Werner Beratende Ingenieure PartG mbB **Ingenieurbüro**

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- für die Prüfung des Brandschutzes
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Calculation of the temperature factor f_{RSI}, as far as of the linear thermal transmittance ψ of a roller shutter box in a built-in situation; here: Monolithic brickwork

I. Details concerning the roller shutter box

1.	Specification:	**CBR 205x215 N**
2.	Report number:	15 624-25-EN
3.	Client:	BeClever Sp. zo.o. u.l. Malinowa 1 62-300 Września
4.	Assignment:	Examination of the thermal process technology characteristics of the above mentioned roller shutter box in a built-in situation (here: monolithic brickwork)
5.	Basis of calulation:	All calculations concerning the roller shutter box are based on the original drafts of the client
6.	Method of analysis:	Software: BISCO computer program to calculate two-dimensional steady state heat transfer in free-form objects; Version 11.0w
7.	Rules / Standards:	DIN 4108 Bbl 2: 2006-03 DIN EN ISO 10077-2:2012-06 DIN EN ISO 10211:2008-04 List of specified criteria for buildings A Part 1 2015/2
8.	Spec. material values (roller shutter box):	According to declaration of the client PVC: λ = 0,170 W/(mK) Heat insulation: λ = 0,032 W/(mK)

II. Calculation results

The roller shutter box complies with the proof of equivalency corresponding to image 60 DIN 4108 Bbl 2: 2006-03 in accordance with the conditions and construction materials mentioned on page 2

Temperature factor:	**Psi-value:**
f_{RSI} = 0,74 ≥ 0,70	**ψ = 0,27 W/(mK) ≤ 0,32 W/(mK)**

III. Signature

Unna, 22.09.16

Dipl.-Ing. Günter Werner
von der Ingenieurkammer-Bau NW staatlich anerkannter Sachverständiger für Schall- und Wärmeschutz
MENDEN

(Stamp and signature of the officially recognized appraiser)

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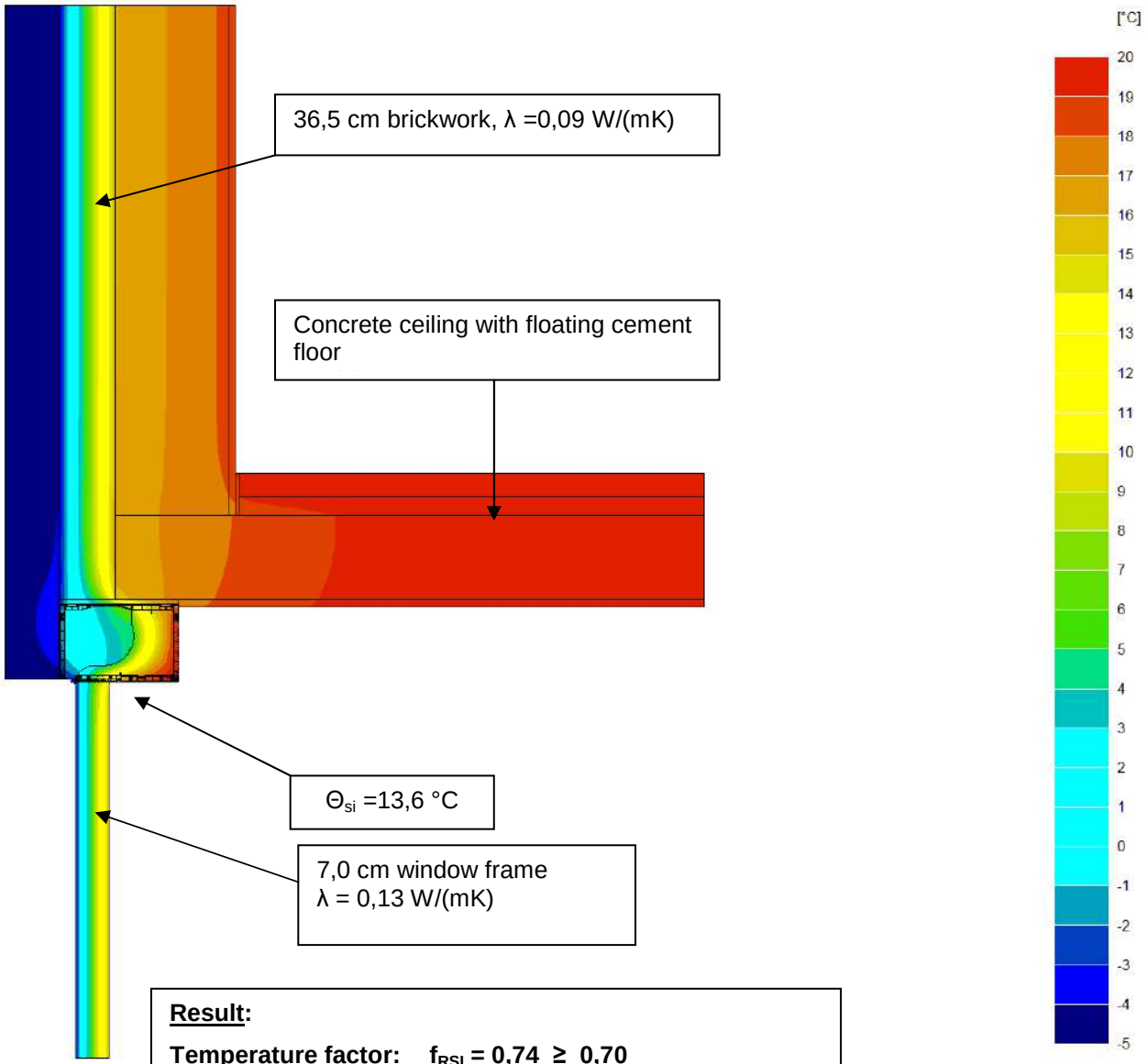
Image 1: Temperature gradation; monolithic brickwork
Conditions: f_{RSI}: R_{se} = 0,04 (m²K)/W, θ_e = -5°C; R_{si} = 0,13 (m²K)/W resp. 0,25 (m²K)/W;
θ_i = 20°C ψ-value: R_{se} = 0,04 (m²K)/W; f_e = 0; R_{si} = 0,13 (m²K)/W; f_i = 1



Result:

Temperature factor: f_{RSI} **= 0,74 ≥ 0,70**
Psi-value: **ψ = 0,27 W/(mK) ≤ 0,32 W/(mK)**

Notes:

The number of nodes in this calculation amounts to 167500.

a) The roller shutter cavity is assumend non-ventilated. The air cells inside the box sections are non-ventilated cavities and acc. to DIN ISO 10077-2 are calculated seperately. The λ-value of the roller shutter cavity is 0,673 (W/mK).

b) The emission grade for the surface has been considered 0,9.