

Where Is The Weight?

By George Porter

Last time we talked about the total weight of a 1500 sq/ft home (roof load, floor load, and structure) as being around 130,000 Lbs. If that was evenly distributed around the home then it would not be too hard to figure out pier placement and footing size. Unfortunately it is not, that would be too easy. These homes are more like people, the weight sometimes seems to go to central locations and it is a problem we have to deal with

There are really only two support areas that we have to concern ourselves with under these homes. One is the frame under each floor or the main beams, and the other is the outside edge of each floor or the perimeter.

To understand what is going on here you have to understand the job each area has to do. Reduced to its simplest terms the frame supports the entire home and perimeter supports just take care of the weak spots.

Let's suppose that we had a home with no doors or windows. The frame holds the floor; the floor holds the outside walls; and the outside walls hold the roof. All the weight is evenly distributed over the entire structure. If the total weight of a 14 x 70 home, including roof load and floor load, comes to 70,000 lbs. and you wanted to put 4 supports under it then each pier has to hold 17,500 lbs. Of course you can't do this because the home would sag very badly. You could however, if you had a main beam maybe 24 inches thick and was strong enough to hold itself straight between the supports.

This points out to us that the distance between the supports is determined by the weight of the home and the strength of the main beams. You can't space the supports any further apart than the main beam is able to hold the load of the home without bending. For an 8 inch tall main beam under the home this is about 8 feet, a 10 inch beam is about 10 feet, and a 12 inch beam is about 12 feet. This depends on the weight of the home but it is the industry average. The only way to know for sure is to read the manual that comes with the home you are working on.

Should you decide to support the home every 10 feet under the beams then you would have 14 supports, each one holding about 5000 lbs. This too is almost the industry average but is about 500 lbs low. The roof is really larger than the floor because of the roof pitch and eaves and that can add more weight. The weight of the piers are also allowed for but we are trying to keep it simple here so we are leaving these things out.

Now our home with no windows or doors is completely supported because all the weight is evenly distributed through to the frame. The problem is now that we can't live in it, we can't get in and we can't see out, who wants a home like this?

The solution is to cut holes in the walls for these doors and windows and that's where the trouble starts. Remember, the outside walls hold up the roof and when you remove a piece of it what is going to hold up the roof over that gap? The glass sure won't and when the door is open there is

nothing but air in the gap, that won't work either. Sometimes, when the door is closed, it will hold up the roof. This condition is known as binding or jamming, most customers don't like it. This is when we have to fix a weakened area caused by removing these sections of outside supporting wall.

This explanation can be somewhat involved so we better talk about it in the next issue of The Journal. As you can see from what we have covered here this stuff is only complicated because it has so many little parts. It is not rocket science at all and over the next few months we will discuss everything. If you have any questions send them to The Journal and I will try to answer them.

You can and should fully understand what you are doing and why. I personally consider set-up more important than sales. Sales promises the customer a good home but it is the installer that plays a very large role in seeing to it that this comes true. Most of the time it is a lot harder to keep promises than it is to make them.