INTERNATIONAL STANDARD ISO 10211-1:1995
TECHNICAL CORRIGENDUM 1

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Thermal bridges in building construction — Heat flows and surface temperatures —

Part 1:
General calculation methods

TECHNICAL CORRIGENDUM 1

Ponts thermiques dans le bâtiment — Flux de chaleur et températures superficielles —
Partie 1: Méthodes générales de calcul

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to International Standard ISO 10211-1:1995 was prepared by the European Committee for Standardization (CEN), in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ICS 91.120.10 **Ref. No. ISO 10211-1:1995/Cor.1:2002(E)**

Title

Change: "Thermal bridges in building construction - Heat flows and surface temperatures - Part 1: General calculation methods"

to: "Thermal bridges in building construction - Calculation of heat flows and surface temperatures - Part 1: General methods"

Change : "Ponts thermiques dans les bâtiments – Calcul des températures superficielles et des flux thermiques - Partie 1: Méthodes de calcul générales"

to: "Ponts thermiques dans les bâtiments – Calcul des flux thermiques et des températures superficielles - Partie 1 : Méthodes générales"

Change: "Wärmebrücken im Hochbau – Wärmenströme und Oberflächentemperaturen – Teil 1 : Allgemeine Berechnungsverfahren"

to: "Wärmebrücken im Hochbau – Berechnung der Wärmenströme und Oberflächentemperaturen – Teil 1 : Allgemeine Verfahren"

Foreword, 2nd paragraph

Change: "… conflicting national standards shall be withdrawn at the latest by February 1996."

to: "… conflicting national standards shall be withdrawn at the latest by December 2001."

Introduction, 5th paragraph

Change: "Simplified methods are given in prEN ISO 14683, Thermal bridges in building constructions - Linear thermal transmittance - Simplified methods and design values (ISO/DIS 14683:1995)."

to: "Simplified methods are given in EN ISO 14683, Thermal bridges in building construction - Linear thermal transmittance - Simplified methods and default values (ISO 14683)."

2 Normative references

Change: "prEN 673 Thermal insulation of glazing - Calculation rules for determining the steady state thermal transmittance of glazing"

to: "EN 673 Glass in building - Determination of the thermal transmittance (*U*-value) - Calculation method"

Change: "prEN ISO 6946-1"
to: "EN ISO 6946 ….. (ISO 6946)"

Change: "prEN ISO 10456"
to: "EN ISO 10456 ….. (ISO 10456)"

Change: "prEN ISO 13789 Thermal performance of buildings - Specific transmission heat loss - Calculation method"

to: "EN ISO 13789 Thermal performance of buildings - Transmission heat loss coefficient - Calculation method (ISO 13789)"

The above designations are to be changed throughout the document.

3 Definitions and symbols

3.2 Symbols and units

Symbols to be written using the same typeface both in equations and in the text. All symbols to be in italics (except Δ). All subscripts, except *R* and those representing numbers (*i*, *j*, *k*, *m*, *n* etc.), to be upright.

Change the following symbols in 3.2 and throughout the document:

θ and Θ	to:	θ
Ψ and ψ	to:	Ψ

5 Modelling of the construction

5.1.3 Auxiliary planes

In Figure 8b, add: “Dimensions in mm” (as in figure 8a)

6 Calculation values

6.1.1. Thermal conductivities of materials

Change: “.....according to prEN 30456...”
to: “.....according to EN ISO 10456....”

Change: “....See prEN 1190.”
to: “ ...See EN ISO 13370 “Thermal performance of buildings - Heat transfer via the ground - Calculation methods (ISO 13370).”

Annex A (normative)
Validation of calculation methods

Case 2 and Case 3:
Change: “**Discription of the model”** to: “**Description of the model”**

Figure A.2: Test reference case 2: comparison with a 2-D calculation

Add in the square CDFG the number “2”

Case 3
Change: “Temperatures in, °C:”
to: “Temperatures, in °C:”

Figure A.3: Test reference case 3: comparison with a 3-D calculation
Add above the title “Y and V are three-dimensional corners”

Annex B (normative)
Equivalent thermal conductivity of air cavities

B.1 General

Change: “8k” to: “8 K”

B.1 and **B.2:**

Replace table B.1 by:

Table B.1: Thermal resistance of air layers and tube-shaped cavities in constructions with *U* < 1,0 W/(m^2·K)

Thickness ***d*** mm	**Thermal resistance** ***R*** m^2·K/W							
	d/b							
	10	5	3	2	1	0,5	0,3	≤ 0,1
2	0,07	0,07	0,07	0,07	0,06	0,06	0,06	0,06
5	0,14	0,14	0,13	0,13	0,13	0,12	0,12	0,11
7	0,17	0,17	0,17	0,16	0,15	0,14	0,14	0,13
10	0,21	0,21	0,20	0,20	0,18	0,17	0,16	0,15
15	0,26	0,25	0,24	0,24	0,22	0,20	0,19	0,17
25	0,29	0,28	0,27	0,26	0,24	0,22	0,20	0,18
25 to 500	0,29	0,28	0,27	0,26	0,24	0,22	0,20	0,18

NOTE The values are based on a horizontal heat flow direction. For a width *d* > 500 mm, cavities should be treated as rooms.

Replace table B.2 by:

Table B.2: Equivalent thermal conductivity of horizontal tube-shaped cavities in constructions with U > 1,0 W/(m^2·K)

Width b mm	Equivalent thermal conductivity λ_{cav} W/(m·K)							
	Thickness, d mm							
	5	10	20	30	40	50	60	80
5	0,042	0,055	0,079	0,103	0,128	0,152	0,176	0,225
10	0,042	0,066	0,100	0,126	0,151	0,174	0,197	0,243
20	0,046	0,075	0,133	0,181	0,217	0,248	0,277	0,331
30	0,047	0,078	0,138	0,192	0,242	0,290	0,336	0,427
40	0,047	0,079	0,142	0,197	0,249	0,298	0,346	0,437
50	0,047	0,079	0,144	0,202	0,255	0,305	0,354	0,447
60	0,047	0,078	0,146	0,205	0,260	0,312	0,361	0,455
80	0,048	0,076	0,147	0,210	0,267	0,321	0,372	0,470

Replace table B.3 by:

Table B.3: Equivalent thermal conductivity of vertical tube-shaped cavities in constructions with U > 1,0 W/(m^2·K)

Width b mm	Equivalent thermal conductivity λ_{cav} W/(m·K)							
	Thickness, d mm							
	5	10	20	30	40	50	60	80
5	0,042	0,055	0,085	0,124	0,163	0,202	0,242	0,320
10	0,044	0,059	0,090	0,130	0,169	0,208	0,247	0,326
20	0,046	0,063	0,098	0,139	0,180	0,219	0,259	0,337
30	0,047	0,066	0,104	0,147	0,189	0,229	0,269	0,348
40	0,047	0,067	0,107	0,153	0,196	0,238	0,278	0,358
50	0,047	0,068	0,110	0,157	0,202	0,245	0,286	0,368
60	0,047	0,068	0,112	0,161	0,207	0,251	0,293	0,376
80	0,048	0,069	0,114	0,166	0,214	0,260	0,305	0,391

Annex C (normative)
Determination of the linear and point thermal transmittances

Below equation (C.3)
change: "I is the number of 1-D components"
to: "I is the number of 1-D components"

Figure C.1: 3-D building components separating two environments:
Change the last formula:

$$X = L_{1,0}^{3D} - L^{2D(x,y)} \cdot l_z - .....$$

to :

$$X = L_{1,0}^{3D} - L_{1,0}^{2D(x,y)} \cdot l_z - .....$$

Annex D (informative)
Examples of using quasi-homogeneous layers

Table D.1: Calculation example for figure D.1
In the last column change: "W/(m·k)" to: "W/(m·K)"

Annex E (informative)
Internal surface resistances

E.2
Below equation (E.3)
change: "Θ_a is the mean internal air temperature (y = 0), in degrees celsius."
to: "θ_e is the external air temperature, in degrees Celsius."

E.3, Table E.2
change: "0,3 W/m^2·K" to: "0,3 W/(m^2·K)"
change: "0,5 W/m2·K" to: "0,5 W/(m^2·K)"

E.4, Table E.4
The left bottom cell, to read:

"$\dfrac{1+\{h_r a - h_c(a+by)\}R_{eq}}{h_r(1-a)+h_c(1+a+by)}$"

In the right bottom cell, change:

"$\dfrac{1+\{2h_r a - h_c by)\}R_{eq}}{h_r(1-2a)+h_c(1+by)}$" to: "$\dfrac{1+(2h_r a - h_c\, by)\,R_{eq}}{h_r(1-2a)+h_c(1+by)}$"

Annex F (informative)
Determination of *L*- and *g*-values for more than two boundary temperatures

F.1
Change: “as shown in the following scheme:”
to: “as shown in table F.1.”

F.3
Change: “as shown in the following scheme:”
to: “as shown in table F.3.”