Home Repair Resource center

HOMEOWNER REPAIR GUIDE

BRICK PIERS

Many older homes have a rear porch supported, at least at one corner, by a brick post, or “pier.” This is where many homeowners first become acquainted with masonry work, because invariably these posts need repair. By their very nature, they suffer from the “ups and downs” of the weather – the changes in temperature and humidity that can cause the ground under them to heave with the seasons. In time, most brick piers tend to tilt one way or another and slowly self-destruct. Because they forge a critical link in the structure of the porch (and the home to which it connects), you can't afford just to ignore them.

WHY PIERS FAIL

As with most other home repairs, the most common reason brick piers fail is lack of proper preparation – in this case, installation of a “footer,” the concrete foundation upon which the pier should be built. What you can't see below the ground directly impacts the longevity of what you can see above ground. A footer that is improperly constructed – or missing – will result in an unstable pier, one that is unlikely to remain straight.

DON'T “BAND-AID” A LEANING PIER

Most homeowners, when attempting to correct this type of problem, try to “band-aid” it. They'll try to pull the pier straight or push it back into place. This type of repair will have a relatively short life. Unless the foundation is adequate, the pier will remain unstable and eventually tilt again.

AN ADEQUATE FOOTER

To create an adequate footer for a pier, you must install it below the frost line (the average depth at which the ground typically freezes.)

FOOTER	REQUIREMENT
Depth	The frost line is about 33 inches in northeastern Ohio, so a footer 36 inches deep is generally considered safe.
Width	The basic rule of thumb is that footers should be twice as wide as the wall that will sit on them. For example, a 2-ft. square pier would need at least a 4-ft. square footer.
Thickness	The footer must support not only the weight of the pier itself, but also everything that will rest on that pier – the entire porch weight. So, most footers will need to be *at least* 10-12 inches thick; however, it is not unusual to need a footer 20 inches thick or so, depending on the combined weight it must support.

PERMIT REQUIRED

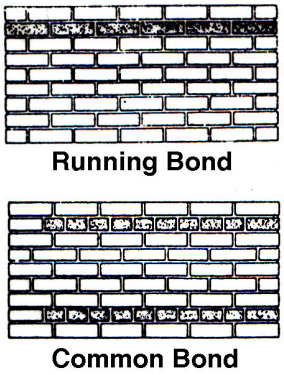
If you are installing a new pier and footer, you'll need a permit, and you should follow the required specifications for its construction.

BUILDING THE PIER

When the footer has set and you are ready to start the masonry part, you'll probably find either a “running bond” or a “common bond” the best pattern for building the pier. It's easiest to make your pier a size that takes advantage of full bricks, so you can avoid the slow process of cutting them to smaller dimensions.

If you do need partial bricks, however, you can:

- cut them with a hammer and brick chisel, or
- hit them with the pointed end of a mason's hammer, or
- cut them with a circular saw and a masonry cut-off blade, or
- rent a brick saw.

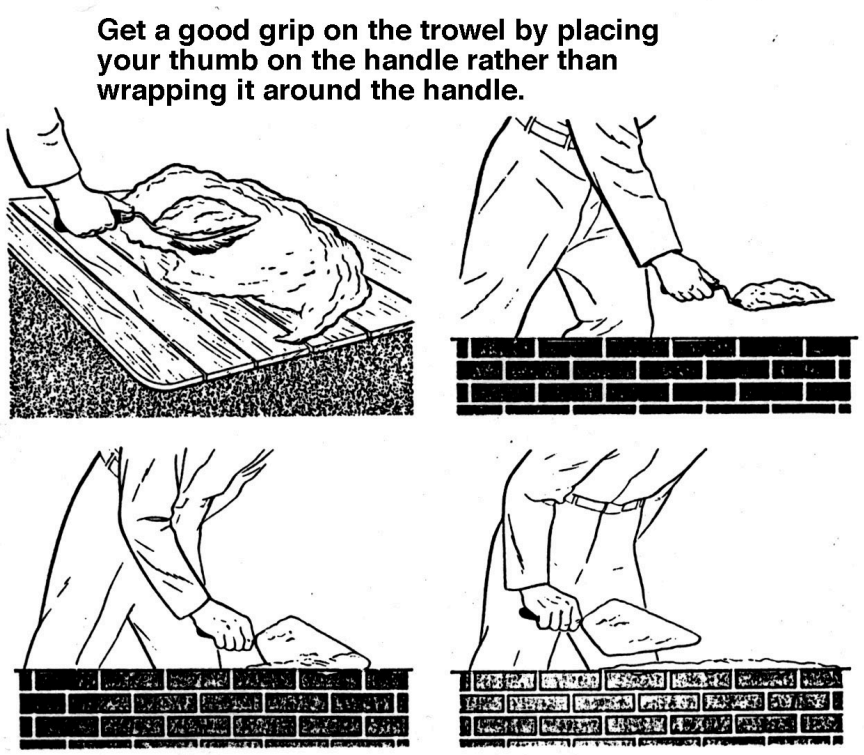


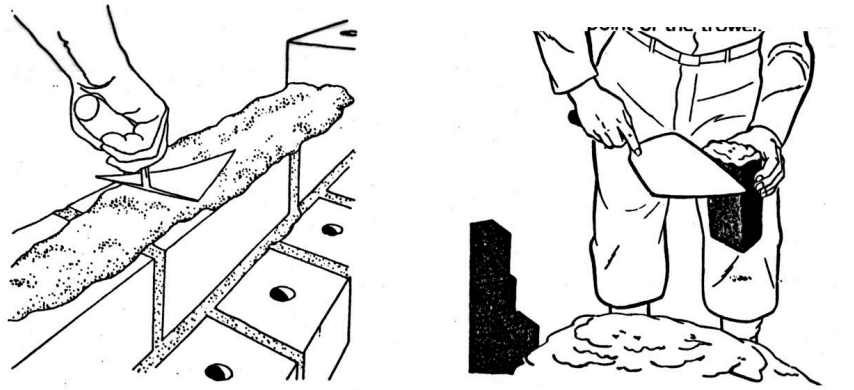
Running bond and common bond

1. While mixing the mortar, soak the bricks thoroughly in water.
2. Lay a bed of mortar on the footer to get started *(see illustrations)*.
3. Then, “butter” (coat) each end of the brick with mortar, push it gently into the bed on the footer, and tap it lightly into place with the handle of your trowel.
4. After getting the first row straight, and checking it with a level, you can continue on up with the pier. As you build, pay close attention to both the horizontal level and the vertical (called “plumb.”) Constantly check both directions with the level to ensure your pier is straight.
5. After the pier is completed, allow it to set and properly harden for several days before putting any weight on it.

IT ALL RESTS ON THE FOUNDATION

These principles of basic masonry construction apply to whatever you are building, whether steps or piers. The quality of the work rests on its foundation.





Spreading and buttering mortar

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

WWW.HRRC-CH.ORG +1.216.381.6100 2520 Noble Road, Cleveland Heights, OH 44121

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