

**Byggnaders energiprestanda – Externa klimatförhållanden –
Del 1: Konvertering av klimatdata för energiberäkningar
(ISO 52010-1:2016)**

**Energy performance of buildings – External climatic conditions
– Part 1: Conversion of climatic data for energy calculations
(ISO 52010-1:2017)**

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 standards.

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.

NDS.2 References

The references, identified by the EPB module code number, are given in [Table NDS.1](#) (template).

Table NDS.1 — References

Reference	Reference document	
	Number	Title

Mx-ya

^a In this document there are no choices in references to other EPB standards. The Table is kept to maintain uniformity between all EPB standards

NDS.3 Climatic input data

Table NDS.2 — Weather station and climatic data set (See [6.3.2](#))

Name	Value					
Identifier for climatic data set	See note a					
Station and/or name of data set	See note a					
	Symbol	Unit	Value	Validity interval	Origin	Varying
latitude	φ_w	°	55–68	–90 to +90	station	No
longitude c	λ_w		11–24	–180 to +180	station	No
time zone	TZ	h	+1	–12 to +12	station	No
First day of time series (day of the year)	<i>n</i> day;start	-	1	1 to 366	station	No
Last day of time series (day of the year)	<i>n</i> day;end	-	365	1 to 366	station	No
Day of the week for January 1		-	-	Monday to Sunday (day 1 to 7)	station	No
Daylight saving time?	No					
Leap day included	No					
Specific other information	-					
Name	Value					
Reference to documentation on application range and type of data	<p>Climate data from SMHI (Swedish Meteorological and Hydrological Institute) is published online by Sveby www.sveby.org</p> <p>Data is available for 310 locations in Sweden and consists of wind direction, wind speed, dry-bulb temperature, relative humidity, total cloud cover (octas), Global horizontal irradiance, Direct normal irradiance and diffuse horizontal irradiance. The global horizontal irradiance is calculated from the direct normal irradiance, the solar altitude angle and the diffuse horizontal irradiance.</p> <p>The time step is 1 hour. The data corresponds to average values for the period 1980–2010.</p> <p>Beskrivning av data finns via http://www.sveby.org/wp-content/uploads/2016/02/Klimatdatafiler-f%C3%B6r-sveriges-kommuner-20160217.pdf</p>					

^a Vid beräkning av byggnadens energianvändning ska det lokala klimatet på den faktiska platsen användas. Detta anges i Boverkets föreskrifter och allmänna råd (2016:12) om fastställande av byggnadens energianvändning vid normalt brukande och ett normalår, BEN, <https://rinfo.boverket.se/BEN/PDF/BFS2017-6-BEN-2.pdf>

Lydelsen i 2 kap. 3 § BEN är

Byggnadens och installationernas egenskaper

3 § Vid beräkning av byggnadens energianvändning ska byggnadens utformning, placering och orientering beaktas, inklusive utomhusklimat och passiv solinstrålning. Data för utomhusklimatet ska vara representativt för ett normalår för den ort där byggnaden är belägen.

På detta sätt kan byggnadens energiprestanda fastställas utifrån både verkliga uppmätta data och genom energiberäkning. Beräknad eller uppmätt energi för uppvärmning korrigeras till en referensort vid beräkning av energiprestanda. Justeringsfaktorn för varje kommun anges i Boverkets byggregler BBR, tabell 9:2c.

https://www.boverket.se/contentassets/a9a584aa0e564c8998d079d752f6b76d/konsoliderad_bbr_2011-6.pdf

Boverket publicerar även värden för DVUT (Dimensionerande vinterutetemperatur) med olika tidskonstanter för byggnaden som underlag för beräkning av byggnadens maximala effektbehov. Uppgifterna finns online via

<https://www.boverket.se/sv/om-boverket/publicerat-av-boverket/oppna-data/dimensionerande-vinterutetemperatur-dvut-1981-2010/>

Bakgrund till DVUT finns via http://www.sveby.org/wp-content/uploads/2017/03/smhi-210976-v1-smhi_rapport_2016_69_dimensionerande_vinterutetemperatur_dvut_1981-2010_310_orter.pdf

NDS.4 Calculation method

Table NDS.3 — Method to assess direct (beam) irradiance if not available from weather station (See 6.4.2)

Method		Choice Yes/No
1	Default method	No, see table NDS.2
2	Other method	No, see table NDS.2
In case of method 2:		
	Reference to procedure:	-
Solstrålning anges i de klimatdata som presenteras i tabell NDS.2.		

Table NDS.4 — Solar reflectivity of the ground ($\rho_{sol;grnd}$) (See 6.4.3)

Name	Value
Fixed value	NO
Dependent on ground condition, listed in climatic data file	NO
Dependent on local ground condition (near the inclined surface)	-
Values available in climatic data file	YES ^a
^a Faktorn används vid beräkning av diffusa strålningen. Diffus solstrålning finns tillgängligt som indata. Data finns för 310 orter i Sverige och för varje dag under året. Se tabell NDS.2.	

If fixed value:

Table NDS.5 — Solar reflectivity of the ground; if fixed value

Name	Value
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Solar reflectivity of the ground, $\rho_{sol;grnd}$ [-]	-
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If dependent on ground condition:

Table NDS.6 — Solar reflectivity of the ground; if dependent on ground conditions

Description of ground condition	Value for solar reflectivity of the ground, $\rho_{sol;grnd}$ [-]
Dry or wet ground snow free	-
Data finns för 310 orter i Sverige och för varje dag under året. Se tabell NDS.2	

Table NDS.7 — Choice between options and methods for calculation of shading by external objects (See [6.4.5.1](#))

Application ^b
Description	Choice	Choice
Effect of shading calculated in this document?	-	-
If Yes:	Choice ^a	Choice ^a
Only method 1, Simplified method (shading of direct radiation)	-	-
Only method 2, Detailed method (shading of direct and diffuse radiation)	-	-
Both methods are allowed	-	-

^a Only one Yes per column possible.

^b Add more columns if needed to differentiate between applications (e.g. building categories, new or existing buildings, etc.).

Se generell beskrivning av krav på beräkningsprogrammets funktion, kapacitet och lämplighet i inledningen av bilagan till standarden ISO 52016-1:2017. Det blir programvaruutvecklarens ansvar att ta hänsyn till inflytandet av parametrarna.

Table NDS.8 — Number of skyline segments, $n_{sh;segm}$ for input solar shading objects (See [6.4.5.2](#))

Application ^b	All applications
Description	Value of $n_{sh;segm}$	Value of $n_{sh;segm}$
Maximum number of segments over 360 degrees	-	-
Fixed width (= $360 / n_{sh;segm}$)	-	-

Inget anges i föreskriften BEN om antalet segment i dessa beräkningar.

Se generell beskrivning av krav på beräkningsprogrammets funktion, kapacitet och lämplighet i inledningen av bilagan till standarden ISO 52016-1:2017. Det blir programvaruutvecklarens ansvar att ta hänsyn till inflytandet av parametrarna.

Table NDS.9 — Choice between methods for calculation of illuminance (See [6.4.6](#))

Application	All applications
Description	Choice	Choice

Method 1, Default method, or Method 2, Alternative method	-	-
If choice is method 2:	Description	Description
Describe method 2	-	-
<p>Inget anges i föreskriften BEN om hur sådan beräkning ska göras.</p> <p>Se generell beskrivning av krav på beräkningsprogrammets funktion, kapacitet och lämplighet i inledningen av bilagan till standarden ISO 52016-1:2017. Det blir programvaruutvecklarens ansvar att ta hänsyn till inflytandet av parametrarna.</p>		