

GREENHOUSE ACCESSORIES



Everything you need to create an indoor oasis.

Items like storage space, shades, and walkways are often overlooked during the design process, but they can be critical to the success of a greenhouse. Air circulation for plants, storage space for greenhouse necessities, and ample walkways to access your plants should all be addressed during the design process. Solar Innovations® provides customers with one of the largest selections of greenhouse accessories in the industry. All greenhouse accessories can be combined to create a balanced and efficient growing environment. Our accessories are designed to work either with manual switches or automatically with sensors, and can be customized to meet your specific needs with a complete environmental control system.

OPTIONS

BENCHES:

- Tiered
- Fixed
- Gravel
- Seedling
- Potting
- Rolling
- Ebb & Flow

SHELVING:

- Mesh (Plastic/Metal) Tops
- Wood Tops
- Glass Tops
- Shelf Supports

PLANT HANGERS:

- Aluminum Tube Hangers
- Sliding Plant Hangers
- Decorative Corners
- Aluminum Trusses
- Ring & Collars
- Single Plant Hangers

LIGHTING:

- Grow Lights
- Metal Halide
- High Pressure Sodium
- Switchable
- LED Controlled Growing

SHADING:

- Greenhouse Shades
- Wide Span Horizontal Shade
- Pleated Gravity Fed Shades

VENTING:

- In-System Skylights
- Ridge & Eave Vents
- Exhaust Fans
- Circulation Fans

IRRIGATION SYSTEM:

- Riser Misting System
- Drip/Ring Misting System
- Suspended Misting System
- Polyrail Misting System
- Jet Fog Misters
- Fertilizer Injectors

DECORATIVE ELEMENTS:

- Trims
- Corner Columns
- Ridge Cresting
- Gable Pediments
- Base Panels
- Appliqués
- Grids
- Gutters
- Ring & Collars
- Eave Spandrels
- King Posts
- Finials

COLD FRAMES

HUMIDIFIERS

CONTROL SYSTEMS

HEATING & COOLING:

- Evaporative Coolers
- Portable Evaporative Coolers
- Heaters

BENCHES

Benches can greatly increase the amount of growing space in a greenhouse. Benches come in standard sizes from most manufacturers, but Solar Innovations® creates custom benches to fit any configuration, including fixed, tiered, rolling, and more.

TIERED



FEATURES:

- Aluminum framework
- Custom sizes with 10' maximum length
- 48" bottom bench depth
- 24" second tier depth
- 12" third tier depth
- Custom specified leg height
- Metal mesh bench tops
- Maximum of three stacked tiers recommended

OPTIONS:

- Cedar, Teak, Mahogany, & recycled content black polyethylene bench top options
- Multiple heights to accommodate varying plants needs & requirements
- Casters available

FIXED



FEATURES:

- Aluminum framework
- Custom sizes with 10' maximum length
- 36" standard depth
- Metal mesh bench tops
- Custom specified leg height; lower heights also available

OPTIONS:

- Cedar, Teak, Mahogany, & recycled content black polyethylene bench top options
- Custom shapes; octagonal, etc
- Additional bench supports for heavy plants
- Casters available

GRAVEL



FEATURES:

- Designed with the purpose of providing orchids & tropical plants a direct source of humidity
- Aluminum framework
- Custom sizes with 10' maximum length
- 36" standard depth
- Solid bench top insert to hold water & materials
- Drain plug to release excess/unwanted water
- Custom specified leg height; lower heights also available

OPTIONS:

- Various bench top depths designed for specific plant needs
- Casters available

SEEDLING



FEATURES:

- Solid aluminum frame
- Custom sizes with 10' maximum length
- 36" standard width x 6" deep
- Designed to grow plants directly in unit
- Solid recess to house soil for plant growth
- Removable housing for soil/plant rotation
- Custom specified leg height; lower heights also available

OPTIONS:

- Various bench top depths designed for specific plant needs
- Built in trellises for climbing/vining plants
- Casters available

POTTING



FEATURES:

- Aluminum framework
- Custom sizes with 10' maximum length
- 36" standard depth
- Metal mesh bench top
- Potting soil bins
- Under counter storage shelves

OPTIONS:

- Cedar, Teak, & Mahogany bench top options
- Rolling, under-counter shelves
- Electrical allowances
- Tool hanging area
- Sink and faucet
- Upper bench shelving & attached back
- Casters available

ROLLING



FEATURES:

- Aluminum framework
- Custom sizes with 10' maximum length
- 36" standard depth
- Metal mesh bench top
- Non-ferrous component hardware

OPTIONS:

- Under bench heating & cooling options
- Cedar, Teak, Mahogany, & recycled content black polyethylene bench top options
- Standard & custom configurations
- Stainless steel fasteners
- 2-sided rolling operation; 18" roll each direction
- Casters available

EBB & FLOW



FEATURES:

- Aluminum framework
- Custom sizes with 10' maximum length
- Ebb & flow plastic bench tops
- After irrigation water is removed from trays and recirculated or discharged
- Greatly reduce labor costs
- Saves water consumption

OPTIONS:

- Ebb & flow trays can be purchased separately
- Over 30 sizes available
- Standard & custom configurations
- Available as rolling bench
- Casters available

SHELVING

Greenhouse shelving options from Solar Innovations® provide additional growing storage space for any greenhouse. A shelf can be added to a solid wall or attached to the rafters in front of glass windows.

MESH



Greenhouse shelves can have a metal mesh or recycled-content, black polyethylene mesh top. These materials are open and allow water to flow. Both options are contained in aluminum framework. The metal shelving is silver and the polyethylene is black and hides dirt easier.

WOOD



Wood tops are available as inserts for metal bench frames, or they can be free floating on shelf supports. Mahogany or cedar is recommended because of its ability to endure moisture and humidity. After the wood is stained, it gives a feeling of a traditional English greenhouse.

GLASS



Glass shelves are custom designed to a user's specifications. This type of shelf is commonly used in garden windows and other growing areas with limited space. When stacked, light can travel through the shelves to plants on lower shelves.

SHELF SUPPORTS



The decorative corner is a cast aluminum element that adds character to shelving.

The flat metal support can be designed to brace the shelf from above or underneath the unit.

PLANT HANGERS

Solar Innovations® understands the importance of utilizing all available space within a greenhouse. This factor led to the development of six plant hangers which utilize the space around the eaves of the greenhouse. All these plant hangers are constructed out of aluminum which will not rot or rust.

Aluminum Tube Hanger

A fixed aluminum tube runs the length of the greenhouse at eave height. The tube is attached at each bay with a clip and can be painted to match the frame.

Decorative Corner

Cast aluminum plant hangers with a historically inspired, ornate design. This plant hanger is meant to be noticed and is painted to match the structure's frame. Each corner typically holds one hanging basket.

Ring & Collar

Ring and collars are historical accessories which span the length of the greenhouse and are often used for decoration and structural support. They are often accented with an appliqué and painted to match the frame finish.

Sliding Plant Hanger

A unique system that consists of a metal bar with individual carriers inside the bar. Each carrier has wheels which allow hanging baskets to slide left and right.

Aluminum Truss

This structural support truss is specially designed into a greenhouse frame and can be used as a plant hanger to hold heavy plants. Multiple trusses can be included in a greenhouse to accommodate a large collection of hanging baskets.

Single Pant Hanger

Individual o-hooks are inserted into the rafter screw track. Each hook holds one hanging basket and does not penetrate or create holes in the frame.



LIGHTING

Supplemental lighting creates the potential for additional plant growth by providing the necessary hours of light when it is not naturally available. Most year-round greenhouses require lighting during the winter so that plants receive the necessary amount of light.



Grow Lights

- Aid in seed starting
- Aid in propagating new plants
- Supplement natural light during the winter months
- Increase fruit/bloom productions

Metal Halide

- Promotes plant growth
- Blue/white spectrum
- Average lifespan: 10,000 hours
- Used as a primary light source
- Closest look to natural sunlight

High Pressure Sodium

- More fruit and blooms with plants
- Red/orange spectrum
- Average lifespan: 2400 hours
- Used as a light supplement

Switchable

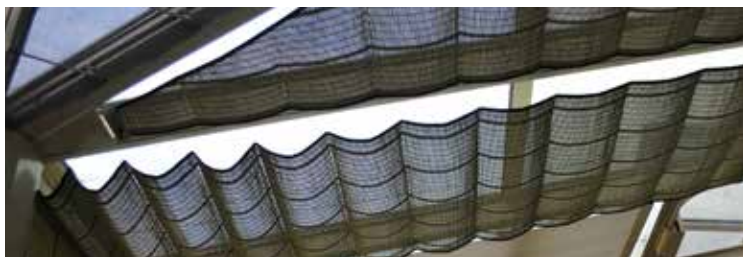
- Can use high pressure sodium or metal halide bulb
- Grow light bulb can be switched to accommodate different plants & growing schedules
- Common wattage: 150, 250, 400 and 1200 turbo boost

LED Controlled Growing

- Replaces a 400 watt HPS with 40% Less Energy
- Fully programmable system control
- Ideal for propagation, Veg or bloom
- Never needs bulbs
- Perfect for small or large scale grows

SHADING

Depending on the greenhouse's orientation and climate, the sun may become too intense, causing plant damage or overheating. To avoid this situation, a shading system can be installed. If the greenhouse is doubling as a conservatory or living space, shades can also create a comfortable living environment.



Greenhouse Shades

All shades for a greenhouse are built for high moisture areas and are water, bacteria, and fungi resistant. Each type of shade system is suitable for residential and commercial greenhouses. As a rule of thumb, a greenhouse shade should be around 25% open for most plants and lower for orchids and low light plants.

Wide Span Horizontal Shade

The Wide Span Horizontal Shade application is designed to span the eave of a conservatory. Shades are mounted directly to the eave. The blinds operate in a Roman fold style. When extended they allow heat to be held above the system in the eave, while the living space remains cooler. On cool winter days, the shades can be retracted to allow sunlight and heat into the structure. Varying fabrics, colors, and textures are available.

Pleated Gravity Fed Shades

Pleated Shades can be used in the roof and vertical walls of a glass structure. The pleats provide a visual pattern and soften daylight for interior spaces. Shades can be operated with independent manual pulls or motorized options. They are generally mounted at the eave and pull upwards toward the ridge, except for angled corners where the shades will operate inversely. Fabric selections are dependent upon interior environment.

VENTING



Ridge & Eave Vents

Ridge and Eave Vents are used to aerate a structure and keep air circulating to promote plant growth. Vents can be set to automatically open when a specified temperature is reached. As hot air rises, it becomes trapped in the structure's peak and needs to escape. The ridge vent will open, either manually or motorized, and release the air. Ridge Vents can be a single bay or feature multiple bays that are all connected. The Eave Vents are located on the structure's walls and will also open. Eave Vents allow cool air to enter, ridge vents allow the hot air to escape. The air will circulate through the room and lower the temperature. This will make the room far more comfortable and help reduce the spread of diseases in greenhouse plants.

Features

- Temperature based automated operation
- Water resistant motors
- With a weather station or sensor, vents close when rain or snow is detected
- Timed & grouped operation of multiple vents

For more details reference SI6300 Ridge & Eave Vents Cut Sheet.

In-System Skylight

In-System Skylights are the perfect solution if venting is necessary in the roof of a low pitch Solar Innovations® structure (below 3/12 or 14° roof pitch.) In-System Skylights serve a purpose similar to that of ridge vents. The skylights feature a higher profile and a low pitch seal to ensure protection against leaking. These skylights can be operated either manually or with a moisture resistant motor. The skylights are made from thermally broken aluminum, which does not rot, rust, warp, or require constant finish maintenance. The models are thermally enhanced to match the greenhouse framework.

Features

- Custom sizes
- One to four bays
- Durable aluminum frame
- Various glass types available
- Standard finishes
 - AAMA 2603: Bronze, White
 - AAMA 611 Class I Anodized: Clear, Dark Bronze
- Designer finishes
 - AAMA 2603: Hartford Green, Black Natural Clay, Sandstone
- Custom finishes
 - Powder coat finish: AAMA 2604 - 2605
 - Fluoropolymer (50% or 70%): AAMA 2604 - 2605
 - Wood veneer, metal cladding, and foiling options
 - Dual color or dual finish options



Circulation Fans

Circulation Fans are needed in a greenhouse in order to grow healthy plants. Stagnant air will breed diseases, but the use of circulation fans reduce the spread of fungi and pests. After watering plants, their leaves become moist. Moist leaves combined with warm temperatures will promote disease growth. Circulation Fans help dry plants quicker and reduce pests. A circulation fan can also help eliminate pockets of hot and cold air in a greenhouse. Two fans are typically used in a greenhouse and placed in opposite corners.

Features

- Fully enclosed motors
- Hanging mount
- Framework built for greenhouses & high moisture environments
- Optional variable speed controllers
- White frame

Available Models Patented Schafer Air Circulation Fan		
MODEL	DIAMETER	PERFORMANCE
VK8	8"	448 ccfm
VK12	12"	1554 ccfm
VK20	20"	4000-4800 CFM
VK24	24"	5000-6000 CFM
SI Dram	24"	5000-6000 CFM



Exhaust Fans

Exhaust fans pull hot air out of a structure and prevent it from becoming trapped at the ridge. Fans will help circulate air within a structure and maintain a constant temperature. Available in white vinyl only. Painted finish available for an additional charge.

Available Models

- SFT-1200-1 12" (760 C.F.M.) with MIT-1600 16" motorized intake
- SFT-1600-1 16" (1250 C.F.M.) with MIT-2000 20" motorized intake
- SFT-2000-1 20" (3122 C.F.M.) with MIT-2200 22" motorized intake

Product Details

- Triggered by temperature
- Best suited for monolithic glazed greenhouses
- PVC shell with aluminum blades
- Motorized operation
- Lower intakes pull cool air into the greenhouse
- Placed opposite exhaust fan
- Shutter must be 6" larger than the fan

IRRIGATION SYSTEMS

An automatic watering system can regulate the flow of water and nutrients to plants without the gardener being on-site. A Solar Innovations® greenhouse expert can determine if misting and/or drip systems are correct for you.



Riser Misting System

A riser misting system is designed for flexibility. The system is mobile; if you change your greenhouse configuration often, this system may be your best choice. Risers can be placed in any given location on the benches. A mist is sprayed over the top of the riser and can be relocated to a different area at any time.



Drip/Ring Misting System

The drip misting system is used for slow water release. This system is great for gardeners who travel frequently or have busy schedules. A plastic hose runs the length of your bench, drip tubes are attached to the hose and supply individual plants with slow and steady drips of water. Holes can be filled and the tubes rearranged if necessary.



Suspended Misting System

The suspended misting system is elevated above benches to provide maximum bench space. The system runs the length of the benches, suspended from a jack chain. Nozzles are again inserted directly into the water supply. This system can be positioned at virtually any desired height.



Polyrail Misting System

A polyrail misting system is well suited for large expanses in a greenhouse. Rolling benches are often designed to use the system. There are vertical stakes in each rail that run the length of the benches. The water supply is located within these rails. Nozzles are inserted into the water supply, and a fine mist is distributed over the plants.



Jet Fog Mistlers

Jet fog misters are used for both watering and humidity. This system is typically mounted at the eave line and sprays a fine mist. Greenhouses with delicate plants, like orchids, operate efficiently with the fine mists. Timing and frequency can be automated in these systems. Available in portable and stationary configurations.



Fertilizer Injectors

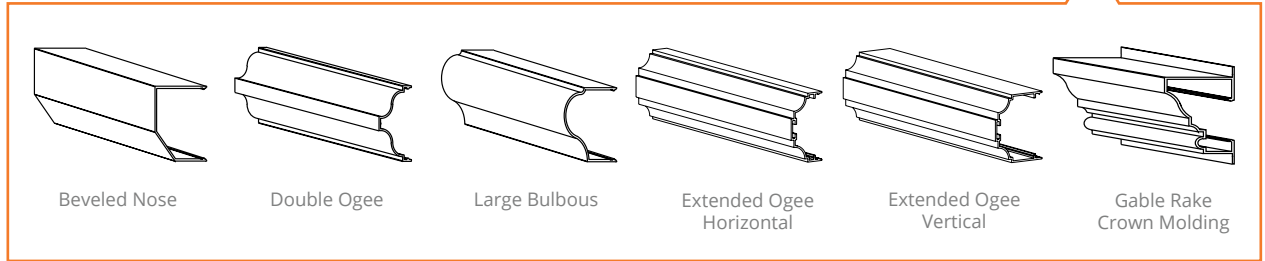
Fertilizer injectors are the most efficient way to feed plants by delivering nutrients in a liquid form directly to the roots of the plants. Fertilizer injectors are a fast and accurate way to feed an entire garden, landscape, nursery or greenhouse. Solar's fertilizer injectors can be used in a variety of installations and configurations.

DECORATIVE ELEMENTS



TRIMS

Solar Innovations® offers extruded decorative trims in durable aluminium, which will not warp, rot, rust, or require finish maintenance like traditional wooden trim. There are five standard paint finishes available along with any custom color required. All trims are suitable for interior and exterior use.



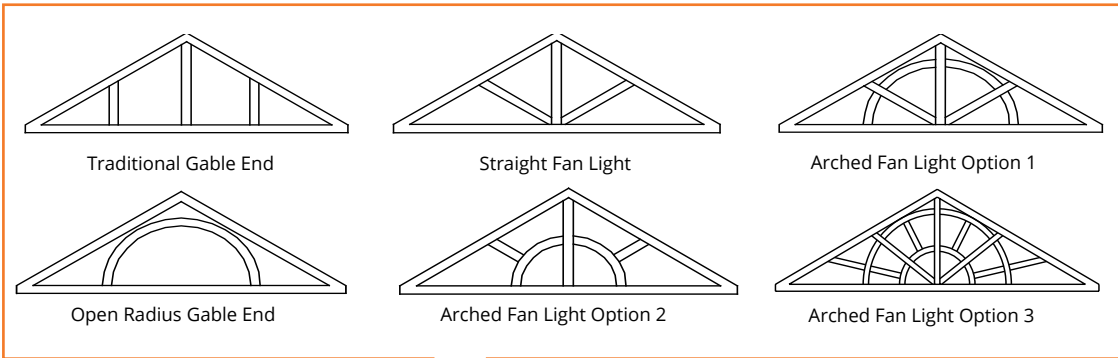
CORNER COLUMNS

Decorative and structural corner columns are one of the most classic forms of architecture, and Solar Innovations® can create custom designed columns to fit your structure. The columns can be traditionally modelled, flat, fluted, styled after a Doric or Egyptian column, or contemporary styled.



RIDGE CRESTING

Ridge cresting is used to enhance the ridge line of a greenhouse, especially in Classic English designs. Several styles of ridge cresting are available. A finial or king post is typically used to terminate the ridge cresting's length.



GABLE PEDIMENTS

Gable pediments, commonly referred to as Palladian arches, are added to the triangular gable in a greenhouse. The most common designs include a half round arch, with rays extending from the arch. The radius and number of rays are all customized to the greenhouse. Grid work can be used to simulate true pediments or mullions.



BASE PANELS

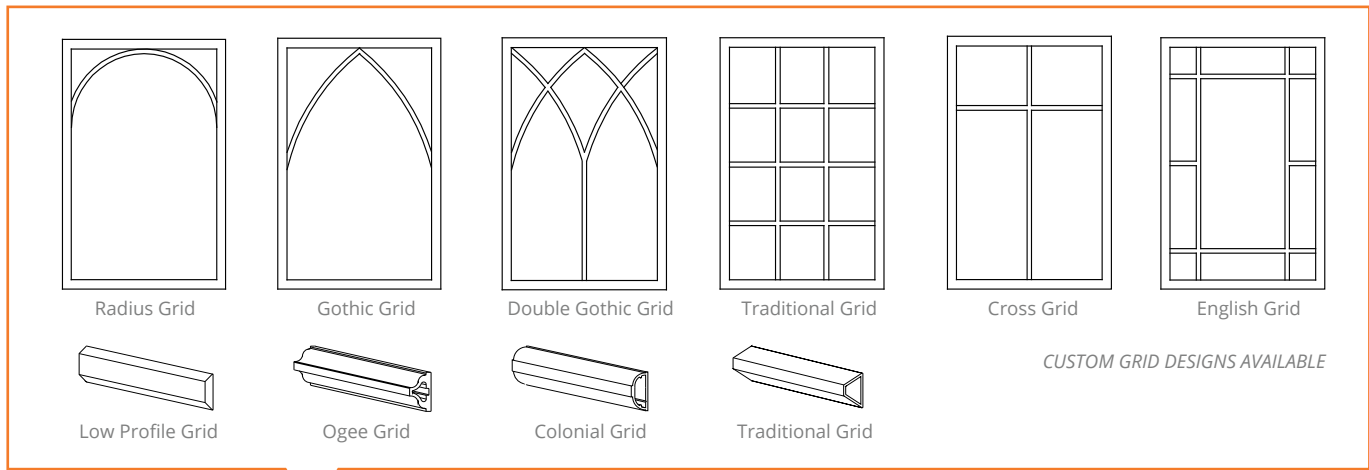
Decorative base panels follow the Elizabethan form of raised grid design. We offer two standard models: a raised panel, featuring an elevated face that protrudes 1/2" from the panel base, and a smooth panel. Base panels add a classic, traditional look to structures and doors.



APPLIQUÉS

Decorative appliqués are elements that can add character to structures. Each cast aluminium appliqué features one of two main motifs: the rosette or the fleur-de-lis.

DECORATIVE ELEMENTS



CUSTOM GRID DESIGNS AVAILABLE

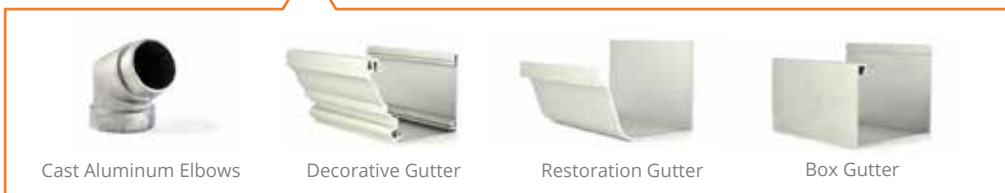
GRIDS

Decorative grids enhance the look of any structure, and are available in four standard types: Low Profile, Ogee, Colonial, and Traditional. We offer two types of grids: interior muntins and exterior grids combined with simulated divided lites (SDLs). Interior muntins are placed inside the airspace between two panes of glass, and can be formed into almost any grid style, including radius designs. They are typically more cost effective and easier to clean. Exterior grids are placed on the interior and exterior of the window and—in insulated glazing—are accompanied by an SDL, which follows the shape of the exterior grids. Grids are also available on transoms, a type of window located above a door, window, or other glazing materials.



GUTTERS

Decorative gutters add an aesthetically appealing, functional element to any structure. Gutters are available in several styles and finishes, including traditional copper, and include down-spouts in standard, round, or fluted round shapes. We specialize in restoration projects and can provide custom cast aluminum elbows, drop outs, and extruded down-spouts to mimic an existing structure's architectural time period.



Cast Aluminum Elbows

Decorative Gutter

Restoration Gutter

Box Gutter



RING & COLLARS

Decorative ring and collar supports, also known as cross ties or cross bars, are decorative trusses that link two opposite rafters to provide additional support to maintain roof shape and structural integrity while adding unique architectural appeal. They may also be used for purely decorative purposes, and can double as plant hangers. If requested, appliquées can be added to each side of the ring for a traditional style.

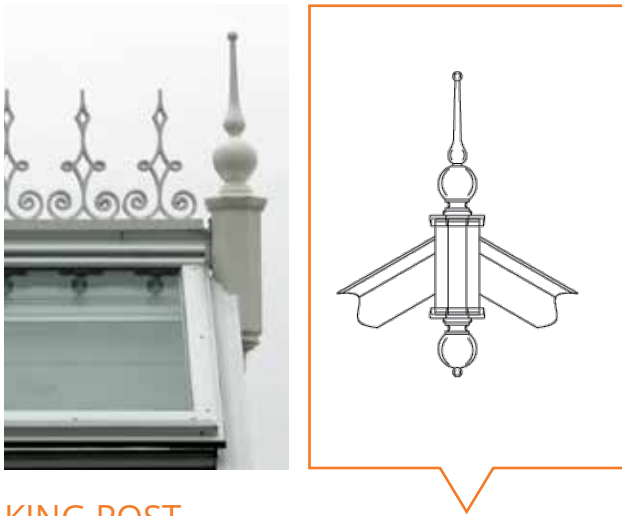


EAVE SPANDRELS

Eave spandrels, or decorative corners, can be considered one of the oldest forms of decorative architecture and can be found in buildings as early as ancient Rome. An eave spandrel was historically the space between an arch and a wall or column, but can also occupy the space between a wall and a squared-off opening. While eave spandrels are primarily decorative, they can also be used for shelf supports or plant hangers.

To learn more about our Greenhouse accessories, visit solarinnovations.com/greenhouse-accessories/

DECORATIVE ELEMENTS



KING POST

King posts, similar to finials, are typically placed at the end of a structure's ridge cresting. The king post is made up of a hub with finials on the top and bottom to create a dramatic decorative finale to the roof line.



FINIALS

A finial, also known as a spire, is typically located at the highest peak of a greenhouse's roof. Dormers, lanterns, ridges, and entryways can all utilize finials. There are countless styles of finials, some of which can also be used as lightning rods when properly sized, designed, and installed.

COLD FRAMES



Cold Frames are one of the oldest forms of greenhouses. A Cold Frame is essentially a glass box with aluminum framing and a lid. Its main function is to extend the growing season into early spring and late fall. A Cold Frame is placed directly above a section of soil where plants will be grown. During the night and cold days, the lid is kept closed to retain heat, providing plants with necessary warmth. Then, when the days are warm, the lid is opened for fresh air and lower temperatures.

Cold Frames are historically constructed out of wood, which is subject to rotting after a few years and will require frequent maintenance. Solar Innovations®'s Cold Frames are constructed out of aluminum, which will not rot, warp, or rust. Each unit is custom designed to exact specifications; customers may choose their dimensions and include as many bays as needed. Cold Frames are available in all of Solar Innovations®'s standard colors. Cold Frames can also be modified to be heated from greenhouse ventilation if desired.

HUMIDIFIERS

Humidifiers are utilized to control moisture levels in the air for optimal plant growth. When humidity drops below a predetermined level, a sensor triggers the humidifier to activate. For more advanced applications, high pressure foggers are available.

Turbo XE 500 & XE 1000

- Used on mid-sized greenhouses; Models available for larger greenhouses
- XE 500 propels water up to 25'
- XE 1000 propels water up to 30'
- Quiet & noise free operation
- Withstands salt, lime, & acid exposure
- Withstands 100% relative humidity
- No filters or special pumps required

Hydro SS 700

- Used on smaller greenhouses
- Direct feed hanging units receive liquid through a visual flow meter control panel
- Equipped with a 5 GPH flow meter panel & 12' condensation drainage line
- Propels water up to 20'
- No filters or special pumps required
- All hardware is stainless steel



CONTROL SYSTEMS



Advances in computer technology have made owning and operating greenhouses easier than ever before. Solar Innovations® environmental control options can aid the home gardener or professional horticulturist by automatically adjusting temperature, humidity, and light intensity from within the greenhouse or from a remote location. An environmental control system will improve plant life within greenhouses by providing a constantly monitored atmosphere, producing a more uniform product. These systems provide maximum benefit by giving the ability to: adjust temperature, adjust humidity, control light intensity, and monitor atmosphere just to name some of the operations.

Fans, Vents, Misting Systems, Fogging Systems, Heating Systems, and Cooling Systems are all operated by control systems. The operations can be very simple in nature and provide a great benefit to keeping your greenhouse in perfect shape. The first stage of implementation can be as simple as an on/off switch to control circulation fans. By semi-automating a control system with a humidistat, a thermostat, or a timing device, the accessories will run only when necessary, lowering operating costs and saving energy. There are also built in alarms for if greenhouse fails.

Features

- Temperature triggered operations
- Humidity triggered operations
- Rain and wind sensor options
- Alarms
- Computer tracking and recording
- Daily or weekly monitoring - dependent upon selection
- Touch screen operation or switch control
- Cell phone updates

Compatible Accessories

- Heating
- Cooling
- Humidity
- Ventilation
- Watering systems
- Grow lights
- Shading
- Multiple growing zones



HEATING & COOLING



Evaporative Coolers

A greenhouse has the potential to overheat in summer, even with ventilation. In order to preserve the plants, cooling needs to be incorporated. Solar Innovations® recommends an Evaporative Cooler which reduces temperature and adds humidity to the greenhouse.

The Evaporative Cooler draws air over a wet pad, by way of a fan. As the water passes over the pads, it evaporates and takes heat with it. The air then passes into the greenhouse and can be up to 30° cooler. Evaporative Coolers consume ¼ less energy than traditional air conditioners, which translates to lower utility bills. Evaporative Coolers exchange air; rather than re-circulating stagnant air; a benefit for greenhouses which need fresh air to combat pests and disease.

Portable Evaporative Coolers

Portable evaporative coolers provide a low-cost, environmentally-friendly means of keeping spaces cool. Water and forced air are combined to reduce air temperatures by as much as 26°F. Coolers are made with a micro-computer programmed control panel with LCD display, and come with a convenient remote control

Model	Dimensions (H x W)	Draft Direction	CFMs	HP	Weight (lbs)
3000SD	33 ⁷ / ₁₆ " x 28 ¹ / ₁₆ "	Side Draft	3000	1/3	193
N30S	33 ⁷ / ₁₆ " x 28 ¹ / ₁₆ "	Side Draft	2077	1/3	193
N40/45S	34 ¹ / ₂ " x 34 ¹ / ₁₆ "	Side Draft	4000-4800	1/3 or 1/2	269
N55/65	42 ⁷ / ₁₆ " x 39"	Side Draft	5000-6000	1/2 or 3/4	357
30" Portable	59" x 44"	Front	10,500	3/4	110



Heaters

Solar Innovations® offers several heating options for warming your greenhouses. We offer four styles of heaters, including floor mounted and roof hung units where vents are placed in the walls, electric roof hung units that are ventless, and a wall mounted, direct vent version. All heaters run efficiently through thermostatic temperature controls, a matchless ignition, and the wall thermostat operation.

Hydronic Heating

Hydronic heat is a clean, healthy, and energy efficient method of heating a glass structure. The motor of a hydronic heater does not blow air through vent work where dust resides, resulting in a cleaner system. These motors are also quieter than those found in traditional heating options. An added benefit of a hydronic heater is its energy efficiency which will eventually reduce the utility bill.

Manufacturer	Model	BTU output	Entering Airflow (CFM)	Heat Throw (ft) at Max Height
Modine Hot Dawg	HD30	24,000	505	25
Modine Hot Dawg	HD45	36,000	720	27
Modine Hot Dawg	HD60	48,000	990	36
Modine Hot Dawg	HD75	60,000	1160	38
Modine Hot Dawg	HD100	80,000	1490	42
Modine Hot Dawg	HD125	100,000	1490	42
Empire	DV20E	20,000	350	25
Empire	DV40E	40,000	350	35
Empire	DV55E	55,000	400	50
Markel Electric	492296	25,000	375	25
Markel Electric	492290	11,200	375	20



Learn More

To find out more about the features and options of our Greenhouse Accessories, visit our website at solarinnovations.com/greenhouse-accessories/