

Technical Dossier Synthesis

On the basis of the Technical Dossier PL/003-1 - N°2023.511.9136-1

ACCOYA® Decking



INSTITUT
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DECKING

This document is a synthesis of the FCBA Technical Dossier for ACCOYA® Decking. The Technical Dossier corresponds to a product evaluation dated 05/16/2023 based on the sampling used in the test reports, the documents provided by the manufacturer and the regulatory texts in France. This synthesis summarizes the tests and conclusions presented in the Technical Dossier PL/003-1 (N°2023.511.9136-1). Only the Technical Dossier in its entirety is authentic with regard to the evaluation carried out. This synthesis does not constitute a product certification within the meaning of the law of June 3, 1994.

Products evaluated:

- ACCOYA® decking boards, cross-section between 20.5 x 95 mm and 40 x 195 mm
- ACCOYA® decking joists, minimal cross-section 45 x 50 mm
- Boards and joists correspond to A2 or A1 grades, according to the visual classification framework of ACCSYS TECHNOLOGIES PLC
- Traditional through screw fastening (from above) according to NF DTU 51.4

Experimental campaign:

- [2015] 4 points bending (flatwise) according to EN 408 on the both limit cross-section for boards (19 x 95 mm et 40 x 195 mm)
- [2021] Pull-out tests of connections with screws - ACCOYA® boards on ACCOYA® joists (load perpendicular to the board/joist plane)
- [2015] Concentrated load tests on representative models : ACCOYA® boards + ACCOYA® joists, connection with screws (according to EN 1533 with square normative punch of 50 x 50 mm from EN 1991-1-1)
- [2016] Hygrothermal stability tests on representative models : ACCOYA® boards + ACCOYA® joists, connection with screws (successive cycles of extreme humidification and drying)
- [2015] Slip resistance tests on ACCOYA® boards (smooth and grooved sides), dry and wet states (based on XP CEN/TS 15676 / « SRT Pendulum », new interpretations according to EN 16165 of 2021)

Main conclusions:

- ACCOYA® lumbers allow the construction of decking meeting the main expectations and requirements of the French current rules of art (NF DTU 51.4).
- ACCOYA® wood has the durability characteristics expected for the construction of exterior decking assigned to use class 4.
- All of the tests performed attest that the implementation of ACCOYA® decking can be made using through screws (from above) according to the requirements of NF DTU 51.4.
- The characterization of the mechanical properties (flat wise bending of boards and behaviour under concentrated loading for different spans) has allowed:
 - Optimization of ACCOYA® boards sizing, for the different loads of the EN 1991-1-1 use categories (taking into account the values of the French National Annex);
 - The establishment of optimized span tables for boards and joists
- The behaviour of the hygrothermal stability tests shows the good stability of ACCOYA® decking. ACCOYA® boards screwed on ACCOYA® joists meet the various criteria and acceptability thresholds (considered for evaluation) defined in NF DTU 51.4.

- Principal SRT (Skid Resistance Tester) index issued from slip resistance measurements are:

ACCOYA® board	Direction	State	
		Dry	Wet
Grooved	Longitudinal	80	48,5
	Transverse	100	72
Smooth	Longitudinal	90,5	45,5
	Transverse	95	55,5

- For joists, the mechanical properties to be considered are:

$f_{m,k}$ N/mm ²	$E_{0,mean}$ N/mm ²
22,4	8838

- For bending sizing of boards, the mechanical properties that can be considered are:

Board thickness mm	$f_{m,k}$ N/mm ²	$E_{0,mean}$ N/mm ²
20,5	50,3	9000
25	48,3	
30	46,6	
40	44,0	

- The following table shows examples of joist centre distance optimized for 4 thicknesses and 4 ACCOYA® boards widths. This, for decking limited to a height of 1 meter (included) from the ground, according to NF DTU 51.4:

	maximum deflection 5 mm	Centre distance between board supports (mm) (joists or linear supports)															
		20,5				25				30				40			
		95	120	140	190	95	120	140	190	95	120	140	190	95	120	140	190
Use categories	Board thickness (mm)																
	Board width (mm)																
	A (dwellings, residential)	500	540	570	630	610	660	690	770	730	790	830	920	980	1060	1110	1230
	B (offices)	N/A	340	400	N/A	390	490	550	610	540	630	660	730	780	840	880	980
	C1 (cafes, restaurants ...)	360	460	500	N/A	520	580	610	670	640	690	730	810	850	920	970	1080
	C3 (access to public buildings, hotels, train stations ...)	N/A	340	400	N/A	390	490	550	610	540	630	660	730	780	840	880	980
	C5 (area that can support large crowds ...)	N/A	300	360	N/A	350	440	510	590	480	600	640	700	750	810	850	940
	D1 (common retail stores)	N/A	N/A	320	N/A	N/A	390	460	570	430	550	610	680	720	780	820	910

N/A: Not Applicable

For sections greater than those presented in the table, the values of the section immediately below will be used (for example 25 x 190 for 25 x 195; 30 x 190 for 32 x 195 ...). This leads to a conservative (safe) design.

- The tables below illustrate optimized centre distances of joists supports for 5 heights and 4 widths of ACCOYA® joists. Examples are for use categories A and C1. (decking limited to a height of 1 meter (included) from the ground, according to NF DTU 51.4) and some ACCOYA® board thickness ranges.

For ACCOYA® boards with a minimum thickness of 20,5 mm and < 25 mm					
Use category A (dwellings, residential)	Centre distance between joists supports				
	Joist width (mm)				
	50	60	70	80	
Joist height (mm)	45	490	590	690	760
	50	610	730	790	840
	55	730	800	870	930
	60	800	880	950	1010
	65	870	950	1030	1100

For ACCOYA® boards with a minimum thickness of 20,5 mm and ≤ 40 mm					
Use category C1 (cafes, restaurants ...)	Centre distance between joists supports				
	Joist width (mm)				
	50	60	70	80	
Joist height (mm)	45	330	390	460	520
	50	400	480	560	640
	55	490	580	680	770
	60	580	690	800	910
	65	680	810	940	1000

- ACCOYA® lumbers are also suitable for the implementation of decking located at a height strictly greater than 1 meter from the ground. They are considered as structural elements. The Technical Dossier provides tables for the centre distance of supports recommended for boards and joists.

Features of ACCOYA® decking:

- Systematic pre-drilling is recommended for traditional through screw fixing.
- For ACCOYA® decking located at a distance less than or equal to 2 km from the seafront, the use of A4 stainless steel screws is recommended. Otherwise, A2 stainless steel screws are required, according to NF DTU 51.4.
- The use of ACCOYA® joists is recommended. If ACCOYA® boards are fixed on massive wood joists, the use of a protection on the upper side of the joist (bituminous strip, ...) or spacers is recommended in the following two cases:
 - Joists treated for durability,
 - All joists other than ACCOYA® joists
- The gaps recommended for implementation are:
 - 2 mm minimum for a butt joint between boards
 - 5 mm between ACCOYA® boards
 - 10 mm between ACCOYA® joists or boards and any other work, material (wall, pole, rail, window, building block, concrete, ...)

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