

***CEN-CENSE-REHVA Workshop***  
***March 22, 2010, Brussels***

**The contribution of CENSE to improve the  
use of CEN Standards and how the recast  
of the EPBD may affect this process**

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**TNO (NL)**

# Outline of this presentation

- Recommendations on a second generation of CEN standards for the EPBD
- Expected impact



# The CENSE project (2007-2010)

Objective: to accelerate **adoption** and improved **effectiveness** of the EPBD related CEN standards in the EU Member States

Three main activities:

- ➔ A. To give guidance on the standards and their implementation
- ➔ B. To collect comments and good practice examples, to remove obstacles
- ➔ C. To prepare recommendations to CEN



A collage of project materials. At the top left is a blue banner for "EPBD HOWTO" with a date of "21-10-2008". Below it is an information paper for "EN ISO 13790 for space heating" by Dick van Dijke. To the right is "BOOKLET 2: Compilation of Information Papers introducing the CEN standards concerning Building Energy Performance", which features a pyramid diagram with levels: "Energy performance", "Energy efficiency", "Energy saving", and "Energy conservation". At the bottom right is the "Intelligent Energy Europe" logo.

# → Proposal for 2<sup>nd</sup> generation of CEN-EPBD standards



- Separation and balance:
  - Common procedures ↔ National/regional choices
- Software proof & unambiguous
- EPBD-Recast ready
- More harmony in the level of detail of the procedures
- Technical improvements
- The global perspective (ISO)

## → Recommendation 1: Separation and balance

- Clear *separation* and *balance* between common procedures and national/regional elements



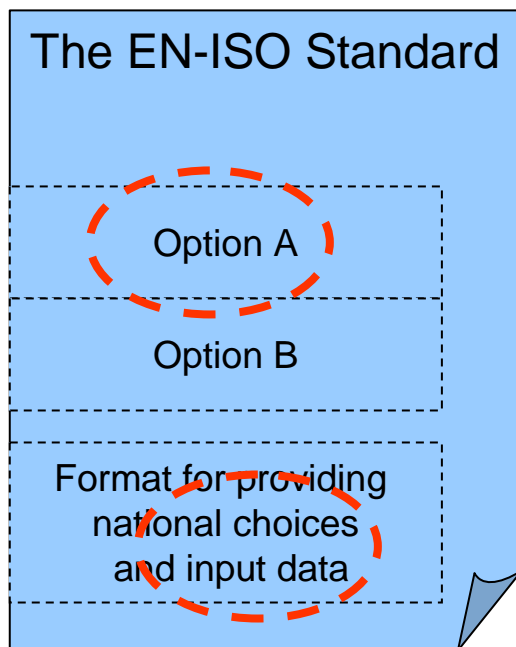
### Why national/regional elements?:

- Climate
- Culture
- Policy
- Legal context

# How this could be achieved...

## for each of the CEN standards

Common procedures  
Following a common format



→ National choices and data can be given in a short and transparent **National Annex** to the EN-ISO standard

National choices, boundary conditions and input data

The National Annex to the EN-ISO standard

Example:

Country X:

Option A: Mandatory

Option B: Optional

Climate data: in Nat. standard X

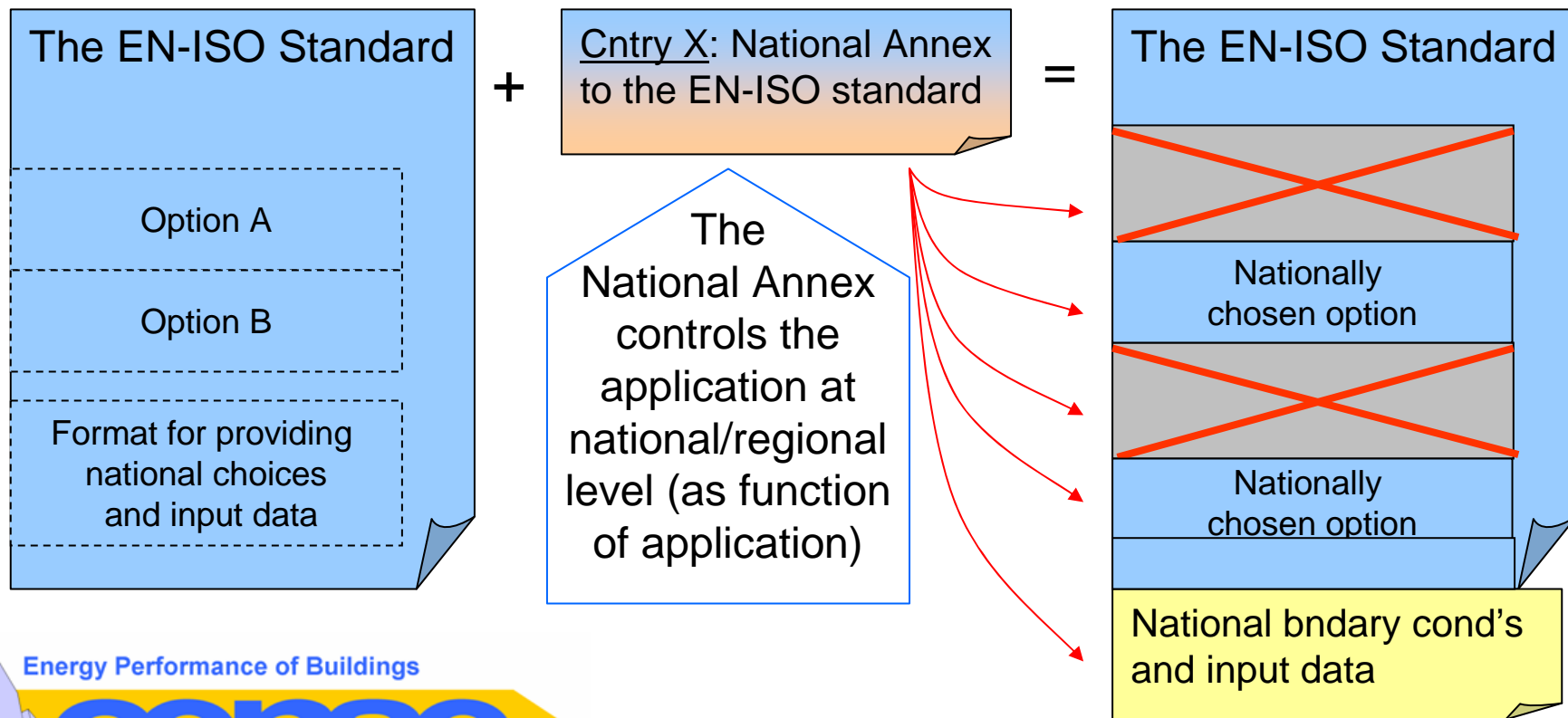
Table input data:

...

# Illustration: for country or region X

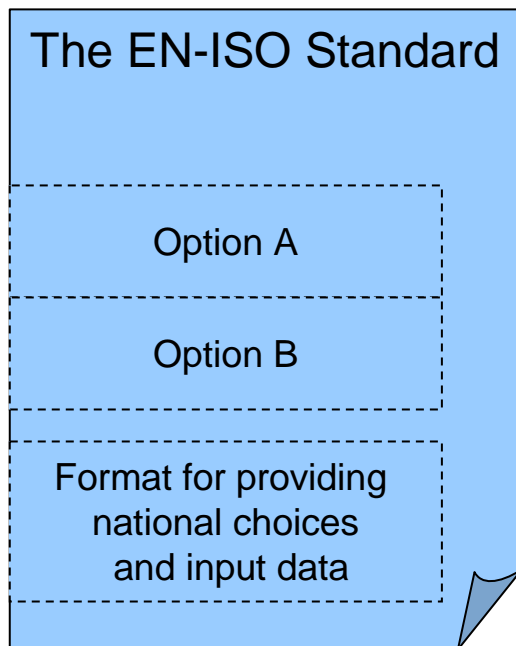
Common procedures + National Annex

→ At national/regional level, "country X":

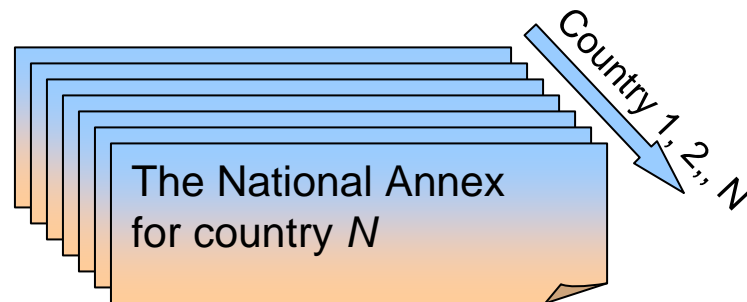


# Illustration: at EN-ISO level

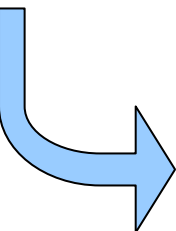
For a given EN-ISO standard



Collection of National Annexes



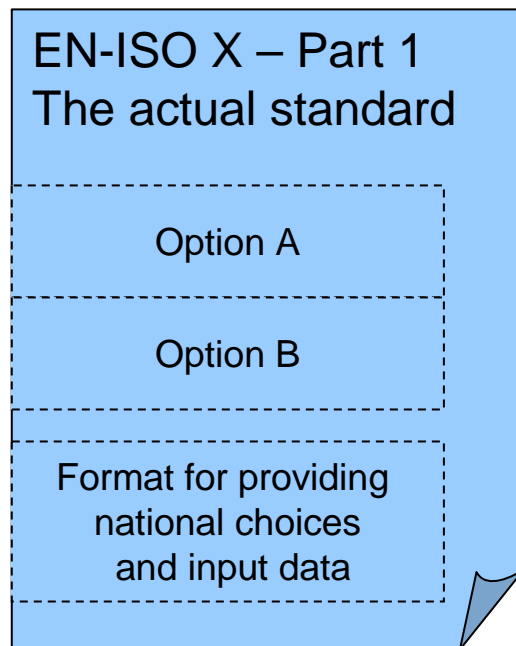
Enables transparent (tabulated) overview of similarities and differences between countries



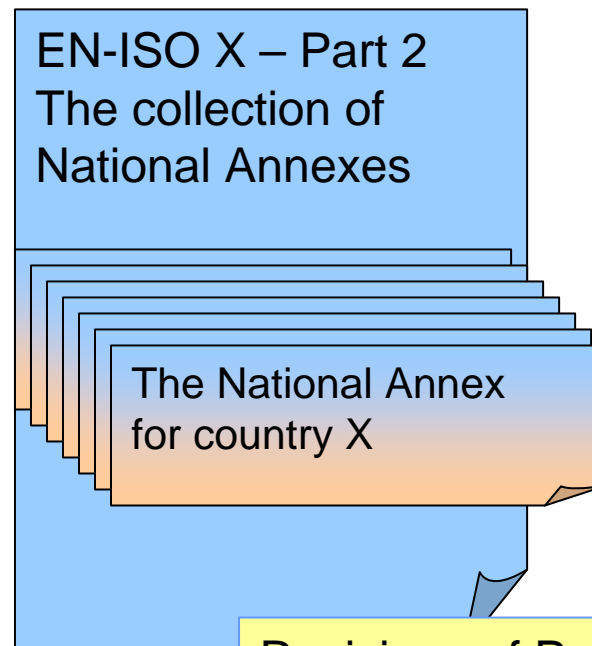
... Cntry 1:	Grey	Pink	Green	Grey
... Cntry 3:	Grey	Green	Red	Light Blue
... Cntry 5:	Orange	Blue	Green	Blue
... Cntry N:	Grey	Light Blue	Red	Green

# To avoid problems due to phase differences

“EN-ISO X - Part 1”  
= the EN-ISO standard itself



“EN-ISO X - Part 2”  
= the collection of National Annexes



Revisions of Part 2 can be published with shorter intervals, if individual National Annexes are changed or added

# To minimize threshold for implementation at national level

“Normative”

Collection National Annexes EN-ISO X

EN-ISO Standard X

“Informative”

Technical Report to EN-ISO Standard

*providing all informative parts, such as:*

- Validation results
- Worked examples
- Background information
- Informative procedures
- Bibliography

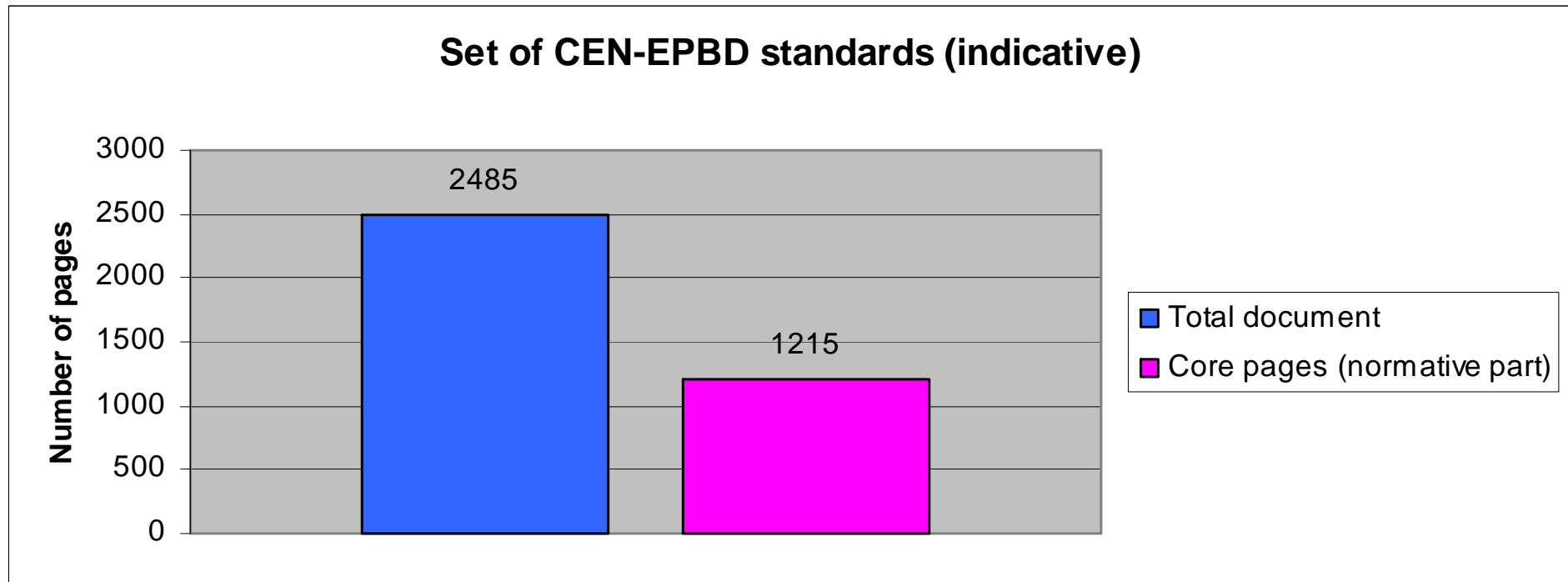
All informative parts moved to a separate Technical Report accompanying the EN-ISO standard

→ This strongly reduces the volume & less confusion on status

Can be ignored in formal national conversion/translation & implementation

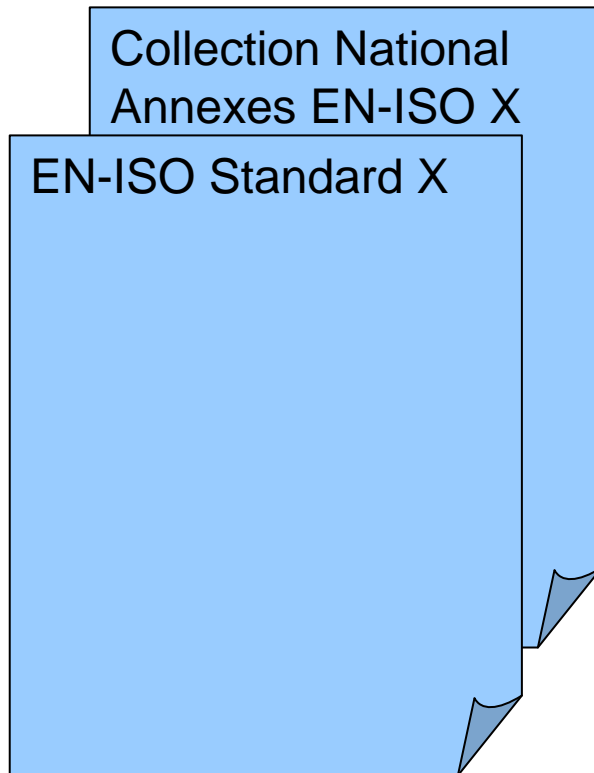
# Current set of CEN standards and their typical use

Rough indication:

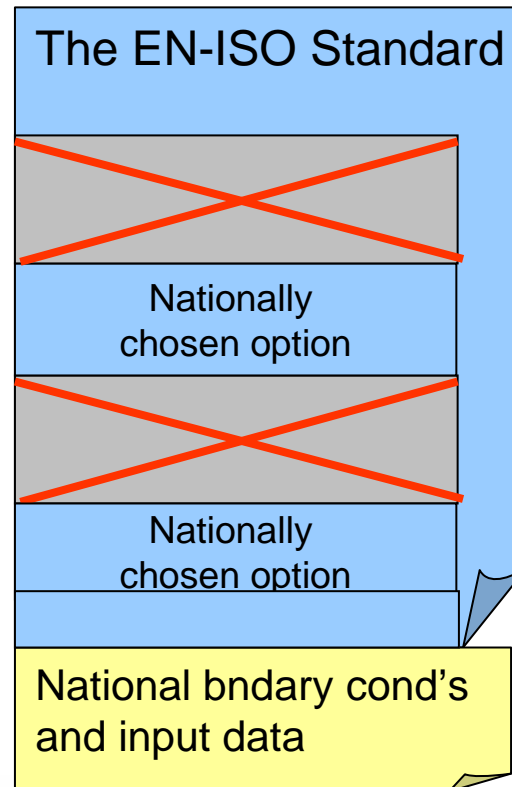


# What about need for national “all-in-one” documents?

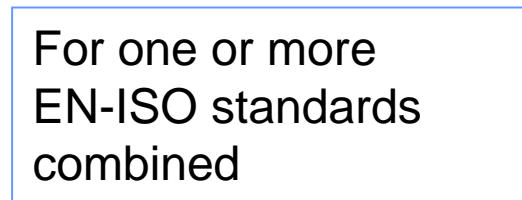
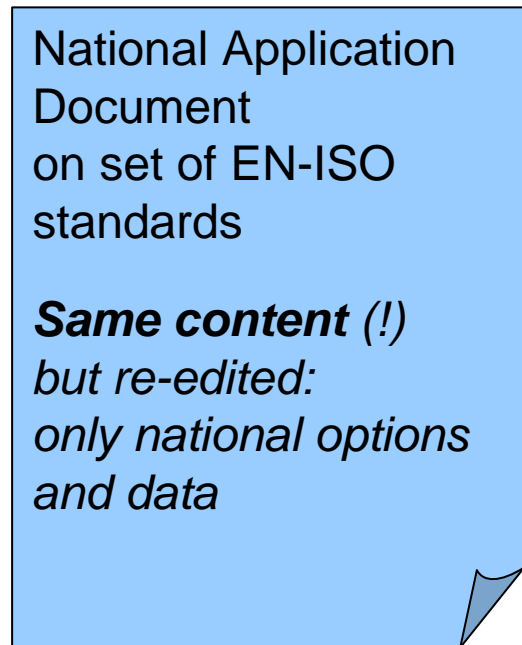
Formal legal documents



This means for cntry X

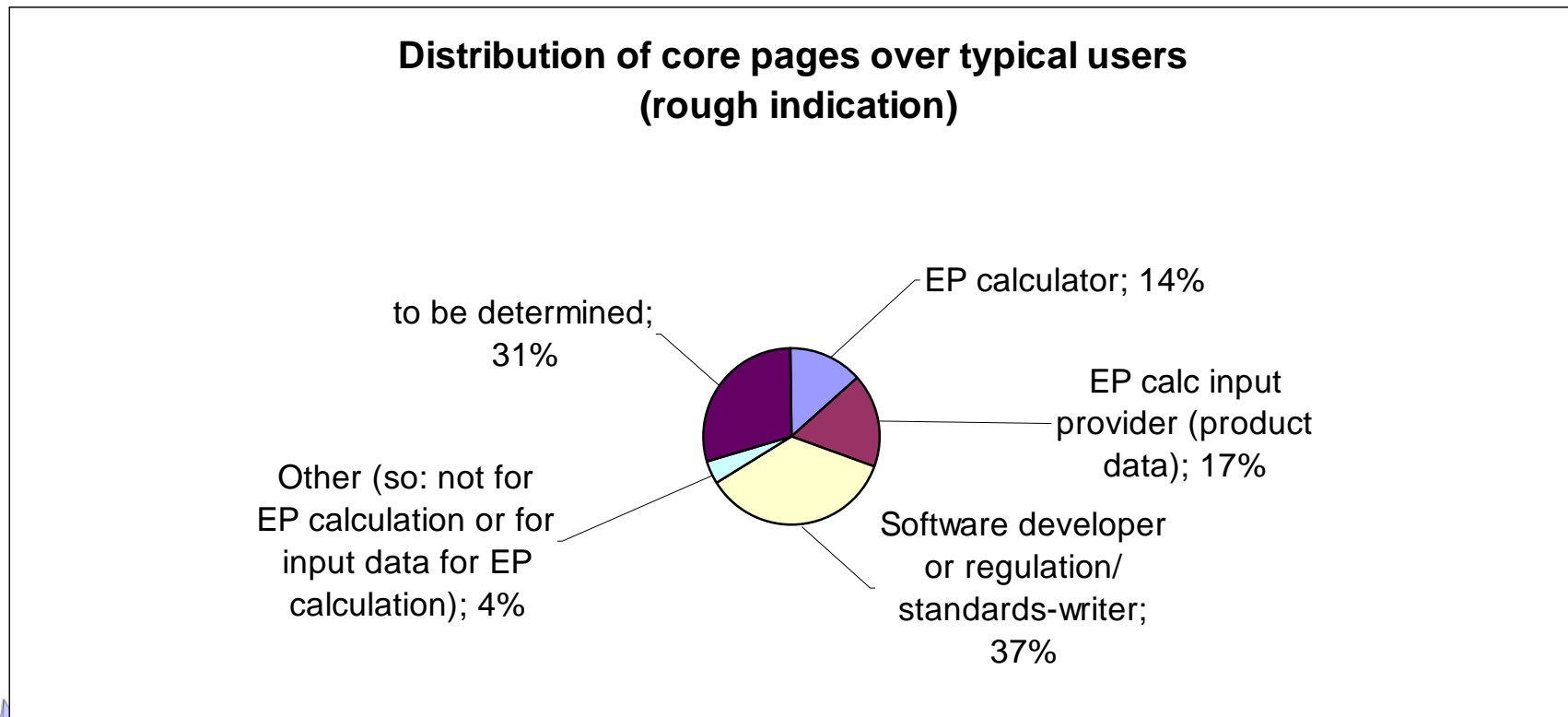


For daily practice:

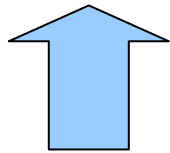


# Current set of CEN standards and their typical use

Rough indication:



## → Recommendation 2: Software proof & unambiguous



- Full equations
  - and 100 % consistency in I/O relations
- Add a spreadsheet
  - for validation and software calibration
- → Less ambiguity and more uniformity in interpretation

## → Recommendation 3: Common format for all standards

- Use set common terms, definitions and symbols
- Include overview input/output variables
- Include flow charts
- In preparation, including example

# Common format for each EN-ISO standard

Foreword
Scope
Normative references
Terms and definitions
Symbols, units and subscripts
Main principles and structure
Relationship with other standards
(Main) Procedure A
(Main) Procedure B
Subprocedure 1
...
Subprocedure n
Reporting (general)
Bibliography
Annex A Parallel routes for normative references
Annex B History (informative)

**Tentative structure, in preparation**

Main principles and structure (General description and flow chart)
Overview input and output variables
Detailed description
Overview of options
Boundary conditions and input data
Reporting (specific)

For each (sub-)procedure the same structure

# → EPBD-Recast ready



- Stronger role of CEN standards
- Wider application of calculation framework
  - Near zero energy buildings by more renewables, energy producing buildings
  - A must: include cooling, conversion to primary energy and CO<sub>2</sub>, ..
  - Consideration of alternative systems
- More attention to (link with) inspection and to component requirements (products!)
- Link to benchmarking methodology for calculating cost-optimum levels of minimum requirements
- Closer links to related Directives

→ Recommendation 5:  
More harmony in the level of detail of the procedures

- Bring in more **harmony** in the level of detail of the procedures
  - What is optimum balance between harmonized detailed (e.g. hourly) procedures and simplified procedures (with expert knowledge built **options** in)
  - What are the M.S. **expectations** on the accuracy of model and on the availability of reliable input data
- To **reconcile** different; e.g. to avoid large discrepancies between simplified and detailed procedures



# Recommendation 6: Technical improvements

- Various technical improvements are recommended
- Overview in preparation
- Few examples:
  - EN 15603 (Overall energy performance)
    - Scrutinize definition of primary energy
  - EN-ISO 13790 (energy use for heating and cooling):
    - Add model of advanced facades including interaction with building
    - Reconsider intermittency calculation method
  - EN 15193 (lighting)
    - Add more distinguished scheme for daylight-responsive controls of artificial lighting
  - EN 15316 (heating and DHW systems):
    - Add standard on standard operating conditions and multiple generators

## → Recommendation 7: The global perspective: ISO

- Expected intensified cooperation CEN-ISO
- CEN standards used as basis
  - Incl. recommendations for improvements
- European experts retaining the initiative
  - Already several EN's are EN-ISO
  - Examples:



<p>EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM</p> <p><b>EN ISO 13790</b></p> <p>March 2008</p> <hr/> <p>ICS 91.120.10</p> <p>Supersedes EN 832:1998, EN ISO 13790:2004</p> <p>English Version</p> <p>Energy performance of buildings - Calculation of energy use for space heating and cooling (ISO 13790:2008)</p>	<p>10077-1</p>	<p><b>ISO 10211</b></p>	<p><b>ISO 6946</b></p> <p>Second edition 2007-12-15</p>
	<p><b>ISO 15927-4</b></p> <p>First edition</p>	<p><b>ISO 13370</b></p> <p>Second edition 2007-12-15</p>	



# Organisation: new ISO working group

- Started in summer 2009; coordinating the activities on energy performance of buildings (Holistic approach) within ISO
- With strong European influence

Introduction:  
Article in ISO  
magazine "Focus",  
Sept. 2009



## *Main Focus*

### **Energy efficiency in buildings**

*by Dick (H. A. L.) van Dijk and  
Prof. Essam E. Khalil,  
Co-Convenors, ISO/TC 163-  
ISO/TC 205 joint working group,  
Energy performance of buildings  
using holistic approach*

**T**he world is facing unprecedented energy challenges resulting from



# Momentum

- Timing of needs to revise European standards for EPBD coincides well with ISO needs for international standards
- Unique opportunity for Europe to retain the lead in the global arena
- Now is the moment(um)



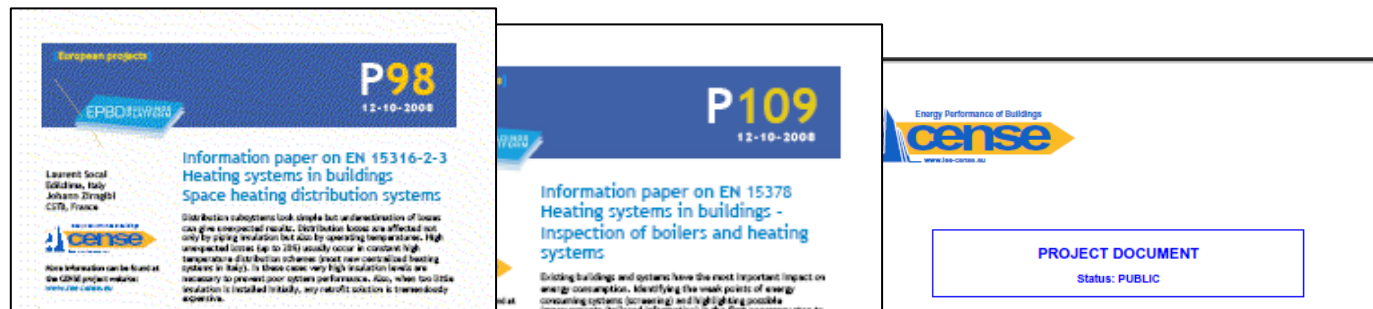
# Conclusion: the expected impact



- CEN standards more usable as direct reference; high transparency in national choices
- Easier international knowledge exchange and shared research
- Increased circulation of products, services and property data
- Faster implementation of new solutions
- Increased credibility of EU in the world
- EPBD Recast ready
- >> High performance European tools leading to high performance buildings

# More information

More information and downloads: [www.iee-cense.eu](http://www.iee-cense.eu)



## Disclaimer:

CENSE has received funding from the Community's Intelligent Energy Europe programme under the contract EIE/07/069/SI2.466698.

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