



## Frequently Asked Questions

### 1. How Much Does It Cost To Build A Dome?

This is dependent upon many things such as: steepness of the lot, whether it is owner-built, or contractor-built, etc., and this can vary tremendously from area to area. For instance, districts that have high union membership reflect somewhat higher building cost than more rural or remote areas. In short, Geodesic Domes can cost less than, or the same as conventional buildings. But, despite of how much you spend on your dome home, you have to realize you are ending up with a far superior product as compared to a standard building, as it is stronger, more energy efficient and more aesthetically appealing than a conventionally built home.

### 2. Can Domes Cost Less To Build Than Conventional Home?

Yes! The low cost of the dome shell as compared to conventional framing and the speed of construction, which lowers labour cost, gives you an edge over conventional home construction.

### 3. Why Would A Dome Cost Less To Construct?

Geodesic Domes cover a given floor area with the least amount of material. Basically, you are "doing more with less". Here is a simple way to describe this: If you were to lay two foundations, each being one hundred (100) sqm---the only difference being that one is of a rectangular shape and the other one is round---you would find the following to be a fact. If you were to add up all of the material in your rectangular foundation and let that represent X and then try to cover that foundation using any conventional type home and then add up the amount of material required to cover that foundation (disregarding the type of roofing you may use), whether it is an A-frame lean-to four (4) and twelve (12) pitch flat, etc., you would find that the amount of material to cover that foundation would be three times what you have in your foundation which was represented by X or 3X. Now, if you were to consider the Geodesic Dome foundation and add the amount of material that you have in it and let it represent X. Then proceed to cover that foundation with a Geodesic Dome and in turn, calculate the amount of material that you use in the dome you would find that this amount is only twice or 2X as much as you have in your foundation and the difference between these two means there is 30% less material in the Geodesic Dome as compared to the conventional building. Obviously, if you are using less material it will lead to lower building costs. This is the main reason why domes can

cost less. But the most effective approach to achieve substantially lower construction cost is some sort of owner/builder involvement. The obvious refutation to that would be, "Well, the owner/builder can save money on a conventional home too!" However, the dome model lends itself more readily to owner/builder participation than does conventional construction. In addition, the owner/builder can get a far superior house using a dome and should, therefore, be much more inclined to use the Geodesic Dome model rather than a standard structure. Obviously, the same earlier variations will again be true in this question. For example, regardless of how much less material one were to use, if the builder is inefficient, and it takes much longer to build, and he makes errors on the job, he can easily eliminate some of these cost benefits.

#### **4. What will be the Costs of the Individual Stages, such as Internal Cladding, Roofing, Etc.?**

Roofing and Internal Cladding are two separate stages on Geodesic Domes, which are more labour intensive than on conventional homes. They are not more complicated; they just take longer to complete. You are going to get a higher quote for your Internal Cladding per sqm on the dome than you do on conventional houses, but remember there is less surface area to cover than if you were covering the exact same square area in a conventional house. The easy part of the Internal Cladding is the dome shell. There are only three sizes of triangles, and a competent tradesman can do a great part of his cutting at one time, thus saving time and money. An experienced tradesman should install internal Cladding. By no means should either the owner/builder or someone in the industry be cowed by thinking that Internal Cladding is difficult. Again, it is not more difficult - it will simply take longer to do. Applying the roofing is basically the same answer - you will have to pay a higher price per sqm to put the roofing on a dome, but you have less external surface area as compared to a traditional construction. Remember, the roof of a dome generally also pretty much replaces any siding that you might have and quite often, though the cost of the roofing may be more, that higher cost is offset by the fact that there is much less siding to apply. With less siding - the owner will have lower maintenance costs, which is an added advantage. Due to variations in the prices of materials, all of your budget questions are difficult to answer. If your home is contractor-built, the contractor can give quotes on each phase of the work. If it will be owner-built, the owner must simply get the cost of his materials from his local stores.

#### **5. Who Does The Construction of The Geodesic Dome?**

Since all the components of KKK's Geodesic Dome Kits are either pre-assembled, predrilled, colour coded and cut to size they are assembled almost like a "Mechano Set"; i.e., they require virtually no skills except to follow the "Pictorial Assembly Manual" or they can be contractor-built, owner-built, or a combination of the two; i.e., the owner can do what work he is able to do himself. Supervised dome kit erection is usually available where needed.

#### **6. Do Domes Pass Building Codes?**

Yes, KKK's Dome kits are individually certified by a duly Licensed and Qualified Structural Engineer and the original structural analysis was carried out by the "Finite Element Method" using "Strand7" structural analysis software.

## **7. Will This Building be Acceptable to Our Building Department?**

Unfortunately, there is not a standard building code that applies to all parts of the world. Different countries apply different building codes. Because the building code requirements can vary even from one country to the next, we cannot be informed of them all. We will modify our building plans to comply with any requirements of your local building department. Some building authorities may require an architectural or engineering certification for non-standard structures, including domes. Unfortunately, architectural and engineering certification is only honoured on a country/state level but we can supply the calculations for your local certification. If your area is governed by a building department, we suggest you start by asking a few questions such as:

“What is required for an individual to build his own home?”

“Are there any special or additional requirements to build a non-standard home?” (don’t mention geodesic dome in your preliminary inquiries if you want to avoid the blank stares and the panic)?

## **8. What is the Resale Value of a completed Dome Home?**

It is very difficult to say because there are so many variations involved. As with any house, if it looks good and is well built, it will sell quickly. The few we know of which have been sold have sold quicker than conventional homes. The constant prospect of rising energy costs has led to increased popularity of domes, because the market is wide open for an exceptionally energy efficient house.

## **9. Is it Hard to Get a Loan on a Dome Home?**

Lenders are usually conservative and often not willing to take a risk on an atypical type of house. There are many lenders who have loaned on dome homes and you may need to shop around to find a lender who is receptive to the idea. If you own another home, there are definite advantages to refinancing it in order to get funds for building a new home. By using other collateral, including personal loans, you remove much of the added expense, paperwork and pressure associated with a building loan. You may also consider building your new home as you can afford the materials. Once the house is liveable, you can move in and save the amount that would otherwise be going to rent. Building a house in this manner could evidently take a longer amount of time, but substantially reduces the long process of loan repayments and interest.

## **10. How Do You Finance Domes?**

Domes are financed in the same manner as conventional buildings. Once you have your property selected and plans completed, you simply approach your bank or other lending institution for the building loan. The methods of doing this differ somewhat depending on whether there is an owner/builder or contractor involved, or a combination of both. More and more lending institutions are becoming dome minded. In the same manner as in conventional construction--you borrow from established lending institutions.

### **11. Does KKK Provide Plans for Construction?**

Yes, Kwicksset Konstruction Kits offers both a stock plan and a custom plan service.

### **12. Can a Client Draw their Own Plans?**

Yes, you can draw your own plans. But since most people live in "box" houses, they have a hard time utilizing the space in a dome. We can assist you in converting your ideas into reality. We can also work with your architect.

### **13. Are there any Different Requirements for the Foundation a Dome?**

The only thing unusual about the foundation is its shape. Because a dome structure is lighter than most other buildings, it has less loading on the foundation. Our building plans include the dimensions for a concrete slab foundation or a pier and beam foundation, but have to be designed by a Structural Engineer to suit the site/soil conditions.

### **14. How Does the Weight of Domes Compare with Standard Houses?**

Because of the reduced area of a dome, they weigh less than most other types of structures, while at the same time, remaining exceptionally strong. They are drastically lighter than a log home and much lighter than a timber framed house. Because of this fact, they can be easily supported on pier and beam in flood prone areas.

### **15. Can You Have Cellars/Basements with a Dome?**

Most definitely! You can use the same type of foundation with geodesic domes as you use in conventional houses.

### **16. What Kind Of Vapour Barrier Do You Recommend?**

Approximately one third (1/3) of the energy consumed by an air conditioner is used in extracting moisture from the house. The largest contributor of moisture is vapour through the walls and leaking air through cracks and seams. We recommend using a high quality house wrap/vapour barrier on the riser wall and infill panels. The wrap/vapour barrier allows moisture to escape while preventing air and moisture from entering.

### **17. Are there Problems with Moisture and Dampness in a Tightly Sealed House?**

Moisture will accumulate inside a house as a result of washing, cooking, showers, transmission of vapour through the walls and conduction of damp air into the house through gaps, etc. With air conditioning the moisture level will be controlled because the air conditioner extracts the moisture and condenses it at the evaporator coil. When the house is being heated, the moisture level will be controlled by the fact that as air is heated, its relative humidity (moisture) decreases. Moisture can accumulate inside a tightly sealed house that is not heated or air-conditioned if the windows are kept closed for many days. This will rarely be a concern, but opening a vent at the top of the dome's cupola, supplying a little heat to dry the air or briefly running the air conditioner, can control it. Here we like to point out that a fresh air heat exchanger is not required in our dome to control moisture, but it could be desirable for the removal of stale air.

Check it out here:

[http://www2.dupont.com/Tyvek/en\\_US/](http://www2.dupont.com/Tyvek/en_US/)

## 18. Can Domes be built in Heavy Snow load Areas?



**Definitely!**

## 19. Do Geodesic Domes Leak?

Yes, all buildings leak without a good roof.

## 20. Do You Need Custom Furniture For a Geodesic Dome?

The simple answer is **No**. The interior part of a dome is very similar to that of a conventional house, and furniture arrangement is basically the same.

[See Sample Floor Plan.](#)

## 21. Can Domes Have More Window Area?

Domes can have as much or as little as you want. State and/or federal law prescribe the amount of window or glass area that a home must have. For example, in some states you can only have 20% glass area relative to the total floor area of the entire house. This percentage varies from state to state, so check out what the rules are for your area.

## 22. How Do You Insulate Domes?

The domes can be insulated with the same methods as conventional houses.

## 23. Can I Leave a Dome Completely Open on the Inside?

Structurally, the answer to this is definitely yes. However, according to uniform building codes the answer would be no. In some areas to qualify for a certificate of occupancy, a structure must meet standard and local building codes and this requires dividing walls for kitchens, and bathrooms. In essence, you are going to have some dividing walls whether you desire it or not. Structurally, the dome is a completely self-supporting structure and none of the walls on the inside are needed to support the building itself. This freestanding characteristic is a great advantage since it gives you much more design flexibility than could be realized using a conventional design.

**24. Does Kwickset Konstruction Kits Provide Interior Walls?**

It is more efficient and cost effective to build walls on the job site than to do so in our factory. At present, we do not include interior walls with our kits although we can pre-cut interior walls and floor framing on an individual order basis.

**25. Can One only use Sheetrock/Gyprock to Line The Interior?**

No, a person can use any type of ceiling or wall covering.

**26. Are the Interior Walls Attached to the Dome?**

Yes, the walls are screwed to the framing of the dome.

**27. How does the 2nd Floor Attach to the Dome Shell?**

The second floor joists are set on top of Ledger Plates included with your Kit from Kwickset Konstruction Kits and are installed during the construction of the shell. In truss roof housing, there is usually an interior wall required to support the roof; but, because of the exceptional strength of our dome, we can do the opposite and use the dome shell to support the interior.

**28. How are the Plumbing and Electric Wiring Installed in the Walls?**

The interior walls are built the same way as conventional housing, therefore, the plumbing and electric within those walls will also be the same. When the drywall is installed, the wiring and plumbing are concealed.

**29. Are Domes More Efficient to Heat and Cool?**

The answer to this is a resounding YES! It is probably the greatest advantage of Geodesic Domes. The reason relates back to the earlier questions and answers regarding surface area in a dome. This transfers directly into savings because there is 30% less area for heat to escape. Very simply, if you are going to have 30% less surface area to heat and cool, you are going to have about 30% in energy savings.

**30. What Types of Heating Systems can be used in Domes?**

You can use any type of heating system in Geodesic Domes that are used in conventional homes. Some of those can be Baseboard, Electric, Radiant Heat, Forced Air, Solar, etc. One thing to keep in mind in all construction questions related to domes is, for the most part, that you can do anything inside a dome that is being done inside a standard home.

**31. Can You Put Fireplaces In Domes?**

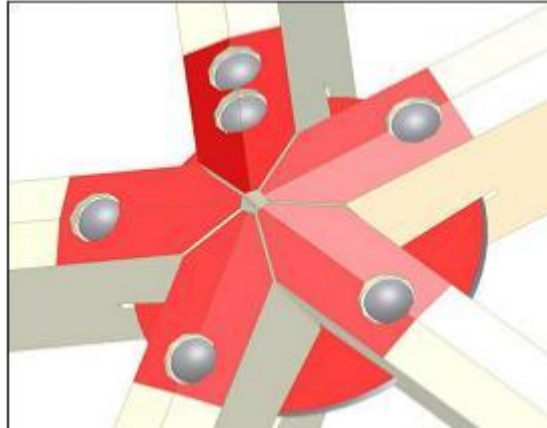
Yes, any type of fireplace used in a conventional home can also be used in a Geodesic Dome, whether it is stone or freestanding.

**32. Can Domes be Joined?**

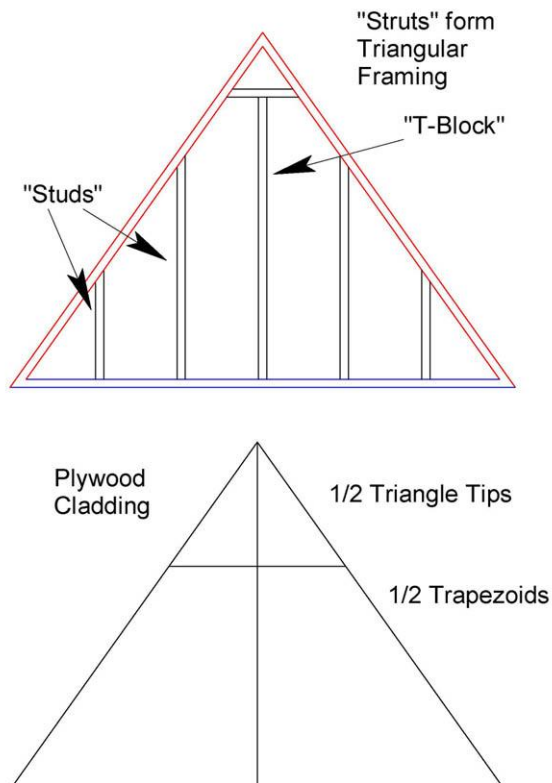
On a geodesic dome, there are five (5) locations where you can install a doorway. At any of these locations, you can connect another dome by joining doorways together. This option can also be provided as a kit.

## GLOSSARY OF TERMS

- **Dome Geometry:** Refers to the portion of a complete sphere, i.e. 3/8, 5/8.
- **Hub and Strut Connection**



- **Hexagon Triangle:** One of six triangles, which form a hexagonal building component in a Dome shell.
- **Pentagon Triangle:** One of five triangles, which form a pentagonal building component in a Dome shell.



- **Trapezoidal Opening:** Refers to the open section in a Dome shell where conventional doors and/or windows can be inserted.
- **Extension:** Refers to the overhang, which covers a trapezoidal opening allowing for vertical framing to be built in place. Extensions are also available as a kit.
- **Riser Wall:** Pre-assembled knee wall used to elevate the Dome shell allowing for increased 1<sup>st</sup> floor ceiling height. Applies to Domes 35ft diameter and less.
- **Skylights/Roof-Windows:** Acrylic skylights of different sizes and shapes which can be installed in Dome panels or at the vertex of panels.
- **Skylight Curbing:** Pre-cut wooden curb or pre-assembled box which is fastened to the Dome shell and flashed into the roof. Skylights fit over the curbing.

### # Structural Integrity & Flexibility...

Since Geodesic Domes are factory manufactured to exacting standards using triangular networks forming hexagons and pentagons, this method provides for a free-span, self-supporting structure requiring no internal supports, such as a roof load-bearing partition wall. This allows for maximum flexibility of roof floor space design, utilizing more interior space, and future expansion. Domes are stronger and safer homes and have proven to withstand tornados, hurricanes, and earthquakes far better than ordinary, conventional box homes. All the space you pay for is usable, providing complete flexibility for placement of interior partitions, fixtures, and furniture.

### # Energy Efficiency...

Domes are highly energy efficient in two ways. First, compared to a common rectilinear home of equal floor space, a dome home has` approximately 30-50% less roof and wall area exposed to the elements. This reduction in surface area results in a reduction in energy costs for heating and cooling. Second, the spherical shape of the dome facilitates natural air flow yielding more even temperatures, reducing air stratification, minimizing cold spots, and maximizing overall interior comfort.

### # Affordability...

Geodesic Domes provide the greatest amount of floor area and volume with the least amount of surface area, drastically reducing the quantity of building materials required. In addition to this there are savings in construction cost, reduction in interim financing and interest expenses, and as much as 30-50% savings in on-going energy cost.

Also, Dome Homes continue to provide excellent cost cutting opportunities for the do-it-yourselfer.

[Domes](#)

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