LANAI DOORS

CUSTOM FOLDING DOOR & WINDOW SYSTEMS
MIAMI-DADE, FLORIDA, TEXAS, IRC, IBC & ASTM
Bringing the outdoors in...

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Coastal Innovative Products, Inc., manufacturer of Lanai Doors™ (a California Corporation) is a leading United States manufacturer of aluminum, wood and clad bi-folding door and window systems. Lanai has designed and constructed custom folding systems for a wide variety of customers including resorts, hotels, restaurants, schools, churches, country clubs, museums, zoos and most of all residential. Lanai Doors™ systems are installed throughout the United States and in the countries of Canada, Mexico, Morocco, Costa Rica and numerous islands in the Caribbean and Hawaii. With over 10-years of dedicated folding door and window manufacturing experience, Lanai works directly with architects, builders, contractors and homeowners to create the best custom bi-fold solutions.

Lanai folding door and window systems are available up to 56-foot wide by 12-foot tall, zero post corners, door/window combinations, and systems integrated with side lites. For interior systems where a bottom guide is not desirable, Lanai can manufacture systems without a bottom guide track. Lanai folding systems can be ordered with the Crystal Award Winning Centor S1 Screen which can cover up to a 24-foot wide by 10-foot tall opening. The S1 screen can be used on existing bi-folds, lift and slides, sliding glass doors, or to enclose patios.

In order to be more competitively priced and to better communicate with our end customers, Lanai Doors™ sells its systems directly. Our trained and knowledgeable staff can assist you with all aspects of our products including design, manufacturing and installation. In response to customer demands, Lanai hurricane tested its aluminum E3 folding system. Lanai Doors™ is not only the first company to hurricane test Centor E3 top-hung folding hardware, but Lanai Doors™ surpassed all expectations and achieved incredible results!
On July 21, 2011, Lanai Doors™ received Notice of Acceptance (NOA) numbers 12-0326.10 and 12-0326.09 for their outswing and inswing folding door and window systems, respectfully, from Miami-Dade County. Both of these NOA’s expire on July 21, 2016. Additionally, Lanai received Certificate of Product Approval FL14768.1-R1 and FL14768.2-R1 from the State of Florida and TDI approval numbers DR-568 and DR-569 from the State of Texas.

**Highly Rated**

Lanai Doors™ hurricane aluminum bi-fold system is DP-70 rated (165 mph winds) for Miami-Dade County HVHZ large and small missiles. Lanai’s hurricane system also satisfies other wind-borne debris region building codes from the East Coast to the Gulf of Mexico to all of the Caribbean and Hawaiian Islands.

**Top-Hung Sleek Look**

Lanai’s hurricane systems are manufactured in the United States using the best component parts available. One critical part is the Centor E3 top-hung folding hardware. Centor E3 hardware is so robust that the Lanai Doors™ hurricane system needs only three hinges between each panel. The lack of multiple hinges complements Lanai’s sleek, clean look of their 1-3/4 inch thick panels which are made with 3-inch wide stiles and 3-5/8 inch top and bottom rails. Lanai’s hurricane top-hung system opens and closes with ease, unlike bottom roller systems which can bind or clog with debris getting into the bottom roller system. With the right design, your hurricane bi-fold glass wall system does not have to look or feel like a fortress.
**Custom Flexibility**

With up to 16 three-foot wide by eight-foot tall panels, Lanai Doors™ can fill a 48-foot wide opening while providing three different threshold options. With 160 different layout configurations, Lanai can custom design applications that fold up to eight panels to each side of your opening while extending to either the outside or inside. The extensive hurricane testing by Lanai Doors™ resulted in the largest and most flexible top-hung aluminum folding system available today.

**Air & Water Tight**

Lanai Doors™ qualified three thresholds (a raised water-tight standard, an ADA compliant lowrise and a flush guide) for Miami-Dade HVHZ testing. Lanai’s standard threshold achieved air infiltration of 0.02 cfm/ft² for 1.57 psf (which is 15 times better than the allowable 0.30) and 0.05 cfm/ft² for 6.24 psf. Lanai’s outswing standard threshold is water tight up to DP-55. For water-tight applications with 100% overhang, all three thresholds are acceptable.
BI-FOLD TESTING

Successfully completed test methods

Miami-Dade & Florida

TAS 201-94, Impact Test Procedures
TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

Other Jurisdictions

ASTM E 283-04, Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specific Pressure Differences Across the Specimen
ASTM E 330-02, Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
ASTM E 331-00, Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
ASTM E 1886-05, Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
ASTM F 842-04, Test Methods for Measurement of Forced Entry Resistance of Horizontal Sliding Door Assemblies
AAMA 1304-02, Voluntary Specification for Forced Entry Resistance of Side-Hinged Door System
CAWM 300-96, Forced Entry Resistance Tests for Sliding Glass Doors

Test Results for Miami-Dade HVHZ & ASTM

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Test</th>
<th>Results - Outswing</th>
<th>Results - Inswing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Air Infiltration</td>
<td>0.02 cfm/ft² (1.57 psf)</td>
<td>0.03 cfm/ft² (1.57 psf)</td>
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<tr>
<td></td>
<td>Water Infiltration</td>
<td>8.25 psf (DP-55)</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Design Pressure</td>
<td>DP-100 pos. (198 mph)</td>
<td>DP-80 pos. (177 mph)</td>
</tr>
<tr>
<td></td>
<td>Impact &amp; Cycling</td>
<td>DP-90 (188 mph)</td>
<td>DP-90 (188 mph)</td>
</tr>
<tr>
<td>Lowrise &amp; Flush Guide</td>
<td>Air Infiltration</td>
<td>0.17 cfm/ft² (1.57 psf)</td>
<td>0.16 cfm/ft² (1.57 psf)</td>
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<tr>
<td></td>
<td>Water Infiltration</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Design Pressure</td>
<td>DP-70 pos. (165 mph)</td>
<td>DP-70 pos. (165 mph)</td>
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<tr>
<td></td>
<td>Impact &amp; Cycling</td>
<td>DP-70 (165 mph)</td>
<td>DP-70 (165 mph)</td>
</tr>
</tbody>
</table>

Forced Entry - 300 lb test
Passed
Passed
Hurricane and wind-borne debris region building codes are a growing trend across the United States. With the incredible devastation caused by hurricanes and cyclones, greater emphasis has been placed on products that better protect life and property. Arguably, Miami-Dade County is the gold standard for hurricane product testing.

States up and down the East Coast, the Gulf of Mexico, and Hawaiian Islands have implemented building codes (i.e. Florida Building Code and International Building Code) requiring the use of hurricane certified products. The Florida Building Code High Velocity Hurricane Zone (HVHZ) provisions apply to both Miami-Dade and Broward Counties, Florida. The non-HVHZ provisions apply to the rest of Florida. Most other states have implemented the International Building Codes which require hurricane products for wind-borne debris regions. In addition, Caribbean Island builders are requiring stronger impact resistant products with Miami-Dade hurricane certification.

Not all states and jurisdictions follow the same building code or the same version of the code. It is the responsibility of architects, builders, contractors and homeowners to determine what is necessary for your project and pre-verify that Lanai Doors™ hurricane rated systems are allowable products for your jurisdiction. States and counties have maps, similar to the State of Florida, depicting wind speeds for wind-borne debris regions. Official wind speeds are determined and periodically adjusted by the American Society of Civil Engineers (ASCE).
Lanai Doors™ hurricane systems are custom built to the size of your rough opening. The maximum size panel is 36 inches wide by 96 inches tall. With our narrow stiles and rails, a maximum sized panel has 77% visible glass. Lanai’s hurricane systems can be built with up to 16 panels (48 feet wide opening) with no more than eight panels folding to either direction. In addition to the system size, customers have several options to customize the look and feel of their Lanai system.

**Inswing or Outswing**

Lanai Doors™ qualified both inswing and outswing configurations for their hurricane rated systems. Customers have the choice of 80 inswing or 80 outswing configurations. Configurations are always determined by standing outside looking in. See configurations on page 14 for options.

**Three Thresholds**

Lanai Doors™ qualified three thresholds (Standard, Lowrise & Flush Guide) for their hurricane systems. Lanai’s standard threshold is tested to DP-55 for water. All three thresholds are considered water tight when the width of the overhang is equal to or greater than its height off the ground.

Lanai’s standard raised threshold obtained higher individual structural and cycling results. Structurally, the standard threshold achieved a DP-80 negative (177 mph winds) and DP-100 positive (198 mph winds) and successfully cycled at DP-90 (188 mph winds) for both outswing and inswing configurations.

All three thresholds come in Class I bronze or clear anodized finishes. See threshold drawings on pages 17 & 18 for details.

Above reflects one creative Lanai Doors™ design fabricated for a restaurant that wanted stationary side lites integrated with our folding door system.
CUSTOM Glazing
Lanai Doors™ hurricane system includes one-inch thick hurricane-rated glass. Lanai’s hurricane-rated glass is an insulated dual-glaze panel. The interior impact glass is made with extra-tough DuPont™ SentryGlas® structural interlayer (.060 for small missile and .090 for large missile impact). The external sheet of glass is fully-tempered (3/16” or 1/4” thick) clear. LowE, turtle or other tinted glass. Other customer options include Argon gas and internal grids.

Paint/Finish
Lanai Doors™ has six standard paint colors (white, g brown, bronze, dark bronze, tan & sand) and two Class I anodized finishes of clear and dark bronze. In addition, Lanai can color match finishes from all major door and window manufacturers, including Kynar®.

Centor Hardware Finish
Centor E3 bi-fold hardware is manufactured from 304 stainless steel. Hinges, pivots, and carriers are available in stainless, PVD bronze or PVD brass finishes. See bi-fold hardware on page 12 for more details.

Locking Mechanism Finish
Locking mechanisms, manufactured by an ASSA ABLOY company, are used by Lanai Doors™ to keep their folding panel systems securely locked and closed. In addition to its’ Miami-Dade County HVHZ DP-70 rating, Lanai also passed 300 pound forced entry testing. Two twin-bolt locks (TBL) are installed on hinged stiles and a 4-point lever compression lock (LCL) or a TBL is installed on odd numbered end panels. The locks and matching-design handles are made from zinc alloy with aluminum shoot bolt rods and stainless steel tips. Customers have the choice of four finishes (Brushed Chrome, Satin Chrome, White Powder Coat or Bronze Powder Coat) and a TBL with keyed access.

Flexible Rail Heights
For aesthetic or regulatory purposes, customers have the option between our standard 3-5/8” wide rail or our 7-1/4” and 11” extended rails.
Lanai Doors™ hurricane system is designed around the Centor E3 top hung bi-fold hardware. The Centor hardware is a critical component to the Lanai hurricane system. This durable solid stainless steel hardware requires only three hinges between each panel.

About Centor
Established in 1951, Centor is an Australian based manufacturing company operating internationally from headquarters in the Brisbane (AUS), Chicago (USA) and Birmingham (UK). Centor creates innovative door and window hardware systems for residential and commercial applications. Allowing for the extra weight of double glazing for large scale openings, Centor’s E3 folding door hardware promises unprecedented insulation against noise and temperature when the doors are closed. The ability to utilize sturdy door construction and materials enhances security and resistance to the elements.

Tested for durability
Centor products are extensively tested to ensure years of trouble-free enjoyment. Hardware is weather tested as both a complete door system and as individual components and cyclic tested to 50,000 cycles. E3 is backed by a 10-year limited warranty.
**Carriers**
- four 1 1/2” x 7/16” carrier wheels with packed ball bearings
- two 7/8” x 11/32” stabilizing wheels
- hinges attached with Surelock™ patented carrier pin locking system allowing for easy vertical adjustment of 7/16”

**Pivots**
- top and bottom pivot housing allows for easy horizontal adjustment of 3/8”
- hinges attached to housing with stainless steel rod to Surelock™ allowing for easy vertical adjustment

**Hinges**
- substantial 4 1/8” x 1 1/8”, .115 thick surface mounted hinges
- manufactured from 304 grade Stainless Steel
- also available in bronze and bright gold PVD finishes
**AVAILABLE CONFIGURATIONS**

<table>
<thead>
<tr>
<th># of Panels</th>
<th>1L</th>
<th>1R</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1L1R</td>
<td>2L</td>
</tr>
<tr>
<td>3</td>
<td>1L2R</td>
<td>2L1R</td>
</tr>
<tr>
<td>4</td>
<td>1L3R</td>
<td>3L1R</td>
</tr>
<tr>
<td>5</td>
<td>1L4R</td>
<td>4L1R</td>
</tr>
<tr>
<td>6</td>
<td>1L5R</td>
<td>5L1R</td>
</tr>
<tr>
<td>7</td>
<td>1L6R</td>
<td>6L1R</td>
</tr>
<tr>
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<td>8L7R</td>
</tr>
<tr>
<td>16</td>
<td>8L8R</td>
<td></td>
</tr>
</tbody>
</table>

80 Outswing and 80 Inswing
OUTSWING CONFIGURATIONS

Combine a left and a right configuration or just one from either side to design over 80 possible configurations. For example, a four-panel system with a man door could be:

INSWING CONFIGURATIONS

Combine a left and a right configuration or just one from either side to design over 80 possible configurations. For example, a four-panel system with a man door could be:
Note: See Installation Instructions for proper attachment.
Note: See Installation Instructions for proper attachment.
Flush Lowrise Threshold

Note: See Installation Instructions for proper attachment.
Lanai Doors™ takes pride in packaging its products. To avoid damage in transit, Lanai packages all systems in custom made wood crates. Each panel is individually packaged to allow for factory installed hardware. This method also assists installers who are not familiar with our product or its component parts.

Each shipment will include a frame, panels and installation instructions. The bi-fold system frames are shipped broken down. A parts box will include installation instructions and assembly screws so that you can easily assemble the frame. The frame header will already include the top pivot and carriers. The threshold will already include the bottom pivots.

The panels are completely glazed and prepped for installation. The locking mechanisms (twin-bolts and door handles) will already be installed on the appropriate panels. The hinges have a four-hole side and a three-hole side. Hinges will already be attached to the panels using the four-hole side. All door and frame weather stripping will be attached or included. Each panel is pre-numbered for easy installation. When installed, maximum sized panels weigh approximately 70 pounds per linear foot.
The S1E Eco-Screen™ from Centor is a world-first product providing retractable insect screening and solar control system with fingertip operation. Used with Lanai Doors™ folding range, there is greater freedom to enjoy outdoor living space.

S1E allows homeowners to have complete control of their living environment. Used singly or paired together S1E is ready for use whatever the season or time of day. S1E retracts horizontally and discreetly into its frame when not in use – a revolutionary solution for those who refuse to compromise on style.

The S1E Eco-Screen™ promotes an eco-friendly lifestyle by offering chemical-free insect protection, a tighter Noseeum bug mesh, solar control and thermal insulation; converting a single-glaze opening to double-glaze performance.

* Note: The S1E Eco-Screen™ is not a hurricane certified product.

<table>
<thead>
<tr>
<th>System</th>
<th>Single Function System</th>
<th>Double System</th>
<th>Multi-function System</th>
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<tbody>
<tr>
<td></td>
<td>insect screen</td>
<td>insect screen</td>
<td>insect screen</td>
</tr>
<tr>
<td></td>
<td>blind</td>
<td>blind</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12’ (W) x 10’ (H)</td>
<td>24’ (W) x 10’ (H)</td>
<td>12’ (W) x 8’ (H)</td>
</tr>
<tr>
<td></td>
<td>12’ (W) x 8’ (H)</td>
<td>24’ (W) x 8’ (H)</td>
<td></td>
</tr>
</tbody>
</table>

The S1E Eco-Screen™ max daylight inside opening

**Single Function System**
- Option 1 – Screen from right or left
- Option 2 – Blind from right or left

**Double System**
- Option 1 – Screen from right and left
- Option 2 – Blind from right and left

**Multi-function System**
- Option 1 – Screen from right, blind from left
- Option 2 – Screen from left, blind from right
BIFOLD & SCREEN SECTION

Outside
- Panel Height: 90-9/16"
- Frame Height: 94-9/32"
- Standard Threshold
- Sill Pan, Silicone & Calking by Others

Inside
- Rough Opening Height: 93"
- Screen Frame Height: 97-1/16"
- Finished Floor
- Notch Foundation: 1 3/4" Deep by 7 3/32" Wide

13/32" Blocking Below Screen Threshold To Make Level With Folding Door Threshold by Others
Miami-Dade HVHZ
NOA 12-0326.09 & 12-0326.10
(Expires 7/21/16)

State of Florida
FL14768.1-R1 & FL14768.2-R1
FL15172

State of Texas - TDI
DR-568 & DR-569

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