

From the house of



instant dry walls

**Vpanel**  
Technical handbook

# Vpanel

The concept of dry wall construction system is picking up in the world. The dry wall construction is gaining popularity since it is a better alternative to traditional wall construction using clay bricks, AAC, hollow cement bricks etc. The world is looking for such alternatives as it is living under constraints like scarcity of skilled labour, sand, water, and ever increasing cost of conventional materials. Speed of construction is also crucial for present times. Readymade modular units joined to form a wall saves lot of time.

All these constraints made the present generation to look for alternative products to replace the age old brick wall concept to preserve nature for the next generation. For accepting the new age products/alternative products, it is imperative that the new product should meet all the requirements of existing product with added advantages on workability, time, space, **cost,**

The concept of sandwich panel is accepted as an alternative to the traditional wall construction. This sandwich wall panel concept was developed and put to use in Australia since several decades as a building product. Slowly it crossed the boundaries of Australia. Now the product is known and is more popular in China, India and other countries. A lot of developments took place in the production of the product to meet the end use requirements.

What does it mean by sandwich panel used in building industry? Sandwich panel is a building element used for construction purposes, contains a core material embedded in between two facing sheets. They are small modular units, joined together to make the desired wall component in the building. They are factory cured elements available in standard sizes for ready to install condition. Sandwich panels are made and promoted as alternatives to traditional wall components and are claimed to help in cutting down the construction costs and in speedy finish of the job.

Keeping in mind, the basic concept and the requirements of the sandwich **wall panel wall,** Visaka Industries Limited, India, has come out **Vpanel** manufactured with technical knowhow from Dantotech, Australia.

## description of Vpanel:

**Vpanel** is a **Non-Asbestos free product**, consisting of light weight core, containing cement and fly ash binders, **fire retardant grade polystyrene bead aggregate** and some propriety chemicals. The lightweight core is bonded to surface layers of 4.5 to 5.0mm thick **Vboard** (asbestos free cellulose fibre cement board) on either side of the core. The **Vpanel** is manufactured to a nominal thickness of 50mm, 75mm & 100mm and to a standard width of 600mm. The product is made to different lengths of 2.4meters, 2.7meters, 3.0meters and 3.3meters to meet the different requirements.

**Vpanel** have tongue and groove profiled edges that share a common radius and are semi-circular in shape. The tongue and groove edges provide panel connections for construction purposes. The tongue and groove configuration is unique in that when the joint is made, the centre of radius the groove is offset from the centre of radius of the tongue to create a cavity between the apex of the tongue and the trough of the groove. This cavity can accommodate joint adhesive.



### the Vpanel advantage

- ✓ Fire rating 50mm-60min
- ✓ Fire rating 75mm-120min
- ✓ Fire rating 100 mm-180min
- ✓ Asbestos free
- ✓ Light weight
- ✓ Time saving
- ✓ Space saving
- ✓ Easy workability
- ✓ Easy to dismantle and relocate
- ✓ Thermal insulation
- ✓ Sound insulation
- ✓ Water resistant
- ✓ Termite resistant
- ✓ High strength
- ✓ Eco- Friendly

## unique features of Vpanel:

### A. Uniform Density without cavities and blow holes:

**Vpanels** are of uniform density. These are solid wall panel elements without any blow holes or cavities. The gravity filling of the core material results in no voids or cavities.

### B. Bond between core and facing sheets:

The slurry of the core ingredients, prepared for manufacturing **Vpanel**, is made to have an excellent bond between the facing sheets and the core. They do not delaminate while cutting, drilling and chiselling.

### C. Axial Loads:

A good bond between the facing sheet and the core material makes **Vpanel** a composite panel. The axial load acts on total cross section of the panel without de-bonding the core and the facing sheets. The uniformity in the density and good bond strength makes **Vpanel** a dependable product for taking the declared Axial Loads for load bearing constructions.

### D. Uniform distributed load/lateral loads:

Most important attribute of the **Vpanel** is its Uniform distributed load. The product can be put to use as an outer wall, taking into consideration the data on wind loads at different terrains, risk level, height of the building, local territory etc.

### E. Physical features:

**Vpanels** are made to be the longest, lightest, and strongest panels.

### F. Triple advantage panel:

Triple advantages of the **Vpanel** are water, termite and fire resistance properties make it a perfect choice as durable and lasting material for construction purposes. The even surface finish of **Vpanels** is suitable to take all varieties of decorative finishes like paint, laminates, veneers, tiles and wall paper.

**Vpanels** were evaluated for their properties as individual elements and also as a combination for their behaviour as components in the wall. The values obtained are taken as guidelines for those specific applications of strength and robustness.

## dimensions and sizes

**Vpanels** are available in the following sizes:

The materials used to make a partition are shown here under:

Thickness (mm)	Width (mm)	Length (mm)
50	600	2400
		2700
		3000
		3300
75	600	2400
		2700
		3000
		3300
100	600	2400
		2700
		3000
		3300

1. Square edge

2. Recessed edge

- The consumer has the choice of selecting **Vpanels** either for square edge or recessed edge along the length of the panel
- The surface of the panel can be made for smooth surface or for a designer surface as per the choice of consumer

credentials from:





ICS

Continuation Sheet No.....

## Appendix C

### TESTED & CERTIFIED PROPERTIES OF 50 mm V-PANEL

TEST DESCRIPTION	STANDARD APPLIED	TEST RESULT		
		SGS WITNESSED	JNTU CERTIFIED	UNIT
<b>STRENGTH PROPERTIES</b>				
Modulus of rupture	IS 2380 1977	42.4	42.6	kg/cm <sup>2</sup>
Modulus of elasticity	IS 2380 1977	5681	7120	N/mm <sup>2</sup>
Tensile bond strength	IS 2380 1977	3.7	4.08	kg/cm <sup>2</sup>
Tensile parallel to surface	IS 2380 1977	12.8	13.22	kg/cm <sup>2</sup>
Multi point transverse test (For 2.4 m span)	ASTM E 72-05	299	301	kg/m <sup>2</sup>
Axial compressive strength	ASTM E 72-05	92.15	92.53	kN/m
Flexural strength (Air bag method)	ASTM E 72-05	2.58	2.45	kNm/m
Anchor Test (Tensile)	BS 5080 Part-1	7.06	6.94	kN
Anchor Test (Shear)	BS 5080 Part-2	10.12	11.12	kN
<b>PERFORMANCE PROPERTIES</b>				
Partition stiffness. 0.5kN.	BS 5234 ANNEX A	No crack, no detachment, no collapse observed. Grade SD.		
Surface damage by small hard body impact. 6 Nm.	BS 5234 ANNEX B	No crack, no detachment, no collapse observed. Grade HD.		
Resistance to damage by large soft body impact. 40 Nm.	BS 5234 ANNEX C	No crack, no detachment, no collapse observed. Grade HD.		
Resistance to perforation by small hard body impact. 15 Nm.	BS 5234 ANNEX D	No crack, no detachment, no collapse observed. Grade HD.		
Resistance to structural damage by multiple impacts from a large soft body. 120 Nm.	BS 5234 ANNEX E	No crack, no detachment, no collapse observed. Grade HD.		
Door slamming. 35 Kg door.	BS 5234-2 ANNEX F	No crack, no detachment, no collapse observed. Grade MD.		
Resistance to crowd pressure. 3 kN/m.	BS 5234-2 ANNEX G	No crack, no detachment, no collapse observed		
Lightweight anchorage pull out	BS 5234-2 ANNEX H	Shims retained till end of test		
Lightweight anchorage pull down	BS 5234-2 ANNEX J	Shims retained till end of test		
Heavyweight anchorage (wash basin) eccentric downward loading	BS 5234-2 ANNEX K	Shims retained till end of test		
Heavyweight anchorage (high level wall cupboard) eccentric downward loading	BS 5234-2 ANNEX L	Shims retained till end of test		
Water & air penetration	BS 4315-2:1970	No dampness, no leakage observed		





ICS

Continuation Sheet No.....

TEST DESCRIPTION	STANDARD APPLIED	TEST RESULT
<b>ACOUSTIC PROPERTIES</b>		
Sound Transmission Class (STC)	IS:9901 (Part III)-1981 DIN52210 (Part IV)-1984 ISO:140 (Part III)-1995	33 dB
<b>FIRE AND THERMAL RELATED PROPERTIES</b>		
Toxicity Index	NES 713	5.45
Oxygen Index	ASTM D 2863	55
Specific Optical Density of Smoke Generated by Solid Material	ASTM E-662	1.18 (Non-Flaming Exposure Mode) 1.0 (Flaming Mode)
Surface Spread of Flame	BS 476: Part 7	Class-1
Ignitability Evaluation	BS 476: Part 5	P' Not easily ignitable
Fire Propagation Index	BS 476: Part 6	3.41
Fire Resistance Test	BS 476: Parts 20 & 22	1 hour FRL (83 mins actual)
Non-Combustibility	BS 476: Part 4	Non-Combustible
Thermal Performance overall of panel. Thermal Resistance (R value). Thermal Transmittance (U value)	IS: 3346 1980	"R" = 0.363 m <sup>2</sup> K/Watt. "U" = 1.937 Watt/m <sup>2</sup> K





## technical & physical specifications

Sr. No	Properties	Units	Specification references/ standards	50mm	75mm	100mm (in-house)
	<b>Physical Properties</b>					
1.	Nominal Weight	Kg/m <sup>2</sup>	Weight physical	34	46	62
2.	Axial Load					
	Sample size – 2.5m*0.6m	kN/mtr	ASTM E 72	54	90	135
	Sample size – 1.5m*0.6m	kN/mtr	ASTM E 72	65	100	-
3.	Multi point load					
	2.9 mtr span	Kg/m <sup>2</sup>	ASTM E 72	125	150	240
	2.4 mtr span	Kg/m <sup>2</sup>	ASTM E 72	200	250	300
	1.5 mtr span	Kg/m <sup>2</sup>	ASTM E 72	450	500	625
4.	UDL- Bag test	kN m/m	ASTM E 72	2.5	3.75	4.50
5.	Tensile strength parallel to strength	N/mm <sup>2</sup>	IS 2380 : 1977	1	0.9	0.65
6.	Core bonding strength	N/mm <sup>2</sup>	IS 2380 : 1977	0.3	0.35	0.33
	<b>Thermal Properties</b>					
7.	Thermal resistance-R	M <sup>2</sup> K/W	IS 3346 : 1980	0.3	0.55	0.90
8.	Overall thermal transmittance	W/m <sup>2</sup> k	IS 3346 : 1980	1.8	1.51	1.10
	<b>Acoustic Properties</b>					
9.	Sound transmission class	dB	IS 9901 part 2 1981	33	34	35
	<b>Fire Rated Properties</b>					
10.	Fire rating	Minutes	BS 476 – part 20 & 22	60	120	>120
11.	Surface spread of flame	Class	BS 476 – part 7	Class - I	Class - I	Class - I
12.	Fire propagation index	Index	BS 476 – part 6	3.4	3.3	3.3
13.	Ignitability	Performance	BS 476 – part 5	Class - P	Class - P	Class - P
14.	Combustibility	Performance	BS 476 – part 4	Non-combustible	Non-combustible	Non-combustible
15.	Resistance to air & water	Performance	BS 4315 – PART 2 1970	No dampness, No leakage	No dampness, No leakage	No dampness, No leakage

TEST	SIGNIFICANCE AND USE OF THE DATA
Axial strength	Useful for making load bearing structures
Impact strengths	The ability of partition to with stand wind loads
Impact strengths	Impact of soft and hard bodies and the extent of damage
Shear strengths	Capacity to hold the wash basin and wall cupboard
Fire rating in hours	Time given to evacuate the men and materials in case of fire in the adjacent surroundings
Smoke and toxicity	Density of smoke to escape in case of fire and the toxicity of gases evolved during burning
Sound transmission class	The data used to rate the acoustic property of the material and its effectiveness to reduce the sound transmission
Over all thermal transmittance	The heat flux through a given material taking the declared environmental temperatures on either side of the frame work
Water permeability	The capacity of material to oppose the seepage of water through it
Inter layer bond strength	It signifies the compositeness of the material no de-bonding of core and facing sheet when cut and drilled



## Vpanel applications includes

1. Prefabricated houses
2. Internal walls
3. External walls (Non-load bearing)
4. Miscellaneous applications

### prefabricated houses:

- Construction site offices
- Labor camps, Staff quarters
- Canteens
- Senior staff accommodations
- Guest houses
- Ware houses/store rooms
- Guard rooms, Barracks for Army, CRPF, BSF, ITBP etc.
- Villas, Residential houses
- Commercial buildings
- Rehabilitation houses
- Rural healthcare centres
- Roof top extensions and more





villa/guest house- G+1 floor



police check posts/guard rooms



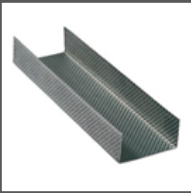




villas, residential houses

## accessories

### Floor & Ceiling Channels

The size of the channels, to be used depends upon the thickness of the selected panels. We recommend 1.25 mm thick G.I. Channels as top and bottom tracks for guiding and holding the **Vpanels**. The thickness of the channels is 1.25mm and the flange heights 25mm and 14mm for ease of erection.

Item	Picture
Top & bottom channel	
Screw	
Anchor bolt	



## advantages of prefabrication:

1. The components used are ready made and self-supporting, so the formwork, shuttering and scaffolding requirements were greatly reduced.
2. The time required for the construction was reduced and buildings were completed sooner, allowing an earlier return for the capital invested.
3. Onsite construction and congestion of materials was minimized considerably.
4. Quality control could be maintained in a factory assembly line setting than a construction site setting.
5. Prefabrication can be located in places where the availability of the skilled labour is more and where the costs of labour, power, materials are lower.
6. Time that was spent in the bad weather or hazardous climatic conditions at the construction site would be reduced.
7. Wastage of materials would be reduced considerably.
8. Many advanced materials such as sandwich structured composite can be easily used efficiently, improving the thermal and sound insulation as well as the air tightness in the building.
9. Factory-control makes the best use of materials and produces less waste.
10. Reduced energy consumption compared to on-site construction.
11. Minimal site disruption minimizes production times and long-term footprint.
12. Comparatively better sustainability through strategic reuse and repurposing of prefabricated office buildings.

## erection procedure:



Mark the layout plan of the pre-fabricated structure as per architectural plan on the civil plinth.

Erect the steel columns and anchor them to the RCC plinth beams.



Fix floor channel i.e. "U" shaped G.I Channel on the lay out using Anchor fasteners.



Slide **Vpanel** in floor channel and check its plumb(verticity of the panel).

After checking the plumb of first **Vpanel** insert the second panel and then onwards one after the other in to the 'U' GI Channel. Initially firm up the corner portion by inserting the corner angles or fixing the panels to the steel Columns by using bolts and nuts



Corner fixing of the panels:

- Use column(steel) at every 3000mm/2440mm to support the roof trusses
- Column should be RHS SHS, MS section or RCC.





Required door/windows frames Wherever to be placed are done by using the pressed steel or Aluminium or PVC. Cut piece of **Vpanel** on the top of the door/window frame to complete the total wall height and continue with the process as per plan.

Fix the top track/'U' GI channel on the top to align all the **Vpanels**.

Erection of back and front wall simultaneously along with the gable wall. Wherever Internal Partitions are there fix them first to have stability for the structure.

Place the trusses on the column and firmly fix with nut and bolts of 8mm diameter or more.



Install purlins as per the design.

Ensure that the steel structure connections are tightened properly before starting the roof sheet work. Once done, start laying roof sheets with proper side lapping of the sheets for arresting water leakages by using self-drilling screws of right gauge and length with EPDM washers.

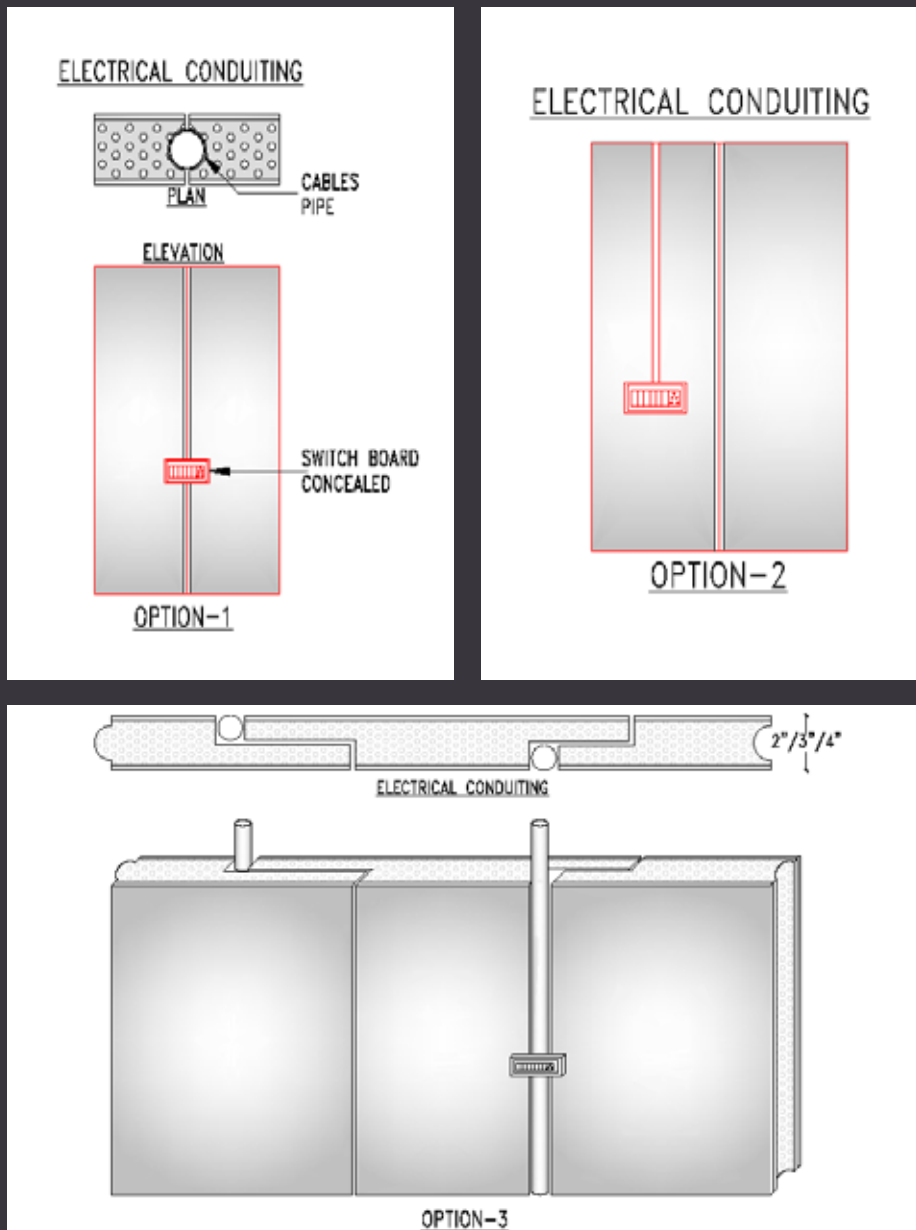
As an option, you can use foil facing glass wool insulation rolls along with the chicken mesh laid under the roof sheets to prevent direct heat transfer into the rooms through roof sheets.

Once the roof sheets are laid down start fixing the ridge covers.

As an option, a false ceiling, either tee grid/suspended grid system or concealed grid system can be done as per specification using **Vboards** as false ceiling tiles/full boards.

Concealed electrical conduit is possible with 75mm thick **Vpanels**. Surface chase the **Vpanel** as per the required depth and complete the conduit work. Then do the finish with cement mortar plaster to level the surface before painting.





Electrical Conduit work on 75mm thick Vpanels



## internal walls

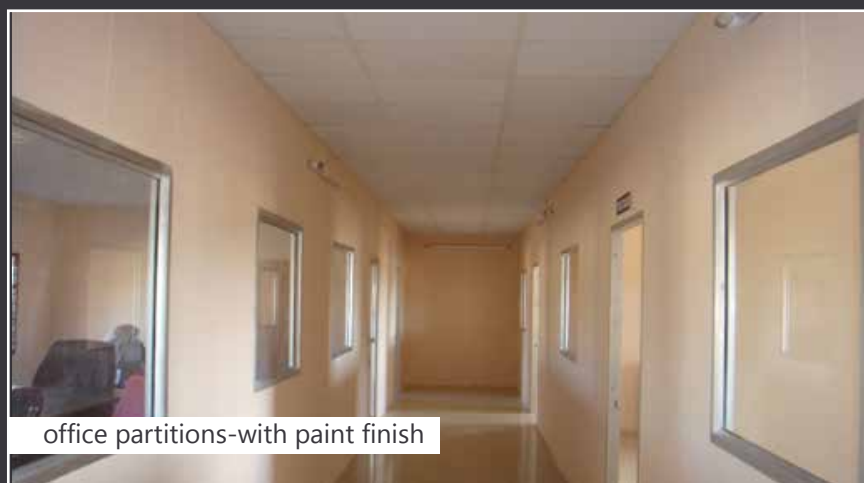
- Office partitions
- Half height office partitions
- Residential partitions
- Wet area partitions
- Dividing Partition in malls/commercial buildings
- Semi-permanent partitions in residential buildings



office partitions-with lamination finish



office partitions-with wall paper finish



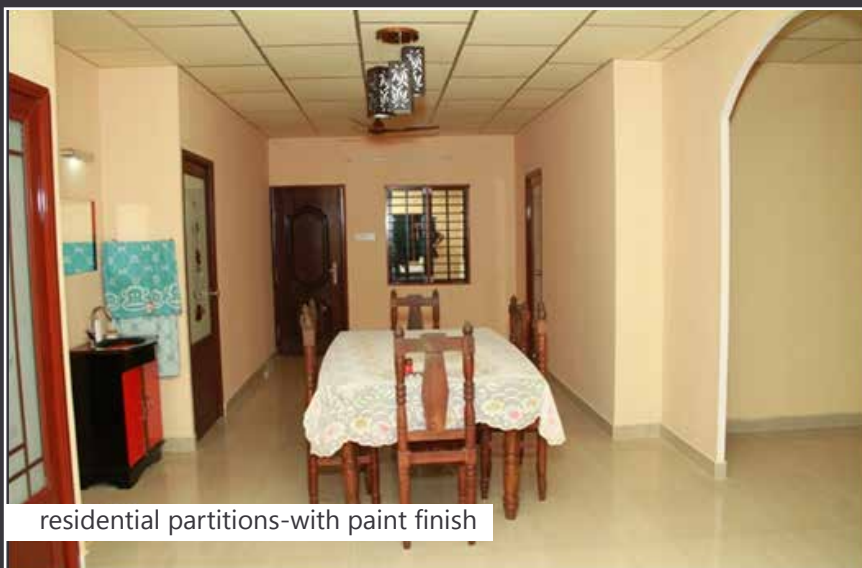
office partitions-with paint finish



school/college -partitions between class rooms



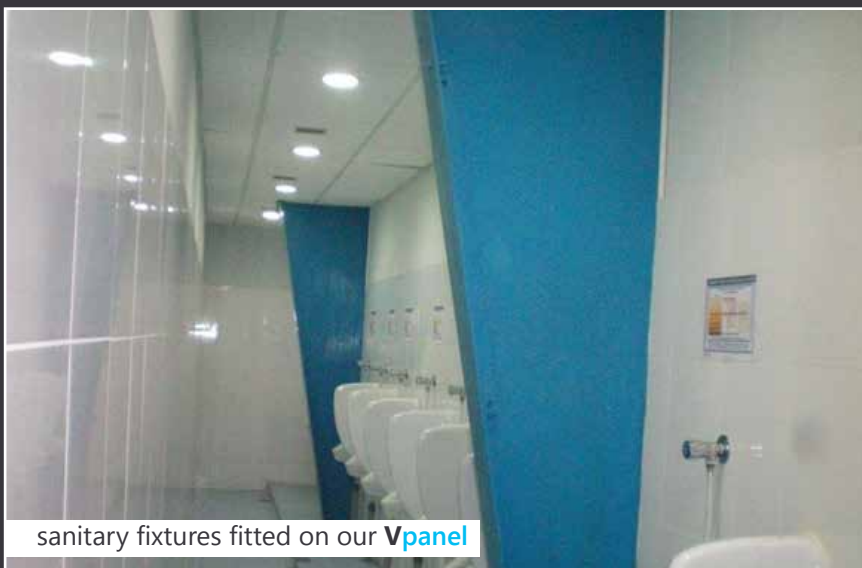
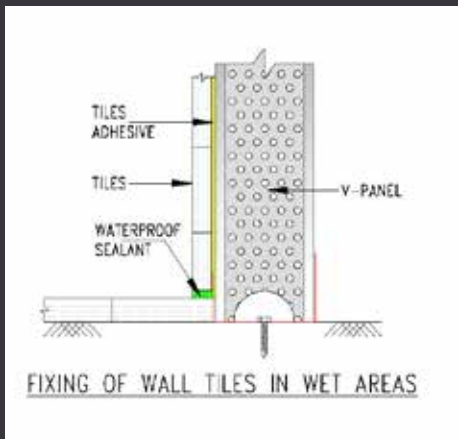
half height partitions in hospitals



residential partitions-with paint finish



## industrial partitions



## installation procedures for internal wall partitions:

In case of in-fill walls the following guidelines for installation are listed for the benefit of the users.

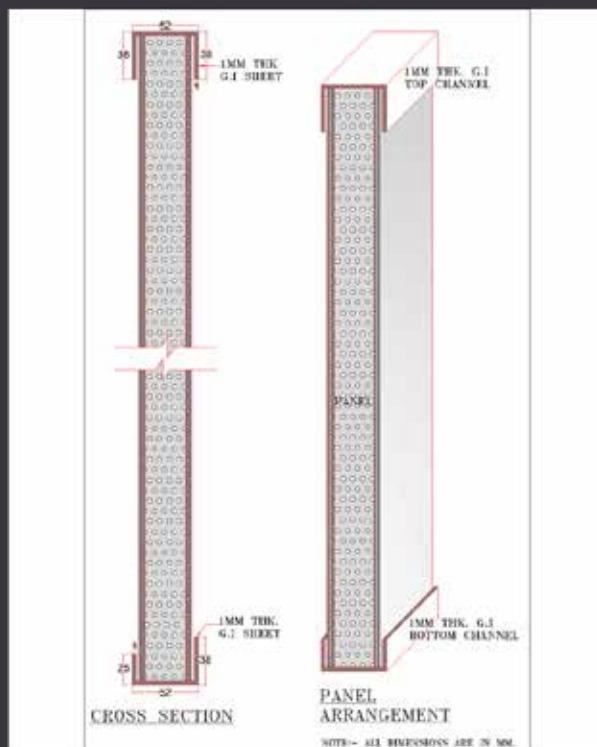
It is assumed that the pillars are strait to plumb line against which the panels are to be made stand.

In case where the pillar face is not even, go by plumb for the erection of the first panel which will be followed by the subsequent panels.

Later the gap between the pillar and the first panel has to be made up by using suitable size wedges of wood or like.

The floor on which the panel in-fill wall to be fixed is expected to be perfectly plain with no undulations .If the floor is found to be uneven it has to be made to be flat. After fixing the bottom channel to make it even level, bottom gaps may be filled by mortar or wedges like materials i.e. the gap between the floor and the bottom channel.

In short it is to be taken care that panels are to be straight laterally and vertically while erecting.

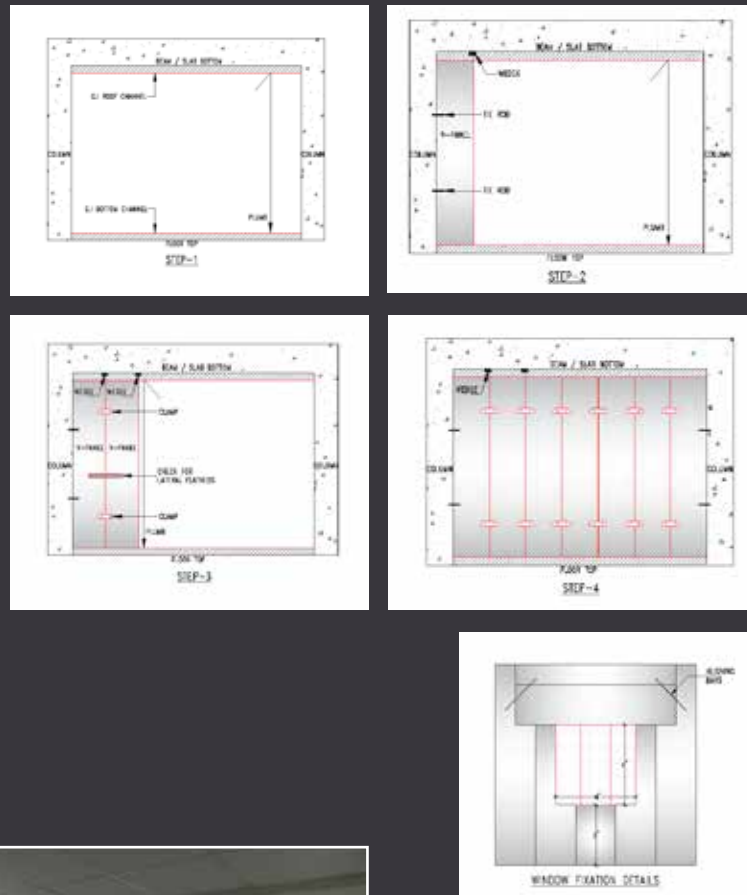


## partitions fixation procedure:

1. Install top and bottom channels to ceiling and on floor respectively ensuring a perfect vertical plumb line. They are tied to bottom and top ceilings by means of suitable fixings like wooden screws or nails at a distance of 600mm. (Figure - STEP -1)
2. The distance between the top and bottom channel is maintained at approximately 7mm more than the length of the panel to facilitate the insertion of the panel into the top channel and then to drop into the bottom channel. (Figure - STEP -2)
3. The first channel is inserted and made to stand on its own and checked for its straightness for plumb. If it is not straight check and rectify by providing supports like wedges at the bottom or side between the pillar and the first panel.
4. The second panel is erected and brought close to the first panel engaging the tongue and groove. Holes are drilled into both the panels to bring them nearer by means of clamps.
5. The panel levels are checked vertically and laterally. For vertical straightness they are checked for plumb. For lateral straightness they are checked by a straight edge for rattling of the scale against the face of the wall.
6. After satisfying the two conditions next panel is joined to the second panel. (Figure - STEP -3)
7. The same care is taken till the end ensuring the straightness, laterally, vertically and the stiffness attained by the tightness by the clamps. (Figure - STEP -4)
8. The joints are filled by a suitable jointing material. After the jointing material set extra material is removed by sanding to get a smooth finish.
9. While giving the openings for the placement of the door frame, window frame, and the ventilator the length of the wall is to be taken into consideration.
10. The length of the lintels over the door frame or the window opening is to be slightly more than the width of the opening. (Figure - STEP -5)
11. While providing the place for the windows and doors the placements are to be staggered.
12. Corners and intersecting junctions are to be reinforced by inserting 200mm long 10mm dia. steel rods. These rods are to be inserted into the opening made in the panels laterally to a depth of about 20mm. The number of dowels to be used depends on the number of joints.
13. For Non-Fire Rated applications encourage the use of Becker's rod to fill the gap between the panels to reduce the consumption of the jointing compound.



14. For Non-Fire Rated applications wooden frames and shutters can be fitted with wood screws synthetic nylon based frames and shutters can be used if light weight applications are preferred. If fire rated walls are specified steel frames and structures are to be recommended which are to be fastened by a metal screws and anchors.
15. For joint-less finish we recommend the recess edge/bevelled edge **Vpanels**.



## half height partitions

- Follow the procedure mentioned above till point 8.
- The top end and free end of the partition wall panels should be covered using wooden beading or Aluminium or PVC material as per design requirement
- Apply a suitable adhesive on the inner surface of the beading before fixing to the panels
- The half-height partitions are ready for finishing as per the procedure detailed in the chapter on finishing



## jumbo height partitions

Partition without using steel sections to create a frame work (up to 4.5/4.8mtr height)

- Partitions above 10' or 11' are called jumbo height partitions
- Suitable for non-load bearing walls up to 4.5/4.8 mtrs height (15ft/16')
- Steel Frame work / wood frame work is not required for these type of partitions
- In jumbo height partitions, **Vpanels** are staggered for attaining more stability and strength
- Minimum stagger of 1500mm is recommended between horizontal joints of two adjacent panels. Length of the panels is to be decided accordingly
- Staggered joints means the joints of the adjacent panels are reversed so that the forces will be diluted and discontinued

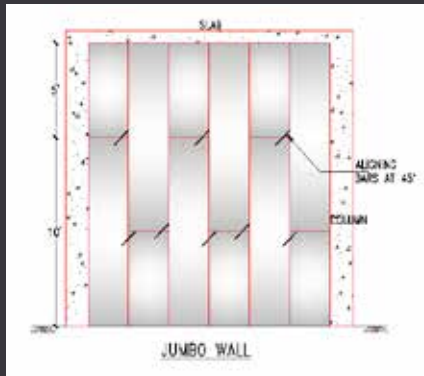
### procedure:

- Follow procedure till point no.7
- First fix the 3mtr or 3.3mtr panel. Apply the plaster made using liquid sodium silicate and fly ash in the groove both on longitudinal as well as horizontal sides of the **Vpanel**
- In case the partitions are going to be permanent in nature. Otherwise use Acrylic sealant in the joints
- Place the 1.5mtr/1.8 mtr cut **Vpanel** above the 3mtr/3.3mtr **Vpanel** and push the same into ceiling channel
- Next, the smaller size panel i.e. 1.5mtr/1.8mtr **Vpanel** should be fixed first and fix then 3 mtr/3.3 mtr panel above it
- Continue the erection to complete the partition work as per the plan layout
- Wherever doors/openings are to be created, please follow the same procedure as that of the regular partitions. Special care to be taken while placing the door/opening top panel. Steel section (RHS/SHS) to be placed on the top of the opening to take the crushing load due to the weight of the top panels
- If the opening size is more than 1.5mtr special care to be taken for making the partition structurally stable

Note: If the length of the partition is more than 4.8m, it is recommended to use steel column or cross wall at every 4.8mtrs.

Recommended height of jumbo wall :

1. 50mm thk. **Vpanel** is 15'0"
2. 75mm thk. **Vpanel** is 16'0"
3. 75mm thk. **Vpanel** is 18'0"



## external walls/exterior cladding

- External walls for factories, PEBS, godowns, warehouses, etc.
- External non-load bearing walls in concrete structured buildings, steel structures buildings, commercial buildings
- Compound walls between the concrete columns/steel columns
- Vertical Louvers in buildings

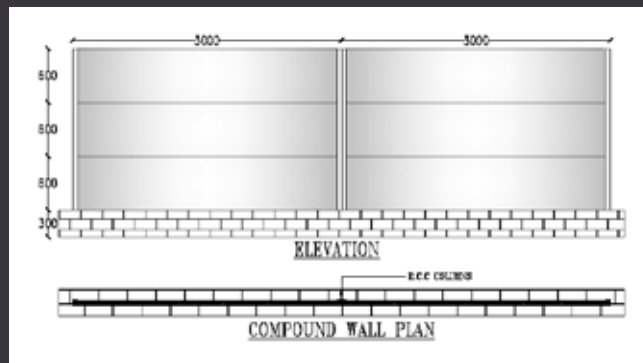




In construction of industries, time is the major factor. Thus, the construction is mainly done with steel. So, to make it further more fast, the walls should be made of precast or prefabricated. As the wall built with bricks will take a lot of time for the construction, the best way to cut down on time is to replace it by readymade wall panels. Here **Vpanels** are the perfect option for the replacement of brick mortar walls. The cladding procedure is like the standard cladding system like partitions. Every **Vpanel** should be supported and bolted to the top and bottom supports to make the wall structurally stable. Please see the photo of the industrial external wall cladding. **Vpanels** are fastened to girts (horizontal steel member between the 2 columns) of PEB building. Joints are filled with the exterior grade acrylic filler material and finished with proper exterior grade paints to make the wall aesthetically better looking and increase life. If the wall height is more than 3.3 mtrs height, a horizontal support is required to be provided. In length wise, at 4.8mtrs the wall should be provided with a column. Erection procedure is same as that of a partition work.

## compound walls

Pre cast boundary walls are meant for protection & privacy or both. Putting up a designer fence or wall enables us to define our boundaries. Yet in addition to serving its purpose, fences today can offer beautiful detail and aesthetic appeal. Pre cast boundary walls when most people consider building a fence, the first thing that comes to mind is probably not a concrete fence. Pre-cast boundary walls are superior to wood, wrought iron, vinyl, brick, block and stucco in most every way. While other materials rapidly deteriorate in extremes of weather, environment and temperature, a **Vpanel** compound wall endures with little maintenance. **Vpanel** boundary walls has been used as both commercial and residential designer fencing.



## benefits of Vpanel compound wall

- Quality assured by manufacturer
- Fastest installation
- Re-Installable
- Economical compared to conventional products
- No major labour needed
- Easily erected
- Less space is required
- Plastering not required
- Can shift the wall easily from one place to another
- Can be decorated in different shapes and colours.

## construction sequence

1. Concrete foundations are done for every 10'0" to support steel/ concrete columns.
2. The plinth beam which acts as foundation to the wall is constructed with C.R.S wall of 2'0" height above the ground level.
3. RCC columns of desired height are erected on the concrete foundations.
4. Alternatively HR steel (ISMB/"C" channel back to back) columns with steel base plate are erected using anchor fasteners of required diameter and length are firmly fixed to the RCC foundation.
5. Now once columns are erected, Vpanels of 3mtrs long are then to be placed horizontally in between the columns one above the other up to the desired height.
6. The tongue and groove system of Vpanels will take care of the strength of in the horizontal joints. Use liquid sodium silicate and fly-ash are mixed and made as a brushable mortar and applied to the groove portion and the tongue side of the panel for permanent adhesion of panels.
7. Proper external weather coat paint to be done for longevity of the product.

## storage and handling

Movement of **Vpanels** in fork lift to the storage area.



Lift and carry the **Vpanels** vertically as far as possible for ease of shifting and convenience.



Always keep the tongue side of the **Vpanel** facing the sky/roof i.e. on the top side to avoid the damage to the tongue.



**Vpanels** are stacked and stored as shown below.

Always cover the **Vpanels** with plastic/tarpaulin sheets when kept in the open air or in the open stock yard to avoid direct exposure to sun light to avoid the cracks and to retain the moisture in the **Vpanels**.



## loading and unloading



**Vpanels** under loading in a truck.

Put husk bags above the first stack of the **Vpanels** for cushioning purpose to avoid damages to the **Vpanels**. Second and third stack of **Vpanels** should be loaded maximum flat up to 8 in a row. Provide husk bags in between the horizontal stacks.

Tie the stacks with jute rope/coir to the truck body. Cover the modules with tarpaulin during the transportation to avoid exposure to sun, and rain.

## jointing compound for permanent joints for external as well as for partitions

The fine fly ash is mixed with liquid sodium silicate to join the tongue and groove of the two adjacent **Vpanels**. The mixture joins the two **Vpanels** in a homogeneous manner and gives it strength by monolithic jointing. Take three parts by weight of Liquid Sodium Silicate of Commercial Grade and one part by weight of fine fly ash to make brush able mortar. The mixture is painted on the groove portion of 1<sup>st</sup> panel and 2<sup>nd</sup> panel slid into the groove to join tongue. Continue the procedure and make the total wall/partition a homogeneous and monolithic as permanent wall.

## jointing compound for removable joints


Throughout the world, there is a search for the suitable jointing compound which suits the fibre cement boards and panels. USG (India) cement board jointing compound and Trimix (UAE) cement board jointing compound are proven to be best materials for this purpose.

By mixing 2 components (liquid and powder) as per the company guidelines will form paste. Apply the paste using pastula or putty plate in the joints of the **Vpanels** from bottom to top and left to right. Once dried fix the fibre tape on the joint using the same jointing compound. After drying, apply finish coat of the jointing compound to cover the tape and finish. Sand the surface using super fine sanding paper manually or machine to achieve the desired finish.



Jointing compound	Picture
Cemstar	
Sheetrock	





## tile and granite adhesives













Adhesive	Picture
Flex	
Laticrete	

Flex: Grey/white two - part adhesive comprising of rubber - based powder and water based polymer liquid. Flexible adhesive for use in areas where tiling is subjected to **Vpanels**.

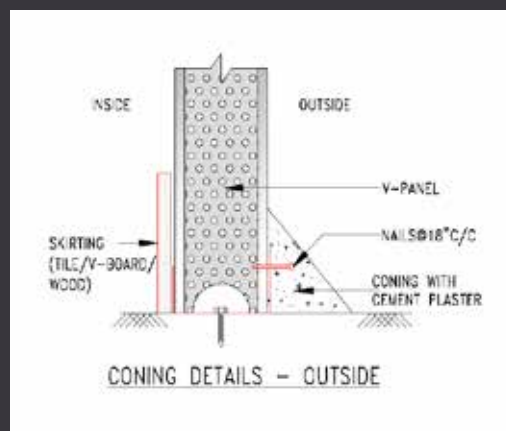
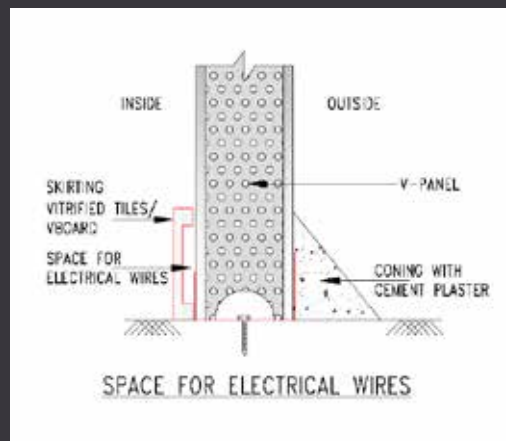
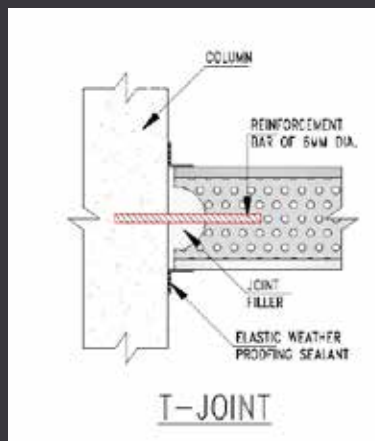
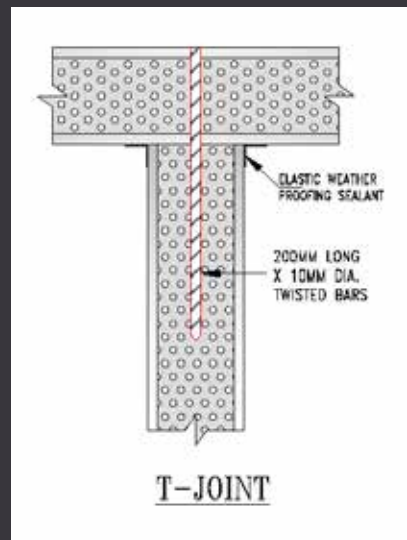
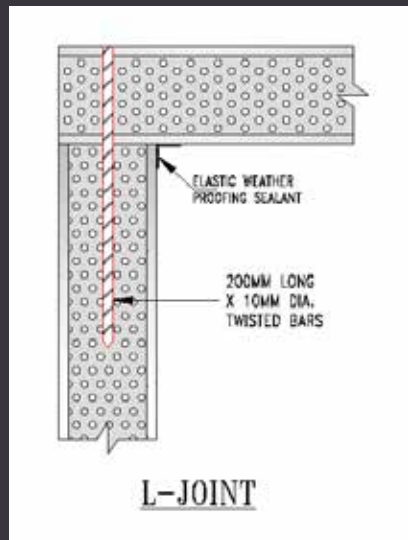
LATICRETE 73 Rapid is a specially designed Latex Crete Admix for use with LATICRETE 111 Crete Filler Powder to make high strength, rapid setting latex fortified thin-set adhesives. Suitable for installation of all types of ceramic tile, industrial tile, natural stones and agglomerates.

## hand tools for professional work with **Vpanel**

Tool	Picture
Circular saw/marble cutter	
Electric drill machine	
Electric hammer drill machine	
Wood saw/hack saw	

Electric planner machine (optional)	
Iron hammers	
SDST screws and PVC Caps	
Measurement tape-3mtr, 5mtr, 10mtr	
Plumb	
Spirit level/ water level	
Putty application patti/plate	
Line thread (Dori) and blue colour powder	
Soft wood cut pieces to jam the partition	
Safety goggles	
Nose masks	
Hacksaw frame and blades/GI sheet cutter	

recommended methods for connecting the **Vpanels** and other precautions:



## hand tools for professional work with Vpanels



IMPACT DRILL  
GSB 1300 PROFESSIONAL

Rated power input	550 W
No-load speed	0 - 2700 rpm
Weight without cable	1.8 kg
Weight without cable	1.7 kg
Drill spindle connecting thread	43
Chuck capacity	1,5 - 13 mm
Impact rate at no-load speed	0 - 41600 bpm
Drilling range	
Drilling dia. in concrete	13 mm
Drilling dia. in wood	25 mm
Drilling dia. in steel	10 mm
Drilling dia. in masonry	13 mm



ROTARY DRILL  
GBM 13 RE PROFESSIONAL

Rated power input	600 W
No-load speed	0 - 2600 rpm
Power output	360 W
Weight without cable	1.7 kg
Torque (soft screwdriving applications)	0,0 / 1676,0 Nm
Rated torque	20,0 Nm
Drill spindle connecting thread	1/2" - 20UNF
Chuck capacity	1,5 - 13 mm
Drilling range	
Drilling dia. in aluminium	13 mm
Drilling dia. in wood	30 mm
Drilling dia. in steel	13 mm



TECHNICAL DATA: GBH 2-20 DRE  
PROFESSIONAL

Rated power input	600W
Impact energy	0-1,7J
Impact rate at rated speed	0 - 4400 bpm
Rated speed	0 - 1400 rpm
Weight without cable	2.3 kg
Toolholder	SDS-plus
Drilling range	
Drilling dia. concrete, hammer drill bits	4 - 20 mm
Max. drilling dia. masonry, core cutters	68 mm
Max drilling dia. Steel	13 mm



MARBLE SAW  
GDM 13-34 PROFESSIONAL

Rated power input	1,300 W
No-load speed	12000 rpm
Weight without cable	2.8 kg
Saw blade bore	20 mm
Saw blade diameter	110 mm
Cutting depth	
Cutting depth (90°)	34 mm
Cutting depth (45°)	22 mm

## Vpanels finishes



veneer



wallpaper



texture



paint



polish



Visaka Industries Ltd. was promoted by Dr. G. Vivekanand in 1981 to manufacture fiber cement roofing sheets.

Today, we have manufacturing plants across the country with a turnover of ₹925 crores (USD 150 million), making us the second largest cement sheet manufacturer in India. The non-asbestos cement board & panel division was established in the year 2008. We possess a wide portfolio with 8 fiber cement roofing sheet plants having manufacturing capacity of 7,52,000 MT per annum, 2 Vboard plants having manufacturing capacities of 1,20,000 MT per annum, a Vpanel plant having manufacturing capacity of 3,00,000 sqm, and a textile yarn plant. With a focused vision of revolutionizing modern construction as we know it, we manufacture the highest quality products that are exported around the world and these products are well accepted in international and domestic markets alike.



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get in touch with us



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