INDUSTRIAL WOODEN SHIPPING CRATES

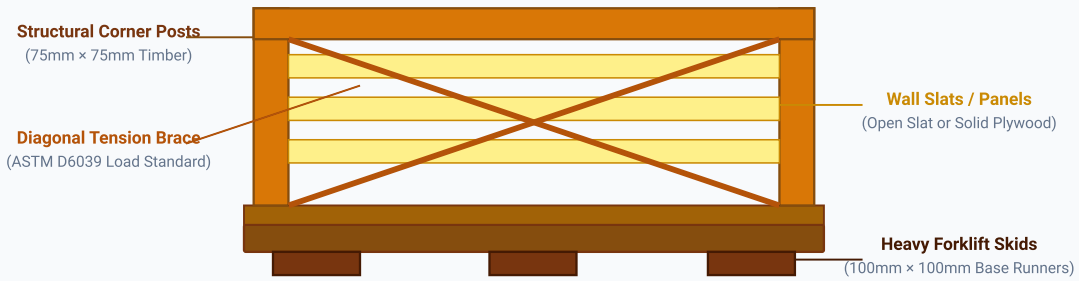
Heavy Equipment Export Craters & Structural Framing Specifications

SPEC NO: WCRT-EXP-2026
Standards: ISPM 15 / ASTM D6039 / ISO 6780

1. SCOPE & ENGINEERING INTENT

This document sets forth structural engineering criteria, timber selection standards, open-slat vs. fully-sheathed wall configurations, skid base load distribution, and ISPM 15 heat treatment guidelines for heavy-duty wooden shipping crates used in multimodal transport.

2. HEAVY-DUTY OPEN/CLOSED CRATE FRAMEWORK ARCHITECTURE



3. TECHNICAL COMPONENT & MATERIAL PARAMETERS

Crate Component	Material & Technical Specifications	Structural & Performance Ratings
Framework & Cleats	Kiln-dried Spruce/Pine/Fir (SPF) or Group II hardwood lumber (50×75mm to 100×100mm).	Bending strength > 42 MPa; corner cleats attached with interlocking lap joints.
Wall Sheathing / Slats	12mm–18mm WBP Birch Plywood or 25mm × 100mm solid timber open slats (50mm spacing).	Custom engineered based on airflow vs. complete weather enclosure requirements.
Skid Base & Decking	100mm × 100mm notch-cut hardwood runners with 35mm solid tongue-and-groove floorboards.	Rated for concentrated static loads up to 8,000 kg; 4-way forklift tine access (ISO 6780).
Fasteners & Hardware	Helical ring-shank nails, M12 zinc-plated carriage bolts, and steel corner brackets.	Nail pull-out resistance > 80 N/mm; bolt torque standard 90 Nm.
Internal Lashing & Line	VCI anti-corrosion barrier bag, heavy-duty D-ring anchor tie-downs, and PE shock foam.	Secures heavy industrial machinery against g-force displacement during ocean freight.

4. QUALITY COMPLIANCE, TESTING & OCEAN LOGISTICS

ISPM 15 & QUARANTINE REGULATIONS

- **Heat Treatment (HT):** Core temperature maintained at ≥ 56°C for 30 consecutive minutes.
- **IPPC Certification:** Clear stencil stamp on two opposing long faces featuring manufacturer ID.
- **Debarking Guarantee:** 100% debarked wood compliant with global biosecurity protocols.

STRUCTURAL TESTING & STACKING RULES

- **Stacking Capacity:** Rated for 3-high container or warehouse stacking (up to 12,000 kg total top load).
- **Transit Integrity:** Tested to ISTA 3B and ASTM D4169 for drop, incline impact, and vibration.
- **Lifting Markings:** Center of Gravity, Sling Points, and Fragile stenciled per ISO 780.