

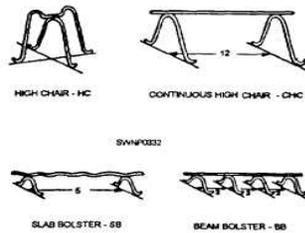


**Industrialized Housing and Buildings**  
**Technical Bulletin**

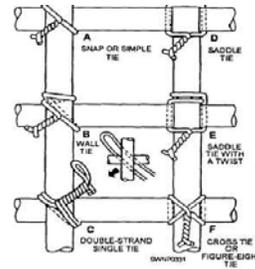
**IHB TB 15-01 – Support and Fastening of Reinforcement in Concrete**  
**Applicable Code: ACI 318, IBC Chapter 19, IRC Chapters 4 and 6**  
**October 24, 2014**

Reinforcement, or rebar, in concrete is required to be supported and **secured** against displacement before concrete is poured in accordance with Chapter 7 of ACI 318, *Building Code Requirements for Structural Concrete*. Metal chairs, metal hangers, spacers, concrete chairs, and other approved devices can be used to support the reinforcement. However, it is not enough to support the reinforcement. The reinforcement must also be fastened in place to prevent movement during concrete placement. This is usually accomplished with tie wire.

**Examples of Concrete Support**



**Examples of Concrete Ties**



For concrete that is to be placed directly on soil, as in a footing, the steel can be supported on concrete bar supports or special metal supports with a plate that prevents the legs of the support from settling into the soil.

The use of pebbles, pieces of broken stone or brick, metal pipe, wooden blocks and similar materials for holding rebar in place (as shown in this picture) is not an adequate method for securing reinforcement.

**Supported by Stone but Not Adequately Secured**



Concrete cover is the most important factor in protecting reinforcing steel from corrosion. The minimum concrete coverage for protection of reinforcement can be found in section 7.7 of ACI 318-08.

Reinforcement should be placed as close to the specified position as possible. However, there will always be some variation and tolerances for placement of the rebar can be found in section 7.5 of ACI 318-08.

Tack welding of reinforcement to secure the reinforcement is prohibited except as specifically authorized by the engineer. The type and location of **all** weld splices or other required welding must be shown on the engineered plans. Welding of reinforcement (reference §§3.5 and 7.5 of ACI 318-08) also requires a written welding procedure and specifications conforming to the requirements of AWS D1.4 of the American Welding Society. The engineer is required to verify the chemical composition of the rebar, approve all welding procedures, ensure adherence to the welding procedures and specifications, and ensure that work is completed by an AWS certified welder. In some cases, the building code may also require an inspection by an approved special inspector.