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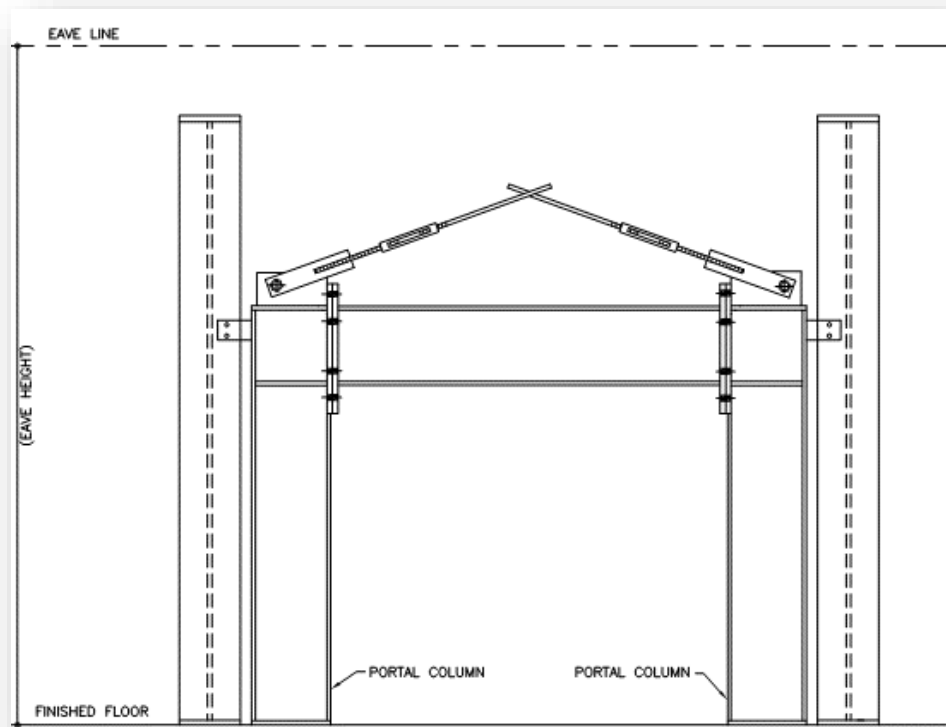
## Partial Height Portal Frames Explained

### Partial Height Portals vs. Full Height Portals

When you have portal frames on a project, have you ever been asked if a partial height portal frame can be used?

Partial height portal frames occur when the portal frame is ran up to a given height to clear any openings or interior processes.

Above the portal frame, switch to x-bracing from that elevation on up to the eave.



This is a good idea for several reasons.

First, X-bracing provides the least deflection in which to brace a building. So, from a performance standpoint it is the preferred method of bracing.

Second, X-bracing is a very economical way to brace a building considering that rods are between 5/8" to 1-1/4" diameter.

Third, portal frames are far less economical than X-bracing and are inherently flexible in nature. Portal Frames can be designed to be very stiff by adding more and more steel, thus more expensive. As a portal frame gets taller, it gets more and more expensive to reduce the deflection.

Therefore, a good solution when you need portal frames is to run the portal frame only high enough to give you the clear height that you need and then run x-bracing up to the eave.



**Building Geometry:** 100'W x 150'L x 25'EH; ½:12 Gable; 25' Bay Bracings  
**Loading:** 115 mph; C Wind Exposure; Wind-controlled design  
**Clearance:** 12'0" Clear Under Portal Frame to avoid conflict with 9' tall Roll-up Door

	<u>Full Height Portal Frames</u>	<u>Partial Height Portal Frames</u>
Portal Frame Weight:	4,400 lbs.	2,260 lbs.
X-brace Weight:	360 lbs.	531 lbs.

Hopefully, this cost saving solution will be one that you can implement on one of your upcoming projects to help you be the successful bidder.