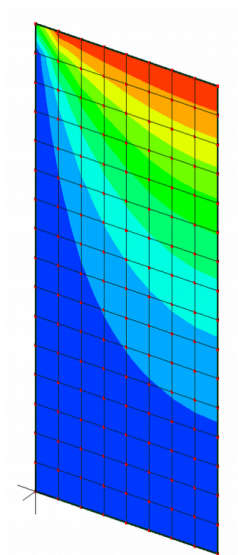Code verification of Mecway against test reference cases 1-4 of *ISO 10211:2017 Thermal bridges in building construction -- Heat flows and surface temperatures -- Detailed calculations.* All results are consistent with the standard.

Case 1 - half a square column

	9.7	13.4	14.7	15.1
Reference temperatures (°C)	5.3	8.6	10.3	10.8
at uniformly spaced points	3.2	5.6	7.0	7.5
on a 4x7 grid.	2.0	3.6	4.7	5.0
Allowed values are within +/- 0.1 °C	1.3	2.3	3.0	3.2
	0.7	1.4	1.8	1.9
	0.3	0.6	0.8	0.9
	9.7	13.4	14.8	15.1
	5.2	8.6	10.3	10.8
	3.2	5.6	7.0	7.5
Mecway solution (°C)	2.0	3.6	4.7	5.0
	1.3	2.3	3.0	3.2
	0.7	1.4	1.8	1.9
	0.3	0.6	0.8	0.9

Case 2 - two-dimensional heat transfer
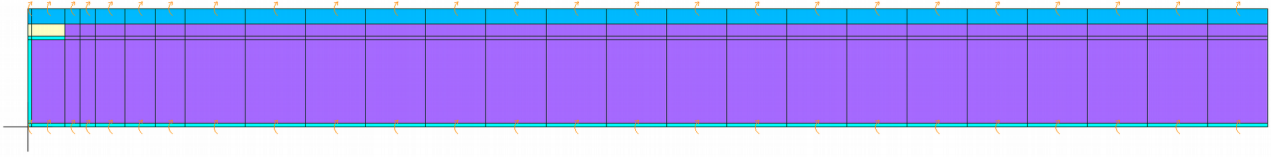
	A	B	C	D	E	F	G	H	I	Total heat flow rate (W/m)
					Temperatures (°C)					
Reference value (+/- 0.1 unit)	7.1	0.8	7.9	6.3	0.8	16.4	16.3	16.8	18.3	9.5
Mecway solution	7.1	0.8	7.9	6.3	0.8	16.4	16.3	16.8	18.3	9.5

Case 3 - three-dimensional heat transfer
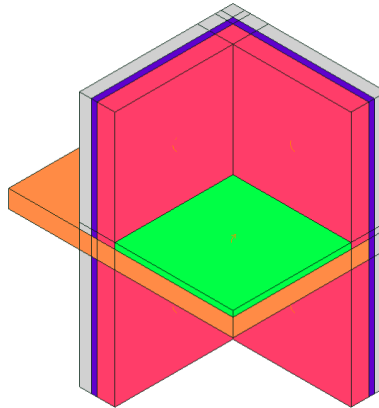
	$\theta_{\alpha,min}$ (°C)	$\theta_{\beta,min}$ (°C)	$\Phi_{\beta\gamma} + \Phi_{\beta\alpha}$ (W)	$\Phi_{\alpha\gamma} + \Phi_{\alpha\beta}$ (W)
Min. allowed (-1%)	11.21	11.00	13.75	45.63
Reference value	11.32	11.11	13.89	46.09
Max. allowed (+1%)	11.43	11.22	14.03	46.55
Mecway solution refined to 141073 nodes	11.38	11.15	13.86	45.92

Case 4 - thermal bridge
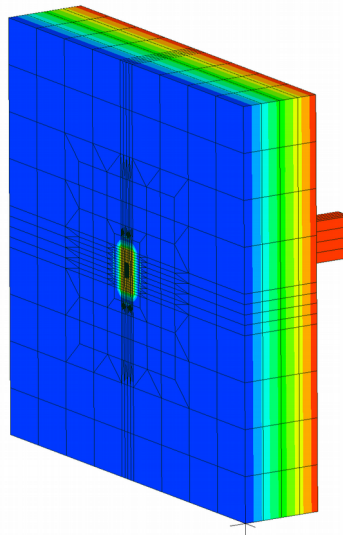
	Heat flow rate (W)	Highest surface temperature on the external side (°C)
Min. allowed	0.535	0.800
Reference value	0.540	0.805
Max. allowed	0.545	0.810
Mecway solution	0.544	0.801