

Ways of Supporting an Overhead Crane

1. Overview

Most overhead cranes bear a heavy load, far more than a typical factory floor is equipped to handle. As such, it's important to contact Dearborn Overhead Crane before you purchase the crane to understand what nature of support is required. Dearborn Overhead Crane can supply weight and force figures to the customer or building contractor in order for the building contractor to properly size foundations, header beams, or columns.



Fig. 101



Fig. 102

2. Discussion of Support Types

Cranes are typically supported in one of four different ways. The most common is the tieback column (TB). The TB, as seen in figure 101, is best because it requires minimal modification of existing columns. In a new building, the TB system allows pre-engineered beams to be used rather than custom beams. The overhead crane runway column stands four to six inches away from the building column, and is tied back by means of a steel tab welded between the two. The overhead crane runway column provides weight support, and the building column provides lateral support, to keep the crane system from swaying. Another popular way of supporting the overhead crane runway is the freestanding column (FS). The FS overhead crane runway support is similar to the tieback system, but is more expensive because the overhead crane runway columns must support the weight and lateral loadings of the crane, and are much more heavily constructed. See figure 102 for an example of free-standing overhead crane runway support. Overhead cranes under ten ton capacity and Class "C" duty can be hung

from the roof trusses or support beams at certain times. A Cleveland Tramrail overhead crane system is typically hung from roof trusses, as is a enclosed track workstation overhead crane. Typically a beam-clamp and hanger rods are used to create a flexible suspension for the overhead crane system. The final way of supporting an overhead crane is the column-bracket method. Typically, a bracket is bolted or welded to the building columns, but the building column can also have a step mounted into the column to support the overhead crane. The column-bracket method of supporting an overhead crane is typically limited to applications under twenty tons capacity.

3. Understanding Overhead Crane Runways for New Buildings

There is two ways to approach purchasing a new overhead crane for a new building. If the overhead crane purchaser does not know what support configuration is necessary, it's a good idea to read section two of this article, and contact Dearborn Overhead Crane at 800-CRANE-58 with a general idea of the needs the overhead crane will serve. It's best to discuss with a professional if one doesn't quite understand what is necessary.

Others will know exactly what is required of their overhead crane support system. When pricing is obtained from Dearborn Overhead Crane, data will also be included such as weights and dimensions that can be useful to the building contractor. If the end-user is purchasing the overhead crane, it's useful to forward Dearborn Overhead Crane's information to the building contractor in order to properly specify and build the building. If the building contractor is supplying the runway with the building, they should contact Dearborn Overhead Crane about proper overhead crane runway tolerances. The best way to purchase an overhead crane support system is to contact Dearborn Overhead Crane and request our article "New Overhead Cranes in New Buildings".

4. Understanding Overhead Crane Runways for Existing Buildings.

Is the crane:

- A freestanding enclosed-track workstation overhead crane? (See 4-A)
- A ceiling-hung overhead crane? (See 4-B)

- A jib crane? (See 4-C)
- A freestanding or tie-back supported overhead crane? (See 4-C)
- To be installed on an existing runway? (See 4-D)

4-A. You are in luck, most freestanding workstation cranes require only an 8” reinforced concrete floor to support the crane.

4-B. For ceiling hung overhead cranes in to be installed in a existing building, it’s important to be sure the crane can be hung in the place intended before the crane is purchased. First, the ceiling truss must be strong enough to hold the overhead crane and runway. Hanger points can only exist at panel-points in the ceiling truss. If you aren’t sure that the ceiling is strong enough to hold the overhead crane and runway, it’s a good idea to contact Dearborn Overhead Crane at 800-CRANE-58 and speak with someone knowledgeable about the topic. If the end user does not have the ability to contact their building contractor or find original building prints, Dearborn Overhead Crane can suggest a contract engineering firm that will determine the best loadings the ceiling truss can handle.

4-C. Jib Cranes and column-mounted overhead cranes need foundations for capacities above two tons. If a foundation is impossible, a LARGE baseplate can be substituted, but will take up inefficient amounts of floor space. Typically, Dearborn Overhead Crane can size the foundation for a jib crane, and possible suggest a contract foundation supplier. Dearborn Overhead Crane does not pour cement or concrete, however.

In the case of a overhead crane, with a runway system, Dearborn Overhead Crane can supply the wheel loadings of the crane and/or the floor loadings of a runway if the runway is to be supplied by Dearborn Overhead Crane. The building contractor or end user is responsible for sizing foundations and selecting a concrete vendor. If the end-user or building contractor does not have a preferred vendor, Dearborn Overhead Crane can suggest a vendor.

4-D. Overhead cranes to be installed on a existing runway structure require some information gathering. It’s best to draw a map of the runway structure, from a top view, noting the entire length of the runway, any existing cranes, and the sizing of the steel beams on the overhead crane runway system. If the exact size isn’t known, a diagram of

the beam including beam height, beam flange width, and beam flange thickness is important. It's also important to note the rail size if the overhead crane is top-running. See figure 103 for a good example of a runway map.

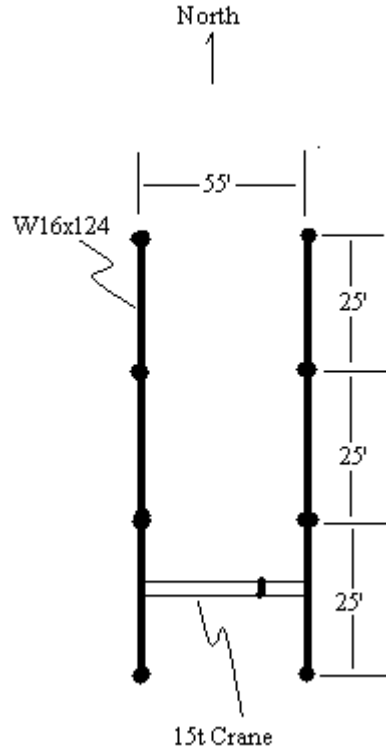


Fig. 103