



# The Selection of Fasteners for Side Mounted Rail Systems



By Neil Thorslund

*"If you want to support others you have to stay upright yourself."*

— Peter Heg

## Which is better, surface mounted or side mounted?

There are many advantages and disadvantages to a side-mounted rail system. Some of the **advantages** include:

1. Additional deck space
2. No screw holes required in the deck surface
3. Convenient snow removal

Some **disadvantages** include:

1. Installation takes more time
2. Requires specialized fasteners based on engineering design
3. Deck blocking may be difficult to add if not part of original deck design



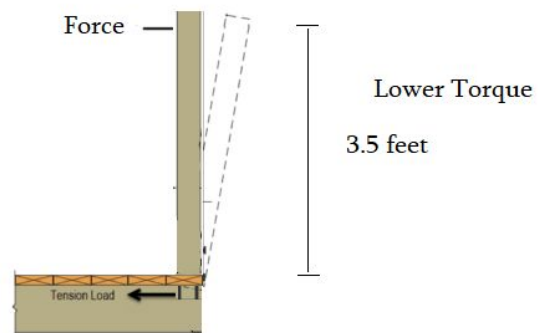
## Why is the selection of fasteners important?

For side mounted systems, appropriate fasteners, as well as deck blocking, are very important factors to consider. The primary reason for this is that the side-mounted posts are much longer than surface mounted. Consider the following situations:

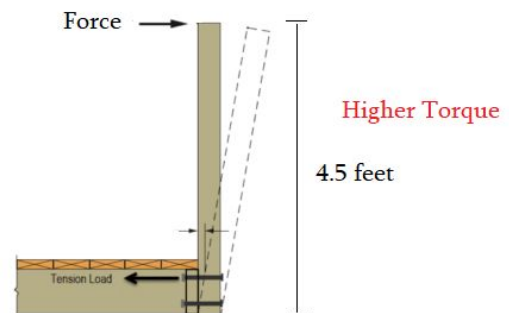
1. A person applies a force horizontally to a surface mounted railing post that is 3.5 feet long.
2. The same person applies a force to a side-mounted post that is 4.5 feet long.

According to a simple physics calculation, the torque (and therefore the force applied to the fasteners) will be much higher in side-mounted systems. This is why, oftentimes, the fasteners required for side-mounted systems are longer.

### Surface Mounted



### Side Mounted



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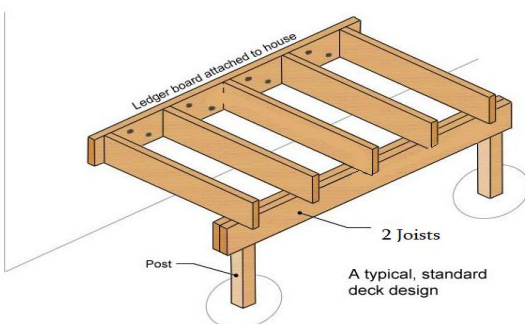
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## So which fasteners are the best?

There are many variables that architects and engineers consider when choosing the appropriate fasteners. For most railing systems, the fasteners must be larger than 5-inches with 4 inches of threading to be sufficient, however, it is important to consult with an engineer or architect before making this decision.

## How is deck blocking different between surface and side mounted systems?

In surface mounted systems, deck blocking is screwed between the joists. In side-mounted systems, the strength relies on the joist itself. The fasteners that secure the posts are screwed directly into the wood joists. As the joists are the strongest part of the deck frame, the issue arises if there are not enough joists to accommodate the length of the fasteners. For example, in order to accommodate 5-inch fasteners with 4-inch threading, 3 joists at the deck edge are required. Some decks are built this way, but others are only built with 2 or 1. It is important to understand how your deck is built before considering a side-mounted system.



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## Is there ever a discrepancy between the fasteners required by the railing engineering design, and the fasteners required by the home builder design?

Yes. Sometimes the engineer on a home building site has different fastener specifications than what was originally designed for during engineering testing. This is common since safety factors are usually based on rules of thumb, and therefore may have slight variability between engineers.

As a railing contractor, we use a railing system engineered to meet the National Building Code. Our process is to submit the drawings to homebuilders for their engineers to review. If they require a specific fastener for their particular project, we can make adjustments on the system providing those changes are stamped by an engineer.

*If you have any questions, give us a call or request a quote on our website.*

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