



A.I.E.

Association
Européenne de
l'Installation
Electrique

European
Association of
Electrical
Contractors

COMMENTS OF **AIE** and **CEETB** on the recast of Directive 2002/91/EC on the Energy Performance of Buildings

G.C.I.

Génie
Climatique
International

International
Union of the
Associations of
Heating
Ventilating and
Air Conditioning
Contractors

U.I.C.P.

Union
Internationale
de la
Couverture
Plomberie

International
Union of
Roofing and
Plumbing

Article 1 Objective	
Current version	CEETB proposal
<p>The objective of this Directive is to promote the improvement of the energy performance of buildings within the Community, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness. This Directive lays down requirements as regards:</p> <p>(a) the general framework for a methodology of calculation of the integrated energy performance of buildings;</p> <p>(b) the application of minimum requirements on the energy performance of new buildings;</p> <p>(c) the application of minimum requirements on the energy performance of large existing buildings that are subject to major renovation;</p> <p>(d) energy certification of buildings; and</p> <p>(e) regular inspection of boilers and of air-conditioning systems in buildings and in addition an assessment of the heating installation in which the boilers are more than 15 years old.</p>	<p><i>Any changes required?</i></p> <p><i>F) Regular inspection of electrical systems and in addition of the electrical installation older than 10 years old and after every 10 years for residential buildings.</i></p>

Reason:

The aim of this legislation is to give information on the energy performance of a building. This should obviously include the electrical consumption of the building. If the electrical installation is safe it is also cost-effective. It would be effectiveness to have small buildings certified both from both a safety and an energy efficiency perspective and therefore have a certificate every 10 years (art.7).

Article 2 Definitions	
Current version	CEETB proposal
<p>For the purpose of this Directive, the following definitions shall apply:</p> <p>1. 'building': a roofed construction having walls, for which energy is used to condition the indoor climate; a building may refer to the building as a whole or parts thereof that have been designed or altered to be used separately;</p> <p>2. 'energy performance of a building': the amount of energy actually consumed or estimated to meet the different needs associated with a standardised use of the building, which may include, <i>inter alia</i>, heating, hot water heating, cooling, ventilation and lighting. This amount shall be reflected in one or more numeric indicators which have been calculated, taking into account insulation, technical and installation characteristics, design and positioning in relation to climatic aspects, solar exposure and influence of neighbouring structures, own-energy generation and other factors, including indoor climate, that influence the energy demand;</p> <p>3. 'energy performance certificate of a building': a certificate recognised by the Member State or a legal person designated by it, which includes the energy performance of a building calculated according to a methodology based on the general framework set out in the Annex;</p> <p>4. 'CHP' (combined heat and power): the simultaneous conversion of primary fuels into mechanical or electrical and thermal energy, meeting certain quality criteria of energy efficiency;</p> <p>5. 'air-conditioning system': a combination of all components required to provide a form of air treatment in which temperature is controlled or can be lowered, possibly in combination with the control of ventilation, humidity and air cleanliness;</p> <p>6. 'boiler': the combined boiler body and burner-unit designed to transmit to water the heat released from combustion;</p> <p>7. 'effective rated output (expressed in kW)': the maximum calorific output specified and guaranteed by the manufacturer as being deliverable during continuous operation while complying with the useful efficiency indicated by the manufacturer;</p> <p>8. 'heat pump': a device or installation that extracts heat at low temperature from air, water or earth and supplies the heat to the building.</p>	<p><i>Any changes required?</i></p> <p>2. 'energy performance of a building': the amount of energy actually consumed or estimated to meet the different needs associated with a standardised use of the building, which may include, <i>inter alia</i>, <i>electrical systems</i>, heating, hot water heating, cooling, ventilation and lighting. This amount shall be reflected in one or more numeric indicators which have been calculated, taking into account insulation, technical and installation characteristics, design and positioning in relation to climatic aspects, solar exposure and influence of neighbouring structures, own-energy generation and other factors, including indoor climate, that influence the energy demand;</p> <p><i>9. Electrical installation or system: combination of several types of apparatus and, where applicable, other devices, which are assembled, installed and intended to be used permanently at a predefined location (= definition used in the EMC Directive).</i></p>

Reason:

Article 3 Adoption of a methodology	
Current version	CEETB proposal
<p>Member States shall apply a methodology, at national or regional level, of calculation of the energy performance of buildings on the basis of the general framework set out in the Annex. Parts 1 and 2 of this framework shall be adapted to technical progress in accordance with the procedure referred to in Article 14(2), taking into account standards or norms applied in Member State legislation.</p> <p>This methodology shall be set at national or regional level.</p> <p>The energy performance of a building shall be expressed in a transparent manner and may include a CO₂ emission indicator.</p>	

Reason:

Article 4 Setting of energy performance requirements	
Current version	CEETB proposal
<p>1. Member States shall take the necessary measures to ensure that minimum energy performance requirements for buildings are set, based on the methodology referred to in Article 3. When setting requirements, Member States may differentiate between new and existing buildings and different categories of buildings. These requirements shall take account of general indoor climate conditions, in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building. These requirements shall be reviewed at regular intervals which should not be longer than five years and, if necessary, updated in order to reflect technical progress in the building sector.</p> <p>2. The energy performance requirements shall be applied in accordance with Articles 5 and 6.</p> <p>3. Member States may decide not to set or apply the requirements referred to in paragraph 1 for the following categories of buildings:</p> <ul style="list-style-type: none"> — buildings and monuments officially protected as part of a designated environment or because of their special architectural or historic merit, where compliance with the requirements would unacceptably alter their character or appearance, — buildings used as places of worship and for religious activities, — temporary buildings with a planned time of use of two years or less, industrial sites, workshops and non-residential agricultural buildings with low energy demand and nonresidential agricultural buildings which are in use by a sector covered by a national sectoral agreement on energy performance, — residential buildings which are intended to be used less than four months of the year, 	<p><i>In the EU Energy efficiency action plan of October 2006, the Commission proposes the development of European minimum energy performance standards. Is this feasible and / or desirable? Would it be more acceptable if the EU only a developed harmonised system leaving it to Member States to fix the performance levels for their territory?</i></p> <p><i>Energy performance standards shall indeed be developed as European minimum energy performance standards. But these requirements shall take account of general indoor climate conditions, in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building.</i></p>

— stand-alone buildings with a total useful floor area of less than 50 m ² .	
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Reason:

Article 5 New buildings	
Current version	CEETB proposal
<p>Member States shall take the necessary measures to ensure that new buildings meet the minimum energy performance requirements referred to in Article 4.</p> <p>For new buildings with a total useful floor area over 1000 m², Member States shall ensure that the technical, environmental and economic feasibility of alternative systems such as:</p> <ul style="list-style-type: none"> — decentralised energy supply systems based on renewable energy, — CHP, — district or block heating or cooling, if available, — heat pumps, under certain conditions, <p>is considered and is taken into account before construction starts.</p>	<p>Member States shall take the necessary measures to ensure that new buildings meet the minimum energy performance requirements referred to in Article 4.</p> <p>For new buildings with a total useful floor area over 50 m², Member States shall ensure that the technical, environmental and economic feasibility of alternative systems such as:</p> <ul style="list-style-type: none"> — decentralised energy supply systems based on renewable energy, — CHP, — district or block heating or cooling, if available, — heat pumps, under certain conditions, <p>is considered and is taken into account before construction starts.</p>

Reasons:

The most cost-effective way to achieve energy efficient buildings is to integrate all considerations required in the planning phase for new buildings. This enormous savings potential can only be tapped if the 1000 sqm threshold is abolished.

As the construction of new buildings requires buildings permits, authorities have an inexpensive and efficient tool to control the application of this article.

Some countries went even further and put in place a legal requirement to cover a certain part of the buildings energy consumption by renewable source of energy (Spain, probably Germany and Wallonia).

Some think that the threshold of 50 sqm is too low. In the practical life all new one family houses are over 100 sqm. Referring to art. 4.3. residential buildings under 100 are usually only for leisure and other temporary use where we should avoid unnecessary rules and bureaucracy. It would be preferable to propose the target of 100 sqm instead of 50 sqm.

Article 6 Existing buildings	
Current version	CEETB proposal
<p>Member States shall take the necessary measures to ensure that when buildings with a total useful floor area over 1000 m² undergo major renovation, their energy performance is upgraded in order to meet minimum requirements in so far as this is technically, functionally and economically feasible.</p> <p>Member States shall derive these minimum energy performance requirements on the basis of the energy performance requirements set for buildings in accordance with Article 4. The requirements may be set either for the renovated building as a whole or for the renovated systems or components when these are part of a renovation to be carried out within a limited time period, with the abovementioned objective of improving the overall energy performance of the building.</p> <p><i>(Major renovations are cases such as those where the total cost of the renovation related to the building</i></p>	<p>Member States shall take the necessary measures to ensure that when buildings with a total useful floor area over 1000 m² undergo major renovation, their energy performance is upgraded in order to meet minimum requirements in so far as this is technically, functionally and economically feasible.</p> <p>Member States shall derive these minimum energy performance requirements on the basis of the energy performance requirements set for buildings in accordance with Article 4. The requirements may be set either for the renovated building as a whole or for the renovated systems or components when these are part of a renovation to be carried out within a limited time period, with the abovementioned objective of improving the overall energy performance of the building.</p> <p><i>Would it be realistic to bring the threshold down to 50 sqm? Some think that the</i></p>

<p>shell and/or energy installations such as heating, hot water supply, air-conditioning, ventilation and lighting is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated, or those where more than 25 % of the building shell undergoes renovation.)</p>	<p><i>threshold of 50 sqm is too low. In the practical life all new one family houses are over 100 sqm. Referring to art. 4.3. residential buildings under 100 are usually only for leisure and other temporary use where we should avoid unnecessary rules and bureaucracy. It would be preferable to propose the target of 100 sqm instead of 50 sqm.</i></p> <p><i>How could this work in practice? Regarding the existing buildings, the best way to control is when the building is sold or rented (referred to in art. 7).</i></p> <p><i>Who controls when no building permit is required? The notary or the tenant.</i></p> <p><i>Is there a risk that renovation works are not carried out at all, if a legal requirement obliges building owners to carry out works which they had initially not foreseen?</i></p> <p><i>There should be <u>no</u> obligation to carry out works immediately. But the buyer or tenant has information regarding the safety and the energy consumption of the building he is going to buy or rent.</i></p> <p><i>Could we propose that in the case of smaller buildings being renovated, an energy performance certificate should be issued along with advice on cost-effective measures and that these measures must at least be partially implemented?</i></p> <p><i>The AIE supports the fact that smaller buildings up to 100 m² should also be subject to the obligation of having an energy performance certificate because of the information regarding the energy performance and advice on energy efficiency it gives. However there should be <u>no obligation of implementation</u> of the advice or energy efficient measures.</i></p>
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Reason:

Article 7 Energy performance certificate	
Current version	CEETB proposal
1. Member States shall ensure that, when buildings are constructed, sold or rented out, an energy performance certificate is made available to the	1. Member States shall ensure that, when buildings are constructed, sold or rented out, an energy performance certificate is made available to the

<p>owner or by the owner to the prospective buyer or tenant, as the case might be. The validity of the certificate shall not exceed 10 years. Certification for apartments or units designed for separate use in blocks may be based:</p> <ul style="list-style-type: none"> — on a common certification of the whole building for blocks with a common heating system, or — on the assessment of another representative apartment in the same block. Member States may exclude the categories referred to in Article 4(3) from the application of this paragraph. <p>2. The energy performance certificate for buildings shall include reference values such as current legal standards and benchmarks in order to make it possible for consumers to compare and assess the energy performance of the building. The certificate shall be accompanied by recommendations for the cost-effective improvement of the energy performance. The objective of the certificates shall be limited to the provision of information and any effects of these certificates in terms of legal proceedings or otherwise shall be decided in accordance with national rules.</p> <p>3. Member States shall take measures to ensure that for buildings with a total useful floor area over 1 000 m² occupied by public authorities and by institutions providing public services to a large number of persons and therefore frequently visited by these persons an energy certificate, not older than 10 years, is placed in a prominent place clearly visible to the public.</p> <p>The range of recommended and current indoor temperatures and, when appropriate, other relevant climatic factors may also be clearly displayed.</p>	<p>owner or by the owner to the prospective buyer or tenant, as the case might be. The validity of the certificate shall not exceed 10 years. Certification for apartments or units designed for separate use in blocks may be based:</p> <ul style="list-style-type: none"> — on a common certification of the whole building for blocks with a common heating system, or — on the assessment of another representative apartment in the same block. Member States may exclude the categories referred to in Article 4(3) from the application of this paragraph. <p>2. The energy performance certificate for buildings shall be based on the theoretical energy demand and include reference values such as current legal standards and benchmarks in order to make it possible for consumers to compare and assess the energy performance of the building. The certificate shall be accompanied by recommendations for the cost-effective improvement of the energy performance. The objective of the certificates shall be limited to the provision of information and any effects of these certificates in terms of legal proceedings or otherwise shall be decided in accordance with national rules.</p> <p>3. Member States shall take measures to ensure that for all buildings occupied by public authorities and by institutions providing public services to a large number of persons and therefore frequently visited by these persons an energy certificate, not older than 10 years, is placed in a prominent place clearly visible to the public.</p> <p>The range of recommended and current indoor temperatures and, when appropriate, other relevant climatic factors may also be clearly displayed.</p>
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Reasons:

7.2. Certain countries, such as Germany and Finland, allow the certificate to be based on real energy consumption for certain existing buildings. However, this makes it impossible for “consumers to compare and assess the energy performance of the building.” Only the theoretical energy demand provides a clear indication independently of the number of occupiers and their habits.

7.3. The directive on energy end-use efficiency and energy services clearly requires Member States to assume the role of forerunners in the field of energy efficiency. The display of the certificate would increase the awareness of the public and encourage public authorities to opt for more efficient buildings or undertake improvement measures.

The AIE agrees with the comments on 7.2. and 7.3. but we would like CEETB to find a way to integrate energy performance certificates and energy service. If there is an energy service contract for a building, there is no reason for developing an energy performance certificate for the same building. The cost for developing an energy performance certificate is 4.5 EUR/sqm. This double energy efficiency specification can therefore be seen as a barrier for energy services.

STUL: I find the German and Finnish way to give certificates based on the real measured consumption for old buildings acceptable. To make a reliable theoretical assessment of old houses is in practice impossible in most of the cases. As a consequence measured value – even it is dependent on the behaviour of inhabitants and other users – is more reliable than the theoretical value! On the other hand in

other part of this document we already demand periodic inspection of electrical systems which as such contributes to improved electrical installations and new business for our members!

Article 8 Inspection of boilers	
Current version	CEETB proposal
<p>With regard to reducing energy consumption and limiting carbon dioxide emissions, Member States shall either:</p> <p>(a) lay down the necessary measures to establish a regular inspection of boilers fired by non-renewable liquid or solid fuel of an effective rated output of 20 kW to 100 kW. Such inspection may also be applied to boilers using other fuels. Boilers of an effective rated output of more than 100 kW shall be inspected at least every two years. For gas boilers, this period may be extended to four years.</p> <p>For heating installations with boilers of an effective rated output of more than 20 kW which are older than 15 years, Member States shall lay down the necessary measures to establish a one-off inspection of the whole heating installation. On the basis of this inspection, which shall include an assessment of the boiler efficiency and the boiler sizing compared to the heating requirements of the building, the experts shall provide advice to the users on the replacement of the boilers, other modifications to the heating system and on alternative solutions; or</p> <p>(b) take steps to ensure the provision of advice to the users on the replacement of boilers, other modifications to the heating system and on alternative solutions which may include inspections to assess the efficiency and appropriate size of the boiler. The overall impact of this approach should be broadly equivalent to that arising from the provisions set out in (a). Member States that choose this option shall submit a report on the equivalence of their approach to the Commission every two years.</p>	<p>With regard to reducing energy consumption and limiting carbon dioxide emissions, Member States shall either:</p> <p>(a) lay down the necessary measures to establish a regular inspection of boilers fired by non-renewable liquid or solid fuel of an effective rated output of 20 kW to 100 kW. Such inspection may also be applied to boilers using other fuels. Boilers of an effective rated output of more than 100 kW shall be inspected at least every two years. For gas boilers, this period may be extended to four years.</p> <p><i>Should we include smaller boilers (for ex. above 10 kW)? What share of boilers is covered by today's obligations (above 20 kW)? What would be the savings potential if smaller boilers were included?</i></p> <p><i>TEKNIQ will propose to CEETB that they propose</i> (a) lay down the necessary measures to establish a regular inspection of boilers of an effective rated output of 20 kW to 100kW etc.</p> <p><i>There is no reason that boilers fired by renewable liquid or solid fuel, are allowed to be inefficient, because in the future there will be a shortage on renewable fuel of all kinds.</i></p> <p>For heating installations with boilers of an effective rated output of more than 20 kW which are older than 15 years, Member States shall lay down the necessary measures to establish a one-off inspection of the whole heating installation. On the basis of this inspection, which shall include an assessment of the boiler efficiency and the boiler sizing compared to the heating requirements of the building, the experts shall provide advice to the users on the replacement of the boilers, other modifications to the heating system and on alternative solutions; or See above questions.</p> <p>(b) take steps to ensure the provision of advice to the users on the replacement of boilers, other modifications to the heating system and on alternative solutions which may include inspections to assess the efficiency and appropriate size of the boiler. The overall impact of this approach should be broadly equivalent to that arising from the provisions set out in (a). Member States that choose this option shall submit a report on the equivalence of their approach to the Commission every two years.</p>

	<i>Sweden, Finland, UK: Do you support your government's choice to opt for 8 (b)? If not, what are the reasons? Should we try to remove 8 (b)? AIE's Swedish member is of the opinion that art. 8 could remain.</i>
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Reason:

Article 9 Inspection of air-conditioning systems	
Current version	CEETB proposal
<p>With regard to reducing energy consumption and limiting carbon dioxide emissions, Member States shall lay down the necessary measures to establish a regular inspection of air conditioning systems of an effective rated output of more than 12 kW.</p> <p>This inspection shall include an assessment of the air-conditioning efficiency and the sizing compared to the cooling requirements of the building.</p> <p>Appropriate advice shall be provided to the users on possible improvement or replacement of the air-conditioning system and on alternative solutions.</p>	<p><i>Any changes required?</i></p>

Reason:

New article Inspection of electrical systems, installations and lighting systems	
Current version	CEETB proposal
<p>Currently no provisions.</p>	<p><i>With regard to reducing energy consumption and limiting carbon dioxide emissions, Member States shall:</i></p> <p><i>lay down the necessary measures to establish a regular inspection of the whole electrical system and installations including lighting systems, which are older than 10 years.</i></p> <p><i>On the basis of this inspection, the experts shall provide advice to the users on the necessary modifications to the electrical system and on alternative solutions.</i></p>

Reason:

Article 10 Independent experts	
Current version	CEETB proposal
<p>Member States shall ensure that the certification of</p>	<p>Member States shall ensure that the certification of</p>

<p>buildings, the drafting of the accompanying recommendations and the inspection of boilers and air-conditioning systems are carried out in an independent manner by qualified and/or accredited experts, whether operating as sole traders or employed by public or private enterprise bodies.</p>	<p>buildings, the drafting of the accompanying recommendations and the inspection of boilers and air-conditioning systems, electrical systems and installations are carried out in an independent manner by qualified and/or accredited experts, whether operating as sole traders or employed by public or private enterprise bodies.</p> <p><i>What is your experience with the national implementation of this definition? How can it be rephrased?</i></p> <p><i>In Denmark the national implementation is according to the letter of this article.</i></p> <p><i>But in Denmark to have the qualification to be an accredited expert for certification of buildings, experts need to be specified at the Bachelor level. TEKNIQ does not agree with this specification for an expert and will in the future try to alter this.</i></p> <p><i>No! For the time being TEKNIQ would like to see the Directive actually being implemented in all parts of the European market.</i></p>
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Reason:

ANNEX General framework for the calculation of energy performance of buildings (Article 3)	
Current version	CEETB proposal
<p>1. The methodology of calculation of energy performances of buildings shall include at least the following aspects:</p> <ul style="list-style-type: none"> (a) thermal characteristics of the building (shell and internal partitions, etc.). These characteristics may also include air-tightness; (b) heating installation and hot water supply, including their insulation characteristics; (c) air-conditioning installation; (d) ventilation; (e) built-in lighting installation (mainly the non-residential sector); (f) position and orientation of buildings, including outdoor climate; (g) passive solar systems and solar protection; (h) natural ventilation; (i) indoor climatic conditions, including the designed indoor climate. <p>2. The positive influence of the following aspects shall, where relevant in this calculation, be taken into account:</p> <ul style="list-style-type: none"> (a) active solar systems and other heating and electricity systems based on renewable energy 	<p><i>Any changes required?</i></p>

sources;
(b) electricity produced by CHP;
(c) district or block heating and cooling systems;
(d) natural lighting.

3. For the purpose of this calculation buildings should be adequately classified into categories such as:

- (a) single-family houses of different types;
- (b) apartment blocks;
- (c) offices;
- (d) education buildings;
- (e) hospitals;
- (f) hotels and restaurants;
- (g) sports facilities;
- (h) wholesale and retail trade services buildings;
- (i) other types of energy-consuming buildings.

Reason: