

# The wood-based panels “weight” in standardization

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**T**echnical standards usually represent the state of the art for a specific industrial sector.

Sometimes these documents can also indicate future developments, for example in markets, products or technological trends.

Standardization committees approaching these aspects with “experimental” documents, technically called Technical Specification (TS). Their purpose is to represent: technologies trends or products evolutions in transitional phases of industrial development, etc.

Formally they have a lower valence than a standard and are re-confirmed, by the competent technical working groups, more frequently (intervals: not more than 3 years).

It is possible to find some examples of technical specifications also for wood-based panels used in furniture and packaging.

The following two TS (acronym of Technical Specification) can be considered as an example:

- “UNI CEN/TS 16526:2014 Sandwich boards for furniture (SWB-F) - Factory made products - Definition, classification and test methods for determination of performance characteristics”
- “UNI CEN/TS 16368:2014 Lightweight particleboards - Specifications”

It could seem that there are no close relationships between these two documents, considering that one concerns sandwich panels and the other light particleboards.

Perhaps the issue on which the: standardization and the industrial sector want to focus, is the containment of weights in the production of furniture and/or related products.

In a note of the scope of CEN/TS 16368 is clearly stated that typical applications for lightweight boards are in furniture and non-structural applications e.g. in doors, packaging.

It could mean that the industrial world, for the near future, is looking for and/or would like to produce furniture and packaging lighter than the current ones.

This challenge is certainly important also because often the lightness concept contrasts with robustness one. An example can be observed comparing the requirements provided by the EN 312 (for traditional particleboards) with those reported in the CEN /TS 16368 (for lightweight particleboards).



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Table 3 CEN/TS 16368 General purpose (including furniture) lightweight boards LP2 for use in dry conditions – Requirements for specified mechanical properties:

Property	Test method	Unit	Requirement					
			Thickness range (mm, nominal)					
			> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm <sup>2</sup>	8,0	7,0	6,0	5,0	4,5	4,0
Modulus of elasticity in bending	EN 310	N/mm <sup>2</sup>	1.000	950	900	850	750	650
Internal bond	EN 319	N/mm <sup>2</sup>	0,35	0,30	0,25	0,20	0,17	0,17

Table 3 EN 312 Boards for interior fitments (including furniture) for use in dry conditions (Type P2) – Requirements for specified mechanical properties:

Property	Test method	Unit	Requirement								
			Thickness range (mm, nominal)								
			< 3	from 3 to 4	> 4 to 6	> 6 to 13	> 13 to 20	> 20 to 25	> 25 to 32	> 32 to 40	> 40
Bending strength	EN 310	N/mm <sup>2</sup>	13	13	12	11	11	10,5	9,5	8,5	7
Modulus of elasticity in bending	EN 310	N/mm <sup>2</sup>	1.800	1.800	1.950	1.800	1.600	1.500	1.350	1.200	1.050
Internal bond	EN 319	N/mm <sup>2</sup>	0,45	0,45	0,45	0,40	0,35	0,30	0,25	0,20	0,20
Surface soundness	EN 311	N/mm <sup>2</sup>	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8

The two tables show the requirements regarding: bending strength, stiffness of the panels (modulus of elasticity in bending) and internal cohesion and their values are significantly different.

Mechanical performances of lightweight particleboards are lower than “traditional” ones, these aspects shall be taken into account when designing a new furniture.

CATAS in the near future intends to deepen its knowledge about these products and try to monitor their developments in the relevant market.

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