



**STEEL  
SUPPLY**

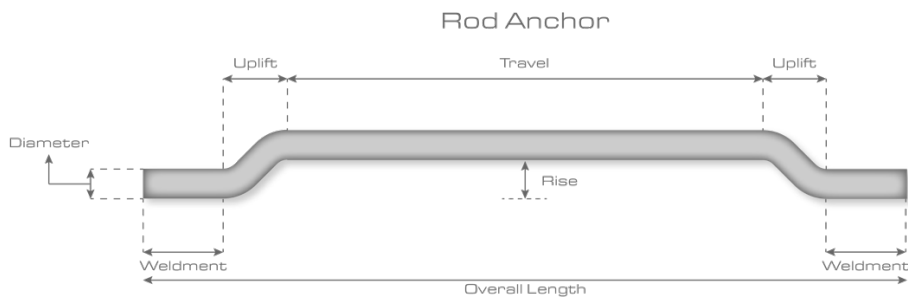
**Fireproof Rod Anchor**  
**Purchasing Guide**

Within the steel fabricating industry, a **rod anchor** is referred to by several different names. While The Steel Supply Company prefers the term “**rod anchor**”, other common terms for this product include:

- **Wire Tie**
- **Weld-on Tie**
- **Weld-on Anchor Rod**
- **Weld-on Anchor**

For the purposes of this document, any of the above listed terms can be used interchangeably with term “**rod anchor**”.

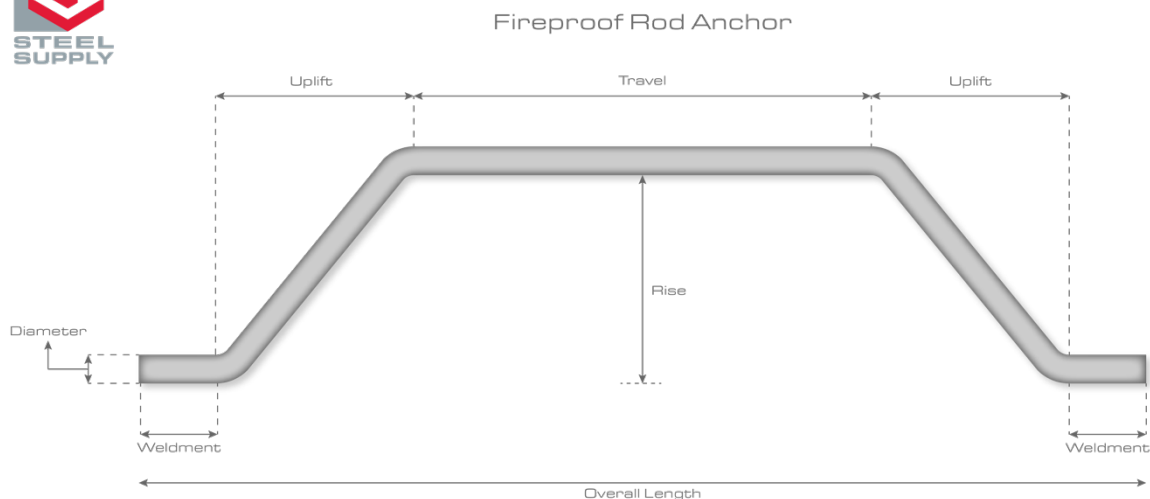
Every rod anchor has the following measurements: **diameter**, **weldment**, **uplift**, **travel**, **rise**, and **overall length**. In the diagram below, each of these measurements is identified.



A typical rod anchor has a 1/4" **diameter**, and a total **rise** of 5/8" (1/4" diameter plus the rise of 3/8") off of the steel member it is welded to. The purpose of the **rise** is to provide a mason with room to install an insert that will join with a concrete or brick wall.

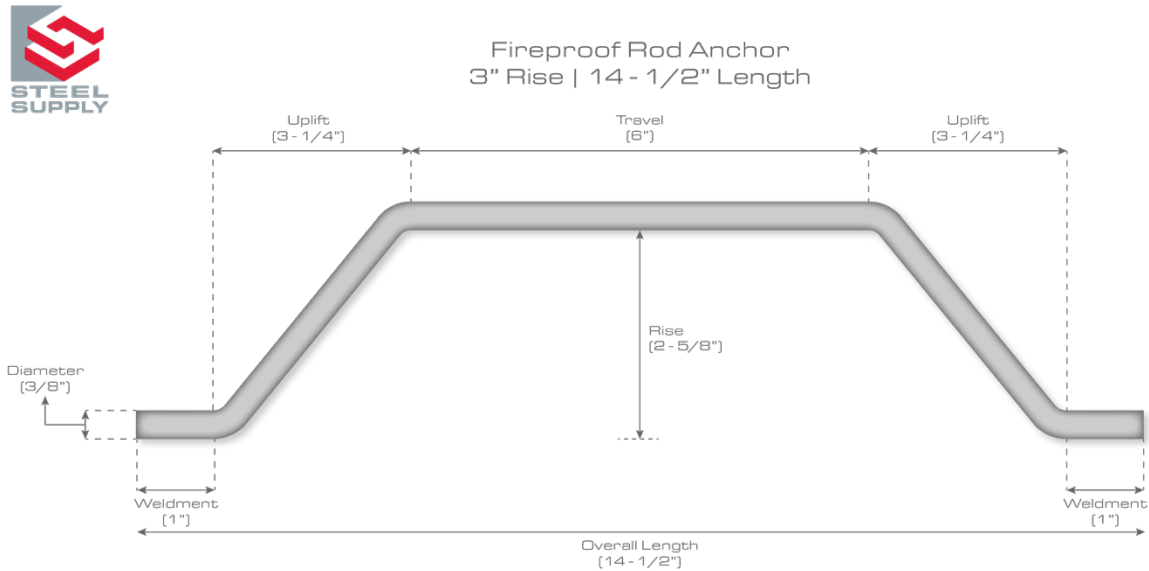
In most instances, a standard rod anchor with a 5/8" **rise** will suffice, but there are cases in which the steel member is meant to receive a **fireproof coating**, which can be 1/8" to 2" in thickness, or greater. In these situations, a rod anchor with a 5/8" **rise** cannot be used, as the **fireproof coating** will either reduce the **rise** of the rod anchor, or cover it completely.

A **fireproof rod anchor** should be designed so that its **travel** section rises above the fireproof coating. This allows the mason still to place their insert without affecting the fireproof coating. The following is a diagram of a generic **fireproof rod anchor**.



While a normal rod anchor is made with 1/4" diameter steel, a fireproof rod anchor is generally made with a 3/8" diameter. This is done to mitigate the deflection that would be caused in the steel as a result of the increased length in the uplift and travel of the rod anchor. With a 3/8" diameter, the yield strength of the steel increases by 2.24 times when compared with the same rod of a 1/4" diameter.

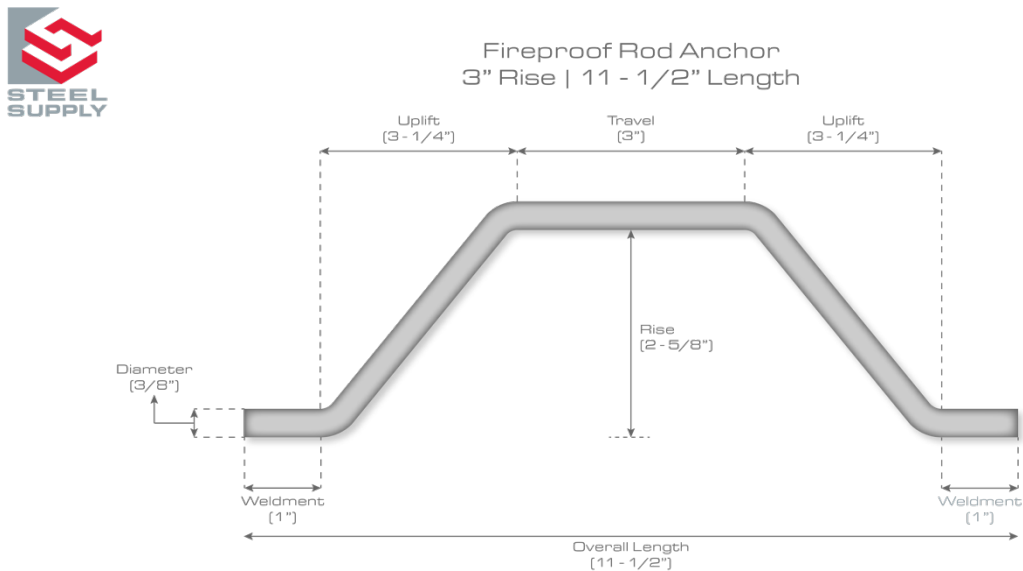
The next diagram shows a typical fireproof rod anchor that has a 3" rise and 14 – 1/2" overall length.



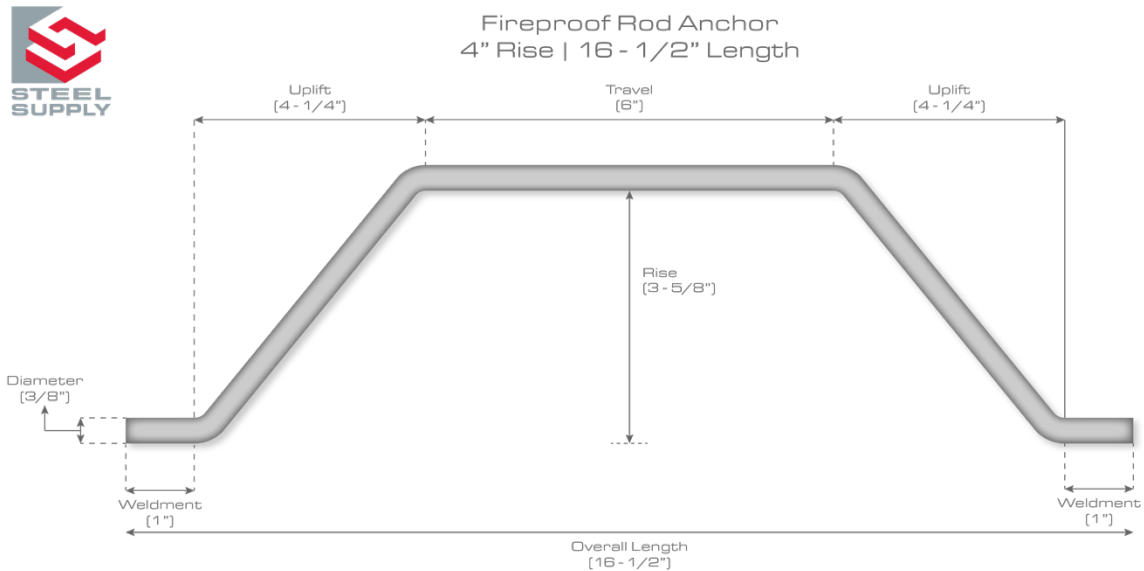
In many cases, a rod anchor will need to be welded specifically to a column, and this is also the case for fireproof rod anchors. If the fireproof rod anchor is to be mounted to a column, the dimensions are practically inconsequential. A fireproof rod anchor of any dimensions will work. However in the case of a horizontal beam, it is not uncommon for the rod anchor to be mounted inside of its web. In these cases, overall length is a substantial factor.

When adjusting for different lengths, the travel of the fireproof rod anchor may become shorter or longer. This is significant because the travel affects access to the mortar joints of the structure, and provides vertical space for movement.

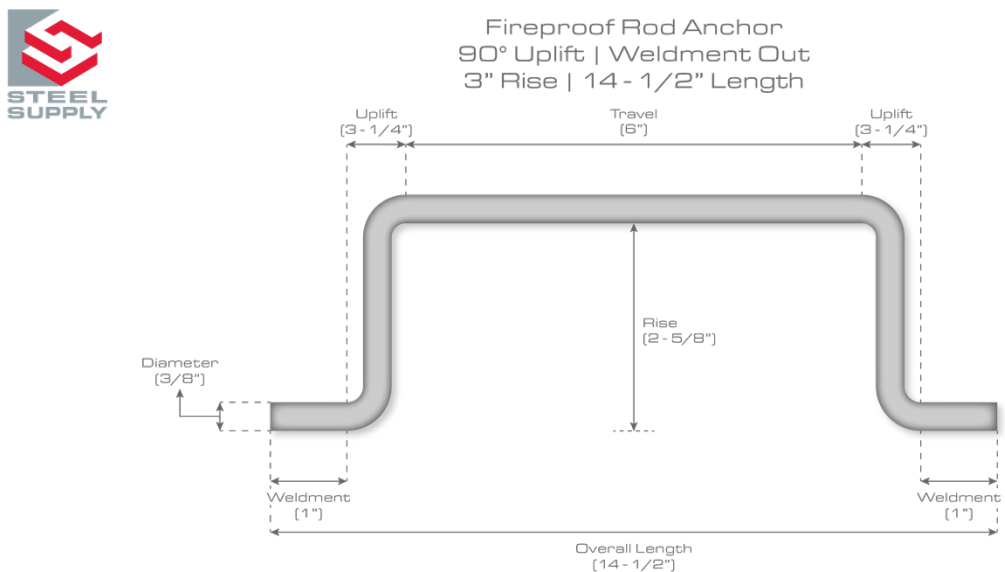
In this diagram, the travel size has been reduced from 6" to 3" in order to accommodate a 11 – 1/2" overall length.



The height of the fireproof rod anchor's rise will also affect overall length. Below is a diagram of a fireproof rod anchor with its rise increased from 3" to 4". Notice that while the travel remains the same length, both uplifts needed to be increased in length by 1", which in turn has increased the overall length from 14 - 1/2" to 16 - 1/2".

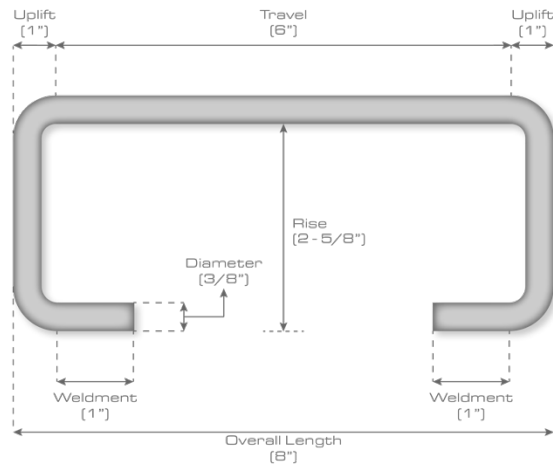


If a specific travel length is required in a limited space, the uplift of the fireproof rod anchor can be adjusted to a 90 degree angle, which decreases the overall length. Additionally, the following two diagrams show that the weldments can be pointed to the outside of the rod anchor, or to the inside. This is another option that accommodates tighter spaces.





### Fireproof Rod Anchor 90° Uplift | Weldment In 3" Rise | 8" Length



The last consideration for purchasing a **fireproof rod anchor** is whether or not to include a **backing plate**.

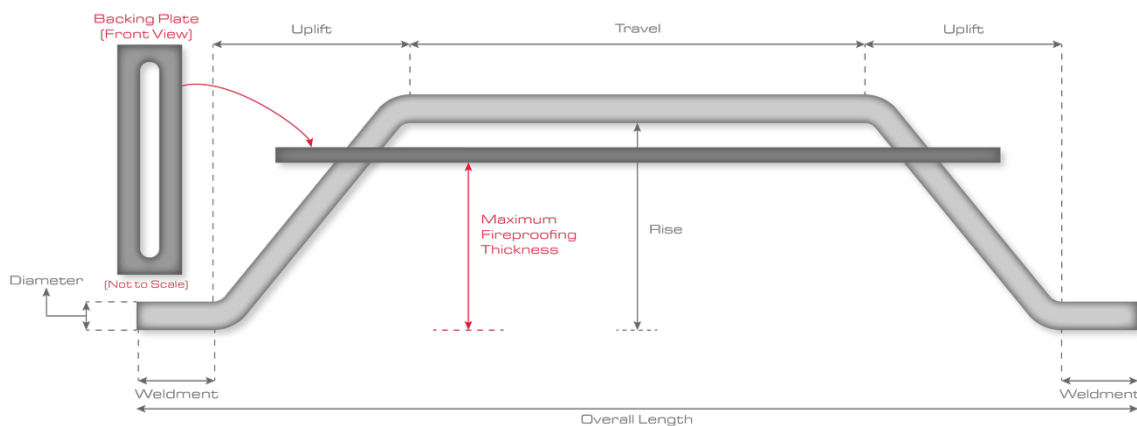
A **backing plate** is optional; however, its inclusion does provide a few advantages. When a compressive load is exerted, the insert will be pushed toward the I-beam. When fireproofing is present, this exertion can damage the coating. A **backing plate** mitigates the amount of damage that this force will cause.

In addition, as the wall compresses into the beam, stress is exerted onto the wall's mortar joints. As this movement is repeated over time, cracks may develop that will compromise these joints. The **backing plate** limits the amount of movement, alleviating the stress placed on the overall structure.

In this last diagram, the usage of a **backing plate** is shown. Notice that it is simply a slotted steel plate. The slot is there so that the plate can be put on top of the **fireproof rod anchor**, and it also acts as a stop by resting on the anchor's **uplifts**.



### Fireproof Rod Anchor with Backing Plate



The only drawback of the backing plate is that simply rest on fireproof anchor rods that have 90 degree. If a backing plate is used in this case, it will require a tack weld.