

## NanaWall SL70

### The Monumental Thermally Broken Aluminum Folding System

The SL70 is a monumentally-sized, thermally broken aluminum folding panel system designed to provide an opening glass wall or storefront up to 36' wide. It is available in various configurations utilizing one to twelve panels. The running astragal design provides extra stability.

*For benefits of all NanaWall systems, see the "General Introduction" section. For features common to aluminum folding systems, see the "Aluminum Folding Systems" Introduction.*

### Weathertight and Very High Structural Performance

The system is engineered to provide weathertightness and high structural performance, suitable for high-rise structures and buildings in hurricane areas. Inward-opening unit with raised sill and with optional steel locking rod tested to AAMA HGD-C55 - no water entry even at 12 psf. This three panel 10'9" wide by 7'10" high unit tested to positive design pressure of 55 psf and negative design pressure of 90 psf; see the *Design Windload Charts* on page 22 for other sized panels.

### Life Cycle Tested-AW

In European life cycle testing (more exacting than AAMA 910-93, with 10,000 cycles instead of 2,500 cycles), the inward opening SL70 had no damage to fasteners, hardware parts, or any other damage that caused the system to be inoperable, and air infiltration and water resistance tests did not exceed Gateway Performance Requirements for Hinged Glass Door, HGD-C55.

### NFRC-Approved Thermal Performance

The SL70 inswing and outswing models with raised sills have been rated, certified and labeled in accordance with NFRC 100I; see *"Performance and Testing Results"* for further details.

### Acoustical Performance

The SL70 system has been tested by an independent acoustic lab for acoustical performance. The SL70 with insulated tempered glass achieved STC and Rw values of 32. The SL70 with STC 43 laminated glass achieved STC and Rw values of 41.

### Monumentally Sized Design Options

This system offers monumentally-sized panels: frame



heights up to 12'2" and panel widths up to 3'7" are possible. Heavier and/or thicker glass, such as bullet-resistant laminated glazing, can also be used. To see completed project photos of the Vail Athletic Club Pool House and the Seattle Mariners Safeco Field Press Boxes, visit the "Photo Gallery" section at [www.nanawall.com](http://www.nanawall.com).

### Running Astragal, Floor-Mounted System

This system is ideal for applications where load-bearing capability of the header is a concern. The system's main weight is carried by the floor track. The upper-track is merely a guide. The lower-running carriages ride on top of the sill track and lie above the water run-off level. The running astragal design allows a floor-mounted system even with a flush sill.

### Additional Stacking Configurations

Angled units of 90° or 135° are also possible. To see these operable wall concepts in action, please visit [www.nanawall.com](http://www.nanawall.com) and click on the "Animations" link.

### Superior Thermal Break

The system is thermally broken with a 3/4" (18.5mm) polyimide plastic reinforced with glass fibers. This thermal barrier provides increased strength, superior humidity control, improved acoustics, and energy savings.

### Dual Color Option

For the SL70, the option of different finishes on the inside and outside is also available; see *"Finish Options"* in the *General Introduction*.

### Tilt-Turn Panel Option

It is possible to incorporate a tilt-turn panel within a unit. In addition to sliding, folding, and/or swinging, this panel can be tilted at the top for ventilation (only on panel hinged to the side jamb).

### Hardware Options

The internal locking hardware is **Schlage-compatible**.

## Technical Description

### General Description

The SL70 is a monumentally-sized, thermally broken aluminum folding panel system designed to provide an opening glass wall or storefront up to 36' wide (see Maximum Size Chart). It is available in various configurations utilizing one to twelve panels (see elevation drawings). The running astragal design provides extra stability. An option for swing entry/exit panel(s) is available; note however the further panel size constraints with a swing panel not hinged to a side jamb. Units can be either inward or outward opening (see details in the section drawings).

### Frame and Panels

The nominal extruded aluminum frame and panel thickness is 2 3/4" (70 mm), thermally broken with a 18.5 mm wide polyamide plastic (see section drawings). Standard finishes available are clear anodized, dark bronze anodized, dark brown powder-coated or white powder-coated. Custom finishes can be chosen from over two hundred RAL colors. See "Aluminum Finish Options" in the General Introduction. It is possible to have different finishes on interior and exterior surfaces.

Panels and running posts are pre-assembled. All pins and screws to assemble frame are provided.

Besides the more weathertight raised sill, various standard aluminum flush sills (shown in section drawings) are available as an option in a clear or dark bronze anodized finish.

### Glazing

Units can be supplied either glazed (with single laminated, 15/16" clear insulating tempered, or insulating Low-E tempered glazing) or open. If supplied open, standard glass stops and dry glazing gaskets supplied are for a glass thickness of 15/16" (24 mm). Available as an option are glass stops for other glass thickness. See "Glazing" in the General Introduction.

### Weatherstripping

All weather stripping (consisting of APTK, EPDM or brush seals) is provided for sealing between panels and between panels and frames (see section drawings).

### Sliding/Folding Hardware

For sliding and folding each pair of panels, a patented, floor-supported lower running carriage is attached to the running post profile. An upper running carriage is attached as a guide (see the section drawings). The four roller lower running carriage lies above the water run-off level and is

constructed to ensure even distribution of pressure on all four rollers. Rollers have sealed bearings and are coated with toughened Polyamide to ensure sound-free running and resistance to extreme temperature.

Two to five patented hinges per connection are provided to connect panels and running post profiles together and to connect panels to the frame.

### Locking Hardware and Handle Options

For each pair of folding panels and on the swing panel(s), if any, provided is two point locking hardware consisting of top and bottom Polyamide capped locking rods operated by a 180° turn of a nylon handle.

If there is a swing panel, there is the following additional hardware option on the primary entry panel:

- 1. Three point locking.** Three point locking hardware consisting of top and bottom Polyamide capped locking rods and a horizontal bolt operated by a 180° turn of L-shaped handles located on both the inside and outside. Lockable with a lockset. Turn of key or thumb turn operates lock.
- 2. One point lockable latch with deadbolt.** Nylon lever handles on both sides that operates a lockable latch. A lockset locks latch and deadbolt. Turn of key or thumb turn operates lock. For units with frame height over 7'0", use Option 3 below.
- 3. One point lockable latch with 3 locking points.** Same as Option 2, but with 2 additional locking points.
- 4. Deadbolt lock.** ADA approved nylon pull handles on both sides with deadbolt(s) operated by a lockset. Turn of key or thumb turn operates lock. Lockset option of having key operation on both sides. To keep the panel closed, a door closer should be field installed, but note that a door closer can only be installed on a swing panel that is attached to a side jamb.
- 5. No hardware.** For panic hardware to be installed by others, main entry panel can be supplied with no locking hardware.

If a unit is inward opening and there is no swing panel, an option to enable a unit to be opened from the outside is to provide on the folding pair to be opened first: Two point locking hardware consisting of top and bottom Polyimide capped locking rods operated by a 180° turn of an L-shaped handle on the inside and a flat handle on the outside. Lockable with a lockset. Turn of key or thumb turn operates lock.

From thirteen available colors, the nylon handle colors will be closest to the aluminum profile color.

## Performance of the SL70 NanaWall - Testing Results

| RAISED SILL  |  |   |
|--|--|---|
| Type of Test   | Inward Opening Units   | Outward Opening Units   |
| * Air Infiltration:<br>ASTM E-283, ft. <sup>3</sup> /min/ft.   | @ 1.57 psf (25 mph): 0.08<br>@ 6.24 psf (50 mph): 0.18   | @ 1.57 psf (25 mph): 0.06<br>@ 6.24 psf (50 mph): 0.12  |
| * Water Penetration:<br>ASTM E-547-86  | No uncontrolled water entry @ 12 psf (68 mph)  | No uncontrolled water entry @ 8.25 psf (56 mph)   |
| * Structural Load Deflection<br>ASTM E-330-90: pass<br><b>See design windload charts for other sized panels.</b><br>Note that the structural test pressures were 50% higher than the design pressures.   | <u>Standard Unit</u><br>Design Pressure Positive @ 40 psf (125 mph)<br>Design Pressure Negative @ 45 psf (132 mph)<br><u>Top and bottom reinforced locking point unit</u><br>Design Pressure Positive @ 55 psf (146mph)<br>Design Pressure Negative @ 90 psf (187 mph) | <u>Standard Unit</u><br>Design Pressure Positive @ 45 psf (132 mph)<br>Design Pressure Negative @ 40 psf (125 mph)<br><u>Top and bottom reinforced locking point unit</u><br>Design Pressure Positive @ 90 psf (187 mph)<br>Design Pressure Negative @ 55 psf (146 mph) |
| <b>Thermal Performance:<br/>Rated, certified and labeled in accordance with NFRC 100</b><br><br><b>Clear (air filled)</b><br><b>Low E (air filled)</b><br><b>Low E (argon filled)</b><br><br>Lower values are achievable with Heat Mirror™ option. | With .94" (24 mm) Thick Insulated Glass:<br>Glass thickness of .157" (4 mm) and gap thickness of .623" (16 mm)<br><u>U-Factor</u> <u>Solar Heat Gain Coefficient</u><br>.52                      .58<br>.41                      --<br>.36                      .31    | With .94" (24 mm) Thick Insulated Glass:<br>Glass thickness of .157" (4 mm) and gap thickness of .623" (16 mm)<br><u>U-Factor</u> <u>Solar Heat Gain Coefficient</u><br>.52                      .58<br>.41                      --<br>.36                      .31     |
| * Forced Entry Resistance  | In accordance with AAMA-1303.5 and CAWM 300-96 requirements.   |   |

\* Excerpts of results of a 10'9" W x 7'10" H three panel unit with Raised Sill tested by Architectural Testing, Inc., Fresno, CA, an independent testing laboratory in March 1997. **Standard Unit tested to AAMA HGD-C40 and unit with reinforced locking points tested to AAMA HGD-C55.**

## Performance of the SL70 NanaWall - Testing Results (continued)

| LOW PROFILE SADDLE SILL, LOW PROFILE STEPPED SILL, STANDARD FLUSH SILL  |   |   |
|---|---|---|
| Type of Test  | Inward Opening Units  | Outward Opening Units   |
| Water Penetration:<br>ASTM E-547-86<br><br>Internally Tested<br><br>Not applicable for<br>standard flush sill   | No uncontrolled water entry @ 3.75 psf (38 mph) subject to the following adaptations in the field by others:<br>1. Remove the gaskets covering the inner channel.<br>2. Drill weep holes through the bottom of this channel (about one 1" x 1/4" weep hole per panel.)<br>3. Drill weep holes through the bottom of the sill or lower front face of the sill to drain water collected to a lower point (about one 1" x 1/4" weep hole per panel.)<br><br>Please note that due to varying site requirements and conditions, these sills will not be prepared for drainage by Nana Wall Systems, Inc. If this drainage system is desired, we recommend that a qualified professional construct this system on the project site strictly in accordance with instructions provided by Nana Wall Systems, Inc. and in accordance with good waterproofing techniques. Note that in some applications drain connections may not be possible. |   |
| Structural Load Deflection<br>ASTM E-330-90: pass<br>Per engineering letter<br>based on raised sill testing.<br>See design windload charts<br>for other sized panels.<br>Note that the structural test<br>pressures were 50% higher<br>than the design pressures. | <u>Standard Unit</u><br>Design Pressure Positive @ 40 psf (125 mph)<br>Design Pressure Negative @ 45 psf (132 mph)<br><br><u>Top and bottom reinforced locking point unit</u><br>Design Pressure Positive @ 55 psf (146mph)<br>Design Pressure Negative @ 90 psf (187 mph)  | <u>Standard Unit</u><br>Design Pressure Positive @ 45 psf (132 mph)<br>Design Pressure Negative @ 40 psf (125 mph)<br><br><u>Top and bottom reinforced locking point unit</u><br>Design Pressure Positive @ 90 psf (187 mph)<br>Design Pressure Negative @ 55 psf (146 mph) |
| Thermal Performance   | Pending   | Pending   |
| * Forced Entry Resistance   | In accordance with AAMA-1303.5 and CAWM 300-96 requirements.  |   |
| Acoustical Performance  | The SL70 system has been tested by an independent acoustic lab for acoustical performance.<br>The SL70 with insulated tempered glass achieved STC and Rw values of 32.<br>The SL70 with STC 43 laminated glass achieved STC and Rw values of 41.  |   |

The SL70 NanaWall has been partially tested to meet European standards set by the Window Technology Institute (RAL) of Rosenheim, Germany. Please note that in contrast to AAMA testing, the Rosenheim test procedures are stricter. The Rosenheim test procedure consists of an initial test of different test criteria, which is followed by a comprehensive mechanical test which includes, among other things, the simulation of 10,000 opening and closing cycles. Then, on the same testing system, the initial test is repeated in a final test. Only then does a classification take place. In combined air infiltration, water penetration and structural performance tests, the inward opening SL70 system with the raised sill meet the requirements for "Stress Classification Group C".

Excerpts of test results of a nominal 8'11" x 6'10" three panel unit with raised sill performed by the Institute Hochbau & Industriebau, Austria, an independent testing laboratory:

Air Infiltration – ASTM E-283, cfm per linear foot of crack

Inward opening: @ 1.57 psf (25 mph): 0.09 and @ 6.24 psf (50 mph): 0.27.

Water Penetration – ASTM E-547-86 with water spray of 3.1 gallons/ square foot/ minute instead of US standard 5 gallons/ square foot/ minute.

Inward opening: no uncontrolled water entry @ 12.48 psf (70 mph). .