fire scenarios.

The second point defined in document N 498, required members to comment within two weeks. As no comment was received, Joel KRUPPA has sent the report to the Fire Regulators.

b) Resolutions - London

The resolutions from the London meeting N 501 E,F & G were noted and agreed without further comment.

c) Agenda

On the subject of the Agenda (N 505) for the meeting, the following issues were discussed for prospective resolution by CEN/TC 250.

c.1). Eurocode 9 documents N 510 "SC 9 resolutions from Prague" and N 512 "EAA letter of support".

Federico MAZZOLANI reported on the request of SC 9 to increase the deliverable items from 3 to 5 by the inclusion of two supplementary parts on "Trapezoidal sheeting" and "Shell structures". It was noted that EC 9 should follow the document structure of EC 3 as closely as possible. Also the aluminium industry support the need for these supplementary parts.

Emphasising the importance of splitting these two parts from the original texts of EC 9 ENVs, it was agreed that a resolution would be produced subject to no additional funding for the PTs and these extra parts would not delay the drafting of the other Work Items. (see item 14 (SC 9 report) and Resolution 153)

c.2). Eurocode 6 document N 511 "proposal to merge EC6 1-1 and 1-3"

Tor-Ulf WECK reported that SC 6 wish to establish a resolution to merge EC6 Parts 1-1 and 1-3. These two drafts have been developed in parallel by the PTs who have common membership. It was agreed that a resolution will be proposed at the end of the meeting. (see item 14 (SC 6 report) and Resolution 154).

c.3). Eurocode 3 document N 520

Frans BIJLAARD reported on the achievements of the Vienna meeting of SC 3 and in particular Resolution 6 and the request from SC 3 to merge the "General rules" Part 1-1 with Part 3 "Buildings". This would align the structure of Eurocode 3 with Eurocodes 2 and 4. Members discussed at length the history and the case made by Jacques BROZZETTI to separate these parts although noting that both parts have the same target dates.

Recognizing that the timing of merging is critical, the decision must be made either now or in 5 years at first revision with no interim possibility. Taking account of this dilemma, it was agreed to prepare a draft resolution for presentation to the Members at the end of the meeting. (see item 14 (SC 3 report) and Resolution 155).

6. FOLLOW-UP TO THE TWENTY-SECOND MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN NICOSIA

a) To note the CG Draft Report (CG N 1440)

Recognizing that the report N 1440 had only recently been uploaded on the website, the CHAIRMAN gave a verbal report on the proceedings of the Nicosia CG meeting. It was agreed that all outstanding issues would be covered during this meeting.

b) Items for TC approval not covered by the Agenda

The CHAIRMAN reported that a significant issue from the Nicosia meeting is the resolution of the values of thermal properties of concrete, between SC 2 and SC 4. This would be discussed later in the meeting.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

John STRATFORD reported on the current status of contracts for Project Team experts.

i) Phase 1 conversions (1997 Budget)

K ZILCH - T.U.MUNICH for EN 1992-1-1 does not wish to sign his contract.

ii) Phase 2 conversions (1998 Budget)

The following 2 contracts have still not been signed and returned;-

R. FILA - OESTERREICHISCHE BUNDESBahn for EN1991-2

C. HAHN - HAHN CONSULT GmbH for EN1996-1-2 (Convenor)

Action: T-UW

iii) Phase 3 conversions (1999 Budget)

10 experts have not signed contracts as yet.

iv) Phase 4 conversions (2000 Budget)

John STRATFORD reported that the SECRETARIAT have issued 101 contracts for the Phase 4 Conversion Programme. As some have only recently been issued the signing and return of contracts is ongoing. At present approximately 66% have already signed their contracts, which is a positive response.

John STRATFORD reported that he had been in discussions with BSI's Finance Department with a view to improving the speed of payment to PT members. Whilst improvements have been introduced to the process at BSI, there are inherent procedural requirements from Commission to CEN to BSI to PT experts which make further improvement difficult. However discussions will be ongoing to improve the process.

b) Review of Conversion programme

Referring members to the N 455 Rev 3, John STRATFORD reported that he has added the projected CEN DAV (Date of availability of the ratified text from CEN). These estimated dates are based on a period of between 12 and 15 months after the draft has achieved stage 49. Members discussed this addition and felt that it is useful information as an indicative target, although recognized that the delay between stage 49 and DAV is outside the responsibility of the SCs.

Haig GULVANESESIAN reported that prEN 1991-1-5 has already achieved stage 34 in February 2002 instead of the target date of July 2002. However the Project Team for prEN 1991-1-7 has identified the need for more work than originally anticipated. Therefore as agreed by SC 1 at their meeting in Leipzig, a request for an extension to the stage 34 date by 3 months is necessary. The request will mean that the new stage 34 date is January 2003. Haig GULVANESESIAN added that the stage 49 date should remain unaltered.

Members of CEN/TC 250 agreed to the extension.

Tor-Ulf WECK reported that due to difficulties in PT 2 (prEN 1996-1-2), illness of the Convenor and changes to its membership, there had been no official report as to progress. However he believes that there will be delay between stages 34 and 49 and recommends that stage 49 date be moved to October 2003.

8. SUB-COMMITTEE CHAIRMEN & HG CONVENORS

a) To confirm the re-appointment of the Chairmen of SC 4 & SC 5.

Members endorsed the recommendations of SC 4 and SC 5 to re-appoint:

- Jan Stark as Chairman of SC 4 for a further period of 3 years from 27 April 2002
- Juergen Koenig as Chairman of SC 5 for a further 3 years effective from 1 Nov. 2002

RESOLUTION 156 was agreed accordingly

b) Appointment of new Chairman of SC 2

Hans-Ulrich LITZNER informed the meeting that he will retire from office on 31 July 2002 as decided at the Brussels meeting of CEN/TC 250 on 9 & 10 March 2000 (Resolution 120). The Secretary of SC 2 will propose the next Chairman at the SC 2 in Milan on 1 & 2 July 2002. There are two candidates for the position, details of whom have been circulated to members for their consideration. Once confirmed, the nomination will be recommended to CEN/TC 250 for endorsement. Due to the timing, it was agreed that the SECRETARY will circulate a "resolution by correspondence" between the Milan meeting and 31 July, for CEN/TC 250 to approve the nomination.

Action: SC 2/SECRETARY

c) Constitution of Project Teams

As an added item to item 8 the changes in constitutions of Project Teams was discussed.

- Eurocode 9 - prEN 1999-1-1 Dr Phil Bulson has withdrawn and will be replaced by Federico MAZZOLANI

- Eurocode 6 - prEN 1996-1-2 Mr S Kelly has retired and will be replaced by Christian POHN (Austria) and Aloys BRULS (Belgium).

RESOLUTION 157 was agreed.

9 POLICY GUIDELINES AND PROCEDURES (N 250 D)

It was noted that the new version (D) has been uploaded on the CEN/TC 250 Livelink website in Folder 1 and also on the BSOL Eurocodes website. The SECRETARY reported that he has also sent a copy to Ashok GANESH at CMC to upload onto the Eurocodes page of the CEN website.

John MOORE reported that after the London meeting N 250 was revised and circulated as N 250 C on 21 December 2001. Subsequently the Commission have published the Guidance Paper L and together with clarification of styles and format (originally agreed in 1993) have been incorporated into the new version D.

It was also noted that a Foreword from the CHAIRMAN and John MOORE has been added to explain the changes.

Other significant changes to N 250 are in Annex K model clauses and tables based on prEN 1994 to cover sections 1 and 2 and common clauses for the Fire parts are now included.

John MOORE added that probably the most important changes, especially for the PT experts, are to Annex L which has been revised substantially making the Annex more user friendly, whilst providing much more detailed guidance on editorial matters, such as formatting and the use of notes. It was also noted that the translation procedure has been updated to reflect the current CEN requirements.

From the Chairmen's meeting, John MOORE noted that there are two pages, which require further amendment. As N 250 is considered a living document, these changes will be incorporated in the next week or so for uploading on the website(s) as N 250 D. Rev1 as the changes do not represent a significant step change to version E.

Steinar LEIVESTAD (Norway) commented that the National Annexes to Eurocodes should be made more user-friendly and accessible when they are implemented Europe-wide. It was recognized that is an issue for the National Standards Bodies as each country will be publish it's NA as an annex to the Eurocode part, necessitating the purchase of 19 base Eurocode documents. CEN rules prevent the Nationally Determined Parameters being interleaved into the Eurocode as a merged document, and require the NA to be published as an Annex.

The CHAIRMAN noted that it has been the intention of the Commission to publish the NAs on the EU website but this has been held in abeyance, as there are copyright implications.

10. ELIMINATION OF INCONSISTENCIES

a) Review of progress in resolving Eurocode inconsistencies

Jan STARK reported that most of the issues of inconsistencies have been resolved successfully. However there are still some areas, which could be, improved and will be the subject of the continued good working relations between the material dependent sub-committees EC 2, EC 3 and EC 4.

b) Report on liaison meetings with Product TCs

i) CEN/TC 229

Hans-Ulrich LITZNER supported by Michel VALLES confirmed that liaisons are very positive between CEN/TC 229 and CEN/TC 250/SC 2 having held several Ad-hoc Group meetings since the London meeting and all issues are now resolved.

Michel Valles reported that CEN/TC 229 are revising prEN 13369 "Common rules for precast concrete products" for Formal Vote but this will be after the SC 2 meeting in July for prEN 1992-1-1.

ii) CEN/TC 129

Jaap ZWART as Chairman of CEN/TC 129 reported that difficulties in CE marking have been identified when responding to the Glass Mandate because of National Annexes and NADs from the ENVs. It was noted that the glass manufacturer is only responsible for manufacturing to the order and not the design elements.

It was further explained that following the outcome of the enquiry on the glass product standard, prEN 13474 Parts 1 and 2, a Working Group of CEN/TC 129 are redrafting these to simplify the design methods based on EN 1990 and EN 1991-1 and will be in the following three parts:

- Part 1: Fenestration, linear approach
- Part 2: Special applications - linear and non-linear approach.
- Part 3: Structural applications - advanced structural calculation methods - enormous commercial interest.

Jaap ZWART stated that it is important for glass designers to be able to design anywhere in Europe using the one common document.

It was also noted that it is proposed to use a common γ_m for glass.

Members were referred to document N 522 for the liaison meeting report, between CEN/TC 250 and CEN/TC 129 held in March 2002 in Brussels.

ii) CEN/TC 167 and EOTA - WG "Expansion joints"

Gerhard SEDLACEK reported on discussions that have taken place between TC 250 and TC 167 Structural bearings. This has resulted in him drafting a proposal to amend prEN 1337-5 Pot bearings taking account of the Guidance Paper L. and prEN 1337-7 Sliding elements is in the process of a similar amendment. The SECRETARY reported that there will be a meeting of CEN/TC 167/WG4, the drafting group of Part 5, in June 2002, to consider the proposal.

Referring to a meeting that took place at RWTH Aachen on the 10 May 2002, between CEN/TC 250 representatives and EOTA -WG for Expansion joints, Gerhard SEDLACEK reported that it had been a positive meeting.

Whilst liaisons have only just started for Expansion joints, it is hoped that the method adopted in liaison with CEN/TC 167 will be used as a model by the following actions:

1. CEN/TC250: "Technical requirements for expansion joints for road bridges" that allows the bridge designer to prepare the technical specifications for ordering expansion joints
2. From EOTA-WG Expansion joints: Guideline for European Technical approval.
Note: For the time being the draft Guideline includes material both for the bridge designer and the producer of expansion joints.

iii) CEN/TC 135 and Mandate 120

Gerhard SEDLACEK referred members to documents N 519 and N 516 for actions on supporting standards to Eurocode 3 and the progress and liaisons with CEN/TC 135.

c) Thermal properties of concrete.

Joel KRUPPA reported on the proceedings of a special expert meeting convened at Delft University on 15th May 2002. The purpose of the meeting was to technically resolve the disagreement between EC 2 and EC 4 on the thermal properties of concrete.

Attended by the Chairmen of SC 2, SC 4 and CEN/TC 229 together with technical experts, Joel KRUPPA reported it was a positive meeting and tabled document N 528 which highlighted the agreements reached. These are as follows:

- Density - same value for EC 2 and EC 4
- Specific heat - same value for both codes
- Thermal conductivity - the same values for upper and lower limits will be defined in EC 2 and EC 4 and the value will be decided as an NDP by the National Authorities. The experts will decide the limits of the range, by the end of June for presentation to the SC 2 meeting (1 & 2 July 2002).

Action: Expert Group

RESOLUTION 158 was agreed.

11 ENC GROUP and SCC

a) & b) Barry HASELTINE reporting on the last meeting of the ENC Group reported that as the Guidance Paper L is now published most of the meeting was spent discussing the papers on Nationally Determined Parameters and the Examination Period resulting in documents N 506, N 507 and N 508. These documents were further developed at the Nicosia meeting of CEN/TC 250/-/1 Co-ordination Group.

Barry HASELTINE reported that the Commission through Pascal BAR is concerned that the procedure for consultation with the National Regulatory Bodies on drafts is not working properly. Consequently document N 507 has been adopted by the SCC, which proposes that at the circulation stage of the stage 34 draft to the Sub-Committee a copy should also be sent the Commission for distribution to the National Authorities. The examination period must be achieved within a maximum time frame of 6 months after stage 34 is reached.

Members discussed at length the effects that the introduction would have in delays to the overall work programme of CEN/TC 250. It was agreed that drafts, which had already achieved stage 34, should proceed without the introduction of the new examination procedure if this will delay the stage 49 draft.

Gerhard SEDLACEK referred members to his discussion paper N 518 entitled "Nationally Determined Parameters and National Annexes for EN Eurocodes".

It was stated that this paper addresses two issues:

- Aim of having alternative methods in Guidance Paper L
- Drafting of Informative Annexes - from the Chairmen's meeting it was concluded that N 250 D will be editorially amended on this issue.

Members discussed the validity of N 518 and the introduction of Alternative methods. It was concluded that the N 518 requires further clarification.

The CHAIRMAN summarized that the document should be withdrawn and the salient features are to be included in a revision of N 250 D. John MOORE with WG 1 and Gerhard SEDLACEK agreed to liaise to produce the revision.

Action: JM/GS/WG1

c) Barry HASELTINE referred to document N 504 and reminded members of the "Eurocode, building codes for Europe" conference which will be hosted by the Commission in Brussels on the 25th June 2002.

It was noted that in excess of 200 delegates have registered already and further details on registration and information as to the programme can be found at:

<http://europa.eu.int/comm/enterprise/construction/internal/essreq/eurocodes/eurohome.htm>

SECRETARY'S NOTE : Prospective delegates to the Conference who have already pre-registered must confirm their booking through the registration page on the Commission website at the above address. Also included on the website are Brussels hotels and conference location details.

d) Barry HASELTINE reporting on Packaging of Eurocodes stated that in the ENC Group there has been no further discussion on Packaging since the issue of Guidance Paper L. It was reported that the latest draft (N 483 Rev 2) had been sent to Ashok GANESH at CMC for uploading onto the CEN website.

The latest situation is unclear as to whether the changes have been incorporated and noting that further amendment is necessary to reflect the resolutions made at the Den Haag meeting, Barry HASELTINE and the SECRETARY agreed to investigate and update accordingly.

Action: BH/SECRETARY

12 BASIS OF STRUCTURAL DESIGN

Haig GULVANESESIAN as Convenor of the PT BoD, reported that the ratified text of EN 1990 has been circulated by CMC on the 26th April 2002. However concern was expressed that errors had been introduced into the final text by CMC. This was due to the Auto-correct function (capitalise first letter) in Word which changed some of the subscripts from lower case to uppercase and hence changing the several equations. Fortunately the error was spotted before publication and after considerable effort, CMC finally agreed to stop production and correct the error.

It was noted that JCSS are holding a workshop in Zurich to produce advise on variables in EN 1990.

a) Annex A.2 Bridges

Jean-Armand CALGARO reported that the Bridge part, Annex A.2, that he had recently sent the latest draft to the SECRETARY which has been posted on the Livelink website as document N 526. The changes in N 526 are only editorial corrections from the draft circulated as CG N 1433.

Members were requested to comment with urgency on the draft (**by 12th June 2002**) as there will be a meeting of the PT at the end of June 2002 for final editing.

Action: All Members

Comments have already been received from Sweden regarding references to National Annexes. Other changes in the draft are the introduction of symbols for prestressing and loads during execution in tables, which will be in contradiction with EN 1990 for buildings.

Noting that the tables will not totally align with EN 1990 for buildings, members discussed at length the issue of project determined parameters in the National Annex. Using a bridge in Bordeaux as an example it was recommended that the National Annex should identify the clauses which require modification for a particular project, on the basis that no project is allowed to bypass the National Annex. It was agreed that a NOTE would be added to state that certain parameters could be project related such as the characteristic values for movement of bridge bearings and expansion joints. Haig GULVANESSIAN and Paul LUECHINGER agreed to produce a list of consequences and timetable from the Annexes in readiness for the Stockholm meeting in November.

Action: HG/PL

Tauno HIETANEN (Finland) requested a modification to equation 6.10a), which was agreed would be included in the consideration of comments.

Gerhard SEDLACEK reported on the issue of Commentary to EN 1990. As agreed at the Nicosia CG meeting, whilst it was recognised that there is much useful information in the documents, they are personal opinion of the co-authors (Gerhard SEDLACEK and Jacques BROZZETTI and as such cannot be considered as official CEN/TC 250 documents.

It was suggested that should members wish to view these documents they should contact Gerhard SEDLACEK for the RWTH Aachen website address. It was also suggested that such private papers could be linked from the Livelink website. The SECRETARY agreed to investigate such possibilities.

Action: SECRETARY

13 MAINTENANCE AND RESEARCH PROGRAMMES

a) Maintenance

Haig GULVANESSIAN referred members to document N 465 and noted that the EN 1990 Maintenance Panel comprising Messrs GULVANESSIAN/ LUECHINGER/BAR/ FRANK/SEDLACEK/SEYFERT have yet to arrange a meeting with the DG Research in the Commission to discuss the possibility of adding this as a topic under the 6th Framework.

Action: HG

It was also noted that the discussion document circulated as CG N 1423 had been corrupted during distribution and the SECRETARY was requested to re-circulate as a CEN/TC 250 document.

Action: SECRETARY

As Convenor of the Maintenance Panel, Paul LUECHINGER reminded members that it is important to distinguish between "Maintenance" and "Future development". In the first instance, maintenance will be considered by the Panel, which will involve the SC Chairmen.

b) Eurocodes Information/Helpdesk

At the Nicosia meeting of the CG it was agreed that a Panel would be formed to consider the possibilities of how to handle Eurocode questions and information through an internet website or an Information helpdesk. As the Panel, comprising: CHAIRMAN/SECRETARY/LUECHINGER/GULVANESESIAN/GANESH (CMC) had not met it was agreed that this would be the subject of discussion at the next CG meeting in September. The discussions at the CG will generate recommendations for CEN/TC 250 to consider at the Stockholm meeting in November.

c) Joint Committee for Structural Safety (JCSS)

The CHAIRMAN was delighted to introduce Ton VROUWENVELDER as Chairman of JCSS who gave a presentation on the future implications of Eurocodes with respect to structural safety issues.

JCSS in the short term subject to co-operation with all CEN member states, hopes to produce an Excel spreadsheet as a process of standardizing probability calibration based on the partial safety factors from the National Annexes of EN 1990. In full support and co-operation of CEN/TC 250 it is envisaged that a report will be produced which will be useful tool for code calibration.

In the longer term evaluation of Eurocodes and what has to be evaluated must be identified before the first revision of the codes. The Committee has been asked to consider what should be evaluated.

Haig GULVANESESIAN recommended that Serviceability (Paul LUECHINGER) and soil interaction (Roger FRANK) should be considered.

Ton VROUWENVELDER added that JCSS are happy to play a role in the Eurocode work and offer assistance on issues of safety.

Gerhard SEDLACEK stressed the close co-operation with the Scientific Joint Committees and the Project Teams of CEN/TC 250. It was agreed that he would send his background documents to the JCSS for updating.

It was also agreed that the JCSS website would be linked with the CEN/TC 250 site, Further information on JCSS can be found at :

<http://www.jcss.ethz.ch>

After further discussion by members, Ton VROUWENVELDER recommended that the preparation for the evaluations should start now and not wait until all the Eurocodes are available in 2005/6.

The CHAIRMAN thanked Ton VROUWENVELDER for his presentation and summarised that the JCSS can help with background documents and calibrations.

14 SUB-COMMITTEE REPORTS

SC 1 -(N 513) - Haig GULVANESSIAN reported that as at the Leipzig meeting of SC 1 in April 2002, all SC 1 drafts were on target. However when re-assessing the work of the PT for prEN 1991-1-7 "Accidental actions" it was agreed that the dates would be extended by a further 3 months. This will make the revised dates Stage 34, Jan 03 and stage 49 June 03, respectively.

Haig GULVANESSIAN requested CEN/TC 250 consider the change of title to two parts of EC 1.

- Wind loads to become Wind actions
- "Accidental actions due to impact and explosions" to become "Accidental actions".

The members unanimously accepted the change to "Wind actions", however after discussions, felt that "Accidental actions" was inadequate as it could extend the scope. Therefore it was agreed that SC 1 should reconsider this request at their next meeting.

Action: SC 1

Regarding liaisons with other CEN/TCs, Haig GULVANESSIAN reported that the PT for prEN 1991-1-6 "Actions during execution" are having difficulty in getting a response from CEN/TC 53 "Scaffolding". The SECRETARY through was asked if he could take the matter up with the appropriate contact in CEN/TC 53.

Action: SECRETARY

SC 2 (N 524) - Hans-Ulrich LITZNER, reported that at the next meeting of SC 2 in July, he is confident that the drafts of prEN 1992-1-1 and prEN 1992-1-2 will be approved to go forward to Formal Vote. Also at that meeting the Secretariat of SC 2 will propose the new Chairman of SC 2.

It was also noted that there has been a CEN/EOTA Workshop established for the execution of pre-stressing kits and systems. The "kick-off" meeting of this group was held in April and it was recommended that representatives of the "Actions during execution" PT should join the Workshop.

SC 3 (N 520) - Frans BIJLAARD reported that the last meeting of SC 3 in Vienna in April 2002 was very positive with SC 3 members unanimously agreeing to the first 5 drafts to go forward to Formal Vote subject to final editing. The sixth draft considered, prEN 1993-1-10 was agreed by majority with the UK and Ireland voting against the draft. Frans BIJLAARD also reported that a resolution was taken by SC 3 to request CEN/TC 250 considers the merging of prEN 1993-1-1 and prEN 1993-3 to harmonize the drafts of SC 2 and SC 4. Members of CEN/TC 250 subsequently considered this request.

RESOLUTION 155 was agreed.

SC 4 - Jan STARK referred members to his report to the CG (N 1421) and noted that SC 4 are experiencing a problem in that they are in advance of EC 2 and EC 3. As a consequence SC 4 have had to send a list of references to SC 2 and SC 3 for confirmation.

Noting that as previously discussed the issue of Thermal properties of concrete is now resolved the next matter to consider for SC 4 is the Eurocode part for composite bridges

prEN 1994-2. This draft is ahead of target date and will either be decided by postal vote or a new meeting of SC 4 will be convened.

Jan STARK also reported that members of SC 4 have expressed their concern regarding the availability of National Annexes. Recognising that NAs will be published by the respective National Standards Bodies, as annexes attached to the Eurocodes, this will mean the unnecessary purchase of multiple copies of the Eurocode text. Therefore SC 4 Members request that the NSBs should consider the sale of National Annexes as a separate documents.

SC 5 - Juergen KOENIG referred members to his report N 514 and expressed his concern at the unrest that is apparent in SC 5. Considerable difficulty has been experienced by countries submitting comments at the last minute which required fundamental changes to the drafts of prEN 1995-1-1 and prEN 1995-1-2 and subsequent extension to the deadlines.

However after extensive discussion and negotiation by the Chairman, compromise has been achieved and both drafts have been approved by majority to go to Formal Vote, noting that there were 2 abstentions on both drafts and 1 negative vote for prEN 1995-1-1.

Juergen KOENIG reported that the code for timber bridges, prEN 1995-2 reached stage 32 in autumn 2001. The comments received on the draft are being addressed and the stage 34 draft should be available in August 2002 in readiness for consideration at the next SC 5 meeting in October.

SC 6 - Tor-Ulf WECK referred members to N 511 and reported that the main issue of SC 6 is the merging of prEN 1996-1-1 and prEN 1996-1-3 as the final drafts from the PTs have now been completed. The members of CEN/TC 250 considered this proposal and agreed to the merging by resolution.

RESOLUTION 154 was agreed.

Tor-Ulf WECK reported that he hopes that the final draft of prEN 1996-1-2 will be available from the PT by summer 2002. However his concern was noted that there are issues which may prevent the draft going for FV. It was therefore recommended that the draft should be delayed until the next meeting of SC 6 where the issues can be resolved. The delay has been due to the ill health of the PT Convenor and changes to the membership. A resolution was proposed and agreed by CEN/TC 250, that with the retirement of Mr S KELLY (Ireland), he should be replaced by Aloys BRULS (Belgium) and Christian POHN (Austria). See item 8.c) and Resolution 157.

Regarding the other two EC 6 parts, Tor-Ulf WECK stated that prEN 1996-2 will meet the first draft target date of July 02. The draft of prEN 1996-3 the first draft from the PT (stage 32) will be finalized by July 02.

SC 7 - Roger FRANK referred members to document N 515 and added that prEN 1997-1 reached stage 34 in December 01. An informal ballot as to whether to proceed to Formal Vote was positively supported by SC 7 members (17 in favour, 1 against and 1 abstention).

Regarding prEN 1997-2 and prEN 1997-3, Roger FRANK reported that the PT have started their work in January 02 and should produce the stage 32 drafts by December 2002.

Liaisons are ongoing with CEN/TC 288 and the newly formed CEN/TC 341 which will take material from the ENVs for their standards.

Roger FRANK also reported that EC 7 has received considerable approval in Asia Pacific and Japan where it is considered as an umbrella for their geotechnical codes.

SC 8 (N 509) - Michael FARDIS reported that prEN 1998-1 and prEN 1998-5 had reached stage 34 in November 2001. At the February meeting of SC 8 further comments were received from NSBs which has necessitated further revision of the drafts which also takes account of the Guidance Paper L. These revised drafts will be circulated in the near future.

Michael FARDIS also reported that, as agreed at the Nicosia meeting of CEN/TC 250-/1, the stage 49 for EC 8 Parts 1 and 5 will be delayed to await for the relevant material dependent codes. Hence the next meeting of SC 8 has been postponed until 18 & 19 July 2002 in Vienna.

Regarding the other parts, Michael FARDIS reported that they are proceeding according to schedule.

SC 9 - Federico MAZZOLANI reported that the main issue of SC 9 as agreed at the Prague meeting is the production of the two extra parts of EC 9, "Trapezoidal sheeting" and "Shell structures". These supplementary parts have the full support of the European Aluminium Association (see N 512) and will not delay the work programme of SC 9 or be subject to additional funding. It was noted that the PTs are on schedule to produce the Stage 32 drafts by end June 2002.

Members discussed the creation of the two supplementary drafts and agreed that they must be achieved by splitting as the information for these drafts is contained in the ENV 1999-1-1, 1-2 and 2. It was also decided the five drafts of EC 9 would benefit from sequential numbering and will be renumbered prEN 1999-1-1 to 1-5 inclusive.

RESOLUTION 153 was agreed accordingly.

HG - BRIDGES - Jean-Armand CALGARO reported that the dynamic model for foot-bridges has been produced but only for timber foot-bridges. The Technical Report originally promised for dynamic modelling is proving difficult to produce in comparison to drafting a Eurocode which is considerably easier.

HG - FIRE - Joel KRUPPA reported that in addition to the Thermal properties of concrete debate, his background document for "Increased insulation criteria in natural fire situations", N 498 which was presented at the London meeting, has been sent to Helen Sutcliffe of the Commission and the Fire regulators.

It was also noted that HGF are in liaison with Mr De Groot of CEN/TC 177 "Aerated concrete" to allow them to use the model clauses for the fire part of their aerated concrete standards.

HG - TERMINOLOGY - Jacques LARAVOIRE reported that the main activity of HG-T has been on the work of Annex L for N 250 D

Concluding, the CHAIRMAN thanked the Project Team experts for their efforts and productivity recognising that it is difficult to maintain motivation and focus.

15 SECRETARIAT MATTERS

a) CEN/TC 250 Livelink website

The SECRETARY reported that CEN/TC 250 Livelink website is expanding rapidly with in excess of 100 documents uploaded. Since the last meeting CEN had changed the URL to:

<http://cen.iso.ch/livelink/livelink.exe>

which may have caused access problems to some members. As noted from the URL address the hardware is located at ISO in Geneva whereas the IT specialists for the CEN system reside in Brussels and this has caused problems with problem solving in some instances. It was also noted that currently CEN control the membership database and access rights to the Livelink system, therefore this has caused time delay in changing passwords or adding new members to the system.

However it was noted that the pilot phase is at an end and it is CEN's intention to expand the number of TCs using the system. The SECRETARY reported that he has requested that consideration is given to CEN/TC 250/SC 3 and SC 4 as suitable candidates for the expansion phase. This request is currently under consideration by CEN.

One complaint that the SECRETARY notes, is that when a document is uploaded there is no knowledge of the addition apart from regular visits to the website. It was reported that there is an automatic email function which requires the user to activate the process. The SECRETARY agreed to notify members of the procedures necessary to activate this function.

Action: SECRETARY

b) BSOL Eurocodes

The SECRETARY reported that he is not confident that the latest draft Eurocodes are on the BSOL Eurocodes site and requested the SC Secretaries to check the website and if necessary send the latest versions of their drafts to Barjinder Bal at BSI:

Barjinder.bal@bsi-global.com

Action: All SC Secretaries

16 CMC and BT MATTERS.

Members expressed concern and displeasure at the absence of the CEN representative. Noting that the Eurocodes Programme is now at a critical stage with many drafts reaching stage 49 and being sent to CMC for Formal Vote, the CHAIRMAN agreed to write a letter of protest to CMC management.

Action: CHAIRMAN

It was noted that the translation requirements are clarified by CMC in emails from Ashok GANESH to the SECRETARY which are reproduced in the Nicosia CG report N 1440. John MOORE added that this will be further covered in the revision of N 250 D.

17 ANY OTHER BUSINESS

Members discussed the availability of National Annexes and questioned how are they being produced in the member states. It was agreed that this should be a topic for consideration by the ENC Group.

18 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-second) will be held on 21st and 22nd of November 2002 in Stockholm.

The twenty-third meeting of CEN/TC 250 was arranged for 22nd & 23rd May 2003 although the venue is not known. The CHAIRMAN invited Members to consider hosting this or future CEN/TC 250 meetings.

SECRETARY'S NOTE: In response to the CHAIRMAN'S request, Norway have kindly offered to host the twenty-third meeting in Oslo

The twenty-third meeting of the CG is confirmed for 26th & 27th September - in Madrid at the kind invitation of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc). Details of future CEN/TC 250/-/1 CG meetings will be agreed in Madrid.

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the members of CEN/TC 250 (see N 531) at the Den Haag meeting:

RESOLUTION 153 - Eurocode 9 "Design of aluminium structures"

RESOLUTION 154 - Merging Eurocode 6 "Design of masonry structures".

RESOLUTION 155* - Merging Eurocode 3 "Design of steel structures"

RESOLUTION 156 - Chairmanship of CEN/TC 250/SC 4 "Design of composite structures" and CEN/TC 250/SC 4 "Design of timber structures"

RESOLUTION 157 - Membership of Project Teams

RESOLUTION 158 - Thermal properties of concrete.

* All the above resolutions were agreed with unanimity with the exception of **RESOLUTION 155** on which Portugal abstained.

18 CLOSING OF MEETING

The Chairman thanked Leendert BUTH and the Netherlands delegation for their kind hospitality in hosting this meeting of CEN/TC 250. He also thanked the Dutch Concrete Association, Ballast Nedam Engineering, Bouwen met Staal, Dutch Masonry Association and TNO-Building research for hosting the dinner.

Noting the success of the meeting and the positive progress of the PTs, the CHAIRMAN requested that they remain positive and motivated.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- SECOND MEETING OF CEN/TC 250 HELD IN
STOCKHOLM 21st & 22nd NOVEMBER 2002**

1. OPENING THE MEETING

Ingvar Bortemark Manager of the Construction Department at SIS, welcomed the delegates to Stockholm and the twenty-second meeting of CEN/TC 250. He noted that Sweden are actively supporting the Eurocodes programme through provision of the Secretariats for SC 1 and SC 5. Ingvar Bortemark added that Eurocodes will mean significant changes for designers and contractors and will require considerable intensive work in order to implement them in the next 3-4 years. A considerable resource will be necessary in Sweden to translate the 58 codes into Swedish and subsequently, through education, introduce them to potential users and the market. He also expressed an interest in how the computerized design programs for Eurocodes will develop and identified the need for a Eurocode Helpdesk. Ingvar Bortemark hoped that the members of CEN/TC 250 have a constructive and successful meeting in Stockholm.

2. ROLL CALL

All members introduced themselves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

J MOREAU de ST MARTIN	-	French language
U STOLZENBERG	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report thanked Ingvar Boremark and SIS for hosting this meeting. He referred members to the CEN/TC 250 web-site and his June report and the reports from the SC and HG Chairmen. Also noted were reports on the Circa web-site, 02/559 Construct and the Minutes from the 7th ENC Group meeting N 554.

The CHAIRMAN commented that from discussions at the SCC meeting, it's Members and the Commission are pleased with the progress CEN/TC 250 noting the considerable work load with 58 drafts plus the additional liaison work with product codes & EOTA.

Generally CEN/TC 250 and the SCs are meeting targets, which includes the additional work introduced by the Commission.

Referring to the successes, 2 parts are already published with 3 further parts receiving a positive vote at Formal Vote. 31 parts have achieved stage 32 hence the technical work has been established and a further 17 parts have reached stage 49.

However there are fundamental issues which must be addressed during the meeting and for which solutions are required:

- The examination procedures are overloading system and we must find solution.
- Establish the optimum time for performing translations (French, German).
- Finalization and publication of Eurocodes.

The CHAIRMAN, referring to the Construct paper and the examination period noted that 6 Parts have been exempted from the procedure, however, all Parts for EC2, EC 3, EC 4 and EC 5 will follow the Examination procedure. As stated previously, 17 parts have been submitted to the Examination procedure with 12 not receiving comment, the remaining 5 have received comments from Member States. Whilst some of the formal comments were acceptable due to safety implications most were of a technical nature, and therefore are unacceptable. It is the responsibility of CEN/TC 250 to inform Member States that technical comment during the Examination procedure is not acceptable, as some National mirror committees are using this opportunity to re-open old technical debate.

On a more positive note, the CHAIRMAN reported on the Eurocode conference in Brussels in June. The Commission strongly supports the work of CEN/TC 250 and will underline the importance of Eurocodes through a "recommendation on implementation" which will be produced in 2003.

The Commission also has declared it's support for the Eurocode Programme through the Sixth Framework by considering research funding for Eurocode programme.

The Guidance Paper L has been published which has provided a vehicle to help with liaisons between CEN/TC 250 and product TCs and EOTA.

Not least CEN/TC 250 has been fully supported by Pascal BAR from the Commission.

CEN/TC 250 is obliged to assist the Commission in achieving results on harmonization with hENs. To assist in this requirement, the Commission wishes CEN/TC 250 to propose a model National Annex which will promote harmonization and convergence through a reduction in the number of Nationally Determined Parameters. The Commission also needs assistance in drafting ENC 073 which CEN/TC250 should support and this will be discussed under item 16.b). EN 1990 is a developing document and there will be a report on Annex A.2 and the possibility of further Annexes E.1 to E.5.

Considering the last 2 years, the CHAIRMAN observed that the principle features that the Eurocode programme has developed are:

- Harmonized rules for design works
- Reference documents for construction products

With respect to the future, CEN/TC 250 will assist in harmonization between the precast concrete product standards and the parts of EC 2.

Finally the CHAIRMAN thanked the SC and PT members for their efforts in progressing the Eurocode Programme.

4.2 Adoption of Agenda

The CHAIRMAN commented that a new topic should be added to item 12.b) to receive a report on the proposed Annexes E to cover bridge equipment. Subject to the proposed change the CHAIRMAN recommended the adoption of the Agenda, which Members supported.

5. FOLLOW-UP TO THE TWENTY-FIRST MEETING OF CEN/TC 250 IN DEN HAAG

a) Report from Den Haag meeting (N 530)

The report was approved without comment

b) Resolutions – Den Haag

The resolutions from the Den Haag meeting document N 534, and the subsequent correspondence resolutions Nos. 159 and 160, documents N 534 and N 537 respectively, were noted and accepted without additional comment.

6. FOLLOW-UP TO THE TWENTY-THIRD MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN MADRID

a) To note the CG Draft Report (CG N 1466)

The Secretariat report from the Madrid meeting was noted, without comment.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

John STRATFORD reported that all contracts for the four phases have been issued, with one exception, which in total results in some 345 individual contracts. A few contracts remain unsigned - it is the responsibility of the SC Secretariats and Chairmen to expedite them as soon as possible.

Action: SC CHAIRMEN

Since issuing the contracts, 5 experts have withdrawn and a further expert has unfortunately died. Alternative experts have replaced all six vacancies. The main problem remains the Convenor of the Fire part of EC 6 but all other contracts appear to be operating effectively.

b) Review of Conversion programme

Referring Members to the N 455 Rev 5, John STRATFORD reported that the programme had been thoroughly updated to reflect the discussions at the CG meeting in Madrid whilst ensuring that the update has not caused major constrictions. The target dates for DAV are currently the best guesses, based on the latest information available.

The SECRETARY reported that Warning Notices are still being received from CMC. This is an automatic computer generated procedure, although, as reported in the Madrid CG report (N 1466 (6.b)), the Commission are happy with the management and progress of CEN/TC 250 and stress that the warnings do not apply to Eurocodes. The Warning Notices are primarily for standards that are 3 – 5 years overdue and where the funding has been or will be, withdrawn. Johan VAN TIEL agreed to investigate the situation within CMC in order to stop unnecessary further transmissions.

Action: JVT

c) Background to prEN 1993-1-7 Project Team

John STRATFORD reported on the background of prEN 1993-1-7 “**General rules-Plated structural elements loaded out-of-plane**” and the SC 3 decisions. It was noted that in 1997, CEN/TC 250 agreed by resolution to split ENV 1993-4 into 5 work items including prEN 1993-1-7. Furthermore by email exchange between Jacques BROZZETTI, the then Chairman of SC 3 and the SECRETARIAT, it was agreed that it would be merged with prEN 1993-1-5 during conversion. Frans BIJLAARD stated that prEN 1993-1-7 is a crucial document for SC 3 to ensure a complete set of steel design codes. The draft is not exclusively required for silos and storage bins but is also necessary for bridges and sluice doors. Consequently the Project Team must be funded, as it is unlikely that voluntary experts can produce a draft.

The CHAIRMAN noting that prEN 1993-1-7 is necessary for products added that the Commission should recognize its necessity and proposed that a resolution should be drafted to promote discussions between himself and the Commission regarding funding for the PT.

Action: CHAIRMAN

RESOLUTION 165 was agreed accordingly

8. SUB-COMMITTEE CHAIRMEN & HG CONVENORS

a) To re-appointment the Chairman of CEN/TC 250.

The SECRETARY reminded Members that on the 9th March 2003, the CHAIRMAN will have completed his three-year tenure of office and as this is the last meeting before that date it is necessary to confirm his re-appointment for a further 3 years until March 2006. Members endorsed the re-appointment with unanimity.

RESOLUTION: 161 was agreed accordingly.

b) To appoint the Chairmen of SC 1 & SC 6

The SECRETARY referred members to document N 546 and the CEN/TC 250/SC 1 resolution 103 taken at the Vienna meeting in October 02. Resolution 103 supported the re-appointment of Haig GULVANESESIAN as Chairman of SC 1 for a further 3 years. Members of CEN/TC 250 endorsed the resolution with unanimity.

Haig GULVANESESIAN thanked Members for the endorsement and added that the support he had received from, in particular, Messrs ALBREKTSSON, LUECHINGER, CALGARO and HARDING made his Chairmanship of SC 1 enjoyable and hoped that this support would continue for his next three-year term of office.

RESOLUTION: 162 was agreed

The CHAIRMAN noted that the period of tenure for CHAIRMAN of SC 6 finishes at the end of December 02 and to his disappointment Tor-Ulf WECK is not available to continue for a further 3 years due to other work commitments. The CHAIRMAN thanked Tor-Ulf WECK for his positive contribution not only to SC 6 but also to CEN/TC 250. Tor-Ulf WECK reported that there will be a meeting of SC 6 in early December when his successor will be decided. It is proposed that endorsement from CEN/TC 250 will be sought by correspondence, before year-end.

Tor-Ulf WECK explained that commitments, as the President of an European educational organization based in Brussels, prevents him continuing as Chairman of SC 6. However, he had very much enjoyed his work with SC 6 and CEN/TC 250 and wished both Committees success in the future.

9 POLICY GUIDELINES AND PROCEDURES (N 250 D)

John MOORE reported that issue D of N 250 was re-structured to present the information in the Eurocode style. At the Den Haag meeting of CEN/TC 250, small alignments were considered necessary which have subsequently been incorporated and issued as N 250 D Rev.1.

John MOORE added that from the Madrid CG meeting in September two issues were raised regarding:

- National Annexes and how to develop them with respect to information contained therein
- Translation procedures

Both issues will be discussed during this meeting and depending on the conclusions, may result in a further revision of N 250.

10. ELIMINATION OF INCONSISTENCIES

a) Review of progress in resolving Eurocode inconsistencies

The CHAIRMAN reported that he had spoken with Jan STARK who had indicated that in general the issues of inconsistency have now been resolved.

Members discussed the provision for consistency with other product TCs through liaison. Noting that as endorsed by CEN BT, CEN/TC 250 are the competent authority for structural design rules in the building and civil engineering fields and should a Product TC have a need to use design rules, the Eurocode must be used. However, Members expressed their concerns that Product TCs may either, not be aware of this or they may need reminding.

b) Report on liaison meetings with Product TCs

i) CEN/TC 229 “Precast concrete products”

CEN/TC 229 have requested that the liaison with CEN/TC 250/SC 2 is re-activated. Nary NARAYANAN added that he has submitted a list of SC 2 experts to Marco MENEGOTTO who will form a collaborative Ad hoc Liaison Group comprising, Messrs NARAYANAN, LITZNER, CURBACH and HAGBERG.

A meeting of the Ad hoc Liaison Group has been arranged for the following week in Paris. He added that SC 2 have contributed to EN 13369 “Common rules for precast concrete products” as prEN 1992-1-1 was too restrictive in areas such as environmental issues. It was also noted that there are three routes for CE marking precast concrete products:

- Method 1 - No design
- Method 2 - Reference to EC 2 with the addition of declared or design values
- Method 3 - Designed according to national codes or standards – although this is not completely resolved.

It was stated that CEN/TC 229 are now reasonably happy with prEN 1992-1-1.

ii) CEN/TC 135 “Steel & aluminium execution”

Gerhard SEDLACEK referred members to the position paper from CEN/TC 135 (N 550) and noted that there are three types of performance characteristics specified in the Mandate M 120 for structural metallic components;

- Indicate sizes (geometrical tolerances)
- Address EC 3 performance characteristics (weldability, fracture toughness)
- Design values (impact resistance, load bearing capacity, fatigue resistance)

It was noted that CE marking should be developed in parallel with design rules.

iii) CEN/TC 167 and EOTA - WG "Expansion joints"

Gerhard SEDLACEK reported on discussions that have taken place between TC 250 and TC 167 Structural bearings and that technical requirements are being finalized with CEN/TC 167. Once this has been done the requirements will be included in the new, proposed Annex E for EN 1990.

iv) CEN/TC 129 "Glass"

Gerhard SEDLACEK reported that there had been a meeting between, CEN/TC 129, CEN/TC 250 and the Commission to ensure the safety requirements of EN 1990 with respect to glass product standards (windows, beams and columns) are in compliance .

v) EOTA

Jean-Armand CALGARO reported that he has had discussion with EOTA on the subject of expansion joints.

The CHAIRMAN stated that there is an ETAG No.3 for Timber framed structures, which appears to give an impression of being OK, however the recommended values for NDPs are not mentioned.

Peter MATT queried the rationale of having two similar standards – prEN 13391 "Mechanical tests for post tensioning systems" which is in the process of being drafted by SC 2 and an ETAG on post tensioning which has been published and questioned whether the ETAG will be withdrawn. Uwe STOLZENBERG as Secretary to SC 2 commented that the English and German language versions are being aligned and will be sent to CMC by year-end for progressing to Formal Vote.

Action: US

The CHAIRMAN explained that ETAGs only can describe products and cannot cover application rules.

vi) CEN/TC 177 "Lightweight concrete"

It was noted that EN 1520 will not be published in the Official Journal by the Commission as long as it does not correspond to Guidance Paper L, for example all the figures do not have recommended values and consequently the Commission are concerned that Member States will invent their own values.

Note: Meanwhile, in a liaison group of CEN/TC 177 and CEN/TC 250, a "Corrigendum to EN 1520: 2002 has been produced which will be circulated to CEN/TC 177 Members for approval.

vii) CEN/TC 125 "Masonry products"

Gerhard SEDLACEK referred Members to N 552 and proposed resolution 8, requesting SC 6 provides the ENC Group with detailed requirements for properties of products for masonry structures for EN 771. It was noted that several industries have expressed concern that EN 771 from CEN/TC 125, does not contain this information.

viii) Other products

Other CEN/TCs where liaisons would be beneficial to achieve compliance with Guidance Paper L, are CEN/TC 168 for “Ropes” and CEN/TC 226 “Parapets”

Jean MOREAU DE ST.MARTIN reported that for possible future liaison, there is a new CEN/TC 344 “Metallic storage systems” meeting for the first time next week. Whilst some Members considered the new TC un-necessary, had voted against it’s formation, Jean MOREAU DE ST.MARTIN agreed to advise them to use Eurocodes as the basis for their structural designs.

Action: JMDSM

ix) ECISS

Peter MATT also questioned whether there was liaison in existence between ECISS and SC 2 with respect to ECISS 10080. Nary NARAYANAN considered liaison is too late as the SC 2 drafts are at such an advanced stage and it would be more appropriate for future work on revisions.

11 ENC GROUP and SCC

a) Update of activities of the ENC Group

The CHAIRMAN reported that he had attended one day of the 7th ENC Group meeting held on the 21st & 22nd October and referred Members to the draft minutes as circulated in N 554 (ENC 077). The main discussion topics were, the Examination process, CE marking on structural products, National Annexes, and the possibilities of Research Funding for Eurocodes.

Barry HASELTINE, referring to item 5 of the ENC meeting agenda, “Commission recommendation relating to Eurocodes” (oral presentation) added that the discussion was confusing and he awaited the written document.

The CHAIRMAN explained that this was a political instrument to inform Member States that they should consider using Eurocodes as the single design codes for Works in Europe. Noting that in some States there could be permission to use national codes in parallel. This could result in multiple codes being used for the design of Works across Europe. However, the CHAIRMAN believes that the majority of Member States will recommend Eurocodes as they have been developed under a European Commission initiative and as they are the basis for the design of products according to harmonized technical specifications (hEN and ETA).

b) Guidance Paper L

Barry HASELTINE reported that at the ENC meeting, the proposed revision to Guidance Paper L was decided to be unnecessary. This decision was vindicated by the discussions at the CG meeting in Madrid.

c) National Annexes

Jean-Armand CALGARO gave his presentation on National Annexes as circulated in document N 544 A. It was noted that whilst the text of the Eurocode part must be identical as published by all CEN Member Bodies, the Commission also wishes to have the National Annexes in a standard format to aid comparison between Member States

and has requested CEN/TC 250 to draft a proposal for a model National Annex. Members recognized that National Annexes would be totally different within the Eurocode parts and compared EN 1990 with 6 NDPs to EN 1992-1-1 with 138 NDPs. As a consequence it was thought that a model National Annex would be difficult to provide. Additionally some Members considered that a model would be an un-necessary constraint given that in some Parts there are too many NDPs, some of which are not truly NDPs, which would promote confusion as to what a National Annex should contain. There followed a lengthy discussion on how to proceed, noting that it is the request of the Commission through the ENC Group, that CEN/TC 250 produces the model National Annex.

John Moore proposed that the best way forward is to further develop Annex K and L of N 250 D Rev.1, taking account of existing draft National Annexes. This would be achieved by expanding the membership of WG 1 in preference to forming a new Ad hoc Group. This proposal was accepted and it was agreed that a draft would be discussed at the next CG meeting, for presentation at the next ENC Group meeting in April 2003.

Action: JM and WG 1

12 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 Bridges

Jean-Armand CALGARO reported that "clean" version of Annex A.2 recently posted on the web-site in the zip file N 549 was technically the same as the draft circulated as 31st July version (N 526). Explaining the background to his presentation N 549, it was noted that the new version took account of comments made at the Madrid CG and ENC Group meetings and recommended that CEN/TC 250 should agree for it to be sent to CMC to initiate Formal Vote.

Members discussed the recommendation at length and whilst noting the draft had been available since August as a technical stable draft, several Members requested more time to consider the latest draft more fully. Accepting that some 15 – 20 experts had been consulted at all stages of the development and that the draft had been subject of long discussions between the PT and NTCs, Members decided that the draft dated 14 November 02, in N 549 should be accepted as the stage 34 draft.

RESOLUTION 167 was agreed accordingly.

The SECRETARY was requested to send a copy of the stage 34 draft to CMC and Pascal BAR at the Commission to initiate the Examination Period.

Action: SECRETARY

Jean-Armand CALGARO also gave a presentation N 553 showing the evolution of EN 1990 and the proposed three new parts to Annex A.

- Annex A.3 Application for towers and masts (added during the meeting)
- Annex A.4 Application for silos and tanks (re-numbered during meeting)
- Annex A.5 Application for cranes and machinery (" " " ")

Members agreed to these proposed parts and agreed the resolution accordingly:

RESOLUTION 168

b) New Annex E of EN 1990

Jean-Armand CALGARO also proposed that a new Annex E should be introduced to EN 1990 to include the design of bridge equipment such as structural bearings, expansion joints, parapets and steel components in tension (ropes and cables). The structure of the new Annex E would be as follows:

- E.1 – Technical requirements for structural bearings
- E.2 - Technical requirements for expansion joints
- E.3 - Technical requirements for pedestrian parapets
- E.4 - Technical requirements for vehicle parapets
- E.5 - Design of structures with tension components made of steel (ropes and cables)

Members agreed to the proposal and accepted the resolution:

RESOLUTION 169

13 MAINTENANCE AND RESEARCH PROGRAMMES

a) Maintenance

Paul LUECHINGER reported the activities of the Ad hoc group "Future actions and maintenance" and referred Members to CG document N 1450, the minutes from the first meeting in Berlin, July 2002.

The main conclusions from the Berlin meeting were that future actions and maintenance should be oriented to the following clear targets:

- Eurocode Parts should be progressed through Formal Vote with minimum delay.
- Facilitate implementation in Member body countries.
- Promote and take account of feedback from users and product TCs.
- Preparation for an effective revision of Eurocodes.

At the Berlin meeting short (≤ 1 year), medium (1 - 5 years) and long term (> 5 years) tasks were identified with the agreed focus being on the short and medium term. It was also noted that the Ad hoc Group propose that "Guidance paper L" and the two Commission papers on "Procedure relating to the examination period for EN Eurocodes" (02/518) and "Nationally determined parameters and National Annexes for EN Eurocodes" (02/519) should be amended to avoid misunderstanding and misuse.

Short term - the technical effort of CEN/TC 250 should be directed to completing the EN Eurocode parts and the Annexes to EN 1990. Complete the SLS report and create a Helpdesk Panel to field questions on EN 1990 and it's relation to other Eurocode parts and product standards.

Paul LUECHINGER reported that he had discussed the concept of a Helpdesk with George Hongler at CMC, who believes this is the responsibility of CEN/TC 250. It is envisaged the Helpdesk will provide assistance with matters of safety and interpretation of the Eurocode text.

Other short-term tasks are to assist the ENC Group in the preparation of a model National Annex, reduce the number of choices of alternative methods and organize an exchange of information with users and product TCs.

Medium term - identify areas for revision and/or research based on feedback from the use of EN 1990, generalize rules for fatigue and damage and prepare proposals for revision of EN 1990 and prepare the alignment of NDPs in order to reduce the numbers.

Long term - it was agreed that not much time should be devoted to long-term actions at present.

Members discussed the structure of the proposed group, which will act as a platform to progress the necessary actions and agreed that a permanent core group should be formed which will initially only consider EN 1990. As the need arises the group can be expanded to consider other Eurocode Parts by the inclusion of additional experts.

RESOLUTION 166 was agreed accordingly.

It was noted that the drafting of Annex B and Annex C of EN 1990, will create an opportunity for the use of probabilistic methods if required. It was also agreed that N 1450 CG will be editorially corrected and re-circulated as a CEN/TC 250 document.

Action: PL

b) Eurocodes information/Help desk

There was no information available to discuss under this topic, however, John MOORE raised the issue of the availability of background documents when the Eurocode Parts are published, noting that for example there is a useful paper on Shear within CEN/TC 250/SC 2. Uwe STOLZENBERG commented that in the CEN/TC 250/SC 2 Livelink web-site there is a dedicated folder for background documents. Roger FRANK added that within the Geotechnical community a "Geotechnical network" has been established to track background notes and ideas.

However, it was recognized that these documents are often too difficult to verify and therefore they must be considered as private and unofficial documents as discussed at the CG in Nicosia.

14 SUB-COMMITTEE REPORTS

i) SC 1 -(N 546) - Haig GULVANESESIAN reported that four drafts had now passed Formal Vote, EN 1991-1-1, 1-2, 1-3 and 2 also prEN 1991-1-5 "Thermal actions" had been sent to CMC for preparation for Formal Vote.

It was noted that prEN 1991-1-4 "Wind actions" was under consideration by the Member States for the examination period. This draft was prepared before the issue of N 250 D, hence it is in the "old" style and will require aligning with current rules.

All other codes in the SC 1 programme are progressing well and are expected to be approved to go forward to FV, at the next SC 1 meeting (Pisa in May 2003).

Haig GULVANESESIAN reminded Members of the discussions at the Den Haag meeting regarding the title change of prEN 1991-1-7 "Accidental actions due to impact and explosions" where CEN/TC 250 had asked SC 1 to reconsider their request. This matter had been further discussed at the SC 1 meeting in Vienna and had concluded that a title change was still deemed necessary.

Geoff HARDING as Convenor of the PT added that the current title is inadequate and causes confusion to the reader, whereas the proposed new title will give a freedom to introduce further work in the future, which could include the consequence of local damage.

Members discussed whether local damage should be considered as an accidental action and expressed their concern that a change of title could affect the scope, which cannot be unrestricted. Noting that the scope cannot be changed or unrestricted, Members agreed to the title change to "Accidental actions".

RESOLUTION 171 was agreed

Haig GULVANESSIAN reported that also at the Vienna SC 1 meeting, a title change to prEN 1991-4 "Actions in silos and tanks" had also been agreed. The new title should be "Silos and tanks" which will reflect consideration for external loading. Members agreed to the title change.

RESOLUTION 170 was agreed

Haig GULVANESSIAN reported that the Project Team for prEN 1991-1-6 "Actions during execution" are having liaison problems with CEN/TC 53 – Scaffolding. This TC has a DIN Secretariat although it is hoped that the situation will improve now that Michael FLACH has taken over this responsibility.

Milan HOLICKY announced that there is a new EU funded project, which will commence in 2003 entitled "Leonardo da Vinci" which will consider the implementation and promotion of Eurocodes, in particular EN 1990 and EN 1991 series. It was noted that Czech Republic, Slovenia, Germany, Italy, Luxembourg, Netherlands, Spain and the UK have agreed to participate. Milan HOLICKY added that comments and input from Members of CEN/TC 250 would be appreciated.

Action: All Members

ii) SC 2 – Nary NARAYANAN referred Members to the CG report (N 1462 CG) and added that as he was appointed Chairman of SC 2 in July there had been no meetings under his Chairmanship.

Regarding progress of SC 2 Parts, it was noted that prEN 1992-2 "Concrete bridges" is expected to reach stage 34 by middle of December 2002 after a successful PT/NTC meeting.

Also there will be a meeting in London in February 2003 for the PT prEN 1992-3 "Retaining structures" after which a stage 32 draft should be available.

Nary NARAYANAN reported with concern that the comments received from Germany during the examination period on prEN 1992-1-1 were mainly of a technical nature and had been previously considered during the drafting and therefore are unacceptable. Five other Member States (Austria, Belgium, Denmark, Netherlands and Spain) had made editorial comments, which will be included in the revised draft. A target date of the end February for progressing the finalized draft to CMC is realistic although it was noted that AFNOR have not placed the translation contract as yet.

It was also noted that an informal draft (stage 32) of the Fastenings WG is expected in February 2003.

iii) SC 3 - Frans BIJLAARD reported that the next meeting of SC 3 will be in Brussels the following week. The main effort of SC 3 has been focussed on finalization of the first

tranche of six parts of EC 3 into the three languages, which is about 75% completed. As there were no comments received during the examination period, Frans BIJLAARD expects to pass the drafts to CMC by the end of February for Formal Vote preparation. Referring to prEN 1993-2 "Steel bridges", it was noted that this is ahead of schedule and is expected to achieve stage 34 by end 2002 and will be voted for approval at the next SC 3 meeting. All other SC 3 parts are on schedule with the exception of prEN 1993-1-7 which has the financing problem, which was resolved under item 7 of this meeting.

iv) SC 4 – The CHAIRMAN reported that the Formal Vote on prEN 1994-1-1 had been postponed after his letter to George HONGLER and the intervention of the BT. In the absence of Jan STARK, Douglas BURNS reported on the activities of SC 4, noting that the stage 49 drafts of general requirements parts (-1-1) of SC 2 and SC 3 are awaited to allow completion of prEN 1994-1-1. It is anticipated that the translations of prEN 1994-1-1 will be available by middle of March 2003, which will allow the stage 49 draft in April/May 2003.

It was reported that prEN 1994-1-2 is slightly behind schedule and the stage 49 draft will not be available for voting at the next SC 4 meeting in Brussels in middle December 02. Consequently this will be approved by postal ballot.

Douglas BURNS urged close liaison between SC 2, SC 3 and SC 4 noting that harmonization between the three equivalent codes is essential. Referring to the Composite bridge code prEN 1994-2, it was noted that there will be a PT meeting in February 2003 to process the draft to stage 34, but this will be dependant on the drafts for steel and concrete bridges.

v) SC 5 - Juergen KOENIG referred members to his report N 547 and added that prEN 1995-1-1 and prEN 1995-1-2 have been circulated for examination period. After a 2-month extension request from Germany, 10 comments were received on prEN 1995-1-1. These were mainly revisited technical comments or unqualified comment said to be safety issues. The result has been to amend the draft in two areas (1 change and 1 correction).

There were no comments received on prEN 1995-1-2 during the examination period. Juergen KOENIG reported that there is a problem with the three language versions. The English language version requires editing by an English language expert. Geoff HARDING for the UK delegation agreed to take responsibility for this action.

Action: GH

It was also reported that there is a problem in identifying the German and French translators who will join an Editing Panel to modulate the three language drafts. Juergen KOENIG added that he expects the drafts to be sent to CMC for Formal Vote by April 2003.

Referring to the Timber bridge part, prEN 1995-2, this was to be discussed at a meeting in October but due to delay with the draft the meeting was cancelled. The new draft will be discussed at a PT/NTC meeting to be arranged.

vi) SC 6 - Tor-Ulf WECK referred members to N 545 and reported that the main problem of SC 6 is with prEN 1996-1-2 "Fire". The Convenor of the Fire PT will have the draft available for the next SC 6 meeting in December 02. Tor-Ulf WECK recommended that the following target dates will apply to prEN 1996-1-2.

May 03	-	Stage 34
Oct 03	-	Stage 49
Oct 04	-	Publication

Tor-Ulf WECK reported that due to pressures of work, this would be his last CEN/TC 250 meeting as Chairman of SC 6 as he will retire from office at the end of his 3-year tenure. At the next SC 6 meeting there will be a resolution to propose his successor, which will be circulated to Members of CEN/TC 250 for approval by correspondence resolution. It was noted that for continuity, he probably will attend the next CG meeting together with the new SC 6 Chairman.

The CHAIRMAN thanked Tor-Ulf WECK for his skill and ability in successfully managing a complicated subject.

vii) SC 7 - Roger FRANK apologised that he had circulated the CEN/TC SC 7 report too late to be available for the meeting (see N 555 circulated after the meeting). The main issue of CEN/TC SC 7 is the merging of part 2 and part 3 into a single new document prEN 1997-2 "Eurocode 7 – Geotechnical design – Part 2: Ground investigation and testing." CEN/TC 250 has now approved this merger, by correspondence resolution N 537.

The new Part 2 is progressing to original schedule and there will be a meeting with the NTCs to discuss the latest draft.

Regarding Part 1, the translations are undergoing a final check before sending to CMC by year-end.

The next meeting of CEN/TC SC 7 will be in July 2003.

Liaisons between CEN/TC SC 7 and CEN/TC 341 "Geotechnical testing" are ongoing, noting there is considerable work to be done in this area. Also liaisons are established with CEN/TC 288 and CEN/TC 189 although these are less active.

However the liaisons between CEN/TC SC 7 and CEN/TC SC 8 remain very effective and efficient.

viii) SC 8 (N 542 A) - Michael FARDIS reported that prEN 1998-5 had reached stage 49 and passed the Examination period without comment. Eduardo CARVALHO as Secretary of SC 8 reported that the draft has now been sent to CMC (October 02) for preparation to launch of Formal Vote. Michael FARDIS reported that Part 1 was approved by CEN/TC 250/SC 8 in July although objections have been raised by the Masonry Manufacturers Association. It was reported that SC 8 can't accept these objections without upsetting the positive balance of the Member States, but he has arranged a meeting with the Masonry Manufacturers Association in attempt to resolve the situation.

ix) SC 9 – In the absence of Federico MAZZOLANI there was no report presented from SC 9. The CHAIRMAN referred Members to the report given at the Madrid CG -N 1455.

x) HG - BRIDGES - The main activity of the HG- Bridges Group was covered under item 12 of the meeting.

xi) HG - FIRE – In the absence of Joel KRUPPA there was no report from the HG-Fire Group. The CHAIRMAN referred Members to the report N 1446 discussed at the CG.

xii) HG - TERMINOLOGY - In the absence of Jacques LARAVOIRE there was no report from the HG-Terminology Group. The CHAIRMAN referred Members to the CG report N 1466 and the discussions in Madrid. John MOORE reported that he had sent his comments on the Translation Procedure to Jacques LARAVOIRE.

15 SECRETARIAT MATTERS

a) CEN/TC 250 Livelink website

The SECRETARY reported that CEN/TC 250 Livelink website is now fully functional, however, he had received complaints that documents are still being circulated too late for Members to fully consider prior to a CEN/TC 250 meeting. It was explained that contributors often send in discussion documents at the "last minute" and this practice should stop. It was considered reasonable that in future no documents should be uploaded on the web-site, less than one week before a meeting.

Action: All contributors

16 CMC and BT MATTERS.

a) Warning Notices

As discussed previously under item **7 b)**, Johan VAN TIEL agreed to investigate within CMC.

b) Translation procedure

The CHAIRMAN commented on the need to launch Formal Vote of a Eurocode Part in the three official languages, to ensure the best possibility of a positive result. This was one of the reasons for CEN/TC 250 objecting to the FV of prEN 1994-1-1 as it was launched in a single language (English) only.

Barry HASELTINE referred members to N 551(ENC 073) "Guidance on the finalization of the EN Eurocode Parts" and the proposed revised procedure. Members discussed the proposal at length and recognized the positive advantages of having the translations available before Formal Vote is launched.

It was agreed that the following steps will be made by the CEN/TC 250/SC between reaching the Project Team contract stage 34 (Final PT draft) and stage 49:

- On reaching stage 34 the SC Secretariat will send a copy of the draft (complete with a document number) to CMC to register PT stage 34 achievement. Coincident copies of the draft will be circulated to the SC Members for comment and the Commission to initiate the examination period (maximum 6 months)
- Comments from the SC and SCC Members will be addressed during the subsequent SC meeting. The draft's technical competence will also be approved to permit the draft to go for Formal Vote.
- If practicable the SC will form an Editorial Panel comprising English French and German language experts to prepare an edited "clean" draft.
- The SC Secretariat will send the clean draft to BSI, AFNOR and DIN for translation into the 3 official CEN languages. The Editorial Panel will liaise with the translators to ensure that the drafts are clear, unambiguous and equivalent in all three languages.
- On receipt of all three languages versions the SC Chairman will approve the draft for the SC Secretariat to send to CMC as the stage 49 draft to launch Formal Vote.

Johan VAN TIEL supported the proposal and agreed to check the implications with CMC as this deviates from standard CEN procedures.

Action: JVT

RESOLUTION 164 was agreed

17 ANY OTHER BUSINESS

The CHAIRMAN announced that this is the last CEN/TC 250 meeting that John STRATFORD will attend in his capacity as Consultant to the SECRETARIAT. He thanked him for his contribution to the success of the Eurocode Programme and especially his administrative work on the contracts for the Chairmen, Secretariats and PT experts.

RESOLUTION 163

18 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-third) will be held on 22nd and 23rd of May 2003 in Oslo.

The twenty-fourth meeting of CEN/TC 250 was arranged for 16th & 17th October 2003 possibly in Lisbon although the availability of facilities had to be confirmed.

SECRETARY'S NOTE:

Eduardo CARVALHO has confirmed that Portugal will host the 24th meeting and has kindly made reservations at the LNEC.

The twenty-fourth meeting of the CG will be held in Valletta on the 20th & 21st March 2003 and the twenty-fifth meeting will be held in Galway on the 18th and 19th September 2003

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the members of CEN/TC 250 (see N 557)

RESOLUTION 161 – Re-appointment of Chairman of CEN/TC 250

RESOLUTION 162 - Re-appointment of Chairman of CEN/TC 250/SC 1

RESOLUTION 163 – Mr John STRATFORD

RESOLUTION 164 – Revised procedure from Stage 34 to Formal Vote

RESOLUTION 165 – prEN 1993-1-7 "Design rules for plated structures subjected to out-of-plane loading

RESOLUTION 166 – Maintenance for EN 1990

RESOLUTION 167 – Annex A.2 of EN 1990

RESOLUTION 168 – New Annexes to EN 1990

RESOLUTION 169 – New Annex E of EN 1990

RESOLUTION 170 – Request for change of title of prEN 1991-4

RESOLUTION 171 – prEN 1991-1-7 "Accidental actions – Impact and internal explosions"

18 CLOSING OF MEETING

The Chairman thanked SIS for hosting the meeting and in particular Curt LINDER for his efforts in arranging another successful meeting.

The CHAIRMAN also thanked the sponsors of the dinner for their excellent hospitality who were:

The Swedish National Rail Administration - Banverket

The Swedish Precast Concrete Federation - Betongvarustrin

The National Board of Housing, Building and Planning - Boverket

WSP Construction Design – WSP Byggprojektering

The Swedish Construction Federation – Sveriges Byggindustrier

The National Association of Swedish Wooden House Manufacturers – Sveriges Trahusfabrikers Riksforbud

The Swedish National Road Administration – Tyrens Byggkonsult AB Vagverket

Malcolm Greenley

For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- THIRD MEETING OF CEN/TC 250 HELD IN
OSLO ON 22nd & 23rd MAY 2003**

1. OPENING THE MEETING

Steinar LEIVESTAD welcomed Members of CEN/TC 250 to Oslo and gave a presentation on the successes of structural engineering in Norway with particular reference to concrete and timber bridges and offshore structures

2. ROLL CALL

All members introduced themselves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

C PATROUILLEAU	-	French language
U STOLZENBERG	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report thanked Steinar LEIVESTAD and the Norwegian delegation for hosting this meeting. He referred members to the CEN/TC 250 web-site and his report for July to December 02 in document N 560. The report gives the information on the outcome of formal meetings in Madrid (CG) and the CEN/TC 250 meeting in Stockholm; see documents N 1466 CG and N 558 respectively.

The CHAIRMAN also noted that there have been many other meetings since Stockholm, including meetings with the Commission through the SCC and ENC group, CMC and liaison meetings with product TCs and EOTA. These will be further discussed during this meeting. The main work of CEN/TC 250 since Stockholm has concentrated on the new translation procedure and national regulations and nationally determined parameters in National Annexes. Also the work within the sub-committees will be reported on under item 13 of the agenda. On the subject of applicable reports, the CHAIRMAN added that the Report to the SCC on the 13 & 14 May is on the Circa web-site (document 601) and the report from the ENC group meeting on 1 & 2 April will be verbally reported on during the meeting as the report is not available. It was also noted that the report from the CG meeting in Valletta on 21 and 22 March 03 would also be verbally reported as the formal report was not available.

The CHAIRMAN stated that progress remains positive and generally on schedule thanks to the SCs and PTs for their additional unpaid work considering the extra effort involved with the introduction of the Examination period and the new translation procedures.

Success of CEN/TC 250 can be seen with the 57 parts under preparation with more than 66% of the parts technically stable (at stage 32 or beyond). Three codes have been published with another two, "Snow loads" and "Traffic loads" have passed formal vote and should be published soon. A further 5 parts including prEN 1992-1-1, prEN 1993-1-1, prEN 1993-1-8, prEN 1993-1-9 and prEN 1993-1-10 have been sent to CMC in the three languages for preparation for Formal Vote later this year. The fire parts will follow in July 03. Member States need to give a positive response to these codes at Formal Vote. Additionally prEN 1994-1-1 and prEN 1994-1-2 will be available in June 03 for signing off and sending to the CMC.

The CHAIRMAN added that there are more than 20 parts at stage 34 and according to the reference document, N 541 D, 19 parts have passed the examination procedure plus a further 6, which were exempt from the examination procedure. The CHAIRMAN noted that the new procedure for translations agreed by resolutions number 164 at the Stockholm meeting added that the Sub Committees are forming Editing Panels who will produce the 3 language versions through AFNOR, DIN and BSI. The Editing Panels will ensure that the three language versions are technically equivalent. The three language documents are then sent to the CHAIRMAN of CEN/TC 250 for signing off and forwarding to CMC for the launch of Formal Vote. The CHAIRMAN also reported that there is a new edition of N 250 E on the Livelihood web-site which has been updated by John MOORE and WG 1, as a result of discussions and decisions at the Stockholm and Valletta meetings.

The Commission are maintaining their support for the work of CEN/TC 250 though apologies have been received from Pascal BAR for this meeting. The CHAIRMAN noted that the Commission are preparing a document on the "Recommendation of Eurocodes" for Member States to give preference to Eurocodes, at least as an alternative to national design codes in order to offer harmonized design codes across Europe and to provide for compatibility with harmonized product standards. The Commission also requires CEN/TC 250's support with liaisons with Product Standards TCs and attendance at the ENC Group where a forum to discuss problems of a formal nature exists. Through the ENC Group the Commission, have requested the help of CEN/TC 250's expertise to aide the harmonization process of National Annexes by producing a model Annex. It is also the Commission's wish that CEN/TC 250 assists in reducing the number of NDPs wherever possible and the use of recommended values for NDPs to promote harmonization. The

CHAIRMAN added that there is still conflict between CEN/TC 250 panels and EOTA adding that we must finalize and establish a harmonized series of design codes and product standards which will promote better economy throughout the Construction Industry. Eurocodes will be promoted globally noting that Asia is considering adopting either Eurocodes or US codes – but through harmonization, Eurocodes are the preferred solution.

In conclusion the CHAIRMAN stated that a further objective of this meeting is to approve Annex A.2 of EN 1990. As EN 1990 is a living document it will be further amended to include other Annexes in the next two years.

4.2 Adoption of Agenda

The CHAIRMAN stated that Peter MATT will report on the Swiss codes under item 15 of the agenda (Any Other Business). Subject to this proposed change the Members agreed to the adoption of the agenda.

5. FOLLOW-UP TO THE TWENTY-SECOND MEETING OF CEN/TC 250 IN STOCKHOLM

a) Report from Stockholm meeting (N 558)

The SECRETARY reported that he had received an email from Elizabeth Helsing from Sweden commenting that the minute under item 10.b.vi) on page 7 was not exactly as per the discussion. As Sweden had raised the matter it is requested that the first paragraph is changed as follows:

"It was noted that EN 1520 will not be published in the Official Journal of the Commission as long as it does not correspond to Guidance Paper L. The Commission is concerned that otherwise Member States will change the values given in the standard."

Barry HASELTINE referred to the minute Item 10.b.vii) on page 7 of the report and noted that the resolution 8 was only a proposal that was not adopted by the members. Therefore the minute should reflect this decision by CEN/TC 250.

Subject to the above comments, the report was approved without further amendment.

b) Resolutions – Stockholm

The resolutions from the Stockholm meeting in document N 556, and the subsequent correspondence resolution No. 172 in document N 561, were noted and accepted without additional comment.

6. FOLLOW-UP TO THE TWENTY-FOURTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN VALLETTA

a) To note the CG Draft Report (CG N 1484)

The SECRETARY apologised for not making the report available for the meeting however stressed that in general discussions at the CG relate to co-ordination work and are geared to preparing presentations for decision at the CEN/TC 250 meeting. Giorgio MACCHI added that only co-ordination matters should be discussed at the CG meetings and Italy were disappointed that the report from the Valletta meeting was not available before the CEN/TC 250 meeting, which prevented the Italian mirror committee deciding policy before the plenary meeting. Furthermore he suggested that the CG should be disbanded and another way should be found to decide co-ordination matters. The CHAIRMAN disagreed, adding that the preparation of the presentations for the CEN/TC 250 meeting is urgently needed and consequently very important. The SECRETARY advised that the next CG meeting is in September and the plenary meeting in October therefore it is very unlikely that the next CG report will be available before the CEN/TC 250 meeting.

The SECRETARY commented that the major points of discussion at the CG meeting in Valletta were:

- The new, proposed Annexes for EN 1990 – Annex A.3, A.4 and A.5 and the Annex for bridge elements, Annex E.
- The revision of N 250 to include the revised translation procedure as agreed in Stockholm.
- Maintenance and Research needs of EN 1990.

Secretary's Note: The notes of the CEN/TC 250/-/1 meeting in Valletta have subsequently been circulated see CG document N 1484.

b) Thore HAGBERG informed Members that he reports to the European Consulting Engineers Group (EFCA) every 6 months on Eurocodes. It was noted that his recent reports are more positive in his opinion that Eurocodes are much improved and has stressed that European Engineers should use them.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

The SECRETARY reported that all contracts for the four phases have now been issued, and with the retirement of John STRATFORD he is now the contact point for all queries on contracts.

It was noted that all **Phase 1** contracts have now been signed.

There are still three **Phase 2** contracts outstanding, namely HAHN, POHN and FILA. It was agreed that the contract of Mrs HAHN would be discussed under SC 6 report later in the meeting. Jean-Armand CALGARO reported that FILA will not sign his contract although he has been an active member of the Project Team. It was agreed that the SECRETARY and Jean-Armand CALGARO will discuss the redistribution of funds outside the meeting.

Action: J-AC/SECRETARY

For **Phase 3** contracts, it was noted that Juergen KOENIG has taken action on the outstanding contract from SC 5, however, there still remains, Messrs: NEALE, POTTAGE, OLSON and ROLLER to sign their contracts.

For **Phase 4**, the following contracts remain outstanding: Messrs van BREUGEL, ROTTER (x3), OBERNDORFER, ROWBOTTOM, TAYLOR, MAGNAN*, VALTINAT and OGLE.

* It has been reported that this contract has been lost and the SECRETARY has been asked to send duplicates to Roger FRANK

Action: SECRETARY

It was also noted that under the Phase 4 contracts, Haig GULVANESSIAN had not signed his contract.

The Sub Committee Chairmen were asked to contact their PT members where contracts are unsigned.

Action: Relevant SC Chairmen

The SECRETARY raised an issue that the European Federation of Geologists (EFG) have requested, through CMC, to establish liaison with CEN/TC 250. It was explained that this request would only be applicable to SC 7 and SC 8. Roger FRANK and Michael FARDIS both agreed that whilst accepting liaisons are a very important role of CEN/TC 250 and its sub-committees felt that the EFG wish only to create a role of influence within Europe. Adding that there would be no appreciable benefit to CEN/TC 250 and noted that the priority of CEN/TC 250 is to maintain liaisons with CEN product TCs. The CHAIRMAN summarizing noted the importance of liaisons adding that at the moment we cannot establish new liaisons unless they are with other TCs.

RESOLUTION 173 was agreed accordingly.

Johan VAN TIEL reported that there is to be a meeting between CMC and the Commission to review progress of the Eurocode Programme on 10 June and requested that the latest target dates should be available for discussion. It was agreed that after the Sub-Committee reports the revised target dates for stage 49 would be agreed by resolution.

Communications

The SECRETARY reported that the CEN/TC 250 Livelink website was fully operational although expressed concern that some members were still experiencing difficulty in receiving notification of a documents availability. Members commented that DIN automatically receive email notifications. The SECRETARY explained that this facility is available to members who were informed two years ago on how to add automatic notification to their preferences. The SECRETARY agreed that he would investigate the possibilities of an email when a document is uploaded. It was also discussed the usefulness of the email he circulated prior to the meeting advising members of where to find the appropriate documents. As an extension to this facility it was agreed that he would also investigate the possibility of creating a folder on the website where all the documents for the meeting could be accessed.

Action: SECRETARY

The SECRETARY gave a presentation on the BSOL (British Standards On Line) Eurocodes website and reminded Members why it had been set up. The need was in response to requests by PT experts to view parallel Eurocode drafts as they developed in other Project Teams. Through this facility it was anticipated that the possibility of inconsistencies would be greatly reduced. It was noted that all Members of CEN/TC 250 were also given access rights during the websites development and SC Chairmen were asked to ensure the PT members were aware of the facility. The SECRETARY expressed his concern that this is not being regularly used adding that recently he had

received a request from a PT member who needed a copy of the latest draft of EN 1990 and was not aware that the facility existed.

The SECRETARY requested that all Members access the site for their information. Also SC Chairmen were requested to ensure that their PT Members are aware of the facility and ensure that their drafts are the latest ones available.

Action: All Members and SC Chairmen

To access the BSOL Eurocodes website, go to: <http://bsonline.techindex.co.uk> and follow the attached instructions in Annex B of this report.

Tariq NAWAZ representing the UK Regulators gave a presentation on how Eurocodes will be implemented in the UK. It was stressed that the UK Government are totally supportive of the Eurocode Programme and it was explained how the UK Structural Engineering industry is being engaged to adopt the codes. Tariq NAWAZ made copies of the ODPM guidance brochure on "*Implementation of Structural Eurocodes in the UK*", available to Members of CEN/TC 250 noting that it can also be downloaded from the ODPM website at : <http://www.safety.odpm.gov.uk/bregs/index.htm>

8 POLICY GUIDELINES AND PROCEDURES

John MOORE referred Members to his report to the CG (document N 1478) and the new version of N 250 (E) circulated in early May.

In N 250 E it was noted that the changes from the previous version (N 250 D Rev1) are listed on page 4, as follows:

1. Annex C amended to reflect changes to titles and scopes of EN Eurocode Parts previously agreed by CEN TC 250 resolutions.
2. Annex M amended to reflect the new responsibilities of TC/SC Secretariats for the three language versions for Formal Vote, as resolved by CEN TC 250 in Stockholm.
3. Annex P amended substantially to provide detailed guidance on the content of National Foreword and a National Annex, while retaining the examples (with minor editorial corrections).
4. A few outstanding editorial corrections.

In response to a question from Gerhard SEDLACEK regarding the wording of Annex P section 4.4 (2) on page 131, John MOORE commented that it is not essential for a Member State to produce a National Annex and suggested that the clause could be relegated to a footnote.

Members discussed at length the 3 sub-clauses of 4.4 on page 131 and the definition of explicit. Nary NARAYANAN observed that if a value is given in the Eurocode it must be safe to use and the NA should not be a restriction to use. The CHAIRMAN added that all choices must be safe but if a Member State feels that restrictions are necessary then the National Annex will reflect this.

Haig GULVANESESIAN commented that he strongly recommended the example used in 4.4 (1) to be changed to a geotechnical example.

After further discussion it was agreed to delete clause 4.4 and retain just the title:

"4.4 Type 4. The procedure to be used where alternative procedures are given in the Eurocode" - and add a note to refer to clause 3.5

Haig GULVANESSIAN referring to Paul LUECHINGER'S presentation on the future maintenance of Eurocodes noted that it is an objective to converge Nationally Determined Parameters wherever possible. With this in mind, it is recommended that in clause 3.5(3), only one choice should be recommended in the National Annex.

Michael FARDIS commenting on Annex M suggested that a liaison with CEN/TC 340 should be added to the list as this is important for prEN 1998-2. The CHAIRMAN agreed reiterating the importance of liaisons although he noted that the list of CEN/TCs is greater than the actual number of active liaisons with CEN/TC 250 and may require a differentiation for those where there is an ongoing liaison. Gerhard SEDLACEK will report on the status of liaisons under item 9 of the agenda.

Uwe STOLZENBURG commenting on Annex M noted that this procedure is a change from CEN rules and as the translations are now the responsibility of the SC Editing Panel. Recognizing that Eurocodes take longer to translate, Uwe STOLZENBURG explained the experiences and delays of SC 2 with prEN 1992-1-1. Uwe STOLZENBURG was requested to draft a proposal with timescales for the translation process for circulation to CEN/TC 250

Action: US

Nary NARAYANAN commented that the Project Team Members of SC 2 have expressed concern that the document can change through the CMC editing process and insist that any changes must be approved by the PT. It was also questioned why a changeable Word file should be included with the draft sent to CMC. Johan VAN TIEL explained that a Word file is necessary for CMC internal electronic processing reasons.

All Members were requested to consider the proposed changes to N 250 E and supply further comments to John MOORE, by the end of May 2003.

Action: All Members

Subject to addressing the points made during the discussions, revision E was agreed by CEN/TC 250 Members

As an additional comment, Jacques LARAVOIRE noted that on page 2 of the N 250 E Foreword note (7), the comment " [Draft awaited from M. Laravoire]" should be deleted as this referred to an action that he completed some time ago.

9. ELIMINATION OF INCONSISTENCIES

a) Report on liaison meetings with Product TCs

i) CEN/TC 129 "Glass" Gerhard SEDLACEK reported that liaison is ongoing to develop a section on Basis of Design for glass with Haig GULVANESSIAN and experts from CEN/TC 129.

ii) CEN/TC 135 "Steel & aluminium execution"

Thore HAGBERG reported that in CEN/TC 135 there are two execution standards in preparation, prEN 1090-2 for steel structures and prEN 1090-3 aluminium structures.

There will be a meeting with the Commission on 3rd July 03 in order to prepare examples.

iii) CEN/TC 167 "Structural bearings"

Gerhard SEDLACEK reported that there are 11 parts of EN 1337 under CEN/TC 167 and the liaison group last met in Brussels in March 2003 to discuss the alignment of prEN 1337-3 Elastomeric bearings with the requirements of Guidance Paper L. The problem specifically with elastomeric bearings is they can be part of the bridge frame and connected to the superstructure. It was also noted that the draft is based on SLS principles and not ULS hence this could be a problem for CEN/TC 250/SC 8 which Michael FARDIS should discuss with Dr. Marioni the Chairman of CEN/TC 167.

Action: MF

iv) CEN/TC 168 "Ropes"

Gerhard SEDLACEK reported that liaison with CEN/TC 250/SC 3 refers to safety related to tension elements. This liaison has been conducted primarily by correspondence and email and has been fruitful.

v) CEN/TC 226 "Road equipment"

This product TC includes rails and parapets for bridges from which the proposed values will be included in Annex E for EN 1990.

vi) CEN/TC 229 "Precast concrete products"

The positive liaisons have been reported many times by Michel VALLES at CEN/TC 250 and remain an ongoing priority with CEN/TC 250.

vii) CEN/TC 177 "Prefabricated aerated concrete"

CEN/TC 177 have decided to amend EN 1520 to align it with the requirements of Guidance Paper L.

viii) CEN/TC 297 "Free standing industrial chimneys"

It was reported that Brian SMITH as Convenor of PT prEN 1993-3-1 and 3-2 is in liaison with CEN/TC 297 and the co-operation is working well.

ix) CEN/TC 185 "Threaded and unthreaded components"

Jan STARK reported that he had stopped liaisons with CEN/TC 185 and handed it over to SC 3. Jan STARK also added that CEN/TC 185 are working on a draft for non-preloaded bolts which could be important to CEN/TC 250. Thore HAGBERG expressed his concern that there is a problem with bolts from CEN/TC 185 for the aluminium structures part of CEN/TC 135 and there has been no co-operation forthcoming.

x) CEN/TC 340 "Anti-seismic devices"

Michael FARDIS reported that liaisons have not started between SC 8 and CEN/TC 340 although are becoming quite important as the prEN 1998-2 is well advanced. Michael FARDIS also considered that a joint meeting with CEN/TC 167 and CEN/TC 340 would be advantageous.

xi) EOTA

The CHAIRMAN stated that there is another liaison meeting scheduled soon and there is close co-operation with the transition parts for bridges. It was also noted that Juergen Koenig is assisting EOTA with ETAG No.3 for timber framed structures, where the recommended values for NDPs, were initially not included.

xii) ECISS TC 10 and TC 19

TC10 - Gerhard SEDLACEK reported that there are two problems for CEN/TC 250 with the drafts from this committee.

- Reduction of tensile strength
- Toughness requirement T_{27J} and T_{40J} are quoted whereas CEN/TC 250 need T_{70J} or T_{100J} (to be decided)

TC19 – The CHAIRMAN commented that there is no longer a problem with the draft for steels for concrete reinforcement. Noting that CE marked products can now be used although the requirements are not included, a point which the Commission accepts. Gerhard SEDLACEK commented that reinforcement steels for use in seismic areas must be checked.

RESOLUTION 175 was agreed to establish liaisons with the two committees of ECISS

xiii) CEN/TC 124 "Structural timber "

The CHAIRMAN expressed his concern that he had been informed by the timber experts that it was OK but this is not the case.

Juergen KOENIG added that the CEN Consultant to CEN/TC 124 has rejected the draft as it must refer to EC 5 for design matters. The Chairman of CEN/TC 124 was not aware of method 1 in Guidance Paper L. As a consequence, the UK has threatened to vote negatively on EC 5, as it will not be implemented for several years which could potentially cause a legal vacuum in the UK. Geoff HARDING reported that the UK Government (ODPM) have resolved this issue, as there are now three methods.

John MOORE as the CEN Construction Rapporteur reported that the CEN Construction Consultants have asked for a Eurocodes "teach-in" which he has agreed to undertake.

xiv) CEN/TC 125 "Masonry products"

The CHAIRMAN reported that he had a phone call from Pascal BAR stating that he cannot put the masonry drafts of CEN/TC 125 in the Official Journal as they do not conform with the requirements of the GPL.

Barry HASELTINE agreed to clarify the situation with Pascal BAR, noting that all CEN/TC 125 drafts had passed Formal Vote and five parts have a DAV of April 03.

Action: BH

It was noted that Finland had an appeal upheld by CEN/BT on two drafts, which will be amended, and Germany had raised an issue on Factory Production Control information. This is despite the drafts of CEN/TC 125 were initially considered as model documents, before the FPC rules changed.

It was noted that the draft on Natural Stone had been delayed.

Giorgio MACCHI commented on the thin web effects when used in seismic areas and EC 8 should refer to the choices in EC 6.

Members discussed liaisons in general and their importance to the Eurocode Programme and the work of CEN/TC 250. It was clarified that for CE marking of a construction products, only method 2 in the GPL requires a product to be designed to Eurocodes.

10 ENC GROUP and SCC

a) Update of activities of the ENC Group

The CHAIRMAN gave a verbal report on the discussions of the ENC Group meeting held on 1st and 2nd April, noting that all appertaining documents can be found on the CIRA website. The main topics discussed were:

- Examination period
- Chairman of CEN/TC 250 report
- Guidance Paper – editorial improvements (noting that the basic content is unchanged)
- Annex P of N 250 (E) and the new section on National Annexes – noting that the Commission have requested Member States to provide their NAs to the Commission.
- N 541 D Progress of drafts through the Examination period. The CHAIRMAN added that the procedure is working OK after a difficult start, 50% of the Parts have passed the Examination period.
- Presentation by Michel VALLES on CE marking
- Finalization of Eurocode Parts as detailed in N 1479 Rev A will be discussed under item 14c of this agenda.

Barry HASELTINE added that "missing" examples of products with design elements (eg. precast concrete standards) are to be prepared.

The CHAIRMAN commented that the Commission is preparing a paper on "Recommending implementation of Eurocodes". This is an important paper and will not be circulated in draft versions, and suggested that Members should obtain a copy when it is available. Tariq NAWAZ added that this document is now available in the SCC folder of the CIRCA website.

Jan STARK added that the information on dates in N 541 Rev D "Follow up of the examination period of EN Eurocodes", is not correct reiterating that all information on stages and target dates for the Eurocode Parts, must be harmonized.

11 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 Bridges

Haig GULVANESSIAN gave a brief history referring Members to the discussions in Stockholm and noting that since Stockholm very few comments were received and the draft has been updated accordingly. It was also reported that SC 1 has approved the documents, which will form the basis for the other Annexes to EN 1990, A.4 (cranes and machinery) and A.5 (silos and tanks), to go forward to Formal Vote.

Jean-Armand CALGARO reporting on Annex A.2 stated that in Stockholm Resolution 167, approved the draft as the stage 34 document. The examination period started in December 2002 until February 2003, when comments from Spain, Sweden and the UK were received. These have been addressed and incorporated in the draft dated 25 March 2003 as the last and "Final/Final" draft of Annex A.2, see document N 563.

Jean-Armand CALGARO proposed that there should be three words added to the draft "uplift of bearings" in a Note. Members of CEN/TC 250 agreed to this proposal. It was reported that the English and German language versions were available and the French version would be available the following week. When the three language versions are available, there will be a short period of evaluation for harmonization and consistency before being sent to the Chairman of CEN/TC 250 for signing off as per resolution 164 (Stockholm).

Members agreed to the draft in the three languages going forward to Formal Vote and **RESOLUTION 176** was agreed accordingly.

Haig GULVANESSIAN added that the other parts of Annex A to EN 1990 will be available for discussion at the next CEN/TC 250 meeting in October (Lisbon).

12 MAINTENANCE AND RESEARCH PROGRAMMES

a) & b) Maintenance programme and Eurocode Information helpdesk

There was a general discussion by Members of CEN/TC 250, regarding the maintenance programme and information helpdesk.

Giorgio MACCHI observed that CEN/TC 250 have not yet "sold" the Eurocode concept within the European Union despite working on the programme for the past 23 years, and this must be our top priority.

Haig GULVANESSIAN added that it is an objective of the Eurocode Programme to improve the global competitiveness of the Construction Industry, noting that IBC, driven by the USA are distributing codes free of charge due to the fear of Eurocodes. As a consequence there is an urgency to produce and publish the Eurocodes..

The CHAIRMAN commented that CEN/TC 250 should assist the Commission progress the marketing concept of Eurocodes but this should be secondary priority. The top priority is the publication of all Eurocode parts within the next two years.

Haig GULVANESSIAN requested that Roger FRANK should join the "Future actions and maintenance" Ad-hoc group.

RESOLUTION 180 was agreed.

c) Maintenance

Paul LUECHINGER reported on the activities of the Ad hoc group "Future actions and maintenance" and referred Members to document N 569, the minutes from the meeting in Brussels on 1st April 2003.

The main conclusions from the Brussels meeting were as follows:

- Research needs for EN 1990 and other Eurocodes - differentiating short term and long term needs
- Reduction of NDPs – study to be considered
- Requirements for durability and serviceability
- Construction products – a list to be produced
- Reworking packages
- International application – need for a wider spread and better information on Eurocodes.

It was stated that at the meeting Pascal BAR suggested that the Commission may consider funding for Eurocode maintenance in 2005.

13 SUB-COMMITTEE REPORTS

The CHAIRMAN suggested a reversal of sequence for the Sub Committee Chairmen's reports.

i) SC 9 -(N 546) – In the absence of Federico MAZZOLANI, Nils FORSEN as Secretary of SC 9 gave the progress report. Members were referred to the SC 9 progress report CG 1470 and N 572. Nils FORSEN reported that national comments are being received from NSBs on the stage 32 drafts in readiness for a PT/NTC meeting in Munich in early July. National Technical Contacts have been appointed from Belgium, Czech Republic, Finland, Norway, Slovakia, Spain, Sweden, and UK plus Gerhard SEDLACEK as EC 3 co-ordinator. The Munich meeting is important to the development programme of EC 9, which remains to target of October 03 for stage 34 drafts.

ii) SC 8 (N 571 - Michael FARDIS reported that prEN 1998-1 and prEN 1998-5 had reached stage 49 in July 02 and were being prepared for Formal Vote. Unfortunately Part 5 progressed faster than Part 1. Prior to Formal Vote it was stopped to allow Part 1 to catch up and to be aligned with the new Editing procedure requirements. The drafts of Parts 1 and 5 are currently being finalized by the SC 8 Editing Panel and should be sent to the CHAIRMAN of CEN/TC 250 by July 03.

Part 2 Bridges achieved stage 34 in January 03, which is on target. Michael FARDIS reported that he expects the next meeting of SC 8 to approve the technical content of Part 2. It was noted that the main problem for Part 2 is the liaisons with CEN/TCs 167 and 340. This will be resolved at a meeting in Brussels at which the CHAIRMAN and Gerhard SEDLACEK will attend.

Michael FARDIS requested a copy of Annex E of EN 1990, (structural bearings) from Gerhard SEDLACEK and noted that the output for the bridge parts of EC 2, EC 3 , EC 4 and EC 8 should be processed coincidentally, noting that prEN 1998-2 is expected to be available in early 2004.

Action: GS

Reporting on the other drafts of EC 8, Michael FARDIS stated that:

- prEN 1998-3 reached stage 34 in January and will run coincident with Part 2.
- Part 6 - is not mature and as such requires extra time.

- Part 4 – SC 1 include an informative annex on seismic design of silos in prEN 1991-4. It is the opinion of SC 8, that this should be transferred to be included in prEN 1998-4. Haig GULVANESSIAN commented that a resolution had been taken at the SC 1 meeting in Pisa to transfer the information to prEN 1998-4 and second the help of Profs Nielsen and Rotter to the SC 8 PT to ensure a satisfactory transfer of information. Michael FARDIS agreed with the resolution of SC 1.

RESOLUTION 179 was agreed.

iii) SC 7 - Roger FRANK referred Members to the SC 7 report, document N 568 adding that he expects to send the 3 language versions of prEN 1997-1 to the CHAIRMAN of CEN/TC 250 in September 2003.

It was also reported that the new draft of prEN 1997-2 (merged part 2 and part 3) will achieve stage 34 in August 03.

iv) SC 6 - In the absence of Rob VAN DER PLUIJM, Tor-Ulf WECK reported on the activities of SC 6 as the immediate past Chairman.

It was noted that prEN 1996-1-1 had been approved to go to Formal Vote in December 02 and taking account of the new translation procedure, the three language versions will be sent to the CHAIRMAN in September 2003 for Formal Vote.

It was requested that Part 3 has a title change to delete "simple rules" from the title.

RESOLUTION 173 was agreed.

Tor-Ulf WECK reported that the main concerns of SC 6 is the lack of progress with prEN 1996-1-2. In order to avoid further delay to the masonry package, the Chairman of SC 6, Rob VAN DER PLUIJM will take over as the Convenor of the Project Team. The existing convenor Frau Hahn will remain a member of the Project Team and it will proceed without waiting for further research to be undertaken.

The SECRETARY was requested to send a letter to Frau Hahn to cancel her contract, which she hasn't signed as yet. The CHAIRMAN reported that he had been in contact with Frau Hahn and she is still prepared to work with CEN/TC 250/SC6 PT "Fire".

Action: SECRETARY

It was requested that the target dates for prEN 1996-1-2 should be moved from May 03 to Nov 03 (stage 34) and Oct 03 to Sept 04 (stage 49).

v) SC 5 - Juergen KOENIG referred members to his report N 567 and reported that there is positive progress in the PT for prEN 1995-2 and that stage 34 will be achieved on target in May 03.

However difficulties remain with prEN 1995-1-1 and prEN 1995-1-2 and delays have been experienced due to the lack of an English language technical expert. An expert, funded by the UK Government, has now started in February and is producing some excellent work. However the delay will not be retrieved and therefore the stage 49 dates of April 03 are to be delayed until August 03. Members of CEN/TC 250 agreed to the delay.

vi) SC 4 – Jan STARK reported that he had not produced a report for this meeting and therefore his report to the CG (N 1473) should be considered as the current document.

It was stated that prEN 1994-1-1 had been completed over a year ago and had been stopped during Formal Vote to await the parts 1-1 of EC 2 and EC 3. The draft is now being aligned with the drafts from EC 2 and EC 3 plus editorial modifications before being sent for Formal Vote by the end of June 03.

Jan STARK reported that at the last meeting of SC 4 prEN 1994-1-2 was unanimously approved and is now being editorially finalized before going for Formal Vote in July. Referring to prEN 1994-2, it was noted that the draft was agreed as the stage 34 draft in May 03, which is 6 months ahead of schedule.

vii) SC 3 - Frans BIJLAARD (see N 566) reported that the three language versions of prEN 1993-1-1, prEN 1993-1-2, prEN 1993-1-8, prEN 1993-1-9 and prEN 1993-1-10 had been passed to the CHAIRMAN of CEN/TC 250 for signing off and sending to CMC for Formal Vote.

Regarding prEN 1993-1-3, prEN 1993-1-4, prEN 1993-1-5, prEN 1993-1-11, prEN 1993-2, prEN 1993-3-1 and prEN 1993-3-2, Frans BIJLAARD reported that these parts are technically stable and have been approved to go forward to Formal Vote. The drafts are being editorially finalized and translated into the three official languages of CEN.

It was further reported that the other EC3 parts prEN 1993-1-6, prEN 1993-4-1, prEN 1993-4-2, prEN 1993-4-3, prEN 1993-5 and prEN 1993-6 are in various phases of development, between stage 32 and stage 34.

Frans BIJLAARD added that the funding issue for prEN 1993-1-7 remains to be resolved.

He also reported a problem, that a member of an SC 3 Project Team is not participating in the work and is not in contact. Frans BIJLAARD requested that he is removed from the Project Team membership. It was also noted that the particular expert had not signed his contract.

RESOLUTION 183 was agreed accordingly.

Frans BIJLAARD also reported on discussion of the SC 3 meeting in Madrid where it had been agreed by resolution that an additional part of EC 3 was required to cover steel grade S 690. It was proposed that this part should be numbered prEN 1993-1-12 and would be produced without additional funding and will not adversely affect the existing schedule. Members of CEN/TC 250 agreed with this request

RESOLUTION 184 was agreed

viii) SC 2 – Nary NARAYANAN referred Members to his report to the CG N 1476. It was reported that the three language versions of prEN 1992-1-1 has been sent to the CHAIRMAN for forwarding to CMC for Formal Vote.

Nary NARAYANAN added that prEN 1992-1-2 would be available by middle of June for processing to Formal Vote.

It was also noted that Part 2 should reach stage 34 by the middle July after the NTC meeting with the PT.

Referring to Part 3 this has slipped primarily due to the late issue of contracts and the following target dates are expected to be achieved:

- Stage 32 - July 03
- Stage 34 - Feb 04
- Stage 49 - Aug 04
- Estimated DAV Apr.05

Nary NARAYANAN requested that Members of CEN/TC 250 consider that the draft for the "Design of fastenings for use in concrete" being prepared by CEN/TC 250/SC 2/WG 2 is initially published as a Technical Specification. It is proposed that the draft will be converted to an EN within the three years life of the TS.

RESOLUTION 181 was agreed.

ix) SC 1 – Haig GULVANESSIAN referred Members to the SC 1 report to the CG (N 1471) and reported on the proceedings of the SC1 meeting in Pisa the previous week. It was noted that prEN 1991-1-4 is being finalized editorially and will soon be sent for Formal Vote. In Pisa prEN 1991-3, prEN 1991-4 and prEN 1991-1-6 were approved as technically competent and can be sent to Formal Vote after the SC 1 Editing Panel have finalized the three language drafts.

Haig GULVANESSIAN reported that prEN 1991-1-7 Accidental actions is a key document for regulators and as such is a "sensitive" document. During the examination period extensive comment was received, which has ultimately delayed the project. Therefore SC 1 request that the target date for stage 49 should be delayed by a further six months to Jan 04 for approval at the next SC 1 meeting (Prague).

Haig GULVANESSIAN also reported that the Project Team for prEN 1991-1-6 is still having difficulty in getting information from CEN/TC 53 "Scaffolding" and their reluctance to remove loads from their codes. It was noted that the Secretary of CEN/TC 53 is Mr Metzner of DIN and Uwe STOLZENBERG agreed to clarify the situation with him.

Action: US

It was also noted that SIS to relinquish the Secretariat of SC1 in approximately 18 months time.

General discussion on target dates

Members discussed the requests for changes to the target dates in N 455 rev 6 and noted that this document is an important reference and must be maintained. The SECRETARY was requested to update the document and SC Chairmen were requested to inform the SECRETARY of any changes.

Action: SECRETARY & SC CHAIRMEN

RESOLUTIONS 174 and 182 were agreed

x) HG - BRIDGES – Jean-Armand CALGARO referred Members to his report N 570 and added that the main effort of HG-B has been concentrated on editorially finalizing the three language versions of prEN 1991-2 Traffic loads and harmonizing the draft with Annex A.2.

Jean-Armand CALGARO referred Members to the conclusion of his report in N 570, emphasizing that it is very important not to delay the finalization of all the Eurocode bridge parts.

Jan STARK raised an issue of references in prEN 1994-2 to Part 1 and the other bridge parts of EC 2 and EC 3 as indicated in N 565 Gerhard SEDLACEK's "Proposal for the structure of Eurocode – Bridge Parts".

Nary NARAYANAN commented that he had sent a copy of N 565 to Prof MANCCINI and added that this is not really an issue for SC 2 but more applicable to SC 4.

After discussion, Members agreed that the proposal should be adopted but is only applicable to EC 4.

Jean-Armand CALGARO requested that CMC should produce a document to show the progress of the bridge parts. Johan VAN TIEL agreed to produce this information.

Action: JVT

xi) HG - FIRE – Joel KRUPPA reported that the last HG-F meeting was held in November 2002, and have decided that future HG-F coordination work will be carried out either by email or correspondence.

It was noted that three actions were identified and completed:

- Letter to CMC to include, subscript "fi" (for fire) for any symbol at the editorial stage.
- Letter to CEN TC 127 regarding the needs for improvement of testing methodologies for fire protection materials for some load bearing structures.
- Letter to CEN TC 127 regarding its work on extended application of test results.

In addition, Joel KRUPPA reported that the matter of the "insulation criteria" in the cooling phase when designing according to "real" fires was handled by the Fire Regulator Group at its February meeting. The only comment received was to put these criteria as NDPs. This will be done by changing the relevant model clauses within N 250 and has to be done in the relevant fire parts (EC2, EC4 and EC5 and perhaps EC6). It was also noted that at the last HG-F meeting, it was proposed to hold a specific conference to present the fire parts, when they are published. The initial proposal for the date of this conference was Spring 2004, but due to delays in the Eurocode programme it is thought that Spring 2005 would be more suitable.

Joel KRUPPA, noting the discussions under the SC 6 report, kindly offered his assistance to the prEN 1996-1-2 Project Team. Rob VAN DER PLUIM should liaise with Joel KRUPPA

Action: RVDP/JK

xii) HG - TERMINOLOGY - Jacques LARAVOIRE reported that apart from input into the revision of N 250 (E) there is no activity to report on from the HG-Terminology Group.

14 CMC and BT MATTERS.

a) Warning Notices

Johan VAN TIEL reported that the Warning Notices issued by CMC are a computer generated automatic system and further to the comments of Pascal BAR should be ignored. Unfortunately it is not possible to stop the automatic process for CEN/TC 250 items.

b) Translation procedure

Johan VAN TIEL reported that he had passed the CEN/TC 250 resolution up to the BT for their consideration and approval, but as yet this had not been confirmed. Johan VAN TIEL agreed to establish the position regarding the BT.

Action: JVT

c) Finalization and publication of Eurocodes

Referring to Gerhard SEDLACEK's CG paper N 1479, Members were requested to comment. Barry HASELTINE noted that he had commented but awaits a revised version.

Action: GS/all Members

d) CEN/TC 50

Johan VAN TIEL reported that he had discussed the matter of design rules in the product standards of CEN/TC 50 with his colleague in CMC. This matter is still under investigation by CMC and Johan VAN TIEL agreed to report back at the next meeting.

Action: JVT

15 ANY OTHER BUSINESS

a) Peter MATT gave a presentation on Swiss codes and how they were influenced in 1891 after a steel railway bridge designed by Eiffel, failed with disastrous consequences, killing 73 passengers.

It was explained that the resulting legislation introduced required all bridges to be checked and hence the first Swiss structural codes were developed.

Since the original codes, it has been an objective of Switzerland to produce short, clear concise and user friendly codes in the three national languages (French, German and Italian) plus English.

The new Swiss codes have been developed at a cost of 4.2 M Euro and are equivalent to Eurocodes excluding EC 8 and EC 9.

For details of Peter Matt's presentation, see Annex C.

b) Milan HOLICKY reported that the EU funded project, "Leonardo da Vinci" has now started to consider the implementation and promotion of Eurocodes, in particular EN 1990 and EN 1991 series. It was noted that Czech Republic, Slovenia, Germany, Italy, Luxembourg, Netherlands, Spain and the UK are participating. Milan HOLICKY added that comments and input including information on software from Members of CEN/TC 250 would be appreciated.

Action: All Members

16 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-fourth) will be held on 16th and 17th October 2003 at the LNEC in Lisbon.

Peter MATT on behalf of Switzerland kindly offered to host the twenty-fifth meeting of CEN/TC 250, possibly in Lucerne on the 13th and 14th May 2004. Prior to the Plenary meeting of CEN/TC 250 there will be a CG meeting on the 12th May.

It was confirmed that the twenty-fifth meeting of the CG will be held in Dublin on the 18th & 19th September 2003.

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 574):

- Resolution 173** - Liaison with Scientific and Professional Organisations
- Resolution 174** - Impact of the 3 language versions on program targets
- Resolution 175** - Liaison between TC 250 and Product TC's
- Resolution 176** - Launch of EN 1990:2002/prA1 "Basis of Structural Design - Annex A2 Application for Bridges" for formal vote
- Resolution 177** - Title of prEN 1996 Part 3
- Resolution 178** - Convenorship of SC 6 PT 2 for prEN 1996 Part 1-2 "Fire"
- Resolution 179** - Inconsistencies of rules for seismic design of silos in prEN1991- 4 and prEN 1998-4
- Resolution 180** - Maintenance Group for EN 1990
- Resolution 181** - "Design of fastenings for use in concrete"
- Resolution 182** - Amendments of Eurocode Conversion Programme
- Resolution 183** - Changes to Project Team memberships
- Resolution 184** - prEN 1993 Part 1-12 "Supplementary rules for high strength steels"

18 CLOSING OF MEETING

The CHAIRMAN thanked Steinar LEIVESTAD, Thore HAGBERG, NILS FORSEN and their Norwegian colleagues for the excellent hospitality in hosting another successful CEN/TC 250. The CHAIRMAN also thanked the sponsors of the delightful cruise and dinner on the S/S Adella the previous evening. The sponsors of this event were:

Statens Bygningstekniske Etat – National Office of Building Technology and Administration – Oslo

Norsk Betongforening – Norwegian Concrete Association

Norconsult – Consulting Engineers

The CHAIRMAN on closing the meeting wished the delegates a safe journey home and thanked them for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- FOURTH MEETING OF CEN/TC 250 HELD AT
THE LABORATÓRIO NACIONAL DE ENGENHARIA CIVIL (LNEC) IN LISBON
ON 16th and 17th OCTOBER 2003**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending this the twenty-fourth meeting of CEN/TC 250. He thanked in particular the Laboratório Nacional de Engenharia Civil for hosting the meeting.

The President of the Laboratório Nacional de Engenharia Civil (LNEC), Dr. José Manuel CATARINO welcomed the delegates and wished them a successful meeting. He then gave an outline of the history of the LNEC adding that it was founded in 1946 as a public institution of science and technology under Portugal's Ministry for Public Works, Transports and Housing.

The current activities of the LNEC cover all aspects of civil engineering: buildings, bridges, dams, water quality construction materials, hydraulics and scientific equipment. LNEC employs some 750 staff, many of whom have university degrees including some 150 researchers with PhDs. Having the staff at the same location promotes close cooperation across all the civil engineering disciplines. Funding for the work of the LNEC, is partial government and private together with revenue generated from its technical activities to create a combined budget in the region of 32M Euros.

The key income streams of the LNEC are a mixture between research and consultancy with a particular emphasis on standardization, which is important in the preparation of codes. The LNEC also has strong links with technical Universities across Europe.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution drafting panel will comprise:

J MOREAU de ST.MARTIN	-	French language
M FLACH	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report referred Members to documents N 1484 Valletta CG report, N 573 Oslo CEN/TC 250 report and noted that the report from the Dublin CG was not available due to short time between the meetings.

The CHAIRMAN added that Pascal BAR is attending the meeting on the second day which emphasises the strong and increasing support CEN/TC 250 are receiving from the Commission. The Commission understands the technical work of CEN/TC 250 and recognizes the political advantages from common European structural codes.

The CHAIRMAN stated that the target dates require the completion of all Eurocode Parts in the programme by 2005. It was noted that of the 58 parts (including Annex A.2), 75% will be at stage 34 or beyond by the end of 2003 and therefore technically stable. 45% are at or post stage 49 which means the technical work is finished. As a consequence of the efforts of the Sub-Committees, 80-90% of the technical work necessary for the daily requirements of structural design engineers is now completed.

The CHAIRMAN added that CEN/TC 250 have a better understanding of the Examination period and the necessity of it.

It was also noted that the code drafting procedure has improved with the Sub-Committees making every effort to minimise the number of NDPs from the start. The new procedures defining the translation requirements as agreed by resolution 164 in Stockholm are working well, as too are the liaisons with CEN/TCs and EOTA.

The CHAIRMAN outlined the main objectives of the meeting, noting that the Commission issues together with CMC related matters will be discussed on the second day of the meeting.

It was also noted by the CHAIRMAN, there is a major need for Maintenance and Research due to the expansion of the EU and the harmonization of product standards which he will report on in the absence of Paul LUECHINGER.

The CHAIRMAN added that there are many topics to discuss during the meeting but focus should be on additional verbal reports from the SC Chairmen and the problems relating to the maintenance of target dates, noting the number of revisions that have been made to N 455 is unacceptable.

He added that there will be discussion on the update of N 250 E and also on liaisons which are very important to CEN/TC 250.

4.2 Adoption of Agenda

Members agreed to the adoption of the agenda.

5. FOLLOW-UP TO THE TWENTY- THIRD MEETING OF CEN/TC 250 IN OSLO

a) Report from OSLO meeting (N 573)

Peter MATT requested a correction to the Oslo report, commenting that under topic 15a) Switzerland have not excluded equivalent codes to EC 8 but have integrated seismic resistance features over their range of codes.
Subject to the above comments, the report was approved without further amendment.

b) Resolutions – OSLO

The resolutions from the Oslo meeting in document N 574, were noted and accepted without additional comment.

c) Matters arising not covered by the agenda

No issues were raised

6. FOLLOW-UP TO THE TWENTY-FOURTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN DUBLIN

a) To note the Verbal CG Report

The CHAIRMAN gave a verbal report on the proceedings of the CG meeting in Dublin and apologised for the delay in circulating the report but noted that it was only four weeks since the meeting, which gave insufficient time to prepare the report. The SECRETARY reported that this should be available within the next three weeks.

Action: SECRETARY

It was noted that the next CG will be an experiment, when it will be combined with the plenary meeting and the venue is confirmed to be in Switzerland.
Giorgio MACCHI endorsed that a combined meeting may be more efficient.

The main matters discussed in Dublin were the preparation of reports for this plenary meeting hence the agenda is very similar to the Dublin CG agenda.

Again the focus of attention at the Dublin meeting were related to the Commission/CMC issues and the threats of withdrawal of funding unless the 1997 and 1998 Order Voucher items (Phase I and II) are not published according to the target dates given in N 455.

The CHAIRMAN stressed the importance of meeting these target dates.

Another topic of discussion was the difficulty of getting translations on time within the permitted timeframe from DIN and AFNOR.

As the person responsible for translations into Greek, Alex PLAKAS requested a copy of N 455 Rev 8 and asked whether this would be the last update. The SECRETARY reported that it had been posted on the CEN/TC 250 Website, however, whilst accepting that the dates in N 455 should reflect a target date and therefore be static, the dates do require updating where processing difficulties have been identified.

Michael FLACH added that once the draft has reached stage 49 the document is stable and preparation for the translation could start.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

The SECRETARY updated Members on the current situation with BSI contracts and requested SC Chairmen to contact the experts in their respective Project Teams who haven't signed. The SECRETARY noted that whilst the list is gradually reducing, there are still several outstanding contracts, which are as follows:

Phase 1 - All contracts are now signed.

Phase 2 - One expert still has not signed his contract as yet, Pohn (Austria) on PT prEN1996-1-2. It was also noted that, Fila (PT 1991-2) will not be signing his contract and confirmation of the distribution of his funds is required from Jean-Armand CALGARO/Haig GULVANESESIAN.

Action: J-AC/HG

The SECRETARY reported that he had terminated the contract with Frau Hahn and is awaiting the restructuring the PT for prEN 1996-1-2 for the reallocation of funds

Action: RVDP

Phase 3 - It was noted that the following had not signed their contracts:

Neale (PT 1991-1-6), Pottage (PT 1993-1-3), Olson (PT 1993-1-4), Roller (PT 1993-3-1).

Phase 4 – Outstanding contracts for phase 4 are as follows:

van Breugel (PT 1992-3), Oberndorfer (PT 1993-4-3), Rowbottom (PT 1993-5), Taylor (PT 1993-6), Valtinat (1999-1-1). Additionally, the SECRETARY reported that Haig GULVANESESIAN has not signed his Co-ordination contract.

Action: Relevant SC CHAIRMEN

b) The Jan STARK reported his concern that NSAI had decided to relinquish the Secretariat of SC 4 with immediate effect and that the Steel Construction Institute had expressed an interest in taking over the role. The SECRETARY reported that he was aware of SCI's offer, however it is the decision of the NSB, (BSI), to assume the responsibility for a Secretariat. He added that internal discussions are currently taking place within BSI to decide whether it is appropriate. Members recognizing that SC 4 are currently without the full support of a Secretary urged BSI to make a decision urgently and requested the SECRETARY to expedite matters.

Action: SECRETARY

RESOLUTION 185 was agreed accordingly.

Haig GULVANESESIAN reported that it is the intention of SIS to withdraw from the Secretariat of SC1 in 2004 and CEN/TC 250 will need to find a replacement.

Members requested further information regarding access to BSOL. The SECRETARY reiterated discussions from the OSLO meeting of CEN/TC 250 noting that all Project Team experts and Members of CEN/TC 250 were given access rights when the website was created. The SECRETARY referred Members to, item 7 and Annex B of N 573 Oslo report and added that should Members experience difficulties, the SECRETARY should be contacted.

8 POLICY GUIDELINES AND PROCEDURES

John MOORE referred Members to his report N 585 and added that two issues require addressing for the next revision of N 250. The proposals outlined in N 585, are:

- the updating of the translation procedure in Annex M
- the use of the three language versions of Foreword as published in EN 1990.

Members discussed at length the need for a standardized Foreword in the three languages for consistency and agreed that the published version of EN 1990 should be the basis and revised accordingly to account for the individual Eurocode Part . Members also agreed that the model section 1 as outlined in N 250 E Rev 1 was to be used for all Eurocode Parts.

It was recognized that whilst the changes to N 250 are getting progressively smaller and that it is a "living" document there is an need to stabilize the document as drafters and Editing Panels are finding it difficult to keep abreast of the changes.

Jean-Armand CALGARO observed that N 250 does not take account of internal procedures in AFNOR and DIN.

RESOLUTION 186 was agreed.

9. ELIMINATION OF INCONSISTENCIES

a) Report on liaison meetings with Product TCs

The CHAIRMAN referred to his report N 577 which details where CEN/TC 250 have ongoing liaisons with EOTA and Product TCs

i) CEN/TC 125 "Masonry products"

Barry HASELTINE reported that he is to meet with Pascal BAR the following week to resolve the confusion, which exists. It is believed that the problems relate to CEN/TC 125 issues and not to CEN/TC 250/SC 6. Michael FLACH confirmed that Germany has concern with masonry product standards and has written to the Commission on the matter. CEN/TC 125 Members together with Messrs Guenther and Jaeger from Germany will meet with Pascal BAR in order to clarify the open questions.

Giorgio MACCHI added that the solution as proposed by Barry HASELTINE in Dublin will hopefully be acceptable to Italy which will enable him to persuade the Italians to vote positively on the EC 6 codes. Barry HASELTINE noted that the solution will be a matter for EC 8 and not EC 6 where the compromise must be made.

ii) CEN/TC 129 "Glass"

In the absence of Gerhard SEDLACEK, Klaus WEYNAND reported that liaison is ongoing and that a paper has been produced and circulated as CG document N 1491. This document was produced by an Ad-hoc group and is based on considerable research work carried out at Aachen University.

Recognizing there is no Eurocode equivalence for glass, Nary NARAYANAN questioned the validity of the document as it is based on an individual's opinion.

The CHAIRMAN added the importance of the document is to prevent the mis-interpretation of EN 1990 and given the increasing use of glass as a structural material it

is essential that the document prevents the misuse and assists in harmonizing the glass product standards.

Giorgio MACCHI added his support for the research but recommended that is a matter for CEN/TC 129 and not CEN/TC 250, noting that glass is extremely brittle compared with the ductile materials that are considered by CEN/TC 250.

iii) CEN/TC 135 "Steel & aluminium execution"

The CHAIRMAN confirmed that liaisons with CEN/TC 135 are working well and added that Thore HAGBERG, the Chairman of CEN/TC 135, is a Member of the Coordination Group, which has promoted close cooperation.

iv) CEN/TC 167 "Structural bearings" & CEN/TC 340 "Anti seismic devices"

Eduardo CARVALHO reported on the meeting in Brussels between CEN/TC 250, CEN/TC 167 and CEN/TC 340 and referred Members to document N 1487. It was noted that the agreements made at the meeting have now been incorporated in EC 8 Part 2. There will be a further liaison meeting as a final check when the stage 49 draft of prEN 1998-2 is available to ensure the effectiveness of the liaison.

v) CEN/TC 185 "Threaded and non threaded mechanical fasteners"

Klaus WEYNAND and Frans BIJLAARD reported that the discussions between SC 3 and CEN/TC 185 are fruitful and ongoing.

vi) CEN/TC 229 "Precast concrete products"

Nary NARAYANAN reported that the liaisons remain positive and a further 5 product standards from CEN/TC 229 have been considered by the Ad-hoc Group, who's membership includes Steinar LEIVESTAD and Jan GISJBERS. There was a minor delay with progress when Nary NARAYANN objected to one of the product standards but this issue has now been resolved.

Peter MATT expressed concern that there could be a design to SC 2 using elements designed to CEN/TC 229 product standards and/or ETAG approvals and questioned how would the material characteristics be known to be equivalent.

Recognizing the problem the CHAIRMAN responded that prior to the liaisons it was a much worse case when CEN/TC 229 and EOTA both had their own design rules.

xi) EOTA

The CHAIRMAN reported that EOTA have requested a meeting with CEN/TC 250 and he has asked for an agenda to identify the issues of concern. However a reply to the request has not been received from EOTA.

Giorgio MACCHI reiterated the issue at the Dublin CG meeting as to where the requirements for post tensioning systems can be found.

Peter MATT commented that Switzerland had voted negatively on prEN 13391, not because the document was of poor quality, but because the content is already covered in ETAG 013 and this is not permissible under CEN rules.

The CHAIRMAN agreed to write to EOTA with a view to avoid the duplication of rules and will report his findings at the next CEN/TC 250 meeting.

Action: CHAIRMAN

b) Resolution to confirm maintenance of existing liaisons with other organizations

The SECRETARY raised the matter that according to CEN procedures, CEN/TC 250 needs to confirm that liaisons with the following organizations are still current:

- Bureau International du Béton Manufacturé (BIBM)
- Council of European Producers of Materials for Construction (CEPMC)
- Comité International des Cheminées Industrielles (CICIND)
- European Aluminium Association (EAA)
- European Autoclaved Aerated Concrete Association (EAACA)
- European Convention of Constructional Steelwork (ECCS)
- European Calcium Silicate Producers Association (ECSPA)
- European Federation of Engineering Consultancy Associations (EFCA)
- European Federation of Foundation Contractors (EFFC)
- Fédération Internationale du Béton (FIB)
- Fédération Européenne des Fabricants de Tuiles et de Briques (TBE)
- Union Internationale des Chemins de Fer (UIC)

The SECRETARY also noted that confirmation of the liaison with NORMAPME – "European office of crafts, trades and small and medium-sized enterprises for standardization" should be included in the resolution

Members discussed the proposal and noted that the names of contacts within the organizations listed above should be made available.

Resolution 187 was agreed, accordingly.

10 ENC GROUP and SCC

a) Update of activities of the ENC Group

The CHAIRMAN gave a verbal report of the proceedings of the ENC Group meeting on the 6th October 03 and noted that it followed the Agenda given in ENC 092 Rev 3. the key discussion topics were:

- Progresses in elaboration & approval of Eurocodes parts
- Examination period process (N 541 E)
- Amendment of Guidance paper L - need for recommended values to be design values
- National Annexes
- Examples of CE marking for structural products. Michel VALLES and Thore HAGBERG to produce examples
- Evaluation of conformity (progress of the sub-group)
- Commission's recommendation relating to Eurocodes

Pascal BAR gave a presentation to Members on the "The aims of the Commission concerning Eurocodes" see Annex B attached.

It was noted from the presentation that the Commission are concerned with the progress of Eurocodes in particular the processing of the parts by CMC, through Formal Vote to publication.

Pascal BAR also gave a verbal report on the Recommendation of the Commission, which have the full support of the Commissioner and it is highly probable that they will be formally approved during the first week of November.

The seven "Recommendations" are generally as follows:

- Encourage Member States to adopt Eurocodes and recognize conformity of essential requirements.
- Member States should decide their NDP values useable in their territory.
- Invitation to use recommended values for NDPs. Member States must advise the Commission of their NDPs within 2 years of publication of the Eurocode.
- Member States should cooperate on a comparison of NDPs and at the request of the Commission change align their NDPs with the recommended values to reduce divergence.
- In the absence of Technical Specifications, Member States should refer to Eurocodes in their national provisions for structural construction products.
- Member States are encouraged to undertake research to facilitate the integration of the latest scientific and technical knowledge into the Eurocode Parts.
- Member States to promote the teaching of Eurocodes in universities and engineering schools as part of continuous professional development courses for engineers and technicians.

Summarizing the CHAIRMAN added that CEN/TC 250 must progress the drafts quickly now that the examination procedure is operating much better.

Pascal BAR commented that the Commission have sympathy with Member States who use the recommended values and reminded Members of CEN/TC 250 that NDPs – through a National Annex must be implemented within 2 years from Date of Availability. It was noted that the GPL states that if a National Annex is not available within the 2-years then it is at the discretion of the designer to decide the values to be used. Pascal BAR added that the Commission are considering the feasibility of producing a table of values from all the National Annexes of Member States and making them publicly available on the CIRCA website.

11 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 Bridges

Haig GULVANESSIAN referred Members to the discussions in Stockholm and the resolutions taken there (168 & 169) and reminded Members that this work is made on a voluntary basis as no funding is available for the Project Team. It was noted that the initial development and provisional framework for the drafting of Annexes A.3, A.4 and A.5 to EN 1990 is covered in CG document N 1502. Jean-Armand CALGARO commented that N 1502 was an exercise developed by cutting and pasting from the original Eurocode 1 documents. It was reported that Giles LABEEUW along with several engineers in Belgium had unsuccessfully tried the calculations and Members of CEN/TC

250 were requested to send their ideas and comments to Haig GULVANESSIAN as soon as possible.

Action: All Members

It was reported that the new Annexes (A.3, A.4 and A.5) will be introduced as amendments to make EN 1990 a more comprehensive document, however Annex E will not be drafted until after the publication of the Eurocode parts.

12 MAINTENANCE AND RESEARCH PROGRAMMES

a) Maintenance programme

In the absence of Paul LUECHINGER, the CHAIRMAN referred Members to document N 581 and added that a main objective of the Maintenance Group is to reduce the number of NDPs in the second generation of Eurocodes. There will be a technical presentation on the sensitivity at the next CEN/TC 250 meeting. Also scheduled for the next meeting is a discussion on "Durability and Serviceability when drafting National Annexes"

The CHAIRMAN recognized that there is a major need for additional Commission funding to support an effective Maintenance Programme which will include identifying the product standards where Eurocodes are referenced.

The CHAIRMAN added that the Maintenance Group are also considering reworking packages with the objective of speeding the implementation of Eurocodes packages.

The Chairman reported on the "international application" and the need for a wider dissemination of quality information on Eurocodes. He added that a plan of action to promote Eurocodes internationally will be developed. It was noted that there is considerable international interest in Eurocodes particularly from South Africa, Malaysia, Japan, China and the Pacific Rim countries. Members discussed at length the global situation, Steinar LEIVESTAD reported that at a recent meeting in Australia, he learnt that the USA are actively promoting their codes globally and will provide codes free of charge, to ensure they are adopted in other countries in preference to Eurocodes. This will not only promote design and consultancy activities but will also encourage the specification of US construction products.

Pascal BAR suggested that CEN/TC 250 priorities are as follows and they should not be changed:

- Publish the Eurocode Parts
- Persuade industry and product TCs to use Eurocodes
- Persuade Member States who are reluctant to use Eurocodes
- Market Eurocodes globally – possibly in 2004

Michael FLACH supported by many Members believed strongly that we should react now before the opportunity is missed, noting that in Japan EC 8 codes and other Eurocode parts have been shown to compare favourably to the equivalent American codes.

Pascal BAR considered that any pressure for global marketing must be applied at the level of the Commissioner and Industry director level as these are politically sensitive issues.

Summarizing the CHAIRMAN noted that the political steps are necessary, but decided that there will be further discussion on the subject at the next meeting of CEN/TC 250 in Switzerland, when there should be at least 18 codes available.

Suggesting that "Exploitation of opportunity" would be more appropriate title than "International application", Members were strongly of the belief that the publication of the Eurocodes and marketing the concepts were independent and there is a danger that the opportunity will be lost unless action is taken now.

b) Research programme

Haig GULVANESSIAN reported that he will present a paper at the next CEN/TC 250 meeting in which he will outline proposals for research needs for Eurocodes. It was noted that he has already outlined a basic strategy and identified several possible research projects, in CG document N.1480, in order to maximize possible funding under the Commission's Framework 6 Programme. However, Haig GULVANESSIAN added that there is further need for input from Material dependent code committees.

Action: HG

13 SUB-COMMITTEE REPORTS

i) SC 1 – Haig GULVANESSIAN reported that he hoped that prEN 1991-1-7 "Accidental actions" would gain approval from SC 1 for Formal Vote at the next SC 1 meeting in Prague in January 04.

It was also reported that the draft of prEN 1991-1-4 "Wind actions", is problematic as the stage 49 draft was sent for translation 18 months ago. Michael FLACH agreed to contact Aachen University as the German translators and discuss progress with a view to achieving the deadline by the end of 2003. Jean-Armand CALGARO reported that AFNOR are finalizing the French translation. It was noted that the draft is not particularly user friendly, however it is not possible to change the complexion of the code before Formal Vote.

The main reason for the unfriendliness is the openness of the text which has created many NDPs. This will necessitate an extensive National Annex of a similar size to the code itself. The numerous NDPs will be a major consideration at the first revision. Haig GULVANESSIAN congratulated the Project Team in producing an excellent draft under the intolerable pressures with the number of requests from National Technical Coordinators (NTCs).

Nary NARAYANAN as the UK NTC for Wind actions commented that this is a climatically induced loading code and across Europe many different loading models are used and differing views widely held.

ii) SC 2 – Nary NARAYANAN referred Members to his report for the CG N 1497, and noted that prEN 1992-1-1 and prEN 1992-1-2 are with CMC awaiting launch of Formal Vote. These drafts were originally submitted in May 03 and July 03 respectively.

Regarding prEN 1992-2, it is hoped that this will be approved at the SC 2 meeting in Vienna in November for progressing to stage 49. By mid March 04 the draft should be available for DIN and AFNOR to produce the translations by June 04.

Referring to other parts of EC 2, Nary NARAYANAN reported that the stage 32 draft of prEN 1992-3 has been circulated for national comment. The draft will be discussed at the SC 2 Vienna meeting to enable the stage 34 draft to be produced by March 04. The Technical Specification for "Fastenings into concrete" - the final draft will be ready by the end of the year for publication in April 2004.

Members identified that the title between the draft of prEN 1992-1-1 "General rules and rules for buildings" and the title given in N 250E "General - Common rules for building and civil engineering structures", differed. It was agreed to leave as it is at present and align N 250 E with the draft, at the next revision.

Action: JM

iii) SC 3 - Frans BIJLAARD referred to N 575 and added that the report is still relevant due to the intervening holiday period. The three language versions of prEN 1993-1-1, prEN 1993-1-2, prEN 1993-1-8, prEN 1993-1-9 and prEN 1993-1-10 are with CMC for the launch of Formal Vote.

Regarding prEN 1993-1-3, prEN 1993-1-4, prEN 1993-1-5, prEN 1993-1-11, prEN 1993-2, prEN 1993-3-1 and prEN 1993-3-2, Frans BIJLAARD reported that these parts are technically stable and have been approved to go forward to Formal Vote. The drafts are being editorially finalized and translated into the three official languages of CEN.

It was further reported that the other EC3 parts prEN 1993-1-6, prEN 1993-4-1, prEN 1993-4-2, prEN 1993-4-3, prEN 1993-5 and prEN 1993-6 are in various phases of development, between stage 32 and stage 34.

A significant problem for EC 3 is the issue of the lack of funding for prEN 1993-1-7, which has not been resolved.

iv) SC 4 – Jan STARK reported that the situation with SC 4 is positive and added that they have approved the draft of prEN 1994-1-1 for Formal Vote and it is now awaiting harmonization and German translation.

Referring to his SC 4 report for the CG N 1499, it was noted that Joel KRUPPA and the HG-Fire Members have resolved the editorial problems relating to prEN 1994-1-2.

prEN 1994-2 was approved to go for Formal Vote at the May 03 meeting of SC 4 and is currently awaiting harmonization and final checking with the parallel bridge codes from EC 2 and EC 3.

The main issue for SC 4 is the lack of Secretariat support since the withdrawal of NSAI which is preventing the finalizing of the EC 4 codes. The SECRETARY was urged to take the matter up with BSI as discussed in item 7 of the meeting and the subsequent Resolution 185.

Action: SECRETARY

v) SC 5 – Juergen KOENIG referred Members to his report N 576 and added that the stage 49 drafts of prEN 1995-1-1 and prEN 1995-1-2, in the three languages are with CMC for processing to Formal Vote.

At the SC 5 meeting the week prior to Lisbon, the bridge code prEN 1995-2 was unanimously approved to go forward for Formal Vote and an Editing Panel for prEN 1995-2 has been established. It was noted that the Project Team for prEN 1995-2 is fortunate to include the translators in its membership.

Juergen KOENIG noted that there are safety issues with prEN 1995-1-1 which has necessitated the removal of a particular clause. This will be corrected by amendment after Formal Vote under normal CEN procedures. SC 5 Members agreed at the last meeting, there is no reason to vote negatively at Formal Vote as a solution will be found during the calibration period. Juergen KOENIG agreed to write a letter on behalf of SC 5, to CMC to inform them of the situation.

Action: JK

vi) SC 6 – Rob VAN DER PLUIJM referred Members to his CG report N 1503 and added that he expects the translations of prEN 1996-1-1 to be completed by end October 03 to enable progress to Formal Vote.

The main concern for SC 6 is the known problem with prEN 1996-1-2. In order to resolve the situation it was reported that Barry HASELTINE has been seconded to the Project Team to utilize on his drafting expertise gained with PT prEN 1996-1-1. It is expected that this draft will achieve stage 49 by May 2004.

At the request of SC 6 a resolution was agreed to add Barry HASELTINE to the Project Team for prEN 1996-1-2

RESOLUTION 188

It was reported that the other parts of EC 6 should be agreed to go for Formal Vote at the next SC 6 meeting.

vii) SC 7 - Roger FRANK referred to his report to the CG, document N 1496 and added that the draft prEN 1997-1 in the three languages is with CMC to launch Formal Vote. Regarding prEN 1997-2, which is the resultant of the merged Parts 2 and 3, Roger FRANK reported that the stage 34 draft is technically stable, and will be considered at the next SC 7 meeting (Oct 03).

He added that a strong liaison has been established with CEN/TC 341 “Geotechnical investigation and testing” and the work of CEN/TC 250/SC7/PT2-3 for all topics dealing with ground testing is linked with a WG of CEN/TC 341.

It was noted that in June 04 Roger FRANK’s tenure as Chairman expires and a successor is being sought by the Secretary of CEN/TC 250/SC 7. It is hoped that a proposal will be presented to CEN/TC 250 at the next plenary meeting.

Giorgio MACCHI expressed concern that continuity could be compromised and recommended that the Chairman of SC 7 should consider a further 3-year term of office.

viii) SC 8 – In the absence of Michael FARDIS, Eduardo CARVALHO reported on the activities of CEN/TC 250/SC 8 and referred Members to document N 583. It was noted that Parts 1 and 5 are awaiting the completion of the translations and both should be sent to Formal Vote by November 03.

Part 2 and Part 3 are in the process of being finalized taking account of amendments agreed at the Liege meeting of SC 8. As reported under **9 iv)** there will be a final liaison meeting with CEN/TCs 167 & 340 when the stage 49 draft of prEN 1998-2 is available. Referring to prEN 1998-3, SC 8, have requested a title change to reflect the content of the draft. It was agreed that new title will to read “Eurocode 8: Design of structures for earthquake resistance - Part 3: Assessment and retrofitting of buildings”.

RESOLUTION 189 was agreed

It was noted that Part 6 is not sufficiently mature and the French Regulators have made comment during the Examination period, which need to be considered. As a consequence the target date for the stage 49 draft has moved to July 2004, which was agreed at the CG Dublin meeting.

Eduardo CARVALHO also reported that the Project Team for Part 4 has met with Michael ROTTER and the issues between PT prEN 1991-4 are resolved. As agreed at the Dublin CG prEN 1998-4 now has a stage 34 target date of January 2004.

ix) SC 9 – In the absence of Federico MAZZOLANI, there was no verbal report given and Members were referred to the SC 9 report (document N 1501) as presented at the CG.

Michael FLACH commented that he believes there is excessive duplication in the SC 9 drafts, which could be replaced by simple reference to SC 3 drafts. Also noted is that there is considerable textbook material in the EC 9 drafts which could be removed, this would have additional benefit in the reduction of the cost of translation.

Frans BIJLAARD commented that EC 3 and EC 9 are separate stand-alone codes and whilst recognizing there may be duplication and textbook material, which could be removed, the draft should be left as they are, at present.

The CHAIRMAN summarizing stated that it is the responsibility of SC 9 to decide the correct way forward and whether harmonization with SC 3 is possible. However in the absence of Federico MAZZOLANI, this could be a discussion topic at a future CEN/TC 250 meeting.

x) HG - BRIDGES – Jean-Armand CALGARO referred Members to his report N 582 and added that the ratified texts (English and French) for EN 1991-2 Traffic loads have been issued by CEN and the German version should be available very soon. This document is an important document when designing bridges, and should be used in conjunction with EN 1990 Annex A.2.

Jean-Armand CALGARO noted that the draft of Annex A.2 has been harmonized with EN 1991-2 and is with CMC for launch of Formal Vote, which is hoped will be before the year-end 2003.

Jochen FORNATHER questioned where the German translations of EN 1991-2 and Annex A.2 were, and requested copies for Austria to consider.

xi) HG - FIRE – Joel KRUPPA reported on the current situation with HG-Fire and stated that they are currently finalizing the Eurocode "Fire parts" in line with the CEN/TC 250 model fire clauses in N 250 E.

Joel KRUPPA added that he has been invited to a Fire Engineering Workshop on Fire safety design, in Baltimore next year where he will explain how Eurocodes are the most advanced codes in the world and that CEN/TC 250 have the responsibility for all structural design codes in Europe.

xii) HG - TERMINOLOGY – In the absence of Jacques LARAVOIRE, there was no report from the HG-Terminology Group.

14 CMC and BT MATTERS.

a) Warning Notices

The CHAIRMAN explained the problem, that in June the Financial Services of the Commission threatened to stop funding the first two phases of the Eurocode Programme on the basis that they had exceeded the 5-year deadline that the Commission impose on contracts.

However, at the Review meeting on the 26 June 2003 between the Commission and the CMC, this threat was rescinded providing that CEN/TC 250 can complete the contracts by the end of 2005.

Referring to CG document N 1494, to close the two oldest contracts (1997 & 1998) with sufficient time to allow the full contract payment of invoices, the following milestones must be achieved:

- Final date of achievement : 31 December 2005
- Last invoices (step 4 CEN/TC 250 secretariat) : September 2005
- Implementation of all the standards concerned: June 2005 (stage 73)
- DAV for all the standards covered : end of 2004 (stage 64)
- Formal vote achieved : June 2004
- Formal Vote launched (stage 51) : **end of 2003**
- The pressure on CEN/TC 250 from the Financial Services of the Commission explains the necessity for the Ad-hoc meeting on the 12 August 03 (CG document N 1492), in order to decide the appropriate action to achieve the above objectives. Pascal BAR emphasized that it is the Financial Services and not the DG who are applying the pressure, and providing CEN/TC 250 can meet the deadlines agreed at the Dublin CG, there should not be a problem. However concern was expressed as to whether CMC are in a position to process the documents according to the above time-schedule.

b) Translation procedure

The CHAIRMAN explained that at the Dublin CG meeting, a need to manage the translations was identified, in order to achieve the target dates. As a consequence a Translation Task Force has been formed.

Johan VAN TIEL reported that it was originally intended to hold the first meeting on the 7th October, but unfortunately this was not possible as not all the key participants were available on that date.

Explaining the problems that CMC have highlighted, with the Eurocode parts, submitted to Formal Vote, it was noted that the drafts are required in Word and PDF for each of the three languages. The graphics files must be supplied as separate files with relative links in the Word versions.

Johan VAN TIEL added that several drafts are not in the format or style of European Norms, mainly because the CEN Template has not been used.

Members raised the question as to why the PDF version could not be used as the Formal Vote draft. Johan VAN TIEL advised that the Word version is necessary to allow CEN production to add Standard cover sheets etc.

After a long discussion by Members it was agreed that Frans BIJLAARD as the responsible Sub Committee Chairman with the majority of Eurocode drafts at CMC, will meet with Johan VAN TIEL and members of CMC production in Brussels in the near future. This meeting will clarify some of the errors that have been identified with the stage 49 drafts.

Action: JVT & FB

Johan VAN TIEL added that he has sent a draft Resolution to the CEN/BT, to approve a derogation for the Eurocode drafts from the normal CMC Editing and translation procedures. The resolution has been circulated, to all CEN members with a closing date of 19th November 03. Immediately after that date and subject to acceptance, it is expected that Formal Vote will proceed .

c) Finalization and publication of Eurocodes

Klaus WEYNAND circulated a revised flow chart to N 1479 Rev 2 A and requested Members to comment by 14th November 03.

Action: All Members

d) CEN/TC 50

It was noted that the product standards of CEN/TC 50 "Street lighting" are now published and contain design rules. It was agreed that CEN/TC 250/SC 1, SC 3 and SC 9 must establish a liaison with CEN/TC 50 as a matter of urgency.

Action: HG/FB/FM

15 REVIEW OF CONVERSION PROGRAMME

The Secretary reported that he had received comments from the Chairmen of SC 4, SC 6 and SC 7 which necessitated a further revision of N 455 to become Revision 9. Leendert BUTH suggested that a DAV would be a useful addition to the Programme to enable the budgetary planning of translations. The SECRETARY sympathized but added that experience has shown the delay between the stage 49 drafts and DAV can be any period between 6 and 18 months. As this time delay is outside the control of CEN/TC 250, the SECRETARY added that only the actual achieved DAV will be added to N 455 Rev 9 and the title of column 6 changed to reflect this situation. Eduardo CARVALHO requested Word copies of the stage 49 drafts to be made available to assist the translation into the other European languages. The SECRETARY agreed to investigate whether this would be a possibility through BSOL as there could be copyright implications on Livelink.

Action : SECRETARY

16 ANY OTHER BUSINESS

Jana MARKOVA raised the concerns of the Czech Republic that the National Annex is Informative and believe it should be Normative. After a long discussion it was clarified that the National Annex cannot be Normative as it would violate CEN rules to have a common European Standard.

Jean MOREAU DE ST.MARTIN observed that clarification can be found in Guidance Paper L.

John MOORE added that guidance can be found in Annex J of N 250 E.

17 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-fifth) will be held on 13th and 14th May 2004 in Switzerland. However Peter MATT confirmed the meeting will be held in **LAUSANNE** and not Lucerne as reported previously. The venue of the meeting will be at the Institute of Technology, Lausanne, which is approximately 40 minutes from Geneva International Airport.

The CG meeting will be held on the 12th May 04 at the Institute of Technology, Lausanne immediately prior to the plenary meeting.

Members agreed that the twenty-sixth plenary meeting of CEN/TC 250 will be held on the 21st and 22nd October 2004 and the venue will be advised.

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 588):

- **Resolution 185** - Secretariat of CEN/TC 250/SC 4
- **Resolution 186** - Foreword and Section 1 to Eurocodes
- **Resolution 187** - CEN/TC 250 - Liaison with BIBM, CEPMC, CICIND, EAA, EAACA, ECCS, ECSPA, EFCA, EFFC, FIB, TBE and UIC
- **Resolution 188** - Amendment to constitution of Project Team for prEN 1996-1-2
- **Resolution 189** - Title of prEN 1998 Part 3

18 CLOSING OF MEETING

The CHAIRMAN thanked the Eduardo CARVALHO, the LNEC and the Society of Engineers of Portugal for their generous hospitality in hosting this meeting.

The CHAIRMAN on closing the meeting wished the delegates a safe journey home and thanked them for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- FIFTH MEETING OF CEN/TC 250 HELD AT
EPFL LAUSANNE ON 13th and 14th MAY 2004**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending this the twenty-fifth meeting of CEN/TC 250. He thanked in particular the Professor Manfred HIRT from the EPFL, Peter MATT and Paul LUECHNGER for hosting the meeting on behalf of Switzerland.

Professor HIRT welcomed the delegates and wished them a successful meeting and explained his experiences with structural codes and in particular Eurocodes, which in his assessment compare favourably with other international alternatives.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

J MOREAU de ST.MARTIN	-	French language
U STOLZENBURG	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report referred Members to his report N 605 Overall the CHAIRMAN reported that CEN/TC 250 and the Sub Committees are making good progress on producing the 58 parts although four are not funded, 6 parts are at stage 64 (published as ENs), 27 parts have achieved technical stability at stage 49.

The CHAIRMAN emphasized the positives of harmonized European codes and compared them with their American equivalents where they exist and the difficulties in harmonizing codes where 30,000 towns and cities have their own NDPs.

The CHAIRMAN stated that the target dates require the completion of all Eurocode Parts in the programme by 2005. It was noted that of the 58 parts, the technical work will be accomplished by the end of 2004 with prEN 1991-1-7 being the last code which should be at stage 49 by mid 2005. This part has now assumed the “critical part” status.

Reporting on the recent ENC Group meeting in April 2004, the CHAIRMAN commented that much of the discussion was regarding the National Annexes, which all Member States are in the process of preparing. However it was noted that of the Member states represented at the meeting, no country as yet had published a National Annex.

The CHAIRMAN advised Members that there was a contract review meeting in June 2003 held between CMC and the Commission. It was noted that the Financial Services Department of the Commission are insisting that all Order Vouchers are closed after 5 years regardless of whether the deliverables have been achieved or not. Eurocodes previously enjoyed an exempt status from this Commission rule but they are applying the same principles to the Eurocode Order Vouchers.

The effects are that:

- 1997 O.V. closed at the end of 2003
- 1998 contract closes in June 2004
- 1999 remains open until end 2004
- 2000 remains open until end 2005

The CHAIRMAN added that this effectively means that it is important that CEN/TC 250 completes the work programme by the end of 2005 by which time all parts must have achieved stage 64 publications.

The CHAIRMAN also referred Members to the Commission’s Recommendations, which have been published since the last CEN/TC 250 meeting. The Recommendations clearly state that Member States should implement the Eurocodes and whenever possible they are to be used.

4.2 Adoption of Agenda

Members agreed to the adoption of the agenda N 594.

5. FOLLOW-UP TO THE TWENTY- FOURTH MEETING OF CEN/TC 250 IN LISBON

a) Report from Lisbon meeting (N 587)

Joel KRUPPA stated that on page 13, the second paragraph of the report from HG – Fire it should read:

“Joel KRUPPA added that he attended a Fire Engineering Workshop on Fire safety design, in Baltimore in October 2003 where he explained how Eurocodes are the most advanced codes in the world

Leendert BUTH questioned the continuing need for the HG – Terminology group. Whilst recognizing its diminishing necessity. Members identified the need to harmonize the

titles of Eurocode parts as there are inconsistencies. John MOORE reported that he and the SECRETARY had spent a considerable time in trying to correct the titles for the revision of N 250 as over the years many have evolved to be different to the original ENVs. It was agreed that the best place for the definitive titles is N 250 and this should be provided in the three languages. John MOORE as the Convenor of CEN/TC 250/WG 1 “Policy” was requested to liaise with the SC Chairmen to establish the correct titles.

Action: JM

Jochen FORNATHER referred to Page 13 of the Lisbon meeting report (N 587) and added that his request for the German translations of EN 1991-2 and Annex A.2 had not been provided.

b) Resolutions – LISBON

The resolutions from the Lisbon meeting in document N 588, were noted and accepted without additional comment.

c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE TWENTY-FOURTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN DUBLIN

a) N 1505 Secretariat notes of Dublin CG.

The CHAIRMAN noted CEN/TC 250/-/1 CG document N 1505 – Report from Dublin and added that this was verbally reported on at the Lisbon meeting. He added that there was a much-shortened CG meeting the previous day where the main topics of discussion were Maintenance of Eurocodes and the Contracts with the Commission. Also discussed at length was the experimental policy of combining the CG with the Plenary TC meeting. The CHAIRMAN added that the next meeting will be a combined meeting in October when a decision will be made whether we revert to the separated style or not. There are strong arguments to separate the meetings for example when a quick reaction is required and also the separate CG gave a platform to prepare documents and presentations for discussion and decision by CEN/TC 250.

Giorgio MACCHI commented that if the decision is to revert back to separate meetings it is essential that the reports are available from the previous meeting either the Plenary or the CG meeting. The CHAIRMAN agreed, but emphasised that there were two occasions when this was not possible due to the short time between the meetings.

b) Items for TC approval not covered by the Agenda

Nary NARAYANAN reported that SC 2 will be requesting a decision by resolution from CEN/TC 250 regarding the Technical Specification for “Design of fastenings for use in concrete” under his SC 2 report.

7. CONVERSION OF EUROCODES FROM ENV TO EN

a) Current situation

The SECRETARY updated Members on the current situation with BSI contracts and requested SC Chairmen to contact the experts in their respective Project Teams who haven't signed. The SECRETARY noted that whilst the list is gradually reducing, there are still several outstanding contracts, as follows:

Phase 1 (O.V. 1997) - All contracts are now signed.

Phase 2 (O.V.1998) - One expert still has not signed his contract as yet, Pohn (Austria) on PT prEN1996-1-2.

The SECRETARY reported that the issues with Fila's contract and the restructuring of the Project Team for prEN 1991-2 had now been resolved.

Phase 3 (O.V.1999) - It was noted that the following had not signed their contracts: Neale (PT 1991-1-6), Pottage (PT 1993-1-3), Olson (PT 1993-1-4), Roller (PT 1993-3-1).

Secretary's Note: – Brian NEALE has since signed his contract

Phase 4 (O.V.2000) – Outstanding contracts for phase 4 are as follows: van Breugel (PT 1992-3), Oberndorfer (PT 1993-4-3), Rowbottom (PT 1993-5), Taylor (PT 1993-6), Valtinat (1999-1-1)

Action: Relevant SC CHAIRMEN

b) The SECRETARY reported that he had been advised by CEN/TC 250/SC 1 that it is the intention of SIS to relinquish the Secretariat of SC 1 at the end of 2004. Noting that there would be little if any funding left under the Order Vouchers from the Commission, the SECRETARY requested that NSBs who have an interest in performing the role should contact him in the first instance.

Resolution 190 was agreed accordingly.

Regarding the Secretariat of CEN/TC 250/SC 4, the SECRETARY reported that the situation is still with BSI management who are considering a possible contract with the Steel Construction Institute. However given that there are only three parts being developed by SC 4 and that part EN 1994-1-1 has already been approved at Formal Vote and the other two parts are technically well developed, the SECRETARY added that he will continue to support the SC 4 as the acting Secretary until the situation can be resolved on a more permanent nature.

Jan STARK added that whilst he was reasonably happy with this as a temporary solution he requested that a permanent solution is found, which the SECRETARY agreed to pursue.

Action: SECRETARY

8 POLICY GUIDELINES AND PROCEDURES

John MOORE referred Members to his report N 601 and added that there was a meeting on the 6th November 2003 at the DIBt in Berlin, between Members of CMC, DIN, AFNOR, BSI and CEN/TC 250 to discuss the problems of translations and decide how best to progress the Eurocode parts from stage 34 through to Formal Vote in the three languages. The results of the Berlin discussions which were based on Gerhard SEDLACEK's paper - document N 1479 and recognizing the size of document N 250,

document N 600 was created in January 2004 to assist Project Teams and Editing Panels finalize the parts.

John MOORE also noted that from the CG meeting the previous day, there is a need for further revisions of N 600 & N 250 which will now be considered by CEN/TC 250/WG 1 to address editorial corrections, alignment of titles, editorial procedure after Formal Vote and policy on maintenance.

It was also noted that the new translation procedure will be monitored to ensure that it delivers its objective of a speedy delivery of the three language versions to CMC for Formal Vote.

John MOORE expressed concern that the current Membership of WG 1 comprises: himself as Convenor together with Jean MOREAU DE SAINT MARTIN, Jean-Armand CALGARO and Barry HASELTINE and that new Members are necessary. He requested that any Member who wishes to join WG 1 should contact him.

Action: All Members

Members discussed at length the how comments are addressed after Formal Vote and how to respond to comments. Several SC Chairmen, opposed the requirement for an official response document and referred to Nary NARAYANAN's paper CG document N 1507. Noting that only editorial comments can be considered at Formal Vote, Members agreed that the concept of N 1507 should be adopted and included in updated versions of N 250 & N 600.

Giorgio MACCHI added that the SCs should address the editorial comments only and process the drafts to publication as soon as possible.

9. ELIMINATION OF INCONSISTENCIES

a) Report on liaison meetings with Product TCs

The CHAIRMAN referred to his report N 605 which identifies where CEN/TC 250 have ongoing liaisons with other CEN TCs (products) and EOTA.

i) CEN/TC 229 "Precast concrete products"

The CHAIRMAN commented that cooperation with CEN/TC 229 remains positive and effective between both the TCs.

ii) CEN/TC 125 "Masonry products"

Barry HASELTINE reported that the problems between CEN/TC 250/SC 6 and CEN/TC 125 has been resolved after a meeting held in December 03. The problem related to CEN/TC 125 and the standards in the EN 771 series which are harmonized and already issued but didn't give sufficient design data. At the meeting in December, it was agreed that CE marking would be delayed and CEN/TC 125 would produce fast track amendments to rectify the situation, which will be sent to UAP in Autumn 04 with a view to allow CE marking in December 2004. The resolution of the problem is conditional on acceptance at UAP. Barry HASELTINE added that the amount of work involved in producing an amendment is considerable and must be recognized by the SCs when programming amendments to the Eurocode Parts.

iii) CEN/TC 129 “Glass in building”

Gerhard SEDLACEK reported that Part 1 for glass fenestration is published but Part 2 is now withdrawn.

iii) CEN/TC 135 “Execution of steel & aluminium structures”

Gerhard SEDLACEK reported that there was a meeting between CEN/TC 135 and CEN/TC 250 in Berlin in February 2004 and referred members to his report, document N 596. It was noted that CEN/TC 135 are preparing three parts to EN 1090 “Execution of steel and aluminium structures”:

- Part 1 – General delivery conditions for steel and aluminium components
- Part 2 – Execution of steel structures
- Part 3 – Execution of aluminium structures.

The CHAIRMAN added that by the introduction of execution classes (e.g. welding), Member states will find their national choice.

iv) EOTA

The CHAIRMAN reported that EOTA believe that Annex E of EN 1990 should be extended to include confidence levels of testing. Referring to his report N 605, the CHAIRMAN added that in future, ETAs will reference Eurocode principles whenever possible.

V) OTHER LIAISONS

It was reported that all other liaisons with CEN/TC 250 were ongoing.

b) HG - BRIDGES – Jean-Armand CALGARO referred Members to his report N 582 and added that currently the main task for HG-B is liaison between the bridge codes and other the Eurocode parts to ensure compatibility. It was noted that this can be very time consuming when considering some of the loading codes and the different styles of Eurocode parts, for example EN 1991-1-4 “Wind actions”.

Jean-Armand CALGARO also questioned why Annex A.2 had not been launched for Formal Vote. The SECRETARY reported that the three languages had been sent to CMC, via Livelink eTRANS in November 2003. Johan VAN TIEL suggested that the files are reloaded and agreed to ensure that CMC would progress it as soon as possible.

Action: SECRETARY/JVT

Jean-Armand CALGARO reported that he had a meeting with the Chairman of CEN/TC 226 regarding wind loading on traffic signs and the possibility of their temporary exclusion from the requirements of EN 1991-1-4. Haig GULVANESSIAN added that a corrigendum had been circulated in March to cover the problem of product standards from CEN/TC 226 and CEN/TC 250/SC 1 have agreed unanimously to change the offending clauses. Members discussed the problem and suggested that further liaison with CEN/TC 226 is necessary. Should an amendment to EN 1991-1-4 be required, then CEN/TC 250/SC 1 should process as necessary. Subsequently, Members agreed a resolution:

Resolution 191

HG - FIRE – Joel KRUPPA reported that there had been no meetings of HG-Fire since the last CEN/TC 250 meeting but the focus of the Groups work has been on improving the final drafts of the “Fire” parts of the Eurocodes in line with the model fire clauses in N 250 F.

Reporting on the concerns expressed by Sweden on the “Shadow effect” of the EC 3 parts, Joel KRUPPA added that he has considered the concerns and concluded that as the effect is minimal (1-2 minutes), no further actions is planned or necessary.

It was noted that CEN/TC 127 “Fire safety engineering” have formed a new Working Group to consider testing methodology with a view to improving calculation methods.

HG - TERMINOLOGY – In the absence of Jacques LARAVOIRE, there was no report from the HG-Terminology Group, however it’s continuation was discussed as reported under item 5.a) of this report.

10 ENC GROUP and SCC

a) SCC

The CHAIRMAN reported that the SCC are satisfied with the progress made by CEN/TC 250 and there was nothing further to report.

b) ENC Group

Barry HASELTINE reported on the ENC Group meeting held on the 28th April where the main topics of discussion were, Research and maintenance of Eurocodes and National Annexes. Member States at the meeting gave an update as to their situation with progress of their National Annexes. In general countries are making progress although no one reported that they had published a National Annex. Alarmingly, it was reported that one country believed that it could create National Parameters in the NA. However most countries expect to produce brief National Annexes with simple references to Non Contradictory Complementary Information (NCCI).

c) Recommendations of the Commission

The CHAIRMAN commented that the Commission have published their “Recommendations” for Eurocodes which is the basis of liaisons, maintenance and future work of CEN/TC 250. In the CHAIRMAN’s opinion this document is more important than Guidance Paper L and is a political paper of the highest level.

d) National Annexes

Gerhard SEDLACEK referred members to his example of a National Annex in document N 611, which gives the German proposal for EN 1993-1-10, which was discussed at length by the Members.

Regarding the collection and comparison of National Annexes it was agreed that each Member country should send their draft National Annexes to the SECRETARY.

Action: All Members

Jochen FORTNATHER requested clarification as to whether there was a need for each member Country to produce their National Annexes in English. After discussion it was

agreed that this is not a CMC or Commission requirement but optional and for the NSBs to decide.

11 BASIS OF STRUCTURAL DESIGN

a) Annexes A.3, A.4, A.5 & E to EN 1990

Haig GULVANESSIAN reported that the first technical drafts of Annexes A.3, A.4 and A.5 have been produced by the Project Teams of SC 3 and the finalized drafts should be available in 6 months. It was noted that the Project Team for EN 1990 who will finalize the drafts are now un-funded therefore the work will be on voluntary basis.

Haig GULVANESSIAN reminded Members that the drafts are within the direct responsibility of CEN/TC 250 as agreed by resolution 168 (Stockholm).

Johan VAN TIEL commented that each Annex must be given a unique Work Item (WI) number to ensure progress through the CEN system.

Resolution 194 was agreed

Gerhard SEDLACEK reported that Annex E “Technical requirements and design rules for bridge furniture and equipment” will remain within the specific parts of CEN/TC 167 et al. which effectively means that Resolution 169 (Stockholm) is rescinded.

b) Research programme

Haig GULVANESSIAN commented that he will present a paper at the next CEN/TC 250 meeting in which he will outline proposals for research needs for Eurocodes. It was noted that he has already outlined a basic strategy and identified several possible research projects, in CG document N.1480, in order to maximize possible funding under the Commission's Framework 6 Programme. However, Haig GULVANESSIAN added that there is further need for input from Material dependent code committees.

Action: HG

12. MAINTENANCE AND RESEARCH

a) Maintenance of Eurocodes

Paul LUECHINGER referred Members to his report from the Ad-hoc Maintenance Group N 614 and noted that as 85% of the Eurocode parts are technically stable, the Ad-hoc group are now considering the future of the Eurocodes. The Ad-hoc Group comprises : the CHAIRMAN, Jean-Armand CALGARO, Roger FRANK, Gerhard SEDLACEK, Haig GULVANESSIAN, and Paul LUECHINGER. The Group first met two years ago in Brussels when short, medium and long term objectives were identified (see CG document N 1450) Paul LUECHINGER stated that already the short term objectives have been completed.

In response to the question of what is maintenance and when should it be done, Paul LUECHINGER suggested that in his opinion, maintenance should start at Formal Vote and not after implementation.

An example of a good maintenance platform through the use of a website can be found at: <http://www.unm.fr/en/general/en13445/default.htm#background>

which is funded by the Commission and hosted by UNM on the unfired pressure vessels standards of CEN/TC 54. It is possible that this website could be used as a model for the maintenance of the Eurocode programme.

It was noted that no meeting of the Ad-hoc Group had been held since the Lisbon meeting of CEN/TC 250.

b) Research

Gerhard SEDLACEK referred to his documents N 609 and N 612 and reported that there had been a meeting with Members of CEN/TC 250 and the Joint Research Centre (JRC) at Ispra to discuss the possibility of collaboration in the future development of Eurocodes, noting that JRC have received a contract from the Commission for the purpose of research into Eurocodes. It was recognized that the mechanism for future collaboration could be by networking between CEN/TC 250 and the JRC. This may lead to an extension of the Eurocode Programme to cover areas such as structural glass and structural applications of fibre reinforced polymers.

Noting that the papers of Gerhard SEDLACEK are proposals for discussion only, Members discussed the subject at length. It was recognized that Maintenance and research are totally different subjects with differing timescales these should be separated into at least two distinctively separate subjects. It was also accepted that areas such as implementation and harmonization of the Eurocodes should also be considered.

The CHAIRMAN summarized that in view of the discussion, the papers must be elaborated to cover the four key areas as follows which the Ad-hoc Group will draft before the next CEN/TC 250 meeting:

- implementation
- maintenance and follow-up
- rules for the harmonisation of Nationally Determined Parameters
- integration of the latest scientific and technological developments

Resolution 197

Professor MANCINI gave a presentation on the structure, organization and working programmes of FIB (see Annex B)

c) Finalization and publication of Eurocodes – update

It was noted that document N 600 had been created by WG 1 to address these issues as reported under item 8.

d) CEN/TC 50

It was noted that the product standards of CEN/TC 50 "Street lighting" are now published and contain design rules. It was agreed that CEN/TC 250/SC 1, SC 3 and SC 9 must establish a liaison with CEN/TC 50 as a matter of urgency.

Action: HG/FB/FM

13 SUB-COMMITTEE REPORTS

- i) **SC 1** – Haig GULVANESSIAN referred Members to the CEN/TC 250/SC 1 report N 606 and noted that of the 10 items under the Sub Committee's responsibility, 6 have passed Formal Vote (5 of which are published) and three are currently being translated in preparation for Formal Vote. The main area of concern is prEN 1991-1-7 which is a highly political document and has assumed major importance as this is an essential part of all packages and is now considered the critical item. Haig GULVANESSIAN expects a positive vote on the draft at the next SC 1 meeting in September. Members discussed at length the critical nature of this part relative to the packages of Eurocodes noting that providing it is published before the end of 2005, the agreed withdrawal date of March 2010 will still apply. CEN/TC 250/SC 1 were urged to ensure that this critical part remains to schedule.

Action SC 1

- ii) **SC 2** – Nary NARAYANAN referred Members to his report N 608, and noted that both prEN 1992-1-1 and prEN 1992-1-2 have received acceptance at Formal Vote. Noting that initially Part 1-1 and Part 1-2 were submitted together, Part 1-2 was subsequently withdrawn and resubmitted to Formal Vote which delayed the progress by approximately four months. Nary NARAYANAN reported that Part 1-1, which was approved at Formal Vote in January, has now had the comments incorporated by the SC 2 Editing Panel into the finalized English language text. This is now with AFNOR and DIN to align the French and German texts. Part 1-2 has just finished Formal Vote and comments will be addressed by the SC 2 Editing Panel. Part 2, SC 2 have agreed that it should go forward to Formal Vote, however Nary NARAYANAN added that he is advised that there are comments from the Examination period which will need to be considered. Part 3 is still at stage 34 and will progress to stage 49 at the next SC 2 meeting.

Nary NARAYANAN expressed his concern that communications are still problematic both with CMC and the Commission adding that a corrigendum for EN 1992-1-1 which was recently circulated by CMC without informing SC 2. Also it is felt that the Commission must act more expeditiously with comments and feedback from the Examination period to the SCs.

Technical Specification – Design for fastenings – Nary NARAYANAN requested that the proposed TS (WI 00250151) should be separated into 5 individual parts plus a Technical Report. The proposed five parts are:

Part 1 – General

Part 2 – Headed fasteners

Part 3 – Anchor channels

Part 4 - Post-installed fasteners – Mechanical fasteners

Part 5 – Post-installed fasteners – Chemical systems

plus the Technical report on the “Effect of cracking”

Members discussed the request and agreed that CEN/TC 250 would endorse this proposal. However concern was expressed that the proposal has an impact on the areas of responsibility of SC 3 and SC 4 and therefore the development of these drafts must be in close liaison with SC 3 and SC 4.

Resolution 192 was agreed accordingly.

In response to the criticism of CMC, Johan VAN TIEL reported that CEN has developed a new database management tool known as “Projex” which should aid more accurate and reliable information.

- iii) **SC 3** - Frans BIJLAARD referred to his report N 595 and added that since the report another SC 3 meeting had been held in Brussels on 22 & 23 April 04. Noting that parts prEN 1993-1-1, 1-2, 1-8, 1-9 and 1-10 were approved at Formal Vote, the main topics of discussion were the progressing of the other SC 3 parts to stage 49. Frans BIJLAARD added that there is still a need for funding on part prEN 1993-1-7, which is a crucial part of the SC 3 programme, as agreed by resolution 165 (Stockholm). Reporting on prEN 1993-1-12, Frans BIJLAARD stated that SC 3 believe this Part should be subject to the Unique Acceptance Procedure (UAP), as it isn't based on an ENV. Tor-Ulf WECK disagreed strongly as in his opinion the UAP gives insufficient opportunity to react. Noting the rules on how to apply UAP in CEN BOSS procedures, it was decided to proceed with a UAP for prEN 1993-1-12.

Resolution 193

- iv) **SC 4** – Jan STARK reporting on the activities of SC 4 referred Members to his reports N 602 and N 603. It was noted that prEN 1994-1-1 had just received a positive vote and the Editing Panel is scheduled to meet in Brussels in July to discuss and agree the response to the comments. Jan STARK added that at the Editing Panel meeting, members of the Composite bridges group will also attend to coordinate the changes which will enable them to finalize the stage 34 draft of Part 2. Regarding prEN 1994-1-2 he reported that whilst this part had been approved by SC 4 to go forward for Formal Vote, this still hadn't been achieved due to problems identified during translation. However this will be progressed to Formal Vote in the next few weeks and before the deadline of end June 04.
- v) **SC 5** – In the absence of Juergen KOENIG the SECRETARY referred Members to document N 604 and noted that Parts EN 1995-1-1 and EN 1995-1-2 had both received a positive vote. Furthermore the SECRETARY reported that prEN 1995-2 is currently out for Formal Vote which finishes on 22 July 2004.
- vi) **SC 6** – Rob VAN DER PLUIJM referred Members to his report N 613 and reported that there is confusion with CMC and the Commission regarding the funding of prEN 1996-1-3. It was noted that CEN/TC 250 agreed to merge prEN 1996-1-1 and prEN 1996-1-3 by resolution (Number 154 – Den Haag May 2002) after stage 34. Johan VAN TIEL reported that this is an administrative problem within CMC/Commission as the two parts are under different Order Vouchers(98 OV and 99 OV). The SECRETARY was requested to clarify this point in future revisions of N 455.

Action: SECRETARY

Noting that prEN 1996-1-1 is currently out for Formal Vote, Giorgio MACCHI suggested that Italy make return a negative vote, as 70% hollow masonry units are unacceptable in Italy.

Referring to prEN 1996-1-2, Rob VAN DER PLUIJM, commented that the restructured Project Team is making very good progress and he is confident that the draft will be available to CMC to launch Formal Vote before the end of June deadline.

- vii) SC 7** - Roger FRANK referred to his latest SC 7 report and added that this will be updated in the near future. It was reported that prEN 1997-1, had received a positive vote at Formal Vote, however the drafts of SC 7 are not delaying any packages. It was noted that there were only minor comments received at Formal Vote, which was primarily due to the excellent preparation and agreements made in CEN/TC 250/SC 7 during the development of the draft. Roger FRANK added that the finalized drafts in the three languages will be sent to the Secretariat in the next two months. It was reported that the draft of Part 2 is being finalized and a clean copy of English language version (stage 34) will be sent to the Secretariat in June.

Roger FRANK added that this is the last meeting of CEN/TC 250 that he will attend as the Chairman of SC 7 and thanked his colleagues in CEN/TC 250/SC 7 for their input with the drafting of the EC 7 codes. He added that at the last meeting of CEN/TC 250/SC 7 the sub-committee recommended Dr. Berndt SCHUPPENER should be his successor for a three-year period and requested CEN/TC 250 to approve this recommendation.

Resolution 195 was unanimously approved.

Furthermore it was noted that Professor G. SCARPELLI has been appointed as the Vice president of CEN/TC 250/SC 7.

The CHAIRMAN thanked Roger FRANK for his contribution to the overall work of CEN/TC 250 and especially in the development of the drafts of CEN/TC 250/SC 7.

- viii) SC 8** –Michael FARDIS, reported on the activities of CEN/TC 250/SC 8 and referred Members to document N 599. It was noted that Parts 1 and 5 had successfully passed Formal Vote and Part 5 has already been sent to the SECRETARY for progressing to publishing. The Editing Panel of SC 8 are considering the editorial comments received on Part 1 and will be finalizing the document for publication in July 2004. Additionally Michael FARDIS reported that Part 2 and Part 3 are in the process of having the English language text, finalized and will be sent to the Secretariat in the next few weeks for translation by DIN and AFNOR and editing by BSI. Referring to Part 4, Michael FARDIS commented that there have been delays with this part due to problems with the Project Team, which are now resolved and it is expected that the stage 34 draft will be available in the next few weeks.

Regarding Part 6, Michael FARDIS expressed his concern that whilst the Editing Panel will be in a position to send the draft for translation in July 04 it could be dangerously close to the deadline of the 1999 Order Voucher. His concerns are that the time for translation and the subsequent evaluation and comparison of the three drafts before it can be launched for Formal Vote.

- ix) **SC 9** – Federico MAZZOLANI referred Members to his report for SC 9 (N 598) and added that three of the EC 9 drafts are more advanced (prEN 1999-1-1, 1-2 and 1-4) and were agreed as stage 34 at the SC9 December 03 meeting in Brussels. The SC 9 Editing Panel are currently cleaning the documents before sending for translation. Federico MAZZOLANI reported that prEN 1999-1-3 “Fatigue” had not been approved due to disagreements within the Project Team. However he was hopeful that the issues would be resolved to enable a compromise to be reached to approve the stage 34 draft, at the next SC 9 meeting in June 03. It was noted that the drafting of prEN 1999-1-5 is about to start after initial delay awaiting the corresponding EC 3 part, prEN 1993-1-6 to reach stage 34. Federico MAZZOLANI reported that JACCARD the Convenor of the 1999-1-3 Project Team has now retired and that SC 9 requests that KOSTEAS takes over the role of Convenor.

Resolution – 196 agreed accordingly.

Having received the Sub-Committee reports, the CHAIRMAN reported that this was the last CEN/TC 250 meeting that Jean MOREAU de SAINT MARTIN would be attending as the lead delegate from France as he is due to retire in the summer. The CHAIRMAN thanked him for his positive contributions to the development of the Eurocodes and wished him a long and happy retirement.

15 REVIEW OF CONVERSION PROGRAMME

The Secretary reported that he had received comments from the Chairmen of SC 4, SC 6 and SC 7 which necessitated a further revision of N 455 to become Revision 9. Leendert BUTH suggested that a DAV would be a useful addition to the Programme to enable the budgetary planning of translations. The SECRETARY sympathized but added that experience has shown the delay between the stage 49 drafts and DAV can be any period between 6 and 18 months. As this time delay is outside the control of CEN/TC 250, the SECRETARY added that only the actual achieved DAV will be added to N 455 Rev 9 and the title of column 6 changed to reflect this situation. Eduardo CARVALHO requested Word copies of the stage 49 drafts to be made available to assist the translation into the other European languages. The SECRETARY agreed to investigate whether this would be a possibility through BSOL as there could be copyright implications on Livelink.

Action : SECRETARY

16 ANY OTHER BUSINESS

There were no points raised under Any Other Business

17 ARRANGEMENTS FOR FUTURE MEETINGS

At the kind invitation of the Italian delegation it was confirmed that the next meeting of CEN/TC 250 (twenty-sixth) will be held on 21st and 22nd October 2004 in Italy, probably Milan. Furthermore whilst it was recognized that combined meetings are not particularly effective, it was agreed to continue with the combined concept for another trial therefore the next CG would be held at the same venue on the 20th October 2004.

Secretary's Note: The meeting venue has subsequently been moved to Rome to enable a meeting to take place between CEN/TC 250 and senior representatives of the Italian Ministry of Public Works. This meeting will take place on Friday the 22nd October 2004.

Members agreed that the twenty-seventh plenary meeting of CEN/TC 250 will be held on the 26th and 27th May 2005, possibly in Spain which will be confirmed at the next meeting.

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 616):

- Resolution 190 -** Secretariat of CEN/TC 250/SC 1
- Resolution 191-** Liaison between CEN/TC 250 and CEN/TC 226
- Resolution 192 -** Design of fasteners for use in concrete
- Resolution 193 -** prEN 1993-1-12 Supplementary rules for high strength steels
- Resolution 194 -** EN 1990 Annexes A.3, A.4 and A.5
- Resolution 195 -** Appointment of new Chairman of CEN/TC 250/SC 7
- Resolution 196 -** Project Team for prEN 1999-1-3 of CEN/TC 250/SC 9
- Resolution 197 -** Implementation, maintenance and further developments of the Eurocodes

18 CLOSING OF MEETING

The CHAIRMAN thanked Manfred HIRT, EPFL, Peter MATT, Paul LUECHINGER and the Swiss Society of Engineers and Architects (Sia) for their generous hospitality in hosting this meeting.

The CHAIRMAN on closing the meeting wished the delegates a safe journey home and thanked them for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- SIXTH MEETING OF CEN/TC 250 HELD AT
THE MINISTERO DELLE ATTIVITÀ PRODUTTIVE ON 21st OCTOBER 2004**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending this the twenty-sixth meeting of CEN/TC 250. He thanked in particular the Giorgio MACCHI and Alberto GALEOTTO for their organization and hospitality in hosting this meeting. Giorgio MACCHI welcomed the delegates to Rome and explained the legal difficulties in implementation the Eurocodes in Italy, however he stressed that Italy are positive and committed to the Eurocode programme. It was explained that the following day the the CHAIRMAN and the SC Chairmen will give presentations to Italian regulators and senior members of the Italian structural engineering community at the Ministero delle Infrastrutture.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

J KRUPPA	-	French language
G SEDLACEK	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory remarks referred Members to his reports N 621 and N 636. It was noted that N 636 was prepared in conjunction with Pascal BAR

and gives the latest position of the Eurocode Programme and will be presented at the forthcoming SCC meeting.

Overall the CHAIRMAN reported that CEN/TC 250 and the Sub Committees are making good progress on producing the 58 Eurocode parts:

- 6 are completed and have been published by CEN
- 14 have been approved at Formal Vote and are being finalized for publication
- 5 parts are currently out at Formal Vote
- 28 parts are passed stage 34 and between this and stage 49
- 5 parts are behind schedule but have established the first drafts.

Summarizing the CHAIRMAN added that > 90% of the technical work is now completed, however he emphasised the CEN/TC 250 objective which is to complete the technical conversion work by the end of 2005.

The CHAIRMAN reported that at the end of 2003, the Commission announced the closure of the 1997 and 1998 Order Vouchers. These Order Vouchers (OV) closed in January 04 (for the 1997) and June 2004 (for the 1998).

Furthermore the CHAIRMAN added that it is expected that the 1999 Order Voucher will close at the end of 2004, assuming the Commission follow a similar line.

It was noted that there is a problem for the Secretariats who due to the stage payment agreements in the contracts, fail to get the final funds. However the Commission had promised that these residual funds would be recoverable under a re-commitment contract.

Unfortunately, the Commission has reneged on this promise and they have stated in letters to Gaston MICHAUD (Acting Secretary General of CEN), that they are not now prepared to re-commit to cover the residual funds. CMC have responded requesting a meeting with Mr. ANSELMANN at the Commission but as yet have not had a response.

The CHAIRMAN added that another important activity since the last plenary meeting has been the preparation of the report on the "Evolution of Eurocodes" which has been prepared at the wish of the Commission via the ENC Group. The CHAIRMAN referred to resolution 197 taken at the CEN/TC 250 meeting in Lausanne in May 04 when the Ad-hoc Group for Maintenance were tasked to develop the working papers on

- *implementation of the Eurocodes*
- *maintenance and follow-up of the Eurocodes*
- *ground rules for the harmonisation of Nationally Determined Parameters*
- *future integration into Eurocodes of the latest developments in scientific and technological knowledge*

The CHAIRMAN also added that liaison with EOTA and product TCs is ongoing and this will be reported on during the meeting.

4.2 Adoption of Agenda

Members agreed to the adoption of the agenda N 624.

5. FOLLOW-UP TO THE TWENTY- FIFTH MEETING OF CEN/TC 250 IN LAUSANNE – MAY 05

a) Report from Lausanne meeting (N 617)

Joel KRUPPA commented that on page 7 the title of CEN/TC 127 should read “Fire safety in buildings” and not “Fire safety engineering” as stated.

Haig GULVANESSIAN commented that on page 10 under item 13 i) report from SC 1, in line 8 it should read “... a positive informal vote ...”

Subject to the above corrections, document N 617 was approved as a true reflection of the meeting.

b) Resolutions – LAUSANNE

The resolutions from the Lausanne meeting in document N 616, were noted and accepted. Milan HOLICKY questioned whether the papers mentioned in resolution 197 were available. Paul LUECHINGER explained that the working papers have now been incorporated into a single report,(document N 630).

c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE TWENTY-SEVENTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN ROME

a) To Note the CEN/TC 250/-/1 CG Rome (verbal report)

The CHAIRMAN explained the rationale of the experimental policy of combining the CG with the Plenary TC meeting. Overall this has not been successful as CG meetings have proved invaluable in preparation for the plenary TC meetings providing an opportunity to prepare presentations and discussion documents. The experimental policy of combining meetings is now cancelled and the next CG meeting will be on the 29th April in Brussels, the following day to the ENC Group meeting. The next CEN/TC 250 Plenary meeting is scheduled for 26th and 27th May 2005.

Giorgio MACCHI requested that reports should be available when the CG meetings are separated.

The CHAIRMAN gave a verbal report on the proceedings of the CG meeting, the previous day. The main topics of discussion were:

- contracts and the closure of Order Vouchers by the Commission
- problems associated with the SCs in getting the Eurocode parts progressed
- future maintenance of Eurocode parts.

The CHAIRMAN added that all these points will be covered during the Plenary meeting.

b) Items for TC approval not covered by the Agenda

There were no items raised under this item

7 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 Bridges

Jean-Armand CALGARO reported that Annex A.2 had received a unanimous approval at Formal Vote and the editorial comments received are being considered and addressed by the EN 1990 Editing Panel comprising: Haig GULVANESSIAN, Jean-Armand CALGARO and Marcel TSCHUMI . The final polishing should take place by year-end 2004 and a tracked change version will be circulated to the Members in the three languages.

Jochen FORNATHER identified that there are some editorial errors in EN 1990. It was noted that due to the Annexes of EN 1990 being processed as amendments there might be a problem of exceeding the number of amendments permissible before a revision has to be introduced. After discussion, Johan VAN TIEL confirmed that the CEN amendment rule would not be applicable to introduction of the Annexes, therefore there wouldn't be a problem in the short term.

b) Annexes A.3, A.4, A.5 etc.

It was noted that the draft of Annex A.3 is under preparation by Gerhard SEDLACEK. Haig GULVANESSIAN reported that a draft of Annex A.5 is available as document N 637. However, concern was expressed on how to proceed with the introduction of Annexes, Haig GULVANESSIAN suggested that a meeting with the CEN editors would be necessary to understand how the EN 1990 contents list would need to change. Jean-Armand CALGARO noted that Annex A.2 is needed urgently by railway bridge designers and if the document is ready it should be processed as quickly as possible. Jochen FORNATHER questioned how to proceed with Annexes A.3, A.4 and A.5 as these have not been sent for "Examination".

Haig GULVANESSIAN suggested that the stage 34 drafts could be available for circulation to CEN/TC 250 by the end of March 2005, giving 2 months before the next CEN/TC 250 meeting for approval. It was noted that prEN 1991-1-6 contains "Basis of design" information that should be transferred to EN 1990, Haig GULVANESSIAN agreed to prepare a paper detailing how EN 1990 needs to be re-organized.

Action: HG

Steinar LEIVESTAD proposed a need for stability of Eurocodes, adding that any amendment must be carefully considered. This view was supported by Eduardo CARVALHO noting that as the Eurocodes are part of Portuguese law, amendments require changes to the law which are difficult to implement.

8 MAINTENANCE AND RESEARCH

Paul LUECHINGER gave his presentation on the "Report on Future actions and maintenance" see document N 630 Rev.1.

Members discussed at length the presentation and the implications to CEN/TC 250 noting that stability is vital to the success of the Eurocode programme.

Steinar LEIVESTAD commented that any plans for maintenance activities need to be agreed with the NSBs, adding that lines of authority must be clear and to ensure complete transparency will be difficult especially when coordinating the activities with a research institution. Pierre SPEHL agreed that it should be CEN/TC 250 who should be central to the maintenance of Eurocodes.

Jan GISBERS agreed that it is the responsibility of CEN/TC 250 to ensure the maintenance the Eurocodes and not through a research organization. Adding that he believes Eurocodes will not be extensively used until 2010 and if it is thought that they will be revised before 2010, the Eurocodes will loose creditability. He added that it must be the responsibility of the SCs of CEN/TC 250 to technically maintain the codes. This was decided by resolution at the last CEN/TC 250/SC 2 meeting in September 2004 and as a consequence funding will be necessary.

Gerhard SEDLACK commented that as identified at the CG on the previous day, the Commission acknowledges the responsibilities of CEN and recognizes the need for stability. Proposals for initiatives may come from many routes such as NSBs or from practitioners and these will be routed through the CEN organization.

Members acknowledged the importance in retaining CEN/TC 250 and the Sub-Committee structure to maintain the Eurocodes and agreed a resolution to endorse this view.

Resolution 199 was agreed accordingly.

Milan HOLICKY expressed his surprise that the Joint Committee for Structural Safety (JCSS) was not mentioned as part of the networking process which is a very important body and consequently proposed that JCSS should be included. He also questioned the meaning and mechanism of gradual alignment of safety levels as mentioned in clause 3.1 adding that in his opinion it is too early to consider harmonization although he recognized that there should be no reason why safety factors across Europe should differ.

Jaakko HUUHTANEN referred to the “cost table” and commented that it will be government who will be asked to fund maintenance as there is no funding available from the NSBs.

John MOORE considered that the next task is the maintenance of Eurocodes and that NSBs must be consulted through the Core Group for Construction of CEN.

The CHAIRMAN summarized that we must be prepared that there will be little if any funding available. With reference to the report, CEN/TC 250 must be the central organization in Figure 1, and the list of scientific organizations must be inclusive of all important players. Paul LUECHINGER agreed to implement the appropriate changes.

Action: PL

Members discussed at length the need for funding and unanimously agreed that it is a crucial issue and must be resolved if the Eurocode Programme is to continue and develop.

Pierre SPEHL added that he believes that the Commission are not happy with number of NDPs in Eurocodes and taking account of the experience gained with fire standards suggests that the Commission may try and pressure Member States into accepting recommended values to achieve harmonization. The Commission needs the Eurocodes and therefore he believes that they are obliged to provide the necessary means (funding) to maintain them.

The CHAIRMAN commented that CEN/TC 250 should be the main steering organization although he noted that we are a part of the network, the Commission are directing JRC. It is the objective of this meeting is to take account of Members comments and decide how to progress the report.

Nary NARAYANAN referred Members to his document N 629 and expressed his concern that the Commission/JRC cannot impose their wishes on CEN/TC 250. Members agreed with this view.

The CHAIRMAN concluded the discussions by summarizing that all the Members concerns and proposals have been noted and recommended that the Ad-hoc Group carry on with developing the report. This process should include further bi-lateral contributions from Members and experts. The next revision of the document will be circulated in March 05 with a view to further discussions at the next Plenary meeting in May 05. He noted that SCs are free to continue with the maintenance of their documents but advised that there is no funding available at present.

9 SUB-COMMITTEE & HG REPORTS

a) CEN/TC 250/SC 1 (N 632)

Haig GULVANESESIAN referred Members to N 632, noting that 5 parts of the SC 1 Programme have already been published. The progress of the other SC 1 parts is as follows:

- EN 1991-1-4 – finalizing the editorial work and should be available in the 3 languages for CMC in the next two weeks. The technical comments received at Formal Vote have been set aside and will be used at the first revision.

It was noted that there was disparity between the wind code and prEN 1993-3-1 "Steel towers and masts" and an editorial amendment is required before it is sent to CMC. This problem was identified at the last SC 1 meeting and a resolution agreed as prepared by Gerhard SEDLACEK. This proposal was endorsed by CEN/TC 250 and a resolution was agreed accordingly.

Resolution 198

- prEN 1991-1-6 – currently out for Formal Vote which closes in December 04.
- prEN 1991-4 – As this is part of the 1999 Order Voucher it will be necessary to consider submitting this part in English only as the translations are not available.
- prEN 1991-3 – Cranes and machinery, part of the 2000 Order Voucher, however there is a need to perform some editing work on the English language version.
- prEN 1991-1-7 – this is delayed and requires significant input to bring it back on track. Haig GULVANESESIAN agreed to discuss appropriate action with the PT Convenor.

Haig GULVANESESIAN added that SC 1 will probably lose the Secretary (Lars ALBREKTSSON - SIS) due mainly to the severe delays in payment of funding and the protracted administration procedure. This will be a considerable loss to SC 1 and as no replacement arrangements have been found there could be a critical delay to the progress of SC 1 work, in particular to prEN 1991-1-7.

b) CEN/TC 250/SC 2 (N 631)

Nary NARAYANAN referred Members to his report N 631 and updated the meeting on the progress of SC 2. as follows:

- EN 1992-1-1 "General rules" – currently with CMC for publication in the three languages

- EN 1992-1-2 “Fire” positive vote and the finalized English and German versions will be sent to the Secretary in the next few weeks for transmission to CMC.
- prEN 1992-2 “Bridges” three language versions will be sent to CMC for Formal Vote launch in November 04.
- pEN 1992-3 “Retaining walls” – translations into German and French are expected to be requested in November with a view to launch of Formal Vote in January 05.
- Technical Specifications for anchoring are all under development.

Nary NARAYANAN informed the meeting that his three-year tenure as Chairman of SC 2 finishes in July 05 and he will then step down to be succeeded by Prof MANCINI

c) CEN/TC 250/SC 3 (N 620)

Frans BIJLAARD reported that the progress of SC 3 is stated in document N 620. The first tranche of Eurocode 3 parts (EN 1993-1-1, 1-2, 1-8, 1-9 and 1-10) have passed Formal Vote and will be sent in English to the Secretary by the end of the month. It is expected that the French and German versions will follow shortly.

At the last SC 3 meeting, the second tranche (prEN 1993-1-3, 1-4, 1-5, 1-11, 2, 3-1 & 3-2) were approved informally by the SC members to go for Formal Vote subject to in some cases, extensive editing. Frans BIJLAARD added that there will be a problem with some of these as not all the translations are available and therefore to achieve the contractual requirements it may be necessary to launch Formal Vote in a single language. In some instances a second language version may also be available. Members discussed at length the possibility of launching Formal Vote in either a single or in two languages, recognizing the need to fulfil the Order Voucher deadlines, and agreed a resolution to support the proposition.

Resolution 200 was agreed

It was reported that the other parts of the EC 3 programme will probably achieve informal approval at the next meeting of SC 3 in November 2004. The exceptions are prEN 1993-1-12 which is being progressed under the CEN UAP scheme and prEN 1993-1-7 which is not funded and therefore, as yet there is no movement on this item.

d) CEN/TC 250/SC 4 (N 626)

Jan STARK referred Members to his report N 626 and added that the issue regarding the Secretariat of CEN/TC 250/SC 4 has now been resolved.

Regarding progress of the EC 4 parts, the following points were noted:

- EN 1994-1-1 – the comments received at Formal Vote have been addressed and the English language version is now finalized. The French and German versions will be completed in the next few weeks and the 3 versions will be sent to CMC for publication.

- EN 1994-1-2 – the Formal Vote was completed in September 04 and the result was positive. An Editing Group meeting will be called before the year-end to address the comments.
- prEN 1994-2 - technically this part is now complete and currently awaiting the bridge parts of EC 2 and EC 3 for a final check to ensure the correct references have been made. It is expected that the 3 language versions will be sent to CMC for launch of Formal Vote in the next few weeks.

e) CEN/TC 250/SC 5 (N 628)

Juergen KOENIG reported that as confirmed in his report, document N 628 the work programme of SC 5 is complete with the three parts having been published by CEN.

f) CEN/TC 250/SC 6 (N 634)

Rob VAN DER PLUIJM referred Members to his report, document N 634.

EN 1996-1-1 – has passed Formal Vote and the three language versions are being finalized. Expected to be sent to CEN for publication in the three languages before the year-end.

EN 1996-1-2 – passed Formal Vote in September and an Editing Panel meeting is arranged for November to finalize the draft.

g) CEN/TC 250/SC 7 (N 623)

Bernd SCHUPPENER reported on the progress as the new Chairman of CEN/TC 250/SC 7. It was noted that there was an SC 7 meeting a few weeks previous.

EN 1997-1 has passed Formal Vote and the draft is being finalized in the three languages. These drafts will be sent to CEN for publication in the next few weeks

prEN 1997-2 – this part is a merger of prEN 1997-2 and prEN 1997-3 and is expected to be sent for Formal Vote by the end of 2004.

Bernd SCHUPPENER added that a “Designers guide to SC 7” has been most useful when finalizing and polishing the final drafts

h) CEN/TC 250/SC 8 (N 638)

Michael FARDIS reported that prEN 1998-3 has recently been sent to the SECRETARY to transmit to CEN for launch of Formal Vote.

Regarding prEN 1998-6 it was noted that this part is on target, and prEN 1998-2 has been sent for translations – although this could also be a candidate for launching in a single language as per **resolution 199**.

Michael FARDIS reported that prEN 1998-4 is under the 2000 Order Voucher but is approximately one and half years behind schedule. The stage 34 draft will be sent to the EU for the “Examination period procedure”, in the next few weeks.

Michael FARDIS added that next year his six years as Chairman of SC 8 is completed. However, due to a lack of funding it will be difficult to find a successor. Given that it is likely that the SC 8 work will be very close to completion during Michael FARDIS's term of office it was suggested that an extension for a further year would be appropriate.

i) CEN/TC 250/SC 9 (N 627)

Federico MAZZOLANI reported that three parts of EC 9, prEN 1999-1-1, prEN 1999-1-2 and prEN 1999-1-4 have now reached stage 34 and have recently completed the examination period.

Federico MAZZOLANI reported that he hoped that prEN 1999-1-3 will reach stage 34 in December 2004. Regarding prEN 1999-1-5, this part has been delayed as the Project Team had to wait for prEN 1993-1-6 "Steel shell structures" for alignment. He hoped that stage 34 draft would receive approval at the next SC 9 meeting in June 05.

j) HG - Fire

Joel KRUPPA reported that the Fire Eurocode parts are all technically completed and several will be published shortly. It was noted that Turkish Ministry of Public Works are interested in the Eurocode parts fire and seismic resistance.

k) HG - Bridges

Jean-Armand CALGARO commented that the major participation of HG Bridges has been on the input into prEN 1991-1-7. All the bridge codes are technically advanced and most are at stage 49 awaiting launch of Formal Vote.

As an aside, Jean-Armand CALGARO presented a light-hearted view entitled "The ten commandments for the maintenance and evolution of the Eurocodes" which gained considerable accord and empathy with the Members of CEN/TC 250 :

1.- The Commission Shall Not Kill CEN/TC250 by a lack of funding at the time where the Eurocodes give rise to a new European culture in civil engineering.

2.- No organisation other than CEN/TC250 shall be in charge of the maintenance and development of the Eurocodes.

3.- The sub-committees and horizontal groups shall be the relevant authorities for the resolution of technical problems and the preparation of the evolution of Eurocodes.

4.- The general philosophy of the Eurocodes, based on the semi-probabilistic approach, shall not be changed in the short nor in the medium term, in order to encourage the adoption of a stabilised system of design rules.

5.- Technical changes shall be proposed on the basis of well established and reliable scientific progress.

6.- *The decisions concerning the publication of Eurocodes including evolutions shall be taken by CEN/TC250.*

7.- *CEN/TC250, its Co-ordination Group and its Sub-committees shall meet at least once a year to follow the conditions of implementation of the Eurocodes in the Member Countries.*

8.- *An assistance to the implementation and use of the Eurocodes shall be created before the end of 2005 under the responsibility of CEN in association with National Standard Bodies.*

9.- *CEN/TC250 shall establish close links with JRC and other national research institutions to stimulate technical and scientific progress in those fields which are not yet correctly covered by design rules.*

10.- *CEN/TC250 shall contribute to the improvement of the procedures for more technical transparency in the CE marking of construction products.*

10 ELIMINATION OF INCOSISTENCIES

a) Liaison with Product TCs

i) CEN/TC 125 “Masonry products”

Barry HASELTINE reported that the amendment to EN 771 series has been completed is currently out for UAP. However there could be problems with the minimum wall thicknesses for Germany.

ii) CEN/TC 229 “Precast concrete products”

Nary NARAYANAN reported that liaison with Michel VALLES and CEN/TC 229 remains positive and ongoing.

iii) CEN/TC 135 “Execution of steel & aluminium structures”

Gerhard SEDLACEK reported that the three parts of EN 1090 are at an advance stage of development . The three parts under development of EN1090 “Execution of steel and aluminium structures” are:

- Part 1 – General delivery conditions for steel and aluminium components
- Part 2 – Execution of steel structures
- Part 3 – Execution of aluminium structures.

iv) CEN/TC 226 “Road equipment”

Haig GULVANESSIAN reported that he has started a liaison with Graham CHEEK, the Convenor of the CEN/TC 226/WG responsible for motorway signage. There was a perception that road signs would be adversely affected by EN 1991-1-4, the wind code. However this was a misunderstanding by CEN/TC 226 and their concerns with the wind code have now been allayed.

Jean-Armand CALGARO suggested that liaison should be formed with the appropriate working group of CEN/TC 226 with responsibility for parapets.

v) CEN/TC 185 “Threaded and non-threaded mechanical fasteners”

There was no report given on liaison with this TC.

vi) CEN/TC 124 “Timber structures”

Juergen KOENIG reported that an informal liaison exists between CEN/TC 250/SC 5 and CEN/TC 124 , as there are many members who are common to both committee. However as there is a new Chairman of CEN/TC 124, Members agreed that it would be prudent for the CHAIRMAN to write to the new Chairman of CEN/TC 124 with a view to establishing formal liaison.

Action: The CHAIRMAN

vii) Liaison with other TCs

Steinar LEIVESTAD reported that there has been a liaison established between CEN/TC 250/SC 2 and CEN/TC 104/SC 2 “Execution of concrete structures”

It was noted that there was an outstanding action on Haig GULVANESSIAN , Frans BIJLAARD and Federico MAZZOLANI to establish liaison with CEN/TC 50 “lighting columns”. It was reported that liaison hasn’t been established.

Action: HG/FB/FM

Steinar LEIVESTAD reported that ISO/TC 98/SC 3 are developing a code for the loading/actions by “Currents and waves” and a liaison with this committee should be considered by CEN/TC 250. Milan HOLICKY added that this liaison should be extended to ISO/TC 98/SC 2 who have drafted an international code on the “Assessment of existing structures” (ISO 13822) which is linked to ISO 2394 Bases of design of structures. The CHAIRMAN proposed that these should be included in the agenda of the next CEN/TC 250 meeting as a possible new work item for existing structures.

11. REPORT FROM THE SECRETARIAT

a) Contacts situation

It was reported that the majority of Contracts had now been signed and the outstanding contracts would be dealt with as and when necessary.

b) Order Vouchers

The SECRETARY reported that main activity of the SECRETARIAT since the last meeting, had revolved around the surprise closure of the 97 and 98 Order Vouchers. This involved the justification of the resource spent by the Secretariats and expenses incurred, in the developing of the Eurocode Programme. Recognizing that premature closure would prevent the Secretariats from receiving about 50% of the contracted funding, the Commission proposed that a “Re-Commitment contract would be approved. The preparation of this contact was considerable and as reported by the CHAIRMAN, it appears that the Commission have now reneged on their initial promise to the re-commitment of funding. Despite several attempts by CMC, there appears a difficulty in

discussing the matter with the Commission as highlighted by the exchange of letters between CMC and the Commission.

c) CEN/TC 250 Business Plan

The SECRETARY explained the requirement of CMC, that all CEN/TC business plans should be updated in the new template to reflect current activities of the CEN Technical Committee. Referring to N 633, the SECRETARY advised that this is a rework of the original CEN/TC 250 Business plan which was drafted some 5 years ago.

However before it can be submitted to CMC for adding on the CEN website, it must be approved by CEN/TC 250 Members.

It was agreed that future revisions and updates of the Business Plan, would be the responsibility of CEN/TC 250/WG 1.

Members unanimously approved the CEN/TC 250 business plan by resolution.

Resolution 201

12 POLICY GUIDELINES AND PROCEDURES

John MOORE reported that at the previous meeting of CEN/TC 250 in Lausanne, WG 1 were tasked to revise N 600. Necessary changes which have been identified for the next revision on N 600 (N 600 Rev 1) are:

- A new Section to be added to clarify the finalization of drafts for publication after a positive Formal Vote,
- Minor corrections and additions to common Foreword in sections 3 and 4.

Recalling the comments made during this meeting on difficulty in achieving target dates under the imminent prospect of Order Voucher closure and the need to launch Formal Vote in a single language, John MOORE proposed that a Note be added to clarify the “exceptional use of fewer than three language versions for Formal Vote”.

It was requested that Members comment on the document N 600 Rev.1 would be welcomed within two weeks, prior to official circulation on the Livelink website in November 04.

Action: All Members

John MOORE added that there will be a new clause added to N 250 to take account of the CEN/TC 250 policy on “Maintenance of Eurocodes” when the Ad-hoc Group finalize their report.

13 ENC GROUP and SCC

The CHAIRMAN reported on the ENC Group meeting at CEN on the 5th October 2004. He noted that this was the last meeting of Pascal BAR before he leaves the Commission. One of the most important points from the meeting was the proposed new Mandate for the ENC Group, which will give greater responsibility as stated in ENC 121 (see Annex B of this report).

Barry HASELTINE added that other topics discussed at the ENC were :

- CE marking for performance which has been calculated using Eurocodes. This document has been drafted by a sub-group of ENC group, in association with Product TC Chairmen. This paper will be incorporated as an annex to Guidance Paper K "CE marking under Construction products Directive".
- Long debate on changing the "Note 27" in Guidance Paper L
- Packages as defined in GPL
- How to consider characteristic values of structural materials as requested by Finland

Steinar LEIVESTAD commented that one of the tasks proposed for the JRC is the harmonization of NDPs and a requirement to provide information to the stake holders and users on the NDPs of the European countries. The Standards body of Norway and other NSBs (including BSI) would resist dissemination National Annex information including the NDPs on a freely accessible website, as this would infringe NSB copyright.

Jochen FORNATHER questioned whether that National Annexes should be published in English as well as the national language. After some discussion it was agreed, assuming that the NAs will be published by the relevant NSB, that the Commission have no authority to impose requirements on NSBs. It is therefore the prerogative of the individual NSB to decide whether an English translation is necessary.

14 CMC AND EU COMMISSION MATTERS

The CHAIRMAN commented that these matters had been fully discussed under previous items of the agenda.

15 REVIEW OF THE CONVERSION PROGRAMME

The SECRETARY agreed to liaise with the SC Chairmen outside the meeting a update the document in due course.

Action: SECRETARY

16 ANY OTHER BUSINESS

Milan HOLICKY gave presentation to update Members on the EU sponsored "Leonardo da Vinci" project which aims to develop the skills and competence of potential users including practising engineers, designers, regulators and university students in order to facilitate the implementation of Eurocodes.

It was reported that there will be a one day seminar to focus on the the application and use of EN 1990 "basis of structural design" and EN 1991 "Actions on structures". This will be held in Madrid at the "Colegio de Ingenieros de Caminos, Canales Y Puertos, on the 4th November 2004. In addition to Milan HOLICKY there will be presentations by several Members of CEN/TC 250.

Further information on the "Leonardo da Vinci" project can be found at:
<http://www.eurocodes.cz>

17 ARRANGEMENTS FOR FUTURE MEETINGS

It was confirmed that the next meeting of CEN/TC 250 (twenty-seventh) will be held on 26th and 27th May 2005 provisionally arranged for Brussels at CEN. However it was possible that an alternative venue would be forthcoming

Secretary's Note: At the kind invitation of Greece, the meeting venue has subsequently been moved to Athens

Members agreed that the twenty-seventh plenary meeting of CEN/TC 250 will be held on the 27th and 28th October 2005, possibly in Spain which will be confirmed at the next meeting.

18 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 639):

Resolution 198 - Editorial amendments of EN 1991-1-4 and EN 1993-3-1

Resolution 199- Retention of CEN/TC 250

Resolution 200 - Expiration of the contract

Resolution 201 - CEN/TC 250 Business Plan

18 CLOSING OF MEETING

The CHAIRMAN thanked Giorgio MACCHI and the Italian delegation for their generous hospitality.

The CHAIRMAN on closing the meeting thanked the delegates for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- SEVENTH MEETING OF CEN/TC 250 HELD AT
THE EEDE - ATHENS ON 26th AND 27th MAY 2005**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending this, the twenty-seventh meeting of CEN/TC 250. He thanked in particular the Alex PLAKAS and Michael FARDIS for their organization and hospitality in hosting this meeting. He introduced Mr E. VARDAKAS who was Secretary General of CEN when Eurocodes were passed over from the Commission. He then moved to the Commission where he signed off the 1997 to 2000 Order Vouchers for the Conversion Work of ENVs to EN Eurocodes.

In welcoming the delegates to Athens, E VARDAKAS explained the significance of Eurocodes to Europe and to the Commission, which are in a "grey area" between standards and regulation. He hoped that this meeting would prove to be a successful.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

C. PATROUILLEAU	-	French language
G. SEDLACEK	-	German language
B. HASELTINE	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN in his introductory report referred Members to his reports N 648 and added that the critical issues for this meeting are:

- The status of the work programme
- Contracts
- Maintenance and the future

The CHAIRMAN reported on the meeting at the Commission between Dr. Reinhard Klein, (European Commission), Michel Geradin (Joint Research Centre, Ispra), Jean-Armand CALGARO and himself. He explained that Reinhard KLEIN has taken over the responsibility of the Construction Unit of DG Enterprise in the Commission. However as Pascal BAR's position is not being replaced the technical competence in the Commission will be limited. The CHAIRMAN reported that Reinhard KLEIN maintains an open mind about technical standardization and in principle supports the evolution of the Eurocode programme. The Commission will rely on the support of JRC Ispra for the technical issues and for the promotion and harmonization of Eurocodes. The CHAIRMAN requested that members of CEN/TC 250 support him in convincing the Financial Services Department of the Commission in the importance of Eurocodes to the EU.

Reporting on the state of the work Programme for CEN/TC 250, the CHAIRMAN referred Members to N 455 Rev.9.3

Whilst the work is ongoing, the Sub Committees are working hard in developing the technical work. At the time of the Athens meeting, the status of the Work Programme was reported as follows:

- 21 Parts - published by CEN
- 9 Parts - passed Formal Vote and awaiting finalizing
- 8 parts - awaiting launch of Formal Vote
- 20 parts - under development most are technically completed.

The CHAIRMAN added that other issues to be discussed during the meeting are:

- the contractual situation with the Commission which is administered through BSI and CEN. This will be discussed under the report from the Secretariat.
- The ENC Group which will be restarted by the Commission in October
- Evolution of Eurocodes N 630 Rev.2 will be covered under item 7 of the agenda.
- Annexes to EN 1990
- SC Chairmen reports which are very important
- N 250 F & N 600 do they require revision?
- Liaisons – In addition to the current liaisons , a new liaison has been established with CEN/TC 124 "Structural timber"
- Translations – important with time pressures

The CHAIRMAN added that he had learned from Matti VIRTANEN that there was an accident with a roof in Finland which could have had implications for Eurocode 5. However, investigations suggest that it was primarily due to sub-standard manufacture and execution, adding that if Eurocode 5 had been found to be at fault it would have been disastrous to the Eurocode programme.

It was also reported by the CHAIRMAN that Malaysia and Indonesia have approached CEN/TC 250 with a view to including design aspects to protect against tsunamis after the devastation event of the 26th December 04. This was passed to Bernd SCHUPPENER who responded that this subject is outside the scope of the Eurocode programme.

Jan GIJSBERS suggested that assessment of existing structures should be considered as an item for the agenda. Peter MATT agreed to address the topic of "assessment of existing structures" although added that in his opinion it is too early to consider new items but believes that CEN/TC 250 should concentrate on completing the existing work programme as the top priority. The topic of "Assessment of existing structures" will be introduced at the next CEN/TC 250 meeting in October 05.

Action: PM/SECRETARY

Steinar LEIVESTAD suggested that a topic of technical changes after Formal Vote should be added to the agenda. The Chairman agreed to cover this matter during the meeting.

The Agenda (document N 648) was adopted, noting that there was a numbering error (two items numbered 12).

5 FOLLOW UP TO THE TWENTY-SIXTH MEETING OF CEN/TC 250 (ROME)

5.a) Draft Report (N 647)

Jan GIJSBERS noted a mis-spelling of his name, on page 5 and added that the minutes should also reflect his comment that CEN/TC 250 should establish clear and operational rules for guidance on maintenance of Eurocodes for the Sub-committees.

Subject to the above, the report was accepted.

5.b) Resolutions from Rome meeting

The Resolutions from the Rome meeting in document N 639 were noted.

Haig GULVANESESIAN added that the Secretary of CEN/TC 250/SC 1 (Lars ALBREKTSSON) has the support of Swedish industry which is good news and this will allow him to continue until the SC 1 work programme is completed.

5.c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE TWENTY-EIGHTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN BRUSSELS (27 & 28 April 05)

The CHAIRMAN reported that the CEN/TC 250/-/1 CG meeting was held in two parts, on the morning of the 27th April followed by an Ad-hoc ENC Group meeting in the afternoon and then a full day on the 28th April.

The main points of discussion at the CG were on Maintenance and the Evolution of Eurocodes, how the technical work is progressing and the other production problems which are now becoming apparent such as translations.

The CHAIRMAN added that Members of CEN/TC 129 "Glass" attended which resulted in intense discussions on the possibility of a Eurocode for structural glass.

b) Items for TC approval

The CHAIRMAN suggested that the Evolution paper and the liaison with CEN/TC 129 will require further discussion and approval by CEN/TC 250.

7. MAINTENANCE AND RESEARCH

a) Maintenance of Eurocodes

Paul LUECHINGER as the convenor of the Ad-hoc Evolution Group referred Members to document N 630 Rev 2 and N 630 Exec Sum and explained that at the Lausanne meeting of CEN/TC 250, Resolution 197 was agreed for the formation of an Ad-hoc Group. It was noted that since the Lausanne meeting there have been several Ad-hoc

group meetings plus regular communication within the group by correspondence resulting in document N 630. This document makes reference to Guidance Paper L and the Recommendations for Eurocodes of the Commission (see N 589). During the meetings it was recognized that the conclusions of the report should be embodied in an Executive Summary which would be more convenient and useful as a discussion document. Consequently N 630 Exec Sum was developed.

Paul LUECHINGER reported that the four key objectives identified in the report are maintenance, harmonization, promotion and future development, which require clear and concise definitions. Initially a fifth objective was considered under the heading of implementation, however, as this is a matter for Member states it is therefore outside the scope of the report. The key objectives, identified are as follows:

- **Maintenance:** Actions for updating, revisions and completion of EN Eurocodes.
- **Harmonization:** Further step of development of EN Eurocodes to transfer the Nationally Determined Parameters (NDPs) into a harmonized system.
- **Promotion:** Support to professions to implement and use the EN Eurocodes and to improve the competitiveness of European construction industry on the global market.
- **Further Development:** Further updating and supplements according to pressures from market for innovative solutions and progress of scientific knowledge

The actions necessary to achieve these key objectives will be undertaken by CEN/TC 250 (including the Sub-committees) in collaboration with Commission (JRC/ELSA). For the Maintenance and Future development objectives, CEN/TC 250 will take the leading role, whereas for Harmonization and Promotion, the leading organization will be the Commission (JRC/ELSA).

In his presentation, Paul LUECHINGER explained the necessary actions to achieve these objectives as follows:

Maintenance: - Propose a procedure to react to comments from Member States or NSBs on problems of implementation and use of the EN Eurocodes.

Harmonization: - Provide a mechanism by which a convergence, where relevant, of the NDPs can be achieved, so that the second objective of the EN Eurocodes can be fulfilled.

Promotion: - Support to professions to implement and use the EN Eurocodes and to improve the competitiveness of European construction industry on the global market.

Further development: - Enable the planning of future developments e.g. by technical studies and research.

Giorgio MACCHI expressed surprise that implementation had been discounted and believes that as Italy, Spain, Portugal, Greece all have implementation difficulties CEN/TC 250 should remain involved with implementation.

It was noted that whilst Italy has not implemented any Eurocodes as yet, the documents are made available to aid implementation.

In response Paul LUECHINGER reminded Members that at the CEN/TC 250 meeting in Rome, the Ad-hoc Group presentation was criticised for including implementation as this

is outside the scope of CEN/TC 250. However it was recognized that the considerable expertise of Members in CEN/TC 250 could help in supporting countries that have started implementing the Eurocodes.

Matti VIRTANEN noted that the "Recommendation of the Commission on Eurocodes" is addressed to Member states and together with the CPD covering construction products and CE marking makes the use of Eurocodes essential if not mandatory, therefore they must be excellent structural codes and rigorously maintained as they will be legal instruments in the EU and EFTA countries.

Members discussed the legal requirement to implement Eurocodes and the need to distinguish between the legal and scientific requirements.

Members agreed that the Executive summary is more useable than the report. However Eduardo CARVALHO recommended that implementation is reinstated in the Executive Summary table with the ENC Group having responsibility for the objective/actions. The CHAIRMAN summarizing explained that CEN/TC 250 has no influence with Member States on implementation but recommend that assistance could come from the ENC Group.

Members discussed at length the improvements to document N 630 but recognized the importance in the need to quickly establish guidance procedures for maintenance.

It was also noted by some members that Harmonization should be lead by CEN/TC 250 and its SCs and not the Commission. Conversely it was debated that Further development (technical studies and research) should not be lead by CEN/TC 250.

The CHAIRMAN summarized that implementation is a task of Member States and not CEN/TC 250 however the report would be improved by adding words to state that CEN/TC 250 will support and assist in the implementation process when required.

Paul LUECHINGER explained that N 630 was developed for CEN/TC 250 Members and was based on the action plan in N 1452. It was also noted that the original version of N 630 was discussed at the ENC Group meeting and subsequently revised as Revision 1. This version was presented at the CEN/TC 250 meeting in Rome in October 2004.

Taking account of Members comments at the Rome meeting and the input of Jan STARK who separated the "Activities" into the three sub groups of "Information", "Realization" and "Coordination", this was the basis of the Revision 2.

The CHAIRMAN referred to document N 655 and the proposal from Jochen FORNATHER and Austria for the introduction of "Errata sheets" and commented that the concept should be further developed urgently by the Ad hoc Group for a strategy and to provide detailed guidance for SCs on how to handle corrections in the published codes.

John MOORE reminded Members that from the Rome meeting of CEN/TC 250 it was agreed that WG 1 and the Ad Hoc Group were tasked with drafting a new section in N 250 to reflect the philosophy of N 630.

Matti VIRTANEN commented that difficulty has been experienced in Finland when drafting National Annexes and trying to find the background documents to establish the reasoning behind the decisions for given recommended values.

Members discussed at length. Furthermore it was felt that JRC Ispra should produce a database template with justification where a Member State has deviated from the recommended values.

The CHAIRMAN reported that background documents were discussed at the CG in Brussels and the need for a repository database was identified. However it was noted that the archiving of background documents was not part of the contract and hence funding would not be available.

Each SC Chairman reported the current situation with background documents relating to their Sub-Committee.

Haig GULVANESESIAN – SC 1: have the ENVs, the stage prEN drafts and collage of comments which they believe are the most useful background documents for SC 1.

Nary NARAYANAN – SC 2: some background documents exist but they are not complete or up-to-date. However, as there is no funding or resource available there is little motivation to update these documents.

Frans BIJLAARD - SC 3: substantial documents exist but these are in the form of tables and notes and to make into useable documents this would require considerable resource.

Jan STARK – SC 4: when drafting the ENVs Jan STARK recalled that it was suggested to the Commission that background documents are produced, however the Commission never answered the question posed. Within SC 4 there are many documents and books which should be considered as background, but these are not necessarily useable.

Juergen KOENIG – SC 5: CIBNT meet annually to discuss issues and background documents has been discussed many times. Therefore most of the background to the SC 5 drafts is available.

Rob VAN DER PLUIJM - SC 6: Similar to other SCs there are many background papers within SC 6 but these are not in a useable format to anyone not involved in the drafting of the SC 6 drafts and will require considerable resource in order to make them useful to the public.

Bernd SCHUPPENER – SC 7: The main background document considered by SC 7 is the book entitled “Designers guide to Eurocode 7”

Michael FARDIS – SC 8: There are no background documents available at present in a useable form, but as with other SCs will require resource to update into a useable format.

Federico MAZZOLANI – SC 9: It was reported that the main background document for SC 9 is his book which is to be revised.

Gerhard SEDLACEK stated that some background exists in tests and evaluation reports citing the example of "fatigue" in EC 3 where a 2500 page document with test results from a World Welding, ECCS conference.

Steinar LEIVESTAD recommended that CEN/TC 250 should not spend energy in writing background documents as the codes themselves are good without a need for background.

After further discussion by the Members, the CHAIRMAN summarized that whilst background documents are not part of the mandate, the codes are clearly safe without the need. However if some background documents are necessary this will have to be considered in N 630 Rev 2.

8 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 - Haig GULVANESESIAN as the Convenor of PT for EN 1990 reported that, whilst the Formal Vote ballot was positive, it did identify some minor editorial changes which will be addressed and the finalized draft sent to the SECRETARY in the next few days. It was noted that it is CEN/TC 250 intention that Annex A.2 will initially be published as a stand alone document and at some point in the future will be incorporated into EN 1990.

Jean-Armand CALGARO reported that the French language version is currently being finalized and polished and will be available within one week.

Gerhard SEDLACEK reported that similarly, the German language version will be available in the next two weeks.

b) Annexes A.3, A.4, A.5 - Haig GULVANESSIAN reported that the first draft of **Annex A.5 "Cranes"** was circulated as document N 637 in November 2004 and only one comment (from Finland) was received. Jochen FORNATHER questioned whether this should be sent for Examination as this procedure has now been restarted by the Commission. It was clarified that as the text had been through examination as an Annex of prEN 1991-3 it is thought that this would be an un-necessary process. It was reported that there has been minimal progress on annex A.4 and Annex A.5. For **Annex A.3 "Towers and masts"**, Gerhard SEDLACEK reported that there had been a delay due to issues with the Convenor of the Project Team for prEN 1993-3-1 and 3-2. These issues have now been resolved and work will commence shortly.

Action: PT 1990

Annex A.4 "Silos" - Haig GULVANESSIAN reported that the initial drafting will commence when he meets with Gerhard SEDLACEK in June 05

Action: HG/GS

EN 1990 provisions for fatigue – Gerhard SEDLACEK reported that the initial draft was circulated as document N 656 in May 2005.

Jan GIJSBERS questioned why only metallic components were considered in the draft and suggested that this should be reflected in the title. Gerhard SEDLACEK agreed to this amendment.

Action: GS

It was agreed by resolution that fatigue for metallic components is a high priority as an addition to EN 1990 and the Project Team for EN 1990 will consider the subject.

Resolution 203

Haig GULVANESSIAN reported that there is an ISO standard from ISO/TC 98 - ISO 13822 "Bases of design for assessment of structures" which had been raised by Peter MATT at previous meetings. It was suggested that the PT for EN 1990 should consider this document noting that it is written in the ISO style.

Milan HOLICKY added that there is a new ISO/TC 98 Working Group on "Risk assessment" being created and recommended that CEN/TC 250 should actively participate in the development.

Giorgio MACCHI advised caution with agreements or liaisons with ISO, warning that some ISO are not technically at the same level and this should be verified before participation.

After further discussion, Members agreed that active liaison should be developed with ISO/TCs where new ISO standards are being drafted which could be implemented into the Eurocodes system. ISO/TCs dealing with subjects covered by Eurocodes should be given active attention to ensure, as far as practicable, a single global approach to the basis of structural design and to identify items necessary for the evolution of the Eurocodes.

Peter MATT agreed to make a presentation on the subject at the next CEN/TC 250 meeting.

Action: PM

9 SUB-COMMITTEE REPORTS

a) SC 1 – Haig GULVANESSIAN referred Members to the CEN/TC 250/SC 1 report N 650 and noted that of the 10 items under the Sub Committee's responsibility, 6 are now published. Furthermore it was reported that prEN 1991-1-6 "Execution" had received a positive vote and the three language versions were being editorially finalized for

publication. Johan VAN TIEL confirmed that CMC would publish this within 4 weeks of receipt.

Haig GULVANESSIAN reported that the English language version of prEN 1991-1-7 "Accidental actions" was sent to CMC on eTrans on 4th March and questioned where the French and German versions were.

Claude PATROUILLEAU agreed to investigate within AFNOR the whereabouts of French version.

Action: CP

PrEN 1991-3 it was reported that the final English version was sent to DIN and AFNOR some 13 months ago. Again Claude PATROUILLEAU agreed to ascertain where French version is.

Action: CP

prEN 1991-4 Haig GULVANESSIAN reported that both translations were available although the German language file was corrupted. This document was returned to DIN for resolution and currently a response is awaited.

The next meeting of CEN/TC 250/SC 1 will be held in Paris in June 2005. At the SC 1 meeting a possible amendment to EN 1991-1-4 will be discussed.

Haig GULVANESSIAN reported that he and the Secretary Lars ALBREKTSSON are analyzing the Nationally Determined Parameter values from Member countries' National Annexes for EC 1 parts, where available.

It was also noted that at the end of 2005, the tenure of Chairman of CEN/TC 250/SC 1 expires as per CEN/TC 250 resolution No. 162 (Stockholm). Haig GULVANESSIAN reported that he is actively searching for a successor, although at present he is having difficulty in finding a young (35-45 years old), dynamic replacement.

b) SC 2 – Nary NARAYANAN referred Members to his report N 660, and noted that both prEN 1992-1-1 and prEN 1992-1-2 have now been published by CEN. He added that prEN 1992-2 had received a positive vote on 18th May 05 and a meeting has been arranged at BSI at the end of June 05. At this meeting the three language versions will be finalized, for progressing to CEN for publication.

Nary NARAYANAN reported that prEN 1992-3, is still at stage 34 although a first German translation exists and the French language version is being finalized, therefore he is hopeful that this part will be sent to Formal Vote very soon.

Regarding the 5 Technical Specifications plus the Technical Report on "Design for fastenings" – Nary NARAYANAN reported that these have ground to halt, primarily due to the absence of Professor ELIGEHAUSEN who is on sabbatical leave in New Zealand. However it is hoped that on his return in autumn 2005, he will be in a position to finalize the English language drafts. The proposed five parts are:

Part 1 – General

Part 2 – Headed fasteners

Part 3 – Anchor channels

Part 4 - Post-installed fasteners – Mechanical fasteners

Part 5 – Post-installed fasteners – Chemical systems

and the Technical Report on the "Effect of cracking"

Nary NARAYANAN concluded that this is his last meeting as Chairman of CEN/TC 250/SC2 and will be stepping down in July 05 to be replaced by Giuseppe MANCINI.

The CHAIRMAN thanked Dr. Narayanan for his successful work as Chairman of SC 2.

c) SC 3 - Frans BIJLAARD reported that the first series of Eurocode 3 parts (1-1, 1-2, 1-8, 1-9 and 1-10) are now published.

The second series are in the final stages of preparation for Formal Vote (EC3 1-3, 1-4, 1-5, 1-11, 2, 3-1 and 3-2) and will be sent to the SECRETARY within the next few weeks.

It was reported that the third tranche of drafts (EC3 1-6, 5, 6 4-1, 4-2 and 4-3) have been informally approved by SC 3 to go forward towards Formal Vote.

Frans BIJLAARD noted that prEN 1993-1-7 is unfunded although it is an item in the Eurocode Work Programme and is extremely important for silos. Therefore Michael ROTTER has agreed to draft this based on ENV 1993-1-7, a copy of which has been sent to him.

This third tranche will also include prEN 1993-1-12 which is a new part and hence not funded and will be progressed via a UAP.

Steinar LEIVESTAD questioned the reason for the changes that have occurred between Formal Vote and publication of the first tranche of standards. The main changes identified were the change of "shall" to "should" in certain clauses, which is more than a technical change and should have been referred back to CEN/TC 250. Steinar LEIVESTAD added that the Policy, guidelines and procedures document N 250 attempted to ensure consistency and strongly believes that normal CEN drafting procedures should apply.

Frans BIJLAARD supported by Gerhard SEDLACEK responded that these were changed on the basis that all the principles are in EN 1990 and therefore the EC3 only contain alternative application rules. The opinion of SC 3 is that this change improves the codes.

Members discussed at length the philosophy of the changes and recognized that an action to withdraw the published standards would send the wrong message to the European structural community.

The CHAIRMAN summarized that through this misunderstanding an inconsistency has been introduced into the EC 3 documents and instructed CEN/TC 250/SC 3 to re-establish the "shalls" and "Ps" by corrigenda.

Resolution 204.

d) SC 4 - Jan STARK referred Members to N 644 and reported that EN 1994-1-1 is now published and EN 1994-1-2 has passed Formal Vote and the draft is being finalized by the Editing Group although it was noted that there are problems with some of the figures. Referring to prEN 1994-2, the composite bridge code, it was reported that this part is currently circulated for Formal Vote, the end date of which has been extended by one month at the request of a member country. Predicting that there will be editorial comments the Editing Group has arranged a meeting in Paris for the 12th July 05 when the comments will be addressed.

Jan STARK added that the main problem identified in SC 4 is cross-referencing with the rules in the SC 2 and SC 3 documents and the availability of these documents.

e) SC 5 – Juergen KOENIG referred to N 643 and reported that the complete set of timber codes from SC 5 are all published.

It was noted that there have been a couple of issues with EC 5.

Finland has requested a change to the rules for axially loaded screws given in EN 1995-1-1, and referred to a CIB research paper. In subsequent discussions SC 5 experts

agree that the rules given in EN 1995-1-1 should be changed since they were unsafe and an amendment will be prepared.

Resolution 207.

Juergen KOENIG reported that a roof truss collapsed in Finland which had been designed to ENV rules and there was concern that this problem may exist in the EN. However account was taken when drafting EN 1995-1-1 and it is understood that there is no problem with the EN. Further investigation suggests that there is a communication problem in getting the necessary information to the Finish regulators. The main reasons for the truss failure were due to poor workmanship and the lack of control during the execution process.

It was agreed that a warning message should be cascaded to industry not to use the ENV.

Juergen KOENIG also reported that there had been a ceiling collapse due to insufficient strength of pull-out nails which is not a problem of the EC 5 drafts as there is a test standard to determine the pull-out strength.

Matti VIRTANEN commented that maintenance is vitally important to the Eurocode programme and information must be communicated to the regulators of the member states.

f) SC 6 – Rob VAN DER PLUIJM referred to document N 659 and reported that a CEN/BT'C' resolution has been circulated to all CEN Member countries regarding the appeal by Germany. The CEN/BT'C' ballot will terminate in two weeks.

Regarding EN 1996-1-2, the final English language text has been sent to CEN via the SECRETARY for publication. The French and German texts are currently being finalized and will be sent to the SECRETARY to process to publication.

prEN 1996-2 and prEN 1996-3 are both in the process of having the translations finalized before sending for Formal Vote in June 05.

It was noted that no further meetings for SC6 are scheduled, however, subject to sufficient interest by Members of SC 6 there may be one organized for end 2005 or early 2006. This would provide an good opportunity to discuss and exchange ideas on National Annex and NDPs.

It was also noted that CEN/TC 250/SC 6 has established a Maintenance Group for EN 1996-1-1 which will address any errors which may be identified and address any requests for amendments.

g) SC 7 – Bernd SCHUPPENER referred Members to his report document N 651 and commented that there are now only two parts under the SC 7 work schedule, prEN 1997-2 and prEN 1997-3 have been merged into a single document now designated as prEN 1997-2.

EN 1997-1 was published in December 2004.

prEN 1997-2 is currently being translated into French and German and there will be a meeting at the beginning of June to finalize the three languages in preparation for Formal Vote.

Bernd SCHUPPENER reported that in March/April there was a Geotechnical Workshop held in Dublin to discuss Eurocode 7. The Workshop was jointly organized by the International Society for Soil Mechanics and GeoTechNet (European Geotechnical Thematic Network). For the workshop 10 design examples had been prepared for national solution by delegates, which Bernd SCHUPPENER agreed to send to the SECRETARY for circulation to Members. It was noted that the first result of the worked

examples at the workshop gave a large scatter of results which signifies that there is more work to be done in this area.

Action: BS/SECRETARY

Secretary's Note : *After the meeting these examples were circulated as document N 662.*

h) SC 8 – Michael FARDIS – reported that the first two parts of EC 8 (EN 1998-1 and EN 1998-5) were published at the end of 2004. The second two parts, EN 1998-3 and EN 1998-6 received a positive vote in March 05 and the three language versions were sent to CMC in April for June publication.

Michael FARDIS reported that prEN 1998-2 – Bridges is currently out for Formal Vote which will terminate on the 3rd of June. It is expected that there will be some comment (already known from the UK and France) which will be addressed during the summer with the expectation of publication in autumn 05.

prEN 1998-4 is currently being finalized by the SC 8 Editing Panel who have decided to remove one Informative Annex and are considering reducing another. The stage 34 draft is currently circulated under the Commission's "Examination procedure". It is expected that this part will be sent for Formal Vote in September 05.

It was noted that during the editorial work on Part 6, the concrete chimneys EN 13084 series standards were considered and this has identified a problem. The product standards for free standing chimneys prepared by CEN/TC 297, contain large sections on the structural design of chimneys. These rules are based on the old ENVs which are now conflict with the current EN Eurocodes practices.

Michael FARDIS recommended that CEN/TC 250 should request that CEN/TC 297 remove the design rules from EN 13084 and suggested that CEN/TC 250/SC 2 should consider drafting a Eurocode for "Concrete, free-standing chimneys which are outside seismic regions".

Eduardo CARVALHO reported that Michael FARDIS's second term as Chairman of SC 8 terminated at the end of March 2005, and has agreed to extend this for a further seven months until October 05 to allow sufficient time to identify a new Chairman.

Resolution 209

i) SC 9 – Federico Mazzolani reported that there are five documents under the SC 9 work programme which are all between stage 34 and stage 49.

prEN 1999-1-1, prEN 1999-1-2 and prEN 1999-1-4 are currently being translated for Formal Vote. These parts have passed the Examination procedure and SC 9 approved them to go forward to Formal Vote in December 04.

prEN 1999-1-3 is currently at stage 34 and is out for Examination which closes on the 15th June 05. It was noted that there will be a SC 9 meeting in Cambridge in June 05 when it is expected that the draft of prEN 1999-1-3 will be approved for stage 49.

Federico MAZZOLANI reminded members that prEN 1999-1-5 "shell structures" is not a funded work item and is currently with the Project Team who is working on the draft and this should be approved for examination and preparation for Formal Vote at the Cambridge meeting. The proposed schedule is that the examination period and the technical work will be concluded by the end of 2005, however Federico MAZZOLANI requested clarification regarding the issue of "shalls" versus "shoulds" to enable the SC 9 Editing Panel to finalize the EC 9 drafts.

Resolution 205.

John MOORE raised the UK concern with prEN 1999-1-3 and reported that the UK will produce a detailed proposal for the next SC 9 meeting and the UK regulator's concern with the safety implications will be expressed through the Examination procedure. Gerhard SEDLACEK suggested that the issue could be resolved through the National Annex.

Federico MAZZOLANI added that the UK comments were received very late and therefore there was insufficient time to consider them.

j) Horizontal Group – Bridges

Jean-Armand CALGARO referred Members to his document N 652 and reported that all the Eurocode bridge parts have either passed Formal Vote or in the process of the ballot therefore he is confident that they will all be published by the end of 2005.

It was noted that there have been coordination problems between the bridge group and TCs of product standards.

Jean-Armand CALGARO then with the aid of a presentation explained the complexities of producing a bridge design using Eurocodes.

10. REVIEW OF THE CONVERSION PROGRAMME

The CHAIRMAN explained the very tight time schedule for the Eurocode Programme and the current problems of financial impositions by the Commission.

The SECRETARY gave a presentation on the Eurocodes Programme showing the current situation with the programme. It was noted that there are:

22 parts published by CMC (DAV)

8 parts + Annex A.2 approved at Formal Vote and are either with CMC for publication or with the SC for finalizing.

8 parts with CMC awaiting launch of FV.

20 parts in development – between stage 32 and stage 49.

Barry HASELTINE explained that he is assisting with the 'progress chasing' of the parts in particular the translations and will in future be producing a spreadsheet to identify where the bottlenecks are occurring.

Analysis of the 8 parts which have passed Formal Vote show that 6 are awaiting translation of post vote editing and 2 are being edited in English after Formal Vote. A further 2 are at Formal Vote which will close in June.

15 parts have been agreed to proceed at Formal Vote (all in the 2000 OV programme), these are analyzed as 7 parts awaiting translation of French and German or both and 8 still being edited in English with translations to follow.

1 part will be processed by the UAP procedure which has not started translation nor been sent for the examination procedure.

Another 2 parts, both of which are unfunded have not reached stage 34.

1 part is at stage 34, English edited text expected in July, the remaining parts are near to sending for Formal Vote.

Furthermore Barry HASELTINE reported that 9 parts from the 1999 Order Voucher have not yet reached Formal Vote and 2 parts which have been voted positively on are not close to DAV.

Johan VAN TIEL reported that CMC will be arranging a Review meeting with the Commission probably in June and suggested that the CHAIRMAN and SECRETARY plus Barry HASELTINE should attend to lend support to the discussions. Michael FARDIS supported by Jan STARK suggested that a letter should be sent from the Secretariat (BSI) explaining why there have been no payments. The SECRETARY reiterated that the contracts with BSI clearly state that payments can only be made on receipt of funding from the Commission which is received via CEN, and noted that this has been explained on several occasions in the past. However after further discussion it was agreed that a letter would be circulated from BSI and the CHAIRMAN of CEN/TC 250 after the Review meeting, when the latest information could be given.

Action: CHAIRMAN and SECRETARY

11 LIAISONS

CEN/TC 50 “Lighting columns”

Nary NARAYANAN reported that the product standard for concrete lighting columns from CEN/TC 50 contains many design rules. Gerhard SEDLACEK proposed that a standard letter should be automatically issued to any product TC when design rules are included in a standard which is in conflict with Eurocode design rules.

CEN/TC 124 “Timber products”

The CHAIRMAN reported that he had written to the Chairman of CEN/TC 124 and he has replied requesting a formal liaison is established with CEN/TC 250/SC 5. Juergen KOENIG questioned this as many members of SC 5 are dual members of CEN/TC 124, therefore knowledge of both work programmes is shared. However, he accepted that it would be useful to formalize the liaison.

Resolution 206.

CEN/TC 125 “Masonry products”

Barry HASELTINE reported that an article in the Official Journal exists which changes the co-existence date for EN 771 product standards to February 2006. This has delayed implementation by 2 years.

CEN/TC 229 “Precast concrete products”

Nary NARAYANAN reported that the liaison is ongoing, and there is nothing to report at present.

CEN/TC 256 “Railway applications”

Jean- Armand CALGARO requested CMC to identify who the Chairman and Secretary are as there is a problem with loads on railway bridges which he needs to clarify with respect to EN 1991-2.

Secretary's Note: The Chairman is Mr D Razdan (Germany) and the Secretariat is held by DIN - Mr W Reichel

CENELEC

John MOORE reported that he can't establish where the reported problems are with the adoption of EN 1993 parts. Gerhard SEDLACEK reported that CENELEC have developed their own design rules for transmission towers etc. The question is whether

transmission towers relate to the CPD or electrical directives. However Gerhard SEDLACEK reported that the problem has now been resolved.

Steinar LEIVESTAD raised the matter of a standard (EN 14509) from CEN/TC 128/SC 11 "Cladding for buildings" in which the TC has developed their own design rules without any consideration to Eurocodes, as they believe they are autonomous.

The CHAIRMAN agreed to write a letter to them explaining the responsibilities of CEN/TC 250 for all structural design rules and include a copy of Guidance paper L in support of this.

Action: CHAIRMAN

EOTA

The CHAIRMAN reported that the liaison with EOTA is ongoing and the next meeting will be in June 05. It was noted that EOTA are incorporating rules for safety of structures for tests on kits.

ECISS TC 19 – Gerhard SEDLACEK stated there was nothing new to report on this liaison.

ISO/TCs

Giorgio MACCHI raised problems of the ISO codes on concrete structures and that Italy had voted against this code. He warned that the USA are very active in ISO and CEN/TC 250 must ensure that the Eurocodes do not become only European documents because of American global influence. Eurocodes are the most modern and sophisticated codes available and we must ensure that any ISO structural codes are of a technically equivalent quality.

ISO/TC 98.

Milan HOLICKY commented that the three subcommittees of ISO/TC 98 are active and are producing good loading codes although different to Eurocodes regarding load combinations, durability and risk assessment.

Haig GULVANESSIAN added that there are two ISO/TC 98 codes which are valuable documents:

ISO 21650 Bases for design of structures – Actions from waves and currents.

ISO 12494 - Atmospheric icing of structures

It was also believed that the Australians and Americans are driving the ISO wind code document to counteract EN 1991-1-4. However this view was not supported by Steinar LEIVESTAD who suggested that the "we have in Europe" approach is not appropriate.

ISO/TC 167 – "Steel erection" committee is currently dormant

ISO/TC 67/SC 7 – It was considered that this sub-committee is producing non-European design codes as EN ISOs through CEN/TC 12.

Jean-Armand CALGARO referred Members to document BT N 7372 on ISO Global Relevance and requested that this document is circulated to the Members (see Annex B)

The CHAIRMAN commented that ISO work is ongoing and we can't neglect what is going on, however the priority is currently Europe and Eurocodes and we can't shift our priorities. Our relationship with ISO should be reconsidered in one year.

It was agreed that the following statement would be added to this report rather than agree a resolution:

"Subject: Liaison with ISO on the scope of CEN/TC 250 codes

CEN/TC 250 unanimously agrees that active liaison to ISO/TCs should be developed where new ISO-standards are prepared that could be implemented in the Eurocodes and their supporting standard system.

ISO/TCs dealing with subjects covered by Eurocodes should be given active attention to ensure, as far as practicable, a single global approach to the basis of structural design and to identify items necessary for the evolution of the Eurocodes."

CEN/TC 129 "Glass"

Gerhard SEDLACEK explained the different types of glass and their characteristics:

- Float glass – Pilkington process
- Annealed glass – higher tensile strength and can be cut or drilled, small cracks at the surface. High strength for short term loading but low strength in long term.
- Heat treated glass – high strength however produces large splinters when shattered.
- Laminated glass – product has a strong market presence.

Gerhard SEDLACEK reported on the meeting with delegates from CEN/TC 129 at the CEN/TC 250/-/1 CG in Brussels in April. It was noted that CEN/TC 129 have drafted EN 13474 which has no relationship to the Guidance Paper L

After debate by members as to what is required, it was agreed that CEN/TC 250 would pursue preparatory work based on EN 1990 to show CEN/TC 129, how the design rules for glass can be separated into:

- Guidance for design with structural glass
- A standard from CEN/TC 129 which will enable the glass thickness of panes to be determined by calculation

It was noted that in Brussels there were "no meeting of minds", CEN/TC 129 experts believe CEN/TC 250 do not understand glass and conversely CEN/TC 250 believe CEN/TC 129 do not understand safety. It was therefore felt that it would be a good idea to develop a general approach.

However, the concerns of CEN/TC 129 that any calculation method would produce thicker glass and as a consequence upset their market were noted.

Nary NARAYANAN commented that it is important that this is seen as a CEN/TC 250 initiative and supported by all Members as work of the Committee and not just an individual's document.

After further discussion by Members it was agreed that a resolution would be made. The CHAIRMAN commented that the liaison was not successful and glass products may be unsafe. However CEN/TC 250 should continue with the liaison and suggested that for structural glass CEN/TC 250 should pursue the preparatory work for a real CEN design code within CEN rules.

At the next meeting of CEN/TC 250 there will be a progress report.

Resolution 208

12 SECRETARIAT REPORT

This item of the agenda was covered during the "Review of the Conversion Programme" – item 10

13 POLICY GUIDELINES AND PROCEDURES

John MOORE referred Members to his report N 653 and added that the main activity of WG 1 has been the finalizing of N 600 Rev 1 in the light of Members comments at the Rome meeting. This necessitated correcting the Flow Chart to reflect the new text. The revised Flow Chart was circulated with document N 653.

However John MOORE expressed his concern that the responsibility for the translations of amendments as agreed by the Editing Groups after Formal Vote is confused and this has occasionally resulted in delay of publication.

It was also noted that it is unclear whether it is acceptable to launch Formal Vote in a single language as agreed by resolution in Rome.

The SECRETARY reported that subsequent to the Rome meeting DIN supported by AFNOR had objected to the launching Formal Vote in a single language as Eurocodes are politically sensitive and important documents. Consequently it is imperative that they are launched in the three languages.

Claude PATROUILLEAU noted that AFNOR wish to follow normal CEN rules, which Johan VAN TIEL explained, that when a draft is sent to CMC on eTRANS, it is automatically downloaded and sent to DIN and AFNOR for translation.

14 ENC GROUP and SCC MATTERS

ENC Group – John MOORE explained that an Ad-hoc ENC Group meeting had been held in Brussels on the afternoon of the 28th April and referred Members to report N 654 and additional comment in N 661.

It was noted that the rationale behind the Ad-hoc meeting was to ensure that the existence of the ENC Group continued. At the meeting there were several important issues agreed:

- The Commission will continue with the ENC Group meetings and in future will be responsible for their organization and administration.
- The examination procedure will continue for the five parts which have not as yet been subjected to the procedure.
- Support for the proposal on maintenance of the Eurocodes from the Evolution Group
- Clarification of the role of JRC/ISPRA
- Development of further guidance for product TCs on CE marking will be developed by CEN with input from the ENC Group.

15 ANY OTHER BUSINESS

The CHAIRMAN remarked that he is prepared for an extension of his term of office from March 2006 to about June 2007 when the Eurocode programme will have been finalized. Given the need to increase the management of CEN/TC 250 he suggested that a Deputy or Vice Chairman may be appropriate. This would be discussed in greater depth at the next CEN/TC 250 meeting

16 ARRANGEMENTS FOR FUTURE MEETINGS

At the kind invitation of the Spanish delegation it was confirmed that the next meeting of CEN/TC 250 (twenty-eighth) will be held on 27th and 28th October 2005 in Madrid.

Members agreed that the twenty-ninth plenary meeting of CEN/TC 250 will be held on the 18th and 19th May 2006, at a venue which will be confirmed at the next meeting.

17 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 6):

- Resolution 202** - Evolution of EN Eurocodes
- Resolution 203** - Basis of design for fatigue for metallic components.
- Resolution 204** - Modal auxiliary verbs in Eurocode 3
- Resolution 205** - Modal auxiliary verbs in Eurocode 9
- Resolution 206** - Liaison with CEN/TC 124
- Resolution 207** - UAP for an amendment of EN 1995-1-1
- Resolution 208** - Liaison with CEN/TC 129 – Glass products
- Resolution 209** - Extension of the term of Michael Fardis as Chairman of SC 8

18 CLOSING OF MEETING

The CHAIRMAN thanked Alex PLAKAS, Michael FARDIS and ELOT for their generous hospitality in hosting this meeting.

The CHAIRMAN on closing the meeting wished the delegates a safe journey home and thanked them for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- EIGHTH MEETING OF CEN/TC 250 HELD AT
AENOR, MADRID ON 27th & 28th OCTOBER 2005**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending and in particular thanked AENOR and the Spanish delegation for hosting the meeting in Madrid.

In welcoming the delegates to Madrid Javier GARCIA DIAZ, the AENOR CEN/BT Member expressed the importance of the work of CEN/TC 250, noting that as with most countries in Europe, Eurocodes are very important to Spain's Ministry of Public Works as they will become the future legislation on structural engineering. He wished the delegates a successful and fruitful meeting.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

C. PATROUILLEAU	-	French language
U STOLZENBURG	-	German language
G HARDING	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN gave his presentation (see document N 677) on the "Status of the Eurocodes Work Programme" and noted that:

- 28 Eurocode parts (48%) have been published by CEN, with a further two parts which will be published in early November 05.
- Including the two awaiting publication there are 6 parts (10%) currently approved at Formal Vote
- a further 9 parts (16%) are circulated for Formal Vote

- 15 parts (26%) are under development therefore between stage 34 and stage 49.

The CHAIRMAN noted that according to the harmonization work undertaken at JRC Ispra, there are more than 1000 NDPs in the entire suite of Eurocodes which initially appears to be excessive. However when this is compared against all the national structural codes of the CEN Members, many of which not only have different values but also have different basis, consequently the problem is not so great.

Regarding National Annexes and NDPs, the CHAIRMAN explained that it is the responsibility of the competent national authority to specify the levels of protection concerning geographic, climatic conditions and safety through the National Annexes. Where possible in cases of national choice, the recommended values given in the Eurocode part are encouraged.

The CHAIRMAN added that all Eurocodes parts are subjected to the Examination Period for the Regulators of Member States to ensure the adequacy and acceptability of NDP's.

National Annexes contain:

- 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
- Procedure to be used where alternative procedures are given in the Eurocode

Adding that they also may contain:

- Decisions on the application of informative annexes
- References to non-contradictory complementary information (NCCI)

The CHAIRMAN reported that CEN/TC 250 considering the implementation aspects of Guidance Paper L have established liaison with many Product TC's and Working groups of EOTA to ensure that:

- mechanical properties of all structural products are determined on the same basis
- consistency of product standards and design codes shall allow for safe structures
- levels and classes of products correspond with NDP's of codes.

The CHAIRMAN referred to document N 1527, his letter to the Director of BSI over the contract payments to experts.

It was noted that the Commission changed the contract basis after signing, regarding stage 73 (Implementation by Member states) and 5 year closure rule. This means that the final Order Voucher 2000 will close at the end of 2005.

However the CHAIRMAN reported that the reply to the CHAIRMAN'S letter from BSI was optimistic and after a meeting between CMC and the Commission there are positive signals that the outstanding funding will be honoured. The CHAIRMAN added that further funding will be required for the maintenance work as discussed with Reinhard KLEIN at the Commission during a meeting on the 27th September (see document N 671) and that the Commission work will be through JRC/Ispra. It was noted from the meeting Reinhard KLEIN understands the political advantages of CEN/TC 250.

The CHAIRMAN observed that the success in dealing with the Commission has been due mainly thanks to the "supporters" of CEN/TC 250.

The Agenda (document N 667 Rev 1) was agreed subject to two minor timing changes to the running order.

5 FOLLOW UP TO THE TWENTY-SEVENTH MEETING OF CEN/TC 250 (ATHENS)

5.a) Draft Report (N 664)

Juergen KOENIG noted a misspelling on page 6 line 13 – "CIBNT" should read "CIB WAT"

Haig GULVANESSIAN noted a mistake on page 7 - Annex A.4 "Silos"; it should read "when he meets with Michael Rotter"

Gerhard SEDLACEK noted that on page 6 – "a World Welding, ECCS conference" should be deleted and replaced by "IIW & ECCS data"

Federico MAZZOLANI requested that on page 6 –" is his book which is to be revised" should be replaced with "are his books".

Accepting the above corrections, the report was confirmed.

5.b) Resolutions from Athens meeting

The Resolutions from the Athens meeting in document N 663 were noted. Steinar LEIVESTAD referred to Resolution No. 204 and questioned where the corrigenda for the first 5 published parts of EC 3 were. The SECRETARY reported that they were sent to CMC on eTRANS the previous week. Johan VAN TIEL added that normally corrigenda are circulated within four weeks of receipt by CMC and believed that these would be no exception.

5.c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE TWENTY-NINTH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN VIENNA (28th & 29th SEPTEMBER 05)

The CHAIRMAN gave a verbal report based on the briefing notes from the CG which will be circulated in due course.

Key issues discussed in Vienna were:

- speeding up the drafts of the SCs
- the problem of prEN 1999-1-3 and how to diffuse the issues.
- Evolution Group report N 630.
- How to work in collaboration with JRC.
- Letter to experts regarding payment of Commission funds – to be considered after the CHAIRMAN'S visit to BSI on 15 November 05.
- SC Chairmen's reports
- Reports from Michel VALLES on status of CEN/TC 229 and Thore HAGBERG on CEN/TC 135. Michel VALLES also complained that the WGs of CEN/TC 229 are not involved with EOTA Working Groups.

- Presentation from Gerhard SEDLACEK on EOTA tests restricted to steel in the first draft. It has been decided to form a new Working Group to consider all materials.
- The liaison with CEN/TC 129 "Glass" was discussed at length which an "uncomfortable situation" and this will be reported on during the meeting.

b) Items for TC approval

The CHAIRMAN suggested that the Evolution paper and the liaison with CEN/TC 129 will require further discussion and approval by CEN/TC 250.

7. MAINTENANCE AND RESEARCH

a) Maintenance of Eurocodes

Paul LUECHINGER as the convenor of the Ad-hoc Evolution Group referred Members to document N 630 Rev 3 which includes the Executive Summary and noted the changes that have been made to the document since the Athens meeting. Paul LUECHINGER added that it is the policy of CEN/TC 250 that stable documents are vital and this report is no exception.

Paul LUECHINGER added that N 630 Revision 3 incorporates the following changes from Revision 2:

Page 9 – Point 3 in clause 1.2 has been moved to point 2 in clause 2.2 regarding the collection of background documents.

Page 10 – Figure is deleted.

Page 12 – point 2 added from clause 1.2 (see above)

Page 14 – a new bullet point added under clause 3.1 (4) to address issues of commercial interests.

Page 17 – under clause 4.1 (3) added to endorse the need for stable documents

Page 19 – under clause 4.2.2 bullet point 2 " and substantial practical experience" added at the end of the sentence.

Paul LUECHINGER reported that the executive summary was incorporated into N 630 Rev 3 from document N 630 Exec Sum. It was noted that the key objectives, identified from the report are as follows:

- **Maintenance:** Actions for updating, revisions and completion of EN Eurocodes – Responsibility of CEN/TC 250 and the SCs
- **Harmonization:** Further step of development of EN Eurocodes to transfer the Nationally Determined Parameters (NDPs) into a harmonized system - Responsibility of Commission (JRC/ELSA) and it was noted that some impressive work has been done already.
- **Promotion:** Support to professions to implement and use the EN Eurocodes and to improve the competitiveness of European construction industry in the global market - Responsibility of Commission (JRC/ELSA)

- **Further Development:** Further updating and supplements according to pressures from market for innovative solutions and progress of scientific knowledge - Responsibility of CEN/TC 250 and the SCs

Gerhard SEDLACEK referred Members to his report of the meeting with the Commission on the 27th September 05 (see CEN/TC 250/-/1 CG document - N 1532) and that further funding may be available in future. This would be in the order of €200 K to €300 K per annum however this would not be available until 2007. It was noted that some interim funding for 2006 may be available but this would rely on cooperation and contribution from Member states. Application for future funding will be developed between the Commission, CEN/TC 250 and JRC/ELSA.

The CHAIRMAN added that earlier in 2005 he had stopped the work on Evolution to allow efforts to be concentrated on the completion of the existing codes, noting that the problem of getting funding must be through the Commissions' 7th Framework Programme.

Pierre SPEHL noted that contribution from Member States is already considerable citing the example of Belgium where experts are contracted to draft the National Annexes. When this is multiplied by the number of Member States who are all funding similar programmes the "contribution" is significant.

Haig GULVANESSIAN commented that two important issues that CEN/TC 250 should concentrate on for future development are:

- Defence of the citizen against terrorism
- Design for sustainability

Jan GIJSBERS referred Members to resolution number 202 taken in Athens and N 672 proposed revision of N 250 adding that there is a major task for CEN/TC 250 to undertake in relation to future Maintenance.

Paul LUECHINGER commented that the detailing of tasks and contributions will be reported on at the next meeting of CEN/TC 250.

John MOORE reported that recommendations from the CEN Construction Sector Network (CSN) Conference in Prague on the 25th & 26th April where recommendations were made which mirror the Evolution report in N 630. The CSN Conference requested CEN/TC 250 to examine the following issues on the Eurocodes:

- *Implementation/maintenance (hotline for questions)*
- *Further harmonization (reduction of NDPs)*
- *Promotion of EC (inside and outside EEA)*
- *Further development (e.g. corrections, removing gaps, new methods, products, assumptions, objectives, work items, organization, funding)*
- *Whether the Eurocodes should be proposed for adoption as International Standards*
- *Use of Eurocodes in product standards*

John MOORE added that he suggests that the Executive Summary in N 630 is moved to the front of the report as normal convention.

ASSESSMENT OF EXISTING STRUCTURES – Peter MATT (See N 675 for full presentation)

Peter MATT as requested from the Athens meeting gave a presentation based on his thoughts on the issues relating to Eurocodes and their application to the assessment of existing structures. It was noted that apart from EN 1998-3 the Eurocode parts deal only with new structures.

However existing structures are huge economic asset which is increasing annually (Switzerland's re-procurement value was > €1,500 Billion in 1999) therefore their continued use is crucial

Assessment of existing structures is a major engineering task which requires knowledge beyond the scope of design codes for new structures with a key objective to minimize construction intervention within the principles of sustainable development.

Noting that EN 1998-3 is the only Eurocode part which addresses assessment of existing structures, Peter MATT analyzed currently available international standards and reports and concluded that the main document is ISO 13822.

ISO 13822:2001

Bases for design of structures – Assessment of existing structures

This International Standard is applicable to the assessment of any type of existing structure that was originally designed, analysed and specified based on accepted engineering principles and/or design rules, as well as structures constructed on the basis of good workmanship, historic experience and accepted professional practice.

Other relevant documents which relate specifically to concrete structures are:

FIB bulletin 17 (technical report) - Management, maintenance and strengthening of concrete structures

EN1504 series in 10 parts (CEN TC104 / SC8) - Products and systems for the protection and repair of concrete structures

It was noted that the scope of ISO 13822 covers the assessment of structures that are used specifically as the intention of design, whereas many structures have had significant change to their use or have had the design working life extended. Peter MATT added that ISO 13822 is a good document and could serve as the basis of a future Eurocode.

Assessment including reliability checks (e.g. for earthquakes, increased traffic loads) are now required by authorities, owners, insurance companies to check structural deterioration due to time-dependant actions (e.g. corrosion, fatigue) and structural damage by accidental actions.

It was shown how the process of assessment existing structures could be performed and the decision making necessary from preliminary to detailed assessment could be achieved. It was explained that in Switzerland codes are being developed to address assessment of existing structures with a €2.5 M budget under a head code "Basis for the conservation of structures". Other codes will address actions, concrete, steel, composite, timber, masonry and geotechnical aspects. It is expected that all parts will be published by 2008.

In conclusion Peter MATT noted that the Eurocode programme will be completed soon and that most existing structures do not comply with the Eurocode requirements. However authorities, owners and engineers will probably need guidelines on how to address existing structures. Therefore the question was posed if CEN/TC 250 should consider developing a new suite of codes to address the "**assessment of existing structures**"? It was suggested, however, that if this is a future project for CEN/TC 250 then it must be kept simple.

Members discussed at length the possibilities of addressing the issues of existing structures, suggesting that a possible way forward would be through informative annexes. Recognizing that CEN/TC 250 cannot codify everything, Members believed there should be help and guidance for the designer/user for existing structures. It was also discussed that monuments and historic buildings should not be covered under any guidance from CEN/TC 250 on "existing structures"

Summarizing the CHAIRMAN requested that Haig GULVANESSIAN as Convenor of PT EN 1990 should form a small group to explore how this can be achieved through an Annex to EN 1990. A paper should be prepared for discussion at the next meeting of CEN/TC 250/-/1 CG which would highlight how an Annex could be added and which will open the way for the material based application rules for the assessment of existing structures.

Action: HG

Resolution 210 was agreed

8 WORK PROGRAMME – N 674

Barry HASELTINE presented his Excel spreadsheet showing the current situation where the various Eurocode parts are – see N 674.

9 BASIS OF STRUCTURAL DESIGN

a) Annex A.2 - Haig GULVANESSIAN as the Convenor of PT for EN 1990 reported that there is some confusion as to where Annex A.2 is. The SECRETARY reported that the English and French versions had been sent to CMC for publication. However the "dirty" English language version, showing the marked-up changes, is necessary to finalize the German language version. It was agreed that Jean-Armand CALGARO will send this draft to the SECRETARY the following week for circulation to DIN and AFNOR for a final check.

Action: J-AC/SECRETARY

b) Annexes A.3, A.4, A.5 - Haig GULVANESSIAN explained that the origin of these annexes are in parts of Eurocode 1 and 3.

Annex A.3 "Towers and masts" – from EN 1993-3-1 and EN 1993-3-2

Annex A.4 "Silos" – from EN 1991-4

Annex A.5 "Cranes" – from EN 1993-3 and EN 1993-6

Whilst Members recognized the need to transfer these Annexes from the individual parts into the Annexes of EN 1990, it was appreciated that this would not be a straightforward simple transfer. Originally it was proposed that this transfer would take place after the Formal Vote of the individual parts was completed. However to avoid confusion and

follow the objective of stable documents it was agreed that the transfer would not take place until the first revision of EN 1990

Resolution 211 was agreed.

Basis of design for metallic components

Gerhard SEDLACEK referred Members to his paper N 656 on "Basis of design for fatigue" and resolution 2023 agreed in Athens, reported that a Working Group would be formed with SC Chairmen to investigate extending the topic to all materials.

Action: GS

SUB-COMMITTEE REPORTS

a) CEN/TC 250/SC 1 (N 668) – Haig GULVANESSIAN referred Members to the CEN/TC 250/SC 1 report N 668 and commented that, according to the decision of SC 1 the wind annex from EN 1993-3-1 should simply be transferred without change into an Annex of EN 1991-1-4.

It was reported that prEN 1991-4 has recently completed Formal Vote with a positive result and is currently being finalized by the SC 1 Secretary and the PT Convenor.

Haig GULVANESSIAN reported that the remaining two parts of the SC 1 Work Programme (prEN 1991-3 and prEN 1991-1-7) are currently out for Formal Vote which will close in early December. It was noted that as prEN 1991-1-7 is a highly "political" document Haig GULVANESSIAN expects considerable comment.

Regarding the future management of CEN/TC 250/SC 1, it was noted that SIS will resign the Secretariat early in 2006 when the last of the documents has reached DAV. It was also noted that Haig GULVANESSIAN has been requested by SC 1 Members to continue as Chairman for another period. However whilst he accepts this request it will not be for the full further three years term but will probably be between 18 months to two years, to ensure continuity with the new Secretary. A resolution by correspondence will be circulated in due course to Members of CEN/TC 250.

Secretary's Note: Subsequent to the meeting a draft correspondence resolution was circulated as document N 682 (Resolution No. 218)

b) CEN/TC 250/SC 2 –Giuseppe MANCINI apologized that there was no official report from SC 2 as he had only recently taken over as the Chairman. Reporting on the SC 2 Work Programme, all parts with the exception of prEN 1992-3 are published. The final part, prEN 1992-3 was approved at Formal Vote recently and a meeting is being arranged with the PT to finalize the document. Reporting on the 5 Technical Specifications and 1 Technical Report which are being prepared, it was noted that Professor ELIGEHAUSEN will base them on the FIB document which is currently undergoing a final check.

c) CEN/TC 250/SC 3 - Frans BIJLAARD reported that the first series of Eurocode 3 parts (1-1, 1-2, 1-8, 1-9 and 1-10) are now published. The second series are out for Formal Vote (EC3 1-3, 1-4, 1-5, 1-11, 2, 3-1 and 3-2)

The status of the third and final tranche of EC 3 parts which are all approved to go forward by SC 3 are as follows:

prEN 1993-1-6 "Shell structures" is currently being finalized as the stage 34 drafts and will be sent to the SECRETARY for translation within one week.

prEN 1993-1-7 stage 34 draft is circulated to SC 3 for comment by correspondence. The final draft should be available by 9th December 05.

prEN 1993-1-12 the stage 34 draft is on eTRANS for translation.

prEN 1993-4-1 "Silos" requires a readable version which should be available mid November.

prEN 1993-4-2 "Tanks" informally accepted by SC 3 but there is a problem with the translating the draft into German as the Convenor doesn't accept this as the final draft. This will be resolved in the next few weeks.

prEN 1993-4-3 "Pipelines" the stage 34 draft has been sent to DIN and AFNOR by eTRANS

prEN 1993-5 "Piling" stage 34 draft sent for translation by eTRANS.

prEN 1993-6 "Crane supporting structures" stage 34 draft sent for translation by eTRANS.

The SECRETARY reported that three of these parts prEN 1993-1-7, prEN 1993-1-12 and prEN 1993-4-2 had not been subjected to the Examination procedure and recommended that for completeness should be sent to the Commission, recognizing that prEN 1993-1-12 is not in the official Eurocode Work Programme. Members agreed that all three parts should be sent to the Commission.

d) CEN/TC 250/SC 4 - Jan STARK reported that EN 1994-2 is now published and this completes the SC 4 Work Programme. He added that this is his last CEN/TC 250 meeting as Chairman of SC 4 and thanked the Members for their collaboration during his seven years in office.

The CHAIRMAN congratulated Jan STARK on completion of the SC 4 Work Programme and thanked him for excellent stewardship of CEN/TC 250/SC 4 over the past seven years.

The SECRETARY reported that at the last SC 4 meeting it was agreed that Prof Joel RAOUL would succeed Jan STARK as the next Chairman of SC 4 and requested endorsement by CEN/TC 250.

Resolution 213 agreed

e) CEN/TC 250/SC 5 – Jürgen KOENIG reported that the EC 5 parts are all published.

Regarding Chairmanship of SC 5 Jürgen Koenig reported that the Members of SC 5 have requested him to continue for a further term of three years.

Resolution 214 agreed

Jürgen KOENIG noted that there are growing concerns with respect to maintenance problems of Eurocode 5 especially in Finland where several "failures" have occurred. As reported in Athens regarding pull-out failure of axially loaded nails, research suggests that this is not as straightforward as initially thought but is very dependent upon the climate. In the failure that occurred in Finland the climate was very dry indoor. Jürgen KOENIG added that there are also inconsistencies in the pull out test results from the test standards of CEN/TC 124. From the results of tests carried out, there is a marked

reduction in the pull-out strength of nails in lower humidity. Regarding the failure of connections in a roof in Finland, designed in accordance with ENV 1995-1-1, there is a possibility that in certain situations the ENV could be unsafe. Consequently it was agreed that a warning letter should be circulated to all NSBs and in particular to regulators as there was a communication failure between the Regulators and the National Application Document as reported at the Athens meeting.

Actions: JK

Jürgen KOENIG also reported that Germany through DIN have reported a problem with failures due to the poor shear strength of glued laminated timber. Members agreed that this should be solved by an amendment.

Actions: JK

f) CEN/TC 250/SC 6 (N 673) – Rob VAN DER PLUIJM referred to document N 673 and reported that the situation of the appeal against Part 1-1 has now been resolved and it will be published in November 2005. This was resolved through a CEN/BT C resolution which was circulated for ballot to all CEN Member countries.

On other parts of the SC 6 Work Programme, Rob VAN DER PLUIJM reported that EN 1996-1-2 was published in May 05 and the two remaining parts EN 1996-2 and EN 1996-3 finished Formal Vote on the 24th October. It was noted that both had received substantial positive vote (100% - Part 2 and 96% for Part 3).

Rob VAN DER PLUIJM added that the comments will be addressed by the SC 6 Editing Panel with a view to achieving DAV before the year-end.

g) CEN/TC 250/SC 7 (N 1528) - In the absence of Bernd SCHUPPENER, Roger FRANK referred Members to CG document N 1528 and reported on the progress of SC 7 commenting that Part 1 has now been published by CEN.

Reminding Members that Part 2 is now a merged document between prEN 1997-2 and prEN 1997-3, he added that there have been problems encountered during the translation of this part which are in the process of being resolved. It is expected that the stage 49 draft will be sent to the SECRETARY before the end of the year with a view to launching Formal Vote in 2005.

It was noted that there will be a follow-up to the Geotechnical Workshop held at Trinity College, Dublin in March. The next meeting/Workshop will be held at BRE in December where the final analysis of results of the examples will be discussed.

The SECRETARY reported that from the Athens meeting the 10 design examples were circulated via Livelink as document N 662 and questioned whether there were any responses made by Members of CEN/TC 250. Some Members cited the failure of the notification system in Livelink to flag important documents.

The SECRETARY reported that there is an automatic system in Livelink, however it does require the recipients to make a conscious decision to activate the system. It was agreed that an instruction would be circulated to ensure that Members know how to activate this facility.

h) CEN/TC 250/SC 8 (N 638) - Michael FARDIS reported that five of the six parts of EC 8 are now published. The outstanding Part is prEN 1998-4 which is currently being finalized by editing and checking the figures. It was noted that some of the figures will be redrawn by BSI during Formal Vote. The stage 34 draft was sent to AFNOR and DIN in September for translation. Uwe STOLZENBURG reported that the German translation should be available by the end of November, however AFNOR reported that

the French translation is unlikely to be available. However Claude PATROUILLEAU stated that France would accept the launch of Formal Vote without the French version. Johan VAN TIEL confirmed that CEN agree with the launch in two languages only, if necessary in expediting the Work Programme.

Michael FARDIS reported that his term of office as Chairman of CEN/TC 250/SC 8 had officially terminated in April 2005 however as reported in Athens he agreed to stay for an additional few months to resolve outstanding issues on the SC 8 Work Programme. However, this would now be his last CEN/TC 250 meeting as Chairman of SC 8 as his successor has been agreed by the SC 8 Members. Taking note of a need to maintain continuity, SC 8 propose that his successor is Eduardo CARVALHO who as the Technical Secretary of SC 8 had been a driving force in the Work Programme.

The CHAIRMAN thanked Michael FARDIS for his excellent work in progressing the work of SC 8. This sentiment was endorsed by Eduardo CARVALHO

Resolution 215 was agreed

i) CEN/TC 250/SC 9 (CG document N 1522) - Federico MAZZOLANI reported that since the Athens meeting of CEN/TC 250 there has been one SC 9 meeting in Cambridge at the end of June. He reminded Members of the discussion in Athens and the concerns from the UK regarding the safety of the "Aluminium fatigue" part, prEN 1999-1-3. These concerns were endorsed by a letter from Geoff HARDING of the ODPM dated 10th June 2005 to Reinhard KLEIN at the Commission, a copy of which was tabled at the Cambridge meeting.

Federico MAZZOLANI reported that at the Cambridge meeting, CEN/TC 250/SC 9 by resolution approved the stage 34 draft of prEN 1999-1-5 and by majority approved prEN 1999-1-3 as being suitable for progressing to Formal Vote. The UK objected to this resolution and consequently voted negatively.

Federico MAZZOLANI added that despite the serious illness of the Secretary of SC 9 the next meeting will be held in December in Padua where hopefully an agreement will be reached with the UK over prEN 1999-1-3.

Geoff HARDING explained the problem that the UK have with the draft, adding that UK safety regulations are based on the assumption that structural safety will be assured for the design life of the structure. As the draft is currently written, the UK's believe that structural safety cannot be assured without regular inspections which are not practicable for most structures.

However after discussions between Federico MAZZOLANI, Gerhard SEDLACEK and himself, outside the meeting, he is confident that a satisfactory solution can be found.

The CHAIRMAN requested that discussions continue outside the meeting to obtain a bi-lateral solution, between the UK and SC 9. However he added a proviso that translations should continue to minimize any possible delay.

Action: GH/FM/GS

Federico MAZZOLANI reported that the translations of prEN 1999-1-1, 1-2 and 1-4 are completed in French and German and that prEN 1999-1-5 will be completed in December.

Roger FRANK commented that France will not accept prEN 1999-1-4 and prEN 1999-1-5 following the normal Eurocode route to Formal Vote as they were not developed from ENVs. France therefore recommends that these two parts should follow a three month

UAP process. This was agreed by Members of CEN/TC 250 and a resolution was agreed accordingly.

Resolution 216

j) HG - Fire

Joel KRUPPA commented that there is limited activity to report on the "Fire" codes as these parts have all passed Formal Vote and most have been published. However there is a concern with drafts from CEN/TC 127 "Fire safety in buildings" – ENV 13381 – Parts 1 to 7 that these may be deleted. Joel KRUPPA added that whilst part 4 is being converted into an EN there is a possibility that the remainder could be deleted if no interest is shown in them.

Jürgen KOENIG added that as a member of CEN/TC 127 these standards are needed for the Eurocode "fire" parts, however there is work necessary to improve the ENVs to EN standard quality.

The SECRETARY was requested to contact CEN/TC 127 with a view to preventing deletion of these documents.

Resolution 212 agreed

Secretary's Note – The Secretary of CEN/TC127 confirms that these ENV parts are on their Work Programme and will not be deleted but updated and converted to ENs.

Joel KRUPPA also reported that he has a copy of the report on the Twin Towers and how the fire developed. This is a very large report (approx 10,000 pages), however, should anyone wish to have a copy they should contact Joel KRUPPA.

j) Horizontal Group – Bridges

Jean-Armand CALGARO referred Members to his report to the CG in document N 1530 and added that all the Eurocode parts relating to bridges are either published or have passed Formal Vote. As a consequence of the parts now being publicly available, questions are regularly being received – at the rate of approximately one per week. Jean-Armand CALGARO commented that in his view the major reasons for the questions is that the ENVs were not thoroughly examined and poor coordination between the building parts and bridge parts.

Therefore he stressed that a better cooperation and coordination between SCs is necessary during the maintenance phase if Eurocodes are going to be successfully implemented and accepted.

10. REVIEW OF THE CONVERSION PROGRAMME

Barry HASELTINE presented N 674 Excel spread sheet showing the current progress situation with the Eurocode parts. It was noted that 28 parts have now been published by CEN with a further 2 parts which are due to be published in November, making a probable total by the end of 2005 of 30. It was also noted that Annex A.2 will be published by the end of the year.

11 LIAISONS

CEN/TC 128 "Roof covering products"

Sandwich elements – Steinar LEIVESTAD reported that there was a misunderstanding from the minutes of the Athens meeting. CEN/TC 128 do refer and acknowledge Eurocodes however they give load and material factors which prevents the national choice of safety level on products that are used as structural members and then will not be consistent with the remaining structure.

It was noted that the final draft of prEN 14509 is currently with CMC for launching Formal Vote.

CEN/TC 129 "Glass products"

Gerhard SEDLACEK reported on the liaison activity with CEN/TC 129. It was noted that the main problem is that the vast majority of glass in construction is used for fenestration purposes and the industry is very guarded when possible change could adversely affect the thickness of glass for general use. Gerhard SEDLACEK also reported that the glass industry is reluctant to declare the properties of glass.

It was reported that there will be a meeting with CEN/TC 129/WG 8 on the 6th and 7th December.

CEN/TC 167 "Structural bearings"

It was noted that there is a problem with the use of structural bearings and anti-seismic devices in EN 1998-2. The problem is with SC 8 for consideration and resolution with CEN/TC 167 and CEN/TC 340.

CEN/TC 229 "Precast concrete products"

Giuseppe MANCINI reported that there will be a meeting of CEN/TC 250/SC 2 in Milan in December 05 when there will be a further liaison with CEN/TC 229. It is expected that 4 drafts of CEN/TC 229 will be examined and agreed at the meeting. Also at the meeting the question of harmonized standards and the reference to concrete cover will be discussed.

Giuseppe MANCINI reported that the liaison with CEN/TC 229 is ongoing.

John MOORE commented that information on CE marking is given in Guidance Paper L.

He added that in conjunction with the Chairmen of CEN/TC 229 and CEN/TC 125, he had drafted simple guidance for structural product standards. However the ENC Group had not accepted this although there were some constructive comments from Finland.

The CHAIRMAN observed that the Commission are now insisting that they will not issue any further Guidance Papers.

CEN/TC 297 "Free standing industrial chimneys"

Michael FARDIS reported that when CEN/TC 250/SC 8 were finalizing EC 8 Part 3 - "Towers, masts and chimneys", a problem was identified with the product standards from CEN/TC 297 in the series EN 13084 on free standing industrial chimneys. Michael FARDIS recognizing that these product standards are published, recommends that a liaison with this TC is necessary as currently these EN do not conform with EN Eurocodes but cite the old ENVs. This is especially relevant for EN 13084-2 – "Free standing industrial concrete chimneys". The CHAIRMAN requested that Giuseppe

MANCINI should take the initiative and contact the Chairman of CEN/TC 297 to offer a liaison discussion, and report back on the progress at the next CEN/TC 250 meeting.

Action: GMan

Gerhard SEDLACEK reported that CEN/TC 297 and CEN/TC 250/SC 3 had a good cooperation when EN 13084-6 – "Free-standing chimneys - Part 6: Steel liners - Design and execution" was being drafted. This liaison ensured that the latest EN Eurocode parts were cross-referenced.

Secretary's Note: The Secretariat of CEN/TC 296 is held by DIN – Mr G METZNER and the Chair is Mr H NIESER (Germany)

EOTA

The CHAIRMAN commented this was discussed previously in the meeting.

ISO/TC 98.

The CHAIRMAN stated that there was nothing new to report and believes there will be little activity by CEN/TC 250 until all Eurocode parts have been published.

However, as discussed in Athens, it is onerous on the specific SC if they have time to observe the ISO work. The CHAIRMAN believes that Europe will become a more proactive influence on ISO structural design codes in future when the Eurocode Programme is completed.

Haig GULVANESSIAN complained that most of the ISO/TC 98 meetings are held outside Europe making it difficult and expensive to attend.

Steinar LEIVESTAD reported that currently Norway holds the Chair and Secretariat of ISO/TC 167 but if Europe do not input effort then probably the USA will take over the Committee.

Giorgio MACCHI commented that CEN/TC 250 should actively participate in ISO work with a view to harmonizing with the Eurocodes.

The CHAIRMAN summarized that the decisions made in Athens are still applicable.

Eurocodes are the best codes available and should be taken into account internationally and CEN/TC 250 will attend ISO meetings in the future. However if only € 200K pa is available this will not be sufficient to permit significant ISO activity and the Commission recognizes that Eurocodes will be impossible to keep only in Europe.

12 SECRETARIAT REPORT

The SECRETARY recapped on the Order Voucher situation noting that the Commission issued 4 Order Vouchers to CEN to cover the Eurocode conversion programme:

- 1997 OV No. BC/CEN/03/000/97-38
- 1998 OV No. BC/CEN/03/265/98-11
- 1999 OV No. BC/CEN/03/265/99-20
- 2000 OV No. BC/CEN/03/265/00-16

At the time of the meeting the 1997 and 1998 Order Vouchers were closed and under the Commission's 5 year rule it is expected that the 1999 and 2000 OVs will be closed soon, probably by the end of 2005.

The SECRETARY reminded members that payments are made at the following stages of development to experts and Secretariats are:

	CEN Stage	PT/experts	CEN/TC250 sec.
Signature	Stage 0	Step 0 - 15 %	Step 0 - 15 %
PT established	Stage 10	Step 1 - 15 %	-
1 st document	Stage 32	Step 2 - 25 %	Step 1 – 30 %
First final draft	Stage 34	Step 3 – 30 %	-
Enquiry	Stage 41	-	Step 2 – 0%
Final draft	Stage 49	-	-
Approval of final draft	Stage 51	Step 4 – 15 %	-
Ratification	Stage 53	-	Step 3 - 40 %
Implementation	Stage 73	-	Step 4 – 15 %

However the problem as discussed at previous meetings is that the Commission have not paid CEN for the work and as a consequence money has not been passed on to BSI and in turn the PT experts.

However, there is some positive news that at a meeting between CMC and the Commission on the 3 October 2005, the Commission accepted that the delays were down to their inefficiency and this would be rectified by the middle of November 05.

It was reported that the CHAIRMAN has been invited to BSI on the 15th November where he will meet with senior staff to discuss the Eurocodes situation with particular reference to the contracts and Order Vouchers. Furthermore CEN have been trying to arrange the annual Eurocodes review meeting between CEN and the Commission without much success. This was originally scheduled for September but has been delayed due to lack of response from the Commission.

Jan STARK questioned when a letter would be sent to experts to inform them of the payment situation. It was agreed that this would happen after the meeting at BSI.

Action: SECRETARY/CHAIRMAN

The SECRETARY reported that the CHAIRMAN completes his term of office in March 2006 which is prior to the next CEN/TC 250. After discussion with the CHAIRMAN it is the SECRETARY'S opinion that to ensure continuity of the CEN/TC 250 Eurocodes Work Programme, Prof Horst BOSSENMAYER should remain in office until at least the current 58 Eurocodes have been published.

On this basis the SECRETARY recommended that the CHAIRMAN reappointed for a further period of 15 months from expiry of his current term (until June 2007). Members endorsed this recommendation.

Resolution 217 was agreed

13 POLICY GUIDELINES AND PROCEDURES

John MOORE referred Members to his document N 672 and explained the need to amend N 250. Summarizing, it is recommended that responsibility for maintaining the Eurocodes is with the SCs as they are the experts.

John MOORE recommended that any maintenance procedure follows CEN BOSS rules. Members discussed the issue of the flow of information recognizing that whilst the level may be considerably greater the flow route will be the same as for all other CEN/TCs.

This will be from the NSBs direct to the relevant Secretariat of the CEN/TC 250/SC. As a consequence it is recommended that the SCs set up Maintenance Groups.

During the subsequent discussion it was identified that there could be horizontal issues and as a consequence there may be a need for CEN/TC 250 or the CHAIRMAN to endorse any action. It was agreed that John MOORE would investigate if any further work is necessary on the relationship between CEN/TC 250 and the SCs for horizontal issues.

John MOORE added that the proposal also addresses the 5-year review requirements of the CEN rules.

Members discussed at length the need to have formal procedures in place to demonstrate that there is a mechanism to maintain the Eurocodes.

It was recognized that it is vital that amendments are kept to an absolute minimum especially if amendments are issued before the translations are completed in all languages.

Members further discussed the need for the proposed amendment to N 250, Roger FRANK strongly believing that such an amendment is too soon, preferring to wait until the Evolution Group have finished their work. Haig GULVANESSIAN and Jan STARK were supportive of the need for the amendment immediately as the first Eurocodes are being used and questions will be received very soon. Jan STARK added that SC 4 has officially requested guidance from CEN/TC 250, by resolution.

After further discussion by Members it was generally agreed that there is an urgent need for the amendment. The CHAIRMAN requested that the draft proposal is revised within two weeks and re-circulated to Members for comments by the year-end.

Action: JM/Members

14 ENC GROUP and SCC MATTERS

The CHAIRMAN reported that at the last ENC Group meeting on the 14th October 2005, the main topics discussed were:

- Implementation of Eurocodes across Europe.
- an update of progress of the Eurocodes Work Programme, presented by the CHAIRMAN
- the development of a Eurocodes website by JRC
- the UK problem with prEN 1999-1-3
- presentation by Italy on a new Italian code for structural design

The CHAIRMAN added that whilst the next date of the meeting is not decided, the good news is that the Commission (DG Enterprise) will continue to support the ENC Group and it will meet, twice annually normally prior to the SCC meeting.

Barry HASELTINE expressed concern that examples of National Annexes that were circulated, in many cases do not follow the guidelines given in GPL and N 250. He added that also discussed at the ENC meeting was that JRC are creating a template of National Annexes to analyse the Nationally Determined Parameters with a view to promoting harmonization. It was added that JRC considered that the National Annexes should also be uploaded on the website. However this concept met with resistance from some NSBs due to the infringement of copyright.

Giorgio MACCHI questioned whether implementation is occurring across Europe. Barry HASELTINE commented that all countries who were present at the ENC meeting reported that work on the National Annexes was underway.

15 ANY OTHER BUSINESS

There were no matters raised under "Any Other Business".

16 ARRANGEMENTS FOR FUTURE MEETINGS

The next meeting of CEN/TC 250 (twenty-ninth) will be held on 18th and 19th May 2006, possibly in Reykjavik, Iceland, but this is to be confirmed.

Members agreed that the thirtieth plenary meeting of CEN/TC 250 will be held on the 26th and 27th October 2006, at a venue which will be confirmed at the next meeting.

17 FINAL APPROVAL OF RESOLUTIONS

The following resolutions were agreed by the Members of CEN/TC 250 (see N 679):

Resolution 210 - Basis of assessment of existing structures

Resolution 211 - Transfer of Annexes A3, A4 and A5 to EN 1990

Resolution 212 - Parts 2, 3, 5, 6 and 7 of ENV 13381

Resolution 213 - Appointment of Chairman of CEN/TC 250/SC 4

Resolution 214 - Re-appointment of Chairman of CEN/TC 250/SC 5

Resolution 215 - Appointment of Chairman of CEN/TC 250/SC 8

Resolution 216 - Unique Acceptance Procedure for EN 1999-1-4 and EN 1999-1-5

Resolution 217 - Re-appointment of Chairman of CEN/TC 250 "Structural Eurocodes"

18 CLOSING THE MEETING

The CHAIRMAN thanked the hosts, AENOR and in particular Victor REY, Raquel MARTINEZ and Rafael ASTUDILLO for their effort and generous hospitality in hosting this meeting.

The CHAIRMAN on closing the meeting thanked CEN/TC 250 Members for their support and confidence in his Chairmanship as endorsed by his reappointment and thanked them for their participation.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



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

**DRAFT REPORT OF TWENTY- NINETH MEETING OF CEN/TC 250 HELD AT
LOFTLEIDIR HOTEL, REYKJAVIK 18th & 19th MAY 2006**

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending and in particular thanked Hafsteinn PALSSON and Icelandic Standards Body, IST, for hosting the meeting in Reykjavik.

The CHAIRMAN also welcomed Artur PINTO from JRC, ELSA, Ispra attending his first CEN/TC 250 meeting and also welcomed to the meeting were Brian WALDRON and John COLVIN from CEN/TC 129 who will present a paper on Structural glass and will identify the needs for a Eurocode to cover this subject.

In welcoming the delegates to Iceland, Gudrún RÖGNVALDARDÓTTIR, Managing Director of the Icelandic NSB – IST, recognizing the importance of the work of CEN/TC 250 wished the delegates a successful meeting in Reykjavik.

2. ROLL CALL

All members introduced them -selves see attendance list (Annex A).

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

C. PATROUILLEAU	-	French language
U STOLZENBURG	-	German language
B HASELTINE	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN gave a presentation on the "Status of the Eurocodes Work Programme" and noted that:

- 32 Eurocode parts (55%) have been published by CEN + Annex A2 of EN 1990.
- Including the eight that have just successfully passed Formal Vote, there are now 20 parts (34%) which are being finalized by the SCs, for publication.

- Including the one part currently out for UAP, there are 6 parts (12%) waiting completion of Formal Vote.

Noting the advanced position of the Programme, the CHAIRMAN, added that implementation is now very near as the technical work is virtually complete. Supporting the urgency for Europe to adopt the Eurocodes, Giuseppe MANCINI added that Algeria is approving the design of bridges based on Eurocodes.

Referring to his report (see document N 683), the CHAIRMAN added that since the last meeting in Madrid there has been an ENC Group meeting in Brussels in February and a CG meeting in April 06.

CEN/TC 250 are now making fast progress in completion of the Programme after a period of seemingly inactivity when progress was slow. The CHAIRMAN added that a major discussion topic for this meeting will be the presentation and discussion on the "Evolution of Eurocodes" report N 630 Rev 4 and the presentation from Paul LUECHINGER the Convenor of the Group. With thanks to the Evolution Group, this report will form the basis for the future programme of CEN/TC 250. The CHAIRMAN noted that the Group were very well supported by JRC Ispra and is confident that this relationship will prove to be very productive in the future.

The CHAIRMAN suggested that there will be several resolutions identified during the meeting which will become a "to do" list. Also CEN/TC 250 must decide what role the "Evolution of Eurocodes" Group should perform in the future.

It was noted that a letter from ON (Austria) relating to the quality of the steel Eurocode parts and their publication schedule will be discussed, see document N 697.

The CHAIRMAN remarked on the elimination of inconsistencies with the Eurocode parts, noting that good liaisons especially with the product TCs have been a major contributory factor in this aspect. The meeting will cover the important reports of the liaisons especially with CEN/TC 129 (Glass), CEN/TC 124 Timber and CEN/TCs 167/340 Structural bearings. The CHAIRMAN added that Marco MENEGOTTO as the Convenor Liaison Ad hoc Group is performing a very useful role in resolving the issues between CEN/TC 229 and CEN/TC 250. His report can be found on the Livelink website as part of document N 694 "Papers from the ENC Group meeting – February 2006".

Regarding the ENC Group meeting, the CHAIRMAN commented that there are still problems with CEN and the use of the Guidance Paper L, noting that expressly EN 1990 is not being used correctly. The next ENC Group meeting will be on 22nd November and due to room size limitations, the Commission are limiting the CEN/TC 250 representation to just three members.

Haig GULVANESESIAN requested that an additional item is taken under item 8 to cover EN 1990 and its maintenance.

Roger FRANK reported that there has been a request from NORMAP ME (Small and medium sized enterprises) to produce guides for the simplified use of Eurocodes and software at a European level. It was agreed that this would be covered under item 7c Evolution of Eurocodes.

Roger FRANK reported that AFNOR will make a presentation on a proposal on the direction of Maintenance of Eurocodes.

It was agreed that items 7 and 12 would be combined.

The CHAIRMAN recommended the adoption of agenda. This was agreed by Members.

5 FOLLOW UP TO THE TWENTY-EIGHTH MEETING OF CEN/TC 250 (MADRID – OCTOBER 2005)

5. a) Draft Report (N 678)

The report from the CEN/TC 250 meeting in Madrid (document N 678) was accepted and confirmed without change.

5. b) Resolutions from the Madrid meeting

The Resolutions from the Madrid meeting in document N 679 were noted.

5. c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE THIRTIETH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN MILLAU (6th & 7th APRIL 06)

6. a) The CHAIRMAN gave a verbal report based on the briefing notes from the CG which will be circulated in due course.

Key issues discussed were:

- Autoclaved Aerated Concrete product standard prEN 12602 which has NDPs and design rules in the normative text. This could cause conflict with CEN/TC 250.
- Evolution Group report N 630 Rev 4 the final version.
- Update on funding of experts
- Discussion on methods in GPL for CE marking of construction products (Precast concrete and timber) as described in Matti VIRTANEN's paper to the ENC Group.
- Reports from SC Chairmen.
- Presentation from Artur PINTO and Gerhard SEDLACEK on EOTA tests restricted to steel in the first draft. It has been decided to form a new Working Group to consider all materials.
- Progress on the liaison with CEN/TC 129 "Glass" to develop a structural Eurocode for glass.

The official report will be circulated in a few weeks.

6. b) Items for TC approval

The CHAIRMAN commented that the above items would be discussed during the meeting.

Jochen FORNATHER reported that Austria have identified two standards that may conflict with prEN 1993-4-3 – "Pipelines" and requested that this should be clarified by SC 3.

Frans BIJLAARD commented that there could be several similar documents which include structural elements and believed that it is the responsibility of CMC to control these product standards, noting that the Convenor of prEN 1993-4-3 did take account of

all known documents. Johan VAN TIEL commented that there are no “policemen” in CEN but agreed to check the situation and report back.

Action: JVT

7. MAINTENANCE AND RESEARCH

7. a) Maintenance of Eurocodes

The CHAIRMAN introduced the background to N 630 noting that it started with Pascal BAR of the Commission, in 2003. This has led to the current joint cooperation between CEN/TC 250 and JRC Ispra and the identification of the four main topics:

- Harmonization
- Promotion
- Future development
- Maintenance.

Paul LUECHINGER as the convenor of the Ad-hoc Evolution Group referred Members to document N 630 Rev 4. He noted that the acknowledgement of the work of CEN/TC 250 by the Commission is through their “Recommendations” in December 2003. The Ad-hoc Group for the Evolution of Eurocodes was formed in May 2004 and the first document N 630 was produced in October 2004. Subsequent discussion in meetings with JRC and Reinhard KLEIN during 2005 promoted further revisions that eventually lead to N 630 Rev 4 as the finalized document.

Members approved Revision 4 of this document as the final version of N 630.

Resolution 218

The primary objectives of the Evolution Group were to identify the main activities required for the implementation and use of Eurocodes. The four crucial issues identified are:

- Maintenance
- Harmonization
- Promotion
- Further Development

Noting that implementation is “the act of the Member States to bring Eurocodes into force in the framework of their National Provisions”.

To assist the implementation, the Commission through JRC Ispra will take the lead for Harmonization of the Eurocodes across Member States and the Promotion of Eurocodes both within and outside Europe.

CEN/TC 250 and the Sub Committees will take on the responsibility for, Maintenance and Further Development.

As the Evolution Group considers N 630 Rev 4 to be the final document, the next step will be to focus on the Maintenance of Eurocodes and the necessary activities by the CEN/TC 250 and the Sub-Committees. Maintenance can be sub-divided into the following activities:

- Collection of questions resulting from the use of Eurocodes

- Production of corrigenda and amendments – (the general procedures are fully covered by CEN rules)

It is the proposal of the Evolution Group to develop a procedure to react to comments on the problems received from Member States when implementing and using Eurocodes. In order to coordinate the collection of these comments, a document will be developed to establish the necessary procedures it was proposed that a Chairman's Advisory Group should be established. This CAG will also provide a conduit with external organizations involved in the evolution process.

7. b) Artur PINTO presented the work arrangement for JRC Ispra on Eurocodes and explained initially the responsibilities of JRC reporting directly to the Commissioner for Science and Research and also to the Commissioner for Enterprise and Industry (for Eurocodes etc). It was noted that the first structures designed to EC 2 and EC 8 were tested at JRC in 1994-5. Another area of study was the use of "Tempcore" steel reinforcement in seismic design.

Noting the Commission's recommendations in 2003, Artur PINTO, commented that JRC will support the Promotion and Training and the Harmonization of Eurocodes. The Administration Arrangements made between the Commission and JRC for the first two years are:

- Create an information platform - database for the NDPs and a webpage
- Set up and coordination of networks for new materials– glass, FRP etc.
- Promotion and Training Strategies
- Harmonization Strategies – set-up of harmonization networks
- Pre-normative research needs (Seismic, fire etc.)

Artur PINTO added that after discussions with CEN/TC 250 there is probably a need for the Information platform to be subdivided into three main parts:

- Part 1: EN Eurocodes website to provide information focussed on the support to dissemination and international promotion of the European Standards Family
- Part 2: EN Eurocodes Centralized Help Desk for interaction with the National Help Desks, aiming at management of questions and answers on the implementation and use of the EN-Eurocodes.
- Part 3: EN Eurocodes NDPs Database: as a Commission tool for unified and coordinated management of the whole set of NDPs, National Annexes and documents on EN Eurocodes and their National Applications.

A demonstration was given to explain how the information on NDPs, from the Member States, will be uploaded through a designated contact person(s) into the JRC database. It was noted that this information will be confidential and access will be restricted to JRC and NSBs/Member States plus other selected groups on a need to know basis.

Artur PINTO explained the "Promotion and Training" strategy adopted by JRC for the Eurocode programme:

Need for a global view of Promotion and Training issues

Agreed work-programme (Resulting from discussion with all Partners)

Promotion and Training – Topics

- Awareness (What, Why, opportunities, challenges, ...)

- Implementation (Legal and Administrative issues)
- Training and continuing professional development
- Promotion material, tools and events
- Promotion Agents (who does what and why)

It was noted that there was a Workshop held at JRC Ispra in November 2005 for New Member and Accession candidate countries to provide information and explain the use of Eurocodes and encourage their adoption. Several Members of CEN/TC 250 gave presentations and chaired workshop sessions during the event.

As part of the Promotion strategy there will be a second workshop dedicated to Southern Mediterranean and North African Countries in November 2006.

In conclusion Artur PINTO recognizes the need for support from CEN/TC 250 and the Sub Committees to JRC in the following areas:

1. Webpage: Contributions
 - General contributions on the Eurocodes
 - Background documents, list of selected publications, list of FAQs (at SC level)
2. NDPs Database and Harmonization
 - Check of NDP classification
 - Contribute to the design of online analysis tools
 - Expert advise on the Analysis of the NDPs and Harmonization strategy
3. Training and Promotion activities, material
 - Workshops, Conferences and other events
 - Technical papers on the different Eurocodes
 - Training for trainers 'workshop'

John MOORE noted that the subject of Maintenance is the topic of the proposed new section 8 of N 250.

Members discussed at length the issues of Maintenance of the Eurocodes, Gerhard SEDLACEK referred to the chart presented in CG document N 1538 which gave a model of the process as proposed by SC 3.

Eduardo CARVALHO posed the question as to who should upload the information on the JRC website. In response, Artur PINTO commented that the Commission will contact the National Authorities who in turn will probably delegate the responsibility to the National Standards Bodies. Members discussed at length the issues of uploading and accessing information especially with respect of copyright. The SECRETARY reported that in the UK the National Annexes are under copyright to BSI and as such will not permit the uploading of material on an open website. However the NDPs will be provided to JRC for analysis purposes.

John MOORE with reference to N 696 explained the proposal for the revision of N 250 to introduce a new maintenance clause which follows CEN procedures for processing corrigenda and amendments.

After discussion, Members agreed unanimously that the proposal should be incorporated into N 250 and issued as revision G.

Resolution N 219

The CHAIRMAN explained that the role of the Coordination Group must change direction in future to become a Steering Group in order to direct the way forward for the Eurocode Programme. Furthermore the CHAIRMAN considered there is a need for small "Chairman's Advisory Panel(s)" for example in the area of maintenance. Roger FRANK (AFNOR) proposed the creation of a "steering group" which could be a reshaping of the Coordination Group with a possible title of "Coordination Group for Eurocode issues" Rob VAN DER PLUIJM suggested that the future issues will be concerns of legal and commercial nature and these cannot be addressed by the Coordination Group or CEN/TC 250 for these areas.

After further discussion and recognizing that the Coordination Group has virtually completed its tasks, it was agreed that the CHAIRMAN and CEN/TC 250/-/1 CG would consider the issues at the next CG meeting and report back to CEN/TC 250.

Resolutions 220 & 221 agreed

Jean Armand-CALGARO gave a presentation for a proposal that the whole Eurocode Programme should undergo a scrutiny check across the system to ensure that the individual codes are compatible. Concerns have been expressed in view of railway bridges in South Africa which were designed to Eurocodes and have exhibited vibrations.

7. c) Simplified rules – Members were requested to report to the SECRETARY notification of anything that is happening in their country

8. SUB COMMITTEE REPORTS

8. a) EN 1990

Haig GULVANESESIAN suggested that consideration needs to be given over the forthcoming months as to how the Maintenance of EN 1990 will be initiated either through a Maintenance Group or a Chairman's Advisory Panel, noting that in 2007 EN 1990 will be required to be reviewed under the CEN rules of 5 years after publication, which means a review in April 2007.

It was also noted that EN 1991-1-1 will be up for review at the same time, and therefore a policy decision is required as soon as possible.

Haig GULVANESESIAN added that there are plans to revise the CPD in 4-5 years and added that CEN/TC 250 need to follow this carefully by keeping a watching brief changes to mechanical resistance etc which would impact with clause 2.2.1 of EN 1990.

With reference Madrid Resolutions 211 – agreed to keep Annexes 3, 4 and 5 in their respective Eurocode parts until the first revision of EN 1990 when a transfer could be considered, Members discussed at length and agreed that it would not be practicable at this time to move the Annexes and therefore they would remain in their respective codes for the present.

Haig GULVANESESIAN reported that prEN 1998-4 should refer to EN 1991-4 and the SECRETARY was requested to verify that this is the case before publication.

Secretary's Note: It was confirmed after the meeting that EN 1991-4 is referenced in EN 1998-4

Haig GULVANESSIAN referred to his document N 690 on his proposal for an additional Annex to EN 1990 to address the issue of "Assessment of existing structures". The CHAIRMAN requested Members to submit their comments which would be considered by a Chairman's Advisory Panel who in turn will make recommendations to CEN/TC 250 at the next meeting as to the way forward.

Steinar LEIVESTAD added that in his opinion the subject is not mature enough for standardization. Noting that there would probably be a CAP meeting in August/September comments were requested from Members by end July.

Action: All Members

b) CEN/TC 250/SC 9

Federico MAZZOLANI reported that there is only good news from SC 9. The problems of prEN 1999-1-3 to the UK have been resolved thanks to Barry HASELTINE and Thore HAGBERG who after the Madrid meeting of CEN/TC 250 have resolved the differences. By the end of December 2005 the solution was proposed by transferring the details into an Informative Annex which will leave the possibilities to national choice. This proposal was unanimously accepted by the SC 9 Editing Panel. Therefore Federico MAZZOLANI announced that SC 9 have now finished their technical work.

The CHAIRMAN congratulated CEN/TC 250/SC 9 and in particular thanked Federico MAZZOLANI for his efforts.

c) CEN/TC 250/SC 8

Eduardo CARVALHO reported that all six parts under EC 8 are completed and published with the exception of Part 4 which has been sent to CMC and is awaiting publication. The main consideration for SC 8 is the liaison with CEN/TC 167 "Structural bearings" and CEN/TC 340 "Anti-seismic devices". Discussion with these TCs has resulted in the need for a possible amendment to EN 1998-2 and this will be considered at the next meeting of CEN/TC 250/SC 8 in JRC, Ispra in June 06. The problem is that some of the products already on the market from CEN/TC 340 will be excluded in EN 1998-2.

Jana MARKOVA reported that some inconsistencies have been found when translating EN 1998-3 into Czech and these will be reported to the SC 8 Maintenance Panel.

Eduardo CARVALHO added that the success of achieving publication of EN 1998-4 has been largely due to the excellent efforts of Michael FARDIS despite having officially retired as Chairman of SC 8 and thanks to him should be recorded.

d) CEN/TC 250/SC 7

Bernd SCHUPPENER announced the sad news of the death of Nils KREBS-OVERSEN who was a past Chairman of the SC 7 and a "founding father" of the Eurocodes.

On a positive note, Bernd SCHUPPENER reported that EN 1997-1 is published and now under implementation and that Part 2 was approved at Formal Vote although there were comments which are being considered by the SC 7 Editing Group.

It was noted that there have been several workshops all across Europe and both Roger FRANK and Bernd SCHUPPENER attended one organized by Czech Geotechnical Society. Internationally there is a geotechnical symposium in Taiwan for which a paper has been submitted and it is hoped that Bernd SCHUPPENER will attend to present and promote the Eurocode system. This will be reported on at the next meeting.

Roger FRANK gave the history behind the debate in geotechnical circles regarding the standard Foreword reference to National Annexes and reference to Non Contradictory Complementary Information (NCCI). It was noted that this was given in a resolution of CEN/TC 250 (Paris – 1996).

Roger FRANK added that the EN 1997 codes are umbrella codes and do not provide a geotechnical model therefore there is a need for complementary codes.

Barry HASELTINE explained the differences between residual and complementary standards.

Members discussed at length the need for supplementary information and how best this could be published.

e) CEN/TC 250/SC 6

Rob VAN DER PLUIJM referred Members to his report N 1540 and added that the SC 6 programme is now complete as all parts have reached DAV.

f) CEN/TC 250/SC 5

Juergen KOENIG reported that the amendment to EN 1995-1-1 is now out for ballot although it was sent to CMC in November but took a long time to translate into French by AFNOR. This was quickly resolved thanks to Jean-Armand CALGARO.

Juergen KOENIG referring to his report N 1539 reported that a “warning letter” was circulated to Member States drawing their attention to possible unacceptable safety risks in certain situations when designed to ENV 1995-1-1. DIN has requested that the shear strength be revised relating to large glued laminated beams in situations where there are moisture changes. This issue will be discussed at the next SC 5 meeting.

Another issue in SC 5 is the withdrawal of nails in very dry indoor climates.

Juergen KOENIG reported that CEN/TC 124 will hold a meeting in Stockholm the day before the SC 5 meeting when it is hoped that Members who have dual membership on the two committees will attend to ensure good liaison and understanding between the two committees.

It was also noted that SC 5 have formed a Maintenance group and that the corrigenda issued for EN 1995-1-1 and EN 1995-1-2 have not been published although they were sent to CMC in November.

Johan VAN TEIL agreed to investigate the latest situation within CMC , on his return.

Action: JVT

Secretary's Note – CEN published the corrigenda in June 2006.

Gerhard SEDLACEK reported that there is a paper by Matti VIRTANEN on the methods of CE marking defined in Guidance Paper L and this needs a response from CEN/TC 250.

The CHAIRMAN requested Gerhard SEDLACEK to supply information after checking the response from SC 5.

Action: GS

g) CEN/TC 250/SC 4

Joel RAOUL reported that he had taken over the Chair of SC 4 in September 05 and recorded thanks to his predecessor, Jan STARK who had ensured the publication of the three codes of SC 4.

It was noted that SC 4 are now in the maintenance and harmonization phase and are comparing experience of implementation in Member states. On the issue of Maintenance a few clarifications and errors in the three parts have been identified. Jochen FORNATHER reported that he had not received notification of the next meeting of CEN/TC 250/SC 4 on the 5th June until very late and then only by chance. The SECRETARY agreed to investigate the automatic notification system with the CEN Livelink helpdesk when he returned.

Action: SECRETARY

h) CEN/TC 250/SC 3

Frans BIJLAARD reported that there may be the need for an amendment to EN 1993-1-1 to align with the bolt position tolerances given in the final text of prEN 1090-2. Regarding the second series of steel codes, these were approved at Formal Vote at the end of 2005. In February the SC 3 Chairman together with Gerhard SEDLACEK considered the comments received at Formal Vote and have produced handwritten changes to the drafts. There followed a lengthy discussion as to who had the responsibility for progressing the drafts. The SECRETARY noted that this is the responsibility of the SC 3 Editing Panel and the Secretary of SC 3 must be involved. After further discussion it was agreed that future SC 3 Editing Panel meetings would include the SC 3 Secretary.

Jochen FORNATHER referred Members to the letter from the Austrian NSB (ON) regarding the quality of the German translations and the offer of assistance with the translations from the Austrian experts. After some discussion the CHAIRMAN requested that Prof Richard GREINER assists in the German translations with the SC 3 Editing Panel.

Action: FB

i) CEN/TC 250/SC 2

Giuseppe MANCINI referred Members to his report N 692 and added that at the SC 2 meeting in Milan in December 05 consideration was given to possible future corrigenda to EN 1992-1-1. A small group was formed to investigate the necessity of corrigenda and amendments.

It was also noted that the negative vote on prEN 1992-3 by Norway was discussed and found that their reasons were valid. Giuseppe MANCINI met with Prof Andrew BEEBY, the Convenor of prEN 1992-3 to discuss possible corrections to Annex K before publication. This was achieved and the draft sent for publication in March 06. Giuseppe MANCINI reported that there was discussion between CEN/TC 250/SC 2 and CEN/TC 104 regarding the definition of the minimum value for the maximum aggregate dimension and the differences between EN 13670 and EN 1992-1-1. These differences are not resolved as yet but it is hoped that this will be resolved before the next CEN/TC 250/SC 2 meeting in November.

Reporting on the Technical Specifications for fastenings, it was noted that Prof ELIGEHAUSEN has taken account of the comments received and expects that these will be sent for publication by the end of 2006.

Giuseppe MANCINI reported on a problem with the Autoclaved Aerated Concrete standard from CEN/TC 177 which includes design rules. CEN/TC 177 has been advised that this is against CEN/BT resolution.

Steinar LEIVESTAD advised caution that Eurocode 2 does not apply to aerated concrete as the strength applications are different. It was agreed that Steinar LEIVESTAD, Giuseppe MANCINI and Joel KRUPPA will recommend changes and discuss with CEN/TC 177.

j) CEN/TC 250/SC1

Haig GULVANESESIAN reported that SIS and LARS ALBREKTSSON are relinquishing the Secretariat of SC 1, but only after the outstanding EC 1 codes have been published. The Secretariat was offered to all NSBs but without acceptance. Therefore BSI will assume responsibility for the role, with Malcolm GREENLEY as SECRETARY of SC1. Haig GULVANESESIAN reported that himself and Paolo FORMICCI are assisting JRC Ispra with the setting up of Excel spread sheets to analyse the nationally determined parameters (NDPs) for EC 1 codes from all Member States as defined in their National Annexes.

It was reported that corrigenda are ready to go to CEN for several EC 1 parts, however at the last meeting of SC 1 in Limassol, in January, it was agreed that these would be held pending the finalizing of further translations which may detect further editorial errors.

It was also reported that after a number of roof collapses across Europe during the winter, Luca SAMPOLESI in conjunction with JRC Ispra are looking into snow load shape factors of EN 1991-1-3. It was noted that there is a need for background work to be performed based on the 15 regional snow maps in EN 1991-1-3. Haig GULVANESESIAN added that the work must be extended to cover the new Member States which will require maps from these countries. Jana MARKOVA reported that the Czech Republic snow load map is currently being drawn.

The draft of accidental Actions EN 1991-1-7 is now completed and the silos part EN 1991-4 will be completed the following week.

The final part EN 1991-3 “Cranes and machinery” has some problems with equations and these will be corrected by the PT Convenor and sent to the Secretary of SC 1 for reformatting. It is expected that these three parts will be sent to CMC for publication by June 06.

k) Horizontal Group – Fire

Joel KRUPPA gave a verbal report as there was no written report available. It was noted that CEN/TC 127 are planning to move from ENVs to TSs in some cases where Joel KRUPPA will have involvement. It was noted that the Chairman’s Report document N 683 refers to the “Fire Regulators Group” which has now been replaced by the “Expert Fire Group”. Joel KRUPPA added that he no longer has liaison with this group although this could be changed in future if issues necessitate.

John MOORE reported that there is a problem with liaison with this group as Don Christian a CEN Chairman is trying to get liaison membership or at least access to papers. It was agreed that John MOORE would write to Reinhard KLEIN on behalf of CMC requesting liaison membership of the Expert Fire Group.

Action: JM

Joel KRUPPA reported that the liaison with EOTA working groups is ongoing to develop their guidelines ETAG 80 as data is needed for Eurocode calculations.

Concluding, Joel KRUPPA reported that there is positive news that he had received a document NIST (USA) in February which is best practice for structural fire design for steel and concrete bridges where Eurocodes featured strongly.

I) Horizontal Group – Bridges

Jean-Armand CALGARO reported that as the bridge codes are now technically stable, there is nothing to report. However HG-B will now start looking into the maintenance aspects of the bridge parts.

9. REVIEW OF CONVERSION PROGRAMME

The CHAIRMAN reiterated that 32 Eurocode parts (55%) are published + Annex A2 of EN 1990. A further 20 parts (34%) have passed Formal Vote and are being finalized by the SCs, therefore technically complete and the final 6 parts (12%) are at Formal Vote/UAP.

10. ELIMINATION OF INCONSISTENCIES

10. a) Presentation from CEN/TC 129 “Glass in buildings” (see Annex B)

A presentation was given by Brian WALDRON and John COLVIN from CEN/TC 129. It was noted that glass is different from most other construction materials as glass does not exhibit plastic deformation and therefore is theoretically much stronger than steel. CEN/TC 129 have developed two parts for the “Design of glass”, prEN 13474 parts 1 and 2 both of which were rejected at the CEN Enquiry stage. Both parts were based on the principles of EN 1990 and were rejected because of their onerous nature and thought to be incapable of being used.

The current situation regarding the drafts of CEN/TC 129 is:

- prEN 13474-1 is a simplified approach to determine load resistance of fenestration
- prEN 13474-2 covers common applications other than fenestration

A third draft is prEN 13474-3 which is the basis of calculation methods to determine load resistance of glass products. Brian WALDRON advised that until these standards are approved and available, existing national standards and methods can be used.

Referring to the liaison between CEN/TC 250 and CEN/TC 129, Brian WALDRON commented that there were misunderstandings between the Committees about the role and scope of prEN 13474. It was not the intention of prEN 13474 to be a design standard but as a calculation method for load resistance only.

Brian WALDRON added that CEN/TC 129 are keen to promote glass for structural use and as such supports CEN/TC 250 in drafting a Eurocode on glass.

It was reported that to support this initiative, a meeting was held on 31/01/2006 which resolved the problem of addressing the small number of applications of glass where a significant structural role is required, e.g. beams, columns, floors. To assist in the clarification, prEN 13474 has been re-titled to “Determination of the strength of glass panes” which more accurately reflects its content.

For the future CEN/TC129 supports the Joint Research Centre (JRC) in the development of a Eurocode on glass applications and will assist in the preparation of a proposal for a mandate by providing knowledge and expertise in the areas of general

glass applications. Noting that general usage for fenestration is >90% of the total glass usage in construction.

It is envisaged that the draft Eurocode will incorporate the work standardised within prEN 13474. CEN/TC 250 and JRC will draft the specific rules for structural designs such as columns, beams etc with special attention being paid to connections, interfaces and buckling

Brian WALDRON added that in conclusion CEN/TC129 will continue to meet the market need by finalising prEN 13474 and will actively participate in the future work with CEN/TC250 and the JRC to enable glass to be designed in a consistent manner under the auspices of a Eurocode.

Gerhard SEDLACEK added that both EOTA and CEN are involved in this initiative which is a very unusual occurrence.

The CHAIRMAN thanked Brian WALDRON and John COLVIN for their positive contribution and liaison on the subject of structural glass which is on the borders of standardization and innovation.

Artur PINTO clarified that whilst the JRC supports standardization it will be the code writing experts from CEN/TC 250 who will actually draft the code.

10. b) Liaisons

EOTA – Gerhard SEDLACEK referred Members to N 686 and the report of the Ad-hoc Group. It was noted there would be a meeting in Brussels with EOTA at the end of June where N 686 would be presented.

11. SECRETARIAT REPORT

The SECRETARY explained the background to the payment problem, noting that the funding for the conversion of ENVs to ENs was spread over 4 Commission Order Vouchers.

The agreement was made between CEN and the EU Commission with BSI providing the SECRETARIAT function. In total the four Order Vouchers covered some 58 individual Eurocode parts with an approximate value 3 million ECUs!

The four Order Vouchers are : –

- 1997 - BC/CEN/000/97-38 (10 items with approx funding 750K)
- 1998 - BC/CEN/03/265/98-11 (12 items with approx funding 650K)
- 1999 - BC/CEN/03/265/99-20 (16 items with approx funding 760K)
- 2000 - BC/CEN/03/265/00-16 (20 items with approx funding 720K)

It was reported that the first two Order Vouchers 1997 & 1998 were closed by the Commission in January 2004 and June 2004 respectively and CEN were advised that the outstanding funding would be able to be recovered through a re-commitment process. BSI did a great amount of work in justification of the closed Order Vouchers and the proposal for the “re-commitment”. This was rejected by letters from Ayril and Anselmann at the Commission to CEN citing that the Eurocodes were overdue. Whilst the 1999 & 2000 Order Vouchers remained open, it was anticipated that these would be closed in January 05 and June 05 respectively. As a consequence, CEN requested an urgent Eurocode Review meeting with the Commission. Unfortunately this was not arranged.

However, CEN had a Finance meeting with the Commission on the 3rd October 2005 to which BSI were invited. Whilst this was a meeting to discuss all Commission funded

mandated standards, BSI ensured that Eurocodes were discussed as a high priority. Whilst the Commission didn't issue any official report of the meeting, the notes made by the BSI representative notes that the Commission apologised for the delay which is due to internal problems within the Commission, but they were confident that payment would be made by November 2005. One of the internal problems reported was that there is a new system in the Commission for processing invoices, which can't cope with the volume. However it was stated that this would be corrected within 2 months. Finally the CEN/Commission Eurocodes Review meeting was held in December 2005 with Members from DG Enterprise, EU Financial Services, CMC and CEN/TC 250. Members of CEN/TC 250 felt this was a positive meeting and the main decision made was that the 1999 and 2000 Order Vouchers would remain open until June 2007 which Members of CEN/TC 250 believed would be sufficient time to achieve stage 64. It was also agreed that the final stage payment would be made at achievement of stage 64 and not the stage 73 previously considered. On this positive basis in January 2006 the SECRETARY and CHAIRMAN co-wrote a letter to the experts explaining the funding situation reporting that there was confidence that the situation would soon be resolved. This confidence was soon dispelled when BSI learned that there was a further problem between CEN and the Commission affecting all Order Vouchers and that a recovery process had been invoked by the Commission with a view to recovering some €750K from the Eurocode programme. This was part of a €4M backlog of funding from the Commission to CEN. In February 2006 a top level meeting was arranged between the Commission, CEN and BSI to discuss only the problems associated to Eurocodes where it was recognized that there had been a breakdown of communication between CEN and the Commission. As a possible way out, BSI offered to undergo an audit to demonstrate that the depth of work that had been accomplished and to justify the costs incurred as BSI hold the most comprehensive records. An intensive three day audit took place in early March 2006 by two people from EU Financial Services who conducted several audit trails covering expenses, time booked, invoices, Experts agreements, minutes and reports of meetings, stage 32, 34 and 49 drafts including results of ballots. Whilst there were one or two minor discrepancies mainly relating to the original contracts which were signed before 1998, overall the audit was successful. However no official report has been circulated by the Commission. In April 2006 a new request was received for partial justification of the two open OVs 1999 & 2000, simultaneously a request was received from DG Enterprise asking for copies of drafts to support authorization of payment. In May 2006, BSI understood that Eurocode funding was held pending the partial justification which was sent in late May. The SECRETARY concluded that BSI are committed to securing the outstanding funding which is owed to CEN/TC 250 and in particular the expert's element. It was added that a follow-up letter informing the experts on progress of the funding issue will be sent when more definitive information is available, possibly June 2006.

12. POLICY, GUIDELINES AND PROCEDURES

John MOORE commented that the only matter to report since the last CEN/TC 250 meeting is that now the proposal for the new section 8 on Maintenance is approved and this will be included in the next revision of N 250 – Revision G.

13. ENC GROUP

The CHAIRMAN reported that, as usual, a detailed report from the state of work in TC 250 was given.

The next ENC meeting will be on the 22nd November 2006 and at the wishes of Reinhard Klein, only three representatives from CEN/TC 250 will be invited as room capacity is limited.

Barry HASELTINE commented that a substantial amount of time was devoted to "promotional activities on Eurocodes" which provoked some controversy.

There was also a paper from Matti VIRTANEN on how the three methods mentioned in Guidance Paper L have been applied in harmonised structural product standards on timber (CEN/TC 124). CEN/TC 250 will assess this and formally respond after consultation with Michel VALLES (CEN/TC 229), Thore HAGBERG (CEN/TC 135) and Juergen KOENIG (CEN/TC 124).

It was also noted that Matti VIRTANEN had written a second paper on the relationships between product standards for structural use and Eurocodes. It was agreed that the Commission will write to CMC about the checking of hEN product standards to ensure there is no contradiction.

Artur PINTO added that there will be a questionnaire circulated by the EU Commission to Member States relating to input of data to the JRC website.

With respect to National Annexes there were no reports given although it was noted that the drafting of National Annexes is underway in many Member countries of CEN.

14. ANY OTHER BUSINESS

There were no matters raised under Any Other Business.

15. ARRANGEMENTS FOR FUTURE MEETINGS

The next meeting of CEN/TC 250 (the 30th) will be held at the JRC, Ispra on the 26th and 27th October 2006. It was noted that the 31st meeting of CEN/TC 250 will be held in Stuttgart on the 14th and 15th May 2007 at the kind invitation of the CHAIRMAN and the German delegation as this will be Horst BOSSENMAYER'S last meeting as CHAIRMAN of CEN/TC 250.

16. FINAL APPROVAL OF RESOLUTIONS

Members approved the following resolutions:

Resolution 218 - Disbanding of ad-hoc group "Evolution of the Eurocodes"

Resolution 219 - Addition to CEN/TC 250/N250F as guidance for the procedure of maintenance

Resolution 220 - CEN/TC 250 "Chairman's Advisory Panel"

Resolution 221 - Tasks of CEN/TC 250 Coordination Group

Resolution 222 - Use of Guidance Paper L

17. CLOSURE OF MEETING

The CHAIRMAN thanked the delegates for attending and thanked Hafsteinn PALSSON and Iceland Standards (IST) for hosting the meeting. He added that he is looking forward to receiving a report from the Chairman's Advisory Group at the next meeting of CEN/TC 250 in October in Ispra.

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250



To the Members of CEN/TC 250 "Structural Eurocodes"

DRAFT REPORT OF THIRTIETH MEETING OF CEN/TC 250 HELD AT THE JOINT RESEARCH CENTRE, ISPRA, ITALY ON 26th & 27th OCTOBER 2006

1. OPENING THE MEETING

The CHAIRMAN opened the meeting and thanked the Members for attending and in particular thanked Michel GERADIN, Artur PINTO and Silvia DIMOVA and the JRC staff for hosting the meeting in Ispra. He added that the involvement of JRC in the Eurocodes Programme is essential for the future evolution of Eurocodes.

In welcoming the delegates to the JRC, Michel GERADIN gave a presentation to explain the work of JRC and their involvement with the Eurocodes and in particular with the work on seismic evaluation and design.

2. ROLL CALL

All members introduced them-selves see attendance list (Annex A). The CHAIRMAN gave a special welcome to the delegation from Albania who were attending a CEN/TC 250 meeting for the first time.

3. RESOLUTION DRAFTING PANEL

It was agreed that the resolution-drafting panel would comprise:

G CHOLLET-MEIRIEU	-	French language
U STOLZENBURG	-	German language
B HASELTINE	-	English language

4. INTRODUCTION BY THE CHAIRMAN AND ADOPTION OF THE AGENDA

4.1 INTRODUCTION

The CHAIRMAN congratulated Federico MAZZOLANI for the recent good news that the final Eurocode part EN 1999-1-3 had just received a positive vote thus marking the technical completion of the programme. He then gave a presentation on the "Status of the Eurocodes Work Programme" and noting that:

- 37 Eurocode parts (64%) have been published by CEN + Annex A2 of EN 1990.
- 7 EC 3 parts (12%) with CMC which should be published by CEN (DAV) at the end of October.
- A further 8 EC 3 parts are being finalized by SC 3 as to are the 5 parts of EC 9 and 1 part of EC 7 (24%).

The CHAIRMAN added that he is confident that the programme would be completed by the first quarter of 2007 at the latest, noting that the programme is technically complete

The CHAIRMAN reported that there had been communication between himself and Stephen RUSSELL of CMC over possible errors in Eurocodes which could have safety implications. Stephen RUSSELL had also circulated Members of the BT and in particular requested that BSI, DIN, AFNOR and ON should carry out a risk assessment of the potential errors. It was noted that one possible resolution offered was the formation of a CMC Panel to address the errors. The CHAIRMAN has responded that whilst it is recognized that there are editorial imperfections in the Eurocode parts, CEN/TC 250 reject the proposal of a CMC Panel as this is totally unacceptable. CEN/TC 250 are the competent body and it is they who will address all imperfections and possible errors, as detailed in document N 707. This document together with the proposal from Austria for "Error management" (N 710) will be discussed later during this meeting.

The CHAIRMAN also reported that Matti VIRTANEN through the ENC Group has suggested that a revision of Guidance Paper L should be considered to improve the clarity for product CEN/TCs. The Chairmen, Michel VALLES (CEN/TC 229) and Thore HAGBERG (CEN/TC 135) have responded that the "GPL" is clearly understood. However there are problems with CEN/TC 124 and the timber product standards which need a complete revision and a document to support the "GPL" would be helpful.

At the Vilnius meeting of CEN/TC 250/-/1CG, it was proposed that a joint meeting between CEN/TCs 250, 124, 135, and 229 will take place on the 20th November to harmonize procedures. The CHAIRMAN suggested that himself and Matti VIRTANEN also attend.

Secretary's Note: Meeting was subsequently moved to 11th December.

It was noted that in the CHAIRMAN'S opinion, the Commission is not prepared to revise the "GPL" because of the impending revision to the CPD.

The CHAIRMAN commented that there is a letter from Gilles LABEEUW regarding National Annexes and this will be taken under item 7 of the agenda.

Referring to the Evolution report N 630 Rev 4 adopted in Reykjavik the CHAIRMAN added that a report will be taken under item 8 on the work of the Chairman's Advisory Panel "Evolution". There will also be a report on FRP meeting on 16th June 06 and the Harmonization meeting between the Chairmen of SC 2, SC 3 and SC 4 on 28th June 06.

Another activity noted was that the CHAIRMAN has been invited to a meeting with a consultant (Reynolds) who, under contract to the Commission has written a report on possible future changes to the CPD. The original CPD refers only to products whereas the revision must combine with codification as liaison is essential both to product standards and design codes.

Referring to the Contractual situation, the CHAIRMAN noted that there is a marginal improvement to report adding that the 1999 and 2000 Order Vouchers have been amended to have a final stage payment at stage 64 instead of the stage 73 which was impossible as this is implementation in all Member Countries. Also the closure date for these contracts has been moved to August 2008. As a

consequence the SECRETARY and CHAIRMAN have co authored a letter to explain this situation to the experts of the Project Teams.

The CHAIRMAN also noted that there will be presentations from the two prospective candidates who are interested in succeeding as the next Chairman of CEN/TC 250.

Haig GULVANESESIAN requested that EN 1990 is added to the agenda as this is the only part that CEN/TC 250 have the direct responsibility for and suggested that consequently this should always be an item on the agenda.

Roger FRANK commented that the resolution taken in Reykjavik referred to Chairman's Advisory Panels and not Groups as often stated. It was agreed that in future all reference will be to "Chairman's Advisory Panel or CAP"

Matti VIRTANEN requested that background documents on the JRC website are discussed under item 8.1.4 b) of the agenda.

Subject to the above comments the CHAIRMAN recommended the adoption of the agenda, document N 704. This was agreed by Members.

5 FOLLOW UP TO THE TWENTY-NINETH MEETING OF CEN/TC 250 (REYKJAVIK – MAY 2006)

5.a) Draft Report (N 700)

Steinar LEIVESTAD complained that the report does not accurately reflect the conversation regarding the creation of Chairman's Advisory Panels. He added that he pointed out that CEN rules do not permit Panels to be "institutionalized" and as such should be restricted to the completion of the task which is formed to undertake and then disbanded.

Subject to the above comment, the report from the CEN/TC 250 meeting in Reykjavik (document N 700) was accepted and confirmed.

5.b) Resolutions from the Reykjavik meeting

The Resolutions from the Reykjavik meeting in document N 701 were noted.

5.c) Matters arising not covered by the Agenda

No issues were raised

6. FOLLOW-UP TO THE THIRTIETH MEETING OF CEN/TC 250/-/1 CO-ORDINATION GROUP IN VILNIUS (25th & 26th SEPTEMBER 06)

6.a) The CHAIRMAN gave a verbal report based on his briefing notes from the CG. The SECRETARY noted that the CG is now held about one month before the CEN/TC 250 meeting there is very little opportunity to have the official report circulated.

The main topics discussed at the CEN/TC 250/-/1CG were identified as:

- Finalization of N 707 – Maintenance report
- Liaisons
- Evolution of Eurocodes – Glass and FRP
- Assessment of existing structures.

The CHAIRMAN added that the CG really acts as a preparatory group and this will be much more relevant in the future and to the next Chairman of CEN/TC 250.

Roger FRANK referred to the AFNOR proposal made in Reykjavik to re-title the CG to “Steering Committee on Eurocodes issues” and questioned whether this was discussed in Vilnius. The CHAIRMAN considered that this a future issue and could be a matter for a decision in about two years.

6.b) There were no items raised at the CG which are not included in the agenda for this meeting.

7. CMC and EU Commission Matters

7.1.a) State of Eurocodes

The CHAIRMAN reiterated the objectives of CEN/TC 250 that all should be published by year-end 2006. However it was recognized that some of the aluminium parts would be late but the programme will be completed by spring 2007.

Johan VAN TEIL reported that CMC are now ready to publish the seven EC 3 parts which should be before the end of October 06.

It was also noted that the Commission have now de-linked the final step payment of implementation stage 73 from the OV 1999 and 2000 and re-designated the final payment to stage 64, publication.

Johan VAN TEIL added that CMC have requested that in future only stable documents are sent from the Secretariat. The SECRETARY responded that the problem has been that the DIN and AFNOR translators only accept documents from CMC. However during the finalizing of the translations, editorial imperfections have been identified. This has resulted in several revisions of the drafts being sent, and with each revision the process has been restarted. This has caused CMC and the translators in DIN and AFNOR considerable confusion. The SECRETARY sympathized but added that if these imperfections are not included in the published version it would subsequently result in administratively expensive corrigenda and also the translators in other languages having to translate incorrect text, until the corrigenda are officially circulated.

The SECRETARY noted that EN 1997-2 is becoming problematic insofar that the final draft had been promised several times for August, September, and October but had still not been received. This could prevent publication in 2007 if this is not received immediately.

7.1.b) Letter to BT Members

The SECRETARY explained the background to the misunderstandings that had taken place between CEN/BT Members and CMC regarding possible errors in Eurocodes. It

was noted that the situation has now been resolved and therefore no further discussion was deemed necessary.

7.2 EU Commission

7.2.a) Report of the ENC Group

The CHAIRMAN noted that the last meeting of the ENC Group was in February 2006 and this was reported on in Reykjavik. The next ENC Group meeting will be held in March 2007.

The CHAIRMAN added that as a result of discussions at the February meeting, there will be a meeting on the 11th December 2006 in Stockholm to discuss CE marking and Guidance Paper L. Matti VIRTANEN, Alpo RANTA-MAUNUS (CEN/TC 124), Thore HAGBERG (CEN/TC 135), Michel VALLES (CEN/TC 229), Juergen KOENIG, John MOORE, Gerhard SEDLACEK and the CHAIRMAN will attend.

7.2.b) National Annexes (Implementation progress)

Gilles LABEEUW explained his letter (see Annex B) and the uncertainty of normative NDP values in an Informative Annex. It was noted that there are three possible solutions:

- Leave it as is – each NSB will produce NAs as National Standards without official notification
- Apply the notification procedure – but this will be a considerable administrative task
- Apply for derogation to CEN rules, specific for Eurocodes – BT resolution would be required.

Members discussed the alternatives at length, after which the Chairman asked the National delegations as to how the issue is being covered in their country.

Uwe STOLZENBURG reported that in Germany the NAs are DIN standards and therefore notified to the Commission.

Jochen FORNATHER reported that similarly in Austria the NAs are ON stand-alone standards and the Commission are notified.

Barry HASELTINE reported that in the UK, whilst the NAs will be published as stand-alone documents but are not British Standards and therefore it is assumed that notification will not be necessary.

Steinar LEIVESTAD commented that National Annexes should have a normative status and as a consequence believes that option 3 should be given consideration.

Matti VIRTANEN commented that in Finland the NAs have a legal status.

Jean-Armand CALGARO stated that in France the NAs are published as French National Standards and he assumes that notification is provided.

Juergen KOENIG – Sweden NDPs are given in regulations which are in support of Swedish law.

Giorgio MACCHI reported that he is pleased that Italy has reactivated their commission to draft the Italian NAs.

Artur PINTO commented that the ENC will discuss notification but if a National Annex is sent to JRC then it is assumed that this would represent an automatic notification to the Commission.

Pierre SPEHL added that Belgium would like a global solution from CEN/TC 250.

Summarizing, the CHAIRMAN advised that this matter is not really the responsibility of CEN/TC 250 and suggested that this should be discussed at the next ENC Group meeting. However it is recognized that whilst not every Member State notifies CEN/Commission for those who do it would be helpful if this was a harmonized procedure. The CHAIRMAN requested Gilles LABEEUW to write a paper for the next ENC Group meeting.

Regarding the current status of implementation of National Annexes the CHAIRMAN requested a brief update from delegates as to the progress of implementation in their country.

Germany – several NAs (DIN-standards) are ready to be circulated for public comment in Germany. All others will be prepared by 2009 at the latest (DIN-procedure). Gerhard SEDLACEK added that the bridge design codes are already implemented and on 1st January 2007 all the actions (EC 1) codes will be implemented with the exception of EN 1991-1-2, EN 1991-3 and EN 1991-4, and the conflicting codes will be withdrawn. By the end of March 2010 the Eurocodes (with their NAs) will most probably be implemented and replace all conflicting National codes and thus form the only design code system to be applied.

Sweden – will implement the Eurocodes by 2010 and there is a strong will to produce the NAs.

France – the French Ministry of Public Works have “decreed” that Eurocodes must be used for public works contracts and Eurocodes are referred to in the French public procurement directives. Jean-Armand CALGARO commented that France has started using Eurocodes for bridges first and subsequently they will be used for buildings. Currently 29 parts are published as NF ENs and 3 National Annexes published with a further 10 circulated for public comment at Enquiry.

Cyprus – Despina ZAKOU reported that Eurocodes and standards under the CPD are under the authority of the Ministry of the Interior and the National Annexes are being outsourced to the Technical Chamber of Cyprus who are preparing NAs for EC 1, EC 2 and EC 8 which are the three Eurocodes most important to Cyprus. The seismic codes will be compulsory under the building regulations.

Czech Republic – Milan HOLICKY reported that similar to France all Eurocodes are and will be implemented within 2 years of DAV in accordance with Guidance Paper L. NAs are under preparation.

Belgium – 15 National Annexes are being worked on and 4 have passed the public comment stage which is a requirement before they can be confirmed as Belgian standards.

Netherlands – Jan GISBERS reported that in the Netherlands the NAs are being drafted and at the beginning of next year they will start to be published as pre-standards. Uncertain whether Netherlands will adopt EC 8 as there is no earthquake activity and it is not an issue for the Netherlands.

Norway – Steinar LEIVESTAD reported that NF is working on the NAs for Eurocodes which are in Norwegian regulations. By end of year (2006) there will be between 15 and

20 available. By the 3rd Quarter 2007 it was reported that Norway will have packages available to cover most projects.

Finland – Matti VIRTANEN reported that Finland have developed a Eurocodes website at: www.eurocodes.fi which includes a Help desk. The timetable for Finland's implementation of the first series of Eurocode parts has been decided as August 2007. It was noted that this came as a "wake-up call" to Finnish Consulting Engineers.

Italy – Giorgio MACCHI reported that implementation is not decided in Italy due to their integration in Italian law.

Iceland – Hafsteinn PALSSON reported that Iceland have been referencing the ENV Eurocodes for the past 4 years with about 50% of the recent designs using Eurocodes. Regarding the NAs in preparation stages and should be completed within 1 year. However it was noted that Hafsteinn PALSSON is moving to the Icelandic Ministry and therefore may be his last CEN/TC 250 meeting.

Austria – Jochen FORNATHER referred to his document N 710. Progress in Austria's implementation is impressive with 30 parts including NAs already published with the balance (28 parts) NAs in progress with a view to completion by year-end 2007.

Portugal – It was noted that the LNEC have done much of the work on the Portuguese NAs – 3 already completed and a further 5 will be finalized very soon. Sixteen Eurocodes are published and a new seismic zoning map for Portugal is under preparation. It was noted that in Portugal, National Standards and Eurocodes will coexist until March 2010.

UK – John MOORE reported that Eurocodes are awaiting Ministerial approval to be added to the UK Building Regulations - Approved Documents Register. Currently there are 37 Eurocode parts published as BS ENs with 5 NAs published plus a further 7 scheduled by year-end. The UK schedule is to publish a further 21 National Annexes in 2007. Richard SHIPMAN added that the UK concrete design community have decided to withdraw the conflicting British Standards in 2008.

Switzerland - Peter MATT reported that there will be no Swiss National Annexes as the NDP values will be in the "Swisscodes". These codes are translated into four languages – German, French, Italian and English.

Spain – Victor REY reported that in Spain, 24 NAs have been prepared – and the Ministry of the Interior will be signing contracts for experts to produce the remaining NAs. The main problem for Spain is to implement the Eurocodes into the Spanish legal framework.

Additional comments made on implementation:

Francesco BIASIOLI reported that the CEPMC are developing teaching tools for EC 2 which will be available in spring 2007.

Artur PINTO reiterated that some countries have started uploading NDPs on the JRC website.

12 FUTURE CHAIRMANSHIP OF CEN/TC 250

At the request of the SECRETARY this item was moved to the first day of the meeting. The SECRETARY explained the CEN procedures for the appointment of a new Chairman of CEN/TC 250. Noting that Horst BOSSENMAYER has decided to retire as CHAIRMAN of CEN/TC 250 in June 2007, and his successor has to be decided. Explaining that it is not a ballot, but it is the responsibility of the SECRETARY to nominate the Chairman to CEN/TC 250 after having established the resolve of the membership.

The SECRETARY introduced the two candidates, Jean-Armand CALGARO and John MOORE, adding that both are eminently competent and that he is confident that either candidate would be capable of performing the role.

Both candidates gave their presentations based on how CEN/TC 250 would develop in the future under their guidance. Their presentations are attached (see Annex C) Summarizing, the SECRETARY thanked the candidates for their contributions and requested that delegations consider the presentations and advise him of their national preference.

Action: All Member Countries

Matti VIRTANEN reported that as Finland's representative to the SCC he has sent letters to the Commission's Reinhard KLEIN at DG Enterprise regarding EN 14080 and EN 14250.

It was noted by Matti VIRTANEN that he has requested an extension to the coexistence period for EN 14080 "Timber structures – glued laminate timber" which closes in April 2007. The problem is that EN 14080 is not drafted according to GPL and consequently has many deficiencies and therefore requires redrafting. The requested extension should last until either the standard is redrafted or the Eurocodes with their National Annexes can be used.

The second letter to Reinhard KLEIN requests the withdrawal of EN 14250 from the Official Journal. Matti VIRTANEN added that in Finland's opinion the standard requires a total redraft to allow the appropriate level of attestation of conformity to be applied for CE marking and as the coexistence period has already expired the only way forward is to withdraw the standard.

8.1 Report from Chairman's Advisory Panel "Evolution"

In the absence of Paul LUECHINGER, the CHAIRMAN outlined the presentation on N 630 Rev 4 and the four main objectives:

- Maintenance – stakeholder CEN/TC 250
- Further development - stakeholder CEN/TC 250
- Harmonization - stakeholder JRC
- Promotion - stakeholder JRC

It was noted that the main concern of the Maintenance function is changing the codes – corrigenda and amendment and eventually updating methodology. However the CHAIRMAN emphasised the current need for stability adding that it would be disastrous if the codes were subject to frequent change.

Referring the future developments where CEN/TC 250 have the lead, the CHAIRMAN identified glass and fibre reinforced polymers as two examples.

Artur PINTO gave a presentation on what JRC are doing in the next 2 years with respect to Eurocodes. The main tasks and priorities were emphasised as:

1. Publication
2. Implementation
3. Promotion on use of Eurocodes.

1. Create a webpage (11/06)

The webpage which will go live in November 2006 and will contain 120 pages of written text which has to be evaluated by the evaluation committee. It was noted by Artur PINTO that whilst it is recognized that Maintenance is the responsibility of CEN/C 250 but JRC will support this function through the text on the webpage.

2. Set-up and coordination of scientific networks for new materials (FRPs, Glass)
With reference to Further Development, the justification for a glass Eurocode will be submitted in March 2007.

3. Create a database for the NDPs (NDPs database) (31/03/06)

Database for the NDPs will be in collaboration with CEN/TC 250/SCs. There will also be a database for background documents which will be useful for new and candidate countries

4. Promotion & Training Strategies; Promotion Activities

Promotional activities –

- Workshop in November 2005 for new and candidate countries
- a second workshop on 27-29 November 2006 for Southern Mediterranean Countries to be held in Varese, Italy. Artur PINTO commented that the EU have decided this will be a free trade area in 2011 under the Barcelona Process and therefore Eurocodes will assist in achieving this objective. Representatives from the Southern Mediterranean countries – Government, NSBs, Academia and the Professions will attend as well as CEN. The event is sponsored by the EU (EuroMed), NATO, CEN and EOTA.

5. Harmonization Strategies; Set-up of Harmonization Networks

Meeting held in June 2006 with Chairmen of SC 2, SC 3 and SC 4

6. Pre-normative research needs (Earthquake, Fire, etc.)

The CHAIRMAN added that cooperation between CEN/TC 250 and JRC is ongoing.

Gerhard SEDLACEK commented that the Steel Industry have developed a Eurocodes Steel website at a cost of approximately 4€M which is available free of charge in four languages including Spanish. This website uses the recommended values for the steel Eurocodes and is a marketing tool to promote Eurocodes.

The CHAIRMAN reported on the Chairman's Advisory Panel "Evolution" which was held at the JRC Ispra on the 29th and 30th August and referred Members to the relevant zip file N 1551 on the Livelink website. The zip file contains the arguments and the justification for background documents. It was noted that there is also a document

relating to the justification for a Glass Eurocode, which will be addressed later by Gerhard SEDLACEK.

Steinar LEIVESTAD commented that the role of a Chairman's Advisory Panel is to **advise** the CHAIRMAN and **not** to **assist** the CHAIRMAN as suggested.

8.1.2 Maintenance

The CHAIRMAN referred to document N 707 Rev 1 and in particular emphasised the importance of the flow charts shown in Figures 1 & 2.

It was noted that safety issues (errors) will be progressed immediately and must be segregated out from typographical imperfections which will be the subject of corrigenda at a later date.

John MOORE reported on the background to N 250 G Rev 1 which was prepared as the result of Resolution 219 taken in Reykjavik which agreed for a new section 8 "Maintenance" to be added to N 250 "Policy, procedures and guidelines". This section was added and the document N 250 Rev G was uploaded on the website in July 2006. However at the Vilnius meeting of CEN/TC 250/-/1 CG it was recognized that it must be amended further to take account of the parallel document N 707.

Matti VIRTANEN commented that whilst these are good papers there is still a problem of corrigenda and that countries have to translate known errors. He noted that some Eurocode parts are not as excellent as others citing that EN 1994-1-2 which has an Informative Annex (H) that is impossible to use and therefore not practicable.

Eduardo CARVALHO urged separation to distinguish between corrigenda and amendment, noting that corrigenda should be fast tracked.

Steinar LEIVESTAD added that with respect to corrigenda, there is a need for visibility to ensure that translators are aware of the imperfections which in some cases have been known for several years. Visibility will prevent the loss of credibility for the Eurocodes and will help NSBs who are selling the documents.

Jochen FORNATHER recognized that N 707 is a good paper, however he expressed the concerns of Austria that according to CEN rules it is only possible to make 3 amendments to a standard before a new version is necessary.

Pierre SPEHL added that the document is a good basis for a maintenance programme but emphasised the need for transparency and an urgent need for corrigenda to correct the known mistakes.

After further discussion by the Members, it was recognized that there is a need for transparency and an urgent need to process the known corrigenda as soon as possible. It was therefore agreed that N 707 should be accepted as the document for CEN/TC 250 Maintenance for Eurocodes. However it was recognized that as the document has a target audience of NSBs the document still requires some further editing.

The CHAIRMAN summarized that N 707 should be edited within one month and then circulated to CEN/TC 250 for approval within 4 weeks.

Action: SECRETARY and CAP "Evolution"

Resolutions 223 and 224 were agreed

Further discussion ensued regarding the need for greater visibility of this document and the SECRETARY and CMC were requested to explore the possibilities of a wider audience of recipients

Johan VAN TEIL gave a presentation on the how the Pressure Vessels CEN Committee (CEN/TC 54) who have to control a 1600 page document - EN 13445. This is achieved with the use of a website which acts as a Helpdesk which in the first year responded to some 225 questions. It was noted that there was some funding made available from the EU (160K €). Johan VAN TEIL explained that the website also acts as an updating vehicle which effectively issues corrigenda on a regular basis as single page updates which CEN accepts as a suitable method of a “fast track updating” process. It also benefits that it provides good transparency to users. This warrants further investigation by CEN/TC 250.

Noting that corrigenda should be progressed by the SCs as soon as possible, Resolution 225 was agreed accordingly

Resolution 225

8.1.3 Assessment of existing structures

Referring to N 713 it was agreed that the reference to Haig GULVANESESIAN should be deleted.

The CHAIRMAN described the changes from N 690 and reported that the Chairman’s Advisory Panel will comprise: the CHAIRMAN, Haig GULVANESESIAN, Milan HOLICKY, Steinar LEIVESTAD, Peter MATT, and Gerhard SEDLACEK.

It was recognized that there was insufficient time to give full report but gave a short report based on his experiences in Switzerland. It was agreed that a full report including a feasibility study of codification as requested by Giorgio MACCHI will be delivered at the next meeting of CEN/TC 250.

Action: CAP “Assessment”

8.1.3a) Glass

The CHAIRMAN reported that there has been criticism especially from Giorgio MACCHI as to the need for code of practice for glass. The CHAIRMAN added that the possible future Eurocode for glass will not be for all glass usage but will codify only aspects which are codifiable and will not overlap with EOTA work.

Gerhard SEDLACEK explained that the need for a code for structural glass is driven by the glass industry which is a 45billion € per year turnover. The European glass industry has identified competition especially from America and the use of their structural codes. The purpose of the meetings on the 16th June 2006 and 6th October 2006 at JRC Ispra was to scope out the programme of work and identify where profit can be gained from a structural code for glass.

It is proposed to elaborate a TR for all structural glass applications as Part 1 with other parts which will address areas such as supplementary rules for floors, parapets etc. It was noted that a “roadmap” has been drawn up which gives indication of the target dates. In March 2007 it is expected that a submission of application will be made in the first instance to CEN/TC 250. A draft outline of the code will be appended to the application as a technical annex.

8.1.3b) Fibre Reinforced Polymers

Gerhard SEDLACEK reported that two applications are envisaged.

- Bridge deck structures in carbon fibre

- Prefabricated fibre reinforced polymers to be jointed to existing structures

The second application is probably the highest potential as a Eurocode which will aid market promotion. However it was recognized that there are missing rules related to prefabricated structures, these will have to be collected.

The CHAIRMAN questioned whether this area crosses the boundary of EOTA. Noting Members concerns that the subject matter is too new and not mature enough for standardization, Giuseppe MANCINI added that this is well known to the FIB. Gerhard SEDLACEK commented that this technology has been used in kits and cooling towers for corrosion resistance.

Artur PINTO clarified that in the first instance Glass and FRP will be developed as guidance only, therefore it is not correct to refer to these as Eurocodes.

8.1.4a)

Gerhard SEDLACEK reported on the meeting of 28th June 2006 and referred to document N 1551 and added that the idea is to collect the experiences of the past work in SCs. In view of this the Chairmen of CEN/TC 250/SC 2, SC 3 and SC 4 met at the JRC Ispra to consider background documents. Gerhard SEDLACEK added that background papers are already prepared for EC 3 part 1-5. It was agreed that a more comprehensive report will be given at the next meeting of CEN/TC 250 and this will be an agenda item for the Stuttgart meeting.

Action: GS

9 SC and HG reports

Due to time constraints the SC reports were restricted to only updates to the SC Chairmen's reports on the Livelink website.

a) EN 1990 – Haig GULVANESSIAN reported that background documents for EN 1990 are available from Leonardo project and are available on request. It was agreed that these would be uploaded on Livelink if demand was necessary. It was noted that in April 2007 the five-year review will be due according to CEN rules.

SC 1 - Haig GULVANESSIAN referred members to N 705 and reported that SC 1 background documents were written some 4-5 years ago and will be available on the SC 1 Livelink website.

EN 1991-1-2, Haig GULVANESSIAN reported that editorial changes were made to the French version but were not incorporated in the published French document. As a consequence, the French version is not equivalent to the German and English versions.

It was reported that CEN/TC 250/SC 1 has decided that this issue will be corrected at the review in 2008.

Haig GULVANESSIAN also added that Lars ALBREKTSSON has retired as Secretary of SC 1 and as a consequence SIS has relinquished the Secretariat. It was noted that BSI have now taken over the responsibility.

SC 2 - Giuseppe MANCINI reported that CEN/TC 250/SC 2 has collected corrigenda in template and approval is expected to be given in November 2006 at the next CEN/TC 250/SC 2 meeting.

SC 3 – Frans BIJLAARD commented that all the information is available in his report see document - N 699.

SC 4 – Joel RAOUL referred Members to his report N 1549 and added that SC 4 met in Prague in June. All comments received have been carefully checked by SC 4 and many of the comments were rejected. The agreed corrigenda will be uploaded on Livelink in the near future. It was also noted that three Maintenance Groups have been formed to cover the three drafts.

Matti VIRTANEN raised a point regarding the Annex H of EN 1994-1-2 and that it is unusable as previously discussed. Joel RAOUL commented that it will be checked although as it is an Informative Annex it may well be removed from the document but the National Annex can reject its use.

SC 5 – Juergen KOENIG reported that the proposed amendment has been agreed and will be circulated next month to SC 5 for approval. It was noted that a comment regarding the applicability of Eurocode 5 to formwork had been received, but added that as Formwork is a temporary fixture and designed for less than 10 years, Eurocodes would not be applicable.

SC 6 – Rob VAN DER PLUIJM referred Members to his report N 712 and added that SC 6 are in process of collecting comments (imperfections) from the translators of all European languages. This will enable SC 6 to collate the necessary corrigenda for the EC 6 codes.

SC 7 – Document N 1550 - Roger FRANK in the absence of Bernd SCHUPPENER reported that SC 7 met 10 days previous where the Maintenance Groups were formed. It was also noted that a comparison of National Annexes of SC 7 Members has started. Roger FRANK reported that he expects that EN 1997-2 will be published by the end of 2006. Referring to background documents the Designers Guide to Eurocode 7 as published by Thomas Telford is considered as the authoritative text.

SC 8 – Eduardo CARVALHO reported that all six parts of EC 8 are published and at the last meeting of EC 8 in June at the JRC, the typographical misprints and imperfections are starting to be collected to enable corrigenda to be issued early in 2007. Referring to the problem of anti-seismic devices with CEN/TC 167 & 340, CEN/TC 250/SC 8 has formed a Working Group between the interested parties with a view to resolving the situation. The conclusions from this WG may well lead to an amendment to EN 1998-2 at some point in the future.

SC 9 – Federico MAZZOLANI reported that the good news of the previous day EN 1999-1-3 had passed Formal Vote, all EC 9 parts are now technically approved. The results of all EC 9 parts had be unanimous apart from the ballot of EN 1999-1-5 on which Finland voted negatively – Federico MAZZOLANI reported that he will investigate this blemish to establish whether there is scope for satisfying Finland's negative vote. There will be an SC 9 Editorial Panel meeting in November followed by a CEN/TC 250/SC 9 meeting at the end of January 2007. For background documents Federico MAZZOLANI suggested that one reference would be a chapter in the book of Jean-Armand CALGARO. Steinar LEIVESTAD observed that there could be some confusion between background and supporting documents (NCCI).

HG – Fire – in the absence of Joel KRUPPA the CHAIRMAN reported that he has asked CEN/TC 127 to extend the application of their ENVs and will meet with the Chairman

and Secretary of CEN/TC 127 at BSI before the end of the year to discuss the possibilities.

The CHAIRMAN also noted that he has sent a letter to the Commission (Reinhard KLEIN) regarding membership for Joel KRUPPA as the CEN/TC 250 representative on the newly re-titled "Expert Fire Group". It was noted that Joel KRUPPA was a member on the original group (see CG report) and it is essential that CEN/TC 250 have a representative on this Group. As yet there has been no response from Reinhard KLEIN.

HG – Bridges - Roger FRANK referred Members to Jean-Armand CALGARO's report N 714

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Other issues

The CHAIRMAN noted that items 10, 12, 13 & 14 had been covered under previous discussions.

11 LIAISONS

Noting that liaisons with CEN/TC 124, CEN/TC 229 and CEN/TC 167/340 had been discussed under the previous reports:

CEN/TC 177 – Giuseppe MANCINI reported that he had sent a letter to the Chairman of CEN/TC 177 "Autoclaved Aerated Concrete" committee offering a collaboration with CEN/TC 250/SC 2 and was awaiting a formal response.

CEN/TC 53 -- EN 812 Gerhard SEDLACEK reported that he is preparing a letter to Chris WILSHIRE in response to document N 1547 and their request for guidance on the terminology.

Action: GS

Haig GULVANESSIAN added that when EN 1991-1-6 was being developed many attempts to contact the Secretary of CN/TC 53 failed. The result now is this document.

CEN/TC 135 – Gerhard SEDLACEK reported that there is a gap in Eurocode 3 – execution classes relating to structures. CEN/TC 135 are drafting some words for inclusion in EC 3 at some later stage.

CEN/TC 147 -- Gerhard SEDLACEK commented that as previously reported he has checked the Technical Specification (TS 13001) and has requested that the Chairman of CEN/TC 147 explains the differences but has yet to receive a response.

EOTA – Gerhard SEDLACEK reported that CEN/TC 250 were approached by EOTA on the harmonization of prefabricated building units in conformance with EN 1990. A report is now under enquiry and will be subject to agreement at the next meeting with EOTA.

14 ANY OTHER BUSINESS

There were no matters raised under Any Other Business.

15 ARRANGEMENTS FOR FUTURE MEETINGS

The next meeting of CEN/TC 250 (the 31st) will be held in STUTTGART on the 14th and 15th May 2007. It was noted that the 32nd meeting of CEN/TC 250 will held in CYPRUS on the 15th and 16th October 2007 at the kind invitation of Despina ZAKOU and the Cyprus delegation.

16 FINAL APPROVAL OF RESOLUTIONS

Members approved the following resolutions:

Resolution 223 - Acceptance of documents N707 Rev. 1 and N250 G Rev. 1

Resolution 224 - Exposure of final version of document N707 Rev. 1

Resolution 225 - Urgent preparation of corrigenda

17 CLOSURE OF MEETING

The CHAIRMAN thanked the delegates for attending and thanked Michel GERADIN, Artur PINTO, Silvia DIMOVA and the staff of the JRC for their very generous hospitality in hosting this meeting

Malcolm Greenley
For the BSI Secretariat of CEN/TC 250

ANLAGE 3

Protokolle der Sponsorentreffen

DEUTSCHES INSTITUT FÜR BAUTECHNIK

Anstalt des öffentlichen Rechts

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Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)

Niederschrift über die Sitzung am 27. Mai 2003 in Berlin

Anwesend waren:

Herr Präsident Prof. Dr.-Ing. Bossenmayer	Vorsitzender des CEN/TC 250, c/o DIBt
Herr Dipl.-Ing. Buchmeier	Hauptgeschäftsführer des Deutschen Stahlbauverbands
Herr Obering. Habermann	Hauptverband der Deutschen Bauindustrie e.V.
Herr Dipl.-Ing. Hüller	Geschäftsführer des Deutschen Ausschusses für Stahlbau
Herr Dr.-Ing. Litzner	Deutscher Beton- und Bautechnik-Verein e.V., Berlin
Herr Prof. Dr.-Ing. Sedlacek	RWTH Aachen, Lehrstuhl für Stahlbau, Aachen
Herr Dipl.-Ing. Stolzenburg	Normenausschuss Bauwesen im DIN e.V.
Herr Dipl.-Ing. Winkler	Zentralverband des Deutschen Baugewerbes
Frau Dipl.-Ing. Schwarzwald	Geschäftsführerin der Fachkommission Bautechnik der Bauministerkonferenz, c/o DIBt
entschuldigt:	
Herr RD Dipl.-Ing. Günther	Bundesministerium für Verkehr, Bau- und Wohnungswesen
Herr Dipl.-Geol. Kieker	Geschäftsführer der Deutschen Gesellschaft für Mauerwerksbau e.V.
Herr MR Dipl.-Ing. Jasch	Vorsitzender der FK Bautechnik des Ausschusses für Bauwesen und Städtebau der Bauministerkonferenz
Herr Dipl.-Ing. Schwerm	Geschäftsführer des Bundesverbandes Deutsche Beton- und Fertigteilindustrie e.V., Bonn
Herr Dr.-Ing. Timm	Bundesvereinigung der Prüfungenieure für Bautechnik e.V.
Herr Dipl.-Ing. Vogel	Geschäftsführer des Normenausschusses Bauwesen im DIN e.V.

Tagesordnung:

- TOP 1 Statusbericht für den Zeitraum 2000 bis 2002 zur Unterstützung des Vorsitzenden von CEN/TC 250, Herrn Prof. Bossenmayer
Bericht: Prof. Bossenmayer, Prof. Sedlacek
- TOP 2 Antrag zur Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes für das Jahr 2003
Bericht: Prof. Bossenmayer
- TOP 3 Beteiligung an den Übersetzungskosten
Bericht: Herr Stolzenburg
- TOP 4 Weiteres Vorgehen, nächster Sitzungstermin

Herr Prof. Bossenmayer begrüßt die Anwesenden und leitet die Sitzung.

TOP 1 Statusbericht für den Zeitraum 2000 bis 2002 zur Unterstützung des Vorsitzenden von CEN/TC 250, Herrn Prof. Bossenmayer
Bericht: Prof. Bossenmayer, Prof. Sedlacek

Mit Schreiben vom 13. Februar 2003 sind:

- der Statusbericht zur Unterstützung des Vorsitzenden von CEN/TC 250, Herrn Prof. Bossenmayer, bei der Fertigstellung der EN-Eurocodes mit 3 Anlagen,
- der Antrag zur Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes für das Jahr 2003 sowie
- das Schreiben des NABau vom 13.02.2003 mit der Zusammenstellung der voraussichtlichen Übersetzungskosten und dem Arbeitsprogramm von CEN/TC 250.

mit der Bitte um schriftliche Zustimmung versandt worden. Diese schriftliche Zustimmung konnte im schriftlichen Verfahren nicht eingeholt werden, da einige Beteiligte gewissen Klärungsbedarf angemeldet hatten.

Die Länder (ARGEBAU) haben bereits in der 153. Sitzung der FK Bautechnik am 20./21. Februar 2003 dem Statusbericht vorbehaltlos zugestimmt.

In der Sitzung des CEN/TC 250 am 22./23. Mai 2003 in Oslo konnte festgestellt werden, dass die Arbeiten an den ECs im - bei manchen EC-Teilen auch vor - dem Zeitplan liegen und die Absicht der Kommission, die Eurocodes von technischer Seite bis 2005 den Ländern zur Verfügung zu stellen, erfüllbar ist. (siehe auch Anlagen: CEN/TC 250/N 455 Rev 7, CEN/TC 250/N 541 Rev D sowie Resolutionen 173 bis 184, Oslo 2003-05-23) Die Situation hinsichtlich der Fertigstellung ist nunmehr greifbarer als noch vor einem halben Jahr.

Herr Prof. Sedlacek gibt noch folgende Erläuterungen zum Statusbericht:

Nach Meinung der Kommission würden die Eurocodes die einzige Alternative in einem zu harmonisierenden gemeinsamen Markt für Bauprodukte und Ingenieurleistungen darstellen. Es werde ein großer volkswirtschaftlicher Nutzen durch die Übernahme der Eurocodes erwartet. Ein Hauptanwendungsbereich der Eurocodes wird im Bauproduktbereich sein, weil alle Produktnormen hinsichtlich der Bemessung auf die Eurocodes verweisen müssen. Diese werden dadurch insoweit harmonisiert. Ein Großteil der Zeit war für die Abstimmung zwischen Eurocodes und europäischen Produktnormen sowie anderen CEN/TCs aufzuwenden, einschließlich der Festlegung von einheitlichen Sicherheitsanforderungen für sämtliche Produkte und Produktgruppen insbesondere aus den Bereichen Stahl-

bau (CEN/TC 135), Betonfertigteile (CEN/TC 229), Glas (CEN/TC 129) und Lager (CEN/TC 167). Die Produktnormen werden nun nicht mehr im Widerspruch zu den Eurocodes stehen.

Im Statusbericht sind in der Aufstellung der Koordinierungstreffen, Anlage 1, neben den Aktivitäten, die sich auf Koordinierungsarbeiten zur Herstellung konsistenter Eurocodes für die Einwirkungen, Beton-, Stahlbeton- und Verbundbauten auf der Grundlage von EN 1990 einschließlich der Eliminierung von Unverträglichkeiten zwischen den einzelnen Eurocodes beziehen, auch Tätigkeiten aufgelistet, die von anderen Auftraggebern finanziert werden und die hier in Frage stehenden Arbeiten flankieren und dafür genutzt werden können.

Einige Verbandsvertreter berichten, dass wegen der prekären wirtschaftlichen Lage sämtliche finanzielle Mittel auf dem Prüfstand stehen. Es stelle sich die Frage, ob die Mittel richtig eingesetzt worden seien, weil nur solche Sachverhalte finanziert werden, die derzeit relevant sind, d.h. solche Bereiche, wie Glas, Kunststoffe und Lager, sollten nicht vorrangig einbezogen werden.

Hierzu weist Prof. Bossenmayer darauf hin, dass aus volkswirtschaftlichen Gründen und aus Gründen der Sicherheit nicht darauf verzichtet werden könne, sämtliche Produktbereiche in die Koordinierungsarbeiten einzubeziehen, weil, wie bereits erwähnt, eine Hauptanwendung der Eurocodes im Produktbereich liegt.

Die Anwesenden stellen nach den Berichten der Herren Prof. Bossenmayer und Prof. Sedlacek sowie nach eingehender Aussprache fest, dass die Arbeiten an den Eurocodes große Fortschritte gemacht haben und die Fertigstellung in naher Zukunft erfolgen wird. Risiken oder Verzögerungen durch etwaige Inkompatibilitäten zwischen den Eurocodes können inzwischen sicher ausgeschlossen werden.

Die anwesenden Vertreter der beteiligten Institutionen erteilen dem Forschungsnehmer, der RWTH Aachen bzw. Herrn Prof. Sedlacek, aufgrund des vorgelegten Statusberichts sowie der in der Sitzung abgegebenen Erläuterungen und Ergänzungen zum Statusbericht – vorbehaltlich der Zustimmung durch die Nichtanwesenden¹ – für das Vorhaben "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes" der Jahre 2000 bis 2002 Entlastung.

TOP 2 Antrag zur Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes für das Jahr 2003

Herr Prof. Bossenmayer führt aus, dass sich die künftigen Arbeiten an der Überführung der ENV-Eurocodes in EN-Eurocodes hauptsächlich auf die Grundlagen für gut vollziehbare Regelwerke zur Einführung als Technische Baubestimmungen beziehen werden.

Er weist darauf hin, dass auch die Verbandsvertreter dafür Sorge tragen müssen, ihre Mitglieder über die künftige europäische Entwicklung zu informieren, Hierzu gehört auch, dass sie ihre Mitglieder auf die mittelfristige Umstellung auf die Eurocodes vorbereiten müssen.

Dem neuen Antrag "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250) für das Jahr 2003" mit einem Gesamtvolumen von 97.500,00 € (Bruttobetrag) liegen Einverständniserklärungen bereits vor:

- Die Fachkommission Bautechnik hat dem vorgelegten Antrag in ihrer 153. Sitzung mit einem Volumen von 58.000, € zugestimmt.

¹ Die Zustimmung erfolgt im schriftlichen Verfahren mit einer 14-tägigen Verschweigungsfrist.

- Die Deutsche Gesellschaft für Mauerwerksbau hat auf dem schriftlichen Weg erklärt, sich mit 5112,92 € im Jahr 2003 zu beteiligen.
- Der Bundesverband Deutscher Beton- und Fertigteilindustrie sagt auf schriftlichem Weg eine Unterstützung von 2500,00 € für das Jahr 2003 zu.
- Der Vpi, Herr Dr. Timm, hat keine Zusage erteilt sondern Gesprächsbedarf angemeldet.

Die anwesenden Vertreter der beteiligten Kreise sagen folgende Unterstützung zu:

Deutscher Stahlbauverband (DStV)	10.000,- €
Deutscher Ausschuss für Stahlbau (DASt)	2.500,- €
Verband Deutsche Bauindustrie	5.000,- €
Dt. Beton- und Bautechnik-Verein	15.000,- €
Zentralverband Dt. Baugewerbe	5.000,- €

(Die Beträge verstehen sich als Bruttobeträge und werden, bezogen auf die Gesamtsumme von 97.500,00 €, noch anteilig reduziert, weil die Länderbeteiligung € 58.000,00 beträgt (anstatt 50.000,00 €).

Darüber hinaus wird zum vorliegenden Antrag vereinbart, dass die Zuarbeit (Abschnitt 2, Absatz 5) im Bereich der PNE-Regeln anstelle von Herrn Prof. Siebke durch Herrn Prof. Smolczyk, Uni Stuttgart und für den Bereich Mauerwerksbau zusätzlich durch Herrn Prof. Brameshuber erfolgen soll.

Überdies schlagen die Anwesenden vor, dass aus Gründen einer gleichmäßigen und ausgewogenen "Lastenverteilung" noch andere Industrie- und Interessenverbände an der Mitfinanzierung der "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes" beteiligt werden sollen.

TOP 3 Beteiligung an den Übersetzungskosten

Die Beteiligung an den Übersetzungskosten der Eurocodes durch andere Bereiche ist leider noch nicht zur vollen Zufriedenheit für das DIN geklärt. Bisher konnte lediglich die Beteiligung an den Übersetzungskosten für die Eurocodes 1 und 8 durch die Länder (ARGEBAU), die sich mit 56.000 € (für die Jahre 2003 bis 2005) beteiligen, vollends sicher gestellt werden.

Die Anwesenden kommen überein, dass die Beteiligung an den Übersetzungskosten vom Thema "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)" abgekoppelt ist.

TOP 4 Weiteres Vorgehen

Die nächste Sitzung soll am 22. September 2003 in Berlin stattfinden. Dort soll dann das weitere Vorgehen hinsichtlich der erfolgreichen Überführung der ENV-Eurocodes in EN-Eurocodes und die Finanzierung für die kommenden Jahre bis 2005 vereinbart werden.

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Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)

Niederschrift über die Sitzung am 22. September 2003 in Berlin

Anwesend waren:

Herr Präsident Prof. Dr.-Ing. Bossenmayer	Vorsitzender des CEN/TC 250, c/o DIBt
Herr Obering. Habermann	Hauptverband der Deutschen Bauindustrie e.V.
Herr Dipl.-Ing. Hüller	Geschäftsführer des Deutschen Ausschusses für Stahlbau
Herr Dr.-Ing. Litzner	Geschäftsführer des Deutschen Beton- und Bautechnik-Verein e.V., Berlin
Frau Dipl.-Ing. Matznick	Normenausschuss Bauwesen im DIN e.V.
Herr Prof. Dr.-Ing. Sedlacek	RWTH Aachen, Lehrstuhl für Stahlbau, Aachen
Herr Dipl.-Ing. Stolzenburg	Normenausschuss Bauwesen im DIN e.V.
Frau Dipl.-Ing. Schwarzwald	Geschäftsführerin der Fachkommission Bautechnik der Bauministerkonferenz, c/o DIBt
entschuldigt:	
Herr Dipl.-Ing. Buchmeier	Hauptgeschäftsführer des Deutschen Stahlbauverbands
Herr MinRat Dipl.-Ing. Günther	Bundesministerium für Verkehr, Bau- und Wohnungswesen
Herr Dipl.-Geol. Kieker	Geschäftsführer der Deutschen Gesellschaft für Mauerwerksbau e.V.
Herr MR Dipl.-Ing. Jasch	Vorsitzender der FK Bautechnik des Ausschusses für Bauwesen und Städtebau der Bauministerkonferenz
Herr Dipl.-Ing. Schwerm	Geschäftsführer des Bundesverbandes Deutsche Beton- und Fertigteilindustrie e.V.
Herr Dr.-Ing. Timm	Präsident der Bundesvereinigung der Prüfeningenieure für Bautechnik e. V. (BVPI)
Herr Dipl.-Ing. Vogel	Geschäftsführer des Normenausschusses Bauwesen im DIN e.V.
Herr Dipl.-Ing. Winkler	Zentralverband des Deutschen Baugewerbes

Herr Prof. Bossenmayer begrüßt die Anwesenden und leitet die Sitzung.

In der letzten Sitzung am 27. Mai 2003 ist vereinbart worden, dass im September 2003 das weitere Vorgehen hinsichtlich der erfolgreichen Überführung der ENV-Eurocodes in EN-Eurocodes und die Finanzierung für die kommenden Jahre bis 2005 besprochen werden sollen.

Zu Beginn gibt Herr Prof. Bossenmayer einen kurzen Bericht über den Stand der Arbeiten an den Eurocodes. Gegenüber der in der Sitzung im 27. Mai 2003 aufgezeigten Situation (Dok. N 455 (7)) haben sich nur unwesentliche Änderungen ergeben. Die derzeitige Sachlage stellt sich wie folgt dar:

- 43 Eurocodeteile (von insgesamt 58) werden Ende 2003 die Stufe 34 und höher erreicht haben,
- 24 Eurocodeteile haben die Stufe 49, d.h. Bereitstellung zur formellen Abstimmung, erreicht, dazu gehören insbesondere prEN 1992, 1993, 1994, 1995 Teile 1-1 und 1-2, mit Ausnahme von prEN 1996-1-2, der erst im März 2004 die Stufe 49 erreicht und prEN 1997-1 sowie prEN 1998-1 und -5,
- 4 Eurocodeteile sind bereits als EN-Norm verfügbar.
- die Brückenteile (prEN 1992, 1993, 1994 und 1995) werden Mitte 2004 die Stufe 49 erreichen,
- prEN 1999 (Aluminium) wird erst Mitte 2004 die Stufe 49 erreichen.

Die Kommission drängt auf die Fertigstellung der Eurocodes, weil diese in wesentlichem Zusammenhang mit den Produktnormen stehen. Zudem würden die ersten zwei Verträge (Mandat M265) auslaufen. Es ist jedoch mit der Kommission vereinbart worden, dass bis auf den EC 6 (Mauerwerk) alle Verträge erfüllt werden können.

Die Kommission beabsichtigt auch an die Mitgliedstaaten heranzutreten und diese in Form einer offiziellen Ratsmitteilung eindringlich aufzufordern, dafür Sorge zu tragen, dass die Eurocodes in den Mitgliedstaaten angewendet werden. Die Kommission wird insbesondere darauf drängen, dass die in den Eurocodes angegebenen Werte von den Mitgliedstaaten übernommen werden, wenn nicht, dann bedarf es der Begründung durch den Mitgliedstaat.

Herr Prof Sedlacek führt aus, dass der für 2003 veranschlagte Gesamtbetrag von € 97.500,00 nicht voll gedeckt werden kann. Bedingt durch die abzuführende Mehrwertsteuer wird es zu einer finanziellen Lücke von € 7.000,00 kommen.

Die Arbeiten im Jahr 2004 werden den gleichen Umfang wie die im Jahr 2003 haben, ausgelöst durch den enormen Druck der Kommission, denn bis Ende 2004 sollen bis auf EN 1999 (Aluminium) alle EN-Teile fertiggestellt sein.

Die Arbeiten sollen folgende Schwerpunkte umfassen:

- I Unterstützung des Vorsitzes von CEN/TC 250 bei der Fertigstellung der Eurocodes, insbesondere:
 - Koordinierung der zusätzlichen Anhänge zu EN 1990 über die Anhänge A1 (Hochbau) und A2 (Brückenbau) hinaus
 - Koordinierung der restlichen Normen für die Einwirkungen auf Tragwerke
 - Koordinierung der Normen für den Brückenbau und für Seilkonstruktionen
 - Koordinierung der Normen für Maste, Türme, Kamine, Silos, Tanks, Pipelines, Pfähle, Spundwände und Krankonstruktionen
 - Koordinierung der Regelung für Aluminiumbauwerke und Bauteile aus nicht rostendem Stahl
 - Koordinierung der Arbeiten an den zusätzlichen Regeln in Erdbebengebieten

II Abstimmungen von ETAG's und Produktnormen mit den Eurocodes (z. B. Klassifizierung, Auswertung von Versuchen, Konsistenzfragen).

Aus den vorgenannten Aufgaben ergibt sich folgende Schätzung von Arbeitsaufwand und Kosten:

1.	Klärung von Fragen zur Sicherheit, Einwirkungen, allgemeine Bemessungsregeln im bauaufsichtlichen Bereich	50%	
2.	Klärung von Fragen zum Brückenbau		10%
3.	Koordinierung von Bemessungsregeln für Einsätze von Aluminium und nichtrostendem Stahl		10%
4.	Abstimmung mit EOTA		10%
5.	Abstimmung mit CEN für Produktnormen		20%

Der finanzielle Gesamtaufwand wird im Jahr 2004 € 116.000,00 betragen. 50 % des Gesamtaufwandes werden dabei von den Ländern (ARGEBAU) übernommen.¹

Im Jahre 2005 sind im Wesentlichen noch Abstimmungen mit CEN/TC's zu Produktnormen und mit EOTA zu erwarten, so dass eine deutliche Reduktion der Kosten bezogen auf das Jahr 2004 erwartet wird.

Herr Habermann spricht die Problematik der "Lastenverteilung" an. Bereits in der Mai-Sitzung sei vereinbart worden, noch andere Industriekreise und Interessensverbände an der Finanzierung der "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes" zu beteiligen, insbesondere die Bereiche Erd- und Grundbau (Prof. Nußbaumer), Aluminiumindustrie, Glasindustrie, Lager, Stahlerzeuger, Schraubenindustrie, VBI.

Herr Prof. Bossenmayer sagt zu, sowohl mit Herrn Prof. Nußbaumer als auch mit dem neuen Präsidenten des VBI zu sprechen.

Herr Hüller sichert zu, mit den stahlbauverwandten Industriebranchen in Kontakt zu treten.

Herr Dr. Litzner und Herr Habermann erklären, dass wegen der prekären wirtschaftlichen Lage sämtliche finanzielle Mittel auf dem Prüfstand stehen, weil eine Reihe von Verbänden ihre Finanzbasis verloren hat. Man kann davon ausgehen, dass die Verbände für das Jahr 2004 ihre finanziellen Mittel halbieren. Es wird deshalb vorgeschlagen, den finanziellen Bedarf für 2004 an den entsprechenden Aufgaben festzumachen.

Die Anwesenden bitten Herrn Prof. Sedlacek, eine Zwischenrechnung für das Jahr 2003 zu liefern. Der Arbeits- und Kostenplan für das Jahr 2004 (siehe **Anlage**) soll detailliert entsprechend der beteiligten Bereiche und Positionen aufgeschlüsselt werden.

¹ Der Ausschuss für Bauwesen und Städtebau der Bauministerkonferenz (ARGEBAU) hat in seiner Sitzung am 16./17. Oktober 2003 dem Vorhaben mit einem finanziellen Umfang von € 58.000,00 zugestimmt.

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Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)

Niederschrift über die Sitzung am 27. September 2004 in Berlin

Anwesend waren:

Herr Dr.-Ing. Andrä	Bundesvereinigung der Prüfm Ingenieure für Bautechnik e. V. (BVPI)
Herr Präsident Prof. Dr.-Ing. Bossenmayer	Vorsitzender des CEN/TC 250, c/o DIBt
Herr Dipl.-Ing. Buchmeier	Hauptgeschäftsführer des Deutschen Stahlbauverbands (DSTV)
Herr Obering. Habermann	Hauptverband der Deutschen Bauindustrie e.V. (HDB)
Herr Dipl.-Ing. Hüller	Geschäftsführer des Deutschen Ausschusses für Stahlbau (DASt)
Herr MinRat Dipl.-Ing. Jasch	Vorsitzender der FK Bautechnik des Ausschusses für Bauwesen und Städtebau der Bauministerkonferenz
Herr Dipl.-Geol. Kieker	Geschäftsführer der Deutschen Gesellschaft für Mauerwerksbau e.V. (DGfM)
Frau Dipl.-Ing. Schwarzwald	Geschäftsführerin der Fachkommission Bautechnik der Bauministerkonferenz, c/o DIBt
Herr Prof. Dr.-Ing. Sedlacek	RWTH Aachen, Lehrstuhl für Stahlbau, Aachen
Herr Dipl.-Ing. Stolzenburg	Normenausschuss Bauwesen im DIN e.V.
Herr Dipl.-Ing. Vogel	Geschäftsführer des Normenausschusses Bauwesen im DIN e.V.
Herr Dipl.-Ing. Winkler	Zentralverband des Deutschen Baugewerbe (ZDB)
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Herr MinRat Dipl.-Ing. Günther	Bundesministerium für Verkehr, Bau- und Wohnungswesen (BMVBW)
Herr Dr.-Ing. Litzner	Geschäftsführer des Deutschen Beton- und Bautechnik-Verein e.V., Berlin (DBV)
Herr Dipl.-Ing. Schwerm	Geschäftsführer des Bundesverbandes Deutsche Beton- und Fertigteilindustrie e.V.

Herr Prof. Bossenmayer begrüßt die Anwesenden, insbesondere als neuen Teilnehmer Herrn Dr.-Ing. Andrä, welcher ab 1. Januar 2005 die Präsidentschaft der Bundesvereinigung der Prüfm Ingenieure antreten wird.

Wie in den vorangegangenen Sitzungen stellt Herr Prof. Bossenmayer eingangs die Situation zum Stand der Arbeiten an den Eurocodes dar. Gegenüber dem im September 2003 aufgezeigten Bearbeitungsstand haben sich nur unwesentliche Änderungen ergeben. Die derzeitige Sachlage stellt sich so dar, dass bis Ende 2004 ca. 90 % der Eurocodes technisch fertiggestellt sind (Stufe 34).

Der aktuelle Stand ist auch im beiliegenden Papier - Dok. N 455 (9.2) (Anlage 1) dargestellt.

Die Eurocodes werden in absehbarer Zeit vorliegen. Die für die Anwendung notwendigen Nationalen Anhänge (NA) werden beim DIN erarbeitet. Die auf wissenschaftlicher Basis ermittelten NDPs einschließlich Vergleichsrechnungen werden über ARGEBAU-Forschungsmittel abgedeckt.

Der Kommission wird zur nächsten Sitzung des Ständigen Ausschusses für das Bauwesen ein Bericht (Anlage 2) mit dem Titel "Evolution of EN-Eurocodes" vorgelegt. Darin werden die Auswirkungen und Konsequenzen der Implementierung der Eurocodes dargelegt. So werden Fragen angesprochen, an wen und an welche Stelle sich die Fachöffentlichkeit bei Fragen und Hilfestellungen wenden kann, wie die zweite Eurocode-Generation vorbereitet wird, und es werden Möglichkeiten für eine globale Umsetzung des Eurocode-Pakets aufgezeigt.

Herr Prof Sedlacek berichtet zum vorliegenden Statusbericht.

Der Statusbericht schließt an die Berichte der vergangenen Jahre an und orientiert sich an der Notwendigkeit der Eurocodes. Zielpunkte bei der Überführung der ENV- in EN-Eurocodes waren und sind

1. die technischen Inhalte der Eurocodes auf europäischer Ebene zu harmonisieren,
2. die national festzulegenden Parameter (NDP) in den Eurocodes zu minimieren sowie
3. Hintergrundmaterial zu liefern.

Daraus haben sich folgende Aufgabenschwerpunkte ergeben: Vorbereitung der Vorlagen für die Sitzungen, "Kanalarbeit" zwischen den Sitzungen, Unterstützung aus dem Hintergrund, Entwurf und Weiterbearbeitung von Schriftstücken, Prüfung fremder Schriftstücke, Vorbereitung und Teilnahme an der Herstellung von Normenentwürfen sowie deren redaktioneller Fertigstellung.

Im Detail gestalteten sich die Arbeiten wie folgt:

- Mitwirkung bei der Revision der englischen Grundfassung von EN 1990 - Grundlagen der Tragwerksplanung - für die Übersetzung ins Englische, Französische und Deutsche unter Berücksichtigung der PNE-Regeln. Diese Norm besitzt eine Schlüsselrolle, da sie die Grundlagen für die Sicherheitsanforderungen an Bauprodukte und Bauwerke festlegt. Mitwirkung bei den Anhängen A1 (Sicherheitselemente für den Hochbau) und A2 (Sicherheitselemente für den Brückenbau). Prüfung der drei-Sprachen-Fassung auf inhaltliche Äquivalenz, Überarbeitung der drei-Sprachen-Fassungen zur Anpassung an das „Leitpapier L“.
Erarbeitung eines englischsprachigen Hintergrundberichts zur Dokumentation der Logik der EN 1990, die die Übersetzer zu Grunde gelegt haben.
- Mitarbeit mit der Redaktionsgruppe für das „Leitpapier L – Anwendung der Eurocodes“ mit Beiträgen zu deren Sitzungen und Beiträgen zu ENC-Sitzungen.
- Mitarbeit in der Liaisongruppe CEN/TC 229 – CEN/TC 250 und der Arbeitsgruppe CEN/TC 229 (Prof. Menegotto) zur Korrektur der Produktnormen und der Eurocodes derart, dass die Bezugnahme für die CE-Kennzeichnung funktioniert und das Leitpapier L erfüllt wird.

- Mitarbeit bei der Koordinierung der Bearbeitung von Produktnormen und Eurocodes in weiteren Feldern, beispielsweise: CEN/TC 167 – Lager im Bauwesen, CEN/TC 129 – Glas im Bauwesen, CEN/TC 147 – Kranbau, ECISS/TC 10 – Stahlwerkstoffe.
- Mitarbeit in CEN/TC 135 für die Bearbeitung der Liefernorm für Stahl- und Aluminiumprodukte prEN 1090-1 und den Ausführungsnormen für Stahlbauten und Aluminiumbauten.
- Mitarbeit bei EOTA und Arbeitsgruppen für ETAG´s auf der Basis von dort gestellten Fragen.

Seit Beginn der Arbeiten an den Eurocodes hat es immer wieder Verzögerungen und unvorhersehbare Schwierigkeiten gegeben, wodurch sich auch die Abstimmungsprozesse verlängert haben.

Die Schwierigkeiten waren schon in der ENV-Phase u.a. geprägt durch mangelnde Mitarbeit einzelner Länder in einigen Eurocodes (z.B. Eurocode 7-Geotechnische Anlagen), die dazu führten, dass entweder dominante Persönlichkeiten aus einigen Ländern sich mit ihren landesspezifischen Regeln durchsetzen konnten oder dass mangels intensiverer Bemühungen bestimmte technische Regeln nicht einheitlich beschlossen werden konnten, so dass damals eine Vielzahl von „boxed values“, also offene Parameter für zukünftige Festlegungen durch die Mitgliedsländer, entstanden.

Hinzu kam auch, dass durch Benennung von vorwiegend technischen Experten in die Redaktionsgruppen, die keine Erfahrung in der Formulierung von Bemessungsnormen haben, zum Teil „lehrbuchähnliche“ voluminöse Eurocodes entstanden, die vor allem auch in nicht sachgerechten Übersetzungen abschreckend auf die Fachwelt wirkten.

Erschwerend kommt hinzu, dass erfahrungsgemäß die Arbeiten nur von wenigen Fachleuten durchgeführt werden können, die Englisch, Französisch und die deutsche Normensprache beherrschen, und dass diese Fachleute nicht hauptamtlich im Normenwesen arbeiten.

Die technischen und redaktionellen Unzulänglichkeiten der ENV-Eurocodes konnten und können bei der Überführung der ENV-Version in die EN-Version nicht durch Auflagen seitens des Vorsitzenden von CEN/TC 250 über das TC 250 und seine Koordinierungsgruppe alleine beseitigt werden, es bedarf vielmehr der Einmischung des CEN/TC 250-Vorsitzenden in die Mitarbeit, Prüfung und Korrektur der Entwürfe bis hinunter in die Projekt Team-Ebenen, da dort die Botschaften der Leitpapiere der Kommission und der „Policy Guidelines Doc. N250“ teilweise nicht verstanden werden.

Aber auch die späte Fertigstellung des Leitpapiers L hat zu Verzögerungen beigetragen.

Die Anwesenden nehmen unter der Maßgabe, dass der Statusbericht noch um die drei vorgenannten Zielpunkte des Gesamtvorhabens ergänzt wird, den Statusbericht für 2003 zustimmend zur Kenntnis.

Zum vorgelegten Arbeitsprogramm für 2005/2006 führt Herr Prof. Sedlacek aus, dass derzeit davon ausgegangen wird, dass Herr Prof. Bossenmayer den Vorsitz von CEN/TC 250 bis Anfang April 2006 inne haben wird.

Zu den bereits genannten Aufgaben kommen aber Arbeiten hinzu, die bei den Planungen für die Jahre 2002 bis 2004 nicht vorhersehbar waren und die sich aus Schwächen in der Organisation nach den CEN-Regeln ergeben, wie z.B. dass die Entwürfe der Project-Teams nicht den Anforderungen an die Redaktion (CEN-Regeln) entsprechen und die Entwürfe der Project-Teams nicht mit anderen zugehörigen Eurocode-Teile koordiniert sind; die technischen Regeln sind also noch nicht konsistent und müssen vor der Herstellung der Dreisprachenfassung (Status 49) oder nach der formalen Abstimmung nochmals überarbeitet werden. Die Notwendigkeit von Korrekturen oder Ergänzungen, die nicht mehr in den jetzt erarbeiteten Druckfassungen untergebracht werden können, führt zu dringenden Ergänzungen zu bereits abgestimmten Eurocode-Teilen. Dazu sind Entwürfe zu koordinieren und anzufertigen. Nachdem in CEN selbst keine Organisation besteht, die auf eine Koordinierung von technischen Regeln für den Entwurf und die Berechnung in CEN/TC 250 und anderen CEN / TCs

hinwirkt, ist diese Aufgabe von CEN/TC 250 vorzunehmen. Eine solche Koordinierungsnotwendigkeit bestehender Entwürfe ergibt sich auch zwischen CEN/TC 250 und EOTA.

Die Unsicherheit der nationalen Gremien bei der Bestimmung der national zu bestimmenden Parameter (NDPs), die im wesentlichen aus der mangelnden Kenntnis der technischen Hintergründe der technischen Regeln in den Eurocodes und der in Anmerkungen angegebenen Empfehlungen für die national zu bestimmenden Parameter herrühren, führt zu Anfragen an CEN/TC 250, die zu einer stärkeren Harmonisierung der NDPs im Sinne der Empfehlungen der Kommission vom 11. Dezember 2003 genutzt werden können, wozu entsprechende Organisationen und Grundlagenarbeiten herzustellen sind.

Schließlich muss der Vorsitzende von CEN/TC 250 im stärkeren Maße als bisher die Dienstleistungen der RWTH in Anspruch nehmen, da er ab 1. Oktober 2004 als Präsident des DIBt ausscheidet.

An den dargelegten Aufgaben orientiert sich folgende Schätzung von Arbeitsaufwand und Kosten:

- | | | |
|----|--|------|
| 1. | Klärung zu Fragen der Sicherheit, Einwirkungen, Bemessungsregeln und Konsistenz im bauaufsichtlichen Bereich | 50 % |
| 2. | Abstimmung mit Produktnomen, ETA's, ETAG's | 30 % |
| 3. | Koordinierung weitergehender Vereinheitlichung | 20 % |

Das von Prof. Sedlacek vorgelegte Arbeitsprogramm für 2005/2006 wird im Einzelnen besprochen, es werden folgende Anregungen gegeben:

- Änderung des Titels in "Arbeits- und Kostenumfang für die Herstellung der Grundlagen für die erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Restfinanzierung zur Unterstützung des Vorsitzes von CEN/TC 250 für 2005 und 2006),
- Streichung des Abs. (4) von Abschnitt 1 und Abs.(1) von Abschnitt 2.1,
- Präzisierung des Abs. (2) von Abschnitt 2.1 sowie
- Teilung der Finanzierung auf zwei Jahre wie folgt:

2005

- ARGEBAU		58.000,00
- Verbände	DSTV	7.500,00
	DAST	2.500,00
	HDB	4.500,00
	DBV	10.000,00
	ZDB	4.500,00
	VPI	2.500,00
	DGfM	4.500,00
	Beton- u. Fertigteilind.	?3.000,00
	DGfH	?
	Ges. Verb. Aluminiumind.	?
	?	?
48.810,00		58.000,00
		<u>106.810,00</u>

2006

- ARGEBAU		17.400,00
- Verbände	DSTV	4.000,00
	DASSt	500,00
	HDB	2.000,00
	DBV	?
	ZDB	2.000,00
	VPI	500,00
	DGfM	2.000,00
	Beton- u. Fertigteilind.	?
	DGfH	?
	Ges. Verb. Aluminiumind.	?
	?	?
		12.600,00
		<u>30.000,00</u>

Der finanzielle Gesamtaufwand (Restfinanzierung) für das Jahr 2005 und für 3 Monate in 2006 beträgt € 136.810,00 (brutto). Ca. 50 % des Gesamtaufwandes (75.400,00 €) sollen dabei von den Ländern (ARGEBAU) übernommen werden.¹

Frau Schwarzwald führt aus, dass Herr Dr. Litzner eine finanzielle Beteiligung des DBV von € 10.000,00 für das Jahr 2005 zugesagt hat. Über die finanzielle Beteiligung für 2006 könnte zum jetzigen Zeitpunkt noch keine Zusage getätigt werden.

Herr Schwerm hat schriftlich mitgeteilt, dass aufgrund der gegenwärtigen Finanzsituation in seinem Haus keine Zusage gemacht werden kann.

Herr Habermann erklärt, dass die Haushaltsverhandlungen beim HDB für das Jahr 2005 bereits abgeschlossen sind, so dass derzeit lediglich eine finanzielle Beteiligung von € 4.500,00 zugesagt werden könne. Hinzu kommt auch, dass vor einem Jahr von einer rückläufigen Kostenentwicklung für 2005 ausgegangen wurde.

Herr Kieker merkt an, dass sich die DGfM nur unter der Voraussetzung beteiligen würde, wie sich auch die Deutsche Gesellschaft für Holzforschung (DGfH) an der Finanzierung beteiligt.

In den vorangegangenen Sitzungen ist darüber gesprochen worden, noch andere Industriekreise und Interessensverbände an der Finanzierung der "Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes" zu gewinnen, insbesondere die Bereiche Erd- und Grundbau (Prof. Nußbaumer), Aluminiumindustrie, Glasindustrie, Lager, Stahlerzeuger, Schraubenindustrie, VBI.

Herr Prof. Bossenmayer erklärt, dass Gespräche und Anfragen betr. zusätzlicher Geldgeber stattgefunden haben, jedoch ohne nennenswerte Ergebnisse.

Herr Hüller hat eine Liste von Adressen und Ansprechpartner der stahlbauverwandten Industriebranchen übergeben. Herr Prof. Sedlacek wird mit den in der Liste angegebenen Vertretern Kontakt aufnehmen.

Die Anwesenden sind der einhelligen Auffassung, dass die Eurocodes zu einem erfolgreichen Abschluss gebracht werden müssen. Dem Arbeitsprogramm für 2005/2006 wird unter Maßgabe der vorgenannten Änderungen und Ergänzungen zugestimmt.

¹ Der Ausschuss für Bauwesen und Städtebau der Bauministerkonferenz hat auf seiner Sitzung am 21./22. Oktober 2004 der Förderung des Vorhabens einschl. der beantragten Summe zugestimmt.

Herr Prof. Sedlacek erklärt sich bereit, einen Bericht oder eine Pressemitteilung als Argumentationshilfe für die anwesenden Industrievertreter vorzubereiten.

DEUTSCHES INSTITUT FÜR BAUTECHNIK

Anstalt des öffentlichen Rechts

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Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)

Niederschrift über die Sitzung am 20. Oktober 2005 in Berlin

Anwesend waren:

Herr Dr.-Ing. Andrä	Bundesvereinigung der Prüferingenieure für Bautechnik e. V. (BVPI)
Herr Präsident a.D. Prof. Dr.-Ing. Bossenmayer	Vorsitzender von CEN/TC 250
Herr Dipl.-Ing. Breitschaft	Abteilungsleiter im Deutschen Institut für Bautechnik
Herr Dipl.-Ing. Buddendick	Deutscher Holzwirtschaftsrat
Herr Obering. Habermann	Hauptverband der Deutschen Bauindustrie e.V. (HDB)
Herr Dipl.-Ing. Hüller	Geschäftsführer des Deutschen Ausschusses für Stahlbau (DASt)
Herr Dr.-Ing. Müller	RWTH Aachen, Lehrstuhl für Stahlbau, Aachen
Herr Dr.-Ing. Rast	Geschäftsführer der Deutschen Gesellschaft für Mauerwerksbau e.V. (DGfM)
Frau Dipl.-Ing. Schwarzwald	Geschäftsführerin der Fachkommission Bautechnik der Bauministerkonferenz, c/o DIBt
Herr Prof. Dr.-Ing. Sedlacek	RWTH Aachen, Lehrstuhl für Stahlbau, Aachen
Herr Dipl.-Ing. Stolzenburg	Normenausschuss Bauwesen im DIN e.V.
Herr Dipl.-Ing. Schwerm	Geschäftsführer des Bundesverbandes Deutsche Beton- und Fertigteilindustrie e.V.
Herr Dr.-Ing. Timm	Bundesvereinigung der Prüferingenieure für Bautechnik e. V. (BVPI)
entschuldigt:	
Herr Dr.-Ing. Braun	Vereinigung der Hersteller von Fahrbahnübergängen und Lagern für Bauwerke (VHFL)
Herr Dipl.-Ing. Buchmeier	Hauptgeschäftsführer des Deutschen Stahlbauverbands (DSTV)
Herr Präsident Dipl.-Ing. Jasch	Deutsches Institut für Bautechnik
Herr Dr.-Ing. Litzner	Geschäftsführer des Deutschen Beton- und Bautechnik-Verein e.V., Berlin (DBV)
Herr Dipl.-Ing. Mader	Gesamtverband des Aluminium-Industrie e.V.

Herr Prof. Dr.-Ing. Nußbaumer

Deutsche Gesellschaft für Geotechnik e.V.

Herr MinRat Dr.-Ing. Schubert

Vorsitzender der Fachkommission Bautechnik der
Bauministerkonferenz

Herr Dipl.-Ing. Vogel

Geschäftsführer des Normenausschusses Bau-
wesen im DIN e.V.

Herr Prof. Bossenmayer begrüßt die Anwesenden und stellt eingangs die Situation zum Stand der Arbeiten an den Eurocodes dar:

- Bis heute haben ca. 50% der Teile die Stufe 64 erreicht (DAV), spätestens Ende 2006/Anfang 2007 sollen es alle sein, d.h. 26 EC-Teile sind veröffentlicht, 5 EC-Teile haben die Formellen Abstimmung passiert und 12 EC-Teile befinden sich in der Formellen Abstimmung, 15 Teile sind noch in der Entwicklung (mindestens Stufe 34).
- Spätestens im Frühjahr 2006 sollen die restlichen Teile die Stufe 49 erreicht haben und an CMC zur Einleitung der Formellen Abstimmung weitergeleitet sein.

Die im Berichtszeitraum zu lösenden Probleme umfassten im Wesentlichen:

- Rechtzeitige Fertigstellung aller Eurocodes vor Ende 2005 (wegen veränderter Vertragsbedingungen der Kommission) und Beseitigung von Hemmnissen;
- Einigung mit der Kommission über die Verlängerung der Verträge ins Jahr 2006 hinein, um die vertraglich vereinbarten Prozeduren zur Einführung der Eurocodes zu ermöglichen;
- Organisation der Weiterführung der Zusammenarbeit von Kommission und CEN/TC 250 über das JRC, Ispra und in der ENC-Gruppe;
- Organisation der zukünftigen CEN-Arbeiten zur Beseitigung von Anwendungshindernissen für die Eurocodes;
- Eintritt in Arbeiten zur Unterhaltung der Eurocodes zusammen mit dem JRC, besonders Aufgreifen nationaler Vorschläge für Korrekturen und Verbesserungen, Interpretationshilfen, Harmonisierung technischer Auffassungen.

Herr Prof Sedlacek ergänzt, woraus die Unterstützungsleistung im Berichtszeitraum bestanden hat. Neben der Mitwirkung bei der Vorbereitung der Sitzungen, und der Begleitung bei den Sitzungen, z.B. durch Entwürfe von Resolutionen und Vorlagen für die Aktivitäten wurden folgende besonderen Arbeiten durchgeführt:

- Gemeinschaftssitzungen mit CEN/TC229 zur Entwicklung einer für vorgefertigte Stahl- und Betonbauteile gleichartigen Vorgehensweise bei der Bestimmung charakteristischer Werte für die Bauteileigenschaften durch Versuche.
- Gemeinschaftssitzungen mit EOTA WG8 zur Erstellung eines EOTA - Berichts zur Durchführung und Auswertung von Versuchen zur Bestimmung von Bauteileigenschaften durch Versuche und Berechnungen und Herstellung der Entwürfe.
- Gemeinschaftssitzungen mit CEN/TC129 zur Abstimmung der Grenzen zwischen EN 13474 (Bemessung von Glasscheiben) und sicheren Bemessungsregeln für tragende Glasprodukte auf der Grundlage eines ersten Entwurfs für einen zukünftigen neuen Eurocode für tragende Glasbauteile.
- Mitwirkung bei der Entwicklung eines Aktionsplans für die Unterstützung bei der Einführung der Eurocodes zusammen mit der Europäischen Kommission (JRC, Ispra):
 - Unterhaltung der Eurocodes (Korrekturen etc),
 - weitere Harmonisierung (Verkleinerung der Anzahl der verschiedenen NDP),
 - Förderung der Anwendung der Eurocodes (Bemessungshilfen, Seminare),

- Weiterentwicklung der Eurocodes.(keine Revision, nur z.B. Aktualisierung einzelner Verfahren und Anpassung für die Verwendung weiterer Werkstoffe, Beseitigung von Inkonsistenzen u. a.).

Herr Breitschaft erklärt, dass sich die Liaison mit EOTA lediglich auf eine Abstimmung bei der Erstellung von Leitlinien etc. beziehen kann. Die Erstellung von EOTA-Papieren durch CEN/TC 250 geht nach Ansicht des DIBt über eine Liaisontätigkeit hinaus und ist auch nicht erwünscht.

Die Anwesenden nehmen den Statusbericht für 2004 zur Kenntnis.

Zu dem vorgelegten Arbeitsprogramm für 2006/2007 werden folgende Ausführungen gemacht:

Nach Auffassung der Mitglieder von CEN/TC 250 und der Kommission dauert die für die Eurocode-Anwendung kritische Arbeitsphase bis September 2007 an. Daher wurden Herr Prof. Bossenmayer und die wichtigsten Experten in CEN/TC 250 gebeten, ihre Mandate bis Juni 2007 zu verlängern, obwohl diese Verlängerung nach den CEN-Regeln nicht üblich ist.

Wesentlicher Punkt, der zu einer Fortführung der Unterstützung des Vorsitzes von CEN/TC 250 über das Jahr 2005 hinaus führen soll, ist, dass auf europäischer Ebene kein geeigneter Nachfolger für 2006/2007 zur Verfügung steht, der auch von den anderen Mitgliedstaaten unterstützt wird.

Die veränderte Aufgabenstellung für CEN/TC 250 hat maßgeblich auch den Aufwand der technisch-wissenschaftlichen Unterstützung durch Prof. Sedlacek bestimmt und dazu geführt, dass die Überführung der ENV in EN bis Juni 2007 dauern wird. Es erscheint daher zweckmäßig, den derzeitigen Vorsitz auch bis zu diesem Zeitpunkt zu verlängern, damit die Kontinuität gewahrt und ein sicherer Abschluss der Arbeiten gewährleistet ist. Auf der Sitzung des TC 250 am 27./28. Oktober 2005 wird ein entsprechender Vorschlag gemacht werden. Damit entsteht auch Bedarf für die Weiterführung der Unterstützung des Vorsitzes durch Prof. Sedlacek bis einschließlich Juni 2007.

Die Aufgaben zur Unterstützung des Vorsitzes bis Juni 2007 bleiben in Inhalt und Umfang grundsätzlich die gleichen wie im Jahre 2005. Etwa für 20 CEN-Bereiche und für diverse Bereiche von EOTA sind "Liaisons" zwischen CEN/TC 250 und den dortigen technischen Gremien zur Harmonisierung der Bemessungsregeln notwendig. Schwerpunkte sind Holzprodukte, Stahl- und Aluminiumprodukte, Betonprodukte, Glasprodukte und Lager.

Herr Habermann ist der Auffassung, dass eine Mitarbeit bei der Entwicklung neuer Eurocode-Projekte sowie der Einbeziehung neuer Produkte nicht Gegenstand des derzeitigen Vorhabens sein sollte.

Von den meisten Anwesenden werden zunächst nur für das Jahr 2006 folgende verbindliche finanzielle Zusagen gegeben:

	2006	2007
ARGEBAU	50.000,00 ¹	-
Verbände: DSTV	4.000,00	2.000,00
DASt	1.000,00	1.000,00
HDB	2.000,00	
DBV	5.000,00	
ZDB	?	
VPI	2.500,00	2.500,00
DGfM	2	
Beton- u. Fertigteilind.	3	
Holzwirtschaftsrat	2.000,00	
GDA	?	
DGGT	?	
VHFL	?	

Herr Habermann erklärt die Schwierigkeit bei der Bereitstellung von finanziellen Mitteln durch sein Haus, weil bereits vor einem Jahr von einer letztmaligen Unterstützungsleistung für 2005/2006 ausgegangen wurde.

Herr Dr. Rast merkt an, dass sich die DGfM erst nach deren Mitgliederversammlung am 28.10.2005 im Hinblick auf die Finanzierung positionieren kann.

Herr Breitschaft ist der Auffassung, dass die Finanzierung des Projekts nicht maßgeblich von der ARGEBAU getragen werden kann, hier müsste sich die Industrie zu gleichen Teilen beteiligen. Schließlich profitiert auch die Industrie von „guten“ Eurocodes.

Die Anwesenden sind der Auffassung, dass die Eurocodes zu einem erfolgreichen Abschluss gebracht werden müssen.

Die letzte Sitzung zum Projekt wird für September 2006 im DIBt anberaumt. Herr Prof. Sedlacek wird gebeten, die erforderlichen Unterlagen spätestens 7 Tage vor Beginn der Sitzung vorzulegen. Außerdem soll zu der Sitzung dann auch der Abschlussbericht vorgelegt werden.

¹ Die endgültige Zustimmung kann erst zur 164. Sitzung der FK Bautechnik am 7./8. Dezember 2005 gegeben werden.

² Die DGfM erklärt sich nach der Mitgliederversammlung am 28.10.2005.

³ Herr Schwerm beabsichtigt sich schriftlich zu äußern.

Anwesenheitsliste

5. Sitzung zur Herstellung der Grundlagen für eine erfolgreiche Überführung der ENV-Eurocodes in EN-Eurocodes (Unterstützung des Vorsitzes von CEN/TC 250)

Sitzungsort:	Deutsches Institut für Bautechnik in Berlin
Datum/Uhrzeit:	20. Oktober 2005, 14:00 Uhr

lfd. Nr.	Name	Verband/Verein/Einrichtung/Behörde	Tel./Fax/E-Mail (nur bei Änderung)	Unterschrift
1	Buddendick	DHWR		<i>Buddendick</i>
2	SCHWERM	BDB		<i>Schwerm</i>
3	Andra	BVPI		<i>Andra</i>
4	Timm	BVPI		<i>Timm</i>
5	Hüller	DSTV/DAST		<i>Hüller</i>
6	Sedlacek	RWTH AACHEN		<i>Sedlacek</i>
7	Müller	RWTH AACHEN		<i>Müller</i>
8	Rast	Dgfm		<i>Rast</i>
9	BOSENMAYER	TC 250		<i>Bosenmayer</i>
10	Stolzenburg	NABau im DIN		<i>Stolzenburg</i>
11	Britschke	DIBt		<i>Britschke</i>
12	Schwarzald	DIBt / Geschäftsführung Fk Bautechnik		<i>Schwarzald</i>
13	Habermann	HOB / OBV		<i>Habermann</i>
14				
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Besprechungsvermerk
Sponsorentreffen am 30.01.2007 in Berlin
Unterstützung des deutschen Vorsitzes von CEN/TC 250

1. Zielsetzung

(1) Die Zielsetzung des Treffens war:

1. Abgabe des Statusberichtes der Förderungsnehmer und Diskussion
2. Verlängerung der Förderung bis zum Ende der Amtszeit von Herrn Prof. Bossenmayer (30.06.2007) und darüber hinaus
3. Weiteres

2. Beteiligte

Herr Bossenmayer	CEN/TC 250
Herr Breitschaft	DIBt
Frau Schwarzwald	DIBt
Herr Litzner	Deutscher Beton- und Bautechnikverein
Herr Andrä	Bundesvereinigung der Prüfm Ingenieure für Bautechnik
Herr Habermann	Hauptverband der Deutschen Bauindustrie
Frau Laackmann	Deutsche Gesellschaft für Geotechnik e.V.
Herr Müller	RWTH Aachen
Herr Sedlacek	RWTH Aachen

3. Statusbericht

(1) Der Arbeitsbericht für die Leistungen bis zum 31.12.2006 war vorab verschickt worden.

(2) Prof. Bossenmayer gab anhand von Übersichten, siehe Anlage 1 und Anlage 2 einen Überblick über die Arbeiten in CEN/TC 250, die mit Unterstützung der Sponsoren durchgeführt wurden:

1. Rechtzeitige Fertigstellung koordinierter Eurocodes. Alle Eurocodes sind in formeller Abstimmung durch CEN gegangen. In der ersten Hälfte 2007 werden alle Eurocodes in abgestimmter 3-Sprachenfassung (Stufe 64) zur Verfügung stehen; derzeit befinden sich 44 Teile in Stufe 64, der Rest in Stufe 53.
2. Mitarbeit mit wichtigen CEN-Komitees, die Normen für vorgefertigte Bauteile herstellen, um zu erreichen, dass
 1. diese mit den Bemessungsregeln in den Eurocodes konsistent sind,
 2. die Bedingungen des Leitpapiers L in praxisgeeigneter Form eingehalten werden,
 3. die CE-Kennzeichnung auch auf die für die Einbaubarkeit in baulichen Anlagen notwendigen Eigenschaften eingeht. Dazu gehört eine mit den Sicherheits- und Dauerhaftigkeitsannahmen in den Eurocodes konsistente Klassifizierung der Ausführungsbedingungen.

3. Unterstützung der Kommission DG ENTR und des Joint Research Centre in Ispra (administrative Vereinbarung mit DG ENTR) bei der Vorbereitung der nächsten Schritte:
 1. Normenpflege (Korrekturen, Ergänzungen, Interpretationen)
 2. Weitere Harmonisierung der Regeln (Reduktion der verschiedenen national zu bestimmenden Parameter)
 3. Weitere Entwicklung (Pränormative Untersuchungen und Vorbereitungen zur Erfüllung weiterer von der Industrie gesetzter Ziele: Vereinfachungen, Auffüllen von Lücken, zusätzliche Bemessungsregeln für Glaskonstruktionen, FRP-Konstruktionen und Bauen im Bestand, Zusammenarbeit mit EOTA bei innovativen Produkten),
 4. Verbreitung der Europäischen Normenfamilie bestehend aus Produkt- und Prüfnormen, Eurocodes, Normen für vorgefertigte Bauteile, Europäischen Technischen Zulassungen und Zulassungsleitlinien über Europa hinaus, um die Voraussetzungen für bessere Wettbewerbsfähigkeit der europäischen Bauindustrie zu schaffen.

- (3) Bis 2007 werden nach KOA 01-Beschluss alle deutschen Nationalen Anhänge für die Eurocodes und bis 2010 die Voraussetzungen für die volle Einführung aller Eurocodes in Deutschland geschaffen sein, bis auf Eurocode 6 (Mauerwerksbau), für den man bis 2011 braucht.

- (4) Prof. Bossenmayer ging auch auf die Nachfolge im Vorsitz von CEN/TC 250 ein. Es sieht so aus, dass sich voraussichtlich für Prof. Calgaro (Frankreich) gegenüber Dr. J. Moore wegen des Alters eine Mehrheit bildet. Das DIN hat bisher noch keine Sonder-sitzung des KOA (unter Leitung des DIN) einberufen, um die deutsche Stellungnahme zu verabschieden.

- (5) Prof. Sedlacek erläutert kurz ergänzend zu der Übersicht von Prof. Bossenmayer einige Punkte des Arbeitsberichtes, dabei auch die derzeitigen Bemühungen, unter Einbeziehung der Europäischen Technologie Plattformen ECTP, ESTEP, FO-RESTRY, einen Weg für die Finanzierung der weiteren pränormativen Untersuchungen und Vorbereitungen für CEN/TC 250 zu finden.

- (6) Die Diskussion zeigte
 1. Die vorgelegten Arbeitsergebnisse entsprechen den Erwartungen der Spon-soren an ein erfolgreiches Arbeiten unter deutschem Vorsitz, weil insbesondere die Überführung der ENV- in EN-Fassungen erfolgreich abgeschlossen ist.
 2. Es wird von Industrievertretern und Prof. Sedlacek für notwendig gehalten, auch unter dem zukünftigen Vorsitz den deutschen Einfluss auf die Entschei-dungen des Vorsitzes durch direkte Zuarbeit zu behalten, damit die Arbeiten auf dem eingeschlagenen Weg erfolgreich weitergeführt werden können.
 3. Die deutsche Präsenz muss in einigen Bereichen, z.B. CEN/TC 250/SC 1 und in Bereichen der Liaisons mit anderen CEN/TC's und mit EOTA, verbessert werden.
 4. Es wird darauf hingewiesen, dass wegen „Mischbauweisen“ der Mauerwerks-bau bei seinen Planungen keinen eigenen Weg gehen sollte. Bisher hat der deutsche Mauerwerksbau auf die Angebote des CEN/TC 250-Vorsitzes, CEN/TC 250/SC 6 technische Vorschläge für die von ihm geforderte techni-sche Korrektur des Eurocode 6 vorzulegen, nicht reagiert.

4. Weitere Förderung

- (1) Die ARGEBAU kann wegen gekürzter Mittel und Priorität der Ausgaben für die Herstellung der Nationalen Anhänge zu den Eurocodes (vor allem Eurocode 2) keine weitere Förderung der Zuarbeit für den deutschen Vorsitz in CEN/TC 250 für 2007 leisten. Jedoch erhält Prof. Bossenmayer in 2007 eine Kostenerstattung der Reisen, die er als Obmann von CEN/TC 250 tätigt.¹
- (2) Die Industrie hält die Kontinuität der deutschen Einflussnahme für so wichtig, dass bereits von 3 Sponsoren Förderungszusagen für 2007 (z. Zt. 5.000,00 Euro) gemacht wurden. Bei weiteren Zusagen besteht für die RWTH die Möglichkeit, im Sinne der von den Sponsoren ausgedrückten Zielsetzungen weiterzuarbeiten.
- (3) Prof. Bossenmayer wird die Sponsorengruppe auf die weitere Industrieförderung ansprechen.
- (4) Das DIBt wünscht für die Zeit 2000 bis 2006 gemäß Forschungsvertrag einen zusammenfassenden Bericht, mit dem das Vorhaben abgeschlossen werden kann. Dieser Bericht besteht aus dem besprochenen Arbeitsbericht bis 31.12.2006 und Anlagen.
- (5) Prof. Bossenmayer und Prof. Sedlacek danken den Sponsoren für Ihre Mitarbeit und ihre Unterstützung.

Aachen, 07.02.2007

Prof. Dr.-Ing. G. Sedlacek

¹ Anmerkung des DIBt: Hierfür stehen nach durchgeführter haushaltstechnischer Prüfung max. 5.000,00 Euro zur Verfügung.

ANLAGE 4

Bericht

**zur Unterstützung des Vorsitzenden von CEN/TC 250,
Herrn Prof. Dr.-Ing. H. Bossenmayer,
bei der Fertigstellung der Eurocodes**

BERICHT

**ZUR UNTERSTÜTZUNG DES VORSITZENDEN
VON CEN/TC 250, HERRN PROF. DR.-ING. H. BOSSENMAYER,
BEI DER FERTIGSTELLUNG DER EN-EUROCODES**

Gerhard Sedlacek
Christian Müller

Aachen, 08.05.2007

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VORWORT

Dieser Bericht fasst die Arbeiten zur Unterstützung des Vorsitzenden von CEN/TC250, Herrn Prof. Dr. H. Bossenmayer, bei der Fertigstellung der EN-Eurocodes zusammen. Diese Arbeiten wurden unter anderem aus Mitteln der ARGE-BAU unter der Verwaltung des Deutschen Instituts für Bautechnik gefördert.

Weitere Förderer der Arbeiten zur Unterstützung des deutschen Vorsitizes waren:

Deutsches Institut für Bautechnik

Deutscher Stahlbau-Verband

Deutscher Ausschuss für Stahlbau

Hauptverband der Deutschen Bauindustrie

Deutsche Gesellschaft für Mauerwerksbau e.V. / DGFM Service

Deutscher Beton- und Bautechnik Verein e.V.

Zentralverband des Deutschen Baugewerbes

Bundesverband der deutschen Beton- und Fertigteilindustrie e.V.

Bundesvereinigung der Prüfeningenieure für Bautechnik

Deutscher Holzwirtschaftsrat

Deutsche Gesellschaft für Geotechnik e.V.

Gesamtverband der Aluminium-Industrie e.V.

Der vorliegende Bericht geht nicht auf die Detailarbeiten ein, sondern zeigt einige wesentliche Ergebnisse zur Schaffung einer koordinierten „Europäischen Standard-Familie“, für die die Eurocodes ab 2007 veröffentlicht werden. Dabei werden besonders Beispiele aus dem Stahlbau verwendet, da in diesem Bereich der internationale Handel mit vorgefertigte Bauteilen und Tragwerken (z.B. zerlegbare Brücken, Gerüste, standardisierte Parkhäuser, Industrieanlagen) und die Harmonisierung von technischen Regeln durch die Europäische Konvention für Stahlbau (EKS) Tradition haben und hier der Fortschritt durch die Eurocodes am besten erkennbar ist.

Folgende Mitarbeiter des Lehrstuhls für Stahlbau und Leichtmetallbau der RWTH Aachen und der Firma PSP Technologien im Bauwesen, Aachen haben an der Unterstützung des Vorsitzenden von CEN/TC250 mitgewirkt:

Dr.-Ing. R. Schneider, Dr.-Ing. C. Kammel, Dr.-Ing. H. Stangenberg, Dr.-Ing. C. Butz, Dipl.-Ing. B. Völling, Dr.-Ing. K. Weynand, Dr.-Ing. C. Heinemeyer, Dr.-Ing. O. Kraus, Dr.-Ing. R. Kasper, Dipl.-Ing. J. Naumes, Dipl.-Ing. M. Oppe, Dr.-Ing. B. Hoffmeister, Dipl.-Ing. D. Tschickardt, Dr.-Ing. C. Dercks, Dr.-Ing. M. Hortmanns, Dipl.-Ing. V. Hügler, Dr.-Ing. S. Höhler, Dr.-Ing. B. Kühn

Allen Förderern und Mitwirkenden sei für die technische und finanzielle Unterstützung der Arbeiten herzlichst gedankt.

Stuttgart und Aachen im Februar 2007

Prof. Dr.-Ing. Horst Bossenmayer Prof. Dr.-Ing. Gerhard Sedlacek Dr.-Ing. Christian Müller

1. EINLEITUNG

- (1) Am 30.06.2007 endet die Amtszeit von Prof. Dr.-Ing. Horst Bossenmayer als Vorsitzender des CEN-Komitees CEN/TC250, das von der Europäischen Kommission und dem Sekretariat von EFTA das Mandat erhalten hat, europäisch einheitliche technische Regeln für den Entwurf und die Berechnung im Konstruktiven Ingenieurbau, die sogenannten Eurocodes, zu erstellen.
- (2) Prof. Bossenmayer war der dritte der Vorsitzenden von CEN/TC250 nach Dr. G. Breitschaft (D), der die Grundlagen und die ersten Entwürfe für die Eurocodes geschaffen hat, und Mr. D. Lazenby (UK), der in der schwierigen Zeit mangelnder Orientierung durch die Kommission die ENV-Eurocodes abschließen konnte.
- (3) Prof. Bossenmayer oblag die Aufgabe, aus dem Vorhandenen die endgültigen Druckfassungen der Eurocodes für die Einführung in den EU- und EFTA-Ländern zu entwickeln. Diese Aufgabe sah vordergründig wie eine redaktionelle Überführung der ENV-Versionen in die EN-Versionen aus, war aber im Effekt wesentlich mehr, da mit dem wachsenden Interesse der Kommission an den Eurocodes neue strategische Absichten und Ordnungsaufgaben auf CEN/TC250 zukamen, die das Arbeitsfeld wesentlich größer machten als nur bezogen auf die Fertigstellung von Normentwürfen.
- (4) In der Vergangenheit wurden alle Vorsitzenden des CEN/TC250 durch einen Stab von Hintergrundmitarbeitern bei ihrer Arbeit unterstützt, die aus dem Land finanziert wurden, das den Vorsitzenden benannt hat. Eine solche Unterstützungszusage erhielt auch Prof. Bossenmayer seitens der „interessierten Kreise“ des DIN NABau, der die Unterstützung wie folgt organisierte:
 1. Mitarbeit von Prof. Sedlacek und der RWTH-Gruppen, die seit 1979 an praktisch allen Eurocodes mitgewirkt haben.
 2. Finanzierung durch Beiträge der Bauaufsichtsbehörde (ARGEBAU) und des BMVBS, der Industrie (Industrieverbände und Ingenieurverbände) und der Hochschulen (geldwerte Beiträge)
- (5) In 2007 werden die genehmigten Drei-Sprachen-Fassungen aller 10 Eurocodes mit insgesamt 58 Teilen veröffentlicht sein. Gleichzeitig werden eine große Anzahl Normen für Bauprodukte, sowohl für Ausgangsprodukte, mit denen entworfen, gerechnet und gefertigt wird, als auch für vorgefertigte Bauteile, die als Tragwerkselemente in Tragwerke eingebaut werden, veröffentlicht. Dazu kommen Veröffentlichungen von Europäischen Technischen Zulassungen und Zulassungsleitlinien für Produkte, für die es aufgrund ihres innovativen Charakters noch keine Normen gibt.
- (6) Alle diese koordiniert erstellten „technischen Spezifikation“ bilden eine neue „Europäische Standard Familie“. Diese löst bis 2010 nicht nur die bisherigen einzelnen Nationalen Normen in Europa ab und eröffnet damit eine gemeinsame Sprache, gemeinsame Sicherheitsgrundlagen mit konsistenten Anforderungen an Bauwerk und einzubauende Bauprodukte und einheitliche Berechnungsmodelle über alle nationalen und werkstoffbedingten Unterschiede hinweg. Sie ist gleichzeitig ein bedeutendes Werkzeug für den Baumarkt außerhalb Europas, wo Planungs-, Liefer- und Ausführungsleistungen nach Europäischen Normen angeboten und durchgeführt werden können. Auch die Ausbildung, Forschung und Entwicklung, die Zustimmungen im Einzelfall und Zulassungen von innovativen Produkten erfolgen auf gleicher Grundlage.
- (7) Man spricht inzwischen europaweit von der „Erfolgsstory Eurocodes“, und das Engagement der Förderer und das Interesse der Nutzer ist der Anlass für diesen Rückblick auf 6 Jahre Eurocode-Entwicklung unter deutschem Vorsitz.

2. GESCHICHTE DER EUROCODE-ENTWICKLUNG

2.1 Erste Entwürfe

- (1) Die Eurocode-Entwicklung fand ab 1979 zunächst unter direktem Vorsitz der Kommission mit den Europäischen Technisch - Wissenschaftlichen Verbänden und eingeladenen Fachleuten aus den Mitgliedsländern mit den Schwerpunkten Bemessungsregeln im Betonbau und im Stahlbau und gemeinsame Sicherheitsgrundlagen sowie Bauen in Erdbebengebieten statt. Später kamen andere Bauarten und auch die Lasten dazu. Die ersten Eurocode-Entwürfe wurden ab 1982 als Kommissionsberichte veröffentlicht. Sie waren damals schon koordiniert und enthielten ein gemeinsames Kapitel Sicherheitsgrundlagen für Entwurf und Berechnung und Bauweisen übergreifende Regeln für Querschnittsnachweise und Bauteil- und Tragwerksnachweise z.B. hinsichtlich Imperfektionen. Sie enthielten auch Mindestanforderungen an die Fertigung.
- (2) 1988 wurde die Bauproduktenrichtlinie veröffentlicht und damit die Bedeutung der Normen in Verbindung mit Rechtsvorschriften und den im Anhang I der Richtlinie genannten 6 Wesentlichen Anforderungen neu definiert: Sie waren technische Regelwerke mit der Vermutung, dass bei ihrer Anwendung der Stand der Technik ausreichend beachtet sei. Damit wurde die weitere Bearbeitung der Eurocodes per Mandat der Kommission und von EFTA an die Europäische Normenorganisation CEN weitergegeben, die speziell für die Eurocodes das Technische Komitee CEN/TC250 gründete.
- (3) Seit der Übernahme der Eurocode-Arbeiten durch CEN/TC 250 hat es drei Arbeitsphasen gegeben, deren Erfolg im Wesentlichen mit den Persönlichkeiten der Vorsitzenden zusammenhing und die im folgenden kurz dargestellt werden.

2.2 Phase 1: Erarbeitung der ENV-Eurocodes unter Vorsitz von Dr. Günther Breitschaft (D)

- (1) In dieser Phase wurden alle organisatorischen und technischen Bedingungen geschaffen, um eine effiziente Erarbeitung der Eurocodes

ENV 1991-1 Grundlagen der Tragwerksplanung

ENV 1991-2-i Einwirkungen

ENV 1992 Massivbau

ENV 1993 Stahlbau

ENV 1994 Verbundbau

ENV 1995 Mauerwerksbau

ENV 1996 Holzbau

ENV 1997 Geotechnische Anlagen

ENV 1998 Bauen in Erdbebengebieten

ENV 1999 Aluminiumbauten

zu ermöglichen. Die Arbeit erfolgte in Redaktionsgruppen unter der Leitung der den Eurocodes 1 bis 9 zugeordneten Unterkomitees (SC 1 bis SC 9), wobei ENV 1991-1 in direkter Verantwortung von CEN/TC 250 bearbeitet wurde mit einem Team, das von Herrn Breitschaft geleitet wurde.

- (2) Die Koordinierung der Arbeiten erfolgte in einer Koordinierungsgruppe mit den Vorsitzenden der SCs und den Vorsitzenden von Horizontalausschüssen (z. B. für Brandschutz, Brücken, Terminologie, Harmonisierung von Bemessungsregeln über die verschiedenen Bauweisen hinweg), sowie ad-hoc eingeladenen Fachleuten.
- (3) In dieser Phase wurden bedeutende Grundsatzentscheidungen gefällt, die den technischen Inhalt der Eurocodes und die Verfahrensweisen zu ihrer Herstellung betrafen, auf die noch später eingegangen wird. Die Arbeit erfolgte eng mit den Europäischen Technisch - Wissenschaftlichen Vereinigungen, z.B. JCSS, CEB, ECCS und ihren Fachleuten.
- (4) Leider ist die Bearbeitung in CEN/TC250 gegen Ende der Amtszeit von Dr. Breitschaft behindert worden
 1. durch Störung durch die Kommission, die die Notwendigkeit der Eurocodes für die Umsetzung der Bauproduktenrichtlinie in Zweifel zog. Diese Störungen hatten im Effekt einen Verzug der Arbeiten um 10 Jahre zur Folge.
 2. durch mangelnde Mitarbeit einzelner Länder an einigen Eurocodes (z.B. Eurocode 7 – Geotechnische Anlagen), die dazu führten, dass entweder dominante Persönlichkeiten aus einigen Ländern sich mit ihren landesspezifischen Regeln (z.B. bei Eurocode 7 mit dänischen Regeln) durchsetzen konnten oder dass mangels intensiver Bemühungen bestimmte technische Regeln nicht einheitlich beschlossen werden konnten, so dass eine Unzahl von „boxed values“, also offenen Parametern für zukünftige Festlegungen durch die Mitgliedsländer, entstanden. Das eigentliche Harmonisierungsziel wurde also mit den ENV-Eurocodes nicht überall erreicht. Je nach Harmonisierung gab es am Ende „schwache“ Eurocodes und „starke“ Eurocodes.
 3. durch Benennung von vorwiegend technischen Experten in die Redaktionsgruppen, die keine Erfahrung in der Formulierung von Bemessungsnormen hatten, so dass zum Teil „lehrbuchähnliche“ voluminöse Eurocodes entstanden, die vor allem auch in „schwachen“ Übersetzungen abschreckend auf die Fachwelt wirkten.

2.3 Phase 2: Weiterführung der Bearbeitung der ENV-Eurocodes unter Vorsitz von David Lazenby (UK)

- (1) In dieser Phase wurde alles versucht, den Schwung der Bearbeitung der Eurocodes der ersten Phase über die Schwierigkeiten mit der Kommission und mit den Mitgliedsländern hinweg aufrecht zu erhalten, um die ENV-Fassungen zum Abschluss zu bringen und das Programm für die Überführung in EN-Fassungen durchzubringen. Zu Hilfe kam ein Personalwechsel bei der Kommission, mit dem die Zusammenarbeit verbessert werden konnte.
- (2) Zur Beseitigung der Schwierigkeiten mit der Kommission, mit CEN und innerhalb des CEN/TC250 wurde die systematische Bearbeitung von „Policy Guidelines“ (CEN/TC 250 Doc. N250) eingeleitet, in dem die Verknüpfung der Eurocodes mit der Bauproduktenrichtlinie, die Aufgaben der Kommission, des CEN-Managements, von CEN/TC 250, seiner Unterkomitees sowie deren Sekretariate und Projekt Teams für die Überführung der ENV-Eurocodes in EN-Fassungen beschrieben und Einzelheiten für die redaktionelle Bearbeitung der EN-Eurocodes mit Mustern (PNE-Regeln) angegeben wurden.
- (3) Weiterhin wurden die Kontakte zur ENC-Gruppe (Eurocodes National Contacts) gepflegt, die mit der Entwicklung von „Leitpapieren“ (Guidance Papers) für die Bearbeitung der hEN-Produktnormen für die Umsetzung der Bauproduktenrichtlinie befasst war.

- (4) Gegen Ende der Amtszeit von D. Lazenby wurde von allen Mitgliedsländern im CEN/TC 250 die Notwendigkeit gesehen, nach dem erreichten Wiederinteresse der Kommission an den Eurocodes die Überführung der ENV-Eurocodes in EN-Eurocodes nun in einer fachkundigen, gut organisierten Weise derart durchzuführen, dass
 - a) die Kommission die Eurocodes als notwendige Referenzdokumente für die Produktnormen akzeptiert,
 - b) die Arbeiten so erfolgen, dass keine Widersprüche zwischen Eurocodes und Produktnormen auftreten,
 - c) die Arbeiten so zeitig erfolgen, dass die Verwendung der Eurocodes als Referenzdokumente für Produktnormen noch möglich ist,
 - d) die Arbeitsergebnisse so bereitgestellt werden, dass sowohl die Anforderungen für Produktnormen als auch für Bauwerke im öffentlichen Vergabewesen erfüllt werden,
 - e) technisch und redaktionell „Ordnung“ in die Eurocodes eingebracht wird, die den „Bauordnungen“ der Mitgliedsländer Rechnung tragen kann.
- (5) Als Wunschkandidat für die Leitung dieser Aufgaben wurde Prof. Bossenmayer gewählt, da er die persönlichen und fachlichen Qualifikationen für dieses Aufgabe mitbrachte, um sowohl die politisch-atmosphärischen Notwendigkeiten als auch den „Teufel im technischen Detail“ zu erkennen und die Zustimmung der Kommission und der nationalen Bauaufsichtsbehörden, der Industrie und der technischen Experten in den Mitgliedsländern zu diesem neuen Kurs zu erreichen.

2.4 Phase 3: Überführung der ENV-Eurocodes in EN-Eurocodes unter Vorsitz von Prof. Dr.-Ing. Horst Bossenmayer (D)

- (1) Am Anfang der Arbeit stand eine Analyse der bisherigen Beziehungen zwischen CEN/TC 250 und der Kommission und entsprechende Gespräche und eine Durchleuchtung der Schwierigkeiten der bisherigen Eurocode-Bearbeitung.
- (2) Diese Analyse brachte folgendes Ergebnis:
 - a) Die Eurocodes haben nur eine Chance, von der Kommission den Mitgliedsländern zur Annahme als vereinheitlichte europäische Bemessungsregeln für Tragwerke empfohlen zu werden, wenn sie ihre Doppelrolle als harmonisierte Bezugsdokumente für auf der einen Seite hEN-Produktnormen für die CE-Kennzeichnung von vorgefertigten Bauteilen und auf der anderen Seite für den Entwurf und die Berechnung von baulichen Anlagen inhaltlich und rechtzeitig erfüllen.

Daraus ergab sich die Notwendigkeit, neben der Rolle als Bemessungsnorm für Tragwerke und als Entwurfsnorm für öffentliche europaweite Ausschreibungen sofort die Schwerpunktverwendung der Eurocodes als Referenznormen für Bauprodukte in technisch und verfahrensmäßig einwandfreier Weise möglich zu machen, indem in Pilotnormen zusammen mit CEN/TC 229 (Betonfertigteile) und CEN/TC 135 (Stahlbaufertigteile) die Verwendung der Eurocodes und der zugehörigen EN-Normen für Werkstoffe, Baustoffe und Halfertigteile im Detail ausgearbeitet wird. Nach diesen Pilotnormen sind weitere Normen in gleicher Weise angegangen worden, z.B. in CEN/TC 167 (Lager) und CEN/TC 124 (vorgefertigte Bauteile aus Holz).

- b) Die Mitarbeit der Mitgliedsländer an der rechtzeitigen Fertigstellung der Eurocodes und eine positive Haltung bei der Zustimmung kann nur erreicht werden, wenn aufgrund des Vertrauens in eine erfolgreiche Arbeit von CEN/TC 250 die vorhandenen Eurocodes und die hEN-Produktnormen und EOTA-Dokumente so verbessert werden, dass die Doppelrolle erfüllt werden kann, die Kommission die entsprechenden politischen Signale aussendet und eine Vereinbarung zwischen Mitgliedsländern und Kommission zustande kommt.

Daraus ergab sich die Notwendigkeit einer Zusammenarbeit mit der ENC-Gruppe an der Erstellung des „Guidance Paper L“ – Anwendung und Nutzung der Eurocodes – und der dazu gehörigen Musteranwendungen bis zur Veröffentlichung des Leitpapiers und die weitere Erprobung für die Anwendung.

- c) Die technischen und redaktionellen Unzulänglichkeiten der ENV-Eurocodes und der dazugehörigen Produktnormen können nicht durch Direktiven seitens des CEN/TC 250 Vorsitzenden über das CEN/TC 250 und seine Koordinierungsgruppe alleine beseitigt werden; es bedarf vielmehr der Einmischung des CEN/TC 250 Vorsitzenden in die Mitarbeit, Prüfung und Korrektur der Entwürfe von CEN/TC 250 und den Produkt-TCs bis hinunter in die Projekt Team Ebenen, da dort die Botschaften der Leitpapiere der Kommission oder Appelle an CEN/MC oder die Technischen Komitees für Produktnormen teilweise nicht verstanden werden.
- d) Es ist auch notwendig, neue Themen, wie z.B. die zukünftige nationale Einführung der Eurocodes und die weitere Harmonisierung der „National zu bestimmenden Parameter „NDPs“, anzufassen, um bereits jetzt die Weichen für die Beseitigung der zu vielen nationalen Wahlmöglichkeiten – ein Handicap für die CE-Kennzeichnung – zu stellen (Schaffung von Hintergrundinformationen und Einleitung von europäischer Zusammenarbeit).

Dazu bedarf es auch eines politischen Signals, das durch die Herausgabe der "Kommissionsempfehlungen zur Einführung der Eurocodes in den Mitgliedsländern" vom 11. Dezember 2003 gegeben wurde.

- e) Schließlich waren mit der erhofften termintreuen Beendigung der Arbeiten an den Eurocodes auch weitere Schritte zu veranlassen, die eine geordnete Weiterführung der Arbeiten in CEN/TC 250 ermöglichten. Dazu gehörten die Hilfe bei der administrativen und finanziellen Abwicklung der Verträge zwischen der Kommission und CEN, die Motivierung der jahrelang hingehaltenen Experten zur weiteren Mitarbeit, der Überführung der technischen Kompetenz bei der Kommission DG ENTR an das Joint Research Centre (JRC) in Ispra (IT) und die Zusammenarbeit mit Ispra bei allen durch die administrative Vereinbarung zwischen Kommission und Ispra durchzuführenden Aufgaben für die Eurocodes.
- (3) Diese notwendigen Schritte waren in der Amtszeit des Vorsitzenden von CEN/TC 250, Herrn Prof. Bossenmayer, umzusetzen.

3. AUSGEWÄHLTE FRAGEN ZUM VERSTÄNDNIS DER ENTWICKLUNG DER EUROPÄISCHEN STANDARDFAMILIE

3.1 Allgemeines

- (1) Die Entwicklung der Eurocodes erfolgte nicht nach einer von vornherein vorgegebenen Ordnung, vielmehr haben sich die Anforderungen während der Entwicklung geändert. Vor allem in der „heißen Phase“ in den Jahren 2000 bis 2007, als mit der Überführung der ENV-Eurocodes in die endgültigen EN Eurocodes nach jahrzehntelangen Verzögerungen die Eurocodes für die Kommission und die Mitgliedsländer wirklich „ernst“ wurden, sind neue mit den Mitgliedsländern abgestimmte Anforderungen durch das Kommissionsleitpapier L „Nutzung und Anwendung der Eurocodes“ und die Kommissionsempfehlung vom 11. Dezember 2003 zur Einführung der Eurocodes hinzugekommen, die den ursprünglichen CEN Auftrag, nämlich Überführung der ENV-Eurocodes in EN-Eurocodes aufgrund der Ergebnisse der CEN-Befragung zu den ENV-Eurocodes, ganz wesentlich erweitert haben.
- (2) Die Folge dieser Erweiterung der Aufgaben war eine vollständige koordinierte Überarbeitung aller Eurocodes und der zugehörigen Produktnormen und eine Zusammenarbeit mit EOTA für eine koordinierte Verfahrensweise bei den Zulassungen.
- (3) Im Folgenden wird nicht auf die Abfolge der durchgeführten Entwicklungen und Arbeiten eingegangen, sondern auf das Ergebnis, und es wird auf häufig gestellte Fragen eingegangen, die aus dem Ergebnis heraus zu beantworten sind.

3.2 Was sind die Eurocodes?

- (1) Die Eurocodes sind eine Antwort auf die Globalisierung des Baumarktes, der einheitliche internationale Normenfamilien verlangt, Bild 3-1.

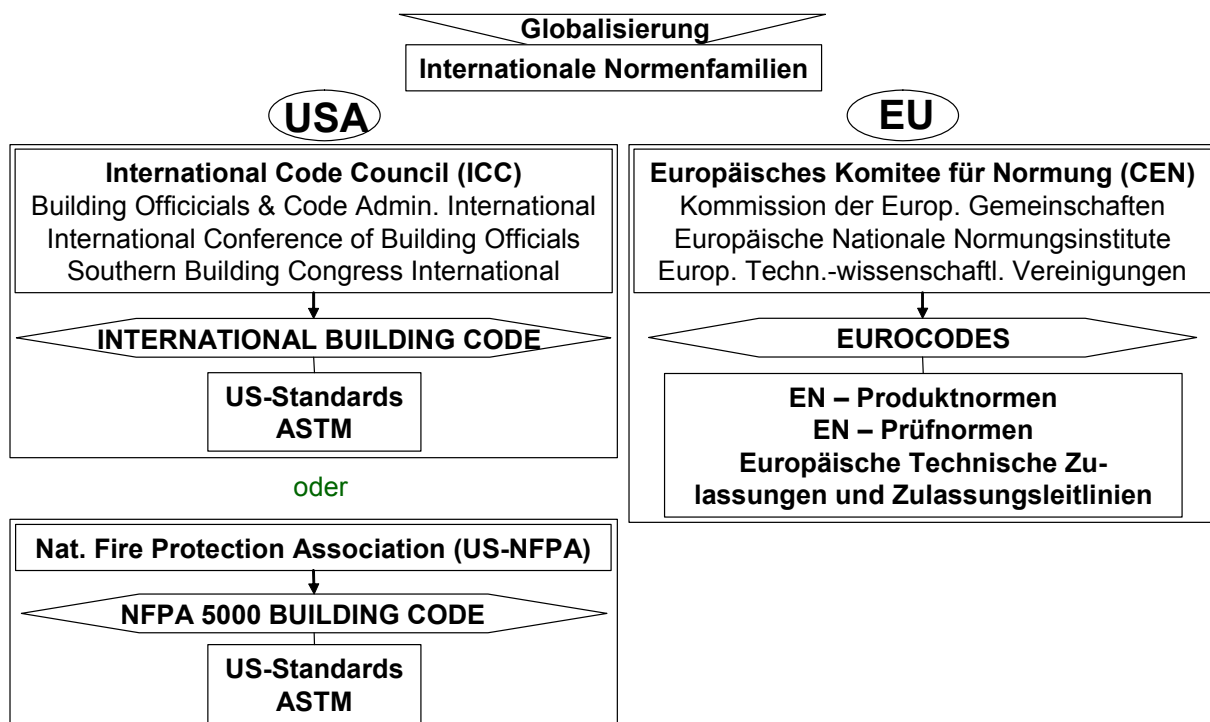


Bild 3-1: Überblick über internationale Normenfamilien

- (2) Sie sind Teil der europäischen Normenfamilie und liefern zum ersten Mal in der Geschichte
1. Konsistenz zwischen Anforderungen an Bauwerke und an die einzubauenden Bauprodukte, z.B. Fertigteile, durch gleiche Bemessungskriterien und Bemessungsmethoden,
 2. eine einheitliche Verständigungsbasis im konstruktiven Ingenieurbau,
 3. einen leichteren Austausch von Bauleistungen,
 4. eine gemeinsame Basis für Ausbildung, Forschung und Entwicklung,
 5. eine Verbesserung der Wettbewerbsfähigkeit der Europäischen Bauindustrie.
- (3) Die Eurocodes sind nach ersten Vorarbeiten unter Kommissionsleitung im Rahmen eines Mandates der Kommission an die Europäische Normenorganisation (CEN) von CEN/TC 250 und ihren Unterkomitees entwickelt worden. Mit dem Rahmenmandat BC/CEN/11-89 und dem Ergänzungsmandat BC/CEN/10-90 und zwei Zusätzen wurde CEN beauftragt, folgende Normenarbeiten durchzuführen, Bild 3-2:
1. Europäische Vornormen (ENV-Eurocodes) für die Probeanwendung (Diese Probeanwendung erfolgt z. B. durch die DIN-Fachberichte FB 101, 102, 103, 104 für den Brückenbau),
 2. Nach der CEN Umfrage in den Mitgliedsländern Überführung der ENV-Eurocodes in EN-Eurocodes.

Framework Mandate BC/CEN/11-89,
Specific Mandate BC/CEN/10-90 and 2
Amendments:

- Drafting of European pre-standards (ENV) for an experimental period
- Drafting of European standards (EN) after examination of ENV in Member States (»Conversion Mandate«)

Bild 3-2: Eurocodes – Mandate der Kommission an CEN

- (4) Der Zusammenhang zwischen der Bauproduktenrichtlinie und der Entwicklung der harmonisierten Produktnormen und der Eurocodes ist folgender, siehe Bild 3-3: Für die wesentlichen Anforderungen Nr. 1 „Standicherheit“ und Nr. 2 „Baulicher Brandschutz“ gibt es
- Mandate der Kommission an CEN und EOTA zur Ausarbeitung Technischer Spezifikationen für Bauprodukte, das sind Produktnormen (hEN) und Europäische Technische Zulassungen (ETA), die in allen Mitgliedsländern eingeführt werden müssen, und
 - Mandate der Kommission an CEN zur Ausarbeitung einheitlicher Bemessungsregeln für Bauwerke, nämlich die Eurocodes, für die keine rechtliche Verpflichtung zur Einführung besteht.

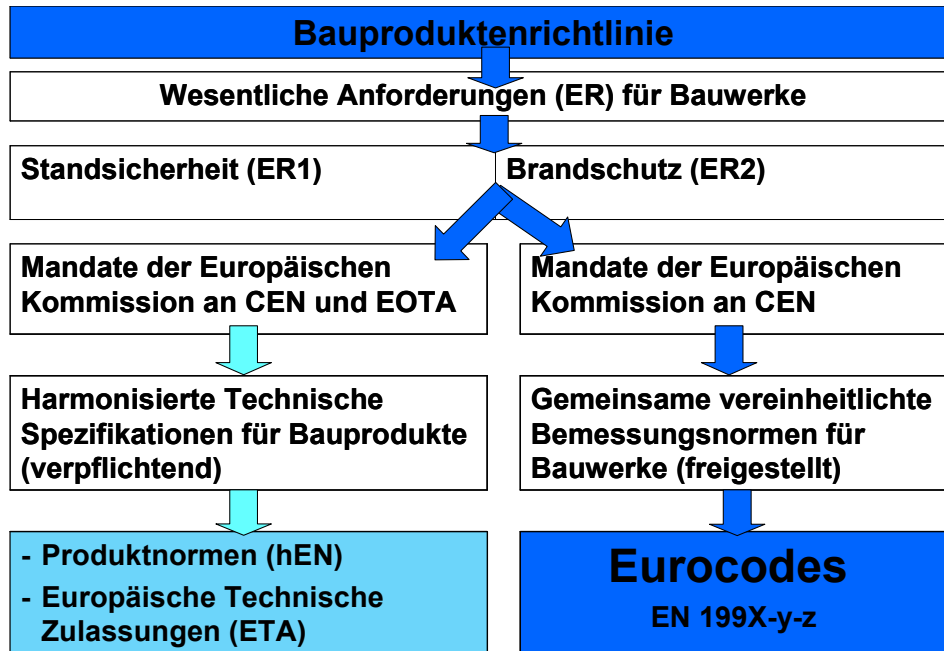


Bild 3-3: Eurocodes – Harmonisierung im Sinne der Bauproduktenrichtlinie

- (5) Bauprodukte, wie z.B. vorgefertigte Bauteile, benötigen aber zu ihrer CE-Kennzeichnung, mit der die Übereinstimmung mit der zugehörigen Technischen Spezifikation erklärt wird, technische Angaben, wie z. B. die Tragfähigkeit, die entweder experimentell oder rechnerisch bestimmt werden muss.
- (6) Zum Beispiel bei vorgefertigten Stahlbaukomponenten, für die die Technische Spezifikation EN 1090 gilt, siehe Bild 3-4, wird für den Fall der rechnerischen Bestimmung der Tragfähigkeit auf die europäische Bemessungsnorm EN 1993 – Eurocode 3 verwiesen, die somit als einzige einheitliche Norm in Europa dafür in Frage kommt.

Produktnorm EN 1090	Eurocode Eurocode 3
Experimentelle Bestimmung der Eigenschaften R_k direkt	Rechnerische Bestimmung der Eigenschaften R_d indirekt
aus statistischer Auswertung von Bauteilversuchen	
Lieferung mit erklärten R_k	Anwendung von R_k für Tragwerksbemessung $R_d = R_k / \gamma_M$

Bild 3-4: Gemeinsame Wurzeln von experimenteller und rechnerischer Bestimmung von R_k

- (7) Dadurch besteht für alle Mitgliedsländer der Zwang, die Eurocodes für vorgefertigte Bauprodukte anzuwenden; es liegt deshalb nahe, dass sie auch für die Bemessung von Bauwerken eingeführt werden. Dazu gibt es auch eine Aufforderung der Kommission in Form der „Empfehlung zur Einführung der Eurocodes“ vom 11. Dezember 2003. Falls die Mitgliedsländer neben den Eurocodes für Bauprodukte noch eine nationale Norm für Bauwerke unterhalten wollen, sind die Schwierigkeiten leicht auszumalen.
- (8) Die Doppelfunktion der Eurocodes, nämlich
- Bezugsnorm für Bauprodukte
 - Bemessungsnorm für Bauwerke

bedeutet natürlich einen großen Vorteil für ihre Qualität. Da die charakteristischen (europäisch einheitlichen) Werte der Bauteileigenschaften entweder experimentell oder rechnerisch bestimmt werden können, siehe Bild 3-5, entsteht ein interner Wettbewerb zwischen experimenteller und rechnerischer Bestimmung, den die Eurocodes nur gewinnen können, wenn ihre Regeln selbst auf der Grundlage experimenteller Ergebnisse ermittelt werden.

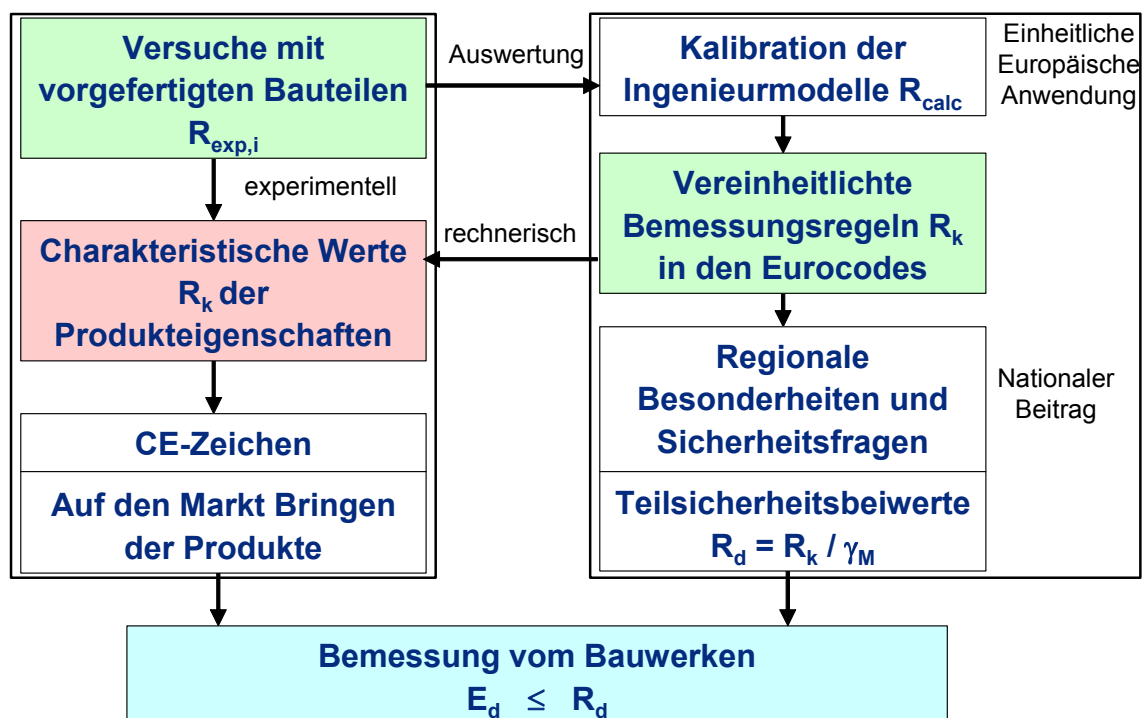


Bild 3-5: Doppelrolle der Eurocodes

- (9) Für den Eurocode 3 und den Eurocode 4 rühren die Bemessungsfunktionen für die charakteristischen Werte R_k aus Auswertungen von Großteilversuchen her, siehe Bild 3-6, so dass die rechnerische Bestimmung der Produkteigenschaften mit den Eurocodes nicht nur den bequemeren Weg, sondern auch den wirtschaftlicheren Weg darstellt, da neue Versuche (meist wenige) durch die statistische Unsicherheit höhere Sicherheitsvorgaben benötigen.

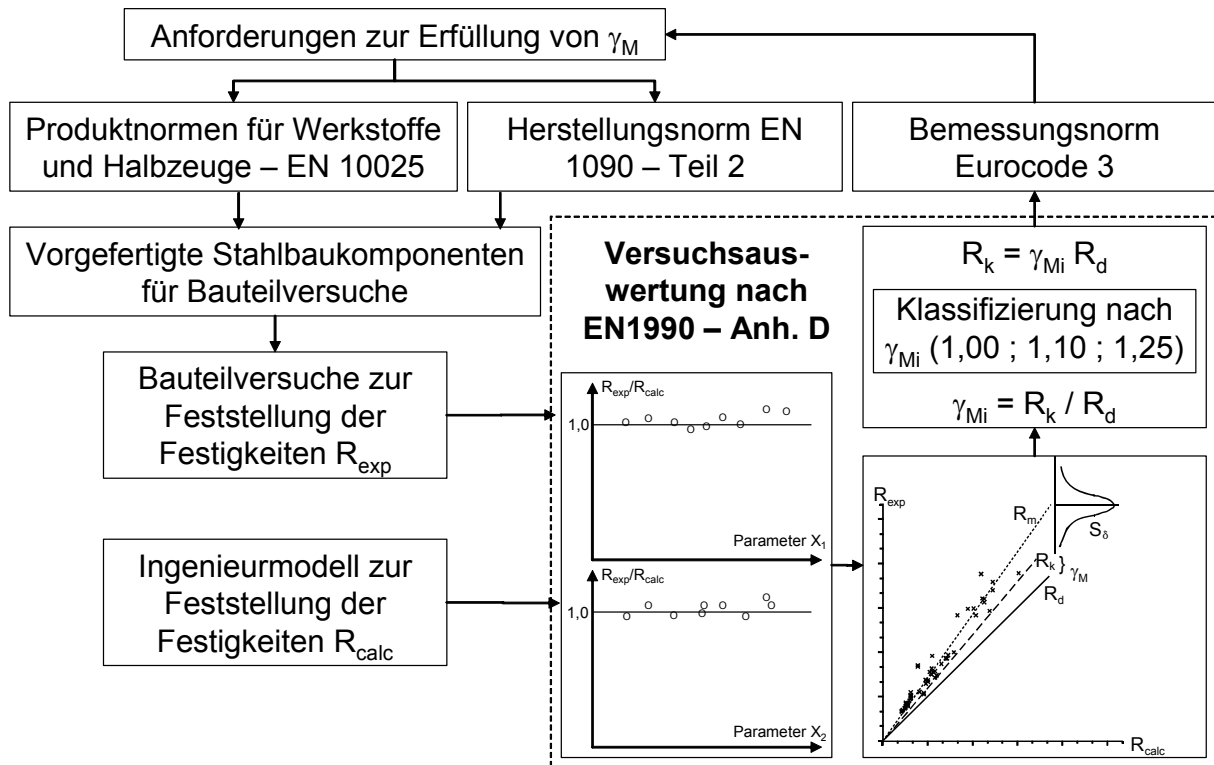


Bild 3-6: Bestimmung der Festigkeitsfunktionen R_k im Eurocode 3

- (10) Durch die versuchsbasierte Bestimmung der Eurocode-Regeln entsteht ein innovationsförderndes transparentes System, siehe [Bild 3-7](#), da die Planung, Durchführung, Auswertung und Dokumentation von Versuchen in Forschung und Entwicklung, beim Prototypeinsatz mit Zustimmung im Einzelfall, bei Zulassungen und bei der Normung nach dem gleichen transparenten Verfahren (genormt in EN 1990 – Eurocode Grundlagen der Tragwerksplanung – Anhang D) erfolgt.

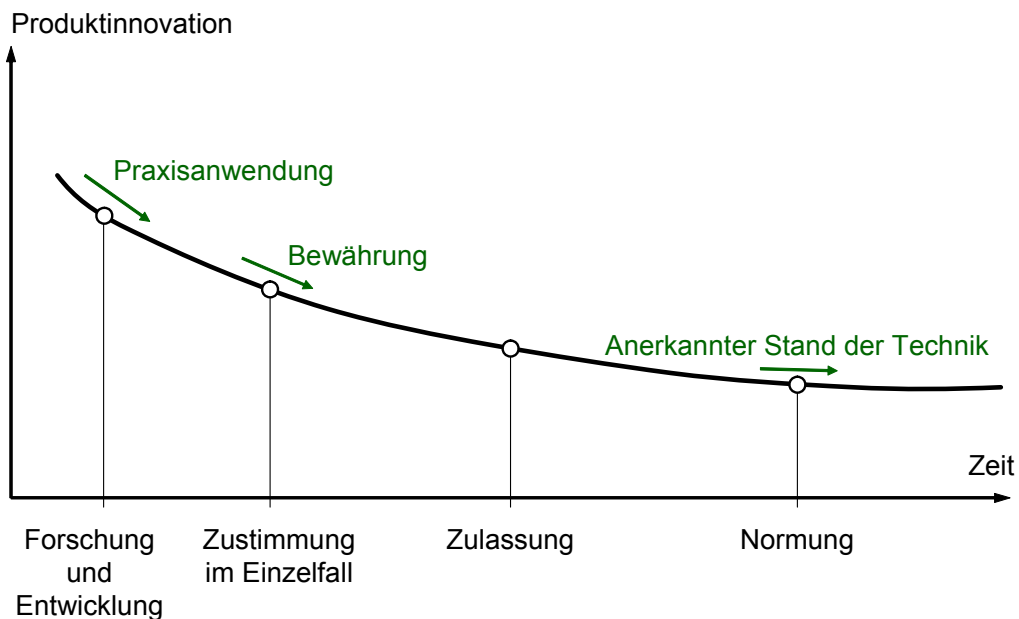


Bild 3-7: Anwendung der Eurocodes für alle bauaufsichtlichen Genehmigungsverfahren

- (11) Viele Eurocode-Bemessungsregeln, z.B. die Windlastermittlung für außergewöhnliche Bauwerke oder die Tragfähigkeitsermittlung von Systemen für Dach, Wand und Decken in EN 1993-1-3, gehen auch aus Wirtschaftlichkeitsgründen davon aus, dass die einzelnen Eingangsgrößen zum Bauwerksverhalten (Berechnungsmodell) oder zu einzelnen Tragfähigkeiten oder Steifigkeiten experimentell bestimmt werden.

3.3 Worin besteht das Eurocode-Programm?

- (1) Zur Zeit gibt es 10 Eurocodes mit insgesamt 58 Teilen, von denen die Teile für Stahlbau und Verbundbau fast die Hälfte ausmachen.
- (2) Diese wurden von Projekt-Teams in Unterausschüssen von CEN/TC 250 aufgrund von Verträgen erarbeitet, dann von Redaktionsgruppen überarbeitet, in die CEN-Sprachen Deutsch-Englisch-Französisch übertragen und schließlich für die formale Abstimmung freigegeben.
- (3) Es gab für die Bearbeitung der Eurocodes Koordinierungsrichtlinien für bauweisenübergreifendes Vorgehen, z.B. ein gemeinsames Inhaltsverzeichnis, siehe Bild 3-8, einige gemeinsame Regeln z.B. für geometrische Ersatzimperfectionen und eine einheitliche Begriffsbestimmung.

Vorwort

Hintergrund des Eurocode Programms

Status und Gültigkeitsbereich der Eurocodes

Nationale Fassungen der Eurocodes

Verbindungen zwischen den Eurocodes und den harmonisierten Technischen Spezifikationen (EN und ETZ)

Zusätzliche Informationen zu EN 199X-Teil Y-Z

Nationaler Anhang

1. Allgemeines

Anwendungsbereich

Normative Verweisungen

Annahmen

Unterscheidung nach Grundsätzen und Anwendungsregeln

Begriffe

Bezeichnungen

2. Grundlagen für Entwurf und Berechnung

Anforderungen

Grundsätze zur Bemessung mit Grenzzuständen

Basisvariable

Nachweis mit Teilsicherheitsbeiwerten

Nachweis mit Versuchsunterstützung

3. Baustoffe

Allgemeines

((spezielle Eigenschaften))

4. Dauerhaftigkeit

5. Statische Berechnung

Statische Modell

Imperfektionsansätze

Verfahren

6. Grenzzustand der Tragfähigkeit

7. Grenzzustand der Gebrauchstauglichkeit

8. Konstruktive Ausbildung

Anhänge – normativ / informativ

Bild 3-8: Gemeinsames Inhaltsverzeichnis der Eurocodes

- (4) Das Gesamtprogramm, siehe Bild 3-9, enthält eine übergeordnete Norm EN 1990 mit Grundlagen der Tragwerksplanung, deren Anhänge A_i mit Teilsicherheitsbeiwerten und Kombinationsregeln für die Einwirkungen besonders interessant sind, sowie einen Strang von Normen mit Einwirkungsfestlegungen und einen Strang von Normen mit Bemessungsregeln für die verschiedenen Baustoffe. Die Regeln für Geotechnische Anlagen und Anlagen in Erdbebengebieten erfassen sowohl die Einwirkungsbestimmung als auch die Bemessungsregeln.

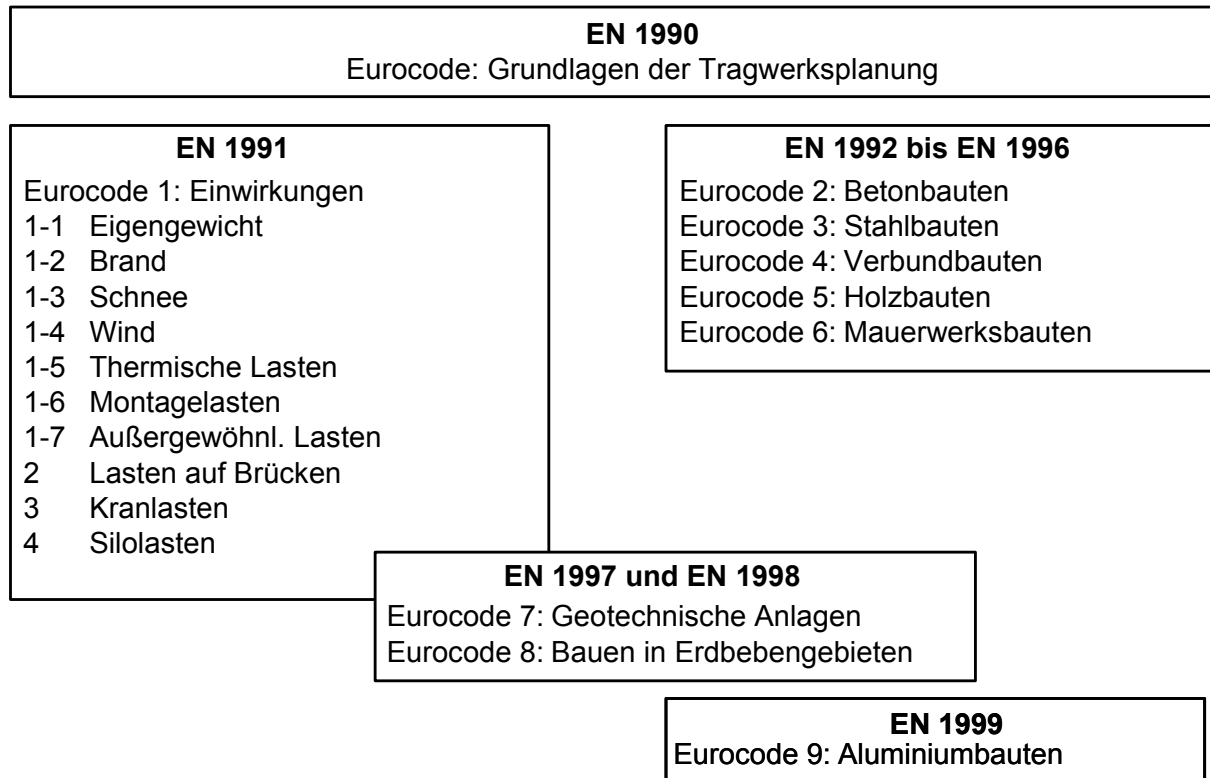


Bild 3-9: Gesamtes Eurocode Programm

- (5) Der Eurocode 3 als Beispiel für eine Bemessungsnorm, siehe Bild 3-10, ist wie die DIN-Normen der Reihe 18800 so strukturiert, dass neben einem Grundlagenteil mit in- zwischen 12 Unterteilen, weitere Anwendungsteile 2 bis 6 stehen, die bestimmte An- wendungsgebiete wie Brücken, Maste, Kamine etc. betreffen und ergänzende Sonder- regelungen enthalten, die nur für diese Anwendungsfelder gelten.

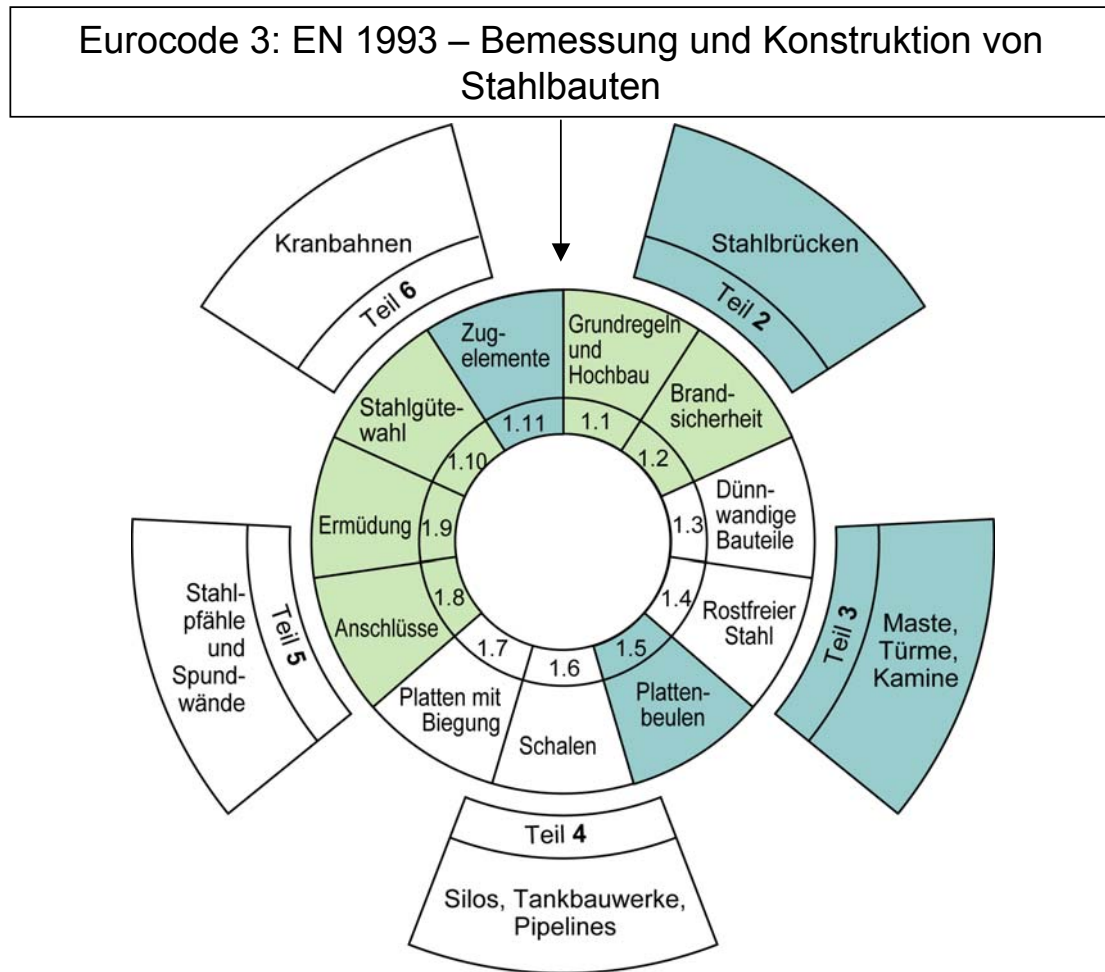


Bild 3-10: Normensystem im Stahlbau

- (6) Die Meilensteine der Eurocode-Bearbeitung, siehe [Bild 3-11](#), sind im Wesentlichen Status 34, wenn der Eurocode-Entwurf vom CEN/TC 250 Unterausschuss technisch gebilligt ist, Status 49, wenn die Dreisprachenfassung besteht und die formale Abstimmung eingeleitet wird, und Status 64, wenn der abgestimmte Eurocode in den CEN-Sprachen zur Verfügung steht, das Deckblatt der DIN-EN-Version zugefügt wird und nur noch der Nationale Anhang in Form einer ergänzende DIN-Norm ausgearbeitet wird.

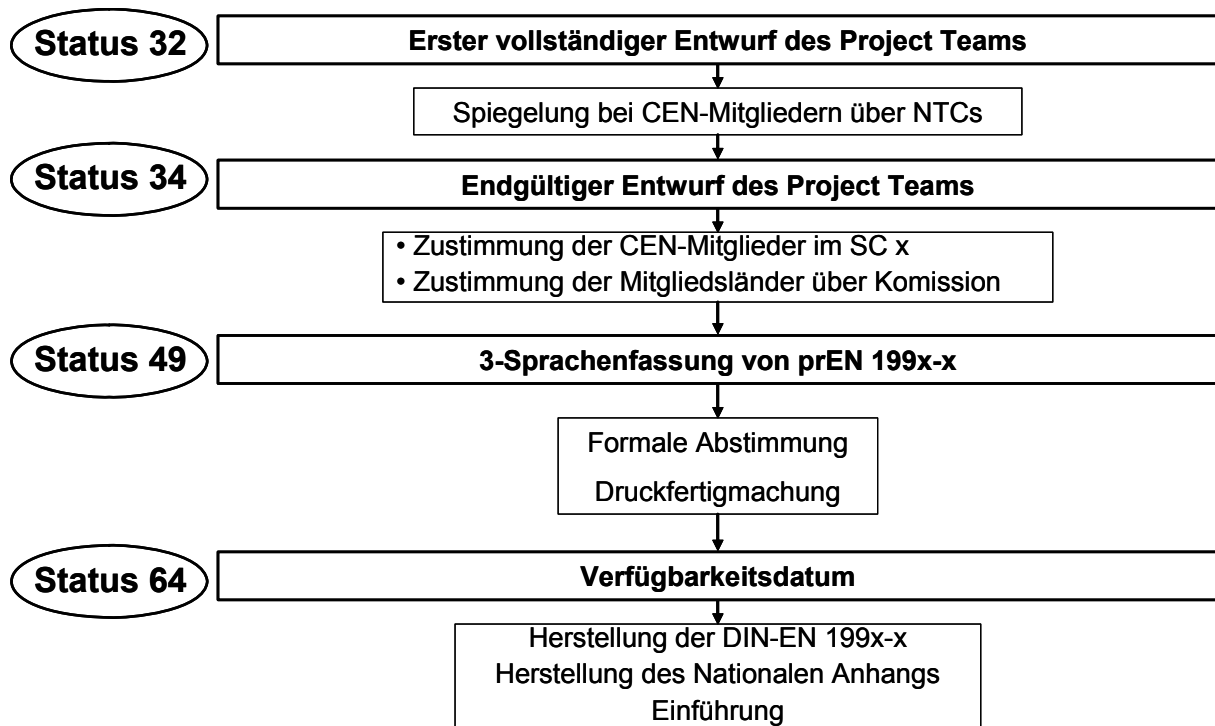


Bild 3-11: Meilensteine für die Eurocode-Bearbeitung

3.4 Europäische einheitliche Regeln und Nationale Ergänzungen

- (1) Entsprechend den Regelungen in EN 1990 – Grundlagen der Tragwerksplanung – und dem zwischen der Kommission und den Mitgliedsländern abgestimmten Leitpapier L: "Nutzung und Anwendung der Eurocodes" erfordert die Doppelrolle der Eurocodes, nämlich Referenznorm für Bauprodukte und Bemessungsnorm für Bauwerke, eine Aufteilung in einen europäisch einheitlichen Teil und einen von den nationalen Schutzzielen abhängigen Nationalen Anhang.
- (2) Grundsätzlich europäisch einheitlich sind:
 - die beschreibenden Regeln für die Grundlagen der Tragwerksplanung,
 - Begriffsbestimmungen, Bezeichnungen und mathematische Darstellung der Grundgleichungen für die Führung von Tragfähigkeits-, Gebrauchstauglichkeits- und Dauerhaftigkeitsnachweisen,
 - mathematische Modelle für die Bestimmung charakteristischer Einwirkungsgrößen abhängig von den geographischen, klimatischen und traditionellen Parametern, zur Ermittlung der Beanspruchungen, siehe Bild 3-12,
 - mathematische Modelle und Zahlenwerte sowie geometrische Randbedingungen zur Ermittlung von Beanspruchbarkeiten mit Bezug auf die Produktnormen.

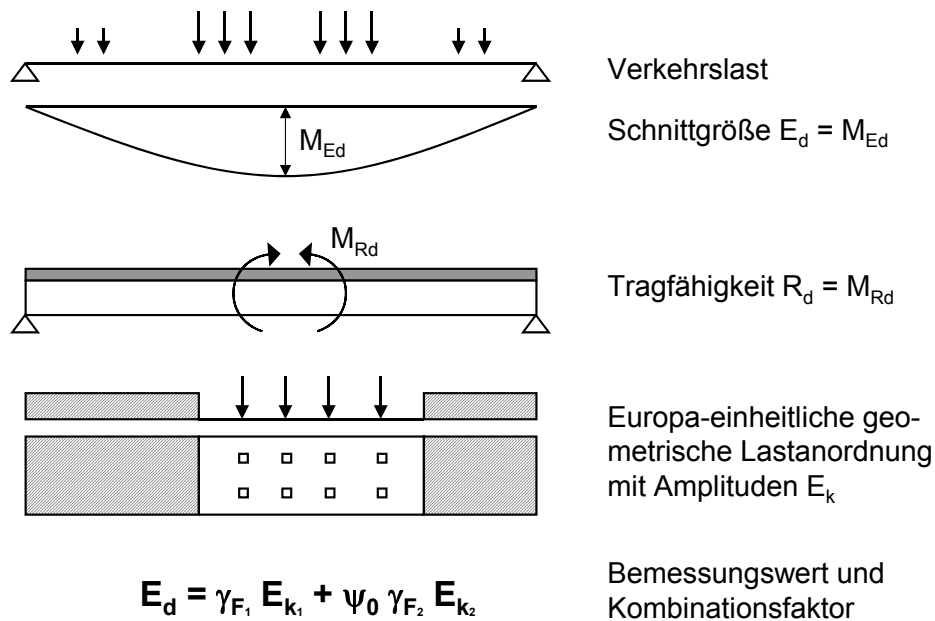


Bild 3-12: Beispiel für die mathematische Formulierung der Verkehrslast auf Brücken

- (3) In nationaler Zuständigkeit liegen nur die Kenngrößen (national festzulegende Parameter – „Nationally Determined Parameters – NDP“), die in den Eurocodes als solche gekennzeichnet sind. Damit diese Kennzeichnung den Anforderungen aller Mitgliedsländer entspricht, ist die Zustimmung zu den Eurocodes über zwei Wege gelaufen:
1. über die CEN-Route, d.h. in Deutschland über die Spiegelausschüsse des NABau im DIN,
 2. über die Kommissionsroute gemäß Leitpapier L, d.h. über Information der Mitgliedsländer durch die Kommission im Rahmen der „Examination-Period“.
- (4) Der Nationale Anhang ist deshalb kurz und für alle Länder gleichartig, da er nur die angeforderten Festlegungen zu
- Lastparametern, Schneekarten, Windkarten, etc.,
 - Teilsicherheitsbeiwerten, Kombinationsbeiwerten, sonstigen Faktoren und die angeforderte Auswahl aus dafür angebotenen Alternativen, z. B. alternativen Methoden, oder die Inkraftsetzung oder Außerkraftsetzung informativer Anhänge enthält.
- (5) Der Nationale Anhang kann auch Hinweise zu nationalen Ergänzungsnormen liefern, die Regelungslücken der Eurocodes auffüllen, aber keine zu den Eurocodes widersprüchlichen Angaben enthalten dürfen.
- (6) Zu allen in den Eurocodes angeforderten nationalen Festlegungen gibt es in den Eurocodes Empfehlungen, so dass man auch dann, wenn keine Nationalen Anhänge existieren, mit den Eurocodes arbeiten kann. Von den Empfehlungen macht man auch Gebrauch bei der Ausbildung der Studenten, bei der Herstellung von Bemessungshilfen und von Programmen.

- (7) Bei einigen Eurocodes, z.B. beim Eurocode 3 und Eurocode 4, sind die Empfehlungen für die national zu bestimmenden Parameter für die Beanspruchungsseite, z.B. γ_M , ebenso wie die charakteristischen Werte R_k der Beanspruchbarkeit aus Versuchsergebnissen abgeleitet worden, siehe Bild 3-13. Dort besteht eine große Wahrscheinlichkeit, dass sich alle Mitgliedsländer bei ihren Festlegungen an die Empfehlungen halten; dazu rät auch die Kommission bei ihrer Empfehlung zur Einführung der Eurocodes vom 11. Dezember 2003. Bei von den Empfehlungen abweichenden Festlegungen kann es den Mitgliedsländern schwer fallen, ihre Entscheidung der Kommission gegenüber zu begründen.

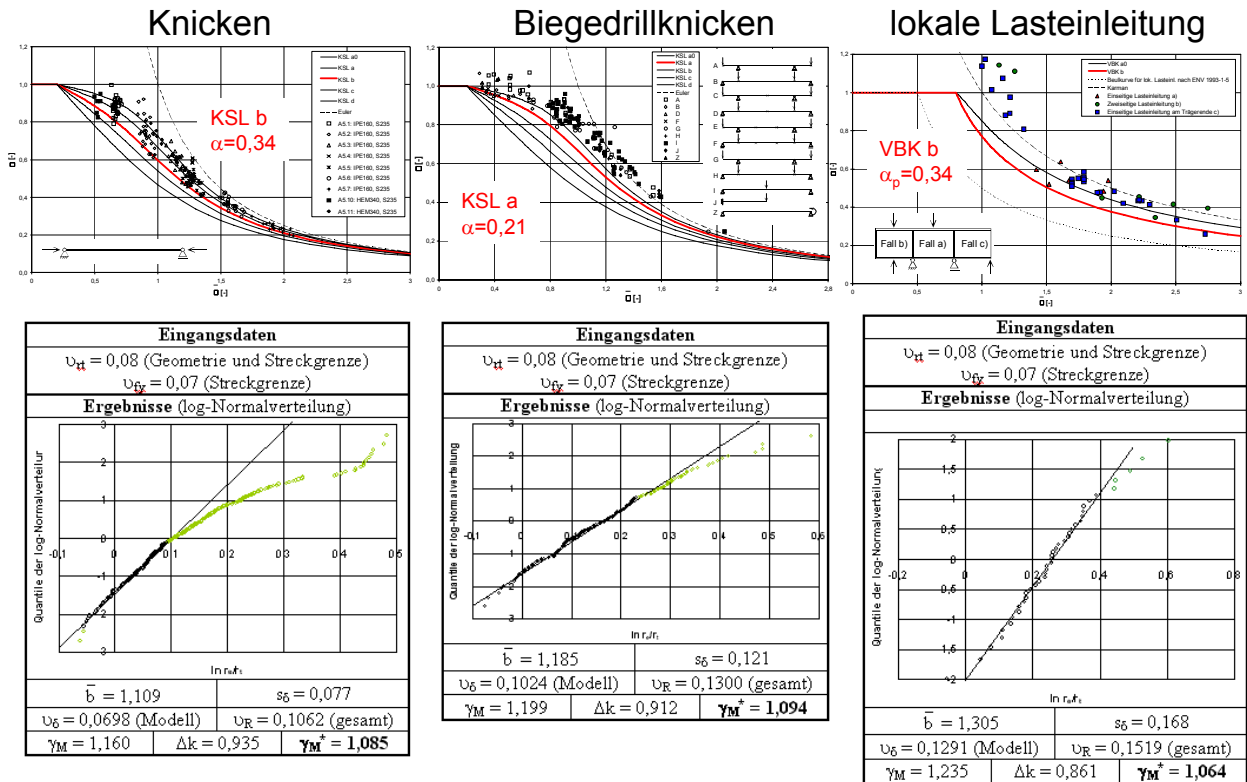


Bild 3-13: Versuchsauswertungen für die R_k - und γ_M -Bestimmung

- (8) Zur Zeit werden bei der Kommissionsstelle JRC in Ispra die Vorbereitungen für die Befragung der Mitgliedsländer getroffen, um aus den Ergebnissen eine Strategie zur Harmonisierung der national zu bestimmenden Parameter zu gewinnen. Diese könnte z. B. darin bestehen, dass die Abstufungen in Lastkarten vereinheitlicht werden und für andere Parameter, z.B. γ_M -Werte, Klassen mit festgelegten Zahlensprüngen vorgegeben werden.
- (9) Damit wird es leichter, für den Handel mit vorgefertigten Produkten wie Hochregallagern, Kühlhäusern, Standardhallen, Brücken, europäisch einheitliche technische Merkmale z.B. in Form einheitlicher Typenstatiken herzustellen.

3.5 Koordinierte Bearbeitung von Eurocodes und Produktnormen

- (1) Das Leitpaper L „Nutzung und Anwendung der Eurocodes“ erforderte eine koordinierte Bearbeitung der Eurocodes und der Produktnormen, damit
- die mechanischen Eigenschaften der Produkte für die Bemessung geeignet definiert sind und nach dieser Definition ermittelt werden,
 - die Produkte den Anforderungen entsprechen, die an sie aus dem geforderten Bauwerksverhalten gestellt werden,
 - die Stufen und Klassen in den Produktregelungen den Sicherheitsanforderungen der Mitgliedsländer entsprechen, die diese durch die NDPs ausdrücken.
- (2) Daher waren Koordinierungsarbeiten mit einer Reihe von Technischen Komitees in CEN und Arbeitsgruppen in EOTA notwendig, Bild 3-14 und Bild 3-15.

TC 50	Road lighting columns
TC 124	Timber products
TC 125	Masonry products
TC 129	Glass products
TC 135	Metallic products
TC 167	Structural bearings
TC 168	Ropes
TC 177	Prefabricated aerated concrete
TC 185	Threaded and unthreaded components
TC 226	Road equipment
TC 229	Precast concrete products
TC 340	Anti-seismic devices
ECISS TC 10/19	Reinforcing steel

Bild 3-14: CEN/TC 250 Liaisons innerhalb CEN

- | |
|---|
| <ul style="list-style-type: none">• Timber frame building kits• Prefabricated stair kits• Three dimensional nailing plates• Stress skin panels• Shuttering hollow blocks• Post-tensioning systems• Road joints• Light composite wood-based beams• Internal partition kits• Self supporting translucent roof kits |
|---|

Bild 3-15: CEN/TC 250 Liaison mit EOTA

- (3) Das Ziel der Abstimmungen in CEN ist eine widerspruchslöse Anwendung der Eurocodes und der Produktnormen, siehe Bild 3-16.

Verwendung des Eurocode 3		
Bezugsnorm für		
Entwurf und Berechnung von Bauwerken	Entwurf und Berechnung von Bauprodukten	Ausführung von Bauwerken und Bauprodukten
<ul style="list-style-type: none"> • Stahlbauwerke • Verbundbauwerke 	<ul style="list-style-type: none"> • vorgefertigte Stahl- und Verbundkomponenten • Stahl- oder Verbundsysteme 	
Grundlagen für die Nachweisführung	Grundlagen für CE-Zeichen	Grundlagen für die Ausführung
<ul style="list-style-type: none"> • EN 1993-x-y • EN 1994-x-y • Nationale Anhänge zu den Eurocodes (NDPs) 	<p>Anhänge ZA der Produktnorm EN 1090-1</p>	<p>Ausführungsnorm EN 1090- 2</p>

Bild 3-16: Verwendung von Eurocode 3

- (4) Das Ziel der Abstimmungen mit EOTA sind einheitliche Regeln zur Behandlung von Zulassungen, die mit den Eurocode-Anforderungen übereinstimmen.
- (5) Am Beispiel von Masten und Türmen aus Stahl nach EN 1993-3-1, Bild 3-17, wird deutlich, welchen Umfang die Bezugsnormen annehmen und dass dringend Navigationssysteme erforderlich sind, um ohne Zeitverzug alle notwendigen Schritte zu übersehen, Bild 3-18.

Example: Mast, towers, chimneys

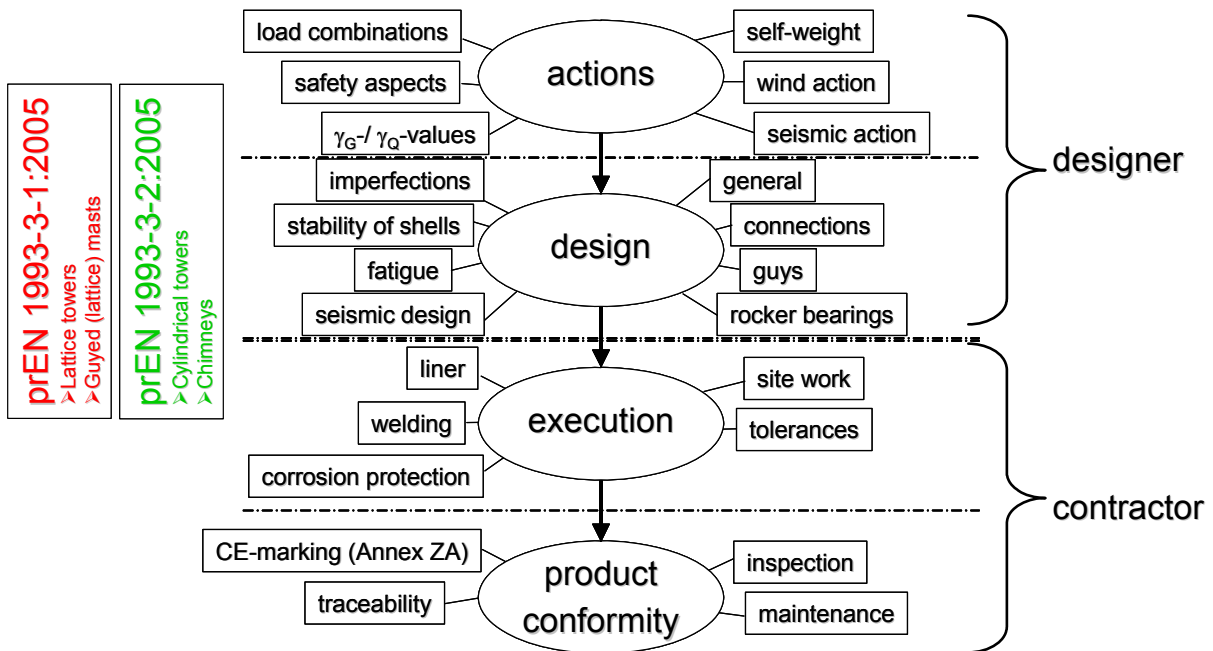


Bild 3-17: Anleitung – Normen für Türme und Maste aus Stahl

Example: Mast, towers, chimneys

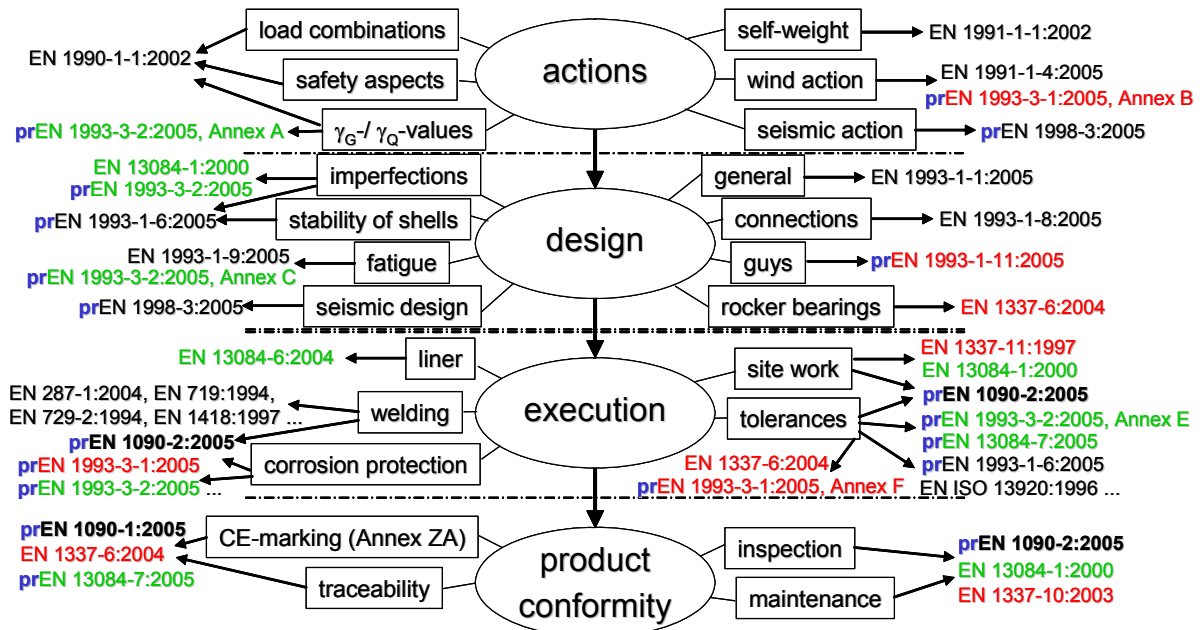


Bild 3-18: Anleitung – Normen für Türme und Maste aus Stahl

3.6 Fertigstellung der Eurocodes und Einführung in Deutschland

- (1) Das Verzeichnis aller Eurocode-Teile, die inzwischen als Status 64-Dokumente vorliegen, geht aus Bild 3-19 hervor.
- (2) In Deutschland liegen damit alle Eurocodes als DIN-EN-Normen inhaltsgleich mit den anderen Fassungen in den CEN-Sprachen BS-EN (Vereinigtes Königreich) und NF-EN (Frankreich) vor. Die Inhaltsgleichheit ist eine Gleichheit der technischen Regelinhalte, nicht unbedingt eine Gleichheit der Syntax, da unterschiedliche Sprachstile beachtet wurden.
- (3) Für Deutschland gilt alleine die deutsche Fassung; es gibt keine englische „Masterfassung“, auf die man im Zweifel zurückkommen könnte, da die Erarbeitung und Überarbeitung der drei Sprachfassungen gleichzeitig erfolgte. (Es kann also sein, dass eine Regel in der deutschen Sprachfassung besser verstanden wird, als in der englischen Sprachfassung).
- (4) Im Falle von Interpretationsproblemen oder falls Widersprüche oder Lücken erkannt werden, ist die Ansprechstelle der Normenausschuss DIN NABau.

		Status 64
EN 1990 - A ₁	Grundl. der Tragwerksplanung – Hochbau	
A ₂	Grundl. der Tragwerksplanung – Brücken	
EN 1991 - 1-1	Eigengewicht, Nutzlasten	
1-2	Brandlasten	
1-3	Schnee	
1-4	Wind	
1-5	Temperatur	
1-6	Bauzustände	
1-7	Sonderlasten	
2	Brückenlasten	
3	Kranbahnlasten	
4	Silolasten	
EN 1992 - 1-1	Beton – Grundlagen und Hochbau	
1-2	Brandschutz	
2	Brücken	
3	Behälter	
EN 1993 - 1-1	Stahl – Grundlagen und Hochbau	
1-2	Brandschutz	
1-3	Dünnwandige Profile	
1-4	Rostfreier stahl	
1-5	Beulen	
1-6	Schalen	
1-7	Platten	
1-8	Verbindungen	
1-9	Ermüdung	
1-10	Stahlgütewahl	
1-11	Zugglieder	
1-12	Hochfeste Stähle bis S700	
2	Brücken	
3-1	Türme, Maste	
3-2	Kamine	
4-1	Silos	
4-2	Tanks	
4-3	Pipelines	
5	Spundwände	
6	Kranbahnen	
EN 1994 - 1-1	Verbund – Grundlagen und Hochbau	
1-2	Brandschutz	
2	Brücken	
EN 1995 - 1-1	Holzbau	
1-2	Brandschutz	
2	Brücken	
EN 1996 - 1-1	Mauerwerksbau	
1-2	Brandschutz	
2	Brücken	
3	Vereinfachte Berechnungen	
EN 1997 - 1	Geotechnische Bemessung	
2	Bodenuntersuchungen	
EN 1998 - 1	Erbeben allgemein	
2	Brücken	
3	Verstärkungen	
4	Silos, Tanks, Pipelines	
5	Gründungen	
6	Türme und Maste	
EN 1999 - 1-1	Aluminium – Grundlagen	
1-2	Brandschutz	
1-3	Ermüdung	
1-4	Kaltgeformte Profile	
1-5	Schalen	

Bild 3-19: Bearbeitungsstand der Eurocodes (Februar 2007)

- (5) Die Erarbeitung der Nationalen Anhänge zu den verschiedenen Eurocode-Teilen erfolgt in DIN-Ausschüssen als DIN-NA-EN ... im normalen Normungsverfahren, siehe Bild 3-20.

(Entwurf) Zeitplan für die Erarbeitung und Veröffentlichung der Nationalen Anhänge zu den Eurocodes (Stand Oktober 2006)

Grundlage des Zeitplans ist die Empfehlung der Kommission vom 11. Dezember 2003, sowie der Anhang A vom Leitpapier L. Die Kalibrierung und evtl. Pilotprojekte werden innerhalb der Bearbeitungszeit durchgeführt. Die Eurocodes mit entgegenstehenden nationalen Ergänzungen werden spätestens zum gleichen Datum veröffentlicht wie die Nationalen Anhänge.

	Normbezeichnung	Kurztitel	Entwurfsmanuskript verabschiedet durch zuständigen Ausschuss	Entwurf zur Stellungnahme Veröffentlichung durch DIN	Erprobung der Kalibrierung Pilotprojekte parallele Bemessung oder Ausführung	Endtermin für Stellungnahmen zum Entwurf	Beratung der Stellungnahmen Auswertung der Pilotprojekte Verabschiedung des Manuskripts für Weißdruck	Weißdruck Veröffentlichung durch DIN
Eurocode 0 Grundlagen	DIN EN 1990	Grundlagen		2004-07 ¹		2008-03 ²	2008-06 ³	2009-06
	DIN EN 1990/A1	Brücken	2007-06	2007-09		2008-03	2008-06	2009-01
Eurocode 1 Einwirkungen	DIN EN 1991-1-1	Grundlagen, Nutz-/ Eigenlasten	2007-03	2007-06		2007-12	2008-06	2009-06
	DIN EN 1991-1-2	Brandeinwirkungen	2008-06	2008-12		2009-06	2009-09	2010-03
	DIN EN 1991-1-3	Schneelasten	2006-11	2007-02		2007-12	2008-02	2009-06
	DIN EN 1991-1-4	Windlasten	2007-03	2007-06		2007-12	2008-06	2009-06
	DIN EN 1991-1-5	Temperaturlasten	2007-03	2007-06		2007-12	2008-06	2009-06
	DIN EN 1991-1-6	Bauzustände	2007-03	2007-06		2007-12	2008-06	2009-06
	DIN EN 1991-1-7	Außergewöhnliche Lasten	2007-06	2007-09		2007-02	2008-06	2009-06
	DIN EN 1991-2	Verkehrslasten - Brücken	2007-06	2007-06		2008-03	2008-06	2009-01
	DIN EN 1991-3	Kranbahnlasten	2007-06	2007-09		2007-02	2008-06	2009-06
DIN EN 1991-4	Silolasten	2007-03	2007-06		2007-12	2008-06	2009-06	
Eurocode 2 Betonbau	DIN EN 1992-1-1	Grundlagen	2007-03	2007-06	2007-07 bis 2009-07	2008-03	2009-12	2010-03
	DIN EN 1992-1-2	Brandschutz	2008-06	2008-12		2009-06	2009-09	2010-03
	DIN EN 1992-2	Brücken	2007-06	2007-09		2008-03	2008-06	2009-01
	DIN EN 1992-3	Stützbauwerke	2008-03	2008-06		2008-12	2009-12	2010-03
Eurocode 3 Stahlbau	DIN EN 1993-1-1	Grundlagen	2006-12	2007-03	ausschließlich Vergleichsrechnung	2007-09	2007-12	2008-06
	DIN EN 1993-1-1 Berichtigung 1				ausschließlich Vergleichsrechnung			
	DIN EN 1993-1-2	Brandschutz	2007-12	2008-03	2008-03 bis 2009-03	2008-12	2009-03	2009-09
	DIN EN 1993-1-8	Anschlüsse	2006-12	2007-03	ausschließlich Vergleichsrechnung	2007-09	2007-12	2008-06
	DIN EN 1993-1-8 Berichtigung 1				ausschließlich Vergleichsrechnung			
	DIN EN 1993-1-9	Ermüdung	2006-12	2007-03	ausschließlich Vergleichsrechnung	2007-09	2007-12	2008-06
	DIN EN 1993-1-9 Berichtigung 1				ausschließlich Vergleichsrechnung			
	DIN EN 1993-1-10	Stahlsortenauswahl	2006-12	2007-03	ausschließlich Vergleichsrechnung	2007-09	2007-12	2008-06

Bild 3-20: Bearbeitungsstand der Nationalen Anhänge in Deutschland

Eurocode 3 Stahlbau	DIN EN 1993-1-10 Berichtigung 1				ausschließlich Vergleichsrech- nung			
	DIN EN 1993-1-3	kaltgeformte dünnwandige Bauteile	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-1-4	Tragwerke aus nichtrostendem Stahl	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-1-5	Plattenbeulen	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-1-11	Vorgefertigte Zugglieder	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-2	Brücken			2007-07 bis 2008-07			
	DIN EN 1993-3-1	Türme und Maste	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-3-2	Schornsteine	2007-06	2007-09	2007-07 bis 2008-07	2008-04	2008-08	2009-01
	DIN EN 1993-1-6	Schalen	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-1-7	Bleche - Querbelastung	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-1-12	Stahlgüten bis S 700	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-4-1	Silobauwerke	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-4-2	Tankbauwerke	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-4-3	Rohrleitungen	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-5	Pfähle und Spundwände	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
	DIN EN 1993-6	Kranbahnen	2007-12	2008-03	2007-07 bis 2009-01	2008-10	2009-02	2009-06
Eurocode 4 Verbundbau	DIN EN 1994-1-1	Grundlagen	2007-06	2008-09	ausschließlich Vergleichsrech- nung	2009-03	2009-12	2010-03
	DIN EN 1994-1-2	Brandschutz	2008-01	2008-12	2007-07 bis 2009-01	2009-06	2009-12	2010-03
	DIN EN 1994-2	Brücken			ausschließlich Vergleichsrech- nung	2008-06	2008-12	2009-03
Eurocode 5 Holzbau	DIN EN 1995-1-1	Grundlagen	2007-03	2007-06	2007-06 bis 2008-03	2007-12	2008-12	2009-04
	DIN EN 1995-1-2	Brandschutz	2008-06	2008-12		2009-06	2009-09	2010-03
	DIN EN 1995-2	Brücken	2007-09	2007-12		2008-06	2008-12	2009-03
Eurocode 6 Mauerwerks- bau	DIN EN 1996-1-1	Grundlagen	2007-09	2008-01	2008-07 bis 2010-07	2008-06	2011-01	2011-04
	DIN EN 1996-1-2	Brandschutz	2007-09	2008-01	2008-07 bis 2010-07	2008-06	2011-01	2011-04
	DIN EN 1996-2	Planung, Auswahl, Ausführung	2007-09	2008-01		2008-06	2011-01	2011-04
	DIN EN 1996-3	Vereinfachte Regeln	2007-04	2008-07	2009-01 bis 2011-01	2008-12	2011-06	2011-09
Eurocode 7 Grundbau	DIN EN 1997-1	Grundlagen	2007-03	2007-06		2007-12	2008-03	2008-06
	DIN EN 1997-2	Untersuchung des Baugrunds	2007-03	2008-06		2008-12	2009-03	2009-06
Eurocode 8 Erdbeben	DIN EN 1998-1	Grundlagen	2007-06	2007-09		2007-12	2008-06	2009-06
	DIN EN 1998-2	Brücken	2007-09	2007-12		2008-06	2008-06	2009-06
	DIN EN 1998-3	Beurteilung und Ertüchtigung	2007-09	2007-12		2008-06	2008-12	2009-06
	DIN EN 1998-4	Silos, Tanks und Pipelines	2007-09	2007-12		2008-06	2008-12	2009-06
	DIN EN 1998-5	Gründungen, Stützbauwerke	2007-06	2007-09		2007-12	2008-06	2009-06
	DIN EN 1998-6	Türme, Maste und Schornsteine	2007-09	2007-12		2008-06	2008-12	2009-06
Eurocode 9 Aluminiumbau	DIN EN 1999-1-1	Grundlagen	2007-08	2007-12	2008-01 bis 2008-06	2008-06	2008-12	2009-06
	DIN EN 1999-1-2	Brandschutz	2007-12	2008-03		2008-12	2009-03	2009-09
	DIN EN 1999-1-3	Ermüdungsanfällige Bauwerke	2007-12	2008-06	2008-07 bis 2008-12	2008-12	2009-06	2009-12
	DIN EN 1999-1-4	Trapezbleche	2007-08	2007-12	2008-01 bis 2008-06	2008-06	2008-12	2009-06
	DIN EN 1999-1-5	Schalen	2007-08	2007-12	2008-01 bis 2008-06	2008-06	2008-12	2009-04

¹ Betrifft zurückgestellten Entwurf

² Betrifft die Veröffentlichung eines möglichen 2. Entwurf

³ Betrifft möglichen 2. Entwurf

Bild 3-20 (Fortsetzung): Bearbeitungsstand der Nationalen Anhänge in Deutschland

- (6) Ein Großteil der national zu bestimmenden Parameter in diesen Nationalen Anhängen folgt den Empfehlungen von CEN/TC250, da diese durch Hintergrunduntersuchungen zur erforderlichen Sicherheit, die bei der Eurocode-Bearbeitung in CEN/TC250 abgefallen sind, rechtfertigt sind.
- (7) Abweichungen vor den empfohlenen Werten werden durch nationale Hintergrunduntersuchungen unterstützt, die so dokumentiert sind, dass sie von der Kommission bei deren Harmonisierungsbemühungen herangezogen werden können.

3.7 Besondere Fragen der Bauaufsicht

3.7.1 GELTEN DIE EUROCODE-REGELN ALS „BEWÄHRTE“ REGELN?

- (1) Anders als bei der Fortschreibung nationaler Normenregelungen für den Entwurf und die Berechnung baulicher Anlagen war es bei Beginn der Entwicklung der Eurocodes Bild 3-21 nicht möglich, auf bewährten nationalen Regeln aufzubauen, da dies die Einigung auf die Verwendung einer der vielen konkurrierenden nationalen Normen vorausgesetzt hätte.

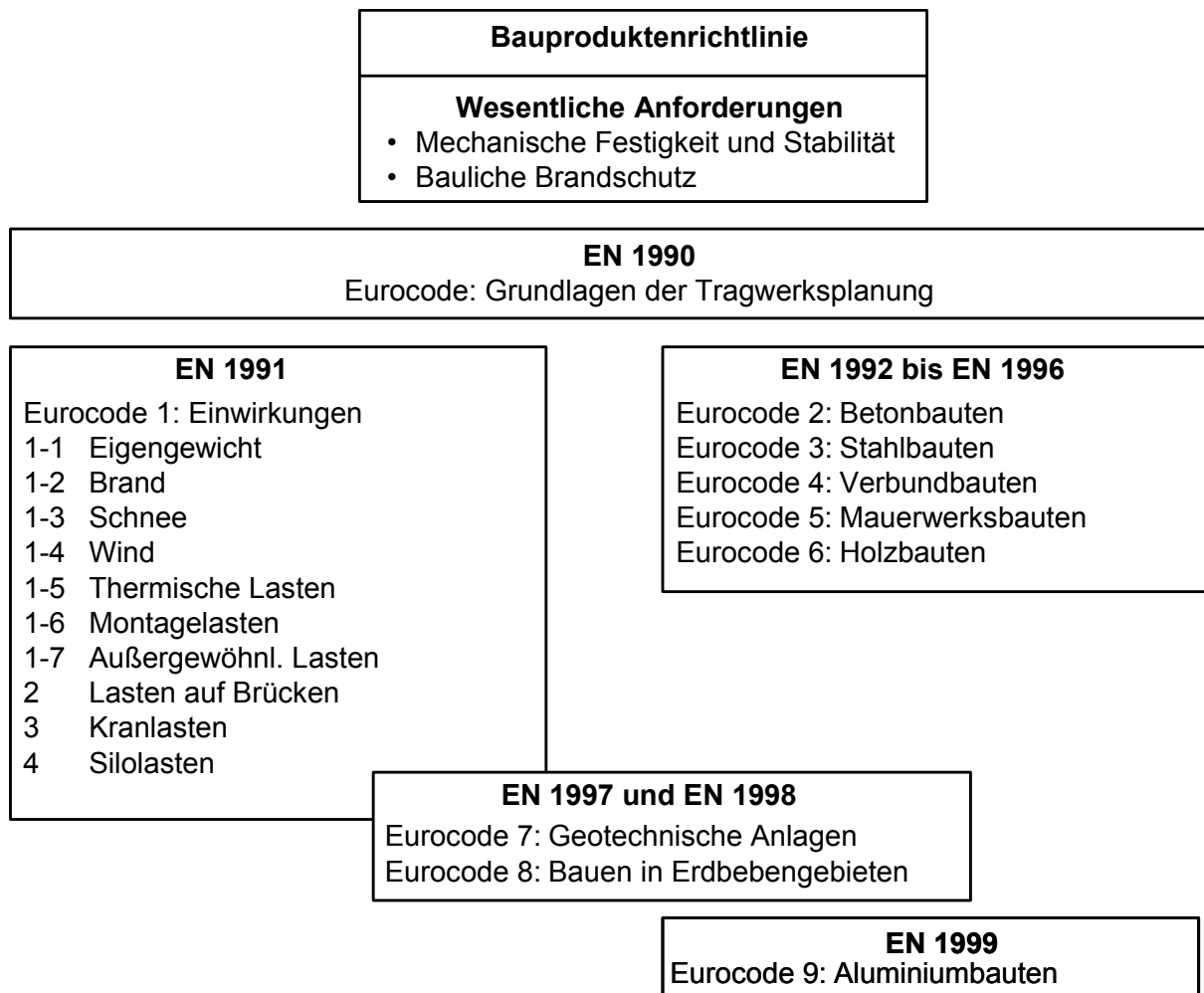


Bild 3-21: Übersicht über die Eurocodes und ihre Rechtsgrundlage

- (2) Es war vielmehr notwendig, sich zunächst auf die Grundlagen der Normen, nämlich die Interpretationen der wesentlichen Anforderungen an die mechanische Festigkeit und Stabilität und an den baulichen Brandschutz, zu einigen und diese durch Grundsätze und Sicherheitsziele zu konkretisieren, die von allen Mitgliedsstaaten als gleichwertig mit den durch ihre nationalen Normen angestrebten Schutzniveaus angesehen werden konnten.
- (3) Diese Sisyphus-Arbeit erfolgte bei der Entwicklung des Eurocode EN 1990 – Grundlagen der Tragwerksplanung. Aufbauend auf der Harmonisierungsarbeit der Technisch-Wissenschaftlichen Verbände wie der IVBH, JCSS, EKS, CEB-FiP wurden in EN 1990 z.B. folgende Vorgehensweisen europäisch einheitlich geregelt:
 - die Bemessung nach Grenzzuständen der Tragfähigkeit und Gebrauchstauglichkeit unter Berücksichtigung der Dauerhaftigkeit,
 - die Prüfung von Gefährdungsszenarien zur Auswahl wichtiger Bemessungssituationen,
 - die Anwendung von Bemessungswerten der Beanspruchung und der Beanspruchbarkeit, die jeweils aus statistisch definierten charakteristischen Werten und Teilsicherheitsbeiwerten zusammengesetzt sind,
 - die Differenzierung nach einer Leiteinwirkung mit vollem Bemessungswert und Begleiteinwirkungen mit Kombinationsbeiwerten zur Feststellung der maßgebenden Lastkombination,
 - die Definition charakteristischer Werte der Bauteilfestigkeit und anderer Bauteileigenschaften aus der statistischen Verteilung von Ergebnissen von Versuchen mit bauteilähnlichen Prüfkörpern.
- (4) Bezeichnenderweise befinden sich die zahlenmäßigen Konkretisierungen dazu nicht im Normtext der EN 1990, sondern in Anmerkungen und erläuternden (informativen) Anhängen; sie gelten also nicht als verbindliche Regeln, sondern nur als Empfehlungen. Dies ist damit begründet, dass Sicherheitselemente und klimatisch oder geographisch bedingte Besonderheiten als national festzulegende Parameter (NDPs) in der Verantwortung der Mitgliedsländer liegen und daher dafür der Vorbehalt ihrer Zustimmung besteht. Die „National festzulegenden Parameter“ werden von den Eurocodes getrennt in den zu jedem Teil der Eurocodes erforderlichen Nationalen Anhängen (NA) veröffentlicht.
- (5) Die Empfehlungen für die Konkretisierung der Sicherheitsanforderungen sind:
 - Zuverlässigkeitsindex $\beta = 3,80$ für Tragfähigkeitsnachweise für einen Bezugszeitraum von 50 Jahren,
 - Wichtung der Beanspruchungsseite mit $\alpha_E = 0,70$ und der Beanspruchbarkeitsseite mit $\alpha_R = 0,8$,
 - Bestimmung der charakteristischen Werte der Einwirkungen als Werte mit einer mittleren Wiederkehrperiode von 50 Jahren (Schnee und Wind) bzw. von 1000 Jahren (Verkehrslasten),
 - Bestimmung der charakteristischen Werte der Beanspruchbarkeit R_k und der zugehörigen Teilsicherheitsbeiwerte γ_M für Bauteile nach dem Versuchsauswertungsverfahren im Anhang D der EN 1990.
- (6) Für Deutschland sind diese Empfehlungen nicht neu: Sie entsprechen den Einigungen, die Bauweisen übergreifend in den „Grundlagen für die Sicherheit baulicher Anlagen (GruSiBau)“ erzielt wurden, und die Auswertemethode zur Bestimmung von Bauteilfestigkeiten entspricht der DIBt-Richtlinie für die Durchführung und Auswertung von Versuchen für Zulassungen.

- (7) Da sich die Bearbeitung der Einwirkungsannahmen für EN 1991 (Eurocode 1) und der Bemessungsregeln für die Baustoff- und Bauweisen bezogenen Eurocodes, z.B. für EN 1992 (Eurocode 2) für Betonkonstruktionen, EN 1993 (Eurocode 3) für Stahlbauten und EN 1994 (Eurocode 4) für Stahlbeton-Stahl-Verbundkonstruktionen an diesen zahlenmäßigen Empfehlungen orientierte, konnte mit einer konkludenten Entwicklung von Eurocodes und DIN-Normen gerechnet werden. Es war also sinnvoll, parallel zur Normungsarbeit an den Eurocodes auch die nationale Normungsarbeit weiterzuführen, da diese über Querverbindungen zu den CEN-Arbeitsgruppen zu einer Verbesserung der Eurocodes und nach Fertigstellung der Eurocodes zu einem unproblematischen Übergang von den DIN-Normen zu den DIN-Eurocodes führen würde, Bild 3-22:

Eurocodes		DIN-Normen	
		Hochbau	Brückenbau
EN 1990	Grundlagen der Tragwerksplanung	DIN 1055-100	DIN-Fachbericht 101
EN 1991-1-1	Eigengewicht, Nutzlasten auf Dächern und Decken	DIN 1055-1 DIN 1055-2 DIN 1055-3	DIN-Fachbericht 101
EN 1991-1-2	Brandeinwirkungen		
EN 1991-1-3	Schnee	DIN 1055-5	
EN 1991-1-4	Wind	DIN 1055-4	DIN-Fachbericht 101
EN 1991-1-5	Temperatur	DIN 1055-7	DIN-Fachbericht 101
EN 1991-1-6	Bauzustände	DIN 1055-8	DIN-Fachbericht 101
EN 1991-1-7	Außergewöhnliche Einwirkungen	DIN 1055-9	DIN-Fachbericht 101
EN 1991-2	Verkehrslasten auf Brücken		DIN-Fachbericht 101
EN 1991-3	Kranbahnlasten	DIN 1055-10	
EN 1991-4	Silolasten	DIN 1055-6	
EN 1992-1	Stahl- und Spannbeton	DIN 1045	
EN 1992-2	Stahl- und Spannbetonbrücken		DIN-Fachbericht 102
EN 1993-1	Stahlbau	DIN 18800	
EN 1993-2	Stahlbrücken		DIN-Fachbericht 103
EN 1994-1	Verbundbau	DIN 18800-5	
EN 1994-2	Verbundbrücken		DIN-Fachbericht 104

Bild 3-22: Vorwegnahme von Eurocode-Regelungen durch temporäre DIN-Normen

Deshalb fanden nach der Veröffentlichung der ENV-Eurocodes folgende nationale Normungsarbeiten statt:

1. Entwicklung der neuen Einwirkungsnormen im Rahmen der DIN 1055 (neu)-Reihe, mit denen die Angaben für die zukünftigen Nationalen Anhänge, z.B. Windkarten, Schneekarten, Nutzlasten auf Decken und Dächern, geschaffen wurden.
2. Entwicklung von DIN 1045 (neu) für Betonkonstruktionen zur Ausfüllung der für nationale Entscheidungen offenen Möglichkeiten im Eurocode 2 und Entwicklung von DIN 18800-5 für Verbundkonstruktionen entsprechend Eurocode 4 und Eurocode 3, so dass für Stahlbauten die DIN 18800 – Reihe vollständig ist und mit diesen DIN-Normen bereits vor der Einführung der Eurocodes Anwendungserfahrungen gesammelt werden konnten.
3. Entwicklung der DIN-Fachberichte 101 (Eurocode 1), 102 (Eurocode 2), 103 (Eurocode 3), 104 (Eurocode 4) für den Bau von Beton-, Stahl- und Verbundbrücken, um so die veralteten Brückenregeln auf die neuen Eurocode-Regeln umzustellen, Erfahrungen zu sammeln und die Eurocode-Entwicklung zu beeinflussen.

- (8) Die Bearbeitung der Nationalen Normen hat dazu geführt, dass frühzeitig die wichtigen Angaben für die Nationalen Anhänge zu den Eurocodes auf dem Normenwege geschaffen wurden und dafür bereits Anwendungserfahrungen vorliegen.
- (9) Die Empfehlungen für die Konkretisierung der Sicherheitsanforderungen im Eurocode EN 1990 haben durch die „Empfehlungen der Kommission zur Einführung der Eurocodes in den Mitgliedsländern vom 11. Dezember 2003“ eine neue Qualität erhalten, indem ihre Verwendung den Mitgliedsstaaten besonders angeraten wird und mögliche nationale Entscheidungen gegen die Empfehlungen der Eurocodes wissenschaftlich begründet werden müssen. Da Deutschland die Empfehlungen der Eurocodes in den Nationalen Anhängen umgesetzt hat, handelt es sich hier um vorgezogene europäische Lösungen, die somit für die Zukunft als stabil angesehen werden können.
- (10) Die Bedeutung der EN 1990 - Grundlagen der Tragwerksplanung - liegt also vor allem darin, die Europäisch einheitlichen Sicherheitsgrundlagen und Spielregeln für die Herstellung der Einwirkungsnormen und der Baustoff- und Bauweisen abhängigen Normen mit den Bemessungsregeln zu liefern. Sie enthält auch die Sicherheitsgrundlagen für Europäische Technische Zulassungen und bauaufsichtliche Zulassungen sowie Zustimmungen im Einzelfall. Für die Entwurfsarbeit sind nur die Anhänge A₁ relevant, die die Empfehlungen für die Zahlenwerte der Teilsicherheits- und Kombinationsbeiwerte für die Einwirkungsseite liefern.
- (11) EN 1990 selbst ist im Allgemeinen nicht für die tägliche praktische Entwurfsarbeit heranzuziehen, es sei denn, es müssen neue, in den Eurocodes nicht geregelte bemessungsrelevante Angaben entwickelt werden, z.B. für Zulassungen oder Zustimmungen im Einzelfall, oder wenn für bestimmte Projekte besondere technische Spezifikationen zu nicht in den Eurocodes geregelten Belastungen, Berechnungsmethoden oder Bauteileigenschaften entwickelt werden müssen. Sind für Projekte nur die Eurocodes ohne solche ergänzenden Spezifikationen anzuwenden, dann kann der Anwender davon ausgehen, dass die Regelungen in den Einwirkungs- und Bemessungs-Eurocodes die Grundsätze des Eurocode EN 1990 bereits erfüllen, so dass er die Übereinstimmung dieser Regelungen mit EN 1990 und die Vollständigkeit der Spezifikationen nicht noch einmal überprüfen muss.

3.7.2 GEMEINSAMKEITEN UND UNTERSCHIEDE ZWISCHEN NORMEN UND ZULASSUNGEN

- (1) Eine der wichtigsten Regelungen zur Vereinheitlichung der technischen Regeln für die Bemessung von Bauteilen und Tragwerken ist die in Anhang D von EN 1990 standardisierte Vorgehensweise zur Bestimmung der charakteristischen Werte und der Bemessungswerte von Bauteileigenschaften aus Bauteilversuchen, siehe Bild 3-6. Diese Regelungen gelten für die Erstellung von Normen, die Erarbeitung von Zulassungen und für technische Gutachten, die Zustimmungen im Einzelfall unterstützen, und werden unabhängig vom verwendeten Baustoff angewendet.
- (2) Für Stahlbauteile, die hier als Beispiele für die Anwendung der standardisierten Vorgehensweise für die Normung herangezogen werden, wird vorausgesetzt, dass die Bauteilversuche in folgender Hinsicht repräsentativ sind:
 1. Werkstoffe, Halbzeuge und Verbindungsmittel entsprechen den Produktstandards, für die der Eurocode 3 gültig ist, z. B. EN 10025 für Stahl,
 2. die Ausführung entspricht den Ausführungsregeln und Toleranzen in EN 1990, Teil 2, deren Einhaltung für die Gültigkeit der Bemessungsregeln im Eurocode 3 vorausgesetzt wird.

Damit gehen entweder die statistischen Verteilungen der Werkstoff- und Bauteileigenschaften über die Versuchskörper in die Versuchsergebnisse ein, oder sie werden auf-

grund von Vorkenntnissen, die zu diesen statistischen Verteilungen existieren, bei der Versuchsauswertung nachträglich berücksichtigt.

- (3) Die Belastung erfolgt bei den Versuchen in der Regel statisch, d.h. mit langsam aufgebrachten Lasten, so dass Effekte der Dehnungsgeschwindigkeiten vernachlässigt werden. Die Versuche erfolgen bei Raumtemperatur, da Wirkungen niedriger Temperatur auf die Werkstoff- und Bauteileigenschaften durch geeignete Werkstoffwahl vorab berücksichtigt werden.
- (4) Im ersten Schritt der Versuchsauswertung werden die Versuchsergebnisse mit den Prognosen des verwendeten Ingenieurmodells verglichen.
- (5) Der Vergleich führt zu einer mehr oder weniger genauen Korrelation abhängig davon, wie zutreffend das Ingenieurmodell den Einfluss der wichtigen Parameter im Grenzzustand erfasst.
- (6) Im zweiten Schritt werden die Vergleichsdaten zwischen Versuchsergebnissen und Berechnungsergebnissen statistisch ausgewertet, das Ingenieurmodell mittelwertkorrigiert und der charakteristische Wert ($k_k = 1,645$) und der Bemessungswert ($k_d = 3,03$) nach den Empfehlungen der EN 1990 bestimmt. Dabei zeigt sich, dass die Modellgenauigkeit des Ingenieurmodells, die sich in Mittelwertabweichung und Streuung der Vergleichsdaten äußert, den überwiegenden Streuanteil liefert. Es ist also gerechtfertigt, den charakteristischen Wert R_k der Bauteilfestigkeit zu normieren und an diesem den globalen Teilsicherheitsbeiwert $\gamma_M = \frac{R_k}{R_d}$, der im Wesentlichen durch Modellstreuung bestimmt wird, anzuwenden.
- (7) Um die Anzahl verschiedener γ_M -Werte einzuschränken, werden im dritten Schritt die aus den Auswertungen ermittelten γ_M -Werte je nach Versagensform den Klassen γ_{Mi} :
 $\gamma_{M0} = 1,00$ bei Querschnittversagen infolge Fließens (bezogen auf f_y)
 $\gamma_{M1} = 1,10$ bei Bauteilversagen infolge Instabilwerden (bezogen auf $\bar{\lambda}$)
 $\gamma_{M2} = 1,25$ bei Werkstofftrennung infolge Zug- oder Schubversagen (bezogen auf f_u)
 zugeordnet.

Nach dieser Klassifizierung wird der charakteristische Wert R_k korrigiert, indem er an den gewählten Teilsicherheitsbeiwert angepasst wird:

$$R_k = \gamma_{Mi} \cdot R_d.$$

- (8) Diese Auswertung macht es möglich, konkurrierende Ingenieurmodelle miteinander zu vergleichen, und das günstigste festzustellen und auszuwählen. Dadurch kann man sich von bestimmten Schulmeinungen freimachen und Zwangsläufigkeiten in den Entscheidungsprozess bringen, die zu vereinheitlichten Auffassungen führen.

- (9) Die Vorgehensweise zur Bestimmung der charakteristischen Werte der Bauteilfestigkeiten aus Versuchen verknüpft auch die Produktnorm EN 1090 – Teil 1 „Lieferbedingungen für vorgefertigte Stahlbauteile“, die der Herstellererklärung für das CE-Zeichen zugrunde liegt, mit den Berechnungsmöglichkeiten im Eurocode 3. Die Herstellererklärung kann sich nämlich:
- a) auf Abmessungen und Werkstoffangaben gemäß Konstruktionszeichnung, sowie weitere Angaben, so dass Dritte die statische Berechnung durchführen können,
 - b) auf charakteristische Bauteileigenschaften R_k oder Bemessungswerte der Bauteileigenschaften R_d , wenn einmal die γ_M -Werte vereinheitlicht sind,
 - c) auf Übereinstimmung mit Herstellungsunterlagen des Herstellers oder des Bestellers,

beziehen. Dabei können bei Anwendung von b) die Werte R_k (oder R_d) experimentell (wenn die Versuchsdurchführungen im Eurocode 3 einmal einheitlich spezifiziert sind) oder rechnerisch (nämlich nach Eurocode 3) bestimmt werden. Da die Bauteilfestigkeiten R_k und R_d im Eurocode 3 durch Auswertung von Versuchsergebnissen bestimmt sind, ist also die experimentelle Ermittlung von R_k und die rechnerische Ermittlung von R_k nach Eurocode 3 gleichwertig. In der Regel ist die rechnerische Ermittlung von R_k nach Eurocode 3 der bessere und z.Zt. auch der einzig mögliche Weg.

- (10) Der Bestimmung des charakteristischen Wertes aufgrund von Versuchsergebnissen und Vorinformationen erfolgt im Anhang D von EN 1990 nach dem Bayes'schen Ansatz, der für die 95 %-Fraktile im Schnitt etwa die gleichen Ergebnisse liefert wie das Auswerte-Verfahren anhand der Häufigkeitsverteilungen mit einem Vertrauensgrad von 75 % (nicht 95 %). Daher werden für die Eurocodes andere Auswertungen auf einen Vertrauensgrad von 75 % umgerechnet.
- (11) Ein weiterer Vorteil der Kalibration der Bemessungsmodelle im Eurocode 3 mit Versuchsergebnissen liegt darin, dass die statistischen Bedingungen für die Eigenschaften der Werkstoffe und Halbzeuge definiert werden können, die zu den Teilsicherheitsbeiwerten γ_{Mi} passen. Damit ist es möglich, statistisch definierte Anforderungen an Werkstoffe und Abmessungen in Produktnormen bereitzustellen.

Beispielsweise gilt $\gamma_{M0} = 1,00$ für Walzprofile, wenn für die Lieferungen folgende Bedingungen gelten:

- für das Verhältnis von Gewicht zu Nennwert $\frac{G}{G_{nom}}$:
Mittelwert $\mu_G \geq 1,00$; Variationskoeffizient $v_G \leq 2,8 \%$
- für das Verhältnis Streckgrenze zu Nennwert $\frac{f_y}{f_{y,nom}}$:
Mittelwert $\mu_{fy} \geq 1,28$; Variationskoeffizient $v_{fy} \leq 6,8 \%$

Die Auswertung von Daten der Qualitätsprüfung europäischer Hersteller von Stahlprofilen hat gezeigt, dass diese Werte eingehalten werden können.

- (12) Die hier vorgestellte Prozedur ist ein wichtiges Hilfsmittel für die Vereinheitlichung der Regeln. Dieses Hilfsmittel reicht natürlich nicht aus, um gute Normen zu schaffen. Dazu kommt die Kunst der Normenmacher, unterschiedliche Auffassungen durch Schaffung geeigneter technischer Klassen oder unterschiedliche Verfahren durch Rückführung auf gemeinsame Wurzeln zu vereinheitlichen. Die Lösung des Problems unterschiedlicher Ermüdungsfestigkeiten in Kerbfallklassen und die Entwicklung des einheitlichen Verfahrens für den Stabilitätsnachweis für Schalenbeulen, Plattenbeulen und Stabknicken und Biegedrillknicken, Bild 3-23, sind hierzu Beispiele.

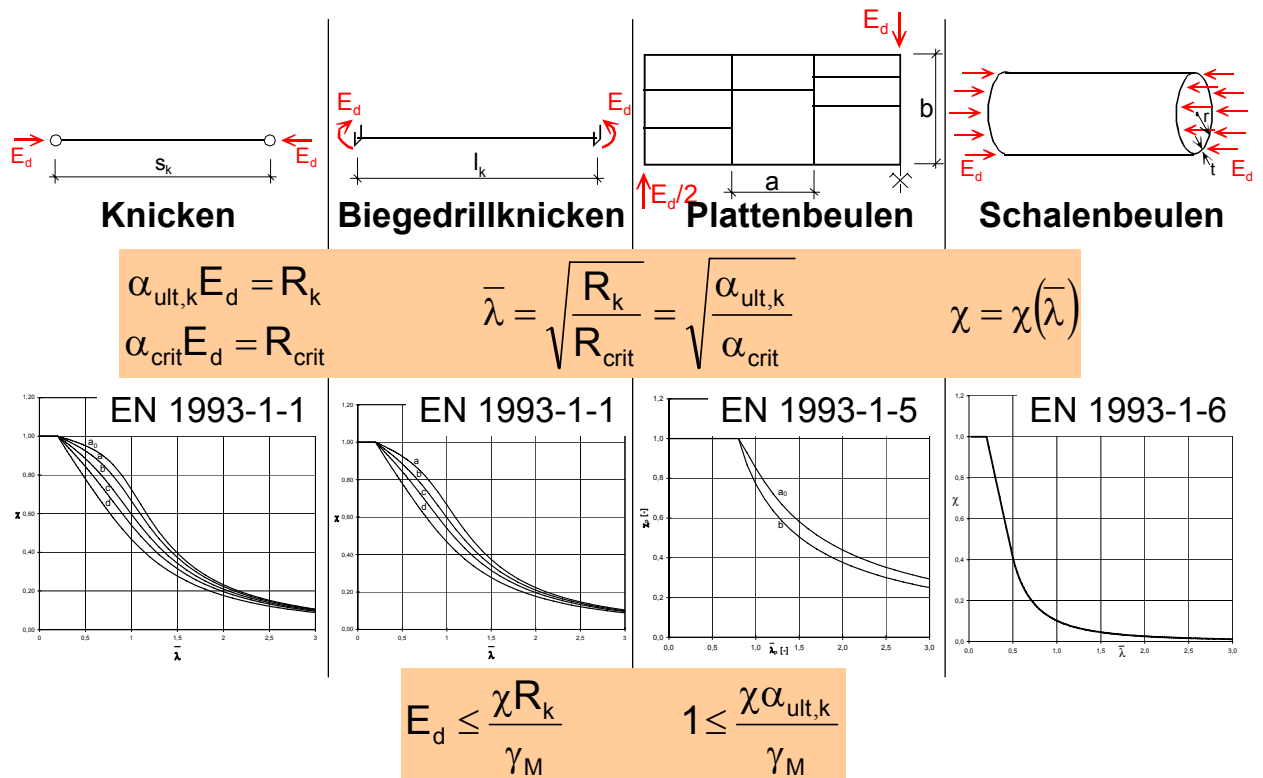


Bild 3-23: Primärregeln für den Knick-, Biegedrillknick-, Plattenbeul- und Schalenbeulnachweis

- (13) Bei innovativen Produkten, zu denen Zustimmungen im Einzelfall oder Zulassungen beantragt werden, gilt das o.g. Verfahren mit dem Unterschied, dass entweder:
1. für Werkstoffe, Halbzeuge und Verbindungsmittel keine Produktstandards gelten; dann muss die Zustimmung oder Zulassung eine solche Produktspezifikation liefern, die den Einsatzzweck beachtet, an repräsentativen Bauteile geprüft wird und einen Zusammenhang zwischen Werkstoffdaten aus Kleinteilversuchen und charakteristischen Bauteileigenschaften aus Bauteilversuchen liefert, oder
 2. keine anerkannten Ausführungsregeln und Toleranzen gelten, die bei unterschiedlichen Herstellern einen Herstellungsprozess in Gang setzen, mit dem zuverlässig die geforderten Produkteigenschaften erzeugt werden. Dann muss die Zustimmung oder Zulassung die spezifizierten Produkteigenschaften auf Produzenten mit nachgewiesenen Hersteller-Qualifikationen einschränken.
- (14) Man könnte nun meinen, dass diese Unterschiede auch durch die Normung erfasst werden können und der Unterschied zwischen Normung und Zulassung alleine im Herstellerqualifikationsnachweis (Erstprüfung bei Normen und Zulassungsprüfung bei Zulassungen) liegt. Dies ist aber nicht so: Trotz weit entwickelter Experimental- und rechnerischer Simulationstechnik sind bei innovativen Produkten Überraschungen im Verhalten nie auszuschließen. Hauptursache solcher Überraschungen ist vor allem das Langzeitverhalten, das durch extreme oder interne „Korrosionsprozesse“ beeinflusst wird. Hier bedarf es entsprechender Vorsicht und einer hochqualifizierten technischen Begleitung der Einführung innovativer Produkte auf dem Markt, um solche Überraschungen und ihre Wirkungen einzuschränken.

- (15) Ein wichtiges Thema der Zusammenarbeit zwischen CEN/TC 250 und EOTA ist der „Zusammenhang zwischen Werkstoffdaten aus Kleinteilversuchen und charakteristischen Bauteileigenschaften aus Bauteilversuchen“, der durch Bemessungsregeln hergestellt wird.
- (16) Wo die Zustimmung oder Zulassung auf solche Bemessungsregeln in den Eurocodes Bezug nimmt, gibt es keine Probleme; wo solche Bemessungsregeln neu entwickelt werden müssen, ist eine internationale Abstimmung z.B. mit EOTA-CEN/TC 250-Liaison angesagt, um von vornherein auf eine Europäische Harmonisierung anstelle nationaler Alleingänge mit nationalen Bemessungsregeln hinzuwirken.

3.7.3 NATIONALE BAUORDNUNGEN UND EUROCODES

- (1) Die Bauaufsichtsbehörden der Mitgliedsländer waren in die Eurocode-Entwicklung eingeschaltet und sind darauf vorbereitet, die Eurocodes einzuführen, so dass die nationalen Bauordnungen mit ihren wesentlichen Anforderungen und die Eurocodes als Beweisregeln zusammenpassen.
- (2) Probleme gibt es in einigen Ländern mit dem Eurocode für außergewöhnliche Einwirkungen (EN 1991-1-7) und den Eurocodes für den baulichen Brandschutz (EN 1991-1-2, EN 1992-1-2, EN 1993-1-2, EN 1994-1-2 usw.), da hier die bestehenden Bauordnungen noch nicht auf die neuen Einwirkungsbeschreibungen und Nachweise vorbereitet sind.
- (3) Dies erfordert die Lösung einiger Probleme, die im Falle Brandschutz am Beispiel Deutschland nachfolgend beschrieben werden.

Die Probleme entstehen aus folgenden Unterschieden:

1. die unterschiedliche Art und Weise, wie die abstrakten, gesetzlichen „wesentlichen Anforderungen“ (Schutzziele) in der Bauordnung beschrieben werden, siehe Bild 3-24.



Bild 3-24: Vergleich der wesentlichen Anforderungen in der Musterbauordnung (Deutschland) und im “Interpretativen Dokument” zu Anforderung Nr. 2 der Bauproduktenrichtlinie

2. Die unterschiedliche Art und Weise, wie die gesetzlichen „wesentlichen Anforderungen (Schutzziele) der Bauordnung in konkrete, technische Anforderungen an die Eignung bestimmter baulicher Anlagen im Brandfall übertragen werden (z.B. in form von Auslegungsvorschriften der Bauaufsicht, die sämtliche technische Anforderungen für den Entwurf und die Bemessung mit Stufung entsprechend einer Klassifizierung der Gebäude nach Risiko bereitstellen, so dass der Planer passende technische Normen und Richtlinien einschließlich Eurocodes verwenden kann, um die technischen Eignungsnachweise im „Heißen Entwurf“ durchzuführen).

Zur Zeit gibt es besonders:

- Unterschiede bei der Definition von Risikoklassen (siehe Tabelle A2 in EN 1991-1-7,
- Unterschiede in der Tiefe der Anforderungen für die Anwendung von Normen und Richtlinien, siehe Bild 3-25, und
- Unterschiede in der Entsprechung der Anforderungen und der Optionen, die der Eurocode bietet, siehe Bild 3-26.

Anforderung	National	Europäisch
Tragsicherheit im Brandfall		
-Feuerwiderstandsklassen	+	+
-Brennbarkeit der Bauteile	+	-
Behinderung der Brandausbreitung		
-Widerstand von Wänden und Decken	+	+
-Brandabschnittsgröße	+	-
Ermöglichung des Löschangriffs		
-Zugangswege und -flächen	+	-
-Bereitstellung von Löschmitteln	+	-
Fluchtwege (Länge und Breite)	+	-
Rauchabzu (z.B. in Treppenhäusern)	+	-

Nationale Regeln geben detaillierte Vorgaben

Bild 3-25: Vergleich der Regelungstiefe zu Anforderungen und Verfügbarkeit von Normen und Richtlinien in Deutschland und in Europa

National: 	Europäisch: 
§26(MBO): Nicht brennbar (oder verkleidet)	§3.2.(4) (ID2): Der Feuerwiderstand darf ermittelt werden unter der Annahme von:
§27(MBO): Ausreichende Brandsicherheit	- Natürlichen Bränden
§27(MBO): Feuerwiderstandsklasse entsprechend der Gebäudehöhe:	- Normbränden
- h<7m: R30	§3.3(ID2): Anforderungen dürfen definiert werden als:
- h<13m: R60	- Anforderung an das Gesamtgebäude
- andere und Keller: R90	- Anforderungen an Bauteile (z.B. durch Feuerwiderstandsklassen)
	- Definition kritischer Szenarios
=>Nationale Regelungen nutzen nicht alle Möglichkeiten der Eurocodes	

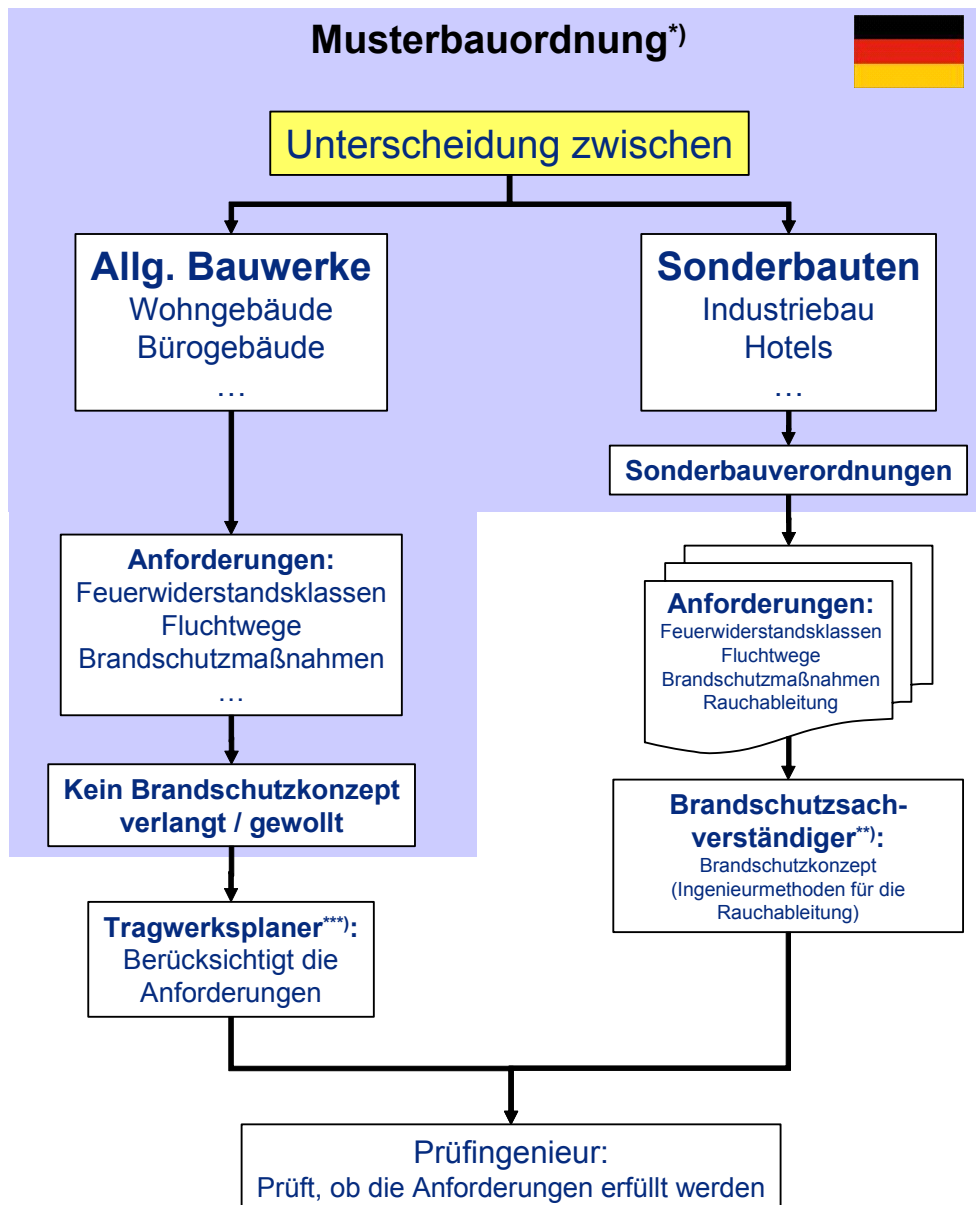
Bild 3-26: Vergleich der technischen Optionen zu Anforderungen in der Musterbauordnung in Deutschland und in den Eurocodes

3. Die unterschiedliche Verfügbarkeit von passenden technischen Normen und Richtlinien in Ergänzung zu den Eurocodes, mit denen die Erfüllung aller technischen Anforderungen (nicht nur die auf die Eurocodes bezogenen) nachgewiesen werden kann.
4. Die fehlende Anpassbarkeit an Nationale Besonderheiten der Brandschutzverordnungen, siehe Bild 3-27.

Brandentstehung und -ausbreitung: <ul style="list-style-type: none">- Gebäudetypen (z.B. Holzbau, Mauerwerk)- Lebensgewohnheiten (gefährliche Angewohnheiten)- Qualität der Installationen (Elektrik / Heizung)
Brandbekämpfung <ul style="list-style-type: none">- Art Der Feuerwehr (Berufsfeuerwehr, freiwillige Feuerwehr)- Ausstattung der Feuerwehr (Leitern, Brandbekämpfungstechnik)- Hilfsfrist (in Deutschen Städten z.b. 8-18 min)- Philosophie der Brandbekämpfung (Innen- / Außenangriff)
...

Bild 3-27: Einige Beispiele für nationale Besonderheiten der Brandschutzverordnungen in Deutschland

5. Die unterschiedlichen nationalen Traditionen, wie und von wem der Brandschutzentwurf bisher durchgeführt wurde, siehe Bild 3-28.



*) Unterschiedliche Bauordnungen in den einzelnen Bundesländern.

***) Brandschutzsachverständige sind normalerweise keine Bauingenieure mit Erfahrungen in der Tragwerksplanung und daher nicht für eine "heiße Bemessung" qualifiziert.

****) Tragwerksplaner und anerkannte Prüfingenieure sind normalerweise keine Brandschutzexperten, die ein Brandschutzkonzept entwickeln könnten, noch sind sie in der Ausführung einer "heißen Bemessung" geschult.

Bild 3-28: Entwurfspraxis für den baulichen Brandschutz in Deutschland

- (4) Zusammenfassend kann gesagt werden, dass die gegenwärtige Praxis durch konstruktive Bestimmungen der Bauaufsicht gekennzeichnet wird, die dazu noch je nach Bundesland und Gemeinde verschieden sind und keine Öffnung für die Anwendung von Ingenieurmethoden für den Brandschutznachweis nach den Eurocodes zulassen, siehe Bild 3-29.

- Wesentliche Anforderungen (national und europäisch) sind ähnlich
- Nationale Anforderungen
 - sind historisch gewachsen (geringer wissenschaftlicher Hintergrund) – sie sind nicht an der Eignung des Gebäudes orientiert
 - liefern detaillierte Handlungsanweisungen,
 - berücksichtigen nationale Besonderheiten,
 - berücksichtigen keine Ingenieurmethoden – sie schränken deren Anwendung ein.
- In Deutschland :
 - jedes Bundesland hat seine eigene Bauordnung und seine eigenen anerkannten Sachverständigen
 - anerkannte Brandschutzsachverständige führen normalerweise keine Brandschutzbemessung oder die Ermittlung der Temperaturkurve durch,
 - Tragwerksplaner führen normalerweise keine Brandschutzbemessung durch, da sie auf dem Gebiet keine Experten sind.

Bild 3-29: Schlussfolgerungen der Analyse

- (5) Ein Ausweg aus dieser Situation könnte sein, siehe Bild 3-30:
1. Die Bauordnung wird für einen anforderungsorientierten Eignungsnachweis geöffnet. Dies erfordert die Bereitstellung risiko-orientierter Anforderungen an die Eignung zusammen mit bauaufsichtlichen konstruktiven Anforderungen je nach Länder- oder Gemeindehoheit.
 2. Die Anforderungen für Eignungsnachweise sollten sich beziehen auf:
 - die Evakuierung,
 - die Entrauchungsplanung,
 - das Tragwerksverhalten, siehe Bild 3-31.
 3. Die Anforderung an die Eignung sollte sich nicht nur auf die Anwendung von Ingenieurmethoden für das Tragwerk (mit Naturbrandkurven), sondern auch auf Feuerwiderstandsklassen für Ausrüstungen, z.B. für Rauchgas- und Wärmeabzugs- und Lüftungs-Systeme beziehen, die daraufhin getestet werden.
 4. Die Anforderungen an die Eignung und die Feuerwiderstandsklassen sollten auf Konsistenz überprüft werden.

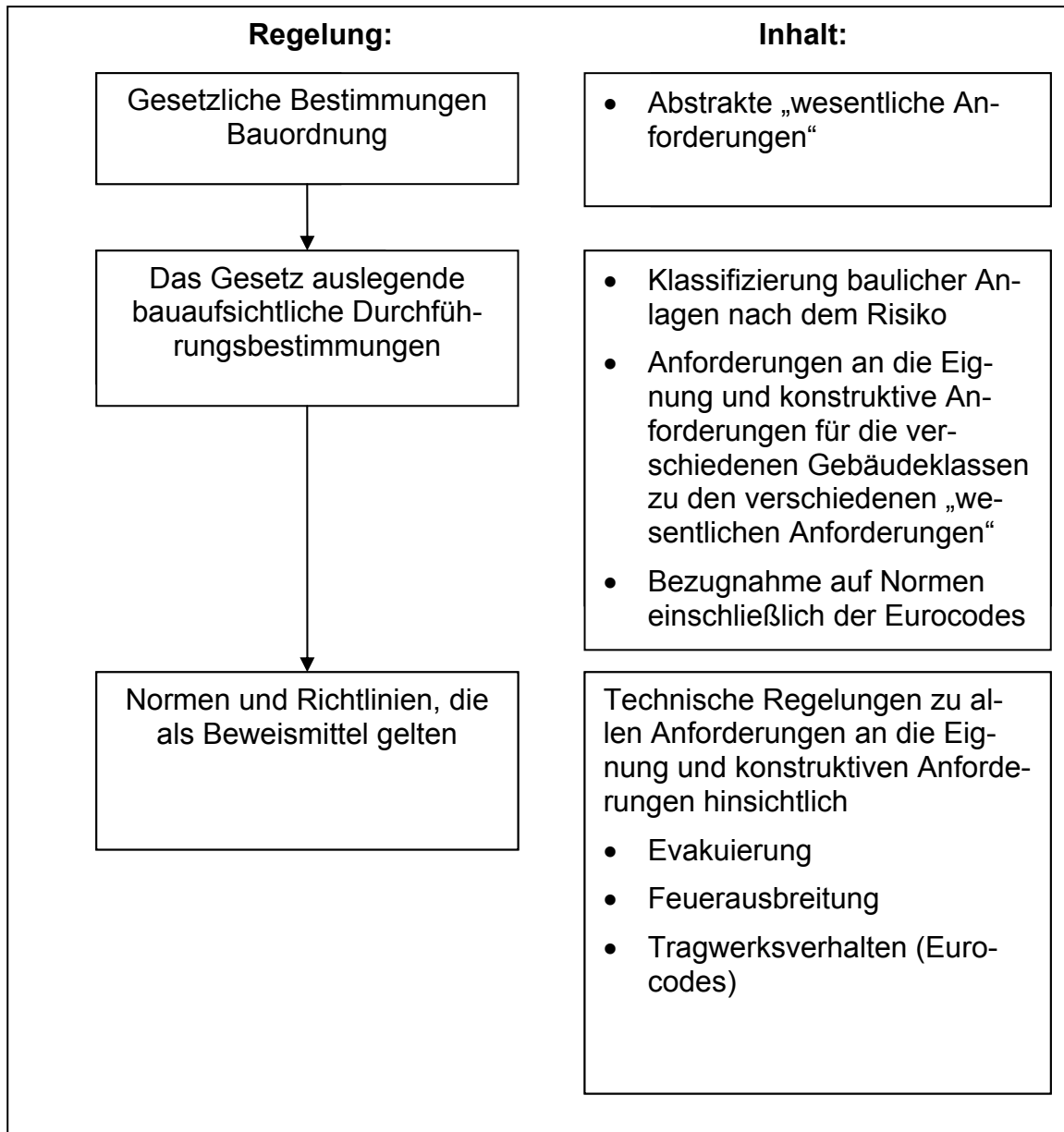


Bild 3-30: Modelschema zur Verbindung zwischen gesetzlichen Bestimmungen, bauaufsichtliche Durchführungsbestimmungen und als Beweismittel geltenden Normen und Richtlinien

1. Evakuierung

- Bestimmung der Zeit für Evakuierung und Rettung
- siehe VFD-B-Leitfaden
- es existiert kein Europäischer Standard

2. Entrauchung

- Entwurf eines Rauchabzugsystems, dass auf rauchfreie Schichten für die Evakuierung und Feuerwehrmaßnahmen abzielt (wo notwendig)
- z. B. liefert DIN 18232 RHR für Bemessungsbrände
- es existiert kein Europäischer Standard

3. Tragwerksverhalten

- Standsicherheit bis die Evakuierungs- und Rettungsmaßnahmen beendet sind
- Bemessungsbrände sind in Eurocode 1-1-2 und im VFD-B-Leitfaden angegeben (nur für Industriebauten)

Bild 3-32: Anforderungen an die Eignung mit Beispielen aus Deutschen Standards (VfdB-Leitfaden, siehe auch (7) und (8))

- (6) Damit wurde es glücken,
- einen realistischen modernen Brandschutznachweis zu führen,
 - die Bearbeitung der bisher nur vereinzelt mit modernen Ingenieurmethoden ohne Drittstellenprüfung erstellten Brandschutzkonzepte (von wenigen darauf spezialisierten Tragwerksplanern) für eine größere Anzahl von Tragwerksplanern für Kalt- und Warmbemessung zu öffnen (die dann von dafür spezialisierten Prüfengeuren geprüft werden sollten),
 - die Sicherheit und Wirtschaftlichkeit von Bauwerken zu vergrößern.
- (7) Über diesen wichtigen Aspekt der Verträglichkeit der traditionell gewachsene Bauordnungen für den Brandschutz mit den modernen Eurocodes, mit denen für die Tragwerksbemessung eine mit den übrigen Einwirkungen vergleichbare realistische Einwirkungsbeschreibung mit Naturbrandkurven eingeführt würde, die von verschiedenen Parametern wie Brandlast, Lüftung, aktiven Brandbekämpfungsmaßnahmen usw. abhängen (ISO Brandkurven bleiben weiterhin für die Ermittlung von Feuerwiderstandsklassen für Bauprodukte erforderlich), interessiert die Frage, wie der Nationale Anhang zu dem Sicherheitskonzept im informativen Anhang E der EN 1991-1-2 reagiert.
- (8) Das Sicherheitskonzept in EN 1991-1-2 liefert Resultate, die auf der sicheren Seite liegen. Noch realistischere Ergebnisse liefert das Konzept des VFD-B (Vereinigung zur Förderung des Brandschutzes), mit dem aufgrund der Kritik an EN 1991-1-2, siehe Bild 3-32 eine Alternativen mit den Merkmalen nach Bild 3-33 geliefert wird.

Positive Aspekte:

- EC1-1-2 liefert Brandlasten für unterschiedliche Gebäudenutzungen,
- diese Brandlasten sind allgemein anerkannt,
- aktive Brandschutzmaßnahmen wie Alarm und automatische Brandbekämpfung werden berücksichtigt

Kritik:

- die Reduktion der Brandlasten berücksichtigt nicht die Physik der Brandbekämpfungsmaßnahmen
- die Sicherheitselemente sollten nicht nur an der Brandlast, sondern auch an der Energiefreisetzung angebracht werden

Bild 3-32: Positive Aspekte und Kritik zu EN 1991-1-2

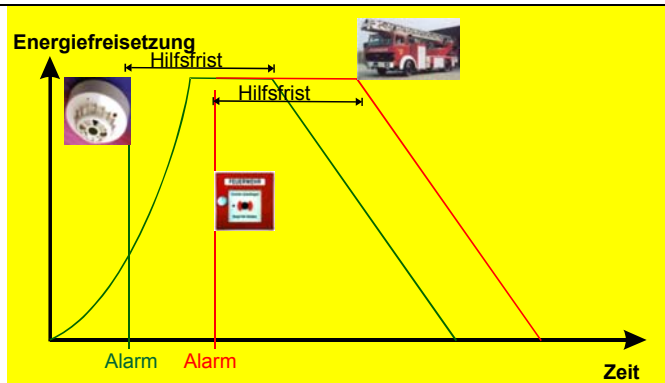
- Sicherheitsmaßnahmen werden bei den Brandschutzmaßnahmen untergebracht
- Objektbedingte Randbedingungen können direkt berücksichtigt werden, z.B.:
 - Entfernung zur Feuerwehr
 - Art der Feuerwehr
- Sicherheitsbeiwerte werden an den Berechnungsergebnissen angebracht
- Die Sicherheitsbeiwerte berücksichtigen:
 - das Bemessungsziel (Tragfähigkeit, Rauchmanagement, Gebrauchstauglichkeit)
 - Nutzung
 - Evakuierung (Gebäudehöhe)
 - Bedeutung des Gebäudes (z.B. Parlamentsgebäude, Landwirtschaftlicher Bau)

Bild 3-33: Wesentliche Merkmale des VFdB-Sicherheits-Konzeptes

- (9) Dabei wird z.B. die Nähe der Feuerwehr oder die Beschränkung der Energiefreisetzung durch Sprinkler nach Bild 3-34 berücksichtigt mit der Folge, dass Unterschiede zwischen der Alternative und dem Konzept in EN 1991-1-2 nach Bild 3-35 herauskommen.

Feueralarm

- Entfernung zur Feuerwehr wird berücksichtigt
- Werksfeuerwehr kann berücksichtigt werden



Automatische Brandbekämpfung

- Verschiedene Maßnahmen können berücksichtigt werden
- Sprinkler z.B. verhindern das Brandwachstum

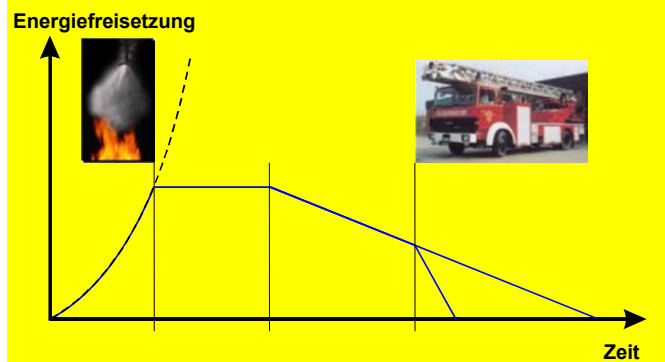


Bild 3-34: Energiefreisetzungsraten über die Zeit abhängig von Feueralarm und Brandbekämpfung

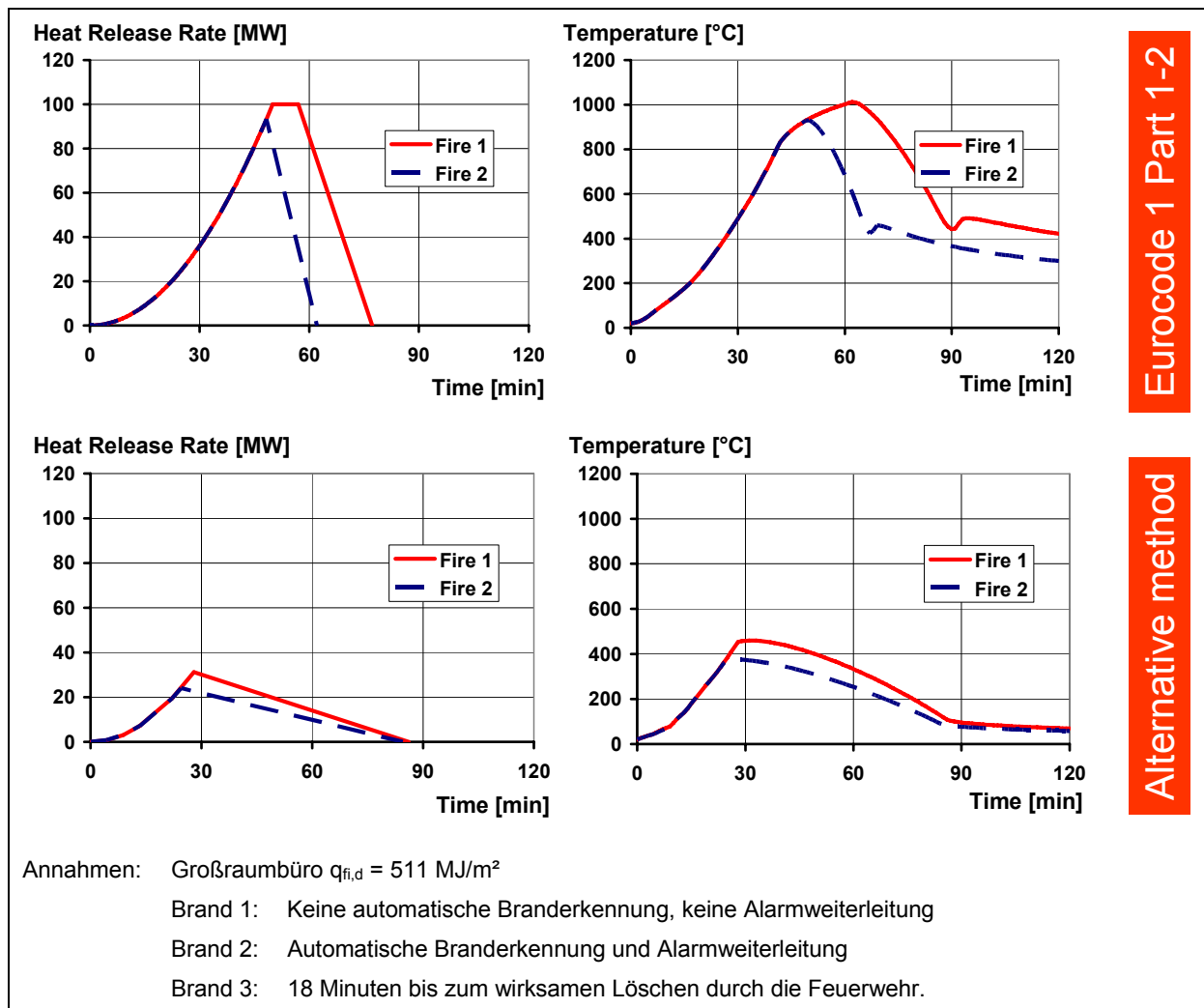


Bild 3-35: Vergleich der Ergebnisse nach EN 1993-1-2 und der Alternative nach VFdB

3.7.4 LEITPAPIER L UND ERKLÄRUNG ZUM CE-ZEICHEN

- (1) Das Leitpapier L „Nutzung und Anwendung der Eurocodes“ macht in Abschnitt 3.3 Angaben für die Bearbeiter von harmonisierten Produktnormen hEN und Europäischen Technischen Zulassungen ETA, die vorgefertigte Bauteile betreffen, wie die technischen Eigenschaften, die für Nachweise zur Erfüllung der wesentlichen Anforderungen 1 und 2 der Bauproduktenrichtlinie (Mechanische Beanspruchbarkeit und Stabilität und baulicher Brandschutz) notwendig sind, vom Hersteller erklärt werden müssen.
- (2) Dabei werden 3 Methoden unterschieden:
 - Methode 1: Geometrische Abmessungen, Werkstoffeigenschaften und Eigenschaften der bei der Fertigung benutzten Vorprodukte
 - Methode 2: Eigenschaften der vorgefertigten Bauteile, bestimmt mit Hilfe der Eurocodes (entweder als charakteristische Werte oder Bemessungswerte)
 - Methode 3: Übereinstimmung mit Herstellungsunterlagen entweder vom Hersteller oder Besteller.

- (3) Die Absicht des Leitpapiers war, eine einheitliche Herstellung der Produktnormen und Europäischen Technischen Zulassungen zu bewirken. Es zeigte sich, dass diese Wirkung nur mit zusätzlichen Koordinierungshilfen von CEN/TC 250 her erzielt werden konnten, die im Nachfolgenden dargestellt werden:
1. Zunächst ist zu beachten, dass eine harmonisierte Produktnorm kein auf dem Markt in Europa gehandeltes Produkt ausschließen darf. Das hat zur Folge, dass Klassen mit Produkteigenschaften in den Eurocodes und in den Produktnormen vorgesehen werden müssen, die die Möglichkeiten niedrigster Anforderungen und höchster Anforderungen einschließen. Mindestanforderungen in den Eurocodes, die Produkte ausschließen könnten, waren zu beseitigen.
 2. Die Erklärungen der Hersteller vorgefertigter Bauteile können sich nur auf den Leistungsanteil (Mehrwert) beziehen, den der Hersteller selbst zu der Gesamtleistung der Planung, Verwendung von Vorprodukten, Herstellung des vorgefertigten Bauteils und Dokumentation zur Erfüllung der wesentlichen Anforderungen 1 und 2 an das Tragwerk beiträgt. Bild 3-36 liefert einen Überblick über die Aufgaben und Lieferungen des Herstellers abhängig von der dem Liefervertrag zugrunde liegenden Methode 1, 2, 3a oder 3b des Leitpapiers L für den Stahlbau.

Man erkennt, dass sich Methode 2 und Methode 3a nur durch die Verwendung der Europäischen Produktnorm für vorgefertigte Bauteile mit Bezug auf die Eurocodes oder die Verwendung einer anderen Produktspezifikation unterscheiden, also im Grunde Varianten der Methode 2 sind.

Die Herstellungsweise, ob das vorgefertigte Bauteil als Serienteil für beispielsweise ein Lager für den Einsatz in beliebige Bauwerke oder als Einzelteil für ein bestimmtes Bauwerk gefertigt wird, spielt keine Rolle.

Ebenso spielt für die Anwendung der Methode keine Rolle, ob das vorgefertigte Bauteil eine Sonderschraube oder ein Gründungspfahl, ein Schornstein, Kranbahnträger, Brücken- oder Hochbauteil ist.

3. Die Voraussetzung für eine ordnungsgemäße Herstellung harmonisierter Produktnormen für vorgefertigte Bauteile ist:
 1. Ein geeignetes Mandat, das die zu erklärenden Eigenschaften von der Verwendung des vorgefertigten Bauteils im Gesamttragwerk und den dazu geltenden Anforderungen für die Nachweise nach den Eurocodes abhängig macht.

Die meisten ursprünglichen Mandate mussten zwischen dem zuständigen CEN/TC und der Kommission nachverhandelt und ergänzt werden, um diese Anforderungen zu erfüllen.
 2. Das Vorhandensein von Produktnormen für Vorprodukte, die der Hersteller für die Fertigung vorgefertigter Bauteile verwendet und die den Bemessungsannahmen nach den Eurocodes entsprechen.
 3. Das Vorhandensein einer Norm für die Herstellung des vorgefertigten Bauteils, die entsprechend den Anforderungen der Eurocodes die Herstellungsqualität nach Klassen so spezifiziert, dass die Sicherheitsbeiträge von Bemessung und Herstellung zur Gesamtsicherheit erfüllt und die Einbaubarkeit ins Tragwerk und seine weitere planmäßigen Verwendung gewährleistet ist (Qualitätskriterien, Toleranzen, etc.).

Man erkennt an Bild 3-36, dass die Methode 1 mehr Angaben erfordert, als nur die geometrische Abmessungen, Werkstoffeigenschaften und Eigenschaften der bei der Fertigung benutzten Vorprodukte.

- (4) Es gibt Unterschiede bei den Produktnormen für vorgefertigte Bauteile, die historisch gewachsen sind. Typisch sind:
1. die Verwendung einer übergeordneten Produktnorm, z.B. EN 1090-1 für alle vorgefertigten Stahlbauteile unabhängig von ihrer Endverwendung.
 Weitere Produktnormen für spezifische End-Verwendungen z.B. für vorgefertigte Kamine nehmen dann darauf Bezug.
 2. die Verwendung einer Reihe von spezifischen Produktnormen für spezielle Fertigteile, z.B. in CEN/TC 229 für Betonfertigteile.

Leistung	Angaben und Leistungen des Herstellers			
	Methode 1	Methode 2	Methode 3b	Methode 3a
Entwurf und Berechnung des vorgefertigten Bauteils	Nein	Ja wenn verlangt wird, eine Produktnorm zugrunde zu legen, die auf die maßgebenden Teile des Eurocodes Bezug nimmt	Ja wenn verlangt wird, entweder die Entwurfsunterlagen des Bestellers oder die Entwurfsunterlagen des Herstellers zugrunde zu legen, um den Kundenauftrag zu erfüllen	Nein
Herstellung des vorgefertigten Bauteils	Ja entsprechend der Bauteilspezifikation ^{*)} des Herstellers	Ja entsprechend der Bauteilspezifikation ^{*)} des Herstellers	Ja entsprechend der Bauteilspezifikation ^{*)} des Herstellers	Ja entsprechend der Bauteilspezifikation ^{*)} des Bestellers
Lieferung und technische Dokumentation des vorgefertigten Bauteils	Ja Erklärung mit Informationen zur Geometrie und zu den Werkstoffen sowie allen weiteren Informationen, die Dritte für die Bewertung und den rechnerischen Nachweis benötigen	Ja Rechnerische Nachweise entsprechend dieser Produktnorm, die auf die maßgebenden Teile der Eurocodes Bezug nimmt. Die Beanspruchbarkeit kann als charakteristischer Wert oder als Bemessungswert ausgewiesen werden	Ja Erklärung, dass das gelieferte vorgefertigte Bauteil der Bauteilspezifikation des Herstellers entspricht und diese auf den Auftrag des Bestellers zurückzuführen ist	Ja Erklärung, dass das gelieferte vorgefertigte Bauteil der Bauteilspezifikation des Bestellers entspricht

^{*)} Die Bauteilspezifikation für ein vorgefertigtes Bauteil enthält alle für die Fertigung des Bauteils notwendigen Informationen. Im einfachsten Fall ist dies eine technische Zeichnung. Die für ein Tragwerk ist die Montagespezifikation

Bild 3-36: Herstellererklärungen zu Eigenschaften vorgefertigter Bauteile zum CE-Zeichen, abhängig von der Methode in Leitpapier L

3.7.5 SCHLUSSFOLGERUNGEN DER ARBEIT IN CEN/TC 250 FÜR DIE ÜBERARBEITUNG DER BAUPRODUKTENRICHTLINIE

3.7.5.1 Ist die Bauproduktenrichtlinie in ihrer jetzigen Form für die zweifache Zielsetzung, nämlich Beseitigung der technischen Handelshemmnisse durch Harmonisierung des Bauproduktensektors und Erfüllung der in den wesentlichen Anforderungen genannten Schutzziele (besonders der Sicherheit) für Bauwerke aus dem öffentlichen Interesse heraus ausreichend?

- (1) Die Bauproduktenrichtlinie ist ein Instrument für die Harmonisierung der nationalen Bauordnungen, die die Schutzziele zu Gesundheit, Sicherheit und Umwelt im Bausektor definieren sollen. Sie enthält 6 „Wesentliche Anforderungen“ z.B. Anforderung Nr. 1 zu mechanischer Beanspruchbarkeit und Stabilität und Anforderung Nr. 2 zum baulichen Brandschutz. Die „Wesentlichen Anforderungen“ sind an bauliche Anlage gerichtet und deshalb auch für Bauprodukte oder vorgefertigte Bauteile gültig, die in bauliche Anlagen eingebaut werden.
- (2) Die Bauproduktenrichtlinie sollte deshalb (ist es aber noch nicht) auf die Eurocodes Bezug nehmen, besonders auf den Eurocode: „Grundlagen der Tragwerksplanung“, der die „Wesentlichen Anforderungen“, die allgemein und kurz gehalten sind, in konkrete Anforderungen an die Tragwerksplanung umsetzt, so dass die Eurocodes als Beweismittel für die Erfüllung der „Wesentlichen Anforderungen“ herangezogen werden können.
- (3) Die Bauproduktenrichtlinie gilt für technische Spezifikationen für Bauprodukte (EN-Produkt-Standards, Europäische Technische Zulassungen (ETA) und -Zulassungsleitlinien (ETAG's)) einschließlich der Standards für die Ausführung und Prüfung und den Kontrollprozess, mit denen Konformität mit den „Grundlagen der Tragwerksplanung“ vermutet werden kann. Die Bauproduktenrichtlinie sollte deshalb (tut es aber noch nicht) auf der Konsistenz zwischen den Eurocodes und den Produktspezifikationen bestehen, so dass die Konformität mit den Produktspezifikationen wirklich Konformität mit der Bauproduktenrichtlinie bedeutet.
- (4) Die Bauproduktenrichtlinie sollte auch (tut es aber noch nicht) zwischen den einheitlichen Europäischen Regeln in den technischen Produktspezifikationen und in den einheitlichen Teilen der Eurocodes auf der einen Seite und den nicht einheitlichen Nationalen Anhängen zu den Eurocodes, die die nationalen Sicherheits- und Lastparameter und andere nationalen Festlegungen enthalten, auf der anderen Seite unterscheiden.
- (5) Um das zu erreichen, sollte die Bauproduktenrichtlinie vor allem um den Inhalt einer Reihe von Leitpapieren, die von den Kommissionsdiensten zu wichtigen Themen der nationalen Einführung veröffentlicht wurden, besonders das Leitpapier L „Nutzung und Anwendung der Eurocodes“ und die „Kommissionsempfehlung zur Einführung und Anwendung der Eurocodes für den Bereich von baulichen Anlagen und Bauprodukten“ vom 11. Dezember 2003, ergänzt werden. Dabei sind Aktualisierungen der Leitpapiere aufgrund zwischenzeitlich gemachter Erfahrungen zu beachten.
- (6) Zusammenfassend kann gesagt werden, dass die Bauproduktenrichtlinie und die Leitpapiere die richtigen Informationen im Sinne der Harmonisierungsziele liefern; auch die Mandate halten sich im Großen und Ganzen an die Harmonisierungsanforderungen. Jedoch zeigt die praktische Arbeit in den technischen Ausschüssen von CEN und EOTA Mängel. Deshalb sollten Änderungen im Wesentlichen darauf gerichtet sein, die Durchführungsverfahren zu verbessern und erst in zweiter Linie, wie die verbesserten Durchführungsverfahren in die neue Bauproduktenrichtlinie eingebaut werden sollten.

- (7) Die Industrie (KMUs) sind im Wesentlichen interessiert an
- einem klaren, konsistenten und vollständigen Regelwerk als einheitliches Bezugssystem für Verträge, weltweit,
 - Kontinuität dieses Regelwerkes ohne radikale Veränderungen des Harmonisierungskonzeptes oder von Teilen davon,
 - Flexibilität und Transparenz des Systems in allen innovativen Bereichen,
 - einfache Verfahren für den Übereinstimmungsnachweis mit Aufwandsklassen, die von den Schadensfolgen abhängen,
 - einfache Kontrolle und genügend Systemsicherheit, um Versicherungsprämien niedrig zu halten,
 - eine zuverlässige Marktüberwachung, um für alle Wettbewerber gleiche Chancen zu garantieren,
 - ein Minimum an verschiedenen Nationalen Parametern in den Eurocodes, um eine größere Vereinheitlichung zu erzeugen.

Wo die Eurocodes und die Produkt- und Prüfstandards im Hinblick auf diese Punkte noch nicht genügen, da die Vorgehensweisen in den verschiedenen CEN/TCs und in CEN und EOTA verschieden sind, sollten die Arbeitsverfahren und dann erst die Bauproduktenrichtlinie verbessert werden, um die Instrumente effizienter zu machen.

3.7.5.2 Entspricht die Bauproduktenrichtlinie dem „Technical Barriers to Trade Agreement (TBT) der Welthandelsorganisation (WTO)?

- (1) Das Funktionieren des Baumarktes beruht auf einer klaren Definition einerseits der Grenzen, die im öffentlichen Interesse von den „Wesentlichen Anforderungen“ herrühren, und andererseits auf dem Streben der Industrie nach wirtschaftlichen und wettbewerbsfähigen Lösungen.
- (2) Handelshemmnisse entstehen, wo die Grenzen aus öffentlichem Interesse nicht transparent und daher schwierig zu verstehen sind (z.B. wenn sie aus verschiedenen nationalen Traditionen herrühren).
- (3) Der Zweck der Bauproduktenrichtlinie ist, diese nationalen Unterschiede auszuräumen und so technische Handelshemmnisse für den freien Warenverkehr dadurch zu eliminieren, dass geeignete Instrumente wie die Europäischen Technischen Spezifikationen entwickelt werden.
- (4) Darüber hinaus ist die schnelle Umsetzung der Bauproduktenrichtlinie durch Europäische technische Spezifikationen nicht nur als Grundlage für einen einheitlichen Europäischen Markt für Bauprodukte und Ingenieur- und Bauleistungen in der EU und den EFTA-Staaten erforderlich; sie erfüllt auch die Notwendigkeit einer konsistenten „Internationalen Standard-Familie“ für weltweite Marktaktivitäten; sie tritt neben dem bereits präsenten US-amerikanischen „International Building Code“ und den damit verbundenen US-Produktstandards und der Bauindustrie dahinter auf.
- (5) Die „Europäische Standard Familie“ wird von vielen Ländern außerhalb der EU und EFTA aufgrund ihrer großen technischen Vorzüge bereits erwartet.

3.7.5.3 Könnte die Bauproduktenrichtlinie völlig abgeschafft werden?

- (1) Die Bauproduktenrichtlinie ist die Rechtsgrundlage für die Entwicklung und Weiterentwicklung der „Europäischen Standard Familie“.
- (2) Einige Mängel der jetzigen Bauproduktenrichtlinie, z.B. die fehlenden Informationen, die erst später durch das Leitpapier L und die Kommissionsempfehlung vom 11. Dezember 2003 gegeben wurden, haben in der Vergangenheit zu erheblichen Irritationen und Verzögerungen bei der Bearbeitung der „Europäischen Standard Familie“ geführt. Erst die Veröffentlichung des Leitpapiers L und der Kommissionsempfehlung vom 11. Dezember 2003 schaffte Klarheit.
- (3) Eine Verbesserung der Bauproduktenrichtlinie könnte für die weitere Einführung der „Europäischen Standard Familie“ hilfreich sein und die Bedingungen für den gemeinsamen Markt verbessern; eine Abschaffung der Bauproduktenrichtlinie als Rechtsgrundlage für die Harmonisierung würde sich für den gemeinsamen Markt für Bauprodukte und die Stellung der europäischen Bauindustrie auf dem Weltmarkt katastrophal auswirken.

4. EINIGE ÜBERGEORDNETE TECHNISCHE FRAGEN

4.1 Allgemeines

- (1) Im Folgenden werden einige exemplarische Beiträge zu technischen Einzelfragen dargestellt, die in CEN/TC 250 behandelt wurden.
- (2) Häufig wurde die Mitwirkung des Vorsitzenden von CEN/TC 250 bei der Lösung von Konflikten erforderlich, die zwischen Repräsentanten von Mitgliedsländern oder von CEN/TCs für Produktnormen und Unterkomitees von CEN/TC 250 auftraten.
- (3) Meistens konnten die Konflikte durch geeignete Wahl der Möglichkeiten gelöst werden, die im Leitpapier L der Kommission dafür angeboten werden (z.B. durch Einführung oder Erweiterung von technischen Klassen in den Produktnormen und zusätzlichen Öffnungsklauseln in den Eurocodes für die nationale Wahl dieser Klassen).
- (4) Beispiele für solche Lösungen sind:
 - Öffnungsklauseln für die Kombination von Einwirkungen – EN 1990, (6.10), (6.10a), (6.10b)
 - Vermeidung von Anwendungsregeln in Sicherheitsbereichen, die alleine in der Zuständigkeit der Mitgliedsländer liegen (z.B. für eine Reihe außergewöhnlicher Einwirkungen)
 - Abstimmungen zwischen Eurocode 2 – Betonbau – und Produktnormen für vorgefertigte Betonbauteile in CEN/TC 229
 - ähnliche Abstimmungen zwischen Eurocode 3 und CEN/TC 135 und zwischen Eurocode 5 und CEN/TC 124
 - Abstimmung der Sicherheitsnachweise im Strukturbereich und in der Geotechnik
 - Öffnungsklauseln in Eurocode 8 – Seismische Bemessung – zur Anwendung konstruktiver Regeln statt rechnerischer Nachweise für einige Bereiche des Mauerwerksbaus
 - Konfliktlösungen zwischen EN 1999 – Aluminiumbau – und BS 8118 (Englische Norm)
- (5) Einige Konflikte erforderten weitergehende Ausarbeitungen, zu denen im Folgenden einige Beispiele gebracht werden.

4.2 Multiplikative und additive Sicherheitselemente

- (1) Die überwiegende Anzahl der Sicherheitsnachweise in den Eurocodes verwendet multiplikative Sicherheitselemente in Form von γ -Faktoren, die an den Einwirkungen, den Schnittgrößen oder an den Beanspruchbarkeiten angebracht werden, z.B. an der Beanspruchbarkeit:

$$R_d = \frac{R_k}{\gamma_M}$$

- (2) Diese multiplikative Form ist z.B. bei den Beanspruchbarkeiten damit begründet, dass die Funktionen R für die Beanspruchbarkeit Produkte der Basisvariablen sind, z.B. $R = A \cdot f_u$, deshalb die Log-Normalverteilungen gut passen und sich Faktoren gut einfügen.
- (3) In den Eurocodes gibt es auch Sicherheitsnachweise, die in additiver Form geführt werden, z.B. bei Nachweisen, die in Temperaturen geführt werden, siehe EN 1993-1-10 oder EN 1993-2, Anhang A. Dort sind die Basisvariablen additiv verknüpft, die Verteilungsfunktionen sind Normalverteilungen.
- (4) Da das standardisierte Versuchsauswerteverfahren zur Bestimmung von charakteristischen Werten R_k und Bemessungswerten R_d aus Versuchen in Anhang D der EN 1990 von multiplikativen Sicherheitselementen ausgeht, ist dieses Auswerteverfahren auch für additive Sicherheitselemente zu ergänzen.
- (5) Bild 4-1 zeigt die Ergänzung und die ähnliche Vorgehensweise bei multiplikativen und additiven Sicherheitselementen.

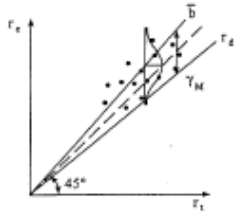
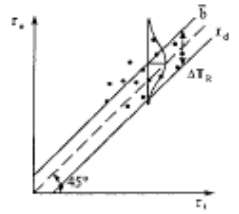
Multiplicative Form	Additive Form
<p>1. Strength function $g_R(\mathbf{x}) = x_1 \cdot x_2 \cdot x_3 \dots$</p> 	<p>1. Strength function $g_R(\mathbf{x}) = x_1 + x_2 + x_3 + \dots$</p> 
<p>2. Correction term $b_i = \frac{r_{ei}}{r_{ti}}$</p>	<p>2. Correction term $b_i = r_{ei} - r_{ti}$</p>
<p>3. Mean value $\bar{b} = \frac{1}{n} \sum b_i$</p>	<p>3. Mean value $\bar{b} = \frac{1}{n} \cdot \sum_{i=1}^n b_i$</p>
<p>4. Error term $\delta_i = \frac{r_{ei}}{\bar{b} \cdot r_{ti}} = \frac{b_i}{\bar{b}}$</p>	<p>4. Error term $\delta_i = b_i - \bar{b}$</p>
<p>5 $\bar{\delta}' = \frac{1}{n} \sum \delta'_i \Rightarrow 0$</p>	<p>5 $\bar{\delta} = \frac{1}{n} \cdot \sum_{i=1}^n \delta_i \Rightarrow 0$</p>
<p>6 $S_{\delta'} = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (\delta'_i - \bar{\delta}')^2}$</p>	<p>6 $\sigma_{\delta} = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (\delta_i - \bar{\delta})^2}$</p>
<p>If the test population is representative, it follows $S'_D = S_{\delta'}$ else $S'_D = \sqrt{(S_{\delta'})^2 + \sum \left(\frac{\partial g(\mathbf{X}_M)}{\partial X_{M,i}} \cdot \sigma_{X_i} \right)^2}$</p>	<p>If the test population is representative, it follows $\sigma_D = \sigma_{\delta}$ else $\sigma_D = \sqrt{(\sigma_{\delta})^2 + \sum \left(\frac{\partial g(\mathbf{X}_M)}{\partial X_{M,i}} \cdot \sigma_{X_i} \right)^2}$</p>
<p>7. Design function $r_d = g_R(\mathbf{X}_M) \cdot \bar{b} \cdot e^{-\alpha_R \cdot \beta \cdot S'_D - 0,5 \cdot (S'_D)^2}$</p>	<p>7. Design function $r_d = \underbrace{g_R(\mathbf{X}_M) + \bar{b}}_{m_R} + \alpha_R \cdot \beta \cdot \sigma_D$</p>
<p>8. Partial safety element $\gamma_M^* = \frac{g_R(\mathbf{X}_N)}{r_d}$ where \mathbf{X}_N are nominal values</p>	<p>8. Partial safety element $\Delta T_R = g_R(\mathbf{X}_N) - r_d$ where \mathbf{X}_N are nominal values</p>

Bild 4-1: Auswerteverfahren zur Bestimmung von charakteristischen und Bemessungswerten aus Tragfähigkeitsversuchen mit multiplikativen und additiven Sicherheitselementen

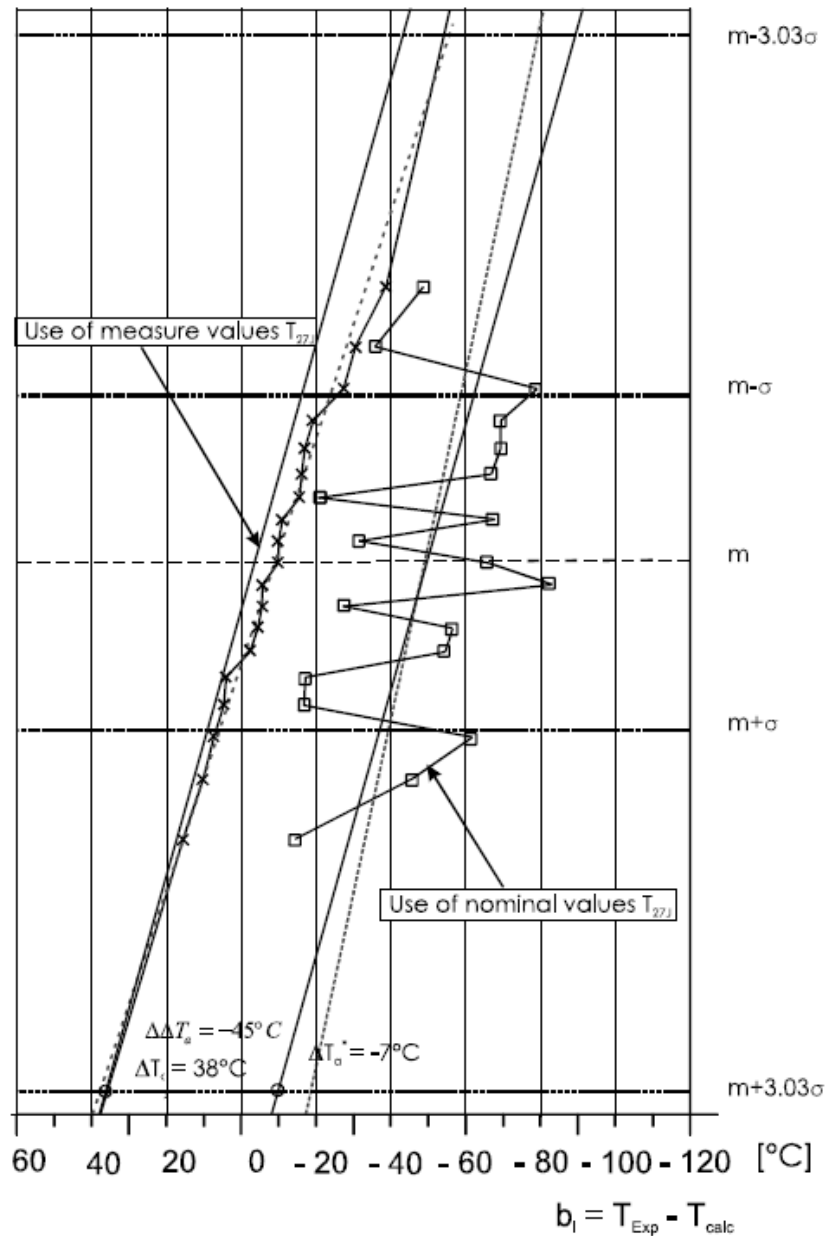


Bild 4-2: Bestimmung der Bemessungsfunktion für Spröbruch in EN 1993-1-10

- (6) Das additive Verfahren ist bei der Eurocode-Entwicklung EN 1993-1-10, siehe Bild 4-2 und bei der Entwicklung des DIN-Fachberichts 101 für die Bestimmung der Bemessungswerte von Lagerwegen bei Brücken verwendet worden.
- (7) Bild 4-2 für die Entwicklung von EN 1993-10 zeigt für die Verteilung der Differenzen (nicht Quotienten) zwischen den Versuchsergebnissen T_{exp} und den Berechnungsergebnissen T_{calc} für die Temperaturen, die zu Spröbruch führen, einmal für an Kleinproben (Kerbschlagproben) gemessenen Werkstoffdaten (T_{27J}) und einmal mit Werkstoffdaten nach den Normen (Nennwerte T_{27J}).

- (8) Man erkennt, dass das Berechnungsverfahren für Messwerte im Mittel richtig ist ($b_i \approx 0$ für m), aber bedingt durch höhere Werte von $T_{27,J}$, die im Mittel bei der Produktion gegenüber den Nennwerten in den Normen gemessen werden, das Sicherheitselement $\Delta T_R = + 38 \text{ °C}$ herauskommt. Damit wird bei Anwendung von Nennwerten aus den Normen die Bemessungsfunktion für die zulässigen Blechdicken in EN 1993-1-10 gegenüber der Bemessungsfunktion bei Verwendung von Messwerten um $+ 38 \text{ °C}$ verschoben.
- (9) Das Verfahren ist auch bei der Bestimmung von Bemessungswerten für die Temperatur für die Ermittlung der Lagerwege von Brückenlagern verwendet worden.
- (10) Bild 4-3 zeigt die Verteilung der Jahresextremwerte der Lufttemperatur am Standort München-Riem als ein Beispiel für Temperaturaufzeichnungen.

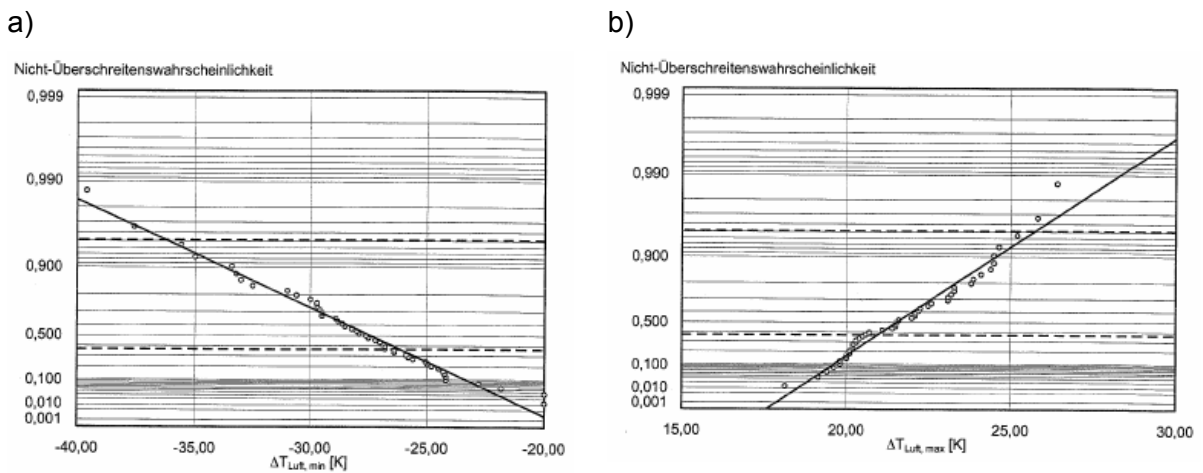


Bild 4-3 a und b: Temperaturänderungen gegenüber 10°C dargestellt als Jahresextremwerte für den Standort München-Riem auf Gumbel-Papier

- (11) Die Brückentemperatur lässt sich als Linearkombination von Lufttemperatur und Temperatur aus Sonneneinstrahlung darstellen. Für die Sonneneinstrahlung auf nach Süden ausgerichteten vertikalen Flächen zeigen die Daten in Bild 4-4, dass dafür physikalische Höchstgrenzen gelten, die bereits bei der Ermittlung der charakteristischen Brückentemperaturen berücksichtigt wurden.

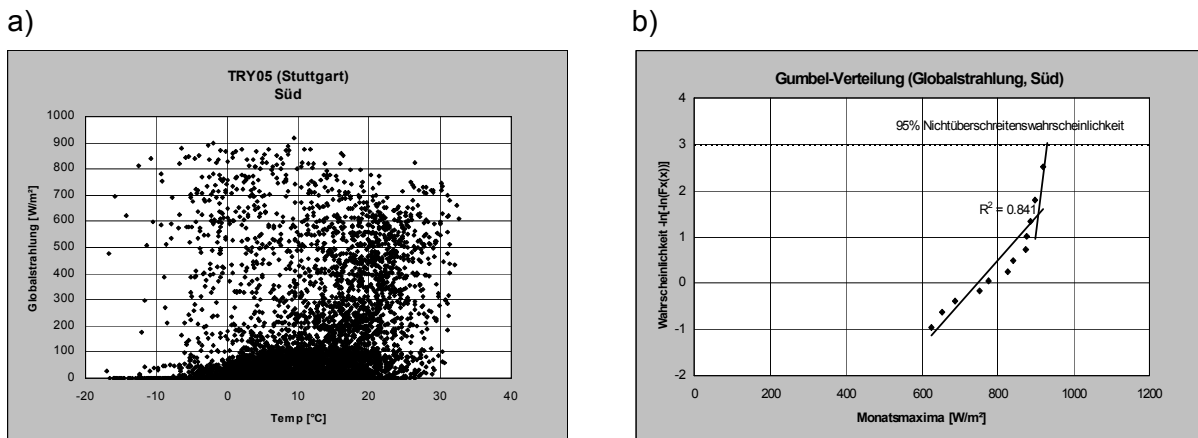


Bild 4-4 a und b: Globalstrahlung [W/m²] und Gumbelverteilung der Monatsmaxima auf nach Süden ausgerichteten vertikalen Flächen

- (12) Daher liegt es auf der sicheren Seite, wenn alleine die Verteilung der Lufttemperatur zur Bestimmung der Teilsicherheitselemente benutzt wird. Diese Elemente sind

$$\Delta T_{\max} = + 6 \quad ^\circ\text{C}$$

$$\Delta T_{\min} = - 12,5 \quad ^\circ\text{C}$$

Sie führen zu multiplikativen Faktoren γ von

$$\gamma_{F\max} = 1,22$$

$$\gamma_{F\min} = 1,32$$

- (13) Damit darf anstelle des in EN 1990 vorgeschlagenen Wertes $\gamma_F = 1,50$ (wurde für alle klimatischen Werte ohne Prüfung vorausgesetzt) für die Temperatur der Wert $\gamma_F = 1,35$ verwendet werden. Dieser Wert stimmt mit den seit vielen Jahrzehnten bewährten Bauweisen für Lager und Fahrbahnübergänge in Deutschland überein.

4.3 Behandlung des Eigengewichts bei Einwirkungskombination

4.3.1 WAHLMÖGLICHKEITEN

- (1) EN 1990 „Grundlagen der Tragwerksplanung“ liefert zwei Alternativen für die Einwirkungskombination, die sich durch die Behandlung der ständigen Belastung unterscheiden. Diese sind nach EN 1990, Abschnitt 6.4.3.2(3).

$$\sum_{j \geq 1} \gamma_{G,j} G_{k,j} "+" \gamma_P P "+" \gamma_{Q,1} Q_{k,1} "+" \sum_{i > 1} \gamma_{Q,i} \Psi_{0,i} Q_{k,i} \quad (6.10)$$

$$\sum_{j \geq 1} \gamma_{G,j} G_{k,j} "+" \gamma_P P "+" \gamma_{Q,1} \Psi_{0,1} Q_{k,1} "+" \sum_{i > 1} \gamma_{Q,i} \Psi_{0,i} Q_{k,i} \quad (6.10a)$$

$$\sum_{j \geq 1} \xi_j \gamma_{G,j} G_{k,j} "+" \gamma_P P "+" \gamma_{Q,1} Q_{k,1} "+" \sum_{i > 1} \gamma_{Q,i} \Psi_{0,i} Q_{k,i} \quad (6.10b)$$

Dabei bedeuten:

“+“ „ist zu kombinieren“

\sum „gemeinsame Auswirkung von“

ξ Reduktionsbeiwert für ungünstig wirkende ständige Einwirkungen G.

- (2) Eine Anmerkung in EN 1990, 6.4.3.2 (3) weist auf den Anhang A hin. Der Anhang A₁ gilt für den Hochbau und in Tabelle A1.2 (B) – Bemessungswerte für Einwirkungen (STR/GEO) – werden die Symbole ξ , γ_G und γ_Q wiederholt und in der Anmerkung 2 folgende Empfehlungen gegeben:

$$\gamma_{G \text{ sup}} = 1,35 \text{ (ungünstig)}$$

$$\gamma_{G \text{ inf}} = 1,00 \text{ (günstig)}$$

$$\gamma_{G \text{ sup}} = 1,50 \text{ (ungünstig)}$$

- (3) Anmerkung 1 zu Tabelle A1.2 (B) weist auf die Wahlmöglichkeit zu Gleichung (6.10) oder Gleichung (6.10a) und (6.10b) im Nationalen Anhang hin, wobei im Falle einer Wahl für (6.10a) und (6.10b) zusätzlich die Variante mit (6.10a) mit nur ständiger Einwirkung ($\Psi_0=0$) besteht.

4.3.2 RECHTFERTIGUNG DER WAHLMÖGLICHKEITEN

- (1) Betrachtet man nur die Kombination aus ständiger Einwirkung und variabler Einwirkung:

$$E_d = G_d + Q_d$$

und geht von gleichzeitiger Wirkung (G+Q) aus, so kann der globale Teilsicherheitswert γ_{G+Q} mit

$$E_d = \gamma_{G+Q} (G_K + Q_K)$$

definiert werden.

- (2) Der Wert γ_{G+Q} nimmt im Falle $Q_K = 0$ den Wert $\gamma_G = 1,35$ und im Falle $G_K = 0$ den Wert $\gamma_Q = 1,50$ an.

- (3) Damit kann man schreiben

$$\gamma_{G+Q} = \frac{E_d}{G_K + Q_K} = \frac{\gamma_{sd} [\bar{G}(1 + \alpha_G \cdot 2,70 v_G) + \bar{Q}(1 + \alpha_Q \cdot 270 v_Q)]}{\bar{G} + \bar{Q} (1 + k_N \cdot v_Q)}$$

Dabei gilt:

$$\alpha_G = \frac{v_G \bar{G}}{\sqrt{(v_G \bar{G})^2 + (v_Q \bar{Q})^2}} \quad \alpha_Q = \frac{v_Q \bar{Q}}{\sqrt{(v_G \bar{G})^2 + (v_Q \bar{Q})^2}}$$

- (4) Indem man den Parameter:

$$\chi = \frac{Q_K}{G + Q_K}$$

verwendet, landet man bei der Gleichung:

$$\gamma_{G+Q} = \gamma_{sd} [(1 - \chi) (1 + \alpha_G \cdot 2,70 v_G) + 1,50 \chi / \gamma_{sd}]$$

Hierin bedeutet:

$$\alpha_G = \frac{1}{\sqrt{1 + \left(\frac{v_Q \bar{Q}}{v_G \bar{G}}\right)^2}} = \frac{1}{\sqrt{1 + \left(\frac{v_Q}{v_G} \cdot \frac{\chi}{(1 - \chi) (1 + k_N v_Q)}\right)^2}}$$

$$\alpha_Q = \sqrt{1 - \alpha_G^2}$$

- (5) Die Auswertung der Gleichung für γ_{G+Q} für verschiedene Teilsicherheitsbeiwerte γ_{sd} für die Modellunsicherheit auf der Einwirkungsseite liefert die Funktionen für γ_{G+Q} , die in den Bildern 4-5a, 4-5b, 4-5c dargestellt sind.

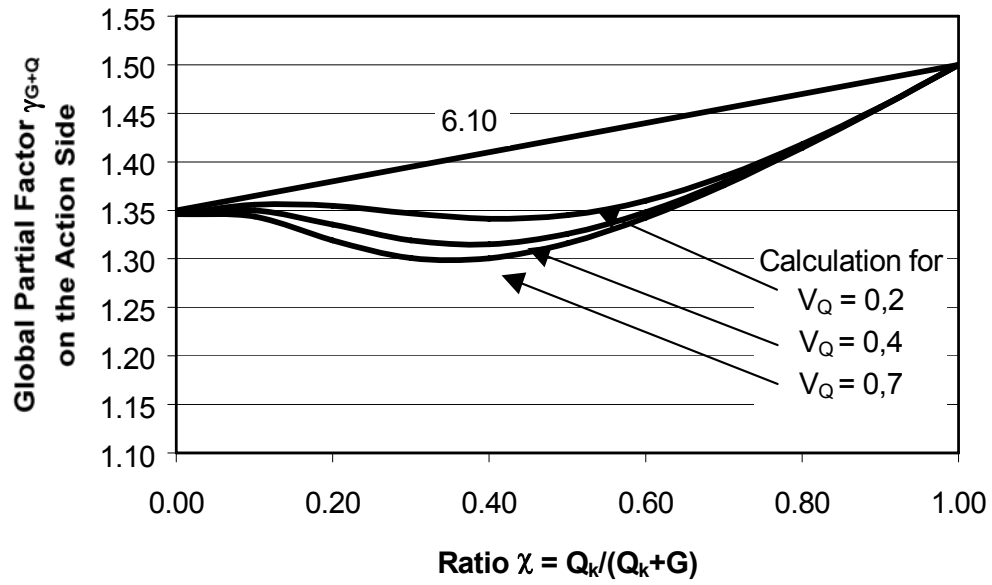


Bild 4-5a: γ_{G+Q} über $\chi = \frac{Q_k}{G + Q_k}$ für $\gamma_{sd} = 1,05$

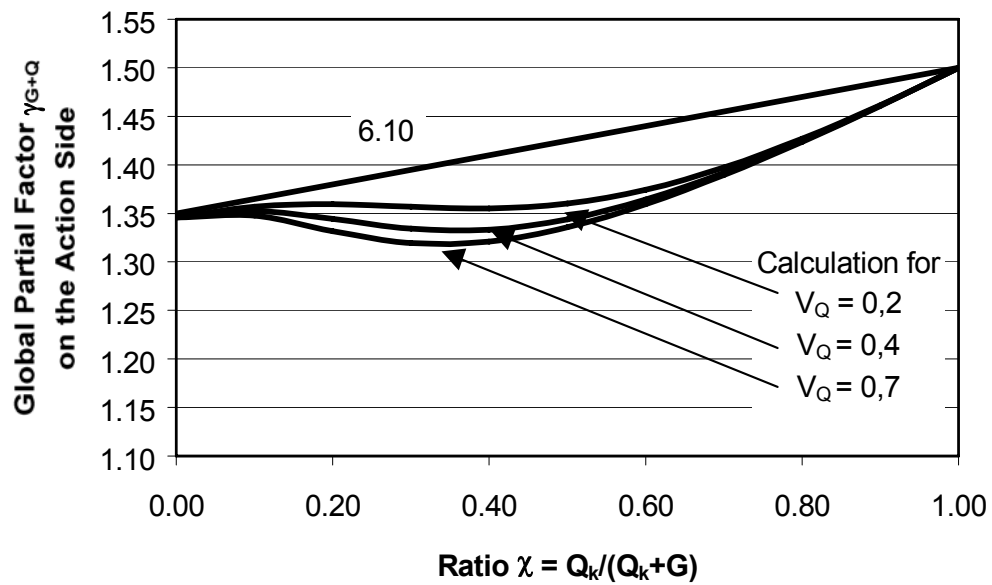


Bild 4-5b: γ_{G+Q} über $\chi = \frac{Q_k}{G + Q_k}$ für $\gamma_{sd} = 1,10$

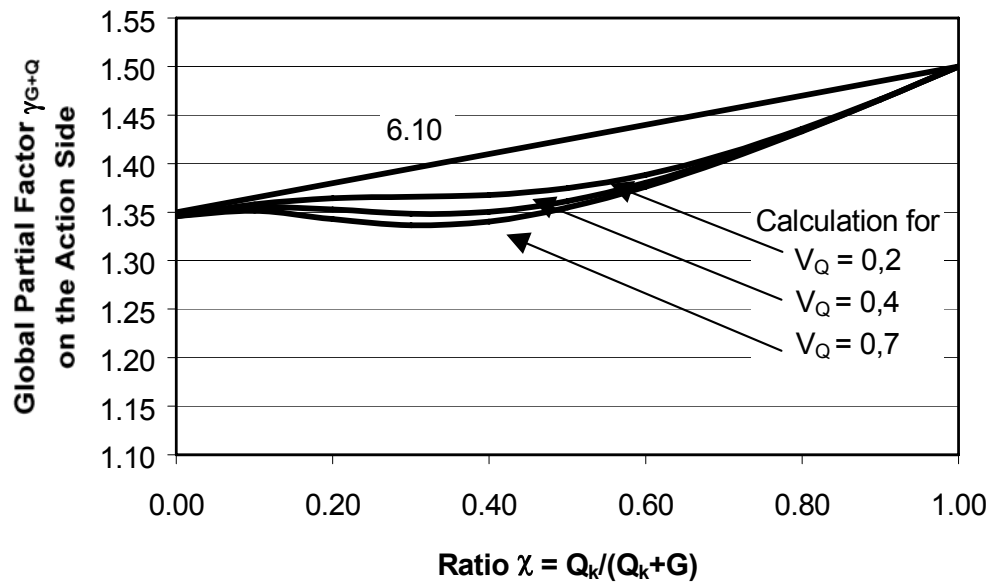


Bild 4-5c: γ_{G+Q} über $\chi = \frac{Q_k}{G + Q_k}$ für $\gamma_{sd} = 1,15$

- (6) Man erkennt aus den Bildern 4-5, dass:
1. die Gleichung 6.10 auf der sicheren Seite liegt,
 2. die genaue Lösung sich bei kleinen Werten χ an die Gleichung 6.10 anschmiegt,
 3. die Abweichungen der genauen Lösungen umso geringer sind, je kleiner der Variationseffizient V_Q und je größer der Modellunsicherheitsbeiwert γ_{sd} ist.
- (7) Nach den Wahlmöglichkeiten in EN 1990 können die Werte γ_{G+Q} in den Bildern 4-5 wie folgt angenähert werden:

Nach Gleichung (6.10):

1. $1,35 G + 1,50 Q_k$

Diese liefert die Gleichung für die Gerade (6.10):

$$\gamma_{G+Q} = 1,35 + (1,50 - 1,35)\chi$$

2. Nach sowohl Gleichung (6.10a)

$$1,35 G + 1,50 \psi_0 Q_k$$

die zusammen mit der Definition von ψ_0

$$\psi_0 = \frac{1 + 0,4 \cdot 2,70 \cdot v_Q}{1 + 2,70 \cdot v_Q}$$

zu den Werten:

$$\psi_0 = 0,79 \text{ bei } v_Q = 0,2$$

$$\psi_0 = 0,69 \text{ bei } v_Q = 0,4$$

$$\psi_0 = 0,61 \text{ bei } v_Q = 0,7$$

und damit zu der Geraden:

$$\gamma_{G+Q} = 1,35 + (1,50 \psi_0 - 1,35) \chi$$

führt,

oder nach Gleichung (6.10b)

$$\xi \cdot 1,35 G + 1,50 Q_k$$

die mit $\xi = 0,85$ nach Anmerkung 2 zu Tabelle A.1.2(B) zum Anhang A zu EN 1990 zu der Geraden

$$\gamma_{G+Q} = 1,15 + (1,50 + 1,15)\chi$$

führt.

- (8) In den Bildern 4-6a, 4-6b und 4-6c sind die Ergebnisse der Gleichungen (6.10) oder (6.10a) und (6.10b) für die Modellunsichertheitsbeiwerte $\gamma_{sd} = 1,05$, $\gamma_{sd} = 1,10$ und $\gamma_{sd} = 1,15$ zusammen mit den genaueren Lösungen nach Bild 4-5 aufgetragen.

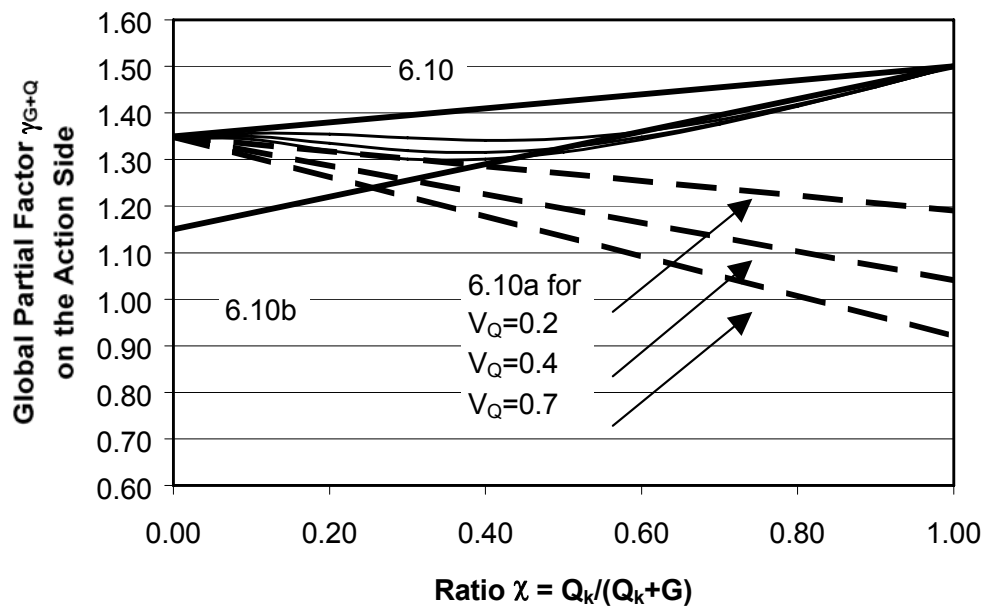


Bild 4-6a: γ_{G+Q} nach Bild 4-4a und nach den Näherungen (6.10) oder (6.10a) und (6.10b) mit $\gamma_{sd} = 1,05$

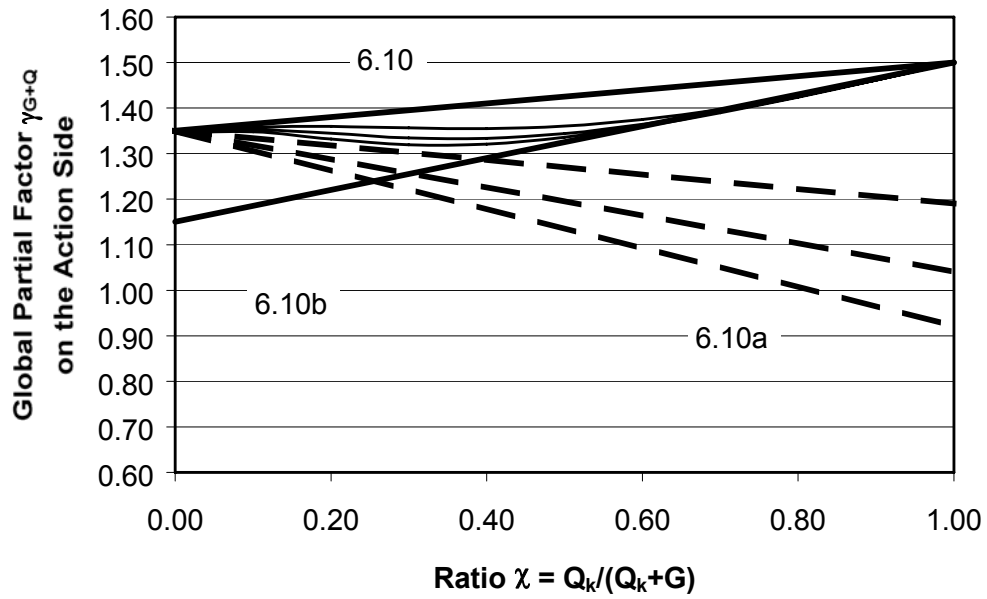


Bild 4-6b: γ_{G+Q} nach Bild 4-4b und nach den Näherungen (6.10) oder (6.10a) und (6.10b) mit $\gamma_{sd} = 1,10$

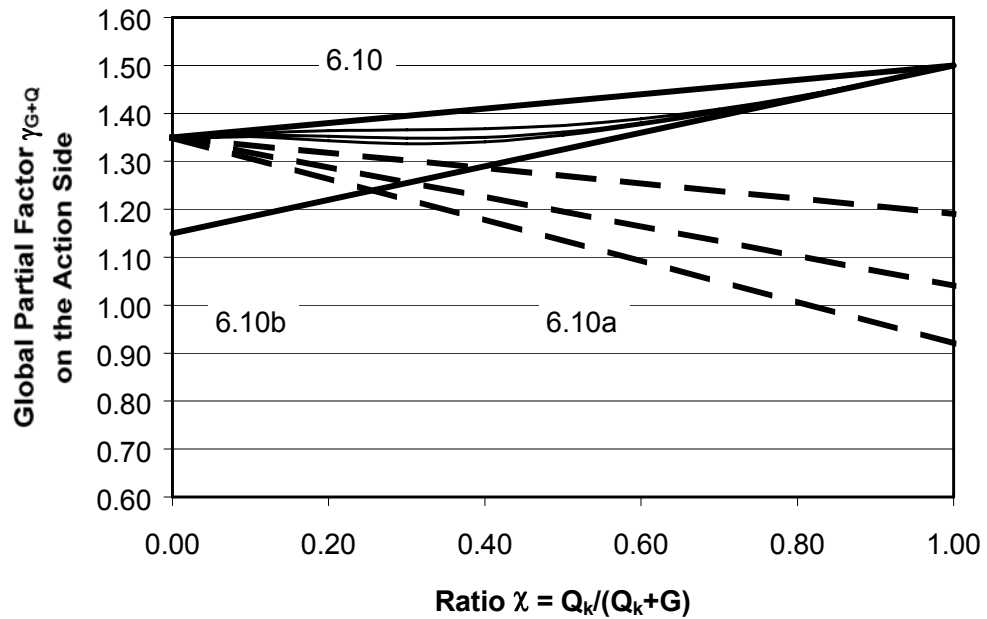


Bild 4-6c: γ_{G+Q} nach Bild 4-4c und nach den Näherungen (6.10) oder (6.10a) und (6.10b) mit $\gamma_{sd} = 1,15$

- (9) Aus den Gegenüberstellungen ergeben sich folgende Schlussfolgerungen:
1. Gleichung (6.10) liegt immer auf der sicheren Seite, die Gleichungen (6.10a) und (6.10b) liegen nur teilweise auf der sicheren Seite. Diese Schwäche von (6.10a) und (6.10b) könnte durch größere ψ_0 -Werte oder γ_M -Werte oder andere Sicherheitsmaßnahmen aufgehoben werden.
 2. Die Variante zu (6.10a) und (6.10b) mit $\psi_0 = 0$ in (6.10a) liefert:

$$1,35 G + 0 Q_K$$

und damit die Gerade

$$\gamma_{G+Q} = 1,35 + (0 - 1,35) \chi$$

siehe Bild 4-6d.

Diese Variante liegt gegenüber der Variante (6.10a) noch weiter auf der unsicheren Seite.

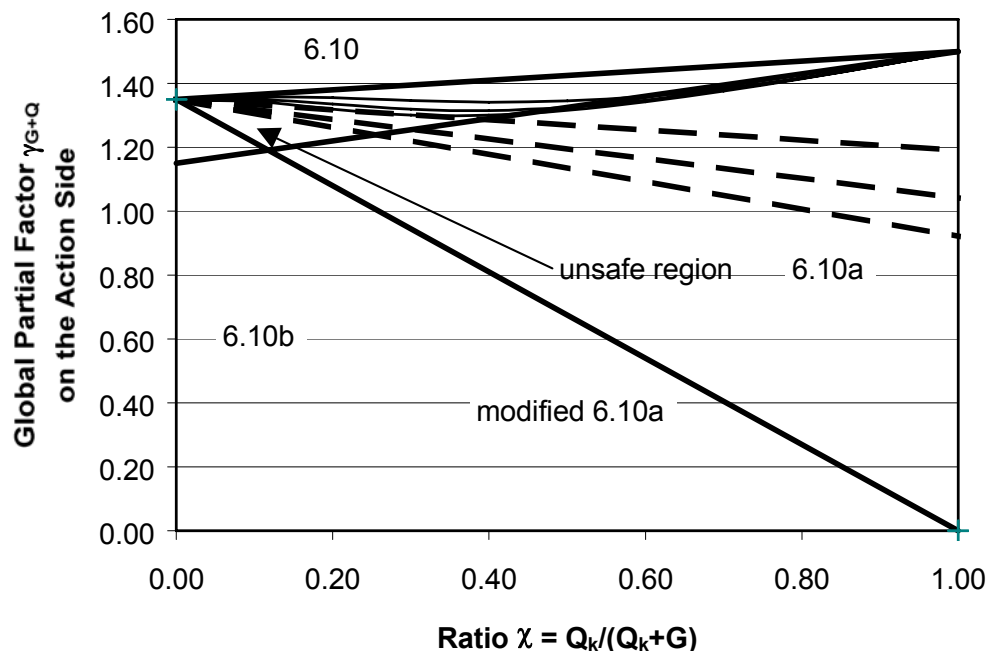


Bild 4-6d: γ_{G+Q} nach Bild 4-4a und Bild 4-5a sowie die Variante (6.10a) mit $\psi_0 = 0$

- (10) Die Schlussfolgerung ist, dass der Variante (6.10) der Vorzug für die Bemessung von Neubauten gegeben werden sollte. Eine genauere Lösung mit Erfassung der Wirkung der unterschiedlichen Streuung von G und Q könnte bei der Nachrechnung bestehender Gebäude für die Umnutzung (dann aber genauer als mit (6.10a) und (6.10b) angewendet werden (diese Ausschöpfung von Reserven wird aber zur Zeit z.B. im Brückenbau abgelehnt).

4.4 Vorgehensweise, wenn Versuche zur Bestimmung charakteristischer Werte der Beanspruchbarkeit durch Ergebnisse der numerischen Simulation von Versuchen ergänzt werden

4.4.1 PROBLEM

- (1) Bei der Bestimmung von Bemessungsfunktionen für Tragsicherheitsnachweise durch statistische Auswertung von Versuchen nach Anhang D der EN 1990 ist es immer wünschenswert, mit einer großen Anzahl von Versuchsergebnissen arbeiten zu können, um die statistische Unsicherheit aus einer begrenzten Versuchsanzahl klein zu halten. Diese Unsicherheit wird durch erhöhte Fraktilewerte k_n gegenüber $k_{k_\infty} = 1,645$ für charakteristische Werte R_k (95 %-Fraktile) und $k_{d_\infty} = 3,03$ für Bemessungswerte R_d (für $\alpha_R\beta = 3,03$) bei unendlich vielen Versuchen ausgedrückt.
- (2) Sind nur wenige Versuchsergebnisse systematisch verteilt über ein ausreichendes Parameterfeld vorhanden, z.B. durch Anwendung der „central composite rotatable design techniques“ nach Robinson, G. K. „Practical Strategies for Experimenting“, Wiley & Sons UK 2000, dann können mit Finite Element-Methoden (FEM), die an diesen experimentellen Pilotergebnissen kalibriert sind, zusätzlich zu den „experimentellen“ Versuchsergebnissen „elektronische“ Versuchsergebnisse erzeugt werden, die die verfügbare Versuchsanzahl wesentlich vergrößern.
- (3) Das nachfolgend dargestellte Verfahren liefert eine statistische Auswertungsmöglichkeit auf der Grundlage nur weniger experimenteller Pilotuntersuchungen und vieler zusätzlicher „elektronischer“ Versuchsdaten, die die Vorkenntnisse aus den experimentellen Pilotuntersuchungen enthalten. Dadurch wird das Verfahren in Anhang D der EN 1990, das sich bislang nur auf experimentelle Versuchsergebnisse stützt, erweitert, und unwirtschaftliche große Bauteiltests können zugunsten genauerer Analysen des Tragverhaltens durch FEM auf einen Mindestaufwand reduziert werden.
- (4) Im Folgenden wird die neue Methode durch Spezifikation der Verfahrensschritte vorgestellt.

4.4.2 VORGEHENSWEISE

Schritt 1: Numerische Simulation der „experimentellen“ Versuche mittels FEM

- (1) Die numerische Simulation von Versuchen mit FEM sollte von folgenden Eingangsgrößen ausgehen:
 - gemessene geometrische Abmessungen,
 - gemessene werkstoffliche Eigenschaften,
 - gemessene geometrische Imperfektionen (ursprüngliche Abweichungen, Fluchten, Verdrehungen),
 - Strukturimperfektionen (Eigenspannungen); falls nicht bekannt, sind vergrößerte geometrische Imperfektionen zu wählen,
 - realistische Randbedingungen, insbesondere bei Symmetrieeigenschaften,
 - realistische Lasteintragungen,
 - geeignete Bestimmung der Fließoberfläche,
 - Berücksichtigung von Anisotropie wo nötig,
 - Sensibilitätskontrollen für die Netzverfeinerung,
 - Belastungs- und verformungskontrollierte Belastung,
 - Belastung-Zeit-Pfad,
 - usw.

Schritt 2: Kalibration der FEM-Berechnung durch Vergleich der experimentellen und numerischen Ergebnisse

- (1) Die Ergebnisse sollten als Punkte im $r_{\text{expi}}/r_{\text{FEMi}}$ -Koordinatensystem aufgetragen werden, siehe Bild 4-7. Das Diagramm zeigt die Zuverlässigkeit der Simulationen.
- (2) Da die experimentellen Ergebnisse normalerweise durch Parameter beeinflusst werden, die in der Berechnung nicht ausreichend oder ungenau berücksichtigt sind, z.B. Versuchstemperaturen, quasi-statische Belastung, Setzungen, Messunsicherheiten, gibt es immer eine unvermeidbare Streuung zwischen Versuchen und Berechnung.

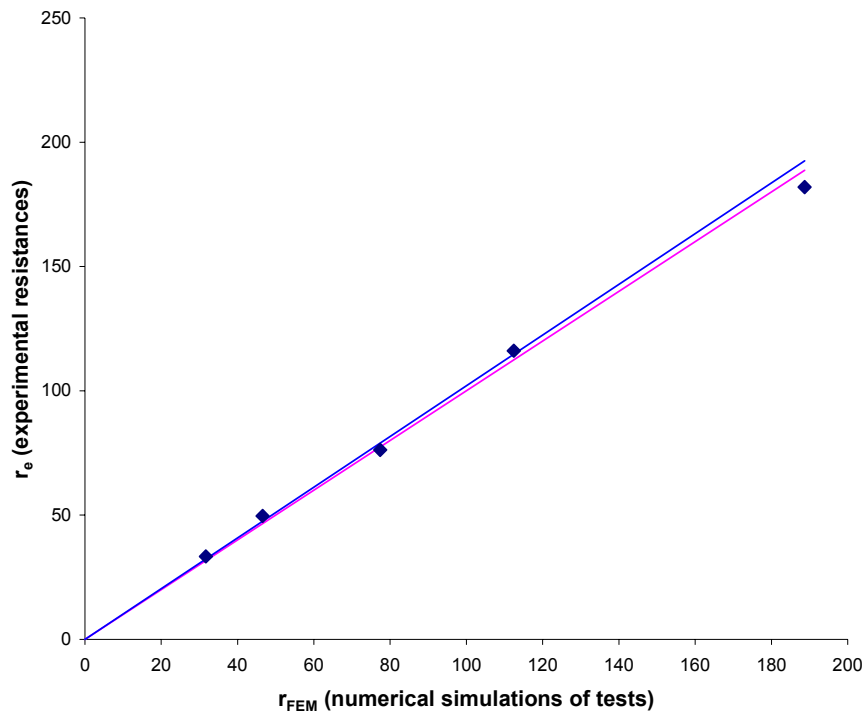


Bild 4-7: Numerische Resultate V_{EMi} über experimentelle Resultate V_{expi}

Schritt 3: Schätzung der Mittelwertabweichung \bar{b}_{FEM}

- (1) Da die experimentellen und numerischen Resultate voneinander abweichen, ist eine Mittelwertkorrektur notwendig. Der Mittelwert der Verhältnismerte von Versuchsergebnissen und numerischen Resultaten ist:

$$\bar{b}_{\text{FEM}} = \frac{1}{m} \cdot \sum_{i=1}^m \frac{r_{\text{ei}}}{r_{\text{FEMi}}}$$

Schritt 4: Schätzung des Variationskoeffizienten des Streuparameters δ_{fem}

- (1) Der Streuparameter δ_{FEMi} für jedes experimentelle Resultat sollte für jeden Versuch $i = 1$ bis m aus:

$$\delta_{\text{FEMi}} = \frac{1}{\bar{b}_{\text{FEM}}} \cdot \frac{r_{\text{ei}}}{r_{\text{FEMi}}}$$

bestimmt werden.

- (2) Mit den Werten $\varphi_{FEM,i}$ kann der Schätzer

$$\Delta_{FEMi} = \ln(\delta_{FEMi})$$

bestimmt werden.

Daraus lässt sich der Schätzer $\bar{\Delta}_{FEMi}$ für den Erwartungswert $E(\Delta_{FEM})$

$$\bar{\Delta}_{FEM} = \frac{1}{m} \cdot \sum_{i=1}^m \Delta_{FEMi}$$

ableiten.

- (4) Der Schätzer s_{FEM}^2 für die Standardabweichung $\sigma_{\Delta_{FEM}}^2$ folgt aus

$$s_{FEM}^2 = \frac{1}{m-1} \cdot \sum_{i=1}^m (\Delta_{FEMi} - \bar{\Delta}_{FEMi})^2$$

- (5) Der Schätzer für den Variationskoeffizienten V_{FEM} ist dann

$$V_{FEM}^2 = \exp(s_{FEM}^2) - 1$$

- (6) Die weiteren Schritte zur Bestimmung der charakteristischen Werte und der Bemessungswerte stehen in Übereinstimmung mit dem Verfahren nach Anhang D von EN 1990.

Schritt 5: Ermittlung elektronischer Versuchsergebnisse

- (1) Nach der Kalibration des numerischen Modells an den Ergebnissen der Pilotversuche, sollten Parameterstudien durchgeführt werden, mit denen die „elektronischen“ Versuchsergebnisse geschaffen werden.
- (2) Dabei sind insbesondere die Parameter für Geometrie und Werkstoff (z.B. Blechdicken t , Imperfektionen δ/l , Streckgrenze f_y) zu variieren, die den größten Einfluss auf das Ergebnis haben.
- (3) Bei der Festlegung der Parameterkombination sollten Zufallskombinationen aus den statistischen Verteilungen der Parameter gewählt werden (z.B. nach der Monte-Carlo-Methode). Das kann auch auf die Parameter beschränkt sein, die den größten Einfluss auf das Endergebnis haben.

Schritt 6: Entwicklung des Ingenieurmodells

- (1) Zur Entwicklung des Ingenieurmodells ist Anhang D, D.5 von EN 1990 zu beachten. Das Ingenieurmodell hat die Form

$$r_t = g_{rt}(X)$$

Schritt 7: Vergleich des Ingenieurmodells mit den „elektronischen Versuchsergebnissen“

- (1) Der Vergleich erfolgt nach Anhang D, D.8.2.2.2. Anstelle der Versuchsergebnisse r_{ei} treten die „elektronischen“ Resultate r_{FEM} , siehe Bild 4-8.

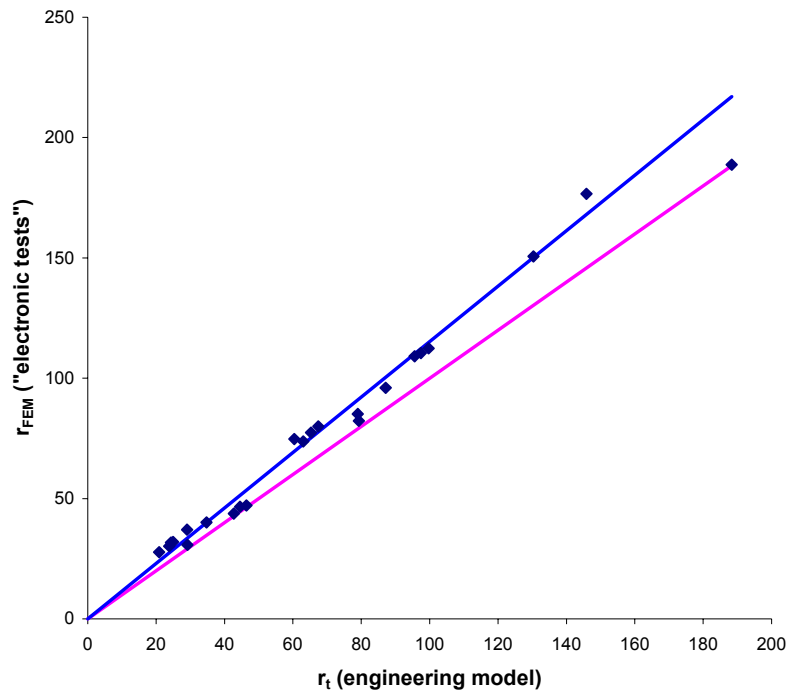


Bild 4-8: Resultate des Ingenieurmodells über numerischen Resultaten r_{FEM}

Schritt 8: Schätzung der Mittelwertabweichung

- (1) Die Berechnung erfolgt nach EN 1990, Anhang D, D.7, aber mit r_{FEM} statt r_{ei} :

$$\bar{b}_{(r)} = \frac{1}{n} \cdot \sum_{i=1}^n \frac{r_{FEMi}}{r_{ti}}$$

Schritt 9: Schätzung des Variationskoeffizienten V_{δ}

- (1) Die Berechnung erfolgt nach EN 1990, Anhang D, D.8.2.2.4, jedoch mit r_{FEM} statt r_{ei} .

Schritt 10: Eignungsprüfung

- (1) Die Prüfung erfolgt nach EN 1990, Anhang D, D.8.2.2.5.

Schritt 11: Ermittlung der Variationskoeffizienten V_{xi} für die Basisvariablen X_i

- (1) Für die Basisvariablen X_i , die in den Parameterstudien nicht genügend durch ihre statistischen Verteilungen repräsentiert sind, sind die Variationskoeffizienten V_{xi} nach EN 1990, Anhang D, D.8.2.2.6 zu bestimmen.

Schritt 12: Ermittlung des charakteristischen Wertes der Beanspruchbarkeit

- (1) Aufgrund der in Bild 4-9 dargestellten Situation kann der Variationskoeffizient V_r für die Beanspruchbarkeit R aus den Variationskoeffizienten V_{FEM} , V_δ und V_{X_i} wie folgt bestimmt werden (siehe EN 1990, Anhang D, D.14b):

$$V_{r^2} = (V_{FEM}^2 + 1)(V_\delta^2 + 1) \left[\prod_{i=1}^j (V_{X_i}^2 + 1) \right] - 1$$

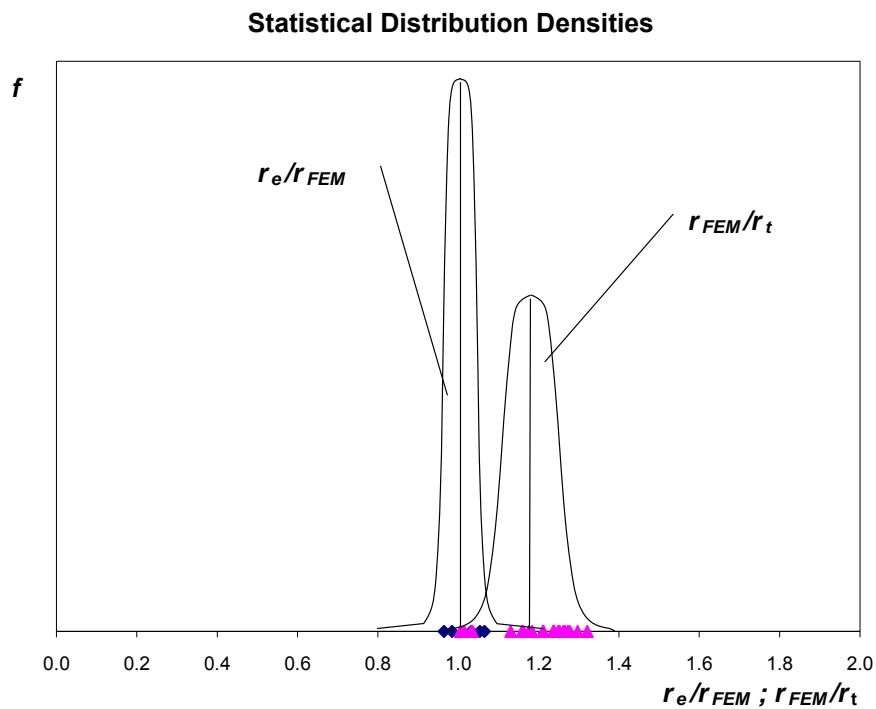


Bild 4-9: Statistische Verteilungsdichten für r_e/r_{FEM} und r_{FEM}/r_t

- (2) Unter Berücksichtigung der Anzahl m der nachgerechneten wirklichen experimentellen Ergebnisse und der Anzahl der „elektronischen“ Ergebnisse ergibt sich dann der charakteristische Wert r_k (siehe EN 1990, Anhang D, D.17) zu:

$$r_k = \bar{b}(r) g_{rt}(\underline{X}_m) \cdot \bar{b}_{FEM} \cdot \exp(-u_{k,\infty} \cdot \alpha_{rt} \cdot Q_{rt} - u_{k,n} \cdot \alpha_\delta \cdot Q_\delta - u_{k,m} \cdot \alpha_{FEM} \cdot Q_{FEM} - 0,5 \cdot Q^2)$$

Dabei gilt:

$$Q = \sqrt{\ln(V_r^2 + 1)}$$

$$Q_{rt} = \sqrt{\ln(V_{rt}^2 + 1)}$$

$$Q_\delta = \sqrt{\ln(V_\delta^2 + 1)}$$

$$Q_{FEM} = \sqrt{\ln(V_{FEM}^2 + 1)}$$

$$\alpha_{rt} = \frac{Q_{rt}}{Q}$$

$$\alpha_{\delta} = \frac{Q_{\delta}}{Q}$$

$$\alpha_{FEM} = \frac{Q_{FEM}}{Q}$$

- Q_{δ} Standardabweichungen der log-normalen Verteilung des Verhältnisses der Resultate der „elektronischen“ Versuche und des Ingenieurmodells (D.18b);
- Q_{rt} Standardabweichung der log-normalen Verteilung der Beanspruchung nach dem Ingenieurmodell, siehe D.18a, unter Berücksichtigung der Streuung der Basisvariablen X_i ;
- Q_{FEM} Standardabweichung der log-normalen Verteilung des Verhältnisses der Resultate der wirklichen experimentellen Versuche und der numerischen Simulationen mit FEM;
- Q Standardabweichung der log-normalen Verteilung der Beanspruchungsfunktion r ermittelt aus den „elektronischen Versuchen“, die selbst auf die Simulation von m experimentellen Versuchen beruhen, siehe (D.18c);
- α_{δ} Wichtungsfaktor für Q_{δ} , siehe (D.19b);
- α_{rt} Wichtungsfaktor für Q_{rt} , siehe (D.19a);
- α_{FEM} Wichtungsfaktor für Q_{FEM} ;
- m Gesamtzahl der numerisch simulierten experimentellen Versuche;
- n Gesamtzahl der „elektronischen Versuche“.

Schritt 13: Ermittlung des Bemessungswertes der Beanspruchbarkeit

- (1) Die Ermittlung des Bemessungswertes erfolgt analog zur Ermittlung des charakteristischen Wertes.
- (2) Die Gleichung lautet:

$$r_d = \bar{b}_{(r)} g_{rt}(\underline{X}_m) \cdot \bar{b}_{FEM} \cdot \exp(-u_{d,\infty} \cdot \alpha_{rt} \cdot Q_{rt} - u_{d,n} \cdot \alpha_{\delta} \cdot Q_{\delta} - u_{d,m} \cdot \alpha_{FEM} \cdot Q_{FEM} - 0,5 \cdot Q^2)$$

Schritt 14: Endgültige Festlegung des charakteristischen Wertes und des Teilsicherheitsbeiwertes γ_m

- (1) Die Vorgehensweise entspricht derjenigen in EN 1990, Anhang D.

4.5 Kombinationsbeiwerte für Wind und Schnee aus Messungen

4.5.1 VERANLASSUNG

- (1) EN 1991-1-3 und EN 1991-1-4 sind die Eurocodes für die Einwirkungen Schnee und Wind, die in Verbindungen mit den nationalen Anhängen (Schneekarten und Windkarten) Angaben für Schnee- und Windlasten auf Bauwerke liefern.
- (2) Diese zeitabhängigen Einwirkungen wurden als charakteristische Werte definiert, die (zumindest näherungsweise) einer festgelegten Wiederkehrperiode entsprechen. In den Eurocodes ist diese mit 50 Jahren definiert, was gleichbedeutend ist mit einer 98 %-Fraktile der statistischen Verteilung der Jahresextremwerte.
- (3) Nach EN 1990 sollte die Wiederkehrperiode für die kombinierte Wirkung mehrerer Einwirkungen in der Größenordnung der Wiederkehrperiode für den charakteristischen Wert einer Einzeleinwirkung liegen, also auch etwa 50 Jahren betragen.
- (4) Um eine Wiederkehrperiode von etwa 50 Jahren bei der Kombination mehrerer Einwirkungen zu erzielen, wird nur die Leiteinwirkung mit ihrem charakteristischen Wert verwendet, und die Begleiteinwirkungen werden mit Kombinationsbeiwerten reduziert. Diese sind:
 - ψ_0 für den Tragsicherheitsnachweis,
 - ψ_1 (häufig) für den Gebrauchstauglichkeitsnachweis,
 - ψ_2 (quasiständig) für den Gebrauchstauglichkeitsnachweis.
- (5) Für diese Nachweise empfiehlt EN 1990 die Zahlenwerte in Tabelle 4-1:

Tabelle 4-1: Kombinationsbeiwerte für Wind und Schnee nach EN 1990

Begleiteinwirkung	Kombinationsbeiwert ψ_0 (ULS)	Kombinationsbeiwert ψ_1 (SLS)	Kombinationsbeiwert ψ_2 (SLS)
Wind	0,6	0,2	0,0
Schnee Geländehöhe < 1000m	0,5	0,2	0,0
Schnee Geländehöhe > 1000m	0,7	0,5	0,2

- (6) Die Zahlenwerte im Eurocode setzen voraus, dass Wind und Schnee unabhängige Variablen sind, was in vielen klimatischen Zonen nicht stimmt. Nach Diskussionen mit dem Deutschen Wetterdienst (DWD) gibt es folgende Gründe für eine Wechselwirkung von Wind und Schnee:
 - lokale Windgeschwindigkeiten in Deutschland rühren in der Regel von Tiefdruckgebieten vom Atlantik her, die Warmluft von der Karibik aus dem Golf-Strom bringen. Stürme werden in Deutschland Tage bevor durch Temperaturanstieg angekündigt, der zur Schneeschmelze führt.
 - in Süddeutschland sind in der Alpenregion hohe Windgeschwindigkeiten durch Warmluft vom Mittelmeer über die Alpen (Föhn) verursacht, die ebenfalls zu Schneeschmelzen führt.
- (7) Aufgrund dieser Korrelation sind die Angaben in Tabelle 4-1 sehr auf der sicheren Seite. Um realistische Kombinationsbeiwerte zu erhalten, sind statistische Korrelationen zwischen Wind und Schnee als Komponente eines Atmosphärischen Systems notwendig.

- (8) Für bedeutende Bauwerke (als Beispiel wird hier das Niedersachsenstadion in Hannover herangezogen) wird deshalb eine genauere Analyse aufgrund von Messdaten nach den Eurocodes durchgeführt.

4.5.2 MESSDATEN ZU WIND UND SCHNEE

- (1) Böenwindgeschwindigkeiten mit einem Zeitintervall von 2 sec. standen für die Zeit von 1971 bis 2001 für die Höhe von 10 m am Flughafen, für den Geländekategorie II gilt, zur Verfügung. Daraus wurden die Böenwinddrücke bestimmt und aus den Jahresextremwerten auf Gumbelpapier die charakteristischen Werte $q_{k,10m,II}$ als 98 %-Fraktile ermittelt. Der charakteristische Wert ist $q_{k,10m,II} = 0,81 \text{ kN/m}^2$.

- (2) An der gleichen meteorologischen Station waren für den gleichen Zeitraum die täglichen Schneehöhen und zusätzlich das Wasseräquivalent alle 3 Tage aufgezeichnet worden. Bei Kenntnis der Wasseräquivalenz w kann die Schneelast s einfach durch:

$$s = w \times \rho_w \times g$$

ausgedrückt werden. Dabei ist ρ_w die Wasserdichte und g die Erdbeschleunigung.

Wo nur Schneehöhen h [m] zur Verfügung standen, konnten die Schneelasten mit folgender vom DWD entwickelten Funktion bestimmt werden:

$$s[\text{N/m}^2] = (159,81 + 129,82 h - 81,09 h^2 + 59,907 h^3 - 20,652 h^4) g h \quad \text{wenn } h < 1,53\text{m}$$

$$s[\text{N/m}^2] = 270 g h \quad \text{wenn } h \geq 1,53\text{m}$$

Meist standen für die Extremwerte jedoch Wasseräquivalente zur Verfügung.

- (3) Bild 4-10 zeigt die Verteilung der Extremwerte der Schneelasten, die durch eine Gumbelverteilung gut beschrieben werden kann, bis auf den Ausreißer, der anlässlich der Schneekatastrophe in Norddeutschland im Jahre 1979 auftrat. Nach EN 1991-1-3 ist dieser Ausreißer als außergewöhnliches Schneereignis zu bewerten, das für die Bestimmung des charakteristischen Wertes vernachlässigt werden kann, aber als außergewöhnliche Belastung (accidental load) berücksichtigt wird.

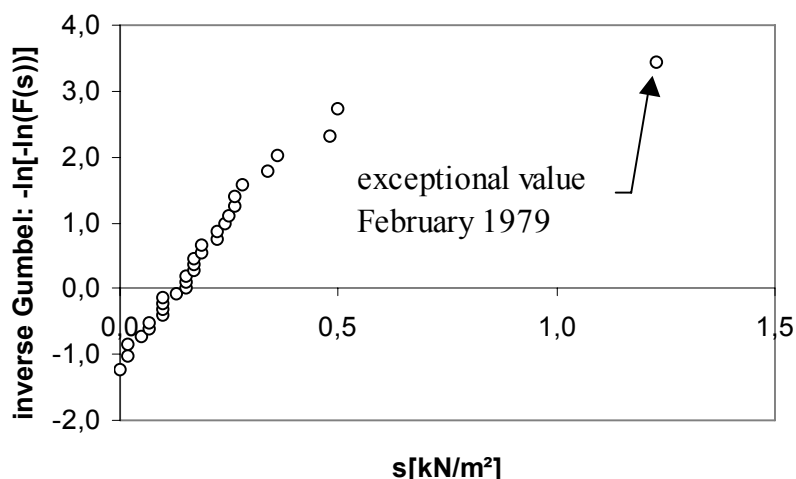


Bild 4-10: Jahresextremwerte der Schneelast auf Gumbel-Papier

- (4) Die Auswertung liefert:

$$s_k = 0,56 \text{ kN/m}^2 \quad (\text{charakteristischer Wert})$$

$$s_{Ad} = 1,23 \text{ kN/m}^2 \quad (\text{außergewöhnliche Belastung})$$

4.5.3 ERMITTLUNG DES KOMBINATIONSBEIWERTES

- (1) Die Behandlung der zwei zeitabhängigen Einwirkungen Wind und Schnee erfolgt hier nach Anhang F.3.2 der ISO 2394. Bei Annahme, dass die Einwirkungen Q_1 und Q_2 und ihre Wirkungen in linearem Zusammenhang stehen, erhält man für die Wirkung S :

$$S = a_1 Q_1 + a_2 Q_2$$

Hierbei sind a_1 und a_2 die Einflussfaktoren (z.B. ermittelt aus Einflusslinien).

- (2) Wenn wie hier im Zeitintervall c gleichzeitig gemessene Daten zu zeitabhängigen Einwirkungen Q_1 , Q_2 zur Verfügung stehen, kann eine Zeitreihe der Gesamtwirkung S bestimmt und daraus die Extremwertverteilung für ein bestimmtes Zeitintervall, z.B. 1 Jahr ermittelt werden. Nach Gleichung (F.8) in ISO 2394 lautet das Extremum:

$$S_{\max} = \max S \{Q_{1c}, Q_{2c}\}.$$

- (3) Bild 4-11 zeigt die Verwendung der Einflussfaktoren am Beispiel von zwei Hallenrahmen unterschiedlicher H/B-Verhältnisse. die Bezugsgröße S kann z.B. ein Eckmoment sein.

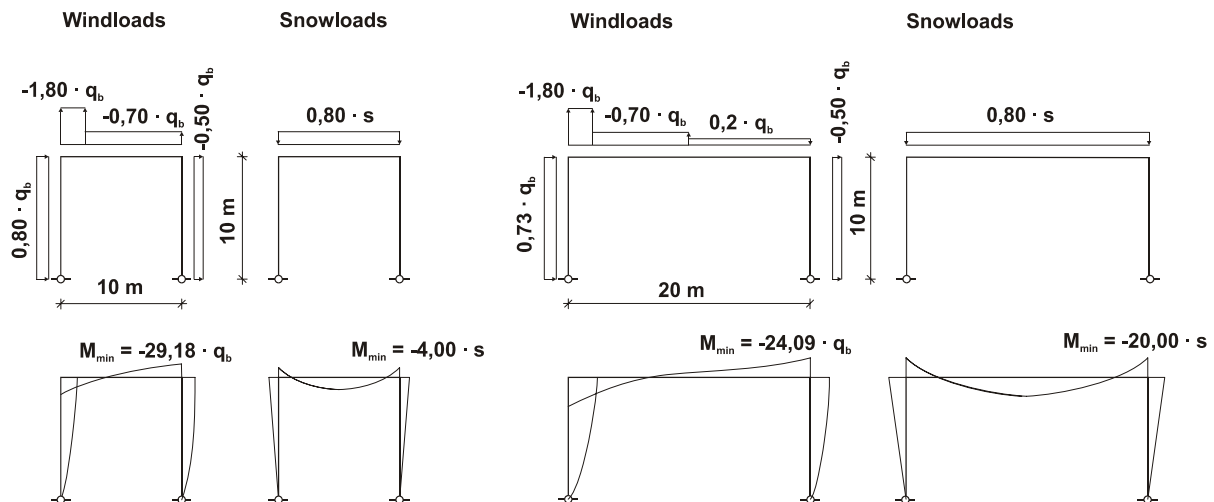


Bild 4-11: Erläuterung der Einflussfaktoren a_1 und a_2 an Hallenrahmen

- (4) Bild 4-12 zeigt die Zeitreihen dieses Momentes:

1. für Schnee alleine: S_1
2. für Wind alleine: S_2
3. für gleichzeitig Schnee und Wind

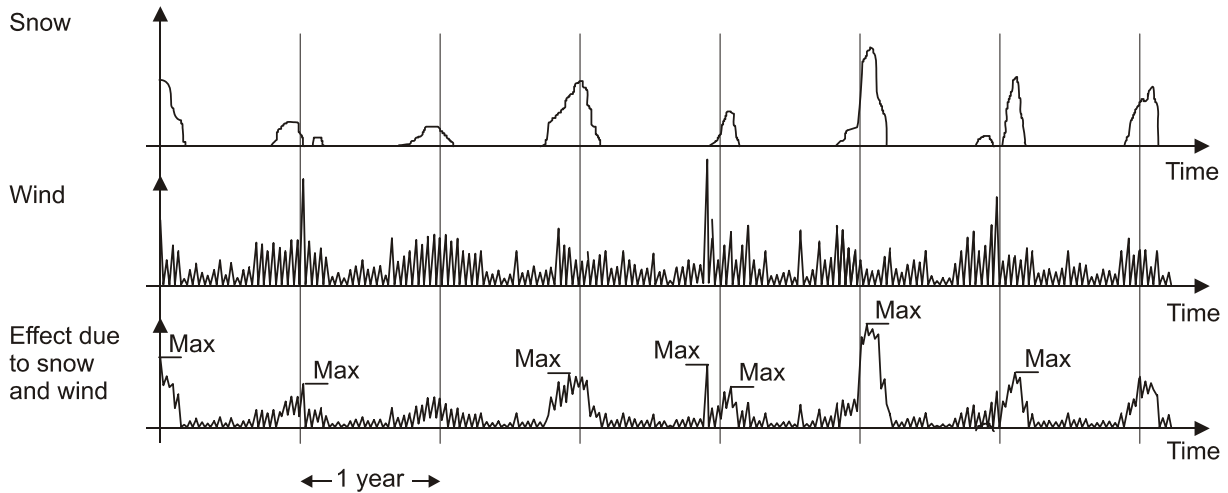


Bild 4-12: Zeitreihen eines Rahmenmomentes für Belastungen aus Schnee alleine, Wind alleine sowie gleichzeitig Schnee und Wind

- (5) Für die Auswertung der Jahresextremwerte und der Extremwertverteilung der Jahresextremwerte werden auf der sicheren Seite nur die Zeitintervalle verwendet, in denen beide Einwirkungen auftreten. Die Jahresextremwerte für die gleichzeitige Einwirkung von Schnee und Wind ergeben sich jeweils für verschiedene Verhältnisse der Einflussfaktoren a_s/a_w , siehe Bild 4-13. Mit diesen Verhältniswerten a_s/a_w kann man sich auch von dem konkreten Anwendungsfall (hier Rahmenecke) lösen und zu für alle Konstruktionen und Schnittstellen allgemeingültigen Aussagen kommen.

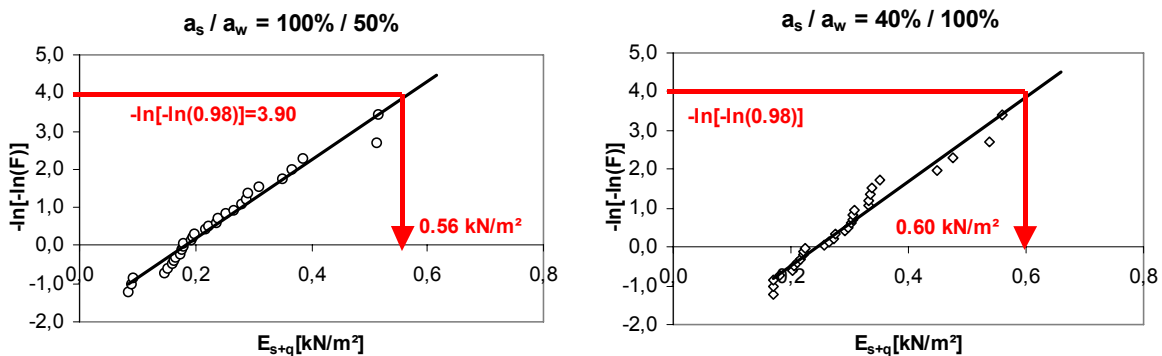


Bild 4-13: Auswertung der Verteilung der Jahresextremwerte der gleichzeitigen Wirkungen von Schnee und Wind für $E_{s+q,k}$ für verschiedene Verhältnisse a_s/a_w

- (6) Um nun zu Ergebnissen für ψ_0 zu kommen, wird Gleichheit der Bemessungswerte $\gamma_F \cdot E_{s+q,k}$ aus der Auswertung und nach der Eurocode-Regelung gefordert. Diese Forderung liefert:

$$1,5 \times E_{q+sk} = 1,5 \times E_{sk} + \psi_0 \times 1,5 \times E_{qk} \rightarrow \psi_0 = \frac{E_{q+sk} - E_{sk}}{E_{qk}} \quad \text{für } E_{sk} > E_{qk}$$

$$1,5 \times E_{q+sk} = 1,5 \times E_{qk} + \psi_0 \times 1,5 \times E_{sk} \rightarrow \psi_0 = \frac{E_{q+sk} - E_{qk}}{E_{sk}} \quad \text{für } E_{qk} > E_{sk}$$

- (7) Bild 4-14 zeigt das Ergebnis der Auftragung von E_{sk} , E_{qk} und $E_{s+q,k}$ über dem Verhältnis a_s/a_w . Wie man erkennt, gibt es nur einen beschränkten Bereich, in dem die gleichzeitige Wirkung von Schnee und Wind gegenüber den Einzelwirkungen von Schnee und

Wind überhaupt maßgebend ist, und in diesem Bereich liegt der Kombinationsbeiwert ψ_0 bei $\psi_0 = 0,04$. Der Wert $\psi_0 = 0,10$ wurde vorgeschlagen.

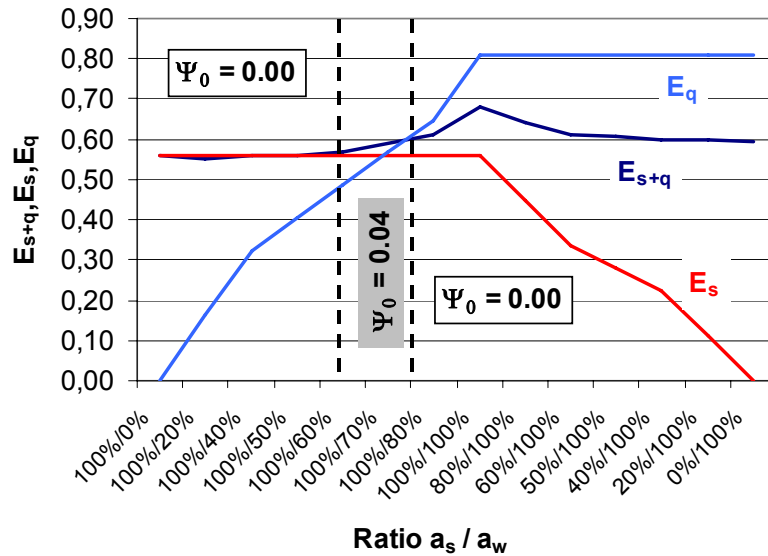


Bild 4-14: Darstellung des Verlaufes der charakteristischen Werte E_{sk} , E_{qk} und $E_{s+q,k}$ über dem Verhältnis a_s/a_w und Bereich mit maßgebenden ψ_0 -Werten

- (8) Für Gebrauchstauglichkeitsnachweise werden im vorliegenden Fall die Bemessungswerte für Wind und Schnee mit etwa 50 % der Bemessungswerte für Tragfähigkeitsnachweise festgelegt, was etwa der 92 %-Fraktile der Jahresextremwerte entspricht. Die Werte ψ_1 werden ähnlich wie die Werte ψ_0 bestimmt, aber nicht auf die 98 %-Fraktile, sondern auf die 92 %-Fraktile bezogen. Aufgrund dieses niedrigeren Niveaus der Lasten ist die Wahrscheinlichkeit, dass ein Zusammenwirken der Einwirkungen maßgebend sein könnte, größer und damit auch der ψ_1 -Wert. Bild 4-15 zeigt die Auftragung der Bemessungswerte E_{sd} , E_{qd} und $E_{s+q,d}$ auf dem niedrigeren Niveau und den maximalen ψ_1 -Wert, $\psi_1 = 0,22$. Es wurde schließlich $\psi_1 = 0,25$ vorgeschlagen.

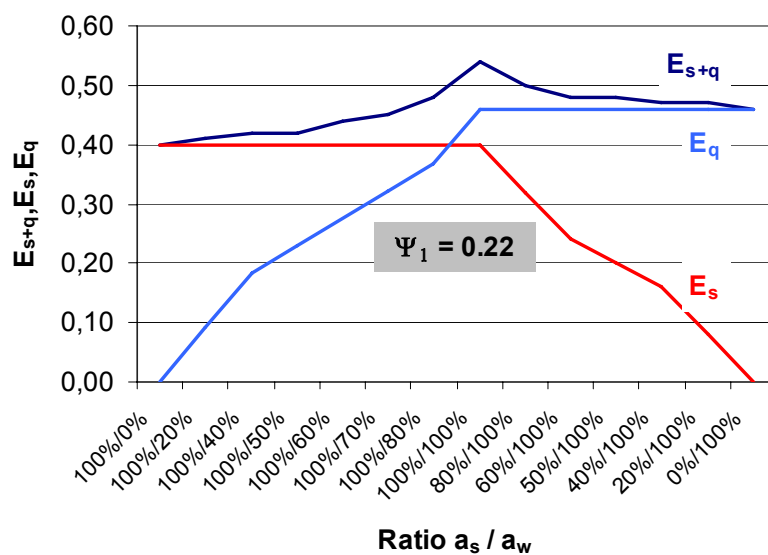


Bild 4-15: Kombinationsbeiwert ψ_1 für Wind und Schnee

4.6 Vorschlag für eine bauweisenübergreifende Grundlage für die Sicherheit im Ermüdungsnachweis

4.6.1 ALLGEMEINES

- (1) EN 1990 – Grundlagen der Tragwerksplanung – liefert Grundsätze und Anforderungen zur Tragsicherheit und Gebrauchstauglichkeit einschließlich der Dauerhaftigkeit von Tragwerken. Solche Grundsätze werden zwar in abstrakter allgemeingültiger Form auch für die Dauerhaftigkeit geboten, doch fehlen Auslegungen, die in Anforderungen an den Dauerhaftigkeitsnachweis münden.
- (2) Daher war es notwendig, für die einzelnen Eurocodes eine solche Auslegung und die Anforderungen zu definieren, so dass dort Dauerfestigkeitsnachweise mit ausreichender Zuverlässigkeit spezifiziert werden konnten.
- (3) Nachfolgend wird ein solches Grundsatzpapier für die Dauerhaftigkeitsanforderungen vorgestellt, die mit der Ermüdung von Bauteilen verknüpft sind. Dieses Papier – Grundlagen für den Entwurf und die Berechnung gegen Ermüdung – ist wie folgt gegliedert:
 1. Zielsetzung (Objective) des Papiers
 2. Zitate von Grundsätzen die Dauerhaftigkeit und Ermüdung betreffend in EN 1990
 3. Ergänzungen für die Anwendung für den Entwurf und die Berechnung bei Ermüdung
 - 3.1 Dauerhaftigkeit und das Ermüdungsphänomen
 - 3.2 Bestimmung von Lastmodellen für die Ermüdung
 - 3.3 Zuverlässigkeitsformate für den Ermüdungsnachweis je nach Kategorisierung der Konstruktion in „schadenstolerant“ oder „ zu Spröbruch neigend“
 - 3.4 Entwurf, um zu Schadenstoleranz zu kommen
 - 3.5 Sicherheitsvorkehrungen bei Spröbruchneigung.
- (4) Das Papier hat eine große Rolle bei der internationalen Einigung auf einen einheitlichen Ermüdungsnachweis im Eurocode 3 und ganz besonders im Eurocode 9 (Aluminium) gespielt. Es verknüpft die „Zähigkeit“ des Werkstoffs, die Effizienz von regelmäßigen Bauwerksprüfungen (Intervalle, Zugänglichkeit) anhand eines Risskontrollplanes, evtl. ständige Überwachungen (Monitoring) und die Schadensfolgen mit den Teilsicherheitsbeiwerten, die beim Ermüdungsnachweis verwendet werden müssen.

4.6.2 GRUNDLAGEN DER TRAGWERKSPLANUNG FÜR DIE ERMÜDUNG

4.6.2.1 Zielsetzung

- (1) Dieser Bericht enthält Grundlagen der Tragwerksplanung, die die Ermüdung betreffen. Er bezieht sich dabei auf die Grundsätze, die in EN 1990 – Grundlagen der Tragwerksplanung – enthalten sind und ergänzt diese.
- (2) Zielsetzung des Berichtes ist, für alle Eurocodes, die Regeln zu metallenen Bauteilen enthalten (das sind EN 1992, EN 1993, EN 1994 und EN 1999), harmonisierte Prinzipien für den Ermüdungsnachweis zu schaffen, die später in EN 1990 übernommen werden können.

4.6.2.2 Grundsätze, die zur Ermüdung in EN 1990 enthalten sind

1. Allgemeines

1.1 Geltungsbereich

- (1) EN 1990 legt Prinzipien und Anforderungen für die Tragsicherheit, Gebrauchstauglichkeit und Dauerhaftigkeit von Tragwerken fest ...
- (2) EN 1990 gilt in Verbindung mit EN 1991 bis EN 1999 ...

1.3 Annahmen

- (2) Die allgemeinen Annahmen für EN 1990 sind:
 - ...
 - Das Tragwerk wird sachgemäß instand gehalten.
 - Das Tragwerk wird entsprechend den Planungsannahmen genutzt.

1.5 Begriffe

1.5.2.20 Instandhaltung

Gesamtheit der Maßnahmen, die während der geplanten Nutzungsdauer des Tragwerks durchgeführt werden, um dessen Funktionsfähigkeit zu erhalten.

2 Anforderungen

2.1 Grundlegende Anforderungen

- (1) Ein Tragwerk ist so zu planen und auszuführen, dass es während der Errichtung und in der vorgesehenen Nutzungszeit mit angemessener Zuverlässigkeit und Wirtschaftlichkeit
 - den möglichen Einwirkungen und Einflüssen standhält und
 - die geforderten Gebrauchseigenschaften behält.
 - ...
- (2) Bei der Planung und der Berechnung des Tragwerks ist
 - eine ausreichende Dauerhaftigkeit zu beachten.
 - ...
- (4) Ein Tragwerk ist so auszubilden und auszuführen, dass durch Ereignisse wie menschliches Versagen keine Schadensfolgen entstehen,
 - ...
 - die in keinem Verhältnis zur Schadensursache stehen.
- (5) Die mögliche Schädigung ist durch die angemessene Wahl einer oder mehrerer der folgenden Maßnahmen zu begrenzen oder zu vermeiden:
 - ...
 - Wahl der Art des Tragsystems und seiner baulichen Durchbildung derart, dass mit dem schädigungsbedingten Ausfall eines einzelnen Bauteils oder eines begrenzten Teils des Tragwerks oder mit sonstigen in Kauf genommenen lokalen Schäden kein Totalversagen des Gesamttragwerks auftritt;

- wenn möglich, Vermeidung von Tragsystemen, die ohne Vorankündigung total versagen können;
- (6) Die grundlegenden Anforderungen sind durch
- die Wahl geeigneter Baustoffe,
 - durch zweckmäßigen Entwurf und Bemessung und geeignete bauliche Durchbildung sowie
 - durch die Festlegung von Überwachungsverfahren für Nutzung zu erfüllen.

2.2 Behandlung der Zuverlässigkeit

- (3) Bei der Wahl differenzierter Zuverlässigkeitsniveaus für ein bestimmtes Tragwerk sind z. B. folgende Gesichtspunkte zu beachten:
- ...
 - Mögliche Versagensfolgen in Hinblick auf Leben und Unversehrtheit von Personen und auf wirtschaftliche Verluste;
- (5) Das geforderte Zuverlässigkeitsniveau für die Tragsicherheit oder Gebrauchstauglichkeit darf durch folgende Maßnahmen erreicht werden:
- b) Geeignete Maßnahmen bei der Berechnung:
- ...
 - Wahl der Teilsicherheitsbeiwerte bei der Bemessung;
- e) Weitere Maßnahmen bei der Tragwerksplanung, die auf folgende Gesichtspunkte eingehen:
- ...
 - Robustheit (Schadenstoleranz);
 - Dauerhaftigkeit in Verbindung mit der Wahl einer geeigneten Nutzungsdauer;
- g) Geeignete Überwachung und Instandhaltung entsprechend den Vorgaben der Projektunterlagen.

2.3 Geplante Nutzungsdauer

- (1) Die geplante Nutzungsdauer sollte festgelegt werden.

ANMERKUNG: In Tabelle 2.1 sind Klassen für die Planung der Nutzungsdauer angegeben. Die Werte in Tabelle 2.1 dürfen für Dauerhaftigkeitsnachweise (z. B. Ermüdungsnachweise) verwendet werden.

Tabelle 2.1 — Klassifizierung der Nutzungsdauer

Klasse der Nutzungsdauer	Planungsgröße der Nutzungsdauer (in Jahren)	Beispiele
1	10	Tragwerke mit befristeter Standzeit ^a
2	10 bis 25	Austauschbare Tragwerksteile, z. B. Kranbahnträger, Lager
3	15 bis 30	Landwirtschaftlich genutzte und ähnliche Tragwerke
4	50	Gebäude und andere gewöhnliche Tragwerke
5	100	Monumentale Gebäude, Brücken und andere Ingenieurbauwerke

^a ANMERKUNG Tragwerke oder Teile eines Tragwerks, die mit der Absicht der Wiederverwendung demontiert werden können, sollten nicht als Tragwerke mit befristeter Standzeit betrachtet werden.

2.4 Dauerhaftigkeit

- (1) Das Tragwerk ist so zu bemessen, dass zeitabhängige Veränderungen der Eigenschaften das Verhalten des Tragwerks während der geplanten Nutzungsdauer nicht unvorhergesehen verändern. Dabei sind die Umweltbedingungen und die geplanten Instandhaltungsmaßnahmen zu berücksichtigen.
- (2) Für ein angemessen dauerhaftes Tragwerk sind die folgenden Aspekte zu berücksichtigen:
 - die vorgesehene oder vorhersehbare zukünftige Nutzung des Tragwerks;
 - ...
 - die Zusammensetzung, Eigenschaften und Verhalten der Baustoffe und Bauprodukte;
 - ...
 - die Gestaltung der Bauteile und Anschlüsse;
 - die Qualität der Bauausführung und der Überwachungsaufwand.
- (4) Das Maß der zeitabhängigen Änderungen der Eigenschaften darf aufgrund von Berechnungen, Messungen und Erfahrungen mit bereits erstellten Bauwerken oder aufgrund einer Kombination solcher Vorerfahrungen eingeschätzt werden.

3 Grundsätzliches zur Bemessung mit Grenzzuständen

3.1 Allgemeines

- (5) Nachweise für Grenzzustände, die von der Nutzungszeit abhängen (z. B. bei der Ermüdung), sollten auf die geplante Nutzungszeit des Tragwerks bezogen werden.

3.3 Grenzzustände der Tragfähigkeit

- (4) Die folgenden Grenzzustände sind im Bedarfsfall nachzuweisen:
 - ...
 - das Versagen des Tragwerks oder eines seiner Teile durch Materialermüdung oder andere zeitabhängige Auswirkungen.

3.4 Grenzzustände der Gebrauchstauglichkeit

(1) Die Grenzzustände, die

– ...

– das Erscheinungsbild des Bauwerks betreffen,

sind als Grenzzustände der Gebrauchstauglichkeit einzustufen.

ANMERKUNG 1: In Verbindung mit der Gebrauchstauglichkeit wird beim „Erscheinungsbild“ auf große Durchbiegungen und ungewollte Rissbildung Bezug genommen.

(3) Die Gebrauchstauglichkeitsnachweise sollten auf folgende Kriterien eingehen:

...

c) Schäden, die voraussichtlich das

– Erscheinungsbild,

– die Dauerhaftigkeit oder

– die Funktionsfähigkeit des Tragwerks nachteilig beeinflussen.

4 Basisvariable

4.1 Einwirkungen und Umgebungseinflüsse

4.1.4 Darstellung der Ermüdungsbelastung

(1) Die Ermüdungsbelastungen, die für häufige Fälle (z. B. für Einfeld- und Durchlaufträger von Brücken, turmartige Bauwerke unter Windbelastung usw.) aus den Bauwerksreaktionen auf zeitveränderliche Einwirkungen bestimmt wurden, sollten den entsprechenden Teilen von EN 1991 entnommen werden.

(2) Für Tragwerke, die nicht in den Anwendungsbereich der entsprechenden Teile von EN 1991 fallen, sind die Ermüdungslasten aus Messungen oder gleichwertigen numerischen Untersuchungen an wirklichen Bauwerken zu bestimmen.

ANMERKUNG: Baustoffspezifische Regelungen (z. B. zur Berücksichtigung des Einflusses der mittleren Spannung oder nicht-linearer Bauteilreaktionen) sind in EN 1992 bis EN 1999 enthalten.

4.1.5 Darstellung dynamischer Einwirkungen

(1) Die Modelle für charakteristische Lasten und Ermüdungslasten in EN 1991 enthalten Effekte aus der Beschleunigung der Bauwerke.

4.2 Eigenschaften von Baustoffen, Bauprodukten und Bauteilen

(3) Soweit nicht anders in EN 1991 bis EN 1999 geregelt, sollten folgende Werte gelten:

– ...

– für den unteren charakteristischen Wert die 5%-Fraktile.

5 Statische Berechnung und versuchsgestützte Bemessung

5.2 Entwurf und Berechnung mit Versuchsunterstützung

- (1) Der Entwurf und die Berechnung können in Verbindung mit Versuchen durchgeführt werden.

ANMERKUNG: Versuche können z. B. unter folgenden Umständen notwendig sein:

– ...

– wenn Serienbauteile eingesetzt werden sollen, siehe Anhang D.

- (2) Die Versuche sind so durchzuführen, dass mit den Ergebnissen die geforderte Zuverlässigkeit der zu betrachtenden Bemessungssituation nachweisbar ist. Dabei ist die statistische Unsicherheit infolge begrenzter Versuchsanzahl zu berücksichtigen.

6 Nachweisverfahren mit Teilsicherheitsbeiwerten

6.2 Einschränkungen

- (1) Die Anwendungsregeln in EN 1990 sind auf Tragfähigkeits- und Gebrauchstauglichkeitsnachweise für Tragwerke mit statischer Belastung beschränkt. Für nicht-lineare Berechnungen sowie für Ermüdungsnachweise gelten die Regeln in EN 1991 bis EN 1999.

6.4 Nachweise für Grenzzustände der Tragfähigkeit

6.4.1 Allgemeines

- (1) Bei der Tragwerksplanung sind Nachweise für folgende Grenzzustände der Tragfähigkeit erforderlich:

...

d) FAT: Ermüdungsversagen des Tragwerks oder seiner Teile.

ANMERKUNG: Für den Ermüdungsnachweis werden die Kombinationen der Einwirkungen in EN 1992 bis EN 1999 angegeben.

C.6 Zielwerte für den Zuverlässigkeitsindex β

- (1) Tabelle C.2 gibt Zielwerte für den Zuverlässigkeitsindex β für verschiedene Bemessungssituationen für die Bezugszeit 1 Jahr und 50 Jahre an. Die β -Werte in Tabelle C.2 entsprechen den Sicherheitsanforderungen für die Zuverlässigkeitsklasse RC 2 (siehe Anhang B).

Tabelle C.2 Zielwert des Zuverlässigkeitsindex β für Bauteile mit RC 2 - Anforderungen

Grenzzustand	Zielwert des Zuverlässigkeitsindex	
	1 Jahr	50 Jahre
Ermüdung		1,5 bis 3,8 ^b
^b Abhängig von der Zugänglichkeit, Wiederinstandsetzbarkeit und Schadenstoleranz		

C.7 Verfahren zur Kalibration der Bemessungswerte

- (1) ... Bei besonderen Bemessungssituationen (z. B. bei Ermüdung) ist im Allgemeinen eine weitergehende Formulierung zur Beschreibung des Grenzzustandes erforderlich.

D.3 Verschiedene Arten von Versuchen

- (1) Man sollte zwischen folgenden Arten von Versuchen unterscheiden:
- a) Versuche zur direkten Bestimmung der Tragfähigkeit oder Gebrauchstauglichkeit von Tragwerken oder deren Elementen für bestimmte Belastungsbedingungen. Solche Versuche können z. B. für Brandbelastung, Ermüdungslasten oder Anpralllasten durchgeführt werden ...

4.6.2.3 Ergänzende Regelungen für einen ermüdungsgerechten Entwurf

4.6.2.3.1 Dauerhaftigkeit und Ermüdung

- (1) Unter Ermüdung versteht man den zeitlichen Ablauf von Rissentstehung und Risswachstum in einem Bauteil als Folge zeitveränderlicher Spannungen.

Anmerkung 1: Die ermüdungsbedingte maximale Nutzungszeit eines Bauteils setzt sich daher aus einer Rissentstehungsphase und einer Risswachstumsphase zusammen. Die Risswachstumsphase führt schließlich zu einer kritischen Rissgröße, bei der das Bauteil versagt.

Anmerkung 2: Der Anteil μ der Rissentstehungsphase an der gesamten maximalen Nutzungszeit hängt ab von

- den Bauteilabmessungen (bei Schrauben $\mu \approx 1$; bei Großbauteilen $\mu \approx 0$),
- dem Vorliegen rissähnlicher Ungängen (z. B. führen Bindefehler in Schweißnähten zu $\mu \approx 0$),
- der Zähigkeit des Werkstoffs (eine geringere Zähigkeit führt zu kleineren Werten der kritischen Rissgröße).

Anmerkung 3: Die Wahl der Nachweismethode für die Ermüdungssicherheit kann von dem Wert μ abhängen (z.B. die bruchmechanische Methode bei $\mu \approx 0$).

Anmerkung 4: Die Art und Weise, wie eine robuste Konstruktion erreicht wird (d.h. eine Konstruktion, bei der vor dem Versagen eine Vorwarnung in Form vorauslaufender, erkennbarer Schäden möglich ist), hängt von dem Wert μ ab (z.B. kann Robustheit bei $\mu \approx 1,0$ im wesentlichen nur durch Redundanzen erzeugt werden während bei $\mu \approx 0$ die Risswachstumsphase genutzt werden kann, um über Bauteilüberwachung mit spezifizierten Prüfintervallen die Vorwarnung durch Risse vor Versagen in Anspruch zu nehmen).

- (2) Die maximale Nutzungszeit eines Bauteils kann durch Ermüdung begrenzt sein, abhängig von
- der Ermüdungsbeanspruchung, die durch die Größen der Spannungsschwingbreiten $\Delta\sigma_{Ei}$ und ihre Anzahl n_{Ei} im Bemessungszeitraum ausgedrückt wird,
 - der Ermüdungsbeanspruchbarkeit (Ermüdungsfestigkeit).

Anmerkung 1: In EN 1992, EN 1993, EN 1994 und EN 1999 werden charakteristische Ermüdungsfestigkeiten als $\Delta\sigma_R - N_R$ - Kurven definiert, die aus der statistischen Auswertung der Ergebnisse von Ermüdungsversuchen mit Bauteilen mit typischer Detailgestaltung (Kerbfall) und zeitkonstanten Spannungsschwingbreiten $\Delta\sigma_E$ ermittelt wurden.

Anmerkung 2: Die Kurven der Ermüdungsfestigkeit können 3 Bereiche haben:

- niedrigzyklischer Bereich (liegt zwischen $N_R = 1$ und $N_R \approx 10^4$)
- hochzyklischer Bereich (liegt zwischen $N_R \approx 10^4$ und $N_R \approx 10^8$)
- Dauerfestigkeitsbereich ($N_R \rightarrow \infty$, falls vorhanden).

Anmerkung 3: Der hochzyklische Bereich einer Ermüdungsfestigkeitskurve kann für einen bestimmten Kerbfall durch die Beziehung

$$\Delta\sigma_R^m \cdot N_R = \Delta\sigma_c^m \cdot 2 \cdot 10^6 = \text{const}$$

ausgedrückt werden, wobei der Wert $\Delta\sigma_c$ die Kerbfallklasse darstellt (z.B. $\Delta\sigma_c = 50 \text{ N/mm}^2$ entspricht Kerbfallklasse 50).

Anmerkung 4: Wenn die Ermüdungsbeanspruchung in Form eines Spektrums von verschiedenen Werten $\Delta\sigma_{Ei} - n_{Ei}$ vorgegeben ist, kann dieses Spektrum für den Ermüdungsnachweis auf die Ermüdungsfestigkeit für konstante Spannungsschwingbreiten bezogen werden, indem die lineare Schadensakkumulation nach Palmgren-Miner angewandt wird:

$$D = \frac{n_{E1} [\text{Spannungsschwingspiele der Größe } \Delta\sigma_{E1}]}{N_{R1} [\text{Spannungsschwingsp. der } \Delta\sigma_R - N_R \text{ - Kurve auf dem Niveau } \Delta\sigma_{E1}]} + \frac{n_{E2}}{N_{R2}} + \dots + \frac{n_{Ei}}{N_{Ri}} \leq 1$$

Anmerkung 5: Die lineare Schadensakkumulation kann auch in der Form

$$D = \sum \frac{n_{E2}}{N_{Ri}} = \frac{\sum (\Delta\sigma_{Ei}^m \cdot n_{Ei})}{\Delta\sigma_c^m \cdot 2 \cdot 10^6} \leq 1$$

oder

$$\Delta\sigma_{Ee} \leq \Delta\sigma_c$$

ausgedrückt werden, wobei

$$\Delta\sigma_{Ee} = \left[\frac{\sum (\Delta\sigma_{Ei}^m \cdot n_{Ei})}{2 \cdot 10^6} \right]^{1/m}$$

die schadensäquivalente konstante Spannungsschwingbreite und

$\Delta\sigma_c$ die Kerbfallklasse

sind.

Anmerkung 6: Liegen die Ermüdungsbeanspruchungen nicht in Form eines Spektrums $\Delta\sigma_{Ei} - n_{Ei}$ vor, kann ein solches Spektrum aus dem Zeitverlauf der Spannungen

σ_{Ei} mittels der Rainflow-Methode oder Reservoir-Methode (Zählmethoden) abgeleitet werden.

4.6.2.3.2 Bestimmung der Ermüdungslasten (Lastmodell)

- (1) Die Bestimmung der Ermüdungslasten hängt von dem verwendeten Modell der Ermüdungsfestigkeit und dem Modell der Schadensakkumulation ab.
- (2) Im hochzyklischen Bereich und bei linearer Tragwerksantwort kann die Ermüdungslast als schadensäquivalente Last Q_{ei} aus dem Lastspektrum $Q_i - n_i$ mit

$$Q_e = \left[\frac{\sum (Q_i^m \cdot n_i)}{\sum n_i} \right]^{1/m}$$

bestimmt werden.

Anmerkung: In den verschiedenen Teilen der Lastnorm EN 1991 wird Q_e sowohl direkt, z.B. als Gruppe verschiedener Achslasten Q_e (siehe EN 1991-2 – Verkehrseinwirkungen auf Brücken) oder indirekt, z.B. als Produkt der charakteristischen Belastung Q_K und des Schadensäquivalenzfaktors λ_e (siehe EN 1991-1 – Lasten aus Kranbetrieb)

$$Q_e = Q_K \cdot \lambda_e$$

angegeben.

- (3) Für eine zeitlich unbegrenzte Nutzung wird die Ermüdungsfestigkeit durch den Dauerfestigkeits-Wert $\Delta\sigma_D$ vorgegeben. Die zugehörige Ermüdungslast wird durch die maximale Spannungsschwingbreite $\Delta\sigma_{E \max}$ des Spektrums definiert, für deren Bestimmung der Wert der „häufigen“ Last $\psi_1 Q_K$ angesetzt werden darf.

4.6.2.3.3 Zuverlässigkeitsanforderungen

- (1) Der Ermüdungsnachweis wird mit dem ermüdungsbezogenen Teilsicherheitsbeiwert γ_{Ff} für die Beanspruchung und γ_{Mf} für die Beanspruchbarkeit geführt.
- (2) Die Größen dieser Teilsicherheitsbeiwerte hängen von den Folgen der Rissbildung ab, zu der folgende Unterscheidungen getroffen werden:
 1. Die Rissbildung ist kraftgesteuert; dann führt das Risswachstum zu einer Verkleinerung der Querschnitte und vergrößert die Spannungen. Das Risswachstum ist deshalb überproportional zu der Rissgröße.
 2. Die Rissbildung ist verformungsgesteuert; dann führt das Risswachstum zu einer Verkleinerung der Steifigkeit und damit einer Verkleinerung der Spannungen. Das Risswachstum klingt ab, wenn eine bestimmte Rissgröße erreicht ist.
- (3) Die verformungsgesteuerte Ermüdung kann als Grenzzustand der Gebrauchstauglichkeit behandelt werden; die kraftgesteuerte Ermüdung ist dagegen als Grenzzustand der Tragsicherheit einzuordnen. Die Zuverlässigkeitsanforderung für den Nachweis der Tragsicherheit aus der Ermüdung ($\beta = 1,5$ bis $3,8$) hängt davon ab, welches der folgenden Sicherheitssysteme angewendet wird:
 1. Es besteht eine Vorwarnungsmöglichkeit durch Rissbildung (z.B. wegen ausreichend langer Risswachstumszeiten noch nach der Bildung von Rissen, die aufgrund ihrer Größe erkennbar sind, oder wegen vorhandener Redundanzen), und es wird ein Frühwarnsystem eingerichtet (regelmäßige Überwachung mit bestimmten Prüfintervallen), so dass das Anwachsen auf eine kritische Rissgröße, die Versagen auslösen würde, durch rechtzeitige Intervention, verhindert wird.

Anmerkung: Bauteile, die zu dieser Kategorie gehören, werden als „schadenstolerant“ bezeichnet, und die Zuverlässigkeitsanforderungen für den Ermüdungsnachweis sind die gleichen wie für den Nachweis der Gebrauchstauglichkeit ($\gamma_{Ff} = \gamma_{Mf} = 1,00$).

2. Es besteht keine Verwarnungsmöglichkeit durch Rissbildung (z.B. wegen zu kurzer Risswachstumszeiten), oder es sind keine regelmäßigen Prüfungen möglich (z.B. mangels Zugänglichkeit) oder der Nutzer akzeptiert keine Überwachungsaufgaben, sondern ist mit einer schwereren Konstruktion einverstanden; dann sind die Zuverlässigkeitsanforderungen anzuheben je nach:
 - Streuung der Ermüdungsfestigkeit, z.B. bedingt durch die Ausführungsqualität,
 - Unsicherheit des angenommenen Lastspektrums und der Schadensakkumulationsmethode.

Anmerkung: Bauteile, die zu dieser Kategorie gehören, müssen für die Ermüdungswirkung der gesamten Nutzungszeit „sicher gegen unangekündigtes Versagen“ konstruiert werden. Die Teilsicherheitsbeiwerte hängen davon ab, wie die Unsicherheiten reduziert werden.

4.6.2.3.4 Schadenstoleranter Entwurf

- (1) Der Entwurf, der auf Schadenstoleranz abzielt, führt zu einer Konstruktion mit ausreichender Zuverlässigkeit über die gesamte Nutzungszeit, wenn die vorgeschriebenen Überwachungs- und Instandsetzungsmaßnahmen zur Entdeckung und Behebung eventuell vorhandener Ermüdungsschäden während des Betriebes durchgeführt werden.

Anmerkung 1: Bei nicht vorhergesehener Rissbildung liefert die Schadenstoleranz die Sicherheit, dass die betroffenen Bauteile weiter voll in Funktion bleiben können, bis der Riss entdeckt wird.

Anmerkung 2: Stahltragwerke, die nach EN 1993 entworfen und bemessen werden, sind von Hause aus schadenstolerant, da die Mindestanforderungen an die Zähigkeit nach EN 1993-1-10 auf der Basis ausreichender Versagenssicherheit in der Zeit zwischen den Bauwerksüberprüfungen (Prüfintervall) ermittelt wurden. Als Ermüdungslast zwischen Bauwerksüberprüfungen wurde ein Viertel der gesamten Ermüdungslast über die Gesamtnutzungszeit angesetzt.

Anmerkung 3: Schadenstolerante Konstruktionen können weiterhin in Betrieb gehalten werden, auch wenn die rechnerische Nutzungszeit schon abgelaufen ist, so lange die vorgeschriebenen Überwachungen und Instandsetzungsmaßnahmen beibehalten werden.

Anmerkung 4: Es wird empfohlen, dem schadenstoleranten System den Vorzug zu geben; die dafür empfohlenen Teilsicherheitsbeiwerte sind $\gamma_{Ff} = 1,0$ und $\gamma_{Mf} = 1,00$ bis 1,5 je nach Zugänglichkeit.

4.6.2.3.5 Sicherheit gegen unangekündigtes Versagen

- (1) Der Entwurf, der alleine durch die Bemessung auf Sicherheit gegen unangekündigtes Versagen abzielt, ist eine Alternative zum schadenstoleranten Entwurf.
- (2) Die Teilsicherheitsbeiwerte hängen davon ab, welche Maßnahmen zur Reduktion der Unsicherheiten durchgeführt werden:
 - Entwurf mit überwachten Betriebsbedingungen,
 - Entwurf ohne Überwachung der Betriebsbedingungen,
 - dauerfester Entwurf.

Anmerkung: In Verbindung mit den Bemessungsregeln für Sicherheit gegen unangekündigtes Versagen in EN 1992, EN 1993, EN 1994 und EN 1999 wird vorausgesetzt, dass die Betriebsbedingungen in folgender Weise überwacht werden:

- es wird die tatsächliche Ermüdungsbelastung gegenüber den Berechnungsannahmen über die gesamte Betriebszeit kontrolliert,
- die Konstruktion wird, auch wenn sie offensichtlich schadensfrei ist, außer Betrieb genommen, sobald die Kontrolle zeigt, dass die rechnerische maximale Nutzungsdauer erreicht ist.

Die empfohlenen Teilsicherheitsbeiwerte sind $\gamma_{Ff} = 1,0$ und $\gamma_{Mf} = 1,15$ bis $1,35$ abhängig von den Versagensfolgen.

- (3) Bei Entwürfen ohne Überwachung der Betriebsbedingungen ist genügend Sicherheit gegen mögliches unangekündigtes Versagen durch geeignete γ_{Ff} - und γ_{Mf} -Faktoren je nach Einzelfall oder auf der sicheren Seite durch einen Entwurf mit Begrenzung der Beanspruchungen durch die Dauerfestigkeit zu erzielen.

4.7 Vorgehen zur Vereinheitlichung der Imperfektionsannahmen in Eurocode 2 und Eurocode 3

4.7.1 ANFORDERUNGEN

- (1) In der ENV-Fassung der Eurocodes sind in ENV 1992-1 (Eurocode 2) und ENV 1993-1 (Eurocode 3) unterschiedliche Ansätze für die Imperfektionsansätze gegenüber der Vertikalen (sogenannte Schiefstellungsimperfektionen) angewendet worden, die auch in die ersten Entwürfe der prEN-Fassungen übernommen worden waren.
- (2) Bild 4-16 zeigt, welche unterschiedliche Annahmen im Eurocode 2 und im Eurocode 3 getroffen worden waren.

EC 2		EC 3	
ENV 1992-1-1		ENV 1993-1-1	
1 st order theory	2 nd order theory	1 st order theory	2 nd order theory
2.5.1.3 (4) $\alpha_i = 0,01 \cdot \frac{1}{\sqrt{l}} \geq 1/400$	$\alpha_i = 0,01 \cdot \frac{1}{\sqrt{l}} \geq 1/200$	5.2.4.3 (1) $\phi = k_c \cdot k_s \cdot \phi_0$ with $\phi_0 = 1/200$ $k_c = \sqrt{0,5 + 1/n_c}$ but $k_c \leq 1,0$ and $k_s = \sqrt{0,2 + 1/n_s}$ but $k_s \leq 1,0$ where n_c is the number of columns per plane and n_s is the number of storeys	
2.5.1.3 (5) Reduction factor $\alpha_n = \sqrt{0,5 \cdot (1 + 1/n)}$ where n is the number of vertical members contributing to the total effect		5.2.4.3 (2) Neglection of columns carrying less than 50% of the mean value of the vertical load per column in n_c	
		Columns which do not extend through all the storeys included in n_s shall not be included in n_c . Those floor levels which are not connected to all the columns included in n_c shall not be included in n_s .	
draft prEN 1992-1-1		draft prEN 1993-1-1	
1 st order theory	2 nd order theory	1 st order theory	2 nd order theory
5.2 (2) $\alpha_i = 0,01 \cdot \frac{1}{\sqrt{l}} \geq 1/300$ (for one member with normal execution tolerances (class 1 EN13670))		5.3.3.1 (1) $\phi = k_c \cdot \phi_0$	
5.2 (3) $\alpha_{im} = \alpha_i \sqrt{0,5 \cdot (1 + 1/m)}$ where m is the number of vertical members contributing to the total effect		$\phi_0 = 1/400$	$\phi_0 = 1/200$
		$k_c = \sqrt{0,5 + 1/n_c}$ but $k_c \leq 1,0$ where n_c is the number of columns per plane	
		5.3.3.1 (3) For bracing structures the imperfection may be reduced by: $k_L = \sqrt{0,2 + 5/L}$ where L is the height of the relevant column.	
		5.3.3.1.(2) Columns carrying vertical loads of less than 50% of average value should not be considered.	

Bild 4-16: Unterschiedliche Regelungen für Schiefstellungsimperfektionen in der ENV-Fassung und der frühen prEN Fassung von Eurocode 2 und Eurocode 3

- (3) Da Bauwerke häufig Mischbauweisen aus Stahl, Beton, Mauerwerksbau oder Holzbau sind, bestand die Aufgabe darin, eine für alle Bauweisen einheitliche Lösung zu finden.

4.7.2 LÖSUNG

- (1) Eine Auftrugung der unterschiedlichen Vorgehensweisen nach einem einheitlichen Format liefert die Ergebnisse in Bild 4-17.

Conclusions from ENV-rules			
EC 2		EC 3	
ENV 1992-1-1		ENV 1993-1-1	
1 st order theory	2 nd order theory	1 st order theory	2 nd order theory
$\phi = \alpha_c \cdot \alpha_s \cdot \phi_0$		$\phi = \alpha_c \cdot \alpha_s \cdot \phi_0$	
$\phi_0 = 1/400$	$\phi_0 = 1/200$	$\phi_0 = 1/200$	
$\alpha_s = 2/\sqrt{l} = \sqrt{4/l} \approx 1/\sqrt{n_s} \leq 1,0$		$\alpha_s = \sqrt{0,2 + 1/n_s} \leq 1,0$	
$\alpha_c = \sqrt{0,5(1 + 1/n_c)} \leq 1,0$		$\alpha_c = \sqrt{0,5 + 1/n_c} \leq 1,0$	
Conclusions from draft prEN-rules			
prEN 1992-1-1		prEN 1993-1-1	
1 st order theory	2 nd order theory	1 st order theory	2 nd order theory
$\phi = \alpha_c \cdot \alpha_s \cdot \phi_0$		$\phi = \alpha_c \cdot \alpha_s \cdot \phi_0$	
$\phi_0 = 1/200$		$\phi_0 = 1/400$	$\phi_0 = 1/200$
$\alpha_s = 2/\sqrt{l} = \sqrt{4/l} \approx 1/n_s \leq 1,0$ $\geq 2/3$		$\alpha_s = \sqrt{0,2 + \frac{5}{4} \cdot \frac{4}{L}} \approx \sqrt{0,2 + 1,25 \cdot n_s} \leq 1,0$	

Bild 4-17: Schlussfolgerungen aus unterschiedlichen Imperfektionsannahmen

- (2) Die Einigung zwischen den Vorsitzenden von CEN/TC 250/SC 2, CEN/TC 250/SC 3 und CEN/TC 250/SC 4 hatte folgendes Ergebnis:
- Es wird das Grundkonzept:

$$\phi = \alpha_c \cdot \alpha_s \cdot \phi_0$$

$$\phi_0 = 1/200$$
 allgemein akzeptiert.

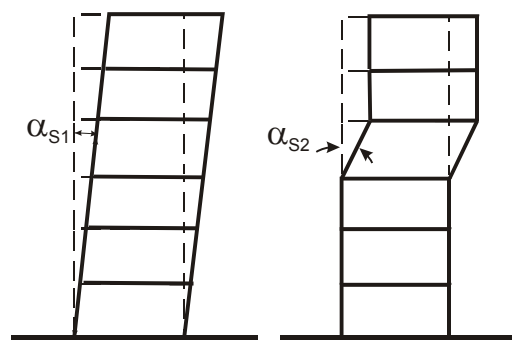
2. Für die Abminderungen nach der Höhe (α_s) wird das einfache Konzept:

$$\alpha_s = \frac{2}{\sqrt{h}} \leq 1,0$$

übernommen, da dies dem Wahrscheinlichkeitsansatz $\frac{1}{n_s}$ am nächsten kommt.

3. Bei der Frage, ob man Option 1 mit Nachweisen für eine globale Schiefstellung und Einzelnachweisen für jedes Stockwerk oder Option 2 mit Nachweisen nur für die globale Schiefstellung verwenden sollte, siehe Bild 4-18, wird der Vorzug der Option gegeben und dafür α_s zusätzlich auf $\alpha_s \geq 2/3$ begrenzt.

Option 1:



Option 2:

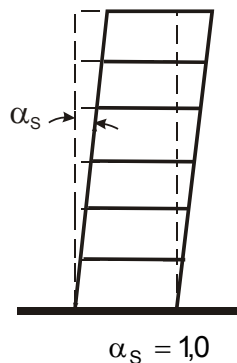


Bild 4-18: Optionen für den Imperfektionsnachweis

4. Für die Abminderung nach der Anzahl der Stützen in der Horizontalen α_c wird der Ansatz:

$$\alpha_c = \sqrt{0,5 \left(1 + \frac{1}{n_c} \right)}$$

verwendet, da dieser ungefähr ein Mittel zwischen systematischer Schiefstellung

($\alpha_c = 1,0$) und zufälliger Schiefstellung $\alpha_c = \frac{1}{\sqrt{n_c}}$ darstellt.

4.8 Anwendungstest von Anhang D von EN 1990 auf die Auswertung von Zulassungsversuchen für vorgespannte Hohldielen aus Beton

4.8.1 ALLGEMEINES

- (1) Im Folgenden werden Bauteilversuche zur Querkrafttragfähigkeit von Spannbetonhohlplatten mit Hilfe des statistischen Verfahrens aus EN 1990, Anhang D ausgewertet.
- (2) Aus diesen Untersuchungen ergeben sich Teilsicherheitsbeiwerte für das Produkt Spannbetonhohlplatte.
- (3) Die Teilsicherheitsbeiwerte werden sowohl durch die Anwendung der Tangentenstatistik als auch durch die Anpassung der gesamten Stichprobe der Versuchsergebnisse ermittelt.

4.8.2 SCHRITT 1: BEMESSUNGSMODELL

- (1) Für eine im Bereich des Auflagers angreifende Querkraft wird (in den bauaufsichtlichen Zulassungen des DIBt) folgendes Bemessungsmodell zugrunde gelegt

$$r_t = g_{rt}(X) = Q_U = \frac{I \cdot b_s}{S} \left(\frac{1}{K} \cdot \sqrt{\beta_{bZR}^2 + 0,9\alpha\sigma_{bv}\beta_{bZR}} - 0,9\tau_{sp} \right)$$

mit:

b_s = minimale Stegbreite

I = Trägheitsmoment

S = statisches Moment

K = $1 - [1/2 - b_a/(3d)]^2$

b_a = Auflagerlänge

d = Plattenhöhe

β_{bZR} = Betonzugfestigkeit (B55: 1,9 N/mm²)

α = $1 - [(l\ddot{u} - l_x)/l\ddot{u}]^2$, wenn $l_x \leq l\ddot{u}$

α = 1, wenn $l_x > l\ddot{u}$

l_x = Abstand Nachweisquerschnitt ÷ Plattenende

$l\ddot{u}$ = Übertragungslänge der Vorspannkraft

σ_{bv} = mittlere Betondruckspannung inf. Vorspannung

τ_{sp} = Schubspannung im Beton inf. Spannkrafteinleitung

4.8.3 SCHRITT 2: VERGLEICH DER VERSUCHSERGEBNISSE MIT BERECHNETEN WERTEN

- (1) Der Vergleich der Versuchsergebnisse mit den Rechenergebnissen ist in Bild 4-19 dargestellt:

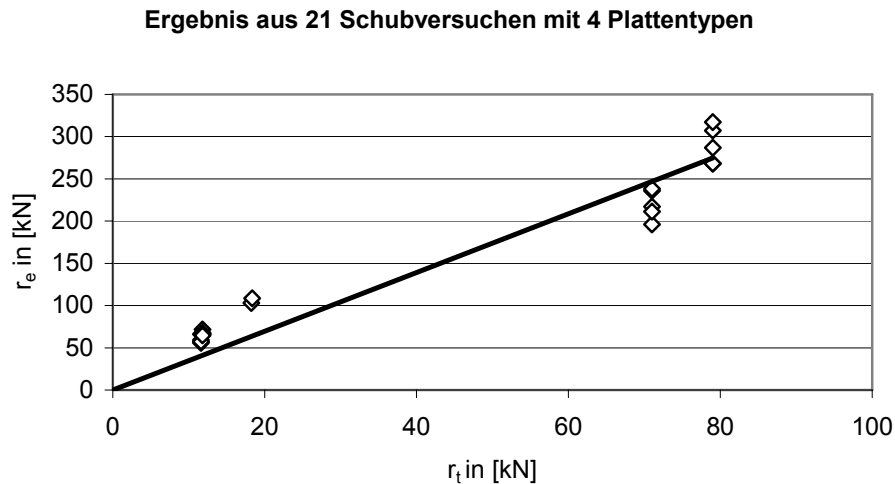


Bild 4-19: Vergleich $r_e - r_t$

4.8.4 ANWENDUNG DER TANGENTENSTATISTIK

- (1) Hier wird zunächst nur der untere Teil der Stichprobe aus den Versuchsergebnissen an eine Normalverteilung angepasst. Zum Vergleich wird unter Abschnitt 4.8.5 eine statistische Berechnung durchgeführt, bei der die vollständige Stichprobe an eine Normalverteilung angepasst wird.

4.8.4.1 Schritt 3: Mittelwert \bar{b}

- (1) Die Verteilung von $b_i = \frac{r_{ei}}{r_{ti}}$ wird in ein Wahrscheinlichkeitspapier für die Normalverteilung eingetragen (Bild 4-20).

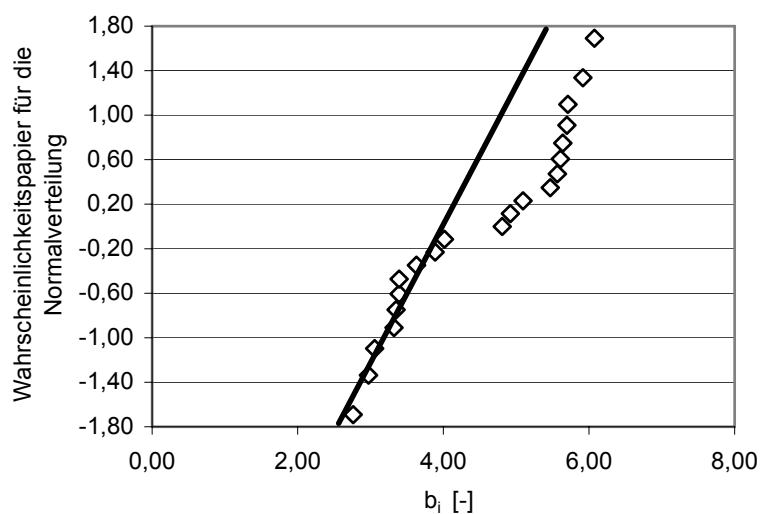


Bild 4-20: Verteilung von $r_e - r_t$

- (2) Auf dem Normalpapier wird die Stichprobe nur im unteren (relevanten) Teil an eine Normalverteilung angepasst („Tangentenstatistik“). Der Mittelwert beträgt dann:

$$\bar{b} = 3,99$$

4.8.4.2 Schritt 4: Standardabweichung der Modellungenauigkeit

- (1) Die Standardabweichung ergibt sich folgendermaßen:

$$s'_\Delta = 0,805$$

- (2) Da die rechnerischen Werte r_{ii} nicht mit Versuchswerten sondern mit Mittelwerten berechnet werden, muss die Standardabweichung folgendermaßen korrigiert werden:

$$s_\Delta = \sqrt{s'^2_\Delta + \frac{n-1}{n-2} \cdot \sum_{j=1}^J \left(\frac{\sigma_j}{m_j} \right)^2} = \sqrt{0,805^2 + \frac{20}{19} \cdot [0,08^2 + (2 \cdot 0,01)^2 + (1/2 \cdot 0,052)^2]} = 0,809$$

- (3) Die hierbei verwendeten Variationskoeffizienten entsprechen den Annahmen in Bild 4-21.

- (4) Damit ergibt sich der Variationskoeffizient V_δ :

$$V_\delta = \sqrt{\exp(s_\Delta^2) - 1} = 0,96$$

4.8.4.3 Schritt 5: Überprüfung der Kompatibilität

- (1) Eine ausreichende Kompatibilität ergibt sich aus den Bildern 4-19 und 4-20.

4.8.4.4 Schritt 6: Angenommene Variationskoeffizienten V_{xi} für die Basisvariablen

- (1) Die Annahmen für die Stegdicke und für die Plattenhöhe h werden aus Messungen an Spannbetonhohlplatten abgeleitet.
- (2) Es liegen Versuchsdaten in ausreichender Anzahl nur für die Betondruckfestigkeit vor, nicht jedoch für die in der Bemessungsfunktion enthaltene Betonzugfestigkeit. Aus diesem Grunde wird zur Ermittlung des Variationskoeffizienten der Betonzugfestigkeit unterstellt, dass diese im selben Maße streut wie die Druckfestigkeit.
- (3) Unter dieser Annahme wird hier anhand der Versuchsdaten für die Druckfestigkeit auf den Variationskoeffizienten der Zugfestigkeit geschlossen.

Basisvariable	Variationskoeffizient V_{xi}
Stegdicke b_s	0,08
Plattenhöhe h	0,01
Formel mit Zugfestigkeit ($\beta_{bZR}^2 + 0,9 \alpha \sigma_{bv} \beta_{bZR}$)	0,052

Bild 4-21: Statistische Parameter der Variablen

4.8.4.5 Schritt 7: Ermittlung des charakteristischen Wertes r_k

- (1) In der Bemessungsgleichung hat der additive Teil $0,9 \cdot \tau_{sp}$ einen geringen Einfluss, so dass dieser vernachlässigt werden kann. Aus der partiellen Ableitung der Bemessungsgleichung nach den einzelnen Variablen aus Bild 4-21 ergibt sich dann der resultierende Variationskoeffizient V_{rt} :

$$V_{rt} = \sqrt{\underbrace{(0,08)^2}_{b_s} + \underbrace{(2 \cdot 0,01)^2}_h + \underbrace{(1/2 \cdot 0,052)^2}_{(\beta_{bZR}^2 + 0,9 \cdot \alpha_{bv} \cdot \beta_{bZR})}} = 0,162$$

- (2) Es werden die folgenden Standardabweichungen und Wichtungsfaktoren ermittelt:

$$Q_{rt} = \sigma_{\ln(rt)} = \sqrt{\ell n(V_{rt}^2 + 1)} = 0,161$$

$$Q_{\delta} = \sigma_{\ln(\delta)} = \sqrt{\ell n(V_{\delta}^2 + 1)} = 0,809$$

$$Q = \sigma_{\ln(r)} = \sqrt{\ell n(V_r^2 + 1)} = \sqrt{\ell n(V_{rt}^2 + V_{\delta}^2 + 1)} = 0,818$$

$$\alpha_{rt} = \frac{Q_{rt}}{Q} = 0,197$$

$$\alpha_{\delta} = \frac{Q_{\delta}}{Q} = 0,990$$

- (3) Die Fraktillfaktoren für $n = 21$ Tests ergeben sich zu:

- charakteristische Werte

$$k_n = 1,76$$

- Bemessungswerte

$$k_{d,n} = 3,64$$

- (4) Der charakteristische Wert der Querkrafttragfähigkeit wird berechnet

$$r_k = \bar{bg}_{rt}(X_m) \exp(-k_{\infty} \alpha_{rt} Q_{rt} - k_n \alpha_{\delta} Q_{\delta} - 0,5Q^2)$$

4.8.4.6 Schritt 8: Ermittlung des Bemessungswerts r_d

- (1) Der Bemessungswert r_d wird berechnet:

$$r_d = \bar{bg}_{rt}(X_m) \exp(-k_{d,\infty} \alpha_{rt} Q_{rt} - k_{d,n} \alpha_{\delta} Q_{\delta} - 0,5Q^2)$$

4.8.4.7 Schritt 9: Teilsicherheitsbeiwert γ_r

- (1) Es ergibt sich folgender Teilsicherheitsbeiwert γ_R :

$$\begin{aligned} \gamma_R &= \frac{r_k}{r_d} = \frac{\exp(-k_{\infty} \alpha_{rt} Q_{rt} - k_n \alpha_{\delta} Q_{\delta} - 0,5Q^2)}{\exp(-k_{d,\infty} \alpha_{rt} Q_{rt} - k_{d,n} \alpha_{\delta} Q_{\delta} - 0,5Q^2)} \\ &= 4,71 \end{aligned}$$

4.8.4.8 Schritt 10: An Nominalwerten kalibrierter Teilsicherheitsbeiwert γ_R^*

(1) Der Teilsicherheitsbeiwert γ_R^* wird schließlich an Nominalwerten r_n kalibriert:

$$\begin{aligned}\gamma_R^* &= k_c \cdot \gamma_R = \frac{r_n}{r_k} \cdot \frac{r_k}{r_d} = \frac{g_{rt}(X_n)}{r_d} \\ &= \underline{1,43}\end{aligned}$$

4.8.5 ANPASSUNG DER GESAMTEN STICHPROBE AN DIE NORMALVERTEILUNG

4.8.5.1 Schritt 3: Mittelwert \bar{b}

(1) Im Unterschied zur Vorgehensweise in Abschnitt 4.8.4 wird hier die gesamte Stichprobe durch eine Normalverteilung beschrieben, siehe Bild 4.22.

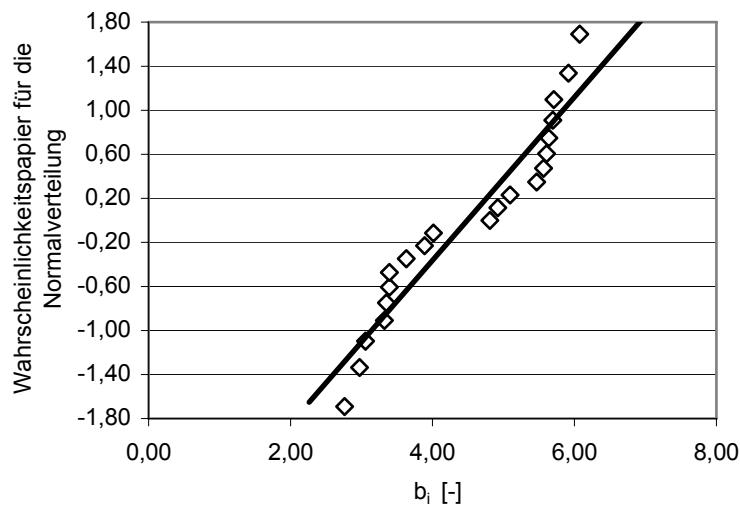


Bild 4-22: Verteilung von $r_e - r_t$

(2) Der Mittelwert beträgt

$$\bar{b} = 3,99$$

4.8.5.2 Schritt 4: Standardabweichung der Modellungenauigkeit

(1) Die Standardabweichung ergibt sich folgendermaßen:

$$s'_\Delta = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (\Delta_i - \bar{\Delta})^2} = 1,153$$

(2) Da die rechnerischen Werte r_{ij} nicht mit Versuchswerten sondern mit Mittelwerten berechnet werden, muss die Standardabweichung folgendermaßen korrigiert werden:

$$s_\Delta = \sqrt{s'^2_\Delta + \frac{n-1}{n-2} \cdot \sum_{j=1}^J \left(\frac{\sigma_j}{m_j} \right)^2} = \sqrt{1,153^2 + \frac{20}{19} \cdot [0,08^2 + (2 \cdot 0,01)^2 + (1/2 \cdot 0,052)^2]} = 1,156$$

(3) Die hierbei verwendeten Variationskoeffizienten entsprechen den Annahmen in Bild 4-21.

- (4) Damit ergibt sich der Variationskoeffizient V_δ :

$$V_\delta = \sqrt{\exp(s_\Delta^2) - 1} = 1,68$$

4.8.5.3 Schritt 5: Überprüfung der Kompatibilität

- (1) Eine ausreichende Kompatibilität ergibt sich aus den Bildern 4-19 und 4-22.

4.8.5.4 Schritt 6: Angenommene Variationskoeffizienten V_{xi} für die Basisvariablen

- (1) Die Variationskoeffizienten können Bild 4-21 entnommen werden.

4.8.5.5 Schritt 7: Ermittlung des charakteristischen Wertes r_k .

- (1) Aus der partiellen Ableitung der Bemessungsgleichung nach den einzelnen Variablen aus Bild 4-21 ergibt sich der resultierende Variationskoeffizient V_{rt} :

$$V_{rt} = \sqrt{\underbrace{(0,08)^2}_{b_s} + \underbrace{(2 \cdot 0,01)^2}_h + \underbrace{(1/2 \cdot 0,052)^2}_{(\beta_{bZR}^2 + 0,9 \cdot \alpha_{bv} \cdot \beta_{bZR})}} = 0,162 \text{ (siehe Abschnitt 4.8.4.5)}$$

- (2) Es werden die folgenden Standardabweichungen und Wichtungsfaktoren ermittelt:

$$Q_{rt} = \sigma_{\ln(rt)} = \sqrt{\ell n(V_{rt}^2 + 1)} = 0,161 \text{ (siehe Abschnitt 4.8.4.5)}$$

$$Q_\delta = \sigma_{\ln(\delta)} = \sqrt{\ell n(V_\delta^2 + 1)} = 1,156$$

$$Q = \sigma_{\ln(r)} = \sqrt{\ell n(V_r^2 + 1)} = \sqrt{\ell n(V_{rt}^2 + V_\delta^2 + 1)} = 1,159$$

$$\alpha_{rt} = \frac{Q_{rt}}{Q} = 0,139$$

$$\alpha_\delta = \frac{Q_\delta}{Q} = 0,997$$

- (3) Wie in Abschnitt 4.8.4.5 sind die Fraktilfaktoren $k_n = 1,76$ bzw. $k_{d,n} = 3,64$ zu verwenden.

- (4) Der charakteristische Wert der Querkrafttragfähigkeit wird berechnet:

$$r_k = \bar{b}_{g_{rt}}(X_m) \exp(-k_\infty \alpha_{rt} Q_{rt} - k_n \alpha_\delta Q_\delta - 0,5Q^2)$$

4.8.5.6 Schritt 8: Ermittlung des Bemessungswertes r_d :

- (1) Der Bemessungswert r_d wird berechnet:

$$r_d = \bar{b}_{g_{rt}}(X_m) \exp(-k_{d,\infty} \alpha_{rt} Q_{rt} - k_{d,n} \alpha_\delta Q_\delta - 0,5Q^2)$$

4.8.5.7 Schritt 9: Teilsicherheitsbeiwert γ_r

- (1) Es ergibt sich folgender Teilsicherheitsbeiwert γ_R :

$$\begin{aligned} \gamma_R &= \frac{r_k}{r_d} = \frac{\exp(-k_\infty \alpha_{rt} Q_{rt} - k_n \alpha_\delta Q_\delta - 0,5Q^2)}{\exp(-k_{d,\infty} \alpha_{rt} Q_{rt} - k_{d,n} \alpha_\delta Q_\delta - 0,5Q^2)} \\ &= 9,02 \end{aligned}$$

4.8.5.8 Schritt 10: An Nominalwerten kalibrierter Teilsicherheitsbeiwert γ_R^*

- (1) Der Teilsicherheitsbeiwert γ_R^* wird schließlich an Nominalwerten r_n kalibriert:

$$\begin{aligned}\gamma_R^* &= k_c \cdot \gamma_R = \frac{r_n}{r_k} \cdot \frac{r_k}{r_d} = \frac{g_{rt}(X_n)}{r_d} \\ &= \underline{2,43}\end{aligned}$$

4.8.6 ZUSAMMENFASSUNG UND SCHLUSSFOLGERUNG

- (1) Es werden 21 Versuche zur Querkrafttragfähigkeit von Spannbetonhohlplatten ausgewertet.
- (2) Die in den Laborversuchen gemessene Querkrafttragfähigkeit wird der erwarteten Querkrafttragfähigkeit gegenübergestellt, die entsprechend dem zugrunde liegenden Bemessungsmodell berechnet wird. Es zeigt sich, dass die aus dem Versuch resultierende Querkrafttragfähigkeit wesentlich höher liegt als die mit dem Bemessungsmodell ermittelte.
- (3) Im ersten Teil werden die Versuche durch Tangentenstatistik ausgewertet, bei der die Stichprobe nur im unteren Teil an eine Normalverteilung angepasst wird. Mit dieser Vorgehensweise ergeben sich der Variationskoeffizient der Modellunsicherheit und der Teilsicherheitsbeiwert:

$$V_\delta = 0,96$$

$$\gamma_R^* = 1,43$$

- (4) Zum Vergleich wird im zweiten Teil die gesamte Stichprobe an eine Normalverteilung angepasst. Dann erhält man den Variationskoeffizient der Modellunsicherheit und den Teilsicherheitsbeiwert:

$$V_\delta = 1,68$$

$$\gamma_R^* = 2,43$$

- (5) Wird die gesamte Stichprobe an eine Normalverteilung angepasst, ergibt sich durch die Hinzunahme des (nicht relevanten) oberen Teils der Stichprobe eine starke Streuung. Durch den resultierenden hohen Variationskoeffizienten erhält man einen hohen Teilsicherheitsbeiwert.
- (6) Wird lediglich der untere (relevante) Teil der Stichprobe an eine Normalverteilung angepasst, ergibt sich eine wesentlich geringere Streuung und somit ein geringerer Teilsicherheitsbeiwert.

5. NÄCHSTE SCHRITTE

- (1) Die Kommissionsempfehlung vom 11. Dezember 2003 zur Einführung und Anwendung der Eurocodes richtet sich an die Mitgliedsländer und macht Vorschläge, die von CEN/TC250 aufgegriffen wurden, um in Dok. N 630 Rev. 4: Report on the Evolution of Eurocodes - die Mitwirkung bei folgenden Aktivitäten zu präzisieren:
1. Pflege der Eurocodes (Maintenance) durch Korrekturen, einzelne Verbesserungen, Auffüllen von Lücken, Anpassung an den neuesten Stand,.
 2. Weitere Harmonisierung (Harmonization) als Teil der Weiterentwicklung, um das vorhandene System der National zu bestimmenden Parameter in ein Klassensystem mit einem oder mehreren Bemessungswerten zu überführen, auf das in den Produktnormen für vorgefertigte Bauteile Bezug genommen werden kann.
 3. Aktionen zur weiteren Verbreitung der Eurocodes (Promotion) in Form von Hilfen für die Praxis (Seminare, Bemessungshilfen, Lehrhilfen für Universitäten und andere Ausbildungsstätten) sowie Unterstützung der Bauindustrie auf dem globalen Markt.
 4. Weiterentwicklung der Eurocodes (Further Development) durch Überarbeitungen und Ergänzungen zur Berücksichtigung des technischen Fortschritts und neuer Werkstoffe, Produkte und Verfahren.
- (2) CEN/TC 250 vereinbarte dazu eine Zusammenarbeit mit der Kommission, wobei auf Kommissionsseite das Joint Research Centre (JRC) in Ispra aufgrund einer administrativen Vereinbarung zwischen DG ENTR und dem JRC mitwirken wird. Die jeweilige Federführung für die einzelnen Aufgaben und die Durchführung gehen aus der Übersicht in Tabelle 5-1 hervor.

Work plan for the implementation and future actions

Objectives	Leading organisation	Supporting organisation	Activities		
			Information	Realization	Coordination
<p>1. Maintenance</p> <p>To propose a procedure to react to comments from Member States or NSBs on problems of implementation and use of the EN Eurocodes.</p>	CEN/TC 250 and its SCs	JRC/ELSA	Member States through National Authorities and/or NSBs	CEN/TC 250 and its SCs	CEN/TC 250 and its Coordination Group (CG), Product TCs, and EOTA
<p>2. Harmonization</p> <p>To provide a mechanism by which a convergence, where relevant, of the NDPs can be achieved, so that the second objective of the EN Eurocodes can be fulfilled.</p>	Commission supported by JRC/ELSA	CEN/TC 250 and its SCs	Member States through National Authorities and/or NSBs	Commission supported by JRC/ELSA	CEN/TC 250 and its SCs and CG
<p>3. Promotion</p> <p>To support to professions to implement and use the EN Eurocodes and to improve the competitiveness of European construction industry on the global market.</p>	Commission supported by JRC/ELSA	CEN/TC 250 and its SCs	Member States through National Authorities and/or NSBs	Commission supported by JRC/ELSA	CEN/TC 250 and its SCs and CG
<p>4. Further development</p> <p>To enable the planning of future developments e.g. by technical studies and research.</p>	CEN/TC 250 and its SCs	JRC/ELSA	Member States through National Authorities and/or NSBs	CEN/TC 250 and its SCs with European Technical Scientific Organisations	CEN/TC 250 and its SCs

Tabelle 5-1: Arbeitsplan für die Einführung und die weitere Bearbeitung der Eurocodes

- (3) Für die Weiterentwicklung der Eurocodes ist auch die Mitwirkung der Europäischen Technisch - Wissenschaftlichen Verbände vorgesehen, und es sind aufgrund des Drucks der Bauindustrie drei Felder für die Entwicklung zukünftiger Eurocode-Regeln

benannt: Regelungen für den Entwurf und die Bemessung von Konstruktionen aus oder mit Glas, aus oder mit Faserverstärkten Kunststoffen (FRP) und für das Bauen im Bestand (Sicherheitsnachweise für bestehende bauliche Anlagen und deren Umbau oder Ergänzung). Für pränormative Untersuchungen zu Glas und FRP sind vom JRC bereits Anträge an die Kommission ausgearbeitet worden.

- (4) Entsprechend den Kommissionsempfehlungen erfolgt die Weiterführung der Eurocode-Arbeiten mit Unterstützung durch:
- die nationalen Bauaufsichtsbehörden und öffentlichen Auftraggeber,
 - die nationalen Normungsinstitute mit ihren Experten,
 - die Europäische Bauindustrie,
 - die Europäische Kommission,
- die jeweils durch Finanzierung von Eigen- oder Fremdleistungen an der Gesamtfinanzierung beteiligt sein sollen.
- (5) Ein dringender Aspekt der Weiterführung der Eurocode-Arbeiten ist die Pflege der Eurocodes, die in Verbindung mit Fragen, die bei den Übersetzungen in andere Sprachen und der Herstellung der nationalen Anhänge entstehen, sofort einsetzen muss und bei Fragen bei den Erstanwendungen weitere Bedeutung erhält.
- (6) Zur Pflege der Eurocodes hat CEN/TC 250 eine Richtlinie für die Organisation seiner Leistungen erstellt (CEN/TC 250 Doc. N 707 Rev. 1). Kennzeichen dieser Richtlinie ist ein zweistufiges Vorgehen, siehe Bild 5-1:
1. die Behandlung von Fragen und Kommentaren im eigenen Lande (nationales Normeninstitut), wofür die Vorgehensweise der Bundesanstalt für Straßenwesen (BASt) bei der Einführung der DIN-Fachberichte im Geschäftsbereich des BMVBS (für Brücken) vorgeschlagen wird (Fragen mit Template, Website-Nutzung, Helpdesk). Das nationale Normeninstitut filtert die Fragen heraus, die einer europäischen Behandlung bedürfen (evtl. 5-10 %) und in englischer Sprache direkt an CEN/TC 250 und seine Unterkomitees (SCs) weitergegeben werden. Es kann auch sein, dass die nationalen Bauaufsichtsbehörden sicherheitsbezogene Anforderungen über die Kommission an CEN/TC 250 herantragen.
 2. die europäisch einheitliche Behandlung von Fragen in CEN/TC 250, siehe Bild 4-2, wo Fragen zu EN 1990 und dessen Anhängen direkt und Fragen zu den anderen Eurocodes in den jeweiligen zuständigen Unterkomitees behandelt werden.
- Wichtig ist, dass die Entscheidungen zur Veröffentlichung von Korrekturen oder Ergänzungen zu den Eurocodes bei CEN/TC 250 liegen, so dass die Veröffentlichungstermine praktischen Anforderungen folgen.

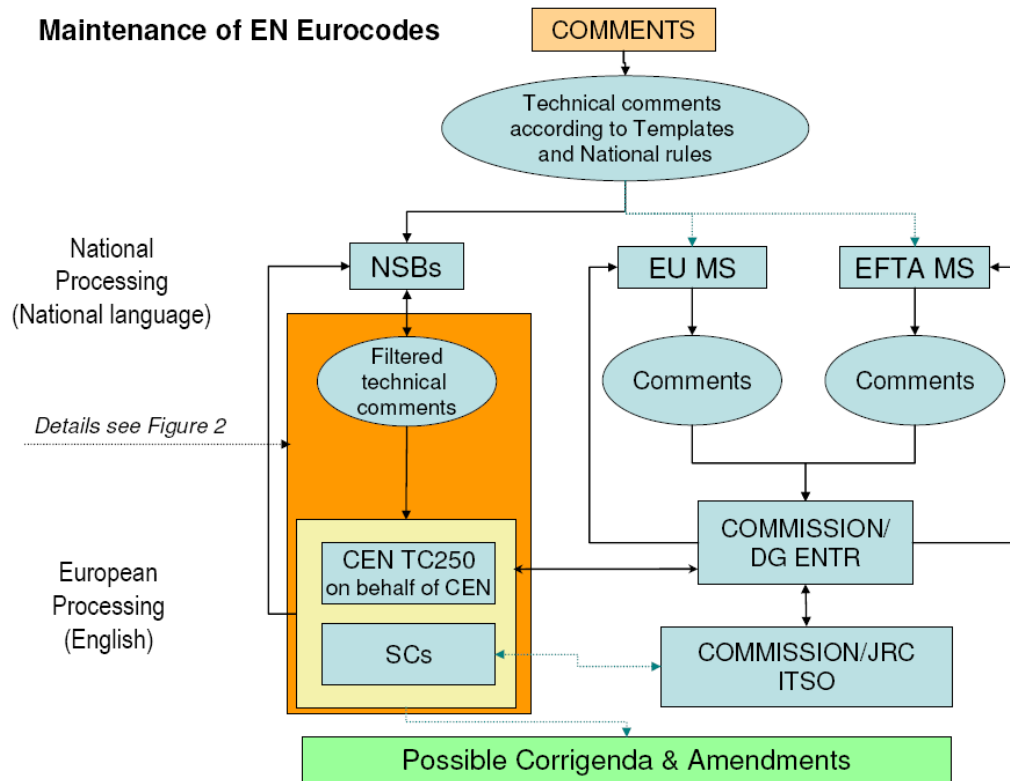


Bild 5-1: Empfohlene Vorgehensweise zur Behandlung von Kommentaren

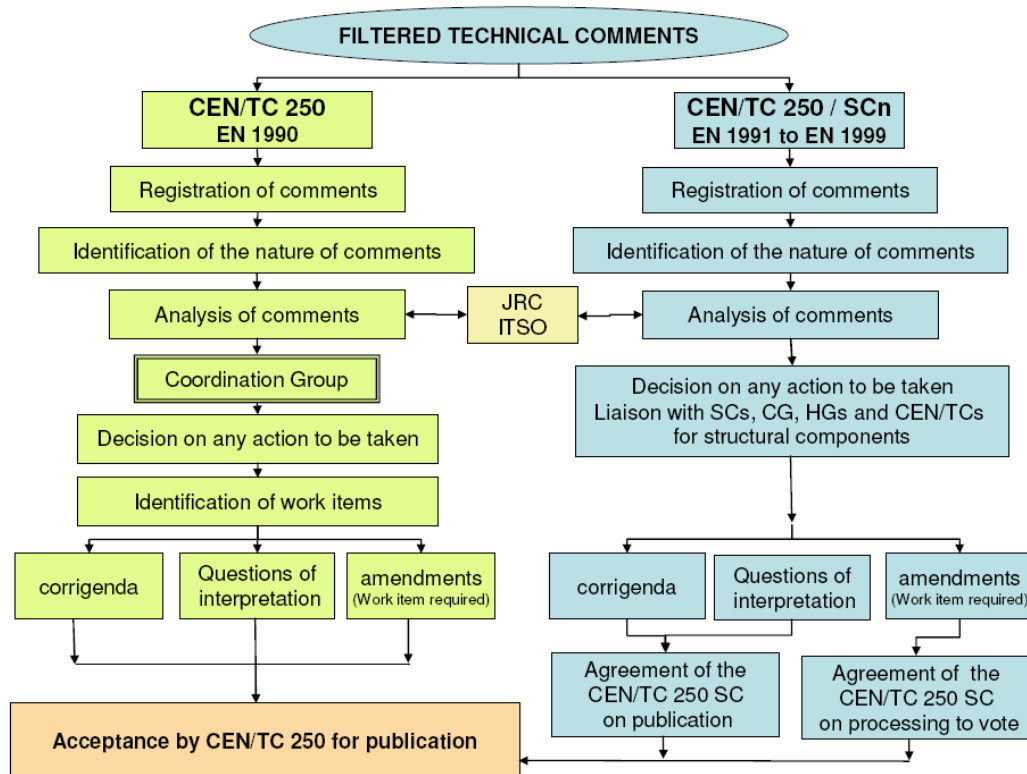


Bild 5-2: Vorgehen bei der Behandlung von Kommentaren in CEN/TC 250 und den SCs