

Fruit Drying

Sunsweet Dryers, California



Freshly dried prunes



A section of the roof mounted SolarWall® system

Background

Sunsweet Growers is a cooperative of prune growers, which operates 481 drying tunnels. Sunsweet Dryers is the largest prune drying company in the United States.

Prunes are dried at a relatively high temperature with a maximum temperature of 185°F leaving the burner. Each of the 481 tunnels has two chambers. The drying season is 4 to 5 weeks per year, 24 hours a day, usually from mid July to mid August. Each fan handles approximately 50,000 cfm of air with approximately 20% fresh air and 80% re-circulated air. The burners are rated at 3.2 million BTU's per hour and are modulating. The roofs of the dryers are not insulated.

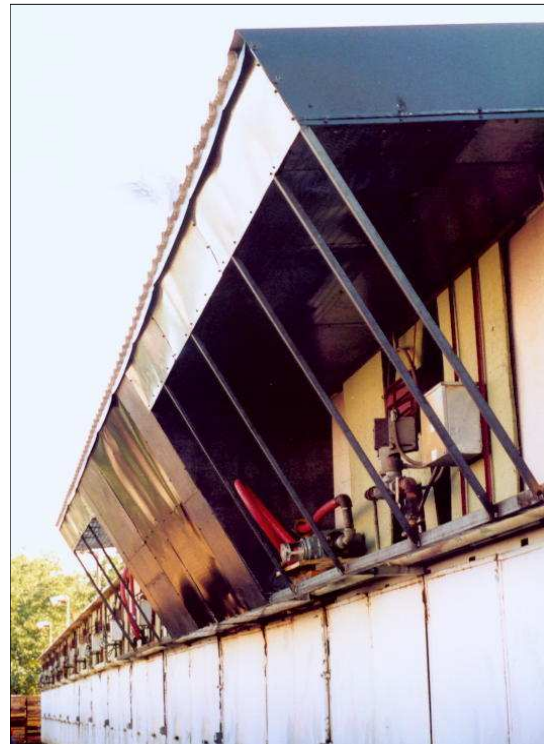
Solution

A 1,200 ft² (110 m²) SolarWall® system was mounted on the roof of three adjacent dryers and connected to one fan intake. The solar system pre-heats the ambient air 20 to 30°F before it enters the drying chamber. The energy produced by the SolarWall® comes from two sources: The first is the solar energy collected, and the second is the heat recovery from the roof. The air flow rate through the SolarWall® solar collector was designed for 10 cfm per square foot of collector.

Monitoring of the gas consumption for the 2004 drying season showed a total fuel savings of 29 therms of gas per day from SolarWall when operated 24 hours a day.

This represents a savings of 8.7% of the gas usage.

As well as the energy savings benefits, the prunes can now be advertised to consumers as "Solar Dried".



Dryer air inlet

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