

TECHNICAL DATA SHEET / CUT SHEET

Durapalm® PalmShell™Exterior Cladding

Borassus Flabellifer — Sugar Palm · Palmyra Black Palm

Part No. DL-1000XSG | Issued April 2026 | Doc Ref TDS-DP-BP-LBR-R01

1. PRODUCT OVERVIEW

Durapalm® PalmShell™ cladding is a solid, kiln-dried, surfaced-four-sides (S4S) finger joined, architectural cladding product milled from Borassus Flabellifer, a palm species native to tropical Asia and Africa. The species is best known in the wood trade as Black Palm — a reference to the jet-black vascular fiber bundles that run longitudinally through a lighter color matrix — and is also traded as Palmyra Palm, Sugar Palm, Toddy Palm, Tala Palm, Lontar Palm, and Doub Palm. The product is intended for use in architectural millwork, feature interior/exterior cladding, slat walls, ceilings, decorative infill panels, and bespoke joinery in hospitality, retail, residential and commercial environments.

As a monocot, Borassus has a cellular structure fundamentally different from conventional dicot hardwoods: there are no growth rings, no sapwood / heartwood distinction, and annual growth rings. Structural strength and hardness derive from densely packed fibrovascular bundles concentrated toward the outer wall of the trunk; only this outer-zone material is selected and milled for Durapalm® exterior cladding. The result is an exceptionally dense, highly figured material with a striated, non-repeating grain pattern, combined with dimensional behavior that is uncommonly symmetrical (tangential-to-radial shrinkage ratio ≈ 1.0).

2. BOTANICAL CLASSIFICATION & SOURCE

Botanical Name	Borassus Flabellifer L.
Family	Arecaceae (palm family)
Plant Type	Monocotyledon (not a true hardwood or softwood; related to bamboo, grasses, ferns etc.)
Common Names	Black Palm · Palmyra Palm · Asian Palmyra Palm · Sugar Palm · Toddy Palm · Tala Palm · Lontar Palm · Doub Palm
Native Distribution	Tropical Asia and Africa — including India, Sri Lanka, Bangladesh, Myanmar, Thailand, Cambodia, Vietnam, Laos, Indonesia, Malaysia
Mature Tree Size	65–100 ft (20–30 m) tall; 1 ft (0.3m) trunk diameter at maturity
Commercial Source (this product)	Managed palm plantations and agroforestry systems throughout growing region
Raw Material Basis	Agriculturally retired palms — trees that have completed their commercial cycle of sap, fruit, and palm-sugar production (typically 50–80 years) and are harvested at end of productive life. No forest-grown, old-growth, or CITES-listed material.
CITES Status	Not listed in any CITES Appendix.
IUCN Status	Not listed on the IUCN Red List of Threatened Species.

3. DIMENSIONS, TOLERANCES & FINISH

Nominal Cross-Section	20mm × 90mm (0.75" × 3.5") — per project specification; other sections available on request
Nominal Length	2.438M (96")
Cross-Section Tolerance	± 0.5 mm
Length Tolerance	+ 5 mm / – 0 mm
Surface Finish	S4S — surfaced four sides, sanded to accept finish
Edge Profile	Square edge
Straightness	≤ 6mm bow / crook per 1,000 mm length
Moisture Content at Shipment	12% Average (kiln-dried)
Grade	XSG — Durapalm premium architectural grade; selected outer-trunk material only

4. PHYSICAL & MECHANICAL PROPERTIES

Values below are typical for outer-trunk material of *Borassus Flabellifer* at 12% moisture content, per published species data. As a monocot, *Borassus* exhibits a density gradient across the trunk: outer-zone material (used for Durapalm®) is denser and stronger than core material, which is not selected for architectural use.

Property	Imperial	Metric / SI	Reference
Average Dried Weight	61 lbs/ft ³	970 kg/m ³	At 12% moisture content
Specific Gravity (basic)	0.79	—	Based on green volume
Specific Gravity (12% MC)	0.97	—	Outer-trunk material
Janka Hardness	2,020 lbf	9,000 N	Average psi 3000
Modulus of Rupture (MOR)	19,950 lbf/in ²	137.6 MPa	Bending strength at failure
Modulus of Elasticity (MOE)	2,262,000 lbf/in ²	15.60 GPa	Bending stiffness
Crushing Strength	10,190 lbf/in ²	70.3 MPa	Parallel to grain
Radial Shrinkage	~ 5.5%	~ 5.5%	Green to oven-dry
Tangential Shrinkage	~ 5.5%	~ 5.5%	Green to oven-dry
Volumetric Shrinkage	~ 11.0%	~ 11.0%	Green to oven-dry
T / R Ratio	≈ 1.0	≈ 1.0	Exceptional dimensional symmetry — see §5
Decay Resistance	Durable	Durable	Reported resistant to decay; susceptible to insect attack — ISPM-15 / kiln treatment applied

5. DIMENSIONAL STABILITY — SPECIFIER NOTE

Unlike conventional dicot hardwoods, *Borassus flabellifer* has no growth rings and no ray tissue. Shrinkage during moisture exchange occurs approximately equally in the radial and tangential planes, producing a T/R ratio of approximately 1.0. In practical terms this means the material tends to change size uniformly in both directions rather than cupping, bowing, or twisting differentially as a ring-porous hardwood would under the same humidity swing. This symmetrical behaviour is an

advantage in slat-wall, cladding, and batten applications where multiple parallel members must remain visually aligned across seasonal humidity cycles.

Dimensional stability is, however, conditional on the installed environment remaining within the humidity envelope specified in §9. Like all solid wood, Borassus will take on or give off moisture in response to ambient conditions.

6. CHARACTER, GRAIN & APPEARANCE

Colour	Jet-black to very-dark-brown fibrovascular bundles embedded in a lighter tan to light-brown matrix.
Figure	Striated, highly figured, and non-repeating. Fiber density is greatest near the original outer wall of the trunk and decreases toward the core; pieces selected for Durapalm® are from the dense outer zone.
Grain	Straight; no growth rings, no sapwood / heartwood boundary, no knots, no rays.
Texture	Medium to fine, but not uniform — the characteristic contrast between dense dark fibers and softer lighter matrix is intrinsic to the material.
End-Grain	Uniform distribution of dark fibers in a lighter parenchyma body, producing the dotted pattern characteristic of palm end-grain. Growth rings, sapwood, and rays are absent.
Aesthetic Variation	Natural and expected. No two pieces are identical. Color, fiber density, and figure will vary piece-to-piece and within a single piece. A production sample or project mock-up is strongly recommended for all specification work and is available on request.
Odor	No characteristic odor.

7. WORKABILITY & FINISHING

Borassus is moderately difficult to work. The contrast between hard fiber bundles and the softer surrounding matrix can cause tear-out or splintering if cutting tools are dull or cutting angles are incorrect. The following are recommended:

- Carbide tooling throughout — the fiber bundles contain silica and will quickly dull high-speed-steel cutters.
- Sharp tools, shallow passes, and high feed-to-speed ratios reduce tear-out.
- Pre-conditioning the surface with a sanding sealer or wood hardener before final sanding or machining equalizes density and improves surface quality.
- Pre-drill before fastening; the dense fibers will split if fasteners are driven without pilot holes.
- Finish absorption is uneven — the lighter matrix absorbs more finish than the dark fibers. Apply a sanding sealer before stain or topcoat to equalize absorption and avoid blotching.
- Compatible with exterior use oil, water-based, UV-cured, conversion varnish, and lacquer finish systems. If finishing, finish all surfaces prior to installation for greater protection and color consistency across application.

8. SUSTAINABILITY & ENVIRONMENTAL

Forestry Certification	N/A
Source Classification	agriculturally retired botanical material — not a tropical hardwood or forest product.
Trade Restrictions	Not CITES-listed; not IUCN-threatened. No international trade restrictions apply.
Formaldehyde	None — solid wood finger joined with Zero Formaldehyde binders. Exempt from CARB Phase 2 / TSCA Title VI as a solid-wood product.
VOC Emissions (unfinished)	raw, unfinished, untreated.

Environmental Documentation	HPD (Health Product Declaration) available on request.
LEED v4 / v4.1 Contribution	May contribute to MR credits (Building Product Disclosure & Optimization — Sourcing of Raw Materials; Environmental Product Declarations) and IEQ credits (Low-Emitting/Non-Emitting Materials).
BREEAM Contribution	May contribute to Mat 03 (Responsible Sourcing of Materials) and Hea 02 (Indoor Air Quality) credits.
Estidama / Saudi Mostadam	May contribute to Stewarding Materials and Resourceful Materials credits in KSA and GCC green-building frameworks.

9. HANDLING, STORAGE & INSTALLATION

Dimensional stability in service depends on maintaining the installed environment continuously within the envelope below — including during construction, commissioning, and occupied operation. Failure to maintain these conditions will void the product warranty.

Relative Humidity (service)	Exterior use N/A
Temperature (service)	Exterior use N/A
On-Site Acclimatization	Minimum 72 hours to condition at installation environment, un-bundled and flat-stacked on stickers, prior to installation.
Pre-Installation Storage	off ground, flat-stacked with stickers; protected from mechanical damage.
Installation Reference	Smith & Fong published Installation & Handling Guidelines (supplied with shipment or on Webpage).
Maintenance	Scrub, wash clear as needed using nylon, minimal abrasize brush and water as needed. Re-finish per finish manufacturer's instructions.

10. FIRE, HEALTH & SAFETY

Fire Rating (untreated)	Class C / Class 3 — typical for dense tropical hardwood. Test data available on request.
Fire-Rated Coating Option	Euroclass B-s1,d0 achievable with an approved intumescent system (e.g. ICRO ECL).
Safety Data Sheet (SDS)	Issued per GHS / OSHA Hazard Communication Standard; supplied with shipment and available on webpage.
Wood-Dust Handling	Dust from palms in the Arecaceae family has been reported to cause skin and respiratory irritation. Workers should wear appropriate PPE and dust-extraction should be used during cutting, sanding, and machining, per applicable OSHA / local occupational exposure limits.
Phytosanitary	N/A

11. TYPICAL APPLICATIONS

Exterior/Interior cladding, slat-wall systems; fluted wall infill; ceiling slats.

12. WARRANTY

Reference Smith&Fong Warranty for PalmShell Cladding, included with shipment or available on webpage at [durapalm.com/ PalmShell Exterior Cladding /](https://durapalm.com/PalmShell-Exterior-Cladding/) Limited 25 year Warranty.

13. SPECIFIER NOTES

- Because only the denser outer-zone material of the trunk is used, Durapalm® PalmShell™ Cladding is supplied in narrow cross-sections and finger-joined lengths. Wider boards and longer lengths are not available from this species.
- Aesthetic variation between pieces is intrinsic to the material and is not a warrantable defect. A physical production sample is essential for specification, approval, and color-matching expectations. Samples are provided on request at no charge.
- Specifiers are reminded that desert-climate ambient RH is frequently below 20% and may require a mandatory finish application to maintain minimal humidification of natural material and protect from excessive cracking, splitting, checking and warping. For your specific installation and for further questions please contact info@durapalm.com

Contact

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