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StormGlass™ Hurricane-Resistant Glass, Oldcastle Glass®
Hurricane Resistant Laminated Glass, Solutia Inc.®
Architectural Glazing Project Profile – Hurricane, Solutia Inc.®
DuPont™ SentryGlas® Plus™, Architectural Safety Glass Interlayer
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PAINT FINISHES

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Polycron® III Coatings, Product Data, PPG Industries, Inc.
Duracron® Coatings, Product Data, PPG Industries, Inc.
Acrynar® FX Coatings, Product Data, PPG Industries, Inc.
Duramar® Coatings, Product Data, PPG Industries, Inc.
Duramar® XL Coatings, Product Data, PPG Industries, Inc.
Duramar® Sunstorm™ Coatings, Product Data, PPG Industries, Inc.
Duramar® Architectural Coatings, Extrusion Color Guide, PPG Industries, Inc.
Fluropon®, The Valspar Corporation
Acrodize™, Hardcoat, The Valspar Corporation

Please visit www.windoorinc.com for NOAs and Statewide Approvals
The Installation Details should not be used to submit for building permits.

SERIES 8000 SLIDING GLASS DOOR

General Information

SERIES 8000 SLIDING GLASS DOOR		
General Information		
WinDoor Standard Finishes AAMA 2603		
White	UC# 97603	Wet White Handle
Bronze	UC# 98316	Black Handle
WinDoor Standard Kynar Finishes AAMA 2605		
Bone White	UC# 43350	Shield White Handle
Bronze	UC# 91252	Black Handle

Fraction	Decimal
1/32	0.031
1/16	0.063
3/32	0.094
1/8	0.125
5/32	0.156
3/16	0.188
7/32	0.219
1/4	0.250
9/32	0.281
5/16	0.313
11/32	0.344
3/8	0.375
13/32	0.406
7/16	0.438
15/32	0.469
1/2	0.500
17/32	0.531
9/16	0.563
19/32	0.594
5/8	0.625
21/32	0.656
11/16	0.688
23/32	0.719
3/4	0.750
25/32	0.781
13/16	0.813
27/32	0.844
7/8	0.875
29/32	0.906
15/16	0.938
31/32	0.969

NS/WS/2T	Panels
XO	AI-BO
OX	BOR-AIR
XX	AI-AOR
XX-Rev	AO-AIR
OXO	DI-AI-BO
OXO-Rev	BOR-AIR-DIR
XOO	AI-BO-DOR
OOX	DO-BOR-AIR
XXXX	AO-EI-AI-AOR
OXXO	BOR-EI-AI-BO
3T	Panels
XXX	AI-C-AOR
XXX-Rev	AO-CR-AIR
XXO	AI-C-BO
OXX	BOR-CR-AIR
XXXXXX	AO-CR-EI-AI-C-AOR
OXXXXO	BOR-CR-EI-AI-C-BO
4T	Panels
XXXX	AI-C-C-AOR
XXXX-Rev	AO-CR-CR-AIR
XXO	AI-C-C-BO
OXXX	BOR-CR-CR-AIR
XXXXXXXX	AO-CR-CR-EI-AI-C-C-AOR
OXXXXXXO	BOR-CR-CR-EI-AI-C-C-BO
2T	Panels
PX-O	AO-Notched Rev.
PX-I	AIR
XP-O	AO-Notched
XP-I	AI
PXX-O	CNI-AOR
PXX-I	COR-AIR
XXP-O	AO-CNIR
XXP-I	AI-CO
PXXP-O	EO-Notched/AO-Notched
PXXP-I	EI-Notched Rev/AI Notched
PXXXXP-O	CNI-EI-AI-CNIR
PXXXXP-I	CO-EOR-AO-COR
3T	Panels
PXXX-O	CNI-C-AOR
PXXX-I	COR-CR-AIR
XXXP-O	AO-CR-CNIR
XXXP-I	AI-C-CO
PXXXXXP-O	CNI-C-EO-AO-CR-CNIR
PXXXXXP-I	COR-CR-EI-AI-C-CO
4T	Panels
PXXXX-O	CNI-C-C-AOR
PXXXX-I	COR-CR-CR-AIR
XXXXP-O	AO-CR-CR-CNIR
XXXXP-I	AI-C-C-CO
PXXXXXXP-O	CNI-C-C-EOR-AO-CR-CR-CNIR
PXXXXXXP-I	COR-CR-CR-EI-AI-C-C-CO

Tracks	Head	Jamb	Sill
NS/WS	6-1/16	5-7/8	6-9/16
2T	4-5/8	4-7/16	5-1/8
3T	7	6-13/16	7-1/2
4T	9-3/8	9-3/16	9-7/8

On 90 Degree Corners:
The Outside Overall Width is equal to the Inside Overall Width plus the Sill Depth

Fastener Locations	End	Center
8000 Non-reinforced	6"	18"
8000 Reinforced	6"	12"

Panel Size Limits	
Non Impact Single Glaze & 1" Insulated	5'0" x 10'0"
Impact Single Glaze & Insulated Impact	4'0" x 10'0"
	5'0" x 8'0"

Pocket Configurations			
A	Inside	Open	Left
B	Inside	Closed	Left
C	Outside	Open	Left
D	Outside	Closed	Left
E	Inside	Open	Right
F	Inside	Closed	Right
G	Outside	Open	Right
H	Outside	Closed	Right

Sill Riser Height	Test Lab Result	Field Results
1.5	6.75 lb	5.5 lb
2.25"	9.0 lb	7.5 lb
3.0"	12.0 lb	10.5 lb
3.5"	15.0 lb	12.5 lb
4.25"	18.0 lb	16.0 lb

Panel Weights	
1/4 8K	9 lbs/sq ft
NI 8K	10 lbs/sq ft
IG INSUL	11 lbs/sq ft

SERIES 8000 SPECIFICATION GUIDE

HEAVY COMMERCIAL WIDE STILE SLIDING GLASS DOORS

For impact glazing applications

SECTION 08640

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural sliding glass doors as shown on the drawings and specified in this section.
- B. Installation: Labor, tools, and materials needed to install doors complete with hardware and related components.
- C. Glass and glazing.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.04 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.05 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/1.S.2-97 "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows."
 - 2. AAMA 502-90 "Voluntary Specifications for Field Testing of Windows and Sliding Glass Doors."
 - 3. AAMA 611-98 "Voluntary Specifications for Anodized Architectural Aluminum."
 - 4. AAMA 701-92 "Voluntary Specifications for Pile Weatherstripping."
 - 5. AAMA 800-92 "Voluntary Specifications and Test Methods for Sealants."
 - 6. AAMA 906-96 "Voluntary Specifications for Sliding Glass Door Roller Assemblies."
 - 7. AAMA 2603-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 8. AAMA 2604-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 9. AAMA 2605-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 10. AAMA CW-10-97 "Care & Handling of Architectural Aluminum from Shop to Site."
 - 11. AAMA/NWWDA 1303.5 Forced Entry
- B. ASTM – American Society for Testing Materials:
 - 1. ASTM E 283 "Standard Test Method for Rate of Air Leakage Through Exterior Windows Curtains Walls, and Doors."
 - 2. ASTM E 330 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
 - 3. ASTM E 331 "Standard Test Method for Water Penetration for Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."

4. ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential."
 5. ASTM E 774 "Specification for Sealed Insulated Glass Units."
 6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors."
 7. ASTM E 1300 Standard practice for determining Glass Loads
 8. ASTM E 1886 02 Standard Test method for Cyclic Pressure Differentials
 9. ASTM E 1996 02 Standard Test method for Windows and Doors impacted by windborne debris.
- C. Miami Dade Protocol for Hurricane Windborne Debris Impact Testing, including;
1. TAS 201 Large and Small Missile Impact Tests.
 2. TAS 202 Air infiltration, Water infiltration and Static Air pressure Tests
 3. TAS 203 Positive and Negative Loads, Cycle Tests.

1.06 SYSTEMS DESCRIPTION:

- A. AAMA DESIGNATION: SGD-HC
Height Rating, from 6' 8" to 10' 0". HC performance with Design Pressures from 150 psf to 60 psf. Job specific sizes are called out on the drawings and the Design Pressures have been provided by the Engineer of Record. The SGD manufacturer must provide certification that they are in compliance with the DP's required for this project.
- B. Doors: Aluminum extrusions 6063-T6 alloy and temper, minimum wall thickness .080". Frame depth 6", flush frame. Panels to have 4-5/8" wide vertical stiles, top and bottom rail. Optional 8-5/8" high bottom rail available. panel depth to be 1-3/4" factory glazed.
- D. Configurations: Sliding glass doors: Two Panel two track systems, up to eight panel four track Systems. Job specific configurations are called out on the drawings..
- E. Glazing: Panels are wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1". Glazing stops accept from 9/16" single glazing to 1" insulated glass, see glass description in paragraph 2.04.

1.07 PERFORMANCE REQUIREMENTS:

- A. Conformance to SGD-HC specifications in AAMA/NWWDA 101/I.S.2-97 when tests are performed on the prescribed minimum 4'10" panel width x 7'10" panel height. Additional tests for compliance with "largest size manufactured," must show nominal test size panels up to 4ft. wide by 10ft. high. Frame width and height test sizes are listed below, under this section, item #5, with their specific results:
1. Air infiltration maximum allowable at .34 cfm/square foot when tested per ASTM E 239-91 at a static air pressure difference of 6.24 psf., equal to wind at 50 mph.
 2. Air infiltration measured on independent laboratory tests of WinDoor SGD at 6.24 psf for specimen #1 are 0.03 and specimen #2 are 0.06, testing under Miami Dade protocol TAS 202-94. This project will require laboratory certified test reports showing air infiltration performance at .15 or lower.
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM E 331-93 at a static air pressure of: 15% of the positive DP.
 4. Riser Height 1.50" = 5.5psf field performance and 6.75psf lab test.
Riser Height 2.25" = 7.5psf field performance and 9.psf lab test.
Riser Height 3.0" = 10.5psf field performance and 12.psf lab test.

Riser Height 3.50" = 12.5.psf field performance and 15.psf in lab tests.

Riser Height 4.25" = 16.psf field performance and 18.75psf lab test.

5. Uniform Structural Load: No glass breakage, permanent damage to fasteners or hardware, or any other damage which would cause the door to be inoperable, and tested per ASTM E 330-90 at a static air pressure difference of :
 - Panel Size: 2'6" x 6'8" +180 psf w/ DP of +120 and -225 psf w/ DP of -150
 - Panel Size: 3' x 6'8" +180 psf w/ DP of +120 and -225 psf w/ DP of -150
 - Panel Size: 3'6" x 7' +180 psf w/ DP of +120 and -225 psf w/ DP of -150
 - Panel Size: 4' x 8' +137 psf w/ DP of + 91 and -171 psf w/ DP of -114
 - Panel Size: 4' x 10' +120 psf w/ DP of + 80 and -150 psf w/ DP of -100
 - Panel Size: 5' x 8' +150 psf w/ DP of +100 and -150 psf w/ DP of -100
6. The panel sizes listed above are for reference only in determining the DP's that are available. Job specific design pressures are provided on the drawings for this project and are the responsibility of the Engineer of Record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.
7. Comparative Analysis is permitted to the extent that cycle testing supports the data.

1.08 SUBMITTALS:

- A. Shop drawings: Door location chart; typical sliding glass door elevations; detail of assemblies; hardware; and glazing details for factory glazed panels. [job specific engineering as required].
- B. Product data: Manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: Specified finish for aluminum and other samples as requested.

1.09 QUALITY ASSURANCE:

- A. All sliding glass doors shall be Series 8000 as manufactured by WinDoor, Inc., 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufactures desiring approval shall furnish a sample door representing the bid door for approval up to ten days prior to bid opening. Submit valid test reports from an AAMA-accredited laboratory conforming to the test results indicated in section 1.07.
- C. Acceptance will be by written addendum only, as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which the bid is based.
- E. Manufacturer's Warranties:
 1. Doors: Warrant for three (3) year against defects in materials or workmanship under normal use.
 2. Insulating Glass Units: Warrant seal for five (5) years against visual obstruction from film formation or moisture collection between glass surfaces, excluding that caused by glass breakage or abuse.
 3. Laminated Glass: Warrant laminate sandwich for five (5) years against discoloration from delaminating due to attack by moisture or chemicals.

4. Paint finish: Electro static paint finish meeting AAMA 2603, 2604 and 2605, Shall be warranted respectively for 5, 10 and 15 years. For coastal project locations the paint finish shall be warranted respectively for 1, 5 and 10 years. Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white or bronze or any custom color to be selected by architect. Warranties against chip, crack, check, peel, chalk, or fade for the period specified above.

PART 2 – PRODUCTS

2.01 MANUFACTURES:

- A. WinDoor Series 8000 Wide Stile Aluminum Sliding Glass Door
- B. Other acceptable manufacturers
(enter names as selected)

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of .080" at frame and panel members, trim (covers) .062".
- B. Trim – Head and Jamb: Snap in covers shall conceal all anchor fasteners.
- C. Operating panel hardware: Two stainless steel tandem wheel housings conforming to AAMA 906-96: Each housing contains two adjustable 1-5/8" Delrin wheels. Dual point adjustable mortise lock with interior latch lever. Powder coated, white, interior and exterior pull handles. The handles shall allow for a hand to grab and control the door. Finger pull slots will not be allowed on the glazed panels.
- D. Weatherstripping: Dual rows of finseal weatherstripping secured in extruded ports concealed in panel perimeters conforming to AAMA 701-92.
- E. Screens: Exterior mount extruded hollow aluminum sections with depth of 1-1/4" x 2-5/8" wide. Two stainless steel wheel housings, each housing containing one adjustable 1-5/8" Delron wheel.

2.03 FABRICATION:

- A. Frame: Head and sill field fastened to jambs with stainless steel screws (two per corner). Sill to jamb corners field sealed.
- B. Sill protection: Clear anodized sill pan, sill insert, and riser (Note; riser may be omitted to facilitate ADA requirements).
- C. Water control: Sill to be two piece tank design, all sill anchor fasteners to be concealed in the tank with the proper application of sealant on the fastener heads. Weep slots and drain slots allow water to drain by gravity and resist wind-driven water (see sill designs and drawings).
- D. Panels: Vertical panel stiles coped and fastened to horizontal panel rails with a telescopic design joint secured with two stainless steel screws per panel corner.
- E. **Note Well:** For integrity of design, products employing the flying buttress design (a tube or I beam) will not be acceptable. Further, Internal steel reinforcement will not be allowed so that future oxidation (rusting) will not take place. Except for handles, all panel parts and screen parts must not extend inward or outward past the master frame depth.

2.04 GLAZING:

- A. The drawings shall indicate the specific glazing for this project. Listed below are some of the available systems that meet the Impact Glazing Codes.

1. Single glazed 9/16 inch laminated, clear or tinted, to meet large and /or small missile impact requirements.(may be heat strengthened, tempered or annealed)
 2. If Turtle Code requirements must be met, the gray tinted glass shall block 44% of the visible light transmittance.
 3. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Small Missile glazing shall comprise an exterior lite of clear or tinted, 7/16 inch tempered laminated glass and an interior lite of 3/16 inch clear tempered glass.
 4. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Large Missile glazing shall comprise an exterior lite of clear or tinted, 3/16 inch tempered glass and an interior lite of 7/16 tempered laminated glass.
- B. Performance:
1. Seal durability: conformance to ASTM E 774.92
 2. Meets IGCC-CBA rating

2.05 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces visible when installed product's operating vents are closed.
- B. Coating: Select From; PPG Duracron, AAMA 2603, in std. white or bronze or any custom color selected by the architect. Or...
- C. Alternate, high performance finishes, PPG Acrynar AAMA 2604 or PPG Duranar, AAMA 2605 with 70% Kynar (flouropolymers) in standard white or bronze or any custom color selected by the architect.

PART 3 – EXECUTION

3.01 PREPERATION

- A. Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing doors for more than four years.
- B. Provide required support and security fasteners and set door frames plumb, square, and level without twist or bow.
- C. Apply sealant per specifications and sealant manufacturer's recommendations, wipe off excess and leave exposed sealant clean and smooth.

3.03 FIELD TESTING

- A. Test installed units in conformance with AAMA 502-90 for air and water infiltration with door manufacturer, contractor and owner to be present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 ADJUSTING AND CLEANING

- A. Adjust door panels as necessary for smooth and weather-tight operation, and leave doors clean and free of construction debris.

SERIES 8000 SPECIFICATION GUIDE

HEAVY COMMERCIAL WIDE STILE SLIDING GLASS DOORS

For non impact glazing applications

SECTION 08640

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural sliding glass doors as shown on the drawings and specified in this section.
- B. Installation: Labor, tools, and materials needed to install doors complete with hardware and related components.
- C. Glass and glazing.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.04 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.05 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/1.S.2-97 "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows."
 - 2. AAMA 502-90 "Voluntary Specifications for Field Testing of Windows and Sliding Glass Doors."
 - 3. AAMA 611-98 "Voluntary Specifications for Anodized Architectural Aluminum."
 - 4. AAMA 701-92 "Voluntary Specifications for Pile Weatherstripping."
 - 5. AAMA 800-92 "Voluntary Specifications and Test Methods for Sealants."
 - 6. AAMA 906-96 "Voluntary Specifications for Sliding Glass Door Roller Assemblies."
 - 7. AAMA 2603-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 8. AAMA 2604-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 9. AAMA 2605-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 10. AAMA CW-10-97 "Care & Handling of Architectural Aluminum from Shop to Site."
 - 11. AAMA/NWWDA 1303.5 Forced Entry
- B. ASTM – American Society for Testing Materials:
 - 1. ASTM E 283 "Standard Test Method for Rate of Air Leakage Through Exterior Windows Curtains Walls, and Doors."
 - 2. ASTM E 330 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."

3. ASTM E 331 "Standard Test Method for Water Penetration for Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
4. ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential."
5. ASTM E 774 "Specification for Sealed Insulated Glass Units."
6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors."
7. ASTM E 1300 Standard practice for determining Glass Loads

1.06 SYSTEMS DESCRIPTION:

- A. AAMA DESIGNATION: SGD-HC
Height Rating, from 6' 8" to 10' 0". HC performance with Design Pressures from 150 psf to 60 psf. Job specific sizes are called out on the drawings and the Design Pressures have been provided by the Engineer of Record. The SGD manufacturer must provide certification that they are in compliance with the DP's required for this project.
- B. Doors: Aluminum extrusions 6063-T6 alloy and temper, minimum wall thickness .080". Frame depth 6", flush frame. Panels to have 4-5/8" wide vertical stiles, top and bottom rail. Optional 8-5/8" high bottom rail available. panel depth to be 1-3/4" factory glazed.
- C. Configurations: Sliding glass doors: Two Panel two track systems, up to eight panel four track Systems. Job specific configurations are called out on the drawings.
- D. Glazing: Panels are wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1". Glazing stops accept from 2" single glazing to 1" insulated glass, see glass description in paragraph 2.04.

1.07 PERFORMANCE REQUIREMENTS:

- A. Conformance to SGD-HC specifications in AAMA/NWWDA 101/I.S.2-97 when tests are performed on the prescribed minimum 4'10" panel width x 7'10" panel height. Additional tests for compliance with "largest size manufactured," must show test size panels up to 4ft. wide by 10ft. high. Frame width and height test sizes are listed below, under this section, item #5, with their specific results:
 1. Air infiltration maximum allowable at .34 cfm/square foot when tested per ASTM E 239-91 at a static air pressure difference of 6.24 psf., equal to wind at 50 mph.
 2. Air infiltration measured on independent laboratory tests of WinDoor SGD at 6.24 psf under Miami Dade protocol are .10. This project will require laboratory certified test reports showing air infiltration performance at .15 or lower.
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM E 331-93 at a static air pressure of 15% of the positive DP.
 4. Riser Height 1.50" = 5.5psf field performance and 6.75psf lab test.
Riser Height 2.25" = 7.5psf field performance and 9.psf lab test.
Riser Height 3.0" = 10.5psf field performance and 12.psf lab test.
Riser Height 3.50" = 12.5.psf field performance and 15.psf in lab tests.
Riser Height 4.25" = 16.psf field performance and 18.75psf lab test.

5. Uniform Structural Load: No glass breakage, permanent damage to fasteners or hardware, or any other damage which would cause the door to be inoperable, and tested per ASTM E 330-90 at a static air pressure difference of:

Panel Size: 2'6" x 6'8"	+180 psf w/ DP of +120 and -315 psf w/ DP of -210
Panel Size: 3' x 6'8"	+180 psf w/ DP of +120 and -267 psf w/ DP of -178
Panel Size: 3'6" x 7'	+207 psf w/ DP of +138 and -207 psf w/ DP of -138
Panel Size: 4' x 8'	+158 psf w/ DP of +105 and -158 psf w/ DP of -105
Panel Size: 4' x 9'	+143 psf w/ DP of + 95 and -143 psf w/ DP of -95
Panel Size: 4' x 10'	+143 psf w/ DP of + 95 and -143 psf w/ DP of -95
Panel Size: 5' x 10'	+105 psf w/ DP of + 70 and -120 psf w/ DP of -80
6. The panel sizes listed above are for reference only in determining the DP's that are available. Job specific design pressures are provided on the drawings for this project and are the responsibility of the Engineer of Record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.
7. The above test results were calculated through comparative analysis based on largest size tested. Note that positive pressures include limitations to performance based on water test pressures achieved.

1.08 SUBMITTALS:

- A. Shop drawings: Door location chart; typical sliding glass door elevations; detail of assemblies; hardware; and glazing details for factory glazed panels. [job specific engineering as required].
- B. Product data: Manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: Specified finish for aluminum and other samples as requested.

1.09 QUALITY ASSURANCE:

- A. All sliding glass doors shall be Series 8000 as manufactured by WinDoor, Inc., 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufactures desiring approval shall furnish a sample door representing the bid door for approval up to ten days prior to bid opening. Submit valid test reports from an AAMA-accredited laboratory conforming to the test results indicated in section 1.07.
- C. Acceptance will be by written addendum only, as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which the bid is based.
- E. Manufacturer's Warranties:
 1. Doors: Warrant for three (3) year against defects in materials or workmanship under normal use.
 2. Insulating Glass Units: Warrant seal for five (5) years against visual obstruction from film formation or moisture collection between glass surfaces, excluding that caused by glass breakage or abuse.

3. Paint finish: Electro static paint finish meeting AAMA 2603, 2604 and 2605, shall be warranted respectively for 5, 10 and 15 years. For coastal project locations the paint finish shall be warranted respectively for 1, 5 and 10 years. Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white or bronze or any custom color to be selected by architect. Warranties against chip, crack, check, peel, chalk, or fade for the period specified above.

PART 2 – PRODUCTS

2.01 MANUFACTURES:

- A. WinDoor Series 8000 Wide Stile Aluminum Sliding Glass Door
- B. Other acceptable manufacturers
(enter names as selected)

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of .080" at frame and panel members, trim (covers) .062".
- B. Trim – Head and Jambs: stainless steel tandem wheel housings conforming to AAMA 906-96: Each housing contains two adjustable 1-5/8" Delrin wheels. Dual point adjustable mortise lock with interior latch lever. Powder coated, white, interior and exterior pull handles, the handles shall allow for a hand to grab and control the door. Finger pull slots will not be allowed on the glazed panels.
- D. Weatherstripping: Dual rows of finseal weatherstripping secured in extruded ports concealed in panel perimeters conforming to AAMA 701-92.
- E. Screens: Exterior mount extruded hollow aluminum sections with depth of 1-1/4" x 2-5/8" wide. Two stainless steel wheel housings, each housing containing one adjustable 1-5/8" Delron wheel.

2.03 FABRICATION:

- A. Frame: Head and sill field fastened to jambs with stainless steel screws (two per corner). Sill to jamb corners field sealed.
- B. Sill protection: Clear anodized sill pan, sill insert, and riser (Note; riser may be omitted to facilitate ADA requirements).
- C. Water control: Sill to be two piece tank design, all sill anchor fasteners to be concealed in the tank with the proper application of sealant on the fastener heads. Weep slots and drain slots allow water to drain by gravity and resist wind-driven water (see sill designs and drawings).
- D. Panels: Vertical panel stiles coped and fastened to horizontal panel rails with a telescopic design joint secured with two stainless steel screws per panel corner.
- E. **Note Well:** For integrity of design, panels shall employ dual stile interlocks with two weatherstripped contacts. Products employing the flying buttress design (a tube or I beam) will not be acceptable. Further, Internal steel reinforcement will not be allowed so that future oxidation (rusting) will not take place. Except for handles, all panel parts and screen parts must not extend inward or outward past the master frame depth.

2.04 GLAZING:

- A. The drawings shall indicate the specific glazing for this project. Listed below are some of the available systems that meet the NON-IMPACT, Safety Glazing Code, CPSC 16 CFR 1201.
 - 1. Single glazed 1/4 inch tempered glass, clear or tinted gray, bronze, green or blue.
 - 2. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the safety glazed IG Units will be comprised of two lites of 1/4 inch or 3/16 inch tempered glass. Should tinted glass be called for in the drawings, the outside lite shall be gray, bronze, green or blue. Should turtle code requirements be met, the tinted glass shall block 44% of the visible light transmittance.
- B. Performance:
 - 1. Seal durability: conformance to ASTM E 774.92
 - 2. Meets IGCC-CBA rating

2.05 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces visible when installed product's operating vents are closed.
- B. Coating: Select From; PPG Duracron, AAMA 2603, in std. white or bronze or any custom color selected by the architect.
- C. Alternate, high performance finishes, PPG Acrynar AAMA 2604 or PPG Duranar, AAMA 2605 with 70% Kynar (flouropolymers) in standard white or bronze or any custom color selected by the architect.

PART 3 – EXECUTION

3.01 PREPERATION

- A. Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing doors for more than four years.
- B. Provide required support and security fasteners and set door frames plumb, square, and level without twist or bow.
- C. Apply sealant per specifications and sealant manufacturer's recommendations, wipe off excess and leave exposed sealant clean and smooth.

3.03 FIELD TESTING

- A. Test installed units in conformance with AAMA 502-90 for air and water infiltration with door manufacturer, contractor and owner to be present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 ADJUSTING AND CLEANING

- A. Adjust door panels as necessary for smooth and weather-tight operation, and leave doors clean and free of construction debris.

SERIES 8000 IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

WS & NS, 2T Doors: 4'0" x 10'0" Panel

		Panel Width			
		30"	36"	42"	48"
Large Missile Non-Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+75/-90	+75/-90	+75/-90	+75/-90
	96"	+75/-90	+75/-90	+75/-90	+75/-90
	108"	+75/-90	+71/-85	+63/-75	+57/-68
	120"	+73/-87	+62/-75	+55/-66	+50/-60

Miami Dade NOA No. 04-1020.02
 Florida State Product Approval No. FL 5042.1
 AAMA/NWWDA 101/I.S. 2-97, ASTM E 1996-03, ASTM E 1886-02 Test No. NCTL-210-3020-3
 ASTM E 283-91, ASTM E 330-90, ASTM E 331-93, ASTM E 1996-03, ASTM 1886-02 Test No. NCTL-210-3020-3A

		Panel Width			
		30"	36"	42"	48"
Small Missile Non-Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+75/-90	+75/-90	+75/-90	+75/-90
	96"	+75/-90	+75/-90	+75/-90	+75/-90
	108"	+75/-90	+71/-85	+63/-75	+57/-68
	120"	+73/-87	+62/-75	+55/-66	+50/-60

Miami Dade NOA No. 04-1019.01
 Florida State Product Approval No. FL 5042.1

		Panel Width			
		30"	36"	42"	48"
Large Missile Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+120/-150	+120/-150	+120/-150	+120/-150
	96"	+120/-150	+120/-150	+117/-146	+106/-133
	108"	+120/-150	+113/-142	+100/-126	+91/-114
	120"	+117/-146	+100/-125	+88/-110	+80/-100

Miami Dade NOA No. 04-1020.02
 Florida State Product Approval No. FL 5042.1
 AAMA/NWWDA 101/I.S. 2-97, ASTM E 1996-03, ASTM E 1886-02 Test No. NCTL-210-3020-1
 ASTM E 283-91, ASTM E 330-90, ASTM E 331-93, ASTM E 1996-03, ASTM 1886-02 Test No. NCTL-210-3020-1A

		Panel Width			
		30"	36"	42"	48"
Small Missile Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+120/-150	+120/-150	+120/-150	+120/-150
	96"	+120/-150	+120/-150	+117/-146	+106/-133
	108"	+120/-150	+113/-142	+100/-126	+91/-114
	120"	+117/-146	+100/-125	+88/-110	+80/-100

Miami Dade NOA No. 04-1019.01
 Florida State Product Approval No. FL 5042.1

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.75	5.50	36.67
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.00	12.50	83.33
4-1/4"	18.00	15.50	103.33

SERIES 8000 IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS
WS & NS, 2T, 3T, 4T All Pockets, No Corners: 5'0" x 8'0" Panel

		Panel Width					
		30"	36"	42"	48"	54"	60"
Panel Height	80"	+/-120	+/-120	+/-120	+/-120	+/-120	+/-120
	96"	+/-120	+/-120	+/-120	+/-115	+/-100	+/-100

Large Missile Reinforced Multi Track By-Pass & Pocket

Miami Dade NOA No. 04-1020.03
 Florida State Product Approval No. FL 5042.1
 AAMA/NWWDA 101/I.S. 2-97, ASTM E 1996-03, ASTM E 1886-02 Test No. NCTL-210-3040-1A
 ASTM E 283-91, ASTM E 330-90, ASTM E 331-93, ASTM E 1996-03, ASTM 1886-02 Test No. NCTL-210-3040-1A
 Note: Does not include pockets under these standards

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.75	5.50	36.67
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.00	12.50	83.33
4-1/4"	18.00	15.50	103.33

SERIES 8000 IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

Multi Track, All Pocket, All Corner: 4'0" x 10'0" Panel

		Panel Width			
		30"	36"	42"	48"
Panel Height	80"	+/-75	+/-75	+/-75	+/-75
	96"	+/-75	+/-75	+/-73	+/-67
	108"	+/-75	+/-71	+/-63	+/-57
	120"	+/-73	+/-63	+/-55	+/-50

Miami Dade NOA No. 04-1207.01
Florida State Product Approval No. FL 5042.1

		Panel Width			
		30"	36"	42"	48"
Panel Height	80"	+/-100	+/-100	+/-100	+/-100
	96"	+/-100	+/-100	+/-100	+/-100
	108"	+/-100	+/-100	+/-100	+/-91
	120"	+/-100	+/-100	+/-89	+/-80

Miami Dade NOA No. 04-1022.01
Florida State Product Approval No. FL 5042.1

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.75	5.50	36.67
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.00	12.50	83.33
4-1/4"	18.00	15.50	103.33

SERIES 8000 IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

Multi Track: 5'0" x 9'0" Panel

		Panel Width				
		30"	36"	42"	48"	60"
Large Missile Reinforced Multi Track	Panel Height 80"	+/-90	+/-90	+/-90	+/-90	+/-90
	96"	+/-90	+/-90	+/-90	+/-90	+/-90

Florida State Product Approval No. FL 7208.1

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.75	5.50	36.67
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.00	12.50	83.33
4-1/4"	18.00	15.50	103.33

SERIES 8000 NON-IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

WS & NS, 2T Doors: 5'0" x 10'0" & 4'0" x 10'0" Panels

AAMA/NWWDA 101/I.S. 2-97
Florida State Product Approval No. FL 5482.2

WS & NS, 2T Doors

Performance Ratings	Non-Reinforced	Aluminum Reinforced
5'0" x 10'0" Panel	HC-70 Test No. NTLA-687W	HC-105 Test No. CTLA-687W-1
4'0" x 10'0" Panel	HC-60 Test No. CTLA-698WR	HC-95 Test No. CTLA-698W-1R

		Panel Width					
		30"	36"	42"	48"	54"	60"
Non-Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+/-142	+/-124	+/-112	+/-103	+/-97	+/-92
	96"	+/-114	+/-99	+/-88	+/-80	+/-74	+/-70
	108"	+/-99	+/-85	+/-75	+/-68	N/A	N/A
	120"	+/-87	+/-75	+/-66	+/-60	N/A	N/A

		Panel Width					
		30"	36"	42"	48"	54"	60"
Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+/-189	+/-143	+/-126	+/-121	+/-118	+/-113
	96"	+/-174	+/-123	+/-105	+/-105	+/-105	+/-105
	108"	+/-157	+/-115	+/-95	+/-95	N/A	N/A
	120"	+/-139	+/-110	+/-95	+/-95	N/A	N/A

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.00	5.25	35.00
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.80	13.50	90.00

SERIES 8000 NON-IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

Multi Track, All Pocket, All Corner: 5'0" x 10'0" Panel

AAMA/NWWDA 101/I.S. 2-97

Multi Track, All Pocket, All Corner

Performance Ratings	Non-Reinforced	Aluminum Reinforced
5'0" x 10'0" Panel	HC-50	HC-70
	90° – Test No. NCTL-210-2966-5	90° – Test No. NCTL-210-2966-6
	135° – Test No. NCTL-210-2966-1	135° – Test No. NCTL-210-2966-2

		Panel Width					
		30"	36"	42"	48"	54"	60"
Non-Reinforced Multi Track By-Pass & PI All Corners	Panel Height 80"	+138/-166	+121/-145	+109/-131	+100/-121	+90/-108	+90/-108
	Panel Height 96"	+111/-133	+96/-115	+86/-103	+78/-94	+68/-82	+68/-82
	Panel Height 108"	+97/-116	+83/-100	+74/-89	+67/-80	+58/-69	+58/-69
	Panel Height 120"	+86/-103	+74/-88	+65/-78	+59/-70	+50/-60	+50/-60

		Panel Width					
		30"	36"	42"	48"	54"	60"
Reinforced Multi Track By-Pass & PI All Corners	Panel Height 80"	+194/-210	+169/-178	+/-114	+/-136	+/-124	+/-124
	Panel Height 96"	+156/-178	+135/-154	+/-119	+/-104	+95/-99	+95/-99
	Panel Height 108"	+135/-155	+117/-133	+/-108	+/-90	+81/-84	+81/-84
	Panel Height 120"	+120/-137	+103/-118	+91/-101	+/-81	+70/-80	+70/-80

All design pressures are calculated using 1/4" tempered glass

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.00	5.25	35.00
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.80	13.00	86.67

SERIES 6000 SLIDING GLASS DOOR

General Information

SERIES 6000 SLIDING GLASS DOOR		
General Information		
WinDoor Standard Finishes AAMA 2603		
White	UC# 97603	Wet White Handle
Bronze	UC# 98316	Black Handle

Fraction	Decimal
1/32	0.031
1/16	0.063
3/32	0.094
1/8	0.125
5/32	0.156
3/16	0.188
7/32	0.219
1/4	0.250
9/32	0.281
5/16	0.313
11/32	0.344
3/8	0.375
13/32	0.406
7/16	0.438
15/32	0.469
1/2	0.500
17/32	0.531
9/16	0.563
19/32	0.594
5/8	0.625
21/32	0.656
11/16	0.688
23/32	0.719
3/4	0.750
25/32	0.781
13/16	0.813
27/32	0.844
7/8	0.875
29/32	0.906
15/16	0.938
31/32	0.969

NS/WS/2T	Panels
XO	AI-BO
OX	BOR-AIR
XX	AI-AOR
XX-Rev	AO-AIR
OXO	DI-AI-BO
OXO-Rev	BOR-AIR-DIR
XOO	AI-BO-DOR
OOX	DO-BOR-AIR
XXXX	AO-EI-AI-AOR
OXXO	BOR-EI-AI-BO
3T	Panels
XXX	AI-C-AOR
XXX-Rev	AO-CR-AIR
XXO	AI-C-BO
OOX	BOR-CR-AIR
XXXXXX	AO-CR-EI-AI-C-AOR
OXXXXO	BOR-CR-EI-AI-C-BO
4T	Panels
XXXX	AI-C-C-AOR
XXXX-Rev	AO-CR-CR-AIR
XXO	AI-C-C-BO
OOX	BOR-CR-CR-AIR
XXXXXXXX	AO-CR-CR-EI-AI-C-C-AOR
OXXXXXO	BOR-CR-CR-EI-AI-C-C-BO
2T	Panels
PX-O	AO-Notched
PX-I	AIR
XP-O	AO-Notched
XP-I	AI
PXX-O	CNI-AOR
PXX-I	COR-AIR
XXP-O	AO-CNIR
XXP-I	AI-CO
PXXP-O	EO-Notched/AO-Notched
PXXP-I	EIR-AI
PXXXXP-O	CNI-EOR-AO-CNIR
PXXXXP-I	COR-EI-AI-CO
3T	Panels
PXXX-O	CNI-C-AOR
PXXX-I	COR-CR-AIR
XXP-O	AO-CR-CNIR
XXP-I	AI-C-CO
PXXXXXP-O	CNI-C-EO-AO-CR-CNIR
PXXXXXP-I	COR-CR-EI-AI-C-CO
4T	Panels
PXXXX-O	CNI-C-C-AOR
PXXXX-I	COR-CR-CR-AIR
XXXXP-O	AO-CR-CR-CNIR
XXXXP-I	AI-C-C-CO
PXXXXXXXXP-O	CNI-C-C-EOR-AO-CR-CR-CNIR
PXXXXXXXXP-I	COR-CR-CR-EI-AI-C-C-CO

Tracks	Head	Jamb	Sill
NS/WS	6-1/16	5-7/8	6-9/16
2T	4-5/8	4-7/16	5-1/8
3T	7	6-13/16	7-1/2
4T	9-3/8	9-3/16	9-7/8

On 90 Degree Corners:
The Outside Overall Width is equal to the Inside Overall Width plus the Sill Depth

Fastener Locations	End	Center
6000 Non-reinforced	4"	24"
6000 Reinforced	4"	18"

Panel Size Limits	
Single Glaze	
5'0" x 10'0"	
3/4" Insulated	
4'0" x 10'0"	
5'0" x 8'0"	

Pocket Configurations			
A	Inside	Open	Left
B	Inside	Closed	Left
C	Outside	Open	Left
D	Outside	Closed	Left
E	Inside	Open	Right
F	Inside	Closed	Right
G	Outside	Open	Right
H	Outside	Closed	Right

Sill Riser Height	Test Lab Result	Field Results
1.5"	6.75 lb	5.5 lb
2.25"	9.0 lb	7.5 lb
3.0"	12.0 lb	10.5 lb
3.5"	15.0 lb	12.5 lb
4.25"	18.0 lb	16.0 lb

Panel Weights	
1/4 8K	9 lbs/sq ft
NI 8K	10 lbs/sq ft
IG INSUL	11 lbs/sq ft

SERIES 6000 SPECIFICATION GUIDE

HEAVY COMMERCIAL NARROW STILE SLIDING GLASS DOORS

For non impact glazing applications

SECTION 08640

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural sliding glass doors as shown on the drawings and specified in this section.
- B. Installation: Labor, tools, and materials needed to install doors complete with hardware and related components.
- C. Glass and glazing.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.04 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.05 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/1.S.2-97 "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows."
 - 2. AAMA 502-90 "Voluntary Specifications for Field Testing of Windows and Sliding Glass Doors."
 - 3. AAMA 611-98 "Voluntary Specifications for Anodized Architectural Aluminum."
 - 4. AAMA 701-92 "Voluntary Specifications for Pile Weatherstripping."
 - 5. AAMA 800-92 "Voluntary Specifications and Test Methods for Sealants."
 - 6. AAMA 906-96 "Voluntary Specifications for Sliding Glass Door Roller Assemblies."
 - 7. AAMA 2603-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 8. AAMA 2604-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 9. AAMA 2605-98 "Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions & Panels."
 - 10. AAMA CW-10-97 "Care & Handling of Architectural Aluminum from Shop to Site"
 - 11. AAMA/NWWDA 1303.5 Forced Entry
- B. ASTM – American Society for Testing Materials:
 - 1. ASTM E 283 "Standard Test Method for Rate of Air Leakage Through Exterior Windows Curtains Walls, and Doors."
 - 2. ASTM E 330 "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
 - 3. ASTM E 331 "Standard Test Method for Water Penetration for Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."

4. ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential."
5. ASTM E 774 "Specification for Sealed Insulated Glass Units."
6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors."
7. ASTM E 1300 Glass Loads

1.06 SYSTEMS DESCRIPTION:

- A. AAMA DESIGNATION: SGD-HC
 5'x 8' Panel size, tested at a system size of 15' x 8' Rating: SGD-HC45
 Rating w/reinforcing: SGD-HC50
 5'x 10' Panel size, tested in a pocket door, 90
 degree system, 40 feet wide by 10 feet high. Rating: SGD-HC35
 Rating w/ reinforcing: SGD-HC45
- B. Doors: Aluminum extrusions 6063-T6 alloy and temper, minimum wall thickness .070". Available with sill depths from 5 and 1/8" with no screen option to 6 and 5/8" for the two track door with a screen option, up to 9 and 7/8" for the 4 track doors. The drawings depict the sill depth and the method of installation illustrating one or more of the following frame configurations; flush frame (equal leg), flange frame of 5/8" or fin frame of 1-1/2". The panels are to have 2-3/4" wide vertical lock stiles and 3" top and bottom rails. The panel frame depth shall be 1-3/4".
- C. Configurations: Sliding glass door operating and fixed panels are depicted on the drawings. Directional arrows and/or X for operable and O for fixed may designate operation.
- D. Glazing: Panels are dry glazed with vinyl cushioning seal. Glazing stops accept insulated glass at 3/4 inch or single glazed lites of 3/16 inch or 1/4 inch. See glass description in paragraph 2.04.

1.07 PERFORMANCE REQUIREMENTS:

- A. Conformance to SGD-HC specifications in AAMA/NWWDA 101/I.S.2-97 when tests are performed on the prescribed minimum 4'10" panel width x 7'10" frame height test size with the following results:
1. Air infiltration maximum .34 cfm/square foot when tested per ASTM E 239-91 at a static air pressure difference of 6.24 psf. (equal to 50 mph wind.)
 2. Air infiltration measured on independent laboratory tests of WinDoor SGD are .08 at 6.24 psf.
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM E 331-93 at a static air pressure differences of:
 Riser Height 1.50" = 5.25 psf field performance and 6.75 psf in lab tests.
 Riser Height 2.25" = 7.50 psf field performance and 9.0 psf in lab tests.
 Riser Height 3.0 " = 10.5 psf field performance and 12.0 psf in lab tests.
 Riser Height 3.50" = 12.0 psf field performance and 15.0 psf in lab tests.
 Riser Height 4.25" = 16.0 psf field performance and 18.75 psf in lab tests.

4. Uniform Structural Load: No glass breakage, permanent damage to fasteners or hardware, or any other damage which would cause the door to be inoperable, and as tested per ASTM E 330-90 at a static air pressure difference of:
 - Panel Size: 2'6" x 6'8" + and - 188 psf and a Design Pressure of 125
 - Panel Size: 3' x 6'8" + and - 164 psf and a Design Pressure of 109
 - Panel Size: 3' x 8' + and - 131 psf and a Design Pressure of 87
 - Panel Size: 4' x 8' + and - 105 psf and a Design Pressure of 70
 - Panel Size: 4' x 9' + and - 90 psf and a Design Pressure of 60
 - Panel Size: 4' x 10' + and - 80 psf and a Design Pressure of 63
 - Panel Size: 5' x 8' + and - 92 psf and a Design Pressure of 61
 - Panel Size: 5' x 10' + and - 68 psf and a Design Pressure of 45
5. The panel sizes listed above are for reference only in determining the Design Pressures that are available. Job specific design pressures are provided on the drawings for this project and are the responsibility of the Engineer of Record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.

1.08 SUBMITTALS:

- A. Shop drawings: Door location chart; typical sliding glass door elevations; detail of assemblies; hardware; and glazing details for factory glazed panels. [job specific engineering as required].
- B. Product data: Manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: Specified finish for aluminum and other samples as requested.

1.09 QUALITY ASSURANCE:

- A. All sliding glass doors shall be Series 6000 as manufactured by WinDoor, Inc., 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufactures desiring approval shall furnish a sample door representing the bid door for approval up to ten days prior to bid opening. Submit valid test reports from an AAMA-accredited laboratory confirming to test results in paragraph 1.07.
- C. Acceptance will be by written addendum only, as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which the bid is based.
- E. Manufacturer's Warranties:
 1. Doors: Warrant for three (3) years against defects in materials or workmanship under normal use.
 2. Insulating glass units: Warrant seal for five (5) years against visual obstruction from film formation or moisture collection between glass surfaces, excluding that caused by glass breakage or abuse.
 3. Paint finish: Electrostatic paint finish meeting AAMA2603, 2604 and 2605-98, shall be warranted as listed in paragraph 4 below. Finishes as provided by PPG, Inc. Duracron, Acrynar and Duranar in std. white and bronze or any color to be selected by architect. Warranties against chip, crack, check, peel, chalk, or fade as noted below.

4.	AAMA 2603	Std. Warrantee, 5 years	In coastal locations, 1 year
	AAMA 2604	Std. Warrantee, 10 years	In coastal locations, 5 years
	AAMA 2605	Std. Warrantee, 15 years	In coastal locations, 10 years

PART 2 – PRODUCTS

2.01 MANUFACTURES:

- A. WinDoor Series 6000 Narrow stile Aluminum Sliding Glass Door
- B. Other acceptable manufacturers
(enter names as selected)

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of .070" at frame and panel members, trim (covers) .062".
- B. Note Well: Trim – Head and Jambs: Snap in covers shall conceal all anchor fasteners.
- C. Operating panel hardware: Two stainless steel tandem wheel housings conforming to AAMA 906-96: each housing contains two adjustable 1-5/8" Delrin and stainless steel wheels. Dual point adjustable mortise lock with interior latch lever and powder coated white or bronze, interior and exterior pull handles. Optional availability with key cylinder in exterior pull handle if called out in the notes section of the drawing.
- D. Weatherstripping: Secured in extruded ports concealed in panel perimeters conforming to AAMA 701-92.
- E. Screens: Exterior mount extruded hollow aluminum sections with depth of 1-1/4" x 2-5/8" wide. Two stainless steel wheel housings, each housing containing one adjustable 1-5/8" Delron wheel.

2.03 FABRICATION:

- A. Frame: Head and sill field fastened to jambs with stainless steel screws (two per corner). Sill to jamb corners field sealed.
- B. Sill protection: Clear anodized sill pan, sill insert, and riser (Riser can be omitted to meet ADA requirements).
- C. Water control: Sill to be two piece tank design, all sill anchor fasteners to be concealed in the tank with the proper application of sealant on the fastener heads. Weep slots and drain slots allow water to drain by gravity and resist wind-driven water (see sill designs and drawings).
- D. Panels: Vertical panel stiles coped and fastened to horizontal panel rails with a telescopic design joint secured with two stainless steel screws per panel corner.
- E. **Note Well:** For integrity of design, panels shall employ dual stile interlocks with two weatherstripped contacts. Products employing the flying buttress design will not be acceptable. External I-Beam or Tube structural reinforcement will not be allowed. All panel parts and screen parts must not extend past the master frame members.

2.04 INSULATING GLASS UNIT or SINGLE GLAZED CONFIGURATION:

- A. Exterior Glass Lite:
 1. Thickness, 3/16 inch or 1/4 inch
 2. Clear, Bronze, Gray, Green, Blue or other _____
 3. Tempered glass to meet Z97.1

4. Low Emissivity Coating on surface #2, (inside airspace of exterior lite.) pyrolytic application. Note: Application of Low E on this lite of glass excludes application on interior lite.
- B. Interior Glass Lite:
 1. Thickness, 3/16 inch or 1/4 inch
 2. Clear
 3. Tempered glass to meet ANSI Z97.1 or CPSC 16 CFR 1201
 4. Low Emissivity Coating on surface #3, (inside airspace of interior lite.) pyrolytic application. Note: Application of Low E on this lite of glass excludes application on exterior lite.
- C. Performance:
 1. Seal durability: conformance to ASTM E 774.92
 2. Meets IGCC-CBA rating
- D. Single Glazed Configuration:
 - a 1/4 inch clear, bronze, gray, green, blue or other _____
 - b Tempered glass to meet ANSI Z97.1 or CPSC 16 CFR 1201

2.05 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces visible when installed product's operating vent is closed.
- B. Coating: PPG Duracron, standard white or bronze, meeting AAMA 2603-98.

PART 3 – EXECUTION

3.01 PREPERATION:

- A. Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION:

- A. Install doors in accordance with manufacturer's recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing Sliding Glass Doors for more than four years.
- B. Provide required support and security fasteners and set door frames plumb, square, and level without twist or bow.
- C. Apply sealant per specifications and sealant manufacturer's recommendations, wipe off excess and leave exposed sealant clean and smooth.

3.03 FIELD TESTING:

- A. Test installed units in conformance with AAMA 502-90 for air and water infiltration with door manufacturer, contractor and owner to be present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 ADJUSTING AND CLEANING:

- A. Adjust door panels as necessary for smooth and weather-tight operation, and leave doors clean and free of construction debris.

SERIES 6000 NON-IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

WS & NS, 2T Doors: 5'0" x 8'0" & 4'0" x 10'0" Panels

AAMA/NWWDA 101/I.S. 2-97
 Florida State Product Approval No. FL 5482.1

WS & NS, 2T Doors

Performance Ratings	Non-Reinforced	Aluminum Reinforced
5'0" x 8'0" Panel	HC-45 Test No. CTLA-736W	HC-60 Test No. CTLA-736W
4'0" x 10'0" Panel	HC-30 Test No. CTLA-736W-1	HC-45 Test No. CTLA-736W-1

		Panel Width					
		30"	36"	42"	48"	54"	60"
Non-Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+/-91	+/-80	+/-72	+/-66	+/-62	+/-59
	96"	+/-73	+/-63	+/-57	+/-52	+/-48	+/-45
	108"	+/-49	+/-42	+/-37	+/-34	N/A	N/A
	120"	+/-44	+/-37	+/-33	+/-30	N/A	N/A

		Panel Width					
		30"	36"	42"	48"	54"	60"
Reinforced 2 Track Only Not Pocket Not Corner	Panel Height 80"	+/-122	+/-105	+/-96	+/-88	+/-83	+/-79
	96"	+/-98	+/-85	+/-75	+/-69	+/-64	+/-60
	108"	+74/-82	+64/-71	+56/-63	+51/-57	N/A	N/A
	120"	+66/-73	+57/-63	+50/-55	+45/-50	N/A	N/A

All design pressures are calculated using 1/4" tempered glass

Water Test Results Sill Riser Height	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
1-1/2"	6.00	5.25	35.00
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.80	13.50	90.00

SERIES 6000 NON-IMPACT DESIGN PRESSURES & COMPARATIVE ANALYSIS

Multi Track, All Pocket, All Corner: 5'0" x 10'0" Panel

AAMA/NWWDA 101/I.S. 2-97

Multi Track, All Pocket, All Corner

Performance Ratings	Non-Reinforced	Aluminum Reinforced
5'0" x 10'0" Panel	HC-35	HC-45
	Test No. NCTL-210-2966-3	Test No. NCTL-210-2966-4

		Panel Width					
		30"	36"	42"	48"	54"	60"
Non-Reinforced Multi Track By-Pass & Pocket All Corners	Panel Height 80"	+/-97	+/-85	+/-76	+/-70	+/-66	+/-63
	96"	+/-78	+/-67	+/-60	+/-55	+/-51	+/-48
	108"	+/-68	+/-58	+/-52	+/-47	+/-40	+/-38
	120"	+/-60	+/-51	+/-45	+/-41	+/-38	+/-35

		Panel Width					
		30"	36"	42"	48"	54"	60"
Reinforced Multi Track By-Pass & Pocket All Corners	Panel Height 80"	+/-125	+/-109	+/-98	+/-90	+/-85	+/-81
	96"	+/-100	+/-87	+/-77	+/-70	+/-65	+/-61
	108"	+/-87	+/-75	+/-67	+/-60	+/-56	+/-52
	120"	+/-77	+/-66	+/-58	+/-53	+/-48	+/-45

All design pressures are calculated using 1/4" tempered glass

Water Test Results	Accomplished at Testing Laboratory (psf)	WinDoor's Expectations for Field Testing (psf)	Max Positive Pressure Limited by Water Test
Sill Riser Height			
1-1/2"	6.00	5.25	35.00
2-1/4"	9.00	7.50	50.00
3"	12.00	10.50	70.00
3-1/2"	15.80	13.00	86.67

SERIES 2000 FIXED WINDOW

General Information

SERIES 2000 FIXED WINDOW	
General Information	
WinDoor Standard Finishes AAMA 2603	
White	UC# 97603
Bronze	UC# 98316
WinDoor Standard Kynar Finishes AAMA 2605	
White	UC# 43350
Bronze	UC# 91252

Fraction	Decimal
1/32	0.031
1/16	0.063
3/32	0.094
1/8	0.125
5/32	0.156
3/16	0.188
7/32	0.219
1/4	0.250
9/32	0.281
5/16	0.313
11/32	0.344
3/8	0.375
13/32	0.406
7/16	0.438
15/32	0.469
1/2	0.500
17/32	0.531
9/16	0.563
19/32	0.594
5/8	0.625
21/32	0.656
11/16	0.688
23/32	0.719
3/4	0.750
25/32	0.781
13/16	0.813
27/32	0.844
7/8	0.875
29/32	0.906
15/16	0.938
31/32	0.969

Frames Available	Frame Depth
Flush	3"
5/8" Flange	3"
1-1/2" Fin	3"

Configurations
1-Lite or Colonial Muntin or Specified
* Product can be divided with common post with some limitations
** Radius tops and designers available with some limitations

Frame Sight Line
Sill Jamb and Head
2-3/4"

Minimum Size Limitations	
Minimum outside dimension of any leg or side	9"
Minimum square foot to manufacture	1 sq ft

Tested Sizes – Non-Impact	
4' x 12'	Do Not Exceed Height or Width in Any Size Configuration for Certification
5' x 10'	
6' x 8'	
Tested up to +200psf/-200psf. Pressures dependent on glass type. Please consult factory.	

Tested Sizes – Impact	
4' x 10'	Do Not Exceed Height or Width in Any Size Configuration for Certification
5' x 8'	
Tested up to +150psf/-175psf. Pressures dependent on glass type. Please consult factory.	

SERIES 2000 SPECIFICATION GUIDE

COMMERCIAL FIXED WINDOWS

For impact glazing applications

SECTION 08520

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural fixed windows as shown on the drawings and specified in this section.
- B. Installation; Labor, tools, and materials needed to install windows complete with related components.
- C. Glass and glazing.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.04 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.05 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/I.S.2-97 “Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows”.
 - 2. AAMA 502-90 “Voluntary Specifications for Filed Testing of Window and Sliding Glass Doors”.
 - 3. AAMA 800-92 “Voluntary Specifications and Test Methods for Sealants”.
 - 4. AAMA 611-98 “Voluntary Specifications for Anodized Architectural Aluminum”.
 - 5. AAMA 2603-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 6. AAMA 2604-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 7. AAMA 2605-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 8. AAMA CW-10-97 “Care and Handling of Architectural Aluminum from Shop to Site”.
 - 9. AAMA/NWWDA 1303.5 Forced Entry.
- B. ASTM – American Society for Testing and Materials:
 - 1. ASTM E 283 “Voluntary Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors”.
 - 2. ASTM E 330 “Voluntary Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 3. ASTM E 331 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 4. ASTM E 547 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Difference”.

5. ASTM E 774 "Specification for Sealed Insulated Glass Units".
 6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors".
 7. ASTM E 588 "Standard Test Method for Forced Entry Resistance".
 8. ASTM E 1300 "Standard Practice for Determining Glass Loads".
 9. ASTM E 1886 "Standard Test Method for Cyclic Pressure Differentials"
 10. ASTM E 1996 " Standard Test Method for Windows and Doors impacted by windborne Debris."
- C. Miami Dade Protocol for Hurricane Windborne Debris Impact Testing, including;
1. TAS 201 Large and Small Missile Impact Tests.
 2. TAS 202 Air infiltration, Water infiltration and Static Air pressure Tests.
 3. TAS 203 Positive and Negative Loads, Cycle Tests.

1.06 SYSTEM DESCRIPTION:

- A. AAMA Description: F-C 100 and F-C 110
- B. Windows: Aluminum extrusions 6063-T6 alloy and temper, minimum wall thickness .080" Frame depth of 3", width of 1-3/4", factory glazed.
- C. Configurations: Fixed, [with flush frame], [5/8" flange frame], or [1-1/2" fin frame].
- D. Glazing: Wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1". Glazing stops accept 9/16" monolithic laminated and 1" insulated glass; see glass description in Paragraph 2.04.

1.07 PERFORMANCE REQUIREMENTS:

- A. Conformance to F-C specifications in AAMA/NWWDA 101/I.S.2-97 when test are performed on 60"x 96" or 48"x 120" test size with the following results.
 1. Air infiltration maximum allowable per AAMA is .30 at 6.24 psf when tested to ASTM E 283-91 at a static air pressure difference of 6.24 psf. Equal to wind at 50 mph.
 2. Air Filtration for this project: maximum .10 cfm/square foot when tested per ASTM E 283-91 at a static air pressure difference of 6.24 psf. Air infiltration measured on independent laboratory tests of WinDoor's Fixed Window are at .002 at 6.24 psf
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM 331-93 at a static air pressure difference of 25 psf for impact rated windows.
 4. Uniform Structural Load: No glass breakage, permanent damage to fasteners, and a maximum 4% permanent deformation of the span of any frame member when tested per ASTM E 330-90 at a static air pressure difference of + and - 150 psf and + and - 165 psf.
 5. Uniform Structural Load: No glass breakage, permanent set or damage to the fasteners as tested per ASTM E 330-90 at a static air pressure difference of:

Tested Size	Impact (Heat Strengthened)		Impact (Tempered)		Impact (Tempered Insulated glass)	
	PSF	DP's	PSF	DP's	PSF	DP's
5 ft. x 8 ft.	+150 -150	= +100 -100	+225 -263	= +150 -175	+210 -210	= +140 -140
4 ft x 10 ft.	+165 -165	= +110 -110	+225 -263	= +150 -175	+210 -210	= +140 -140

6. The fixed window sizes listed above are for reference only in determining the Design Pressures that are available. Job specific DP's are provided on the drawings for this project and are the responsibility of the Engineer of record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.
7. Comparative analysis was developed from the largest size tested. Reports submitted for this project are allowed to the extent that impact and cycle testing are available to support the data.

1.08 SUBMITTALS:

- A. Shop drawings: window location chart, typical window elevations, detail of assemblies, and glazing details for factory glazed windows [job specific engineering as required].
- B. Product data: manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: specified finish for aluminum and other samples as requested.

1.09 QUALITY ASSURANCE:

- A. All windows shall be series 2000 as manufactured by WinDoor, Inc, 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufacturers desiring approval shall furnish a window representing the bid window and valid test reports from an AAMA-accredited laboratory conforming to the test result paragraph 1.07 at least ten (10) days prior to the bid date.
- C. Acceptance: by written addendum only as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which his bid is based.
- E. Manufacturer's warranties:
 1. Windows: warrant for three (3) year against defects in material or workmanship under normal use.
 2. Insulating glass units: warrant seal for five (5) years against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
 3. Warrant glass lamination for five (5) years against de-lamination, film integrity.
 4. Paint finish: Electrostatic paint finish meeting AAMA 2603, 2604 and 2605, shall be warranted as listed in paragraph 5 below, Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white and bronze or any custom color to be selected by architect.
 5.

AAMA 2603	Std. Warrantee, 5 years	In coastal locations, 1 year
AAMA 2604	Std. Warrantee, 10 years	In coastal locations, 5 years
AAMA 2605	Std. Warrantee, 15 years	In coastal locations, 10 years

PART 2 – PRODUCTS

2.01 MANUFACTURERS:

- A. WinDoor Series 2000 Fixed Heavy Commercial Windows.
- B. Other acceptable manufacturers.
[enter names as selected]

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of 0.080" at frame Members and stops, trim 0.062".
- B. Trim – Head, Sill and Jamb: snap in covers conceal all anchor fasteners.

2.03 FABRICATION:

- A. Frame: coped corner construction secured with two stainless steel screws per corner. Corners are to be Factory sealed.

2.04 GLAZING: Monolithic or Insulated Glass in Impact Glazing Configurations.

IMPACT GLAZING:

- A. The drawings shall indicate the specific glazing for this project. Listed below are some of the available systems that meet the impact glazing codes.
 - 1. Single glazed 9/16 inch laminated, Heat strengthened or fully tempered glass, clear or tinted, to meet large and / or small missile impact requirements.
 - 2. If Turtle Code requirements must be met, the tinted glass shall block 44% of the visible light transmittance.
 - 3. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Small Missile glazing shall comprise an exterior lite of clear or tinted, 7/16 inch, fully tempered laminated glass and an interior lite of 3/16 inch clear, fully tempered glass.
 - 4. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Large Missile glazing shall comprise an exterior lite of clear or tinted, 3/16 inch, fully tempered glass and an interior lite of 7/16 inch, fully tempered laminated glass.
- B. Performance:
 - 1. Seal durability: conformance to ASTM E 774.92
 - 2. Meets IGCC-CBA rating.

2.07 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces.
- B. Coating: Select from PPG Duracron, AAMA 2603, Acrynar, AAMA 2604 or Kynar, AAMA 2605 in std. white, bronze or any custom color selected by the architect.
- C. Alternate, high performance finishes, PPG Acrynar AAMA 2604, 50% Kynar or PPG Duranar, AAMA 2605 with 70% Kynar (fluoropolymers) in std. white, bronze or any custom color selected by the architect.

PART 3 – EXECUTION

3.01 PREPARATION:

- A. Prepare openings to be in tolerance, plumb level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION:

- A. Install windows in accordance with manufacturers recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing windows.
- B. Provide required support and securely fasten and set window frames plumb, square, and level without twist or bow.

- C. Apply sealant per specifications and sealant manufacturers recommendations and approved shop drawings, wipe off excess and leave exposed sealant surfaces clean and smooth.

3.03 FIELD TESTING:

- A. Test installed units in conformance with AAMA 502.90 for air and water infiltration with window manufacturer, contractor, and owner present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 CLEANING:

- A. Leave windows clean and free of construction debris.

SERIES 2000 SPECIFICATION GUIDE

HEAVY COMMERCIAL FIXED WINDOWS

For non impact glazing applications

SECTION 08520

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural fixed windows as shown on the drawings and specified in this section.
- B. Installation; Labor, tools, and materials needed to install windows complete with related components.
- C. Glass and glazing.

1.01 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.03 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.04 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/I.S.2-97 “Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows”.
 - 2. AAMA 502-90 “Voluntary Specifications for Filed Testing of Window and Sliding Glass Doors”.
 - 3. AAMA 800-92 “Voluntary Specifications and Test Methods for Sealants”.
 - 4. AAMA 611-98 “Voluntary Specifications for Anodized Architectural Aluminum”.
 - 5. AAMA 2603-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 6. AAMA 2604-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 7. AAMA 2605-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 8. AAMA CW-10-97 “Care and Handling of Architectural Aluminum from Shop to Site”.
 - 9. AAMA/NWWDA 1303.5 Forced Entry.
- B. ASTM – American Society for Testing and Materials:
 - 1. ASTM E 283 “Voluntary Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors”.
 - 2. ASTM E 330 “Voluntary Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 3. ASTM E 331 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 4. ASTM E 547 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Difference”.

5. ASTM E 774 "Specification for Sealed Insulated Glass Units".
 6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors".
 7. ASTM E 588 "Standard Test Method for Forced Entry Resistance".
 8. ASTM E 1300 "Standard Practice for Determining Glass Loads".
- A. AAMA Description: F-HC 160 and HC 200
 - B. Windows: Aluminum extrusions 6063-T6 alloy and temper, minimum wall thickness .080" Frame depth of 3", width sight line of 2-3/4", factory glazed.
 - C. Configurations: Fixed, [with flush frame], [5/8" flange frame], or [1-1/2" fin frame].
 - D. Glazing: Wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1". Glazing stops accept 3/16", 1/4", and 3/8", monolithic, 3/4" or 1" insulated glass; see glass description in Paragraph 2.04.

1.06 PERFORMANCE REQUIREMENTS:

- A. Conformance to F-HC specifications in AAMA/NWWDA 101/I.S.2-97 when test are performed on 72" x 72", 72"x 96", 60" x 120" and 146" x 48", test size with the following results.
 1. Air infiltration maximum allowable per AAMA is .30 at 6.24 psf when tested to ASTM E 283-91 at a static air pressure difference of 6.24 psf. Equal to wind at 50 mph.
 2. Air Filtration for this project: maximum .10 cfm/square foot when tested per ASTM E 283-91 at a static air pressure difference of 6.24 psf. Air infiltration measured on independent laboratory tests of WinDoor's Fixed Window are at .002 at 6.24 psf
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM 331-93 at a static air pressure difference of 30 psf.
 4. Uniform Structural Load: No glass breakage, permanent damage to fasteners, and a maximum 4% permanent deformation of the span of any frame member when tested per ASTM E 330-90 at a static air pressure difference of + 240 psf and -240 psf.
 5. Uniform Structural Load: No glass breakage, permanent set or damage to the fasteners as tested per ASTM E 330-90 at a static air pressure difference of:

Tested Sizes	PSF	(Tempered)		(Insulated Tempered)	
		DP's		DP's	
72" x 72"	+240 -240	+160	-160	+160	-160
72" x 96"	+300 -300	+200	-200	+200	-200
60" x 120"	+300 -300	+200	-200	+200	-200
146" x 48"	+300 -300	+200	-200	+200	-200
 6. The fixed window sizes listed above are for reference only in determining the Design Pressures that are available. Job specific DP's are provided on the drawings for this project and are the responsibility of the Engineer of record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.
 7. Comparative analysis was developed from the largest size tested. Reports submitted for this project are allowed to the extent that impact and cycle testing are available to support the data.

1.07 SUBMITTALS:

- A. Shop drawings: window location chart, typical window elevations, detail of assemblies, and glazing details for factory glazed windows [job specific engineering as required].
- B. Product data: manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: specified finish for aluminum and other samples as requested.

1.08 QUALITY ASSURANCE:

- A. All windows shall be series 2000 as manufactured by WinDoor, Inc, 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufacturers desiring approval shall furnish a window representing the bid window and valid test reports from an AAMA-accredited laboratory conforming to the test result paragraph 1.07 at least ten (10) days prior to the bid date.
- C. Acceptance: by written addendum only as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which his bid is based.
- E. Manufacturer's warranties:
 - 1. Windows: warrant for three (3) year against defects in material or workmanship under normal use.
 - 2. Insulating glass units: warrant seal for five (5) years (contact WINDOOR for other time frames) against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
 - 3. Paint finish: Electrostatic paint finish meeting AAMA 2603, 2604 and 2605, shall be warranted as listed in paragraph 4 below. [select one] Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white and bronze or any custom color to be selected by architect.
 - 4. AAMA 2603 Std. Warrantee, 5 years In coastal locations, 1 year
AAMA 2604 Std. Warrantee, 10 years In coastal locations, 5 years
AAMA 2605 Std. Warrantee, 15 years In coastal locations, 10 years

PART 2 – PRODUCTS

2.01 MANUFACTURERS:

- A. WinDoor Series 2000 Fixed Heavy Commercial Windows.
- B. Other acceptable manufacturers.
[enter names as selected]

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of 0.080" at frame Members and stops, trim 0.062".
- B. Trim – Head, Sill and Jambs: snap in covers conceal all anchor fasteners.

2.03 FABRICATION:

- A. Frame: coped corner construction secured with two stainless steel screws per corner. Corners are to be Factory sealed.

2.04 GLAZING: Monolithic or Insulated Glass, Glazing Configurations.

[enter the following for monolithic glazing]

MONOLITHIC LITES:

- A. Thickness: 3/16", 1/4", or 3/8" [select as required]
- B. Clear Glass or all available Tinted Glass [select as required]
- C. Type: tempered or annealed Glass [select as required]
- D. Coatings: all available pyrolitic and deposited Coatings [select as required]
[enter the following for standard insulated glass units]

INSULATING GLASS:

- A. Exterior lite:
 - 1. Thickness: 3/16", 1/4", or 3/8" [select as required]
 - 2. Annealed, Heat Strengthened or tempered [select as required]
 - 3. Clear Glass or all available Tinted Glass [select as required]
 - 4. Coatings: all available pyrolitic and deposited Coatings [select as required]
- B. Interior glass lite:
 - 1. Thickness: 3/16", 1/4", or 3/8" [select as required]
 - 2. Annealed, Heat Strengthened or tempered [select as required]
 - 3. Clear Glass
- E. Performance:
 - 1. Seal Durability: Conformance to ASTM E 774-92
 - 2. Other [enter u value and transmittance as required]
 - 3. Confirm design pressure requirements with ASTM E 1300 methodology
 - 4. Meets IGCC-CBA Rating.

2.07 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces.
- B. Coating: Select from PPG Duracron, AAMA 2603, Acrynar, AAMA 2604, or Kynar, AAMA 2605 in std. white, bronze or any custom color selected by the architect.
- C. Alternate, high performance finish, PPG Acrynar AAMA 2604, 50% Kynar or PPG Duranar, AAMA 2605 with 70% Kynar (flouropolymers) in std. white, bronze or any custom color selected by the architect.

PART 3 – EXECUTION:

3.01 PREPARATION:

- A. Prepare openings to be in tolerance, plumb level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION:

- A. Install windows in accordance with manufacturers recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing windows.
- B. Provide required support and securely fasten and set window frames plumb, square, and level without twist or bow.

- C. Apply sealant per specifications and sealant manufacturers recommendations and approved shop drawings, wipe off excess and leave exposed sealant surfaces clean and smooth.

3.03 FIELD TESTING:

- A. Test installed units in conformance with AAMA 502.90 for air and water infiltration with window manufacturer, contractor, and owner present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 CLEANING:

- A. Leave windows clean and free of construction debris.

SERIES 2000 IMPACT DESIGN PRESSURES & SIZE QUALIFICATIONS

Large and Small Missile Sizes and Glass Types

Large Missile

Miami Dade NOA No 05-0214.02

Florida State Product Approval No. FL 5048.4

AAMA/NWWDA 101/I.S. 2-97, ASTM E 1996-03, ASTM E 1886-02

5° x 8° Test No. NCTL-210-3019-2

4° x 10° Test No. NCTL-210-3019-1

ASTM E 283-91, ASTM E 330-90, ASTM E 331-93, ASTM E 1996-03, ASTM E 1886-02

5° x 8° Test No. NCTL-210-3019-2A

4° x 10° Test No. NCTL-210-3019-1A

Glass Type	Size	
	48" x 120"	60" x 96"
9/16" H.S.	+110/-110	+110/-110
Single Glazed Tempered	+150/-175	+150/-175
1" Insulated Tempered	+140/-140	+140/-140

Small Missile

Miami Dade NOA No 05-0214.01

Florida State Product Approval No. FL 5048.3

AAMA/NWWDA 101/I.S. 2-97, ASTM E 1996-03, ASTM E 1886-02

5° x 8° Test No. NCTL-210-3021-1

4° x 10° Test No. NCTL-210-3036-1

ASTM E 283-91, ASTM E 330-90, ASTM E 331-93, ASTM E 1996-03, ASTM E 1886-02

5° x 8° Test No. NCTL-210-3021-1A

4° x 10° Test No. NCTL-210-3036-1A

Glass Type	Size	
	48" x 120"	60" x 96"
9/16" H.S.	+110/-110	+110/-110
Single Glazed Tempered	+150/-175	+150/-175
1" Insulated Tempered	+140/-140	+140/-140

SERIES 2000 NON-IMPACT DESIGN PRESSURES & SIZE QUALIFICATIONS

Sizes and Glass Types

Sizes and Glass Types

AAMA/NWWDA 101/I.S. 2-97

6° x 6°	Test No. CTLA-713W
6° x 8°	Test No. NCTL-210-3185-1
5° x 10°	Test No. NCTL-210-3185-2
12'2" x 4°	Test No. NCTL-210-3185-3

Florida State Products Approval No. FL-5470.2

Glass Type	Size			
	72" x 72"	72" x 96"	60" x 120"	146" x 48"
1/4" Tempered	+160/-160	+112/-112	+92/-92	+79/-79
3/8" Tempered	N/A	+200/-200	+200/-200	+200/-200
1" Insulated Tempered	+160/-160	+200/-200	+166/-166	+143/-143

Note: annealed glass available.
Design pressure limited to ASTM E 1300

SERIES 1000 FIXED WINDOW

General Information

SERIES 1000 FIXED WINDOW	
General Information	
WinDoor Standard Finishes AAMA 2603	
White	UC# 97603
Bronze	UC# 98316

Fraction	Decimal
1/32	0.031
1/16	0.063
3/32	0.094
1/8	0.125
5/32	0.156
3/16	0.188
7/32	0.219
1/4	0.250
9/32	0.281
5/16	0.313
11/32	0.344
3/8	0.375
13/32	0.406
7/16	0.438
15/32	0.469
1/2	0.500
17/32	0.531
9/16	0.563
19/32	0.594
5/8	0.625
21/32	0.656
11/16	0.688
23/32	0.719
3/4	0.750
25/32	0.781
13/16	0.813
27/32	0.844
7/8	0.875
29/32	0.906
15/16	0.938
31/32	0.969

Frames Available	Frame Depth
Flush	3"
5/8" Flange	3"
1-1/2" Fin	3"

Configurations
1-Lite or Colonial Muntin or Specified
* Product can be divided with common post with some limitations
** Radius tops and designers available with some limitations

Frame Sight Line
Sill Jamb and Head 2"

Minimum Size Limitations
Minimum outside dimension of any leg or side 9"
Minimum square foot to manufacture 1 sq ft

Tested Sizes – Non-Impact	
5' x 10' *	Do Not Exceed Height or Width in Any Size Configuration for Certification
6' x 8' **	
*Tested up to +180psf/-240psf. **+200psf/-200psf. Pressures dependent on glass type. Please consult factory.	

Tested Sizes – Impact	
4' x 10'	Do Not Exceed Height or Width in Any Size Configuration for Certification
5' x 8'	
Tested up to +150psf/-175psf. Pressures dependent on glass type. Please consult factory.	

SERIES 1000 SPECIFICATION GUIDE

COMMERCIAL FIXED WINDOWS

For impact glazing applications

SECTION 08520

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural fixed windows as shown on the drawings and specified in this section.
- B. Installation; Labor, tools, and materials needed to install windows complete with related components.
- C. Glass and glazing.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.04 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.05 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/I.S.2-97 “Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows”.
 - 2. AAMA 502-90 “Voluntary Specifications for Filed Testing of Window and Sliding Glass Doors”.
 - 3. AAMA 800-92 “Voluntary Specifications and Test Methods for Sealants”.
 - 4. AAMA 611-98 “Voluntary Specifications for Anodized Architectural Aluminum”.
 - 5. AAMA 2603-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 6. AAMA 2604-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 7. AAMA 2605-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 8. AAMA CW-10-97 “Care and Handling of Architectural Aluminum from Shop to Site”.
 - 9. AAMA/NWWDA 1303.5 Forced Entry.
- B. ASTM – American Society for Testing and Materials:
 - 1. ASTM E 283 “Voluntary Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors”.
 - 2. ASTM E 330 “Voluntary Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 3. ASTM E 331 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.

4. ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Difference".
5. ASTM E 774 "Specification for Sealed Insulated Glass Units".
6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors".
7. ASTM E 588 "Standard Test Method for Forced Entry Resistance".
8. ASTM E 1300 "Standard Practice for Determining Glass Loads".
- C. Miami Dade Protocol for Hurricane Windborne Debris Impact Testing, including;
 1. TAS 201 Large and Small Missile Impact Tests.
 2. TAS 202 Air infiltration, Water infiltration and Static Air pressure Tests.
 3. TAS 203 Positive and Negative Loads, Cycle Tests.

1.06 SYSTEM DESCRIPTION:

- A. Windows: Aluminum extrusions 6063-T3 alloy and temper, minimum wall thickness .080" Frame depth of 3", width of 1-3/4", factory glazed.
- B. Configurations: Fixed, [with flush frame], [5/8" flange frame], or [1-1/2" fin frame].
- C. Glazing: Wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1" or 1-1/4". Glazing stops accept, 9/16" monolithic or 1" insulated glass; see glass description in Paragraph 2.04.

1.07 PERFORMANCE REQUIREMENTS:

- A. Conformance to Miami- Dade Protocols for TAS 201, TAS 202 and TAS 203.
 1. Air infiltration maximum allowable per TAS 202 is .30 at 6.24 psf when tested to ASTM E 283-91 at a static air pressure difference of 6.24 psf. Equal to wind at 50 mph.
 2. Air Filtration for this project: maximum .10 cfm/square foot when tested per ASTM E 283-91 at a static air pressure difference of 6.24 psf. Air infiltration measured on independent laboratory tests of WinDoor's Fixed Window are at .00 at 6.24 psf
 3. Water penetration: No uncontrolled water leakage when tested per TAS 202 in conformance with ASTM 331-93 at a static air pressure difference of 18 psf. for non-impact windows and 25 psf for impact rated windows.
 4. Uniform Structural Load: No glass breakage, permanent damage to fasteners, and a maximum 4% permanent deformation of the span of any frame member when tested per ASTM E 330-90 at a static air pressure difference of + 240 psf and -240 psf. The following are comparative performance by sizes tested:

Test Sizes	PSF	Impact DP's (heat strengthened)	PSF	Impact DP's (tempered)
60" x 96"	+133.5 -133.5	+89 -89	+100 -150	+150 -175
48" x 120"	+160.5 -160.5	+107 -107	+225 -262.5	+150 -175

5. The fixed window sizes listed above are for reference only in determining the Design Pressures that are available. Job specific DP's are provided on the drawings for this project and are the responsibility of the Engineer of record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.

6. Comparative analysis was developed from the largest size tested. Reports submitted for this project are allowed to the extent that impact and cycle testing are available to support the data.

1.08 SUBMITTALS:

- A. Shop drawings: window location chart, typical window elevations, detail of assemblies, and glazing details for factory glazed windows [job specific engineering as required].
- B. Product data: manufacturers specifications and test reports from a MIAMI-DADE or AAMA-accredited laboratory.
- C. Samples: specified finish for aluminum and other samples as requested.

1.09 QUALITY ASSURANCE:

- A. All windows shall be series 1000 as manufactured by WinDoor, Inc, 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufacturers desiring approval shall furnish a window representing the bid window and valid test reports from a MIAMI-DADE-accredited laboratory conforming to the test result paragraph 1.07 at least ten (10) days prior to the bid date.
- C. Acceptance: by written addendum only as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which his bid is based.
- E. Manufacturer's warranties:
 1. Windows: warrant for three (3) year against defects in material or workmanship under normal use.
 2. Laminated glass: warrant laminate sandwich for five (5) years against discoloration from delaminating due to attack by moisture or chemicals.
 3. Insulating glass units: warrant seal for five (5) years (contact WINDOOR for other time frames) against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
 4. Paint finish: Electrostatic paint finish meeting AAMA 2603, 2604 and 2605, shall be warranted respectively for 5, 10 and 15 years. Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white or bronze or any custom color to be selected by architect. In coastal applications the painted finish is warranted for 1 year (2603), 5 years (2604) and 10 years (2605) respectively.

PART 2 – PRODUCTS

2.01 MANUFACTURERS:

- A. WinDoor Series 1000 Fixed Commercial Windows.
- B. Other acceptable manufacturers.
[enter names as selected]

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of 0.080" at frame Members and stops, trim 0.062".
- B. Trim – Head, Sill and Jambs: snap in covers conceal all anchor fasteners.

2.03 FABRICATION:

- A. Frame: coped corner construction secured with two stainless steel screws per corner. Corners are to be Factory sealed.

2.04 IMPACT GLAZING:

- A. The drawings shall indicate the specific glazing for this project. Listed below are some of the available systems that meet the impact glazing codes.
 - 1. Single glazed 9/16 inch laminated, clear or tinted, to meet large and/or small missile impact requirements.
 - 2. If Turtle Code requirements must be met, the tinted glass shall block 44% of the visible light transmittance.
 - 3. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Small Missile glazing shall comprise an exterior lite of clear or tinted, 7/16" fully tempered laminated glass and an interior lite of 3/16" clear, fully tempered glass.
 - 4. 1 inch insulated glass meeting IGCC-CBA rating. As indicated by the drawings, the Large Missile glazing shall comprise an exterior lite of clear or tinted, 3/16" fully tempered glass and an interior lite of 7/16" fully tempered laminated glass.
- B. Performance:
 - 1. Seal durability: conformance to ASTM E 774.92
 - 2. Meets IGCC-CBA rating.

2.05 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces.
- B. Coating: Select from PPG Duracron, AAMA 2603, in std. white, bronze or any custom color selected by the architect.
- C. Alternate, high performance finish, PPG Acrynar AAMA 2604 or Duranar, AAMA 2605 with 70% Kynar (fluoropolymers) in std. white, bronze or any custom color selected by the architect.

PART 3 – EXECUTION:

3.01 PREPARATION:

- A. Prepare openings to be in tolerance, plumb level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION:

- A. Install windows in accordance with manufacturers recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing windows.
- B. Provide required support and securely fasten and set window frames plumb, square, and level without twist or bow.
- C. Apply sealant per specifications and sealant manufacturers recommendations and approved shop drawings, wipe off excess and leave exposed sealant surfaces clean and smooth.

3.03 FIELD TESTING:

- A. Test installed units in conformance with AAMA 502.90 for air and water infiltration with window manufacturer, contractor, and owner present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 CLEANING:

- A. Leave windows clean and free of construction debris.

SERIES 1000 SPECIFICATION GUIDE

COMMERCIAL FIXED WINDOWS

For non impact glazing applications

SECTION 08520

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Material: Aluminum architectural fixed windows as shown on the drawings and specified in this section.
- B. Installation; Labor, tools, and materials needed to install windows complete with related components.
- C. Glass and glazing.

1.01 PRODUCTS FURNISHED BUT NOT INSTALLED:

[enter description]

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED:

[enter description]

1.03 RELATED SECTIONS:

- A. Section 07900 – Sealants

1.04 REFERENCES:

- A. AAMA – American Architectural Manufacturers Association.
 - 1. AAMA/NWWDA 101/I.S.2-97 “Voluntary Specifications for Aluminum, Vinyl (PVC), and Wood Windows”.
 - 2. AAMA 502-90 “Voluntary Specifications for Filed Testing of Window and Sliding Glass Doors”.
 - 3. AAMA 800-92 “Voluntary Specifications and Test Methods for Sealants”.
 - 4. AAMA 611-98 “Voluntary Specifications for Anodized Architectural Aluminum”.
 - 5. AAMA 2603-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 6. AAMA 2604-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 7. AAMA 2605-98 “Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels”.
 - 8. AAMA CW-10-97 “Care and Handling of Architectural Aluminum from Shop to Site”.
 - 9. AAMA/NWWDA 1303.5 Forced Entry.
- B. ASTM – American Society for Testing and Materials:
 - 1. ASTM E 283 “Voluntary Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors”.
 - 2. ASTM E 330 “Voluntary Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.
 - 3. ASTM E 331 “Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.

4. ASTM E 547 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Difference".
5. ASTM E 774 "Specification for Sealed Insulated Glass Units".
6. ASTM E 987 "Standard Test Method for Deglazing of Exterior Windows, Curtain Walls, and Doors".
7. ASTM E 588 "Standard Test Method for Forced Entry Resistance".
8. ASTM E 1300 "Standard Practice for Determining Glass Loads".

1.05 SYSTEM DESCRIPTION:

- A. AAMA Description: F-HC 200
- B. Windows: Aluminum extrusions 6063-T3 alloy and temper, minimum wall thickness .080" Frame depth of 3", width of 1-3/4", factory glazed.
- C. Configurations: Fixed, [with flush frame], [5/8" flange frame], or [1-1/2" fin frame].
- D. Glazing: Wet glazed with extruded aluminum stops with vinyl cushioning seal. Glazing bite is 1". Glazing stops accept 3/16", 1/4", 3/8", monolithic, 3/4" or 1" insulated glass; see glass description in Paragraph 2.04.

1.06 PERFORMANCE REQUIREMENTS:

- A. Conformance to F-HC specifications in AAMA/NWWDA 101/I.S.2-97 when test are performed on 72" x 72" test size with the following results.
 1. Air infiltration maximum allowable per AAMA is .30 at 6.24 psf when tested to ASTM E 283-91 at a static air pressure difference of 6.24 psf. Equal to wind at 50 mph.
 2. Air Filtration for this project: maximum .10 cfm/square foot when tested per ASTM E 283-91 at a static air pressure difference of 6.24 psf. Air infiltration measured on independent laboratory tests of WinDoor's Fixed Window are at .00 at 6.24 psf
 3. Water penetration: No uncontrolled water leakage when tested per ASTM E 547-93 and ASTM 331-93 at a static air pressure difference of 18 psf. for non-impact windows and 25 psf for impact rated windows.
 4. Uniform Structural Load: No glass breakage, permanent damage to fasteners, and a maximum 4% permanent deformation of the span of any frame member when tested per ASTM E 330-90 at a static air pressure difference of + 300 psf and -300 psf. The comparisons listed below are for sizes tested:

Tested Size	PSF	DP's (tempered)	DP's (Insulated Tempered)
72" x 72"	+300 -300	+200 -200	+200 -200
60" x 120"	+270 -360	+180 -240	+180 -240
 5. The fixed window sizes listed above are for reference only in determining the Design Pressures that are available. Job specific DP's are provided on the drawings for this project and are the responsibility of the Engineer of record. Manufacturers providing products for this project must provide certified test reports showing compliance with the structural requirements.
 6. Comparative analysis was developed from the largest size tested. Reports submitted for this project are allowed to the extent that impact and cycle testing are available to support the data.

1.07 SUBMITTALS:

- A. Shop drawings: window location chart, typical window elevations, detail of assemblies, and glazing details for factory glazed windows [job specific engineering as required].
- B. Product data: manufacturers specifications and test reports from an AAMA-accredited laboratory.
- C. Samples: specified finish for aluminum and other samples as requested.

1.08 QUALITY ASSURANCE:

- A. All windows shall be series 1000 as manufactured by WinDoor, Inc, 7500 Amsterdam Drive, Orlando, Florida 32832, Tel: 407.481.8400, Fax: 407.481.0505, or approved equal.
- B. Other manufacturers desiring approval shall furnish a window representing the bid window and valid test reports from an AAMA-accredited laboratory conforming to the test result paragraph 1.07 at least ten (10) days prior to the bid date.
- C. Acceptance: by written addendum only as verbal approvals will not be allowed.
- D. Submit bid on pre-qualified products. Bidder must identify manufacturer and model of product on which his bid is based.
- E. Manufacturer's warranties:
 - 1. Windows: warrant for three (3) years against defects in material or workmanship under normal use.
 - 2. Insulating glass units: warrant seal for five (5) years (contact WINDOOR for other time frames) against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
 - 3. Paint finish: Electrostatic paint finish meeting AAMA 2603, 2604 and 2605, shall be warranted respectively for 5, 10 and 15 years. Finishes as provided by PPG Ind. Duracron, Acrynar and Duranar in std. white or bronze or any custom color to be selected by architect. In coastal applications the painted finish is warranted for 1 year (2603, 5 years (2604) and 10 years (2605) respectively.

PART 2 – PRODUCTS

2.01 MANUFACTURERS:

- A. WinDoor Series 1000 Fixed Heavy Commercial Windows.
- B. Other acceptable manufacturers.
[enter names as selected]

2.02 MATERIALS:

- A. Aluminum Extrusions: 6063-T6 alloy and temper with minimum wall thickness of 0.080" at frame Members and stops, trim 0.062".
- B. Trim – Head, Sill and Jambs: snap in covers conceal all anchor fasteners.

2.03 FABRICATION:

- A. Frame: coped corner construction secured with two stainless steel screws per corner. Corners are to be Factory sealed.

2.04 GLAZING: Monolithic, Insulated Glass or Impact Glazing Configurations.

[enter the following for monolithic glazing]

MONOLITHIC LITES:

- A. Thickness: 3/16", 1/4", or 3/8" [select as required]
- B. Clear or all types of tint [select as required]

- C. Type: tempered, annealed or laminated [select as required]
- D. Coatings: all types available [select as required]

[enter the following for standard insulated glass units]

INSULATING GLASS:

- A. Exterior lite:
 - 1. Thickness: 3/16", 1/4", or 3/8" [select as required]
 - 2. Annealed, tempered or laminated [select as required]
 - 3. Clear or all tints available [select as required]
 - 4. Coatings: all types available [select as required]
- B. Interior glass lite:
 - 1. Thickness: 3/16", 1/4", or 3/8" [select as required]
 - 2. Annealed, tempered or laminated [select as required]
 - 3. Clear or all tints available [select as required]
 - 4. Coatings: all types available [select as required]
- C. Performance:
 - 1. Seal Durability: Conformance to ASTM E 774-92
 - 2. Other [enter u value and transmittance as required]
 - 3. [Confirm design pressure requirements with ASTM E 1300 methodology]
 - 4. Meets IGCC-CBA rating

2.07 FINISH ON ALUMINUM EXTRUSIONS:

- A. Application: On clean extrusions free from serious surface blemishes on exposed surfaces.
- B. Coating: Select from PPG Duracron, AAMA 2603, in std. white, bronze or any custom color selected by the architect.
- C. Alternate, high performance finish, PPG Acrynar, AAMA 2604 or Duranar, AAMA 2605 with 70% Kynar (fluoropolymers) in std. white, bronze or any custom color selected by the architect.

PART 3 – EXECUTION:

3.01 PREPARATION:

- A. Prepare openings to be in tolerance, plumb level, provide for secure anchoring, and in accordance with approved shop drawings.

3.02 INSTALLATION:

- A. Install windows in accordance with manufacturers recommendations and approved shop drawings with skilled craftsmen who have demonstrated a successful history of installing windows.
- B. Provide required support and securely fasten and set window frames plumb, square, and level without twist or bow.
- C. Apply sealant per specifications and sealant manufacturers recommendations and approved shop drawings, wipe off excess and leave exposed sealant surfaces clean and smooth.

3.03 FIELD TESTING:

- A. Test installed units in conformance with AAMA 502.90 for air and water infiltration with window manufacturer, contractor, and owner present.
- B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the owner or contractor.

3.04 CLEANING:

- A. Leave windows clean and free of construction debris.

SERIES 1000 IMPACT DESIGN PRESSURES & SIZE QUALIFICATIONS

Large and Small Missile Sizes and Glass Types

Large Missile

Miami Dade NOA No. 05-1114.08
 Florida State Product Approval No. 5048.1

Glass Type	Size	
	48" x 120"	60" x 96"
9/16" H.S.	+107/-107	+89/-89
9/16" Tempered	+150/-175	+150/-175
1" Insulated Tempered	+134/-134	+126/-126

Small Missile

Miami Dade NOA No. 05-1114.07
 Florida State Product Approval No. 5048.2

Glass Type	Size	
	48" x 120"	60" x 96"
9/16" H.S.	+107/-107	+89/-89
9/16" Tempered	+150/-175	+150/-175
1" Insulated Tempered	+134/-134	+126/-126

SERIES 1000 NON-IMPACT DESIGN PRESSURES & SIZE QUALIFICATIONS

Sizes and Glass Types

Sizes and Glass Types		
AAMA/NWWDA 101/I.S. 2-97		
6° x 6°	Test No. CTLA-1000W	
5° x 10°	Test No. CTLA-1000W1	
Florida State Product Approval No. 5048.1		
	Size	
Glass Type	72" x 72"	60" x 120"
1/4" Tempered	+200/-200	+92/-92
3/8" Tempered	N/A	+180/-240
1" Insulated Tempered	+200/-200	+166/-166

* Annealed glass available.
Design pressure limited to ASTM E 1300

PAINT FINISHES COMPARISON CHART

Criteria	AAMA 2605	AAMA 2604	AAMA 2603
PPG Industries, Inc.™	Duranar®	Acrynar®	Duracron®; Polycron®
The Valspar Corporation™	Fluropon®; Classic® II	Acroflur; Acrodize	Flurocyl; Poly lure
Resin Material	70% Fluoropolymer	Durable Acrylic	Acrylic/Polyester
WinDoor Warranty Years: Non-Coastal	15	10	5
WinDoor Warranty Years: Coastal Exposure	10	5	1
Chipping, Peeling and Cracking Warranty	Yes	Yes	Yes
Chalking and Fading Warranty	Yes	Yes	No
Minimum Dry Film Thickness	1.2 mils	1.2 mils	.8 mils
Pencil Hardness for Dry Film Test	F	F	H
Film Adhesion Tests			
Dry Adhesion Test	Yes	Yes	Yes
Wet Adhesion Test	No	Yes	Yes
Boiling Water Adhesion Test	Yes	Yes	No
Impact Resistance Test	Yes	Yes	Yes
Abrasion (sand) Resistance Test	Yes	Yes	No
Chemical Resistance Tests			
Muriatic Acid Resistance Test	Yes	Yes	Yes
Mortar Resistance Test	Yes	Yes	Yes
Detergent Resistance Test	Yes	Yes	Yes
Corrosion Resistance Tests			
Hours for 100% Humidity Resistance Test	4000	3000	1500
Hours for Salt Spray Resistance Test	4000	3000	1500
Weathering Tests			
Years for South Florida Exposure Test	10	5	1