



26' GROWING DOME USING INSULATED CONCRETE FORMS (ICF)

When the dome is to be set on insulated concrete forms (ICF), several extra steps are needed beyond the basic layout. You may use ICF's above or below grade and still use the foundation wall that comes with the kit. Or you can use ICF's (or concrete blocks or formed concrete) as an alternative to the provided foundation wall. You hopefully have already contacted Growing Spaces regarding details on the ICF/Concrete Wall Package and how best to proceed. Both options will likely be regulated by local building codes. These instructions are only meant to give an overview of the process and are not meant to be all-inclusive.

USING ICF'S BELOW GROUND AS A FOUNDATION WITH THE STANDARD FOUNDATION WALL

1. Following the "Layout for ICF Foundation" Diagram 2c-D1 and the "Laying Out Your Dome" Written Instructions 2c-W1, you should have already staked the outer corners of the foundation wall at the correct distance from the center stake and the correct distance from the neighboring stakes.
2. Pull a line from the center stake marking the dome radius (usually with spray paint) and continue marking the dome radius out 24" short of the actual radius (12' 10-1/2") and continue marking this measurement in a circle. This is indicated by the yellow line on the "Layout for ICF Foundation" Diagram 2c-D1. Then take a measurement 12" further out from the radius and mark another circle. This is indicated by the blue line on the "Layout for ICF Foundation" Diagram 2c-D1. These will give you the approximate layout of the trench.
3. You will need to dig a trench as deep as your building codes require for the foundation of the foundation wall. Most prefab ICF's are 12" wide, therefore requiring a trench approximately 3 feet wide. If you need a wider space, adjust the measurements as needed in step 2.
4. To aid in the placement of the foundation wall on the ICF foundation, you will want to place a stake 4' or more outside the trench, at a distance that will not be disturbed by machinery. The line should run from the center and through the stake marking where the wall sections outer corners will meet (stakes from original layout). It will be used to reference the foundation wall radius, to ensure the foundation wall corners are all in the correct place relative to center.
5. After the trench has been dug and an optional footer poured, follow the stake layout detail to find the corners of the wall sections. These will be where the corners of the ICF meet. It should be in line with the offset stakes. Use the base plates from the dome kit or cut your own to get the placement between each line from the center. Since the dome will sit on the 12" wide concrete wall, it is not necessary to be extremely precise when joining the units together. Refer to the engineered diagrams for specifics.
6. Before pouring the concrete, verify the placement of the wall, ensuring that the dome radius falls within the ICF wall at each point. Consider adding or planning for utilities at this point in the process.
7. We recommend using expanding anchor bolts after the dome is built to ensure the best fit and easiest installation. We also recommend that sill seal be placed in between the bottom plates of the foundation wall and the ICF or concrete foundation wall. This is considered an owner supplied item.
8. Continue with the manufacturer's recommendations and local building codes to pour concrete and reinforce with rebar. Consult with local contractors for specific recommendations.
9. Begin the dome build process, starting with the foundation wall sections (Step 3).

USING ICF'S AS THE FOUNDATION WITH AN ICF OR CONCRETE FOUNDATION WALL

If an ICF or Concrete foundation wall is to be used with an ICF foundation, you will require an option referred to as an "ICF/Concrete Wall Package". It consists of Sill Seal moisture barrier, custom fitted Pressure Treated Sill

Plates, Simpson tie plates with nails, Concrete Screws, and longer Anchor Bolts. These items will replace the wood foundation wall that is provided with the dome kit. The following instructions are only meant to give an overview of the process and are not meant to be all inclusive.

1. Following the “Layout for ICF Foundation” Diagram 2c-D1 and the “Laying Out Your Dome” Written Instructions” 2c-W1, you should have already staked the outer corners of the foundation wall at the correct distance from the center stake and the correct distance from the neighboring stakes.
2. Pull a line from the center stake marking the dome radius (usually with spray paint) and continue marking the dome radius out 24” short of the actual radius (12’ 10-1/2”) and continue marking this measurement in a circle. This is indicated by the yellow line on the “Layout for ICF Foundation” Diagram 2c-D1. Then take a measurement 12” further out from the radius and mark another circle. This is indicated by the blue line on the “Layout for ICF Foundation” Diagram 2c-D1. These will give you the approximate layout of the trench.
3. You will need to dig a trench as deep as your building codes require for the foundation of the foundation wall. Most prefab ICF’s are 12” wide, therefore requiring a trench approximately 36” wide. If you need a wider space, adjust the measurements as needed in step 2.
4. To aid in the placement of the foundation wall on the ICF foundation, you will want to place a stake (called an offset stake) 4’ or more outside the trench, at a distance that will not be disturbed by machinery. The line should run from the center and through the stake marking where the wall sections outer corners will meet (stakes from original layout). It will be used to reference the foundation wall radius, to ensure the foundation wall corners are all in the correct place relative to center.
5. After the trench has been dug and an optional footer poured, follow the stake layout detail to find the corners of the wall sections. These will be where the corners of the ICF meet. It should be in line with the offset stakes. Following the engineered plans, ensure that the corners of each point match the dome radius and each section. The below grade ICF foundation can be round (not recommended) if a separate layout and pour will be used for the above grade foundation wall.
6. Most building codes will require the below grade and above grade pours to be separate steps.
7. Since the foundation wall will be poured concrete, you need to decide on which “B” section will be the doorway(s).
 - a. The rough opening depends on the dome size. (See “Foundation Wall Assembly” Diagram 3-D1 for specific opening width.)
 - b. The wall height above the doorway opening needs to be 24” or the doorway framing will need to be modified.
 - c. Consider adding or planning for utilities at this point in the process.
8. **DO NOT POUR A ROUND FOUNDATION WALL.** If utilizing ICFs below grade and concrete above grade, we recommend using closed foam insulation against the wall on the inside above grade. The wall section lengths and corner radius points **need to be precise at this point** or the dome structure will not sit properly on the wall.
9. Before pouring the foundation wall concrete, verify the placement of the wall, ensuring that the dome radius is at the outer edge of the concrete in the wall at each corner point. Follow local building codes and contractor recommendations for rebar enforcement of ICF and wall sections.
10. After the concrete has set up, you will need to install the “ICF/Concrete Wall Package”. This is covered in Step 3 – “Foundation Wall Construction”. This will need to be installed prior to assembling the dome structure (Step 4a or 4b).

Growing Spaces can give you personal advice on your particular foundation and we are more than happy to consult on any aspect of installing your Growing Dome.