

**March 31, 2010 - CENSE special web event
addressing the EPBD Concerted Action-II members**

**Towards a 2nd generation of energy performance
calculation procedures in Europe**
*to increase the accessibility and efficiency of the energy performance
calculation procedures in Europe*

Examples related to Building Energy Performance

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Main-Issues of “Building Energy Performance”



- **Lighting (IP 91)**
 - Important aspect for the overall energy rating, influencing the energy use
 - EN 15193: Procedures to determine lighting energy consumption
- **Energy use for heating and cooling (IPs 92, 93, 95)**
 - Starting point for assessing buildings' energy performance
 - EN ISO 13790: Calculation procedure with methods at different levels of detail
 - Information Papers (IPs):
 - IP 92 introduces the CEN-standard EN ISO 13790
 - IP 93 covers passive heating and cooling
 - IP 95 introduces the different CEN approaches for calculating the energy use
- **Heat transmission (IP 94)**
 - Heat transmission is a crucial way of heat transfer (besides ventilation)
 - A series of 9 European standards (mostly EN, also ISO) covers the calculation of heat transmission (EN ISO 6946, 10077, 10211, 10456, 13370, 13786, 13789, 14683; EN 13947)

Examples within the context “Building Energy Performance”



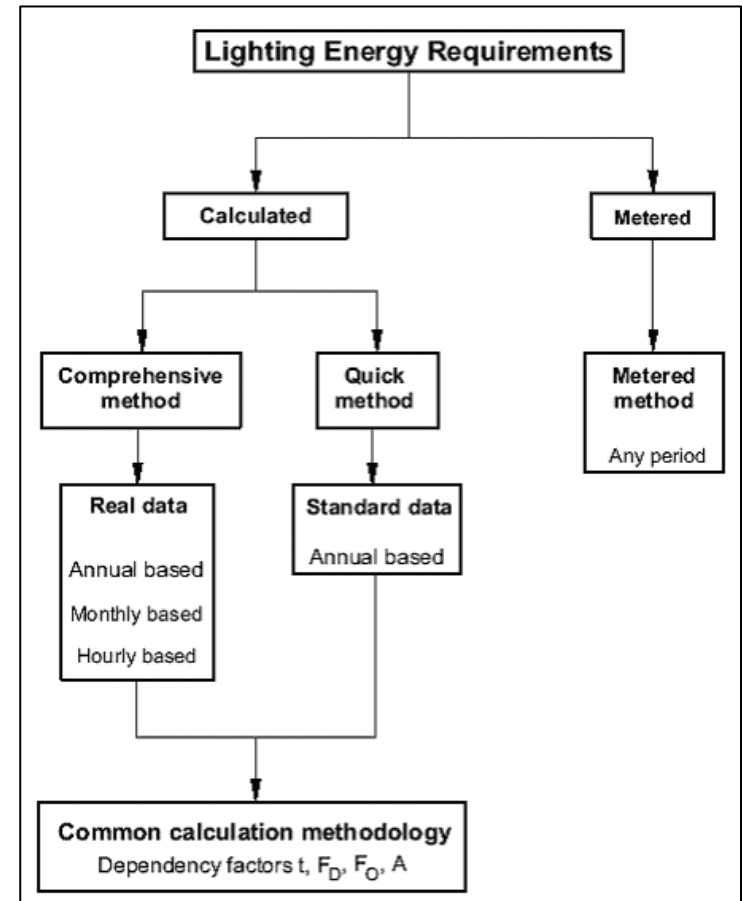
- **Lighting (EN 15193)**
 - Lessons learnt (via Questionnaires and Workshops)
 - Recommendations
- **Integrating innovation - Keeping standards up to date**
 - New techniques and innovative developments require regular updates to allow applying the standards
 - Examples for innovation:
 - Double Skin Facades
 - Switchable Glazings/Moveable Blinds

Lighting



EN 15193

- Umbrella document, leaving room for national variations
- Applicable for new and renovated buildings
- Benchmarking system for ranking
- Alternative routes for metering or calculating the lighting energy requirements (see figure)



Lighting (2)



EN 15193 - Recommendations for 2nd Generation

- Review of the standard's structure and editing of the equations
- Technical extensions of the standard's methodology:
 - Simplified method to rate the **installed power of new buildings** in the design phase (Now: Focus on existing buildings)
 - Method to rate the **energy impact of sunshading systems** (esp. moveable devices)
 - A more distinguished scheme for **daylight-responsive control systems**
 - Additional representative **climate data** (especially for climates of the Northern latitudes)
- Control and revision of the benchmark values



Integrating Innovation



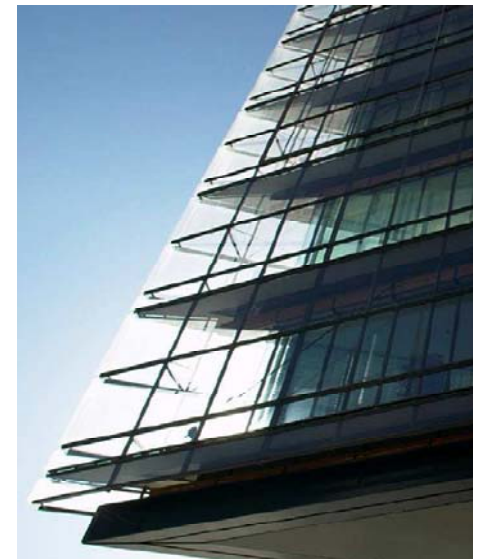
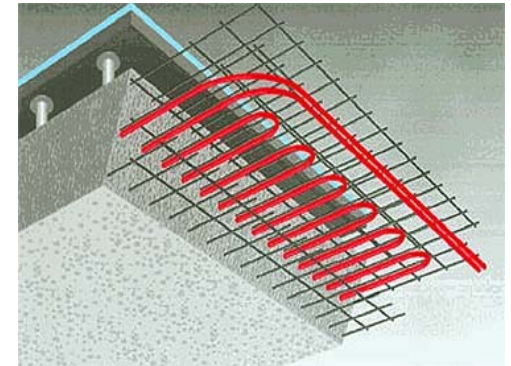
Making Standards applicable and well accepted by:

- Providing clear methods and simplified approaches
- AND
- Keeping them up to date by regularly including new technologies

Rapid innovative developments in energy related fields!

e.g. regarding passive systems:

- Thermo-active ceilings
- Double skin facades
- Switchable glazing



Integrating Innovation (2)



Comparing National Calculation Standards

Country													
Userdependent ventilation					✓	✓							
Decentral ventilation			✓	✓		✓						✓	✓
Passive double skin facade		✓	✓			✓			✓				
Active double skin facade		✓				✓							
Absorption paint coating						✓		✓				✓	
Products for improving airtightness	✓	✓	✓	✓		✓			✓	✓			
Micro-CHP	✓	✓		✓		✓						✓	
Absorption heat pump		✓		✓	✓	✓						✓	✓
Gas heat pump		✓			✓	✓						✓	
Heat recovery unit (ventil.)	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Counter flow heat recovery	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
DC ventilators	✓	✓	✓	✓	✓	✓			✓	✓		✓	
Energy management systems				✓		✓					✓	✓	
Daylight sensors		✓	✓	✓	✓	✓			✓			✓	
Presence detection sensor			✓	✓	✓	✓			✓			✓	
Triple glazing	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Insulated window frames	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Solar protection glazing			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓

Integrating Innovation (3)



Conclusions - Recommendations

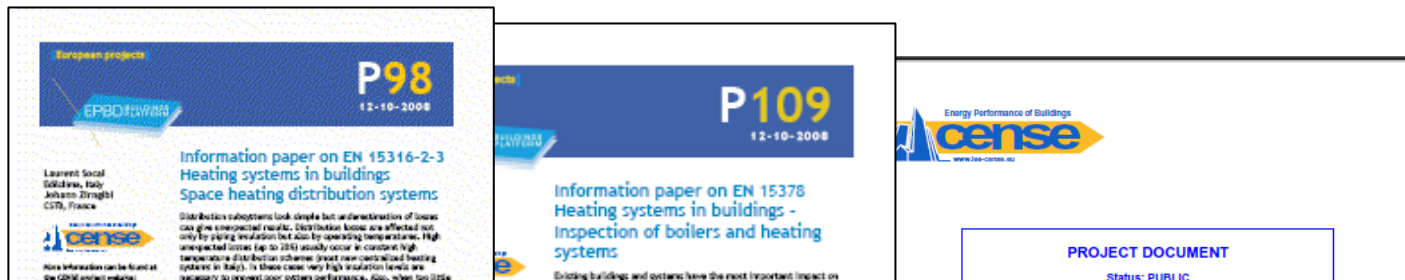
- Including new technologies promptly will make the European Standards highly attractive
- Close cooperation with industry to stay informed
- For many issues, research programs exist
=> calculation methods may have been developed
e.g.: **BestFacade**: Assessment method and design guide for double skin facades
- Seemingly „old fashioned“ aspects should not be neglected but explicitly covered in the standards, e.g. night-time-ventilation



More information



More information and downloads: www.iee-cense.eu



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Moreover, because this is an interim result of the project: any conclusions are only preliminary and may change in the course of the project based on further feedback from the contributors, additional collected information and/or increased insight.