EVERGREEN®

EVERGREEN WALLS, INC.

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Evergreen Maxi Erection Instructions

Tools and Equipment for Wall Erection

1. Before Sending Units from Stockyard to Site

- Check all units for imperfections.
- Repair whatever: cracks, bug holes, uneven top finish, front face defaults, corners.
- Make such repairs immediately: before inspectors see it and start reporting.
- Stock units on three wooden blocks on stockyard, on truck and on site for avoiding any torsion effects (with torsion creep of units) and or damages on contact surfaces.
- Keep more wooden blocks ready for unloading and stocking to prevent damages by holding a piece of wood between concrete units when unloading and or when erecting.

2. Before Starting Erection on Site

- Proof roll foundation area before casting leveling pads, for finding weak areas.
- Never allow 'soft' areas, where proof rolling shows deformation under wheels of loaded truck.
- Remove 'soft' material and replace by well compactable material, such as crushed rock or sand.
- Install leveling pads with accurate surface elevation within + zero, - 1/8 in., 1to 2 mm (very accurate surface elevation eases installation of first unit.
- Instruct installation crew: one rigger directing the crane (nobody else giving signs or orders),
- Attach one string each on front suspension chains for guiding units (with one man each).
- Foundation surface must be level and well compacted, add additional crushed rock or sand as needed for reaching required height
- Install engineer's level and measure elevation of all foundation corners of foundation.
- Leveling pad along the front of each unit is important and mandatory.
- Leveling pads along the back beams are necessary on difficult to level ground.
- Do NOT start erection before making sure bottom unit will be installed accurately.
- Prepare joint material on leveling pads: 1/3 sand, 1/3 cement, about 1/3 water.
- Set first unit on grout on leveling pad for walls higher than 10 ft. to evenly distribute contact forces and prevent local cracks and spalling.
- Instead of leveling pad along the back use a top layer of 0.05m, 2 in. of loose sand for adjusting height as needed as a minimum Evergreen requirement.

3. Installation of First Unit

- Mark front line with 'blue' or 'red' string for front wall alignment.
- Mark corner of first unit with a perpendicular front line for wall alignment.
- Place mortar on leveling pads in a small 'hump' about 4 in., 0.10m wide and 0.05m high or as needed. (Do NOT level mortar, it will spread under the load of the unit automatically).
- Make sure mortar is plastic to stiff for joints 1 to 4cm.
- Use rather liquid mortar for joints 1 to 3mm further up, between units.
- Keep tools ready for checking level installation of units: min. 3 ft., 1m, better 5 ft., 1.50m long bubble level (check level for accuracy: must show equal reading after turning it 180°).
- Use long chains with min. 45° steep chain or even steeper: do NOT use short chains.
- Have 2 men guiding every unit from truck to final position.
- Have rigger directing the crane only: no shouting, signs only.
- Never have any person going, standing, working UNDER a hanging load.
- Lift unit to be installed with tools (crow bar or wedge bar).
- Use 4 such tools under each leg if needed.
- Do NOT damage bottom edges of units, use special care to keep bearing bottom surface intact.
- Observe mortar squeezing out under the unit front and legs.
- Add more mortar under legs as needed.

4. Installation of Side-by-Side Units and or Upper Layer Units

- Maxi units have top of wall finished by hand and thus are not totally smooth and level.
- For preventing concentrated contact pressures, cracking, and spalling use joint filler or mortar on top directly before installing the next unit.
- Use rather plastic mortar and lay a 'sausage' shape at the center and mortar on and around dowels.
- Do NOT put mortar on self aligning keys: such mortar would diminish their function.
- Leave spaces open for 'bleeding' drainage from free draining material directly behind front panels.
- Do not spread the mortar: the next unit erected on top will squeeze the fresh the mortar and equalize it.
- The top ten feet of wall DO NOT need mortar beds, since contact pressures are much less near the top of the wall.

5. Filling Operation

- Filling can start right after installation of units, since filling takes time and mortar must NOT reach full strength immediately.
- Start with filling free draining material directly behind the front panel for drainage (to prevent water back-up and ice forming at this critical location).
- Then fill first layer inside along the front and along the back beams inside and outside, to get easy access for compactors.
- Start compaction at front and then work backward.
- This means: NEVER fill behind units then compact, because empty unit may dislocate from compaction or wheel load directly behind back beam.
- Fill both sides of back beam before entering with compaction equipment.
- Generally compact every Maxi unit in 3 to 4 layers (0.4 to 0.5m thickness).
- Check acceptable compaction using nuclear gage for fast reading and for not holding up erection procedures.
- Compact with light compaction equipment, such as vibratory plate and or jump and jack trench compactor. Compact especially along the legs and in corners.
- Prevent empty fill locations under back beams by pushing soil underneath from the sides.
- Normally 6 passes are sufficient or compaction.
- Check filling operation for minimum MOIST density of 118 pcf, 1.8 t/m^3 or 18 kN/m^3.
- Do NOT use minimum Proctor density or Relative Density criteria for checking fill compaction inside of precast units: This is inside of a cell and NOT a road base: Road base requirements are NOT applicable inside a cell!
- Do NOT OVER-COMPACT, because each pass means creating compaction pressures on the front panel. Each compaction pass creates an additional deformation, which may overload and damage the front panel and leg.
- Do NOT use vibratory rollers all the way to the front for compaction: Worst is operation with vibratory rollers compacting all the way to the front and then throw in the reverse gear: such shock-stops have broken front panels!
- Compact fill inside of units immediately after filling.
- First fill and compact inside, then backfill and compact behind units for preventing dislocations.
- Backfill operation should always be lower than filling of units by a minimum of 3 ft., 1m and with a back-slope not more than 1v:2h.
- Use heavy vibratory rollers (such as 20 t vibratory rollers) for backfill and use lifts up to 0.5m for mass compaction.
- Heavy vibratory rollers must stay away from concrete units at back of wall min. 3 ft., 1.0m.
- Check backfill operation and compaction for minimum compaction requirement for mass fill, such as 95% Proctor ('relative') density or overriding mass filling compaction requirements.
- Use nuclear gauge for fast readings and easy control without holding up filling operations.
- Contact Evergreen Wall, Inc. for any questions that may come up.

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