

Technical Dossier Synthesis

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

ACCOYA® Decking & HardWood Clip® SLIM



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
- Invisible fixing system: HardWood Clip® SLIM (ARCHIWOOD / NOVLEK® Company)



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 the invisible fixing system (load perpendicular to the board/joist plane)
- [2015] Concentrated load tests on representative models : ACCOYA® boards + ACCOYA® joists (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 (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)
- [2022] Punching resistance tests at the top of the lateral grooves for HardWood Clip® SLIM on ACCOYA® boards ; board thickness of 20 mm and 25 mm (cylindrical punch with a diameter of 25 mm)

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 HardWood Clip® SLIM fixing system. The implementation of the fasteners must comply with the manufacturer's technical requirements (NOVLEK®).
- 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. Implementation with HardWood Clip® SLIM fastener meet the various criteria and acceptability thresholds (considered for evaluation) defined in NF DTU 51.4.
- For decking other than residential and dwellings, the combination with HardWood Clip® SLIM fixing system must be done with boards of minimum thickness 25 mm, finished, planed and profiled

- 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	

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

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

- 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

- The following table shows examples of joist centre distance optimized for 4 thicknesses and 4 widths of ACCOYA® boards grooved on the edges for HardWood Clip® SLIM. Calculations are made for the main use categories of NF EN 1991-1-1, 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			
		Board thickness (mm)	Board width (mm)	95	120	140	190	95	120	140	190	95	120	140	190	95	120
Use categories	A dwellings, residential)	430	510	540	610	560	620	660	740	680	750	790	890	900	1000	1060	1190
	B (offices)	N/A	N/A	N/A	N/A	N/A	410	490	590	430	570	630	710	720	790	840	940
	C1 (cafes, restaurants ...)	N/A	N/A	N/A	N/A	410	540	580	650	570	650	690	780	790	870	920	1040
	C3 (access to public buildings, hotels, train stations ...)	N/A	N/A	N/A	N/A	N/A	410	490	590	430	570	630	710	720	790	840	940
	C5 (area that can support large crowds ...)	N/A	N/A	N/A	N/A	N/A	360	440	560	N/A	510	600	680	640	760	810	910
	D1 (common retail stores)	N/A	N/A	N/A	N/A	N/A	N/A	390	540	N/A	460	550	650	580	730	780	870

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.

Features of ACCOYA® decking:

- 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 (this gap is provided by the spacer integrated on the underside of the HardWood Clip® SLIM fastener)
 - 10 mm between ACCOYA® joists or boards and any other work, material (wall, pole, rail, window, building block, concrete, ...)

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On behalf of the companies:

ACCSYS TECHNOLOGIES PLC

4th Floor
3 Moorgate Place
LONDON EC2R 6EA - UK
<https://www.accoya.com>

ARCHIWOOD SRL

Galerie de Waterloo 2-4
1050 BRUXELLES
BELGIQUE
<https://novlek.com>

FCBA à Bordeaux

Allée de Boutaut - BP 227
33028 Bordeaux Cedex
www.fcba.fr

Managed by Mathieu LAMBERT
☎ : 05.56.43.63.29
mathieu.lambert@fcba.fr



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