

Energy Performance Standardisation and Regulations in Europe

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NATIONAL
ENERGY EFFICIENCY
CONFERENCE 2016

15-16 November, Sydney

Building expertise and growing markets

Energy Performance Standardisation and Regulations in Europe

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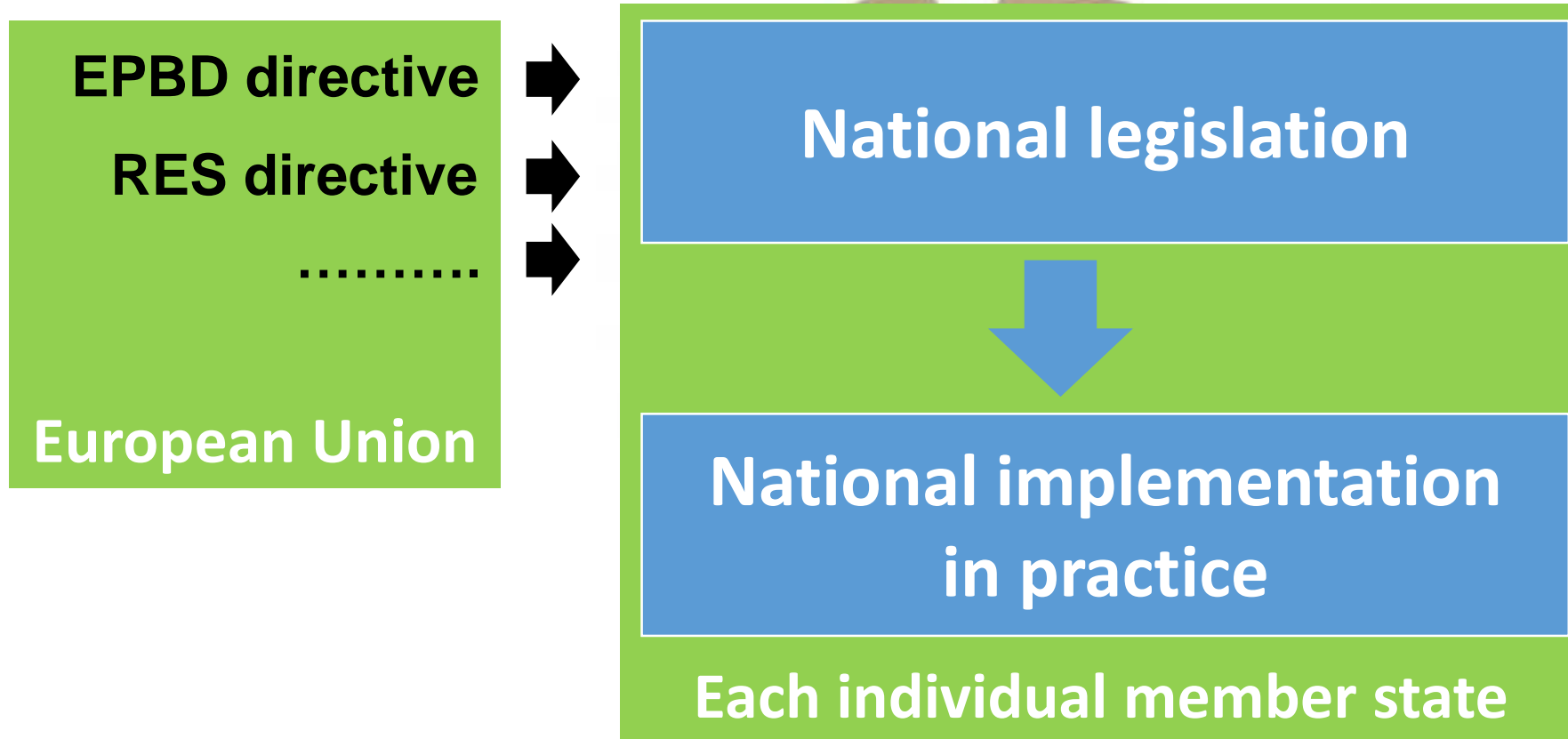
November 16 2016



European legislation... → Regulations and Directives

- **Directive:** legislation for the member state, which they have to transpose in national legislation
 - In relation to energy:
 - Energy Performance of Buildings Directive (EPBD)
 - Renewable Energy Services Directive (RES)
 - Energy Efficiency Directive (EED)
- **Regulation:** no need for transposition by member states
 - Construction Product Regulation (CPR) → CE-marking
 - Commission regulation related to eco-design requirements for ventilation units

European energy legislation and the Member States



European legislation requires agreement...

- **Between**
 - European **Parliament** (elected every 5 years)
 - European **Council** (national ministers)
 - European **Commission** (“executive” office)
- **Often compromises**
 - See further...
 - Precise reading of the legislation is important

March 2011: 2050 EU roadmap for low-carbon economy

- **By 2020**

- 20 % reduction in Energy Efficiency

- 25 % reduction in CO₂ emissions

- **2010-2050**

- Additional investment: € 270 billion annually, or 1.5% of GDP

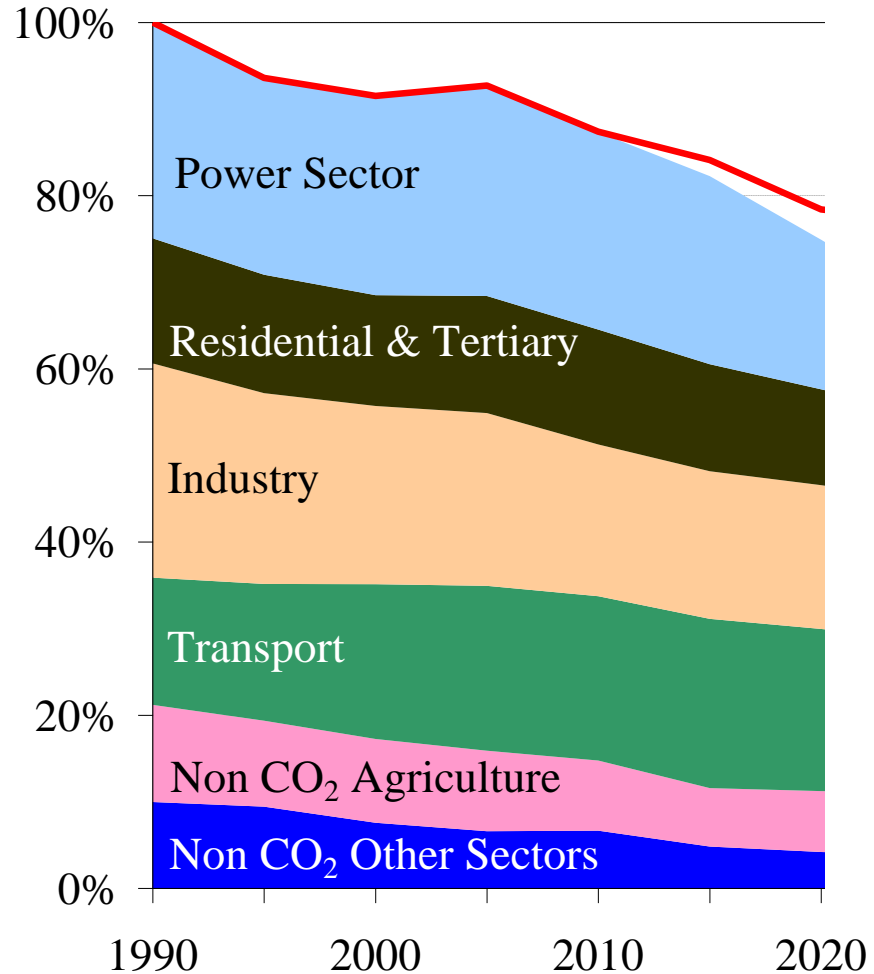
- **Crucial role of building sector**

- Emissions here should be reduced by **90 %** by 2050

- + 1.5 million jobs in 2020



COM(2011)112 – Roadmap to 2050



COM(2011)112 – Roadmap to 2050

GHG reductions compared to 1990	2005	2030	2050
Total	-7%	-40 to -44%	-79 to -82%
Sectors			
Power (CO ₂)	-7%	-54 to -68%	-93 to -99%
Industry (CO ₂)	-20%	-34 to -40%	-83 to -87%
Transport (incl. CO ₂ aviation, excl. maritime)	+30%	+20 to -9%	-54 to -67%
Residential and services (CO ₂)	-12%	-37 to -53%	-88 to -91%
Agriculture (non-CO ₂)	-20%	-36 to -37%	-42 to -49%
Other non-CO ₂ emissions	-30%	-72 to -73%	-70 to -78%

-88 till -91%

EPBD Directive 2002/91/EC

Obligations for member states starting from 2006 to:

- Impose energy performance requirements for new buildings
- Impose energy performance certificates when buildings are constructed, sold or rented
- Impose inspection of boilers and air conditioning units
- ...

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive at the latest on 4 January 2006. They shall forthwith inform the Commission thereof.

EPBD Directive 2010/31/EU

Main targeted improvements:

- Extension of the scope for minimum performance requirements for buildings and building elements
- "Technology neutral" benchmarking system to harmonise the level of ambition at cost-optimal level and keep minimum requirements under regular review
- Nearly zero-energy building targets for new buildings
- Improved certification schemes

Definitions...

‘nearly zero-energy building’ means

- a building that has **a very high energy performance**, as determined in accordance with Annex I.
- The nearly zero or very low amount of energy required **should** be covered to a very significant extent by energy from renewable sources, including energy from renewable sources **produced on-site or nearby**;

“should” IS NOT AT ALL the same as “Shall”

Definitions...

‘**major renovation**’ means the renovation of a building where:

- a) the total cost of the renovation relating to the building envelope or the technical building systems is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated; or
- b) more than 25 % of the surface of the building envelope undergoes renovation;

→ **Member States may choose to apply option a) or b).**

Definitions...

‘cost-optimal level’ means the energy performance level which leads to the lowest cost during the estimated economic lifecycle, where:

- the **lowest cost** is determined taking into account energy-related investment costs, maintenance and operating costs (including energy costs and savings, the category of building concerned, earnings from energy produced), where applicable, and disposal costs, where applicable; and
- the **estimated economic lifecycle** is determined by each Member State. It refers to the remaining estimated economic lifecycle of a building where energy performance requirements are set for the building as a whole, or to the estimated economic lifecycle of a building element where energy performance requirements are set for building elements.
- The cost-optimal level shall lie within the range of performance levels where the cost benefit analysis calculated over the estimated economic lifecycle is positive;

Requirements – article 9

Member States shall ensure that:

- by 31 December **2020**, all new buildings are **nearly zero- energy buildings**; and
- after 31 December **2018**, new buildings occupied and owned by public authorities are nearly zero-energy buildings.

Requirements – article 27 Penalties

- Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented.
- **The penalties provided for must be effective, proportionate and dissuasive.**
- Member States shall communicate those provisions to the Commission by 9 January 2013 at the latest and shall notify it without delay of any subsequent amendment affecting them.

Quick Access

- Introduction
- Situation on the Ground
- Compliant and Easily Accessible EPC Input Data
- Quality of the Works
- Compliance and Effective Penalties

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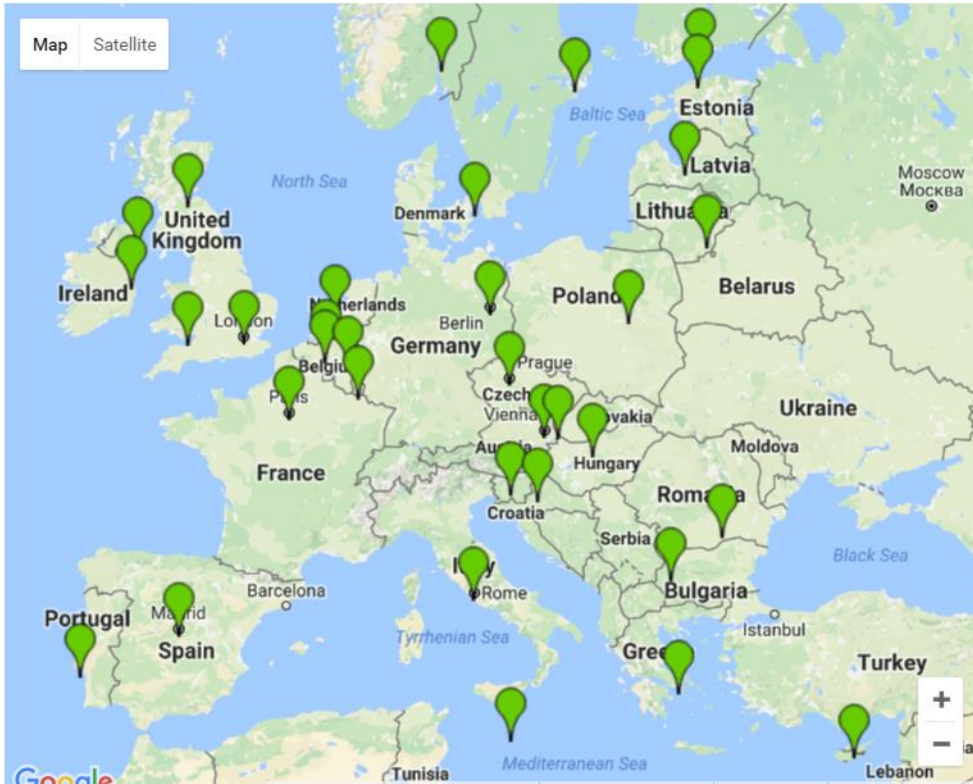
www.qualicheck-platform.eu




WEBINAR | A guide for policy makers to develop better frameworks for EPC compliance and enforcement

Tuesday 13 December 2016, 10:00 Brussels time (CET)

More information: EPBD Concerted Action





CONCERTED ACTION
ENERGY PERFORMANCE
OF BUILDINGS

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Certification

Inspection

Training

Cost Optimu

Nearly Zero-

Compliance

Compliance

Support Initia

Reducing energy consumption and eliminating wastage are among the main goals of the European Union (EU). EU support for improving energy efficiency will prove decisive for competitiveness, security of supply and for meeting the commitments on climate change made under the Kyoto protocol. There is significant potential for reducing consumption with cost-effective measures. With 40% of our energy consumed in buildings, the EU has introduced legislation to ensure that they consume less energy.

News

- Stakeholders meeting: Implementation of the EPBD in Europe | Training and NZEB issues
- Joint Working Group of the Concerted Actions for EPBD, EED and RES publishes Assistance Documents for EU Member States in developing long term strategies for mobilising investment in building energy renovation
- Report on the interaction between Concerted Action EPBD and BUILD UP Skills: Towards improved quality in energy efficient buildings through better workers' skills and effective enforcement
- BUILD UP interviews the Coordinator of Concerted Action EPBD

www.epbd-ca.eu



CONCERTED ACTION
ENERGY PERFORMANCE
OF BUILDINGS



Certification

OVERVIEW AND OUTCOMES

AUGUST 2015



2016

Implementing
the Energy Performance
of Buildings Directive (EPBD)

FEATURING COUNTRY REPORTS



www.epbd-ca.eu

Towards 2020

Nearly Zero-Energy Buildings

OVERVIEW AND OUTCOMES

AUGUST 2015

Compliance and Control

OVERVIEW AND OUTCOMES

AUGUST 2015

Implementation of the EPBD in France

STATUS IN DECEMBER 2014



2016

Implementing
the Energy Performance
of Buildings Directive (EPBD)

FEATURING COUNTRY REPORTS



Figure 1: Evolution of requirements (new buildings).

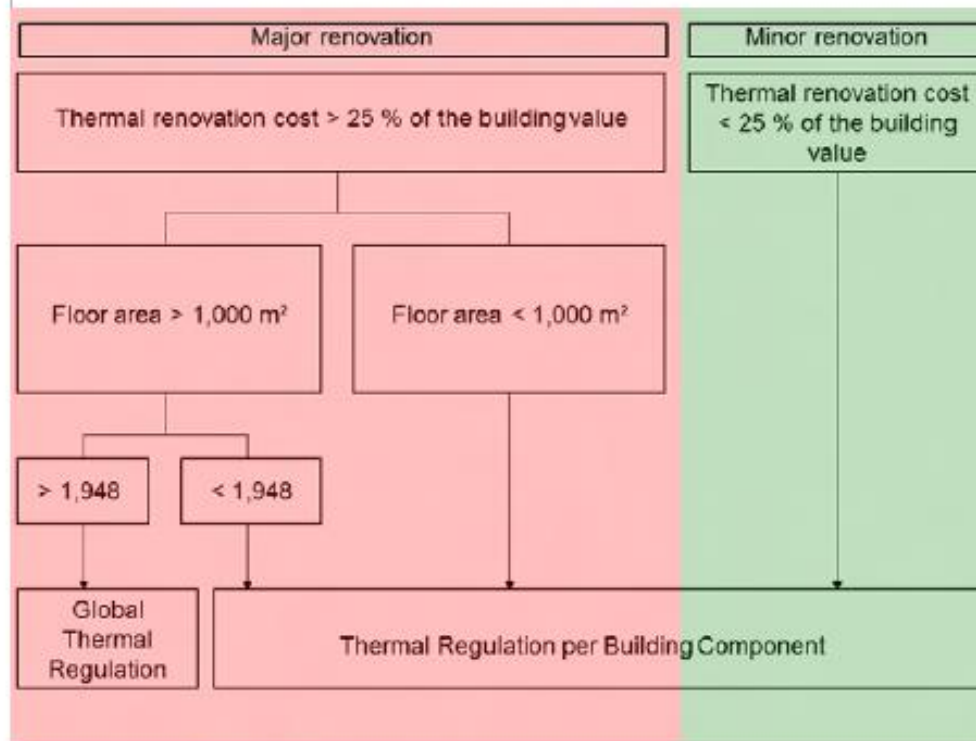
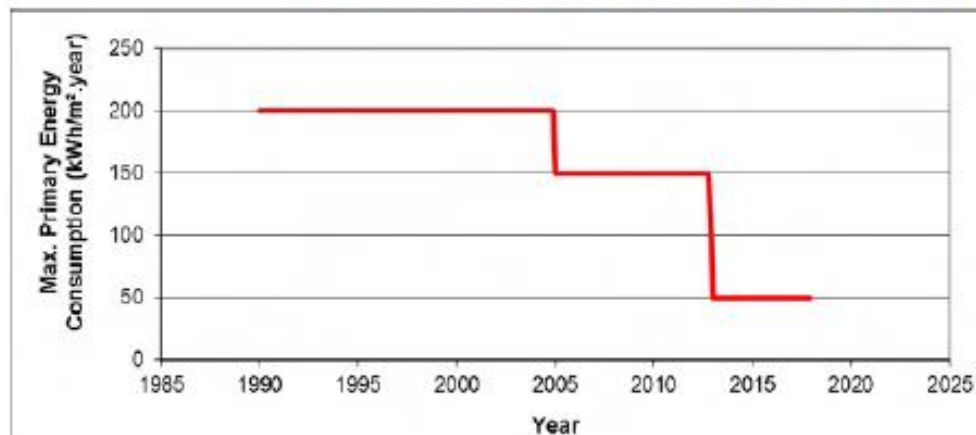


Figure 2:
Thermal Regulations
for existing buildings.

More information: BUILD UP portal



The screenshot shows the BUILD UP portal homepage. At the top, the logo "BUILD UP energy solutions for better buildings" is on the left, and navigation links "Login", "About", and "English (en)" are on the right. Below the logo is a search bar. A central banner features a 3D model of a house with a large yellow measuring tape, with the text "HORIZON 2020: Call for energy-efficient buildings" and a "View more" button. To the left of the banner are three vertical panels: "BUILD UP Webinar recordings | ICT solutions for", "Evaluating Our Future: The crucial role of", and "OVERVIEW - Exemplary role of public buildings". To the right is a "Welcome to BUILD UP" message with a "Learn More" button, a "Propose content" button, and a statistics table. Below the banner are three columns: "Country Fact Sheets" (listing EPBD implementation in the UK), "Financing Schemes" (listing National/Regional schemes), and "Training Schemes" (listing Building/Construction, Installers of Small-Scale Renewable Energy Systems, and Air-Conditioning System Inspectors). At the bottom is a "Newsroll" section with filters for Theme, Country, and Interest group. On the far right, there is a "Highlighted Community" section for "Energy Performance of Buildings Directive Community", a "My Communities | Updates" section, and a "BUILDUP Themes" section listing various topics like air conditioning, energy efficiency technologies, and policies.

BUILD UP
energy solutions
for better buildings

THE EUROPEAN PORTAL FOR ENERGY EFFICIENCY IN BUILDINGS

News ▾ Events ▾ Publications ▾ Links ▾ Cases ▾ Tools ▾ People ▾ Blogs ▾ Communities ▾ Financing ▾ Training ▾ Country Facts ▾ Overview Articles ▾ Webinars ▾

BUILD UP Webinar recordings | ICT solutions for

Evaluating Our Future: The crucial role of

OVERVIEW - Exemplary role of public buildings

OVERVIEW - Data tools supporting improved energy

HORIZON 2020: Call for energy-efficient buildings

View more

Welcome to BUILD UP, the European web portal for energy efficiency in buildings.

Learn More

Propose content

BUILD UP

4416 Publications	671 Cases	10220 Regist. Users
320 Tools	52 Upcoming Events	3096 News

Highlighted Community

Energy Performance of Buildings Directive Community

My Communities | Updates

All the activity on your Communities from a single location

BUILDUP Themes

Air conditioning, cooling, ventilation, air infiltration
Energy efficiency technologies and materials
Energy policies
General Legislation, regulations, standards
Very low energy buildings

Country Fact Sheets

EPBD implementation in the United Kingdom – status at the...

EPBD implementation in the United Kingdom – status at the...

EPBD implementation in the United Kingdom – status at the...

View all

Financing Schemes

National/Regional schemes for Non-Residential Buildings and...

National/Regional schemes for Residential Buildings

National/Regional schemes for Municipalities, Social...

View all

Training Schemes

Building/Construction

Installers of Small-Scale Renewable Energy Systems

Air-Conditioning System Inspectors

View all

Newsroll

Theme: All Country: All Interest group: All

www.buildup.eu

Overview articles

OVERVIEW - Nearly Zero-Energy Buildings – National applications of the EPBD definition

3 October 2016

The Recast EPBD Article 9 requires Member States to ensure that all new buildings are nearly zero-energy buildings (NZEBS) by 31 December 2020, and new buildings occupied and owned by public authorities are NZEBs after 31 December 2018. Furthermore, Member...

OVERVIEW – Exemplary role of public buildings under the Energy Efficiency Directive (EED)

Obligations under **Article 5** of the EED **Article 5** of the Energy Efficiency ... stocks should take off in the coming years. esco **OVERVIEW** – Exemplary role of public buildings under the Energy Efficiency Directive (EED) **OVERVIEW** – Exemplary role of public buildings under the Energy Efficiency ...

adeliyannis - 16/09/2015 - 12:05

OVERVIEW - Operational Management: International and European Know-How

This **overview article** describes a number of initiatives for managing building energy ... Here you can download the PDF version of this **Overview article** (see below under 'Additional documents'). Enjoy reading, and ...

Gilles VAILLE - 08/08/2013 - 14:50

OVERVIEW - Quality and compliance issues in relation to the energy performance of buildings

... monitor and enforce compliance with energy regulations. This **article** provides an **overview** of quality and compliance issues relevant to the EPBD, as well as ...

adeliyannis - 12/06/2015 - 09:17

OVERVIEW - Energy Solutions for Smart Cities and Communities: Learning from CONCERTO

This **overview article** describes the initiative's Technical Monitoring Database, documentary ... (KIT) – offers a wide variety of information such as an **overview** of energy efficiency measures implemented or technologies used in ...

Charlotte Schlicke - 08/08/2013 - 15:06

CEN standards for the energy performance of buildings - Results and revision overviews

 18 Jun 2014

This BUILD UP Web Seminar addresses the following:
Results, time schedule and work programme of
CEN/TC 371 Program Committee on EPBD (Energy
Performance of Building Directive) A new model for
CEN/TC 89 Thermal performance of buildings and...



Webinars

Ventilative cooling - Keep cool and lower peak energy demand

 18 Jun 2014

Ventilative cooling is the use of natural or mechanical ventilation strategies to cool indoor spaces. It can significantly reduce the cooling energy demand in summer or mid-season conditions. Therefore, ventilative cooling is increasingly...

venticool

the international platform for ventilative cooling



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Dear visitor,

Welcome to this combined website of the **venticool platform** and of **IEA EBC Annex 62 – Ventilative Cooling**

★ IEA EBC News, November 2016 issue features “State-of-the-Art for ventilative cooling” article

“Ventilative cooling for buildings may lead to cooling energy savings and improvements in thermal comfort, especially in seasonally temperate and warm climates. But, codes and regulations need to better quantify its benefits”, says professor Per Heiselberg, operating agent of IEA ...

[Continue reading →](#)

★ IEA EBC Annex 62 sets up Ventilative Cooling application database

IEA EBC Annex 62 released an Application Database containing buildings which make use of Ventilative Cooling from several countries. Each datasheet holds basic building specifications as well as information about Ventilative Cooling Site Design Elements and Ventilative Cooling Architectural Design ...

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Recent updates

- IEA EBC News, November 2016 issue features “State-of-the-Art for ventilative cooling” article
- IEA EBC Annex 62 sets up Ventilative Cooling application database
- 12-14 October 2016, Vienna, IEA EBC Annex 62 Ventilative Cooling– 6th Expert Meeting & Symposium
- New release: Energy Efficiency and Indoor Climate in Buildings
- CIBSE Natural Ventilation News | September 2016 issue now available
- venticool becomes Associated Partner of the Covenant of Mayors
- SAVE THE DATE for the 4th venticool conference in Nottingham

www.venticool.eu

ARTICLE 4 of EPBD:

These requirements shall take account of **general indoor climate conditions**, in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building.



Brussels, Belgium

14-15 March 2017

Is ventilation *the* answer to indoor air quality control in buildings?

Do we need performance-based approaches?

Questions?

Peter Wouters

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