



# BUILDING DEPARTMENTS & YOUR GROWING DOME®

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So, you've decided to build a Growing Dome® AND obtain a building permit. Don't worry! We are here to tell you that this is attainable, and you have the support you need. After 30+ years of manufacturing and building Growing Domes® we are skilled at facilitating the permitting process. Plus, you're following a positive precedent; Growing Dome® owners around the country from hobby gardeners to large institutions have had great success in obtaining permits.

That said, you do have some work ahead of you. The amount of effort depends on where you live and how your building codes are structured. We have a general set of plans stamped by an engineer in Colorado, but your building department may require extra information over and above what is in our general plans. Depending on the requirements, additional changes to the plans may be necessary and you will be responsible for the charges involved. As a basic rule, plan changes for the 15' to 42' diameter Growing Domes® can range from \$350 to \$1,500.

To get you started on the road to success, we will need you to obtain the following information listed on the "Building Department Questionnaire" from your local building department. Please take this questionnaire to your building department for them to fill out. Once you or your local building department has completed the form below, please send it back to us. We will review the requirements to determine if changes are necessary. If no changes are required, we will send you our general plans free of charge upon payment for your Growing Dome® kit. If you do need changes to the plans, we'll connect you with an engineer that can make the adjustments. We will do our best to help expedite the process, but please know that depending on the requirements of your building department and availability of the engineer, this process may take anywhere from one week to several months. Every building department has a different permitting process and different requirements. The process can vary, even within the same county.

We are excited that you are on the path to living a healthier, more sustainable lifestyle and we look forward to working with you.

## BUILDING DEPARTMENT QUESTIONNAIRE

Date:	Customer E-mail:		
Name of Customer:			
Physical Address of Customer's site:			
City:	State:	Zip:	
Size of Growing Dome®:			
Organize Foundation Options According to Your Order of Preference (1 = most preferred):			
Compacted gravel with rebar – 1   2   3			
Concrete piers – 1   2   3			
Full concrete forms foundation – 1   2   3			
Frost Depth:			
Any Seismic Requirements:			
Snow Load PSF/Live or Dead:			
Wind Load MPH (gust or zone requirements):			
Is Code Compliance IBC or UBC, and what year?			
Required Year for Stamp:			
Permit Submittal Format (Electronically Stamped, Digital PDF or Hard Copies):			
Hard copy plans with wet stamp(s) required? <input type="checkbox"/> YES <input type="checkbox"/> NO	How many hard copies are needed? # of copies _____ Specific print size(s) Required? (standard print size 24" x 36"):		
Where does the engineer on record have to be licensed? (please check one) <input type="checkbox"/> The state where the Growing Dome® is going to be installed <input type="checkbox"/> The state where the kit is manufactured (Colorado)			
Normal plans contain: Plan view, elevation, foundation plan and detail, cross section of the wall and elevation along with the specifications of components and materials. Any further drawings required or calculation / structural analysis book? If so, what is needed?			
Does this project require ADA compliance? <input type="checkbox"/> YES <input type="checkbox"/> NO			
Does the contractor have to be registered in the county, city, or town?			

## ABOUT THE FOUNDATION OF THE GROWING DOME®

There are a few foundation options for the Growing Dome®. The structure is very light; the ground loading is 10-30 lbs./ft<sup>2</sup>. The purpose of a Growing Dome® foundation is to anchor the Growing Dome® to the ground. The Above Ground Pond is bolted to the foundation wall, which contributes to anchoring the greenhouse to the earth. This pond contains anywhere from 700 to 3,600 gallons of water, depending on the Growing Dome® size. Obviously, a complex foundation will significantly add to the overall cost of the Growing Dome®. Therefore, the simpler foundation options are recommended, unless there are other important deciding factors or requirements. The following factors need to be taken into consideration:

**BUILDING CODES:** Because the Growing Dome® is a structure designed and used for agricultural purposes, as well as easy assembling and disassembling, many building departments waive the requirements for permits and permanent foundations, while others are more stringent. This is an important factor if you choose to consult with your building department and/or HOA (Home Owners Association). Growing Spaces® strongly recommends that you obtain a building permit and/or permission from your HOA.

**TERMITES:** In southern climates, the presence of termites may require that you pour a concrete foundation with a termite barrier or modify the foundation wall to resist termite damage.

**SEVERE WINDS AND /OR SNOW LOADS:** In areas with deep, heavy snowfall or extreme wind conditions, the Growing Dome® structure, although very strong in original design, would benefit from concrete piers or an ICF (Insulated Concrete Form) foundation. Growing Spaces® will be able to help you determine if this is necessary and your building department may require concrete piers or an ICF foundation, depending on where you live.

**FROST DAMAGE:** In areas of severe frost penetration, a Growing Dome® on a low-cost foundation may experience movement, due to the freezing and thawing process. Since the Growing Dome® is such a rigid structure, this does not create a problem, except occasionally at the doorway. It is also important to remember that the foundation might have an insulated frost barrier *and* the Growing Dome® comes with the undersoil ventilation system. Very rarely have we encountered serious problems due to frost damage.

The following are the foundation options we have available:

1. **Low cost:** The Growing Dome® sits on a circular ring of compacted gravel. The Growing Dome® kit comes with foundation walls that sit on this ring. The bottom plates and vertical studs in the foundation wall are composed of pressure treated lumber. This option is suitable for the 15' through the 26' diameter Growing Dome® greenhouse kits.
2. **Intermediate cost:** This foundation has concrete Sonotube® piers at each of the vertices of the foundation. The foundation wall is fixed to the piers with expansion bolts. This is an excellent foundation for very soft soil conditions. This foundation option is strongly recommended for 33' Growing Domes® and required for 42' Growing Domes®.
3. **High cost:** A plywood formed and poured concrete foundation is one option; an insulated concrete form type foundation is yet another option. Both options make a strong foundation. The insulated concrete forms provide excellent insulation. This type of foundation is optional unless, in a rare event, your building department requires it.

## EXAMPLES OF FOUNDATION TYPES



### 1. Gravel Ring

- Not recommended for a 33' dome
- Not applicable for a 42' dome

### 2. Concrete Piers



### 3. ICF (Insulated Concrete Form) Foundation

## ANCHORING SYSTEM OVERVIEW

There are several components that anchor the Growing Dome® greenhouse:

### 1. Rebar Anchoring System

- a. Holes measuring ½” are drilled through both ends of all the bottom plates. These holes are drilled at a slight angle to create a firm retention in the plate. We typically use 24” long pieces of ½” diameter rebar. It is hammered into the ground, through the bottom plate, leaving approximately 1” to 2” protruding inside the wall cavity. We use 2 pieces of rebar per wall section. There are 10, 15, or 20 wall sections, depending on the size of the dome. In the field, we have tested the amount of force required to lift the wall section up, using a lever and fulcrum system, and we estimate a force of approximately 250 pounds would be required to lift a wall section. This would vary with the soil type and moisture content.

### 2. Soil Bed Anchoring

- a. The dome structure is firmly anchored to a 24” foundation wall and lined with sheet metal. Many dome owners build a raised bed, about 30 – 36” wide, next to the foundation wall. This bed is filled with soil. Any lateral forces created by the wind, pushing the structure sideways, are firmly resisted by this soil mass.

### 3. Above Ground Pond Anchoring

- a. The Growing Dome® has an integrated oval Above Ground Pond (or round, in the case of the 33’ or 42’ Growing Dome®). Either 4” x 4” or 6” x 6” blocks or equivalent are anchored to the foundation wall, which helps support the Above Ground Pond structure. The sheet metal is attached to the blocks using 2” x 5/16” lag screws. The Above Ground Pond contains anywhere from 700 to 3,600 gallons of water, depending on the size of the dome. The weight of the water is a significant load, which minimizes both lateral and upward movement of the dome structure. In the field, domes have withstood recorded winds of 130+ miles per hour.

### 4. Other Anchoring Systems

- a. Helix Anchor (HUD 30” x 5/8”), 4 to 7 per dome, depending on the size of the dome. This anchoring system is not recommended but may be used if additional anchoring is required.
- b. Concrete piers with expanding anchor bolts, embedded to a depth required by your local building department. Anchors must be used on both ends of each wall section.
- c. Concrete block wall with expanding anchor bolts.
- d. Concrete foundation wall poured according to your local building department requirements and specifications.