BOS – Workshop Module
HOW WORKSHOP WORKS (Official Document)

Scope: Windows, Doors & Fixed Panels

1. Core Doctrine

Workshop BOS is a style-driven production system. Style is the single source of truth for design, costing, cutting, ordering, optimization, and integration with POS, Inventory, Procurement, BI and AI engines.

2. Style Sources

A workshop can obtain styles in two ways: (1) creating its own styles, or (2) receiving styles from a supplier who owns both Retail and Workshop plans. Shared styles are reference-based or copied locally. Deletion is always local.

3. Default Style (Rate-Based Quotation)

Default Style is a temporary, non-drawing style used only for fast, rate-based quotations (sqm × rate). It cannot enter production and must be replaced by a real style before a project becomes In Progress.

4. Prerequisites Before Style Creation

Users must create materials (code, brand, type, usage, stock length or sheet size, price) and define product context (window, door, fixed) before creating styles.

5. Shape Model

All shapes must produce width and height values through formulas. Differences between shapes are defined by cutting and optimization logic, not by formula availability.

- **Cut Shapes (Lines):** Profiles such as frames, sashes and mullions. They use length formulas or W/H fallback, include offcut and edge behavior, and are optimized using 1D stock-length logic.
- **Fill Shapes – Area Based:** Glass, boards and panels. They use width and height formulas, clearance and optional offcut, and are optimized using light 2D sheet logic.
- **Fill Shapes – Cut Based:** Mosquito nets. They use width and height formulas and offcut, but do not use clearance or sheet layout optimization. They are treated as cut pieces.

6. Formula Engine

Each shape has width and height formulas. If a formula resolves to zero or is missing, the system falls back to the main product dimensions (W or H) according to the defined position. Reference variables (X, Y, Z) are provided during POS or measurement stage.

7. POS & Project Flow

POS is style-first. Each item (window or door) selects a style, then receives dimensions (W × H or radius). Projects are created automatically and consist of multiple styled items. Quotation can be

rate-based (Default Style) or cost-based (Real Style).

8. Project States

Projects move from Quote (quotation and cost review) to In Progress after customer approval. Only In Progress projects generate orders, measurements, cutting lists and tracking updates.

9. Cutting & Material Optimization Engine

The style drawing is the only source of cutting data. Formulas are evaluated per item, offcuts applied, then all pieces are aggregated at project level by material, brand and profile.

Profile cutting uses fundi-first logic: larger pieces are cut first, bars are filled to minimize remaining usable pieces, and no stock bar should remain with a piece that could have been cut but was not.

Glass, board and panel cutting uses width and height formulas with known sheet sizes to reduce waste. Mosquito nets are treated as cut-based pieces.

10. Material Quantity Determination (Critical Reality)

Material quantities are finalized only AFTER the cutting list is generated. This reflects real workshop practice: the number of stock bars or sheets consumed is determined by the optimized cut list, not by raw formula totals. Inventory usage, procurement quantities and costing are therefore driven by cut-list results.

11. Workshop Outputs

- Profile cutting list (grouped by material and item number)
- Glass / board / panel cutting list
- Mosquito net cutting list
- Accessories list
- Optimized material quantities for inventory & procurement
- Wastage and efficiency metrics for BI & AI

12. Final Statement

BOS Workshop converts fundi knowledge into a structured, style-driven system that guides cutting, optimization and production using real workshop logic. The system does not ask the fundi to calculate; it instructs the fundi how to cut.