

## Features

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# Environmental Controls: Customer Comforts

*Katie Elzer-Peters*

Nothing will make or break your sales faster than customer comfort while shopping. That extends to all areas of the retail operation, especially greenhouse space.

"It is vital to keep customers cool," said Al Sray from Nexus Greenhouse Systems. "They'll shop longer. If there are longer lines and it's warm, I have seen people put stuff down. They don't want to wait. Ventilation is vital."

Managing a retail greenhouse means striking a balance between happy plants and happy people. Kate Terrell from Wallace's Garden Center in Bettendorf, Iowa, says, "Luckily, if the temperature is comfortable for plants, it's comfortable for people, too."

Years ago, keeping the temperature within optimum range meant large, loud fan-pad cooling systems and vents that had to be manually opened and closed, or at least manually directed to open and close. Big rainstorm? Big problem! And customers couldn't carry on conversations in the greenhouses without shouting at their shopping buddies.

There have been some changes to climate control in retail greenhouses brought on by the marriage of old fashioned physics with modern technology. Have an older greenhouse? You can retrofit. If you have the luxury of starting from scratch the sky is (literally) the limit.

## Everything Old is New Again

Instead of working against the outside environment, climate control of greenhouses—retail and production—now embraces environment first and uses electrical air movement second. New ventilation plans start with the old physics principle that hot air rises.

"Newer open roof ventilation systems like the Nexus atrium system keep the air moving and let heat escape," says Al. Convection works with sidewall vents. Nexus offers a version called the "guillotine" that opens straight up and down. "I call them open window vents," he said. "They're much nicer for retail."

Patricia Dean from Wadsworth Control Systems concurs, “With a guillotine vent, you don’t have the rack-and-pinion system that can reach out and grab someone.”

## Planning Ahead

You have to plan in order to get the most out of passive climate control options. Every aspect of building design contributes to the final outcome.

“If you set it up right, you can obtain indoors, within a degree or two, the ambient temperature outdoors in the shade,” Al says.

He encourages retailers to look at everything. “Look at the roof covering. There are a lot of new diffused glazing products that actually help keep the temperatures on the inside of the greenhouse down because they’re not letting direct sunlight in, but they’re letting enough light in to keep the plants healthy and avoid stretching.”

It isn’t just the roof you have to think about in regards to glazing. Sidewalls are important, as well. “Glass on the gable end and sidewalls is a nice feature to have because it really bumps up the curb appeal,” adds Al. “You can see displays a lot better through a glass sidewall. However, if you run glass all the way to the peak of the roof, you will get a ton of solar gain, which will really heat up the area around the front of the greenhouse, where you’re to have the registers.” He recommends using glass to the bottom of the truss and a polycarbonate that will diffuse the light above that. “Aesthetically, there’s not much to see up towards the top—it’s all just structural steel anyway and you want the customer’s eye to be drawn to the bottom where displays are.”

The other big aspect of structural planning is the shade curtain. “People will decide after the fact that they want to put a curtain in and it is so much more expensive to retrofit the curtain,” Patricia notes. “They’re scared off by price up front, then they realize it is a critical element, that they really need the curtain.”

The top vents, sidewall vents, glazing choices and the shade curtain—what it is made of, how it is installed and how it is controlled—are the four main components to a more passive environmental control system. “All of that will work in concert together to create the coolest environment possible,” Al says.

## Take Control

The control system is what really makes all of the structural elements work together. “It is important for retailers to use an exterior weather station as part of their control package,” Al says. “No matter what control company they’re using.”

Hooking a weather station and sensors to a control system saves time and money and customer comfort. Kate said, “We do have a weather station and it is nice when it starts raining and the roof knows to close itself.” (They have an atrium-style roof that opens completely and thus would allow the rain in if open during inclement weather.)

There are two types of controllers used for climate control systems: staged controllers and integrated controllers. Staged controls group equipment responsible for specific tasks or desired outcomes that

naturally happen together. Everything for heating or cooling would be grouped together and you can't break apart those functions.

"They're really easy. It takes minutes to teach someone how that type of control works," said Patricia.

"Integrated controls take all of this sensor information: how sunny it is or how humid is it outside to control the fixtures to reach the optimum climate. It is a much smarter control. As with anything, if it is smarter, though, its integrated controls are more complicated."

Wadsworth is introducing a new interface in 2015 to make integrated controls less confusing. "Seed" is the new product they debuted at Cultivate'14. It's a touch screen that allows for control of multiple zones. It looks like a product that will be intuitive to use.

"We had a gentlemen and his son look at it," said Patricia. "The son usually programmed the controls, but the father said, 'This looks like something I could use myself!'"

## Retrofitting

If you have the old noisy system, you can retrofit. You can change roof vents, sidewall vents and curtain system, and take out exhaust fans and pad systems. Patricia recommends a HAF fan from Dramm for new and old greenhouses. "It's very quiet," she said.

You can move things around, too. "If you can help it, you do not want to have the cash registers and customer service staff under a standard greenhouse polycarbonate roof," Al recommends, "Very easily, if a greenhouse is 100 ft. long, you can do 30 ft. with an insulated metal roof for the checkout and gifts area."

Whether you're retrofitting or building a new facility, you can enact that change. **GP**

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