

INSTALLATION & HANDDLING MANUAL FOR LOVELY WALL

A.1. INSTALLATION (ERECTION)

A.1. Installation of Back Frame

- To check the horizontal and vertical status of the building structure.
- To set the base line with ink-pot string
- To fix the set anchor in an interval of 1500mm on the concrete.
- To set the piano string vertically.
- To fix the back frame

A.2. V.E. Panel Installation

- To install the panel onto the back frame.
- The space of bits shall be within 300-400mm.
- When the welding job is executed in the area adjacent to panel installation area, not only the panel surface but also other materials (aluminum frame, shelter, rail, ceiling, moulding, and etc) should be carefully protected from welding spot.
- When handling and installing the P.E Panel, the installer shall pay the careful attention for the P.E. panel not to be damaged.

A.2. Cleaning, Maintenance and Repairing

- The defected panel area shall be repaired with touch-up paint.
- The stain on the P.E Panel shall be washed with thinner and cleaned with dry-towel.
- The impact on the P.E Panel from outside is strictly prohibited.

A.3. Transportation and Storing of P.E Panel

- The finished P.E. panel shall be packed and delivered to jobsite in wooden box or container in accordance with the international standard.
- The panel surface shall be properly protected not to be damaged by mis-handling or bad weather.
- The P.E Panel and its accessories shall be stored in warehouse free from rain.

A.4. Test and Inspection

- To measure the dimension (W x H x L) with random sample.
- To check the crack, pin hole, groove, air bubble, color, stain, shape deformation, and the surface finishing. Any defected panels inferior to the standard inspection criteria shall be eliminated.
- The allowable value is as follows :
 - (-) The length and width : Below +/- 2.0mm
 - (-) The thickness : Below +/-1.5mm
 - (-) Radius : +/-1mm
 - (-) Width if Flange : +/-1mm

- (-) Deviation across the face of the panel in any 2 m lengths +/-1mm
- (-) The dimension gap of diagonal line : Below 4.0mm
- (-) The coating thickness : Below 600 μ

B. UNIT WALL INSTALLATION SYSTEM

- To check the and horizontal status of the building structure by using the piano string vertically.
- To mark the base line onto the building structure by using the ink-pot.
- To fabricate the unit frame in accordance with the decided horizontal and vertical line and to fix the P.E. panel onto the fabricated unit frame.
- To fix the set anchor, 1st fastener, and 2nd fastener at position specified in the drawing.
- To remove the scaffolds before installing the unit.
- To lift up the P.E unit from the ground by using the heavy equipment (tower crane, chain block, and etc.) and fix the P.E. unit to the 2nd fastener.

- The joint space between unit and unit shall conform to the approved drawing. The allowable discrepancy is +/-2.5mm.
- After setting the P.E. unit, the steel plate is additionally welded to the unit frame between unit and unit in order to reinforce the earth-quake resistant property, if necessary.

C. STANDARD MAINTENANCE MANUAL

C.1. GENERAL MAINTENANCE

C.1.1. Panel Handling

- 1) Another way to minimize damages of P.E. panels is the proper way of handling/storing prior installation.
- 2) The panel delivered should be stacked on pallet with the back of the PE panel facing upwards and having a 30-60 mm t polystyrene separator before placing the next, so as to minimize damages.
- 3) All completed panels upon delivered should also be protected with PVC protection film before completion of construction.
- 4) The recommended stacking quantities per pallet should not be more than 65 pcs which is equivalent to approximately 3,000kg, so as unloading by the aid of forklift is possible.
- 5) All panels prior installation should be store in a shelter area, if not covered with canvas.

C.1.2. Panel Touch-up

- 1) Any minor chipping on the PE panel which is visible at 1 liner meter distance can be repaired as per below two methods:

* Touch-up with paint

a) When base coating is exposed less than 10mm : Touch-up paint

* Touch-up with putty powder & paint

b) when base coating is exposed more than 10mm : Touch-up with putty powder and paint over.

2) When a panel requires minor touch-up as per item F.1.2.1-a), the following procedures must be adhered to.

a) Rub the damaged part horizontally/vertically(which ever is suitable) by grade #200 fine sand paper to remove the rust or any other contaminated materials.

b) Using a 1" wide paint brush, clear away the dust and clean with thinner or alcohol and leave dry.

c) Touch-up the affected area horizontally/vertically with a clean brush, with the desired paint and leave dry.

3) When a panel is severely or chipped as mentioned in F.1.2.2-b), the following procedures must be adhered to.

a) Rub the damaged part horizontally/vertically by using grade #80 sand papers or, higher grade to remove rust or angled edges.

b) Using a 1" wide brush and clear away the dust and clean with thinner or alcohol and leave dry.

c) Mix the putty powder with the hardener by the ratio of 10:1 within 10 minutes, as the hardening starts after 10 minutes of mixing and the practical hardness can be achieved after 3 hours.

d) Apply the mixed putty with a putty tool on the damaged part, and make sure that the affected area is patched up evenly. Tooling application should always follow the direction of sanding.

e) Await putty to dry for half hour prior sanding down with a fine sand paper grade #200 in the similar direction.

f) Brush away the dust and clear the surface before touch-up with the desired paint and leave dry.

C.1.3. Panel Replacement

1) One of the main advantages of P.E. Panel system is that any damaged panels can be easily replaced.

2) Lift panel up to the underside of the above panel with the aid of wooden tool and remove.

3) Check all existing fixing panels on the steel members are in order.

4) Slot in the new panel.

- 5) Check panel alignment, position & remove protection tape.
- 6) Use a wet cloth to clean the surface of the new panel.
- 7) Recommended facilities for the replacement job are as follows;
 - a) Gondola
 - b) Pump lift
 - c) Scaffolding

C.2. CLEANING & MAINTENANCE OF PORCELAIN ENAMEL PANEL

C.2.1. Cleansing & Washing

- 1) The coating system on the PE panels is a highly durable and decorative finish. Simple maintenance with regular washing with water & suitable cleansing agents will not only enhance the lift but also maintain attractiveness for longer period thus protecting your assets.
- 2) The frequency with which cleaning is to be carried out and the choice of a suitable cleansing agent, depend mainly on the position of the building being located and the degree of contamination. Washing should be done at least every 12 months and more frequently in coastal areas where marine salt spray is prevalent and also in areas where high levels of industrial fallout occur.
- 3) The cleaning operation should be carried out in stages starting from the top and working downwards. It can be carried out either manually or with the aid of special cleaning apparatus, such as high pressure spray gun or foam brush appliances etc and also the addition of suitable cleansing agents and water.
- 4) The final round of the cleaning operation should also followed by a thorough rinse with clean water to ensure the removal of all remnant of the cleansing gents, and wipe down is necessary to avoid any water stains.
- 5) Avoid using both strongly alkaline agents and acid products. Try to use cleansing products as neutral cleansing agents or soft alkaline soap.

D. PRODUCTION PROCESS OF ART WORK PANEL(MASKING TAPE METHOD)

D.1. Base panel Process

- 1) According to the panel fabrication drawings, the base(1.6T SPP) metal should be cut, curved and welded.
- 2) The pre-fabricated base panel should be treated in the pre-treatment chemical bucket in order to get rid of oil, grease and others

D.2. Enamel Spray & Heating Process

- 1) Ground spray coating should be done on vitreous enamel panel with coordinated enamel.

- 2) The ground coated VE panel should be put into the furnace by hanger and conveyor at temperature of 850°C in order to dry the panel.
- 3) Top(Cover) spray coating should be done on ground coated vitreous enamel panel with pigments and coordinated enamel.
- 4) The top coated VE panel should be also put into the furnace by hanger and conveyor at temperature of 850°C in order to dry the panel.

E.3. Masking Tape Adhesion Process

- 1) Panel protection masking tape should be adhered on top coated VE Panel .
- 2)The masking tape should be cut and eliminated depending on the Artwork Drawing supplied by Client
- 3) The art-work spray coating should be done on masking tape eliminated area of VE panel.
- 4) The art-work spray coated VE panel should be put into the furnace by hanger and conveyor at temperature of 850°C in order to make finished Art-work VE panel.

E.4. Inspection & Protection PE film Process

- 1) After inspection of Art-work VE panel, if there is no fault, the protection film shall be adhered on Art-work panel for packing.