EVIA feedback on EU BSO templates

The recent revision of the Energy Performance of Buildings Directive (EPBD) mandates Member States to define indoor environmental quality (IEQ) and indoor air quality (IAQ) requirements in their national legislation, representing a significant step forward in tackling Europeans' health indoors. Moreover, the EPBD introduced the mandatory inspection of stand-alone ventilation systems, a key measure to ensure their optimal performance and tap into the significant energy-saving potential of the existing building stock.

In this context, EVIA welcomes the European Commission's initiative to establish common templates for transferring information on the energy performance of buildings from national databases to the EU Building Stock Observatory (BSO). EVIA positively notes that the Commission's draft implementing act requires Member States to **transfer data on the number of inspections of ventilation systems**. This information will not only improve policy monitoring and enforcement at Member States and EU level but will also allow better alignment between innovation and investment strategies and real market needs, ultimately fostering increased energy performance and indoor environment quality of European buildings.

However, it is interesting to transfer to the BSO additional information than just the number of inspections and especially the characteristics of the inspected equipment and whether the inspection concluded to a regulatory conformity or not. This will be essential to assess whether current measures are enough to guarantee the proper functioning of technical building systems or if additional ones need to be implemented.

Regarding information coming from the energy performance certificates, EVIA suggests that the type of technical building systems mentioned in it be transferred to the BSO.

In addition to this, EVIA encourages the European Commission to broaden the scope of the data collection exercise by also requesting the **transfer and centralisation of information related to indoor air quality originating from the devices monitoring it in new and deeply renovated non-residential buildings as requested by Article 13(5) of the EPBD recast. The type of IAQ parameters monitored and the yearly average levels obtained per type of building when they are occupied is the information which should be specifically made available.**

Collecting and analysing this data at EU level would provide a more comprehensive understanding of the links between building renovation, energy performance, and occupants' health. Data centralisation would allow monitoring how Member States are implementing this EPBD IAQ requirement and how national building stocks are improving over time, revealing where IAQ issues are most severe and which building segments have the greatest needs. In turn, it would also enable the identification of best practices and the mainstreaming of innovative and energy-efficient mechanical ventilation systems. Finally, the availability of data would support the European Commission in better aligning energy performance policies and health strategies, and in designing future policies and revisions based on real, measurable gaps.

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About EVIA

The European Ventilation Industry Association (EVIA) represents the views and interests of the ventilation industry and serves as a platform between all the relevant European stakeholders involved in the ventilation sector. Our membership is composed of more than 39 member companies and 6 national associations across Europe, realising an annual turnover of over 7 billion euros and employing more than 45,000 people in Europe.

EVIA aims to promote highly energy efficient ventilation applications across Europe, with high consideration for health and comfort aspects. Fresh and good indoor air quality is a critical element of comfort and contributes to keeping people healthy in buildings.

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EUROPEAN
COMMISSION

Brussels, XXX
[…](2025) XXX draft

COMMISSION IMPLEMENTING REGULATION (EU) …/...

of XXX

establishing common templates for the transfer of information from national energy performance databases to the EU Building Stock Observatory in application of Directive (EU) 2024/1275 of the European Parliament and of the Council

(Text with EEA relevance)

This draft has not been adopted or endorsed by the European Commission. Any views expressed are the preliminary views of the Commission services and may not in any circumstances be regarded as stating an official position of the Commission.

COMMISSION IMPLEMENTING REGULATION (EU) …/...

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establishing common templates for the transfer of information from national energy performance databases to the EU Building Stock Observatory in application of Directive (EU) 2024/1275 of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings[1], and in particular Article 22(6) thereof,

Whereas:

(1) Article 22(1) of Directive (EU) 2024/1275 requires each Member State to set up a national database for the energy performance of buildings which allows the gathering of data on the energy performance of individual buildings and on the overall energy performance of the national building stock. The database is to allow the gathering of data from all relevant sources related to energy performance certificates, inspections, the renovation passport, the smart readiness indicator, monitoring devices and the calculated or metered energy consumption of the buildings covered.

(2) Pursuant to Article 22(5) of Directive (EU) 2024/1275, at least once per year, Member States are to ensure the transfer of the information in the national database to the EU Building Stock Observatory. Member States are allowed to transfer the information more frequently.

(3) In order to ensure that the transfer of the information to the EU Building Stock Observatory is complete and carried out in a structured manner, while making the most of digital tools and avoiding an unnecessary administrative burden, the structure, format, technical details and process for that transfer should be set out and reflected in common templates.

(4) In order to ensure consistency with Article 20(8) and Article 22 of Directive (EU) 2024/1275 and Annex V thereto, the information transferred to the EU Building Stock Observatory should include certain elements drawn from energy performance certificates and especially the type of technical building systems in the buildings.

(5) In order to ensure consistency with Article 22(2) of Directive (EU) 2024/1275, the information transferred to the EU Building Stock Observatory should include public information on the total number of buildings or building units or total floor area in the national building stock.

Commented [A1]: The BSO should also include information on indoor air quality which would originate from the devices mentioned at article 13 (5) of the EPBD recast directive to be fitted in new non-residential buildings and those undergoing deep renovations.

Commented [A2]: This will be interesting in order to know to what extent buildings are fitted with efficient technical building systems and whether regulatory measures have to be implemented to accelarate the switch-over towards state-of-the-art products.

[1] OJ L, 2024/1275, 8.5.2024, ELI: http://data.europa.eu/eli/dir/2024/1275/oj.

(6) In order to ensure consistency with Article 22 and Article 24(3) of Directive (EU) 2024/1275, Members States should be required to transfer information about the number of inspections of heating, ventilation and air-conditioning systems carried out and the type of the inspected equipment as well as whether the inspection concluded to a regulatory conformity or not.

(7) In order to ensure consistency with Article 22, Article 12(7), Article 19(6) and Article 20(8) of Directive (EU) 2024/1275 and Annex VIII thereto, Member States should be required to transmit certain information about building renovation passports.

(8) Member States should make the first transfer of information from their national databases for the energy performance of buildings in 2027, namely the year following the deadline for transposition of Directive (EU) 2024/1275.

(9) Member States should not transmit to the EU Building Stock Observatory personal data within the meaning of Article 4(1) of Regulation (EU) 2016/679. Prior to transmission of the information, Member States should anonymise any personal data by aggregation at country level.

(10) An interoperability assessment within the meaning of Regulation (EU) 2024/903 has been conducted in relation to the EU Building Stock Observatory, and the resulting report has been made publicly available on the Interoperable Europe Portal.

(11) The aggregated data collected under this Regulation can be reused for European statistics in line with the principles defined in Regulation (EC) 223/2009.

(12) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 33(1) of Directive (EU) 2024/1275.

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter

This Regulation sets out a common template for transferring information from the national databases for the energy performance of buildings to the EU Building Stock Observatory.

Article 2

Definitions

For the purposes of this Regulation, the following definitions shall apply:

(1) ‘mandatory (M)’ means a category of information that Member States are required to submit to the EU Building Stock Observatory;

(2) ‘mandatory if available (Miav)’ means a category of information that Member States are required to submit only if such information is available to them at the time of submitting the information;

(3) ‘mandatory if applicable (Miap)’ means a category of information that Member States are required to submit if it is required by Union or national legislation;

(4) ‘voluntary (V)’ means a category of information which Member States submit on a voluntary basis.

Article 3

Timeline and procedure for transferring the information

Commented [A3]: It is interesting to transfer to the BSO additional information than just the number of inspections and especially the characteristics of the inspected equipment and whether it concluded to a regulatory conformity or not. This will be essential to assess whether current measures are enough to guarantee the proper functioning of technical building systems or if additional ones need to be implemented.

1. Member States shall transfer the information regarding the energy performance of buildings from their national databases for the energy performance of buildings to the EU Building Stock Observatory by 15 March 2027 and at least once a year thereafter.

2. Member States shall transfer the information to the EU Building Stock Observatory through the dedicated section of the Commission's e-platform, established pursuant to Article 28 of Regulation (EU) 2018/1999 of the European Parliament and of the Council[2].

3. Member States shall transfer the information referred to in paragraph 1, from their national database for the energy performance of buildings to the EU Building Stock Observatory following the format set out in Annex I.

Article 4

Scope and level of aggregation of information to be transferred

1. Member States shall transfer the information that was uploaded to their national databases during the previous calendar year (year minus one).

2. The information to be transferred shall be aggregated at country level and shall not include personal data within the meaning of Article 4(1) of Regulation (EU) 2016/679 of the European Parliament and of the Council[3].

3. The aggregation of information at country level shall be done in accordance with the formulas set out in Annex II.

Article 5

Information about the national building stock and energy performance certificates

1. For each calendar year referred to in Article 4(1), Member States shall transfer to the EU Building Stock Observatory information about:

   (a) total building stock

   (b) share of buildings in the national total building stock covered by valid energy performance certificates;

   (c) number of energy performance certificates issued;

   (d) total floor area of buildings for which energy performance certificates have been issued [m^2];

[2] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1, ELI: http://data.europa.eu/eli/reg/2018/1999/oj).

[3] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1, ELI: http://data.europa.eu/eli/reg/2016/679/oj).

(e) average annual primary energy use calculated from the issued energy performance certificates[kWh/(m^2.yr)];

(f) cumulative primary energy consumption calculated from the issued energy performance certificates [kWh/yr];

(g) average annual final energy use calculated from the issued energy performance certificates issued[kWh/(m^2.yr)];

(h) cumulative final energy consumption calculated from the issued energy performance certificates issued [kWh/yr];

(i) average energy needs calculated from the issued energy performance certificates issued[kWh/(m^2.yr)];

(j) cumulative on-site renewable energy production calculated from the issued energy performance certificates issued[kWh/yr];

(k) cumulative operational greenhouse gas (GHG) emissions calculated from the issued energy performance certificates [tCO_2eq/yr];

(l) average operational GHG emissions from the issued energy performance certificates issued [$kgCO_2eq$/(m^2.yr)];

(m) average life-cycle global-warming potential (GWP), where available, from the issued energy performance certificates issued [$kgCO_2eq$/(m^2)];

(n) number of buildings with the capacity to react to external signals, per energy class;

(o) number of buildings with a heat distribution system inside the building capable of working at low and more efficient temperature levels;

(p) the type of the technical building systems mentioned in the energy performance certificates issued;

~~(o)~~(q) the type of IAQ parameters monitored in non-residential buildings according to article 13(5) of the Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings and the yearly average levels obtained per type of building when they are occupied.

2. Member States shall transfer to the EU Building Stock Observatory the aggregated and anonymised public information on the total number of buildings or building units or total floor area in the national building stock.

3. Member States shall provide a brief explanation of the national energy performance certificate schemes, using the format set out in Annex I. That explanation shall be provided when the first transfer of information is made to the EU Building Stock Observatory and at every time thereafter when the explanation needs to be updated following changes in the national energy performance certificate schemes.

Article 6

Information from reports on the inspection of heating, ventilation and air-conditioning systems

1. For each calendar year referred to in Article 4(1), Member States shall transfer to the EU Building Stock Observatory the number of inspections of heating, ventilation and air-conditioning systems carried out in that year, drawn from the reports of inspections of heating, ventilation and air-conditioning systems.

Commented [A4]: This will be essential to have a consolidated overview of the technical building systems implemented in the current stock.
Moreover, it will be interesting in order to know to what extent buildings are fitted with efficient technical building systems and whether regulatory measures have to be implemented to accelarate the switch-over towards state-of-the-art products.

Commented [A5]: This kind of information will provide useful data regarding how paragraph 5 of article 13 of the EPBD recast is implemented and whether the IAQ monitored is satisfactory or not. If it is not the case, this could trigger in turn the proposal of measures to come to a satisfactory IAQ situation.

~~1.~~2. The type of inspected equipment as well as whether the inspection concluded to a regulatory conformity or not will be transmitted as well.

~~2.~~3. Member States shall also provide a general explanation of the national schemes for inspections of heating, ventilation and air-conditioning systems, using the format set out in Annex I. That explanation shall be provided when the first transfer of information is made to the EU Building Stock Observatory and at every time thereafter when the explanation needs to be updated following changes in the national schemes.

Commented [A6]: It is interesting to transfer to the BSO additional information than just the number of inspections and especially the characteristics of the inspected equipment and whether it concluded to a regulatory conformity or not. This will be essential to assess whether current measures are enough to guarantee the proper functioning of technical building systems or if additional ones need to be implemented.

Article 7

Information from renovation passports

1. For each calendar year referred to in Article 4(1), Member States shall transfer to the EU Building Stock Observatory the following information in relation to renovation passports:

(a) number of issued renovation passports;

~~(a)~~(b) type of the technical building systems replaced or upgraded in the frame of the completion of the various renovation steps;

~~(b)~~(c) average current energy performance of the buildings, in primary energy [kWh/(m^2.yr)];

~~(c)~~(d) estimated energy performance of the building after completion of all renovation steps [kWh/(m^2.yr)];

~~(d)~~(e) total estimated energy savings in primary or final[4] energy consumption after the completion of all renovation steps [MWh/yr];

~~(e)~~(f) average estimated energy savings in primary or final[5] energy consumption after the completion of all renovation steps, in percentage improvement compared to the energy consumption before undertaking the renovation [%];

~~(f)~~(g) total estimated operational GHG emission savings after the completion of all renovation steps [kgCO2eq/yr];

~~(g)~~(h) average estimated operational GHG emission savings after the completion of all renovation steps [kgCO2eq/yr];

~~(h)~~(i) average estimated cost savings on energy bills after completion of all renovation steps [EUR/building/or building unit/yr];

~~(i)~~(j) average estimated investment to complete all renovation steps [EUR/m^2].

Article 8

Information from smart readiness indicator

2. For each calendar year referred to in Article 4(1), the following information regarding the smart readiness indicator shall be transferred to the Building Stock Observatory from the date of application of the Commission Delegated Act referred to in Article 15(2) of Directive (EU) 2024/1275 using the format set out in Annex I and the formulas set out in Annex II.:

(a) number of buildings that received a smart readiness indicator;

(b) average smart readiness indicator score of the buildings referred to in point (a);

(c) average score for optimising energy efficiency and overall in-use performance of the buildings referred to in point (a);

(d) average score for adapting operation to the needs of the occupant of the buildings referred to in point (a);

(e) average score for adapting to signals from the grid of the buildings referred to in point (a).

Commented [A7]: This will be interesting in order to know to what extent buildings undergoing renovation are fitted with efficient technical building systems and whether regulatory measures have to be implemented to accelarate the switch-over towards state-of-the-art products.

[4] If savings are estimated only in final energy consumption.
[5] If savings are estimated only in final energy consumption.

Article 9

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the Commission
The President
Ursula VON DER LEYEN

EUROPEAN
COMMISSION

Brussels, XXX
[…](2025) XXX draft

ANNEXES 1 to 2

ANNEXES

to the

COMMISSION IMPLEMENTING REGULATION (EU) .../...

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ANNEX I

1. GENERAL INFORMATION

Table 1: Date of transfer of information and year for which data are reported

Information to be transferred	**ID**[1]
Date of transfer of information	M
Year for which data are reported	M

2. ENERGY PERFORMANCE CERTIFICATES

Table 2: Brief information about energy performance certificates (EPC) schemes

Information to be transferred	**ID**
Residential buildings	
1. When was the current EPC scheme introduced? (day/month/year)	M
2. Brief description of the current EPC scheme[2]. Please provide website links to relevant description and legislation.	M
3. How is the EPCs attributed: per building, per building unit?	M
4. Is the energy use of the building based on calculated (asset based) or metered energy?	M
4.1.Based on calculated (asset based) energy	Yes/No
4.2.Based on metered energy	Yes/No
4.3.Based on a mix of calculated and metered energy	Yes/No

[1] M=mandatory, Miap=mandatory if applicable, Miav=mandatory if available, V=voluntary.

[2] Brief description of the EPC methodology, e.g. how the energy classes are defined, whether different for single family houses and multi-family buildings, whether in total primary energy or other, if a GHG emission scale is associated, etc.

5. Approximate cost range for certificates in the reported period					Miav
cost range in national currency *lower value upper value*		*cost range in EURO* *lower value upper value*			
6. Has the national EPC classification scheme been revised to transpose the new provisions under Articles 19, 20 and 21 of Directive (EU) 2024/1275?					M
YES/NO					
6.1. If the national EPC scheme has been revised in accordance with Articles 19, 20 and 21 of Directive (EU) 2024/1275, then please fill in the below table. Please replicate the table below as necessary if the scheme is different across sub-types of residential buildings.					Miap
Type of building	*(please specify e.g. all residential buildings, single-family house, multi-family building)*				Miap
Measurement unit: kWh/(m2.yr)	Lower limit		Upper limit		
energy class A+[3]					Miap
energy class A0[4]					Miap
energy class A					Miap
energy class B					Miap
energy class C					Miap
energy class D					Miap
energy class E					Miap
energy class F					Miap
energy class G					Miap
6.2. If the EPC scheme hasn't been revised, then fill in the below information on the current EPC classes, corresponding ranges and measurement unit. Please expand the rows below as necessary to fill in all energy classes of the current EPC scheme. Please replicate the table below as necessary if the scheme is different across sub-types of residential buildings.					Miap
Type of building	*(please specify e.g. all residential buildings, single-family house, multi-family building)*				Miap
Measurement unit: kWh/(m2.yr)	Lower limit		Upper limit		
energy class highest					Miap
energy class second highest					Miap
....					Miap
energy class lowest					Miap
6.3. If the Member State has not yet transposed Article 19 of Directive (EU) 2024/1275, then please describe below how current energy classes are					Miap

[3] To consider only if the Member State plans to introduce an A+ energy class.

[4] To consider only if the Member State has in place an A0 energy class and plans to preserve it after revision of the EPC scheme.

adapted for transferring the information to the EU Building Stock Observatory on this template with energy classes from G to A+[5].	
Non-residential buildings	
1. When was the current EPC scheme introduced? (day/month/year)	M
2. Brief description of the current EPC scheme[6]. Please provide website links to relevant description and legislation.	M
3. How is the EPCs attributed: per building, per building unit?	M
4. Is the energy use of the building based on calculated (asset based) or metered energy?	M
4.1.Based on calculated (asset based) energy	Yes/No
4.2.Based on metered energy	Yes/No
4.3.Based on a mix of calculated and metered energy	Yes/No
5. Approximate cost range for certificates in the reported period	Miav

cost range in national currency		*cost range in EURO*			
lower value	*upper value*	*lower value*	*upper value*		

6. Has the national EPC classification scheme been revised to transpose the new provisions under Articles 19, 20 and 21 of Directive (EU) 2024/1275?	M
YES/NO	
6.1.If the national EPC scheme has been revised in accordance with Articles 19, 20 and 21 of Directive (EU) 2024/1275, then please fill in the below table. Please replicate the table below as necessary if the scheme is different across sub-types of non-residential buildings.	Miap

[5] For instance, the previous energy classes A+ and A++ will be merged for the purposes of transferring information to EU Building Stock Observatory into energy class A+. As another example, if the energy class B comprises subclasses B1, B2, B3, then the cumulative information of these three subclasses will be merged into an energy class B. Please describe those correspondences in the respective table cell.

[6] Brief description of the EPC methodology, e.g. how the energy classes are defined, whether different for single family houses and multi-family buildings, whether in total primary energy or other, if a GHG emission scale is associated etc.

Type of building	*(please specify e.g. all residential buildings, single-family house, multi-family building)*		Miap
Measurement unit: kWh/(m2.yr)	Lower limit	Upper limit	
energy class A+[7]			Miap
energy class A0[8]			Miap
energy class A			Miap
energy class B			Miap
energy class C			Miap
energy class D			Miap
energy class E			Miap
energy class F			Miap
energy class G			Miap
6.2. If the EPC scheme hasn't been revised, then fill in the below information on the current EPC classes, corresponding ranges and measurement unit. Please expand the lines below as necessary to fill in all energy classes of the current EPC scheme. Please replicate the table below as necessary if the scheme is different across sub-types of residential buildings.			Miap
Type of building	*(please specify e.g. all residential buildings, single-family house, multi-family building)*		Miap
Measurement unit: kWh/(m2.yr)	Lower limit	Upper limit	
energy class highest			Miap
energy class second highest			Miap
....			Miap
energy class lowest			Miap
6.3. If the Member State has not yet transposed Article 19 of Directive (EU) 2024/1275, then please describe below how current energy classes are adapted for transferring the information to the EU Building Stock Observatory on this template with energy classes from G to A+[9].			Miap

[7] To consider it only if the Member State plans to introduce an A+ energy class.

[8] To consider it only if the Member State has in place an A0 energy class and plans to preserve it after revision of the EPC scheme.

[9] For instance, the previous energy classes A+ and A++ will be merged for the purposes of transferring information to EU Building Stock Observatory into energy class A+. As another example, if the energy class B comprises subclasses B1, B2, B3, then the cumulative information of these three subclasses will be merged into an energy class B. Please describe those correspondences in the respective table cell.

Table 3: Total building stock[10]

Indicator	Unit	Total residential and non-residential	Total residential	Out of which		Total non-residential	Out of which			
				Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals[11]	Other non-residential
ID		M	M	Miav	Miav	M	Miav	Miav	Miav	Miav
Total number of buildings	[No]									
Total number of building units	[No]									
Total useful floor area of buildings	[m2]									

[10] Buildings within the scope of Directive (EU) 2024/1275, as defined by Article 2, point (1).

[11] In all tables in this Annex, "Hospitals" category includes health care and social work buildings.

Table 4: Share of buildings in the national building stock covered by EPCs [%][12,13]

Indicator	Unit	Total residential and non-residential	Total residential	Out of which		Total non-residential	Out of which			
				Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals[14]	Other non-residential
ID		M	M	Miav	Miav	M	Miav	Miav	Miav	Miav
Share of buildings	[%]									
Share of building units	[%]									
Share of useful floor area of buildings	[%]									

[12] In this table it is mandatory or mandatory if available only the appropriate share that match the EPC system in your country. As an example, if the EPCs are issued for building units (e.g. for residential buildings) then it is mandatory or mandatory if available to transfer the information about the share of building units with an EPC in total national building stock. As indicated in Recital (34) of the Directive (EU) 2024/1275, "with regard to mixed-used buildings that include both residential and non-residential building units, Member States may continue to choose whether to treat them as residential or non-residential buildings."

[13] This share is the ratio of the number of buildings, building units or floor area with an EPCs received over time and the total number of buildings, building units or floor area of the total national building stock as reported in Table 3.

[14] In all tables in this Annex, "Hospitals" category includes health care and social work buildings.

Table 5: Total number of EPCs issued in the reported year

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*
Energy class A+[15]																
Energy class A0[16]																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

[15] To consider it only if the Member State plans to introduce an A+ energy class. This is valid for all similar tables from this Annex.

[16] To consider it only if the Member State has in place an A0 energy class and plans to preserve it after revision of the EPC scheme. This is valid for all similar tables from this Annex.

Table 6: Total floor area of buildings with energy performance certificates issued in the year [m2]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*	*[m2]*
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 7: Average primary energy use in the EPCs issued in the reported year [kWh/m2.yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 8: Average final energy use in the EPCs issued in the reported year [kWh/m2.yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]	[kWh/m2.yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 9: Average energy needs in the EPCs issued in the reported year [kWh/m2.yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 10: Total (cumulative) primary energy use on the EPCs issued in the reported year [MWh/yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 11: Total (cumulative) final energy use on the EPCs issued in the reported year [MWh/yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 12: Total (cumulative) on-site renewable energy production on the EPCs issued in the reported year [MWh/yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]	[MWh/yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 13: Average operational GHG emission on the EPCs issued in the reported year [kgCO2/(m2.yr)]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]	[kgCO2/m2.yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 14: Total (cumulative) operational GHG emission on the EPCs issued in the reported year [tCO2eq/yr]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]	[tCO2eq/yr]
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 15: Average global warming potential (GWP) on the EPCs issued in the reported year [kgCO2eq./m2]

Energy classes	New buildings								Existing buildings[17]							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]	[tCO2eq./yr]
Production stage (A1-A3)																
Construction process stage (A4-A5)																
Use, maintenance, replacement stage (B1, B2, B4)																
Operational energy use Stage (B6)																
End of life stage (C1-C4)																
Benefits and loads beyond the system																

[17] In accordance with Article 19(2) of Directive (EU) 2024/1275, life-cycle GWP are estimated for existing buildings renovated to A+ class. To that end, Member States may use the Union framework set out in the delegated act adopted pursuant to Article 7(3) of Directive (EU) 2024/1275, designed for the purpose of calculating the GWP of new buildings, or adapt the methodology with the necessary steps, or use their own calculation method, in accordance with the relevant standards specifically for existing buildings.

boundary including Reuse, Recycling, Energy recovery (D1-D2)															

Table 16: Total number of buildings with capacity to react to external signals on the EPCs issued in the reported year [no.]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Table 17: Total number of buildings with inside heat distribution system capable to work at low and more efficient temperature levels on the EPCs issued in the reported year [no.]

Energy classes	New buildings								Existing buildings							
	Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*M*	*Miav*	*Miav*	*Miav*	*Miav*
Unit	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*	*[no]*
Energy class A+																
Energy class A0																
Energy class A																
Energy class B																
Energy class C																
Energy class D																
Energy class E																
Energy class F																
Energy class G																
Total energy classes																

Commented [A1]: After this table should be added a table 18 asking member states to inform about the technical building systems mentioned in the EPCs for heating, cooling, hot water and ventilation for the different types of new and existing buildings. For each category of service provided, several types of technical building systems should be listed for the member state to choose the adequate one. As an example, for heating, the proposed possibilities could be heat pump, gas boiler, electric radiator, etc…
Regarding ventilation, it should be mentioned the following: window airing (no ventilation), natural ventilation, constant flow unidirectional ventilation unit, demand-control unidirectional ventilation unit, constant flow bi-directional unit with energy recovery, demand-control bi-directional unit with energy recovery and air handling unit.
The request for this type of information should be made mandatory.

3. REPORTS ON THE INSPECTIONS OF HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

Table 18: Brief information about national schemes for inspections of heating, ventilation and air-conditioning systems

Information to be transferred		**ID**
1. Did the country opt for alternative measures to the HVAC inspections in accordance with Article 23(6) of Directive (EU) 2024/1275? [yes/no, description]		M
1.1. Alternative measures for residential buildings	Y/N	
1.2. Alternative measures for non-residential buildings	Y/N	
2. Are there separate inspection schemes for residential and non-residential buildings?	Y/N	Miap
3. When were the current HVAC inspection scheme(s) introduced? (day/month/year)	[dd/mm/yyyy]	Miap
4. Please describe the current inspection scheme(s) and provide links to the relevant description and legislation available online.		Miap
4.1. Common inspection scheme for residential and non-residential		Miap
4.2. Inspection scheme for residential		Miap
4.3. Inspection scheme for non-residential		Miap

Table 19: Total number of inspections reports over reported year

Indicator	Unit	Total	Main source of energy						
			Natural gas	Oil products	Coal	Electricity (heat pump)	Biomass	Solar-thermal	Hybrid[18]
ID		Miap	Miap	Miap	Miap	Miap	Miap	Miap	Miap
Total inspections	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total non-residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								

Commented [A2]: For this table and the following two, sub-categories of technical building systems should be introduced for heating, air-conditioning and ventilation to identify the type of equipment which has been inspected. For ventilation, the following should be mentionned: natural ventilation, constant flow unidirectional ventilation unit, demand-control unidirectional ventilation unit, constant flow bi-directional unit with energy recovery, demand-control bi-directional unit with energy recovery and air handling unit. Moreover a column should be added to indicate whether the inspection concluded to a regulatory conformity or not. The request for this type of information should be made mandatory.

[18] Hybrid system using both renewable energy (heat pumps included) and fossil fuels.

Table 20: Total number of inspections reports over reported year for systems between 70kW and 290kW output rated power

Indicator	Unit	Total	Main source of energy						
			Natural gas	Oil products	Coal	Electricity (heat pump)	Biomass	Solar-thermal	Hybrid[19]
ID		Miap	Miap	Miap	Miap	Miap	Miap	Miap	Miap
Total inspections	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total non-residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								

[19] Hybrid system using both renewable energy (heat pumps included) and fossil fuels.

Table 21: Total number of inspections reports over reported year for systems above 290kW output rated power

Indicator	Unit	Total	Main source of energy						
			Natural gas	Oil products	Coal	Electricity (heat pump)	Biomass	Solar-thermal	Hybrid[20]
ID		Miap	Miap	Miap	Miap	Miap	Miap	Miap	Miap
Total inspections	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								
Total non-residential	[no]								
Out of which:									
Heating systems (including combined heating and ventilation)	[no]								
Air-conditioning systems (including combined air-conditioning and ventilation)	[no]								
Ventilation	[no]								

[20] Hybrid system using both renewable energy (heat pumps included) and fossil fuels.

4. **BUILDING RENOVATION PASSPORTS**

Table 22: Number of building renovation passports issued in the reported year and relevant information

Indicator	Unit	Total (for all buildings)	Existing buildings							
			Total residential	Out of which:		Total non-residential	Out of which:			
				Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID		M	M	Miav	Miav	M	Miav	Miav	Miav	Miav
Number of renovation passports issued in the year	[no]									
		V	V	V	V	V	V	V	V	V
Average current energy performance of buildings	[kWh/(m2.yr)]									
Average estimated energy performance of buildings, after completion of all steps	[kWh/(m2.yr)]									
Total estimated energy savings in primary energy consumption after the completion of all steps	[MWh/yr]									
Total estimated energy savings in final energy consumption after the completion of all steps	[MWh/yr]									
Average estimated energy savings in primary energy consumption after the completion of all steps	[%][21]									
Average estimated energy savings in final energy consumption after the completion of all steps	[%][22]									
Total estimated emission savings after the completion of all steps	[kgCO2eq/yr]									
Average estimated emission savings after the completion of all steps	[kgCO2eq/yr]									
Average estimated savings on energy bills after completion of all steps	[euro/building or building unit/yr]									
Average estimated investment to complete all steps	[euro/m2]									

Commented [A3]: In this table, a line should be added for each category of technical building systems (heating, cooling, hot water and ventilation) with sub-categories listing the main types of products to inform about what kind of system has been replaced or upgraded in the frame of the completion of the various renovation steps. A consolidated number per product and type of existing building would be indicated. The request for this type of information should be made mandatory.

[21] percentage improvement compared to the energy consumption before undertaking the renovation

[22] percentage improvement compared to the energy consumption before undertaking the renovation

5. SMART READINESS INDICATOR

Table 23: Number of buildings scored with smart readiness indicator (SRI) in the reported year and the average scores

Indicator	Unit	New buildings								Existing buildings							
		Total residential	Out of which:		Total non-residential	Out of which:				Total residential	Out of which:		Total non-residential	Out of which:			
			Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential		Single family houses	Multi-family buildings		Offices	Educational buildings	Hospitals	Other non-residential
ID		V	V	V	V	V	V	V	V	V	V	V	Miap[23]	V	V	V	V
Number of buildings with a SRI	[no]																
Average SRI score	[-]																
Out of which:																	
Average score for optimising energy efficiency and overall in-use performance	[-]																
Average score for adapting operation to the needs of the occupant	[-]																
Average score for adapting to signals from the grid	[-]																

[23] Mandatory only from the date of application of the Delegated Act referred to in the Article 15(2) of Directive (EU) 2024/1275 and for non-residential buildings with an effective rated output for heating systems, air-conditioning systems, systems for combined space heating and ventilation, or systems for combined air-conditioning and ventilation of over 290 kW.

Commented [A4]: After this part, a sixth one should be added relative to the IAQ monitoring in non-residential buildings as requested for new and deeply renovated buildings by article 13 (5) of the EPBD recast.
A table should propose different IAQ parameters (CO2, humidity, VOC and PM 2.5). The member states would indicate which ones are monitored in the various categories of non-residential buildings and the yearly average levels obtained per type of building when they are occupied.
The request for this type of information should be made mandatory.

ANNEX II

1. FORMULAS FOR TOTALS AND AVERAGES

1. Total (cumulative) values for primary and final energy consumption, for operational GHG emissions and for on-site renewable energy production from energy performance certificates and for total estimated emission and energy savings from building renovation passports will be calculated as a simple sum of the corresponding values shown on the energy performance certificates issued in the reported year and in accordance with the following formula:

$$Etot = \sum_{i=1}^{N} Ei \qquad (1)$$

where:

Etot = total energy or emission or on-site renewable energy production per building or building unit (in kWh or kg CO2).

Ei = energy or emission or on-site renewable energy production of the "I" building or building unit (in kWh or kg CO2).

2. Averages of annual primary and final energy use, energy needs, operational greenhouse gas emissions and of life-cycle GWP from energy performance certificates and average energy performance of buildings from building renovation passports will be calculated in accordance with the following formula:

$$\text{Eavg} = \sum_{i=1}^{N} \left(Ei * \frac{Ai}{Atot}\right) \qquad (2)$$

where:

Eavg = average energy or emission performance or life-cycle GWP, in kWh/(m2.yr) or kgCO2/(m2.yr) or kgCO2/(m2).

Ei = energy or emission performance or life-cycle GWP of the "I" building or building unit, in kWh/(m2.yr) or kgCO2/(m2.yr) or kgCO2/(m2).

N = total number of buildings or building units.

Ai = useful/reference floor area of the "i" building or building unit, in m2.

Atot = sum of useful/reference floor area of buildings or building units, in m2.

3. The average scores for smart readiness indicator, total and per key functionality, and the average estimated energy savings, energy bills savings and investment from building renovation passports will be calculated in accordance with the following formula:

$$Vavg = \frac{\sum_{i=1}^{N} Vi}{N} \qquad (3)$$

where:

Vavg = average smart readiness indicator score or average estimated energy savings, average energy bills savings or average investment from building renovation passports

Vi = the smart readiness indicator score or estimated energy savings, average energy bills savings or investment from "i" smart readiness indicator or building renovation passport

N = total number of SRI certificates or building renovation passports