

## **SECTION 20 1000 00**

### **PALRAM SUNPAL® 18mm/20mm SPECIFICATION Standing Seam Multiwall Polycarbonate ROOFING / CLADDING SYSTEMS**

**NOTE:**

- In order to ensure the best specification for your application we recommend that you consult with your local PALRAM representative for assistance.
- Delete optional/unnecessary items which are not related to your application.  
The mark of ➡ in left margin denotes option(s).
- To be certain that you are using the most recent available PALRAM specification, please visit our website at [www.palram.com](http://www.palram.com) and download the current version.

PALRAM INDUSTRIES (1990) Ltd. IS ENGAGED IN CONTINUING RESEARCH TO IMPROVE ITS PRODUCTS.  
THEREFORE, THE RIGHT IS RESERVED TO MODIFY OR CHANGE MATERIAL IN THIS SPECIFICATION WITHOUT NOTICE

**PALRAM SUNPAL® SPECIFICATION**  
**Standing Seam Multi Wall Polycarbonate**  
**SECTION 10 600 00 – ROOFING / CLADDING SYSTEMS**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS:**

- A. General conditions of the contract, including all Supplementary Conditions.
- ➔ B. Manufacturer ISO 9001 certificates.
- ➔ C. Manufacturer ISO 14001 certificates.

**1.02 WORK INCLUDED:**

- A. Design and manufacturing of Standing Seam Multi Wall Polycarbonate system. An assembly of extruded polycarbonate multi wall panels joint together by a polycarbonate / aluminum joiner (connector), incorporated into a complete polycarbonate / aluminum profiles / accessories that has been tested and warranted by the manufacturer as a single source system.
- B. All Fasteners, aluminum profiles and end caps are necessary to complete the specified structural assembly, water tightness and weatherability. Wall trims and side trims elements which are necessary to complete the water tightness are not part of the system but shall be included.
- C. The installation will be carried out by a skylight installer who has been in the skylight business for at least five (5) consecutive years. The manufacturer preserves its right to perform field inspection during and after installation. All warranty claims demand product to be reviewed as installed application.

**1.03 RELATED WORK SPECIFIED ELSEWHERE:**

- A. Section \_\_\_\_\_ - Structural Steel/Wood Framing/Concrete.
- B. Section \_\_\_\_\_ - Curbs and supporting members.
- C. Section \_\_\_\_\_ - Roofing.
- D. Section \_\_\_\_\_ - Sheet Metal and Flashing.
- E. Section \_\_\_\_\_ - Sealant.

**1.04 QUALITY ASSURANCE:**

- A. Materials and products shall be manufactured by a company continuously and regularly employed in the manufacture of skylights using polycarbonate (not glass) panels for a period of at least ten (10) years.
- B. Erection shall be by a skylight installer who has been in the business of erecting similar material for at least five (5) consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.
- C. The manufacturer shall be responsible for the configuration and fabrication of the complete panel covering system, and will ensure that it fully meets all requirements of this specification. The manufacturer will not be responsible for the support structure of the covering system.
- D. Usage of accessories which were supplied by a third party is not allowed unless it has written approval from the system manufacturer.
- E. APPROVED MANUFACTURERS:

All manufacturers acceptable for use on this project under this section must be approved prior to bid. Manufacturers *must* submit evidence of compliance with all performance criteria specified herein. This evidence must include proof of conformance and test reports as specified below. *Any exceptions* taken from this specification *must be noted* on the approval request. If no exceptions are noted and approval is given, product performance will be as specified. Should non-compliance be subsequently discovered, the previously given approval will be invalidated and use of the product on the project will be disallowed. Requests for approval, with all appropriate submittal data and samples must be received no less than 15 days prior to bid date. A list of all approved manufacturers and products will be issued by addendum. *No other manufacturers will be acceptable.* No verbal approval will be given.

- F. Requests for product substitution for the project, must be made to the no less than 90 days prior to bid date.

**1.05 SUBMITTALS:**

- A. Submit shop drawings and color samples in accordance with Section 01\_\_\_\_\_
- B. The manufacturer shall submit written guarantee accompanied by substantiating data, stating that the products to be furnished are in accordance with or exceed these specifications.
- C. The manufacturer shall submit certified test reports made by an independent organization for each type and class of panel system. Reports shall verify that the material will meet all performance requirements of this specification. Previously completed test reports will be acceptable if they are current and indicative of products used on this project. Test reports required are:
  - 1. Self Ignition Temperature (ASTM 1929)
  - 2. Smoke Density (ASTM D-2843)
  - 3. Burning Extent (ASTM D-635)
  - 4. Loading test (ASTM E-330)
  - 5. Water Infiltration (ASTM E-331)
  - 6. Air Infiltration (ASTM E-283)
  - 7. Impact Loading (ASTM E-695)
- D. MAINTENANCE DATA:  
The manufacturer shall provide recommended maintenance procedures, schedule of maintenance and materials required or recommended for maintenance.

**1.06 WARRANTY:**

- A. Provide single source roofing / cladding system manufacturer warranty for glazing panels and framing system – third party warranty for the glazing panels shall not be accepted.
- B. The manufacturer warranty will not cover any accessories purchased from a third party.
- C. Provide manufacturer warranty which includes:
  - a. Change of light transmission of no more than 8% for 15 years and no more than 1% per year thereafter.
  - b. 25 years guarantee for water leak proof.
  - c. Up to 10 years warranty (from the date of purchase) not to break or fail as a result of impact by hail measuring up to 20mm in diameter at speed of up to 21 m/s.

**PART 2 – PRODUCTS**

**2.01 SUNPAL® – STANDING SEAM MULTI WALL POLYCARBONATE ROOFING / CLADDING SYSTEM:**

- A. The design and performance criteria of this job are based on products manufactured by PALRAM INDUSTRIES (1991) Ltd, Phone +972 4 8459900, Fax +972 4 8444980; Website: www.palram.com

And is locally represented by:\_\_\_\_\_

Telephone:\_\_\_\_\_

- B. Substitute product must be proven equal and approved by addendum prior to the published of the bid date per specification section 1.04 E.

**2.02 SUNPAL® PANEL PERFORMANCE:**

- A. Appearance:
  - 1. Panel thickness should be:
    - a. 18mm for the SUNPAL 18/1000.
    - b. 20mm for the SUNPAL 20/1000.

2. Panel width shall not exceed 39.37" (1000mm) for SUNPAL 18/1000 and 20/1000 to ensure best performance for wind uplift, vibration, oil canning and visual appearance. Panels in other widths than mentioned above will not be approved.
- B. SUNPAL® Panel joint system:
1. Panel shall be extruded in one single formable length. Maximum panel width shall be as indicated on section 2.02.2. Transverse connections are not acceptable.
  2. The panels should be manufactured by extrusion with a grip-lock upstands that are integral to the unit. The upstands shall be 90 degrees to the panel face. Welding, gluing, cold bending, hot bending, vacuum or thermoforming of upstands is not acceptable.
  3. Installing the SUNPAL® system as shown in the manufacturer installation guide ensure designed load capability.
  4. After installation, the system shall be thermal expansion/contraction free (free floating movement).
- C. Flammability:
1. The panel shall be an approved light transmitting plastic with a CC1 or CC2 fire rating classification per ASTM D-635 pending the panel thickness and a minimum self-ignition temperature of 1000°F per ASTM 1929.
- D. Water Penetration:
1. There shall be no water penetration when tested per ASTM E 331 at a test pressure of 20 PSF.
- E. Air Infiltration
1. Per ASTM D-283 at a test pressure of 6.24 PSF, air infiltration shall be less than 0.01 CFM/sq. ft. of glazing area.
- F. Uniform Structural Loads
1. Per ASTM E-330, achieve a positive load of 210 psf with 39.37" oc horizontal spans.
  2. Per ASTM E-330, achieve a negative load of 35psf with 39.37" oc horizontal spans.
- G. Impact Loading
1. OSHA Life Safety STD 29 CFR - Impact force by blunt object of 500 lbf-ft per ASTM E- 695-03
  2. Sunpal shall have a falling weight impact resistance of 117 ft/lbs when tested in accordance to ISO 6603/1
- H. Weatherability:
1. Panels shall consist of a polycarbonate resin with a permanent, co-extruded ultra violet protective layer. Post-applied coating or films of dissimilar materials are unacceptable.

### 2.03 METAL FRAME STRUCTURE:

- A. To meet ANCI/ASCE 7-95 building design load, design criteria shall be:
1. Wind load \_\_\_\_\_ PSF
  2. Snow load \_\_\_\_\_ PSF
- B. The Skylight panels are designed to be self-supporting between the support constructions. The panels deflection in a direction normal to the plane of the glazing, when subjected to a uniform load, shall not exceed L/20 for the unsupported span. The skylights will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads including horizontal and vertical, exerted by the skylights. Design or structural engineering services for the supporting structure or building components not included in the skylight scope are not included under this section.

### 2.03 METAL MATERIALS:

- A. Extruded Aluminum shall be ANSI/ASTM B221; 6063-T5.
- B. Flashing:
1. 5005 H34 aluminum 0.04" minimum thickness.
  2. Sheet metal flashings/closures/claddings are to be furnished shop formed to profile - when lengths exceed 10 ft. in nominal 10-ft lengths. Field trimming of the flashing and field forming the ends is necessary to suit as-built conditions. Sheet metal ends are to overlap at least 6-in. to 8-in., set in a full bed of sealant and riveted if required.
- C. All Fasteners to be stainless steel, cadmium plated steel or Zinc plated steel, excluding the final fasteners to the building.
- ➔ D. All exposed ALUMINUM FINISH shall be standard color, Anodized or Other Finish.

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- A. General Contractor to verify when structural support is ready to receive all work in this section and to convene a Pre-Installation Conference at least one week prior to commencing work of this Section. Attendance required of General Contractor, skylight installer and all parties directly affecting and effected by the work of this section.
- B. All submitted opening sizes, dimensions and tolerances are to be field verified by general contractor unless otherwise stipulated.
- C. Installer to examine area of installation to verify readiness of site conditions. Notify general contractor about any defects requiring correction. Do not work until conditions are satisfactory.

### **3.02 INSTALLATION**

- A. Install components in strict accordance with manufacturer's instructions and approved shop drawings. Use proper fasteners and hardware for material attachments as specified.
- B. Use methods of attachment to structure allowing sufficient adjustment to accommodate tolerances.
- C. Remove all protective films from panels immediately after installation. Special protective film which can remain on the panels for few weeks can be ordered from the system manufacturer when required.

### **3.03 HANDLING AND STORAGE**

- A. SUNPAL® sheets should be transported and stored horizontally, on a flat, sturdy pallet whose dimensions are equal or larger than the largest of the sheets. The sheets should be secured to the pallet during transportation and on-site handling. It is possible to stack the sheets with the longer sheets at the bottom and the shorter on top, leaving no unsupported overhang.
- B. When moving a pallet with a forklift, always use forks as long as the sheets' width. Shorter forks used on a wider pallet may cause damage to the sheets.
- C. SUNPAL® sheets leave the factory wrapped in watertight polyethylene sleeves. The wrapping should be removed as close to the actual time of installation (or use) as possible. Storage of the sheets should be in a covered, dry, ventilated place, away from direct sunlight and rain.
- D. Avoid extended exposure to direct sunlight, which may cause excessive heat buildup. Long term heating may lead to softening of the protective polyethylene masking, fusing it to the sheet's face and making removal difficult or even impossible.
- E. Avoid leaving the sheets stored unwrapped. Dirt may accumulate on the sheets and/or their edges, attracted by electrostatic charges in the sheets, necessitating extra time and labor for cleaning before installation.
- F. Whenever necessary to store the pallet in the open, cover it with white opaque polyethylene sheet, cardboard or any other insulating material, taking care to cover the stack completely.

### **3.04 CLEANING**

- A. Follow manufacturer's instructions when washing down exposed panel surfaces using a solution of mild detergent in warm water that is applied with soft, clean wiping cloths.
- B. Follow strict panel manufacturer guidelines when removing foreign substances from panel surfaces requiring mineral spirits or any solvents that are acceptable for use.
- C. Installers shall leave panel system clean at completion of installation. Final cleaning is by others upon completion of project, following manufacturer's cleaning instructions.