



Field Handling and Installation Guidelines for Hollow Core Slabs

Hollow core slabs are extremely strong when supported in their intended manner; however, they can be damaged if they are not handled and stored properly. It is imperative that the supervisor of the field crew understands the proper procedures as described herein to avoid damage and accidents due to mishandling.



BUNKING

If it is necessary to stockpile hollow core slabs at the jobsite, the following procedures are essential:

- Ground bunks must extend the full width of the slab and be parallel and level to avoid warping and breaking of the slabs due to twisting.
- Ground bunks must be wide enough to prevent sinking into the ground, and high enough to avoid “high-centering” the slab. Contact with the ground could damage the slab.
- Bunks should be placed approximately 2 feet from each end of the slab.
- When several slabs are bunked in a stack, the intermediate bunks can be 2 x 6’s laid flat. The 2 x 6’s must run the full width, and each bunk must line up vertically.
- Do not stack the slabs more than 8 high, and then only if the ground is firm.
- Do not stack more than one slab above any previously erected slab in the structure.

LIFTING DEVICES

Positioning of Lifting Device Along Panel Length

- It is **ABSOLUTELY NECESSARY** to lift the hollow core slabs near the ends of the slab as outlined in this brochure. Lifting the slabs too far away from the ends may result in immediate breakage.
- From the end of the slab, the edge of the lifting device should be 1'-0" minimum to 0.2 x slab length maximum, not to exceed 6'-0" (Fig. 1).

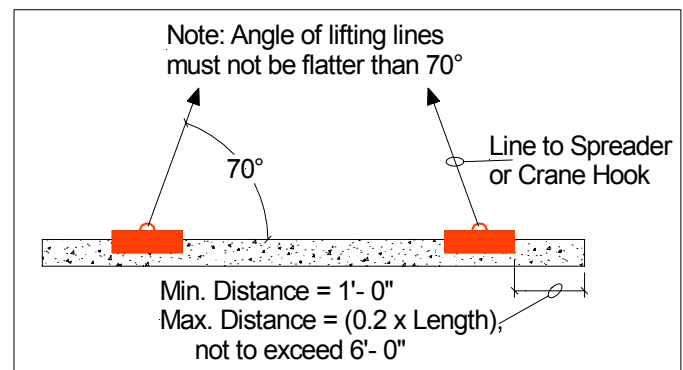


Fig. 1



Standard 4'-0" Wide Slabs (CTC Clamp)

- CTC supplied erection clamps with safety slings are recommended for use on standard 4'-0" wide slabs. DO NOT use clamps for slabs cut to a narrower width. Hooking into the end voids with any type of hook or grab bar IS NOT SAFE and could cause the slab to fail.
- When attaching the clamp to the slab, ensure the clamp is level, and that the protruding lip at the bottom of the clamp is gripping the shear key.
- Install safety slings immediately upon engaging clamps (Fig. 2).
- The clamps exert considerable pressure on the sides of the slab. To avoid crushing the slab, areas with block-outs must be avoided as clamping locations (Fig. 3).
- Persons electing to use the clamps and safety slings are required to pay a deposit, read the "Safety Precautions Statement", and sign a release form. The deposit is refunded when CTC's hardware is returned promptly and in good condition.
- Truck drivers delivering the hollow core slabs are not authorized to instruct in the use of these clamps. Field personnel are urged to visit CTC's plant for a demonstration of these clamps to ensure their safe application. Contact the CTC Project Management Office for further assistance.



Fig. 2

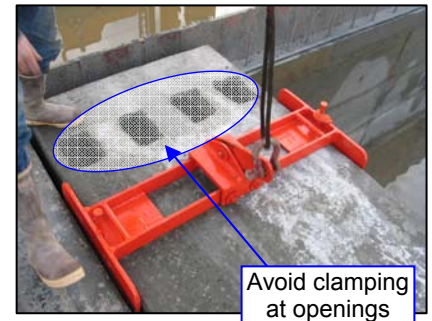


Fig. 3

Narrow Width Slabs (Slings Supplied By Others)

- Use nylon slings for slabs less than 4'- 0" wide. The use of wire rope slings is not advised (Fig. 4).
- A softener placed along the sawn edge of the slab should be used to avoid cutting the sling.
- Hooking into the end voids with any type of hook or grab bar IS NOT SAFE and could cause the slab to fail.



Fig. 4

SLAB ERECTION

- Be sure that all bearing surfaces are clear of any rocks or other foreign objects which could damage the slab or prevent it from erecting level.
- Place the CTC supplied 1/4" x 3/8" NEOPRENE BEARING STRIP (Fig. 5) on the supporting member prior to setting the slab. The strip is to be placed 1/2" from the inside face of the supporting member (Fig. 6). It is recommended that this strip be secured prior to slab erection.

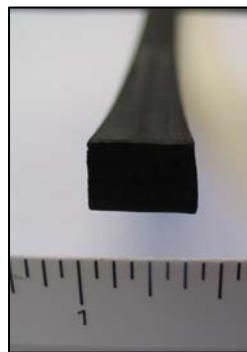


Fig. 5



Fig. 6



Fig. 7



Fig. 8

- Attach lifting device and hoist. At no time should personnel be underneath a hoisted slab.
- DO NOT disconnect the safety sling until the slab is close to its final erected position (Fig. 7).
- Pull the hollow core slab snug to the adjacent erected slab. Note: It is recommended that the location of slab joints, as shown on the shop drawings, be marked on the bearing area. This will allow the gauging of proper joint width and not overrun or undercover the prescribed area (Fig. 8).
- Pull the lifting clamps clear of the grout key after the crane lines are slackened (Fig. 9).



Fig. 9

- Once erected, the hollow core slabs form a safe platform for workers and normal construction tools (Fig. 10). Avoid staging other heavy construction materials on the slabs. At no time should these materials exceed 1,000 pounds on a single slab or 1,500 pounds on any two adjacent slabs. Alternatively, allowable uniform loads on the bare slabs can be found in the Span-Load Charts on CTC's website (www.concretetech.com).



Fig. 10



GROUTING SLABS - Longitudinal Joint

- The longitudinal grout joint is an important design feature of the hollow core system (Fig. 11). Proper grouting procedure is necessary to ensure full load sharing between adjacent slabs. Use a GROUT mix only in this joint, DO NOT use a CONCRETE mix. If the engineer of record does not specify a grout mix, use the mix proportions below.
- Grout for the longitudinal shear keys between slabs consists of a minimum of one part cement to three parts paving sand, by weight, with a maximum water content of five (5) gallons per sack of cement. A grout strength of 3,000 psi is generally adequate, unless otherwise specified in the contract drawings or in CTC's shop drawings. One cubic foot of grout will fill the following approximate lineal feet of joint:
 - 8" hollow core = 20 LF
 - 12" hollow core = 12 LF
 - 12 ½" hollow core = 11 LF



Fig. 11

END CLOSURE CONCRETE - End Joint

- In most cases, it is necessary to pour concrete in the ends of the slabs to integrate them with the supports. If the slabs receive a structural topping, these end closure pours may be done with the topping. However, if the slabs are untopped, a separate closure pour is required. CTC supplies a dam (Fig. 12) for each void to help minimize wasteful flow of concrete into the slab. Care must be taken to avoid displacing the dam when using a vibrator. When the design calls for the closure concrete to extend beyond 18" into the slab voids, CTC will provide pour slots in the top surface to facilitate placement and vibration of the closure concrete.
- Concrete for pouring closures at the ends of the slabs shall be proportioned per the engineer-of-record's specifications for site cast concrete. Concrete mix strength shall be the greater of CTC's requirement for "Void Fill" per the shop drawing, or the engineer-of-record's requirement.



Fig. 12

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