

**SECTION #13 12 3 – GREENHOUSE BENCHES  
BY SOLAR INNOVATIONS, INC.**

**NOTE TO SPECIFIER:**

**This section is based on the products of Solar Innovations, Inc., which is located at:**

**31 Roberts Road  
Pine Grove, PA 17963  
Phone 800-618-0669; Fax 800-618-0743;  
Email: skylight@solarinnovations.com  
Website: www.solarinnovations.com**

**Solar Innovations, Inc. is a leading manufacturer of the highest quality aluminum and wood structures. Their comprehensive product line includes conservatories; greenhouses; solariums; skylights; pool and spa enclosures; folding and stacking glass walls; walkways; canopies; sliding, terrace, pivot, and lift slide doors; and more. Solar Innovations, Inc. strives to produce products tailored to each particular need, residential or commercial.**

**This specification includes Solar Innovations, Inc.'s greenhouse benches that are available in any size, design, or color with custom and standard options at comparable prices. If you can imagine it, Solar Innovations, Inc. can build it.**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

1. Greenhouse Benches

**1.02 RELATED SECTIONS**

**\*\*\*Note to Specifier: Delete items below not required for project; add others as required**

- A. Section #13 34 13.13 – Greenhouses
- B. Section #13 34 13.16 – Conservatories

**1.03 REFERENCE STANDARDS**

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date
- B. All reference amendments adopted prior to the effective date of this Specification shall be applicable to this Project

C. All materials, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references:

**\*\*\*Note to Specifier: Delete any references below that are not required by the project, and add others as required.**

1. AAMA611 – Voluntary specifications for anodized architectural aluminum (revised).
2. ASTM A36/A36M – Standard specification for carbon structural steel
3. ASTM B221/B221M – Standard specification for aluminum and aluminum-alloy extruded bars, rods, wire, profiles, and tubes
4. ASTM B241/B241M – Standard specification for aluminum and aluminum-alloy seamless pipe and seamless tubes
5. AWS D1 – Structural welding code
6. FGMA – Flat glass marketing association, glazing manual

#### 1.04 SUBMITTALS

A. Submit under the provisions of Section 013000 for review and approval for fabrication.

B. Shop Drawings – Detailed drawings prepared specifically for the project by manufacturer. Include information not fully detailed in manufacturer's standard product data, including, but not limited to, wall elevations and detail sections of every typical composite member. Show opening dimensions, framed opening tolerances, profiles, product components, anchorages, and accessories.

1. Indicate fastener locations
2. Include schedule identifying each unit, with marks or numbers referencing drawings
3. Must show all surrounding substrates and relevant conditions
4. Must be drawn in the domestic USA, by the manufacturer of the system.

C. Product Data – Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations
2. Preparation instructions and recommendations
3. Installation methods

**\*\*\*Note to Specifier: Delete color section samples if colors have been pre-selected.**

D. Color Samples – Two complete color chip sets representing manufacturer's full range of stocked colors with a standard size of 2" x 3" (50mm x 75mm).

E. Verification Samples – required samples for verification of system

1. Aluminum Finish – Two samples, minimum size of 2" x 3" (50mm x 75mm), representing actual product and color.

1.05 QUALITY ASSURANCE

A. Manufacturer qualifications – company shall be a company specializing in the manufacturing of products specified in this section. Manufacturer shall have at least fifteen (15) years of experience in fabrication and erection of projects of similar scope.

1. Manufacturer must use an extruded aluminum system comprised of domestically produced aluminum and is fabricated/assembled in the USA.
2. Manufacturer must be recognized by NAMI.
3. Manufacturer must be a member in good standing of the National Sunroom Association (NSA).
4. Manufacturer must be a member in good standing of the National Greenhouse Manufacturer's Association (NGMA).
5. Manufacturer must be a member in good standing of the National Glass Association (NGA).
6. Manufacturing facility must have achieved Gold LEED certification

B. Installer Qualifications – Installer shall be experienced in performing the work of this section that has specialized in installation of work similar to that required for this project for a minimum of fifteen (15) years.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the jobsite freight prepaid.
- B. Store products in manufacturers original unopened packaging, covered to protect factory finishes from damage, precipitation, and construction dirt until ready for installation
- C. Store materials off construction grounds in a secure location that is a dry, covered area and protected from weather conditions
- D. Inspect and report any freight damages to the manufacturer immediately.

1.07 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimal results. Do not install products under environmental conditions outside manufacturer's absolute limits.

- B. Perform structural silicone sealant work when air temperature is above 10° F (minus 12° C)

#### 1.08 WARRANTY

- A. Provide manufacturer's limited warranty that all components are warranted for one (1) year for cases of normal use. Many components are also warranted by the original manufacturers for greater lengths of time. Reference original warranty for complete warranty time frames.
- B. Warranty Addendum – Manufacturer offers extended warranties and service contracts on a per job basis.
- C. Frame Finish
  - 1. Custom warranty period, \_\_\_ years, to be approved and accepted in writing by Solar Innovations, Inc. based on project's scope and application

### PART 2 PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURERS

- A. Product based on Solar Innovations, Inc. Greenhouse Benches, as provided by:  
Solar Innovations, Inc.  
31 Roberts Road  
Pine Grove, PA 17963  
Phone 800-618-0669 / Fax: 800-618-0743  
Email: [skylight@solarinnovations.com](mailto:skylight@solarinnovations.com)  
Website: [www.solarinnovations.com](http://www.solarinnovations.com)

**\*\*\*Note to Specifier: Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.**

- B. Substitutions not permitted
- C. Requests for substitutions will be considered in accordance with provision of Section 016000

#### 2.02 GREENHOUSE BENCH(ES)

- A. Greenhouse Benches– SI9401 Greenhouse benches to be shown on approved greenhouse shop drawings. If bench mounted irrigation is selected, irrigation system shall also be represented on the approved greenhouse shop drawings. Greenhouse bench layout shall be coordinated between greenhouse manufacturer and architect for final approval.
  - 1. Dimensions

- a. Width - \_\_\_\_
  - b. Length - \_\_\_\_
  - c. Height - \_\_\_\_
  - d. As indicated on the Drawings
2. Framing Members
    - a. Framing Members - Aluminum
3. Bench Type
    - a. Fixed
    - b. Seedling
    - c. Potting
4. Bench Top Material
    - a. Aluminum Mesh Top
    - b. Wood Top
    - c. Polyethylene
5. Additional Features
    - a. Tiers
    - b. Shelves
    - c. Casters

**\*\*\*Note to Specifier: Many code jurisdictions have their own local code requirements. Provide local code requirements under which the project is being designed; i.e. Uniform Building Code, 1997 Edition with local amendments. If project location is only national code jurisdiction, indicate as such.**

6. Local Code Jurisdiction - \_\_\_\_

## 2.03 MATERIALS

- A. Aluminum – 6063-T52, 6063-T6, or 6061-T6 alloy and temper. Other alloys and tempers may be used for non-structural members provided they do not void the required warranties. Indicate alloys and tempers clearly on shop drawings and in structural calculations.

## 2.04 FABRICATION

- A. Fabricate components in accordance with the shop drawings approved by the architect.

- B. All **major** fabrication shall be done at the manufacturing location and not onsite.
- C. Manufacturer shall remove all burrs and rough edges prior to finish application.
- D. Install all gaskets and tapes at factory, as reasonable.
- E. Disassemble only to the extent necessary for shipping and handling limitations.
- F. Manufacturer shall be notified of any field modification prior to the activity commencing.
- G. All welding shall comply with standards set forth by the American Welding Society.
- H. Grind exposed welds smooth and flush with adjacent surfaces before finishing; restore mechanical finish.
- I. Perform all work in a method that will meet or exceed industry standards.
- J. Isolation membrane materials shall be used to separate dissimilar metals to prevent galvanic corrosion/action between materials.
- K. Fabricate components to allow for accurate and rigid fit of joints and corners. Match components carefully ensuring continuity of line and design. Ensure joints and connections will be flush and weather tight. Ensure slip joints make full, tight contact and are weather tight.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. General contractor shall direct, supervise, and inspect all site work related to the greenhouse bench.
- B. Do not begin installation until substrates have been properly prepared and approved by manufacturer. Substrate preparation shall be done in strict accordance with the approved shop drawings.
- C. If substrate penetration is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- D. Thoroughly clean all surfaces and substrates prior to installation.
- E. Prepare surfaces using the method recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### **3.02 INSTALLATION**

- A. Installation of the greenhouse bench shall be done in accordance with approved shop drawings and manufacturer's instruction and installation manual(s).
- B. Provide attachments and shims to permanently fasten system to building structure.
- C. Maintain dimensional tolerances and alignment with adjacent work.

D. Anchor securely in place, allowing for required movement, including expansion and contraction.

### 3.03 ADJUSTING AND CLEANING

E. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.

F. Any abraded surface of the finish shall be cleaned and touched up with air dry paint, as approved and furnished by the window manufacture, in a color to match factory applied finish.

G. Remove from project site, and legally dispose of construction debris associated with this work.

### 3.04 HOUSEKEEPING

A. Manufacturer shall deliver all related operating instructions, maintenance manuals, and warranty registration cards to the general contractor during the completion of the project.

B. Installer shall protect installed products until completion of the installation from all construction debris and natural elements.

C. Manufacturer is responsible for all touch-up, repair, or replacement of damaged products during the installation.

D. Installer shall keep area tidy and safe at all times.

E. Clean and dress all sealant prior to installation completion.

F. Installer shall clean the entire bench one time at the completion of the installation. Cleaning shall include surface cleaning of aluminum framing clean up of construction debris. All subsequent cleaning shall be the responsibility of the general contractor.

### 3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair, or replace damaged products before Substantial Completion.

**END OF SECTION**