

Meeting: 4/20/2022
Project: Walnut Building
Applicant: Hitesh Patel / Elevate Architecture Studio

Property Information

Location: 706 Walnut St. **Parcel ID** 94 L G 028
Zoning: DK (Downtown Knoxville)
Description:

c.1955, nine-story commercial building with multiple recessed storefronts at ground level. Exterior features brick masonry cladding and horizontal concrete fins between stories.

Description of Work

Level I Minor Alteration of an Existing Building/Structure, Sign

Exterior rehabilitation for new hotel tenant. Exterior rehabilitation scopes include staining the existing red brick masonry to an opaque white color, repair and repainting to the horizontal concrete fin elements, and removal of the existing curved recessed storefront system. The storefront will be replaced with an operable Nanawall storefront system on the south elevation, which will be recessed behind a new glass railing. On the east elevation, some openings will be infilled with masonry on upper levels. An accessible entrance will be installed with a new flat-roof canopy, and an exterior egress stair will access the second story.

The application also includes new signs. On the Walnut Street elevation, one illuminated wall sign measuring 9'-3.75" wide by 11' tall is located on the right side brick masonry section towards the roofline. A second illuminated wall sign is located between the second and third stories, measuring 23'-5.5" wide by 3'-1" tall. On Church Avenue, another illuminated wall sign measuring 9'-3.75" wide by 11' tall is located between the second and third stories.

Applicable Design Guidelines

Downtown Design Guidelines

4. Architectural Character

4a. Encourage first floor uses that draw walk-in traffic; businesses that do not require pedestrian traffic should be located on other floors.

4b.

5. Ground Floor Doors and Windows

5a. Use consistent rhythm of openings, windows, doorways, and entries.

5b. Orient primary front entrances to the main street; secondary entrances should be clearly defined and oriented to streets or alleys, as appropriate.

5c. Design entrances according to the proportions of the building's height and width.

5d. Consider corner entrances at the ends of blocks.

5e. All windows at the pedestrian level should be clear.

5f. Recess ground floor window frames and doors from the exterior building face to provide depth to the façade.

B. The Traditional Grid District

1. Recommended Signs

These recommendations for signs in the traditional grid district recognize that certain types of signs are more pedestrian-friendly and should be encouraged within the grid district.

1a. Wall signs on sign boards that are above a transom or first story and mounted flush to the building façade.

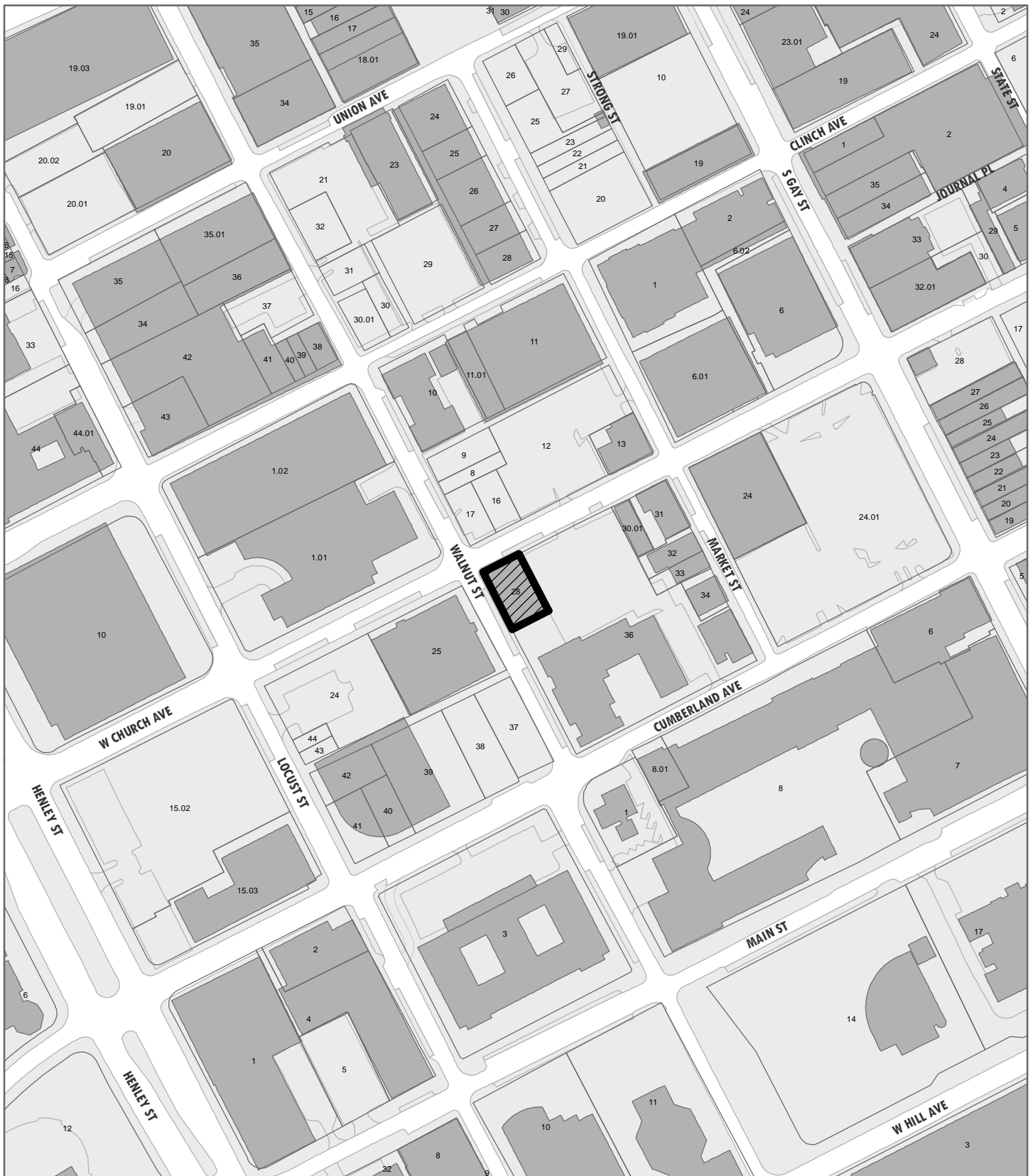
1b. Projecting signs of modest size (9 square feet, maximum); a larger sign must be approved by the board.

Comments

Overall, the proposal meets the design guidelines. The new storefront maintains transparency and pedestrian interest on the ground level. The character-defining features of the building (horizontal fins on upper stories) will be repaired and retained. While the proposed signs are somewhat larger in scale, they are proportionate to the building and the wall surfaces where they will be placed. Typically, guidelines and preservation standards discourage painting or staining historic masonry that has not been painted. The Walnut Building is a midcentury structure, clad in a modern masonry veneer which is most likely more compatible with contemporary exterior paints than porous historic bricks. Minor modifications to the accessible entrance (including an additional small sign indicating its location) may be necessary to meet City standards, which can be addressed in permitting.

Recommendation

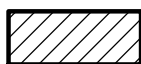
Staff recommends approval of Certificate 4-E-22-DT, subject to one condition: 1) all new storefront glass to be clear.



4-E-22-DT

APPLICATION FOR CERTIFICATE OF APPROPRIATENESS

**DOWNTOWN
DESIGN
REVIEW
BOARD**



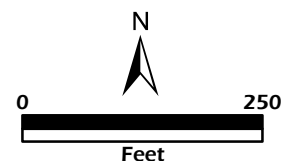
706 Walnut St.

Level 1: Minor alteration of an existing building/structure; Level 1: Sign

Original Print Date: 4/5/2022

Revised:
Knoxville/Knox County Planning · Downtown Design Review Board

**Petitioner: Hitesh Patel / Elevate
Architecture Studio**





DESIGN REVIEW REQUEST

- ☐ DOWNTOWN DESIGN (DK)
☐ HISTORIC ZONING (H)
☐ INFILL HOUSING (IH)

Applicant

4/20/2022

4-E-22-DT

Date Filed

Meeting Date (if applicable)

File Number(s)

CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

- ☐ Owner ☐ Contractor ☐ Engineer ☐ Architect/Landscape Architect

Name

Company

Address

City

State

Zip

Phone

Email

CURRENT PROPERTY INFO

Owner Name (if different from applicant)

Owner Address

Owner Phone

Property Address

Parcel ID

Neighborhood

Zoning

AUTHORIZATION

Lindsay Crockett

Lindsay Crockett

4.1.22

Staff Signature

Please Print

Date

Applicant Signature

Please Print

Date

REQUEST

DOWNTOWN DESIGN

Level 1:

- ☐ Signs ☐ Alteration of an existing building/structure

Level 2:

- ☐ Addition to an existing building/structure

Level 3:

- ☐ Construction of new building/structure ☐ Site design, parking, plazas, landscape

See required Downtown Design attachment for more details.

☐ Brief description of work: _____

HISTORIC ZONING

Level 1:

- ☐ Signs ☐ Routine repair of siding, windows, roof, or other features, in-kind; Installation of gutters, storm windows/doors

Level 2:

- ☐ Major repair, removal, or replacement of architectural elements or materials ☐ Additions and accessory structures

Level 3:

- ☐ Construction of a new primary building

Level 4:

- ☐ Relocation of a contributing structure ☐ Demolition of a contributing structure

See required Historic Zoning attachment for more details.

☐ Brief description of work: _____

INFILL HOUSING

Level 1:

- ☐ Driveways, parking pads, access point, garages or similar facilities ☐ Subdivisions

Level 2:

- ☐ Additions visible from the primary street ☐ Changes to porches visible from the primary street

Level 3:

- ☐ New primary structure
☐ Site built ☐ Modular ☐ Multi-Sectional

See required Infill Housing attachment for more details.

☐ Brief description of work: _____

STAFF USE ONLY

ATTACHMENTS

- ☐ Downtown Design Checklist
☐ Historic Zoning Design Checklist
☐ Infill Housing Design Checklist

ADDITIONAL REQUIREMENTS

- ☐ Property Owners / Option Holders

Level 1: \$50 • Level 2: \$100 • Level 3: \$250 • Level 4: \$500

FEE 1:	50.00	TOTAL: 50.00
50.00		
FEE 2:		
FEE 3:		



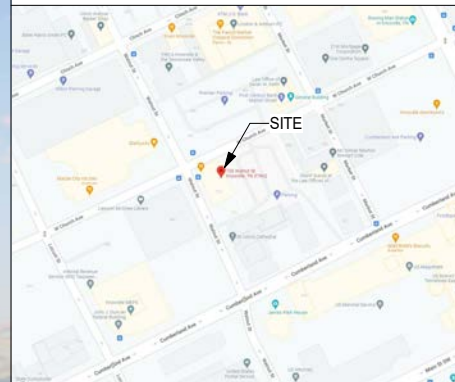
HOLIDAY INN EXPRESS

706 WALNUT STREET KNOXVILLE, TN 37902

A DEVELOPMENT FOR
SIDDIQI HOLDINGS, LLC

DRB SUBMITTAL
04/01/2022

VICINITY MAP



TEAM MEMBERS

CLIENT
SIDDIQI HOLDINGS, LLC
706 WALNUT ST
KNOXVILLE, TN 37902
HEETESH PATEL
heeteshpatel@gmail.com
NADEEM SIDDIQI
nadeem@the706.com

MEP ENGINEER
WESTSIDE ENGINEERING, LLC
5525 INTERSTATE NORTH PARKWAY, SUITE 200
ATLANTA, GEORGIA 30328
CONTACT: CHRIS ESSLINGER
PHONE: (404) 965-1287

ARCHITECT
ELEVATE ARCHITECTURE STUDIO
1775 THE EXCHANGE SE
SUITE 530
ATLANTA, GA 30339
D: 770-820-3893
HITESH PATEL
npatel@elevatearchitect.com

STRUCTURAL
PALMER ENGINEERING COMPANY
3585 HABERSHAM AT NORTHLAKE BUILDING N
TUCKER, GEORGIA 30084
CONTACT: BAKU PATEL
PHONE: (770) 908-9908

DRAWING LIST

Sheet Number	Sheet Name
CO.01	Cover Sheet
CO.02	Site Plan
CO.03	Site Photos
CO.04	Elevations
CO.05	Elevations
CO.06	Main Level Floor Plan
CO.07	Signage, Lighting & Materials

PROJECT INFORMATION

THIS PROJECT IS PROPOSING AN ADAPTIVE REUSE OF AN EXISTING 9 STORY MASONRY BUILDING IN DOWNTOWN KNOXVILLE. THE INTENT IS TO CONVERT THE CURRENT OFFICE SPACE TO A 91 GUEST ROOM HOTEL.

IMPROVEMENTS TO THE EXTERIOR FACADES INCLUDE STAINING THE EXISTING RED MASONRY TO AN OPAQUE WHITE COLOR, AND THE EXISTING CONCRETE ELEMENTS ARE TO BE REPAIRED AND REPAINTED A DARK GREY COLOR. A PORTION OF THE EXISTING CURVED STOREFRONT ON STREET LEVEL WILL BE REPLACED WITH AN OPERABLE STOREFRONT.

NEW BUILDING MOUNTED LIGHTED SIGNAGE IS PROPOSED TO BE ON THE WALNUT STREET AND WEST CHURCH AVENUE ELEVATIONS.

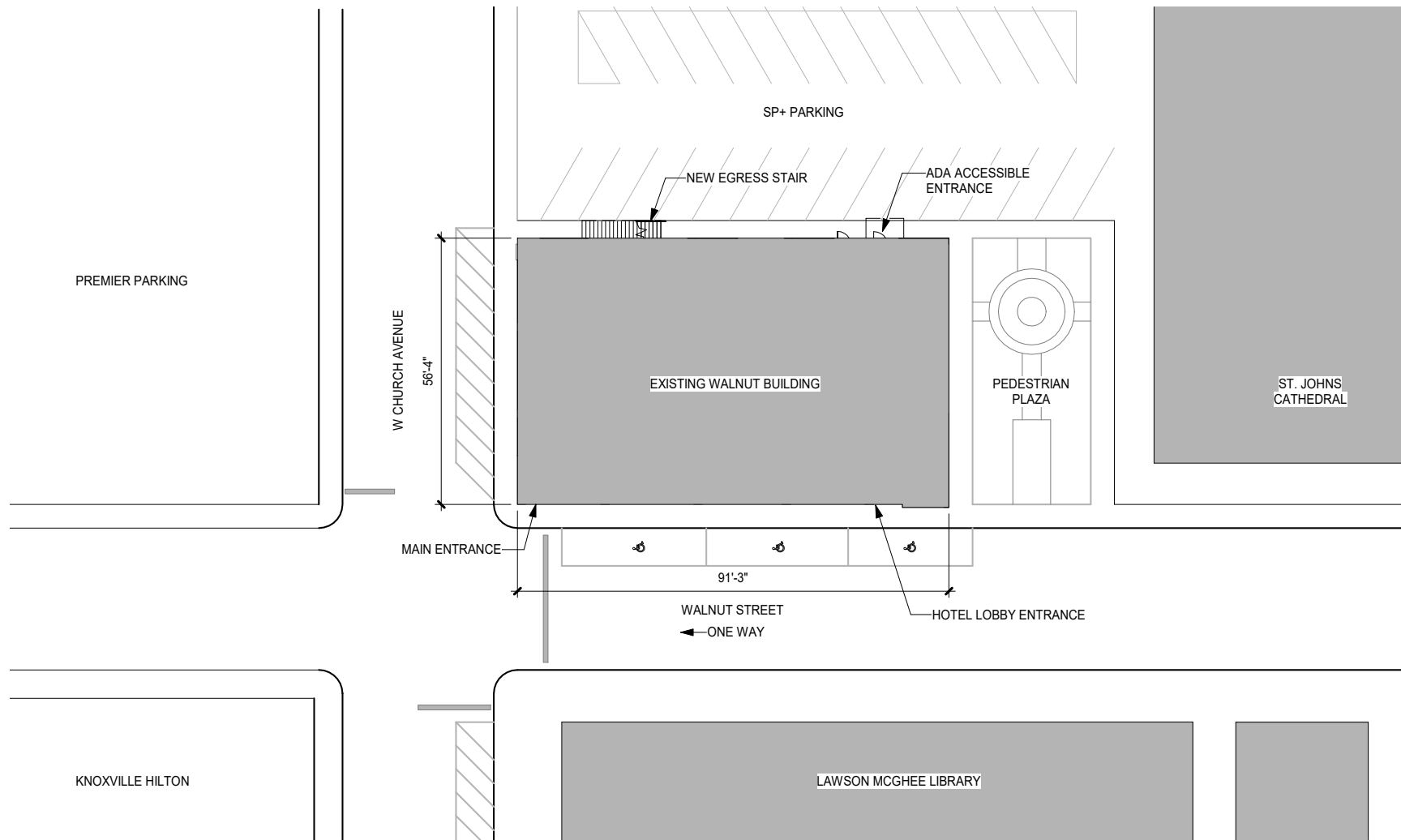
SIDDIQI HOLDINGS, LLC

HOLIDAY INN EXPRESS AT THE WALNUT BUILDING

KNOXVILLE, TN
DESIGN REVIEW BOARD • 04-01-2022
21-10.01

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CO.01



ARCHITECTURAL SITE PLAN

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 21-10.01

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CO.02



North from Walnut Street, Premier Parking Lot



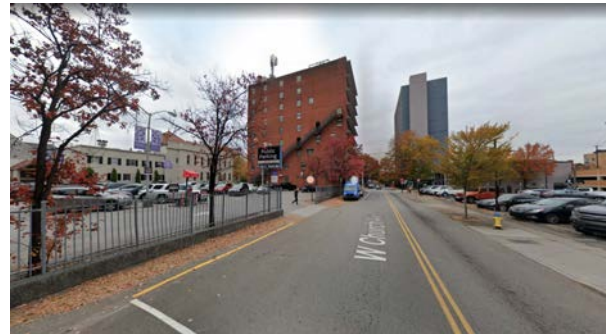
South from Walnut Street, St John's Cathedral



Across Walnut Street, Premier Parking Lot



From West Church Ave, Lawson McGhee Library



From West Church Ave, SP+ Parking Lot



Corner of Walnut Street and West Church Avenue

EXISTING SITE PHOTOS

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HOLIDAY INN EXPRESS AT THE WALNUT BUILDING

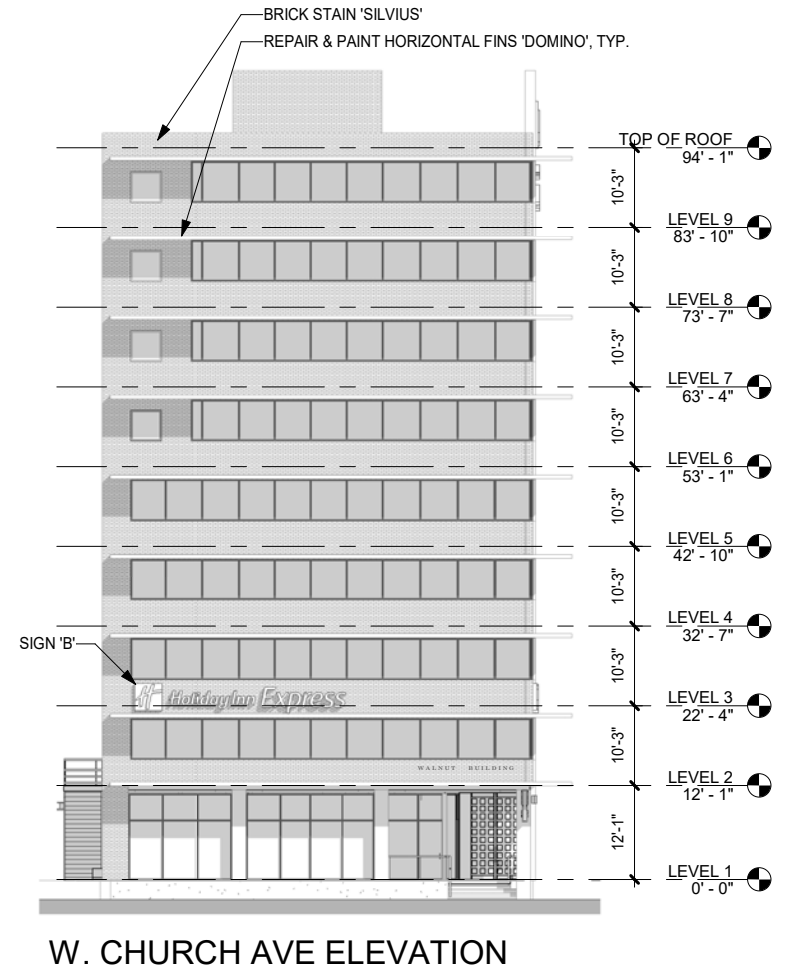
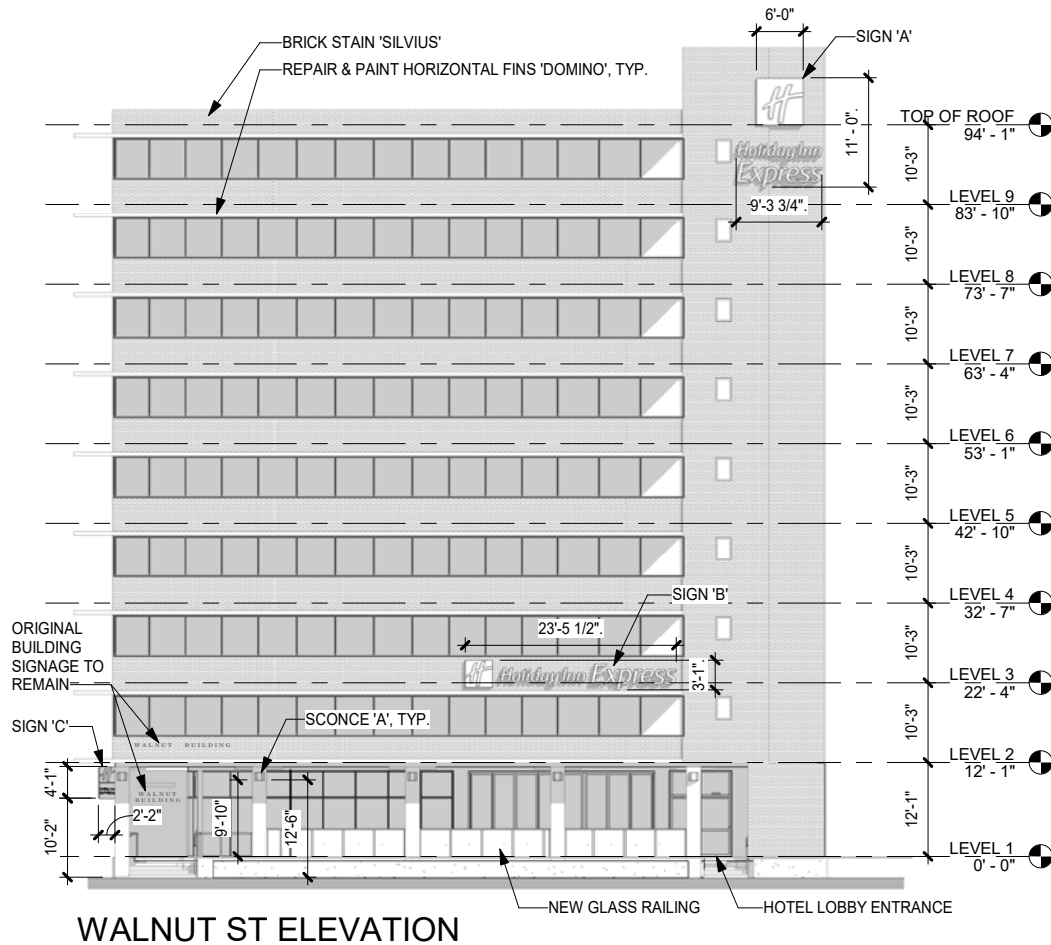
KNOXVILLE, TN
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 21-10.01

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PAINT: SW6989 'DOMINO'

STAIN: NWW035 'SILVIUS'

MATERIAL BOARD



*REFER TO SHEET CO.07 FOR ADDITIONAL MATERIALS INFORMATION

BUILDING ELEVATIONS

SIDDIQI HOLDINGS, LLC

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21-10.01

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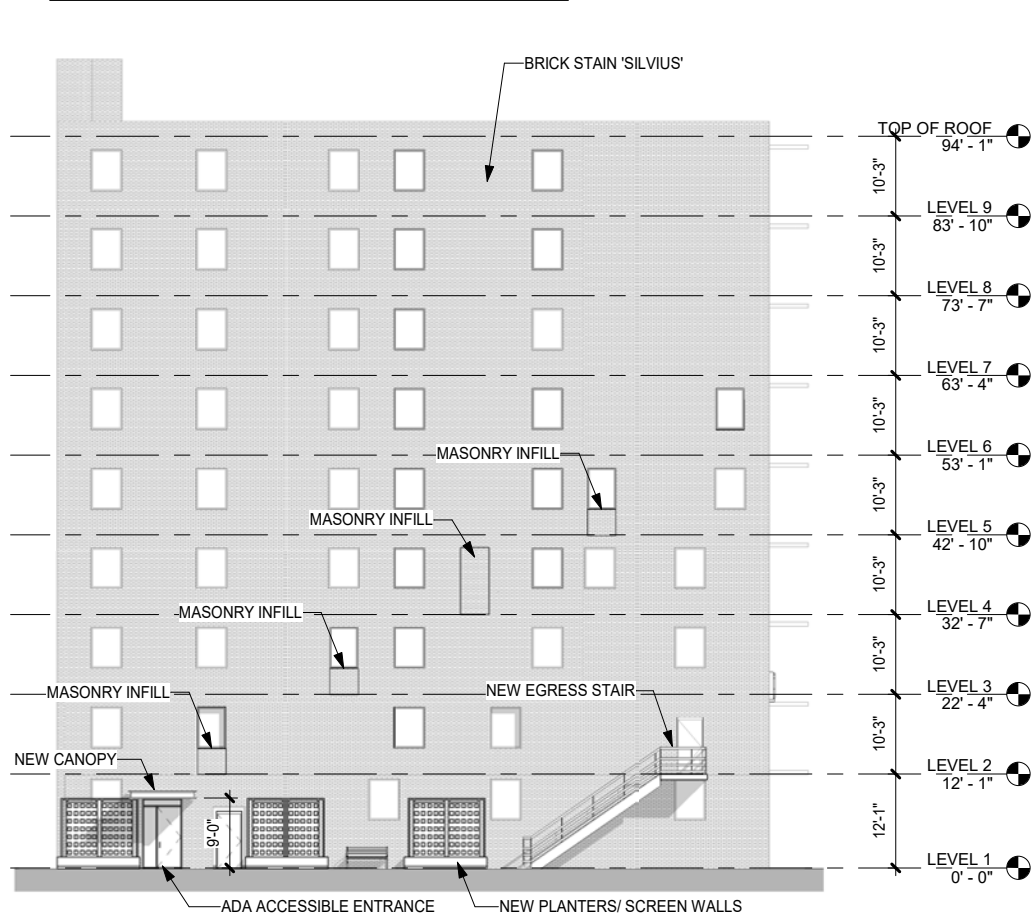


CO.04

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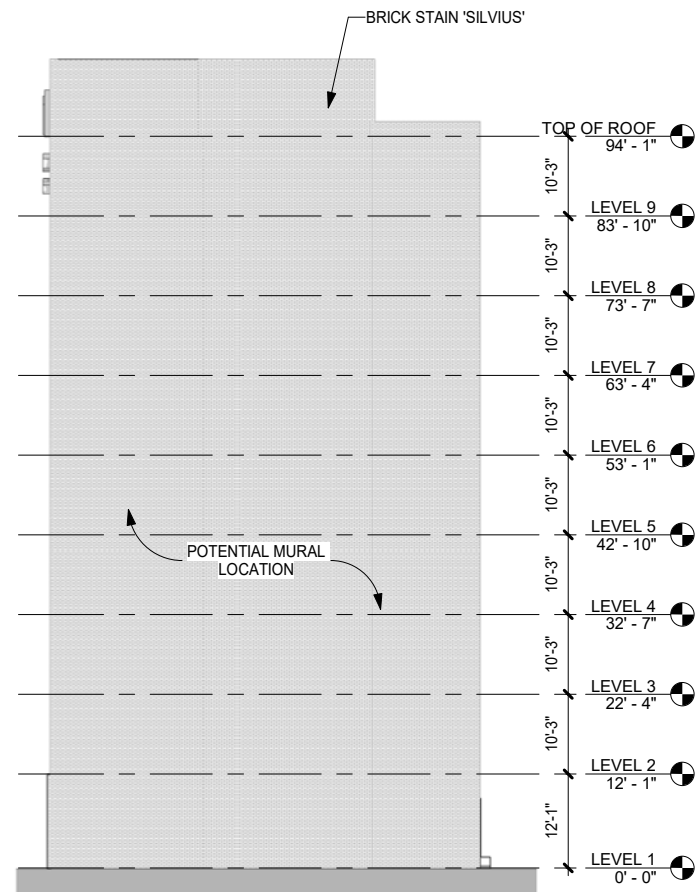
STAIN: NWW035 'SILVIUS'

MATERIAL BOARD



NORTHEAST ELEVATION

SCALE: 1/16" = 1'-0"



SOUTHEAST ELEVATION

SCALE: 1/16" = 1'-0"

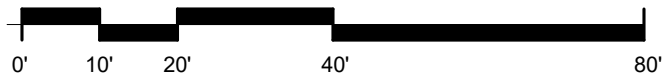
BUILDING ELEVATIONS

SIDDIQI HOLDINGS, LLC

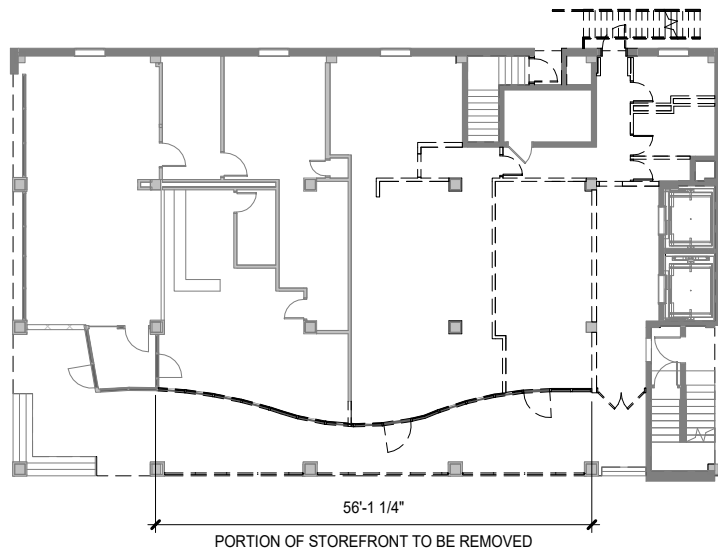
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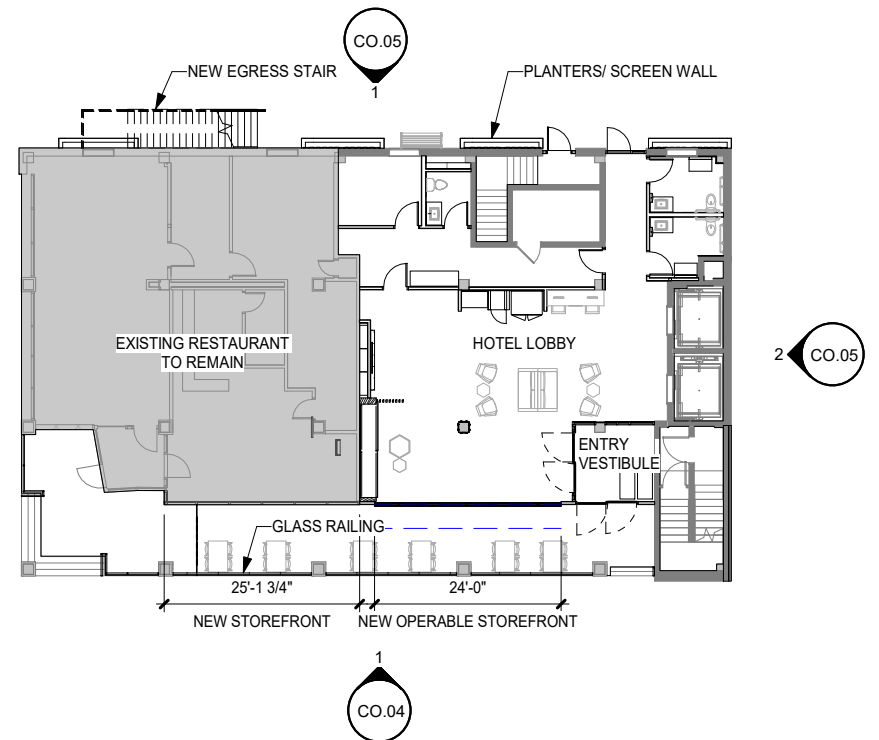


CO.05



LEVEL 1 DEMOLITION PLAN

SCALE: 1/16" = 1'-0"



LEVEL 1 FLOOR PLAN

SCALE: 1/16" = 1'-0"

EXISTING AND PROPOSED GROUND FLOOR PLANS

SIDDIQI HOLDINGS, LLC

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21-10.01

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CO.06

12 LED DOWNLIGHT
DU-SQ-HW12
*INCLUDES DU-WS12 (SCONCE)

DETAILS

LIGHT SOURCE	12x1 W Cree LED Lamps
POWER CONSUMPTION	13W
BEAM WIDTH	15 Degree
MEASUREMENT	7-3/4"L x 6"W x 4-1/4"H
WEIGHT	13 Lbs



12 LED LIGHT COLOR: BLUE 600 LUMENS

SCONCE 'A'



SCREEN AND PLANTER INSPIRATION



OPERABLE STOREFRONT INSPIRATION



SIGN 'A'

Sign Model *	XL-SM-L-3
A	3'-1" [940]
B	9'-3 3/4" [2838]
C	8'-6" [2591]
D	1'-6 3/4" [476]
sq ft [m ²] †	56 [5.2]



SIGN 'B'

Sign Model *	XL-LM-L-3
A	3'-1" [940]
B	23'-5 1/2" [7150]
C	2'-0" [610]
sq ft [m ²] †	61 [5.6]

SIGNAGE, LIGHTING & MATERIAL INFORMATION

SIDDIQI HOLDINGS, LLC

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KNOXVILLE, TN
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21-10.01

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CO.07



SECTION 09 97 23

CONCRETE AND MASONRY COLOR TREATMENT

Display hidden notes to specifier. (Don't know how? [Click Here](#))

This section is based on the products of Nawkaw Inc., which is located at:

170 Whitetail Way

Bogart, GA 30622

Toll Free Tel: 866-462-9529

Tel: 706-355-3217

Email: info@nawkaw.com

Web: <http://www.nawkaw.com/>

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Mineral Coating.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 03 11 16.13 - Concrete Form Liners.
- C. Section 03 35 23 - Exposed Aggregate Concrete Finishing.
- D. Section 03 41 16 - Precast Concrete Slabs.
- E. Section 03 45 13 - Faced Architectural Precast Concrete.
- F. Section 03 47 13 - Tilt-Up Concrete.
- G. Section 03 49 00 - Glass-Fiber-Reinforced Concrete.
- H. Section 03 50 00 - Cast Decks and Underlayment.
- I. Section 04 20 00 - Unit Masonry.
- J. Section 04 40 00 - Stone Assemblies.
- K. Section 09 22 00 - Stucco.

- L. Section 09 24 13 - Adobe Finish.

1.3 REFERENCES

- A. ASTM C 744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units.
- B. SCAQMDR 1168 - South Coast Air Quality Management District's (SCAQMD) Volatile Organic Compounds (VOC) Rule 1168.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Product characteristics.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- C. Preliminary Samples: To be provided as required for the specific project.
- D. Verification Samples: To be provided on the specific materials to be treated when they are available in plant or on site.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: An international manufacturer with a minimum of 20 years of experience in the production of the stains and coatings of type specified.
- B. Installer Qualifications: Installer licensed by Nawkaw to apply the stain products specified and with a minimum of three years documented experience in applying stains and coatings similar in type and scale to this Project.
- C. Environmental Regulations: The masonry stain material to be applied is in compliance with federal, provincial and local environmental Volatile Organic Compounds (VOC) regulations.
- D. Mock-Up: Apply a minimum one square foot sample of each type of color application required.
 - 1. Finish areas designated by Architect.

2. Prepare each sample in an area where it will be exposed to the same conditions as will be present on the building during curing.
3. Samples should be viewed from a minimum distance of 20 feet.
4. Do not proceed with remaining work until color and finish is approved by Architect.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and handle products in accordance with requirements of manufacturer.
- C. Store materials inside if possible, away from open flame. Store in a secure area to avoid tampering and contamination. Water-based materials must be kept from freezing.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

- A. At project closeout, provide to Owner or Owner's Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defects, outlining its terms, conditions, and exclusions from coverage.
 1. Duration: 25 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Nawkaw Inc., which is located at: 170 Whitetail Way, Bogart, GA 30622; Toll Free Tel: 866-462-9529; Tel: 706-355-3217; Email: info@nawkaw.com; Web: <http://www.nawkaw.com/>
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MINERAL STAIN

A. NawTone-K Opaque

1. General: NawTone-K Opaque is a silicate based mineral coating solution used to color treat concrete surfaces to provide an opaque finish. NawTone-K Opaque offers vapor permeability, is environmentally friendly and forms a chemical bond with the substrate.
2. Properties:
 - Viscosity: (72° F) 85°-95° KU
 - pH: ~11
 - Finish: flat
 - Nonflammable
 - VOC: < 1 g/L (ASTM D6886)
 - Abrasion Resistance: excellent
 - Water Vapor Permeance: 4.4×10^{-6} g/Pa s m²
 - Water Diffusion Resistance: $s_d(\text{H}_2\text{O}) < 0.01$ m
 - UV Resistant—Accelerated Weathering (ASTM G154): pass
3. Finish:
 - a. Color: To match existing substrate (masonry or concrete).
 - b. Color: Formulate to color as selected by the Owner or Architect.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- C. Verify that new masonry and concrete have cured at least 28 days prior to starting work using NawTone-K Opaque.
- D. Verify that surfaces to receive work have a neutral pH, are clean, dry and free of efflorescence.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. Clean surfaces thoroughly prior to installation. Allow surfaces to dry completely before applying coating.
- C. Verify that walls, masonry, concrete, stucco, block split faced/fluted and mortar that may have been treated with any form of chemical/acid wash are neutralized.
- D. Treat alkali or efflorescence with proper neutralizing compounds as recommended by masonry supplier before stain application.
- E. Before application, verify that the masonry walls have a neutral pH.
- F. Before application, verify that surface to be treated is clean, dry and contains no frozen water.
- G. Mix products as recommended immediately prior to application.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Apply stain using airless spray pump to help control airborne particles or overspray. If site conditions prohibit spray application, apply by hand; utilizing brushes and rollers.
- C. Do not proceed with work when ambient temperatures are less than 41 degrees F (5 degrees C) or greater than 110 degrees F (43 degrees C).
- D. Allow manufacturer's specified drying time for each coat before applying next coat (if required).
- E. Verify color consistency. Recoat areas where blotches, blemishes or imperfections are present.

3.4 FIELD QUALITY CONTROL

- A. Verify color consistency. Recoat any areas that are unacceptable.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Protect prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels as required.
- C. Protect shrubs, metal, wood trim, glass, asphalt and other building hardware during application from overspray.

- D. Do not permit mist (if spraying) or liquid to drift onto surrounding properties or parking lots.
- E. Touch-up, repair or replace damaged products before substantial completion.

END OF SECTION

SECTION 08 35 13

THERMALLY BROKEN ALUMINUM FRAMED FOLDING GLASS SYSTEM

SECTION 08 43 33

THERMALLY BROKEN ALUMINUM FRAMED FOLDING GLASS DOOR STOREFRONT

NOTE: Modify footers to align when using this section name and number.

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes furnishing and installing a sliding-folding thermally broken aluminum-framed glass panel system that includes:
 - 1. Aluminum framed panels.
 - 2. Threshold.
 - 3. Sliding-folding and locking hardware.
 - 4. Weather stripping.
 - 5. Bionic Turtle® thermal break.
 - 6. Multipurpose frame insert.
 - 7. Glass and glazing.
 - 8. Panel Catch.
 - 9. Insect screen (optional).
 - 10. Accessories as required for a complete working installation.
- B. Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, Specification Sections, apply to this Section.
 - 2. Section 06 10 00, Rough Carpentry: Wood framing R.O. and blocking.
 - 3. Section 06 20 00, Finish Carpentry.
 - 4. Section 07 27 00, Air Barriers: Building paper and building wrap.
 - 5. Section 07 62 00, Sheet Metal Flashing and Trim: Flashing gutters, and other sheet metal work.
 - 6. Section 07 90 00, Joint Protection.
 - 7. Section 08 32 13, Sliding Aluminum-Framed Glass Doors: NanaWall cero.
 - 8. Section 08 42 23, Glass Entrance Swing Doors.
 - 9. Section 08 43 33, Thermally Broken Aluminum-Framed Folding Glass Storefront: NanaWall NW Aluminum 640.
 - 10. Section 08 51 13, Aluminum Windows: NanaWall SL88, tilt-turn, casement window.

11. Section 09 22 16, Non-Structural Metal Framing: Metal framing R.O. and reinforcement.
12. Section 10 22 39, Thermally Broken, Acoustically Rated, Aluminum Framed Folding Glass Partitions: NanaWall NW Acoustical 645.

1.02 REFERENCES

A. Reference Standards in accordance with Division 01 and current editions from the following:

1. AAMA. American Architectural Manufacturers Association; www.aamanet.org
 - a. AAMA 205-15, In-Plant Testing Guidelines for Manufacturers and Independent Laboratories.
 - b. AAMA 502, Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
 - c. AAMA 611, Voluntary Specification for Anodized Architectural Aluminum.
 - d. AAMA 920-11, Specification for Operating Cycle Performance of Side-Hinged Exterior Door Systems.
 - e. AAMA 1304, Voluntary Specifications for Forced Entry Resistance of Side-Hinged Door Systems.
 - f. AAMA 2604, Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 - g. AAMA/WDMA/CSA 101/I.S.2/A440-17, NAFS, North American Fenestration Standard Specification for Windows, Doors and Skylights.
2. ANSI. American National Standards Institute; www.ansi.org
 - a. ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
3. ASTM. ASTM International; www.astm.org
 - a. ASTM C1036, Standard Specification for Flat Glass.
 - b. ASTM C1048, Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
 - c. ASTM E283-04 (2012), Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - d. ASTM E330-00 (2016), Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - e. ASTM E331-00 (2016), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - f. ASTM E547-00 (2016), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
 - g. ASTM E2068-00 (2016), Standard Test Method for Determination of Operating Force of Sliding Windows and Doors.
 - h. ASTM E987-88 (2017), Standard Test Methods for Deglazing Force of Fenestration Products.
 - i. ASTM E1332, Standard Classification for Rating Outdoor-Indoor Sound Attenuation.
 - j. ASTM F842, Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact.
4. Construction Products Directive (CPD), a legal mandate of the European Commission; http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/construction-products/index_en.htm
 - a. CE Mark; http://ec.europa.eu/growth/single-market/ce-marking/index_en.htm

5. CPSC. Consumer Product Safety Commission; www.cpsc.gov
 - a. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials
6. CSA Group (Canadian Standards Association); www.csagroup.org/global/en/home
 - a. CSA A440S1 - The Canadian supplement to North American (NAFS) standards.
7. DIN. "Deutsches Institut für Normung" (German institute for standardization); www.en-standard.eu/din-standards
 - a. DIN EN 1090, Manufacturing qualification for welding of supporting building components.
 - b. DIN EN 1191, Windows and Pedestrian Doors - Mechanical Durability Test Method.
 - c. DIN EN 1627, Pedestrian door sets, windows, curtain walling, grilles, and shutters - Burglar resistance - Requirements and classification.
 - d. DIN EN 1630, Pedestrian door sets, windows, curtain walling, grilles, and shutters - Burglar resistance - Test method for the determination of resistance to manual burglary attempts.
 - e. DIN EN ISO 9001, 2015 quality management system registration.
 - f. DIN EN ISO 12400, Windows and pedestrian doors - Mechanical durability - Requirements and classification.
 - g. DIN EN ISO 14001, 2015 environmental management system registration.
8. Energy Star, U.S. Environmental Protection Agency (EPA) Program; www.energystar.gov
9. NFRC. National Fenestration Rating Council; www.nfrc.org
 - a. NFRC 100, Procedure for Determining Fenestration Product U-factors.
 - b. NFRC 200, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
 - c. NFRC 400, Procedure for Determining Fenestration Product Air Leakage.
 - d. NFRC 500, Procedure for Determining Fenestration Product Condensation Resistance Rating Values.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate Folding Glass Door system and framing R.O.
- B. Pre-installation Meetings: See Section 01 30 00.

1.04 SUBMITTALS

- A. For Contractor submittal procedures see Section 01 30 00.
- B. Product Data: Submit manufacturer's printed product literature for each Folding Glass Door system to be incorporated into the Work. Show performance test results and details of construction relative to materials, dimensions of individual components, profiles, and colors.
- C. Product Drawings: Indicate Folding Glass Door system component sizes, dimensions and framing R.O., configuration, swing panels, direction of swing, stacking layout, typical head jamb, side jambs, and sill details, type of glazing material, and handle heights.
- D. Certificates: Submit CE Mark Certificate.
- E. Manufacturers' Instructions: Submit Owner's Manual from manufacturer which includes installation instructions, operation, and maintenance data: Identify with project name, location and completion date, and type and size of unit installed.

NOTE: Delete the following Article if LEED is not applicable; edit to meet project LEED requirements.

- F. Sustainable Design Submittals (USGBC [LEED®](http://www.usgbc.org)): Refer to Section 01 81 15, LEED Design Requirements.

1. **LEED 2009** (v3) Credits. Complete online LEED forms and submit other required materials as follows:
 - a. Energy and Atmosphere (EA) Credits:
 - 1). EA Credit 1 (EAc1): Optimize Energy Performance: System.
 - b. Materials and Resources (MR) Credits:
 - 1). MR Credit 1.1 (MRc1.1): Building Reuse - Maintain Existing Exterior Walls, Floors and Roof.
 - 2). MR Credit 1.2 (MRc1.2): Building Reuse - Maintain Existing Interior Nonstructural Elements.
 - 3). MR Credit 2 (MRc2): Construction Waste Management.

NOTE: MR Credit 3 below can apply to reusing salvaged Folding Glass Door.

- 4). MR Credit 3: Materials Reuse - 5% (MRc3.1) or 10% (MRc3.2).
- c. Indoor Environmental Quality (EQ) Credits:
 - 1). IEQ Credit 2 (IEQc2): Increased Ventilation - Case 2 - Naturally Ventilated Spaces.
 - 2). IEQ Credit 8.1 (IEQc8.1): Daylight & Views - Daylight 75% of Spaces.
 - 3). IEQ Credit 8.2 (IEQc8.2): Daylight & Views - Views for 90% of Spaces.
 - 4). IEQ Credit 9 (LEED for Schools - IEQc9): Enhanced Acoustical Performance.
2. **LEED v4 for Building Design and Construction** (BD&C) Credits. Complete online LEED forms and submit other required materials as follows:
 - a. Energy and Atmosphere (EA) Credits:
 - 1). EA Credit 2 (EAc2): Optimize Energy Performance.
 - b. Materials and Resources (MR) Credits:

NOTE: MR Credit 1 below can apply to reusing salvaged Folding Glass Door.

- 1). MR Credit 1 (MRc1): Building Life-Cycle Impact Reduction; Option 3 - Building and Material Reuse.
- c. Indoor Environmental Quality (EQ) Credits:
 - 1). EQ Credit 7 (EQc7): Daylight
 - 2). EQ Credit 8 (EQc8): Quality Views
 - 3). EQ Credit 9 (EQc9): Acoustic Performance
 - a). Submit calculations or measurements for occupant spaces to meet sound transmission class ratings between adjacent spaces and reverberation time requirements within a room.

G. LEED Closeout Documentation:

NOTE: Edit below to meet project LEED requirements.

1. **LEED 2009** (v3). Submit completed LEED™ submittal Worksheet Templates for the following credits:
 - a. EAc1, MRc1.1, MRc1.2, MRc2, MRc3, MRc6, IEQc2, IEQc8.1, IEQc8.2, IEQc9
2. **LEED v4** (BD&C). Submit information and documentation to complete LEED™ Worksheet Templates for the following credits:
 - a. EAc2, MRc1, EQc7, EQc8, EQc9

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Folding Glass Door to be CE Mark certified.

NOTE: The CE mark serves as verification that the product conforms with the essential requirements of the Construction Products Directive (CPD), a legal mandate of the European Commission. CE certified windows and doors provide building professionals with a uniform set of technical standards to evaluate and specify product performance with added assurance that NanaWall products are safe and fit for purpose.

- B. Manufacturer Qualifications: Manufacturer capable of providing complete, precision built, engineered, pre-fitted units with a minimum thirty (30) years' experience in the sale of folding-sliding door systems for large openings in the North American market.
 - 1. Manufacturer to have DIN EN ISO 9001: 2015 quality management system registration.
 - 2. Manufacturer to have DIN EN ISO 14001: 2015 environmental management system registration.
- C. Installer Qualifications: Installer experienced in the installation of manufacturer's products or other similar products for large openings. Installer to provide reference list of at least three (3) projects of similar scale and complexity successfully completed in the last three (3) years.
 - 1. Installer to be trained and certified by manufacturer.
- D. Single Source Responsibility: Furnish Folding Glass Door system materials from one manufacturer for entire Project.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's instructions and recommendations, Section 01 60 00 requirements, and as follows:
 - 1. Deliver materials to job site in sealed, unopened cartons or crates.
 - a. Upon receipt, inspect the shipment to ensure it is complete, in good condition and meets project requirements.
 - 2. Store material under cover in a clean and dry location, protecting units against weather and defacement or damage from construction activities, especially to the edges of panels.

1.07 FIELD CONDITIONS

- A. Field Measurements: Contractor to field verify dimensions of rough openings (R.O.) and threshold depressions to receive sill. Mark field measurements on product drawing submittal.

1.08 WARRANTY

- A. Manufacturer Warranty: Provide Folding Glass Door system manufacturer's standard limited warranty as per manufacturer's published warranty document in force at time of purchase, subject to change, against defects in materials and workmanship.
 - 1. Warranty Period beginning with the earliest of 120 days from Date of Delivery or Date of Substantial Completion:
 - a. Rollers and Insulated Glass Seal Failure: Ten (10) years
 - b. All Other Components Except Screens: Ten (10) years
 - 1). Exception: Five (5) years if NOT installed by manufacturer's specific system approved or certified trained installer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product by Manufacturer: **Generation 4 Folding Glass Walls by NanaWall NW Aluminum 840.** (www.nanawall.com)

NANA WALL SYSTEMS, INC.

100 Meadow Creek Drive, Corte Madera, CA 94925

Toll Free (800) 873-5673

Telephone: (415) 383-3148

Fax: (415) 383-0312

Email: info@nanawall.com

1. Substitution Procedures: See Section 01 20 00; Submit completed and signed:
 - a. Document 00 43 25, Substitution Request Form (During Procurement)
 - b. Document 00 63 25, Substitution Request Form (During Construction)

2.02 PERFORMANCE / DESIGN CRITERIA

NOTE: Select one of the seven Performance Criteria paragraphs below for different Sill and Opening type, deleting paragraphs not chosen.

Choose the Hybrid Sill, Low Profile Saddle Sill, Low Profile Saddle Sill with UniverSILL® Insert, or Flush Sill for Inward or Outward Opening Units.

Weeps, when provided, are to be drilled in the field by the installer to manufacturer's requirements.

Air infiltration and water penetration testing results are only applicable if the unit matches the tested panel and unit size, direction of opening and type of sill. Results shown only apply to odd-odd, odd-even, odd-frame and even-frame configurations and NOT to even-even configurations. Even higher ratings may be possible for odd-odd and odd-frame configurations.

Structural load testing results are only applicable for the test unit size and type of locking and rods. Comparative analysis charts published by manufacturer shows which panel sizes, if any, meets the structural loading design pressures specifically required for the project. Check for limitations on the use of these charts in the jurisdiction of the project.

Forced entry testing results are only applicable for the test unit type of locking.

Check for requirements in the jurisdiction of the project.

See manufacturer's latest published data regarding performance.

It is expected that the installed system's performance would be not more than 2/3rds of the following certified laboratory test data in accordance with AAMA 502.

- A. Performance Criteria (Specific or equivalent to lab tested): **Hybrid Sill - Inward Opening**
 1. Folding Glass Door Units tested to AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS-17):
 - a. Class CW-PG40 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) and Class LC-PG50 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) with 1L3R configuration for inward opening units.
 2. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 55 psf (2670 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 3. Air Infiltration (ASTM E283):
 - a. 0.04 cfm/ft² (0.20 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.11 cfm/ft² (0.56 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A3
 4. Water Penetration (ASTM E331, ASTM E547):

- a. No uncontrolled water leakage at a static test pressure of 9 psf (450 Pa). (Not applicable for even-even configurations)
- B. Performance Criteria (Specific or equivalent to lab tested): **Hybrid Sill - Outward Opening**
 - 1. Folding Glass Door Units tested to AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS-17):
 - a. Class CW-PG40 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) and Class LC-PG50 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) with 1L3R configuration for outward opening units.
 - 2. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 55 psf (2670 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 45 psf (2150 Pa)
 - 3. Air Infiltration (ASTM E283):
 - a. 0.04 cfm/ft² (0.20 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.10 cfm/ft² (0.5 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A3
 - 4. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static test pressure of 9 psf (450 Pa). (Not applicable for even-even configurations)
- C. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Inward Opening**
 - 1. Folding Glass Door Units tested to AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS-17):
 - a. Class CW-PG35 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) with 1L3R configuration for inward opening units.
 - 2. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 - 3. Air Infiltration (ASTM E283):
 - a. 0.12 cfm/ft² (0.61 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.30 cfm/ft² (1.52 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A2
 - 4. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static (with weeps) test pressure of 5.43 psf (260 Pa). (Not applicable for even-even configurations)
- D. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Outward Opening**
 - 1. Folding Glass Door Units tested to AAMA/WDMA/CSA 101/I.S.2/A440-17 (NAFS-17):
 - a. Class CW-PG35 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) with 1L3R configuration for outward opening units.
 - 2. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 - 3. Air Infiltration (ASTM E283):

- a. 0.12 cfm/ft² (0.61 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.29 cfm/ft² (1.50 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A2
- 4. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static (with weeps) test pressure of 5.43 psf (260 Pa). (Not applicable for even-even configurations)
- E. Performance Criteria (Specific or equivalent to lab tested): **Low Profile Saddle Sill with UniverSILL® - Outward Opening**
 - 1. Folding Glass Door Units tested to AAMA/WDMA/CSA101/I.S.2/A440-17 (NAFS-17):
 - a. Class CW-PG40 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) and Class LC-PG50 - FLD 157-1/3 inch x 102-1/4 inch (4000 mm x 2600 mm) with 1L3R configuration for outward opening units.
 - 2. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 - 3. Air Infiltration (ASTM E283):
 - a. 0.04 cfm/ft² (0.20 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.07 cfm/ft² (0.36 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A3
 - 4. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static (with weeps) test pressure of 7.5 psf (360 Pa). (Not applicable for even-even configurations)
- F. Performance Criteria (Specific or equivalent to lab tested saddle sill): **Flush Sill - Inward Opening**
 - 1. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 - 2. Air Infiltration (ASTM E283):
 - a. 0.12 cfm/ft² (0.61 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.30 cfm/ft² (1.52 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - c. Canadian Air Infiltration/Exfiltration Level: A2
- G. Performance Criteria (Specific or equivalent to lab tested saddle sill): **Flush Sill - Outward Opening**
 - 1. Structural Load Deflection (ASTM E330):
 - a. Design Pressure - Positive: 50 psf (2400 Pa)
 - b. Design Pressure - Negative: 50 psf (2400 Pa)
 - c. Uniform Load deflection, L/175: Pass 40 psf (1945 Pa)
 - 2. Air Infiltration (ASTM E283):
 - a. 0.12 cfm/ft² (0.61 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.29 cfm/ft² (1.50 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)

c. Canadian Air Infiltration/Exfiltration Level: A2

NOTE: Items below are common for all sill types, except as noted.

H. Performance Criteria (Lab Tested):

- | | |
|--|----------------|
| 1. Swing Panel – Operation / Cycling Performance (AMMA 920): | 500,000 cycles |
| 2. System – Life Cycle Performance (DIN EN 1191/12400) | 20,000 cycles |
| 3. Operating Force (ASTM E2068): | |
| a. Swing Panel: Open 1 lbf (2.8 N) & Close 1 lbf (3.9 N) | |
| b. Folding Panel: | |
| 1). Initiate Motion - Open 4 lbf (20 N) & Close 3 lbf (15 N) | |
| 2). Maintain Motion - Open 1 lbf (3 N) & Close 1 lbf (4 N) | |

NOTE: Forced entry testing results are only applicable for the test unit type of locking. See manufacturer's latest published data regarding performance.

- | | |
|--|---------------------|
| 4. Forced Entry (AAMA 1304, DIN EN 1191): | Pass |
| 5. Forced Entry Resistance (ASTM F842, AMMA 1304, CAWM 300): | Meets Grade 40; +F2 |

NOTE: Retain Burglary Resistance subparagraph below when desired; this additional security option is available for an upcharge.

- | | |
|--|--|
| 6. Unit Burglary Resistance: | EN 1627-30, Class RC2/ RC2N certified |
| 7. Thermal Performance (U-factor): | NFRC 100 rated, certified, and labeled |
| 8. Solar Heat Gain Coefficient (SHGC) + Visible Light Transmission (VT): | NFRC 200 rated, certified, and labeled |
| 9. Air Leakage: | NFRC 400 rated, certified, and labeled |
| 10. Condensation Resistance (CR): | NFRC 500 rated, certified, and labeled |

NOTE: The NFRC 100, 200, 400 and 500 ratings of the NW Aluminum 840 Folding Glass Door System meet **Prescriptive Method** requirements for U-factor, SHGC, Air Leakage and CR of California **Title 24, Chapter 3, Building Envelope Requirements**.

For the listing of Nana Wall product NFRC testing reports go to the following website <http://search.nfrc.org/search/searchdefault.aspx>; click on **Door** (Find Ratings for Door Products); click on the **Search by Manufacturer** button; click **Manufacturers**, scroll down to and click on **Nana Wall Systems, Inc.**, and click on the **Find Products** button.

- | | |
|---------------------|--------------------|
| 1. EPA Energy Star: | Meets requirements |
|---------------------|--------------------|

NOTE: **Energy Star** values for DOORS with > 50% glass can be achieved by specific glass units meeting the following requirements:

Northern & North-Central Region:	≤ 0.30 U-factor	0.40 SHGC
South-Central & Southern Region:	≤ 0.30 U-factor	0.25 SHGC

Energy Star Air Leakage Rating Requirements (ASTM E283 in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440-11):

Swinging Door: ≤ 0.5 cfm/ft² (2.56 L/s/m²)

For guidance only as Nana Wall Systems is not a participant of the Energy Star Program.

I. LEED Characteristics:

1. LEED 2009 (v3)
 - a. EAc1: *NanaWall* systems using low U-Value designed double or triple IGU and thermally broken frames can provide significant energy performance.

- b. MRc1.1: *NanaWall* exterior glass wall systems, not demolished in a renovation project, are reused in the same location.
 - c. MRc2: *NanaWall* cardboard shipping crates are made of 60% recycled material and are 100% recyclable.
 - d. MRc3: *NanaWall*'s components easily disassemble and reassemble to "Use as salvaged... or reused materials."
 - e. IEQc2: *NanaWall* systems provide natural ventilation in the open position, assisting in the 90% required natural ventilation of occupied spaces of ASHRAE 62.1.
 - f. EQc8.1: *NanaWall* glass wall assembly borrowed light brings daylight deeper into the floor plate.
 - g. EQc8.2: *NanaWall* glass wall assemblies provide direct outdoor lines of sight.
2. LEED v4 for Building Design and Construction (BD&C)
- a. EAc2: *NanaWall* systems using low U-Value designed double or triple IGU and thermally/ acoustically broken frames can provide significant energy performance.
 - b. MRc1: *NanaWall* can be easily disassembled for salvage and reuse.
 - c. EQc7: *NanaWall* glass wall assembly borrowed light brings daylight deeper into the floor plate.
 - d. EQc8: *NanaWall* glass wall assemblies provide direct outdoor lines of sight.
- J. Design Criteria:
- 1. Sizes and Configurations: As indicated by the Drawings for selected number and size of panels, location of swing panels, and number of panels stacking to the left and to the right.
 - 2. Unit Operation: Adjustable sliding and folding hardware with top and bottom tracks.
 - 3. Mounting Type: Floor track supported with upper guide track.
 - 4. Panel Configuration:
 - a. [Straight]
 - b. [Window/ door combination]
 - c. [90° angle turn]
 - 5. Stack Storage Configuration:
 - a. [Inswing type]
 - b. [Outswing type]
 - 6. Panel Type: Hinged
 - a. Primary swing panel of paired swing panels, looking from inside, to be on the [left] [right].
 - b. [With Entry/Egress panel hinged to bi-folding panels.]
 - c. [With Entry/Egress panel hinged to side jamb.]
 - d. [Without Entry/Egress panel.]
 - 7. Panel Pairing Configuration: See drawings.
 - a. [Bi-folding panels hinged to side jamb]
 - b. [Bi-folding panels unhinged FourFold or SixFold panel sets]

NOTE: Sizes and Configurations: <https://www.nanawall.com/products/nw-aluminum-840/options>
 See manufacturer's drawings for selected custom dimensions within maximum frame sizes possible as indicated in manufacturer's literature.
 See drawings for selected number of panels and configuration.

2.03 MATERIALS

- A. Thermally Broken Aluminum Framed Folding Glass Door Description: 3-5/16 inch (84 mm) thick, floor track supported system. Manufacturer's standard thermally broken panels and frame profiles, with head track, side jambs, sill and panels with dimensions as shown on Drawings.

1. Panels and Frame:

a. Panels

- 1). Single lite.

NOTE: Single lite above is standard; other options below may require an upcharge.
Refer to manufacturer's size chart for glass panel sizes requiring the use of horizontal mullions.

- 2). [Multiple lites with horizontal mullion(s) at height(s) indicated from the bottom of the panel.]
3). [Single lite with simulated divided lites in pattern as shown on Drawings.]
4). Panel Size (W x H): As indicated.

NOTE: Maximum panel width is 3'-7" (1.1 m) with a maximum unit height of 9'-0" (2.75 m).
Maximum unit height is 11'-6" (3.5 m) with a maximum panel width of 3'-0" (0.915 m). Refer to NanaWall size chart.
E.g., 3'-7" x 9'-0" (1.1 x 2.75 m) or 3'-0" x 11'-6" (0.915 x 3.5 m).
Unit heights greater than 10'-2" (3.1 m) need to be stiffened with a horizontal mullion.
Note that heavier glass may limit maximum sizes possible.

- 5). Rail Depth: 3-5/16 inch (84 mm)
6). Top Rail Width: 2-5/8 inch (66 mm)
7). Typical Stile Width: 1-3/4 inch (45 mm) on both stiles for a nominal frame stile width of 3-7/8 inch (99 mm) between folding panels.
8). Bottom Rail Width:
a). [2-5/8 inch (66 mm)]
b). [Manufacturer's standard kick-plate of 10 inches (254 mm)]

b. Frame:

- 1). Thermally broken top track and side jambs with multipurpose frame insert to hide anchoring frame connections and conceal cable routing to security system by others. For long-term tight, consistent sealing, provide a lateral patented (Patent Number: US10683688B2) adjustment feature at the side jambs capable of adjustment of +/- 3/16" (5 mm). Frame finish to match panel finish.

NOTE: Frame fasteners, attachment points and screw heads should be concealed by the multipurpose frame insert for enhanced aesthetics.

- 2). Top Track Width:
a). [2-13/16 inch (72 mm) standard]
b). [3-7/8 inch (99 mm) anti-tilt feature for unhinged FourFold or SixFold panel set configurations]
3). Side Jamb Width: 2-13/16 inch (72 mm)
4). Top Track and Side Jamb Depth: 3-5/16 inch (84 mm)

NOTE: Select from the following Sill types, edit to suit, and delete those not meeting project requirements.

- 5). Sill Type - Extruded Aluminum:

- a). [Hybrid sill with high heel protector insert (thermally broken)]
- b). [Low profile saddle sill – ADA compliant with high heel protector insert (thermally broken)]
- c). [Low profile saddle sill with UniverSILL® and high heel protector insert (thermally broken)]
- d). [Flush sill - ADA compliant with high heel protector insert (thermally broken)]
- 6). Sill Finish:
 - a). [Clear anodized]
 - b). [Black anodized]
- 2. Aluminum Extrusion: AIMgSi0.5 alloy, 6063-T5 (F-22 - European standard)
 - a. Thickness: 0.078 inch (2.0 mm) nominal
 - b. Thermal Break: 1-15/16 inch (49 mm) wide specially designed and patented (Patent Number: US10550625B2) glass fiber reinforced (GFR) polyamide "Bionic Turtle®" for panels. Standard thermal break elsewhere.
- 3. Aluminum Finish:
 - a. Inside and Outside;
 - 1). [Same (one-color)]
 - 2). [Different (two-tone)]

NOTE: Select finish type below, edit to requirements and delete items not used.

- b. Anodized (AAMA 611):
 - 1). [Clear]
 - 2). [Dark Bronze]
- c. Powder Coat (AAMA 2604):
 - 1). Color as chosen from manufacturer's powder coating finish chart from
 - a). [Manufacturer's standard selection of 50 colors - matte.]
 - b). [Manufacturer's full RAL selection.]
 - i. [High Gloss]
 - ii. [Matte]
 - c). [Custom finish.]
- B. Glass and Glazing:
 - 1. Safety Glazing: In compliance with ASTM C1036, ASTM C1048, ANSI Z97.1 and CPSC 16CFR 1201.

NOTE: Unlike wet glazing, NanaWall's standard dry glazing method helps reduce instances of seal failure.

- 2. Manufacturer's [**tempered**] [**and**] [**laminated**] glass lites in [**double**] [**triple**] insulated glazing units, dry glazed with glass stops on the inside.

NOTE: Select and edit glass type(s) to meet building code, wind-load design, acoustic, bullet resistant and/or security, and other project requirements with other glass available from manufacturer.

Glass thickness from 7/8" (22 mm) to 2 7/16" (62 mm) possible. Note that heavier glass may limit maximum sizes possible.

Custom layouts with horizontal mullions, simulated divided lites, inserts, and high bottom rails are possible.

NOTE: Contact NanaWall for availability of other commercial glass types.

- a. Insulated Glass Unit (IGU) Lites:
 - 1). Double IGU: 15/16 inch (24 mm)
 - 2). Triple IGU: 1-9/16 inch (40 mm)
- b. IGU Fill:
 - 1). Air filled
 - 2). [Argon filled]
- c. Glass Lite Type:
 - 1). Standard reduced iron

NOTE: Items below are options and may require an upcharge.

- 2). [Low iron]
 - 3). [Solar bronze]
 - 4). [Solar gray]
 - 5). [Bird safe]
- d. Glass Spacers: Manufacturer's standard
 - 1). [silver gray finish with capillary tubes]
 - 2). [black finish with capillary tubes]
 - 3). [silver gray finish without capillary tubes]
 - 4). [black finish without capillary tubes]
- e. IGU Surface:
 - 1). Clear
 - 2). [Low-E coating on # 2 surface of double IGU]
 - 3). [Low-E coating on # 2 and # 4 surface of double IGU]
 - 4). [Low-E coating on # 2 and # 5 surface of triple IGU]

NOTE: "Alarmed Glazing" by others subparagraph below is an option.

- 3. Alarmed Glazing: Connection wiring to alarm system, position monitoring, locking detection and notification systems such as glass-breakage sensors by others.

C. Locking Hardware and Handles:

NOTE: Select one of the below Main Entry Panel paragraphs WITH or WITHOUT Swing Panels, deleting all others. Edit to suit project requirements.

- 1. Main Entry Panel(s) for Models WITH a [**Pair of**] Swing Panel: Provide manufacturer's [**Standard lever handles**] or [**Lever handles with return**] on the inside and outside, and a lockset with lockable latch, multi-point locking with a dead bolt and rods at the top and bottom on primary panel only.
 - a. Locking: Standard profile cylinder
 - b. Rods to be concealed and not edge mounted.
 - c. After turn of key or thumb-turn, depression of handles withdraws latch.
 - d. Lifting of handles engages rods and turn of key or thumb-turn engages deadbolt and operates lock.
 - e. Lever Handle - Finish:
 - 1). Brushed satin stainless steel

- 2). [Black titanium stainless steel]

NOTE: Handles above are standard; option below may require an upcharge.

- 3). [Copper-nickel stainless steel antiviral and antimicrobial]

- f. Lever Handle with Return - Finish:

- 1). Brushed satin stainless steel

NOTE: Handle above is standard, option below may require an upcharge.

- 2). [Copper-nickel stainless steel antiviral and antimicrobial]

- g. Secondary Swing Panel: Provide concealed two-point, edge locking.

NOTE: Other compatible lever handle styles and finishes are available from other suppliers.

2. Main Entry Panel: Provide manufacturer's standard flat handle on inside only with concealed two-point locking hardware operated by 180° turn of handle.

NOTE: With the option above, the main entry panel is operable from inside only and that there is no latch.

3. Main Entry Panel(s) for Models WITH a Swing Panel: No hardware or locking provided by manufacturer; Field installed panic device by Section 08 71 00 prepped for commercial application.

NOTE: Structural test load results will not apply for locking devices by others.

- a. Panic Hardware:

- 1). [Von Duprin 33/35A Series Narrow Stile Rim Exit Device]

- 2). [DORMA 9700 Series Narrow Stile Rim Exit Device]

4. Pairs of Folding Panels: Provide manufacturer's flat handle and concealed two-point locking hardware operated by 180° turn of handle between each pair. Face applied flush bolt locking NOT acceptable.

- a. Flat Handle - Finish:

- 1). Brushed satin stainless steel

- 2). [Black titanium stainless steel]

NOTE: Handles above are standard; option below may require an upcharge.

- 3). [Copper- nickel stainless steel antiviral and antimicrobial]

5. Handle Height: 41-3/8 inch (105 cm) centered from bottom of panel or as otherwise indicated.

6. Locking rods with standard end caps at the top and bottom. Rods to have a stroke of 15/16 inch (24 mm).

7. Additional profile cylinders to be [**Keyed alike.**] [**Keyed differently.**]

8. Burglary Resistance to be [**Standard**] [**Class RC2/ RC2N certified**].

9. Panel Catch: panel catch to hold swing panel to adjacent folding panel to prevent incorrect operation when moving the panel.

- D. Sliding-Folding Hardware: Provide manufacturer's standard combination sliding and folding hardware with top and bottom tracks and threshold. All running carriages to be with sealed, self-lubricating, double ball bearing multi-rollers. Surface mounted hinges and running carriages NOT acceptable.

1. Lower Running Carriage Carrying Capacity: 240 lb. (110 kg). Lower running carriage provided with two vertical stainless-steel wheels with double row of ball bearings and two horizontal polyamide wheels.

NOTE: Weight of panels borne by the bottom of the guide channel in the sill is NOT acceptable.

2. Vertical wheels with Gothic arch feature to ride on top of stainless-steel guide track covers over the full length of the sill track.
3. Upper guide carriage with two horizontal polyamide guiding wheels. For configurations with pairs of panels that can slide left or right, additional concealed, additional vertical tilt protection hardware.
4. Hinges and Rollers: [**Clear**] [**Black**] anodized aluminum with stainless steel security hinge pins and set-screws. Concealed panel alignment with a tight seal through the patented (Patent Number: US10711510B2) TwinX mechanism reinforced between panels. Double ball bearing stainless-steel wheel rollers match hinge finish.
5. Spring-Loaded Pull Handle: For outswing units with larger panel sizes, a spring loaded-pull handle is supplied for ease of closing the system. The pull handle is located above the flat handle. When not in use, the handle lays flat against the adjacent panel and is supplied with bumpers to avoid metal to metal contact. Handles are stainless steel with the attachment to coordinate with the hinge hardware of the system.
 - a. Pull Handle – Finish:
 - 1). Silver stainless steel
 - 2). [Black titanium stainless steel]
6. Weather Stripping: Manufacturer's double layer EPDM between panels and EPDM gasket, Q-lon gasket, or brush seal between panel and frame, or brush seals with a two-layer fiberglass reinforced polyamide fin attached at both inner and outer edge of bottom of door panels with a recessed sill or on frame for sealing between panels and between panel and frame.

NOTE: The manufacturer's weather stripping is determined at the factory by the direction of swing, the panel configuration, the type of locking and the type of sill.

- a. UniverSILL®: For outswing low profile saddle sill, UniverSILL sill adaptor is available for additional air and water performance when needed.
- E. Fasteners: Installation plates for connecting frame components made of stainless steel with sealing cushion to avoid thermal conductivity.

2.04 FABRICATION

- A. Folding Glass Wall: Extruded aluminum frame and panel profiles, corner connectors and hinges, sliding and folding hardware, locking hardware and handles, glass and glazing and weather stripping.
 1. Each unit factory pre-assembled and shipped with complete system components, installation mounting plates, and installation instructions.
 2. Exposed work to be carefully matched to produce continuity of line and design with all joints.
 3. No raw edges visible at joints.

2.05 ACCESSORIES

- A. **Insect Screen:** Fully retractable non-pleated screen made of ultra-strong, UV resistant fiberglass mesh housed in a single cartridge riding on a single track.
 1. Basis-of-Design Product by Manufacturer: **The Horizon** by **Wizard Industries, Inc.**

WIZARD INDUSTRIES, INC.

4263 Phillips Ave, Burnaby, BC, Canada V5A 2X4

Toll Free: (888) 949-3667

Telephone: (604) 299-8878

Fax: (604) 299-4496

Email: sales@wizardindustries.com<https://www.wizardscreens.com/>**PART 3 EXECUTION****3.01 EXAMINATION**

A. Examination and Acceptance of Conditions per Section 01 70 00 and as follows:

1. Carefully examine rough openings with Installer present, for compliance with requirements affecting Work performance.
 - a. Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square with no unevenness, bowing, or bumps on the floor; and other conditions as required by the manufacturer for readiness to receive Work.
 - b. Verify structural integrity of the header for deflection with live and dead loads limited to the lesser of L/720 of the span or 1/4 inch (6 mm). Provide structural support for lateral loads, and both wind load and eccentric load when the panels are stacked open.

NOTE: Prior to installing NanaWall, it is recommended that all building dead loads be applied to the header. Allow a reasonable amount of time for the dead load's effect on the header; only then can the building's live load be used to meet the above requirements of L/720 or 1/4 inch (6 mm). If this is not done, both dead and live loads need to be considered.

2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install Folding Glass Door system in accordance with the Drawings, approved submittals, manufacturer's recommendations, and installation instructions, and as follows:

1. Properly flash, waterproof and seal around opening perimeter.
2. Securely attach anchorage devices to rigidly fit frame in place, level, straight, plumb, and square. Install frame in proper elevation, plane, and location, and in proper alignment with other work.
3. When lower track is designed to drain, provide connections to allow for drainage.
4. Install panels, handles, lockset, screens, and other accessories in accordance with manufacturer's recommendations and instructions.

3.03 FIELD QUALITY CONTROL

A. Field Tests and Inspections per Section 01 40 00 of the following:

1. Verify the Folding Glass Door system operates and functions properly. Adjust hardware for proper operation.
- B. Non-Conforming Work: Repair or replace non-conforming work as directed by the Architect; see General and Supplementary Conditions, and Division 01, General Requirements.

3.04 CLEANING AND PROTECTION

A. Keep units closed and protect Folding Glass Door installation against damage from construction activities.

- B. Remove protective coatings and use manufacturer recommended methods to clean exposed surfaces.

END OF SECTION

DISCLAIMER:

Nana Wall Systems, Inc. takes no responsibility for product selection or application, including, but not limited to, compliance with building codes, safety codes, laws, or fitness for a particular purpose. This guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended and the requirements of a specific construction project.

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