

Historic Preservation Board

Wednesday, September 4, 2024 at 5:00
PM Room 24 (Ground Level of City) and
Zoom



MEMBERS

Robert O'Brien (Chair)
Brad Miller (Vice Chair)
Hilary Bassett
Valerie Paquin-Gould
Brian Sosebee
Rob Whitten

The Historic Preservation Board invites the public to attend the meeting **in person or Zoom** pursuant to the Remote Meeting Policy adopted by the Historic Preservation Board. Prior to the meeting, please check the Agenda Center <https://www.portlandmaine.gov/602/Agendas-Minutes> to view memos and reports which will be posted by the end of the day on the Friday before the Historic Preservation Board meeting.

REMOTE PARTICIPATION

Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend either in person or via Zoom, a recording will be available in the [Agenda Center](#) following the meeting.

Please click the link below to join the webinar:

<https://portlandmaine-gov.zoom.us/j/82367421473>

Or One tap mobile :

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Dial(for higher quality, dial a number based on your current location):

+1 305 224 1968 US

+1 309 205 3325 US

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+1 646 931 3860 US

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+1 386 347 5053 US

+1 507 473 4847 US

+1 564 217 2000 US

+1 669 444 9171 US

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Webinar ID: 823 6742 1473

International numbers available: <https://portlandmaine-gov.zoom.us/j/82367421473>

PUBLIC COMMENT INFORMATION:

To submit written public comment on an agenda item, email hp@portlandmaine.gov. Submissions must be received by 12:00 pm **the day before** the Historic Preservation Board meeting to guarantee their inclusion in

the agenda packet. All submissions must include the commenter's name and legal address. To help ensure your comment is submitted for the correct item, please include the name of the agenda item (see below).

AGENDA:

1. ROLL CALL AND DECLARATION OF QUORUM

2. REPORT OF ATTENDANCE AT THE MEETING HELD ON AUGUST 7, 2024

- i. Public Hearings
Recode Portland: Keenan, Miller, Paquin-Gould, and Whitten present; Bassett, O'Brien, and Sosebee absent.
156 High Street: Keenan, Miller, Paquin-Gould, and Whitten present; Bassett, O'Brien, and Sosebee absent.
20 Morning Street: Keenan, Miller, Paquin-Gould, and Whitten present; Bassett, O'Brien, and Sosebee absent.
477 Congress: Keenan, Miller, Paquin-Gould, and Whitten present; Bassett, O'Brien, and Sosebee absent.

3. REPORTS OF DECISIONS AT THE MEETING HELD ON AUGUST 7, 2024

- i. Recommendations to the Planning Board regarding ReCode Portland. City of Portland, Applicant. More information on the draft changes can be found at www.recodeportland.me. The Board voted 4-0 to forward the recommendation as amended to the Planning Board.
- ii. Certificate of Appropriateness for Addition; 156 HIGH STREET/8 DEERING STREET; Avesta Housing & Williston-Immanuel United Church, Applicant. Plan Number: HPBR-02801-2024. The Board voted 5-0 to approve the project.
- iii. Certificate of Appropriateness for Alterations; 20 MORNING STREET; Elizabeth Zeeuw & Brian Dunn, Applicant(s). Plan Number: HPBR-002982-2024. The Board voted 4-0 to approve the project with conditions.
- iv. Certificate of Appropriateness for Rehabilitation; 477 CONGRESS STREET/45 BROWN STREET; Developer's Collaborative & TT Maine Venture, LLC, Applicant. Plan Number: HPBR-003019-2024. The Board voted 4-0 to approve the project with conditions.

4. COMMUNICATION AND REPORTS

5. PUBLIC HEARING

- i. Certificate of Appropriateness for Roof Replacement; 184 State Street; Geoffrey Rice, Applicant(s). Plan Number: HPBR-003017-2024.
- ii. Certificate of Appropriateness for Alterations; 308 Danforth Street; Richard N, Bryant, Trustee, 308 Danforth Trust & Nadine Knudsen, Applicant(s). Plan Number: HPBR-003052-2024.

6. CONSENT AGENDA

STAFF MEMORANDUM
HISTORIC PRESERVATION PROGRAM
PLANNING AND URBAN DEVELOPMENT



TO: Chair O'Brien and Members of the Historic Preservation Board
FROM: Rob Wiener, Associate Preservation Planner
DATE: August 30, 2024
RE: 182-184 State Street – PUBLIC HEARING – Slate Roof Replacement
PROJECT ID: HPBR-003017-2024
MEETING: September 4, 2024

Owner: Geoffrey Rice
Owner's Representative: Greg Shinberg

A sign announcing the Historic Preservation Board's meeting on 9/4/2024 was posted at the property on 8/23/2024. A legal ad was published in the Portland Press Herald on 8/23/2024 and 8/24/2024, and 202 notices were sent to neighboring property owners within 100 feet of the subject property.

PROJECT SCOPE

Applicants propose to replace the front section of slate roof of 182 State Street, facing State Street, with DaVinci artificial slate tiles, because of ongoing maintenance and leakage issues. On November 15, 2023 the Board approved a Certificate of Appropriateness on a proposal to replace two other adjacent sections of roof, closer to Pine Street, with the same type of artificial slate. As of August 23, the DaVinci roofing has not yet been installed on those sections of roof.

Material Specifications:

Siding	Brick
Trim	Painted wood
Roofing	Roof section that is the subject of this review: slate with copper valleys, ridge caps, and drip edge (Two adjacent roofs mentioned above are temporarily covered with asphalt shingles and ice and water shield, pending replacement with DaVinci.

SUMMARY OF HISTORIC CONTEXT

Originally an 1847 Greek Revival duplex, 180-182 State Street has been heavily altered. At the northern end, 182 State was renovated and added to in 1871-1872 in the Italianate Style, including raising the roof, adding bays and porches, and altering the window openings. The storefronts

facing the corner and Pine Street (also referred to as 184 State Street,) were added after 1924. At the south end, 180 State Street contains several apartments, and the Upper floors of 182 contain multiple apartments as well.

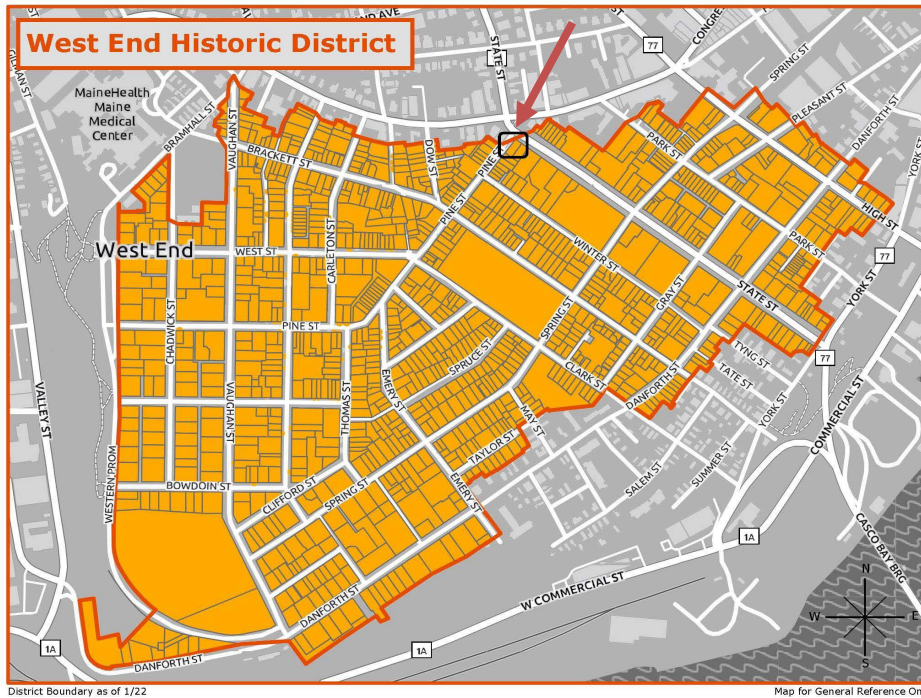


Figure 1: Map of the West End Historic District/Partial map of Portland showing location of 182-184 State



Figure 2: 1924 Tax Photo of 182 State Street

Additional information on the West End Historic District can be found on the city website:
<https://www.portlandmaine.gov/665/Historic-Districts>

PREVIOUS REVIEW BY HISTORIC PRESERVATION BOARD

November 15, 2023 - Public Hearing:

By a vote of 4-2, the Board approved a Certificate of Appropriateness to install artificial slate on two roof planes that had been stripped to repair leaks. The roofs in question are visible at a distance from Longfellow Square and State Street, but the Board found that with height and distance it would be difficult to distinguish artificial slate from natural slate. Board members agreed that only the two roof sections in question were approved for the alternate material, and removed slate that was salvageable should be retained on site in case it could be used to repair other more visible parts of the roof. As a condition of approval, the Board delegated to staff review and approval of the final roofing material selection. The approved material is Inspire Classic, by DaVinci, slate gray color, a width of 12" and an exposure of 7".

PROPOSED PROJECT:

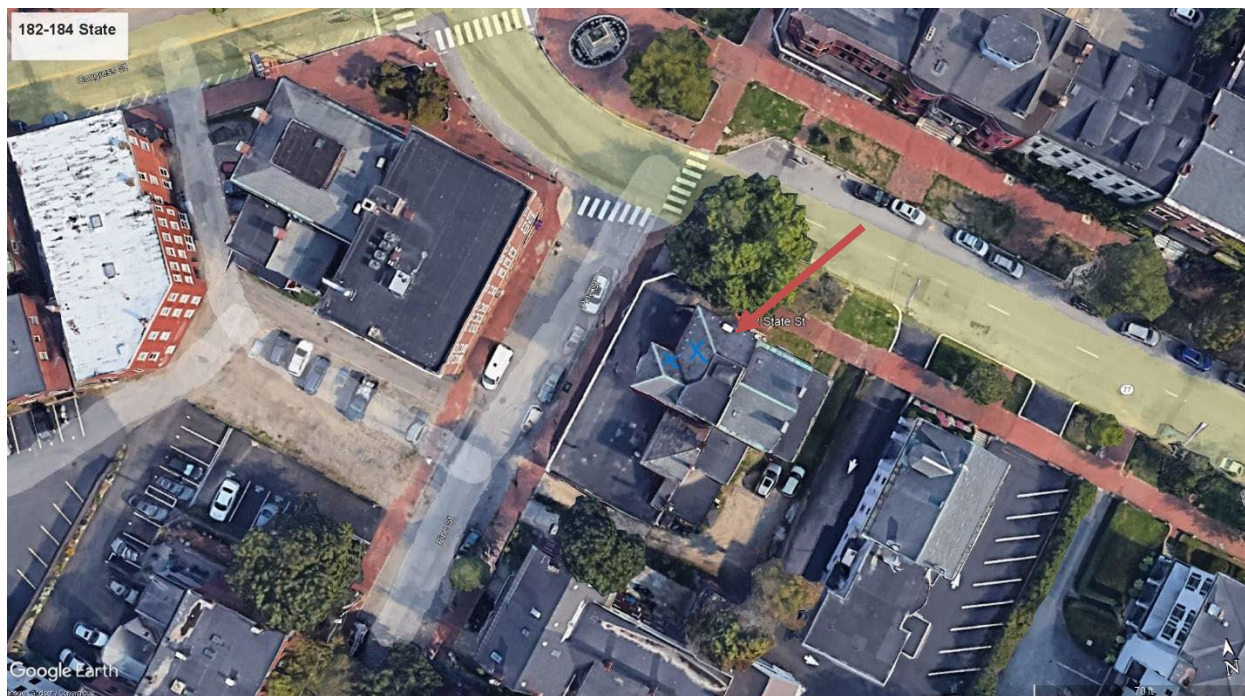


Figure 3: Satellite image showing 180-184 State Street, with blue x's marking the roofs approved last fall, and the red arrow indicating the roof under review on September 4, 2024.

The photo above shows that the front section of roof (red arrow,) facing State Street, is now

under review to receive the same roofing approved for the nearby sections facing Pine Street. The low remnant of a chimney on the lower roof that had been partially removed and capped years ago is proposed to be completely removed and roofed over. As in the case of the proposal reviewed last November, copper valleys, ridges, drip edges, and flashings are to be replaced in kind. Project Manager Greg Shinberg also stated that the existing snow guards are to be saved and reinstalled.

STAFF COMMENTS

As with the review last November, staff suggest that Board members carefully consider the visibility of the roof in question from a variety of locations in and near Longfellow Square. Staff notes that while this roof faces directly toward State Street, because of the height of the building it is difficult to see except at some distance. (Please see Attachments for photos provided by the applicant and staff.) As the staff report for November 15 stated:

The Board is asked to decide whether given the degree of visibility of the roofs in question, it is acceptable to replace the original, aged slate with a substitute that is a reasonably convincing mimic. Certainly Standard 2 requires the original historic materials be retained “*where possible*.” And Standard 6 states that when original material must be removed, “...the new feature should match the feature being replaced in composition, design, texture, and other visual qualities and, *where possible*, materials.” (Emphasis by staff)

The standard is therefore written to allow the Board latitude in considering the use of alternative materials when replacing deteriorated historic material and a reasonable visual match can be achieved. A sample of the natural slate from the building will be available during the meeting to allow the Board to compare it with a sample of the DaVinci roofing.

When the Board approved the use of the substitute last year, it was clear that the approval was limited to two sections of roof, and no broad precedent was being established. Staff noted in the report:

...the only precedent that might be established by this case would be that artificial slate can be considered *under some circumstances*, provided the proposed material is difficult to distinguish from natural slate, in the proposed location... With advancements in artificial roofing materials over the last twenty years, the Board is asked to judge the circumstances under which a pragmatic compromise might be judged to meet the Standards for Review of Alterations.

While the use of matching materials is considered the preferred approach for historic buildings, the Board should consider the ability of these matching materials to be distinguished from alternatives, especially when there are cost or logistical considerations for property owners. If it is difficult to distinguish the substitute from the original material at a distance, the use of an alternate material may be appropriate under Standard 6. This is not to say that alternative materials will be acceptable in every instance, but instead, that under the specific circumstances of a particular case, and where a reasonable match is available the Board should allow applicants some flexibility in the use of alternative materials.

Staff has included as an attachment the recently updated National Park Service Preservation Brief # 16, which provides guidance on examining the use of alternate materials.

ANALYSIS OF APPLICABLE REVIEW STANDARDS

Standards for Review of Alterations, 17.8.2:

Standard 1	
Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration to the character defining features of the structure, object, or site and its environment or to use a property for its originally intended purpose.	
Standard Met?	Staff Comments
Not Applicable	

Standard 2	
The distinguishing original qualities or character of a structure, object, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.	
Standard Met?	Staff Comments
For Board discussion	The applicant is proposing to remove historic slate. However, they are proposing to replace it with a synthetic slate that is a close visual match. The use of an alternative material is proposed based on the cost and extensive lead times associated with using natural slate. The Board should consider whether the proposed synthetic slate sufficiently preserves the character of the structure's historic slate roof.

Standard 5	
Distinctive features, finishes, and construction techniques or examples of skilled craftsmanship which characterize a structure, object, or site shall be treated with sensitivity.	
Standard Met?	Staff Comments
For Board discussion	The applicant is proposing to remove the historic slate from the building. Slate can be a distinctive feature of a building. This building features a basic installation of rectangular slates on low-slope roofs with minimal prominence and visibility. The applicant is proposing to replace it with a synthetic slate that is a close visual match. The Board should consider whether the existing slate roof is highly distinctive and character-defining for this building.

Standard 6	
Deteriorated historic features shall be repaired rather than replaced wherever feasible. Where the severity of deterioration requires replacement of a distinctive feature, the new feature should match the feature being replaced in composition, design, texture, and other visual qualities and, where possible, materials. Repair or replacement of missing historic features should be based on accurate duplications of features, substantiated by documentary, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other structures or objects.	
Standard Met?	Staff Comments
For Board discussion	The applicant has argued that the existing slate roof has deteriorated, and has had active leaks in recent years. Given cost and logistical consideration for the use of natural slate, the applicant is proposing to use a simulated slate. While the difference between natural and synthetic slate is distinguishable from up close; from a distance, the pattern, color, and texture can be convincing. The Board should discuss whether in this application, the use of a synthetic slate is an acceptable alternative material.

Standard 10	
Wherever possible, new additions or alterations to structures and objects shall be undertaken in such a manner that, if such additions or alterations were to be removed in the future, the essential form and integrity of the historic property would be unimpaired.	
Standard Met?	Staff Comments
For Board discussion	The proposed synthetic slate is reversible in that it could be removed and replaced with natural slate at some time in the future if desired by a property owner.

MOTION FOR CONSIDERATION

I move to APPROVE application HPBR-003017-2024 for replacement of slate roofing with simulated slate at 182-184 State Street on the basis of submitted documentation, plans, and specifications; information provided in the staff memo; and findings by the Historic Preservation Board that the project meets Standards for Review of Alterations 17.8.2-# 1, 2, 5, 6, and 10.

ATTACHMENTS

1. Cover letter
2. Applicant photos
3. Staff photos
4. Examples of proposed materials
5. NPS Preservation Brief #16



July 22, 2024

The slate roof is leaking and in disrepair. We are asking to replace approximately 300 square feet of slate roofing with the same simulated slate that was approved by the Historic Preservation Board at the November 15, 2023 meeting and stamped for approval on November 22, 2023.

You can view the product (Gray/Black Blend 718) on the attached DaVinci Roofscapes product sheet.

The roof's existing drip edge, valley and cap are copper. Any metal that is replaced will also be copper. In addition, any gutters that need to be repaired or replaced will match the existing gutters in materials, size and shape.

Sincerely,

Greg Shinberg,

A handwritten signature in dark ink, appearing to be "G. Shinberg", written over a faint, larger signature.

Owner, Shinberg Consulting, LLC













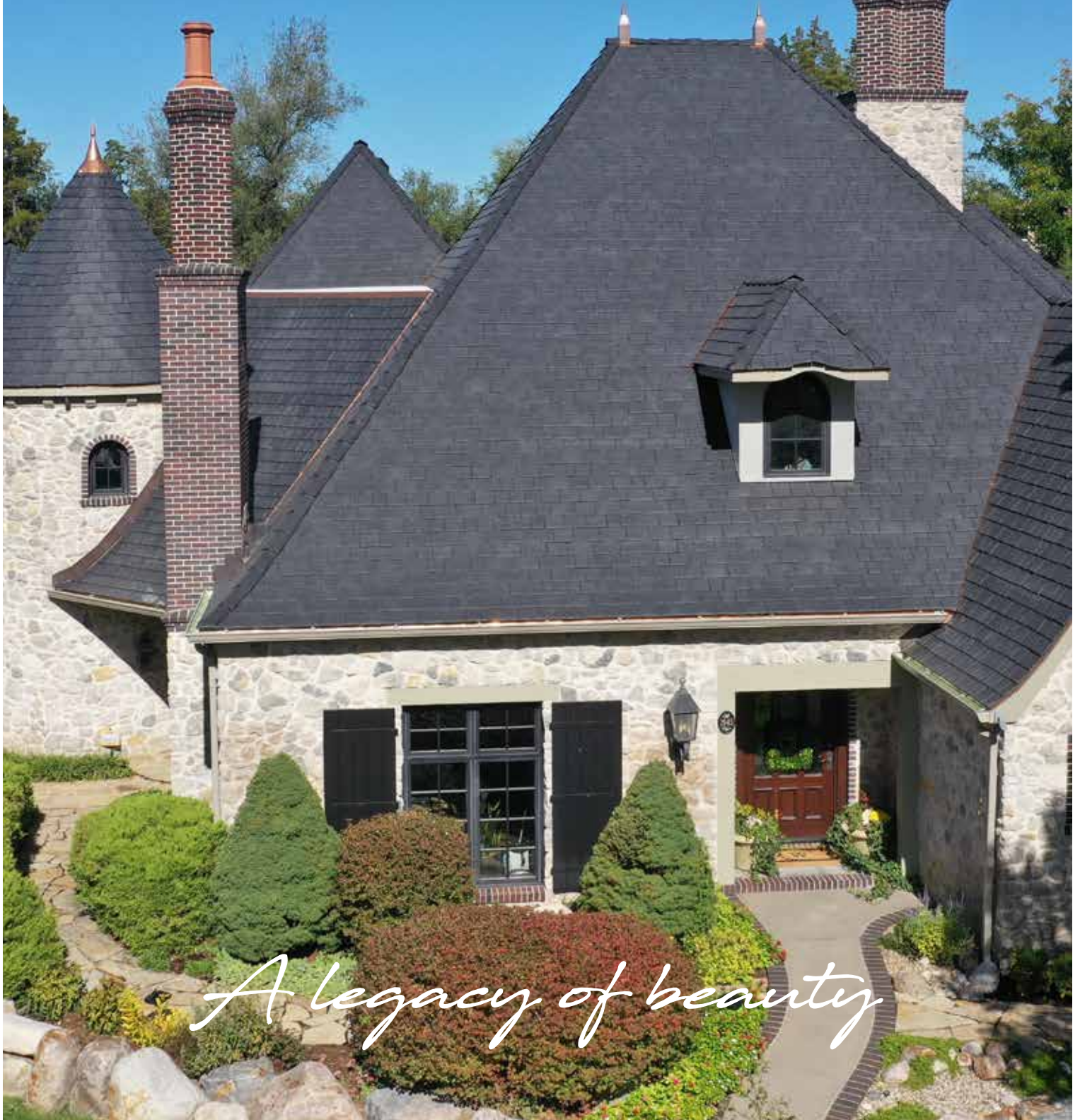
NO
PARKING
ANY
TIME
←

WEEKEND VINTAGE

shinberg







A legacy of beauty

PERFECTLY AT HOME
in every corner of the continent

WE FIT
YOUR STYLE

WE STAND UP TO
YOUR WEATHER

*From the mountains to the coasts...
Wherever you call home, a DaVinci roof
lives up to your vision of beauty and stands
up to the challenges of your weather.*

DaVinci has been the leader in composite roofing for nearly two decades. Our commitment to creating durable, beautiful roofing tiles is unparalleled. You won't find a more realistic or better-performing roofing product anywhere.

With DaVinci, you can retain all the character your home was intended to have without worrying about time-consuming and costly maintenance. Whether you're replacing an existing roof or looking for the crowning touch on a new construction project...
just leave it to DaVinci.



WILMINGTON, DELAWARE



Hot and steamy defines this Delaware town. The subtropical setting has 60% humidity consistently throughout the year and gets an average of 9 days of precipitation each month.

Engineered to look better, longer.

Thick construction, deep grooves and realistic grain patterns combine to create dramatic shadows and visual richness.

Due to DaVinci's performance features, many insurance companies now offer reduced rates when switching from cedar or slate, especially in high wind-, fire- or hail-prone areas.

Realistic chisel marks add a hand-crafted finishing touch.

DaVinci tiles are made of pure virgin resins fortified with state-of-the-art UV stabilizers. The color you pick is the color you keep.

DaVinci products are modeled from actual slate and hand-split shake for natural, non-repeating beauty.

WHAT'S BEHIND THE BEAUTY IS *Genius*

Every region of North America presents challenges to the exterior of your home. Mother Nature's fury is universal.



With the damaging effects of sun, hail, gale-force winds and freeze and thaw cycles, roofing materials are at odds with the weather year-round.



DaVinci's unique composite construction outperforms both natural slate and cedar shake with a Class A Fire Rating, Class 4 Impact Rating and a 110 MPH

Wind Rating. But the real genius of a DaVinci roof lies in its ability to provide lasting beauty and a constant source of pride.



DaVinci roof tiles are constructed of a composite material made of pure virgin resins, UV and thermal stabilizers as well as a highly-specialized fire retardant. The result is a state-of-the-art tile that gives us the greatest degree of color control and consistency in the manufacturing process and an end product that endures beautifully in any climate.

VS. NATURAL SHAKE

Unfortunately, the long-haired performance attributes of cedar shake have disappeared along with old-growth trees. Rotting, cracking and curling is inevitable. In most climates, cedar shake has a lifespan comparable to (or even less than) asphalt. DaVinci composite tiles give you the look you love with superior durability for a lifetime.



DaVinci roofing tiles are proudly manufactured in Lenexa, Kansas.

VS. NATURAL SLATE

Like a rock? Slate tiles are not immune to the ravages of time...or hail. Its tiny fissures make natural slate susceptible to damage caused by freeze and thaw cycles. DaVinci slate products defy the elements for decades of enduring and worry-free beauty.

Our commitment TO COLOR

Nobody offers you more color options than DaVinci—your only limitation is your imagination.

Our industry-leading standard color palette is just the beginning. As our name implies, our ability to blend colors and create drama is unparalleled. So whether you're selecting a single color or opting for one of our expertly-crafted VariBlends,™ we've got you covered.

When it comes to bringing out the best in your home...leave it to DaVinci.

JUST LIKE NATURE

DaVinci's proprietary VariBlend™ manufacturing process creates subtle color variations from one tile to the next. The nuanced shifts result in the most natural-looking composite roof you can buy.

Our color blend options consist of as few as one to as many as eight individual colors to create a dynamic range of results.

THE DAVINCI NATURE CRAFTED COLLECTION™



The DaVinci Nature Crafted Collection is our most ambitious foray into color development to date. Our advanced technology has simulated the warmth and softness of a patina previously only created by time and exposure to the elements. Our Nature Crafted Collection captures the look of a moment and retains it for decades.

Look for the Nature Crafted Collection symbol and experience the industry's most advanced color technology yet.



Cool roofs BUILT TO BE COOL AND STAY THAT WAY

DaVinci Cool Roof tiles reflect sunlight and heat away from the home. Higher emissivity and reflectivity rates lead to greater reductions in the cooling load and in return increase energy efficiency.



Look for the Cool Roof symbol for options that can increase energy efficiency in your home.



COLORMYROOF.COM

THE TOP DOWN COLOR™ VISUALIZER

See for yourself how your color options enhance your home's curb appeal. This powerful tool lets you upload an image and experiment with color combinations of roofing, trim and more.



TALK TO A COLOR EXPERT

We want to help you be absolutely sure that your DaVinci roof is exactly what you envisioned.

Our color consultant will answer your color questions and offer advice to guide you through the process of choosing a color blend to complement your home beautifully.



Email our color expert at
coloradvice@davinciroofscapes.com

YOUR HOME WAS MADE
FOR CEDAR OR SLATE

DaVinci was made for your home

THIS IS FOR KEEPS

It's easy to fall in love with the look of natural slate or cedar shake. Their beauty is at the heart of many architectural styles, old and new. DaVinci gives you the look you want and so much more: resistance to impact, splitting and cracking as well as a Class A fire rating and the peace of mind that comes with a Lifetime Warranty.

Visual VERSATILITY

DaVinci offers the beauty of natural slate and cedar shake in different tile options, giving you the ability to meet your aesthetic vision as well as respect your budget.



MULTI-WIDTH

Our most authentic-looking and versatile option, DaVinci's Multi-Width tiles set the high mark for luxury. Laying tiles of multiple widths in a straight or staggered pattern creates the most natural, non-repeating appearance possible.

MULTI-WIDTH SLATE Page 12
MULTI-WIDTH SHAKE..... Page 22



SELECT SHAKE

Created from real cedar profiles, Select Shake gives your home the beauty of authentic wood while remaining maintenance-free. The versatile design provides a worry-free, best-in-class roof that speeds up installation with the look of multi-width shake.

SELECT SHAKE Page 24



SINGLE-WIDTH

Single-width tiles add a budget-friendly touch of tradition to your home in either a straight or staggered pattern. The uniform tile size and impact-resistant composite construction work to reduce waste and speed up installation.

SINGLE-WIDTH SLATE Page 14
SINGLE-WIDTH SHAKE..... Page 26



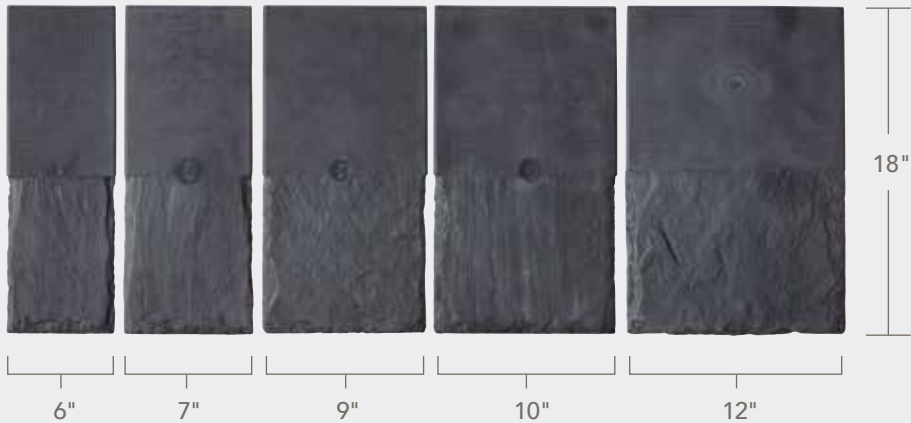
PROVINCE

The inspired engineering of Province makes uncommon beauty considerably more attainable. Its innovative design requires less overlap (reducing waste and cost), making it a stylish upgrade that won't bust the budget.

PROVINCE SLATE Page 16

DAVINCI SLATE

Historically, attaining the luxurious look of natural slate hasn't been easy. The cost, the weight and the required army of skilled tradesmen made the installation process complicated and costly. Thanks to the genius of DaVinci, the look of slate is more viable than ever.



MULTI-WIDTH

Multi-width tiles provide the greatest degree of authenticity and flexibility.



SINGLE-WIDTH

Single-width tiles reduce material and speed up installation time without compromising style.



PROVINCE

The look of slate at a fraction of the cost and weight.



CHARLESTON, SOUTH CAROLINA



Picturesque Charleston is no stranger to hurricanes and heat. In addition to some nasty storms and high winds, its hot muggy summers can produce thick rafts of moss.

MULTI-WIDTH SLATE



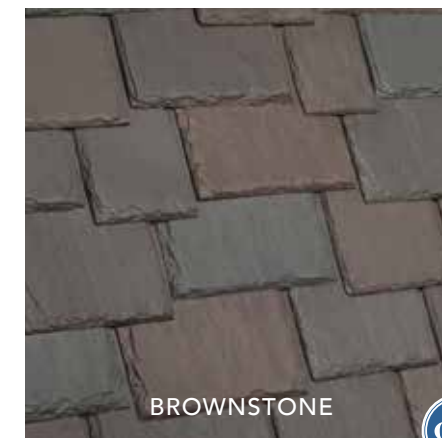
MULTI-WIDTH SLATE
EUROPEAN

A perfect match.

The picture of elegance. DaVinci's Multi-Width Slate delivers the highest levels of beauty without the typical challenges of a natural slate roof. Our tiles are engineered to be lighter, to resist impact and to maintain their color longer. It's hard to beat Mother Nature, but DaVinci has done it.



ABERDEEN



BROWNSTONE



CANYON

MULTI-WIDTH
SLATE



CASTLE GRAY



EUROPEAN



EVERGREEN



SLATE BLACK



SLATE GRAY



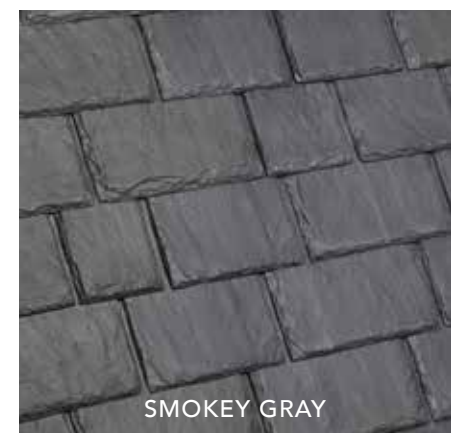
SONORA



VINEYARD



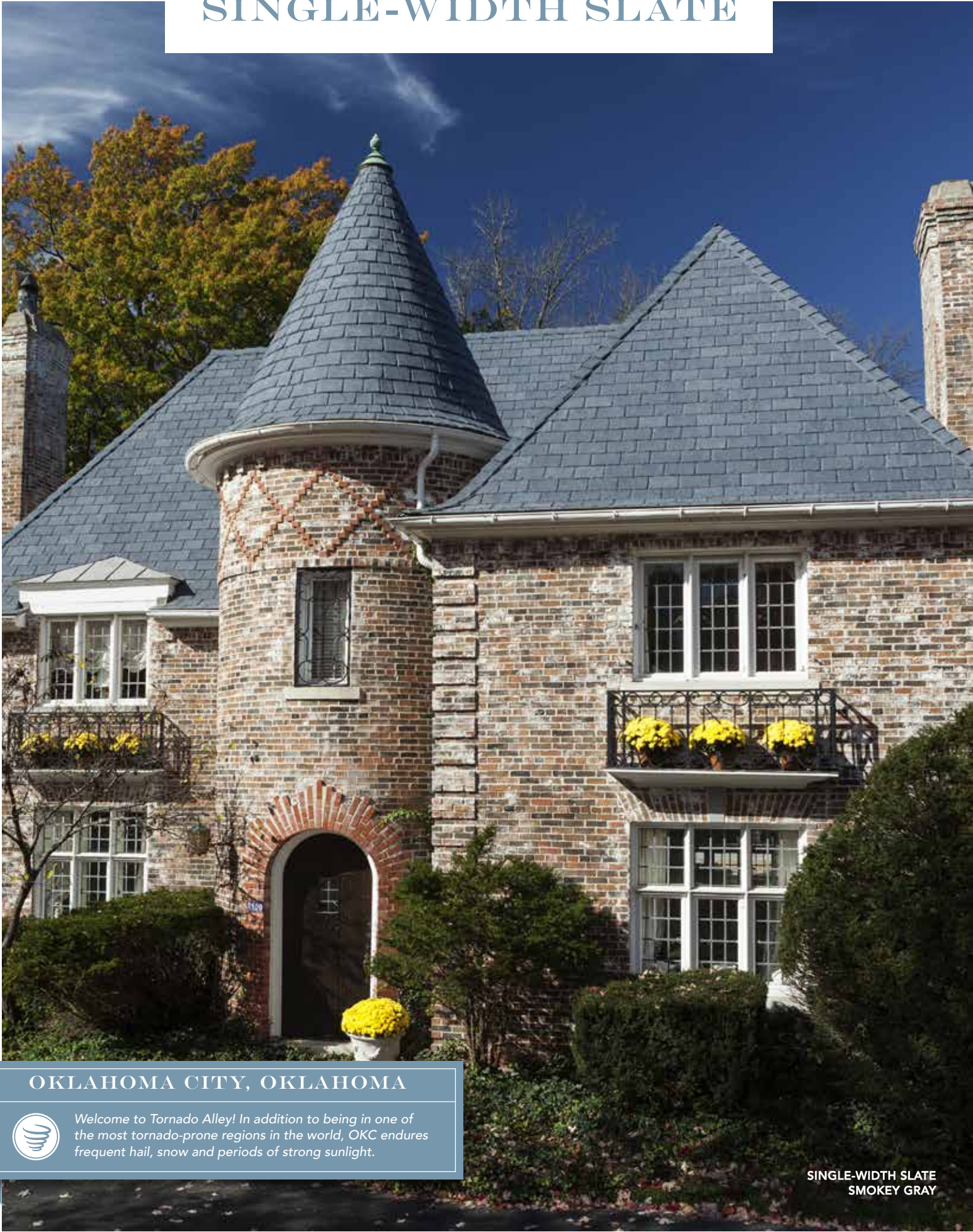
WEATHERED GREEN



SMOKEY GRAY

CR ALSO AVAILABLE
IN COOL ROOF COLOR

SINGLE-WIDTH SLATE



OKLAHOMA CITY, OKLAHOMA



Welcome to Tornado Alley! In addition to being in one of the most tornado-prone regions in the world, OKC endures frequent hail, snow and periods of strong sunlight.

SINGLE-WIDTH SLATE
SMOKEY GRAY

It feels right.

Some homes were created with the promise of a slate roof in mind. DaVinci’s Single-Width Slate delivers on that promise with its astonishing versatility. Our single-width tile construction streamlines installation but still enables the flexibility of straight or staggered appearances.



BROWNSTONE



SONORA



EUROPEAN



CANYON



SLATE BLACK



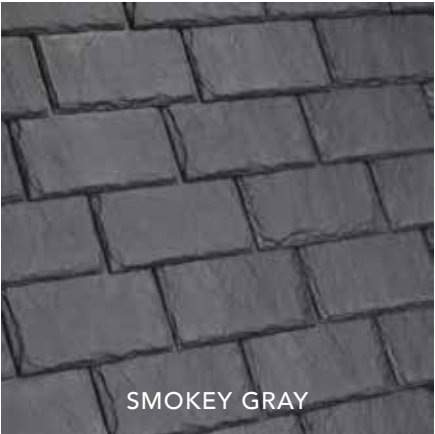
SLATE GRAY



EVERGREEN



CASTLE GRAY



SMOKEY GRAY



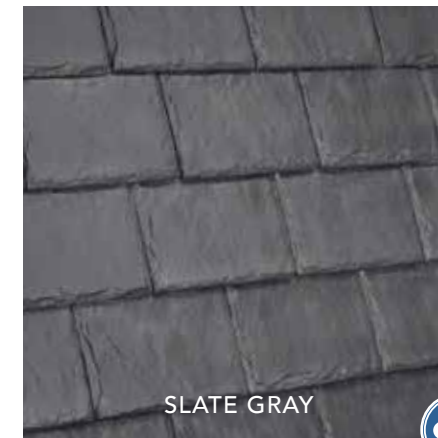
ALSO AVAILABLE
IN COOL ROOF COLOR

PROVINCE SLATE

*We've gone back to the past to ensure
a beautiful future for your home.*

Province Slate tiles add the classic look of authentic slate to any residence. Just as important, low maintenance makes life easier for homeowners and fade-resistant color stability assures long-lasting beauty.

PROVINCE
SLATE



SLATE GRAY



SLATE BLACK

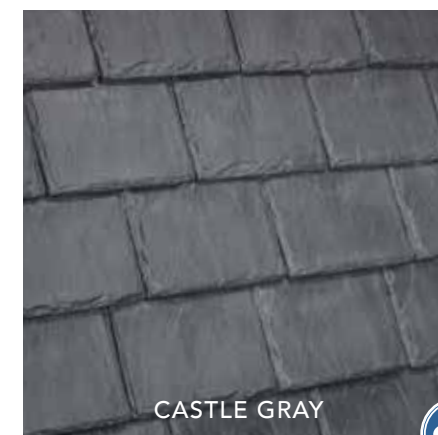


SMOKEY GRAY

“

THIS COMPOSITE PRODUCT COMES IN AT A VERY COMPETITIVE PRICE POINT WITHOUT ANY SACRIFICE IN QUALITY OR PERFORMANCE. HOMEOWNERS LIKE THAT IT MATCHES THE LOOK OF A SINGLE-WIDTH SLATE OPTION WHILE ADDING VALUE TO THEIR HOME.

RYAN, ROOFING CONTRACTOR



CASTLE GRAY



EUROPEAN



BROWNSTONE



ALSO AVAILABLE
IN COOL ROOF COLOR

MELBOURNE, FLORIDA



Particularly vulnerable to hurricanes, coastal Melbourne also faces the challenges of high winds leading to potential inland wildfire spread.

PROVINCE SLATE
SLATE BLACK

SLATE GALLERY



PROVINCE SLATE
SLATE GRAY

“

DAVINCI SLATE FITS WELL WITH MY TRADITIONALLY-BASED AND FRENCH PROVINCIAL DESIGNS. HOMEOWNERS REALLY LIKE THE DETAILED LOOK AND APPRECIATE THE LOW-MAINTENANCE APPEAL.

CHRISTOPHER, RESIDENTIAL ARCHITECT



SINGLE-WIDTH SLATE
CUSTOM COLOR BLEND



MULTI-WIDTH SLATE
SLATE GRAY



MULTI-WIDTH SLATE
EUROPEAN



SINGLE-WIDTH SLATE
SLATE BLACK

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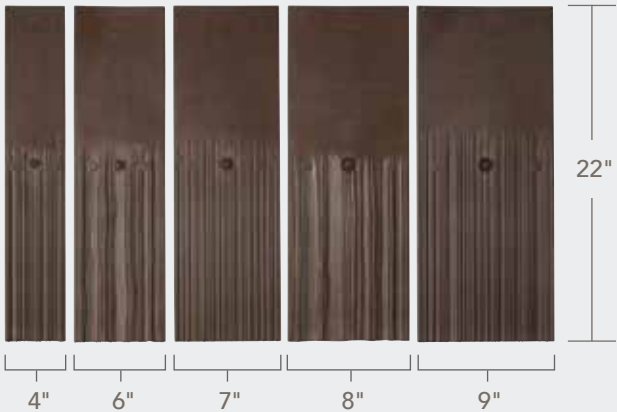
AFTER TERRIBLE HAIL STORMS DEVASTATED HUNDREDS OF HOMES IN OUR AREA, WE BEGAN SEEING MANY IMPACT-RESISTANT DAVINCI COMPOSITE ROOFS INSTALLED. WE WANTED A WORRY-FREE, BEAUTIFUL, BEST-IN-CLASS ROOF THAT COULD WITHSTAND FUTURE STORMS, AND WE GOT IT WITH OUR NEW DAVINCI ROOF.

JULIE, HOMEOWNER

SLATE

DAVINCI SHAKE

If you love the look of cedar shake, there’s no reason to shy away from it. Whether you’re building a new home or replacing an existing shake roof, DaVinci eliminates the pesky concerns of ongoing maintenance and lets your heart get exactly what it wants.



MULTI-WIDTH

Achieve the authentic look of rough-hewn, hand-split cedar shake with subtle color shifts and randomly-staggered overlaps.



SELECT SHAKE

Our versatile design replicates the look of authentic cedar on 8" and 10" tiles for a best-in-class roof.



SINGLE-WIDTH

The tidy and uniform appearance is a popular choice for a wide range of architectural styles.



SHAKE

ATLANTA, GEORGIA



Atlanta’s hot and humid summers and frequent rainstorms set the stage for wood rot.

MULTI-WIDTH SHAKE

Everything you love about shake...
without the headaches or the heartaches.

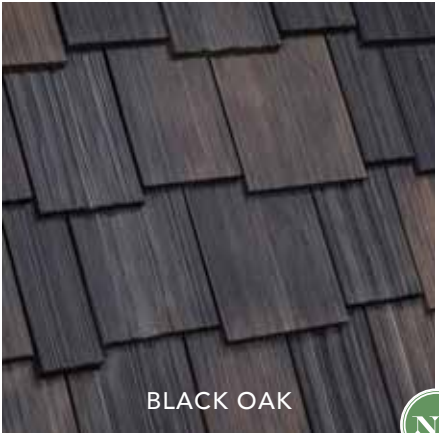
DaVinci Multi-Width Shake recalls the craftsmanship and authenticity of natural, hand-split cedar shake with the advantages of color stability and a lifetime warranty. These deep-grained, multiple-width tiles are available in nine standard color blends.



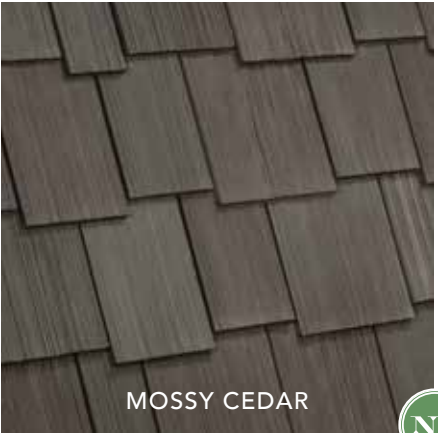
MULTI-WIDTH SHAKE
TAHOE



AGED CEDAR



BLACK OAK



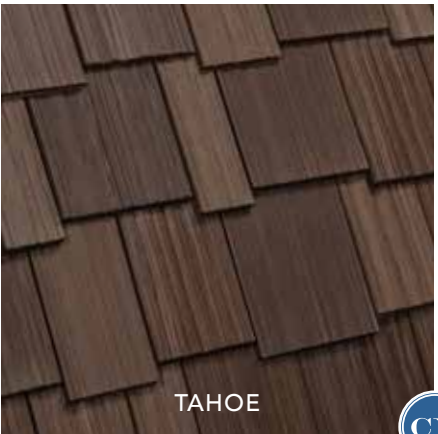
MOSSY CEDAR



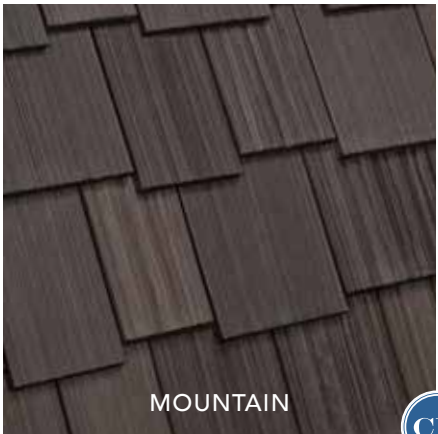
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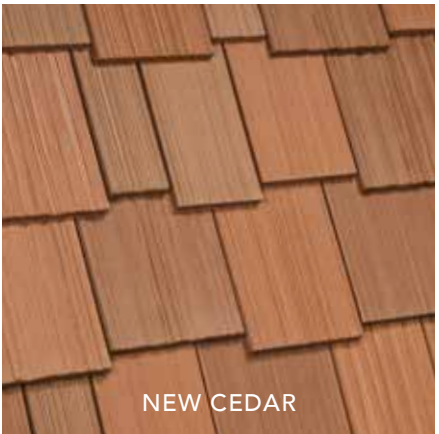
CHESAPEAKE



TAHOE



MOUNTAIN



NEW CEDAR



WEATHERED GRAY



ALSO AVAILABLE
IN COOL ROOF COLOR



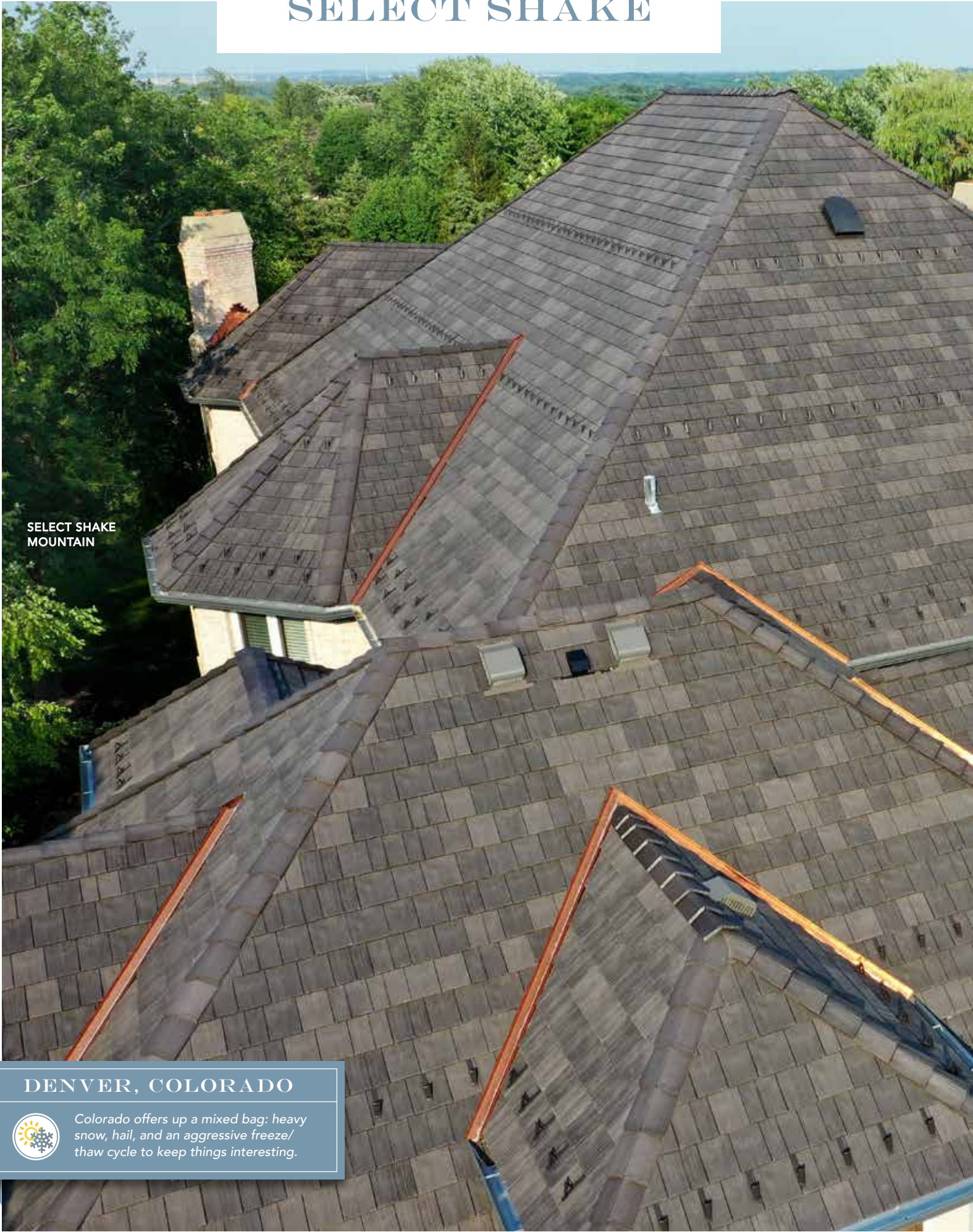
NATURE CRAFTED
COLLECTION™



CHICAGO, ILLINOIS

The Windy City probably got its name from an abundance of political banter. Nevertheless, Chicago faces its share of winter weather and a violent freeze and thaw cycle.

SELECT SHAKE



SELECT SHAKE
MOUNTAIN

DENVER, COLORADO



Colorado offers up a mixed bag: heavy snow, hail, and an aggressive freeze/thaw cycle to keep things interesting.

*The beauty of natural shake...
but ours is for keeps.*

DaVinci's Select Shake provides the craftsmanship and authenticity of natural, hand-split cedar shake with the advantages of color stability and a lifetime warranty. Meet your vision and make your dream home a reality with our versatile design.



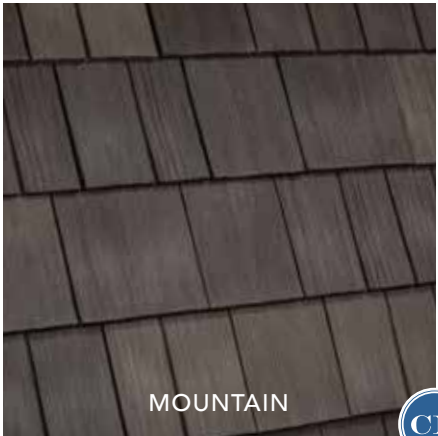
AGED CEDAR



BLACK OAK

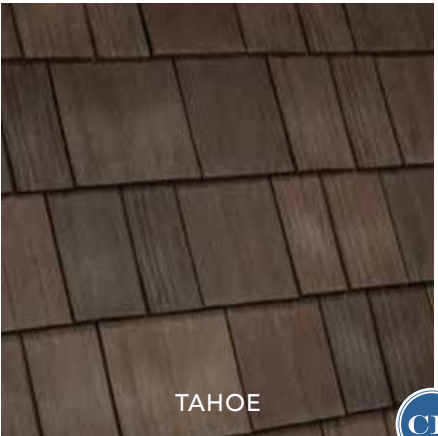


MOSSY CEDAR



MOUNTAIN

IF YOU'RE LOOKING
FOR A WORRY-FREE,
BEAUTIFUL,
BEST-IN-CLASS ROOF
THAT CAN
WITHSTAND STORMS,
LOOK TO DAVINCI.



TAHOE



CHESAPEAKE



AUTUMN



WEATHERED GRAY



ALSO AVAILABLE
IN COOL ROOF COLOR



NATURE CRAFTED
COLLECTION™

SINGLE-WIDTH SHAKE



SINGLE-WIDTH SHAKE
BLACK OAK

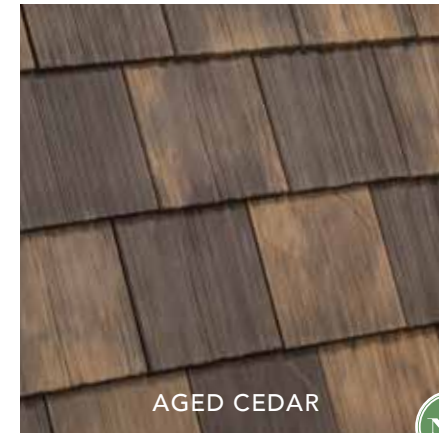
LOCH LLOYD, MO



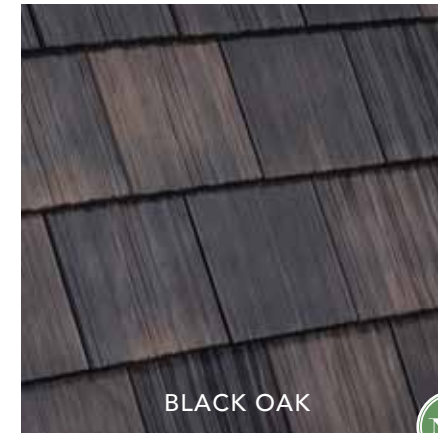
From cool winters to long, hot summers, Missouri's interior location causes extremes in weather.

The look of cedar shake has never been easier.

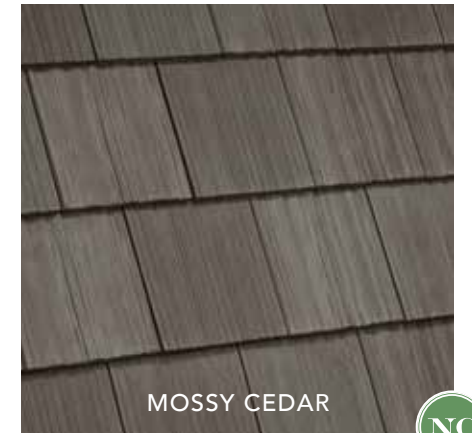
Single-width shake delivers the varied textures and natural visual shifts in color and shading that occur with real hand-split cedar.



AGED CEDAR



BLACK OAK



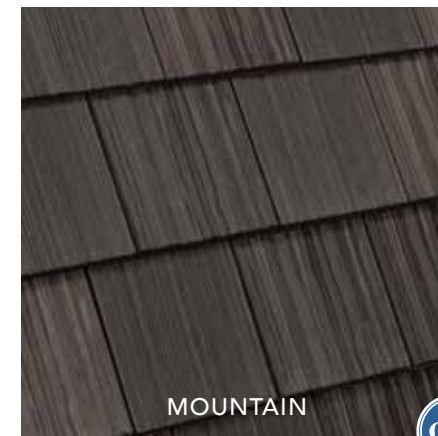
MOSSY CEDAR



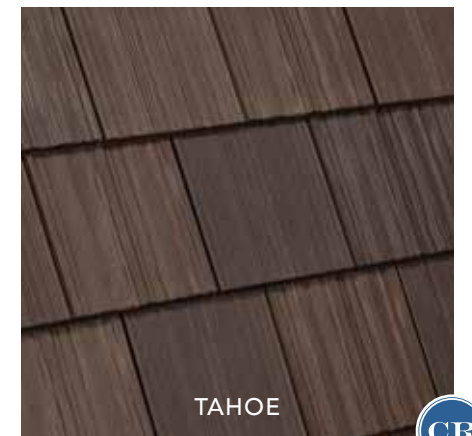
“

IT IS ONE OF THE MOST FLAWLESSLY REPLICATING PRODUCTS OUT THERE, AND WE'VE LOOKED AT ALL OF THEM, BELIEVE ME.

DANIEL, RESIDENTIAL ARCHITECT



MOUNTAIN



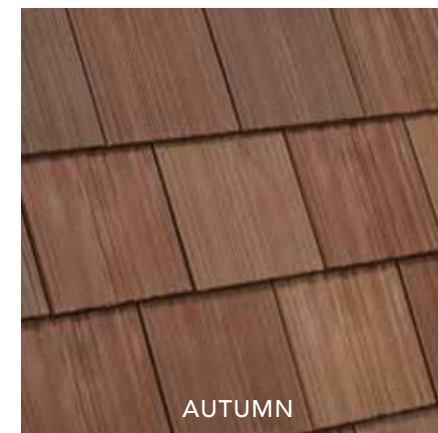
TAHOE



CHESAPEAKE



ALSO AVAILABLE IN COOL ROOF COLOR



AUTUMN



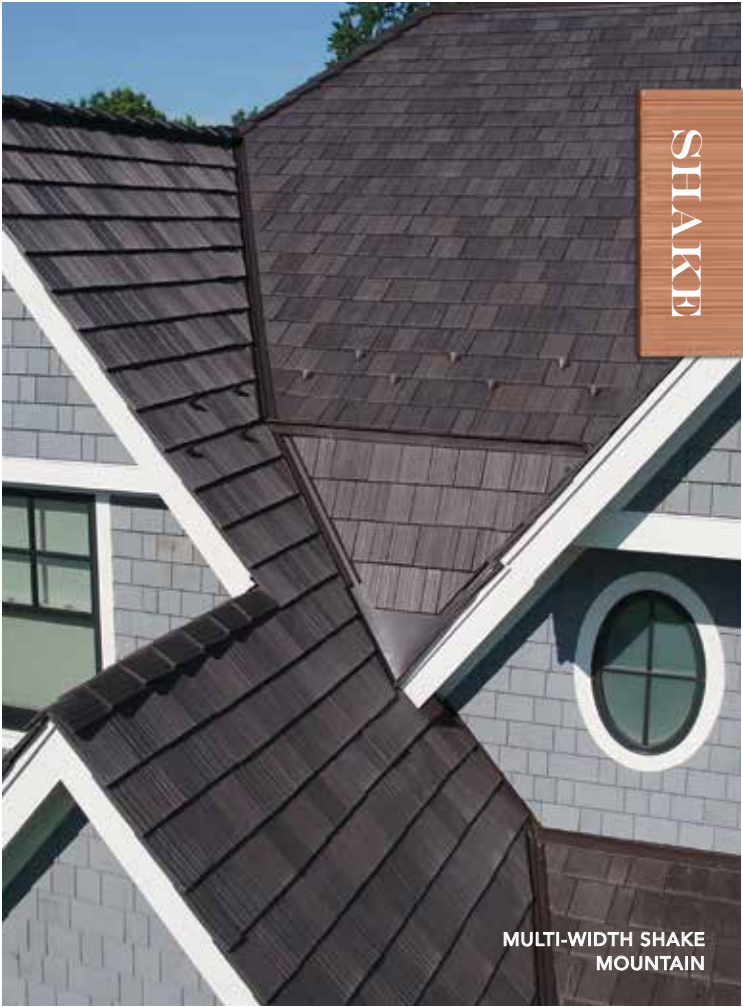
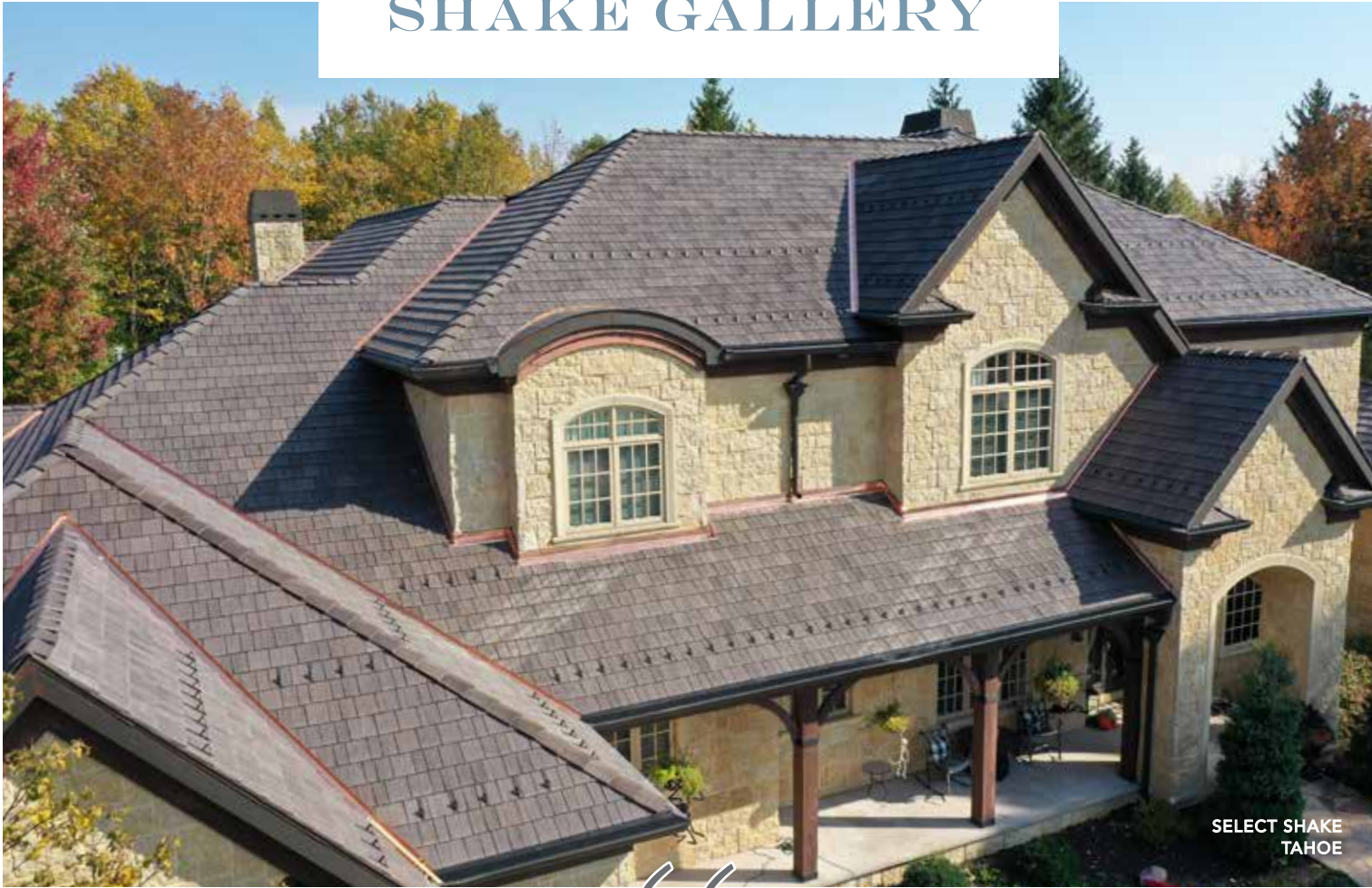
NATURE CRAFTED COLLECTION™



WEATHERED GRAY



SHAKE GALLERY



“
MY DAVINCI ROOF
WAS DEFINITELY THE
SMART CHOICE.

DAVID, HOMEOWNER

“
THE ROOF IS LIKE A CANVAS. THE DESIGN, COLORS,
PRODUCTS AND ACCESSORIES WE USE HELP US CREATE A
CUSTOMIZED PIECE OF ART FOR EVERY HOMEOWNER.

JEFF, ROOFING CONTRACTOR



A ROOF DOESN'T GET ANY BETTER THAN *DaVinci*

	DAVINCI	ASPHALT	NATURAL SLATE	NATURAL SHAKE
WIND RESISTANT	●	●	●	●
FIRE RESISTANT	●	●	●	●
IMPACT RESISTANT	●	●	●	●
FREEZE/THAW RESISTANT	●	●	●	●
MAINTENANCE-FREE	●	●	●	●
COLOR-FADE RESISTANT	●	●	●	●
LIGHTWEIGHT	●	●	●	●

When it comes to roofing materials, you've got plenty of options...and none better than a DaVinci composite roof. DaVinci composite roofing tiles blend state-of-the-art materials with an artist's touch. You won't find a better looking or better performing roof at any price.

- STRENGTH
- AVERAGE
- WEAKNESS

Building Code & Testing Approvals: ICC-ES ESR-2119; Miami-Dade County, FL; CA Title 24; Texas Dept. of Insurance; LEED contribution; Class A Fire; Class 4 Impact; WUI; and CCMC 14094-R

THE *Complete* PACKAGE

For a finished look and a lifetime of enhanced performance, DaVinci makes a full offering of specialized accessory pieces in every standard color we offer.



HIP & RIDGE TILES ONE-PIECE



HIP & RIDGE TILES TWO-PIECE



RAKE TILES



TURRET KITS

TECHNICAL SPECIFICATIONS

DaVinci Slate

	WIDTHS	THICKNESS AT BUTT	WEIGHT/SQUARE
MULTI-WIDTH	12", 10", 9", 7", 6"	1/2"	8" (266 lbs), 7.5" (283 lbs), 7" (304 lbs), 6" (354 lbs)
SINGLE-WIDTH	12"	1/2"	8" (275 lbs), 7.5" (294 lbs), 7" (315 lbs), 6" (367 lbs)
PROVINCE	12"	5/8"	8" (193 lbs)

DaVinci Shake

	WIDTHS	THICKNESS AT BUTT	WEIGHT/SQUARE
MULTI-WIDTH	9", 8", 7", 6", 4"	5/8"	10" (300 lbs), 9" (333 lbs)
SINGLE-WIDTH	9"	5/8"	10" (297 lbs), 9" (330 lbs)
SELECT SHAKE	8", 10"	5/8"	10" (284 lbs), 9" (316 lbs)

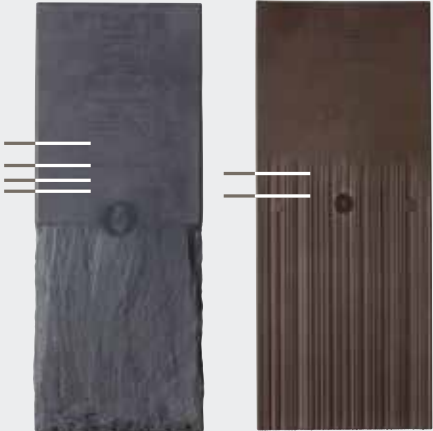
Testing Summary

See DaVinciRoofscapes.com for the most up-to-date testing and certifications.

	STANDARD	RESULTS
FIRE TEST	ASTM E 108	Class A
IMPACT TEST	UL 2218	Class 4
WIND TEST	ASTM D 3161	Certified to 110 mph
HIGH VELOCITY HURRICANE ZONE	TAS 125	Up to 180 mph

CREATING EXPOSURE

Straight or staggered tile coursing is a personal choice. Although budget and architectural style will enter into the equation, personal preference is typically the final determining factor. With DaVinci Multi-Width and Single-Width tiles, you have the greatest ability to vary tile placement. Province Slate tiles must be installed at an 8" exposure.



Multi-Width and Single-Width Slate can be installed at 6", 7", 7½" and 8" exposure.

Multi-Width, Single-Width, and Select Shake can be installed at 9" and 10" exposure.



WE KEPT EVERYTHING YOU LOVE... *and made it better.*

It's no wonder people are drawn to the timeless good looks of slate tile and cedar shake. The allure is unmistakable. A DaVinci composite roof lives up to the look of nature, but does so without the ongoing maintenance, repairs and replacement.

At DaVinci, we made a good thing better:

Resistant to fading, rotting, cracking and pests

Stands up to wind, hail and fire as well as or better than natural materials

Enjoy the peace of mind that comes with a Lifetime Limited Material Warranty

Every tile reflects the artistry and the genius of DaVinci himself



LOOKING FOR ASSISTANCE?

We're ready to help.

If you have questions, feel free to contact us directly.

A DaVinci Project Specialist will answer any questions you have concerning product differences, color selection, project timing and contractor selection.



800-328-4624



DAVINCI ROOFSCAPES

13890 West 101st Street | Lenexa, Kansas 66215 | 800-328-4624

DAVINCIROOFSCAPES.COM

©2023 DaVinci Roofscapes, a Westlake Company

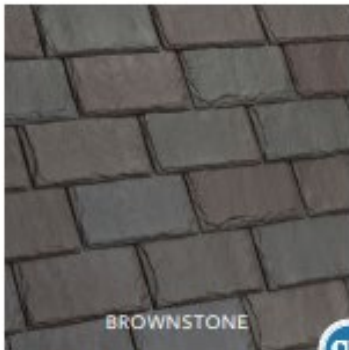
*Printing reproduction of colors shown in this brochure may vary from actual product.
For product warranty details, please visit DVroof.com/warranty. The warranty found
there is the sole warranty applicable to DaVinci products.*

Westlake
Royal Building Products™

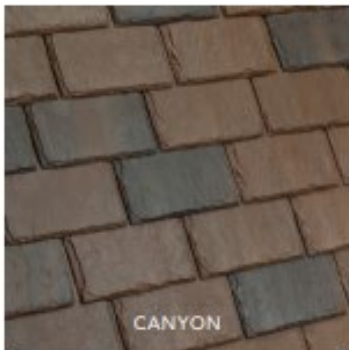
MLDVBRO2018 - 05/2023

SINGLE-WIDTH SLATE

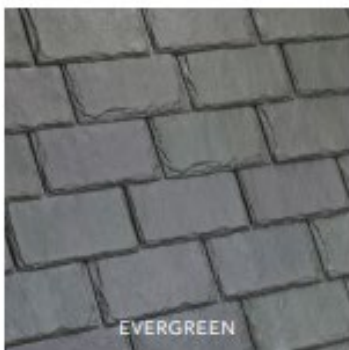
DaVinci's Single-Width Slate delivers astonishing versatility. Our single-width tile construction streamlines installation but still enables the flexibility of straight or staggered appearances.



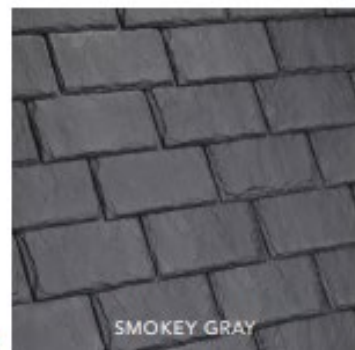
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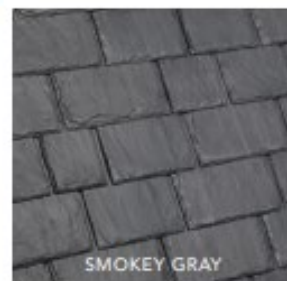
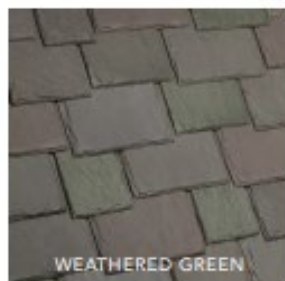
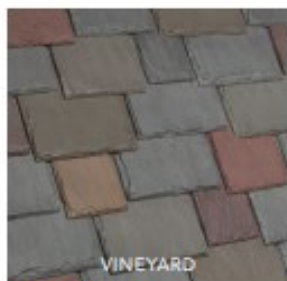
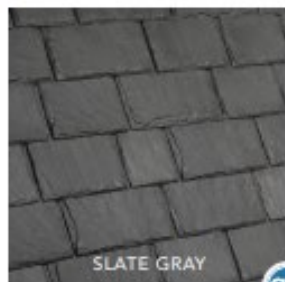
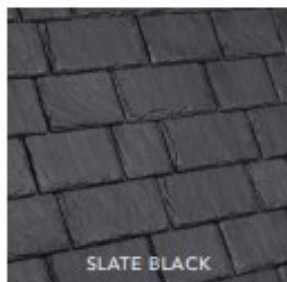
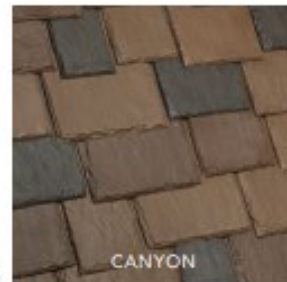
OR

ALSO AVAILABLE
IN COOL ROOF COLOR

SINGLE-WIDTH SLATE

MULTI-WIDTH SLATE

DaVinci's Multi-Width Slate delivers the highest level of beauty without the typical challenges of a natural slate roof. Our tiles are engineered to be lighter, to resist impact and to maintain their color longer.

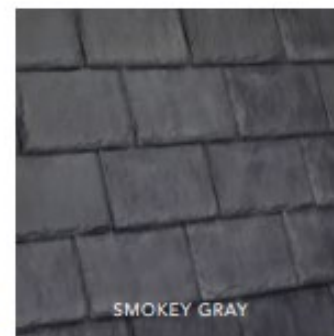
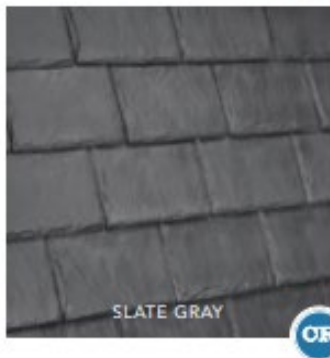
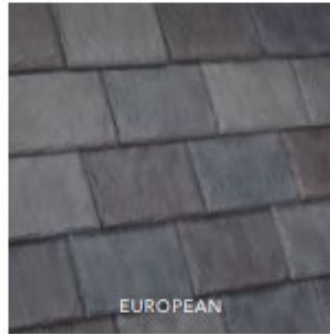
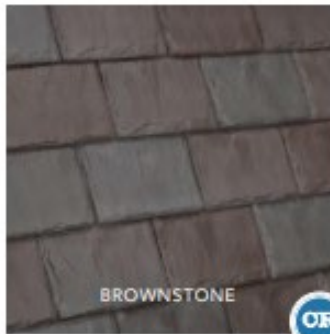


ALSO AVAILABLE
IN COOL ROOF COLOR

MULTI-WIDTH SLATE

PROVINCE SLATE

DaVinci's Province Slate is a new line of stunning single-width tile that replicates traditional slate with extraordinary accuracy.



ALSO AVAILABLE
IN COOL ROOF COLOR

PROVINCE SLATE

16 PRESERVATION BRIEFS

The Use of Substitute Materials on Historic Building Exteriors

John Sandor, David Trayte, and Amy Elizabeth Uebel



National Park Service
U.S. Department of the Interior
Technical Preservation Services

The *Secretary of the Interior's Standards for Rehabilitation* generally require that deteriorated distinctive architectural features of a historic property be repaired rather than replaced. Standard 6 of the *Standards for Rehabilitation* further states that when replacement of a distinctive feature is necessary, the new feature must “match the old in composition, design, color, texture, and other visual properties, and, *where possible*, materials” (emphasis added). While the use of matching materials to replace historic ones is always preferred under the *Standards for Rehabilitation*, the Standards also purposely recognize that flexibility may sometimes be needed when it comes to new and replacement materials as part of a historic rehabilitation project. Substitute materials that closely match the visual and physical properties of historic materials can be successfully used on many rehabilitation projects in ways that are consistent with the Standards.

The flexibility inherent in the *Standards for Rehabilitation* must always be balanced with the preservation of the historic character and the historic integrity of a building, of which historic materials are an important aspect. Any replacement work reduces the historic integrity of a building to some degree, which can undermine the historic character of the property over time. With limited exceptions, replacement should only be considered when damage or deterioration is too severe to make repair feasible. When needed replacement is made with a material that matches the historic material, the impact on integrity can be minimal, especially when only a small amount of new material is needed. When a substitute material is used for the replacement, the loss in integrity can sometimes, although not always, be greater than that of a matching material. Also, whether historic or substitute material, there is a point where the amount of replacement can become excessive and the building's historic integrity is diminished to an unacceptable degree, regardless of the material used—that is, a loss of authenticity and the physical features and characteristics closely associated with the property's historic significance.

The term *substitute materials* is used to describe building materials that have the potential to match the appearance, physical properties, and related attributes of historic materials well enough to make them alternatives for use in current preservation practice when historic materials require replacement.

Compelling reasons to use a substitute material instead of the historic material include the unavailability or poor performance of the historic material, or environmental pressures or code-driven requirements that necessitate a change in material. When using a substitute material for replacement it is critical that it match the historic material in all of its visual and physical properties to preserve the historic character of the building and minimize the impact on its integrity.

Substitute materials can be cost-effective, permit the accurate visual duplication of historic materials, and provide improved durability. While the behavior of traditional, historic materials is generally well understood, the behavior of newer materials can be less established and sometimes less predictable. Substitute materials are most successful when the properties of both the original material and the substitute are thoroughly understood by all those involved in the design and construction process. The architect must be adept at the selection of substitute materials and their incorporation into architectural plans and specifications. The contractor or tradesperson in the field must also be experienced with their use.

This Preservation Brief provides general guidance on the use of substitute materials as replacement materials for distinctive features on the exterior of historic buildings. Due to the ever-evolving product market for construction materials, this Brief does not provide specifications for substitute materials. This guidance should be used in conjunction with qualified professionals who are knowledgeable in current construction and historic preservation practices.

This Brief includes a discussion of the appropriate use of substitute materials and provides a path for decision-making in their use. In considering the use of substitute materials, such issues as the deterioration or failure of the historic building component and material must be understood. The existing component's physical and visual properties, profile, surface texture, dimensions, and performance should be identified to establish the basis for evaluating a possible replacement material. The physical and visual properties of the various substitute materials available should also be assessed and compared to the original material for their physical and visual compatibility. Lastly, the suitability of a given substitute replacement material should be determined based on how well the material matches both the physical and visual properties of the existing material as well as any specific performance or application needs. The Brief's descriptions of common substitute materials are not meant to be comprehensive, and, as the performance history of newer materials continues to grow and new materials are developed, available options will change, and our understanding of current material performance will continue to evolve.

Historical Use of Substitute Materials

The tradition of using affordable and common materials in imitation of more expensive and less available materials is a long one. At Mount Vernon, for example, George Washington used wood painted with sand-impregnated paint to imitate rusticated stone. This technique, along with scoring stucco into block patterns, was common in Colonial America to imitate stone.

Nineteenth-century technology made a variety of materials readily available and widely used that were not only able to imitate traditional materials but were also cheaper to fabricate and easier to use. Traditionally, carved stone units were individually worked. Molded or cast materials greatly increased efficiency in creating repetitive elements. Cement-based products such as cast stone could provide convincing imitations of natural stone with carefully chosen aggregates and cements and was typically a commercially manufactured product. It could be tooled like natural stone, though that could reduce much of the cost advantage. These carefully-crafted cementitious products were widely used as trim elements for masonry structures or as the face material for an entire building. At the other end of the spectrum, mail-order catalogs provided a wide variety of forms for molding concrete that were merely evocative of natural stone and did little to match its appearance. Concrete masonry units could be fabricated locally and on site, avoiding expensive quarrying and shipping costs.

Offering similar efficiencies as cast stone for reproducing repetitive and even complex decorative shapes, terra cotta could mimic the surface characteristics of stone with various textures and glazes. It was popular in the late nine-

teenth and early twentieth centuries for details on stone or brick buildings as well as for the entire skin of large and elaborately detailed buildings.

Cast iron was also used to imitate stone, often with very decorative profiles, for a variety of architectural features ranging from window hoods to columns, piers, balustrades, and even whole façades. Cast iron offered its own set of efficiencies including cost, fabrication time, and weight, but required a painted finish.

While cast stone, terra cotta, and cast iron offered efficiencies over quarried and, particularly, carved stone, they were not cheap or impermanent materials. Less costly, but also less durable, stamped or brake-formed sheet metal, typically galvanized, could also be used instead of masonry for cornices, window hoods, roofing tiles, and even entire building façades.

Substitute Materials and Applying the Standards for Rehabilitation

The *Standards for Rehabilitation* are focused on preserving the important and distinctive character-defining features of a historic property (Standards 2 and 6), and they are to be applied in a reasonable manner, taking into account economic and technical feasibility ([36 CFR 67.7](#) and [36 CFR 68](#)). The Standards have an inherent flexibility that facilitates their application to diverse projects, historic properties, and conditions. They are to be applied on a "cumulative-effect" basis, when the overall effect of all work in the context of the specific conditions of the property and the project is consistent with the property's historic character.

The *Standards for Rehabilitation* require that the replacement of a distinctive feature match the old in physical and visual properties. While the use of matching materials is always preferred, the Standards purposely allow for the use of substitute materials when the use of original materials is not reasonably possible, such as in consideration of economic and technical feasibility or in new construction. They also provide additional flexibility in the treatment of secondary, less distinctive features that are less important in defining the historic character of the property. The *Standards for Rehabilitation* recognize that flexibility is appropriate to facilitate "a compatible use for a property ... while preserving those portions or features which convey its historical, cultural, or architectural values" (definition of "Rehabilitation," [36 CFR 67.2\(b\)](#)).

Examples of Historical Use of Substitute Materials



Figure 2a: Casting concrete blocks to mimic quarried stone was a popular late 19th- to mid 20th-century technique. Concrete masonry units could be completed by local craftsman, saving time and shipping costs. Photo: John Sandor, NPS.



Figure 2b: The 19th century also produced a variety of metal products used to imitate other materials. Across the country, cast iron was used in storefronts to imitate stone. Photo: John Sandor, NPS.



Figure 2c: Stucco has been used to imitate a number of building materials for many centuries. Seen here, stucco was applied to a brick structure and scored to represent a stone façade. Photo: John Sandor, NPS.

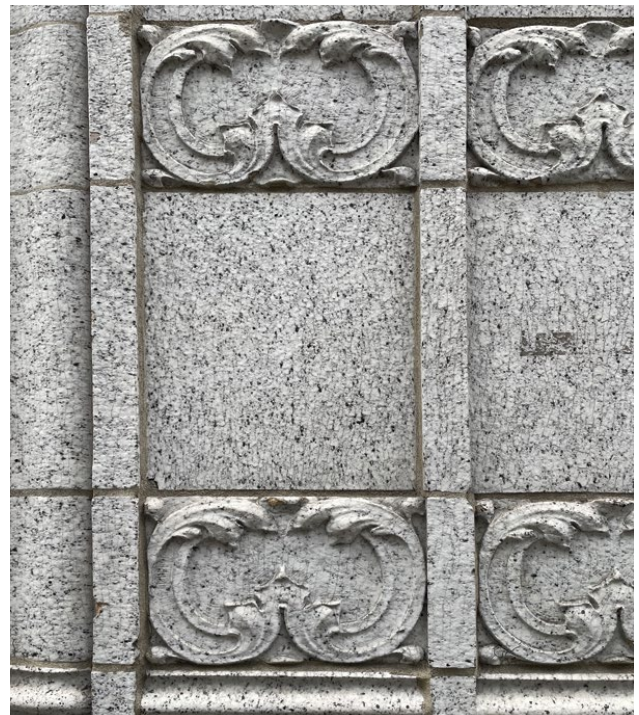


Figure 2d: Terra cotta gained popularity in the late 19th century as a cheap and lightweight alternative to stone. Glazing techniques allowed the blocks to imitate a variety of natural stone materials. Photo: John Sandor, NPS.

These examples of one material used to imitate another, more often in initial construction than for later repair and replacement purposes, are referred to as *imitative materials* in the *Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*, updated in 2017, that accompany the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. These imitative materials, while evoking other materials, usually had distinctive qualities of their own and were not always a very close match in appearance to the historic material they were meant to imitate.

Many of the traditional materials discussed above are still available and used to replace damaged or missing original features, both to replace matching historic materials and sometimes as substitute materials. Because of their extensive use over time and their known physical and chemical properties, cast stone, cast iron, and terra cotta are well understood substitute materials. This continued usage and familiarity means their installation requirements and service life are well established, which in turn makes it easier to determine when and how to use these traditional materials as substitutes for a deteriorated material. However, innovation in replacement materials continues, and new products (many of them consisting of synthetic materials) are continually introduced. These non-traditional products are an increasing part of both the new construction and rehabilitation industries. Some materials, like glass fiber reinforced polymers, glass fiber reinforced concrete, or fiber cement, have been in use long enough for an accurate prediction of their service life and performance. Other newer, non-traditional materials may be too new to have established performance records, thus, understanding their material properties is critical, and their use should be approached with more caution.

When to Consider Using Substitute Materials in Preservation Projects

According to the *Standards for Rehabilitation*, deterioration should generally be addressed through repair if in repairable condition. Repair can entail a variety of treatments that retain the unit of building material and remove and patch or replace only the damaged portion. This approach can be done with traditional methods and materials such as a dutchman, where like-kind material is precisely inserted into wood or stone, or it may employ other materials such as epoxies for wood repair or cementitious compounds for masonry. As long as the repair methods are sound and do not damage or accelerate the deterioration of the historic material, repairs are generally preferable to replacement of an entire element. More complex manufactured products, typical of more recent historic materials (as well as a lot of modern building materials generally), may be more difficult to repair, if they can be repaired at all.

There are situations, however, when the level of deterioration makes localized repairs infeasible and entire fea-



Figure 3: Incremental repair is best done using in-kind material to minimize differences in the performance characteristics that could negatively affect the overall assembly. Photo: NPS.

tures or units of historic material must be replaced. While achieving an effective match of all of the visual qualities of a material can be challenging, even when replacement is in kind, it can be even more challenging when the replacement is a substitute material. A good visual match is not the only consideration when a substitute material is to be used for incremental replacement within a larger assembly of historic material. When an individual siding board or a single block of ashlar is being replaced, it is usually best achieved with the original material. Introduction of a different material into an intact assembly requires that its inherent properties, such as expansion and contraction, moisture resistance, or permeability, be thoroughly considered relative to those of the surrounding historic materials to avoid causing damage.



Figure 4. While occasionally used to imitate other materials such as wood or slate shingle, many asbestos shingles and siding materials had their own distinct shape and profile. No longer manufactured today, alternative materials must be found to replace these materials when they are distinctive features on a historic structure. Drawing: Association for Preservation Technology, Building Technology Heritage Library.



Figure 5. (Left) Asbestos shingles were often used as a substitute for traditional slate roof shingles. The historic asbestos roof on this rehabilitation project had reached the end of its lifespan and required complete replacement. (Right) Given the limited replacement materials available to match the historic asbestos shingles, utilizing natural slate was determined to be the best visual match for the original shingles and design intent in this instance. Photos: Crosskey Architects.

Circumstances in which the use of substitute materials may generally be considered appropriate, taking into consideration technical and economic feasibility reasons, include: the unavailability of historic materials; the unavailability of skilled artisans or historic craft techniques; inadequate durability of the original materials; the replacement of a secondary feature; construction of a new addition; the reconstruction of a missing feature; code-required performance; and for enhanced resilience and sustainability:

- **Unavailability of historic material.** A common reason for using substitute materials is the difficulty in finding a good match using the historic material (particularly a problem for masonry materials where the color and texture are derived from the material itself). This may be due to the actual unavailability of the material or to protracted delivery dates, particularly if the material cannot be sourced domestically. It is not uncommon for a local quarry that is no longer in operation to have been the source of an original stone. If another quarry cannot supply a satisfactory match, a substitute material such as dry-tamp cast stone or textured precast concrete may be an appropriate alternative, if care is taken to ensure that the detail, color, and texture of the original stone are matched. Even when the color is successfully matched, the appearance of a cementitious product may diverge from that of the historic stone as the substitute material ages.

Many manufactured materials that were used historically on buildings are no longer made. Terne-plated steel, which was the material most typically used for painted standing-seam or flat-seam roofing, is no longer made. However, because it was always painted, other metals including galvanized steel or copper can generally be substituted if painted. When the historic material needing to be replaced is a manufactured product developed as an imitation of

a natural material, which was the case with asbestos shingles meant to imitate slate, the natural material may now be an appropriate substitute material to consider for the manufactured one that is no longer produced.

- **Unavailability of skilled artisans or historic craft techniques.** These two issues can complicate any preservation or rehabilitation project. This is particularly true for intricate ornamental work, such as carved wood, carved stone, wrought iron, or cast iron. While skilled craftsmen may not be as difficult to find as they once were, there can still be limitations geographically, even in finding less specialized skills, and particularly if a project is small. Technical advances have allowed some stone or wood carvers to take advantage of computerized equipment, but complex designs will likely still require hand work. It may also be possible to mimic a carved element using a material that can be cast in a mold, adding significant efficiency where an historic element survives from which a mold can be made. Options for casting include aluminum, cast stone, fiberglass, glass fiber reinforced concretes, and terra cotta, but not all carved elements can be duplicated by a casting, and mold-making and casting still require skilled craftsmen.
- **Inadequate durability of the original material.** Some historic building materials were of inherently poor quality or were not durable. In other cases, one material was naturally incompatible with other materials on the building, causing staining or galvanic corrosion. Examples of poor-quality materials are very soft sandstones, which eroded quickly, and brownstone, which is vulnerable to delamination. In some cases, more durable natural stones may be visually similar enough to stand in for these soft stones but cast stone or another material may be needed to achieve an appropriate match.

The ready availability of manufactured ornamental wood features fed a nineteenth-century taste for decorative architectural details that were often used on the exterior of buildings with little concern for how they would be affected by moisture or maintained. Even old-growth wood from decay-resistant species often could not prevent features with severe exposure from eventually needing to be replaced. Today's available commercial supplies of lumber no longer provide the denser, more decay-resistant wood of old-growth forests, so even careful matching to species, which is not always possible, will not yield a replacement equal in performance to the historic material. Old-growth wood is likely to be very expensive, if it can be found, and may not be available from a sustainable, environmentally responsible source. When features with severe exposure need to be replaced or reproduced, substitute materials that are less susceptible to decay can have a longer life, and when the feature is painted, as exterior wood features generally are, the visual effect of a substitute material can be minimal.

- **Replacement of a secondary feature.** When it is necessary to replace a less distinctive, secondary feature that is less important in defining the historic character of the property, there is more flexibility in how it can be replaced. While it may be less important to find an exact match in materials when replacing

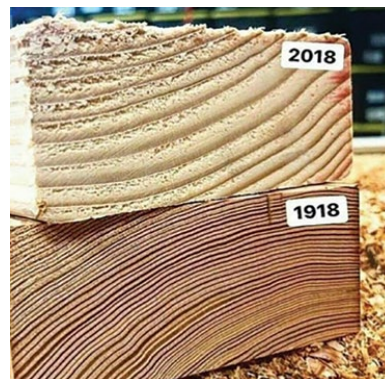


Figure 6. The dramatic difference in the number of growth rings between old-growth wood and wood that was recently harvested from second- or third-growth forests is indicative of the diminished dimensional stability and durability of most lumber currently available. Photo: Zachary Dettmore.

such a feature, the retention of the overall historic character should still guide selection of an appropriate replacement material. For example, replacing secondary features such as those with limited visibility (e.g., siding materials on a rear elevation) may permit replacement materials that are similar in appearance or character without having to be a perfect match.

- **Construction of a new addition.** The *Standards* require that new additions to historic buildings and related new construction be differentiated from the old as well as be compatible with the historic character of the property and its site and environment. Using materials that evoke, without matching, the historic material can be an effective means of achieving the needed balance between compatibility and



Figure 7. A new addition replaced non-historic construction on the rear elevation of this building. Fiber cement gives the addition a compatible appearance without replicating the exposure for thickness of the historic siding. Photo: Ward Architecture + Preservation.

differentiation for new additions and new construction. Even if differentiation is achieved through design rather than materials, there generally is no basis for requiring the use of matching historic materials for new additions and new construction as part of a rehabilitation project.

- **Reconstruction of a missing feature.**

Many buildings lose significant features over the course of their lives for reasons such as those previously discussed. When a missing feature is to be reconstructed, the importance of matching the original material may be less important to the effect replacing the missing feature may have on the overall historic character and appearance of the building. Though replacement of missing features must be substantiated by documentary, physical, or pictorial evidence, in many cases the authenticity of the material may be secondary to the overall visual qualities. The use of a more cost-effective substitute material for the construction of a missing feature can often be an important factor in the feasibility of undertaking such work.

- **Code-required performance.**

Modern building codes are regularly amended to require higher performance levels for new and existing buildings in such areas as life safety, seismic retrofits, and accessibility. Rehabilitation projects often trigger compliance with code requirements that were not in place when a building was constructed. Although building codes may often allow for the retention of historic materials and assemblies, substitute materials can offer an alternative in situations when the historic materials are non-compliant and cannot otherwise be reasonably retained. In these instances, a change in material may be appropriate to meet code requirements, while in other instances selecting the optimal code compliance method for the project may achieve code-compliant solutions that also allow for the preservation of a building's historic materials and finishes.

For example, fire codes may require increased resistance to flame spread for buildings within dense urban environments where building proximity and separation between buildings is a concern. Some substitute materials are non-combustible, have good ratings for flame spread, and can provide an alternative to help meet

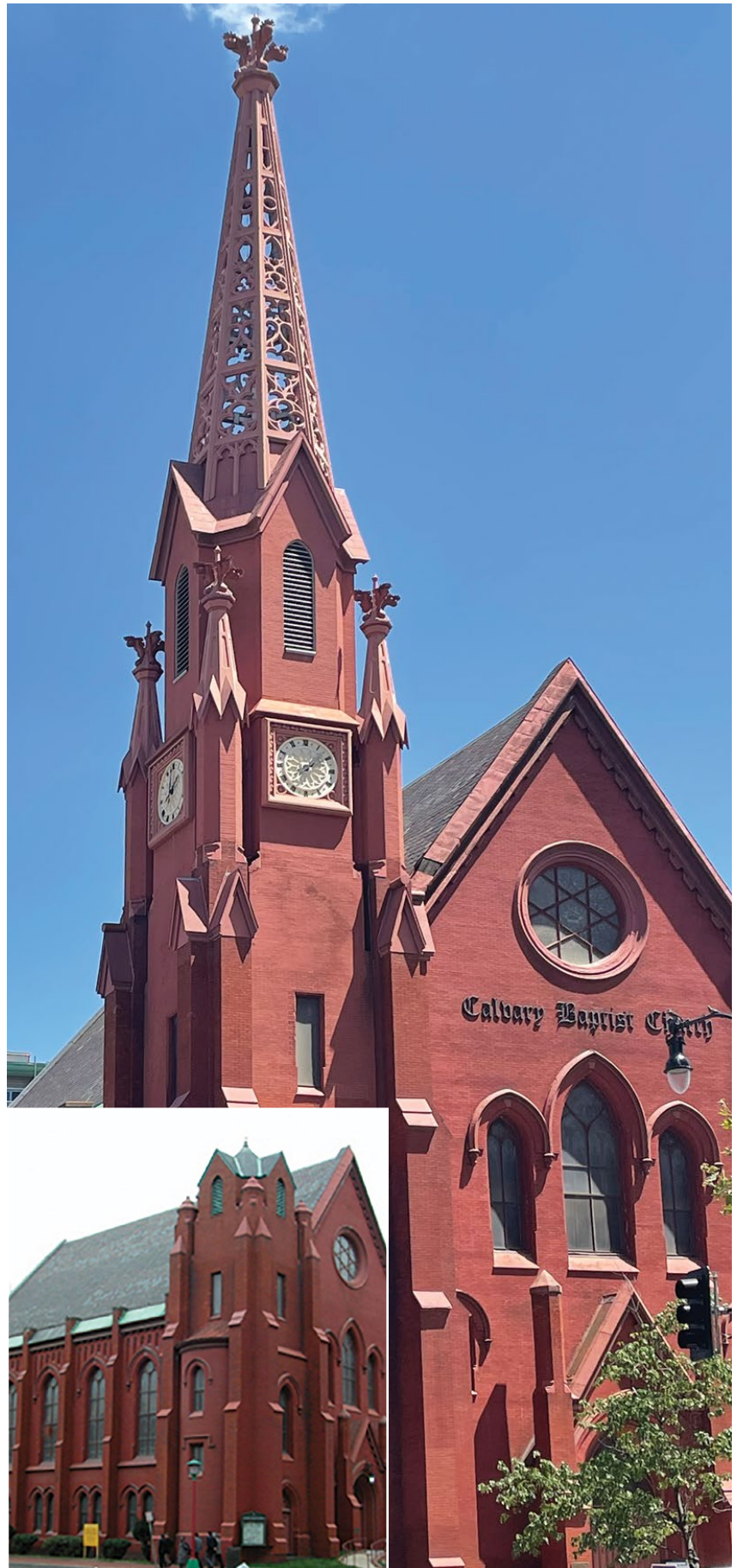


Figure 8. A long-missing cast-iron steeple was reconstructed in aluminum and fiber-reinforced polymer (FRP). Photo: John Sandor, NPS, Inset: Quinn Evans.

fire code requirements. Depending on the building component and the material, however, a substitute material may not resist fire any better than the historic material. In addressing code issues, all feasible alternatives should be considered to minimize the impact on the historic character of the building while still meeting code requirements.

With specific provisions in building code related to issues such as seismic hazards, the choice of materials for features inherently unstable in a seismic event can be a key part of a code-compliant retrofit solution. Elements at risk of falling such as parapets, finials, and overhanging cornices may be made safe by anchoring them to new structural frames. However, for some heavy masonry features, especially where there is deterioration or the feature is difficult to effectively brace, adequately anchoring the existing feature may not prove feasible. In such cases removing and replacing these features with lighter-weight replicas that incorporate a resilient structural framework can help preserve the historic character of the building while improving life safety performance.

- **Enhanced resilience and sustainability.** Wildfires, earthquakes, floods, hurricanes, and other extreme weather events put historic buildings and their occupants at risk and may require adaptive treatments that are more invasive than might be accepted in other circumstances, including related to the use of substitute materials. In these contexts, it is still necessary to try to minimize impacts on a building's historic character as much as possible while still adapting it to be more resilient. Widespread wildfires, for example, have increased demand for fire resistant materials for the exterior building envelope. Flood events may necessitate the replacement of historic materials that have been damaged or inundated with hazardous substances in contaminated floodwaters. When undertaking repairs in such circumstances, substitute materials may offer greater resilience to anticipated future exposure to natural hazard risks.

Similarly, efforts to improve energy efficiency and performance may include the use of substitute materials as replacement components when modifications to building assemblies are required and the historic materials cannot be preserved. When evaluating substitute materials in the context of sustainability objectives, factors such as the environmental impact of production, the full life cycle of products, and the embodied carbon of the materials already in place should be carefully analyzed. There may be more sustainable choices for a replacement material, including the use of more traditional materials in place of manufactured products that may consist of non-renewable resources or hazardous materials. While some synthetic substitute materials are made from recycled materials or are otherwise sustainably produced, many are not repairable, salvageable, or recyclable themselves, and

they may have shorter lifespans to their historic material counterparts. When either greater resilience or sustainability is a factor, all feasible alternatives should be considered in finding a balanced approach that maintains historic character while meeting resilience and sustainability goals.

Substitute Materials and Economic Feasibility

Economic feasibility is inevitably a concern when choosing a material for any part of a project, whether a historic or substitute material, but it should not be the sole determinant factor at the expense of maintaining the



Figure 9. Previously bricked-in openings below the flood line were reopened and new aluminum windows installed with cellular PVC trim detailed to hold back moderate flood waters and survive exposure to water. Photo: John Sandor, NPS.

historic character and historic integrity of a building. Other factors may prompt the consideration of a substitute material, such as the cost of maintaining the historic material, because it is comparatively difficult or costly to reach or access, or the frequency of required maintenance the historic material needs. Additionally, where in-kind replacement material is found to be prohibitively expensive, it may be reasonable to consider a substitute that offers an alternative and is a good physical and visual match. Not all substitute materials are, however, cost-effective replacements. Long-term durability and maintainability are other factors that should be considered in conjunction with initial cost.

Maintenance of a material, particularly where accessibility is difficult or expensive, can be an important part of a

cost evaluation. Maintenance costs should not be considered without also considering life-cycle expenses. While some substitute materials may offer reduced initial costs, they may be as or more costly than traditional materials to maintain over time. For example, many substitute materials are not readily repairable, necessitating full replacement when damaged. The cost to replace a material or assembly at the end of its lifespan may also be greater than the accumulated incremental expense to maintain the historic material, particularly if it is a more traditional, repairable material. Maintenance cost should never be the sole reason for replacing a historic material that is not deteriorated.

Criteria for the Appropriate Use of Substitute Materials

Substitute materials must meet three basic criteria to be considered: they must be compatible with the historic materials in appearance; their physical properties must be similar to those of the historic materials, or the materials must be installed in a manner that tolerates differences; and they must meet certain basic performance expectations over an extended period of time.

• Matching the Appearance of the Historic Material

Any material's appearance varies depending on the nature of the material and how it is used. Some historic materials, such as wood and ferrous metals, were typically painted, making the color of the substitute unimportant, though the texture of the surface, which telegraphs through a paint layer, is still an important consideration. Texture can be a large part of distinguishing a material formed by hand from one that is machine-made. Many historic materials, such as most building stones, are used without any coating, making the color, pattern, and reflectivity, as well as surface texture, dependent on the material itself. Matching the color and surface

characteristics of a historic natural material with a man-made substitute can often be quite difficult.

When the color and surface characteristics of an existing material are important, cleaning the material should be the starting point for evaluating a potential matching material. In situations where there are subtle variations in color and texture within the original material, the substitute material should be similarly varied so that it is not conspicuous by its uniformity. If a material is custom fabricated, a sufficient number of samples should be supplied to permit on-site comparison of color, texture, detailing, and other critical visual qualities. For a manufactured product with preset choices of color or texture, it may be necessary to look at samples from more than one manufacturer to find the best match. Similarly, prefabricated products, such as roofing slate, may offer limited, if any, choice of unit size, which can be a critical factor for achieving a good match. A substitute material should not be used to replace distinctive, character-defining materials and features if an adequate match in design and appearance is not possible.

As all exposed materials are subject to ultraviolet degradation, samples of a new material, particularly when custom formulated, should be prepared during the early planning phases to allow for evaluation of the effects of weathering on color stability. When that is not possible, or if a prefabricated product is used, the fabricator or manufacturer may be able to identify regional locations where equivalent products have been installed long enough ago to get a better sense of how the material weathers and performs.

While a perfect match is the desired goal for replacing distinctive features, it is not always possible, even when the same matching material is chosen for the replacement. When any compromise



Figure 10. Polymer slates offer a choice of shapes but not sizes, limiting their ability to achieve a good visual match for some historic slate. With the size of the polymer slates (right) being nearly twice that of the historic slates (left), the scale of the entire feature is incompatibly altered. The molded edges of this material, which contribute to its ability to replicate slate, would be lost if each shingle was resized by cutting. Photo: John Sandor, NPS.



Figure 11. The thickness of the wood siding on the front (left) creates a deeper shadow line than is achieved with the fiber cement siding used on the side (right) elevation. While the exposure can be adjusted, fiber cement siding is not available in a matching thickness. Photo: John Sandor, NPS.

must be made in the precision of the match, it is wise to consider the vantage point from which the material will be seen. Sometimes what seems important at close range, such as variations in the texture of a surface, may be secondary to other aspects of the material when viewed from some distance. The closer a feature is to the viewer, the more closely the material and craftsmanship should match the original. An on-site mock-up using a sample of the proposed material can help evaluate whether it is an adequate visual match.

- **Matching the Physical Properties of the Historic Material**

Carefully chosen substitute materials can often closely match the appearance of historic materials, but their physical properties may differ greatly. These differences are most critical when incrementally replacing components of a larger assembly that retains significant historic material. The chemical composition of the material (e.g., the presence of acids, alkalis, salts, or metals) should be evaluated to ensure that the replacement materials will be compatible with the adjacent historic materials. Materials that will cause galvanic corrosion or other chemical reactions must be isolated from one another.

The thermal- and moisture-driven expansion and contraction coefficients of each adjacent material must be within narrow limits or be accommodated



Figure 12. Cellulose composite materials, like wood, expand and contract with moisture. Here it was used to reconstruct a missing storefront. Unlike solid wood that is dimensionally stable parallel to the grain, this composite moves equally in all dimensions, resulting in gaps that were not adequately anticipated in the design. Photo: John Sandor, NPS.

by carefully designed joints and fasteners. Joints can play a role both in accommodating movement of materials as well as in managing moisture, either to keep it from entering the enclosure assembly or to let it escape from the building envelope, or both. Because some synthetic materials are less permeable to moisture than more traditional materials, installations must take into account the potential to trap moisture and cause deterioration of historic and new materials. An assembly incorporating new and historic materials should be designed so that if material failures occur, the failures occur within the new material rather than the historic one.

During installation, surface preparation is critical to ensure proper attachment. Deteriorated underlying material must be removed or stabilized. Non-corrosive anchoring devices or fasteners that are designed to carry the new material and to withstand wind, rain, snow, and other destructive elements should be used. Since physical failures often result from poor anchorage or improper installation techniques, a structural engineer should be included in planning any major project. For readily available, off-the-shelf materials, manufacturers' recommendations for attachment and spacing should be followed.

Nearly all substitute materials have some properties that are different from the historic materials they may replace. Even when substitute materials are isolated from historic materials and features, it is important to understand the substitute materials' properties in order to use them successfully.

- **Performance of the Material Over Time**

When more traditional materials are used to replace damaged historic materials and features, their performance is predictable in most cases. An exception may be modern wood that has durability and other prop-

erties different than those of historic wood from old-growth forests. Many of the materials used as substitutes have been in use long enough to provide some idea of how they perform over time. Other material may only have test results from accelerated weathering. The length of manufacturer warranties may be an indicator of expected durability and lifespan. Warranties only predict a manufacturer's expectation of a product's performance and are no guarantee that the manufacturers will still be in business at the time needed to stand behind them. Just as new manufacturers emerge with new materials, others disappear. Where possible, projects involving substitute materials in similar installations and exposures should be examined before selecting a new, less-tested material. It is unrealistic to expect a substitute material, which can be quite different in composition than the historic material, not to age differently.

Even traditional materials will not perform well if not used or detailed appropriately, and experienced architects, engineers, fabricators, and installers rely on their professional knowledge and experience to ensure proper installation and techniques when working with familiar materials. This is just one of many reasons that using the original materials for needed replacement is usually the best choice. Some of the materials now available as substitutes have properties that differ greatly from the traditional materials they may be used to replace. It is critical to the successful performance of substitute materials that everyone involved in the selection, design, and installation fully understands the material's properties, especially how it is different than the material it is replacing, and how that will affect the surrounding materials and building systems.

Many traditional building materials can be repaired either with traditional methods and materials or with more modern conservation techniques using substances like epoxies. However, many modern substitute materials (particularly synthetic ones) are not as easily repaired, if repairable at all, as their more traditional counterparts. Confirming that a material is repairable may be important for those used, e.g., where impact or significant wear or abrasion is likely.

Finally, it is critical that the substitute materials be documented as part of the historical record of the building so that proper care and maintenance of all of the building materials continue, ensuring the continued life of the historic building.

Choosing an Appropriate Substitute Material

Once all reasonable options for repair and replacement in kind have been considered and sufficient justification for substitute materials has been established, the choice among the variety of substitute materials currently available must be made. Rapidly developing technologies allow a wide variety of materials to choose from that are intended to mimic historic materials. Many of the materials that were historically used as substitutes for more traditional historic materials have themselves become historic, and some of these early substitutes continue to be reasonable options as substitute materials today. No substitute material will exactly match the historic material in all aspects, but many are able to adequately match the appearance and relevant physical attributes to make for a potential substitute. If a substitute material is not

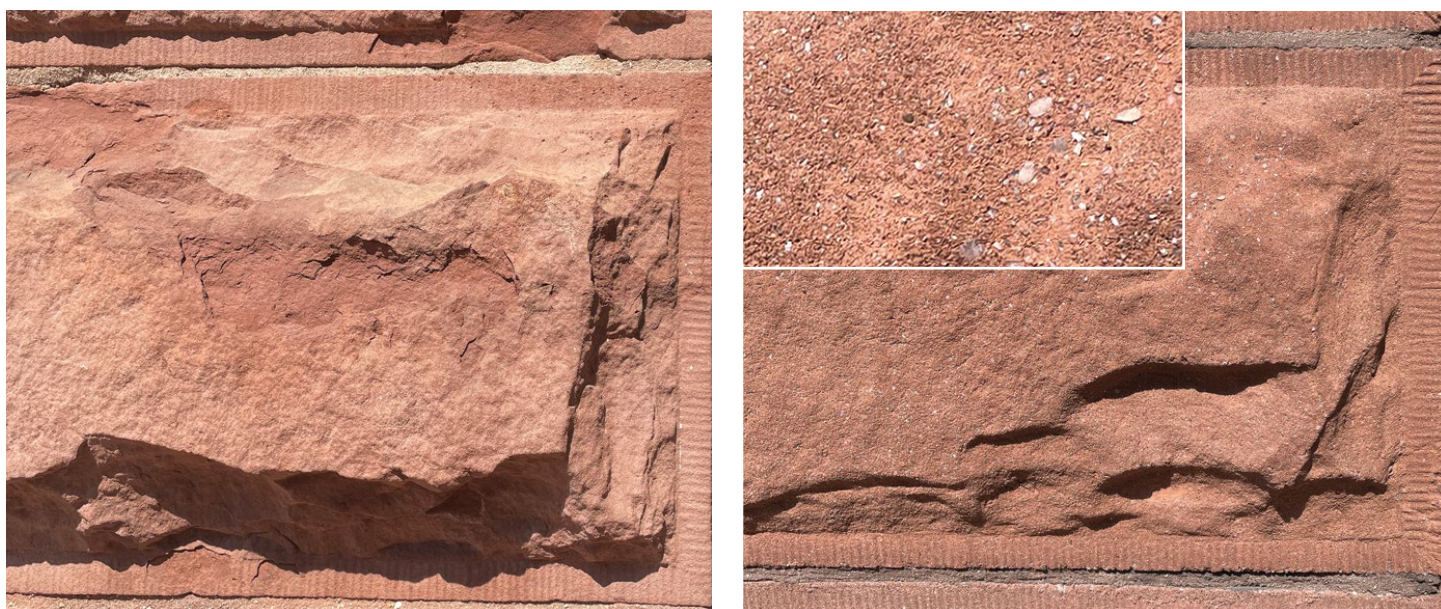


Figure 13. Cast stone was used to effectively replace individual blocks of sandstone. Both the original (left) and the substitute material (right) retain similar physical and visible properties. Having weathered for over 30 years, some erosion of the binder has revealed quartz grains of the aggregate (inset), but it is only noticeable upon close inspection. Photo: John Sandor, NPS.

an adequate physical and visual match given the specific conditions of the building and the project, then it should not be used to replace distinctive, character-defining materials and features.

Listed below are various building components or features and the substitute materials which may, in some circumstances, be considered for use as possible replacement materials in a historic rehabilitation project consistent with the *Standards for Rehabilitation*. This list includes different substitute material options available today for these building features and poses questions that should be asked and considered when choosing between the original material and various types of substitute materials. This is followed by a list of some of the more commonly used, currently available materials that may have some applications as substitute materials and the properties of each that affect their suitability for use as substitutes. This list should not be read as an endorsement of any of these materials, generally, or their appropriateness for use as a substitute material, but it serves as a reminder that the successful use of any building material requires a careful consideration of its properties relative to where and how it will be used.

Considering Substitute Materials

Considering the use of a substitute material should begin with the following questions about the conditions and location where it will be used:

- Will the significance or visibility of the historic feature require a very precise match?
- Is the entire feature being replaced or just a component of it?
- Are pre-existing conditions contributing to the failure of the existing material, and, if so, how will they be addressed/corrected?
- Is the need for replacement due to inherent deficiencies of the original material?
- Will the material need to resist any environmental hazards such as flooding or fire?

Historic Features and Substitute Materials

		Historic Building Features					
		Masonry Stone, terra cotta	Architectural Metals Cast & wrought iron, steel, pressed metal	Siding Wood, asbestos	Roofing Wood shingle, slate, tile	Decking Tongue and groove & square edge wood	Molding / Trim Wood
Potential Substitute Materials	Aluminum	●	●	●			●
	Cast Stone & Precast Concrete	●			●		
	Fiber Reinforced Concretes	●					
	Glass Fiber Reinforced Polymers	●	●				
	Fiber Cement			●	●		●
	Mineral / Polymer Composite			●	●	●	●
	Cellulose Fiber / Polymer Composite			●	●	●	●
	Non-composite Polymers		●			●	●
	Cellular PVC			●		●	●

The above chart lists materials that are sometimes used as substitutes for replacement of historic building features. Even within a given category, all materials may not be equally suitable as a substitute replacement material for the actual historic material or feature. Any substitute material should be selected based on its specific physical and visual characteristics, conditions, and intended application consistent with the Secretary of the Interior's Standards for Rehabilitation.

Historic Building Features: Criteria for selecting an appropriate replacement material

Masonry

FEATURES: corbels, brackets, balusters, cornices, window and door surrounds, friezes, wall surfaces, horizontal surfaces, incidental ornament, columns

HISTORIC MATERIALS: terra cotta, cast stone, stone, concrete

POTENTIAL SUBSTITUTES: cast stone, pre-cast concrete, GFRC, GFRP, non-composite polymers (polyurethane), cast or stamped metal

Questions to ask about the replacement material:

- Can it serve a structural function?
- How is the material affected by moisture?
- Can the material survive flooding and be reused?
- Can it reproduce the surface texture of the original?
- Is its shrinkage in curing low enough to allow it to be molded from existing stones?
- Can matching color be achieved without a coating and with UV stability?
- Can an adequate match of the surface (color and texture) be achieved with a coating?
- Is a coating required?
- If it is not self-supporting, is it lightweight enough to be supported by an underlying framework?
- Can multiple original units be replicated with a single replacement piece?
- Where thermal movement is different from the original material, how will joints accommodate?
- Is the material combustible?

Architectural Metals

FEATURES: pilasters, door and window surrounds, cornices, incidental ornament, columns, spandrels, ceilings, sheathing, roofing

HISTORIC MATERIALS: cast and wrought iron, steel, bronze, lead, aluminum, and stamped steel (usually galvanized or terne-coated)

POTENTIAL SUBSTITUTES: GFRP, aluminum, non-composite polymer (polyurethane), GFRC, metallic/polymer composite

Questions to ask about the replacement material:

- Will the replacement material serve a structural or cosmetic role?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- If part of an assembly of mixed materials, how will any expansion and contraction of the dissimilar materials be accommodated?
- Will the replacement material increase deterioration of the historic or surrounding elements, for instance due to galvanic corrosion, moisture entrapment, jacking of original material, off-gassing creating a corrosive environment, or poor original design of the historic material?
- How will the replacement material mimic the surface color/patination of the original material?
- If a coating is needed, what preparation is needed, and what is its durability or service life of the finish?
- What attachment and support systems are necessary?
- If the original element is structural, but the new material is not, how can supplemental structure be introduced to support the new?



Figure 14. Surface texture is an important aspect in matching the appearance of a historic material, especially when a material is viewed at close range. As seen in these two images, many of the substitute materials produced for siding and trim have an embossed wood grain, making them incompatible for replacing historic wood that was typically planed to a smooth surface. Some substitute products are available with a smooth surface as well. Photos: John Sandor, NPS.

Siding

FEATURES: clapboard, tongue-and-groove or shiplap siding, board and batten, shingles

HISTORIC MATERIALS: wood and asbestos

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, fiber cement, mineral/polymer composite

Questions to ask about the replacement material:

- What are the widths, lengths, profiles, thicknesses, and textures available?
- What, if any, are the finishing requirements, and/or is it available factory-finished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- Does it absorb moisture and, if so, to what effect?
- Can the material survive flooding and be reused?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- What characteristics can affect its handling (e.g., weight, flexibility, brittleness)?
- Does it have specific fastening requirements?
- Is it susceptible to insect damage?
- What is its impact resistance?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?

Roofing

HISTORIC MATERIALS: wood shingle, slate shingle, asbestos shingle, clay tile, concrete tile, metal

POTENTIAL SUBSTITUTES: fiber cement, mineral/polymer composite, wood fiber/polymer composite, pre-cast concrete, metal

Questions to ask about the replacement material:

- What sizes and shapes are available?
- What are color choices?
- What is the color stability of the new material, and how will it age/weather?
- What is the impact resistance?
- What is its flame spread rating?
- What are the installation requirements of the new material?
- Can the feature being replaced be custom-produced if ready-made ones of the new material are not an accurate match?
- What is the expected lifespan and/or warranty?

Decking

FEATURES: tongue-and-groove, square-edge flooring

HISTORIC MATERIALS: wood

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, mineral/polymer composite, non-composite polymers (solid PVC)

Questions to ask about the replacement material:

- What are the widths, lengths, and textures available?
- Is it site painted or prefinished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- What dimensional span does its strength allow?
- Does it absorb water, and if so, to what effect?
- Can the material survive flooding and be reused?
- Does it require a drainage plane, or can it be installed atop a membrane?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- Is it susceptible to insect damage?
- Is it impact resistant?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?

Molding / Trim

FEATURES: run moldings, flat boards, casings, cornice, frieze, railings, balustrade, columns

HISTORIC MATERIALS: wood, metal

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, mineral/polymer composite, non-composite polymer (polyurethane), GFRP, sheet metal

Questions to ask about the replacement material:

- What are the widths, lengths, and textures available?
- What, if any, are the finishing requirements and/or is it available factory-finished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- Does it absorb moisture, and if so, to what effect?
- Can the material survive flooding and be reused?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- What characteristics can affect its handling (e.g., weight, flexibility, brittleness)?
- Does it have specific fastening requirements?
- Is it susceptible to insect damage?
- What is its impact resistance?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?



Figure 15. Tongue-and-groove porch flooring is manufactured in several different substitute materials. Each type has different properties, though most are more moisture-resistant than wood. The prefinished product shown can be painted when worn, but repainting is not recommended for some product choices. Photo: Oak Alley Foundation.

Potential Substitute Materials: Matching properties and performance needs

Physical Composition and Properties

After assessing different material options based on the intended application, the appropriateness of a substitute material should also be considered in context of the material's physical composition, associated properties, and necessary visual match.

Aluminum

MATERIAL: Aluminum is a highly corrosion-resistant alloy that can be cast, wrought, or extruded. Molten aluminum is cast into permanent (metal) molds or one-time sand molds forming cast aluminum. Extruded aluminum is formed by passing heated aluminum through a die which produces the desired form. Wrought aluminum is worked using the heated metal and then bending, stamping, and otherwise shaping the metal. If not self-supporting, aluminum elements are generally screwed or bolted to a structural frame. Aluminum can be welded, but more often sections, particularly extruded ones, are mechanically connected.

PROPERTIES:

- Isotropic
- Lightweight
- Thermal movement greater than cast iron or wood
- Corrosion-resistant, but direct contact with other metals may trigger galvanic corrosion
- Lower structural strength than iron or steel
- Ductile - less brittle than cast iron
- Non-combustible
- Retains high definition through molding process and produces crisp profiles through extrusion
- Can be given a durable metallic finish through anodization. Surface etching required for paint adhesion
- Can be machined into a large variety of shapes/ dimensions



Figure 16. Aluminum is a highly corrosion-resistant metal that is commonly used as a substitute material for cast iron. Aluminum can be a more affordable and lightweight alternative to cast iron that retains a similar texture, shape, and maintenance cycle. Photo: NPS.



Figure 17. The balustrade consists of multiple prior campaigns of using cast stone to replace the natural stone. The effective match for the surface texture and color of the original stone allowed individual elements to be incrementally replaced only when they had failed, thus retaining the maximum amount of original material as long as possible. Photo: EverGreene Architectural Arts.

Cast Stone & Precast Concrete

MATERIAL: A cement lime and aggregate mixture that is dry-tamped into a mold is generally referred to as cast stone. Cast stone is one of the original substitute materials. Its longevity has proved that the material ages compatibly with stone. A wet mix of cement and aggregate poured into molds also has a long history of being used to produce concrete masonry units mimicking stone and roofing tiles mimicking clay tile. Both methods have minimal shrinkage during curing, though they employ different curing and finishing techniques. Both can include reinforcing bars and anchorage devices installed during fabrication. The dry-tamp fabrication method is especially effective at producing an outer surface with the appearance of stone.

PROPERTIES:

- Isotropic
- Weight equivalent to stone
- Expansion/contraction similar to stone
- Water absorption may differ from that of any particular stone
- Can be structural
- Non-combustible
- Vapor-permeable
- May achieve a wide range of color and surface textures by varying mix, but use of pigments may reduce UV stability
- Can be coated
- May be tooled to match the appearance of tooled stone
- Repairs similarly to stone



Figure 18. Missing historic terra cotta spandrel panels on all floor levels were recreated utilizing glass fiber reinforced concrete (GFRC) replacements. New spandrels were fabricated as individual components and attached with metal clips between historic terra cotta piers. Photo: Kris Frail, Dewberry.

Fiber Reinforced Concretes (GFRC, CFRC)

MATERIAL: Fiber reinforced concretes are lightweight concrete compounds modified with additives and reinforced with alkaline resistant glass fibers (GFRC), or less frequently carbon fibers (CFRC). They are generally fabricated as thin-shelled panels and applied to a separate structural frame or anchorage system. GFRC is typically sprayed into forms, although it can be poured, and anchoring devices are included in the fabrication. The color is derived from the natural aggregates and, if necessary, a small percentage of added pigments. Because of its low shrinkage in curing, it can be produced using molds taken directly from the building.

PROPERTIES:

- Isotropic
- Lighter weight than solid masonry
- Expansion/contraction similar to stone
- No load bearing capacity, so underlying framework must be used to accommodate any loads
- Material can be fire-rated
- Vapor-permeable
- Can be produced in larger sections efficiently reproducing repetitive elements or features that were originally made up of small individual units
- Large range of colors achievable by varying aggregates, but when pigments are needed UV stability may be reduced
- May be left uncoated or may be painted



Figure 19. A new, lightweight fiber reinforced polymer is attached to a new metal armature to replicate damaged and missing elements of a terra cotta cornice. Photo: Quinn Evans.

Glass Fiber Reinforced Polymers (FRP, Fiberglass)

MATERIAL: Fiberglass is the most well-known of the FRP products generally produced as a thin, rigid, laminate shell formed by pouring a polyester or epoxy resin gelcoat into a mold. When tack-free, layers of chopped glass or glass fabric are added along with additional resins. The surface gel coat can be pigmented or painted. Reinforcing rods and attachment devices can be added when necessary. Because of its low shrinkage in curing, it can be produced using molds taken directly from the building. Rather than being produced as standard components, FRP is custom fabricated for individual applications.

PROPERTIES

- Isotropic
- Lighter weight than masonry, similar to sheet metal
- More thermally driven expansion than masonry or metals
- No load bearing capacity, so underlying framework must be used to accommodate any loads
- High strength to weight ratio
- Flammable
- Not vapor-permeable
- Can be produced in larger sections efficiently reproducing repetitive elements or features that were originally made up of small individual units
- May be difficult to match false joints in multi-unit assemblies to actual joints that need to accommodate movement
- Color can be incorporated into the surface gel-coat, or the surface may be coated



Figure 20. Cement board was used to replace a non-historic infill and mimics the configuration of a typical vehicular door of the period.
Photos: Historic Augusta.

Fiber Cement

MATERIAL: Fiber cement products are made from fiber, sand that is ground to a powder, cement, and proprietary additives to reduce moisture absorption. The fiber used in roof products is glass fiber alone, whereas siding and trim board products are primarily wood fiber. The material is formed with a smooth or textured surface, cut to standard sizes of panels, boards, or shingles, and cured in an autoclave. Roofing material has integral color, but board and siding products are produced with a primer, if not fully factory finished. Most siding and trim boards are embossed with a wood grain on one surface and are smooth on the other, the smooth side being the appropriate surface to imitate planed wood.

PROPERTIES:

- Products are minimally orthotropic
- Heavier and more brittle than wood, limiting available lengths
- Very little thermal- and no moisture-driven movement
- Low water absorption, but not recommended for ground or roof contact
- Class A flame spread
- Resists insect damage
- Available in limited thicknesses and widths
- Not machinable, but may be cut with special carbide blades; cutting requires dust collection and personal protective equipment
- Cut edges require sealing
- Available unfinished, primed, or prefinished, and must be painted (with latex paint)
- 15-year limited warranty typical



Figure 21. A mineral polymer composite siding was available in the profile very similar to the historic siding. The replacement siding was used where the original material was almost completely missing beneath a more modern covering. Areas where the original wood was largely intact were replaced with matching wood to sustain more of the material integrity of the building. Photo: Belk Architecture.

Mineral / Polymer Composite

MATERIAL: Calcium carbonate or fly ash are mineral ingredients held in a matrix of various polymers to produce materials formed or molded into a number of building products. Additives found in some of the roofing products include pigments and UV stabilizers. Some use a substantial portion of recycled material. Different combinations yield products with different properties, each formulated for a specific building component. When the material is fly ash with some glass fibers bound in a matrix of polyurethane, it is identified as polyash. Siding, trim, bead board, and deck products are primed or prefinished, whereas roof products have integral color.

PROPERTIES:

Fly ash (siding and trim)

- Isotropic
- Heavier and more brittle than wood, and lacking structural capacity
- Little thermal or moisture-driven movement
- Sufficiently low water absorption to permit ground contact
- Class C flame spread
- Resists insect damage
- Available in limited thicknesses and widths
- Machinable with carbide tools blades; requires dust collection
- Cut edges do not require sealing

- Must be painted
- 30-year limited warranty typical

Calcium carbonate or recycled rubber (roofing)

- Isotropic
- More thermally-driven movement than slate or wood
- Little to no moisture absorption
- As shingles: lighter and more flexible than slate
- As tongue-and-groove decking: heavier and harder than wood
- Not vulnerable to insect damage
- Available in limited dimensions
- As shingles: Class 4 impact resistance, and flame spread ratings ranging from Class A to Class C depending on the specific product
- As shingles: integral color, that may be subject to fading
- As tongue-and-groove decking: prefinished with non-renewable finish, and can be cut with woodworking tools
- 50-year limited warranties on roofing products typical

Cellulose Fiber / Polymer Composite

MATERIAL: Wood strands or fibers are coated with resin for moisture resistance and zinc-borate for insect and fungal-decay resistance, then consolidated under heated pressure. Solid composite core boards are cut from sheets of material, then factory-primed or finished. Resulting siding and trim board products can be referred to as engineered wood, fiber board, or hardboard. Products may be embossed with a wood grain or have a smooth finish, the smooth side being the appropriate surface to imitate planed wood. Siding, trim, and tongue-and-groove decking with a slightly different properties are produced by extruding polyvinyl chloride (PVC) combined with non-wood cellulose. Roofing shingles are molded from fine wood fibers, color additives, and UV stabilizers bound with polypropylene or polyethylene (thermoplastics).

PROPERTIES:

Predominantly Cellulose (siding, trim and decking)

- Minimal thermal movement
- Resistant to moisture-driven movement
- Lighter and more flexible than solid wood, but lacks structural capacity
- Rice hull cellulose: can span typical floor-framing spacing as decking
- Low water absorption (for wood, no ground or roof contact)
- Class A or Class C flame spread
- Resists insect damage
- Available in limited dimensions
- Machinable with woodworking tools
- Wood cellulose: Cut edges must be sealed and may need additional surface prep for finish; must be painted if unfinished or primed, also available prefinished
- Rice hull cellulose: Accepts stain/paint, but no finish required
- 30–50 year limited warranty, depending on manufacturer

Predominantly Polymer (roofing)

- Minimal thermal movement
- Little to no moisture absorption
- Lighter and more flexible than slate
- Class 4 impact-resistance
- Class A flame spread
- Available in limited shingle size
- 50-year limited warranty typical



Figure 22. A porch was reconstructed using posts fabricated on site from a smooth-surface cellulose/polymer composite material. Though the face of the posts are painted, the lack of paint on the bottom at the cut ends is not consistent with manufacturers' recommendations. This treatment will allow moisture to be absorbed, shortening the life of the new replacement feature. Photo: John Sandor, NPS.



Figure 23. 3-D printing using various polymers is occasionally used to replicate missing metal or wood features. This new application is continually being refined, but the application can be successful when a painted, lightweight feature needs to be replicated. Photo: NPS.

Non-composite Polymers

MATERIALS: The main two polymer materials used without significant other components are polyurethane and polyvinyl chloride (PVC). Polyurethane millwork is constructed of urethane foam created by mixing isocyanate and resin. The polyurethane mixture is kept under pressure in a mold as it expands to any desired shape. These molded products have a closed-cell, foamed core with a denser surface skin. Polyurethane products can have exterior applications but are more often used for interior features. Polyvinyl chloride (PVC) in a solid extruded form is another polymer that can have architectural application as tongue-and-groove decking. Various polymers formed using 3-D printing are also being explored as replacements for painted metal or wood ornamental features.

PROPERTIES: Each of the two groupings has distinct physical properties

Urethane Foam (moldings and decorative elements)

- Lightweight and flexible, but lacking structural capacity
- More thermally-driven movement than wood or stone, but less than cellular PVC
- Does not absorb water
- Flammable
- Resists insect damage
- Can be cut with standard woodworking tools
- Adhesive and mechanical fasteners both recommended for installation

- Supplied primed and must be painted (latex paint)
- Lifetime limited warranty typical

Solid PVC (flooring)

- Isotropic
- Heavier and less flexible than wood
- Minimal thermal movement
- Does not absorb water
- Strength to span typical floor-framing spacing
- Impact-resistance greater than wood
- Class A flame spread
- No insect susceptibility
- Good paint adhesion, but also available prefinished
- 20-year warranty typical

Cellular Polyvinyl Chloride (PVC)

MATERIAL: Varying amounts of calcium carbonate and a foaming agent are added to melted PVC before passing through an injection die and then a calibrator to produce the shape and size of the finished product. Cellular PVC is produced as sheets, boards, and moldings. Differences in the specifics of the equipment and the rate of cooling create two varieties of product, with distinct properties. One is known as free-foam, having a fairly consistent structure throughout its section, and the other is identified as Celuka, having a skin that is denser than its core. This primarily affects the ease with which the product can be milled and shaped. The material is white and needs no applied finish. When produced for decking the material has a colored and textured wear layer over the PVC core.

PROPERTIES

- Isotropic
- Lighter and more flexible than wood
- Less strong than wood (in tension and shear), but can span typical floor- framing spacing as decking
- More impact-resistance than wood
- Negligible water absorption; no moisture-driven movement, unlike wood
- Subject to thermal expansion and contraction significantly greater than wood, though the thermal movement is less for the same dimension than the cross-grain moisture-driven movement of wood
- For longer pieces, thermal movement requires manufacturer's specifications to be followed for attachment, and inclusion of expansion joints when installed at low temperature (joints should be glued)
- Class A flame spread
- Resists insect damage
- Machinable with woodworking tools, though cut edges may need additional surface prep for finish
- Good paint adhesion; if painted, high light reflectance (HLV) is recommended to minimize heat driven expansion
- 25–30-year limited warranty, depending on manufacturer



Figure 24. Cellular PVC when painted can be used to replace deteriorated wood features. This beadboard set in a wood frame was not historically designed to shed water effectively and had deteriorated. Cellular PVC was able to match the appearance of the wood details, while its properties were well matched to the shady location, painted finish, and limited size and configuration within the overall assembly; thus, it should provide a long-lasting solution for this application. Photo: Jennifer Balson Alvarez, NPS.

Acknowledgements

John Sandor, Architectural Historian, David Trayte, Historical Architect, and Amy Elizabeth Uebel, Architectural Historian, Technical Preservation Services, National Park Service, revised *Preservation Brief 16: The Use of Substitute Materials on Historic Building Exteriors*, originally written by Sharon C. Park, FAIA, FAPT, and published in 1988. The revised Brief contains expanded and updated information as well as new color photographs describing the general issues and application of substitute materials on historic buildings.

The authors wish to thank the following: Peyton Hall, FAIA, Principal Architect Emeritus, Historic Resources Group, Mary Jablonski, President, Jablonski Building Conservation, Inc., Thomas Jester, FAIA, FAPT, LEED AP, Principal, Quinn Evans, Sharon Park, FAIA, FAPT, Associate Director Emerita, Smithsonian Institution, Debra Slaton, Principal, Wiss, Janney, Elstner Associates, Inc., for their guidance and review of this revision; and to Brian Goeken, Chief of Technical Preservation Services, National Park Service, and Jo Ellen Hensley, Elizabeth Tune, and Jennifer Oeschger, Technical Preservation Services, National Park Service, for their help in the editing of the publication. Illustrations not specifically credited are from National Park Service files. Front cover image: Installation of a new roof feature on a ca.1895 commercial building. The dome was constructed of fiber-reinforced polymer to replicate the missing original feature in Aurora, Illinois, 2023. Photo: Kelsey Cozens/JH Real Estate Partners LLC.

This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. This publication is available from the Technical Preservation Services website at <http://www.nps.gov/tps/> or hard copies may be purchased from the Government Printing Offices at the U.S. Government Bookstore at <https://bookstore.gpo.gov/>. Comments about this publication should be addressed to Technical Preservation Services, National Park Service, 1849 C Street, NW, Mail Stop 7243, Washington, DC 20240, or by email to NPS_TPS@nps.gov.

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STAFF MEMORANDUM
HISTORIC PRESERVATION PROGRAM
PLANNING AND URBAN DEVELOPMENT



TO: Chair O'Brien and Members of the Historic Preservation Board
FROM: Evan R. Schueckler, Historic Preservation Program Manager
DATE: August 30, 2024
RE: 308 Danforth Street – PUBLIC HEARING – Alterations
PROJECT ID: HPBR-003052-2024
MEETING: September 4, 2024

Owner: Richard N, Bryant, Trustee, 308 Danforth Trust & Nadine Knudsen
Architect: Matt Provencal, Mark Mueller Architects

A sign announcing the Historic Preservation Board's meeting on September 4, 2024 was posted at the property on August 23, 2024. A legal ad was published in the Portland Press Herald on August 23, 2024 and August 24, 2024, and 94 notices were sent to neighboring property owners within 100 feet of the subject property.

PROJECT SCOPE

Rehabilitate exterior of building including restoration of exterior masonry and woodwork, replacement of all windows with new windows to match in design and details, and replacement of all roofing.

Remove existing deteriorated rear loggia, and replace with new, enlarged with details to match existing.

Construct new rear addition to house residential elevator. Install new skylights on side and rear planes of the main roof. Install new mechanical units in rear where not visible

Material Specifications:

Addition Siding	Flat wood siding to match cupola
Addition Trim	Wood
Replacement Roofing	Slate to match with copper flashing and gutters
Replacement Windows	Aluminum-clad wood

SUMMARY OF HISTORIC CONTEXT



Figure 1: Map of West End Historic District showing location of 308 Danforth Street with star.



Figure 2: 1924 tax photo of 308 Danforth Street. It's sister at 300 Danforth Street is visible at right. 308 Danforth, known as the Andrew Spring House, was constructed in 1855 as a sister house to that of his uncle, Samuel Spring at 300 Danforth. Both were designed by architect Charles A Alexander.

The houses were originally identical in footprint and massing; a monumental two-story square front block with a lower two-story rectangular el at the rear. The main masses feature a projecting central bay with a deeply recessed arched doorway and decorative balcony at the second floor. Both feature arcaded "L" shaped loggias facing each other at the rear of the house. Both also feature a number of the same decorative elements, including masonry quoins and paneled pilasters, a heavy modillion cornice, decorative brick chimneys, and octagonal cupolas. However, the two buildings do have some distinct decorative features. 308 Danforth features a triangular pediment over the front door along with rectangular windows, while 300 Danforth has an arched pediment and arched and grouped windows throughout.

In addition to the original differences between the buildings, 308 Danforth also received a bay window and porch addition at the western façade at some point between 1909 and 1924. While not original, the porch addition was designed with classical details and is considered to have attained significance given its high-quality design.

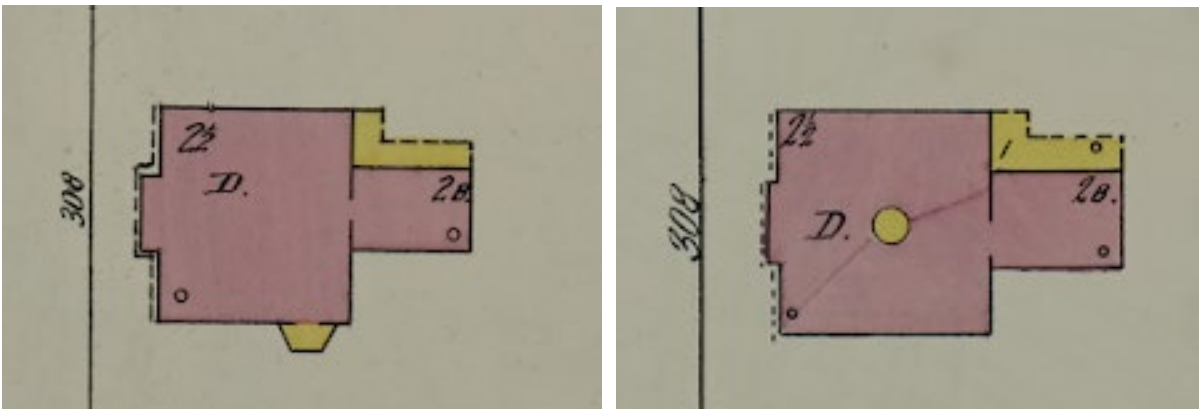


Figure 3: Sanborn Fire Insurance maps for 308 Danforth from 1896 (left) and 1909 (right) showing the footprint of the rear loggia. Note that the existing bay window and porch on the west side of the house (bottom) were not present in 1896 or 1909, but are shown in the 1924 tax photo.

Additional information on the West End Historic District can be found on the city website:
<https://www.portlandmaine.gov/665/Historic-Districtsthe>

STAFF COMMENTS

The proposed scope of work largely consists of a sensitive restoration/rehabilitation of this historic building. The applicant is proposing to repair and restore all distinctive exterior details at

the front and sides, with the exception of the windows which are proposed to be replaced with new windows to match the existing. The project also includes some alterations towards the rear, including a residential elevator addition, and modifications to some historic and non-historic window openings at the rear. Generally, these alterations are located at the rear where they have little to no visibility from the street.

The scope of work, including the replacement windows could largely have been reviewed at the administrative level. The primary reason for bringing this application before the Board is to discuss the applicant's approach to the existing rear loggia. The loggia is believed to be original to the house, but has only modest visibility from Danforth Street. The applicant has noted that it is severely deteriorated and in need of extensive replacement of material. Photos of the deteriorated loggia are included in the application. Given the degree of deterioration, they are proposing to totally reconstruct the loggia. However, it is fairly shallow, limiting functionality for the resident. The applicant is therefore proposing to reconstruct the loggia at two bays deep for its full length and to extend the loggia an additional two bays past the end of the rear el. The new loggia is proposed to be detailed to match the existing, including a matching roof profile. Staff would encourage the Board to discuss whether this approach is appropriate given the provenance of the loggia, its minimal visibility, and the applicant's commitment to respect its overall character.

ANALYSIS OF APPLICABLE REVIEW STANDARDS

Standards for Review of Alterations, 17.8.2:

Standard 1	
Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration to the character defining features of the structure, object, or site and its environment or to use a property for its originally intended purpose.	
Standard Met?	Staff Comments
Yes	The original residential use of the property is being retained.

Standard 2	
The distinguishing original qualities or character of a structure, object, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.	
Standard Met?	Staff Comments
For Board Discussion	Generally, the applicant is proposing to retain and restore the distinguishing original qualities of the building and site. Historic exterior details are being retained and windows are being replaced to match the existing. However, the applicant is proposing to remove and alter a historic rear loggia. The loggia is proposed to be reconstructed slightly enlarged, but with details to match the existing.

Standard 3	
All sites, structures, and objects shall be recognized as products of their own time, place, and use. Alterations that have no historical basis or create a false sense of historical development, such as adding conjectural features or elements from other properties, shall be discouraged.	
Standard Met?	Staff Comments
For Board Discussion	The applicant is proposing to alter the footprint and configuration of an existing historic rear loggia. The loggia will be slightly enlarged, but the detailing will match the existing.

Standard 4	
Changes which may have taken place in the course of time are evidence of the history and development of a structure, object, or site and its environment. Changes that have acquired significance in their own right shall not be destroyed.	
Standard Met?	Staff Comments
Yes	The applicant is not proposing to remove any features which had acquired significance.

Standard 5	
Distinctive features, finishes, and construction techniques or examples of skilled craftsmanship which characterize a structure, object, or site shall be treated with sensitivity.	
Standard Met?	Staff Comments
Yes	The most distinctive details, such as the window above the front door and elaborate carved exterior details will be repaired and restored.

Standard 6	
Deteriorated historic features shall be repaired rather than replaced wherever feasible. Where the severity of deterioration requires replacement of a distinctive feature, the new feature should match the feature being replaced in composition, design, texture, and other visual qualities and, where possible, materials. Repair or replacement of missing historic features should be based on accurate duplications of features, substantiated by documentary, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other structures or objects.	
Standard Met?	Staff Comments
For Board Discussion	The applicant is largely proposing to retain historic materials and where severely deteriorated, will be replaced with new to match. The applicant is proposing to remove the existing rear loggia which they have shown is severely deteriorated and requires extensive reconstruction. The applicant is proposing to reconstruct the loggia slightly enlarged but with details to match the existing. The applicant is also proposing to replace the typical six-over-six windows throughout. They have provided photos showing the deteriorated condition of the windows.

Standard 7	
The surface cleaning of structures and objects, if appropriate, shall be undertaken with the gentlest means possible. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be undertaken.	
Standard Met?	Staff Comments
Yes	Details of masonry cleaning, as applicable, will be reviewed by staff for their appropriateness.

Standard 8	
Every reasonable effort shall be made to protect and preserve significant archaeological resources affected by or adjacent to any project. If resources must be disturbed, mitigation measures shall be undertaken.	
Standard Met?	Staff Comments
Not applicable	

Standard 9	
Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant cultural, historical, architectural, or archaeological materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the size, scale, color, material, and character of the property, neighborhood or environment.	
Standard Met?	Staff Comments
Yes	The proposed minimally visible elevator addition will be differentiated from the existing structure by using a non-masonry siding which relates to the siding of the cupola, providing compatibility with the historic building. The addition will also be differentiated by its flat-roof form.

Standard 10	
Wherever possible, new additions or alterations to structures and objects shall be undertaken in such a manner that, if such additions or alterations were to be removed in the future, the essential form and integrity of the historic property would be unimpaired.	
Standard Met?	Staff Comments
Yes	The proposed minimally visible elevator addition will require limited removal of historic fabric. It could be removed leaving the essential form and integrity of the building unimpaired.

MOTION FOR CONSIDERATION

I move to CONDITIONALLY APPROVE application HPBR-003052-2024 for alterations at 308 Danforth Street on the basis of submitted documentation, plans, and specifications; information provided in the staff memo; and findings by the Historic Preservation Board that the project meets Standards for Review of Alterations 17.8.2 A-J, with the following conditions:

- 1) That a mock-up of proposed masonry work, (including all cleaning, repointing, replacement, patching or other repairs, and new masonry) shall be reviewed and approved by Historic Preservation staff prior to proceeding with the work to ensure that the work is consistent with the historic masonry and will not cause unnecessary damage to historic materials per the Standards for Review of Alterations; and
- 2) That final details or shop drawings for replacement windows and the reconstructed loggia shall be submitted to staff for review and approval as being consistent with the appearance of the existing.

ATTACHMENTS

1. Project Narrative, Checklist, and Deed
2. Drawings
3. Window and Skylight Specifications

Date: August 12, 2023

Project Narrative

RE: Andrew Spring House
308 Danforth Street
West End
Portland, Maine

Dear Chair and Board Members,

Situated on the upper block of Danforth Street, along the Corner of Emery Street, rests a pair of notable Italianate brick houses, built in the early 1850's for a mercantile family. Successful traders of Argentine tallow and beef, Samuel Spring and his nephew Andrew commissioned architect Charles A. Alexander for the pair of homes, Samuel's at 300 Danforth and Andrew at 308 Danforth.

The two structures are identical in plan and massing, however, differ within the ornamental details and trim along the windows, cupola and entry pediment: 300 Danforth more ornate than 308 Danforth. Our project at 308 Danforth exhibits a classic closed gable pediment at the front entry with a wood balcony resting on large ornamental carved brackets. Cornices with fine projecting carved brackets and dentils within the frieze can be found throughout; while the cupola exhibits arched windows, the only area of the home where this occurs, along with oversized carved corner brackets. Lightly detailed windows of six over six double hungs are observed throughout with an appropriately scaled architrave with small brackets emulating those at the cupola.

The main façade on Danforth being most prominent, creating shadow lines through the brickwork. Horizontal brick banding relating to floor levels and window sills, create a strong horizontal definition of the vertical levels of the home. Brick quoins at the corners and inset panels add to the artistic craftsmanship of the Italianate style.

The enclosed project is for 308 Danforth Street only with all new work proposed located at the building rear and out of public view. At grade wheelchair access from the existing sidewalk to the lower level at the building rear. Additionally, the project has the following work and modifications as follows:

- Replace existing windows throughout with new insert windows (existing frames to remain), new milled frames to match existing at areas of disrepair and enlargement
- New historic wood cupola windows
- Repair existing front entry door and arched transom window



- Replace existing slate roofs and copper flashing with all new North Country black slate and new copper flashing and gutters.
- Repair, reset and clean granite sidewalk arcade.
- Clean granite front entry stairs.
- Clean, scrape, plug, touch and sand all wood surfaces for new paint.
- Selective repointing throughout, anticipate 15-20% maximum area, new mortar to match existing.
- New skylights at side and rear of main hip roof.
- A new residential elevator concealed behind main hip roof.
- Rebuild and enlarge existing loggia; guardrail, column, arches and roof details to match existing loggia.
- New outdoor mechanical units located at grade level at building rear.

We believe our proposal provides a refurbished and renewed opportunity for this home to continue its significant presence for many years to come.

Thank you for your review and consideration.

Sincerely,

Matt Provencal, Assoc. AIA
Architectural Designer
Mark Mueller Architects

CITY OF PORTLAND
Planning & Urban Development Department

HISTORIC PRESERVATION APPLICATION SUBMISSION CHECKLIST Please submit each document as a separate PDF file Please confirm by electronically checking the boxes to the left		
To supplement your application, please submit the following items <i>as applicable to your project</i>. Keep in mind that the written project description that you provide the Historic Preservation Board and staff, is the only description they will have of your project or design. Therefore, it should precisely illustrate the proposed alteration(s), additions, and/or infill construction.		
GENERAL APPLICATION DOCUMENTS		
Yes ☒	N/A ☐	Project Description Cover Letter with detailed project description
Yes ☒	N/A ☐	Completed Checklist for Historic Preservation review (this document)
Yes ☒	N/A ☐	Evidence of Right, Title and Interest Deeds, leases or purchase and sales agreements
PLANS, etc.		
Yes ☒	N/A ☐	Exterior photographs of property (required for all applications). Include a general streetscape view, view of entire building, and close-ups of project area.
Yes ☒	N/A ☐	Sketches or elevation drawings at a minimum ¼" scale.
Yes ☒	N/A ☐	Details or wall sections, where applicable.
Yes ☒	N/A ☐	Floor plans, where applicable.
Yes ☒	N/A ☐	Site Plan, where applicable, showing relative location of adjacent structures.
Yes ☒	N/A ☐	Catalog cuts or product information (e.g. proposed windows, doors, fencing).
Yes ☒	N/A ☐	Materials – list all visible exterior materials.

DLN 1002440272186

QUITCLAIM DEED
(With Covenant)

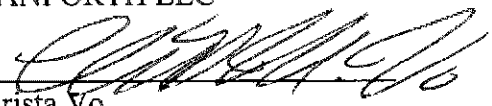
KNOW ALL PERSONS BY THESE PRESENTS, that **308 DANFORTH LLC**, with a mailing address of P.O. Box 994, Gorham, Maine 04038, in consideration of One Dollar and other valuable consideration paid, GRANTS to **RICHARD N. BRYANT, TRUSTEE of 308 DANFORTH TRUST**, u/d/t April 19, 2024, with a mailing address of c/o Jensen Baird, PO Box 4510, Portland, ME 04112, with **QUITCLAIM COVENANT**, the real estate more particularly described in Exhibit A attached hereto.

Witness my hand and seal this 3rd day of May, 2024.

WITNESS:



308 DANFORTH LLC

By: 

Christa Vo

Its: Member/Manager

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

May 3, 2024

Then personally appeared before me the above-named Christa Vo and acknowledged the foregoing instrument to be her free act and deed and the free act and deed of 308 Danforth LLC.


Notary Public/~~Maine Attorney at Law~~
Print Name: **RICHARD N. BRYANT**
My Commission Expires **September 14, 2029**

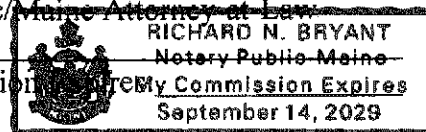


EXHIBIT A TO QUITCLAIM DEED

Grantor: 308 Danforth LLC

Grantee: 308 Danforth ~~LLC~~ Trust

Property: 308 Danforth Street, Portland, Maine (Tax Map 61, Block H, Lot 7)

A certain lot or parcel of land, with the buildings thereon, situated at 308 Danforth Street in said City of Portland, and more particularly described as follows:

Beginning at a point in the Southerly side line of Danforth Street at the center of the cement walk leading to the rear of the house on the granted premises, and eighty-three (83) feet, more or less, southwesterly from the corner of Emery Street; thence running southeasterly on the center line of said cement walk and the same course prolonged, parallel with Emery Street, One Hundred Eighty (180) feet to an iron pipe driven in the ground; thence running southwesterly parallel with said Danforth Street one hundred three (103) feet, eight (8) inches, more or less, to land formerly of Sidney St. F. Thaxter; thence running northwesterly by said Thaxter land one hundred eighty (180) feet, more or less, to the southerly side line of said Danforth Street; thence running northeasterly by the southerly line of said Danforth Street one hundred three (103) feet eight (8) inches, more or less, to the point of beginning.

Said premises are conveyed subject to all matters of record affecting the same.

Meaning and intending to convey and hereby conveying the same premises conveyed to the within Grantor 308 Danforth LLC by Quitclaim Deed from Christa Vo and Truong Vo, dated March 26, 2024, recorded in the Cumberland County Registry of Deeds in Book 40669, Page 1.

308 danforth • Andrew Spring House 1850

308 Danforth St
West End, Portland, Maine



MARK
MUELLER
ARCHITECTS
100 COMMERCIAL STREET
SUITE 205
PORTLAND, MAINE
04101
207.774.9057

Historic Preservation

08.12.2024

ANDREW
SPRING
HOUSE

308

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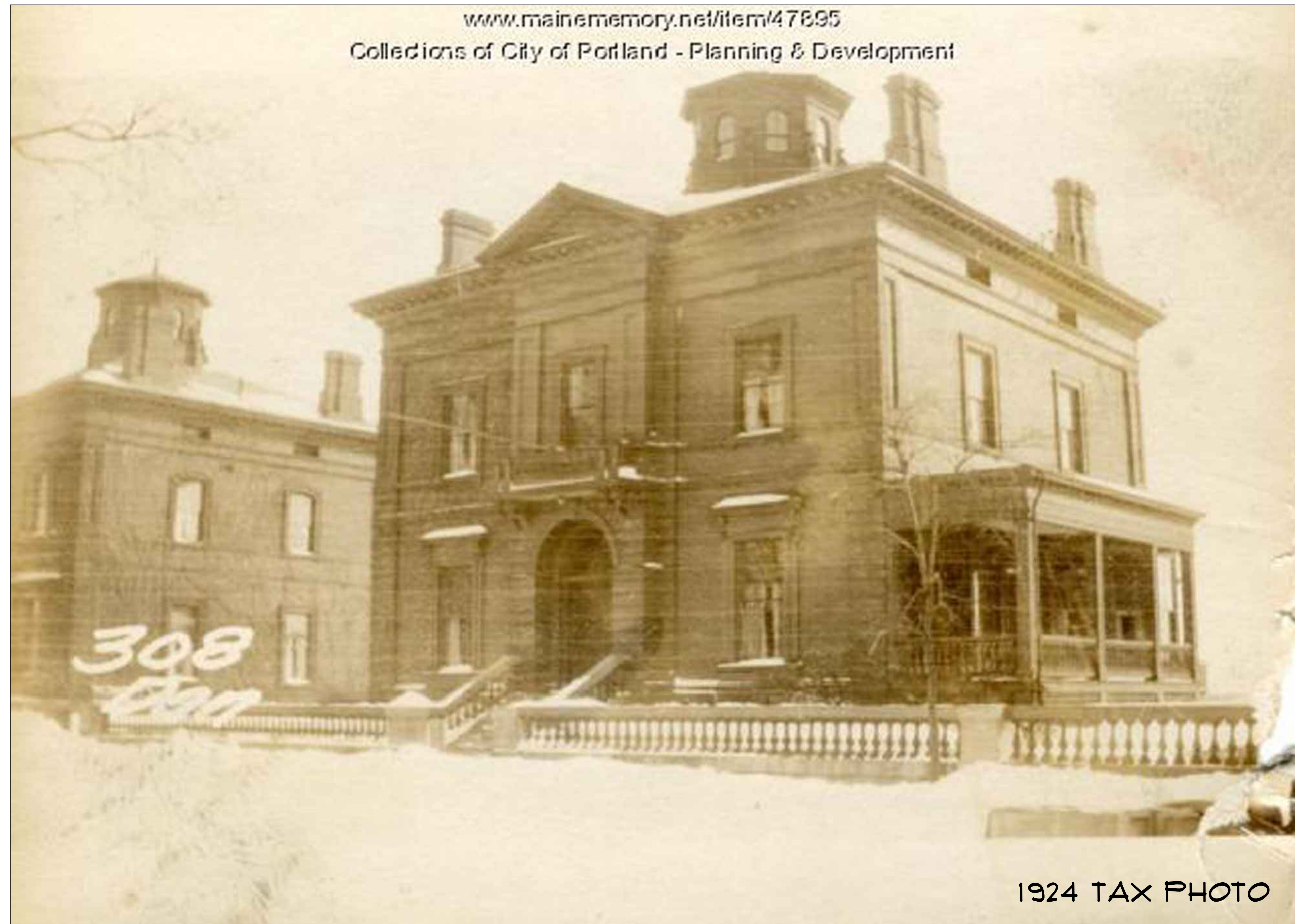
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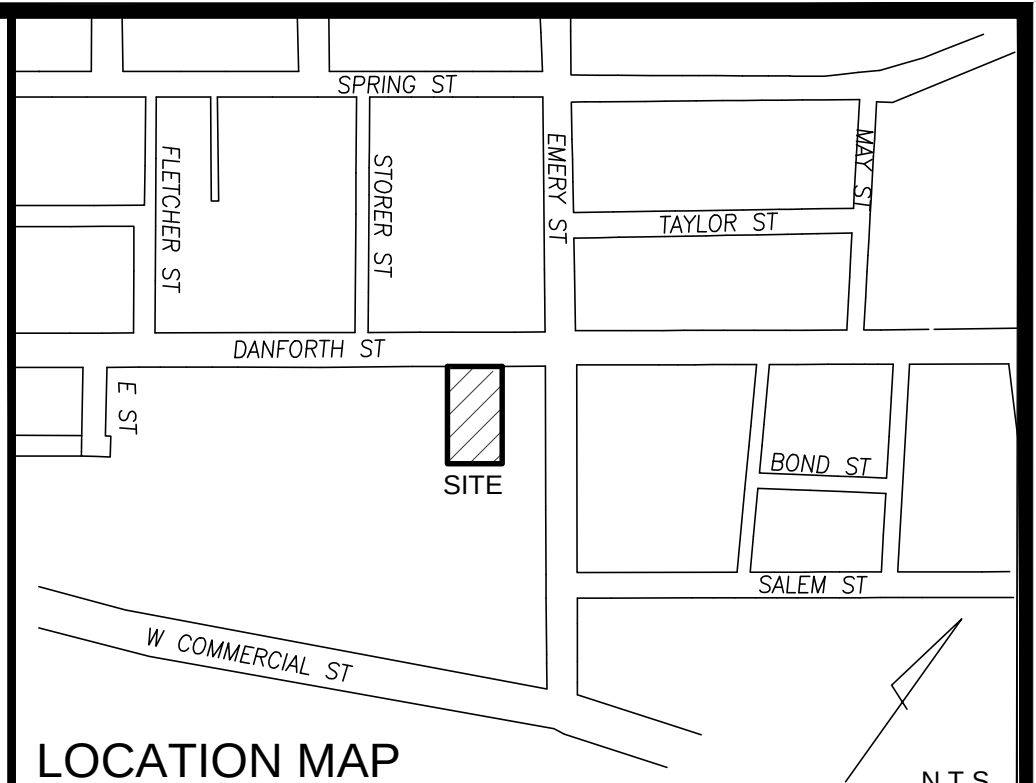
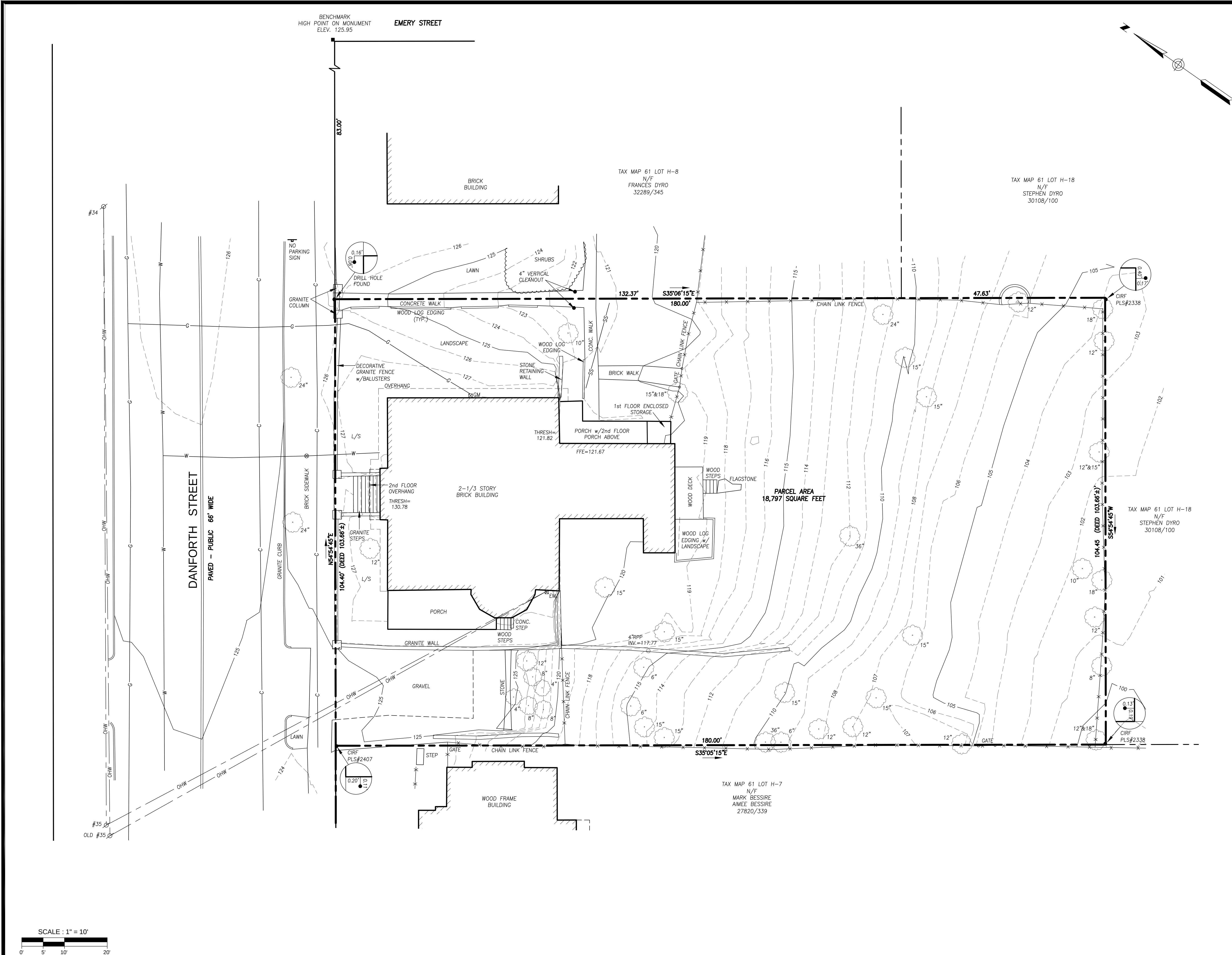
MARK
MUELLER
ARCHITECTS

100 Commercial Street
Suite 205
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HISTORIC PRESERVATION APPLICATION FOR CERTIFICATE OF APPROPRIATENESS



HP-1.0



LEGEND	
IRON PIPE OR ROD FOUND	FENCE
MONUMENT FOUND	CURB
UTILITY POLE	OVERHEAD WIRES
ELECTRIC/GAS METER	WATER LINE
SIGN	COMMUNICATION
DECIDUOUS TREE	SANITARY SEWER
IRON PIPE/ROD FOUND	1' CONTOUR
NOW OR FORMERLY	THRESH.
DEED BOOK / PAGE	THRESHOLD
LANDSCAPED AREA	FFE
CONC.	CONCRETE

- PLAN REFERENCES**
- "PLAN OF DANFORTH, SALEM, MAY, SCHOOL & BRIGGS STREETS" MADE BY OWEN HASKELL, INC. DATED DECEMBER 4, 1974, FILE NUMBER 7357 P.
 - "CITY OF PORTLAND PUBLIC WORKS DEPARTMENT ENGINEERING SECTION EMERY STREET DANFORTH STREET, STREET LINE RETRACEMENT PLAN" DATED MARCH, 2003, FILE NUMBER 881/5.
 - "LAND ON WEST COMMERCIAL STREET PORTLAND, MAINE MAINE CENTRAL RAILROAD CO. TO J.B. BROWN & SONS" MADE BY OWEN HASKELL, INC. DATED OCTOBER 13, 2011 AS RECORDED IN PLAN BOOK 211, PAGE 350.
 - "PLAN OF PROPERTY DIVISION" MADE FOR J.B. BROWN & SONS BY TITCOMB ASSOCIATES DATED NOVEMBER 12, 2018.
 - "PLAN OF PROPOSED LOT A" MADE FOR J.B. BROWN & SONS BY TITCOMB ASSOCIATES DATED NOVEMBER 12, 2018.
 - "BOUNDARY SURVEY" MADE FOR MARK & AMEE BESSIRE BY OWEN HASKELL, INC. DATED SEPTEMBER 8, 2014, FILE NUMBER 2014-147P.
 - "BOUNDARY SURVEY" MADE FOR STEPHEN DYRO BY OWEN HASKELL, INC. DATED MARCH 6, 2003, FILE NUMBER 2003-017 P.

- GENERAL NOTES**
- OWNER OF RECORD: DANFORTH TRUST
TAX MAP 61 LOT H-7
C.C.R.D. BOOK 40733 PAGE 249
 - BEARINGS ARE BASED ON GRID NORTH OF THE MAINE STATE COORDINATE SYSTEM, WEST ZONE, NAD83 PER INFORMATION PROVIDED BY THE CITY OF PORTLAND, MAINE. ELEVATIONS ARE BASED ON THE CITY OF PORTLAND DATUM, SEE BENCHMARK SHOWN.

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEY HAS NOT PHYSICALLY LOCATION THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

REX J. CROTEAU, PLS #2273

DATE

Boundary & Topographic Survey

At
308 Danforth Street, Portland, Maine

Made for
Wright-Ryan Construction
10 Danforth Street, Portland, Maine

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RJC/JLW DATE: JULY 3, 2024 JOB NO. 2024-116 P.

CHECKED BY: RRL SCALE: 1" = 10' DRWG. NO. 1

ANDREW
SPRING
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AUGUST 12, 2024



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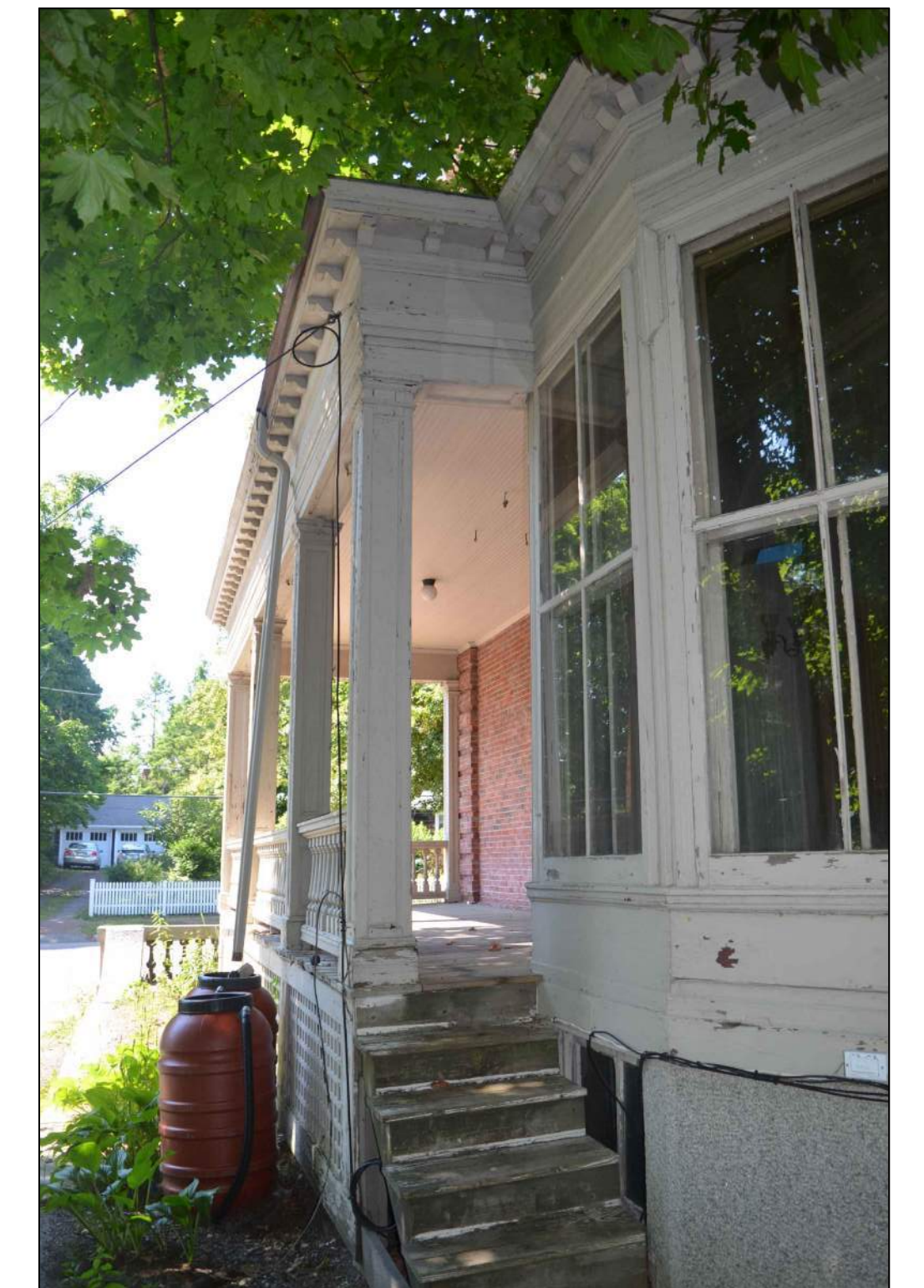
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ORNATE DETAIL FROM FRONT YARD



FRIEZE AND SOFFIT DETAIL FROM FRONT YARD



SOUTHWEST PORCH



NORTHWEST ELEVATION FROM SIDEWALK



WEST VIEW FROM DANFORTH ST

HP-2.0

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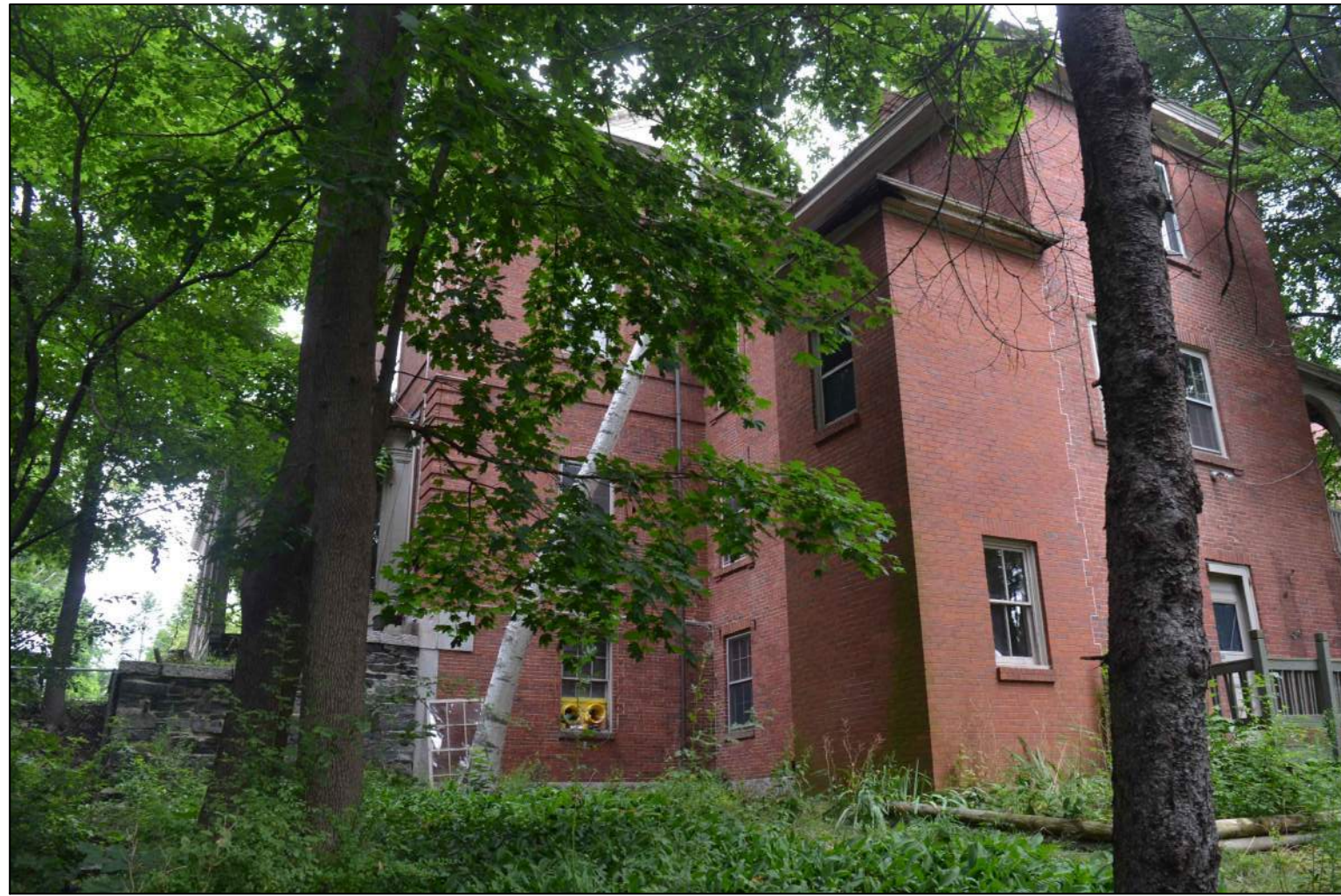
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SOUTH VIEW FROM REAR YARD



SOUTHEAST VIEW FROM REAR YARD



EAST VIEW FROM REAR YARD



NORTH VIEW FROM DANFORTH ST



NORTH VIEW FROM SIDEWALK

HP-2.1



EXISTING LOGGIA



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EXISTING WINDOWS



HP-2.3

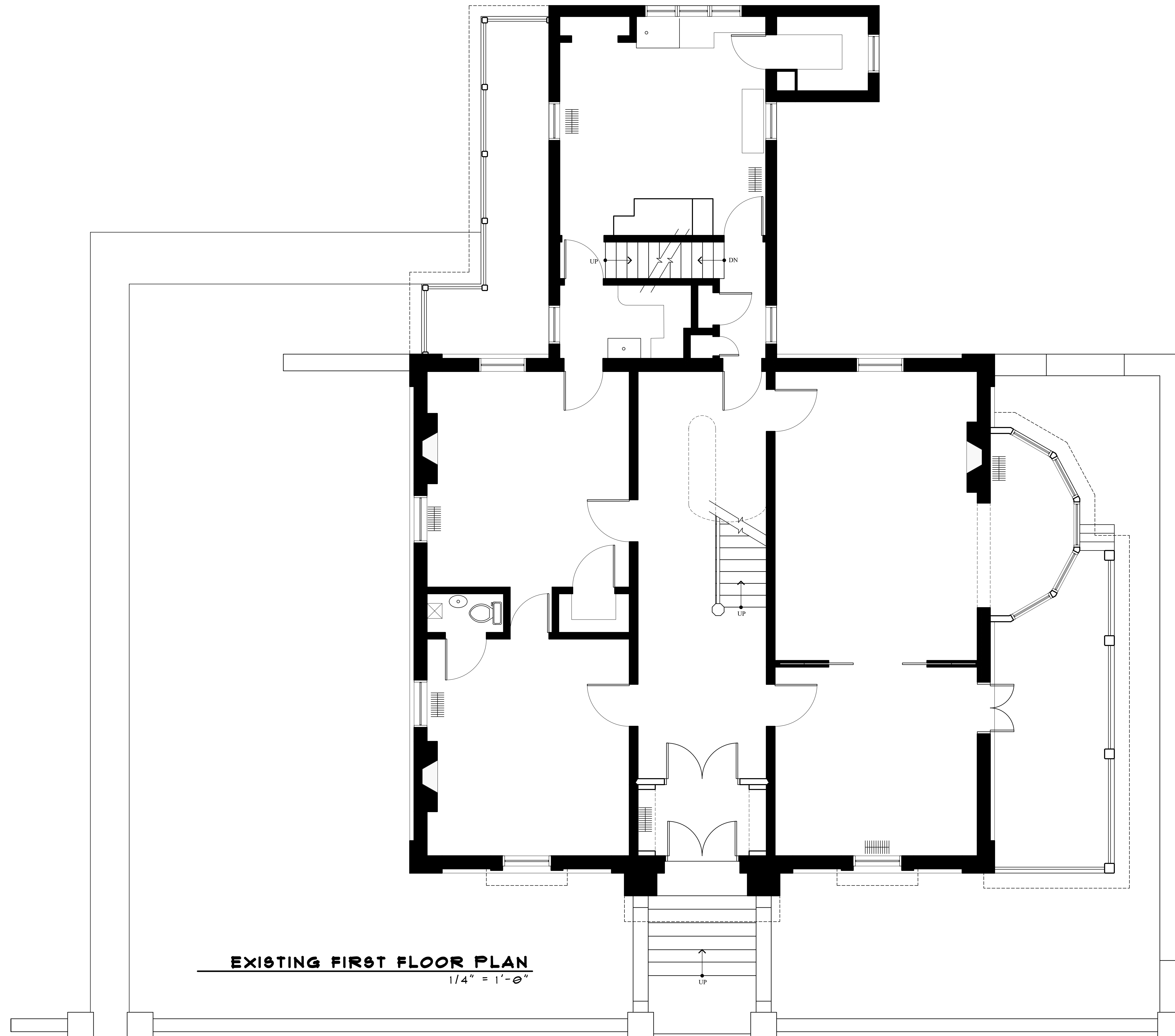
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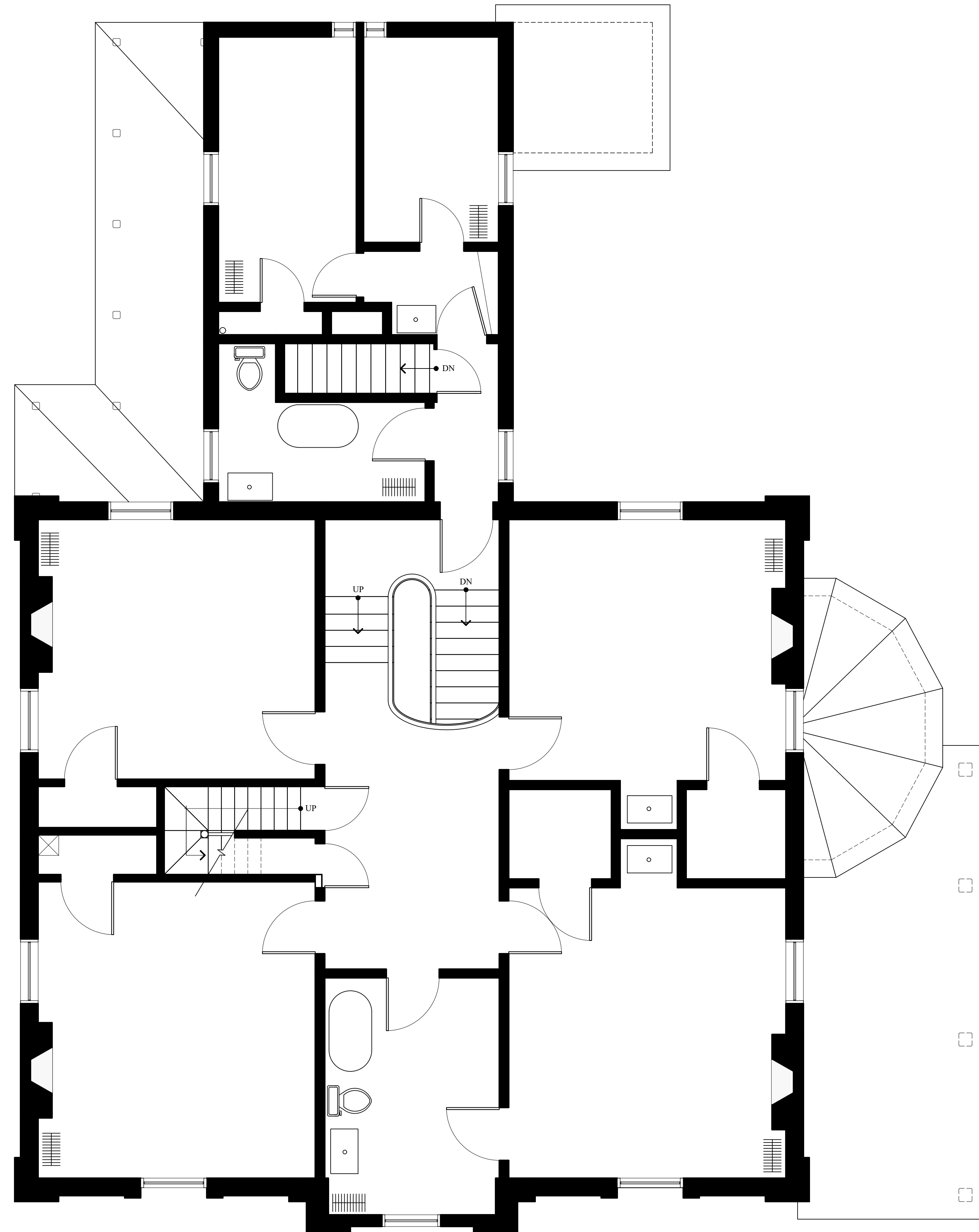
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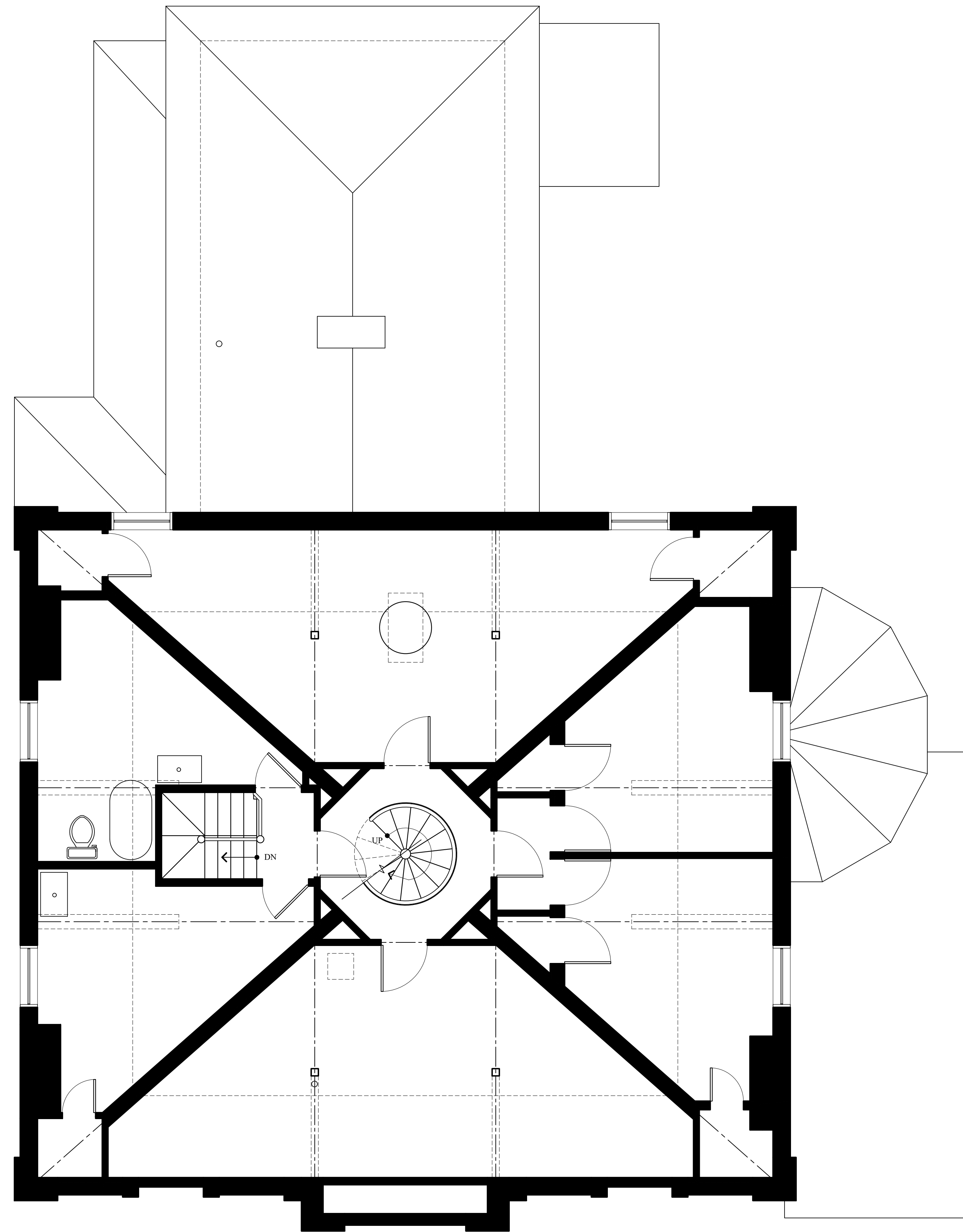


EC-1.0



EXISTING SECOND FLOOR PLAN

1/4" = 1'-0"



EXISTING THIRD FLOOR PLAN

1/4" = 1'-0"

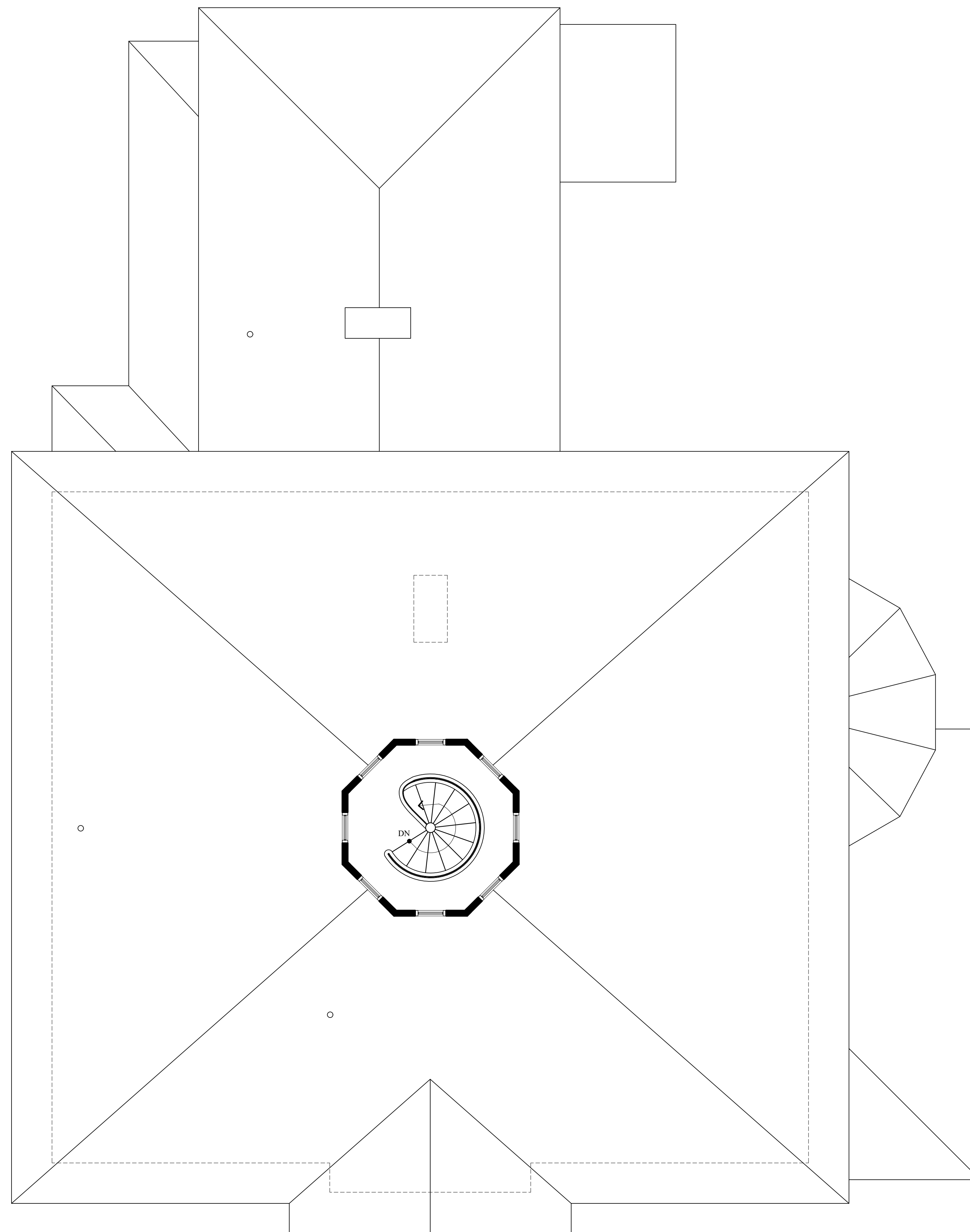
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EXISTING CUPOLA PLAN

1/4" = 1'-0"

EC-1.3

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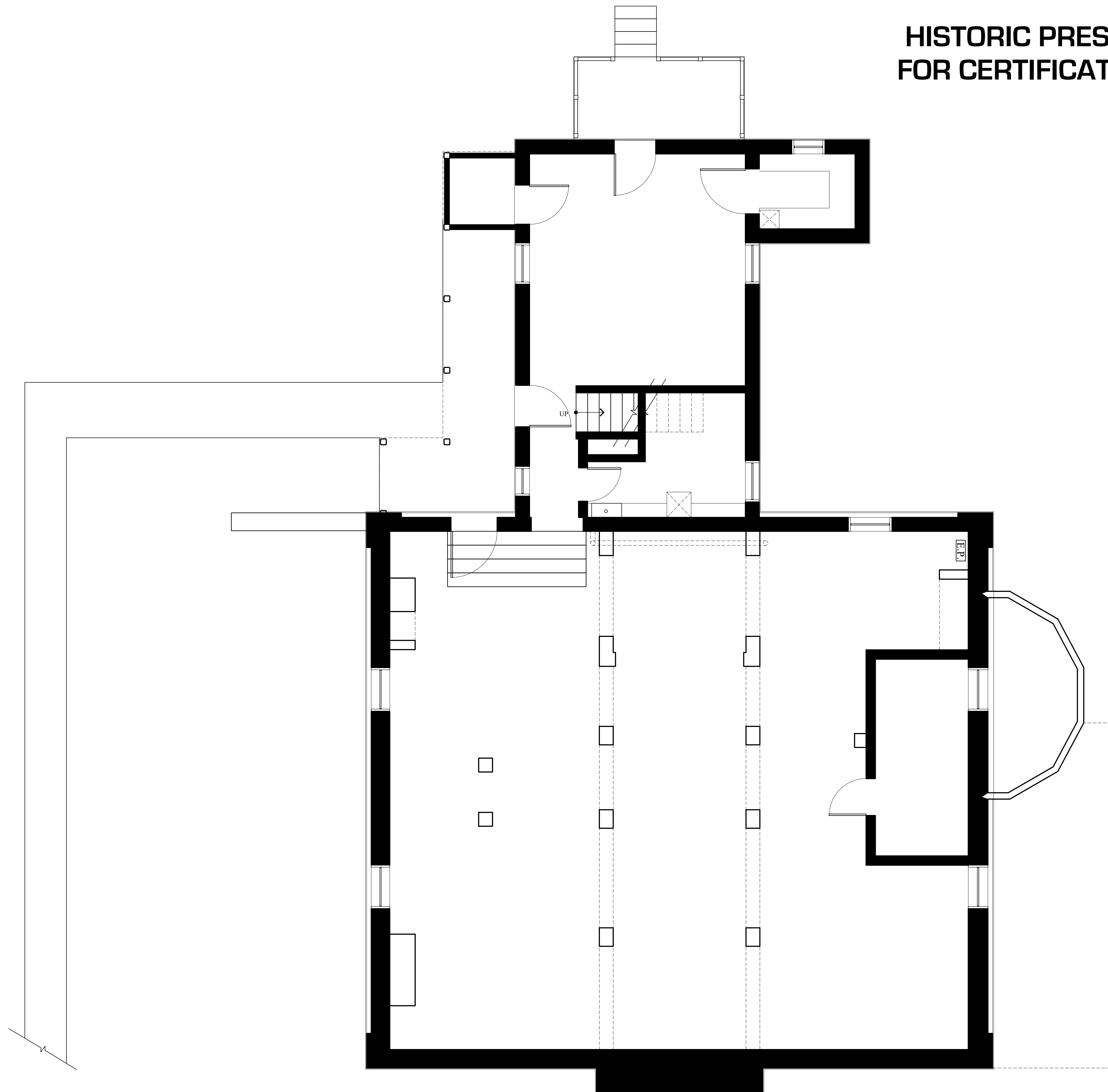
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EXISTING BASEMENT PLAN

1/4" = 1'-0"

EC-1.4

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EXISTING FRONT ELEVATION

$1/4" = 1'-0"$

EC-2.0

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EXISTING LEFT ELEVATION

1/4" = 1'-0"

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EXISTING RIGHT ELEVATION
1/4" = 1'-0"

EC-2.2

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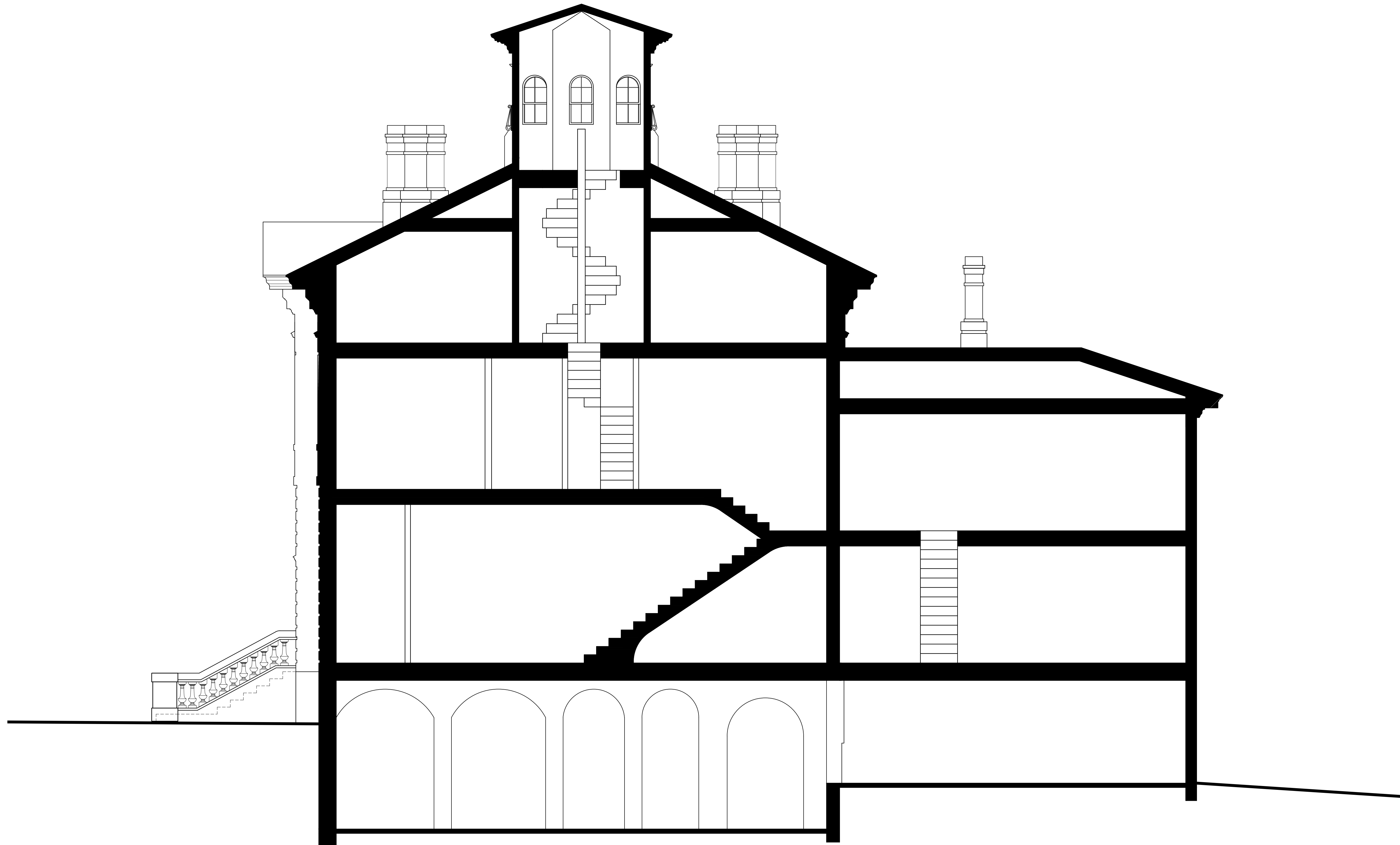
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EC-2.3



EXISTING BUILDING SECTION

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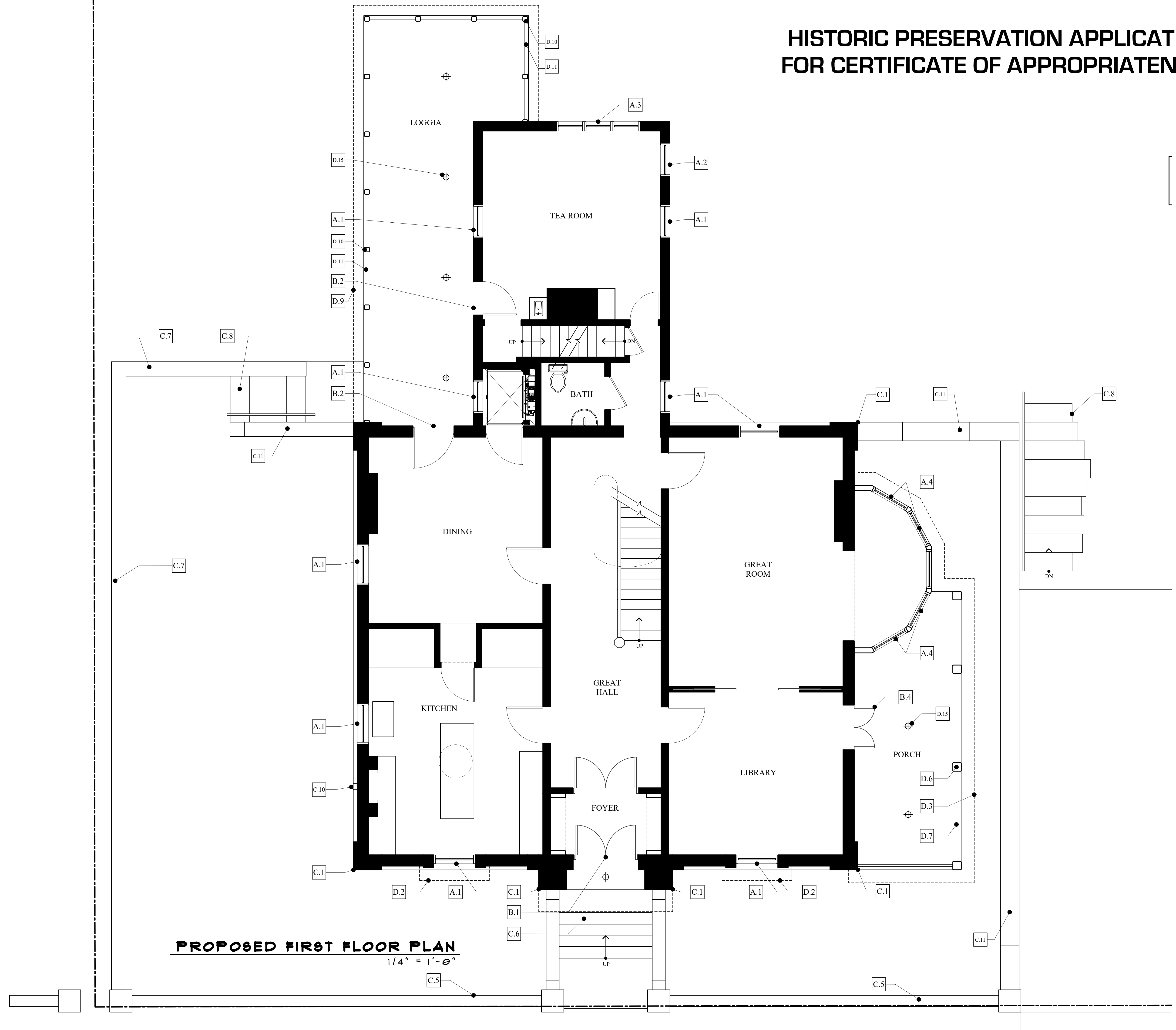
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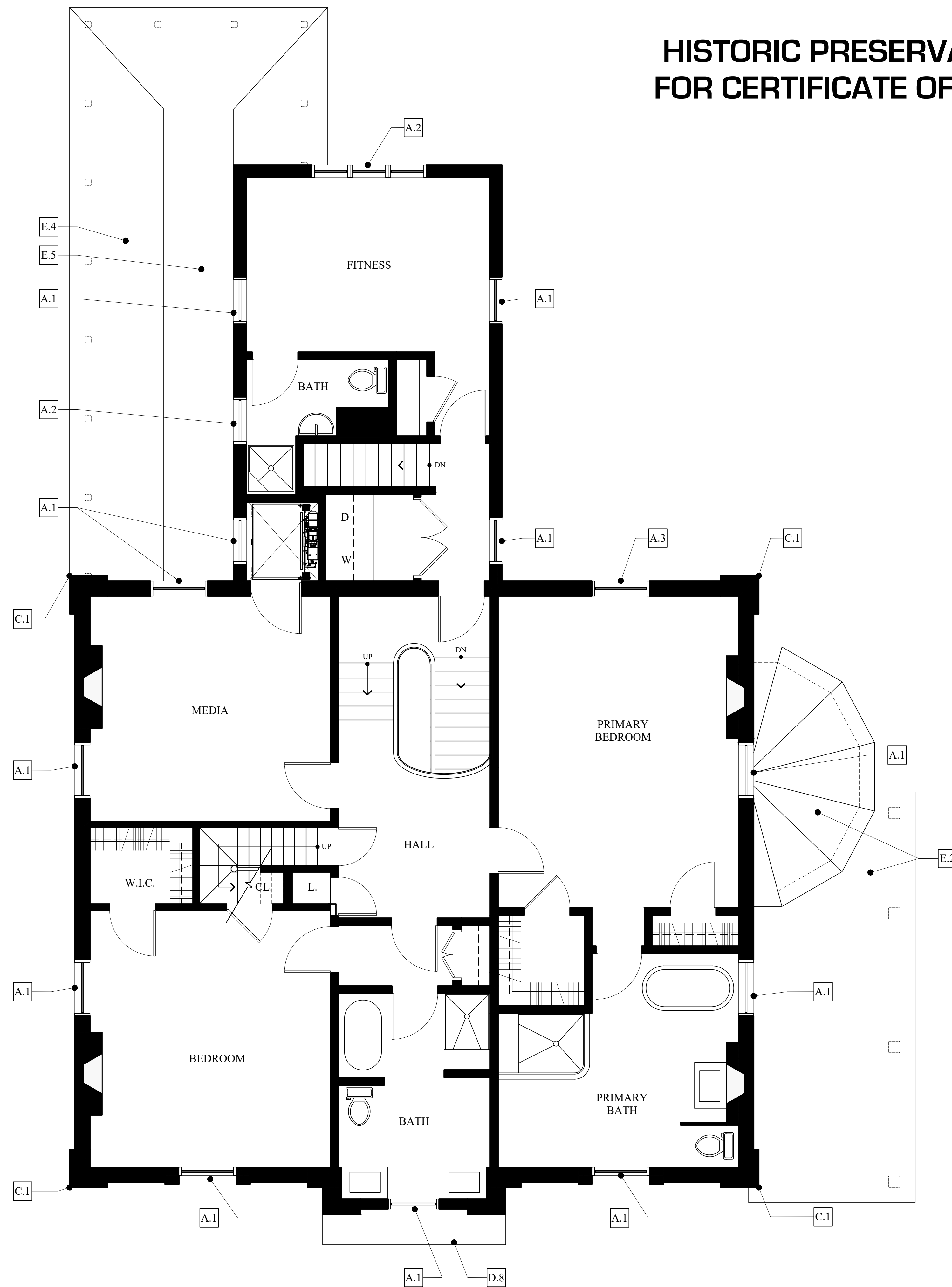
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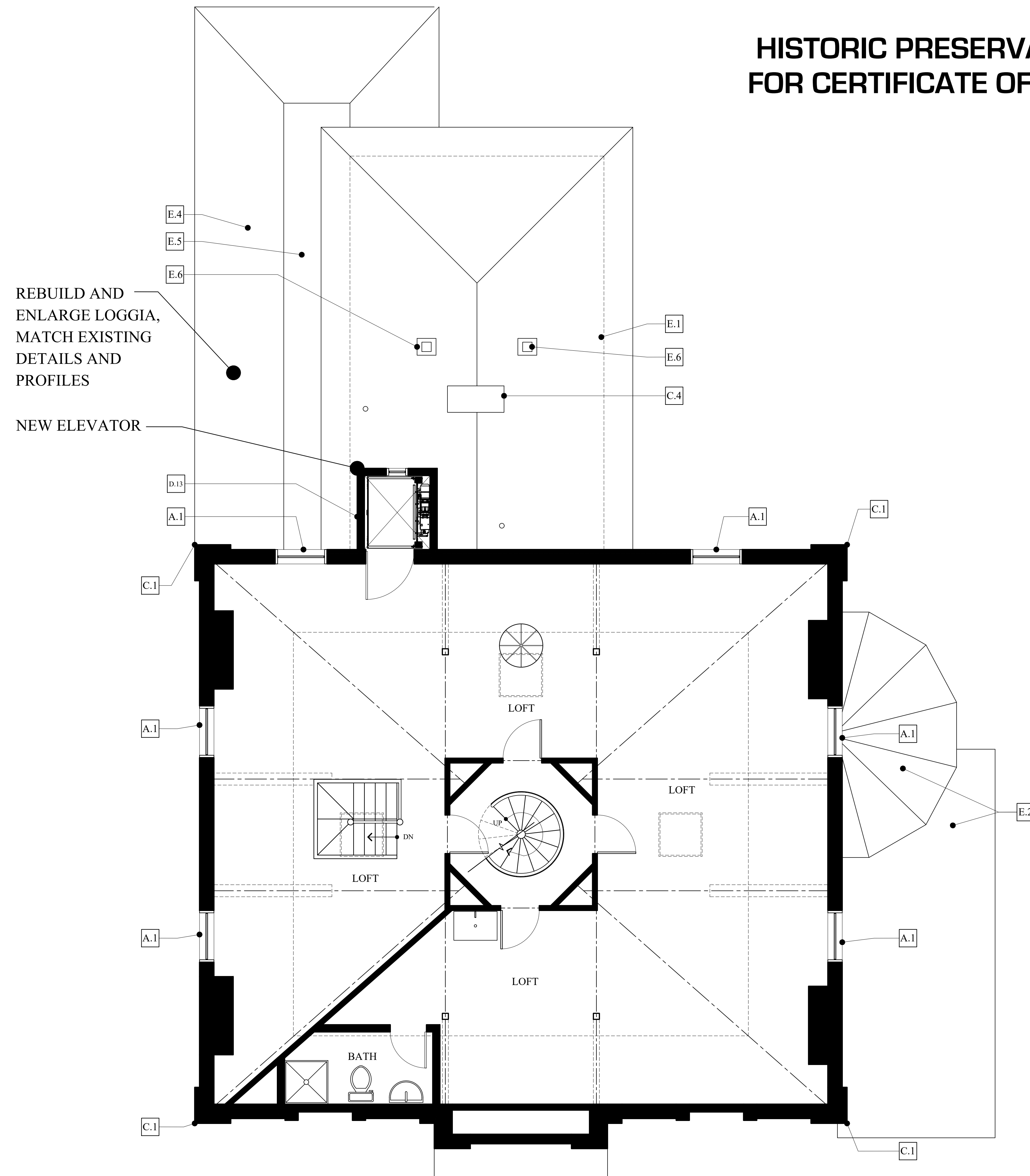
PROPOSED SECOND FLOOR PLAN

1/4" = 1'-0"

A-1.1



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PROPOSED THIRD FLOOR PLAN

1/4" = 1'-0"

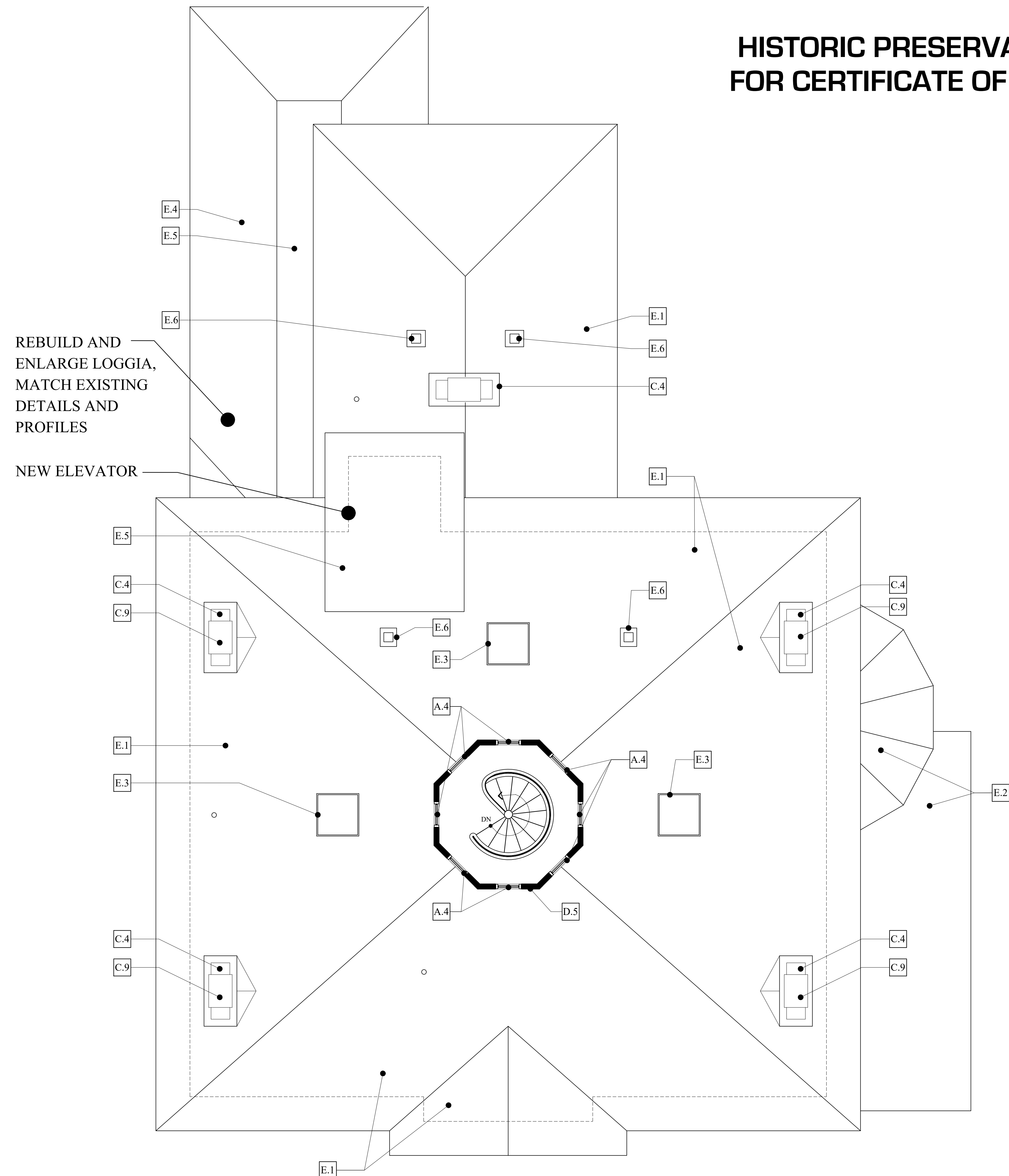
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PROPOSED CUPOLA PLAN

1/4" = 1'-0"

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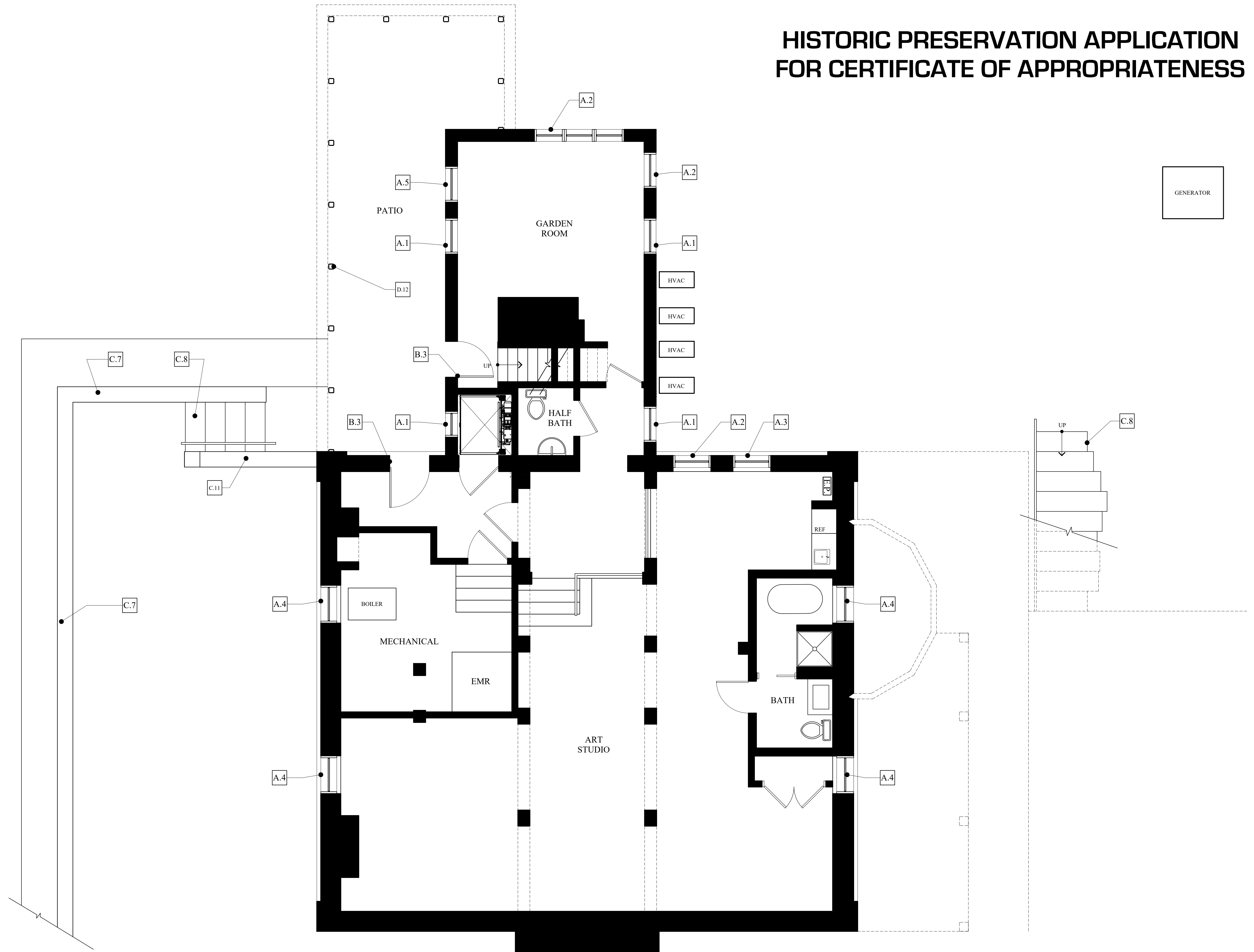
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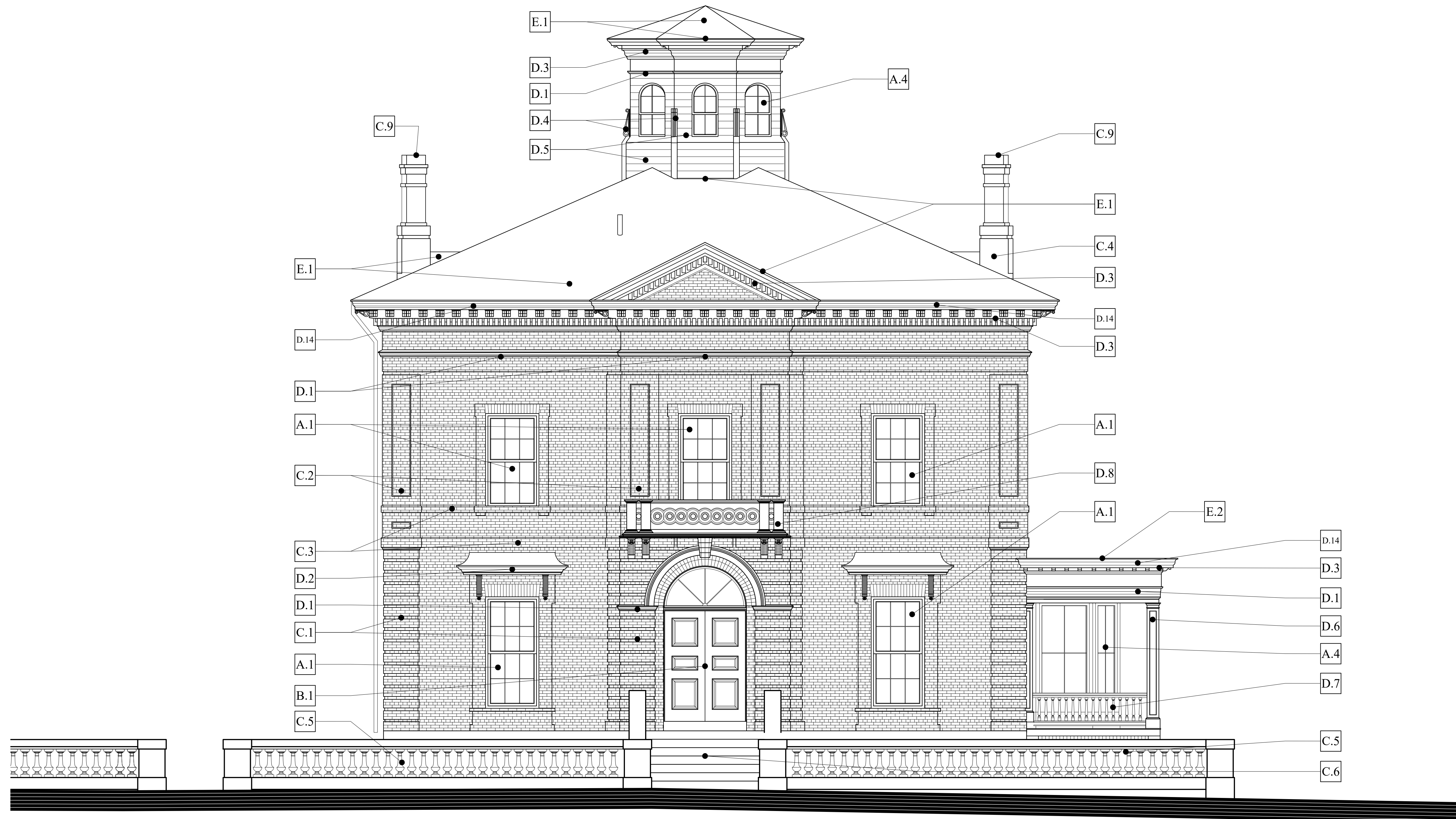
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PROPOSED BASEMENT PLAN

1/4" = 1'-0"

A-1.4



PROPOSED FRONT ELEVATION

1/4" = 1'-0"

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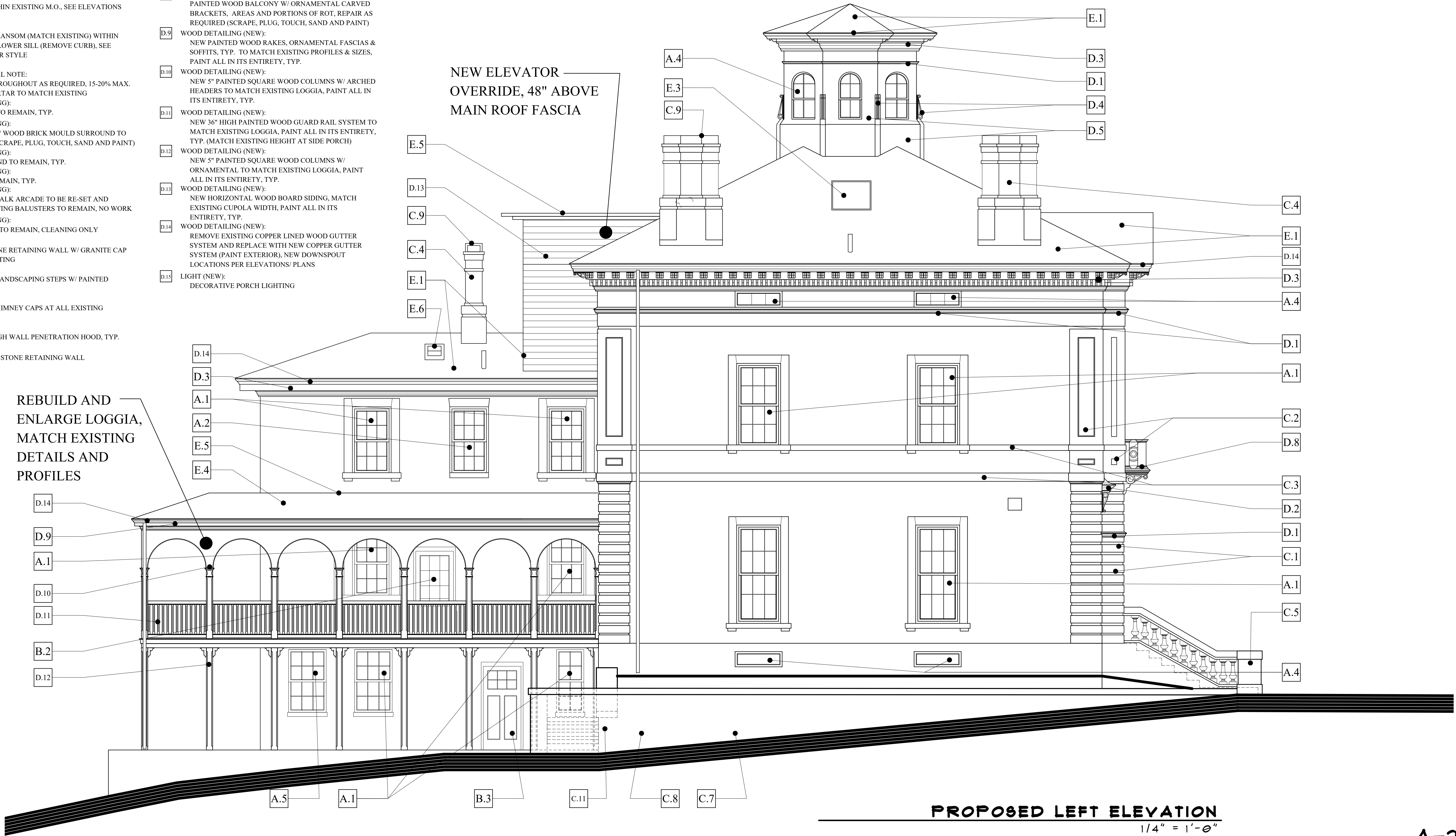
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- A.1** WINDOW (EXISTING):
REMOVE TOP & BOT. SASH, FRAME TO REMAIN (SCRAPE, PLUG, TOUCH, SAND AND PAINT) NEW 6/6 INSERT TYPE WINDOW, MASONRY OPENING AND DETAILS TO REMAIN
- A.2** WINDOW (NEW):
NEW WINDOW WITHIN NEW M.O. - CANT SOLDIER HEADER (FLUSH) AND SLOPED BRICK SILL
- A.3** WINDOW (EXISTING):
ENLARGE EXISTING M.O. HEIGHT, HEAD TO REMAIN, LOWER SILL, EXTEND BRICK CASING, EXISTING FRAME & SILL DETAILS (SCRAPE, PLUG, TOUCH, SAND AND PAINT FRAME)
- A.4** WINDOW (NEW):
NEW HISTORIC WOOD WINDOW FRAME & SASHES, NEW CLEAR INSULATED GLAZING
- A.5** WINDOW (NEW):
NEW WINDOW WITHIN NEW M.O. WIDTH, RAISE HEADER- CAN'T SOLDIER HEADER (FLUSH) AND SLOPED BRICK SILL, INFILL WALL BELOW WITH NEW BRICK & MORTAR TO MATCH EXISTING
- WINDOW COLOR TO BE DETERMINED, TYP.
- B.1** DOOR (EXISTING):
REPAIR AND REPAINT EXISTING THREE PANEL DOUBLE DOOR, NEW LOCKSET, REPAIR EXISTING ARCHED TRANSOM WINDOW IN-PLACE (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- B.2** DOOR (NEW):
NEW DOOR, NEW M.O. W/ SOLDIER HEADER TO MATCH EXISTING LOWER LEVEL DETAIL, SEE ELEVATIONS FOR STYLE
- B.3** DOOR (EXISTING):
NEW DOOR WITHIN EXISTING M.O., SEE ELEVATIONS FOR STYLE
- B.4** DOOR (NEW):
NEW DOOR & TRANSOM (MATCH EXISTING) WITHIN EXISTING M.O., LOWER SILL (REMOVE CURB), SEE ELEVATIONS FOR STYLE
- C** MASONRY GENERAL NOTE:
REPOINTING THROUGHOUT AS REQUIRED, 15-20% MAX. AREA, NEW MORTAR TO MATCH EXISTING
- C.1** MASONRY (EXISTING):
BRICK QUOINS TO REMAIN, TYP.
- C.2** MASONRY (EXISTING):
BRICK PANEL W/ WOOD BRICK MOULD SURROUND TO REMAIN, TYP. (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- C.3** MASONRY (EXISTING):
BRICK BELT BAND TO REMAIN, TYP.
- C.4** MASONRY (EXISTING):
CHIMNEY TO REMAIN, TYP.
- C.5** MASONRY (EXISTING):
GRANITE SIDEWALK ARCADE TO BE RE-SET AND CLEANED, EXISTING BALUSTERS TO REMAIN, NO WORK
- C.6** MASONRY (EXISTING):
GRANITE STEPS TO REMAIN, CLEANING ONLY
- C.7** MASONRY (NEW):
NEW FIELD STONE RETAINING WALL W/ GRANITE CAP TO MATCH EXISTING
- C.8** MASONRY (NEW):
NEW GRANITE LANDSCAPING STEPS W/ PAINTED HANDRAIL
- C.9** MASONRY (NEW):
NEW COPPER CHIMNEY CAPS AT ALL EXISTING CHIMNEYS
- C.10** MASONRY (NEW):
COPPER THROUGH WALL PENETRATION HOOD, TYP.
- C.11** STONE (EXISTING):
EXISTING FIELD STONE RETAINING WALL

- D.1** WOOD DETAILING (EXISTING):
PAINTED WOOD MOLDING BAND W/ COPPER FLASHING TO REMAIN, TYP. WEST SYSTEM REPAIR AT AREAS AND PORTIONS OF ROT (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.2** WOOD DETAILING (EXISTING):
PAINTED ARCHITRAVE W/ COPPER ROOF/ FLASHING TO REMAIN, TYP. REPAIR/ REPLACE ORNAMENTAL WOOD SCROLLS IN DISREPAIR (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.3** WOOD DETAILING (EXISTING):
WEST SYSTEM REPAIR AT ALL AREAS OF: PAINTED WOOD FASCIA, ORNAMENTAL WOOD SCROLLS, WOOD DENTALS & SOFFITS, TYP. MISSING OR AREAS AND PORTIONS OF ROT (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.4** WOOD DETAILING (EXISTING):
WEST SYSTEM REPAIR AT ALL AREAS OF ORNAMENTAL WOOD SCROLLS, TYP. MISSING OR AREAS AND PORTIONS OF ROT (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.5** WOOD DETAILING (EXISTING):
HORIZONTAL WOOD BOARD SIDING, MISSING OR AREAS AND PORTIONS OF ROT (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.6** WOOD DETAILING (EXISTING):
PAINTED SQUARE WOOD COLUMNS, AREAS AND PORTIONS OF ROT, REPAIR AS REQUIRED, (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.7** WOOD DETAILING (EXISTING):
PAINTED WOOD GUARD RAIL SYSTEM, AREAS AND PORTIONS OF ROT, REPAIR AS REQUIRED, (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.8** WOOD DETAILING (EXISTING):
PAINTED WOOD BALCONY W/ ORNAMENTAL CARVED BRACKETS, AREAS AND PORTIONS OF ROT, REPAIR AS REQUIRED (SCRAPE, PLUG, TOUCH, SAND AND PAINT)
- D.9** WOOD DETAILING (NEW):
NEW PAINTED WOOD RAKES, ORNAMENTAL FASCIAS & SOFFITS, TYP. TO MATCH EXISTING PROFILES & SIZES, PAINT ALL IN ITS ENTIRETY, TYP.
- D.10** WOOD DETAILING (NEW):
NEW 5" PAINTED SQUARE WOOD COLUMNS W/ ARCHED HEADERS TO MATCH EXISTING LOGGIA, PAINT ALL IN ITS ENTIRETY, TYP.
- D.11** WOOD DETAILING (NEW):
NEW 36" HIGH PAINTED WOOD GUARD RAIL SYSTEM TO MATCH EXISTING LOGGIA, PAINT ALL IN ITS ENTIRETY, TYP. (MATCH EXISTING HEIGHT AT SIDE PORCH)
- D.12** WOOD DETAILING (NEW):
NEW 5" PAINTED SQUARE WOOD COLUMNS W/ ORNAMENTAL TO MATCH EXISTING LOGGIA, PAINT ALL IN ITS ENTIRETY, TYP.
- D.13** WOOD DETAILING (NEW):
NEW HORIZONTAL WOOD BOARD SIDING, MATCH EXISTING CUPOLA WIDTH, PAINT ALL IN ITS ENTIRETY, TYP.
- D.14** WOOD DETAILING (NEW):
REMOVE EXISTING COPPER LINED WOOD GUTTER SYSTEM AND REPLACE WITH NEW COPPER GUTTER SYSTEM (PAINT EXTERIOR), NEW DOWNSPOUT LOCATIONS PER ELEVATIONS/ PLANS
- D.15** LIGHT (NEW):
DECORATIVE PORCH LIGHTING

- E.1** ROOF (EXISTING):
REPAIR/ REPLACE EXISTING SLATE ROOF IN-KIND W/ MATCHING SLATE SHINGLES. REPAIR/ REPLACE ALL COPPER HIPS, VALLEYS, CRICKETS, DRIP EDGE, ETC. AS FIELD CONDITIONS REQUIRE
- E.2** ROOF (EXISTING):
REPLACE EXISTING EPDM RUBBER ROOFING W/ NEW .060. REPAIR/ REPLACE ALL COPPER DRIP EDGE, GUTTERS, ETC. AS FIELD CONDITIONS REQUIRE
- E.3** ROOF (NEW):
NEW SKYLIGHT WITHIN EXISTING SLATE ROOF SYSTEM, SET ATOP FIELD BUILT CURB W/ CUSTOM COPPER FLASHING & WELDED SEAMS
- E.4** ROOF (NEW):
NEW SLATE ROOF (NORTH COUNTRY BLACK SLATE). NEW COPPER HIPS, VALLEYS, CRICKETS, DRIP EDGE
- E.5** ROOF (NEW):
NEW .060 EPDM RUBBER ROOFING AND COPPER DRIP EDGE, GUTTERS, ETC.
- E.6** ROOF (NEW):
NEW COPPER ERV ROOF VENTS FOR SUPPLY AND EXHAUST AIR

REBUILD AND
ENLARGE LOGGIA,
MATCH EXISTING
DETAILS AND
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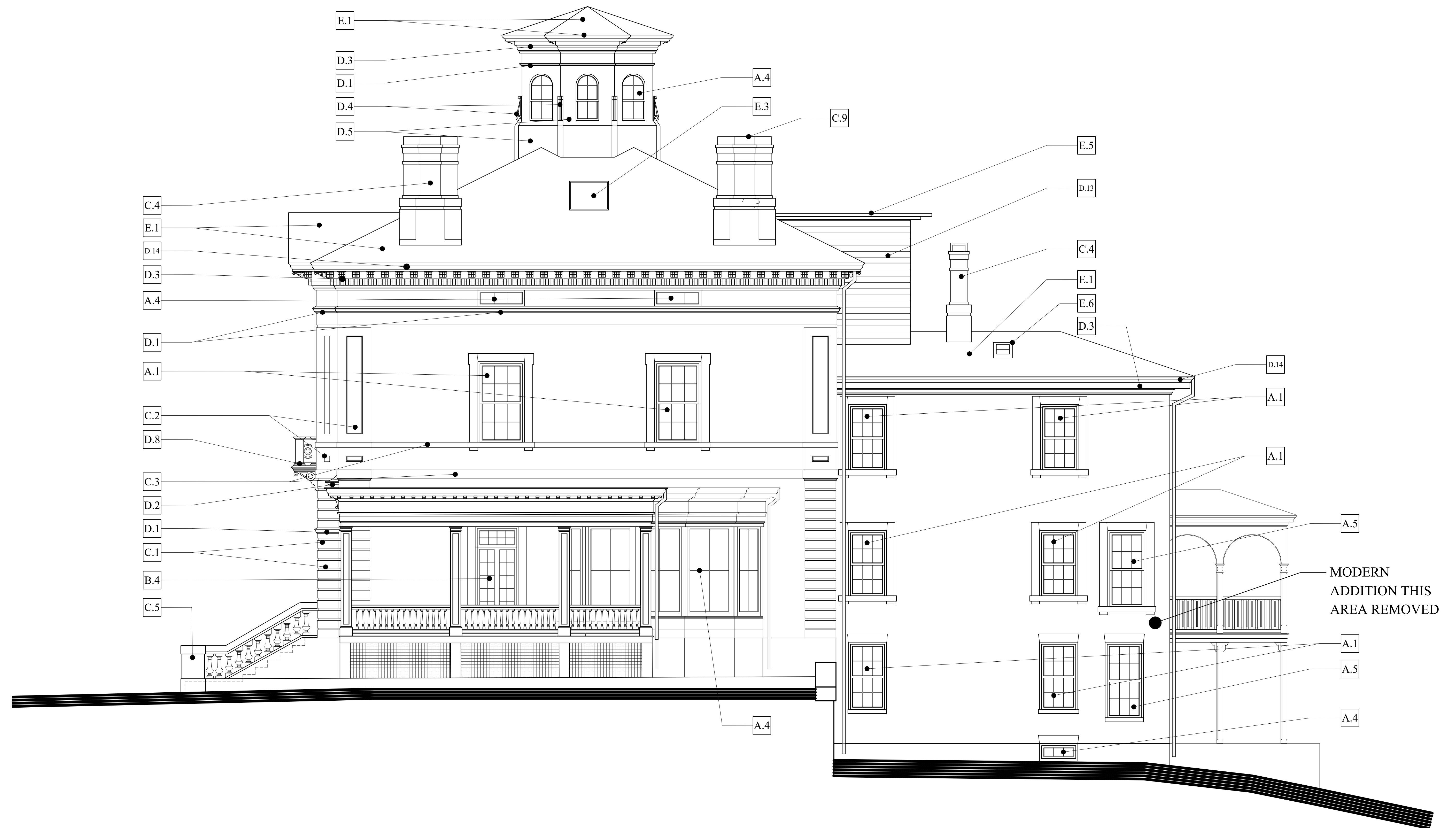
PROPOSED LEFT ELEVATION

1/4" = 1'-0"

A-2.1



HISTORIC PRESERVATION APPLICATION
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PROPOSED RIGHT ELEVATION

1/4" = 1'-0"

AUGUST 12, 2024



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PROPOSED REAR ELEVATION
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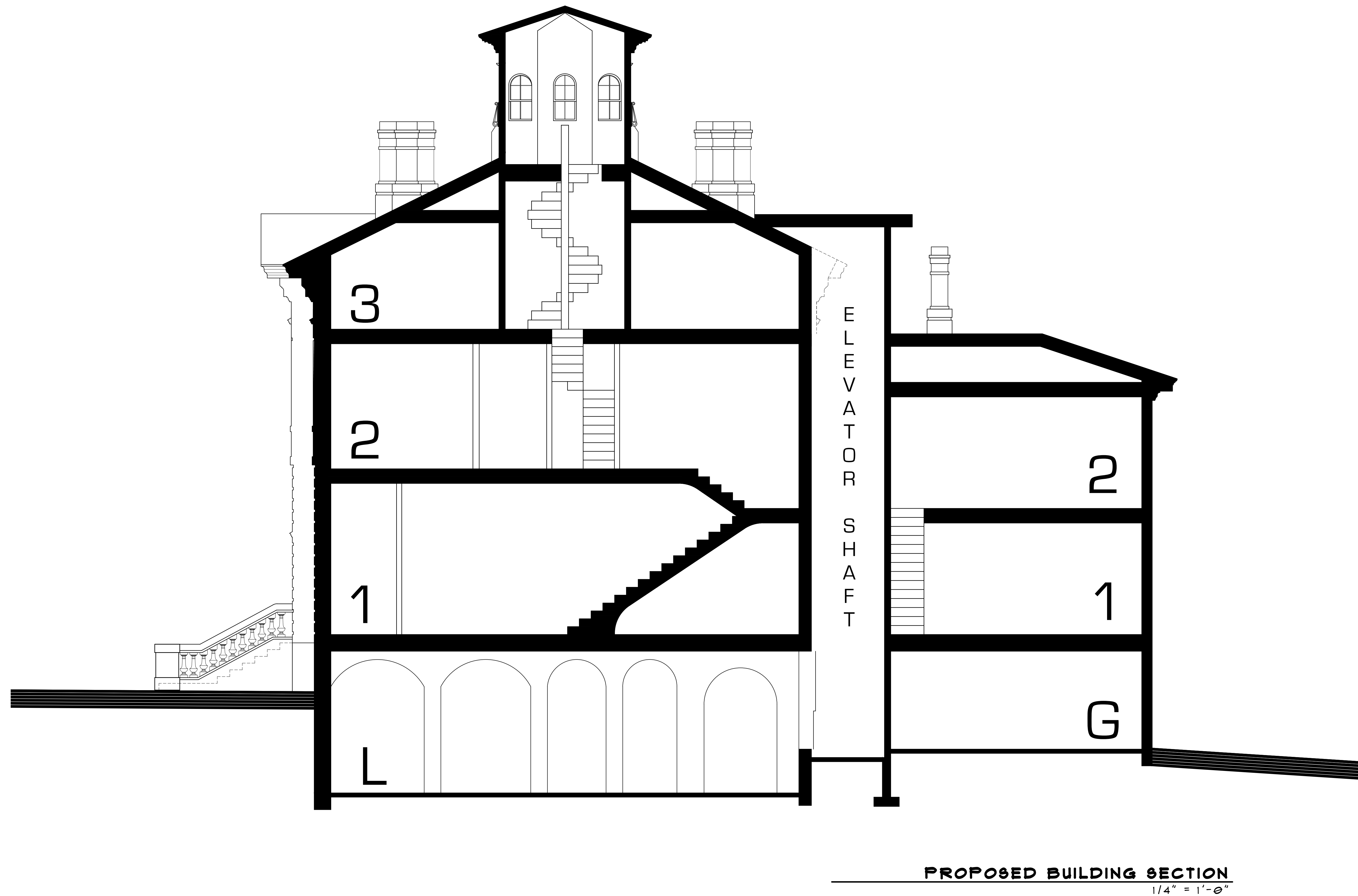
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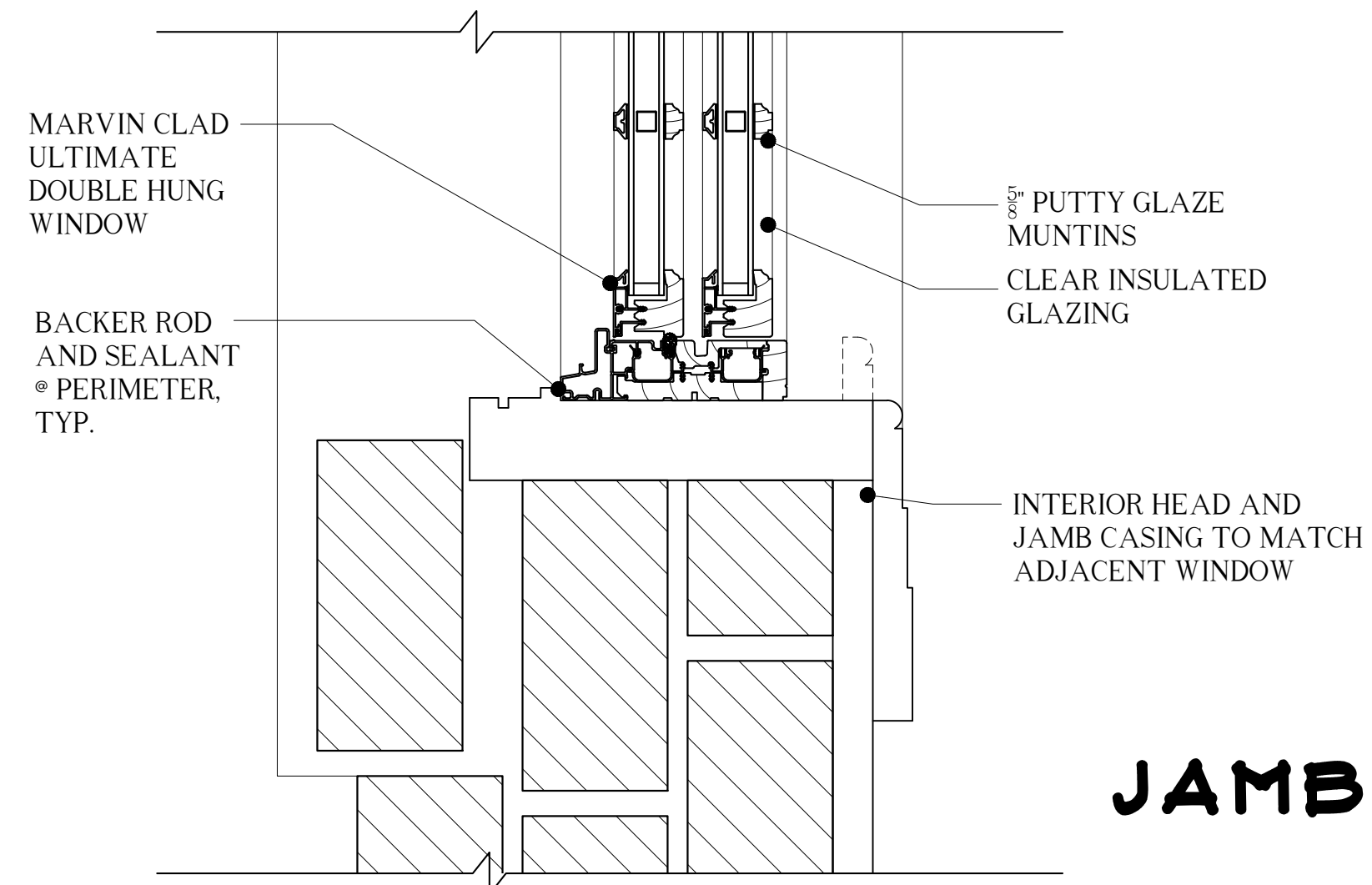
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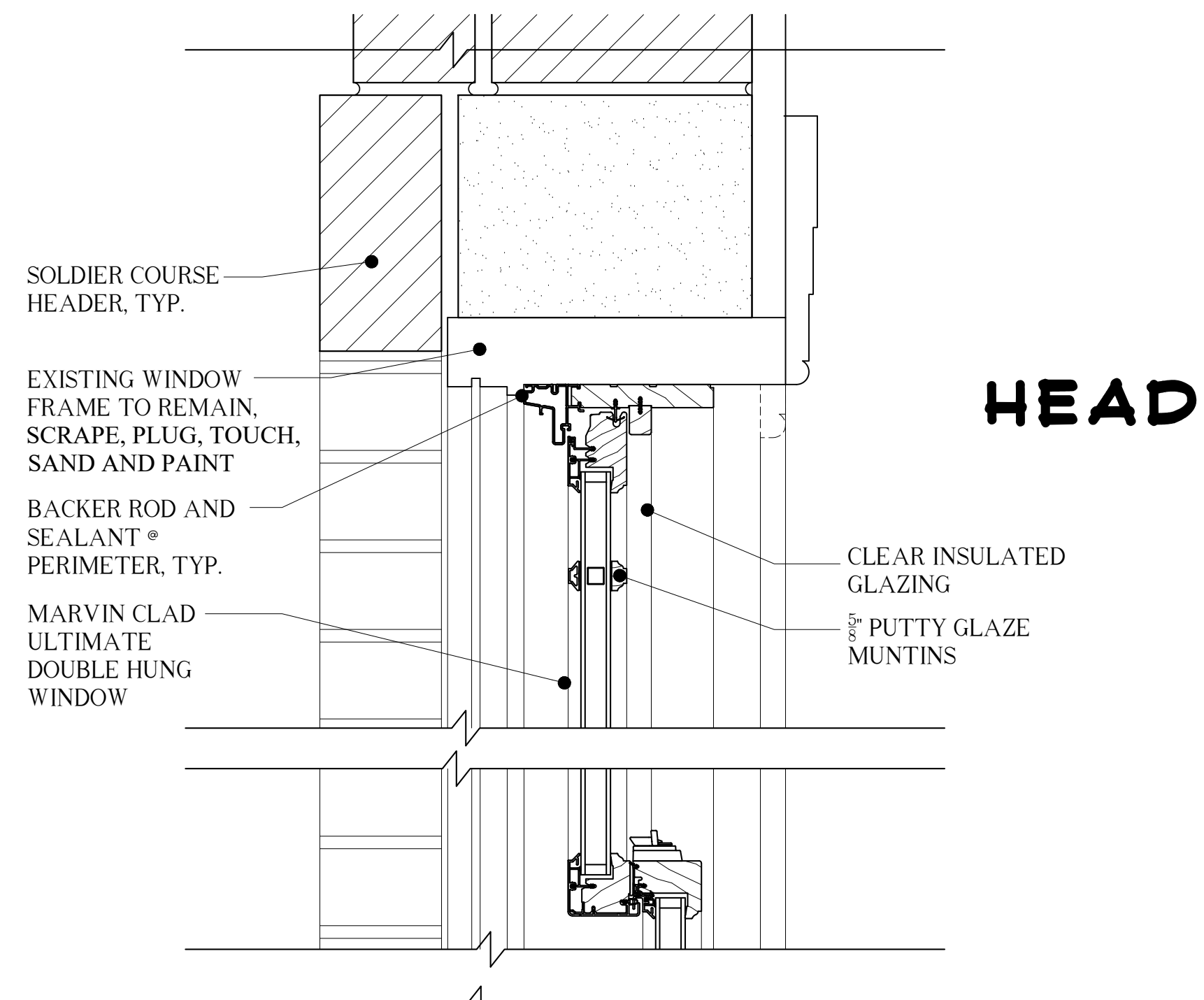


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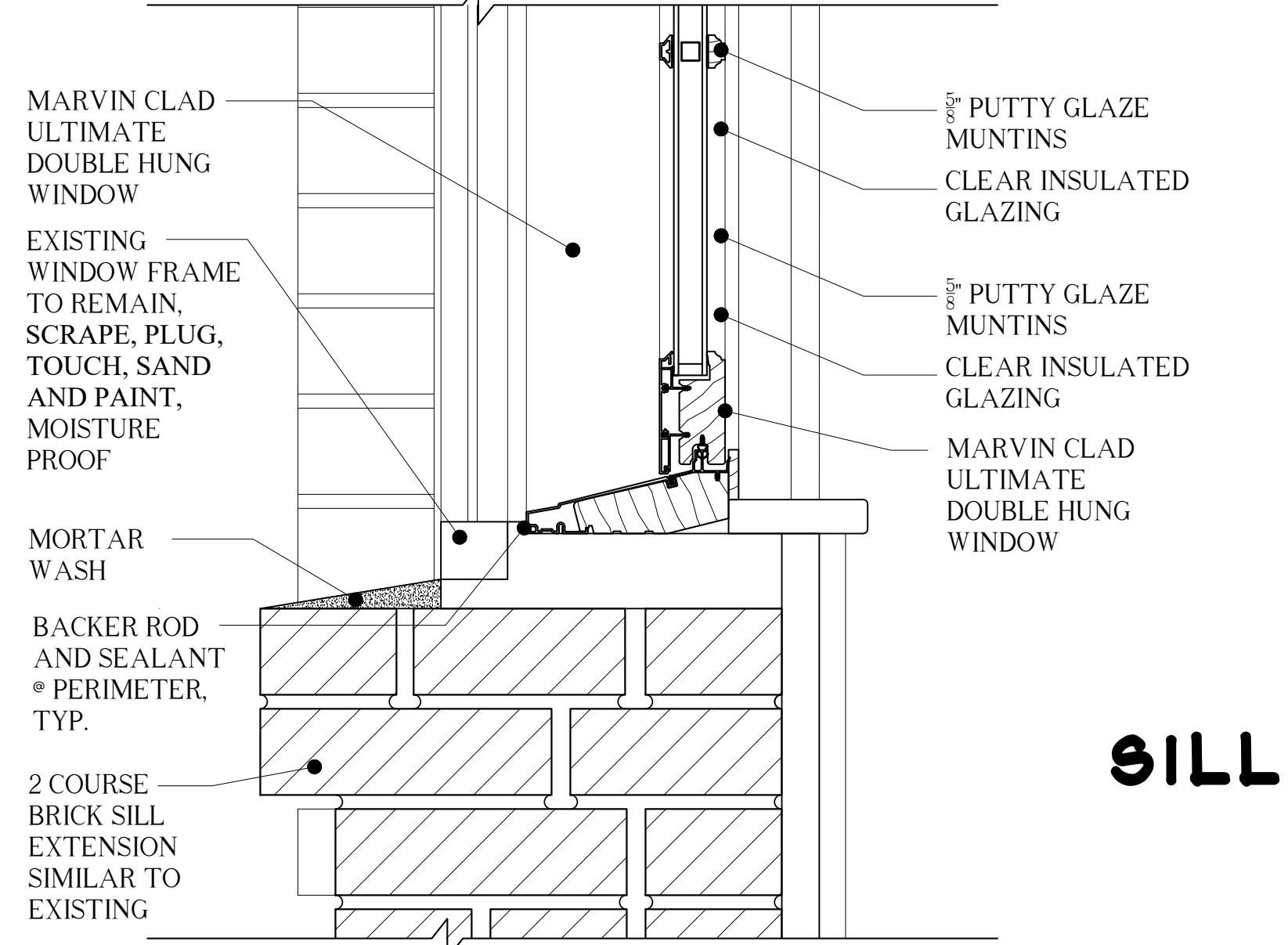
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JAMB



HEAD

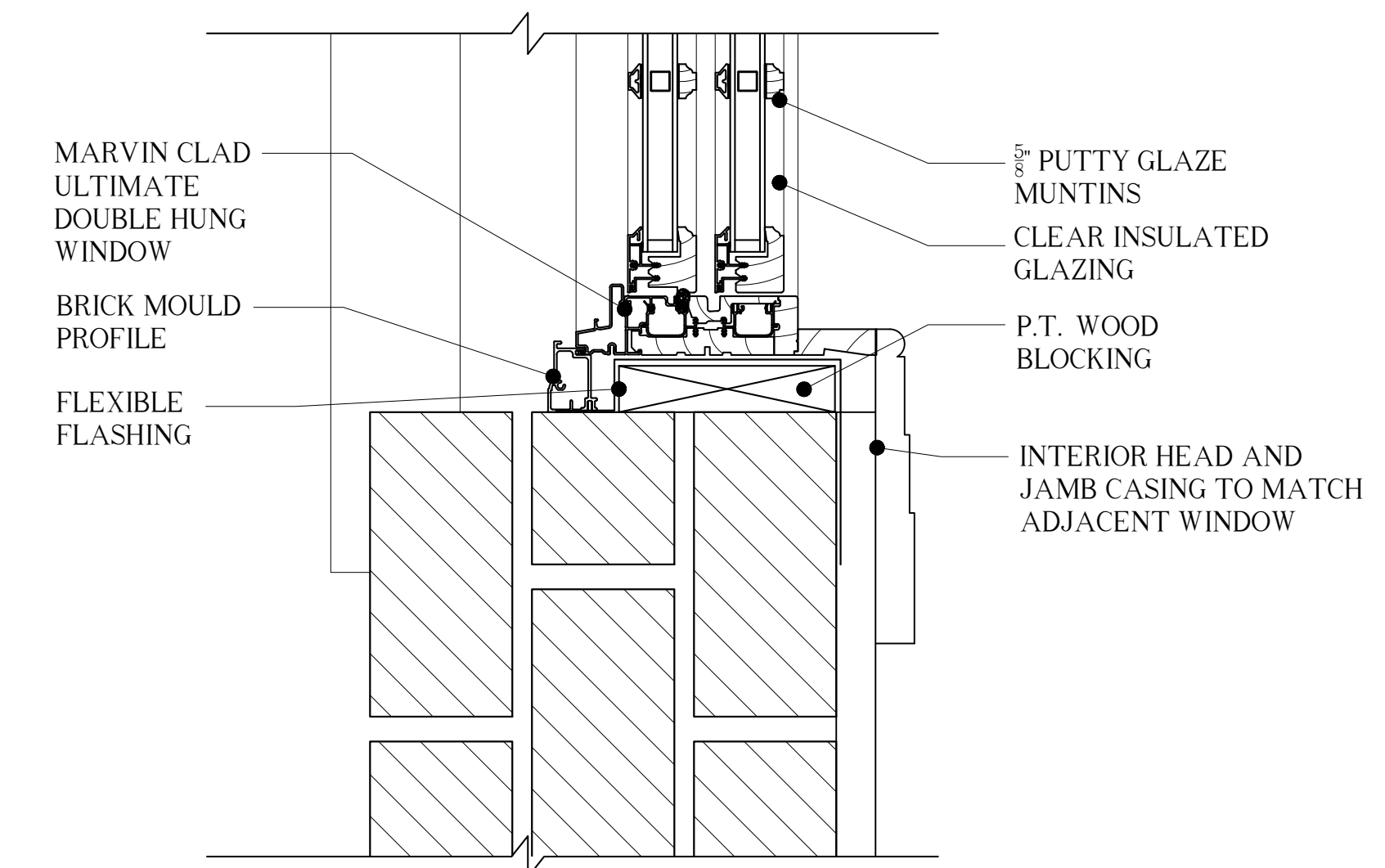


SILL

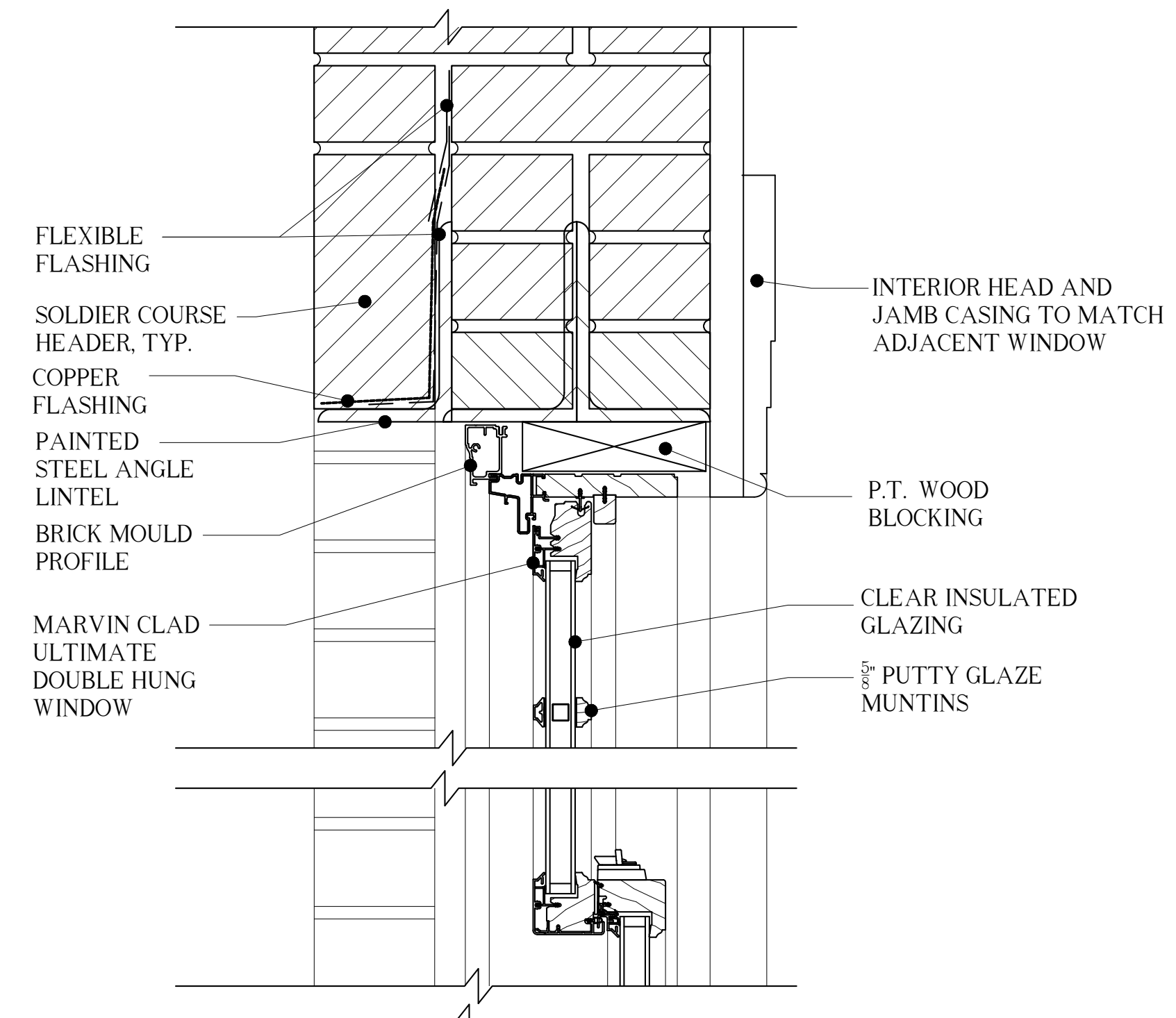
NEW INSERT WINDOW @ EXISTING OPENING

3" = 1'-0"

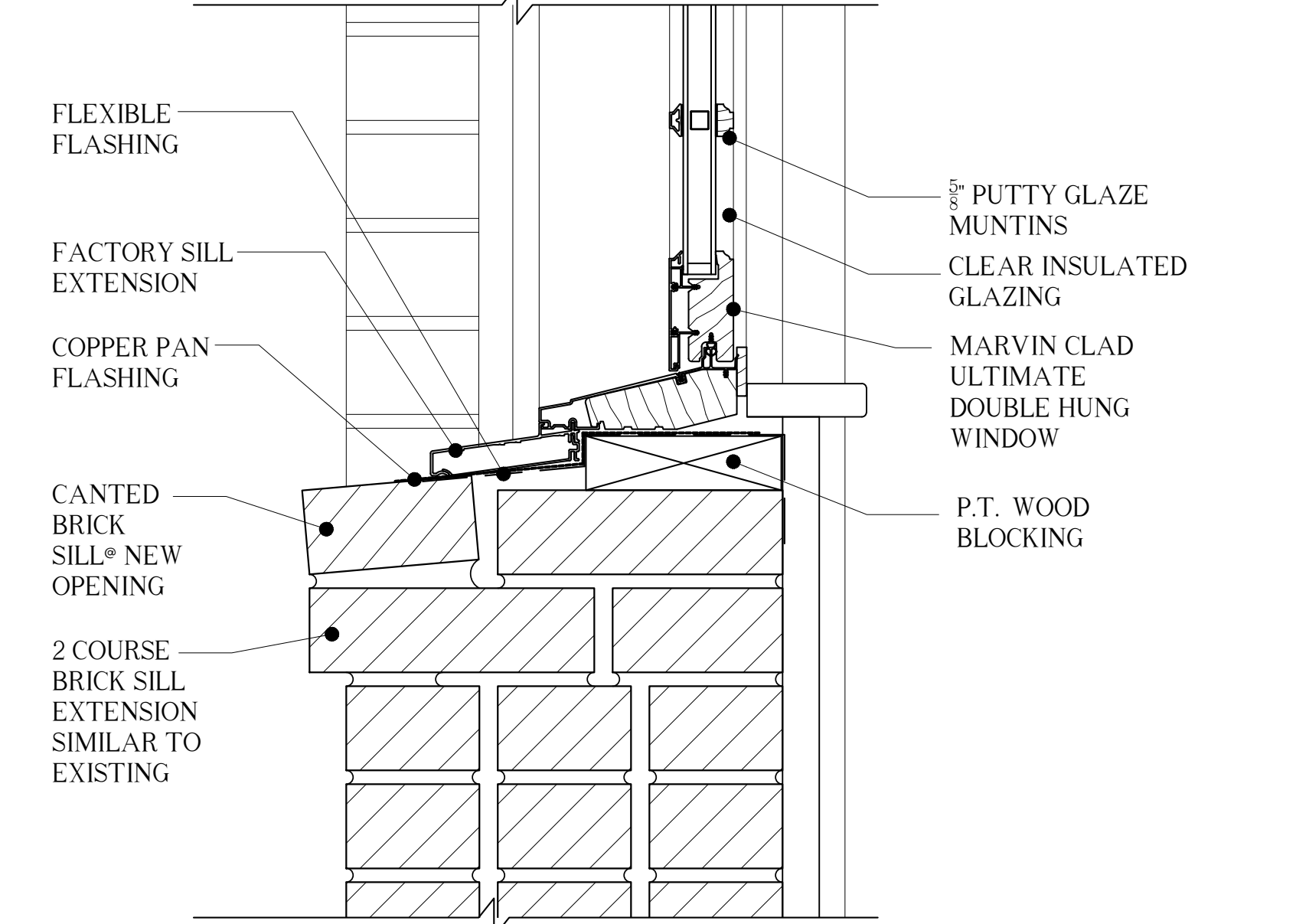
HISTORIC PRESERVATION APPLICATION FOR CERTIFICATE OF APPROPRIATENESS



JAMB



HEAD



SILL

NEW WINDOW @ NEW OPENING

3" = 1'-0"

A-3.1

ULTIMATE

MARVIN SIGNATURE® COLLECTION

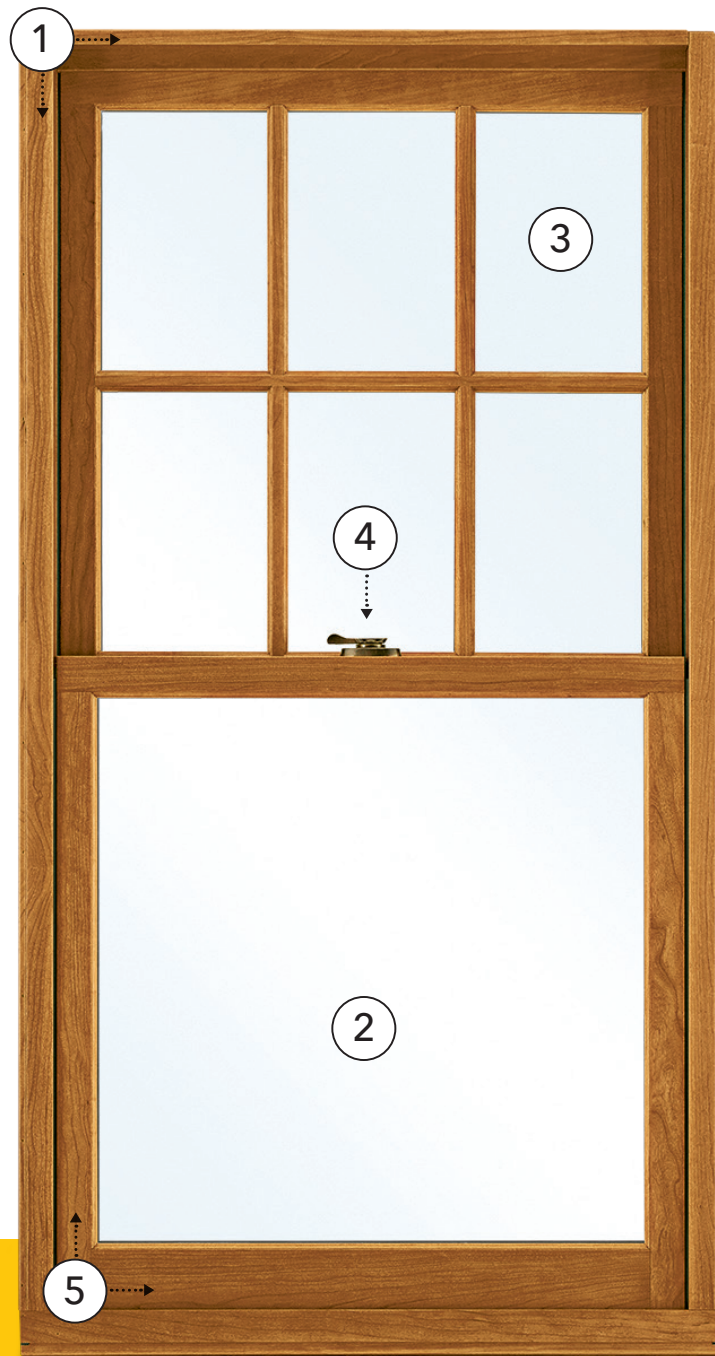


WINDOWS



Awning and Picture windows in Ebony

WINDOW TERMS + DEFINITIONS



1. FRAME

There are three components to the frame: the header across the top, the jambs down each side, and the sill across the bottom. Marvin frames are built strong with a variety of high-quality wood species.

2. GLAZING

The glass in a window is called glazing. Marvin's broad range of glazing options can meet both high-performance and refined aesthetic requirements.

3. LITE

Each area of glass is called a lite. Marvin offers divided lite patterns for whatever look you wish to create.

4. HARDWARE

Marvin uses only the highest quality locks, handles, lifts, pulls, and hinges in a wide variety of durable finishes.

5. SASH

The sash—operating or stationary—is comprised of horizontal rails, vertical stiles, and glazing. Marvin's large solid sash offer precise fit and ease of operation.

WINDOW OPERATING STYLES



DOUBLE HUNG

Double hung windows have two movable sashes which operate vertically.



CASEMENT

A window that is hinged to its frame at the side and opens like a door.



GLIDER

A window with a sash that slides horizontally to open and close.



AWNING

An awning is hinged to the frame at the top and opens outward. If hinged on the bottom, it's called a hopper.



FIXED OR PICTURE

An inoperable window with direct glaze or in-sash configurations. Available in a wide range of polygon and radius shapes.

MORE FLEXIBILITY TO MEET ANY DESIGN CHALLENGE.

Marvin has an extensive selection of styles, sizes, shapes, and options.

DOUBLE HUNG WINDOWS

Ultimate Double Hung windows combine state-of-the-art design with classic style. Advanced engineering and high-quality construction make our double hung windows incredibly durable, versatile, and easy to use.



Double Hung G2 windows and Sliding French door in Bronze

Photo: Laurey Glenn

ULTIMATE DOUBLE HUNG G2



Double Hung G2 window in White with Oil Rubbed Bronze hardware



Photo: Laurey W. Glenn

Double Hung G2 windows in White with Oil Rubbed Bronze hardware

ULTIMATE DOUBLE HUNG G2

The Ultimate Double Hung G2 window is an embodiment of our dedication to the craft of creating windows and doors. Influenced by the rich, historical significance of this window style and inspired by innovative design, each feature is thoughtfully added and every detail is carefully considered. This is all in service of shaping a window that deserves to be in the unique homes our customers desire.



INTERIOR



EXTERIOR



UNIQUE WASH MODE ALLOWS CLEANING OF BOTH SIDES OF GLASS FROM INDOORS

ULTIMATE DOUBLE HUNG G2

Engineered for performance and designed to inspire, each aspect of the Ultimate Double Hung G2 window was made with purpose. Our engineers consider every detail from the most innovative features to the most minute subtleties, all because the windows in your home help illuminate the most important parts of your life.

INTERIOR FEATURES AND PERFORMANCE

RICH WOOD INTERIOR
Offers beauty and warmth with six wood species and ten interior finish options.

NARROW CHECKRAIL
Provides a sleek aesthetic at 1 15⁄16 inches to maximize daylight opening while maintaining historical accuracy.

TILT WASH MODE
Allows easy access to exterior glass for cleaning and maintenance.



EXCLUSIVE AUTOLOCK
Activates when the sashes are closed, locking the window.

FIRST-RATE ENERGY EFFICIENCY
Meets ENERGY STAR® standards in energy efficiency with multiple glass options for various regions, climates, and weather needs.

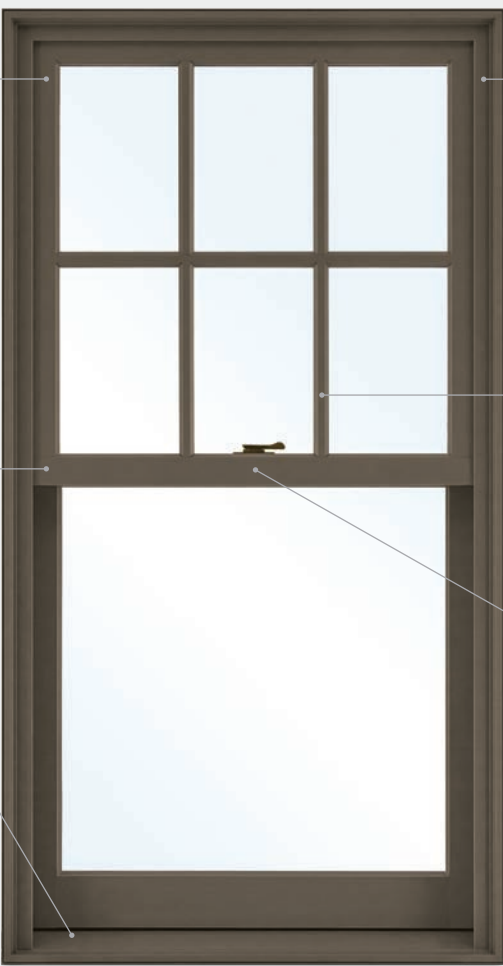
SASH BALANCE SYSTEMS
Enables smooth operation at the largest sizes.

EXTERIOR FEATURES AND PERFORMANCE

DURABLE CLADDING
Extruded aluminum exterior cladding with an AAMA verified 2605 finish and backed by a 20-year warranty against chalking and fading.

EXPANSIVE SIZES
Larger than 5 feet wide by 10 feet high.

TRADITIONAL SILL BEVEL
The 14-degree bevel provides optimal water management while maintaining a classic look.



SUPERIOR WEATHER PERFORMANCE
LC-PG50 on most sizes. Optional commercial (CW) performance and IZ3 certified coastal performance on most sizes.

DESIGN VERSATILITY
An array of simulated divided lite patterns, interior and exterior color options, ten hardware finishes, and archtop models.

ALUMINUM INTER-LOCK
Eliminates drafts and improves the window's overall structural integrity.

ULTIMATE DOUBLE HUNG INSERT G2



Double Hung Insert G2 windows in White with Satin Nickel hardware

MARVIN SIGNATURE® COLLECTION



Double Hung Insert G2 windows with Matte Black hardware

ULTIMATE DOUBLE HUNG INSERT G2

The Ultimate Double Hung Insert G2 window adds quality craftsmanship, beauty, and energy efficiency to your home without compromising architectural integrity. Its frame-in-frame design is built precisely to seamlessly fit into your unique window opening, so there's no need to remove the existing frame or disturb the exterior or interior trim of your house.



INTERIOR



EXTERIOR



SASH LOCK IN SATIN NICKEL

ULTIMATE SINGLE HUNG G2



Single Hung G2 window with Traditional Lift Lock in Satin Chrome



Single Hung G2 windows with Contemporary Lift Lock in Brass

ULTIMATE SINGLE HUNG G2

A contemporary classic, the Ultimate Single Hung G2 window blends traditional beauty and state-of-the-art performance. With the top sash stationary and the bottom sash operable, a single hung style is often preferred in a cottage-style window with a small top sash that doesn't need to open. Reliable and energy efficient, the Ultimate Single Hung G2 window offers an auto-lock feature for convenient security, durable hardware for smooth operation, and Marvin's unique Wash Mode for easy cleaning. Customize your design with round top styles or optional Lift Lock, Marvin's exclusive bottom rail locking mechanism for easier operation in hard-to-reach areas.



INTERIOR WITH
CONTEMPORARY
LIFT LOCK



INTERIOR WITH
TRADITIONAL
LIFT LOCK



CONTEMPORARY LIFT LOCK OPERATION SHOWN IN SATIN NICKEL

WOOD EXTERIOR DOUBLE HUNG WINDOWS



Wood Exterior Double Hung windows with White hardware



Wood Exterior Double Hung windows with custom stain

WOOD EXTERIOR DOUBLE HUNG WINDOWS

The Ultimate Wood Double/Single Hung, Ultimate Wood Double Hung Magnum, and Ultimate Wood Double Hung Insert are quintessentially American windows designed to fit seamlessly into the historic fabric of your home, neighborhood, or community. With residential and commercial applications, these windows are perfect for any historic building.



WOOD DOUBLE/SINGLE HUNG EXTERIOR



WOOD DOUBLE HUNG MAGNUM INTERIOR



DOUBLE HUNG INSERT EXTERIOR

ULTIMATE AWNING



Awning window in stained Multi-Grain Douglas Fir with Matte Black hardware



Awning and Picture windows with Matte Black hardware and Designer Black sash/White frame

ULTIMATE AWNING

A top-hinged alternative or complement to a casement window, the Ultimate Awning window is designed for performance and quality. With industry-leading sizes, the Ultimate Awning can be used on its own as a convenient option for hard to reach areas like over a sink or counter, or as a complement to adjacent windows, allowing fresh air access.



AWNING WITH FOLDING HANDLE
IN SATIN NICKEL



AWNING PUSH OUT WITH PUSH OUT HANDLE
IN OIL RUBBED BRONZE

DOORS

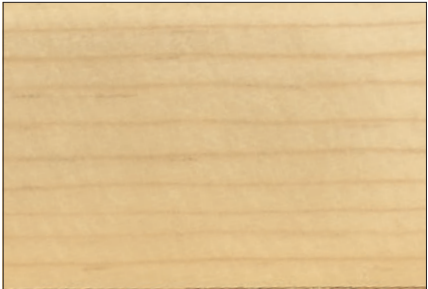


Multi-Slide doors in Bronze

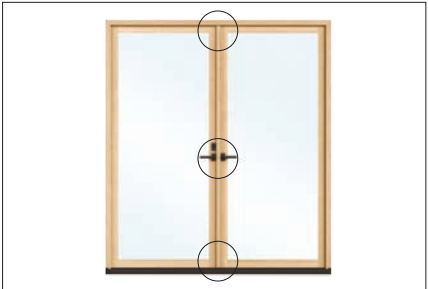
DOOR FEATURES + OPTIONS



BEAUTY WITH PERFORMANCE
Designed for durability and to minimize air and water infiltration. Many of our door products are certified to a light commercial rating of PG40.



SOLID WOOD PANELS + FRAMES
The sound of a Marvin door closing is a quiet statement of quality. Wood in the panels and frames make for an elegant, crafted look and feel, and provide a weather-tight closure for outstanding energy efficiency.*



MULTI-POINT LOCKING SYSTEM
Concealed stainless steel head and foot bolts within the door secure it solidly at three points. Choose either a keyed or non-keyed lever handle. Multi-point lock comes standard.



ADJUSTABLE HINGE
Standard on swinging doors, an adjustable hinge makes it easy to fine-tune the fit of a swinging door over the door's lifetime. Available in a variety of finishes, plus coastal options.



LOW PROFILE SILL
This innovative sill option on select door types provides for a smooth transition between exterior and interior living spaces.



RAISED AND FLAT PANELS
Raised and flat panels add depth and style to sliding and swinging French doors, including arch top swinging doors. This option changes the overall aesthetic of your door when less than a full lite of glass is desired.



Sliding French Door in Ebony

* Standard in 1 3/4" and available in 2 1/4" panel thickness.

ULTIMATE SWINGING FRENCH DOOR G2



Inswing French door G2 with Oil Rubbed Bronze hardware

MARVIN SIGNATURE® COLLECTION



Inswing French door G2 and Elevate Direct Glaze window in White with Simulated Divided Lites

ULTIMATE SWINGING FRENCH DOOR G2

The Ultimate Swinging French door G2, available in both Inswing and Outswing, delivers a traditional aesthetic with 4 ¾ inch top rail and 8 ⅛ inch bottom rail. Select sizes up to 10 feet high and 14 feet wide to maximize views and access to the outdoors. Choose up to 4 panels with an Ogee interior profile.



INSWING
INTERIOR



INSWING
EXTERIOR



Available with IZ3

INTERIOR FINISH OPTIONS

PINE

VERTICAL GRAIN
DOUGLAS FIR

MIXED GRAIN
DOUGLAS FIR

CHERRY

WHITE OAK

HONDURAN MAHOGANY

MAPLE
Custom option

BLACK WALNUT
Custom option

WOOD SPECIES

Offering a rich, warm look, many custom options, and design versatility, wood is a premium choice. Wood can be used on both the interior and exterior of our Ultimate windows and doors. As a lower maintenance option, wood can also be used on only the interior with an extruded aluminum cladding exterior. Marvin offers both options, leading the industry in sourcing, processing, and utilizing high-quality wood.



Bi-Fold door in Mahogany

STAIN + PAINT

When compared to painting or staining on the job site, factory-stained finishes offer consistent quality and performance resulting from our expertise with wood as a material and years of perfecting our finishing processes.

Painting on the job site or scheduling off-site finishing is an extra step that takes time and coordination. Choose our painted interior finish option on any Marvin windows and doors with a wood or clad exterior for a factory-painted option that arrives ready to install.

CLEAR

WHEAT

HONEY

HAZELNUT

LEATHER

CABERNET

ESPRESSO

Stain colors shown on Pine. To see more about finishes visit [Marvin.com](https://www.marvin.com).

DESIGNER BLACK

WHITE

PRIMED WHITE

EXTERIOR FINISH OPTIONS

STONE WHITE
COCONUT CREAM
SIERRA WHITE
CASHMERE
PEBBLE GRAY
HAMPTON SAGE
CADET GRAY
CLAY
CASCADE BLUE
SUEDE
GUNMETAL
WINEBERRY
BRONZE
BAHAMA BROWN
EVERGREEN
EBONY
BRIGHT SILVER (PEARLESCENT)
COPPER (PEARLESCENT)
LIBERTY BRONZE (PEARLESCENT)

CUSTOM COLOR: ANY COLOR YOU WANT

EXTRUDED ALUMINUM

Extruded aluminum is an extremely tough cladding that protects wood windows, mimics the profiles of wood, and provides superior durability. It is the most commonly ordered exterior material for our Ultimate products.

Select a color from our palette of 19 durable extruded aluminum colors, including a spectrum of rich hues and three pearlescent finishes. If you have more specialized needs, we can also work with you to create a custom color.

WOOD

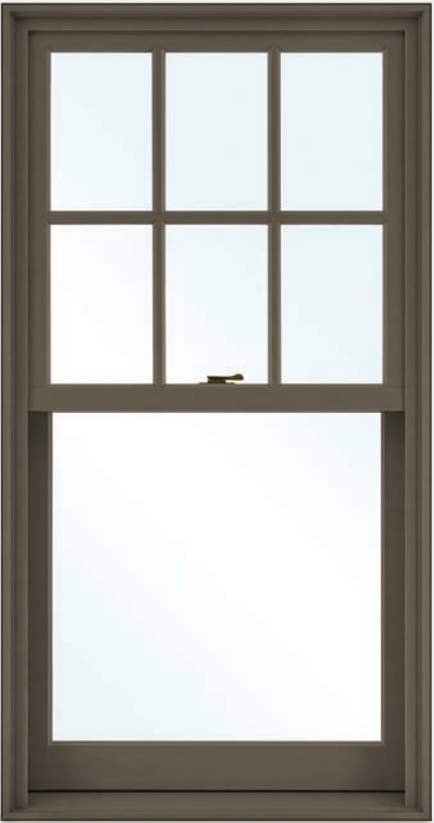
Wood is a premium material for windows and doors, offering classic aesthetic appeal, many options for customization, and design versatility.

We treat exposed millwork with a water repellent wood preservative to help it last longer. Choose from one of the four options below. Each is ready to be finished to match your project's exacting requirements.

PINE
VERTICAL GRAIN DOUGLAS FIR
MAHOGANY
WESTERN RED CEDAR Exterior trim package only



Double Hung G2 window in Ebony



Double Hung G2 window in Suede

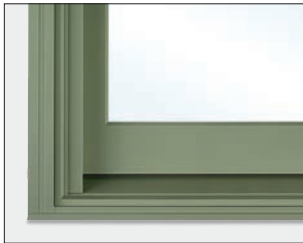
EXTERIOR CASINGS + SUBSILLS



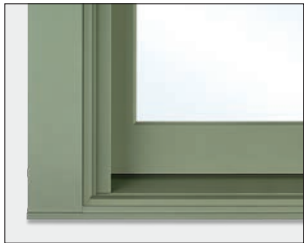
Brick Mould Casing and special subsill with custom mull cover in Hampton Sage

EXTERIOR CASINGS + SUBSILLS

Adding Marvin extruded aluminum or wood casings and subsills to your windows and doors provides great architectural detail to any home. Ultra-durable extruded aluminum casings feature a beautiful factory-applied finish that resists chalking, fading, pitting, corrosion, and marring. Casing profiles are consistent around the sides and top of a window or door, except for the Potter casing profile, which has a taller head. Custom casings and subsills are also available.



BRICK MOULD CASING
WITH A246 SUBSILL



FLAT CASING
WITH A246 SUBSILL



COLUMBUS CASING
WITH A1450 SUBSILL



RIDGELAND CASING
WITH A1453 SUBSILL



GRAYSON CASING
WITH A1451 SUBSILL



THORTON CASING
WITH A1450 SUBSILL



STRATTON CASING
WITH A1453 SUBSILL



POTTER CASING
WITH A217 SUBSILL



Grayson Casing in Bronze



Potter Casing with A1451 Subsill in Cascade Blue

DIVIDED LITES



Inswing French Door G2 and Round Top window with custom Simulated Divided Lites



DIVIDED LITES

Simulated divided lites, available in a number of different styles, mimic the look of individual panes of glass with the energy efficiency of dual pane insulated glass.

Our custom capabilities allow us to create almost any divided lite pattern to match your design style.



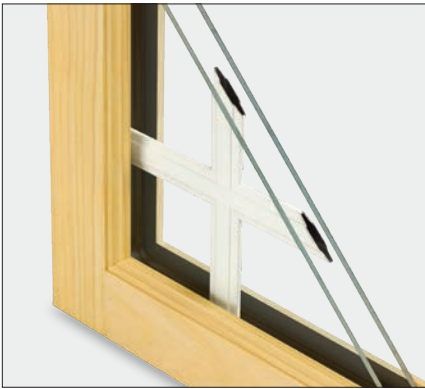
SIMULATED DIVIDED LITE (SDL)

SDL bars are permanently adhered to both sides of the glass. Simulated Divided Lites with Spacer Bars (SDLs) are an energy-efficient way to create the look of authentic divided lites.



AUTHENTIC DIVIDED LITE (ADL)

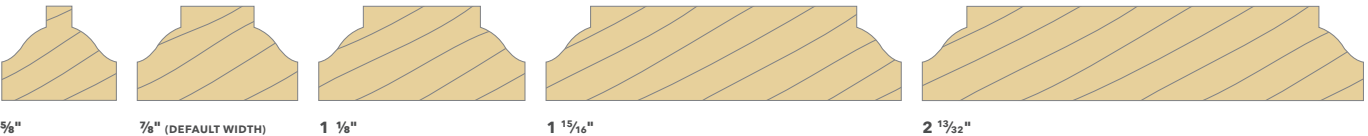
Separate panes of glass are glazed between muntin bars for historical accuracy. Available exclusively with wood exterior units.



GRILLES-BETWEEN-THE-GLASS (GBG)

Grilles are permanently installed between the glass panes. This low-maintenance grille offers the look of a divided lite pattern with the ease of cleaning just one pane of glass. Available with different interior and exterior colors.

FIVE STANDARD BAR WIDTHS



SQUARE STICKING



STICKING AND PROFILES

Sticking refers to the interior profiles of your wood window. Choose from the standard Ogee profile (used on traditional projects) or the optional clean, contemporary Square sticking.



OGEE



SQUARE



SQUARE STICKING

GLASS + GLAZING



Awning and Picture windows and Inswing French door in Pebble Gray



DUAL PANE GLAZING
Our standard glazing is dual pane: two panes of glass with Low E coatings and insulated with argon gas. Compared to a single glass pane, dual pane glass cuts energy costs significantly because of low emissivity coating and the gas-filled insulating space between the glass layers.



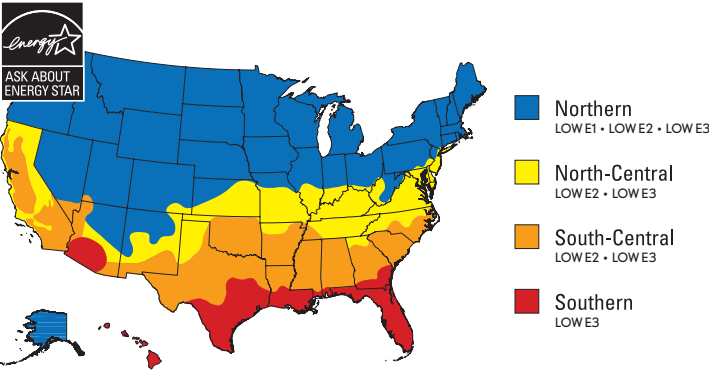
TRIPLE PANE GLAZING
Triple pane glazing consists of three panes of glass with Low E coatings applied to the surface. Two glass spaces are insulated with argon gas between the panes. Available in products where glazing thickness can be greater than ¾ inch.

GLASS + GLAZING

The thermal and structural properties of wood combined with the right glazing make Marvin wood and extruded aluminum clad products an optimal choice for energy efficiency. We offer thousands of window and door options with two or three panes of glass and a range of glazing options to meet the performance challenges of any climate.

GLASS COATINGS

Low E coatings are microscopically thin, essentially invisible coatings on the glass surface that help manage the amount of light and heat conducted through a window pane or reflected away from it, reducing a home's dependence on heat and air conditioning. The national ENERGY STAR® program recognizes products that meet strict energy-efficiency guidelines to suit climates in different areas of the country, and Marvin offers products to meet climate and code requirements in every region.



LOW E1
Low E1 coating is a good choice when you want maximum solar heat gain and radiant heating properties. This type of coating is generally used in Northern climates where heating is prioritized over cooling. You'll reap maximum benefits when windows with this type of coating are positioned to receive direct sun exposure.

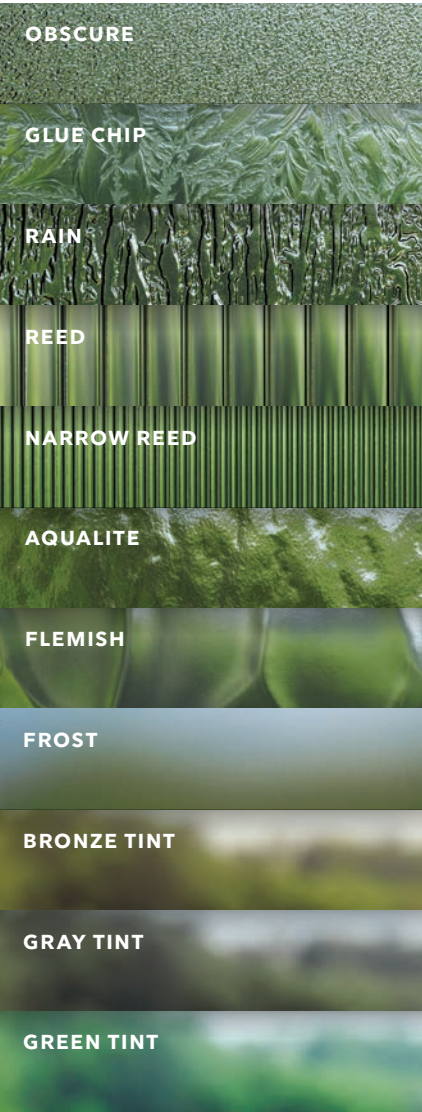
LOW E2
The most common Low E coating since it works well across most geographic regions and climates. Low E2 with two metallic coatings balances less solar heat gain and improved radiant heating properties.

LOW E3
Used in applications where solar heat gain may be a concern, low E3 coating uses multiple metallic layers for radiant properties similar to Low E2. This type of coating is most commonly used in Southern, sunny climates where cooling is prioritized over heating.

SPECIALTY GLASS

Our specialty options include glass for unique project needs like sound abatement (STC/OITC), high altitudes, Sea Turtle Conservation Codes, and California fire zones. We also offer laminated glass on certain products that are designed specifically for hurricane zones.

A variety of decorative glass options, including those shown below and others, are available to meet the unique needs of each project. Laminated glass is also available in clear, bronze, gray, or green with tinted interlayers.



HOME AUTOMATION



Casement windows and Sliding French door with concealed Lock Status Sensors

SLIDING DOOR AUTOMATIC CONTROL

Even though a large Ultimate Multi-Slide door slides open or closed with surprising ease, Marvin offers an option for automated operation. The quiet, motorized system works with touchpad controls and can easily be adapted to interface with home automation systems and smart phone technologies.



LOCK STATUS SENSOR

Our Lock Status Sensor brings smart home capabilities to Marvin windows and doors. This affordable solution is installed in the factory and fully concealed—meaning no unsightly sensors attached on the exterior or interior and no additional modification of your product once installed. The sensor can be wired or wirelessly connected, working in tandem with your smart home security system to indicate if windows and doors are closed and locked and providing peace of mind when security is a concern.



SCREENS



Double Hung Insert G2 windows in Stone White with Full Screens

SCREENS

Choose from an aluminum surround in three finishes or a wood interior surround that complements warm wood interiors. Marvin screens now come standard with Marvin Bright View™ – a fiberglass screen mesh that provides improved airflow and more natural light while keeping insects out. Bright View repels water and resists dirt and grime for a sharp, vivid view.

CASEMENT SCREEN OPTIONS

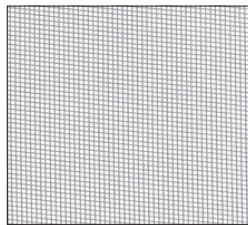


WOOD SCREEN SURROUND
The patented wood screen surround with wood interior and aluminum exterior features Marvin Bright View™ screen mesh. Aluminum screen mesh options also available.

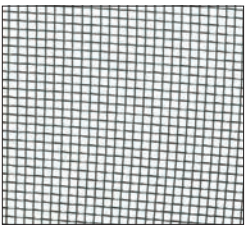


INSWING CASEMENT SCREEN
The beautifully crafted inswing screen adds a classic touch and allows access to operate push-out casement and awning windows.

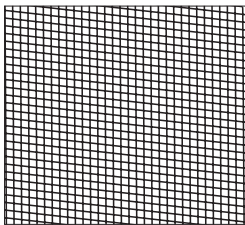
SCREEN MESH OPTIONS



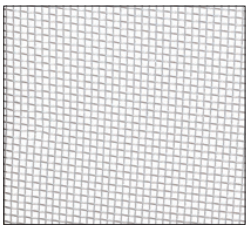
MARVIN BRIGHT VIEW™



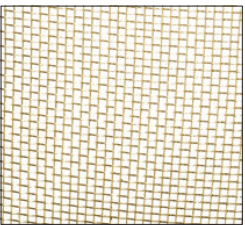
CHARCOAL ALUMINUM WIRE



BLACK ALUMINUM WIRE



BRIGHT ALUMINUM WIRE



BRIGHT BRONZE WIRE

DOUBLE HUNG SCREEN OPTIONS



FULL OR HALF SCREEN

Exterior aluminum screen with an aluminum surround. The full screen covers both the top and bottom sash. The half screen only covers the bottom sash.



DOUBLE HUNG STORM OPTIONS



TWO-LITE WOOD STORM SASH OR SCREEN

A wood frame containing non-removable glass. The storm sash can be removed during the summer and replaced with a wood-framed screen. Available only for wood windows.



STORM AND SCREEN COMBINATIONS

A combination unit is composed of two glass panels and one screen panel that can be easily removed from the interior for cleaning. Available with a wood (bare or primed) or aluminum surround, panels can be configured multiple ways, glass above screen, screen above glass, or glass above glass.



ENERGY PANEL

Often confused with storm windows, an energy panel is technically a glazing option. It is a removable, exterior glass panel finished on the edges by a surround. Energy panels cover the exposed glass surface of each sash and offer added energy efficiency for wood windows with single glazing.

DOOR SCREEN OPTIONS



ULTIMATE SWINGING SCREEN DOOR

With profiles that complement the aesthetics of the door, swinging door screens feature robust, durable extruded aluminum surrounds and concealed hinges.



ULTIMATE SLIDING SCREEN DOOR

Aluminum top hung sliding screen with roller bar, adjustable rollers and unmatched sliding operation.



SCENIC DOOR SLIDING SCREEN

The Marvin Ultimate Sliding Screen operates with ease and conceals when not in use. The screen is unobtrusive even in large sizes measuring up to 15 feet wide and up to 10 feet high uni-directional or up to 29.5 feet wide bi-parting.

Marvin window and door screens come standard with Marvin Bright View™ – a fiberglass screen mesh that provides improved airflow and more natural light while keeping insects out. Bright View repels water and resists dirt and grime for a sharp, vivid view.

WINDOW OPENING CONTROL DEVICES

Marvin Window Opening Control Devices (WOCD) meet the ASTM F2090-21 standard, created to assist in the prevention of window falls. To meet the standard, our devices limit the window's net clear opening to less than 4 inches (when the sash is open) and have a release function allowing the window to open completely. In order to meet the safety standard, WOCD disengagement takes two independent actions, which helps prevent accidental release. Devices will then automatically reengage once the window is closed and again limit the window opening to less than 4 inches upon re-opening.



ULTIMATE CASEMENT



ULTIMATE DOUBLE HUNG G2



ULTIMATE GLIDER

WINDOW HARDWARE



Double Hung G2 with Auto-locking Sash Lock in Satin Nickel

WINDOW HARDWARE

Ultimate’s durable and elegant hardware is engineered for reliability and to harmonize with any décor. Choose a finish to complement your architectural style. Durable painted finishes in Matte Black, Satin Taupe, Bronze, and White mimic the look of metal. Satin Nickel, Brass, Antique Brass, Polished Chrome, Oil Rubbed Bronze, and Satin Chrome offer the rich appearance and durability of authentic metal finishes.



AUTO-LOCKING HARDWARE SYSTEM

PRODUCTS:
Ultimate Double Hung G2
Ultimate Single Hung G2

AVAILABLE FINISHES:
Matte Black • Brass • Satin Taupe
Satin Nickel • Bronze • White
Antique Brass • Oil Rubbed Bronze
Polished Chrome • Satin Chrome



TRADITIONAL LIFT LOCK

PRODUCTS:
Ultimate Single Hung G2

AVAILABLE FINISHES:
Matte Black • Brass • Satin Taupe
Satin Nickel • Bronze • White
Antique Brass • Oil Rubbed Bronze
Polished Chrome • Satin Chrome



CONTEMPORARY LIFT LOCK

PRODUCTS:
Ultimate Single Hung G2

AVAILABLE FINISHES:
Matte Black • Satin Taupe • White
Satin Nickel • Brass • Satin Chrome



FOLDING HANDLE

PRODUCTS:
Ultimate Casement • Ultimate Awning
Ultimate Casement Narrow Frame
Ultimate Awning Narrow Frame

AVAILABLE FINISHES:
Matte Black • Brass • Satin Taupe
Satin Nickel • Bronze • White
Antique Brass • Oil Rubbed Bronze
Polished Chrome • Satin Chrome



PUSH OUT HANDLE*

PRODUCTS:
Ultimate Casement • Ultimate Awning
Ultimate Casement Narrow Frame
Ultimate Awning Narrow Frame

AVAILABLE FINISHES:
Matte Black • Brass • White
Antique Brass • Oil Rubbed Bronze
Satin Nickel



FOLDING HANDLE

PRODUCTS:
Ultimate Glider

AVAILABLE FINISHES:
Matte Black • Brass • Satin Chrome
Satin Nickel • Bronze • White • Satin Taupe
Antique Brass • Oil Rubbed Bronze

* Satin Taupe not available, Oil Rubbed Bronze is standard.

FINISHES



DOOR HARDWARE



Outswing Narrow Profile door with Minimalist handle in Matte Black

DOOR HARDWARE

Ultimate door hardware is engineered for durability, ergonomics, and to be a beautiful complement to your Marvin door. Satin Nickel, Brass, and Oil Rubbed Bronze finishes are available with a PVD finish. The Physical Vapor Deposition (PVD) process adds a layer of toughness to hardware exposed to environmental factors like direct sun and humidity. PVD finishes resist fading and discoloration, even in coastal areas.



TRADITIONAL SWINGING FRENCH

AVAILABLE FINISHES:
Matte Black • Satin Taupe
Dark Bronze • White
Antique Brass • Satin Chrome
Oil Rubbed Bronze
Polished Chrome

PVD FINISHES:
Satin Nickel • Brass
Oil Rubbed Bronze



TRADITIONAL SLIDING FRENCH

AVAILABLE FINISHES:
Matte Black • Satin Taupe
Dark Bronze • White
Antique Brass • Satin Chrome
Oil Rubbed Bronze
Polished Chrome

PVD FINISHES:
Satin Nickel • Brass
Oil Rubbed Bronze



TRADITIONAL SLIDING PATIO

AVAILABLE FINISHES:
Matte Black • Satin Taupe
Dark Bronze • White
Antique Brass • Satin Chrome
Oil Rubbed Bronze
Polished Chrome

PVD FINISHES:
Satin Nickel • Brass
Oil Rubbed Bronze



ADJUSTABLE HINGE

AVAILABLE FINISHES:
Matte Black • Satin Taupe
Dark Bronze • White
Antique Brass • Satin Chrome
Polished Chrome
Oil Rubbed Bronze
Goldtone • Silver Frost

PVD FINISHES:
Satin Nickel • Brass
Oil Rubbed Bronze



CONTEMPORARY SLIDING

AVAILABLE FINISHES:
Matte Black • Dark Bronze

PVD FINISHES:
Satin Nickel • Brass
Oil Rubbed Bronze



CONTEMPORARY SWINGING

AVAILABLE FINISHES:
Matte Black • Dark Bronze

PVD FINISHES:
Satin Nickel
Oil Rubbed Bronze



MINIMALIST SWINGING

AVAILABLE FINISHES:
Matte Black • Dark Bronze

PVD FINISHES:
Satin Nickel
Oil Rubbed Bronze

FINISHES



GALLERY HARDWARE



Rocky Mountain Hardware with Edge Escutcheon, Shift Lever, and Wire Texture in Silicon Bronze Medium

GALLERY HARDWARE

Marvin Gallery Hardware is a curation of door hardware from three renowned manufacturers. Each set chosen meets Marvin's high standards for aesthetics, quality, and craftsmanship.

This hardware collection makes it easy for you to find the hardware choice that perfectly reflects your unique design sensibilities, vision, and personality. From contemporary to traditional, each beautiful piece heightens the aesthetics of any Marvin door.



ASHLEY NORTON

Established in 1987, Ashley Norton is one of the leading designers of fine architectural hardware. With a broad range of designs to suit any architectural style and an abundance of finish options, Ashley Norton solid brass and bronze hardware is built by the most talented craftsman for the most discerning customers.



BOUVET

Founded in 1884 in France by famed ironworker Gustave Bouvet. Metal Style Bouvet combines traditional French ironwork craftsmanship and materials with modern technology to create distinctive hardware for equally distinctive doors. Metal Style Bouvet represents the finest of decorative French-inspired hardware.



ROCKY MOUNTAIN HARDWARE

Rocky Mountain Hardware is expertly crafted in America using only the finest art-grade bronze and precision mechanisms. With over three decades of experience, Rocky Mountain Hardware continues to set itself apart with inimitable style, boundless capabilities, and exceptional quality guaranteed to stand the test of time.

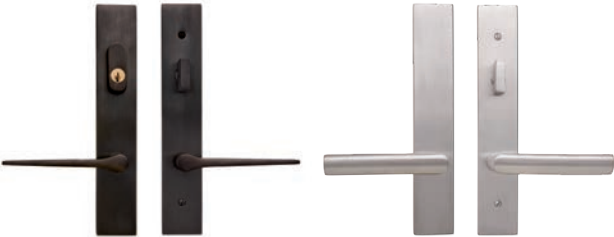
Ashley Norton



ROCKY MOUNTAIN
H A R D W A R E

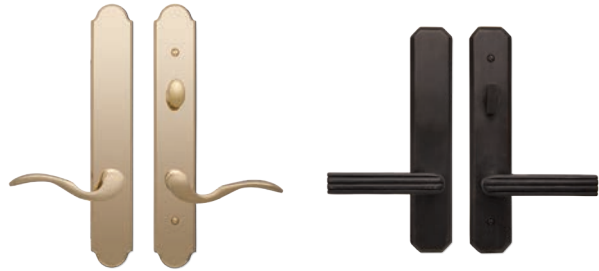
GALLERY HARDWARE

ASHLEY NORTON



URBAN ESCUTCHEON
CLAROS LEVER
DARK BRONZE FINISH

URBAN ESCUTCHEON
ATLAS LEVER
SATIN CHROME FINISH



ARCH ESCUTCHEON
CHESTER LEVER
POLISHED BRASS FINISH

ANGULAR ESCUTCHEON
ADONIS LEVER
DARK BONZE FINISH



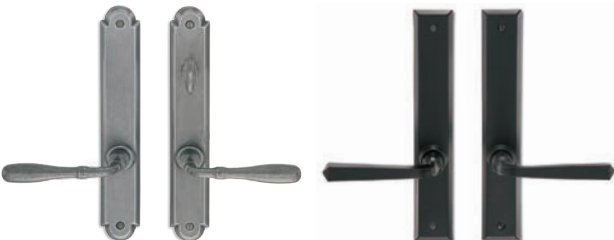
DUNN PULL
DARK BRONZE FINISH

BOUVET



RECTANGULAR
ESCUTCHEON
BIRDCAGE 1054 LEVER
BLACK FINISH

RECTANGULAR
ESCUTCHEON
TWISTED 1055 LEVER
PEWTER FINISH



ARCH ESCUTCHEON
CLASSIC 1052 LEVER
PEWTER FINISH

RECTANGULAR
ESCUTCHEON
SQUARE 1051 LEVER
BLACK FINISH



ARCH ESCUTCHEON
ARRONDIE LEVER
BLACK FINISH



ARCH ESCUTCHEON
BIRDCAGE LEVER
PEWTER FINISH

ROCKY MOUNTAIN HARDWARE



CURVED E539 ESCUTCHEON
HOOK L104 LEVER
WHITE BRONZE
MEDIUM FINISH

STEPPED ESCUTCHEON
LEGACY L109 LEVER
SILICON BRONZE
DARK FINISH



STEPPED ESCUTCHEON
SQUIRREL TAIL L102 LEVER
SILICON BRONZE FINISH

MACK ESCUTCHEON
EMILE L21005 LEVER
WHITE BRONZE
BRUSHED FINISH



TROUSDALE ESCUTCHEON
OFFSET TROUSDALE
GRIP G30300
SILICON BRONZE DARK
LUSTRE FINISH



EDGE ESCUTCHEON
OFFSET D GRIP SDP6
SILICON BRONZE
LIGHT FINISH
BASIC TEXTURE



VELUX®

Skylights



HGTV
DREAM
HOME
2024
PROUD SPONSOR





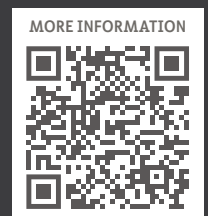
The VELUX Skylight Guarantee

Three patented layers of water protection work together to ensure your VELUX skylight will hold up in all weather conditions.

Our skylight warranty is our commitment that VELUX skylights installed with our flashing will stand strong in all types of weather. We're able to make this commitment with a 10-year installation warranty backed by our patented three layers of water protection on deck- and curb-mounted skylights.



- 1 Pre-Attached Seal**
Pre-attached deck seal (deck-mounted) or gasket (curb-mounted) provides a tight seal for leak-proof installation.
- 2 Adhesive Underlayment**
Adhesive underlayment for secondary water protection against the harshest weather conditions.
- 3 Engineered Flashing**
Engineered flashing for easy installation and primary water protection. See page 24 for flashing systems.





Deck-Mounted Skylights

Explore our range of classic deck-mounted skylights, including solar, electric, and manual versions. Deck-mounted skylights attach directly to your roof with no need for a curb, resulting in a quick, seamless, and watertight installation.

VIEW FULL BROCHURE



Deck-Mounted



VSS

A B C D E

Solar-Powered Fresh Air Skylight

- Powered by a discreet solar panel allowing you to open and close your skylight with the touch of a button without using your home's electricity
- Equipped with a built-in rain sensor to close the unit in the event of inclement weather



VSE

A B C D E

Electric Fresh Air Skylight

- Concealed motor and control system easily opens and closes skylight with a remote
- Equipped with a built-in rain sensor to close the unit in the event of inclement weather



VS

A D E

Manual Fresh Air Skylight

- Opens and closes by hand with a smooth turning handle for in-reach applications and a rod for out-of-reach ones
- Choose from a variety of different glasses from impact, white laminated, or snowload



FS

A E

Fixed Skylight

- Designed to visually expand a space by bringing in an abundance of natural light
- Choose between a variety of different glasses from impact, white laminated or snowload
- Clean, low-profile appearance allows this skylight to fit in on any roof

Optional Upgrades: Impact Glass¹ | Snowload Glass² | Copper Cladding³ | Stain Grade Wood Interior⁴

¹ Excluding FS size C12. ² Excluding FS sizes C12, D26, D06. ³ Excluding VSS, VSE size M02. Pre-installed shades not available. ⁴ Excluding VSE. Pre-installed shades not available.

- A Add the VELUX App Control system, Gateway + App:** Control your VELUX shades anytime, anywhere with your smartphone or smart home device. See page 17



- B Add the Smart Tech Option:** VELUX ACTIVE includes App Control plus smart sensors that continuously monitor temperature, humidity, and CO₂ levels to open or close your skylights automatically. See page 17



- C** Wireless remote included. **D** Equipped with insect screen. **E** 10-year installation warranty when installed with VELUX Flashing, see page 5.

Standard Sizes	A06	C01	C04	C06	C08	C12	D26	D06	M02	M04	M06	M08	S01	S06
														
Rough Opening (W-in. x H-in.)	14 1/2 x 45 3/4	21 x 26 7/8	21 x 37 7/8	21 x 45 3/4	21 x 54 7/16	21 x 70 1/4	22 1/2 x 22 15/16	22 1/2 x 45 3/4	30 1/16 x 30	30 1/16 x 37 7/8	30 1/16 x 45 3/4	30 1/16 x 54 7/16	44 1/4 x 26 7/8	44 1/4 x 45 3/4
VSS Solar / VSE Electric		•	•	•	•				•	•	•	•	•	•
VS Manual		•	•	•	•				•	•	•	•	•	•
FS Fixed	•	•	•	•	•	•	♦	♦	•	•	•	•	•	•

VSE not available in M02 size. ♦ Model FS sizes D26 and D06 fit perfectly between roof trusses.



Curb-Mounted Skylights

Enjoy the benefits of fresh air and natural light even if you have a flat or lower pitched roof with our specially designed curb-mounted skylights. This skylight is built like a shoe box with the curb as the box and the skylight as its top, allowing for installation on a wider variety of rooftops.

VIEW FULL BROCHURE



Curb-Mounted



VCS

A B C D E

Solar-Powered Fresh Air Skylight

- Solar-powered battery control system easily opens and closes skylight with remote or smartphone app



VCE

A B C D E

Electric Fresh Air Skylight

- Concealed motor and control system easily opens and closes skylight with a remote
- Rain sensor automatically closes skylight at the first sight of rain



VCM

A D E

Manual Fresh Air Skylight

- Manually open and close the skylight with smooth-turning handles or control rods
- White frames and sashes create a sleek, high quality finish



FCM

A E

Fixed Skylight

- Low profile creates a clean, streamlined appearance on the roof
- Positioning allows for twice the natural light as vertical windows
- Custom sizes available

Optional Upgrades: Impact Glass¹ | White Laminated Glass² | Triple Pane Glass³

¹ Excluding VCE. Excluding FCM sizes 2270, 3055, 4672. ² Excluding VCE. VCM sizes 2222, 2246, 4646 only. FCM sizes 1430, 1446, 2230, 3055, 3446, 4672 only.

³ Available only for FCM sizes 2222, 2246, 4646.

- A Add the VELUX App Control system, Gateway + App:** Control your VELUX shades anytime, anywhere with your smartphone or smart home device. See page 17



- B Add the Smart Tech Option:** VELUX ACTIVE includes App Control plus smart sensors that continuously monitor temperature, humidity, and CO₂ levels to open or close your skylights automatically. See page 17



- C** Wireless remote included. **D** Equipped with insect screen. **E** 10-year installation warranty when installed with VELUX Flashing, see page 5.

Standard Sizes	1430	1446	2222	2230	2234	2246	2270	3030	3046	3055	3434	3446	3737	4622	4630	4646	4672
Outside Curb (W-in. x H-in.)	17 1/2 x 33 1/2	17 1/2 x 49 1/2	25 1/2 x 25 1/2	25 1/2 x 33 1/2	25 1/2 x 37 1/2	25 1/2 x 49 1/2	25 1/2 x 73 1/2	33 1/2 x 33 1/2	33 1/2 x 49 1/2	33 1/2 x 58 1/2	37 1/2 x 37 1/2	37 1/2 x 49 1/2	40 1/2 x 40 1/2	49 1/2 x 25 1/2	49 1/2 x 33 1/2	49 1/2 x 49 1/2	49 1/2 x 75 1/2
Max Skylight Clearance (W-in. x H-in.)	18 5/8 x 34 5/8	18 5/8 x 50 5/8	26 5/8 x 26 5/8	26 5/8 x 34 5/8	26 5/8 x 38 5/8	26 5/8 x 50 5/8	26 5/8 x 74 5/8	34 5/8 x 34 5/8	34 5/8 x 50 5/8	34 5/8 x 59 5/8	38 5/8 x 38 5/8	38 5/8 x 50 5/8	41 5/8 x 41 5/8	50 5/8 x 26 5/8	50 5/8 x 34 5/8	50 5/8 x 50 5/8	50 5/8 x 76 5/8
VCS Solar			•		•	•		•	•		•		•	•	•	•	
VCE Electric			•		•	•		•	•		•					•	
VCM Manual			•		•	•		•	•		•					•	
FCM Fixed	•	•	•	•	•	•	•	•	•	•	•	•				•	•

Shades are not available for FCM sizes 1430, 1446, 3055, 4672.



Self-Flashed Skylights

The VELUX product line of self-flashed skylights differ from both deck- and curb-mounted skylights because their curb and flashing are built into the skylight and come with a watertight seal. These skylights are ideal for thin roofing materials like asphalt and shingles and are ready to install straight out of the box.

E-Class PVC Flashed

Metal Flashed



EVMS

B C D E

Solar-Powered Fresh Air Skylight

- Solar-powered battery control system easily opens and closes skylight with remote or smartphone app
- Rain sensor automatically closes skylight at the first sign of rain
- Easy installation, no sealants or mastic required
- Available in custom sizes



EV

C D E

Manual Fresh Air Skylight

- Manually open and close the skylight with smooth-turning handles or control rods
- Integrated PVC flashing
- Easy installation, no sealants or mastic required
- Available in standard and custom sizes



EF

A D E

Fixed Skylight

- With no mastic, step-flashing, or sealants, skylight is ready to be installed right out of the box in as little as 30 minutes
- Larger glass area delivers up to 22% more daylight compared to similar models
- Available in standard and custom sizes



QPF

A

Fixed Skylight

- Clean exterior profile provides natural light and sky views without obstructing the roofline
- Pre-finished white interior wood frame
- Pre-installed metal flashing designed for sealant based installation

E-Class Custom Finish Colors:



VELUX Grey finish standard. Other custom finish colors are available.**

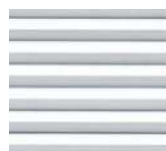
Optional Upgrades: Impact Glass¹ | White Laminated Glass

¹ Model QPF only.

A Add a pre-installed solar shade:

Harness the power of the sun and control the amount of daylight entering through the skylight.*

See page 15



A Add the VELUX App Control system, Gateway + App:

Control your VELUX shades anytime, anywhere with your smartphone or smart home device. See page 17



B Wireless remote included. C Equipped with insect screen. D Available in custom sizes and finish colors. E No sealants or flashing required.

Standard Sizes	2222	2230	2238	2246	2254	3030	3046	3054	4646
E-Class  14° - 85° 3:12 - 137:12									
QPF  10° - 60° 2:12 - 20:12									
Rough Opening (RO) (W-in. x H-in.)	22 1/2 x 22 1/2	22 1/2 x 30 1/2	22 1/2 x 38 1/2	22 1/2 x 46 1/2	22 1/2 x 54 1/2	30 1/2 x 30 1/2	30 1/2 x 46 1/2	30 1/2 x 54 1/2	46 1/2 x 46 1/2
EV/EF E-Class	•	•	•	•	•	•	•	•	•
QPF Fixed	•	•	•	•	•	•	•	•	•

E-Class Custom Sizes:

EVMS/EV sizing:

- Up to 15 sq ft
- Min RO: 22 1/4" W or H
- Max RO: 48" W or 54" H

EF sizing:

- Up to 23 sq ft
- Min RO: 14 1/2" W or H
- Max RO: 72" W or H

EVMS is available in custom sizes only.

* Shades are available for standard sizes only. ** Visit commercial.veluxusa.com/products/finishes for full list of E-Class finish color options.

Pre-Installed
Shades

Room-Darkening
Double-Pleated
White

HGTV
**SMART
HOME**
PROUD SPONSOR
2022

Solar Skylight Shades & Manual Roof Window Shades

Solar shades add the ultimate functionality to skylights. Sustainably powered by the sun, solar skylight shades give you control over the amount of light in your home. Use the included Wall Switch to easily open and close your shades, or upgrade to our new Intelligent Touch Remote for even smarter operation.

Complete the look of your roof window with stylish, manually-operated roof window shades! Available in a variety of styles and colors to match your decor, roof window shades easily glide up and down to let in just the right amount of light for your space.

MORE INFORMATION



Solar-Powered Skylight Shades

Available for factory installation

In-Stock Skylight Shade Options¹

Room-Darkening,
Double-Pleated



1045
White

Special Order Skylight Shade Options²

Room-Darkening, Double-Pleated



1155
Beige



1163
Grey



1164
Grey Melange



1171
Dark Sand



1172
Light Grey



1047
Charcoal



1049
Golden Beige



1156
Blue



1165
Light Brown



1173
Petrol



1168
Dusty Green



1169
Light Blue



1170
Dark Taupe



1166
Ivory



1167
Orange

Light Filtering, Single-Pleated



1256
Classic White



1259
Classic Sand



1275
Natural



1282
Dark Grey



1286
Jeans Blue



1016
White



1274
Charcoal



1276
Dusty Brown



1277
Dusty Sand



1278
Beige



1280
Forest Green



1281
Mint Green



1283
Light Beige



1284
Grey



1285
Soft Blue



1279
Red Wine

Manual Roof Window Shades

Ships separately from Roof Window

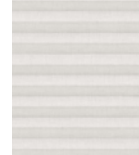
In-Stock Roof Window Shade Options¹

Room Darkening,
Double Pleated



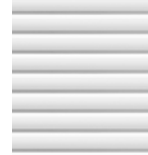
1045
White

Light Filtering,
Single Pleated



1016
White

Venetian



7001
White

Special Order Roof Window Shade Options²

Room-Darkening, Double-Pleated



1155
Beige



1163
Grey



1164
Grey Melange



1171
Dark Sand



1172
Light Grey



1047
Charcoal



1049
Golden Beige



1156
Blue



1165
Light Brown



1173
Petrol



1168
Dusty Green



1169
Light Blue



1170
Dark Taupe



1166
Ivory



1167
Orange

Light Filtering, Single-Pleated



1256
Classic White



1259
Classic Sand



1275
Natural



1282
Dark Grey



1286
Jeans Blue



1274
Charcoal



1276
Dusty Brown



1277
Dusty Sand



1278
Beige



1280
Forest Green



1281
Mint Green



1283
Light Beige



1284
Grey



1285
Soft Blue



1279
Red Wine

¹**In-Stock:** Solar skylight shades available for factory installation, 2-4 business days. Custom sizes must be placed as special order. Manual roof window shades not eligible for factory installation. ²**Special Order:** No factory installation for special order skylight or roof window shades. Shades ship separately: skylights 14 business days and roof windows up to 8 weeks. ³ GDL requires two shades, one each for top and bottom windows.



Simple control of all VELUX skylights and shades with one remote.



The Touch remote controls both skylights and shades, featuring ventilation timing and programmable presets.

We believe it should be easier to create your perfect home environment with VELUX skylights and shades. Now, with VELUX Touch, you only need to reach for one remote to take control of every skylight and shade you install. Talk about indoor comfort right at your fingertips!

- Remote operation in room where your skylights are installed
- Operate multiple products at once
- Group skylights and shades to operate together
- Set the ventilation timer for regular automated home airing
- Lock home option to securely close all your skylights automatically
- Preset shade and skylight positions for even easier operation

MORE INFORMATION





Remote Comparison



VELUX Wall Switch

For customers that want basic and simple benefits, and no smartphone control.

VELUX Touch

VELUX App Control

For customers that wish for more benefits and smartphone control, without full automation of products.

VELUX ACTIVE

For customers that wish to see insight into air and temperature statistics of their home and improve it through automatic ventilation and heat control.

Price	Included with Product	\$	\$	\$ \$
Remote Operation Inside the Room	✓	✓	✓	✓
Remote Operation from Anywhere			✓	✓
Operation of Multiple Products		✓	✓	✓
Requires Wi-Fi Connection			✓	✓
Compatible with Apple HomeKit® and Google Assistant™			✓	✓
Group Products		✓	✓	✓
Ventilation Timer		✓	✓	✓
Lock Home Option (close all skylights)		✓	✓	✓
Accessible to All Household Members	✓	✓	✓	✓
Scheduling to Personal Preferences			✓	✓
Voice Control			✓	✓
Sensor-based Automation				✓
Use of Weather Data				✓
Live Indoor Sensor Data				✓

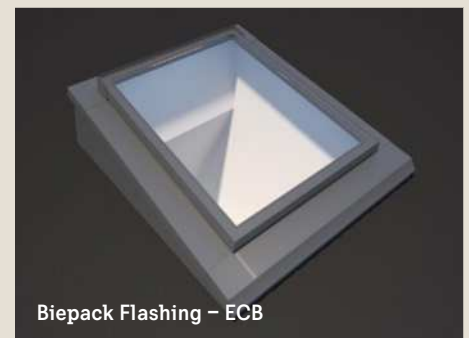
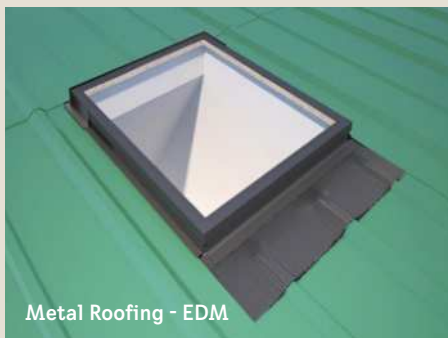
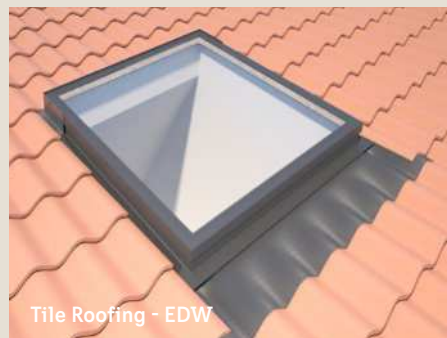
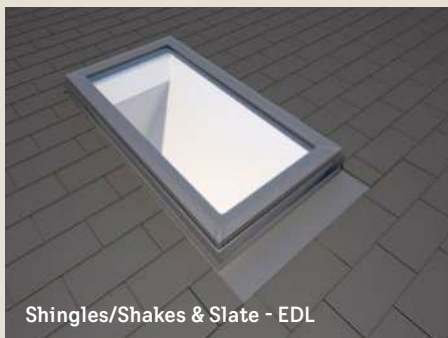
Flashing Systems

Deck-Mounted, Curb-Mounted

VELUX Skylight Flashing Kits are a crucial part of our complete system designed to shed water without relying on sealants that can break down over time. No matter the scope of your project, we offer a variety of skylight flashing systems to ensure a weather-tight fit for virtually all roof types and slopes so you can easily install the skylight of your dreams.

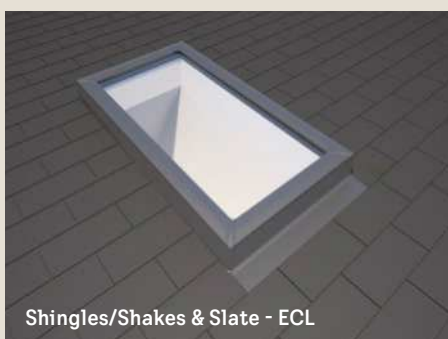
Deck-Mounted Flashing Systems

Each of our deck-mounted flashing systems is made up of a pre-attached deck seal, adhesive underlayment, and engineered flashing. They attach directly to your roof deck and interweave with the roofing material to ensure your skylight will hold up in all weather conditions.



Curb-Mounted Flashing Systems

VELUX curb-mounted skylights have a pre-attached skylight gasket, which provides a tight seal between the site-built curb and skylight. When combined with our curb-mounted engineered flashing and adhesive underlayment, they create a seal to ensure your skylight will hold up in all weather conditions.



MORE INFORMATION



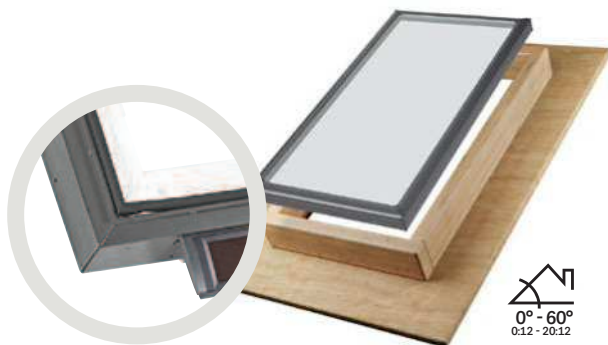
3 Types of Installation

Deck-Mounted, Curb-Mounted, Self-Flashed

When it comes to skylights, there are three different types of installation methods. To know which installation is right for a home, a skylight installer or roofer will evaluate the home's roof pitch, roof material, ceiling type, and whether this is a replacement job or a new cut-in. But whatever the method, you're installing the same great skylight that brings in plenty of natural light and fresh air!

1 Deck-Mounted Skylights

Deck-mounted skylights allow your skylight to have a low profile on your roof and create an energy-efficient installation. With this installation, your skylight is nailed directly to the roof-deck. Deck-mounted skylights are ideal for new construction homes or for brand new cut-in skylights.



2 Curb-Mounted Skylights

Curb-mounted skylights are the most common installation preference in low-pitch or flat-roof situations. The “curb” is a frame built mostly of two-by-fours that are attached to the roof. The skylight is then installed on top of the curb. You can imagine it as a shoebox: the curb is the box and the skylight is the top.

3 Self-Flashed Skylights

Self-flashed skylights differ from both deck- and curb-mounted skylights because their curb and flashing are built into the skylight. No extra flashing kit is needed. The skylight sits directly over the rough opening in the roof deck and is then sealed.

