Mendel University
in Brno

Construction-Joinery
Products Test Room

REPORT

**On determining floor element thermal conductivity
according to CSN EN 12524**

Certificate No.	**R-003-11**
Product name	**Wooden two-layer flooring with thickness of 20 mm**
Applicant	**ESCO CZ PRODUCTION s.r.o.** **Blatenská 267, 387 31 Radomyšl** **Czech Republic** **Company identification No. 26057654**
Manufacturer	ESCO CZ PRODUCTION s.r.o. Blatenská 267, 387 31 Radomyšl Czech Republic Company identification No. 26057654
Certificate prepared by	Ing. Petr Mitáček
Certificate issued on	8 August 2011
Pages (including front one)	2
Copies Copy No.	3/2

Person responsible for accuracy of this Report.

seal: CONSTRUCTION-JOINERY
PRODUCTS TEST ROOM
MENDEL UNIVERSITY IN BRNO
ZLÍN 1

illegible
Ing. Marek Polášek, Ph.D.
STV Test Room Manager

Mendel University in Brno
Construction-Joinery Test Room
Louky 304, 763 02 Zlín 4
Phone +420 577 103 317 / Fax +420 577 105 581
Email info@zstv.cz / www.zstv.cz

1 Product specification

Wooden two-layer flooring with thickness of 20 mm

The wooden two-layer flooring with thickness of 20 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. 6 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/m³)	Thermal conductivity λ (W/(mK)) (design value)
Solid wood and plywood boards	300 500 700 1,000	0.09 0.13 0.17 0.24
Particle board	300 600 900	0.10 0.14 0.18
Fibreboard	400 600 800	0.10 0.14 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/m³	710	700	-
Thickness in m	0.006	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.

$\lambda_{average}$ = (0.172 x 0.006 + 0.17 x 0.014)/ 0.02 = **0.17**

4 Conclusion

Based on the documented facts and the calculation, it is 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 $\boldsymbol{\lambda_{average}}$ **= 0.17 [W/m.K]**

seal: CONSTRUCTION-JOINERY
PRODUCTS TEST ROOM
MENDEL UNIVERSITY IN BRNO
ZLÍN 1