

**TG 08500 v 12.02**  
**Summary of Changes**

1. Update to current building code.
2. Modified to incorporate Coastal Windows and Breezway North America, Inc. products as part of the approved manufacturers.

**Windows**  
**TECHNICAL GUIDE**

**TG 08500**

**1. COORDINATION ISSUES: (Not Used)**

**2. DESIGN ISSUES:**

**2.1 Design Considerations- Jalousie Windows:**

**2.1.1** Do not use glass vanes over 3 feet in length.

**2.1.2** If special jalousies are used, such as for gymnasiums, where operators are of different construction, detail such operators completely.

**2.1.3** Provide extension poles as follows:

| Room Type           | No. Poles |
|---------------------|-----------|
| Cafetorium          | 4         |
| Kitchen             | 2         |
| 1-Classroom         | 1         |
| Ind. Arts           | 2         |
| Small room (Office) | 1         |
| Large room (Conf.)  | 2 min     |

**2.1.4** For jalousie windows (and other windows) located above high shelves, closets or cabinets, place the lever operator near the window head so that The operator can be reached and adjusted with a pole. Do not locate operators and other contra mechanism immediately above shelves, closets or cabinets where it is difficult to reach and engage.

**2.1.5** If the project is in an area of known termite infestation use Termite Resistive Construction Techniques. Provide individually sectioned full-surround frames (discontinuous aluminum head and sill members). This will facilitate replacement by maintenance staff if the window is vandalized or damaged. Verify with your Project Coordinator if your project is in such a location.

**2.1.6** Use of the “Breezeway” Louvered window is acceptable, however DAGS CSD must review and approve on a case-by-case basis. Verify with the Project Coordinator.

**2.1.7** When used together over an opening, security and insect screens must be installed on opposite sides of the window so the insect screen can be removed for cleaning. If security screen also has insect screen properties, screen must be placed on exterior for performance and cleaning and an interior screen is not required.

**2.1.8** Jalousie windows meeting the Dade County “Hurricane” Resistant Standards are available. Confirm with The Project Coordinator if your building requires these windows (Evacuation Shelters).

2.1.9 Windows should meet minimum state required wind ratings per current building codes and have current test reports to confirm this performance. Test reports older than 4 years are not valid.

**2.2 Awning Windows:** Address the following concerns where the use of awning windows is planned:

**2.2.1** Darkening of room for video or film display.

**2.2.2** Windows should not be used in locations where they will project out over pedestrian areas. Comply with the requirements of the ADAAG (American with Disabilities Act Accessibility Guidelines) for projection of the window operable sash into walks or corridors that are part of an accessible route.

**2.2.3** Due to their construction, the window panes cannot be easily replaced by DAGS Central Services personnel. Therefore, their use in locations having a high vandalism rate should be discouraged.

**2.2.4** Depending on their location, windows having large pane areas may require security screens. Smaller pane areas may preclude the use of these screens. Do not use awning windows and security/grills together.

2.2.5 Awning hardware clips shall not be able to be undone or removed by hand without special tools to insure security of the system.

### **2.3 Security Screens**

**2.3.1** DAGS has been experiencing corrosion and staining of the Type 304 stainless steel combination insect / security screens provided on our Hawaii Island projects.

**2.3.2** Based on our investigations, we believe the problem is due to iron and carbon steel particles that have been embedded in the material as it is drawn through the dies to form wires and as the material is being fabricated into its finished product.

**2.3.3** Therefore, on Hawaii Island projects where such combination insect / security screens are to be provided, specify Type 316 stainless steel material which has a higher molybdenum content and offers more corrosion resistance in aggressive industrial, chemical and seacoast atmospheres. Specify Type 316 stainless steel fasteners where the stainless steel components are to be mechanically joined.

### **3. DRAWING NOTES:**

**3.1** Show on drawings - Windows:

**3.1.1** Show on interior elevations: Location of all operators and pole locations.

**3.1.2** Show on window schedule: Types of glazing or slats such as clear, tinted or obscure glazing, or wood, vinyl or aluminum slats.

### **4. STANDARD DRAWINGS: (Not Used)**

## 5. SPECIFICATION NOTES:

### 5.1 Jalousie Windows:

**5.1.1** Guide Specification Section: This section describes the quality of jalousie that the Public Works Division wishes to use for its buildings. It is tailored to the use of aluminum Surround Frames with detachable jambs.

#### 5.1.2 Material Selection:

**5.1.2.1** Do not specify mohair for weatherstripping.

**5.1.2.2** Do not specify rolled screen frame sections.

**5.1.2.3** Do not use insect screens for gymnasiums.

#### 5.1.3 Finish Selection:

**5.1.3.1** Color Selection: Specify color (white or almond) to suit project. Do not specify dark bronze due to fading unless bronze finish is a minimum of 50 microns (50uM) or better.

**5.1.4** Vinyl Frame Jalousie Windows: Section is written for aluminum framed jalousie windows. If providing vinyl frame jalousie windows write new Section 08560 Plastic Windows.

## 6. GUIDE SPECIFICATION:

### 6.1 Section 08527 Aluminum Jalousie Windows

***SPECIFIER'S NOTE: Blue colored italicized text is used for notes to the specifier and should be completely deleted from the final text. Where [Red colored italicized text in parentheses] is shown in this specification section, insert wording, numbers, etc. as appropriate and delete parentheses. Where <Red colored text in brackets> is shown, a choice is indicated. Make the appropriate choice and delete the brackets. Maintain footer notation with the current version used (e.g. TG08500 v02.02). Verify that section titles cross referenced in this Section correspond to this Project's specifications; Section titles may have changed.***

## **SECTION 08527 - ALUMINUM JALOUSIE WINDOWS**

### **PART 1 GENERAL**

**SPECIFIER'S NOTE: Include Related Sections Paragraph 1.01.13 as applicable.**

#### 1.01 SUMMARY

- A. This Section includes the following types of aluminum-framed windows:
  - 1. Glass, wood, vinyl or aluminum vaned individually sectioned full-surround frame jalousie type windows.
  - 2. Accessory products.
- B. Related Sections:
  - [Section 06100 Rough Carpentry: Wood framed jambs, heads and sills for jalousie frames.]***

#### 1.02 PROJECT CONDITIONS

- A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

#### 1.03 WARRANTY

- A. Special Warranty: Warrant that the product will not deteriorate under normal Hawaii climate conditions. Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
  - 1. Mechanical defects not due to improper use, willful damage or neglect.
  - 2. Structural failures including excessive deflection.
  - 3. Faulty operation of movable sash and hardware.
  - 4. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- B. Warranty Period: Two years from Project Acceptance Date.
- C. Warranty Period for Metal Finishes: Five years from Project Acceptance Date.

### **PART 2 - PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. The indicated products of the following manufacturers are acceptable provided they meet the materials and construction specified in this section:
  - 1. Aloha Visualite, Ltd. "Visualite" 505 with metal lever arm housing.
  - 2. Hawaii Metal Forming: Series 801 with Visualite Corp. type lever operator.

3. International Window Corporation: Series 750.
4. Gemini Window Corp: Model 14: Louver Windows.
5. Australia Trading: Breezeway North America, Inc.: Altair Louver Window System's (ios, Makani, Powerlouver, Stronghold).
6. Coastal Windows: Louver and Awning systems.

## 2.02 CONSTRUCTION

- A. Configuration: Jalousie windows shall be the aluminum surround type with removable jambs sections.
- B. Materials:
  1. General: Use of dissimilar metals in direct contact is not permitted unless otherwise noted in this Section.
  2. Jalousie window frames: Extruded aluminum sections of 6063-T5 alloy. Frame members shall be not less than 2-1/2 inches deep and shall be 0.075 inch thick with an extrusion tolerance acceptable to the trade of plus or minus 0.006 inch. Minimum jamb thickness at the clip attachment shall be 0.10 inch, and jamb shall be one continuous vertical piece.
  3. Pivot clips: One-piece 5052-H32 aluminum alloy, minimum 0.050 inch thick, center balanced type. Design clips for glass vanes to permit glass loading from the inside without the use of spring tension expanders or attaches. Size clips for wood slats to permit the insertion of an 11/16 inch thick slat without rebating. Space clips so that vanes or slats will overlap 1/2 inch.
  4. Push bar: 6063-T5 aluminum alloy, 5/8 inch wide x 3/32 inch thick or 1/2 inch wide x 1/8 inch thick.
  5. Operator lever arm and connecting bar: Heavy duty type, 6061-T6 aluminum alloy other hard tempered aluminum alloy with minimum thickness of 1/8 inch or having lateral bending resistance equal or greater than that for specified units. Either the operator lever arm or the operator lever arm housing/bracket shall be detachable to allow repair or replacement.
  6. Finish: All aluminum parts, including frame, clips, rivets, lever, operator, push bar, and screen frames: "clear" anodized to a minimum thickness of 0.0004 inch and 'bronze' anodized to a minimum thickness of 0.0098 inch.
- C. Fasteners connecting the operator lever arm to the operator housing/bracket:
  1. Where the fastener is supported on both sides of the lever arm by the operator housing/ bracket, the fastener shall be a minimum 3/16 inch diameter rivet or bolt (with nut) or 300 series stainless steel clip system.
  2. When the fastener is cantilevered off of the operator housing/bracket (supported on only one side), the fastener shall be a minimum 1/4 inch diameter rivet or bolt (with nut).
  3. Mechanically secure bolted fasteners so that operation of the lever arm will not loosen them. Do not use fastening compounds such as "lock-tite."

D. Fasteners:

1. Fasteners connecting the lever arm to the connecting bar and the connecting bar to the push bar: Minimum 3/16 inch diameter rivets or bolts (with nuts) or 300 series stainless steel system.
2. Fasteners connecting the operator lever arm housing/bracket to the jamb/mullion frame: Secure the operator lever arm housing/bracket, if not integral with the frame to it with bolts and nuts with lock washers or lock nuts. Do not use sheet metal screws.
3. Rivets: Anodized aluminum.
4. Bolts: 304 and 316 series stainless steel.

E. Angles, bars, and other similar items: Anodized aluminum, 6063-T5 alloy.

F. Anchors: As required to suit project conditions and as recommended by the window manufacturer. Use stainless steel screws spaced at 18 inches on center to secure window frames to concrete or masonry.

G. Operator: Lever type. No more than 10 vanes or slats shall be operated by one lever. Operators located more than 6 feet above the finished floor shall have arms terminated with an eye or knob for operation by a pole. Grind edges of the eye smooth.

**SPECIFIER'S NOTE: Delete Paragraph 2.02.H if not applicable to the Project.**

H. Breezeway Jalousie Windows: Louver jamb frame to be an extruded channel section, 6063T-5 aluminum alloy.

1. Blade holding clips: Injection molded polypropylene stabilized to resist ultra-violet degradation.
  - a. Color: **[insert color]**.
2. ~~Pantograph operator bars: Zinc coated steel~~ T Shaped operator bars: 6063T-5 aluminum alloy.
3. Lever handle shall be ~~aluminum-~~ Delrin 127 UV acetal with plastic finish pieces on either side of the handle opening. The plastic pieces shall be permanently bonded together with adhesive and the lever shall lock upon closure.
4. Pivot bearings shall be ~~forged from aluminum alloy and coated with grease where in contact with the frame and operator bars~~ Delrin 127 UV acetal and have interlocking teeth.
5. Aluminum finish shall be clear or bronze anodized to a thickness of 50 microns.

**SPECIFIER'S NOTE: Choose the appropriate size pole extension and show mounting locations on drawings. Use subparagraph 2.03.A.1 for normal operations, subparagraph 2.03.A.2 for high windows located above shelves or other obstructions.**

**2.03 ACCESSORIES**

- A. Pole Extensions: Tubular-shaped anodized aluminum; with rubber-capped lower end and standard hook at top to match hardware design; of sufficient

length to operate window without reaching more than 60 inches above floor; 1 pole operator and pole hanger per room that has operable windows more than 72 inches above floor. Refer to drawings for mounting location(s).

1. Pole length up to 10 feet-0 inch, ½ inch inside diameter, 0.058 inch minimum wall thickness (for normal operations).
  2. Pole length up to 10 feet-0 inch, ¾ inch inside diameter, 0.114 inch minimum wall thickness.
  3. Pole length up to 10 feet-0 inch to 20 feet-0 inch, 1 inch inside diameter, 0.114 inch minimum wall thickness (for high windows or other obstructed openings).
- B. Weather stripping: Extruded plastic vinyl or maximum 7/16 inch wide strips of sheet stainless steel designed so that a weatherproof closure is attained on the sides of the window opening when vanes or slats are closed.

***SPECIFIER'S NOTE: Choose the glazing paragraph 2.04.A or slat subparagraph 2.04.B.1 through 2.04.B.3 to suit project. Unless there is a compelling reason otherwise vinyl slats or aluminum slats are the preferred materials and white the preferred color.***

#### 2.04 GLAZING

##### A. Glass Vanes:

1. Comply with ~~UBC 1997 Section 2405~~ IBC 2006.
2. Size: 4 inches wide x 7/32 inch thick, maximum 36 inches in length.
3. Exposed Edges: Weberized or ground smooth or polished edged.
4. Glazing: Clear or obscure as called for on drawings.

##### B. Slats: Slats complying with the following requirements are acceptable:

1. Wood Slats: 4 inch wide redwood, clear all heart, kiln dried, vertical grain, with interlocking groove. Slats may consist of uniformly-cut pieces of the specified wood glued together either longitudinally or transversely with waterproof glue, provided they are identified to be painted in the finish schedule. Where transverse joints are provided, they shall be finger jointed. Each end shall be screwed to the pivot clip with two (2) aluminum or stainless steel wood screws. Slat thickness and clip size are as follows:
  - a. Window length up to 3 feet-0 inch, 11/16 inch slat thickness, 11/16 inch clip size. No end rabbeting of slat permitted.
  - b. Window length 3 feet-0 inch up to 4 feet-0 inch, 1 inch slat thickness, 3/4 inch clip size. End rabbeting of slat permitted.
2. Vinyl slats: 4 inches wide x ¾ inch thick, by maximum 4 feet-0 inch long extruded PVC, with interlocking grooves and internal stiffening ribs. "B" blade design as furnished by RMA Sales Co., Inc., Coastal Windows or approved equal.
  - a. Minimum thicknesses:
    - 1) Slat wall: 0.045 inch.
    - 2) Stiffening rib thickness: 0.020 inch.

- b. Approximate weight per foot: 5.5 ounces per lineal foot (without internal steel reinforcement).
  - c. PVC material: Fire retardant, self-extinguishing and provided with an ultraviolet inhibitor.
  - d. Accessories
    - 1) Slats shall have an integral flexible vinyl weatherstrip at each interlocking groove.
    - 2) Injection molded PVC end caps shall be provided to completely close each end of the slat. The caps shall have tabs which when inserted into the end of the slat will prevent the cap from falling out.
  - e. Color: **[insert color]**, extending throughout the PVC material.
  - f. Reinforcement:
    - 1) Internal steel reinforcement: Slats longer than 36 inches but less than 48 inches in length shall be provided with a minimum of one (1) internal steel reinforcing member fitted between the stiffening ribs nearest the middle of the slat.
    - 2) Steel reinforcing members shall be electro-galvanized.
    - 3) Internal steel members shall be of sufficient cross section and thickness such that when the slat is laid flat between two end supports, it shall be able to support a 40 pound weight suspended from its midspan with a maximum deflection of 7/8 inch (0.875 inch).
      - a) Each end of the slat shall be secured to the pivot clip with 2 (two) aluminum or stainless steel sheet metal screws. Self-drilling screws are not permitted.
3. Aluminum Slats: Nominal 4 inches wide, by maximum 4'-0" long, extruded with interlocking grooves and stiffening ribs to provide 3/4 inch equivalent thickness and shaped to permit fastening to clips with two (2) aluminum or stainless-steel sheetmetal screws at each end of the slat if being installed into an aluminum slip system. If internal stiffening ribs are not within the slat design, Stiffening ribs creating grooves on the backside of the slat shall be oriented downward so that it will not accumulate dust and debris. Slats shall be as manufactured by Anodizing Inc. or approved equal.
- a. As an alternative, slats may be tubular in profile, with an interlocking groove, extruded, with a cross section thickness of 3/4 inch and typical wall thickness of 0.045 inch. Injection molded PVC end caps shall be provided to completely close each end of the slat. The caps shall have tabs which when inserted into the end of the slat will prevent the cap from falling out. Slats shall be fastened to clips with two (2) aluminum or stainless-steel sheetmetal screws at each end of the slat. Slats shall be as manufactured by International Window Corp. or approved equal.
4. Accessories
- a. Each slat shall have an extruded vinyl weatherstrip along one edge, within the interlocking groove, to provide weather-tightness.
5. Color: **[insert color]**.

- a. Anodized finish: Minimum thickness of ~~0.0004~~ 0.0098 inch.
  - b. Painted finish: Factory primed and painted in accordance with the manufacturer's standard.
- C. Screens:
- 1. Frame Material: Heavy-duty, rewirable type, 6063-T5 extruded aluminum alloy, 7/16 inch with a minimum wall thickness of 0.062 inch.
  - 2. Frame Construction: Corners shall be aluminum, assembled using corner reinforcement of the type recommended by the manufacturer. Screen frames 4 feet-6 inches in height and over shall have a horizontal spacer bar(s) having a similar section as that of the perimeter frame dividing the screen into equal sections. Screens shall be installed to permit quick and easy removal from the jalousie frame. No mutilation of the screen or screen frames will be permitted in mounting the window operator.
  - 3. Screen fabric: 14 x 18 mesh, fiberglass or aluminum alloy with an anodized finish. The mesh shall be held in place with rolled aluminum or vinyl splines as per the manufacturer's recommendation.
  - 4. Screen retaining fasteners: Aluminum, single wing type with stainless steel screws. Provide fasteners near the corners and at a maximum of 18 inches on center around the periphery of the screen frame.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Examine the areas and conditions under which windows are to be installed. Do not begin installation should any condition be found unsuitable until the unsatisfactory conditions have been corrected and are acceptable to the Installer. Proceeding with work will imply acceptance of the conditions by the Installer.
- B. Installation
  - 1. Install jalousie windows in accordance with the manufacturer's instructions and recommendations.
  - 2. Cut frames to dimension, smooth, square, even and neat.
  - 3. Shim window frames about 1/8 inch away from concrete or masonry walls. Coat aluminum surfaces in contact with concrete, masonry or dissimilar metals with bituminous paint or a factory recommended separator to prevent galvanic action. Take care in the application of bituminous paint or separators so that coating is not visible when installation is complete.
  - 4. Cut slats and vanes to exact lengths ~~(not short) to fit snugly into pivot clips. Do not bend clips out of alignment to accommodate short slats. Spaces exceeding 1/16 inch between the end of slat and the clip will be cause for rejection of the slat or vane. Per manufacturer recommendation.~~

5. Predrill holes at the ends of vinyl slats for securement to the pivot clips perpendicular to the slat. Clean prior to insertion into the pivot clips. Do not use self drilling screws.
  6. Drill holes accurately into the push bar for connection of connecting bar accurately.
  7. Miter screen frame corners neatly and assemble using corner reinforcement. Frames shall be square and plumb within the jalousie window.
- C. Cut screen fabric to size and install neatly within the frame smooth and taut, without bulges or waves, held snugly in place with the splines. Trim excess fabric.
- D. Roll splines neatly and uniformly rolled into the screen frame. Do not stretch vinyl splines during installation to avoid "shortening" of the spline upon relaxing.
1. Securely fasten screen retaining fasteners to the base frame to hold screen frames firmly in place.
  2. Notch window frames and screen frames as required to provide drainage for entrapped moisture.

END OF SECTION 08527