



**Rough  
Brothers,  
Inc.**

**Design,  
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# The Flat Roof

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## 1. Introduction

Designed to provide maximum exposure to the outdoors while providing essential cover, the Flat Roof by Rough Brothers is paramount in crop protection. As close as you can get to growing outdoors, the Flat Roof by Rough Brothers encourages the benefits of natural ventilation and light while providing a refuge from wind, sun, and less than desirable temperatures. [MORE >>](#)

## 2. Photo Gallery

## 3. Additional Information

Ideal for crops tolerant of rain and snow, the Flat Roof by Rough Brothers offers the fundamental protection to improve crop success. The use of patented aluminized cloth aids in heat retention during the cooler months while reflecting heat away from the crop in the warmer months. This innovative design results in reduction in production cycles, paired with escalation in plant quality. Optional sidewall and endwall glazing further promotes protection.

Unique in several ways, the design of the Flat Roof by Rough Brothers accommodates the needs of growers. The split open design provides quicker open and close time, while decreasing strain on the motor(s). Elimination of diagonal compression bracing allows for more efficient growing area, while the straightforward design allows for ease in installation.

## 4. Features

- As close as you can get to growing outdoors.
- Split open design provides quicker open and close time.
- Standard 30' width
- 12' post height accommodates variety of crops
- Promotes hardening off of plant material
- Provides protection from frost, wind, sun, and less than desirable temperatures
- Plant material is exposed to an environment most like the outdoors with the needed protection to thrive
- Higher light levels combined with the ability to maintain uniform desired temperatures increases plant growth and quality
- Natural ventilation eliminates need for fans

- Best suited for Perennials, Trees, and Shrubs
- Optional sidewalls enhance flexibility of growing area
- Continual benefits throughout the year

#### **4.1. Why Rough Brothers Flat Roof?**

The improved design of the endwall posts eliminates the need for internal and external cable and post bracing. This allows for unrestricted access along the end walls, as well as reduced installation and cement costs.

The end members are factory drilled for suspension wire locations, eliminating suspension wire vise brackets.

The direct drive system, located in the center of the house, eliminates stress on the end walls, thus reducing cable wear at all pulley locations.

The drive system allows for the roof curtain to move in two 15 foot increments between the 30 foot wide post spacing, reducing stress on the motor and hooks.

Roof open/close time is only 3 minutes 20 seconds.

The roof fabric, LS PLS40 abri (45 % shade) reflects heat out in the summer while retaining heat in the winter. The factory installed abri wires and outdoor hooks provide additional strength for the curtain in both directions. This enhancement allows for a tighter curtain, reducing the amount of drip locations when the curtain is closed, protecting the crop during heavy rains.

The PLS40 abri fabric, which is knitted rather than woven, lasts longer than traditional flat roof material, while less prone to algae build up. Further benefits of the PLS40 abri fabric is its resistance to tearing and when cut around posts during installation, provides a tight energy seal eliminating heat loss during the winter.

#### **5. Uses & Application**

- Growers & Nursery Management
- Retail Garden Centers

#### **6. Equipment**

- Benching
- Enviromental Controls
- Heating

- Irrigation
- Cooling
- Material Handling

## **7. Our Services Include**

- Design & Build
- Systems Integration
- Project Management
- Installations
- Maintenance