

The Probing Question

By George Porter

Lately many people have been asking about the Pocket Penetrometer. They say that it won't work for them or they are not sure how to use it. Well here is a re-hashing of an old article on the subject from about three years ago. It still applies today. Most states that have installation programs use this tool as their primary source of information for load bearing capacity and until something better comes along it is the most economical way to prove you have done the job right. Since this article was written the contraption for test 1586 has left the industry entirely, almost all manufacturers have referred to the Pocket Penetrometer in their manual and the tool has been used in many courts of law. When the installer referred to it to prove he was right he was mighty glad he had used it. When some lawyer used it to prove him wrong he did not have much of a defence. So here is the old article that is still new in a lot of places in the country.

We have discussed in previous articles that it is necessary to know the load bearing capacity of soil in order to properly design a footing that will support the home and the weights on the piers involved. The factory must tell you how much weight you have to hold on each pier and where to locate it. It has to be the installers responsibility to figure out the load bearing capacity of the soil.

You can call an engineer. You can identify one of fourteen different types of soil and guess as to its moisture content. You can even do ASTM test 1586, which is a 16' tripod with a 32 hp motor mounted to one of the legs that will raise a 140 lb. weight 30" above a 2" steel rod and with successive blows, will drive it into the ground one foot. You record this number of blows, go to the chart and it will give you the load bearing capacity of the soil. This little device is in the \$3,000 range, and I'm sure the 16' tripod will fit nicely in the back of your pick-up. Aside from these inconveniences, it absolutely will give you the load bearing capacity of the soil.

Or you can get a Pocket Penetrometer, stick it in the ground, read the side that has the scale on it, and it will give you the load bearing capacity of the soil in 250 lb. increments. All of this takes about five seconds. Then you can put it back in your pocket. It's handy, relatively cheap C about \$60, and with any kind of care will probably last the rest of your life. I think it's about as good as we're going to get.

In order to properly use this instrument, you need to read and understand the few pages of instructions that come with it. Please read the instructions carefully. They are not complicated. It's a very simple instrument, but you can use it incorrectly. If you've gone this far, why drop the ball now.

You can find this type of device at engineering supply houses C major road building contractors probably have catalogs from many supply houses in their libraries for their engineers. They all work pretty much on the same principle. You push the probe into the ground until it comes up to the little groove on the stainless steel rod. While you are doing this, the spring inside the handle is compressing, depending on how dense the soil is. While this is happening, a little red ring is sliding down the barrel. This is much easier to demonstrate than it is to describe, but it is

incredibly simple once you see it in operation.

Using this, we will be able to determine load bearing capacity for soil. We will then go to a chart that should be supplied with the home, or is available from the factory that lists the weights to be held in a column underneath the load bearing capacity for the soils.(see chart) If you do your test with a Pocket Penetrometer and you find that you have 2,000 psf soil, then you would deal only in the column that concerned itself with 2,000 psf soil. If you find out that the pier you wish to install has to hold 4,000 lbs., you find the 4,000 lbs. in the column, go immediately to the right and you will get the size footing you should have.

How do you know how much weight you have to hold? That's right! The factory is the only one that knows and they have to tell you and it should be in the installation manual. If all of this is not perfectly clear to you in the installation manual for the brands of homes you are installing, call the factory. They should be glad to help. Knowing these load bearing capacities is part of their design approval from HUD. The salesman may not know, but the chief engineer certainly will.

As time goes on, no doubt factories will be rewriting their manuals and including this information because installers will now be able to use it. Before the ability to make a simple test on the soil and determine its load bearing capacity, there was very little interest in this information because it could not be used.

Some people think this type of procedure is an unnecessary complication of their life. Others see it as an easy way to thoroughly understand what they are doing. This is an incredibly simple procedure requiring mere minutes of your time. The benefits mean that no home will ever settle again. It also means there should be no call backs due to the settling of a footing.

If you keep some records on all your installations, and record the load bearing capacities that you measure at each location, you should be well covered in the event of one of those all-encompassing legal battles, where the lawyer sues everybody who had anything whatsoever to do with the home. You will be able to prove you did your job right in a highly professional manner.

Another side benefit to this is that if the Pocket Penetrometer tells you the load bearing capacity is not sufficient to support the home, you can stop right there instead of proceeding on with a heart full of hope, and creating a situation that will haunt you for many years to come. There have been installation companies go bankrupt trying to do the impossible. If the ground won't support the home, don't put it there. If some other installation company says they can do it, let them C you'll never regret it.