

# CASE STUDY: UTILIZING GREENHOUSE ACCESSORIES AND PASSIVE SOLAR TO CREATE AN EDUCATIONAL GREENHOUSE

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## CHALLENGE

While constructing a net zero energy school in Staten Island, New York, a board of education sought the experience of Solar Innovations® in the design of a greenhouse.

The design intent was to create an educational space for students to learn about food growth while promoting passive solar design and allowing daylight into the corridor that runs alongside it. The greenhouse would be located on the second floor along an inner courtyard with direct access to the outdoor vegetable garden that sits directly in front of it. The majority of solar exposure for the greenhouse to utilize would come from the southwest. Because the greenhouse would be utilized by a variety of students and ease of travel between the greenhouse and vegetable garden was desired, the project also required flexible, adjustable, and transportable greenhouse accessories. Working with the architects, Solar Innovations® designed and built a greenhouse to overcome these challenges.

## SOLUTION

Solar Innovations® was able to meet the school's requirements by designing and manufacturing a straight-eave lean-to greenhouse. An antechamber was constructed using Solar Innovations® interior partitions to allow students to enter the greenhouse from the main corridor.



Solar Innovations® also supplied benches and shelves to fill the greenhouse and facilitate plant growth. In order to accommodate the variety of students who would be utilizing the space, the greenhouse benches' height is adjustable. In addition, the benches are equipped with wheels; as seedlings sprout and grow, students can bring the plants from the greenhouse to the outdoor vegetable garden for proper planting. Two terrace doors were placed on the elevation facing the outdoor vegetable garden to accommodate traffic between the two spaces. The glazing for the greenhouse is five wall clear polycarbonate for enhanced thermal performance and safety. Polycarbonate doesn't run the risk of shattering and creating dangerous shards.

Reflecting the net zero school's core values, this greenhouse will help educators to teach students the ideals of sustainability in a meaningful and memorable way.

## PROJECT DETAILS

**Series:** Straight-Eave, Lean-To Greenhouse with no Gable Ends

**Finish:** Custom Paint AAMA 2605 #AD3G1239N

**Glazing:** Five Wall Clear Polycarbonate

