

# Installation Instructions



Pressure Vessel

## Measuring Site

Installation of a project starts with proper planning. No proper planning is viable without detailed and accurate measurement of the site.

A modular partition is a product that interacts closely with the structure (building) around it. In order to ensure a successful outcome to the project, proper planning measures must take place in advance with the party that will supervise the final installation.

Points to be taken into account from the site:

**Floor** - the type of floor and the changing thereof is important to allow proper specification of the necessary hardware to place the Floor Channels in place.

- Solid Floor - Requires double-sided tape, wood screws or concrete fasteners to secure channel's position.
- Carpet Floor - Requires Carpet Fasteners, wood screws, or concrete fasteners to secure channel's position.
- Access Floor (Raised Floor) - May be designed in a way that requires special attention to planning grid, etc...
- Borders between different floor types - May be such that require special detailed attention in running Channels across (or on) them.
- Ventilation and/or cable management infrastructure in the floor - These must be carefully noted so that the planning of the walls will not interfere with them.
- Leveling - The quality of floor leveling may result in different product specification when extreme irregularities occur. Proper measurement of leveling variations across the Modular Partition's path.

**Ceiling** - the type of ceiling and the changing thereof is vital to allow proper specification of the necessary hardware to place the Ceiling Channels in place.

- T-Bars - will require Ceiling Hanging Clips for securing the channel's position.
- Other Ceiling types - Will need other Hanging Clips - with the proper ceiling detail IMT will provide the necessary Hanging Clips.
- Air-conditioning & Lighting - Their position and details are important to plan the Modular Partition layout so it will not interfere with them.
- Cable Management - Entry into the partition needs to be planned and detailed by the project manager.
- Leveling - The quality of Ceiling leveling may result in different product specification when extreme irregularities occur. Proper measurement of leveling variations across the Modular Partition's path.

**Walls** - Interaction with existing walls - inner (dry wall, concrete, etc...) or exterior (concrete, curtain walls etc...). The same attention to details is required when reviewing the interaction of the Modular Partition with existing walls.

- Vertical alignment - Are the walls we come against vertical? And are they straight? Are there any outlets or supplies of any sort .
- Servicing - Will we enter the partition with servicing through the wall (i.e. electrics, data, wiring, vacuum cleaning etc...)
- Obstructions - Are there any pipes, channels, ducts that run across the wall we will come against that need special attention?
- Exterior Walls - Obstructions such as windowsills, air ventilation, etc... are common on the exterior wall. Looking into these details in care will avoid future problems.

**Access** - It is very important to review the access routes possible to the installation site and note all the limitations of it. This may affect the way the parts are packed for shipping, and the handling manners on site.

- Loading Dock.
- Door Ways - widths and heights.

- Elevators - Entrance, capacity (weight, height & width).
- Crane - is there one on site (in building stages), capacity (weight & size), unloading position (balcony, open window, etc...).

## Acceptance of Goods

When receiving the order proper attention should be made to the following matters:

- **What Arrived** - Have you received what you have ordered - parts, quantities & finish? Please note that sometimes shipments will be split to various trucks, etc... thus only upon receiving all shipments will one know what is missing. Please use order form and shipping details for accurate product checking.
- **Condition** - Are there any damaged parts? If so please attend to it promptly so that a proper replacement component will be supplied as soon as possible.
- **Storage** - Proper storage on site of all components is vital so no damage will occur to the components during the time of installation. And that easy access will be allowed to any piece during the installation
- **Clean Site** - It is best (if possible) to work on a clean site where no other contractors are working parallel to the installation of the Modular Partitions. In any case the site should be managed to be clean, with a proper place for all the tools (see relevant chapter for details) and a proper place for all the waste.
- **Please remember** - on the site Time Is Money, efficient installation will be faster, easier & more economic.

## Tools for the Job

### General Site Tools

An orderly site will allow for fast, professional and effective workmanship of the installation. To do so one should create an on site “work-shop” that will allow most tasks to be accomplished in the easiest manner. It would be wise to position the “work-shop” in an area that will allow dust to be generated (enclosed space, balcony, etc...):

- At least two Saw Horses - to create from each pair a site table.
- Cardboard & Nylon sheets - to maintain a clean site around the “dirt areas”.
- Vacuum Cleaner - to tidy up at the end of install.
- Window Cleaner (and paper towels).
- Wood polish spray (and paper towels) - only for veneer finishes.
- Suction-Cups (double or triple cupped) - to handle and install Glass & Laminate skins.

### Measuring and alignment tools

In order to properly install the modular partitions it is impaired to be accurate in transforming the plan into the actual product being erected. To comply with this need proper measuring and alignment tools are essential:

- Measuring tape (preferably one with imperial & metric

dimensions).

- Chalk line - to mark layout path.
- Laser Level - with height adjustable tripod or a self leveling device.
- Standard Level 2 foot in length and 4 foot in length.

### Cutting & Fastening Tools

Some of the parts must be cut to size on site. In order to perform this in a proper manner the right tools are needed for the job, and it would be wise to position these in an area that will allow dust to be generated (enclosed space, balcony, etc...):

- Steel chop-saw (spare blades) - to cut channels, cross members and possibly posts.
- Aluminum chop-saw (spare blades) - to trim partition ends and door profiles.
- Wood Gig-Saw (spare blades) - to open power & data holes for outlets.
- Wood Circular-Saw (spare blades) - to cut end skins to final size.
- Cordless Drill (at-least with metal drills of 3mm 5mm & 11mm).
- Set of drill bits (including long and round headed allen bit in metric).
- Hammer Drill (with set of drills for wall metal, etc...).
- Hole saw-drills - to create large circular holes in wood skins for electrical outlets.
- Metal-file - to clean all burr left over from the saws cut.
- Fine Wood-file - to clean all burr left over from the Gig-Saw cut.
- Hack-saw - for small steel cuts required.
- Exacto knife (spare blades).
- Standard scissors - to cut all rubber gaskets
- Steel scissors - to cut corner creators in Off-Module connections.
- Pliers - to fasten cross member brackets in end situations.
- Double-Sided Tape - to secure wall adapters to the walls.
- Ratchet Set - to fasten bolts.
- Self Tapping Screws – 10mm
- Ram-set with 1 inch concrete nails and shots.
- Standard iron to apply self edge.

### Other Tools

Further tools and materials are used for performing the installation properly:

- Rubber Mallet - for aligning parts without harming them.
- Pizza Cutter Roller - to insert all the rubber gaskets into place.

## Marking Modular Partition Path

### Getting Started

Installation must follow the following basic guidelines:

- Obey with local building & work codes practiced on the site location.
- Must have know-how of the product and its installation process.
- Use proper safety measures as required on site.
- Use proper safe tools to perform the job.
- Have detailed floor plans & elevations of installation at hand.

## Marking Modular Partition Path

The first stage is to mark the centre-line of the Modular Partition path. This is usually done on the floor and then “copied” to the ceiling. However, it may be done on the ceiling and copied to the floor. When marking the path, special attention needs to be paid to distance of first post from existing walls and the distance between centre-lines around corners.

- The distance between a center of a post (module end) and the center of a junction is as follows:
  - ↳ In all combinations of 90° corners it is 50 mm (~2”).
  - ↳ In all combinations of 120° corners it is 23 mm (29/32 “).
  - ↳ In all combinations of 135° corners it is 50 mm (~2”).

If the Modular Partition path relies on the ceiling pattern (band-raster, ceiling rim, cornice, etc...), the initial marking will be done on the ceiling and then “copied” to the floor.

It is advised to mark the “post center-line” on the path mark to assist in determining where doors will be located, etc...

In any case copying the marks from one plane to the other is to be done with the utmost accuracy using a laser level.

## Setting Channels in Place

Once the center-line of the partition path is marked, on both floor & ceiling the second stage begins. Laying down the channels on these marks.

It is important to ensure straight and accurate lines are maintained as well as correct angles (90°, 120° & 135°).

It is recommended to start with the ceiling track, and always at a corner, where one places a corner channel and “grows” out of it with the necessary floor channels.

- Please note - proper floor mounting pieces must be placed on all floor channel components.

It is important to measure the exact distance necessary to cover the distance between two corner channels or until a door-way passage which will remain “free” of a floor channel. The following measures are best taken when doing so:

- Channel clearance for doors begins always 15 mm (19/32”) beyond the post center-line towards the door center. Thus the overall channel clearance for a door will always be 30 mm (13/16”) shorter than the module itself.
- A channel segment that does not connect to corner channels (i.e. between doors, or extending towards two partition ends. This channel also exceeds the post center-line by the same ratio only this time outward. Thus a segment of this type will always be 30 mm (13/16”) longer than the module itself.
- When approaching an existing wall of the building proper spacing should be allowed to insert the relevant partition/wall interface unit.
  - ↳ Partition end profile (and off module connection) will require 18 mm (23/32”) gap between the channel and the wall.
- When approaching an off module connection of two Modular Partitions, the channel of the Partition that is

perpendicular to the other partition going across will leave a gap of 36 mm (17/16”) gap between it and the channel of the passing Partition.

When ceiling channels are in place it is important to:

- Secure them in a straight line using the channel alignment brackets.
- It is also important to secure the channel ends in all of the following cases in a way that will not damage ceiling or grid.

Positioning of floor channels will require the placement of the corner post with the floor corner channel on bottom of it into the appropriate corner floor channel.

- Please note that Posts and corner posts are directional (bottom part is not perforated to the end). Make sure the top side is placed into the ceiling corner channels.

When all corner posts are up and leveled perfectly vertical on **ALL** planes, the placement of the floor channels takes place. Using the proper hardware - depending on the floor type, all floor channels are placed and aligned with the use of the same channel alignment brackets.

- In order to finish the channels towards existing walls (or in off-module situations) one must insert the relevant partition/wall interface unit (partition end or wall adapter). These parts must be cut to exact size on site as they will go the entire distance between floor & ceiling. Please ensure that the IMT post adjacent to existing wall, is leveled to gravity.

## Completing the Structure

When all channels and corner posts are in place the rest of the structure is to be erected.

Placing all post in the correct estimated position is faster if the initial path marking included marking of the post center-line. Placing posts in their position requires attention to the direction of the post (bottom part is not perforated to the end) please ensure that the bottom side of the post is placed into the floor channels.

Post will be aligned by the use of cross members. The cross members are universal and have no left/right not top/bottom. This makes assembly of them very easy. Cross members for all fixed width modules will be prefabricated to the specified width.

- Placement of cross members must start at corners and grow from there towards the walls.
- Cross members are to be placed at two levels. At least the bottom cross member level must be universal so it can be used for leveling.
  - ↳ **Above floor skin - or better yet in the third hole on the post.**
- Below the ceiling skin.
- Cross members must be placed on either side of the partition.
- Cross members must be placed also across the bottom side of doorways to ensure proper alignment of posts around the door-frame.
  - ↳ Towards other walls the end modules are never at the exact module width, therefore cross members for

these positions will be supplied to the site with only one cross member bracket attached and somewhat longer than needed.

- They must be cut to size.
- Each end module will need to be measured individually.
- But all cross members for each module need to be exactly the same otherwise the post will not align vertically.
- Once the cross member is cut to the final size the “loose” cross member bracket must be attached to it.

Once all cross members are in place one may determine the exact width of the end modules (always solid).

- When end module width is defined the end modules must be shortened and finished with the proper edge in a local workshop.
- Universal connector holes will need to be applied to the skin.

## Leveling the Structure

Leveling the structure is probably the most important phase of the installation. This must be done with the utmost accuracy and patience for the simple reason that a leveled structure accepts all skins smoothly and will not require additional tampering with that latter.

When leveling one must first check that all posts and corner posts are vertical in all planes. To do so one needs only to check each corner post (already done earlier) and each post at the end of a partition towards exterior walls etc...

Once posts are vertical, a post where the gap between floor and ceiling is smallest will be chosen to begin the leveling from it.

- Find the highest point of the floor along the modular path.
- Make sure the bottom leveler is closed so that it will allow the bridging of the floor level inaccuracies to the highest floor position.
- Make sure the bottom leveler is closed so that it will allow the bridging of the ceiling level inaccuracies to the highest ceiling position.
- Set post level to zero and set laser level to that post.
- When this key post is in place and leveled properly synchronize your laser leveler to the eye piece when placed on a bottom cross member beside the key post.

From this point on you should level each and every post in the floor according to the same synchronized level of the laser.

Once all posts are leveled, spend the time to recheck them all, it is worth your while.

## Securing Door-Frames

In order to proceed with the installation the door-frames must be installed. The door frames need to be attached to the adjoining posts at the exact position of where the skin beside them ends (to ensure proper alignment of gaps after installation).

Each door must be handled separately as the vertical part of the door frame must be cut on site to the exact size so that it

will approach the floor correctly.

- Hang temporarily a skin beside the door at the correct level according to elevation.
- An option to check the exact position is to place all skins above the door in place to ensure we did not miss a specific module..
- Once the skin is in place measure the exact distance between its top corner beside the door-frame to the floor. This dimension will be the exact size to cut the vertical part of the door-frame next to the skin.
- The same thing should be done on the other side - it may not be the same dimension, since there might be changes in floor level between the two sides of the doorway.

Prior to the assembly of the door-frame, the door rubber gasket is to be placed in the profile to allow proper acoustic isolation.

Once the vertical parts are cut to size, the door frame must be installed. In most cases (when there is enough room above the door) the first items to be placed in position are the vertical parts, then, the top side is inserted above them and with the relevant corner bracket is fitted on top of them.

Should the space above the door be too narrow for this process, then first the horizontal piece will be entered and only then will the verticals be inserted to position.

When the frame is “loosely” in place, final alignment of the door-frame with the top of the skins beside the door. And then the vertical pieces are secured to the posts. Secure corner brackets with the small allen screws provided.

Final alignment of posts beside the door may take place now. To ensure that the door will fit the frame.

- It is recommended to attach the floor channel to the posts supporting the door-frame using a self drilling screw.

## Cable Management

Once the frame is complete, the cable management contractor/s may move into the site.

- If the contractors are aware of the skin positions (ie: position of glazing, etc...) wiring may be done on an open frame.
- If not there is a need to place (even temporarily) all the glazed and utility skins that will not allow cable management within their area.

The Modular Partition does not include with it any electric system of its own, anyone’s electrician (or other service supplier for that matter) may insert his brand. This lowers cost, and assists in standardizing infrastructure in the project.

Cabling may be routed:

- Horizontally through the round holes in the post.
- Vertically anywhere within the Partition inner space.
- All corner connectors will allow vertical cable management
- Even in an all glass partition, limited cable management may run through the open core of the Post.

- When routing cables vertically through a post one may attach the cables to the post using pairs of oval holes in the post to loop cable wraps.

Outlets for electrics and/or data & communication may be mounted on any solid skin and require no special attention. All that needs be done is to cut the appropriate hole in the skin and attach the outlet.

- Should the customer know in advance the outlet location and hole size of it, prefabricated skins with the proper holes may be ordered as specials.

It is also possible to attach one side of the skins to the structure and after wire management is complete final stages of installation will take place.

## Placement of Skins

Skins may be placed easily once the structure is leveled and wiring is complete.

Some tips for installing skins:

- It is easier to place the skins from bottom to top.
- Glazed skins (and utility ones as well) will require for installation the temporary removal of the cross member above it.
- It is important to ensure that all universal connector fit in place.
- In all skins it is important to note the direction of the upper side of the Skin as the skin is not symmetric.
- If there is a sensitive area (room) outer skins of that area (room) must be placed first so that from the inner side one may bend the “lip” universal connector to lock the skin in place.

When placing glazed skins one should take the following precautions:

- Ensure direction is right (top is up).
- Place the first glazed skin on one of the sides of the Modular Partition.
- Clean the inner side of the glazed skin since it will not be reached once the other side is placed.
- Take as soon as possible the second skin (it's pair) and clean it thoroughly on the inner face prior to closing the partition.

Once all skins are in place solid skins may be removed without interfering with the skin above them where in glazed (and utility) skins one skin above it must be removed.

Corner skins may be placed as well. Inner corner skins must be placed prior to the placement of the skins beside them.

Prior to closing the skins. Isolation padding should be inserted into the partition. This is not compulsory, but is used almost everywhere.

## Installation of Doors

Once the door-frame is in place it is relatively easy to install a door. Solid doors (laminated or veneer) are directional and may be left or right and are not reversible.

- Make sure the door fits the door-frame.
- Attach the door hardware to the frame.
- The bottom hinge needs to rest on the floor to avoid excessive load.
- Final leveling must allow the door to fit its height so that the lock will find its way.

Glazed doors require delicate handling.

- Often they are ordered only once the door frames are in place - this eliminates the varying height of the floor.
- Glazed doors above 220 cm will require a third hinge.

All doors that open towards a perpendicular wall must have stoppers. The stopper may vary in design and function

- Stopper from floor.
- Stopper attached to wall or partition.

## Final Touches

To complete the installation there are still a few actions that are to take place:

- Connect the channel simulators below & above any of-module connection.
- Accessories of various types may be mounted on the partition:
  - ↳ Coat hook - hangs on skin..
- Cantilever and other work surface supports.
  - ↳ Shelves.
  - ↳ Etc...
- Attaching the accessories is very easy, just hook them to the relevant position.

Rubber isolation is the last installation process that takes place.

- The vertical isolation rubber is larger than the horizontal one.
- Vertical rubber isolation gasket goes all the way from top of ceiling skin to bottom of floor skin.
- In order for the vertical skin to be straight in its position also on the small overlap with the floor & ceiling channels, one must cut a small part out of the rubber gasket.
- Of course where there are accessories installed, the vertical rubber has to stop before it and continue after it.
- Horizontal rubber will be placed between any to skins and will lean against a cross member.
- Placing the vertical or horizontal rubber isolation gasket in its correct depth one uses a “pizza cutter”

Once all the project is complete a tour of the site with correction of imperfections and final cleaning must take place.