

Collection of comments and suggestions on EPB Standard:

EN ISO 52016-1:2017

Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads — Part 1: Calculation procedures

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1 Introduction

The EPB Center is a user platform for the EPB Standards and EPB Technical Reports, in short "the EPB documents". These EPB documents are developed and published by CEN and ISO, the European and international standards bodies. Therefore the EPBD Center works closely with CEN and ISO. Among various other activities, the EPB Center collects questions and comments on these EPB documents.

Based on the enquiries and suggestions received, the EPB Center experts prepare, to the best of their knowledge, clarifications and/or proposals for corrections.

1. Clarifications are given in the form of short texts, directly shown on the website (FAQ). When necessary, the short answer is complemented by a more extensive explanation as a [pdf] file.
2. Proposals (comments and suggestions) that could be taken into consideration in the context of future revisions of EPB documents are published in the form of the CEN/ISO commenting table. This standardized format ensures an efficient communication with CEN or ISO later.
For each EPB document for which there is feedback, there is an autonomous file.

The present document is one of the series of proposals mentioned under point 2.

The comments and suggestions are published anonymously for reasons of privacy. The EPB Center has the responsibility to review and (optionally) generalise each received comment and add a proposal. The EPB Center experts aim at the best possible support for the implementation and application of the EPB documents in practice.

Additional information

To see whether there already exist clarifications and/or a comment table for any of the other EPB documents, please consult the corresponding link on this [webpage](#).

Additional feedback on any of the EPB documents can be submitted via the [contact form](#) on the EPB Center website. Please describe the issue clearly.

NOTE Also technologies not yet covered by the EPB standard can be reported. Please describe the technology clearly, e.g. via a link to a webpage. If possible, also add existing (for instance national) assessment methodologies for the technology (by means of web links, etc.).

The EPB Center intends, at the appropriate time, to forward all clarifications and proposals to CEN or ISO for potential use in future updates of the EPB documents.

Acknowledgement

Although the issues are published anonymously, the EPB Center gratefully acknowledges all contributions.

2 Table with comments and proposed changes

NOTE ISO Commenting template guidelines can be found at:

<https://helpdesk-docs.iso.org/article/299-commenting-template-guidelines>

In the following table the comments that could lead to (technical) corrections in specific formulae are highlighted as “te”.

Comments and suggestions

Date: 2022-08-11

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Project: EN ISO 52016-1:2017

MB/ NC ¹	Comment No (for ref.)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment ²	Comments	Proposed change	<i>In this EPB Center document, this column is for internal use only</i>
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EPB Center	1	general		ed	Editorial comments from the Editorial Programme Manager at ISO Central Secretariat have been received on more recent EPB standards. As a results, an update of the common template for all EPB standards is in preparation by CEN/TC 371/WG 1 (2022-2023).	Adapt the document to the updated common template for all EPB standards, in preparation by CEN/TC 371/WG 1 (2022-2023).	
EPB Center	2	3.1.5		ed	Definition of fabric (from 52000-1): add windows: Although these are only examples and the list is not exhaustive, it would be helpful to list windows alongside doors. This avoids the potential misinterpretation that fabric is only concerned with the opaque elements The note omits the transmission of solar gains through transparent elements – an important consideration in terms of cooling and heating.	Add windows to the list of examples. Add to note: "...and, in the case of transparent or translucent elements, solar gains into the building"	
EPB Center	3	4.1		ed	ISO 9050 also refers to <i>g</i> as the total solar energy transmittance as solar factor. This should be reflected in the table of symbols	For the name of quantity for <i>g</i> , add "(solar factor)".	
EPB Center	4	6.5.4.1		ed	For elements connected to an adjacent external type (as defined in 6.4.5.1) of thermally unconditioned zone: $H_{H;el;k;m} = b_{ztu;k;m} \cdot U_{H;k;m} \cdot A_{el;k} \quad (110)$ For elements connected to an adjacent internal type (as defined in 6.4.5.1) of thermally unconditioned zone: $H_{H;el;k;m} = \left(1 - b_{ztu;k;m}\right) \cdot U_{H;tr;k;m} \cdot A_{el;k} \quad (111)$ Why $U_{H;k;m}$ (for the <i>ztui</i> -type) versus $U_{H;tr;k;m}$ (for the <i>ztue</i> -type)?	Check if there is a reason for the difference; if not: use the same subscripts	
EPB	5	6.4.5.3	Formula (1)	te	Formula (1) is wrong. The factor b should be (1-	Replace:	

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Center					<p>b). The temperature in that zone k, $\theta_{z_{tu},k,t}$ in °C, is based on the adjustment factor, $b_{z_{tu},k}$ for the thermally unconditioned zone plus the gains in the thermally unconditioned zone:</p> $\theta_{z_{tu},t} = \theta_{int;op;ztc;(t-1)} - b_{z_{tu},m} \cdot (\theta_{int;op;ztc;(t-1)} - \theta_{e,t}) + \frac{\Phi_{gn;dir;z_{tu},k;t}}{H_{z_{tu},tot;m}}$ <p>(Formula (58))</p> <p>So it is better to suggest for Formula (1) a formulation similar to formula (58)</p>	$\theta_{z_{tu},k;H/C;m} = \theta_{e;a;m} + b_{z_{tu},k;m} \cdot (\theta_{calc;H/C;ztc;j;m} - \theta_{e;a;m})$ <p>By:</p> $\theta_{z_{tu},k;H/C;m} = \theta_{calc;H/C;ztc;j;m} - b_{z_{tu},k;m} \cdot (\theta_{calc;H/C;ztc;j;m} - \theta_{e;a;m})$	
EPB Center	6	6.4.6	Formula (8)		<p>It is not clear which H_{tr} value must be used in Formula (8). See also 6.6.11.3, Formula (146). Formula (8) is not (yet?) used in the spreadsheet. Here the simpler version than for Formula (146) is more appropriate: like for the time constant determination (Formula (138/139) in 6.6.10.4</p>	Make more explicit in Formula (8) which H_{tr} value shall be used	
EPB Center	7	6.5.5.2		te	<p>In Step 1 it is missing that if max power is zero, even if temp. exceeds setpoint, you can go directly to Step 5. Check also if the changes made in the order of calculations in the spreadsheet (2021 draft version) due to the option to couple e.g. heat pumps with variable power, requires changes in the Step 1 to Step 5.</p>	<p>Add the proposed short cut to Step 1. Check the spreadsheet algorithm to see if changes needed in the description of the calculation steps 1 to 5.</p>	
EPB Center	8	6.5.13.1		ed	<p>Related to the comment on 6.6.8.1: In Formula (48) replace "$\Phi_{sol;dir;ztc/z_{tu},t}$" by "$\Phi_{sol;z_{tu},t}$" And in the formula declaration: Replace "$\Phi_{sol;dir;ztc/z_{tu},t}$ are the direct solar</p>	Editorial corrections as suggested in the comment	

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					<p>gains in the thermally conditioned zone ztc / thermally unconditioned zone ztu itself, as determined in 6.5.13.2, in W;"</p> <p>By:</p> <p>"$\Phi_{sol;dir;ztc;t}$ are the direct solar gains in the thermally conditioned zone ztc itself, as determined in 6.5.13.2, in W;</p> <p>$\Phi_{sol;ztu;t}$ are the solar gains in the adjacent thermally unconditioned zone ztc, as determined in E.3.2.1, in W;"</p> <p>And delete the last sentence: "The direct solar gains of a thermally unconditioned zone k, $\Phi_{sol;ztu;k,t}$ in W, is determined in E.3."</p>		
EPB Center	9	6.5.13.2		ed	<p>Related to the comment on 6.6.8.1:</p> <p>Replace: "The direct solar gains into the zone"</p> <p>By: "The direct solar gains into the thermally conditioned zone"</p> <p>And change subscript "zt" by "ztc" (c=conditioned)</p> <p>In the last sentence, replace "$\Phi_{sol;ztu;k,t}$" by "$\Phi_{sol;dir;ztu;k,t}$"</p>	Editorial corrections as suggested in the comment	
EPB Center	10	6.5.6.3.5		te	<p>Formula (41) and related formulae are per (developed) area.</p> <p>However, the solar properties ($a_{sol;eli}$ and perhaps more?) are per projected area.</p> <p>It is no problem in the two node model of this standard, because in this model the absorbed solar radiation is included in the direct solar gains into the zone, via the g-value. But for a more detailed model (EN ISO 52016-3) it is relevant.</p>	Check precise wording of developed area for thermal transmission and projected area for solar.	
EPB Center	11	6.5.14.1.1		ed	<p>In formula declaration below Formulae (73) and (74):</p> <p>$\Phi_{HU;ld;ztc;t}$..., in kg/s;</p>	Replace kg/s by W	

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					$\Phi_{DHU};l_d;ztc;t$... in kg/s ; Wrong unit		
EPB Center	12	6.5.14.1.2	Formula (75)	te	On Formula (75) and similar formulae: check if factor 0.378 should be added, as in $\varphi/100 = q \cdot P_{atm} / ((0,622 + 0,378 q) P_{sat})$ with q being the "specific humidity" [kg/kg humid air]. Note: the effect in practice is probably negligible In EN 16798.5.1 the "mixing ratio" [kg/kg dry air] is called "humidity content". Should that term be adopted in EN ISO 52016-1 too?	Check as explained in the comment	
EPB Center	13	6.5.14.1.2	Formula (77)	ed	Formula (77): $p_{sat;int;ztc;t} = 611,2 \times e^{\frac{17,62 \times \theta_{int;a;ztc;t}}{243,12 + \theta_{int;ztc;t}}}$ $\theta_{int;ztc;t}$ should be $\theta_{int;a;ztc;t}$	Add subscript a	
EPB Center	14	6.5.14.2	Formula (81)	te	Is this formula to calculate the system specific humidification or dehumidification moisture load only for mechanical ventilation (since for other ventilation elements x_{sup} is equal to $x_{a,e}$)?	Clarify whether this applies only to mechanical ventilation or	
EPB Center	15	6.6.5		ed	In Formula (106) the symbol $H_{g;an;ztc;m}$ is used. In Table 14 (Column: „Symbol in origin“) it is shown that in the origin document, EN ISO 13370, the symbol is $H_{g,an,m}$ (see Formula (C.10) in that document). Note: because all thermal transmission properties are "collected" in EN ISO 13789, EN ISO 52016-1 refers to EN ISO 13789; in the collection this quantity has been overlooked Note: the spreadsheet takes the correct variable. https://epb.center/support/documents/demo-en-	Add in the formula declaration the symbol used in the source document. Correction for EN ISO 13798 collect this quantity and it's symbol from EN ISO 13370	

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					iso-52016-1/		
EPB Center	16	6.6.6.1	Formula (113)	ed	Formula (113): q 's should be θ 's Why call it "2 formulae"? because of H/C? Not so in formula (114)	Replace q 's by θ 's Replace "two formulae" by "formula"	
EPB Center	17	6.6.6.2		te	Iteration needed if $b_{ve} \neq 1$: because b_{ve} is needed to calculate $\theta_{calc;H/C;ztc;m}$ while $\theta_{calc;H/C;ztc;m}$ is needed to calculate b_{ve} This can be prevented by calculating b_{ve} as function of $\theta_{int;H/C;set;ztc}$ instead of $\theta_{calc;H/C;ztc;m}$	Consider the <i>work around</i> as suggested in the comment	
EPB Center	18	6.6.8.1	Formula (121)	te	In formula (121) $Q_{H/C;sol;dir;ztu;k}$ (solar gains in adjacent thermally unconditioned zone ztu) shall be calculated according to Formula E.8 in E3.2.2. Like also $f_{gn;max;H;ztu,k,m}$ comes from E.3 (E.3.3). And remove "dir;" from the subscript, because only in thermally conditioned zones it is direct or indirect (= from adjacent unconditioned zone)	$Q_{H/C;sol;dir;ztu,k,m}$ are the monthly solar heat gains of adjacent external or internal type (as defined in 6.4.5.1) of thermally unconditioned zone k itself, as determined in 6.6.8.2 E.3.2.2, in kWh.	
EPB Center	19	6.6.8.2		ed	Replace: "For each thermally conditioned or unconditioned zone zt ", By: "For each thermally conditioned or unconditioned zone ztc " And replace "zt" by "ztc" in Formula and Formula declarations	Editorial correction as suggested in the comment	
EPB	20	6.6.10.4.	Formulae	ed	Similar as comment on 6.6.5:	Add in the formula declaration the symbol used in	

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Center			(138, 139)		<p>In Formulae (138, 139) the symbol $H_{H/C;gr;adj}$ <i>ztc</i> is used.</p> <p>In Table 14 (Column: „Symbol in origin“) it is shown that in the origin document, EN ISO 13370, the symbol is $H_{g;H/C;adj}$ (see Formula (C.11) in that document).</p> <p>Note: because all thermal transmission properties are “collected” in EN ISO 13789, EN ISO 52016-1 refers to EN ISO 13789; in the collection this quantity has been overlooked.</p> <p>Note: the spreadsheet takes the correct variable.</p> <p>https://epb.center/support/documents/demo-en-iso-52016-1/</p>	<p>the source document.</p> <p>Correction for EN ISO 13798 collect the quantity and it's symbol $H_{g;H/C;adj}$ from EN ISO 13370</p>	
EPB Center	21	6.6.11.3	Formula (146)	te	<p>On the temperature set-back for the monthly method, Formula (146): it is not clear which H_{tr} value must be used when determining the calculation temperature as a result of night reduction and temperature equalization?</p> <p>Note that in the spreadsheet the equation is spelled out in more detail.</p> <p>https://epb.center/support/documents/demo-en-iso-52016-1/</p> <p>Answer: H_{gr} is the monthly value ($H_{gr;an;ztc;m}$) and this value is multiplied with the difference between the setpoint internal temperature ($\theta_{int;set,H;ztc}$, similar as for H_{tr}) and the annual mean outdoor air temperature ($\theta_{e;a,an}$).</p> <p>For the determination of the time constant (Formula 138/139 in 6.6.10.4) the seasonal mean value is used explicitly; it comes (as far as EN ISO 52016-1 is concerned) directly from EN ISO 13370 (more precisely: via EN ISO 13789 where</p>	Technical correction as suggested in the comment	

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					all transmission data for EN ISO 52016-1 is collected).		
EPB Center	22	6.6.14.1	Formula (159)	te	Formula (159): 0,001 is missing in the right hand side of the equation <i>Note: in the spreadsheet it is correct: the right hand side of the equation is preceded by 0,001, to convert from Wh to kWh.</i> https://epb.center/support/documents/demo-en-iso-52016-1/	Add 0,001 to the right hand side of the equation	
EPB Center	23	6.6.4.2 & 6.6.4.3	Formulae (98) and (101)	ed	Subscripts are in plain text In formula declaration of Formula (101): add reference to source or $\gamma_{C;zt;c;m}$ (= 6.6.10.3) f	In Formulae (98) and (101) change plain text into subscripts And add in formula declaration of Formula (101) $\gamma_{C;zt;c;m}$ is the dimensionless heat-balance ratio for the cooling mode, as determined in 6.6.10.3	
EPB Center	24	6.6.5.2	Formulae (110) and (111)	ed	subscript $H_{H;el;k;m}$ has to be replaced by $H_{H/C;el;k;m}$ subscript $U_{H;k;m}$ has to be replaced by $U_{H/C;k;m}$ subscript $U_{H;tr;k;m}$ has to be replaced by $U_{H/C;k;m}$	Editorial correction as suggested in the comment	
EPB Center	25	6.6.10.2	Formula (127)	ed	Subscript got corrupted in final version. Replace $\gamma_{-;zt;c;m}$ by: $\gamma_{H;zt;c;m}$	Editorial correction as suggested in the comment	
EPB Center	26	6.6.12	Formula (157)	ed	Replace $HO_{tr;zt;c;m}$ By $HO_{H;tr;zt;c;m}$ Replace $HO_{ve;zt;c;m}$ By $HO_{H;ve;zt;c;m}$	Editorial correction as suggested in the comment	
EPB Center	27	7.2		ed	The verification is supposed to be for the hourly method only, given the title of 7.2. So providing the input for the monthly method, in	Correct the title of 7.2: for hourly or for monthly method.	

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					7.2.2.4, is confusing. There are more instances in 7.2 that are intended specifically for the monthly method.																																
EPB Center	28	7.2.4	Tables 28 & 29	te	<p>The values in Table 28 and Table 29 for Case 900 are wrong (copied from the wrong columns in the original calculation result file).</p> <p>These are the correct values:</p> <table border="1"> <thead> <tr> <th>Table 28 (Heating)</th> <th>Table 29 (Cooling)</th> </tr> <tr> <th>Case 900</th> <th>Case 900</th> </tr> </thead> <tbody> <tr><td>457</td><td>84</td></tr> <tr><td>434</td><td>53</td></tr> <tr><td>192</td><td>121</td></tr> <tr><td>109</td><td>147</td></tr> <tr><td>13</td><td>175</td></tr> <tr><td>15</td><td>308</td></tr> <tr><td>0</td><td>638</td></tr> <tr><td>0</td><td>656</td></tr> <tr><td>1</td><td>626</td></tr> <tr><td>48</td><td>418</td></tr> <tr><td>185</td><td>84</td></tr> <tr><td>373</td><td>48</td></tr> <tr><td>1827</td><td>3360</td></tr> </tbody> </table>	Table 28 (Heating)	Table 29 (Cooling)	Case 900	Case 900	457	84	434	53	192	121	109	147	13	175	15	308	0	638	0	656	1	626	48	418	185	84	373	48	1827	3360	Correct the values in Table 28 and Table 29 as proposed in the comment	
Table 28 (Heating)	Table 29 (Cooling)																																				
Case 900	Case 900																																				
457	84																																				
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1	626																																				
48	418																																				
185	84																																				
373	48																																				
1827	3360																																				
EPB Center	29	7.2.4	Table 31	ed	Case 900 Peak cooling: replace 4,043 by 4,047	Correct the value in Table 31 as proposed in the comment																															

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EPB Center	30	7.2.4		te	<p>The reference calculation results in 7.2.4 are based on a spreadsheet that was developed to test and demonstrate the calculation procedures of the standard. In later (2019) versions of the spreadsheet some shortcomings were revealed:</p> <p>For the monthly calculation method in the 2016 version of the spreadsheet the solar radiation was erroneously shifted one month.</p> <p>Link to most recent spreadsheet: https://epb.center/support/documents/demo-en-iso-52016-1/</p>	Update the calculation results, if needed (effect is probably small)	
EPB Center	31	7.2.4		te	<p>The reference calculation results in 7.2.4 are based on a spreadsheet that was developed to test and demonstrate the calculation procedures of the standard. In later (2019) versions of the spreadsheet some shortcomings were revealed:</p> <p>BESTEST cases 600, 640 and 600FF (lightweight building): the new results from the hourly calculation method deviate significantly from the results reported in EN ISO 52016-1.</p> <p>The main reason is that for these cases by mistake the distribution of the mass over the nodes of the opaque constructions was still based the procedure in the draft standard, the prEN DIS 52016-1 (no thermal capacity on the surface nodes) instead of on the distribution according on to the standard published in 2017 (the surface nodes are <i>not</i> excluded in the distribution of the thermal capacity).</p> <p>NOTE: the new results may give cause to discuss a possible refinement of the distribution of the thermal capacity as part of revision of the</p>	<p>Check the default distribution of the mass over the nodes (see e.g. procedure proposed for National Annex in Italy).</p> <p>Update the calculation results.</p>	

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					<p>standard.</p> <p>BESTEST cases 900, 940 and 900FF (heavyweight building): the new results from the hourly calculation method are almost identical to the results reported in EN ISO 52016-1.</p> <p>Link to most recent spreadsheet: https://epb.center/support/documents/demo-en-iso-52016-1/</p>		

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2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

Comments and suggestions

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EPB Center	32	Accompanying CEN ISO/TR 52016-2		te	<p>The example calculation results in CEN ISO/TR 52016-2 are based on a spreadsheet that was developed to test and demonstrate the calculation procedures of the standard. In later (2019) versions of the spreadsheet some shortcomings were revealed:</p> <p>The Example01 case reported in CEN ISO/TR 52016-2 has been calculated with the climate that is intended for the BESTEST cases (DRYCOLD, based on Denver (Col., USA) and not with a more moderate climate (De Bilt, The Netherlands) as was intended and reported.</p> <p>Link to most recent spreadsheet: https://epb.center/support/documents/demo-en-iso-52016-1/</p>	Update the example01 calculation	
EPB Center	33	Annex A and B		ed	Annex A and B: all Tables: check that if the Tables have in Annex A specific footnotes in the bottom row, that these cells with footnotes are also shaded, because they form part of the template.	If row not shaded: add shade	
EPB Center	34	Annex A/B	Tables A/B.3, A/B.4, A/B.29, A/B.43	ed	Table A/B.3: no shading in cell "Application: ..." Table A/B.4 and A/B.29: Idem "if yes.." Table A/B.43: add shading in rows "Blind type.."	Add shades	
EPB Center	35	Annex A/B	Tables A/B.3	ed	Table A.3 — Thermal zoning rules (see 6.4.2.12) should be: Table A.3 — Thermal zoning rules (see 6.4.2.2)	Editorial correction as suggested in the comment	
EPB Center	36	Annex A/B	Tables A/B.3	ed	The step 1 of Table A.3 is called "Zoning step 1. Assessment of thermal envelope" whereas 6.4.2.2 is called "Zoning step 1: Assessment of space categories". This is a mistake (also the	Replace the step 1 of Table B.3 by "Zoning step 1: Assessment of space categories" Replace reference to 6.4.2.2 by reference to 6.4.2	

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					reference to 6.4.2.12 in the header of the table is a mistake).		
EPB Center	37	Annex A/B	Table A/B.6	ed	Footnote: $H_{int;spec}$ (W/K) Should be $H_{H;int;spec}$ (W/m ² .K)	Editorial corrections as suggested in the comment	
EPB Center	38	Annex A/B	Table A/B.18 and Table A/B.30	ed	Table A/B.18 and Table A/B.30 — View factor to the sky Some countries want to add more columns.	Adapt the template of Table A.30 (and Table B.30 accordingly) to allow more columns, with other criteria	
EPB Center	39	Annex A/B	Table A/B.8 and Table A/B.26	ed	Footnote a belongs to <u>the values in the table</u> and not to the Table header.	Move footnote a (4x) one row down	
EPB Center	40	Annex A/B	Table A/B.37	ed	Table A/B.37: $b_{C;red}$ should be $b_{C;red}$	Editorial correction as suggested in the comment	
EPB Center	41	Annex B	Table B.1	ed	EN ISO 12631 (thermal transmission curtain walls) is not mentioned. https://epb.center/support/documents/en-iso-12631/	Check if EN ISO 12631 needs to be mentioned.	
EPB Center	42	Annex B	Table B.6	te	Table B.6: recommends the application of the formula for spatial temperature averaging in residential buildings. Probably in many countries this choice is regarded as too complicated. Therefore is may be better to change the recommendation and assume that the same temperature set-point for heating applies also to partly or moderately thermally conditioned spaces in a residential building.	Check if recommended choice should be changed	
EPB Center	43	Annex B	Table B.8 and Table B.26	te	In both Tables the proposed number of skyline segments for solar shading calculations is 15. The value of 15 segments means: 24 degrees per segment... Should have been: 24 segments (= each 15 degrees). See spreadsheet on solar	Replace the value 15 by 24	

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					shading where this has been corrected https://epb.center/support/documents/demo-en-iso-52016-1_shad/		
EPB Center	44	Annex B	Table B.9	ed	“Table B.9: see 6.5.5” Should be “Table B.9: see 6.5.4.5.2”	Editorial correction as suggested in the comment	
EPB Center	45	Annex B	Table B.15 and Table B.29	te	In Table B.15 and Table B.29 a fixed value is proposed for the solar absorption coefficient of external opaque surfaces. For warm climates this value can have a very significant effect on the cooling load and needs. Replace the fixed value by three categories (e.g. based on the tabulated material properties from J.Douglas Balcomb, Passive Solar Design Handbook, March 1980	Replace the fixed value by three categories Category 1 $\alpha_{sol} = 0,3$ (light colour) Category 2 $\alpha_{sol} = 0,6$ (intermediate colour) Category 3 $\alpha_{sol} = 0,9$ (dark colour)	
EPB Center	46	Annex B	Table B.38	te	The Table has not been filled in.	Fill in: for all applications: Method A	
EPB Center	47	Annex C	Table C.1	ed	Spin-off from same comment on Table B.1: EN ISO 12631 (thermal transmission curtain walls) is not mentioned. https://epb.center/support/documents/en-iso-12631/	See proposed change in Table B.1	
EPB Center	48	Annex E	E.2.1	ed	“ $F_{fr,wi}$ is the frame area fraction, obtained according to Table A.8 (normative template) with informative default value in Table B.8 .” Wrong Table numbers	Replace Table A/B.8 by Table A/B.21 (hourly calculation method) or Table A/B.41 (monthly calculation method)	
EPB Center	49	Annex E	E.2.2	ed	Concerning the sentence: “If solar protection devices are present, the total solar energy transmittance of the glazing including the solar protection device, $g_{gl;sh}$, shall be calculated according to ISO 52022-3.”:	To be considered and improved	

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					a) Subscript sh is not in line with formula (E.4) b) The instruction is not in line with the formula declaration that points to ISO 15099		
EPB Center	50	Annex E	E.3.3	ed	In Formula (E.10): Replace " $b_{tuz,k,m}$ " by " $b_{ztu,k,m}$ "	Editorial correction as suggested in the comment	
EPB Center	51	Annex G		te	Check if the publication of EN ISO 52016-3 (currently under preparation) should lead to changes in this Annex, e.g. by offering a choice to apply this Annex (if still relevant) or EN ISO 52016-3. This also may affect Tables in Annex A/B that refer to Annex G.	Check need for corrections as suggested in the comment	

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3 Longer explanations

3.1 General

These extra pages below the table (if any) are provided for more extensive explanation of specific comments or proposed changes.

NOTE When the table is provided to CEN or ISO, it will be handled automatically for the collation of comments submitted on CEN or ISO. In that case all the information that is not in the table itself will be lost and needs to be submitted separately.

<not applicable>

