VRE Shade & Save

2006 Grower Seminar

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Technical Sales

Curtains really work!

- For either Shade or Black out applications
- Curtains are the most cost effective method to reduce your operating costs
- As the cost of fuel continues to increase, the payback on a curtain installation has become quicker than ever
- Curtains have now become an integral part of the ‘total greenhouse system’ in North America

Questions to determine needs?

- Are you heating year round?
- Do you know the cost per square foot you are spending for the area/s heated year round?
- Do you know how much curtains are saving other growers?
- The NGMA reports savings of 30% or more

How do curtains work?

- By reducing the air volume that is being heated
- By totally isolating the air below the curtains from the air above the curtain installation
- This is done using either a shade fabric or a black out fabric
- The fabrics most commonly used are a UV treated combination of clear and aluminum foil strips sewn together with polyester stitching

How do we accomplish this?

- By installation of a series of curtains that cover the entire roof area in a greenhouse
- This can of course be adapted very easily to new construction and may require a few more modifications to fit into older houses as well
- VRE designs each curtain system to suit your particular requirement
- VRE offers supervisory or a total complete curtain installation services

Curtain Systems require a free and clear ‘travel envelope’ or ‘right of way’

- For sliding systems - 8” depth required
  - approximately 90% of VRE curtain installations
- For suspended systems - 12” depth required
  - the balance of VRE curtain installations

Best Practices for New Construction

- Keep the top chord of your energy trusses clear of:
  - Electrical Conduit and junction boxes
  - Basket lines or moving system hardware
  - Unit Heater mounting hardware
  - In line post ‘X’ cross bracing
  - Irrigation headers and lines
  - Supplemental Lighting
  - Inflation kits and hardware
  - Gutter vent racks

Best Practices in older construction

- The same items as previously noted need to be avoided which may mean using a peak profile system to mount curtains above obstructions
- Some items closer to post and gutter lines may need to be relocated
- Vertical penetrations of the curtain system need to be as consistently on the same side against the truss lines where curtain bundles gather as possible

Why VRE Systems

- VRE patented seal Aluminum Extrusion
  - Most positive seal available
  - Best method of system support
  - Pre-punched holes with grommets to keep slide wires in place for any system configuration
  - Positive Splice connections on flat or peak system configurations
  - Ribbed lip to secure stationary edge of next curtain
  - Reversible for both sliding and suspended

VRE Systems Include

- Custom designed hardware for each application made to last for years with hot dip galvanizing
- Minimal use of plastic parts requiring subsequent replacement due to constant sun exposure
- Years of design experience to fit any greenhouse structures, American or European
- Designs for both standard greenhouses and the new open roof construction with full rain, wind and sun exposure
- Pre-wired reversing motor controls and travel limits requiring only a power outlet
- Computer compatible with manual over-rides

Why VRE Installation Services

- To ensure the long term durability of all system components and thereby minimize future maintenance costs
- VRE provides at minimum a supervisory installation service for 95% of what we sell
- This fact means we see what works in the field, and also what does not, in the long term
- This also means customer satisfaction and repeat business

The VRE Curtain Systems

- PATENTED ALUMINUM PROFILE
- POSITIVE RUBBER CLOSURE SEAL
- STAINLESS STEEL SUSPENSION WIRES
- LOOPTAPES WITH SUSPENSION HOOKS

- Both Sliding and Suspended type systems

VRE Truss to Truss Black Out System

Truss to Truss Shade Curtain in Flat top Peak Profile

Truss to Truss, Lower Profile in older Construction

Gutter to Gutter System and Stackable VRE Trays for Growing Plugs

Suspended Systems for Open roof houses with CPLS fabric

Three VRE Curtain System Levels
Gutter to Gutter - Suspended and Truss to Truss - Sliding

Black Out (2 layer Fabric) note 12’ Curtain Bundle Size

Bow side Extension of Top Black Out Curtain System

Bow-side Shade Curtain Extension

Gutter Drains in Fabric Bundle with drive cable Sliders to Compensate

Drains on VRE Extrusion Side

Heater Vents through Bundle side

Double Poly Inflation Tubing through Fabric Bundle Side

Shortened System to avoid Unit Heaters at Gable End plus fabric closure to poly roof line

Gable end offset to avoid Gas line, Drains etc.

End Frame, VRE Seal Extrusion and XLS/10 Fabric Seal

Two VRE Systems with Stationary XLS/10 connection boot

Black Out
Roll up walls
with bottom
boot pocket

Black Out - Roll Up Wall

Side roll up Partition Wall

Black Out Curtain in Truss Elevation

Black Out in Truss Elevation requires much more sealing work around all truss webs

End Framing with offset bracket for Drains, Vent Stacks and Stationary Seal fabric

Side Boots to below Truss level for Black Out Curtain Applications

Clamping Bracket Mounts for Older Construction

Drive Shaft Under Gutter Saddle to clear Basket lines for lower gutter heights

Shade Fabric Cloth Gatherer on ¾” pre-galvanized Leading Edge Tube

Sliders for drains or gable end Curtains

Adjustable Shade Delays for shorter end sections

Ridder Gearbox, Motor and Argus Reversing Motor Control – all pre-wired

VRE Remote Control Manual
Over-ride Switch for Top Curtains

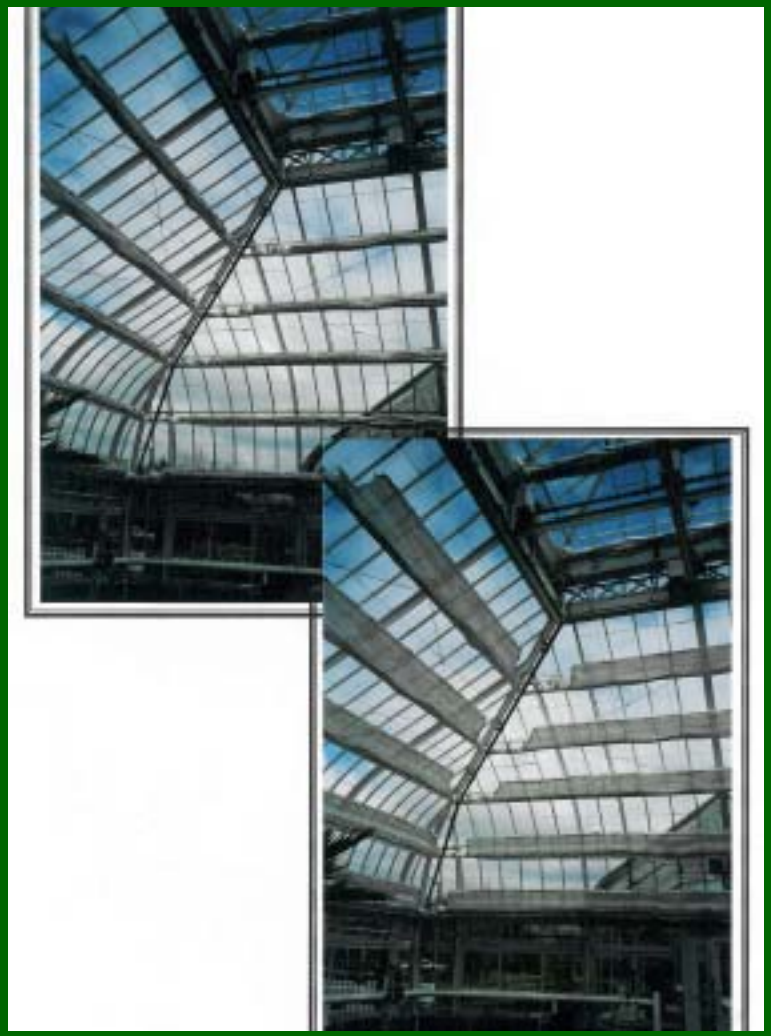
Roll up wall Relay Control Box

Summary of VRE Curtain System Benefits

- Heat savings of 30% to 40% annually
- Reduced cooling costs with fan and vent operations
- Reduced water consumption on bright sunny days
- Reduction in condensate drip damage
- Improved soil and air temperature control
- Less plant stretch and stress
- Better quality and more consistent crops
- Improved control of light, temperature and humidity
- More comfortable working environment

Institutional Applications

Open to Close Cycle



Energy Curtains are indeed the most cost effective way to improve your bottom line!