

HANSEN

Established 1945

Project Description:

127 East Gordon Street was originally constructed in the hall-parlor configuration, with a wooden side porch added sometime before 1916. Since that time, alterations to the building, including replacing the side porch with a masonry addition and adding an additional stair to the front stoop, have created a different building form and presence on the square and the building currently reads more like an "I" house with a central hallway. In fact, it was described as such on the historic resource card. The vision and goal of this project is to restore the building as a single-family residence, with the hall-parlor configuration legible, and restore the balance of the building with a wooden porch in the same footprint as the historic wooden porch.

To achieve this, we are proposing the following: a comprehensive rehabilitation for the main house, removal of a brick addition, an addition with massing and design aesthetic as an enclosed side porch, and a masonry element. A previously existing garage location is being re-established as a garage with a terrace space above. We will use Abercorn Street for garage and driveway access -- new wood double gates are proposed. The entry stoop will be modified to have a single stair toward Abercorn and also to have a masonry construction aesthetic vs that of a formed and poured concrete stoop and stair.

Through the review of the sanborn maps and zoning requirements, we have established that the existing three story brick addition is not a contributing element to the original side hall townhouse. Please review our contributing status documentation prepared by Ethos.

In the process of reviewing the history of the home, we learned that there was a wood side porch in the location of the masonry addition we are proposing for removal. Our plans for the addition of a mostly enclosed side porch are based on the same footprint of this porch noted in the sanborn maps. We are proposing this porch have an open porch bay toward the square and the balance will be enclosed with glass from the rail height up. The expression of the porch rail is maintained for the enclosed areas.

We are requesting in kind repairs for the historic main house including the stucco, stucco detail, wood trim, wood details, wood windows, and rear balcony reconstruction based on historic images.

The primary materials of the new addition are stucco over masonry (8" CMU) walls and wood framing and wood detailing on the enclosed porch. New Marvin brand windows are proposed for the new addition; cut sheets are provided.

The side yard facing Gordon Street will be restored as a garden. Upon approval of the rehabilitation and design work currently being presented, we intend to engage the services of a local Landscape Architect. We will return with this phase for review as appropriate as it relates to gates, garden walls, hardscape etc. In this application we are only asking for the removal of the concrete within the yard space.



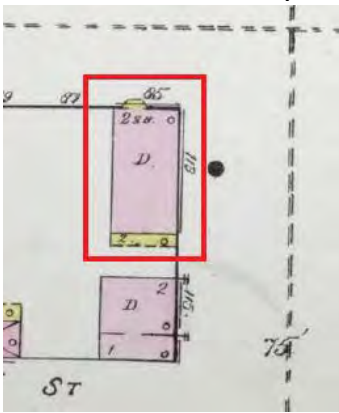
ethos

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127 East Gordon Street- Historical Evolution

1888- Sanborn Map



127 East Gordon Street was built in 1856 for John B. Berry.

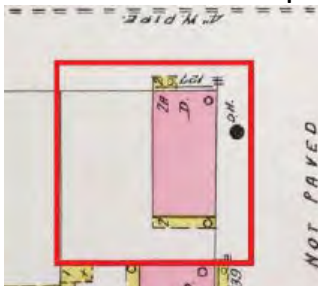
It was originally constructed in the hall-parlor configuration. Sanborn Maps from 1888 through 1898 indicate no changes in the building's materials or form. It is likely that this is the original configuration of the building.

The building is depicted as a two-story building, plus garden level, masonry building. It features a small wooden stoop on the front, facing Calhoun Square. Koch's 1891 Birds Eye view shows a single stair descending to the east. There is a wooden balcony on the second floor spanning the entirety of the rear of the structure.

1891- Koch Birds Eye View



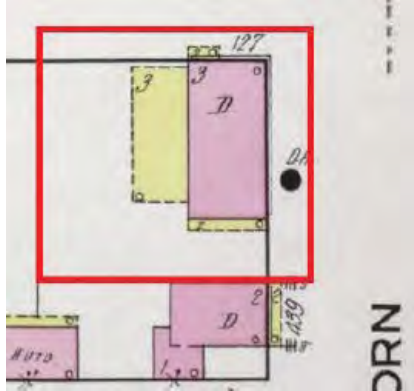
1898- Sanborn Map



PRESERVATION WITH PURPOSE

127 East Gordon Street Historical Evolution (continued)

1916 Sanborn



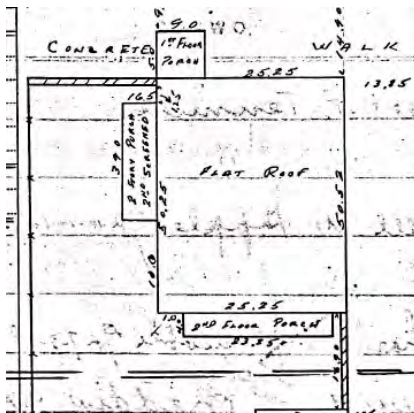
Between 1898 and 1916 a large wooden three-story porch was added to the west façade of the building. The front stoop and rear balcony remain wood, as before.

The 1937 Cadastral Survey confirms the wooden side porch remains intact, and that the rear balcony is only on the second floor.

Between 1937 and 1954, the wooden porch was bricked in to create a three-story masonry addition. This addition is currently existing on the building. It is in poor condition, physically separating from the main structure.

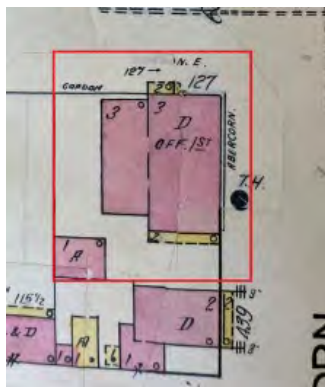
The wooden stoop and rear porch remain intact.

1937 Cadastral Survey



A one-story garage appears on the 1954 Sanborn for the first time. The bricks used to construct the garage appear to be the same as the bricks used to enclose the porch, making it likely that these projects were completed at the same time.

1954 Sanborn



127 East Gordon Street Historical Evolution (continued)

1973 Sanborn



The 1973 Sanborn duplicates the imagery of the 1954 Sanborn. No significant changes are indicated.

The 1976 image shows the buildings largely in its current form. No earlier images were located. The masonry building shows a two-story masonry addition to the east. The porch has been reconfigured to have two stair runs, to the east and west. The materials have been altered to be iron and concrete. It is believed that these significant alterations to the stoop were completed in the late 1960s or early 1970s.

1976 GHS Image





127 East Gordon Street- Contributing Status Assessment

The main structure at 127 East Gordon Street was constructed 1856 and a three story wood porch was added sometime between 1898 and 1916. This porch was bricked in to become a three story masonry addition between 1937 and 1954. Savannah's local period of significance extends to 1960, meaning that the masonry addition is within the period of significance. The entire structure is shown as "contributing" on the Contributing Buildings Map.



Section 3.16.4.b. of NewZO provides the criteria for determining whether or not a building should be designated as contributing or non-contributing. It states:

"Contributing buildings include those within the current Period of Significance, possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following criteria:

1. Are associated with events that have made a significant contribution to the broad patterns of our history; or
2. Are associated with the lives of significant persons in our past; or
3. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. Have yielded, or may be likely to yield, information important in history or prehistory."

While the masonry addition is within the period of significance, we do not believe that it should be considered contributing, as it lacks integrity due to its condition (similar to the garage constructed at the same time and approved for demolition), nor does it meet any of the additional criteria required for contributing status. It is not associated with an important event or person, it does not embody distinctive characteristics or have high artist value, and it is unlikely to yield additional information important to history or prehistory.





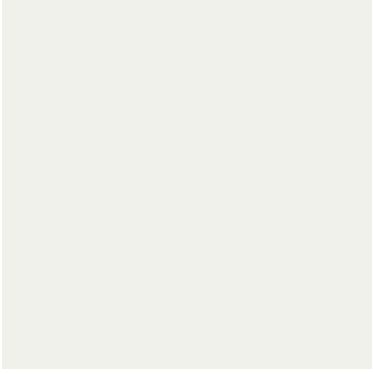
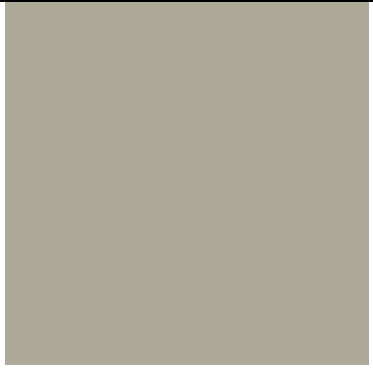




HANSEN

Established 1945

FINISH BOARD FOR The Twigg Residence 127 E. Gordon Street, Savannah, GA 31401

		
EXISTING STUCCO / PAINTED OXFORD WHITE – B.M. CC-30	NEW KEIM STUCCO / TO MATCH OXFORD WHITE – B.M. CC-30	WOOD TRIM & RAILINGS / BRUSHED ALUMINUM – B.M. 1485
		
WOOD LATTICE & DOORS / MIDNIGHT BLUE – B.M. 1638	WINDOW HEAD & GRILLE, DOORS / HERBAL ESCAPE – B.M. 1487	WINDOWS / STONE WHITE - MARVIN
		
COMPOSITE VEHICLE GATES / TO MATCH HERBAL ESCAPE – B.M. 1487		



Technical Data Sheet

KEIM Universalputz (standard) (Grain size: 1.3 mm)



1. Product description

KEIM Universalputz is a renovation and thin layer exterior and interior wall render, based on lime cement with fiber reinforcement, (standard render to DIN EN 998-1). KEIM Universalputz corresponds to mortar category CS III, P II acc. to DIN V 18550. Combined with KEIM silicate coatings, KEIM Universalputz is a coordinated render/coating system.

2. Field of application

For new substrates as well as renovation and repair of:

- Sound existing renders (including synthetic resin renders)
- Sound existing paint coats (including synthetic resin paint coats)
- Interior and exterior areas
- Cracks
- Problem areas
- With fabric embedding (e.g. with KEIM Glass Fiber Mesh) over all or part of the surface.

Excellent adhering properties, thus KEIM Universalputz-fine is very suitable for machine application. KEIM Universalputz may be textured or felt-floated. Not suitable for plasto-elastic and saponifiable substrates.

3. Product properties

Binder based on white lime cement with calcite aggregate together with light aggregate and fiber reinforcement.

- Grain size: 0 - 1.3 mm
- Bulk weight: 1.35 g/cm³

Material characteristics to DIN EN 998-1:

- Compressive strength: > 3.5 - 7.5 N/mm²,
CS III
- Water vapor permeability μ : approx. 9
- Water absorption: W2
- Thermal conductivity:
 $\lambda_{10, \text{dry}}$: $\leq 0.83 \text{ W/(mK)}$ for P = 50%*
 $\leq 0.93 \text{ W/(mK)}$ for P = 90%*
(*tabular values to EN 1745)

4. Application instructions

Initial preparation

Test load capacity of substrate. Remove any loose areas of renders or old existing coatings mechanically or by high-pressure water jetting.

Application

Highly absorbent substrate must be pre-wetted. Water requirement: approx. 240 ml (8.1 fl oz) per kg (corresponding to 6 l (1.6 gal) per 25 kg sack); mix with hand mixer or render mixing machine. Layer thickness applied should range from: min. 4 mm to max. 10 mm.

If embedding KEIM Glass Fiber Mesh, apply 4 mm of KEIM Universalputz, press mesh in (mesh must overlap by 10 cm). The first layer must dry until the following day (18 - 24 hours). Then apply an additional 3 mm of KEIM Universalputz the following day for a total min. layer thickness of 6 mm.

If KEIM Universalputz is used as a finish render, textured or felt-floated. On a non-absorbent render substrate, the render must solidify completely before being felt-floated with an additional thin layer.



Note: Do not over mix material, as over mixing will cause a loss of strength. Material which has started to set cannot be remixed.

Application conditions

Ambient and substrate temperature must not fall below + 5°C (41°F) during the application and drying process. Do not apply in direct sunlight or onto sun-heated substrates. Protect surfaces from wind and rain during and after application.

Post-treatment

Protect the fresh layer of render from drying out too quickly and, if needed, keep moist by misting with water for up to 2 days after texturing or finishing with a felt float. Interior spaces must be heated with care, since too rapid heating may disrupt the hydraulic setting reactions.

Drying times

1 day per 1 mm of render thickness if an additional layer of render is to be applied. For painting or coating a setting time of 10 days is necessary.

Finishing

All KEIM render coating systems are suitable for exterior and interior use. KEIM Universalputz-fine can be over coated with paint after 10 days. Essential minimum layer thickness for coating with KEIM Purkristalat is 5 mm.

Preparatory work required on exterior surfaces:

Remove lime sinter layers with KEIM Lime Remover (Ätzflüssigkeit), diluted 1:3 with water, then rinse off with clean water from bottom to top.

Consumption

Approx. 1.1 kg/m² (10.8 sq ft) per 1 mm layer thickness.

The stated consumption values are for guidance only and depend on the nature of the substrate and the application method. Exact consumption values can only be determined by applying trial areas on the structure to be plastered.

Cleaning of tools

Clean with water immediately after use.

5. Packaging

25 kg sack, 36 sacks/skid.

6. Storage

Storage life: 12 months in original packaging under dry, frost-free conditions. Protect from moisture.

7. Hazardous substances ordinance class

Xi	Irritant,
R 38:	Irritating to the skin.
R 41:	Risk of serious damage to the eyes.
S 2:	Keep out of reach of children.
S 22:	Do not breathe dust.
S24/25:	Avoid contact with skin and eyes.
S 26:	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 37/39:	Wear suitable gloves and eye/face protection.



S 46: If swallowed, seek medical advice immediately and show this container or label.

8. Transport hazard class

n/a

9. Disposal

EC Waste Code No. 17 01 01
Any residues must be emptied out of sacks before recycling.

10. Safety instructions

In combination with water, lime and cement have an alkaline action. Provide appropriate protection for surfaces which are not to be treated, in particular glass, ceramics, natural stone, etc. Protect the eyes and skin from splashes. When using, do not eat or drink. Keep out of reach of children.

Product code: ZP 1

The stated values and properties are the result of extensive development work and practical experience. Our recommendations for application, whether given verbally or in writing, are intended to provide assistance in the selection of our products and do not establish a contractual relationship. In particular, they do not release those purchasing and applying our products from the duty of establishing for themselves, with due care, the suitability of our products for the intended application. Standard building industry practices must be complied with. We retain the right to make modifications to improve the products or their application. This edition supersedes all earlier editions.



Section 08 52 13 Ultimate Double Hung G2

Part 1 General

1.1 Section Includes

- A. Ultimate Double Hung G2, Single Hung, Transom, Picture window complete with hardware, glazing, certified mulls, weather strip, insect screen, grilles-between-the-glass, simulated divided lite, jamb extension, combination storm/screen, and standard or specified anchors, trim, attachments, factory-applied historic casing(s) and accessories
- B. Ultimate Double Hung G2 Bay, Bow window complete with hardware, glazing, weather strip, insect screen, grilles-between-the-glass, simulated divided lite, jamb extension, combination storm/screen, head/seat board, and standard or specified anchors, trim attachments, and accessories

1.2 Related Sections

- A. Section 01 33 23 – Submittal Procedures; Shop Drawings, Product Data and Samples
- B. Section 01 62 00 – Product Options
- C. Section 01 65 00 – Product Delivery
- D. Section 01 66 00 – Storage and Handling Requirements
- E. Section 01 71 00 – Examination and Preparation
- F. Section 01 73 00 - Execution
- G. Section 01 74 00 – Cleaning and Waste Management
- H. Section 01 76 00 – Protecting Installed Construction
- I. Section 06 22 00 – Millwork: Wood trim other than furnished by window manufacturer
- J. Section 07 92 00 – Joint Sealant: Sill sealant and perimeter caulking
- K. Section 09 90 00 – Painting and Coating: Paint and stain other than factory-applied finish

1.3 References

- A. American Society for Testing Materials (ASTM):
 - 1. E283: Standard Test method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors
 - 2. E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Door by Uniform Static Air Pressure Difference

3. E547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential
 4. E2190: Specification for Sealed Insulated Glass Units
 5. C1036: Standard Specification for Flat Glass
 6. E2068: Standard Test Method for Determination of Operating Force of Sliding Windows and Doors
 7. E 1996: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes
 8. E 1886: Standard Test method for Performance of Exterior Windows, curtain Walls, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
 9. F 2090-17: Standard Specifications for Windows Fall Prevention Devices with Emergency Escape (egress) Release Mechanisms
- B. American Architectural Manufacturer's Association/Window and Door Manufacturer's Association (AAMA/WDMA/CSA):
1. AAMA/WDMA/CSA 101/I.S.2/A440-08, Standard/Specification for windows, doors and skylights
 2. AAMA/WDMA/CSA 101/I.S.2/A440-11, Standard/Specification for windows, doors and skylights
 3. AAMA 450-10, Voluntary Performance Rating Method for Muller Fenestration Assemblies
- C. WDMA I.S.4: Industry Standard for Water Repellant Preservative Treatment for Millwork
- D. Window and Door Manufacturer's Association (WDMA): 101/I.S.2 WDMA Hallmark Certification Program
- E. Sealed Insulating Glass Manufacturer's Association/Insulating Glass Certification Council (SIGMA/IGCC)
- F. American Architectural Manufacturer's Association (AAMA): 2605: Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels
- G. National Fenestration Rating Council (NFRC):
1. 101: Procedure for Determining Fenestration Product thermal Properties
 2. 200: Procedure for Determining Solar Heat Gain Coefficients at Normal Incidence
- H. Window Covering Manufacturer's Association
1. A100.1: American National Standard for Safety of Corded Window Coverings Products

1.4 System Description

A. Design and Performance Requirements:

Product	Air Test to PSF	Water Tested to psf	Structural Tested to psf	Certification Rating	Design Pressure	Overall Width		Overall Height	
						in	mm	in	mm
Ultimate Double Hung G2 (4040)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	87 1/2	(2223)
Ultimate Double Hung G2 (4044)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	95 1/2	(2426)
Ultimate Double Hung G2 (4450)	1.57	7.5	75	LC-PG50	DP50	49 1/4	(1251)	107 1/2	(2731)
Ultimate Double Hung G2 (5044) *	1.57	6	60	LC-PG35	DP35	55 1/4	(1403)	95 1/2	(2426)
Ultimate Double Hung G2 (5456)	1.57	6	60	LC-PG35	DP35	59 1/4	(1505)	119 1/2	(3035)
Ultimate Double Hung G2 (6060)	1.57	7.5	45	LC-PG30	DP30	65 1/4	(1657)	127 1/2	(3239)
Ultimate Double Hung G2 Picture (6668)	1.57	7.5	75	CW-PG50	DP50	67 1/4	(1708)	69 1/2	(1765)
Ultimate Double Hung G2 Picture (60102)	1.57	7.5	75	CW-PG50	DP50	61 1/4	(1556)	103 1/2	(2629)
Ultimate Double Hung G2 Transom (4020)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	27 11/16	(703)
Ultimate Double Hung G2 Transom (6820)	1.57	7.5	75	LC-PG50	DP50	73 1/4	(1861)	27 11/16	(703)
Ultimate Double Hung G2 Transom (6820)	1.57	7.5	75	LC-PG50	DP50	73 1/4	(1861)	27 11/16	(703)
Ultimate Double Hung G2 (5044) *	1.57	6	60	LC-PG35	DP35	55 1/4	(1403)	95 1/2	(2426)
Ultimate Double Hung G2 (4826) CW Performance	1.57	7.5	75	CW-PG50	DP50	53 1/4	(1353)	59 1/2	(1511)
Ultimate Double Hung G2 (4848) CW Performance	1.57	7.5	75	CW-PG50	DP50	53 1/4	(1353)	103 1/2	(2629)

Ultimate Double Hung G2 (5056) CW Performance	1.57	7.5	60	CW-PG40	DP40	55 1/4	(1403)	119 1/2	(3035)
Ultimate Double Hung G2 (5456) CW Performance	1.57	7.5	45	CW-PG30	DP30	59 1/4	(1505)	119 1/2	(3035)

*Tested with the Performance Bracket Removed

1.5 Submittals

- A. Shop Drawings: Submit shop drawings under provision of Section 01 33 23
- B. Product Data: Submit catalog data under provision of Section 01 33 23
- C. Samples:
 - 1. Submit corner section under provision of section 01 33 23
 - 2. Include glazing system, quality of construction and specified finish
- D. Quality Control Submittals: Certificates: submit manufacturer's certification indicating compliance with specified performance and design requirement under provision of section 01 33 23

1.6 Quality Assurance

- A. Requirements: consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions for information on:
 - 1. Egress, emergency escape and rescue requirements
 - 2. Basement window requirements
 - 3. Windows fall prevention and/or window opening control device requirements

1.7 Delivery

- A. Comply with provisions of Section 01 65 00
- B. Deliver in original packaging and protect from weather

1.8 Storage and Handling

- A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation
- B. Store window units in an upright position in a clean and dry storage area above ground to protect from weather under provision of Section 01 66 00

1.9 Warranty

Complete and current warranty information is available at marvin.com/warranty. The following summary is subject to the terms, condition, limitations and exclusions set forth in the Marvin Windows and Door Limited Warranty and Products in Coastal Environments Limited Warranty Supplement:

- A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.
- B. Standard exterior aluminum cladding finish is warranted against manufacturing defects resulting in chalk, fade and loss of adhesion (peel) per the American Architectural Manufacturer's Association (AAMA) Specification 2605-11 Section 8.4 and 8.9 for twenty (20) years from the original date of purchase.
- C. Factory-applied interior finish is warranted to be free from finish defects for a period of five (5) years from the original date of purchase.
- D. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

Part 2 Products

2.1 Manufactured Units

- A. Description: Ultimate Double Hung G2 (and related stationary units) as manufactured by Marvin, Warroad, Minnesota.
- B. Description: Ultimate Double Hung G2 Bow unit, (and related stationary units) as manufactured by Marvin Windows and Door, Warroad, Minnesota.
 - 1. Available in 3, 4, 5, and 6 wide assemblies
 - 2. 6 degree angle
 - 3. With and w/out head and seat board
- C. Description: Ultimate Double Hung G2 Bay Assemblies as manufactured by Marvin, Warroad, Minnesota
 - 1. Available 30 degree, 45 degree, and 90 degree
 - 2. With and w/out head and seat board

2.2 Frame Description

- A. Interior: Non Finger-Jointed Pine or finger-jointed core with non finger-jointed Pine veneer; optional non finger-jointed Douglas Fir or finger-jointed core with non finger-jointed Douglas Fir veneer; optional non finger-jointed White Oak or finger-jointed with non finger-jointed Oak veneer; non finger-jointed Cherry or finger-jointed core with Cherry veneer; non finger-jointed Mahogany or finger-jointed core with non finger-jointed Mahogany veneer; non finger-jointed Vertical Grain Douglas Fir or finger-jointed with non finger-jointed Vertical Grain Douglas Fir veneer

1. Kiln-dried to moisture content no greater than 12 percent at the time of fabrication
 2. Water repellant, preservative treated in accordance with ANSI/WDMA I.S.4.
- B. Frame exterior aluminum clad with 0.050" (1.3mm) thick extruded aluminum
- C. Frame thickness: 1 1/16" (17mm) head and jambs
- D. Frame depth: Frame depth had an overall 5 21/32" jamb (144mm). 4 9/16" (116mm) jamb depth from the nailing fin plane to the interior face of the frame for new construction.
- E. Sill assembly including the sill liner: 2 7/32" (56mm)
- F. Factory-applied historic profile extrusion

2.3 Sash Description

- A. Interior: Non Finger-Jointed Pine or finger-jointed core with non finger-jointed Pine veneer; optional non finger-jointed Douglas Fir or finger-jointed core with non finger-jointed Douglas Fir veneer; optional non finger-jointed White Oak or finger-jointed with non finger-jointed Oak veneer; non finger-jointed Cherry or finger-jointed core with Cherry veneer; non finger-jointed Mahogany or finger-jointed core with non finger-jointed Mahogany veneer; non finger-jointed Vertical Grain Douglas Fir or finger-jointed with non finger-jointed Vertical Grain Douglas Fir veneer
1. Kiln-dried to moisture content no greater than 12 percent at the time of fabrication
 2. Water repellant preservative treated with accordance with WDMA I.S.4.
- B. Sash exterior aluminum clad with 0.050" (1.3mm) thick extruded aluminum
- C. Sash thickness: 1 3/4" (44mm). Corner slot and tenoned.
- D. Operable sash tilt to interior for cleaning or removal
- E. Sash Options:
- a. Standard: Equal Sash
 - b. Optional:
 - i. Unequal Sash
 - ii. Both Sash Stationary
- F. Exterior Cope Profile: Putty
- G. Interior Sash Sticking
1. Standard: Ogee
 2. Optional: Square

2.4 Glazing

- A. Select quality complying with ASTM C1036. Insulating glass SIGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E2190.
- B. Glazing method: Insulating glass
- C. Glazing seal: Silicone bedding on interior and exterior
- D. Glass Type: Clear, Bronze, Gray, Reflective Bronze, Tempered, Obscure, Laminated, Low E2 with or without Argon, Low E3 with or without Argon, Low E1 with or without Argon, Low E2/ERS Argon or air, Low E3/ERS Argon or air,
- E. TriPane Glass(TG): Tripane Low E1 Argon, Tripane Low E2 Argon, Tripane Low E3 Argon.

2.5 Certified Mulling

- A. Directional mull limits: 1 High (can be 2 or more units wide in an assembly)
 - 1. Max mullion span is 71 ½" (1816mm); max tributary width 45 ¼" (1149mm)
 - 2. CUDH NG 2.0 to CUDH NG 2.0 only
 - 3. Certified to Design Pressure 50
- B. Directional mull limits: 1 Wide (can be 2 or more units high in an assembly)
 - 1. Max mullion span is 69 ¼" (1759mm); max tributary height 53 19/32" (1361mm)
 - 2. CUDH NG 2.0 over CUDH NG 2.0 only
 - 3. Certified to Design Pressure 50
- C. Multiple Wide x Multiple High assemblies with 1" LVL
 - 1. Max mullion span is 75 11/16" (1922mm); max tributary width is 45 1/4" (1149mm)
 - 2. LVL must be in vertical mull
 - 3. Certified to Design Pressure 50
- D. Multiple Wide x Multiple High assemblies with 3/8" (10mm) MRF
 - 1. Max mullion span is 83 11/16" (2125mm); max tributary width 45 1/4" (1149mm)
 - 2. CUDH NG 2.0 over CUDH NG 2.0 only
 - 3. Certified to Design Pressure 65
- E. If any units have a lower design pressure the entire assembly will have the lowest design pressure of any unit or mull in the assembly.

2.6 Finish

- A. Exterior: Aluminum clad. Fluoropolymer modified acrylic topcoat over a primer. Meets AAMA 2605 requirements.
 - 1. Aluminum clad color options: Bahama Brown, Bronze, Cadet Gray, Cascade Blue, Cashmere, Clay, Coconut Cream, Ebony, Evergreen, Gunmetal, Hampton Sage, Pebble Gray, Sierra White, Stone White, Suede, Wineberry, Bright Silver (pearlescent), Copper (pearlescent), Liberty Bronze (pearlescent)
 - 2. Custom colors: Contact your Marvin representative
- B. Interior Finish options:
 - 1. Prime: Factory-applied water-borne acrylic primer. Meets WDMA TM-11 requirements.
 - 2. Painted Interior Finish. Factory-applied water-borne acrylic enamel. Available on Pine product only. Available in White or Designer Black. Meets WDMA TM-14 requirements.
 - 3. Factory-applied water-borne acrylic enamel clear coat. Applied in two separate coats with light sanding between coats. Available on Pine, Mahogany, Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, or White Oak. Meets WDMA TM-14 requirements.
 - 4. Factory-applied water-borne urethane stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied in two separate coats, with light sanding between coats, applied over the stain. Available on Pine, Mahogany Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, or White Oak. Colors available: Wheat, Honey, Hazelnut, Leather, Cabernet, and Espresso. Meets WDMA TM-14 requirements.

2.7 Hardware

- A. Locking system that provides locking, unlocking, balancing, and tilting of the sash members
- B. Lock Actuator Assembly
 - 1. Material
 - a. Zinc die-cast
 - b. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel
 - 2. Design Feature and Components
 - a. To unlock unit, turn the handle 135°
 - b. Lock automatically locks when both sash are closed.
 - c. To tilt the bottom sash for wash mode, the bottom sash must be unlocked and raised a few inches; push the button on top of the lock handle and rotate the handle 180°

- d. To tilt the top sash for wash mode, the bottom sash must be tilted and/or removed from the frame; lower the top sash to a good working height, retract the tilt latches on the top rail and tilt sash inward out of the frame
 - e. Custodial hardware colors: Satin Taupe, White, Bronze, Matte Black
- C. Bottom Rail Lock Actuator Assembly - Lift Lock (Optional for Single Hung)
- 1. Material
 - a. Zinc die-cast
 - b. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel
 - 2. Design Feature and Components
 - a. Does not contain Check Rail Lock Actuator Assembly or Strike Assembly
 - b. Available in Traditional and Contemporary designs
 - c. To unlock unit, lift the lock
 - d. Lock automatically locks when bottom sash is closed.
 - e. To tilt the bottom sash for wash mode, raise the bottom sash and manually retract the latches.
 - f. Custodial hardware colors (available with traditional design): Satin Taupe, White, Bronze, Matte Black
- D. Latches
- 1. Bottom sash latch
 - a. Material
 - i. Bolt: Glass-filled nylon
 - ii. Latch housing: Acetal
 - iii. Sash latch reinforcement: Stainless steel
 - 2. Top sash tilt latch
 - a. Material
 - i. Bolt: Glass-filled nylon
 - ii. Latch housing: Glass-filled nylon
 - 3. Latches accommodate travel of sash in frame, and tilting into wash-mode
 - 4. Color: Beige (manual latch for Lift Lock also available in White and Black)

E. Strike Assembly

1. Material

- f. Zinc die-cast strike plate and injection-molded Acetal housing and button
- g. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel

2. Strike assembly accommodates locking/unlocking

F. Balance System (balance system determined by sash weight)

1. Block & tackle balances

2. Hybrid spiral balances

G. Factory-applied Window Opening Control Device (WOCD) is a sash limiter that prevents the window opening more than 4" vertically. It meets ASTM F2090-17 specifications for window fall prevention standards. The system consists of two single action devices that allows for egress (when applied to an egress size window) by bypassing the 4" stop feature.

1. Material

- a. WOCD device: zinc die-cast
- b. WOCD strike plate: nylon

2. 2 WOCD's applied to each double and single hung window and will be recessed into the stiles of the top sash

3. Default color matches lock handle

4. Strike plate mounted to the bottom sash check rail

5. Strike plate color to match weather strip

H. Sash Limiter

1. Bottom Sash Limiter (Acetal)

- a. Available on all operator configurations, and StormPlus IZ3
- b. Selectable bottom sash locations, 4", 6" or 8" Net Clear Opening (NCO)
- c. Non-tilt hardware is default, and a sash removal tool is required in order to bypass the Sash limiter for sash removal (tilt wash mode)
- d. Standard application is factory applied. Available for field retrofit applications.
- e. Color: Will align with the Exterior Weather Strip Package selection

2. Top Sash Limiter (Extruded PVC)

- a. Available on all operator configurations, with the exception Single Hung configurations. This includes StormPlus IZ3
- b. Standard application is factory applied. Available for field applications
- c. Color: Will align with the Interior Weather Strip Package selection

2.8 Weather Strip

- A. Operating units:
 1. Jamb: Foam-filled bulb
 2. Header: Continuous dual leaf
 3. Bottom rail and check rail: Hollow bulb
- B. Stationary units:
 1. Jamb: Foam for picture units; foam-filled bulb for transom unit
 2. Header and bottom rail: Hollow bulb

2.9 Jamb Extension

- A. Jamb extensions are available for various wall thickness factory-applied up to a 14" (356mm) wide
- B. Finish: Match interior frame finish

2.10 Head/Seat Board (For use with Bow and Bay units)

- A. Factory-installed (head board) (seat board) for wall thickness indicated or required
- B. Finish: Match interior finish

2.11 Insect Screen

- A. Factory-installed full or half screen. Half screen covers sash opening.
 1. Screen Mesh: Marvin Bright View™
 2. Optional Screen mesh: Charcoal Aluminum Wire, Black Aluminum Wire, Bright Bronze Aluminum Wire, Bright Aluminum Wire
- B. Screen Frame
 1. Window frame height less than or equal to 54 ½" Aluminum Screen Frame. Option: Extruded Aluminum Screen Frame.

2. Window frame height greater than 54 ½" Extruded Screen Frame. Option: None.
- C. Aluminum frame finish:
1. Color: Matches exterior aluminum clad color

2.12 Combination Storm Sash and Screen

- A. Frame: Exterior extruded aluminum 0.050" (1.3mm) thick
- B. Finish: Fluoropolymer modified acrylic topcoat applied over Fluoropolymer primer. Meets AAMA 2605 requirements
1. Finish: Stone White, Bahama Brown, Bronze, Evergreen, Pebble Gray
- C. Hardware: Spring loaded locking pins to hold movable storm panel in position. Heavy metal clips to lock upper and lower storm panels together
- D. Weather strip: Dual durometer weather strip on center cross rail seals against operating panel in closed position
- E. Storm panel: Select quality glass in aluminum frame
1. Frame finish: Standard color: Stone White, Bahama Brown, Bronze, Evergreen, Pebble Gray
- F. Insect screen panel:
1. Extruded aluminum surround
 2. Screen mesh: Standard is Marvin Bright View™. Optional Charcoal Aluminum Wire, Black Aluminum Wire, Bright Bronze Aluminum Wire, Bright Aluminum Wire
 3. Aluminum frame finish: Bronze, White

2.13 Simulated Divided Lites (SDL)

- A. 5/8" (16mm) wide, 7/8" (22mm) wide, 1 1/8" (29mm) wide, 1 3/4" (44mm) wide, 1 15/16" (49mm) wide, 2 13/32" (61mm) wide with or w/out internal spacer bar
- B. Exterior muntins: 0.050" (1.3mm) thick extruded aluminum
- C. Interior muntins: Pine, Mixed Grain Douglas Fir, White Oak, Cherry, Mahogany Vertical Grain Douglas Fir
- D. Muntins adhere to glass with closed-cell copolymer acrylic foam tape
- E. Exterior sticking: Putty
- F. Interior Sticking:
1. Standard: Ogee

- 2. Optional: Square
- G. Patterns: Rectangular, diamond, custom lite cut
- H. Finish – exterior matches exterior aluminum clad colors, interior matches interior wood species and color

2.14 Grilles-Between-the-Glass (GBG)

- A. 23/32" (18mm) contoured aluminum bar
 - 1. Exterior Colors: Exterior matches exterior aluminum clad colors. The exterior GBG color is designed to best match the Marvin aluminum clad color when used with Low E glass. The use of different types of glazing may alter the exterior GBG color appearance
 - 2. Interior Colors: White is the default color. Optional colors: Bronze, Pebble Gray, Sierra, White
- B. Optional flat aluminum spacer bar. Contact your Marvin representative.
- C. Pattern: Rectangular, Cottage, Custom lite layout

2.15 Accessories and Trim

- A. Installation Accessories:
 - 1. Factory-installed vinyl nailing/drip cap
 - 2. Installation brackets: 6 3/8" (162mm), 9 3/8" (283mm), 15 3/8" (390mm)
 - 3. Masonry brackets: 6" (152mm), 10" (254mm)
- B. Aluminum Extrusions:
 - 1. Casing Profile: Brick Mould Casing (BMC), Flat Casing, Columbus Casing, Grayson Casing, Ridgeland Casing, Stratton Casing, Thorton Casing, Potter Casing
 - 2. Aluminum clad Extrusion: Frame Expander, Jamb Extender, Mullion Cover, Mullion Expander, Subsill, Subsill End Cap and Lineal Cap
 - 3. Finish: Fluoropolymer modified acrylic topcoat applied over primer. Meets AAMA 2605 requirements
 - 4. Available in all exterior aluminum clad colors
- C. Historic casing, factory-applied profiles: Ridgeland, Flat, BMC, Custom
 - a. Subsills factory-applied

D. Exterior Sash Lugs – Standard Option

1. Standard Profile: Ogee
2. Available on Top Sash
3. Color: Available in all exterior clad color options
 - a. Color shall be the same as top sash clad color
4. Standard application is factory applied. Available for field applications

2.16 Lock Status Sensor (Optional)

A. Lock Status Sensor

1. Unit is factory-prepared for an integrated lock status sensor system. Sensor and Magnet mounted inside the boundaries of the overall frame size. Refer to **Lock Status Sensor Installation Instructions**.
2. Lock Status Sensor may be wired or wireless.
 - a. For wired option, check with local codes on potential contractor requirements for low voltage networking connections.
 - b. Wireless option available. Requires purchase of secondary transmitter for operation. Marvin will prep for this option.
3. For CUDH-NG 2.0 products, the sensor will always be located on the right-hand side of the check rail (from the exterior) for the bottom sash. For the top sash, the sensor will be located in the header parting stop of the frame on the right side (from the exterior).
4. Actuator (magnet) for the sensor will be located on the stile for the top sash. For the bottom sash, it will be integrated into the locking hardware on the same side as the sensor.

B. Lock Status Sensor Option Includes:

1. Sensor - Reed
2. Actuator – Neodymium Magnet
3. Actuator Cover (Casement and Double Only)
 - a. Colors: Black: Bare, stain and designer black; White: PIF-White and Prime

Part 3 Execution

3.1 Examination

- A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required in Section 01 71 00. Report frame defects or unsuitable conditions to the General contractor before proceeding.
- B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

3.2 Installation

- A. Comply with Section 01 73 00.
- B. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.
- C. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants.
- D. Install accessory items as required.
- E. Use finish nails to apply wood trim and mouldings.

3.3 Field Quality Control

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
- B. Unless otherwise specified, air leakage resistance tests shall be conducted at a uniform static pressure of 75 Pa (~1.57 psf). The maximum allowable rate of air leakage shall not exceed 2.3 L/sm² (~0.45 cfm/ft²).
- C. Unless otherwise specified, water penetration resistance testing shall be conducted per AAMA 502 and ASTM E1105 at 2/3 of the fenestration products design pressure (DP) rating using "Procedure B" – cyclic static air pressure difference. Water penetration shall be defined in accordance with the test method(s) applied.

3.4 Cleaning

- A. Remove visible labels and adhesive residue according to manufacturer's instruction.
- B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

3.5 Protecting Installed Construction

- A. Comply with Section 07 76 00.
- B. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

End of Section