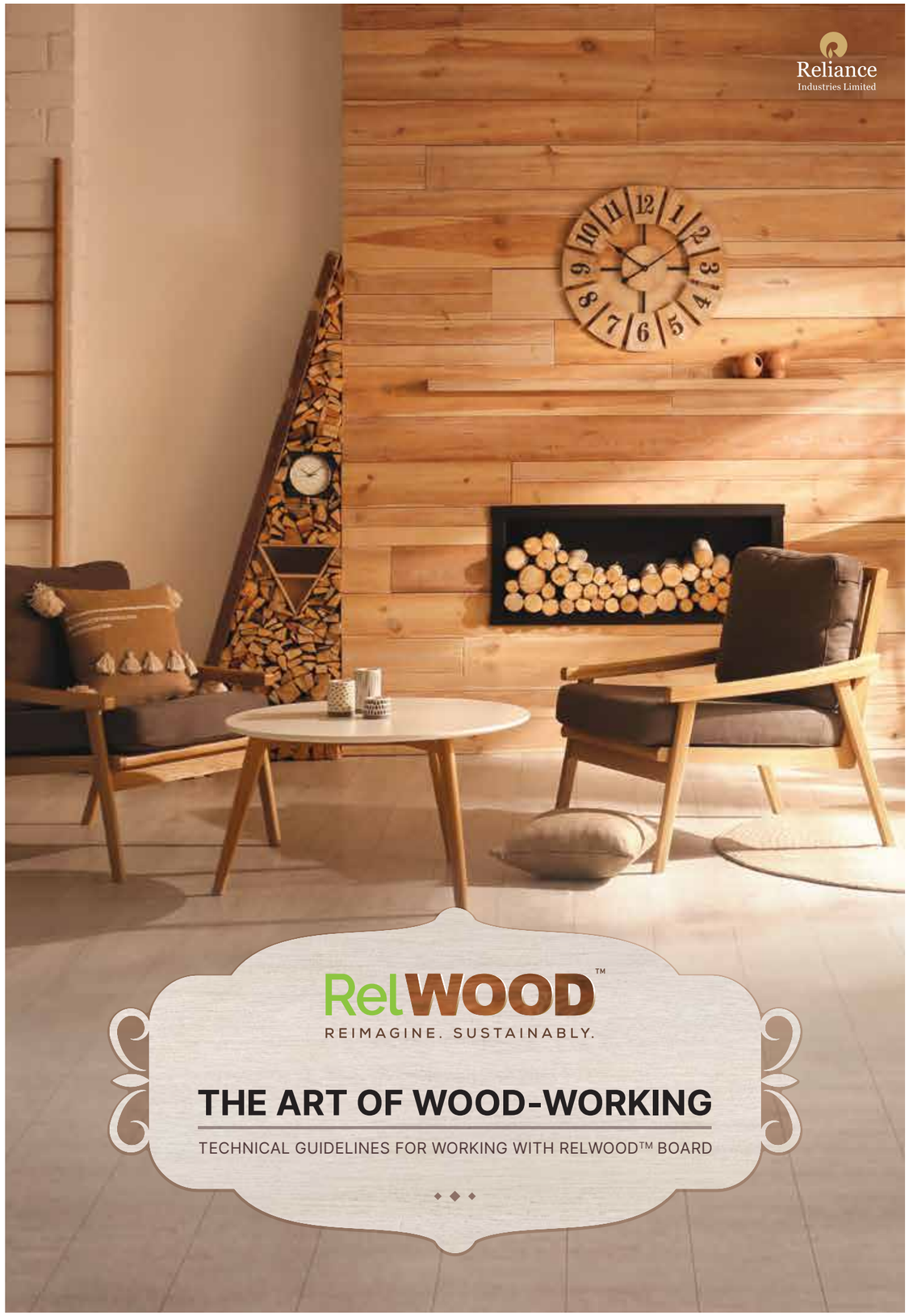
Reliance
Industries Limited
Growth is Life

Reliance Industries Ltd.,
Reliance Corporate Park, Thane Belapur Road, Ghansoli, Navi Mumbai 400701

Website: www.relwood.in
Email: care.relwood@ril.com

@relwood.official
@RelWood
88505 12345
Toll free number:
1800-889-7570



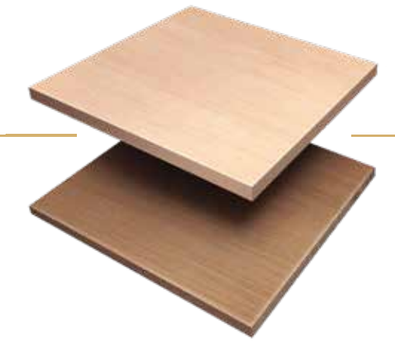
THE ART OF WOOD-WORKING

TECHNICAL GUIDELINES FOR WORKING WITH RELWOOD™ BOARD

Applications

• Furniture • Wall Cladding • Façade • Flooring • Decking
• Roof • Ceiling • Wall Panelling • Doors

RelWOOD™
REIMAGINE. SUSTAINABLY.



Natural Fibre-Reinforced Composite

- Look & Feel of natural hard wood
- VOC Emission free
- 100% Waterproof
- Does not crack or chip
- 100% Termite, Fungus and Borer proof
- Eco-friendly
- Fire Retardant
- UV Resistant
- High Acoustic Rating
- No Splintering
- Easy to work with
- No Formaldehyde

GENERAL INFORMATION

RelWood™ boards can be processed with all common tools and machines used in the woodworking industry.

The following basic properties should be kept in mind while using RelWood™ boards for various applications.

- The following precautions should be considered:
  - Boards should be stored flat and away from heat.
  - Cutting and installation should take place at constant temperature.
  - Dark colors result in higher heating-up than light colors in outdoors.
- RelWood™ as a material is different from all its alternatives such as wood, plywood, MDF etc. and hence, for gluing and joinery the correct adhesives should be used.
- RelWood™ is not a structural material and hence cannot be used as a structural support.
  - Boards must not be left free hanging and should be fixed keeping a span of 50 mm in non-load bearing conditions. In case of load bearing, full base support should be provided.
- As far as possible, at installation, thermal expansion must be taken into account. Expansion is directly proportional to the length of the product.

JOINERY

- Mechanical fastening is usually done with screws or nails.
- We recommend the usage of screw with RelWood™ products. The choice is dependent on the type of application.
- For stronger joints, screws are preferred.
- Generally, Self-tapping screws made up of stainless steel can be used with RelWood™ to avoid rusting or staining. However, screws for normal carpentry are also suitable.
- Screws having coarse threads and having enough length can be used with RelWood™ for better grip. However, choice of screws varies with target application.
- Dowels and metal inserts can be used with RelWood™ but their suitability depends on the application and installation method.
- Best Practices to work with Dowels:
  - ⇒ Drill and clean and accurate holes with proper bit sizes to match the dowels.
  - ⇒ Use high-quality adhesives enhance the dowel's hold.
  - ⇒ Avoid over-tightening or forcing dowels, as this can compromise the material's integrity.
  - ⇒ Best Practice is to work with metal inserts.
  - ⇒ Choose threaded inserts designed for composite materials.
  - ⇒ Pre-drill holes to the precise dimensions is recommended for the insert.
  - ⇒ Consider press-fit inserts for better integration into the material.
  - ⇒ Use adhesive(recommended Relfix) for added strength.

PILOT HOLE:

The pilot hole method is very useful when working with RelWood™ to ensure secure fastening and to prevent damage such as cracking.

Best Practices we recommend for RelWood™:

- ⇒ For standard screws: The pilot hole should be slightly smaller than the screw's major diameter.
- ⇒ For self-tapping screws: The pilot hole should match the screw's minor diameter.
- ⇒ Drilling to be done at low to medium speed to avoid overheating or melting
- ⇒ Avoid overtightening

COMMON PILOT HOLE SIZE:

Screw Diameter	Recommended Pilot Hole Diameter
3.0 mm	2.5 mm
4.0 mm	3.0 mm
5.0 mm	4.0 mm
6.0 mm	5.0 mm

SAWING

- All saws used in the woodworking industry can be employed. For circular saws, carbide tipped tools are recommended.
- Fine saw blades as well as coarse saw blades may be used. Using a fine saw blade produces a slightly more uniform cross-section of the edges.
- Machines and tools used:
  - format -circular saw
  - panel sizing saw
  - hand saw
  - jigsaw and others

DRILLING

All drills used in the woodworking industry can be used.

- Machines and Tools used
  - standard twist drills for wood (HSS, carbide tipped)
  - hand drill
  - drill press
  - drilling machines (CNC machines)

THERMOFORMING

Due to unique properties, RelWood boards can be shaped by heating.

The following should be noted:

- If the radius is too small, the surface may tear, or there may be wrinkles.
- The maximum radius possible depends on the board thickness.
- A gig or mold should be used for uniform shape.
- Sufficient heating (approx. 1 - 1.5 min per mm board thickness) should be provided so that a temperature of approx. 100 - 120 degrees celsius is reached for the entire piece.
- Hold (lock) - time at temperature is approx. 3 - 4 min.
- Cooling down time is approx. 1 - 1.5 min per mm sheet thickness.
- The panel may shrink when heated without frame. Thus, the end product should only be cut to size after reshaping and cooling.
- For accurately curved shapes, a retaining frame may be required. Preliminary tests necessary.

Several tools and processes can be used depending on the application and the application intricacies at the site.

- Tools or Process used:
  - Hand tools such as Hot air gun
  - Oven
  - Thermo-vacuum forming machine

GLUING

- RelWood™ can be bonded with a variety of different adhesives on different substrates. The suitable adhesives are to be selected according to the requirement
- We recommend to carry out preliminary tests to determine the suitability of the adhesives. Generally, manufacturers of adhesives also give advice and application.
- General information:
  - The adhesion on sanded surface is higher than on unpolished surface.
  - Any existing abrasive dust should be removed to improve adhesion.
  - Gluing of the un-sanded surface is less suitable and not recommended, due to the smooth surface and existing lubricant residues from extrusion.
  - When gluing a un-sanded surface, roughening and pre treatment with primer is recommended.

- The adhesive should be chosen based on the following:
  - Substrates
  - Temperature and temperature fluctuations
  - Size of components
  - UV exposure
  - Type of application (vertical, ceiling, horizontal)
  - Open time
  - Press time & pressure
  - Curing time
- Types of suitable adhesives
  - 1 component PUR based
  - 2 component PUR based
  - 2 component Epoxy
  - Solvent Cement (only for RelWood™ to RelWood™ or RelWood™ to PVC product
  - Synthetic adhesives
  - Silicone based sealants

TECHNICAL DETAILS

Characteristics	Standard	Unit	Value	Value
Density	IS-2380	g/cm^3	0.65 +/-0.05	0.80 +/-0.05
Compressive Strength	IS-2380	kgf/cm^2	>150	>160
Hardness	ASTM D 2240	Shore D	>65	>65
Modulus of Elasticity	IS-2380	N/mm^2	>1400	>1800
Modulus of Rupture	IS-2380	N/mm^2	>14	>18
Screw Holding Load (Face)	IS-2380	N	>1900	>2000
Screw Holding Load (Edge)	IS-2380	N	>1450	>1550
Water Absorption	IS-2380	%	<1% (24h)	<1% (24h)
Resistance against Fungi	DIN V ENV 12038	-	Class1 (Highest Durable)	Class1 (Highest Durable)
Resistance to Rotting	CEN/TS 15083-2	-	Class1 (Highest Durable)	Class1 (Highest Durable)
Resistance to Termites	ASTM D3345-08	-	Very High Resistance	Very High Resistance
Flammability	UL 94	Rating	V0 Rating	V0 Rating
Fire Retardancy	ASTM E84	Class	Class A	Class A
VOC Emission	ISO 16000 -6	Compliance	Complies	Complies
Formaldehyde	ISO 16000 -3	Compliance	Complies	Complies
Indoor Air Quality	ISO 16000 -9	Compliance	Complies	Complies
Sound Transmission Loss	ISO 717 / IS 10420	dB	Upto 34	Upto 34

***RelWood™ NFC Board is free of Lead, Cadmium and Barium metals. | *No Formaldehyde used. | *RelWood™ contains natural fibres, hence colour/shade variation is normal.**

ONE MATERIAL, ENDLESS POSSIBILITIES.

RelWOOD™
REIMAGINE. SUSTAINABLY.