

ADDRESS OF PROJECT: 3640 Wheeler Ave.

TAX MAP AND PARCEL: 060.04-02-22

ZONING: I/Industrial

APPLICATION FOR: *(Please check all that apply)*

☒ CERTIFICATE OF APPROPRIATENESS

☒ PERMIT TO MOVE, REMOVE, ENCAPSULATE OR DEMOLISH
(Required if more than 25 square feet of a structure is to be demolished/impacted)

☐ WAIVER OF VISION CLEARANCE REQUIREMENT and/or YARD REQUIREMENTS IN A VISION
CLEARANCE AREA (Section 7-802, Alexandria 1992 Zoning Ordinance)

☐ WAIVER OF ROOFTOP HVAC SCREENING REQUIREMENT
(Section 6-403(B)(3), Alexandria 1992 Zoning Ordinance)

Applicant: ☐ Property Owner ☒ Business *(Please provide business name & contact person)*

Name: Siena Corporation / by M. Catharine Puskar

Address: 8221 Snowden River Parkway

City: Columbia State: MD Zip: 21045

Phone: _____ E-mail : _____

Authorized Agent *(if applicable)*: ☒ Attorney ☐ Architect ☐ _____

Name: Walsh, Colucci, Lubeley & Walsh, P.C./By: M. Catharine Puskar Phone: 703-528-4700

E-mail: cpuskar@thelandlawyers.com

Legal Property Owner:

Name: JBJ LLC

Address: Attn: Jim Willis Flippo Construction Co. 3820 Belt Pl.

City: Forrestville State: MD Zip: 20747

Phone: _____ E-mail: _____

- ☐ Yes ☒ No Is there an historic preservation easement on this property?
☐ Yes ☐ No If yes, has the easement holder agreed to the proposed alterations?
☐ Yes ☒ No Is there a homeowner's association for this property?
☐ Yes ☐ No If yes, has the homeowner's association approved the proposed alterations?

If you answered yes to any of the above, please attach a copy of the letter approving the project.



NATURE OF PROPOSED WORK: *Please check all that apply*

- ☒ **NEW CONSTRUCTION**
- ☒ **EXTERIOR ALTERATION:** *Please check all that apply.*
- | | | | |
|---|---|---|-----------------------------------|
| <input type="checkbox"/> awning | <input type="checkbox"/> fence, gate or garden wall | <input type="checkbox"/> HVAC equipment | <input type="checkbox"/> shutters |
| <input type="checkbox"/> doors | <input type="checkbox"/> windows | <input type="checkbox"/> siding | <input type="checkbox"/> shed |
| <input type="checkbox"/> lighting | <input type="checkbox"/> pergola/trellis | <input type="checkbox"/> painting unpainted masonry | |
| <input checked="" type="checkbox"/> other <u>See attached description</u> | | | |
- ☐ **ADDITION**
- ☒ **DEMOLITION/ENCAPSULATION**
- ☒ **SIGNAGE**

DESCRIPTION OF PROPOSED WORK: *Please describe the proposed work in detail (Additional pages may be attached).*

See attached description.

SUBMITTAL REQUIREMENTS:

Items listed below comprise the **minimum supporting materials** for BAR applications. Staff may request additional information during application review. Please refer to the relevant section of the *Design Guidelines* for further information on appropriate treatments.

Applicants must use the checklist below to ensure the application is complete. Include all information and material that are necessary to thoroughly describe the project. Incomplete applications will delay the docketing of the application for review. Pre-application meetings are required for all proposed additions. All applicants are encouraged to meet with staff prior to submission of a completed application.

Electronic copies of submission materials should be submitted whenever possible.

Demolition/Encapsulation : *All applicants requesting 25 square feet or more of demolition/encapsulation must complete this section. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☒ ☐ Survey plat showing the extent of the proposed demolition/encapsulation.
- ☒ ☐ Existing elevation drawings clearly showing all elements proposed for demolition/encapsulation.
- ☒ ☐ Clear and labeled photographs of all elevations of the building if the entire structure is proposed to be demolished.
- ☒ ☐ Description of the reason for demolition/encapsulation.
- ☒ ☐ Description of the alternatives to demolition/encapsulation and why such alternatives are not considered feasible.

Additions & New Construction: Drawings must be to scale and should not exceed 11" x 17" unless approved by staff. All plans must be folded and collated into 3 complete 8 1/2" x 11" sets. Additional copies may be requested by staff for large-scale development projects or projects fronting Washington Street. Check N/A if an item in this section does not apply to your project.

- N/A
- ☒ ☐ Scaled survey plat showing dimensions of lot and location of existing building and other structures on the lot, location of proposed structure or addition, dimensions of existing structure(s), proposed addition or new construction, and all exterior, ground and roof mounted equipment.
 - ☒ ☐ FAR & Open Space calculation form.
 - ☒ ☐ Clear and labeled photographs of the site, surrounding properties and existing structures, if applicable.
 - ☒ ☐ Existing elevations must be scaled and include dimensions.
 - ☒ ☐ Proposed elevations must be scaled and include dimensions. Include the relationship to adjacent structures in plan and elevations.
 - ☒ ☐ Materials and colors to be used must be specified and delineated on the drawings. Actual samples may be provided or required.
 - ☒ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
 - ☒ ☐ For development site plan projects, a model showing mass relationships to adjacent properties and structures.

Signs & Awnings: One sign per building under one square foot does not require BAR approval unless illuminated. All other signs including window signs require BAR approval. Check N/A if an item in this section does not apply to your project.

- N/A
- ☒ ☐ Linear feet of building: Front: see attached Secondary front (if corner lot): see attached
 - ☒ ☐ Square feet of existing signs to remain: see attached
 - ☒ ☐ Photograph of building showing existing conditions.
 - ☒ ☐ Dimensioned drawings of proposed sign identifying materials, color, lettering style and text.
 - ☒ ☐ Location of sign (show exact location on building including the height above sidewalk).
 - ☒ ☐ Means of attachment (drawing or manufacturer's cut sheet of bracket if applicable).
 - ☒ ☐ Description of lighting (if applicable). Include manufacturer's cut sheet for any new lighting fixtures and information detailing how it will be attached to the building's facade.

Alterations: Check N/A if an item in this section does not apply to your project.

- N/A
- ☒ ☐ Clear and labeled photographs of the site, especially the area being impacted by the alterations, all sides of the building and any pertinent details.
 - ☒ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
 - ☒ ☐ Drawings accurately representing the changes to the proposed structure, including materials and overall dimensions. Drawings must be to scale.
 - ☒ ☐ An official survey plat showing the proposed locations of HVAC units, fences, and sheds.
 - ☒ ☐ Historic elevations or photographs should accompany any request to return a structure to an earlier appearance.

ALL APPLICATIONS: *Please read and check that you have read and understand the following items:*

- ☒ I have submitted a filing fee with this application. (Checks should be made payable to the City of Alexandria. Please contact staff for assistance in determining the appropriate fee.)
- ☒ I understand the notice requirements and will return a copy of the three respective notice forms to BAR staff at least five days prior to the hearing. If I am unsure to whom I should send notice I will contact Planning and Zoning staff for assistance in identifying adjacent parcels.
- ☒ I, the applicant, or an authorized representative will be present at the public hearing.
- ☒ I understand that any revisions to this initial application submission (including applications deferred for restudy) must be accompanied by the BAR Supplemental form and 3 sets of revised materials.

The undersigned hereby attests that all of the information herein provided including the site plan, building elevations, prospective drawings of the project, and written descriptive information are true, correct and accurate. The undersigned further understands that, should such information be found incorrect, any action taken by the Board based on such information may be invalidated. The undersigned also hereby grants the City of Alexandria permission to post placard notice as required by Article XI, Division A, Section 11-301(B) of the 1992 Alexandria City Zoning Ordinance, on the property which is the subject of this application. The undersigned also hereby authorizes the City staff and members of the BAR to inspect this site as necessary in the course of research and evaluating the application. The applicant, if other than the property owner, also attests that he/she has obtained permission from the property owner to make this application.

APPLICANT OR AUTHORIZED AGENT:Signature: Printed Name: M. Catharine PuskarDate: 9/8/2015

OWNERSHIP AND DISCLOSURE STATEMENT

Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than ten percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. Siena Corporation	8221 Snowden River Parkway Columbia, Maryland 21045	100% owned by Todd Manganaro
2.		
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at 3640 Wheeler Avenue (address), unless the entity is a corporation or partnership, in which case identify each owner of more than ten percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. JBJ LLC	Attn: Jim Willis Flippo Construction Co. 3820 Belt Pl.	See Attached
2.	Forrestville, MD 20747	
3.		

3. Business or Financial Relationships. Each person or entity listed above (1 and 2), with an ownership interest in the applicant or in the subject property is required to disclose any business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the 12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review.

Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. Todd Manganaro	None	None
2. Brian E. Flippo/ The Brian E. Flippo Family Trust	None	None
3. Jeffrey S. Flippo/ The Jeffrey S. Flippo Family Trust	None	None

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

3/2/2015
Date

M. Catharine Puskar, Agent/Attorney
Printed Name


Signature

Board of Architectural Review
Description of Proposed Work
3640 Wheeler Avenue
Tax Map ID: 090.04-02-22

Siena Corporation ("The Applicant") is submitting materials to the Board of Architectural Review for a Permit to Demolish a non-historic building and a non-historic garage addition to the 100-year old Mill building, Certificate of Appropriateness for exterior alterations to the Mill building to convert it for use as a leasing office, and Certificate of Appropriateness for the new self-storage facility ("ezStorage") at 3640 Wheeler Avenue ("The Property"). While the Property is not located in the Old & Historic District, the 100 year old building is under the purview of the BAR, and, given that the new building will be located on the same parcel, pursuant to the Zoning Ordinance, it requires review by the BAR as well.

The Property contains approximately 2.0 acres, is zoned I/Industrial, and is currently occupied by Flippo Construction. The Applicant requests approval of a development special use permit for a 4-story, 50 foot tall ezStorage self-storage facility containing approximately 101,340 sq. ft. of floor area. The new building will be constructed with masonry, steel, and concrete and has been sited to minimize the impact on the existing RPA on the southern portion of the site and to align its frontage with the frontage of the existing 100-year old building. The design incorporates a combination of true light and spandrel glass windows and will provide a transition from the 100-year old building to the more modern design of the Public Safety Center to the east.

The work proposed for the 100-year old building is as follows:

- Removal of the non-historic garage addition on the eastern portion of the building;
- Repairing the east façade after removal of the garage structure;
- Re-pointing the masonry;
- Painting the wood trim;
- Replacing the aluminum siding on the north façade with painted wood siding;
- Renovation of the interior for use as the self-storage facility office;
- Removing asphalt, and regrading and landscaping portions of the site in front of the Mill building to accommodate a walkway to reach the entrance level for handicap access;
- Installing externally illuminated signage on the Mill building with LED lights attached to the sign; and
- Minor repairs as necessary.

The removal of the more recent additions to the 100 year old building and the additional renovation work will be more consistent with the original building. The new building will improve the Property and be an appropriate use for the industrially-zoned parcel without negative impacts on the 100 year old building and surrounding neighborhood.



DEPARTMENT OF PLANNING AND ZONING FLOOR AREA RATIO AND OPEN SPACE CALCULATIONS

A. Property Information

A1. Street Address 3140 Wheeler Avenue Zone I

A2. $\frac{87,120 \text{ s.f. (2.0 Acres)}}{\text{Total Lot Area}} \times \frac{1.25}{\text{Floor Area Ratio Allowed by Zone}} = \frac{108,900 \text{ s.f.}}{\text{Maximum Allowable Floor Area}}$

B. Existing Gross Floor Area

Existing Gross Area*		Allowable Exclusions	
Basement	2,250	Basement**	2,250
First Floor	2,250	Stairways**	396
Second Floor	2,250	Mechanical**	
Third Floor	NA	Other**	
Porches/ Other	NA	Total Exclusions	2,646
Total Gross *	6,750		

B1. Existing Gross Floor Area *
6,750 Sq. Ft.

B2. Allowable Floor Exclusions**
2,646 Sq. Ft.

B3. Existing Floor Area minus Exclusions
4,104 Sq. Ft.
(subtract B2 from B1)

C. Proposed Gross Floor Area (does not include existing area)

Proposed Gross Area*		Allowable Exclusions	
Basement	25,868	Basement**	25,868
First Floor	26,138	Stairways**	1,512
Second Floor	25,868	Mechanical**	200
Third Floor	25,868	Other** Elevators	720
Fourth Floor	25,868	Total Exclusions	28,300
Total Gross *	129,640		

C1. Proposed Gross Floor Area *
129,640 Sq. Ft.

C2. Allowable Floor Exclusions**
28,300 Sq. Ft.

C3. Proposed Floor Area minus Exclusions
101,340 Sq. Ft.
(subtract C2 from C1)

D. Existing + Proposed Floor Area

D1. Total Floor Area (add B3 and C3) 105,444 Sq. Ft.

D2. Total Floor Area Allowed by Zone (A2) 108,900 Sq. Ft.

*Gross floor area is the sum of all gross horizontal areas under roof, measured from the face of exterior walls, including basements, garages, sheds, gazebos, guest buildings and other accessory buildings.

** Refer to the zoning ordinance (Section 2-145(B)) and consult with zoning staff for information regarding allowable exclusions.

If taking exclusions other than basements, floor plans with excluded areas must be submitted for review. Sections may also be required for some exclusions.

F. Open Space Calculations

Existing Open Space	3,250 SF
Required Open Space	None Required in I-zone
Proposed Open Space	40,900 SF

The undersigned hereby certifies and attests that, to the best of his/her knowledge, the above computations are true and correct.

Signature: Jack Helman
Jack Helman, VP Architecture and Planning
Siena Corporation

Date: May 11, 2015



MATERIAL SPECIFICATIONS

ALEXANDRIA

September 4, 2015

SECTION 02871 – BICYCLE RACKS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Ground mounted bicycle racks.
- B. Related Sections include the following:
 - 1. Division 3 Section “Cast-in-Place Concrete” for concrete mounting pads.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide bicycle racks that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, field-assembly requirements, and installation details.
- B. Shop Drawings: Show fabrication and installation details, and attachments to other work. Include parking area plans and bicycle rack elevations.
- C. Manufacturers Environmental Product Declaration

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual with sufficient trained staff to install manufacturer's products according to specified requirements.
- B. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum five years' experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes on exposed surfaces from damage by applying a temporary protective covering or wrapping before shipping.
- B. Store materials to comply with manufacturer's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other causes.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Indicate measurements on Shop Drawings.

1.8 WARRANTY

- A. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.
 - 1. Warranty Period: [1] year from date of Substantial Completion.

2.1 PRODUCTS

- A. Basis-of-Design Product: The design for bicycle racks is based on U/2 Inverted-U Rack by Cycle-Safe, Inc., 4630 Ada Drive, Suite B, Ada, MI 49301, (888)-950-6531; fax (616) 954-0290, <http://www.cyclesafe.com>. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
 - 1. Creative Pipe, Inc.
 - 2. Dero Bike Rack Co.
 - 3. American Bicycle Security.
 - 4. Madrax, Inc.
 - 5. Saris Parking Products, Div. of Graber Products, Inc.

2.2 MATERIALS

A. Steel: Free from surface blemishes and complying with the following:

1. Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel pipe: Standard weight Schedule 40 steel pipe complying with ASTM A53. Or electric-resistance-welded pipe complying with ASTM A135.
3. Structural Tubing: Cold-formed round steel tubing complying with ASTM A 500.
4. Sheet: Commercial steel sheet complying with ASTM A 569/A 569M

B. Anchors, Fasteners, Fittings, and Hardware: Stainless steel; commercial quality; tamperproof, vandal and theft resistant; concealed. Provide as required for bicycle rack assembly, mounting, and secure attachment.

1. Tamper-Resistant Concrete Expansion Anchors: Carbon steel mushroom head, 3/8 by 3 inch (10 by 76 mm); provide "Spike" #5550 fasteners as manufactured by Powers Fasteners or approved equal.

C. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

2.3 BICYCLE RACKS

A. Frame: Steel.

B. Style: Arched Inverted U-shaped loop, Surface Mount.

C. Pipe: Manufacturer's standard, 2 inch o.d.

D. Overall Installed Height: 36 inches (914 mm).

E. Overall Width: 24 inches (610 mm).

F. Capacity: Designed to accommodate not less than two bicycles.

G. Installation Method: Surface flange anchored at finish grade (concrete walk).

2.4 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.
- D. Baseplates: 2-1/2 by 6-1/2 inch baseplates of 3/8 inch thick steel in accordance with ASTM A 36, with two 5/8 inch (15 mm) diameter mounting holes on each base plate, spaced equidistant between the upright pipe and edge of the baseplate.
- E. Steel and Iron Components: Bare metal steel or iron components are not permitted.
- F. Exposed Surfaces: Polished, sanded, or otherwise finished; smooth all surfaces, free from burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- G. Factory Assembly: Assemble components in the factory to the greatest extent possible to minimize field assembly.

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.6 STEEL FINISHES

- A. Steel Finish: Color coated. Black.
- B. Plastisol Finish: Manufacturer's standard, UV-light stabilized, mold-resistant, matte-textures, dipped, plastisol finish, with flame retardant added; complying with coating manufacturer's written instructions for pretreatment and application.
 - 1. Blast steel surfaces clean as recommended by paint system manufacturer and according to
 - 2. SSPC-SP 10/NACE No. 2 "Near White Metal Blast Cleaning."
 - 3. 2. Apply manufacturer's standard primer.
 - 4. 3. Apply finish at coating manufacturer's recommended thickness 030 in. min.

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions, unless more stringent requirements are indicated. Complete field assembly of bicycle racks, where required.
- B. Install bicycle racks level, plumb, true, and positioned at locations indicated on Drawings.
- C. Post Setting: Set cast-in posts in 18-inch deep by 9-inch diameter concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
- D. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of bicycle racks and 3/4 inch (20 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- E. Installation Tolerances: Install bicycle racks to comply with the following maximum tolerances:
 - 1. Location: Plus or minus 1/2 inch.
 - 2. Height: Plus or minus 1/4 inch.
 - 3. Alignment of Adjacent Units: Plus or minus 1/2 inch in ten feet; 1 inch over total length.
 - 4. Plumb: Plus or minus 1/4 inch.
 - 5. Level: Plus or minus 1/4 inch.

3.3 CLEANING AND PROTECTION

- A. After completing bicycle rack installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION 02871

SECTION 04200 - UNIT MASONRY

PART 1 – GENERAL

1.1 SUMMARY

- A. This section is supplemental to the requirements set forth in the Construction Drawings
- B. Standards: Comply with recommendations of ACI and National Concrete Masonry Association (NCMA).
- C. All glazed masonry units shall be ASTRA-GLAZE-SW units manufactured by TRENWYTH INDUSTRIES, INC. Concrete blocks for glazing shall be lightweight units conforming to ASTM C90 Type.
- D. The glazed surface shall have a smooth satin-gloss finish, externally heat-polymerized cast-on facing conforming to ASTM C744 and all applicable Federal Specifications.
- E. Alternate to Trenwyth Industries: SPECTRA GLAZE by YORK BUILDING PRODUCTS

1.2 SUBMITTALS

- A. Submit product data for masonry units, cementitious products for mortar and grout, coloring pigments, and masonry accessories including anchors. Submit samples of exposed masonry units and colored pigmented mortar.
- B. Provide panel mock-up panel at job site per the mock-up detail.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Glazed masonry units shall be delivered to the jobsite on banded pallets with individual protective covers on each glazed block face. Keep protective covers on the blocks until installation and store pallets in single stacks on level ground. Cover with waterproof covering (e.g., tarpaulins) to protect the blocks from inclement weather. Handle blocks carefully to avoid breakage and damage to the finished surface.

1.4 PROJECT/SITE CONDITIONS

- A. Protection of Work: Cover walls each day after installation, to keep open walls protected and dry.

1.5 WARRANTY

- A. See Section 01700 - Project Close-Out, for Warranty requirements.

PART 2 – PRODUCTS

2.1 MASONRY UNITS

- A. Masonry units shall comply with the following requirements:

1. IBC 2103.0 – Masonry Construction Materials.
2. IBC 2104.0 - Masonry Wall Construction.
3. IBC 2103 and ASTM C-270 - Mortar Type M or S.
4. IBC 2109 and ASTM C-90 - Hollow load bearing units.
5. IBC 2109 and ASTM C-129 - Hollow non-bearing units.

- B. Masonry Units shall be manufactured with “Dry Block” by:**

**W.R. Grace
62 Whittemore Avenue
Cambridge, MA
(808) 354-5414**

- C. Mortar at exterior walls shall have Dry Block 2 mortar admix as recommended by manufacturer. Substitutions will be accepted only if certified by an independent agency to be equal to or better than Dry Block. Install per manufacturers recommendations. Masonry supplier shall provide written certification to the Independent Testing Agency that Dry Block additive has been used in the masonry products prior to installation of block.**

- 1. Acceptable alternate to Dry Block = Rheopel XD by Degussa Admixtures, Inc.**

- D. Exposed CMU shall have a density of 130 pounds per cubic foot and an absorption rate not to exceed 7%.**

- E. Concrete Block (CMU): CMU to have compressive strength as shown on structural drawings.**

- F. Provide uncured or unfrogged units with all exposed surfaces finished for sills, caps and similar applications exposing surfaces otherwise concealed from view.**

- G. Size: Nominal**

H. Architectural Block Types and Colors:

Split Face Block Color Match:

Color: Rappahannock Red by Betco Supreme

Mortar: Betco Rappahannock Red Match

Smooth Block shall be Rappahannock Red Ground Face Block to match Split Face.

Provide samples if another manufacturer is proposed.

I. Architectural Glazed Masonry Units:

1. **PRODUCT NAME:** ASTRA-GLAZE-SW glazed masonry units.
SPECTRA GLAZE by YORK BUILDING PRODUCTS is an acceptable alternate.
2. **MANUFACTURER:**
Trenwyth Industries, Inc., (800) 233-1924
One Connelly Road, P.O. Box 438
Emigsville, PA 17318
3. **COLORS:**
 - a. Red: Fire Engine Red
4. **SIZES AND SHAPES:** Actual facing dimensions shall be 7 3/4" x 15 3/4" forming a 1/16" lip around the edges of a modular 7 5/8" x 15 5/8" block. Normal 2", 4", 6", 10", and 12" standard block thickness shall be used as required as well as standard and special block shapes. Basic units may include stretchers, jambs, caps, and cove bases. Semi-solid and solid units shall be used where specified and/or shown on the drawings.
5. **DRY BLOCK WATER REPELLANT:** Glazed block unit shall be manufactured with Dry Block additive by Grace Construction Products.
6. **MASONRY CLEANERS:** Use masonry cleaners such Vanatrol and Deox, carefully following manufacturer's instructions.
7. **CAUTION!** The following solvents must never be used as they may damage ASTRA-GLAZE-SW block facings:
 - a. paint remover
 - b. lacquer thinner
 - c. epoxy thinner
 - d. methylene chloride
 - e. acetone
 - f. muriatic acid

J. Miscellaneous:

1. Mortar Materials and Mixes: Provide mortar complying with ASTM C 270, Proportion Specification, for materials and mortar types of composition indicated below:
2. See this specification for mortar colors.
3. Through Wall Flashing: See Section 07600 Flashing
4. Weepholes: 3/8" Diameter Cotton Cord Wicks @ 16" o.c.

K. Penetrating Masonry Water Repellant at All Exposed Exterior Masonry:

1. **Blok-Guard & Graffiti Control II**, water based graffiti and water repellent for porous masonry. *Thoroughly clean masonry and repair all defects in masonry (including correcting deficient masonry joints) prior to installing Blok-Guard.* See Inspections portion of this Specification. Install in conformance with manufacturer's instructions and protect all non-masonry surfaces from over spray. Provide proof of Warranty.
2. Coverage: As required to achieve positive Rilem Tube test results and manufacturer's warranty. Do not dilute or thin.

PART 3 - EXECUTION

3.1 SUMMARY

- A. Install masonry units in the bond pattern indicated, or if none is indicated, in running bond.
- B. Cut exposed masonry units: Where necessary, with a power saw. Avoid the use (by proper layout) of less than 4" size units.
- C. Bond intersecting walls with masonry units or provide anchors spaced 16" O.C. vertically.
- D. Hold uniform joint sizes as indicated, or if not indicated, hold joint sizes to suit modular size of masonry units.
- E. Cut joints flush and tool slightly concave, unless otherwise indicated.
- F. Masonry shall be protected from freezing for not less than 48 hours after installation and shall not be constructed below 35 degrees F without precautions necessary to prevent freezing.
- G. Except as otherwise shown, provide flashing under copings and sills, through wall at counter-flashing locations, and above elements of structural support for masonry.

- H. Build other work into the masonry work as shown, fitting masonry units around other work, and grouting for secure anchorage.
- I. Protect newly laid masonry from exposure to precipitation, excessive drying, freezing, soiling, backfill and other harmful elements.
- J. Dry-brush masonry as work progresses throughout the day.
- K. Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:
 - 1. Remove large mortar particles before they dry.
 - 2. Test cleaning methods on sample panels before proceeding with cleaning of entire masonry work.
 - 3. Acidic cleaner approved by unit masonry manufacturer (**not to be used on glazed products**).
 - 4. Clean concrete unit masonry to comply with masonry manufacturer's directions and applicable NCMA "Tek" bulletins.
 - 5. Clean masonry in accordance with the recommendations of the manufacturer. See recommendations included in this section of the specifications for additional information.

3.2 ARCHITECTURAL GLAZED MASONRY UNITS

A. Installation:

- 1. Draw blocks from more than one pallet at a time during installation.
- 2. Mortar color for Red glazed units shall be as specified for Brick Red Split Face.
- 3. Cutting: Make all unit cuts, including those for bonding, holes, boxes, etc., with motor-driven masonry saws, using either an abrasive or diamond blade. Cut neatly and locate for best appearance.

B. Workmanship:

- 1. Lay ASTRA-GLAZE-SW blocks with the faces level, plumb, and true to a line strung horizontally at the glazed face. Install only quality units; reject all defective units. Units shall have uniform joint dimensions of 1/4" both horizontally and vertically. Tool joints neatly after they are finger-hard to make them straight and uniform. Size and place cut pieces appropriately to maintain consistency and bond. Complete masonry construction using procedures and workmanship consistent with the best masonry practices.

3.3 CLEANING

A. CLEANING:

1. **Keep walls clean daily during installation using brushes or rags and a clean damp cloth. Harsh cleaning methods after walls have been erected may mar the surface of the blocks. Do not allow excess mortar lumps or smears to harden on the glazed surfaces. Remove green mortar with a dry cloth. Do not use steel wool, sandpaper, or other abrasives.**

B. FINAL CLEANDOWN

1. ***High Pressure Cleaning is NOT allowed.***
2. Clean the completed walls with a detergent cleaner strictly following the manufacturer's instructions including thorough rinsing. **Do not use acid or abrasives on the glazed surfaces. See I.6 - Masonry Cleaners, above.**

3.4 TESTING

- A. Comply with testing requirements of Section 01400 - Quality Control.
- B. Contractor shall provide constructed samples required for testing.
- C. Prism Tests: Test field constructed prisms in accordance with ASTM E 447, Method B. Samples shall consist of 4 prisms (approximately 8 inch by 16 inch by 16 inch), 2 tested at 7 days and 2 tested at 28 days. Prisms shall reach a minimum compressive strength of 1500/2500 psi based on compressive strength of CMU.
- D. Concrete Unit Masonry: Perform compressive strength tests using 8 inch and 12 inch units with Type 'S' mortar. Make 2 sets of tests prior to commencement of work. Make 1 set for foundation walls, and 4 sets each for 1st to 2nd floor and 2 sets for each floor thereafter. Ensure prisms are constructed at uniform periodic intervals.
- E. Test Reports: Submit reports immediately upon completion of each test. Each report shall include: Properties of masonry units, including manufacturer and their product designation. Properties of mortar, including sand-sieve analysis, manufacturer of constituent materials with respective product designation. Description of specimen, including location of Work for which the sample is representative. Age of prism at time of test. Maximum load for each prism. Cross-sectional area of each specimen. Compressive strength results for 7 day strength for first 2 specimens tested. Subsequent 28 day strengths shall include respective 7 day results from previous tests on same report. Indicate any correction factors utilized from ACI 530 Masonry Structures Specification.

3.5 INSPECTION

- A. Comply with inspection requirements of Section 01400 - Quality Control.
- B. Review submitted products and test reports for compliance with Contract Documents.
- C. Inspect placement of masonry reinforcement including vertical steel reinforcing bars placed in columns and walls.
- D. Inspect placement of joint reinforcement, anchors and ties, and accessories.
- E. Verify plumbness of walls and other tolerances specified.
- F. Supervise placement of grout fill in walls and columns.
- G. Submit daily inspection reports certifying compliance with requirements of Contract Documents.
- H. The on-site inspection agency shall thoroughly review and certify all exterior mortar joints for proper installation. Holes in mortar joints shall be patched with matching mortar and re-inspected. The Agency shall submit final written certification to the Owner that the masonry joints are free of holes and defects prior to installation of the Masonry Sealer listed above.
- I. The glazed facing shall be free from chips, cracks, crazes, or any other imperfections that would detract from the overall appearance of the finished wall when viewed from a distance of five (5) feet at right angles to the wall with normal lighting.

PART 4 – COLD WEATHER CONSTRUCTION

Air temperature deg. F.	<u>Construction requirements</u>	
	<u>Materials</u>	<u>Protection</u>
Above 100 or above 90 with wind greater than 8 mph.	Limit open mortar beds to no longer than 4 ft. and set units within one minute of spreading mortar. Store materials in cool or shaded area.	Protect wall from rapid evaporation by covering, fogging, damp curing, or other means.
90 to 40	Normal masonry procedures.	Cover masonry construction with plastic or canvas at end of workday to prevent rain from entering masonry.
Below 40	Heat mixing water. Maintain mortar temperatures between 40 and 120 deg. F. until placed.	Cover masonry construction and materials with plastic or canvas to prevent wetting and freezing for 24 hours.
Below 32	In addition to the above heat the sand. Frozen sand and	With wind velocities over 15 mph, provide windbreaks during the workday and cover

	frozen wet masonry units must be thawed.	masonry construction and materials at the end of the workday to prevent wetting and freezing. Maintain masonry above 32 deg. F. by using auxiliary heat or insulated blankets for 24 hours after laying masonry units.
Below 20	In addition to the above, dry masonry units must be heated to 20 deg. F.	Provide enclosures and supply sufficient heat to maintain masonry enclosure above 32 deg. F. for 24 hours after laying masonry units.

END OF SECTION 04200

SECTION 04720 – ARCHITECTURAL CAST STONE

PART 1 – GENERAL

1.1 SUMMARY

- A. All labor, materials and equipment to provide the Cast Stone shown on architectural drawings and as described in this specification.
- B. Manufacturer shall furnish and deliver Architectural Cast Stone covered by this specification.
- C. Setting contractor shall unload, store, furnish all anchors, set and clean Cast Stone.

1.2 QUALITY ASSURANCE

- A. Manufacturer: Must have ten years minimum continuous operating experience and have facilities for manufacturing Cast Stone as described herein:
- B. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. Cast Stone Institute Technical Manual 04720-(current edition).
 - 2. ASTM C 150 – Specification for Portland Cement.
 - 3. ASTM C 33 – Specification for Concrete Aggregates.
 - 4. ASTM C 979 – Specification for Pigments for Integrally Pigmented Concrete.
 - 5. ASTM C 494 – Specification for Chemical Admixtures for Concrete.
 - 6. ASTM A 615 – Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
 - 7. ASTM C 1194 – Test method for Compressive Strength of Architectural Cast Stone.
 - 8. ASTM C 1195 – Test method for Absorption of Architectural Cast Stone.
 - 9. ASTM C 1364 – Standard Specification for Architectural Cast Stone.
 - 10. ASTM D 2244 – Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates.
 - 11. ASTM C 666 – Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
- C. Testing: Test three specimens per 500 cubic feet at random from jobsite or from plant production for compressive strength and absorption in accordance with referenced standards.

1.3 SUBMITTALS

A. Submit for approval the following:

1. Samples of the Cast Stone specified which will be representative of the general range of color and finish to be furnished.
2. Test results of Cast Stone previously made by the manufacturer.
3. List of jobs furnished by the manufacturer that were similar in scope.

B. Shop Drawings: Submit for approval the following:

1. Copies of shop drawings showing details of the stone to be provided including: profiles, cross-sections, reinforcement, exposed faces, arrangement of joints, anchoring methods, anchors, annotation of stone types and their location.

1.4 WARRANTY

A. See Section 01700 – Project Close-Out, for warranty requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Physical properties: Provide the following:

1. Compressive Strength, ASTM C 1194; 6,500 psi min.
2. Absorption, ASTM C 1195: 6% max.

B. Raw materials:

1. Portland cement – Type I or III, white and/or gray, ASTM C 150
2. Coarse aggregates – Granite, quartz or limestone, ASTM C 33
3. Fine aggregates – Manufactured or natural sands, ASTM C 33
4. Colors – Inorganic iron oxide pigments, ASTM C 979
5. Admixtures – ASTM C 494
6. Water – potable
7. Reinforcement – ASTM A 615

2.2 FABRICATION METHODS ALLOWED (Dry Cast Only)

A. Use Vibrant-Tamp method or machine manufacture using zero slump mixture to achieve desired appearance and physical properties.

2.3 COLOR AND FINISH

- A. Arban Precast Stone, Ltd. Color #110 Off White.
- B. Exposed surfaces shall exhibit a fine-grained texture similar to natural stone. No bugholes or air voids will be permitted.

2.4 REINFORCING

- A. New billet steel reinforcing bars – ASTM A 615
 - 1. Reinforce units when necessary for safe handling and structural stress.
 - 2. Reinforcement shall be galvanized or epoxy coated when covered with less than 1-1/2" of material. Minimum cover shall be twice the diameter of the bars.

2.5 CURING AND FINISHING

- A. Cure cast stone components with a direct-fired steam generator at a minimum temperature of 105 degrees F (41 degrees C) for a minimum of 6 hours, within 12 hours of fabrication.
- B. Cure cast stone components in presence of carbon monoxide and carbon dioxide to promote carbonation at surface, to minimize efflorescence.
- C. Yard cure for 350 degree-days (i.e. 7 days @ 50F or 5 days @ 70F) prior to shipment.
- D. Acid-etch exposed surfaces to remove cement film prior to packaging for shipment.

2.6 RELATED MATERIALS

- A. Anchors – Non-corrosive; galvanized, brass or stainless steel type 304.

PART 3 – EXECUTION

3.1 TOLERANCES

- A. Comply with Cast Stone Institute Technical Manual 04720-(current edition).

3.2 JOINTING

- A. Joint size: 3/8"
- B. Joint material:
 - 1. Use a full bed of mortar at all bed joints.

2. Flush vertical joints full with mortar.
3. Leave all joints with exposed tops open for sealant.

C. Location of Joints:

1. Per the Contract Drawings and as shown on approved shop drawings.

3.3 SETTING

- A. Drench stones with clear, running water just prior to setting.
- B. Fill all dowel holes and anchor slots completely with mortar or non-shrink grout.
- C. Set all stones in a full bed of mortar. Leave head and bed joints in coping and similar stones open for sealant.
- D. Rake mortar joints $\frac{3}{4}$ " for sealant. Sponge the face of each stone to remove excess mortar.
- E. Sealant joints – Prime the ends of stones; insert properly sized foam backup rod and gun-in sealant. Use sealant on all cornices, copings and, in general, all stone areas either partially or totally horizontal.
- F. Protect stone while on ground (and after setting) from splashing, mortar and damage from other trades.

3.4 CLEANING AND REPAIR

- A. Clean stone by wetting with clear running water and applying a solution of "Sure Kleen #600" or "Vanitrol" by ProSoCo Products, Inc. or equal.
- B. Repair obvious chips with touchup material furnished by the manufacturer.
- C. Inspect by Cast Stone Institute Standards.

END OF SECTION 04720

SECTION 05700 - ALUMINUM ORNAMENTAL FENCE / GATE

PART 1 – GENERAL

1.1 SUMMARY

- A. Provide and install aluminum ornamental fencing as shown on the site plan and further detailed on the architectural drawings. See Section 02831 - Chain Link Fences and Gates, for fencing around the remainder of the site.

1.2 SUBMITTALS

- A. In addition to product data, submit the following:
 - 1. Shop drawings showing details of fabrication, assembly, and installation including templates for anchor bolt placement, hinges, bracing, embedded pipe receptors, sizes and gages of all materials used.
 - 2. Samples of metal finishes indicated.
 - 3. Manufacturers Environmental Product Declaration.

1.3 WARRANTY

- A. See Section 01700 - Project Close-Out, for warranty requirements.

PART 2 – PRODUCTS

2.1 FENCE

- A. General: Provide materials selected for their surface flatness, smoothness and freedom from surface blemishes on exposed surfaces.
- B. Manufacturer: Specrail Ornamental Fence.
- C. Style: Commercial Grade
- D. Aluminum: Alloy and temper recommended by aluminum producer or finisher for type of use and finish indicated, and with not less than the strength and durability properties of the alloy and temper designated below for each aluminum form required.
- E. Extruded Bar and Shapes: ASTM B 221, 6063-T6.

F. Extruded Pipe and Tube: ASTM B 429, 6063-T6.

2.2 MISCELLANEOUS MATERIALS

- A. Welding Electrodes and Filler Metal: Type and alloy to match metal to be welded.
- B. Fasteners: Type and alloy to match metal to be fastened; use Phillips flat-head screws for exposed fasteners if not otherwise indicated.
- C. Anchors and Inserts: Furnish as required for installation in other work. Use cadmium or galvanized anchors and inserts for exterior work.

PART 3 – EXECUTION

3.1 FABRICATION

- A. Form metalwork to required shapes and sizes, with true lines, curves and angles. Provide necessary fasteners, lugs and brackets for assembly and installation. Use concealed fasteners wherever possible. Clean and dress all exposed welds. Mill joints to tight hairline fit; cope or miter corners.
- B. Finishes: Comply with NAAMM “Metal Finishes Manual” for application and designation of finishes. Protect finished metal items. Apply heavy coating of bituminous paint (SSPC-Paint 12) on concealed surfaces to be in contact with concrete, masonry, wood, or dissimilar metals. The fence shall be coated with POLYCOLOR. Color shall be Black. Gate shall be coated with a Polyester Resin based powder coating applied by the electrostatic spray process, to a thickness of 2.5 mils. The finish shall be baked per coating manufacturer specifications.
- C. Organic Coating: Thermosetting modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with minimum dry film thickness of 2.5 mils, medium gloss.
- D. Color: Black

3.2 INSTALLATION

- A. Provide anchors, embedded pipe receptors, and fasteners to secure items to in-place construction as required.
- B. Set items in accurate locations, aligned, plumbed and level. Repair or replace damaged items as directed.

- C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, with uniform reveals and spaces for sealants and joint fillers.
- D. Where cutting, welding and grinding are required for proper shop fitting and jointing of ornamental metal items, restore finishes to eliminate any evidence of such corrective work.
- E. Do not cut or abrade finishes which cannot be completely restored in the field. Return items which cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing or provide new units as required.
- F. Restore damaged protective coverings after installation. Maintain until other work in same areas is completed. Remove protective coverings and clean exposed surfaces prior to final inspection.

END OF SECTION 05700

SECTION 07540 – THERMOPLASTIC POLYOLEFIN ROOFING (TPO) MEMBRANE

PART 1 – GENERAL

1.1 SUMMARY

A. Provide the following:

1. Fully Adhered TPO membrane roofing and roof insulation.
2. Provide alternate price to furnish and install a mechanically fastened, White TPO Membrane Roofing System.

1.2 SUBMITTALS

A. Submit for approval samples, product data, warranty, test reports, maintenance data. Submit plan for roofing installation, approved in writing by roofing manufacturer, and include substrate approval.

B. Provide manufacturers certification for the following LEED related items:

1. Low VOC compliant adhesives and chemicals.
2. Solar Reflectance Index (SRI) as specified herein.
3. Manufacturers Environmental Product Declaration.

1.3 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and the Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Section 07200 - Insulation

1.4 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturer's which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Listing: UL Class A external fire exposure.

1.5 PRECONSTRUCTION CONFERENCE

A. Preliminary Roofing Conference:

1. Before starting roof deck construction, conduct conference at Project site. Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:
 - a. Meet with Owner, Owner's Representative, Owner's testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
 - b. Review means, methods, and procedures related to roofing installation, including manufacturer's written instructions.
 - c. Review Project Safety Plan for site conditions, enforcement, compliance, or Owner imposed restrictions that may be required.
 - d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - e. Examine site for approved staging areas, disposal sites, and document existing conditions prior to contractor mobilization. Establish scope of work for site restoration and responsibilities.
 - f. Examine site for condition and completion of areas adjacent to work area. Establish protection required for existing surfaces.
 - g. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - h. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 - i. Review governing regulations and requirements for insurance and certificates if applicable.
 - j. Review temporary protection requirements for roofing system during and after installation.
 - k. Review work limitation by contractor including; start times, end times, days of the week, noise mitigation, fume control and any part of the work that would affect normal building operations.
 - l. Review trade coordination necessary for job completion.
 - m. Review roof observation and repair procedures after roofing installation.

1.6 WARRANTY

- A. See Section 01700 - Project Close-Out for warranty requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. TPO Membrane Roofing:

1. Manufacturers: Firestone Ultraply TPO.
2. Type: Fully Adhered.
3. Membrane: White Thermoplastic Polyolefin, 45 mils, ASTM D 4637, Type I. Solar Reflectance Index (SRI) = 98 or greater

B. Auxiliary Materials:

1. Polyisocyanurate Insulation - See Section 07200
2. Tapered Insulation: Fabricated to provide proper drainage at crickets.
3. Sheet Metal Accessories: SMACNA and NRCA recommendations.
4. 5/8" DensDeck Prime Roof Board vertical application at parapets as a backer board for membrane roof.

PART 3 – EXECUTION

3.1 GENERAL

- A. Inspect substrate and report unsatisfactory conditions in writing. Beginning work means acceptance of substrate.
- B. Comply with roof system manufacturer's instructions and recommendations; clean, prime and prepare substrate.
- C. Install insulation with tightly butted joints and neatly fitted around penetrations.
- D. When feasible, begin the application at the highest point of the highest roof level and work to the lowest point to prevent moisture infiltration and to minimize construction traffic on completed sections. This will include completion of all flashings, terminations and daily seals.
- E. Minimize seams and shingle overlaps to shed water.
- F. Restore or replace damaged components. Protect work from damage.
- G. Refer to the applicable Material Safety Data Sheets and Technical Data Bulletins for cautions and warnings.

3.2 INSULATION ATTACHMENT

- A. Insulation shall be mechanically fastened to the roof deck at a minimum rate of 1 every 2 square feet except as follows:
 1. When a single or top layer of minimum 1-1/2" thick Polyisocyanurate Insulation is specified, insulation may be mechanically fastened at the minimum rate of 1 every 3.2 square feet (10 fasteners per 4' x 8' board). Refer

to Manufacturer's details for additional requirements. Fasteners shall be compatible with metal deck roof specified for this project.

2. When a single or top layer of minimum 2" thick Polyisocyanurate Insulation is specified, insulation may be mechanically fastened at the minimum rate of 1 every 4 square feet (8 fasteners per 4' x 8' board). Refer to Manufacturer's details for additional requirements.
3. Insulation Fastening Plates must be used with the appropriate fastener for insulation attachment.
4. When mechanical attachment of the insulation is not desired, an alternate insulation attachment method may be specified which incorporates the use of Low VOC compliant Adhesive.

B. Membrane Installation and Hot Air Welding:

1. Sweep loose debris from the substrate.
2. Position Membrane over acceptable substrate and fold membrane back so half the underside is exposed.
3. Apply Bonding Adhesive to the exposed underside of the membrane and the corresponding substrate area with a plastic core medium nap paint roller at a coverage rate of approximately 60 square feet per gallon per finished surface (includes coverage on both membrane and substrate).
4. Allow adhesive to dry until tacky and roll coated membrane into coated substrate and avoid wrinkling.
5. Brush down the bonded section of membrane immediately with a soft bristle push broom.
6. Fold back the unbonded half of the sheet and repeat the bonding procedure.
7. Install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2" to provide for a minimum 1-1/2" hot air weld. It is recommended that all splices be shingled to avoid bucking of water.
8. Hot air weld the membrane sheets a minimum of 1-1/2" with an Automatic Hot Air Welding Machine.
9. Membrane that has been exposed to the elements for approximately 7 days must be prepared with Weathered Membrane Cleaner. Wipe the surface where Manufacturer's recommended Membrane Cleaner has been applied with a clean, dry HP Splice Wipe or other white rag to remove cleaner residue prior to hot air welding.

C. Additional Membrane Securement:

1. The membrane must be secured at the perimeter of each roof level, roof section, expansion joint, curb, skylight, interior wall, penthouse, etc., at any angle change which exceeds 2" per horizontal foot and at all other penetrations in accordance with Carlisle's published details.

D. Membrane Flashing:

1. Flash all walls and curbs with reinforced membrane. Non-Reinforced membrane shall be limited to inside and outside corners, field fabricated pipe seals, scuppers and Sealant Pockets where the use of pre-molded accessories are not practical. Terminate the flashing in accordance with an appropriate manufacturer's recommended detail.
2. On vertical surfaces, such as walls, curbs and pipes, Bonding Adhesive is not required when flashing height is 12" or less and membrane is terminated under a metal counter-flashing (nailed). When a coping or termination bar is used for vertical terminations, Bonding Adhesive may be eliminated for flashing heights 18" or less.
3. Copings, counter-flashing and other metal work, shall be fastened to prevent metal from pulling free or buckling and sealed to prevent moisture from entering the roofing system or building.

END OF SECTION 07540

SECTION 08410 – ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 – GENERAL

1.1 SUMMARY

A. Aluminum entrance and storefront includes:

1. Exterior entrance doors, including hardware and weather-stripping
2. Frames for exterior entrances and windows
3. Glass and glazing

1.2 SUBMITTALS

A. Provide shop drawings to the Architect.

1. Shop Drawings: Include elevations, details, hardware mounting heights, anchorages, expansion provisions, and all glazing details. **Hand drawn details are not acceptable.**

B. Provide Manufacturer's certification that Low-E glass is installed where required by the contract documents. This document shall be submitted for approval with the shop drawings.

C. Product Data: Include fabrication methods, finishing, hardware, accessories and installation recommendations, including Manufacturer's Installation Manual.

D. Manufacturers Environmental Product Declaration.

1.3 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and the Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Section 01504 - Sustainability and LEED Requirements

C. Section 08521 – Single Hung Aluminum Windows

D. Section 08800 – Glass and Glazing

1.5 QUALITY ASSURANCE

A. Installer's Qualifications: 5-years experience in installation.

- B. Design Criteria: Drawings are based on one manufacturer's system. Another manufacturer's system will be acceptable when differences do not detract from the design concept, as judged by Architect.

1.4 WARRANTY

- A. See Section 01700 - Project Close-Out for warranty requirements.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. US Aluminum, YKK, EFCO, Kawneer, or approved equal.

2.2 GENERAL

- A. Shall be US Aluminum, YKK AP America, EFCO, Kawneer, or approved equal 2" x 4-1/2" extruded aluminum sections of 6063-T5 alloy and temper and shall, in all cases, fall within commercial tolerances and be free from defects impairing strength, durability or appearance.

- B. Storefront doors shall be Narrow Stile with exposed closers.

- C. All windows shall be have 1" insulated glazing.

- D. Aluminum entrance and storefront types required include:

1. Exterior entrance doors.
2. Frames for exterior entrances and windows.
3. Storefront framing system.
4. Performance Requirements: Provide certified test results showing systems have been tested by a recognized testing laboratory and comply with characteristics specified. Verify that all thermal and air infiltration characteristics comply with all applicable code requirements.
5. Thermal Movement: Provide for expansion and contraction resulting from an ambient temperature range of 120 deg. F (67 deg. C).
6. Wind Loading: Withstand uniform test pressure of 20 psf inward and outward when tested in accordance with ASTM E 330.

- E. Fixed Framing Transmission Characteristics:

1. Air Infiltration: Not more than 0.06 CFM per sq. ft. when tested in accordance with ASTM E 283 at an inward test pressure differential of 6.24 psf.
2. Water Penetration: No penetration when tested in accordance with ASTM E 331 at an inward test pressure differential of 6.24 lbf. per sq. ft.

3. Condensation Resistance: Not less than 45 CRF when tested in accordance with AAMA 1502.
4. Thermal Transmittance: Not more than 0.65 BTU/(hr. x sq. ft. x deg. F) at 15 mph wind velocity when tested in accordance with AAMA 1503.
5. Air Infiltration: Not more than 0.50 CFM for single doors and 1.0 for pairs of doors when tested in accordance with ASTM E 283 at an inward test pressure differential of 1.567 psf.
6. Condensation Resistance: Not less than 48 CRF when tested in accordance with AAMA 1502.
7. Thermal Transmittance: Overall U-value of not more than 0.93 BTU/(hr. x sq. ft. x deg. F) at 15 mph wind velocity when tested in accordance with AAMA 1503.

F. Aluminum Members: Alloy and temper recommended for strength, corrosion resistance, and application of finish; comply with ASTM B 221 for extrusions and ASTM B 209 for sheet or plate.

2.3 FASTENERS

A. Aluminum, nonmagnetic stainless steel, or other non-corrosive material.

1. Except for application of hardware, do not use exposed fasteners. For hardware, use Phillips flat-head machine screws; match finish of member or hardware being fastened. Exposed screws will not be allowed.

2.4 WEATHER-STRIPPING

A. Replaceable compressible neoprene or molded PVC type gaskets or replaceable wool, polypropylene, or nylon woven pile, with nylon fabric or aluminum strip backing as suitable for type of door operation.

2.5 GLASS AND GLAZING MATERIALS

A. Glass and Glazing: 1" Insulated, engineered for local wind loading requirements.

1. Manufacturer: Contractors choice, provide product literature to Architect for approval.
- B. Glazing Panels: Flush panels with resin-impregnated Kraft paper honeycomb or rigid closed-cell urethane core, laminated with waterproof glue between two sheets of aluminum.

2.6 STOREFRONT FRAMING

- A. Inside-outside matched resilient framing with provisions for glass replacement. Shop-fabricate and pre-assemble.
1. Provide low conductance, integrally concealed, thermal barrier between exterior and interior members.
 2. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
 3. Sill Flashing: US Aluminum FF40011 Clear Aluminum Sill Flashing (raised profile with weeps), or equal.
 4. Aluminum End Dams: End dams must have three-point attachment.
 5. Head and Jamb frames shall be fitted with flat fillers.
 6. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
 7. Additional components as required for a complete proper installation.

2.7 ALUMINUM DOORS

- A. Stile-and-Rail Type Aluminum Doors: Tubular frame members, with mechanical joints using heavy reinforcing plates and concealed tie-rods or j-bolts.
1. Design: Narrow stile (2" nominal width) with 8" (nominal height) bottom rail.
 2. Hardware: Provide heavy-duty units- clear aluminum. Refer to hardware section for items not provided by the manufacturer.
 3. Ball-Bearing Butts: 5-knuckle, 2-bearings, steel ball bearing butts sized to comply with ANSI A156.1.
 4. Surface-Mounted Overhead Closers: LCN: #1461 (size 5) with 72 DS1 cover and 3077 arm. On active leaf only.
 5. Door-mounted Holder: Flip-up type with rubber shoe, for mounting on lower rail; comply with ANSI A156.16. On active leaf only.
 6. Door Stop: Floor or wall mounted with integral rubber bumper; comply with ANSI A156.16.
 7. Cylinders: Mortise type, 5-pin tumbler, inside units with cast aluminum face; comply with ANSI A156.5.
 8. Thumb-Turns: Inside cylinders of cast aluminum alloy.
 9. Deadlocks: Mortised maximum security type, with minimum 1" long pivoted bolt and stainless steel strike box; comply with ANSI A156.5.
 10. Pull Handles: Aluminum handles, style #P-002. (Both leafs of double doors) Clear Finish.
 11. Push Bars: Aluminum bars, style #P-001. (Both leafs of double doors) Clear Finish
 12. Thresholds: Extruded aluminum in mill finish, United States Aluminum # TH-400 (4" wide) with anchors and clips. ADA compliant.

13. Mail Slot (in door outside main gate where applicable): Extruded aluminum with Duranodic clear finish as manufactured by C.R. Lawrence, model # MS100DU 2 5/8" x 9 5/8". Always install on hinge side of door.
14. Fabrication: Sizes of units and profile requirements are indicated on drawings.
15. Sweep: Reese 353A with rain cap.

2.8 FINISHES: Storefront and doors shall be Clear Anodized Aluminum. Exposed hardware shall be clear aluminum.

2.9 RELATED MATERIALS (Specified in Other Sections)

- A. Glass: refer to Section 08800 – Glass and Glazing for glass materials.
- B. Mastic for Setting Bed: Refer to Section 07950 – Sealants and Adhesives.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

- C. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. Obtain and submit the manufacturer's latest installation manual.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

3.3 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
 1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

3.4 INSTALLATION

- A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.

1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials using nylon pads or bituminous coating.
2. Shim and brace aluminum system before anchoring to structure. Anchor at top and sides only.
3. Provide sill flashing at exterior storefront systems. Extend extruded flashing continuous with splice joints; set in continuous bed of sealant. Do not penetrate sill with fasteners.
4. Verify storefront system allows water entering system to be collected in gutters and wept to exterior. Verify metal joints are sealed in accordance with manufacturers installation instructions. Do not block sill weeps.
5. Seal metal to metal storefront system joints using sealant recommended by system manufacturer.
6. Set sill and end dams in full width, full depth mastic/sealant bed. Leave no gaps. Mastic shall turn-up sides to seal end dam to masonry opening.
7. Window frames shall be sized to maintain a 3/8"-1/2" Sealant joint at head and jambs. Joints less than 3/8" at exterior shall be rejected.
8. Glass stops shall be installed at the top interior face of windows for interior glass replacement at upper levels.
9. Glass stops shall be installed at the bottom, exterior face of windows for exterior access at grade level and at all Spandrel glass installations.
10. Weather stripping gaskets shall not be stretched and shall remain with no gaps at corners. Stretching gaskets during installation will result in shrinkage and will be subject to replacement.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
- B. Field Test: Conduct field test to determine watertightness of storefront system. Conduct test in accordance with AAMA 501.2.

3.6 ADJUSTING AND CLEANING

- A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's recommendations.
- B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
- C. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

END OF SECTION 08410

SECTION 08460 – SLIDING AUTOMATIC ENTRANCES

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes the following types of automatic entrance doors:

1. Exterior and interior, single slide and bi-parting, sliding automatic entrance doors with glass sliding and fixed panels.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Division 7 Sections for caulking to the extent not specified in this section.
- C. Section 08410 - Aluminum-Framed Entrances and Storefronts
- D. Section 08710 - Door Hardware for hardware to the extent not specified in this Section.
- E. Section 13852 - Security Access System for keypad coordination.
- F. Division 16 Sections for electrical connections including conduit and wiring for automatic entrance door operators.

1.3 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. Underwriters Laboratories (UL):

1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
- C. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):
1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
 2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
 3. ANSI Z97.1: Standard for Safety Glazing Materials Used In Buildings - Safety Performance Specifications And Methods Of Test.
- D. Consumer Product Safety Commission (CPSC):
1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- E. American Society for Testing and Materials (ASTM):
1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- F. American Association of Automatic Door Manufacturers (AAADM):
- G. National Fire Protection Association (NFPA):
1. NFPA 101 – Life Safety Code.
 2. NFPA 70 – National Electric Code.
- H. International Code Council (ICC):
1. IBC: International Building
- I. International Organization for Standardization (ISO):
1. ISO 9001 - Quality Management Systems
- J. National Association of Architectural Metal Manufacturers (NAAMM):
1. Metal Finishes Manual for Architectural and Metal Products.

K. American Architectural Manufacturers Association (AAMA):

1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

1.4 DEFINITIONS

- A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide automatic entrance door assemblies capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Thermal Movements: Provide automatic entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
- D. Opening-Force Requirements for Egress Doors: Not more than 50 lbf (222 N) required to manually set door in motion if power fails, and not more than 15 lbf (67 N) required to open door to minimum required width.
- E. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.

1.6 SUBMITTALS

- A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Specification Sections.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, signage, and attachments to other work.
- C. Manufacturers Environmental Product Declaration.
- D. Closeout Submittals:
 - 1. Owner's Manual.
 - 2. Warranties.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.
- C. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
 - 1. ANSI/BHMA A156.10.
 - 2. NFPA 101.
 - 3. Underwriter's Laboratories 325 (UL) listed.
 - 4. IBC
- D. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.
- E. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- G. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

1.8 PROJECT CONDITIONS

- A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
- C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.9 COORDINATION

- A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.
- B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

1.10 WARRANTY

- A. See Section 01700 - Project Close-Out for warranty requirements.

PART 2 - PRODUCTS

2.1 AUTOMATIC ENTRANCE DOORS

- A. Manufacturer: Stanley Access Technologies; Dura-Glide™ 2000 Series sliding automatic entrance doors with glass sliding panels (no fixed panels required).

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

- 1. Headers, stiles, rails, and frames: 6063-T6
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Sheet and Plate: ASTM B 209.

- B. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Sealants".

2.3 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

- A. Provide manufacturer's standard automatic entrance door assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

- B. Bi-Parting sliding doors:

- 1. Configuration: Two sliding leaves with exterior mounted track.
 - 2. Traffic Pattern: Two-way.
 - 3. Emergency Breakaway Capability: Sliding leaves only.
 - 4. Mounting: Between jambs

2.4 COMPONENTS

- A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.

- 1. Nominal Size: 1 ¾ inch by 4 ½ inch (45 by 115 mm).

- B. Glass Panel and Rail Doors: Manufacturer's standard 1 ¾ inch (45 mm) thick extruded-aluminum tubular rail members. Rail members to be specifically designed

by automatic entrance manufacturer for use with glass panel door systems. Fasten rails to glass panels in manner approved by the manufacturer.

1. Top Rail: 5 1/2 inch (140 mm) nominal height.
 2. Bottom Rail: 4 inch (102 mm) nominal height.
 3. Glazing: Provide glazing for sliding automatic entrance doors as follows:
 - a. Provide safety glass complying with ANSI Z97.1 and CPSC 16 CFR 1201 for Category II materials.
 - b. Safety Glass: 1/2 inch (12 mm) clear, fully tempered, with polished edges, in all panels.
- C. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
1. Mounting: Concealed, with one side of header flush with framing.
 2. Capacity: Capable of supporting doors up to 220 lb (100 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.
- D. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum two ball-bearing roller wheels and two anti-rise rollers for each active leaf.
1. Minimum Load Wheel Diameter: 2 1/2 inch (64 mm).
- E. Thresholds: Manufacturer's standard thresholds as indicated below:
1. NO THRESHOLD REQUIRED.
- F. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- G. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

2.5 DOOR OPERATORS

- A. Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.
- B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
 - 1. Operation: Power opening and power closing.
 - 2. Features:
 - a. Adjustable opening and closing speeds.
 - b. Adjustable back-check and latching.
 - c. Adjustable braking.
 - d. Adjustable hold-open time between 0 and 30 seconds.
 - e. Obstruction recycle.
 - f. On/Off switch to control electric power to operator.
 - g. Energy conservation switch that reduces door-opening width.
 - h. Variable rate open/closed speed control.
 - i. Closed loop speed control with active braking and acceleration.
 - j. Variable obstruction recycle time delay.
 - k. Self adjusting stop position.
 - l. Self adjusting closing compression force.
 - m. Optional Switch to open/Switch to close operation.
 - 3. Mounting: Concealed.
 - 4. Drive System: Synchronous belt type.
- C. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

2.6 ELECTRICAL CONTROLS

- A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable. A single controller shall be capable of controlling up to 2 operators per entrance system.
- B. Life Cycle Data Counter: The microprocessor control shall incorporate a non-resettable counter to track door operation cycles.

- C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
1. Automatic Reset Upon Power Up
 2. Fuse Protection
 3. Electronic Surge Protection
 4. Internal Power Supply Protection.
 5. Software “Watchdog” protection in the case of software malfunction.
- D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.
- E. Safety Search Circuitry: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.
- F. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be software driven and shall be utilized via Palm® handheld interface. The following parameters may be adjusted via the configuration tool.
1. Operating speeds and forces as required to meet ANSI/BHMA A156.10.
 2. Adjustable and variable features as specified in 2.05, B., 2.
 3. Reduced opening position.
 4. Firmware update.
 5. Trouble Shooting
 - a. I/O Status.
 - b. Electrical component monitoring including parameter summary.
 6. Entrance profile copy/paste.
- G. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer’s internet site.

2.7 ACTIVATION AND SAFETY DEVICES

- A. Motion Sensors: Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
- B. Presence Sensors: Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.
- C. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.

2.8 HARDWARE

- A. Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.
- B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
 - 1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.
- C. Locking: Electronic Solenoid Lock (Fail Safe/Fail Secure). Connect to Owners access control system with keypad access to release doors. Doors shall remain unlocked during normal business hours. Keypad and two locking override switches at the Office counter shall be installed by the security contractor.

- D. Control Switch: Provide manufacturer's standard key switches mounted in fixed jamb to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
1. Power On/Off
 2. Reduced Opening
 3. Open/Closed/Automatic
- E. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of flexible PVC.
- F. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.9 FABRICATION

- A. Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
1. Form aluminum shapes before finishing.
 2. Use concealed fasteners to greatest extent possible.
 - a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 - b. Reinforce members as required to receive fastener threads.
- B. Framing: Provide automatic entrance doors as prefabricated assemblies.
1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
 2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
 3. Form profiles that are sharp, straight, and free of defects or deformations.
 4. Prepare components to receive concealed fasteners and anchor and connection devices.
 5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
- C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

- D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
- E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
- F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.10 ALUMINUM FINISHES

- A. Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
- B. Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
 - 1. AAMA 607.1
 - 2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

2.11 SLIDE DOOR DECALS

- A. Comply with ANSI 156.10, Section 11 for code required slide door decals. See diagram at the end of this section.
<https://law.resource.org/pub/us/cfr/ibr/003/bhman.156.10.1999.pdf>

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.
- B. Entrances: Install automatic entrance doors plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
 - 1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - 2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
- C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 16 Sections.
- D. Glazing: Glaze sliding automatic entrance door panels in accordance with, the Glass Association of North America (GANA) Glazing Manual, and published recommendations of glass product manufacturer.
- E. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weather tight installation.

3.3 FIELD QUALITY CONTROL

- A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

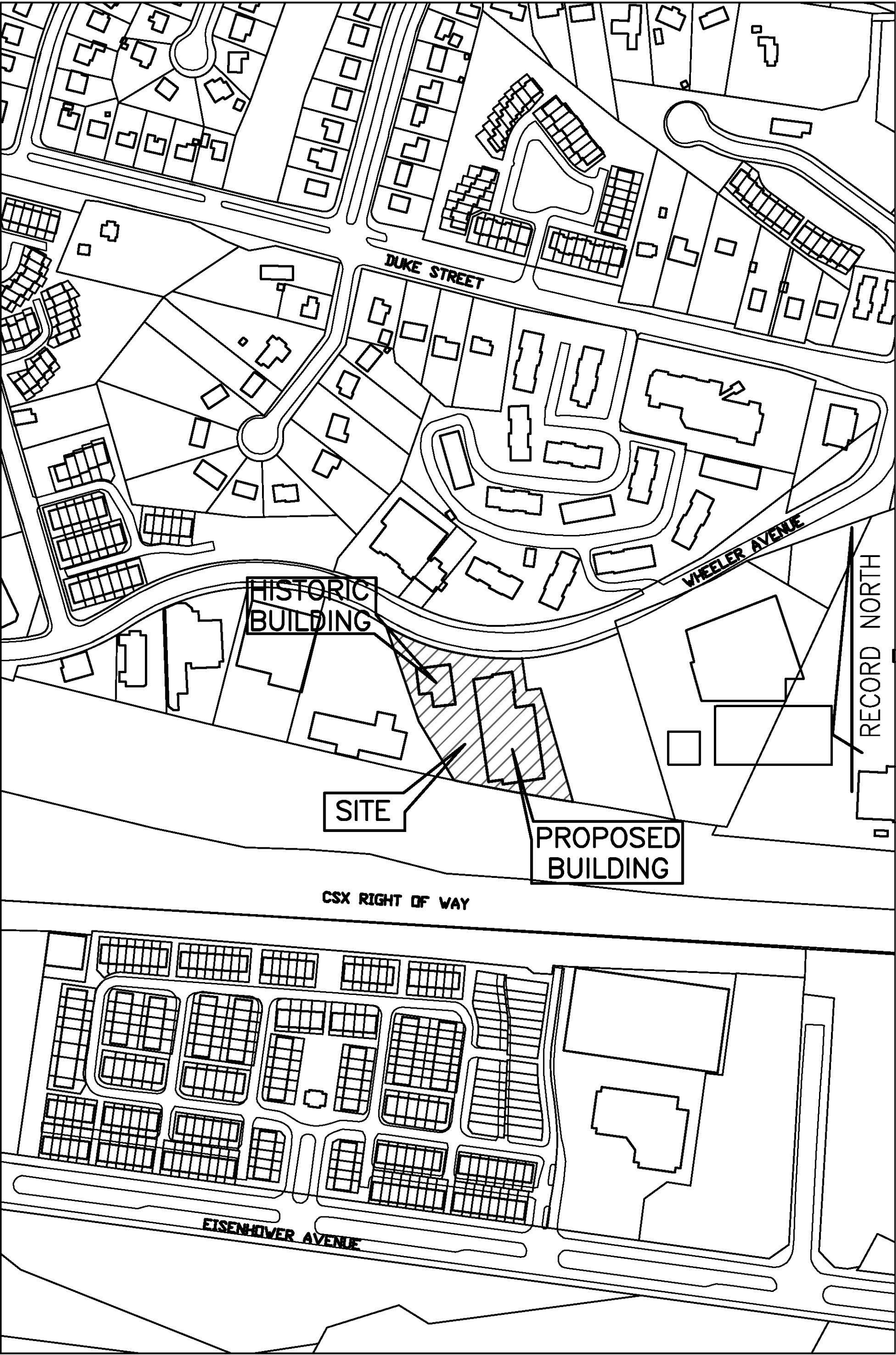
3.4 ADJUSTING

- A. Adjust door operators, controls, and hardware for smooth and safe operation, for weather-tight closure, and complying with requirements in ANSI/BHMA A156.10.

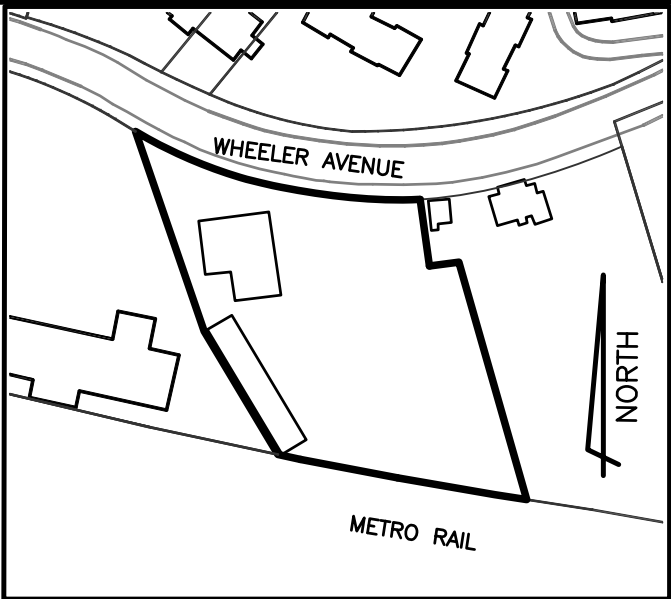
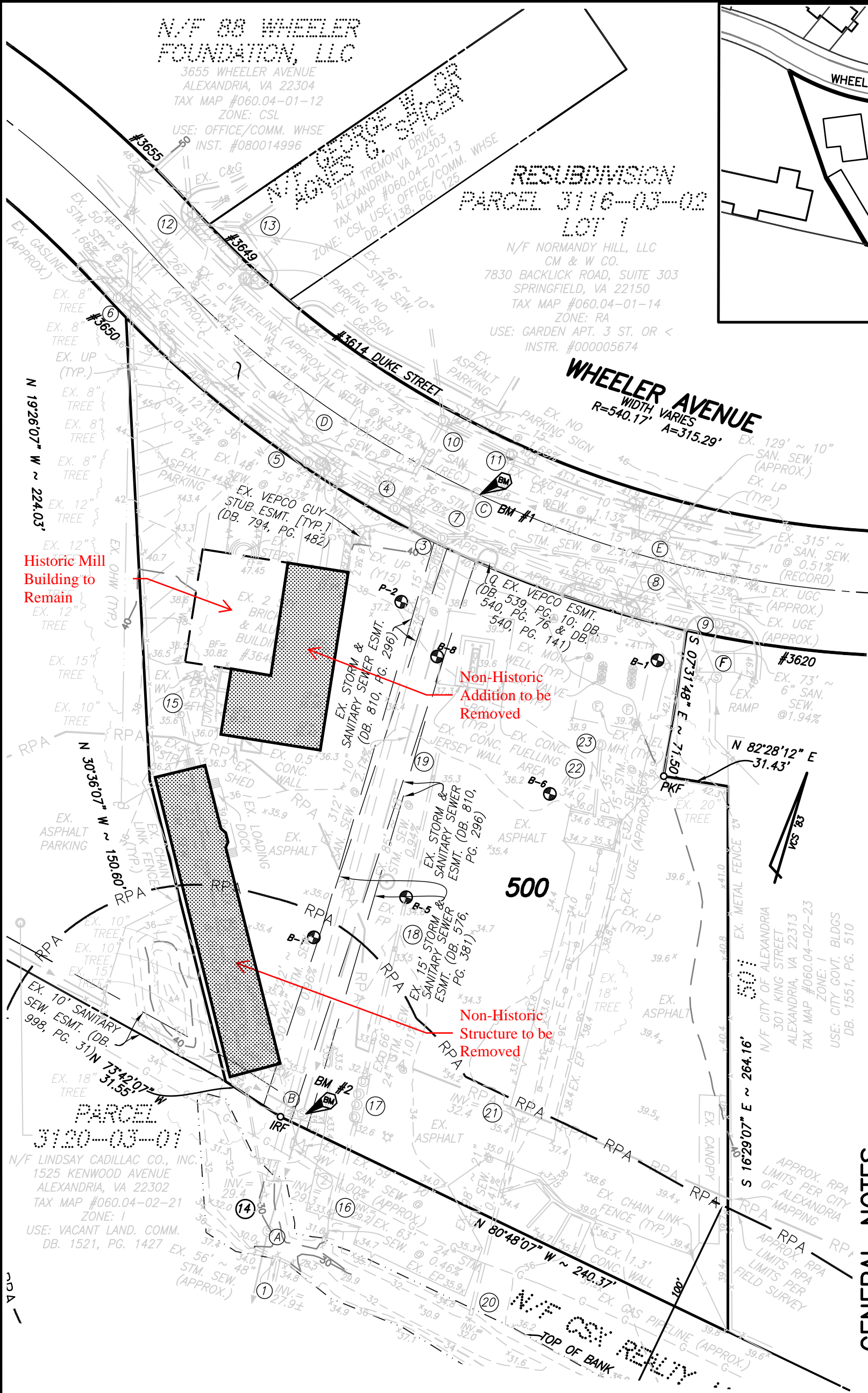
3.5 CLEANING AND PROTECTION

- A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION 08460



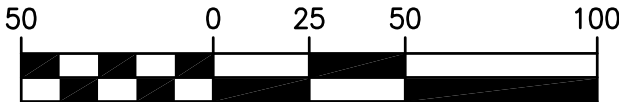
CONTEXTUAL MAP
SCALE 1"=200'



VICINITY MAP
SCALE : 1" = 200'

- GENERAL NOTES**
1. TOPOGRAPHY REFERENCED TO NAVD '88 VERTICAL DATUM PR CITY OF ALEXANDRIA CONTROL MONUMENT GPS #580. HORIZONTAL COORDINATES AND BEARINGS REFERENCED TO VCS '83 DATUM OER CITY OF ALEXANDRIA CONTROL MONUMENTS GPS #580 & 581.
 2. TITLE REPORT NOT FURNISHED, THUS ALL EASEMENTS MAY NOT BE SHOWN
 3. PLAT SUBJECT TO RESTRICTIONS OF RECORD.
 4. TOTAL SITE AREA = 87,120 S.F OR 2.0000 AC.
- OWNER:**
JB, LLC
ATTN: WILLIAM J.M. WILLIS
FLIPPO CONSTRUCTION CO.
3820 PENN BELT PLACE
ALEXANDRIA, VA 22313
DB. 431, PG. 488
- EX. ZONING:** 1
- TAX MAP:** #060.04-02-22

GRAPHIC SCALE



1 INCH = 50 FT.

FILE NO. **14-185**
SHEET **1** OF **1**

COMP.	WDS
DRAWN	TG
CHECKED	RJK

EXISTING CONDITIONS SURVEY
EZ STORAGE FACILITY
#3640 WHEELER AVENUE
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1" = 20' DATE: 10 FEBRUARY, 2015

RCF **IELDS & ASSOCIATES**
INCORPORATED

● ENGINEERING ● LAND SURVEYING ● PLANNING
730 S. Washington St. Alexandria, Virginia 22314 (703) 549-6422

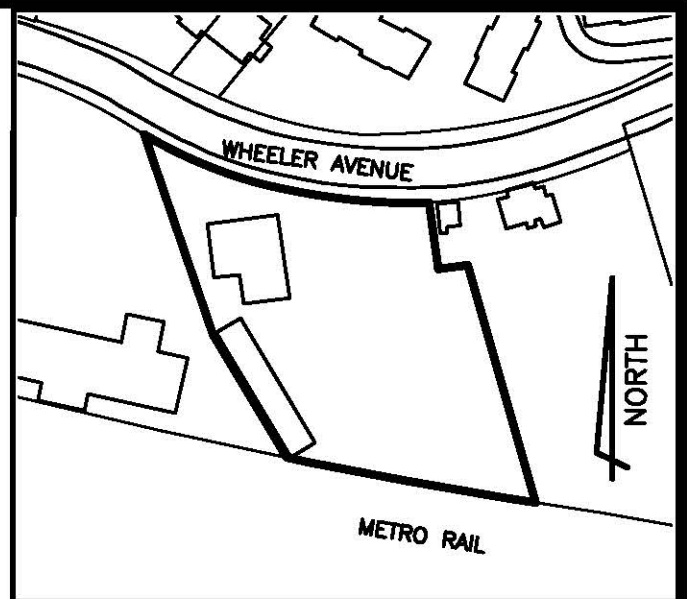
3655 WHEELER AVENUE
ALEXANDRIA, VA 22304
TAX MAP #060.04-01-12
ZONE: CSL
USE: OFFICE/COMM. WHSE
INST. #080014996

ER AVENUE
 VA 22304
 0.04-01-12
 CSL
 COMM. WHSE
 0014996

N/F GEORGE W. OR
 AGNES G. SPICER
 5714 TREMONT DRIVE
 ALEXANDRIA, VA 22303
 TAX MAP #060.04-01-13
 ZONE: CSL USE: OFFICE/COMM. WHSE
 DB. 1138, PG. 125

PAR

N/F NORMANDY HILL, LLC
CM & W CO.
7830 BACKLICK ROAD, SUITE 303
SPRINGFIELD, VA 22150
TAX MAP #060.04-01-14
ZONE: RA
USE: GARDEN APT. 3 ST. OR <
INSTR. #000005674

[illegible]

1. TAX MAP: #060.04-02-22
2. EX. ZONING: I
3. OWNER: JBI, LLC
ATTN. WILLIAM J.M. WILLIS
FLIPPO CONSTRUCTION CO.
3820 PENN BELT PLACE
ALEXANDRIA, VA 22313
DB. 431, PG. 488
4. TOPOGRAPHY REFERENCED TO NAVD 88 VERTICAL DATUM FOR CITY OF ALEXANDRIA CONTROL MONUMENT GPS #580. HORIZONTAL COORDINATES AND BEARINGS REFERENCED TO VCS '83 DATUM FOR CITY OF ALEXANDRIA CONTROL MONUMENTS GPS #580 & 581.
5. TITLE REPORT NOT FURNISHED, THUS ALL EASEMENTS MAY NOT BE SHOWN
6. PLAT SUBJECT TO RESTRICTIONS OF RECORD.
6. TOTAL SITE AREA = 87,120 S.F OR 2.0000 AC.

FILE NO. **14-185**
SHEET **1** OF **1**

COMP.	WDS
DRAWN	TG
CHECKED	RJK

SCALE: 1" = 50' DATE: 4 SEPTEMBER 2015


IELDS & ASSOCIATES
 INCORPORATED

● ENGINEERING ● LAND SURVEYING ● PLANNING
730 S. Washington St. Alexandria, Virginia 22314 (703) 549-6422



Historic Mill Front with Non-Historic Addition on East Side



Historic Mill Rear with Non-Historic Addition on South and East Side



Non-Historic Building in background to be Demolished



East Side of Historic Mill with Non-Historic Addition to be Demolished

EXISTING CONDITIONS PHOTOS

ALEXANDRIA

ezStorage



Asphalt Parking Lot to be Replaced with Landscape and Sidewalk in Front of Mill



Existing Stair and Entry Doors to be Removed



North and West Faces of Historic Mill



Existing Entry Canopy to be Removed

EXISTING CONDITIONS PHOTOS

ALEXANDRIA

ezStorage



Location of Grist Mill Axle Entry Point on West Face



Historic Mill Rear with Non-Historic Addition on South and East Side



South Face of Mill with Non-Historic Portion of Building to be Demolished



Detail of West Side of Historic Mill

EXISTING CONDITIONS PHOTOS

ALEXANDRIA

ezStorage

1/16" = 1'-0"



WHEELER AVENUE STREETSCAPE

ALEXANDRIA

ezStorage

PROPOSED MILL RACE DRAINAGE WAY TO BE
CONSTRUCTED WITH APPROPRIATE NATURE STONE
ELEMENTS ACCOMPANIED WITH NATIVE PLANT
MATERIAL AS PER RECOMMENDED BY CITY STAFF
ARCHEOLOGY REPORT. FINAL GRADING OF THIS
AREA TO BE FINALIZED ACCORDINGLY.

#3640
EX. 2-STORY BRICK
BUILDING WITH
BASEMENT
(HISTORIC
STRUCTURE)
EX. FF=47.45
EX. BF=30.82
USE: ANCILLARY
OFFICE

500

#3640
PROP. 4-STORY
BUILDING
WITH BASEMENT
HGT = 46.50'
FF=41.25'
BF=30.58'
USE: PUBLIC STORAGE
UNITS

1 CONCRETE SIDEWALK
7 PARKING LIGHT
8 PARKING LIGHT POLE
ARCHITECTURAL LIGHT

501
N/F CITY OF ALEXANDRIA
301 KING STREET
ALEXANDRIA, VA 22313
TAX MAP #060.04-02-23
ZONE: I
USE: CITY GOVT. BLDGS
DB. 1551, PG. 510

PROPOSED LANDSCAPE PLAN

ALEXANDRIA

ezStorage

1" = 40'0"

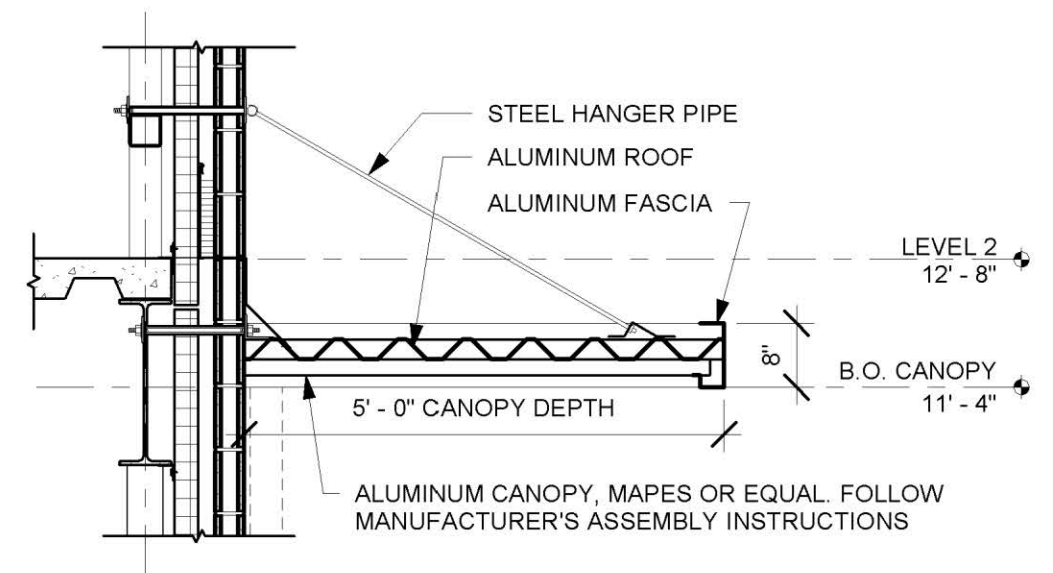
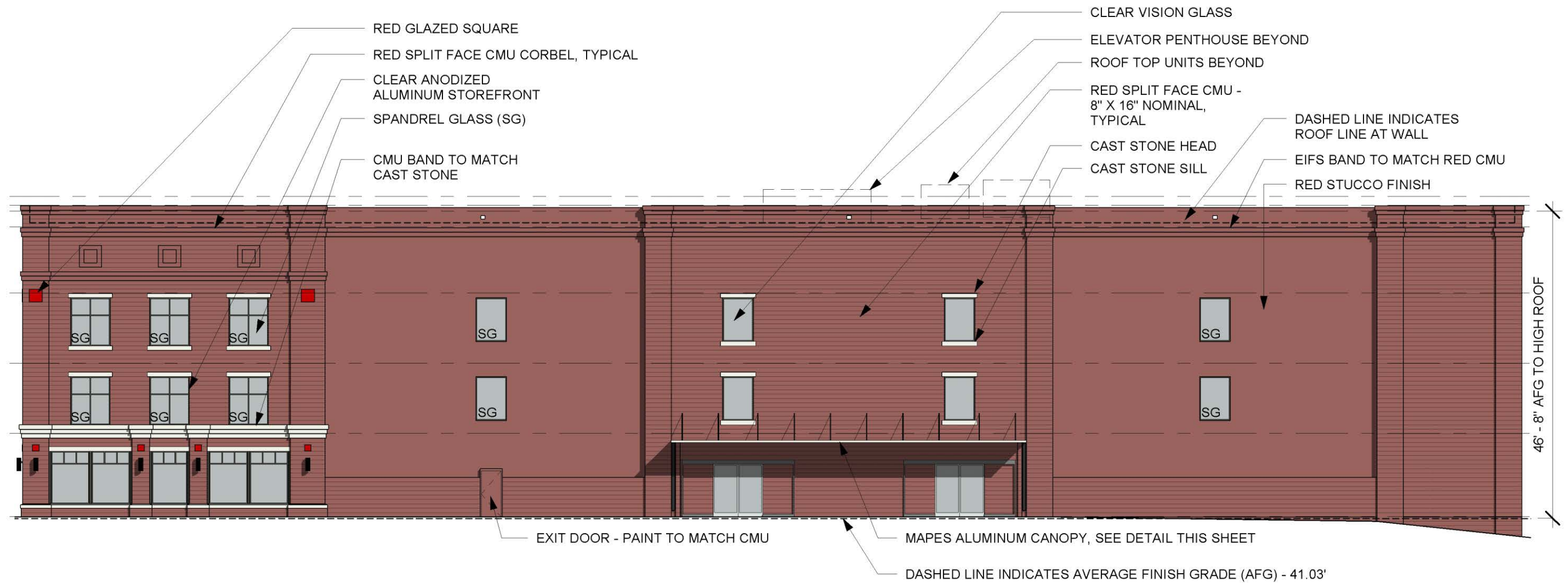


PROPOSED STRUCTURE - FRONT ELEVATION

ALEXANDRIA

ezStorage

1/16" = 1'-0"

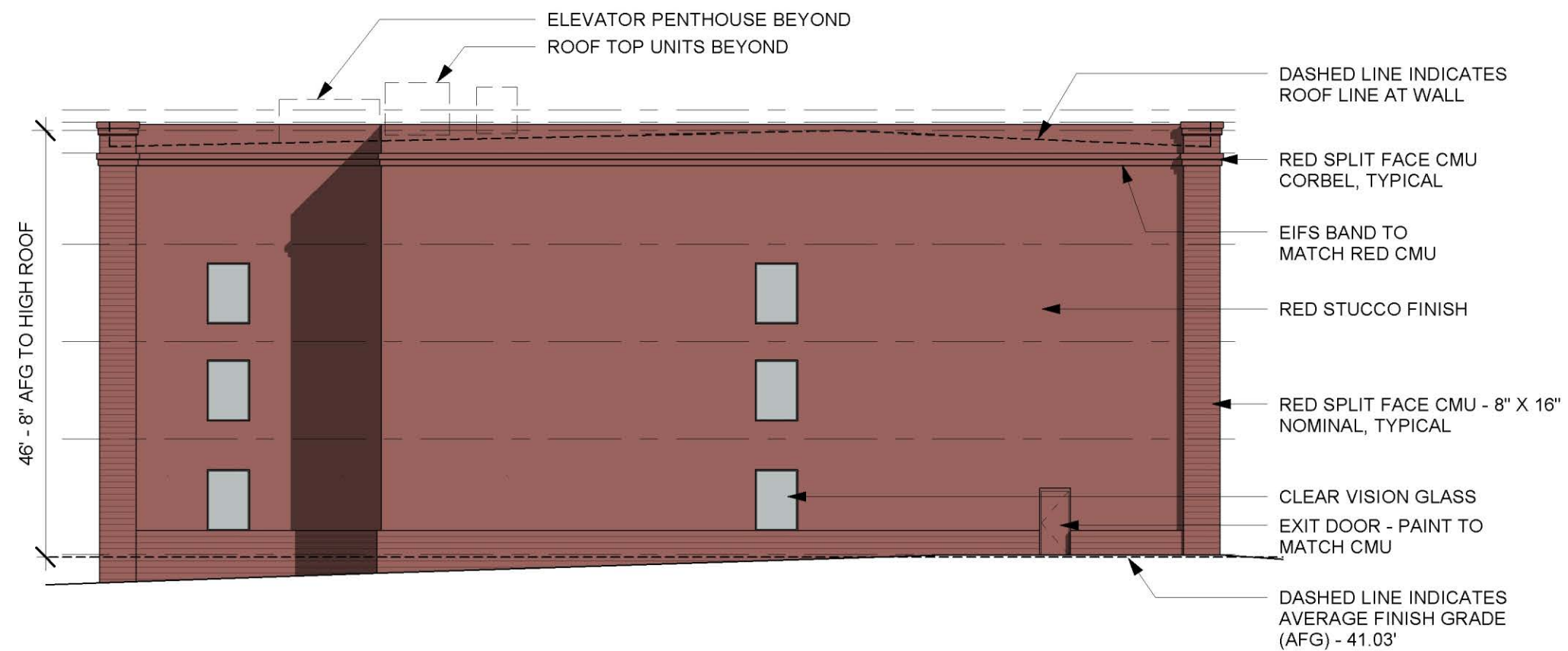


PROPOSED STRUCTURE - WEST ELEVATION

ALEXANDRIA

ezStorage

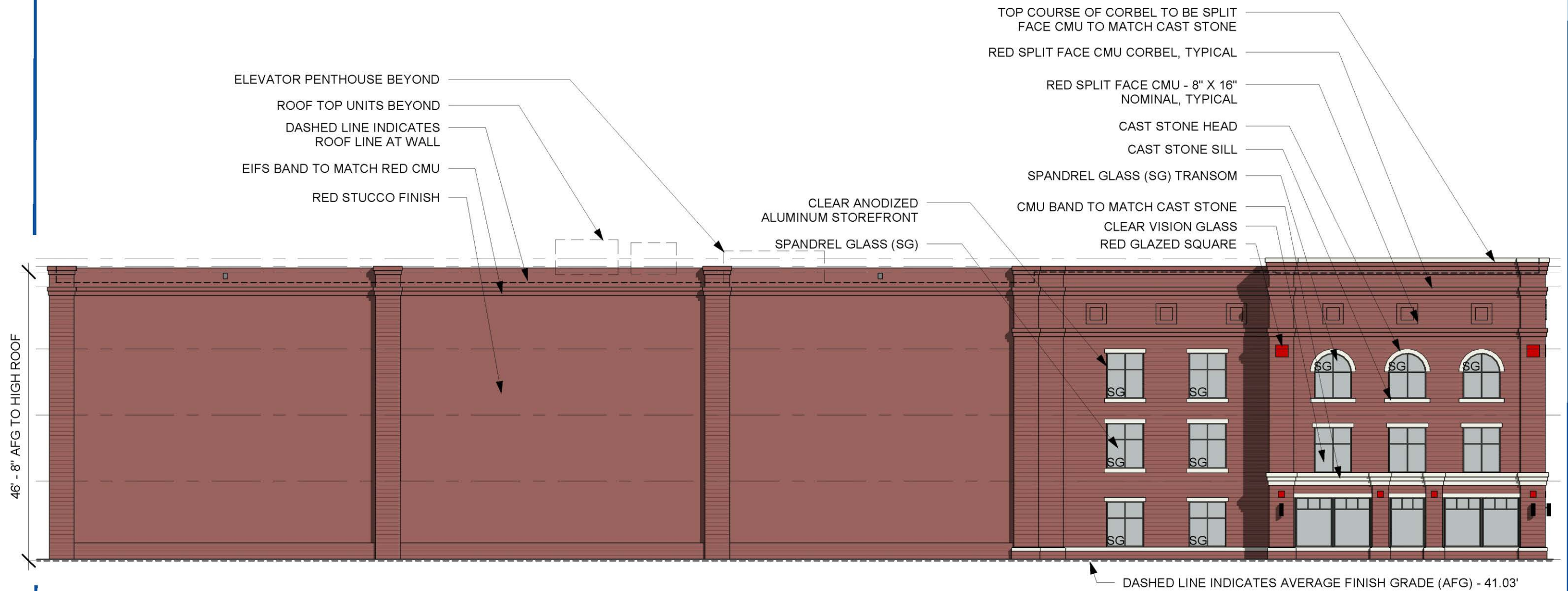
1/16" = 1'-0"



PROPOSED STRUCTURE - SOUTH (REAR) ELEVATION

ALEXANDRIA

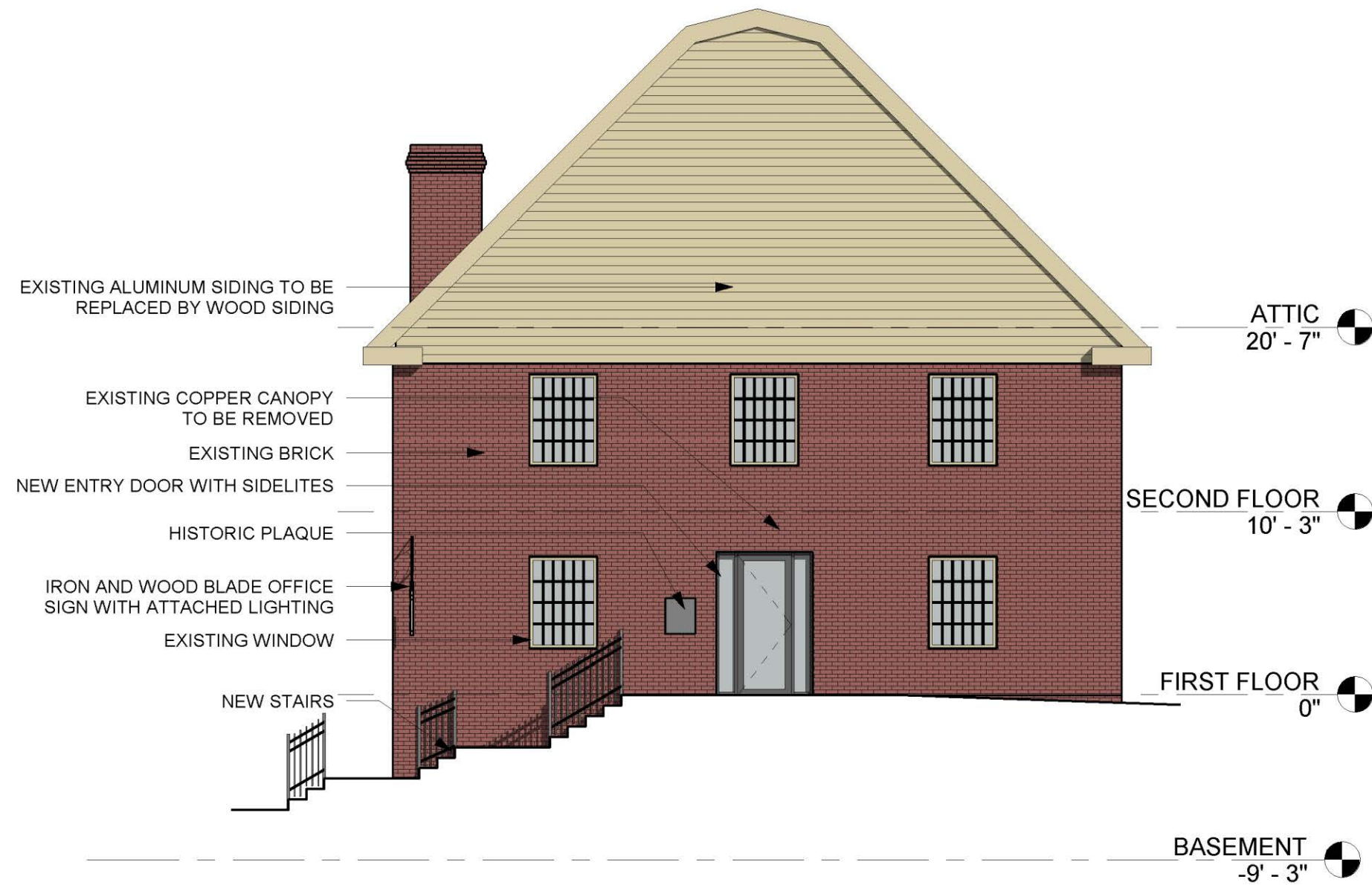
ezStorage



PROPOSED STRUCTURE - EAST ELEVATION

ALEXANDRIA

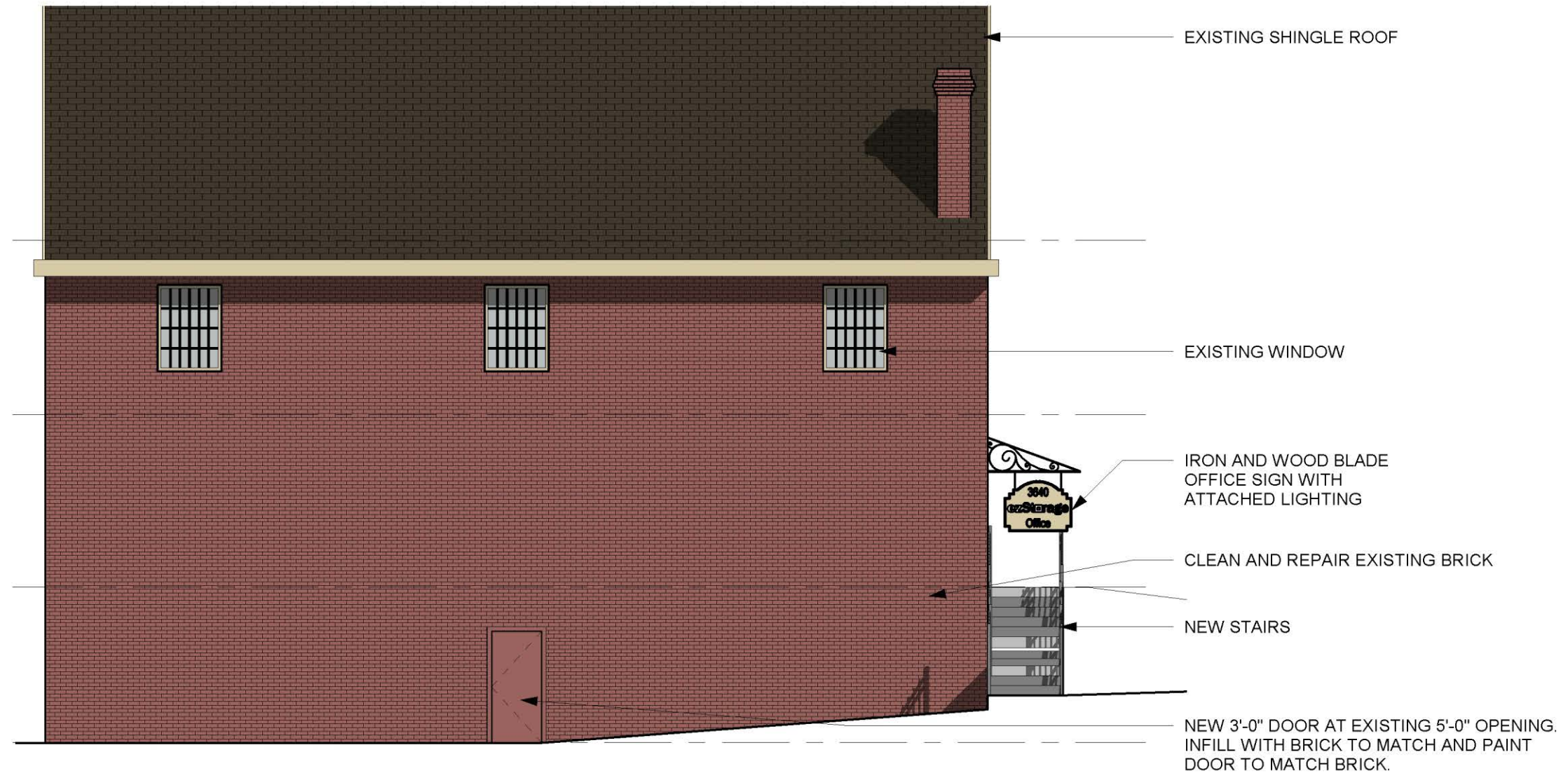
ezStorage



HISTORIC STRUCTURE - FRONT ELEVATION

ALEXANDRIA

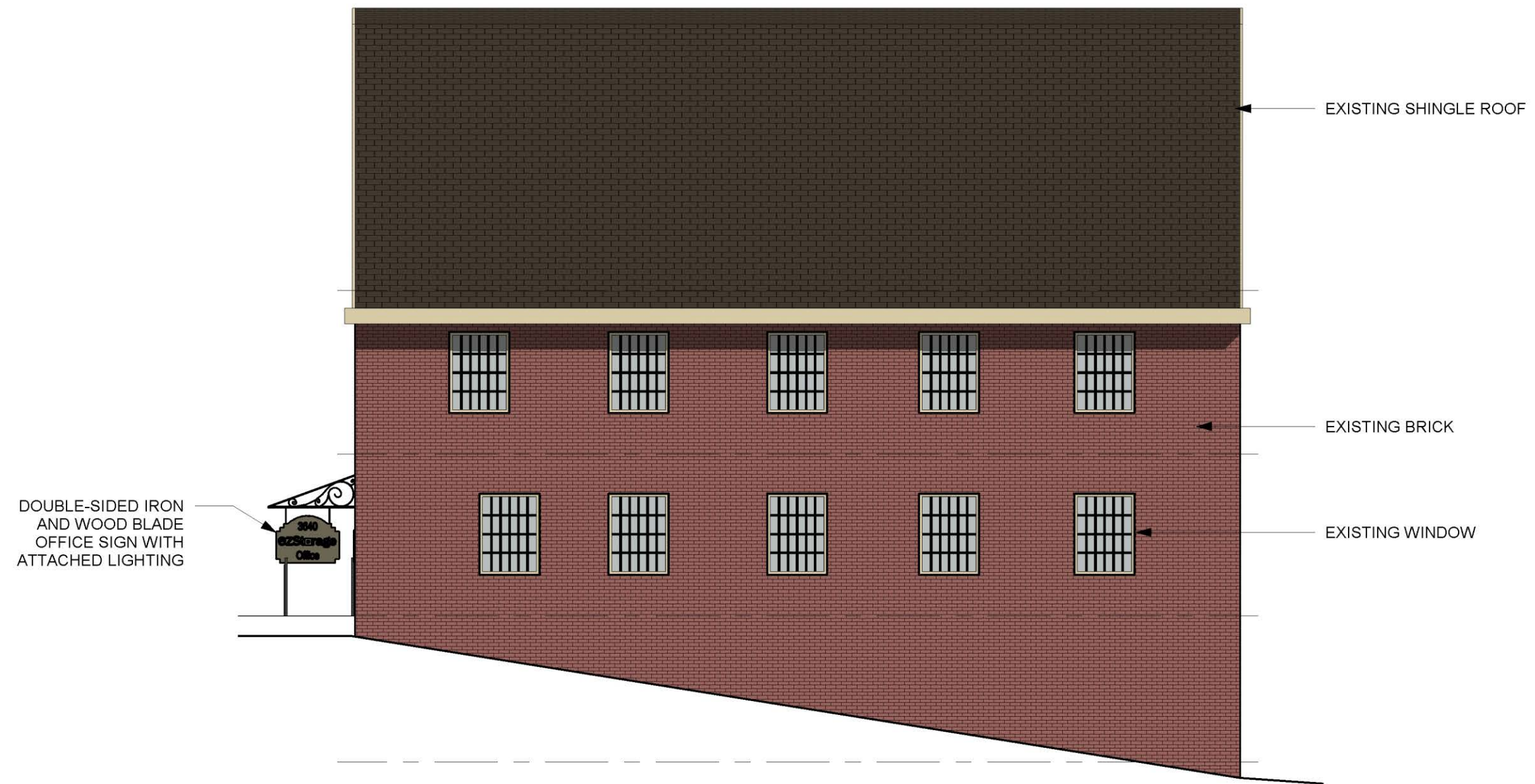
ezStorage



HISTORIC STRUCTURE - EAST ELEVATION

ALEXANDRIA

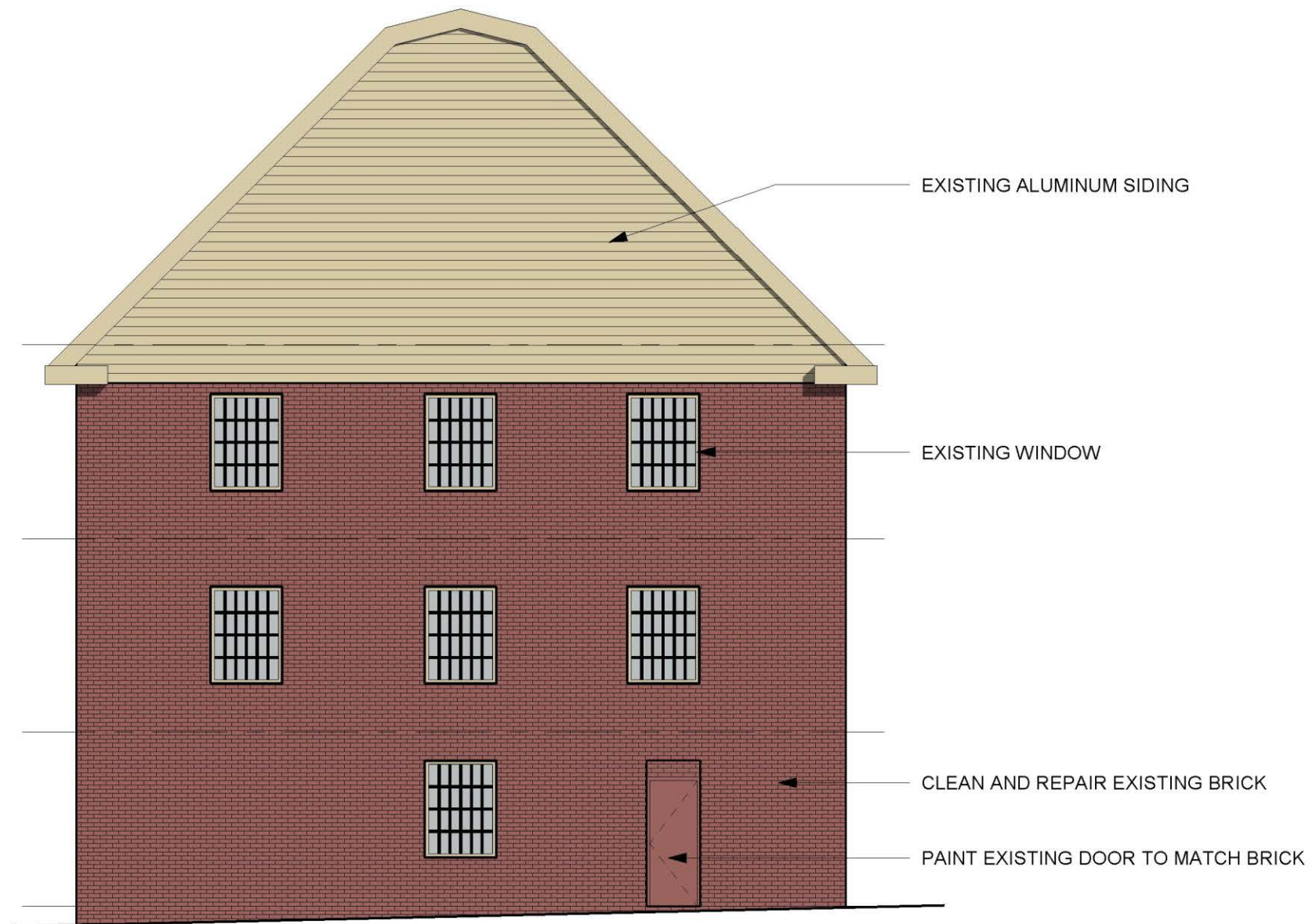
ezStorage



HISTORIC STRUCTURE - WEST ELEVATION

ALEXANDRIA

ezStorage

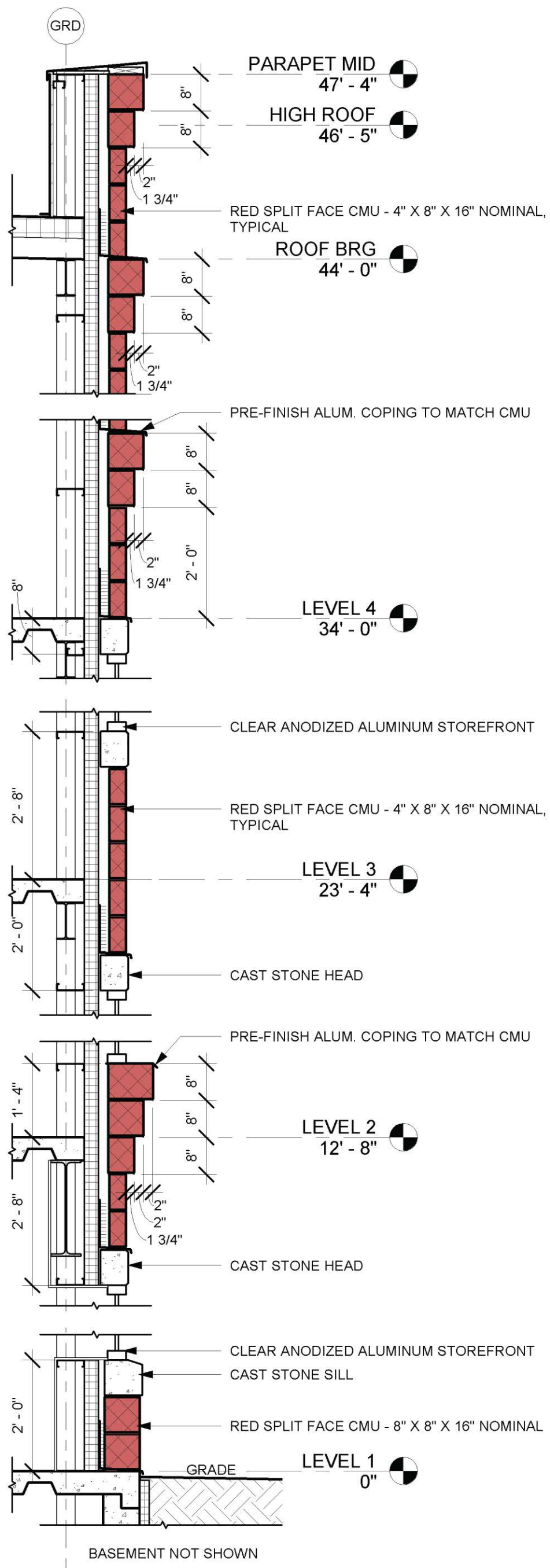


HISTORIC STRUCTURE - SOUTH (REAR) ELEVATION

ALEXANDRIA

1/8" = 1'-0"

ezStorage



WALL SECTION

ALEXANDRIA

1/2" = 1'0"



View from Wheeler Avenue Looking West

ALEXANDRIA

ezStorage



View from Wheeler Avenue Looking East

ALEXANDRIA

ezStorage