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action TESA®

PANELS | FLOORING | DOORS

NEW VERSION 2 (JAN 2024)

TESA BOARD

USER GUIDE - उपयोग पुस्तिका

action TESA®

PANELS | FLOORING | DOORS

Dear Contractors & Carpenters,

As you all aware that Action Group is known for manufacturing products meeting international quality standard. With an aim to enable the carpenters & contractors across PAN India in manufacturing innovative and best quality furniture, the company has come up with **MDF/HDHMR** & **Particle boards** under the brand name TESA. These products are environment friendly. Using TESA **MDF/HDHMR** & **Particle boards** will help you to make ready beautiful innovation furniture in shortest time. TESA MDF/HDHMR has wide applications viz. Furniture, Paneling, Doors, Partitions, Molding, Kitchen Cabinets, Cornice, Pelmet, Skirting..... any many more.

With the exotic wide range of TESA products you can keep your customers always satisfied. Presenting this booklet is an important step in this direction. We always look forward your valuable suggestions towards continual improvement in providing better service. Please send us your feedback regarding this booklet.

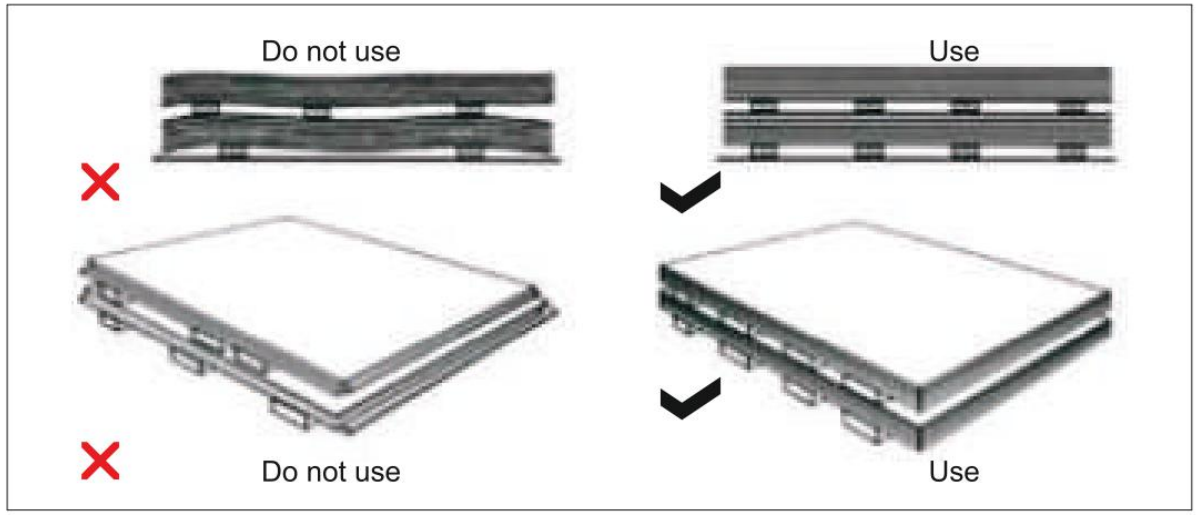
With Best Regards

Team TESA

Storage

1. The edges of stacked panels are aligned to prevent damage caused by bumping against overhanging edges or corners and discoloration due to sunlight.
2. Don't slide, push or drop the boards
3. Ensure the floor of storage area is clean and there are no nails, screws or any sharp items scattered.
4. The storage area must be dry and well ventilated. An average relative humidity of 50% ensures a moisture content of 7 to 9% in the panels.
5. Where extremely damp or extremely dry conditions may occur during transport, temporary storage or on site, the panels are wrapped in plastic foil.
6. Remove the packing paper before using the board and BOPP film should be removed after using the board.
7. MDF/PB/HDHMR panels are best stacked horizontally in packs, preferably on pallets or on dry stacked beams (70 x 70 mm or 90 x 90 mm). On potentially damp substrates, a waterproof foil, e.g. polyethylene foil, is installed before the panels are stacked on it.
8. The stacked beams are placed on top of each other, in order to prevent warpage/deflection of the MDF/PB/HDHMR.
9. To limit the adverse effects of varying ambient conditions, one or two scrap panels are placed on top of the stacks during processing or for prolonged storage periods.
10. Store stacked panels away from open doors & windows.

For proper storage refer Pic 1



Pic 1

When using stacked beams, they must be of equal thickness and spaced no more than 800mm apart. For MDF/PB/HDHMR less than 15mm thick, it is recommended to use stacked beams, e.g. spaced at intervals of 50 times the board thickness (see Table 1). The sides of the panels shall project no more than 200mm from the outer stacked beams.

Panel thickness (mm)	Spacing between beams (m)	Panel length (mm)	Min. number of beams per pallet
6	0,3	2500	8
8	0,4	2500	6
10	0,5	2500	5
12	0,6	2500	4

Table -1

Cutting with Hand Sawing

1. TESA MDF/PB/HDHMR can be sawn both manually and by machine, without causing the material to splinter or fibres to be torn out of the panel.
2. For manual sawing of MDF/PB/HDHMR, a fine-toothed, sharpened saw is recommended.
3. While cutting ensure board is kept horizontally on flat surface and is held firmly to avoid any movement while cutting.
4. While cutting ensure hand saw is to be kept at 32 angle (as per pic3).
5. While cutting pre-laminated board, make 0.2mm deep line with help of sharp cutter. Ensure that the depth of cut is sufficient enough so that the laminated surface get cut in two parts with no chipping.

Pic 2

Pic 3

Cutting with Hand Cutter

1. For cutting big size boards use electric operated hand cutter (refer Picture No. 4)
2. During sawing, the MDF/PB/HDHMR panel should be kept on perfectly leveled surface and the saw blade must be free of vibrations.
3. For the processing of large MDF/PB/HDHMR quantities, the use of polycrystalline diamond (PCD) saw teeth may, in spite of the higher cost, be economically justified because of their longer working time (i.e. the time between regrinding of the tool).
4. While cutting ensure the speed of cutter blade is atleast 4000 rpm

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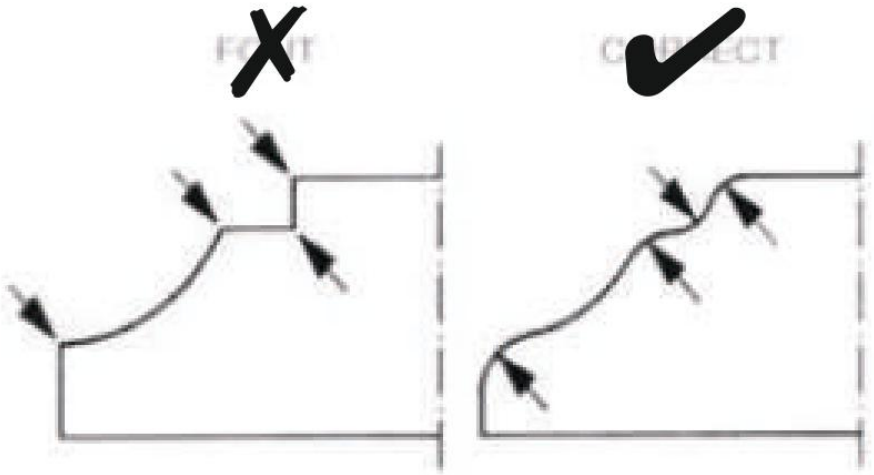
Pic 4

Note: - before using the Panels esure to keep it at site for 48 to 72 Hours for conditioning.

Profiling and Drilling

1. TESA MDF/PB/HDHMR are best suited for Profiling.
2. For rigid and sharp profiles, it is advised to use hard metal (HM) tools.
3. For large series, the use of polycrystalline diamond (PCD) cutting tools is recommended, as it allows a working time to be achieved that is 50 to 60 times that of conventional hard metal tools.
4. For best results always use sharpened tools
5. Simple profiles with curved edges are more preferred than sharp edges.
6. Where there is a risk of damage by impacts (e.g. kitchen doors), a minimum radius of 3mm is recommended.
7. The slightly radiused edges are better coated with paint or varnish and will therefore offer greater resistance to hard impacts.



1. For drilling MDF/PB/HDHMR panels, standard drills and speeds of approx. 3500 r.p.m. are recommended, which allows high quality drilled holes with limited material accumulation on the rear side to be obtained.
2. To prevent material tearing on the rear side in case of drilled through holes, it is recommended to drill half of the hole depth on either side of the panel.
3. Special care should be taken to drill both holes halves in a perfectly straight line.

Tools

1. The use of hard metal cutters is recommended because they produce a better surface finish and have a longer working time.
2. Disposable cutters have better technical performance but the material is more brittle. The use of disposable cutters is cost-effective because of the limited downtime of the machines, the correct profiling, and the constant diameter of the cutter (no adjustment necessary). The cutter can either be turned around or replaced, whilst the tool itself remains on the machine.
3. For series production, increasing use is being made of polycrystalline diamond milling tools.

Sanding Belts

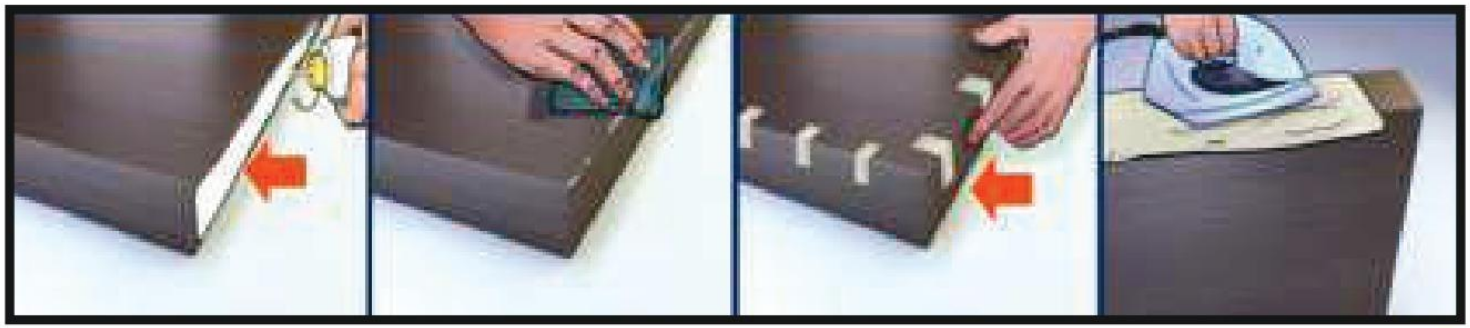
1. Sanding belts can be used for simple profile shapes.
2. A fine finish is obtained by sanding in two steps: first with grit 80 against the feed direction and then with grit 120 in the feed direction.
3. The panel surface can also be fine sanded using sanding belts with grit size less than 150, e.g. for lacquering MDF/PB/HDHMR surfaces.
4. Sanding belts have the advantage that they last longer because a lower temperature is generated by the associated friction. Sanding belts are less suited for intricate profiles.

Sanding Brushes

1. Sanding brushes can be mounted both on manual machines and on a sanding facility of a production line.
2. They are efficient for deep and narrow profiles or for very wide milled recesses (several layers of brushes on top of each other).
3. The recommended speed can amount up to 3000 r.p.m., depending on the brush diameter.

Edge Banding

1. For edge banding use PVC tape only.
2. Use hot melt glue for pasting edge band on MDF/PB/HDHMR edges
3. Apply glue on one edge of the board and spread the glue uniformly on the edges with help of glue spreader/ knife etc.
4. Place the edge band on the edge and apply uniform pressure to ensure oozing out of excess glue from the joint portion. Remove the excess glue gently and carefully using cotton cloth.
5. Press the edge band joint for 2-5 minutes under hand pressure and then apply masking tape to hold the joint firmly.
6. Strong bond will be obtained within 4-6 hours and full bond strength can be achieved only after 24 Hrs at room temperature.
7. For finishing the work within 1 hour, wrap the edge with thick cotton cloth and apply hot iron for 1 minute and repeat the process 4-5 times.



Screws

Please find below useful and important tip regarding how to use screw on MDF & Particle Boards. TESA MDF/PB/HDHMR offers excellent resistance to screw pull-out (screw-holding capacity), both in the face and on the edges.

Diameter of Drill Bit : Ensure that the diameter of drill bit is less than the diameter of screw.

Diameter of Pilot Hole : Ensure that the diameter of drill hole is 85% of than the diameter of screw.

Length of Drill : Ensure that the length of drill bit is more than the length of screw.

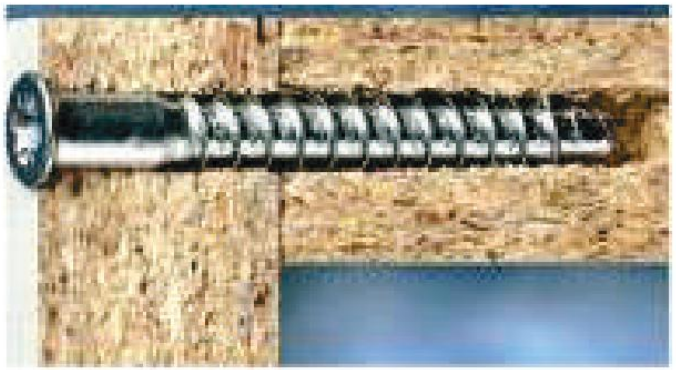
Length of Pilot Hole : Ensure that the length of drill hole is 2-3mm more than the length of screw.

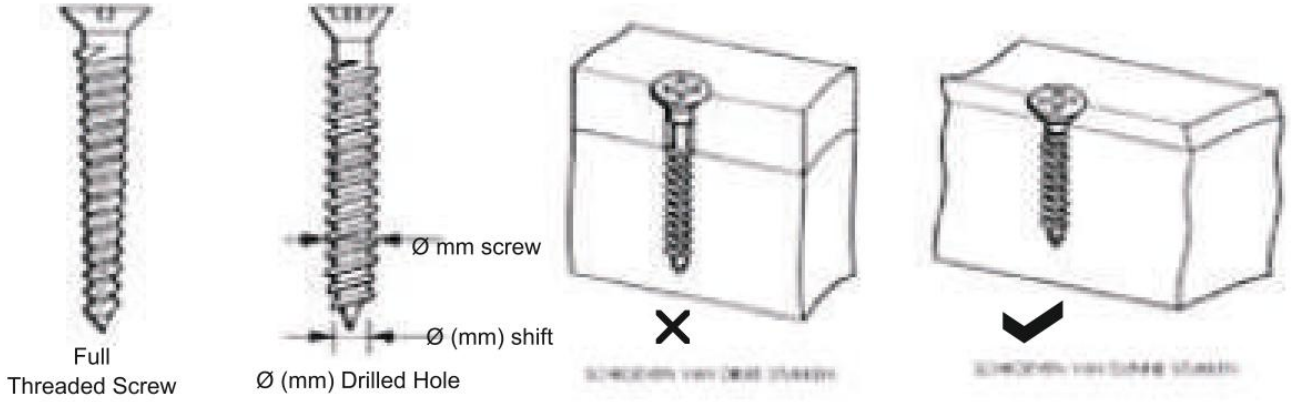
Atleast 1.5 inch distance from Edge : While fastening screw directly on MDF/PB/HDHMR or Particle Board, ensure that a minimum distance of 1.5 inch to the panel edge and 35mm to the corners is maintained.

Atleast 2.5 inch distance from end : While fastening screw directly on MDF/PB/HDHMR or Particle Board then, ensure that a minimum distance of 2.5 inch to corner/edge is maintained.

Don't over tighten : Tighten the screw slowly and steadily. Don't over tighten the screw. Over tightening may lead to crack in board. You can use Self Tapping Screw also.

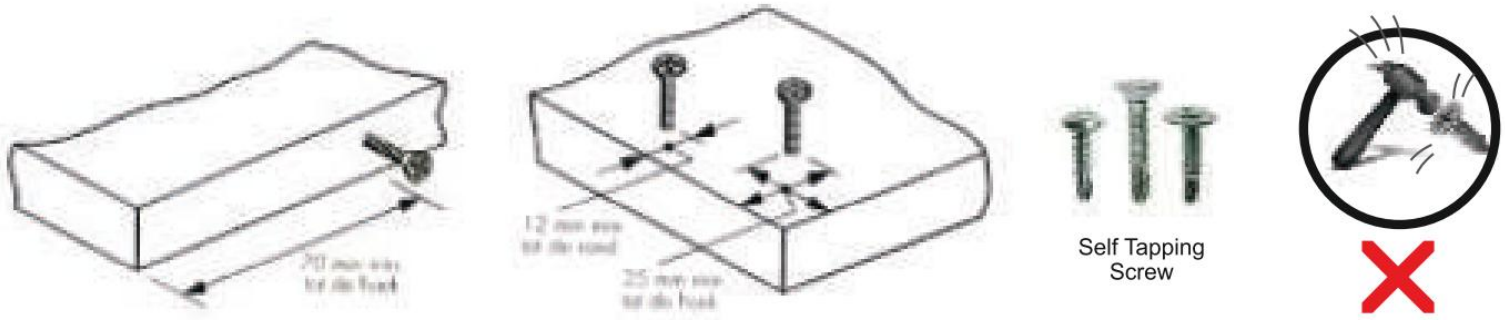
Ø (mm) Screw	Ø (mm) Shaft	Ø (mm) Drilled Hole
3.0	2.2	2.0
3.5	2.8	2.5
4.0	3.1	3.0
4.5	3.6	3.5
5.0	4.2	4.0





Full
Threaded Screw

Ø (mm) Drilled Hole



Self Tapping
Screw

Note : Use of nails is strictly prohibited. Never use hammer on screw.
Use full threaded screw

Joinery Fittings

Joinery Fittings commonly available in market can be used for joining TESA MDF/PB/HDHMR

Block Connector

Shelf Clamp

Minifix

Auto Hinges

Bed Clamp

L Patti

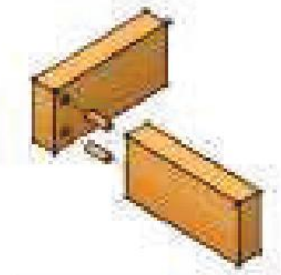
Right Angle Block

Screw Joints

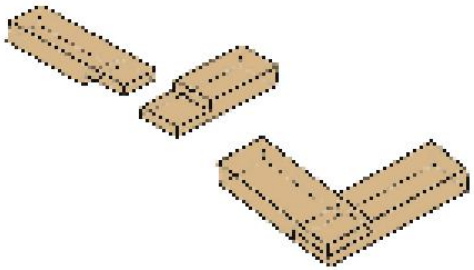
Joints

1.TESA MDF/PB/HDHMR can be joined using simple technique.

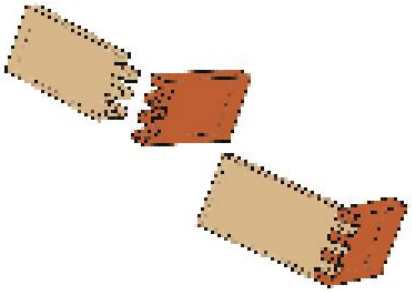
2.The edges must be level and square.



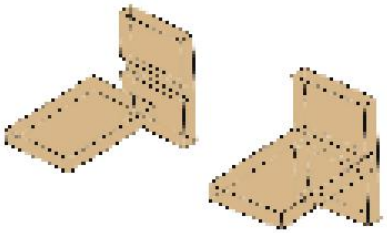
Dowel Joint



Half Lap Joint



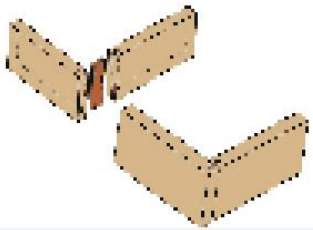
Finger Joint



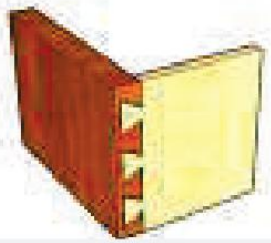
Dado Joint

Tongue and Groove Joint

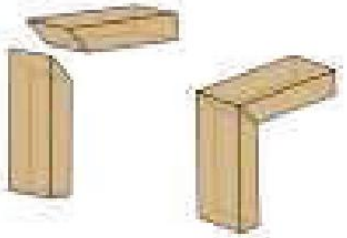
Rebate Joint



Spline Joint



Dovetail Joint



Miter Joint

Paint and Polish

1. The MDF/PB/HDHMR surfaces must be clean and dust free. Any contaminations, e.g. fat or residual building products, must be removed.
2. The MDF/PB/HDHMR panels are preferably conditioned before the paint finish is applied. Painting is carried out in more or less the same climatic conditions as those in which the MDF/HDHMR panels will effectively be used. In this way, cracks and stresses that might occur during strong temperature or moisture variations, can be avoided in the painted surface.
3. After filling and/or repair, the surface to be treated is preferably sanded with grit ≥ P220 in order to obtain a smooth finish and good adhesion. After sanding the surface must be cleaned of dust.
4. A white, low odour, insulating, physically drying paint is preferably used for the primer coating.
5. The insulating primer coat prevents unequal absorption of the top coats and spreading of possible stains or colour irregularities from the substrate.
6. Any damages must be repaired with materials that are compatible with the subsequent paint system e.g. polyester filler.
7. Next the surface must be slightly sandpapered (grit P180-P220), while also making sure to neatly remove the sanding dust.
8. For the top coats the following paints can be used:
   - Solvent- or water-borne paint (e.g. PU-Satin and Hydrosilk from Boss Paints).
   - Wall paint, both water-borne paint (e.g. latex paint, acryl paint or vinyl paint) and synthetic paint.
9. To obtain a well-covering coating, at least two top coats are recommended.
10. Don't leave the MDF/HDHMR/Particle Board surface & edges bare, either paint it or paste laminate on it paste edge band on the edges.
11. To avoid warpage/bending problem, use same thickness of coating or laminate on the balancing side as well
12. ***To avoid warpage/bending problem in OSR MDF/HDHMR Board, use16mm and above thickness only***

Specialty of TESA MDF/PB/HDHMR Board

1. Super smooth surfaces, excellent for laminate/veneer pasting with zero bubble and paint/polish.
2. High Surface Density ensures 25% less consumption of paint/polish.

Engraving & Routing

TESA MDF/PB/HDHMR has super smooth surfaces with high surface density which makes the boards best suitable for routing and engraving

Wall Paneling

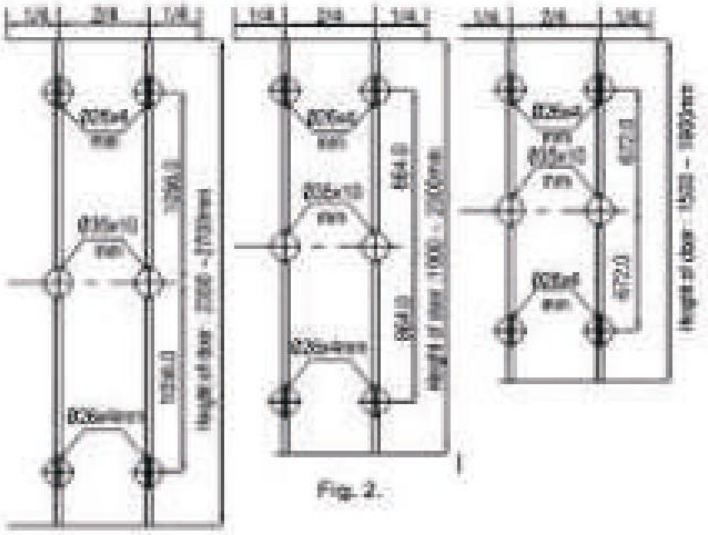
1. To avoid bending problem in wall paneling always use panel size 4 feet X 4 feet or 2ft x 8ft and ensure to give 2-3mm gap between the panels.
2. Please ensure that bare board should not be in direct contact will the wall.
3. While paneling inner side of the exterior wall, use foam or frame of plastic/metal is recommended to avoid transfer of water/ moisture on the frame and the board.
4. As per ISI standard warpage/bending 2mm per meter is acceptable, its also applicable for HDHMR Board.

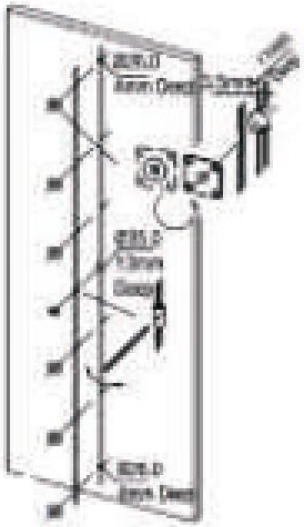
How to avoid Panel Warpage

Door Stiffner/Door Straightener

1. Cut the door stiffner strip to suit the height of the door as shown in Fig. 1
2. Use two set of door stiffner if width of door is more than 600mm
3. Cut the round cavities in door shown in Fig. 2
4. Cut a router of 3.5mm x 11 mm deep connecting the ø 26mm cavity as shown in Fig. 3
5. Join the two rods using length adjuster
6. Fit the assembly on shutter using self tapping screws provided
7. Fit cover plates at appropriate distances using self tapping screws
8. Fit Center cover, access to the holes on length adjuster can be made through the oval slot in the center cover
9. Adjust the bend in shutter by relvolving the length adjuster by using the key as shown in Fig. 4
10. For OSR Board - Remove BOPP Film at the time of application (Paint, Deco, Laminate, Veneer & Other). So that we can avoid warpage & other surface problem
11. For BSB/OSL Board - Remove BOPP Film after application. So that we can avoid warpage & other surface problem

Note: - Door Stiffner is recommended for Door Panel height more than 4 Feet





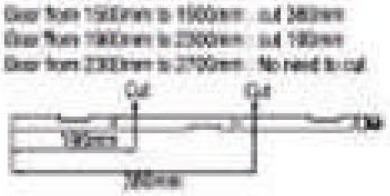


Fig. 1.

Fig. 2.

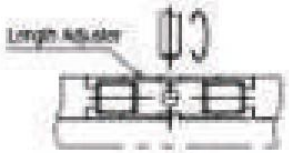
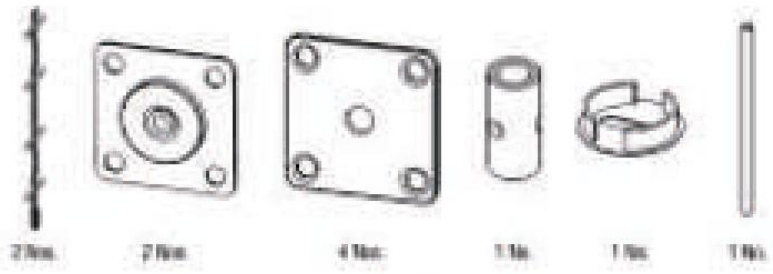
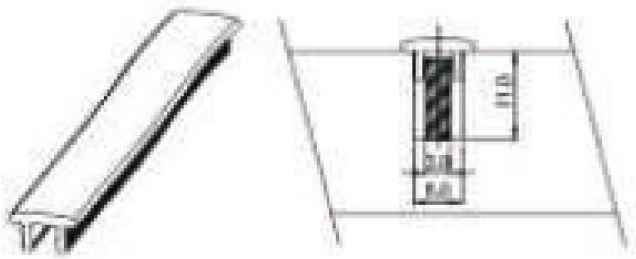


Fig. 4.

Fig. 3.



Door Stiffner



Cover For Door Stiffner

FOR BEST RESULT - PASTING OF MICA ON TESA BOARD

1. Store laminates, Substrates and Adhesive for at least 48 hours at the same ambient condition for acclimatization before use.
2. Before Pasting, ensure that the surface is properly levelled and is free from any kind of dirt like oil, grease, excess moisture and the contaminants.
3. To avoid stress cracking, avoid making cut outs having sharp corners and rough edges.
4. Use a good quality adhesive and stir well before use.
5. Adding water into the adhesive only makes the bonding weak.
6. Use accurate quantity of Adhesive on the Substrate and laminate for good bonding
7. Apply an even coat of adhesive with the help of brush, comb type spreader or paint roller evenly on the surfaces of laminate and Substrate (MDF/HDHMR Board) that requires bonding.
8. Once the adhesive applied gets tacky in nature (Usually requires 5-10 minutes, depending on atmospheric conditions), the laminate need to

be placed on the surface, accurately aligned and pressed down firmly to ensure proper bonding.

9. Extreme care should be taken during alignment and pressing to guarantee an absence of air bubbles.
10. For satisfactory bonding, the area in question should be kept under pressure for a period of 12-18 hours (depending on atmospheric conditions).
11. In rainy season or when humidity is too high, keep bonded assembly for minimum 18 hours under pressure for good bonding.
12. When laminate is to be pasted vertically, maintain uniform pressure on all sides till adhesive is dried.
13. The size of vertical application should be limited to 610mmX2400mm. Larger sized bonded assemblies should be fabricated in the workshop to avoid bubbles.
14. Avoid direct sun light on board at the time of laminate pasting.
15. ***To avoid warpage/bending problem in OSR MDF/HDHMR Board, use16mm and above thickness only***

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Balaji Action Buildwell Pvt. Ltd.

Regd. Office : G-11, Udhyog Nagar, Peeragarhi,
New Rohtak Road, North West Delhi, Delhi - 110 041 **Ph.:** 011-41120000, 41120020
Plant : Plot No. C34, C34 (A) to (D) , C3, C6 (A) to (C),Eldeco SIDCUL Industrial Park, Sitarganj,
Distt. Udham Singh Nagar, Uttarakhand - 262405

CUSTOMER CARE SERVICE: 1800 309 07 07
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