HRN EN ISO 52003-1:2017

Energy performance of buildings — Indicators, requirements, ratings and certificates — Part 1: General aspects and application to the overall energy performance

Subject: **National Datasheet conforming to the template in Annex A**

Version: 2019-12-20

HRN EN ISO 52003-1/ National Datasheet
(informative)

Input and method selection data sheet — Choices for Croatia

NA.1 General

This National Datasheet gives the choices to be used with respect to values, methods and references in Croatia when using the national methodology for assessment of energy performance of buildings for the purpose of issuing energy performance certificate, building permit and permit to use and for energy audit.

This National Datasheet is in line with the template in Annex A of the standard HRN EN ISO 52003-1:2017.

This National Datasheet takes into account national regulations, climatic conditions, traditions and a specific range of validity.

The specific national or regional regulations referred to in this document are:

- Technical regulation on energy economy and heat retention in buildings (Official Gazette 128/15, 70/18, 73/18, 86/18);
- Ordinance on energy audits and energy certification of buildings (Official Gazette 88/17);
- Methodology on energy audit (2017);
- Algorithms for assessment of energy performance of buildings (2017);
- Type solutions of application of alternative systems (2015);
- Handbook for energy certification of buildings (2010).

NA.2 References

The references, identified by the EPB module code number, are given in a table complying with the format given in Table A.1 (a template).

Table NA.1 — References

Reference	Reference document[a]	
	Number	**Title**
M1–6[b]	ISO 17772-1	Energy performance of buildings — Indoor environmental Quality — Part 1: Indoor environmental input parameters for the design and assessment of energy performance of buildings
	EN 16798-1c	Energy performance of buildings - Ventilation of buildings - Part 1: Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics (Module M1–6)
M1–6	HRN EN 15251:2007	Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics
M1–14[b]	EN 15459-1	Energy performance of buildings — Economic evaluation procedure for energy systems in buildings — Part 1: Calculation

Reference	Reference document[a]	
	Number	**Title**
		procedures, Module M1-14
M1–14		*Methodology on energy audit (2017)*
M2–4[b]	ISO 52018-1	*Energy performance of buildings — Indicators for partial EPB requirements related to thermal energy balance and fabric features — Part 1: Overview of options*
M2–4	Official Gazette 128/15, 70/18, 73/18, 86/18	*Technical regulation on energy economy and heat retention in buildings*
M3–4[b]	HRN EN 15316–1:2008	*Heating systems in buildings– Method for calculation of system energy requirements and system efficiencies – Part 1: General and Energy performance expression, Module M3–1, M3–4, M3–9, M8–1, M8–4*
M4–4[b]	EN 16798–9	*Energy performance of buildings — Ventilation for buildings — Part 9: Calculation methods for energy requirements of cooling systems (Module M4–1, M4–4 M4–9) — General*
M4–1	HRN EN 15243:2008	*Algorithms for assessment of energy performance of buildings (2017)* (hourly method) *Ventilation for buildings. Calculation of room temperatures and of load and energy for buildings with room conditioning systems*
M5–4[b]	EN 16798–3	*Energy performance of buildings — Ventilation for buildings — Part 3: For non-residential buildings — Performance requirements for ventilation and room-conditioning systems (Modules M5–1, M5–4)*
M5–4[b]	*HRN EN 13779:2008* *DIN V 18599-10:2007*	*Algorithms for assessment of energy performance of buildings (2017)* *Ventilation for non-residential buildings. Performance requirements for ventilation and room-conditioning systems* *Energy efficiency of buildings - Calculation of the net, final and primary energy demand for heating, cooling, ventilation, domestic hot water and lighting - Part 10: Boundary conditions of use, climatic data (Table 4, nominal flow rates, operating hours)*
M6–4[b]	EN 16798–3	See M5–4
M7–4[b]	EN 16798–3	See M5–4
M8–4[b]	EN 15316-1	See M3–4
M9–4[b]	HRN EN 15193–1:2008	*Energy performance of buildings – Energy requirements for lighting – Part 1: Specifications, Module M9*
M10–4[b]	HRN EN 15232–1:2012	*Energy performance of buildings -- Impact of Building Automation, Controls and Building Management Modules M10–4,5,6,7,8,9,10*

[a] If a reference comprises more than one document, the references may be differentiated.

[b] Informative.

[c] Under preparation.

NA.3 Energy performance requirements

The following table of the overall energy performance requirement mix should be filled out as follows:

— The first column lists the overall energy performance features that can be considered for setting requirements. The motivation for the chosen mix shall be reported. If required, other overall EPB features can be added at the bottom of the table. By means of a numbered reference, a precise description of each additional overall EPB feature will then be given and the motivation shall be described in a clear manner.

— In the second column, an X-mark is put at each of the features chosen to set a requirement.

— In the third column, a numbered reference is made to a full, detailed and clear explanation for each exception, including the motivation for the exception.

The table should be seen in conjunction with all the partial EPB requirements (which are beyond the scope of this document, e.g. concerning technical systems). Partial EPB requirements related to the fabric are discussed in ISO 52018, which also provides reporting templates for the corresponding EPB features.

New buildings: Default mix of the overall energy performance requirements:

Table NA.2a — Default choices with respect to the overall EPB requirements (see 9.5)

Application: New buildings		
Overall energy performance feature	**Requirement?**	**Exceptions*?**
Total primary energy use	X	1)
Non-renewable primary energy use	X	1)
Renewable primary energy use		
Renewable energy ratio	X	2)
Greenhouse gas emissions		
Annual energy costs		
Energy policy factors (define*)		
The columns or cells that are marked with an asterisk * (i.e. any cell involving a specific national/regional element) shall be marked with a numbered reference. Clear explanation and motivation shall be given for each of these new elements. Complete: Explanations according to each of the numbered references:		
Exceptions: 1), 2) residential and non-residential buildings with useful flor area <50 m^2 shall only satisfy requirement on U-coefficient Motivation: to lower design and technical systems costs 2) – when 50% of energy need is covered by district heating with specified share of renewable energy in delivered energy - when energy need for heating and cooling is at least 20% lower than the corresponding minimum requirement - family houses with installed at least 4 m^2 of solar thermal collectors for space heating and/or domestic hot water purposes - nZEB building have higher minimum requirement (30%) Motivation: - to ensure economic feasibility - to promote use of renewables in nZEB buildings Motivation for the requirement mix: — The first requirement on the non-renewable primary energy is along with default choice from HRN EN EN 52000-1 (Table B.27). It promotes use of renewables such as solar thermal, PV, geothermal and biomass. — The second requirement on renewable energy ratio (based on delivered energy) ensures that building energy needs are partially covered by onsite generated energy from renewable sources.		

Table NA.2b — Default choices with respect to the overall EPB requirements (see 9.5)

Application: Existing buildings		
Overall energy performance feature	**Requirement?**	**Exceptions*?**
Total primary energy use		
Non-renewable primary energy use	X	1)
Renewable primary energy use		
Renewable energy ratio	X	2)
Greenhouse gas emissions		
Annual energy costs		
Energy policy factors (define*)		
The columns or cells that are marked with an asterisk * (i.e. any cell involving a specific national/regional element) shall be marked with a numbered reference. Clear explanation and motivation shall be given for each of these new elements. Complete: Explanations according to each of the numbered references:		
Exceptions: 1) - buildings undergoing reconstruction on less than 75% of total envelope surface area of heated part of a building - buildings undergoing reconstruction on more than 75% of total envelope surface area of heated part of a building where satisfying the minimum requirements is not economically, technically and functionally and feasible approved by cost optimum analysis Motivation: to ensure economic feasibility 1), 2) buildings from the register of cultural properties if satisfying the energy requirements would ruin a building monument characteristics Motivation: to preserve cultural heritage Motivation for the requirement mix: — The first requirement on the non-renewable primary energy is along with default choice from HRN EN ISO 52000-1 (Table B.27). It promotes use of renewables such as solar thermal, PV, geothermal and biomass. — The second requirement on renewable energy ratio (based on delivered energy) ensures that building energy needs are partially covered by onsite generated energy from renewable sources.		

As explained in Clause 9, the numerical value of the requirement on the total primary energy use (notably whether variable or constant) should be set with great care.

Table NA.3 — Numeric indicator used for the requirement on the total primary energy use (see 9.5)

Numeric indicator	Choice
Total primary energy use per useful floor area [kWh/m²]	NO
Total primary energy use E_{Ptot} [kWh]	NO
Ratio delivered renewable energy to total delivered energy to technical systems	YES [1]
<free text> (Other: define*)	No default choice in this annex
...	No default choice in this annex
If another indicator is used, it shall be clearly described and precise reference shall be made to the determination method:	
(1) Ratio delivered renewable energy to total delivered energy to technical systems is temporarily used instead of RER factor defined in HRN EN ISO 52000-1 based on primary energy, due to ongoing process of revision of national primary energy factors Ref: Methodology on energy audit (2017);	

As explained in Clause 9, the numerical value of the requirement on the non-renewable primary energy use (notably whether variable or constant) should be set with great care.

Table NA.4 — Numeric indicator used for the requirement on the non-renewable primary energy use (see 9.5)

Numeric indicator	Choice
Non-renewable primary energy use per useful floor area [kWh/m²]	YES [1]
If another indicator is used, it shall be clearly described and precise reference shall be made to the determination method:	
(1) Calculation methodology and non-renewable primary energy factors are provided in Ref:	
- Technical regulation on energy economy and heat retention in buildings (Official Gazette 128/15, 70/18, 73/18, 86/18);	
- Methodology on energy audit (2017);	
- Algorithms for assessment of energy performance of buildings (2017).	

As explained in Clause 9, the numerical value of the requirement on the renewable primary energy use (notably whether variable or constant) should be set with great care.

Table B.5 — Numeric indicator used for the requirement on the renewable primary energy use (see 9.5)

Numeric indicator	Choice
No default choice in this annex	
If another indicator is used, it shall be clearly described and precise reference shall be made to the determination method:	
(1) ...<free text>	
(2) ...	
NOT APPLICABLE	

NA.4 Rating

Table NA.6 — Energy rating methods (see 10.2 and 10.3)

Method	Choice[a]
1) Default energy rating method with two reference points (see 10.2)	~~NO~~ YES
2) Default energy rating method with a single reference point (see 10.2)	~~YES~~ NO
3) Other energy rating method (see 10.2)	NO
In case of method 1:	**Parameters**
Subclasses to expand the classes	**A+**
Position of the energy performance regulation reference, R_r,	Between class B and C
Position of the building stock reference, R_s,	Between class D and E
Measure for the building stock reference	median (50 %)
Position of $EP = 0$	Top of class A
~~In case of method 2:~~	~~Parameters~~
~~Numbering of the classes 1 to 7~~	~~A to G~~
~~Subclasses to expand the classes~~	~~A+ (EP < 0)~~
~~Boundary for the reference position, n_{ref}~~	~~4 (D)~~
~~In case of method 3:~~	~~Reference~~
~~Reference to procedure:~~	~~Not applicable~~
[a] Only one "YES" is possible.	

Table NA.7 — Graphical representation of the rating (see 11.3)

Method	Choice[a]
1) Default model for the graphical representation of the rating (see 11.3)	YES
2) Other model for the graphical representation of the rating (see 11.3)	NO
~~In case of method 2:~~	
~~Reference to procedure:~~	~~Not applicable~~
[a] Only one "YES" is possible.	