

# Indoor Oasis

## *The Sweet Spot - Positioning your System*

*Third in a series*

A tropical indoor paradise, complete with banana plants, palms and beautiful blooms, can be achieved even in the depths of winter with a hydroponic grow room.

Such a calming and relaxing space can be created without need for an entire room. Hydroponic displays under artificial lighting are used for a wide range of applications.

Kitchens with a corner dedicated to fresh salad greens and herbs, living rooms with ornamental and flowering plants, basements with fresh tomatoes and strawberries and even entire garages dedicated to hydroponic gardening are just some of the examples of grow-room spaces. Along with these home-based hydro units, indoor soilless gardens are increasing in popularity in offices and reception areas, hotel lobbies and restaurants, places where the lush green display and the sound of tricking water add to the ambience of an otherwise sterile indoor environment.

Nature can be outwitted in the hydroponic grow room. Indoor gardeners are free from fickle weather, lack of good sunlight, wind, rain, snow, hungry animals and destructive forces that all seem to create problems when no one is looking. Light, temperature, humidity, air flow and even carbon dioxide can be controlled precisely in a grow room and give keen hobby gardeners the same degree of control scientists have enjoyed for decades using growth cabinets.

With this sort of technology there is no reason why a tasty tomato or

Indoor growing spaces provide a relaxing hydro oasis, well worth the effort of setting up.



# BEGINNER'S CORNER

fresh herbs can't be grown easily and quickly indoors, even when it might be snowing outside and prices have shot sky high for supermarket produce that fails to tempt the palate.

However, as with any hydroponic system, deciding on just the right spot for an indoor growing area relying on artificial light is an important decision. Many factors are involved. We have the technology to provide light, warmth and everything a plant needs, but grow rooms can still run into problems if the basics are not considered.

## Power and water

Grow rooms require quite a lot of electricity, which needs to be safely supplied. Hydroponics does involve water and at times, a fair bit of humidity, and water and electricity are not such a good combination, so this should be the first thing to take into consideration. Electrical outlets are required not just for

the hydroponic pump but also for heaters, or possibly air conditioners, dehumidifiers (if required), circulation fans, and forced ventilation systems, and also for lights, of which there may be more than one. Ideally this sort of equipment needs to be on an isolating transformer to prevent the possibility of getting a shock should there be a nutrient leak. Really keen indoor growers may prefer to have a dedicated room or area specifically wired up to run this sort of equipment in a safe and effective way.

Second, because sooner or later most hydroponic systems will spring a leak or at least have some unexpected run off or condensation, consideration should be given to the floor and positioning of the grow room. Concrete floors in garages are perfect for this reason, excess nutrient or water can be easily mopped up or swept out the door if necessary with no damage. Basements may have similar hard floors or even drains if

they also double as the laundry area. However spare bedrooms, living rooms and other spaces, which might be carpeted, need this to be either removed or at least well covered in layers of plastic to prevent damage from nutrient and water spills. Extra care needs to be taken with grow rooms in attics or on upper stories of houses, as a major leak or spill could cause serious damage from moisture dripping down into rooms below. Spare or old bathrooms make surprisingly good grow rooms as they tend to be already lined in moisture-proof material, have a water supply readily on hand, usually have a floor which can handle wetness, and often have preinstalled ventilation systems to remove damp air.

Hydroponic systems which are being designed for offices, restaurants or similar environments need to take the "leak factor" into account, as these are often sited indoors where soft furnishing and carpets abound. Ideally, these sorts of systems would get their own specially designed area with a suitable flooring material that can be easily cleaned and mopped up. Excess humidity from indoor growing systems, particularly those which are not well vented, can also promote the growth of mold on curtains, furniture, carpets, wallpaper and other materials, so this is another factor that should be taken into consideration when siting the grow room system.

## Ventilation

Ventilation is essential in grow rooms. Many basic grow room set ups simply use the door and window(s) as a natural form of ventilation and allow air to come in and out in this way. A ventilation fan can be mounted in an open window in a simple grow room set up and fresh air can be pushed out or dragged into the growing area in this way.

However many hydroponic retailers have an excellent range of ventilation systems specifically designed for indoor gardeners, making this a much simpler and more efficient process. This sort of equipment requires a ventilation duct and in-line exhaust fan leading from the growing area to outside. The proximity of the grow room to an outside wall will determine how easy and cost effective this sort of installation might be.

For those who have an unused clothes dryer which is vented to the outside (common in most homes), this ventilation duct could be adapted for use in a grow room without much additional expense. Ideally the ventilation duct should be positioned up above crop height (since warm air rises), as air is sucked outside, fresh, cooler and hopefully drier air will be pulled into the growing area and cross the plant, which is vital for good plant growth and development.

Inadequate ventilation is about the biggest mistake many new hydroponic growers make when positioning their indoor garden or grow room – many don't give this much thought at all, and the resulting unventilated room can be disastrous.

As well as good light, warmth, nutrients and water, plants need a certain degree of



Finding a good position for a growing area depends on finding a reliable and safe place for electrical outlets, which power the lights, pumps, heaters, fans and other equipment.

humidity control and also fresh supplies of carbon dioxide to power photosynthesis during daylight hours. It is surprising how much moisture even a small system of mature plants can release into the air (many kilograms of water vapor in fact,) increasing humidity levels to near saturation. Oversaturation in turn slows growth and nutrient uptake, promoting the development of fungal and bacterial pathogens and creating havoc with electrical equipment. In addition, a relatively enclosed grow room with rapidly growing plants can deplete ambient levels of CO<sub>2</sub> down to just about nil within a few hours, at which point photosynthesis stops until fresh supplies of CO<sub>2</sub> are provided.

Grow lights also put out a lot of heat that needs to be removed from the growing area to keep temperatures within an optimal range. Ventilation is the most efficient way of doing this in most climates. Having a growing space that allows for a good ventilation system is thus extremely important for a number of reasons and one that should not be overlooked when designing the grow room space.

### Space

Finally, the dimensions of the space itself need some consideration, based on what is to be grown, the number and type of lights, the size of the hydroponic system, plus some allowance for accessing the plants and maybe a bit of space for a deck chair or some other way of enjoying the garden.

This is less of a problem for those who want to grow short plants, such as lettuce, strawberries, salad greens and herbs. For tall tomatoes and a number of ornamentals, such as bananas, palms, and similar hydroponic plants, the height of the growing space should be checked. HID grow lamps, which are typically suspended from the ceiling, can't be positioned very close to the tops of mature plants or they will burn the foliage. That means the final height of the mature crop, plus an allowance for size of the lighting equipment (reflectors, light rails etc), plus a good gap between the bulb and top of the foliage, needs to be accounted for. Thus growing areas with a decent ceiling height are required for many plants. Even for short

crops and bench top systems, a taller room allows for better air flow and slower build up of heat and humidity and generally gives a healthy growing environment for an indoor system.

Provide your indoor growing area with the basics – air flow, heat and humidity removal, good supplies of CO<sub>2</sub> and overall good planning – and your plants should thrive in their protected environment and provide years of pleasure and relaxation. 🍃

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### Resources

Most hydroponic retailers supply a range of grow room equipment including ventilation systems, lights, fans and controllers, check out the advertisements in this issue for the latest in grow room equipment:



Because leaks and high humidity can be a common problem, the indoor gardener should give some consideration to floor and wall coverings in the growing areas,