

Docket Item # 3 & #4  
BAR CASE #2018-00003 &  
2018-00004

BAR Meeting  
February 21, 2018

**ISSUE:** Permit to Demolish/Capsulate and Certificate of Appropriateness for alterations

**APPLICANT:** Deborah & Kenneth Cureton

**LOCATION:** 119 Queen Street

**ZONE:** RM / Residential

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**STAFF RECOMMENDATION**

Staff recommends approval of the Permit to Demolish/Capsulate and Certificate of Appropriateness as submitted with the following conditions;

1. All glazing must be clear, non-reflective and without tint. Low-E (low emissivity) glazing is encouraged for energy conservation but the glass must have a minimum 72% visible light transmission (VLT) with a through-the-glass shading coefficient between 0.87 – 1.0, and a reflectance of less than 10%. Low-E 272 generally meets these criteria.
2. The final location of rooftop mechanical units must be determined in the field with staff to ensure they are in the best location to eliminate or minimize visibility.
3. Fiber cement siding must be smooth (not woodgrain) clapboard.
4. The skylights may not be visible from Queen Street.

## **GENERAL NOTES TO THE APPLICANT**

1. **ISSUANCE OF CERTIFICATES OF APPROPRIATENESS AND PERMITS TO DEMOLISH:** Applicants must obtain a stamped copy of the Certificate of Appropriateness or Permit to Demolish PRIOR to applying for a building permit. Contact BAR Staff, Room 2100, City Hall, 703-746-3833, or [preservation@alexandriava.gov](mailto:preservation@alexandriava.gov) for further information.
2. **APPEAL OF DECISION:** In accordance with the Zoning Ordinance, if the Board of Architectural Review denies or approves an application in whole or in part, the applicant or opponent may appeal the Board's decision to City Council on or before 14 days after the decision of the Board.
3. **COMPLIANCE WITH BAR POLICIES:** All materials must comply with the BAR's adopted policies unless otherwise specifically approved.
4. **BUILDING PERMITS:** Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Building and Fire Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, Room 4200, City Hall, 703-838-4360 for further information.
5. **EXPIRATION OF APPROVALS NOTE:** In accordance with Sections 10-106(B) and 10-206(B) of the Zoning Ordinance, any official Board of Architectural Review approval will expire 12 months from the date of issuance if the work is not commenced and diligently and substantially pursued by the end of that 12-month period.
6. **HISTORIC PROPERTY TAX CREDITS:** Applicants performing extensive, certified rehabilitations of historic properties may separately be eligible for state and/or federal tax credits. Consult with the Virginia Department of Historic Resources (VDHR) prior to initiating any work to determine whether the proposed project may qualify for such credits



***Note:*** Staff coupled the reports for BAR #2018-00003 (Permit to Demolish/Capsulate) and BAR #2018-00004 (Certificate of Appropriateness) for clarity and brevity. This item requires a roll call vote.

## **I. ISSUE**

The applicant is requesting approval of a Certificate of Appropriateness and a Permit to Demolish/Capsulate to construct a rear dormer at 119 Queen Street. In addition, the applicant requests approval of a Waiver of the Rooftop Screening Requirement to allow for a rooftop HVAC condenser.

The project requires the demolition of a 11'-4" x 8' (approximately 91 square feet) portion of the rear roof slope to accommodate the new dormer. The shed-style dormer will have three casement windows. The materials on the dormer will be smooth HardiePlank brand fiber cement clapboard siding and trim, and the roof will be clad with standing seam metal to match the existing roof.

The rooftop HVAC condenser will be located toward the rear of the dwelling, adjacent to the existing chimney. Staff finds that the mechanical unit will be minimally visible from the North Lee Street public right-of-way in this location. Two Velux brand skylights will be installed on the south end of the flat portion of the roof on field-constructed curbs.

## **II. HISTORY**

The three-and-a-half story, three-bay, brick townhouse at 119 Queen Street is one of a group of 86 three-story brick townhouses bounded by North Union, North Lee, Queen and Oronoco Streets which were approved by City Council in 1968 (Special Use Permit #1084) and constructed in **1971**. At the time the area was developed it was not within the boundaries of the Old and Historic Alexandria District, but it was added to the district in June of 1984. In 2015 the BAR approved both a front and rear dormer (BAR 2015-00224 & 000225. The property owner did not act on the previous BAR approval and is now coming before the BAR for a similarly designed rear dormer and rooftop HVAC unit.

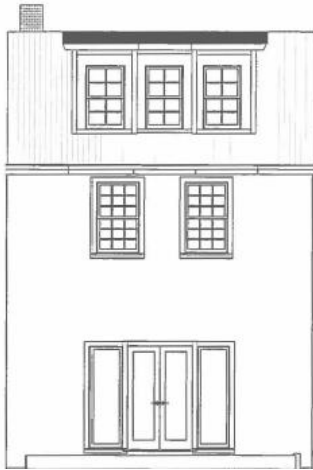


Figure 1: Rear dormer approved September 16, 2015



Figure 2: Proposed rear dormer and HVAC unit

### III. ANALYSIS

#### Permit to Demolish

In considering a Permit to Demolish, the Board must consider the following criteria set forth in the Zoning Ordinance, §10-105(B):

Standard	Description of Standard	Standard Met?
(1)	Is the building or structure of such architectural or historical interest that its moving, removing, capsulating or razing would be to the detriment of the public interest?	No
(2)	Is the building or structure of such interest that it could be made into a historic house?	No
(3)	Is the building or structure of such old and unusual or uncommon design, texture and material that it could not be reproduced or be reproduced only with great difficulty?	No
(4)	Would retention of the building or structure help preserve the memorial character of the George Washington Memorial Parkway?	N/A
(5)	Would retention of the building or structure help preserve and protect an historic place or area of historic interest in the city?	No
(6)	Would retention of the building or structure promote the general welfare by maintaining and increasing real estate values, generating business, creating new positions, attracting tourists, students, writers, historians, artists and artisans, attracting new residents, encouraging study and interest in American history, stimulating interest and study in architecture and design, educating citizens in American culture and	No



	heritage, and making the city a more attractive and desirable place in which to live?	
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Staff does not find that the proposed demolition of a portion of the rear roof compromises the overall integrity of this 1970s townhouse. These vernacular Colonial Revival style townhouses are generally successful background buildings without individual historical interest or uncommon architectural elements. In the opinion of Staff, none of the criteria for demolition and capsulation in the zoning ordinance are met and the Permit to Demolish/Capsulate should be granted.

*Certificate of Appropriateness*

During the past several years the BAR has reviewed and approved a number of substantial alterations and additions to the townhouses within this development, including rear additions, rooftop decks, and new dormers for residents seeking additional living space and expansive waterfront views from converted attics. Some seemingly minor alterations were very controversial with neighbors, while other more substantial changes have garnered little attention. As these are not historic buildings within the generally accepted period of significance of the district, alterations to these dwellings are not preservation issues. The BAR's primary role in reviewing alterations at these townhouses is to ensure stylistic compatibility with the existing structure; general scale, mass and architectural compatibility with the immediate neighbors; and maintenance of the overall character of the historic district. The subject property is surrounded by early 20<sup>th</sup>-century townhouses across Queen Street, and within the immediate vicinity there is a multi-story commercial office building as well as a row of modest commercial buildings on Lee Street. The rear dormer and rooftop mechanical unit face a private alley and will be minimally visible from North Lee Street (figure 3).



Figure 3: Visibility of 119 Queen Street from North Lee Street.

While the most historically appropriate dormers on a Colonial Revival style house would be individual front gable roof dormers, the BARs have frequently approved shed dormers on the rear of Colonial Revival style buildings and approving a rear dormer would make 119 Queen Street one of many units with rear dormers in this development (Figures 3-6). Many of these dormers have windows void of muntins due to owner preference and the BAR has approved them because of their minimal visibility from a public way. The proposed shed dormer is adequately detailed, does not detract from the modest Colonial Revival detailing on this townhouse and is compatible with its surroundings.



Figure 4: Buildings on the rear of Quay Street in green show rear additions and the red outlined building is 119 Queen Street.





Figure 4: The rear of Queen Street. Buildings in green have rear additions, 119 Queen is noted in red outline.



Figure 5: The rear of Quay Street, the green outline building shows a rear addition.



Figure 6: The rear of Princess Street, the green outlined buildings show rear additions.

The proposed dormer will utilize synthetic materials, such as HardiePlank fiber cement siding and trim, which the BAR has found to be appropriate on buildings and additions constructed after 1975. The use of high-quality modern materials is particularly appropriate on dormers, where these are will only be viewed from a distance and the elevated location makes maintenance more difficult. The applicant also proposes, and staff supports, the proposed Pella aluminum clad, single lite casement windows, as the Board's *Window Policy* supports the use of aluminum clad wood, wood composite or fiberglass windows on building constructed after 1934. However, the proposed glass does not meet the Window Policy's approved glass and staff has recommended a condition that the Low-E glass comply with the BAR Policy. The proposed glass has a darker tint than the policy advises. Finally, the applicant proposes skylights on the southern portion of the flat roof, although the manufacturer's literature says that these must be installed on a field-built curb of unspecified height. Staff, therefore, recommends that the curb be low enough that the top of the skylight not be visible from Queen Street.



**STAFF**

Jenny Rowan, Historic Preservation Planner, Planning & Zoning  
Al Cox, FAIA, Historic Preservation Manager, Planning & Zoning

**IV. CITY DEPARTMENT COMMENTS**

Legend: C - code requirement R - recommendation S - suggestion F- finding

**Zoning**

F-1 The subject property is part of larger development approved in 1968 by the Board of Zoning Appeals (BZA#1084). Per the approved development, the lot is identified as lot number 5 with specific conditions.

- The maximum allowable floor area is 1,870 square feet.
- The property must provide 35 percent of the lot area for open and usable space.

C-1 Proposed dormer complies with zoning.

C-2 Pursuant to City Zoning Ordinance § 6-403(B)(3), the board of architectural review may waive or modify the screening requirement of subsection (B)(1) of this section.

**Code Administration**

C-1 A building permit, plan review and inspections are required.

**Transportation & Environmental Services**

R-1 The building permit must be approved and issued prior to the issuance of any permit for demolition. (T&ES)

R-2 Applicant shall be responsible for repairs to the adjacent city right-of-way if damaged during construction activity. (T&ES)

R-3 No permanent structure may be constructed over any existing private and/or public utility easements. It is the responsibility of the applicant to identify any and all existing easements on the plan. (T&ES)

F-1 Previously reviewed under [BAR2015-00224, BAR2015-00225] (T&ES)

F-2 After review of the information provided, an approved grading plan is not required at this time. Please note that if any changes are made to the plan it is suggested that T&ES be included in the review. (T&ES)

F-3 If the alley located at the rear of the parcel is to be used at any point of the construction process the following will be required:  
For a Public Alley - The applicant shall contact T&ES, Construction Permitting & Inspections at (703) 746-4035 to discuss any permits and accommodation requirements that will be required.

For a Private Alley - The applicant must provide proof, in the form of an affidavit at a minimum, from owner of the alley granting permission of use. (T&ES)

- F-4 The parcel is tagged RSPR. Storm has no comments.
- C-1 The applicant shall comply with the City of Alexandria's Solid Waste Control, Title 5, Chapter 1, which sets forth the requirements for the recycling of materials (Sec. 5-1-99). (T&ES)
- C-2 The applicant shall comply with the City of Alexandria's Noise Control Code, Title 11, Chapter 5, which sets the maximum permissible noise level as measured at the property line. (T&ES)
- C-3 Roof, surface and sub-surface drains be connected to the public storm sewer system, if available, by continuous underground pipe. Where storm sewer is not available applicant must provide a design to mitigate impact of stormwater drainage onto adjacent properties and to the satisfaction of the Director of Transportation & Environmental Services. (Sec.5-6-224) (T&ES)
- C-4 All secondary utilities serving this site shall be placed underground. (Sec. 5-3-3) (T&ES)
- C-5 Any work within the right-of-way requires a separate permit from T&ES. (Sec. 5-2) (T&ES)
- C-6 All improvements to the city right-of-way such as curbing, sidewalk, driveway aprons, etc. must be city standard design. (Sec. 5-2-1) (T&ES)

## **V. ATTACHMENTS**

*1 – Application BAR2018- 00003 & BAR2018-00004 at 119 Queen Street*

*2 – Supporting Materials*

BAR Case # 2018-003 & 004ADDRESS OF PROJECT: 119 QUEEN STREET ALEXANDRIA, VA 22314TAX MAP AND PARCEL: 065.03-05-52 ZONING: RMAPPLICATION 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: DEBORAH & KENNETH CURETONAddress: 119 QUEEN STREETCity: ALEXANDRIA State: VA Zip: 22314Phone: 703.575.7810 E-mail: DEBCURETON@EARTHLINK.NETAuthorized Agent *(if applicable)*: ☐ Attorney ☐ Architect ☐ \_\_\_\_\_

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

## Legal Property Owner:

Name: DEBORAH & KENNETH CURETONAddress: 119 QUEEN STREETCity: ALEXANDRIA State: VA Zip: 22314Phone: 703.575.7810 E-mail: DEBCURETON@EARTHLINK.NET

- ☐ 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.



BAR Case # \_\_\_\_\_

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

- ☒ NEW CONSTRUCTION  
☒ EXTERIOR ALTERATION: *Please check all that apply.*  
     ☐ awning                      ☐ fence, gate or garden wall    ☐ HVAC equipment                      ☐ shutters  
     ☐ doors                        ☐ windows                      ☐ siding                                      ☐ shed  
     ☐ lighting                      ☐ pergola/trellis                      ☐ painting unpainted masonry  
     ☒ other REAR DORMER  
☒ ADDITION  
☒ DEMOLITION/ENCAPSULATION  
☐ SIGNAGE

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

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**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: \_\_\_\_\_ Secondary front (if corner lot): \_\_\_\_\_.
- ☐ ☒ Square feet of existing signs to remain: \_\_\_\_\_.
- ☐ ☒ 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.

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**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: *Kenneth Curston*  
Printed Name: Kenneth Curston  
Date: 1/25/18



## 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. KENNETH CURETON	119 QUEEN ST	50 %
2. DEBORAH CURETON	119 QUEEN ST	50 %
3.		

**2. Property.** State the name, address and percent of ownership of any person or entity owning an interest in the property located at \_\_\_\_\_ (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. KENNETH CURETON	119 QUEEN ST.	50%
2. DEBORAH CURETON	119 QUEEN ST.	50%
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. KENNETH CURETON	N/A	N/A
2. DEBORAH CURETON	N/A	N/A
3.		

**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.

1/05/18      Kenneth Cureton      *Kenneth Cureton*  
 Date                      Printed Name                      Signature

Scope of work:

The scope of work that is under review is a colonial style, white shed dormer with Pella Designer Series windows & a standing seam metal roof to match existing.



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

**A. Property Information**

A1. Street Address 119 QUEEN STREET Zone RM  
 A2. 1,319 SF x 1.5 = 1,978.5  
 Total Lot Area Floor Area Ratio Allowed by Zone Maximum Allowable Floor Area

**B. Existing Gross Floor Area**

Existing Gross Area*		Allowable Exclusions	
Basement	604	Basement**	604
First Floor	604	Stairways**	138
Second Floor	604	Mechanical**	12
Third Floor	604	Other**	—
Porches/ Other	0	Total Exclusions	754
<b>Total Gross *</b>	<b>2,416</b>		

B1. Existing Gross Floor Area \*  
2416 Sq. Ft.  
 B2. Allowable Floor Exclusions\*\*  
754 Sq. Ft.  
 B3. Existing Floor Area minus Exclusions  
1662 Sq. Ft.  
 (subtract B2 from B1)

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

Proposed Gross Area*		Allowable Exclusions	
Basement	0	Basement**	0
First Floor	0	Stairways**	35
Second Floor	0	Mechanical**	18
Third Floor	78	Other**	—
Porches/ Other	0	Total Exclusions	53
<b>Total Gross *</b>	<b>78</b>		

C1. Proposed Gross Floor Area \*  
78 Sq. Ft.  
 C2. Allowable Floor Exclusions\*\*  
53 Sq. Ft.  
 C3. Proposed Floor Area minus Exclusions  
25 Sq. Ft.  
 (subtract C2 from C1)

**D. Existing + Proposed Floor Area**

D1. Total Floor Area (add B3 and C3) 1,715 Sq. Ft.  
 D2. Total Floor Area Allowed by Zone (A2) 1,978.5 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**

NO CHANGE

Existing Open Space	
Required Open Space	
Proposed Open Space	

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

Signature: [Signature] Date: 02/12/2018





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

### A. Property Information

A1. Street Address 119 Queen St Zone 1870 per BZA case

A2.          x          =           
 Total Lot Area Floor Area Ratio Allowed by Zone Maximum Allowable Floor Area

### B. Existing Gross Floor Area

Existing Gross Area*		Allowable Exclusions	
Basement	623.98	Basement**	623.98
First Floor	623.98	Stairways**	61.98
Second Floor	623.98	Mechanical**	
Third Floor	364.5	Other**	
Porches/ Other	n/A	Total Exclusions	688.96
Total Gross *	2236.44		

under 3' 10"

B1. Existing Gross Floor Area \*  
2236.44 Sq. Ft.

B2. Allowable Floor Exclusions\*\*  
688.96 Sq. Ft.

B3. Existing Floor Area minus Exclusions  
1547.48 Sq. Ft.  
(subtract B2 from B1)

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

Proposed Gross Area*		Allowable Exclusions	
Basement		Basement**	
First Floor		Stairways**	36
Second Floor		Mechanical**	
Third Floor	87	Other** Bathroom/door	88.5
Porches/ Other		Total Exclusions	124.5
Total Gross *			

C1. Proposed Gross Floor Area \*  
87 Sq. Ft.

C2. Allowable Floor Exclusions\*\*  
124.5 Sq. Ft.

C3. Proposed Floor Area minus Exclusions  
-37.5 Sq. Ft.  
(subtract C2 from C1)

Bathroom = 54  
Closet = 16  
HVAC closet = 18

### D. Existing + Proposed Floor Area

D1. Total Floor Area (add B3 and C3) 1509.98 Sq. Ft.

D2. Total Floor Area Allowed by Zone (A2) 1870 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	
Required Open Space	
Proposed Open Space	

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

Signature: Calculated by Zoning Staff Date: 2-15-18

## Pella Designer Series® Casement

### Aluminum EnduraClad® Exterior

#### Detailed Product Descriptions

#### Frame

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- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks.
- Overall frame depth is 5" (127mm) for a wall depth of 3-11/16" (94mm).
- Optional factory-applied jamb extensions available between 3-13/16" (97) and 9-3/16" (233).
- Optional factory-installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.

#### Sash

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- Select softwood, immersion treated with Pella's EnduraGuard® wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum, lap-jointed and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is 2-3/16" (55mm).

#### Weatherstripping

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- Dual weatherstripping.
  - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
  - Secondary thermoplastic vulcanizate (TPV) leaf-type weatherstrip between edge of sash and frame.

#### Glazing System

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- Quality float glass complying with ASTM C 1036.
- High altitude glazing available.
- Triple-Pane Glazing System:
  - Exterior dual-seal insulating glass, silicone-glazed, [[annealed / heat strengthened] [tempered]] [[clear] [[Advanced Low-E] [SunDefense™ Low-E] [AdvancedComfort Low-E] [NaturalSun Low-E] with argon]] [[bronze] [gray] [green] [non-impact laminated] Advanced Low-E with argon]].
  - Interior hinged glass panel set in an aluminum frame, fitted to sash with continuous gasket seal, [[annealed] [tempered]] [[clear] [obscure]].
  - Airspace between insulating glass and hinged glass panel is 1-3/32".

#### Exterior

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- Aluminum clad exteriors shall be finished with EnduraClad® protective finish, in a multi-step, baked-on finish.
  - Color is [standard] [custom]<sub>1</sub>.
- or —
- Aluminum clad exteriors shall be finished with EnduraClad Plus protective finish with 70% fluoropolymer resin in a multi-step, baked-on finish.
  - Color is [standard] [custom]<sub>1</sub>.

#### Interior

---

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [White] [Linen White] [Bright White] [stain<sub>1</sub>]].

#### Hardware

---

- Roto operator assembly
  - Steel worm gear sash operator with hardened gears.
  - Operator base is zinc die cast with painted finish.
  - Operator linkage, hinge slide, and hinge arms are stainless steel.
  - Exposed fasteners are stainless steel.
  - Hardware shall exceed 1,000 hours salt spray exposure per ASTM B 117.
- SureLock® System—A single handle locking system operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with frame height 29" or less, two unison locks installed on units with frame height over 29".
- Standard integrated fold-away crank and standard lock handle with [baked enamel [Champagne] [White] [Brown] [Matte Black]] [bright brass] [satin nickel] [oil-rubbed bronze] [polished nickel] [polished chrome] hardware finish.

### Optional Products

---

#### Grilles

- Snap-in Between-the-Glass Grilles
  - 3/4" profile with [Traditional] [Prairie] [Cross] [Top Row] [New England] patterns that are a contoured aluminum grille installed on the edge of the hinged glass panel.
  - Interior surfaces are pine [unfinished, ready for site finishing] [factory primed] [factory prefinished [White] [Linen White] [Bright White] [stain<sub>1</sub>]].
  - Exterior finish will match exterior color cladding.

#### Screens

- InView™ Screens
  - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, [Champagne] [White] [Brown].  
– or –
- Vivid View® Screens
  - PVDF 21/17 mesh, minimum 78 percent light transmissive screen, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
  - Screen frame finish is baked enamel, [Champagne] [White] [Brown].  
– or –
- Rolscreen® Soft-close Retractable Screen
  - InView™ Screen cloth, self-storing, rolling, black vinyl-coated 18/18 mesh fiberglass screen cloth complying with ASTM D 3656 and the performance requirements of SMA 1201 mounted behind overhead cover.
  - Cover finish is [factory prefinished paint<sub>1</sub>] [pine veneer wrapped over extruded aluminum with factory prefinished stain<sub>1</sub>].
  - Guides are aluminum extrusion with [pine veneer wrapped over extruded aluminum with factory prefinished stain<sub>1</sub>] [factory prefinished paint<sub>1</sub>].

#### Snap-in Between-the-Glass Window Fashions<sub>1</sub>

- Slimshade® Blinds
  - 15 mm aluminum slat [tilt-only] [bottom-up] blinds with polyester cord ladder, installed in sash between double glazing and interior hinged glass panel and controlled by built-in operating mechanism.
  - Operated with cordless operator or motorized with Insynctive® technology.  
– or –
- Cellular Fabric Shades
  - Spun bond Polyethylene Terephthalate (PET) cellular fabric, 11/16" in width, hidden polyester cord [bottom-up] [top-down].
  - Installed on the hinged glass panel and controlled by a built-in cordless operating mechanism.
  - Operated with cordless operator or motorized with Insynctive® technology.

#### Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.
- Optional factory applied window opening control device available for vent units. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-10.

#### Sensors

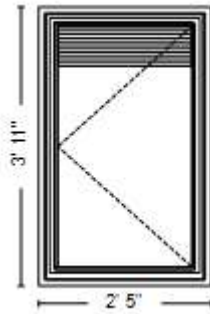
- Optional factory installed integrated security sensors available in vent units.

(1) Contact your local Pella sales representative for current designs and color options.



# Customer Approval Form:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Viewed from the Exterior

Quote Number: 9807172

Line Number: 10

Quote Qty: 2

Scaling: 1/2" = 1'

Description: Designer, Casement Left, 29 X 47, White

Rough Opening: 2' 5 3/4" X 3' 11 3/4"

These drawings are based on our interpretation of the information provided to us. They are submitted for final approval of the individual\*\* responsible for the project and are not intended to create any warranty or other liability. The user\*\* is responsible for compliance with applicable building codes or other regulations and determining the suitability of the suggestions for the particular application, including the final design of reinforcement, flashing, and sealant systems for all window and door installations.

\*\* building owner, architect, contractor, installer and/or consumer



Quote Name: DS/Triple Glazing CC Natural \* F Project Name: Cureton 2 Attic and Bath V

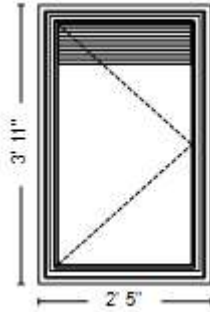
Jobsite Location: ALEXANDRIA, VA

Room Location: W#1

Sales Branch Location: 06000 K. C. Company, Inc.

# Customer Approval Form:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Viewed from the Exterior

Quote Number: 9807172

Line Number: 11

Quote Qty: 1

Scaling: 1/2" = 1'

Description: Designer, Casement Right, 29 X 47, White

Rough Opening: 2' 5 3/4" X 3' 11 3/4"

These drawings are based on our interpretation of the information provided to us. They are submitted for final approval of the individual\*\* responsible for the project and are not intended to create any warranty or other liability. The user\*\* is responsible for compliance with applicable building codes or other regulations and determining the suitability of the suggestions for the particular application, including the final design of reinforcement, flashing, and sealant systems for all window and door installations.

\*\* building owner, architect, contractor, installer and/or consumer



Quote Name: DS/Triple Glazing CC Natural \* F Project Name: Cureton 2 Attic and Bath V

Jobsite Location: ALEXANDRIA, VA

Room Location: W#1

Sales Branch Location: 06000 K. C. Company, Inc.

# Customer Approval Form:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Viewed from the Exterior

Quote Number: 9807172

Line Number: 17

Quote Qty: 6

Scaling: 1/2" = 1'

Description: Wood Products 3 1/2 Colonial 3, Length: 96, Bright White. Wood Type: Pine

Rough Opening:

These drawings are based on our interpretation of the information provided to us. They are submitted for final approval of the individual\*\* responsible for the project and are not intended to create any warranty or other liability. The user\*\* is responsible for compliance with applicable building codes or other regulations and determining the suitability of the suggestions for the particular application, including the final design of reinforcement, flashing, and sealant systems for all window and door installations.

\*\* building owner, architect, contractor, installer and/or consumer



Quote Name: DS/Triple Glazing CC Natural \* F Project Name: Cureton 2 Attic and Bath V

Jobsite Location: ALEXANDRIA, VA

Room Location: Interior Trim

Sales Branch Location: 06000 K. C. Company, Inc.

**FS A21 Product Data Sheet**

Starting Production Code: 34AX08A

Description	General	FS - Fixed Deck Mounted Skylight, consisting of the following integrated components – an interior condensation drainage gasket, pre-finished white wooden frame, exterior maintenance free aluminum cladding and counter flashing, corner keys, and a insulating thermal pane glass unit with two seals, warm edge spacer system, three coats of low e silver to increase visible light transmittance while reducing solar heat. Primary seal between glazing and cladding is a silicone based glazing sealant. And lastly, the skylights are mounted to the roof deck by fastening the continuous deck seal mounting system with durable foam seal directly to the roof deck.
	Variant	FS xxx 200xB
Installation	Instructions	Installation Instructions included in every box and are listed at <a href="http://www.VELUXusa.com">www.VELUXusa.com</a> or contact VELUX at 800-888-3589. Installation instructions provided with each unit. VAS 452197
	Applications	Single unit and combi applications.
	Orientation	The skylight has a specific top and bottom and can not be rotated.
	Roof Pitch	0° - 10° Install with site built curb to elevate the pitch of the glass to 14 degrees. Then install a VELUX ECB counter flashing kit to create a water tight joint between the skylight and the site built curb. Drawings and instructions are available on the VELUXusa web site.
		14° - 85° Mount the skylight directly to the roof deck by aligning and securing the continuous deck sealing mounting system directly to the roof deck.
		Under 20° Condensation drippage from the pane interior can be expected.
Compatibility	Flashings	EDL - single unit installation with thin roofing material (Shingles, Slates).
		EKL - side by side and or over and under combinations with thin roofing materials
		EDW - single unit installation with high (tile) profile roofing material
		EKW - side by side and or over and under combinations with high profiled (tile) roofing materials
		EDM - single unit installation with metal roofing panels.
		ECB - site build curb installations with roof pitch less than 14 degrees.
	Interior Accessories	Manual & Electric - Blackout blinds, Roller blinds, Venetian Blinds. Solar - Blackout blinds, Roller blinds

**FS A21 Product Data Sheet**

Starting Production Code: 34AX08A

Materials	Wood	Ponderosa pine finished white in the factory or as a special order, natural wood with a short term colorless wood preservative. Stain grade units are available as special order.
	Cladding	Lacquered aluminum, neutral gray color with Kynar 500 top finish to prevent fading. 0.065mm thick.
		Copper - untreated mill finish.
		Special color cladding not available.
	Glazing	Standard stocked glazing are type 04, 05, 06, 10. Contact VELUX for stocked sizes of 06 & 10 glazings.
		Consult with customer service for special glazing options and delivery.
		05 - A LoE3 double sealed insulated panes filled with warm edge technology, stainless steel spacer, 95% Argon gas and coated with three layers of microscopic silver particles to increase thermal performance. This glazing is improved over prior in that it allow in more visible light while blocking out more solar heat gain (spectrally selective). Replaces type 75 comfort. Over all pane thickness is 17.2mm.
		04 - LoE3 Laminated - All the benefits of the 05 LoE3 Glass plus a laminated interior pane for safety and maximum protection from both heat gain and fading with Neat coated exterior. Replaces type 74 Comfort Plus. Over all pane thickness is 17.6mm. Laminate
		06 - Impact - Laminated heat strengthened with tempered LoE3 with Neat coated exterior. Over all pane thickness is 18.2mm. Laminate material is 0.90 PVB
		08 - White laminated - Laminated heat strengthened with tempered LoE3. Same as 04 but a white inner layer. Over all pane thickness is 17.6mm. Laminate material is 0.30 PVB.
		10 - Snow load - Laminated tempered with tempered LoE3 with Neat coated exterior. Over all pane thickness is 18.2mm. Laminate material is 0.30
	Gaskets	Patented engineered rubber gasket gaskets to prevent air infiltration and water penetration. Primary seal at glazing and cladding is silicone based glazing sealant.
	Deck Seal Mounting Flange	Pre-engineered Deck Seal mounting system with a anti corrosive coating. The Deck Seal mounting system is pre-attached all the way around the perimeter of the skylight and has a durable closed cell foam that seals the skylight to the roof deck. Deck seal size: 1-1/4" up the frame and 1-1/4" away from the skylight frame. Flange attached to roof decking with 1-1/4" ring shank nails provided with skylight unit.



Date: March 5, 2014

Created by: WQ

**FS A21 Product Data Sheet**

Starting Production Code: 34AX08A

Sizes	Standard Size	A06, C01, C04, C06, C08, C12, D26, D06, M02, M04, M06, M08, S01			
	Special sizes	Not available			
	Special color	Special color cladding not available			
	Rough Opening Dimensions	<b>Size</b>	<b>Width</b>	<b>Size</b>	<b>Height</b>
		A06	14.1/2"	D26	22 15/16"
		C01, C04, C06, C08	21"	C01, S01	26 7/8"
		D25, D06	22 1/2"	M02	30"
		M02, M04, M06, M08	30 1/16"	C04, M04	37 7/8"
		S01, S06	44 1/4"	A06 C06, D06, M06, S06	45 3/4"
				C08, M08	54 7/16"
				C12	70 1/4"
Certification	General	Hallmark certified, Florida Product approval. Exceeds International Building Code (IBC), International Residential Code (IRC) and International Energy Conservation Code (IECC).			
	Air, water, Structural	WDMA Hallmark Certification.			
		Architectural Testing Inc Code Compliant Research Report CCRR			
	Thermal	NFRC certified and labeled to Exceed Energy Star U-value and Solar Heat Gain (SHGC) requirements for all climate zones.			
Product Warranty	Frame	10 years from the date of purchase, VELUX warrants that the skylight will be free from defects in material and workmanship			
	Glass	20 years from the date of purchase, VELUX warrants that the insulated glass pane will not develop a material obstruction of vision due to a failure of the glass seal.			
	Accessories	5 years from the date of purchase, VELUX warrants that VELUX blinds and control systems will be free from defects in material and workmanship.			
	Installation	10 Years from the date of installation provided the skylight is installed with the three layers of protection per the manufactures instructions.			
Changes from Earlier Versions	Exterior	N/A			
	Interior	N/A			
Type Sign	Example	FS C06 2004 01AR05A			
	Location	Top left corner from out on the roof.			
Other Information	Features & Benefits				

Attachment 2

## 24ANB1 Infinity® 21 2–Stage Air Conditioner with Puron® Refrigerant 2 to 5 Nominal Tons



# Product Data



INFINITY  SERIES

Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24ANB1 has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

**NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory ([www.ahridirectory.org](http://www.ahridirectory.org)) for the most up-to-date ratings information.**

## INDUSTRY LEADING FEATURES / BENEFITS

### Efficiency

- 14.5 - 21 SEER / 11.7 - 15 EER
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

### Sound

- Sound level as low as 65 dBA
- Quiet mount split post compressor grommets
- Electronic ECM ball bearing outdoor condenser fan motor
- Forward-swept condenser fan blade
- Compressor sound hood
- Laminated steel compressor mounting plate

### Comfort

- System supports Infinity™ Control or standard 2-stage thermostat controls

### Reliability

- Puron® refrigerant – environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Front-seating service valves
- 2-stage scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Low pressure switch
- High pressure switch
- Filter drier
- Crankcase heater standard
- Balanced refrigeration system for maximum reliability

### Controls and Diagnostics

- Infinity™ control or 2-stage thermostat
- Two control wires to outdoor unit with Infinity Control (serial numbers 1213E and newer)
- Utility Interface Connection
- Enhanced diagnostics capability with Infinity Control

### Durability

WeatherArmor Ultra™ protection package:

- Solid, Durable sheet metal construction
- Steel louver coil guard
- Baked-on, complete outer coverage, powder paint

### Applications

- Long-line – up to 250 feet (76.2 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to 0°F) with complete Infinity system.

## MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N	N
2	4	A	N	B	1	3	6	A	0	0	3	0
Product Series	Product Family	Tier	Major Series	SEER	Cooling Capacity	Variations	Open	Open	Voltage	Minor Series		
24=AC	A=RES AC	N = Infinity	B=Puron	1=21 SEER Nominal		A=Standard	0=Not Defined	0=Not Defined	3=208–230–1	0, 1, 2...		



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to [www.ahridirectory.org](http://www.ahridirectory.org).



ISO 9001  
QMI-SAI Global



This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow all manufacturing refrigerant charging and air flow instructions. **Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.**

## STANDARD FEATURES

FEATURES	Unit Size – Voltage, Series			
	24–31	36–31	48–31	60–31
Puron Refrigerant	X	X	X	X
Maximum SEER Rating*	21.0	20.0	18.0	16.7
2–Stage Scroll Compressor	X	X	X	X
2 control wires to outdoor unit with Infinity Control (serial numbers 1213E and newer)	X	X	X	X
Crankcase Heater	X	X	X	X
Low Ambient Capability to 0°F (–17.8°C) w/Infinity Control	X	X	X	X
Enhanced Diagnostics w/Infinity Control	X	X	X	X
Utility Interface Connection	X	X	X	X
Louvered Coil Guard	X	X	X	X
Field Installed Filter Drier	X	X	X	X
Front Seating Service Valves	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X
Internal Thermal Overload	X	X	X	X
Long Line Capability	X	X	X	X
Low Pressure Switch	X	X	X	X
High Pressure Switch	X	X	X	X
Sound Blanket	X	X	X	X

X = Standard

\* With approved combinations

# REFRIGERANT PIPING LENGTH LIMITATIONS

## Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

### Maximum Total Equivalent Length Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0-5 (0-1.5)	6-10 (1.8-3.0)	11-20 (3.4-6.1)	21-30 (6.4-9.1)	31-40 (9.4-12.2)	41-50 (12.5-15.2)	51-60 (15.5-18.3)	61-70 (18.6-21.3)	71-80 (21.6-24.4)
024 AC with Puron	3/8	1/4	75	75	75	50	50	--	--	--	--
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	--
060 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	--	--

\* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

24ANB1

### Maximum Total Equivalent Length Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26-50 (7.9-15.2)	51-75 (15.5-22.9)	76-100 (23.2-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)
024 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

\* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

## REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz.(266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

### Charging Formula:

[(Lineset oz/ft x total length) - (factory charge for lineset)] = charge adjustment

**Example 1:** System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15ft) - (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

**Example 2:** System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) - (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

# LONG LINE APPLICATIONS

## Attachment 2

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

### AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m)

Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

**Note:** See Long Line Guideline for details

## VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant:

### Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 2-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In.) OD	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
			26–50 (7.9–15.2)	51–80 (15.5–24.4)	81–100 (24.7–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–50.3)	176–200 (53.6–60.0)	201–225 (61.3–68.6)	226–250 (68.9–76.2)
024 2-Stage Puron AC	3/8	5/8	0	1	1	2	3	3	4	4	5
		3/4	0	0	0	0	1	1	1	1	1
036 2-Stage Puron AC	3/8	5/8	1	2	4	5	6	7	9	10	11
		3/4	0	0	1	1	2	2	3	3	4
		7/8	0	0	0	0	1	1	1	1	2
048 2-Stage Puron AC	3/8	3/4	1	2	2	3	4	5	6	7	7
		7/8	0	1	1	2	2	2	3	3	3
		1–1/8	0	0	—	—	—	—	—	—	—
060 2-Stage Puron AC	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1–1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the *Residential Piping and Long Line Guideline*.

— Applications in this area are not recommended due to insufficient oil return

## PHYSICAL DATA

UNIT SIZE – VOLTAGE, SERIES	24–31	36–31	48–31	60–31
Operating Weight lb (kg)	282 (127.9)	312 (141.5)	335 (152.0)	336 (152.4)
Shipping Weight lb (kg)	324 (147.0)	357 (161.9)	381 (172.8)	381 (172.8)
Compressor Type	2-Stage Scroll			
REFRIGERANT	Puron® (R-410A)			
Control	TXV (Puron Hard Shutoff)			
Charge lb. (kg)	13.34 (6.05)	13.66 (6.20)	13.53 (6.14)	14.33 (6.50)
COND FAN	Forward Swept Propeller Type, Direct Drive			
Air Discharge	Vertical			
Air Qty (CFM)	3040 / 3637	3124 / 3700	3703 / 4309	4209 / 4668
Motor HP	1/5	1/5	1/5	1/5
Motor RPM	628 / 752	582 / 689	659 / 765	742 / 828
COND COIL				
Face Area (sq. ft.)	25.12	30.15	30.15	30.15
Fins per In.	20	20	20	20
Rows	2	2	2	2
Circuits	8	8	8	8
VALVE CONNECT. (In. ID)				
Vapor	7/8	7/8	7/8	7/8
Liquid	3/8			
REFRIGERANT TUBES* (In. OD)				
Vapor (0–80 Ft Tube Length)	7/8	7/8	1–1/8	1–1/8
Liquid (0–80 Ft Tube Length)	3/8			

\*Units are rated with 25 ft (7.6 m) of lineset length. See *Vapor Line Sizing and Cooling Capacity Loss* table when using other sizes and lengths of lineset.



# ELECTRICAL DATA

## Attachment 2

Unit Size – Voltage, Series	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE†	MIN WIRE SIZE†	MAX LENGTH ft. (m)‡	MAX LENGTH ft. (m)‡	MAX FUSE** or CKT BRK AMPS
		MIN	MAX	LRA	RLA	FLA		60° C	75° C	60° C	75° C	
24–31	208–230/1	253	197	58.3	11.1	1.8	15.7	14	14	50 (15.2)	48 (14.6)	25
36–31				83.0	15.3	2.0	21.1	12	12	59 (18.0)	56 (17.1)	30
48–31				104.0	21.2	2.7	29.2	10	10	68 (20.7)	65 (19.8)	40
60–31				152.9	28.8	2.7	38.7	8	8	80 (24.4)	76 (23.2)	60

\* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310–16 of the NEC (NFPA 70). The ampacity of non-metallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336–26. If other than uncoated (no-plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured one way along wire path between unit and service panel for voltage drop not to exceed 2%.

\*\* Time-Delay fuse.

FLA – Full Load Amps

LRA – Locked Rotor Amps

MCA – Minimum Circuit Amps

RLA – Rated Load Amps

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit.

All motors/compressors contain internal overload protection.

Complies with 2010 requirements of ASHRAE Standards 90.1

## A-WEIGHTED SOUND POWER (dBA)

Unit Size – Voltage, Series	Standard Rating (dBA)	Typical Octave Band Spectrum (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24–31	71 – High Stage	49.5	56.0	60.5	67.5	58.0	53.5	53.0
	65 – Low Stage	47.0	52.0	56.5	60.5	55.0	50.0	49.0
36–31	68 – High Stage	47.5	53.0	60.0	60.0	56.0	52.0	51.0
	66 – Low Stage	46.5	54.5	56.0	56.5	53.0	50.0	48.0
48–31	69 – High Stage	49.0	61.5	62.0	62.0	59.5	54.5	49.5
	66 – Low Stage	48.5	59.5	59.0	59.5	56.5	51.5	48.5
60–31	69 – High Stage	50.8	57.5	60.5	63.0	59.5	57.5	54.5
	68 – Low Stage	48.0	56.0	59.0	62.0	57.5	55.5	52.0

NOTE: Tested in accordance with AHRI Standard 270–08. (Not listed with AHRI).

## CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE – VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
24–31	10 (5.6)
36–31	11 (6.1)
48–31	12 (6.7)
60–31	14 (7.8)

## ACCESSORY CONTROLS

PART NUMBER	DESCRIPTION
SYSTXCCITN01	Infinity Touch Control (non – Wi-Fi)
SYSTXCCITW01	Infinity Touch Control with Wi-Fi & Wireless Access Point
SYSTXCC4ZC01	Infinity 4 – Zone Damper Control Module (Wall – mounted control for a four – zone system.)
SYSTXCCSMS01	Infinity Smart Sensor (Optional wall control used to monitor temperature and/or fan control in an individual zone.)
SYSTXCCRRS01	Infinity Remote Room Sensor (Monitors temperature in an individual zone.)
SYSTXCCRCT01 or SYSTXCCRF01	Infinity System Remote Access Module (Hardware for wireless access and control via internet.)
SYSTXCCNIM01	Infinity Network Interface Module (Connects Heat Recovery and Energy Recovery Ventilators on non – zoning applications.)

24ANB1

ORDER NUMBER	DESCRIPTION	24–31	36–31	48–31	60–31
KAALS0201LLS	LIQUID LINE SOLENOID VALVE KIT	X	X	X	X
KSAHS2501AAA*	HARD START KIT	X	X		
KSAHS2801AAA*	HARD START KIT			X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X

x = Accessory

\* Not backward compatible to previous series

## ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW–AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS*	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km)
Compressor Start Assist Kit	No	No	No
Crankcase Heater	Yes (standard on some units)	Yes (standard on some units)	No
Evaporator Freeze Protection	Standard with Infinity Control	No	No
Liquid–Line Solenoid Valve	No	No	No
Low–Ambient Control	Standard with Infinity Control	No	No
Puron Refrigerant Balance Port Hard– ShutOff TXV	Yes†	Yes†	Yes†
Support Feet	Recommended	No	Recommended
Winter Start Control	Standard with Infinity Control	No	No

\* For tubing set lengths between 80 and 200 ft. (24.38 and 60.96 m) horizontal or 35 ft. (10.7 m) vertical differential (total equivalent length), refer to the Long Line Guideline—Air Conditioners and Heat Pumps using Puron® Refrigerant.

† Required on all indoor units. Standard on all new Puron refrigerant fan coils and furnace coils.

### Accessory Description and Usage (Listed Alphabetically)

#### 1. Compressor Start Assist - Capacitor and Relay

Start capacitor and relay gives a "hard" boost to compressor motor at each start up.

Usage Guideline:

Not required on this unit since compressor always starts unloaded.

Available if required by local codes.

#### 2. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

#### 3. Support Feet

Four stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

#### 4. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

**NOTE:** When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

Hard shut off TXV or LLS required in air conditioner long line applications.



# Proposal - Detailed

Attachment 2

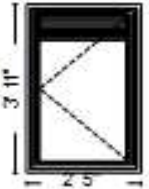
Pella Window and Door Showroom of Falls Church  
7505-D Leesburg Pike Idylwood Plaza  
Falls Church, VA 22043  
**Phone:** (703) 847-5772 **Fax:** (703) 847-5788

**Sales Rep Name:** Dowdy, Richard  
**Sales Rep Phone:** 703-926-5751  
**Sales Rep E-Mail:** rdowdy@kc-pella.com  
**Sales Rep Fax:** 703-669-3919

Customer Information	Project/Delivery Address	Order Information
<b>Moss Building and Design</b> 4125 Lafayette Center Dr Ste 100  CHANTILLY, VA 20151-1242 <b>Primary Phone:</b> (571) 4555179 <b>Mobile Phone:</b> <b>Fax Number:</b> <b>E-Mail:</b> ddunleavy@mossbuildinganddesign.com <b>Contact Name:</b>  <b>Great Plains #:</b> DO4UQU <b>Customer Number:</b> 1005125423 <b>Customer Account:</b> 1001366667	<b>Cureton 2 Attic and Bath Windows</b> 119 Queen Street  <b>Lot #</b> ALEXANDRIA, VA 22314 <b>County:</b> ALEXANDRIA (IND CITY) <b>Owner Name:</b>  <b>Owner Phone:</b>	<b>Quote Name:</b> DS/Triple Glazing CC Natural * FINAL SELECTION*  <b>Order Number:</b> 060 <b>Quote Number:</b> <b>9807172</b> <b>Order Type:</b> Non-Installed Sales <b>Wall Depth:</b> 4-9/16" <b>Payment Terms:</b> Net 30 Days <b>Tax Code:</b> ALEXANVA <b>Cust Delivery Date:</b> None <b>Quoted Date:</b> 2/1/2018 <b>Contracted Date:</b> <b>Booked Date:</b> <b>Customer PO #:</b>

Customer Notes: FINAL SELECTION PER EMAIL: 2/1/2018  
DS Casements with Room Darkening Shades & Natural Sun IG Glazing w/Clear Hinged Panel  
REMOVED TRAPEZOID WINDOWS

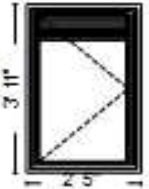
Pella Standard White (PR0150) Exterior Cladding - NO ENDURACLAD PLUS  
Factory PreFinished Bright White (PR9065) Interior  
White Hardware  
Bright White Full InView Screens - NO ROLSCREEN  
4-9/16" Jamb  
Installation Fins  
-NO GRILLES

Line #	Location:	Attributes	
10	W#1	<b>Designer, Casement Left, 29 X 47, White</b>	<b>Qty</b> 2
 <p>Viewed From Exterior</p> <p><b>Rough Opening:</b> 2' 5 3/4" X 3' 11 3/4"</p> <p><b>PK #</b> 1999</p> <p><b>1: 2947 Left Casement</b>  <b>Frame Size:</b> 29 X 47  <b>General Information:</b> Standard, Clad, 5", 3 11/16", No Certification  <b>Exterior Color / Finish:</b> Standard Enduraclad, White  <b>Interior Color / Finish:</b> Bright White Interior  <b>Glass:</b> Insulated Low-E NaturalSun Low-E Insulating Glass Argon Non High Altitude Upgrade To 4mm  <b>Hinge Panel:</b> Clear, Annealed  <b>Hardware Options:</b> Wash Hinge Hardware, Fold-Away Crank, White, No Limited Opening Hardware, No Integrated Sensor  <b>Screen:</b> Full Screen, Bright White, InView™  <b>Unit Accessories:</b> Snap-In Between-The-Glass Fabric Shade Bottom-Up, Cotton Room Darkening, Manual  <b>Performance Information:</b> U-Factor 0.28, SHGC 0.38, VLT 0.45, CPD PEL-N-16-01917-00001, Performance Class R, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08 11, Egress Meets Typical 5.7 sqft (E) (United States Only)  <b>Grille:</b> No Grille,  <b>Wrapping Information:</b> Foldout Fins, Factory Applied, No Exterior Trim, No Interior Trim, 4 9/16", 5 7/8", Standard Four Sided Jamb Extension, Factory Applied, Pella Recommended Clearance, Perimeter Length = 152".</p>			

**Final Wall Depth:** 4-9/16"

Customer Notes: Overall IG Glass Thickness of 5/8" with Upgraded 4mm Glass (Mid/Ext) Interior Hinged Panel with Upgraded 4mm Glass

GLAZING OPTIONS:  
Natural Sun GlazingACCESSORY OPTIONS:  
Room Darkening Fabric Shades

Line #	Location:	Attributes	
11	W#1	<b>Designer, Casement Right, 29 X 47, White</b>	<b>Qty</b> 1
 <p>Viewed From Exterior</p> <p><b>Rough Opening:</b> 2' 5 3/4" X 3' 11 3/4"</p> <p>PK # 1999</p> <p><b>1: 2947 Right Casement</b>  <b>Frame Size:</b> 29 X 47  <b>General Information:</b> Standard, Clad, 5", 3 11/16", No Certification  <b>Exterior Color / Finish:</b> Standard Enduraclad, White  <b>Interior Color / Finish:</b> Bright White Interior  <b>Glass:</b> Insulated Low-E NaturalSun Low-E Insulating Glass Argon Non High Altitude Upgrade To 4mm  <b>Hinge Panel:</b> Clear, Annealed  <b>Hardware Options:</b> Wash Hinge Hardware, Fold-Away Crank, White, No Limited Opening Hardware, No Integrated Sensor  <b>Screen:</b> Full Screen, Bright White, InView™  <b>Unit Accessories:</b> Snap-In Between-The-Glass Fabric Shade Bottom-Up, Bamboo Room Darkening, Manual  <b>Performance Information:</b> U-Factor 0.28, SHGC 0.38, VLT 0.45, CPD PEL-N-16-01917-00001, Performance Class R, PG 50, Calculated Positive DP Rating 50, Calculated Negative DP Rating 50, Year Rated 08 11, Egress Meets Typical 5.7 sqft (E) (United States Only)  <b>Grille:</b> No Grille,  <b>Wrapping Information:</b> Foldout Fins, Factory Applied, No Exterior Trim, No Interior Trim, 4 9/16", 5 7/8", Standard Four Sided Jamb Extension, Factory Applied, Pella Recommended Clearance, Perimeter Length = 152".</p>			

**Final Wall Depth:** 4-9/16"

Customer Notes: Overall IG Glass Thickness of 5/8" with Upgraded 4mm Glass (Mid/Ext) Interior Hinged Panel with Upgraded 4mm Glass

## GLAZING OPTIONS:

Natural Sun Glazing

## ACCESSORY OPTIONS:

Room Darkening Fabric Shades

Line #	Location:	Attributes	
17	Interior Trim	<b>Wood Products 3 1/2 Colonial 3, Length: 96, Bright White. Wood Type: Pine</b>	<b>Qty</b> 6
<p>PK # 1999</p> <p><b>1: Accessory</b>  <b>Frame Size:</b> -1 X -1  <b>General Information:</b> Pine, 3 1/2 Colonial 3  <b>Interior Color / Finish:</b> Bright White Interior  <b>Wrapping Information:</b> Perimeter Length = 0".</p>			

Viewed From Exterior

**Rough Opening:****Final Wall Depth:** 4-9/16"Customer Notes: PROFILE TO BE DETERMINED  
- PREFINISH PELLA BRIGHT WHITEFor more information regarding the finishing, maintenance, service and warranty of all Pella® products, visit the Pella® website at [www.pella.com](http://www.pella.com)

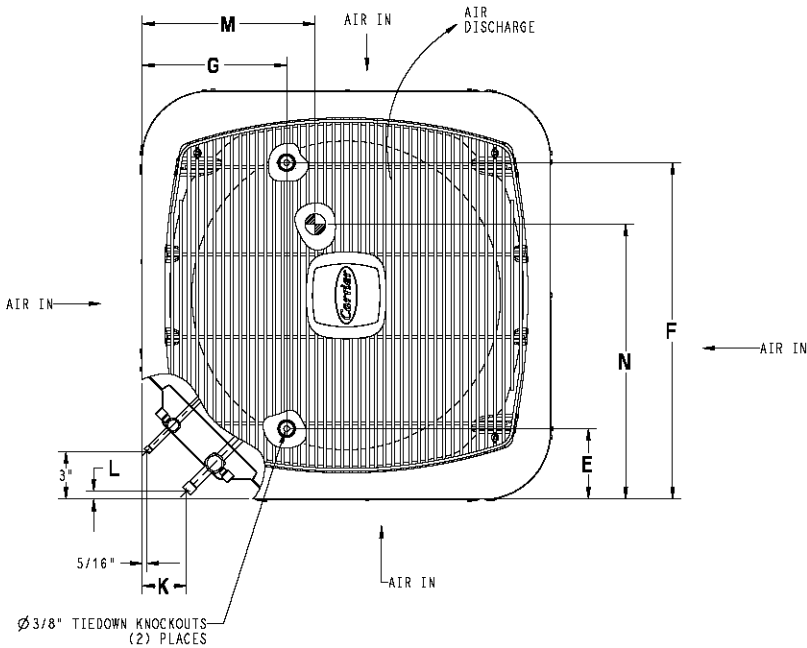
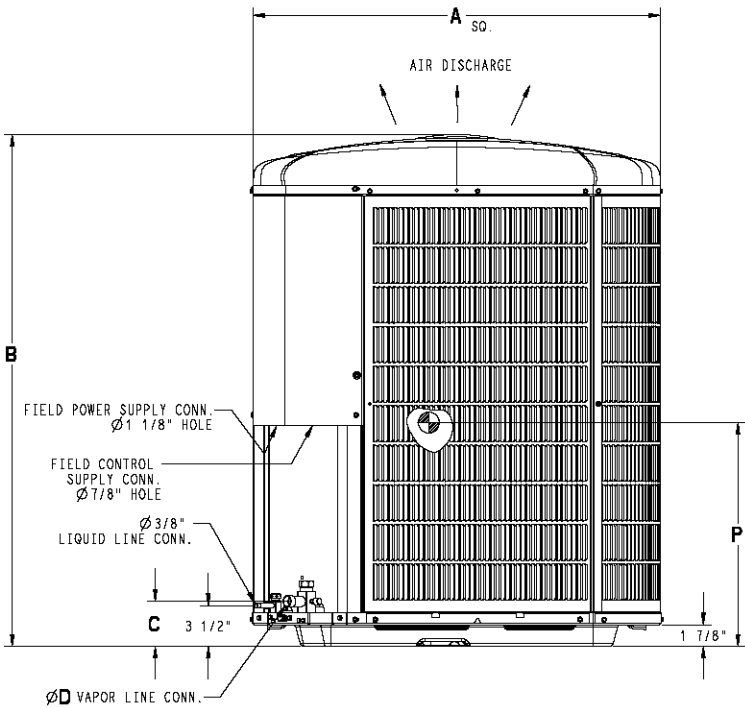


DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS					A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
24ANB124	1	X	0	0	0	0	35"	40 5/8"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	18"	16"	18 1/2"	282	324	37 1/8" X 37 1/8" X 46 1/8"
24ANB136	1	X	0	0	0	0	35"	47 7/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17"	16 1/2"	22"	312	357	37 1/8" X 37 1/8" X 51 13/16"
24ANB148	1	X	0	0	0	0	35"	47 7/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	18"	18"	18 3/4"	335	381	37 1/8" X 37 1/8" X 51 13/16"
24ANB160	1	X	0	0	0	0	35"	47 7/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	18 3/4"	17"	19 1/2"	336	381	37 1/8" X 37 1/8" X 51 13/16"

208-230-160
230-160
208/230-3-60
460-3-60

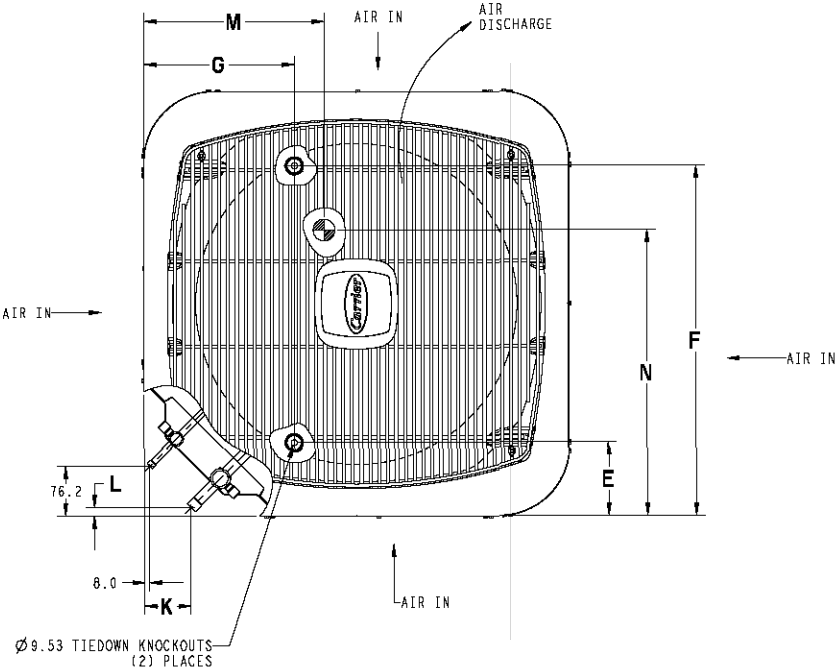
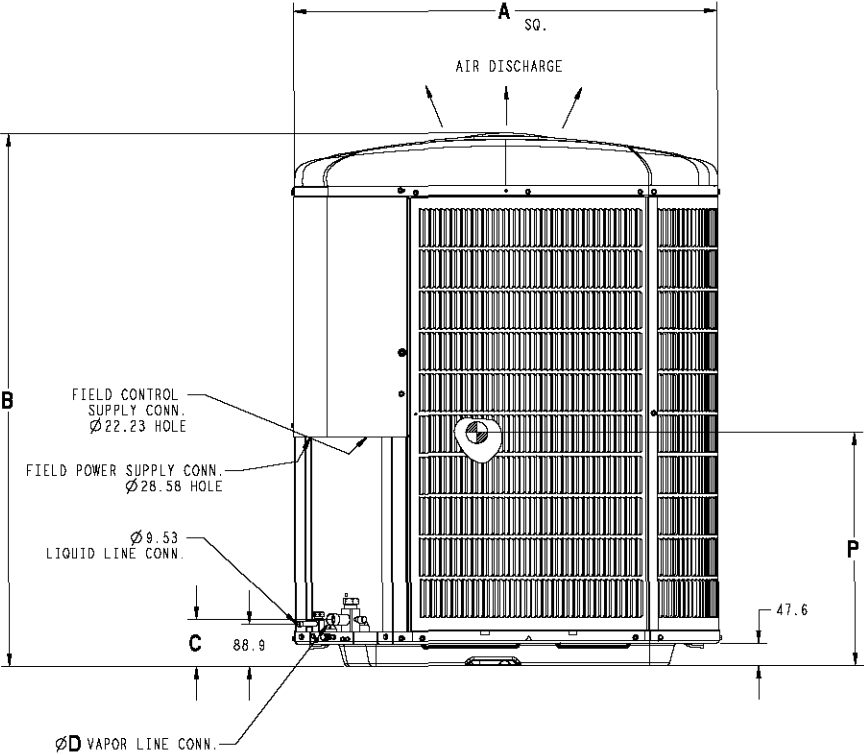
X = YES  
O = NO



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
-	31 1/2" X 31 1/2"
24, 36, 48, 60	35" X 35"

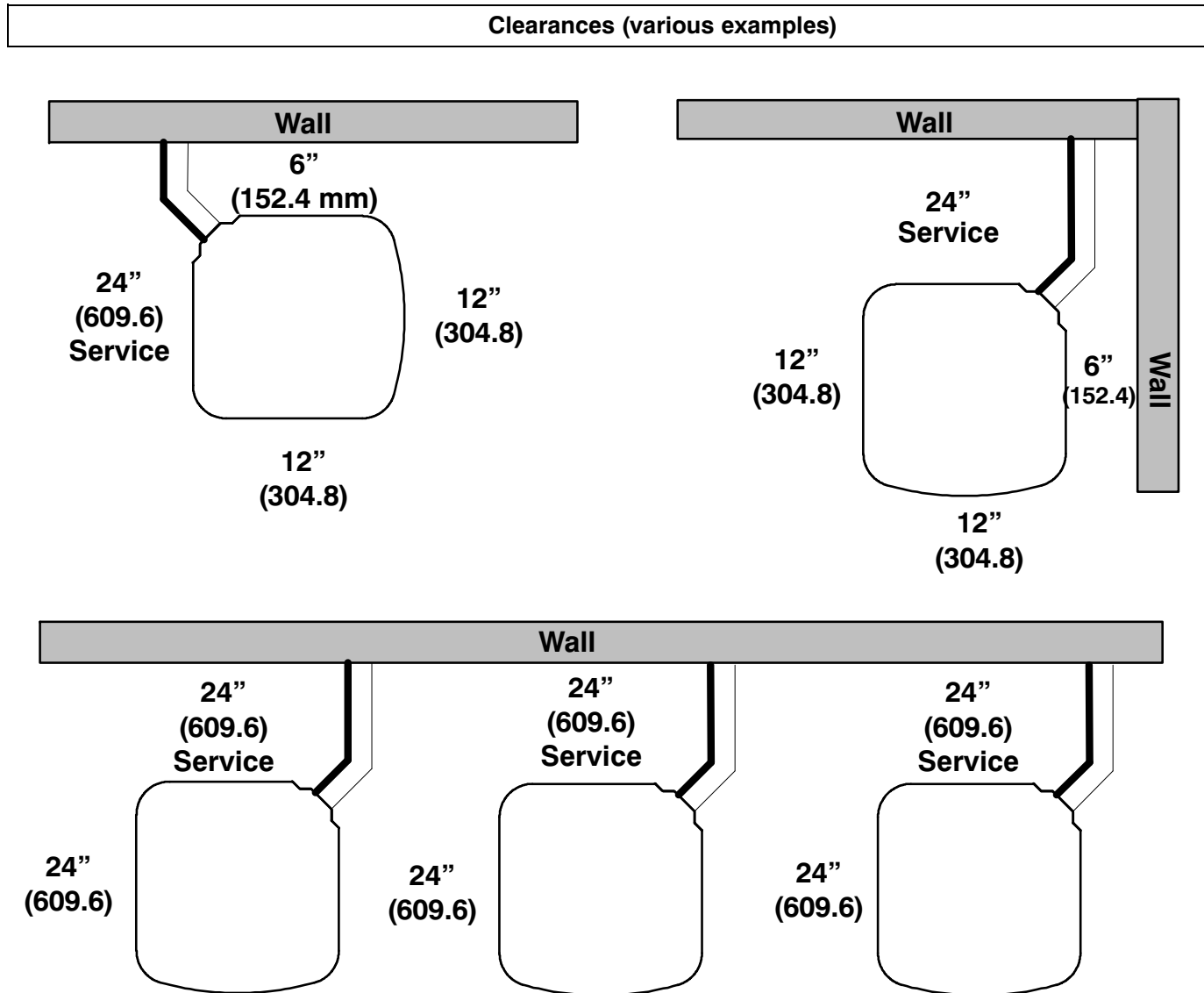
DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)
24ANB124	1	X	O	O	O	889.0	1032.5	97.9	22.2	166.1	722.8	231.3	74.5	16.3	457.2	406.4	469.9	127.9	147.0	942.9 X 942.9 X 1172.2
24ANB136	1	X	O	O	O	889.0	1205.3	97.9	22.2	166.1	722.8	231.3	74.5	16.3	431.8	419.1	558.8	141.5	161.9	942.9 X 942.9 X 1315.7
24ANB148	1	X	O	O	O	889.0	1205.3	97.9	22.2	166.1	722.8	231.3	74.5	16.3	457.2	457.2	476.3	152.0	172.8	942.9 X 942.9 X 1315.7
24ANB160	1	X	O	O	O	889.0	1205.3	97.9	22.2	166.1	722.8	231.3	74.5	16.3	476.3	431.8	495.3	152.4	172.8	942.9 X 942.9 X 1315.7
		208-230-1-60	230-1-60	208/230-3-60	460-3-60	X = YES O = NO														



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
-	800.1 X 800.1
24, 36, 48, 60	889.0 X 889.0

## CLEARANCES



**Note:** Numbers in ( ) = mm

**IMPORTANT:** When installing multiple units in an alcove, roof well, or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

## TESTED AHRI COMBINATION RATINGS

**NOTE:** Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory [www.ahridirectory.org](http://www.ahridirectory.org)

Additional ratings and system combinations can be accessed via the Carrier database at: [www.MyCarrierRatings.com](http://www.MyCarrierRatings.com)

For performance data at specific application &/or design conditions with various indoor unit combinations, the equipment performance calculator can be accessed at : <http://rpmob.wrightsoft.com/>

Model Number	INDOOR MODEL	AHRI STANDARD RATINGS – COOLING					
		CAPACITY		SEER	EER	ID CFM	
		HIGH	LOW			HIGH	LOW
24ANB124A**31	FE5ANB004	26600	24000	21.0	15.0	800	800
24ANB136A**31	FE5ANB004	36000	33200	20.0	14.7	1200	924
24ANB148A**31	FE4ANB006	48000	40000	18.0	13.5	1400	1120
24ANB160A**31	FE4ANB006	58000	46500	16.7	13.2	1625	1300

\* AHRI = Air Conditioning, Heating & Refrigeration Institute

**EER** — Energy Efficiency Ratio — 80°F (26.6°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor wb.

**SEER** — Seasonal Energy Efficiency Ratio

**TDR** — Time–Delay Relay. In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time–Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

**UI** — User Interface

### NOTES:

1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.
2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.
3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.
4. Do not apply with capillary tube coils as performance and reliability are affected.

## DETAILED COOLING CAPACITIES#

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																	
CFM	EWB ° F (° C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**
		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†	
24ANB124A**31 Outdoor Section With FE5ANB004 Indoor Section – High																			
600	57 (13.9)	23.12	23.12	1.30	22.35	22.35	1.50	21.51	21.51	1.74	20.58	20.58	2.02	19.59	19.59	2.35	18.51	18.51	2.75
	62 (16.7)	24.84	20.29	1.31	23.81	19.86	1.51	22.69	19.38	1.74	21.48	18.86	2.02	20.18	18.31	2.35	18.80	17.72	2.75
	63 (17.2)††	25.39	16.89	1.31	24.34	16.45	1.51	23.20	15.97	1.75	21.96	15.45	2.02	20.64	14.90	2.35	19.23	14.31	2.76
	67 (19.4)	27.52	17.54	1.32	26.38	17.10	1.52	25.14	16.61	1.75	23.80	16.09	2.03	22.39	15.54	2.36	20.88	14.97	2.76
	72 (22.2)	30.47	14.72	1.33	29.19	14.26	1.53	27.82	13.77	1.76	26.36	13.25	2.04	24.81	12.70	2.37	23.16	12.12	2.77
650	57 (13.9)	23.90	23.90	1.31	23.09	23.09	1.51	22.20	22.20	1.75	21.23	21.23	2.02	20.18	20.18	2.36	19.06	19.06	2.76
	62 (16.7)	25.35	21.25	1.31	24.28	20.80	1.51	23.11	20.31	1.75	21.86	19.79	2.03	20.53	19.23	2.36	19.13	19.04	2.76
	63 (17.2)††	25.91	17.56	1.31	24.82	17.11	1.52	23.62	16.62	1.75	22.34	16.09	2.03	20.98	15.53	2.36	19.52	14.94	2.76
	67 (19.4)	28.07	18.26	1.32	26.88	17.80	1.52	25.59	17.30	1.76	24.21	16.78	2.03	22.74	16.22	2.37	21.18	15.63	2.77
	72 (22.2)	31.05	15.19	1.33	29.72	14.72	1.53	28.29	14.22	1.77	26.78	13.69	2.04	25.18	13.13	2.37	23.49	12.55	2.77
700	57 (13.9)	24.61	24.61	1.31	23.76	23.76	1.52	22.83	22.83	1.75	21.82	21.82	2.03	20.73	20.73	2.36	19.57	19.57	2.77
	62 (16.7)	25.80	22.19	1.32	24.69	21.73	1.52	23.49	21.23	1.75	22.21	20.69	2.03	20.85	20.11	2.36	19.60	19.60	2.77
	63 (17.2)††	26.36	18.22	1.32	25.23	17.76	1.52	23.99	17.26	1.76	22.67	16.72	2.03	21.27	16.15	2.37	19.78	15.55	2.77
	67 (19.4)	28.55	18.96	1.33	27.31	18.49	1.53	25.97	17.98	1.76	24.55	17.45	2.04	23.04	16.88	2.37	21.44	16.28	2.77
	72 (22.2)	31.55	15.64	1.34	30.17	15.16	1.54	28.70	14.65	1.77	27.14	14.12	2.05	25.50	13.56	2.38	23.77	12.97	2.78
800	57 (13.9)	25.89	25.89	1.33	24.97	24.97	1.53	23.95	23.95	1.77	22.86	22.86	2.04	21.70	21.70	2.38	20.45	20.45	2.78
	62 (16.7)	26.55	24.01	1.33	25.39	23.53	1.53	24.14	23.00	1.77	22.91	22.91	2.04	21.74	21.74	2.38	20.48	20.48	2.78
	63 (17.2)††	27.11	19.49	1.33	25.91	19.01	1.53	24.60	18.49	1.77	23.22	17.94	2.04	21.75	17.36	2.38	20.19	16.75	2.78
	67 (19.4)	29.32	20.30	1.34	28.01	19.82	1.54	26.60	19.30	1.77	25.11	18.75	2.05	23.53	18.18	2.38	21.87	17.57	2.78
	72 (22.2)	32.38	16.51	1.35	30.92	16.02	1.55	29.37	15.50	1.78	27.74	14.96	2.06	26.02	14.38	2.39	24.22	13.78	2.79
24ANB124A**31 Outdoor Section With FE5ANB004 Indoor Section – Low																			
480	57 (13.9)	18.81	18.81	0.98	17.98	17.98	1.15	17.06	17.06	1.35	16.09	16.09	1.58	15.08	15.08	1.85	14.06	14.06	2.16
	62 (16.7)	19.89	17.02	0.97	18.82	15.96	1.14	17.65	14.89	1.35	16.43	13.83	1.58	15.18	12.80	1.85	14.08	14.08	2.16
	63 (17.2)††	20.33	14.04	0.97	19.23	13.10	1.14	18.04	12.14	1.34	16.79	11.19	1.58	15.50	10.28	1.85	14.20	9.40	2.16
	67 (19.4)	22.04	14.61	0.95	20.85	13.63	1.12	19.57	12.66	1.32	18.23	11.70	1.56	16.86	10.76	1.83	15.47	9.86	2.15
	72 (22.2)	24.45	12.15	0.93	23.13	11.27	1.10	21.73	10.39	1.30	20.27	9.52	1.54	18.78	8.69	1.82	17.27	7.89	2.14
520	57 (13.9)	19.42	19.42	0.98	18.55	18.55	1.15	17.60	17.60	1.35	16.58	16.58	1.58	15.53	15.53	1.85	14.46	14.46	2.16
	62 (16.7)	20.27	17.85	0.97	19.16	16.75	1.14	17.96	15.64	1.35	16.71	14.54	1.58	15.56	15.56	1.85	14.49	14.49	2.16
	63 (17.2)††	20.70	14.62	0.97	19.57	13.65	1.14	18.34	12.66	1.34	17.05	11.69	1.58	15.73	10.74	1.85	14.40	9.83	2.16
	67 (19.4)	22.44	15.22	0.95	21.21	14.22	1.12	19.89	13.21	1.32	18.51	12.22	1.56	17.10	11.26	1.84	15.68	10.33	2.15
	72 (22.2)	24.89	12.55	0.92	23.53	11.65	1.09	22.08	10.74	1.30	20.57	9.86	1.54	19.04	9.00	1.82	17.50	8.18	2.14
560	57 (13.9)	19.99	19.99	0.98	19.08	19.08	1.15	18.08	18.08	1.35	17.03	17.03	1.58	15.94	15.94	1.85	14.83	14.83	2.16
	62 (16.7)	20.60	18.66	0.97	19.47	17.52	1.14	18.25	16.37	1.35	17.06	17.06	1.58	15.97	15.97	1.85	14.86	14.86	2.16
	63 (17.2)††	21.04	15.18	0.97	19.87	14.17	1.14	18.60	13.16	1.34	17.28	12.16	1.58	15.93	11.19	1.85	14.57	10.25	2.17
	67 (19.4)	22.79	15.82	0.95	21.53	14.79	1.12	20.17	13.75	1.32	18.75	12.73	1.56	17.31	11.74	1.84	15.86	10.78	2.15
	72 (22.2)	25.28	12.94	0.92	23.87	12.01	1.09	22.38	11.09	1.30	20.83	10.18	1.54	19.26	9.31	1.82	17.69	8.47	2.14
640	57 (13.9)	20.99	20.99	0.97	20.01	20.01	1.14	18.94	18.94	1.34	17.81	17.81	1.58	16.65	16.65	1.85	15.48	15.48	2.16
	62 (16.7)	21.19	20.23	0.97	20.04	20.04	1.14	18.97	18.97	1.34	17.84	17.84	1.58	16.68	16.68	1.85	15.50	15.50	2.16
	63 (17.2)††	21.58	16.27	0.97	20.36	15.21	1.14	19.04	14.14	1.34	17.66	13.10	1.58	16.26	12.07	1.85	14.85	11.09	2.17
	67 (19.4)	23.38	16.99	0.95	22.04	15.90	1.12	20.62	14.81	1.32	19.15	13.74	1.56	17.65	12.69	1.84	16.15	11.69	2.16
	72 (22.2)	25.91	13.69	0.92	24.43	12.73	1.09	22.87	11.76	1.30	21.26	10.82	1.54	19.63	9.91	1.82	17.99	9.04	2.15
800	57 (13.9)	22.60	22.60	0.97	21.49	21.49	1.14	20.30	20.30	1.34	19.05	19.05	1.58	17.78	17.78	1.85	16.48	16.48	2.17
	62 (16.7)	22.64	22.64	0.97	21.53	21.53	1.14	20.33	20.33	1.34	19.08	19.08	1.58	17.80	17.80	1.85	16.50	16.50	2.17
	63 (17.2)††	22.37	18.36	0.97	21.06	17.20	1.14	19.66	16.04	1.35	18.21	14.89	1.59	16.75	13.77	1.86	15.35	15.31	2.18
	67 (19.4)	24.20	19.25	0.95	22.77	18.05	1.12	21.27	16.85	1.33	19.71	15.68	1.57	18.15	14.53	1.85	16.61	13.41	2.17
	72 (22.2)	26.78	15.14	0.92	25.20	14.09	1.10	23.54	13.06	1.30	21.83	12.07	1.55	20.12	11.08	1.83	18.40	10.15	2.16

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## DETAILED COOLING CAPACITIES# (CONTINUED)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																		
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)			
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	
		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		
24ANB136A**31 Outdoor Section With FE5ANB004 Indoor Section – High																				
900	57 (13.9)	31.38	31.38	1.76	30.58	30.58	2.04	29.67	29.67	2.37	28.63	28.63	2.76	27.42	27.42	3.21	25.99	25.99	3.73	
	62 (16.7)	33.49	27.84	1.78	32.36	27.38	2.05	31.10	26.86	2.38	29.68	26.28	2.76	28.05	25.61	3.21	26.32	24.75	3.73	
	63 (17.2)††	34.19	23.13	1.79	33.04	22.64	2.06	31.76	22.10	2.38	30.29	21.48	2.76	28.63	20.80	3.22	26.70	20.02	3.74	
	67 (19.4)	36.90	23.96	1.81	35.66	23.48	2.08	34.28	22.94	2.40	32.70	22.33	2.78	30.89	21.65	3.23	28.81	20.87	3.75	
975	72 (22.2)	40.62	19.99	1.84	39.27	19.49	2.10	37.74	18.92	2.42	36.00	18.29	2.80	34.02	17.58	3.25	31.73	16.78	3.77	
	57 (13.9)	32.37	32.37	1.78	31.52	31.52	2.06	30.56	30.56	2.38	29.46	29.46	2.77	28.18	28.18	3.22	26.67	26.67	3.75	
	62 (16.7)	34.10	29.11	1.79	32.93	28.64	2.07	31.62	28.12	2.39	30.15	27.53	2.77	28.49	26.84	3.23	26.72	26.72	3.75	
	63 (17.2)††	34.80	24.02	1.80	33.61	23.53	2.07	32.27	22.97	2.39	30.76	22.36	2.78	29.03	21.66	3.23	27.05	20.87	3.75	
	67 (19.4)	37.53	24.91	1.82	36.25	24.42	2.09	34.81	23.88	2.41	33.17	23.26	2.79	31.31	22.57	3.24	29.16	21.78	3.77	
1050	72 (22.2)	41.30	20.61	1.86	39.89	20.10	2.12	38.29	19.52	2.44	36.51	18.89	2.82	34.45	18.17	3.26	32.10	17.36	3.79	
	57 (13.9)	33.26	33.26	1.80	32.38	32.38	2.07	31.37	31.37	2.40	30.21	30.21	2.79	28.87	28.87	3.24	27.30	27.30	3.77	
	62 (16.7)	34.63	30.36	1.81	33.43	29.88	2.08	32.08	29.35	2.40	30.58	28.73	2.79	28.92	28.92	3.24	27.34	27.34	3.76	
	63 (17.2)††	35.34	24.89	1.81	34.09	24.39	2.08	32.71	23.83	2.41	31.15	23.21	2.79	29.37	22.50	3.24	27.34	21.71	3.77	
	67 (19.4)	38.09	25.84	1.84	36.76	25.34	2.10	35.26	24.79	2.42	33.58	24.17	2.81	31.66	23.47	3.26	29.46	22.68	3.78	
1200	72 (22.2)	41.88	21.21	1.87	40.42	20.69	2.13	38.79	20.12	2.45	36.93	19.47	2.83	34.82	18.75	3.28	32.41	17.93	3.80	
	57 (13.9)	34.84	34.84	1.83	33.87	33.87	2.10	32.78	32.78	2.43	31.52	31.52	2.81	30.07	30.07	3.27	28.37	28.37	3.79	
	62 (16.7)	35.54	32.74	1.83	34.29	32.24	2.10	32.92	32.69	2.43	31.57	31.57	2.81	30.11	30.11	3.27	28.41	28.41	3.79	
	63 (17.2)††	36.20	26.56	1.84	34.89	26.06	2.11	33.43	25.49	2.43	31.79	24.85	2.82	29.93	24.14	3.27	27.81	23.32	3.79	
	67 (19.4)	38.98	27.62	1.87	37.58	27.12	2.13	36.00	26.57	2.45	34.23	25.94	2.83	32.22	25.23	3.28	29.93	24.43	3.80	
720	72 (22.2)	42.82	22.35	1.90	41.28	21.82	2.16	39.56	21.24	2.48	37.62	20.59	2.85	35.41	19.85	3.30	32.89	19.02	3.83	
	24ANB136A**31 Outdoor Section With FE5ANB004 Indoor Section – Low																			
	780	57 (13.9)	27.10	27.10	1.39	26.15	26.15	1.60	25.12	25.12	1.84	23.99	23.99	2.13	22.72	22.72	2.46	21.30	21.30	2.84
		62 (16.7)	28.31	25.11	1.38	27.06	23.97	1.59	25.73	22.83	1.84	24.30	21.67	2.13	22.78	22.74	2.46	21.33	21.33	2.84
		63 (17.2)††	28.93	20.61	1.37	27.65	19.58	1.59	26.29	18.55	1.83	24.80	17.50	2.12	23.17	16.43	2.46	21.34	15.32	2.84
		67 (19.4)	31.39	21.48	1.35	29.99	20.42	1.57	28.51	19.36	1.82	26.90	18.28	2.11	25.13	17.19	2.44	23.18	16.07	2.82
		72 (22.2)	34.77	17.74	1.33	33.21	16.77	1.55	31.56	15.79	1.80	29.79	14.81	2.09	27.86	13.81	2.42	25.72	12.78	2.80
	840	57 (13.9)	27.95	27.95	1.39	26.95	26.95	1.60	25.87	25.87	1.84	24.69	24.69	2.13	23.36	23.36	2.46	21.88	21.88	2.84
		62 (16.7)	28.82	26.33	1.38	27.54	25.15	1.59	26.18	23.96	1.84	24.74	24.72	2.13	23.41	23.41	2.46	21.91	21.91	2.84
		63 (17.2)††	29.44	21.47	1.37	28.11	20.41	1.59	26.70	19.34	1.84	25.17	18.27	2.13	23.49	17.16	2.46	21.62	16.03	2.85
		67 (19.4)	31.91	22.38	1.35	30.46	21.29	1.57	28.93	20.20	1.82	27.27	19.10	2.11	25.46	17.98	2.44	23.45	16.82	2.82
		72 (22.2)	35.34	18.34	1.33	33.72	17.34	1.55	32.01	16.34	1.80	30.19	15.34	2.09	28.20	14.32	2.42	26.00	13.27	2.80
	960	57 (13.9)	28.74	28.74	1.38	27.69	27.69	1.60	26.56	26.56	1.84	25.32	25.32	2.13	23.94	23.94	2.46	22.39	22.39	2.84
		62 (16.7)	29.28	27.52	1.38	27.97	26.29	1.59	26.61	26.60	1.84	25.37	25.37	2.13	23.99	23.99	2.46	22.43	22.43	2.84
		63 (17.2)††	29.88	22.30	1.38	28.51	21.21	1.59	27.06	20.12	1.84	25.49	19.01	2.13	23.76	17.88	2.46	21.86	16.72	2.85
		67 (19.4)	32.37	23.27	1.36	30.87	22.15	1.57	29.29	21.03	1.82	27.60	19.90	2.11	25.74	18.75	2.44	23.69	17.57	2.83
		72 (22.2)	35.81	18.92	1.33	34.15	17.90	1.55	32.40	16.88	1.80	30.53	15.85	2.09	28.49	14.80	2.42	26.25	13.74	2.80
	900	57 (13.9)	30.12	30.12	1.38	28.98	28.98	1.60	27.76	27.76	1.84	26.42	26.42	2.13	24.94	24.94	2.46	23.29	23.29	2.84
		62 (16.7)	30.17	30.17	1.38	29.03	29.03	1.60	27.80	27.80	1.84	26.47	26.47	2.13	24.98	24.98	2.46	23.32	23.32	2.84
		63 (17.2)††	30.60	23.92	1.38	29.16	22.78	1.60	27.65	21.63	1.85	26.00	20.47	2.13	24.22	19.28	2.47	22.25	18.05	2.85
67 (19.4)		33.10	25.00	1.36	31.54	23.83	1.58	29.89	22.65	1.83	28.12	21.46	2.12	26.19	20.25	2.45	24.08	19.01	2.83	
960	72 (22.2)	36.60	20.03	1.33	34.86	18.97	1.55	33.03	17.91	1.81	31.07	16.84	2.10	28.96	15.76	2.43	26.64	14.65	2.81	

See notes on page 14

## DETAILED COOLING CAPACITIES# (CONTINUED)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**
		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†	
24ANB148A**31 Outdoor Section With FE4ANB006 Indoor Section – High																			
1200	57 (13.9)	43.46	43.46	2.66	42.21	42.21	3.03	40.74	40.74	3.46	39.09	39.09	3.97	37.31	37.31	4.57	35.40	35.40	5.28
	62 (16.7)	46.33	39.87	2.68	44.61	39.10	3.05	42.60	38.20	3.48	40.41	37.22	3.98	38.08	36.19	4.57	35.68	35.08	5.28
	63 (17.2)††	47.30	32.99	2.69	45.53	32.19	3.05	43.47	31.27	3.48	41.21	30.27	3.99	38.82	29.23	4.58	36.30	28.15	5.29
	67 (19.4)	50.97	34.17	2.71	49.04	33.35	3.08	46.82	32.43	3.51	44.39	31.44	4.01	41.79	30.40	4.62	39.06	29.32	5.33
1300	72 (22.2)	55.93	28.28	2.73	53.78	27.43	3.10	51.34	26.49	3.54	48.66	25.47	4.05	45.81	24.41	4.66	42.80	23.30	5.39
	57 (13.9)	44.75	44.75	2.69	43.43	43.43	3.06	41.88	41.88	3.49	40.14	40.14	4.00	38.27	38.27	4.60	36.27	36.27	5.31
	62 (16.7)	47.12	41.64	2.70	45.33	40.85	3.07	43.26	39.94	3.50	40.99	38.93	4.00	38.64	37.84	4.60	36.32	36.32	5.31
	63 (17.2)††	48.08	34.21	2.71	46.24	33.40	3.08	44.10	32.46	3.51	41.77	31.45	4.01	39.30	30.40	4.61	36.70	29.31	5.32
1400	67 (19.4)	51.77	35.46	2.73	49.76	34.63	3.10	47.46	33.70	3.53	44.94	32.70	4.04	42.27	31.65	4.64	39.46	30.56	5.36
	72 (22.2)	56.75	29.09	2.75	54.52	28.23	3.12	51.99	27.27	3.56	49.23	26.24	4.08	46.30	25.17	4.69	43.21	24.06	5.42
	57 (13.9)	45.92	45.92	2.72	44.54	44.54	3.09	42.90	42.90	3.52	41.08	41.08	4.03	39.13	39.13	4.63	37.04	37.04	5.35
	62 (16.7)	47.81	43.35	2.73	45.96	42.54	3.10	43.83	41.60	3.53	41.54	40.54	4.03	39.20	39.20	4.63	37.09	37.09	5.35
1600	63 (17.2)††	48.75	35.40	2.73	46.84	34.57	3.10	44.64	33.62	3.53	42.24	32.61	4.04	39.70	31.54	4.63	37.05	30.44	5.35
	67 (19.4)	52.45	36.71	2.75	50.37	35.88	3.12	48.00	34.94	3.56	45.42	33.93	4.07	42.67	32.87	4.67	39.80	31.77	5.39
	72 (22.2)	57.45	29.87	2.77	55.15	29.00	3.15	52.54	28.03	3.59	49.70	27.00	4.10	46.70	25.92	4.72	43.55	24.80	5.44
	57 (13.9)	47.95	47.95	2.76	46.44	46.44	3.14	44.67	44.67	3.57	42.71	42.71	4.08	40.60	40.60	4.69	38.34	38.34	5.41
1800	62 (16.7)	48.96	46.60	2.77	47.04	45.73	3.14	44.88	44.51	3.57	42.77	42.77	4.08	40.65	40.65	4.69	38.39	38.39	5.41
	63 (17.2)††	49.83	37.66	2.77	47.81	36.82	3.15	45.50	35.86	3.58	42.99	34.82	4.08	40.35	33.74	4.69	37.59	32.61	5.40
	67 (19.4)	53.54	39.13	2.79	51.34	38.29	3.17	48.86	37.34	3.60	46.15	36.31	4.11	43.30	35.23	4.72	40.32	34.11	5.44
	72 (22.2)	58.56	31.36	2.81	56.14	30.48	3.19	53.41	29.49	3.63	50.45	28.45	4.15	47.33	27.36	4.77	44.05	26.23	5.50
24ANB148A**31 Outdoor Section With FE4ANB006 Indoor Section – Low																			
960	57 (13.9)	34.39	34.39	1.86	31.71	31.71	2.18	28.95	28.95	2.53	26.16	26.16	2.95	23.36	23.36	3.41	20.58	20.58	3.95
	62 (16.7)	35.91	32.27	1.85	32.79	30.00	2.17	29.59	27.70	2.53	26.38	25.38	2.94	23.40	23.40	3.41	20.62	20.62	3.95
	63 (17.2)††	36.69	26.41	1.84	33.50	24.42	2.16	30.22	22.42	2.53	26.89	20.41	2.94	23.58	18.44	3.41	20.33	16.51	3.95
	67 (19.4)	39.84	27.54	1.82	36.41	25.51	2.14	32.90	23.46	2.51	29.34	21.42	2.92	25.80	19.40	3.39	22.31	17.43	3.93
1040	72 (22.2)	44.16	22.71	1.79	40.42	20.90	2.12	36.59	19.10	2.48	32.71	17.30	2.90	28.84	15.53	3.37	25.01	13.80	3.91
	57 (13.9)	35.44	35.44	1.86	32.66	32.66	2.18	29.81	29.81	2.54	26.91	26.91	2.95	24.02	24.02	3.42	21.15	21.15	3.95
	62 (16.7)	36.54	33.80	1.86	33.35	31.44	2.17	30.11	29.03	2.54	26.96	26.96	2.95	24.06	24.06	3.42	21.18	21.18	3.95
	63 (17.2)††	37.30	27.48	1.85	34.03	25.43	2.17	30.67	23.36	2.53	27.28	21.30	2.95	23.91	19.26	3.42	20.59	17.28	3.96
1120	67 (19.4)	40.48	28.68	1.83	36.97	26.59	2.15	33.37	24.47	2.51	29.74	22.36	2.93	26.13	20.29	3.40	22.57	18.26	3.94
	72 (22.2)	44.85	23.43	1.80	41.02	21.59	2.12	37.10	19.74	2.49	33.14	17.90	2.91	29.19	16.09	3.38	25.29	14.32	3.92
	57 (13.9)	36.40	36.40	1.87	33.53	33.53	2.18	30.58	30.58	2.54	27.60	27.60	2.96	24.62	24.62	3.43	21.66	21.66	3.96
	62 (16.7)	37.10	35.28	1.86	33.88	32.82	2.18	30.64	30.64	2.54	27.65	27.65	2.96	24.66	24.66	3.43	21.69	21.69	3.96
1280	63 (17.2)††	37.83	28.52	1.86	34.49	26.42	2.18	31.07	24.29	2.54	27.62	22.17	2.96	24.19	20.07	3.43	20.82	18.03	3.97
	67 (19.4)	41.02	29.79	1.83	37.44	27.64	2.16	33.78	25.46	2.52	30.09	23.29	2.94	26.41	21.15	3.41	22.80	19.06	3.95
	72 (22.2)	45.45	24.14	1.81	41.54	22.26	2.13	37.54	20.37	2.50	33.51	18.49	2.92	29.49	16.64	3.39	25.53	14.83	3.93
	57 (13.9)	38.08	38.08	1.87	35.05	35.05	2.19	31.95	31.95	2.55	28.80	28.80	2.97	25.65	25.65	3.44	22.53	22.53	3.97
1360	62 (16.7)	38.15	38.15	1.87	35.11	35.11	2.19	32.00	32.00	2.55	28.85	28.85	2.97	25.69	25.69	3.44	22.56	22.56	3.97
	63 (17.2)††	38.69	30.54	1.87	35.25	28.32	2.19	31.72	26.08	2.56	28.17	23.84	2.97	24.65	21.63	3.45	21.21	19.45	3.99
	67 (19.4)	41.90	31.95	1.85	38.21	29.67	2.17	34.44	27.38	2.54	30.64	25.09	2.96	26.87	22.83	3.43	23.18	20.61	3.97
	72 (22.2)	46.40	25.50	1.82	42.37	23.55	2.15	38.25	21.58	2.52	34.09	19.62	2.93	29.97	17.70	3.41	25.90	15.81	3.94

## DETAILED COOLING CAPACITIES# (CONTINUED)

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**
		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†	
24ANB160A**31 Outdoor Section With FE4ANB006 Indoor Section – High																			
1500	57 (13.9)	52.99	52.99	3.37	51.69	51.69	3.79	50.28	50.28	4.28	48.59	48.59	4.86	46.55	46.55	5.52	44.10	44.10	6.28
	62 (16.7)	55.93	48.97	3.39	54.12	48.23	3.81	52.11	47.41	4.30	49.83	46.46	4.87	47.17	45.31	5.53	44.17	44.17	6.28
	63 (17.2)††	57.08	40.23	3.40	55.22	39.43	3.82	53.16	38.56	4.31	50.77	37.56	4.88	48.01	36.42	5.54	44.77	35.10	6.29
	67 (19.4)	61.59	41.74	3.45	59.56	40.94	3.86	57.29	40.06	4.35	54.69	39.06	4.92	51.67	37.92	5.58	48.16	36.60	6.34
1625	72 (22.2)	67.81	34.35	3.51	65.53	33.47	3.92	62.98	32.51	4.41	60.07	31.43	4.98	56.73	30.22	5.65	52.84	28.84	6.41
	57 (13.9)	54.45	54.45	3.41	53.11	53.11	3.83	51.58	51.58	4.33	49.80	49.80	4.90	47.65	47.65	5.57	45.07	45.07	6.33
	62 (16.7)	56.79	51.10	3.43	54.91	50.35	3.85	52.85	49.50	4.34	50.50	48.50	4.91	47.84	47.52	5.57	45.13	45.13	6.33
	63 (17.2)††	57.92	41.69	3.44	56.00	40.89	3.86	53.84	40.01	4.35	51.37	39.01	4.92	48.52	37.85	5.58	45.19	36.52	6.33
1750	67 (19.4)	62.47	43.31	3.49	60.36	42.50	3.90	58.00	41.62	4.39	55.30	40.61	4.96	52.19	39.46	5.62	48.57	38.12	6.38
	72 (22.2)	68.75	35.33	3.55	66.38	34.44	3.96	63.73	33.47	4.45	60.73	32.38	5.03	57.27	31.15	5.69	53.28	29.76	6.45
	57 (13.9)	55.78	55.78	3.46	54.36	54.36	3.88	52.76	52.76	4.37	50.87	50.87	4.95	48.62	48.62	5.62	45.94	45.94	6.38
	62 (16.7)	57.54	53.15	3.47	55.63	52.37	3.89	53.51	51.48	4.38	51.15	50.35	4.95	48.69	48.69	5.62	45.99	45.99	6.38
2000	63 (17.2)††	58.65	43.12	3.48	56.64	42.31	3.90	54.41	41.41	4.39	51.88	40.41	4.96	48.94	39.24	5.62	45.55	37.89	6.38
	67 (19.4)	63.23	44.83	3.53	61.04	44.02	3.94	58.59	43.13	4.43	55.82	42.12	5.01	52.62	40.95	5.67	48.93	39.61	6.42
	72 (22.2)	69.56	36.27	3.59	67.09	35.37	4.01	64.36	34.39	4.49	61.27	33.30	5.07	57.72	32.06	5.73	53.64	30.66	6.49
	57 (13.9)	58.08	58.08	3.54	56.52	56.52	3.97	54.77	54.77	4.46	52.71	52.71	5.04	50.28	50.28	5.71	47.39	47.39	6.48
24ANB160A**31 Outdoor Section With FE4ANB006 Indoor Section – Low	62 (16.7)	58.86	56.97	3.55	56.89	56.04	3.97	54.85	54.85	4.46	52.78	52.78	5.04	50.34	50.34	5.71	47.44	47.44	6.48
	63 (17.2)††	59.80	45.84	3.56	57.69	45.03	3.98	55.33	44.12	4.47	52.67	43.09	5.04	49.62	41.90	5.70	46.10	40.51	6.46
	67 (19.4)	64.43	47.76	3.60	62.10	46.95	4.02	59.53	46.05	4.51	56.61	45.02	5.08	53.29	43.83	5.75	49.46	42.45	6.51
	72 (22.2)	70.83	38.07	3.67	68.23	37.16	4.08	65.35	36.17	4.57	62.11	35.06	5.15	58.42	33.81	5.81	54.18	32.40	6.58
1200	57 (13.9)	40.76	40.76	2.36	37.16	37.16	2.66	33.46	33.46	2.99	29.77	29.77	3.35	26.12	26.12	3.75	22.57	22.57	4.20
	62 (16.7)	42.19	38.78	2.35	38.07	35.88	2.65	33.89	32.93	2.98	29.82	29.82	3.35	26.16	26.16	3.75	22.61	22.61	4.20
	63 (17.2)††	43.06	31.53	2.35	38.84	29.02	2.65	34.53	26.48	2.98	30.23	23.96	3.35	26.04	21.51	3.75	22.00	19.12	4.20
	67 (19.4)	46.64	32.86	2.32	42.08	30.29	2.62	37.46	27.69	2.96	32.85	25.12	3.33	28.35	22.61	3.74	24.02	20.17	4.19
	72 (22.2)	51.58	26.79	2.29	46.57	24.53	2.59	41.50	22.25	2.93	36.46	20.00	3.30	31.55	17.82	3.71	26.80	15.71	4.17
1300	57 (13.9)	41.91	41.91	2.37	38.17	38.17	2.67	34.36	34.36	3.00	30.54	30.54	3.36	26.77	26.77	3.77	23.10	23.10	4.21
	62 (16.7)	42.85	40.57	2.37	38.66	37.53	2.67	34.46	34.36	3.00	30.59	30.59	3.36	26.81	26.81	3.77	23.14	23.14	4.21
	63 (17.2)††	43.68	32.78	2.36	39.36	30.19	2.66	34.97	27.57	3.00	30.59	24.98	3.36	26.32	22.45	3.77	22.23	19.99	4.22
	67 (19.4)	47.28	34.19	2.34	42.63	31.54	2.64	37.91	28.86	2.98	33.22	26.21	3.35	28.64	23.62	3.76	24.25	21.11	4.20
1400	72 (22.2)	52.26	27.63	2.30	47.15	25.31	2.61	41.97	22.98	2.95	36.85	20.68	3.32	31.84	18.45	3.73	27.02	16.29	4.18
	57 (13.9)	42.94	42.94	2.39	39.09	39.09	2.68	35.16	35.16	3.01	31.22	31.22	3.38	27.35	27.35	3.78	23.58	23.58	4.23
	62 (16.7)	43.45	42.26	2.38	39.24	39.02	2.68	35.21	35.21	3.01	31.27	31.27	3.38	27.39	27.39	3.78	23.62	23.62	4.23
	63 (17.2)††	44.20	33.99	2.38	39.81	31.33	2.68	35.34	28.64	3.01	30.89	25.98	3.38	26.57	23.36	3.79	22.42	20.82	4.24
1600	67 (19.4)	47.83	35.50	2.36	43.09	32.77	2.66	38.29	30.01	2.99	33.53	27.28	3.37	28.89	24.61	3.77	24.44	22.01	4.22
	72 (22.2)	52.84	28.44	2.32	47.63	26.07	2.63	42.37	23.68	2.97	37.17	21.34	3.34	32.09	19.06	3.75	27.20	16.86	4.20
	57 (13.9)	44.73	44.73	2.42	40.67	40.67	2.71	36.53	36.53	3.05	32.40	32.40	3.41	28.33	28.33	3.82	24.39	24.39	4.26
	62 (16.7)	44.79	44.79	2.42	40.73	40.73	2.71	36.58	36.58	3.05	32.44	32.44	3.41	28.37	28.37	3.82	24.42	24.42	4.26
	63 (17.2)††	45.04	36.32	2.42	40.52	33.52	2.72	35.93	30.68	3.05	31.38	27.87	3.42	26.97	25.10	3.83	22.77	22.34	4.28
1600	67 (19.4)	48.69	38.00	2.39	43.82	35.12	2.69	38.90	32.22	3.03	34.02	29.34	3.40	29.29	26.51	3.81	24.77	23.72	4.26
	72 (22.2)	53.76	29.99	2.36	48.40	27.52	2.66	43.00	25.05	3.00	37.66	22.61	3.38	32.47	20.24	3.79	27.47	17.95	4.24

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

# Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240–2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

\*\* System kw is total of indoor and outdoor unit kilowatts.

EWB — Entering Wet Bulb

NOTE: When the required data fall between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

# CONDENSER ONLY RATINGS\*

## Attachment 2

SST ° F (° C)		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ANB124A**31 – High									
30 (–1.11)	TCG	19.70	19.10	18.40	17.60	16.60	15.50	14.40	13.10
	SDT	64.30	74.20	84.00	93.80	103.50	113.20	122.90	132.60
	KW	0.87	1.03	1.21	1.41	1.64	1.92	2.25	2.65
35 (1.67)	TCG	21.90	21.30	20.50	19.60	18.50	17.40	16.10	14.70
	SDT	65.30	75.10	84.90	94.60	104.30	114.00	123.60	133.30
	KW	0.88	1.05	1.23	1.43	1.66	1.93	2.27	2.67
40 (4.44)	TCG	24.30	23.60	22.70	21.70	20.60	19.30	17.90	16.50
	SDT	66.40	76.10	85.90	95.60	105.20	114.80	124.50	134.10
	KW	0.90	1.06	1.24	1.44	1.67	1.95	2.28	2.69
45 (7.22)	TCG	26.90	26.10	25.10	24.00	22.70	21.40	19.90	18.40
	SDT	67.50	77.20	86.90	96.50	106.10	115.70	125.30	134.90
	KW	0.92	1.08	1.25	1.45	1.69	1.96	2.30	2.71
50 (10.0)	TCG	29.70	28.70	27.60	26.40	25.00	23.60	22.10	20.40
	SDT	68.70	78.30	88.00	97.50	107.10	116.60	126.20	135.70
	KW	0.94	1.09	1.27	1.47	1.70	1.98	2.32	2.72
55 (12.78)	TCG	32.60	31.50	30.30	28.90	27.50	26.00	24.30	22.60
	SDT	69.90	79.50	89.10	98.60	108.10	117.60	127.10	136.60
	KW	0.95	1.11	1.28	1.48	1.71	1.99	2.33	2.74
60 (15.56)	TCG	35.70	34.50	33.10	31.70	30.10	28.50	26.70	24.90
	SDT	71.20	80.70	90.20	99.70	109.20	118.60	128.00	137.40
	KW	0.97	1.12	1.30	1.49	1.73	2.01	2.35	2.76
24ANB124A**31 – Low									
30 (–1.11)	TCG	14.50	14.50	14.20	13.60	12.80	11.90	10.80	9.70
	SDT	62.70	72.60	82.50	92.30	101.90	111.60	121.20	130.90
	KW	0.74	0.86	0.98	1.12	1.28	1.44	1.62	1.82
35 (1.67)	TCG	16.30	16.30	15.90	15.30	14.40	13.50	12.40	11.20
	SDT	63.50	73.50	83.30	93.00	102.70	112.30	121.90	131.60
	KW	0.74	0.85	0.97	1.11	1.27	1.43	1.62	1.82
40 (4.44)	TCG	18.30	18.10	17.70	17.00	16.10	15.10	14.00	12.80
	SDT	64.50	74.40	84.10	93.80	103.50	113.10	122.70	132.30
	KW	0.73	0.84	0.96	1.10	1.25	1.43	1.62	1.82
45 (7.22)	TCG	20.30	20.10	19.60	18.90	17.90	16.90	15.70	14.50
	SDT	65.50	75.30	85.00	94.70	104.30	113.90	123.40	133.00
	KW	0.72	0.82	0.94	1.08	1.24	1.42	1.61	1.82
50 (10.0)	TCG	22.50	22.20	21.60	20.80	19.80	18.70	17.50	16.30
	SDT	66.50	76.30	85.90	95.60	105.10	114.70	124.20	133.80
	KW	0.71	0.81	0.93	1.07	1.23	1.40	1.60	1.82
55 (12.78)	TCG	24.80	24.40	23.80	22.90	21.90	20.70	19.50	18.10
	SDT	67.60	77.30	86.90	96.50	106.00	115.50	125.00	134.60
	KW	0.69	0.79	0.91	1.05	1.21	1.39	1.59	1.82
60 (15.56)	TCG	27.30	26.80	26.10	25.10	24.00	22.80	21.50	20.10
	SDT	68.70	78.30	87.90	97.40	106.90	116.40	125.90	135.40
	KW	0.67	0.77	0.89	1.03	1.19	1.38	1.59	1.82
24ANB136A**31 – High									
30 (–1.11)	TCG	27.30	26.30	25.40	24.40	23.30	22.00	20.50	18.80
	SDT	68.00	77.50	87.10	96.60	106.10	115.70	125.20	134.60
	KW	1.17	1.36	1.59	1.86	2.19	2.57	3.01	3.51
35 (1.67)	TCG	30.10	29.20	28.20	27.10	25.80	24.40	22.80	21.00
	SDT	69.30	78.80	88.30	97.80	107.30	116.70	126.10	135.40
	KW	1.20	1.39	1.61	1.89	2.21	2.59	3.04	3.55
40 (4.44)	TCG	33.20	32.20	31.10	29.90	28.60	27.10	25.30	23.30
	SDT	70.70	80.10	89.50	99.00	108.40	117.80	127.10	136.30
	KW	1.23	1.41	1.64	1.91	2.23	2.62	3.06	3.58
45 (7.22)	TCG	36.40	35.30	34.20	33.00	31.50	29.90	28.00	25.80
	SDT	72.10	81.40	90.80	100.20	109.60	118.90	128.10	137.20
	KW	1.27	1.45	1.67	1.94	2.26	2.64	3.09	3.61
50 (10.0)	TCG	39.80	38.70	37.50	36.20	34.60	32.90	30.80	28.50
	SDT	73.60	82.90	92.20	101.50	110.80	120.00	129.10	138.20
	KW	1.31	1.48	1.70	1.96	2.28	2.67	3.12	3.64
55 (12.78)	TCG	43.40	42.20	41.00	39.60	37.90	36.00	33.90	31.40
	SDT	75.10	84.40	93.60	102.80	112.00	121.20	130.20	139.20
	KW	1.36	1.52	1.73	2.00	2.31	2.69	3.14	3.67
60 (15.56)	TCG	47.10	46.00	44.70	43.10	41.40	39.40	37.10	34.40
	SDT	76.70	85.90	95.00	104.20	113.30	122.40	131.40	140.20
	KW	1.41	1.57	1.77	2.03	2.35	2.72	3.17	3.70

See notes on page 17

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# CONDENSER ONLY RATINGS\* CONTINUED

Document 2

SST ° F (° C)		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ANB136A**31 – Low									
30 (–1.11)	TCG	20.80	20.30	19.80	19.10	18.30	17.30	16.00	14.50
	SDT	65.00	74.70	84.40	94.10	103.80	113.40	122.90	132.40
	KW	1.06	1.20	1.36	1.55	1.78	2.04	2.35	2.71
35 (1.67)	TCG	23.20	22.70	22.00	21.30	20.50	19.40	18.10	16.40
	SDT	66.10	75.70	85.40	95.00	104.70	114.20	123.70	133.20
	KW	1.04	1.19	1.35	1.54	1.76	2.03	2.33	2.69
40 (4.44)	TCG	25.90	25.20	24.50	23.80	22.80	21.70	20.30	18.60
	SDT	67.20	76.80	86.40	96.00	105.60	115.10	124.60	134.00
	KW	1.02	1.17	1.34	1.53	1.75	2.02	2.32	2.67
45 (7.22)	TCG	28.70	28.00	27.20	26.40	25.40	24.10	22.70	20.90
	SDT	68.40	78.00	87.60	97.10	106.60	116.10	125.50	134.90
	KW	0.99	1.15	1.32	1.52	1.74	2.00	2.31	2.66
50 (10.0)	TCG	31.70	30.90	30.10	29.10	28.10	26.80	25.20	23.30
	SDT	69.70	79.20	88.70	98.20	107.70	117.10	126.50	135.80
	KW	0.97	1.13	1.30	1.50	1.73	1.99	2.30	2.64
55 (12.78)	TCG	34.90	34.00	33.10	32.10	31.00	29.60	27.90	25.90
	SDT	71.10	80.50	90.00	99.40	108.80	118.20	127.50	136.70
	KW	0.94	1.11	1.29	1.49	1.72	1.98	2.28	2.63
60 (15.56)	TCG	38.30	37.40	36.40	35.30	34.00	32.50	30.80	28.70
	SDT	72.50	81.90	91.30	100.60	110.00	119.30	128.50	137.60
	KW	0.91	1.08	1.27	1.47	1.71	1.97	2.27	2.61
24ANB148A**31 – High									
30 (–1.11)	TCG	37.50	37.30	36.40	35.00	33.30	31.30	29.20	27.00
	SDT	69.60	79.40	88.90	98.40	107.70	117.00	126.30	135.70
	KW	1.92	2.18	2.45	2.75	3.09	3.48	3.94	4.49
35 (1.67)	TCG	41.80	41.50	40.50	38.90	37.00	34.90	32.70	30.40
	SDT	71.20	80.90	90.30	99.60	108.90	118.10	127.40	136.70
	KW	1.97	2.22	2.49	2.79	3.13	3.52	3.99	4.53
40 (4.44)	TCG	46.40	45.90	44.70	43.00	41.00	38.80	36.40	34.00
	SDT	72.80	82.40	91.70	101.00	110.10	119.30	128.50	137.70
	KW	2.01	2.26	2.53	2.83	3.17	3.56	4.03	4.58
45 (7.22)	TCG	51.10	50.50	49.10	47.40	45.20	42.80	40.40	37.80
	SDT	74.50	83.90	93.10	102.30	111.40	120.50	129.60	138.80
	KW	2.05	2.29	2.56	2.86	3.21	3.61	4.08	4.64
50 (10.0)	TCG	56.00	55.20	53.80	51.80	49.60	47.10	44.50	41.80
	SDT	76.10	85.40	94.60	103.70	112.70	121.80	130.80	139.90
	KW	2.08	2.32	2.59	2.90	3.25	3.66	4.13	4.70
55 (12.78)	TCG	61.10	60.10	58.50	56.50	54.10	51.50	48.70	45.90
	SDT	77.80	87.00	96.10	105.10	114.10	123.00	132.00	141.00
	KW	2.10	2.35	2.63	2.93	3.29	3.70	4.19	4.76
60 (15.56)	TCG	66.20	65.10	63.40	61.30	58.80	56.10	53.20	50.20
	SDT	79.50	88.60	97.60	106.50	115.40	124.30	133.20	142.10
	KW	2.13	2.38	2.65	2.97	3.33	3.75	4.25	4.82
24ANB148A**31 – Low									
30 (–1.11)	TCG	26.80	26.60	25.90	24.80	23.30	21.40	19.20	16.70
	SDT	66.40	76.10	85.70	95.20	104.50	113.80	123.00	132.20
	KW	1.36	1.57	1.80	2.05	2.33	2.65	3.01	3.41
35 (1.67)	TCG	29.80	29.60	28.90	27.80	26.20	24.30	22.00	19.40
	SDT	67.60	77.20	86.80	96.20	105.60	114.80	124.00	133.20
	KW	1.34	1.55	1.78	2.04	2.32	2.64	3.00	3.40
40 (4.44)	TCG	33.10	32.80	32.10	31.00	29.40	27.40	25.10	22.40
	SDT	68.80	78.50	88.00	97.40	106.70	115.90	125.00	134.20
	KW	1.31	1.53	1.77	2.02	2.31	2.63	2.99	3.39
45 (7.22)	TCG	36.60	36.40	35.70	34.50	32.90	30.80	28.40	25.60
	SDT	70.20	79.70	89.20	98.60	107.80	117.00	126.10	135.20
	KW	1.29	1.51	1.75	2.01	2.30	2.62	2.98	3.38
50 (10.0)	TCG	40.40	40.20	39.50	38.30	36.60	34.50	32.00	29.10
	SDT	71.60	81.10	90.50	99.80	109.10	118.20	127.20	136.20
	KW	1.26	1.49	1.73	2.00	2.29	2.61	2.97	3.37
55 (12.78)	TCG	44.60	44.30	43.60	42.40	40.70	38.60	36.00	33.00
	SDT	73.10	82.60	92.00	101.20	110.30	119.40	128.40	137.30
	KW	1.23	1.47	1.71	1.98	2.28	2.60	2.96	3.36
60 (15.56)	TCG	49.10	48.80	48.10	46.90	45.10	42.90	40.30	37.10
	SDT	74.70	84.10	93.40	102.60	111.70	120.70	129.60	138.40
	KW	1.21	1.44	1.70	1.97	2.27	2.59	2.95	3.35

See notes on page 17

# CONDENSER ONLY RATINGS\* CONTINUED

Document 2

SST ° F (° C)		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)							
		55 (12.78)	65 (18.33)	75 (23.89)	85 (29.44)	95 (35.0)	105 (40.56)	115 (46.11)	125 (51.67)
24ANB160A**31 – High									
30 (–1.11)	TCG	48.60	46.60	44.60	42.70	40.60	38.20	35.50	32.50
	SDT	69.30	78.60	87.90	97.30	106.70	116.10	125.40	134.60
	KW	2.76	3.05	3.37	3.73	4.15	4.62	5.14	5.73
35 (1.67)	TCG	54.50	52.40	50.30	48.30	46.00	43.50	40.60	37.30
	SDT	70.60	79.80	89.10	98.40	107.70	117.00	126.30	135.40
	KW	2.82	3.10	3.41	3.78	4.19	4.66	5.19	5.79
40 (4.44)	TCG	60.00	57.70	55.50	53.30	50.80	48.00	44.90	41.30
	SDT	72.00	81.10	90.30	99.50	108.80	118.00	127.20	136.30
	KW	2.89	3.16	3.47	3.82	4.24	4.71	5.24	5.85
45 (7.22)	TCG	65.80	63.40	61.00	58.50	55.80	52.80	49.40	45.50
	SDT	73.50	82.50	91.60	100.80	109.90	119.10	128.20	137.20
	KW	2.97	3.22	3.52	3.88	4.29	4.76	5.30	5.90
50 (10.0)	TCG	71.90	69.30	66.70	64.00	61.10	57.80	54.00	49.80
	SDT	75.00	83.90	93.00	102.00	111.10	120.20	129.20	138.10
	KW	3.05	3.29	3.59	3.94	4.35	4.82	5.36	5.96
55 (12.78)	TCG	78.00	75.20	72.40	69.50	66.30	62.70	58.60	54.00
	SDT	76.70	85.50	94.40	103.40	112.40	121.40	130.30	139.10
	KW	3.13	3.37	3.66	4.00	4.41	4.88	5.42	6.03
60 (15.56)	TCG	84.40	81.50	78.40	75.20	71.60	67.60	63.20	58.30
	SDT	78.40	87.20	96.00	104.90	113.80	122.60	131.40	140.10
	KW	3.23	3.45	3.74	4.07	4.48	4.95	5.49	6.09
24ANB160A**31 – Low									
30 (–1.11)	TCG	32.40	31.90	30.70	28.90	26.70	24.10	21.10	18.00
	SDT	66.90	76.70	86.20	95.60	104.90	114.10	123.20	132.30
	KW	1.92	2.16	2.42	2.71	3.02	3.35	3.71	4.11
35 (1.67)	TCG	36.30	35.60	34.30	32.40	30.10	27.40	24.40	21.10
	SDT	68.30	77.90	87.40	96.80	106.00	115.20	124.30	133.30
	KW	1.90	2.14	2.41	2.70	3.01	3.35	3.71	4.11
40 (4.44)	TCG	40.40	39.60	38.20	36.20	33.80	31.00	27.80	24.40
	SDT	69.60	79.30	88.70	98.00	107.20	116.30	125.30	134.40
	KW	1.88	2.12	2.39	2.68	3.00	3.34	3.71	4.11
45 (7.22)	TCG	44.90	43.90	42.40	40.30	37.70	34.80	31.50	27.90
	SDT	71.10	80.60	90.00	99.30	108.40	117.40	126.40	135.40
	KW	1.85	2.10	2.38	2.67	2.99	3.34	3.71	4.11
50 (10.0)	TCG	49.60	48.50	46.80	44.60	41.90	38.80	35.40	31.70
	SDT	72.70	82.10	91.40	100.60	109.60	118.60	127.50	136.40
	KW	1.82	2.08	2.36	2.66	2.98	3.33	3.70	4.11
55 (12.78)	TCG	54.60	53.40	51.60	49.20	46.40	43.10	39.50	35.60
	SDT	74.30	83.60	92.80	101.90	110.90	119.80	128.70	137.50
	KW	1.79	2.05	2.33	2.64	2.97	3.32	3.70	4.10
60 (15.56)	TCG	59.90	58.60	56.60	54.10	51.10	47.70	43.90	39.90
	SDT	75.90	85.10	94.30	103.30	112.20	121.00	129.80	138.60
	KW	1.75	2.02	2.31	2.62	2.95	3.31	3.69	4.09

\* AHRI listing applies only to systems shown in Combination Ratings table.

**KW** – Outdoor Unit Kilowatts Only.

**SDT** – Saturated Temperature Leaving Compressor (°F)

**SST** – Saturated Temperature Entering Compressor (°F/°C)

**TCG** – Gross Cooling Capacity (1000 Btuh)

24ANB1

# GUIDE SPECIFICATIONS

## GENERAL

### System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

### Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- Air-cooled condenser coils will be leak tested and pressure tested.
- Unit constructed in ISO9001 approved facility.

### Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

### Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

## PRODUCTS

### Equipment

- Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (R-410A), and special features required prior to field start-up.

### Unit Cabinet

- Unit cabinet, including louvered coil guard, will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

### Fans

- Condenser fan will be direct-drive propeller type, discharging air upward.

- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

### Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

### Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

### Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of Puron® (R-410A) refrigerant, and compressor oil.
- Unit will be equipped with high-pressure switch, low pressure switch and filter drier for Puron refrigerant.

### Operating Characteristics

- The capacity of the unit will meet or exceed \_\_\_\_\_ Btuh at a suction temperature of \_\_\_\_\_ °F/°C. The power consumption at full load will not exceed \_\_\_\_\_ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of \_\_\_\_\_ Btuh or greater at conditions of \_\_\_\_\_ CFM entering air temperature at the evaporator at \_\_\_\_\_ °F/°C wet bulb and \_\_\_\_\_ °F/°C dry bulb, and air entering the unit at \_\_\_\_\_ °F/°C.
- The system will have a SEER of \_\_\_\_\_ Btuh/watt or greater at DOE conditions.

### Electrical Requirements

- Nominal unit electrical characteristics will be \_\_\_\_\_ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of \_\_\_\_\_ v to \_\_\_\_\_ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

### Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.



1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. Minimum outdoor operating air temperature without low-ambient operation accessory is 55°F (12.8°C).
3. The maximum outdoor operating ambient in cooling mode is 125°F (51.67°C) when operating voltage is 230v. For 208v applications, the maximum outdoor ambient is 120°F (48.9°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or elevation differences between indoor and outdoor units greater than 20 ft (6.1 m), consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
6. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
7. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
8. Do not apply capillary tube indoor coils to these units.
9. Factory-supplied filter drier must be installed.

**SafeGard™ WOCD is tested and certified to ASTM F2090-10**

Window opening control devices have become a very important subject among window manufacturers and onward through to builders, contractors, and homeowners. Being able to safely and securely operate a window which has safe guards in place to help control the windows opening so as to prevent accidental falls, while at the same time being able to be easily opened for egress purposes in case of an emergency, is critical in today's building projects.

As a market leader in fenestration hardware, Truth engineered, patented, and manufactured a WOCD that meets the requirements of ASTM F2090-10. The ASTM F2090 addresses window fall prevention that helps protect against potential falls by children through open windows. This is done by allowing the window opening to be set at a pre-determined position of less than four inches (4") and automatically re-latch when fully closed. Truth's Casement SafeGard™ WOCD provides a means that the window, when opened in an initial operation, will limit the venting to less than 4". By code, two actions are required to open the window fully for egress purposes. This additional operation can be performed without the use of keys, tools, or special knowledge.

SafeGard™ Window Opening Control Device is designed to allow for factory installation as well as field application by trained personnel. Please consult local building codes for WOCD and applicable requirements.

SafeGard is a reliable, easy to install and easy to operate solution which meets today's more stringent safety requirements. For additional information on installation and operation, please review the installation and operation instruction

[www.truth.com/instructions](http://www.truth.com/instructions) or [www.truth.com/instructionvideos](http://www.truth.com/instructionvideos) to ensure proper application and operation of the device.

**SafeGard™ WOCD:**

Reliable operation and made entirely of austenitic stainless steel and plastic. WOCD was tested and certified to fit ASTM F2090-10. It is designed to fit



in the standard hinge cavity of 0.719"W X 0.438"H (nominal). Arm assembly has a decal with simple operating instruction, and track is assembled with visible colored plastic to discern the separate operations.

**APPLICATION AND EASE OF INSTALLATION:**

For ease of installation, the track will self locate to the frame. The arm is located on the sash using a template (#92251) with printed instructions. Please see Fig.1 for installation dimensions on window mounting surfaces. For additional information, please see installation and operating instructions. ([www.truth.com/instructions](http://www.truth.com/instructions)).

**WARRANTY:** Protected under the terms of the Truth Warranty for Window and Door Manufacturers and Authorized Distributors. Refer to Truth's Terms and Conditions for further details.

**MATERIAL:** Austenitic stainless steel track, arm, rivet, and Delrin cover and tab. This device is recommended to be installed with stainless steel screws. Total of 4 stainless steel #7 undercut Phillip Flat Head screws to be used in this application; two for the track and two for the arm. Due to variation of profile, screw length can vary. Please

refer to application print specific to your profile and installation instruction for more details.

**INCLUDE TRUTH SPECS IN YOUR NEXT PROJECT REQUIRING A WINDOW OPENING CONTROL DEVICE:**

Window Opening Control Devices as required by ASTM F2090-10, the standard specification for window control devices with emergency (egress) release mechanisms. Product will limit the window opening to less than 4" and requires two actions to release the device allowing the window to open fully for egress purposes. Actions to release the device for egress purposes are to be performed without the use of keys, tools or special knowledge. WOCD will automatically re-latch when window is fully closed. This WOCD shall be "SafeGard™ Casement Window Opening Control Device" as offered by Truth Hardware, Owatonna, MN.

**ORDERING INFORMATION:**

Before ordering device for your application, please make sure the handing of the device is correct for your windows. To determine the correct handing, view the window from the exterior of the dwelling. When the hinge is on the left, it is a left handed window.

# **SAFEGARD™ CASEMENT WINDOW OPENING CONTROL DEVICE (WOCD)** Attachment 2

Similarly, when the hinge is on the right it is a right handed window. Plastic cover on the device is clearly marked with letters L (left) or R (right) for ease of installation. Please follow the below steps for device selection:

1. Before installation, Truth Hardware recommends that you consult with local building codes for egress size applicability and requirements. Standard egress opening typically requires a 24" wide sash opening. For other applications, the minimum sash opening required for Truth's SafeGard™ device is a 21" wide sash.
2. Confirm the hinge cavity (Fig. 1) to ensure the mounting surfaces for the WOCD's track and arm are clearly identified. The WOCD's track should be the same plane as the hinge track, and the WOCD's arm should be mounted on the same plane as the sash arm on the sash profile.
3. Please check the hinge cavity dimension to confirm the casement WOCD will fit your window. The standard hinge cavity should nominally be 0.719" W x 0.438" H.

Please refer to Fig. 1 for WOCD (arm and track) mounting surface, Fig. 2a for arm installation on the sash, and 2b for installation position of the track on the frame. If you have any questions, please contact the window manufacturer for further information.

4. Determine the window handing. This will ensure the correct WOCD device for the application. Specify left or right hand device for your order (please see table 1 below for part numbers)
5. Determine if your order will be OEM\* part numbers (bulk pack for factory installation) or kit part numbers (single packed for field installation by trained personnel). For OEM application, additional accessories (\*) should also be identified and ordered along with the OEM part numbers. Field kit will be bagged to include complete WOCD arm and track, window label decal, screws, and installation template. If you have any questions, please contact Truth representative for additional information.

## **RECOMMENDED SCREWS:**

Types of screws required determined by material of profile used. Refer to drawings for complete information on

screw type and quantity needed (sold separately).

## **TRUTH TIPS:**

1. Truth recommends that a casement WOCD be used in casement application where applicable and building codes require such application. Please check the local building codes for applicability and egress size requirements.
2. Casement WOCD can be factory installed or field retrofit on all profile material types where standard/nominal (0.719"W X 0.438"H) hinge cavity is available. Please observe all safety instructions and consult window manufacturer when you have questions or concerns. Please contact Truth sales for application to ensure form, fit, and function for your specific window application
3. Standard 2 walls (vinyl, fiberglass, aluminum and other composite materials) on the profile is required for proper screw retention
4. Correct handing with proper installation are important to ensure proper operation of the device
5. For additional product information or installation and operating instruction, please go to [www.Truth.com/instructionvideos](http://www.Truth.com/instructionvideos) for more detail.

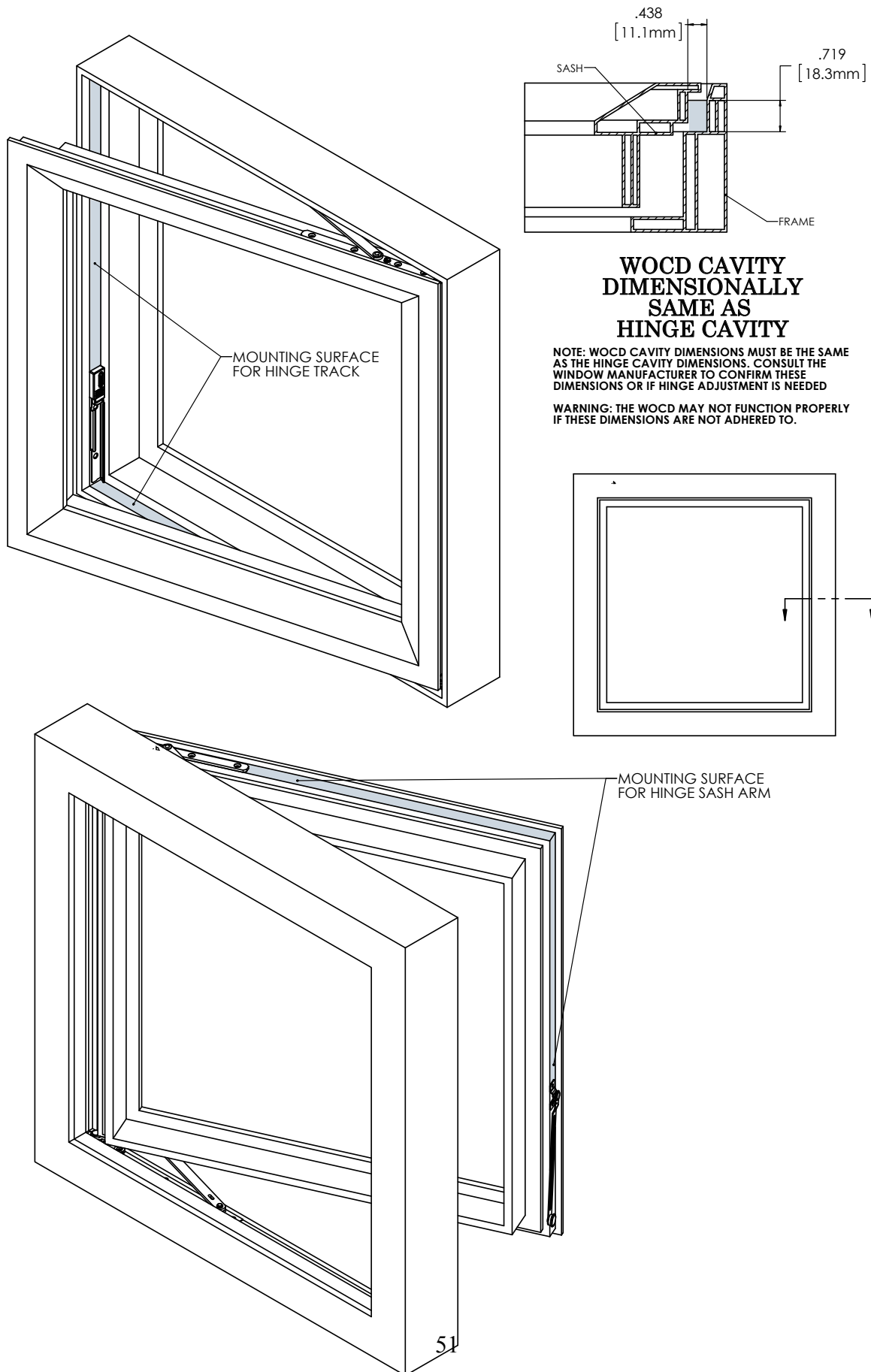
**Table 1: Part Numbers for OEM and Field Kits**

	Left Hand Casement WOCD	Right Hand Casement WOCD
<b>OEM</b>	<b>14149</b>	<b>14150</b>
<b>Factory Installed</b>	WOCD ASSY, OEM 7/16" LH Incl: arm assy and track assy	WOCD ASSY, OEM 7/16" RH Incl: arm assy and track assy
<i>Screw-Bulk* (5K/Box)</i>	<b>19070</b>	
<i>Screw pack*</i>	<b>14176</b>	
<i>Window Label (decal)*</i>	<b>23681</b>	
<i>Instruction*</i>	<b>93221</b>	
<i>Template*</i>	<b>92251</b>	
<b>KIT</b>	<b>14151</b>	<b>14152</b>
<b>Field application by Trained Personnel</b>	WOCD ASSY, Field Kit 7/16" LH Incl: arm assy, track assy, template, instruction and std screw pack (4 Screws), window label	WOCD ASSY, Field Kit 7/16" RH Incl: arm assy, track assy, template, instruction and std screw pack (4 Screws), window label

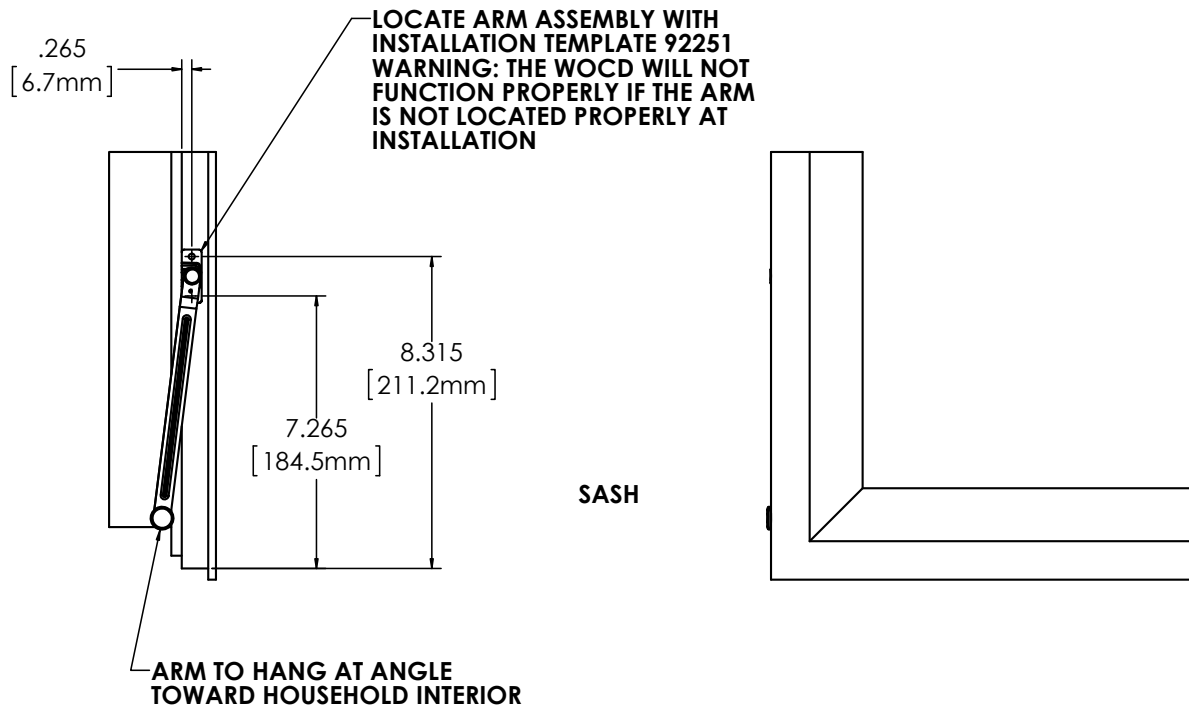
## **Note:**

1. This device is not designed for Awning application.
2. \* Specific SKU to be ordered separately for OEM application

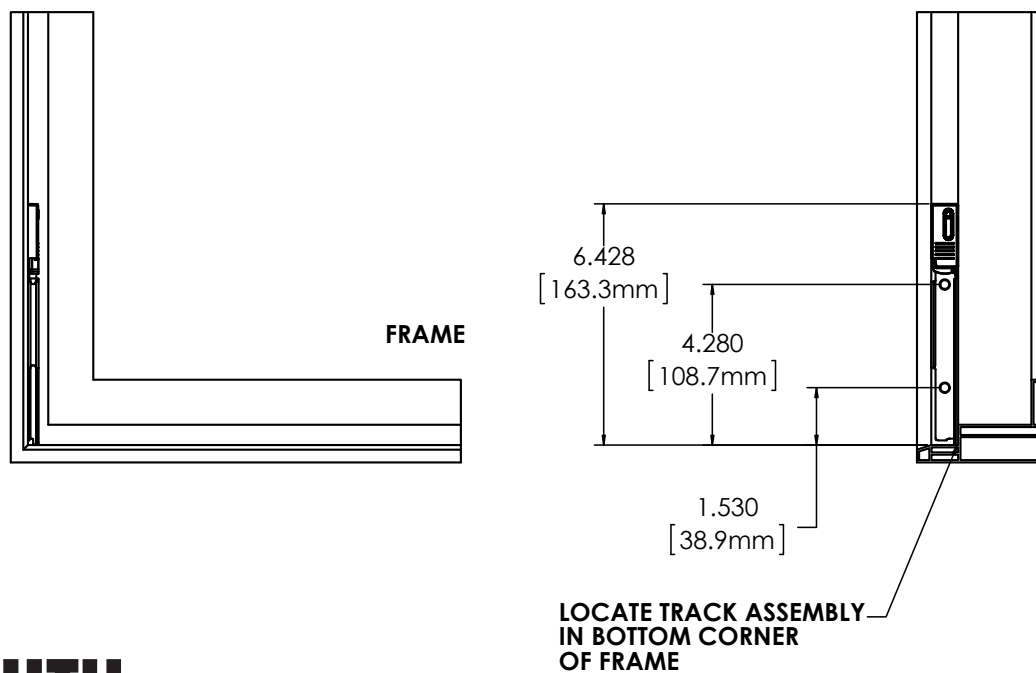
FIG. 1 SAFEGARD WOCD CASEMENT APPLICATION



**FIG. 2A SAFEGARD WOCD (LEFT HAND SHOWN) ARM APPLICATION ON SASH**



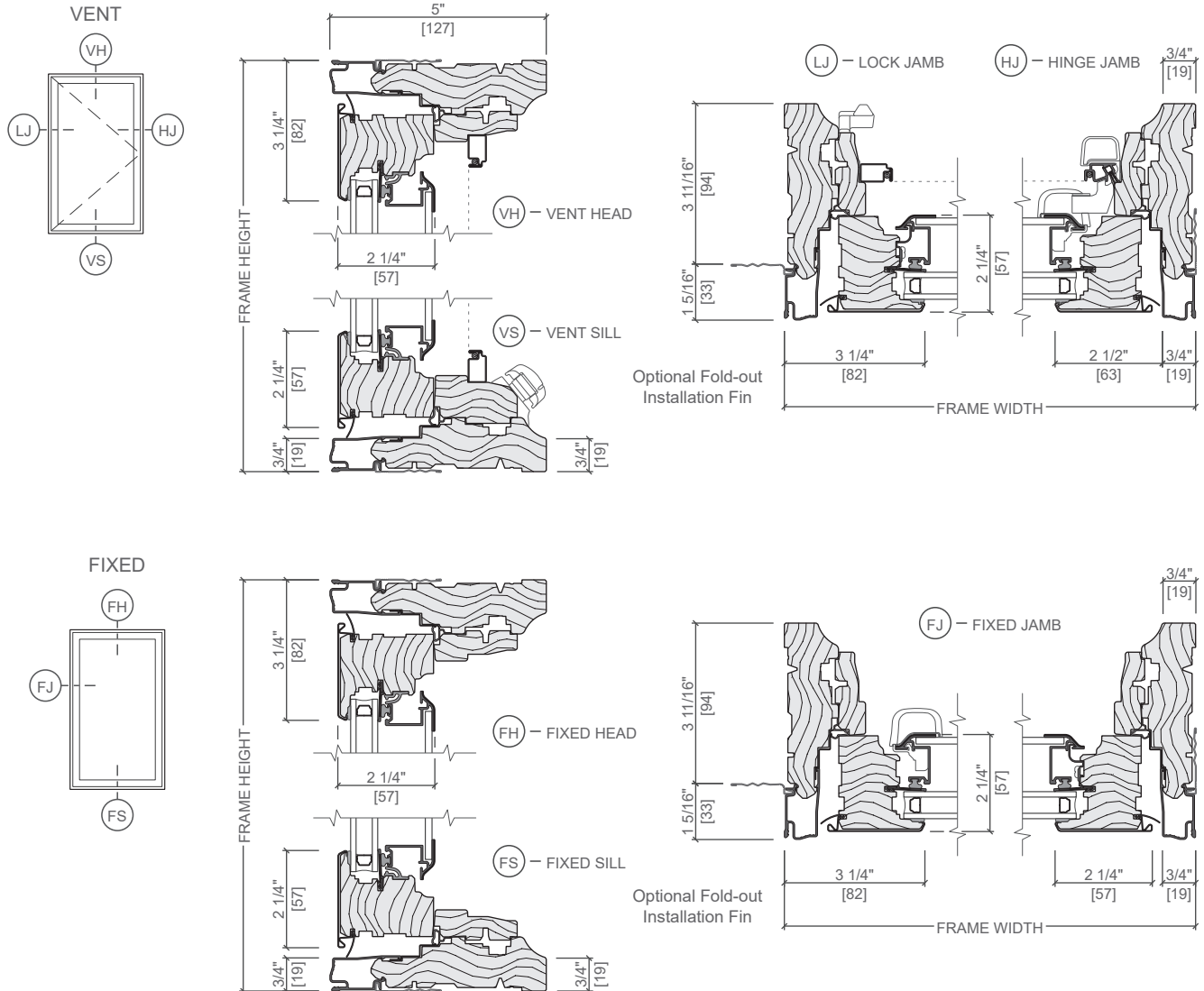
**FIG. 2B SAFEGARD WOCD (LEFT HAND SHOWN) – TRACK APPLICATION ON FRAME**



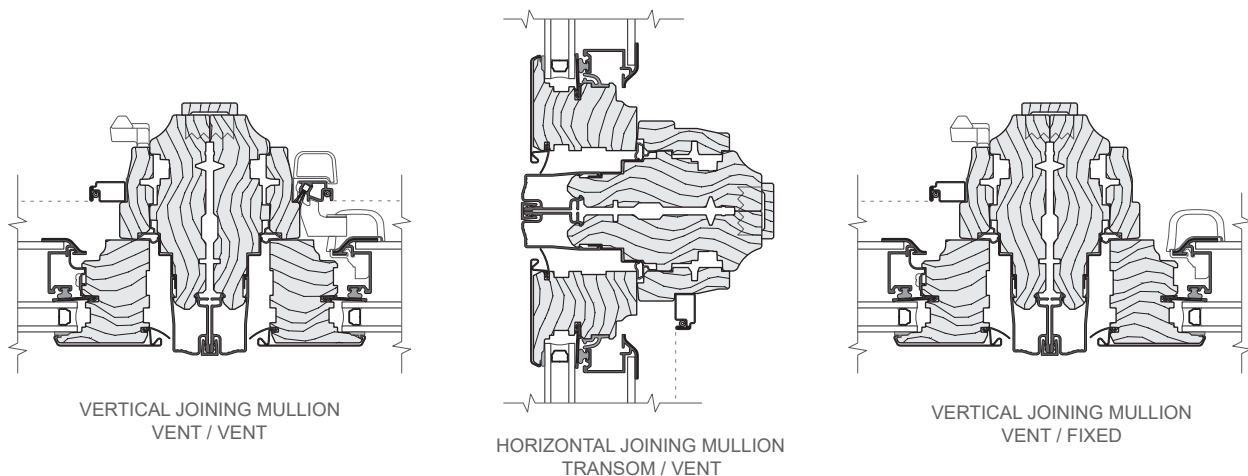


## UNIT SECTIONS

### Aluminum-Clad Exterior Triple-Pane Glazing



## TYPICAL JOINING MULLIONS



Scale 3" = 1' 0"

All dimensions are approximate.

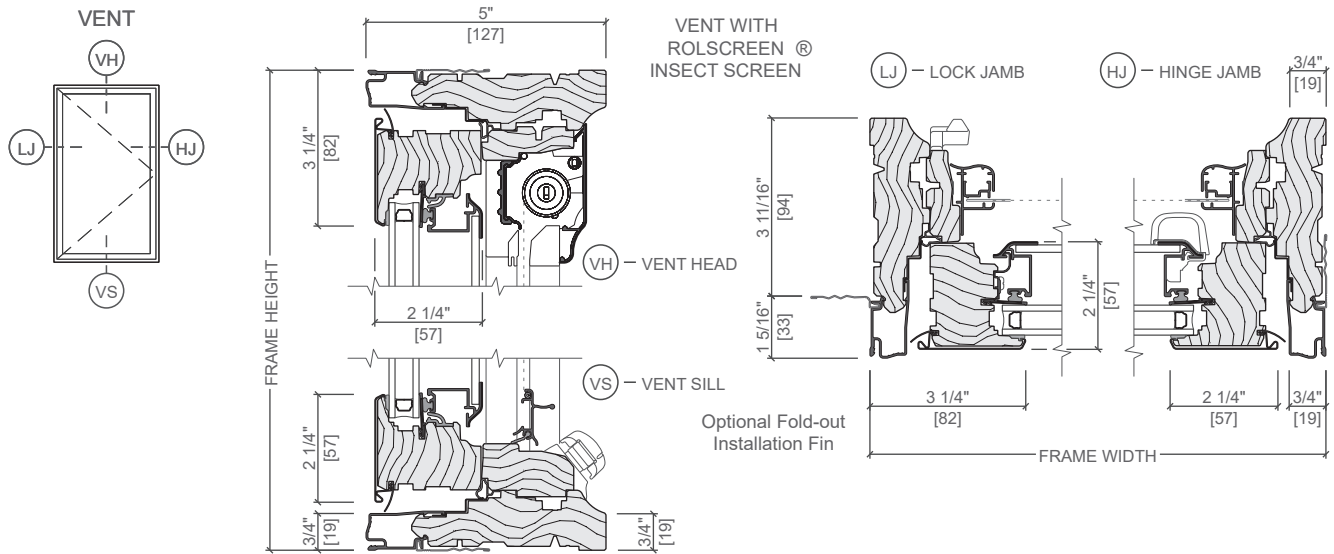
See Installation and Performance at [www.PellaADM.com](http://www.PellaADM.com) for mullion limitations and reinforcing requirements.



## UNIT SECTIONS

## Aluminum-Clad Exterior

## Rolscreen Retractable Screen

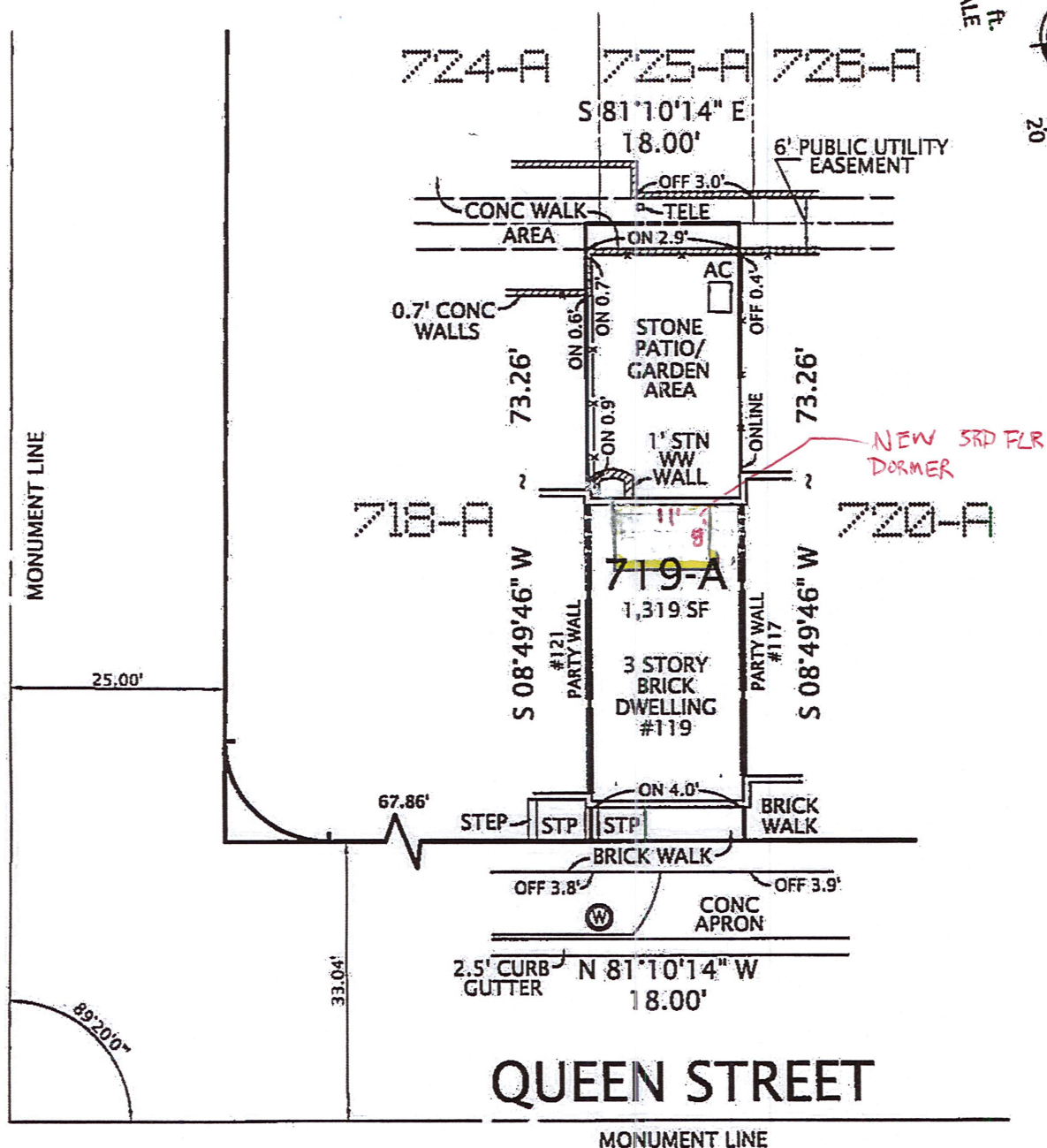


Scale 3" = 1' 0"

All dimensions are approximate.

See Installation and Performance at [www.PellaADM.com](http://www.PellaADM.com) for mullion limitations and reinforcing requirements.

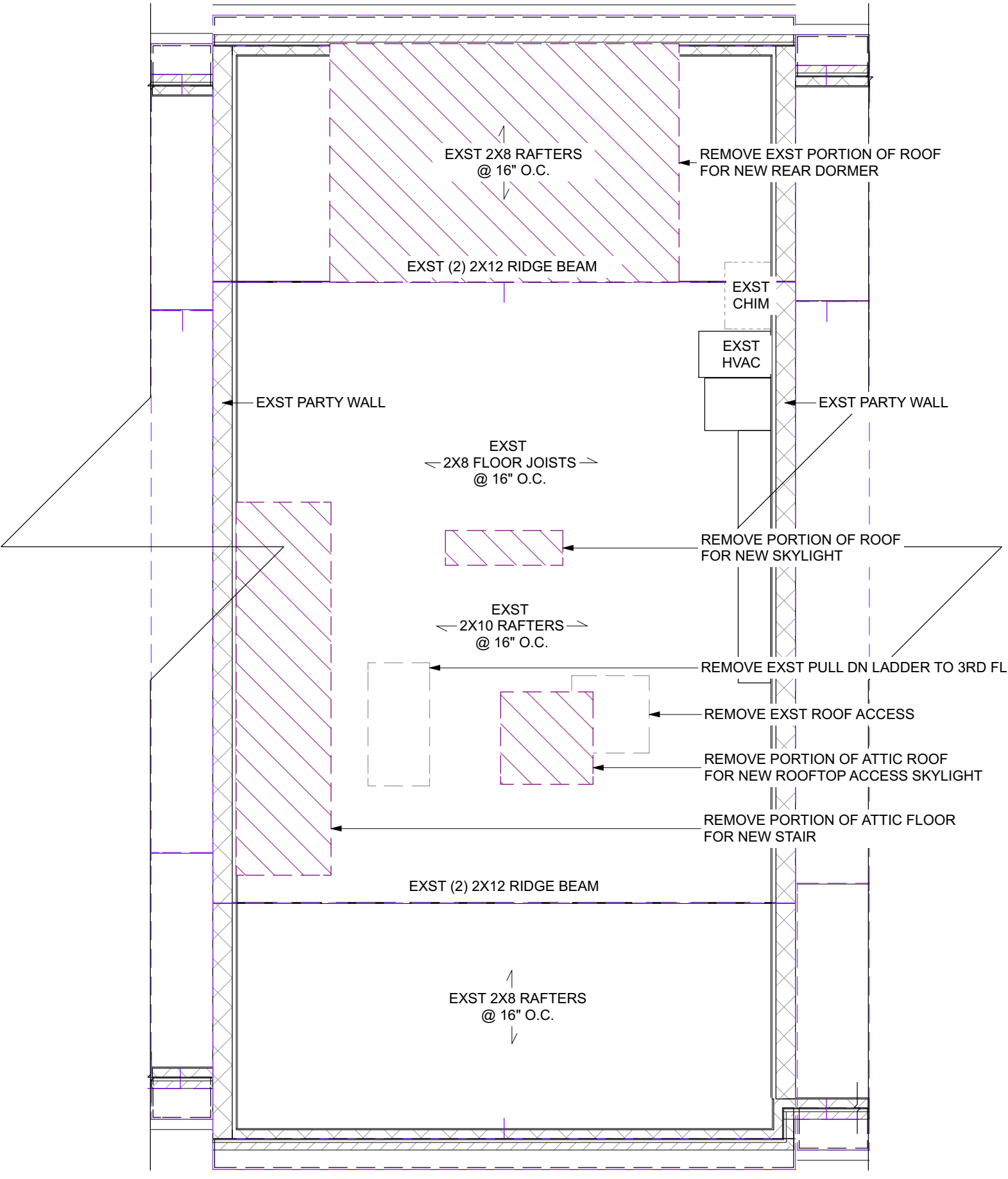




**PLAT**  
**SHOWING HOUSE LOCATION ON**  
**LOT 719-A, SECTION THREE**  
**OF A RESUBDIVISION OF**  
**LOTS 615 THRU 620, 624**  
**THRU 626 & LOT 688-A &**  
**RELOCATION OF 10' PUBLIC UTILITY ESMT**  
**OLD TOWNE**  
**(DEED BOOK 719, PAGE 315)**  
**CITY OF ALEXANDRIA, VIRGINIA**  
**SCALE: 1" = 20'** **JULY 22, 2015**

COMMONWEALTH OF VIRGINIA  
07/22/2015  
GEORGE M. O'QUINN  
LICENSE NO.  
2069  
LAND SURVEYOR  
*George M. O'Quinn*

**DOMINION** Surveyors  
Inc.®  
8808-H PEAR TREE VILLAGE COURT  
ALEXANDRIA, VIRGINIA 22309  
703-619-6555  
FAX: 703-799-6412



LEGEND

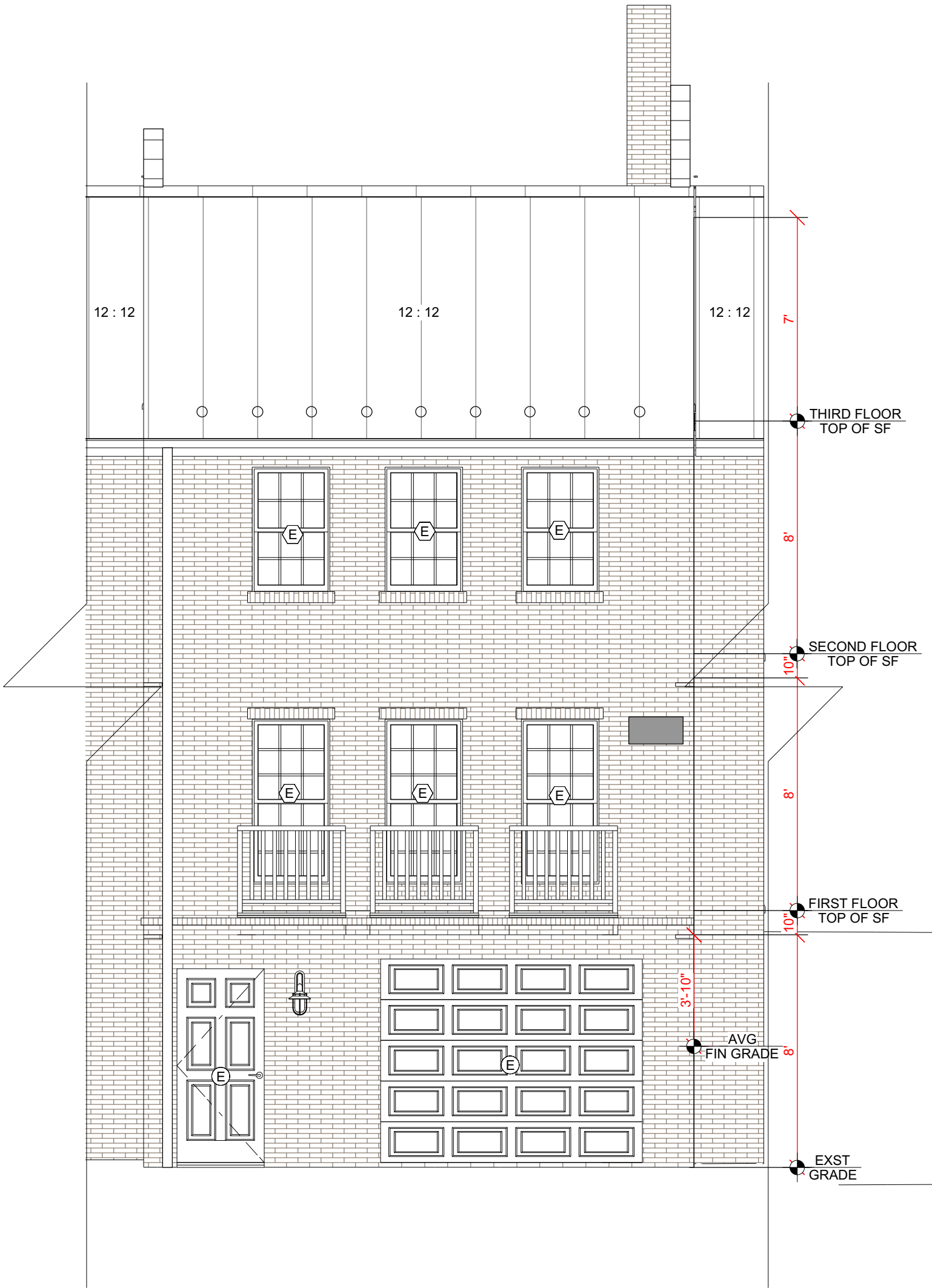
EXST MASONRY WALL

EXST BRICK/BLOCK MASONRY WALL

ATTIC: AS BUILT + DEMO PLAN


SCALE: 1/4" = 1'-0"

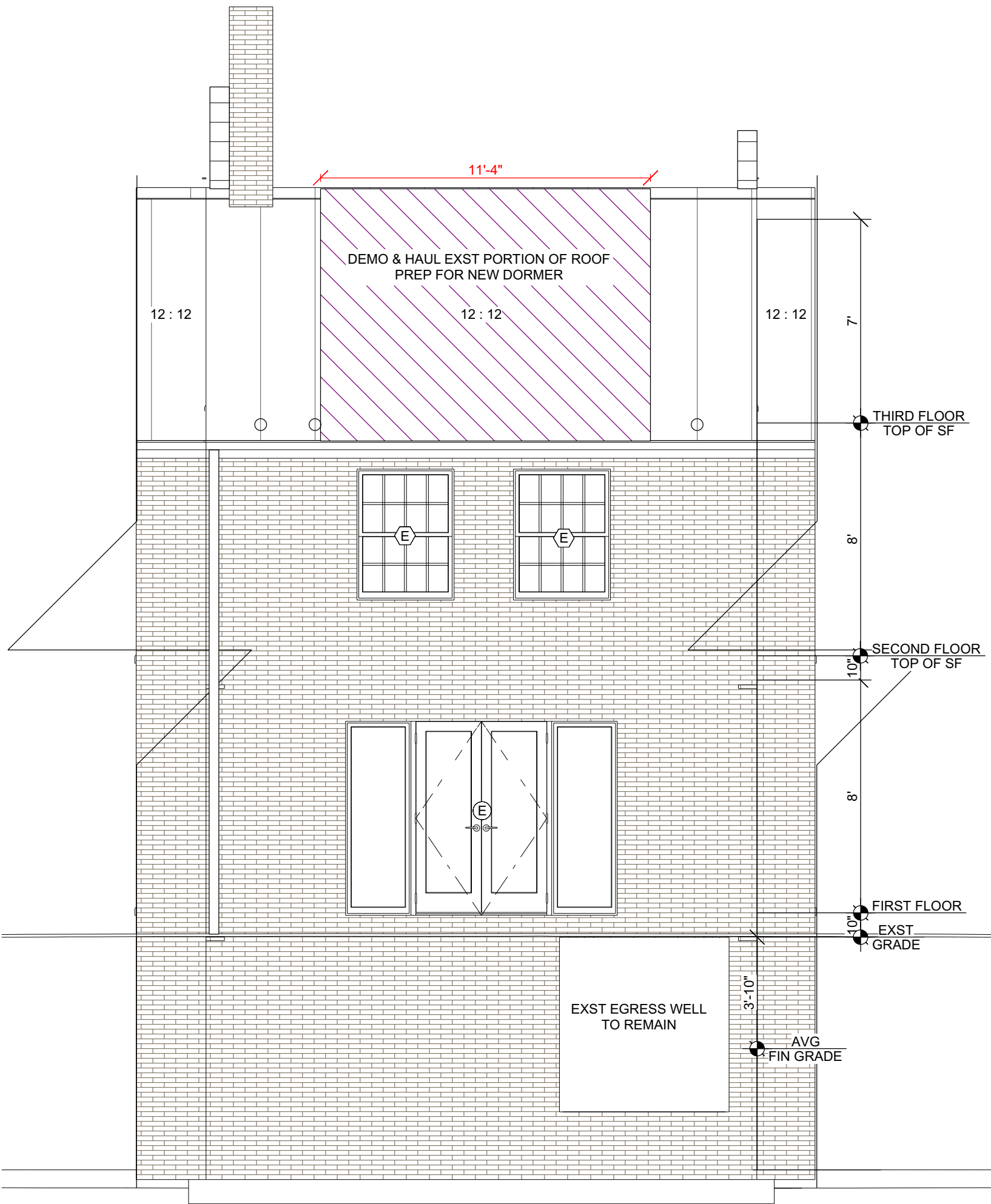
 4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com		DRAWING: ATTIC: AS BUILT + DEMO PLAN	SUBMISSION: PRELIM BAR SUBMITTAL	PAGE <b>1</b> DATE 2/2/2018
		CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314	Standards of Construction drawings are and shall remain the sole property of Moss Building & Design. and use other than Moss Building & Design projects shall not be permitted without express written consent from Moss Building & Design. These documents are not to be changed or reproduced in any form.	



**FRONT ELEVATION: AS BUILT + DEMO PLAN**


SCALE: 1/4" = 1'-0"

 <p>4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com</p>		<p>DRAWING: FRONT ELEVATION: AS BUILT + DEMO PLAN</p> <p><b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b></p>	<p>SUBMISSION: PRELIM BAR SUBMITTAL</p> <p>Standards of Construction drawings are and shall remain the sole property of Moss Building &amp; Design. and use other than Moss Building &amp; Design projects shall not be permitted without express written consent from Moss Building &amp; Design. These documents are not to be changed or reproduced in any form.</p>	<p>PAGE <b>2</b> DATE <b>2/2/2018</b></p>
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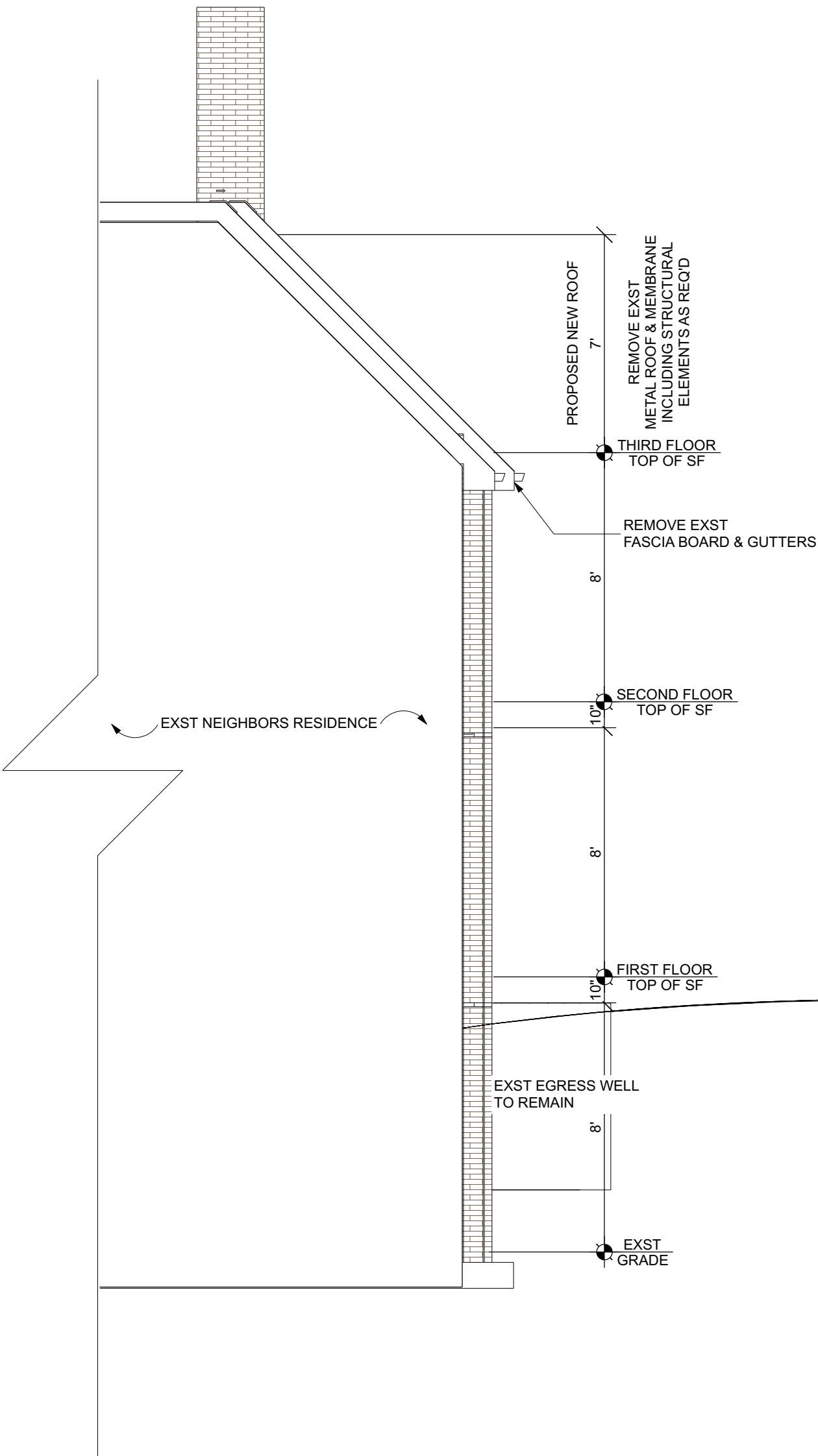


**REAR ELEVATION: AS BUILT + DEMO PLAN**

SCALE: 1/4" = 1'-0"


 <p>4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com</p>		<p>DRAWING: REAR ELEVATION: AS BUILT + DEMO PLAN</p> <p><b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b></p>	<p>SUBMISSION: PRELIM BAR SUBMITTAL</p> <p>Standards of Construction drawings are and shall remain the sole property of Moss Building &amp; Design. and use other than Moss Building &amp; Design projects shall not be permitted without express written consent from Moss Building &amp; Design. These documents are not to be changed or reproduced in any form.</p>	<p>PAGE <b>3</b> DATE <b>2/2/2018</b></p>
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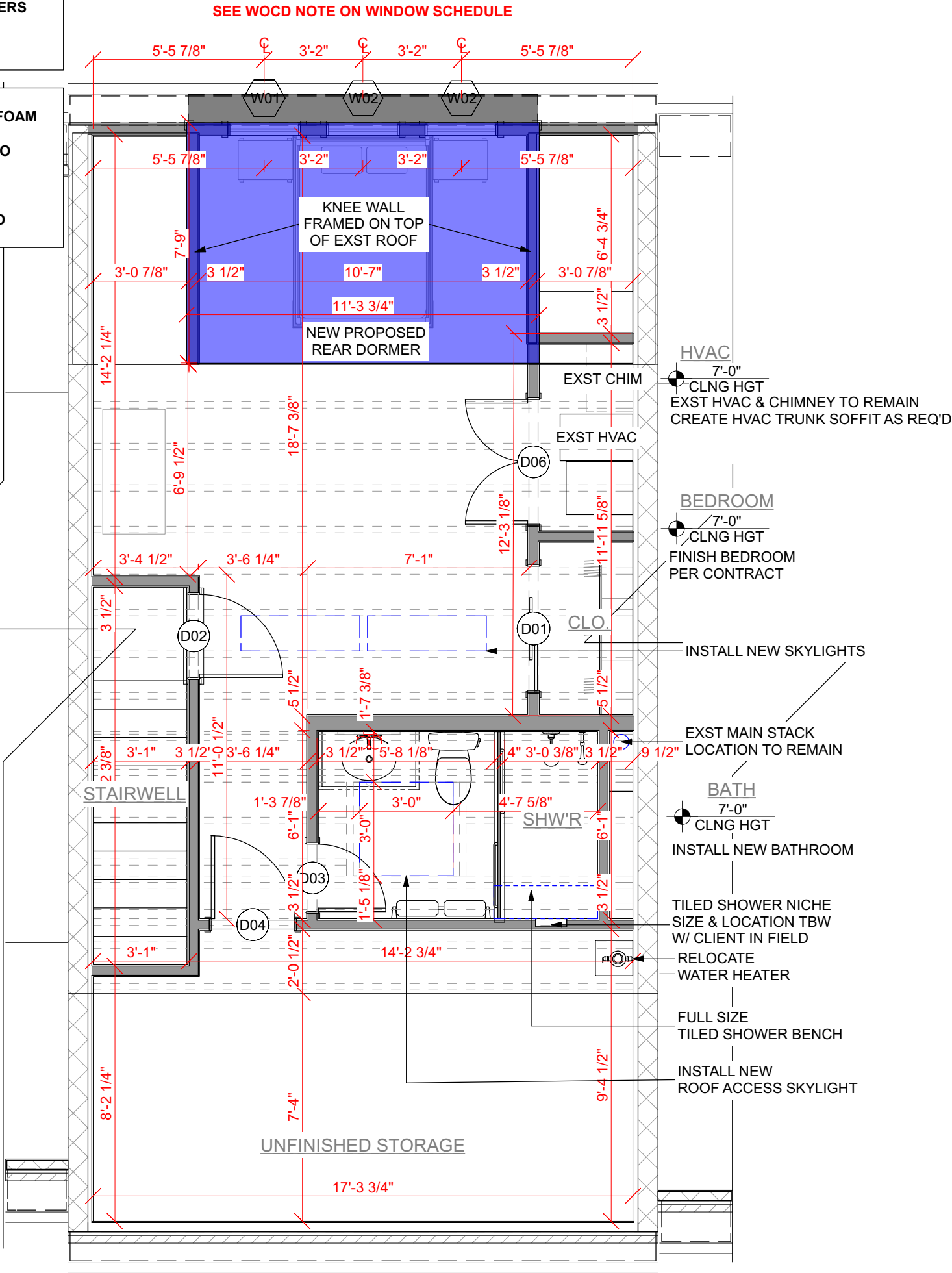
**SIDE ELEVATION: AS BUILT + DEMO PLAN**

SCALE: 1/4" = 1'-0"

 4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com		DRAWING: SIDE ELEVATION: AS BUILT + DEMO PLAN	SUBMISSION: PRELIM BAR SUBMITTAL	PAGE <b>4</b> DATE 2/2/2018
		<b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b>	Standards of Construction drawings are and shall remain the sole property of Moss Building & Design. and use other than Moss Building & Design projects shall not be permitted without express written consent from Moss Building & Design. These documents are not to be changed or reproduced in any form.	

NOTE:  
DRYWALL IN BETWEEN  
CEILING JOISTS/RAFTERS  
TO MAINTAIN 7'-0" CH  
FOR MORE THAN 70%  
OF FLOOR SPACE MIN

NOTE:  
CLOSED CELL SPRAYFOAM  
INSULATION  
BETWEEN RAFTERS NO  
GREATER THAN 6"D  
TO ACHIEVE MIN R-38  
INSULATION VALUE  
& MAINTIAN REQUIRED  
CEILING HEIGHT



ATTIC: PROPOSED PLAN

SCALE: 1/4" = 1'-0"



4125 LAFAYETTE CENTER DRIVE, SUITE 100  
CHANTILLY, VA 20151  
P: 703.961.7707  
DESIGNER  
Tyler Tappan  
(703) 961-7707, x893  
TTappan@MossBuildingAndDesign.com

DRAWING:

ATTIC:  
PROPOSED PLAN

CURETON RESIDENCE  
119 QUEEN STREET  
ALEXANDRIA, VA 22314

SUBMISSION:

PRELIM BAR SUBMITTAL

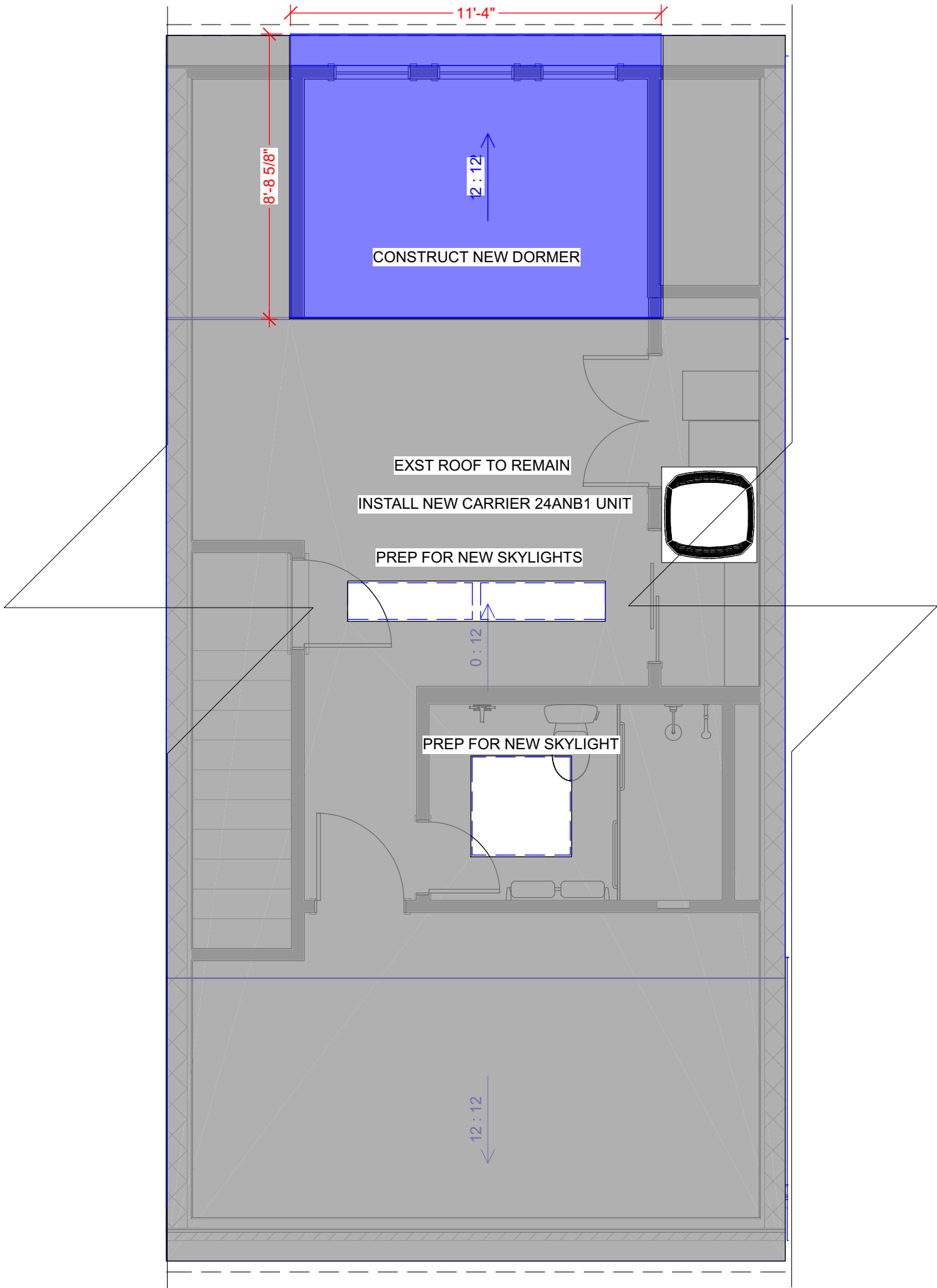
Standards of Construction drawings are and shall remain the sole property of Moss Building & Design. and use other than Moss Building & Design projects shall not be permitted without express written consent from Moss Building & Design. These documents are not to be changed or reproduced in any form.

PAGE

5


DATE

2/2/2018

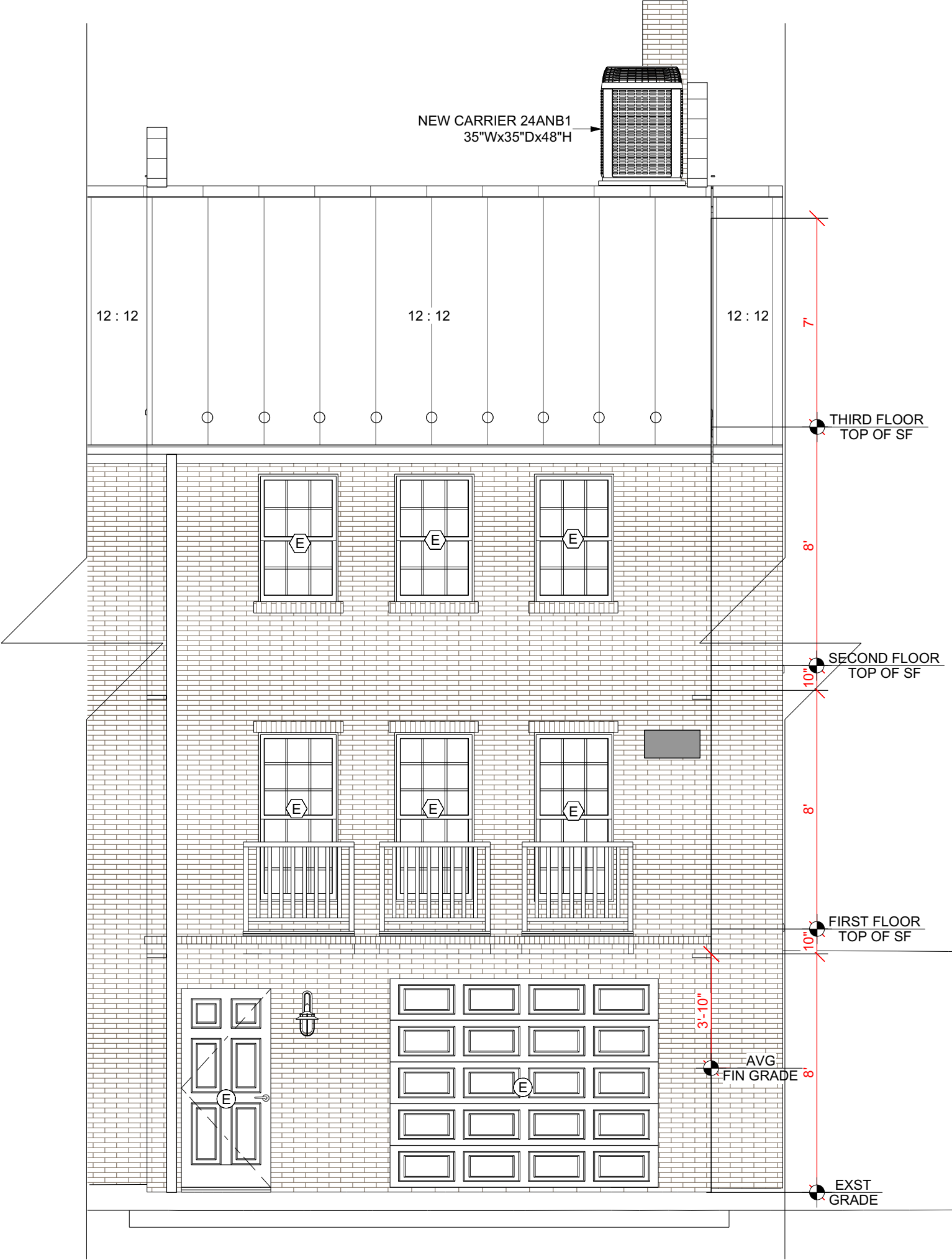


**ATTIC ROOF: PROPOSED PLAN**

SCALE: 1/4" = 1'-0"


 <p>4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com</p>		<p>DRAWING:</p> <p>ATTIC: PROPOSED PLAN</p>	<p>SUBMISSION:</p> <p>PRELIM BAR SUBMITTAL</p>	<p>PAGE</p> <p><b>6</b></p> <p>DATE</p> <p><b>2/2/2018</b></p>
		<p><b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b></p>	<p>Standards of Construction drawings are and shall remain the sole property of Moss Building &amp; Design. and use other than Moss Building &amp; Design projects shall not be permitted without express written consent from Moss Building &amp; Design. These documents are not to be changed or reproduced in any form.</p>	

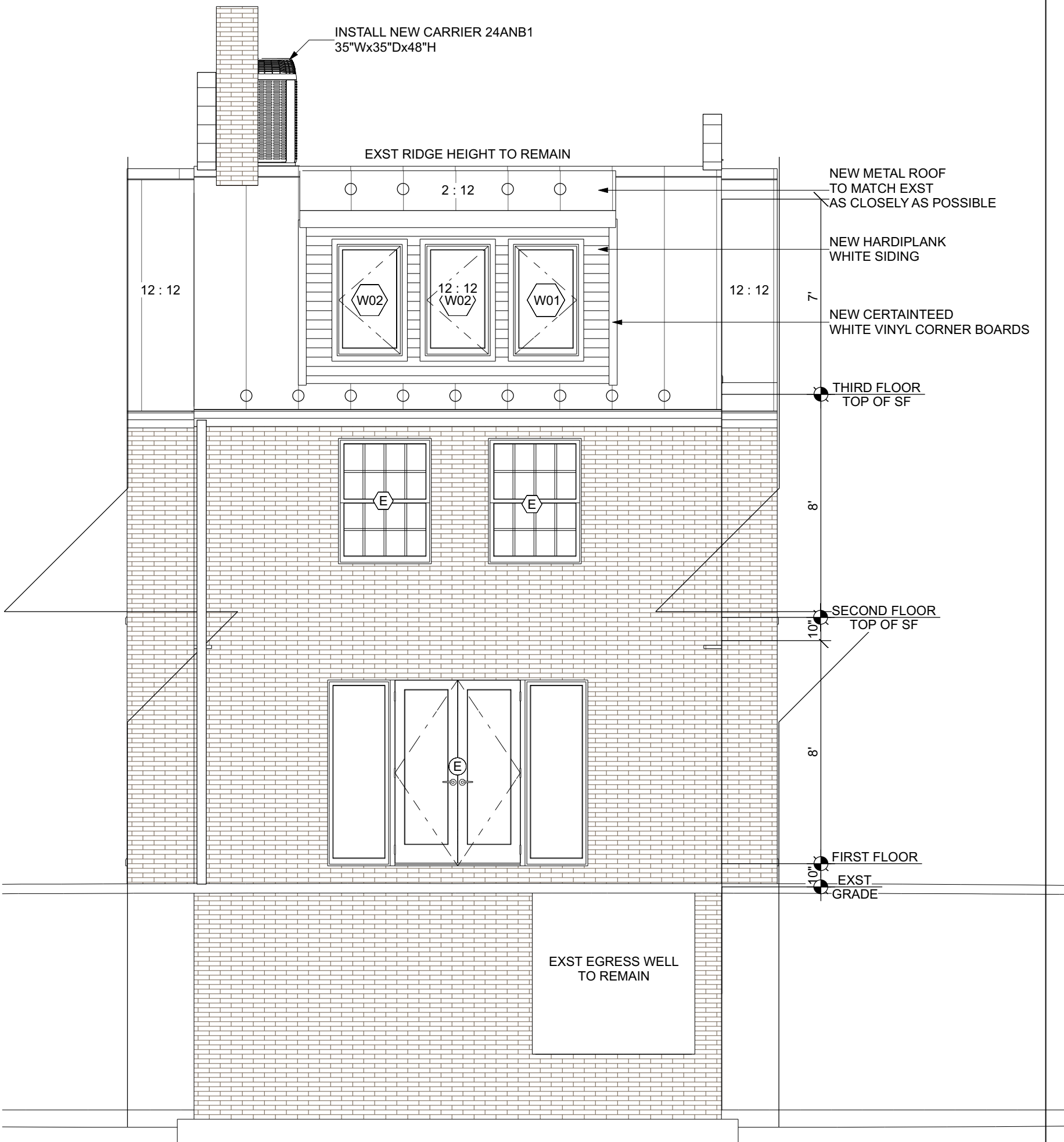




**FRONT ELEVATION: PROPOSED PLAN**

SCALE: 1/4" = 1'-0"

 <p>4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com</p>		<p>DRAWING:</p> <p><b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b></p>	<p>SUBMISSION:</p> <p><b>PRELIM BAR SUBMITTAL</b></p> <p>Standards of Construction drawings are and shall remain the sole property of Moss Building &amp; Design. and use other than Moss Building &amp; Design projects shall not be permitted without express written consent from Moss Building &amp; Design. These documents are not to be changed or reproduced in any form.</p>	<p>PAGE</p> <p><b>7</b></p> <p>DATE</p> <p><b>2/2/2018</b></p>
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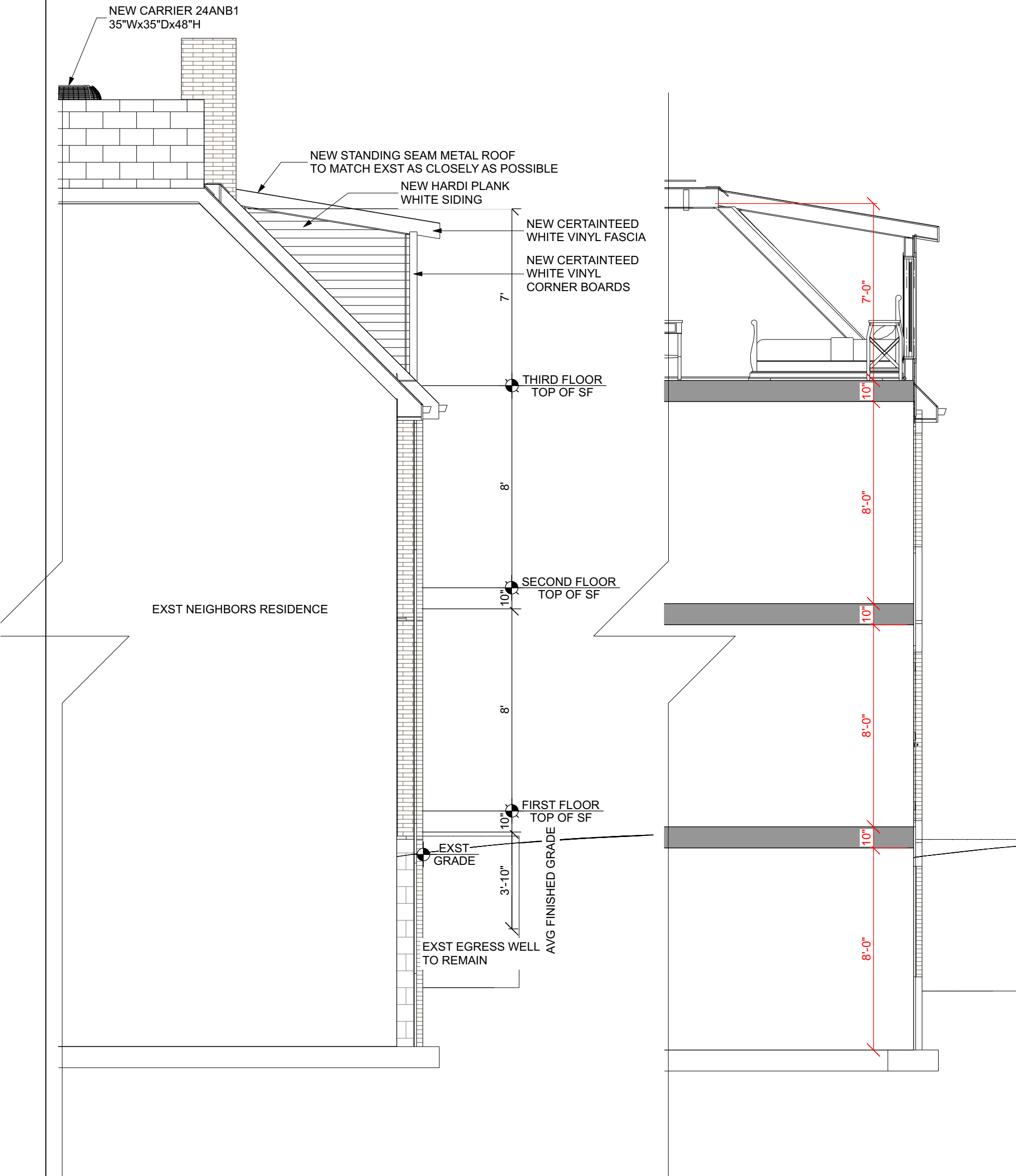
WINDOW SCHEDULE								
NUMBER	LABEL	QTY	ROOM NAME	SIZE	WIDTH	HEIGHT	DESCRIPTION	CODE
W01		1	BEDROOM	2440SC	28 "	48 "	SNGL CASEMENT-HR TEMPERED + WOCD	
W02		2	BEDROOM	2440SC	28 "	48 "	SNGL CASEMENT-HL TEMPERED + WOCD	

PELLA DESIGNER CASEMENT WINDOWS  
W/ BETWEEN GLASS ROLLER FABRIC BLACKOUT SHADES  
GLAZING IS NATURAL SUN TEMPERED  
NO ENDURACLAD PLUS, NO ROLSCREEN & NO REMOVABLE MUNTIN  
WINDOWS TO BE EQUIPPED W/ SAFEGUARD CASEMENT  
WINDOW OPENING CONTROL DEVICE

**REAR ELEVATION: PROPOSED PLAN**


SCALE: 1/4" = 1'-0"

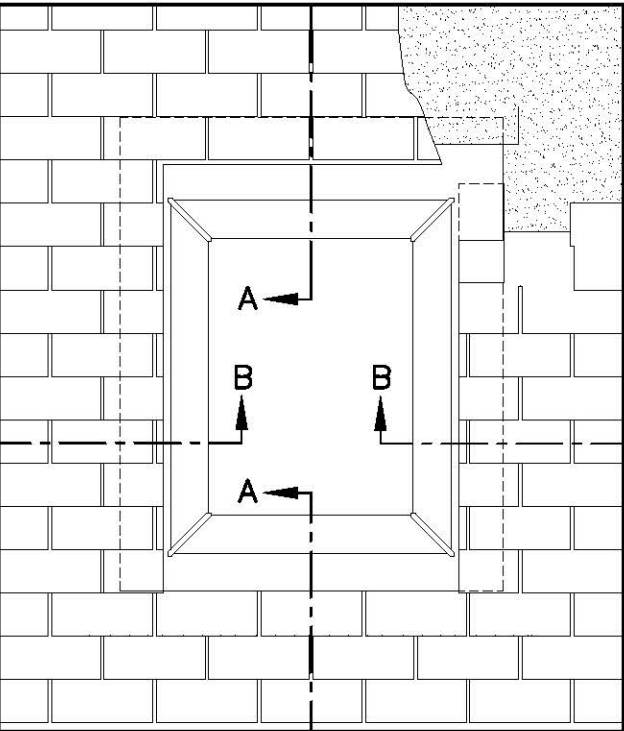
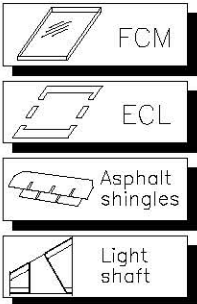
 4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com		DRAWING: FRONT ELEVATION: PROPOSED PLAN	SUBMISSION: PRELIM BAR SUBMITTAL	PAGE <b>8</b> DATE 2/2/2018
		<b>CURETON RESIDENCE</b> <b>119 QUEEN STREET</b> <b>ALEXANDRIA, VA 22314</b>	Standards of Construction drawings are and shall remain the sole property of Moss Building & Design. and use other than Moss Building & Design projects shall not be permitted without express written consent from Moss Building & Design. These documents are not to be changed or reproduced in any form.	



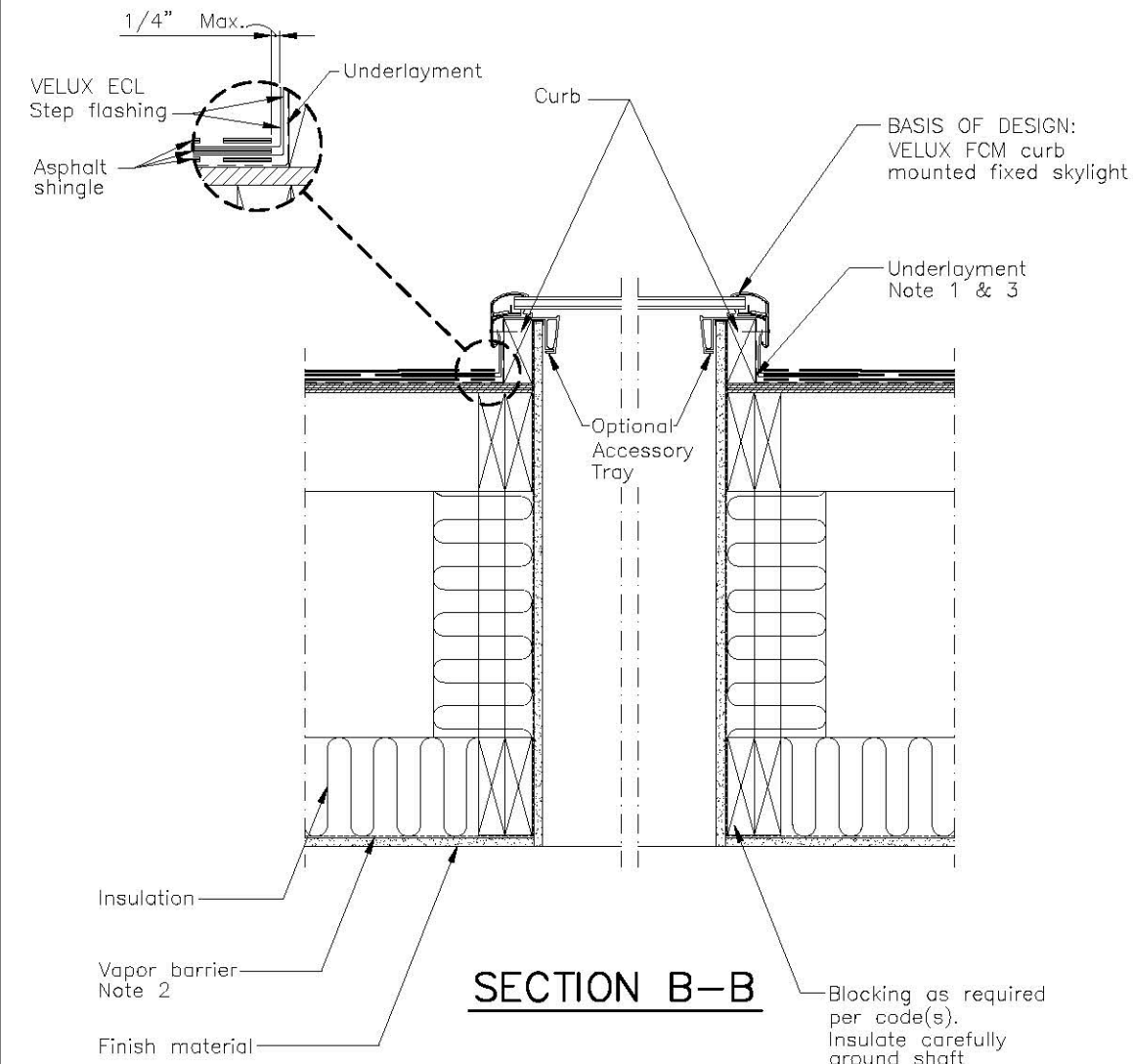
**SIDE ELEVATION + SECTION: PROPOSED PLAN**

SCALE: 1/4" = 1'-0"

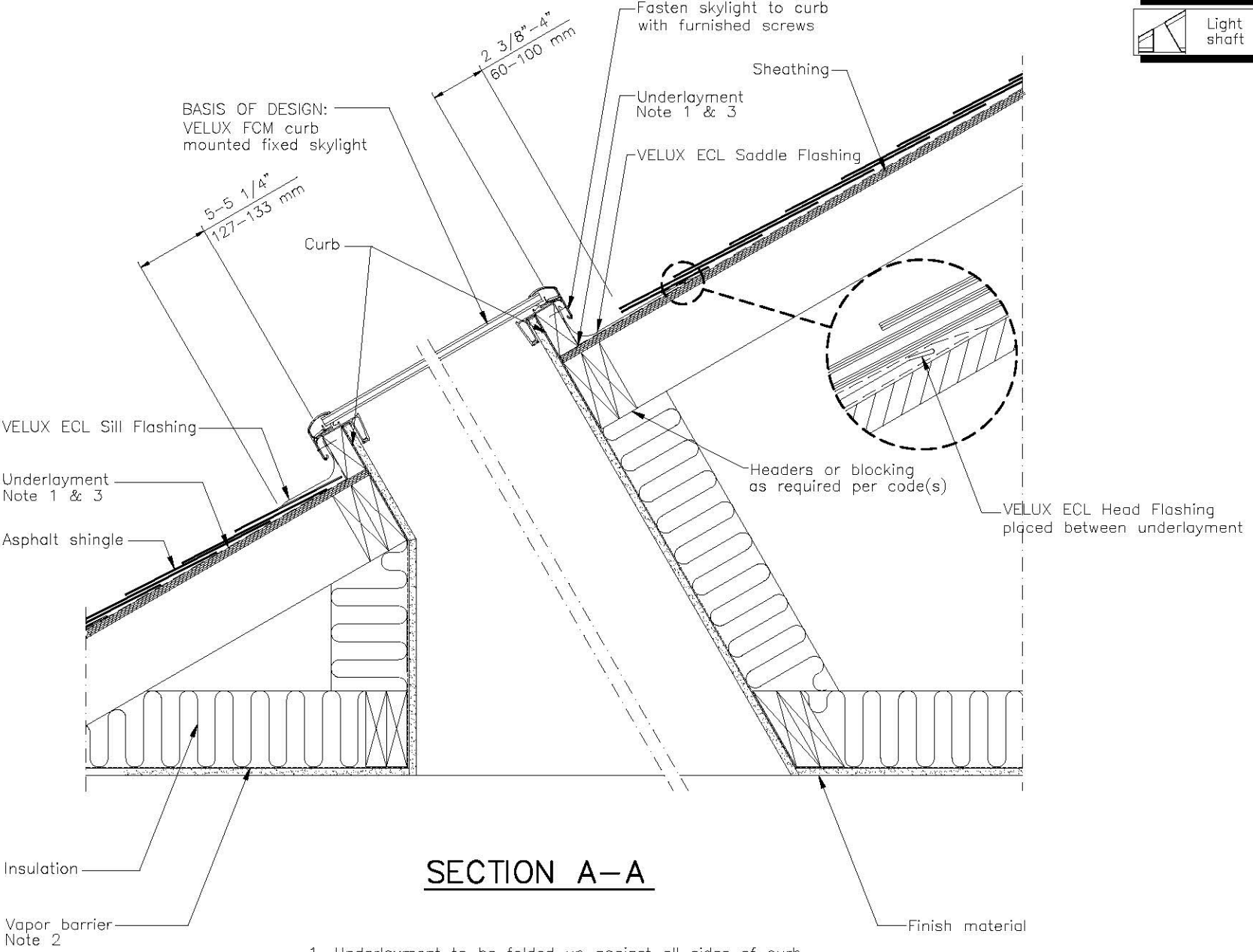
 <p>4125 LAFAYETTE CENTER DRIVE, SUITE 100 CHANTILLY, VA 20151 P: 703.961.7707 DESIGNER Tyler Tappan (703) 961-7707, x893 TTappan@MossBuildingAndDesign.com</p>		<p>DRAWING: SIDE ELEVATION + SECTION: PROPOSED PLAN</p> <p><b>CURETON RESIDENCE 119 QUEEN STREET ALEXANDRIA, VA 22314</b></p>	<p>SUBMISSION: PRELIM BAR SUBMITTAL</p> <p>Standards of Construction drawings are and shall remain the sole property of Moss Building &amp; Design. and use other than Moss Building &amp; Design projects shall not be permitted without express written consent from Moss Building &amp; Design. These documents are not to be changed or reproduced in any form.</p>	<p>PAGE <b>9</b> DATE 2/12/2018</p>
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ELEVATION



SECTION B-B



SECTION A-A

1. Underlayment to be folded up against all sides of curb.
2. Vapor barrier should be used to avoid moisture.
3. Wrap curb in underlayment. VELUX recommends use of VELUX type ZOZ 216 adhesive underlayment.

 Sky-Product Management	VELUX 1418 Evans Pond Road Greenwood, SC 29649 1-800-88-VELUX www.VELUXUSA.com		Name	Date
	Drawn by	JDH	Mar 10	
	Checked by	WQ	Mar 10	
	Drawing No.			
FCM-Residential/Commercial Roof Section (Light Shaft and Asphalt Shingles)			FCM-01-0310	

## Attachment 2





## Attachment 2

