



IS 2191 (Part 1) : 2022 Wooden Flush Door Shutters (Cellular, Hollow and Tubular Core Type) — Specification

Part 1 Plywood Face Panels

Wooden flush door shutters are a popular type of door commonly used in residential and commercial buildings due to their sleek design, durability, and ease of maintenance. Unlike traditional panel doors, flush doors have a flat, smooth surface, typically covered with **plywood** or **veneer**, giving them a modern and minimalist look.

The construction of wooden flush doors involves a **solid** or **hollow core** encased in a frame made of **timber**, **laminated veneer lumber (LVL)**, or other **engineered wood products**. The core can vary between **solid**, **cellular**, **hollow**, or **tubular**, each offering different benefits in terms of strength, insulation, and weight. Cellular and hollow cores reduce the door's weight and cost while maintaining structural integrity.

The Indian Standard **IS 2191 (Part 1): 2022** defines strict guidelines for manufacturing these durable flush doors, specifically those with cellular and hollow cores. This standard includes details on suitable materials, construction processes, and comprehensive testing methods to ensure high quality. The guidelines also allow customization to meet individual buyer requirements, all while adhering to strict quality controls.

Flush door shutters are available in two grades: **BWP (Boiling Water Proof)** for use in both humid and dry environments and **MR (Moisture Resistant)** recommended only for dry areas. Each grade offers both decorative and non-decorative styles, with decorative doors intended for visible areas where appearance matters, and non-decorative doors suited for areas where functionality takes priority. The shutters also feature three core types:

- **Cellular**
- **Hollow**
- **Tubular**

In order to ensure the performance against the IS Specification, the Plywood Face Panels of Wooden Flush Door Shutters are tested for the following:

Dimensions and Squareness test, General flatness test, Local planeness test, Impact indentation test, Flexure test, Edge loading test, Shock resistance test, Buckling resistance test, Slamming test, Misuse test, Varying humidity test, End immersion test, Knife test, Glue adhesion test, and Screw withdrawal resistance test.

Additionally, the standard prescribes sampling methods and conformity criteria to ensure that every batch meets the size and performance standards before approval.