

Calculation of the integrated energy performance of buildings

*EN 15603: Energy performance of buildings –
Overall energy use and definition of energy ratings*

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Outline

- The EU CENSE project
- Background and beneficial by-products
- Scope of the Standard
- Principle of the method
- Reporting Benchmarking
- Links Building codes and EN 15603
- Conclusion and Outlook



The EU CENSE project

(Oct. 2007 - March 2010)

Aim of the project:

To accelerate **adoption** and improved **effectiveness** of the EPBD related CEN- standards in the EU Member States

These standards were successively published in the years 2007-2008 and are being implemented or planned to be implemented in many EU Member States. However, the full implementation is not a trivial task

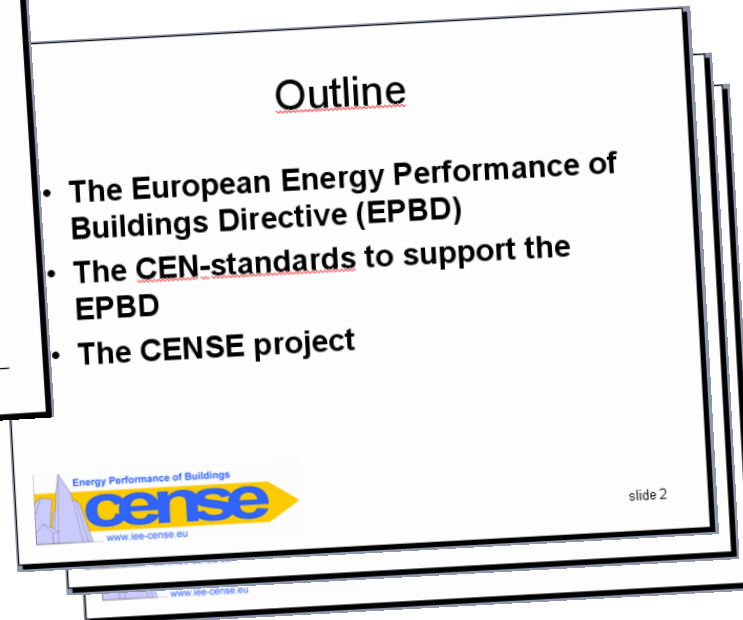
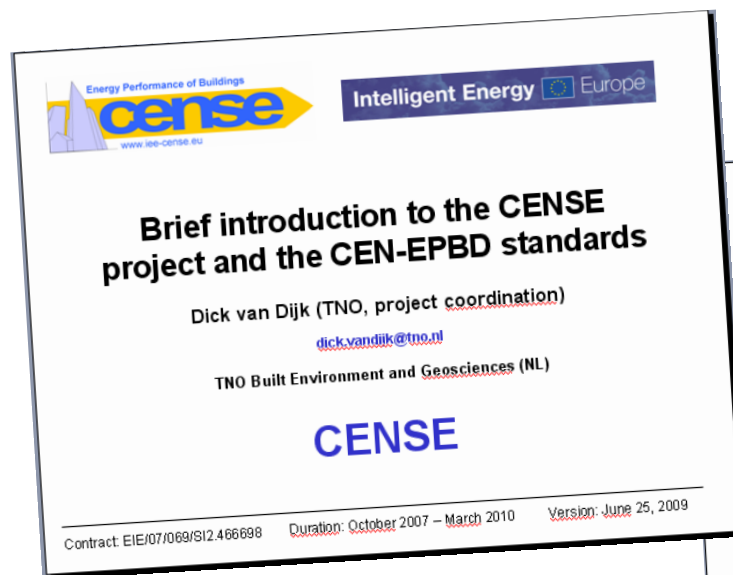
Main project activities:

- A. To widely communicate role, status and content of these standards; to provide **guidance** on the implementation
- B. To collect **comments** and good practice **examples** from Member States aiming to **remove obstacles**
- C. To prepare **recommendations** to CEN for a “second generation” of standards on the integrated energy performance of buildings



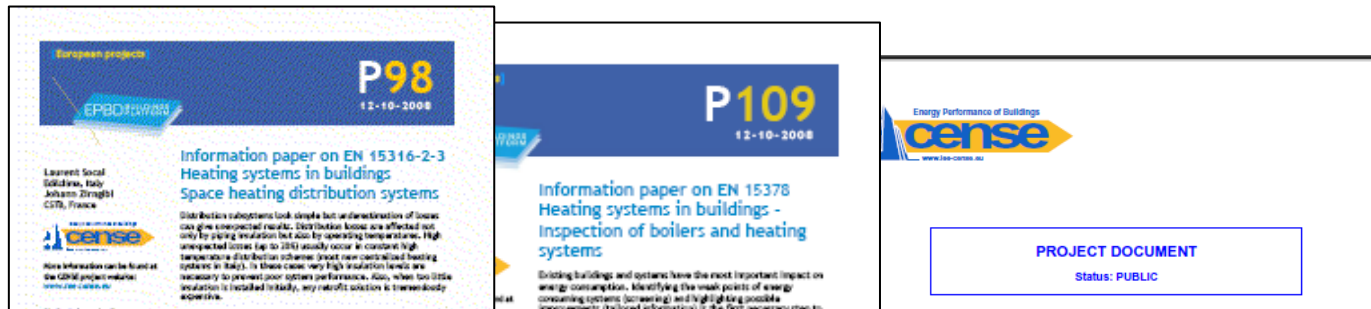
Brief introduction

A brief introduction to the CENSE project and the CEN-EPBD standards is provided in a separate presentation:



More information

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



Disclaimer:

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Background

Why a methodology of the integrated energy performance?

- **Energy Performance of Buildings Directive (EPBD)** article 3
Methodology calculating the integrated energy performance of buildings
- **Rating:** Energy amount shall be reflected in one numeric indicator (article. 7)
(taking into account insulation, tech. installation characteristics, etc.)
- **Interactions** between different energy services (e.g. heating, cooling, lighting)

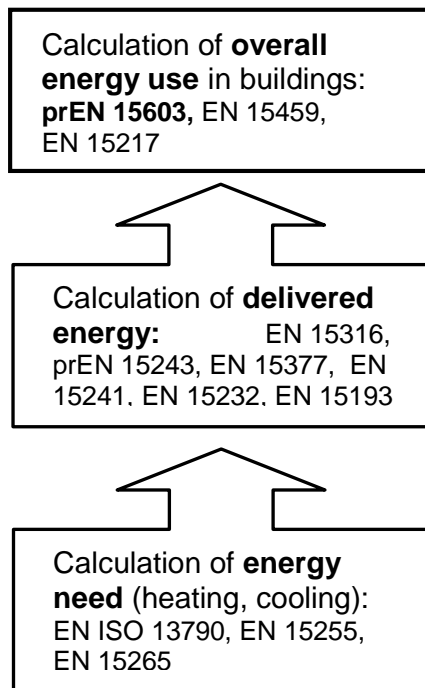
Why a European standard?

- Make possible to **harmonise** the various measures for energy efficiency in buildings between the Member States
- Increase the **accessibility, transparency** and **objectivity** of the assessment
- **Avoid** new **trade barriers**
- Adopt the same structure - **starting point for building code coordination**



Scope of the Standard EN 15603

General framework for the assessment of overall energy use



Top-Position of EN 15603,
calculation based on results
from other standards

Modular structure of CEN Standards

CEN BT TF 173

Energy ratings
Overall energy use



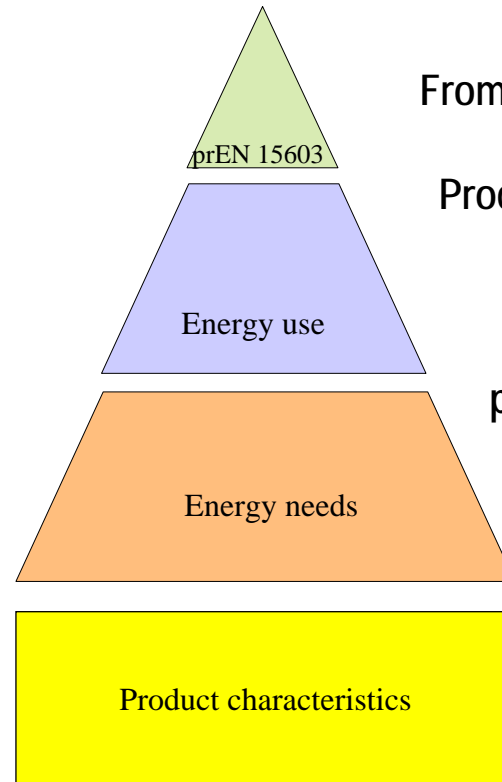
CEN TC 156, TC 169, TC 228, TC 247
Technical building systems standards
(System loss calculation)



CEN TC 89, TC 156, TC 169, TC 228
Building services standards
(Energy needs calculation)



CEN TC 48, TC 57, TC89, TC 109, etc
Building or system products standards
(Evaluation of product characteristics)

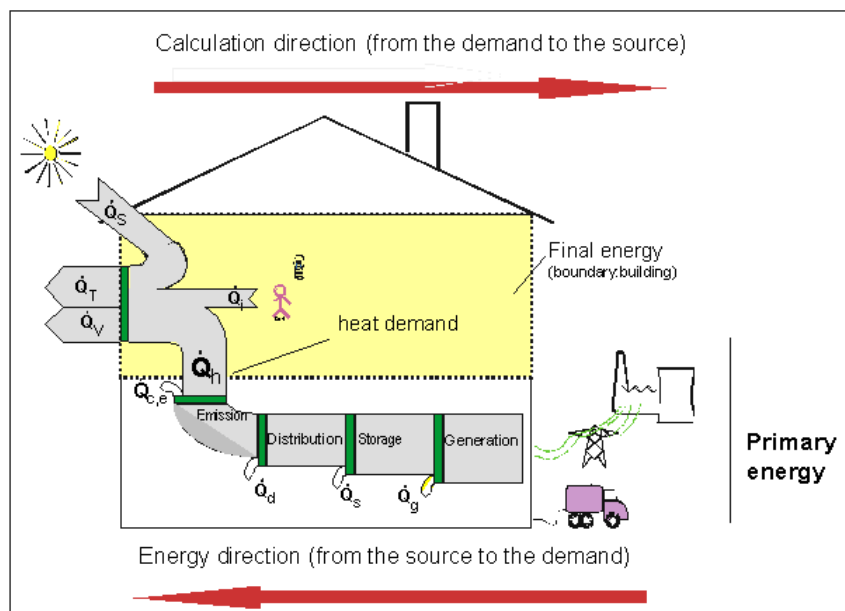
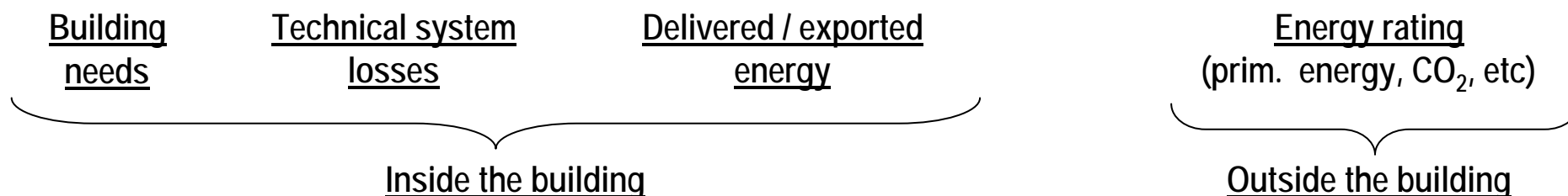


From product standards to overall energy use

Product is not longer evaluated as a product
but as part of a system

Maintain the links between
product testing and system evaluation

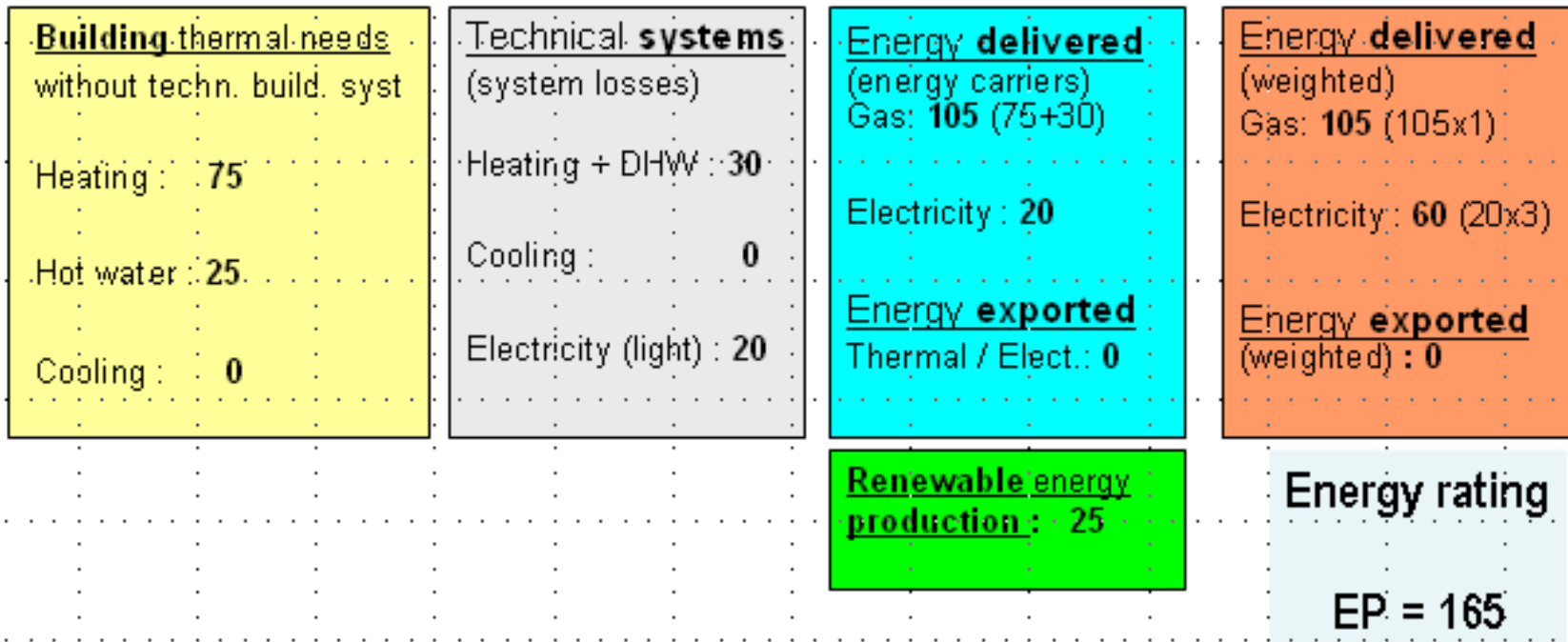
Principle of the Method



- **Calculation direction** from **needs** to **source** (from the energy needs to the primary energy).
- Energy can be **imported** or **exported** (different weightings)
- **Electrical** uses and **thermal** uses are considered **separately** inside the building boundary.
- **Inside** the system boundary the system losses are taken into account **explicitly**,
- **Outside** the system boundary they are taken into account in the **conversion factor** (e.g. district heating).

Reporting - Benchmarking

Integral methodology for optimized and comparable solutions



Reporting the strong and the weak points of the overall energy use of a building

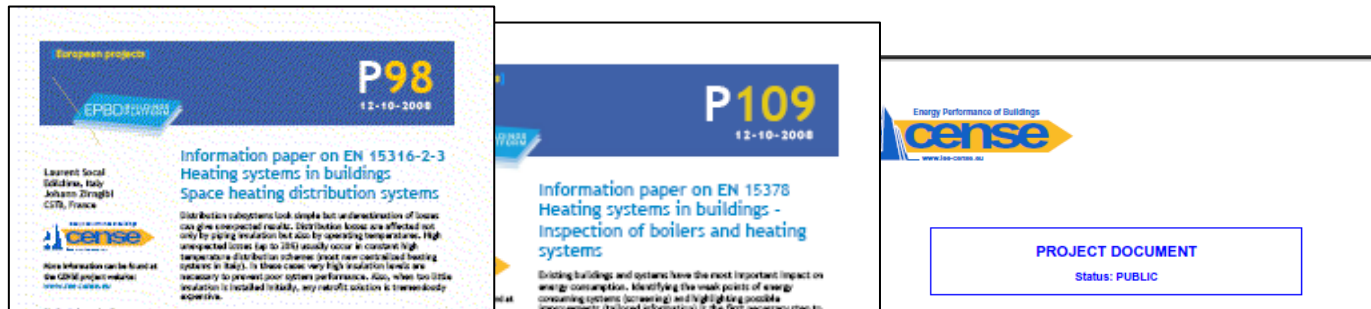
Conclusion and Outlook

- CEN worked out a **complete, consistent and flexible** approach, from the product standard to the overall energy use
- **EN 15603** is the top standard of this approach **defining the whole structure**
- Reporting according EN 15603 underlines the **strong and weak points** in the overall energy use of a building
- Adopting EN 15603 in national building regulation is the **first step towards an European calculation method**



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