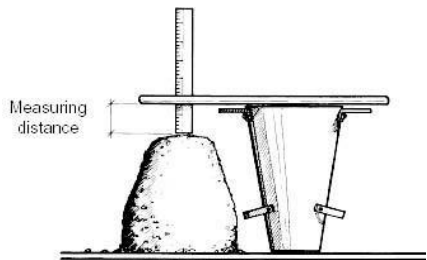


CONCRETE PLACEMENT

The most crucial part of an ICF project is the concrete placement. Extra workers at this stage are important - be certain to have enough on hand during the pour to safely handle placement, consolidation, alignment, embedments, and cleanup.

Ensure straight walls by placing a string line at the top course set off from the wall using $\frac{3}{4}$ " (19 mm) pieces of wood placed in the corners. Check for straightness by running another $\frac{3}{4}$ " (19 mm) piece of wood between the string and wall. Adjust the turnbuckles as necessary to straighten the wall after concrete placement. We recommend beginning the pour with the walls leaning in slightly. Concrete is poured at a rapid rate and can cause a substantial amount of movement and shifting of blocks. It is much easier to push a wall full of concrete than it is to pull it!

Suggested minimum compressive concrete strength of 2,900 psi (20MPa) at 28 days.



Concrete mix design should always be confirmed with local codes and batch plant or by an engineer.

- i. Consult local ready-mix companies for appropriate concrete mix design.
- ii. Concrete slump should be 5-6" (127-152mm) for best results.

Lift height is determined by many factors, such as air temperature, concrete temperature, slump, etc. Our recommendation is that lift heights should not exceed 4' (1.220 m) per hour.

When placing concrete below freezing or at temperatures above 100° F (38° C), it's important to protect all exposed concrete with insulation. We recommend the use of insulated tarps to cover the tops of walls and footings once concrete placement and embedments have been completed.

Proper concrete consolidation is critical in obtaining a structurally solid wall.

(continued)

Use an internal vibrator with a head size of $\frac{3}{4}$ " (19 mm) to 1" (25mm) and maximum 1 hp motor. Do not use a vibrator with a head larger than 1" (25 mm).

Appropriate internal vibration assures the strongest walls possible and is especially important for below grade application where the greatest loads occur.



The rule of thumb for internal vibration is fast in and slow out, always moving, with a withdrawal rate of approximately 3" (76 mm) per second.

STEP 1: Complete your pre-placement checklist.

STEP 2: Begin concrete placement under openings, filling those areas and consolidating.

STEP 3: Beginning no closer than 3' (0.914 m) from a corner, start filling the wall from the top, allowing the concrete to flow gently toward the corner. Using the same technique, switch to the opposite side of the corner, allowing the concrete to flow equally towards the corner from each side.

STEP 4: Continue placing concrete around entire wall in appropriately sized lifts, using the same technique at each corner to minimize fluid pressure.

STEP 5: As the concrete is being placed, consolidation is taking place to remove air and voids to ensure structural integrity.

STEP 6: As you return to starting location you will begin the next lift.

Follow all the techniques established above.

STEP 7: Once you begin topping up you will need to slow down the pump speed. Ensure there is adequate concrete placed to fill the wall and strike off any excess.