

Nursery and Greenhouse Production – Sales and Use Tax Clarification on Technology Advancements

Overview

Current guidance and interpretations from the Minnesota Department of Revenue are not evolving with technology advancements in Nursery and Greenhouse Production.

- Advancement in the design and building of Production Greenhouses have a significant impact on efficiency and productivity. In addition, the advances have a positive environmental impact due to the reduction in energy use related to climate control.

Background

In Gertens most recent Sales and Use Tax audit (dated October 19, 2023) was not permitted to exempt the equipment used to construct integrated operable roof vents (excluding materials used in the construction of the roof) and the concrete to construct bio-therm in-floor rootzone heat and irrigation floors.

In Gertens previous Sales and Use Tax audit (dated August 25, 2020) that same equipment was exempt.

Integrated Operable Roof Vents

Open and closed based on climate control needs. Connected to environmental control computers (ECC) for programming and control that run on a continuous 24/7 loop with cooling adjustments (by %) sent via 24v connection every 2 minutes. They are one key part of the integrated climate control, other parts include forced air heat, bio-therm in-floor rootzone heat and irrigation, lighting, and automated shade curtains.

Bio-Therm In-floor Rootzone Heating and Irrigation System

The system works with a series of heat tubes embedded in concrete. Those heating tubes are spaced in a consistent measured pattern throughout the concrete. The concrete is necessary to relocate that heat through conduction, away from the tubing, thereby redistributing the heat evenly at a much lower temperature across the entire crop surface. The crop containers then come in contact with the concrete and conduct the heat evenly upwards into the root zone thereby applying the heat directly to the root zone of the plant. This allows the growers to utilize a different temperature regime for the plant roots as opposed to the upper structure of the growing plant. The concrete temperature is continuously monitored and adjusted by an integrated environmental control computer that allows differentiation between root zone and atmospheric temperatures.

This root zone heat allows-

- better moisture and nutrient uptake in the plant
- better breakdown of the nitrogen chain, particularly in cold weather climates
- crops produced using substantially less energy.
- improved finished crop consistency due to even btu distribution across the root zone.

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The concrete is uniquely structured to allow necessary excess irrigation water to be removed from the root zone. This is achieved by first embedding a series of piping grids in exact locations. The slab is poured using a series of multi pitch that allows the water to accumulate away from the root zone once saturation is reached. The slab is then core drilled in exact locations allowing the irrigation water to exit the growing area into the series encased piping. The pitched slab and embedded irrigation piping can also be modified to operate in the reverse... using the same piping grid and core drilling to pump water up onto the pitched floor, then releasing it back down once the root zone is saturated.

Current Guidance

The current Nursery and Greenhouse Production Sales Tax Fact Sheet 121C exempts Climate Control Equipment and Irrigation and Application Equipment. Below is the excerpt:

Farm Machinery

New and used farm machinery is exempt from sales tax. This exemption applies to new or used machinery, equipment, implements, accessories, and contrivances used directly and principally in nursery and greenhouse product of plants for sale at retail. To qualify the machinery must meet the definition of farm machinery and must be used directly and principally in agricultural production.

Principally means the equipment must be used 50% or more of its operating time in agricultural production.

Certain machinery and equipment purchased for the production of nursery and greenhouse crops are exempt. To claim the exemption, give your supplier a completed Form ST3, *Certificate of Exemption*. Specify the Farm machinery exemption.

Examples of Exempt Farm Machinery

Irrigation and Application Equipment

- Application sprayers, foggers and nozzles, shutoff valves, hoses
- Automatic watering systems including poly pipe and fittings, misting nozzles, controllers and timers
- Backflow preventers
- Capillary water mats
- Fog nozzles and shutoff valves
- Hoses and water wands
- Sprayers and foggers

Climate Control Equipment

- Evaporative cooling equipment
- Climate control systems, including light meters and temperature alarms necessary to the system
- Greenhouse heaters and fans
- Special greenhouse lighting for growing plants

Summary:

Gertens recommends that the bill presented be passed. This will provide clarification and stability in the Minnesota sales and use tax laws and will promote construction of environmentally beneficial solutions in the Greenhouse industry.

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Image 1 & 2 – Greenhouse Integrated Operable Roof Vents

“Natural ventilation saves electricity, by eliminating the use of fans. Along with roll up sidewalls or large endwall doors, roof vents can provide adequate cooling. They can be motorized so temperature within the greenhouse is automatically controlled. They can save as much as 0.5 to 1 kilowatt hour per square foot per year.” Greenhouse Management – Savings through the roof – John Bartok Jr. (May 2014)



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Image 3 – Greenhouse Bio-Therm In-floor Rootzone heating systems

The image below is plants growing on the Bio-Therm floor. The floor serves multiple functions in greenhouse production and results in reduced energy use (up to a range of 35-50% savings).



Image 4 – Greenhouse Bio-Therm Floors

Below is prior to concrete. The red pipes are for climate control and the white pipes are for irrigation.

