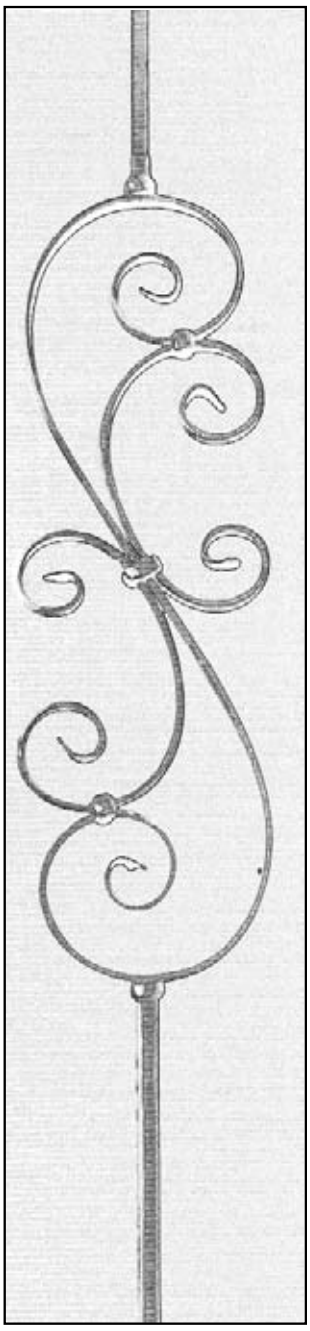
Chapter 7
Wrought Iron Balustrade Installation

In this chapter:



Iron Balustrade Installation

Wrought Iron balusters are very unique because they offer the homeowner a great deal of flexibility and creativity during the selection process. It is rare to see an iron balustrade system using only one style of baluster. In many cases, as many as three styles of balusters are utilized. So, the difficulty comes with the layout of the balusters as opposed to the installation itself.

Layout and Drilling

As stated throughout this manual, it is important to keep local building codes in mind. Many areas have strict code compliance with regards to baluster placement and spacing.

Note: The main safety restriction deals with the 4-inch sphere code. It states that the baluster placement must prohibit a 4-inch spherical object to freely pass between the spacing.

Fitts Industries, Inc. has taken the necessary precautions to offer a select line of balusters that may be spaced close enough together to comply with these codes. It is also important to note that because the size and shape of the balusters vary greatly, it is not usually possible to lay out the treads and landing tread with constant spacing.

The following steps describe the process:

1. Lay the balusters on the floor or against the wall in the desired pattern. Please note Fig. 7-1 here.

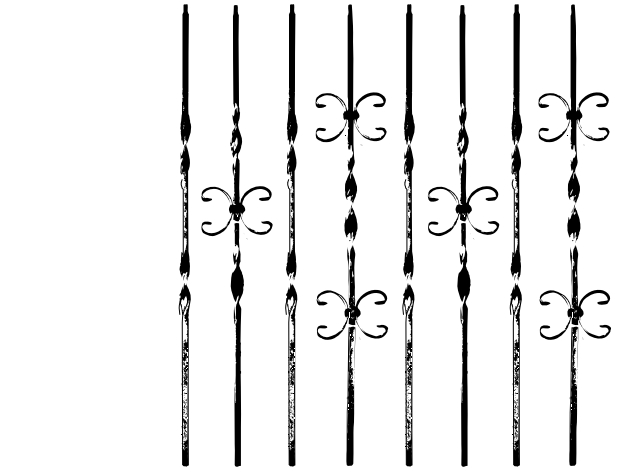


Fig. 7-1

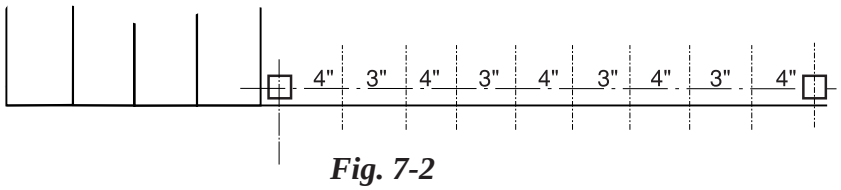


Fig. 7-2

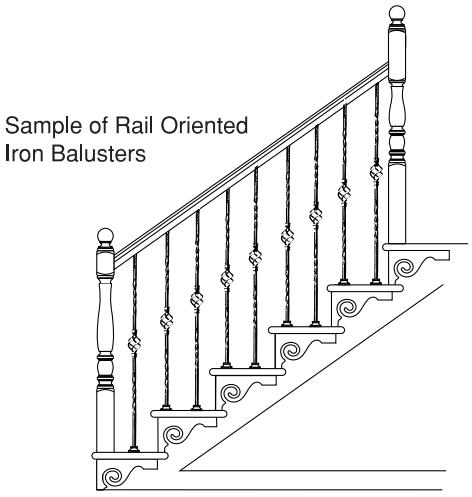


Fig. 7-3

2. Check the pattern layout for code compliance while spacing the balusters.
3. Measure the distances between the balusters.
4. Layout the rail centerline. Please note instructions in Chapter 3.
5. Mark your treads and/or landing tread to match your design. Repeat the design pattern to fill the necessary area under the rail.
6. Using a plum bob, transfer the marks for the balusters to the bottom of the rail. Please note Fig. 7-2 here.
7. On the previously made marks, drill a hole 5/8-inch in diameter, 1/2-inch deep into the tread or landing tread. (Copy step for all of the marks on the treads or landing tread. It is critical that these holes are consistent in depth. A variance in the depth of the holes could cause a problem with the installation of the handrail).
8. On the predetermined marks made on the handrail, drill a 1/2-inch diameter hole, 1-1/2-inch deep into the handrail. Follow this step for all of the predetermined marks on the handrail.

Cutting and Installing Balusters

All Fitts Industries, Inc. wrought iron balusters are designed using a rail-oriented baluster design. For review of this concept please note Chapter 5. Rail-oriented baluster placement cuts down on the number of baluster lengths needed and allows for greater flexibility in the selsction process, as well as any onsite adjustments that may occur during installation. Please note Fig. 7-3 here.

The following steps describe the process:

1. Turn the baluster upside down and place the end of the baluster into the hole in the tread. Please note Fig.7-4 here.

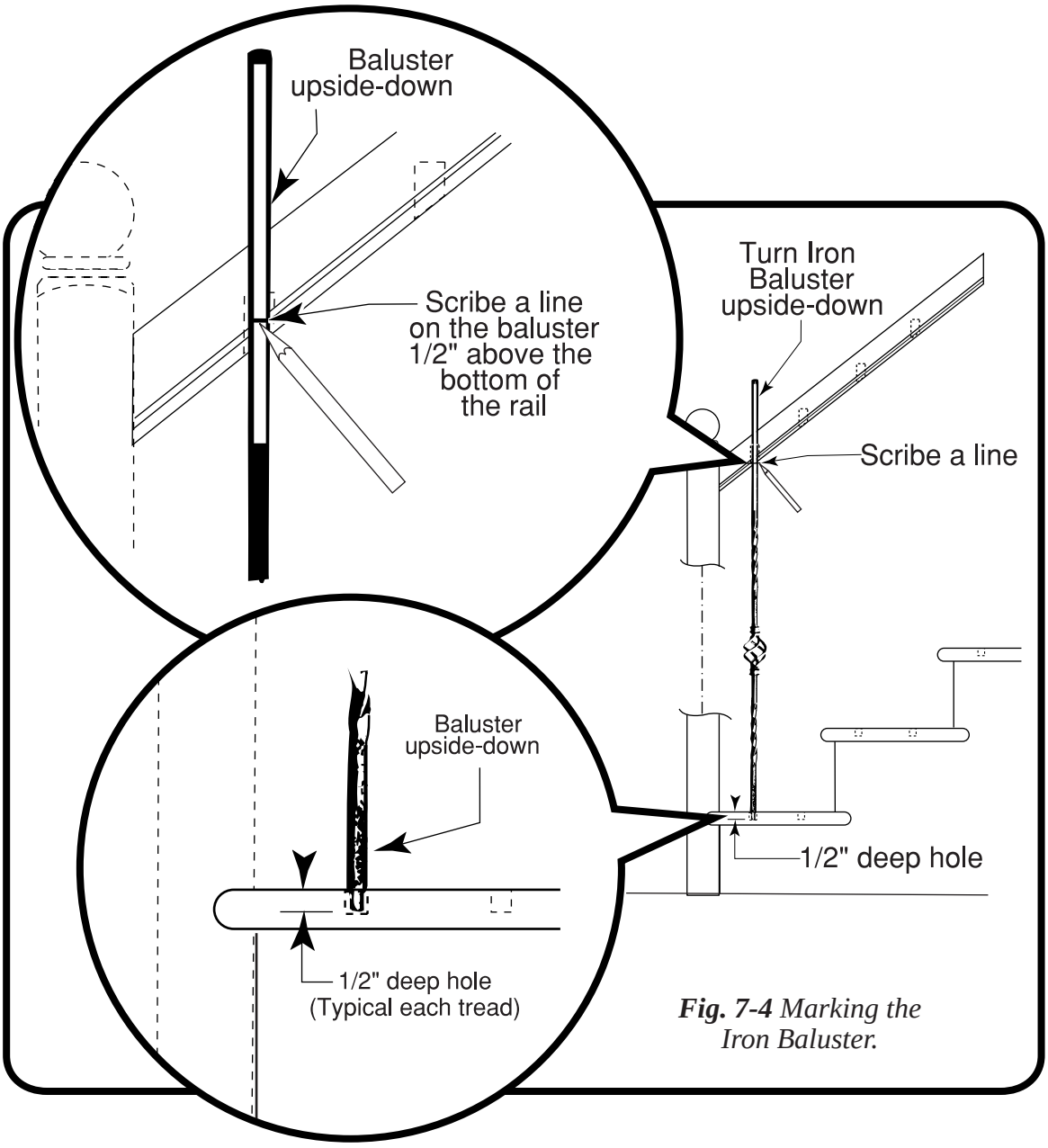


Fig. 7-4 *Marking the Iron Baluster.*

2. Line the bottom of the baluster up with the corresponding hole in the bottom of the rail. Scribe a line with the pitch of the rail even with the bottom of the rail. If the rail is a balcony rail, scribe the line even with the bottom of the handrail.

3. Add 1/2-inch to the longest point of the mark on the rake balusters, and 1-inch to the mark on the balcony balusters. Make a square cut.

Suggestion: A band saw with a metal cutting blade will work the best for trimming the balusters, but any metal cutting saw will work.

4. Repeat this process for all of the balusters. Remember to use the correct baluster to maintain a consistent design.

Installing Balusters

The following steps describe the process:

1. Remove the rails and carefully set to the side.
2. Using the proper adhesive (usually a fast cure epoxy), and place a small amount in each of the previously drilled holes in the tread or landing tread.
3. Slide the proper shoe onto the bottom of each baluster. Please note Fig 7-5 here.
4. Stand each baluster up, and place it into the predetermined hole (making sure to pay special attention to the pattern layout).

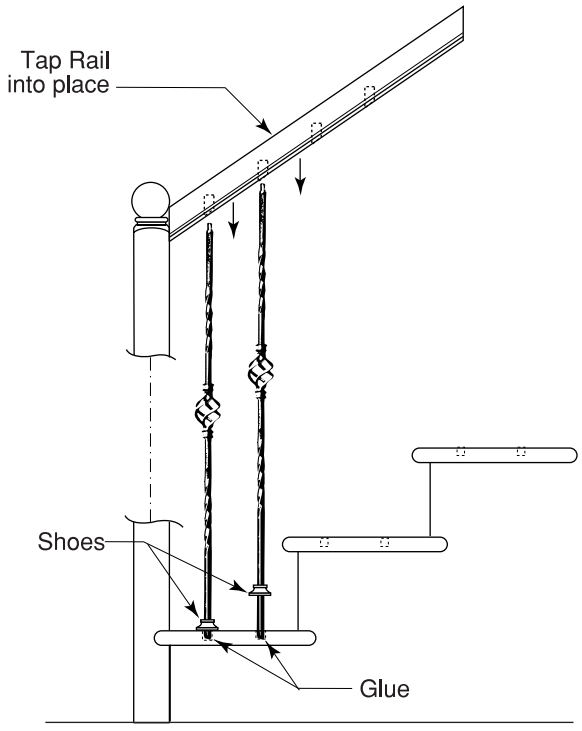


Fig. 7-5 *Fitting the Rail to Iron Balusters*

5. Place adhesive in the previously drilled holes in the bottom of the rail. Do not use a large amount of adhesive because it will have the tendency to run down the balusters.
6. Put the rail back into place and align the tops of the balusters with the hole in the bottom of the rail. Gently tap the rail down onto the balusters using a rubber mallet. (All Fitts Industries, Inc. wrought iron balusters come with a 1/2-inch diameter pin on the top. This allows for a snug fit into the rail).
7. Once the rail is back into place, securely attach it to the newels using the techniques described in the earlier chapters.

Stabilizing Long Rail Sections

It may be necessary, in certain applications, to add stability to a long section of handrail. Proper planning must be done before starting the installation process.

The following steps describe the process:

1. Make a rough baluster layout on the floor or treads.
2. Install a 4” x 4” or a 6” x 6” block approximately 8- to 10-inches long in the floor or on the side of the stringer. Please note Fig. 7-6 here.

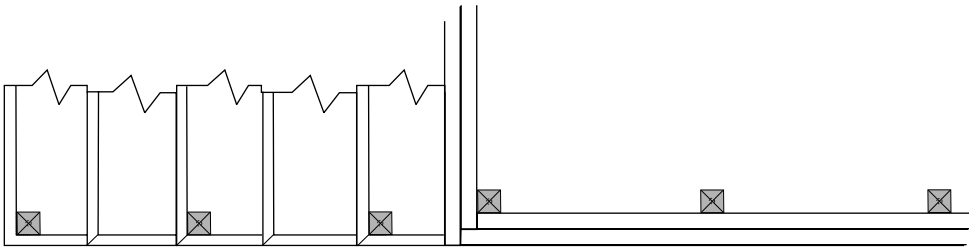


Fig. 7-6 *Add Blocking to Frame*

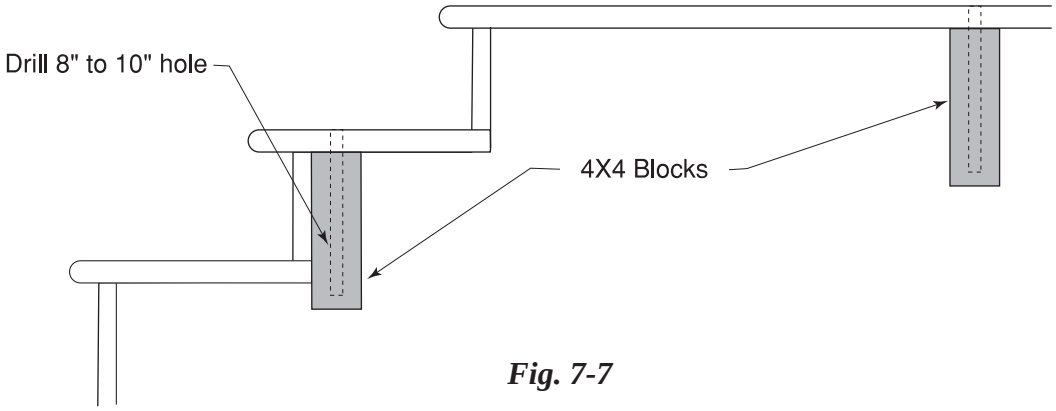


Fig. 7-7

It is very critical that the blocking is installed to match the baluster layout.

3. Repeat the process on every third or fourth tread, or every 3- to 4-feet on the balcony.
4. When drilling the treads or landing tread, drill the holes 6- to 8-inches deep in those areas with extra blocking. Please note Fig. 7-7 here.
5. When cutting the balusters that correspond to the extra deep holes, add the depth of the hole to the overall length of the baluster.
6. Install balusters as described in the previous section.

Chapter 7: Things to Remember

1. Always consult your local building codes before building a stair.
2. Most wrought iron systems will consist of more than one baluster style; pay special attention to baluster spacing and layout.
3. All Fitts Industries, Inc. wrought iron balusters are designed using a rail-oriented baluster design.
4. Wrought Iron balusters can be cut using either a band saw with a metal cutting blade or a metal cutting saw.
5. Make sure to check baluster layout before attaching any of the material.
6. On longer sections of rail, it is advised to mount the balusters into a piece of 4 x 4 blocking at various increments. This blocking should be mounted before installation.
7. If using the previously described mounting technique, it is important to predetermine which baluster will remain “uncut’ so that the appropriate baluster height is maintained.