

BUILD YOUR OWN GEODOME



GROW FOOD YEAR ROUND - EVEN IN THE DEAD OF WINTER

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INTRODUCTION

I want to congratulate you on taking a real step towards self-sustainability. We live in a world where anything you want is just around the corner. We've been spoiled by grocery stores providing cheap, plentiful food all year long. For many people, excess food is a real problem leading to health and weight conditions.

No one stops to think about what they're buying or what would happen if the grocery stores suddenly stop supplying food.

For some, this sounds ridiculous, but for me and those who see the writing on the wall, preparing for such emergencies is one of the most important things you can do for you and your family.

Most people don't think it's worth it to grow their own food, but in a real crisis it may be your only option. And if you don't prepare now, it might be too late. Through 2020 and 2021, you've seen a preview of how this looks... seen why it's so important to prepare yourself.

That's why it's so important to be able to grow fresh produce all year long: that's where greenhouses come in.

Before we dive into the type of greenhouse I recommend and how to build one yourself, I want to cover a few reasons I think you should get started right away.



ECONOMIC CRISIS

First, I want to start by talking about the coming economic crisis. This is the main reason I feel so passionate about growing my own food. Some very smart people predicted the financial turmoil of 2008, and some analysts are predicting something far, far worse is to come. Worse than even The Great Depression they say.

You don't have to agree with them - but you should understand how easily things can fall apart. Let's go back for a moment to 2008, when our entire economy should have collapsed. But the government and the bankers didn't want that - just yet.

So the federal reserve started printing billions of dollars and flooding the market with extra money. The bailouts everyone was up in arms over in 2008 were just the beginning. They never stopped bailing out the economy. They've been printing each and every month and manipulating things behind the scenes to make everything look normal - or even positive.

But in reality, this is just delaying the inevitable. We are too far in debt to turn back. Eventually, some say in the next few years, the house of cards is going to collapse. And when it does, you better be prepared.

I don't want to dive too deep into this in a greenhouse book. And I don't expect you to just take what I say and believe it, but I invite you to do some research and find the truth yourself

RISING FOOD PRICES

Like I said in the previous section, the banks have been flooding the market with new money. And this extra money will increase the rate of inflation. And the things that are most affected by inflation are things that have real value, like food.

So don't be surprised if a few years from now your grocery bill is doubled or even tripled compared to what you're paying today.

By growing your own food you won't have to worry about rising food prices to keep your family fed

DEGRADING FOOD QUALITY

Finally, the last major reason I believe everyone should grow their own food is that food just isn't what it used to be. No longer are there small family farms growing high quality food by hand. They've been replaced by gigantic commercial farms whose only concern is profits.

This has led to food with questionable nutritional value. The use of unnatural fertilizers, pesticides and genetically modified foods is now the norm. But that doesn't stop these commercial farms because it helps them make more money.

Even if you buy organic (which is usually double the price) you still can't guarantee the quality you get from fresh, home grown produce.

These are just three from a long list of reasons you should start growing your own food as soon as possible. In the next section I'll show you why I grow everything in a Bio-Dome, and why you should too.

Benefits of **BIO-DOMES**

There are many different types of greenhouses. Many of which you can go down to the local hardware store and purchase pre-made. Unfortunately, these pre-made products can cost a fortune, and with everything built so cheaply these days, I wonder if they'll even last a single season.

After a lot of research, I've concluded the best type of greenhouse is a Geodesic Dome.

As seen in the photo above, a geodesic dome is a spherical shell structure based on a network of triangular elements that increase rigidity and distribute stress across the whole structure.

It was first invented after World War I by Walther Bauerfeld. It was later popularized by the famous scientist Buckminster Fuller, who coined the term Geodesic Dome. Let's cover why the Geodesic Dome is the best structure for your greenhouse:

01

IT'S STRONG -

The Geodesic dome is one of the strongest structures known to man. With just some wood you pick up and your local hardware store, you can build a structure that can potentially withstand hurricanes, tornadoes and even earthquakes.

02

SIMPLE TO BUILD -

With just a saw, some wood and nails you can build your very own dome. And because it's basically repeating triangles, you don't need special equipment to assemble it in your backyard.

03

GOOD FOR HEATING -

The spherical shape of Geodesic Domes is perfect for capturing and distributing heat evenly throughout the structure. Warm air rises in the center and it's redirected downward around the walls. It's the best possible shape for an efficient greenhouse.

04

CHEAP TO BUILD -

Compared to pre-made greenhouses you'll find in stores, a Geodesic Dome is extremely cheap to build. In fact, you can build a complete, 30 ft. wide dome for less than a few hundred dollars.

05

GOOD LOOKS -

Geodesic domes look incredible inside and out. From the outside it looks like a piece of art. And once you step inside you'll be amazed at how open it feels.

These are just a few benefits of a Geodesic Dome Greenhouse. And it's the best place to grow potatoes, to keep your aquaponics system, or plant a regular garden. Next, I'll show you just how easy it is to build your very own Geodesic Dome.

Building the **BIO-DOME**

Geodesic domes can be built at any size, but for the simplicity of this book, I've decided to choose a size that will work best for most people. This will give you a working diameter of approximately 15 ft. and a height of 7.5 ft.

Any bigger and you'd need to build scaffolding to construct the top of the dome. Any smaller and you wouldn't have enough space to stand inside. Next up is the materials you'll need

WHAT YOU WILL NEED:

WOOD:

- Triangles
(1200 ft. 1x2s untreated wood)
- Base
(50 ft. 2x8 untreated wood)
- Door Side Panel
(1 8x4 ft. ½ inch Birch faced plywood)
- Door Frame
(33 ft. 2x2 ft. untreated wood)
- Door Frame
(7 ft. 2x4 ft. untreated wood)

ADDITIONAL ITEMS:

- High-Quality Plastic Wrap
(600 square metres at minimum)
- 2 Boxes (200/box)
of 4x60 SPAX™ screws
(creating triangle frames)
- 4 Boxes (200/box)
of 4x40 SPAX™ screws
(connecting frames together)
- Wood Glue
- Polytunnel Repair Tape
- Silicone Sealant

TOOLS

- A Dual Angle Miter Saw
- Power Screwdriver
- Staple Gun



Building Your Bio-Dome

STEP-BY-STEP

01

PHASE 1: ASSEMBLE THE TRIANGLES

Take a piece of plywood and draw a very accurate template for the sizes of triangles we will be building. This will be the template we'll use to keep all the triangles the same size.

Next we'll cut wood for our first HEX triangle. Cut 2 pieces of the 1x2 inch wood, 38 inches in length, then cut another piece 37 inches in length.

Plane one side of each of the boards using a Miter Saw.

Now cut one end of each of the pieces on an angle. (Planned side on bottom of diagram)

Align the cut pieces on the HEX triangle you drew on the plywood. Once it's aligned, screw the pieces together. You may need someone else's help to hold the boards in place. Cut the excess off each of the corners. Make sure the final triangle fits exactly within the drawn triangle.

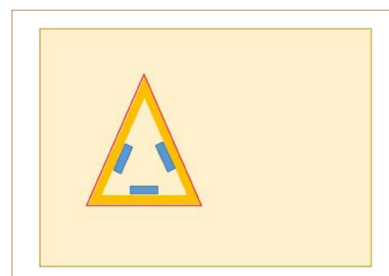
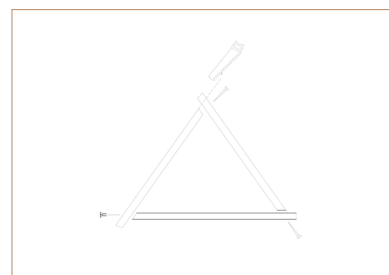
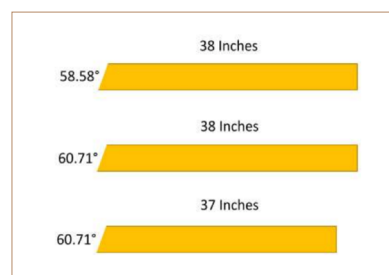
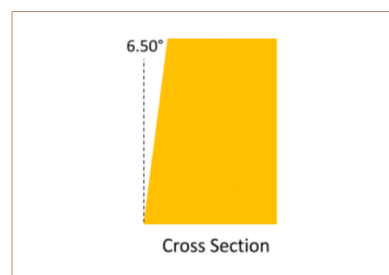
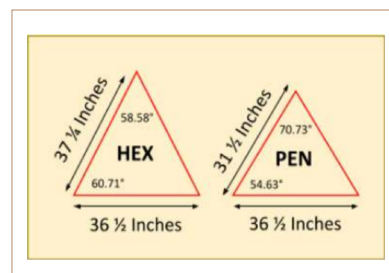
In this step we are going to screw in a few blocks of wood to create a jig. Make sure they are very accurate as this will serve as a template for all the triangles.

Remove the completed triangle and flip it to see if it still fits in the jig. This will ensure that your triangle is symmetrical.

Now repeat steps A to G for the PEN sized triangle. Make sure to use the new lengths and angles.

Once you've completed both triangles, make sure the base of both the HEX triangle and the PEN triangle are exactly the same size. If they are, go to the next step. If they do NOT fit, you'll need to fix your triangle templates before you continue.

Now use the templates you created to make 69 HEX triangles and 30 PEN triangles. This is by far the most time-consuming part of the build.



02

PHASE 2: JOIN TRIANGLES INTO LARGER SHAPES

Align 3 HEX triangle frames upright with the bottom (the differently-sized side) resting on the floor. It's very important that you join the equal length sides together, or you'll compromise the structural integrity of the dome.

After you've aligned the 3 triangles, connect them one by one using waterproof PVA glue, placing wood screws as shown on the diagram to permanently join the triangles. It's best to clamp the pieces together before adding screws to keep everything completely aligned.

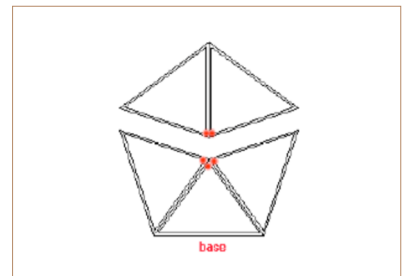
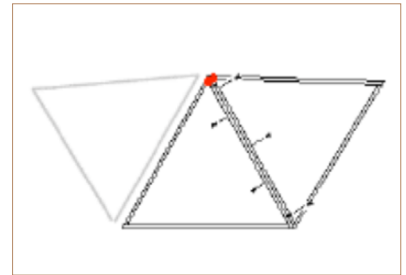
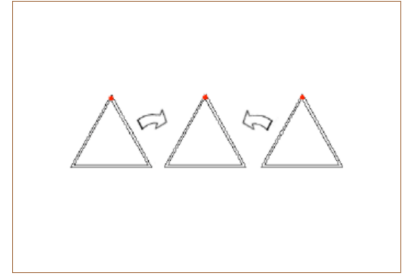
Here's what you should have when you're done.

Repeat the previous steps for all the remaining HEX triangles.

Using the image guide on the right, form the PEN triangles into two shapes, connecting the individual triangles using wood glue and screws.

Continue until all the triangles have been used.

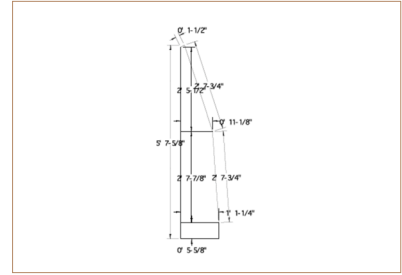
Don't join the HEX and PEN shapes just yet, first we need to stain the wood and add plastic wrap.



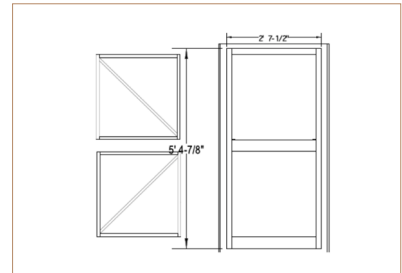
03

PHASE 3: CONSTRUCT DOOR & DOOR FRAME

Cut the side panels using 1/2" birch faced plywood, using the attached metrics as a guide.

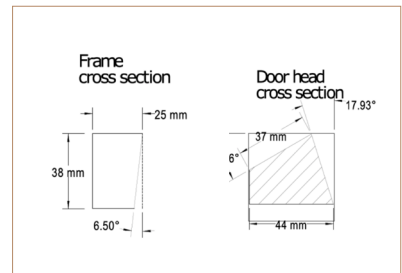


Construct the doors with 2x1" wood lengths, following the guide on the right. Jump down to Phase 6, and wrap the squares with plastic wrap.

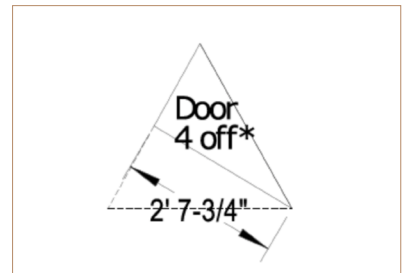


Join the squares with glue and screws.

The final step is to cut door posts using 3"x2" wood.

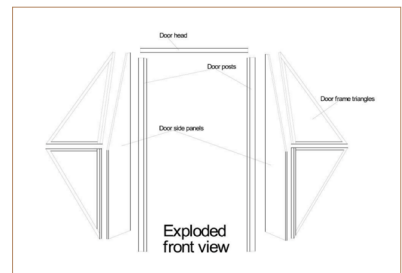


Make sure to trim posts using the angles provided to match the rest of the sphere.



Make 4 door frame triangles using the measurements provided.

Here is what the final door and frame will look like:



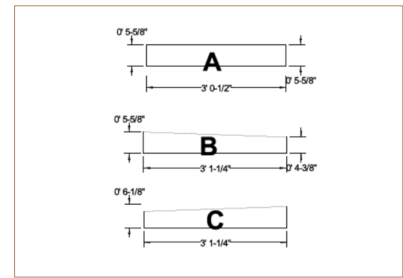
04

PHASE 4: MAKE THE BASE

Cut the side panels using 1/2" birch faced plywood.

Cut both sides of each piece at a 12° angle to allow them to form a circle when assembled.

The final base will be assembled in a circle in the following configuration - don't build it just yet.

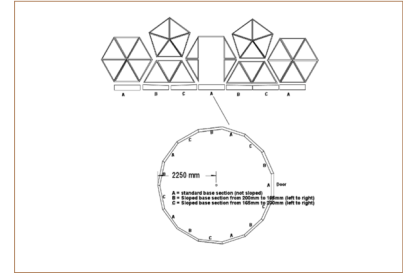


05

PHASE 5: STAIN WOOD

Sand all the corners and edges of your triangles and doors so the plastic wrap we are adding in the next phase doesn't rip.

Use a roller to stain the wood. Even though we will be wrapping the wood in plastic, there's still a lot of moisture inside the greenhouse and we want this thing to last. You can use any stain you want, just follow the drying times provided.



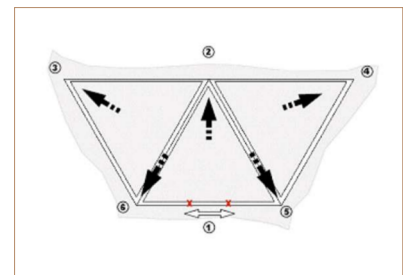
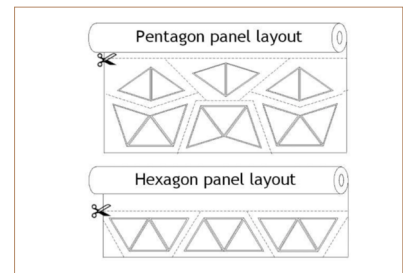
06

PHASE 6: WRAP IN PLASTIC

Unroll and cut plastic wrap to fit HEX and PEN frames, allowing 2-3 inches of overlap.

Use a staple gun to secure the plastic wrap at position 1 with two staples. Pull the film firmly to position 2 and staple. Continue to positions 3, 4, 5 & 6. Remember to fold the edges neatly and staple in position. Try to make it as even as possible.

Use a knife to trim away the excess plastic. (Don't forget to wrap the door and door frame triangles before their final assembly.)



TIP:

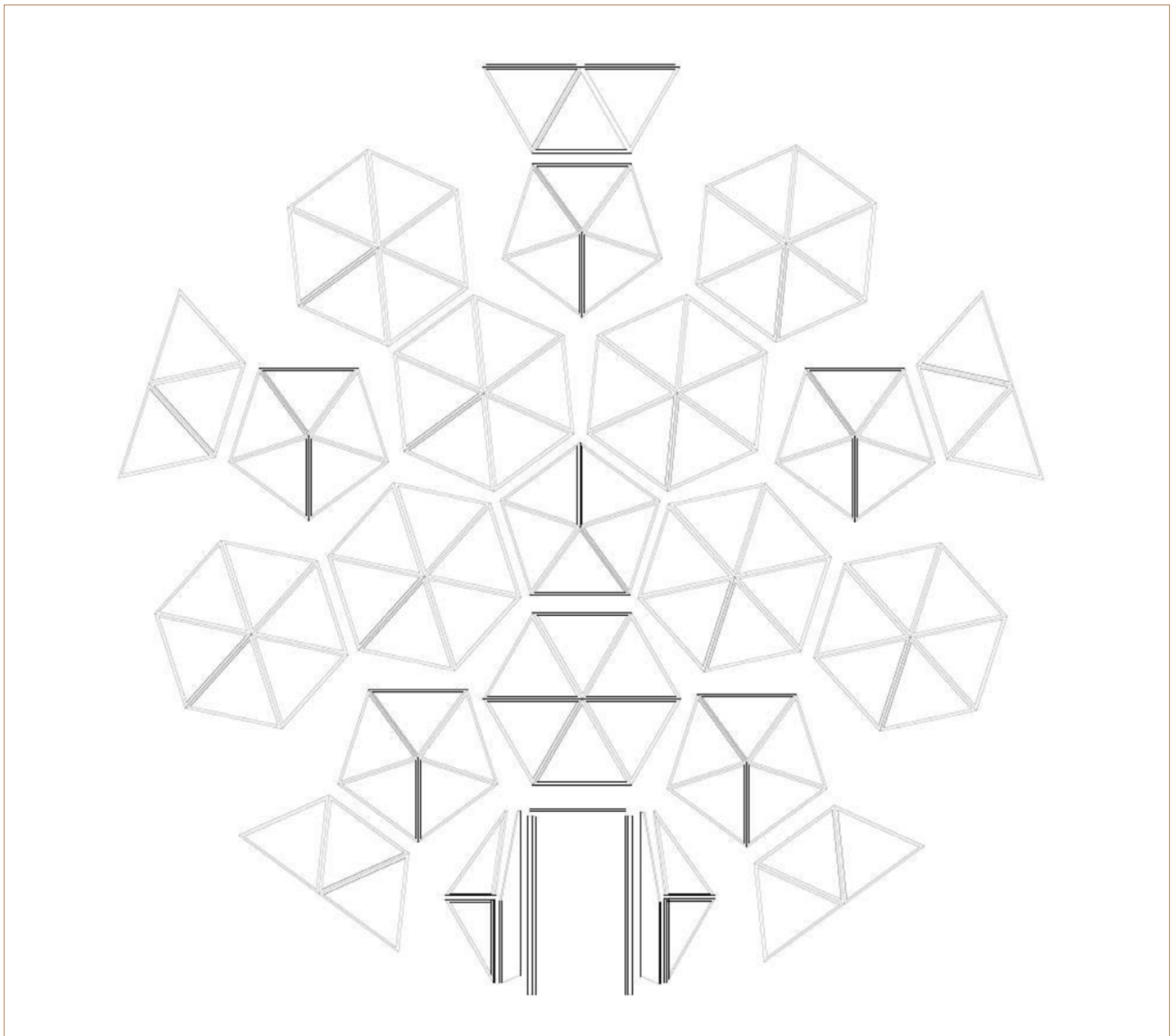
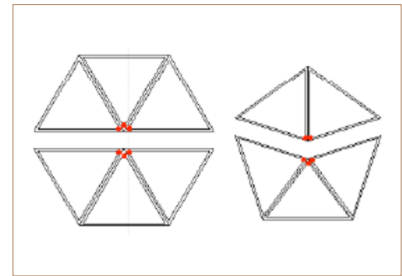
- It's best to do this on a warm day so the film stretches when warm.
- Pull the wrap as tightly as possible without tearing to get a drum like fitting
- Staple every 1 ft. about 3" down. The staples will be covered by tape during final assembly.

07

PHASE 7: COMPLETE HEX AND PEN SHAPES

Join the plastic wrapped shapes into their final HEX and PEN shapes with glue and screws.

When you're done, you should have these completed pieces.



08

PHASE 8: BUILDING THE DOME

Place a stake in the ground in the center of where you plan to build your Bio-Dome. Remember, it will be 15 ft across, so make sure you have enough room.

It is ideal to build your Bio-Dome on a tarmac or concrete slab. See Phase 9 for details

Place the base sections on the ground starting with an "A" section where the door will be. Screw them together.

Work your way around the base, fitting the 5 full HEX panels and 4 half HEX panels in place to complete the first layer. Make sure to start at the door frame. Use screws to fasten pieces. Start with 2 screws each and don't over-tighten yet, you may need to adjust alignment as you work your way up.

Next, add 5 more PEN panels on top of the first row as seen in the diagram.

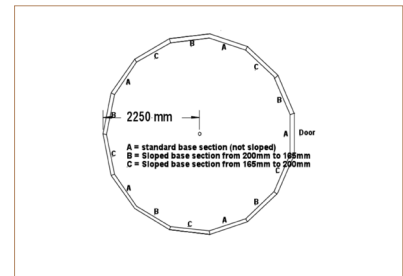
Fit the top 4 HEX panels. Again, don't over-tighten, you want to be able to adjust for the final PEN panel.

Fit the door panels in place and the door frame.

Once everything is aligned, place the final PEN panel and tighten all screws.

Place silicone sealant across all the structure's joints. Wait until the sealant sets.

Once the sealant has set, place polytunnel repair tape on all the joints to strengthen the structure and seal the joints to withstand weather.



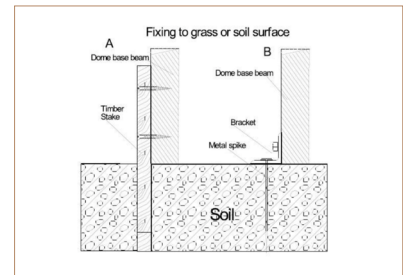
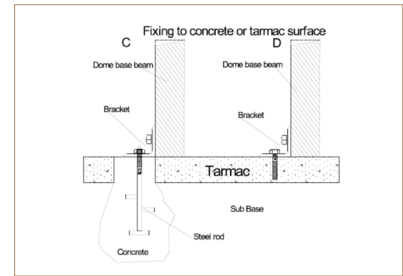
09

PHASE 9: FIXING THE DOME TO THE GROUND

It's crucial to fix the dome firmly into the ground to prevent it from being blown away, and to strengthen the structure.

It's best to secure your Bio-Dome to tarmac or into concrete to improve resiliency.

Alternatively, you can fix it to the ground using wood or metal stakes



10

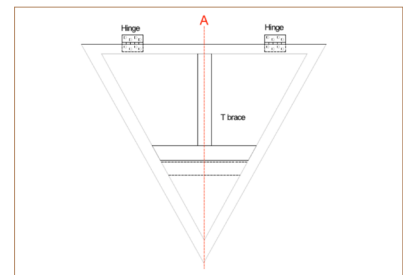
PHASE 10: INSTALLING DOORS & WINDOWS

Install the door using 2 hinges and some screws.
(Optional: Add a door handle of your choice.)

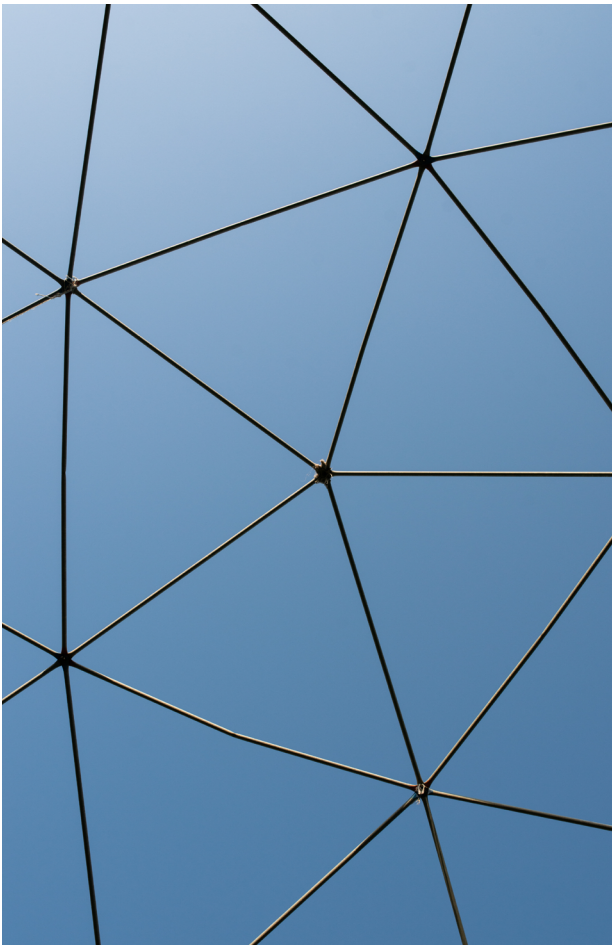
Windows allow venting in summer months to prevent overheating plants in your Bio-Dome. The window frame is made in the same way as the original triangles, but attached with hinges so that it can be opened as needed. Remember to cover window frames with plastic wrap.

Attach the window frames on top of the structure using 2 hinges and some screws.

It's best to install an automatic window opener to automatically open windows as it gets warm.



CONCLUSION



And there you have it. You now know exactly how to build your very own Bio-Dome that you can use to grow food year round.

I hope you take what you learned today and share it with others. We need to work together to get through the coming crisis.

Again, I want to thank you again for taking action and I hope you start growing your own food right away. Whatever happens, it's never too early to get started.