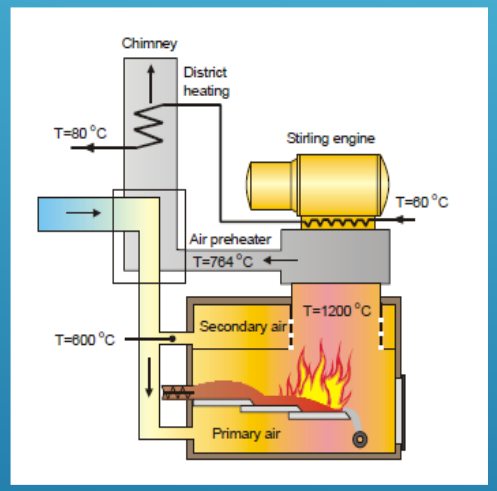
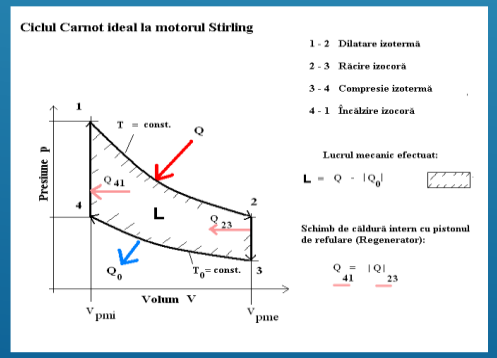
DIRECTIVELE EUROPENE SI LEGILE ROMANESTI CARE TRANSPUN ACESTE DIRECTIVE CU IMPACT IMPORTANT IN SECTORUL CONSTRUCTIILOR SI ECHIPAMENTELOR DE INSTALATII





Conf.univ.dr.ing.Cătălin LUNGU

FII-UTCB/AIIR/OAER

10 decembrie 2015

PRESENTATION SUMMARY

1. WORLDWIDE CONCERNS AND PROPOSALS

2. DIFFERENT CONCEPTS REGARDING ENERGY PERFORMANT BUILDINGS

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

1. WORLDWIDE CONCERNS AND PROPOSALS

http://www.cop21.gouv.fr/en/message-de-la-station-spatiale-internationale-ne-laissez-pas-passer-cette-occasion/

1. WORLDWIDE CONCERNS AND PROPOSALS

United nations conference on climate change
COP21/CMP11

- **95%** gradul de certitudine ca activitatea umana este cauza principala a incalzirii globale a planetei observata de la jumatatea secolului XX

- **2^0C** limita maxima admisa pentru cresterea temperaturii globale pana in 2100 comparativ cu temperatura din era preindustriala 1850 - limita supusa negocierilor la COP21
- limitarea cresterii temperaturii globale cu 2^0C = scaderea emisiilor de CO_2 cu 40…70% pana in 2050, raportat la emisiile din 2010 (obiectivul UE - min 40% in 2030)
- 1997 Kyoto – 37 de state s-au angajat la reducerea cu cel putin **5%** a emisiilor de CO2
- daca emisiile de CO_2 ar creste in ritmul actual, temperatura ar creste cu **4,8^{0}C** pana in 2100, implicit o crestere posibila a nivelului oceanelor cu cca **82cm** fata de nivelul din 1986-2005 (**18 cm** crestere intre 1870 si 2000, din care 6 cm in ultimii 20 de ani) !!!
- Obiectiv UE - 27% energie provenita din surse regenerabile in 2030 (14,1% in 2012)

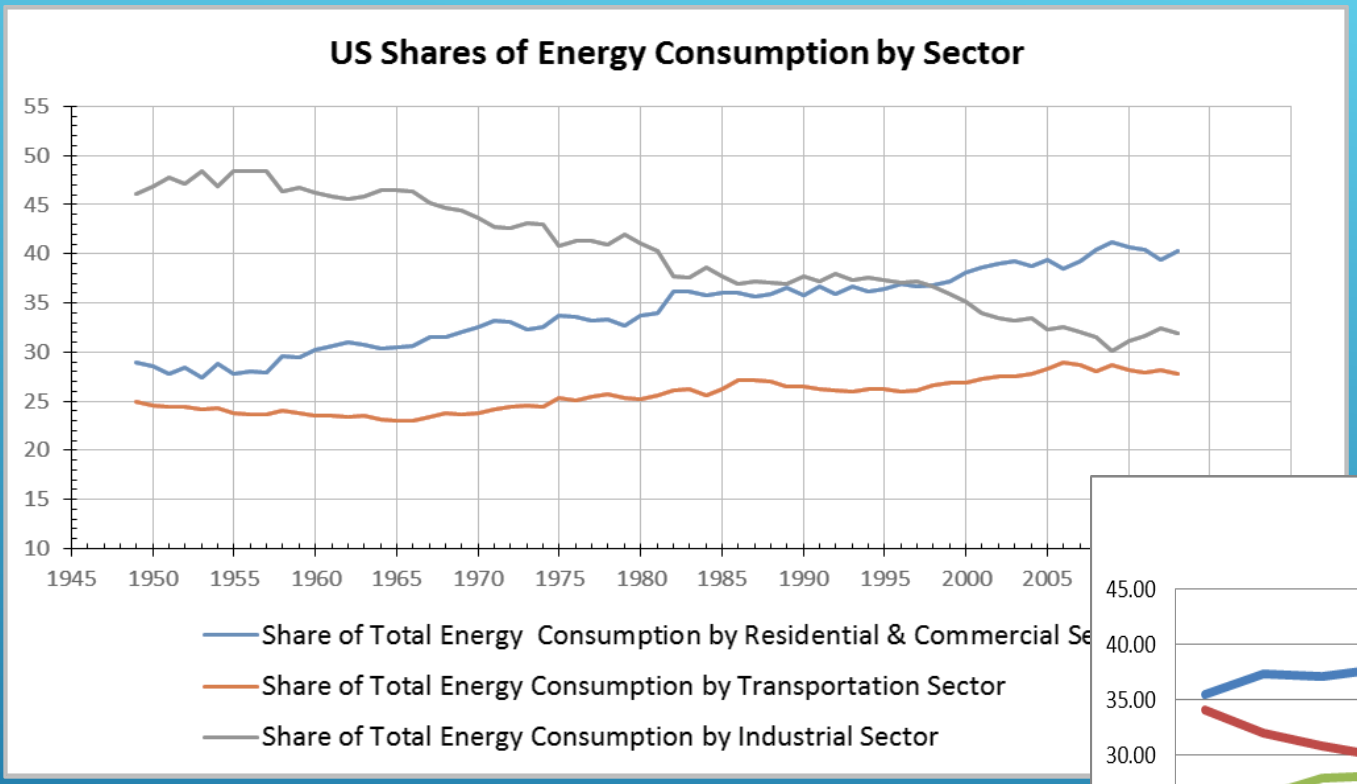
WHY ARE WE RACING FOR ENERGY EFFICIENT BUILDINGS ?

1. SEE ENERGY CONSUMPTIONS IN BUILDINGS

2. SEE THEIR ADVANTAGES (DISADANTAGES)

Energy Performant Buildings are considered as a part of SMART GRIDS !

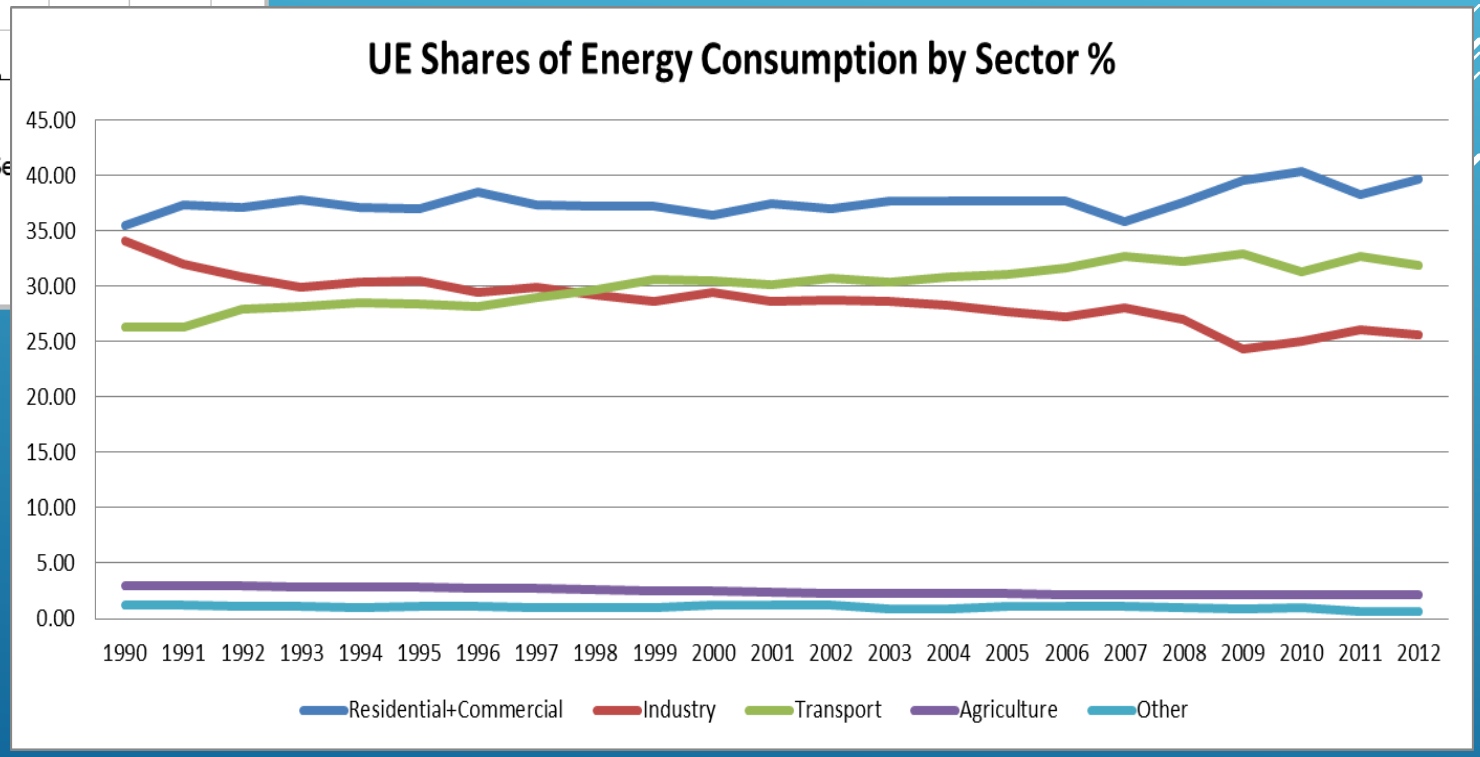
2. DIFFERENT CONCEPTS REGARDING ENERGY PERFORMANT BUILDINGS



Source:
http://www.eia.gov/totalenergy/data/monthly/index.cfm#consumption (U.S. Energy Information Administration, Oct. 2014)

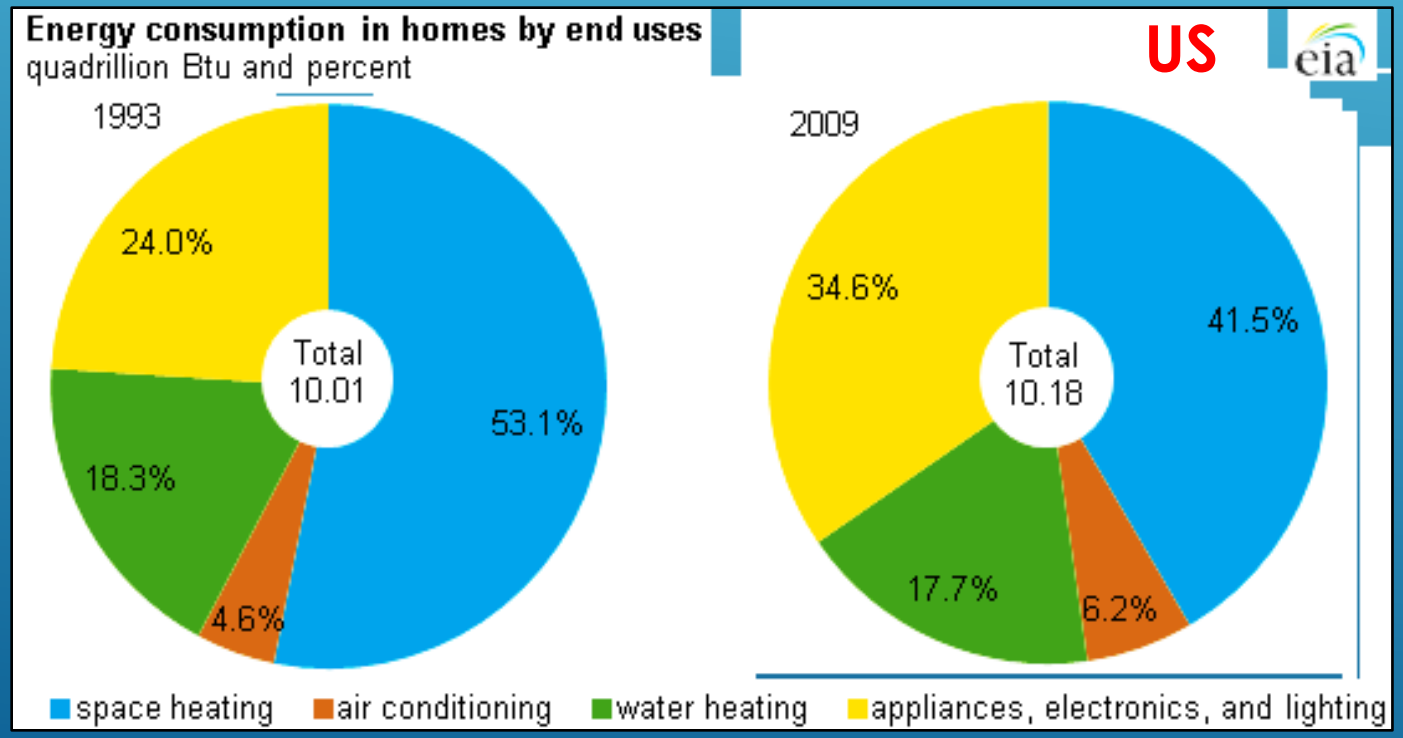
Commercial sector - the CBECS includes buildings greater than 1,000 square feet that devote more than half of their floor space to activity that is neither residential, manufacturing, industrial, nor agricultural

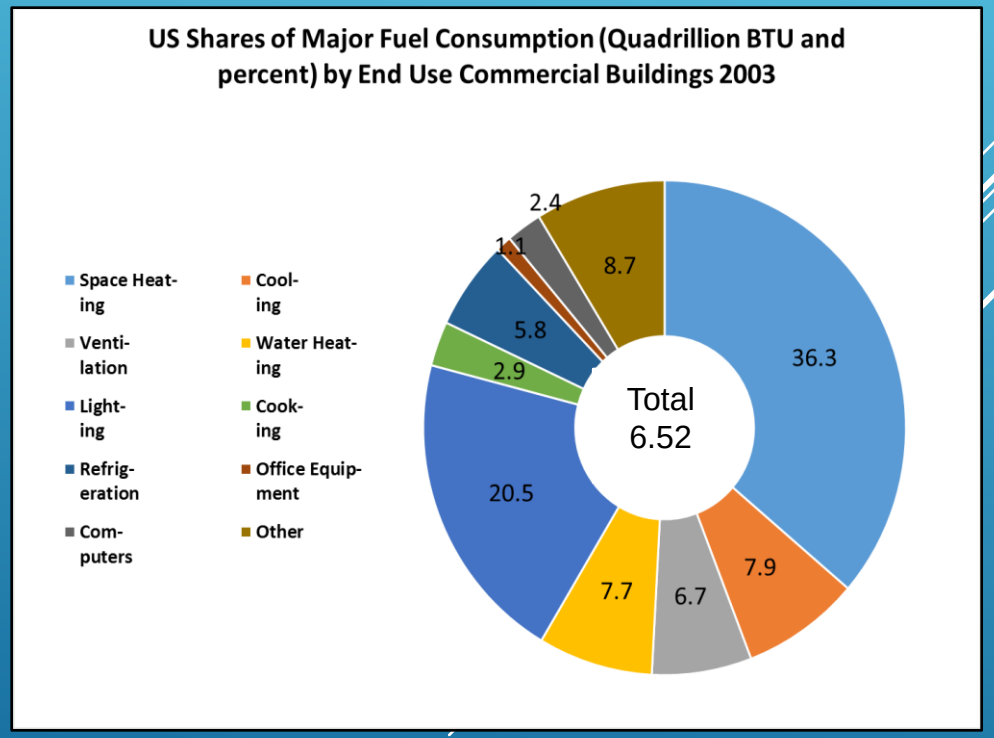
Source:
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=0&language=en&pcode=tsdpc320



2. DIFFERENT CONCEPTS REGARDING ENERGY PERFORMANT BUILDINGS

Data collected in 2010 and 2011 and released in 2011 and 2012, show that 48% of energy consumption in U.S. homes in 2009 was for heating and cooling, down from 58% in 1993. Factors underpinning this trend are increased adoption of more efficient equipment, better insulation, more efficient windows, and population shifts to warmer climates. While energy used for space conditioning has declined, energy consumption for appliances and electronics continues to rise. Although some appliances that are subject to federal efficiency standards, such as refrigerators and clothes washers, have become more efficient, the increased number of devices that consume energy in homes has offset these efficiency gains. Non-weather related energy use for appliances, electronics, water heating, and lighting now accounts for 52% of total consumption, up from 42% in 1993.

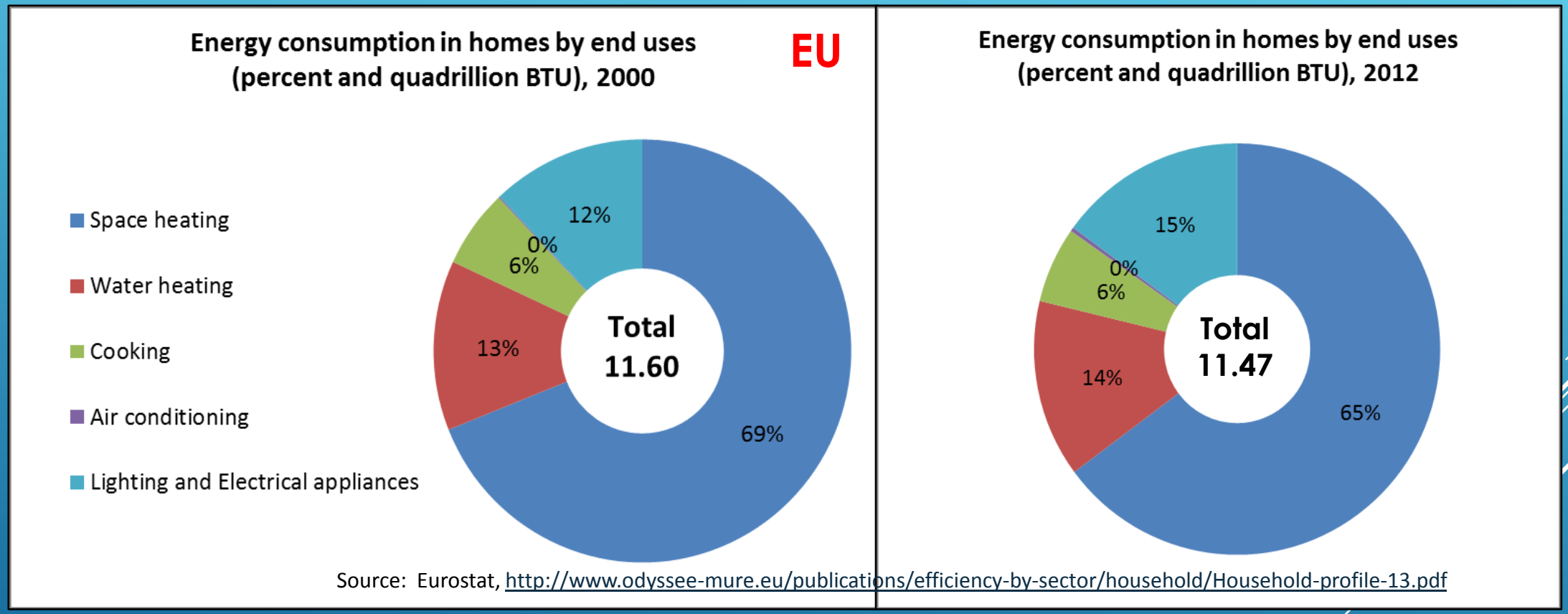




Source: http://www.eia.gov/totalenergy/data/monthly/index.cfm#consumption **(U.S. Energy Information Administration, Oct. 2014)**

2. DIFFERENT CONCEPTS REGARDING ENERGY PERFORMANT BUILDINGS

Declining share (-4 points) of the consumption for space heating (-24 Mtoe); Second end-use: water heating (14%); Increasing weight for electrical appliances from 9 to 12%; Lighting around 3% and negligible contribution of AC.



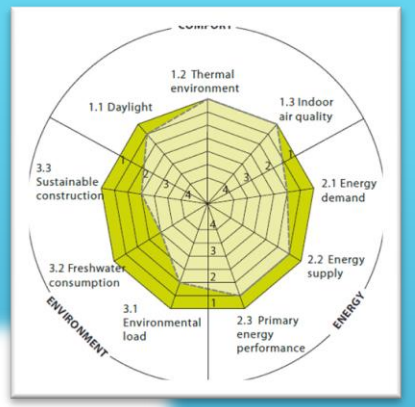
Source: Eurostat, http://www.odyssee-mure.eu/publications/efficiency-by-sector/household/Household-profile-13.pdf

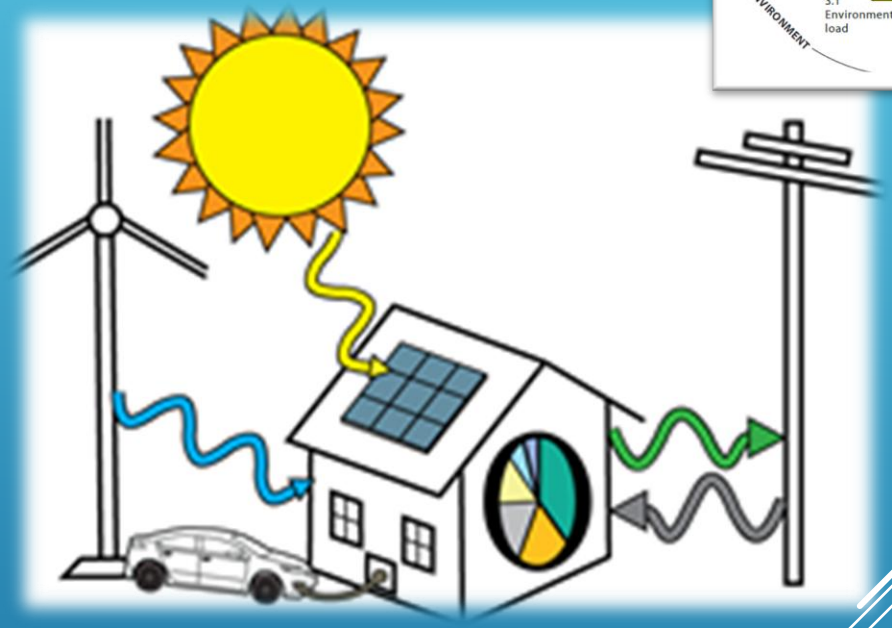
If we're going to seriously address the linked energy and climate change crises, buildings clearly offer tremendous potential for reducing our demand for energy and its concomitant carbon emissions.

BUILDINGS CONCEPTS

- Low-energy buildings (oil crises ‘73, ’79, 2014)
- Passive (solar) buildings
- Net zero energy buildings (NZEB)
- Nearly zero energy buildings (nZEB)
- Energy plus buildings/active energy buildings
- Net Zero Energy Emissions (Carbon) Buildings
- Smart buildings
- Green buildings

to be continued …





http://www4.uwm.edu/Dept/shwec/zeronetenergy/index.cfm

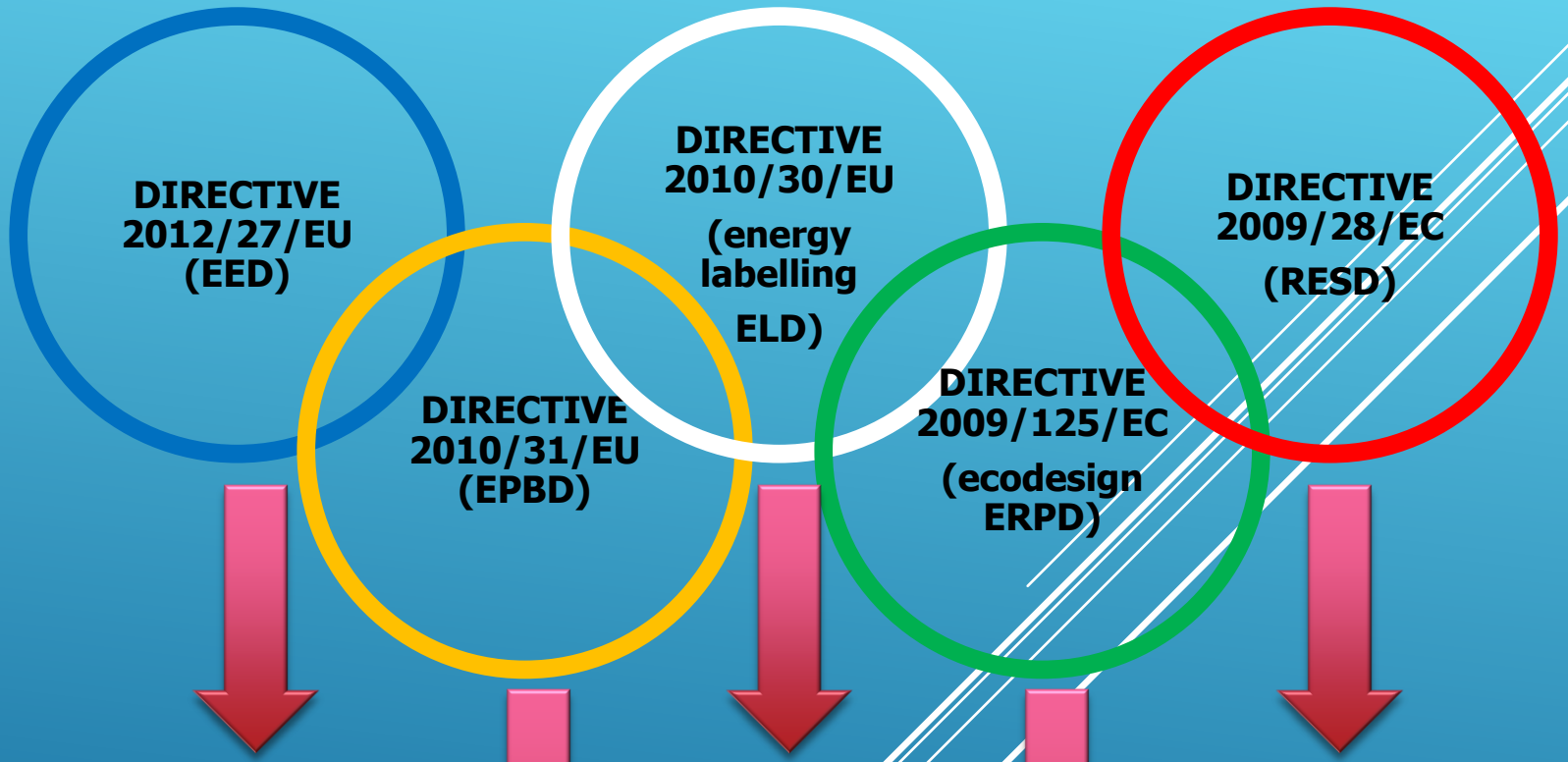
Large buildings equipped with heating, ventilation and air conditioning (HVAC), data centers, and a myriad of sensors and wireless communication devices are complex systems whose operation includes multi-physics and multi-scale effects. Building systems are dynamically uncertain with respect to both the energy load and the environment, with dramatic changes in the number of occupants in the building, their energy demand, and ambient weather conditions.

BUILDINGS CONCEPTS

- **Nearly zero energy buildings nZEB** consume slightly more energy than they produce (buildings with **a very high energy performance** and where energy need is covered to **a very significant extent by energy from renewable sources)**
- **Net zero energy buildings** the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site; the wording "Net" emphasizes the energy exchange between the building and the energy infrastructure (the connection to energy grids prevents seasonal energy storage and oversized on-site systems for energy generation from renewable sources like in energy autonomous buildings).
- **Energy plus buildings** produce a surplus of energy over the year.
- **Smart buildings** contain an array of sensors and an integrated, optimized control system could dynamically adjust lighting and HVAC flows based on actual, real-time presence rather than scheduled occupancy; by combining sensor networks, active ventilation, adjustable lighting, and adjustable windows and doors into integrated and optimized compound systems, much higher quality living and working environments are possible, with 50% greater energy efficiency than current systems offer.
- **Net Zero Energy Emissions (Carbon) Buildings:** the carbon emissions generated from on-site or off-site fossil fuel use are balanced by the amount of on-site renewable energy production; other definitions include not only the carbon emissions generated by the building in use, but also those generated in the construction of the building and the embodied energy of the structure.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

EU LEVEL



NATIONAL LEVEL
(Romania case)

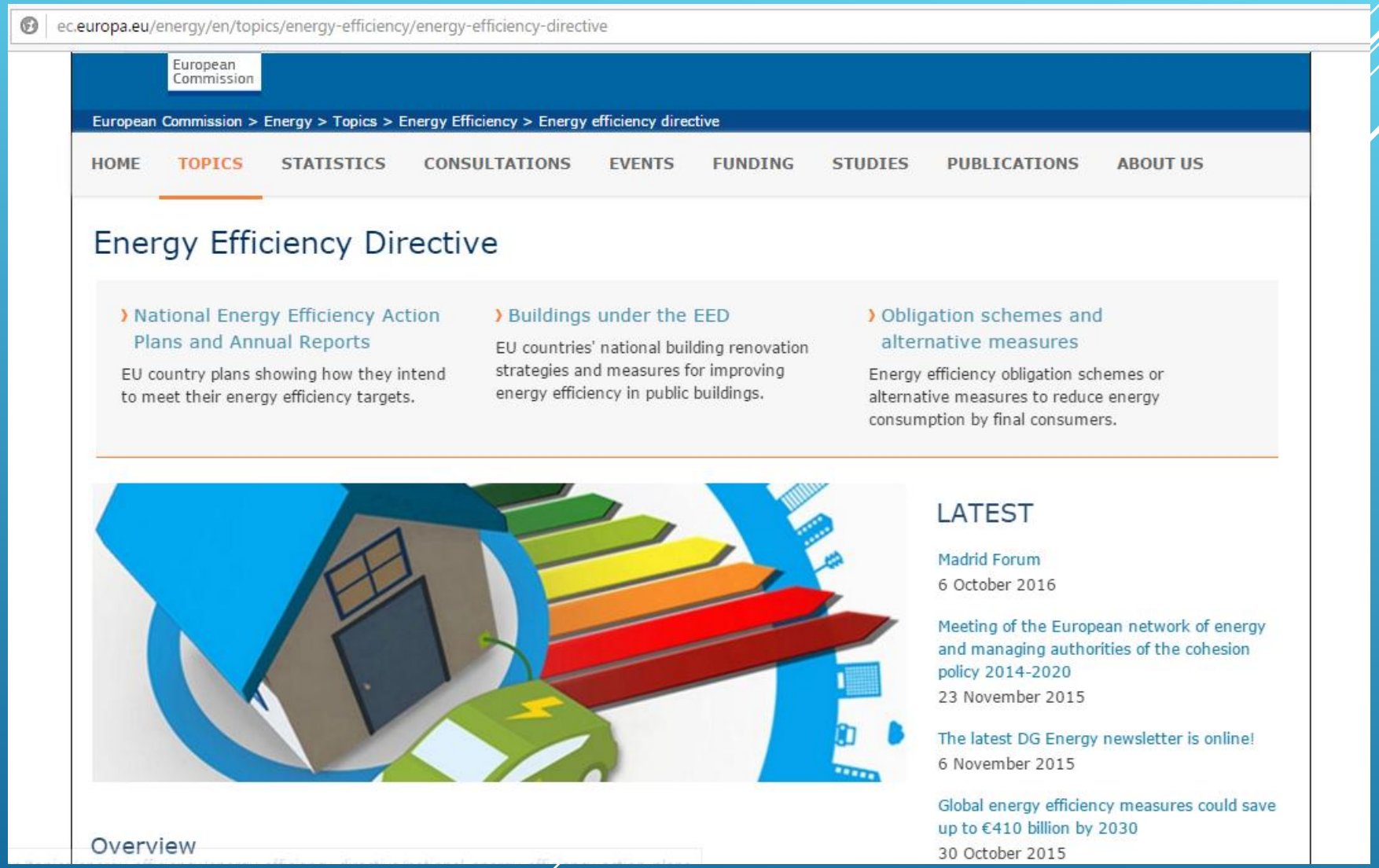
- Law 121 from 18 /07/2014
- Law 372 from 13/12/2005 republished May 2013)
- GO 217 from 20 /03/2012
- GO 55 from 19/01/2011
- Law 139 from 07/07/2010

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2012/27/EU (EED) on energy efficiency – framework for the promotion of energy efficiencny within EU and also specific action for aplication (-20% energy consumtion)	•Long term national strategies for investment mobilization in building stock renovation/ financing mechanisms, EE smart metering, ET individual metering, CGIE •Renovating public buildings (3% of the total area each year) •Energy Audits (EN ISO 50001 Environmental -Management Systems or EN 16247-1 Energy Audits) and ESCO, personal training, CBA •Starting point: June 5th , 2014
DIRECTIVE 2010/31/EU (EPBD) on energy performance of buildings	•Methodology for calculating the energy performance of buildings, minimum energy performance requirements for buildings and building element •Optimal Cost – Delegated Regulation No. 244/2012 of the European Commission of 16 January 2012 supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings by establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements •National plans for nZEBs, HVAC inspections •Independent control systems for energy performance certificates and inspection reports •Starting point July 9th 2012
DIRECTIVE 2010/30/EU on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products	• Establishes a framework for the harmonization of national measures on end-user information, particularly by means of labeling and standard product •Energy efficiency class of the product •Responsibilities of both the supplier and the distributor •Starting point July 20th 2011
DIRECTIVE 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products	•CE marking and declaration of conformity •Specific requirements in ecodesign •Product regulations •Regulations no. 811/2013, 813/2013, 814/2013 Implementing Directive •Starting point: November 20th 2010
Directive 2009/28/EC on renewable energy (RESD) on renewable energy (+20% energy from renewable sources)	•National plans for renewable energy •Minimum levels of energy from renewable sources in new & existing buildings •Qualification schemes for installers of small RES in buildings •Starting point: December 5th Dec2010

3.2. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2012/27/EU (EED)



3.2. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

All stages of the energy chain – from the transformation of energy and its distribution to its final consumption. The majority of the EED provisions must be transposed into national law by 5 June 2014.

The EED clearly defines and quantifies for the first time the EU energy efficiency target as the *"Union's 2020 energy consumption of no more than* ***1 483 Mtoe primary energy or no more than 1 086 Mtoe of final energy"*** **(Croatia included)**.

The EED also requires the Member States to set **national indicative energy efficiency targets for 2020**, which can be based on different indicators. The national indicative energy efficiency targets, taken collectively, suggest that the Member States aim to achieve only about 16.4% primary energy savings and 17.7% final energy savings by 2020 – not the full 20% needed to meet the EU's overall target.

The Directive requires Member States to establish and publish by 30 April 2014 their long term strategies for building renovation. Public sector buildings must lead by example – **3%** of buildings owned and occupied by central governments shuld be renovated each year to the level the Member State has set under the Energy Performance of Buildings Directive.

Recognising the significant energy savings potential in enterprises of all categories and types, all enterprises are encouraged to have energy audits, and this is **compulsory every four years for those which are not SMEs**. Member States are requested to develop programmes to encourage SMEs to undergo energy audits and to raise awareness among households about the benefits of such audits.

About 30% of the EU's primary energy is used by the energy sector, mainly for transforming energy into electricity and heat and for distribution. The Directive therefore aims to **maximise grid and infrastructure efficiency** and to enable and **promote demand response** and sets in place obligations and encouragement for the greater use of high-efficiency cogeneration and district heating and cooling.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

Article 5 requires that central governments of Member States renovate each year 3% of the total floor area of the buildings they own and occupy that do not meet the minimum efficiency requirements. As an alternative to the requirement to renovate 3% of the floor space of central government buildings, Member States may take other cost-effective measures that would achieve at least an equivalent level of energy savings within their central government buildings.

Article 6 of the EED requires, under certain conditions, that central governments purchase products, services and buildings with high energy-efficiency performance defined through EU legislative acts, such as the Energy Labelling Directive and supplementing delegated regulations, the Eco Design Directive and its implementing regulations, the Energy Performance of Buildings Directive or the Energy Star Programme

Article 7 is responsible for half the energy savings the EED should achieve. The Article requires Member States to establish energy efficiency obligation schemes or use alternative policy measures to achieve a certain targeted amount of energy savings amongst final consumers. The energy savings to be achieved must be at least equivalent to achieving new savings each year from 1 January 2014 to 31 December 2020 of 1.5% of the annual energy sales to final consumers of all energy distributors or all retail energy sales companies by volume averaged over 2010, 2011 and 2012.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

Article 8 imposes two main obligations upon Member States: to promote the availability of energy audits among final customers in all sectors and to ensure that enterprises that are not SMEs carry out energy audits at least every four years. Audits must be cost-effective and undertaken by qualified/accredited experts or supervised by independent authorities. large enterprises that implement energy or environmental management systems are exempt from the requirement of energy audits every four years

Article 9 requires that final customers for electricity, natural gas, district heating, district cooling and hot water should have a competitively priced individual meter that accurately reflects their energy consumption and provides information on the time of their energy use. From 31 December 2016, the requirement for the provision of individual consumption meters to final customers of heating and cooling will extend to multi-apartment and multi-purpose buildings with a central heating/cooling source or supplied from a central source serving multiple buildings (with exceptions based on technical and financial grounds).

Article 14 Member States are required to prepare a comprehensive assessment to identify the cost-effective potential of high-efficiency cogeneration and efficient district heating and cooling, taking into account climate conditions, economic feasibility and technical suitability. This assessment must be notified to the Commission by 31 December 2015.

Article 15 requires that Member States ensure that national energy regulatory authorities, TSOs and DSOs maximise the energy efficiency potential of smart grids, assess and improve energy efficiency in the design and operation of the gas and electricity infrastructure and ensure that tariffs and regulations fulfil specific energy efficiency criteria and do not hamper demand response.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

'**Cost-optimal level**' means the energy performance level which leads to the lowest cost during the estimated economic lifecycle, where:

(a) 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

(b) the estimated economic lifecycle which 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.

By calculating the costs of the energy efficiency measures during the expected economic lifecycle, the cost-effectiveness of different levels of minimum energy performance requirements is assessed by the Member States. This will allow the determination of **cost-optimal levels of energy performance requirements**.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2010/31/EU (EPBD)

1. IDENTIFICATION DU BIEN ET DE L'ORGANISME CHARGE DE LA MISSION

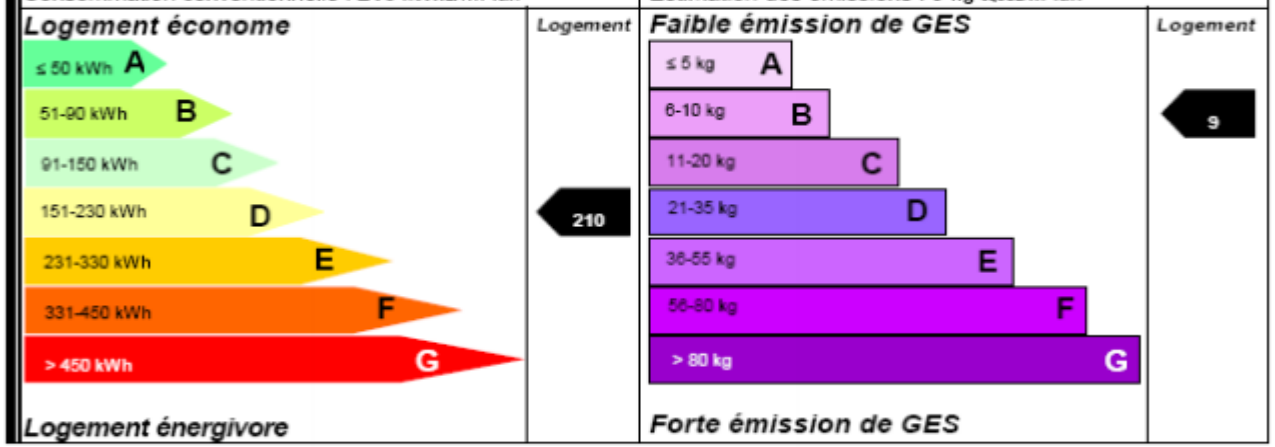
N° : DPE 09.071 Valable jusqu'au : 14/10/2019 Type de bâtiment : Immeuble collectif Année de construction : 1974 Surface habitable : 35.00 m²	Adresse : [redacted] Cadastrale : Lot : Date visite : 13/10/2009 Accompagnateur : Locataire
Organisme chargé de la mission : A+ Etats des Lieux RCS BORDEAUX 501 613 400	Attestation d'assurance, RC professionnelle : AXA Nom du technicien : PIERRE LABERTIT
Propriétaire : [redacted] 33000 BORDEAUX	Propriétaire des installations communes (s'il y a lieu) : Néant -

2. CONSOMMATIONS ANNUELLES PAR ENERGIE

Les consommations énergétiques, les émissions de gaz à effet de serre et les coûts indiqués ci-dessous sont obtenus à partir d'un calcul conventionnel méthode 3CL-DPE version 15c, estimé à l'immeuble / au logement, prix moyens des énergies indexés au 15 août 2006.

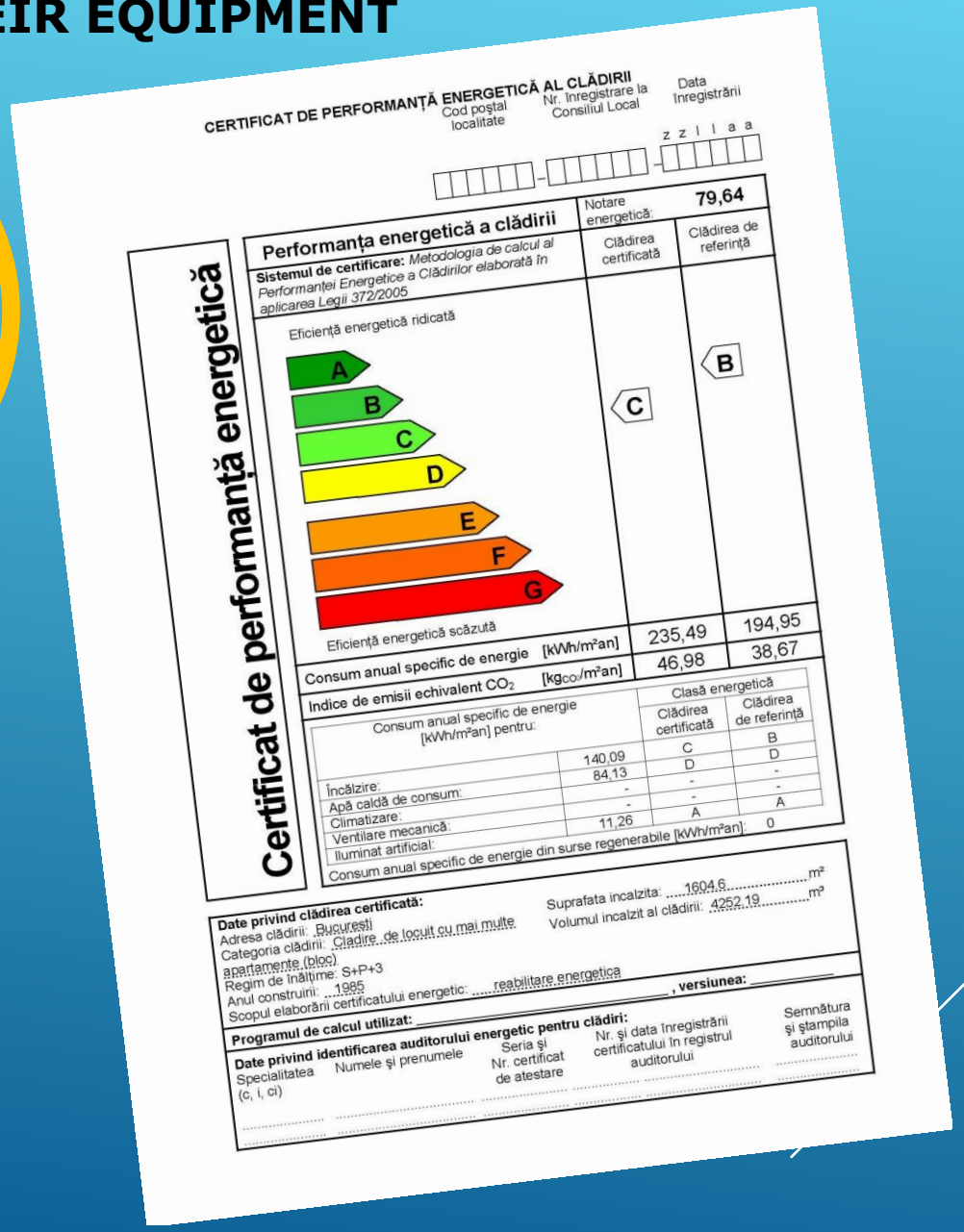
	Consommations en énergie finales (kWh PCI)	Energie	Consommations en énergie primaire (kWh)	Frais annuels d'énergie
Chauffage	1 534.26 kWh	électrique	3 958.39 kWh	139.00 €
ECS	1 320.63 kWh	électrique	3 407.21 kWh	119.65 €
Refroidissement	0.00 kWh	pas de système	0.00 kWh	0.00 €
Total	2 854.89 kWh	-	7 365.60 kWh	258.65 €
Abo. électrique	105.87 €	Abo. gaz naturel	0.00 €	364.52 €

CONSOMMATIONS ENERGETIQUES (EN ENERGIE PRIMAIRE) POUR LE CHAUFFAGE, LA PRODUCTION D'EAU CHAUDE SANITAIRE ET LE REFROIDISSEMENT	ÉMISSIONS DE GAZ A EFFET DE SERRE (GES) POUR LE CHAUFFAGE, LA PRODUCTION D'EAU CHAUDE SANITAIRE ET LE REFROIDISSEMENT
Estimation du montant annuel des frais inhérents à la consommation : 364.52 €	
Consommation conventionnelle : 210 kWhEP/m².an	Estimation des émissions : 9 kg eqCO2/m².an



3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2010/31/EU (EPBD)



CERTIFICAT DE PERFORMANȚĂ ENERGETICĂ AL CLĂDIRII

Cod poștal localitate | Nr. înregistrare la Consiliul Local | Data înregistrării (z z l l a a)

Certificat de performanță energetică

Performanța energetică a clădirii	Notare energetică:	79,64
Sistemul de certificare: *Metodologia de calcul al Performanței Energetice a Clădirilor elaborată în aplicarea Legii 372/2005*	Clădirea certificată	Clădirea de referință
Eficiență energetică ridicată A B C D E F G	C	B
Eficiență energetică scăzută		
Consum anual specific de energie [kWh/m²an]	235,49	194,95
Indice de emisii echivalent CO_2 [kg_{CO_2}/m²an]	46,98	38,67

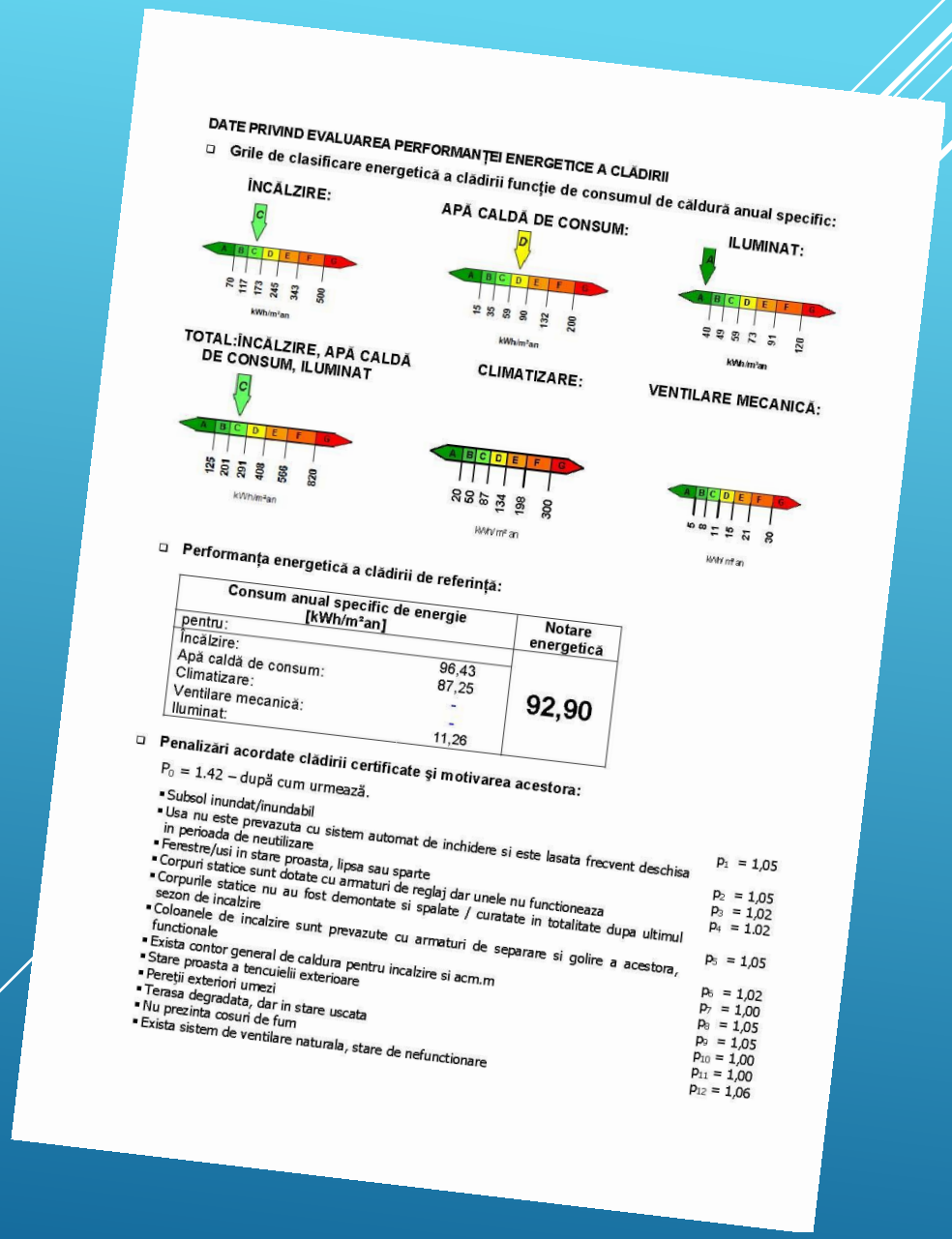
Consum anual specific de energie [kWh/m²an] pentru:		Clasă energetică: Clădirea certificată	Clădirea de referință
Încălzire:	140,09	C	B
Apă caldă de consum:	84,13	D	D
Climatizare:	-	-	-
Ventilare mecanică:	-	-	-
Iluminat artificial:	11,26	A	A
Consum anual specific de energie din surse regenerabile [kWh/m²an]:		0	

Date privind clădirea certificată:
Adresa clădirii: București
Categoria clădirii: Clădire de locuit cu mai multe apartamente (bloc)
Regim de înălțime: S+P+3
Anul construirii: 1985
Scopul elaborării certificatului energetic: reabilitare energetica
Suprafata incalzita: 1604,6 m²
Volumul incalzit al clădirii: 4252,19 m³

Programul de calcul utilizat: _____ , **versiunea:** _____

Date privind identificarea auditorului energetic pentru clădiri:

Specialitatea (c, i, ci)	Numele și prenumele	Seria și Nr. certificat de atestare	Nr. și data înregistrării certificatului în registrul auditorului	Semnătura și ștampila auditorului
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....



DATE PRIVIND EVALUAREA PERFORMANȚEI ENERGETICE A CLĂDIRII

☐ **Grile de clasificare energetică a clădirii funcție de consumul de căldură anual specific:**

ÎNCĂLZIRE: A B C D E F G — 70 117 173 245 343 500 kWh/m²an

APĂ CALDĂ DE CONSUM: A B C D E F G — 15 35 59 90 132 200 kWh/m²an

ILUMINAT: A B C D E F G — 40 49 59 73 91 120 kWh/m²an

TOTAL:ÎNCĂLZIRE, APĂ CALDĂ DE CONSUM, ILUMINAT: A B C D E F G — 125 201 291 408 568 820 kWh/m²an

CLIMATIZARE: A B C D E F G — 20 50 87 134 198 300 kWh/m² an

VENTILARE MECANICĂ: A B C D E F G — 5 8 11 16 21 30 kWh/ m² an

☐ **Performanța energetică a clădirii de referință:**

Consum anual specific de energie [kWh/m²an] pentru:		Notare energetică
Încălzire:	96,43	92,90
Apă caldă de consum:	87,25	
Climatizare:	-	
Ventilare mecanică:	-	
Iluminat:	11,26	

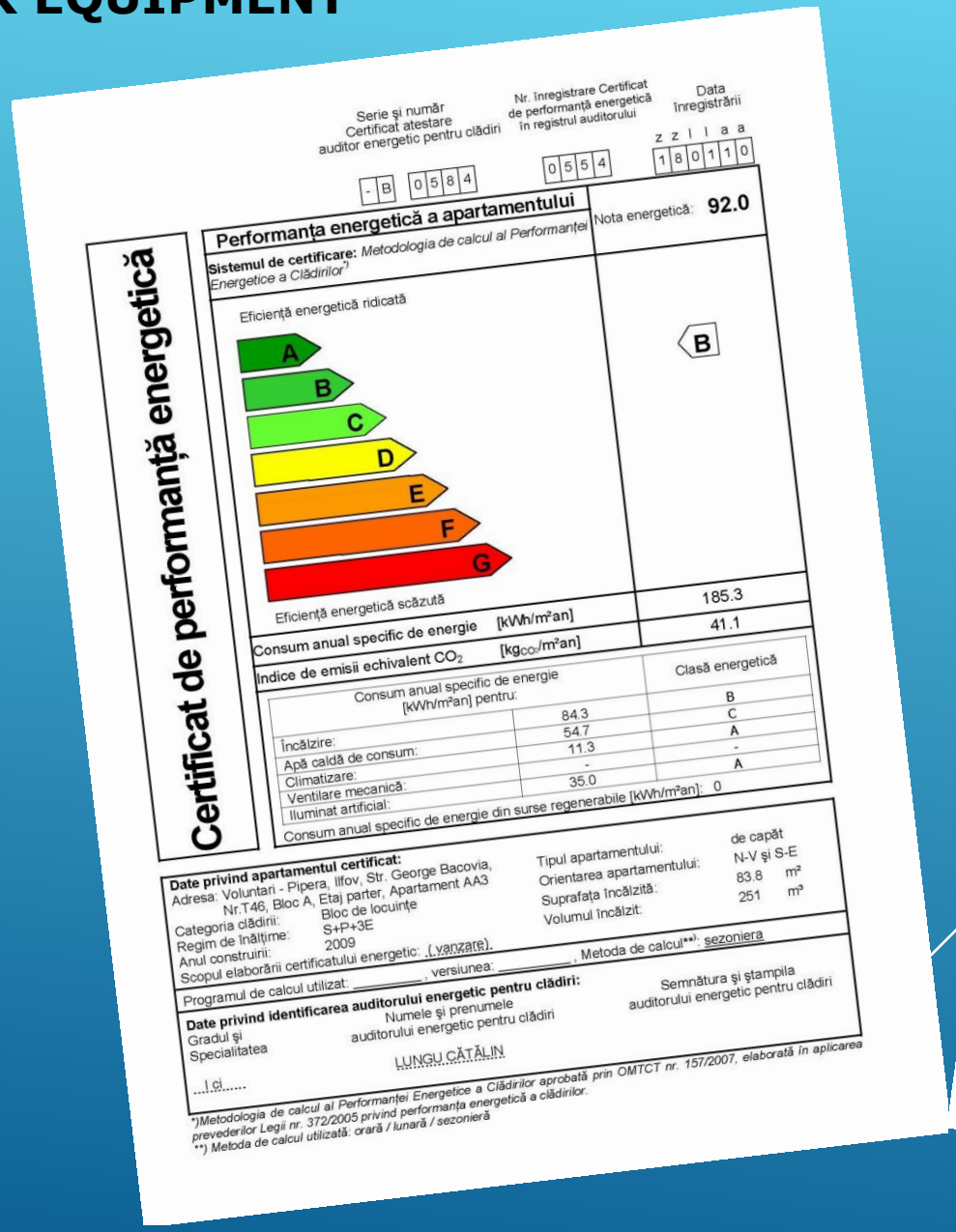
☐ **Penalizări acordate clădirii certificate și motivarea acestora:**

P_0 = 1.42 – după cum urmează.

- Subsol inundat/inundabil — p_1 = 1,05
- Usa nu este prevazuta cu sistem automat de inchidere si este lasata frecvent deschisa in perioada de neutilizare — p_2 = 1,05
- Ferestre/usi in stare proasta, lipsa sau sparte — p_3 = 1,02
- Corpuri statice sunt dotate cu armaturi de reglaj dar unele nu functioneaza — p_4 = 1,02
- Corpurile statice nu au fost demontate si spalate / curatate in totalitate dupa ultimul sezon de incalzire — p_5 = 1,05
- Coloanele de incalzire sunt prevazute cu armaturi de separare si golire a acestora, functionale
- Exista contor general de caldura pentru incalzire si acm.m — p_6 = 1,02
- Stare proasta a tencuielii exterioare — p_7 = 1,00
- Pereții exteriori umezi — p_8 = 1,05
- Terasa degradata, dar in stare uscata — p_9 = 1,05
- Nu prezinta cosuri de fum — p_{10} = 1,00
- Exista sistem de ventilare naturala, stare de nefunctionare — p_{11} = 1,00 — p_{12} = 1,06

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2010/31/EU (EPBD)



Certificat de performanță energetică

Serie și număr Certificat atestare auditor energetic pentru clădiri: - B 0584

Nr. înregistrare Certificat de performanță energetică în registrul auditorului: 0554

Data înregistrării: z z l l a a 18 01 10

Performanța energetică a apartamentului — Nota energetică: **92.0**

Sistemul de certificare: *Metodologia de calcul al Performanței Energetice a Clădirilor**)

Eficiență energetică ridicată

A B C D E F G

B

Eficiență energetică scăzută

Consum anual specific de energie [kWh/m²an]	185.3
Indice de emisii echivalent CO_2 [kg_{CO_2}/m²an]	41.1

Consum anual specific de energie [kWh/m²an] pentru:		Clasă energetică
Încălzire:	84.3	B
Apă caldă de consum:	54.7	C
Climatizare:	11.3	A
Ventilare mecanică:	-	-
Iluminat artificial:	35.0	A

Consum anual specific de energie din surse regenerabile [kWh/m²an]: 0

Date privind apartamentul certificat:
Adresa: Voluntari - Pipera, Ilfov, Str. George Bacovia, Nr.T46, Bloc A, Etaj parter, Apartament AA3
Categoria clădirii: Bloc de locuințe
Regim de înălțime: S+P+3E
Anul construirii: 2009
Scopul elaborării certificatului energetic: (vânzare).
Tipul apartamentului: de capăt
Orientarea apartamentului: N-V și S-E
Suprafața încălzită: 83.8 m²
Volumul încălzit: 251 m³
Programul de calcul utilizat: _____, versiunea: _____, Metoda de calcul**): sezoniera

Date privind identificarea auditorului energetic pentru clădiri:
Gradul și Specialitatea
Numele și prenumele auditorului energetic pentru clădiri: LUNGU CĂTĂLIN
Semnătura și ștampila auditorului energetic pentru clădiri

l.ș. .....

*)Metodologia de calcul al Performanței Energetice a Clădirilor aprobată prin OMTCT nr. 157/2007, elaborată în aplicarea prevederilor Legii nr. 372/2005 privind performanța energetică a clădirilor.
**) Metoda de calcul utilizată: orară / lunară / sezonieră

DATE PRIVIND EVALUAREA PERFORMANȚEI ENERGETICE A APARTAMENTULUI - verso -

❑ **Grile de clasificare energetică funcție de consumul de căldură anual specific:**

ÎNCĂLZIRE:

APĂ CALDĂ DE CONSUM:

ILUMINAT:

CLIMATIZARE:

TOTAL
Încălzire, apă caldă de consum, iluminat, climatizare

❑ **Penalizări aplicate apartamentului și motivarea acestora:**

P_0 = 1.100 – după cum urmează:

Corpurile statice sunt dotate cu armături de reglaj și acestea sunt funcționale	p1=	1.00
Corpurile statice au fost demontate și spălate/curățate în totalitate după ultimul sezon de încălzire	p2=	1.00
Coloanele de încălzire sunt prevăzute cu armături de separare și golire a acestora, funcționale	p3=	1.00
Există contor general de căldură pentru încălzire și pentru apă caldă de consum	p4=	1.00
Stare bună a tencuielii exterioare	p5=	1.00
Pereți exteriori uscați	p6=	1.00
Clădire fără pod nelocuibil	p7=	1.00
Coșurile au fost curățate cel puțin o dată în ultimii doi ani	p8=	1.00
Clădire fără sistem de ventilare organizată	p9=	1.10
Alte penalități funcție de starea tehnică a apartamentului/blocului de locuințe	p10=	1.00

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2010/30/EU (ELD)

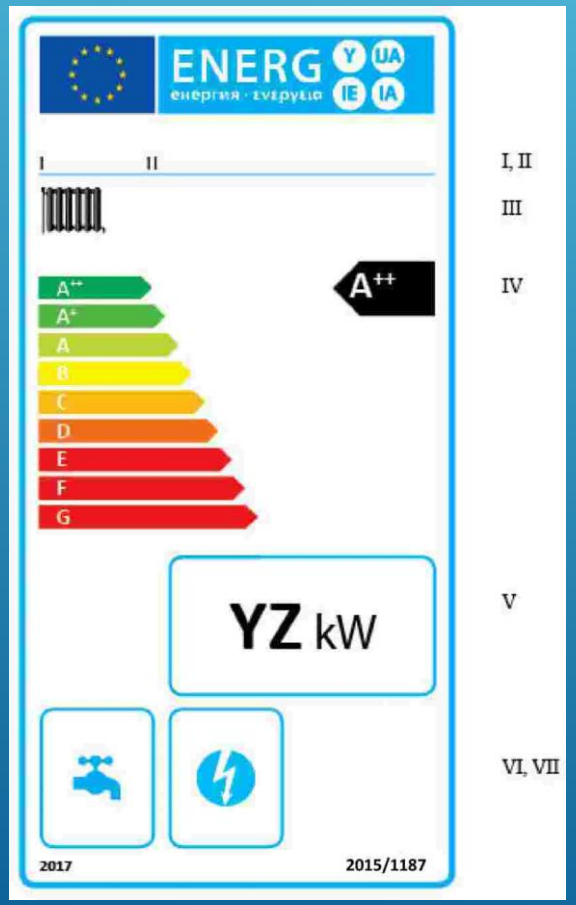
http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/ecodesign/index_en.htm

		Ecodesign	Energy Labelling
Air conditioners	Air conditioners and comfort fans	(EU) No 206/2012	EU No 626/2011
Boilers	Hot-water boilers	92/42/EEC	
Circulators	Circulators and glandless circulators integrated in products	(EC) No 641/2009	
Dishwashers	Household dishwashers	(EU) No 1016/2010	(EU) No 1059/2010
Domestic ovens, hobs and range hoods	Domestic ovens, hobs and range hoods	(EU) No 66/2014	(EU) No 65/2014
Electric motors	Electric motors	(EC) No 640/2009	
Fans	Fans driven by motors	(EU) No 327/2011	
Lamps (directional and LED)	Directional lamps, light emitting diode lamps and related equipment	(EU) No 1194/2012	(EU) No 874/2012
Lamps (household)	Non-directional household lamps (including amendment on ultraviolet radiation)	(EC) No 244/2009 (EC) No 859/2009	(EU) No 874/2012
Lamps (fluorescent)	Fluorescent lamps without integrated ballast, for high intensity discharge lamps and for ballasts and luminaries able to operate such lamps (including amendment)	(EC) No 245/2009 (EU) No 347/2010	(EU) No 874/2012
Ovens	Domestic electric ovens		2002/40/EC
Power supplies	External power supplies	(EC) No 278/2009	
Refrigerating appliances	Household refrigerating appliances	(EC) No 643/2009	(EC) No 1060/2010
Set-top boxes	Simple set-top boxes	(EC) No 107/2009	
Standby and off mode	Electric power consumption standby and off mode of electrical and electronic household and office equipment	(EC) No 1275/2008 (EC) No 801/2013	
Television	Television	(EC) No 642/2009 (EC) No 801/2013	(EU) No 1062/2010
Transformers	Small, medium and large power transformers	(EU) No 548/2014	
Tumble driers	Household tumble driers	(EU) No 932/2012	(EU) No 392/2012
Vacuum Cleaners	Vacuum Cleaners	(EU) No 666/2013	(EU) No 665/2013
Washer-driers (combined)	Household combined washer-driers	-	96/60/EC
Washing machines	Household washing machines	(EU) No 1015/2010	(EU) No 1061/2010
Water pumps	Water pumps	(EU) No 547/2012	

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2010/30/EU (ELD)

This Directive establishes a framework for the harmonisation of national measures on end-user information, particularly by means of labelling and standard product information, on the consumption of energy and where relevant of other essential resources during use, and supplementary information concerning energy-related products, thereby allowing end-users to choose more efficient products.



Energy efficiency classes

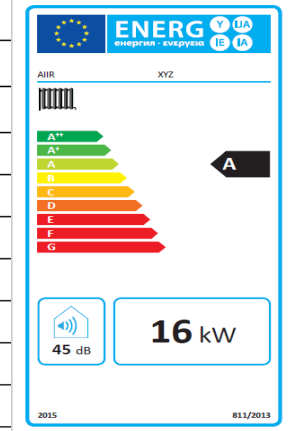
The energy efficiency class of a solid fuel boiler shall be determined on the basis of its energy efficiency index as set out in Table 1.

The energy efficiency index of a solid fuel boiler shall be calculated in accordance with Annex IX.

Table 1

Energy efficiency classes of solid fuel boilers

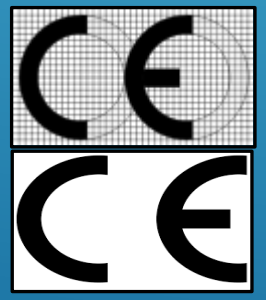
Energy efficiency class	Energy efficiency index (*EEI*)
A^{+++}	$EEI \geq 150$
A^{++}	$125 \leq EEI < 150$
A^{+}	$98 \leq EEI < 125$
A	$90 \leq EEI < 98$
B	$82 \leq EEI < 90$
C	$75 \leq EEI < 82$
D	$36 \leq EEI < 75$
E	$34 \leq EEI < 36$
F	$30 \leq EEI < 34$
G	$EEI < 30$

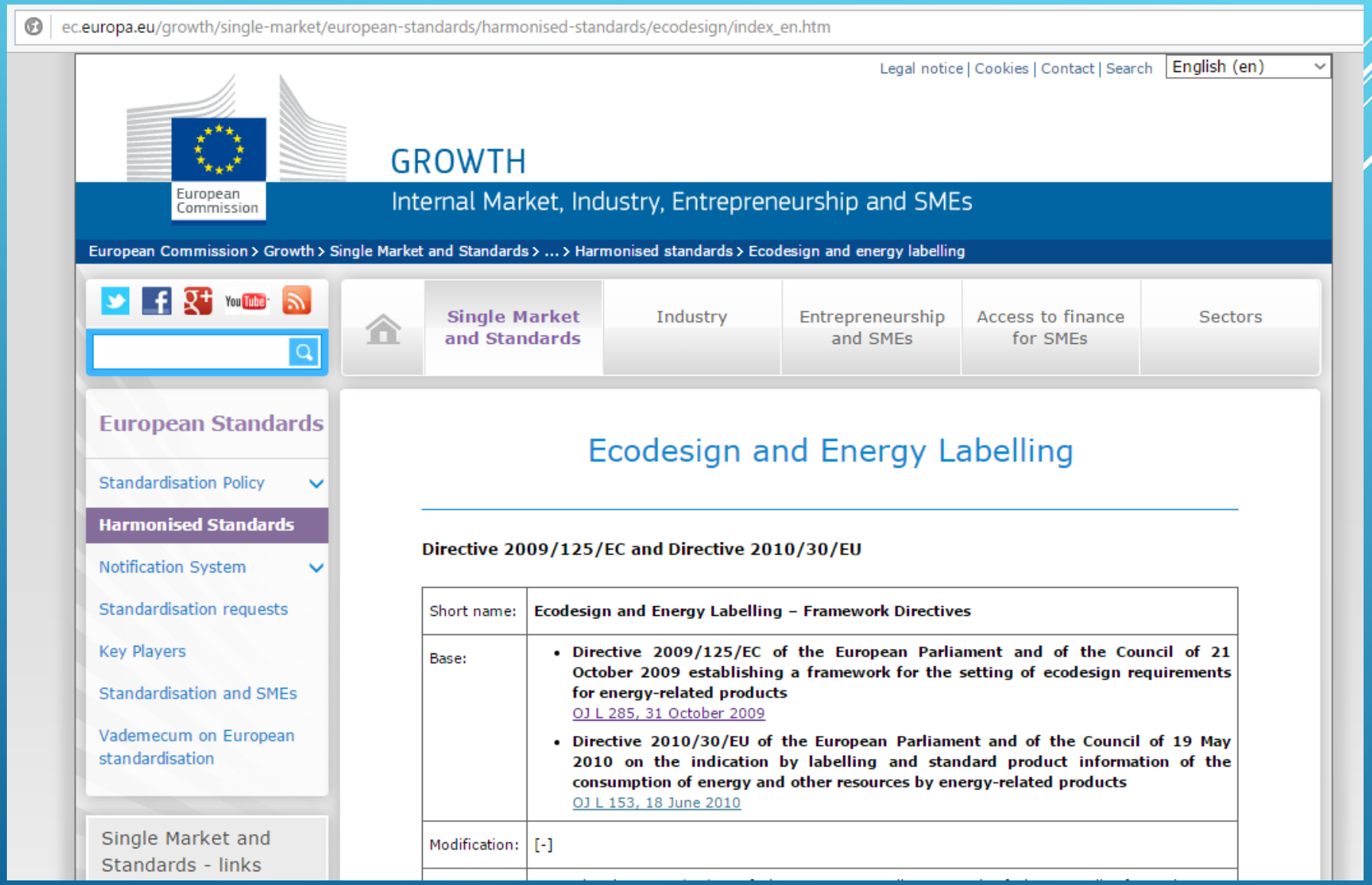


ENERGY LABEL GENERATOR

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/125/EC (ERPD)





3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

Energy-related products account for a large proportion of the consumption of natural resources and energy in the Community. They also have a number of other important environmental impacts.

Many energy-related products have a significant potential for being improved in order to reduce environmental impacts and to achieve energy savings through better design which also leads to economic savings for businesses and end-users. In addition to products which use, generate, transfer, or measure energy, certain energy-related products, including products used in construction such as windows, insulation materials, or some water-using products such as shower heads or taps could also contribute to significant energy savings during use.

Action should be taken during **the design phase of energy-related products**, since it appears that the pollution caused during a product's life cycle is determined at that stage, and most of the costs involved are committed then.

This Directive seeks to achieve a high level of protection for the environment by reducing the potential environmental impact of energy-related products, which will ultimately be beneficial to consumers and other end-users. Sustainable development also requires proper consideration of the health, social and economic impact of the measures envisaged. Improving the energy and resource efficiency of products contributes to the security of the energy supply and to the reduction of the demand on natural resources, which are preconditions of sound economic activity and therefore of sustainable development.

In order to maximise the environmental benefits from improved design, it may be necessary to inform consumers about the environmental characteristics and performance of energy-related products and to advise them on how to use products in a manner which is environmentally friendly.

As a general principle and where appropriate, the energy consumption of energy-related products in stand-by or off-mode should be reduced to the minimum necessary for their proper functioning.

Article 5

Marking and the EC declaration of conformity

1. Before a product covered by implementing measures is placed on the market and/or put into service, a **CE marking** shall be affixed and an **EC declaration of conformity** issued whereby the manufacturer or its authorised representative ensures and declares that the product complies with all relevant provisions of the applicable implementing measure.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/125/EC (ERPD)

Part 1. Ecodesign parameters for products

1.1. In so far as they relate to product design, significant environmental aspects must be identified with reference to the following phases of the life cycle of the product:

(a) raw material selection and use;

(b) manufacturing;

(c) packaging, transport, and distribution;

(d) installation and maintenance;

(e) use; and

(f) end-of-life, meaning the state of a product having reached the end of its first use until its final disposal.

1.2. For each phase, the following environmental aspects must be assessed where relevant:

(a) predicted consumption of materials, of energy and of other resources such as fresh water;

(b) anticipated emissions to air, water or soil;

(c) anticipated pollution through physical effects such as noise, vibration, radiation, electromagnetic fields;

(d) expected generation of waste material; and

(e) possibilities for reuse, recycling and recovery of materials and/or of energy, taking into account Directive 2002/96/EC.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/125/EC (ERPD)

1.3. In particular, the following parameters must be used, as appropriate, and supplemented by others, where necessary, for evaluating the potential for improving the environmental aspects referred to in point 1.2:

(a) weight and volume of the product;

(b) use of materials issued from recycling activities;

(c) consumption of energy, water and other resources throughout the life cycle;

(d) use of substances classified as hazardous to health and/or the environment according to Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances [1] and taking into account legislation on the marketing and use of specific substances, such as Council Directive 76/769/EEC of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations [2] or Directive 2002/95/EC;

(e) quantity and nature of consumables needed for proper use and maintenance;

(f) ease for reuse and recycling as expressed through: number of materials and components used, use of standard components, time necessary for disassembly, complexity of tools necessary for disassembly, use of component and material coding standards for the identification of components and materials suitable for reuse and recycling (including marking of plastic parts in accordance with ISO standards), use of easily recyclable materials, easy access to valuable and other recyclable components and materials; easy access to components and materials containing hazardous substances;

(g) incorporation of used components;

(h) avoidance of technical solutions detrimental to reuse and recycling of components and whole appliances;

(i) extension of lifetime as expressed through: minimum guaranteed lifetime, minimum time for availability of spare parts, modularity, upgradeability, reparability;

(j) amounts of waste generated and amounts of hazardous waste generated;

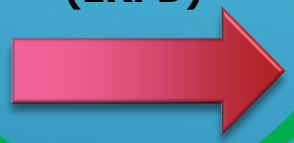
(k) emissions to air (greenhouse gases, acidifying agents, volatile organic compounds, ozone depleting substances, persistent organic pollutants, heavy metals, fine particulate and suspended particulate matter) without prejudice to Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery [3];

(l) emissions to water (heavy metals, substances with an adverse effect on the oxygen balance, persistent organic pollutants); and

(m) emissions to soil (especially leakage and spills of dangerous substances during the use phase of the product, and the potential for leaching upon its disposal as waste).

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/125/EC (ERPD)



Part 2. Requirements relating to the supply of information

Implementing measures may require information to be supplied by the manufacturer that may influence the way the product is handled, used or recycled by parties other than the manufacturer. This information may include, as applicable:

(a) information from the designer relating to the manufacturing process;

(b) information for consumers on the significant environmental characteristics and performance of a product, accompanying the product when it is placed on the market to allow consumers to compare these aspects of the products;

(c) information for consumers on how to install, use and maintain the product in order to minimise its impact on the environment and to ensure optimal life expectancy, as well as on how to return the product at end-of-life, and, where appropriate, information on the period of availability of spare parts and the possibilities of upgrading products; and

(d) information for treatment facilities concerning disassembly, recycling, or disposal at end-of-life.

Information should be given on the product itself wherever possible.

This information must take into account obligations under other Community legislation, such as Directive 2002/96/EC.

Part 3. Requirements for the manufacturer

1. Addressing the environmental aspects identified in the implementing measure as capable of being influenced in a substantial manner through product design, manufacturers of products must perform an assessment of the product model throughout its lifecycle, based upon realistic assumptions about normal conditions and purposes of use. Other environmental aspects may be examined on a voluntary basis.

   On the basis of this assessment, manufacturers must establish the product's ecological profile. It must be based on environmentally relevant product characteristics and inputs/outputs throughout the product life cycle expressed in physical quantities that can be measured.

2. Manufacturers must make use of this assessment to evaluate alternative design solutions and the achieved environmental performance of the product against benchmarks.

   The benchmarks must be identified by the Commission in the implementing measure on the basis of information gathered during the preparation of the measure.

   The choice of a specific design solution must achieve a reasonable balance between the various environmental aspects and between environmental aspects and other relevant considerations, such as safety and health, technical requirements for functionality, quality, and performance, and economic aspects, including manufacturing costs and marketability, while complying with all relevant legislation.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/28/EC (RESD)

This Directive sets out a common framework for the promotion of energy from renewable sources, which include wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases-in order to limit greenhouse gas (GHG) emissions and promote cleaner transport. In particular, these provisions establish **mandatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and for the share of energy from renewable sources in transport** (20 % of EU energy and 10 % of energy specifically in the transport sector by 2020).

Furhermore, the Directive lays down rules relating to statistical transfers and joint projects between European Community Member States, joint projects with third countries, guarantees of origin, administrative procedures, information and training, and access to the electricity grid for energy from renewable sources. The Directive also establishes sustainability criteria for biofuels and bioliquids.

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

KEY POINTS

Each EU country is to make a national action plan for 2020, setting a share for renewable energy sources in transport, heating and the production of electricity.

To help achieve targets cost-effectively, EU countries can exchange energy from renewable sources*. To count towards their action plans, EU countries can also receive renewable energy from countries outside the EU, provided that energy is consumed in the EU and that it is produced by modern/efficient installations.

Each EU country must be able to guarantee the origin of electricity, heating and cooling produced from renewable energy sources.

EU countries should build the necessary infrastructure for using renewable energy sources in the transport sector.

Biofuels and bioliquids must be made sustainably, not using raw materials from lands with high biodiversity value. In the European Commission's proposal to amend the EU law on the quality of petrol and diesel fuels, the contribution that biofuels make towards the attainment of national targets is sought to be limited.

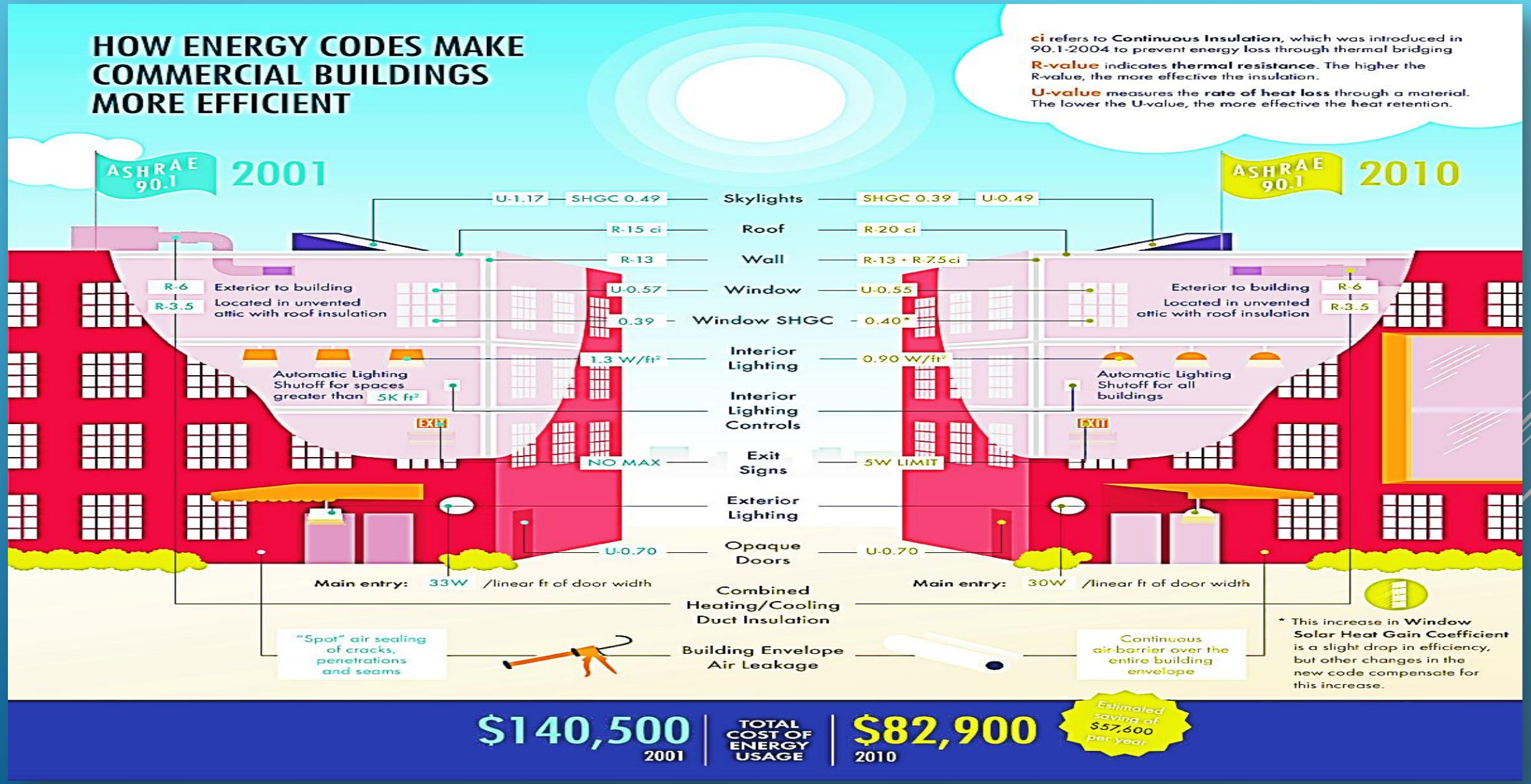
3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT

DIRECTIVE 2009/28/EC (RESD)

National overall targets	2005 Share	2020 Target
Belgium	2.2%	13%
Bulgaria	9.4%	16%
Czech Republic	6.1%	13%
Denmark	17.0%	30%
Germany	5.8%	18%
Estonia	18.0%	25%
Ireland	3.1%	16%
Greece	6.9%	18%
Spain	8.7%	20%
France	10.3%	23%
Italy	5.2%	17%
Cyprus	2.9%	13%
Latvia	32.6%	40%
Lithuania	15.0%	23%

National overall targets	2005 Share	2020 Target
Malta	0.0%	10%
Netherlands	2.4%	14%
Austria	23.3%	34%
Poland	7.2%	15%
Portugal	20.5%	31%
Romania	17.8%	24%
Slovenia	16.0%	25%
Slovak Republic	6.7%	14%
Finland	28.5%	38%
Sweden	39.8%	49%
United Kingdom	1.3%	15%

3. LEGAL EU FRAMEWORK/EU DIRECTIVES REGARDING ENERGY PERFORMANCE OF BUILDINGS AND THEIR EQUIPMENT



http://research.cbei.psu.edu/research-digest-reports/energy-efficient-building-codes-version-matters

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Thank you for your kind attention !