Byggnaders energiprestanda – Indikatorer för partiella EPB-krav relaterade till värmeenergibalans och byggelementfunktioner – Del 1: Översikt över alternativ
(ISO 52018-1:2017)

Energy performance of buildings – Indicators for partial EPB requirements related to thermal energy balance and fabric features – Part 1: Overview of options
(ISO 52018-1:2017)

Annex A
(normative)

Input and method selection data sheet — Template

NDS.1 General

The template in Annex A of this document shall be used to specify the choices between methods, the required input data and references to other documents.

NOTE 1 Following this template is not enough to guarantee consistency of datNDS.

NOTE 2 Informative default choices are provided in Annex B. Alternative values and choices can be imposed by national/regional regulations. If the default values and choices of Annex B are not adopted because of the national/regional regulations, policies or national traditions, it is expected that:

— national or regional authorities prepare data sheets containing the national or regional values and choices, in line with the template in Annex A; or

— by default, the national standards body will add or include a national annex (Annex NA) to this document, in line with the template in Annex A, giving national or regional values and choices in accordance with their legal documents.

NOTE 3 The template in Annex A is applicable to different applications (e.g., the design of a new building, certification of a new building, renovation of an existing building and certification of an existing building) and for different types of buildings (e.g., small or simple buildings and large or complex buildings). A distinction in values and choices for different applications or building types could be made:

— by adding columns or rows (one for each application), if the template allows;

— by including more than one version of a table (one for each application), numbered consecutively as a, b, c, … For example: Table NNDS.3a, Table NNDS.3b;

— by developing different national/regional data sheets for the same standard. In case of a national annex to the standard these will be consecutively numbered (Annex NA, Annex NB, Annex NC, …).

NOTE 4 In the section "Introduction" of a national/regional data sheet information can be added, for example about the applicable national/regional regulations.

NOTE 5 For certain input values to be acquired by the user, a data sheet following the template of Annex A, could contain a reference to national procedures for assessing the needed input datNDS. For instance, reference to a national assessment protocol comprising decision trees, tables and pre-calculations.

The shaded fields in the tables are part of the template and consequently not open for input.

Specific information concerning Annex A and Annex B in this document

Although the tables in Annex A cover most EPB requirements that currently apply in various countries, they are of course not necessarily exhaustive, also in view of possible new developments in the future. Still other variables can possibly be considered for setting regulatory EPB requirements and the tables have been conceived flexibly to allow to report such other choices.

Table NDS.1/B.1 provides a table to specify the modular references.

Table NDS.2/B.2 provides a table for regulators to report in a uniform manner the chosen mix of partial EPB features for which regulatory requirements are set, in as far as they fall within the scope of this document. Extra features can be added at the bottom of the table. The table shall be seen in conjunction with all other

overall and partial EPB requirements (which are beyond the scope of this document, e.g. concerning technical building systems); see also the relevant standard under EPB module M1-4.

Tables NDS.3/B.3 to NDS.14/B.14 provide tables to report in a uniform manner, for each of the partial EPB features selected for setting requirements, as reported in Table NDS.2/B.2, the numeric indicator that is chosen to express the quantitative requirement. An X-mark shall be set in the second column corresponding to the row of the chosen indicator. Still other numeric indicators can be added at the bottom of each of the tables. For partial EPB features that are not subjected to a requirement, the corresponding table will of course remain empty. If requirements are set for extra EPB features, as reported in additional rows in Table NDS.2/B.2, then the format of generic Table NDS.14/B.14 shall be used for reporting the corresponding indicators that are used.

Due to their open-endedness, all the reporting tables allow full freedom of choice by the regulators.

Typically, different choices will be made according to the type of work, notably for new constructions (or equivalent) on the one hand and works on existing buildings on the other hand. Furthermore, there may be differentiations according to other criteria, such as between residential and non-residential buildings. Each different application area will thus have its own set of tables if different choices are made (see Note 3 above). The application domain of every set shall be clearly specified.

NDS.2 References

The references, identified by the module code number, are given in Table NDS.1.

Table NDS.1 — References

Reference	Reference document	
	Number	Title
M1-4	ISO 52003-1	*Energy performance of buildings — Indicators, requirements, ratings and certificates — Part 1: General aspects and application to the overall energy performance*
M1-6	EN 16798–1	*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)
M1-13	ISO 52010-1	*Energy performance of buildings — External climatic conditions — Part 1: Conversion of climatic data for energy calculations*
M2-2	ISO 52016-1	*Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads — Part 1: Calculation procedures*
M2-5.1	ISO 13789	*Thermal performance of buildings — Transmission and ventilation heat transfer coefficients — Calculation method*
M2-5.2	ISO 10211	*Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations*
M2-5.3	ISO 14683	*Thermal bridges in building construction — Linear thermal transmittance — Simplified methods and default values*
M2-8.1	ISO 52022-1	*Energy performance of buildings — Thermal, solar and daylight properties of building components and elements — Part 1: Simplified calculation method of the solar and daylight characteristics for solar protection devices combined with glazing*
M2-8.2	ISO 52022-3	*Energy performance of buildings — Thermal, solar and daylight properties of building components and elements — Part 3: Detailed calculation*

		method of the solar and daylight characteristics for solar protection devices combined with glazing
M5-8	EN 16798–5-1 EN 16798–5-2	*Energy performance of buildings — Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8 — Ventilation for buildings — Calculation methods for energy requirements of ventilation and air conditioning systems — Part 5-1: Distribution and generation (revision of EN 15241) — Method 1* *Energy performance of buildings — Modules M5-6.2, M5-8.2 — Ventilation for buildings — Calculation methods for energy requirements of ventilation systems — Part 5-2: Distribution and generation— Method 2*
M9-1	EN 15193–1	*Energy performance of buildings — Module M9 — Energy requirements for lighting — Part 1: Specifications*

NDS.3 Mix of partial energy performance requirements

NDS.3.1 General

See Clause 6.

The table based on the template in Table NDS.2 shall be filled out as follows.

— The first column lists the partial EPB features that can be considered for setting requirements. The motivation for the mix that is chosen shall be reported below the table. If needed, still other partial EPB features can be added at the bottom of the table. By means of a numbered reference, a precise description of each additional EPB feature will then be given below the table. If possible, the description of the extra feature shall be taken from an EPB standard. Also, for each extra partial EPB feature, the motivation shall be described in a clear manner.

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

— In the third column, for each exception, a numbered reference is made to a full, detailed and clear explanation below the table, including the motivation for the exception. For some types of (detailed) requirements (e.g. on element level, such as thermal insulation), it may be easier to explain the exceptions in conjunction with the detailed description of the actual requirements. In these instances, it suffices to give here the general synthesis, the motivation and a precise reference to the regulatory texts where the requirements and exceptions are described.

NDS.3.2 Application: …

This subclause may be repeated for different applications.

Table NDS.2 — Choices with respect to the partial EPB (delkrav) **requirements related to thermal energy balance and fabric features (see Clause 6)**

Application: New buildings			
Partial energy performance feature	**Requirement?**	**Exceptions*?**	**Details in**
Summer thermal comfort	Yes [a]		Table NDS.3/B.3
Winter thermal comfort	Yes		Table NDS.4/B.4
Energy “need” for heating: give further specifications (a)*	-		Table NDS.5/B.5
Energy “need” for cooling: give further specifications (b)*	-		Table NDS.6/B.6

Combined energy "need" for heating and cooling (and possibly still other quantities): define precisely*	-		Table NDS.7/B.7
Overall thermal insulation of the envelope	Yes		Table NDS.8/B.8
Thermal insulation of individual elements of the thermal envelope	Yes [b]		Table NDS.9/B.9
Thermal bridges	-		Table NDS.10/B.10
Window energy performance	Yes	Only alterations	Table NDS.11/B.11
Airtightness of the thermal envelope: mandatory measurement: give further specifications*	-		Table NDS.12/B.12
Airtightness of the thermal envelope: quantitative requirement: give further specifications*	Yes	Only for buildings < 50 m^2	Table NDS.12/B.12
Solar control	-		Table NDS.13/B.13
Maximum installed electricity input for heating	Yes		Table NDS.14/B.14

* 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. A clear explanation and motivation shall be given for each of these new elements below the table.

[a] Recommendation, see table NDS.3
[b] Recommendations only for small alterations, see table NDS.9

Table NDS.2

Application: Alteration of buildings			
Partial energy performance feature	**Requirement?**	**Exceptions*?**	**Details in**
Explanation: (a) If applicable, specify for the energy "need" for heating: — with the real or with a predefined fictitious ventilation system; — including/excluding the amount of heat needed for active preheating of the incoming hygienic ventilation air (if present); — including/excluding the latent heat need (i.e. the sensible heat need only or not); — still other aspects. (b) If applicable, specify for the energy "need" for cooling: — with the real or with a predefined fictitious ventilation system; — including/excluding the amount of cold needed for active precooling of the incoming hygienic ventilation air (if present); — including/excluding the latent cold need (i.e. the sensible cold need only or not); — still other aspects.			
Specifications according to each of the numbered references:			

(1): ... <free text>

(2): ... <free text>

...

<free text>

Motivation for the chosen requirement mix:

I plan- och byggförordningen (PBF) anges de egenskaper som byggnader ska ha som är direkt relaterade till energianvändningen.
https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/plan--och-byggforordning-2011338_sfs-2011-338

3 kap. PBF

Egenskapskrav avseende energihushållning och värmeisolering

14 § *För att uppfylla kravet på energihushållning och värmeisolering i 8 kap. 4 § första stycket 6 plan- och bygglagen (2010:900) ska*

1. en byggnad ha en mycket hög energiprestanda (nära-nollenergibyggnad) uttryckt som primärenergi beräknad med en primärenergifaktor per energibärare,

2. en byggnad ha särskilt goda egenskaper när det gäller hushållning med el, och

3. en byggnad vara utrustad med byggdel bestående av ett eller flera skikt som isolerar det inre av en byggnad från omvärlden så att endast en låg mängd värme kan passera igenom.

Punkt 1 avser byggnadens energiprestanda. Punkt 2 avser att elenergi ska användas effektivt i byggnader och styr mot användning av värmepumpar. Punkt 3 ska säkra en effektiv klimatskärm. Kraven ska om möjligt vara funktionskrav och möjliga att verifiera genom både mätning och/eller beräkning.

NDS.3.3 Application: ...

This subclause may be repeated for different applications.

NDS.4 Partial energy performance requirements

NDS.4.1 Application: ...

This subclause may be repeated for different applications.

Table NDS.3 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.3 — Numeric indicator used for the requirement on the summer thermal comfort (see Clause 7)

Application: New/All buildings	
Numeric indicator	**Choice**
Time above a fixed reference temperate [h]	-
Temperature weighted time above a fixed reference temperature [K·h]	-
Other indicator; define*)	-
...	

Table NDS.3 *(continued)*

Application: New/all buildings	
Numeric indicator	**Choice**
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method:	
Description in case of other indicator:	

Inga krav finns på termiskt klimat inomhus under sommaren. I ett allmänt råd finns lydelse om termisk komfort. Se avsnitt 6:42 *Termisk komfort* i Boverkets byggregler (2011:6) – föreskrifter och allmänna råd, BBR https://www.boverket.se/contentassets/a9a584aa0e564c8998d079d752f6b76d/konsoliderad_bbr_2011-6.pdf

6:42 Termisk komfort
Byggnader och deras installationer ska utformas, så att termisk komfort som är anpassad till utrymmenas avsedda användning kan erhållas vid normala driftsförhållanden.

> *Allmänt råd*
> *Byggnader bör vid DVUT utformas så att*
> *– den lägsta riktade operativa temperaturen i vistelsezonen beräknas bli 18 ºC i bostads- och arbetsrum och 20 ºC i hygienrum och vårdlokaler samt i rum för barn i förskolor och för äldre i servicehus och dylikt,*
> *– den riktade operativa temperaturens differenser vid olika punkter i rummets vistelsezon beräknas bli högst 5K, och*
> *– yttemperaturen på golvet under vistelsezonen beräknas bli lägst 16 ºC (i hygienrum lägst 18 ºC och i lokaler avsedda för barn lägst 20 ºC) och kan begränsas till högst 26 ºC.*
> *Dessutom bör lufthastigheten i ett rums vistelsezon inte beräknas överstiga 0,15 m/s under uppvärmningssäsongen och lufthastigheten i vistelsezonen från ventilationssystemet inte överstiga 0,25 m/s under övrig tid på året.*

DVUT är dimensionerande vinterutetemperatur.

Folkhälsomyndigheten har allmänna råd om termisk komfort, Folkhälsomyndighetens allmänna råd om temperatur inomhus, https://www.folkhalsomyndigheten.se/contentassets/da13aa23b84446d3913c4ec32a6a276d/fohmfs-2014-17.pdf (In Swedish)

I dessa allmänna råd ges rekommendationer för tillämpningen av 9 kap. 3 § och 26 kap. 19 § miljöbalken (1998:808) vad gäller temperatur inomhus. Dessa allmänna råd gäller för bostadsutrymmen, t.ex. kök, sovrum, vardagsrum och badrum, samt för sådana lokaler för allmänna ändamål där människor vistas mer än tillfälligt, t.ex. klassrum och lekhallar. De allmänna råden gäller inte vid extrema väderförhållanden.

Tabell 1. Indikerande värden för fortsatt utredning
1. Lufttemperatur Under 20 °C
2. Lufttemperatur Över 24 °C
Över 26 °C under sommaren
3. Golvtemperatur Under 18 °C

Tabell 2. Värden för bedömning av olägenhet för människors hälsa

	Riktvärden	*Rekommenderade värden*
1. Operativ temperatur	*Under 18 °C[1]*	*20–23 °C[2]*
2. Operativ temperatur, varaktigt	*Över 24 °C[3]*	
3. Operativ temperatur, kortvarigt	*Över 26 °C[4]*	

4. Skillnad i operativ temperatur mätt vertikalt 0,1 och 1,1 m över golv		*Ej över 3 °C*
5. Strålningstemperaturskillnad *5. Fönster – motsatt vägg* *5. Tak – golv*		 *Ej över 10 °C* *Ej över 5 °C*
6. Luftens medelhastighet		*Ej över 0,15 m/s*[5]
7. Yttemperatur, golv	*Under 16 °C*[6]	*20–26 °C*

[1] För känsliga grupper, 20 °C.
[2] För känsliga grupper, 22–24 °C.
[3] Under sommaren, högst 26 °C.
[4] Under sommaren, högst 28 °C.
[5] Vid inomhustemperatur över 24 °C kan högre lufthastigheter accepteras.
[6] För känsliga grupper, 18 °C.

Table NDS.4 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.4 — Numeric indicator used for the requirement on the winter thermal comfort (see Clause 8)

Application: New buildings	
Numeric indicator	**Choice**
Time below a fixed reference temperate [h]	-
Temperature weighted time below a fixed reference temperature [K·h]	-
Directed operative temperature	See note a
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	

[a] The general recommendation to fulfil the requirement of thermal comfort is the following (Boverket´s mandatory provisions and general recommendations, BBR, section 6:42, https://www.boverket.se/globalassets/publikationer/dokument/2019/bbr-2011-6-tom-2018-4-english-2.pdf)

Buildings for DVUT should be designed to ensure
– the lowest directed operative temperature in the occupied zone is estimated to be 18 ºC in residential and workrooms and 20 °C in sanitary rooms and healthcare facilities and in rooms for children in preschools and for the elderly in service buildings and similar establishments,
– the difference in directional operative temperature at different points in the occupied zone of the room is calculated at a maximum of 5K and
– the surface temperature of the floor beneath the occupied zone is calculated at a minimum of 16 °C (in sanitary rooms at a minimum of 18°C and in premises utilised by children at a minimum of 20°C) and can be restricted to a maximum of 26 °C.

DVUT is the winter external design temperature.

Occupied zone = The occupied zone in the room is enclosed by two horizontal levels, one 0.1 meters above floor level and the other 2.0 meters above floor level, and a vertical level either 0.6 meters from the exterior wall or other external limit, or 1.0 meters by windows and doors.

Boverket´s mandatory provisions and general recommendations, BBR can be downloaded at https://www.boverket.se/globalassets/publikationer/dokument/2019/bbr-2011-6-tom-2018-4-english-2.pdf

Table NDS.5 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.5 — Numeric indicator used for the requirement on the energy "need" for heating (see Clause 9)

Application: New buildings	
Numeric indicator	**Choice**
Total "need" [kWh]	-
"Need" per useful floor area [kWh/m²]	-
Ratio; define*)	-
* If a ratio or another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method **Description in case of ratio or other indicator:** Det finns inget krav i Boverkets byggregler BBR på någon form av kombinerad form av energi för uppvärmning och komfortkyla. Energi till båda funktionerna ingår separat i fastställandet av byggnadens energiprestanda.	

Table NDS.6 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.6 — Numeric indicator used for the requirement on the energy "need" for cooling (see Clause 10)

Application: New buildings	
Numeric indicator	**Choice**
Total "need" [kWh]	-
"Need" per useful floor area [kWh/m²]	-
Ratio; define*)	-
Det finns inget delkrav i Boverkets byggregler BBR på energi för komfortkyla (luftkonditionering). Energi till komfortkyla ingår separat i fastställandet av byggnadens energiprestanda.	

Table NDS.6

Application: New buildings	
Numeric indicator	**Choice**
<free text> Other indicator; define*)	-
...	-
* If a ratio or another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of ratio or other indicator:**	
<free text>	

Table NDS.7 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.7 — Numeric indicator used for the requirement on the combined energy "need" for heating and cooling (and possibly still other quantities) (see Clause 11)

ApplicationNot applicable	
Numeric indicator	**Choice**
Total "need" [kWh]	-
"Need" per useful floor area [kWh/m²]	-
Ratio; define*)	-
Other indicator; define*)	
Det finns inget krav i Boverkets byggregler BBR på någon form av kombinerad form av energi för uppvärmning och komfortkyla. Energi till båda funktionerna ingår separat i fastställandet av byggnadens energiprestanda.	
* If a ratio or another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of ratio or other indicator:**	
<free text>	

Table NDS.8 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.8 — Numeric indicator used for the requirement on the overall thermal insulation of the thermal envelope (see Clause 12)

Application – New buildings	
Numeric indicator	**Choice**
Overall transmission heat transfer coefficient H_{tr} [W/K]	No
Mean thermal transmittance U_{mn} [W/(m²·K)]	Yes
Ratio; define*)	-
Definition of U_m in in section 9:12 *Definitions* Boverket´s mandatory provisions and general recommendations, BBR https://www.boverket.se/globalassets/publikationer/dokument/2019/bbr-2011-6-tom-2018-4-english-2.pdf *Average heat transfer coefficient (U_m) for building components and thermal bridges (W/m²K) determined in accordance with SS-EN ISO 13789:2007 and SS 24230 (2) and calculated according to the equation below* $U_m = \frac{\sum_{I=1}^{n} U_i A_i + \sum_{K=1}^{m} l_k \Psi_k + \sum_{j=1}^{p} \chi_j}{A_{om}}$ *where* U_i *Heat transfer coefficient for building component i (W/m²K).* A_i *The area of the building component i's surface against heated parts of dwellings or premises. For windows, doors, gates and the like, A_i is calculated with the outer frame dimension. The building's entire indoor height is used in the calculations, i.e. from the upper edge of the lower joists to the lower edge of the attic joists.* Ψ_k *The heat transfer coefficient for the linear thermal bridge k (W/mK).* l_k *The length of the linear thermal bridge k (m).*	

χ_j	*The heat transfer coefficient for the point thermal bridge j (W/K).*	
A_{om}	*Total area of enclosed building components' surfaces against heated parts of dwellings or premises. Enclosed building components refer to such building components that border on heated parts of dwellings or premises towards the outside, towards the ground or towards partially heated spaces.*	
...		
* If a ratio or another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of a ratio or other indicator:**		
<free text>		

Table NDS.9 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.9 — Numeric indicator used for the requirement on the thermal insulation of individual elements of the thermal envelope (see Clause 13)

Application: Alteration of buildings	
Numeric indicator	**Choice**
Minimum temperature factor f_{Rsi} [-]	-
Thermal transmittance U [W/(m^2·K)]	x
Total thermal resistance R_{tot} [m^{2}K/W]	-
Intrinsic element thermal resistance $R_{c;op}$ [m^{2}K/W]	-
Thermal transmittance U_i recommendations for individual building components are given in case of alternations of buildings, i.e small addition to the building volume. U_i **[W/m^2,K]** U_{roof} 0.13 U_{wall} 0.18 U_{floor} 0.15 U_{window} 1.2 $U_{exterior\ door}$ 1.2 Tabel 9:92 in section 9:92 *Building envelope* in Boverket´s mandatory provisions and general recommendations, BBR https://www.boverket.se/globalassets/publikationer/dokument/2019/bbr-2011-6-tom-2018-4-english-2.pdf	
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	

Table NDS.10 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.10 — Numeric indicator used for the requirement on the thermal bridges (see Clause 14)

Application: New buildings

Numeric indicator	Choice
Minimum temperature factor f_{Rsi} [-]	-
Linear thermal transmittance Ψ [W/(m·K)], possibly differentiated per type of junction	-
Point thermal transmittance χ [W/K], possibly differentiated per type of three dimensional thermal bridge	-
Relative importance of thermal bridges compared to the overall heat transfer coefficient [-] $(\Sigma \Psi l + \Sigma \chi)/H_{tr}$	-
Köldbryggor ingår i U_m enligt definitionen i BBR avsnitt i 9:12. Se tabell NDS.8 Alternativt görs ett tillägg till U_m på normalt 15–20 procent.	
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	
<free text>	

Table NDS.11 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.11 — Numeric indicator used for the requirement on the window energy performance (see Clause 15)

Application: Alteration of buildings	
Numeric indicator	**Choice**
Heating energy performance $P_{E;H;w}$ [kWh/m²]	-
Cooling energy performance $P_{E;C;w}$ [kWh/m²]	-
Combination of heating and cooling energy performance $P_{E;H+C;w}$ [kWh/m²]	-
For glazing only: energy balance value E [W/(m²·K)]	-
Minimal window area in certain types of rooms: specify*	-
Other indicator; define*)	-
...	

Table NDS.11

Application: ...	
Numeric indicator	**Choice**
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	
<free text>	

Table NDS.12 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.12 — Numeric indicator used for the requirement on the thermal envelope air tightness (see Clause 16)

Application: New buildings, floor area A_{temp} < 50 m²	
Numeric indicator	**Choice**

Specific leakage rate per thermal envelope area q_{Epr} [$m^3/h/m^2$][a]	X
Air change rate n_{pr} [h^{-1}]	-
Specific leakage rate per useful floor area q_{Fpr} [$m^3/h/m^2$]	-
[a] The requirement is set in the unit l/s m^2 (internal area)	
Specify for the chosen method of the air tightness measurement: — the precise definition of the reference area or volume for the indicator used; — the reference pressure, pr; — result of pressurization, depressurization or mean; — others, if needed.	
Specification (if method 1, 2 or 3):	
The reference pressure difference is 50 Pascal. The requirement is valid only for buildings with a useful floor area A_{temp} less than 50 m^2. Table 9:2a in Boverkets byggregler https://www.boverket.se/contentassets/a9a584aa0e564c8998d079d752f6b76d/konsoliderad_bbr_2011-6.pdf	
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	

Table NDS.13 is only applicable if a requirement is set in Table NDS.2/B.2 for this EPB feature.

Table NDS.13 — Numeric indicator used for the requirement on the solar control (see Clause 17)

Application: ...	
Numeric indicator	**Choice**
Solar factor g or g_{tot} or F_{npss} [−]	-
* If another indicator is used, it shall be clearly described below. And precise reference shall be made to its definition and its assessment method: **Description in case of other indicator:**	
<free text>	

If requirements on other EPB features within the scope of this document are set, as reported in Table NDS.2/B.2, the indicators that are used are reported in Table NDS.14.

Table NDS.14 — Numeric indicator used for other requirements (see Table NDS.2/B.2)

Application: New buildings	
EPB feature	**Numeric indicator**
Maximum installed electricity input for heating	4.5 kW [a]
* All EPB features and their corresponding indicator shall be clearly described and precise reference shall be made to their definition and their assessment method. The numbers (1), (2), ... refer to the numbers of other requirements in Table NDS.2/B.2.	
Specification:	
[a] The electricity input to appliances for space heating and domestic hot water (DHW) is limited to 4.5 kW as a base. The allowed installed electricity input is increased depending of geographical location in Sweden and the floor area A_{temp}.	

The maximum allowed installed electricity input for heating is determined as follows

Single-family houses
4,5 + 1,7 × (Fgeo –1)
(0,025 + 0,02(F_{geo} -1)) × (A_{temp} – 130) added to above value (4.5 kW) when A_{temp} is larger than 130 m^2

Multi-family houses
4,5 + 1,7 × (Fgeo – 1)
(0,025 + 0,02(F_{geo} -1)) × (A_{temp} – 130) added to above when A_{temp} is larger than 130 m^2
(0,022 + 0,02(F_{geo} -1)) × (q – 0,35) A_{temp} added if the building has apartments not larger than 35 m^2 each and the ventilation air flow exceeds 0.35 l/s, m^2 due to fixed/necessary air flow in bathrooms, kitchens etc

Non-residential buildings
4,5 + 1,7 × (Fgeo – 1)
(0,025 + 0,02(F_{geo} -1)) × (A_{temp} – 130) added to above when A_{temp} is larger than 130 m^2
(0,022 + 0,02(F_{geo} -1)) × (q – 0,35) A_{temp} added if the average outdoor/ambient ventilation air flow during the heating season exceeds 0.35 l/s, m^2 due to hygienic/indoor air quality considerations.

F_{geo} varies according to the local climate from 0.8 in most southern part of Sweden to 1.9 in the most northern part of Sweden.

Table 9:2a in Boverket´s mandatory provisions and general recommendations, BBR
https://www.boverket.se/contentassets/a9a584aa0e564c8998d079d752f6b76d/konsoliderad_bbr_2011-6.pdf
https://www.boverket.se/globalassets/publikationer/dokument/2019/bbr-2011-6-tom-2018-4-english-2.pdf

NDS.4.2 Application: ...

This subclause may be repeated for different applications.