

As with heating systems, cooling systems are also not just a singular component. Vital to the function of your greenhouse. Balancing the temperature in your greenhouse is a combination of the greenhouse design, interior air circulation, and the primary and or secondary cooling system. If you have a greenhouse and your exhaust fans are continuously running when its 80 degrees or above, your system is not functioning properly. The exhaust fans should cycle, and your greenhouse should maintain an interior temperature longer than the exhaust fans/cooling system is running.

The most common secondary cooling system for greenhouses are called "wetwalls". Other systems include; forced air, mister systems, interior air circulation, portable evaporation fans, shade cloth/blackout systems, different types of polycarbonate, & in some cases shade paint for polycarbonate. Painting your polycarbonate is an archaic ideal to cool down greenhouses due to the overheating effect of low-quality clear polycarbonates. Shade paint has to be reapplied every year, & eliminates the quality of light in your greenhouse. AWG Incs' wetwall systems are the most efficient cooling wall systems available on the market to date.

There are many factors to your greenhouses cooling system. As previously mentioned, this starts with your glazing system & your frame system. When you design your greenhouse correctly creating an environment that reaches extreme and deadly temperatures during the summer months are far easier to control. Glass houses, & clear polycarbonates create the hottest greenhouses. In these greenhouses it is not uncommon for temperatures to reach well over 150°F. When temperatures exceed these temperatures, the excessive heat is not only potentially deadly, it destroys your polycarbonates, electrical components, & of course, anything living plants inside. Cooling becomes one of the most common problems we service with other manufacturers greenhouses.

It is imperative to ensure your cooling system is up to date, serviced & functioning properly before you need it. The rule of thumb is to service your cooling system in winter months, & heating system in summer months. If your cooling system fails during the hotter months of the year, you will run into costly problems. These systems typically must be shutdown when being

serviced or repaired. This will have detrimental effects to your greenhouse if you have plants inside. At 80°F in direct sun, it only takes a matter of minutes for your greenhouse to heat up well above 120°F & higher when the cooling system is shut down.

Wetwalls/Water Walls:

These systems use circulating water that soaks "pads" while air is drawn through which cools the air flowing through your greenhouse. Typically paired with auto shutters that are engaged by a greenhouse controller that runs your cooling system in multiple stages. The function of these systems relies on proper air movement and supply water temperatures. Keeping your wetwall clean is vital to its function.

A common problem in many greenhouses AWG Inc services, manufactured/built by others, is improper or under powered exhaust fans. The CFM(cubic feet per minute) draw of your primary exhaust fans are only 1 factor in this equation. The most overlooked function of exhaust fans is what is called the "throw" in layman terms. Air movement is a science of its own complex variables. This measurement is the distance the air moves from the face of the impellers to the distance that it begins to dissipate. If your exhaust fans are rated for the proper amount of CFMs required to exhaust your greenhouse, but the throw is substantially shorter than the distance from the wetwall, your cooling system will not function properly.

There are several ways to determine if your exhausting system is functioning adequately. The easiest you can do yourself, without using expensive equipment is to feel the temperature in your greenhouse. If there is a noticeable temperature difference on the opposite end of your greenhouse from your wetwall, meaning much hotter at this end vs near the wetwall, your exhaust & air circulation system is not adequate.

If your greenhouse is on a well for water supply, you will need to check the water temperature. If your water source is a "high well" you may have to

install line chillers to decrease the waters temperature so your wetwall is effective.

There are a variety of wetwall designs. Some use a sump tank. This older wetwall water supply design is very inefficient. Newer designs typically use the wetwall trough as the supply source and recirculate the water from here so there is less waste. Wetwalls are "wet" as the name indicates. Depending on the manufacturer and installation it is not uncommon for there to be small water leaks. AWG Incs' wetwalls have specially designed drip trays and splash guards that help eliminate this excess waste. Our wetwall systems also feature more airtight/insulated louvers/shutters, bug screens, filtration systems & dual coated pads.

It is highly recommended that you have a company that specializes in these systems design the type & size of wetwall you will need if you are purchasing one of these systems separately. As we mentioned above, there are many factors that go into the proper design and function of these systems. The factors in this equation include: Length, width, total cubic ft, Distance from Pads to fans, Elevation, Temp Variance, Internal LUX, Supply water temp(most city water supplies are around the same temps), & the type of pads used.

Forced Air/Air Conditioning:

Forced Air, or Commercial HVAC systems are not common for most greenhouse applications. This is due to their size and cost. Typically, you will only find these systems in high humidity areas, & in greenhouse projects where cost was not a concern. Most HVAC Companies do not offer greenhouse services or products. Warehouse Grow operations are an entirely different subject.

Misting Systems:

Misting Systems can be highly functional in assisting in the efficiency of your cooling system, especially in highly arid environments. They do pose a

challenge if you are trying to maintain a specific humidity level however. If you are trying to create a tropical environment misting systems can serve a dual function. As with wetwall system the temperature of the supply water is a vital factor if used for interior cooling. There are a variety of mister heads designed for this application. The best mister head on the market currently is the Netafim Quad Fogger. There are sprinkler heads and there are mister heads. Your typical big box store only carries sprinkler heads. AWG Inc does design irrigation and misting systems with the best products.

