

Elevate. Cultivate. Grow.™



VERTICAL FARMING WHAT TO KNOW BEFORE YOU **GROW UP!**

1 SPACE PLANNING & DESIGN LAYOUT

MOTHER PLANTS

Currently, we're seeing many different trends in the cannabis industry, particularly around vertical farming. Everyone is used to double or triple multi-tiered environments for their clone rooms, but we are now seeing a shift from having huge mother plants to having multiple mother plants in a two-tiered environment.

Typically, you see traditional cultivators with huge moms taking as many cuttings as possible, cycling through their mother plants much faster, with a three-month life span. When going from a single-tier to double, you're getting **twice the amount of healthy, viable clones**. Cultivators are now getting healthier plants, more healthy cuttings, and reducing pest and disease risks.





HOW HIGH CAN YOU GO?

Cultivators still need to consider the layout of the entire facility. It's vital to support your flower room and the volume of plants while considering the design regarding your operations workflow. "It's tempting always to go as high as possible and as long as possible," Del Rockwell states, "but many growers saw a **'sweet spot' at about 32 to 40 feet in length.** We see about **12 to 14-foot tall** works for most facilities for shelving."

Del states, "We can go longer," but you have to consider how you will access everything, how effective it will be, and what the quality of the plants you will get from labor and access.

AIR CIRCULATION

When constructing the growing area, you're putting layers across the room with an **HVAC design** and adding circulation to create a homogenous environment.

“Many of us in the indoor space came from single-tier cultivation, where you have a big open ambient space between the canopy and the ceiling in the room,” James Cunningham states while discussing air circulation in the grow space.

James continues, **“Combining all this equipment into one room creates an impediment for the supply air coming from your HVAC** and for your transpiration and heat load from your lights to get trapped in. As the distance shrinks from canopy to ceiling, the grower will need to find a way to create consistent temperature and humidity in the space. By introducing Vertical Air Solutions to your growing operations, you'll receive mixing chambers bolted to the outside of the racks with inline fans to pull conditioned and dehumidified air. You strategically supply conditioned air to each tier space, creating consistency and a dissatisfying microclimate through the canopy.”





DESIGN & MECHANICAL ENGINEERING

“Design and mechanical engineering behind your HVAC are very important in your cultivation space,” notes James discussing the difference between a successful and low microbial or low melt mold and mildew crop. **Design and mechanical engineering are one of the most overlooked aspects of the process**, taking into account the supply, layout, and innovation at the beginning before it’s too late.

2 ENVIRONMENTAL CONTROL NEEDS

Regardless of your approach to sizing your HVAC, growers need to understand how to supply air strategically to their vertical space. “To drop the moisture out of the air, you have to cool it rapidly to get the air to condense and then supply it back to the room with a reheat element,” James stated.

Typical HVAC systems installed into grow operations exchange air only a few times per hour; however, [Vertical Air Solutions](#) expects 20-30 complete room air exchanges per hour. **The supply and returns can make a world of difference in the performance of your plants and mitigating disease.**





3 GENETICS & KEY TRAITS

Thanks to Vertical Air Solutions, “now I can grow any cultivar,” Michael reflected during the discussion with James about his past focus on growing only certain types of cultivars in a vertical farming environment. With years of experience, James states, “what landed us being fairly successful in vertical spaces was understanding the genetics and knowing what we were getting into.” In the beginning, running Indica-dominant plants that didn’t stretch too far **can now work with any strain** but also introduce the Sativa-dominant plants that grow in the lights.

4 LABOR OPTIMIZATION

When thinking about single-tier grow operations, most are growing plants roughly five to seven feet tall, working on a rolling bench, and climbing a ladder to get to the very top. Pipp Horticulture considered this and “was the first to come up with a catwalk system that is seamless and easy to put into a system,” Michael states while talking about Pipp Horticulture’s [ELEVATE™ Platform System](#).

By incorporating ELEVATE™, **growers no longer face challenges in a multi-tier environment.** Employees can reach their level in a second or third-tier setting feeling safe and secure. Safety was one of the most critical priorities regarding design, flexibility, and efficiency. “One of the largest expenses you’re going to have over the lifetime of this facility is the labor expenses,” Del states. Anything to optimize and reduce the time spent on processes will be beneficial. When it comes to labor also comes liability. We always want to keep people and their safety first.





ARE YOU READY TO **GROW UP?**

Shifting from a single-tiered grow room to a multi-tiered vertical farming environment helps optimize space and maximize profits. Are you ready to GROW UP? **Get a FREE vertical farming evaluation below.**

GET A FREE EVALUATION

Contact **Pipp Horticulture's**
experienced team of indoor
cannabis operators and designers
today to take your first steps towards
your vertical farming future!



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