



Town Belmont  
Historic District Commission  
Homer Municipal Building, 2nd Floor  
19 Moore Street  
Belmont, MA 02478

OFFICE USE  
Case Number: HDC - 25-02

### APPLICATION

In accordance with the Historic Districts Act, MGL Ch 40C, and the Town of Belmont General Bylaws, §40-315, the undersigned applies to the Belmont Historic District Commission for a Certificate of:

Appropriateness                       Non-Applicability                       Hardship

#### 1. PRELIMINARY INFORMATION:

Address of Property: 707 Pleasant St  
Property Owner's Name: Rachel Trousdale and Nick Beauchamp  
Address: 707 Pleasant St  
Email: rachelvtrousdale@gmail.com Phone: \_\_\_\_\_

Agent Name: N/A  
Address: \_\_\_\_\_  
Email: \_\_\_\_\_ Phone: \_\_\_\_\_

I am the:     Property Owner                      \_\_\_ Agent  
\_\_\_ Property is Owned by a Corporation, LLC, or Trust (Submit authorization to sign as owner)  
\_\_\_ Property is a Condominium or Cooperative Association (submit authorization to sign as trustee)

If applicable: Architect: Miller Design LLC Contractor: \_\_\_\_\_

#### 2. BRIEF DESCRIPTION OF PROPOSED WORK:

roof modification and new dormers

#### 3. SIGNATURES:

As Owner, I make the following representations:

- A. I hereby certify that I am the Owner of the Property at: 707 Pleasant St  
B. I hereby certify that if an Agent is listed on this Application, this Agent has been authorized to represent this Application before the Belmont Historic District Commission.

Owner: [Signature] Date: 10/01/24

As Applicant/Agent, I make the following representations:

1. The information supplied on and in this Application is accurate to the best of my knowledge;
2. I will make no changes to the approved plans without prior approval from the Belmont Historic District Commission.

Applicant/Agent: [Signature] Date: 11/14/24

\* Incomplete applications and Insufficient documentation will not be accepted. \*

Approved March 23, 2017

## **707 Pleasant Street**

### **HDC Applicant Statement**

This home is a 2 1/2 story 1,551 sf single family home built in 1926 on a 14,520 sf lot. It is in the Pleasant Street historic district.

This home currently has three bedrooms and one bathroom on the second floor. The attic is accessed via a pull-down ladder, and it has a 7:12 pitch hip roof with limited head height, only 5' at the peak.

We are proposing to rebuild the roof of the home at an 11:12 pitch with two shed dormers (one on the front and one on the rear) and a hip apron detail that wraps around two gable ends, maintaining the continuity of the existing deep eaves and paying homage to the hip roof aesthetic. This modification will allow the owners to introduce a fourth bedroom with an en-suite bathroom in the attic. The dormer on the south (front) elevation will provide natural light and views of the Boston skyline. The east gable end and the smaller dormer on the north (rear) elevation will provide the head height required by code to build an attic stair above the second floor stair. Currently, the structure is 23'-6" tall (measured to the midpoint of the roof per Belmont zoning bylaw). The proposed increase in roof pitch from 7:12 to 11:12 will add 2' to that dimension, for a new building height of 25'-6" to the midpoint.

Additionally, we are proposing to shift one window on the rear elevation by 6" in order to accommodate the stair. This window will remain the same size and detailing. And we will be updating the HVAC system to heat pumps which will necessitate new condensers to be located on the east side where they will be obstructed from view.

This home is situated on a very private lot. It is set back 83.2' from Pleasant Street, perched up on a hill. The views of the home are significantly obstructed by several very tall evergreen trees as well as an abundance of mature landscaping.

Per the HDC design guidelines, we have been deliberate in our attempts to preserve the integrity, characteristics and scale of the structure and remain compatible with the surrounding Pleasant Street Historic District. The proposed modifications will have materials, features, details and a color palette consistent with the existing home. The landscaping will be preserved as is.

We met on site with Carl Solander and John Beaty on October 11. The design that we presented to Carl and John included removing the rear chimney so that the owners could add a French door connecting their living room to their back yard and integrate some more natural light into the bedroom above. The original scope also included replacing the hip roof with a new gable roof over that rear bump out. At Carl and John's suggestion, we have removed this scope from the project in order to better preserve as much of the original massing and features as possible. With this concession, the design that we now propose keeps that chimney and does not include any substantial changes to any portion of the house below the main roof. Carl and John expressed that they appreciated the attempt to increase the functionality of the home by adding the master bedroom, while preserving much of the current style and character.

Thank you.

707 Pleasant Street

Photographs



Front elevation as seen from within front yard



Front elevation as seen from Pleasant Street

707 Pleasant Street



Rear elevation as seen from within yard



Rear elevation completely obstructed at driveway



West side elevation



East side elevation



Existing continuous soffit to remain (image on left), with hip apron wrapping around new proposed gable ends (similar example shown in image on right).

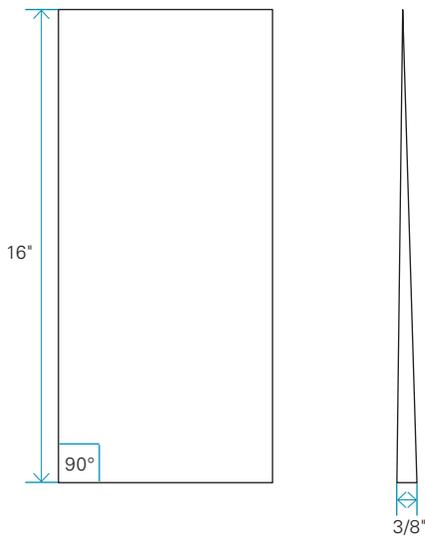
## 707 Pleasant Street

### Exterior Manufacturer's Product Literature and Specifications

- Paint - colors to match existing – Blue house with off-white trim and black shutters
- Wood
  - new Eastern white cedar shingles “Nantucket” by Maibec–7 ½” exposure (SEE SPEC)
  - original Window / door casings to remain– new window casings TME - flat casing with backbend by Azek TME, painted off-white
  - New soffit boards by Azek TME, painted off-white
- Roof
  - Shingles – Certaineed Landmark Pro asphalt shingles, color tbd to replicate existing roof color (SEE SPEC)
  - Gutters- existing to remain
  - Downspouts – existing to remain
- Windows and Doors
  - Windows – existing windows to remain. New windows to match existing - Pella architect series double hung (SEE SPECS)
  - Wood shutters – existing to remain
  - Doors – existing to remain
- Entrances and Porches
  - existing to remain

# Individual Shingles

RESQUARED AND REBUTTED. GREEN (NATURAL).



GRADE	CHARACTERISTICS	BUTT THICKNESS	WIDTH	NOMINAL LENGTH	INSTALLATION
Nantucket™ Extra "A"	No defects on face	3/8"	3 1/2"-11"	16"	Sidewall
Kennebunk™ Clear "B"	No defects for up to 6" of exposed face	3/8"	3 1/2"-11"	16"	Sidewall
Bar Harbor™ 2 <sup>nd</sup> Clear "C"	Sound knots on exposed face	3/8"	3"-11"	16"	Sidewall

## General Specifications

### SPECIES:

- Eastern White Cedar – *Thuja occidentalis*

### MANUFACTURING

- Stellite-tipped blades: minimize raised grain
- Green (natural humidity of wood)

### PACKAGING AND COVERAGE

- Green shingles are sold in bundles, not boxes. Each bundle covers approximately 25 sq. ft at 5" exposure.

For exterior use only.



# Individual Shingles

## Installation System

### STAPLES

- Stainless steel or aluminum staple with minimum 7/16" crown, minimum 16 gauge
- Two fasteners per shingle, regardless of its width

### NAILS

- Stainless steel or hot dipped galvanized
- Ring shank blunt tip nail with minimum 7/32" head
- Two fasteners per shingle, regardless of its width

## Installation Requirements

Located 3/4" from each edge and 1" above the butt line of the overlapping shingle.

Must penetrate solid nailable substrate minimum 1/2"

### EXPOSURE

- On walls: 5"

### SPACING

- Depending on the moisture content of wood, spacing between shingles should be 1/16" to 1/8"
- Keyway spacings must be offset a minimum 1 1/2" on consecutive rows

Failure to follow these installation requirements will affect the product performance.

## How to Calculate

### HOW TO CALCULATE THE AMOUNT OF SIDING NEEDED

Example – Area to cover: 1,000 ft<sup>2</sup>

**For 5" exposure, add 3% to the area to cover**

$$1,000 \text{ ft}^2 \times 1.03 = 1,030 \text{ ft}^2$$

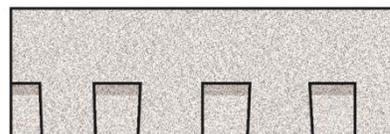
$$1 \text{ bundle} = 25 \text{ ft}^2$$

$$1,030 \text{ ft}^2 = 41 \text{ bundles}$$

## Landmark<sup>®</sup>, Landmark<sup>®</sup> Premium, Landmark<sup>®</sup> Pro Shingles, Landmark<sup>®</sup> Pro/Architect 80 (NW Region Only) Shingles

### PRODUCT INFORMATION

Landmark shingles reflect the same high manufacturing standards and superior warranty protection as the rest of CertainTeed's line of roofing products. Landmark Premium (and Algae Resistant-AR), Landmark PRO (and AR) and Landmark (and AR) are built with the industry's toughest fiber glass mat base, and their strict dimensional tolerance assures consistency. Complex granule color blends and subtle shadow lines produce a distinctive color selection. Landmark is produced with the unique NailTrak<sup>®</sup> nailing feature. **Please see the installation instruction section below for important information regarding NailTrak.**



In the Northwest Region Landmark PRO (AR) is double-branded as Landmark PRO/Architect 80 (AR).

Landmark algae-resistant (AR) shingles are algae-resistant and help protect against dark or black discoloration, sometimes called staining or streaking, caused by blue-green algae. AR shingles are not available in all regions.

**Colors:** Please refer to the product brochure or CertainTeed website for the colors available in your region.

**Limitations:** Use on roofs with slopes greater than 2" per foot. Low-slope applications (2:12 to < 4:12) require additional underlayment. In areas where icing along eaves can cause the back-up of water, apply CertainTeed WinterGuard<sup>®</sup> Waterproofing Shingle Underlayment, or its equivalent, according to application instructions provided with the product and on the shingle package.

**Product Composition:** Landmark Series shingles are composed of a fiber glass mat base. Ceramic-coated mineral granules are tightly embedded in carefully refined, water-resistant asphalt. Two pieces of the shingle are firmly laminated together in a special, tough asphaltic cement. All Landmark shingles have self-sealing adhesive strips.

### Applicable Standards

ASTM D3018 Type I

ASTM D3462

ASTM E108 Class A Fire Resistance

ASTM D3161 Class F Wind Resistance

ASTM D7158 Class H Wind Resistance

UL 790 Class A Fire Resistance

ICC-ES ESR-1389 and ESR-3537

CSA Standard A123.5 (Regional)

Miami-Dade Product Control Approved

Florida Product Approval # FL5444

Meets TDI Windstorm Requirements

### Technical Data:

	<b>Landmark (and AR)</b>	<b>Landmark PRO* (and AR)</b>	<b>Landmark Premium (and AR)</b>
Weight/Square (approx.)	219 to 238 lb **	240 to 267 lb **	300 lb
Dimensions (overall)	13 1/4" x 38 3/4"	13 1/4" x 38 3/4"	13 1/4" x 38 3/4"
Shingles/Square (approx.)	66	66	66
Weather Exposure	5 5/8"	5 5/8"	5 5/8"

\*Includes Landmark PRO AR/Architect 80

\*\*Dependent on manufacturing location

## **INSTALLATION**

Detailed installation instructions are supplied on each bundle of Landmark shingles and must be followed. Separate application sheets may also be obtained from CertainTeed.

**Hips and Ridges:** For capping hip and ridge apply CertainTeed Shadow Ridge®, Cedar Crest® or Mountain Ridge® shingles of a like color.

## **MAINTENANCE**

These shingles do not require maintenance when installed according to manufacturer's application instructions. However, to protect the investment, any roof should be routinely inspected at least once a year. Older roofs should be looked at more frequently.

## **WARRANTY**

Landmark Premium (and AR), Landmark PRO/Architect 80 AR, Landmark PRO (and AR), and Landmark (and AR) shingles carry a lifetime limited, transferable warranty to the consumer against manufacturing defects when applied to stated CertainTeed application instructions for this product. In addition, Landmark Premium (and AR), Landmark PRO (and AR), Landmark PRO/Architect 80 AR, and Landmark (and AR) carry 10-years of SureStart™ Protection. Landmark AR shingles carry a 10-year algae resistance warranty. Landmark Premium AR, Landmark PRO AR, and Landmark PRO/Architect 80 AR shingles carry a 15-year algae resistance warranty. For specific warranty details and limitations, refer to the warranty itself (available from the local supplier, roofing contractor or on-line at [www.certainteed.com](http://www.certainteed.com)).

## **FOR MORE INFORMATION**

Sales Support Group: 800-233-8990

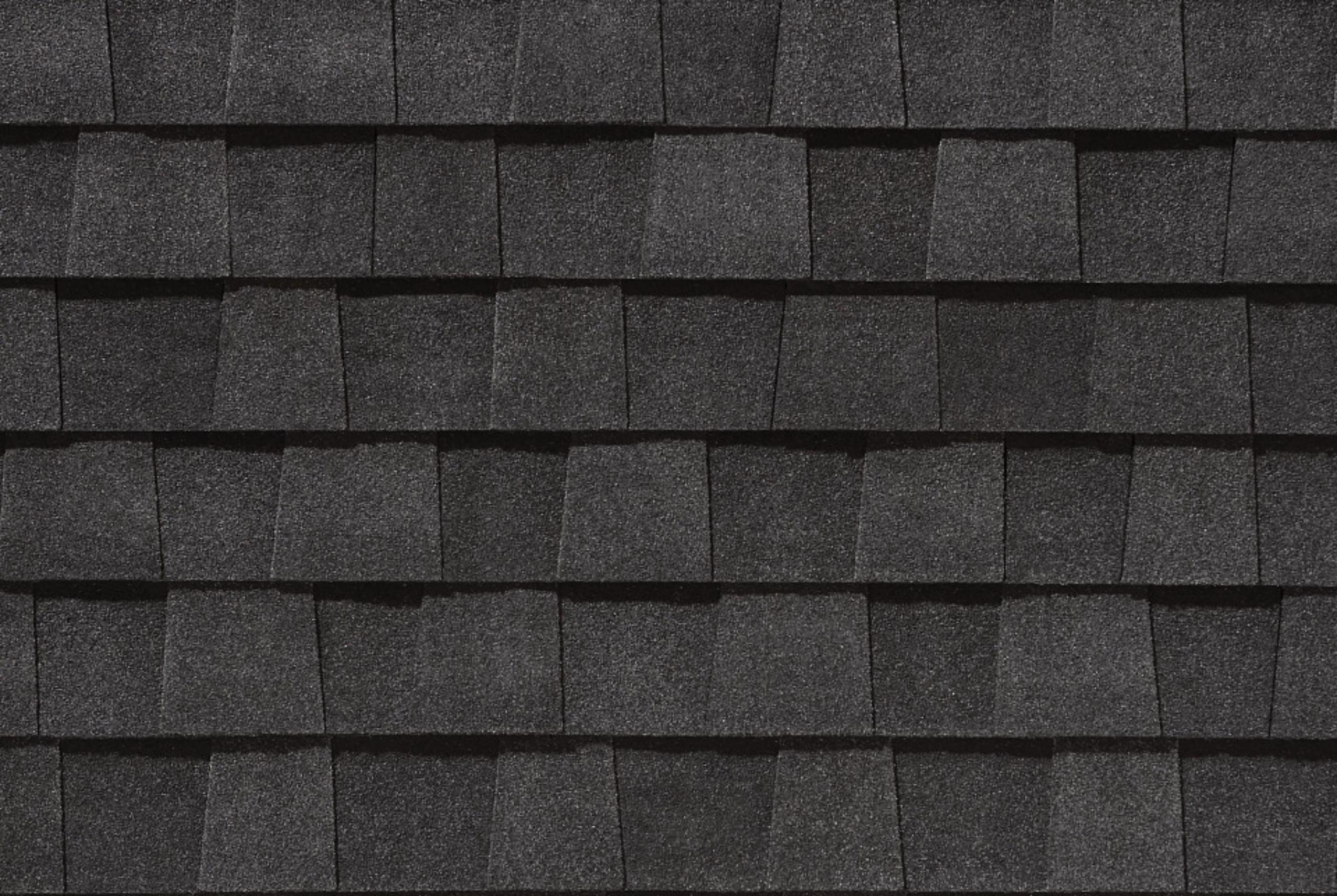
Web site: [www.certainteed.com](http://www.certainteed.com)

See us at our on-line specification writing tool, CertaSpec®, at [www.certainteed.com/certaspec](http://www.certainteed.com/certaspec).

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Malvern, PA 19355

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SAINT-GOBAIN



## Pella Architect Series® Traditional – Hung Windows

### Aluminum EnduraClad® Exterior — LX and SE Double-, Single- and Simulated-Hung

#### Detailed Product Descriptions

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#### Frame

- 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 [LX: [clear pine] [mahogany] [douglas fir]] [SE: clear pine].
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks.
- Overall frame depth is 5" (127 mm) for a wall depth of 3-11/16" (94 mm).
- Optional factory applied jamb extensions available between 4-9/16" (116 mm) and 7-3/16" (183 mm) wall depths.
- Vinyl jamb liner [LX includes wood / clad inserts].
- Optional factory installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad® exterior trim.

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#### Sash

- 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 [LX: [clear pine] [mahogany] [douglas fir]] [SE: clear pine].
- Exterior surfaces are clad with aluminum and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is 1-7/8" (47 mm).
- Sash exterior and interior profile is ogee.
- Double-Hung: Upper sash has surface-mounted wash locks] [Single-Hung: Fixed upper sash has surface-mounted wash locks] [Arch Head units have no wash locks].
- Lower sash has concealed wash locks in lower check rail.
- Sashes tilt for easy cleaning.
- Simulated-Hung units have non-operable upper and lower sashes.

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#### Weatherstripping

- Water-stop santoprene-wrapped foam at head and sill.
- Thermoplastic elastomer bulb with slip-coating set into lower sash for tight contact at check rail.
- Vinyl-wrapped foam inserted into jamb liner to seal against sides of sash.

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#### Glazing System

- Quality float glass complying with ASTM C 1036.
- Custom and high altitude glazing available.
- Silicone-glazed 1 1/16" dual-seal insulating glass [[annealed] [tempered]] [[clear] [[Advanced Low-E] [SunDefense™ Low-E] [AdvancedComfort] [NaturalSun Low-E] with argon]] [[bronze] [gray] [green] Advanced Low-E with argon].

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#### Exterior

- 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

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

## Hardware

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- Galvanized block-and-tackle balances are connected to self-locking balance shoes which are connected to the sashes using zinc die cast terminals and concealed within the frame.
- Sash lock is [standard (cam-action)] [historic spoon-style] [air-conditioner lock] [simulated lock (Single-piece lock ties upper and lower sash together. When removed, lower sash becomes operable)]. Two sash locks on units with frame width 37" and greater.
- Optional sash lift furnished for field installation. Two lifts on units with frame width 37" and greater.
- Hardware finish is [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Bright Brass] [Satin Nickel] [Oil-rubbed Bronze] [Antique Brass] [Distressed Bronze] [Distressed Nickel].

## Optional Products

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### Grilles

- Integral Light Technology® grilles
  - Interior grilles are [5/8"] [7/8"] [1-1/4"] [2"] ogee profile that are solid [LX: [pine] [mahogany] [douglas fir]] [SE: pine]. Interior surfaces are [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [paint] [stain] <sub>1</sub>].
  - Exterior grilles are [5/8" putty glaze profile] [7/8" [putty glaze] [ogee] profile] [1-1/4" [putty glaze] [ogee] profile] [2" ogee profile] that are extruded aluminum.
  - Patterns are [Traditional] [Prairie] [Top Row] [New England] [Victorian].
  - Insulating glass contains non-glare spacer between the panes of glass.
  - Grilles are adhered to both sides of the insulating glass with VHB acrylic adhesive tape and aligned with the non-glare spacer.

– or –

- Grilles-Between-the-Glass<sub>2</sub>
  - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
  - Patterns are [Traditional] [9-Lite Prairie] [Cross] [Top Row]
  - Interior color is [White] [Tan<sub>3</sub>] [Brown<sub>3</sub>] [Putty<sub>3</sub>] [Black] [Morning Sky Gray] [Ivory] [Sand Dune] [Harvest] [Cordovan] [Brickstone].
  - Exterior color<sub>5</sub> is [standard<sub>1</sub>].

– or –

- Roomside Removable grilles
  - [[3/4"] [1-1/4"] [2"] regular] [[1-1/4"] [2"] colonial] profile, with [Traditional] [Prairie] patterns that are removable solid pine wood bars steel-pinned at joints and fitted to sash with steel clips and tacks.
  - Interior [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [paint] [stain] <sub>1</sub>].
  - Exterior [unfinished, ready for site finishing] [factory primed] [finish color matched to exterior cladding<sub>5</sub>].

### Screens

- InView™ screens
  - [Half-Size] [Full-Size<sub>4</sub>] black vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to outside of window, supplied complete with all necessary hardware.
  - Full screen spreader bar placed on units > 37" width or > 65" height.
  - Insect screen frame finish is baked enamel, color to match window cladding.

– or –

- Vivid View® screens
  - [Half-Size] [Full-Size<sub>4</sub>] PVDF 21 / 17 mesh, minimum 78 percent light transmissive screen, set in aluminum frame fitted to outside of window, supplied complete with all necessary hardware.
  - Full screen spreader bar placed on units > 37" width or > 65" height.
  - Insect screen frame finish is baked enamel, color to match window cladding.

## Hardware

- Optional factory applied limited opening device available for vent units in stainless steel; nominal 3-3/4" opening. Limiting device concealed from view.
- Optional factory applied window opening control device available. 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.

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

(2) Available in clear or Low-E insulating glass with argon, and obscure insulated glass.

(3) Tan, Brown and Putty Interior GBG colors are available in single-tone (Brown/Brown, Tan/Tan or Putty/Putty). Other interior colors are also available with Tan or Brown exterior.

(4) Full screens are available on units  $\leq$  96" height.

(5) Appearance of exterior grille color will vary depending on Low-E coating on glass.



## **Fixed Deck Mount (FS) Unit Skylight - Guide Specification**

For over 80 years, VELUX has been delivering energy efficient daylight to living spaces where people, live, work, and play. VELUX is the world leader in harnessing the benefits of the sun, providing energy efficient top lighting solutions, and recognized as one of the strongest brands in the global materials and home improvement industry.

VELUX FS skylights are designed for residential sloped roof applications. Daylighting provided through VELUX skylights improves the energy efficiency and visual comfort of these residential and commercial spaces. The VELUX FS skylight is a category leader with a maintenance free frame, structural seal, and durable thermal pane options with performance levels meeting project specifications. The thermal pane glazing options carry a 20 year warranty against seal failure, and have a specially formulated LoE<sup>3</sup> - 366™ coating. This coating, specifically designed for skylight applications, provides a high visible light transmission while reducing solar heat gain and UV penetration.

VELUX test facilities ensure that new products comply with regulations and market demands for technical performance. VELUX testing ensures that our products are able to withstand the most difficult climatic conditions to which VELUX products are typically exposed to in the markets where they are sold. Our test procedures include load capacity, air and water tightness in a test chamber and a weather simulator, mechanical tests, impact test results, durability tests, U-factor and solar heat gain tests, burn brand resistance and visual inspection of the surface quality.

Contact **VELUX America LLC.**, Greenwood, SC 29648; [www.VELUXusa.com](http://www.VELUXusa.com); 800-888-3589, [specifications@veluxusa.com](mailto:specifications@veluxusa.com).

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## SECTION 08 62 00 -UNIT SKYLIGHTS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Fixed deck mount unit skylight with formed counter flashing for mounting on the roof deck, for low-slope and steep-slope roofing applications.

#### 1.2 REFERENCE STANDARDS

Specifier: If retaining optional "References" article, edit to include standards cited in edited Section.

- A. General: Applicable edition of references cited in this Section is current edition published on date of issue of Project specifications, unless otherwise required by building code in force.
- B. American Architectural Manufacturers Association ([www.aama.net](http://www.aama.net)), Window & Door Manufacturers Association ([www.wdma.com](http://www.wdma.com)), Canadian Standards Association ([www.csagroup.org/us/en/services](http://www.csagroup.org/us/en/services))
  - 1. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/ Specification for Windows, Doors, and Skylights (NAFS)
  - 2. CSA A440S1-19 - Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440
  - 3. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum and Panels
- C. ASTM International: [www.astm.org](http://www.astm.org):
  - 1. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
  - 2. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings
  - 3. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  - 4. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
  - 5. ASTM E 408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
  - 6. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
  - 7. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
- D. Code of Federal Regulations:
  - 1. 29 CFR 1910.29 (e) (1) - Occupational Safety and Health Standards for Fall Protection Systems and Falling Object Protection - Criteria and Practices.

- E. Illuminating Engineering Society of North America (IESNA): [www.ies.org](http://www.ies.org):
  - 1. IESNA – The Lighting Handbook.
- F. National Fenestration Rating Council: [www.nfrccommunity.org](http://www.nfrccommunity.org):
  - 1. NFRC 100 - Procedure for Determining Fenestration Product U-factors
  - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

### 1.3 COORDINATION

- A. Coordinate unit skylight interior termination locations with structural layout, ceiling grid layouts, and other ceiling-mounted items.

### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site prior to delivery of unit skylight and installation of roof deck.

### 1.5 ACTION SUBMITTALS

- A. Product Data: For unit skylights. Include standard construction details, product performance characteristics, and material descriptions, dimensions of individual components and profiles, and finishes.
  - 1. Include test reports of qualified independent testing agency or third party certificates verifying compliance with performance requirements.

Specifier: Retain "LEED Submittals" Paragraph when required for Project; this Paragraph stipulates documentation required from Contractor to support cited construction-phase credits.

Review design-phase credits available related to unit skylights, including contribution to IEQ Cr 6.1 Controllability of Systems, IEQ Cr 8.1. Daylighting, EA Cr 1 Energy Optimization, and ID Cr 1 Innovation in Design credits. Consult VELUX representative for detailed support data.

B. LEED Submittals:

1. Credit MR 4 Recycled Content: Documentation indicating the following:

- a. Percentages by weight of post-consumer and pre-consumer recycled content.
- b. Total weight of products provided.
- c. Include statement indicating costs for each product having recycled content.

C. Shop Drawings: For unit skylight work. Include plans, elevations, sections, details, and connections to supporting structure and other adjoining work.

1. Lighting photometric study indicating compliance with performance requirements in accordance with IESNA. Include layout, spacing criteria and foot-candle report.

1.6 INFORMATIONAL SUBMITTALS

Specifier: Retain paragraphs below when Project requirements include compliance with Federal Buy American provisions. VELUX Fixed Deck Mount skylights complies with requirement.

A. Florida State Product Approval Listing Number: Indicating that products comply with requirements of Florida State Building Code.  
[www.floridabuilding.org/pr/pr\\_app\\_srch.aspx](http://www.floridabuilding.org/pr/pr_app_srch.aspx)

B. Warranty: Sample of special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data.

1.8 QUALITY ASSURANCE

Specifier: VELUX America, LLC. has been producing skylights in the US for over 30 years and in Europe for an additional 30 years prior to that. VELUX has a reputation among architects and contractors as the most reliably performing skylight in the world.

A. Manufacturer Qualifications: A qualified manufacturer listed in this Section with minimum 30 years' experience in the US manufacturing similar products in

successful use on similar projects and able to provide unit skylights meeting requirements.

Specifier: Retain "Approval of Manufacturers and Comparable Products" Subparagraph if Owner will consider product substitutions.

1. Approval of Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
  - a. Completed and signed Substitution Request form.
  - b. Product data, including photometric data and independent test data indicating compliance with requirements.
  - c. Sample product warranty.

#### 1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of unit skylights that fail in materials or workmanship under normal use within specified warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Deterioration of metals, metal finishes, dome, and other materials beyond normal weathering.
    - b. Breakage of glazing.
  2. Warranty Period:
    - a. Unit Skylight and Flashing Product Warranty: 10 years from date of purchase.
    - b. Unit Skylight and Flashing Installation "No Leak" Warranty: 10 years from date of purchase.
    - c. Hail Breakage Warranty for Skylight Glass: 10 years from the date of purchase on all insulated glass units using laminated glass.
    - d. Insulating Glass Seal Failure Warranty: 20 years from date of purchase.

#### PART 2 - PRODUCTS

##### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products of **VELUX America LLC.**, Greenwood, SC 29648; [www.VELUXusa.com](http://www.VELUXusa.com); (800) 878-3589, [specifications@veluxusa.com](mailto:specifications@veluxusa.com).

Specifier: Retain "Substitutions" Paragraph and select one of two options based upon Project requirements.

- B. Substitutions: [None allowed by Owner] [As permitted under Instructions to Bidders and Section 012500 "Substitution Procedures"].
- C. Source Limitations: Obtain unit skylights through single source from single manufacturer.

## 2.2 Fixed Deck Mounted (FS) Unit Skylights

- A. System Description: Fixed deck mounted unit skylight consisting of the following main integrated components – an interior condensation drainage gasket, pre-finished white wooden frame [Special order stain grade wooden frame available on request], exterior maintenance-free [aluminum] [copper] cladding/counter flashing, ASA corner keys, and an insulating thermal pane glass unit with two seals, warm edge spacer system, three coats of LoE<sup>3</sup> silver to increase visible light transmittance while reducing solar heat, and a continuous deck seal mounting system with durable foam seal. FS skylights shall be suitable for installation on roof decks ranging from 14 degrees up to 85 degrees from horizontal.

1. Basis of Design: **VELUX America, LLC, Model FS Fixed Deck Mount Skylight.**

Specifier: **FS** standard unit sizes are not available as a stocked product for all glazing options. Custom sizes not available..

- B. Wood: Kiln-dried, laminated Ponderosa Pine and Eastern White Pine pre-finished white. Wood shall be Forest Stewardship Council (FSC) certified or have an FSC certified chain of custody certification.
- C. Maintenance free exterior cladding: [Roll formed 0.57 mm aluminum frame coverings with neutral gray Kynar<sup>®</sup> polyvinylidene fluoride resin finish,] [0.55 mm copper frame coverings,] production engineered, and fabricated to fit exterior exposed surfaces.
1. Unit Sizes: [A06], [C01], [C04], [C06], [C08], [C12], [D26], [M02], [M04], [M06],[M08], [S01], [S06][as indicated on Drawings].
- D. Weather stripping: Factory applied neoprene and thermoplastic elastomeric weather stripping throughout entire frame, profiled to effect weather seal.
- E. Insulated Glass Unit: Factory assembled with low emissivity exterior pane and clear interior pane separated by a stainless steel spacer sealing the space between panes with 90% argon gas.

1. Exterior Pane: 0.125 inch (3mm) thick tempered glass with Neat<sup>®</sup> exterior coating and interior surface coated with three layers of low emissivity silver (LoE<sup>3</sup>) coating LoE<sup>3</sup> 366.

Specifier: Retain one of the three interior pane options below. VELUX product codes list the standard laminated pane as 04 with heat strengthened interior panes using a clear interlayer. VELUX offers an interior pane option for wind-borne debris regions. The wind-borne debris laminated interior pane with a thicker polyvinyl butyral interlayer is listed by VELUX as an impact 06 glazing for use in wind zone 3 regions requiring a class C missile level. A snow load laminated interior pane is offered with the laminated panes being tempered. Laminated panes are typically required by building codes when any portion of the glass is higher than 12 feet above finished floor. VELUX laminated panes are marketed as "Clean, Quiet and Safe" glass.

2. Interior Pane:

- a. [Standard [with i89 coating]: Laminated, Two clear 0.090 inch (2.3 mm) heat-strengthened panes with a 0.030 inch (0.76 mm) clear polyvinyl butyral interlayer sandwiched together.] [interior pane surface with Indium Tin Oxide (ITO) coating (LoE-i89® coating)]
  - b. [Impact: Laminated for wind-borne debris regions, Two clear 0.090 inch (2.3 mm) heat-strengthened panes with a 0.090 inch (2.3 mm) clear polyvinyl butyral interlayer sandwiched together.]
  - c. [Snow Load: Laminated, Two clear 0.12 inch (3 mm) tempered panes with a 0.030 inch (0.76 mm) clear polyvinyl butyral interlayer sandwiched together.]
- F. Structural Sealant: Factory applied Instant glaze sealant, clear color, bonding the glass pane to the aluminum frame and suitable for external exposure.
- G. Mounting System: Continuous corrosion resistant mounting system with a durable foam seal and rough opening alignment notches.

Specifier: FS skylight supplied 26 mounting fasteners.

- H. Mounting Fasteners: 10 gauge 1.25 inch (32 mm), ring shank nails provided with skylight. Ring shank nails are double hot dipped zinc coated. 26 field installed nails secure skylight to roof deck as indicated in manufacturer's installation instructions.

### 2.3 Flashings

Specifier: Type EDL step flashing designed for use with roofing material less than 0.5 inch (13 mm) thick (typically asphalt shingles, cedar shingles and slate) and for use on roof slopes 14 degrees or greater and not more than 85 degrees. Type EDW high profile flashing designed for use with high profiled roofing materials (clay tile, concrete tile and cedar shakes) not greater than 4.75 inches (120 mm) in height, and for use on roof slopes 14 to 85 degrees. EDL or EDW flashing is required with skylight in order for VELUX 10 year "No Leak" warranty to be valid.

- A. Step Flashing: Roll formed aluminum, neutral grey finish, factory engineered and fabricated seams, consisting of head flashing, sill flashing, step flashing pieces and adhesive underlayment suitable for use on roof pitches 14 to 85 degrees from horizontal.
1. Basis of Design: **VELUX America, LLC, EDL Step Flashing.**
  2. Size: As required for skylight sizes indicated.
  3. Material:
    - a. Head flashing 23 gauge (0.57 mm) thick aluminum with polyester lacquer finish.
    - b. Sill flashing 22 gauge (0.65 mm) thick aluminum with Kynar 500 finish.
    - c. Step pieces 27 gauge (0.42 mm) thick aluminum with polyester lacquer finish.
    - d. Adhesive underlayment: 9 inches (229 mm) wide x 21 feet (6.4 m) length x 0.03 inch (0.8 mm) thick, SBS modified bitumen with white polyethylene backing sheet.

- B. High Profile Flashing: Roll formed aluminum, neutral grey finish, factory engineered and fabricated seams, consisting of head flashing, sill flashing, side gutter pieces, counter flashing and adhesive underlayment suitable for use on roof pitches 14 to 85 degrees from horizontal.
  - 1. Basis of Design: **VELUX America, LLC, EDW High Profile Flashing.**
  - 2. Size: As required for skylight sizes indicated.
  - 3. Material:
    - a. Head flashing 23 gauge (0.57 mm) thick aluminum with polyester lacquer finish.
    - b. Sill flashing 22 gauge (0.65 mm) thick aluminum with polyester lacquer finish and 9 inch (229 mm) pleated apron.
    - c. Side gutter pieces 23 gauge (0.57 mm) thick aluminum with polyester lacquer finish.
    - d. Adhesive underlayment: 12 inches (305 mm) width x 21 feet (6.4 m) length x 0.03 inch (0.8 mm) thickness, SBS modified bitumen with white polyethylene backing sheet.

## 2.4 ACCESSORIES

- A. Pleated Blinds:
  - 1. Solar powered, [room darkening double pleated] [light filtering single pleated] fabric with [white] [beige] [special] color as indicated on drawings. 24 volt dc blinds operated via 2.4 GHz radio frequency [basic wall mounted remote control provided with blind].

## 2.5 PERFORMANCE REQUIREMENTS

- A. The FS deck mounted skylight is independently tested in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS-17) for compliance with International Building Code, International Energy Conservation Code and International Residential Code as follows:
  - 1. Water Test Pressure: No water penetration noted as measured in accordance with ASTM E 331 with a test pressure differential of 720 Pa (15.0 psf).
  - 2. Air Leakage Rate: Maximum of 0.11 CFM/ft<sup>2</sup> of total unit area, measured at a pressure of 75 Pa (1.57 psf) in accordance with ASTM E 283.
  - 3. Canadian Air Infiltration/Exfiltration Rating: Fixed. (0.5 L/s/m<sup>2</sup> maximum)
  - 4. Design Pressure (DP):
    - a. [[04 Standard Laminated Pane] [89 standard Laminated Pane with i89 Coating]: [S06 and S01 sizes design pressure = +330/-70 psf (+15.8/-3.35 kPa)] [and] [M08 and smaller sizes design pressure = +240/-105 psf (+11.5/-5.03 kPa)].]
    - b. [[06 Impact Pane: [S06 and S01 sizes design pressure = +180/-50 psf (+8.62/-2.39 kPa)] [and] [M08 and smaller sizes design pressure = +200/-90 psf (+9.58/-2.39 kPa)].]
    - c. [[10 Snow Load Pane: [S06 and S01 sizes design pressure = DP = +720/-65 psf (+34.5/-3.11 kPa)] [and] [M08 and smaller sizes design pressure = +640/-100 psf (+30.6/-4.79 kPa)] [and] [C06 and smaller sizes design pressure = +1350/-65 psf (+64.6/-3.11 kPa)].]
- B. Daylighting: Provide daylighting photometric performance comparable to basis of design product at layout indicated, based upon daylighting profile of March

21, 9:00 am local time, at Project location by simulation in accordance with IESNA guidelines.

- C. [Windborne-Debris Resistance: Wind Zone 3 or Less: Provide unit skylights capable of resisting impact from windborne debris, based on the pass/fail criteria as determined from testing glazed representative of those specified, according to ASTM E 1886 and ASTM E 1996. Missile Level C, Wind Zone 3 requirements, and +50/-50 psf cycle pressure minimum.]
- D. Fire Ratings for Roof Assemblies with Fire Classifications: Unit skylight tested in accordance with ASTM E 108 and listed as passing Burning Brand test with target classification of Class B.
- E. Energy Performance ratings for any size venting deck mounted unit skylight with tempered exterior glass pane and interior pane as follows:

Specifier: Retain the appropriate option in the 3 paragraphs below that corresponds to the type of insulated glass unit used on Project.

- 1. Thermal Transmittance: NFRC 100 maximum U-factor:
  - a. [04 Standard Laminated: 0.44 Btu/hr\*ft<sup>2</sup>\*deg F (2.49 W/m<sup>2</sup>\*deg C).]
  - b. [06 Impact Laminated: 0.41 Btu/hr\*ft<sup>2</sup>\*deg F (2.36 W/m<sup>2</sup>\*deg C).]
  - c. [89 Standard Laminated with i89 Coating: 0.38 Btu/hr\*ft<sup>2</sup>\*deg F (2.16 W/m<sup>2</sup>\*deg C).]
  - d. [10 Snow Load Laminated: 0.42 Btu/hr\*ft<sup>2</sup>\*deg F (2.4 W/m<sup>2</sup>\*deg C).]
- 2. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum SHGC:
  - a. [04 Standard Laminated: 0.26]
  - b. [06 Impact Laminated: 0.26]
  - c. [89 Standard Laminated with i89 Coating: 0.25]
  - d. [10 Snow Load Laminated: 0.26]
- 3. Visible Transmittance (Vt): NFRC 200 maximum Vt:
  - a. [04 Standard Laminated: 0.60]
  - b. [06 Impact Laminated: 0.60]
  - c. [89 Standard Laminated with i89 Coating: 0.59]
  - d. [10 Snow Load Laminated: 0.59]

- F. Fall Protection Standard Compliance: 29 CFR 1910.29: Testing for all laminated venting deck mount unit skylights.

## 2.6 MATERIALS

- A. Aluminum Sheet: Flat sheet complying with ASTM B 209/B 209M.
- B. Joint Sealants: As specified in Section 079200 "Joint Sealants."
- C. Mastic Sealants: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

## 2.7 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with unit skylight installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install unit skylights in accordance with manufacturer's written instructions and approved shop drawings. Coordinate installation of units with installation of substrates, air and vapor retarders, roof insulation, roofing membrane, and flashing as required to ensure that each element of the Work performs properly and that finished installation is weather tight.
  - 1. Anchor unit skylights securely to supporting substrates.
  - 2. Install unit skylights on curbs specified in another section with tops of curbs parallel to finished roof slope.
- B. Where metal surfaces of unit skylights will contact incompatible metal or corrosive substrates, including preservative-treated wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation recommended in writing by unit skylight manufacturer.
- C. Additional testing and inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

### 3.3 CLEANING AND PROTECTION

- A. Clean exposed unit skylight surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- B. Replace glazing that has been damaged during construction period.
- C. Protect unit skylight surfaces from contact with contaminating substances resulting from construction operations.

END OF SECTION

# MXZ-SM36NAMHZ 3-TON MULTI-ZONE INVERTER HEAT-PUMP SYSTEM



Job Name:

System Reference:

Date:



## FEATURES

- Compatible with M- and P-Series and CITY MULTI® indoor units. Branch box required for connection with M- and P-Series
- Variable speed INVERTER-driven compressor
- Seacoast protection on heat exchanger and base panel (rated for 2,000 hrs in accordance with ASTM B117 testing)
- Thermal Differential 1°F (with PAC-MKA32/52BC only)
- Built-in base pan heater
- Quiet outdoor unit operation, rated sound pressure as low as 49 dB(A)
- High pressure protection
- Compressor thermal protection
- Compressor overcurrent detection
- Fan motor overheating/voltage protection
- Hyper-heating performance offers 100% heating capacity at 5°F and 75% heating capacity at -13°F
- ENERGY STAR® certified (non-ducted, mixed & ducted)

ENERGY STAR products are third-party certified by an EPA-recognized Certification Body.

# SPECIFICATIONS: MXZ-SM36NAMHZ

Cooling <sup>1</sup> (Non-Ducted // Mix // Ducted)	Maximum Capacity	BTU/H	36,000 // 36,000 // 36,000	
	Rated Capacity	BTU/H	36,000 // 36,000 // 36,000	
	Minimum Capacity	BTU/H	15,500 // 15,500 // 15,500	
	Maximum Power Input	W	2,400 // 2,610 // 2,855	
	Rated Power Input	W	2,400 // 2,610 // 2,855	
	Power Factor (208V, 230V)	%	98.5, 98.5 // 98.5, 98.5 // 98.5, 98.5	
Heating at 47°F <sup>2</sup> (Non-Ducted // Mix // Ducted)	Maximum Capacity	BTU/H	42,000 // 42,000 // 42,000	
	Rated Capacity	BTU/H	42,000 // 42,000 // 42,000	
	Minimum Capacity	BTU/H	22,500 // 22,500 // 22,500	
	Maximum Power Input	W	3,080 // 3,200 // 3,325	
	Rated Power Input	W	3,080 // 3,200 // 3,325	
	Power Factor (208V, 230V)	%	98.5, 98.5 // 98.5, 98.5 // 98.5, 98.5	
Heating at 17°F <sup>3</sup> (Non-Ducted // Mix // Ducted)	Maximum Capacity	BTU/H	49,000 // 49,000 // 49,000	
	Rated Capacity	BTU/H	33,000 // 33,000 // 33,000	
	Maximum Power Input	W	5,730 // 6,050 // 6,350	
	Rated Power Input	W	3,450 // 3,600 // 3,750	
Heating at 5°F <sup>4</sup> (Non-Ducted // Mix // Ducted)	Maximum Capacity	BTU/H	42,000 // 42,000 // 42,000	
	Maximum Power Input	W	6,155 // 6,315 // 6,480	
Efficiency (Non-Ducted // Mix // Ducted)	SEER		23.0 // 20.65 // 18.3	
	EER <sup>1</sup>		15.0 // 13.8 // 12.6	
	HSPF (IV)		12.5 // 12.1 // 11.7	
	COP at 47°F <sup>2</sup>		4.0 // 3.85 // 3.7	
	COP at 17°F at Maximum Capacity <sup>3</sup>		2.1 // 2.03 // 1.9	
	COP at 5°F at Maximum Capacity <sup>4</sup>		2.0 // 1.95 // 1.9	
	ENERGY STAR <sup>®</sup> Certified		Yes // No // Yes	
Electrical	Electrical Power Requirements	Voltage, Phase, Frequency	208/230, 1, 60	
	Guaranteed Voltage Range	V AC	187-253	
	Voltage: Indoor - Outdoor, S1-S2	V AC	208/230	
	Voltage: Indoor - Outdoor, S2-S3	V DC	24	
	Short-circuit Current Rating (SCCR)	kA	5	
	Recommended Fuse/Breaker Size if Branch Box Powered by Outdoor Unit	A	40 (45)	
	Recommended Fuse/Breaker Size without Branch Box or Branch Box Powered Separate	A	40	
	Recommended Wire Size	AWG	6	
	MCA if Branch Box Powered by Outdoor Unit	A	42.0	
	MOCP if Branch Box Powered by Outdoor Unit	A	50	
	MCA without Branch Box or Branch Box Powered Separate	A	36	
	MOCP without Branch Box or Branch Box Powered Separate	A	40	
	Fan Motor Full Load Amperage	A	0.6+0.6	
	Outdoor unit	Airflow Rate (Cooling / Heating)	CFM	3,885 / 3,885
Refrigerant Control			LEV	
Defrost Method			Reverse Cycle	
Heat Exchanger Type			Plate fin coil	
Heat Exchanger Coating			Blue Fin Coating	
Sound Pressure Level, Cooling <sup>1</sup>		dB(A)	49	
Sound Pressure Level, Heating <sup>2</sup>		dB(A)	53	
Compressor Type			Hermetic	
Compressor Model			ANB33FJSMT	
Compressor Motor Output		kW	2.8	
Compressor Rated Load Amps		A	19	
Compressor Locked Rotor Amps		A	22.0	
Compressor Oil Type // Charge		oz.	FV50S // 73	
Base Pan Heater			Built-in	
Unit Dimensions		W: In. [mm]		41-11/32 [1,050]
		D: In. [mm]		13 [330]
		H: In. [mm]		52-11/16 [1,338]
Package Dimensions		W: In. [mm]		43 [1,090]
		D: In. [mm]		18 [450]
		H: In. [mm]		57 [1,430]
Unit Weight		Lbs.[kg]		278 [126]
Package Weight	Lbs.[kg]		302 [137]	

**NOTES:**

AHRI Rated Conditions

(Rated data is determined at a fixed compressor speed)

<sup>1</sup>Cooling (Indoor // Outdoor)

°F 80 DB, 67 WB // 95 DB, 75 WB

<sup>2</sup>Heating at 47°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 47 DB, 43 WB

<sup>3</sup>Heating at 17°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 17 DB, 15 WB

Conditions

<sup>4</sup>Heating at 5°F (Indoor // Outdoor)

°F 70 DB, 60 WB // 5 DB, 4 WB

<sup>\*</sup>Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.

<sup>A</sup> when 1 or more PLA-A:EA7 connected

<sup>B</sup> Branch box should be placed within the level between the outdoor unit and indoor units

<sup>C</sup> 5°F DB - 115°F DB when optional wind baffles are installed

For actual capacity performance based on indoor unit type and number of indoor units connected, please refer to MXZ Operational Performance.

Although the maximum connectable capacity is 130%, the outdoor unit cannot provide more than 100% of the rated capacity. Please utilize this over capacity capability for load shedding or applications where it is known that all connected units will NOT be operating at the same time.

# SPECIFICATIONS: MXZ-SM36NAMHZ

Outdoor unit operating temperature range	Cooling Intake Air Temp (Maximum / Minimum) <sup>1</sup>	°FDB	115 / 23 <sup>c</sup>
	Cooling Thermal Lock-out / Re-start Temperatures	°FDB	N/A / N/A
	Heating Intake Air Temp (Maximum / Minimum)	°FDB	59 / -13
	Heating Thermal Lock-out / Re-start Temperatures	°FDB	-24 / -14
Refrigerant	Maximum Charge Quantity	Lbs, oz	10.0, 9.0
Indoor unit connection	Maximum Number of Connected IDU with Branch Box		4 (3) <sup>a</sup>
	Maximum Number of Connected IDU without Branch Box		11
	Minimum Number of Connected IDU with Branch Box		12,000
	Minimum Number of Connected IDU without Branch Box		18,000
	Maximum connected capacity		46,800
Piping	Liquid Pipe Size O.D. (Flared)	In.[mm]	3/8 [9.52]
	Gas Pipe Size O.D. (Flared)	In.[mm]	5/8 [15.88]
	Total Piping Length when using Branch Box	Ft. [m]	492 [150]
	Total Piping Length without Branch Box	Ft. [m]	984 [300]
	Maximum Height Difference <sup>b</sup> , ODU above IDU	Ft. [m]	164 [50]
	Maximum Height Difference <sup>b</sup> , ODU below IDU	Ft. [m]	131 [40]
	Maximum Height Difference <sup>b</sup> , between branch boxes	Ft. [m]	49 [15]
	Maximum Height Difference between IDU and IDU without branch box	Ft. [m]	49 [15]
		Ft. [m]	49 [15]
	Maximum Piping Length between ODU and Branch Box	Ft. [m]	180 [55]
	Farthest Piping Length from ODU to IDU with Branch Box	Ft. [m]	262 [80]
	Farthest Piping Length from ODU to IDU without Branch Box	Ft. [m]	492 [150]
	Farthest Piping Length after Branch Box	Ft. [m]	82 [25]
	Total Piping Length between Branch Boxes and IDU	Ft. [m]	311 [95]
Maximum Number of Bends for IDU		15	

**NOTES:**

AHRI Rated Conditions (Rated data is determined at a fixed compressor speed)	<sup>1</sup> Cooling (Indoor // Outdoor)	°F	80 DB, 67 WB // 95 DB, 75 WB
	<sup>2</sup> Heating at 47°F (Indoor // Outdoor)	°F	70 DB, 60 WB // 47 DB, 43 WB
	<sup>3</sup> Heating at 17°F (Indoor // Outdoor)	°F	70 DB, 60 WB // 17 DB, 15 WB

Conditions	<sup>4</sup> Heating at 5°F (Indoor // Outdoor)	°F	70 DB, 60 WB // 5 DB, 4 WB
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<sup>a</sup>Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.

<sup>a</sup> when 1 or more PLA-A-EA7 connected

<sup>b</sup> Branch box should be placed within the level between the outdoor unit and indoor units

<sup>c</sup> 5°F DB - 115°F DB when optional wind baffles are installed

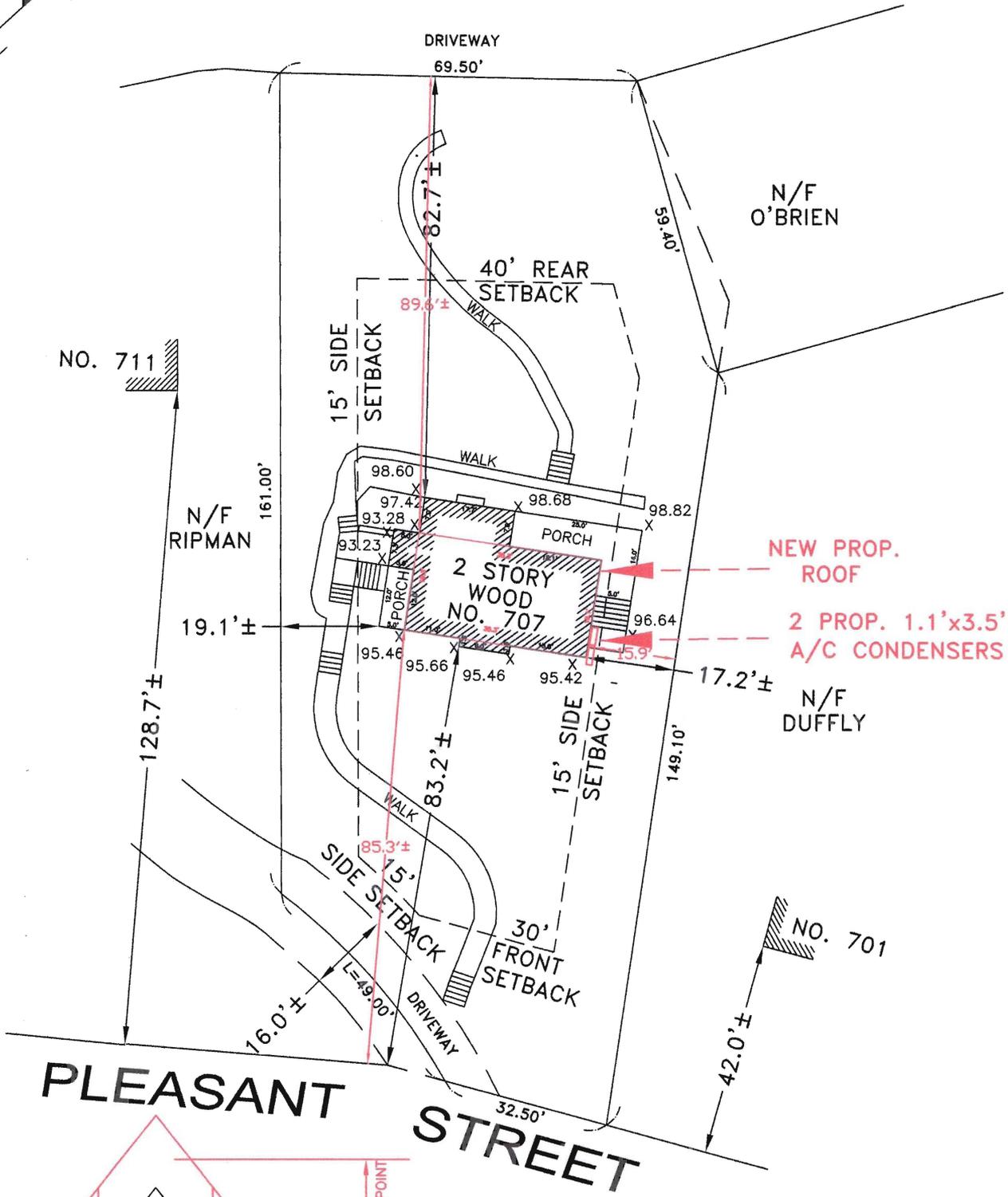
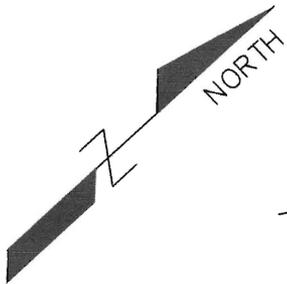
For actual capacity performance based on indoor unit type and number of indoor units connected, please refer to MXZ Operational Performance.

Although the maximum connectable capacity is 130%, the outdoor unit cannot provide more than 100% of the rated capacity. Please utilize this over capacity capability for load shedding or applications where it is known that all connected units will NOT be operating at the same time.

## OUTDOOR UNIT ACCESSORIES: MXZ-SM36NAMHZ

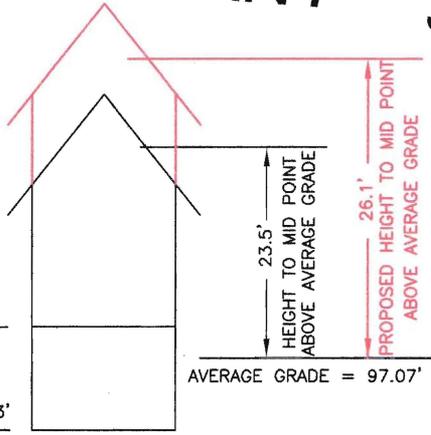
Air Deflector	Vertical Air Deflector	<input type="checkbox"/> ADV-1
Air Outlet Guide	Air Outlet Guide (1 Piece)	<input type="checkbox"/> PAC-SH96SG-E (two pieces are required)
Ball Valve	Refrigeration Ball Valve - 1/2"	<input type="checkbox"/> BV12FFSI2
	Refrigeration Ball Valve - 1/4"	<input type="checkbox"/> BV14FFSI2
	Refrigeration Ball Valve - 3/8"	<input type="checkbox"/> BV38FFSI2
	Refrigeration Ball Valve - 5/8"	<input type="checkbox"/> BV58FFSI2
Branch Box	3 Port Branch Box	<input type="checkbox"/> PAC-MKA32BC
	5 Port Branch Box	<input type="checkbox"/> PAC-MKA52BC
	Branch Box Enclosure	<input type="checkbox"/> BBE-1
Centralized Drain Pan	Central Drain Pan	<input type="checkbox"/> PAC-SH97DP-E
Control Wire	M-Net Control Wire, 1,000' Roll (16-AWG, Standard, Twisted Pair, Shielded, Jacketed- Plenum rated)	<input type="checkbox"/> CW162S-1000
	M-Net Control Wire, 250' Roll (16-AWG, Standard, Twisted Pair, Shielded, Jacketed- Plenum rated)	<input type="checkbox"/> CW162S-250
Control/Service Tool	Maintenance Tool Interface	<input type="checkbox"/> PAC-USCMS-MN-1
Distribution pipe	Brazed Connection	<input type="checkbox"/> MSDD-50BR-E
	Flare Connection	<input type="checkbox"/> MSDD-50AR-E
Drain Socket	Drain Socket	<input type="checkbox"/> PAC-SG60DS-E
Hail Guards	Hail Guard	<input type="checkbox"/> HG-A2
Mini-Split Wire	14 Gauge, 4 wire MiniSplit Cable—250 ft. roll	<input type="checkbox"/> S144-250
	14 Gauge, 4 wire MiniSplit Cable—250 ft. roll	<input type="checkbox"/> SW144-250
	14 Gauge, 4 wire MiniSplit Cable—50 ft. roll	<input type="checkbox"/> S144-50
	14 Gauge, 4 wire MiniSplit Cable—50 ft. roll	<input type="checkbox"/> SW144-50
	16 Gauge, 4 wire MiniSplit Cable—250 ft. roll	<input type="checkbox"/> S164-250
	16 Gauge, 4 wire MiniSplit Cable—250 ft. roll	<input type="checkbox"/> SW164-250
	16 Gauge, 4 wire MiniSplit Cable—50 ft. roll	<input type="checkbox"/> S164-50
	16 Gauge, 4 wire MiniSplit Cable—50 ft. roll	<input type="checkbox"/> SW164-50
Mounting Pad	Condensing Unit Mounting Pad: 24" x 42" x 3"	<input type="checkbox"/> ULTRILITE2
	Outdoor Unit 3-1/4 inch Mounting Base (Pair) - Plastic	<input type="checkbox"/> DSD-400P
Port Adapter	Adaptor: 1/2" x 3/8"	<input type="checkbox"/> MAC-A455JP-E
	Adaptor: 1/2" x 5/8"	<input type="checkbox"/> MAC-A456JP-E
	Adaptor: 3/8" x 1/2"	<input type="checkbox"/> MAC-A454JP-E
	Adaptor: 3/8" x 5/8"	<input type="checkbox"/> PAC-SG76RJ-E
Stand	18" Dual Fan Stand	<input type="checkbox"/> QSMS1802M
	24" Dual Fan Stand	<input type="checkbox"/> QSMS2402M
	Condenser Wall Bracket	<input type="checkbox"/> QSWB2000M-1
	Condenser Wall Bracket - Stainless Steel Finish	<input type="checkbox"/> QSWBSS
	Outdoor Unit Stand — 12" High	<input type="checkbox"/> QSMS1202M
Wind Baffle	Front Wind Baffle	<input type="checkbox"/> WB-PA3 (two pieces are required)





**PLEASANT STREET**

BASEMENT CEILING = 99.38'  
BASEMENT FLOOR = 92.83'



LOT AREA = 14,330 S.F.±  
EXISTING BUILDING = 1,152 S.F.±  
EXISTING CONCRETE WALK = 1,200 S.F.±  
PROPOSED ADDITION = 696 S.F.±  
EXISTING LOT COVERAGE = 8.0%  
PROPOSED LOT COVERAGE = 8.1%  
EXISTING OPEN SPACE = 83.6%  
PROPOSED OPEN SPACE = 83.5%

- NOTES
1. SEE DEED RECORDED IN MIDDLESEX COUNTY REGISTRY OF DEEDS IN DEED BOOK 66273, PAGE 313.
  2. SEE PLAN RECORDED IN MIDDLESEX COUNTY REGISTRY OF DEEDS IN PLAN BOOK 356, PAGE 37.
  3. SUBJECT PARCEL IS LOCATED IN ZONE SRA.
  4. NO PUBLIC SHADE TREE IS LOCATED WITHIN THE LIMITS OF THE PROPERTY FRONTAGE OF THE SUBJECT PROPERTY.
  5. PARCEL SHOWN IN LOCATED IN FLOOD ZONE X AS SHOWN ON PANEL NUMBER 25017C0418E, EFFECTIVE ON 6/4/2010.
  6. FRONT SETBACK;  $25.0 + 25.0 = 50.0 / 2 = 25.0$ : FRONT SETBACK IS 25.0'



( IN FEET )  
1 inch = 30 ft.

CERTIFIED PLOT PLAN  
IN  
BELMONT, MA

SCALE: 1" = 30' JANUARY 15, 2025

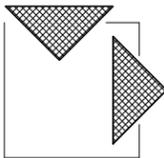
DLJ GEOMATICS  
PROFESSIONAL LAND SURVEYING  
276 NORTH STREET  
WEYMOUTH, MA 02191  
(781) 812-0457

*Dee J. Johnston*  
PROFESSIONAL LAND SURVEYOR DATE 01/15/25



# PROGRESS OCTOBER 10, 2024

**MILLER  
DESIGN LLC**



80 CLARK STREET  
BELMONT, MA 02478

**ENERGY AUDIT:**

COMPLIANCE DETERMINED BY MASSACHUSETTS STRETCH ENERGY CODE (IECC 2021 W/ MASS AMENDMENTS SECTION N1101). PROPERTY FALLS UNDER CLIMATE ZONE 5A.

**PRESCRIPTIVE OPTION FOR RESIDENTIAL ADDITION (401.3):**

1. RENOVATION TO COMPLY WITH ENERGY STAR QUALIFIED HOMES THERMAL BYPASS INSPECTION CHECKLIST. INSULATION VALUES AS FOLLOWS: R60 ROOF R-VALUE, R30 FLOOR R-VALUE, R20+5 WALL R-VALUE, R15/19 BASEMENT / CRAWL SPACE WALL R-VALUE.
2. RENOVATION TO COMPLY WITH ENERGY STAR PROGRAM REQUIREMENTS FOR RESIDENTIAL WINDOWS, DOORS, AND SKYLIGHTS - VERSION 5.0. ALL NEW WINDOW GLAZING TO BE .30 U FACTOR AND SKYLIGHTS TO BE .55 U-FACTOR.
3. HEATING / COOLING DUCTS TO BE SEALED AND TESTED TO MEET REQUIREMENTS OF 401.3.

**PROJECT INFORMATION:**

**BELMONT ZONING SRA:**

**REQUIRED:**

MAX 20% LOT COVERAGE  
MIN 50% OPEN SPACE

FRONT YARD SETBACK: 30'-0"  
REAR YARD SETBACK: 40'-0"  
SIDE YARD SETBACK: 15'-0"

MAX HEIGHT: 2 1/2 STORIES AND 36'

**DRAWING LIST**

- A1 COVER SHEET
- A2 EXISTING CELLAR DIAGRAM
- A3 EXISTING FIRST FLOOR DIAGRAM
- A4 EXISTING SECOND FLOOR PLAN
- A5 EXISTING ATTIC PLAN
- A6 EXISTING ELEVATIONS
- A7 NEW SECOND FLOOR PLAN
- A8 NEW ATTIC FLOOR PLAN
- A9 NEW ELEVATIONS
- A10 SECTIONS

Architect:  
Miller Design LLC  
80 Clark Street  
Belmont MA 02478  
617-993-3157

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9/4/24	PROGRESS
9/19/24	DESIGN DEVELOPMENT
10/10/24	PROGRESS

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**COVER SHEET**

Sheet  
Number:

# A1

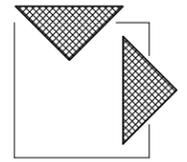
**LIGHTING LEGEND**

-  RECESSED LED CAN LIGHT - AS SELECTED BY OWNER
-  CEILING MOUNTED PENDANT - AS SELECTED BY OWNER
-  CEILING MOUNTED DOME LIGHT - AS SELECTED BY OWNER
-  WALL MOUNTED SCONCES AS SELECTED BY OWNER
-  CEILING FAN WITH INTEGRAL LIGHT - AS SELECTED BY OWNER
-  S.D. SMOKE DETECTOR - NOTE ALL NEW AND EXISTING SMOKES TO BE HARD-WIRED PER CODE
-  S/CO HARD-WIRED SMOKE / CARBON MONOXIDE DETECTOR
-  DATA CONNECTION
-  TELEPHONE / DATA CONNECTION
-  ELECTRIC OUTLET (SPECIFIC LOCATIONS ONLY - ALL OUTLETS AS REQUIRED BY CODE ARE NOT SHOWN ON PLANS)

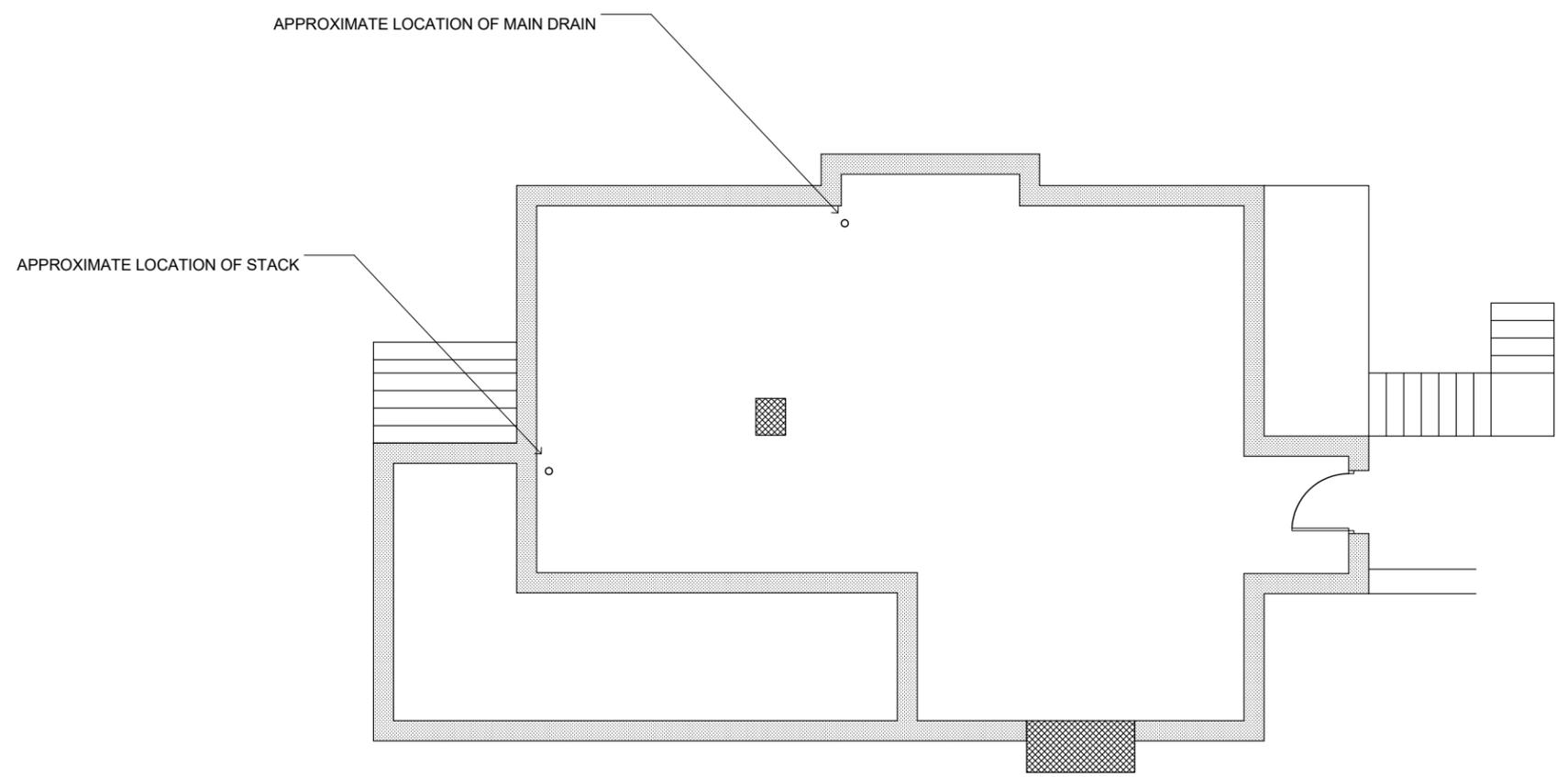
**SYMBOL LEGEND**

-  WALL TO BE DEMOLISHED
-  EXISTING WALL TO REMAIN
-  NEW WALL
-  INTERIOR ELEVATION
-  SECTION
-  DOOR TAG
-  WINDOW TAG

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1 PLAN  
SCALE: 1/8" = 1'



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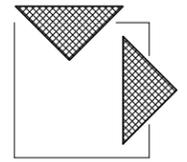
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10/10/24	PROGRESS

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**EXISTING  
CELLAR**

Sheet  
Number:  
**A2**

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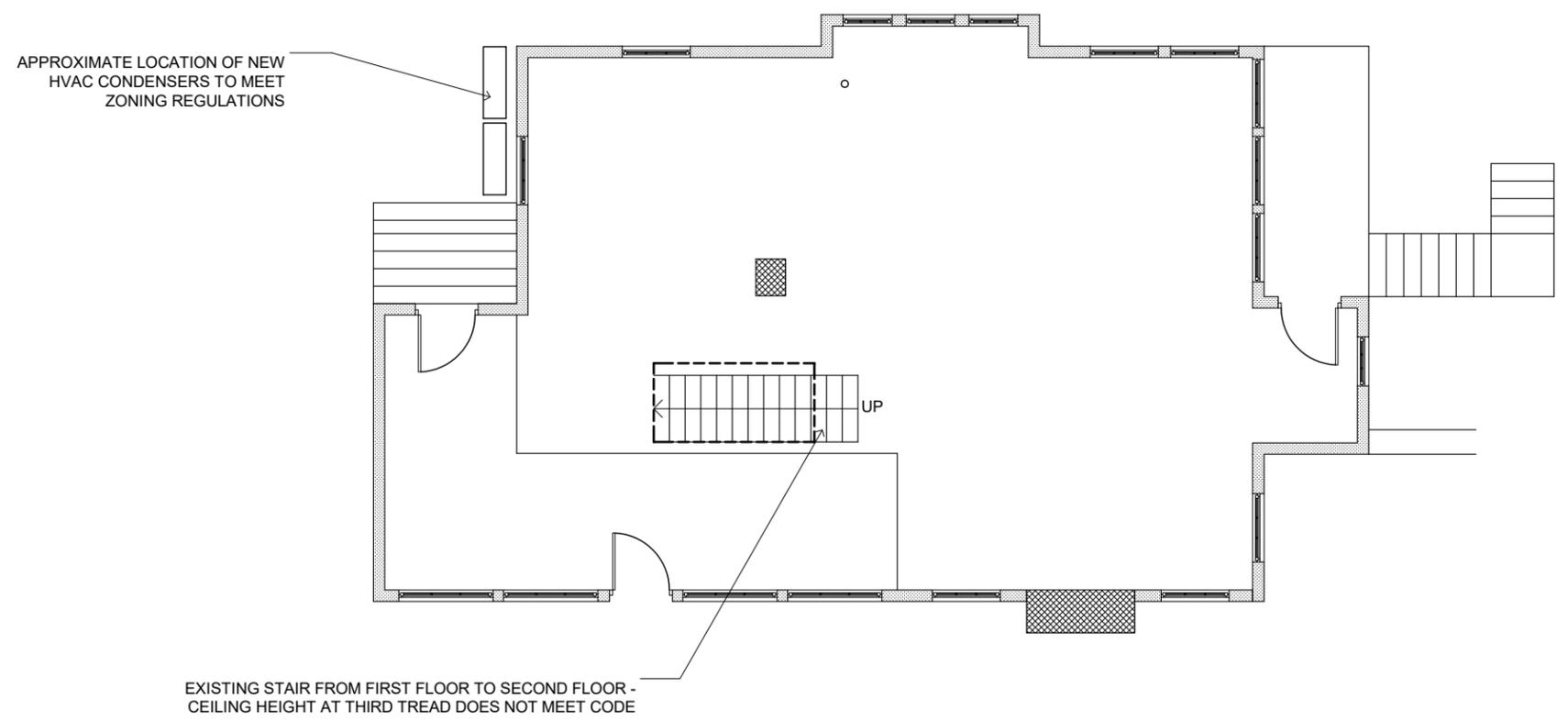
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10/10/24	PROGRESS
1/15/25	PROGRESS

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**EXISTING  
FIRST FLOOR**

Sheet  
Number:

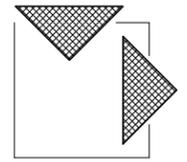
**A3**



1 PLAN  
SCALE: 1/8" = 1'



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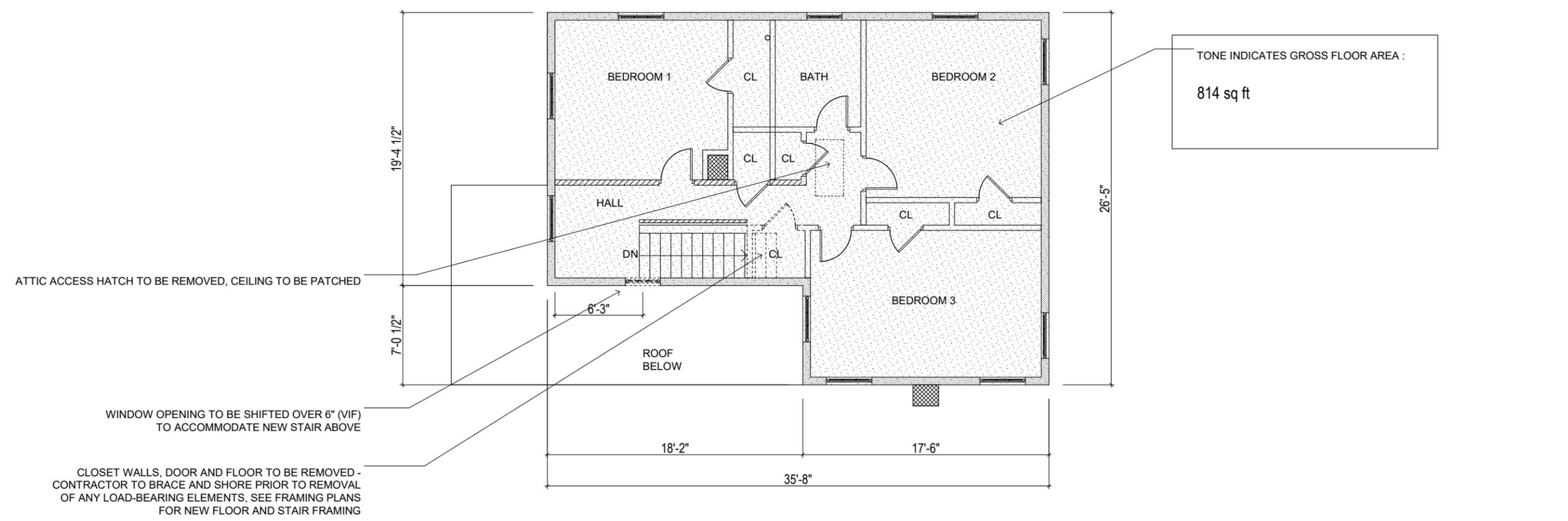
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**EXISTING  
SECOND FLOOR**

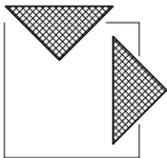
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Number:  
**A4**



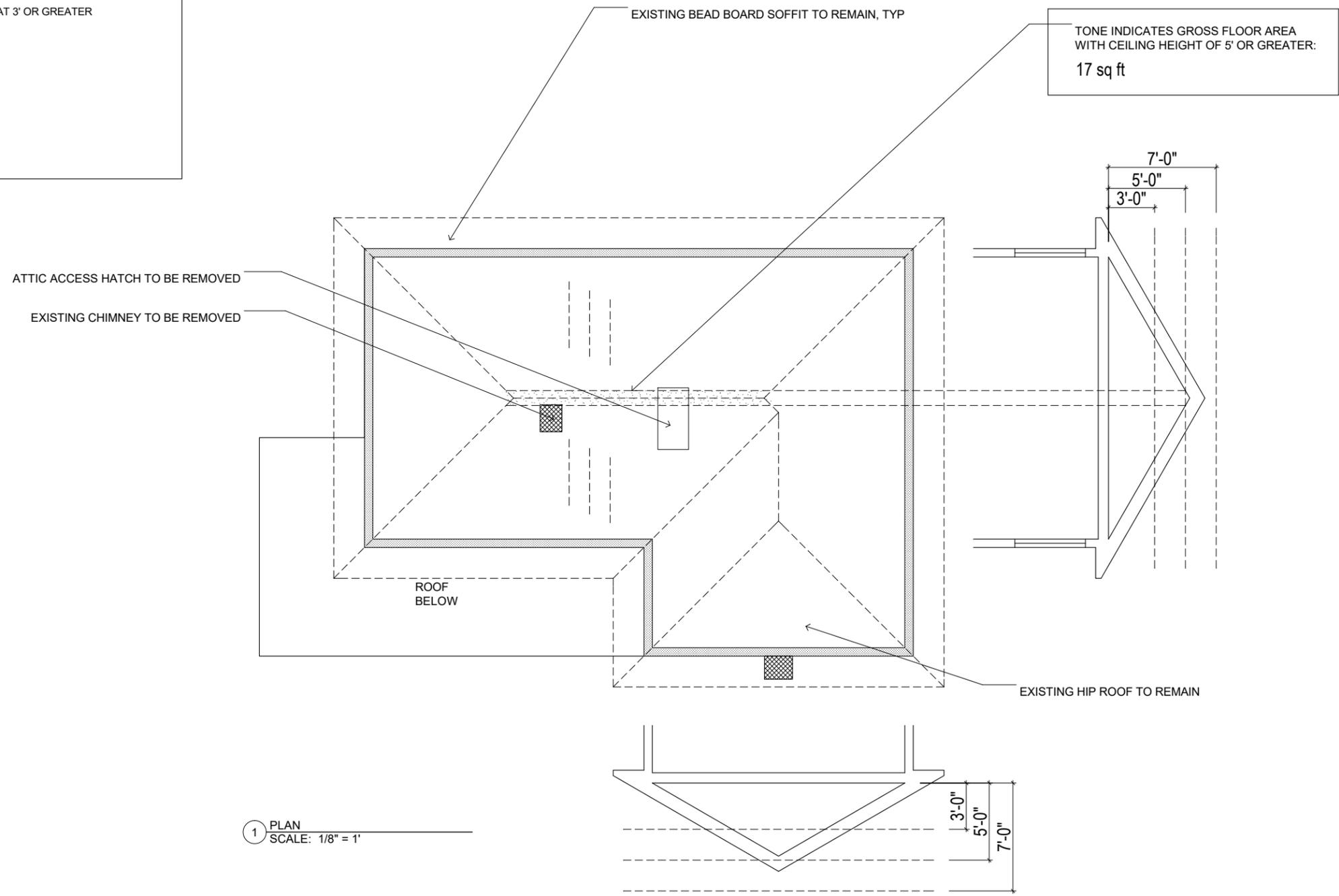
HALF STORY AREA CALCULATIONS:  
 ALLOWABLE: AREA WITH CEILING HEIGHT OF 5' OR GREATER CAN BE NO MORE THAN 60% OF SECOND FLOOR AREA  
 SECOND FLOOR AREA = 814 SF  
 60% OF 814 = 488.4 SF MAX  
 ACTUAL: XX SF , CONFORMING

HALF STORY PERIMETER CALCULATIONS:  
 SECOND FLOOR PERIMETER = 124'-2" LF  
 ALLOWABLE: MAX 62'-1" W/ RAFTER BOTTOMS AT 3' OR GREATER (BASED ON 50% OF 124'-2" PERIMETER).  
 ACTUAL: 0 (HIP ROOF), CONFORMING

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80 CLARK STREET  
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1 PLAN  
 SCALE: 1/8" = 1'



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EXISTING  
 ATTIC

Sheet  
 Number:

**A5**

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**EXISTING  
ELEVATIONS**

Sheet  
Number:

**A6**



1 FRONT ELEVATION  
SCALE: 1/8" = 1'



2 SIDE ELEVATION  
SCALE: 1/8" = 1'



3 REAR ELEVATION  
SCALE: 1/8" = 1'



4 SIDE ELEVATION  
SCALE: 1/8" = 1'

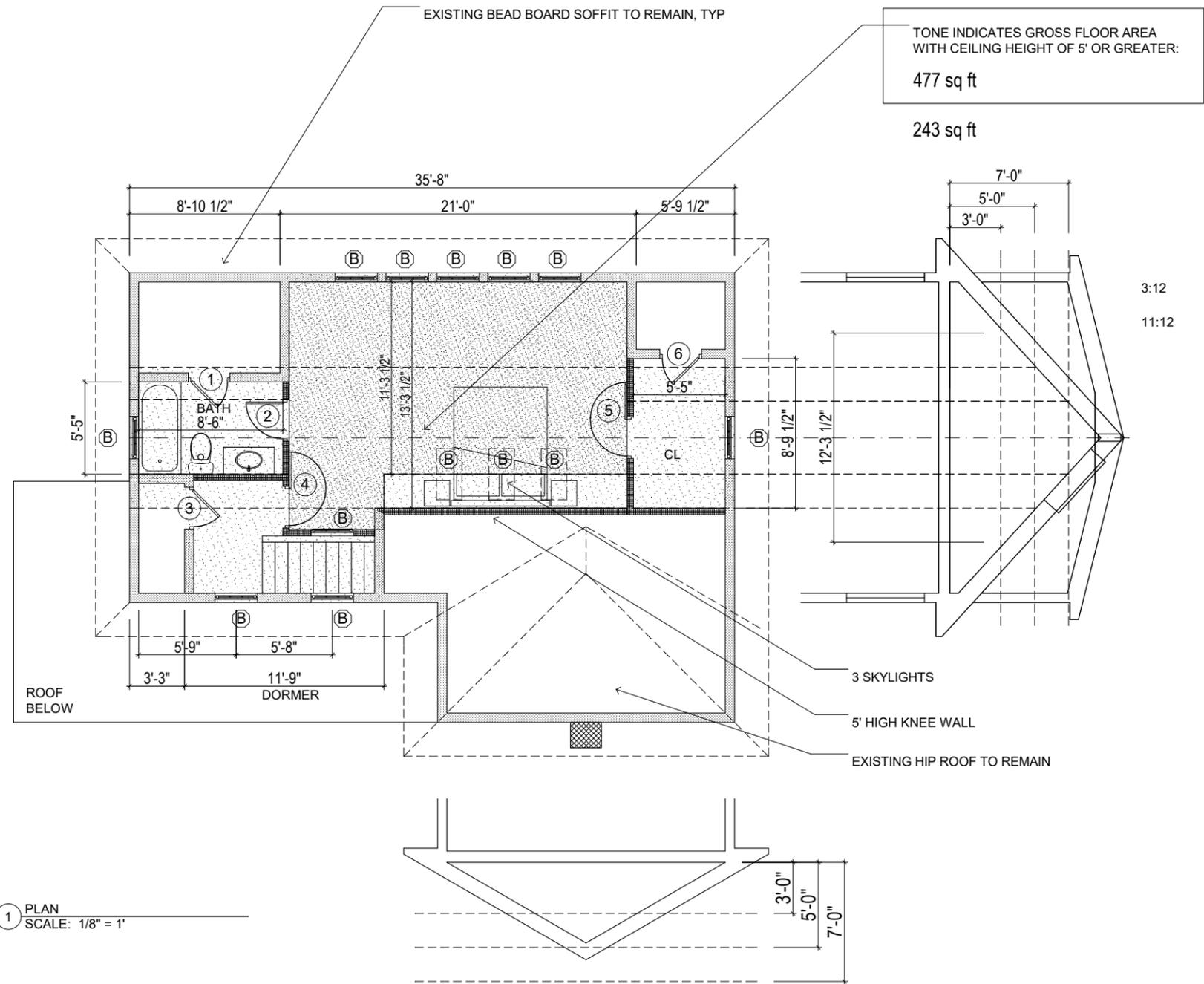




HALF STORY AREA CALCULATIONS:  
 ALLOWABLE: AREA WITH CEILING HEIGHT OF 5' OR GREATER CAN BE NO MORE THAN 60% OF SECOND FLOOR AREA  
 SECOND FLOOR AREA = 814 SF  
 60% OF 814 = 488.4 SF MAX  
 ACTUAL: 477 SF, CONFORMING

HALF STORY PERIMETER CALCULATIONS:  
 SECOND FLOOR PERIMETER = 124'-2" LF  
 ALLOWABLE: MAX 62'-1" W/ RAFTER BOTTOMS AT 3' OR GREATER (BASED ON 50% OF 124'-2" PERIMETER).  
 ACTUAL: 12'-3 1/2" + 12'-3 1/2" + 21'-0" + 11'-3" = 56'-10", CONFORMING

DORMER LENGTH CALCULATIONS:  
 ALLOWABLE: 26'-9" MAX PER ROOF SIDE (75% OF 35'-8")  
 ACTUAL: x, CONFORMING



TONE INDICATES GROSS FLOOR AREA WITH CEILING HEIGHT OF 5' OR GREATER:  
 477 sq ft

243 sq ft

1 PLAN  
 SCALE: 1/8" = 1'

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**NEW ATTIC**

Sheet Number:

**A8**



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1/15/25	PROGRESS

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**NEW  
ELEVATIONS**

Sheet  
Number:

**A9**



1 FRONT ELEVATION  
SCALE: 1/8" = 1'

- NEW DOUBLE HUNG WINDOWS - PELLA ARCHITECT SERIES - PROFILE, FINISHES, AND CASINGS TME
- NEW EASTERN WHITE CEDAR SHINGLES "NANTUCKET" BY MAIBEC, 7 1/2" EXPOSURE - PAINT COLOR TBD
- NEW ASPHALT ROOF SHINGLES BY CERTAINTEED LANDMARK PRO - COLOR TBD
- EXISTING SOFFITS, GUTTERS AND DOWNSPOUTS TO REMAIN



2 SIDE ELEVATION  
SCALE: 1/8" = 1'

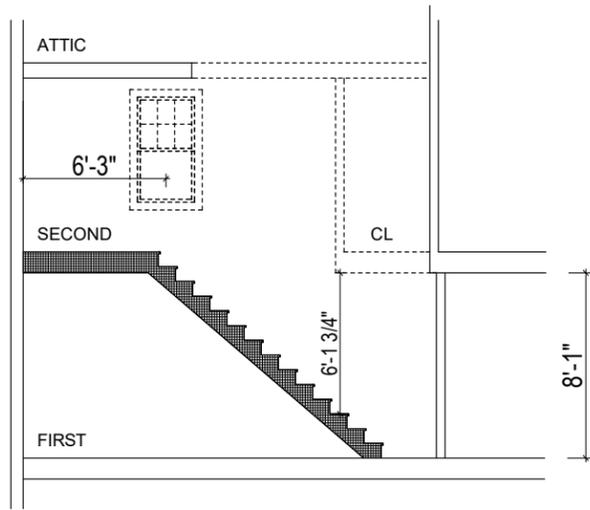


3 REAR ELEVATION  
SCALE: 1/8" = 1'

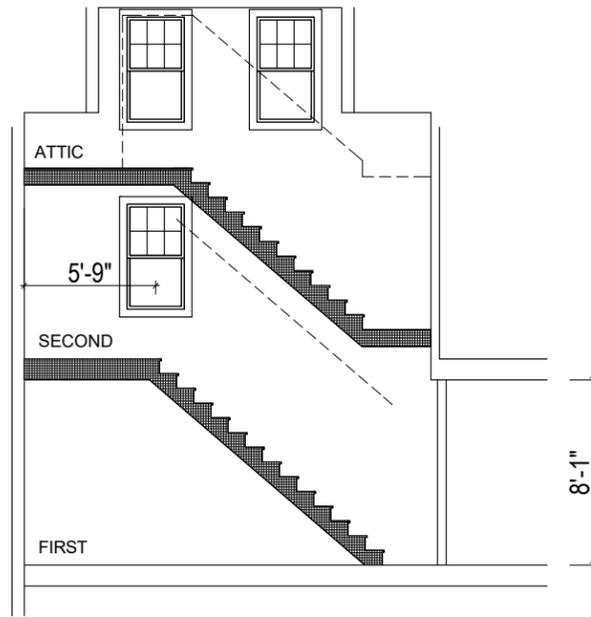


4 SIDE ELEVATION  
SCALE: 1/8" = 1'

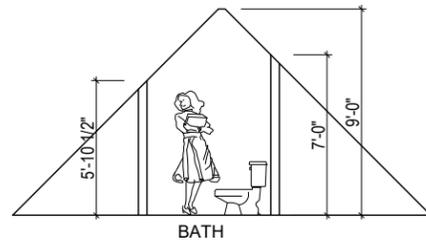




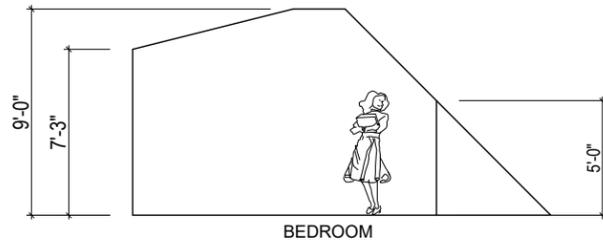
1 EXISTING SECTION  
SCALE: 1/8" = 1'



2 NEW SECTION  
SCALE: 1/8" = 1'



3 INTERIOR ELEVATIONS  
SCALE: 1/8" = 1'



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SECTIONS

Sheet  
Number:

**A10**

