EPLabel

EPLabel
WP6

How will energy certificates look across Europe?

Situation on June 30, 2006

Document prepared by BBRI.

Contribution from all EPLabel partners

ACKNOWLEDGMENTS

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1 INTRODUCTION

EPLabel is a programme to deliver energy certificates based on measured energy consumption for display in Public buildings across Europe within a harmonising framework.

An important question to achieve this goal was "what should the certificate look like?"

As EPLabel intends to be as compliant as possible with CEN standards and, if possible, with national situations, it was necessary to keep a watching brief on what energy certificates across the EU look like as they became available.

This was however a difficult task. Indeed, at the beginning of the project, most MS had not made formal decisions. Consequently, the situation has changed several times.

Except if specified otherwise, the situation in this report is based on the information available to the EPLabel partners in June 2006. It must however be noticed that, in some countries, the decision makers were not willing to share their ideas before they were officially published.

2 CERTIFICATES ACROSS EU

This chapter described the national situation, according to the information available from EPLabel partners in June 2006 (for some countries, some updates have taken place afterwards).

2.1 CEN STANDARD PREN 1527

The draft standard prEN 15217 gives three examples of an energy certificate format in its informative annex C. The annex clearly specifies that "*these examples are provided for illustration only and do not show all the details needed for an energy certificate. In particular, ways to present recommendations for improvements as well as ways to present the supporting evidence of the energy certificate are not presented. Many other solutions are possible.*" It is very clear that the due to the variety of certificates existing or in development across the EU, it is not possible to come to an agreement on a more prescriptive annex.

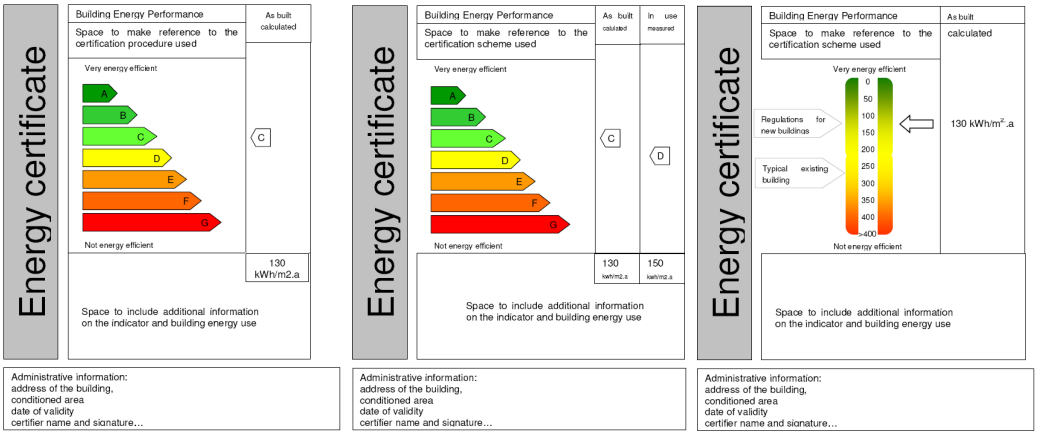


Figure 1: Example of certificates, as propose by prEN 15217 (Dec, 2006)

A very important point is that in its previous version (March, 2005), the second example with two scales, one being the operational rating, was not included. In other words, the operational rating was undermined. Introducing operational rating more visibly in the CEN standards is, to some extent, a side-achievement of EPLabel.

2.2 SITUATION IN BELGIUM

Country	Layout	Energy performance		New		Existing		
				R	NR	R	NR	PU
Flemish Region	Dashboard	E-level Primary energy [kWh/m²]		P	P	?	?	?
Walloon Region	?	?	?	?	?	?	?	?
Brussels Region	?	?	?	?	?	?	?	?

P = Proposal, no final decision. OK = Final layout. - = not applicable. ? = Nothing fixed.

2.2.1 Flemish Region

Belgium is a Federal state, composed of three Regions. The implementation of the EPBD is under the responsibility of the Regions. At the present time (June 2006), only the Flemish Region has a clear view of the certification of buildings.

Figure 2 presents the current proposal for the layout of the certificate for **new residential buildings**. The energy performance is expressed in two ways: the so-called E-level and the primary energy consumption.

- The *E-level* is a ratio, multiplied by 100, between the calculated energy consumption of the building, and the energy consumption allowed for that building. Currently, it must be lower than E100 for new residential and non-residential buildings.
- The *primary energy consumption* is expressed in kWh/m². However, the surface of the building has not to be calculated, but is conventionally fixed at its volume divided by 2.9.

The current proposal of certificate for **new non-residential buildings** is very similar, except that the primary energy consumption is calculated with another metric, i.e. the sum of the internal floor area of each space (defined within the calculation method in order to determine the ventilation requirements) inside the protected volume.

Figure 2: Example of certificate for new residential buildings in Flemish Region of Belgium

For **existing residential and non-residential buildings**, nothing has been decided yet, except that the performance will be calculated (asset rating). The method and tools have still to be determined.

For **public buildings**, a draft decree has been published. The performance will be based on real consumption (operational rating). The method and tools are currently in development. For the initial implementation, the A-G grade will not be used.

2.2.2 Walloon Region

The Flemish and Walloon Regions have recently launched the voluntary scheme "Energie Advies Procedure (EAP) – Procédure d'Avis Energétique (PAE)". This "Procedure of Energy Advice" is an asset rating procedure for existing dwellings (currently only for single-family houses). The Walloon Region intends to continue the development of this procedure, in order to make it the certification scheme. Currently, the EAP/PAE procedure assesses the envelope, the heating plant and the hot water production separately. Each of these aspects gets a grade A+ to E, but there is no global grade for the dwelling.

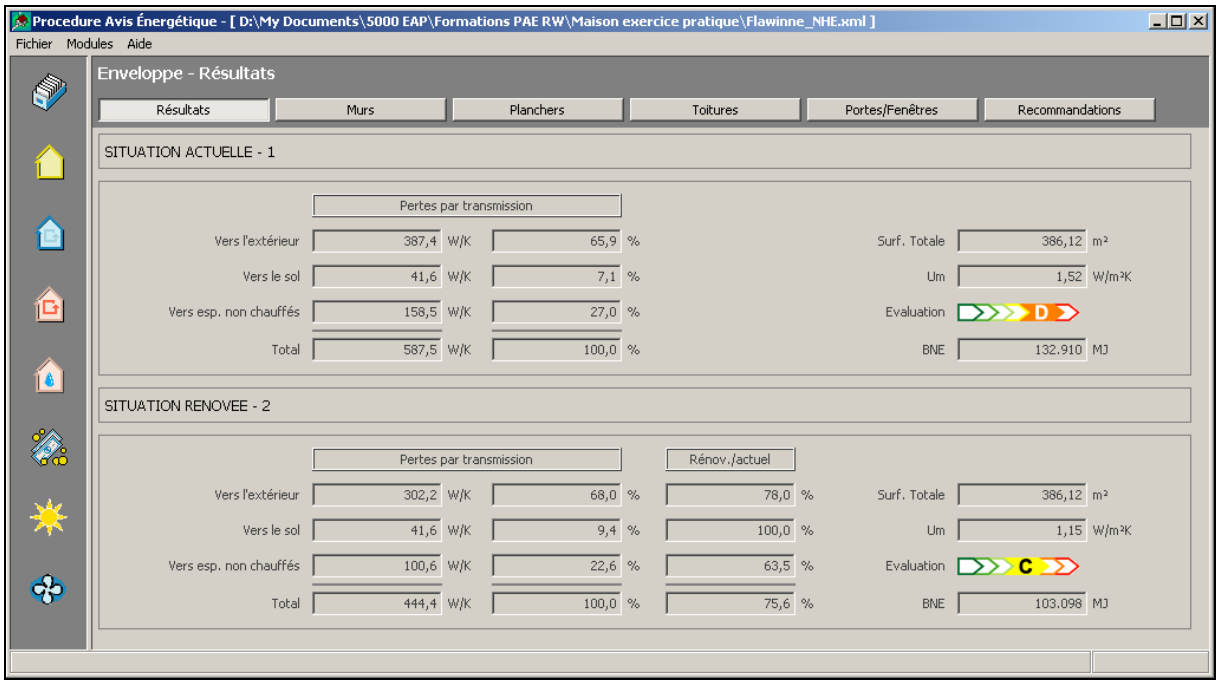


Figure 3: EAP/PAE results for the dwelling envelope.
(above: current situation – below: potential situation after retrofitting)

For existing non-residential buildings, nothing is decided yet.

For new residential and non-residential buildings, no formal decision has been taken about the certificate.

For public buildings, no formal decision has been taken about the certificate, but EPLabel could be an option.

2.2.3 Brussels-Capital Region

No formal decision has been taken about any certificate. For public buildings, EPLabel could be an option.

2.3 SITUATION IN DENMARK

Country	Layout	Energy performance	New		Existing		
			R	NR	R	NR	PU
Denmark	A1-G2	Overall end energy use	OK	OK	OK	OK	OK

P = Proposal, no final decision. OK = Final layout. - = not applicable. ? = Nothing fixed.

In DK, the new scheme includes three categories: 1) trade, service and public buildings (see example of certificate below), 2) single family and 3) multi storey houses. In all cases, the performance is based on **asset rating**. There are two categories of scales to determine the grade A1 to G2.

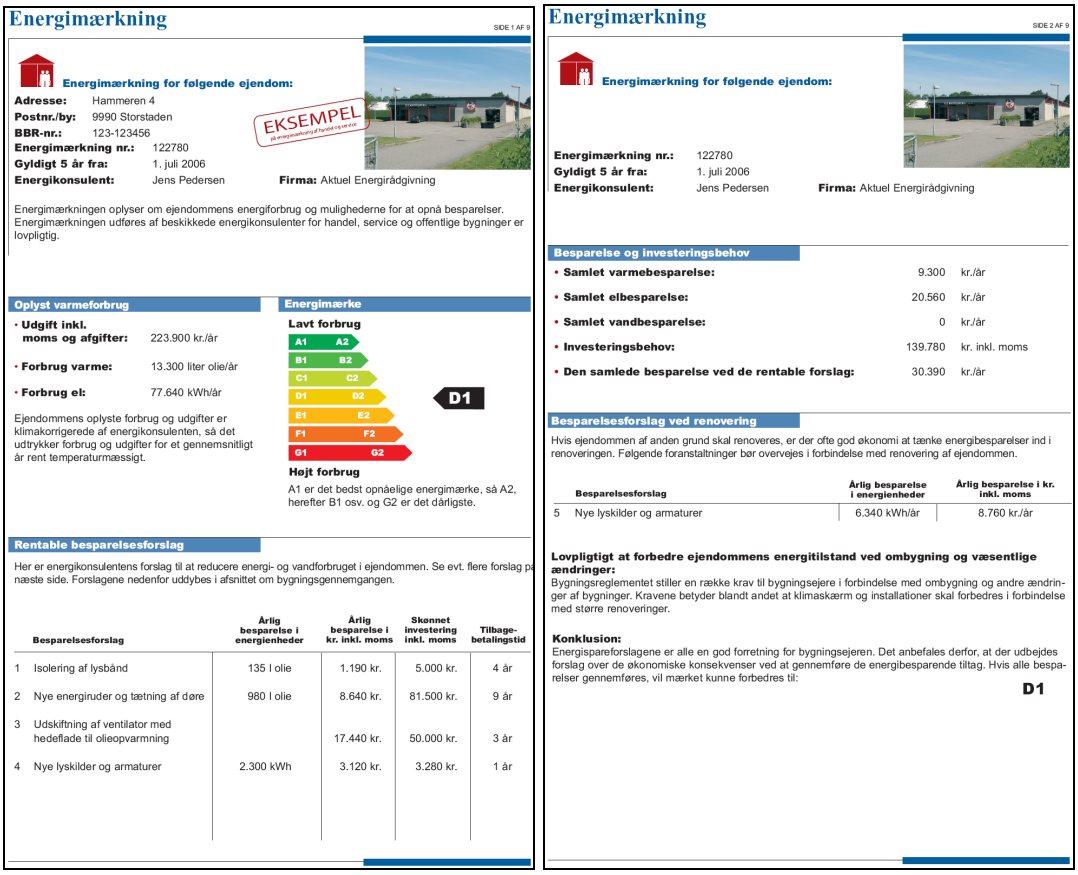


Figure 4: Example of energy certificate for existing trade, service and public buildings.

The certificate is 9 pages long. It includes in headlines: Standard data about building and energy consultant, actual energy data for the building, energy label (A1-G2), feasible energy measures including economic data, comments from the energy consultant, more detailed report on the building inspection referring to energy measures and finally more building data and varies assumptions and explanations.

Following the same building categories mentioned there are two different energy frames for new buildings in the building regulation:

- Trade, service and public buildings: 95 + 2200/A kWh/m²/year weighted energy.
- Single family houses and multi storey houses: Energy frame = 70 + 2200/A kWh/m²/year weighted energy.

where A is the heated floor area.

The class B1 refers directly to the energy frame. Thus all new buildings should at least receive a B1 certificate.

A building receiving a A1 or A2 is a so-called energy class 1 or 2 building.

Energy included: Heating, hot water, ventilation, cooling and lighting (only general lighting thus not in houses) and efficiency of systems under standard use. Electricity for circulation pumps and other supporting systems are included. Energy consumption for special areas (canteen in office building, servers etc.) is not included.

Skalatrin	Grænseværdi i kWh/m² år
A1	< 35 + 1100/A
A2	< 50 + 1600/A
B1	< 95 + 2200/A
B2	< 115 + 2700/A
C1	< 135 + 3200/A
C2	< 155 + 3700/A
D1	< 175 + 4200/A
D2	< 195 + 4700/A
E1	< 215 + 5200/A
E2	< 235 + 5700/A
F1	< 265 + 6500/A
F2	< 305 + 7500/A
G1	< 355 + 9000/A
G2	> 355 + 9000/A

Skalatrin	Grænseværdi i kWh/m² år
A1	< 35 + 1100/A
A2	< 50 + 1600/A
B1	< 70 + 2200/A
B2	< 90 + 2700/A
C1	< 110 + 3200/A
C2	< 130 + 3700/A
D1	< 150 + 4200/A
D2	< 170 + 4700/A
E1	< 190 + 5200/A
E2	< 210 + 5700/A
F1	< 240 + 6500/A
F2	< 280 + 7500/A
G1	< 330 + 9000/A
G2	> 330 + 9000/A

Figure 5: Scale for categories "trade, service and public buildings" (left) and "single family and multi storey houses" (right)

2.4 SITUATION IN FINLAND

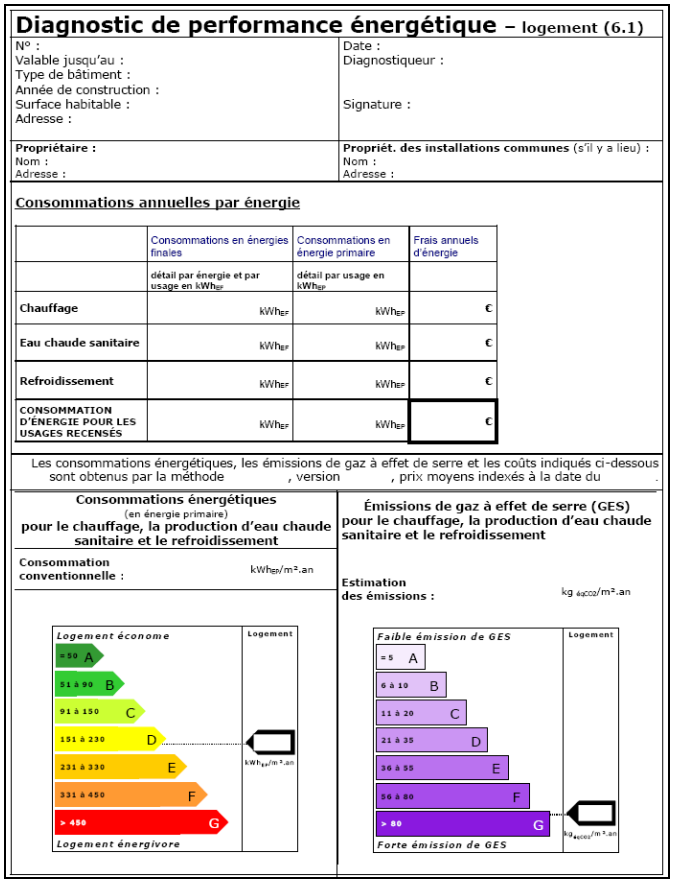
A draft of certificate was prepared. However, after public inquiry, it becomes necessary to make a new proposal. Consequently, nothing is decided yet.

Figure 6: Proposal of Certificate in Finland
(source: Concerted Action)

2.5 SITUATION IN FRANCE

Country	Layout	Energy performance	New		Existing		
			R	NR	R	NR	PU
France	A-G	Primary energy [kWh/m²] Emission of greenhouses gaz [k_{eqCO2}/m²]			OK		

The "Diagnostic de performance énergétique" is the scheme for existing dwellings.



Diagnostic de performance énergétique – logement (6.1)

N° :
Valable jusqu'au :
Type de bâtiment :
Année de construction :
Surface habitable :
Adresse :

Date :
Diagnostiqueur :

Signature :

Propriétaire :
Nom :
Adresse :

Propriét. des installations communes (s'il y a lieu) :
Nom :
Adresse :

Consommations annuelles par énergie

	Consommations en énergies finales détail par énergie et par usage en kWhEF	Consommations en énergie primaire détail par usage en kWhEP	Frais annuels d'énergie
Chauffage	kWhEF	kWhEP	€
Eau chaude sanitaire	kWhEF	kWhEP	€
Refroidissement	kWhEF	kWhEP	€
CONSOMMATION D'ÉNERGIE POUR LES USAGES RECENSÉS	kWhEF	kWhEP	€

Les consommations énergétiques, les émissions de gaz à effet de serre et les coûts indiqués ci-dessous sont obtenus par la méthode , version , prix moyens indexés à la date du .

Consommations énergétiques
(en énergie primaire)
pour le chauffage, la production d'eau chaude sanitaire et le refroidissement

Consommation conventionnelle : kWhEP/m².an

Logement économe
≤ 50 A
51 à 90 B
91 à 150 C
151 à 230 D
231 à 330 E
331 à 450 F
> 450 G
Logement énergivore
Logement

Émissions de gaz à effet de serre (GES)
pour le chauffage, la production d'eau chaude sanitaire et le refroidissement

Estimation des émissions : kg éqCO2/m².an

Faible émission de GES
≤ 5 A
6 à 10 B
11 à 20 C
21 à 35 D
36 à 55 E
56 à 80 F
> 80 G
Forte émission de GES
Logement

Figure 7: Example of energy certificate for existing dwellings in France

2.6 SITUATION IN GERMANY

Country	Layout	Energy performance	New		Existing		
			R	NR	R	NR	PU
Germany	Dashboard with typical/good practice values	Primary energy [kWh/m²] (Asset rating) End energy [kWh/m²] for heat and electricity (operational rating)	OK	OK	OK	OK	- (as NR)

P = Proposal, no final decision. OK = Final layout. - = not applicable. ? = Nothing fixed.

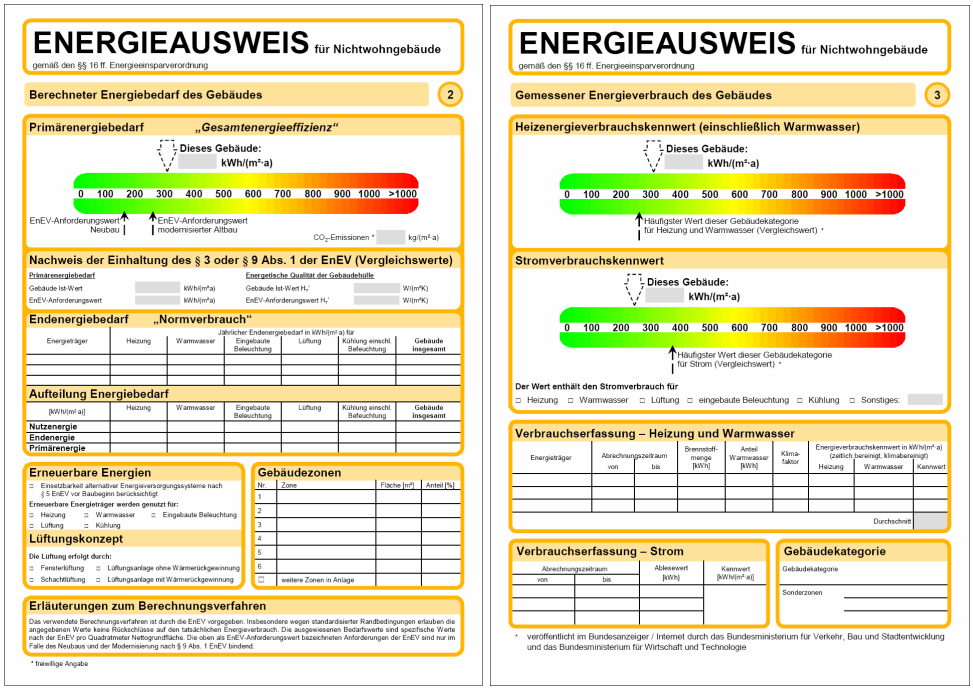


Figure 8: Example of certificate for existing non-residential buildings in Germany

Figure 8 presents the current proposal of layout of the certificate for **existing non-residential buildings.** The left side shows the layout for the asset rating, the right side for the operational rating. Only one of both has to be filled out. The energy performance for the asset rating expressed by the primary energy consumption, for the operational rating by end energy heat and electricity.

The certificate for **existing residential buildings** is very similar.

2.7 SITUATION IN GREECE

In Greece, nothing is decided yet. There is still no information available on the general lay-out and presentation of the certificate. Unknown is also whether the energy performance will finally be based on Asset Rating or on Operational Rating. It is expected however that the certificate will follow the general model with A-G scales and that the certification scheme will probably be the same for all categories of buildings.

2.8 SITUATION IN IRELAND

Country	Layout	Energy performance	New		Existing		
			R	NR	R	NR	PU
Ireland	A-G	Primary energy [kWh/m²] CO_2 emissions [kg/m²]	OK	?	?	?	?

From 1 January 2007, new dwellings that applied for planning permission on or after this date require a BER when they are offered for sale or rent. This requirement will be extended to all new non-residential buildings in July 2008 and to existing buildings offered for sale or rent in January 2009.

A Building Energy Rating (BER) certificate will be accompanied by an "Advisory Report" setting out recommendations for cost-effective improvements to the energy performance of the building. Sustainable Energy Ireland will publish BER certificates on a public BER Register.

Official website: http://www.epbd.ie/

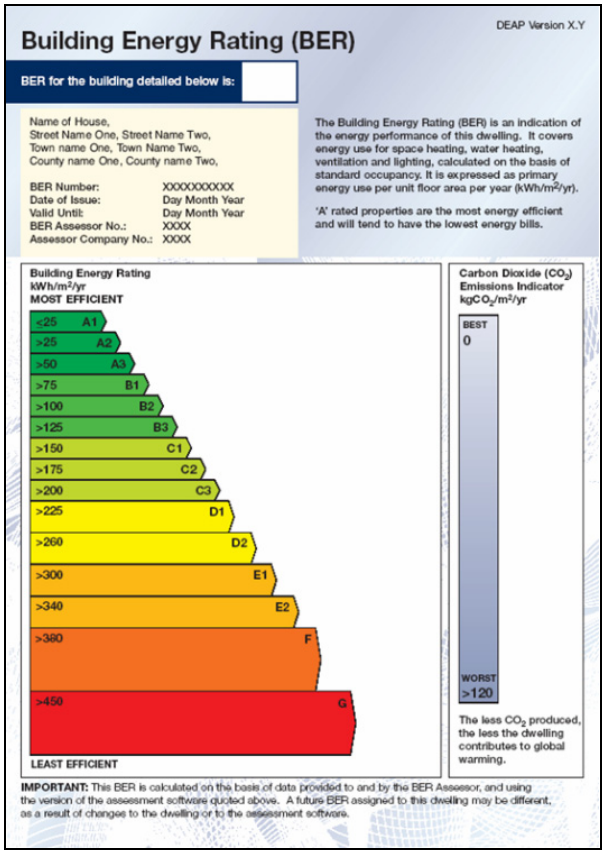


Figure 9: Definite version of the certificate for new houses in Ireland

NB The A to G scale has linear bandwidths of 75 kWh/m^2

2.9 SITUATION IN SWEDEN

This paragraph reflects the situation in Sweden on 28 February 2007.

Country	Layout	Indicators	New		Existing		
			R	NR	R	NR	PU
Sweden	Dashboard with typical/good practice values	End energy [kWh/m²] CO_2 emissions [kg/m²] only informative	P	P	P Multi family	P	P

P = Proposal, no final decision. OK = Final layout. - = not applicable. ? = Nothing fixed.

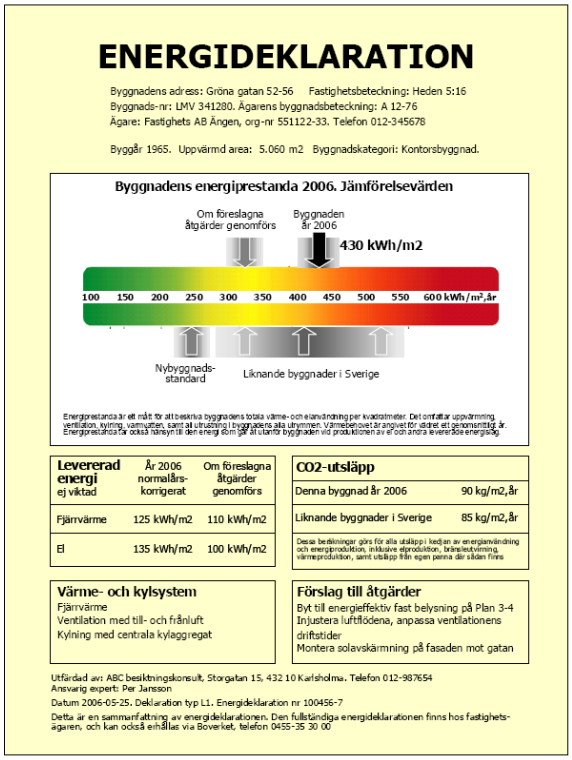


Figure 10: Example of a very early proposal for a certificate for new/existing apartments and non-residential buildings in Sweden

Figure 10 presents a very early proposal of the layout of the certificate for **all existing buildings, excepted one-family dwellings**. The energy performance is based on measurements (operational rating), but excluding the occupants' (tenants') energy use, and is expressed by the end energy consumption (weight unity), and the CO_2 emissions. The last information is only informative. The certificate will probably only show the median of the reference values, as well as the building consumption that can be reached by profitable energy conservation measures and the requirements for a new building. The certificate will be accompanied by a 10 to 15-pages report, mainly about energy conservation measures.

However, statistically based reference values are currently missing for almost all types of non-residential buildings, the only category audited so far is *Office and Administration*. Therefore, auditing projects will take one or two categories per year and should be finished in 2011. In 2006, schools (exclusive universities) are audited, and in 2007 care buildings, mainly health care.

In the final Instructions from Boverket (the National Board of Housing, Building and Planning) from February 2007 "preliminary" reference values are published for all types of non-residential buildings. The heating energy reference values are statistically based, whereas the electrical energy use value is based on more or less well-qualified guesses. In the published reference values the energy use for cooling (electricity or district cooling) is excluded. The cooling energy use of the actual building is measured, or assumed, and then added to the published benchmark.

In the reference value the tenants' or the occupants' energy use (typically electricity) is excluded since Boverket wants the references value to reflect only "the energy use of the building", not of the activities inside the building.

The definitive layout of the certificate should have been fixed before the 1st of October 2006, as certification becomes compulsory on that day. In February 2007 it is still not fixed.

Public non-residential buildings should be certified between 1 Oct. 2006 and 31 Dec. 2008. In practice the certification will not start until certified experts are getting available (probably not before the summer of 2007).

2.10 SITUATION IN THE NETHERLANDS

In The Netherlands, the certification will be based on asset rating only, what ever the building type.

Country	Layout	Indicators	New		Existing		
			R	NR	R	NR	PU
The Nether-lands	Classes A-G	Index without unit					

The system will most likely follow the existing EPA assessment scheme.

The definition of the classes is not yet defined.

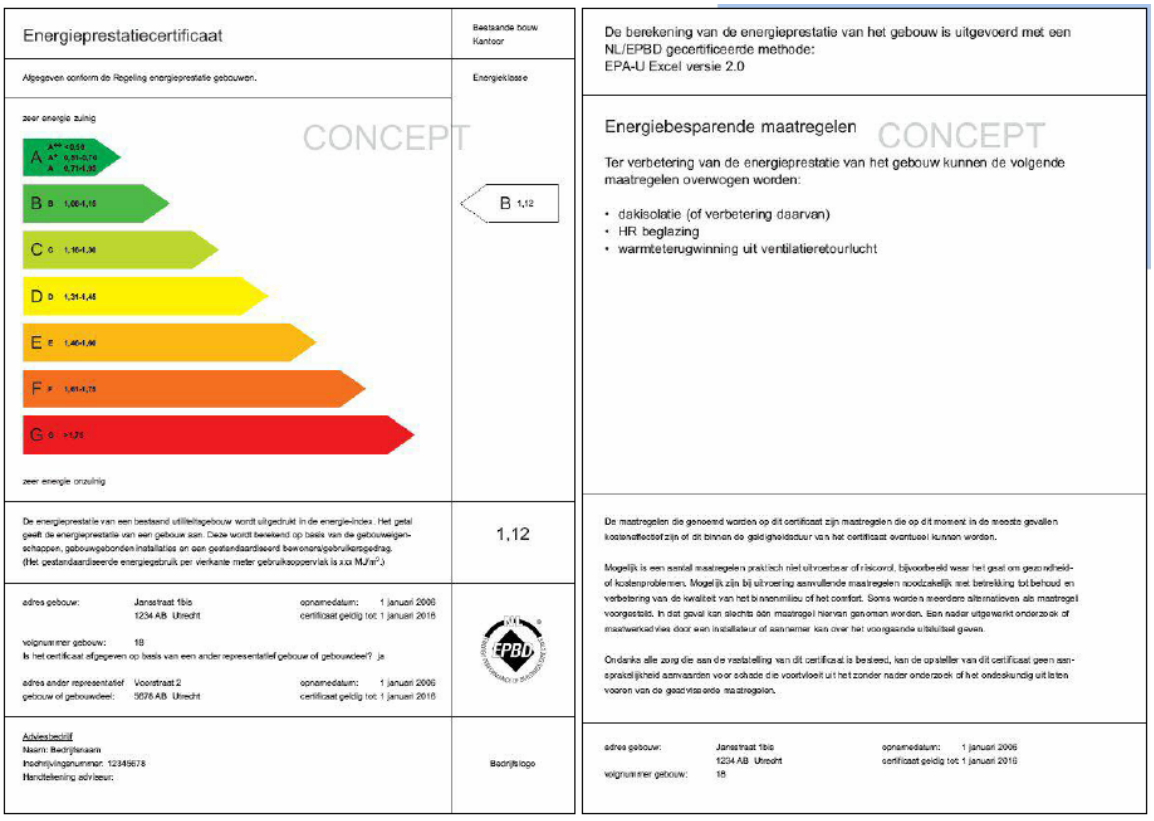


Figure 11: Draft certificate of existing building in the Netherlands

2.11 SITUATION IN UNITED KINGDOM

In the UK, three Regions (England & Wales, Scotland and Northern Ireland) are responsible for implementing the Directive. Below, the current plans for England & Wales are shown.

Country	Layout	Indicators	New		Existing		
			R	NR	R	NR	PU
England&Wales Residential	A to G based on a 1-100 scale	CO_2 emissions [kg/m²] Cost (£/m²) kWh/m²	OK	?	OK	?	?
Scotland	A to G based on a 1-100 scale	CO_2 emissions [kg/m²] kWh/m²					

P = Proposal, no final decision. OK = Final layout. - = not applicable. ? = Nothing fixed.

2.11.1 England and Wales

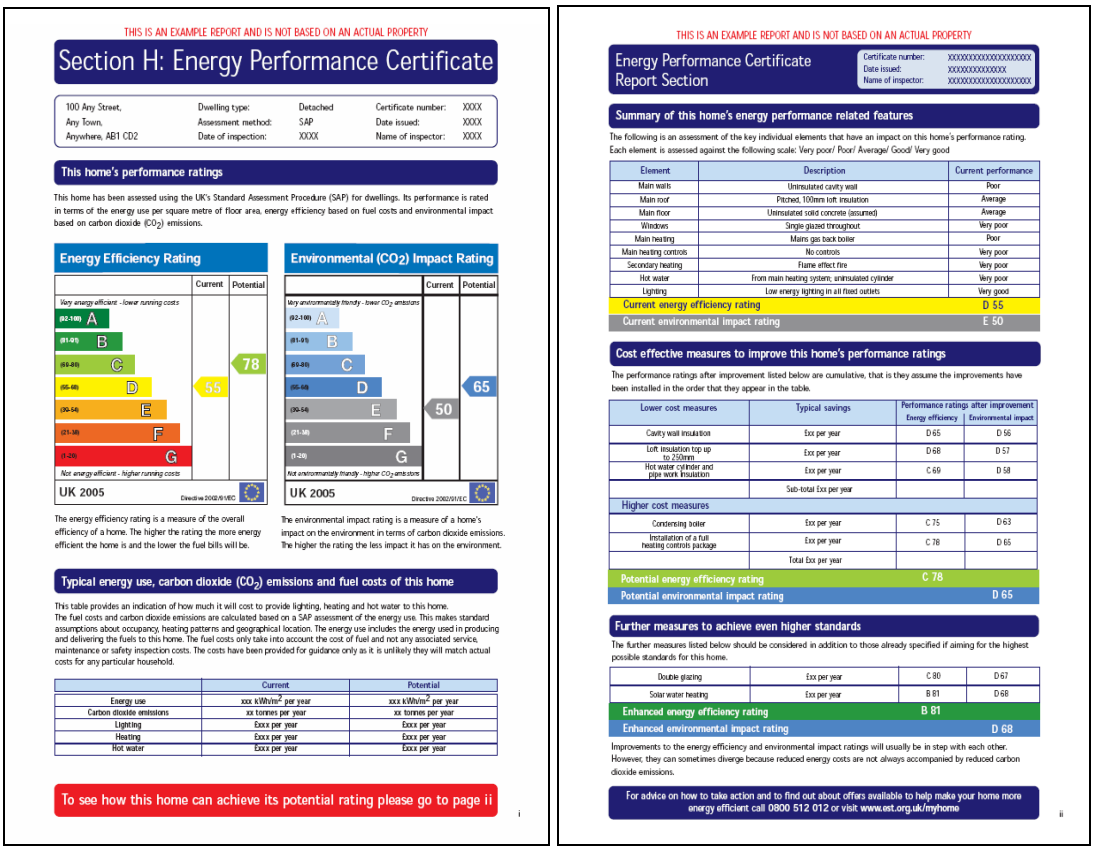


Figure 12: Example of certificate for residential buildings in England and Wales

Figure 12 presents the proposed final layout of the certificate for **residential buildings**. The energy performance is based on calculations (asset rating) and is expressed by an "energy efficiency" indicator which is actually based on energy **cost** and an "environmental indicator" based on CO_2 emissions. The two indicators get an A to G class, based on a 1-100 scale, where 1 is worst and 100 is best. The certificate will be accompanied by an 8-page report.

For non-residential buildings and public buildings, regulations were adopted in March 2007 and come into force incrementally from 19th April 2007 to 1st October 2008. Under the new regulation, all non-domestic buildings with a floor area greater than 500m2 (with the exception of historic buildings) are required to provide an Energy Performance Certificate (EPC) showing the asset rating to a prospective purchaser or tenant from 6th April 2008. The certificates are required to be no less than 10 years old and must be accompanied by recommendations for the improvement of the energy performance of the building. Also from 6th April 2008, EPCs will be required on construction for all non-domestic buildings. From 1st October 2008, EPCs will be required on the sale or rent of all buildings.

From 6th April 2008, non-domestic buildings with a floor area greater than 1000m2 and occupied by public authorities or by institutions providing public services will be required to show in a prominent position in the building clearly visible to the public a Display Energy Certificate (DEC) based on the operational rating (actual annual energy consumption). For those buildings for which an asset rating is available, this should also be shown on the DEC.

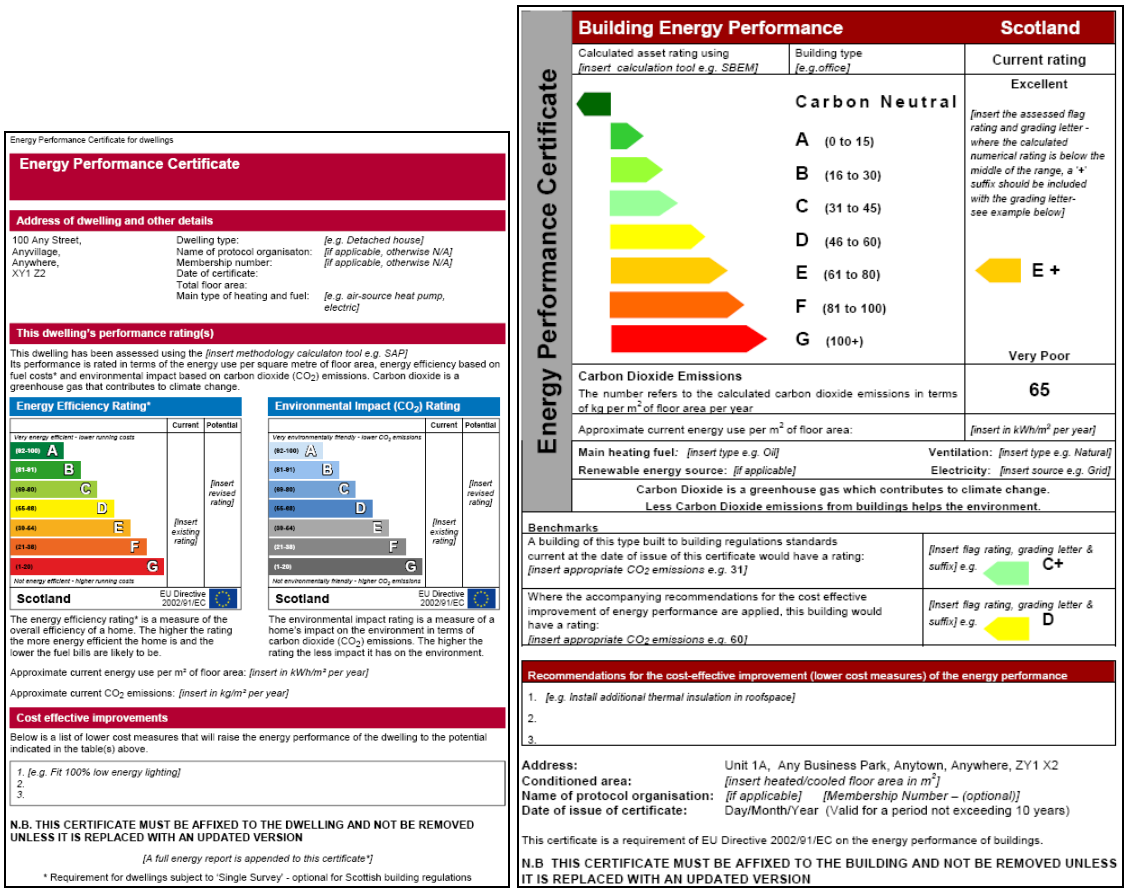
Further, the government has committed to hold a public consultation during 2007 on extending the requirement for the display of DECs to private buildings visited by the public e.g. retail outlets, hotels, leisure facilities, etc.

2.11.2 Scotland

Figure 13 shows the Scottish certificate for residential and non-residential buildings. The methodology used is asset rating.

Typical for Scotland:

- non-residential: the scale includes a new grade "carbon neutral",
- non-residential: a distinction is made inside each grade: e.g. E- and E+,
- non-residential: the rating of the building if the recommendations were applied,
- residential: the certificate has to be affixed to the building (which is not required by EPBD for residential buildings)



Energy Performance Certificate for dwellings

Energy Performance Certificate

Address of dwelling and other details

100 Any Street,
Anyvillage,
Anywhere,
XY1 Z2

Dwelling type: *[e.g. Detached house]*
Name of protocol organisaton: *[If applicable, otherwise N/A]*
Membership number: *[If applicable, otherwise N/A]*
Date of certificate:
Total floor area:
Main type of heating and fuel: *[e.g. air-source heat pump, electric]*

This dwelling's performance rating(s)

This dwelling has been assessed using the *[insert methodology calculaton tool e.g. SAP]*
Its performance is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs* and environmental impact based on carbon dioxide (CO_2) emissions. Carbon dioxide is a greenhouse gas that contributes to climate change.

Energy Efficiency Rating*

Current | Potential

Very energy efficient - lower running costs
(92-100) A
(81-91) B
(69-80) C
(55-68) D
(39-54) E
(21-38) F
(1-20) G
Not energy efficient - higher running costs

[Insert existing rating] *[Insert revised rating]*

Scotland EU Directive 2002/91/EC

The energy efficiency rating* is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO_2) Rating

Current | Potential

Very environmentally friendly - lower CO_2 emissions
(92-100) A
(81-91) B
(69-80) C
(55-68) D
(39-54) E
(21-38) F
(1-20) G
Not environmentally friendly - higher CO_2 emissions

[Insert existing rating] *[Insert revised rating]*

Scotland EU Directive 2002/91/EC

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions. The higher the rating the less impact it has on the environment.

Approximate current energy use per m² of floor area: *[insert in kWh/m² per year]*

Approximate current CO_2 emissions: *[insert in kg/m² per year]*

Cost effective improvements

Below is a list of lower cost measures that will raise the energy performance of the dwelling to the potential indicated in the table(s) above.

1. [e.g. Fit 100% low energy lighting]
2.
3.

N.B. THIS CERTIFICATE MUST BE AFFIXED TO THE DWELLING AND NOT BE REMOVED UNLESS IT IS REPLACED WITH AN UPDATED VERSION

[A full energy report is appended to this certificate]*

* Requirement for dwellings subject to 'Single Survey' - optional for Scottish building regulations

Energy Performance Certificate

Building Energy Performance **Scotland**

Calculated asset rating using *[insert calculation tool e.g. SBEM]*
Building type *[e.g.office]*
Current rating

Carbon Neutral
A (0 to 15)
B (16 to 30)
C (31 to 45)
D (46 to 60)
E (61 to 80)
F (81 to 100)
G (100+)

Excellent
[insert the assessed flag rating and grading letter - where the calculated numerical rating is below the middle of the range, a '+' suffix should be included with the grading letter- see example below]
E +
Very Poor

Carbon Dioxide Emissions
The number refers to the calculated carbon dioxide emissions in terms of kg per m² of floor area per year
65

Approximate current energy use per m² of floor area: *[insert in kWh/m² per year]*

Main heating fuel: *[insert type e.g. Oil]* **Ventilation:** *[insert type e.g. Natural]*
Renewable energy source: *[if applicable]* **Electricity:** *[insert source e.g. Grid]*

Carbon Dioxide is a greenhouse gas which contributes to climate change. Less Carbon Dioxide emissions from buildings helps the environment.

Benchmarks

A building of this type built to building regulations standards current at the date of issue of this certificate would have a rating: *[insert appropriate CO_2 emissions e.g. 31]* *[Insert flag rating, grading letter & suffix] e.g.* C+

Where the accompanying recommendations for the cost effective improvement of energy performance are applied, this building would have a rating: *[insert appropriate CO_2 emissions e.g. 60]* *[Insert flag rating, grading letter & suffix] e.g.* D

Recommendations for the cost-effective improvement (lower cost measures) of the energy performance

1. *[e.g. Install additional thermal insulation in roofspace]*
2.
3.

Address: Unit 1A, Any Business Park, Anytown, Anywhere, ZY1 X2
Conditioned area: *[insert heated/cooled floor area in m²]*
Name of protocol organisation: *[if applicable]* *[Membership Number – (optional)]*
Date of issue of certificate: Day/Month/Year (Valid for a period not exceeding 10 years)

This certificate is a requirement of EU Directive 2002/91/EC on the energy performance of buildings.

N.B THIS CERTIFICATE MUST BE AFFIXED TO THE BUILDING AND NOT BE REMOVED UNLESS IT IS REPLACED WITH AN UPDATED VERSION

Figure 13: Example of certificate for residential (left) and non-residential buildings (right) in Scotland

3 THE EPLABEL APPROACH

3.1 PERFORMANCE INDICATOR

As EPLabel is a programme to deliver energy certificates based on measured energy consumption for display in Public buildings across Europe ***within a harmonising framework***, the certificate layout is the same for each MS.

However, as EPLabel aims to be ***as compliant as possible with the national schemes***, the certificate can be to some extent customised; the performance indicator can be selected according to the national situation. There are four options, as shown in Figure 14.

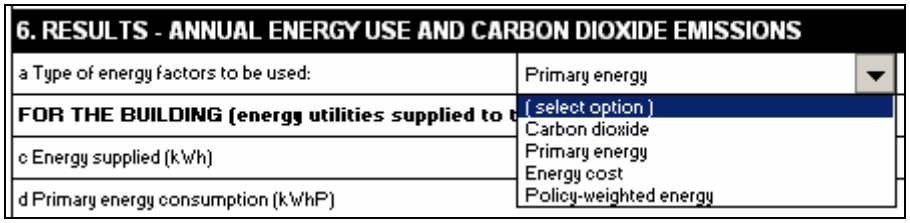


Figure 14: Selection of the performance indicator in EPLabel XLS tool.

3.2 GENERAL LAYOUT

The overview of the national situations has shown that that every MS has come up with its own design, even if there are two main tendencies: the A-G grade and the dashboard. EPLabel has chosen to use both, but to display an A-G grade on the main Certificate; the dashboard is visible in the annex certificate (EPLabel XLS tool).

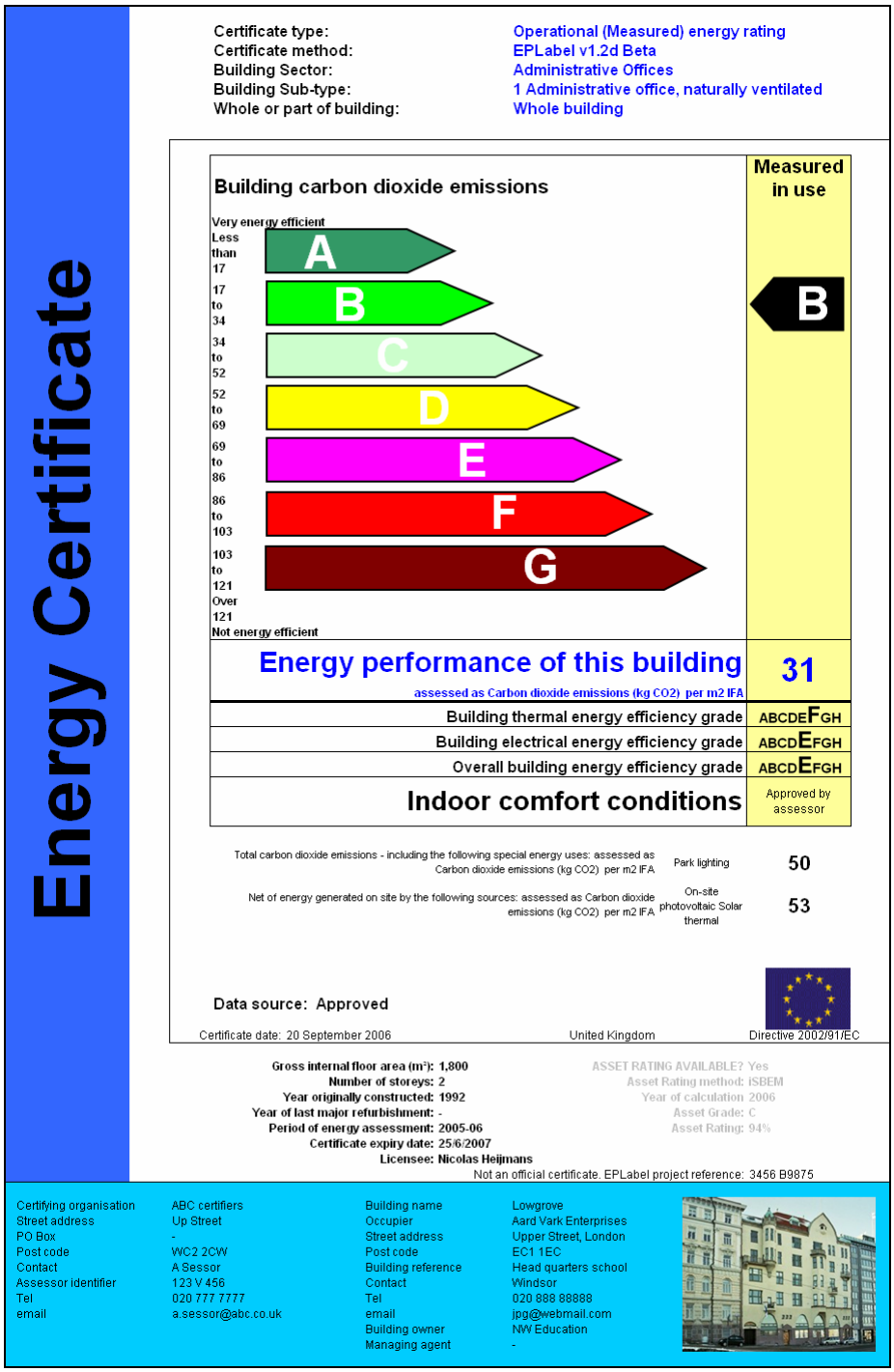


Figure 15: EPLabel certificate from XLS tool, with A-G grade

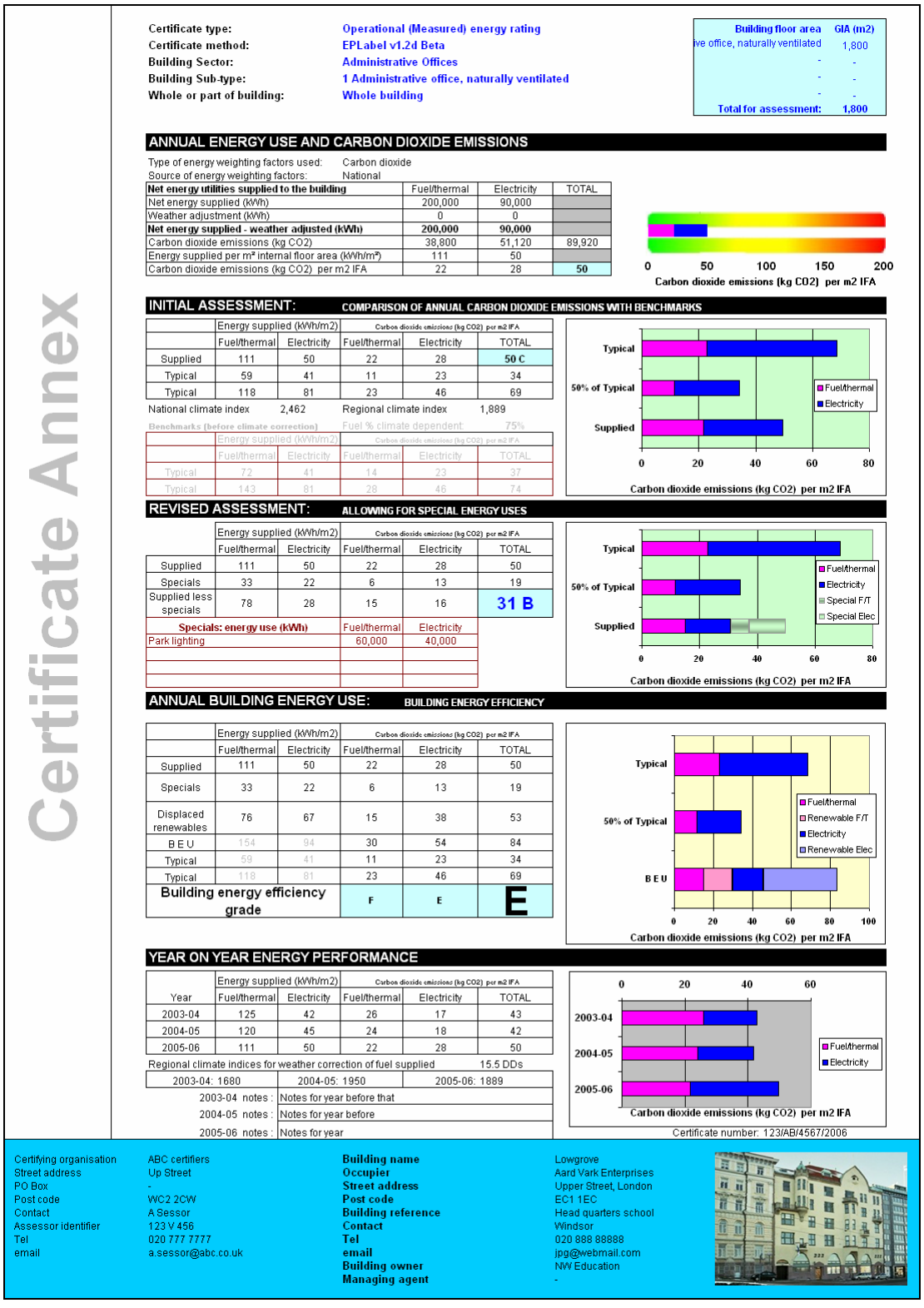


Figure 16: EPLabel certificate annex from XLS tool, with dashboard

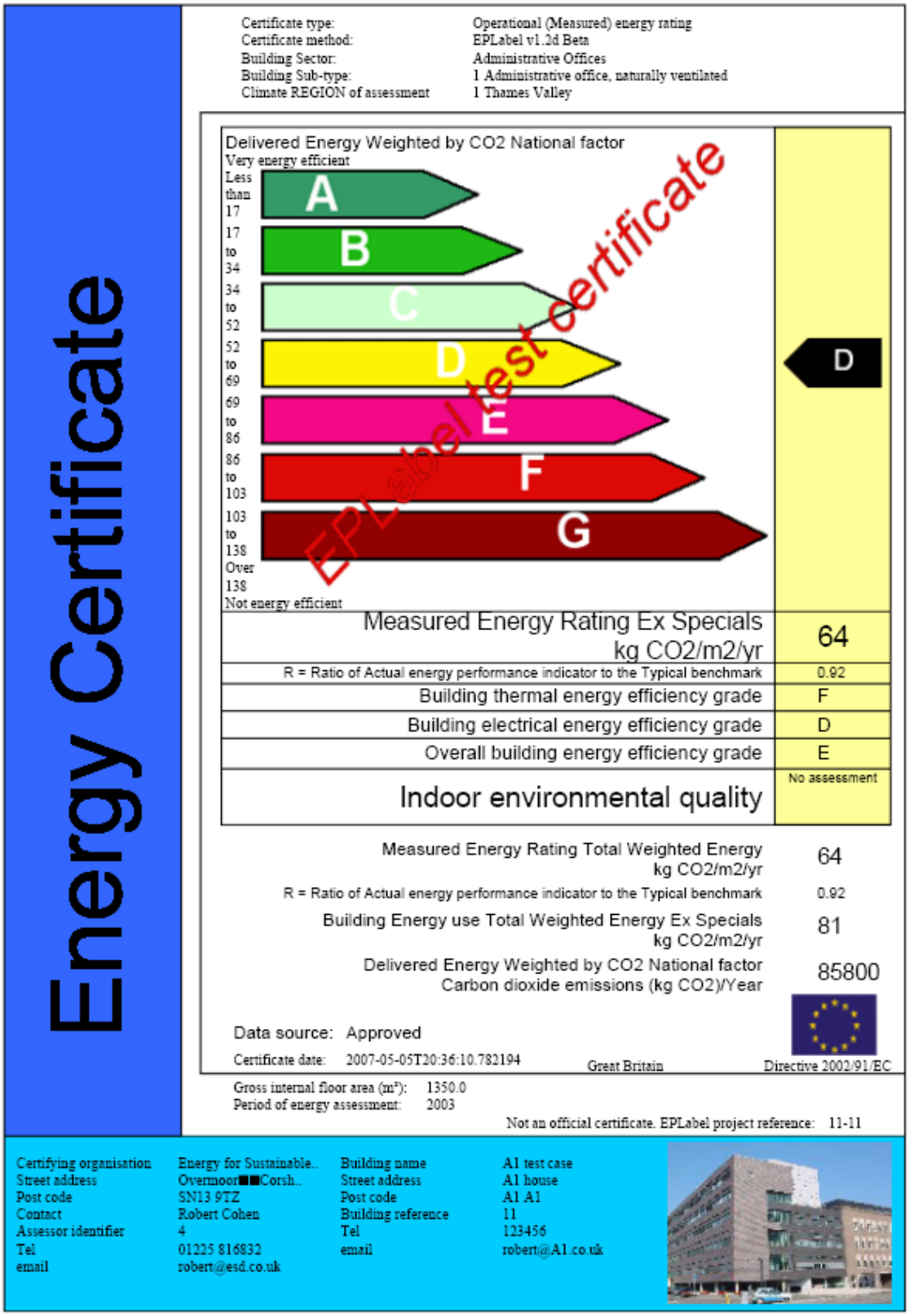


Figure 17: EPLabel certificate from On-line tool *(not definitive!)*

3.3 CONTENT OF EPLABEL CERTIFICATE

As at the time this report was written, the final layout of the EPLabel certificate produced by the On-line tool was not finalised, the description below is based on the certificate produced by the XLS tool, except if specified otherwise

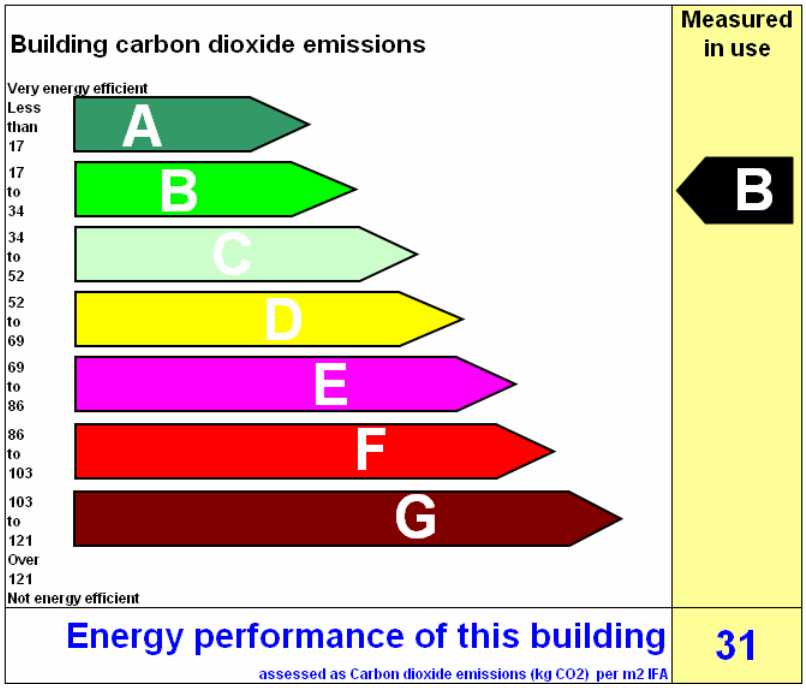
The certificate gives the following information:

- the certification method,
- the sector and subsector, which determine the appropriate benchmark,
- the climate region, which influence the typical value of the benchmark,

Certificate type:	Operational (Measured) energy rating
Certificate method:	EPLabel v1.2d Beta
Building Sector:	Administrative Offices
Building Sub-type:	1 Administrative office, naturally ventilated
Climate REGION of assessment	00 Bruxelles (Uccle) (= Référence pour la Belgique)

(EPLabel On-line tool only)

- the performance expressed as a grade, with the values of the limit between classes and the actual building energy performance indicator; the units depend on the performance indicator selected,



- R = Ratio of Actual energy performance indicator to the Typical benchmark

R = Ratio of Actual energy performance indicator to the Typical benchmark	0.64

(EPLabel On-line tool only)

- the thermal, electrical and overall Building Energy Use grade,

Building thermal energy efficiency grade	ABCDE**F**GH
Building electrical energy efficiency grade	ABCD**E**FGH
Overall building energy efficiency grade	ABCD**E**FGH

- the IEQ assessment,

Indoor comfort conditions	Approved by assessor

- the performance of the building without exclusion for specials, if any,

Total carbon dioxide emissions - including the following special energy uses: assessed as Carbon dioxide emissions (kg CO2) per m2 IFA	Park lighting	50

- the net energy generated by on-site renewable, if any,
- a message if green tariff is applicable,
- The total annual weighted delivered energy ie not normalised by the building area

Net of energy generated on site by the following sources: assessed as Carbon dioxide emissions (kg CO2) per m2 IFA	On-site photovoltaic Solar thermal	53

Energy supply contracts to this building currently include green energy sources which may be considered to provide additional reductions in CO2 emissions not evaluated here.

Delivered Energy Weighted by CO2 National factor Carbon dioxide emissions (kg CO2)/Year	95600

(EPLabel On-line tool only)

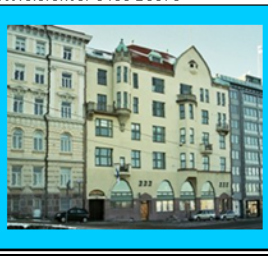
- information about the building and the assessor, and, if available, an asset rating evaluation.

Gross internal floor area (m²):	**1,800**
Number of storeys:	**2**
Year originally constructed:	**1992**
Year of last major refurbishment:	**-**
Period of energy assessment:	**2005-06**
Certificate expiry date:	**25/6/2007**
Licensee:	**Nicolas Heijmans**

ASSET RATING AVAILABLE? Yes
Asset Rating method: iSBEM
Year of calculation 2006
Asset Grade: C
Asset Rating: 94%

Not an official certificate. EPLabel project reference: 3456 B9875

Certifying organisation	ABC certifiers	Building name	Lowgrove
Street address	Up Street	Occupier	Aard Vark Enterprises
PO Box	-	Street address	Upper Street, London
Post code	WC2 2CW	Post code	EC1 1EC
Contact	A Sessor	Building reference	Head quarters school
Assessor identifier	123 V 456	Contact	Windsor
Tel	020 777 7777	Tel	020 888 88888
email	a.sessor@abc.co.uk	email	jpg@webmail.com
		Building owner	NW Education
		Managing agent	-



3.4 EVOLUTION OF THE EPLABEL CERTIFICATE

The first version of the proposed EPLabel certificate is given in Figure 18. This first proposal, dated from March 2006, is very close to the CEN proposal (see Figure 1).

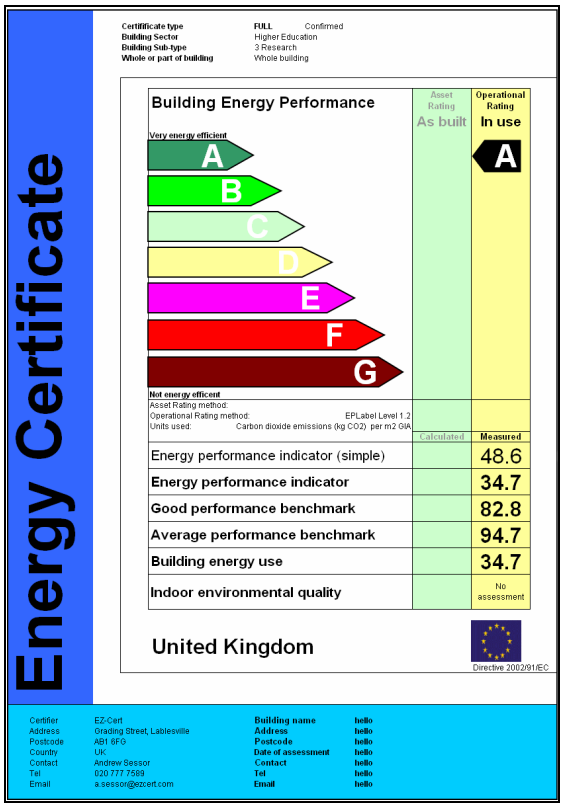


Figure 18: EPLabel certificate, first proposal

It can be noticed that:

- The certificate includes both an Operational Rating and an Asset Rating performance. However, this was considered confusing for the public, which is the main target audience for the certificate, especially if quantitative energy performance indicators were quoted, as, an Asset Rating is calculated, under standard conditions, for a subset of energy uses, while an Operation Rating is measured, over an actual year, and counts all energy uses.
  → *Therefore, it was decided to show only one scale, the Operational Rating, and to give information about the Asset Rating, if available, in the blue information box.*

- The limits between the grades were not shown. This is a consequence of having both an Operational Rating and an Asset Rating, as they are not based on the same scale.
  → *As it was decided to have only the Operational Rating scale, the limits between the grades have been added.*

- The average performance shown on this certificate was 94.7 $kgCO_2/m^2$. The good performance was 82.8 $kgCO_2/m^2$ or 87% of the average value. The building performance was 34.7 $kgCO_2/m^2$ or 37% of the average value. At that time, the scale A-G was not

linear.
→ *For the reasons explained in § 3.5, the scale has been made linear.*

- The meanings of the different energy performance indicators were not that clear.
  → *It was decided to give only the headline information on the Certificate and to provide an annex with more details and explanations.*

3.5 LIMITS BETWEEN CLASSES

According to the draft standard prEN 15217, the limit of the classes A to G should be determined on the basis of

- the Energy performance regulation reference R_r, which corresponds to the value typical of the requirements of energy performance regulations for new buildings,
- the Building stock reference R_s, which corresponds to the energy performance reached by approximately 50 % of the national or regional building stock (median value).

The (informative) annexe B of prEN 15317 sets R_r as the limit between classes B and C and R_s as the limit between classes D and E.

However, the CEN Standard recognises that it might be difficult to follow this approach, especially for what concerns R_r. An Operational Rating scheme is based on actual energy consumption. Obviously, the typical energy consumption of buildings constructed to new Regulations may not be known for many years after the new regulations come into force.

Furthermore, the rules proposed by CEN have as a consequence that the scale would not be linear; this can be considered as a disadvantage for the readability of the certificate.

Discussions by the UK team with experts concluded that a linear scale has powerful market transformation potential. The philosophy of this approach is that it is simple and unarguable. Otherwise there will be unlimited opportunities for sectors and subsector interests and technical specialists to argue about exactly where to put the B-C boundary. This will not be at all helpful. The scale is also appropriately challenging (given the urgency of the policy goals), with a Grade A building demonstrating at least a fourfold improvement on the median.

For these reasons, the EPLabel has proposed to set the limit between classes D and E as R_s, as proposed by prEN 15317, but to set the limit between B and C as $0.5*R_s$. This makes the scale linear. In EPLabel, this approach was followed by UK (and Members States using UK benchmarks), BE, FIN, GR but not by DE (and Member States using German benchmarks), DEN, FR, IR, DK, SW (except when using DK benchmarks).

4 SUMMARY AND CONCLUSION

The following MS represented by a full partner in EPLabel will use Operational Ratings (at least for public building): Belgium (Flemish Region), Finland, France, Germany, Ireland, Sweden and UK (England and Wales). Denmark and Netherlands will not. Greece has yet to announce its plans.

The schemes will be launched according to the following time table:

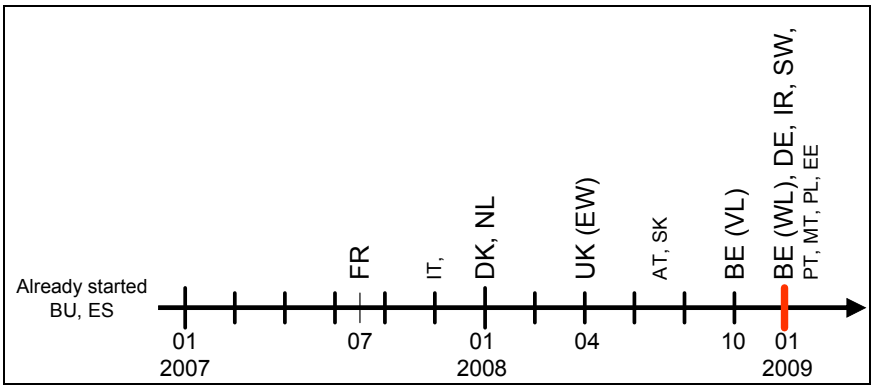


Figure 19: All public buildings should have a certificate by this date
(information collected during the project from various – may have changed)

Most MS represented by a full partner in EPLabel will use an A-G grade (except BE (VL), DE, SW). However, there will be some differences, some countries having intermediate classes. In general, the scale (if any) will not be linear.

The thermal and electrical efficiency will be displayed in DK and SW (end energy), possibly also in England & Wales. These countries will highlight the use of renewables.

Only SW intends to give information about IEQ.

In can be concluded that, to some extent, the main page of the EPLabel certificate gives more information than many national certificates. But in some countries, the certificate has a long annex attached to it (DK: 9 pages, SW: 10-15 pages).

However, all this information is still subject to major changes, as many MS have not yet finalised the layout of their certificate(s).