

SOLAR INNOVATIONS® CASE STUDY

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ROOM TO GROW

GREENHOUSE WITH FOUR-SEASON CAPABILITIES

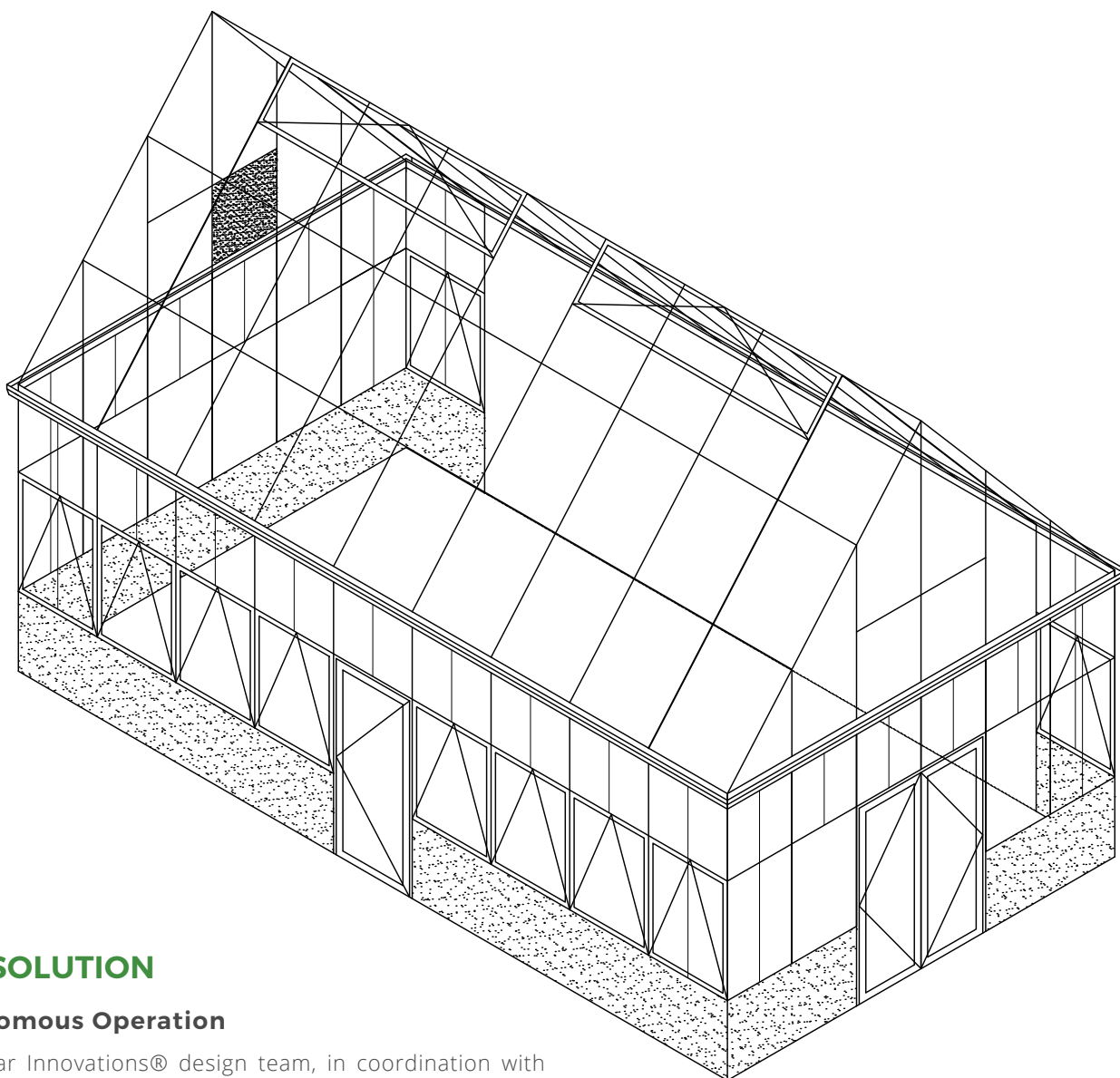
THE CHALLENGE

Extend the Growing Season

Suburban properties seldom have the yard space to cultivate a vegetable garden and those in the northeast only see a short, five to six month growing season. To enjoy the fruits of their labor year-round, the owners of this connecticut residence contacted Solar Innovations® to design, fabricate,

and install a stand-alone greenhouse. The structure would need enough space indoors to maintain plants year-round with easy access to an outdoor vegetable garden during the normal growing season. Because of the weather extremes in the northeast, the structure would need to be equipped with systems to maintain an ideal growing environment year-round.

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THE SOLUTION

Autonomous Operation

The Solar Innovations® design team, in coordination with Parish Conservatories®, designed, fabricated, and installed a 31 ft. x 17 ft. straight-eave double-pitch greenhouse with two gable ends for the owner. Entrance and exit to this 527 sq. ft. greenhouse would be made possible by a G2 in-swing terrace door and G2 in-swing French door. For additional growing space, two manually operated cold frames, each with one sash, were added to the front of the structure. The base of the cold frames was constructed out of the same block material as the knee wall of the structure, creating a uniform look.

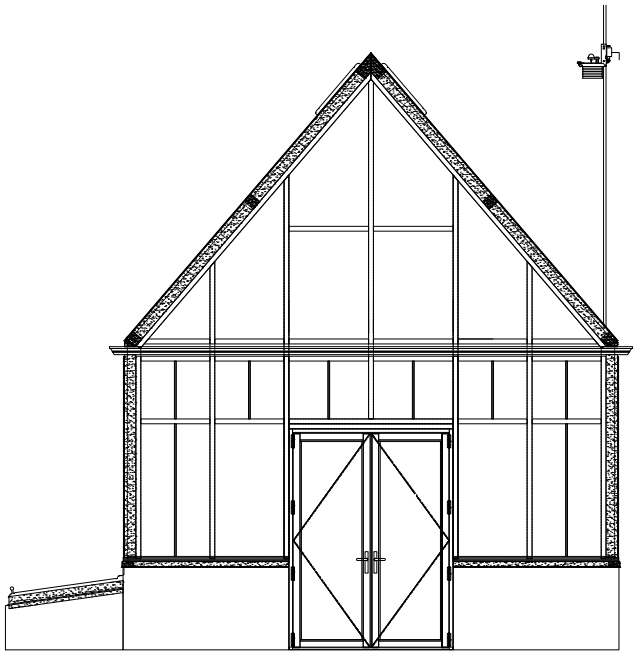
To provide ideal ventilation for the structure, four three-bay ridge vents were integrated with thermostat-controlled linear actuators to open or close automatically as conditions change. 10 out-swing awning windows were installed around the structure to provide cross ventilation. Six of these aw-





ning windows were equipped with WindowMaster® actuators for hands-free operation, whereas the remaining four are operable by a standard hand crank. To further assist with internal climate regulation, the greenhouse was outfitted with a ceiling-mounted heater and evaporative cooler. To promote healthy plant growth and regulate temperatures, two circulation fans were installed. The structure was also constructed with a thermal mass heat sink, that stores heat collected from the sun during the day then slowly releases it at night, reducing heating costs.

Twelve greenhouse benches and a stainless-steel working station sink gave the owner plenty of space for preparing and growing plants. An automatic two-zone drip system and two-zone misting system provided the irrigation needs of



the greenhouse. To control the irrigation, heating, cooling and ventilation, a Link4 iGrow environmental control system was installed to function autonomously without the need for human intervention.

THE OUTCOME

Room for Creativity

The resulting structure was a fully functional four-season growing environment. The homeowners were able to take advantage of both the internal and external space for cultivation. With the hands-free environmental control and irrigation systems in place, the homeowners were able to feel confident that their plants would thrive even when they are not home to manage the greenhouse.

TECHNICAL SPECIFICATIONS

LOCATION	Greenwich, CT
TYPE OF SYSTEM	Aluminum Straight-Eave Double-Pitch Greenhouse with 2 Gable Ends, Thermal Mass Heat Sink, 2 Cold Frames, Ridge Vents, Terrace Door, French Doors, and Awning Windows.
FINISH	Custom Tiger Drylac "Sea Shell White"
APPLICATION	Residential
ACCESSORIES	Growing benches, workstation sink, heater, evaporative cooler, circulation fans, environmental control system and weather station

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