

REPORT

On determining floor element thermal conductivity according to CSN EN 12524

Certificate No.	R-002-11
Product name	Wooden two-layer flooring with thickness of 18 mm
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Manufacturer	ESCO CZ PRODUCTION s.r.o. Blatenská 267, 387 31 Radomyšl Czech Republic Company identification No. 26057654
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1 Product specification

Wooden two-layer flooring with thickness of 18 mm

The wooden two-layer flooring with thickness of 18 mm is a multi-layer parquet board consisting of a floor finish out of solid wood and other layers out of wood or wood-based materials glued together and produced according to the European standard CSN EN 13489. Upper surface finish of solid wood with thickness of app. 4 mm, oak wood. Supporting layer – birch plywood with thickness of app. 14 mm.

2 Values for calculation

Table 1 – Thermal conductivity λ related to density mean value (excerpt from EN 12524:2000)

Wood and wood-based products	Mean value ^a ρ at moisture of 12% (kg/m ³)	Thermal conductivity λ (W/(mK)) (design value)
Solid wood and plywood boards	300	0.09
	500	0.13
	700	0.17
	1,000	0.24
Particle board	300	0.10
	600	0.14
	900	0.18
Fibreboard	400	0.10
	600	0.14
	800	0.18

^a For values not given in the table the λ value can be found by interpolation

Table 2 – Mean value, thickness of layers and their λ value

	Floor finish	Middle layer	Countermove layer
ρ mean value in kg/m ³	710	700	-
Thickness in m	0.004	0.014	-
Thermal conductivity λ	0.172	0.17	-

3 Calculation of average value of λ thermal conductivity in [W/m.K] from the table design values.

$$\lambda_{\text{average}} = (0.172 \times 0.004 + 0.17 \times 0.014) / 0.018 = \mathbf{0.17}$$

4 Conclusion

Based on the documented facts and the calculation, it can be stated that the wooden two-layer flooring with thickness of 18 mm consisting of an oak layer with thickness of app. 4 mm and birch plywood layer with thickness of app. 14 mm has a total average thermal conductivity $\lambda_{\text{average}} = \mathbf{0.17}$ [W/m.K]

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