

The background features abstract, overlapping green geometric shapes in various shades of lime and forest green, creating a modern, layered effect. The shapes are primarily triangular and polygonal, with some thin white lines intersecting them.

Sketchup as an Aquaponics Design Tool

Tricks for a Simple and Effective Design

Peter Hill, Certified Aquaponics Designer

Bio- Peter Hill

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- ▶ Owner- Sustainable Design
- ▶ Adjunct Professor- Anne Arundel Community College near Annapolis, MD
- ▶ Certified- Practical Aquaponics Designer with Murray Hallam
- ▶ Member- American Society for Horticultural Science
- ▶ Member- Aquaponics Association Affiliate
- ▶ Designer- Sketchup
- ▶ Contact- Grow@SustainableDesign.Farm

Cell: 804-690-1358



Why are you growing with Aquaponics?

- ▶ Family- Concerns about Healthy Food?
- ▶ Family and Community- Scarcity?
- ▶ Farmers Market- Extra Cash?
- ▶ Restaurants- Farm-to-Table In-Demand!
- ▶ Grocery Chains- Organic In-Demand!



Aquaponics Farm- Where on your land?

- ▶ Is your site level?
- ▶ Is there shade?
- ▶ Do you have road access?
- ▶ What is your region and zone?



Aquaponic Farm- Footprint

- ▶ Level Land
- ▶ Greenhouse
- ▶ Production



End view of
greenhouse



Aquaponics Farm- Economic Model Determines Size

- ▶ Production Requirement for Income
- ▶ Location
- ▶ Greenhouse
- ▶ Labor
- ▶ Regulations
- ▶ Contracts

Finance Determines Size- So lets design!



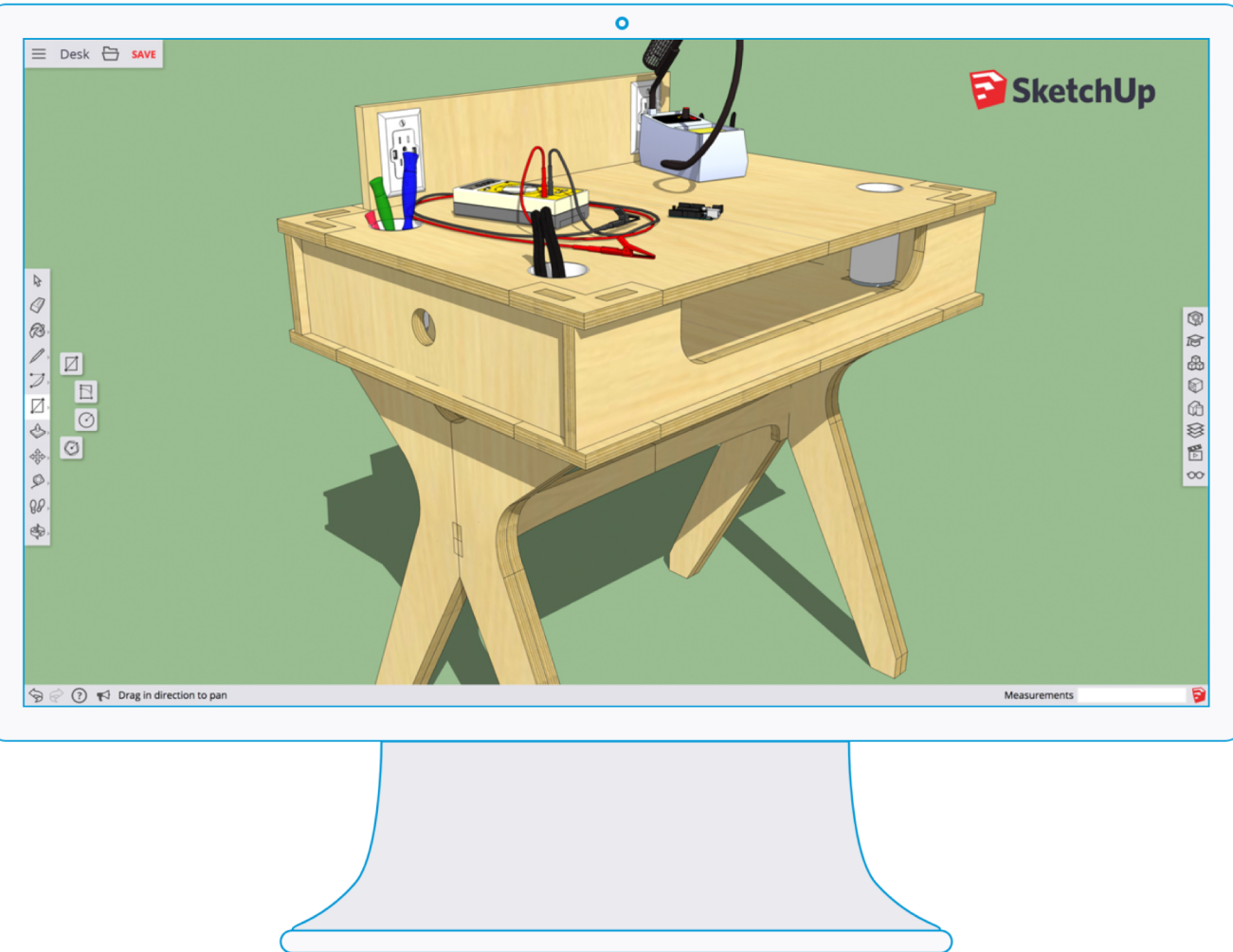
Aquaponics Farm- Sketchup Free as a Design Tool

- ▶ Download the Free Software
 - ▶ Subscribe if it makes sense, I do.



SketchUp
Computer program





What is SketchUp Free?

SketchUp Free is the easiest way to draw in 3D, now delivered in a web browser. Draw, orbit, push-pull: make anything you can imagine, however you envision it.



Simple is powerful

SketchUp Free is the simplest, easiest-to-use free 3D modeler around. You don't need thousands of buttons and dropdowns for 3D drawing: you do need space to draw.



3D for Everyone

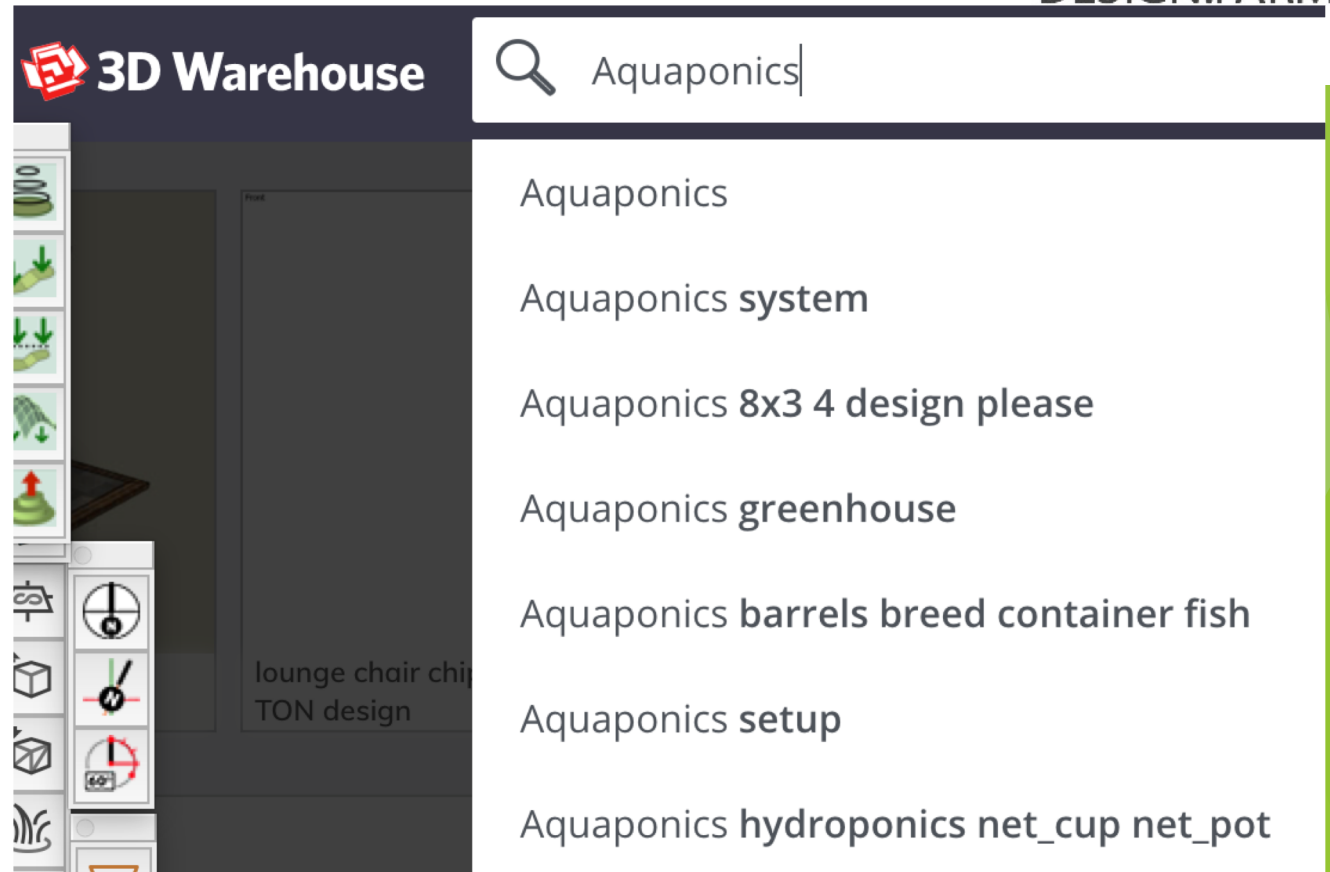
SketchUp Free is the most accessible SketchUp we've ever created. It loads in modern web browsers on any operating system, so you can model on Chromebooks and Linux today. And SketchUp Free is versionless: you're always using the fastest, most up-to-date iteration.



Aquaponics Farm- Sketchup 3D Warehouse



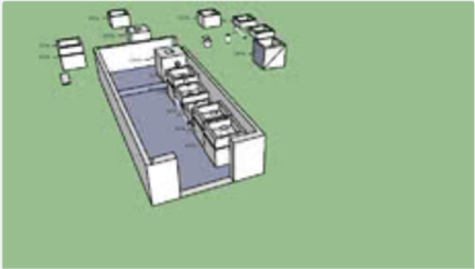
- ▶ 3D Warehouse
 - ▶ Aquaponic Systems
 - ▶ Free Designs



Here are your results (161 items found)

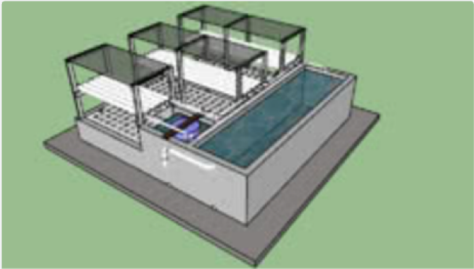
MODELS COLLECTIONS

Sort by: Relevance



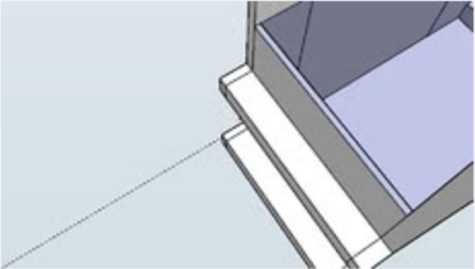
Aquaponic System

Nikola Z. 46



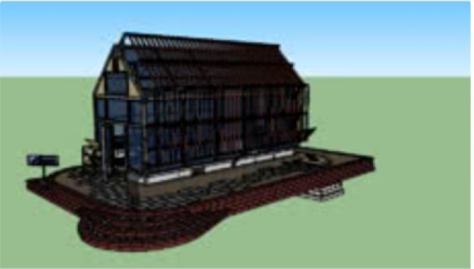
Aquaponics System

Colourful I. 468



Aquaponics System

Ben L. 21



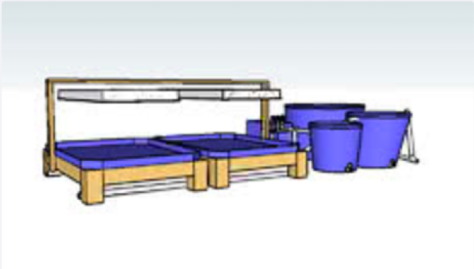
Aquaponics System

Ziggy 919



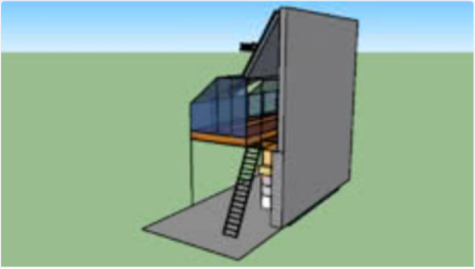
Aquaponics System

Pierre G. 26



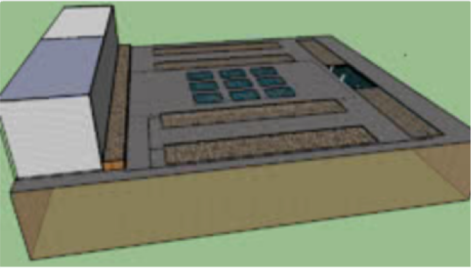
Aquaponic System

crazyshop2214 315



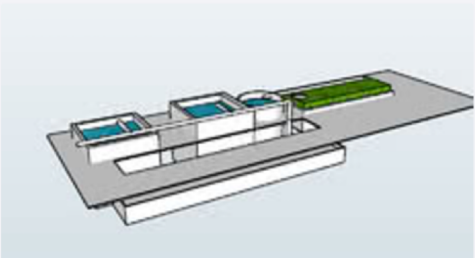
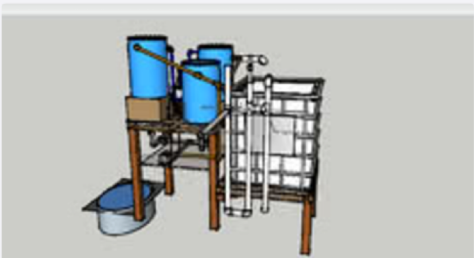
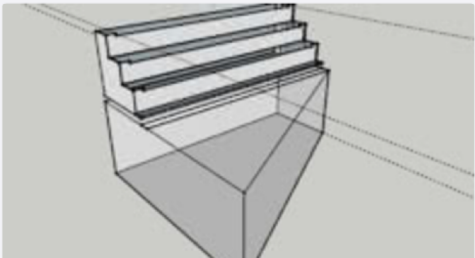
Aquaponic System

Rahel D. 157



Aquaponic System

Joshua D. 140



Aquaponics Farm- Geo-location

- ▶ Geo-locate on your property
- ▶ Geo-locate onto Google Earth



Sustainable Design Solar Angle Analysis

Summer Solstice 6/21



GROW@

SUSTAINABLE

Looking North East - Shadows

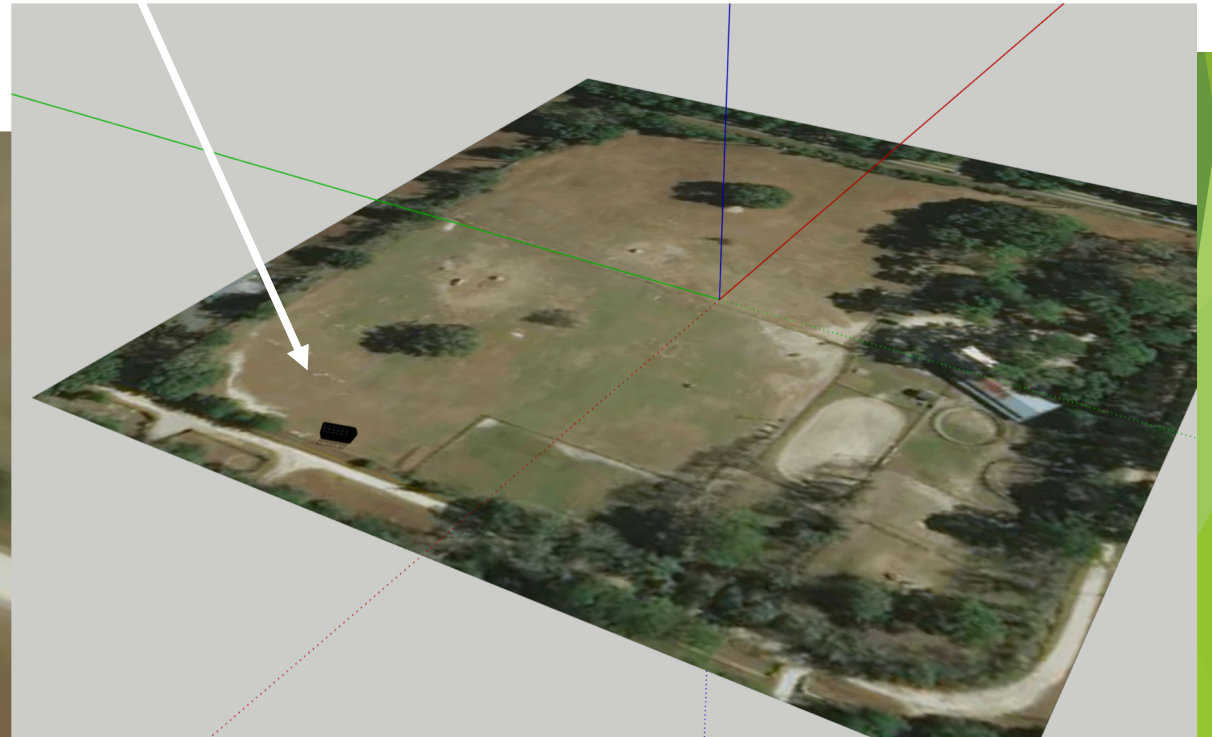
128 Ft² Farm

Happy Trails Property DESIGN.FARM

8:00 AM



5:00 PM



Aquaponics Farm

Pulling it all together

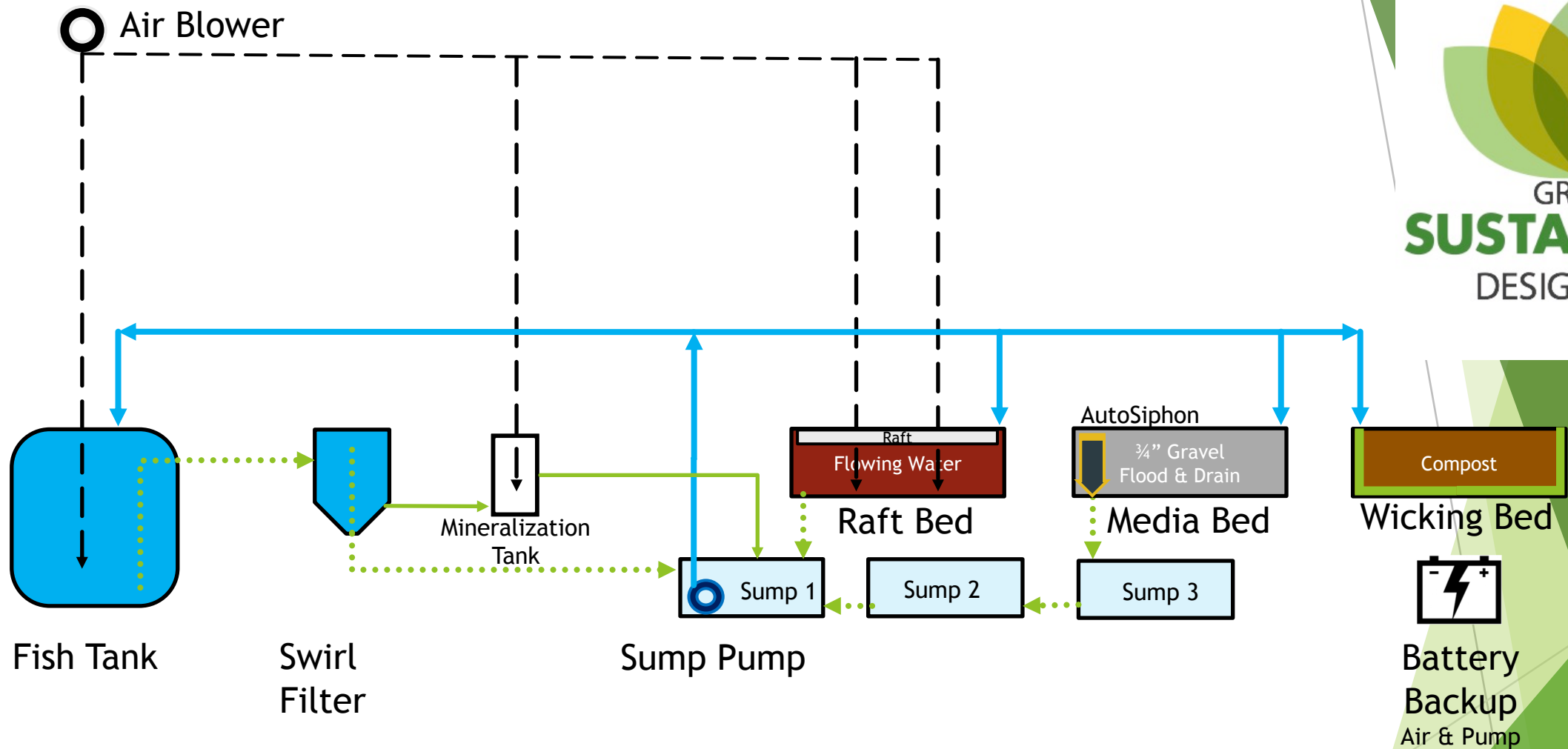
- ▶ We have our economic analysis
- ▶ We have our free software
- ▶ Lets get started!
 - ▶ Fit the Aquaponics Farm to your available site
 - ▶ Start with BLOCK FIGURES to determine initial layout
 - ▶ Identify equipment list for build or order
 - ▶ Apply for permits
 - ▶ Contract for fabrication, installation, and startup
 - ▶ Develop operation plan to meet finances



Aquaponic Farm **Design Basis-** 'Practical Aquaponics' by Murray Hallam

- ▶ FloMedia CHOP2 has a proven production scalability
- ▶ Media Beds are expandable to any size
- ▶ Fish Tanks are adapted to fit Farm
- ▶ Swirl Filters and Sumps are scaled to Farm
- ▶ Major materials are wood and fiberglass





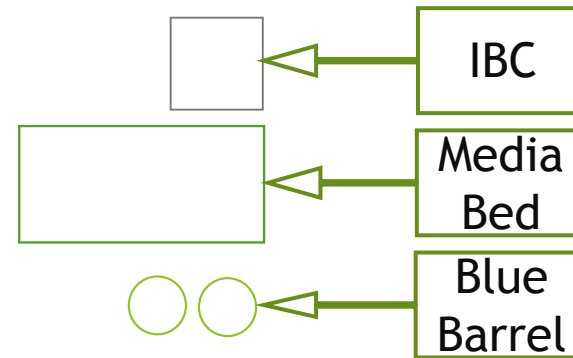
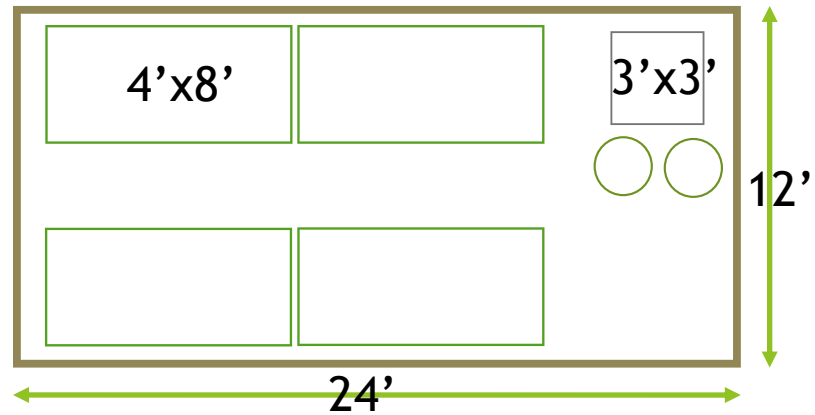
128 ft² Grow Beds
 Aquaponic FloMedia Diagram
 using CHOP2 design by Hallam

Info@SustainableDesign.Guru

Drawn by Peter Hill for Practical Aquaponics end-of-course
 project certification requirements

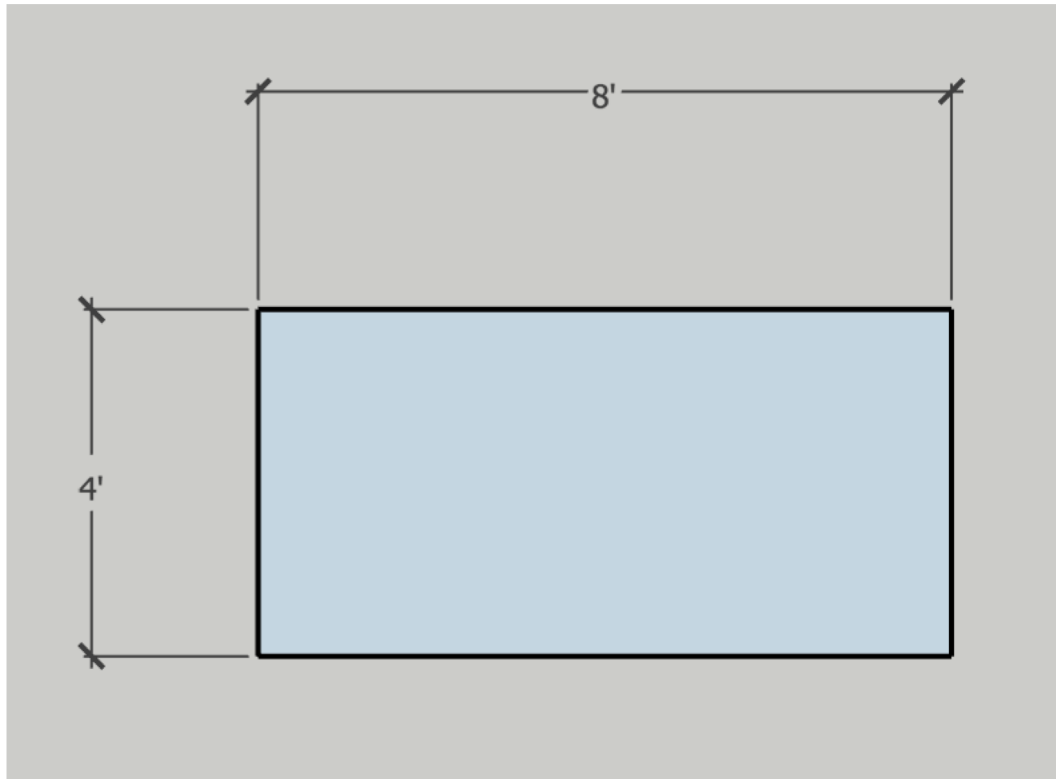
9/20/18

Family Farm Layout Concept

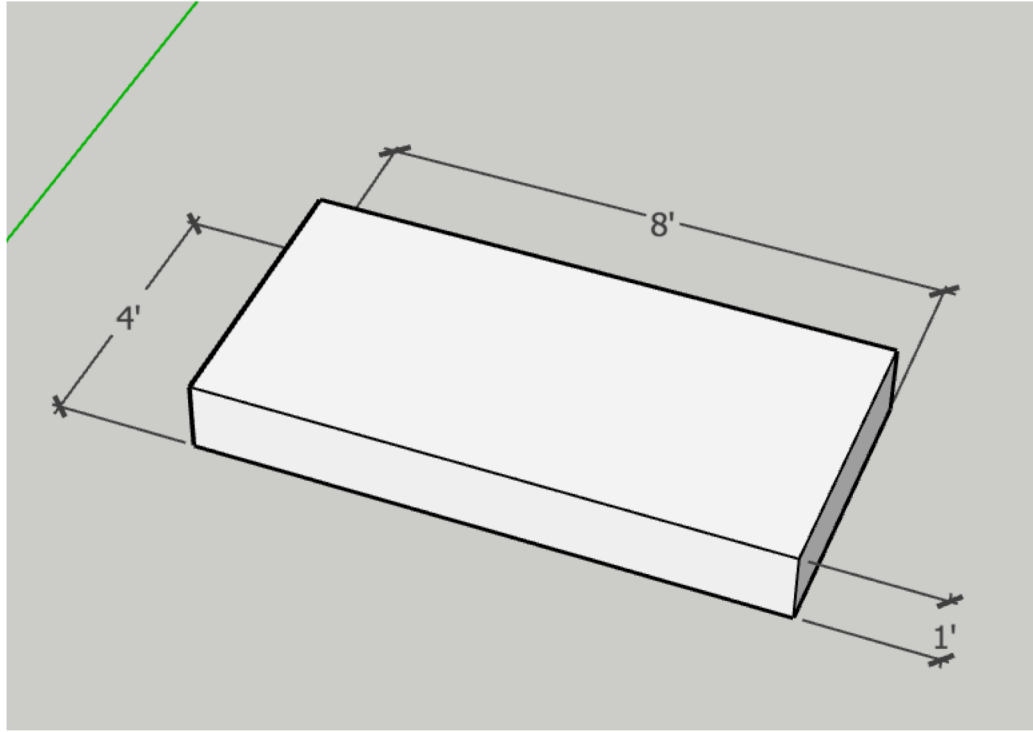


Steps to Design in SketchUp-

Start with a 4'x8' Rectangle Media Bed

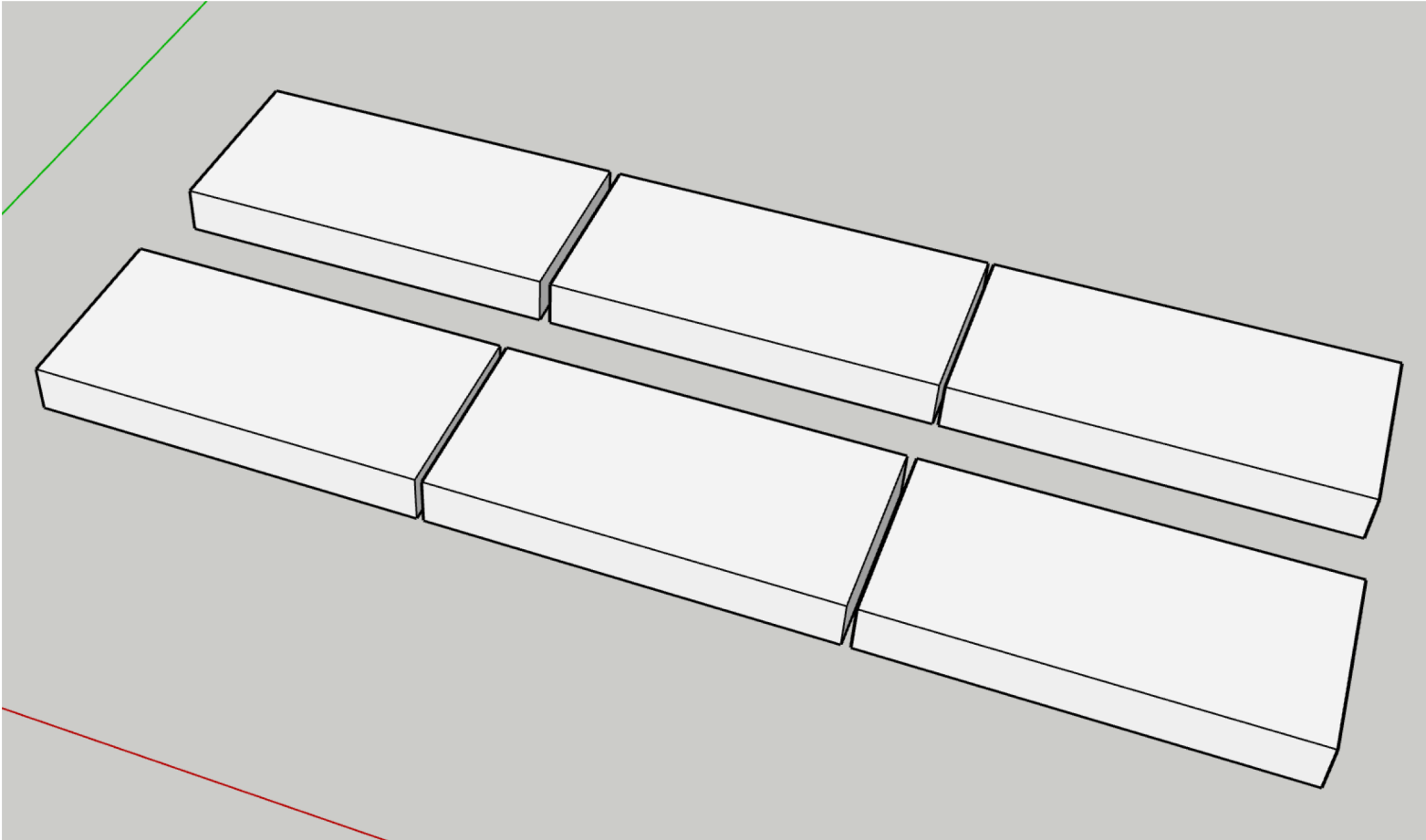


Steps to Design in SketchUp- PushPull to 4'x8'x1' Cube



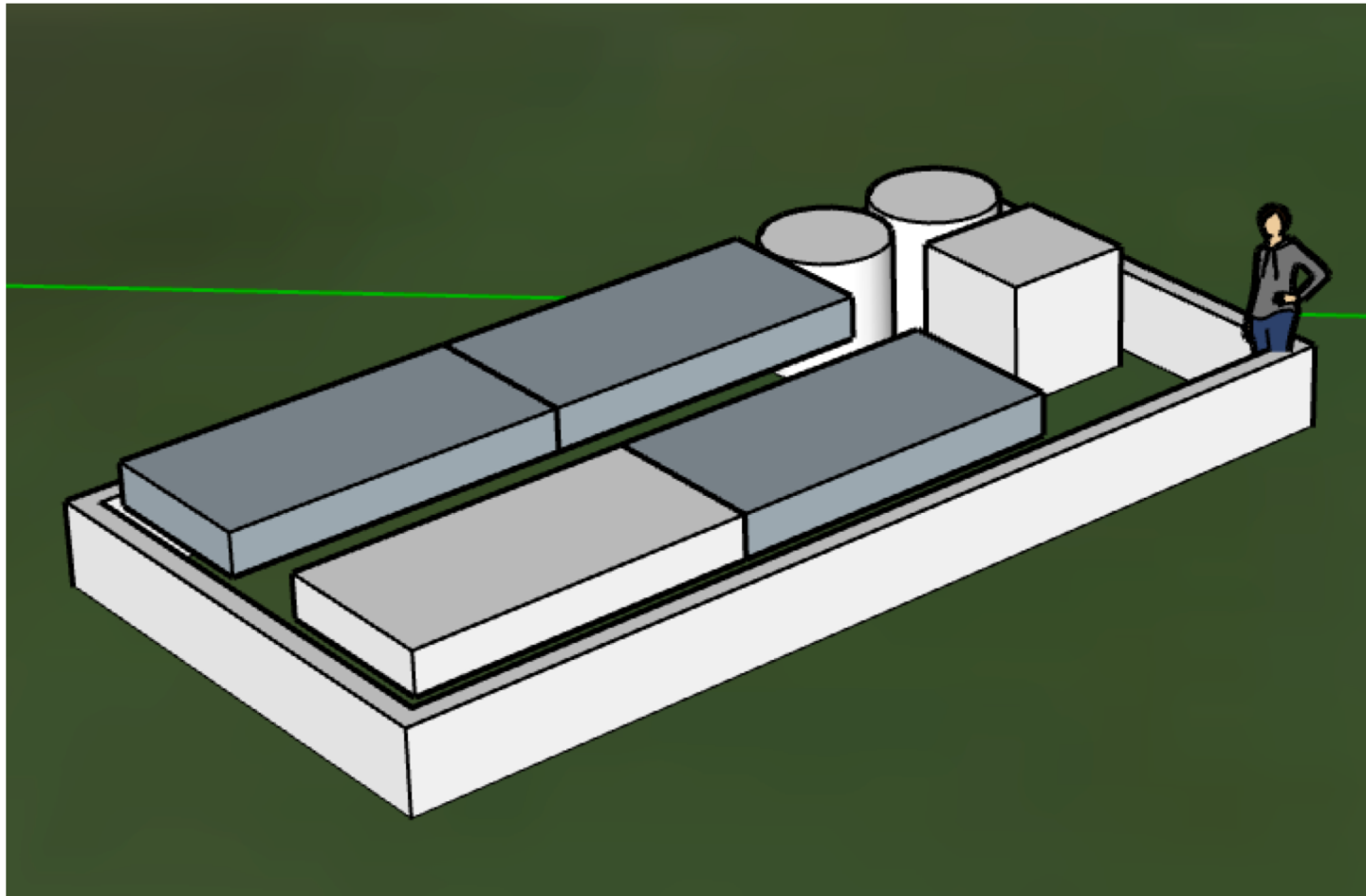
Steps to Design in SketchUp-

Copy 4'x8'x1' Cube to meet Farm Size

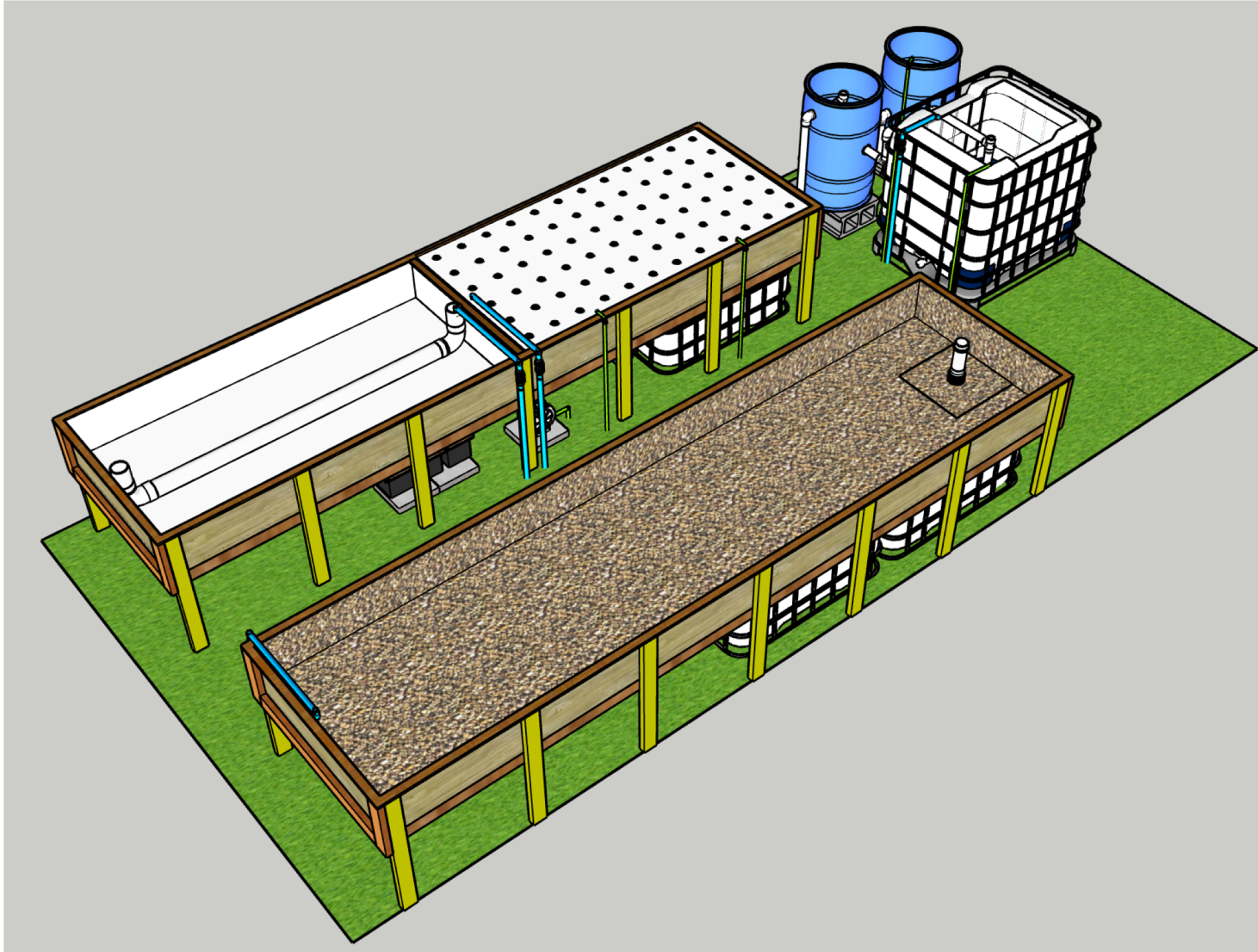


Family Size

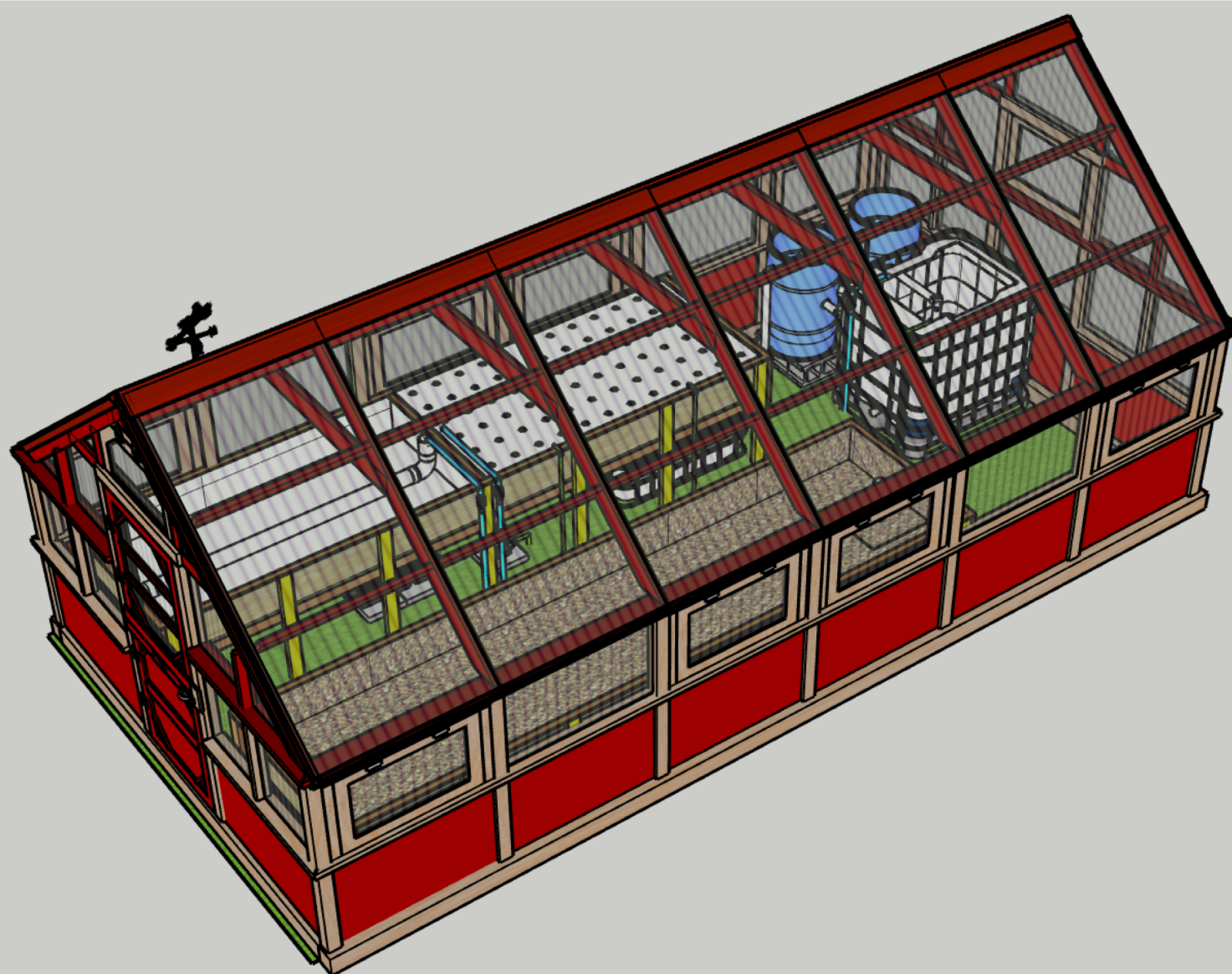
Add IBC and Barrels in GH footprint



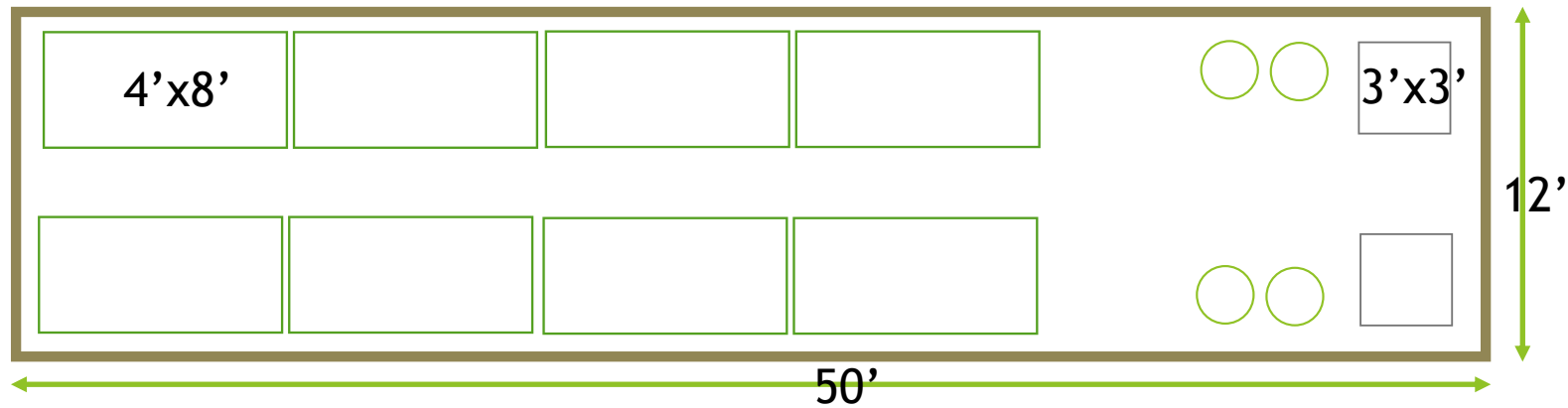
Family Size- with details



Family Farm with Greenhouse

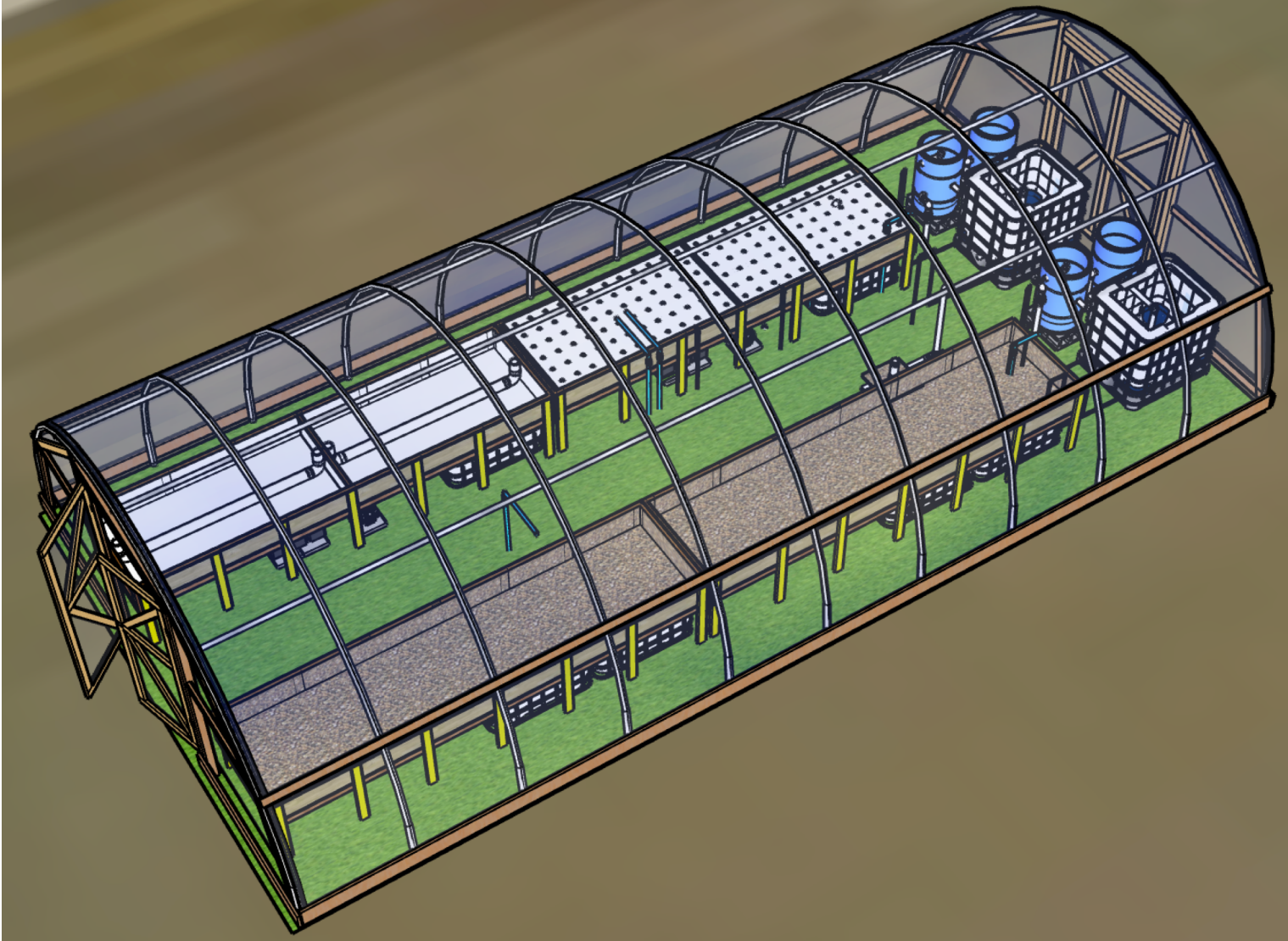


Community Farm Layout Concept

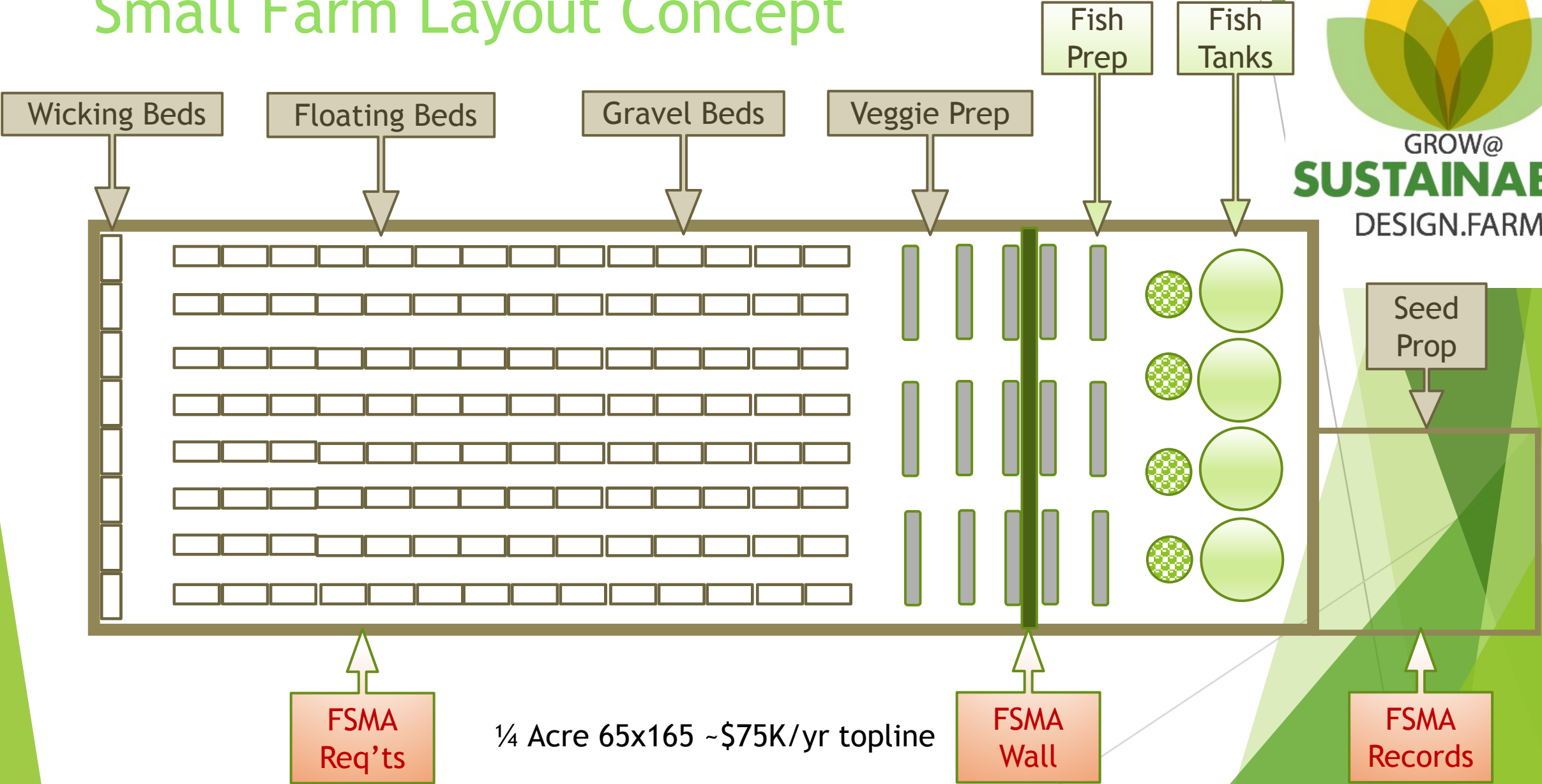


12x50 Community Farm Greenhouse
(Not under FSMA)

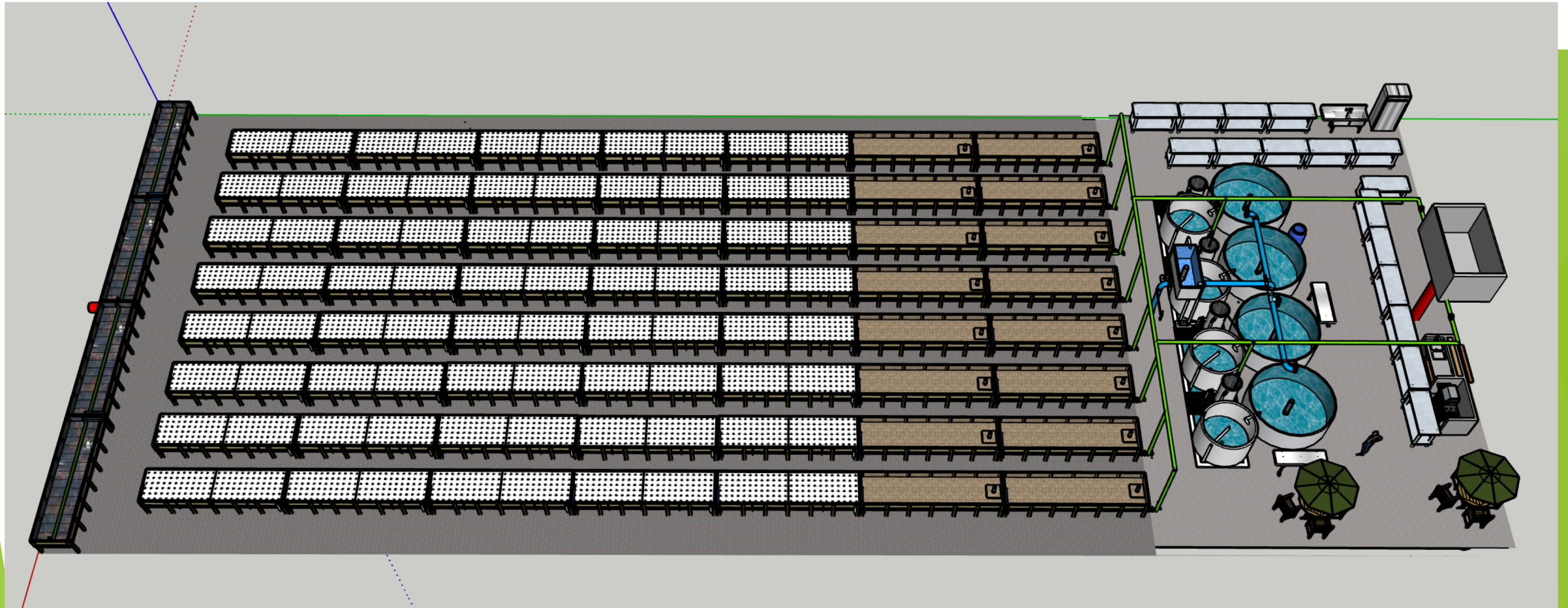
Community Farm Greenhouse



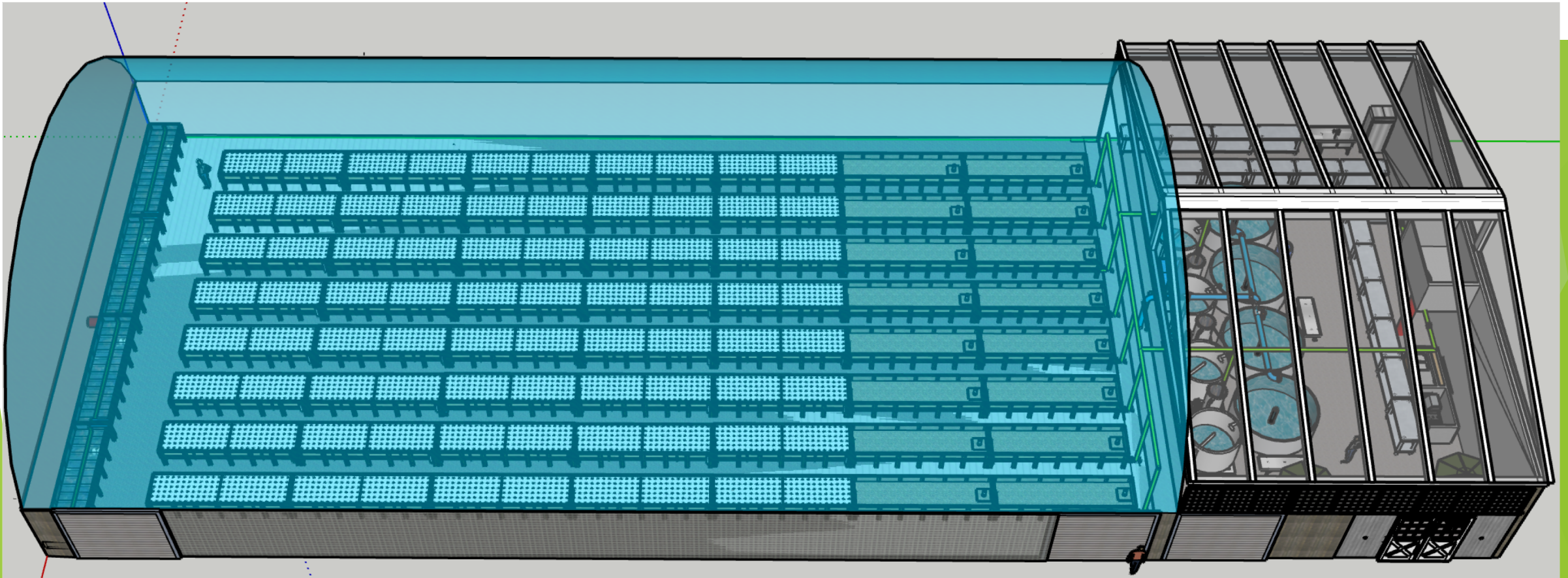
Small Farm Layout Concept



Small Farm Layout in Sketchup



Small Farm with Greenhouse



Commercial Farm Greenhouse

3.7 acres



161,000 ft², 3.7 ac, 15,000m²
Aquaponics Farm in S. Korea
(Not FSMA compliant- different rules!)

Your Sustainable Design Farm

► Let's talk about your:

- Concerns
- Location
- Budget
- Timing

► Let design your farm:

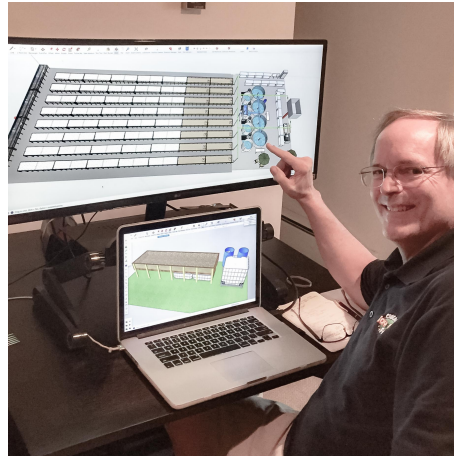
- Establish a plan
- Design the details
- Order the supplies
- Schedule the build

Start to Harvest:
Veggies in 30 days
Fish in 9 months



Sustainable Design Guru

- ▶ Contact me and let's talk about your farm!



- ▶ Peter@SustainableDesign.guru
- ▶ Grow@SustainableDesing.Farm
- ▶ 804-690-1358

