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## **VRE SHADE SYSTEM SPECIFICATIONS:**

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Supply of a VRE motorized Shade system in a **Suspended manner**

### **End Frames**

- System Support End Framing to mount all wires and hardware, shall be 2"x 2"x .100 wall square (hot dipped galvanized) steel tube.
- Required diagonal end bracing must be included to support the 2" square end frame members.

### **Curtain Support**

- Curtains are to be suspended from stainless steel spring wires, which are supplied at a maximum of 48" centers or 24" to 32" for open roof structure applications.
- "S"hooks and cover clips are to secure the curtain to a 3/4" diameter pre-galvanized steel leading edge tube. Locking type hooks to be used for open roof systems.

### **Drive System**

- Drive system must normally be mounted below the curtain system fabric.
- 1/8" stainless steel, 7 x 19 cable is used to open and close the system.
- Return pulleys for the cable drive are mounted off the 2"x 2" end frame members, these non-corrosive pulleys shall have a throat size greater than 2 1/2" with an internal sealed bearing. Drive cables are to be spaced at approximately 8 foot centers to a maximum of 108 inches.
- 35 mm. aluminum tube carriers are required to connect to the 3/4" pre-galvanized steel leading edge tube to each drive cable.
- The drive system shall include universal joints, 2" galvanized pipe drive shaft, and bearing plates with sealed ball bearings mounted at a maximum spacing of 12 ft..
- Drive motor is either a 110, 220 single phase or 208 volt three phase motor, pre-wired to a computer compatible reversing motor control box and the drive unit shall include built-in travel and safety limit switches.

### **Curtain Fabric**

- Curtains must be custom sewn to the curtain system profile and must include allowance for shrinkage .
- Loop tapes must be sewn on curtains with "S" hooks installed for each suspension wire and at every curtain end, to ensure proper curtain alignment and a positive seal.
- Curtains are available in different shade factors (12% thru 99.9%), fabric materials are available in combinations of polyester, aluminum, polyethylene and polypropylene.
- XLS Firebreak (manufactured by LS) is the current standard series of fabric for indoor systems in commercial greenhouses
- Fire retardant fabrics are available if required, typically a necessity for institutional applications .
- XLS Revolux (manufactured by LS) is the current standard fire retardant fabric series for indoor curtain systems in institutional applications.
- COLS Abri and CPLS Abri (manufactured by LS) are the current standard series of fabric for open roof suspended curtain systems using the Abri wires for suspension in commercial greenhouses

### **System Sealing**

- At each curtain joint a VRE Aluminum Seal Extrusion with the patented flexible rubber sealing strip must be supplied for positive closure. The VRE Seal Extrusion shall have holes drilled for each stainless steel suspension wire location to eliminate the necessity of any PVC or wire clips.
- Connector splices are required to maintain continuity of the aluminum extrusions.
- The stationary edge of the adjoining curtain must be fastened to the back of the VRE Aluminum Seal Extrusion by means of a fabric clip.
- Stainless steel wires must be supplied for the stationary 'boot fabric' seals on both the ends and the sides of the system to seal up against the exterior glazing.
- For heat retention systems fabric seals must be included for the perimeter of the curtain system, both ends and sides.

### **Right of Way**

- Curtain systems must have the "Right of Way". Typically for a suspended type installation a 12 inch 'travel envelope' is required.