

WP3 Impact, compliance and control of legislation - the Czech Republic

Jan Pejter

ENVIROS, s.r.o. Prague

EPBD Implemented by

Energy Management Act No. 406/2006

...specifies buildings and constructions that must be evaluated resp. designed in way to fulfil the criteria; specifies the experts allowed to conduct certification



Decree No. 148/2007

*... specifies the details of energy performance of buildings.
Method, guidelines, certificate with graphical part, input values for reference building, classification of buildings.*



Standards

*... Czech National Standard 730540, harmonized CEN Standards
Recommended calculation procedure, method, input values for reference building*

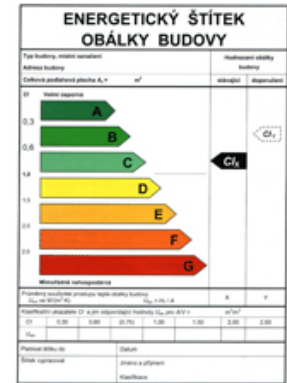
Energy assessment of buildings

o Not a new thing in the Czech Republic

- energy auditing scheme (voluntary from 1997, obligatory from 2000)
- certificate of building envelope (given by ČSN 73 0540)

o Energy audit

- gives information on energy use and efficiency of energy use in buildings and/or in energy facilities (technical installations).
- contains proposals on energy conservation measures, graphical scale showing thermal characteristic of the building envelope.
- energy audit is obligatory for:
 - ✓ subsidized projects
 - ✓ public authorities 1,500 GJ/year (ID number) and 700 GJ/year per building
 - ✓ natural and legal persons 35,000 GJ/year and 700 GJ/year per building

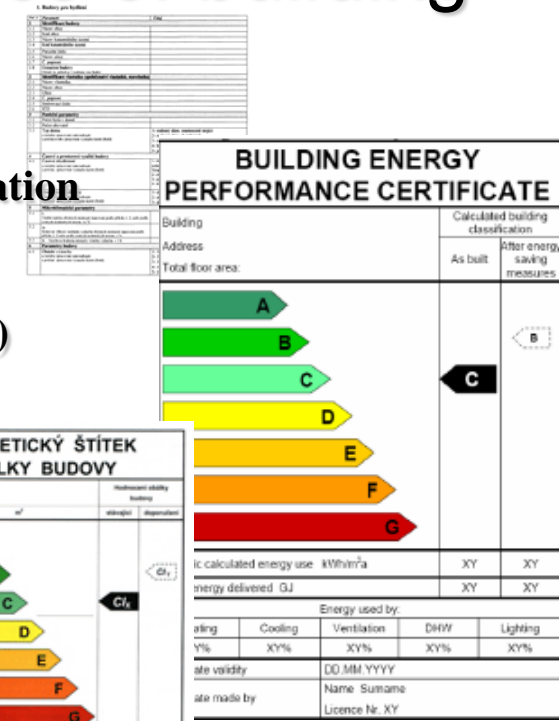


Requirements – energy performance of building

- ✦ 2001 Decree 291/2001 – cancelled in 2008
 - ✦ Only energy need for heating
 - ✦ Obligatory – was always a part of building project documentation

- ✦ 2007 Decree 148/2007 (EPBD)
 - ✦ Not only need of energy for heating (also for ventilation, AC..)
 - ✦ Obligatory – is always a part of project documentation
 - ✦ It substitutes Decree 291/2001

- ✦ ČSN 730540
 - ✦ Energy label of the building envelope
 - ✦ Not obligatory



BUILDING ENERGY PERFORMANCE CERTIFICATE

Building	Calculated building classification	
Address	As built	After energy saving measures
Total floor area:		
	C	B
ic calculated energy use kWh/m ² a	XY	XY
energy delivered GJ	XY	XY
Energy used by:		
ating	Cooling	Ventilation
Y%	XY%	XY%
ate validity	DD.MM.YYYY	
ate made by	Name Surname	
	Licence Nr. XY	

ENERGETICKÝ ŠTÍTEK OBÁLKY BUDOVY

Top building, bottom envelope	Building	
Address building	Address	Address
Calculated coefficient alpha A _v *	W/m ²	W/m ²
	C1	C1
ic calculated energy use kWh/m ² a	XY	XY
energy delivered GJ	XY	XY
Energy used by:		
ating	Cooling	Ventilation
Y%	XY%	XY%
ate validity	DD.MM.YYYY	
ate made by	Name Surname	
	Licence Nr. XY	

Requirement (148/2007) ≠ Requirement (291/2001)

↓
all energy needs

↓
only heating

Requirements – Heat Energy Demand

✦ 1886 Building code

- Standard = brick wall 45 cm ($R_N = 0,55 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$), no value for windows

✦ 1964 Czech National Standard ČSN 73 0540

- 1964: requirement on thermal insulations, 3 thermal zones, requirement - internal wall temperature below dew point temperature (problems in corners);
- 1977: amendment in force in 1979, „1964 standard“ was substituted by 3 new standards (terms and requirements, properties of materials, calculation methods), introduced requirements on thermal comfort and thermal stability in summer and winter;
- 1992: tightening up of requirements (R , k) and of requirement on energy performance (9,3 => 7,3 MWh/year per common flat 200 m³);
- 1994: recommended values are approaching European requirements;
- 2002: tightening up of requirements and introduction of specific energy demand for heating;
- 2005: amendments of Czech standards with respect to European standards, introduced new quantities and new requirements (linear transmittance, average U-value U_{em}).
- 2007: change of energy label of building envelope (instead of STN is used CI).

Requirements – Heat Energy Demand

Development of U-value of the key structure elements of the buildings (included in Czech Technical Standard ČSN 73 0540)

U-value (W/m ² K)	ČSN 73 0540 July 1964	ČSN 73 0540 January 1979	ČSN 73 0540-2 May 1994	ČSN 73 0540-2 November 2002	ČSN 73 0540-2 January 2006
Windows	-	3.700	2.900	1.800	1.700
Wall	1.467	0.894	0.461	0.380	0.380
Floor	1.369	1.091	1.034	0.600	0.450
Roof	0.900	0.508	0.316	0.300	0.240

ENVIROS 

S BUSINESS TOMORROW'S WORLD



Energy Classes in kWh/m²p.a. (Delivered energy)

Building Type	A	B	C	D	E	F	G
Single-family Houses	< 51	51 - 97	98 - 142	143 - 191	192 - 240	241 - 286	> 286
Apartment Blocks	< 43	43 - 82	83 - 120	121 - 162	163 - 205	206 - 245	> 245
Hotels & Restaurants	< 102	102 - 200	201 - 294	295 - 389	390 - 488	489 - 590	> 590
Offices	< 62	62 - 123	124 - 179	180 - 236	237 - 293	294 - 345	> 345
Hospitals	< 109	109 - 210	211 - 310	311 - 415	416 - 520	521 - 625	> 625
Education Buildings	< 47	47 - 89	90 - 130	131 - 174	175 - 220	221 - 265	> 265
Sports Facilities	< 53	53 - 102	103 - 145	146 - 194	195 - 245	246 - 297	> 297
Wholesale & Retail Trade Services Buildings	< 67	67 - 121	122-183	184 - 241	242 - 300	301 - 362	> 362

EP Requirement



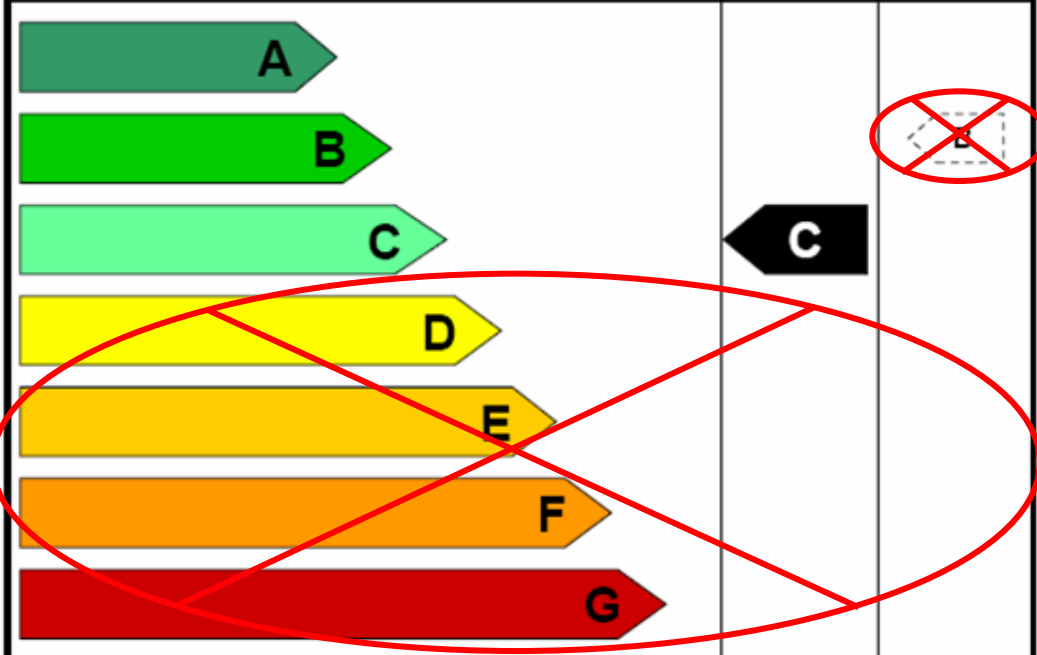
Compliance - Energy Management Act

The certification is obligatory since **1st January 2009**

- For **new** buildings;
- For **renovated** buildings (larger than 1,000 m²);
- Other buildings when **rent or sold** shall be provided with the Certificate only in case if they are **new or renovated**.
- For **public buildings** (larger than 1,000 m²) shall place the certificate in a prominent place clearly visible to the public before 1st January 2009 - only in case if they are **new or renovated**;

BUILDING ENERGY PERFORMANCE CERTIFICATE

Building Address Total floor area:	Calculated building classification	
	As built	After energy saving measures



Specific calculated energy use kWh/m ² a	XY	XY
---	----	----

Total energy delivered GJ	XY	XY
---------------------------	----	----

Energy used by:				
Heating	Cooling	Ventilation	DHW	Lighting
XY%	XY%	XY%	XY%	XY%

Certificate validity	DD.MM.YYYY
----------------------	------------

Certificate made by	Name Surname Licence Nr. XY
---------------------	--------------------------------

Energy Management Act 406/2006 Col.

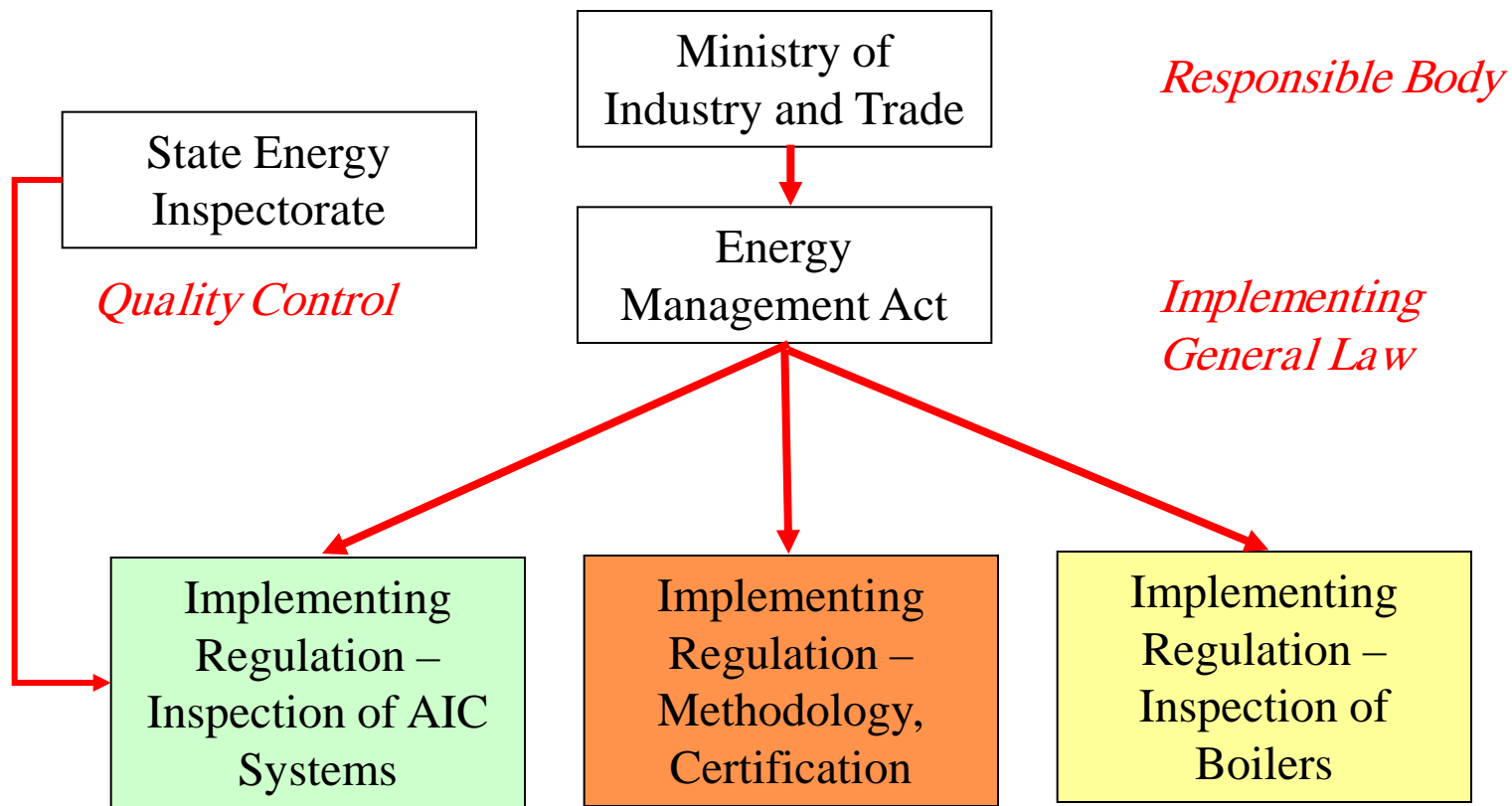
RES

Using of renewable energy sources is mentioned (for new building $> 1,000 \text{ m}^2$) in the general EPBD law. The law says that there must be the results of the assessment of technical, environmental and economic feasibility of alternative heating systems, which are:

- decentralized energy supply systems based on renewable energy;
- combined heat and power;
- district or block central heating and cooling if applicable;
- heat pumps.

It is not explicitly stated that using of RES is mandatory, even after positive result of the assessment.

EPBD Legislation & Control Scheme



Experts



authorisation

Energy Auditors

Authorised engineers*

re-examination in methodology for conduction of Certificates



STÁTNÍ FOND ŽIVOTNÍHO PROSTŘEDÍ
ČESKÉ REPUBLIKY

*State Energy
Inspectorate*



List of energy experts

Contact detail:

Published: 5.6.2009

Author: Energy department

List of energy experts ([see details](#))

Last name:

Region:

--All regions--

Field:

--All fields--

- Energy audit
- Air-conditioning inspection
- Boiler inspection
- Energy Performance Certificate

Ordering:

Certificate number
Name
Energy audit, inscription date
Number of Expert statements
Number of Client references
Boiler inspection, inscription date
Number of Expert statements
Number of Client references
Energy Performance Certificate, inscription date
Number of Expert statements
Number of Client references
Street
ZIP code

references

*Authorised engineers engaged in construction with specialization for Building Construction, Building Services, Technology of the Structures' environment (Czech Chamber of Authorized Engineers and Technicians Working in the Field of Building Constructions)

Check

BUILDING ENERGY PERFORMANCE CERTIFICATE			
Building		Calculated building classification	
Address		As built	
Total floor area		Year energy	
		SAWEG	
		EFFECTS	
A		B	
B		C	
C		D	
D		E	
E		F	
F		G	
G			
Specific calculated energy use kWh/m ² a		XY	XY
Total energy delivered GJ		XY	XY
Energy used by:			
Heating	Cooling	Ventilation	DHW
XY%	XY%	XY%	XY%
Certificate validity		DD MM YYYY	
Certificate made by		Name: Sutoma	
		Licence No. XY	

A part of project documentation

- new building
- reconstruction



Building authority

Project documentation

- Accompanying report ✓
- Technical report ✓
- Construction site plan ✓
- Certificate** ✓

in case of doubts application for check



the public complaint



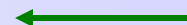
State Energy Inspectorate



check of the Certificate



statement (penalty for expert)



Building authority
Ministry of Industry and Trade

THANK YOU FOR YOUR ATTENTION!

jan.pejter@enviros.cz

Na Rovnosti 1
130 00 Praha 3

www.enviros.cz

Disclaimer

- ASIEPI receives funding from the Community's Intelligent Energy Europe programme under the contract EIE/07/169/SI2.466278.
- The sole responsibility for the content of this website lies with the authors. It does not necessarily reflect the opinion of the European Communities. Neither the European Commission nor the authors are responsible for any use that may be made of the information contained therein.

www.asiepi.eu