Istituto di Ricerca e Certificazione per le Costruzioni Sostenibili
Notified Body No. 1994 in accordance with Regulation CPR (EU) No. 305/2011

TEST REPORT

Number:

1994-CPR-RP1910

Issuing date:

23 October2019

Applicant:

SAVIO THESAN S.p.A.
Via Torino n. 25 (S.S. 25)
10050 Chiusa San Michele (TO) - Italy

Tested product:

Systems nodes for sliding doors,
Trade name given by applicant
"SLIDEART LINE"
(cf. description)

Executed tests:

Calculation of the thermal transmittance

Normative references:

EN 14351-1:2006+A2:2016
EN ISO 10077-2:2017

1 Description of the tested sample

Both description and technical drawings below, referred to the tested sample, were declared and supplied by the applicant under his own responsibility.
The series undergoing testing is composed of no. 8 system nodes for sliding door of the series marketed as "**SLIDEART LINE**".

- Type: Node for sliding door.

- Material: wood.

- Profiles:

- frame :	
frame profile upper transom	art. AT01,
frame profile upper transom	art. AT02,
frame profile upper transom	art. AT03,
frame profile mullion	art. AT04,
frame profile mullion	art. AT05,
frame profile mullion	art. AT06,
frame profile rib	art. AV01,
- operable casement:	
operable casement profile upper transom	art. AM01,
operable casement profile bottom transom	art. AM02,
operable casement profile right and left mullion	art. AF04,
bring brush profile for labyrinth	art. AL01,
stop-glass profile	art. FF01,
- fixed casement:	
fixed casement profile upper transom	art. AF01,
fixed casement profile bottom transom	art. AF02,
fixed casement profile left mullion	art. AF04,
fixed casement profile right mullion	art. AF01,
bring brush profile for labyrinth	art. AL01,
stop-glass profile	art. FF01,

  all designed by SAVIO THESAN S.p.A., Chiusa San Michele (TO)

- Glazing gaskets: the glass was sealed with structural silicone
  supplied by SAVIO THESAN S.p.A., Chiusa San Michele (TO).

- Gaskets:

- brush gasket	art. 2457.GS01,
- rabbet gasket	art. 2457.GI01,
- casement upper gasket mm 25x6	art. 2457.GAM25x5,
- casement bottom gasket anta mm 10x6	art. 2457.GA10X5,

  all provided by SAVIO THESAN S.p.A., Chiusa San Michele (TO)

- Declared nominal dimensions: see drawings.

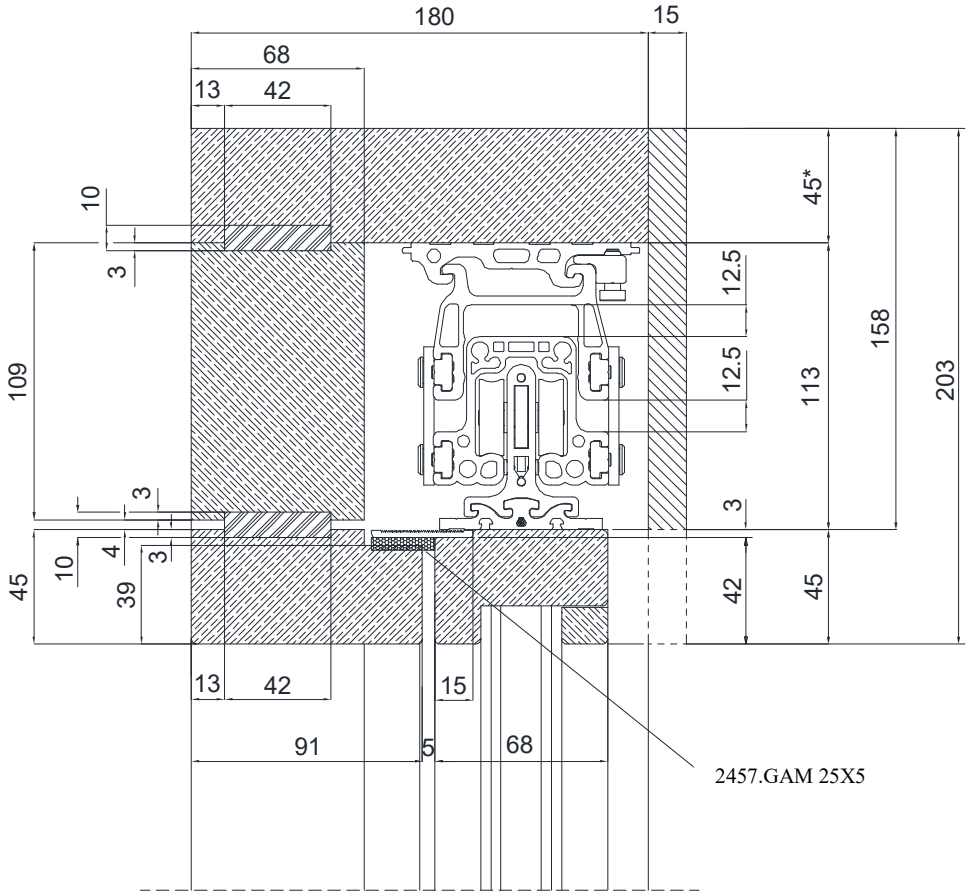

Fig. 1. Section of the upper node – operable casement
(declared nominal dimensions, expressed in mm)

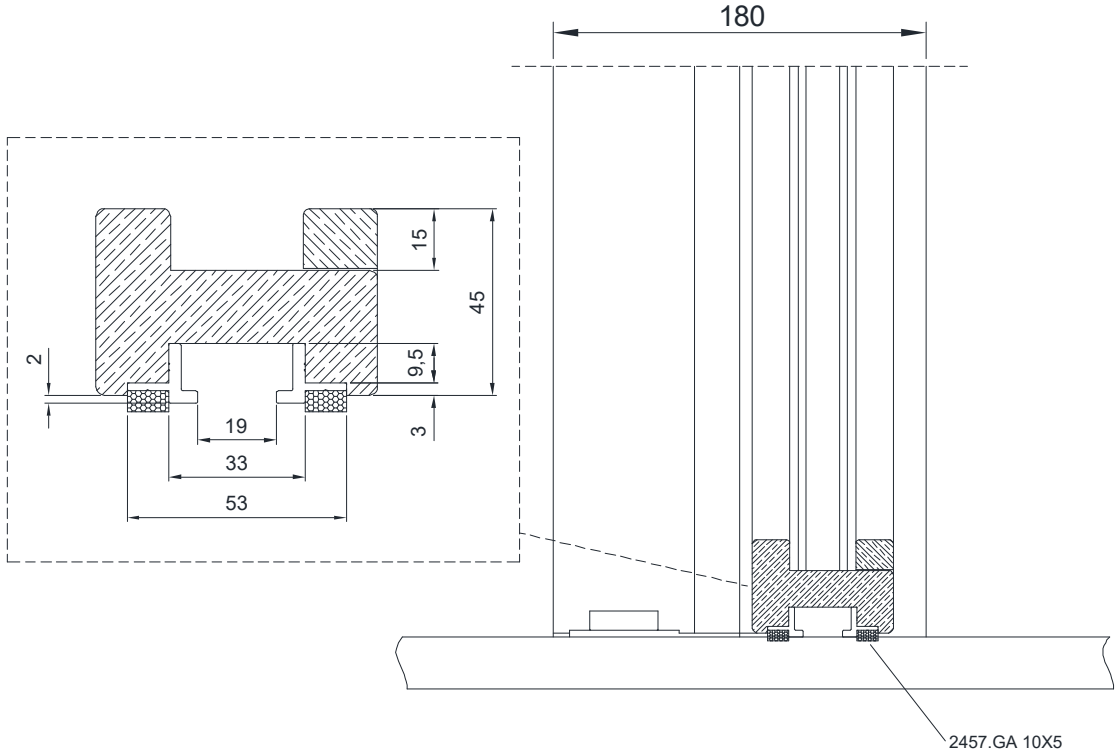

Fig. 2. Section of the bottom node – operable casement
(declared nominal dimensions, expressed in mm)

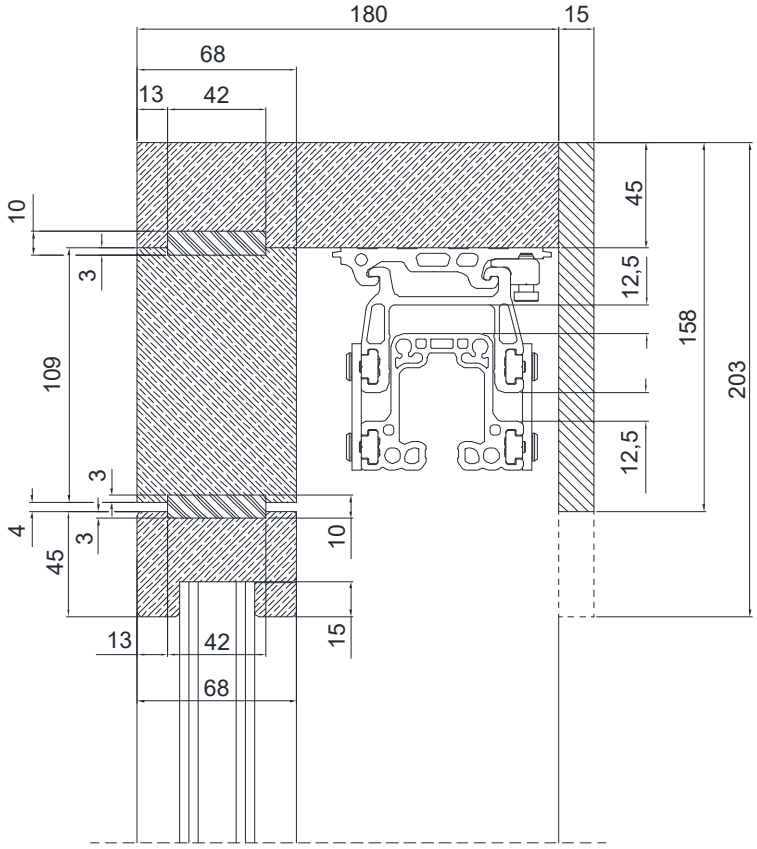

Fig. 3. Section of the upper node – fixed casement
(declared nominal dimensions, expressed in mm)

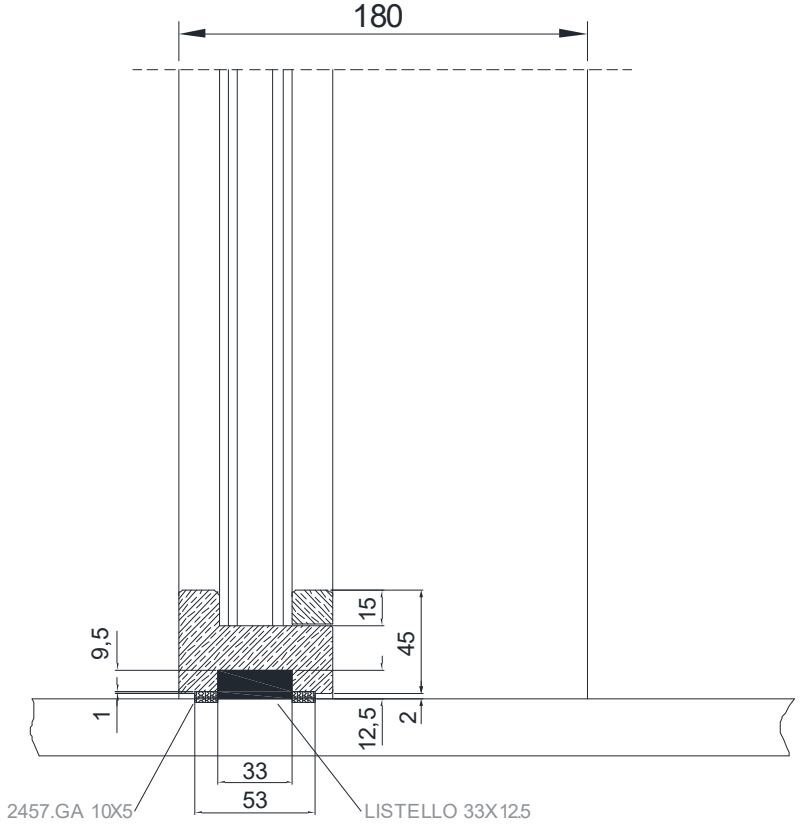

Fig. 4. Section of the bottom node – fixed casement
(declared nominal dimensions, expressed in mm)

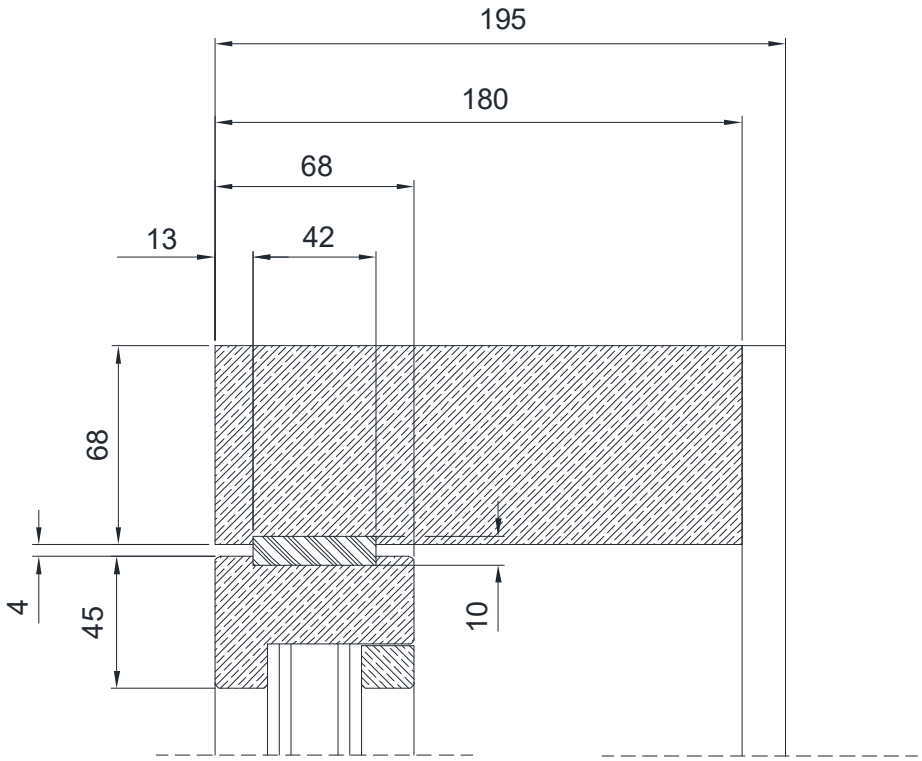

Fig. 5. Section of the side node – fixed casement
(declared nominal dimensions, expressed in mm)

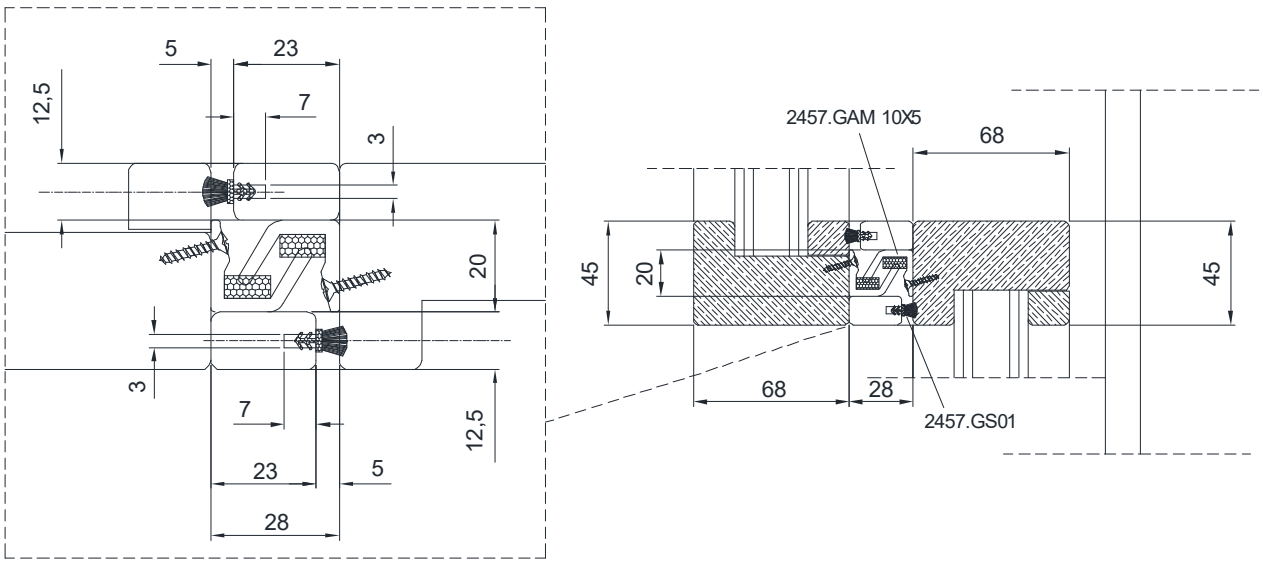

Fig. 6. Section of the central node
(declared nominal dimensions, expressed in mm)

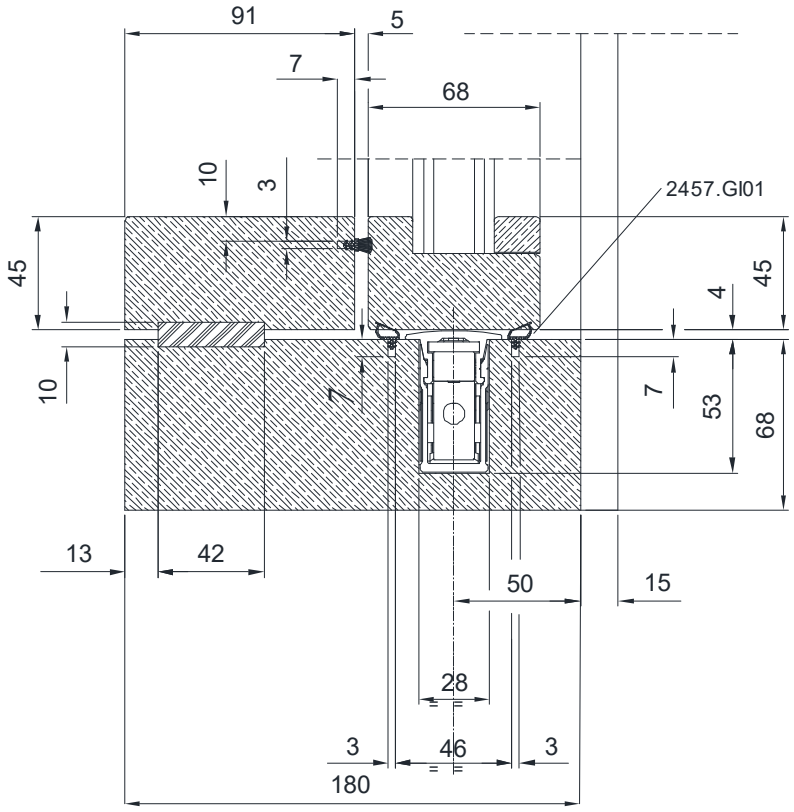

Fig. 7. Section of the side node – operable casement – lock of 27mm
(declared nominal dimensions, expressed in mm)

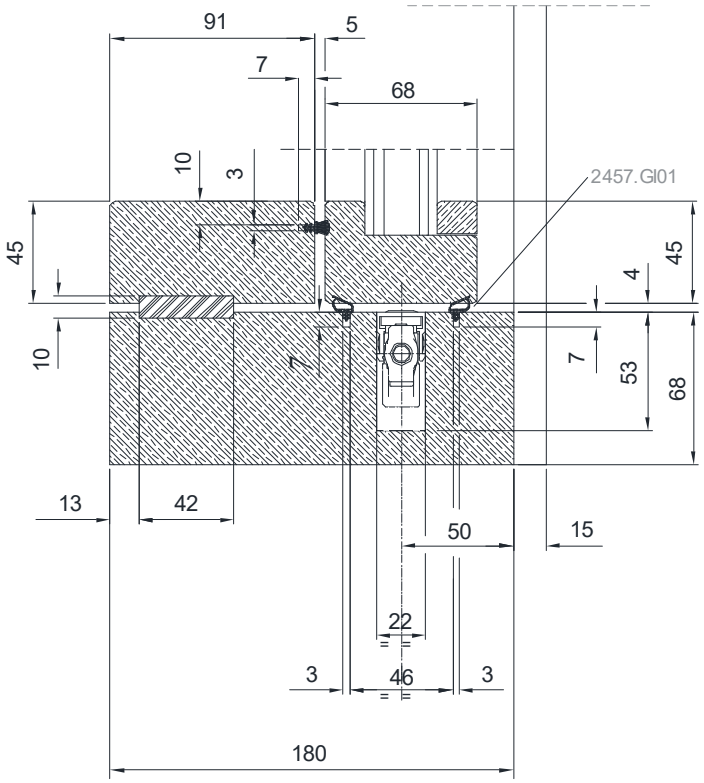

Fig. 8. Section of the side node – operable casement – lock of 22 mm
(declared nominal dimensions, expressed in mm)

2 Constituent materials of the analyzed sections

In * = value derived from the UNI EN ISO 10077-2

are reported the characteristics of the materials utilized in the analysis.

Frame materials	Conductivity (W/mK)	Emissivity
6060 Aluminium alloy *	160	0,9
Soft Wood *	0,110	0,9
Medium hard Wood *	0,130	0,9
Hard Wood *	0,180	0,9
EPDM *	0,250	0,9
PVC *	0,170	0,9
Mohair *	0,140	0,9

* = value derived from the UNI EN ISO 10077-2

Tab. 1. Thermal properties of the materials used in the nodes

3 Method of analysis utilized

The thermal transmittance was calculated according to standard ISO 10077-2:2017, using the "Radiosity Method" (rif. § 6.4.2. of EN ISO 10077-2:2017) .
The nodes were calculated using the "Flixo 8" software.
Materials were chosen from software library with reference to the documentation supplied by the customer. The materials not listed in the library were added in accordance with the values supplied by the customer.

4 Results obtained

From Fig. 9 to Fig. 16 are reported the result obtained by the nodes analysis. Are reported the trend of the heat fluxes and the temperatures within the section (in type "Soft Wood"), where each color is related to a thermal level as shown in the color legend.

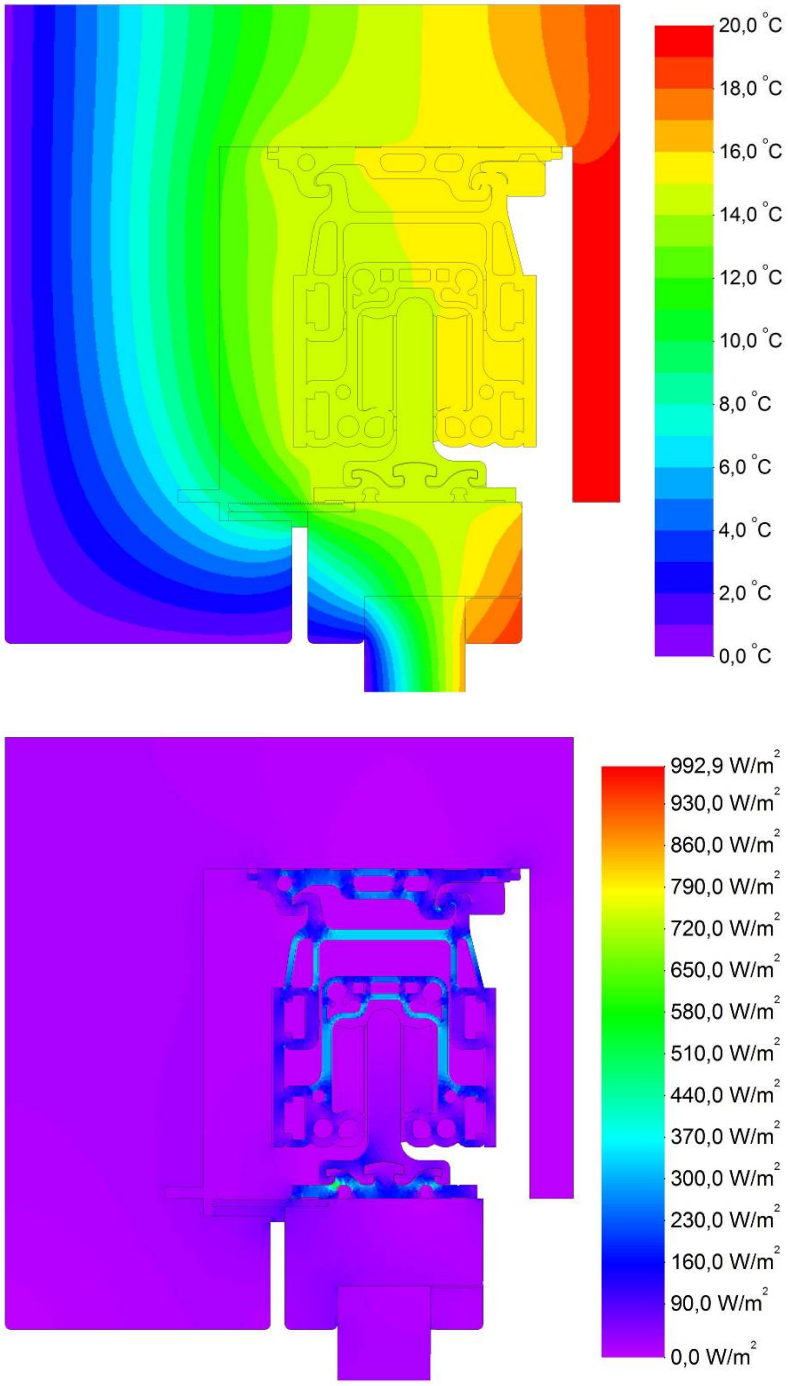

Fig. 9. Trend of temperatures and of the heat fluxes within upper node – operable casement

Thermal transmittance of upper node – operable casement:
Soft Wood - $U_f = 1,4$ W/m^{2}K
Medium hard Wood - $U_f = 1,5$ W/m^{2}K
Hard Wood - $U_f = 1,8$ W/m^{2}K

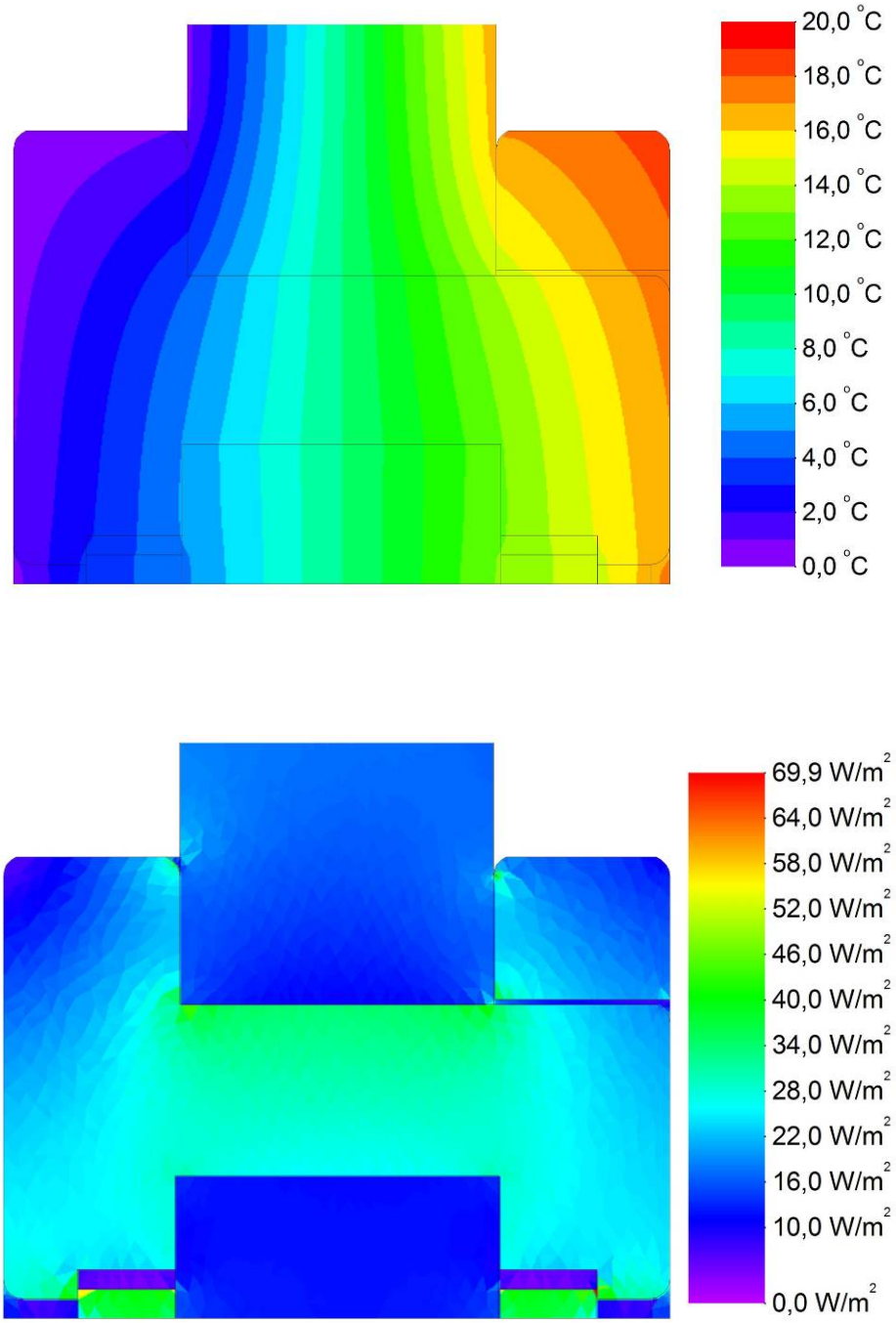

Fig. 10. Trend of temperatures and of the heat fluxes within bottom node – operable casement

Thermal transmittance of bottom node – operable casement:
Soft Wood - $U_f = 1,3$ W/m^{2}K
Medium hard Wood - $U_f = 1,4$ W/m^{2}K
Hard Wood - $U_f = 1,7$ W/m^{2}K

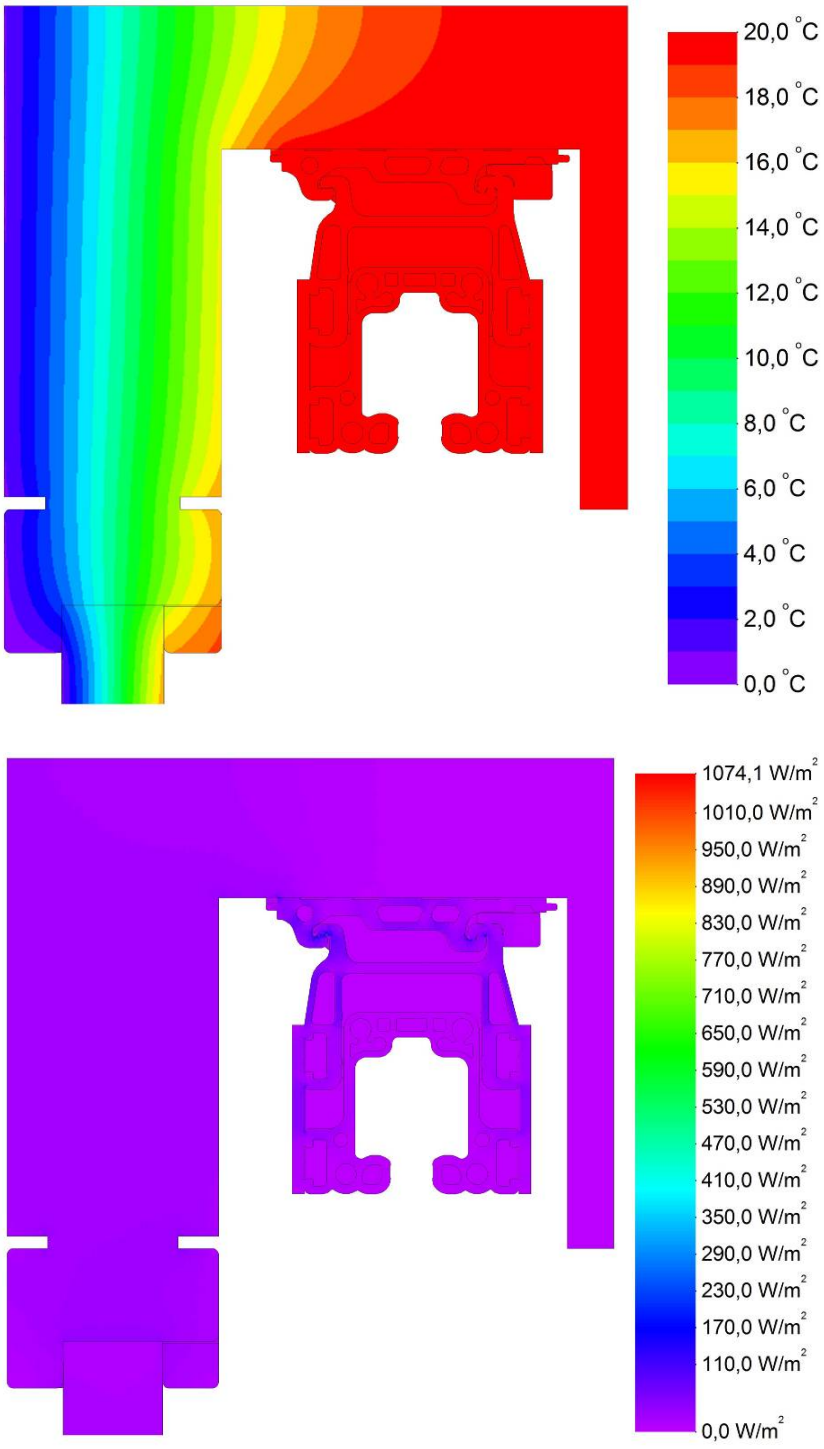

Fig. 11. Trend of temperatures and of the heat fluxes within upper node – fixed casement

Thermal transmittance of upper node – fixed casement:
Soft Wood - $U_f = 1,2$ W/m^{2}K
Medium hard Wood - $U_f = 1,3$ W/m^{2}K
Hard Wood - $U_f = 1,7$ W/m^{2}K

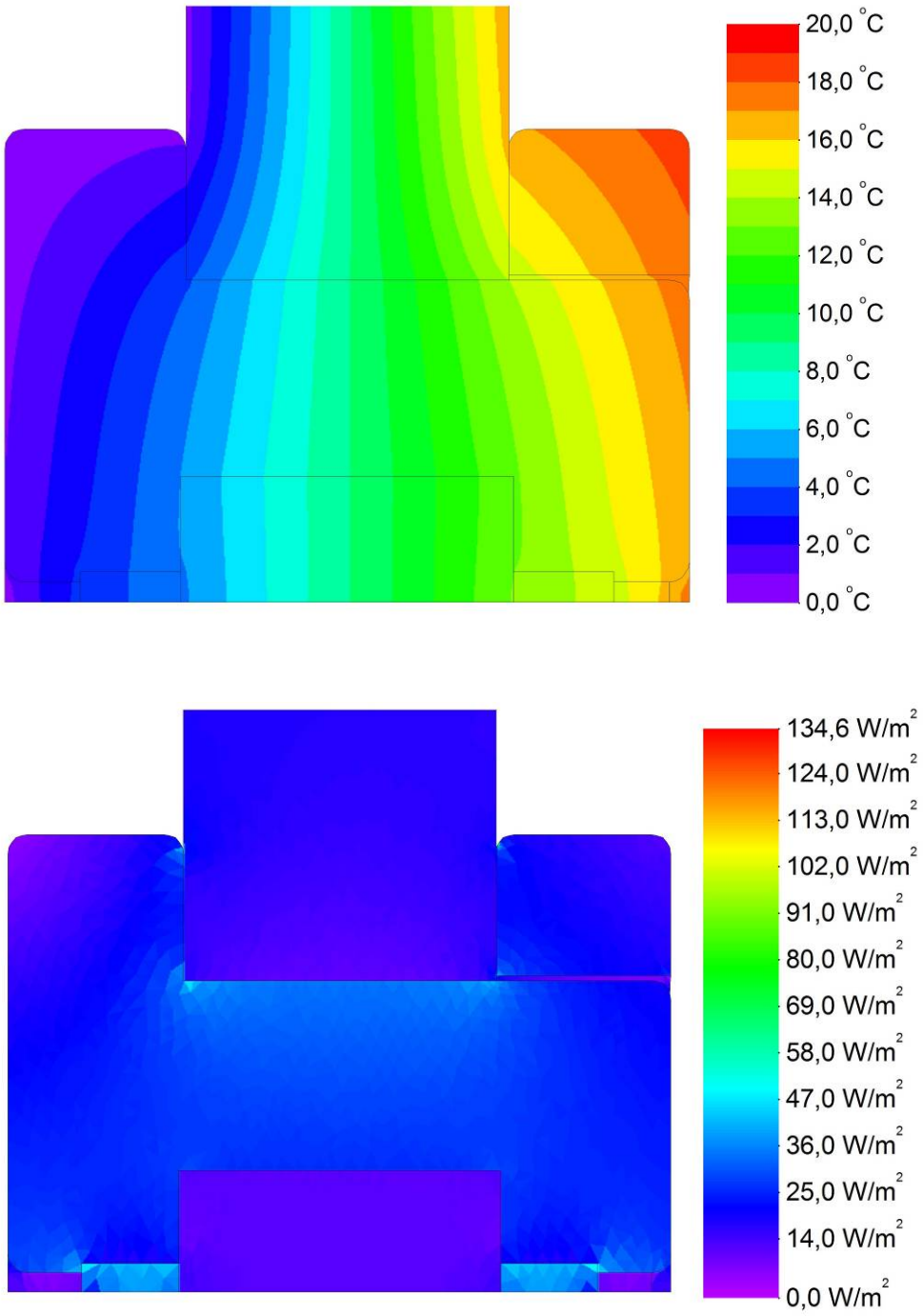

Fig. 12. Trend of temperatures and of the heat fluxes within bottom node – fixed casement

Thermal transmittance of bottom node – fixed casement:
Soft Wood - $U_f = 1,3$ W/m^{2}K
Medium hard Wood - $U_f = 1,4$ W/m^{2}K
Hard Wood - $U_f = 1,7$ W/m^{2}K

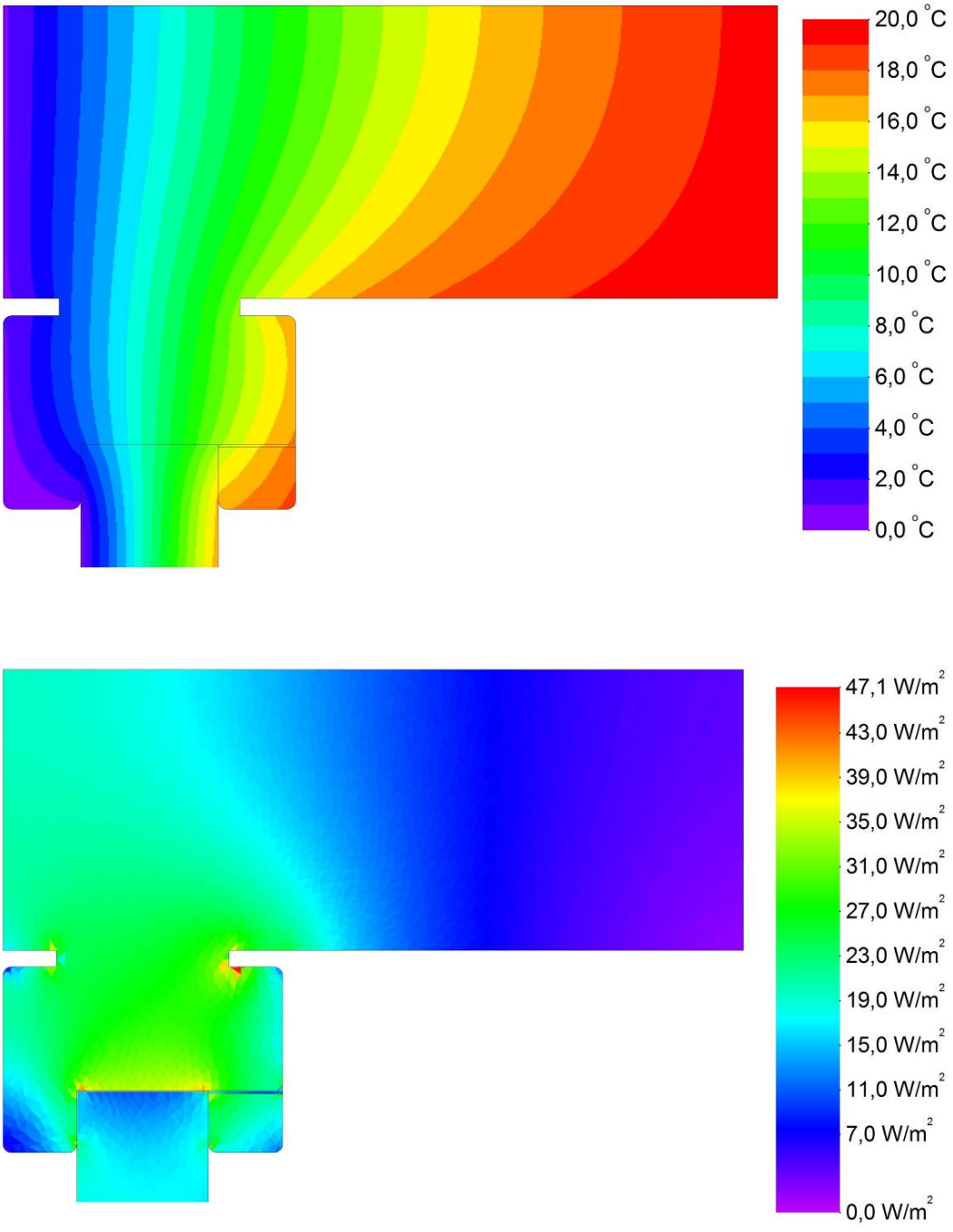

Fig. 13. Trend of temperatures and of the heat fluxes within side node – fixed casement

Thermal transmittance of side node – fixed casement:
Soft Wood - $U_f = 1,1$ W/m^{2}K
Medium hard Wood - $U_f = 1,2$ W/m^{2}K
Hard Wood - $U_f = 1,6$ W/m^{2}K

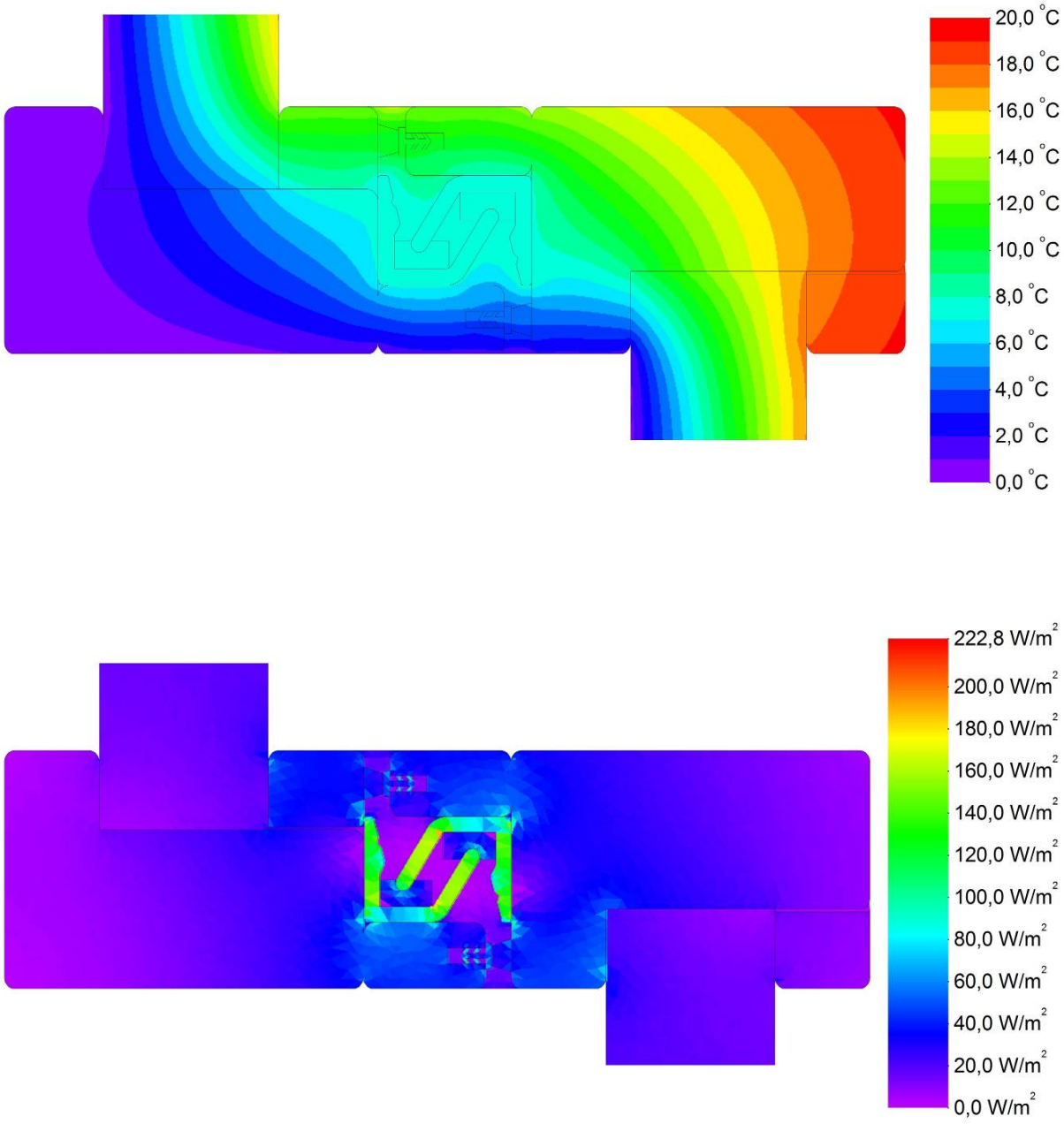

Fig. 14. Trend of temperatures and of the heat fluxes within central node

Thermal transmittance of central node:
Soft Wood - $U_f = 3,8$ W/m^{2}K
Medium hard Wood - $U_f = 4,1$ W/m^{2}K
Hard Wood - $U_f = 4,8$ W/m^{2}K

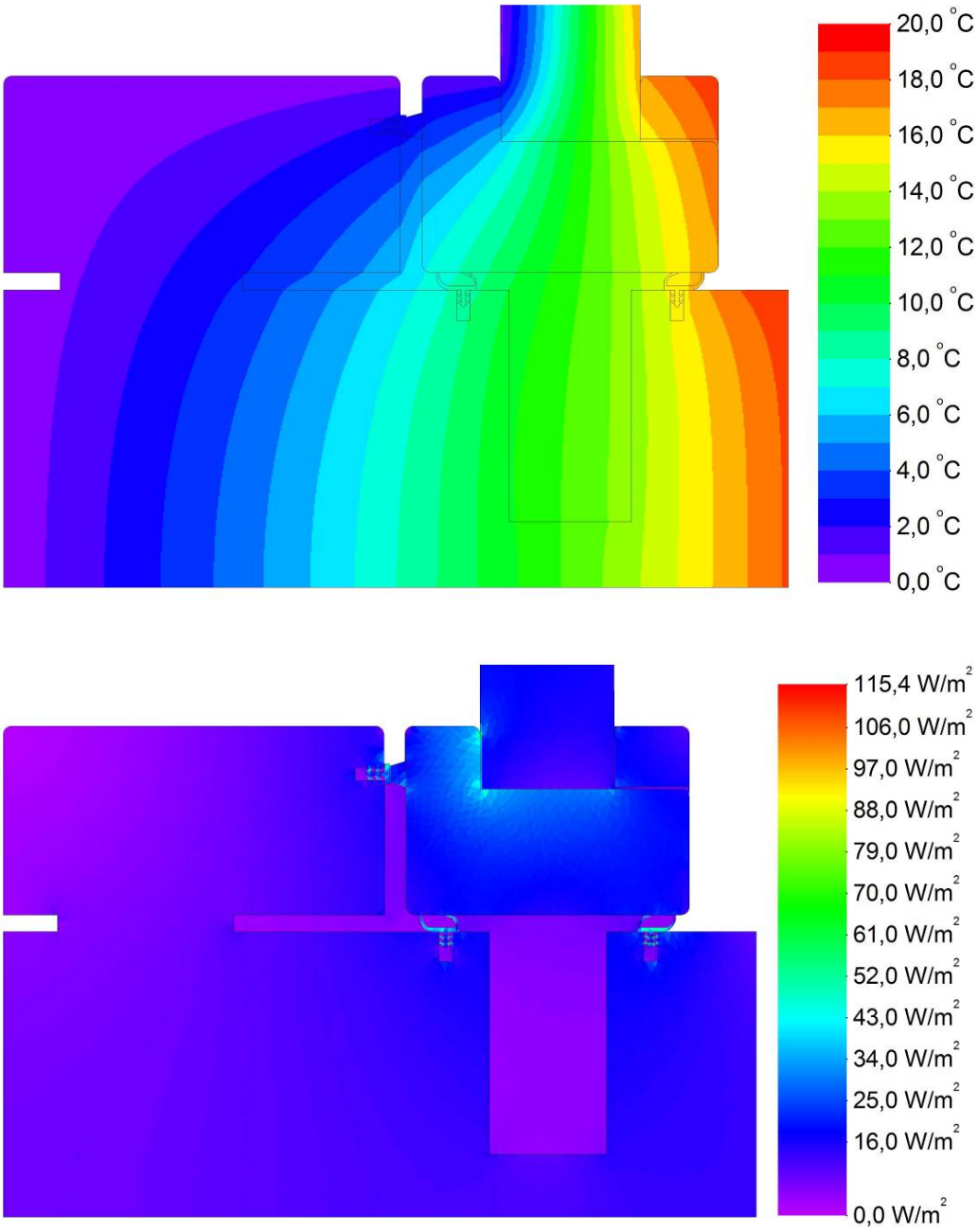

Fig. 15. Trend of temperatures and of the heat fluxes within side node – operable casement – lock of 27mm

Thermal transmittance of side node – operable casement – lock of 27mm:
Soft Wood - $U_f = 0,8$ W/m^{2}K
Medium hard Wood - $U_f = 0,9$ W/m^{2}K
Hard Wood - $U_f = 1,2$ W/m^{2}K

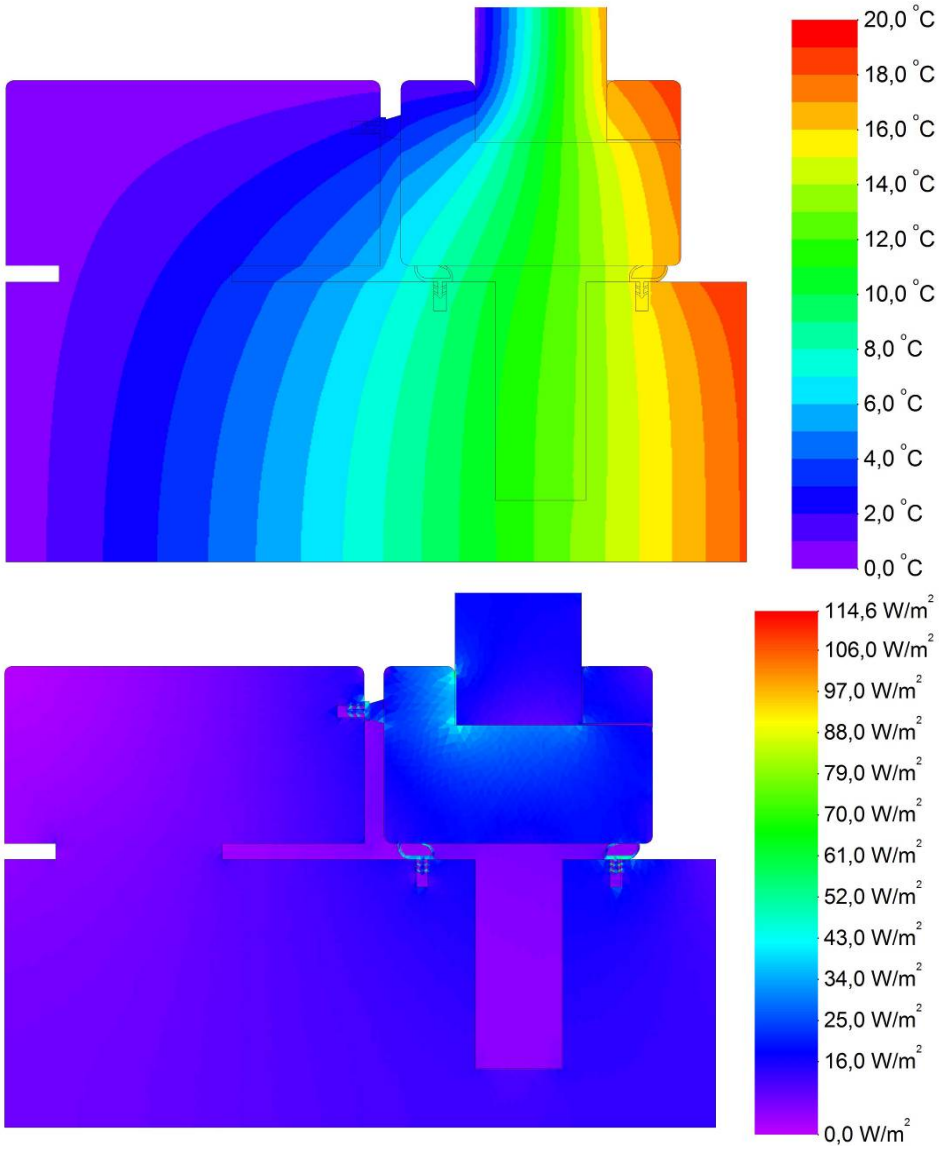

Fig. 16. Trend of temperatures and of the heat fluxes within side node – operable casement – lock of 22mm

Thermal transmittance of side node – operable casement – lock of 22mm:

Soft Wood - $U_f = 0,8$ W/m²K

Medium hard Wood - $U_f = 0,9$ W/m²K

Hard Wood - $U_f = 1,2$ W/m²K

Laboratory Technician
Katia Foti

IRCCOS S.r.l.
Istituto di Ricerca e Certificazione
per le Costruzioni Sostenibili
via Grandi n° 17, 21017 Samarate (VA)
C.F./P.IVA 05159630960

Laboratory Manager
Katia Foti

---------- End of the Test Report No.1994-CPR-RP1910 ----------