

Dipl.-Ing. G. Werner - Dr.-Ing. D. Werner  
Beratende Ingenieure BDB DWA vfdB  
Staatl. anerk. Sachverständige  
- für die Prüfung des Brandschutzes  
- für Schall- und Wärmeschutz

Isaac-Newton-Straße 1 · 59423 Unna  
Telefon 0 23 03 / 98 358 - 0  
Telefax 0 23 03 / 98 358-24  
e-mail: info@ing-werner.de  
www.ing-werner.de

Baustatik  
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## Calculation of the temperature factor $f_{RSI}$ , as far as of the linear thermal transmittance $\psi$ of a roller shutter box in a built-in situation; here: Brickwork with core insulation and brick frontage

### I. Details concerning the roller shutter box

1. Specification: **CBR 205x215 I**
2. Report number: 15 624-30-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 (brickwork with core insulation and brick frontage)
5. Basis of calculation: 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:  $\lambda = 0,170 \text{ W/(mK)}$   
Heat insulation:  $\lambda = 0,032 \text{ W/(mK)}$   
Aluminium (insect protection):  $\lambda = 160,0 \text{ W/(mK)}$

### II. Calculation results

The roller shutter box complies with the proof of equivalency corresponding to image 63 DIN 4108 Bbl 2: 2006-03 in accordance with the conditions and construction materials mentioned on page 2

Temperature factor:

$$f_{RSI} = 0,72 \geq 0,70$$

Psi-value:

$$\psi = 0,15 \text{ W/(mK)} \leq 0,25 \text{ W/(mK)}$$

### III. Signature

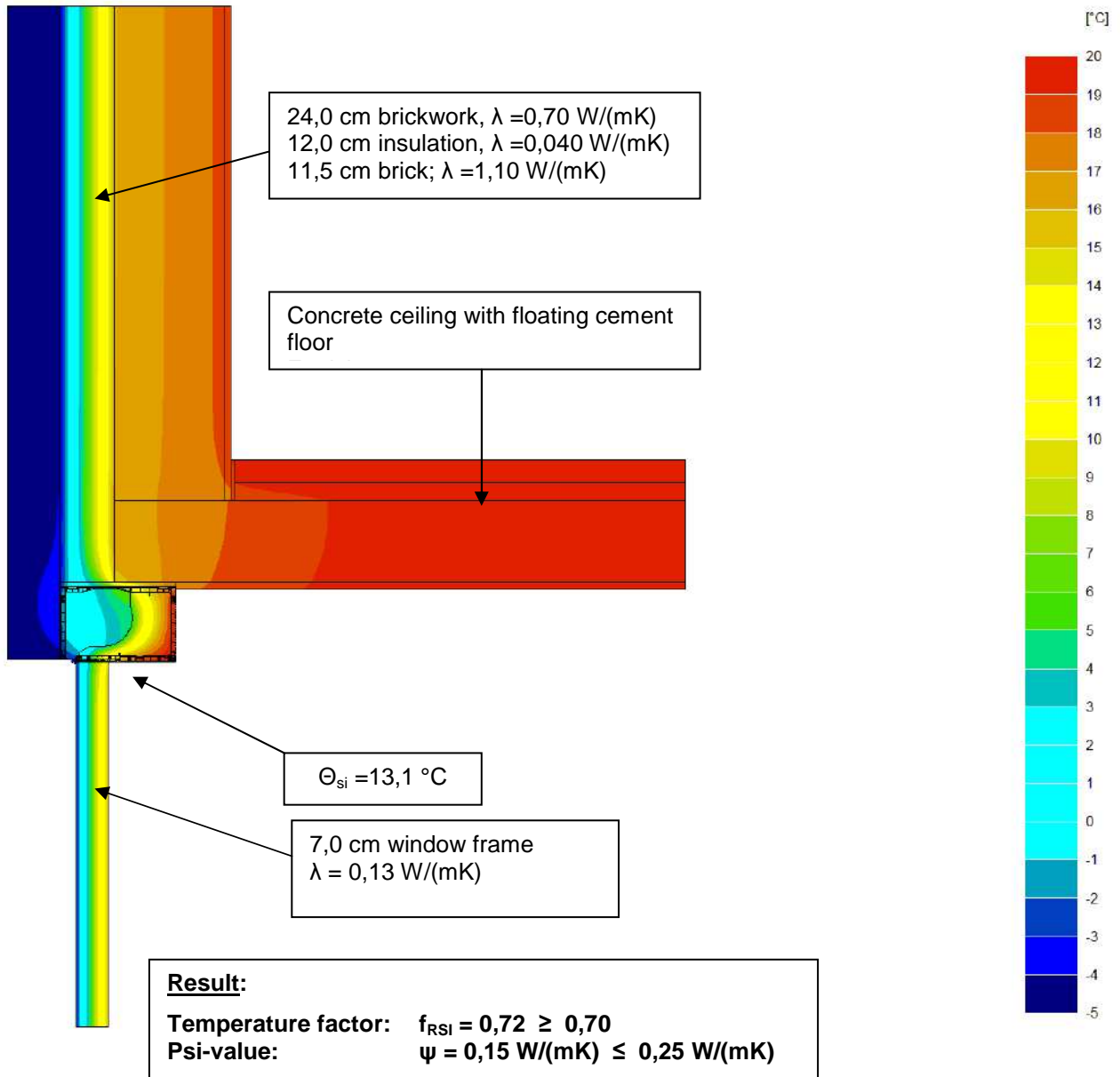
Unna, 22.09.16



(Stamp and signature of the officially recognized appraiser)

Image 1: Temperature gradation; brickwork with core insulation and brick frontage

Conditions:  $f_{RSI}$ :  $R_{se} = 0,04 \text{ (m}^2\text{K)/W}$ ,  $\theta_e = -5^\circ\text{C}$ ;  $R_{si} = 0,13 \text{ (m}^2\text{K)/W}$  resp.  $0,25 \text{ (m}^2\text{K)/W}$ ;  
 $\theta_i = 20^\circ\text{C}$   $\psi$ -value:  $R_{se} = 0,04 \text{ (m}^2\text{K)/W}$ ;  $f_e = 0$ ;  $R_{si} = 0,13 \text{ (m}^2\text{K)/W}$ ;  $f_i = 1$



**Notes:**

The number of nodes in this calculation amounts to 193849.

- The roller shutter cavity is assumed non-ventilated. The air cells inside the box sections are non-ventilated cavities and acc. to DIN ISO 10077-2 are calculated separately. The  $\lambda$ -value of the roller shutter cavity is  $0,667 \text{ (W/mK)}$ .
- The emission grade for the surface has been considered 0,9.