



Greenhouses

Transcript – Foundations & Flooring

Hello and welcome to Honor's Lab, Greenhouse Construction, module three. Today we're going to learn about greenhouse foundations and flooring options for your greenhouse. Whether you've purchased a greenhouse kit or building your own design, you're going to want a good foundation. A good foundation will keep your building upright and aligned for years. There are two main ways to anchor your building. First is to pour a cement footer and the second is to create concrete piers and install steel posts to anchor the bows to, so each bow should be anchored to a stem wall or cemented steel post in the ground. Most steel posts are about 1.75 inches in diameter and most bows are about 1.5 inches in diameter. And kit greenhouses will come with foundation recommendations for that particular kit, so be sure to check with your local building codes to see what kind of foundations might be required for your building.

Okay, so we're going to go ahead and take a look at a few of our buildings and we'll show you how each one of them is anchored. All right, this is one of our cement piers with the steel posts in it. This is actually a building that we had taken down and we pulled these up out of the ground and we just have them in a pile. And if we go to build another building, we can put these back in the ground, but this gives you a good look of what it would look like. We're about 30 inches here of cement with the posts in it and there's about 18 inches of post sticking out so that we can attach to that with our bow to anchor our building.

Alrighty, here's one of our cement piers in the ground; it's exposed a little bit with the steel post in it. So, ground level should be right here. This should be all full of soil and then we'll attach right here. So, it give you another look of how they're set in the ground. Here's one of our greenhouses and you can see one of the bows here coming down and it attaches to the steel post down in here that is anchored to the cement pier that's down into the ground. Okay, here we are in our pit greenhouse. This one's a little different because ground level is like this high outside. So, what we have is we have a footer and then we have a stem wall. So we got about three feet of cement here and then inside the cement stem wall is the steel post which sticks up here just about three or four inches and then the bow comes down over the top of that steel post and we have a screw here that connects the two together. And that's how this wall is put together. Okay so that gives you a pretty good idea of how the buildings are anchored. Mostly it's the stem walls or the cement piers.

So next we want to talk about the flooring options for your greenhouse. The first one is putting in a subterranean heating and cooling system. It's otherwise known as a climate battery and this is a heat storage unit that goes under the floor of the greenhouse and it's purpose is to store the day's heat and release it at night to warm the building and the soil. So, the climate battery is 12 inches and deeper under the greenhouse floor and the top 12 inches of soil are for growing your plants. So, if you're wanting to put in a climate battery, then you need to research and design this before you build your greenhouse. You can go to echosystems-design.com. to find out more on how to design and build a climate battery. So, it's really gonna affect your floor that you put into your greenhouse. So, if you're gonna do that, you need to look into that first.

The second thing that you can do with your floor is to plant directly into the soil. If you're going to plant directly into the soil, you're gonna want to keep your soil clear of building construction debris and after your building is complete, you'll want to amend the soil before you plant. So that's if you're going to plant directly in the soil. The third flooring option is weed barrier. So, if you plan on having a weed barrier for your floor, you'll want to level the floor; this is after your building's up. Put down two inches of road base, 3/4-inch road base, and then level and compact the road base and then put the weed barrier down on top. And I recommend Dewitt which is a professional type of weed barrier or any other of

the professional types. You don't want to be using the retail, thin weed barrier that is just fibers. It's not actually a woven weed barrier.

All right we're here in our tomato house and this is a floor that we put in 28 years ago and this has got the road base underneath and the weed barrier on top and then the beds built on the weed barrier. And we never did gravel this one and as you can see, we wore a few holes in the weed barrier over the years, but I mean, we spent 28 years walking on this floor and we grow in this house 12 months out of the year. So, it's gotten a lot of wear and tear and this is the main aisle and it gets the most wear and tear. So, by buying the good weed barrier, it's done a really, really good job and eventually we'll have to replace it, but I think we can go maybe another 10 years on this one.

Okay the next one is a gravel floor. So, we have several greenhouses with gravel floors, and these are my favorites. They consist of two inches of the 3/4-inch road base, the professional weed barrier and then about two inches of screened 3/4 inch or pea gravel. The pea gravel is the best because it protects the weed barrier because it doesn't have sharp edges, but sometimes you can't get pea gravel so go ahead and get a 3/4-inch screened gravel. The screened gravel doesn't have the sand in it and that goes up on top the weed barrier. And the other way to do it, is some greenhouse growers will actually put a cement floor, so if you're wanting a cement floor, you want to put in a four inch thick reinforced slab and go ahead and put drains in that. So, for our greenhouses, we like to grow in raised beds. So, we'll install the raised beds on top of the weed barrier floor, then add the gravel around the beds to finish the floor. I like the gravel because it drains away the water so we don't have any puddles and the gravel, it can get weeds in it over time and so, it's gonna take a little bit of maintenance to keep it clean and the weeds can actually be sprinkled with salt to keep the aisles weed free. So, if you use raised beds, then you can concentrate all your soil amendments in the raised beds instead of in the beds and the aisles. The aisles will take up almost half of your space and so you can save a lot of money and work by not feeding and maintaining the aisle space.

All right, here we are in one of our other greenhouses and this is the -- got the road base on the bottom, it's got the weed barrier on it and then this is the pea gravel up on top and that goes -- the beds are sitting down on the weed barrier and then we put the pea gravel in the aisle and this keeps this pretty good. If this starts to weed up a little bit, we just put some salt on it and that usually will take care of the weeds.

So please consider how you're going to use your greenhouse floor before you build your greenhouse. So, are you going to grow directly in the floor, grow in raised beds or containers on top of the floor? So, think about how you're gonna use the floor before you do all your building design. Okay for your homework. Go visit several local greenhouses and ask them about their foundation and their flooring. Ask them what they like and don't like about their current set-up. So, they will have similar soil and climates as you do, so you can get an idea of what you want and what will work best or not work in your area. So, I want to thank you for watching module three. In module four, you're gonna learn about the different types of roof coverings, so we'll see you there.