

# Guidelines

O.H door blanks and panels

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Dear Customer,

Thank you for choosing O.H. Industri A/S as your supplier of door blanks.

These Guidelines have been prepared by us as assistance and guidance to you regarding the handling, application, surface treatment and use of our door blank products in connection to your manufacture and sale of external doors.

These Guidelines are based on our general experience regarding the manufacture of doors by the use of our door blank products. However, your use of our products shall always take into consideration the specific application in your doors. **Therefore, O.H. Industri A/S does not accept any liability that these Guidelines are complete or is directly applicable for your specific application.**

The mentioning in these Guidelines of specific materials or components from specific suppliers (such as paint, screws, glue etc.) are examples only. **You as purchaser of our products have the responsibility to diligently check whether the use of the mentioned materials/components for your doors is feasible, including whether such materials/components legally can be used in the countries where you intend to manufacture or sell your doors.**

We hope that you find these Guidelines helpful. If we can be of further assistance, please do not hesitate to contact us or visit our website: [www.oh-industri.com](http://www.oh-industri.com). Downloads available on website includes; product data sheets, technical drawings and video guidelines

O.H. Industri A/S

# Guidelines **Door blanks**

## Inspect the pallets and doors for visible defects

- Upon receipt of delivery of door blanks, inspect the pallets and each door for any visible defects.
- Visible defects must at once be informed to O.H. Industry and be added to the consignment note.

## Storage and handling

- Door blanks should be stored on a flat and level surface in a dry, well-ventilated building.
- Cover to keep clean and keep out sunlight, but allow air circulation.
- Handle with clean gloves and do not drag door blanks across one another or across other surfaces.
- Door blanks should not be subject to: abnormal heat, extreme dryness, humid conditions or sudden changes therein. They should be conditioned to average prevailing relative humidity of the locality before processing and hanging.

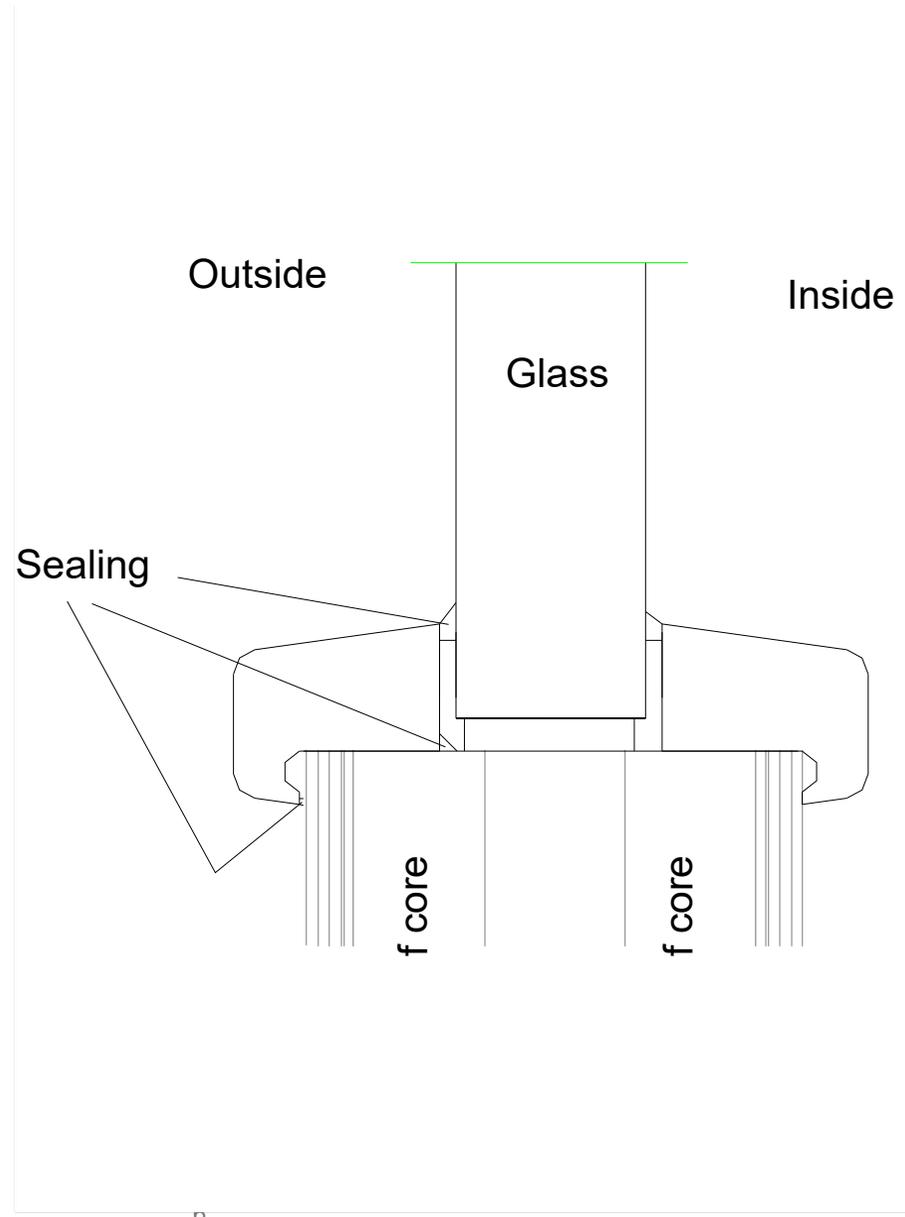
- It is very important to seal all cut outs in a door with a sealer to avoid water to get into the construction.
- Seal the inside and outside of the construction with e.g. a water based acrylic sealer.

## Examples;

- Door knocker
- Letter slot
- Kicking plate
- Spy hole
- Nail/screw holes



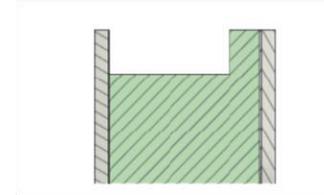
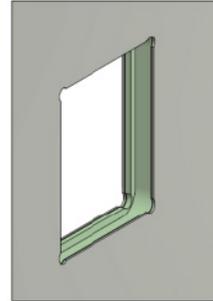
- Use alu tape or similar in bottom of cut out to avoid moisture to get into the core.
- After the installation of the glass or panel the glazing cassettes shall be sealed on the external side as well as sealed inside the construction.
- In connection to the sealing it is important that the drain holes in the bottom glass cassettes are not sealed.
- **Type of sealer;**
- Outside; e.g. Dana Lim 509 Acrylic Clear; single component rubbery acrylic dispersion, fully transparent coatable
- treated against mould.
- Inside; e.g. Dana Lim 524 Sealant; elastic adhesive glue



# Installation of glass or panel - with timber block

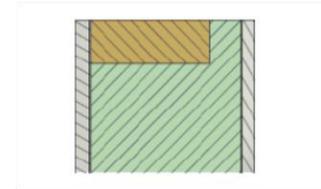
## Step 1

- Cut out in the door
- Remove insulation



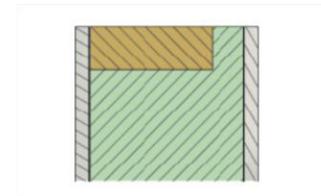
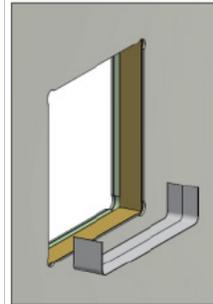
## Step 2

- Install timber frame around the cut out
- Use glue for fixing the timber frame



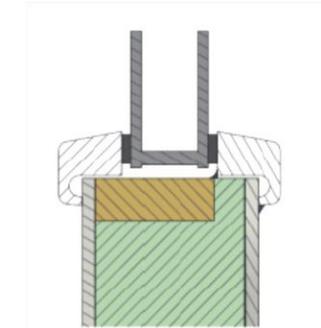
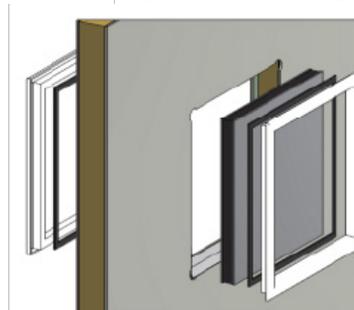
## Step 3

- Put aluminium tape or similar in the bottom of the cut out to avoid moisture to get into the core.

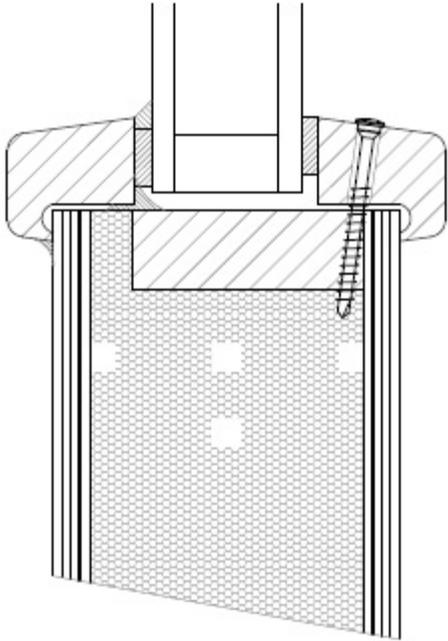


## Step 4

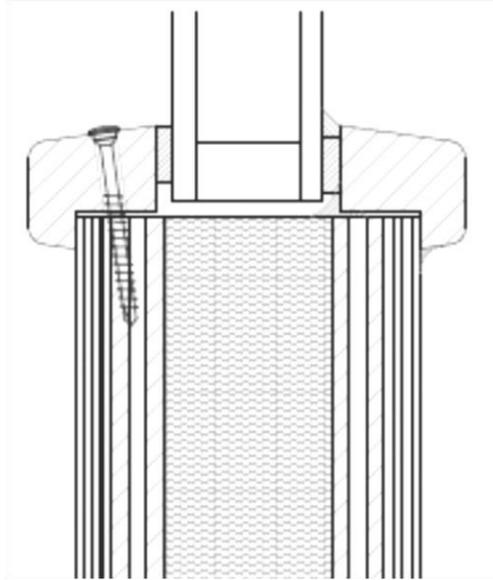
- The glazing cassettes shall be sealed on the external side as well as sealed inside the construction.



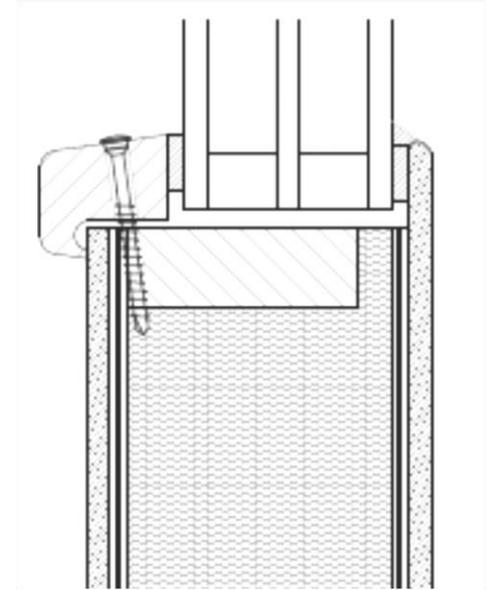
**Option 1  
Timber block**



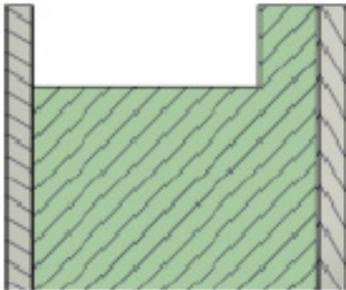
**Option 2  
Ply inlay 9 mm**



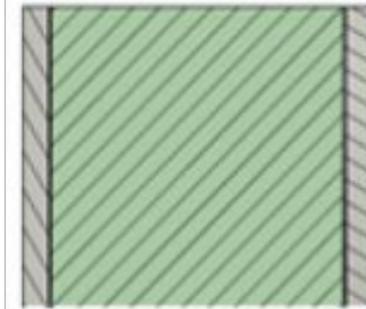
**Option 3  
(Only HPL door)**



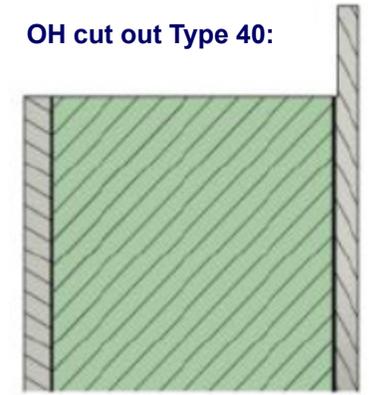
**OH cut out Type 20:**



**OH cut out Type 30:**

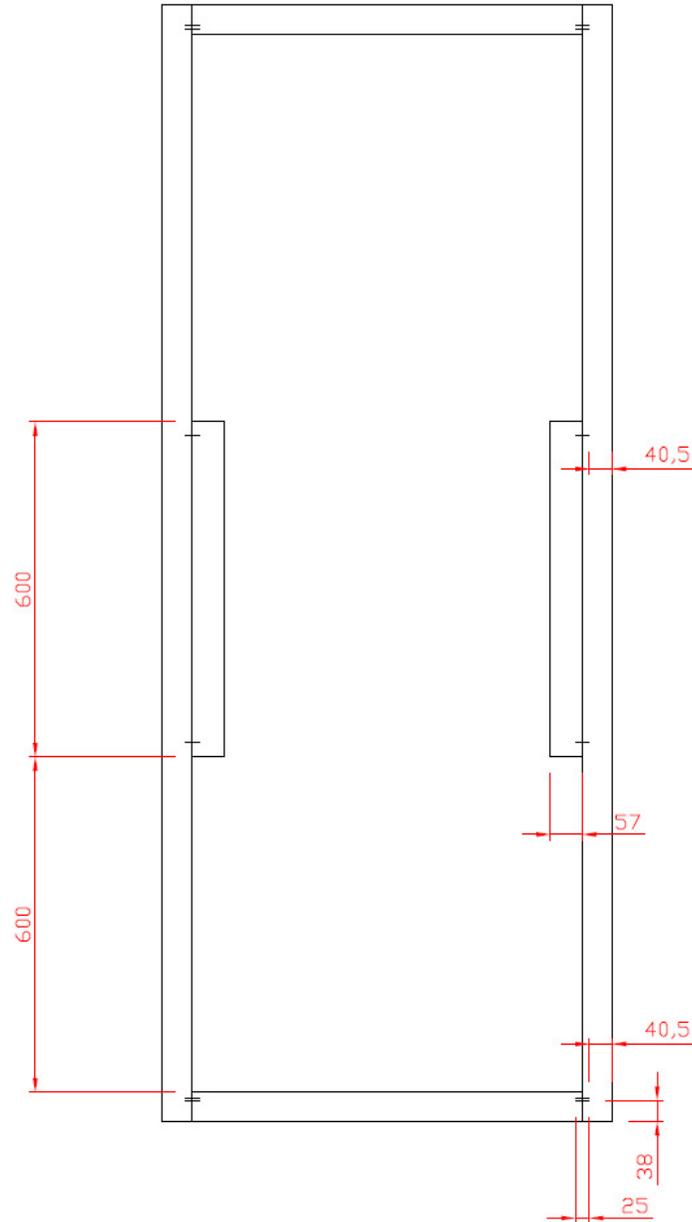


**OH cut out Type 40:**



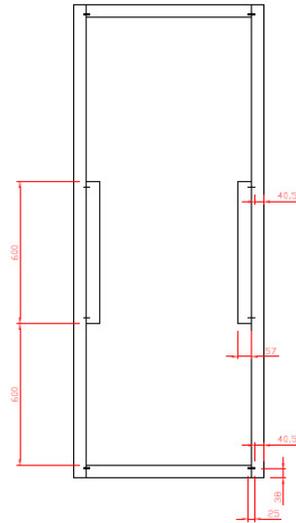
# Door blank – Standard with timber lock block

- Timber lock block both sides
- Long timber lock block in full door length is an option
- Steel nails in the corner
- Be aware of steel nails when machining / profiling doors
- The steel nails in the corners is for fixing the stiles and rails in the production process before gluing the facing on the door frame.
- The stability in the door comes from the timber frame, the glue joints and the cross banded veneer facing with aluminium.

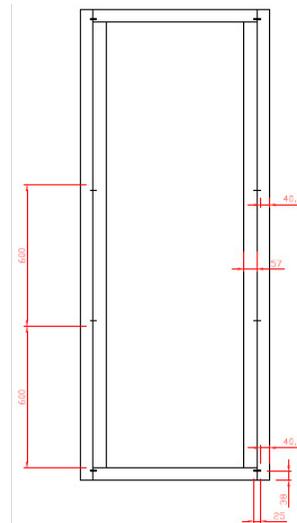


- Long timber lock block in full door length is an option
- 110 mm stiles/rails is an option on all door types.
- Stiles/Rails is finger joint A-quality pine timber.
- Timber lock block is knotted D-quality pine timber.

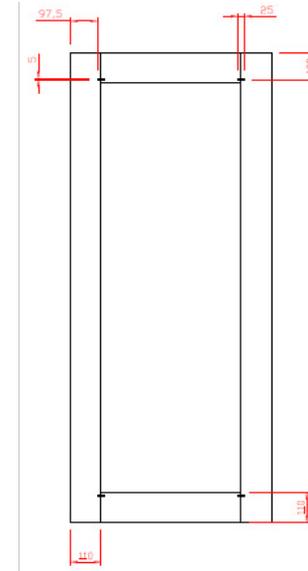
**55 mm stiles/rails  
Std lock block**



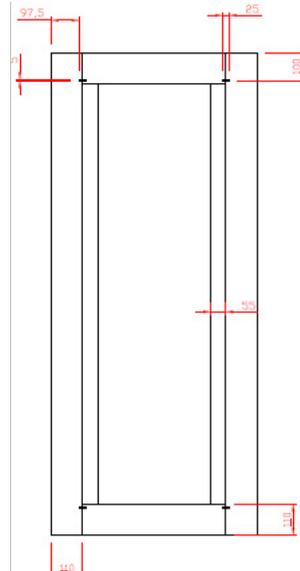
**55 mm stiles/rails  
Long lock block**



**110 mm stiles/rails  
No lock block**



**110 mm stiles/rails  
Long lock block**



Doors with 110 mm stiles/rails can be trimmed 60 mm on all sides and top/bottom.

## Specification Quality A:

- Knots, cracks, resin pockets and blue stain are not allowed

## Specification Quality D:

- Knots, cracks, resin pockets are allowed
- Blue stain are not allowed.

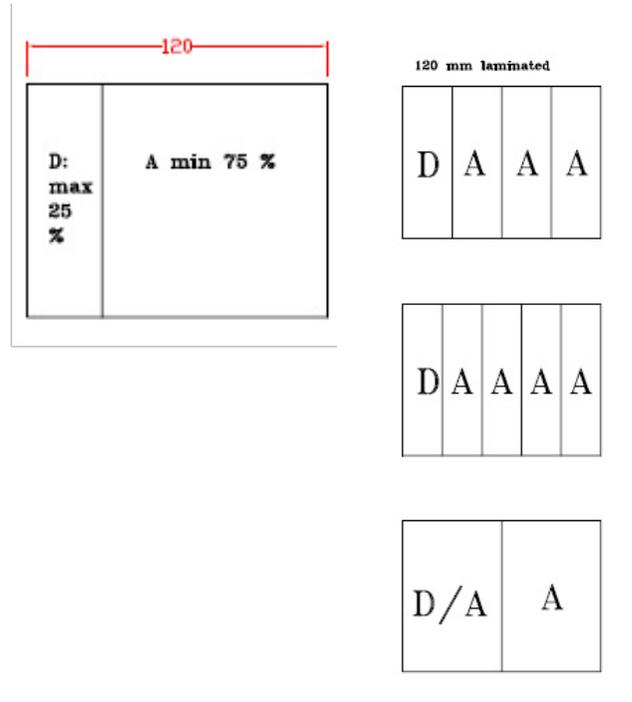
## Machining timber stiles/rails:

- When machining the timber stiles/rails hidden quality errors can be visible and must be repaired with e.g. plastic wood or glue.

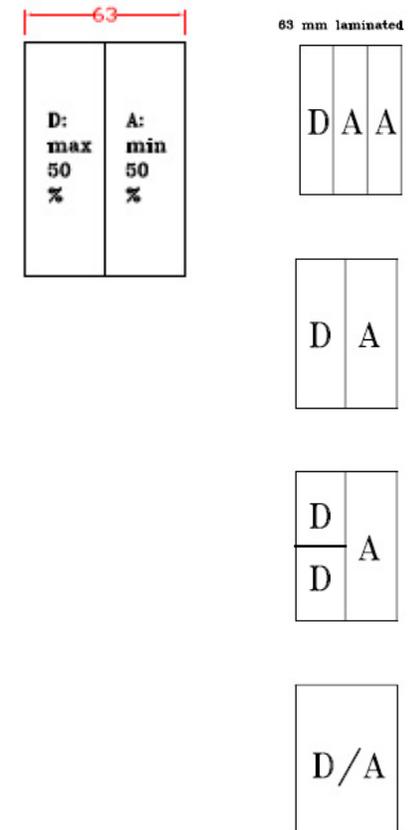
## Hidden quality errors in pine finger joint glued timber to be repaired (not accepted as a claim) includes:

- wind cracks (max. length 100 mm)
- resin pockets (max. length 50 mm)
- black knots (max. Ø15 mm)
- fresh knots (max. Ø25 mm)
- pith (max. length 100 mm).

## Door blanks 110 mm stiles/rails



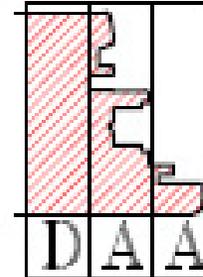
## Door blanks 55 mm stiles/rails



- **Important:** When trimming the door blank the stiles/rails must be minimum 50 mm to have full stability in the door.
- When machining/profiling the door be aware of the depth of the profile/rebate.
- It is recommended to have minimum 25 mm timber in the bottom of the profile.

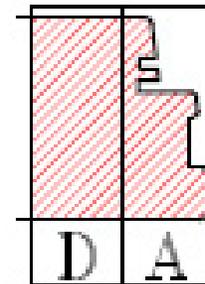
## Profil type 1

**Use a door blank with  
110 mm stiles/rails**



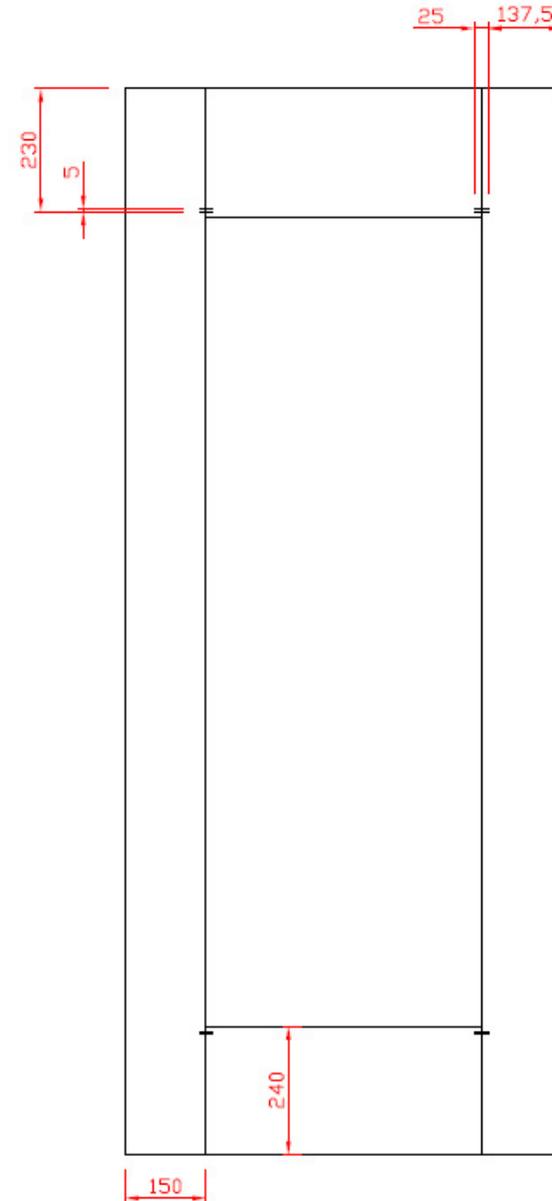
## Profil type 2

**Use a door blank with  
55 mm stiles/rails**



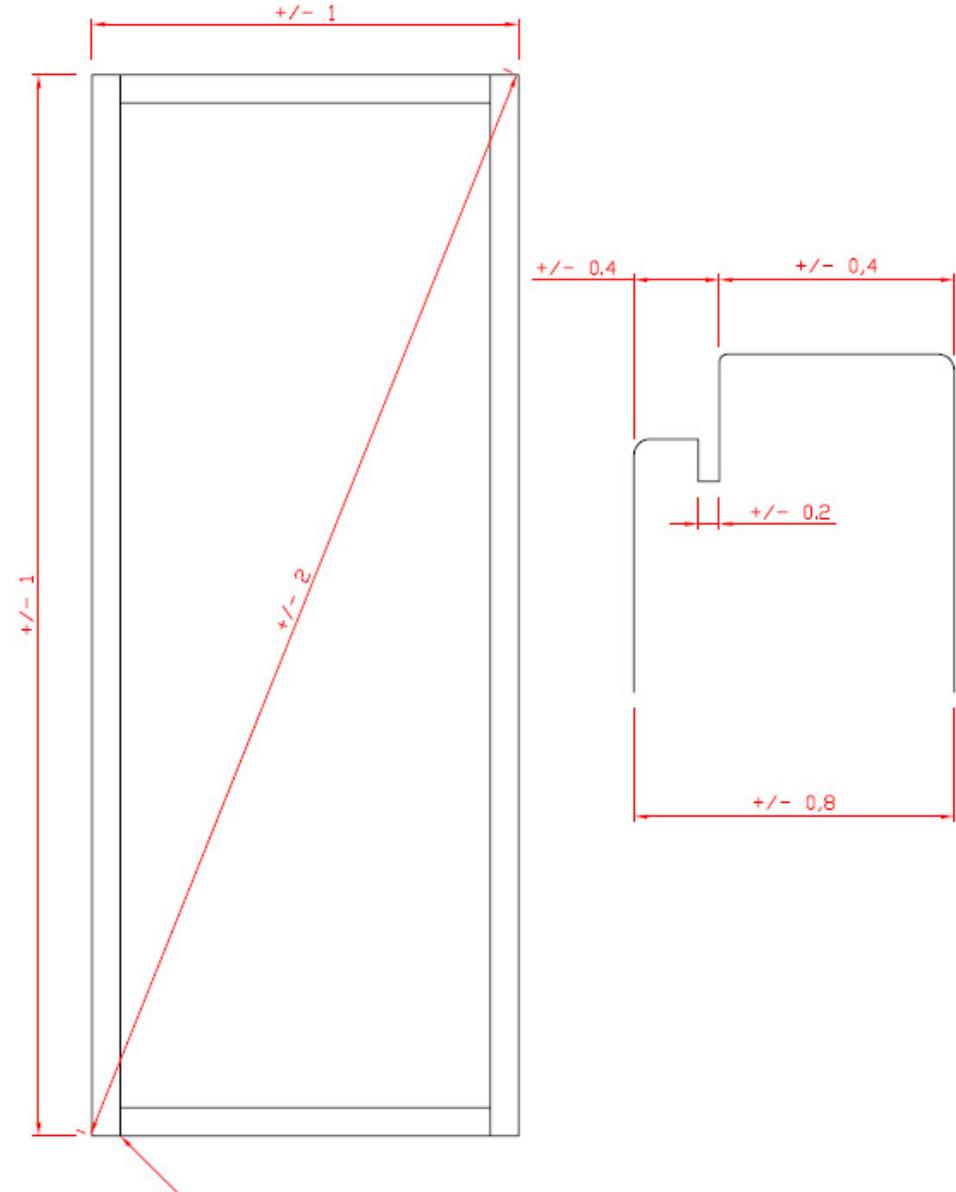
# Door blank – Special with extra stiles/rails

- Available as 44 mm door and 58 mm
- Only available in standard door sizes.
- 150 mm stiles knotted pine
- 240 mm rails knotted pine
- Can be trimmed 100 mm each side and 200 mm in top/bottom
- Steel nails in the corner



## Tolerances door blank;

- Thickness:  $\pm 0,8$  mm
- Diagonal:  $\pm 2,0$  mm
- Length/Width:  $\pm 1,0$  mm
- The standard OH door blank with 55 mm stiles and rails is climate tested at the IFT Rosenheim laboratory in Germany and meets the highest climate class (class 3: bowing less than 2 mm on door length).



- **When ordering door blanks**

**be aware of quality and**

**type of veneer facing:**

- For paint colours
- For stain colours
- For grooves

### Veneer facing for paint colours:

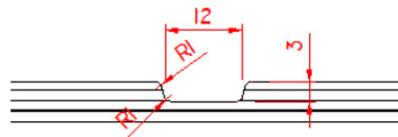
- Quarter cut sliced veneer and slip matched joined
- Typical properties of the wood with less regular structure and with colour nuances
- Larger knots in veneer surface and small dark knots is allowed
- Repair with wood filler in veneer surface is allowed

### Veneer facing for stain/transluscent colours:

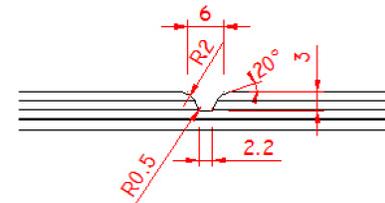
- Quarter cut sliced veneer and slip matched joined
- Pure wood veneer with regular structure and slight colour variations
- Small knots in veneer surface, but no dark knots is allowed
- Small errors in veneer surface is repaired

### Veneer facing for grooves (paint or stain):

- With high quality veneer also in 3<sup>rd</sup> layer



Option to select high quality veneer in 3<sup>rd</sup> layer for better finish in the bottom of the groove



No need to select high quality veneer in 3<sup>rd</sup> layer due to the profile in the bottom of the groove

- **OH are using ChenChen veneer facing on doors for paint and stain colours**
- ChenChen veneer is a durable material for exterior doors, which has been proven over many years in the Nordic countries.

## **ChenChen veneer:**

- Origin: Africa (grows throughout the high forest zones of West, Central and East Africa)
- Latin name: *Antiaris toxicaria* (of the Family Moraceae)
- Other names: Chen Chen, Blonde Sapele, White sapele, Ako, kyenkyen, quen, bark cloth tree, ako, mkuzu, mlulu, oro, ogiovu, kirundo, mumuka, upus, adoum, bonkonko, false iroko
- Eco labels: limited availability of FSC
- Density: 250-540 kg/m<sup>3</sup> (lightweight hardwood)

## **Properties of ChenChen veneer:**

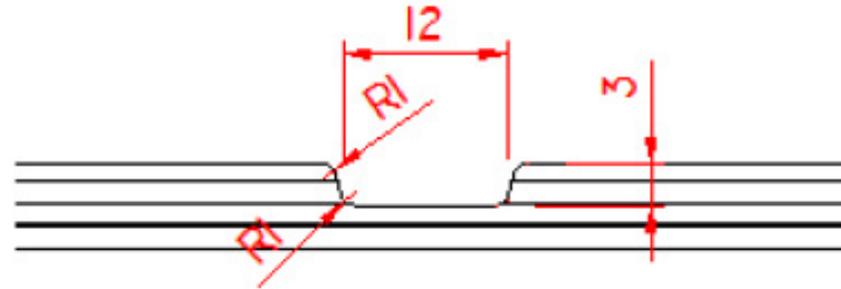
- Chen Chen is also referred to as white sapele because it has a nice ribbony-grain pattern similar to the ribbon stripe in sapele. Chen Chen is a cleaner wood than Sapele, because it doesn't have the pin knots that sapele can have.
- Light-colored wood, ranging from a white yellow to yellow brown with no distinction between its sapwood and heartwood
- Can be stained and finished well. It is easy to go from dark to light. Visible wooden structure when painted. Can be stained with a veneer-like appearance of oak, mahogany, etc.
- Is a durable material for exterior doors, which has been proven over many years in the Nordic countries.

## **Quality on OH ChenChen door:**

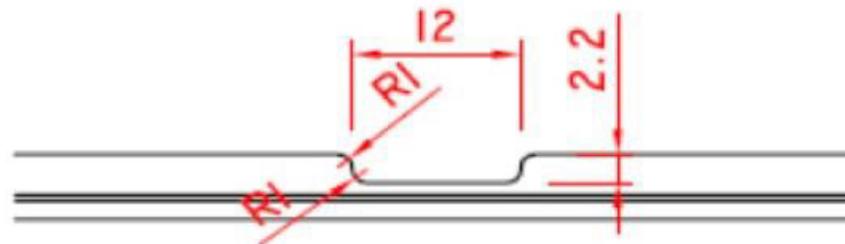
- Quarter cut sliced veneer and slip matched joined
- Typical properties of the wood with less regular structure and with colour nuances
- Larger knots in veneer surface and small dark knots is allowed
- Repair with wood filler in veneer surface is allowed

- **Maximum groove depth;**
- Veneer door: 3,0 mm
- HDF door: 2,2 mm
- HPL door: 2,2 mm

4 layers of veneer



HDF and HPL



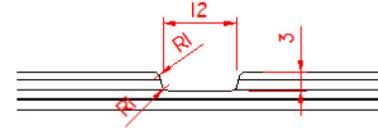
- **Maximum groove depth;**
- Veneer door: 3,0 mm
- HDF door: 2,2 mm
- HPL door: 2,2 mm

## To achieve the best quality in

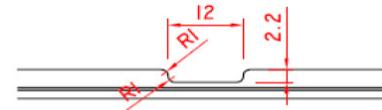
the groove we recommend;

- Radius on the edges of the groove and in the bottom of the groove
- No vertical groove sides, but small slope on groove sides
- Optimise tool specification and tool speed (rpm) for the specific CNC machine type

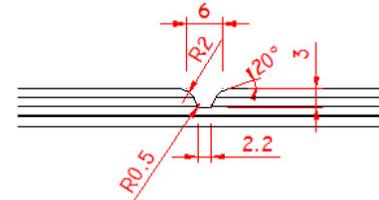
Type 20 (12 x 3 mm)  
4 layers of veneer



Type 20 (12 x 2,2 mm) - (12 x 1,5 mm)  
HDF and HPL



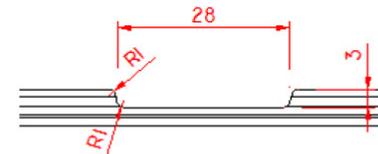
Type 40 (6 x 3,0 mm)  
4 layers of veneer



Type 50 (28 x 2,2 mm) - (12 x 1,5 mm)  
HDF (2,2 mm) and HPL (1,5 mm)



Type 50 (28 x 3 mm)  
4 layers of veneer



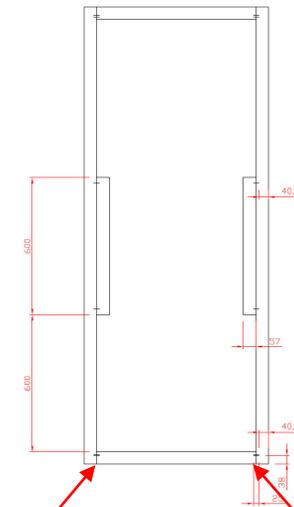
## Openings in veneer surface

- If damage is < 1 mm; use e.g. water based light weight filler
- (e.g. Dana Lim 628 Light weight filler)
- If damage is > 1 mm; use e.g. two component wood filler

## Damages on stiles/rails

- Use e.g. two component woodfiller

• **Important:** Never close openings between stiles and rails in the bottom of the door. It's important to allow humidity to get out of the construction !



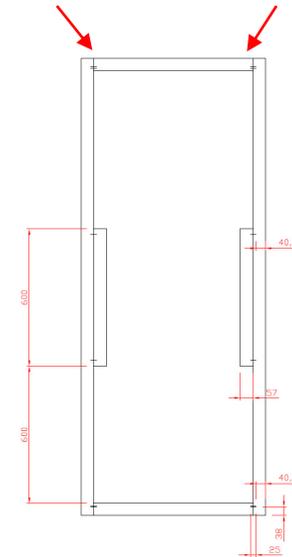
## Before finishing

- Before finishing, remove handling marks or effects of exposure to moisture with a thorough final sanding over all surfaces of the door
- Always sand in the direction of the grain. Use sandpaper grain 150-180 (P150-P180).
- The door has been presanded in factory with grain 150-180 (P150-P180).
- For the best finish sand the surface with grain 180 between primer and topcoat when using waterbased paint system.
- **Important: Make sure the door has room temperature when applying the paint !**
- Painting a cold veneer door increase the risk of air bubbles in the paint surface, due to cold air from the veneer structure will go out when the door temperature increase going through the flash off zone and drying zone in the paint line.
- Also, a very high temperature and very low relative humidity in the drying zone can result in bubbles due to the drying proces does knot allow humidity to get out before the paint film has hardened.
- Before installation of the door, use a suitable paint system for external use. Never install an untreated door.
- For improved durability and finish in the grooves, prime the grooves with e.g. a paint brush before priming the full door.
- It is recommended to use a paint system with fungicides in both primer and topcoat.
- **Contact your paint supplier for more guidance on paint systems !**

## Paint system

# Sealing of the top of the door

- After painting the door, close the joining between stiles and rails in the top of the door with a sealer to avoid water to get into the construction.
- Use a flexible sealer that can absorb the movement in the timber over time to maintain the long term durability of the door.
- Use the sealer after painting to allow the fungicides in the painting system to be absorbed in the timber joining.



- **Important:** Never close openings in the joining between stiles and rails in the bottom of the door. It's important to allow humidity to get out of the construction !

## Inspection

### Maintenance a few times a year extends the lifetime of your doors !

- Inspect regularly to see if there are cracks emerging in the exterior coating and for damages on the door edge/corners. <sup>22</sup>
- This applies particularly on the southern and western elevations, bay-parties, etc. where the sun's UV rays are hard on all woodwork. Also houses without eaves are exposed. Doors painted in dark colours, placed in coast areas or in direct sun is more exposed. Just one crack in the paint exposes the timber to moisture, and the decomposition of the timber has begun.
- Pay extra attention to the glazing beads on doors with glass apertures and on the lower part of the door which is extra exposed.

## Maintenance and cleaning

- The doors must be reviewed once a year with a brush to make repairs to the surface wherever it is needed. For post-treatment we recommended the use of a paint with great covering power either water or oil based in the appropriate colour.
- Furthermore it is a good idea to wash the door a few times a year. It removes dirt and other contamination, which ultimately degrades the surface. Use water with a mild detergent.
- When the timber surface is to be cleaned, it is a good idea also to have a look for any small cracks and crevices in the paint surface. Generally, when the weather begins to discolour the paint on your doors, it is time for maintenance.



# Installation of Q-Wood composite profiles “Bolection Mould” - to create in-depth design

- Use Q-Wood composite profiles “Bolection Mould” to make a traditional door style
- Available as standard profile

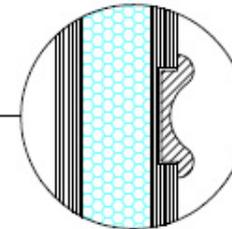
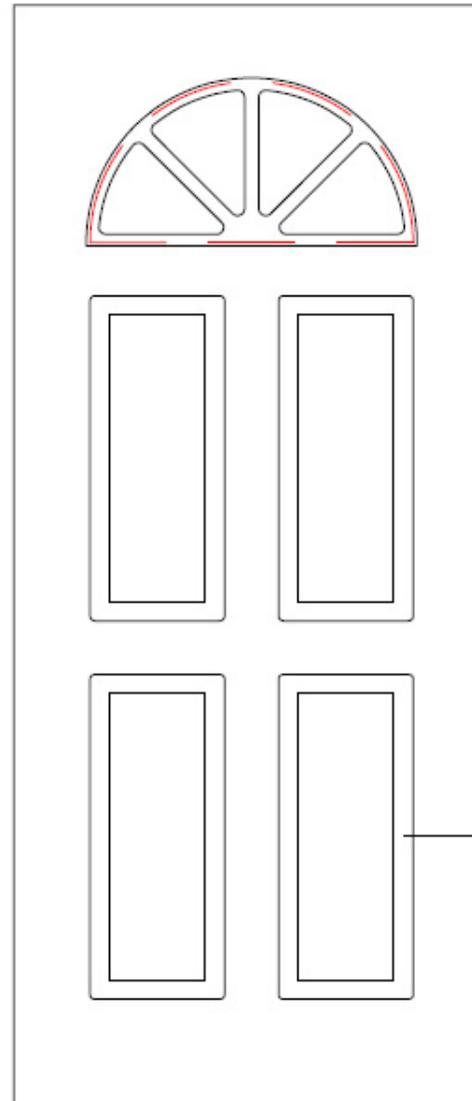
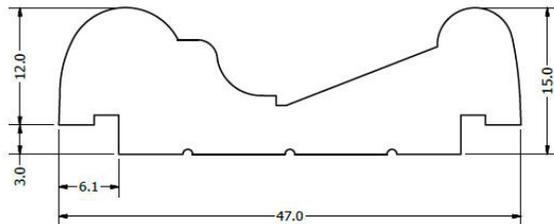
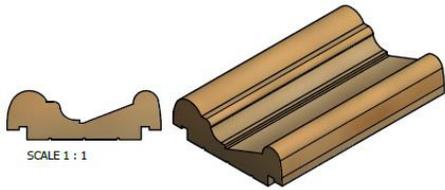
## Advantages:

- Cost effective compared to Raised&Fielded panels
- High thermal efficiency

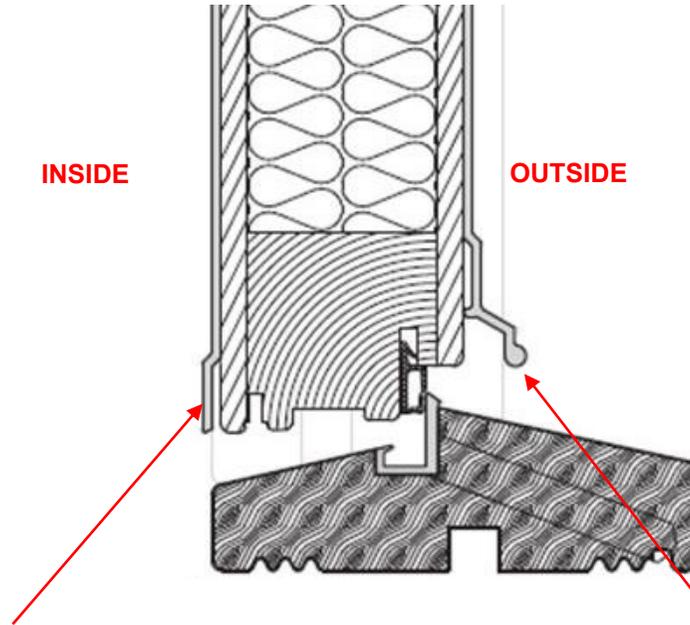
**Unspecified tolerances:**  
All dimensions are in millimeters  
unless otherwise stated,  
Unspecified Radii 0.2mm

Holes +/- .1mm  
Angles +/- .5 Deg  
Radii +/- .2mm

No. Dec Places +/- .5mm  
1 Dec Place +/- .2mm  
2 Dec Places +/- .1mm



- Select a Rain Deflector that effectively leads the water away from the bottom of the door
- Minimum 5 mm air between the door facing and the Rain Deflector is required to allow water drops to fall off.
- When mounting a kicking plate or rain deflector seal the top and all nail/screw holes with a sealer to avoid water to get into the construction.

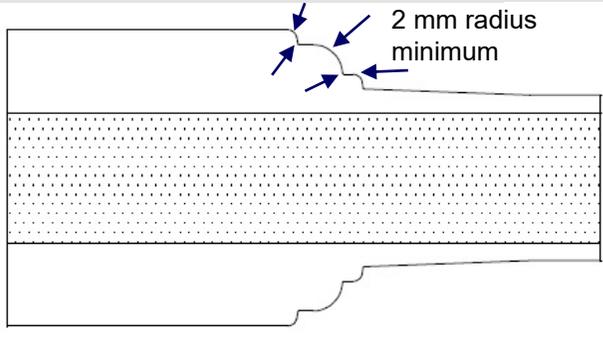


This type of kicking plate is only suitable for internal use, because the distance between the door facing and the alu plate is less than 5 mm.

This type of rain deflector is suitable on the external side of the door. The distance between the door facing and the alu plate is more than 5 mm.

# Guidelines **Panels**

## Surface treatment of MDF panels



## Installation of MDF panels

- Mdf panels must be fully sealed on all surfaces and edges with an exterior grade system to insure that the material does not absorb moisture. The recommended method of painting for both faces and edges is to seal (diffusion closed), prime and topcoat.
- The base coat should be done in several stages. The first layer of primer and sealer is applied to close the surface. Follow up with a pre-sanding (grain 240-320) to remove rough fibres in the surface without sanding through the sealer (be careful when sanding the edges and corners). The second layer of base coat is done to ensure uniform priming.
- On raised and fielded Mdf panels, it is important that prior to finishing of edges, the corners must be slightly rounded (2 mm radius minimum). Edges that are slightly rounded, rather than square and sharp, will hold paint better.
- Mdf panels shall be handled with caution. If the edges are damaged, either before or after the surface treatment, the panel should be scraped, because the gluing and binding of the fibres in the mdf panels often are destroyed further into the core of panel.
- Installation of mdf panels shall be carried out in such a way that the edges of the panels is not damaged and ensure ventilation and effective draining of moisture.
- Markings on the edge of the mdf panel with labels, tape or similar should be either on the side or top; never on the bottom.
- Installation of a door knocker, letter slot, decoration etc. where the painted surface will be opened, the nail/screw holes shall be sealed to prevent moisture entering.

- Installation of laminated solid timber panels in pine, oak and mahogany shall be carried out in such a way that it take in to account the expansion of the timber when moisture content and temperature changes.
- Ensure ventilation and sufficient air between the panel and the seam/sash on all four sides that can absorb the expansion of the laminated solid timber.
- Laminated solid timber panels in pine, oak and mahogany are recommended to be maximum 400 mm in the width when installed to avoid warping and bending.
- The laminated timber must be treated with an exterior grade system to insure that the material does not absorb moisture. Absorbtion of to much moisture will result in expansion of the laminated timber and result in delamination of the lamellas. Drying out of the laminated timber will also result in delamination of the lamellas.

## Expansion in laminated solid timber: (pine, oak, mahogany)

Width: Changes in cross measure along growth rings is up to 0.3 %.

Height: Changes in length measure in fiber direction is limited to 0.01 %.

Calculation is based on:  
Moisture content in laminated timber = 8 %  
Expansion in pct per mm = 0.3 %

Width	Moisture content		
	10%	15%	18%
200 mm	1.2 mm	4.2 mm	6.0 mm
300 mm	1.8 mm	6.3 mm	9.0 mm
400 mm	2.4 mm	8.4 mm	12.0 mm
500 mm	3.0 mm	10.5 mm	15.0 mm

## Storage and handling

- Laminated solid timber panels should be stored on a flat and level surface in a dry, well-ventilated building.
- Cover to keep clean and keep out sunlight, but allow air circulation.
- Handle with clean gloves and do not drag door blanks across one another or across other surfaces.
- Panels should not be subject to: abnormal heat, extreme dryness, humid conditions or sudden changes therein. They should be conditioned to average prevailing relative humidity of the locality before processing and hanging.
- For the best control of humidity to avoid warping and bending the laminated solid timber panels must always be wrapped in plastic. When the panel is unpacked always stack the panel on wood beddings or similar to secure ventilation around the panel.
- Laminated solid timber panels must be treated with an exterior grade system to insure that the material does not absorb moisture. Absorption of too much moisture will result in expansion of the laminated timber and result in delamination of the lamellas.
- The recommended method of painting is to apply a uniform layer of paint on both sides in the same process to control the moisture content and to avoid warping and bending.
- To avoid black discoloration on oak only use acid proof stainless screws/nails. Installation of a door knocker, letter slot, decoration etc. where the painted surface will be opened, the nail/screw holes shall be sealed to prevent moisture entering.

## Surface treatment

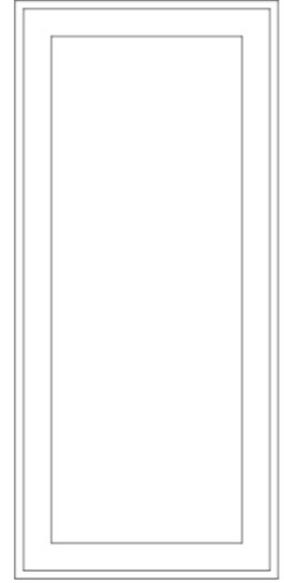
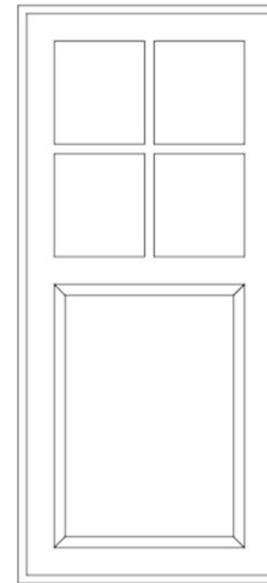
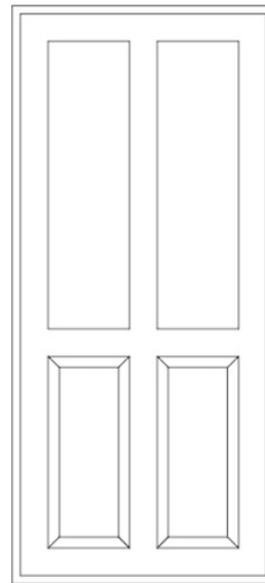
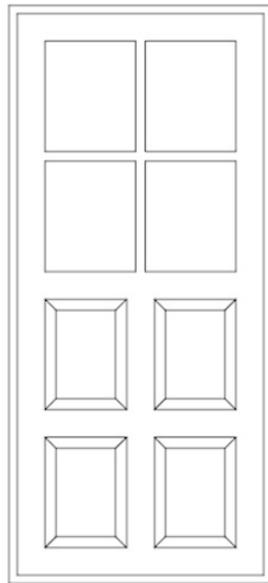
## Laminated solid timber panels

Laminated solid timber panels in pine, oak and mahogany are recommended to be maximum 400 mm in the width when installed to avoid warping and bending

## MDF panels

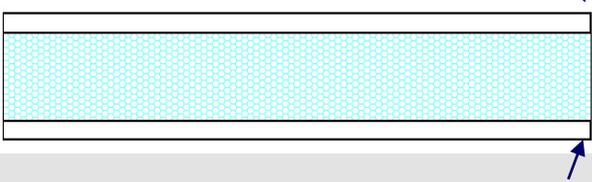
Panels in MDF are suitable for most types and sizes of doors and are recommended to be used where larger panels are required. The stability of MDF panels are very much depended on correct installation and the overall construction of the door.

- Laminated solid timber panels are suitable
- Laminated solid timber panels are **not suitable**
- MDF panels are suitable
- MDF panels are suitable



## Surface treatment of MDF panels

2 mm radius  
minimum



## Installation of HDF panels

- Hdf panels must be fully sealed on all surfaces and edges with an exterior grade system to insure that the material does not absorb moisture. The recommended method of painting for both faces and edges is to seal (diffusion closed), prime and topcoat.
- The base coat should be done in several stages. The first layer of primer is applied to close the surface. Follow up with a pre-sanding (grain 240-320) to remove rough fibres in the surface. The second layer of base coat is done to ensure uniform priming.
- On hdf panels, it is important that prior to finishing of edges, the corners must be slightly rounded (2 mm radius minimum). Edges that are slightly rounded, rather than square and sharp, will hold paint better.
- Installation of hdf panels shall be carried out in such a way that the edges of the panels is not damaged and ensure ventilation and effective draining of moisture.
- Markings on the edge of the hdf panel with labels, tape or similar should be either on the side or top; never on the bottom.
- Installation of a door knocker, letter slot, decoration etc. where the painted surface will be opened, the nail/screw holes shall be sealed to prevent moisture entering.