The Future of EN Eurocodes

Dr. Paul Lüchinger, Zurich (CH)

Workshop - 27-29 November 2006, Varese, Italy

Basis and Frame of the EN Eurocodes

- ➔ The EN Eurocodes constitute a key instrument for the application of the Construction Products Directive (CD 89/106/EEC) and the Procurement Directives 93/37/EEC (Works Directive) and 92/50/EEC (Service Directive)
- ➔ They are the framework for drawing up harmonized technical specifications for construction products .

State of the Work Programme

N 674 Rev 5 Eurocodes Work Programme - Sept 06

EN number	Title	Project Year	DAV achieved		Prior to St. 34	Stage 34	Approved by SC to FV	On eTRANS	Translation of edits		CEN for FV	At FV	FV Result	Edited-English	eTRANS	Translation of edits		Remarks	EN number
									French	German						French	German		
EN 1990	Basis of structural design	1997	Apr-02																EN 1990
EN 1991-1-1	Actions on structures - General actions	1997	Apr-02															Outside CEC programme	EN 1991-1-1
EN 1991-1-2	Actions on structures - Fire loads	1997	Nov-03																EN 1991-1-2
EN 1991-1-3	Actions on structures - Snow loads	1998	Jul-03																EN 1991-1-3
EN 1991-1-4	Actions on structures - Wind actions	1997	Apr-06																EN 1991-1-4
EN 1991-1-5	Actions on structures - Thermal Actions	1999	Oct-03																EN 1991-1-5
EN 1991-1-6	Actions on structures - Execution	1999	Jun-05																EN 1991-1-6
EN 1991-1-7	Actions - Accidental	2000	Jul-06																EN 1991-1-7
EN 1991-2	Actions on structures - Traffic loads on bridges	1998	Sep-03																EN 1991-2
EN 1991-3	Actions - Cranes and machinery	2000	Jul-06																EN 1991-3
EN 1991-4	Actions - Silos	1999	May-06																EN 1991-4
EN 1992-1-1	Design of concrete structures - General requirements	1997	Dec-04																EN 1992-1-1
EN 1992-1-2	Design of concrete structures - Fire design	1998	Dec-04																EN 1992-1-2
EN 1992-2	Design of Concrete structures - Bridges	1999	Oct-05																EN 1992-2
EN 1992-3	Concrete - Liquid retaining	2000	Jun-06																EN 1992-3
EN 1993-1-1	Design of Steel structures - General requirements	1997	May-05																EN 1993-1-1
EN 1993-1-2	Design of Steel structures - Fire design	1998	Apr-05																EN 1993-1-2
EN 1993-1-3	Steel - Cold formed thin g members	1999																DAV 11th October 2006	EN 1993-1-3
EN 1993-1-4	Steel - structures in stainless	1999																DAV 11th October 2006	EN 1993-1-4
EN 1993-1-5	Steel - strength planar plated	1999																DAV 11th October 2006	EN 1993-1-5
EN 1993-1-6	Steel - Shell structures	2000											Positive	Awaited				Post vote editing being done	EN 1993-1-6
EN 1993-1-7	Steel - Out of plane loading	2000											Positive	Awaited				Post vote editing being done	EN 1993-1-7
EN 1993-1-8	Design of Steel structures - Design of joints	1997	May-05																EN 1993-1-8
EN 1993-1-9	Design of Steel structures-Fatigue strength	1997	May-05																EN 1993-1-9
EN 1993-1-10	Design of Steel structures - Mat toughness	1997	May-05																EN 1993-1-10
EN 1993-1-11	Steel - tension components	1999																DAV 11th October 2006	EN 1993-1-11
EN 1993-1-12	Steel - High strength steels	Not funded											Positive	Awaited				JIAP outside CEC programme	EN 1993-1-12
EN 1993-2	Steel - Bridges	1999																DAV 11th October 2006	EN 1993-2
EN 1993-3-1	Steel - Towers and masts	1999																DAV 11th October 2006	EN 1993-3-1
EN 1993-3-2	Steel - Chimneys	1999																DAV 11th October 2006	EN 1993-3-2
EN 1993-4-1	Steel - Silos	2000											Positive	Awaited				Post vote editing being done	EN 1993-4-1
EN 1993-4-2	Steel - Tanks	2000											Positive	Awaited				Post vote editing being done	EN 1993-4-2
EN 1993-4-3	Steel - Pipelines	2000											Positive	Awaited				Post vote editing being done	EN 1993-4-3
EN 1993-5	Steel - Piling	2000											Positive	Awaited				Post vote editing being done	EN 1993-5
EN 1993-6	Steel - Crane supporting	2000											Positive	Awaited				Post vote editing being done	EN 1993-6
EN 1994-1-1	Design of composite structures - General requirements	1997	Dec-04																EN 1994-1-1
EN 1994-1-2	Design of composite structures - Fire design	1998	Sep-05																EN 1994-1-2
EN 1994-2	Composite - Bridges	1999	Oct-05																EN 1994-2
EN 1995-1-1	Design of timber structures - General requirements	1997	Nov-04																EN 1995-1-1
EN 1995-1-2	Design of timber structures - Fire design	1998	Nov-04																EN 1995-1-2
EN 1995-2	Design of timber structures - Bridges	1999	Nov-04																EN 1995-2
EN 1996-1-1	Design of Masonry structures - Rules for reinforced	1998	Nov-05																EN 1996-1-1
EN 1996-1-2	Design of Masonry structures - Fire design	1998	May-06																EN 1996-1-2
EN 1996-2	Masonry - Selection & execution	2000	Jan-06																EN 1996-2
EN 1996-3	Masonry - Simplified calcs	2000	Jan-06																EN 1996-3
EN 1997-1	Geotechnical - general requirements	1998	Nov-04																EN 1997-1
EN 1997-2	Geotechnical - Ground investigation	2000											Positive	Awaited				Post vote editing being done	EN 1997-2
EN 1998-1	Seismic considerations - General requirements	1998	Dec-04																EN 1998-1
EN 1998-2	Earthquake - Bridges	1999	Nov-05																EN 1998-2
EN 1998-3	Design of structures for earthquake resist - Assss and retrofit	1999	Jun-05																EN 1998-3
EN 1998-4	Earthquake - Silos, tanks and pipelines	2000	Jul-06																EN 1998-4
EN 1998-5	Seismic considerations - Foundations	1998	Nov-04																EN 1998-5
EN 1998-6	Design of structures for earthquake resist - Towers mas	1999	Jun-05																EN 1998-6
EN 1999-1-1	Aluminium - Common rules	2000											Positive	Awaited				Post vote editing being done	EN 1999-1-1
EN 1999-1-2	Aluminium - Fire design	2000											Positive	Awaited				Post vote editing being done	EN 1999-1-2
EN 1999-1-3	Aluminium - Fatigue	2000										Yes	(Oct)					Awaits awaited Vote on 2 Ums	EN 1999-1-3
EN 1999-1-4	Aluminium - Trapezoidal sheeting	2000 (Not funded)										Yes (UAP)	(Sept)					JIAP	EN 1999-1-4
EN 1999-1-5	Aluminium - Shell structures	2000 (Not funded)										Yes(UAP)	(Sept)					JIAP	EN 1999-1-5
	Revised 4th September 2006	58 + Annex A2	37 plus 1999 Annex A2									3	18					? for DAV on 11th October	
Colour Code		Available		History of work complete		Work todo		Positive vote being finalised		Not funded	No Colour								

Maintenance

➔ **Where any problem are encountered in the implementation and use of the EN Eurocodes advice will be needed on a European level from experts involved in the Eurocode drafting.**

Maintenance

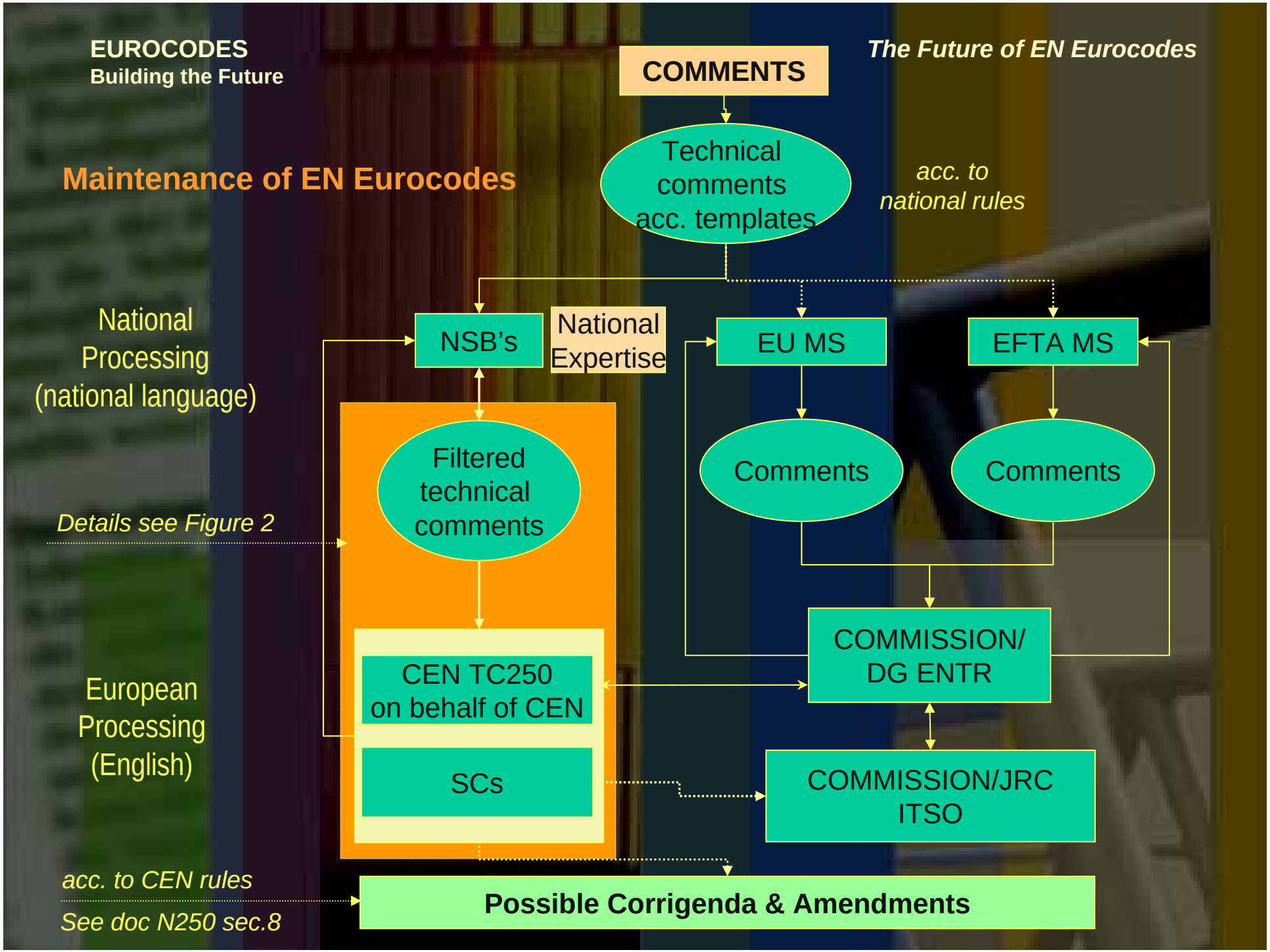
➔ **Where any problem are encountered in the implementation and use of the EN Eurocodes advice will be needed on a European level from experts involved in the Eurocode drafting.**

1. Work Item of Future Activities

➔ **to propose a procedure to react to comments from Member States or NSBs on problems of implementation and use of the EN Eurocodes ,**

➔ **to preserve the credibility and relevance of EN Eurocodes.**

Maintenance of EN Eurocodes



Harmonization

EN Eurocodes include NDPs which:

- ➔ **take into account differences in geographical, geological or climatic conditions,**
- ➔ **result from different design cultures and procedures in structural analysis,**
- ➔ **arise from the requirement for safety levels in the relevant Member States.**

Harmonization

➔ **The preparation of National Annexes (NAs) is likely to lead to different results for the choice of Nationally Determined Parameters (NDPs).**

Harmonization

➔ **The preparation of National Annexes (NAs) is likely to lead to different results for the choice of Nationally Determined Parameters (NDPs).**

2. Work Item of Future Activities

➔ **to provide a mechanism by which a convergence, where relevant, of the NDPs can be achieved,**

➔ **To gather information on the background used nationally for the selection of the NDPs.**

Promotion

➔ **The implementation of the EN Eurocodes will result in harmonized product specifications and design rules for buildings and civil engineering works within the EU and EFTA. This constitutes a step change towards harmonization within the European construction sector**

Promotion

- The implementation of the EN Eurocodes will result in harmonized product specifications and design rules for buildings and civil engineering works within the EU and EFTA. This constitutes a step change towards harmonization within the European construction sector

3. Work Item of Future Activities

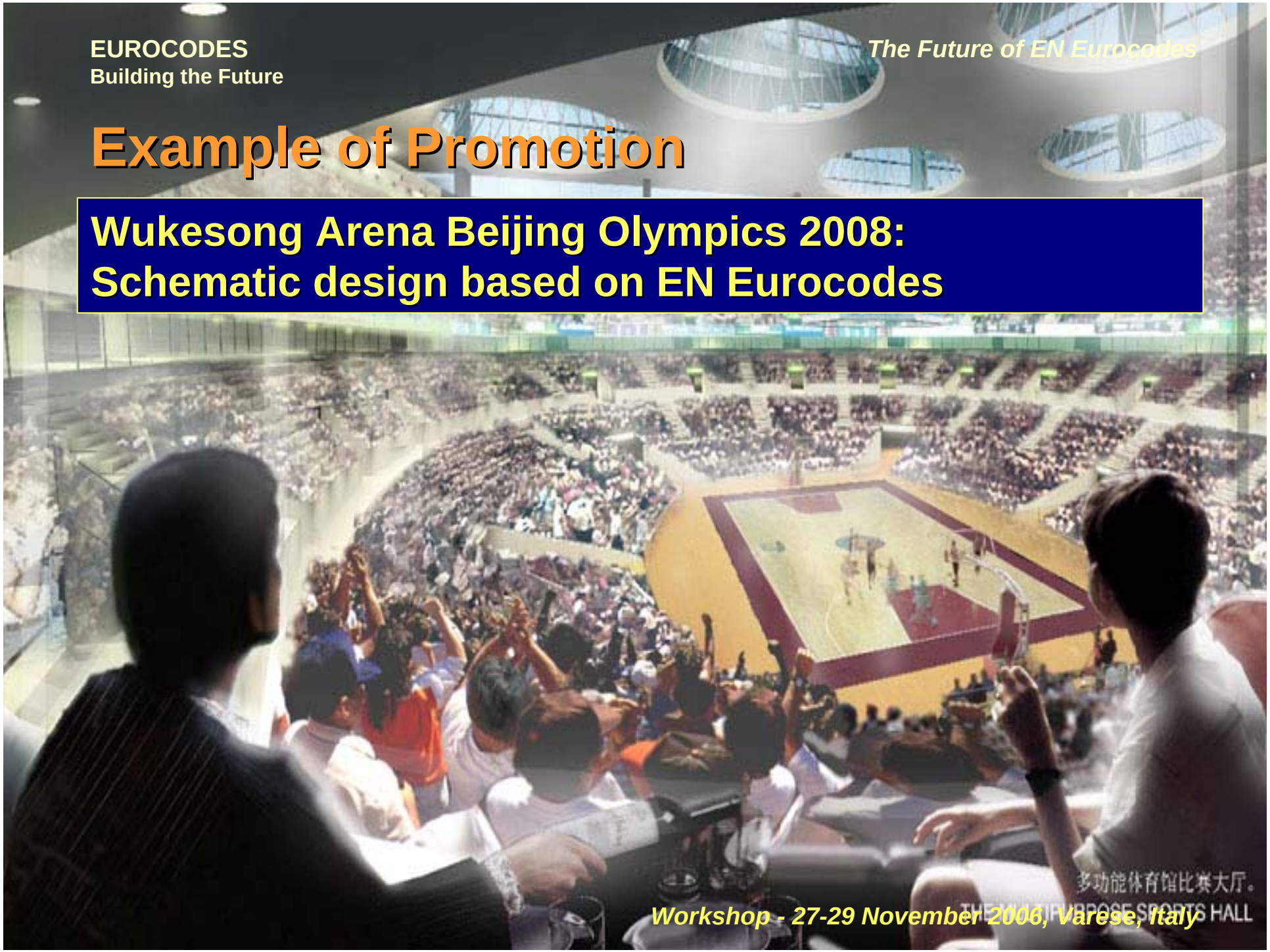
- to support to professions to implement and use the EN Eurocodes
- to improve the competitiveness of European construction industry on the global market
- to make this guidance accessible in all the Member States, and Countries outside in order to encourage better construction on a wide scale

Example of Promotion

Wukesong Arena Beijing Olympics 2008: Schematic design based on EN Eurocodes

Example of Promotion

Wukesong Arena Beijing Olympics 2008: Schematic design based on EN Eurocodes



Example of Promotion

Wukesong Arena Beijing Olympics 2008: Schematic design based on EN Eurocodes

Example of Promotion

Comparison:

Chinese Code of Practice GB 50009-2001:

Table of Imposed Loads on Buildings

4 楼面和屋面活荷载

4.1 民用建筑楼面均布活荷载

4.1.1 民用建筑楼面均布活荷载的标准值及其组合值、频遇值和准永久值系数，应按表 **4.1.1** 的规定采用。

表 4.1.1 民用建筑楼面均布活荷载标准值及其组合值、频遇值和准永久值系数

项次	类别	标准值 (kN/m^2)	组合值系数 ψ_c	频遇值系数 ψ_f	准永久值系数 ψ_q
1	(1) 住宅、宿舍、旅馆、办公楼、医院病房、托儿所、幼儿园	2.0	0.7	0.5	0.4
	(2) 教室、试验室、阅览室、会议室、医院门诊室			0.6	0.5
2	食堂、餐厅、一般资料档案室	2.5	0.7	0.6	0.5
3	(1) 礼堂、剧场、影院、有固定座位的看台	3.0	0.7	0.5	0.3
	(2) 公共洗衣房	3.0	0.7	0.6	0.5
4	(1) 商店、展览厅、车站、港口、机场大厅及其旅客等候室	3.5	0.7	0.6	0.5
	(2) 无固定座位的看台	3.5	0.7	0.5	0.3
5	(1) 健身房、演出舞台	4.0	0.7	0.6	0.5
	(2) 舞厅	4.0	0.7	0.6	0.3
6	(1) 书库、档案库、贮藏室	5.0	0.9	0.9	0.8
	(2) 密集柜书库	12.0			
7	通风机房、电梯机房	7.0	0.9	0.9	0.8
8	汽车通道及停车库：				
	(1) 单向板楼盖（板跨不小于 2m）				
	客车	4.0	0.7	0.7	0.6
	消防车	35.0	0.7	0.7	0.6
	(2) 双向板楼盖和无梁楼盖（柱网尺寸不小于 6m×6m）				
	客车	2.5	0.7	0.7	0.6
	消防车	20.0	0.7	0.7	0.6

10

Further Development

➔ **In order for the European Construction Industry to remain competitive, it is essential for the present EN Eurocodes to remain up to date. The EN Eurocodes should therefore be able to develop according to the innovative pressure of the market and the progress of scientific knowledge and methods.**

Further Development

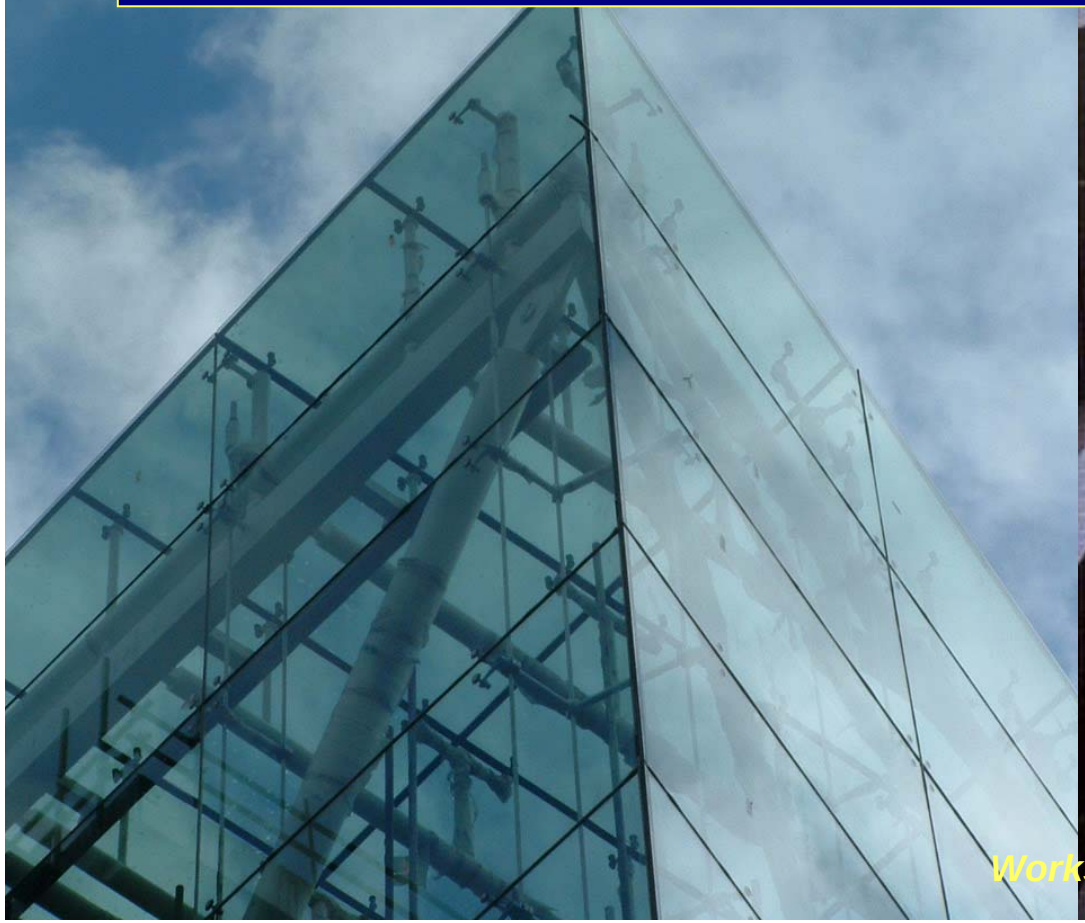
➔ In order for the European Construction Industry to remain competitive, it is essential for the present EN Eurocodes to remain up to date. The EN Eurocodes should therefore be able to develop according to the innovative pressure of the market and the progress of scientific knowledge and methods.

4. Work Item of Future Activities

➔ to enable the planning of future developments e.g. by technical studies and research.

Fields of Further Development

➔ **to investigate the need for a new code for glass in structural applications.**



Fields of Further Development

➔ **to investigate the need for a new code for the assessment of existing structures.**

Responsibilities

- **Implementation of EN Eurocodes:**

Act of Member States to bring EN Eurocodes into force in the framework of their National Provisions.

- **Maintenance,**
- **Harmonization,**
- **Promotion,**
- **Further development.**

Act of a Network of Players to support the use and to maintain the credibility and relevance of EN Eurocodes.

Commission Interest

- **Implementation of EN Eurocodes:**

Act of Member States to bring EN Eurocodes into force in the framework of their National Provisions.

❖	
❖ Harmonization,	← DG ENTR; JRC / ELSA
❖ Promotion,	← DG ENTR; JRC / ELSA
❖	

CEN Obligations

- **Implementation of EN Eurocodes:**

Act of Member States to bring EN Eurocodes into force in the framework of their National Provisions.

❖ Maintenance,	← CEN:CEN/TC 250+SC's
❖ Harmonization,	← Comm. JRC / ELSA
❖ Promotion,	← Comm. JRC / ELSA
❖ Further development.	← CEN:CEN/TC 250+SC's

Summary of activities in the Future

The Future of EN Eurocodes includes the activities required by the implementation and use of the EN Eurocodes on the following topics:

- **Maintenance,**
- **Harmonization,**
- **Promotion,**
- **Further development.**

Fine – End – Thank you for your attention