The European standardization system for the construction sector

Claes Andersson

Construction, Pressure Equipment, Metrology Unit
DG Enterprise and Industry
European Commission
1. Background
2. Single Market
3. Construction - Society
4. Key Directives – details
5. Eurocodes
The construction sector

1. **Strategic sector**: defence relevance and supporting/assisting all other economic sectors and their development

2. **Fixed nature**: Locally-based markets within countries/regions
   → national/local regulations and norms = fragmented markets

3. **European Union principles**

   **Single European Market**
   Efficient economy through increased competition

   **Member states responsible for safety of their citizens**
   Construction regulations set on EU Member State level
Construction sector in the EU size - importance

Construction activities:

- ~ 9 % of total European GDP (incl. products)
- 15 million people in 3 million enterprises
- 26 million jobs in the EU depend, directly or indirectly, on the construction sector
- Key sector supporting/assisting all other sectors
Single European Market

- 4 freedoms EU Treaty: Free movement of People, Goods, Services and Capital

- Challenges: legislation, policy:
  - Bring down barriers/simplify rules - individuals, consumers and businesses can make the most of the opportunities offered (~ 500 million inhabitants).
  - BUT while ensuring Safety & Health, Environmental protection, Social standards, etc

Legislation specific for Construction sector:


**Eurocodes** (European standards)
Single European Market

EU legislation not targeting construction but **influencing**:

- **Services**: Directive on Services in the internal market (Dir 2006/123/EC)
  Right to establish and provide services in all EU Member States

- **Public Procurement Directives** (Dirs 2004/17/EC and 2004/18/EC).
  Fairness and transparency when concluding public contracts

- **Labour mobility** Posting of workers (Dir 96/71/EC) and other Dir’s
Globalisation - Sustainability

• 2 major global challenges: *globalisation* and the need for a more *sustainable development* path (incl. energy supply).

• **Globalisation**: fostering efficiency → increased competition both in home markets and internationally.
  – *Competitiveness* – Lisbon Agenda
  – *Coherence* of legislation / standards

• **Sustainable development** in EU basic treaties.
  – Meeting the needs of today without compromising the ability of future generations to meet their needs
Sustainable Construction

• Construction activities underpin most other activities in society: economic, social, environmental, safety & health (infrastructure, buildings, plants, hospitals, schools..)

• Significant economic actor = potential significant contributor to undesired or negative effects

• **Sustainability principle** to the **construction process**
  – Use less energy and less virgin material,
  – Cause less pollution and less waste
  – Provide safe workplaces with good social conditions

*But also economic efficiency*
  – still provide the **benefits** that construction projects have brought us throughout history at **affordable costs**
EU legislation/policies

• Many EU Directives concern directly sustainability issues related to built assets, construction activities or construction products

Examples:

• **Energy Performance of Buildings Directive (2002/91)**, Buildings are the No. 1 energy consumer in our societies with a large potential for energy savings

• **Waste Framework Directive (2006/12)** + other: waste disposal, landfill, etc.
  – ~ 50% of all materials extracted are transformed into construction materials and products
  – Construction/demolition waste = one of the largest waste-streams within EU (> 450 million tonnes/year but important quantity recycled/re-used).
EU legislation/policies (ctd)

- **Temporary and Mobile Sites Directive** *(92/57/EEC)*
  Health & Safety at Construction sites expose workers to particularly high risks.
  Safety and health considerations taken on board during design and organisation of projects/sites.
  Chain of responsibility.

- **Policy initiatives (guidelines)** like developing common frameworks for Life-Cycle costing and Lead-market Initiative for Sustainable Construction
Construction Products Directive (89/106/EEC) – CPD (1)

OVERALL OBJECTIVE
• achieve EU internal market for construction products. Remove technical barriers to trade through technical harmonisation

FUNCTIONING
In place since 18 years = Well-established system

• elaboration of European technical specifications
  – harmonised European standards
  – European Technical Approvals

• implementation of the specifications in all EU Member States
Construction Products Directive (89/106/EEC) – CPD (2)

FUNCTIONING, ctd

- Attestation of conformity by Producers/Notified bodies (product type)
- application of CE marking on construction products complying with the specifications
  - Obligatory for products for which harmonised European specifications exist (hENs or ETAs)
  - National regulations may not impose other marks
- Market surveillance in Member States
Construction Products Directive (89/106/EEC) – CPD (3)

- CPD: Products used in Construction Works
  - Requirements defined for the construction works not the product

Essential requirements on construction works
- Mechanical resistance and stability
- Safety in case of fire
- Hygiene, health and the environment
- Safety in use,
- Protection against noise,
- Energy economy and heat retention

Revision of the CPD

Implementation → experience

1. Objectives still valid: EU-market – competition
   + Only change what has to be changed

2. Update:
   - market developments + new EU-legislation
   - Facilitate the use = Simplification
   - Further strengthen Notified bodies
   - Strengthen market surveillance

3. Level playing field - Member states:
   Directive → Regulation

- Buildings No. 1 energy consumer (~ 40%)

OVERALL OBJECTIVE
- Improve energy performance of buildings (new and existing) taking into account outdoor conditions, indoor climate requirements and cost-effectiveness

FUNCTIONING
- Methodology for calculating energy performance of buildings
- Minimum standards on the energy performance of new buildings and existing buildings that are subject to major renovation

FUNCTIONING, ctd

- Energy certification of new and existing buildings
- Regular inspection of boilers and central air-conditioning systems

Tools developed:
- 31 European Standards → ISO standards

**Action Plan for Energy Efficiency (October 2006)**

- **Overall energy saving**: 20% by 2020
- **Buildings** - top priority
  - highest potential of all 27-30%
  - Readily available technology
  
- **Revision of the EPBD**
  - Minimum performance requirements for new buildings (2009) incl. for key products like windows
  - Promote low energy or passive houses
**EUROCODES**
A tool for building safety and reliability enhancement

**EU-Russia cooperation on standardisation for construction – Moscow, 9-10 October 2008**

# Key Directives (8)

**Public Procurement Directives (2004/17/EC – 2004/18/EC) (1)**

## OVERALL OBJECTIVES
- Increased market **transparency** → fair cross-border **competition**
  → **price savings**
- Public contracts to be awarded on the basis of objective criteria in conditions of effective competition through a process that is transparent & non-discriminatory (works, equipment and services)

## FUNCTIONING
First Directives ~ 15 years ago (92-93), Current Directives (2004)

- Rules for award process (publication, delays, etc)
- **Two criteria for award of contracts**
  - Lowest price
  - Economically most advantageous tender, EMAT
- You are obliged to refer to Europ. standards (EN) in specifications
Public Procurement Directives (2004/17/EC – 2004/18/EC) (2)

Strong impact on Construction sector ~ 40% public contracts

- Many companies depend on public contracts – adapt work methods
- Public system rules → influence privately procured works
- Member States introduce criteria related to policy objectives: ex. Health and Safety, Environment, introduction IT

Construction market:

- ~ 90-95% - SMEs usually operating within a very limited area
- Little “cross-border trade”/trans-national contracts (1-2% of total) → Internal Market has limited effects on competition

▶ enforcing Public Procurement rules more important
Key Directives (10)

Public Procurement Directives
(2004/17/EC – 2004/18/EC) (3)

• Authorities often use lowest price criteria only - NOT Economically Most Advantageous Tender (EMAT)
How to live up to the Directives?

• EMAT could be a tool for developing the sector
  – support innovation
  – recognize higher quality
  – life-cycle costing
  – promote environmental-, safety&health- or social concerns.

▶ Practical Guidelines, best practices on EU-level also → homogenous implementation across the EU
Why Eurocodes?

1. Health and safety
   - High level of safety for all types of constructions

2. Market functioning/efficiency
   - Free circulation of products (CPD) and services (contractors, engineers, architects)

3. Technical aspects
   - Advanced, complete and coherent codes at the forefront of technical developments
Eurocodes - Current situation

- All 58 European standards (EN) published
- 2007-2010 Transition period for the implementation of ENs as national standards – National Design Codes phased out
- The Member States define Nationally Determined Parameters (NDPs).
  - difference in climate, soil, seismic activity, etc.
  - Safety/risk approach, safety factors
- Eurocodes must be used for public projects (Procurement Directives)
Eurocodes – Design Codes for today and tomorrow

- Development of standards is a never-ending process  
  → Update (add)
  - Market developments, research, inventions

- Facilitate use by designers → Maintenance
  - Accurate, technically reliable
  - Coherent
  - Tools available (calculation software) - Market
  - Up-to-date

- New demands → Add new standards covering new aspects (Widen the scope)
  - Sustainability, energy, security, comfort, etc.
Eurocodes – Widening the scope

- Essential requirements for construction **works** (CPD)
  a. Mechanical resistance and stability (covered Eurocodes)
  b. Safety in case of fire (covered Eurocodes)
  c. Hygiene, health and the environment
  d. Safety in use,
  e. Protection against noise
  f. Energy economy and heat retention
  g. Sustainable use of natural resources (in new proposal, CPR)

► Develop new compatible codes
  – Integrate relevant aspects (ex noise, energy efficiency, ..)
    from the beginning of the design process
  – Flexible
    ▪ Incorporate or not
    ▪ Adapt to different conditions (National Parameters)

Timeframe: 2 - 5 years
Thank you

Claes Andersson
Construction, Pressure Equipment, Metrology Unit
DG Enterprise and Industry
European Commission

More information:

Website (DG ENTERPRISE, UNIT I-5):
http://ec.europa.eu/enterprise/construction/index_en.htm

E-mail: construction@ec.europa.eu