October 2020

A Brief Guide on Framed Openings — Vertical Lift and Overhead Doors

There are many different options when it comes to framed opening types in metal buildings. With such variety in framed openings, it is beneficial to be familiar with some of the possible interference areas in order to create the smoothest possible process from design to erection. The following article outlines troubleshoot areas that are common with Nucor Buildings Group standard details for framing Vertical Lift and Overhead doors.

The track for a Vertical Lift Door will typically "hug" the side of the walls for the entirety of the door's height. Thus, a common issue when designing a metal building with a Vertical Lift Door is not having a building that is tall enough. Vertical Lift Doors require the jambs to extend two times the door height plus an additional 12 inches. In order to alleviate this conflict, either the building height must be raised, or the door tracks will need to be extended inside of the building. There are alternative solutions if the door tracks cannot run vertical up the wall to avoid interferences in the wall plane. See Figure 1, below, for the standard track options for a Vertical Lift Door.

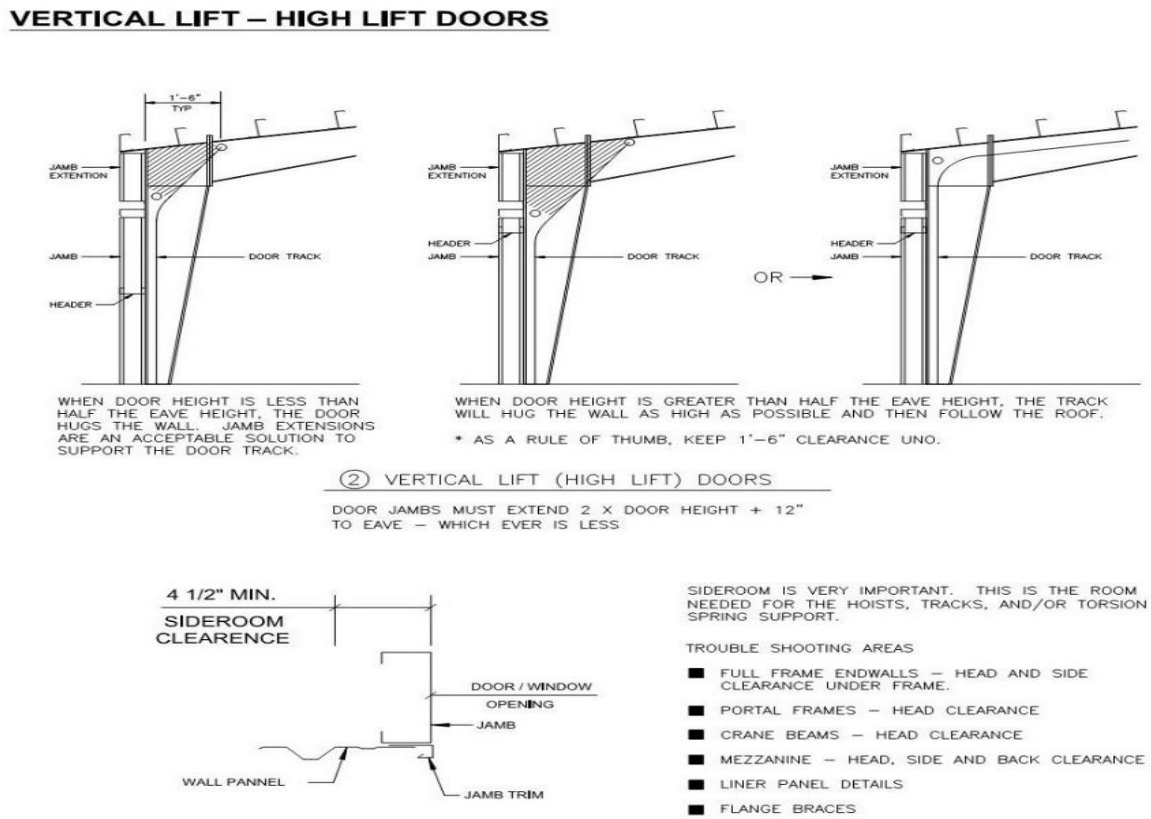

Figure 1: Vertical Lift Doors

Another common Framed Opening type in metal buildings are Overhead Doors. Similar to Vertical Lift Doors, adequate clearance must be provided to avoid interferences with mezzanines and portal frames. In addition to the clearances needed for the aforementioned items, there also needs to be a minimum 16” of headroom from the header to the next wall framing member or eave strut. Ordering the correct door height is crucial in order to ensure that the Overhead door will fit the metal building’s Eave Height. See Figure 2, below, illustrating the required minimum 16” distance needed from header to Eave Height.

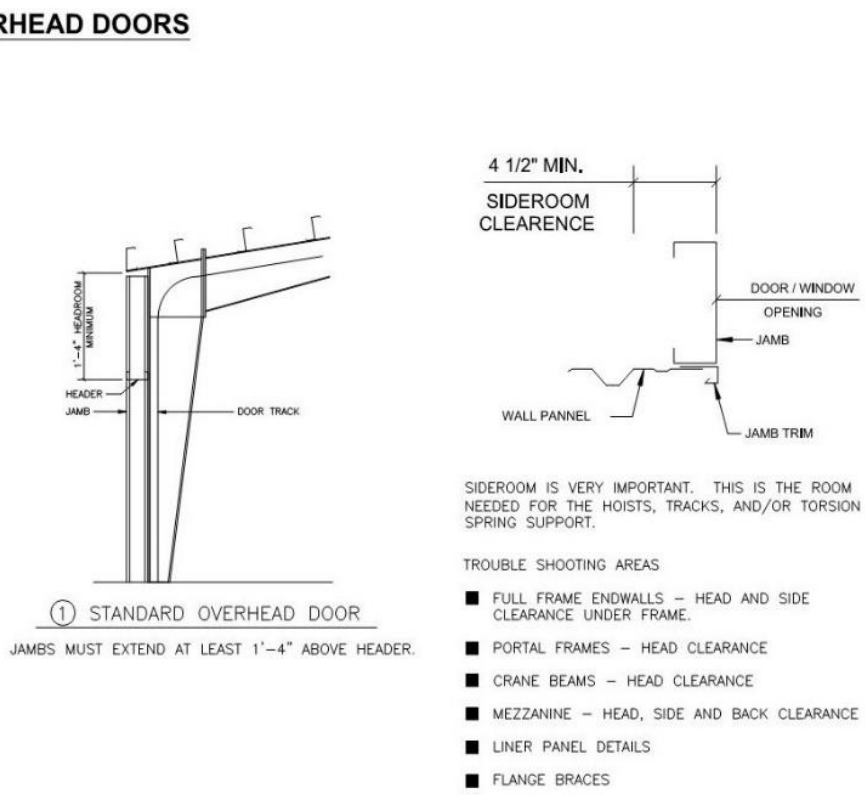

Figure 2: Overhead Doors

In addition to needing to meet vertical clearances for both Vertical Lift and Overhead doors, having adequate sideroom clearance is another area of potential interference. The minimum sideroom clearance is 4 ½” in order to avoid interferences with structural framing and the door components. Even if the minimum sideroom clearance is held, having a framed opening close to the primary framing poses additional interferences. Specifically, a framed opening needs to be held a minimum 3’-0” away from a column in order to utilize column flange braces. Column flange braces strengthen the columns and allow for a more economical design.

In some cases, interferences with column flange braces may be avoided if the framed openings are selected as factory located instead of field located. The main reason behind this is that factory located

framed openings give the precise location of the opening, whereas, a field located framed opening is assumed to be at any given location within the specific bay in which it is located. Field located framed openings have the advantage of allowing adjustability for their installment during erection, however, they can lead to heavier primary framing due to the potential conflict with column flange braces.

With all the different varieties of framed openings in a metal building is key to have a general understanding of the troubleshoot areas in order to avoid interferences during the design and erection process. It is also advantageous to know the precise locations of the framed openings in order to potentially reduce the amount of steel on a project. The troubleshoot areas are common to Nucor Buildings Group standard details for framing Vertical Lift and Overhead doors, however, please contact your Project Coordinator if there are any questions about potential interferences with the framing of an opening.