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GUIDE SPECIFICATION

**FG-5100T StormMax®**

Manufacturer:

**Oldcastle BuildingEnvelope®**

P.O. Box 629

803 Airport Road

Terrell, Texas 75160

Phone (800) 869-4567

Fax (972) 551-6264

**SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**

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This guide specification has been prepared by Oldcastle BuildingEnvelope**®** in printed and electronic media as

an aid to specifiers in preparing written construction documents for storefront systems.

Where work of this section integrates with curtain wall, sloped glazing, skylight, windows, or other glazing

systems, carefully coordinate all sections to function together. Air and vapor barrier continuity from this system to

adjacent construction is critical to successfully building air tightness; specify compatible materials in conjunction

with adjacent air and vapor barriers.

Edit entire master to suit project requirements. Modify or add items as necessary. Delete items, which are not

applicable. Words and sentences within brackets [\_\_\_\_\_] reflect a choice to be made regarding inclusion or

exclusion of a particular item or statement. This section may include performance, proprietary, and descriptive

type specifications. Edit to avoid conflicting requirements.

Editor notes are included within the text of this section to assist the specifier in knowledgeable decision-making.

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**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

 A. Drawings and general provisions of the Contract, including General and Supplementary

 Conditions and Division 01 Specification Sections, apply to this Section.

 B. Specifications throughout all Divisions of the Project Manual are directly applicable to this

 Section, and this Section is directly applicable to them.

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Edit this paragraph to briefly describe the contents of the section based on the project specific requirements

and conditions. After editing section, refer back to this paragraph to verify no conflicts exist.

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1.02 SUMMARY

 A. Section includes: Aluminum Storefront Systems

 1. Oldcastle Series 5100T StormMax™ Flush Glaze impact resistant storefront shop

 fabricated or factory prefinished for factory/field glazing.

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This document incorporates CSI (Construction Specifications Institute) Manual of Practice principles of

cross-referencing to Division 1 sections and other sections. The cross references must be edited to retain only

those other sections used. Other guide specifications for Oldcastle BuildingEnvelope**®** are available as follows:

 Section 08 32 13 - Sliding Aluminum-Framed Glass Doors

 Section 08 41 26 - All-Glass Entrances.

 Section 08 44 13 - Glazed Aluminum Curtain Walls

 Section 08 44 23 - Structural Sealant Glazed Curtain Walls

 Section 08 44 26 - Structural Glass Curtain Walls

 Section 08 44 33 - Sloped Glazing Assemblies

 Section 08 45 00 - Translucent Wall Assemblies

 Section 08 62 00 - Unit Skylights

 Section 08 63 00 - Metal-Framed Skylights

 Section 08 64 00 - Plastic-Framed Skylights

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 B. Related Sections:

 1. Section 01 43 39 - Mock-ups

 2. Section 05 50 00 - Metal Fabrications

 3. Section 06 01 00 - Maintenance of Rough Carpentry

 4. Section 07 90 00 - Joint Sealers

 5. Section 08 42 26 - All Glass Entrances

 6. Section 08 42 33 - Revolving Door Entrances

 7. Section 08 32 13 - Sliding Aluminum-Framed Glass Doors

 8. Section 08 51 13 - Aluminum Windows

 9. Section 08 71 00 - Door Hardware

 10. Section 08 81 00 - Glass Glazing

 11. Section 08 44 13 - Glazed Aluminum Curtain Wall

 12 Section 08 44 33 - Sloped Glazing Assemblies

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List reference standards that are included within the text of this section.

Use this section carefully; restrict statements to identify system performance requirements or function

criteria only. Delete paragraphs not appropriate to project.

Specifying performance permits system manufacturers the latitude to adjust or redesign proprietary systems

to achieve specified requirements. Rely on this section as the "anchor" for specifying storefront systems and

minimize the material and component statements so not to conflict with performance criteria.

Edit system requirements carefully and include only applicable performance criteria. Make sure there is no

conflict with proprietary information listed in Part 2.

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1.03 SYSTEM REQUIREMENTS

 A. Design Requirements:

 1. Drawings are diagrammatic and do not purport to identify nor solve problems of

 thermal or structural movement, glazing, anchorage, or moisture disposal.

 2. Requirements shown by details are intended to establish basic dimension of units,

 sight lines and profiles of members.

 3. Provide concealed fastening.

 4. Provide entrance and storefront systems, including necessary modifications, to

 meet specified requirements and maintaining visual design concepts.

 5. Attachment considerations are to take into account site peculiarities and expansion

 and contraction movements so there is no possibility of loosening, weakening or

 fracturing connection between units and building structure or between individual

 units.

 6. Anchors, fasteners and braces shall be structurally stressed not more than 50% of allowable stress when maximum loads are applied.

 7. Where anchor inspections are required, sill design with appropriate access will be provided.

 8. Provide for expansion and contraction due to structural movement without detriment

 to appearance or performance.

 B. Performance Requirements:

 1. Air infiltration: Maximum allowable infiltration of 0.06 cfm/ft2 (1.1 m3/h\*m2) when

 tested in accordance with ASTM E 283 at differential static pressure of 6.24 psf

 (300 Pa).

 2. Water infiltration:

 a. Static: No uncontrolled leakage when tested in accordance with

 Miami–Dade County and Florida Building Code HVHZ (TAS-202)

 and ASTM E331 at test pressure of 15 psf (720 Pa).

 b. Dynamic: No uncontrolled leakage when tested in accordance with

 ASTM E 547 at test pressure of 15 psf (720 Pa).

 3. Wind Loads: Provide entrance and storefront systems, including anchorage,

 capable of withstanding wind load design pressures calculated according to

 requirements of authorities having jurisdiction or the American Society of Civil

 Engineers' ASCE 7, "Minimum Design Loads for Buildings and Other Structures," whichever are more stringent.

 a. Wind Loads for exterior assemblies:

 1) Positive Pressure: 75 psf (maximum)

 2) Negative Pressure: 75 psf (maximum)

 4. Deflection: Maximum allowable deflection of any framing member in direction

 normal-to-plane of wall when subjected to specified design pressures in accordance

 with ASTM E 330 shall be limited to

 a. L/175 of any clear span up to 13'-6"

 b. L/240 + 1/4" of any clear span over 13'-6"

 5. Thermal Movement: Design the aluminum entrance and storefront framing systems

 to provide for expansion and contraction of the component materials. Entrance

 doors shall function normally over the specified temperature range. The system shall

 be capable of withstanding a metal surface temperature range of 180 degrees F (100

 degrees C) without buckling, failure of joint seals, undue stress on structural elements,

 damaging loads on fasteners, reduction of performance, stress on glass, or other

 detrimental effects.

 6. Dead Loads: Provide entrance- and storefront-system members that do

 not deflect an amount which will reduce glazing bite below 75 percent of design dimensions when carrying full dead load.

 a. Provide a minimum 1/8 inch (3.18-mm) clearance between

 members and top of glazing or other fixed part immediately

 below.

 b. Provide a minimum 1/16 inch (1.59-mm) clearance between

 members and operable windows and doors.

 7. Windborne Debris Impact Resistance:

 a. Large and Small Missile Impact per Miami – Dade County Building Code

 protocol (TAS-201), Florida Building Code HVHZ (TAS-201) and ASTM E 1996

 b. Cyclic Load Test per Miami – Dade County Building Code protocol/Florida

 Building Code HVHZ (TAS-203) and ASTM E 1886 test requirements.

 c. Uniform Static Load Test per Dade – County Building Code protocol/Florida

 Building Code HVHZ (TAS-202) and ASTM E 330.

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Include submittal requirements below, which are consistent with scope of project and extent of work

of this section. Only request submittals, which are absolutely necessary.

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1.04 SUBMITTALS

 A. General: Submit in accordance with Section 01 30 00.

 B. Product Data:

 1. Submit manufacturer's descriptive literature and product specifications.

 2. Include information for factory finishes, hardware, accessories, and other

 required components.

 3. Include color charts for finish indicating manufacturer's standard colors

 available for selection.

 C. Shop Drawings:

 1. Submit shop drawings covering fabrication, installation and finish of specified

 systems.

 2. Include the following:

 a. Fully dimensioned plans and elevations with detail coordination keys.

 b. Locations of exposed fasteners and joints.

 3. Provide detailed drawings of:

 a. Composite members.

 b. Joint connections for framing systems and for entrance doors.

 c. Anchorage.

 d. System reinforcements.

 e. System expansion and contraction provisions.

 f. Glazing methods and accessories.

 g. Internal sealant requirements.

 4. Schedule of finishes.

 D. Samples:

 1. Submit manufacturers standard samples indicating quality of finish.

 2. Where normal texture or color variations are expected, include additional samples illustrating range of variation.

 3. Submit samples for each type of glass, 12 x 12 inch size.

 E. Product Test Reports:

 1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting. Include other supportive data as necessary.

 F. Qualification Data:

 1. Submit installer qualifications verifying years of experience.

 G. Manufacturer's Instructions: Submit manufacturer's printed installation instructions.

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Include quality assurance requirements consistent with size and scope of project and extent of work of this section.

Edit following section accordingly.

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1.05 QUALITY ASSURANCE

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Oldcastle BuildingEnvelope**®** is unique in the industry in single source responsibility. First, system design,

extrusion, fabrication, and finishing occur at the same facility, and under strict tolerances, assuring uniformity

of profile and finishes between systems. Second, Oldcastle BuildingEnvelope**®** products include a full array

of storefront (including operable vents on some systems), curtain wall, all glass entrances, sliding mall fronts,

sloped glazing, and flush faced aluminum framed doors, as well as skylight products, allowing the designer

and specifier a single source of responsibility when combining products from any of these categories.

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 A. Installer Qualifications: Installer should have successful experience in installation of

 products covered in this Section on similar projects in scope and size If requested by

 Owner, installer shall provide a reference list of similar completed projects.

 B. Manufacturer Qualifications: Manufacturer should be experienced with products covered

 under this Section and capable of providing a storefront system capable of meeting or

 exceeding the performance criteria noted in this Section.

 C. Single Source Responsibility:

 1. To ensure quality of appearance and performance, obtain materials for systems

 from either a single manufacturer or from manufacturer approved by systems

 manufacturer.

 D. Mockups: Build mockups (predetermined) to verify the material meets the samples

 submitted and for aesthetic review to set quality standards for materials and installation.

 E. Pre-Installation Conference: Conduct a pre-installation conference at the project site to

 comply with the requirements in Section 01 31 00, "Project Management and Coordination."

 F. Perform Work in accordance with AAMA SFM-1 and manufacturer's written instructions.

 G. Conform to requirements of ANSI A117.1 and local amendments.

1.06 DELIVERY, STORAGE, AND HANDLING

 A. Comply with requirements of Section 01 65 00 and 01 66 00.

 B. Protect finished surfaces as necessary to prevent damage.

 C. Do not use adhesive papers or sprayed coatings, which become firmly bonded when

 exposed to sun.

 D. Do not leave coating residue on any surfaces.

 E. Replace damaged units.

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Note: Longer warranty periods are available at additional cost.

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1.07 WARRANTY

 A. Provide warranties in accordance with Section 01 78 36.

 B. Provide written warranty in form acceptable to owner jointly signed by manufacturer,

 installer and contractor warranting work to be watertight, free from deflective materials,

 defective workmanship, glass breakage due to defective design, and agreeing to replace

 components which fail within 1 year from date of Substantial Completion.

 C. Warranty shall cover following:

 1. Complete watertight and airtight system installation within specified tolerances.

 2. System is structurally sound and free from distortion.

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Delete paragraph below if high performance fluoropolymer finish not used.

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 D. Provide written warranty stating organic coating finish will be free from fading more than

 10%, chalking, yellowing, peeling, cracking, pitting, corroding or non-uniformity of color,

 or gloss deterioration beyond manufacturer's descriptive standards for 1 year from date

 of Substantial Completion and agreeing to promptly correct defects.

**PART 2 - PRODUCTS**

2.01 MANUFACTURERS

 A. Acceptable Manufacturers:

 Oldcastle BuildingEnvelope**®**

 P.O. Box 629

 803 Airport Road

 Terrell,Texas 75160

 Phone: (800) 869-4567

 Fax: (972) 551-6264

 1. Storefront System: Oldcastle Series 5100T Flush Glaze StormMax™

B. Impact Resistant Aluminum Storefront Framing Systems:

 1. Description: Flush Glazed System, center set, exterior glazed, screw spline

 2. Pre-glazed or field glazed

 3. Frame Dimensions: 2 1/2" x 5"

 4. Components: Manufacturers standard extruded aluminum mullions, doors

 and framing, associated components and steel reinforcement as necessary.

 Structural members to be extruded from 6063-T6 aluminum alloy.

 5. Glazing: System should accommodate 1 5/16" laminated glass.

2.02 FRAMING MATERIALS AND ACCESSORIES

 A. Aluminum:

 1. Complying with ASTM B 221, 6063-T6 aluminum to be used for extrusions;

 and per ASTM B 209, use 5005-H16 alloy for sheets; or other alloys and temper

 recommended by manufacturer appropriate for specified finish.

 2. Minimum thickness of [0.080] inch for main framing members.

 B. Internal Reinforcing:

 1. ASTM A36 for carbon steel; or ASTM B308 for structural aluminum.

 2. Steel components factory coated with alkyd type zinc chromate primer complying

 with FS TT-P-645A.

 C. Anchorage Devices:

 1. Manufacturer's standard formed or fabricated steel or aluminum assemblies of

 shapes, plates, bars or tubes.

 2. Hot-dip galvanize steel assemblies after fabrication; comply with ASTM A 123,

 2.0 ounce minimum coating.

 D. Fasteners:

 1. Aluminum, non-magnetic stainless steel or other non-corrosive materials

 compatible with items being fastened.

 2. Provide concealed fasteners wherever possible.

 3. For exposed locations, provide Phillips flathead screws with finish matching item

 fastened.

 4. For concealed locations, provide manufacturer's standard fasteners.

 E. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled-in, expansion bolt anchors.

 F. Protective Coatings: Cold-applied asphalt mastic complying with SSPC-Paint 12,

 compounded for 30 mil thickness for each coat; or alkyd type zinc chromate primer

 complying with FS TT-P-645A.

 G. Touch-Up Primer for Galvanized Components: Zinc oxide conforming with FS TT-P-641(G)1.

 H. Glazing Gaskets:

 1. Compression-type design, replaceable and extruded, EPDM gasket that meets the

 requirement of ASTM C 864. Profile and hardness as required to maintain uniform

 pressure for watertight seal.

 2. Dow – Corning #795 structural silicone sealant at interior gasket with FG-5185

 spacer gasket.

 I. Weatherstripping:

 1. Provide D-1913 EPDM fin seal in AS-6 adjustable astragal.

 2. Provide D-174 silicone weatherstripping in bottom door rail.

 J. Internal Sealants and Sealant Tapes.

2.03 GLASS AND GLAZING ACCESSORIES

 A. Refer to Section 08 81 00.

2.04 FABRICATION

 A. Coordination of Fabrication:

 1. Check actual frame or door openings required in construction work by accurate

 field measurements before fabrication.

 2. Fabricate units to withstand loads, which will be applied when system is in place.

 B. General

 1. Conceal fasteners wherever possible.

 2. Reinforce work as necessary for performance requirements, and for support to

 structure.

 3. Separate dissimilar metals and aluminum in contact with concrete utilizing

 protective coating or preformed separators, which will prevent contact and corrosion.

 4. Comply with Section 08 81 00 for glazing requirements.

 C. Aluminum Framing:

 1. Provide members of size, shape and profile indicated.

 2. Fabricate frame assemblies with joints straight and tight fitting.

 3. Reinforce internally with structural members as necessary to support design loads.

 4. Maintain accurate relation of planes and angles, with hairline fit of contacting

 members.

 5. Seal horizontals and direct moisture accumulation to exterior.

 6. Provide flashings and other materials used internally or externally that are

 corrosive resistant, non-staining, non-bleeding and compatible with adjoining

 materials.

 7. Provide manufacturer's extrusions and accessories to accommodate expansion

 and contraction due to temperature changes without detriment to appearance or

 performance.

 8. Make provisions in framing for minimum edge clearance, nominal edge cover and

 nominal pocket width for thickness and type of glazing or infill used in accordance

 with recommendations of manufacturer and FGMA Glazing Manual.

 D. Welding:

 1. Comply with recommendations of the American Welding Society.

 2. Use recommended electrodes and methods to avoid distortion and discoloration.

 3. Grind exposed welds smooth and flush with adjacent surfaces; restore mechanical

 finish.

 E. Flashings: Form from sheet aluminum with same finish as extruded sections. Material

 thickness as required to suit condition without deflection or "oil canning".

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Select and edit following items for appropriate finish; delete inapplicable types. Oldcastle

BuildingEnvelope**®** is a licensed applicator for all of the coating manufacturers listed below.

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2.05 FINISHES

 A. Organic Coating [high performance fluorocarbon]:

 1. Comply with requirements of AAMA 2605.

 2. Surfaces cleaned and given conversion coating pre-treatment prior to application

 of 0.3 mil dry film thickness of epoxy or acrylic primer following recommendations

 of finish coat manufacturer.

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Note: A less expensive finish coat containing a minimum of 50% fluorocarbon resin is also

available, and meets AAMA 2605, but with reduced performance over time.

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 3. Finish coat of [50%] [70%] minimum fluorocarbon resin fused to primed surfaces at temperature recommended by manufacturer, 1.0 mil minimum dry film thickness.

 4. Acceptable coatings are Trinar by AkzoNobel; Fluoroceram by BASF Corporation;

 Duranar by PPG Industries Inc.; and Fluropon by Valspar Corporation.

 5. Provide in either a 2, 3, or 4 coat system as required for color selected.

 6. Color(s):

 1. [Custom colors as selected by Architect; or, Manufacturer's standard colors

 as selected by Architect]

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Oldcastle BuildingEnvelope**®** utilizes a computer driven anodizing system, which produces

the closest color range available.

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 B. Clear Anodized:

 1. Conforming to AAMA 611.

 2. Architectural Class II, etched, medium matte, clear anodic coating, 0.4 mil

 minimum thickness.

 \*\*\*\*\* OR \*\*\*\*\*

 C. Color Anodized:

 1. Conforming to AAMA 611.

 2. Architectural Class [I] [II], etched, medium matte, [black] [dark bronze] [medium

 bronze] [light bronze] colored anodic coating, [0.7] [0.4] mil minimum thickness.]

**PART 3 - EXECUTION**

3.01 EXAMINATION

 A. Examine conditions and proceed with Work in accordance with Section 01 40 00.

3.02 INSTALLATION

 A. Erection Tolerances:

 1. Limit variations from plumb and level:

 a. 1/8 inch in 10'-0" vertically.

 b. 1/8 inch in 20'-0" horizontally.

 2. Limit variations from theoretical locations: 1/4 inch for any member at any location.

 3. Limit offsets in theoretical end-to-end and edge-to-edge alignment: 1/16 inch from

 flush surfaces not more than 2 inches apart or out-of-flush by more than 1/4 inch.

 B. Install doors and hardware in accordance with manufacturer's printed instructions.

 C. Set units plumb, level and true to line, without warp or rack of frame.

 D. Anchor securely in place, allowing for required movement, including expansion and

 contraction.

 E. Separate dissimilar materials at contact points, including metal in contact with masonry or concrete surfaces, with bituminous paint or preformed separators to prevent contact and

 corrosion.

 F. Set sill members in bed of sealant. Set other members with internal sealants and baffles

 to provide weathertight construction.

 G. Coordinate installation of perimeter sealant and backing materials between assemblies

 and adjacent construction in accordance with requirements of Section 07 92 00.

 H. Glazing: Refer to requirements of Section 08 81 00.

3.03 ADJUSTING

 A. Test door operating functions. Adjust closing and latching speeds and other hardware in accordance with manufacturer's instructions to ensure smooth operation.

3.04 CLEANING

 A. Clean surfaces in compliance with manufacturer's recommendations; remove excess

 mastic, mastic smears, foreign materials and other unsightly marks.

 B. Clean metal surfaces exercising care to avoid damage.

 **END OF SECTION**