

**Section 08 88 53 – Detention and Security Glazing**

**PALRAM AMERICAS, INC.  
SECURITY GLAZING  
SPECIFICATION**

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

## Section 08 88 53 – Detention and Security Glazing

### PART 1 – GENERAL

#### 1.01 SECTION INCLUDES

- A. Glazing for detention hollow metal frames, detention hollow metal doors, and detention equipment.
- B. Glazing for aluminum entrance doors and storefront sidelights.
- C. Glazing for detention windows, type as indicated.

#### 1.02 RELATED SECTIONS

- A. Division 8 Section – “Rolled Steel Detention Windows”: Security windows requiring glazing under this section.
- B. Division 8 Section- “Steel Detention Windows”: Security windows requiring glazing under this section.
- D. Division 8 Section – “Detention Doors and Frames”: for frames for security glazing.
- E. Division 11 Section – “Detention Equipment”: Supply and installation of detention doors, frames and other equipment requiring glass and glazing, except as otherwise specified.

#### 1.03 REFERENCES

- A. American National Standards Institute (ANSI)
  - 1. ANSI Z97.1-09 – American National Standard for Safety Glazing Material used in Buildings. (Previous versions not acceptable)
- B. American Society for Testing and Materials (ASTM)
  - 1. ASTM E773 – Test Method for seal Durability of Sealed Insulating Glass Units.
  - 2. ASTM E838 – Cracking, Blistering, Crazing and Color Changes.
  - 3. ASTM C1349 – 04 Standard Specification for Architectural Flat Glass Clad Polycarbonate
  - 4. ASTM F1915-05 – Standard Specification for Test Methods for the Glazing of Detention Facilities. (Previous versions not acceptable).
- C. Consumer Product Safety Commission (CPSC)
  - 1. CPSC 16CFR 1201 – Safety Standards for Glazing Materials
- D. Underwriter’s Laboratories
  - 1. UL – 752 Bullet Resisting Equipment
- E. Federal Specifications (FS)
  - 1. FS TT-S230A – Sealing Compound, synthetic rubber base, single component, chemically curing for caulking, sealing and glazing in building construction.
  - 2. FS TT-S-0023003 – Sealing compound, Elastomeric type, single component (for caulking, sealing, and glazing in buildings and other structures).
  - 3. CID A-A-59502 – Plastic Sheet, Polycarbonate
- F. Flat Glass Marketing Association (FGMA)
  - 1. FGMA – Glazing Manual
  - 2. FGMA – Sealant Manual

#### 1.04 SUBMITTALS

- A. General: Submit the following according to Conditions of Contract and Division 1 specifications Sections.
- B. Product Data: Submit Manufacturer’s descriptive literature and technical data including:
  - 1. Instructions for handling, storing, installation, and recommended procedures for cleaning of each type of glass and glazing material.
  - 2. Provide structural, physical and environmental characteristics and size limitations of each type of glazing material.
  - 3. Provide chemical, functional, environmental characteristics, limitations and special application requirements.
  - 4. Available colors.
- C. Samples: Submit in accordance to division 1, prior to delivery of materials, samples of each of the following:
  - 1. Minimum, one 12 inch x 12 inch piece of each type of glazing, in required thickness. Mock up recommended, portraying actual usage conditions.

2. One bead, approximately ¼" wide by 3 inch long, of each sealant to be used, indicating color or cured materials.
- D. Certification by manufacturer that products supplied comply with performance requirements specified.
  - E. Maintenance data covering cleaning and protection requirements.
  - F. Security Glazing Substitutions: All requests and submittal for approval as security glazing must be made to the architect 34 days prior to original bid date.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer qualifications: Company specializing in the manufacture of Security Glazing, types as specified, with minimum documented (5) years' experience.
- B. Installer qualifications: Company specializing in the installation of Security Glazing products, similar types as specified, with minimum documented (5) year experience.
- C. Security Glazing Forced Entry Tests- Glazing manufacture must provide current test reports showing products are tested to specified security grade, test must be conducted at an industry accepted laboratory having at least a minimum of 10 years of testing security glazing.

#### **1.06 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Delivery
  1. Deliver all glazing with manufacturer's, and removable product labels intact.
  2. Provide product labels for each type of glass indicating:
    - a. Manufacturer's name and product number.
    - b. Mark number in accordance with the drawings.
    - c. Size and thickness of the glazing.
  3. Deliver glazing components and sealants in manufacturer's unopened, labeled container.
- B. Storage and Handling
  1. Store glazing in designated area, away from traffic and construction, in original packaging.
  2. Support glazing vertically on setting material capable of holding the glazing and distributing the weight evenly over the glazing unit.
  3. Do not remove levels until glazing has been installed.
  4. Storage conditions shall protect glazing materials from:
    - a. U-V exposure, humidity, rain, and adverse temperatures.
    - b. Scratching, marring, chipping and warpage.

#### **1.07 ENVIRONMENTAL REQUIREMENTS**

- A. Perform glazing only when ambient temperature is above 50 degrees F.
- B. When circumstances require glazing below 50 degrees F, steps shall be taken to assure dry and frost-free surface, as approved by the architect.

#### **1.08 WARRANTY**

- A. Provide manufacturer's written warranty for a period of not less than (7) years from date of shipment, for Monolithic and Laminated Polycarbonate against coating failure and delamination.
- B. Provide a written warranty executed by manufacturer, agreeing to furnish F.O.B project site, within 60 working days after receipt of notice from owner for replacement of units which develop manufacturing defects. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contract under requirements of the Contract Documents.
- C. Definitions: Manufacturing defects defined as delamination, coating failure and/or yellowing not related to improper handling or use of the glazing material as defined in Manufacturer's installation guide and care and maintenance instructions.

## **PART 2 – PRODUCTS**

### **2.01 ACCEPTABLE MANUFACTURERS**

- A. Security Type Glazing Manufactures:
  - A. Palram Americas, Inc, Kutztown, PA – 800-999-9459
- B. Glazing Materials:
  - A. Tremco, Cleveland, OH or equal as approved by Architect

### **2.02 FLAT MONOLITHIC AND LAMINATED POLYCARBONATE COMPOSITIONS “SECURITY” TYPES**

- A. General: All laminated composition security glazing units, whether specifically shown or specified, shall conform to manufacturer’s standards as to maximum size for each type of glass.
- B. Forced-Entry Resistant Performance: Provide products identical to those tested for compliance with requirements indicated per test specified for specific glazing types. All polycarbonate products in this section shall have a mar resistant coating on all exposed surfaces. 7 year coating warranty.
  - 1. TYPE MP-1 – Monolithic Polycarbonate with abrasion resistant coating. Product Type Palram Americas Product Name - Palgard. 3/8" Nominal Thickness. ASTM F1915-05 Security Grade 4. ANSI Z97.1-09 – Approved for Exterior Use
  - 2. TYPE MP-2 – Monolithic Polycarbonate with abrasion resistant coating. Palram Americas Product Name - Palgard. ½" Nominal Thickness. ASTM F1915-05 Security Grade 3. ANSI Z97.1-09 – Approved for Exterior Use
  - 3. TYPE LP-1 – Laminated Polycarbonate – Palram Americas Product Name – Palshield FE375 - 3/8" Nominal Thickness. ASTM F1915-05 Security Grade 2.
  - 4. TYPE LP-2 – Laminated Polycarbonate – Palram Americas Product Name Palshield FE500. 1/2" Nominal Thickness. ASTM F1915-05 Security Grade 2. HP White HPW-TP 0500.03 Level A Ballistics
  - 5. TYPE LP-3 – Laminated Polycarbonate – Palram Americas Product Name- Palshield FE750. 3/4" Nominal Thickness. ASTM F1915-05 Security Grade 1. HP White HPW-TP 0500.03 Level B Ballistics
  - 6. TYPE LP-4 – Laminated Polycarbonate – Palram Americas Product Name – Palshield UL1-750. 3/4" Nominal Thickness. UL 752 Ballistics Level I. ASTM F1233-08 Level HG1. HP White HPW-TP 0500.03 Level B Ballistics
  - 7. TYPE LP-5 – Laminated Polycarbonate – Palram Americas Product Name –Palshield UL2-1000. 1" Nominal Thickness. UL 752 Ballistics Level 2. ASTM F1915-05 Security Grade 1
  - 8. TYPE LP-6 – Laminated Polycarbonate – Palram Americas Product Name Palshield UL3-1250. 1.25" Nominal Thickness. ASTM F1915-05 Security Grade 1. ASTM F1233-08 Class V (Body). UL 752 Level 3 Ballistics.
  - 9. TYPE LP-7 – Laminated Polycarbonate – Palram Americas Product Name – Palshield UL6-750. 1.25" Nominal Thickness. UL 752 Level 6 Ballistics & Supplemental Shotgun.

### **2.03 DESCRIPTION / FABRICATION**

- A. Interlayer: provide glazing manufacturer’s standard interlayer for laminating a polycarbonate core, with a proven record of showing no tendency to bubble, discolor or loose physical or mechanical properties after laminating and installation,
- B. Plastic core: Refer to appropriate product requirements relating to properties of polycarbonate making up the laminated compositional security product.
- C. Laminating Process: Fabricated laminated sheets using laminator’s standard process to produce units free from foreign substances and air bubbles.

### **2.04 GLAZING MATERIALS**

- A. Compatibility: Select material with proven record of compatibility with surfaces contacted in each application.
- B. Sealant: Shall be single component elastomeric silicone which complies with FSTT-S-001543, Class A, nonsag, ASTM C-920 Type S, Grade NS Class 25. Use G for high modulus silicone. Dow Corning 795 ,GE Silpruf SC2000 or Tremco ProGlaze SSG as determined acceptable by the Architect.
- C. Glazing Tape: Shall be 1/8" x 1/2" performed butyl tape, 100% solids, Tremco 440 or approved equal. Shimmed or unshimmed as needed.

- D. Setting Blocks: Blocking shall be comprised of EPDM or Santoprene 101-87 as tested to be compatible with the specified security glazing product and glazing sealants, 70-90 Shore A durometer hardness, 4 inch long x 3/8 inch wide x 1/4 inch thick.
- E. Spacers: Shall be comprised of EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealants; 40-50 Shore A durometer hardness; of size and shape recommended by glazing and sealant Mfg.
- F. Edge Blocks: Shall be comprised of EPDM or Santoprene 101-87 as tested to be compatible with the specified security glazing product and glazing sealants, 70-90 Shore A durometer hardness, 1/8" thick.
- G. Cleaners, Primers, and Sealants: Type recommended by sealant or gasket Mfg. For each application.

## **PART 3 – EXECUTION**

### **3.01 INSPECTION**

- A. Check that glazing channels are free from burrs, irregularities, and debris.
- B. Check that glazing is free from edge damage or face imperfections.
- C. Do not proceed with installation until any unsatisfactory conditions are corrected.

### **3.02 PREPARATION**

- A. Field Measurements:
  1. Cut glazing accurately to size obtained from verified field measurements of frames.
  2. Allow for proper edge clearances.
- B. Preparation of surfaces:
  1. Remove any protective coatings or coverings from surface to be glazed.
  2. Clean glazing surfaces to remove dust, oil, and contaminants with compatible cleaner. Then wipe dry.

### **3.03 INSTALLATION**

- A. General Requirements: All materials shall be used in accordance with the manufacturer's printed instructions and recommended procedures, as published by Glass Association of North America.
- B. Clearance requirements: Allow the following minimum nominal clearances, in accordance with glazing manufacturer's recommendations; glazing face to channel face, glazing edge to frame member, and glazing bite.

Glazing thickness	Face clearance	Edge clearance	Bite
Specified thickness	1/8 inch	1/4 inch	1 inch

### **3.04 EXTERIOR COMBINATION METHOD (tape and sealant)**

- A. Cut glazing tape to proper lengths prior to application, install against permanent stop, 3/16" to 1/4" below sight line.
- B. Do not lap the adjoining lengths of tape or rubber shim, as this will prevent full contact around perimeter of glazing.
  1. Strips must be installed in 4 separate sections, not run continuously around corners.
- C. Place setting blocks at 1/4 points.
- D. Rest glazing on setting blocks and press against tape with sufficient pressure to ensure full contact and adhesion at perimeter.
- E. Sealant cavity pocket, formed by setting of the applied stop, shall then be filled to the sight line.
- F. Cap bead shall not exceed 1/16 inch above sight line onto glazing surface.
- G. Tool or wipe cap bead with solvent for smooth appearance.

### **3.05 INTERIOR DRY METHOD (tape and tape)**

- A. Cut glazing tape to length and install against permanent stop, shall then be filled to the sight line.
- B. Place setting blocks at 1/4 points.
- C. Rest glazing on setting blocks and press against tape with sufficient pressure to ensure full contact and adhesion at perimeter.
- D. Place glazing tape on free perimeter of glazing in same manner described above.
- E. Install removable stop, avoid displacement of tape, exert pressure on tape for full continuous contact.

### **3.06 CLEANING AND PROTECTION**

#### A. Cleaning

1. Remove excess glazing material from installed glazing.
2. Remove labels from surface as soon as installed.
3. Remove debris from work site.

#### B. Protection

1. Attach crossed streamers away from glazing face.
2. Do not apply markers to glazing surface.
3. Replace damaged glazing.

**END OF SECTION**