Agenda Item 3
335 Robinson Drive
Revisions to Previously Approved Plans

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Vicinity Map
Air Photos

Materials Submitted by Petitioner
Application
Statement of Intent
Description of Exterior Materials

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- Site Plan
- North and East Elevations
- South and West Elevations
- Perspective Renderings
- Roof Plan
- First Floor Plan
- Second Floor Plan

Previously Approved
- Site Plan
- North Elevation
- East Elevation
- South Elevation
- West Elevation
- Perspective Renderings
- Conceptual Landscape Plan

THE CITY OF LAKE FOREST
CHARTERED 1861

STAFF REPORT AND RECOMMENDATION

TO:	Chairman Grinnell and members of the Historic Preservation Commission
DATE:	February 23, 2022
FROM:	Jennifer Baehr, Planner
SUBJECT:	**335 Robinson Drive** – Revisions to Previously Approved Plans

PETITIONERS
Doug and Maggie Reynolds
900 Polo Lane
Glenview, IL 60025

PROPERTY LOCATION
335 Robinson Drive

HISTORIC DISTRICTS
Green Bay Road Local and
National Historic Districts

PROJECT REPRESENTATIVE
Doug Reynolds, Reynolds Architecture
1765 Maple Street, Suite 200
Northfield, IL 60093

SUMMARY OF THE PETITION

Plans for a new residence on a vacant lot at 335 Robinson Drive were presented to the Commission at the July 12, 2021 meeting. The Commission unanimously voted to grant a Certificate of Appropriateness approving the new residence, conceptual landscape plan and overall site plan.

After the Commission's approval, the petitioner proceeded with developing detailed construction plans consistent with the plans approved by the Commission and submitted the plans, along with an application for a building permit, to the City in September 2021. After submitting the plans for a building permit, the petitioner notified staff of the intent to modify the plans and the overall design of the residence. Based on the extent of changes proposed, the petition is being presented to the Commission for re-review. The previously approved plans and currently proposed plans are included in the Commission's packet.

The following revisions were made to the design of the home since the Commission's previous approval.

Overall Modifications

- The building footprint and mass were reduced by removing the north portion of the residence on first and second floors.
- The parking area outside the mudroom entry was eliminated.
- The hip roof forms were changed to gable roof forms.
- The slate roof was changed to cedar shingle.
- The stucco window surrounds were changed to wood trim to create a deeper shadow.
- The white stucco color was changed to a warmer white/cream tone.
- Corner buttress elements were added to the corners of the main mass of the residence to emphasize the Tudor style.
- The hipped dormers were replaced with larger gable dormers.

North Elevation Modifications

- The front entry element was modified to present a softer appearance.
- The single side entry door was changed to a double door.
- Columns and horizontal siding were added to the side entry.
- The triple window on the east end was changed to a double window.
- The window above the front entrance was changed to a French door with Juliette balcony.
- The corners of the central projecting mass on the front is now chamfered to relate to the new buttressed corners.

West Elevation Modifications

- A Juliette balcony was added to the west elevation to provide more light into and views from the master bedroom.
- A tall window was added to the recessed area between the two projecting gable elements.

South Elevation

- The rear screened porch was modified to eliminate the roof deck and a flared roof form is proposed, consistent with the Tudor style.
- The bay window on the rear elevation was eliminated and replaced with a grouping of openings more consistent with the rest of the home.
- The single entry door was shifted west and the two small windows on either side were eliminated.
- A double window was added to the area between the two projecting gable forms.
- The window on the east end was eliminated and replaced with smooth cedar panels

East Elevation

- The shed dormer above the garage doors was enlarged.
- A cupola was added to the garage element.

Portions of this report are repeated from the earlier report prepared for this petition.

PROPERTY DESCRIPTION

The property is located on the south side of Robinson Drive, between Green Bay Road and the railroad tracks to the west. The property is located in the Thorndale subdivision which created six buildable lots on the original Thorndale Manor estate. The original house and coach house remain on separate lots within the subdivision. The property will be the third new residence in the development. The first new residence was constructed several years ago at the entrance to the subdivision near Green Bay Road. The Commission more recently approved the second residence in this subdivision at 295 Robinson Drive which is presently under construction.

The parcel that is the subject of this request is approximately 1.82 acres and is somewhat irregular in shape following the curve of Robinson Drive along the north side. In an effort to protect the wooded character of the Thorndale Subdivision, the perimeter of the property in this request is protected through a combination of easements and buffer areas which were established as part of the subdivision process and documented on the plat of subdivision. The easements and buffer areas impose limitations on the buildable area on the property.

- Two Landscape Buffer Areas are located on the site, one buffer area is 50 feet wide and is located along the north property line, and the second buffer area is 25 feet wide and is located along the south property line. The purpose of the south buffer area is to assure that through the preservation of existing vegetation and new plantings, a significant vegetative buffer is established and preserved between the new residences in the Thorndale Subdivision and the existing homes to the south.
- A 30 foot wide Conservation Easement follows the east property line. All vegetation is to remain within this area, or if necessary be replaced subject to City approval, to retain a dense, natural tree and vegetation buffer.

STAFF EVALUATION

Site Plan
The proposed residence as revised is still oriented north, toward the street. A single curb cut is proposed. The proposed driveway curves through the front yard and around the east side of the house to access the attached three car garage. Paver walkways are proposed from the main and side entrances on the front of the home to the driveway. Stucco pillars are proposed in the area of the side entry in the front yard, creating a courtyard space. An in-ground pool and paver pool deck are proposed in the rear yard.

The site plan as presented shows no encroachment into the Conservation Easement and some encroachment into the Landscape Buffer Area on the north side of the site which is necessary and was anticipated in order to provide access to the site from Robinson Drive.

Since the previous approval, the impervious surface on the site has been reduced from 16.3 percent to 14.8 percent. The building footprint as currently presented totals 4,365 square feet and other hardscape surfaces including the driveway, walkways, and pool deck total 7,391 square feet. This total includes some hardscape such as the gravel driveway, the paver walkways and pool deck which are considered semi-permeable.

Residence
As stated in the petitioner's statement of intent, the proposed residence is designed in a modern Tudor style. The building footprint is relatively compact. The home presents a one-and-a-half story massing with steeply pitched roof forms. The home features elements such as a limestone surround at the front entrance, a screen porch, gable dormers, corbeled eaves, and buttresses at the corners of the main mass of the home.

Findings
A staff review of the applicable standards in the City Code is provided below. Findings in response to the standards are offered for the Commission's consideration.

Standard 1 – Height.
This standard is met. The proposed residence at its maximum height, is 34 feet and 1 inch as measured from the lowest point of existing grade adjacent to the house. The maximum height allowed for this property is 40 feet.

Standard 2 – Proportion of Front Façade.
This standard is met. The front façade of the main mass of the home presents a symmetrical design with a front facing gable form that projects from the main volume, creating depth to the front elevation and highlighting the front entry.

Standard 3 – Proportion of Openings.
This standard is met. The openings around the home are consistently vertically oriented and have tall, narrow proportions.

Standard 4 – Rhythm of Solids to Voids.
This standard is generally met. The rhythm of solids to voids is generally consistent on all elevations of the home. The house features larger expanses of openings on the south and west elevations to take advantage of views of the property and provide ample natural light into the main living spaces.

Standard 5 – Spacing on the Street.
This standard is met. The proposed house will not be visible from Green Bay Road, only from Robinson Drive, a private road. The Landscape Buffer Area and Conservation Easement are intended to minimize direct views of the residence from the streetscape. The overall subdivision is intended to have a dense wooded character.

Standard 6 – Rhythm of Entrance Porches.
This standard is met. The front entrance is located on the north elevation, facing Robinson Drive. The front entrance is centered on the projecting gable form.

Standard 7 – Relationship of Materials and Texture.
This standard is met. The exterior is comprised of high quality and natural materials. The exterior wall material is primarily stucco, horizontal siding is proposed in the recessed side entry on the front elevation. The main roof forms and dormers will be cedar shingle, the screen porch will have a standing seam metal roof. Aluminum clad windows with interior and exterior muntin bars are proposed. Wood trim, fascia, rakeboards and soffits are proposed. The front door surround and the window sills are limestone. Stucco chimneys to match the exterior walls of the house and clay chimney pots are proposed. Hardscape on the site includes a gravel driveway, paver walkways and pool deck.

The color palette consists of cream color stucco, dark gray windows, medium gray trim, and a natural cedar shingle roof. The cedar shingle roof and cream color stucco softens the appearance of the home and distinguishes itself from the more trendy stark contemporary designs recently seen on a number of occasions by the Commission.

Standard 8 – Roof Shapes.
This standard is met. Gable style roofs with a 12:12 pitch are proposed for the main roof forms and dormers. The screen porch has a low hip roof.

Standard 9 – Walls of Continuity.
This standard is met. The massing, scale, proportions of openings, and simple detailing are consistent on all elevations of the house.

Standard 10 – Scale.
This standard is met. The residence as presented complies with the building scale requirements. Based on the lot size, a residence of up to 8,142 square feet is permitted on the site. In addition, a garage of up to 800 square feet is permitted along with up to 814 square feet of design elements. The proposed house totals 6,387 square feet and is 22 percent under the allowable square footage. The attached three car garage totals 757 square feet and there are 572 square feet of design elements.

Standard 11 – Directional Expression of Front Elevation.
This standard is met. The front elevation appropriately faces north, toward Robinson Drive.

Standard 12 – Preservation of Historic Material.
This standard is not applicable to this request.

Standard 13 – Protection of Natural Resources.
This standard can be met. The center and west side of this site is generally open with more dense vegetation on the east and south sides of the site. The original approval included the removal of six trees. The changes currently presented will not impact any additional trees on the site. The conceptual landscape plan as previously approved is not proposed to change significantly. The landscape plan will be adjusted to coordinate with the different building footprint that is currently proposed. The trees previously approved for removal have been removed from the site after the appropriate permits were obtained.

Before a building permit can be issued, a more detailed landscape plan must be submitted to the City and shall provide for the required replacement inches on site for the trees removed. The conceptual landscape plan reflects minimal plantings in the landscape buffer area on the north side of the site. As noted above, the purpose of buffer areas is to assure that through the preservation of existing vegetation and infill with new plantings, a significant vegetative buffer is established and maintained. As the landscape plan is more fully developed, plantings shall be incorporated on the north side of the site to enhance the buffer area.

Standard 14 – Compatibility.
This standard is met. The residence is designed in a modern version of the Tudor style and incorporates high quality natural materials, simple massing and roof forms, and refined architectural detailing. The quality and level of detailing of the home is compatible with the homes in the surrounding neighborhood.

Standard 15 – Repair to deteriorated features.
This standard is not applicable to this request. The property is vacant, there are no existing structures.

Standard 16 – Surface cleaning.
This standard is not applicable to this request.

Standard 17 – Integrity of historic property.
This standard is not applicable to this request. The property is vacant, there are no existing structures.

PUBLIC COMMENT

Public notice of this petition was provided in accordance with the City requirements and practices. Notice was mailed by the Department of Community Development to surrounding property owners and the agenda for this meeting was posted at various public locations and is available on the City's website. As of the date of this writing, no correspondence was received regarding this request.

RECOMMENDATION

Grant approval of modification of the previously issued Certificate of Appropriateness accepting the revisions to the plans as now proposed for the new residence at 335 Robinson Drive, subject to the following conditions of approval.

1. Plans submitted for permit must reflect the project as presented to the Commission. Any refinements made in response to direction from the Commission, or as the result of final design development, shall be clearly called out on the plan and a copy of the plan originally provided to the Commission shall be attached for comparison purposes. Staff is directed to review any changes, in consultation with the Chairman as appropriate, to determine whether the modifications are in conformance with the Commission's direction and approval prior to the issuance of any permits.

2. At the time of submittal for a building permit, detailed drainage and grading plans must be submitted. Consistent with the subdivision approval, no grading or filling shall be permitted except the absolute minimum necessary to meet accepted engineering standards and practices given the significant tree removal already proposed on the site and in the interest of minimizing stress on the trees intended to remain.

3. Tree Protection Plan – Prior to the issuance of a building permit, a plan to protect any trees identified for preservation during construction must be submitted and will be subject to review and approval by the City's Certified Arborist. Chain link fencing shall be required to protect trees intended for preservation in addition to any pre and post construction treatments or maintenance required by the City's Certified Arborist.

4. Prior to the issuance of a building permit, a detailed landscape plan shall be submitted and shall be subject to review and approval by the City's Certified Arborist. The plan shall provide for the 50 required replacement inches to the extent possible using good forestry practices, detail enhancements to the Landscape and Buffer Areas. Primarily native species shall be used.

5. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels*, shall direct light down and the source of the light shall be fully shielded from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights.

6. Prior to the issuance of a building permit, a materials staging and construction vehicle parking plan must be submitted to the City for review and will be subject to City approval in an effort to minimize impacts on surrounding properties and on all protected easement and preservation areas.

THE CITY OF LAKE FOREST BUILDING REVIEW BOARD -- BUILDING SCALE INFORMATION SHEET

Address **335 Robinson Drive**

Owner(s) **Doug and Maggie Reynolds**

Architect **Doug Reynolds**

Reviewed by: Jen Baehr

Date **2/23/2022**

Lot Area **79271** sq. ft.

Square Footage of New Residence:

1st floor	**3149**	+ 2nd floor	**3196**	+ 3rd floor	**42**	=	**6387**	sq. ft.
Design Element Allowance =			**814**	sq. ft.				
Total Actual Design Elements =			**572**	sq. ft.		*Excess* =	**0**	sq.ft.
Garage	**757**	sf actual ;	**800**	sf allowance		*Excess* =	**0**	sq. ft.
Garage Width	**22**	ft.	*may not exceed 24' in width on lots 18,900 sf or less in size.*					
Basement Area						=	**0**	sq. ft.
Accessory buildings						=	**0**	sq. ft.
TOTAL SQUARE FOOTAGE						=	**6387**	sq. ft.
TOTAL SQUARE FOOTAGE ALLOWED						=	**8142**	sq. ft.
DIFFERENTIAL						=	**-1755**	sq. ft.
							Under Maximum	

Allowable Height: **40** ft. Actual Height 34'-1" ft.

NET RESULT:

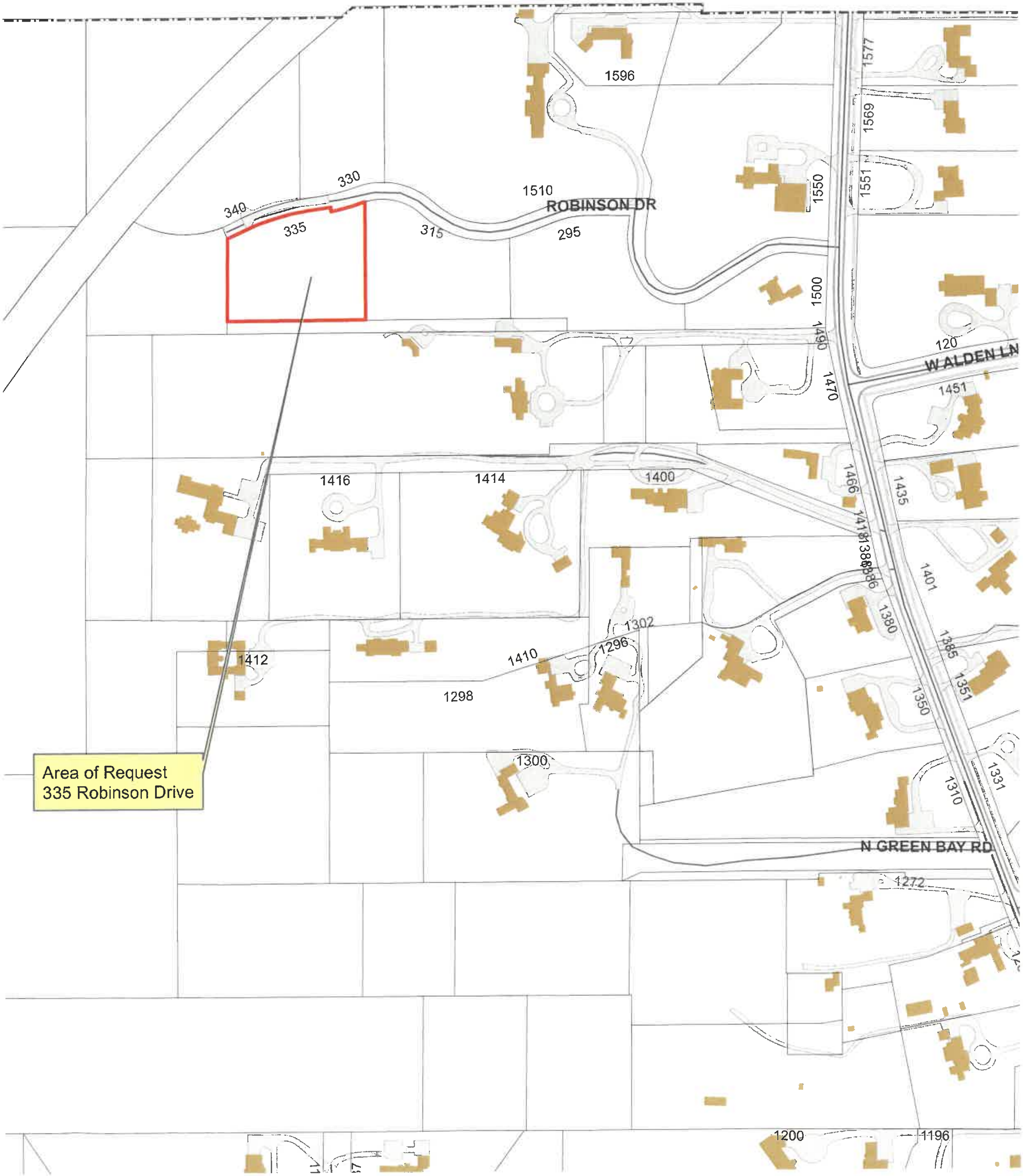
1755 sq. ft. is

22% under the Max. allowed

DESIGN ELEMENT EXEMPTIONS

Design Element Allowance:	**814**	sq. ft.
Front & Side Porches =	**0**	sq. ft.
Rear & Side Screen Porches =	**381**	sq. ft.
Covered Entries =	**73**	sq. ft.
Portico =	**0**	sq. ft.
Porte-Cochere =	**0**	sq. ft.
Breezeway =	**0**	sq. ft.
Pergolas =	**0**	sq. ft.
Individual Dormers =	**118**	sq. ft.
Bay Windows =	**0**	sq. ft.
Total Actual Design Elements =	**572**	sq. ft.

Excess Design Elements = **0** sq. ft.


Area of Request
335 Robinson Drive
ROBINSON DR
W ALDEN LN
N GREEN BAY RD
340
330
335
315
295
1510
1596
1577
1569
1551
1550
1500
1490
1470
120
1451
1466
1435
1416
1414
1400
1401
1380
1385
1351
1350
1302
1296
1410
1412
1298
1300
1310
1331
1272
1200
1196


Area of Request
335 Robinson Drive


Area of Request
335 Robinson Drive

THE CITY OF LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION FOR A CERTIFICATE OF APPROPRIATENESS

PROJECT ADDRESS 335 Robinson Drive

APPLICATION TYPE Revisions to Approved Plans

RESIDENTIAL PROJECTS		*COMMERCIAL PROJECTS*	
☑ New Residence	☐ Demolition Complete	☐ New Building	☐ Landscape/Parking
☐ New Accessory Building	☐ Demolition Partial	☐ Addition/Alteration	☐ Lighting
☐ Addition/Alteration	☐ Height Variance	☐ Height Variance	☐ Signage or Awnings
☐ Building Scale Variance	☐ Other	☐ Other	☐

HISTORIC DISTRICT OR LOCAL LANDMARK (leave blank if unknown)

☐ East Lake Forest District ☒ Green Bay Road District ☐ Vine/Oakwood/Green Bay Road District
☐ Local Landmark Property or District ☐ Other ______

PROPERTY OWNER INFORMATION	**ARCHITECT/BUILDER INFORMATION**
Doug and Maggie Reynolds *Owner of Property*	M. Douglas Reynolds *Name and Title of Person Presenting Project*
900 POLO LANE *Owner's Street Address (may be different from project address)*	Reynolds Architecture *Name of Firm*
Glenview, IL 60025 *City, State and Zip Code*	1765 Maple Street , suite 200 *Street Address*
847.962.9740 *Phone Number* *Fax Number*	Northfield, IL 60093 *City, State and Zip Code*
Doug@ReynoldsArchitecture.com *Email Address*	847-501-3150 *Phone Number* *Fax Number*
	Doug@ReynoldsArchitecture.com *Email Address*
Owner's Signature	*Representative's Signature (Architect/ Builder)*

The staff report is available the Friday before the meeting, after 3:00pm.		
Please email a copy of the staff report	☑ OWNER	☑ REPRESENTATIVE
Please fax a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
I will pick up a copy of the staff report at the Community Development Department	☐ OWNER	☐ REPRESENTATIVE

REYNOLDS ARCHITECTURE

DESIGN AND CONSTRUCTION

Standards for Replacement Structures

335 Robinson Drive
Lake Forest, Illinois

Updated 2/15/2022

Height The proposed height of the new 1.5-story home is approximately 30' and is well below the maximum allowable height of 40'.

Proportion of Front Façade

The front façade is articulated in plan and elevation which combines to break the façade into masses that are proportional the overall scale of the home.

Proportion of Openings

The windows are consistent within the facade and compatible with the style.

Rhythm of solids to voids in front facades

The successful rhythm of solids and voids can be seen on the front elevation and renderings.

Rhythm of spacing and structures on streets

There are no adjacent structures.

Rhythm of entry porches and other projections

The proposed entry, bay window and balconies compliment the façade by providing focal points on each elevation.

Relationship of materials and texture

The Modern Tudor style of the home was conceived to have a creamy white stucco walls with tapersawn cedar shingle roof and medium gray windows for contrast and reinforce the rhythm of the openings.

Roof Shapes

All of the primary roof forms are gables with a 12:12 pitch. The primary façade dormers are executed with matching gables for continuity. The garage and rear dormers are executed as shed dormers to reduce mass and allow the primary gables to be more important.

Walls of continuity

This does not seem to apply to this site or project.

Scale of Structure

The scale of the proposed home is expressed as a 1.5-story structure with 2nd floor spaces expressed with dormers that further breakdown the overall composition. The garage is placed near the rear of the home to reduce the overall scale at the road.

Directional Expression of the front elevation

The proposed front elevation is facing the road.

Preserving distinguishing features

n/a

Protection of resources

Many of the trees in the buildable parts of the site, including the larger heritage oak tree in the SE corner of the property, are either dead or in decline. Most of the eastern and southern portions of the lot is overgrown with buckthorn. We plan to clear the buckthorn wherever possible and save as many of the healthy trees as possible.

New Construction

See above comments about the proposed architecture.

Repair to deteriorated features

n/a

Surface Cleaning

No surface cleaning is proposed as part of this application.

Reversibility of Additions and Alterations

No additions or alterations are proposed as part of this application.

Revisions to the Previous HPC Approval

- Overall floor area and mass has been reduced (approx. 1,000 sf) by removing the north portion of the structure on first and 2nd floors.
- The hip roof shapes have been removed. All roof primary forms are gables
- Window surrounds are cased with 5.5" wide x 1.5" thick wood trim to create a deeper shadow than would otherwise be possible with stucco alone.
- Overall color scheme is a bit warmer by changing the stucco color to more of a warm white/cream and the roofing material is now a tapersawn cedar shake.
- The parking area outside the mudroom entry has been removed.
- Corner buttress elements have been added to the corners of the taller mass to emphasize the Tudor style provide a sculptural element.

- The entry element has been modified to compliment the softer curves of the exterior and the window above was changed to a French door with Juliette balcony. The corners of the entry mass will be chamfered to echo the buttressed corners.
- A 2nd floor Juliette balcony has been added to the west elevation to provide more light and views to the master bedroom and to enhance that façade.
- The rear screened porch has been modified to eliminate the roof deck. The resulting splayed roof shape is more consistent with the Tudor style and creates a more integrated connection with the other design elements.
- The bay window on the rear elevation was removed in favor of a window that is true to the other 3 elevations.
- A cupola was added to the garage element.
- Minor adjustments have been made to the site plan to accommodate the revised footprint.

THE CITY OF LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION

DESCRIPTION OF EXTERIOR MATERIALS

(The use of natural materials is strongly encouraged)

Façade Material

- ☐ Stone
- ☐ Brick
- ☐ Wood Clapboard Siding
- ☐ Wood Shingle
- ☑ Cementitious Stucco
- ☐ Other ____________

Color and/or Type of Material white

Foundation Material

Exposed Foundation Material n/a

Window Treatment

Primary Window Type

- ☐ Double Hung
- ☑ Casement
- ☐ Sliding
- ☐ Other ____________

Color of Finish Gray

Finish and Color of Windows

- ☐ Wood (recommended)
- ☑ Aluminum Clad
- ☐ Vinyl Clad
- ☐ Other ____________

Window Muntins

- ☐ Not Provided
- ☐ True Divided Lites

Simulated Divided Lites

- ☑ Interior and Exterior muntin bars (recommended)
- ☐ Interior muntin bars only
- ☐ Exterior muntin bars only
- ☐ Muntin bars contained between the glass

Trim Material

Door Trim

- ☑ Limestone
- ☐ Brick
- ☑ Wood
- ☐ Other ____________

Window Trim

- ☐ Limestone
- ☐ Brick
- ☑ Wood
- ☐ Other ____________

Fascias, Soffits, Rakeboards

- ☑ Wood
- ☐ Other ____________

DESCRIPTION OF EXTERIOR MATERIALS – CONTINUED

Chimney Material

- ☐ Brick
- ☐ Stone
- ☑ Stucco
- ☐ Other ______________

Roofing

Primary Roof Material

- ☐ Wood Shingles
- ☐ Wood Shakes
- ☑ Slate
- ☐ Clay Tile
- ☐ Composition Shingles______________
- ☑ Sheet Metal kynar coated alum. standing seam
- ☐ Other ______________

Color of Material Vermont Black

Flashing Material

- ☐ Copper
- ☑ Other Kynar coated aluminum
- ☐ Sheet Metal

Gutters and Downspouts

- ☐ Copper
- ☑ Aluminum (Kynar coated)
- ☐ Other ______________

Driveway Material

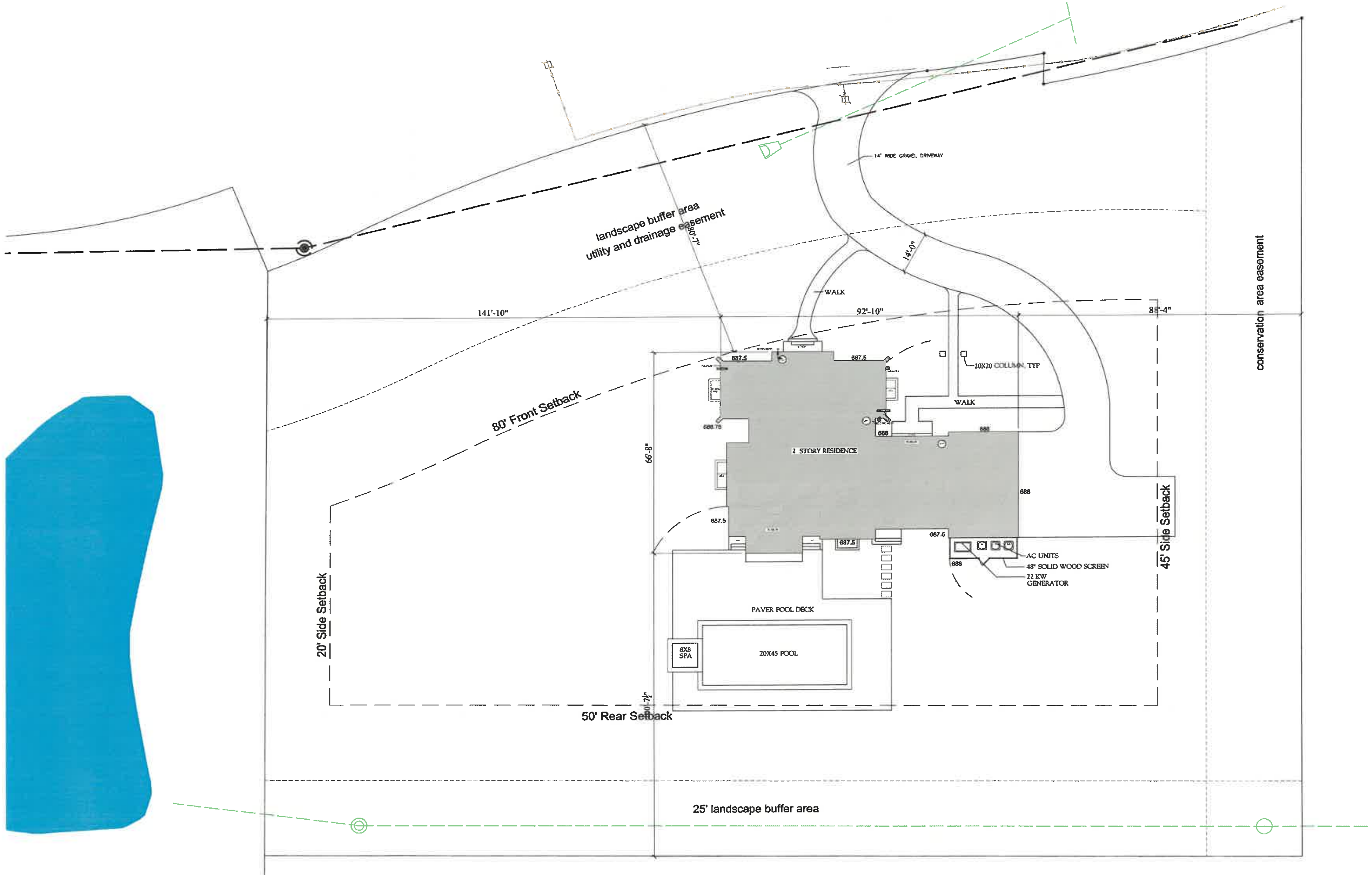
- ☐ Asphalt
- ☐ Poured Concrete
- ☐ Brick Pavers
- ☐ Concrete Pavers
- ☑ Crushed Stone
- ☐ Other ______________

Terraces and Patios

- ☐ Bluestone
- ☑ Brick Pavers
- ☑ Concrete Pavers
- ☐ Poured Concrete
- ☐ Other ______________

CURRENTLY PROPOSED PLANS

CURRENTLY PROPOSED SITE PLAN



PROPOSED SITE PLAN

SCALE: 1"=20'

CURRENTLY PROPOSED NORTH & EAST ELEVATIONS

NORTH EXTERIOR ELEVATION

NOTE:
WINDOW FALL PROTECTION IS REQUIRED FOR ANY OPERABLE WINDOW LOCATED MORE THAN 72" ABOVE THE FINISH GRADE AND SUCH WINDOW SILL OR CLEAR OPENING IS LESS THEN 24" ABOVE FINISH FLOOR OF THE ROOM WINDOW IS SERVING PER IRC R312.2.1

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

EAST EXTERIOR ELEVATION

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

DOUGLAS REYNOLDS ARCHITECTS
1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 600
VOICE 847.501.3150
ReynoldsArchitecture.com

Custom Single Family Residence
335 Robinson Drive
Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

A3.0

CURRENTLY PROPOSED SOUTH & WEST ELEVATIONS

SOUTH EXTERIOR ELEVATION

WEST EXTERIOR ELEVATION

9/7/21	ISSUED FOR BID	
3/14/11	ISSUED PERMIT	
1/21/22	Revision 1	

DOUGLAS REYNOLDS ARCHITECTS
1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 600
VOICE 847.501.3150
ReynoldsArchitecture.com

Custom Single Family Residence
335 Robinson Drive
Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

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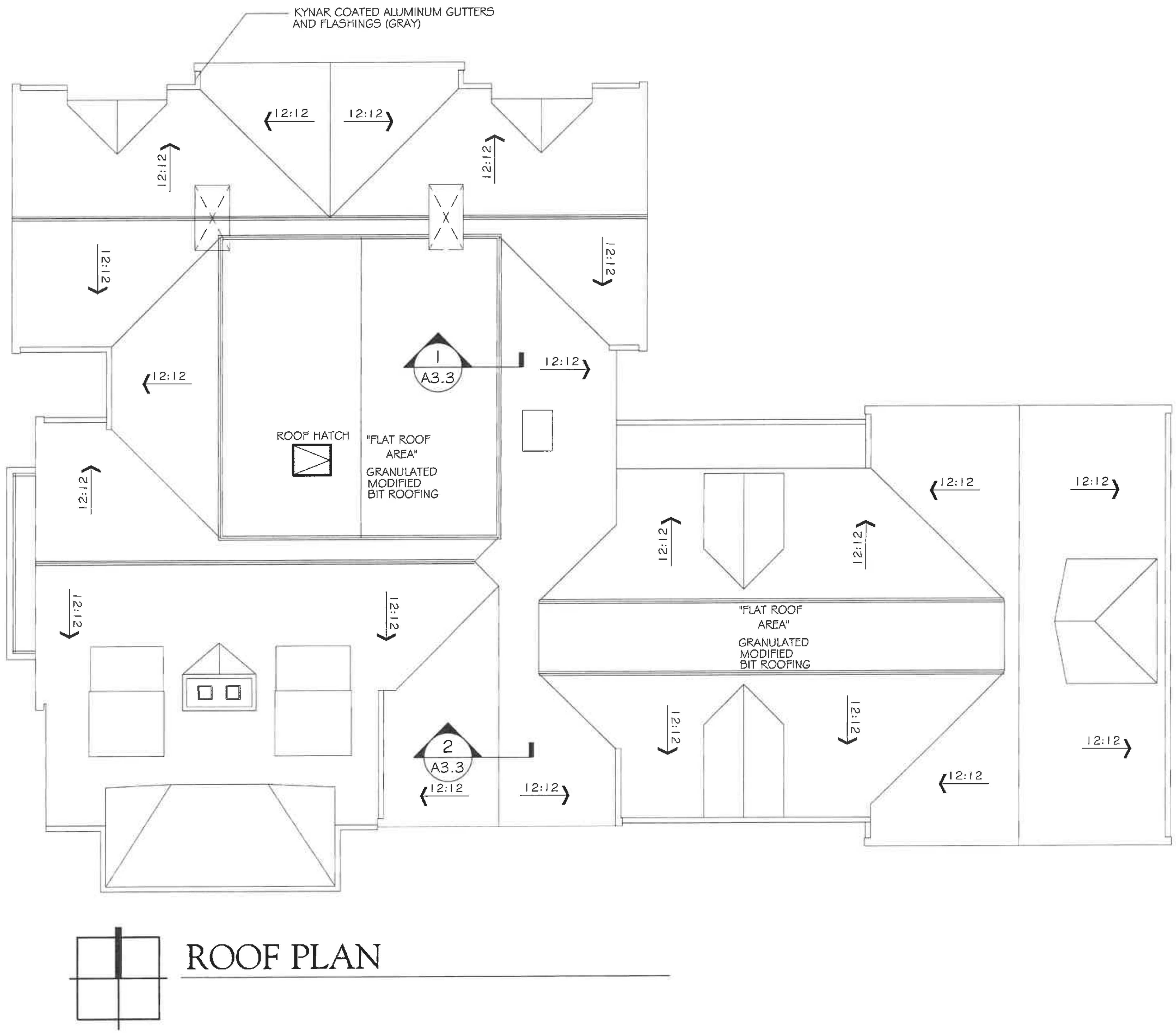
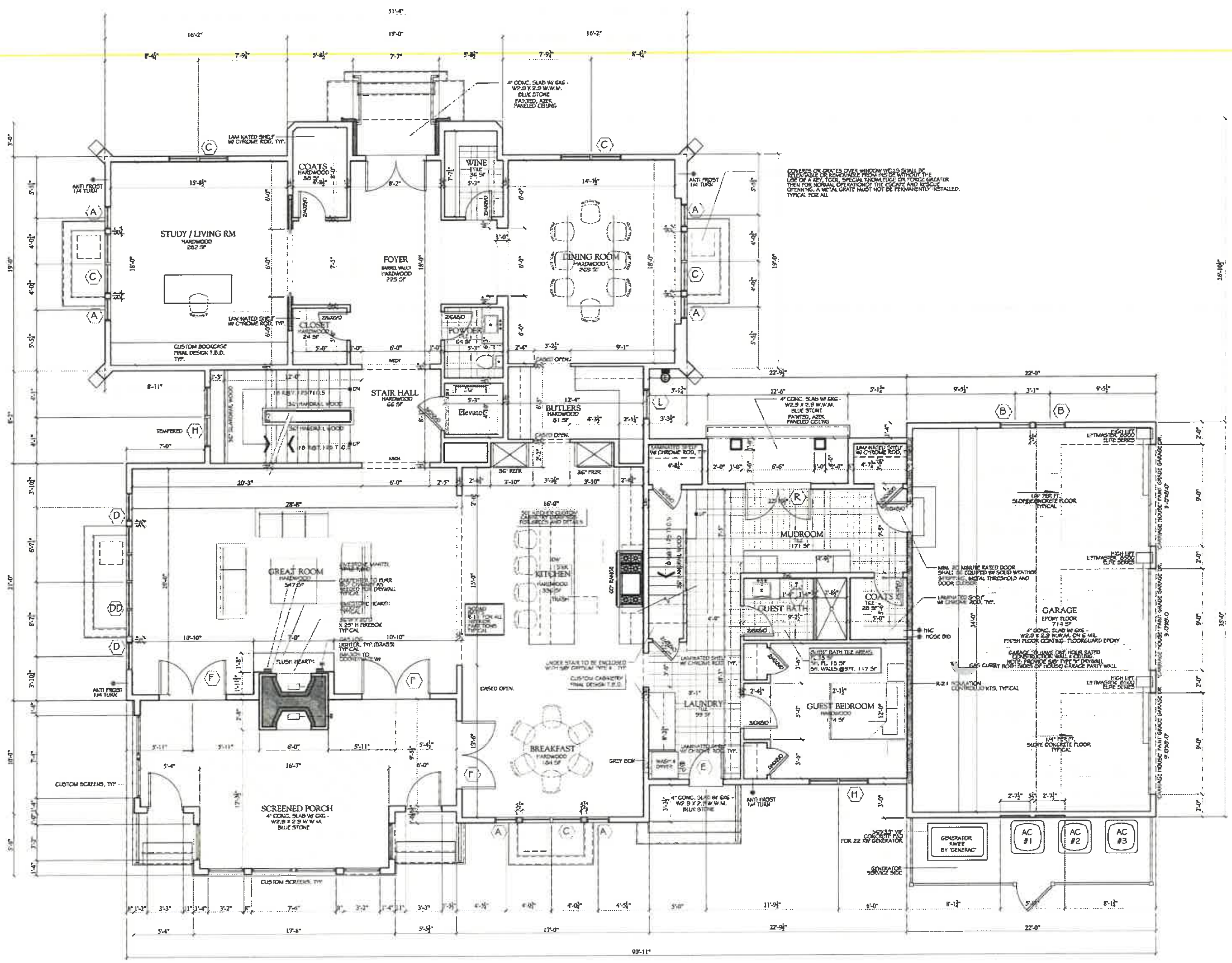
CURRENTLY PROPOSED PERSPECTIVE RENDERINGS


KYNAR COATED ALUMINUM GUTTERS
AND FLASHINGS (GRAY)
12:12
1
A3.3
ROOF HATCH
"FLAT ROOF
AREA"
GRANULATED
MODIFIED
BIT ROOFING
2
A3.3

ROOF PLAN

CURRENTLY PROPOSED FIRST FLOOR PLAN



PROPOSED FIRST FLOOR PLAN

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

NOTE:
1. EXHAUST HOOD SYSTEM CAPABLE OF EXHAUSTING IN EXCESS OF 400 CFM SHALL BE PROVIDED WITH MAKE-UP AIR APPROXIMATELY EQUAL TO THE EXHAUST AIR RATE. SUCH MAKE UP AIR SYSTEMS SHALL BE EQUIPPED WITH MEANS OF CLOSURE AND SHALL BE AUTOMATICALLY CONTROLLED TO START AND OPERATE SIMULTANEOUSLY WITH THE EXHAUST SYSTEM

DOUGLAS REYNOLDS ARCHITECT

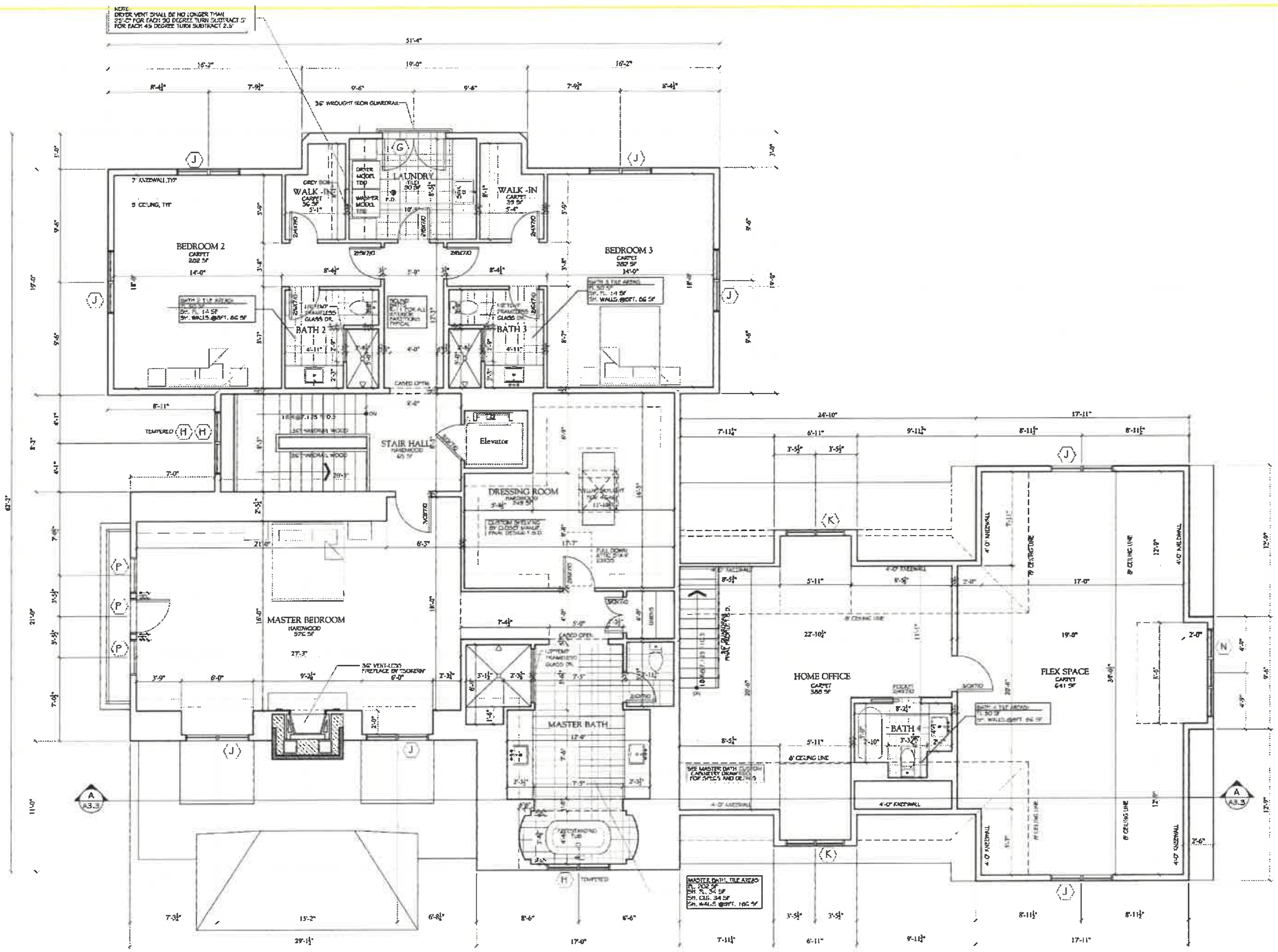
Custom Single Family Residence
335 Robinson Drive
Lake Forest, Illinois

FIRST FLOOR PLAN DETAILS

Sheet

A2.1

CURRENTLY PROPOSED SECOND FLOOR PLAN



2ND FLOOR PLAN

DOUGLAS
REYNOLDS
ARCHITECT

Custom Single Family Residence
335 Robinson Drive
Lake Forest, Illinois

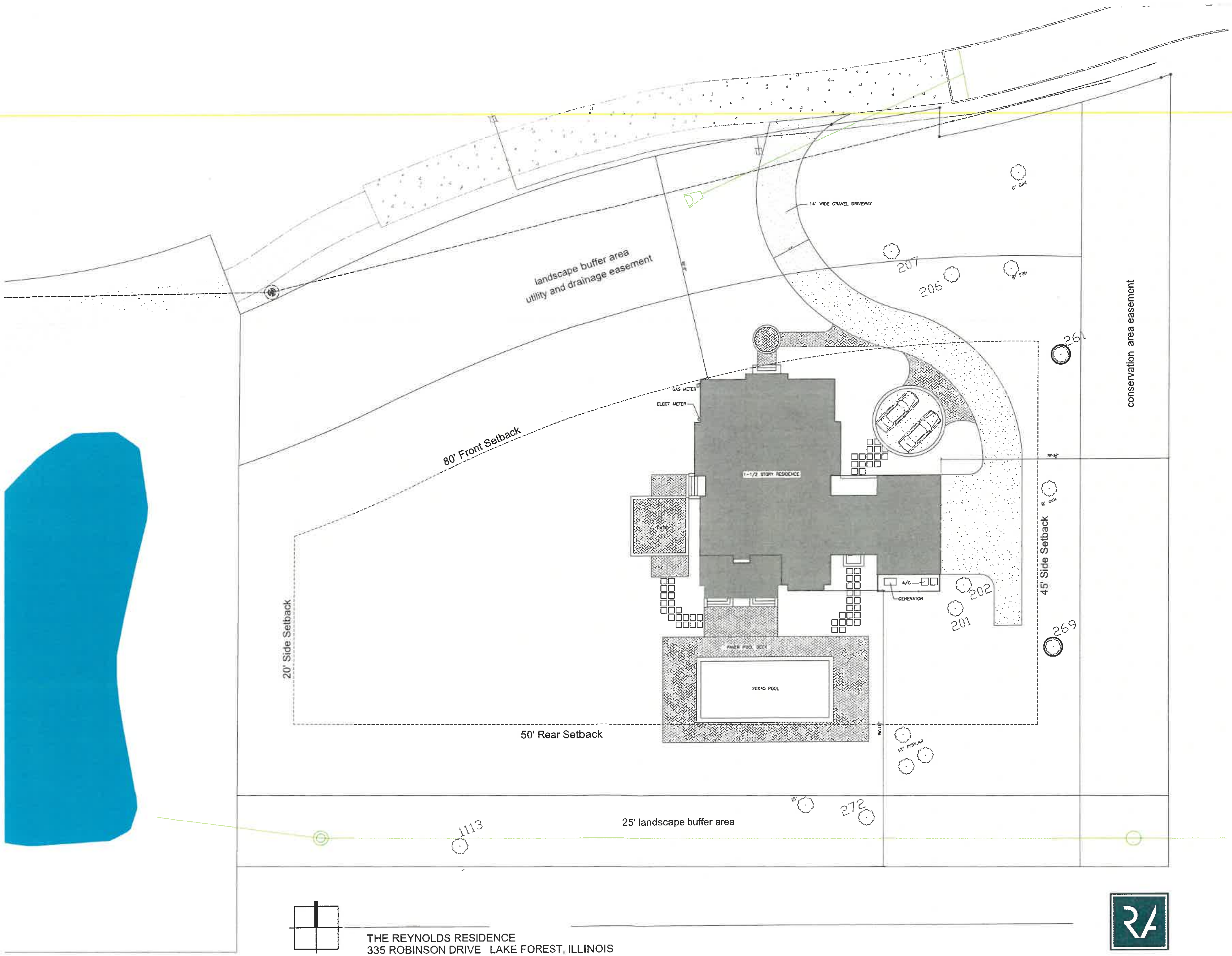
SECOND FLOOR PLAN
DETAILS
PLUMBING DIAGRAMS

Sheet

A2.2

PREVIOUSLY APPROVED PLANS

PREVIOUSLY APPROVED SITE PLAN



THE REYNOLDS RESIDENCE
335 ROBINSON DRIVE LAKE FOREST, ILLINOIS

PREVIOUSLY APPROVED NORTH ELEVATION

Revisions

5/14/21	HPC REVIEW
7/12/21	HPC REVIEW

DOUGLAS REYNOLDS ARCHITECT

1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 60093

VOICE 847.501.3150

ReynoldsArchitecture.com

The Reynolds Residence

335 Robinson Drive Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

A3.0

PREVIOUSLY APPROVED **EAST ELEVATION**

Revisions

5/14/21	HPC REVIEW
7/12/21	HPC REVIEW

DOUGLAS REYNOLDS ARCHITECT
1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 60093
VOICE 847.501.3150
ReynoldsArchitecture.com

The Reynolds Residence
335 Robinson Drive Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

A3.3

PREVIOUSLY APPROVED SOUTH ELEVATION

Revisions

5/14/21	HPC REVIEW
7/12/21	HPC REVIEW

DOUGLAS
REYNOLDS
ARCHITECT

1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 60093

VOICE 847.501.3150

ReynoldsArchitecture.com

The Reynolds Residence

335 Robinson Drive Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

A3.2

PREVIOUSLY APPROVED WEST ELEVATION

Revisions

5/14/21	HPC REVIEW
7/12/21	HPC REVIEW

DOUGLAS
REYNOLDS
ARCHITECT

1765 MAPLE STREET
SUITE 200
NORTHFIELD, ILLINOIS 60093

VOICE 847.501.3150

ReynoldsArchitecture.com

The Reynolds Residence

335 Robinson Drive Lake Forest, Illinois

EXTERIOR ELEVATIONS

Sheet

A3.1

PREVIOUSLY APPROVED **PERSPECTIVE RENDERINGS**

BUHRMAN
design group

20200 W. Winchester Rd. | Mundelein, IL 60060
847-949-9245
info@buhrmandesigngroup.com

CONCEPTUAL LANDSCAPE PLAN

NOTE:
Plant Substitution May Be Used. Installation Sizes On Plants See Contractors Agreement. Plants Shown On Design At Maturity & Maintained Height. Plants Shown At Best Attribute.

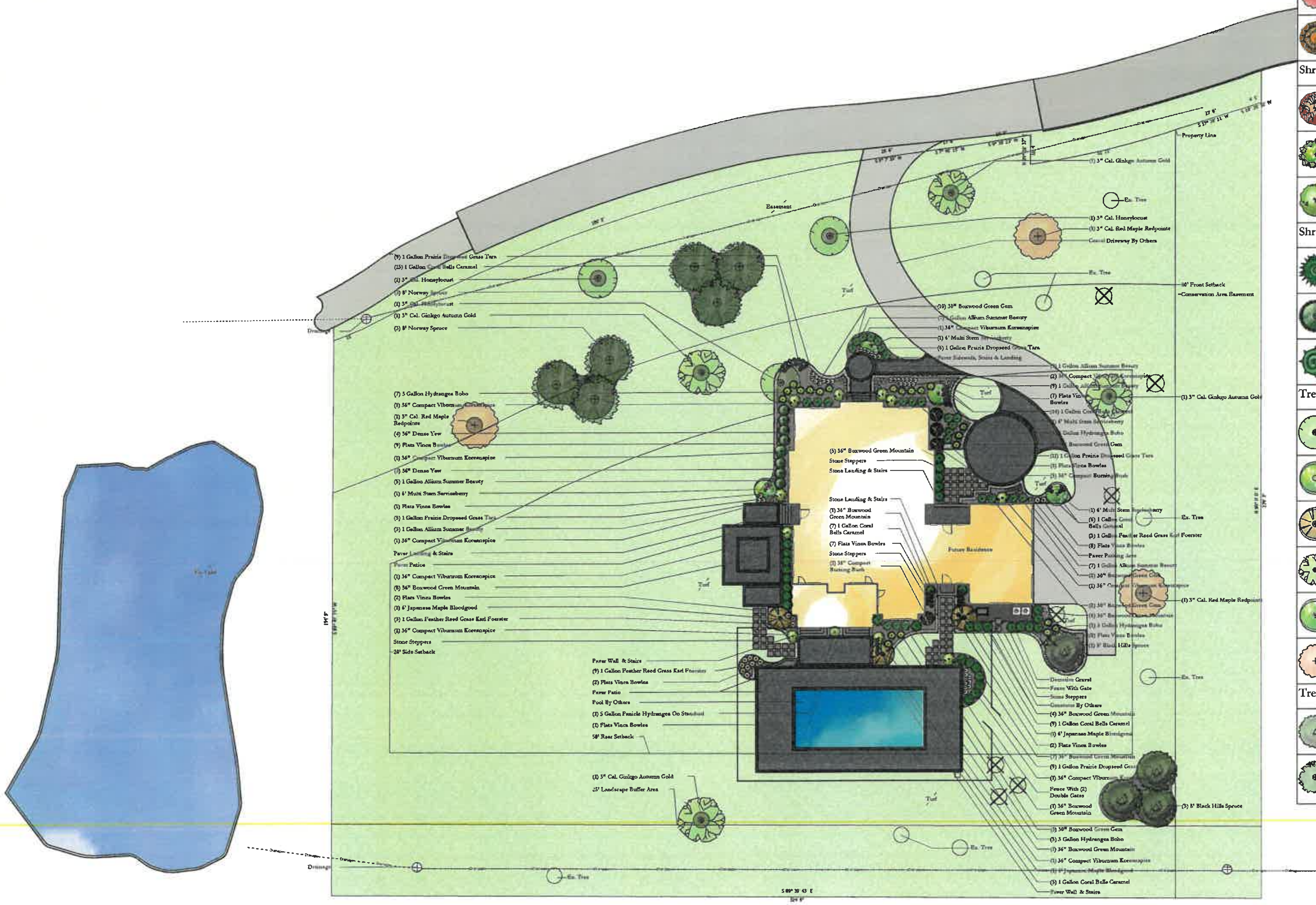
N

Item Legend

Symbol	Qty	Name
Lights\Landscape Light		
	15	Accent Lights Plants
	47	Path Lights

Plant Legend

Symbol	Qty	Common Name	Botanical Name	Container
Groundcovers\Ornamental Grass				
	38	Dwarf Prairie Dropseed Grass Tara	Sporobolus heterolepis Tara	1 Gallon
	15	Feather Reed Grass Karl Foerster	Calamagrostis acutiflora Karl Foerster	1 Gallon
Groundcovers\Perennials				
	49 Flats (24 Cell Count)	Vinca Bowles	Vinca minor Bowles	Flat
Herbaceous\Perennials				
	40	Allium Summer Beauty	Allium Summer Beauty	1 Gallon
	57	Coral Bells Caramel	Heuchera Caramel	1 Gallon
Shrubs\Deciduous				
	4	Compact Burning Bush	Euonymus alatus Compactus	36"
	21	Hydrangea Bobo	Hydrangea paniculata ILVOBO	3 Gallon
	11	Compact Koreanspice Viburnum	Viburnum carlesii Compacta	36"
Shrubs\Evergreen				
	33	Boxwood Green Mountain	Buxus microphylla x. B. sempervirens Green Mountain	36"
	7	Dense Yews	Taxus x media Densiformis	36"
	25	Littleleaf Boxwood Green Gem	Buxus microphylla x. B. sempervirens Green Gem	30"
Trees\Deciduous				
	3	Honey Locust	Gleditsia triacanthos inermis	3" Cal.
	1	Hydrangea On Standard Tree	Hydrangea paniculata On Stadard Tree	5 Gallon
	3	Japanese Maple Blood Good	Acer palmatum var. atropurpureum Bloodgood	6'
	4	Maidenhair Autumn Gold	Ginkgo biloba Autumn Gold	3" Cal.
	4	Multi Stem Serviceberry	Amelanchier canadensis	6'
	3	Red Maple Redpointe	Acer rubrum Frank Jr.	3" Cal.
Trees\Evergreen				
	4	Black Hills Spruce	Picea glauca var. Densata	8'
	6	Norway Spruce	Picea abies	8'



Artisan Concept Design.
Actual Design Measurements, Materials & Installation May Vary.

335 Robinson Dr. Lake Forest. IL 60045
Date: 7-3-2021
Scale: 1/20" = 1'.0
Designed By: Marion Gorski | Melinda Quigley
24 x 36 Landscape

Agenda Item 4
983 Maplewood Road
Demolition & Replacement Residence

Staff Report
Building Scale Summary
Vicinity Map
Air Photos

Materials Submitted by Petitioner
Application
Statements of Intent
Description of Exterior Materials
Historic Resource Evaluation
Existing Site Plan
Proposed Site Plan
Impervious Surface Calculation
Existing Elevations
East (Front) Elevation
- Proposed Elevation
- Overlay of Existing and Proposed Elevation

South Elevation
- Proposed Elevation
- Overlay of Existing and Proposed Elevation

West Elevation
- Proposed Elevation
- Overlay of Existing and Proposed Elevation

North Elevation
- Proposed Elevation
- Overlay of Existing and Proposed Elevation

Streetscape Elevation
Color Renderings
Images of Exterior Materials
Proposed Roof Plan
Proposed Building Sections
Proposed Basement Plan
Proposed First Floor Plan
Proposed Second Floor Plan
Conceptual Landscape Plan
Images of Existing Residence and Surrounding Neighborhood

THE CITY OF
LAKE FOREST
CHARTERED 1861

TO:	Chairman Grinnell and members of the Historic Preservation Commission
DATE:	February 23, 2022
FROM:	Jennifer Baehr, Planner
SUBJECT:	**983 Maplewood Road** – Demolition and Replacement Residence

PROPERTY OWNER
Lorraine M. DeGrazia Trust
Lorraine M. DeGrazia 100%
2485 Waukegan Avenue
Highland Park, IL 60035

PROPERTY LOCATION
983 Maplewood Road

HISTORIC DISTRICTS
East Lake Forest Local &
National Historic District

CONTRACT PURCHASER/DEVELOPER
The Highview Group Ltd.
Tom Swarthout, Tim Swarthout
778 N. Western Avenue
Lake Forest, IL 60045

PROJECT REPRESENTATIVE
Robert Shemiot, architect
130 Euclid Avenue
Glencoe, IL 60022

SUMMARY OF THE PETITION
This is a request for a Certificate of Appropriateness to authorize complete demolition of the existing residence and attached garage located at 983 Maplewood Road and to approve a replacement residence, attached two-car garage, preliminary landscape plan and overall site plan.

The statement of intent and supporting materials submitted by the petitioner are included in the Commissioners' packets and more fully explain the proposed project.

DESCRIPTION OF PROPERTY AND SURROUNDING AREA
The property is accessed from a private lane, commonly known as "Codfish Alley" although the properties on the lane are addressed as Maplewood Road. The lane extends off of Maplewood Road to the south, between Sheridan and Mayflower Roads. The property is on the west side of the private lane. The site is rectangular in shape and totals 7,824 square feet. Like many of the other homes on the private lane, the home and attached garage are located very close to the lane and the parcels do not conform to today's zoning standards due to their creation prior to current standards.

Based on available records, the residence at 983 Maplewood Road was built in the late 1880s and is identified as a Contributing Structure to the Historic District due to its age. The residence was originally built as a vernacular cottage, with simple massing and few embellishments. Over the years the residence has undergone extensive remodeling. Currently, and for many years the building has been occupied as multiple rental apartments in the middle of a single family residential neighborhood.

STAFF EVALUATION

Demolition

The petitioner has engaged a consultant, Benjamin Historic Certifications, LLC, to prepare a Historic Resource Evaluation. The report provides the history of the property and original owners. The report recognizes that due to the extensive changes made over the years, the home's integrity is compromised and does not reflect its original character as a vernacular cottage.

Based on the information in the report and the statements provided by the petitioner, a review of the demolition criteria is provided below.

Demolition Criteria 1 -- Whether the property, structure or object is of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare of the people of the city and the state.

The residence is identified as a Contributing Structure because of it is over 50 years old. The Contributing Structure designation does not prohibit demolition, but is an indication that a careful review and evaluation is necessary and requires that if in fact demolition is approved, the house should be well documented with photos and a narrative which will be retained in the City's files and shared with the History Center.

The existing residence is quite modest and is not particularly unique or extraordinary. The exterior of the home does not present any notable features or detailing. As noted above and further detailed in the Historic Resource Evaluation report, the existing residence has undergone many incompatible alterations since its construction. Given the compromised integrity of the residence, the structure in its current condition is not of such historic, cultural or architectural importance that its demolition would be detrimental to the public interest.

Demolition Criteria 2 -- Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole and should be preserved for the benefit of the people of the city and the state.

The residence is located on a private lane and is minimally visible from Maplewood Road. The existing residence is not particularly unique or distinctive within the Historic District.

Demolition Criteria 3 -- Whether demolition of the property, structure or object would be contrary to the purpose and intent of this Chapter and to the objectives of the historic preservation for the applicable District.

The residence has been altered in form and materials since its original construction, inside and out. The residence lacks the level of significance and distinction that would make it worthy of preservation. The demolition of the residence would not be contrary to the purpose, intent or objectives of the Historic Preservation Chapter in the City Code.

Demolition Criteria 4 -- Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.

The home was built in the late 1880s. As noted above, the residence is a modest structure without any defining or unique features. The home is not of such unusual, or uncommon design, texture, or material that it could not be reproduced without great difficulty or expense, the residence could be replicated.

Demolition Criteria 5 -- Except in cases where the owner has no plans for a period of up to five years to replace an existing Landmark or property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.

Concurrent with this request for approval of demolition, plans for a replacement residence are presented to the Commission for review and approval.

Proposed Site Plan
The replacement residence is located on the east side of the site, generally in the area of the existing residence. The front façade of the replacement residence will be set back approximately nine feet from the private lane. A new driveway is proposed along the north side of the property to access to the side load garage on the northwest side of the home. Short walkways are proposed from the front door to the lane and from the side entry on the north elevation of the home to the driveway. A patio is proposed on the rear of the home.

Based on information submitted by the petitioner, the amount of impervious surface on the site will increase from 34.2 percent to 47.5 percent. The building footprint totals 1,948 square feet. Paved surfaces including the driveway, patio, and walkways total 1,771 square feet.
The increase in impervious surface is largely due to the proposed rear patio and longer driveway to access the side load garage. Currently, the garage is on the front of the home with a very short driveway. The current garage and driveway location is problematic given that cars parked in the driveway partially encroach into the private lane.

Replacement Residence
The proposed replacement residence is comprised of a primary two-story mass with an attached story-and-a-half, two car garage. The design of the residence was inspired by saltbox houses, a Colonial style of architecture popular in New England. Saltbox houses are often two stories tall with a pitched roof with unequal sides. Saltbox homes present strong, simple forms with restrained detailing.

Findings
A staff review of the applicable standards in the City Code is provided below. Preliminary findings in response to the standards are offered for the Commission's consideration.

Standard 1 – Height.
This standard is met. As measured from the lowest point of existing grade to the tallest roof peak, the height of the main mass of the replacement residence is 28 feet -10 inches and the attached garage is 25 feet tall. The height of home is slightly below the maximum height of 30 feet permitted

for a lot of this size.

The surrounding neighborhood presents a mix of single story, two-story and two-and-a-half story homes. As reflected in the streetscape graphic provided by the petitioner and included in the Commission's packet, the height of the proposed replacement residence is slightly shorter than the existing home to the north, and taller than the existing home to the south.

Given that the house as proposed nearly reaches the maximum allowable height, as-built drawings will be required at various points in the construction process, to assure that the house, upon completion, does not exceed the allowable height of 30 feet as measured from the lowest point of existing grade.

Standard 2 – Proportion of Front Façade.
This standard is met. The front of the house is oriented toward the private lane. The front façade is simple in design and features a covered entry element and shed dormers that break through the roof eave enhancing the appearance of the street facing elevation.

Standard 3 – Proportion of Openings.
This standard is met. Most of the proposed openings are double hung windows with a traditional 6 over 6 muntin pattern. The proposed openings are aligned between the first and second floors to present a regular fenestration pattern. The proportions of the openings and muntin patterns are in keeping with the traditional style of the home.

Standard 4 – Rhythm of Solids to Voids.
This standard is generally met. There is mostly a consistent rhythm of solids to voids on the elevations. The east elevation of the home presents larger groupings of openings to bring more natural light into the main living spaces of the home. The west garage elevation features a solid wall without any openings. Recognizing that some storage space is needed in the garage, staff recommends that consideration be given to incorporating limited openings on the west garage elevation to follow the rhythm of solids to voids on the rest of the home or some detailing on the wall such as trellising.

Standard 5 – Spacing on the Street.
This standard is met. The homes on the private lane are sited close to one another at the north end of the street with more space between homes at the south end of the lane. The proposed replacement residence is sited generally in the same area on the site as the existing house but set back slightly further from the north and east property lines. The siting of the replacement residence appears to offer appropriate spacing in the context of other homes along the lane.

Standard 6 – Rhythm of Entrance Porches.
This standard is met. A slightly recessed covered entry is proposed on the front façade. The entrance is designed with a single entry door with small windows on either side.

Standard 7 – Relationship of Materials and Texture.
This standard is met. The proposed materials are consistent with the style of the home and the character of the surrounding neighborhood. The exterior walls have wood shingle siding. Architectural asphalt shingle is proposed for the primary roof forms and standing seam metal roofs are proposed for the dormers and covered entry. Aluminum clad wood windows with interior and exterior muntin bars are proposed. Wood is proposed for trim, fascia, rakeboards and soffits. A

brick chimney is proposed. The gutters and downspouts are aluminum. An insulated steel garage door is proposed. The exterior doors will be wood.

The color palette consists of gray siding, black roof shingles, and white trim, windows, and gutters, and dark gray metal roofs. The petitioner provided renderings that display the proposed color palette which are included in the Commission's packet.

Hardscape on the site includes an asphalt drive and bluestone for the walkways and patio.

Standard 8 – Roof Shapes.
This standard is met. Gable style roof forms are proposed for the main house and garage. The gable roof on the main house has a 10:12 pitch and the gable roof on the garage has a 12:12 pitch. The dormers and covered entries have shed style roofs with a 6:12 pitch.

Standard 9 – Walls of Continuity.
This standard is generally met. The massing, level of detailing and exterior materials are consistent on all elevations of the house. As noted above, further study of the rhythm of solids to voids on the west elevation of the garage in an effort to more closely follow the other elevations of the home will achieve greater continuity across all elevations of the home.

Standard 10 – Scale.
This standard is met. The replacement residence as presented complies with the building scalelimitation. Based on the lot size, a residence of up to 2,395 square feet is permitted on the site. In addition, a garage of up to 576 square feet is permitted along with up to 240 square feet of design elements. The proposed house totals 2,391 square feet, 4 square feet under the allowable square footage. The garage is 448 square feet. There are 153 square feet of design elements.

Given that the house as proposed nearly reaches the maximum allowable square footage, as-built drawings will be required at various points in the construction process, to assure that the house, upon completion, does not exceed the allowable square footage.

Standard 11 – Directional Expression of Front Elevation.
This standard is met. The front of the house is oriented to face east, toward the street, consistent with the other homes on the private lane.

Standard 12 – Preservation of Historic Material.
This standard is not applicable to this request. The petition proposes to demolish the existing house.

Standard 13 – Protection of Natural Resources.
This standard can be met. No trees are proposed for removal as part of construction of the replacement residence. The existing trees on the north and west side of the property will be preserved.

The preliminary landscape plan submitted by the petitioner reflects plantings mostly across the front of the home and in the rear yard. The proposed plantings include Oak, Crabapple, Arborvitae and evergreen and deciduous shrubs. As currently proposed, the sides and rear of the home do not have any foundation plantings. Incorporating foundation plantings will help the home appear more established on the site and soften the appearance of the home.

Standard 14 – Compatibility.
This standard is met. The surrounding neighborhood features a variety of architectural styles. The proposed replacement residence is compatible in scale to the surrounding homes. The home presents simple forms and detailing that are consistent with the character of the surrounding neighborhood. The proposed exterior materials are also consistent with many of the surrounding homes.

Standard 15 – Repair to deteriorated features.
This standard is not applicable to this request. The existing residence is proposed for demolition.

Standard 16 – Surface cleaning.
This standard is not applicable to this request. The existing residence is proposed for demolition.

Standard 17 – Integrity of historic property.
This standard is met. Although the existing residence is proposed for demolition, the structure has been photo-documented and an historic assessment completed.

The replacement residence is designed in a manner that is compatible with the character of the surrounding neighborhood.

PUBLIC COMMENT

Public notice of this petition was provided in accordance with the City requirements and practices. Notice was mailed by the Department of Community Development to surrounding property owners and the agenda for this meeting was posted at various public locations and is available on the City's website. As of the date of this writing, no correspondence was received regarding this request.

RECOMMENDATION

Grant a Certificate of Appropriateness approving the demolition of the existing residence and a replacement residence, attached garage, conceptual landscape plan and overall site plan on property located at 983 Maplewood Road. The recommendation is based on the findings presented in this staff report. Staff recommends the following conditions of approval.

1. Consideration shall be given to incorporating limited openings or other detailing on the west elevation of the garage to follow the rhythm of solids to voids on the rest of the home.

2. Plans submitted for permit must reflect the project as presented to the Commission. Any refinements made in response to direction from the Commission, or as the result of final design development, shall be clearly called out on the plan and a copy of the plan originally provided to the Commission shall be attached for comparison purposes. Staff is directed to review any changes, in consultation with the Chairman as appropriate, to determine whether the modifications are in conformance with the Commission's direction and approval prior to the issuance of any permits.

3. Prior to the issuance of a building permit, a detailed, landscape plan shall be submitted and will be subject to review and approval by the City's Certified Arborist. The plan shall meet the minimum landscaping standards for new residences detailed in the Code, including ground cover, mid-level and canopy trees and evergreens across the site. In addition, foundation plantings around the home must be reflected on the landscape plan.

4. Tree Protection Plan – Prior to the issuance of a building permit, a plan to protect any trees identified for preservation during construction as well as trees on neighboring properties, must be submitted and will be subject to review and approval by the City's Certified Arborist. In addition, for any trees that, as determined by the City Arborist, may be impacted by construction activity, a plan for protection, including pre and post construction treatments as may be appropriate, must be prepared by an independent Certified Arborist and submitted with the building permit application. The tree protection plan shall be subject to review and approval by the City's Certified Arborist.

5. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels,* shall direct light down and the source of the light shall be fully shielded from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights.

6. Prior to the issuance of a building permit, a plan for construction parking and materials' staging shall be submitted to the City for review and will be subject to City approval in an effort to minimize impacts on the surrounding neighborhood.

THE CITY OF LAKE FOREST BUILDING REVIEW BOARD -- BUILDING SCALE INFORMATION SHEET

Address **983 Maplewood Road**

Owner(s) **Lorraine M. DeGrazia Trust**

Architect **Robert Shemiot, architect**

Reviewed by: Jen Baehr

Date **2/23/2022**

Lot Area **7824** sq. ft.

1st floor **1234** + 2nd floor **1157** + 3rd floor **0** = **2391** sq. ft.

Design Element Allowance = **240** sq. ft.

Total Proposed Design Elements = **153** sq. ft. *Excess* = **0** sq.ft.

Garage **448** sf actual ; **576** sf allowance = **0** sq. ft.

Garage Width **21' - 3"** ft. *may not exceed 24' in width on lots 18,900 sf or less in size.*

Basement Area = **0** sq. ft.

Accessory buildings = **0** sq. ft.

TOTAL SQUARE FOOTAGE = **2391** sq. ft.

TOTAL SQUARE FOOTAGE ALLOWED = **2395** sq. ft.

DIFFERENTIAL = **4** sq. ft.

Under Maximum

NET RESULT:

4 sq. ft. is

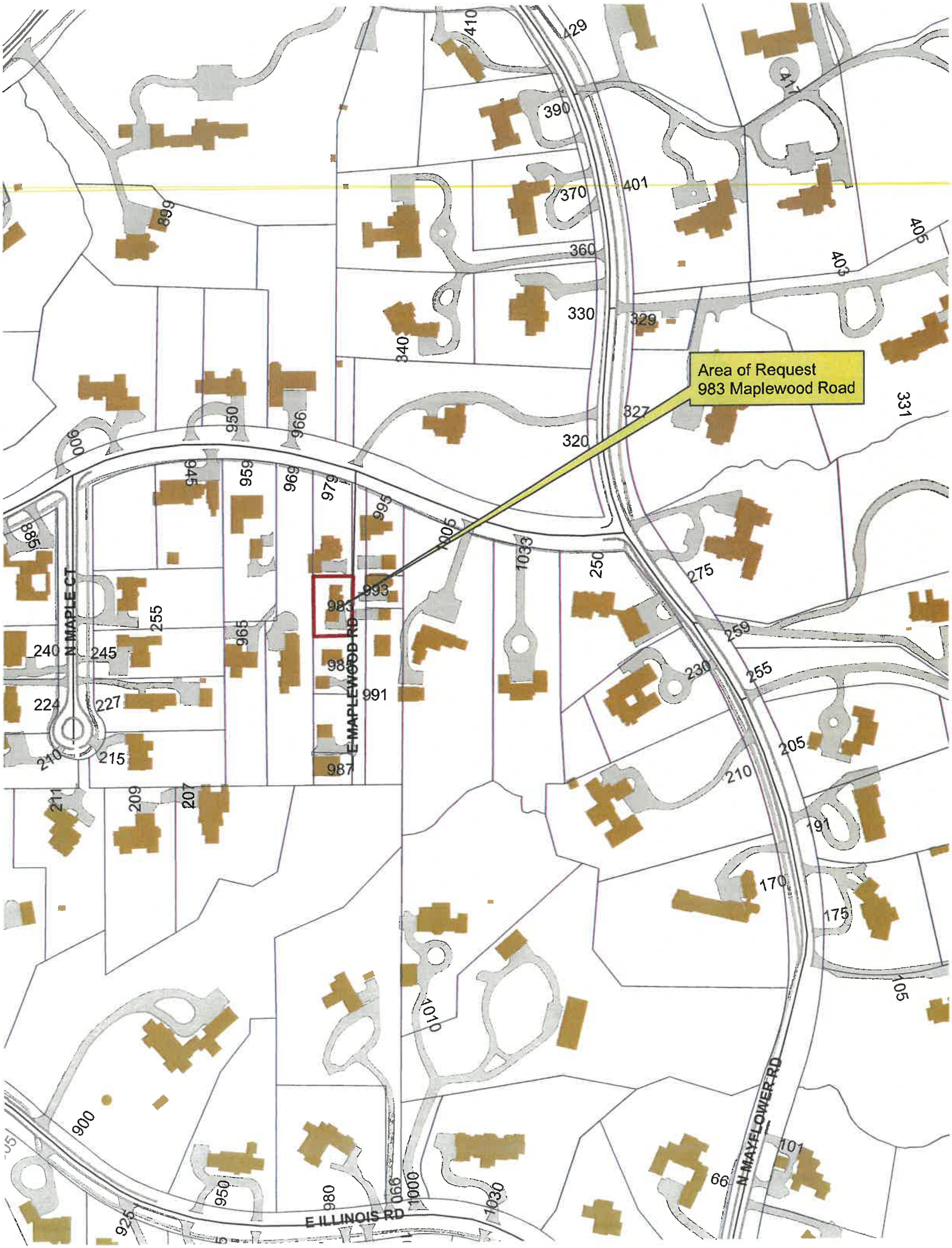
0.16% under the Max. allowed

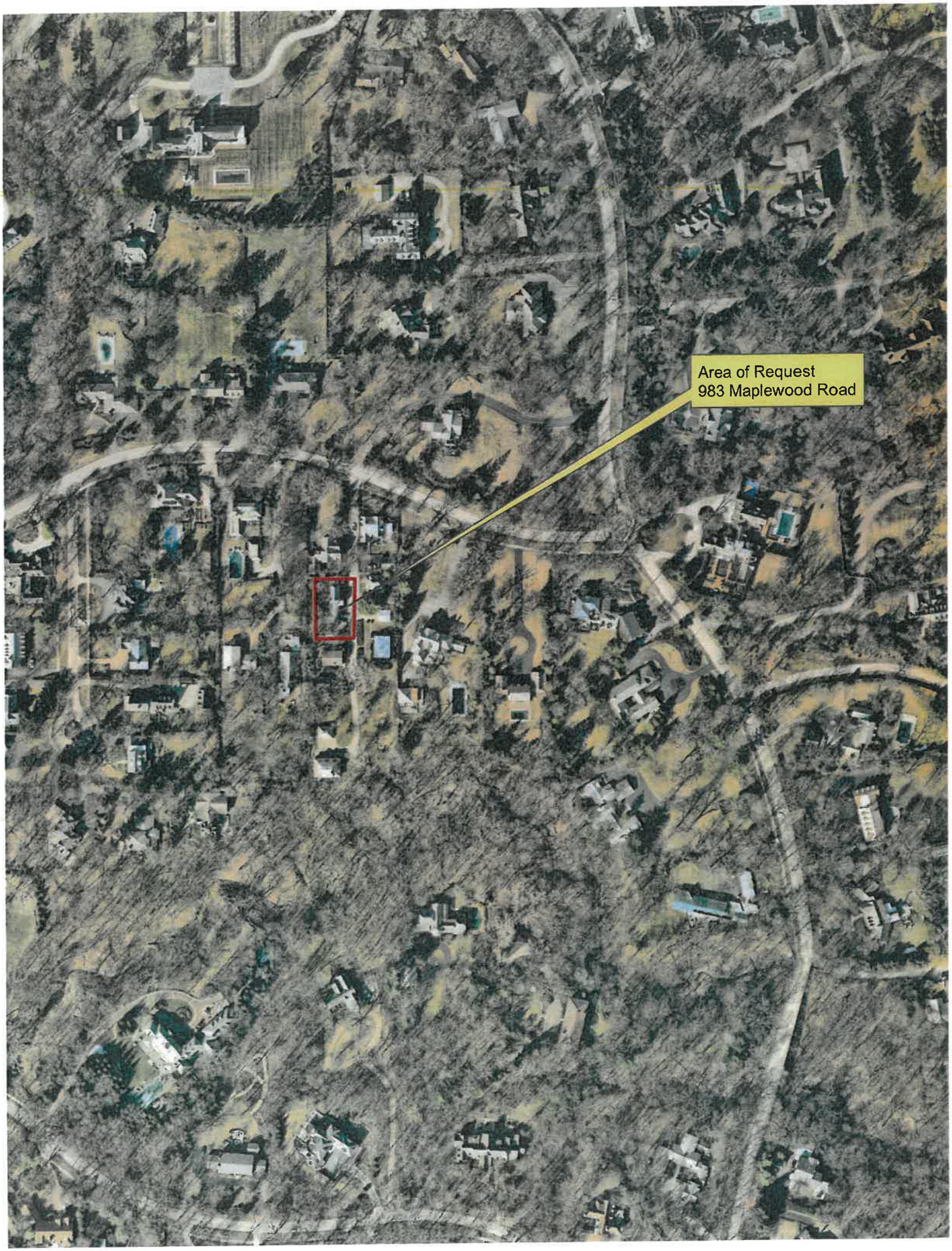
Allowable Height: **30** ft. Actual Height 28' - 10"

DESIGN ELEMENT EXEMPTIONS

Design Element Allowance:	**240**	sq. ft.
Front & Side Porches =	**56**	sq. ft.
Rear & Side Screen Porches =	**0**	sq. ft.
Covered Entries =	**0**	sq. ft.
Portico =	**0**	sq. ft.
Porte-Cochere =	**0**	sq. ft.
Breezeway =	**0**	sq. ft.
Pergolas =	**0**	sq. ft.
Individual Dormers =	**97**	sq. ft.
Bay Windows =	**0**	sq. ft.
Total Actual Design Elements =	**153**	sq. ft.

Excess Design Elements = **0** sq. ft.


Area of Request
983 Maplewood Road
E MAPLEWOOD RD
N MAPLE CT
N MAYFLOWER RD
E ILLINOIS RD


Area of Request
983 Maplewood Road


Area of Request
983 Maplewood Road

THE CITY OF LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST HISTORIC PRESERVATION COMMISSION APPLICATION FOR A CERTIFICATE OF APPROPRIATENESS

PROJECT ADDRESS 983 MAPLEWOOD RD.

APPLICATION TYPE

RESIDENTIAL PROJECTS		*COMMERCIAL PROJECTS*	
☒ New Residence	☒ Demolition Complete	☐ New Building	☐ Landscape/Parking
☐ New Accessory Building	☐ Demolition Partial	☐ Addition/Alteration	☐ Lighting
☐ Addition/Alteration	☐ Height Variance	☐ Height Variance	☐ Signage or Awnings
☐ Building Scale Variance	☐ Other	☐ Other	☐

HISTORIC DISTRICT OR LOCAL LANDMARK (leave blank if unknown)

☒ East Lake Forest District ☐ Green Bay Road District ☐ Vine/Oakwood/Green Bay Road District
☐ Local Landmark Property or District ☐ Other

PROPERTY OWNER INFORMATION	**ARCHITECT/BUILDER INFORMATION**
Lorraine M. DeGrazia Trust *Owner of Property*	TOM SWARTHOUT PRESIDENT *Name and Title of Person Presenting Project*
2485 Waukegan Avenue *Owner's Street Address (may be different from project address)*	THE HIGHVIEW GROUP *Name of Firm*
Highland Park, IL 60035 *City, State and Zip Code*	778 N. WESTERN AVE. *Street Address*
847-433-0370 (same) *Phone Number* *Fax Number*	LAKE FOREST, IL. 60045 *City, State and Zip Code*
708-421-2793 (cell) edegrazia@sbcglobal.net *Email Address*	847-987-8962 — *Phone Number* *Fax Number*
	TSWARTHOUT@HIGHVIEWGROUPLTD.COM *Email Address*
Lorraine M. DeGrazia, trustee *Owner's Signature*	*Representative's Signature (Architect/ Builder)*

The staff report is available the Friday before the meeting, after 3:00pm.		
Please email a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
Please fax a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
I will pick up a copy of the staff report at the Community Development Department	☐ OWNER	☐ REPRESENTATIVE

TRUST OWNERSHIP (EXHIBIT C)

Please list the Trust number and name and address of the Trustee, as well as the names and addresses of all beneficiaries of the Trust, together with their respective interests in the Trust. The application shall be further verified by the applicant in his capacity as Trustee or by the beneficiary as a beneficial owner of an interest in the Trust and the application shall be signed individually by as many beneficiaries as are necessary to constitute greater than 50% ownership of the beneficial interest of the trust.

TRUST NUMBER Personal Social Security #

Lorraine M. DeGrazia Trust
Revocable Trust
Lorraine M. DeGrazia, Trustee

TRUSTEE INFORMATION

Name Lorraine M. DeGrazia

Firm

Address 2485 Waukegan Ave. Highland Park, Ill. 60035

Phone 847-433-0370

2.17.22

Beneficiaries

Name Lorraine M. DeGrazia	**Name**
Address 2485 Waukegan Ave. Highland Park, Ill 60035	**Address**
Trust Interest 100 %	**Trust Interest** %

Name	**Name**
Address	**Address**
Trust Interest %	**Trust Interest** %

Name	**Name**
Address	**Address**
Trust Interest %	**Trust Interest** %

CONTRACT PURCHASER

PARTNERSHIP OWNERSHIP (EXHIBIT B)

Please list all partners, general and/or limited, with an individual or beneficial interest of 5% or greater.

Name COD FISH PARTNERS LLC.	Name
Address 778 N. WESTERN AVE LAKE FOREST, IL.	Address
Ownership Percentage 100% %	Ownership Percentage %
Name TOM SWARTHOUT	Name TIM SWARTHOUT
Address 778 N. WESTERN LAKE FOREST	Address 778 N. WESTERN LAKE FOREST
Ownership Percentage 50 %	Ownership Percentage 50 %
Name	Name
Address	Address
Ownership Percentage %	Ownership Percentage %
Name	Name
Address	Address
Ownership Percentage %	Ownership Percentage %
Name	Name
Address	Address
Ownership Percentage %	Ownership Percentage %

THE HIGHVIEW GROUP, LTD.
Lake Forest, Illinois

January 14, 2022

Members of the Historical Preservation Commission
220 East Deerpath Road
Lake Forest, IL. 60045

Dear Commissioners,

It is with great pride and enthusiasm that we present a replacement structure to the property at 983 Maplewood Road in Lake Forest. We believe we have assembled a great team to take on the challenge of replacing a historical, yet dilapidated structure that cannot be practically readapted to today's standards. The uniqueness of this site and neighborhood has been carefully reviewed. We are confident that the resulting new home will attract a family that appreciates the history of our remarkable lane.

Our Family has benefited for over 28 years of living in a very special part of Lake Forest at 987 Maplewood, where we built our home that was a replacement of the house that was demolished. We have raised our three children here and therefore know firsthand the challenges that come with such restricted lots. The site also allows for a different kind of lifestyle and experiences that being so close neighbors can bring. We have been so lucky to walk to the beach or around the block with no traffic and only the sound of the waves from the Lake to break the stillness of the evening.

We have taken on this project for a number of reasons but primarily to improve the quality of life for all that reside on "Cod Fish Alley". Though we have always gotten along with the former residence of 983 Maplewood, it has been a hardship to circumvent the cars that would be parked on the lane during the days and evening. With three apartments, there would be many times that 6 cars would be parked for days at a time. Clearly this issue was not a considered when all the cottages were built a century ago. In our view returning this to a single-family use is appropriate for this area.

We look forward to the support of the commission and that of the other bodies in the City.

All the Best,

Tom Swarthout

Timothy Swarthout

778 N. Western Avenue, Suite 102, Lake Forest, IL 60045
847.234.0200 thehighviewgroupltd.com

Divvy House

983 Maplewood Road Residence
Lake Forest, Illinois

City of Lake Forest – Historic Preservation Commission
Demolition Criteria Response
January 15, 2022

SUMMARY STATEMENT

The history of 983 Maplewood Road is important, but the house no longer reflects the time period of historical significance. This was from 1886, when the house was built, to 1936, when Bridget Powers passed away. Since that time, most historic features have been removed, and it has suffered many clumsy and incompatible additions.

The most important factor that needs to be maintained is the enclave's human scale with a narrow roadway flanked by comfortably sized houses, which provides an opportunity for residents to engage with their neighbors.

Demolition rationale per Historical Preservation Commission standards:

Standard 1 — Whether the property, structure or object is of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare, of the people of the city and the state.

The house at 983 Maplewood Road, along with others flanking the 30' wide easement road locally known as "Codfish Alley," has a fascinating—if somewhat enigmatic—history. Although the house architecturally originated as a simple vernacular cottage, it has been extensively remodeled and its compromised integrity no longer reflects the home's historic origin. Because of that, removing and replacing it is acceptable to sustain the character of the secluded street. It currently serves as an apartment house.

Standard 2 — Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole and should be preserved for the benefit of the people of the city and the state.

The existing house is included as contributing to the historic district, but its inclusion as a contributing structure appears to be based solely upon the age of the existing house. It was designed by an unknown builder; it is not the work of a noted architect. The clumsy and incompatible anachronistic additions to the house have significantly reduced the form, massing, materials, and detailing that would have distinguished the structure as an example of 19th century vernacular architecture.

<u>Standard 3 — Whether demolition of the property, structure or object would be contrary to the purpose and intent of this Chapter and to the objectives of the historic preservation for the applicable District.</u>

The demolition of 983 Maplewood would not negatively impact the district because the building is in dilapidated condition, and its distinguishing details have been removed. It has been remodeled and repurposed as a multi-unit apartment building on a small private lane populated by single family homes sited closely together.

<u>Standard 4 — Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.</u>

The original home is 19th century domestic vernacular, that was constructed of common materials. The exterior consists of vinyl siding, soffits and fascia, painted double hung windows and composition shingle roofing. Very little of the original interior finishes or fixtures remain. Even if more of the original house remained, it was built with common construction and materials and would not de difficult or expensive to reproduce.

<u>Standard 5 — Except in cases where the owner has no plans for a period of up to five years to replace an existing Landmark or property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.</u>

The owner is going to replace the existing home with a new single-family home, as described in the HPC application package.

983 Maplewood Road Residence
Lake Forest, Illinois

City of Lake Forest – Historic Preservation Commission
Statement of Intent & Response to Standards of Review
January 15, 2022

Design rationale per Historical Preservation Commission standards:

Standard 1 — Height.

The proposed two-story home has a maximum height of 28'-10" to the top of the roof ridge on the main gable. The bulk of the proposed house will be similar to the existing houses on the lane. The height of the proposed home is visually compatible with the adjacent existing homes. The intent is to be respectful of the scale of existing two-story houses on the lane.

Standard 2 — Proportion of front facade.

The main facade of the proposed house will face the lane, similar to the orientation of the existing house on the site and neighboring houses on the lane. The front door is recessed with a bracketed roof canopy to provide a sheltered entry to the home. The windows on first floor flanking the entry are aligned with the windows on the second floor. The composition of the front facade is horizontal with vertically oriented double hung windows.

Standard 3 — Proportion of openings.

The width and height of the windows are visually consistent with the windows on the adjacent properties. The window and door openings on the house are carefully considered to allow a connection to the lane and to provide natural light for a house located on a small site surrounded by tall trees. The windows are larger on the first floor than on the second floor. The window and exterior door types relate to each other in proportion and the division of lites.

Standard 4 — Rhythm of solids to voids in front facades.

The design of the front facade provides a rhythm between the solidity of the walls and the translucence of the glazing in the windows and doors. The windows on the front facade are aligned horizontally and vertically. Similar to the windows on the homes adjacent to the proposed structure.

Standard 5 — Rhythm of spacing and structures on streets.

The proposed house maintains the rhythm of spacing on the street by being built in the footprint of the existing home that is proposed to be demolished. The proposed house is centered between the existing homes on the adjacent properties to each side. The house is situated close to the lane, similar to the surrounding homes.

Standard 6 — Rhythm of entrance porches, storefront recesses and other projections.

The proposed home has a strong rhythm of solid and void, created by the alignment and distribution of windows and the front entry door. The eave line broken by second floor dormers creates a pleasing series of volumes, while reducing the apparent bulk of the street facing facade.

Standard 7 — Relationship of materials and texture.

The proposed materials for the home are consistent with the materials and textures of the existing houses on the lane and with the materials used by the Newfoundlanders that originally settled on the street. The home will have stained cedar shake siding with a masonry chimney. The roof will be asphalt shingles with painted metal gutters and downspouts. The trim will be stained cedar. The textures and sizes of these materials have been studied to assure a timeless quality for the home that keeps with the neighboring homes on the lane.

Standard 8 — Roof shapes.

The proposed roof shape is predominantly gable roof at a 10:12 facing the street and a side facing saltbox gable roof at a 12:12 pitch, with shed roofs at the dormers having a 6:12 pitch. The roof shapes draw inspiration from traditional newfoundland vernacular architecture as well as the roof forms of the existing homes on the lane.

Standard 9 — Walls of continuity.

The neighborhood context is of homes sitting close to the secluded street. The height of windows and rooflines are maintained throughout the front elevation. The proposed two-story home continues the wall of continuity with the existing adjacent two-story homes on the lane. Landscaping will enclose the rear yard from catfish alley.

Standard 10 — Scale of a structure.

The proposed home is modest in scale and respectful to the existing homes that make up the context of the lane.

Standard 11 — Directional expression of front elevation.

The proposed orientation and siting of the home maintains the relationship of the proposed house to the lane and sustains the character of the secluded street. It is based upon the close siting and relationship of existing homes to the lane. The front elevation is oriented to the street house and is aligned with the lane. The slightly raised entry engages the lane while marking the transition into the private zone of the house.

Standard 12 — Preserving distinguishing features.

The proposed residence does not preserve distinguishing features of the existing home

Standard 13 — Protection of resources.

Not applicable, New Construction

Standard 14 — New construction.

New construction of a modest house on a small lot. The home will feature materials consistent with the surrounding homes.

Standard 15 — Repair to deteriorated features.

Not applicable, New Construction

Standard 16 — Surface cleaning.

Not applicable, New Construction

Standard 17 — Reversibility of additions and alterations.

The proposed residence and driveway are not reversible, New Construction

THE CITY OF
LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION
DESCRIPTION OF EXTERIOR MATERIALS

(The use of natural materials is strongly encouraged)

Façade Material

- [ ] Stone
- [ ] Brick
- [ ] Wood Clapboard Siding
- [x] Wood Shingle
- [ ] Cementitious Stucco
- [ ] Other ______________

Color and/or Type of Material______________

Foundation Material

Exposed Foundation Material______________

____

Window Treatment

Primary Window Type

- [x] Double Hung
- [ ] Casement
- [ ] Sliding
- [ ] Other ______________

Color of Finish WHITE

Finish and Color of Windows

- [ ] Wood (recommended)
- [x] Aluminum Clad
- [ ] Vinyl Clad
- [ ] Other ______________

Window Muntins

- [ ] Not Provided
- [ ] True Divided Lites SMULIGHT

Simulated Divided Lites

- [x] Interior and Exterior muntin bars (recommended)
- [ ] Interior muntin bars only
- [ ] Exterior muntin bars only
- [ ] Muntin bars contained between the glass

Trim Material

Door Trim

- [ ] Limestone
- [ ] Brick
- [x] Wood
- [ ] Other ______________

Window Trim

- [ ] Limestone
- [ ] Brick
- [x] Wood
- [ ] Other ______________

Fascias, Soffits, Rakeboards

- [x] Wood
- [ ] Other______________

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION
DESCRIPTION OF EXTERIOR MATERIALS – CONTINUED

Chimney Material

- [x] Brick
- [ ] Stone
- [ ] Stucco
- [ ] Other ______

Roofing

Primary Roof Material

- [ ] Wood Shingles
- [ ] Wood Shakes
- [ ] Slate
- [ ] Clay Tile
- [x] Composition Shingles______
- [ ] Sheet Metal______
- [ ] Other ______

Color of Material GREY

Flashing Material

- [ ] Copper
- [x] Other Aluminum
- [ ] Sheet Metal

Gutters and Downspouts

- [ ] Copper
- [x] Aluminum
- [ ] Other ______

Driveway Material

- [x] Asphalt
- [ ] Poured Concrete
- [ ] Brick Pavers
- [ ] Concrete Pavers
- [ ] Crushed Stone
- [ ] Other ______

Terraces and Patios

- [x] Bluestone
- [ ] Brick Pavers
- [ ] Concrete Pavers
- [ ] Poured Concrete
- [ ] Other ______

BENJAMIN HISTORIC CERTIFICATIONS

Benjamin Historic Certifications, LLC
711 Marion Avenue
Highland Park, IL 60035
847-432-1865
847-432-1829 fax
www.benjaminhistoric.com

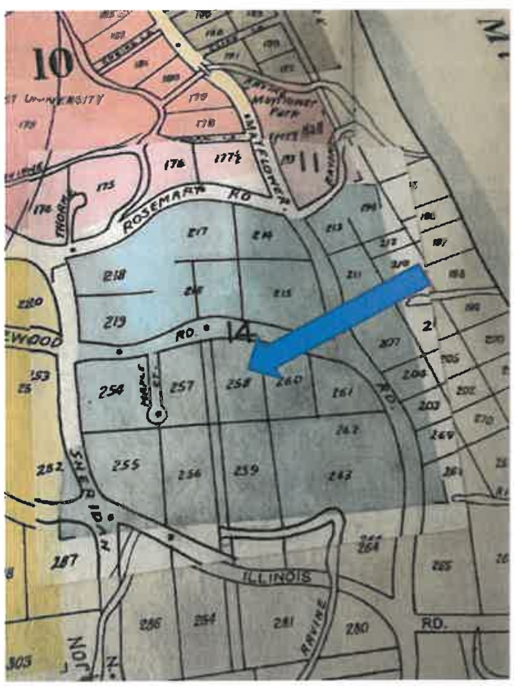
HISTORIC RESOURCE EVALUATION: 983 MAPLEWOOD ROAD

EXECUTIVE SUMMARY

The house at 983 Maplewood Road, along with others flanking the 30' wide easement road locally known as "Codfish Alley," has a fascinating—if somewhat enigmatic—history. Settled by Nicholas and Bridget Skehens Powers and other families from Newfoundland beginning in the mid-1880s, the residents of "Codfish Alley" provided a skilled workforce for the businesses in Lake Forest and for the surrounding private estates. Unfortunately, the house at 983 Maplewood Road, which architecturally originated as a simple vernacular cottage, has been extensively remodeled and its compromised integrity doesn't reflect the home's historic origin. Because of that, removing and replacing it is acceptable to sustain the character of the secluded street. It currently serves as an apartment house.

HISTORY

The story of 983 Maplewood Road begins with Nicholas and Bridget Skehens Powers, who emigrated to Lake Forest from Newfoundland along with many other Newfoundlanders. In 1885, Nicholas and Bridget purchased 4.58 acres, the east half of Lot 258, on a strip of land south of Maple Avenue (renamed Maplewood Road in 1928, when street addresses were renumbered). Tax records from Shields Township indicate that Sylvester Lind owned the property in 1883. In 1884, Lind's name was crossed out and the lot was sold and divided into the east half (owned by B. Hohn) and the west half (owned by John Higgins). After Nicholas Powers purchased the east half in 1885, the Total Fair Cash Value increased from \$200 in 1885 to \$250 in 1886.[1] This likely indicates that Powers was improving the land by building houses. Powers was investing in his family's future and in the future of those immigrants who would be moving to Lake Forest from the Powers's native land.



Sanborn Map, 1929, Page 14: Lot 258.

[1] Tax Records for Shield Township, 1981-1986. Collection of the Lake Forest-Lake Bluff History Center. There were no record books in the collection after 1886.

The east half of Lot 258 that Powers purchased for development came to be known as "Codfish Alley," out of respect for Nicholas, Bridget, their family, and the many other Newfoundlanders who settled on this narrow, secluded roadway. These immigrants were proud of their heritage and the trades they had nurtured in their native land: boat building and fishing.

The story of "Codfish Alley," which was first settled by the Powers family, needs to start with the history of Newfoundland, where a successful economy depended on cod fishing. Fishermen left Newfoundland when the fishing industry no longer provided sufficient employment for the country's citizenry.

The island of Newfoundland is today part of the easternmost province of Canada, a considerable distance from Lake Forest! The oldest accounts of European contact date from around the year 1000 when Leif Erickson is purported to have landed in the area. Subsequently, the English and the Portuguese explored the territory. In 1496, John Cabot obtained a charter from the English King Henry VII to sail under England's banner and to set up set on any "new-found-land." In the early 1500s, the Portuguese claimed the area and created taxes for the cod fisheries in Newfoundland Waters.[2] In 1583, Newfoundland became England's first possession in North America and one of the earliest permanent English colonies in the New World America. Their dominion was constantly challenged by the Basques, but the island remained British. First a colony, and then a dominion of the British Empire, Newfoundland didn't gain its independence until 1933. It was highly sought after because the waters around Newfoundland had some of the best fishing in the North Atlantic Ocean and cod was the most harvested fish. However, from the 1880s, cod fishery fell into severe decline and there was a large scale emigration, largely Catholic, of Irish descent. This was exactly when Nicholas and Bridget Powers settled in Lake Forest.

A large enclave of Newfoundlanders left what was described in 1996 by Nancy Kelley, a granddaughter of Nicholas and Bridget Powers, as the "tyranny of British rule."[3] But it very likely occurred as a result of the decline of the fishing industry, with codfish as the primary catch.

Nicholas, who appears to have been one of the first Newfoundlanders to settle in Lake Forest, was born in October, 1854, and Bridget, who was born on February 3, 1858, were (according to Ancestry.com) married August 19, 1882, a year after Nicholas had emigrated to the United States. They were married in St. Mary's Church In Lake Forest. Bridget was one of ten children. She and Nicholas had seven daughters: Mary, Nellie, Annie, Bessie, Kate, Rose and Elsie. Nancy, the daughter of Elizabeth (Bessie), recalled in an article she wrote that they were a "very close and loving family."[4] This is particularly important as the Powers surrounded themselves on the street with family.

---

[2] *Carl Ortwin Sauern, 1889-1975. Sixteenth century North America : the land and the people as seen by the Europeans. Berkeley: University of California Press, 1971. ISBN 978-0-520-01854-9. OCLC 215780).*

[3] Nancy Kelley. "The Truth about Lake Forest 'Codfish Town'. *The Journal Lake Forest*. Volume 4, Issue 12, September, 1996.

[4] Ibid.

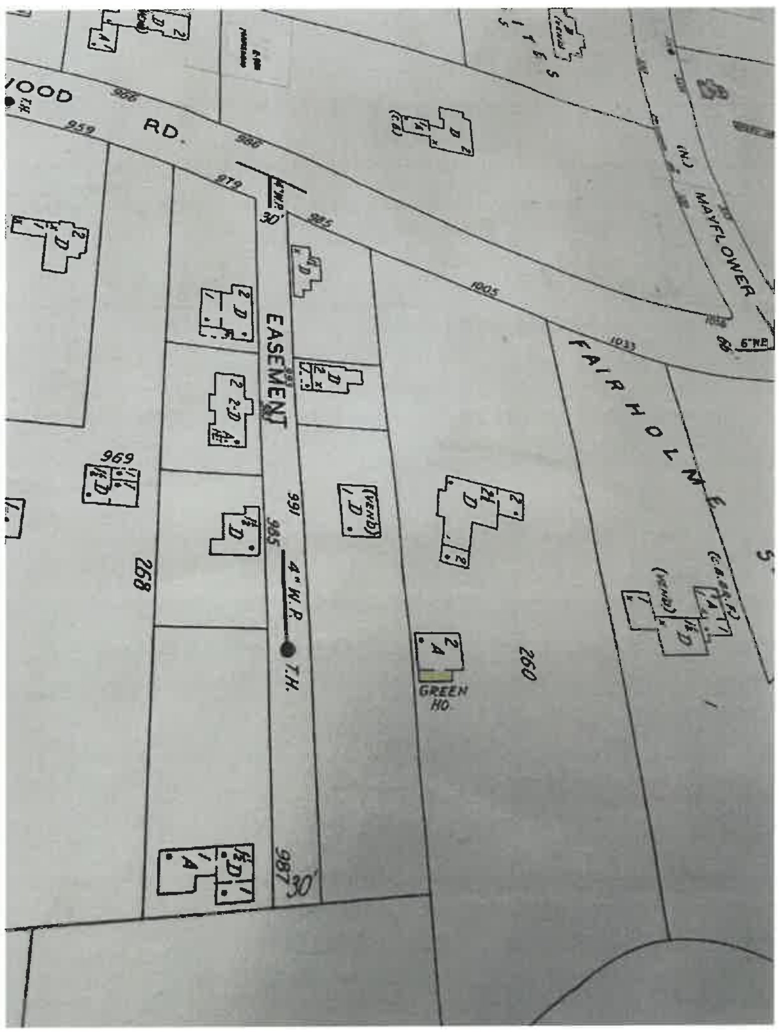
The Seven Powers daughters

The acreage Nicholas and Bridget purchased was built out to provide a 30'-wide private road. Nancy recalled that they built five houses. There were very likely six because the American Foursquare at 993 Maple was also built by the Powers family, sometime before 1916.[5] All of the houses had the address 441 Maple Avenue, until 1928, when the street numbers were changed and each of the houses on this narrow street, which is described as an "easement for road and street purposes" on plats of survey, received its own number on Maplewood Road. The houses had the addresses 979 (demolished), 983, 985, 987 (demolished), 991 and 995 Maplewood.[6] The houses at 995 and 983 were duplexes; the others were built as single-family homes. Nancy Kelley recalled in the article she wrote that Nicholas built 979, the house where she was born and where her cousin William Steffen also lived, and that he also built the house at 995, where his brother in law Joseph Rose lived. There are references in the City Directories

[5] No evidence has been located that there was ever another house at the site 991 Maplewood, which was constructed in 1951.The house at 991 had to have been built before 1916 because the address of the owner's draft registration was441 Maple Avenue (Ancestry.com)

[6] 995 Maplewood is mistakenly referenced as 985 in the 1929 Sanborn. It is the house located on the NE corner of Maplewood and the Easement road. .

for other Powers family relatives. Residents of the street included members of both the Powers and the Skehens families. The 1901 *Lake forest Directory* has (in addition Nicholas and his wife Bridget) Joseph and his wife Ella Powers, and Thomas and his wife Mary Powers living on Maple. Thomas lived at 987. The 1913 *Lake Forest Directory* has Bernard Skehens (misspelled Skekens) and Patrick Skehens also living on the street. Over the years, three of the Powers's daughters lived on Codfish Alley. Nellie lived with her mother and then with her sister Elsie and brother-in-law Earl Russell at 983; Katherine and William Steffans lived at 985,[7] and Anna lived with her husband Frank Barber at 993.



Sanborn Map, 1929, corrected to 1966[8] e. Side, Block 258

[7] There is a discrepancy between Nancy's recollection and the Directory address.

[8] It is curious that the buildings on P. 14 of the Sanborn maps do not have colors, which would indicate building material, filled in. All of the other pages show whether a building is brick (pink) or wood frame (yellow).

Houses on East side of Easement Road, Codfish Alley

979 Maplewood Drive, 2003, (Owner of Original House in 1928: Bridget Powers

983 Maplewood, ca. 1886 (Owner and resident of Original House: Nicholas & Bridget Powers)

985 Maplewood Date unk. (Owner of Original House in 1928, Bridget Powers)

987 Maplewood, 1993. (Owner of Original House in 1928, Estate of Thomas Powers)

Houses on East Side of Easement Road in Codfish Alley

995 Maplewood (on Sanborn as 985 Maplewood) Date unk. Renter in 1930, Roger and Madeleine Brownson

993 Maplewood. American Foursquare Built Before 1916. (Owner in 1928 Frank and Anna Barker)

991 Maplewood, 1951, Modern Home Builders (House may not have been located here, no earlier permits)

In 1928, when owners and renters were listed ion the change of Address cards, Nicholas had died and Bridget (Mrs. N.) was listed as owner of many of the properties. Nicholas was very young when he passed away, only 56 years old. He died tragically in mid-September, 1909, in a terrible accident. Nicholas was a house painter but also had a contract to work on Lake Forest's bridges. The *Waukegan News Sun* reported on September 15, 1909, that while trying to draw electric power wires out of his way when he was painting one of the city's street bridges, he was electrocuted and died.[9] He and Bridget are buried in St. Mary's Catholic Cemetery, Lake Forest.

[9] "Electrocuted Under Bridge: Nicholas Powers Killed While Painting Lake Forest Street Bridge," *Waukegan News Sun*, 15 September 1909.

Nicholas Powers

in the U.S., Find a Grave Index, 1600s-Current

Want to get involved? Click here.

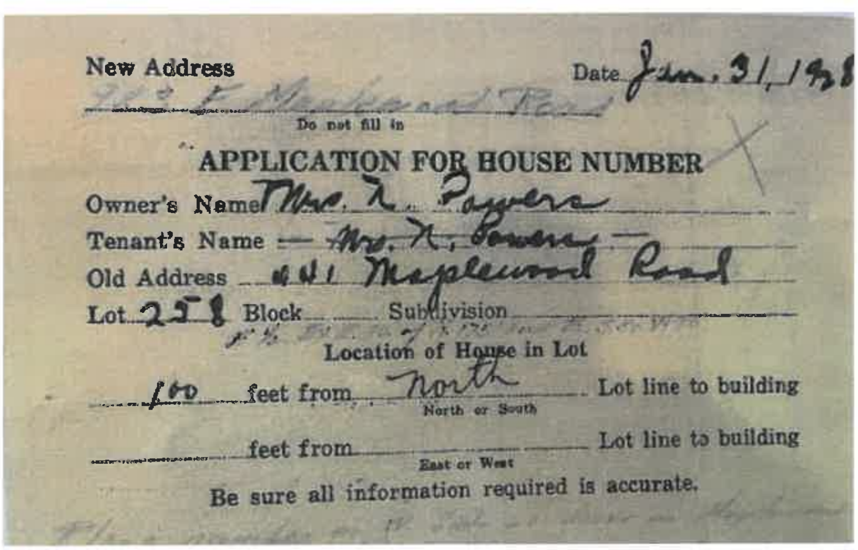
Report a problem

Detail Source

Name:	Nicholas Powers
Birth Date:	1853
Death Date:	1909
Cemetery:	Saint Mary Catholic Cemetery
Burial or Cremation Place:	Lake Forest, Lake County, Illinois, United States of America
Has Bio?:	N
Spouse:	Bridget Powers
URL:	https://www.findagrave.com/memorial/130390105/nicholas-powers

Bridget Powers

Bridget Powers was to live until June 15, 1936. After her husband's death, she continued to reside at 983 Maplewood Road with her daughter, Nellie. The *Application for House Number* in the house file at Lake Forest's Planning Department, dated June 31, 1928, confirms that Mrs. N. Powers was the owner and tenant of the house that had an old address of 441 Maplewood and new address of 983 Maplewood.



New Address   Date Jan. 31, 1928

Do not fill in

APPLICATION FOR HOUSE NUMBER

Owner's Name Mrs. N. Powers

Tenant's Name — Mrs. N. Powers —

Old Address 441 Maplewood Road

Lot 258 Block ____ Subdivision ____

Location of House in Lot

100 feet from North (North or South) Lot line to building

____ feet from ____ (East or West) Lot line to building

Be sure all information required is accurate.

Bridget Powers's *Lake Forester* obituary, dated June 18, 1936, stated that she had lived in the house at 983 Maplewood Road for 51 years. Mrs. Powers was 78 when she died. The article noted that she was born in 1858 at North River, Newfoundland, and that she came to the United States in 1882, the same year she married the late Nicholas Powers. All seven of her daughters survived her: Miss Nellie Powers, Mrs. Anna Barker, Mrs. Elizabeth Kelley (Nancy Kelley's mother) and Mrs. Elsie Russell of Lake Forest, Mrs. Katherine Steffen of Winnetka, and Mrs. Rose Wright of Downers Grove.[10] The Ancestry.com death notice states Bridget's occupation as "Land Lady." After Bridget died, her children Earl and Elsie Powers Russell and Nellie Powers lived in the house.

1937. The bonds are redeemable at par at the present time, after proper certification at the postoffice only, and may be turned in for redemption there.

Mrs. Powers, 78, Who Lived Here 51 Years, Died on Last Friday

Mrs. Bridget [illegible] Powers, a resident of Lake Forest for 51 years, died last Friday at her home at 983 East Maplewood Road at the age of 78. She is survived by seven daughters, 28 grandchildren and one grandchild.

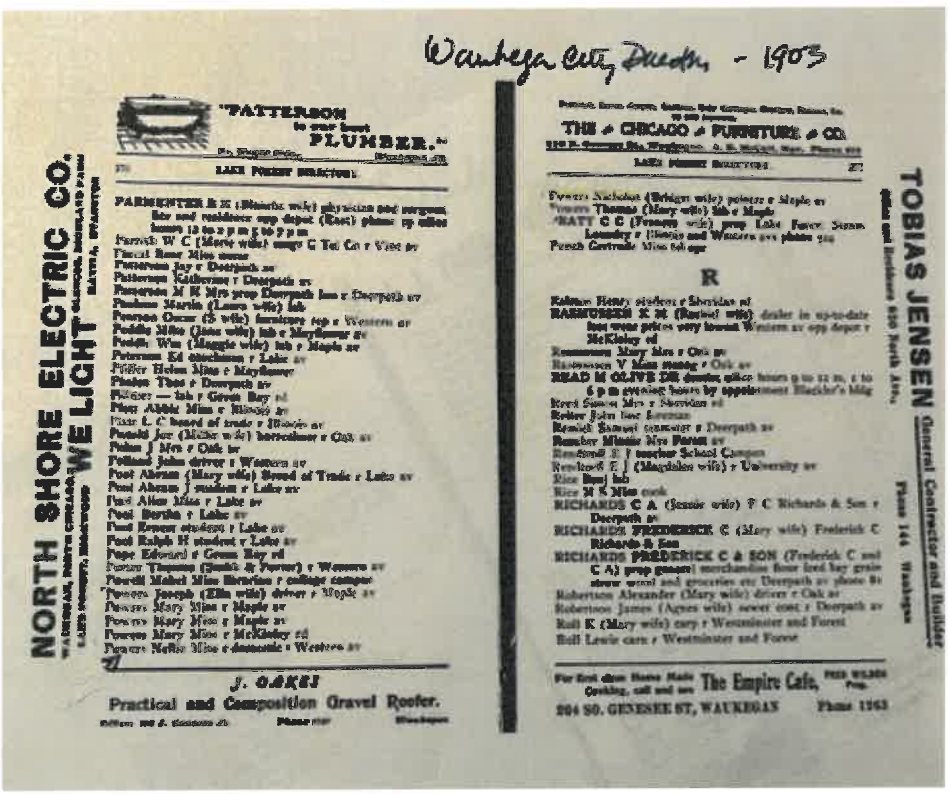
Mrs. Powers was born in 1858 at North River, Newfoundland. She came to the United States in 1882, the same year that she married the late Nicholas Powers. Mrs. Powers had lived in the same house in Lake Forest for over 50 years.

Funeral services were held Monday morning at 10 o'clock at St. Mary's Church. Burial was in St. Mary's Cemetery.

The seven surviving daughters are as follows: Miss Nellie Powers, Mrs. Anna Barker, Mrs. Elizabeth Kelley and Mrs. Elsie Russell, of Lake Forest; Mrs. Mary McKenna, of San Diego; Mrs. Katherine Steffen, of Winnetka; and Mrs. Rose Wright, of Downers Grove.

[10] "Mrs. Powers, 78, Who Lived Here 51 Years Died on Last Friday." *Lake Forester*, June 18, 1936".

Both the directories and the census records often list the professions of the residents of the houses. Most men were in the trades. Women worked for the phone company or were stenographers. The 1901 *Lake Forest Directory* lists both Nick (Nicholas) and Thomas as "lab" (laborers). Two years later, Nicholas is listed as a "painter." In 1908, Joseph Powers is listed as "express," and Nicholas and Bridget's daughter Bessie (Elizabeth) is listed as "telephone operator." In the 1923-25 Directory, Bridget's daughter Nellie is listed as a supervisor at the Illinois Bell Telephone Company. Census records also bear this out. The 1910 Census has Thomas Powers working as a laborer on the city streets and his son Tom as a janitor in a church. The Powers's daughter Catherine (Katherine) was a stenographer at a golf club. The 1910 Census shows Bridget had three "lodgers living with them." One was listed as a laborer, two as gardeners. The 1910 Census also shows that Patrick Skehens and his son served as laborers at a private estate, and that one of his daughters was a stenographer in an office.[11]



Waukegan City Directory - 1903

"PATTERSON is your best PLUMBER."

LAKE FOREST DIRECTORY

PARMENTER R E (Blanche wife) physician and surgeon [illegible] office hours [illegible]
Parrish W C (Marie wife) [illegible] C Tel Co r [illegible] av
[illegible] Rose Miss nurse
Patterson Jay r Deerpath av
Patterson Katherine r Deerpath av
Patterson M E Mrs prop Deerpath Inn r Deerpath av
[illegible] Martin (Laura wife) lab
Pearson Oscar (S wife) furniture rep r Western av
Peddle Mike (Jane wife) lab r Mayflower av
Peddle Wm (Maggie wife) lab r Maple av
Peterson Ed coachman r Lake av
Pfiffer Helen Miss r Mayflower
Phelan Thos r Deerpath av
[illegible] — lab r Green Bay rd
Pier Abbie Miss r Illinois av
Pier L C board of trade r Illinois av
[illegible] Joe (Mollie wife) horseshoer r Oak av
Pohen J Mrs r Oak av
Polland John driver r Western av
Poole Abram (Mary wife) Board of Trade r Lake av
Poole Abram J student r Lake av
Poole Alice Miss r Lake av
Poole Bertha r Lake av
Poole Ernest student r Lake av
Poole Ralph H student r Lake av
Pope Edward r Green Bay rd
Porter Thomas (Smith & Porter) r Western av
Powell Mabel Miss librarian r college campus
Powers Joseph (Ella wife) driver r Maple av
Powers Mary Miss r Maple av
Powers Mary Miss r Maple av
Powers Mary Miss r McKinley rd
Powers Nellie Miss r domestic r Western av

J. OAKES
Practical and Composition Gravel Roofer.

NORTH SHORE ELECTRIC CO.
WE LIGHT

THE CHICAGO FURNITURE CO.

LAKE FOREST DIRECTORY

Powers Nicholas (Bridget wife) painter r Maple av
Powers Thomas (Mary wife) lab r Maple
PRATT C C (Frances wife) prop Lake Forest Steam Laundry r Illinois and Western avs phone [illegible]
Pruch Gertrude Miss [illegible]

R

Rahman Henry student r Sheridan rd
RASMUSSEN K M (Rachel wife) dealer in up-to-date foot wear prices very lowest Western av opp depot r McKinley rd
Rasmussen Mary Mrs r Oak av
Rasmussen V Miss nurse r Oak av
READ M OLIVE DR dentist office hours 9 to 12 m, 1 to 6 p m evening hours by appointment [illegible] bldg
Reed Susan Mrs r Sheridan rd
Reiter John [illegible]
Remick Samuel [illegible] r Deerpath av
Remsley Minnie Mrs Forest av
[illegible] teacher School Campus
[illegible] E J (Magdalen wife) r University av
Rice Benj lab
Rice M S Miss cook
RICHARDS C A (Jessie wife) F C Richards & Son r Deerpath av
RICHARDS FREDERICK C (Mary wife) Frederick C Richards & Son
RICHARDS FREDERICK C & SON (Frederick C and C A) prop general merchandise flour feed hay grain straw wood and groceries etc Deerpath av phone [illegible]
Robertson Alexander (Mary wife) driver r Oak av
Robertson James (Agnes wife) sewer cont r Deerpath av
Roll K (Mary wife) carp r Westminster and Forest
Roll Lewis carp r Westminster and Forest

For first class Home Made Cooking, call and see The Empire Cafe, FRED WILDER Prop.
204 SO. GENESEE ST, WAUKEGAN Phone 1563

TOBIAS JENSEN General Contractor and Builder
Phone 144 Waukegan

[11] The Census records are all found on Ancestry.com

There were other families on the street that also emigrated from Newfoundland — the Edward Baldwins, the James Walshes and the Frank Barbers, among others. The 1900 Census indicates that both Edward and James were laborers. The 1920 Census lists Frank as a chauffeur.

Another enclave of Newfoundlanders lived west of Codfish Alley, along Woodlawn Avenue, Washington Road, Washington Circle, Ryan Place (formerly Shafter) and Cherry Street. It became known as" Codfish Town" since on Friday evenings, the scent of codfish cooking wafted through the air.[12] Patrick and Mary Baldwin, who lived at 699 Cherry Street, left their home in St. Johns, Newfoundland, and emigrated to Lake Forest in 1891. Mary served as a physician's assistant, delivering many neighborhood babies. Patrick and Mary had seven children. Their son Edward Baldwin, who was listed in the 1920 Census as a plasterer, lived in this area. He and his wife had 14 children. Their son Nicholas was a cement contractor, who laid the foundations for North Shore estates including Villa Turicum.[13] William Peddle, who lived with his wife on Cherry Street, had six children. He was listed as a laborer, as was his son Stanley. His daughter Mary did housework.

A social pattern emerges when the census records and directories are consulted. There was a large influx of immigrants from Newfoundland who settled in Lake Forest. They lived modestly in frame houses. Even though that was the case, they had large families. Sons, like their fathers, worked in the trades — as laborers, painters, and plasterers. Likely they were very talented, having honed their skills in shipbuilding and similar industries in Newfoundland. Some worked on the city's large estates. The women, when they worked, were stenographers or are specifically mentioned as working for the phone company. The great mystery is why so many Newfoundlanders initially settled in Lake Forest. It was timely, as jobs were plentiful —perhaps at Fort Sheridan which was developed in the late 1880s and early 1890s, and definitely for the monied families who were building estates in Lake Forest. It was a logical place to settle once they knew the city of Lake Forest existed. When some Newfoundlanders came, others followed! It appears that Nicholas Powers and Bridget Skehen were early transplants. The Baldwins came later, in 1891.

---

[12] "Baldwin Family: Codfish Town and Beyond" History Center of Lake Forest-Lake Bluff
[13] Ibid.

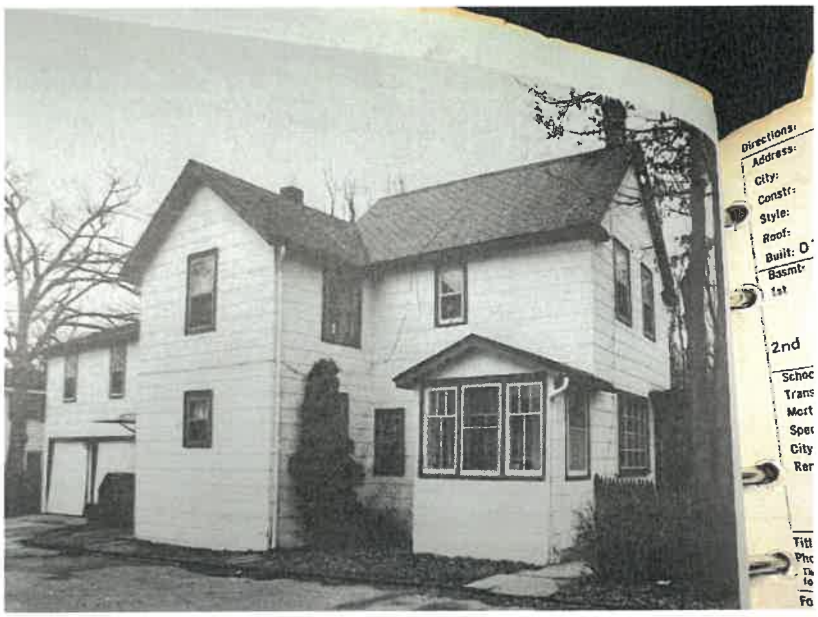
ARCHITECTURE

The houses that the Newfoundlanders built were vernacular, not high style. Typically late 19th Century or early 20th Century vernacular houses are described by their form or shape or roof pitch. Few have embellishments. Descriptive examples include L-Form, Cross Form, Gable Front, Side Gable, pyramidal, Upright and Wing, etc.

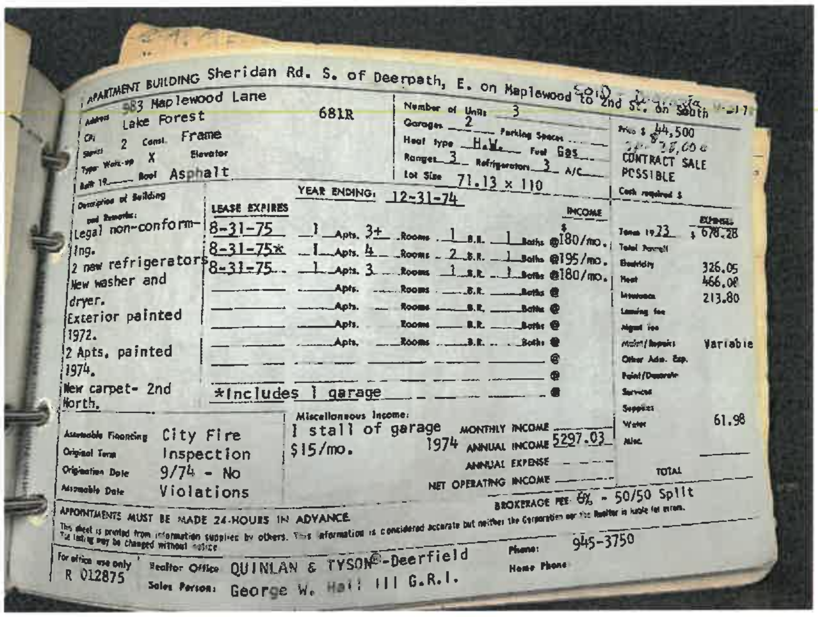
1870's Upright and Wing

983 Maplewood Road

The Nicholas and Bridget Skehens Powers House, which was very likely built in 1886, is difficult to understand and describe because of non-complimentary additions, but it may have started its life as an "Upright and Wing", which was an L-shaped house with a gable front facing the street and a side-facing wing , also topped by a gable roof. It has been extensively altered and covered with siding twice. The first, evident in a 1975 real estate listing that looks like the house was covered in wide asphalt siding.



The real estate photo also shows a 1947 extension to the south that included a two car garage. That is the most compromising addition that is visible from the street.


APARTMENT BUILDING Sheridan Rd. S. of Deerpath, E. on Maplewood to 2nd St. on South

Address 983 Maplewood Lane 681R
City Lake Forest
Stories 2 Const. Frame
Type: Walk-up X Elevator
Built 19___ Roof Asphalt

Number of Units 3
Garages 2 Parking Spaces
Heat type H.W. Fuel Gas
Ranges 3 Refrigerators 3 A/C
Lot Size 71.13 x 110

Price $ 44,500
CONTRACT SALE
POSSIBLE
Cash required $

YEAR ENDING: 12-31-74

Description of Building and Remarks:
Legal non-conforming.
2 new refrigerators
New washer and dryer.
Exterior painted 1972.
2 Apts. painted 1974.
New carpet- 2nd North.

LEASE EXPIRES	Apts.	Rooms	B.R.	Baths	INCOME
8-31-75	1	3+	1	1	@$180/mo.
8-31-75*	1	4	2	1	@195/mo.
8-31-75	1	3	1	1	@180/mo.

*Includes 1 garage

EXPENSES	
Taxes 1973	$ 678.28
Total Payroll	
Electricity	326.05
Heat	466.08
Insurance	213.80
Leasing fee	
Mgmt fee	
Maint/Repairs	Variable
Other Adm. Exp.	
Paint/Decorate	
Services	
Supplies	
Water	61.98
Misc.	
TOTAL	

Assumable Financing / Original Term / Origination Date / Assumable Date: City Fire Inspection 9/74 - No Violations

Miscellaneous Income:
1 stall of garage $15/mo.
MONTHLY INCOME
1974 ANNUAL INCOME 5297.03
ANNUAL EXPENSE
NET OPERATING INCOME
BROKERAGE FEE 6% - 50/50 Split

APPOINTMENTS MUST BE MADE 24-HOURS IN ADVANCE.
This sheet is printed from information supplied by others. This information is considered accurate but neither the Corporation nor the Realtor is liable for errors. The listing may be changed without notice.

For office use only R 012875
Realtor Office QUINLAN & TYSON®-Deerfield Phone: 945-3750
Sales Person: George W. Hall III G.R.I. Home Phone

On November 7, 1947, Earl and Elsie Powers Russell pulled a permit to remove an outside stairway and construct an attached two car garage with a sleeping room above it. There was no bathroom constructed as part of the build out. There are no building permits for other additions, but the form of the house indicates there were several, including the small porch facing the road. It's design and window configuration likely date from the 1910s. The roof pitch doesn't match others in the house

It is very difficult to understand changes that were made at the rear of the house. Nothing seems to be cohesive. There is no differentiation where changes were likely made; roof pitches don't match. In 1987, the house was sided a second time. Vinyl siding was added to the walls, soffits, fascia and four new porches. It obliterates where changes may have previously been made. In 2000 the house was reroofed.

Rear elevation: North End; South End

There are no historic features on the interior except for bulls' eye corner blocks on one window, a common characteristic of late 19th Century houses. There are no other features that appear to date from the mid 1880's when the house was constructed. The interior plan consists of a rabbit warren of rooms. It is difficult to tell how many apartments currently exist in the house. The kitchen of one of the units has a shower in it.

Window with 19th Century 2/2 window configuration and casings with bulls eye corner blocks. Paneling not historic.

Representative Interior Photographs

Entrance on North Side of House

CONCLUSION

The history of 983 Maplewood Road is important, but the house no longer reflects the period of time when its history was significant. This was from 1886, when the house was built, to 1936, when Bridget Powers passed away. It has suffered many Clumsy, incompatible additions, and historic features have been removed; most that exist clearly don't date from the period of significance for the house.

The house itself, because of its poor integrity isn't significant, but the history of the street and how it was developed is significant. This enclave's human scale with a narrow roadway flanked by comfortably sized houses is important. It provides an opportunity for residents to engage with their neighbors. This was the story early on when family members lived there. Retaining that scale is important.

This area, along with that located to the west, on Washington Circle, Cherry Street and other nearby streets tells a story that is an important part of Lake Forest history. It is interesting that the areas when taken together have been described as" Codfish Town". The house at 983 Maplewood Drive, like those from the late 19th Century and early 20th Century that surround it on "Codfish Alley", has an interesting history as it relates to the settlement of Newfoundlanders in Lake Forest. No one seems to know how the earliest Newfoundlanders who immigrated found Lake Forest.[14] But once here, friends and family followed, and the city grew to have a substantial population of Newfoundlanders. They were tradesman who saw an opportunity to gain successful employment. Nicholas and Bridget Powers developed this wonderful street called "Codfish Alley."

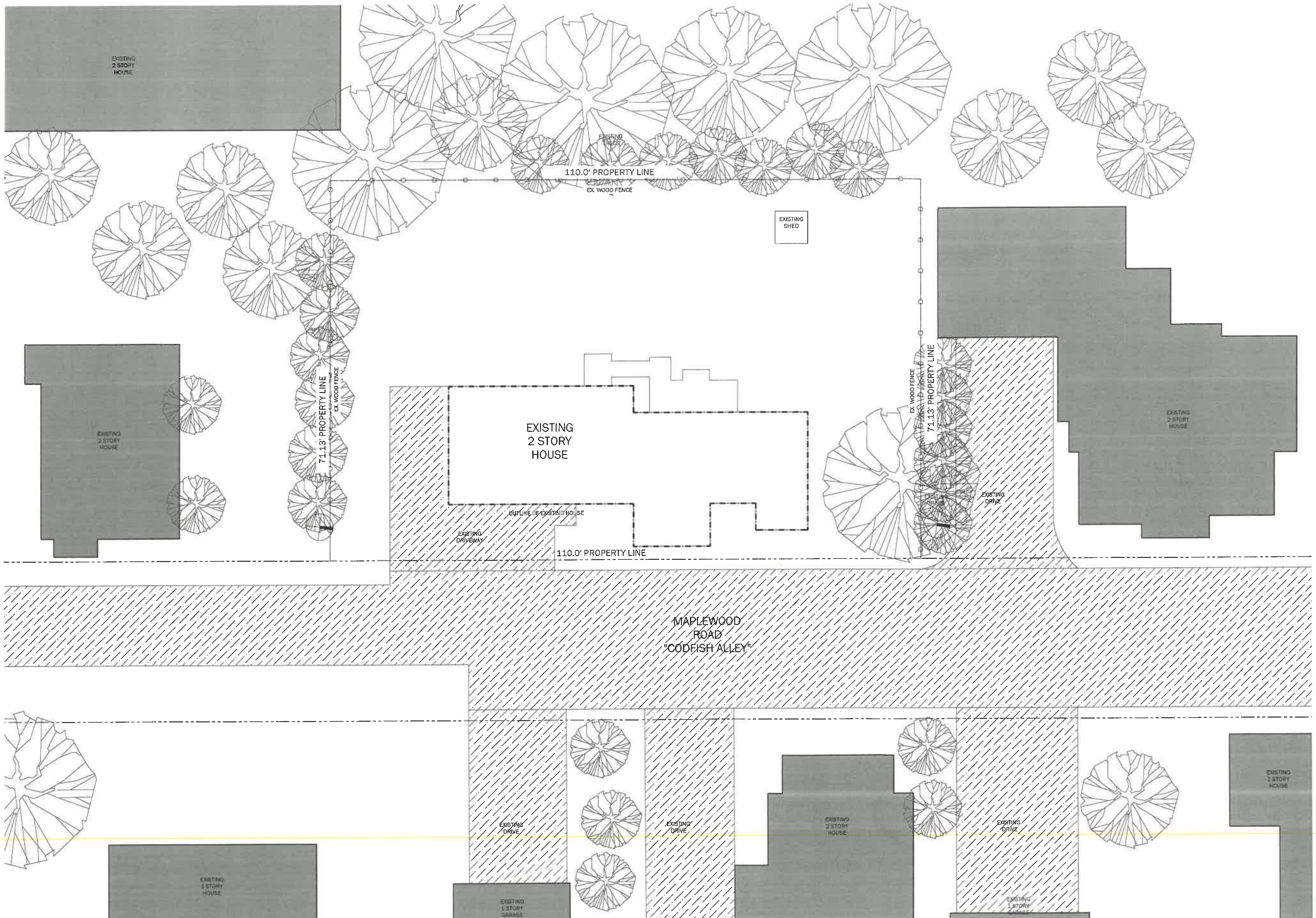
This is the first time that the story of the Newfoundlanders' settlement in Lake Forest has been pulled together in a single document. Donating a copy of this report to the Lake Forest-Lake Bluff History Center would make the story easily available to those doing research on the history of Lake Forest.

Susan S. Benjamin

BENJAMIN HISTORIC CERTIFICATIONS

[14] Laurie Stein and Susan Benjamin puzzled over the mystery of how Newfoundlanders found Lake Forest. It was a very smart move and jobs were plentiful.

EXISTING SITE PLAN



1 EXISTING SITE PLAN
1/8"=1'-0"

Divvy House

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LICENSED ARCHITECT
ROBERT SHEMIOT
1020995
STATE OF ILLINOIS

SWARTHOUT
RESIDENCE

983 Maplewood,
Lake Forest, Il

PARCEL ID: 12-34-305-033

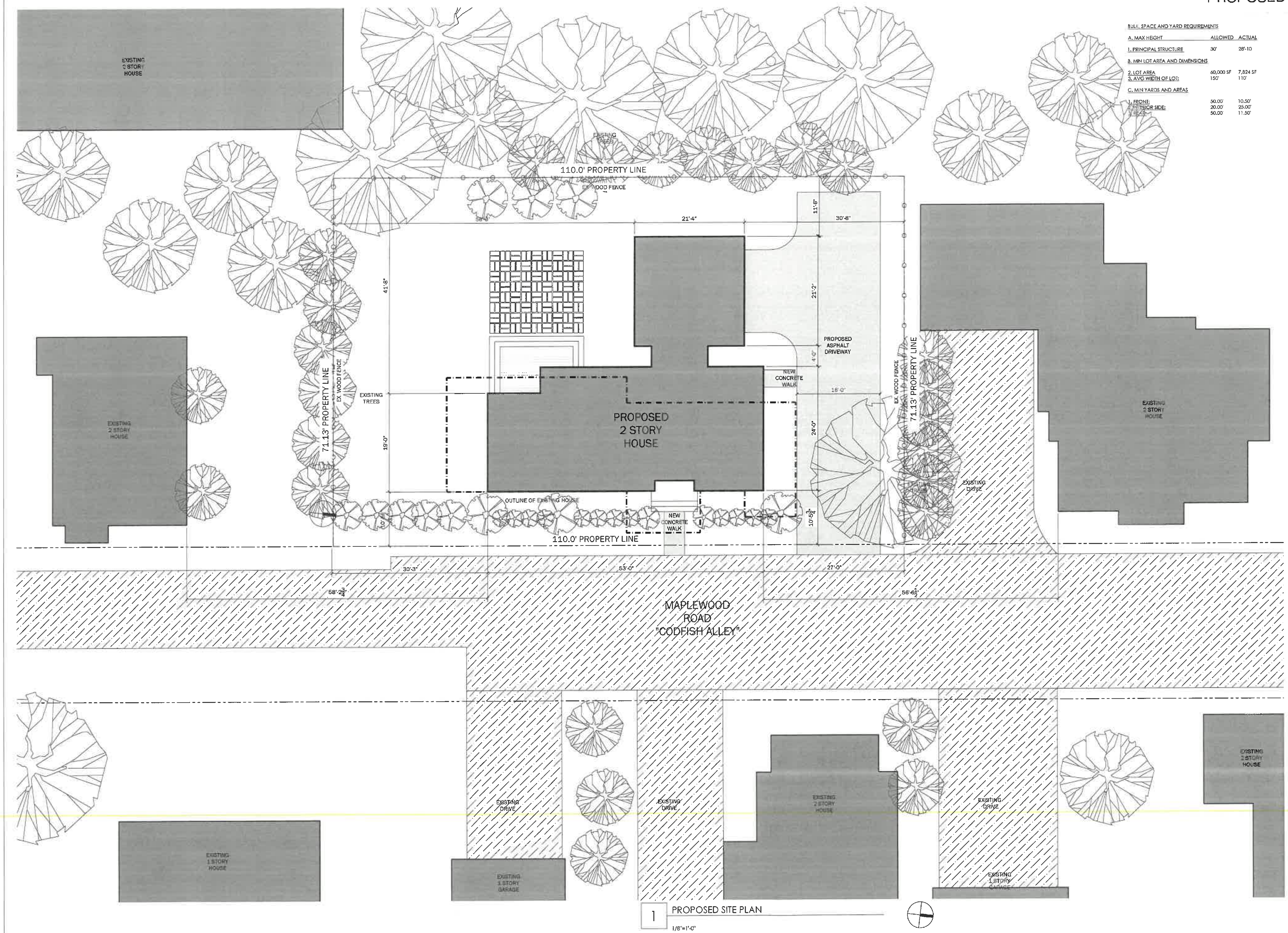
Issue

Rev	Date	By	Description
	11/01/21	RTS	CONCEPTUAL PLANS
	12/20/21	RTS	CLIENT MEETING
	1/06/21	RTS	CLIENT MEETING
	1/09/21	RTS	PROGRESS
	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Existing
Site Plan

A001
Sheet

PROPOSED SITE PLAN



BULK, SPACE AND YARD REQUIREMENTS

A. MAX HEIGHT	ALLOWED	ACTUAL
1. PRINCIPAL STRUCTURE	30'	28'-10
B. MIN LOT AREA AND DIMENSIONS		
2. LOT AREA	60,000 SF	7,824 SF
3. AVG WIDTH OF LOT:	150'	110'
C. MIN YARDS AND AREAS		
1. FRONT:	50.00'	10.50'
2. INTERIOR SIDE:	20.00'	25.00'
3. REAR:	50.00'	11.50'

1 PROPOSED SITE PLAN

1/8"=1'-0"

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Drawing Title
Proposed Site Plan

A002
Sheet

Divvy House

983 Maplewood Road Residence
Lake Forest, Illinois

City of Lake Forest – Historic Preservation Commission
ImperviouS Surface Calculation
January 15, 2022

	EXISTING IMPERVIOUS AREA (SF)	PROPOSED IMPERVIOUS AREA (SF)
HOUSE	1,597	1,948
DRIVEWAY	547	1,270
PATIOS	0	475
DECKS	291	0
SHED	36	0
WALKWAYS	202	26
TOTALS	2,673	3,719
% OF LOT	34.2%	47.5%
LOT SIZE: 7,824 SF		

EXISTING ELEVATIONS

3 EXISTING WEST ELEVATION - REAR
1/8"=1'-0"

2 EXISTING NORTH ELEVATION - SIDE
1/8"=1'-0"

1 EXISTING EAST ELEVATION - FRONT
1/8"=1'-0"

4 EXISTING SOUTH ELEVATION - SIDE
1/8"=1'-0"

1 EXISTING EAST ELEVATION
1/8"=1'-0"

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	1/09/21	RTS	PROGRESS
	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Existing Exterior Elevations

A200e
Sheet

PROPOSED EAST ELEVATION

1 EAST ELEVATION - FRONT

1/4"=1'-0"

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Drawing Title
Exterior Elevation

A200
Sheet

EAST ELEVATION OVERLAY

1 EAST ELEVATION - FRONT - OVERLAY

1/4"=1'-0"

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Drawing Title
Exterior
Elevation

A200a
Sheet

PROPOSED SOUTH ELEVATION

4 SOUTH ELEVATION - SIDE
1/4"=1'-0"

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Drawing Title
Exterior Elevation

A203
Sheet

SOUTH ELEVATION OVERLAY

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4 SOUTH ELEVATION - SIDE - OVERLAY
1/4"=1'-0"

SWARTHOUT RESIDENCE

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	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Exterior Elevation

A203a
Sheet

PROPOSED WEST ELEVATION

3 WEST ELEVATION - REAR

1/4"=1'-0"

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	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Exterior Elevation

A202
Sheet

WEST ELEVATION OVERLAY

3 WEST ELEVATION - REAR - OVERLAY

1/4"=1'-0"

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Drawing Title
Exterior
Elevation

A202a
Sheet

PROPOSED NORTH ELEVATION

2 NORTH ELEVATION - SIDE

1/4"=1'-0"

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	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Exterior Elevation

A201
Sheet

NORTH ELEVATION OVERLAY

2 NORTH ELEVATION - SIDE - OVERLAY

1/4"=1'-0"

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	1/14/22	RTS	HPC SUBMITTAL

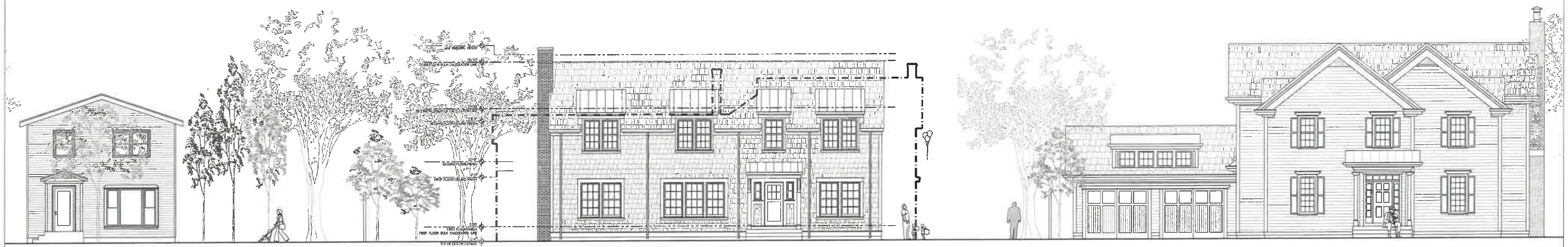
Drawing Title

Exterior Elevation

A201a

Sheet

STREETSCAPE ELEVATION



2 EAST ELEVATION - PROPOSED STREETSCAPE

1/8"=1'-0"

1 EAST ELEVATION - EXISTING STREETSCAPE

1/8"=1'-0"

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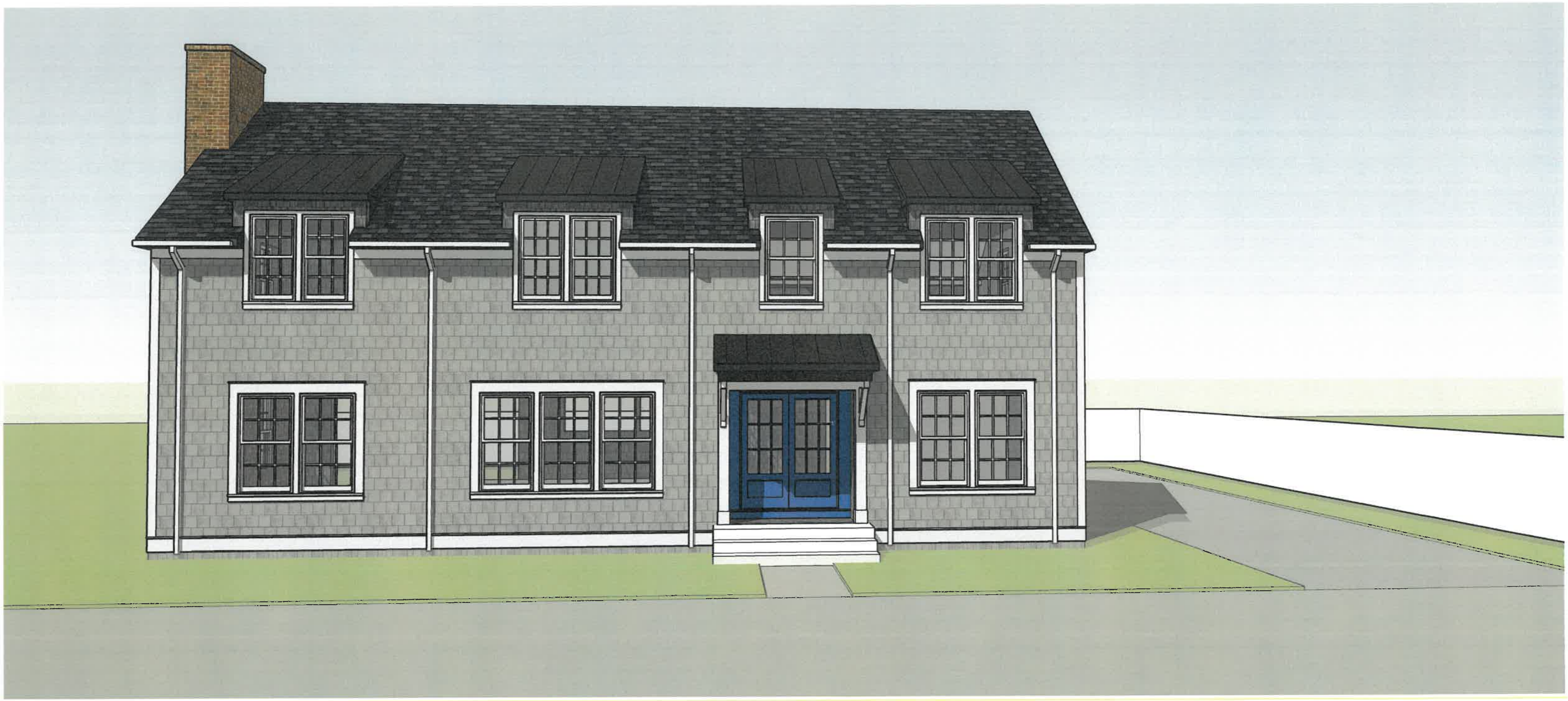
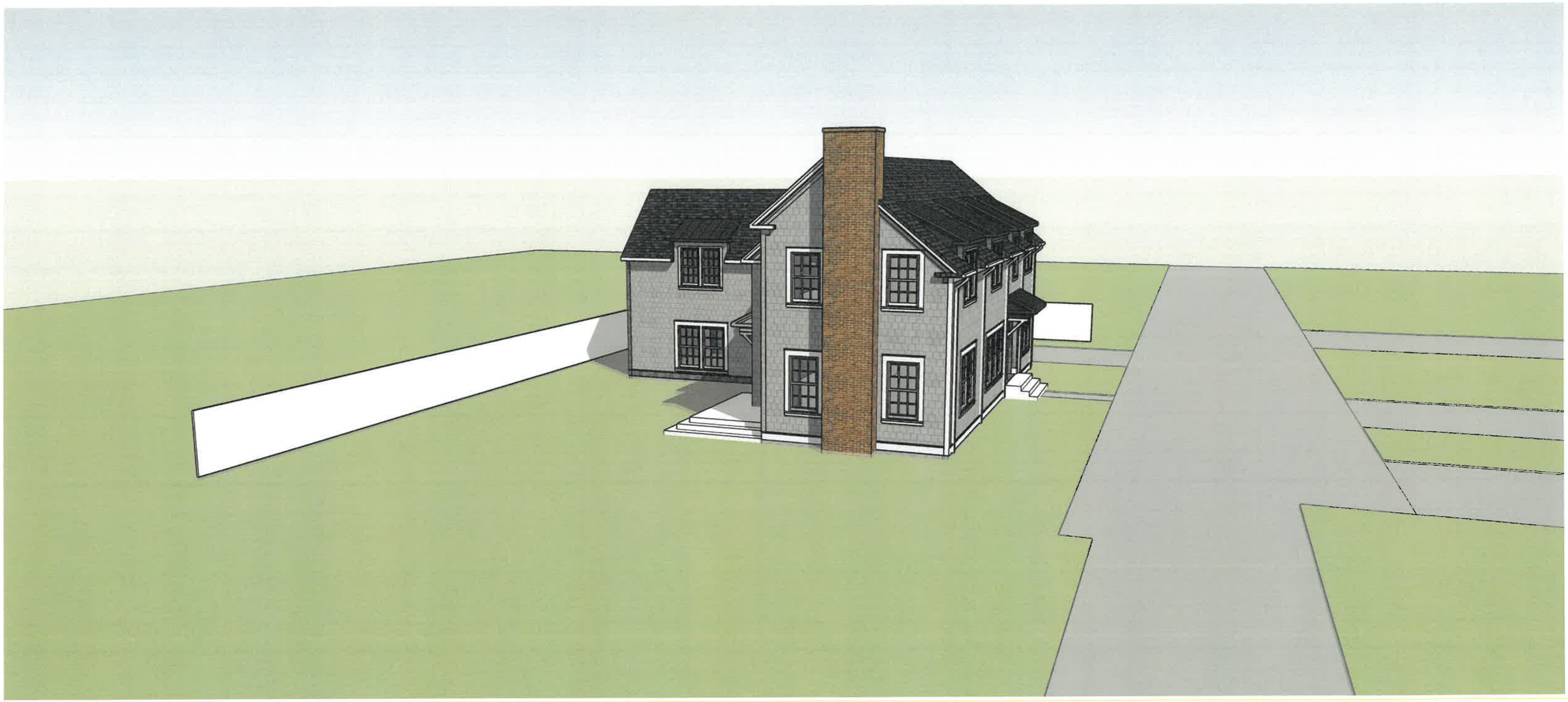
Drawing Title

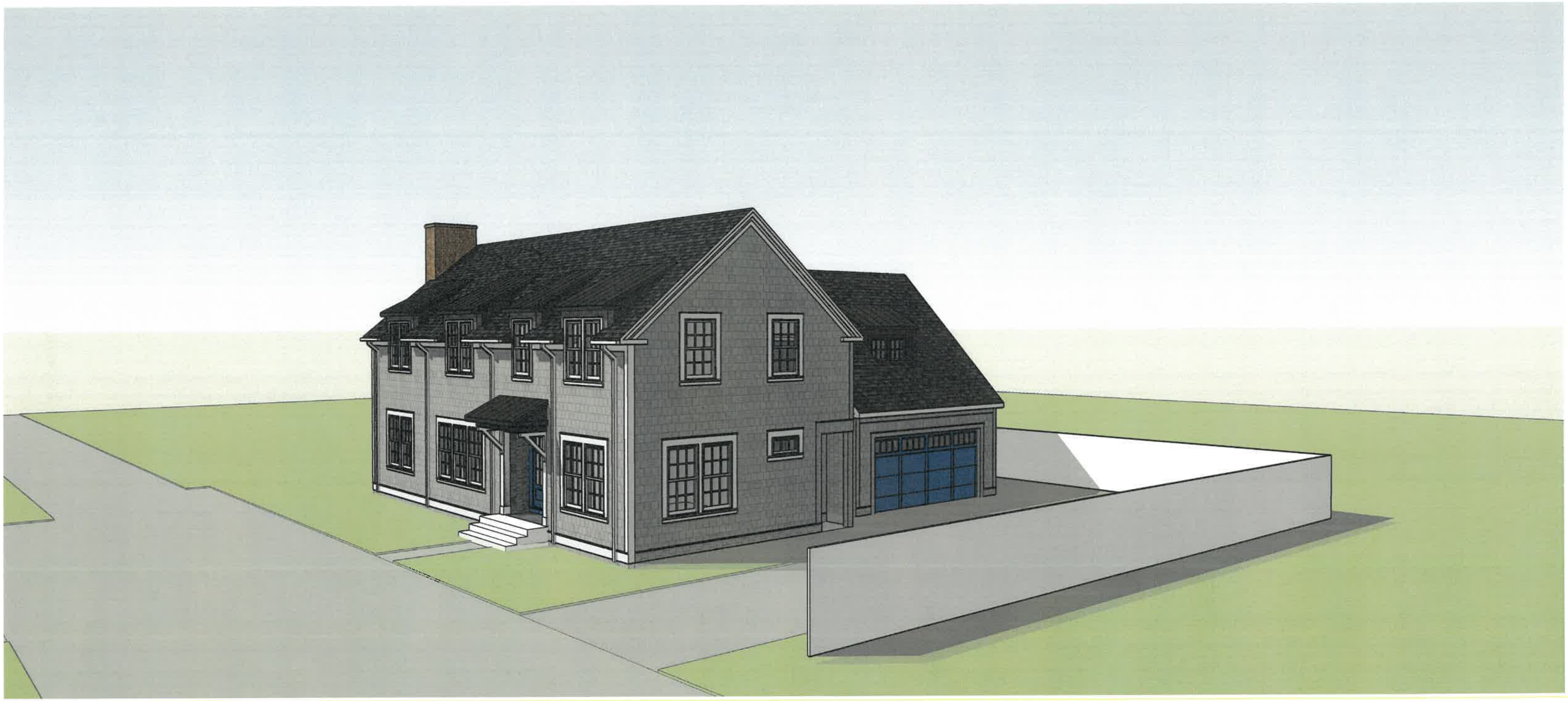
Streetscape Elevation

A205

Sheet



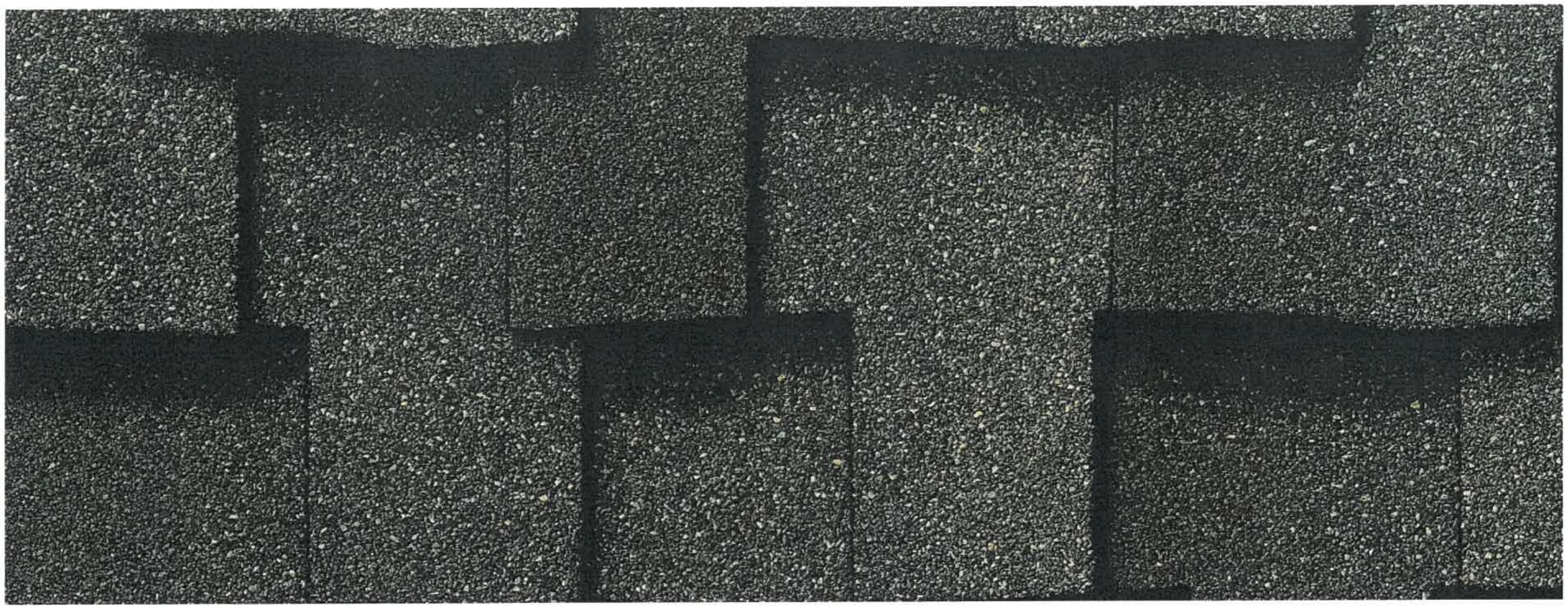




Siding

Machine cedar shingles(perfections) 5-1/2" exposure

Composition Roofing Shingles



Certain Teed - Residential Roofing - Presidential Shake TL - weathered wood color

Exterior Chimney

Chicago Common

Landstone

Back & Side Doors - Simpson

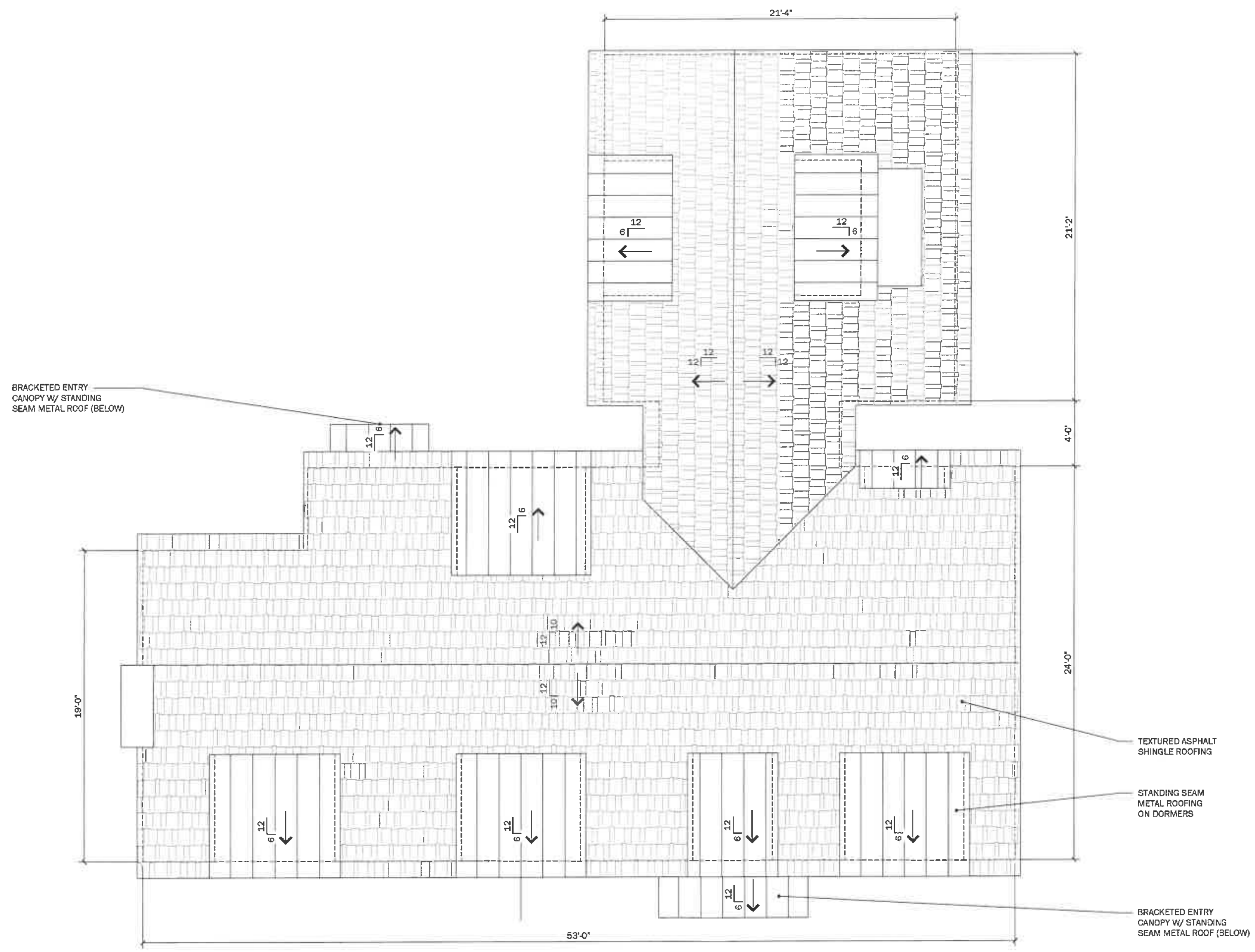
Back Door - Simpson Door - 37106 THERMAL SASH (SDL) Painted white or blue - single or double

Side Door - Simpson Door - 37444 THERMAL SASH (SDL) Painted white or blue - single or double

Garage Door

insulated carriage house garage doors with faux wood-look composite overlays

PROPOSED ROOF PLAN



1 ROOF PLAN

1/4"=1'-0"

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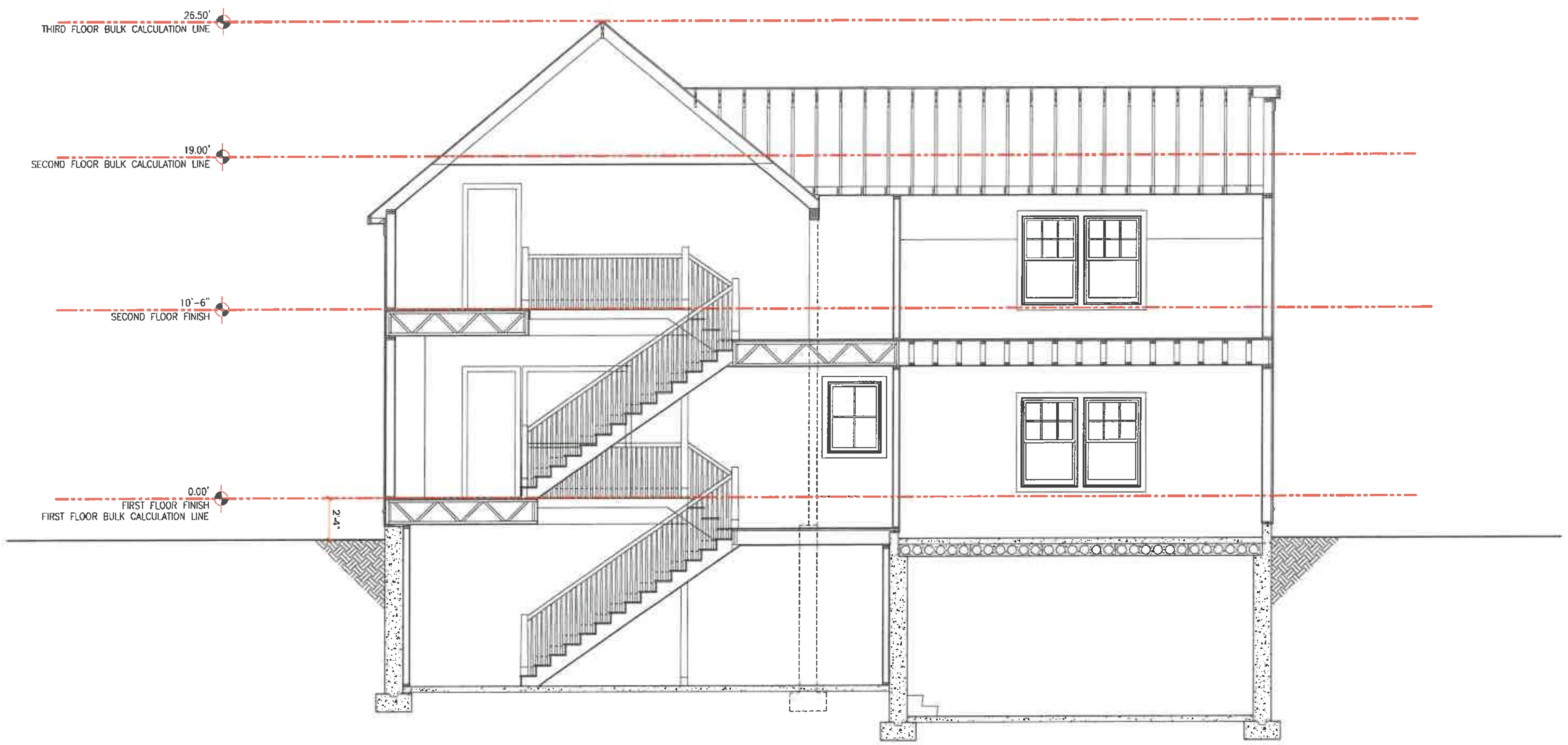
Drawing Title
Roof Plan

A103
Sheet

PROPOSED BUILDING SECTIONS



2 BUILDING SECTION

1/4"=1'-0"

1 BUILDING SECTION

1/4"=1'-0"

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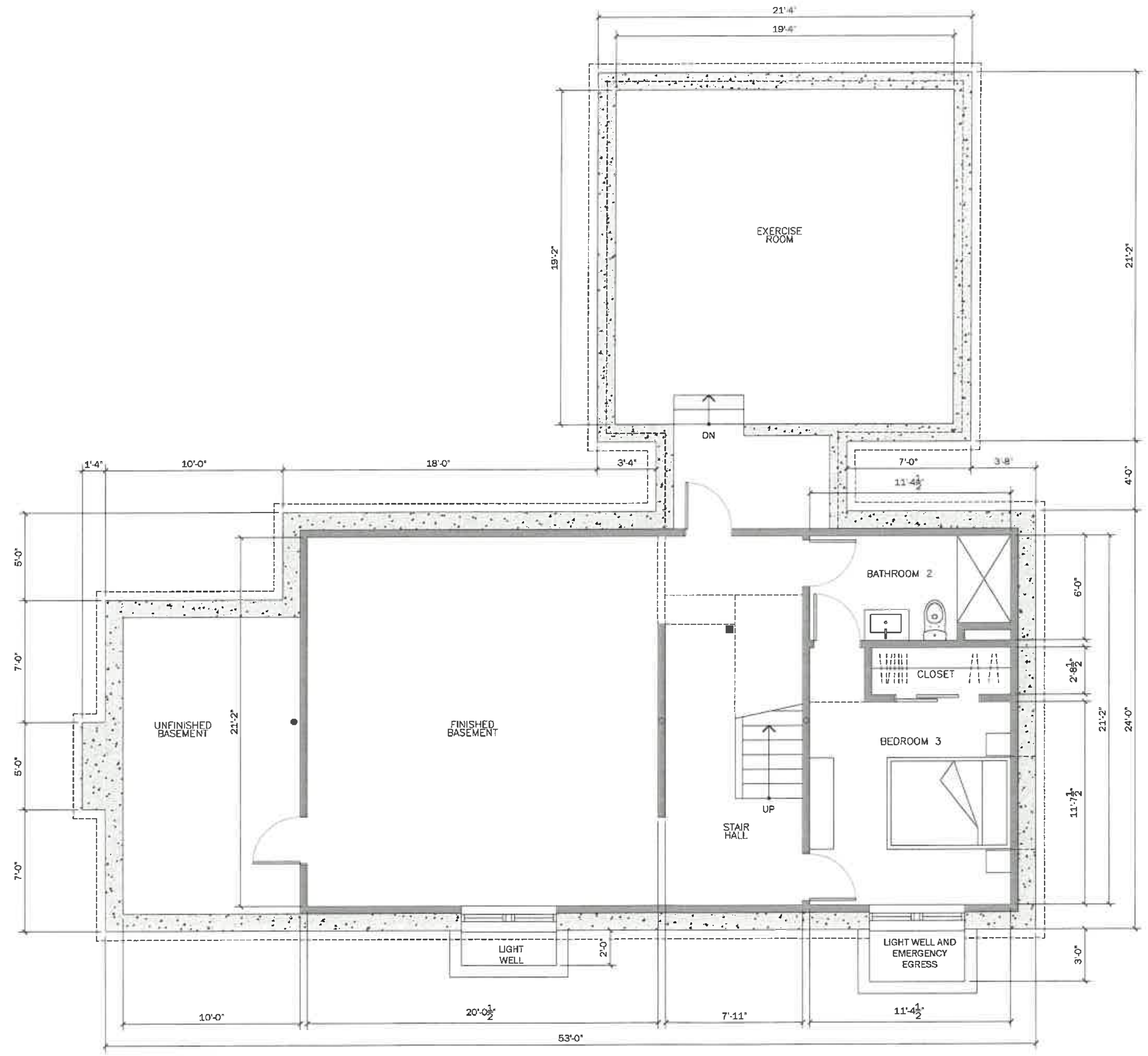
Drawing Title
Building Sections

A300
Sheet

PROPOSED BASEMENT FLOOR PLAN



1 BASEMENT FLOOR PLAN

1/4"=1'-0"

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SWARTHOUT RESIDENCE

983 Maplewood,
Lake Forest, Il

PARCEL ID: 12-34-306-033

Issue

Rev	Date	By	Description
	11/01/21	RTS	CONCEPTUAL PLANS
	12/20/21	RTS	CLIENT MEETING
	1/06/21	RTS	CLIENT MEETING
	1/09/21	RTS	PROGRESS
	1/14/22	RTS	HPC SUBMITTAL

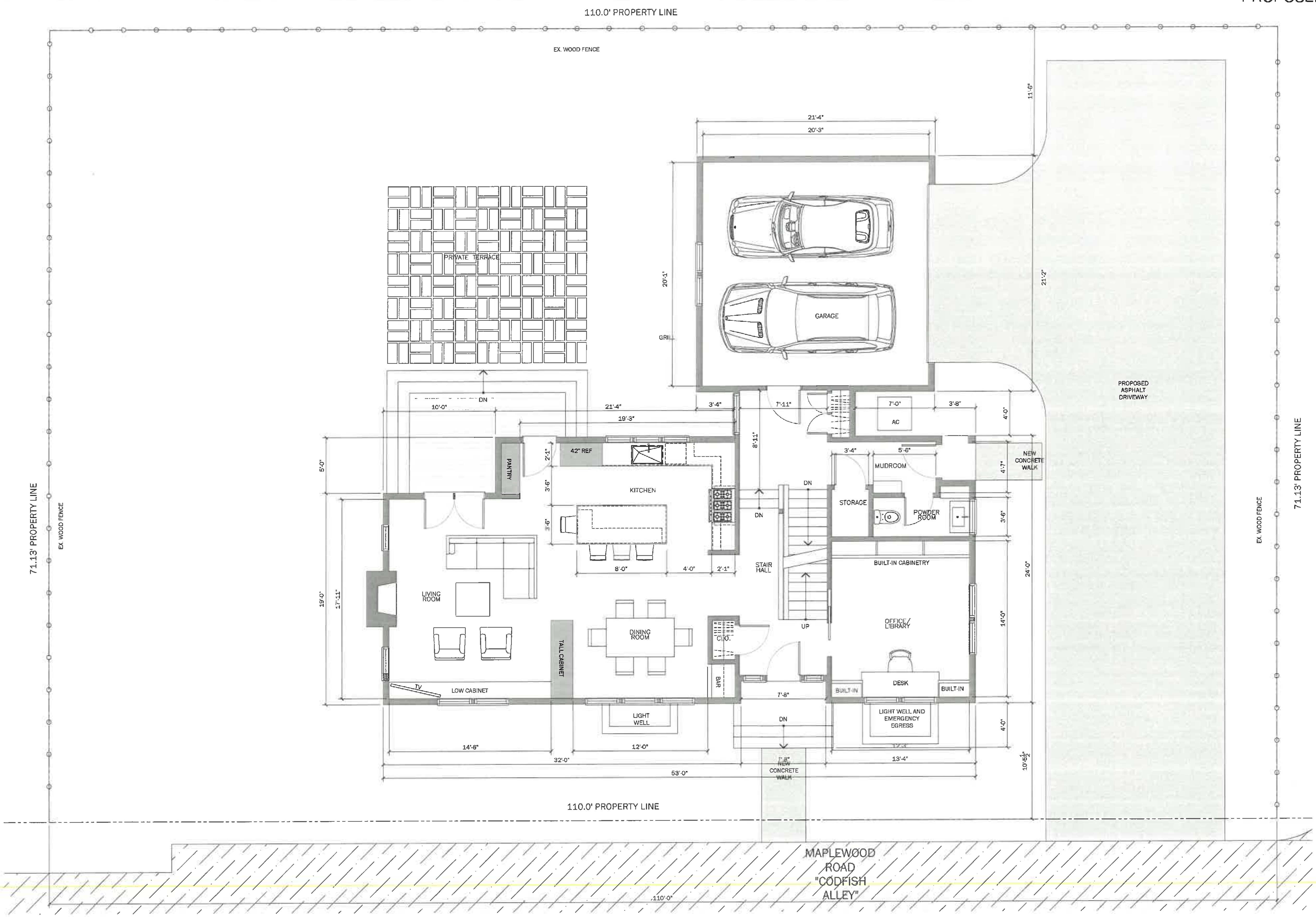
Drawing Title

Basement Floor Plan

A100

Sheet

PROPOSED FIRST FLOOR PLAN



1 FIRST FLOOR PLAN
1/4"=1'-0"

Divvy House.
130 Euclid
Glencoe, Il 60022
312.371.0832
Amy@Divvyhouse.com

Robert Shemiot Architects
25 E Superior Unit 1804
Chicago, Il 60611
313.622.5377
robertshemiot@gmail.com

LICENSED ARCHITECT ROBERT SHEMIOT 1020995 STATE OF ILLINOIS

SWARTHOUT RESIDENCE

983 Maplewood,
Lake Forest, Il

PARCEL ID: 12-34-305-033

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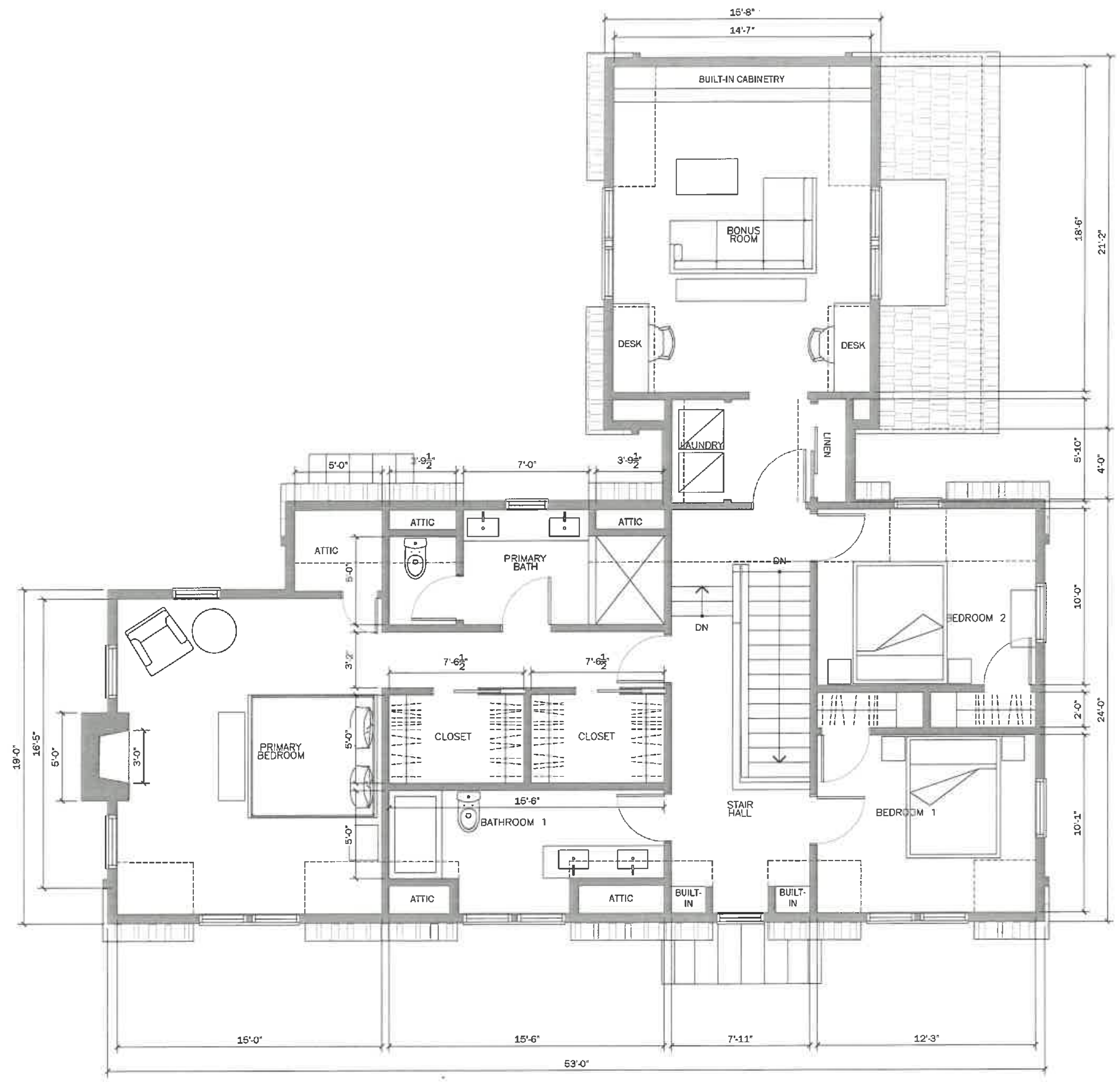
	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
First Floor Plan

A101
Sheet

PROPOSED SECOND FLOOR PLAN



1 SECOND FLOOR PLAN

1/4"=1'-0"

Divvy House

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Glencoe, Il 60022
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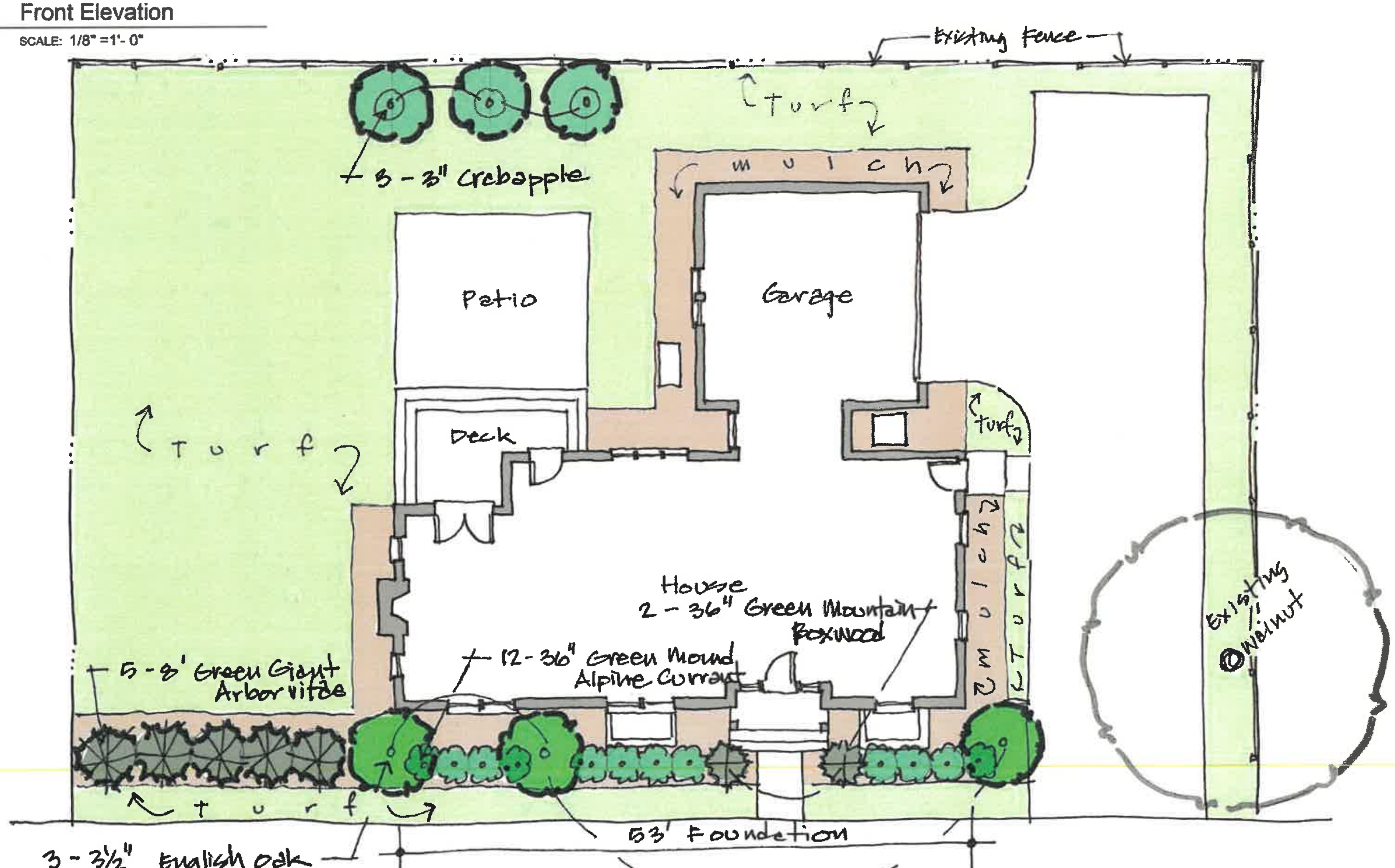
	1/14/22	RTS	HPC SUBMITTAL

Drawing Title
Second Floor Plan

A102
Sheet

CONCEPTUAL LANDSCAPE PLAN

1 Front Elevation
SCALE: 1/8" =1'- 0"



Plant List

Qty.	Botanical Name	Common Name	Size	Spec.
Shade Trees				
3	Quercus robur 'Fastigiata	Columnar English Oak	3 1/2"	Caliper
Ornamental Trees				
3	Malus 'Schmidtcutleaf' Golden Raindrops	Rain Drop Crabapple	3"	Caliper
Evergreen Trees				
5	Thujia 'Green Giant'	Green Giant Arborvitae	10'	Height
Evergreen Shrubs				
2	Buxus x 'Green Mountain'	Green Mountain Boxwood	36"	BB
Deciduous Shrubs				
12	Ribes Alpinum 'Green Mound'	Green Mound Alpine Currant	36"	BB

983 Maplewood Rd. - Lake Forest, IL

Project No: SWA22011
01.14.2022 Revised 02.04.2022

MARIANI
300 Rockland Road | Lake Bluff, Illinois 60045
Phone: 847.234.2172 | Fax: 847.234.2754
www.marianilandscape.com

IMAGES OF EXISTING RESIDENCE

Photo 1: from street, looking southwest

Photo 2 from street, looking northwest

Photo 3: front, east elevation

Photo 4: north, side elevation

Photo 5: rear, west elevation

Photo 6: side, south elevation

Photo 7: front of house, looking northwest at garage

Photo 8: front entry door and stair, looking northwest

Photo 9: gable to wing intersection, looking southwest

Photo 10: rear of garage, looking northeast

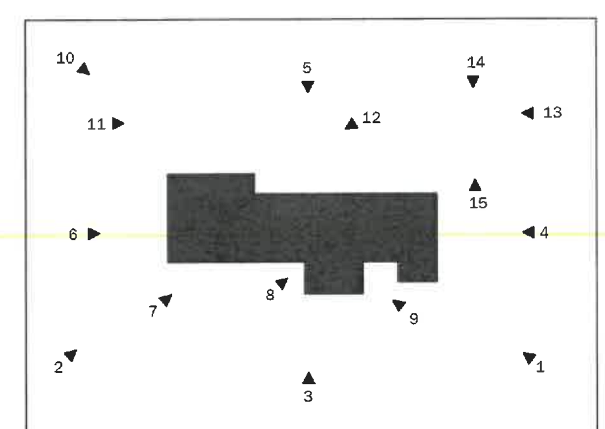
Photo 11: backyard, looking north

Photo 12: rear deck, looking south

Photo 13: backyard, looking south

Photo 14: side yard, looking east

Photo 15: backyard shed, looking west



Keyplan

Divvy House.

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983 Maplewood,
Lake Forest, Il

Issue

Rev	Date	By	Description
	12/20/21	RTS	CONCEPTUAL PLANS

Drawing Title
Photo Board

A800
Sheet

IMAGES OF SURROUNDING NEIGHBORHOOD


Photo 1: 995, front, looking north


Photo 2: 995, side, looking west


Photo 3: 979, front and side, looking northeast


Photo 4: 979, front, looking east


Photo 5: 979, front, side, and garage, looking southeast


Photo 6: 993, front and side, looking southwest


Photo 7: 993, front, looking west


Photo 8: 993, garage, looking west


Photo 9: 991, front, looking west

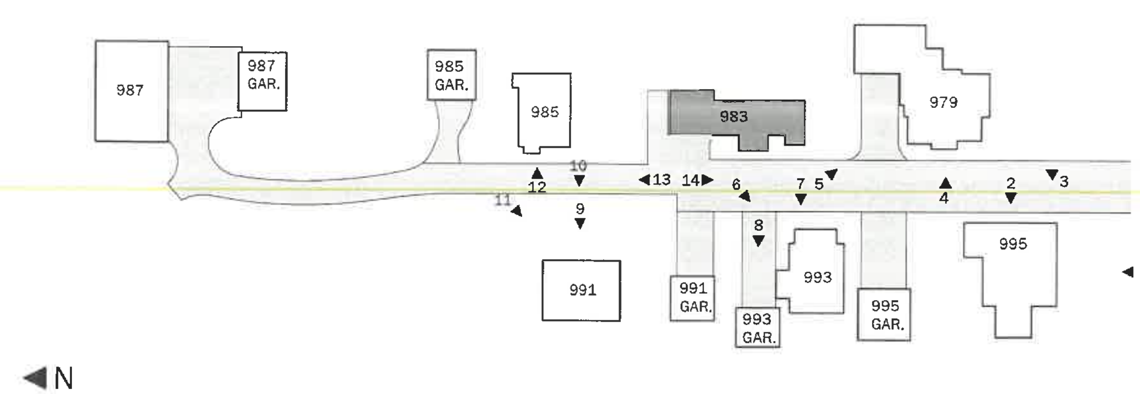

Photo 10: 991, front, looking west


Photo 11: 991, front, looking southwest


Photo 12: 985, front and garage looking east


Photo 13: street view, looking north


Photo 14: street view looking south



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983 Maplewood,
Lake Forest, Il

Issue

Rev	Date	By	Description
	12/20/21	RTS	CONCEPTUAL PLANS

Drawing Title
Photo Board

A800
Sheet

Agenda Item 5
612 Woodland Road
Additions & Exterior Alterations

Staff Report
Building Scale Summary
Vicinity Map
Air Photos

Materials Submitted by Petitioner
Application
Statement of Intent
Description of Exterior Materials
Staking Diagram
Proposed Site Plan – Overall
Proposed Site Plan – Enlarged
Existing South (Front) Elevation
Proposed South (Front) Elevation – Partial
Existing East Elevation
Proposed East Elevation
Existing North (Rear) Elevation
Proposed North (Rear) Elevation –Partial
Inspiration Design for Breakfast Room Addition
Existing West Elevation
Proposed West Elevation
Proposed Roof Plan
Building Sections
Existing and Proposed Floorplans
Proposed Detached Garage Elevations
Proposed Detached Garage Floor Plan and Roof Plan
Images of Existing Home and Proposed Renderings
Tree Removal Plan
Conceptual Hardscape and Landscape Plan

THE CITY OF
LAKE FOREST
CHARTERED 1861

STAFF REPORT AND RECOMMENDATION

TO:	Chairman Grinnell and Members of the Historic Preservation Commission
DATE:	February 23, 2022
FROM:	Jennifer Baehr, Planner
SUBJECT:	**612 Woodland Road** Detached Two Car Garage, Single Story Addition, Exterior Alterations

PROPERTY OWNER
612 E. Woodland Road Residence
Trust #1 (Greg Sleight, 100%)
612 E. Woodland Road Residence
Trust #2 (Megan Sleight, 100%)
67 E. Bellevue Place
Chicago, IL 60611

PROPERTY LOCATION
612 Woodland Road

HISTORIC DISTRICTS
East Lake Forest Local &
National Historic Districts

PROJECT REPRESENTATIVE
Gary Beyerl, architect
1010 W. Wabash Avenue
Chicago, IL 60605

SUMMARY OF THE PETITION
A Certificate of Appropriateness is requested to allow construction of a two car detached garage, a single story addition at the northeast corner of the home and the addition of single dormers on the north side of the home. Associated exterior alterations are also proposed. Approval of a conceptual landscape plan and overall site plan is also requested.

The existing house is nonconforming with respect to the steep slope setback requirements. The Zoning Board of Appeals will consider a request for a variance from the steep slope setback for the proposed dormers and the single story addition.

DESCRIPTION OF PROPERTY AND SURROUNDING AREA
This property is located on the north side of Woodland Road, between Sheridan and Elm Tree Roads. The property is just under three acres in size and includes a portion of the adjacent ravine on the north side. The surrounding neighborhood is characterized by large lots with a mix of historic homes and homes built in the 1960s and in the 2000s of varying architectural styles.

The residence on the property is known as the Edison Dick House and is identified as a significant Contributing Structure to the Historic District. The residence, constructed in 1932 was designed in the Greek Revival style by David Adler a noted architect. A greenhouse and shed are located on the east side of the property. The home is set back from the street approximately 100 feet. The property has two curb cuts, one curb cut and the main driveway are set on axis with the center of the front façade and the other curb cut enters the east side of the property and is used as the service entrance providing access to the existing garage and parking area. The property is extensively landscaped with hedges along the street and formal gardens.

STAFF EVALUATION

Proposed Detached Garage
The existing home has an attached two car garage in the east wing of the house. The petitioner is proposing to construct a detached two-car garage east of the home that will face the existing garage. In addition to the two vehicle bays, the detached garage will also have a storage area on the north side. The design of the detached garage is intended to match the existing garage.

Proposed Addition
A single story addition is proposed at the northeast corner of the existing home. The addition is proposed to expand the family and breakfast rooms which are located off the kitchen. These spaces were originally part of the service wing of the home and the petitioner's intent is to create spaces more fitting for modern day living. A covered porch is proposed on the east side of the addition.

Proposed Dormers
The petitioner is proposing to construct two single pediment dormers on the north side of the home. The bedroom on the third floor currently only has one fanlight window which is visible on the north elevation. The dormer windows are needed to comply with current Code requirements for egress, light and ventilation. The dormers have single casement windows. Although the existing home has mostly double hung windows, casement windows were chosen in order to keep the height of the dormers low. To comply with Code requirements, the double hung windows would need to be taller and the dormer height would rise by approximately 12 inches and would nearly reach the ridge line of the primary roof form.

Proposed Exterior Alterations to Existing Residence
The existing garage has two single doors that will be removed and replaced with a single, wider door.

On the first floor, on the east elevation, the single entry door and a double hung window will be relocated closer to the existing garage to accommodate the proposed addition and porch.

On the second floor, the existing single double hung window in the center of the gambrel roof will be infilled and replaced with two new window openings.

Two small square skylights are proposed on the south side of the primary roof form at the center of the home. The skylights will be hidden by the existing parapet walls.

Site Plan
The proposed detached garage is located partially in the footprint of the existing asphalt service court in front of the existing garage. The asphalt service court will be replaced. The existing wood columns and walkways north of the service court will be removed. New bluestone walkways and an allée of deciduous trees are proposed in this area. A fence and gate are proposed on the north side of the service court. The existing shed on the east side of the site and adjacent pavement will be removed to create an open yard space. The existing stone patios on the rear and west side of the house will be replaced with new bluestone patios. Bluestone banding is proposed around the new open yard area created by removing the existing shed and pavement.

Findings
A staff review of the Historic Preservation standards in the City Code is provided below. Findings in response to the standards are offered below for the Commission's consideration.

Standard 1 – Height.
This standard is met. The proposed garage and addition are lower in height than that the existing home. The existing home is 33 feet and 8 inches tall as measured from the lowest point of existing grade adjacent to the house to its tallest roof peak. The proposed detached garage is 19 feet and 5 inches tall. The proposed addition at its tallest point is 18 feet and 6 inches tall. The breakfast room portion of the addition is 13 feet tall.

Standard 2 - Proportion of Front Façade.
This standard is met. No changes are proposed to the front façade. The proposed addition is located mostly on the rear of the home and is minimally visible from the front of the house.

Standard 3 – Proportion of Openings.
This standard is met. The openings on the addition and detached garage match the style and proportions of the existing openings on the home. As noted above, smaller casement windows are proposed in the dormers in an effort to keep the height of the dormers low and minimize their visibility from the front of the home.

Standard 4 – Rhythm of Solids to Voids.
This standard is generally met. The rhythm of solids to voids on the proposed addition and garage generally follows the existing home. The existing home mostly has single openings, grouping of openings is only found on the existing single story element on the east side of the house. The proposed garage has a solid wall on the east elevation, mirroring the existing garage. The north elevation of the garage is also solid without any openings. Recognizing that the north side of the garage will serve as storage space, staff recommends that consideration be given to incorporating limited openings on the north elevation of the garage to more closely follow the rhythm of openings on the existing house. The breakfast room portion of the addition presents groupings of windows and doors, presenting larger expanses of openings.

Standard 5 – Rhythm of Spacing on the Street.
This standard is met. The property is very large and given the location and scale of the proposed addition and detached garage, the spacing of structures along the street will not be impacted.

Standard 6 – Rhythm of Entrance Porches.
This standard is met. The existing main entrance is not proposed to change. The proposed porch on the east side of the home is inspired by the original design of the southwest wing, which was modified during construction. The original design of the southwest wing is reflected on the existing west elevation included in the Commission's packet.

Standard 7 – Relationship of Materials and Textures.
This standard is met. The materials for the proposed addition, dormers and detached garage are consistent with the existing house. The addition and garage will have wood siding and wood quoin detailing on the exterior walls. The main gable roof on the addition will have a cedar shingle roof. The breakfast room portion of the addition due to the low pitch roof will have a standing seam metal roof to match the existing standing seam metal roof on the east elevation of the home. Wood

windows with interior and exterior muntins are proposed. The addition and garage will have wood trim, fascia, rakeboards and soffits. The porch columns will be wood. Aluminum gutters and downspouts are proposed.

Standard 8 – Roof shapes.
This standard is met. The main roof form on the addition and the roof on the detached garage will be a gable with a 5:12 pitch to match the roof forms on the existing home. The breakfast room portion of the addition will have a gable roof with a 2.9:12 pitch. The breakfast room has a lower pitch than the other roof forms to avoid interfering with the adjacent eave lines. The dormer on the garage has a 3:12 pitch to match the shed roof element on the rear elevation of the existing home.

Standard 9 – Walls of continuity.
This standard is met. The proposed addition, dormers and detached garage follow the architectural style, detailing and exterior materials of the existing residence, presenting a cohesive appearance around the elevations of the home.

Standard 10 – Scale.
This standard is met. The project as proposed complies with the building scale requirements. A residence of up to 10,363 square feet is permitted on the property. The allowable square footage takes into account a deduction for the non-table land located within the ravine. In addition, design elements totaling 1,036 square feet and a garage allowance of 800 square feet are available. Based on the City's building scale calculation, the existing house, with the proposed additions, is under the allowable square footage by 632 square feet, equal to 6 percent of the allowable square footage.

Standard 11 – Directional Expression of Front Elevation.
This standard is met. The proposed addition and detached garage do not change the directional expression of the front elevation.

Standard 12 – Preservation of Historic Material.
This standard is met. The proposed additions are designed in a sensitive manner to minimize impacts to the existing residence.

Standard 13 – Preservation of Natural Resources.
This standard can be met. The proposed landscape and hardscape plan layout requires removal of five trees on the east side of the property. An additional three trees are proposed for removal due to poor condition. Based on the size, species and condition of the trees proposed for removal a total of 32 replacement inches is required.

The conceptual landscape plan provided by the petitioner reflects an allée of deciduous trees on the north side of the detached garage. Ornamental trees are proposed on the west side of the house. New hedges are proposed at the rear of the property. Based on the conceptual landscape plan, the total number of replacement inches is not fully satisfied. As the landscape plan is more fully developed the plan shall provide for the required replacement inches on site.

Standard 14 – Compatibility.
This standard is met. The style, detailing and exterior materials of the additions and garage are consistent with the existing residence. The massing and scale of the additions and garage are also subordinate to the existing residence.

Standard 15 – Repair to Deteriorated Features.
This standard is met. According to information provided in the petitioner's statement of intent repairs will be made to the areas of the home that will be modified to accommodate the addition and dormers and any required modifications will match the existing home in terms of material, finish, scale and proportion.

Standard 16 – Surface Cleaning.
This standard is not applicable to this request. The petitioner has not indicated any surface cleaning of the existing residence.

Standard 17 – Integrity of Historic Property.
This standard is met. The integrity of the existing residence is not threatened by the proposed additions and garage. The additions and garage are designed in a manner that is compatible with the character of the property. The additions will enhance the livability of the house for the current owners and the proposed work represents a significant and high quality investment in an important historic property.

PUBLIC COMMENT

Public notice of this petition was provided in accordance with the City requirements and practices. Notice was mailed by the Community Development Department to surrounding property owners and residents and the agenda for this meeting was posted at various public locations and on the City's website. As of the date of this writing, no correspondence was received regarding this request.

RECOMMENDATION

Recommend approval of a Certificate of Appropriateness approving a two-car detached garage, an addition at the northeast corner of the home, dormer additions, associated exterior alterations, and landscape enhancements at 612 Woodland Road subject to the following conditions of approval.

1. Consideration shall be given to incorporating limited openings on the north elevation of the garage to more closely follow the rhythm of openings on the existing house.

2. Plans submitted for permit must reflect the project as presented to the Commission. If any modifications are proposed in response to Commission direction or as a result of design development, plans clearly detailing the areas of change must be submitted at the time of submission for permit, *along with* the plans originally presented to the Commission, and will be subject to review by staff, in consultation with the Chairman as appropriate, to verify that the plans are consistent with the intent of the Commission and the approvals granted.

3. Prior to the issuance of a building permit, a detailed, landscape plan shall be submitted and will be subject to review and approval by the City's Certified Arborist. The plan shall provide for the required 32 replacement inches on site. If during construction, additional trees on the site are compromised in the opinion of the City's Certified Arborist, additional replacement inches or payment in lieu of on site planting may be required.

4. Prior to the issuance of a building permit, a plan to protect trees and vegetation identified for preservation during construction must be submitted and will be subject to review and approval by the City's Certified Arborist.

5. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels*, shall direct light down and the source of the light shall be fully shielded from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights.

6. Prior to the issuance of a building permit, a materials staging and construction vehicle parking plan must be submitted to the City for review and will be subject to City approval in an effort to minimize and manage impacts on the neighborhood, neighboring properties and existing trees and landscaping during construction.

THE CITY OF LAKE FOREST BUILDING REVIEW BOARD -- BUILDING SCALE INFORMATION SHEET

Address: **612 Woodland Road**

Owner(s): Greg and Megan Sleight

Architect: **Gary Beyerl, architect**

Reviewed by: Jen Baehr

Date: **2/23/2022**

Lot Area **107038** sq. ft. Table Land **83622** sq. ft. Non-Table Land **23416** sq. ft.

Square Footage of Existing Residence:

1st floor **3810** + 2nd floor **2576** + 3rd floor **1360** = **7746** sq. ft.

Design Element Allowance = **1036** sq. ft.

Total Existing Design Elements = **119** sq. ft. *Excess* = **0** sq.ft.

Garage **484** sf actual ; **800** sf allowance = **0** sq. ft.

Garage Width **26'- 0"** ft. *may not exceed 24' in width on lots 18,900 sf or less in size.*

Basement Area = **0** sq. ft.

Accessory buildings = **1154** sq. ft.

Total Square Footage of Existing Residence: = **8900** sq. ft.

Square Footage of Proposed Additions:

1st floor **346** + 2nd floor **0** + 3rd floor **0** = **346** sq. ft.

New Garage Area **801** sq.ft. *Excess* = **485** sq. ft.

New Design Elements **114** sq.ft. *Excess* = **0** sq.ft

TOTAL SQUARE FOOTAGE = **9731** sq. ft.

TOTAL SQUARE FOOTAGE ALLOWED = **10363** sq. ft.

DIFFERENTIAL = **-632** sq. ft.

Under Maximum

NET RESULT:

2771 sq. ft. is

6.0% under the Max. allowed

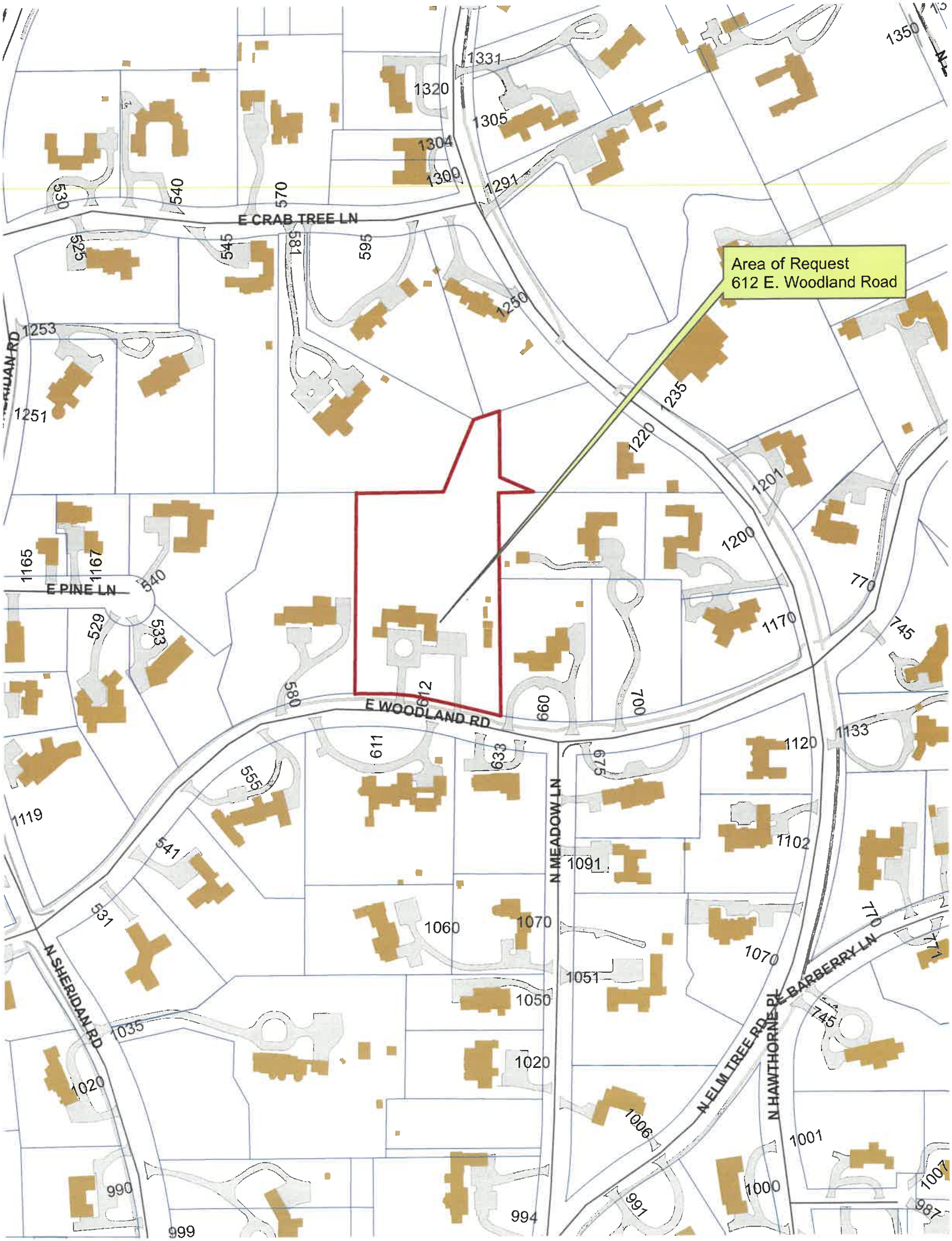
Allowable Height: **40** ft. Actual Height: Existing House: 33' - 8" Proposed Garage: 19' - 5"

DESIGN ELEMENT EXEMPTIONS (Existing & Proposed)

Design Element Allowance: **1036** sq. ft.

Front & Side Porches =	**0**	sq. ft.
Rear & Side Screen Porches =	**0**	sq. ft.
Covered Entries =	**36**	sq. ft.
Portico =	**104**	sq. ft.
Porte-Cochere =	**0**	sq. ft.
Breezeway =	**0**	sq. ft.
Pergolas =	**0**	sq. ft.
Individual Dormers =	**93**	sq. ft.
Bay Windows =	**0**	sq. ft.

Total Actual Design Elements = **233** sq. ft. **Excess Design Elements =** **0** sq. ft.


Area of Request
612 E. Woodland Road
E CRAB TREE LN
E WOODLAND RD
E PINE LN
N MEADOW LN
N SHERIDAN RD
N ELM TREE RD
N HAWTHORNE PL
E BARBERRY LN
1331
1320
1305
1304
1300
1291
1350
530
540
570
525
545
581
595
1250
1253
1251
1235
1220
1201
1200
1165
1167
540
529
533
580
612
660
700
770
745
1170
611
633
675
1120
1133
555
1119
541
1091
1102
531
1060
1070
1070
770
1051
1050
1035
745
1020
1020
1006
1001
990
999
994
991
1000
1007
987


Area of Request
612 E. Woodland Road


Area of Request
612 E. Woodland Road

THE CITY OF LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION FOR A CERTIFICATE OF APPROPRIATENESS

PROJECT ADDRESS 612 E. WOODLAND RD.

APPLICATION TYPE

RESIDENTIAL PROJECTS		*COMMERCIAL PROJECTS*	
☐ New Residence	☐ Demolition Complete	☐ New Building	☐ Landscape/Parking
☐ New Accessory Building	☐ Demolition Partial	☐ Addition/Alteration	☐ Lighting
☒ Addition/Alteration	☐ Height Variance	☐ Height Variance	☐ Signage or Awnings
☐ Building Scale Variance	☐ Other	☐ Other	☐

HISTORIC DISTRICT OR LOCAL LANDMARK (leave blank if unknown)

☐ East Lake Forest District ☐ Green Bay Road District ☐ Vine/Oakwood/Green Bay Road District
☐ Local Landmark Property or District ☐ Other ____________

PROPERTY OWNER INFORMATION

612 E. Woodland Road Trust #1 and 612 E. Woodland Road Trust #2 as Tenants in Common
Owner of Property

67 E. BELLEVUE PL.
Owner's Street Address (may be different from project address)

CHICAGO, IL 60611-1114
City, State and Zip Code

312-944-0624
Phone Number *Fax Number*

meganmsleight@gmail.com sleight.greg@gmail.com
Email Address

Owner's Signature
12/10/2021 12/10/2021

ARCHITECT/BUILDER INFORMATION

GARY BEYERL / PROJECT ARCHITECT
Name and Title of Person Presenting Project

BBA ARCHITECTS
Name of Firm

1010 W. WABASH AVE.
Street Address

CHICAGO, IL 60605
City, State and Zip Code

312-663-0222
Phone Number *Fax Number*

beyerl@bbaworld.com
Email Address

Representative's Signature (Architect/ Builder)

The staff report is available the Friday before the meeting, after 3:00pm.		
Please email a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
Please fax a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
I will pick up a copy of the staff report at the Community Development Department	☐ OWNER	☐ REPRESENTATIVE

TRUST OWNERSHIP (EXHIBIT C)

Please list the Trust number and name and address of the Trustee, as well as the names and addresses of all beneficiaries of the Trust, together with their respective interests in the Trust. The application shall be further verified by the applicant in his capacity as Trustee or by the beneficiary as a beneficial owner of an interest in the Trust and the application shall be signed individually by as many beneficiaries as are necessary to constitute greater than 50% ownership of the beneficial interest of the trust.

TRUST NUMBER N/A

TRUSTEE INFORMATION

Name Brad Gerber

Firm Harrison Held LLP

Address 333 W. Wacker Dr Suite 1700 Chicago IL 60606

Phone 312-540-4965

Beneficiaries 612 E. Woodland Road Residence Trust #1

Name Greg Sleight as Trustee of the Greg Sleight Living Trust	**Name**
Address Dated October 14, 2020	**Address**
Trust Interest 100 %	**Trust Interest** %

612 E. Woodland Road Residence Trust #2

Name Megan Sleight as Trustee of the Megan Sleight Living Trust	**Name**
Address dated October 14, 2020	**Address**
Trust Interest 100 %	**Trust Interest** %

Name	**Name**
Address	**Address**
Trust Interest %	**Trust Interest** %

HPC - STATEMENT OF INTENT FOR PROPOSED EXTERIOR RENOVATIONS TO 612 E. WOODLAND RD.

Overall design intent: - To maintain the existing character of the structure and property, and transform the existing east 1st floor rooms from service spaces into living spaces integral to the home and upgraded with the level detail found in the original public spaces, using the original drawings, details and with proposed alterations that were prepared by David Adler.

STANDARDS OF APPROPRIATENESS

HEIGHT: The proposed first floor additions continue existing eave heights and profiles, and roof slopes where possible. The Family Room addition (gable and porch) are replicated from the original Adler design for the Living Porch at the SW wing (this wing was not constructed with the balance of home. A new design was executed 2 years later). The Breakfast Room addition (gable roof) is informed by a proposed Library addition, which was not built; this roof slope is determined by the eave lines, and is slightly shallower than 5/12, but is similar to the existing roof slope at the east connector to the attached garage. The 3rd floor egress dormers are lower than the main roof ridge line and maintain the gabled roof of existing dormers .

PROPORTION OF FRONT FACADE: No changes are proposed to the front facade. The proposed detached garage south (front) elevation has the same wall width and height as the existing attached garage elevation. The roof ridge is slightly taller, since the proposed garage is wider.

PROPORTION OF OPENINGS: All proposed exterior doors and windows match existing components, or as described in the original drawings. The proposed change to the attached garage overhead door is to accommodate modern vehicles (a full size car with mirrors does not fit through the existing single doors. The detached garage will have a similar overhead door.

RHYTHM OF SOLIDS TO VOIDS IN FRONT FACADES: The proposed windows at the detached garage will match the existing windows at the attached garage.

RHYTHM OF ENTRANCE PORCHES, AND OTHER PROJECTIONS: The proposed Family Room addition and porch are replications of the original design for the Living Porch at the SW wing (modified during original construction into a Guest wing). The proposed detached garage service door, casing and pediment will match the existing trim at the east wing, door leading to the SE front garden.

RELATIONSHIP OF MATERIALS AND TEXTURES: The proposed project will match existing materials and finishes: painted wood doors, windows, siding and trim; natural wood shake roof shingles; metal standing seam roofing.

ROOF SHAPES: The proposed project will continue the rhythm of gable roofs, and match existing roof slopes. A slight change to the Breakfast Room roof slope is determined by the adjacent eave lines.

WALLS OF CONTINUITY: The proposed detached garage is aligned with the existing east drive; the south facade is slightly forward of the existing, due to the center alignment of the overhead doors and larger width of the detached garage.

SCALE OF A STRUCTURE: The proposed additions are primarily based on design ideas from the original home, with slight adjustments based on existing conditions and the need to accommodate modern vehicles.

DIRECTIONAL EXPRESSION OF FRONT ELEVATION: The proposed detached garage is a replica of the existing attached garage, with a slight modification to the ridge height due to the larger width of the proposed garage. While the proposed Family Room addition and porch is visible from the front yard, it is setback 35' from the existing south elevation of the attached garage, and will be further screened by a proposed fence.

PRESERVING DISTINGUISHING FEATURES AND PROTECTION OF RESOURCES: The proposed additions have been placed to minimize modifications to the existing structure, wherever possible. Any required adjustments will match existing components (material, finish, scale, proportion), to the extent possible due to existing conditions.

NEW CONSTRUCTION: The proposed additions will replicate the existing design elements.

REPAIR TO DETERIORATED FEATURES AND SURFACE CLEANING: An in-depth analysis of the existing structure will be carried out once a General Contractor has been retained, especially in areas adjacent to the proposed work. The architect will work with staff to finalize details and work to be done, and will document this work on the permit drawings

REVERSIBILITY OF ADDITIONS AND ALTERATIONS: The proposed detached garage and 3rd floor egress dormers could be removed (if necessary), with minimal restoration of the adjacent surfaces. The proposed Family Room/Breakfast Room addition removal would require more extension restoration. However, there are many resources documenting the original design and current conditions, available (if needed) to restore to the original exterior condition.

Prepared by: Monika Hemm

THE CITY OF
LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION
DESCRIPTION OF EXTERIOR MATERIALS
(The use of natural materials is strongly encouraged)

Façade Material

- ☐ Stone
- ☐ Brick
- ☒ Wood Clapboard Siding
- ☐ Wood Shingle
- ☐ Cementitious Stucco
- ☐ Other ________________

Color and/or Type of Material__________

Foundation Material

Exposed Foundation Material CONCRETE

Window Treatment

Primary Window Type

- ☒ Double Hung
- ☐ Casement
- ☐ Sliding
- ☐ Other ________________

Color of Finish WHITE

Finish and Color of Windows

- ☒ Wood (recommended)
- ☐ Aluminum Clad
- ☐ Vinyl Clad
- ☐ Other ________________

Window Muntins

- ☐ Not Provided
- ☒ True Divided Lites

Simulated Divided Lites

- ☒ Interior and Exterior muntin bars (recommended) NEW WINDOWS AND GLAZED DOORS
- ☐ Interior muntin bars only
- ☐ Exterior muntin bars only
- ☐ Muntin bars contained between the glass

Trim Material

Door Trim

- ☐ Limestone
- ☐ Brick
- ☒ Wood
- ☐ Other ________________

Window Trim

- ☐ Limestone
- ☐ Brick
- ☒ Wood
- ☐ Other ________________

Fascias, Soffits, Rakeboards

- ☒ Wood
- ☐ Other________________

DESCRIPTION OF EXTERIOR MATERIALS – CONTINUED

Chimney Material

- [x] Brick
- [ ] Stone
- [ ] Stucco
- [ ] Other ______________________

Roofing

Primary Roof Material

- [ ] Wood Shingles
- [x] Wood Shakes
- [ ] Slate
- [ ] Clay Tile
- [ ] Composition Shingles____________
- [ ] Sheet Metal__________________
- [ ] Other _____________________

Color of Material NATURAL

Flashing Material

- [ ] Copper
- [x] Other LEAD COATED COPPER (VIF)
- [ ] Sheet Metal

Gutters and Downspouts

- [ ] Copper
- [x] Aluminum
- [x] Other INTEGRAL GUTTERS AT 6:12 GABLE ROOFS

Driveway Material

- [x] Asphalt
- [ ] Poured Concrete
- [ ] Brick Pavers
- [ ] Concrete Pavers
- [x] Crushed Stone
- [ ] Other ______________________

Terraces and Patios

- [x] Bluestone
- [ ] Brick Pavers
- [ ] Concrete Pavers
- [ ] Poured Concrete
- [ ] Other ______________________

612 E. WOODLAND ROAD, LAKE FOREST, IL

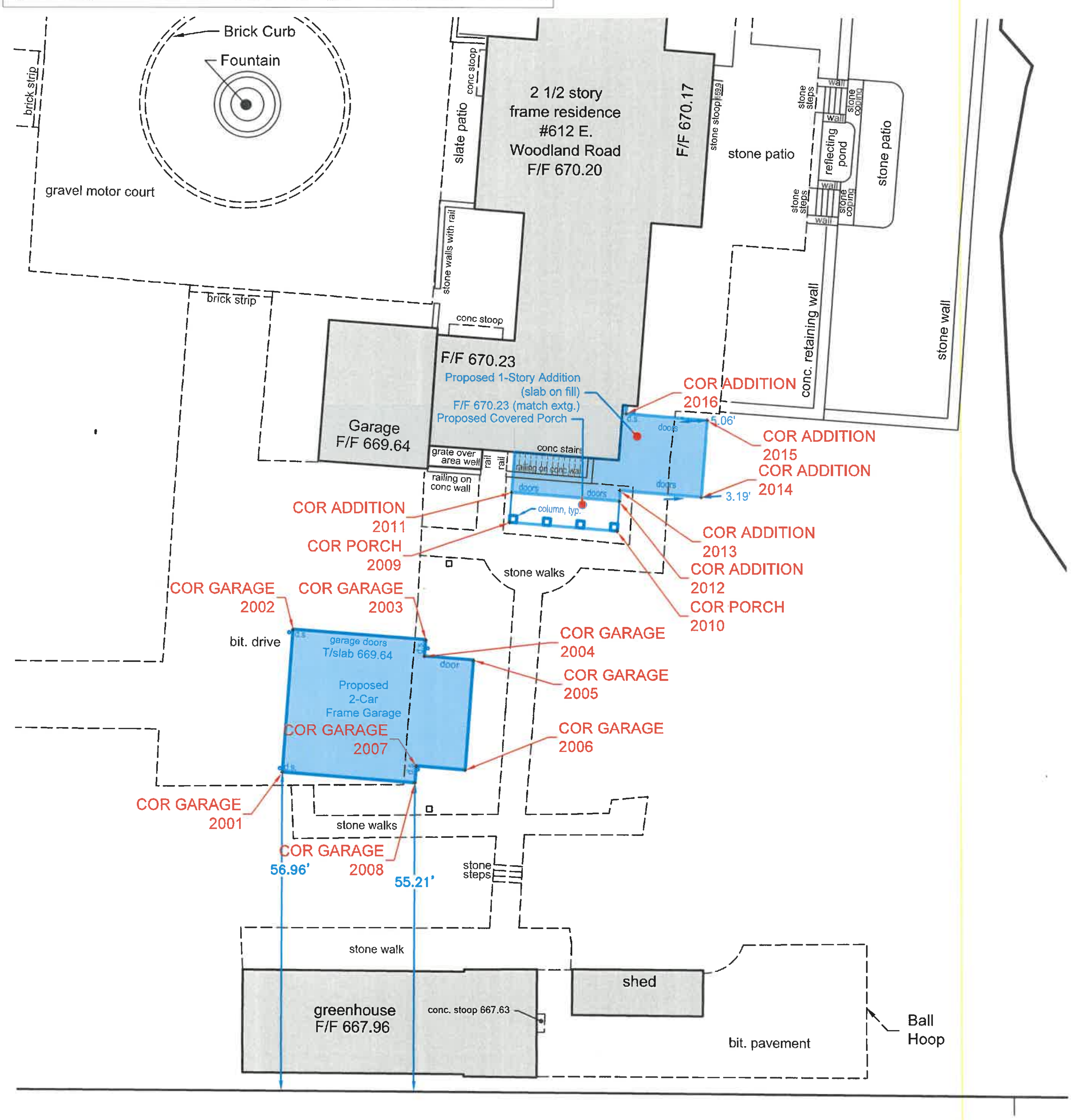
Point #	Northing	Easting	Elevation	Description
2001	2037932.0438	1120075.6098	0.00	COR GARAGE
2002	2037934.0561	1120049.6878	0.00	COR GARAGE
2003	2037957.9872	1120051.5455	0.00	COR GARAGE
2004	2037957.7550	1120054.5365	0.00	COR GARAGE
2005	2037966.5806	1120055.2216	0.00	COR GARAGE
2006	2037965.0327	1120075.1616	0.00	COR GARAGE
2007	2037956.2071	1120074.4765	0.00	COR GARAGE
2008	2037955.9749	1120077.4675	0.00	COR GARAGE
2009	2037973.1309	1120030.5317	0.00	COR PORCH
2010	2037992.5724	1120032.0409	0.00	COR PORCH
2011	2037973.5434	1120025.2176	0.00	COR ADDITION
2012	2037992.9849	1120026.7268	0.00	COR ADDITION
2013	2037993.1264	1120024.9042	0.00	COR ADDITION
2014	2038007.7524	1120026.0396	0.00	COR ADDITION
2015	2038008.8298	1120012.1595	0.00	COR ADDITION
2016	2037994.2059	1120010.9981	0.00	COR ADDITION

BLECK
engineers | surveyors
Bleck Engineering Company, Inc.
1375 North Western Avenue
Lake Forest, Illinois 60045
T 847.295.5200 F 847.295.7081
www.bleckeng.com

N

0' 10' 20' 40'
Scale 1" = 20'

Job No. 70-305
Jan. 7, 2022
HPC Staking



STAKING DIAGRAM

1 SITE PLAN
Scale: 1" = 50'-0"

Sheet No. A1.0 FULL

Drawn By:
Scale:
Date:
Issued For:
Revised:

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Sleight Residence
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Project Number
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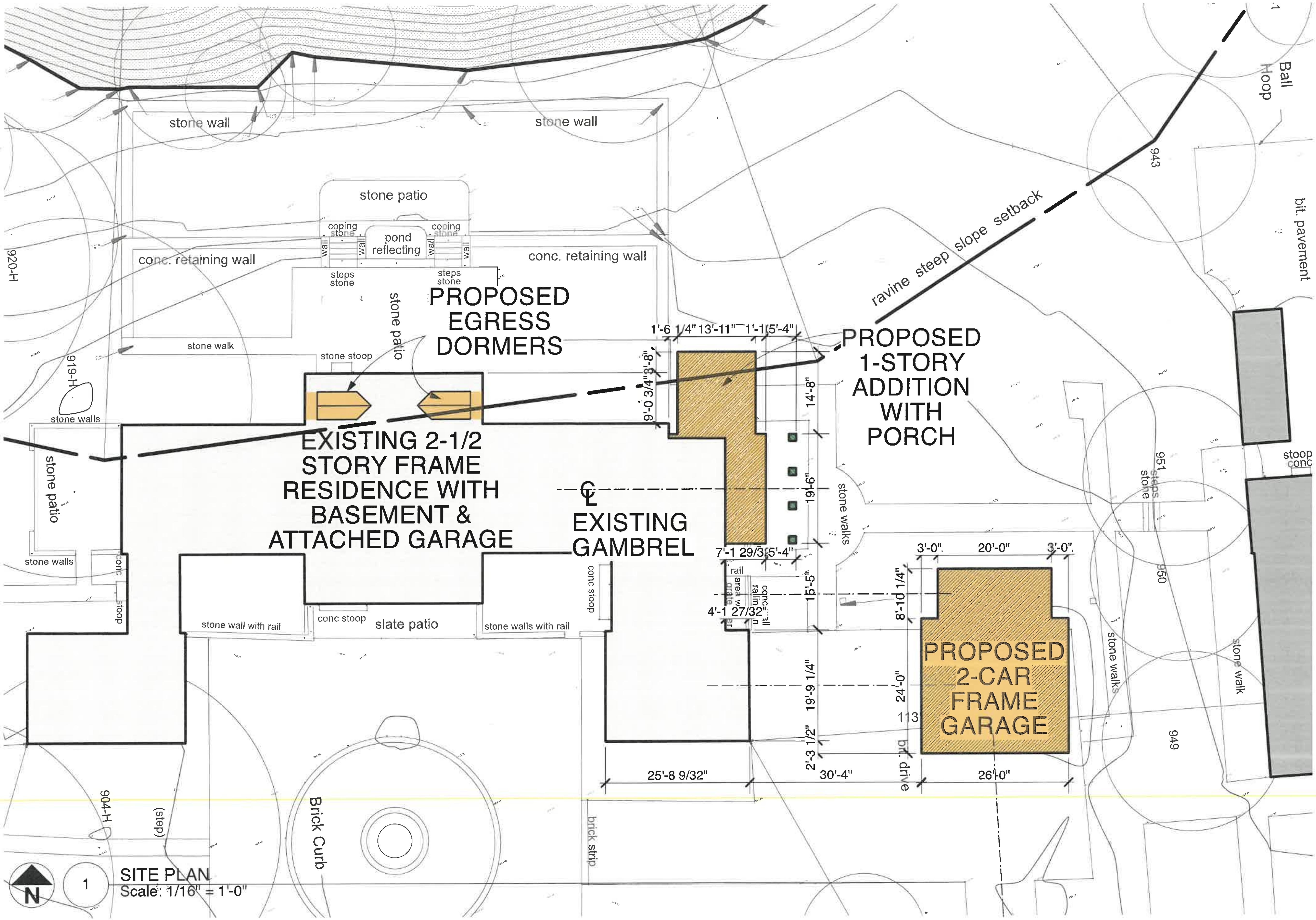
PROPOSED SITE PLAN - ENLARGED



Sheet No.
A1.0
PARTIAL

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Date:
Issued For:
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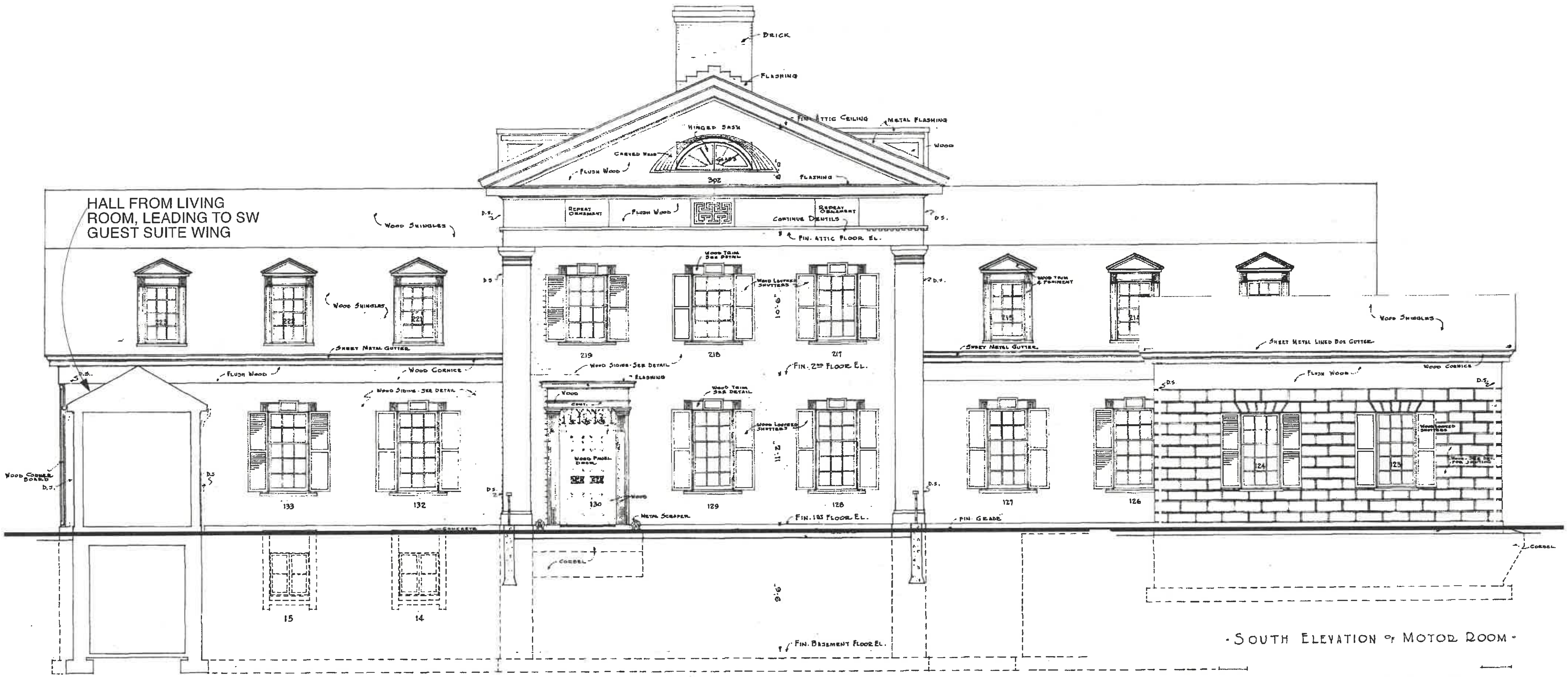

NOTE: EXISTING SOUTH ELEVATION OF GUEST SUITE WING SIMILAR

1 EXISTING SOUTH (FRONT) ELEVATION WITH CONNECTOR SECTIONS

Scale: 1/8" = 1'-0"

Sheet No. A4.3 EX

Drawn By:
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Date:
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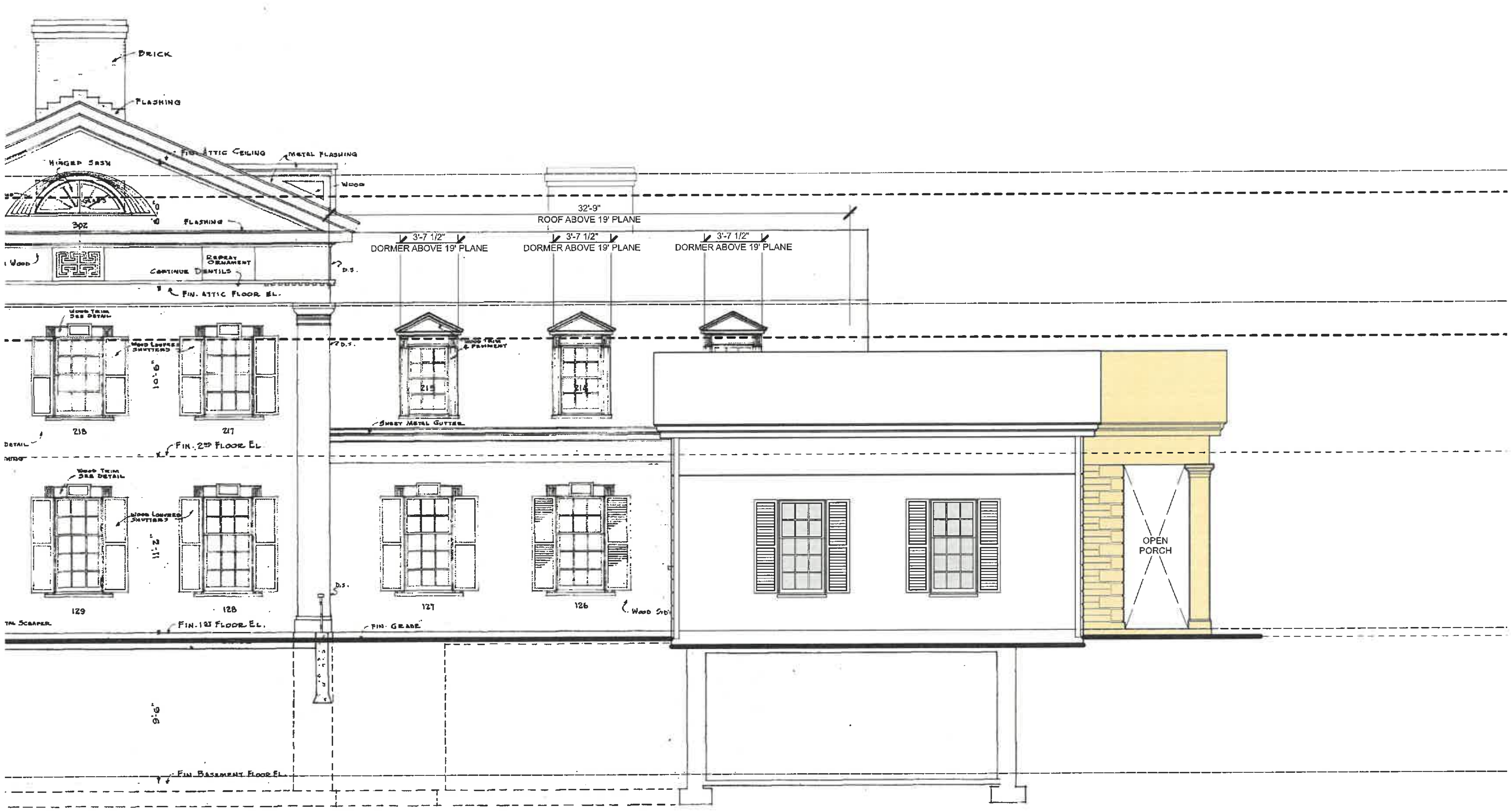

2 SOUTH (FRONT) - PROPOSED DETAIL ELEVATION

Scale: 1/8" = 1'-0"

Sheet No. A4.3 NEW

Drawn By:
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Date:
Issued For:
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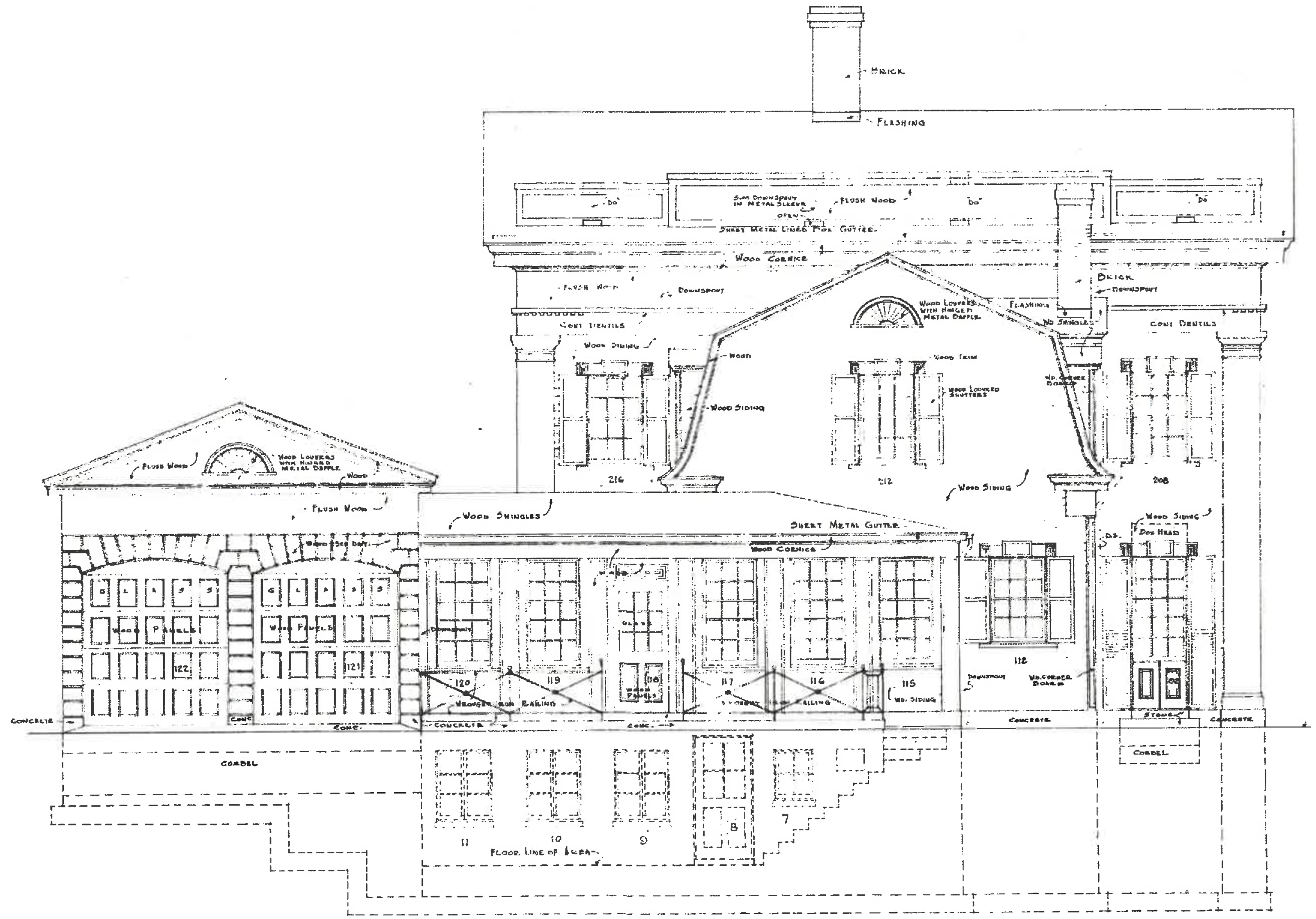

1 EXISTING EAST (SIDE) ELEVATION
Scale: 1/8" = 1'-0"

Sheet No.
A4.1
EX-EAST

Drawn By:
Scale:
Date:
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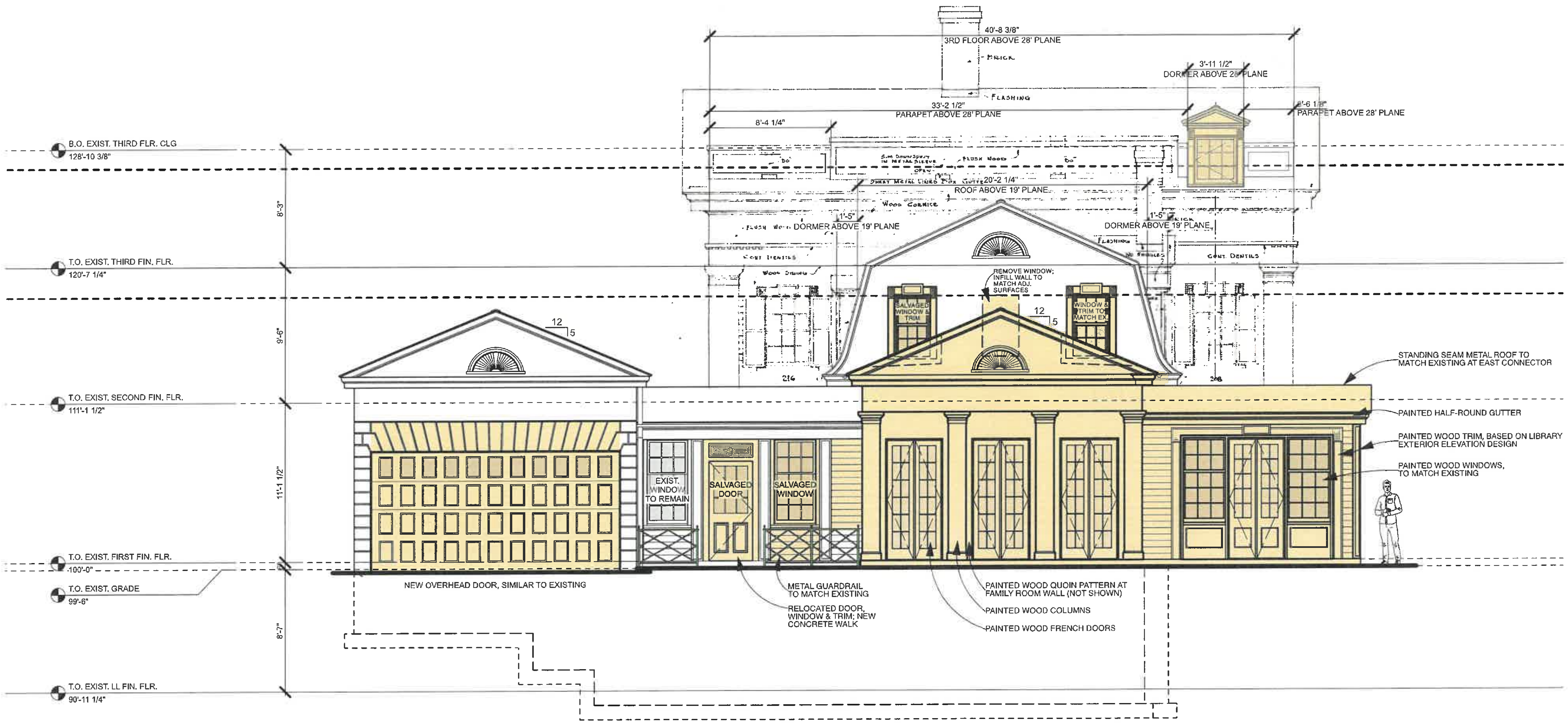

1 EAST (SIDE) - PROPOSED ELEVATION

Scale: 1/8" = 1'-0"

Sheet No.
A4.1
NEW-EAST

Drawn By:
Scale:
Date:
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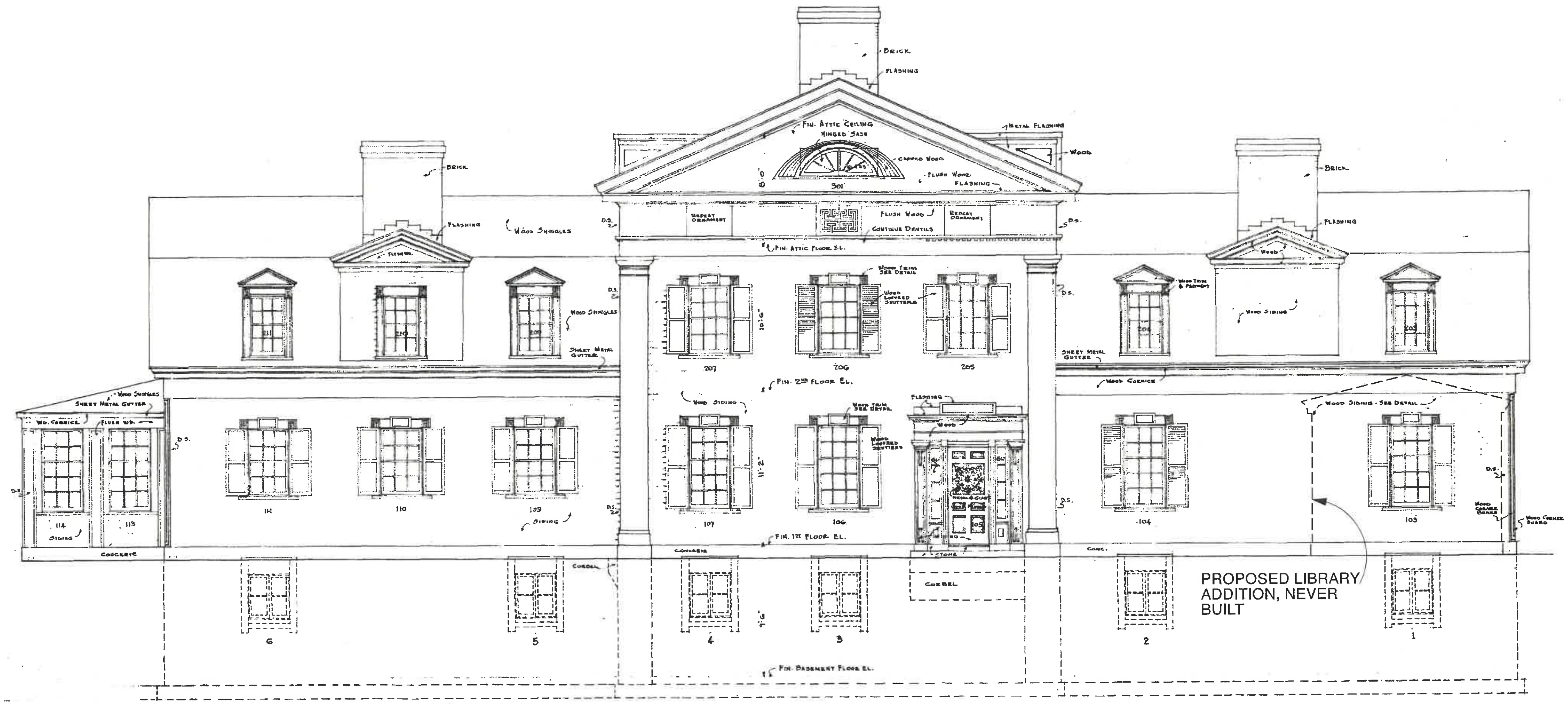

1 EXISTING NORTH (REAR) ELEVATION

Scale: 1/8" = 1'-0"

Sheet No. A4.1 EX

Drawn By:

Scale:

Date:

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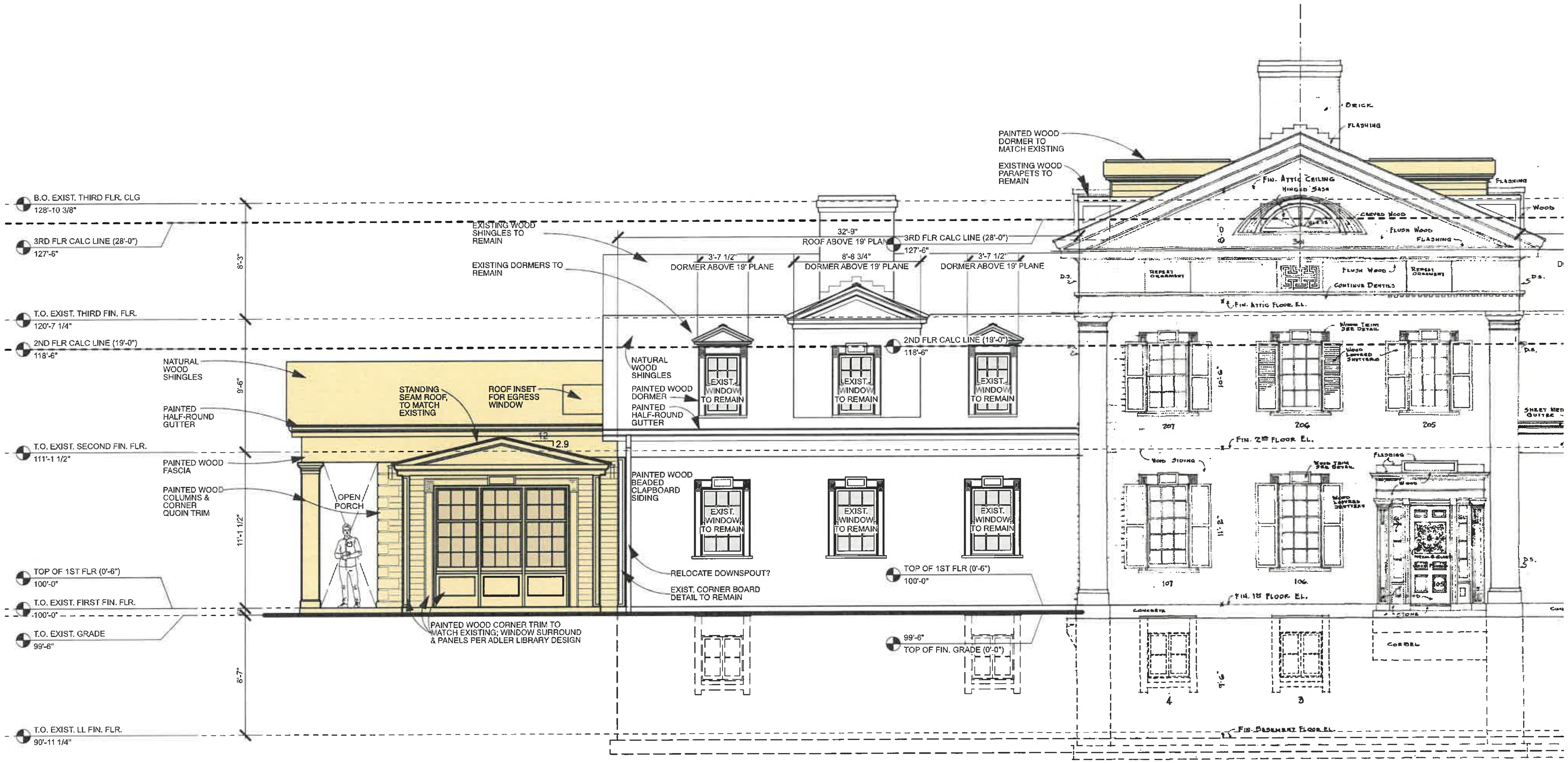

1 NORTH (REAR) - PROPOSED DETAIL ELEVATION
Scale: 1/8" = 1'-0"

Sheet No. A4.1
PROPOSED

Drawn By:
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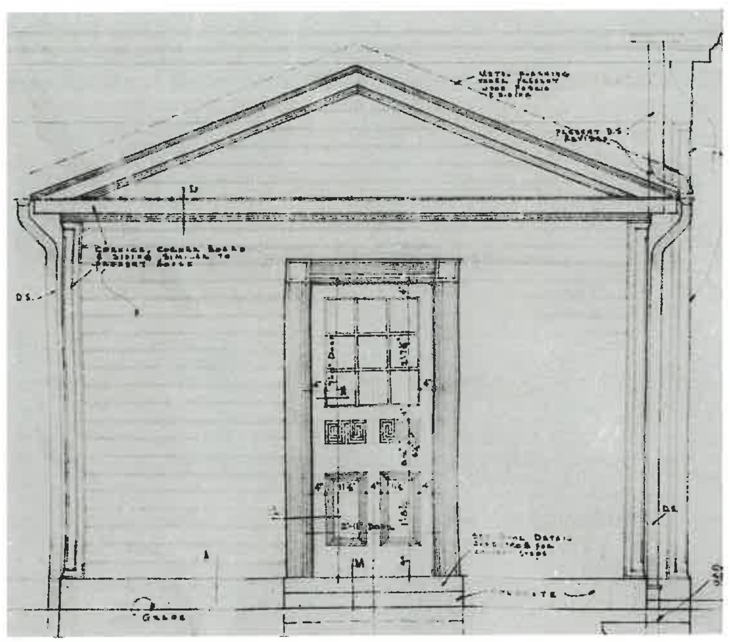
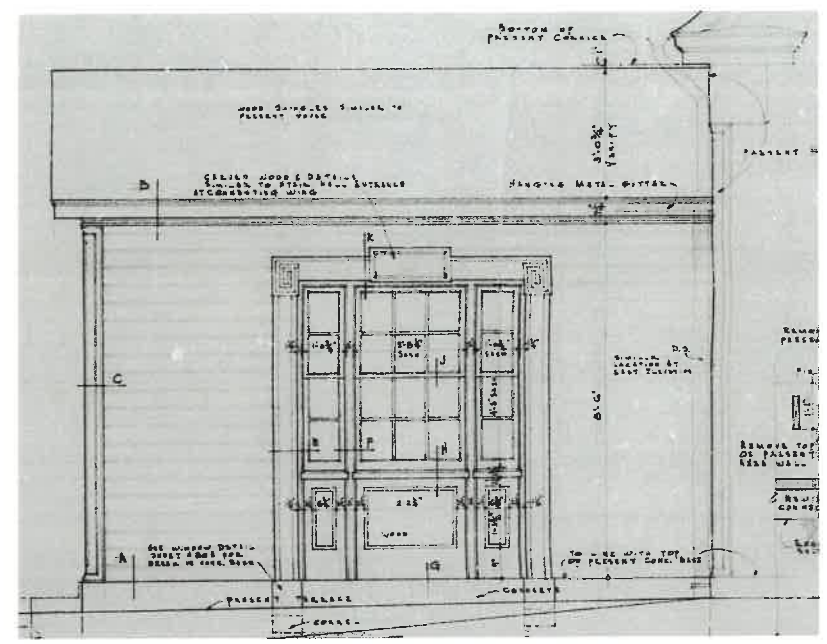
INSPIRATION DESIGN FOR PROPOSED BREAKFAST ROOM



PROPOSED NORTH ELEVATION



PROPOSED WEST ELEVATION

3 PROPOSED LIBRARY ELEVATIONS (NEVER BUILT)
Scale: 1/4" = 1'-0"

Sheet No.
A4.1
ADLER

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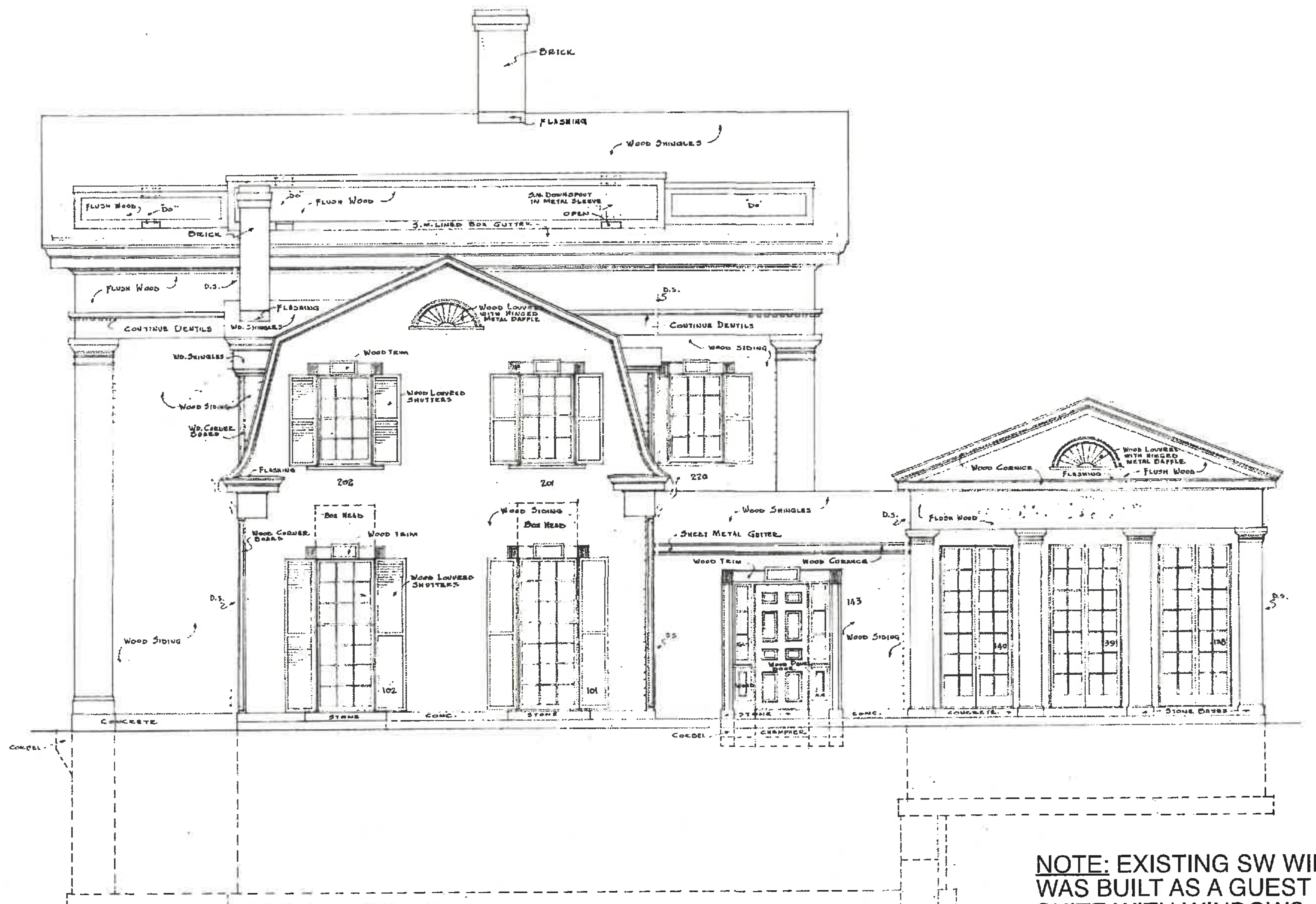

1 WEST (SIDE) ELEVATION - EXISTING

Scale: 1/8" = 1'-0"

NOTE: EXISTING SW WING WAS BUILT AS A GUEST SUITE WITH WINDOWS, CHIMNEY AND SPLIT LOUVER (QUARTER-ROUND)

Sheet No.
A4.2
EX-WEST

Drawn By:
Scale:
Date:
Issued For:
Revised:

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1 WEST (SIDE) ELEVATION - PROPOSED

Scale: 1/8" = 1'-0"

NOTE: EXISTING SW WING WAS BUILT AS A GUEST SUITE WITH WINDOWS, CHIMNEY AND SPLIT LOUVER (QUARTER-ROUND)

Sheet No. A4.1 NEW-WEST

Drawn By:
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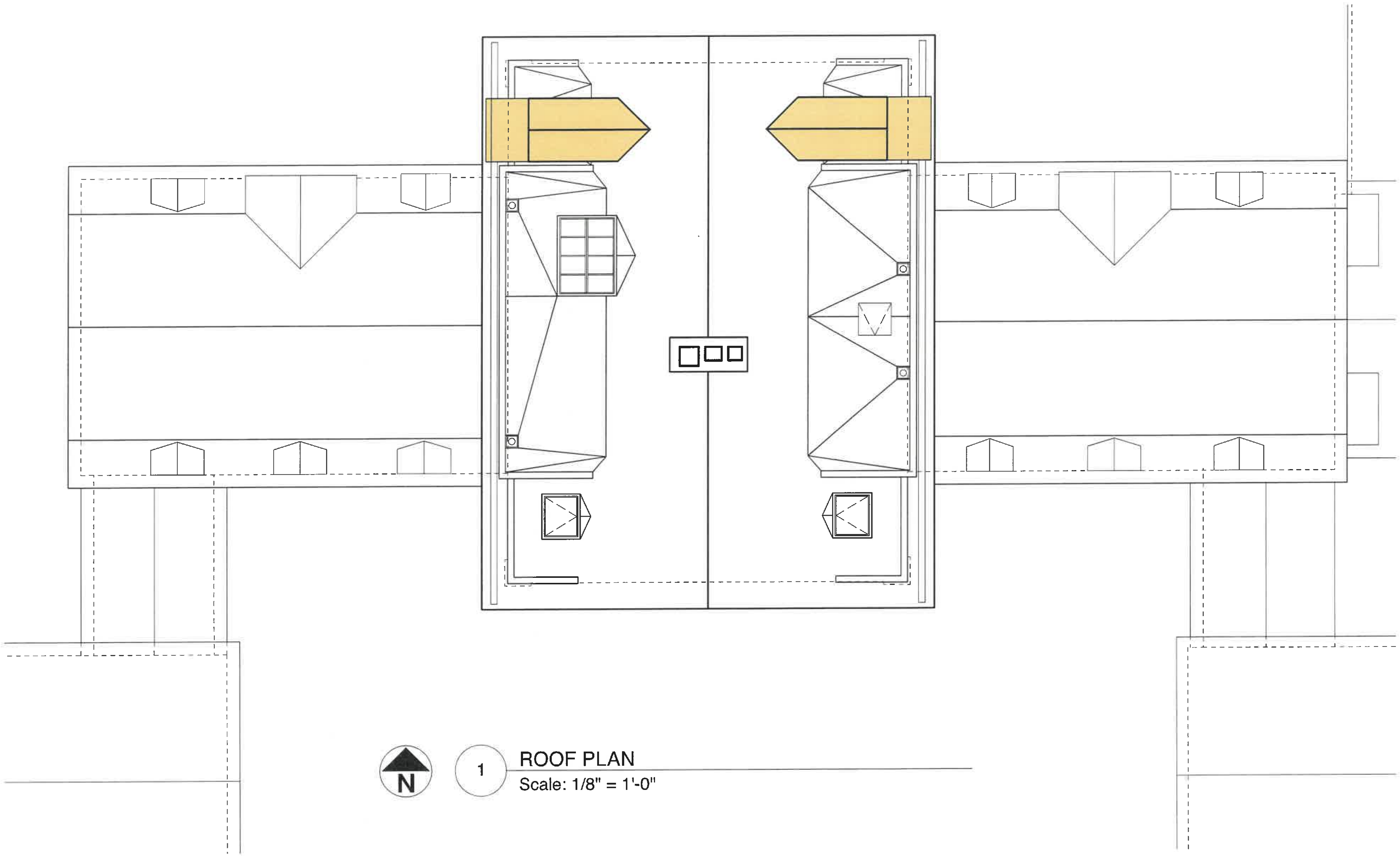

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1 ROOF PLAN

Scale: 1/8" = 1'-0"

Sheet No.

A2.4

Drawn By:

Scale:

Date:

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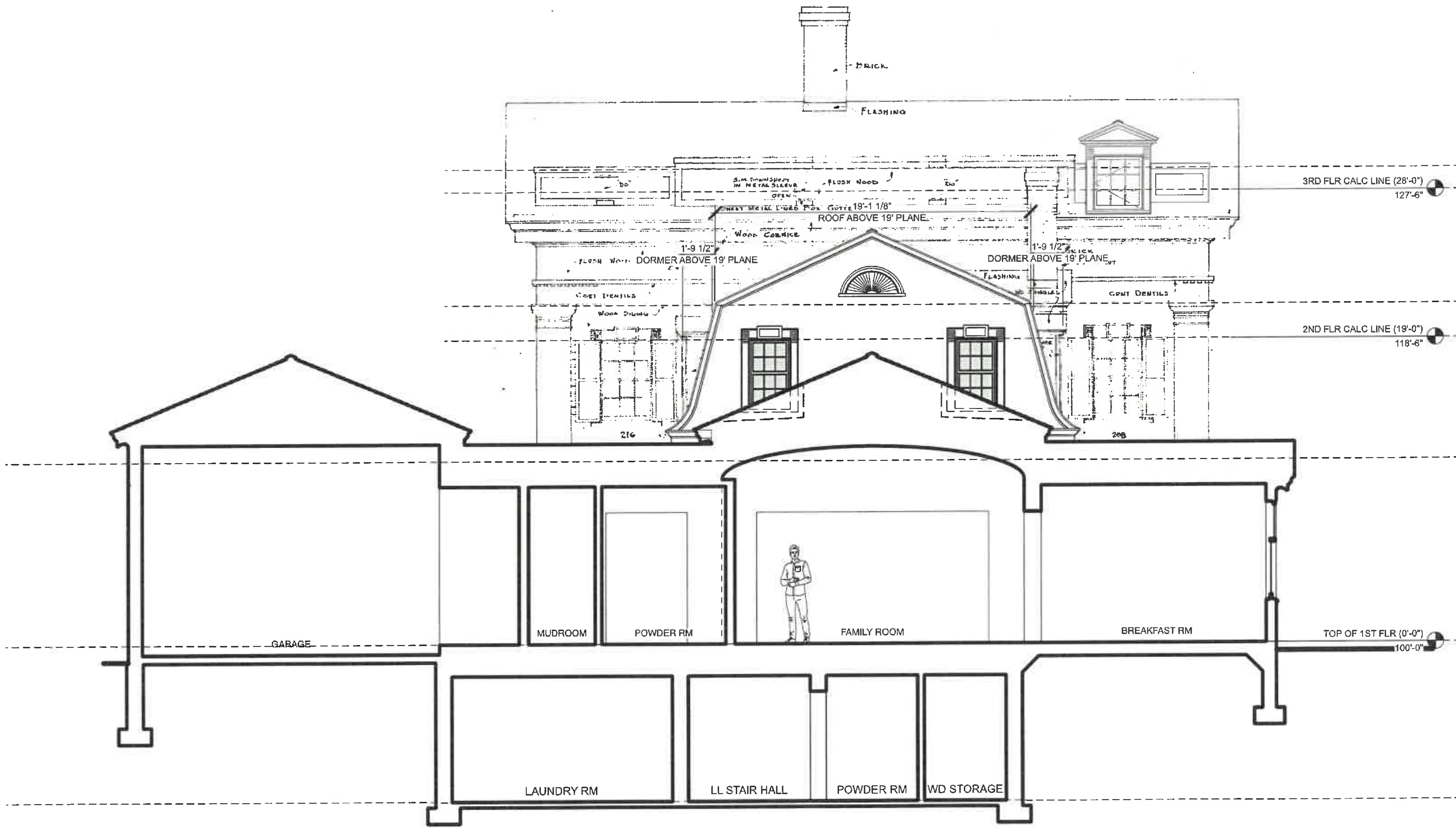

2 **BUILDING SECTION - AT ADDITIONS**
Scale: 1/8" = 1'-0"

Sheet No.
A4.5
EAST

Drawn By:
Scale:
Date:
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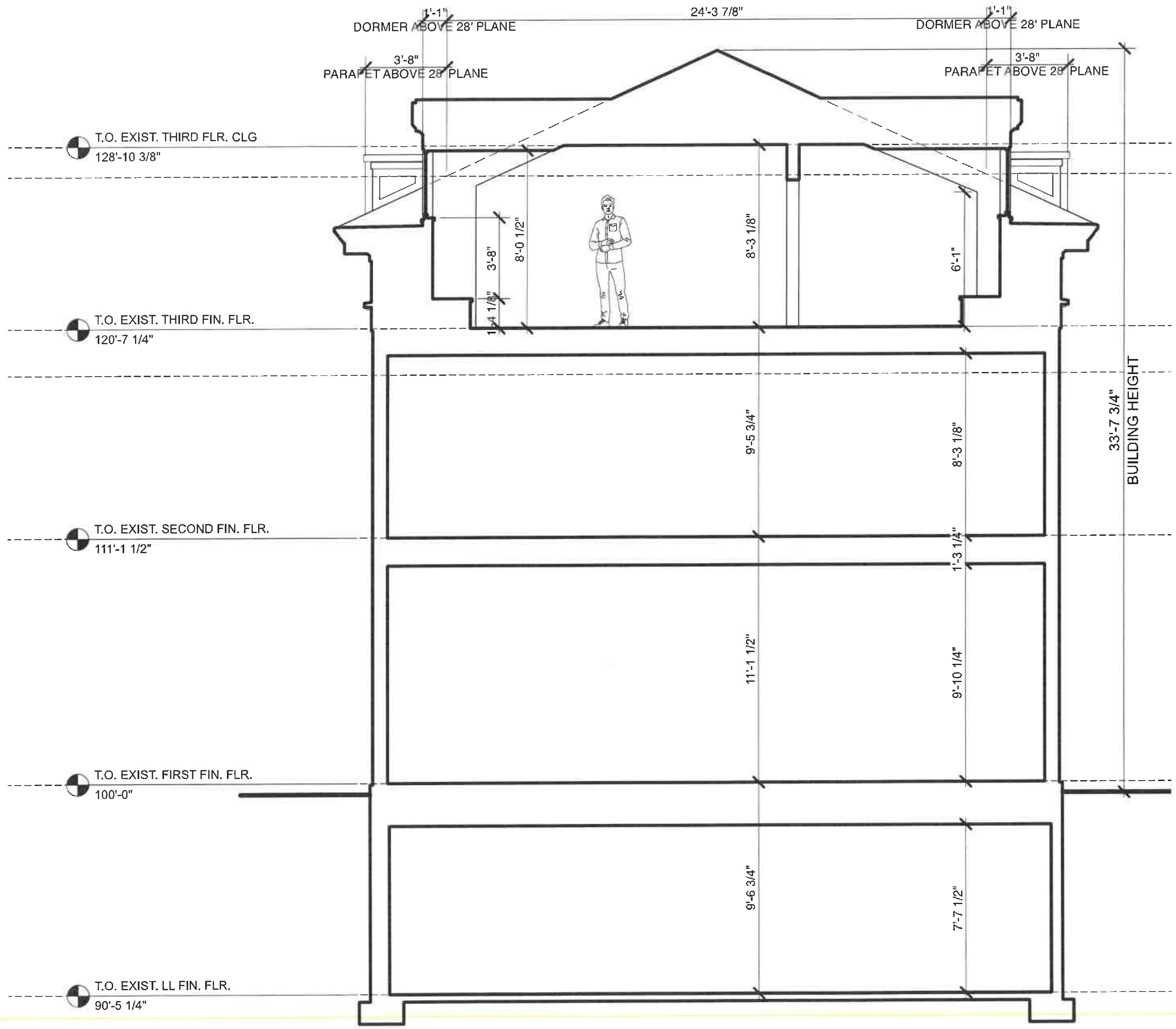

1 BUILDING SECTION - CENTER BLOCK

Scale: 3/16" = 1'-0"

Sheet No. A4.5 CENTER

Drawn By:
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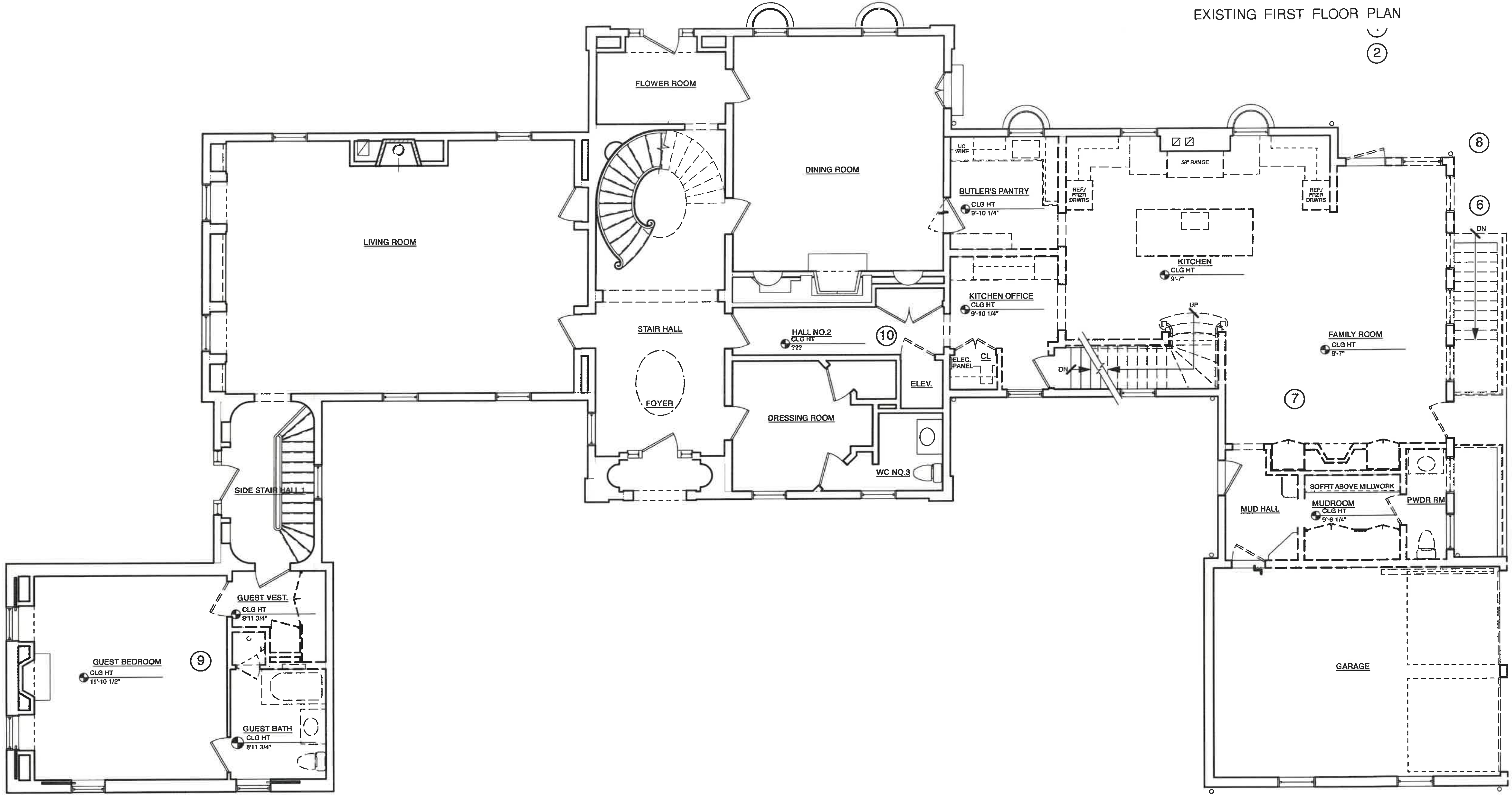

N

1

FIRST FLOOR DEMO PLAN

Scale: 1/8" = 1'-0"

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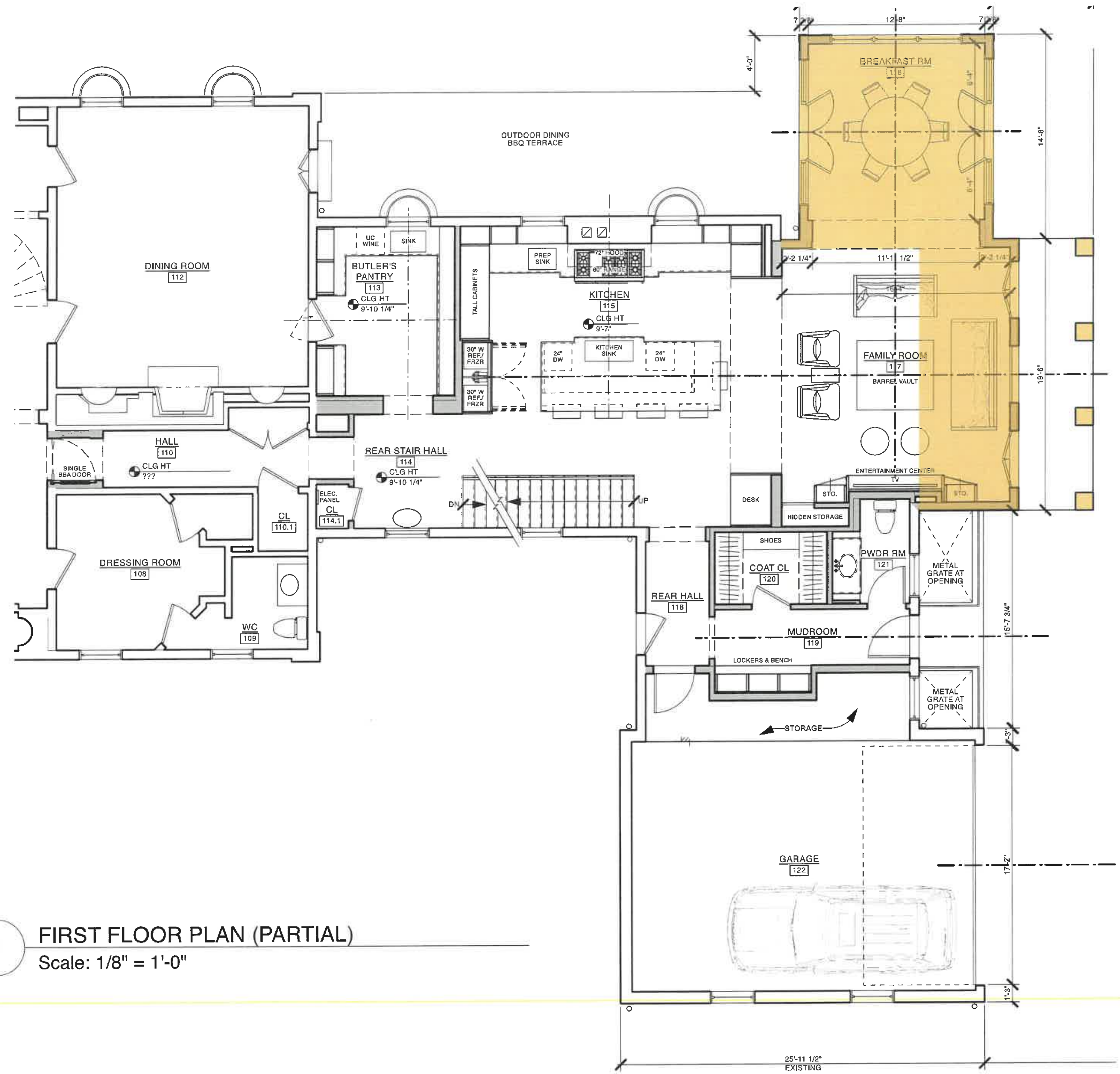
PROPOSED FIRST FLOOR PLAN



N

1

FIRST FLOOR PLAN (PARTIAL)

Scale: 1/8" = 1'-0"

Sheet No.
A2.1
PARTIAL

Drawn By:
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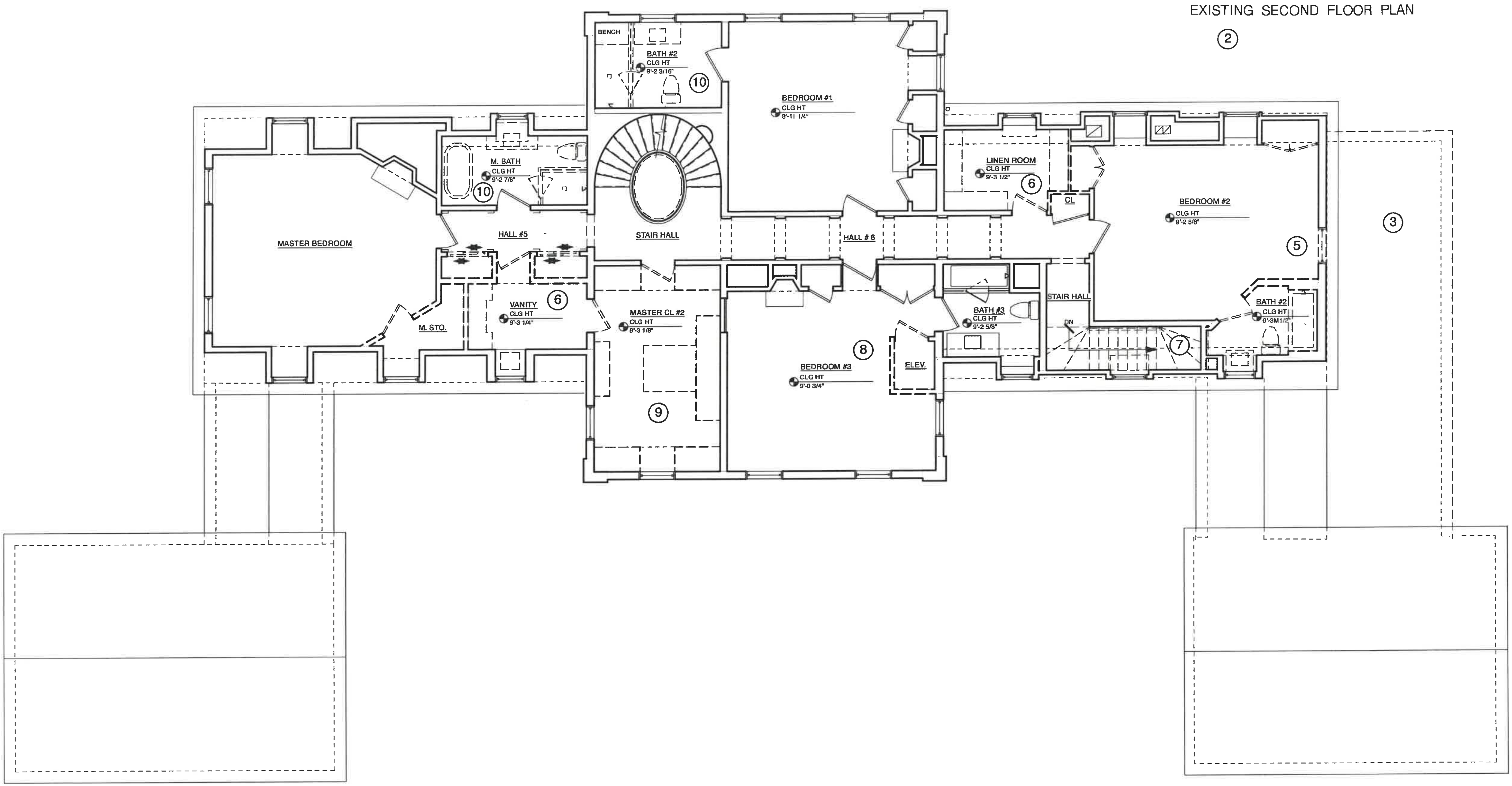

N

1 SECOND FLOOR DEMO PLAN

Scale: 1/8" = 1'-0"

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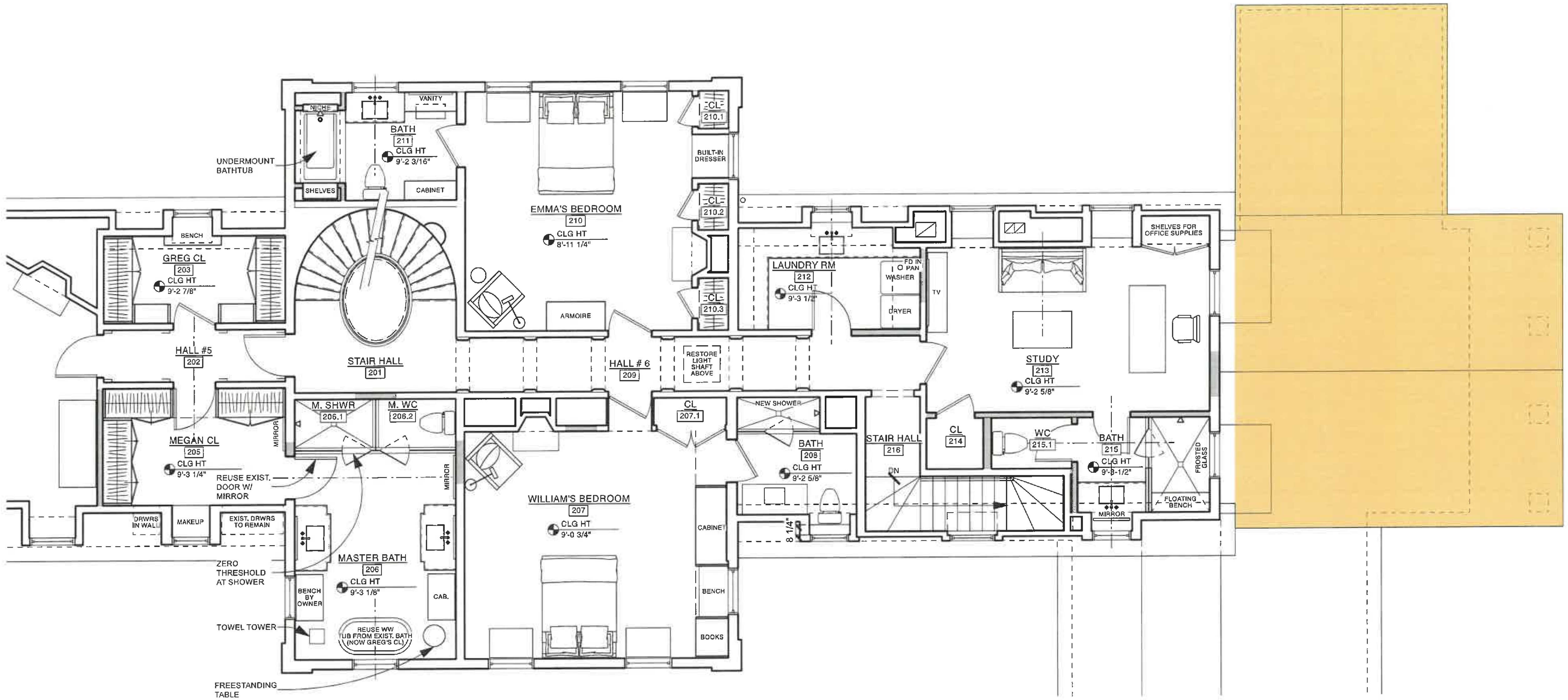
	Project Number 2021-0001	Issued For: Revised:	



N

1

SECOND FLOOR PLAN (PARTIAL)

Scale: 1/8" = 1'-0"

Sheet No.
A2.2
DETAIL

Drawn By:
Scale:
Date:
Issued For:
Revised:

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Project Number
2021-0001

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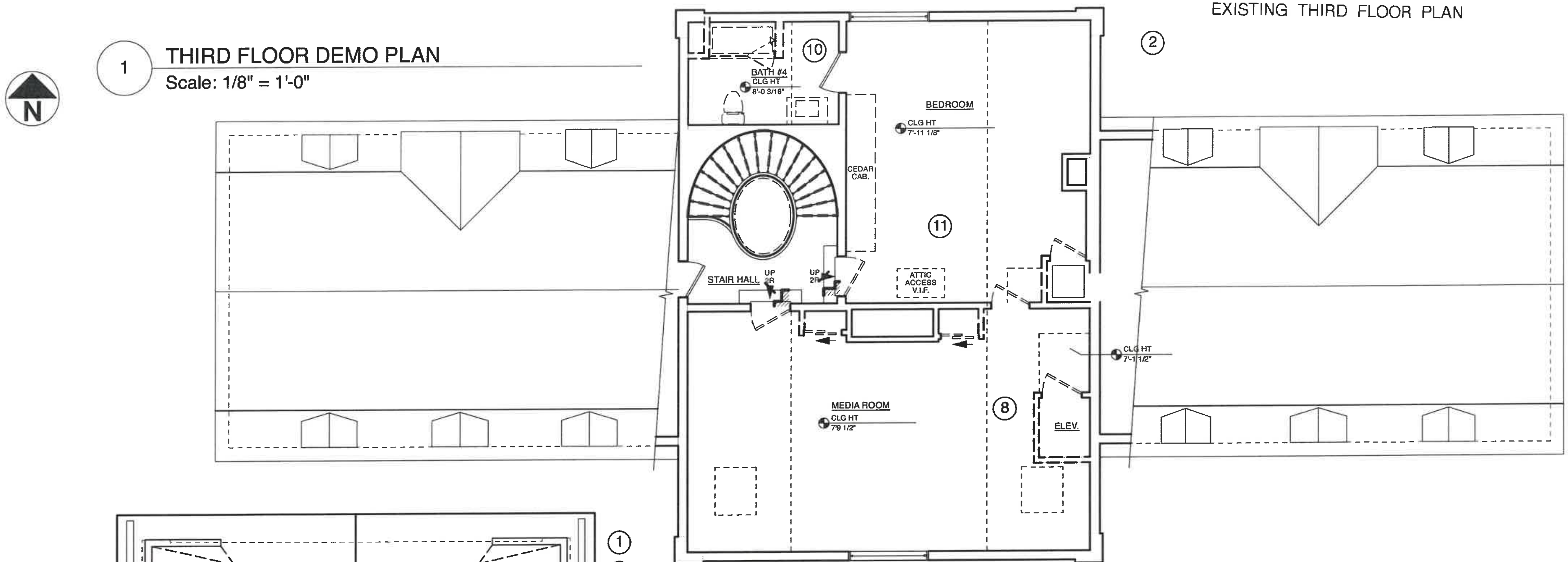
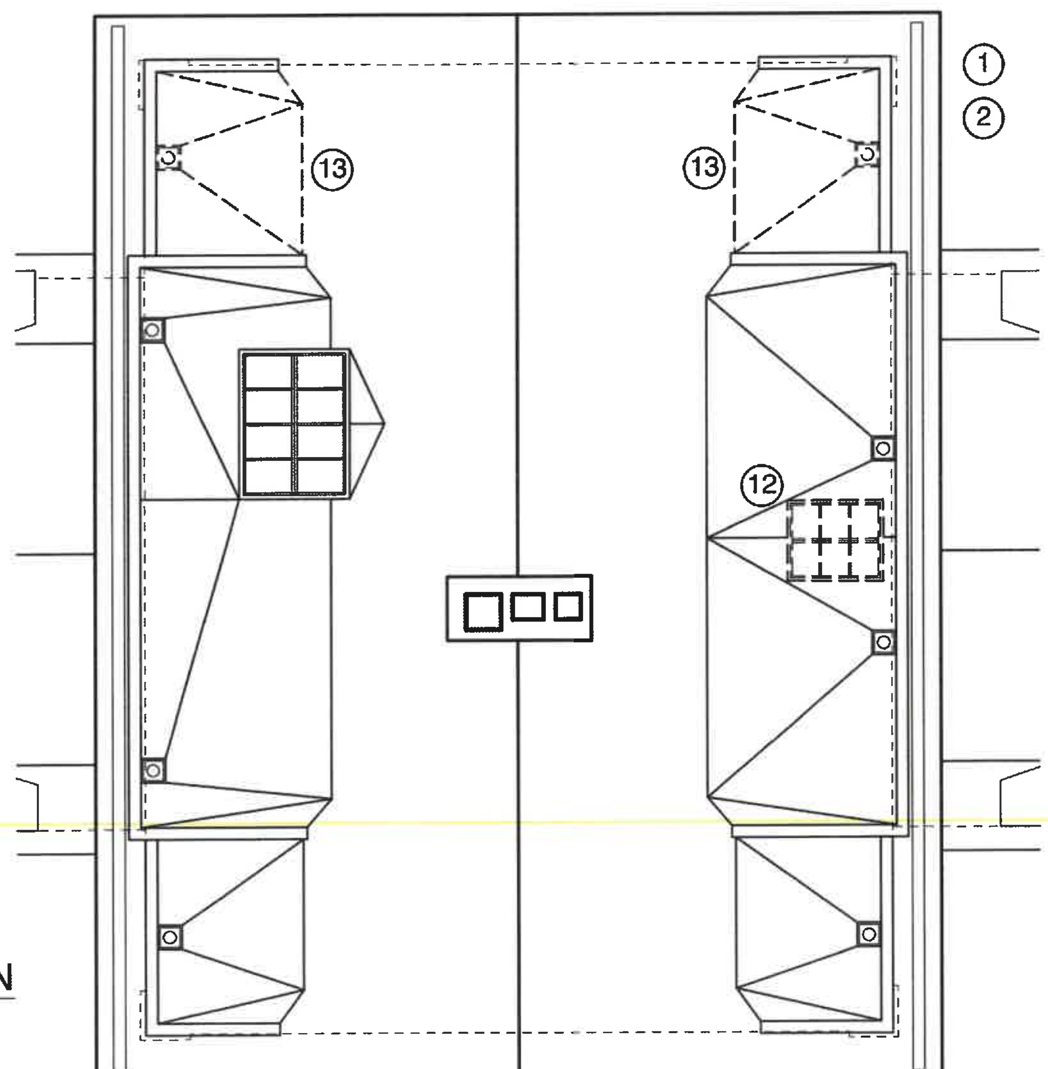
EXISTING THIRD FLOOR PLAN

1 THIRD FLOOR DEMO PLAN
Scale: 1/8" = 1'-0"





1 ROOF DEMO PLAN
Scale: 1/8" = 1'-0"

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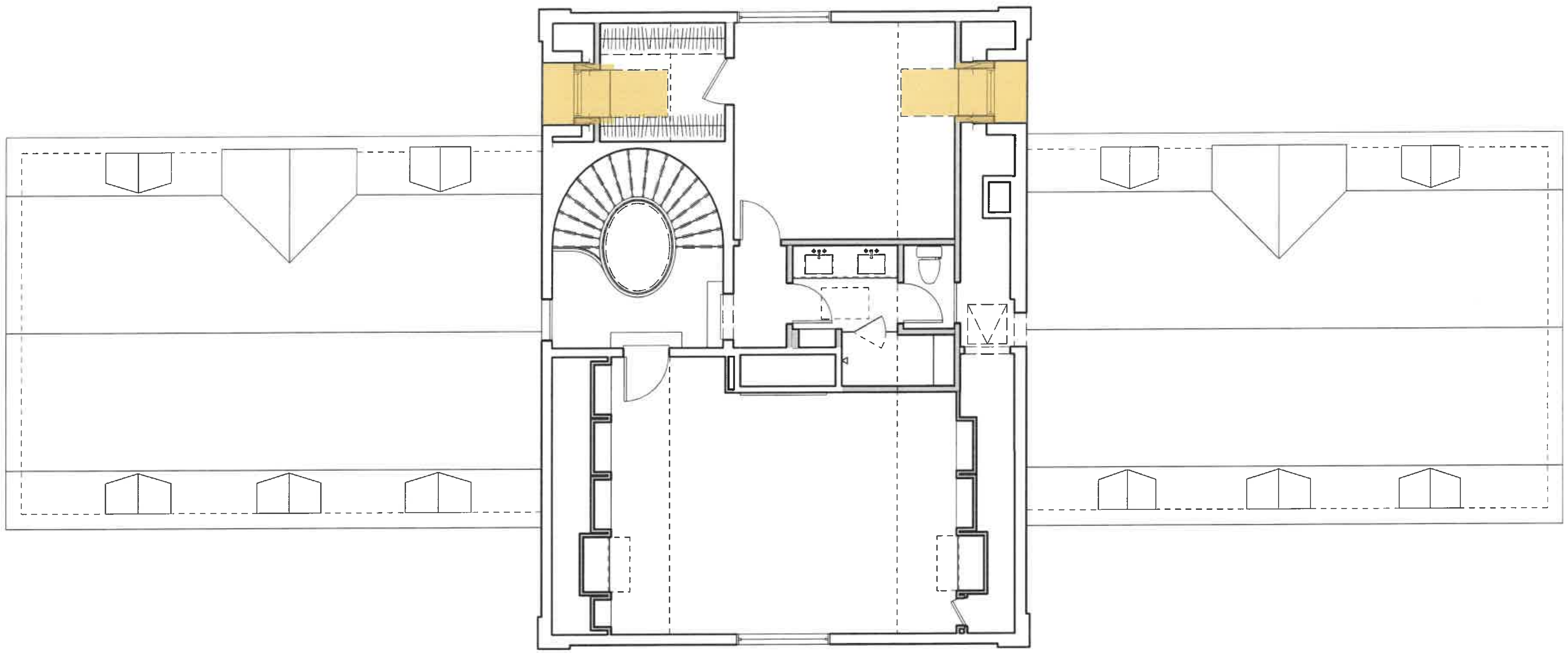
Project Name: Sleight Residence, 612 E. Woodland Rd., Lake Forest, IL	Drawn By:	Sheet No.	D2.3
Project Number: 2021-0001	Scale:		
	Date:		
	Issued For:		
	Revised:		



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1 THIRD FLOOR PLAN
Scale: 1/8" = 1'-0"

Sheet No.
A2.3

Drawn By:
Scale:
Date:
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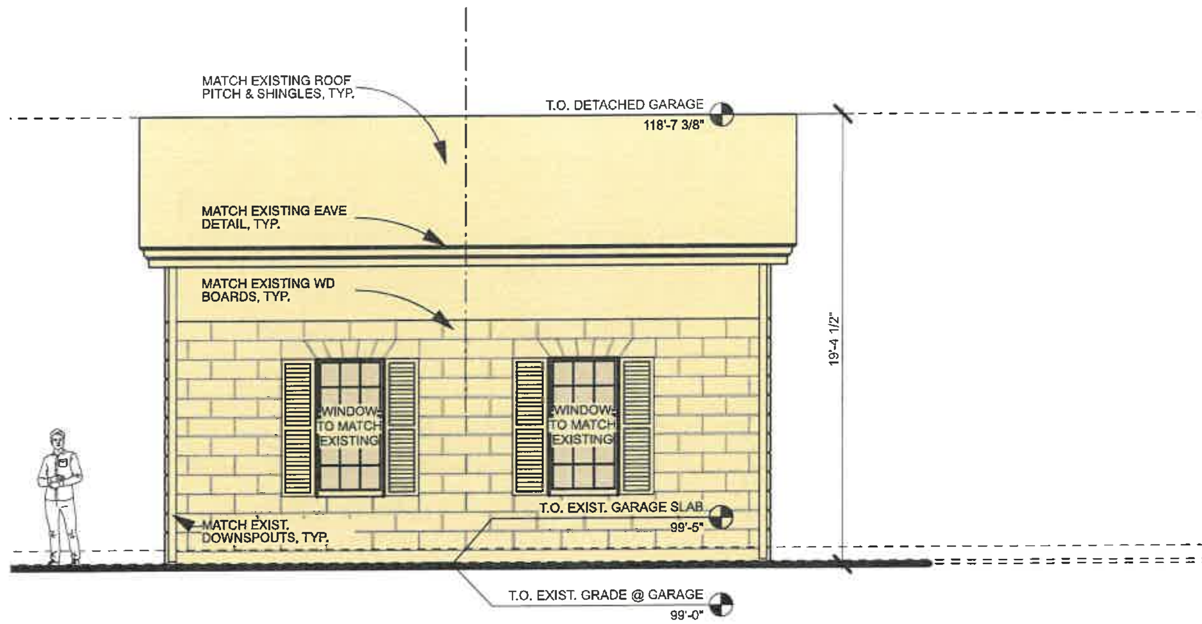
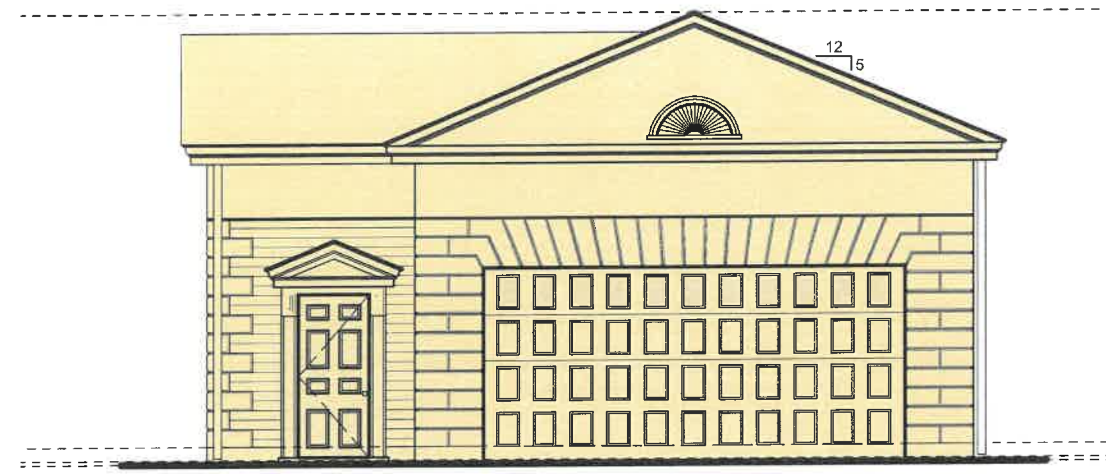
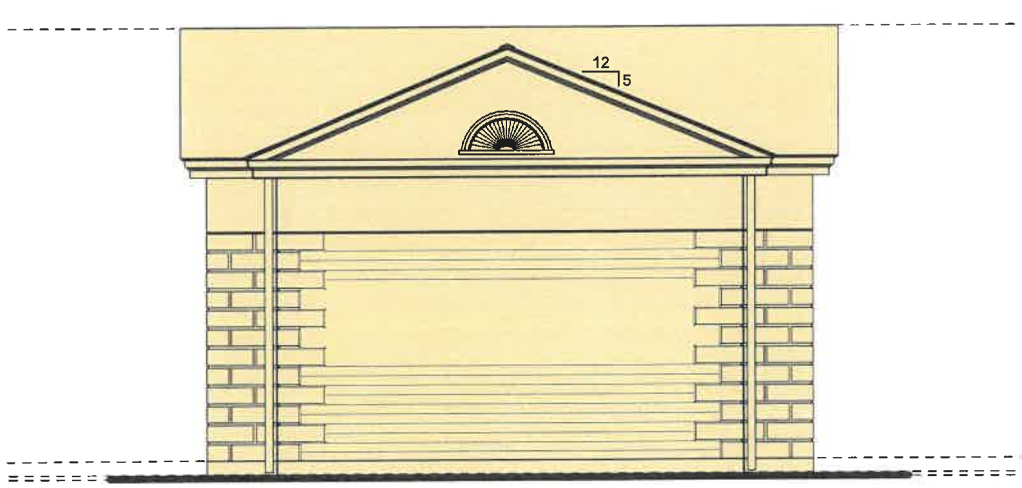


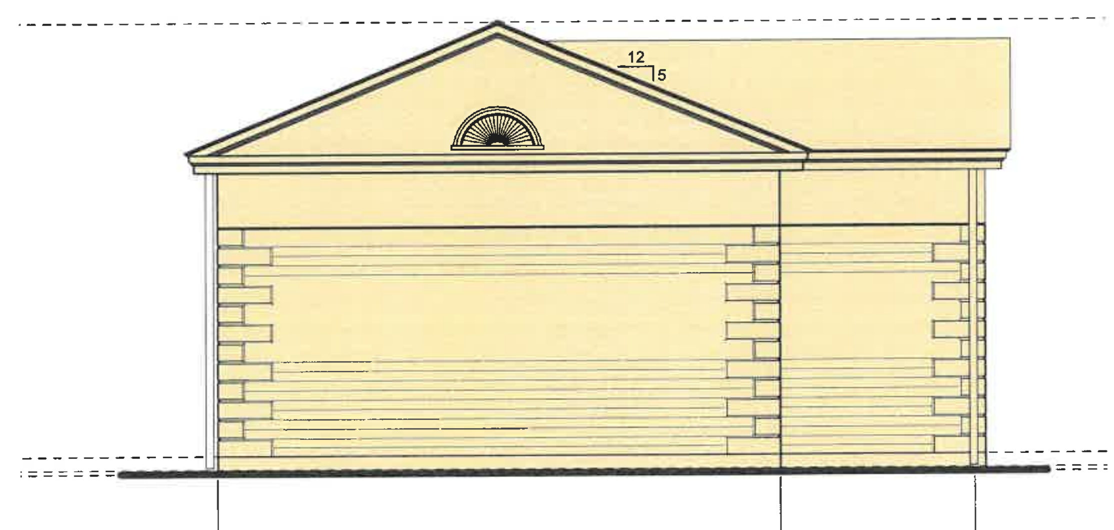
1 DETACHED GARAGE - SOUTH ELEVATION
Scale: 1/8" = 1'-0"



2 DETACHED GARAGE - WEST ELEVATION
Scale: 1/8" = 1'-0"



3 DETACHED GARAGE - NORTH ELEVATION
Scale: 1/8" = 1'-0"



4 DETACHED GARAGE - EAST ELEVATION
Scale: 1/8" = 1'-0"

Sheet No. A4.4

Drawn By:
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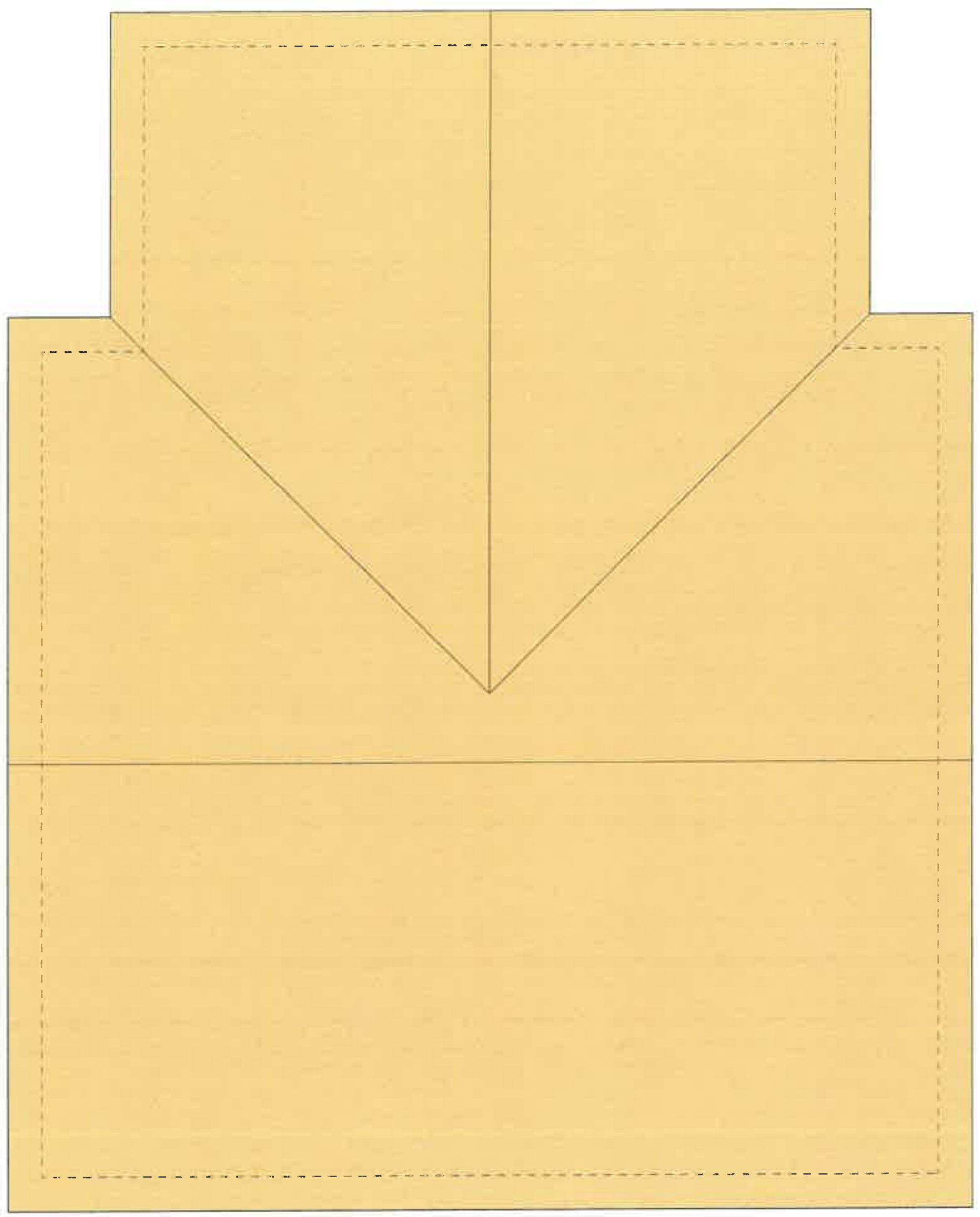
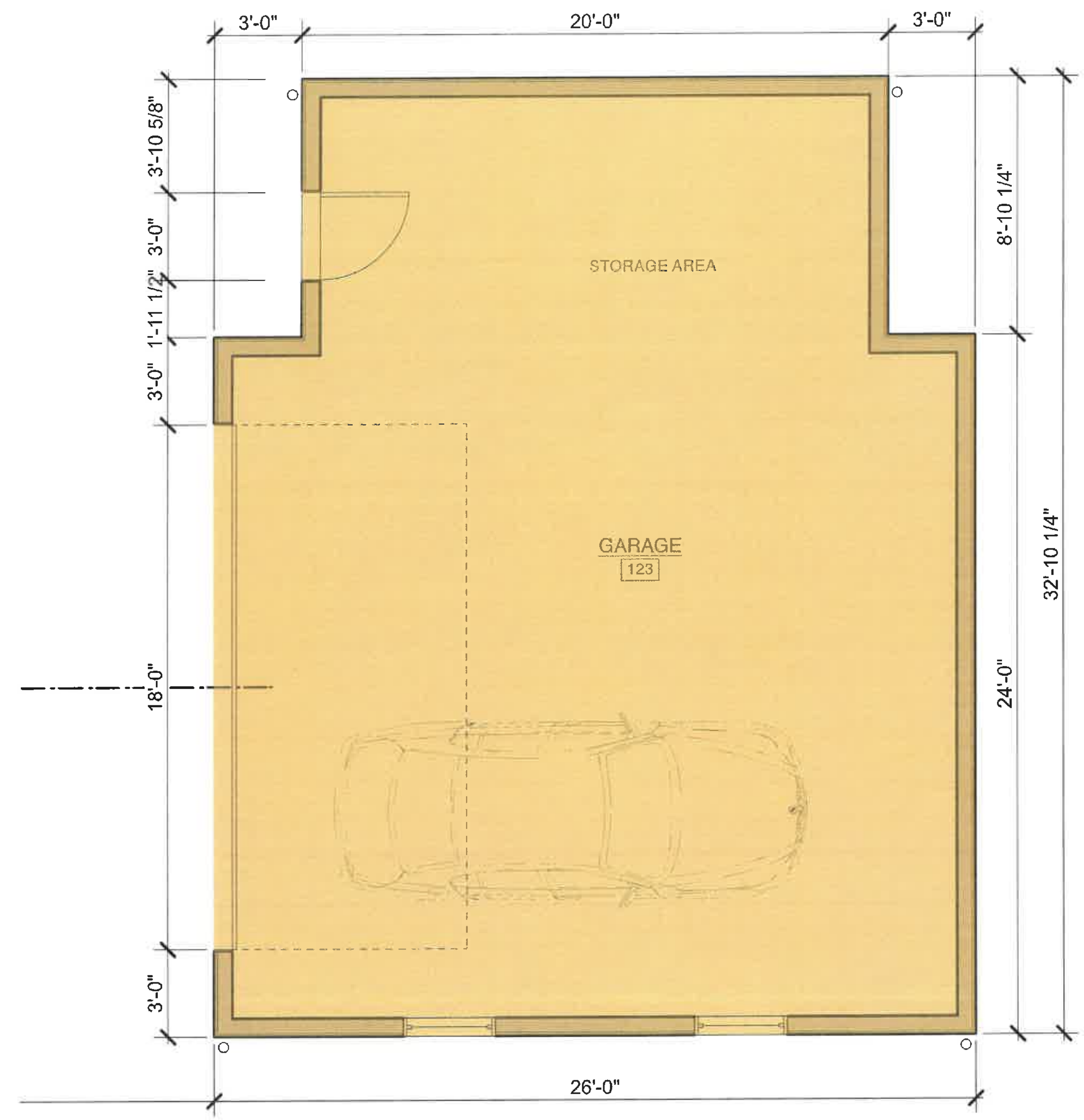


2 DETACHED GARAGE ROOF PLAN

Scale: 3/16" = 1'-0"



1 DETACHED GARAGE PLAN

Scale: 3/16" = 1'-0"

Sheet No.
A2.1
GARAGE

Drawn By:
Scale:
Date:
Issued For:
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Project Name
Sleight Residence
612 E. Woodland Rd., Lake Forest, IL

Project Number
2021-0001

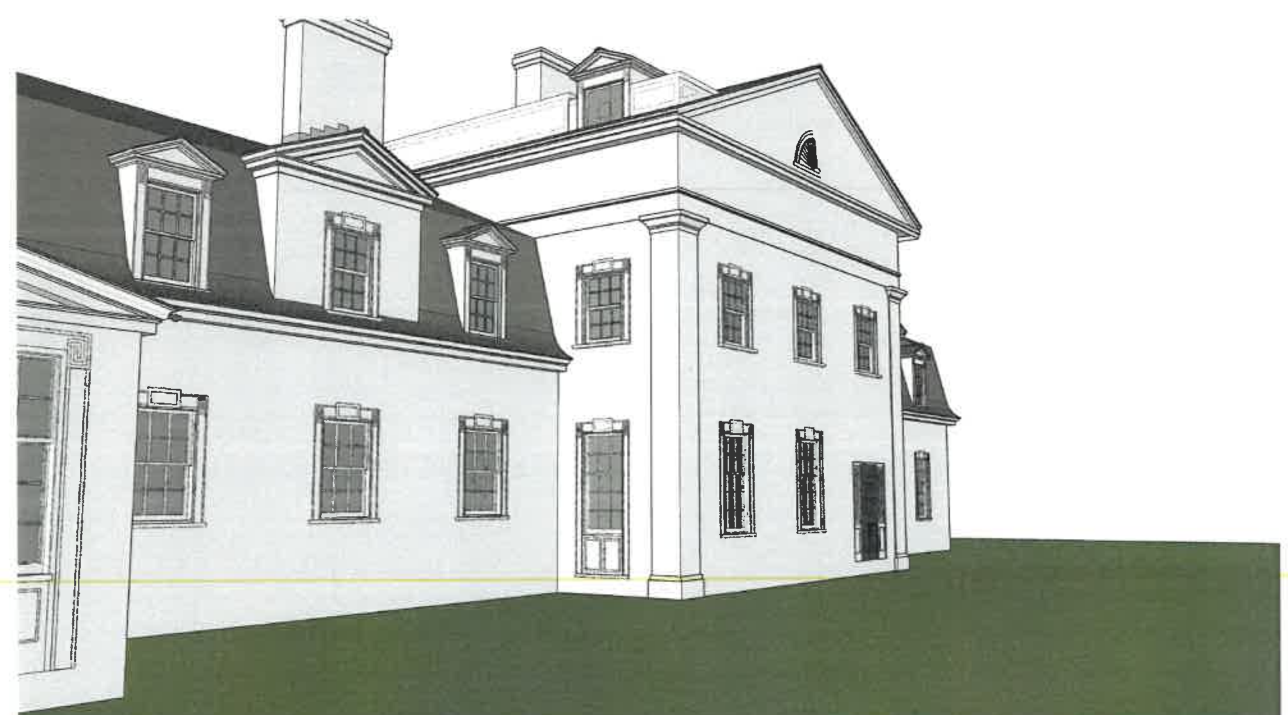
bba ARCHITECTS
CHICAGO, IL
bbaworld.com
312.663.0222

EXISTING HOME

PROPOSED ADDITIONS & EXISTING HOME

VIEWS FROM NORTHEAST GARDEN

EXISTING PARAPET & PROPOSED 3RD FLOOR EGRESS DORMER



Sheet No. A9.0

Drawn By:
Scale:
Date:
Issued For:
Revised:

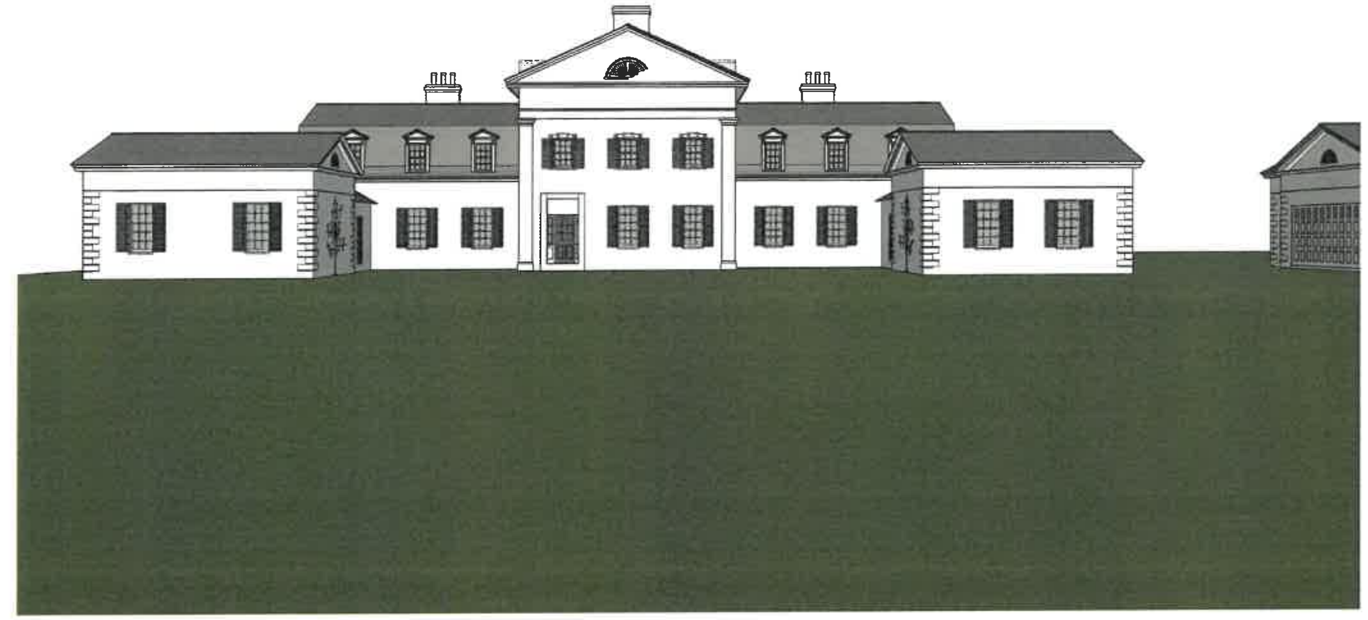
Project Name
Sleight Residence
612 E. Woodland Rd., Lake Forest, IL

Project Number
2021-0001

bba ARCHITECTS
CHICAGO, IL
bbaworld.com
312.663.0222

VIEWS FROM FRONT DRIVE

EXISTING HOME



PROPOSED DETACHED GARAGE;
3RD FLOOR EGRESS DORMERS ARE NOT VISIBLE

EXISTING HOME, LOOKING NORTHEAST

EXISTING HOME, LOOKING NORTHEAST
SHOWING PROPOSED DETACHED GARAGE

Sheet No. A9.2

Drawn By:
Scale:
Date:
Issued For:
Revised:

Project Name
Sleight Residence
612 E. Woodland Rd., Lake Forest, IL

Project Number
2021-0001

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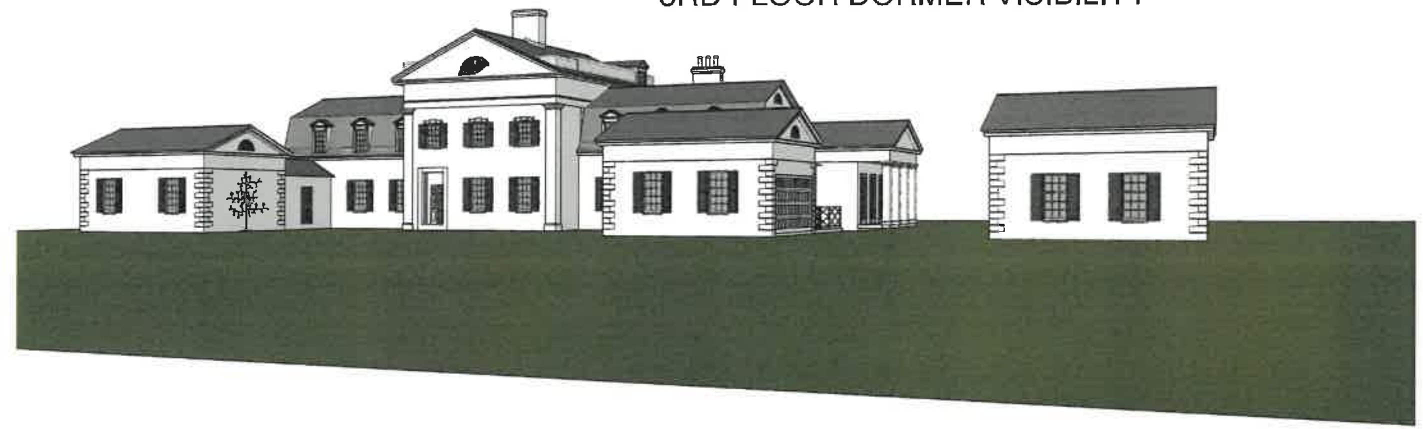
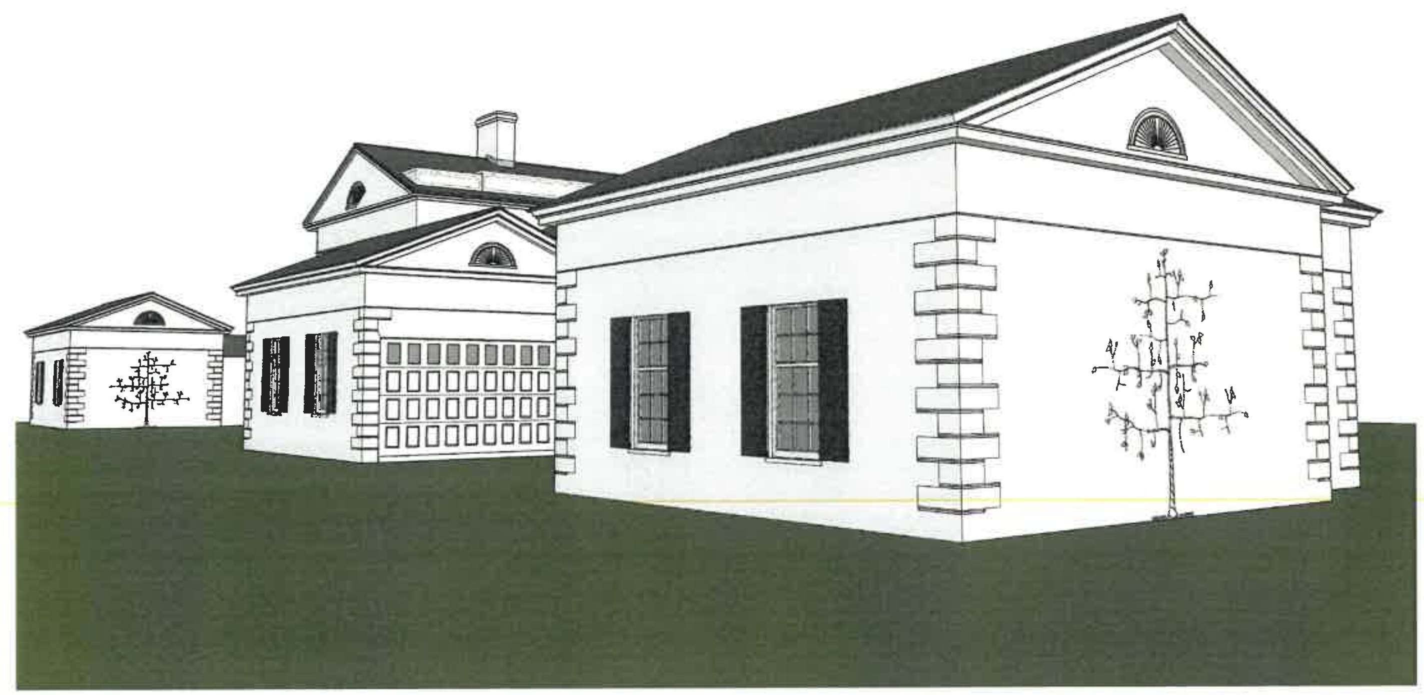
3RD FLOOR DORMER VISIBILITY



PROPOSED DETACHED GARAGE

EXISTING HOME

VIEWS FROM EAST DRIVE



Sheet No.
A9.3

Drawn By:
Scale:
Date:
Issued For:
Revised:

Project Name
Sleight Residence
612 E. Woodland Rd., Lake Forest, IL

Project Number
2021-0001

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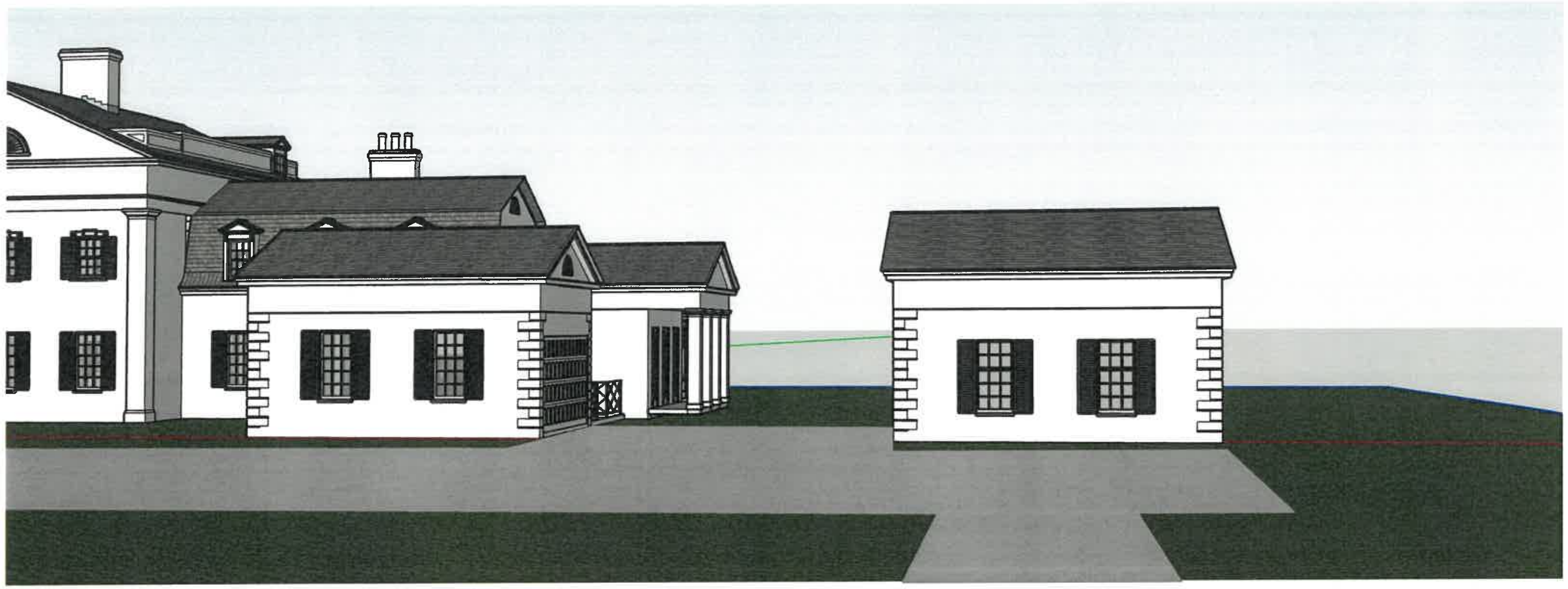

PROPOSED DETACHED GARAGE

VIEW FROM EAST DRIVE

EXISTING DRIVE

EXISTING DRIVE SHOWING PROPOSED DETACHED GARAGE

Sheet No.
A9.4

Drawn By:
Scale:
Date:
Issued For:
Revised:

Project Name
Sleight Residence
612 E. Woodland Rd., Lake Forest, IL

Project Number
2021-0001

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312.663.0222

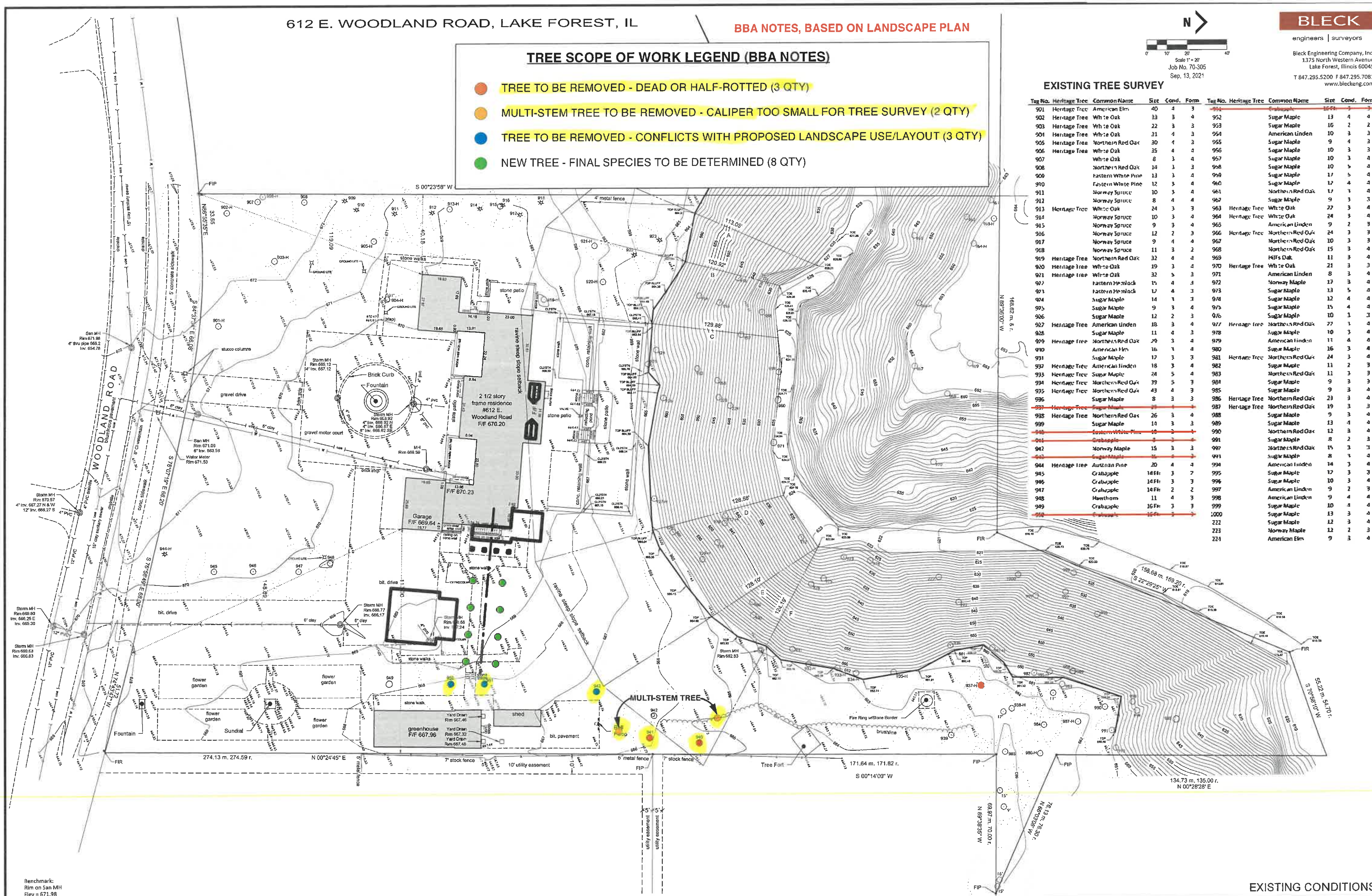
TREE REMOVAL PLAN

612 E. WOODLAND ROAD, LAKE FOREST, IL

BBA NOTES, BASED ON LANDSCAPE PLAN

TREE SCOPE OF WORK LEGEND (BBA NOTES)

- TREE TO BE REMOVED - DEAD OR HALF-ROTTED (3 QTY)
- MULTI-STEM TREE TO BE REMOVED - CALIPER TOO SMALL FOR TREE SURVEY (2 QTY)
- TREE TO BE REMOVED - CONFLICTS WITH PROPOSED LANDSCAPE USE/LAYOUT (3 QTY)
- NEW TREE - FINAL SPECIES TO BE DETERMINED (8 QTY)



BLECK
engineers | surveyors
Bleck Engineering Company, Inc.
1375 North Western Avenue
Lake Forest, Illinois 60045
T 847.295.5200 F 847.295.7081
www.bleckeng.com

Scale 1" = 20'
Job No. 70-305
Sep. 13, 2021

EXISTING TREE SURVEY

Tag No.	Heritage Tree	Common Name	Size	Cond.	Form
901	Heritage Tree	American Elm	40	4	3
902	Heritage Tree	White Oak	33	3	4
903	Heritage Tree	White Oak	22	3	3
904	Heritage Tree	White Oak	31	4	3
905	Heritage Tree	Northern Red Oak	30	4	3
906	Heritage Tree	White Oak	35	4	4
907		White Oak	8	3	4
908		Northern Red Oak	14	3	3
909		Eastern White Pine	13	3	4
910		Eastern White Pine	12	3	4
911		Norway Spruce	10	3	4
912		Norway Spruce	8	4	4
913	Heritage Tree	White Oak	24	3	3
914		Norway Spruce	10	3	4
915		Norway Spruce	9	3	4
916		Norway Spruce	12	2	3
917		Norway Spruce	9	4	4
918		Norway Spruce	11	3	2
919	Heritage Tree	Northern Red Oak	32	4	4
920	Heritage Tree	White Oak	19	3	4
921	Heritage Tree	White Oak	32	5	3
922		Eastern Hemlock	15	4	4
923		Eastern Hemlock	17	4	3
924		Sugar Maple	14	3	3
925		Sugar Maple	9	3	4
926		Sugar Maple	12	2	3
927	Heritage Tree	American Linden	18	3	4
928		Sugar Maple	11	4	3
929	Heritage Tree	Northern Red Oak	29	3	4
930		American Elm	16	3	4
931		Sugar Maple	17	3	3
932	Heritage Tree	American Linden	18	3	4
933	Heritage Tree	Sugar Maple	24	5	4
934	Heritage Tree	Northern Red Oak	39	5	3
935	Heritage Tree	Northern Red Oak	43	4	3
936		Sugar Maple	8	3	3
~~937~~	~~Heritage Tree~~	~~Sugar Maple~~	~~[illegible]~~	~~3~~	~~3~~
938	Heritage Tree	Northern Red Oak	26	3	4
939		Sugar Maple	14	3	3
~~940~~		~~Eastern White Pine~~	~~10~~	~~3~~	~~4~~
~~941~~		~~Crabapple~~	~~8~~	~~3~~	~~4~~
942		Norway Maple	15	3	3
~~943~~		~~Sugar Maple~~	~~[illegible]~~	~~4~~	~~3~~
944	Heritage Tree	Austrian Pine	20	4	4
945		Crabapple	14Fe	3	7
946		Crabapple	14Fe	3	3
947		Crabapple	14Fe	2	2
948		Hawthorn	11	4	3
949		Crabapple	16Fe	3	3
~~950~~		~~Crabapple~~	~~16Fe~~	~~3~~	~~3~~
~~951~~		~~Crabapple~~	~~16Fe~~	~~3~~	~~3~~
952		Sugar Maple	13	4	4
953		Sugar Maple	16	2	2
954		American Linden	10	3	3
955		Sugar Maple	9	4	3
956		Sugar Maple	10	3	3
957		Sugar Maple	10	3	4
958		Sugar Maple	10	5	4
959		Sugar Maple	17	5	4
960		Sugar Maple	12	4	4
961		Northern Red Oak	17	3	4
962		Sugar Maple	9	3	3
963	Heritage Tree	White Oak	22	3	4
964	Heritage Tree	White Oak	24	3	4
965		American Linden	9	2	3
966	Heritage Tree	Northern Red Oak	24	3	3
967		Northern Red Oak	10	3	3
968		Northern Red Oak	15	3	4
969		Hill's Oak	11	3	4
970	Heritage Tree	White Oak	21	3	3
971		American Linden	8	3	4
972		Norway Maple	17	3	4
973		Sugar Maple	13	5	4
974		Sugar Maple	12	4	4
975		Sugar Maple	15	4	4
976		Sugar Maple	10	3	3
977	Heritage Tree	Northern Red Oak	27	3	4
978		Sugar Maple	10	3	4
979		American Linden	11	4	4
980		Sugar Maple	16	3	4
981	Heritage Tree	Northern Red Oak	24	3	4
982		Sugar Maple	11	2	3
983		Northern Red Oak	11	3	3
984		Sugar Maple	9	3	3
985		Sugar Maple	9	3	4
986	Heritage Tree	Northern Red Oak	23	3	4
987	Heritage Tree	Northern Red Oak	19	3	3
988		Sugar Maple	9	3	4
989		Sugar Maple	13	4	4
990		Northern Red Oak	12	3	4
991		Sugar Maple	8	2	3
992		Northern Red Oak	15	3	3
993		Sugar Maple	8	3	4
994		American Linden	14	3	4
995		Sugar Maple	12	3	3
996		Sugar Maple	10	3	4
997		American Linden	9	2	3
998		American Linden	9	4	4
999		Sugar Maple	10	4	4
1000		Sugar Maple	13	3	4
222		Sugar Maple	12	3	4
223		Norway Maple	12	2	3
224		American Elm	9	3	4

CONCEPTUAL HARDSCAPE AND LANDSCAPE PLAN

culliton | quinn
landscape architecture workshop
1239 west cortland street, chicago, illinois 60614
office: 773.687.9494 cullitonquinn.com

sleight residence

612 east woodland road, lake forest, illinois 60645

date:
february 7, 2022

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

master
concept

Agenda Item 6
650 Lake Road - Demolition & Replacement Residence

- Staff Report
- Building Scale Summary
- Vicinity Map
- Air Photos

Background Materials Provided by Staff

- Previous Staff Report – October 28, 2021
- Previous Certificate of Appropriateness

Materials Submitted by Petitioner

- Application
- Statement of Intent
- Description of Exterior Materials
- Site Plan – Overlay of Existing and Proposed
- East Elevation
  - Existing Elevation
  - Proposed Elevation
  - Elevation Overlay
- South Elevation
  - Existing Elevation
  - Proposed Elevation
  - Elevation Overlay
- West Elevation
  - Existing Elevation
  - Proposed Elevation
  - Elevation Overlay
- North Elevation
  - Existing Elevation
  - Proposed Elevation
  - Elevation Overlay
- Existing and Proposed Streetscape Elevation
- Proposed Roof Plan
- Proposed Building Section
- Color Renderings
- Material and Detailing Precedent Images
- Existing and Proposed Floorplans
- Conceptual Landscape Plan
- Images of Existing Residence and Surrounding Neighborhood

Consultant Reports

- Historic Resource Evaluation
- Existing Conditions Report and Rehabilitation Analysis
- Environmental Reports (Data Provided Digitally)
- Structural Engineer Reports

THE CITY OF
LAKE FOREST
CHARTERED 1861

STAFF REPORT AND RECOMMENDATION

TO:	Chairman Grinnell and Members of the Historic Preservation Commission
DATE:	February 23, 2022
FROM:	Jennifer Baehr, Planner
SUBJECT:	**650 Lake Road – Demolition and Replacement Residence**

PROPERTY OWNER
Stephanie Burke
401 E. Center Avenue
Lake Bluff, IL 60044

PROPERTY LOCATION
650 Lake Road

HISTORIC DISTRICTS
East Lake Forest Local &
National Register Historic District

PROJECT REPRESENTATIVE
Diana Melichar, architect
207 E. Westminster
Lake Forest, IL 60045

SUMMARY OF THE PETITION AND BACKGROUND

The petitioner is requesting a Certificate of Appropriateness to authorize the demolition of the existing residence and detached garage and construction of a replacement residence.

The property owner purchased the property in May 2019 with the intent to renovate the residence. The property owner engaged an architect after purchasing the home and began design studies and met with City staff to discuss the renovation of the home. During this time, the property owner also retained an environmental consultant to complete a test for environmental toxins. The environmental testing determined that the home contained toxic mold and the consultant's report concluded that "the only solution to use the property for habitability, would be to demolish the existing structure and rebuild a new structure". The property owner also engaged a structural engineer to complete an initial structural review of the existing home. The structural report identified several deficiencies that require attention and remediation prior to the occupancy of the residence. Based on the environmental and structural conditions of the existing home identified by the consultants, the property owner made the decision to pursue demolition of the home and build a replacement residence.

The property owner retained Melichar Architects to design the replacement structure and met with City staff during the preliminary design stage. City staff engaged a second, independent environmental consultant, at the cost of the petitioner, to review and opine on the initial report. Concurrently, staff advised the petitioner that an Historic Assessment of the structure was also needed. The second environmental report confirmed the presence of mold and recommended mold remediation, as opposed to demolition. The Historic Assessment identified the house as having historical significance. Based on the additional information and opinions in these two reports, the property owner returned to the original intent of renovating the home and worked with Melichar Architects to develop design concepts for additions and alterations to the residence.

In October 2021, plans for additions and alterations to the home, including a request for a building scale variance, were presented and approved by the Commission. After approval from the Commission, the petitioner submitted plans for mold remediation and plaster removal to allow for the investigative work needed to finalize the construction plans for the additions and alterations as approved by the Commission. A permit was issued to allow the remediation and plaster removal for investigative purposes. All work to date has proceeded in accordance with the permits issued to date.

In the course of this work, the building structure was exposed and numerous and significant structural concerns came to light. After consultation with City staff, additional consultants were brought on to the site by the petition to analyze the situation and identify reasonable options for moving forward. Based on the conclusions of several experts, it was determined that extraordinarily extensive reconstruction is necessary to make the home structurally sound and habitable. Although several of the consultants routinely and successfully work on restoration of historic homes, the conditions in this home, as described to staff are "the worst" they have encountered. Based on the additional information available to the property owner since last appearing before the Commission, and based on the additional consultants' reports, the property owner is now requesting the approval of the complete demolition of the existing residence and approval of a replacement structure.

The petitioner's statement of intent provides more background and a detailed timeline. The petitioner provided copies of the environmental and structural reports which all have been made available to the Commission.

As noted above, the petitioner engaged a consultant, Guarino Historic Resources Documentation, to prepare a Historic Resource Evaluation. This report is included in the Commission's packet and provides a detailed history of the property, the original owners and architect. The information in the Historic Resource Evaluation is not repeated in this staff report. If the demolition is approved, the report will be retained in the City's archives as documentation of the history of the property and a copy will be provided to the History Center.

DESCRIPTION OF PROPERTY AND SURROUNDING AREA

The property is identified as a significant Contributing Structure within the Historic District. This property is approximately 1.26 acres in size and is located on the west side of Lake Road, just south of Spring Lane. The house was constructed in 1926 and designed by Walter Frazier in a Colonial Revival architectural style. The home is two-stories and is comprised of a central main mass with wings on the north and south ends. A two-story detached garage is located on the north side of the property. The primary façade material is brick with wood clapboard on the gabled wings and a cedar shingle roof.

The residence directly to the north was constructed in 2018 after approval of a demolition. The house is designed in the Georgian style and has a strong presence on the corner of Lake Road and Spring Lane. This residence aligns with the open area of Forest Park, as opposed to the wooded area like the property in this petition.

The residence directly to the south is oriented away from the street with a north facing façade. Although large and prominent, this residence does not have a strong presence from the streetscape. A masonry wall and coach house establish the street presence of this property, a subtle back drop to the wood land across the street.

DEMOLITION

Based on the information provided in the Historic Resource Evaluation, environmental and structural reports and the statement provided by the petitioner, a review of the demolition criteria is provided below. This is a difficult petition. The petitioner has expended significant time and money diligently exploring options for the property. This is a property that ideally should be preserved and restored as an important structure in the Historic District. However, this petition presents the Commission with a difficult challenge, balancing various interests; recognizing the efforts by the petitioner to rehabilitate the home, the facts uncovered about the existing structure, the analysis and opinions of various consultants and the role the home plans in the Historic District.

The Commission must decide based on the preponderance of the evidence whether or not demolition is justified and reasonable given the unique circumstances of this petition.

Demolition Criteria 1 -- Whether the property, structure or object is of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare of the people of the city and the state.

This residence is identified as a Contributing Structure to the Historic District. The Contributing Structure designation does not prohibit demolition but is an indication that a careful review and evaluation is necessary and that if in fact demolition is approved, the house should be well documented with photos and a narrative which will be retained in the City's files and provided to the History Center.

As stated in the Historic Resource Evaluation, the residence possesses architectural significance as a work by Walter Frazier, a notable residential architect in the community. The Historic Resource Evaluation states that the home displays a restrained example of the Colonial Revival style and displays many of its characteristic features.

The Historic Resource Evaluation also states that the residence possesses national historic significance as the former residence of Ralph A. Bard, a Chicago financier appointed by President Franklin D. Roosevelt as Assistant Secretary of the Navy and later as Under Secretary of the Navy during World War II. The home was also the residence of Jon Henricks, a native Australian and world champion swimmer who competed in the 1956 Olympic Games.

Demolition Criteria 2 -- Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole and should be preserved for the benefit of the people of the city and the state.

The residence is identified as a Contributing Structure to the Historic District. As a result of the Contributing Structure designation, thorough due diligence is necessary in considering the present request. The period of study for this petition extended over many months and involved numerous independent consultants, historical research, and consideration and pursuit of alternatives to demolition. The Historic Resource Evaluation identifies this residence as architecturally and historically significant given the prominence of the original architect and previous owners.

The existing residence contributes to the character of the Historic District by sitting quietly near the south end of Lake Road, fronting on the woodland area of Forest Park. The existing residence does not call undue attention to itself but instead allows the wooded character of Lake Road in this area to dominate.

Demolition Criteria 3 -- Whether demolition of the property, structure or object would be contrary to the purpose and intent of this Chapter and to the objectives of the historic preservation for the applicable District.

Based on the information provided in the Historic Resource Evaluation report, the residence presents a high level of architectural integrity, from an appearance standpoint, but not a high level of integrity from a structural standpoint. The residence as it exists today is virtually unchanged from its original appearance, with the exception of the porch addition on the west side of the home originally built in 1936 and later enclosed in 1976, and construction of a bay window on the south elevation in 1946.

The various reports provided by the petitioner's consultants identify many serious fundamental deficiencies and areas of deterioration. The source of many of the structural deficiencies and areas of deterioration originate with inadequacies in the building's original construction and it is evident based on the photos and reports submitted that there have been attempts over the years to compensate for the inadequacies. The reports conclude that the structural deficiencies in the residence are significant and must be fully addressed to make the house safe and to comply with present day Codes which now come into play given the extent of work that would be required to essentially rebuild the structure. Based on the reports provided, it appears that the existing residence will need to be demolished with extensive interior and exterior materials removed and replaced. The end product, after extensive work, is likely to be compromised due to the extensive corrective action that will be required.

Demolition Criteria 4 -- Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.

The residence was constructed in 1926 and is not of such old, unusual, or uncommon design, texture, or material that it could not be reproduced without great difficulty or expense. The residence, style and character, could be replicated.

Demolition Criteria 5 -- Except in cases where the owner has no plans for a period of up to five years to replace an existing Landmark or property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.

Concurrent with this request for approval of demolition, plans for a replacement residence are presented to the Commission for consideration.

Staff encouraged the petitioner to come forward first for preliminary Commission discussion and evaluation of the demolition request with the understanding that if there appears to be support for the demolition, the petition would need to return to the Commission as a comprehensive request for approval of demolition and the replacement structure. In an effort to provide the Commission with a comprehensive understanding of the full project as now proposed by the petitioner, plans for a replacement residence were developed and are presented along with the demolition request for consideration at this time. The threshold issue for the Commission remains the question of demolition.

REPLACEMENT STRUCTURE

The replacement residence is located generally in the area of the existing residence but is shifted slightly south in order to comply with current zoning setbacks. The existing residence is nonconforming to today's setbacks and is therefore "grandfathered" due to construction prior to current Code requirements. The petitioner provided a site plan overlay that reflects the footprint of the existing home and proposed replacement residence.

The curb cut on the south side of the site and a large portion of the existing driveway in the front yard will be removed. The curb cut and a portion of the existing driveway on the north side of the site will remain. Stone walls and piers are proposed where the driveway transitions to the garage and service area. A new bluestone walkway is proposed from the driveway to the front entrance. In the front yard, two terraces are proposed on the north and south sides of the home. A terrace and spa are proposed in the rear yard.

Based on information submitted by the petitioner, the amount of impervious surface on the site will decrease from coverage of 19.4 percent to 18.6 percent. The proposed building footprint totals 4,333 square feet. Paved surfaces including the driveway, terraces, walkways, and landscape walls, total 5,979 square feet.

The proposed replacement residence is designed in the Georgian architectural style that is inspired by architect Stanley Anderson's work. The style of the home is compatible with the many homes in the Historic District that reflect strong, simple forms, with a clear hierarchy of massing and elegant detailing. The replacement residence is comprised of a primary two-story mass with an attached single story garage on the north side and single story great room and sunroom on the rear of the home.

The proposed replacement residence calls much more attention to itself than the existing residence. The proposed residence is more likely to dominate the streetscape along the south end of Lake Road, detracting somewhat from the wooded character as one approaches the south beach access road. The proposed replacement residence is not designed with a nod to the character of the existing residence. Commission input on whether or not this is an important distinction is requested depending on the Commission's position on the threshold issue, the demolition request.

Findings
A staff review of the Historic Preservation standards in the City Code is provided below. As appropriate, findings in response to the standards are offered for the Commission's consideration.

Standard 1 – Height.
This standard is met. The height of the main mass of the replacement residence is 34'-3" from the lowest point of existing grade and is below the maximum height of 40 feet permitted for a lot of this size. The height of the proposed residence is compatible with the surrounding homes, most of which are two and two-and-a-half stories tall. The petitioner provided a streetscape elevation that reflects the height of the proposed replacement residence in relation to the homes to the north.

The existing house is approximately 31 feet in height at the highest point of the main mass.

Standard 2 – Proportion of Front Façade.
This standard is met. The front of the house is oriented toward Lake Road. The front façade is symmetrical, with the main mass of the home flanked by two smaller masses on the north and south ends. The front façade presents a centered pediment, portico and bay windows, elements that enhance the appearance of the home and provide a human scale along the streetscape.

Standard 3 – Proportion of Openings.
This standard is generally met. The proposed openings are evenly spaced on the elevations and aligned and centered between the first and second floors to present a regular fenestration pattern. Most of the proposed openings are double hung windows with a traditional 6 over 6 muntin pattern, consistent with the Georgian style of the home. The front elevation presents openings with consistent proportions, different size and shape windows are proposed on the side and rear elevations with varying muntin patterns.

- Staff recommends refinement of the proportions of the openings on the side and rear elevations to more closely align with the openings on the front elevation.

Standard 4 – Rhythm of Solids to Voids.
This standard is met. There is mostly a consistent rhythm of solids to voids on the elevations. The west elevation of the home presents larger areas of openings to take advantage of views across the site and to bring more natural light into the home.

Standard 5 – Spacing on the Street.
This standard is met. The proposed replacement residence is sited generally in the same location as the existing residence, so the spacing of structures along the street will not significantly change.

Standard 6 – Rhythm of Entrance Porches.
This standard is met. The front entrance is centered on the main mass of the home. The entrance is designed with a curved portico, a single solid door with a transom and sidelights.

Standard 7 – Relationship of Materials and Texture.
This standard is met. High quality, natural materials are proposed for the residence. The exterior walls are stone. Slate tile is proposed for the roof. Aluminum clad wood windows with interior and exterior muntin bars are proposed. Limestone is proposed for window trim. Wood door trim, fascia and soffits are proposed. Stucco is proposed around the arched windows on the front elevation. Stone chimneys are proposed. The gutters and downspouts are copper.

Hardscape on the site includes an asphalt driveway, a crushed stone parking area and bluestone walkways and terraces.

Standard 8 – Roof Shapes.
This standard is met. The residence presents simple roof lines. The home has mostly steeply pitched hip roof forms with lower pitched roof forms on the single-story elements on the north and rear elevations.

Standard 9 – Walls of Continuity.
This standard is generally met. The architectural style, massing, scale, and level of detailing are consistent on all elevations of the house. As recommended above, refinement of the proportions of the openings on the side and rear elevations to more closely align with the openings on the front elevation will help to support the appearance of continuity across all elevations of the home.

Standard 10 – Scale.
This standard is met. The replacement residence as presented complies with the building scale requirements. Based on the lot size, a residence of up to 6,226 square feet is permitted on the site. In addition, a garage of up to 800 square feet is permitted along with up to 623 square feet of design elements. The proposed house totals 6,113 square feet. The garage is 851 square feet, and the excess square footage of the garage is counted toward the overall square footage of the house. There are 47 square feet of design elements. In total, the square footage of the home is 6,164 square feet and is below the maximum allowable square footage by 62 square feet.

The proposed residence may visually appear larger and more dominant than the existing residence due to the architectural style, massing, roof forms and materials.

Standard 11 – Directional Expression of Front Elevation.
This standard is met. The front of the house is oriented to face east, toward the street, like many of the surrounding homes with the exception of the home to the south.

Standard 12 – Preservation of Historic Material.
This standard is not met. The petitioner proposes to demolish the existing house.

Standard 13 – Protection of Natural Resources.
This standard is met. Because the replacement structure is proposed generally in the same area as the existing residence and the driveway approach remains in the same location, it is the intent of the petitioner that no trees will be threatened with construction of the replacement residence.

The landscape plan submitted by the petitioner reflects a variety of deciduous, evergreen and ornamental trees across the site including Maple, Beech, Birch, Dogwood, Cherry, Hawthorn, Honeylocust, Serviceberry, Pine, Hemlock and Spruce trees. Shrub and ornamental plantings are proposed around the foundation of the home. To soften the impact of the residence on the streetscape and to maintain the wooded character of this portion of Lake Road, consideration should be given to the addition of trees in the front yard that will over time, mature and provide a canopy.

Standard 14 – Compatibility.
This standard is met. The scale, height, high quality materials, and architectural detailing of the replacement residence are compatible with the surrounding neighborhood.

Standard 15 – Repair to deteriorated features.
This standard is not applicable to this request. The existing residence is proposed for demolition.

Standard 16 – Surface cleaning.
This standard is not applicable to this request. The existing residence is proposed for demolition.

Standard 17 – Integrity of historic property.
This standard is not applicable to this request. As proposed, the existing residence will be demolished. The structure has been photo-documented and an historic assessment completed. This information will be retained in the City's files and shared with the History Center.

The proposed residence reflects a traditional architectural style, simple massing and roof forms, and high quality natural materials, consistent with the character and integrity of the Historic District overall.

PUBLIC COMMENT

Public notice of this petition was provided in accordance with City requirements and practices. Notice was mailed by the Community Development Department to surrounding property owners and residents and the agenda for this meeting was posted at various public locations and on the City's website. As of the date of this writing, no correspondence was received regarding this request.

RECOMMENDATION

Recognizing that the demolition is the threshold issue, staff recommends that the Commission first deliberate and come to a conclusion on the demolition. If the Commission is supportive of the demolition, discussion and ultimately a motion and vote on the complete petition, demolition and replacement residence should proceed.

Demolition Recommendation: Based on the extensive investigative work completed to date, the consultants engaged, reports produced, and the information presented about structural deficiencies resulting from the original construction, indicate support for the demolition subject to approval of a replacement residence.

- If the Commission is not supportive of the demolition based on the facts presented, is there additional information or due diligence desired by the Commission?

- If the Commission choses to deny the demolition, the Commission should clearly articulate the findings supporting that decision, based on the demolition criteria, in a motion.

- If the Commission is inclined to support the demolition request, consideration of the replacement residence should proceed.

Replacement Residence Recommendation: If there is Commission support for the demolition, provide input on the proposed replacement residence.

- Is the proposed architectural style and overall character of the proposed residence appropriate for a replacement residence on this site recognizing the style, character and materials of the existing residence.

Options for Action:

- ➢ Continue the petition with clear direction on the demolition and if appropriate, requests for any additional information. Continue consideration of the replacement residence with direction. OR

- Deny the demolition request. (This action will end consideration of this petition and no consideration of the replacement residence is necessary.) OR
- Grant a Certificate of Appropriateness approving the demolition and replacement residence based on the findings detailed in the staff report and on the findings as further articulated and detailed by the Commission subject to the following conditions of approval.

1. Refine the proportions of the openings on the side and rear elevations to more closely align with the openings on the front elevation.

2. Plans submitted for permit must reflect the project as presented to the Commission with the refinements as directed above. Any refinements made in response to direction from the Commission, or as the result of final design development, shall be clearly called out on the plan and a copy of the plan originally provided to the Commission shall be attached for comparison purposes. Staff is directed to review any changes, in consultation with the Chairman as appropriate, to determine whether the modifications are in conformance with the Commission's direction and approval prior to the issuance of any permits.

3. Prior to the issuance of a building permit, a plan to protect trees and vegetation on and off the site and trees and vegetation identified for preservation during construction must be submitted and will be subject to review and approval by the City's Certified Arborist. Plans for any pre and post construction treatments should be described in the submittal.

4. Prior to the issuance of a building permit, a detailed, landscape plan shall be submitted and will be subject to review and approval by the City's Certified Arborist. In particular, the landscape plan shall provide for significant landscaping in the front yard to, over time, soften the impact of the new residence on the streetscape and to align with the wooded character of the streetscape on the east side of the street.

   If during construction, trees identified for preservation on the site are compromised in the opinion of the City's Certified Arborist, replacement inches or payment in lieu of on site planting may be required.

5. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels*, shall direct light down and the source of the light shall be fully shielded from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights. All exterior lighting shall be sensitive to the impacts on the public park and the wood land across the street and the dark sky character of the neighborhood.

6. Prior to the issuance of a building permit, a materials staging and construction vehicle parking plan must be submitted to the City for review and will be subject to City approval in an effort to minimize and manage impacts on the neighborhood, neighboring properties and existing trees and landscaping during construction. No parking of construction vehicles or contractor vehicles is permitted on Lake Road. Off site parking may be required with contractors shuttled to the site.

THE CITY OF LAKE FOREST BUILDING REVIEW BOARD -- BUILDING SCALE INFORMATION SHEET

Address	**650 Lake Road**	Owner(s)	**Stephanie Burke**
Architect	**Diana Melichar, architect**	Reviewed by:	Jen Baehr
Date	**2/23/2022**		

Lot Area **55321** sq. ft.

1st floor **3221** + 2nd floor **2486** + 3rd floor **406** = **6113** sq. ft.

Design Element Allowance = **623** sq. ft.

Total Proposed Design Elements = **47** sq. ft. *Excess* = **0** sq.ft.

Garage **851** sf actual ; **800** sf allowance = **51** sq. ft.

Garage Width **23'-2"** ft. *may not exceed 24' in width on lots 18,900 sf or less in size.*

Basement Area = **0** sq. ft.

Accessory buildings = **0** sq. ft.

TOTAL SQUARE FOOTAGE = **6164** sq. ft.

TOTAL SQUARE FOOTAGE ALLOWED = **6226** sq. ft.

DIFFERENTIAL = **62** sq. ft.
Under Maximum

NET RESULT:
62 sq. ft. is
0.98% under the Max. allowed

Allowable Height: **40** ft. Actual Height 35'-3"

DESIGN ELEMENT EXEMPTIONS

Design Element Allowance: **623** sq. ft.

Front & Side Porches =	**0**	sq. ft.
Rear & Side Screen Porches =	**0**	sq. ft.
Covered Entries =	**47**	sq. ft.
Portico =	**0**	sq. ft.
Porte-Cochere =	**0**	sq. ft.
Breezeway =	**0**	sq. ft.
Pergolas =	**0**	sq. ft.
Individual Dormers =	**0**	sq. ft.
Bay Windows =	**0**	sq. ft.

Total Actual Design Elements = **47** sq. ft. **Excess Design Elements =** **0** sq. ft.

Area of Request
650 Lake Road
E DEERPATH
SPRING LN
N MAYFLOWER RD
LAKE RD
FOREST PARK DR
CAMPUS CIR
840
830
810
801
800
701
900
920
940
970
763
915
965
780
700
721
730
710
701
704
681
1010
1015
985
676
650
640
620
600
969
610-620
601
901
540
555
547
528
549
490
545
531-539
464
930
501
11
12
15


Area of Request
650 Lake Road


Area of Request
650 Lake Road

BACKGROUND MATERIALS PROVIDED BY STAFF

THE CITY OF
LAKE FOREST
CHARTERED 1861

STAFF REPORT AND RECOMMENDATION

TO:	Members of the Historic Preservation Commission
DATE:	October 28, 2021
FROM:	Jennifer Baehr, Planner
SUBJECT:	**650 Lake Road – Partial Demolition, Additions, Exterior Alterations and a Building Scale Variance**

PROPERTY OWNER
Stephanie Burke
401 E. Center Avenue
Lake Bluff, IL 60044

PROPERTY LOCATION
650 Lake Road

HISTORIC DISTRICTS
East Lake Forest Local &
National Register Historic District

PROJECT REPRESENTATIVE
Diana Melichar, architect
207 E. Westminster
Lake Forest, IL 60045

SUMMARY OF THE PETITION
The petitioner is requesting a Certificate of Appropriateness to allow removal of the existing sunroom on the rear of the home, construction of additions on the rear of the home and exterior alterations to the existing residence and coach house. A building scale variance is also requested. Various site and hardscape alterations are proposed.

On the first floor, the additions will accommodate a new dining area off of the kitchen, a sunroom and a mudroom that connects the main house to the detached garage on the north side of the property. On the second floor, the additions will house a new bedroom and a sitting area off of the master suite.

As described in the petitioner's statement of intent, the property owner previously considered demolition of the home, but after study and discussions with staff, the owner ultimately decided to address existing conditions in the residence, renovate and add to the residence to meet the needs of the owner. Only demolition of the sunroom on the rear of the home is proposed as part of the current request, no other demolition is proposed.

DESCRIPTION OF PROPERTY AND SURROUNDING AREA
The property is identified as a significant Contributing Structure within the Historic District. This property is approximately 1.26 acres in size and is located on the west side of Lake Road, just south of Spring Lane. The house was constructed in 1930 and designed by Walter Frazier in a Colonial Revival architectural style. The primary façade material is brick with wood clapboard on the gabled wings and a cedar shingle roof.

STAFF EVALUATION

The statement of intent and supporting materials submitted by the petitioner are included in the Commissioners' packets and provide detailed information. A summary of the project based on the information provided by the petitioner is presented below.

Main Residence

Proposed Additions and Demolition

The petitioner is proposing to reconfigure many of the existing interior spaces. The existing single car garage and mudroom on the northeast side of the home will be converted into an office. A new single car garage is proposed where the existing pantry and kitchen are located on the north side of the house. The proposed additions are located on the rear of the house. The additions will be almost entirely tucked behind the mass of the main house and not visible from the street with the exception of a portion of the mudroom addition on the north side of the home which will be visible from the streetscape.

The additions reflect steeply pitched gable roof forms to match the roof forms on the existing home. A low-slope roof is proposed between the gable roof forms to avoid interfering with the existing windows on the second floor. The proposed additions will consist of materials that match the existing house, including wood clapboard siding and brick on the exterior walls, and cedar shingle roofing.

The proposed additions will require removal of an existing sunroom on the rear of the house. City records indicate that the existing sunroom was originally built as an open porch in 1936. The existing sunroom is significantly different in appearance from the main residence. The sunroom has a stone façade with a series of sliding glass doors surrounded by iron posts and arches.

Demolition

The sunroom on the rear of the home totals 10% percent of the total square footage of the existing residence. The City Code defines a full demolition as more than 50 percent of the total structure; therefore demolition of the sunroom is considered a **partial demolition**. A review of the standards for demolition is provided below to address the proposed removal of the sunroom.

Demolition Criteria 1 -- Whether the property, structure or object is of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare of the people of the city and the state.

The existing sunroom does not have historic, cultural, or architectural significance. The sunroom is not original to the house and has been altered since its initial construction.

Demolition Criteria 2 -- Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole and should be preserved for the benefit of the people of the city and the state.

The sunroom does not contribute any distinctive character to the original historic residence or to the District. The existing sunroom is not visible from the streetscape.

Demolition Criteria 3 -- Whether demolition of the property, structure or object would be contrary to the purpose and intent of this Chapter and to the objectives of the historic preservation for the applicable District.
The removal of the sunroom is not contrary to the purpose and intent of the Preservation Chapter of the Lake Forest Code as it does not have special historical or architectural interest.

Demolition Criteria 4 -- Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.
The sunroom is not of such old, unusual, or uncommon design, texture, or material that it could not be reproduced without great difficulty or expense. The sunroom structure was constructed in 1936 and enclosed at a later date and is not unique in design or construction.

Demolition Criteria 5 -- Except in cases where the owner has no plans for a period of up to five years to replace an existing Landmark or property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.
Only a partial demolition is proposed. Additions and alterations are proposed to the existing residence and are subject to review and approval by the Commission.

Exterior Alterations
East (Front) Elevation
Minor alterations are proposed to the front (east) façade of the existing residence. The existing front door will be replaced with a new front door with glass as shown in the proposed front elevation included in the Commission's packet. New lantern type light fixtures are proposed on either side of the front door. A new window opening is proposed on the north side of the front façade where there is currently a large expanse of solid brick wall. The new window opening will have louvered shutters to match the existing openings on the front elevation.

North Elevation
The existing arched garage door will be removed and reused for the new single car garage located generally at the center of the north elevation. The existing bay window will be removed to accommodate the relocated garage. A new window opening is proposed in the location of the existing garage door. The existing side entry door will be removed and a new covered side entry is proposed off of the mudroom addition. The large louvered vents on the gable end will be removed.

West (Rear) Elevation
On the south end of the west elevation, the window sills will be lowered at the openings on either side of the chimney to increase the size of the windows. Shutters will be added to the double hung windows on the second floor at the south end of the home. A skylight is proposed to bring light into the stairwell below.

South Elevation (near front door – south wall of existing single car garage)
The service door into the existing garage will be replaced with a window opening and a new French door is proposed on the east portion of the south elevation. An existing single window opening on the second floor will be replaced with a new double window opening.

On the south elevation of the main house structure, louvered shutters will be added to all openings along the elevation.

Detached Garage/Coach House

Alterations

There are two single, hipped dormers on the west facing, rear elevation of the existing two car garage/coach house. The petitioner proposes to infill between the existing dormers to allow for more living space, with more headroom, on the second level of the garage. The proposed enlarged dormer will have wood siding that matches the siding on the main house and garage. The two existing overhead garage doors on the east elevation are proposed to be replaced with new painted wood garage doors.

Overall

Exterior Alterations

All of the windows on both the main residence and detached garage/coach house are proposed to be replaced with aluminum clad wood windows. The many layers of paint on the exterior brick will be removed and a lime wash finish will be applied. The copper gutters and flashing on the main home will be repaired and new copper gutters will be installed on the garage/coach house to match the home. The existing chimneys will be raised to meet Code requirements.

Site Plan

The curb cut on the south side of the site and a large portion of the existing driveway in the front yard will be removed. The existing patio on the west side of the home and the exterior stair to the basement on the north side of the house will be removed. New stone terraces are proposed on the east and west sides of the home. An outdoor fireplace and spa are proposed on the north end of the terrace on the west side of the home. The existing wood fence located at the front of the house will be removed and replaced with a new wood fence that will align with the east wall of the north wing of the home. The existing stone retaining wall on the south side of the house will be removed and replaced with new low stone retaining walls that align with the east and west walls of the home.

Findings

A staff review of the Historic Preservation standards in the City Code is provided below. As appropriate, findings in response to the standards are offered for the Commission's consideration.

Standard 1 - Height:

This standard is met. The proposed rear additions are designed to be lower in height than the existing home to allow the additions to be subordinate to the historic residence. As measured from the lowest point of existing grade adjacent to the home to the tallest roof peak, the addition is 25 feet and 7 inches. The existing residence is 30 feet and 8 inches tall. The height of the existing residence is not proposed to change.

Standard 2 – Proportion of Front Façade:

This standard is met. The proposed additions will not be visible from the front façade. The exterior alterations proposed to the front of the home are minimal and do not change the proportions of the front façade.

Standard 3 – Proportion of openings:

This standard is met. The existing home reflects double hung windows with varying muntin patterns. The replacement windows will be double hung windows that match the size and proportions of the existing windows. The new windows proposed on the additions are mostly double hung windows that match the proportions of the windows found on the existing home. The design of the new arched windows in the sunroom addition are influenced by the existing garage door on the north elevation of the home.

The windows in the proposed enlarged dormer on the rear elevation of the garage are consistent with the size and proportions of existing openings on the garage.

Standard 4 Rhythm of Solids to Voids:
This standard is generally met. There is a regular rhythm of solids to voids and the openings are evenly spaced and aligned between the first and second floors on the existing home. The proposed additions present large expanses of openings on the first floor to take advantage of views to the rear yard.

Standard 6 – Spacing on the Street:
This standard is met. As noted above, the proposed additions are almost entirely behind the existing residence with only a small portion of the mudroom addition extending beyond the mass of the existing home on the north side. Because the additions are located on the rear of the home, the spacing between structures along the street will not change.

Standard 6 – Rhythm of Entrance Porches:
This standard is not applicable to this petition. The location of the front entrance is not proposed to change.

Standard 7 – Relationship of Materials and Texture:
This standard is met. The proposed exterior materials on the additions will match the existing residence. The exterior walls of the additions will be brick with a lime wash finish. The gable roof forms on the additions will be cedar shingle and the low-slope roof at the center between the gable forms will be a modified bitumen roof. Aluminum clad windows with interior and exterior muntins are proposed. Trim, fascia, soffits, and rakeboards will be wood. Copper gutters and downspouts are proposed. The terraces will be bluestone.

Standard 8 – Roof Shapes:
This standard is met. The existing home has steeply pitched gable roof forms with a 12:12 pitch. The proposed additions also have steeply pitched gable roof forms with a 14:12 pitch. As noted above, the single-story addition between the sunroom and eating area additions will have a low-slope roof to avoid interfering with the existing second floor windows.

Standard 9 – Walls of continuity:
This standard is met. The proposed additions will support the continuity of the overall design of the home by incorporating elements found on the existing residence such as double hung windows, louvered shutters, brick exterior walls and brick soldier courses.

Standard 10 - Scale:
A building scale variance is requested.

- The allowable square footage based on the size of the property is 6,226 square feet. The existing residence totals 6,205 square feet and is below the allowable square footage for the property by 21 square feet. The total square footage of the existing residence that will remain after a portion of the existing residence is converted into garage space and the existing sunroom is demolished will be 5,119 square feet.

- A total of 800 square feet is allowed for a garage on this property. The existing detached garage/coach house and the proposed relocated single car garage together total 866 square feet. The garage overage of 66 square feet must be added to the total square footage of the residence.

- A total of 623 square feet of design elements is permitted for this property. The proposed covered side entry and dormers add a total of 35 square feet of design elements.

- The proposed first floor additions total 1,312 square feet. This includes the square footage of the existing single car garage that will be converted into an office. The new second floor area totals 299 square feet.

- In summary, the existing house with the proposed additions will total 6,796 square feet. The total square footage exceeds the allowable by 570 square feet. A building scale variance of 9 percent is requested.

Review of Building Scale Variance Standards

The City Code establishes standards that must be used in evaluating requests for a variance from the building scale provisions in the City Code. The Code requires that in order to grant a variance, *Standard 1 and at least one additional standard be met.* The Code does not require that all five standards be met. These standards recognize that each project is different as is the context of each site. A staff review of the standards is provided below.

Standard 1 -- The project is consistent with the design standards of the City Code. This standard is met. The Code and City's Design Guidelines encourage the use of design elements to bring human scale to projects and to avoid the appearance of oversized, out of scale, elements. In this case, the additions are designed in a manner that is subordinate to the existing residence and do not impact or alter the streetscape. The proposed exterior materials are compatible with the historic residence and consistent with the design guidelines.

Standard 2 -- Mature trees and other vegetation on the property effectively mitigate the appearance of excessive height and mass of the structure and as a result, the proposed development is in keeping with the streetscape and overall neighborhood. This standard is met. The additions are located on the rear elevation and will not be visible from the streetscape. The petitioner provided a detailed landscape plan that reflects new landscaping along the north, south and west property lines to mitigate the appearance of height and mass of the additions from neighboring properties.

Standard 3 -- New structures or additions are sited in a manner that minimizes the appearance of mass from the streetscape. In addition, the proposed structures or

additions will not have a significant negative impact on the light to and views from neighboring homes.
This standard is met. As noted above, the additions are located on the rear elevation and will not impact the appearance of mass as perceived from the streetscape. The additions are also lower in height than the existing residence and will not have an impact on light and views from neighboring homes.

Standard 4 -- The height and mass of the residence, garage, and accessory structures will generally be compatible with the height and mass of structures on adjacent lots, buildings on the street and on adjacent streets, and other residences and garages in the same subdivision.
This standard is met. The proposed height and mass of the residence is visually compatible with the height and mass of structures on adjacent lots. The surrounding neighborhood is comprised of many grand style homes that are two-and-a-half stories tall. The existing residence at its tallest point is 30 feet and 8 inches tall and has a two-and-a-half story massing. The building footprint of the residence as proposed is also comparable to the footprints of surrounding homes.

Standard 5 – The property is located in a local historic district or is designated as a Local Landmark and the approval of a variance would further the purpose of the ordinance.
This standard is met. The property is located in a local historic district. The residence is identified as a Contributing Structure to the District and in the past has been threatened with demolition.

Standard 6 -- The property is adjacent to land used and zoned as permanent open space, a Conservation Easement, or a detention pond and the structures are sited in a manner that allows the open area to mitigate the appearance of mass of the buildings from the streetscape and from neighboring properties.
The standard is not met. This property is located in an established, historic neighborhood. There is no permanently preserved open space located adjacent to this property.

In summary, the criteria for a building scale variance are satisfied as detailed in the findings presented above. The first standard and four additional standards are satisfied.

Standard 11 – Directional Expression of Front Elevation:
This standard is not applicable to this request. Only minimal changes are proposed to the front façade.

Standard 12 – Preservation of Historic Material:
This standard is met. The proposed additions and exterior alterations will not negatively impact the historic integrity and character of the home and do not result in the loss of any distinguishing original qualities of the property. The proposed alterations to the residence are in keeping with the character of the property and are sensitive to the historic residence.

Standard 13 – Preservation of natural resources:
This standard is met. The proposed additions and new hardscape will not require any tree removal. The landscape plan submitted by the petitioner reflects existing plantings that will remain and new plantings across the site. The proposed plantings include new deciduous and evergreen trees, understory plantings and shrubs around the home and terraces at the front and rear of the home.

Standard 14 – Compatibility:
This standard is met. The architectural style, scale, architectural detailing, and exterior materials of the additions are compatible with the existing residence.

Standard 15 – Repair to deteriorated features:
This standard is met. As work proceeds, repairs will be made to deteriorated features in kind with matching materials as needed.

Standard 16 – Surface cleaning:
This standard is met. The existing brick on the residence will be cleaned. The petitioner has indicated in the statement of intent that gentle and careful cleaning methods will be used.

Standard 17 – Integrity of historic property:
This standard is met. The proposed additions and alterations are in keeping with the overall character of the property and the surrounding neighborhood.

PUBLIC COMMENT

Public notice of this petition was provided in accordance with City requirements and practices. Notice was mailed by the Community Development Department to surrounding property owners and residents and the agenda for this meeting was posted at various public locations and on the City's website. As of the date of this writing, no correspondence was received regarding this request.

RECOMMENDATION

Grant a Certificate of Appropriateness for the proposed additions, the demolition of the sunroom on the rear of the home, the expansion of the dormer on the rear of the garage/coach house, exterior alterations, and a building scale variance, subject to the following conditions of approval.

1. Plans submitted for permit must reflect the project as presented to the Commission. If any modifications are proposed in response to Commission direction or as a result of design development, plans clearly detailing the areas of change must be submitted at the time of submission for permit, *along with* the plans originally presented to the Commission, and will be subject to review by staff, in consultation with the Chairman as appropriate, to verify that the plans are consistent with the intent of the Commission and the approvals granted.

2. Prior to the issuance of a building permit, a plan to protect trees and vegetation identified for preservation during construction must be submitted and will be subject to review and approval by the City's Certified Arborist.

3. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels*, shall direct light down and the source of the light shall be fully shielded

from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights.

4. Prior to the issuance of a building permit, a materials staging and construction vehicle parking plan must be submitted to the City for review and will be subject to City approval in an effort to minimize and manage impacts on the neighborhood, neighboring properties and existing trees and landscaping during construction.

THE CITY OF
LAKE FOREST
CHARTERED 1861

Certificate of Appropriateness
Pending City Council Approval

The City of Lake Forest Historic Preservation Commission voted to recommend approval of the following petition:

Petition Addresses:	650 Lake Road
Property Owner:	Stephanie Burke
Representative:	Diana Melichar, architect

Project Description:	Partial Demolition, Additions, Exterior Alterations, Building Scale Variance

The petition was approved based on the findings attached as Exhibit A and is subject to the following conditions of approval.

1. Plans submitted for permit must reflect the project as presented to the Commission. If any modifications are proposed in response to Commission direction or as a result of design development, plans clearly detailing the areas of change must be submitted at the time of submission for permit, *along with* the plans originally presented to the Commission, and will be subject to review by staff, in consultation with the Chairman as appropriate, to verify that the plans are consistent with the intent of the Commission and the approvals granted.

2. Prior to the issuance of a building permit, a plan to protect trees and vegetation identified for preservation during construction must be submitted and will be subject to review and approval by the City's Certified Arborist.

3. Details of exterior lighting shall be submitted with the plans submitted for permit. Cut sheets for all light fixtures shall be provided and all fixtures, *except those illuminated by natural gas at low light levels,* shall direct light down and the source of the light shall be fully shielded from view. All exterior lights shall be set on automatic timers to go off no later than 11 p.m. except for security motion detector lights.

4. Prior to the issuance of a building permit, a materials staging and construction vehicle parking plan must be submitted to the City for review and will be subject to City approval in an effort to minimize and manage impacts on the neighborhood, neighboring properties and existing trees and landscaping during construction.

This approval is valid for a period of one year from the date of final approval by the City Council. Upon review of the final plans and a determination that the plans are consistent with the approvals granted and with all applicable Code provisions, permits will be issued to allow work on the site to begin. A building permit must be obtained and all applicable fees paid prior to the one year expiration date of this Certificate.

To facilitate the City review process and issuance of permits, please follow these procedures.

- ✓ All construction drawings submitted for permits should accurately reflect the approvals granted and respond to any conditions of approval.

- ✓ If the plans submitted for permit differ from the approvals, all changes including, but not limited to, changes to exterior materials, building massing, the site plan, grading, window or door placement or size, and architectural detailing need to be highlighted clearly on the plans.

- ✓ If the plans submitted differ from the approvals granted, further Board and City Council review of the project may be required.

- ✓ Please be aware that the City makes every effort to complete plan reviews within 15 to 20 working days after submittal of a complete application for building permit. The 15 to 20 days are active City review days. This time frame *excludes* periods during which the City is awaiting additional information from the applicant or contractor, submittal of revised plans or the installation of tree protection or erosion control measures.

- ✓ Once permits are issued, construction must begin within 90 days and all construction must be consistent with the approved plans.

- ✓ Construction must proceed diligently once a project is started out of consideration for the neighboring residents.

If you have any questions or need additional information, please contact Jennifer Baehr, Assistant Planner, in the Community Development Department, 800 Field Drive, by phone 847.810.3520, or email, baehrj@cityoflakeforest.com

cc: Property Owner
Representative
Notebook
Building Permit Application File

Exhibit A

Findings of Fact – 650 Lake Road

Demolition Criteria 1 -- Whether the property, structure or object is of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare of the people of the city and the state.
The existing sunroom does not have historic, cultural, or architectural significance. The sunroom is not original to the house and has been altered since its initial construction.

Demolition Criteria 2 -- Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole and should be preserved for the benefit of the people of the city and the state.
The sunroom does not contribute any distinctive character to the original historic residence or to the District. The existing sunroom is not visible from the streetscape.

Demolition Criteria 3 -- Whether demolition of the property, structure or object would be contrary to the purpose and intent of this Chapter and to the objectives of the historic preservation for the applicable District.
The removal of the sunroom is not contrary to the purpose and intent of the Preservation Chapter of the Lake Forest Code as it does not have special historical or architectural interest.

Demolition Criteria 4 -- Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.
The sunroom is not of such old, unusual, or uncommon design, texture, or material that it could not be reproduced without great difficulty or expense. The sunroom structure was constructed in 1936 and enclosed at a later date and is not unique in design or construction.

Demolition Criteria 5 -- Except in cases where the owner has no plans for a period of up to five years to replace an existing Landmark or property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.
Only a partial demolition is proposed. Additions and alterations are proposed to the existing residence and are subject to review and approval by the Commission.

Standard 1 - Height:
This standard is met. The proposed rear additions are designed to be lower in height than the existing home to allow the additions to be subordinate to the historic residence. As measured from the lowest point of existing grade adjacent to the home to the tallest roof peak, the addition is 25 feet and 7 inches. The existing residence is 30 feet and 8 inches tall. The height of the existing residence is not proposed to change.

Standard 2 – Proportion of Front Façade:
This standard is met. The proposed additions will not be visible from the front façade. The exterior alterations proposed to the front of the home are minimal and do not change the proportions of the front façade.

Standard 3 – Proportion of openings:
This standard is met. The existing home reflects double hung windows with varying muntin

patterns. The replacement windows will be double hung windows that match the size and proportions of the existing windows. The new windows proposed on the additions are mostly double hung windows that match the proportions of the windows found on the existing home. The design of the new arched windows in the sunroom addition are influenced by the existing garage door on the north elevation of the home.

The windows in the proposed enlarged dormer on the rear elevation of the garage are consistent with the size and proportions of existing openings on the garage.

Standard 4 Rhythm of Solids to Voids:
This standard is generally met. There is a regular rhythm of solids to voids and the openings are evenly spaced and aligned between the first and second floors on the existing home. The proposed additions present large expanses of openings on the first floor to take advantage of views to the rear yard.

Standard 6 – Spacing on the Street:
This standard is met. As noted above, the proposed additions are almost entirely behind the existing residence with only a small portion of the mudroom addition extending beyond the mass of the existing home on the north side. Because the additions are located on the rear of the home, the spacing between structures along the street will not change.

Standard 6 – Rhythm of Entrance Porches:
This standard is not applicable to this petition. The location of the front entrance is not proposed to change.

Standard 7 – Relationship of Materials and Texture:
This standard is met. The proposed exterior materials on the additions will match the existing residence. The exterior walls of the additions will be brick with a lime wash finish. The gable roof forms on the additions will be cedar shingle and the low-slope roof at the center between the gable forms will be a modified bitumen roof. Aluminum clad windows with interior and exterior muntins are proposed. Trim, fascia, soffits, and rakeboards will be wood. Copper gutters and downspouts are proposed. The terraces will be bluestone.

Standard 8 – Roof Shapes:
This standard is met. The existing home has steeply pitched gable roof forms with a 12:12 pitch. The proposed additions also have steeply pitched gable roof forms with a 14:12 pitch. As noted above, the single-story addition between the sunroom and eating area additions will have a low-slope roof to avoid interfering with the existing second floor windows.

Standard 9 – Walls of continuity:
This standard is met. The proposed additions will support the continuity of the overall design of the home by incorporating elements found on the existing residence such as double hung windows, louvered shutters, brick exterior walls and brick soldier courses.

Standard 10 - Scale:
A building scale variance is requested.

- The allowable square footage based on the size of the property is 6,226 square feet. The existing residence totals 6,205 square feet and is below the allowable square footage for the property by 21 square feet. The total square footage of the existing residence that will remain after a portion of the existing residence is converted into garage space and the existing sunroom is demolished will be 5,119 square feet.

- A total of 800 square feet is allowed for a garage on this property. The existing detached garage/coach house and the proposed relocated single car garage together total 866 square feet. The garage overage of 66 square feet must be added to the total square footage of the residence.

- A total of 623 square feet of design elements is permitted for this property. The proposed covered side entry and dormers add a total of 35 square feet of design elements.

- The proposed first floor additions total 1,312 square feet. This includes the square footage of the existing single car garage that will be converted into an office. The new second floor area totals 299 square feet.

- In summary, the existing house with the proposed additions will total 6,796 square feet. The total square footage exceeds the allowable by 570 square feet. A building scale variance of 9 percent is requested.

Review of Building Scale Variance Standards
The City Code establishes standards that must be used in evaluating requests for a variance from the building scale provisions in the City Code. The Code requires that in order to grant a variance, *Standard 1 and at least one additional standard be met.* The Code does not require that all five standards be met. These standards recognize that each project is different as is the context of each site. A staff review of the standards is provided below.

Standard 1 -- The project is consistent with the design standards of the City Code.
This standard is met. The Code and City's Design Guidelines encourage the use of design elements to bring human scale to projects and to avoid the appearance of oversized, out of scale, elements. In this case, the additions are designed in a manner that is subordinate to the existing residence and do not impact or alter the streetscape. The proposed exterior materials are compatible with the historic residence and consistent with the design guidelines.

Standard 2 -- Mature trees and other vegetation on the property effectively mitigate the appearance of excessive height and mass of the structure and as a result, the proposed development is in keeping with the streetscape and overall neighborhood.
This standard is met. The additions are located on the rear elevation and will not be visible from the streetscape. The petitioner provided a detailed landscape plan that reflects new landscaping along the north, south and west property lines to mitigate the appearance of height and mass of the additions from neighboring properties.

Standard 3 -- New structures or additions are sited in a manner that minimizes the appearance of mass from the streetscape. In addition, the proposed structures or additions will not have a significant negative impact on the light to and views from neighboring homes.
This standard is met. As noted above, the additions are located on the rear elevation and will not impact the appearance of mass as perceived from the streetscape. The additions are also lower in height than the existing residence and will not have an impact on light and views from neighboring homes.

Standard 4 -- The height and mass of the residence, garage, and accessory structures will generally be compatible with the height and mass of structures on adjacent lots, buildings on the street and on adjacent streets, and other residences and garages in the same subdivision.
This standard is met. The proposed height and mass of the residence is visually compatible with the height and mass of structures on adjacent lots. The surrounding neighborhood is comprised of many grand style homes that are two-and-a-half stories tall. The existing residence at its tallest point is 30 feet and 8 inches tall and has a two-and-a-half story massing. The building footprint of the residence as proposed is also comparable to the footprints of surrounding homes.

Standard 5 – The property is located in a local historic district or is designated as a Local Landmark and the approval of a variance would further the purpose of the ordinance.
This standard is met. The property is located in a local historic district. The residence is identified as a Contributing Structure to the District and in the past has been threatened with demolition.

Standard 6 -- The property is adjacent to land used and zoned as permanent open space, a Conservation Easement, or a detention pond and the structures are sited in a manner that allows the open area to mitigate the appearance of mass of the buildings from the streetscape and from neighboring properties.
The standard is not met. This property is located in an established, historic neighborhood. There is no permanently preserved open space located adjacent to this property.

In summary, the criteria for a building scale variance are satisfied as detailed in the findings presented above. The first standard and four additional standards are satisfied.

Standard 11 – Directional Expression of Front Elevation:
This standard is not applicable to this request. Only minimal changes are proposed to the front façade.

Standard 12 – Preservation of Historic Material:
This standard is met. The proposed additions and exterior alterations will not negatively impact the historic integrity and character of the home and do not result in the loss of any distinguishing original qualities of the property. The proposed alterations to the residence are in keeping with the character of the property and are sensitive to the historic residence.

Standard 13 – Preservation of natural resources:
This standard is met. The proposed additions and new hardscape will not require any tree removal. The landscape plan submitted by the petitioner reflects existing plantings that will remain and new plantings across the site. The proposed plantings include new deciduous and evergreen trees, understory plantings and shrubs around the home and terraces at the front and rear of the home.

Standard 14 – Compatibility:
This standard is met. The architectural style, scale, architectural detailing, and exterior materials of the additions are compatible with the existing residence.

Standard 15 – Repair to deteriorated features:
This standard is met. As work proceeds, repairs will be made to deteriorated features in kind with matching materials as needed.

Standard 16 – Surface cleaning:
This standard is met. The existing brick on the residence will be cleaned. The petitioner has indicated in the statement of intent that gentle and careful cleaning methods will be used.

Standard 17 – Integrity of historic property:
This standard is met. The proposed additions and alterations are in keeping with the overall character of the property and the surrounding neighborhood.

MATERIALS PROVIDED BY THE PETITIONER

THE CITY OF
LAKE FOREST

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION FOR A CERTIFICATE OF APPROPRIATENESS

PROJECT ADDRESS 650 Lake Road

APPLICATION TYPE

RESIDENTIAL PROJECTS		*COMMERCIAL PROJECTS*	
☒ New Residence	☒ Demolition Complete	☐ New Building	☐ Landscape/Parking
☐ New Accessory Building	☐ Demolition Partial	☐ Addition/Alteration	☐ Lighting
☐ Addition/Alteration	☐ Height Variance	☐ Height Variance	☐ Signage or Awnings
☐ Building Scale Variance	☐ Other	☐ Other	☐

HISTORIC DISTRICT OR LOCAL LANDMARK (leave blank if unknown)

☒ East Lake Forest District ☐ Green Bay Road District ☐ Vine/Oakwood/Green Bay Road District
☐ Local Landmark Property or District ☐ Other

PROPERTY OWNER INFORMATION

Stephanie Burke
Owner of Property

401 E. Center Ave.
Owner's Street Address (may be different from project address)

Lake Bluff, IL 60044
City, State and Zip Code

847-308-2029
Phone Number *Fax Number*

StephanieBurke@ymail.com
Email Address

Owner's Signature

ARCHITECT/BUILDER INFORMATION

Diana Melichar, President
Name and Title of Person Presenting Project

Melichar Architects
Name of Firm

207 E. Westminster
Street Address

Lake Forest, IL 60045
City, State and Zip Code

847-295-2440 847-295-2451
Phone Number *Fax Number*

Diana@MelicharArchitects.com
Email Address

Representative's Signature (Architect/ Builder)

The staff report is available the Friday before the meeting, after 3:00pm.		
Please email a copy of the staff report	☒ OWNER	☒ REPRESENTATIVE
Please fax a copy of the staff report	☐ OWNER	☐ REPRESENTATIVE
I will pick up a copy of the staff report at the Community Development Department	☐ OWNER	☐ REPRESENTATIVE

STATEMENT OF INTENT

LAKE FOREST HISTORIC PRESERVATION COMMISSION

Request for the demolition and replacement structure
of a single family residence
for
Ms. Stephanie Burke
650 Lake Road

Background

Ms. Stephanie Burke is requesting the demolition of her existing home at 650 Lake Road, and approval of the design for a replacement structure in generally the same location. This decision to request a demolition was not easy, and came with much investigation and thought regarding the rehabilitation of the existing structure.

Ms. Burke has owned and maintained her home for almost three years, but she has not had the opportunity to live in it. During that time, her journey to situate her family in her home has been an unfortunate odyssey. As each new piece of information from building investigations were brought to light, more bad news was delivered.

Prior to Melichar Architects' involvement in Ms. Burke's project, environmental studies indicated that her home was loaded with toxic mold. Nearly a year and a half later, after renovations drawings were approved by the HPC and Melichar Architects began our design development work, the existing building structure was finally exposed. At that time, it became apparent that the home was under-structured, amongst a myriad of other problems to correct, such as fire damage, mixed construction types, and water penetration.

Melichar Architects' fiduciary responsibility to our client is to provide a habitable, safe and durable building product upon project completion. It is our opinion that the unique conditions of this building and property cause it to be unsafe; and rehabilitating and adding onto the existing home may not correct the problems inherent in the existing building construction because we cannot address them. Instead, the homeowner will be left with new uncertainties after her construction project is completed, and as the original building structure further ages. Therefore we are requesting demolition of the existing building and approval of a replacement structure.

Below, please find a chronology of events regarding Ms. Burke's attempts to obtain a habitable home for her family:

2019

In May of 2019, Ms. Burke purchased 650 Lake Road from Lemon Property 3 LLC. The home had not been occupied since 2012. It still remains unoccupied, although Ms. Burke has been caring for and maintaining it since she purchased it.

Ms. Burke is a longtime resident of Lake Bluff. Her current home on Center Avenue has become too small for her family of five children, who are growing into young adults. Thus Ms. Burke searched to find a right-sized home and property for herself, her children, and pets. She fell in love with the 650 Lake Road home and its property, even though she understood, going into the purchase, that she'd most likely need to renovate portions of it.

In 2019, Ms. Burke retained Auerbach Architects, of Chicago, Illinois, to undertake design studies with the intent to renovate her home. After each site meeting at 650 Lake Road, Ms. Burke became ill from what she believed might be toxic mold. Ms. Burke has a heightened awareness and understanding of toxic mold, as she experienced the health hazard in her Wisconsin summer home, and her family members continue to have long-term health issues related to exposure to toxic mold there. Ms. Burke was very concerned that she not expose herself nor her children to an unsafe environment in their Lake Road year-round home. Thus Ms. Burke halted her efforts to renovate her home, until she gathered more information regarding the scope of work involved with her home renovations.

2020

Ms. Burke's site investigations took a hiatus during the 2020 Covid pandemic while she home-schooled her five children and juggled running her business. However, when in-school learning was re-established, she again turned her attentions to her 650 Lake Road home project.

In September 2020, Ms. Burke retained Safesmart Environmental to test her home for environmental toxins (see attached report by Safesmart Environmental, Indian Creek, IL, and laboratory analyses by Mycometrics, LLC, Monmouth Junction, NJ and ESML Analytical, Inc. of Hillsdale, IL). The report concludes: *"We feel the only solution to be able to use the property for habitability, would be to demolish the current structure of the home and coach home and re-build new structures."* (Refer to the attached reports)

Melichar Architects suspects that sealing-up the building shell with several coats of paint on the exterior brick of the home and detached garage, in conjunction with the home not being occupied for seven years prior to Ms. Burke's ownership, may have caused the mold conditions to multiply. Hence this would explain why the mold had permeated throughout the entire structures.

Parallel to Ms. Burke's environmental concerns for her home, she was also concerned about the bounciness and sagging of the floors in her home. Ms. Burke retained Pease Borst & Associates (licensed structural engineer, South Barrington, IL) for an initial structural review of her property, and a report was prepared in December 2020. (See attached). She hoped to correct those deficiencies when renovating her home, but ultimately because of the mold dangers in her home, she decided to pursue demolition.

In November 2020, Ms. Burke also retained Melichar Architects to design a replacement structure for her family, based on the environmental and suspected structural conditions present in her existing home. Melichar Architects undertook the design of a new structure, and met with City Staff on December 29, 2020 to review the preliminary work.

2021

When presented with Ms. Burke's environmental report, City Staff did request a second, independent mold report, commissioned by the City of Lake Forest and paid by the Owner. Ms. Burke approved that a second environmental analysis be performed, and the City of Lake Forest retained Midwest Environmental Consulting Services, Inc., Yorkville, IL, in April 2021. Although the report also acknowledged that environmental issues were present, and the analysis report shows ***increased*** mold levels from the original report, it only noted that remediation was required.

Since the second environmental report by Midwest Environmental Consulting Services indicated that mold remediation ***might*** be successful, Ms. Burke decided to return to the possibility of renovating and adding onto her existing home. Melichar Architects moved forward with design concepts based on the premise that additions and renovations were feasible.

Ms. Burke's design petition for additions and renovations work was approved at the Zoning Board on October 25, 2021 and Historic Preservation Commission on October 27, 2021. Extensive design work went into preparing the submittals, including Ms. Burke retaining NLH Landscape Architects to prepare a proposed landscape plan, and Bleck Engineering working with the design team to address site drainage and conditions (See attached).

In November and December of 2021, Melichar Architects began our design development work for additions and renovations based on the Zoning Board and Historic Preservation Commission approvals. Ms. Burke also engaged James LaDuke & Associates, general contractor, Lake Bluff, Illinois, for construction services during design development and through construction.

In November 2021, James LaDuke & Associates employed a mold remediation subcontractor to start removing mold contamination so any construction work within the home would be safer. The subcontractor sprayed down the visible surfaces and vacuum cleaned them, and also partially removed asbestos materials, however they did not address mold that may have permeated the building structure.

Also in November 2021, James LaDuke & Associates received a partial demolition permit from the City of Lake Forest to remove interior finishes. In this way, the architect could evaluate what remedial work would be required to stabilize the building structure for code compliance, as well to gain an understanding of how the new additions could be structurally integrated into the existing building.

Once finishes were carefully removed from the home by mid-December 2021, found structural conditions were worse than previously assumed. Pease Borst and Associates, Melichar Architects, and James LaDuke & Associates met on December 20, 2021 to review the exposed building conditions. It became apparent upon review that it would be necessary to replace the entire wood building structure for code compliance. Yet the existing wood framing was set solidly into the masonry exterior walls, and it had to remain in-place (as a connecting diaphragm) so the exterior load bearing masonry walls did not collapse. The insertion of a new building structure within the existing building shell necessitates a new foundation wall also be poured adjacent to the original foundation. All of this work must be performed in small, 4'-0" alternating increments, which is timely and costly. (Refer to Pease Borst & Associates' updated structural report dated January 11, 2022).

When removing the interior finishes of the existing home, it also became apparent that there was no interior insulation on the exterior walls, but rather ½" furring lath and plaster finishes. The original building design was meant to breathe, allowing moisture laden vapor to dissipate through the exterior walls. However, the exterior brick had been painted with several coats, thereby creating a vapor barrier that trapped moisture in the walls and home. We are unable to visually determine if the ends of the existing floor joists (that hold the brick load bearing walls together) have been damaged by moisture and mold, as they are embedded in the exterior masonry walls. Further, any new, insulated construction inserted into the original building shell could exacerbate any deterioration as the exterior walls become colder due to the introduction of new insulation. (Refer to attached technical report).

Melichar Architects is concerned that the original building construction, if left in-place alongside the new building structure and construction, may compromise the final building product, even after Ms. Burke undertakes a very costly remediation and rehabilitation effort. At the end of the day, Ms. Burke will still have uncertainties as to whether the existing wood framing will continue to deteriorate in the existing masonry building shell, if embedded mold in the existing wood framing may continue to cause environmental issues, and if trapped moisture might occur due to retrofits in the exterior building cavities. The extensiveness of our rehabilitation efforts and uncertainties of the performance of the final building product made our team question the validity of our moving forward with additions and renovations work.

In conclusion, the above summary illustrates that Ms. Burke has made every good faith effort to renovate and rehabilitate her home, but there is no certainty that her home will have long-term durability nor if she will face continued environmental issues upon completion of her construction project. There is not one catastrophic problem with the house that deems it should be torn down, but there are many conditions that have contributed to our conclusion that we are seeking to replace the building structure.

<u>Standards for Review of Demolition</u>

1) **Whether the property and home are not of such historic, cultural, architectural or archaeological significance that its demolition would be detrimental to the public interest and contrary to the general welfare of the people of the city and the state.** The architectural characteristics of the existing home are not uniquely significant that the demolition of the home would be contrary to public interest. See also attached Historical and Architectural Study, by Guarino Historic Resources.

2) **Whether the property, structure or object contributes to the distinctive historic, cultural, architectural or archeological character of the District as a whole should be preserved for the benefit of the people of the city and state.** The existing residence is considered a contributing structure in the Historic District, however, due to its condition and steps necessary to rehabilitate it, we are requesting its demolition.

3) **Whether demolition of the property, structure or object would be contrary to the purpose and intent of the Chapter and to the objectives of the historic preservation for the applicable District.**

The conditions of this home are unique to this property, and cannot be applicable to other properties in the historic district. Ms. Burke purchased her home in good faith to rehabilitate it and live in it. However, its existing construction/building structure and severe environmental conditions (most likely propagated and exacerbated during the years while it was unoccupied prior to her purchasing it) make it uninhabitable now or in the future.

4) **Whether the property, structure or object is of such old, unusual or uncommon design, texture, and/or material that it could not be reproduced without great difficulty and/or expense.** There are not distinguishing features, texture or material of this home that could not be reproduced without great difficulty and/or expense.

5) **Except in cases where the owner has no plans for a period of up to five years to replace an existing property, structure or object in a District, no Certificate of Appropriateness shall be issued until plans for a replacement structure or object have been reviewed and approved by the Commission.** Plans for a replacement structure are being offered to the Commission for review, with the expectation that the new structure will be erected after approval and building permits are issued.

Description of the Replacement Structure

Ms. Burke is particularly aware of the need for stewardship of Lake Road, and its characteristic historic features. Many of the historic homes along this street follow classical design principals of balance, symmetry, elegant simplicity, and proper proportion. The proposed replacement structure defers to those time-tested design principals.

Designed in a Georgian style that is reminiscent of Stanley Anderson's work, the Burke home will feature a slate roof, textured stone walls, and wood accent trim. All four facades of the home are treated consistently in the same style and materiality.

Standards for Review of the Replacement Structure

Height. The building height shall be visually compatible with the neighboring properties and street.

Proportion of front facade. The relationship of the width to the height of the front elevation is visually compatible with the neighboring properties and street.

Proportion of openings. The relationship of the width to height of windows and doors is consistent with the Georgian classical tradition, which is visually compatible with other properties on the street.

Rhythm of solids to voids in front facades. Most home facades along Lake Road have a traditional balance of solids to voids, as does the replacement home.

Rhythm of spacing and structures on streets. The replacement structure is roughly located in the same position as the current home, and so the relationship of a structure to the open space between it and adjoining structures shall remain fairly unchanged. In addition, the replacement structure is built within the allowable building envelope, improving the existing northerly condition at the side yard (the existing garage encroaches 20' into the side yard).

Entrance porch and bay window projections are visually compatible with the style of the home and the streetscape.

Relationship of materials and texture. High-quality materials shall be utilized on all facades and roof, and reflect the quality of construction on Lake Road.

Roof shapes. The hip roof shapes are consistent on all sides of the building, and visually relate the neighborhood.

Walls of continuity. The building facades ensure visual compatibility with the properties, structures, sites, public ways, objects and places to which such elements are visually related.

Scale of a structure. The size and mass of the proposed home is visually compatible with the property, as well as the surrounding neighborhood.

Directional expression of front elevation. The front elevation and driveway landscape court are consistent with the Georgian style. Both address Lake Road appropriately.

Preserving distinguishing features. Not applicable.

Protection of resources. Every reasonable effort shall be made to protect the trees on-site. Thus the driveway approach remains as its current condition. No trees will be removed.

Building scale

No relief is being requested per building scale limitations, per § 150.148 of the City code.

Landscape Design

The new landscape design will enhance the house and its presence to the street. The circular driveway is eliminated and the north drive is kept to allow access to the garages through a stone wall with piers, separating the garage and service area from the front yard. A new bluestone walkway sequence that begins at a guest parking area brings visitors graciously to the front door where it widens to a small seating area lending views to the Lake. The foundation is planted with boxwood, flowering shrubs, perennials and ground cover. Two small terraces on either side of the house accessed from the owner's office and a guest bedroom provide private garden space in the front yard. The grand front lawn is enhanced with evergreen and flowering trees, shrubs and perennials with an open view to the Lake at the center. The parkway lawn is widened to conform to those of adjacent neighbors.

In the backyard, the outdoors is welcomed in with all the building fenestration. A Purple Beech tree reminiscent to the one at Forest Beach Park, will be planted on axis with the center of the house so it can be seen from all the living spaces. Dining and entertaining space is centered in the niche created between the two wings of the house. A small spa/pool with a waterfall creates a focal feature and second gathering outdoor space that blends into the rear lawn. The perimeter of the yard will be planted with a myriad of shade and flowering trees, shrubs, perennials and ground cover so that there are striking views in all seasons. Along the west lot line, a dense screen of evergreen and flowering trees along with shrubs will be planted to maintain privacy.

THE CITY OF LAKE FOREST
CHARTERED 1861

THE CITY OF LAKE FOREST
HISTORIC PRESERVATION COMMISSION APPLICATION
DESCRIPTION OF EXTERIOR MATERIALS
(The use of natural materials is strongly encouraged)

Façade Material

- ☑ Stone
- ☐ Brick
- ☐ Wood Clapboard Siding
- ☐ Wood Shingle
- ☑ Cementitious Stucco
- ☑ Other limestone

Color and/or Type of Material random coursed, ashlar stone

Foundation Material

Exposed Foundation Material ____________

Window Treatment

Primary Window Type

- ☑ Double Hung
- ☐ Casement
- ☐ Sliding
- ☐ Other ____________

Color of Finish white, t.b.d.

Finish and Color of Windows

- ☐ Wood (recommended)
- ☑ Aluminum Clad
- ☐ Vinyl Clad
- ☐ Other ____________

Window Muntins

- ☐ Not Provided
- ☐ True Divided Lites

Simulated Divided Lites

- ☑ Interior and Exterior muntin bars (recommended)
- ☐ Interior muntin bars only
- ☐ Exterior muntin bars only
- ☐ Muntin bars contained between the glass

Trim Material

Door Trim

- ☐ Limestone
- ☐ Brick
- ☑ Wood
- ☐ Other ____________

Window Trim

- ☑ Limestone
- ☐ Brick
- ☐ Wood
- ☐ Other ____________

Fascias, Soffits, Rakeboards

- ☑ Wood
- ☐ Other ____________

DESCRIPTION OF EXTERIOR MATERIALS – CONTINUED

Chimney Material

- ☐ Brick
- ☑ Stone
- ☐ Stucco
- ☐ Other ______________________

Roofing

Primary Roof Material

- ☐ Wood Shingles
- ☐ Wood Shakes
- ☑ Slate
- ☐ Clay Tile
- ☐ Composition Shingles______________
- ☐ Sheet Metal______________________
- ☐ Other ______________________

Color of Material dark charcoal/slate grey

Flashing Material

- ☑ Copper
- ☐ Other______________________
- ☐ Sheet Metal

Gutters and Downspouts

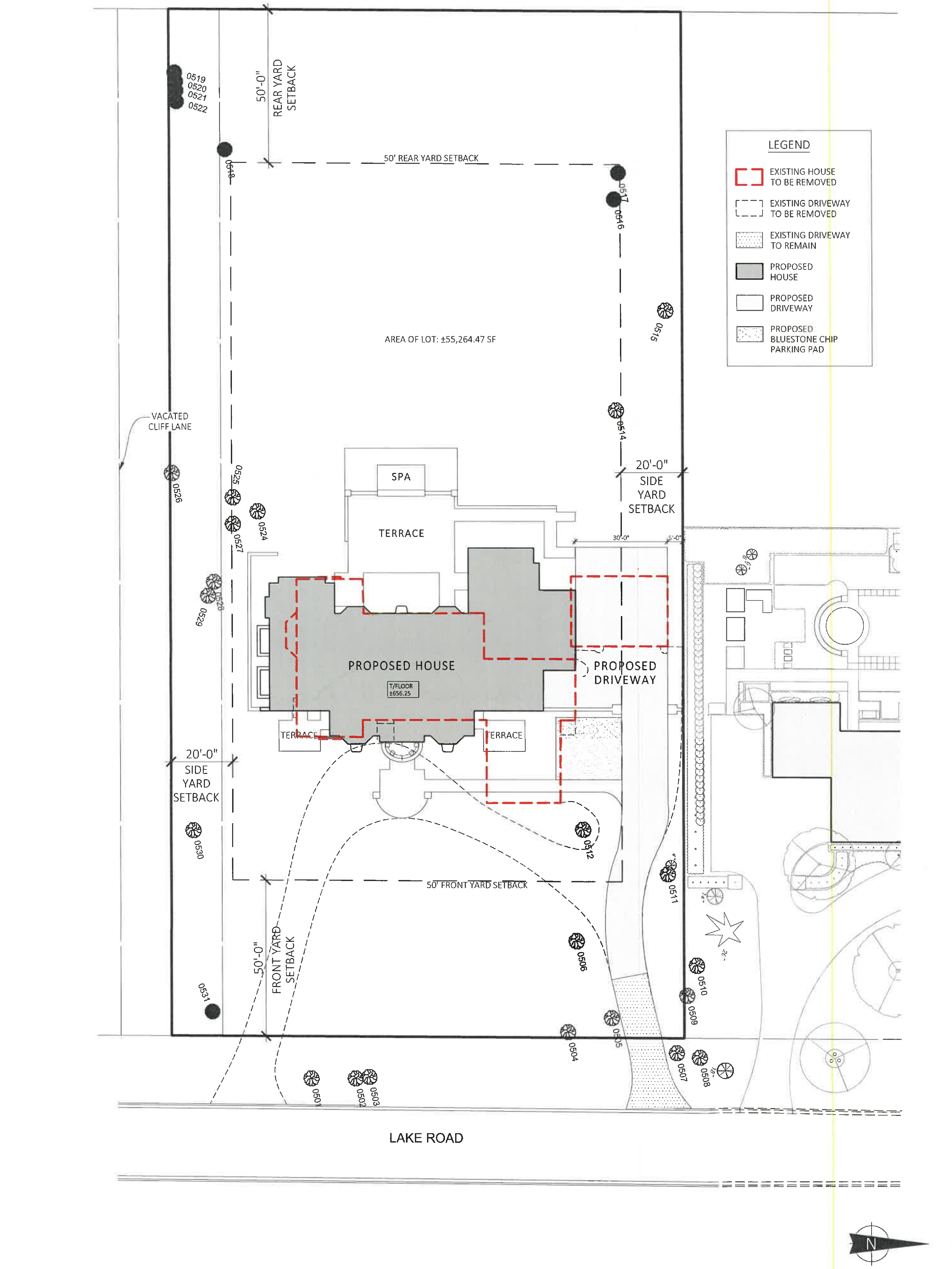
- ☑ Copper
- ☐ Aluminum
- ☐ Other ______________________

Driveway Material

- ☑ Asphalt
- ☐ Poured Concrete
- ☐ Brick Pavers
- ☐ Concrete Pavers
- ☑ Crushed Stone
- ☐ Other ______________________

Terraces and Patios

- ☑ Bluestone
- ☐ Brick Pavers
- ☐ Concrete Pavers
- ☐ Poured Concrete
- ☐ Other ______________________



SITE PLAN OF PROPOSED IMPROVEMENTS

SCALE: 1" = 30'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE

207 EAST WESTMINSTER
P 847-295-2440 F 847-295-2451
LAKE FOREST, ILLINOIS 60045

STEPHANIE BURKE RESIDENCE
650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL 01/26/2022

EXISTING EAST ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

EAST ELEVATION – PROPOSED

PROPOSED EAST ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE

207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

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LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

EAST ELEVATION OVERLAY

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

EXISTING SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

PROPOSED SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
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LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

SOUTH ELEVATION OVERLAY

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE
650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

EXISTING WEST ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

WEST ELEVATION - PROPOSED

PROPOSED WEST ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
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STEPHANIE BURKE RESIDENCE

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JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

WEST ELEVATION - OVERLAY

WEST ELEVATION OVERLAY

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE

207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
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STEPHANIE BURKE RESIDENCE
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LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

NORTH ELEVATION - EXISTING

EXISTING NORTH ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE
650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022

NORTH ELEVATION – PROPOSED

PROPOSED NORTH ELEVATION

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS

THE PRACTICE OF FINE ARCHITECTURE

207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045

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STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD

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NORTH ELEVATION OVERLAY

SCALE: 3/32" = 1'-0"

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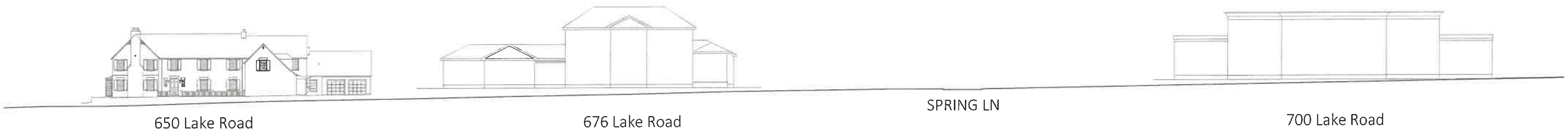
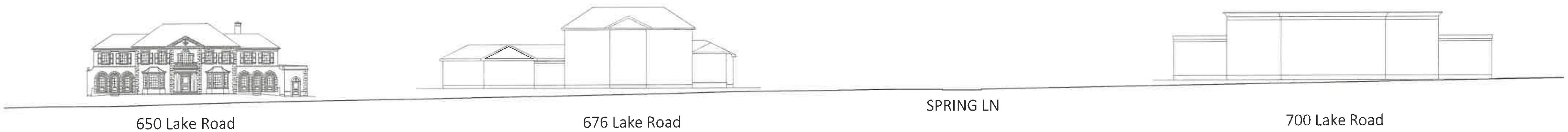
EXISTING



PROPOSED



1 STREETSCAPE ELEVATIONS Existing & Proposed (section through Lake Road looking west)
Scale: 1"=50'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE
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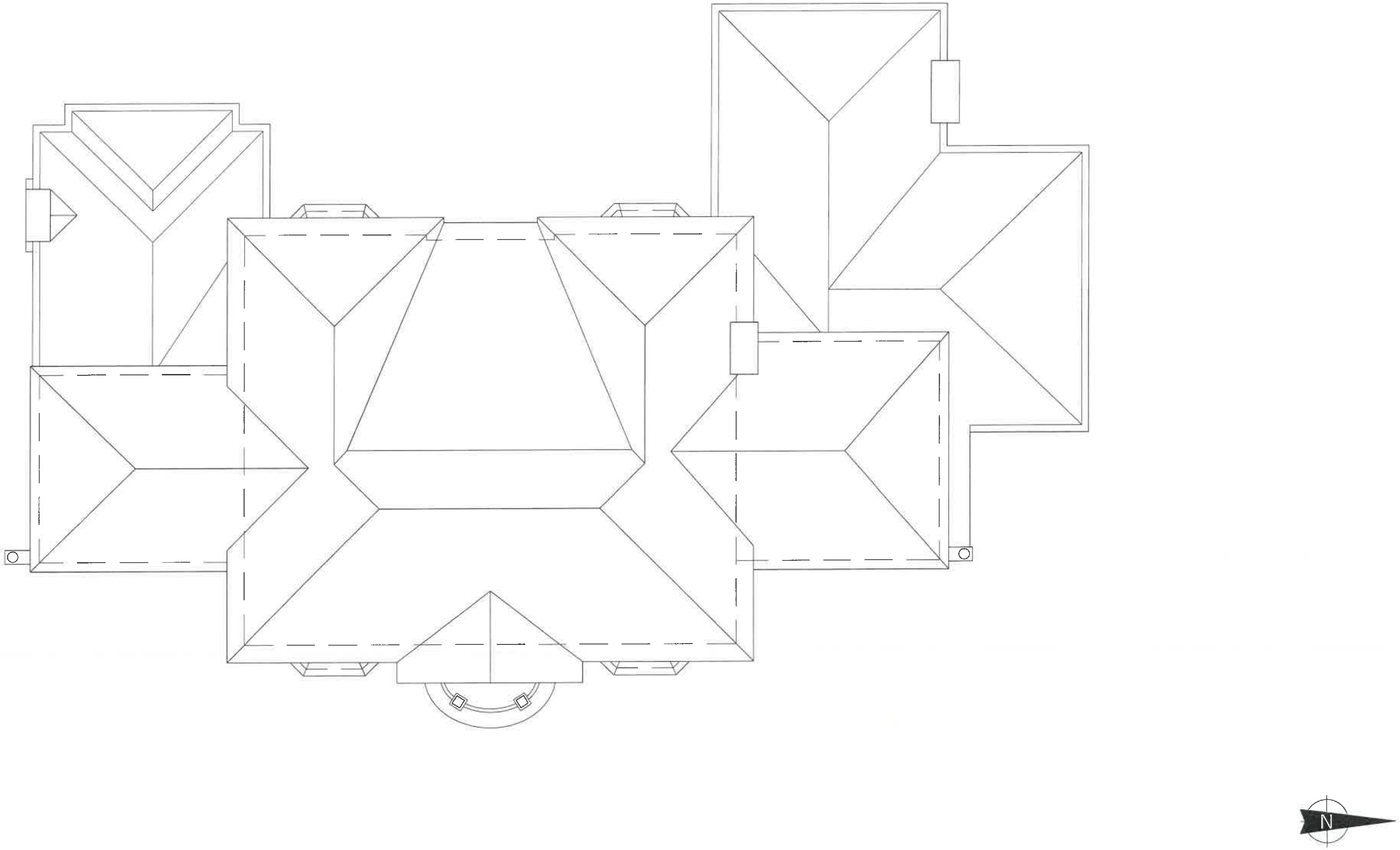

PROPOSED ROOF PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
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ISSUE DATE: HPC SUBMITTAL
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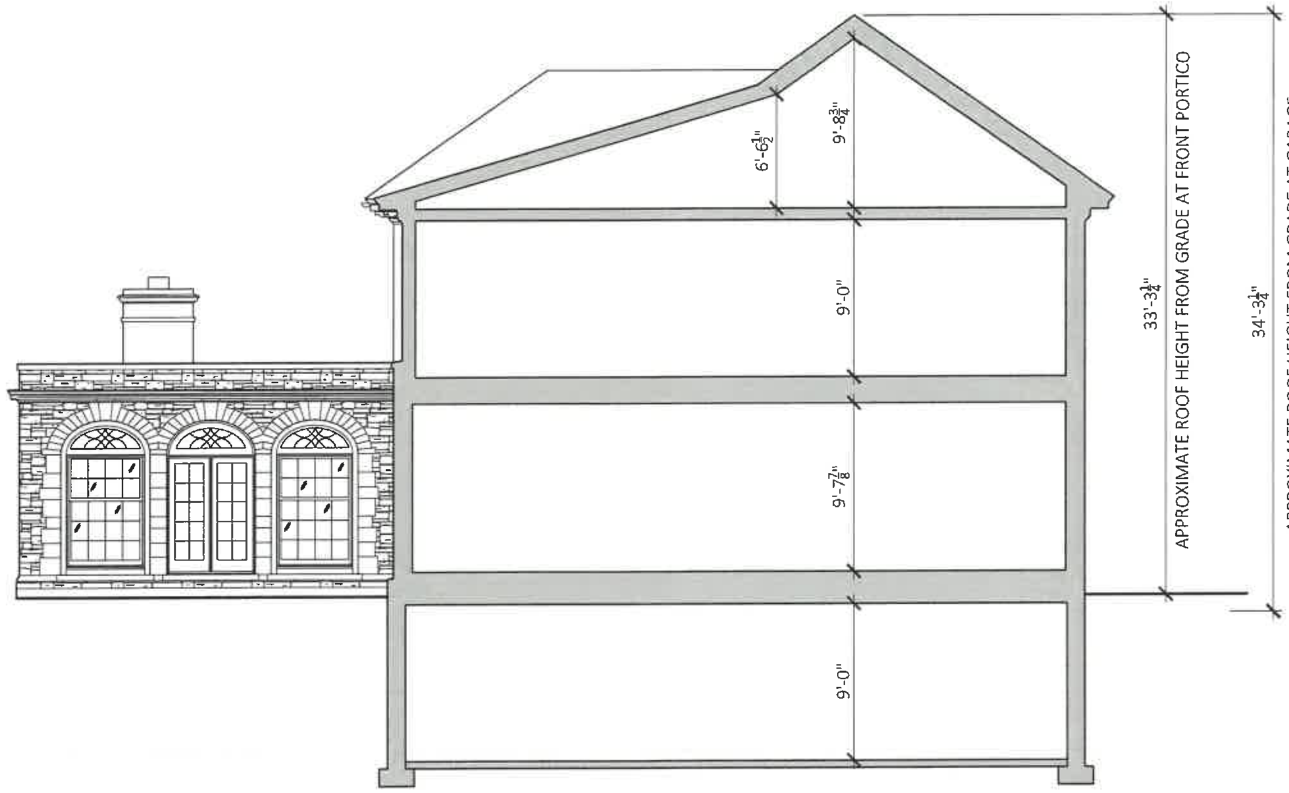
PROPOSED BUILDING SECTION



PROPOSED CROSS SECTION thru main house looking north

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
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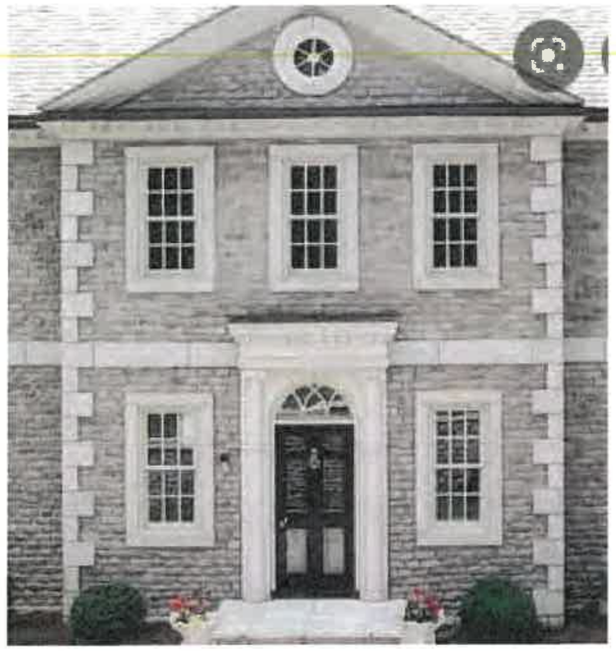
Precedent Images

Stone coursing & type

Stone & slate roof

Mrs. Kersey Coates Reed House, 1315 Lake Road

Precedent Images



Quoins
(For illustration only. Quoins will be limestone & refer to previous images for wall stone.)

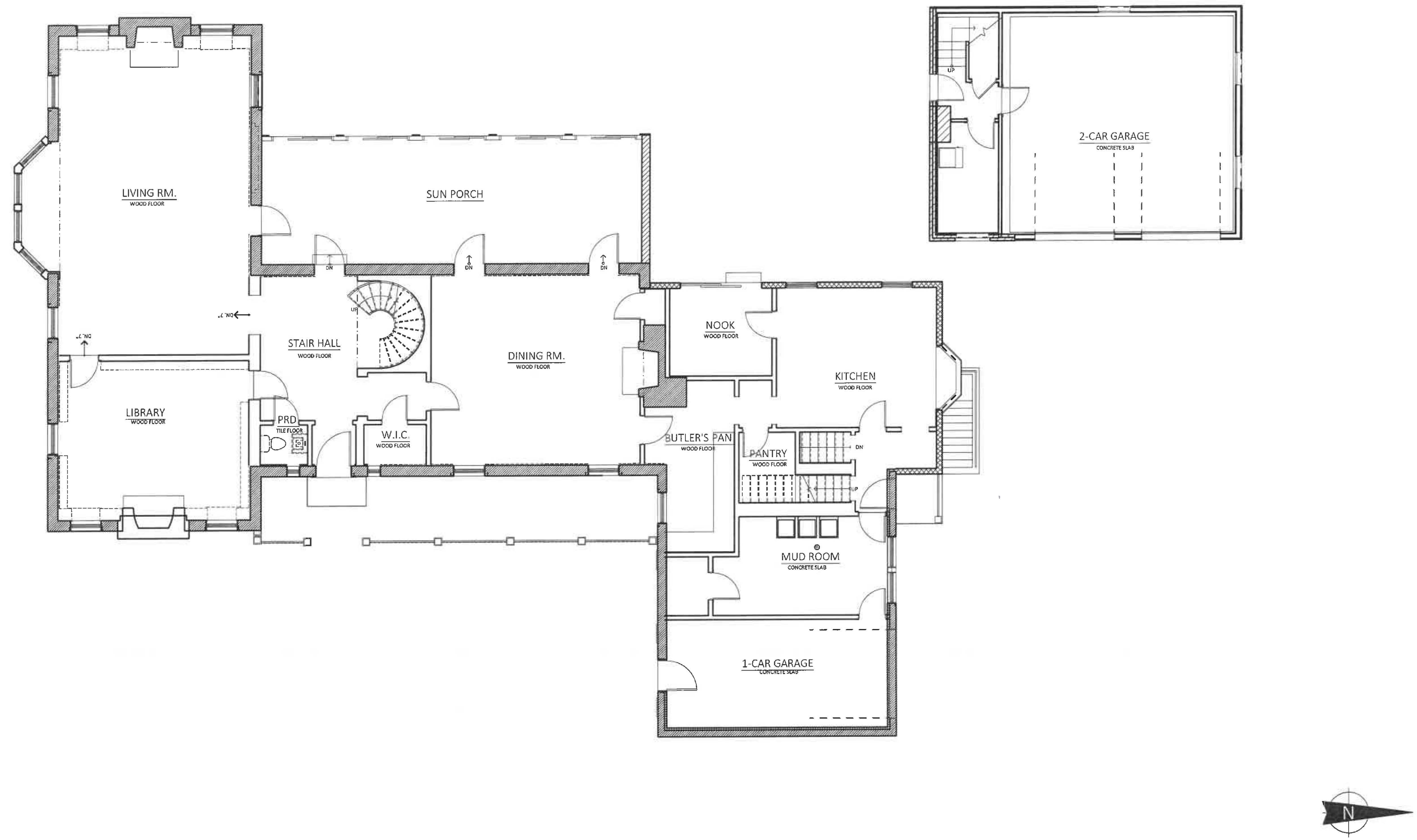
Precedent Images

Limestone trim

Windows with stucco wall within stone arches

Precedent Images

Series of arches
900 N. Waukegan Road



EXISTING FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER
P 847-295-2440 F 847-295-2451
LAKE FOREST, ILLINOIS 60045

STEPHANIE BURKE RESIDENCE

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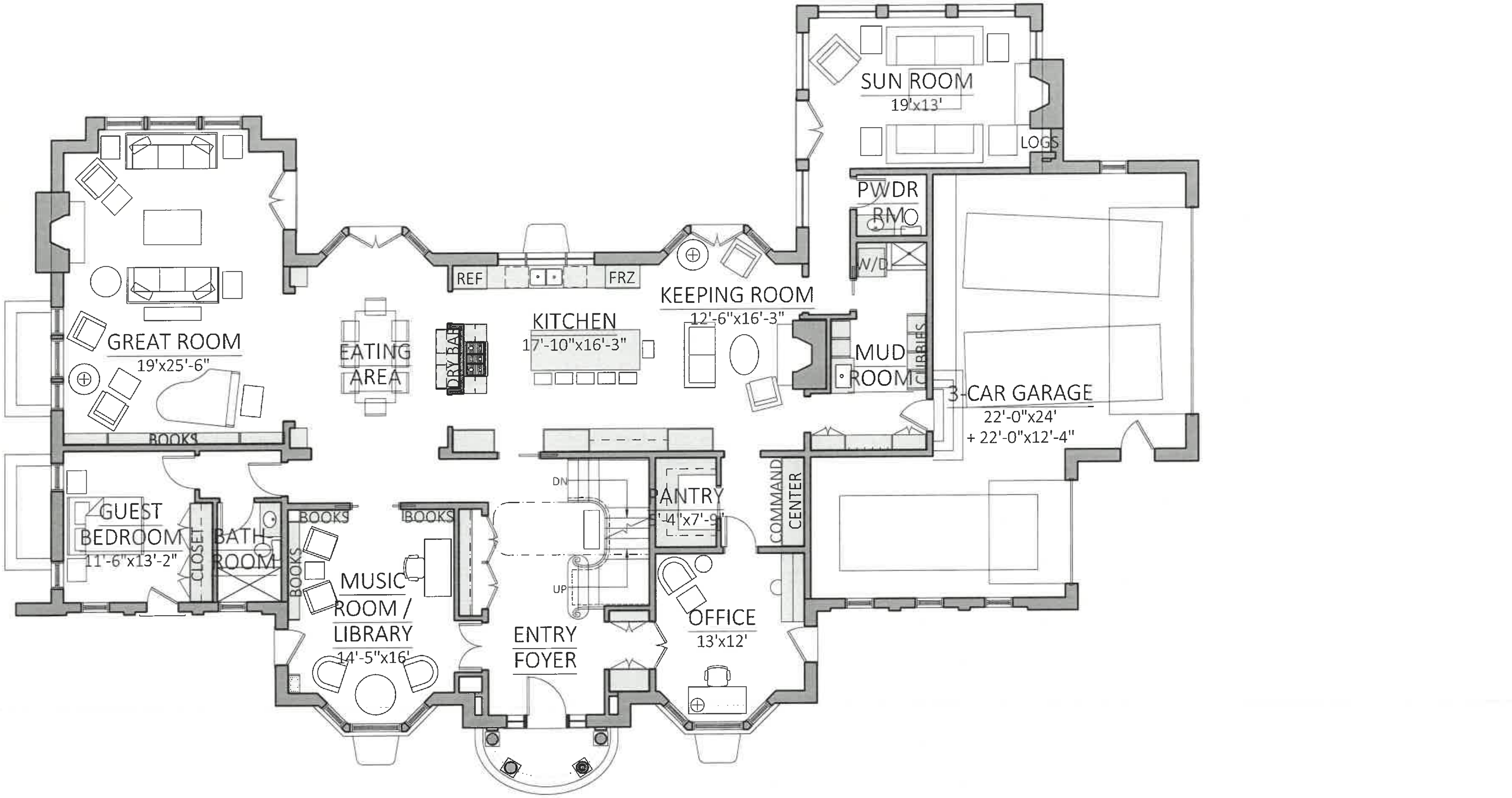

PROPOSED FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE

207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
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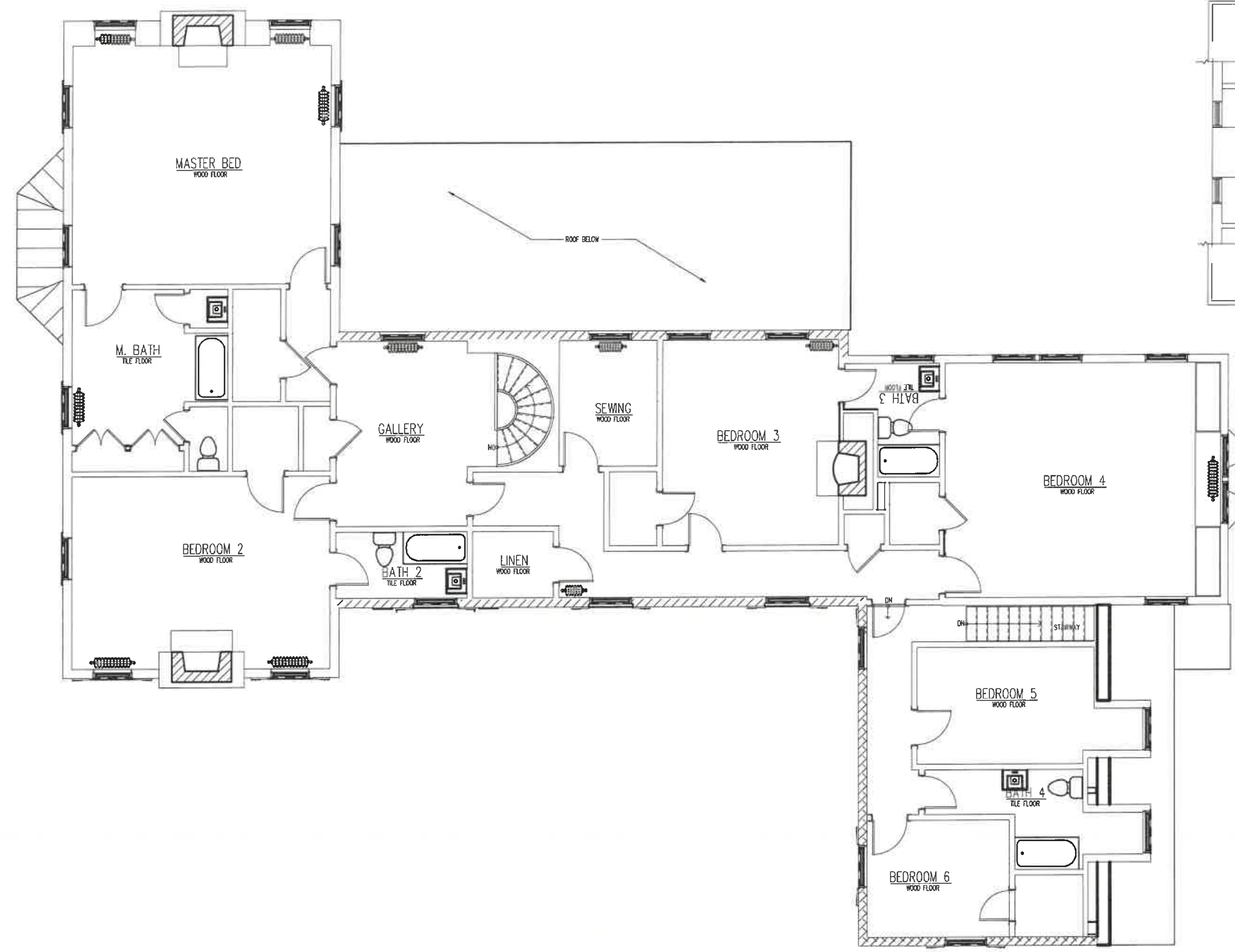

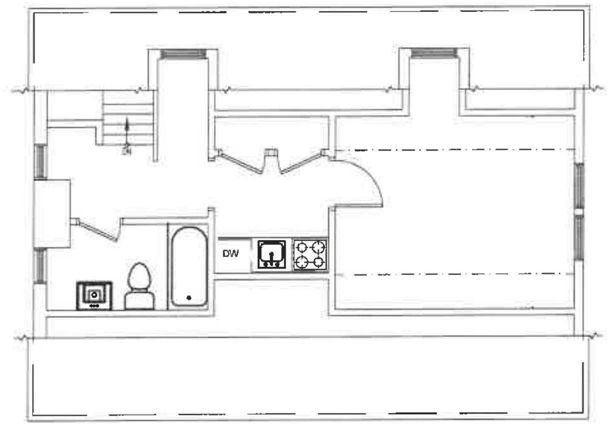

EXISTING SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE
207 EAST WESTMINSTER
LAKE FOREST, ILLINOIS 60045
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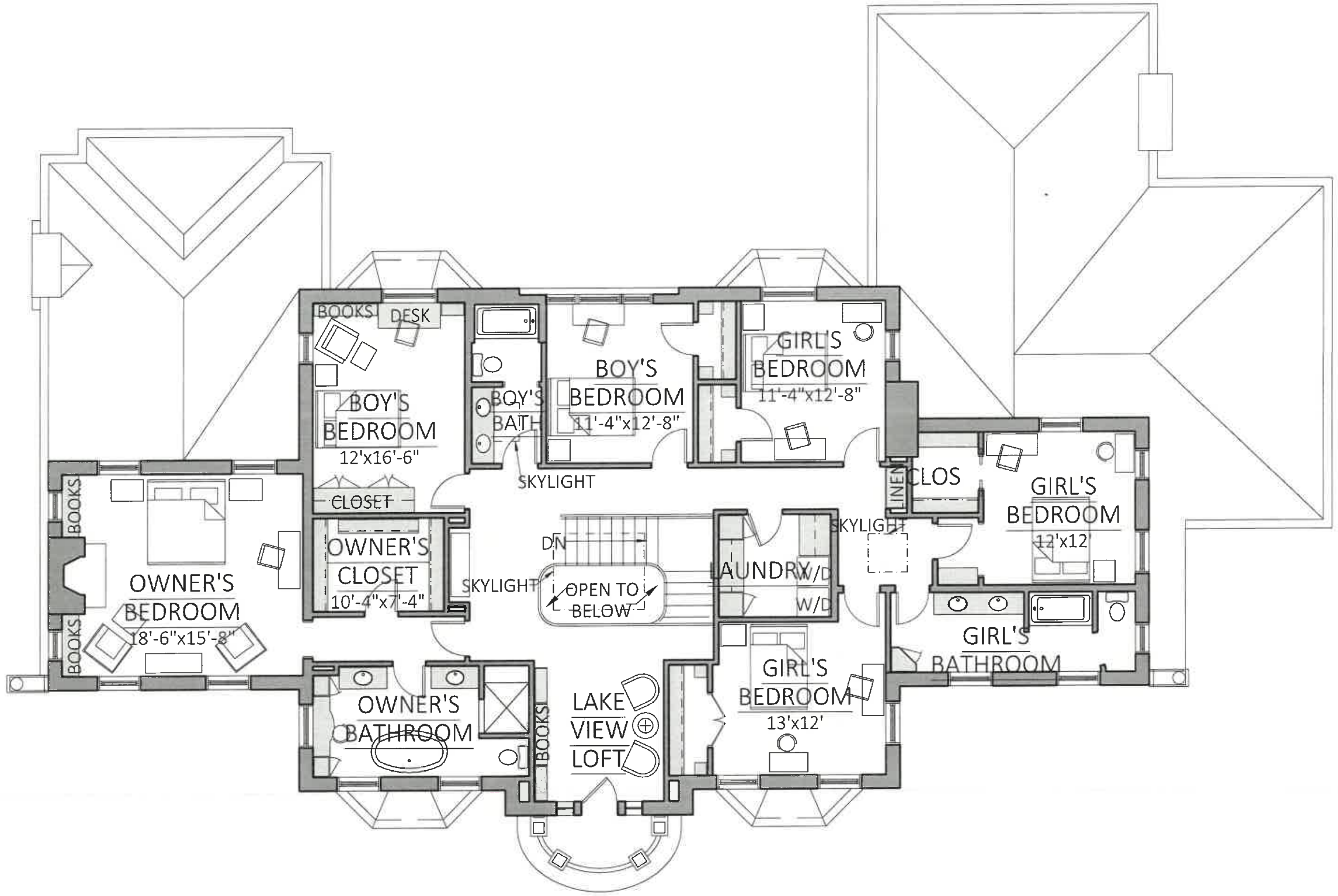

PROPOSED SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
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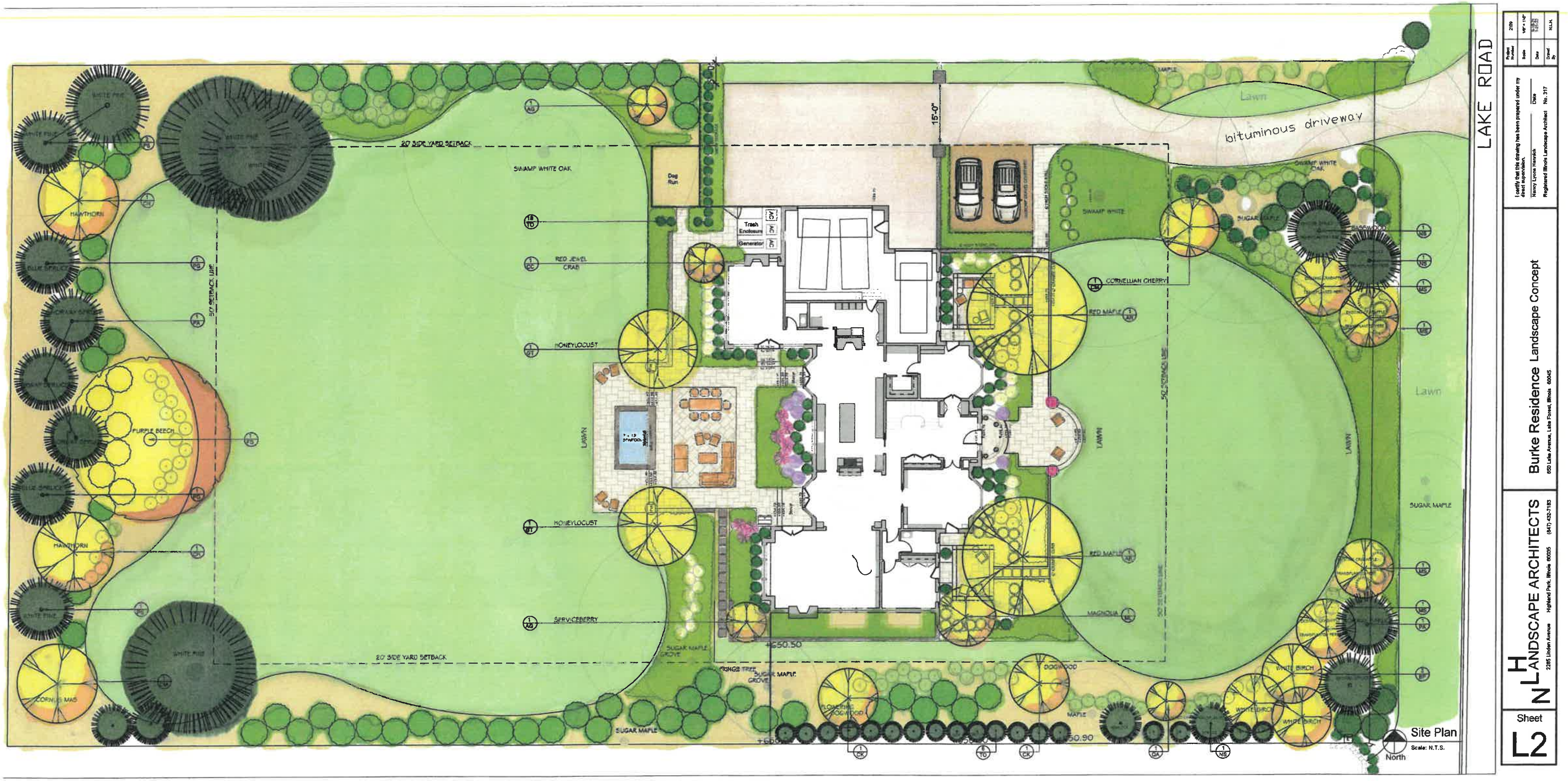
CONCEPTUAL LANDSCAPE PLAN



View of subject home from Lake Road showing front entry (east)

View of subject home from rear (west)

View of subject home from side (north)

View of subject home from side (south)

View of subject home detached garage from front (east)

View of subject home detached garage from rear (west)

View of subject home from Lake Road showing front entry (Google street photo)

620 Lake Road (neighbor directly to the South – Google street photo)

676 Lake Road (neighbor directly to the North – Google street photo)

700 Lake Road (two doors North – Google street photo)

CONSULTANT REPORTS

HISTORIC RESOURCE EVALUATION

HISTORICAL AND ARCHITECTURAL STUDY:

THE GILBERT E. PORTER III HOUSE
650 LAKE ROAD, LAKE FOREST, ILLINOIS

Built 1926; Frazier, Blouke & Hubbard, architects

HAIS PREPARED BY:
Jean L. Guarino, Ph.D., Principal
Guarino Historic Resources Documentation
844 Home Avenue | Oak Park, IL 60304
708.386.1142 | guarinojl@gmail.com

Submitted to Twenty9 Construction on June 26, 2019.

Synopsis of Findings of Significance

The Gilbert E. Porter III House possesses national historic significance as the former residence of Ralph A. Bard, a Chicago financier who was appointed by President Franklin D. Roosevelt as Assistant Secretary of the Navy (1941-1944) and later as Under Secretary of the Navy (1944-1945) during World War II. In a memorandum dated June 27, 1945, Bard urged his superiors to give Japan receive two or three days' warning before use of the atomic bomb, in order to allow its leaders a chance to surrender. He received the Navy's Distinguished Service Medal in 1946. The house was also the residence of Jon Henricks, a native Australian and world champion swimmer who won two gold medals in the 1956 Olympic Games in Melbourne.

The house possesses statewide architectural significance as a work by Walter Frazier, a residential architect who played a significant role in the Chicago region and in the City of Lake Forest, where he designed a dozen stylish and high quality houses between 1926 and ca. 1970. The 1926 Porter residence also possesses local architectural significance as an elegant and restrained example of the Colonial Revival style and displays many of its characteristic features. Photos and floor plans of this residence were featured in the June 1930 issue of *House Beautiful* magazine. The house is distinguished by its overall quality of design and craftsmanship and possesses a high level of architectural integrity.

Ownership history of the 650 Lake Road parcel

The following chain of ownership information for the house at 650 Lake Road was obtained from tract book records on file at the Lake County Recorder of Deeds Office in Waukegan.

Property Owner Name	Period of Ownership
Gilbert E. Porter III and Anne Porter	September 19, 1924 to January 12, 1946
Ralph A. Bard and Mary Spear Bard	January 12, 1946 to June 11, 1976
John A. and Bonnie Henricks	June 11, 1976 to September 28, 2018
Lemon Property 3 LLC	September 28, 2018 to May 14, 2019
Stephanie Burke	May 14, 2019 to present

Gilbert E. Porter III and Anne Porter

Gilbert E. Porter III (1892-1946) was born July 19, 1892 in Chicago, the son of Gilbert Edwin Porter (1864-1942) and Edith (Lorimer) Porter (1870-1915). His father was a senior partner in the law firm of Isham, Lincoln & Beale in Chicago and maintained a city apartment at 900 North Michigan Avenue as well as a large estate in Elmhurst known as Cherry Circle Farm. The elder Porter specialized in corporation and traction law, and for years represented the interests of Samuel Insull, the public utilities magnate and head of Commonwealth Edison.[1]

Porter's son, Gilbert III, attended the Latin School in Chicago and Phillips-Andover, a boarding school in Andover, Massachusetts. After graduating from Yale University in 1916 with a B.A. degree, he took a position as assistant secretary of the Chicago, North Shore & Milwaukee Railroad Company. During World War I, Porter enlisted as a Private, 17th Engineers, on June 5, 1917 before his transfer to the 333rd Field Artillery. He was commissioned Second Lieutenant on June 6, 1918 and promoted to First Lieutenant on August 1, 1918. After his discharge on February 4, 1919, Porter worked for the General Motors Acceptance Corporation as Chicago district manager from 1920-25. He then worked for the First National Company of Detroit as manager of their Chicago office (1925-29) and later as vice president (1929-31). Starting in 1931, he served as a stock broker in the firm of Winthrop, Mitchell & Company of Chicago.

On April 7, 1920, Gilbert E. Porter III married Anne Horry Kilby in Anniston, Alabama. She was the daughter of Governor Thomas Kilby of Alabama and his wife, Mary (Clark) Kilby.[2] The couple had three girls: Edith, Ann and Polly. The Porters purchased the undeveloped 650 Lake Road Parcel from T. Phillip Swift on September 19, 1924 and commissioned the firm of Frazier, Blouke & Hubbard to design a house for their family, which was built in 1926. A July 1927 *Chicago Tribune* article about a burglary at the Porter house identified its address as 110 Lake Road.[3] However, the 1929 Sanborn Fire Insurance Map shows its address as 650 Lake Road.

The Gilbert E. Porter III House was featured in the June 1930 issue of *House Beautiful* magazine, which included photos of the front elevation and library as well as floor plans, which were accompanied by this text:

> This house has walls of common brick whitewashed, and wide siding laid with slightly uneven lines, painted white, and a roof of wood shingles left to weather. The first-floor shutters are white and those on the second floor dark green.
>
> The Library in the Porter House is of knotty pine slightly stained and rubbed with wax. The fireplace of old soft red brick is a copy of one in the American Wing of the Metropolitan Museum. The furniture is covered in dull red and in chintz with reds and soft blues on a tan ground. The curtains are of the same chintz.[4]

---

1 *Bulletin of Yale University: Obituary Record of Graduates Deceased During the Year Ending July 1, 1939* (New Haven, Connecticut: 1940) 148-149. "Gilbert Porter, Retired Lawyer, is Dead at Age 78," *Chicago Tribune*, March 4, 1942.

2 "Gilbert Porter III Leaves Today to Wed Gov. Kilby's Daughter," *Chicago Tribune*, April 2, 1920.

3 "Gilbert Porter Home Robbed of $5,000 in Jewels," *Chicago Tribune*, July 31, 1927.

4 *House Beautiful*, June 1930, pp. 760-761.

Gilbert E. Porter III died on April 10, 1939 in Passavant hospital at the age of 46 after a long illness. He was a member of the Onwentsia Country Club in Lake Forest.[5] Mrs. Anne Porter remained in the house through 1945 and in June 4 of that year she hosted a sale of goods from the Hull House shop. An item in the *Chicago Tribune* on the sale noted that, "Her white brick house at 650 N. Lake Rd. is one of the most attractive in the suburb."[6]

Ralph Austin Bard

Ralph A. Bard, Assistant Secretary of the U.S. Navy, 1941. Source: Library of Congress, Prints and Photographs Division.

Ralph Austin Bard (1884-1975) and his wife Mary (Spear) Bard were the second owners of the Porter House. Bard, a Chicago financier who served as Assistant Secretary of the Navy (1941-1944) and Under Secretary of the Navy (1944-1945) during World War II, was born in Cleveland on July 29, 1884. He moved to Chicago's Hyde Park neighborhood as a boy and later attended Princeton University, where he played baseball, football and basketball, and was voted the best all-round athlete in the class of 1906. After graduation he began as an investment salesman in Chicago, tried his luck briefly as a gold miner in the West, returned to Chicago and in 1909 joined the investment firm of F.B. Hitchcock & Company.[7]

On February 23, 1909, Ralph Bard married Mary Spear, who was also a resident of Hyde Park, where they initially lived. [8] The couple later moved to Highland Park had four children: Ralph A. Bard Jr., George, Janet and Katherine. During World War I, Ralph Bard directed military relief for the Central Division, American Red Cross. In 1923, the name of F.B. Hitchcock & Co. was changed to Hitchcock, Bard & Company and later became Ralph A. Bard & Company with offices at 39 S. LaSalle Street. The firm specialized in the purchase and sale of bonds, short term notes and investment stocks. During the 1930s, Bard stepped away from active participation in the firm to become president of the Chicago Investors Corporation. In 1939, he became chairman of the board of the Wahl Company, a Chicago manufacturer of fountain pens and mechanical pencils, which became the Wahl-Eversharp Pen Company. He was also a director of the American Shipbuilding Company and the Libby-Owens Glass Company.[9]

5 "Gilbert E. Porter III," *Chicago Tribune*, April 11, 1939.
6 Judith Cass, "Sale of Gifts to be Held in Lake Forest," *Chicago Tribune*, June 4, 1945.
7 "Ralph A. Bard, 90, Navy Leader, Dies," *New York Times*, April 7, 1975.
8 "In the Society World," *Chicago Tribune*, Feb. 24, 1909.
9 "New Interests Assume Control on Wahl Board," Chicago *Tribune*, December 16, 1939.

On February 15, 1941, Bard a Republican and longtime friend of Secretary of the Navy Frank Knox, was nominated by President Franklin D. Roosevelt to succeed Lewis Compton as Assistant Secretary of the U.S. Navy.[10] In this position, he was responsible for all matters relating to civilian personnel and the general administration of the Navy Department. Divisions under his control included Shore Establishments, Transportation, Supervision and Management, the Administrative Office, and the Management Engineer's Office. He instituted a sweeping industrial relations program, covering such areas as training, classification, safety, labor relations, recruiting, and efficient use of manpower, and established a Personnel Relations Division in every major naval activity. These efforts resulted in there being no strike or work stoppage at any Navy activity during World War II. Upon becoming Under Secretary on June 24, 1944, Bard added responsibility for all Navy uniformed personnel to his other duties.[11]

Ralph Bard's obituary in the *New York Times* stated:

> Under Mr. Bard's direction, probably the biggest program in modern personnel administration ever undertaken was begun. Specialists in training, safety, employee services, recruiting, employment, classification and labor relations were put on the job. The divisions of shore establishments and civilian personnel were merged and field services were streamlined. Bard waged a campaign against office waste and inefficiency. His efforts resulted in big reductions in Navy production costs and production time.[12]

When Ralph Bard received the Distinguished Service Medal in 1946 from Secretary of the Navy James V. Forrestal, the citation credited him with directing "the expansion of activities under his cognizance to a point where the Navy had become the largest single direct employer of industrial labor in the world." It also credited him with aiding the Secretary of the Navy in beginning an industrial relations program that "resulted in an unparalleled record of production unmarred by any labor strife."[13]

Ralph Bard served as a member of the Interior Committee appointed by President Harry S. Truman to advise on use of the atomic bomb and on postwar uses of atomic energy. After joining in the committee's unanimous recommendation for immediate use of the bomb against a civilian target in Japan, Bard sent the following Memorandum to Secretary of War Henry L. Stimson on June 27, 1945, urging that Japan receive two or three days' warning before the bomb was used.

> Ever since I have been in touch with this program I have had a feeling that before the bomb is actually used against Japan that Japan should have some preliminary warning for say two or three days in advance of use. The position of the United States as a great humanitarian nation and the fair play attitude of our people generally is responsible in the main for this feeling.

---

10 "R.A. Bard Named as Assistant To Navy Secretary," *Chicago Tribune*, Feb. 15, 1941.

11 Biography of Ralph A. Bard found in: https://www.history.navy.mil/research/archives/research-guides-and-finding-aids/personal-papers/b/papers-of-assistant-secretary-of-the-navy-ralph-a-bard.html (Accessed June 23, 2019.)

12 "Ralph A. Bard, 90, Navy Leader, Dies," *New York Times*, April 7, 1975.

13 Ibid.

> During recent weeks I have also had the feeling very definitely that the Japanese government may be searching for some opportunity which they could use as a medium of surrender. Following the three-power conference emissaries from this country could contact representatives from Japan somewhere on the China Coast and make representations with regard to Russia's position and at the same time give them some information regarding the proposed use of atomic power, together with whatever assurances the President might care to make with regard to the Emperor of Japan and the treatment of the Japanese nation following unconditional surrender. It seems quite possible to me that this presents the opportunity which the Japanese are looking for.
>
> I don't see that we have anything in particular to lose in following such a program. The stakes are so tremendous that it is my opinion very real consideration should be given to some plan of this kind. I do not believe under present circumstances existing that there is anyone in this country whose evaluation of the chances of the success of such a program is worth a great deal. The only way to find out is to try it out.[14]

Bard resigned from the Navy post on July 1, 1945. The atom bomb was dropped in Hiroshima on August 6, 1945. Bard returned to Chicago after the war and in 1946 purchased the house on 650 Lake Road where he resided with his wife Mary. The couple added the living room bay window in 1946 and constructed the detached garage with servants' quarters in 1947.

On March 30, 1947, Ralph Bard was named by President Truman as deputy United States representative on the United Nations Commission for Conventional Armaments. He was tasked with assisting Warren R. Austin, chief United States representative to the United Nations, on the body organized to regulate and reduce conventional arms but excluding atomic weapons, which were dealt with by a separate commission. He resigned as chairman of Eversharp, Inc. to assume this new role, which lasted from 1947-48.[15]

Ralph Bard's first wife died on March 29, 1949 at the age of 62.[16] In October 1950 he married Mary Vail of Highland Park, a widow since 1937, and the news was "a source of greatest pleasure to their many mutual friends." Ralph Bard formerly lived in Highland Park and his children and Mrs. Vail's sons, Roger Jr. and Henry Bloss Vail, had known each other all their lives. A notice of the wedding reported that Mr. Bard also had a home called Hunting Creek plantation in Virginia. [17]

Bard was a trustee of Northwestern University, a former vice president of the Chicago Council of Boy Scouts and first chairman of the merged Presbyterian-St. Luke's Hospital, Chicago. He had been active in the Republican Party. He resided in the house at 650 Lake Road until his death in 1975 at Whitehall Nursing Home in Deerfield.[18]

---

14 Memorandum by Ralph A. Bard, Undersecretary of the Navy, to Secretary of War Stimson, June 27, 1945. http://www.atomicarchive.com/Docs/ManhattanProject/Bardmemo.shtml (Accessed June 23, 2019.)

15 "U.N. Commission on Arms Gets Deputy U.S. Member," *New York Times*, March 30, 1947.

16 "Mrs. Ralph A. Bard, Wife of Former Navy Official, Dies at 62," *Chicago Tribune*, March 30, 1949.

17 Judith Cass, "Ralph A. Bard and Mrs. Vail to be Married," *Chicago Tribune*, October 20, 1950.

18 "Ralph Bard dies; fought A-bombing," *Chicago Tribune*, April 7, 1975.

The Papers of Ralph A. Bard are on file at the Archives Branch, Naval History and Heritage Command, Washington, D.C. A finding aid can be found online: https://www.history.navy.mil/research/archives/research-guides-and-finding-aids/personal-papers/b/papers-of-assistant-secretary-of-the-navy-ralph-a-bard.html

Jon A. and Bonnie Henricks

Jon Henricks (b. 1935), an Olympic gold medalist, began his career as a distance swimmer. In the 1952 Australian championships he finished third in the 1650 yards, and first in the 440 yards. Soon after, Frank Cotton, the physiology professor who became the father of Australian sports science, made the judgment that Henricks was better suited to sprint swimming. He made the switch at 17, with a revolutionary training program devised by Cotton and his coach Harry Gallagher, and success came quickly. In 1953, Henricks won the first of four successive 110 yards championships and in 1954 he won three gold medals at the Vancouver Empire Games (one for 110 yards, two for relays).[19]


Jon Henricks after winning gold in the men's 100m freestyle at the Melbourne 1956 Olympic Games.

Henricks was 21 when he won Australia's first swimming gold medal of the 1956 Melbourne Olympics in the 100 meter freestyle. He set an Olympic record, becoming the first Australian ever to win that event. When the Olympics began, he had never been beaten in a major sprint event and he kept that record intact. He won a second gold medal in the 200 meter freestyle relay, anchoring a team that included John Devitt, Kevin O'Halloran and Murray Rose.[20]

Jon Henricks was one of the first swimmers to begin shaving their bodies before racing, after his father Clyde conceived the technique. He later recalled, "When my father made me do it, a lot of other swimmers thought it was weird. At the 1956 Olympics, all the Australian team also shaved down and the team became the only group to ever win every gold medal in both men's and women's freestyle at the Games."[21]

After the Olympics, Henricks enrolled at the University of Southern California, where he had a swimming scholarship, winning American outdoor championships in the 100 and 200 meter in 1958 and along with Murray Rose, helped the USC team win the 1960 NCAA team championships. Henricks tried to defend his Olympic title in 1960, but had to withdraw after

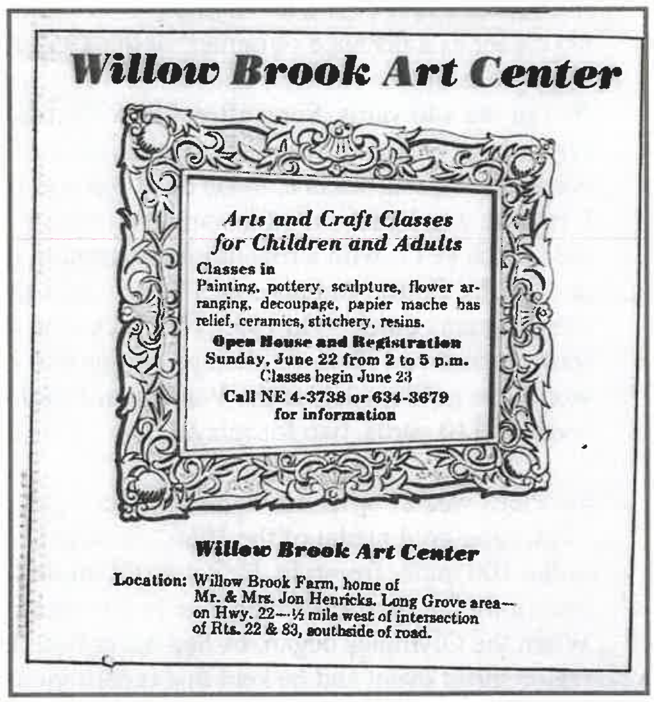
19 Source: http://olympics.com.au/athlete/jon-henricks (accessed June 23, 2019.)

20 Ibid.

21 Source: https://www.news.com.au/finance/real-estate/sydney-nsw/swimming-great-forced-to-sell-over-tax-hike/news-story/ce113cc88bcdeb3a7c62ac8c7cee80ad (accessed June 23, 2019)

contracting a gastrointestinal ailment. When in Rome for the 1960 Olympics, Henricks married Bonnie Wilkie (b. 1939), the sister of Mike Wilkie, his teammate at USC. Ms. Wilkie was the daughter of the Leighton A. Wilkies of Long Grove, Illinois and Santa Barbara, California. The event was the social highlight of the Olympic Games, attended by most of the American and Australian swimming teams who formed a guard of honor on either side of the aisle of the 12th century Santa Cecilia Church.[22]

The Henricks had three daughters— Deborah (b. 1962), Gretchen (b. 1964) and Shelly—and resided during the 1960s and early 1970s on the 300-acre Willow Brook Farm in Long Grove, a working farm where Bonnie was raised. The property—located on Half Day Road, one-half mile west of Illinois Highway 83—contained six barns, which the couple converted for use as an art center during the summer months, hiring local teachers to lead pottery, painting and sculpture classes. The Willow Brook Art Center was modeled on the Montsalvart Art Colony in Melbourne, Australia, which the Henricks toured during a visit to Jon's home country.[23]



Elk Grove Herald (Elk Grove Village, Illinois), June 19, 1969.

Jon Henricks served as Vice President-Public Affairs of the DoAll Company in Des Plaines, a firm established in 1933 by his father-in-law, millionaire industrialist Leighton Wilkie, which manufactured and distributed tools worldwide. The company had eight factories in North America and in Europe that were located in Des Plaines; Savage, Minnesota; Escandido, California; Toronto, Canada; and near Stockholm, Sweden. Do-All's tools and gauging equipment was merchandized through 70 stories.[24] Jon Henricks was inducted into the International Swimming Hall of Fame in 1973 and Sport Australia Hall of Fame in 1986.[25]

The Henricks relocated to Lake Forest in 1976, when they purchased the house at 650 Lake Road from the Bard estate. The couple also maintained a house in Sydney, Australia, where they spent

22 "Rome Plus Olympics-Romance, Wedding Bells," *Chicago Tribune*, September 4, 1960.

23 *Chicago Tribune*, September 15, 1969.

24 Susan Loth, "Wilkie steamed up over tools," *The Winona Daily News* (Winona, Minnesota), July 11, 1975.

25 Source: https://www.sports-reference.com/olympics/athletes/he/jon-henricks-1.html (Accessed June 24, 2019.)

a month each year, renting it out the remainder of the time. They sold both their Lake Forest and Sydney residences in 2018 and currently reside in Santa Barbara, California. Their house at 650 Lake Road was sold to Marcus Lemonis, the host of "The Profit" on CNBC and CEO of Camping World.

Narrative Description of the Gilbert E. Porter III House

P.I.N.: 12-34-103-010-0000

Legal Description for 650 Lake Road: Parcel 1: The South 150 Feet of Lot 189 (as measured perpendicular to the south line of said lot) in the City of Lake Forest, a Subdivision in the Northwest Quarter of Section 34, Township 44 North, Range 12, East of the Third Principal Meridian, according to the plat thereof, Recorded July 23, 1857, in Lake County, Illinois.

Parcel 2: That part of the North One Half of Vacated Cliff Lane, Lying South of and Adjoining Parcel One, As Vacated by an Ordinance of the City of Lake Forest, dated April 7, 1947, as Document No. 615577, in Lake County, Illinois.

Construction Date: 1926

Architect: Frazier, Blouke & Hubbard

House Description:
The Colonial Revival style Porter House at 650 Lake Road in Lake Forest is located near the south end of the city, across from the wooded bluff above the lakefront park. It is situated on a 1.3-acre rectangular parcel that measures 331.5 east-west and 166.5 north-south. The east-facing house is set back approximately 100 feet from Lake Road and is accessed from the street by a U-shaped paved driveway. A two-story garage with apartment is situated at the northwest corner of the house and also accessed by a paved driveway. Both the front and rear of the house feature grassy yards and a sunken fountain is situated on the south side of the house.

The two-story house has rectangular footprint with north and south wings: the north service-garage wing projects eastward and the south living room wing projects westward. The main block and south wing have a cross-gable roof; the north service-garage wing has a salt box roof. The roof covering is comprised of cedar shingles. The walls are common brick painted white; wide, wood boards painted white cover the south gable ends of the house, as well as the walls at the northwest corner of the house. The south wing has exterior chimneys on both of its gable ends with brick painted white. An additional chimney is situated near the center of the north-south roof ridgeline. Windows are typically arranged alone and those in the portions of the house with brick walls have stone sills and jack arch lintels.

The front (east) elevation has an off-center wood paneled front door that opens onto the entrance hall. A south-facing wood paneled service door opens onto the attached one-car garage in the projecting north wing. There are five windows on the first floor of this elevation and eight windows on the second floor. All windows on the front elevation have wood shutters painted black. The two second floor windows in the north wing are eight-over-eight wood-sash. All other windows on this elevation are twelve-over-twelve wood-sash.

The north elevation has a wood paneled garage door at its east end. The first floor has a pair of eight-over-eight wood-sash windows, a wood panel door, and a three-sided bay window with one-over-one aluminum sash. The second floor has two hip roof garage dormers, one single window and a pair of windows, all of which are twelve-over-twelve wood-sash. A pair of windows in the gable attic level are covered with a pair of shutters.

The rear (west) elevation is partially spanned by a flat-roofed enclosed porch that has a stone wall on its north end and five sets of sliding glass doors with each opening framed by decorative ironwork. Another sliding glass door opens onto a breakfast room to the north. The first floor of this elevation has a total of five windows: two eight-over-eight wood-sash windows on the north end; two twelve-over-twelve windows flanking the exterior chimney of the south gabled end; and one north-facing eight-over-sixteen window. The second floor has a total of twelve wood-sash twelve-over-twelve windows.

The south elevation has a total of seven eight-over-sixteen wood-sash windows on the first floor, four of which are situated within a three-sided bay window with copper-covered hip roof. The second floor of this elevation has four twelve-over-twelve wood-sash windows.

Walls and ceilings on both the first and second floors are plaster, and most rooms throughout the house have simple, unadorned baseboard molding, ceiling molding, and door and window casings. The entrance hall and dining room have rounded door openings and the latter features rounded, wood-paneled doors. Typical wood doors throughout the house have six vertical panels. Hardwood flooring is used throughout the house, except in the bathrooms, which generally have marble flooring. Bathrooms have tubs and sinks that appear to be original.

The first floor has a front entrance hall and a total of ten rooms: a powder room, library, living room, dining room, enclosed porch, butler's pantry, kitchen, breakfast room, laundry room and one-car attached garage. The front hall has a floating wood spiral staircase with elegant tapered wood railings and newel post. The front hall opens onto a vestibule and a powder room on the east; the library and living room on the south; the enclosed porch on the west; and a short hallway leading to the dining room on the north. The dining room opens onto short hallway that leads to the kitchen and opens onto the butler's pantry to the east. The kitchen opens onto a breakfast room on the south and to adjacent wood stairways leading to the second floor and the basement. To the east of this set of stairways is the laundry room, which opens onto the attached one-car garage.

The walls in the library are covered with knotty pine painted with a dark stain, the same material used for its built-in shelves and lower built-in cabinets. The door on the north wall of the library featured vertical planks of knotty pine with a dark stain. The fireplace on the east wall of the library has a simple pine mantel with a row of dentil molding and is flanked on either side by a vertical strip of ceramic tiles. The west wall of the living room has rectangular wood panels painted white that surround the fireplace which lacks a mantel. The enclosed porch has flagstone flooring, a wood ceiling, and four glass paneled wood doors—three on its east wall and one on its south wall—in addition to the five sets of sliding glass doors on its west wall.

The dining room is surrounded by wood wainscoting painted white and has three round-arched doorways with wood paneled round-arched doors. Two corners of this room have built-in bookshelves, and the fireplace on the north dining room wall has a wood mantel painted white with curvilinear motifs. The west wall of the corridor between the dining room and kitchen is lined with original built-in cabinets. The cabinets and appliances in the butler's pantry and the kitchen are all non-original. The laundry room features three original wash sinks on its west wall. The basement has concrete flooring and a hallway that opens onto a water closet, two storage rooms, a closet and a furnace room.

The second floor has a stair hall and a total of eleven rooms: six bedrooms, four full bathrooms and a sewing room. Single-loaded corridors extend across the east side of the main block and the south side of the north wing. The former opens onto two large bedrooms—which are internally separated by a full bathroom—the sewing room, a linen closet, and the stair hall. Its ceiling has a door with a pull-down stairway that accesses the storage attic. The latter opens onto two servants' bedrooms and a full bathroom. The south end of the second floor features two large bedrooms, each of which had its own full bathroom. The bedroom at the center of the second floor plan has a fireplace with wood mantel detailed with a seashell, scrolled brackets, and curvilinear motifs. The southwest bedroom has a fireplace with a simple wood mantel flanked by built-in bookshelves on its west wall. The southeast master bedroom has a fireplace on its east wall covered with textured plaster painted white. All bedrooms are supplied with large closets. The sewing room has a drop-down ironing board hidden behind a narrow door on its north wall.

Architectural Integrity

Overall, this house has excellent architectural integrity and is virtually unchanged from its original appearance. Two historic alterations include the addition of the rear screened-in porch in 1936, which was enclosed post-1976, and construction of a bay window on the south living room wall in 1946. The kitchen bay window at the north end of the house appears to be non-original. The cedar shingles that cover the roof were installed within the past year. Inside, the kitchen and butler's pantry have been updated with modern cabinets, counters and appliances. The second floor bedroom on the north end of the main block was enlarged at an unknown date through the removal of the sleeping porch shown on the original floorplan.

Outbuilding Description

The two-story Colonial Revival style detached two-car garage with second floor apartment was built in 1947. It has a side-gable roof covered with cedar shingles and is painted white to match the house. A chimney is situated at the south end of the roof ridgeline. The south end of the east elevation has brick walls and a wood service door; the remainder of this elevation has two overhead paneled metal doors and siding comprised of wide, wood boards. The west elevation is sided with wide, wood boards and has one window on the first floor and two hip dormers. All three windows are six-over-six wood-sash. The south elevation wall is brick and it has a wood panel service door with four glass panes sheltered by a shed-roofed hood with cedar roof shingles and two decorative scrolled brackets. This elevation has a two four-over-four wood-sash windows on the second floor. The north elevation is sided with wide, wood boards and has two windows on the first floor and a pair of windows on the second floor, all of which are six-over-six wood-sash.

Architect Walter Frazier

Architect Walter S. Frazier

The Gilbert E. Porter III House at 650 Lake Road is among the distinctive residential designs of noted architect Walter Frazier (1895-1976). Frazier, born on October 29, 1895 in Aurora, Illinois, graduated from the University of Illinois in 1915 and received a Bachelor of Science degree in Architecture from the Massachusetts Institute of Technology in 1918. He attended the Ecole des Beaux-Arts from 1918-19, after which he worked as a draftsman for the Chicago firm of Holabird and Root from 1920-25. In 1926 he formed the firm of Frazier, Blouke and Hubbard.[26] Works by this firm, in addition to the Porter House, include a clubhouse for the Hieland County Club, located between Kankakee and Momenee (1927), and a Tudor Revival style store building with upper level apartments at Lee and Walnut streets in Des Plaines (1926).[27] Frazier established a partnership with John Howard Raftery (1896-1963) in 1927; the name changed to Frazier, Raftery, Orr and Fairbank in 1948, and became Frazier, Orr, Fairbank & Quam in the early 1970s.[28] The firm office was in Chicago until after World War II, when it was relocated to Geneva, Illinois, where Frazier lived in an International style house that he designed at 102 S. Bennett Street.[29]

Today, Walter Frazier is best known for his stylish houses designed in partnership with Howard Raftery, many of which were commissioned by Chicago's elite on the North Shore and in the Fox River Valley, where he resided. These included houses designed for Samuel Insull, Jr. (1935) and William Maxwell (1949), both in Geneva, Illinois. Frazier's significance to local architectural history was recognized by the Lake Forest-Lake Bluff Historical Society (now the History Center of Lake Forest-Lake Bluff) in 2009 through the publication of the book *Walter Frazier: Frazier, Raftery, Orr, & Fairbank Architects Houses of Chicago's North Shore, 1924-1970* by authors Kim Coventry and Arthur Hawks Miller. The authors noted that Frazier "was very active in the suburb and exurbs west of Chicago, especially in and near Aurora, Barrington, Geneva, Elgin, St. Charles and Wayne. He received other commissions, most notably for

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26 *American Architects Directory, First edition, 1956* (New York: R.R. Bowker, 1956) 180.

27 "Hieland County Club," *Chicago Tribune*, July 10, 1927. "Typify Good Old Days in New Building," *Chicago Tribune*, April 18, 1926.

28 "Walter Frazier," *Chicago Tribune*, May 5, 1976.

29 Kathryn Loring, "Old Charm in a Modern House," *Chicago Tribune*, May 1, 1960.

interiors and renovations, from clients in the Lake Forest and Chicago areas, as well as, occasionally, from elsewhere in the country."[30]

William C. and Elizabeth Merrill Hubbard House at 1078 Edgewood Road (1924).

The book includes twelve Lake Forest houses designed by Frazier and Raftery and after 1949, by Frazier, Raftery, Orr & Fairbank Architects. They were built between 1924 and ca. 1970 and constitute a representative array of Frazier's residential work. They also demonstrate Frazier's great versatility as an architect, as he moved easily among French inspired styles, the American Colonial, and the International style. Some of Frazier's Lake Forest houses feature English traditional styles with an Arts and Crafts spirit, and even simplified versions of Classicism and the Greek Revival style. Together, this group of sophisticated houses, listed below, also embody great careful attention to design, craftsmanship and materials.

- William C. and Elizabeth Merrill Hubbard House at 1078 Edgewood Road (1924)
- Mrs. William H. (Susan Campbell Weare) Hubbard House on Edgewood Road (1927)
- Samual J. Jr. and Elizabeth Ware Walker House on Green Bay Road (ca. 1927)
- George Corson and Roberta Thorne Ellis House (1928)
- Edward Kenneth and Elizabeth Cluett Scott Welles House on Ahwahnee Road (1928)
- Lawrence Jr. and Barbara Kirk Williams House at 1050 E. Illinois Road (1928)
- Henry M. and Dorothy Curtis Rowley House at 581 Crab Tree Lane (1930)
- Duncan and Sarah Brewster Hodges House, southeast corner of Green Bay Road and Westminster (1930)
- Elliott and Ann Steinwedell Donnelley House on Ridge Lane (1934)
- Elliott and Ann Steinwedell Donnelley House on Melody Lane (1955)
- John T. and Ginervra King Pirie House on East Westleigh Road (ca. 1960)
- Ralph II and Suzanne Borden Clarke Falk House on Stonegate Lane near Illinois Road (1962)

Frazier became a member of the American Institute of Architects in 1926, and in 1956 he was granted the honor of Fellowship in the AIA. Many prominent Chicago architects wrote letters supporting his nomination including William E. Hartmann, a partner in Skidmore, Owings and Merrill, who stated:

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30 Kim Coventry and Arthur Miller. *Walter Frazier: Frazier, Raftery, Orr & Fairbank Architects* (Lake Forest, Illinois: Lake Forest-Lake Bluff Historical Society, 2009) 9.

> Mr. Frazier through unusual creative effort has attained an outstanding position int eh Middle West as a residential architect. His work also encompasses domestic design applications for commercial and industrial projects as evidenced by his recently completed commissions for the Waldorf Astoria in New York and the Palmer House in Chicago. In all this work, done largely in association with John Howard Raftery, Mr. Frazier has demonstrated a high degree of talent and skill in design with a standard of excellence which merits recognition by the American Institute of Architects.[31]

Alfred Shaw, a partner in the firm Shaw, Metz & Dolio, said this about Frazier:

> It is a privilege to add my endorsement of this request in view of my admiration for Mr. Frazier personally, but particularly, for his achievements in design. Mr. Frazier is one of the really distinguished architects in the field of interior design, not only in his own structures and fine residences throughout the city, but in important public rooms, clubs, and hotels throughout the county. His services are in demand where the knowledge of distinguished detail and good taste are required, and there are very few in the entire country who can measure up to his prominence in these fields.
>
> In addition to these personal achievements, Mr. Frazier's work as a partner in the firm of Frazier & Raftery has been notable in their particular field, which is in the finer residences, including exterior design, landscaping, and interiors.[32]

Frazier's firm, through a Chicago area competition, was awarded the building of the Masonite House at the 1933 Century of Progress World's Fair in Chicago. Other prominent commission listed on Frazier's 1953 application for AIA Fellowship include the Casino Club in Chicago (1927); Barker Memorial Hall and Community Center in Michigan City, Indiana (1928); the U.S. Post Office in St. Charles, Illinois (1930); the Kane County Title Company Building in Geneva (1950); and the First National Bank in Geneva (1953). The Frazier firm also renovated interior spaces of such prominent hotels as the Waldorf-Astoria and the Roosevelt Hotel, both in New York; and the Palmer House and the Hilton Hotel in Chicago.

Henry M. and Dorothy Curtis Rowley House at 581 Crab Tree Lane (1930).

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[31] William E. Hartmann, letter to The Jury of Fellows, The American Institute of Architects, October 28 1955. Source: The American Institute of Architects Membership file for Walter S. Frazier. http://content.aia.org/sites/default/files/2018-09/Frazier_Walter.pdf (Accessed June 24, 2019.)

[32] Alfred Shaw, letter to The Jury of Fellows, The American Institute of Architects, February 24, 1954. Source: The American Institute of Architects Membership file for Walter S. Frazier. http://content.aia.org/sites/default/files/2018-09/Frazier_Walter.pdf (Accessed June 24, 2019.)

Landmark Status of the Property

The Porter House is not a locally designated landmark. However, it is a contributing building within the Lake Forest National Register Historic District.

Evaluation of Historic Significance

Gilbert E. Porter III and other owners of this house were researched through a variety of sources, including the Chicago History Museum's online catalog and the *Chicago Tribune*'s online archive. It was determined that the house possesses national historic significance as the residence of Ralph A. Bard, a Chicago financier who was appointed by President Franklin D. Roosevelt as Assistant Secretary of the Navy (1941-1944) and later as Under Secretary of the Navy (1944-1945) during World War II. In a memorandum dated June 27, 1945, Bard urged his superiors to give Japan receive two or three days' warning before use of the atomic bomb, in order to allow its leaders a chance to surrender. He received the Distinguished Service Medal for his work in the Navy Department. No information was found relating the house to an historic event. The house was also the residence of Jon Henricks, a native Australian and world champion swimmer who won two gold medals in the 1956 Olympic Games in Melbourne.

Evaluation of Architectural Significance

The Gilbert E. Porter III House was designed by Walter Frazier, an architect who played a significant role in the City of Lake Forest, where he designed a dozen stylish and high quality houses between 1926 and ca. 1970. Frazier enjoyed a successful career in the Chicago region that spanned over forty years and was primarily known for his residential work, undertaken mainly in partnership with architect Howard Raftery. Frazier's importance was recognized during his lifetime, and examples of his work were published in architectural journals such as *Western Architect*, and in popular magazines and newspapers, including *House and Garden*, *House Beautiful* and the *Chicago Tribune*.

The Porter House also possesses individual architectural significance within the City of Lake Forest as noteworthy example of an architectural style. The 1926 home stands as a restrained example of the Colonial Revival style, which was based on 17th and 18th century English and Dutch houses of the Atlantic seaboard. The Georgian and Adam styles formed the basis of the Revival, with secondary influences from Post-medieval English or Dutch Colonial prototypes. The Colonial Revival was fashionable as a residential style throughout the nation in the early decades of the twentieth century and reflected the prevailing trend toward historicism, as architects looked nostalgically to the past for inspiration.

The Colonial Revival is an exceedingly common style in Lake Forest, and was used for dozens of houses built from the 1920s through the 1940s in particular. The most common type of Colonial Revival house in Lake Forest is clad in brick or wood, has a rectangular footprint, a symmetrical front façade with centrally located door, windows with double-hung sashes and multi-pane glazing, and a side-gabled or hipped roof, sometimes with dormers. High style examples may feature doors with fanlights and/or sidelights, porches with balustrades, Palladian windows, modillioned cornices, and pedimented dormers. The "second-story overhang" subtype of the Colonial Revival style, commonly built with the second story extended slightly outward to overhang the wall below, became popular in the 1930s.

The Gilbert Porter III House is a well-preserved example of a Colonial Revival house in Lake Forest and displays many of the style's most characteristic features, such as multi-paned double-hung windows, decorative shutters, exterior chimneys on the gabled ends, a cross-gable roof, and a salt box roofline with dormers on the service-garage wing. Also typical of the Colonial Revival, it features a formal entry hall with an elegant staircase and a dining room with wood wainscoting. Photos and floor plans of this residence were featured in the June 1930 issue of *House Beautiful* magazine.

The house displays high quality materials and craftsmanship, as seen in its original multi-paned wood-sash windows; wood paneled doors; round-arched doors; elegant, spiral front hall staircase; wainscoting in the dining room; wood paneling in the library; and six fireplaces with restrained detailing. Convenient circulation separates the family spaces from the servant-utilities-attached garage, which are contained in a separate wing and accessed via a secondary staircase. The house also features an abundance of storage closets and cabinets; bathrooms with original tubs and sinks; and a sewing room with built-in ironing board. Both the house and its detached garage, built 1947, have excellent architectural integrity and are virtually unchanged from their original appearance.

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List of Attachments

Attachment A: Exterior photos, June 2019

Attachment B: Floor Plans

Attachment C: Interior photos, June 2019

Attachment D: Table with Building Permits

Supplementary Materials

Exterior photos, June 2019

Exterior photos, June 2019

Exterior photos, June 2019

Exterior photos, June 2019

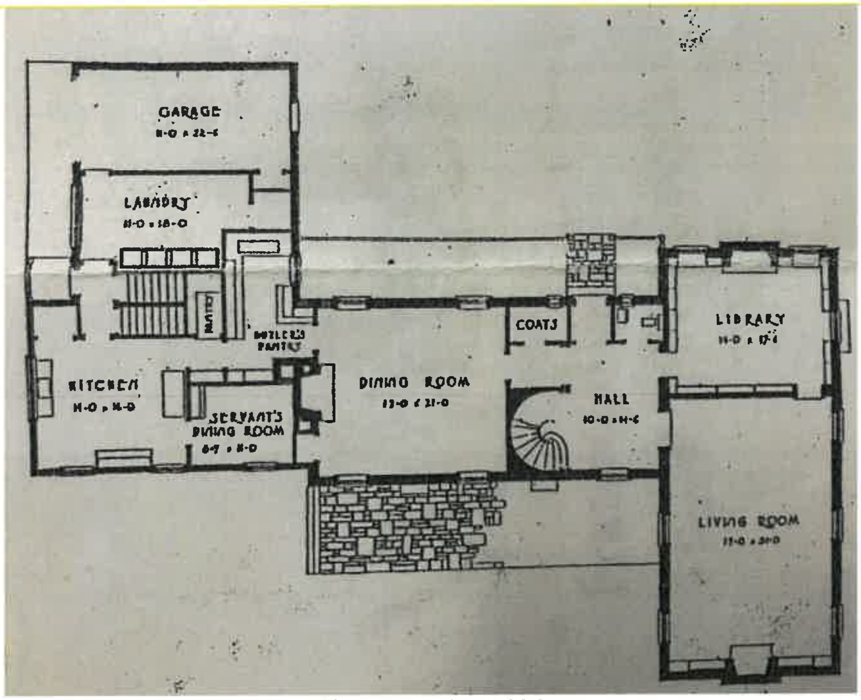
Attachment A

Exterior photos, June 2019

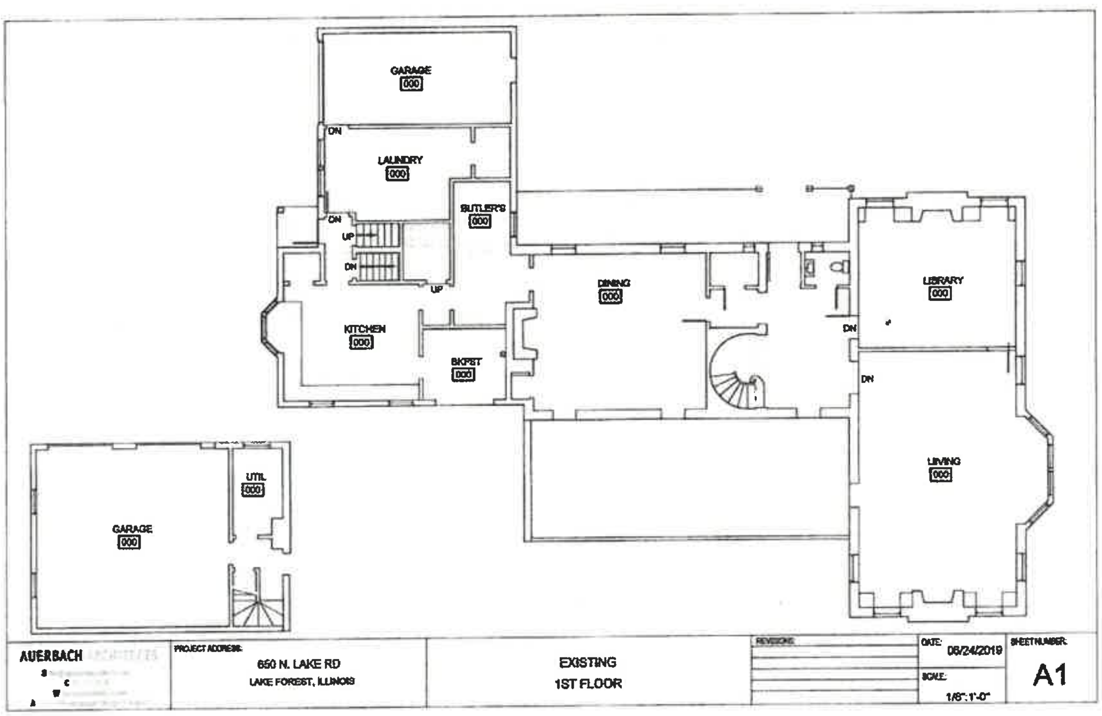
Exterior photos, June 2019

Exterior photos, June 2019

Floor Plans

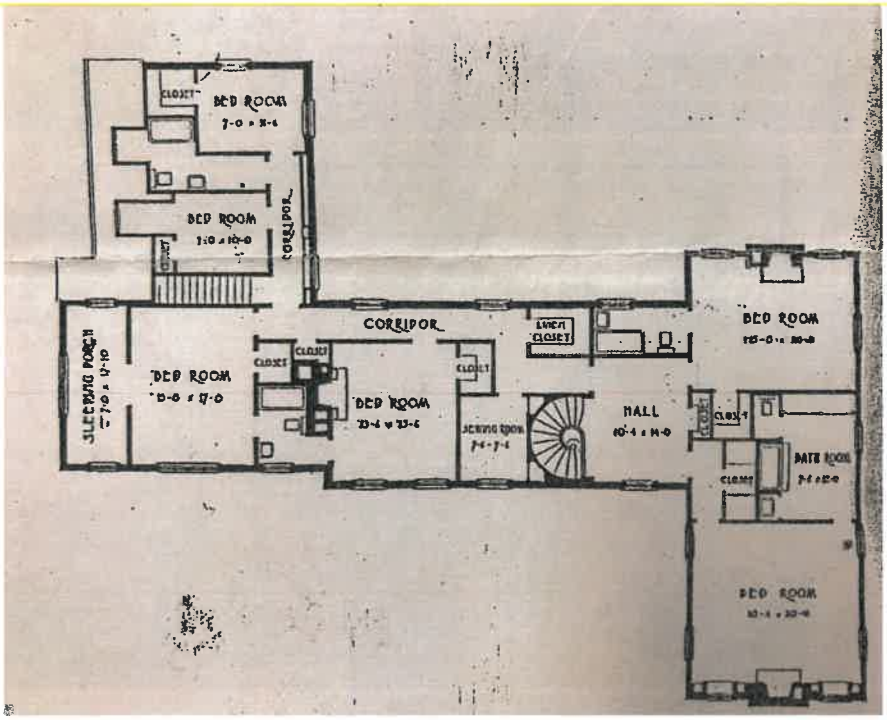


First Floor Plan, 1926

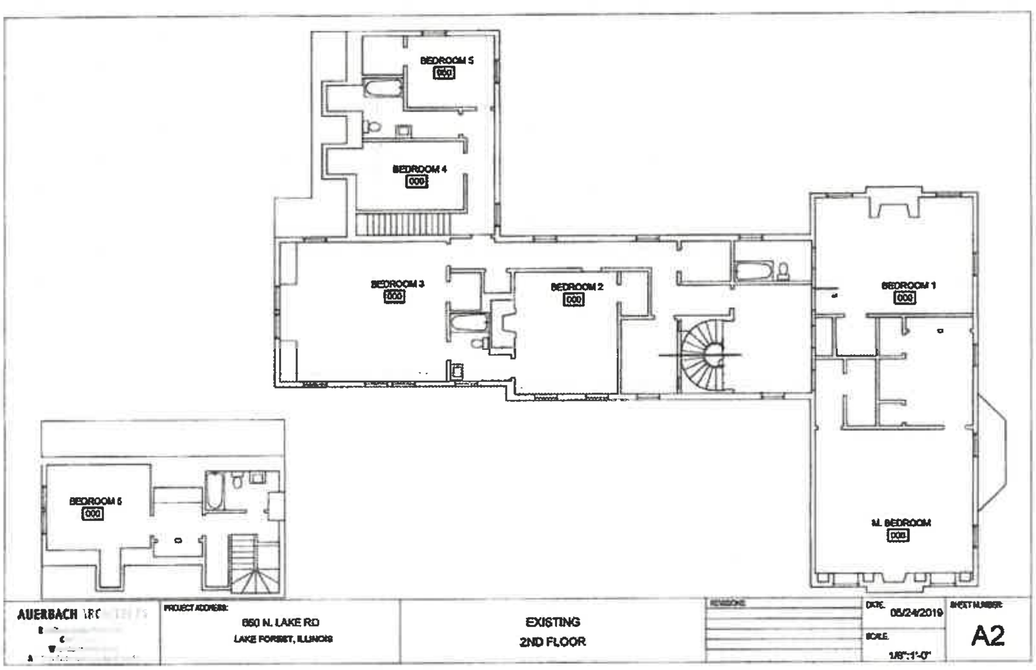


First Floor Plan, 2019, drawn by Auerbach Architects

Floor Plans



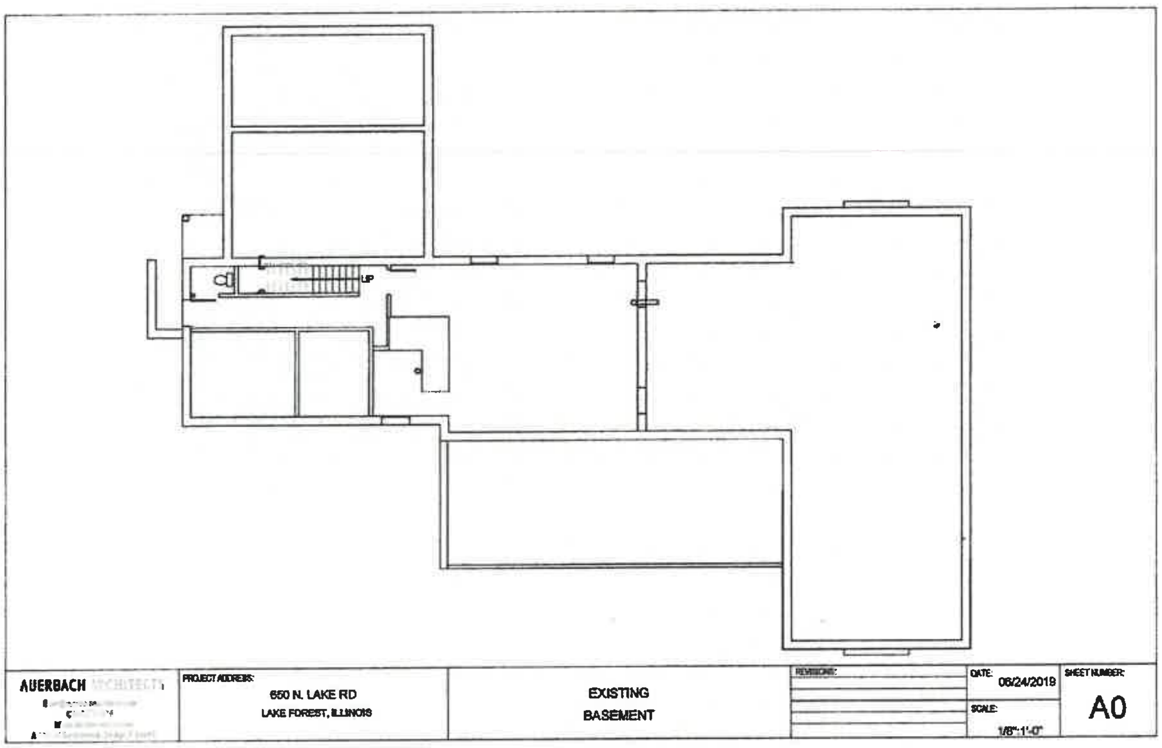
Second Floor Plan, 1926



Second Floor Plan, 2019, drawn by Auerbach Architects

Attachment B

Floor Plans



Basement Plan, 2019, drawn by Auerbach Architects

Interior photos, June 2019

Entrance hall

Entrance hall staircase

Interior photos, June 2019


Entrance hall looking toward powder room


Living room


Living room fireplace


Living room bay window

Interior photos, June 2019

Library

Library fireplace

Library door to entrance hall

Attachment C

Interior photos, June 2019


Entrance Hall


Corridor to Dining Room


Dining Room


Dining Room fireplace

Interior photos, June 2019

Dining Room

Dining Room door

Dining Room corner shelves

Doorknob detail in Dining Room

Dining Room light sconce

Attachment C

Interior photos, June 2019

Enclosed porch

Enclosed porch looking toward Living Room

Interior photos, June 2019

Butler's Pantry

Kitchen

Kitchen

Breakfast Room (former Servant's dining room)

Kitchen

Laundry Room

Interior photos, June 2019


Door to attached garage


View from garage into laundry room


Attached garage


Secondary staircase


Second floor corridor to Servant Bedrooms


Servant Bedroom No. 1


Servant Bedroom No. 1 light sconce

Interior photos, June 2019


Servant Bedroom No. 2


Bathroom between the Servants' Bedrooms


Bathtub in Servants' Bathroom


Corridor in Servant Wing with door to main block

Interior photos, June 2019

Bedroom in northwest corner of house

Bedroom in northwest corner of house

Interior photos, June 2019

Bathroom at northwest corner of second floor

Bedroom next to Sewing Room

Fireplace detail

Bedroom next to Sewing Room

Interior photos, June 2019

Second floor hallway

Second floor linen closet

Second floor sewing room

Door to pull-down staircase to attic

Interior photos, June 2019

Second floor stair hall

Second floor stair hall showing doors to corner bedrooms flanking a closet

Interior photos, June 2019

Bedroom in southeast corner of house

Bathroom adjacent to southeast Bedroom

Fireplace in southeast Bedroom

Interior photos, June 2019

Bedroom in southwest corner of house

Fireplace in southwest Bedroom

Interior photos, June 2019

Bedroom in southwest corner of house

Bathroom adjacent to southwest Bedroom

Interior photos, June 2019


Basement stairway


Basement hallway


Basement exterior door


Basement water closet


Basement Storage Room No. 1

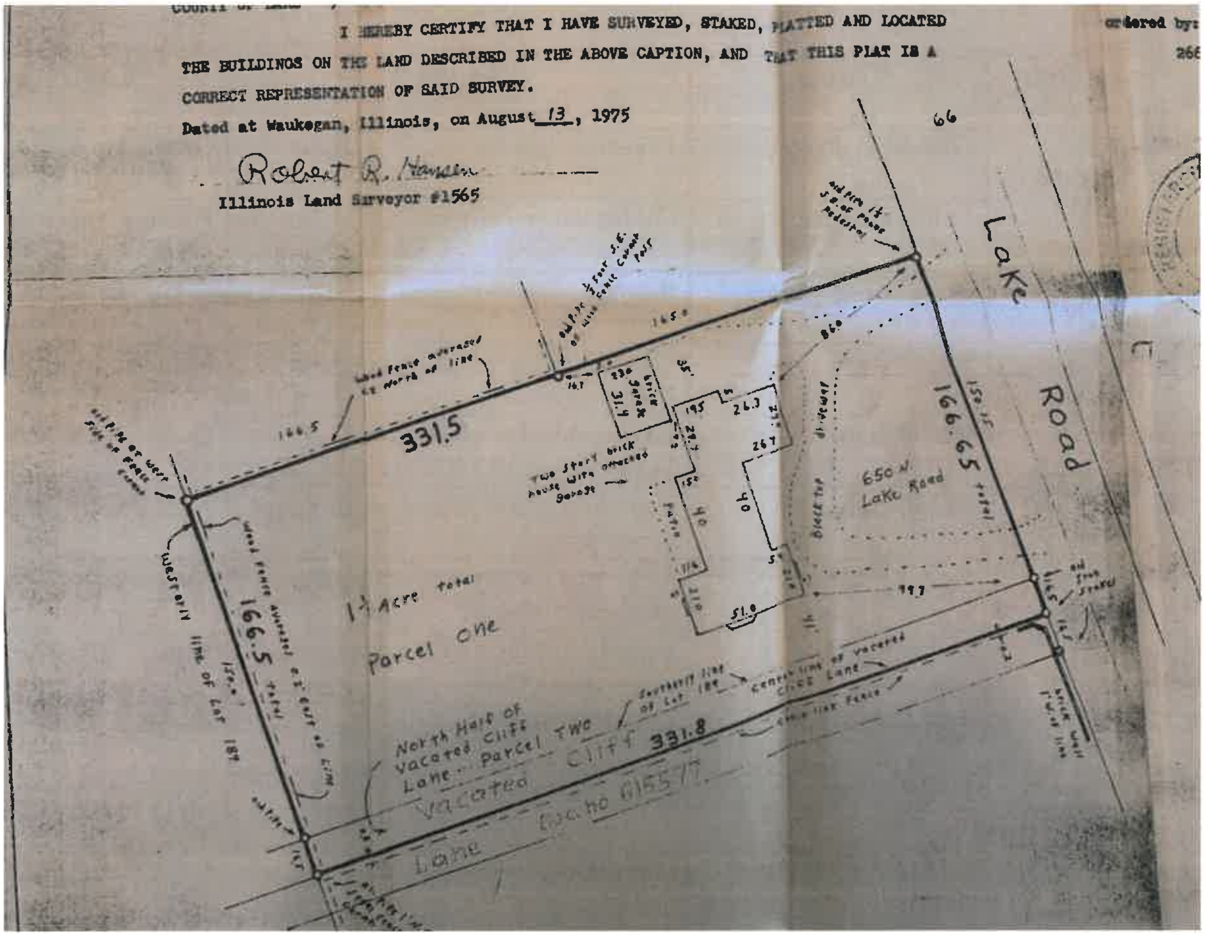

Basement Storage Room No. 2


Basement Furnace Room

Attachment D

Table with Building Permits

Permit Date and number	Owner	Action	Contractor
No. 1757 11-30-1936	Gilbert E. Porter	Construct porch	Griffis Bros.
No. 239 9-26-1940	Gilbert Porter	Oil burner permit	Heating Services Co.
No. 2435 10-30-41	G.E. Porter	Repairs	Griffis Bros.
No. 2871 7-29-1946	Ralph Bard	Construct bay window addition to living room	Maurice DeBona
No. 136 11-15-1946	Ralph Bard	Laying a water main from Deerpath south 1220 feet	Quigley & Kuch
No. 139 12-17-46	Ralph Bard	Installing a new water service pipe to residence	John E. Fitzgerald
No. 3031 10-10-1947	Ralph Bard	Construct garage and servants quarters	Maurice DeBona
No. 1270 5-5-1948	Ralph Bard	Install plumbing in the garage	Wm. J. Bleuer
No. 7255 10-6-1964	Ralph A. Bard	Construct fish pond	Ralph A. Bard
No. 7987 5-2-1966	Ralph Bard	Repair residence	Joseph A. Schiller, Inc.
No. 1876 6-20-1968	Not specified on permit	Construct driveway	Peter Baker & Son Co.
No. 14439 6-7-1978	Henricks	4' picket and 4' vinyl fence	Masterbilt Fence
No. 24012 5-29-1991	Henricks	Garage, tear off & install new shingles	Lindholm Roofing
No. 007 6-16-1994	Henricks	Rotten wood replacement	Lance Winter
No. 25879 6-22-1993	John Henricks	Install 50 sq. of Cedar Shakes-tear off and re-roof	Timberline Cedar Werks
No. PR18-0001 12-3-2018	Lemon Property 3 LLC	Tear off/reroof 65 sq cedar	Barrington Roof Doctors Inc.



Plat map dated August 13, 1975 showing parcel at 650 Lake Road.

Photo of front elevation of house that was published in the June 1930 issue of *House Beautiful* magazine.

Photo of screened-in veranda (now enclosed) that was published in the June 1930 issue of *House Beautiful* magazine.

TWO HOUSES IN ILLINOIS

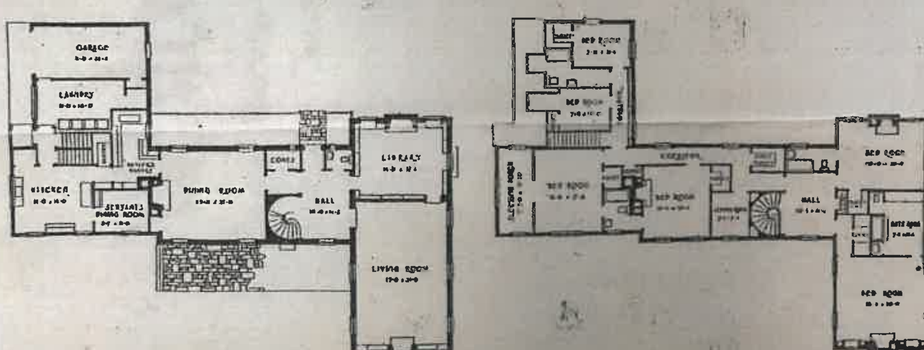
Trowbridge

THE HOUSE OF GILBERT PORTER III

Lake Forest, Illinois

FRAZIER, BLOUKE & HUBBARD, ARCHITECTS

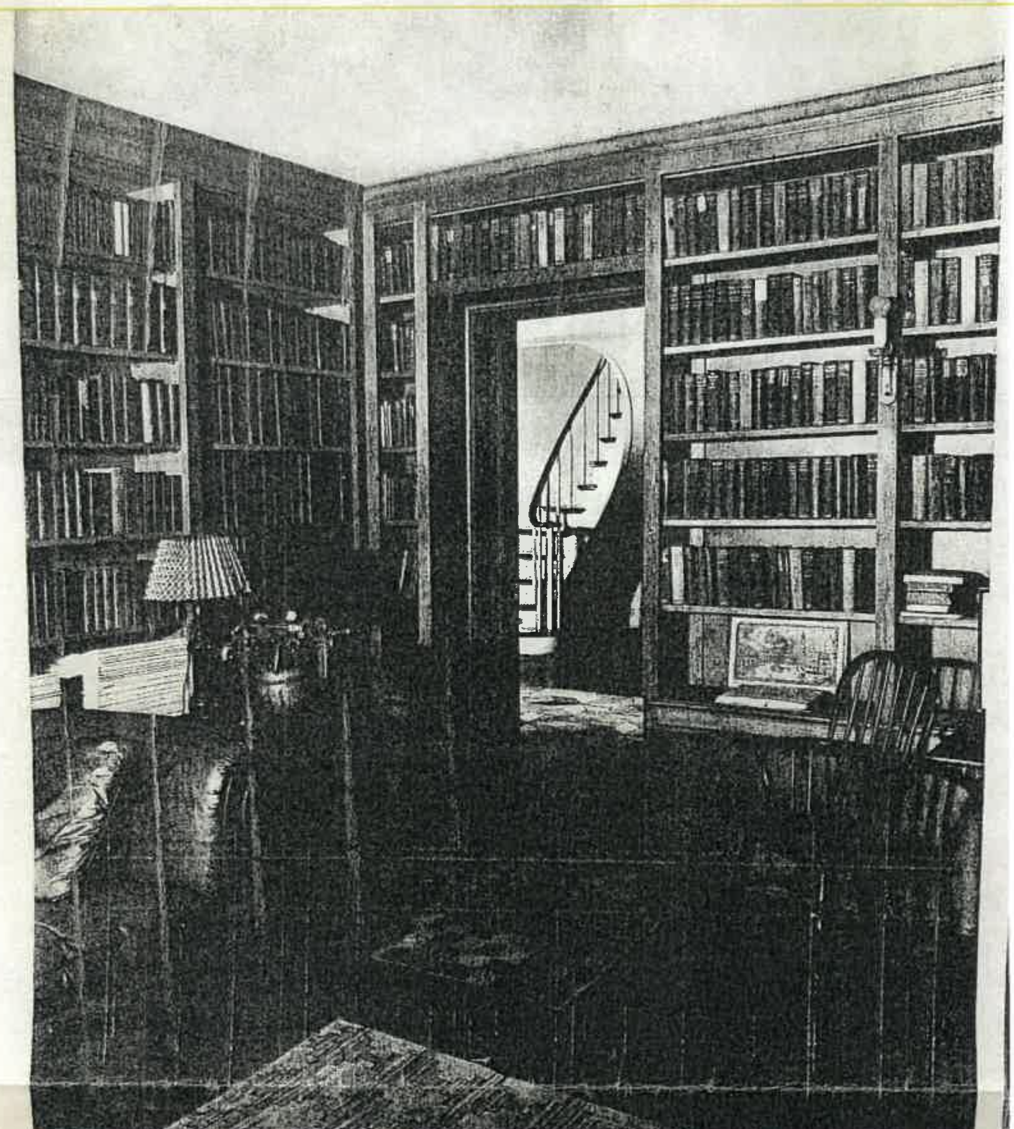
THIS HOUSE HAS WALLS OF COMMON BRICK *whitewashed, and wide siding laid with slightly uneven lines, painted white, and a roof of wood shingles left to weather. The first-floor shutters are white and those on the second floor dark green. The view above shows the rear of the house with white picket fence enclosing a well-planted terrace*



[760]

House Beautiful magazine, June 1930.

JUNE 1930



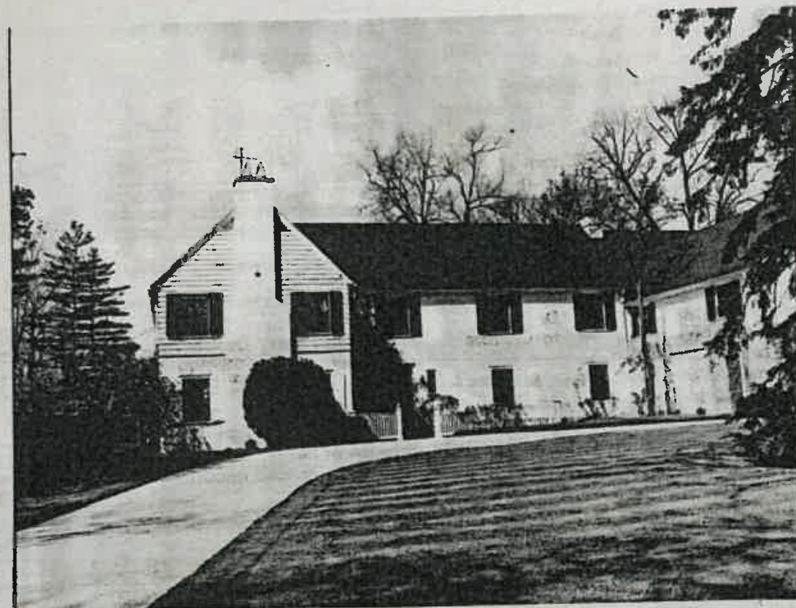
THE LIBRARY IN THE PORTER HOUSE *is of knotty pine slightly stained and rubbed with wax. The fireplace of old soft red brick is a copy of one in the American Wing of the Metropolitan Museum. The furniture is covered in dull red and in chintz with reds and soft blues on a tan ground. The curtains are of the same chintz.*

[761]

BEST COPY POSSIBLE

Porter House library, as shown in *House Beautiful* magazine, June 1930.

Sanborn Fire Insurance Map, 1929, showing footprint of 650 Lake Road parcel.



Sold for 250 000 7/76

Directions:

Address: 650 North Lake Road 3648R
City: Lake Forest, Illinois
Constr: Brick, Two Story (with frame)
Style: Georgian American Architect: Walter Frazier
Roof: Composition
Built: 1928 Faces: East

Lot Size: Approximately $1\frac{1}{4}$ acres

Rms.	Bed.	Baths	Heat Gas-Steam, Cost $1450.00
10	4-2	$3\frac{1}{2}$-1+	
Year—Taxes 1975 1st inst. $2122.47	Porches Screened +Flagstone Terrace		Garage Three car Att.-Det. Heated; Elect: 220V-110V

$290,000.00
Small Garage Apartment

Contract:

Basmt: -Partial. Interior & exterior entrance, furnace room, storage, water closet.
1st -Vestibule, entrance hall, step down living room with fireplace, paneled library with fireplace, powder room, dining room with fireplace, pantry, breakfast room, utility room, fully equipped kitchen.
2nd -4 master bedrooms (3 with fireplaces), 3 baths, sewing room, 2 maids rooms, 1 bath. (Laundry chute – chair lift in rear stairway)
Pulldown stairway to floored storage attic. (Incinerator and attic fan)

Approximately:
LR 30 x 19fpl+bay
DR 21 x 19fpl
K 16 x $14\frac{1}{2}$
Library: 20 x 14 fpl
BR's 20 x 19 fpl
20 x 15 fpl
19 x 18
16 x 14 fpl

School: Grade: Sheridan JHS: Deerpath HS: Lake Forest East & West
Transp: RR. C&NW Bus: to O'Hare
Other: Country Day, St. Mary's,
Available: L.F. Academy, L.F. College, Woodlands, Montessori
Mortgage: Existing
City water, ~~Well~~, Sanitary Sewer, Storm Sewer, ~~Septic Tank~~ Flood Hazard Insurance may be required by Lender.
Special Assessments $ ______________ for ______________

Remarks and any special conditions: Undoubtedly one of the most outstanding properties in today's marketplace. Large yet little; a touch of new with the antique – and that quiet charm, everlasting. Its lake location and beautiful property are irresistible.

Possession: Sixty Days

Titleholder: Mr. Ralph A. Bard, Jr. and Mr. George M. Bard, trustees
Brokerage Fee: 6% (50% to cooperating broker)

Reason for Sale: Out of Area

Evanston-North Shore MULTIPLE LISTING CORPORATION

AN ORDINANCE VACATING ALL OF
CLIFF LANE BETWEEN
LAKE ROAD AND MAYFLOWER ROAD,
IN THE CITY OF LAKE FOREST,
COUNTY OF LAKE AND
STATE OF ILLINOIS

WHEREAS, all the owners of property adjoining Cliff Lane, lying between Lake Road and Mayflower Road, have petitioned the City Council of The City of Lake Forest to vacate said lane; and

WHEREAS, said lane is unnecessary and no longer required for public use, and public welfare, convenience and safety will best be subserved by the vacation and discontinuance of said lane;

NOW, THEREFORE, BE IT ENACTED by the City Council of The City of Lake Forest, County of Lake and State of Illinois:

Section 1: That Cliff Lane extending from the west line of Lake Road westerly to the easterly line of Mayflower Road as shown on the original plat of Lake Forest, be and the same is hereby vacated and the land heretofore occupied by said lane shall become the property of the owners of land abutting on said lane as provided in Section 2, Chapter 145, of the Laws of the State of Illinois, subject to the retention by The City of Lake Forest of an easement over said strip of land hereby vacated for public utilities.

Section 2: That the City Clerk of The City of Lake Forest be and she is hereby directed to file a certified copy of this ordinance with the Recorder of Deeds of Lake County, Illinois.

Section 3: This ordinance shall be in force and effect from and after its passage and approval.

Edward K Welles

Mayor

PASSED this 7th day of April A.D. 1947.

APPROVED this 7th day of April A.D. 1947.

ATTEST:

Katherine R Beauchamp

City Clerk

State of Illinois } ss. No. 615577
Lake County }
Filed for record APR 21 A.D.
1947 at 3 35 o'clock P. M. and
duly recorded in Book 808
of RECORDS Page 0432
Howard E. Scott
Recorder

- 2 -

Deed Record No. 273

QUIT-CLAIM DEED—STATUTORY FORM—Pantagraph Ptg. & Sta. Co., Bloomington, Ill.

No. 246034 Filed for Record the 19th day of September A. D. 1924 at 2[45] o'clock P. M.

This Indenture Witnesseth, That the Grantors, J. Philip Swift and Elizabeth Hoyt Swift, his wife, each in his and her own right and as husband and wife

of the City of Lake Forest in the County of Lake and State of Illinois for the consideration of Ten Dollars and other good and valuable considerations DOLLARS CONVEY and QUIT-CLAIM to Gilbert E. Porter, the third,

of the City of Lake Forest in the County of Lake and State of Illinois all interest in the following described Real Estate, to-wit:

That part of Lots One Hundred Eighty eight (188) and One Hundred Eighty nine (189) of the Original Subdivision of Lake Forest Illinois, as recorded July 23, 1857 in the Office of the Recorder of Lake County Illinois, in Book 27 of Deeds on last page thereof, bounded and described as follows, to wit:

Beginning at the Southeast corner of said Lot One Hundred Eighty nine (189), thence North along the East line of said Lot One Hundred Fifty (150) feet; thence West parallel with and One Hundred Fifty (150) feet North of the South line of said Lots One Hundred Eighty nine (189) and One Hundred Eighty eight (188), Three Hundred Ninety three and sixty-five hundredths (393.65) feet, thence South One Hundred Fifty (150) feet to a point in the South line of said Lot One Hundred Eighty eight (188), which is sixty three and twenty-three hundredths (63.23) feet West of the Southeast corner of said Lot One Hundred Eighty-eight (188), thence East along the South line of Lots One Hundred Eighty eight (188) and One Hundred Eighty-nine (189), Three Hundred Ninety four and seventy five hundredths (394.75) feet to the place of beginning.

situated in the ... of ... in the County of Lake, in the State of Illinois, hereby releasing and waiving all rights under and by virtue of the Homestead Exemption Laws of the State of Illinois

Witness the hands and seals of the said grantors

Dated this eighteenth day of September A. D. 1924.

J. Philip Swift (SEAL)

Elizabeth Hoyt Swift (SEAL)

(SEAL)

(SEAL)

No revenue stamps required, consideration less than $100

STATE OF ILLINOIS, County of Cook } ss.

I, Robert E. Agee, a Notary Public, in and for the said County, in the State aforesaid, do hereby certify that J. Philip Swift and Elizabeth Hoyt Swift, his wife, each in his and her own right and as husband and wife, personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument as their free and voluntary act, for the uses and purposes therein set forth, including the release and waiver of the right of homestead.

Robert E. Agee, Notary Public, Cook County, Ill.

Given under my hand and notarial seal, this 18th day of September A. D. 1924.

Robert E. Agee
Notary Public.

Deed dated September 19, 1924 showing transfer of ownership of 650 Lake Road Parcel to Gilbert E. Porter III, Document no. 246034, Lake Country Tract Book 273, p. 26.

WARRANTY DEED—STATUTORY FORM REVISED (ILLINOIS) No. 215

BOOK 736 PAGE 479

The Grantor, ANNE KILBY PORTER, a widow and not remarried,

of the City of Lake Forest in the County of Lake

and State of Illinois for and in consideration of the sum of

Ten and no/100ths ($10.00) Dollars, in hand paid,

Convey s and Warrant s to

MARY SPEAR BARD

of the City of Highland Park County of Lake

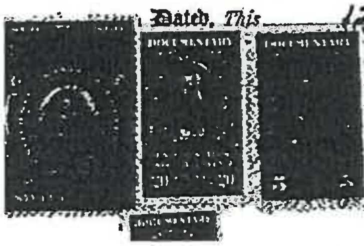
and State of Illinois the following described Real Estate, to-wit:

That part of Lots One Hundred Eighty-eight (188) and One Hundred Eighty-nine (189) of the Original Subdivision of Lake Forest, Illinois, as recorded July 28, 1857 in the Office of the Recorder of Lake County, Illinois, in Book 57 of Deeds on last page thereof, bounded and described as follows, to wit: Beginning at the Southeast corner of said Lot One Hundred Eighty-nine (189), thence North along the East line of said Lot One Hundred Fifty (150) feet; thence West parallel with and One hundred Fifty (150) feet North of the South line of said Lots One Hundred Eighty-nine (189) and One Hundred Eighty-eight (188), Three Hundred Ninety-three and sixty-five hundredths (393.65) feet; thence South One Hundred Fifty (150) feet to a point in the South line of said Lot One Hundred Eighty-eight (188), which is Sixty-three and twenty-three hundredths (63.23) feet West of the Southeast corner of said Lot One Hundred Eighty-eight (188); thence East along the South line of Lots One Hundred Eighty-eight (188) and One Hundred Eighty-nine (189), Three Hundred Ninety-four and seventy-five hundredths (394.75) feet to the place of beginning.

situated in the City of Lake Forest in the County of Lake in the State of Illinois hereby releasing and waiving all rights under and by virtue of the Homestead Exemption Laws of the State of Illinois.

Subject to general taxes for the year 1945.

Dated, This 12th day of January A. D. 1946



Anne Kilby Porter (Seal)

(Seal)

(Seal)

(Seal)

Deed dated January 12, 1946 showing transfer of ownership of 650 Lake Road Parcel to Mary Spear Bard, wife of Ralph A. Bard, Document no. 579843, Lake Country Tract Book 736, p. 479.

Page 1 of 1

1774

386823

TRUSTEE'S DEED
JOINT TENANCY

DOC. FILED FOR RECORD IN OFFICE LAKE COUNTY,

JUN 25 '76 -11

Form 324 R-6-73

THE ABOVE SPACE FOR RECORDERS USE ONLY

THIS INDENTURE, made this 11th day of JUNE, 19 76, between CHICAGO TITLE AND TRUST COMPANY, a corporation of Illinois, as Trustee under the provisions of a deed or deeds in trust, duly recorded and delivered to said company in pursuance of a trust agreement dated the 10th day of JUNE, 1963 and known as Trust Number 45667, party of the first part, and JON M. HENRICKS and BONNIE W. HENRICKS, his wife WHO RESIDES AT: 254 NORTH LAUREL AVENUE, DES PLAINES, ILLINOIS not as tenants in common, but as joint tenants, parties of the second part.

WITNESSETH, that said party of the first part, in consideration of the sum of TEN AND NO/100 ($10.00)----------------dollars, and other good and valuable considerations in hand paid, does hereby grant, sell and convey unto said parties of the second part, not as tenants in common, but as joint tenants, the following described real estate, situated in LAKE County, Illinois, to-wit:

PARCEL ONE: The South 150 feet of Lot 189 (as measured perpendicular to the South line of said Lot) in the City of Lake Forest, a Subdivision in the Northwest quarter of Section 34, Township 44 North, Range 12, East of the Third Principal Meridian, according to the Plat thereof, recorded July 23, 1857, in Lake County, Illinois.

PARCEL TWO: That part of the North One Half of vacated Cliff Lane, lying South of and adjoining Parcel One, as vacated by an ordinance of the City of Lake Forest, dated April 7, 1947, as Document 615577, in Lake County, Illinois.

Together with the tenements and appurtenances thereunto belonging.

TO HAVE AND TO HOLD the same unto said parties of the second part forever, not in tenancy in common, but in joint tenancy.

THIS INSTRUMENT WAS PREPARED BY:

SANDRA S. MARMER
111 W. Washington Street
Chicago, Illinois 60602

This deed is executed pursuant to and in the exercise of the power and authority granted to and vested in said trustee by the terms of said deed or deeds in trust delivered to said trustee in pursuance of the trust agreement above mentioned. This deed is made subject to the lien of every trust deed or mortgage (if any there be) of record in said county given to secure the payment of money, and remaining unreleased at the date of the delivery hereof.

IN WITNESS WHEREOF, said party of the first part has caused its corporate seal to be hereto affixed, and has caused its name to be signed to these presents by its Assistant Vice President and attested by its Assistant Secretary, the day and year first above written.

CHICAGO TITLE AND TRUST COMPANY As Trustee as aforesaid.

By ________ Assistant Vice President

Attest ________ Assistant Secretary

CHICAGO TITLE AND TRUST COMPANY CORPORATE SEAL ILLINOIS

TIS.

Deed dated June 11, 1976 showing transfer of ownership of 650 Lake Road Parcel to Jon and Bonnie Henricks, Document no. 1774635 in Lake County.

GILBERT PORTER HOME ROBBED OF $5,000 IN JEWELS

Burglars entered the home of Gilbert E. Porter, 110 Lake road, Lake Forest, either Thursday or Friday night and took jewels worth $5,000 from a small safe in a bedroom, police were told yesterday. The loot consisted of a diamond ring, valued at $2,700, a diamond pin worth $1,200, and other jewelry.

Police believe the burglary was the work of a gang of Negroes who are held responsible for other jewel robberies in the suburb. An attempt to break into the home of Hale Holden, 204 Illinois road, was made Friday. Last October, the home of Edward J. Brundage on Green Bay road was entered and jewels worth $20,000 taken.

Acting on information supplied by the Lake Forest police, Chicago authorities arrested Albert Glaze, 27 years old, colored, who is suspected of having been one of the burglars..

Chicago Tribune, July 31, 1927.

Gilbert E. Porter III.

Gilbert E. Porter III., a stock broker and member of a socially prominent family, died yesterday in Passavant hospital after a long illness. He was 46 years old and lived at 650 Lake road, Lake Forest.

Mr. Porter was associated with Winthrop Mitchell & Co. His father, now retired, formerly was senior partner in the law firm of Isham, Lincoln & Beale. Gilbert Porter III. was graduated from Yale university in 1916. He was a member of the Onwentsia Country club.

His widow, Anne, and three daughters, Edith, Mary, and Anne, survive. Services will be held at 2:30 p. m. tomorrow in the Church of the Holy Spirit, Lake Forest.

Chicago Tribune, April 11, 1939.

Photo of Anne (Kilby) Porter, wife of Gilbert E. Porter III (left). *Chicago Tribune*, September 14, 1930.

Photo of Gilbert and Anne Porter's three children at left: Ann, Polly, and Edith.
Chicago Tribune, September 14, 1930.

MRS. RALPH A. BARD, WIFE OF FORMER NAVY OFFICIAL, DIES AT 62

Mrs. Mary Spear Bard, 62, of 650 Lake Rd., Lake Forest, wife of Ralph A. Bard, retired industrial executive and former undersecretary of the navy, died yesterday in Presbyterian hospital. Mrs. Bard was co-founder with Mrs. Robert Patterson, wife of the former secretary of war, of the Jango service organization, a group which entertained service men in Washington during World War II. Services will be held at 2:30 p. m. Thursday in her residence. Besides her husband, Mrs. Bard leaves two sons, Ralph A. Jr. and George M. II.; two daughters, Mrs. Janet Johnson of Barrington and Mrs. Katharine Manulis of New York City.


Mrs. Bard

Chicago Tribune, March 30, 1949.

Ralph A. Bard and Mrs. Vail to Be Married

BY JUDITH CASS

THE NEWS that Ralph A. Bard of Lake Forest and Mrs. Roger Sherman Vail of Highland Park are to be married Sunday in Virginia is a source of greatest pleasure to their many mutual friends. Mr. Bard formerly lived in Highland Park, and his children, Ralph Jr., George M. II, Mrs. Thomas Johnson of Barrington, and Mrs. Martin E. Manulis of New York City, and Mrs. Vail's sons, Roger Jr. and Henry Bloss Vail, have known each other all their lives.

Mr. Bard and Mrs. Vail, who has been a widow since 1937, are in Virginia, where he has a home, Hunting Creek plantation, near both Clover and Randolph. Mr. Bard served as assistant secretary of the navy in World War II. The late Mrs. Bard was the former Mary Spear.

Chicago Tribune, October 20, 1950.

WE WISH TO ANNOUNCE THAT THE NAME OF F. B. HITCHCOCK & CO. HAS BEEN CHANGED THIS DATE TO INCLUDE THAT OF MR. RALPH A. BARD, ASSOCIATED WITH THE ORGANIZATION SINCE 1909, AND WILL BE KNOWN HEREAFTER AS

HITCHCOCK, BARD & CO.

THE BUSINESS REMAINS UNDER THE SAME MANAGEMENT AND THE POLICY OF SPECIALIZING IN THE ORIGINAL PURCHASE AND SALE OF BONDS, SHORT TERM NOTES AND INVESTMENT STOCKS WILL BE CONTINUED.

HITCHCOCK, BARD & CO.

38 SOUTH LA SALLE STREET — CHICAGO, ILLINOIS

APRIL 2, 1923

Chicago Tribune, April 2, 1923.

WE WISH TO ANNOUNCE AS OF THIS DATE

BARD & CO.

SUCCEEDS TO THE BUSINESS OF RALPH A. BARD & COMPANY

THE OFFICERS CONSIST OF THE FOLLOWING

ROY E. BARD, PRES. & TREAS.

LAWRENCE WILLIAMS, VICE-PRESIDENT

JAMES W. POPE, VICE-PRES. & SECY.

RALPH A. BARD RETIRES FROM ACTIVE PARTICIPATION IN THE BUSINESS BUT CONTINUES AS A STOCKHOLDER AND DIRECTOR

BARD & CO.

108 SO. LA SALLE ST., CHICAGO — RANDOLPH 6950

JANUARY 2ND, 1929

Chicago Tribune, January 2, 1929.

R. A. BARD NAMED AS ASSISTANT TO NAVY SECRETARY

Chicago Business Man to Succeed Compton.

Washington, D. C., Feb. 14 (AP).—Ralph Austin Bard of Chicago, a Republican and a long time friend of Secretary Knox, was nominated by President Roosevelt today to succeed Lewis Compton as assistant secretary of the navy.

Ralph A. Bard.
[Tribune Photo.]

Announcing this today, the White House disclosed that Compton had resigned Jan. 10. He has been ill for some time. Compton became assistant secretary during the administration of former Secretary Charles Edison, who is now governor of New Jersey.

Bard, born in Cleveland July 29, 1884, attended Princeton university and began his business career as a salesman for Eversz company, dealers in investment securities at Chicago. He joined in the pro-Willkie telegraphic campaign before the Philadelphia convention and was active there in Willkie's behalf.

He is now president of Bard & Co. of Chicago and of the Wahl, Eversharp Pen company. He is also a director of the American Shipbuilding company and the Libby-Owens-Ford Glass company.

Resigns in January.

Correspondence made public later at the White House disclosed that Compton would rejoin Edison in an unnamed capacity. Dispatches from Trenton said he would become state finance commissioner.

Under date of Jan. 10 Compton submitted his resignation to the President, effective at his pleasure, saying "he wished to avoid any possible embarrassment" in case "the secretary of the navy may want one of his own choice appointed to the position I now hold."

In his reply, dated Feb. 13, the President praised Compton's service. "As reluctant as I am to let you leave Washington," the President wrote, "I am glad to know that you are returning to your old chief—my old friend, Charlie Edison, now governor of New Jersey."

Compton has been in the naval hospital here for about a month, receiving treatment for a gastric disturbance.

NOTIFIED OF CHOICE.

Ralph A. Bard, president of a Chicago investment house bearing his name, said yesterday that he had received word of his nomination by President Roosevelt as assistant secretary of the navy.

"All I can say now is that I have always had great admiration for the navy and its personnel, and that it would be an honor to be associated with it in any way," Bard said.

Mr. Bard, who lives in Highland Park, has been in business in Chicago since 1906. Active in civic affairs, he was chairman of the Community fund campaign in 1938. He is a member of the Chicago, University and Commercial clubs.

Chicago Tribune, Feb. 15, 1941.

U. N. Commission on Arms Gets Deputy U. S. Member

Ralph A. Bard

The New York Times, 1944

Special to THE NEW YORK TIMES.

WASHINGTON, March 29—Ralph A. Bard, former Under-Secretary of the Navy, was named by President Truman today as deputy United States representative on the United Nations Commission for Conventional Armaments.

Mr. Bard will assist Warren R. Austin, chief United States representative to the United Nations, on the body organized to regulate and reduce conventional arms but excluding atomic weapons, which are dealt with by a separate commission.

New York Times, March 30, 1947.

Ralph Austin Bard

Ralph Bard dies; fought A-bombing

RALPH AUSTIN BARD, 91, undersecretary of the United States Navy during World War II and a member of the first Atomic Energy Commission who strongly objected to dropping the atomic bomb without first warning the Japanese, died Saturday at Whitehall Nursing Home in Deerfield.

Mr. Bard, a private investment banker before the war, was appointed assistant secretary of the Navy in 1949 by Democratic President Franklin Roosevelt.

But Mr. Bard was also a prominent Republican who was active in national politics after he resigned from the Navy in 1945.

MR. BARD, who returned to the Chicago area after the war to become chairman of the Eversharp Corp. and continue other financial operations, was particularly proud of a letter in 1945 protesting dropping the first A-bomb without giving the Japanese a chance to surrender.

In a copy of the letter given to The Tribune before his death, Mr. Bard said on June 27, 1945: "I have had a feeling that before the bomb is actually used against Japan that Japan should have some preliminary warning for say two or three days in advance of use.

"The position of the United States as a great humanitarian nation and the fair play attitude of our people generally is responsible in the main for this feeling."

Services for Mr. Bard, who lived in Lake Forest, are private. Survivors are his widow, Mary, four children, Ralph, George, Mrs. Janet Johnson and Mrs. Katherine Mamlis; 14 grandchildren; and eight great-grandchildren.

Chicago Tribune, April 7, 1975.

AUSTRALIA HAS BEST GAMES DAY

Girl Sprinter, Swimmers Take Honors

YESTERDAY belonged to Australia and to two young Australians, Betty Cuthbert and Jon Henricks. In brief passages of brilliance, both won Olympic Gold Medals.

This was Australia's greatest Olympic Day . . . two Gold Medals within three hours and five out of a possible six medals in two events.

The Duke of Edinburgh, on a surprise, unscheduled visit to the Olympic Pool, watched Henricks, John Devitt and Gary Chapman finish first, second and third in the men's 100 metres freestyle.

He also saw a second clean-sweep in the making as Dawn Fraser, Lorraine Crapp and Faith Leech out-classed semi-final fields in the women's 100 metres freestyle.

Australia now has four gold medals. A fifth is a near-certainty in the women's swimming final tonight.

If everybody holds the baton and runs to form, there should also be a sixth in the 4 x 100 metres women's relay at 4.50 this afternoon in the Main Stadium.

Six gold medals would equal Australia's peak Olympic performance at Helsinki in 1952, but next week's swimming events and one yachting class should yield further successes.

There is also a possibility of a seventh gold medal today.

It remains a possibility until about 4.19 this afternoon when John Landy and Mervyn Lincoln finish their race for the line in the 1500 metres final.

The Duke of Edinburgh stepped off a plane at Melbourne Airport at 6.30 last night and drove almost direct to the Olympic Pool.

He had been scheduled to drive immediately to the Royal yacht Britannia, berthed at Spencer Street bridge.

At 7.20 he entered the pool through the press interviewing room, walked across the official staging with the arena manager, Mr. Berge Phillips, and took a seat in the box reserved for I.O.C. members and officials.

The crowd did not recognise him until he had reached the seat next to Prince Axel of Denmark, an I.O.C. official.

Slowly the audience realised the identity of the unobtrusive spectator in the light grey suit. Cheering built up in a great crescendo of sound.

The Duke made a more orthodox exit. He shook hands with officials sitting close by and went out through one of the main doors.

Between his arrival and departure was 38 minutes of concentrated sporting glory for Australia.

AUSTRALIANS TRIUMPH AT SWIMMING STADIUM

AUSTRALIAN FINALISTS IN SWIMMING.—TOP: Jon Henricks (centre) who won the 100 metres event yesterday, pictured with John Devitt (left), who was second, and Gary Chapman (right), third. CENTRE: Dawn Fraser (right), winner of the first semi-final of the women's 100 metres freestyle, being congratulated by team mate, Faith Leech, who was second. LOWER: Lorraine Crapp, winner of the second semi-final.

U.S. Naval

Article on Jon Henricks' Olympic Gold Medal at the 1956 Melbourne Games.
The Age (Melbourne, Victoria, Australia), December 1, 1956.

Associated Press Wirephoto by Radio

OLYMPIC ROMANCE... Australian swimmer Jon Henricks and his American bride laugh as balloons explode in the air at the doorway of the Rome church where they were married yesterday. Henricks, 100-meter freestyle champion at the 1956 Olympics, was not among the top finishers this year. His bride is the former Bonnie Wilkie of Santa Barbara, Cal.

The Courier-Journal (Louisville, Kentucky), September 4, 1960.

Willow Brook Center Begins Art Classes

A 150-year-old farm near Long Grove is the setting for a creative arts enterprise. Willow Brook Art Center, patterned after the Montsalvart Art Colony in Melbourne, Australia.

Nearly a dozen different courses in arts and crafts will begin Monday, June 21, in the white barns trimmed in blue that have been renovated to provide studio space for courses in miniature rooms. macrame, painting, papier mache. metal flowers, dried flowers, decoupage. ceramics and stitchery.

A class in Cordon Bleu cooking is scheduled. and a body dynamics and figure control class will meet outdoors beside a pool in fair weather.

Bonnie and Jon Henricks created the art center four years ago. Henricks is vice president of DoAll Co. in Des Plaines Mother of three, Bonnie teaches papier mache.

An open house for prospective students will be held this Sunday, 2 to 5 p.m., at which time the instructors will exhibit samples of their work.

Bonnie Henricks

Classes for children will also be offered in such crafts as clay, wood, sand casting and collage. A baby sitting service will be provided for students with young children.

Willow Brook Art Center is located north of Long Grove on Highway 22, one half mile west of Route 83.

Further information is available through Bonnie Henricks, NE 4-3738.

The Daily Herald, June 14, 1971.

EXISTING CONDITIONS REPORT AND REHABILTATION ANALYSIS

January 26, 2022

Re: Burke Residence
650 Lake Road
Lake Forest, IL 60045

Existing Conditions Report and Rehabilitation Analysis

Ms. Stephanie Burke purchased the home and property at 650 Lake Road with the intention of rehabilitating and renovating the existing house to suit her family's lifestyle requirements. The existing home is an approximately 6,500 square foot, two-story residence. The home is comprised of a south wing with a masonry first story and wood clad second story, a two-story masonry central wing, a two-story wood clad north wing, and 1-1/2 story masonry east wing which includes a garage with second floor bedrooms tucked under the roof. Additionally there is a detached masonry garage. From Ownership and tax records, it appears the home was last occupied in 2012.

After purchasing the property in May, 2019, Ms. Burke and her design team(s), started the process of surveying the home as part of the preliminary design development for the rehabilitation and renovations to the existing house. With each visit, Ms. Burke became progressively aware of the presence of mold in the existing house and detached garage. Since she experienced mold in a prior home, she was sensitive to its impact on her family and the health of her children. She contracted Safestart Environmental, an environmental consultant, to investigate the mold conditions. In the environmental report prepared by Safestart Environmental, dated January 16, 2020, the environment consultant found a high concentration of contaminants and provided the following recommendations:

> *"At the concentrations types, and levels of the contaminants above, and the time they have been in the unoccupied home, and coach home, which allows them to not only amplify, but also get into wall cavities, building envelopes and other assemblies, in addition to what has plated out on surfaces, it is our professional opinion that remediation protocols will not be sufficient to remove all the sources and residing contaminants from the home and in the air.*
> *This is complex and involves molds, mycotoixins, environmental bacteria, asbestos, as well as construction dust, plaster dust, etc. generated in remediation.*
>
> *It would be impossible to try remediate and make corrections in the large crawl space area without removing all of the flooring, subflooring and supporting joists under the floor, above the crawl space.*
>
> *To even attempt a remediation, all interior walls and building envelopes would need to be destructively removed, removal and replacement of all framing, lath, plumbing, electrical*

pathways to remove all sources of contamination. In other words, the home would need to be virtually destroyed to attempt to try to make it environmentally safe.

We feel the only solution to be able to use the property for habitability, would be to demolish the current structure of the home and coach home and re-build new structures."

Melichar Architects (MA) was hired in October 2020, after the first environmental report was created, with the task of designing a replacement home.

One noticeable area of concern for the Owner and the design team was the condition of the existing structural wood framing system, the floors were discernably bouncy and not level. Pease Borst & Associates (PBA) prepared a structural condition report, dated December 21, 2020, that was a visual structural condition review of the approximately 6,500 square foot, two-story residence. In PBAs' structural condition report, dated December 21, 2020, the structural condition of the floors was reported as soft and sagging.

"Upon our walk-through of the interior of the residence, we experienced several rooms in which the structure felt soft/bouncy and others that had very discernible dips/undulations in the plane of the floor."

"The layout of the first floor was typically much more open with large rooms, many of which extended from exterior wall to exterior wall. The observed performance of the floors suggest that those long clear spans and heavy loads were not fully accounted for in the original construction."

"These overloaded and over spanned conditions result in excessive displacements in the structure."

"Correcting these conditions will likely require the addition of substantial reinforcing to both the first and second floor structures."

The City of Lake Forest requested a second environmental report, since Safestart Environmental recommended demolition of the house as the remediation method, and because the house is considered a contributing structure in the historic district. Midwest Environmental Consulting Services, Inc. was contracted to perform a second environmental assessment of the house. In the Mold & Moisture Assessment, prepared by Midwest Environmental Consulting Services, Inc., dated April 5, 2021, the environmental consultant found an airborne mold concern and provided the following recommendations:

"Visible mold was present in the Basement & Crawl Spaces at the time of the assessment.

Hidden mold growth within the walls of the residence may be a concern. It is hypothesized that airborne mold is originating in the Basement & Crawl Spaces and as general air movement continues, the airborne mold is traveling from the lowest level of the residence to other tested areas. This hypothesis is based off of no visible mold being located in the residence other than *the lowest level, & the mold counts decreasing in the tested areas the further away from the assumed source testing occurred.*

Based on these conclusions, the following recommendations are provided:

Engage the services of a qualified mold remediation contractor to clean the involved areas in conformance with EPA/AIHA guidelines. This includes all mold affected surfaces located in the lowest level of the residence, providing HEPA-filtered vacuuming and damp cleaning in the mold-affected areas throughout the residence, and discarding mold-affected material that cannot be damp cleaned or encapsulated."

Because the second report implied some scope of remediation could be viable, Ms. Burke decided to move forward with mold remediation and rehabilitation of the existing home. With the intention of maintaining the existing home and the architectural character, MA developed an architectural scheme renovating the home with new additions, and selective demolition, which included demolition of a previous rear sunroom addition. Plans and elevations were presented to the HPC and approved October 27, 2021.

Subsequent to municipal review meetings and approvals, the City of Lake Forest granted permission to selectively demolish and remove interior wall, ceiling and floor finishes, as part of the process for mold remediation. Removal of these finishes also provided an opportunity to more clearly investigate the existing structural and material conditions. James LaDuke & Associates, Inc. (LaDuke) was contracted by the Owner to complete the selective interior demolition work, so that the building structure and building envelope could be better investigated and evaluated. All wall, ceiling and floor finishes were removed to expose the existing building framing systems and the inside face of the exterior masonry and cladding systems.

Upon removal of the interior finishes, MA, PBA and LaDuke met on December 20, 2021, to complete a walk-through of the building and discuss a cursory review of the found-conditions of the existing structural framing made visible, and an informal structural design approach for the rehabilitation of the residence. A formal structural design would require a detailed structural analysis, including calculations, of the existing structure and structural remedies.

The observed existing structure is a follows:

- South Wing
  At the south wing, the first floor exterior walls are 3-wythe load bearing brick masonry walls and the second floor exterior walls are wood framed walls with wood siding. The ends of the second floor joists are pocketed into the masonry walls. The south wing is constructed over a crawlspace.

- Central Wing
  At the central portion of the house, the first floor exterior walls are 3-wythe load bearing brick masonry walls and the second floor exterior walls are 2-wythe load bearing brick masonry walls.

The ends of the second floor joists are pocketed into the masonry walls. The central portion is constructed partially over a crawlspace and partially over a full basement.

- North Wing:
  At the north end of the house, the existing exterior two-story walls are balloon framed, with wood cladding. This two-story framed construction connects the central masonry wing and the east garage wing.

- East Wing:
  At the east garage wing, the existing exterior walls are 3-wythe brick masonry load bearing walls, with the second floor bedrooms built under the roof rafters. The second floor joists are supported by interior wood framed bearing walls and at the masonry gable with the joist ends pocketed into the masonry walls. The roof framing is supported on 2-wythe brick masonry bearing walls forming the north and south sidewalls of the east wing.

Photo 1: South Wing (First Floor) – Timber window header & second floor wood joists pocketed into 3-wythe brick masonry bearing wall.

Photo 2: South Wing (First Floor) - Second floor joists discolored and stained showing possible evidence of moisture damage. Floor framing bouncy at both first and second floors. Note structural failures of some joists.

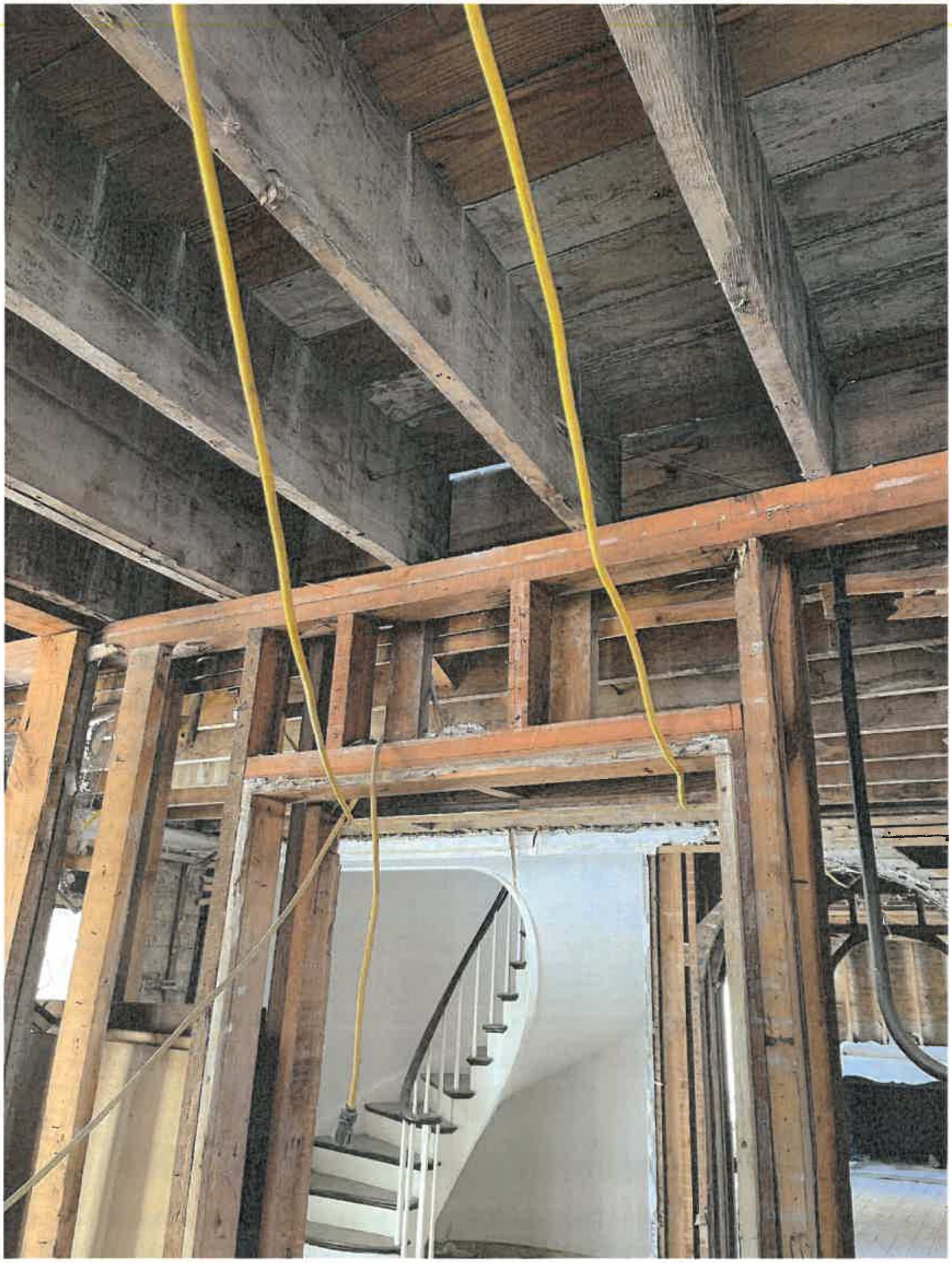


Photo 3: South Wing (First Floor) – Interior bearing wall with no structural header at door opening

Photo 4: South Wing (First Floor) – Second floor wood joists and floor boards showing stain from moisture and possible mold

Photo 5: South Wing (Second Floor) – Intersection of Central (2-wythe brick masonry) Wing with South (wood framed) Wing at roof valley. Indeterminate bearing point for valley framing, evidence of charred valley rafter from prior fire, efflorescence at brick wall and evidence of moisture damage at wood framing members

Photo 6: South Wing (Crawlspace) - First floor wood joists pocketed into 3-wythe brick masonry bearing wall at grade and top of foundation, Environmental Reports indicate high presence of mold

Photo 7: Central Wing (First Floor) – second floor wood joists fixed solid with masonry bearing on 3-wythe brick masonry wall.

Photo 7A: Central Wing (First Floor) – Detail second floor wood joists & timber window header bearing on 3-wythe brick masonry wall. Efflorescence & water damage at brick wall and corner wood framing. Typical condition at masonry window openings, wood infill between top of window and underside of timber header, with 1-wythe brick masonry jack arch exterior side. Masonry cracking evident from exterior over windows. Masonry chopped out for piping

Photo 8: Central Wing (Second Floor) – Timber header showing evidence of moisture damage from masonry above. Masonry failure in various locations. Second floor ceiling joists are solidly set in masonry wall and show moisture damage and possible mold growth.

Photo 9: Central Wing (Second Floor) – Charred timber header

Photo 10: North Wing (First Floor) – Balloon framing at west wall.

Photo 10A: North Wing (First Floor) – Balloon framing detail at west wall, no fire blocking between first and second floors. Staining of floor boards and framing members may indicate impregnated mold condition.

Photo 11: North Wing (First Floor) – Balloon framing at north wall, mold inside face of cladding

Photo 12: North Wing (First Floor) – Intersection balloon framing at east wall & brick masonry bearing wall, with floor joists pocketed into masonry. Staining of floor boards and framing members may indicate impregnated mold condition. Air gaps at intersection of wood framing and irregular masonry surfaces pose constructability problems for air sealing building envelope.

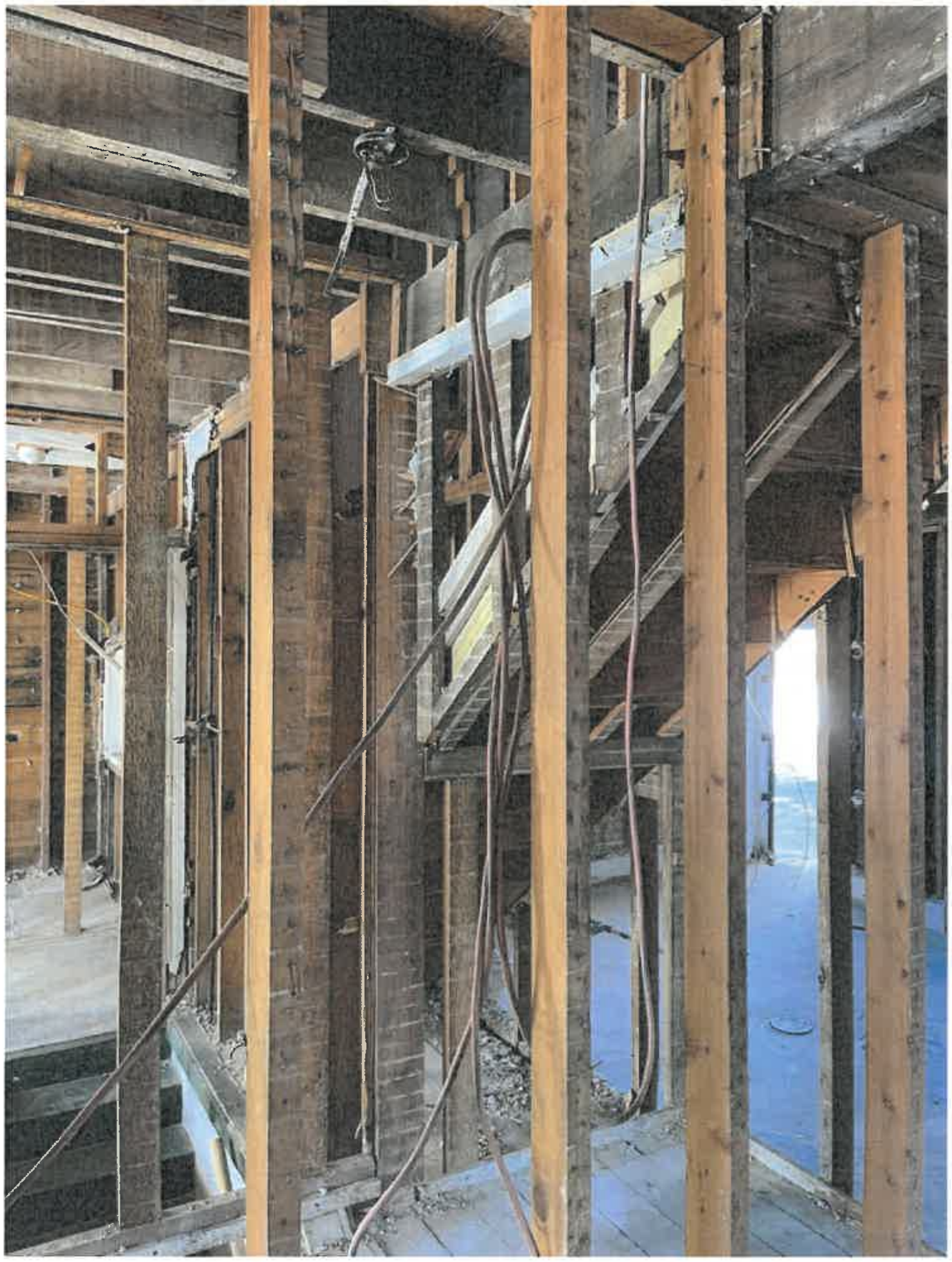


Photo 13: North Wing (First Floor) – Wood framing at east wall. Floor framing unsupported and timber beam has no apparent vertical support.

Photo 13A: North Wing (First Floor) – Wood framing at east wall. South end of timber beam pocketed into 3-wythe brick masonry bearing wall with evidence of water damage and possible mold.

Photo 14: North Wing (Second Floor) – Balloon framing at west wall. Framing hacked out and spliced. No header at window opening. Indication of moisture penetration at masonry.

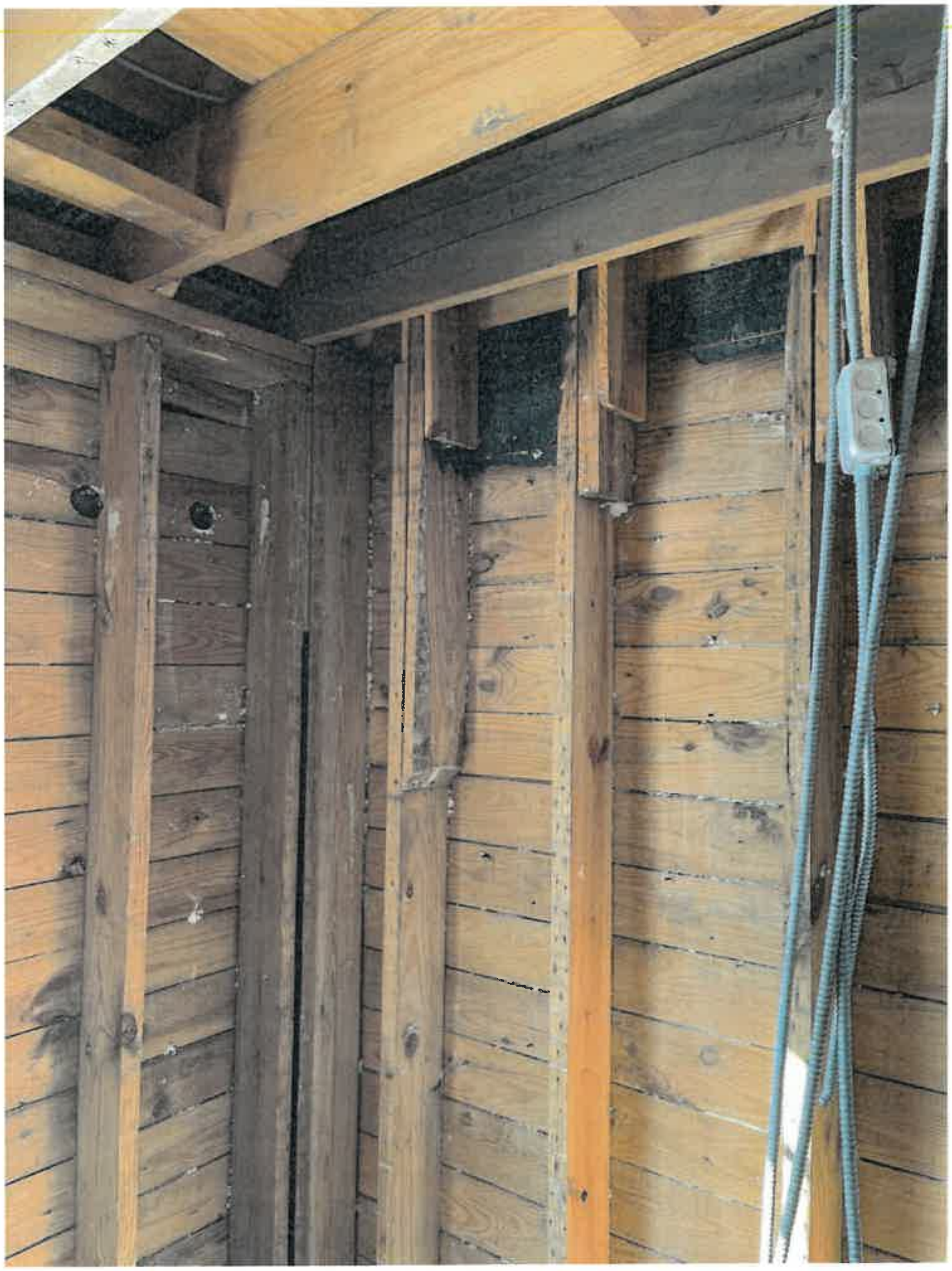


Photo 15: North Wing (Second Floor) – Balloon framing at north wall. Vertical framing scabbed and spliced, should be continuous vertical members. Charred remains indicate evidence of prior fire. Structural failure on ceiling framing. No fire blocking between second floor and attic. Water damage evident on backside of sheathing boards. Consistent air gaps in wall sheathing pose constructability problems for air sealing building envelope.

Photo 16: North Wing (Second Floor) –Wood framing at east wall. Charred remains indicate evidence of prior fire

Photo 17: East Wing Garage (First Floor) – Wood floor/ceiling joists bouncy & not level. Wood framed bearing wall lacking header at door opening. Plumbing lines cut into floor framing members and second floor sheathing. Evidence of water damage and possible mold. Garage wall painted on both exterior and interior faces, not allowing masonry wall to breathe. Condition of masonry, under paint, unknown.

Photo 18: North & East Wing (First Floor) – Wood floor/ceiling joists bouncy & not level. Wood framing members stained indicating moisture damage and possible mold. Timber beam vertically unsupported.

Photo 19: East Wing (Second Floor) – Roof framing undersized for spans. Evidence of moisture damage and possible mold at intersection of roof framing, wood plate and masonry.

A programmatic requirement of the Owner, is that the floors of her home are structurally sound and level floors throughout. "Soft and sagging" floors are not acceptable. During our walk-through of the building on December 20, 2021, it was visually apparent that the existing wood floor joists were undersized for their spans and some wood floor joists were cut to accommodate mechanicals and piping. PBA has noted in their follow-up structural report, dated January 11, 2022:

> *"Now that the framing is exposed, it is readily apparent that the size and spacing of the wood joists is deficient for the spans and loading conditions that exist at several locations throughout the house."*

In the areas with load bearing masonry walls, the existing floor joists are pocketed into the masonry, bearing on the masonry walls, and serve to laterally brace the masonry wall structure. Removal of existing floor structure and replacement with a new, properly sized floor structure is not an option, since this would be damaging and structurally detrimental to the remaining masonry walls.

> *"Where new framing is required to strengthen the existing floors, the original bearing condition cannot be replicated due to the difficulty it would present to the installation process, the resulting weakening of the masonry walls due to the enlarging of the bearing pockets and the long-term risk of having wood in direct contact with the masonry."*

Conceptually the team reviewed approaches to structurally reinforce the floor systems, so as to take the bounce out of the floor and provide the Owner new level the floors. As noted above, since the existing floor joists are pocketed into the masonry and laterally brace the masonry walls, PBA recommended not attempting to shore up the existing floor systems, nor attempt to introduce new structure bearing at the existing masonry walls as this would be damaging to the surrounding structure and weaken the existing masonry.

PBA recommended adding new structural floor systems that bear on new wood framed walls, that are interior of the existing masonry walls and that would bear on new foundation walls. The new foundation walls would likewise be interior of the existing foundation walls. PBA and La Duke noted that while this approach will be safer to construct and a less destructive to the existing structure, it will be difficult, time consuming and costly. La Duke commented that it would be more economical to demolish the existing home, including the existing foundations, and replace it with new construction that duplicated the existing home in-kind, if maintaining the architectural character of the home was the goal. Another negative to this approach is that the room dimensions of the interior spaces would be reduced, since additional new framed walls would be required for the new floor structures at the perimeter. As most rooms span the full width of the house, there would be reduction in room size along multiple sides.

Not factoring in economics, constructability, and reduction of habitable space, conceptually it seems a new structural system of wood framed walls, beams and joists, as well as new foundations, built interior of the existing building shell and supplementing the existing framing, could provide a solution to give the Owner more comfortable, level and non-bouncy floors. However, calculations and development of structural details would need to be completed before a formal and complete structural solution could be proposed. Per PBA's structural report, dated January 11, 2022:

> *"New framing will require the construction of a second bearing wall set to the inside of the existing walls to properly carry the loads. Those walls will need to carry down thru the structure to a new foundation, reducing the habitable space within the residence, not to mention the difficulty of constructing a structure within a structure."*
>
> *"Significant reinforcing and in some cases restructuring of the floor framing will be required to bring the framing into compliance with code. That corrective work will present a number of difficulties.... existing floor sheathing will need to be removed to install the new framing creating significant stability issues for the structure during construction."*

In addition to the bouncy existing floor structure, other structural defects of the existing structure were observed. The structural report prepared by PBA, dated January 11, 2022, identifies the additional existing conditions that require correction for compliance with the codes. They are summarized as follows:

- At the exterior brick masonry walls, the second floor joists are buried directly within the masonry walls. The brick masonry is a porous material and could promote a damp environment, which would subject the wood floor joist ends to decay.

- At the framed walls:
  - Window and door openings that occur in load bearing walls were found to be framed without structural headers.
  - There are no cripple and king studs, that are normally found on either side of wall openings, to account for the discontinuity that occurs in the wall stud framing as a result of the penetrations.
  - The rear-west and north-side exterior walls are two story wood framed walls that were built using balloon frame methodology. With this approach, the wall studs should continue as one piece to the level of the roof rafter bearing, however, many of the wall studs were found to be spliced at a point several feet above the second floor level. Per PBA's structural report, dated January 11, 2022:

    "The resulting discontinuity diminishes the ability of the second floor studs from carrying the vertical and lateral loads which they are subject to. All of the wall existing studs that are spliced in this manner will need to be reinforced."
  - The existing wall framing will need to be retrofitted and reinforced, as well as new framing inserted at openings, to create proper load paths and support for joist bearing ends.

- The roof is composed of gable roofs with valleys at the intersections where the gabled roofs turn in their orientation. The roof and ceiling framing is constructed with dimensional lumber that may be undersized, since it was carpenter built and not sized and detailed per engineering principals. Additionally, the roof framing has been framed to bear directly on ceiling, floor and wall framing without accounting for the applied roof loads to that framing, which has resulted in structural deficiencies in the roof framing. Per PBA's structural report, dated January 11, 2022:

> *"While the roof has a predominately gabled roof profile, valleys are present where the gables turn in their orientation and intersect one another. Reinforcing of the roof and ceiling framing to instate the proper support for the valleys and ridges of the roof will be required to develop the proper load paths for the applied loadings."*

After reviewing the existing structural conditions, that were exposed after the interior finishes were removed, PBA concluded in their structural report dated January 11, 2022:

> *"The structural deficiencies present at this residence are significant and must be fully addressed to both make the residence habitable and to reinstate its compliance with code. The scope and cost of that effort will be similarly significant."*

Photo 20: South Wing (First Floor) – Floor framing at both first and second floors bouncy with too much deflection. Structural reinforcement of floor and ceiling framing required. The environmental report indicated that there was an extremely high concentration of mold in the south wing crawlspace.

Photo 21: South Wing (First Floor) – 1of 2 tie rod connectors at ceiling framing connected through second floor to roof framing. Floor/ceiling joists bouncy. Evidence of structural failure in some of the framing members. Joists stained by possible moisture damage. Structural reinforcement of floor, ceiling and roof required.

Photo 22: South Wing (Second Floor) – 1 of 2 tie rods through wall framing connected through to roof framing with carpenter built timber truss/beam at ceiling framing. Tie rods and truss/beam do not have any apparent structural purpose and probably distribute roof loads to undersized ceiling and floor framing members, contributing to structural failures and bouncy floors. Structural reinforcement of floor, ceiling and roof framing required.

Photo 22A: South Wing (Second Floor) – Detail of 1 of 2 tie rods through wall framing connected through to roof framing with carpenter built timber truss/beam at ceiling framing with 1x4 vertical and diagonal members connecting to roof framing. Structural reinforcement of floor, ceiling and roof framing required.

Photo 22B: South Wing (Second Floor) – Black strap end connection detail that appears part carpenter built timber truss/beam at wall and ceiling framing. Roof framing not totally connected to wall plates. Water damage evident and possible mold. Structural reinforcement of floor, ceiling and roof framing required.

Photo 23: South Wing (First Floor) – Floor framing second floor bouncy with too much deflection. Wood framed bearing wall lacking header at door opening and joist ends. Structural reinforcement required. Efflorescence at brick wall and evidence of moisture damage at wood framing members bearing on masonry. In the upper left corner of the photo, the wood framing member that is typically pocketed into the masonry is exposed and illustrates the concern about susceptibility of wood decay where wood framing is pocketed into masonry.

Photo 24: North/East Wing (First Floor) – Interior wood framing. Second floor framing bouncy and significantly not level with 3"+/- dip in floor. Vertical support of north beam end at stair indeterminate. Structural reinforcement of floor framing required.

January 26, 2022

Photo 24A: North/East Wing (First Floor) – Second floor wood floor framing appears undersized (2x8 depth). Floor system is bouncy and significantly not level with 3"+/- dip in floor. Structural reinforcement of floor framing required.

Another area of concern for the design and construction team was the condition of the existing multi-wythe load bearing masonry walls, whether the masonry walls can be rehabilitated to ensure proper function, and insulated to meet the requirements of the current energy codes without further compromising them. The masonry walls are comprised of Chicago Common (low-fired) brick. The exterior surface of the brick has been coated with paint. The application of the paint to the masonry construction is problematic and has caused some the deterioration of the masonry visibly. Brick masonry walls absorb water such as during rain events or where there may be drainage problems. Depending on the environmental conditions, the brick will "breathe" and release the moisture as vapor either towards the exterior or interior. The application of the paint on the exterior of the brick was restricting the flow of vapor from the brick towards the exterior.

The paint on the exterior brick may have been a contributing factor to the presence of mold in the Burke home. The paint was most likely preventing the masonry walls to "breathe" towards the exterior and hence vapor saturated air would accumulate on the interior face of the masonry, and depending on the composition of the interior finishes, the wall may not have been able to "breathe" towards the interior either. The vapor saturated air, at the inside brick face, could have promoted the mold. The discoloration of the wood framing suggests it may have suffered damage due to mold. There is evidence of cracks at masonry window heads likely a result of expansion of steel lintels due to rust. There is also damage evident at the sloped chimney shoulders, and rowlock window sills. These conditions could have also contributed to water penetration into the home.

Within the building science community, there is ongoing research and discussion into whether adding insulation to the interior face of historic, multi-wythe masonry walls, for compliance to modern energy codes, is beneficial or detrimental to the performance of the historic masonry walls. Historic masonry walls originally were not insulated. The introduction of modern concepts about energy efficiency (insulation, air barriers, vapor control), when applied to historic structures, change the dynamics of the building materials performance that could be detrimental to the durability of the materials.

The article, *"Interior Insulation Retrofits of Load-Bearing Masonry Walls in Cold Climates"*, by John Straube, with Department of Civil Engineering at University of Waterloo, and Christopher Schumacher, with Building Science Consulting, reviews the issues related to performance and durability problems related to introducing insulation to exterior walls, on historic structures, that are composed of load bearing masonry:

> *"The primary concern with insulating older load bearing masonry buildings in cold climates is the possibility of causing freeze-thaw damage of the brickwork and decay in any embedded wood structures"*

Similarly noted in the National Park Service U.S. Department of the Interior, Preservation Briefs 3, *"Improving Energy Efficiency in Historic Buildings"*, by Jo Ellen Hensley and Antonio Aguilar:

> *"Buildings with masonry materials of higher porosity, such as those built with low-fired brick, or certain soft stones, are particularly susceptible to freeze-thaw cycles and must be carefully evaluated prior to adding insulation."*

As well, as concluded in "Insulating History – Hygrothermal Assessment of Insulation Retrofits in Historic Heavy Masonry Buildings", by Joseph Little, Calina Ferraro, PE, Member ASHRAE, and Benat Arregi,

> *"Accumulation of moisture and dampness can damage building components and create dangerous conditions for mold growth. These risks have long been acknowledged and measures for assessing the risks have been developed. As we continue to demand improved thermal performance from our building envelopes, the risk of condensation and moisture accumulation also increases if the envelope is not properly designed. Just as our construction materials and installation practices have evolved to meet these superior performance standards, so to must our assessment techniques to evaluate hygrothermal performance and assess risk.*
>
> *This is particularly important in the retrofit of traditional construction and historic buildings. The building envelopes in these structures were designed in an era long before energy codes, vapor control layers and mandatory U-values. Typically, driving rain is the largest contributor of moisture and historic preservation prevents modifying the façade to reduce this moisture influx. Blindly applying modern retrofits to traditional construction can have damaging consequences and the simplified dew-point assessment techniques are not relevant or applicable to evaluating the risks in this heavy traditional construction."*

While masonry walls, as an above-grade building enclosure, are a good barrier to the exterior weather elements, they are susceptible to moisture problems due to their inherent properties. Sources of moisture within the masonry enclosures are:

- Precipitation, especially driven rain, saturates the masonry walls due to being a porous material.
- Airborne water vapor is transported through the wall by diffusion and/or air movement from either the exterior or interior sides of the wall.
- The masonry has a built-in capacity to store moisture
- Liquid moisture from the ground can be wicked up into the masonry via capillary action.

Conversely, the drying potential of masonry is typically good when the building enclosure assembly is constructed properly. Moisture is removed from the building enclosure by:

- Evaporation of water, at the exterior and interior surfaces of the masonry, transported by capillary suction through the microscopic pores
- Vapor transport by diffusion through the microscopic pores, and/or air leakage through cracks and holes, either outward or inward
- Drainage, through gaps, cracks and openings, driven by gravity
- Ventilation drying, which is the intentional flow of air behind the cladding. This is typical of modern single-wythe brick veneer wall enclosures, which typically include an air space directly behind the brick and regularly spaced weep/air vents at the top and bottom of the veneer walls.

Traditionally older building structures constructed with multi-wythe brick masonry walls may not have been insulated. That is the case with the Burke residence. At the exterior masonry walls there was not any evidence that the walls were insulated beyond the plaster/wood lathe wall finishes that were removed. Thermal insulation was introduce at some point, during the home's history, at the wood framed exterior walls.

To provide thermal comfort to her family's home, Ms. Burke would like to have the exterior walls thermally insulated. This would provide a home that is more habitable (comfortable interior environment) and compliant with the current energy codes (energy efficient). Adding thermal insulation to masonry walls, that were previously uninsulated, can be problematic during cold weather since it changes the moisture balance in the wall. The addition of insulation to the interior of a load-bearing masonry wall will lower the temperature gradient across the masonry and adds the potential for condensation, due to air leakage, at the interior of the wall assembly. Since the new insulation, as well as the new interior finishes, reduce the temperature of the interior face of the masonry during the winter any interior air that contacts this face could condense. This creates a moisture source, from the vapor laden air of the interior environment that can lead to issues related to decay of wood framing that is embedded into the load-bearing masonry, and the growth of mold.

As noted in *"Interior Insulation Retrofits of Load-Bearing Masonry Walls in Cold Climates":*

> *"The addition of insulation to the interior also adds the potential for a new wetting mechanism-condensation due to air leakage. Since any insulation or new interior finishes will reduce the temperature of the interior face of the masonry in winter, any interior air that contacts this face could condense.*
>
> *Given sufficient air leakage and sufficiently high indoor relative humidity this condensate can accumulate faster than it can dry, and the interior face of the masonry will become saturated at the same time the inner surface will often drop below freezing. To control the potential moisture damage, including freeze-thaw damage, an airtight layer to the interior of the insulation should be provided."*

At the Burke residence, as discussed above, new load-bearing wood framed walls are recommended to engage the new wood framed floor system. Traditionally, to provide an insulated interior environment, new thermal insulation would be installed between the studs of the new wood framing. From a construction practicability perspective the proposed retrofit of the existing structure utilizing new load-bearing wood framed walls cannot, and should not, be built tight to the inside face of the load-bearing masonry walls. Due to the uneven surfaces of the materials, there will inevitably be air gaps between the interior face of the existing masonry walls and the backside of the proposed new construction, creating a cavity for air movement. There will be air flow from the exterior, due to the porousness of masonry materials and construction, but as well there will be air flow from the interior that are due to small leaks in the wall construction. During the winter months, the vapor in the warm humid air flow will condense at the colder masonry and potentially provide liquid moisture in the wall cavity.

The National Park Service U.S. Department of the Interior, Preservation Briefs 3, *"Improving Energy Efficiency in Historic Buildings"* discusses the common use of spray foam insulations to provide both a thermal and air barrier and the potential shortcomings when used to insulate historic masonry walls:

> *"Spray foams are being used for insulation in many masonry buildings. Their ability to be applied over irregular surfaces, provide good air tightness, and continuity at intersections between, walls, ceilings, floors and window perimeters makes them well suited for use in existing buildings. However, the long-term effects of adding either open- or closed-cell foams to insulate historic masonry walls as well as performance of these products have not been adequately documented. Use of foam insulation in buildings with poor quality masonry or uncontrolled rising damp problems should be avoided."*

As well, the existing wood floor framing, which is pocketed into the masonry walls, needs to remain to ensure the structural integrity of the existing walls during construction. This existing wood structure in contact with the masonry is potentially problematic, as it may decay if subjected to moisture and/or act as food source for mold growth. The existing wood joists are spaced at approximately 16" OC, so there is significant contact between the masonry and embedded wood.

As noted in *"Interior Insulation Retrofits of Load-Bearing Masonry Walls in Cold Climates":*

> *"The most challenging scenario is one in which wood beams penetrate the new interior finish and rest in pockets within the masonry. The goal must be to reduce all air leakage which carries moisture into this cold beam pocket. Providing ventilation to this space is almost certain to cause condensation, not avoid it"*

There are recommended approaches to dealing with some of the moisture related concerns of insulating historic load-bearing masonry walls during retrofit work. One suggested retrofit wall assembly would include the following:

- Remove the paint from the exterior of the masonry to allow the masonry to breathe towards the exterior
- Repair damaged masonry to limit moisture intrusion from weather events
- To control air flow through the wall assembly, apply an air-water barrier, that is vapor permeable, to the inside face of the masonry wall.
- To provide a thermally insulated wall system, provide continuous, semi-rigid stone wool insulation directly attached to the interior face of the masonry wall. In our climate, the energy code would require a minimum R-13, which would translate to approximately 3-plus inches of insulation
- Control interior vapor with vapor retarder that allows the wall assembly to breathe, and hence dry out, towards both the interior and exterior of the wall assembly.
- New wall framing that is installed interior of the thermal insulation layer and will receive new wall finishes.

In regards to the Burke residence, problems with the above approach include:

- Reducing interior room dimensions due to added insulation and framing
- The existing wood floor framing systems are embedded into the masonry and may be difficult to fully insulate and air seal around due to quantity of framing.

- The existing framing shows evidence of water damage and may already be compromised by mold. Since the existing residence has already had significant mold problems, we cannot be certain what the ongoing problems related to the existing mold problem may or may not be, after retrofitting and thermally insulating the existing walls as described above.

Refer to attached "Existing First Floor Plan– Structural Reinforcement", "Existing Second Floor/Roof Plan– Structural Reinforcement" and "Existing Building Sections– Structural Reinforcement of Floors" drawings. These drawings illustrate the extent of structural reinforcement, new structural framing, and masonry repairs required to make the residence habitable and compliant with code.

In this report, we have not specifically addressed the detached garage and potential rehabilitation issues related to mold, moisture damage, structural deficiencies and masonry since we have not been able to occupy the indoor spaces due to the noticeably and extremely high mold contamination in the interior. Since the exterior masonry walls have been painted, we assume that their condition may have contributed to the moisture problems there. We also suspect that the garage floor slab is a major contributor to moisture vapor and mold growth in the building.

Conclusion

The Owner is sensitive to the historic nature of the home and property, but is burdened by: the responsibility to significantly restructure the framing throughout the residence to ensure the structure is code compliant; to rehabilitate a structure that may have ongoing moisture problems and maintenance issues related to the masonry walls; to have an insufficiently insulated home that does not meet modern lifestyle comfort requirements and energy codes; reduced living space due to structural remedies required to provide a structurally sound home; and, is not confident the mold conditions can be successfully remediated.

Attachments:

Drawings:

- Existing First Floor Plan – Structural Reinforcement Overlay Plan
- Existing Second Floor/Roof Plan – Structural Reinforcement Overlay Plan
- Existing Building Sections – Structural Reinforcement of Framing

Reports & Articles Referenced:

1. ***Environmental Report (650 Lake Road, Lake Forest, Illinois)***, prepared by Safestart Environmental, dated January 16, 2020

2. ***Mold & Moisture Assessment (650 Lake Road, Lake Forest, Illinois)***, prepared by Midwest Environmental Consulting Services, Inc., dated April 5, 2021

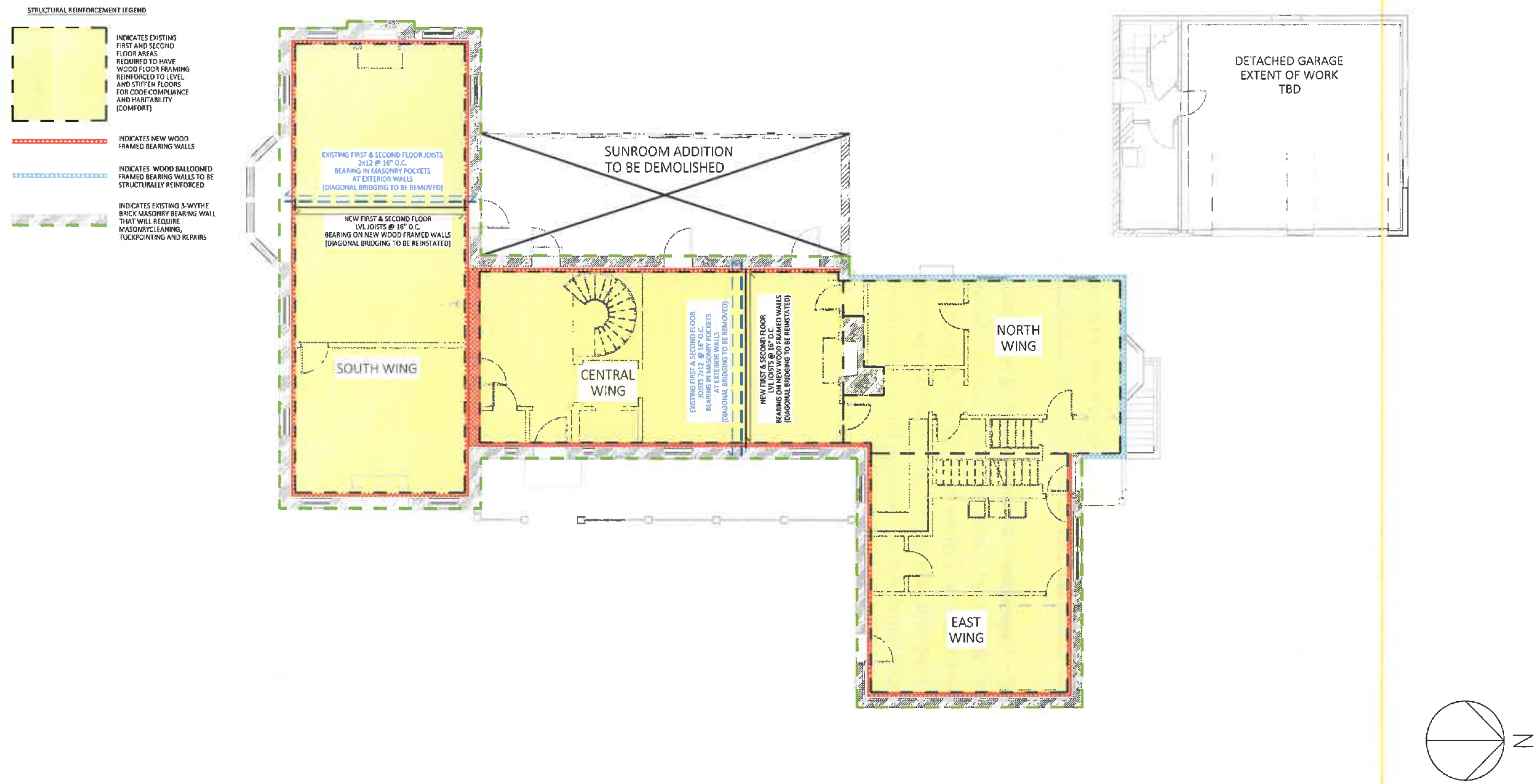
3. ***Structural Condition Report (650 Lake Road, Lake Forest, Illinois)***, prepared by Pease Borst & Associates (PBA), dated December 21, 2020

4. ***Structural Condition Report (650 Lake Road, Lake Forest, Illinois)***, prepared by Pease Borst & Associates (PBA), dated January 11, 2022

5. ***"Interior Insulation Retrofits of Load-Bearing Masonry Walls in Cold Climates"***, by John Straube, with Department of Civil Engineering at University of Waterloo, and Christopher Schumacher, with Building Science Consulting, dated March 28, 2007

6. National Park Service U.S. Department of the Interior, Preservation Briefs 3, ***"Improving Energy Efficiency in Historic Buildings"***, by Jo Ellen Hensley and Antonio Aguilar, dated December 2011

7. ***"Insulating History – Hygrothermal Assessment of Insulation Retrofits in Historic Heavy Masonry Buildings"***, by Joseph Little, Assistant Head of School (Discipline of Construction) of the Dublin School of Architecture, Dublin Institute of Technology, Ireland, Calina Ferraro, PE, Member ASHRAE, mechanical engineer and associate principal at Randall Lamb Associates in San Diego, California, and Benat Arregi, building fabric consultant with Building Life Consultancy in Dublin, Ireland, dated June 2015



EXISTING FIRST FLOOR PLAN - STRUCTURAL REINFORCEMENT OVERLAY PLAN

SCALE: 3/32" = 1'-0"

MELICHAR ARCHITECTS
THE PRACTICE OF FINE ARCHITECTURE

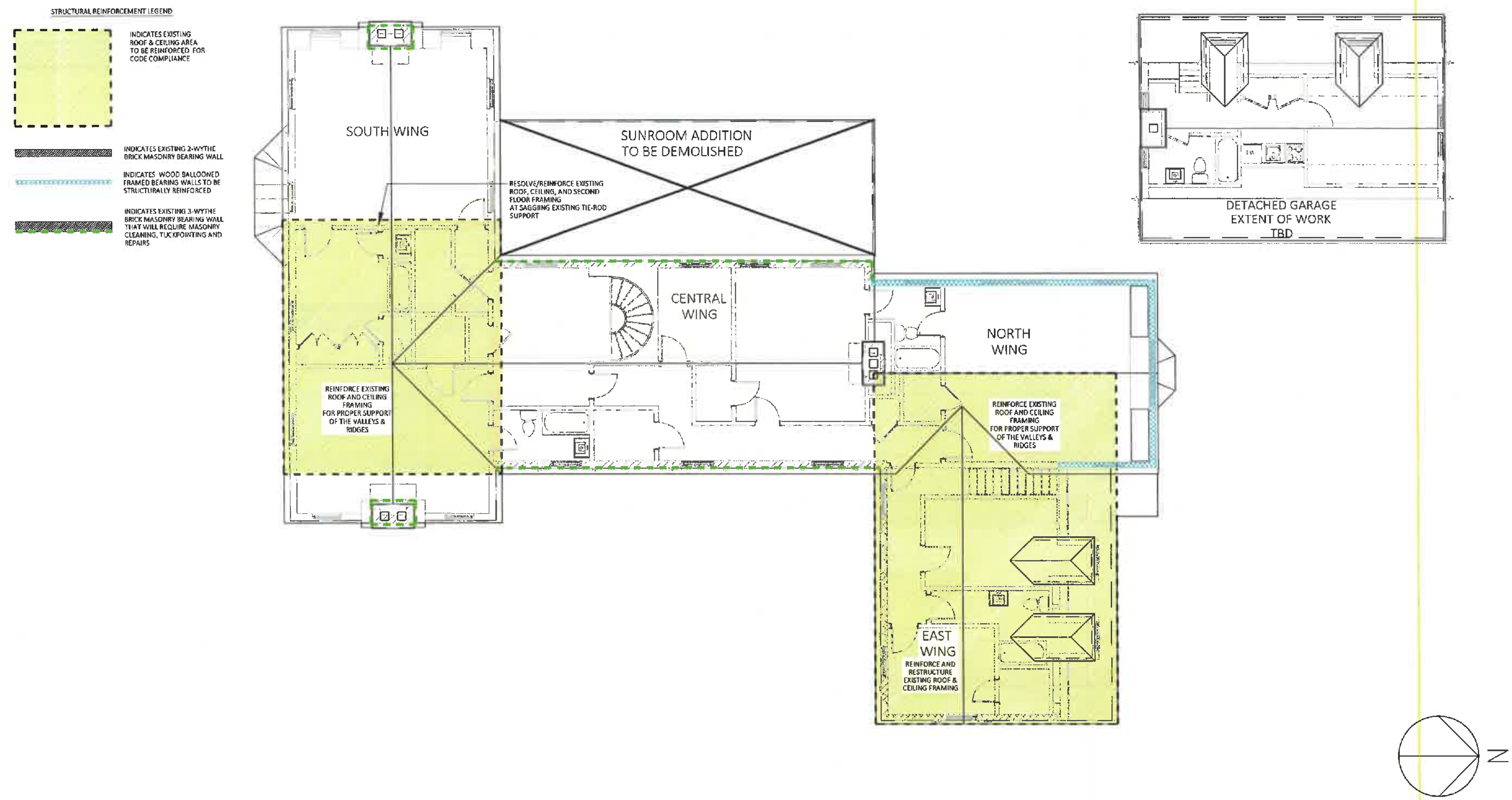
207 EAST WESTMINSTER LAKE FOREST, ILLINOIS 60045
P 847-295-2440 F 847-295-2451

STEPHANIE BURKE RESIDENCE

650 N. LAKE ROAD
LAKE FOREST, IL 60045

JOB NO.: 1931

ISSUE DATE: HPC SUBMITTAL
01/26/2022



EXISTING ROOF/SECOND FLOOR - STRUCTURAL REINFORCEMENT OVERLAY PLAN

SCALE: 3/32" = 1'-0"

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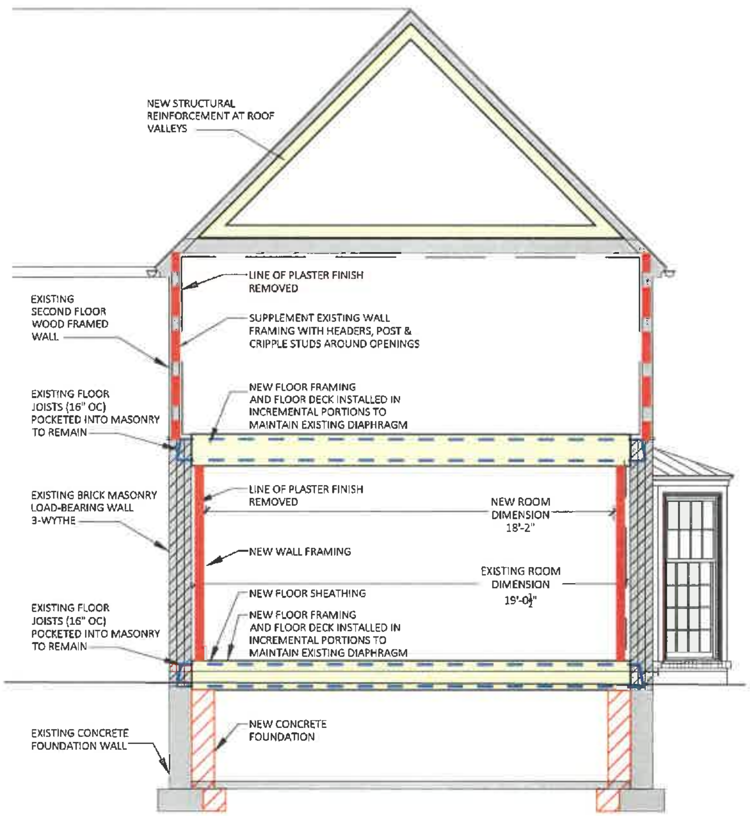
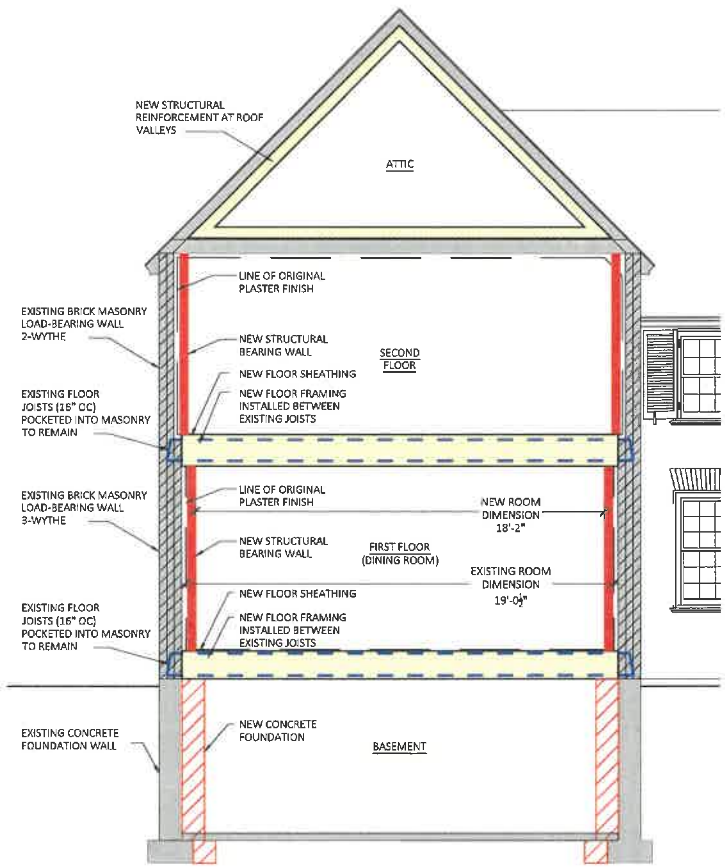


STRUCTURAL REINFORCEMENT SOUTH WING



STRUCTURAL REINFORCEMENT CENTRAL WING

STRUCTURAL REINFORCEMENT LEGEND

- INDICATES EXISTING FIRST AND SECOND FLOOR FRAMING REQUIRED TO BE STRUCTURALLY REINFORCED, TO LEVEL AND STIFFEN FLOORS, FOR CODE COMPLIANCE AND HABITABILITY (COMFORT)
- INDICATES EXISTING ROOF VALLEY FRAMING TO BE STRUCTUARLLY REINFORCED FOR CODE COMPLIANCE
- INDICATES EXISTING BRICK MASONRY BEARING WALLS THAT WILL REQUIRE MASONRY CLEANING, TUCKPOINTING AND REPAIRS
- INDICATES NEW WOOD FRAMED BEARING WALLS
- INDICATES WOOD FRAMED BEARING WALLS REQUIRING STRUCTURAL REINFORCEMENT
- INDICATES NEW CONCRETE FOUNDATION WALLS

EXISTING BUILDING SECTIONS - STRUCTURAL REINFORCEMENT OF FRAMING

SCALE: 3/16" = 1'-0"

MELICHAR ARCHITECTS
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ISSUE DATE: HPC SUBMITTAL 01/26/2022

BSD-114: Interior Insulation Retrofits of Load-Bearing Masonry Walls In Cold Climates

John Straube
MARCH 28, 2007

Very Cold Cold

Abstract:
This digest reviews the moisture control principles that must be followed for a successful insulated retrofit of a solid load-bearing masonry wall. Two possible approaches to retrofitting such walls are presented and compared.

Introduction

Reducing the energy consumption of buildings has become increasingly imperative because of the combined demands of energy security, rising energy costs, and the need to reduce the environmental damage of energy consumption. A significant amount of research has developed guidance and technology to assist designers and owners significantly reduce the energy consumption of new buildings. However, a vast stock of existing buildings, the great majority of which have poorly insulated enclosures, exists. Improving the energy performance of this stock of buildings will be a very important part of transitioning North America from an imported fossil fuel dependent region, to a low-carbon, self-sufficient economy.

Upgrading, renovating and converting buildings to new uses involve numerous challenges. A socially, culturally, and economically important class of buildings is load-bearing brick masonry buildings, typically built before the Second World War. Adding insulation to the walls of such masonry buildings in cold, and particularly cold and wet, climates may cause performance and durability problems in some cases. Many of the same principles apply to the interior insulation of the CMU walls with masonry facing widely used for the decades after WW2.

This digest reviews the moisture control principles that must be followed for a successful insulated retrofit of a solid load-bearing masonry wall. Different possible approaches to retrofitting such walls are presented and compared.

The Moisture Balance

The primary concern with insulating older load bearing masonry buildings in cold climates is the possibility of causing freeze-thaw damage of the brickwork and decay in any embedded wood structure. Both concerns are related to excess moisture content and hence a review of moisture in building enclosures is appropriate.

For a moisture-related problem to occur, at least five conditions must be satisfied:

1. a moisture source must be available,
2. there must be a route or means for this moisture to travel,
3. there must be some driving force to cause moisture movement,
4. the material(s) involved must be susceptible to moisture damage, and
5. the moisture content must exceed the material's safe moisture content for a sufficient length of time.

To avoid a moisture problem one could, in theory, choose to eliminate any one of the conditions listed above. In reality, it is practically impossible to remove all moisture sources, to build walls with no imperfections, or to remove all forces driving moisture movement. It is also not economical to use only those materials that are not susceptible to moisture damage. Therefore, in practice, it is common to address two or more of these prerequisites so as to reduce the probability of exceeding the safe moisture content and the amount of time the moisture content is exceeded.

All enclosure design requires a balance of wetting and drying (Figure 1). Since wetting occurs at different times than drying, storage bridges the time between wetting and drying. If a balance between wetting and drying is maintained, moisture will not accumulate over time, the safe moisture content will not be exceeded, and moisture-related problems are unlikely. The storage capacity and the extent and duration of wetting and drying must, however, always be considered when assessing the risk of moisture damage.

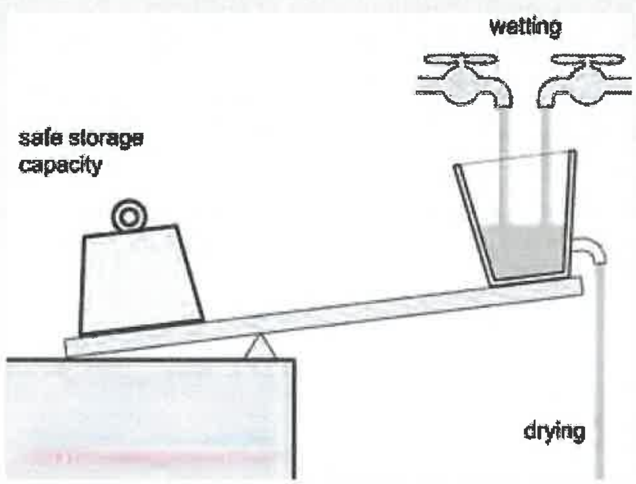


Figure 1: The moisture balance analogy.

The four major sources of moisture for the above-grade building enclosure are (Figure 2):

1. precipitation, especially driving rain,

2. water vapor in the air transported by diffusion and/or air movement through the wall (from either the interior or exterior),

3. built-in and stored moisture, and

4. liquid and bound ground water.

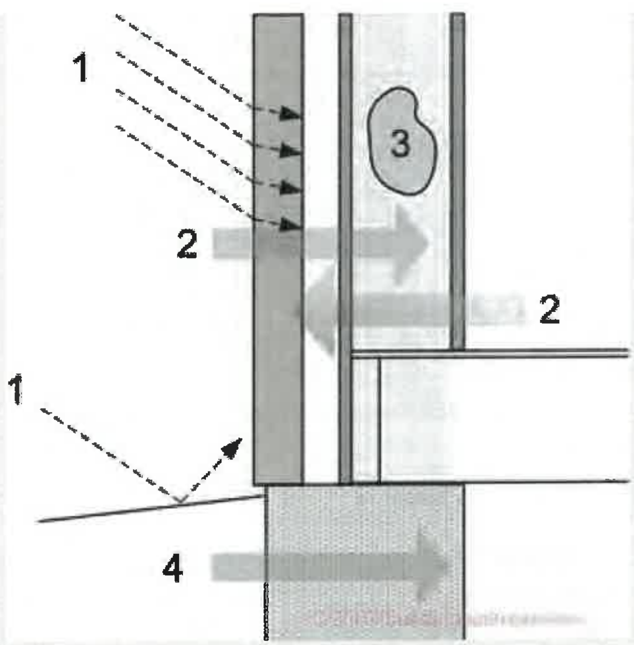


Figure 2: Moisture sources and mechanisms for an arbitrary enclosure wall.

An assembly's drying potential is an important factor in assessing its vulnerability to moisture problems. Moisture is usually removed from an enclosure assembly by (Figure 3):

1. evaporation of water at the interior and exterior surface transported their by capillary suction through microscopic pores;

2. vapor transport by diffusion (through microscopic pores), air leakage (through cracks and holes), or both, either outward or inward;

3. drainage through gaps, cracks and openings, driven by gravity; and

4. Ventilation (ventilation drying), the intentional flow of air behind the cladding.

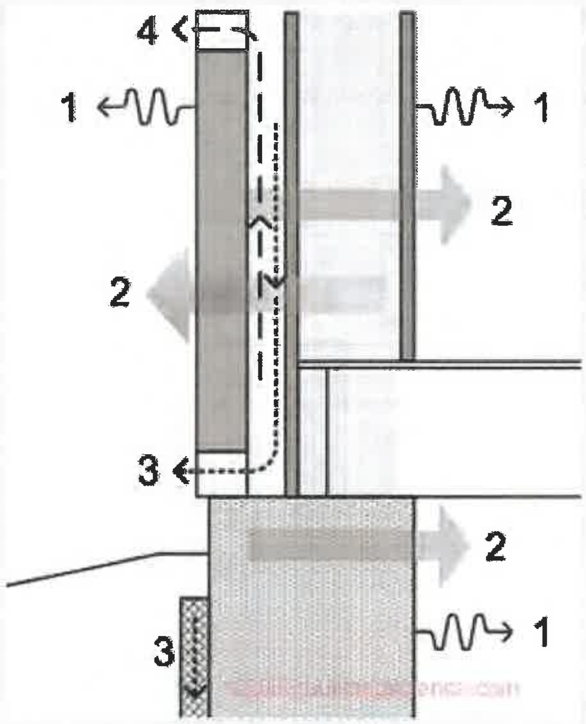


Figure 3: Moisture removal mechanisms.

Why Retrofit Load-Bearing Masonry Walls

The enclosure walls of many older buildings are comprised of several wythes of interlocking masonry, cement, lime or cement-lime mortar. The interior may be exposed masonry but is often completed with parging, wood lath, and/or plaster. In institutional buildings, particularly those built later in the period, one or more wythes of hollow clay or terracotta tile may be added to the interior and finished with plaster. The hollow inner wythes provided both increased insulation as well as space to run plumbing services. Beginning around the Second World War, the inner layer of masonry was often comprised of concrete masonry units bonded with exterior masonry facings.

Load bearing brick masonry buildings have the potential for long term durability – it is for this reason that many still exist and are available for renovation and conversion after service lives of well over 50 to 100 years. However, the realities of escalating energy costs, increasing standards for occupant comfort, and the unacceptability of environmental damage due to excessive space conditioning energy losses means that modern renovations should incorporate means of reducing heat flow across the enclosure.

Load bearing brickwork of the past has a wide variety of thermal properties, but common moderate density brickwork (80 to 110 pcf) can be assumed to provide an R-value of from R0.25 to R0.33 per inch. Higher density brick (over 125 pcf) has a lower thermal resistance, about 0.15/inch. Hence, a three wythe (12”) thick wall, provides an R-value of between 3 and 4 plus surface heat transfer coefficients ("air films") of another R1. If the masonry becomes wet, the R-value drops. A CMU wall with an outer bonded brick wythe has similar levels of performance. This level of insulation is too low for many practical purposes and can even lead to condensation problems if interior humidity levels are kept too high. This is especially the case if a buildings use is changed to a museum or gallery space. Even changing a warehouse to a loft apartment, however, may change the interior conditions sufficiently to cause a problem. Hence, for many reasons, the decision is often made to add insulation to the walls during conversion and renovations, as it is possible with the least disruption at this time.

To ensure that the goals of comfort, energy-efficiency, and durability are met, windows, roofs, basements and airtightness must also be included in any evaluation of the potential of a building retrofit. Major improvements in the performance of these other building enclosure components can significantly enhance overall building performance.

In many cases, the addition of thermal insulation, the reduction in air leakage, and high performance windows not only reduces energy consumption, improves comfort, and avoids interior surface condensation, it also allows smaller, less architecturally intrusive and less expensive HVAC systems be installed.

Exterior Insulation Retrofits

From a building science perspective, exterior insulation retrofits offers the easiest, largest, and lowest risk approach to improving enclosure thermal resistance, airtightness, and rain penetration resistance. At the same time, exterior enclosure retrofits enhance the durability of the existing wall more than any other approach (by maintaining it a constant temperature and eliminating all sources of wetting) and ensure the continuity of all control layers. Essentially any level of performance can be achieved with an exterior retrofit as the existing enclosure is used merely as a support structure.

However, there are many reasons why exterior insulation retrofits cannot be used including, of course, the need to protect the aesthetic value of the exterior façade of the building.

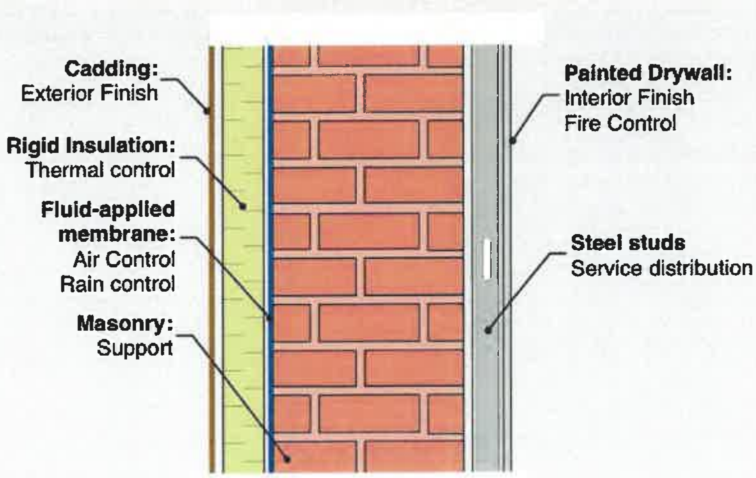


Figure 4: Exterior insulation retrofits are the preferred building science solution.

The Potential for Moisture Problems in Interior Retrofits

Renovating any wall can disrupt the moisture balance and there are examples in practice where this disruption has resulted in damage or performance problems. The damage mechanisms of concern are primarily freeze-thaw and salt subfluorescence. Both of these mechanisms are only a problem in cold weather, and the most dangerous one, freeze-thaw, can only occur at temperatures well below freezing while the brickwork is essentially saturated. To avoid moisture related damage, the balance should be explicitly considered during the retrofit design process (Straube et al 2012).

The addition of insulation to the interior of a load-bearing masonry wall will lower the temperature gradient across the masonry and reduce the difference in temperature between the masonry and the exterior air (Figure 5). Both of these changes reduce the drying capacity of the masonry (in particular, the diffusion drying capacity through the masonry is reduced, and the surface evaporation can be slowed.) However, capillary flow is by far the most powerful moisture redistribution mechanism and it is essentially unaffected by insulation.

Water that wicks to the interior face of the now insulated interior face of the masonry can still evaporate from this surface to the interior through the interior insulation and finishes during warmer weather (if the vapor permeance of these interior layers allows it).

Since the reduced drying capacity could result in higher moisture contents (not necessarily unsafe levels, but one often does not know the safe level with any precision) it would be prudent to also simultaneously reduce the wetting of the wall (ideally, by an equivalent or greater amount) to restore the moisture balance. Hence, an interior insulation retrofit of a masonry building requires a careful assessment of wetting mechanisms. The benefit of exterior retrofits on durability can be considered by comparing the resulting temperature gradient (Figure 6).

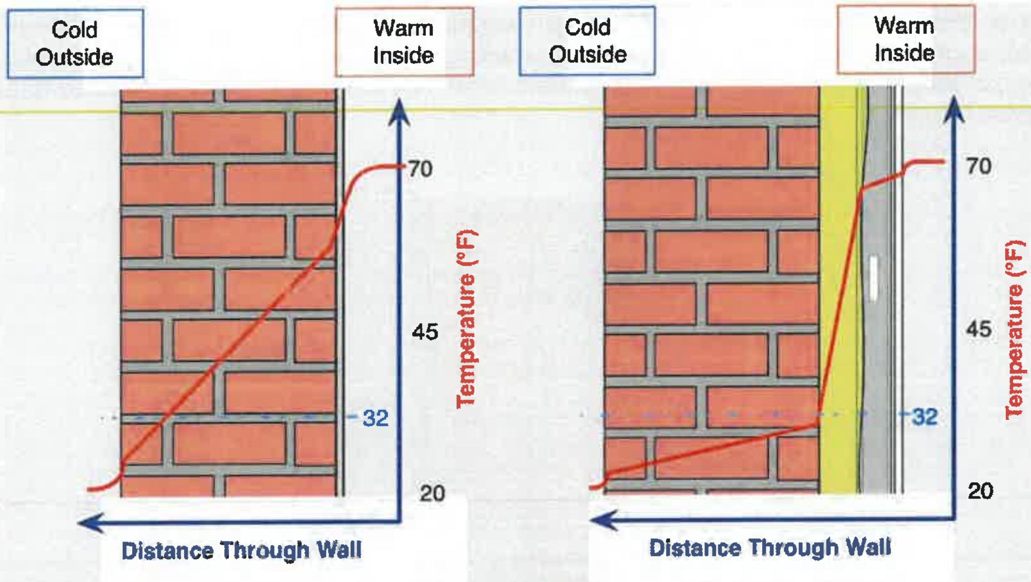


Figure 5: Changing temperature gradient due to interior insulation.

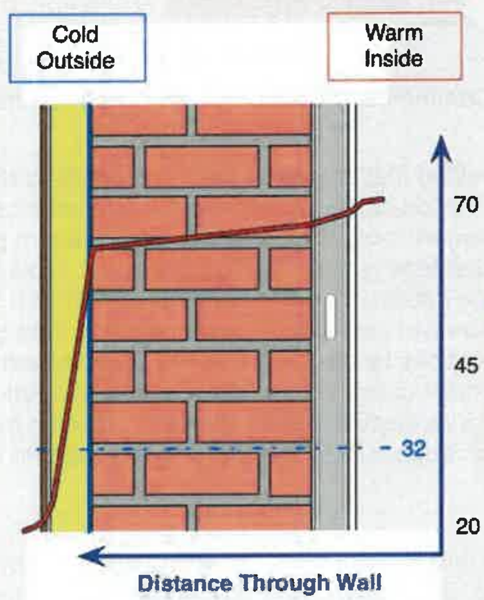


Figure 6: Changing temperature gradient due to exterior insulation.

In the last decade the evaluation of brick and stone masonry freeze-thaw resistance has developed significantly. Research work has resulted in testing and modeling techniques that allow one to quantify the degree of freeze-thaw resistance (Mensinga et al 2010, 2014, Lstiburek 2011). Testing and assessment allows the team to quantify the risk of freeze-thaw damage in service after an interior retrofit and is now routinely conducted by the RDH Building Science Laboratories.

Wetting Mechanisms and Their Control

Wetting, as described above, can occur from rain wetting (especially at poor surface drainage features), at-grade wetting (from the earth, snow melting, poor surface drainage). After insulation air leakage condensation and vapor diffusion condensation may become important. All need to be considered (Figure 7).

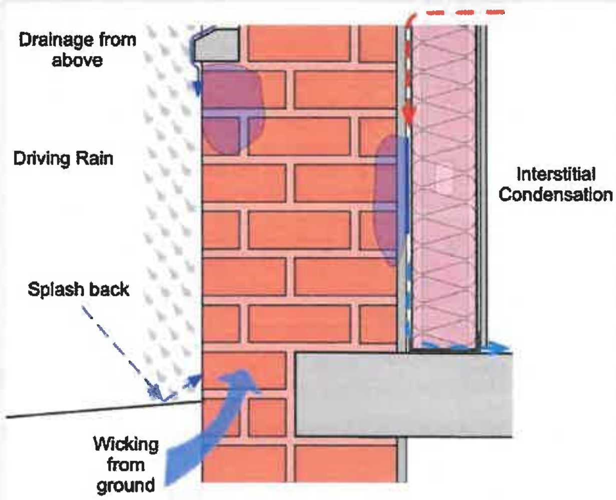


Figure 7: Common solid masonry wall wetting mechanisms.

The largest and most intense wetting that an existing building tends to receive is that of driving rain deposition and concentration. The locations which have the highest intensity of wetting (often in the range of 10 to 100 gallons per square foot per year in the Northeastern part of North America) are the bottom corners of window openings (since windows drain and concentrate water on the lower corners) and at grade (if drainage details are not properly provided for). The control of surface rain water flow is the most critical aspect of controlling the moisture content of the masonry. Hence, reducing the wetting at these locations by the provision of projecting window sills and base drainage can often reduce wetting of the most critical areas far more than the reduction in drying caused by insulating. The role of overhangs (projections of as little as 1" make a material difference to wetting), belt courses, and projecting drips edges along window sills and pilaster tops cannot be underestimated.

The addition of insulation to the interior also adds the potential for a new wetting mechanism – condensation due to air leakage. Since any insulation or new interior finishes will reduce the temperature of the interior face of the masonry in winter, any interior air that contacts this face could condense (see Figure 5).

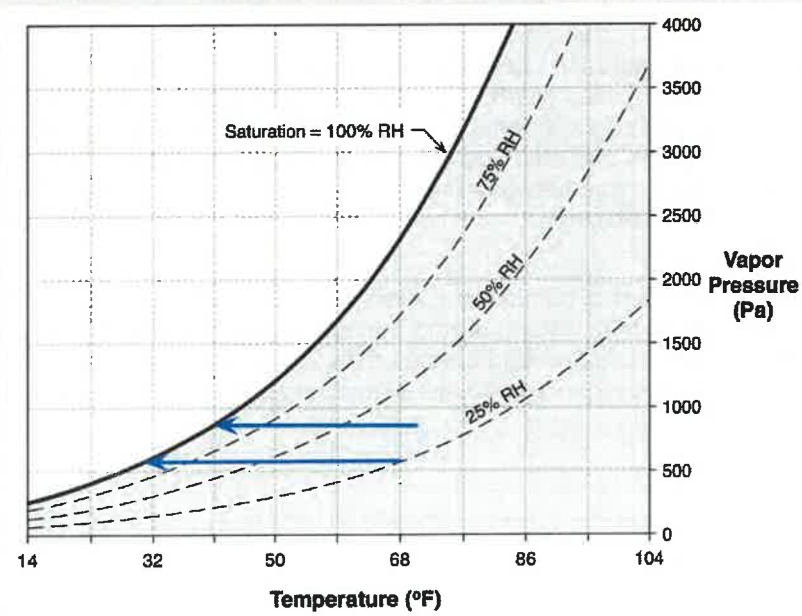
Given sufficient air leakage and sufficiently high indoor relative humidity this condensate can accumulate faster than it can dry, and the interior face of the masonry will become saturated at the same time the inner surface will often drop below freezing. To control the potential moisture damage, including freeze-thaw damage, an airtight layer to the interior of the insulation should be provided.

Finally, insulating masonry on the interior can increase the potential for diffusion-driven condensation wetting. Some vapor diffusion control is needed if both highly vapor permeable insulation is used and the interior space humidity rises too high during cold weather (above about 30% to 40% RH in cold climates). In most cases, however, the commonly specified vapor diffusion barrier of under 1 US perm is not needed. In fact, low permeance interior finishes and barriers can be detrimental to the performance as such vapor barriers resists or eliminate the potential for inward drying.

The required control of vapor diffusion wetting can usually be provided by typical latex paint, semi-permeable insulation products, smart vapor retarders (products that reduce their vapor permeance in winter and increase it by an order of magnitude in summer) and other similar materials. In general, the optimal level of vapor control required can be easily calculated for specific building exposures and climates using dynamic one-dimensional hygrothermal analysis methods. (We have found that the most accurate and appropriate tool is often WUFI).

Problematic Retrofit Strategies

A common scheme involves drywall on a steel stud wall filled with batt insulation (Figure 5). A small (from ¼" to up to a 2") air gap, may be intentionally installed on the inside of the existing masonry wall or one can accidentally form because of the dimensional variations implicit in existing masonry buildings. The drywall finish often acts as the air barrier in this situation, and either paint, kraft facings, polyethylene sheet or aluminum foil backing acts as a vapor control layer. (Note that multi-wythe masonry is usually quite air permeable and is not in itself sufficient as an air control layer). There are numerous serious problems with this approach.



First, there is a high likelihood of condensation and mold growth in the wall. As can be seen from Figure 9, if the interior conditions vary between 68 F/25%RH and 71 F/35%RH, the dewpoint temperature will vary between 30 and 40 F. Hence, when the back of the masonry drops below these temperatures (which are likely during cold weather) condensation would occur if airflow behind the masonry were to occur. If higher interior humidities and colder outdoor temperatures are experienced, serious condensation is likely with even very small leaks past the drywall air barrier.

Compounding this concern is the common propensity of pressurizing commercial and institutional buildings. This practice is intended to prevent comfort problems due to drafts through uncontrolled air leaks, but it also ensures that air will leak outward in sufficient volumes to cause damaging quantities of condensation on the back of the cold insulated masonry.

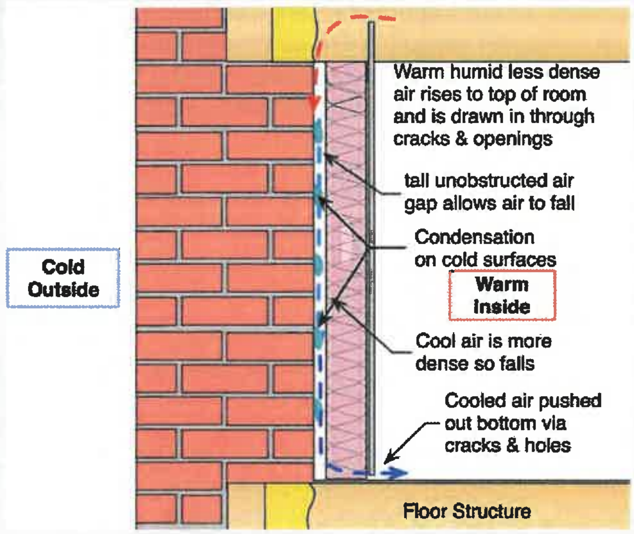


Figure 8: Concept drawing of stud and batt interior retrofit.

If steel studs are used, this approach will not provide insulation to the desired level. Steel studs are thermal bridges, and in the scenario given, are theoretically capable of providing only about R-6 (less if the floor slabs are included). In practice, installing batt between studs with no backing is very difficult, and it is almost certain that the batts will not be properly installed. Finally, air may loop within the insulation via the air gap between the masonry and the batt reducing the R-value even further and encouraging condensation.

Hence, this scheme suffers from a number of limitations – it does not provide a reasonable level of insulation, it increases winter time wetting during the coldest weather (the same period during which there is a risk of freeze-thaw damage) and creates a mold and indoor air quality risk. Given the serious limitations and the questionable benefits of this scheme, it cannot be recommended for any interior insulation retrofits.

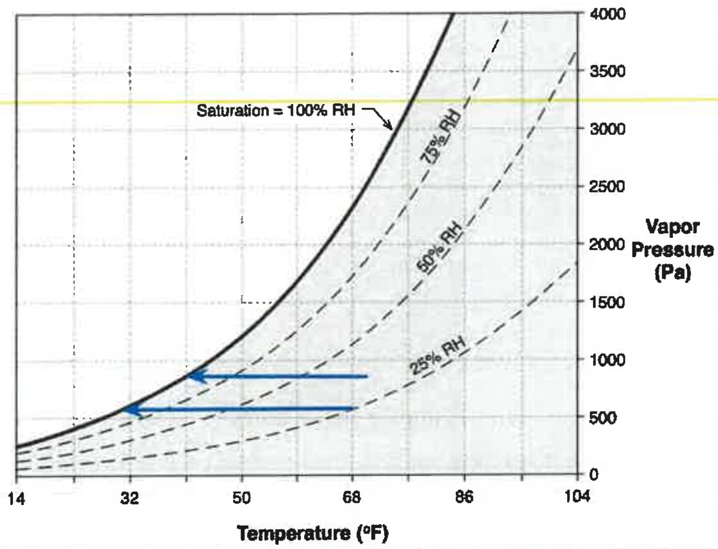


Figure 9: Temperatures at which condendsation can occur.

Semi-Permeable Foam Insulation

A more successful approach involves spraying an airtight insulating foam directly to the back of the existing masonry (Figure 10). The interior finishes must all have high vapor permeance or be back-vented. This retrofit has the advantage that all air leakage condensation is strictly controlled, and rough and out-of-plane masonry walls are accommodated. The use of spray foam also acts as a moisture barrier, as any small amount of incidental rain penetration will be localized and controlled. Hence, interior finishes will be protected as water will not run down and collect at floors penetrating the insulation. Water that is absorbed into the masonry can wick to the outside (where is will evaporate) or wick to the inside, where it will diffuse through the semi-permeable spray foam and interior finishes.

The application of 2 to 4" of foam after a steel stud wall has been installed is straightforward. The empty stud space is ideal for distribution of services and allows the easy application of a drywall finish (required to provide fire protection to the foam). The steel studs should be held back well over 1" from the wall (3" is recommended) to allow foam to be installed and adhere to the masonry at all spots and to control thermal bridging and the moisture nanoclimate experienced by the outer flange of the studs.

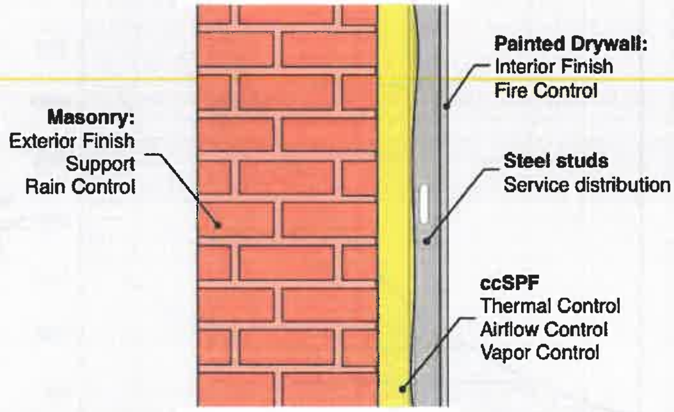


Figure 10: Concept drawing for spray foam retrofit.

The use of this approach raises the question of the choice of interior vapor permeance for the foam. In general, the interior layers should be chosen to have the highest vapor permeance possible while also avoiding wintertime diffusion condensation wetting. This strategy allows the highest level of inward drying during warmer weather. Closed-cell spray-foam also has sufficient vapor diffusion resistance to manage cold-weather condensation at the brick-foam interface and control potentially damaging inward vapor flow during solar heating of wet masonry. Closed cell polyurethane foam is generally a good solution for thinner applications (2" of closed-cell 2 pcf polyurethane foam has a permeance of about 1 perm and a thermal resistance of about R-12), but open-celled semi-permeable foams (5" has a permeance of about 13 perms and a thermal resistance of almost R-20) can be an acceptable choice for larger thickness if the interior is kept at a low humidity during winter and the outdoor temperature is not too cold. Hygrothermal simulation can be used to identify the proper materials for a particular application.

In many cases rigid foam board insulation of various types has been used as the interior retrofit. For thin layers of insulation, a semi-permeable foam such as extruded polystyrene or unfaced polyisocyanurate can be used, but for thicker layers the more permeable expanded polystyrene board is preferred. This method has been used successfully, but is more difficult to build as it requires great care in ensuring that the board is firmly in contact with the masonry (any gaps may allow convective loops to transport moisture and heat) and that a complete air barrier is formed (taped and/or sealed joints).

Addressing Structural Penetrations

The floor structure inevitably penetrates into, and rests on the masonry walls in these buildings. Occasionally this occurs at pilasters, but it is more common for either large wood beams or concrete slabs to transfer the floor loads to the walls. These penetrations interrupt the continuity of thermal, air and water control. The biggest concerns relate to the potential impact on the durability of the floor after the walls have been insulated (Ueno 2015).

When the structural connection is via concrete slabs, the there are no real durability concerns. However, the conductive concrete can cause sufficient heat loss to make the interior surfaces of the concrete cold. Depending on the interior finishes, the exterior temperature, and the interior relative humidity, surface condensation may become a problem. There are a number of solutions if thermal bridging becomes a problem, including topical and targeted application of heat and/or reduction in interior humidity as well as insulation strategies. Two-dimensional heat flow analysis is an invaluable tool for assessing the impact of surface temperatures and heat flow.

The most challenging scenario is one in which wood beams penetrate the new interior finish and rest in pockets within the masonry. The goal must be to reduce all air leakage which carries moisture into this cold beam pocket. Providing ventilation to this space is almost certain to cause condensation, not avoid it. However, it is desirable to allow some small amount of heat to flow into this space, as this will drying the wood relative to the colder (as it is better insulated) masonry around it. If the beams are as infrequently spaced as 6 or 8 feet then the approach shown in Figure 7 is recommended – that is, air seal caulking and foam is provided around the beam and thinner interior insulation would be used at this location. In some cases, small heat sources can be provided in the beam pockets via highly conductive metal wedges driven alongside the beams.

Alternative Methods

Mineral Fiber Insulation

The use of semi-permeable foam insulation in contact with the back of the existing masonry is the most common successful strategy for interior insulation retrofits. However, for numerous reasons it may be necessary or desirable to use mineral fiber insulation. There is less successful experience with this method, but emerging materials and techniques offer the potential for low-risk and high-performance retrofits. One recommended approach is shown in Figure 11.

A fluid-applied, vapor-permeable air and water barrier should usually be applied to the back of the masonry when board insulation is used, especially mineral-fiber board, because the insulation is not able to stop liquid water migration. The adhered membrane prevents any small and localized water leakage from penetrating, draining, and collecting at floor penetrations. The fluid-applied membrane also acts as the primary air barrier, while being sufficiently vapor permeable to allow water vapor to move in either direction.

Semi-rigid board insulation can be attached with adhesives or mechanical attachments (such as impaling pins or screws with insulation washer). If adhesives are used, the boards should be attached with continuous horizontal grooves patterns to limit convection.

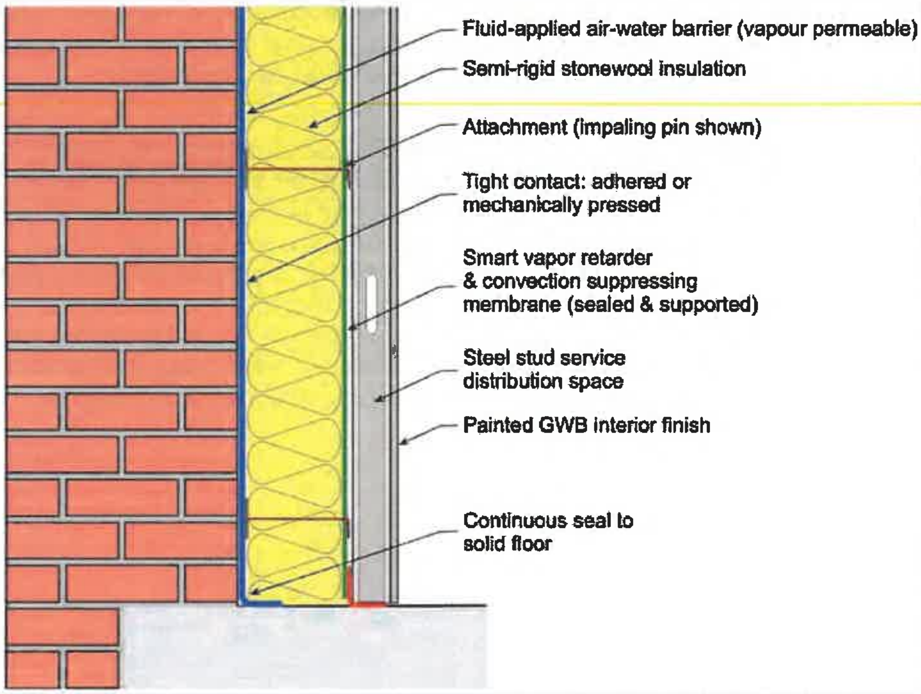


Figure 11: Interior retrofit using mineral fiber insulation.

Interior air flow resistance is also required to control the risk of natural convection. Sufficiently dense mineral fiber insulation pressed tight to the masonry avoids gaps, but joints between boards still offer a path (which can be managed by using two layers of insulation with offset joints between layers). If the insulation is too dense it will not compress around the inevitable rough surface of the exposed masonry (the masonry can occasionally be made smooth by the application of a lime mortar or high-build air-water barrier).

Controlling vapor diffusion is also a challenge with this type of retrofit. Mineral fiber insulation offers very little resistance to vapor diffusion. Without additional vapor resistance, condensation at the interior-face of the masonry will likely occur in cold weather. One can purchase aluminum foil-faced boards, but these have such low vapor permeance that condensation on the outward-facing back of the foil (often paper based and excellent mold food) is a real risk of wet masonry heated by solar exposure.

An ideal solution is the use of a smart vapor retarder: such a membrane can be taped and made continuous as a convection barrier (which will be exposed to modest pressure differences), controls outward diffusion during winter weather, and yet allows inward drying during summer conditions (provided permeable or back-vented interior finishes are used).

Drainage

In some cases the masonry may be sufficiently damaged that rain penetration can be expected. If exterior repairs and re-pointing cannot control this type of rain leakage, a drainage space may in exceptional circumstances be necessary behind the load-bearing masonry. Forming a drainage gap and installing a drainage plane is not difficult, but achieving the required, and critical, flashing details can be a formidable challenge (particularly around structural floor penetrations). If this approach is taken, it is still critical to provide very good airtightness while also avoiding convection of air to the interior despite the deliberately inserted drainage gap.

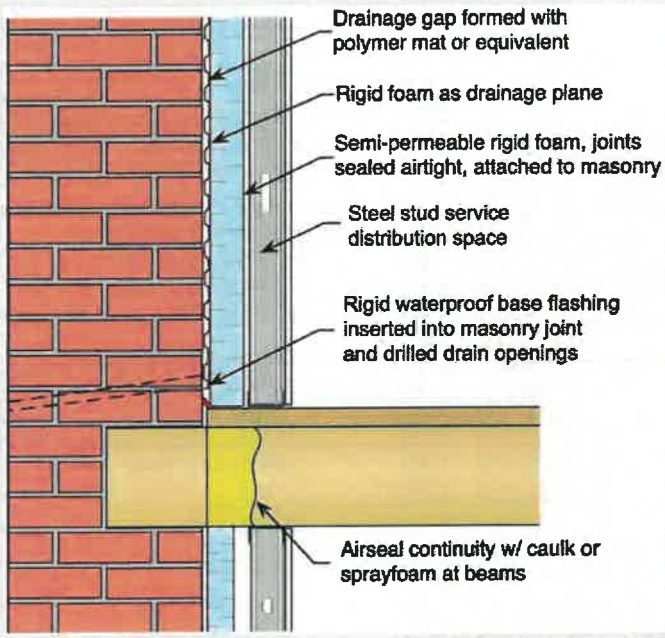


Figure 12: Interior retrofit with drainage.

Drainage of the area of the wall is easy to achieve, but collecting and draining any collected water is very difficult: the challenge of collecting the water in a flashing trough and directing it outward through drain openings entails a high risk of failure. In most cases retrofitting a load-bearing mass wall into a drained wall is not recommended because of the risk, and difficulty. Interior water barriers and exterior detailing should be the focus to control rain penetration.

Active Solutions for High Humidities

For applications that require a high (over about 40%) relative humidity during the winter, it may be necessary to control airflow by pressurizing the space between the insulation and the interior finish with low humidity air (Figure13). This also allows for thinner layers of insulation to be applied (as the airflow ensures that the interior finishes are at interior temperature regardless of the heat flow through the wall). As the air next to the insulation layer is very dry, it allows highly vapor permeable mineral fiber insulation to be chosen and encourages evaporative drying to the interior during the entire year, not just summer. The most common choice of air supply for this application is the exterior air during cold weather, heated to interior temperatures: mechanical dehumidification is expensive and producing low humidity during cold weather is a challenge, whereas heating the outdoor air produces very dry air very inexpensively. The heated air supply is only used when the dewpoint temperatures outside are below room temperature dewpoint temperatures.

This method of interior retrofit is the most complex, the most expensive, and the most energy intensive. However, it is chosen on occasion because it also allows the most inward drying and changes the moisture balance the least of all options while allow for what would otherwise be dangerously high interior humidities. The same approach can be used at windows by the addition of a single pane indoor storm window, avoiding condensation completely and ensuring indoor comfort.

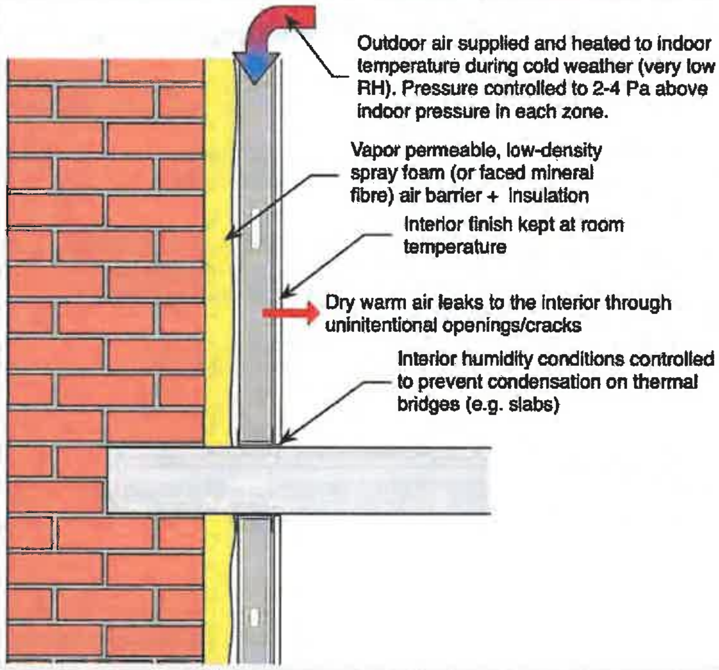


Figure 8: Concept drawing of pressure controlled interior retrofit for high humidities.

Summary

Insulating load bearing masonry buildings on the interior in a cold climate is often required to meet human comfort requirements, environmental goals, and cost targets. Many such interior retrofits have already been successfully completed in cold climates by the use of a continuous insulation layer combined with attention to interior airtightening and exterior rain shedding details.

The use of semi-permeable foam insulation in full contact (or adhered) to the back of the existing masonry is the most common successful strategy for interior insulation retrofits in North America with an excellent track record of success. This method also has the advantage of being one of the most practical to achieve under field conditions. The use of air and vapor-permeable semi-rigid board insulation (foam or mineral fiber) can be successful if excellent airtightness is achieved and convection is suppressed, and often requires a vapor-permeable fluid-applied air-water barrier on the interior masonry surface.

To ensure that the goals of comfort, energy-efficiency, and durability are met, windows, roof, basement, and airtightness must also be included in a building retrofit strategy. Major improvements in the performance of these building enclosure components can significantly enhance the overall building performance.

To further reduce the likelihood of moisture problems in the building enclosure, the mechanical systems should be designed and commissioned to avoid any positive pressurization of the building. Indoor humidity also needs to be controlled, particularly in cold weather and colder climates.

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3 PRESERVATION BRIEFS

Improving Energy Efficiency in Historic Buildings

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U.S. Department of the Interior

Technical Preservation Services

The concept of energy conservation in buildings is not new. Throughout history building owners have dealt with changing fuel supplies and the need for efficient use of these fuels. Gone are the days of the cheap and abundant energy of the 1950's. Today with energy resources being depleted and the concern over the effect of greenhouse gases on climate change, owners of historic buildings are seeking ways to make their buildings more energy efficient. These concerns are key components of sustainability — a term that generally refers to the ability to maintain the environmental, social, and economic needs for human existence. The topic of sustainable or "green" building practices is too broad to cover in this brief. Rather, this preservation brief is intended to help property owners, preservation professionals, and stewards of historic buildings make informed decisions when considering energy efficiency improvements to historic buildings.

Sound energy improvement measures must take into consideration not only potential energy savings, but also the protection of the historic property's materials and features. This guidance is provided in accordance with the Secretary of the Interior's Standards for Rehabilitation to ensure that the architectural integrity of the historic property is preserved. Achieving a successful retrofit project must balance the goals of energy efficiency with the least impact to the historic building. Planning must entail a holistic approach that considers the entire building envelope, its systems and components, its site and environment, and a careful evaluation of the effects of the measures undertaken. Treatments common to new construction need to be evaluated carefully before implementing them in historic buildings in order to avoid inappropriate alteration of important architectural features and irreparable damage to historic building materials. This brief targets primarily small-to medium-size historic buildings, both residential and commercial. However, the general decision-making principles outlined here apply to buildings of any size and complexity.

Inherent Energy Efficient Features of Historic Buildings

Before implementing any energy conservation measures, the existing energy-efficient characteristics of a historic building should be assessed. Buildings are more than the sum of their individual components. The design, materials, type of construction, size, shape, site orientation, surrounding landscape, and climate all play a role in how buildings perform. Historic building construction methods and materials often maximized natural sources of heat, light and ventilation to respond to local climatic conditions. The key to a successful rehabilitation project is to understand and identify the existing energy-efficient aspects of the historic building and how they function, as well as to understand and identify its character-defining features to ensure they are preserved. Whether rehabilitated for a new or continuing use, it is important to utilize the historic building's inherent sustainable qualities as they were intended to ensure that they function effectively together with any new treatments added to further improve energy efficiency.

Windows, courtyards, and light wells
Operable windows, interior courtyards, clerestories, skylights, rooftop ventilators, cupolas, and other features that provide natural ventilation and light can reduce energy consumption. Whenever these devices can be used to provide natural ventilation and light, they save energy by reducing the need to use mechanical systems and interior artificial lighting.

Historically, builders dealt with the potential heat loss and gain from windows in a variety of ways depending on the climate. In cold climates where winter heat loss from buildings was the primary consideration before mechanical systems were introduced, windows were limited to those necessary for adequate light and ventilation. In historic buildings where the ratio of glass

Fig. 1. A decorative, stained glass skylight allows natural daylight into the interior.

to wall is less than 20%, the potential heat loss through the windows is likely minimal; consequently, they are more energy efficient than most recent construction. In hot climates, numerous windows provided valuable ventilation, while features such as wide roof overhangs, awnings, interior or exterior shutters, venetian blinds, shades, curtains and drapes significantly reduced heat gain through the windows. Historic windows can play an important role in the efficient operation of a building and should be retained.

Fig. 2. Upper and lower shutters control daylight and provide privacy.

New architectural styles, beginning with the International Style of the 1920's, brought about an increase in the percentage of glazing in the total building envelope. By the 1950's, with the advent of the glass curtain wall, glazing constituted nearly 100% of a building's exterior walls in many buildings. While many early modern buildings continued to use operable windows as a way to provide natural ventilation, greater reliance on mechanical heating and air conditioning systems eventually reduced the function of exterior glazing to providing light only, particularly in commercial, office, and institutional buildings.

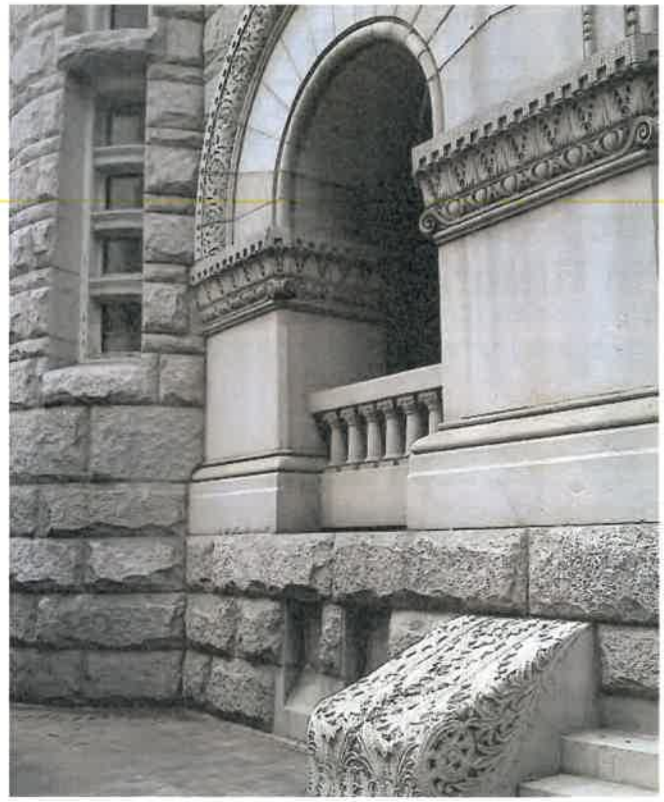


Fig. 3. Stone walls with substantial mass have high thermal inertia.

Walls

Thick masonry walls typical of the late-nineteenth and early-twentieth centuries have inherent thermal characteristics that keep the buildings cooler in the summer and warmer in the winter. Walls with substantial mass have the advantage of high thermal inertia, which reduces the rate of heat transfer through the wall. For instance, a wall with high thermal inertia, subjected to solar radiation for an hour, will absorb the heat at its outside surface, but slowly transfer it to the interior over a period as long as six hours. Conversely, a wall having the equivalent thermal resistance (R-value), but a substantially lower thermal inertia, will transfer the heat in perhaps as little as two hours. Heavy masonry walls also reduce the need for summer cooling. High thermal inertia is the reason many older public and commercial buildings without air conditioning still feel cool during the summer. The heat from the midday sun does not penetrate the buildings until late afternoon and evening, when it is less likely to be occupied or when exterior temperatures have fallen. Heavy masonry walls are also effective in moderating internal temperatures in the winter by dampening the overall peaks of heat gain and loss resulting in a flatter and more tolerable daily cycle. In areas that require cooling during the day and heating at night, masonry walls can help spread out excess heat gain from the day to cover some of the needed heating for the evening and night hours.

Roofs

Roof construction and design in historic buildings, particularly vernacular buildings, are strongly influenced by the conditions of the local climate. Wide overhangs that sometimes extend to create porches minimize the heat gain from the sun in warmer climates, while steep, sloping roofs with minimal or no overhang prevail in colder climates to allow for shedding snow and increasing beneficial solar heat gain through the windows. Materials and color also influence the thermal performance of roofs. Metal and light colored roofs, for example, reflect sunlight and thereby reduce the heat gain from solar radiation.

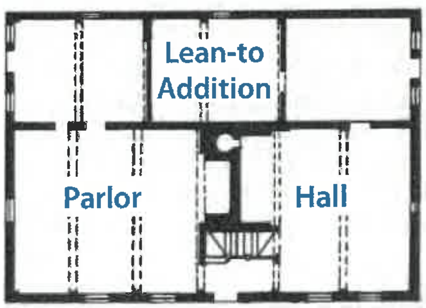


Fig. 4. A typical New England saltbox features a steeply sloping roof to shed snow and a floor plan organized around a central chimney to conserve heat.

Floor Plans
The floor plan of many historic buildings, particularly traditional vernacular ones, was also designed to respond to the local climate. In cold climates, rooms with low ceilings were clustered around central chimneys to share the heat, while small windows with interior shutters reduced drafts and heat loss. In warmer climates, wide central halls with tall ceilings, breezeways, and large porches all maximized air circulation.

Landscape
Site orientation was another factor considered especially in the location of a historic building on its property. In cold climates, buildings were oriented against northern winds while buildings in warm climates were sited to take advantage of prevailing breezes. Evergreen trees planted on the north side of buildings shielded from winter winds; deciduous trees planted to the south provided summer shade and maximum sun in the winter.

Fig. 5. The side porches of this house in Charleston, SC, shade the large windows and provide outdoor living spaces that take advantage of sea breezes.

Energy Audit

Before implementing any measures to improve the thermal performance of a historic building, an energy audit should be undertaken to evaluate the current energy use of the building and identify deficiencies in the building envelope or mechanical systems. In some areas, the local utility company may offer a free simple audit, however a more in-depth audit should be obtained from a professional energy auditor. The goal of the audit is to establish a baseline of building performance data to serve as a reference point when evaluating the effectiveness of future energy improvements. It is important to hire an independent auditor who does not have financial interests in the results, such as a product vendor.

An energy auditor first documents the current energy use patterns in the building to establish an energy use history. This initial step includes obtaining the billing history from the local utility company over a one- or two-year period, as well as documenting the number of building occupants, how the building is used, and the type of fuel consumed. The location of any existing insulation is recorded and the approximate R-value of various components of the building envelope including walls, ceilings, floors, doors, windows and skylights is calculated. The building envelope is inspected to identify areas of air infiltration and air loss. The type and age of mechanical systems and major appliances are also recorded.

Tools such as a blower door test or infrared thermography are useful to identify specific areas of infiltration, lack of insulation and thermal bridging. Mechanical depressurization along with infrared thermography is extremely useful in identifying locations of air leakage and heat loss followed by the use of tracer smoke to isolate specific air leaks. These tests are often challenging to perform on buildings and must be undertaken by experienced professionals to avoid misleading or inaccurate results. There are professional standards for audits, those of the Building Performance Institute (BPI) being the most widely used.

The energy auditor then produces a detailed report that documents the findings of the audit and includes specific recommendations for upgrades such as air sealing, adding insulation, general repairs, lighting, and improvements to or replacement of mechanical systems or major appliances. Cost estimates are provided for each of the improvements including the cost of implementation, potential operating cost savings, and, importantly, the anticipated payback period. Armed with this information, historic building owners can start to make informed decisions on how to improve the performance of their buildings. Usually the auditor finds a few locations where there is major air leakage; large "holes" that are unique to a particular building and require equipment to find them. These anomalies are often invisible to the people who use the building on a regular basis. It is important to retest the performance of the building following the implementation of any upgrades undertaken as a result of an energy audit to ensure that the upgrades are performing as expected.

Prioritizing Energy Upgrades

When implementing energy upgrades, efforts should be concentrated on improvements that will provide the most payback for the money expended and the least compromise to the historic character of the building. Some upgrades recommended in energy audits may not be introduced into a historic building feasibly without damaging historic fabric or altering the appearance of significant features. Removing historic siding and replacing it with new siding to introduce insulation into the wall cavity of a frame building or replacing repairable historic windows are examples of treatments that should not be undertaken on historic buildings.

A common misconception is that replacing windows alone will result in major energy savings. This argument, often used to sell replacement windows, is simply not true. Although it varies from building to building, the U.S. Department of Energy (DOE) has documented that air loss attributable to windows in most buildings is only about 10% of the total air loss. Studies have shown that window replacement does not pay for itself in energy savings in a reasonable length of time. Moreover, there are ways to improve the performance of historic windows that do not require their replacement. In addition, historic windows can usually be repaired and are, thus, sustainable, while most new windows cannot be repaired, or even recycled, and may wind up in landfills.

When considering energy upgrades, it is imperative to get a clear picture of what an improvement will cost initially and how long it will take to pay back the cost in energy savings. Therefore, the life cycle cost of the improvement must be considered as well as its impact on historic fabric. Reducing infiltration around existing windows and doors, sealing penetrations in the building envelope, and adding insulation — particularly in the attic where it has little impact on historic fabric — can result in significant improvements at relatively little cost. Updating mechanical systems or changing the way in which they are operated can also be cost-effective interventions. For example, installing a more efficient mechanical system alone may pay for itself in ten years.

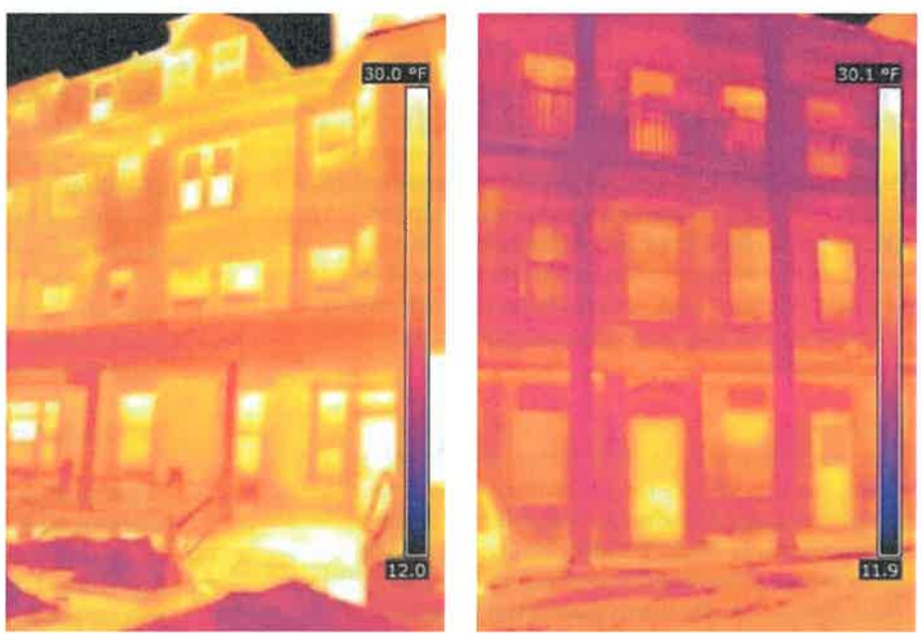


Fig. 6. (left) A blower door is used to depressurize a building by exhausting air at a rate that allows pressure gages and tracer smoke to measure the amount and location of air leakage. Photo: Robert Cagnetta, Heritage Restoration, Inc.

Fig. 7. (center and right) The left thermal image shows the walls of this building before insulating. After insulation was added, the cooler and, thus darker exterior walls evidence how much the heat loss has been reduced. Photos: EYP Architecture & Engineering.

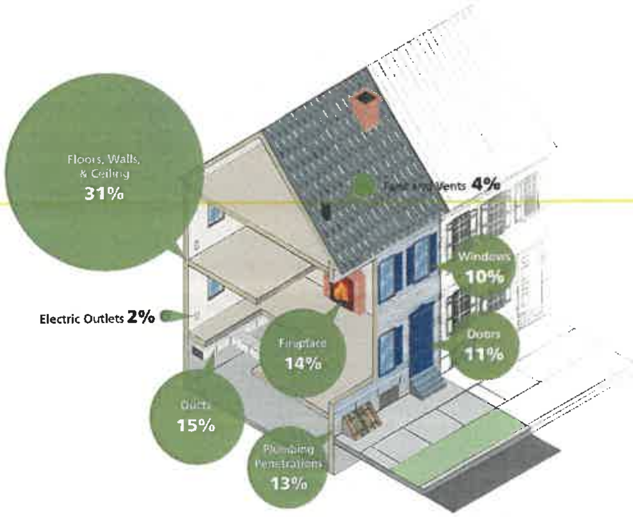


Fig. 8. Where Air Escapes From a House (by percentage) – Image based on data from Energy Savers, U.S. Department of Energy. Illustration: Blank Space LLC.

Actions to Improve Energy Efficiency

Reducing energy demands for heating and cooling may be accomplished in two steps. First, implement operational changes and upgrades to mechanical systems and major appliances — measures that do not require making alterations or adding new materials — to ensure that a building functions as efficiently as possible. After all these measures have been implemented, corrective work or treatments, such as weatherization, that require other alterations to the building may be considered.

Residential Energy Use Intensity by Age

Year Built	KBtu/sq ft/yr
Prior to 1950	74.5
1950 to 1969	66.0
1970 to 1979	59.4
1980 to 1989	51.9
1990 to 1999	48.2
2000 to 2005	44.7

Source: Residential Energy Consumption Survey, 2005

Establishing Realistic Goals

Energy consumption data gathered by the U.S. Energy Information Administration (see chart) shows that residential buildings built before 1950 (the largest percentage of historic building stock) are about 30 to 40 percent less energy efficient than buildings built after 2000. Using this as a baseline, a 30 to 40 percent upgrade of a historic building's energy performance can be a realistic goal. A 40 percent increase in energy efficiency would of course be a more achievable goal for buildings that have had minimal upgrades since their original construction, i.e., added insulation, tightening of the exterior envelope, or more efficient mechanical equipment. On the other hand, achieving "net zero" energy goals as it is currently done with some new construction can be a much more difficult challenge to achieve in a historic retrofit. Attempting to reach such a goal with a historic building would most likely result in significant alterations and loss of historic materials. [The data for commercial buildings documents that buildings in 2003 used approximately the same energy as they did before 1920, after reaching their peak in the 1980's.]

Operational Changes

One of the greatest effects on energy use is user behavior. Once an energy audit has established a baseline for the current energy use in a building, operational changes should be identified to control how and when the building is used to minimize the use of energy-consuming equipment. These changes can range from simple measures such as regular cleaning and maintenance of mechanical equipment to installing sophisticated controls that cycle equipment on and off in specified intervals for maximum performance. The following changes are recommended to reduce heating and cooling costs.

- Install programmable thermostats.
- Close off rooms that are not in use and adjust the temperature in those rooms.
- Do not condition rooms that do not need to be conditioned, thereby reducing the thermal envelope.
- Use insulated shades and curtains to control heat gain and loss through windows.
- Use operable windows, shutters, awnings and vents as originally intended to control temperature and ventilation.
- Take advantage of natural light.
- Install compact fluorescent lights (CFL) and light-emitting diode (LED) lights.
- Install motion sensors and timers for lighting and local ventilation, such as bathroom exhaust fans.
- Reduce "phantom" electricity loads by turning equipment off when not in use.
- Clean and service mechanical equipment regularly.

These measures should be undertaken first to save energy in any existing building and are particularly appropriate for historic buildings because they do not require alterations to historic materials.

Upgrading Equipment and Appliances

In addition to maximizing the energy efficiency of existing building systems, substantial savings can be achieved through upgrading equipment and appliances. One should still weigh the operational savings against the initial cost of the new equipment, particularly if the existing equipment is not near the end of its life.

Calculator aids that take into account the efficiency of both the existing and new equipment are available

Fig. 9. An energy auditor tests the efficiency of a boiler.

online to assist in determining the payback. Advance planning will allow time to find the most efficient unit, as well as to investigate the availability of any state and federal energy credits. As energy prices continue to rise and technology advances, options such as the installation of a solar hot water heater or geothermal ground source or water source heat pumps are becoming more economically feasible. Recommendations for upgrading equipment and appliances include:

• Upgrade the heating system. It is important to install new furnaces that utilize outside combustion air to reduce air drawn into the building through uncontrolled infiltration. [All furnaces and boilers are now measured by their annual fuel utilization efficiency or AFUE.] Heating equipment is now more efficient and gas furnaces that used to have a 60% (AFUE) rating can now operate at as much as 90 to 97% efficiency.
• Upgrade the air conditioning system.
• Replace the water heater. High-efficiency water heaters use far less energy than earlier models, and high-efficiency tankless water heaters heat water on demand and offer even greater savings. Point of use water heat can also reduce costs and water consumption by reducing the time it takes to draw hot water.
• Upgrade appliances. Energy Star appliances, particularly refrigerators, washing machines and dishwashers can all reduce electricity use and additional indoor heating loads.

Upgrading Building Components
In addition to operational and mechanical upgrades, it can be possible to upgrade many building components in a manner that will not jeopardize the historic character of the building and can be accomplished at a reasonable cost. The goal of these upgrades is to improve the thermal performance of the building, resulting in even greater energy savings. Retrofit measures to historic buildings should be limited to those that achieve at least reasonable energy savings, at reasonable costs, with the least impact on the character of the building.

The following list includes the most common measures proposed to improve the thermal performance of an existing building; some measures are highly recommended for historic buildings, but others are less beneficial, and can even be harmful to a historic building.

Requires Minimal Alteration
• Reduce air leakage.
• Add attic insulation.
• Install storm windows.
• Insulate basements and crawlspaces.
• Seal and insulate ducts and pipes.
• Weather strip doors and add storm doors.
• Add awnings and shading devices where appropriate.

Requires More Alteration
• Add interior vestibules.
• Replace windows.
• Add insulation to wood-frame walls.
• Add insulation to masonry walls.
• Install cool roofs and green roofs.

The treatments listed first have less potential to negatively impact the historic fabric of a building. They tend to be less intrusive, are often reversible, and offer the highest potential for energy savings. Undertaking any of the treatments in the second group, however, may pose technical problems and damage to historic building materials and architectural features. Their installation costs may also outweigh the anticipated energy savings and must be evaluated on a case-by-case basis with advice from professionals experienced in historic preservation and building performance.

Requires Minimal Alteration

Reduce air leakage. Reducing air leakage (infiltration and exfiltration) should be the first priority of a preservation retrofit plan. Leakage of air into a building can account for 5 to 40 percent of space-conditioning costs, which can be one of the largest operational costs for buildings.[1] In addition, unwanted air leakage into and out of the building can lead to occupant comfort issues resulting from drafts. Air infiltration can be especially problematic in historic buildings because it is closely linked to increased moisture movement into building systems.

Air flow into and out of buildings is driven by three primary forces: wind pressure, mechanical pressure and the stack effect. Cold outside air that infiltrates the building through big holes, as well as through loose windows, doors, and cracks in the outer shell of the building, causes the heating system to work harder and consume more energy. In a multi-story building, cold air that enters the building at lower levels, including the basement or crawlspace, will travel up through the building and exit out leaky windows, gaps around windows and the attic as a result of temperature and pressure differential. This pattern of air movement

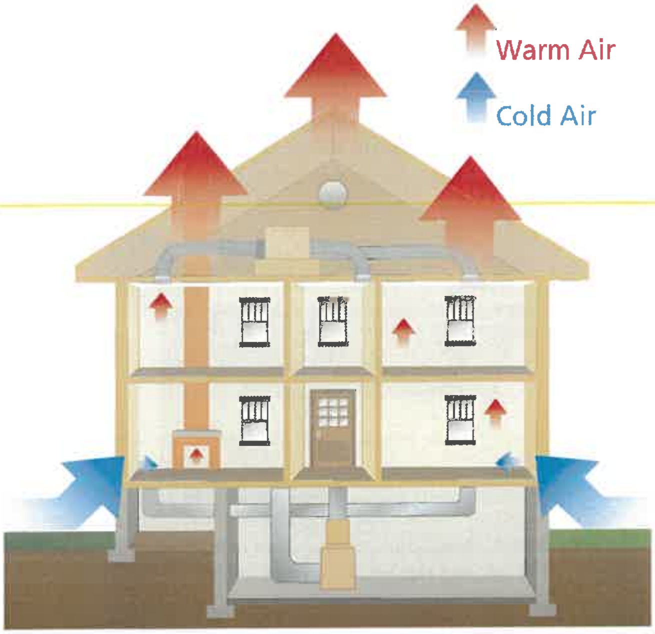


Fig. 10. The pattern of air movement referred to as the "stack effect". Illustration: Blank Space LLC.

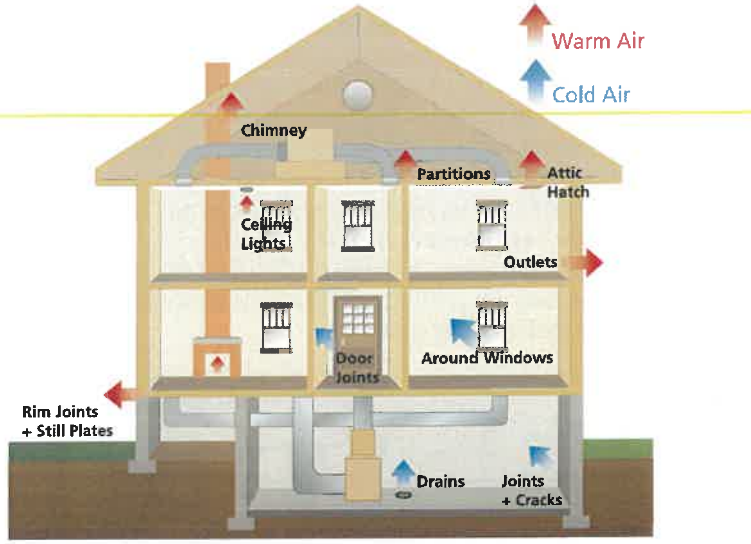


Fig. 11. Air infiltration and exfiltration. Illustration: Blank Space LLC.

is called the "stack effect." Not only is valuable conditioned air lost, but damaging moisture may also enter the wall cavities and attic spaces. To stop the stack effect, the top and bottom of the exterior walls, inter-floor bypasses, and any existing chases or shafts must be sealed, or "draft proofed." The use of spray foam sealants in basement and attic cracks is a particularly useful technique for reducing air infiltration.

Adding weatherstripping to doors and windows, sealing open cracks and joints at the base of walls and around windows and doors, sealing off recessed lighting fixtures from above, and sealing the intersection of walls and attic, will substantially reduce air leakage. When using exterior caulk to seal the intersection of siding and doors or windows, do not caulk the underside of clapboards or below windows to allow any liquid water to escape. When infiltration and, consequently, exfiltration are reduced, mechanical ventilation may be necessary to meet occupants' requirements for fresh air.

Add attic or roof insulation. Heat loss and gain caused by increased interior/exterior temperature differentials primarily due to the stack effect and solar radiation are greatest at the top of a building. Therefore, reducing heat transfer through the roof or attic should be one of the highest priorities in reducing energy consumption. Adding insulation in unoccupied, unfinished attics is not only very effective from an energy-savings perspective, but it is also generally simple to install and causes minimal disruption to historic materials. The U.S. Department of Energy (DOE) provides a recommended R-value chart based on climate zones to help determine the optimal amount of insulation that should be installed in a particular project. Local codes may also have specific insulation requirements. Insulating trap or access doors should not be overlooked. Even though they may be small, attic doors can be responsible for substantial heat loss and should be addressed as part of any attic insulation project.

DOE Climate Zone Map

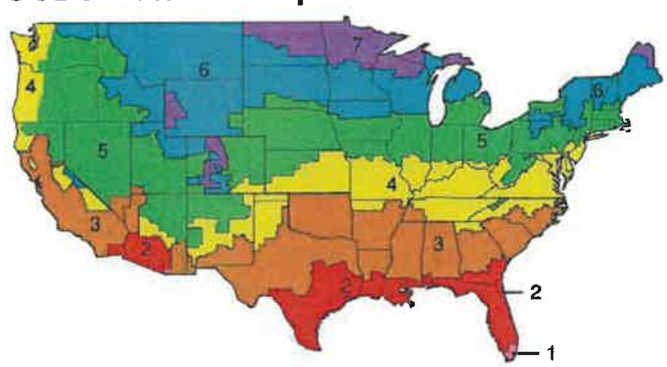


Fig. 12. Recommended energy improvements vary widely based on climate. The information contained in this document is based primarily on the available data for the Northeast and Mid-Atlantic regions.

In unfinished and unheated attics, the insulation material is typically placed between the floor joists using blown-in, batt, or rigid foam insulation. When using fiberglass batts faced with a vapor retarder, the vapor retarder should be face down towards the heated interior. However, the use of a vapor retarder is not necessary in attic applications. If additional batt insulation is being added over existing insulation that is near or above the top of the joists, new un-faced batts should be placed perpendicular to the old ones to cover the top of the joists and reduce thermal bridging through the frame members. In low-pitched roofs, or where installing batt insulation is difficult, a more complete coverage of the attic floor may be achieved by using blown-in insulation. Unfinished attics must be properly ventilated to allow excess heat to escape.

Radiant barriers may be used in attics to reduce thermal radiation across the air space between the roof deck and the attic floor in order to reduce summer heat gain. They are most beneficial in reducing cooling loads in hot climates and consist of a highly reflective sheet or coating, usually aluminum, applied to one or both sides of a flexible material. They are effective only when the foil surface faces an air space, and as long as the surface remains shiny – that is, free from dirt, dust, condensation and oxidation. Radiant barriers should not be installed directly over insulation on the attic floor, as they can act as vapor retarders and trap moisture in the insulation unless they are perforated. Their placement should be ventilated on both sides.

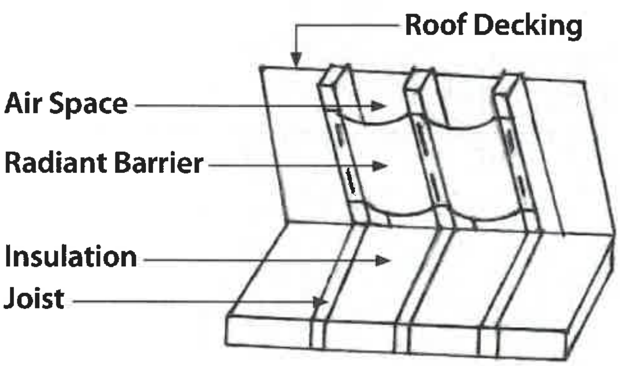


Fig. 13. Sample installation of a radiant barrier.

Insulating the underside of the roof rather than the attic floor increases the volume of the thermal envelope of the building, thus making this treatment inherently less energy efficient. However, when mechanical equipment and/or ductwork are housed in an attic space, placing the insulation under the roof and treating the attic as a conditioned space is strongly recommended. This treatment allows the equipment to operate more efficiently and can prevent moisture-related problems caused by condensation on the mechanical equipment.

When insulation is placed under the roof, all vents in the attic and the intersection between the walls and roof rafters must be sealed. Rigid foam or batt insulation placed between the roof rafters is a common method of insulating the underside of a roof. Open cell spray foam (.5lb/cuft) may sometimes be applied under the roof deck only when there are no gaps in the sheathing which could allow the foam to expand under slates or shingles, preventing the re-use of the roofing material. Also, if roof leaks do occur, they may go undetected until after major damage occurs. Consideration must also be given to the irreversibility of this procedure because the foam enters the pores of the wood. It may be more advisable to install a breathable layer of material that will allow for future removal without leaving a residue.

When total roof replacement is required because of deterioration, installing rigid foam insulation on top of the roof deck before laying the new roofing material can be simple and effective, particularly on low-pitched or flat roofs. However, the added thickness of the roof caused by installing rigid foam can alter the appearance of projecting eaves, dormers, and other features. If this application would significantly alter the appearance of these features, consider other methods.

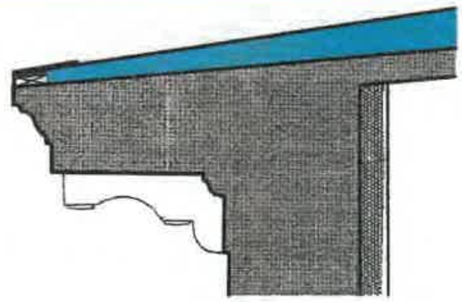


Fig. 14. Sample installation of rigid foam insulation, tapered at the edge to avoid altering the appearance of the roof.

Install storm windows. The addition of metal or wood exterior or interior storm windows may be advisable to increase the thermal performance of the windows in ways that weatherstripping and caulking cannot address. A single-glazed storm window may only increase a single-pane window's thermal resistance to R2, however, that is twice as good as a single-glazed window alone. It will make a noticeable contribution to the comfort level of the building occupant, with the added benefit of protecting the historic window from weathering. Using clear, non-tinted, low-e glass in the storm window can further increase the thermal performance of the window assembly without the loss of historic fabric. Studies have shown that the performance of a traditional wood window with the addition of a storm window can approach that of a double-glazed replacement window.[2] Some storm windows are available with insulated low-e glass, offering even higher thermal performance without the loss of the historic window. Furthermore, a storm window avoids the problem of irreparable seal failure on insulated glass units (IGUs) used in modern replacement windows. While the lifespan of the IGU depends both on the quality of the seal and other factors, it is unreasonable to expect more than 25 years. Once the seal fails, the sash itself will usually need to be entirely replaced.

By providing an additional insulating air space and adding a barrier to infiltration, storm windows improve comfort and reduce the potential for condensation on the glass. To be effective and compatible, storm windows must be tight fitting; include a sealing gasket around the glass; align with the meeting rail of the primary sash; match the color of the sash; and be caulked around the frame to reduce infiltration without interfering with any weep holes.

Whether a storm window or the historic window itself, the interior window must be the tighter of the two units to avoid condensation between the windows that can occur in a cold climate that requires indoor heating. Condensation is a particular concern if it collects on the historic window, as can easily happen with a loose-fitting, storm window. While interior storm windows can be as thermally effective as exterior storm windows, appropriate gaskets must be used to ensure that damage-causing condensation does not form on the inside face of the historic window. Opening or removing the interior storm windows during non-heating months also helps to avoid the negative effects of moisture build-up.

Fig. 15. Original steel windows were retained and made operable during the rehabilitation of this historic mill complex. Insulated sliding windows were added on the interior to improve energy efficiency.

For large, steel industrial windows, the addition of interior, insulated sliding glass windows that align with the primary vertical mullions has proven to be a successful treatment that allows the primary window to remain operable.

Insulate basements and crawlspaces. The first step in addressing the insulation of basements and crawl spaces is to decide if they are to be part of the conditioned space and, therefore, within the thermal envelope of the building. If these areas are kept outside the thermal envelope of the building and treated as unconditioned areas, insulating between the floor joists on the underside of the subfloor is generally recommended. Alternatively, rigid foam insulation installed over the bottom of the floor joists on the basement or crawlspace side may also be used. All gaps between the unconditioned and conditioned areas of the building, including the band joists, should be air sealed to prevent air infiltration into the upper levels of the building.

If the crawlspace contains mechanical equipment, or if high levels of moist air enter the crawlspace through vents during the summer months, it is advisable to include the crawlspace within the thermal boundary of the building. As in attics, water vapor can condense on ducts and other equipment located in unconditioned basements and crawlspaces. In the past, building codes routinely required that crawlspaces be treated as non-conditioned spaces and be ventilated. However, this has not proven to be a best practice in all cases. Ventilation through crawlspace vents does not keep the space dry during humid summers. All vents should be sealed and access doors weather-stripped. Rigid foam insulation installed on the interior face of the wall is recommended for basement and crawlspace foundation walls, only after all drainage issues have been addressed. Special attention should be given to ensure that all the joints between the insulation boards are sealed.

A moisture barrier on exposed dirt in a crawlspace is strongly recommended to prevent ground moisture from entering the building envelope. Whenever feasible, pouring a concrete slab over a moisture barrier in crawlspaces or basements with exposed dirt floors should be considered.

Seal and insulate ducts and pipes. A surprisingly enormous amount of energy is wasted when heated or cooled air escapes from supply ducts or when hot attic air leaks into air conditioning return ducts. Based on data collected in energy audits, as much as 35 percent of the conditioned air in an average central air conditioning system may escape from the ducts.[3] Care must be taken to completely seal all connections in the duct system and adequately insulate the ducts, especially in unconditioned spaces. This loss of energy is another reason to treat attics, basements and crawlspaces as conditioned spaces. Ducts located in unconditioned spaces should be insulated based on the recommendations for the appropriate climate zone. Hot water pipes and water heaters should be insulated in unconditioned spaces to retain heat, and all water pipes insulated to prevent freezing in cold climates.

Weather strip doors and add storm doors. Historic wood doors are often significant features and should always be retained, rather than replaced. While an insulated replacement door may have a higher R-value, doors represent a small area of the total building envelope, and the difference in energy savings after replacement would be insignificant. The doors and frames should, however, have proper maintenance including regular painting, and the addition or renewal of weatherstripping. Storm doors can improve the thermal performance of the historic door in cold climates and may be especially recommended for a door with glazing. The design of the storm door should be compatible with the character of the historic door. A fully glazed storm door with a frame that matches the color of a historic door is often an appropriate choice because it allows for the historic door to remain visible. Storm doors are recommended primarily for residential buildings. They are not appropriate for commercial or industrial buildings. These buildings never had storm doors, because the doors were opened frequently or remained open for long periods. It may also not be appropriate to install a storm door on a highly significant entrance door. In some instances, the addition of a storm door could add significant heat gain on certain exposures or in hot climates, which could degrade the material or finish of the historic door.

Add awnings and shading devices. Awnings and other shading devices can provide a considerable reduction of heat gain through windows and storefronts. Keeping existing awnings, or replacing them if previously removed, is a relatively easy way to enhance the energy performance of a building. Awnings should only be installed when they are compatible with the building type and character. In building types that did not have awnings historically, interior shades, blinds or shutters should be considered instead.

A wide range of shades, blinds and shutters is available for use in all types of buildings to control heat gain or loss through windows, as well as lighting levels. When properly installed, shades are a simple and cost-effective means of saving energy. Some shade fabrics block only a portion of the light coming in — allowing the use of natural light — while others block all or most of the light. The light-colored or reflective side of the shades should face the window to reduce heat gain. Quilted roller shades feature several layers of fiber batting and sealed edges, and these shades act as both insulation and an air barrier. They control air infiltration more effectively than other soft window treatments. Pleated or cellular shades provide dead air spaces within the cells to add insulation value. These shades, however, do not measurably control air infiltration.

Fig. 16. Historic vestibules retain conditioned air in the living spaces.

Retractable awnings and interior shades should be kept lowered during the summer to prevent unwanted heat gain, but raised in the winter to take advantage of the heat gain. Interior shades, especially those that have some insulation value, should be lowered at night during the winter months.

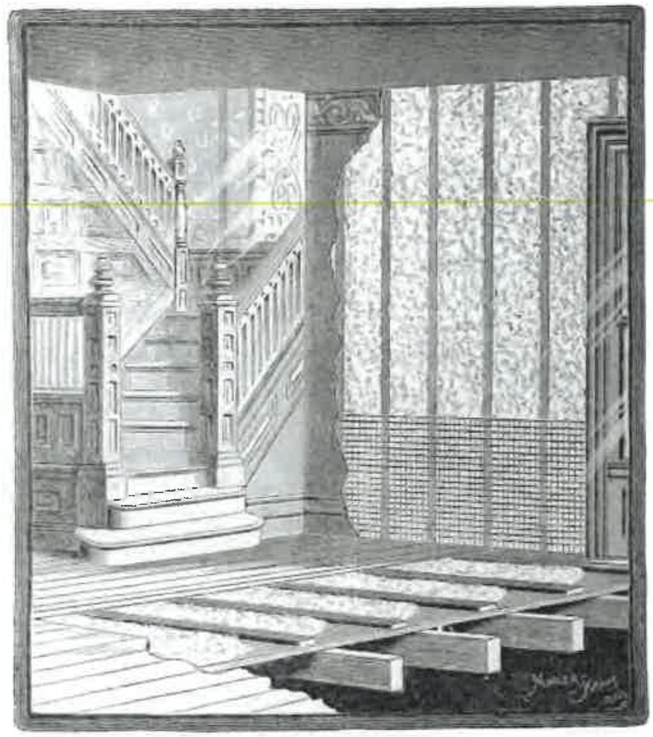
Light shelves are architectural devices designed to maximize daylight coming through windows by reflecting it deeper into the building. These horizontal elements are usually mounted on the interior above head height in buildings with high ceilings. Although they can provide energy savings, they are not compatible with most historic buildings. In general, light shelves are most likely to be appropriate in some industrial or modernist-style buildings, or where the historic integrity of interior spaces has been lost and they can be installed without being visible from the exterior.

Requires More Alteration

Add interior vestibules. Vestibules that create a secondary air space or "air lock" are effective in reducing air infiltration when the exterior door is open. Exterior and interior vestibules are common architectural features of many historic buildings and should be retained wherever they exist. Adding an interior vestibule may also be appropriate in some historic buildings. For example, new glazed interior vestibules may be compatible changes to historic commercial and industrial buildings. New exterior vestibules will usually result in too great a change to the character of primary entrances, but may be acceptable in very limited instances, such as at rear entrances. Even in such instances, new vestibules should be compatible with the architectural character of the historic building.

Replace windows. Windows are character-defining features of most historic buildings. As discussed previously, the replacement of a historic window with a modern insulated unit is not usually a cost-effective choice. Historic wood windows have a much longer service life than replacement insulated windows, which cannot be easily repaired. Therefore, the sustainable choice is to repair historic windows and upgrade their thermal performance. However, if the historic windows are deteriorated beyond repair, if repair is impractical because of poor design or material performance, or if repair is economically infeasible, then replacement windows may be installed that match the historic windows in size, design, number of panes, muntin profile, color, reflective qualities of the glass, and the same relationship to the window opening.

Other options should also be considered before undertaking complete window replacement. If only the sash is severely deteriorated and the frame is repairable, then only the sash may need to be replaced. If the limited lifespan of insulated glass is not a concern, the new sash can be made to accommodate double glazing.



AN INTERIOR

Showing Mineral Wool in Floor, and Walls behind Wire Lath.

Fig. 17. Illustration of insulation from the 1889 trade catalog "The Uses of Mineral Wool in Architecture, Car Building and Steam Engineering". Collection Centre Canadien d'Architecture/Canadian Centre for Architecture, Montreal, Canada.

Where the sashes are sound, but improved thermal performance without the use of a storm window is desired, some windows may be retrofitted with insulated glass. If the existing sash is of sufficient thickness, it may be routed to accept insulated, clear low-e glass without extensive loss of historic material or historic character. When insulated glass is added in a new or retrofitted sash, any weights will have to be modified to accommodate the significant extra weight.

Wall Insulation

Adding wall insulation must be evaluated as part of the overall goal to improve the thermal efficiency of a building and should only be considered after the installation of attic and basement insulation. Can this goal be achieved without the use of wall insulation? Can insulation be added without causing significant loss of historic materials or accelerated deterioration of the wall assembly? Will it be cost effective? These are basic questions that must be answered before a decision is made to insulate the walls and may require professional evaluation.

Add insulation to wood-frame walls. Wood is particularly susceptible to damage from high moisture levels; therefore, addressing existing moisture problems before the addition of insulation is essential. Un-insulated historic wood buildings have a higher rate of air infiltration than modern buildings; while this makes older buildings less efficient thermally, it helps dissipate the unwanted moisture and thus keeps building assemblies dry. Climate, building geometry, the condition of the building materials, construction details, and many other factors make it difficult to assess the impact that adding insulation will have on reducing the air flow and, hence, the drying rate in a particular building. For this reason, predicting the impact of adding insulation to wood-frame walls is difficult.

Insulation Installed in the Wall Cavity: When sheathing is part of the wall assembly, and after any moisture-related problems have been addressed, adding insulation to the interior cavity of a wood-frame wall may be considered. Adding insulation in a wall where there is no sheathing between the siding and studs is more problematic, however, because moisture entering the wall cavity through cracks and joints by wind-driven rain or capillary action will wet the insulation in contact with the back of the siding.

Installing **blown-in insulation**, either dense-packed cellulose or fiberglass, into the wall cavity causes the least amount of damage to historic materials and finishes when there is access to the cavity walls, and it is therefore a common method of insulating wood-frame walls in existing buildings. In most cases, blowing insulation material into the wall cavity requires access through the exterior or interior wall surfaces. When historic plaster, wood paneling, or other interior historic decorative elements are present, accessing the cavity from the exterior is recommended by removing individual siding boards at the top of each wall cavity. In this manner the boards can be reinstalled without unsightly drill holes on the exterior. If the plaster is deteriorated and will require repair, then the wall cavity may be accessed from the interior through holes drilled through non-decorative plaster.

Of the materials available, dense-packed cellulose fiber is most commonly used. Its R-value, ability to absorb and diffuse moisture, impediment to air flow, relatively simple installation, and low cost make it a popular choice. Cellulose insulation from most manufacturers is available in at least two grades that are characterized by the type of fire retardant added to the insulation. The fire retardants are usually: (1) a mix of ammonium sulfate and boric acid or (2) boric acid only (termed "borate only"). The recommended type of cellulose insulation for historic buildings is the "borate only" grade, as cellulose treated with sulfates reacts with moisture in the air and forms sulfuric acid which corrodes many metals.

Optimum conditions for installing insulation inside the wall cavity occur in buildings where either the exterior materials or interior finishes have been lost, or where the materials are deteriorated beyond repair and total replacement is necessary. However, wholesale removal of historic materials either on the exterior or interior face of a historic wall to facilitate insulation is not recommended. Even when the exterior materials, such as wood siding, could potentially be reinstalled, this method, no matter how carefully executed, usually results in damage to, and loss of historic materials.

Fig. 18. Dense-packed cellulose insulation is being blown in through holes drilled in the sheathing. Once the operation has been completed, the shingles will be reinstalled. Photo: Edward Minch.

If the wall cavity is open, the opportunity to properly install **batt insulation** is available. A tight fit between the insulation and the adjacent building components is critical to the performance of the insulation. Batt insulation must be cut to the exact length of the cavity. A batt that is too short creates air spaces above and beneath the batt, allowing convection. A batt that is too long will bunch up, creating air pockets. Air pockets and convection currents significantly reduce the thermal performance of insulation. Each wall cavity should be completely filled. Unfaced, friction-fit batt insulation fluffed to fill the entire wall cavity is recommended. Any air gaps between the insulation and the framing or other assembly components must be avoided. Batts should be split around wiring, pipes, ducts and other elements in the wall rather than be pushed or compressed around obstacles.

When adding insulation to the sidewalls, the band joist area between floors in multi-story, platform-framed buildings should be included in the sidewall insulation retrofit. The R-value of the insulation installed in the band joist area should be at least equal to the R-value of the insulation in the adjacent wall cavities. In balloon-framed buildings, the wall cavity is continuous between floors except where fire stops have been inserted.

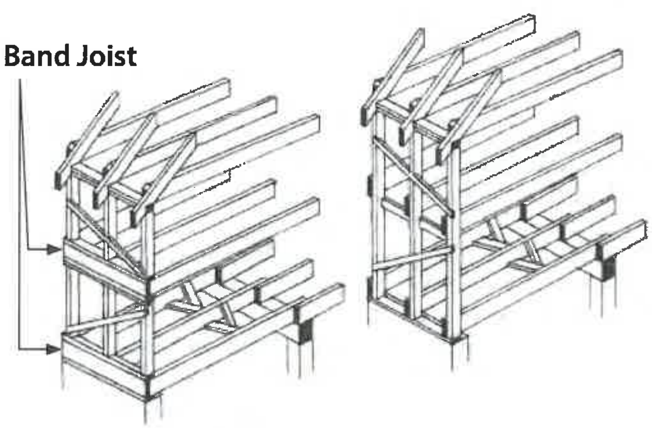


Fig. 19. Platform framing (left) and Balloon framing (right).

The use of **spray foam or foamed-in-place insulation** would appear to have great potential for application in historic wood-frame buildings due to their ability to flow into wall cavities and around irregular obstacles. Their high R-value and function as an air barrier make them a tempting choice. However, their use presents several problems. The injected material bonds tightly to historic materials making its removal difficult, especially if it is encased in an existing wall. The pressure caused by the expansion rate of these foams within a wall can also damage historic material, including breaking the plaster keys or cracking existing plaster finishes.

Insulation Installed on Either Side of the Wall: Batt, rigid foam board, and spray foam insulation are commonly added to the interior face of walls in existing buildings by furring-out the walls to accommodate the additional thickness. However, this often requires the destruction or alteration of important architectural features, such as cornices, base boards, and window trim, and the removal or covering of plaster or other historic wall finishes. Insulation installed in this manner is only recommended in buildings where interior spaces and features lack architectural distinction or have lost significance due to previous alterations.

Fig. 20. The walls have been furred out inappropriately around the historic window trim creating an appearance the interior never had historically.

Adding rigid foam insulation to the exterior face of wood-frame buildings, while common practice in new construction, is never an appropriate treatment for historic buildings. Exterior installation of the foam boards requires removal of the existing siding and trim to install one or more layers of polyisocyanurate or polystyrene foam panels. Depending on the amount of insulation added for the particular climate, the wall thickness may be dramatically increased by moving

What about moisture?

The issue of moisture in insulated assemblies is the subject of much debate. While there is no conclusive way to predict all moisture problems, especially in historic buildings, experts seem to agree on a few basic tenants. Exterior materials in insulated buildings become colder in the winter and stay wet longer following a rain event. While the wetness may not pose a problem for robust materials, it may speed the deterioration of some building materials, and lead to more frequent maintenance such as repainting of wood or repointing of masonry. Summer moisture problems are most commonly associated with excessive indoor cooling and the use of interior wall finishes that act as vapor retarders (paint buildup or vinyl wall coverings). Good air-sealing at the ceiling plane usually controls moisture in insulated attics.

Most problems are caused by poor moisture management, poor detailing which does not allow the building to shed water, or inadequate drainage. Therefore, a thorough assessment of the building's ability to keep out unwanted moisture must be done before adding new insulation materials. Refer to Preservation Brief #39: *Holding the Line: Controlling Unwanted Moisture in Historic Buildings* for more information. Because of all the uncertainties associated with insulating walls, brick walls in particular, it may be advisable to hire a professional consultant who specializes in the many factors that affect the behavior of moisture in a building and can apply this expertise to the unique characteristics of a particular structure. Sophisticated tools such as computer modeling are useful to predict the performance of building assemblies, but they require interpretation by a skilled practitioner and the results are only as good as the data entered. It is important to remember, there are no reliable prescriptive measures to prevent moisture problems.[4]

Vapor Retarders (Barriers): Vapor retardants are commonly used in modern construction to manage the diffusion of moisture into wall cavities and attics. For vapor retardants to work properly, however, they must be continuous, which makes their installation difficult in existing buildings, and therefore generally not recommended. Even in new construction, installation of vapor retardants is not always indicated. Formerly, the recommended treatment was to install a vapor retardant toward the heated side of the wall (toward the interior space in cold climates and toward the exterior in hot climates). DOE now recommends that if moisture moves both to the interior and exterior of a building for significant parts of the year, it is better not to use a vapor retarder at all.[5]

the siding as much as 4 inches out from the sheathing. Even if the historic siding and trim could be removed and reapplied without significant damage, the historic relationship of windows to walls, walls to eaves, and eaves to roof would be altered, which would compromise the architectural integrity and appearance of the historic building.

Solid Masonry Walls: As with frame buildings, installing insulation on the interior walls of a historic masonry structure should be avoided when it would involve covering or removing important architectural features and finishes, or when the added thickness would significantly alter the historic character of the interior. The addition of insulation on solid masonry walls in cold climates results in a decreased drying rate, an increased frequency of freeze-thaw cycles, and prolonged periods of warmer and colder temperatures of the masonry. These changes can have a direct effect on the durability of materials.

Fig. 21. The interior face of a brick masonry wall shows damage that resulted from the installation of a vapor retardant (foil facing) and thermal insulation. Photo: Simpson Gumpertz & Heger.

Depending on the type of masonry, exterior masonry walls can absorb a significant amount of water when it rains. Masonry walls dry both toward the exterior and the interior. When insulation is added to the interior side of a masonry wall, the insulation material reduces the drying rate of the wall toward the interior, causing the wall to stay wet for longer periods of time. Depending on the local climate, this could result in damage to the historic masonry, damage to interior finishes, and deterioration of wood or steel structural components imbedded in the wall. Masonry walls of buildings that are heated during the winter benefit from the transfer of heat from the inside to the outside face of the walls. This thermal transfer protects the exterior face of the wall by reducing the possibility of water freezing in the outer layers of the wall, particularly in cold and wet climates. The addition of insulation on the interior of the wall not only prolongs the drying rate of the exterior masonry wall, but keeps it colder as well, thereby increasing the potential for damage due to freeze-thaw cycles.[6]

Extreme swings in temperature may also have negative effects on a historic masonry wall. The addition of insulation materials to a historic masonry wall decreases its ability to transfer heat; thus, walls tend to stay warm or cold for longer periods of time. In addition, walls exposed to prolonged solar radiation during winter months can also be subject to higher swings in surface temperature during the day. Deleterious effects due to stress caused by expansion and contraction of the building assembly components can result.

Buildings with masonry materials of higher porosity, such as those built with low-fired brick, or certain soft stones, are particularly susceptible to freeze-thaw cycles and must be carefully evaluated prior to adding insulation. Inspection of the masonry in areas that are not heated such as parapets, exposed wing walls, or other parts of the building is particularly important. A noticeable difference in the amount of spalling or sanding of the masonry in these areas could predict that the same type of deterioration will occur throughout the building after the walls are insulated. Brick that was fired at lower temperatures was often used on the inside face of the wall or on secondary elevations. Even masonry walls faced with more robust materials such as granite may have brick, rubble, mortar or other less durable materials as backing.

Spray foams are being used for insulation in many masonry buildings. Their ability to be applied over irregular surfaces, provide good air tightness, and continuity at intersections between, walls, ceilings, floors and window perimeters makes them well suited for use in existing buildings. However, the long-term effects of adding either open- or closed-cell foams to insulate historic masonry walls as well as performance of these products have not been adequately documented. Use of foam insulation in buildings with poor quality masonry or uncontrolled rising damp problems should be avoided.

Periodic monitoring of the condition of insulated masonry walls is strongly recommended regardless of the insulation material added.

Install cool roofs and green roofs: Cool roofs and vegetated "green roofs" help to reduce the heat gain from the roof, thereby cooling the building and its environment. Cool roofs include reflective metal roofs, light-colored or white roofs, and fiberglass shingles that have a coating of reflective crystals. All of these roofing materials reflect the sun's radiation away from the building, which lessens heat gain, resulting in a reduction of the cooling load. Cool roofs are generally not practical in northern climates where buildings benefit from the added heat gain of a dark-colored roof during colder months. Cool and green roofs are appropriate for use on historic buildings only when they are compatible with their architectural character, such as flat roofs with no visibility. A white-colored roof that is readily visible is not appropriate for historic metal roofs that were traditionally painted a dark color, such as green or iron oxide red. A white reflective roof is most suitable on flat roofed historic buildings. If a historic building has a slate roof, for example, removing the slate to install a metal roof is not a compatible treatment. It is never appropriate to remove a historic roof if the material is in good or repairable condition to install a cool roof. However, if the roof has previously been changed to an asphalt shingle roof, fiberglass shingles with special reflective granules may be an appropriate replacement.

Fig. 22. Installation of both cool and green roofs in an urban environment.

A green roof consists of a thin layer of vegetation planted over a waterproofing system or in trays installed on top of an existing flat or slightly sloped roof. Green roofs are primarily beneficial in urban contexts to reduce the heat island effect in cities and to control storm water run-off. A green roof also reduces the cooling load of the building and helps cool the surrounding urban environment, filters air, collects and filters storm water, and can provide urban amenities, including vegetable gardens, for building occupants. The impact of increased structural loads, added moisture, and potential for leaks must be considered before installing a green roof. A green roof is compatible on a historic building only if the plantings are not visible above the roofline as seen from below.

Alternative Energy Sources

Although not the focus of this publication, alternative energy sources are dealt with in more detail in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* and other NPS publications. Devices that utilize solar, geothermal, wind and other sources of energy to help reduce consumption of fossil fuel-generated energy can often be successfully incorporated in historic building retrofits. However, if the alterations or costs required to install these devices do not make their installation economically feasible, buying power generated off site from renewable sources may also be a good alternative. The use of most alternative energy strategies should be pursued only after all other upgrades have been implemented to make the building more energy efficient because their initial installation cost is usually high.

Solar Energy: Man has sought to harness the power of solar energy to heat, cool, and illuminate buildings throughout history. Construction techniques and design strategies that utilize building materials and components to collect, store, and release heat from the sun are described as "passive solar design." As previously discussed, many historic buildings include passive solar features that should be retained and may be enhanced. Compatible additions to historic buildings also offer opportunities to incorporate passive solar features. Active solar devices, such as solar heat collectors and photovoltaic systems, can be added to historic buildings to decrease reliance on grid-source fossil-fuel powered electricity. Incorporating active solar devices in existing buildings is becoming more common as solar collector technology advances. Adding this technology to historic buildings, however, must be done in a manner that has a minimal impact on historic roofing materials and preserves their character by placing them in locations with limited or no visibility, i.e., on flat roofs at a low angle or on a secondary roof slope.

Solar collectors used to heat water can be relatively simple. More complex solar collectors heat a fluid or air that is then pumped through the system to heat or cool interior spaces. Photovoltaic panels (PV) transform solar radiation into electricity. The greatest potential for the use of PV panels in historic buildings is on buildings with large flat roofs, high parapets, or roof configurations that allow solar panels to be installed without being prominently visible. The feasibility of installing solar devices in small commercial and residential buildings will depend on installation costs, conventional energy rates, and available incentives, all of which will vary with time and location. The same factors apply to the use of solar collectors for heating water, but smaller installations may meet a building's need and the technology has a considerable track record.

Fig. 23. Solar collectors installed in a compatible manner on low sloping sawtooth monitors. Top Photo: Neil Mishalov, Berkeley, CA.

Geothermal Energy: The use of the earth's heat is another source of readily-accessible clean energy. The most common systems that utilize this form of energy are geothermal heat pumps, also known as geo-exchange, earth-coupled, ground-source, or water-source heat pumps. Introduced in the late 1940s, geothermal heat pumps rely on heat from the constant temperature of the earth, unlike most other heat pumps which use the outside air temperature as the exchange medium. This makes geothermal heat pumps more efficient than conventional heat pumps because they do not require an electric back-up heat source during prolonged periods of cold weather.

There are many reasons that geothermal heat pumps are well suited for use in historic buildings. They can reduce the amount of energy consumption and emissions considerably, compared to the air exchange systems or electric resistance heating of conventional HVAC systems. They require less equipment space, have fewer moving parts, provide better zone space conditioning, and maintain better internal humidity levels. Geothermal heat pumps are also quieter because they do not require external air compressors. Despite higher installation costs, geothermal systems offer long-term operational savings and adaptability that may make them a worthwhile investment in some historic buildings.

Wind Energy: For historic properties in rural areas, where wind power has been utilized historically, installation of a wind mill or turbine may be suitable to the historic setting and cost effective. Before choosing to install wind-powered equipment, the potential benefit and the impact on the historic character of the building, the site and surrounding historic district must be analyzed. In order for the turbines to work effectively, average wind speeds of 10 mph or higher are necessary. This technology may not be practical in more densely-populated areas sheltered from winds or regions where winds are not consistent. In cities with tall buildings, there is potential for installing relatively small rooftop turbines that are not visible from the ground. However, because of the initial cost and size of some turbines, it is generally more practical to purchase wind power from an off-site wind farm through the local utility company.

Summary

With careful planning, the energy efficiency of historic buildings can be optimized without negatively impacting their historic character and integrity. Measuring the energy performance of buildings after improvements are completed must not be overlooked, as it is the only way to verify that the treatments have had the intended effect. Ongoing monitoring of buildings and their components after alterations to historic building assemblies are completed can prevent irreparable damage to historic materials. This, along with regular maintenance, can ensure the long-term preservation of our historic built environment and the sustainable use of our resources.

End Notes

[1] John Krigger and Chris Dorsi, "Air Leakage," in *Residential Energy: Cost Savings and Comfort for Existing Buildings.* Helena, Montana: Saturn Resource Management, 2004, p. 73.

[2] *Measured Winter Performance of Storm Windows.* A 2002 study done by Lawrence Berkeley National Labs.

[3] *Midwest Weatherization Best Practices Field Guide.* Prepared for the U.S. Department of Energy Weatherization Assistance Program, May 2007, p. 157.

[4] Adapted from comments provided by William B. Rose, Research Architect, University of Illinois, April 2011.

[5] U.S. Department of Energy, *Insulation Fact Sheet,* DOE/CE-0180, 2008, p.14.

[6] Bradford S. Carpenter, P.E., LEED AP et al., *The Designer's Dilemma: Modern Performance Expectations and Historic Masonry Walls* (paper presented at the RCI 2010 Symposium on Building Envelope Technology, San Antonio, Texas).

Acknowledgements

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 Cover photograph: Farmhouse with energy efficient historic storm windows.

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Insulating History – Hygrothermal Assessment of Insulation Retrofits in Historic Heavy Masonry Buildings

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ABSTRACT

This paper draws key points of hygrothermal simulation and modeling from a recently commissioned study by Historic Scotland to evaluate insulation retrofit strategies for their traditional building stock. Insulation retrofits on walls can help conserve energy and make the building more sustainable and comfortable for occupants. However, if done without proper assessment and care, the works may result in moisture accumulation, interstitial condensation, deterioration and dangerous mold growth. Heavy solid masonry walls, common in historic buildings, pose a particular challenge to safely retrofit. The hygroscopic nature of these walls requires complex analysis to properly assess the performance impact of the retrofit. The paper compares two hygrothermal assessment methods: dew-point assessment and numerical simulation. These methods both have governing international standards in effect, ISO 13788:2012 and BS EN 15026:2007 respectively. Unfortunately, there is a lack of industry understanding on the limitations of the dew-point method and its ease of use continues to make it a popular and accepted method of assessment. This paper first outlines the limitations of the dew-point method and shows how the inappropriate use of this assessment tool can give distinctly misleading results when assessing hygrothermal performance and risk. The paper then focuses on guidance for modeling techniques to more accurately evaluate performance by numerical simulation. Topics include (i) the challenges of unknown material properties; (ii) establishing the baseline time-dependent, non-homogeneous and non-linear initial conditions within the existing structure, and (iii) reasonable simplifications for modelling the non-homogeneous stone and mortar composition of historic solid walls. The complete report for this study, including a much more in-depth discussion of the building physics, hygrothermal performance and a case study hygrothermal evaluation of 13 different retrofit options has been published by Historic Scotland as Technical Paper 15.

INTRODUCTION

Increasing energy costs and growing concern for environmental responsibility are motivating energy efficiency retrofits throughout the construction industry, including historic buildings. With proper care and prior assessment, retrofitted walls can help to conserve energy and make the building's ongoing use more sustainable and comfortable for occupants. However, the retrofits also impact the hygrothermal performance of the building envelope, that is the coupled movement of heat and water through materials. If done without proper assessment and care, these retrofits may result in moisture accumulation, leading to interstitial condensation (liquid water within the building envelope), envelope deterioration, or mold growth.

Traditional Construction Practices

Tradition construction materials and practices, such as those used in historic buildings, often incorporate thick, solid masonry walls. Traditional walls often lack an impermeable water-proofing layer or air gap on the exterior to prevent driving rain from being drawn in by capillary action, instead relying on the thickness of the wall to prevent that moisture from reaching the occupied interior. Historic construction often used local stones or blocks, therefore, the properties of these materials (density, porosity, permeability, etc.) can vary greatly. The assembly of the

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components is often non-homogenous as well, with the higher quality materials on the exposed interior and exterior surfaces and lower quality materials or rubble used as fill in the center.

Because of these practices, traditionally constructed walls often perform very differently from a hygrothermal standpoint than their modern lightweight counterparts. Despite the differences, the same insulation standards and guidance are often applied irrespective of the wall construction. While some codes and standards will make a passing reference to condensation risk, there is rarely clear guidance on how that risk should be assessed or how the construction techniques impact that assessment.

Condensation Risk Assessment Methods

There are two general methods for condensation risk assessment in building components: dew-point calculations (similar to the Glaser method) and numerical simulation. The dew-point method is a simplified, steady-state calculation done by applying very broad assumptions to decouple the heat and moisture transport equations. It considers moisture transport by vapor diffusion only and is driven by the vapor pressure differential between the interior and exterior spaces. An average indoor/outdoor condition is analyzed for each month of the year to determine if the calculated vapor pressure reaches and saturated vapor pressure at any location in the wall, thus indicating condensation.

Numerical simulation, on the other hand, uses complex computer modeling to solve the coupled heat and moisture equations for each hour of the year, effectively giving a transient analysis of the hygrothermal performance, including temperature and moisture in both a liquid and vapor state. The challenge with numerical simulation is that it requires many more inputs by the user, including inputs that may not be known, such as specific material properties, or inputs to describe the surrounding landscape and topology. Additionally, the complexity of numerical simulation requires much more time and skill to use the software and interpret the results.

Assessment Standards

International standards have been developed to provide guidance and consistency when conducting risk assessments with each of these methods. ISO 13788 (2012) is the standard governing the use of the dew-point method; BS EN 15026 (2007) governs numerical simulation. The standard ISO 13788 (2012) is very clear about the limitations of the dew-point method, stating that it does not account for phenomena such as liquid moisture transport or hygroscopic capacity. It specifically states that "the method is applicable only where the effects of these phenomena can be considered to be negligible." These limitations essentially preclude the dew-point assessment method for use in most historic buildings because of the hygroscopic materials and importance of driving rain. However, despite the clearly stated limitations, the simplicity of the dew-point method still make it a widely and often misused tool for all building types, even by construction professionals and legislated building codes.

Numerical simulation is much more widely applicable, however, BS EN 15026 (2007) does include limitations for this assessment method as well and should be reviewed prior to conducting an assessment.

CASE STUDY RETROFIT

To demonstrate the differences in assessment methods and risks associated with the misapplication of the dew-point method, the following case study is an assessment of retrofits for a traditional solid masonry wall with internal insulation. The retrofits considered are (a) the application of sprayed cellulose, and (b) the application of rigid phenolic insulation including the attachment devices which create an air gap between the panel and the wall.

These two insulation products were selected to highlight differences in material properties. The cellulose is a natural hygroscopic material, able to absorb and hold water vapor as humidity changes. The cellulose is also very vapor open, allowing vapor to move by diffusion through it. For the sake of demonstration, these retrofits included two different levels of insulation: a low level of insulation to achieve a U-value of 0.5 W/m^{2}C (U_{IP} = 0.09 btuh/ft^{2}F; R_{IP}-11), and a higher level of insulation to achieve a U-value of 0.25 W/m^{2}C (U_{IP} = 0.04 btuh/ft^{2}F; R_{IP}-23). Finally, since vapor control layers are often seen as the solution to prevent condensation, these retrofits were considered with and without additional vapor control layers. The critical location for interstitial condensation to occur is typically at the material interface on the cold side of the insulation. This is the location where vapor diffusion is pushing moisture toward the exterior and it is confronted with the surface of the exterior wall, now kept cold by the insulation.

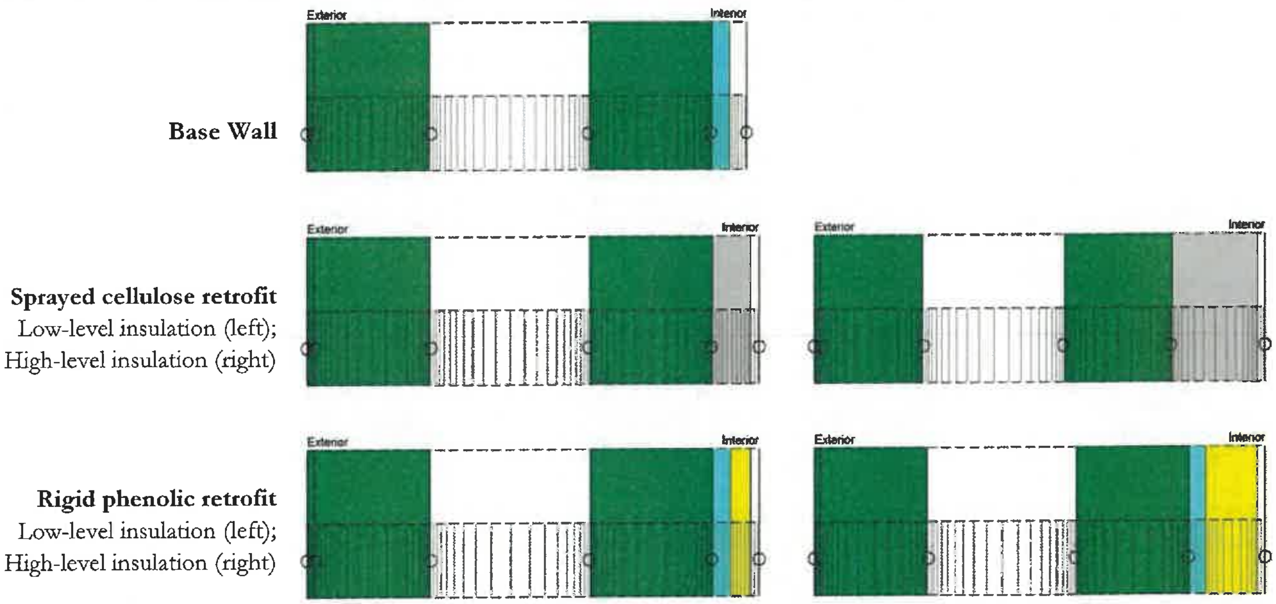

Figure 1 Base wall and modeled insulation retrofit options.

Another risk of internal insulation retrofits in cold climates is that the lower exterior wall temperature may cause freeze-thaw damage. An analysis of freeze-thaw risk is beyond the scope of this paper, but is discussed in the complete study found in Historic Scotland's Technical Paper 15. Readers can also reference Mensinga *et al.* (2010) for more information on this topic.

Dew-point assessment

The table below compares the properties of these two retrofits and includes the results of the dew-point assessment using BuildDesk U software. It is important to note the hygroscopic nature clearly places this assessment outside acceptable scope of the dew-point method, however, this type of assessment is commonly misapplied and, therefore, conducted here to demonstrate the risk of using this assessment method incorrectly. In this dew-point assessment, the retrofits that appear to fail are the vapor open options (cellulose with no vapor control layer) and the vapor closed insulation only at high levels of insulation. From this "diffusion-only" perspective, the rationale is that the vapor open materials allow moisture from the room to migrate through the insulation to the face of the cold masonry. Once there, the low temperature leads to condensation. The addition of a vapor control layer (VCL) to prevent room vapor from diffusing in appears to solve this issue in most cases.

Table 1. Summary of Wall and Retrofit Properties and Resulting Dew-point Assessment

Material Property	Base wall	Retrofit Option									
Insulation type	n/a	Cellulose						Phenolic			
Air space	Yes	No						Yes			
U-value [W/m^{2}C] (btuh/ft^{2}F)	1.13 (0.20)	0.5 (0.09)	0.5 (0.09)	0.5 (0.09)	0.25 (0.04)	0.25 (0.04)	0.25 (0.04)	0.5 (0.09)	0.5 (0.09)	0.25 (0.04)	0.25 (0.04)
Vapor control layer	No	No	Yes Variable	Yes	No	Yes Variable	Yes	No	Yes	No	Yes
Surface condensation	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Interstitial condensation	Pass	Fail	Pass	Pass	Fail	Pass	Pass	Pass	Pass	Fail	Fail

The general conclusions from the dew-point assessment are (a) that higher levels of insulation are more prone to condensation problems, and (b) that if there is condensation predicted, a vapor control layer on the warm side of the insulation will help resolve the issue. While the first conclusion can be shown to be generally accurate, the second conclusion is often incorrect in heavy construction, as shown below. This misleading conclusion is one reason why it is so important that the dew-point method be used only in lightweight construction within the scope of the standard.

Numerical Simulation

When the same wall is modeled using numerical simulation, the result are much more complex. Hygroscopic materials adsorb vapor at high humidity, delaying condensation and liquid water. However, this means that significant moisture and damaging conditions can be present in hygroscopic materials at high humidity even if there is no visible condensation. The typical rule of thumb for maintaining moisture levels below conditions for mold growth is to avoid relative humidity (RH) above 80% for extended periods (note that other factors such as temperature, nutrients, air spaces, etc. also play an important role, but for this discussion, the generally accepted 80% threshold shall be used.)

The graphs below, show the results of the numerical simulation of each retrofit. By the numerical simulation, directly contrary to the dew-point conclusion, the hygroscopic, vapor-open cellulose insulation with no VCL is the safest retrofit option. This is because the primary source of moisture in this masonry wall is actually the rain absorbed on the exterior face and moving by capillary action through wall. This rain and capillary transport are specifically ignored in the dew-point method. Additionally, when the sun heats the wall this liquid moisture turns into vapor and increases the vapor pressure within the wall creating a pressure differential that drives vapor diffusion out of the wall in both directions. The VCLs and vapor resistant phenolic panel prevent the moisture from diffusing to the interior, thus reducing the drying ability of the wall. This is very different than the assumption in the dew-point method, where vapor pressure is driven by the differential between interior and exterior conditions only.

The dew-point method assumption of one directional vapor diffusion is what drives the conventional approach of always locating a vapor control layer on the warm side of the insulation. While this is applicable in lightweight materials, it can actually be quite harmful in traditional heavy weight construction.

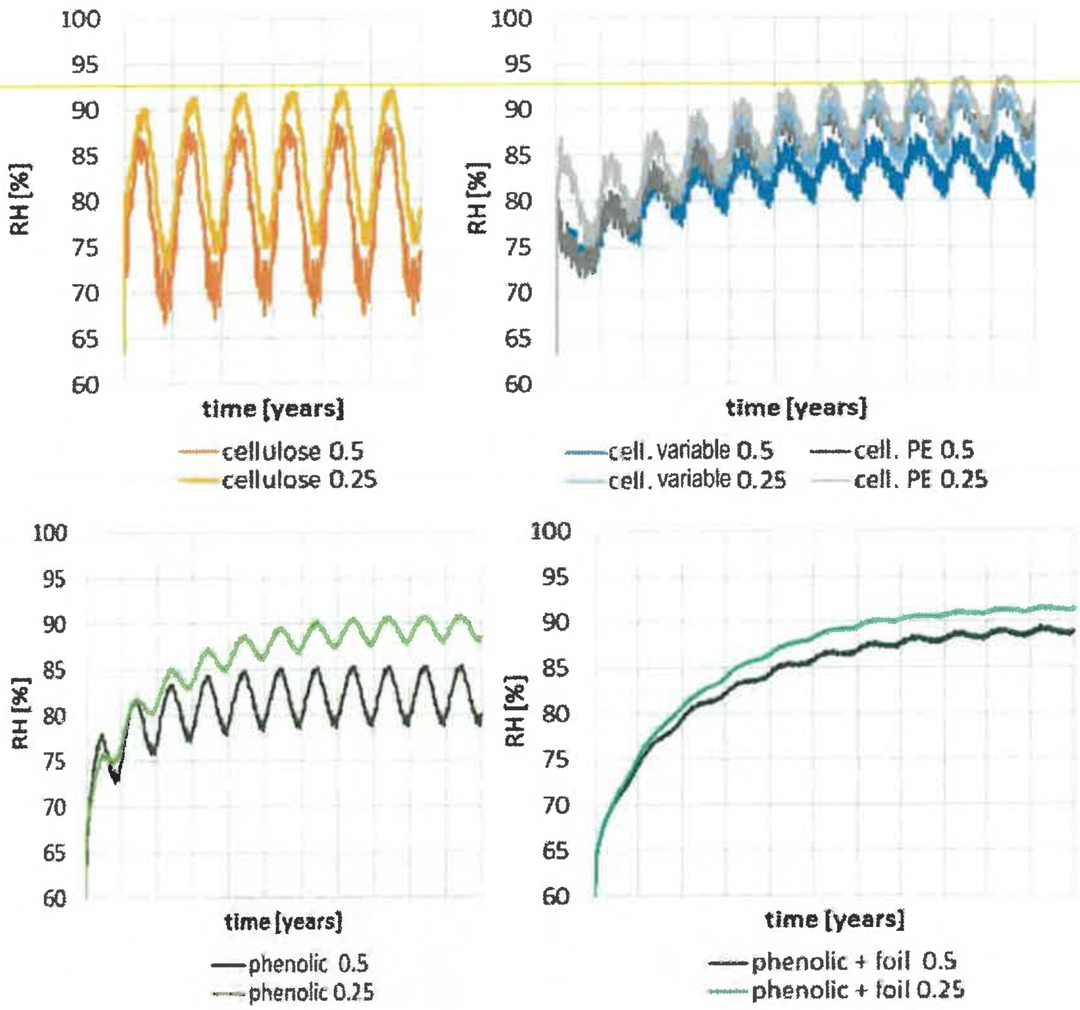

Figure 2 Simulation results tracking relative humidity at the critical location at the interior face of the masonry wall for each retrofit option.

CHALLENGES OF NUMERICAL SIMULATION

While the study above demonstrates the need for numerical simulation in the assessment of hygrothermal performance, one reason the adoption has been so slow has been the complexity involved in this type of analysis.

Material Properties

The software packages used for numerical simulation are very sophisticated in their calculations, but the results are only as valid as the input information. Unfortunately, all of these inputs must be empirically measured and documented for use in the simulations. The international standard ISO 10456 catalogues some of the typical properties for a number of materials and hygrothermal numerical simulation software packages often include substantial databases of empirically derived property data from around the world. As extensive as these databases are, they are far from complete, and therefore, assumptions often must be made in the modeling and simulation process.

In the study of historic solid stones walls, the properties of the stones themselves are often the largest unknown. The graphs below demonstrate the impact of changing the type of stone used in a simulation.

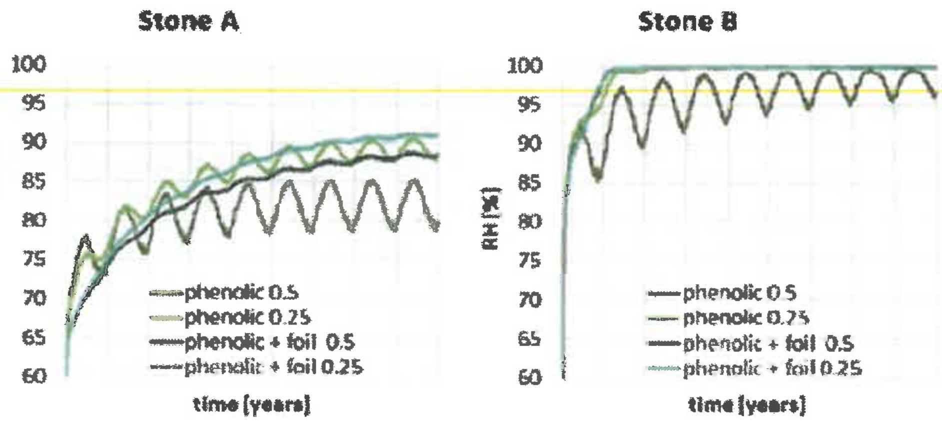

Figure 3 Simulation results comparing the impact of assumed stone type.

Because the exact properties of the stones are often unknown, it is important to conduct a sensitivity analysis of the assumed variables to determine if the results are skewed by the assumptions. In cases where assumptions have significant impacts, as above, additional testing is recommended for critical properties to ensure accurate simulations.

Wall Construction

In addition to the material properties, the configuration of the stones within a traditional wall remains unknown. Previous studies by Baker (2011) focusing on the U-value of the wall have determined that it is inaccurate to treat the wall as solid stone due to the high content of mortar, particularly in the center of the wall. The diagrams below illustrate the assumed wall construction and the level of detail applied in the model to compare the results.

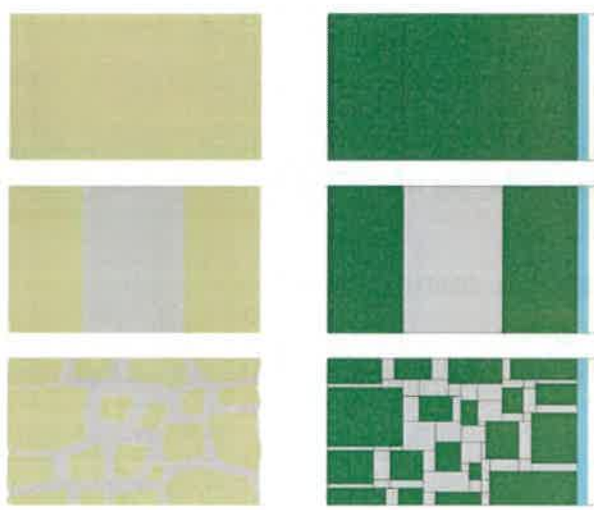

Figure 4 Modeling approximations of a historic stone wall as (a) solid stone, (b) solid stone on interior and exterior with mortar core (30-40-30 percentage split), and (c) two dimensional model of stone and mortar.

The first model is the most basic assumption of solid stone neglecting the mortar. This is a typical approach in modeling but is not expected to be accurate based on Baker's previous research. The second simplifies the wall into three layers, assuming solid stone on each face and a mortar core with the 30-40-30 percentage split across the wall thickness, again building on Baker's research for the percentage content of mortar. The final model is analyzed using

2D simulation software to most accurately capture and evaluate the true impact of the two-dimensional behavior. The percentage of stone to mortar in the second and third simulation are the same, strictly the geometry is compared.

The graph below illustrates the results of tracking relative humidity in the different models over a multi-year simulation. The simplest solid stone model is markedly different from the 2D model which is assumed to be the most accurate representation. The mortar core model does not capture the exact representation of the 2D model, but is reasonably accurate for the modest level of complexity that it adds to the simulation model.

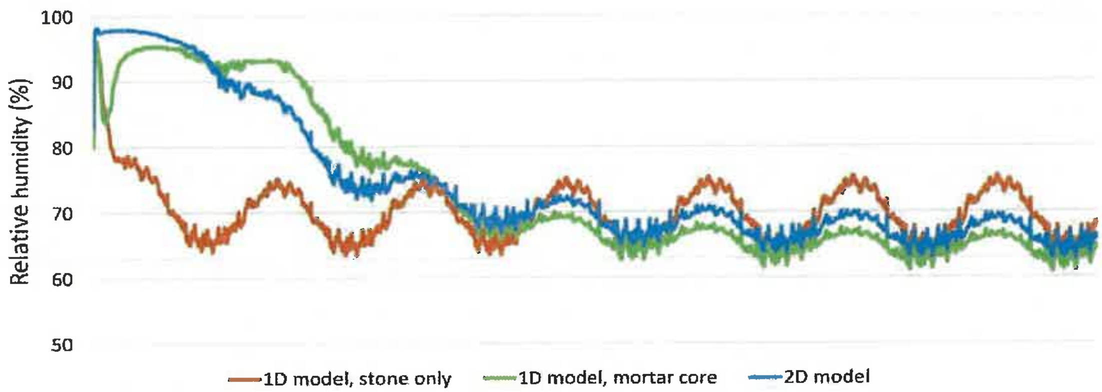

Figure 5 Modeling approximations of a historic stone wall as (a) solid stone, (b) stone faces on with mortar core (30-40-30 percentage split), and (c) two dimensional model of stone and mortar configuration.

Assumed Initial Conditions

In all three of the models the initial conditions assumed within the wall had a significant effect on the early portion of the simulation. In lightweight construction, the assumed initial conditions are almost irrelevant because they will adapt very quickly in the beginning of the simulation. In the heavy masonry found in traditional construction, however, significant quantities of water can exist in the different layers of the construction and it can take many years to for these initial conditions to stop influencing the model as shown in the figure below

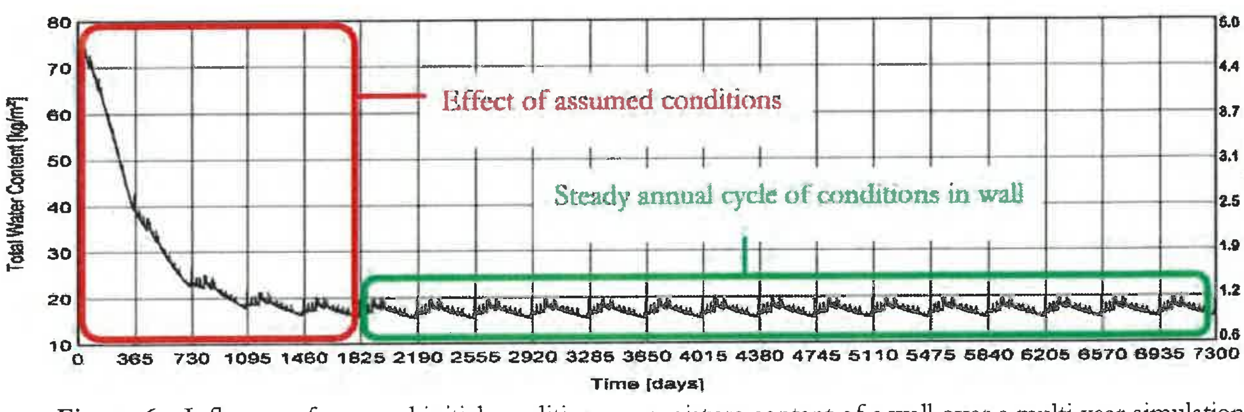

Figure 6 Influence of assumed initial conditions on moisture content of a wall over a multi-year simulation

To eliminate the impact of assuming initial conditions within a solid wall, the base uninsulated wall is modeled for a period of time until the initial conditions no longer impact the variations in water content throughout the year. In this case, it took approximately 5 years (1825 days) for the assumed initial conditions no longer influence.

Once a steady cyclical pattern is observed in the wall, the moisture profile is exported and used for the initial moisture profile conditions of the retrofit.

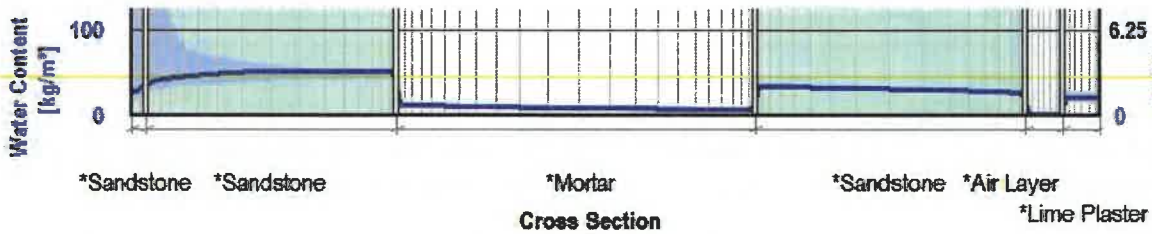

Figure 7 The water content in the base wall at the time of the retrofit

CONCLUSION

Accumulation of moisture and dampness can damage building components and create dangerous conditions for mold growth. These risks have long been acknowledged and measures for assessing the risks have been developed. As we continue to demand improved thermal performance from our building envelopes, the risk of condensation and moisture accumulation also increases if the envelope is not properly designed. Just as our construction materials and installation practices have evolved to meet these superior performance standard, so to must our assessment techniques to evaluate hygrothermal performance and assess risk.

This is particularly important in the retrofit of traditional construction and historic buildings. The building envelopes in these structures were designed in an era long before energy codes, vapor control layers and mandatory U-values. Typically, driving rain is the largest contributor of moisture and historic preservation prevents modifying the façade to reduce this moisture influx. Blindly applying modern retrofits to traditional construction can have damaging consequences and the simplified dew-point assessment techniques are not relevant or applicable to evaluating the risks in this heavy traditional construction. Numerical simulation for hygrothermal performance must become part of the lexicon if we are to avoid damage when we retrofit and change the performance of these building components.

Not only does numerical simulation need to become an integral part of the industry, the knowledge and skill of those doing the modeling must account for the multi-faceted impacts of different material properties, construction geometry and initial conditions that can influence the model and the results.

ACKNOWLEDGMENTS

The authors would like to acknowledge Historic Scotland for their leadership in the field of assessment of historic buildings and their proactive approach in commissioning the original study from which this paper draws its information. In addition, the authors would like to thank the Fraunhofer Institute of Building Physics in Germany for their support, expertise and consultation during the study.

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ENVIRONMENTAL REPORTS
(DATA PROVIDED DIGITALLY)

SAFESTART
ENVIRONMENTAL

January 16, 2020

TO: Stephanie Burke

RE: 650 Lake Road, Lake Forest, Illinois

It is our professional opinion that this residential building cannot be remediated from current environmental conditions to a level of healthy occupancy.

On September 28, 2019 we performed the following testing with results displayed below along with commentary:

Spore trap air testing
Usual ranges in a residence are 0-2000 spores/cubic meter. The range within the home of the first floor north, first floor south, second floor north, second floor south, basement north and basement south were from 7130 spores per cubic meter to 275,830 spores per cubic meter.

Within those scores, the percent of water marker molds, Asperillius/Penicillium, were 23.8% to 98.4% in th3 samples. This is significantly higher than usual levels of 0-3%.

Outdoor controls spore trap air tests had only 0.8-1.8% Aspergillus/Penicillium in them.

The coach house had 43,000-48,290 sores per cubic meter in the air, with 63.8-81% Aspergillus/Penicillium in the content.

These results represent what was in the air at a point in time, with no disturbances of content or structure occurring to loosen and emit spores into the air. Therefore, these scores represent the tip of the iceberg of the size of physical reservoirs of mold, especially in a home that has been sitting vacant with no disturbances to cause surface spores to go airborn.

Viable culturing of surfaces for mold and bacteria species and concentrations in Colony Forming Units (CFU) per square inch:

Basement: Mold > 5,000,000 with toxic species creating mycotoxins
Bacteria: >5,000,000 primarily Actinomycetes which affect inflammation in the body

Upstairs: Mold 4100
Bacteria 25,000

Coach House:
Mold: 250,000
Bacteria: >5,000,000 Primarily Actinomycetes

Approximately 25-35% of air in the living spaces in the home rise up from the basement, which are at toxic levels. These levels approach 20 times or more what are considered safe levels.

PCR, Polymerase Chain Reaction MsQPCR testing of mold species on dust and scored by HERTSMI-2 algorithm.

Research on over 800 inflammatory patients indicate HERTSMI-2 scores over 15, range from 95-100% relapse rates of those entering homes with those scores:

The scores of the first floor, second floor, basement, and coach home ranged from 22-38.25. These are all toxic levels.

Asbestos testing:

Bulk samples of pipe wrap insulation from fried insulation areas in the basement were analyzed by polarized light microscopy. The results all had 15-20% Chrysotile asbestos content.

There is a large fairly inaccessible crawl space off of the basement that has water damage and visual staining on components in it. There are also a large number of pipes in this crawl space wrapped in the asbestos wrap. The height of the crawl space makes it difficult to move in.

Most visible wood framing in the basement has visible microbial growth.

RECOMMENDATIONS:

At the concentrations types, and levels of the contaminants above, and the time they have been in the unoccupied home, and coach home, which allows them to not only amplify, but also get into wall cavities, building envelopes and other assemblies, in addition to what has plated out on surfaces, it is our professional opinion that remediation protocols will not be sufficient to remove all the sources and residing contaminants from the home and in the air.

This is complex and involves molds, mycotoixins, environmental bacteria, asbestos as well as construction dust, plaster dust, etc generated in remediation.

It would be impossible to try remediate and make corrections in the large crawl space area without removing all of the flooring, subflooring and supporting joists under the floor, above the crawl space.

To even attempt a remediation, all interior walls and building envelopes would need to be destructively removed, removal and replacement of all framing, lath, plumbing, electrical pathways to remove all sources of contamination. In other words, the home would need to be virtually destroyed to attempt to try to make it environmentally safe.

We feel the only solution to be able to use the property for habitability, would be to demolish the current structure of the home and coach home and re-build new structures.

SAFESTART ENVIRONMENTAL

Larry Schwartz

Larry Schwartz
President
L.Safestart@gmail.com

AMERICAN COUNCIL for ACCREDITED CERTIFICATION
LAWRENCE A. SCHWARTZ
CIEC
BOARD CERTIFIED
Council-certified Indoor Environmental Consultant

Midwest Environmental Consulting Services, Inc.

Consultants ◂ Engineers ◂ Scientists

MOLD & MOISTURE ASSESMENT

Performed for:

CITY OF LAKE FOREST
800 Field Drive
Lake Forest, IL 60045

Project Location:

RESIDENCE
650 N. Lake Road
Lake Forest, IL 60045

Assessment Date: April 5, 2021

MEC Project #: 21-03-196-I.H.

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EXECUTIVE SUMMARY

Midwest Environmental Consulting Services, Inc. (MEC) was retained by the City of Lake Forest to conduct a Mold & Moisture assessment throughout the residence located at 650 N. Lake Road, Lake Forest, Illinois, 60045. The purpose of the assessment was to determine if any wet building material was present in the residence. The assessment also included air sampling which was conducted to determine whether airborne mold concentrations within the subject areas were significantly different from those present in the outdoor air.

This visit occurred on April 5, 2021.

Based on this visit, the following conclusions are reached:

- An airborne mold concern was present in the following areas at the time of this assessment: Basement Utility Room, Basement Hallway, Crawl Space, 1st Floor Kitchen, 1st Floor Transition Room, Indoor/Outdoor Room, 1st Floor Living Room, and the 2nd Floor Servant Bedrooms. Indicator molds associated with the presence of water impacted building materials were identified in large abundance in these subject spaces. As these areas only serve as representative areas within the building, it stands to reason there are also airborne mold concerns within other areas that were not tested.

- While not as high a concern as the previously mentioned areas, the following areas still display a relative concern regarding the *total* amount of airborne mold detected: 1st Floor Library, 2nd Floor West Bedroom, 2nd Floor East Bedroom, 2nd Floor Hallway, 2nd Floor North Master Bedroom, and Attic.

- Thermal imaging and moisture testing conclude there was no water intrusion or excessive moisture retention in any building material in the tested areas of the Residence. However, due to the presence of cracked plaster, peeling wallpaper, and damaged wood in specified areas, it is evident that water was making its way into the residence at some point.

- Visible mold was present in the Basement & Crawl Spaces at the time of the assessment. Hidden mold growth within the walls of the residence may be a concern.

- It is hypothesized that airborne mold is originating in the Basement & Crawl Spaces and as general air movement continues, the airborne mold is traveling from the lowest level of the residence to other tested areas. This hypothesis is based off of no visible mold being located in the residence other than the lowest level, & the mold counts decreasing in the tested areas the further away from the assumed source testing occurred.

Based on these conclusions, the following recommendations are provided:

- Engage the services of a qualified mold remediation contractor to clean the involved areas in conformance with EPA/AIHA guidelines. This includes all mold affected surfaces located in the lowest level of the residence, providing HEPA-filtered vacuuming and damp cleaning in the mold-affected areas throughout the residence, and discarding mold-affected material that cannot be damp cleaned or encapsulated.

- MEC has received a report from the client stating the pipe insulation (TSI) throughout the residence has been tested for asbestos and is positive by PLM analytical methods. MEC recommend any mold remediation activities involving TSI be done by a licensed Asbestos Abatement Contractor due to the poor condition of the TSI throughout the lower level of the residence. Since the TSI will also inhibit clear access to the Crawl Spaces, MEC recommends removal & re-insulation of all TSI that is either obstructing access or affected by mold in the Basement & Crawl Spaces.

- Provide for follow-up testing to demonstrate the effectiveness of remediation efforts.

- Inform and educate building users to report any instance of uncontrolled water to building authorities as soon as possible. Building authorities should address any report of uncontrolled water as an urgent matter requiring prompt action to control the water and dry/replace any impacted building materials and/or furnishings as needed.

INTRODUCTION

Midwest Environmental Consulting Services, Inc. (MEC) was retained by the City of Lake Forest to conduct a Mold & Moisture assessment throughout the residence located at 650 N. Lake Road, Lake Forest, Illinois, 60045. The purpose of the assessment was to determine if any wet building material was present in the residence. The assessment also included air sampling which was conducted to determine whether airborne mold concentrations within the subject areas were significantly different from those present in the outdoor air.

This visit occurred on April 5, 2021.

MEC was represented during the subject visit by Mr. Joshua Rentauskas, Industrial Hygienist.

Equipment was utilized to aid in the Mold & Moisture assessment within the subject spaces, including a thermal imaging camera, a moisture meter, and a mold air sampling pump.

METHODOLOGY

- *Thermal Imaging Camera*

A Flir® infrared thermal imaging camera is a direct-read instrument that was utilized during this assessment. Building materials that contain elevated moisture levels often exhibit different thermal properties than dry materials. Temperature differentials that are present under these circumstances are the result of retained moisture in water-affected building materials. Use of the infrared camera often enables detection of moisture problems that wouldn't be evident to the naked eye.

- *Moisture Meter*

An Extech® digital moisture meter is a direct-read instrument that was used to measure the moisture content of building materials. This meter uses ½"-penetrating metal prongs to directly probe building materials. It is indexed to wood moisture equivalent (WME). Building materials are generally considered to be dry when their moisture content is measured at less than 15% WME.

- *Airborne Mold Spore Sampling*

The spore trap air sampling was performed using a high volume air-sampling pump attached to an Air-O-Cell cassette provided by Zefon Corporation containing a tacky substance used to trap mold spores from air on through the method of impaction. For this sampling, pumps operated for approximately five minutes in each location at 15 liters per minute, according to manufacturer's recommendations. The air sampling process impacts particulates (including mold fragments) onto the Air-O-Cell cassette, which is then forwarded to a laboratory for microbial identification.

EXPOSURE REGULATIONS AND GUIDELINES

- ***Airborne Mold Spore Concentrations***

There is no uniformity in the suggested guidelines for acceptable levels of molds in indoor ambient air. Thus, health professionals have no way to determine what levels of molds may pose a threat to human health.

According to the American Conference of Governmental Industrial Hygienists (ACGIH), an independent source of molds likely exists indoors when either of the following conditions exists:

- There is a significantly greater concentration of molds present indoors compared with outdoors (barring a heavy snow covering or rainfall), or
- The types of molds present indoors are significantly different than the types of molds present outdoors.

Aspergillus/Penicillium and *Chaetomium* are indicator molds commonly associated with the presence of water impacted building materials and may potentially cause adverse health effects in those with compromised respiratory or immune systems. If there is a disproportionate presence indoors (when compared with an outdoor air sample), this would provide evidence that water impacted building materials are present in the sampled indoor areas and may lead to mold growth.

DIRECT READ INSTRUMENTATION

- *Thermal Imaging Camera Results*

A thermal imaging camera was utilized to inspect building materials in every room located within the residence.

The following is a list of areas inspected by the thermal imaging camera which displayed potential water intrusion:

Testing Location	Water Intrusion Confirmed? (Y/N)
Basement & Crawl Spaces	No
First Floor	No
Second Floor	No

No photographs are available as there were no signs of water intrusion in all tested inspected.

- *Moisture Meter Results*

A moisture meter was utilized to probe building materials in every room located within the residence.

The following is a list of moisture testing results:

Testing Locations	Moisture Level (% WME)*
All areas with potential for moisture retention as determined by the Infrared Thermal Imaging Camera. Combination of walls, ceilings, floors (carpeting), upholstery, casework, etc.	<15%

**WME = Wood moisture equivalent. Building materials are generally considered to be dry when their moisture content is measured at less than 15% WME.*

No photographs are available as all tested areas were determined to be dry by moisture meter testing.

ANALYTICAL RESULTS

- *Airborne Mold Spore Results*

Mold air samples were collected from strategic areas within the residence. The tables below display the results of the airborne mold spore sampling. The tables display the sample ID number, sampled location, types of spores detected, their concentration, and their percent of the total spores detected in the respective sample.

Sample ID Number	Sampled Location	Type of Mold Detected	Concentration (counts/m³)	Percent of the Total Molds
31517581	Basement Utility Room	Ascospores	40	0.2
		Aspergillus/Penicillium	15,800	94.0
		Basidiospores	200	1.2
		Cladosporium	520	3.1
		Myxomycetes	40	0.2
		Paecilomyces-like	200	1.2
31517572	Basement Crawl Space	*Alternaria*	40	0.1
		Aspergillus/Penicillium	45,800	99.1
		Chaetomium	100	0.2
		Cladosporium	200	0.4
		Ganoderma	40	0.1
		Unidentifiable Spores	40	0.1
31517564	Basement Hallway	*Alternaria*	40	0.1
		Ascospores	40	0.1
		Aspergillus/Penicillium	38,200	96.1
		Basidiospores	300	0.8
		Chaetomium	90	0.2
		Cladosporium	200	0.5
		Ganoderma	40	0.1
		Myxomycetes	40	0.1
		Scopulaeiopsis/Microascus	40	0.1
		Unidentifiable Spores	740	1.9
31517579	1st Floor Kitchen	*Aspergillus/Penicillium*	8,470	87.0
		Basidiospores	90	0.9
		Cladosporium	1100	11.3
		Myxomycetes	40	0.4
		Unidentifiable Spores	40	0.4
31517577	1st Floor Transition Room	Ascospores	40	1
		Aspergillus/Penicillium	3,500	86.2
		Basidiospores	200	4.9
		Cladosporium	200	4.9
		Myxomycetes	30	0.7
		Unidentifiable Spores	90	2.2

(continued on next page)

Sample ID Number	Sampled Location	Type of Mold Detected	Concentration (counts/m^3)	Percent of the Total Molds
31517559	Indoor/Outdoor Room	Ascospores	100	1.8
		Aspergillus/Penicillium	4,100	73.3
		Basidiospores	400	7.2
		Cladosporium	660	11.8
		Myxomycetes	100	1.8
		Stachybotrys/Memnoniella	30	0.5
		Unidentifiable Spores	200	3.6
31517580	1st Floor Living Room	Ascospores	90	2.4
		Aspergillus/Penicillium	3,200	86.3
		Basidiospores	200	5.4
		Cladosporium	90	2.4
		Ganoderma	40	1.1
		Unidentifiable Spores	90	2.4
31517566	1st Floor Library	Ascospores	40	4.2
		Aspergillus/Penicillium	440	45.8
		Basidiospores	300	31.3
		Cladosporium	90	9.4
		Unidentifiable Spores	90	9.4
31517565	2nd Floor West Bedroom	*Aspergillus/Penicillium*	400	44.9
		Basidiospores	300	33.7
		Cladosporium	100	11.2
		Unidentifiable Spores	90	10.1
31517571	2nd Floor East Bedroom	*Alternaria*	40	3.3
		Aspergillus/Penicillium	520	42.3
		Basidiospores	300	24.4
		Cladosporium	300	24.4
		Myxomycetes	30	2.4
		Pithomyces	10	0.8
		Rust	10	0.8
		Unidentifiable Spores	10	0.8
		Nigrospora	10	0.8
31517567	2nd Floor Hallway	Ascospores	300	34.5
		Aspergillus/Penicillium	300	34.5
		Basidiospores	100	11.5
		Cladosporium	90	10.3
		Epicoccum	40	4.6
		Unidentifiable Spores	40	4.6
31517576	2nd Floor North Master Bedroom	*Alternaria*	30	1.9
		Ascospores	300	18.6
		Aspergillus/Penicillium	440	27.3
		Basidiospores	520	32.3
		Cladosporium	300	18.6
		Epicoccum	10	0.6
		Unidentifiable Spores	10	0.6

(continued on next page)

Sample ID Number	Sampled Location	Type of Mold Detected	Concentration (counts/m^3)	Percent of the Total Molds
31517575	2nd Floor Servant Bedrooms	*Alternaria*	10	1.3
		Aspergillus/Penicillium	570	74
		Basidiospores	100	13
		Chaetomium	10	1.3
		Cladosporium	40	5.2
		Myxomycetes	10	1.3
		Unidentifiable Spores	30	3.9
31517563	Attic	Ascospores	40	3.3
		Aspergillus/Penicillium	300	25
		Basidiospores	300	25
		Cladosporium	440	36.7
		Epicoccum	30	2.5
		Unidentifiable Spores	90	7.5
31517568	Outdoors	Ascospores	740	20.8
		Aspergillus/Penicillium	830	23.4
		Basidiospores	1,300	36.6
		Cladosporium	300	8.5
		Myxomycetes	40	1.1
		Unidentifiable Spores	300	8.5
		Oidium	40	1.1

An independent laboratory (EMSL Analytical, Inc., Hillside, Illinois) accredited by the American Industrial Hygiene Association (AIHA) was used for all microscopic identification.

Aspergillus/Penicillium, *Stachybotrys/Memnoniella* and *Chaetomium* are indicator molds commonly associated with the presence of water impacted building materials and have the potential to cause adverse health effects in humans. If there is a disproportionate presence indoors (when compared with an outdoor air sample), this would provide evidence that water impacted building materials are present in the sampled indoor areas and may lead to further mold growth. In this case, in relation to the outdoor air sample, *Aspergillus/Penicillium* and/or *Chaetomium* were present in larger airborne concentrations in the following areas: Basement Utility Room, Basement Hallway, Crawl Space, 1st Floor Kitchen, 1st Floor Transition Room, Indoor/Outdoor Room, 1st Floor Living Room, and the 2nd Floor Servant Bedrooms.

Although *Aspergillus* was not present in larger concentrations than the outdoor sample in several indoor areas, the following areas still have relatively high concentrations of all molds found: 1st Floor Library, 2nd Floor West Bedroom, 2nd Floor East Bedroom, 2nd Floor Hallway, 2nd Floor North Master Bedroom, and Attic.

OBSERVATIONS/NOTES

The following observations/notes were made during this assessment:

- **Basement:**
  - The owner of the residence informed MEC's on-site staff that she has witnessed standing water in the Basement near the exterior door.
  - There were visual signs of water intrusion on all windows & exterior door located along the perimeter of the Basement.
  - Suspect mold growth was identified on all Thermal Systems Insulation throughout the Basement and both Crawl Spaces, all surfaces at the bottom of the interior Basement stairs including the closet, & on all surfaces located in the Crawl Spaces. (Floor Joist, TSI, Electrical, HVAC, Etc.)
  - The mold contaminated TSI found in the Basement & Crawl Spaces is damaged.
  - Dirt & debris had been identified under any raised wooden floor planks located throughout the Basement.
- **First Floor**
  - Most exterior windows and doors located on the First Floor had been encapsulated in white paint. However, all areas where the windows are bare wood seem to be in manageable condition with no signs of water intrusion.
  - Almost all rooms had a typical layer of settling dust & debris due to little maintenance being done at this time.
  - There was signs of water damage on the exterior door wall of the Indoor/Outdoor Room and in the interior corners where the roof of the Indoor/Outdoor Room meets exterior of the main building.
  - While observing the underside of both the sink in the Pantry Room & the sink in the Kitchen, there is evidence of previous water damage.
- **Second Floor**
  - Most exterior windows and doors located on the First Floor had been encapsulated in white paint. However, all areas where the windows are bare wood seem to be in manageable condition with no signs of water intrusion.
  - Almost all rooms had a typical layer of settling dust & debris due to little maintenance being done at this time.
  - Small center room (Ironing Room) had pealing wall paper and cracks from the exterior wall. No moisture had been detected utilizing the Moisture Meter & Thermal Imaging Camera
- **Attic**
  - The Attic had a typical layer of settling dust & debris due to little maintenance being done at this time.

CONCLUSIONS AND RECOMMENDATIONS

Based on this visit, the following conclusions are reached:

- An airborne mold concern was present in the following areas at the time of this assessment: Basement Utility Room, Basement Hallway, Crawl Space, 1st Floor Kitchen, 1st Floor Transition Room, Indoor/Outdoor Room, 1st Floor Living Room, and the 2nd Floor Servant Bedrooms. Indicator molds associated with the presence of water impacted building materials were identified in large abundance in these subject spaces. As these areas only serve as representative areas within the building, it stands to reason there are also airborne mold concerns within other areas that were not tested.

- While not as high a concern as the previously mentioned areas, the following areas still display a relative concern regarding the *total* amount of airborne mold detected: 1st Floor Library, 2nd Floor West Bedroom, 2nd Floor East Bedroom, 2nd Floor Hallway, 2nd Floor North Master Bedroom, and Attic.

- Thermal imaging and moisture testing conclude there was no water intrusion or excessive moisture retention in any building material in the tested areas of the Residence. However, due to the presence of cracked plaster, peeling wallpaper, and damaged wood in specified areas, it is evident that water was making its way into the residence at some point.

- Visible mold was present in the Basement & Crawl Spaces at the time of the assessment. Hidden mold growth within the walls of the residence may be a concern.

- It is hypothesized that airborne mold is originating in the Basement & Crawl Spaces and as general air movement continues, the airborne mold is traveling from the lowest level of the residence to other tested areas. This hypothesis is based off of no visible mold being located in the residence other than the lowest level, & the mold counts decreasing in the tested areas the further away from the assumed source testing occurred.

Based on these conclusions, the following recommendations are provided:

- Engage the services of a qualified mold remediation contractor to clean the involved areas in conformance with EPA/AIHA guidelines. This includes all mold affected surfaces located in the lowest level of the residence, providing HEPA-filtered vacuuming and damp cleaning in the mold-affected areas throughout the residence, and discarding mold-affected material that cannot be damp cleaned or encapsulated.

- MEC has received a report from the client stating the pipe insulation (TSI) throughout the residence has been tested for asbestos and is positive by PLM analytical methods. MEC recommend any mold remediation activities involving TSI be done by a licensed Asbestos Abatement Contractor due to the poor condition of the TSI throughout the lower level of the residence. Since the TSI will also inhibit clear access to the Crawl Spaces, MEC recommends removal & re-insulation of all TSI that is either obstructing access or affected by mold in the Basement & Crawl Spaces.

- Provide for follow-up testing to demonstrate the effectiveness of remediation efforts.

➤ Inform and educate building users to report any instance of uncontrolled water to building authorities as soon as possible. Building authorities should address any report of uncontrolled water as an urgent matter requiring prompt action to control the water and dry/replace any impacted building materials and/or furnishings as needed.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site, analytical data, and other research as described in this report. They are intended for the sole use of our client. The scope of services performed in execution of this investigation may not be appropriate to satisfy the need of other users, and any use or reuse of this document of the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

If you have any questions or concerns, please feel free to contact me at (630) 553-3989. Thank you for providing us with an opportunity to service your environmental needs.

Respectfully submitted,

Joshua Rentauskas
Industrial Hygienist
Midwest Environmental Consulting Services, Inc.
2551 N. Bridge Street
Yorkville, IL 60560

Appendices (3)
1. Mold Air Sample Location Photographs
2. Mold-Affected Building Material Photographs
3. Laboratory Analysis Reports

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- The exterior walls at the south half of the residence as well across the front of the structure are constructed with 3-wythe load bearing brick masonry at the first floor and a combination of brick masonry and wood framed walls at the second floor level above. With this construction, the ends of the second floor joists have been buried directly within the cross section of the masonry. Predicated on the porous nature of the face brick utilized at this structure, the damp environment in which the joist bearing ends exist has subject those members to decay.

Floor Framing:

- As noted in the report from our previous visit, the first and second floor framing was perceived to be noticeably deflected and soft/bouncy when walked upon. Now that the framing is exposed, it is readily apparent that the size and spacing of the wood joists is deficient for the spans and loading conditions that exist at several locations throughout the house. Significant reinforcing and in some cases restructuring of the floor framing will be required to bring the framing into compliance with code. That corrective work will present a number of difficulties including the following:
    - The current floors have a deflected profile that conflicts with both the straight nature of the new framing components and the level profile of the final floor condition. We do not recommend attempting to shore the existing framing back to a level condition due to the ancillary damage that can occur to the surrounding structure as well as the fact that the existing framing has almost certainly taken on some degree of permanent set that would be impossible to overcome. As a result, most of the existing floor sheathing will need to be removed to install the new framing creating significant stability issues for the structure during construction.
    - As mentioned previously in this report, some of the existing floor framing bears within the cross section of the existing masonry walls. Where new framing is required to strengthen the existing floors, the original bearing condition cannot be replicated due to the difficulty it would present to the installation process, the resulting weakening of the masonry walls due to the enlarging of the bearing pockets and the long-term risk of having wood in direct contact with the masonry. More likely, the new framing will require the construction of a second bearing wall set to the inside of the existing walls to properly carry the loads. Those walls will need to carry down thru the structure to a new foundation, reducing the habitable space within the residence, not to mention the difficulty of constructing a structure within a structure.

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December 21, 2020

Ms. Stephanie Burke
401 East Center Avenue
Lake Bluff, Illinois 60044

Attention: Ms. Stephanie Burke

Reference: 650 lake Road
Lake Forest, Illinois

Dear Ms. Burke:

In accordance with your request, we completed a visual structural condition of the subject property on December 9, 2020. The scope of our services at this time was limited to visual observations only and did not encompass the sampling or testing of the existing building materials, nor did it include the calculation or assessment of existing member capacities with respect to anticipated loads, except as specifically noted herein.

Building Description

The existing structure is an approximately 6,500 square foot, two-story residence with a partial basement. The residence appears to consist of the original house to which a single-story heated sunroom was added at the rear of the residence at some point after the original construction. Based on my observation, the residence appears to be conventionally framed with wood rafters, wood floor joists and wood stud walls. The north portion of the original house was constructed over a full basement, a portion of which was unfinished, whereas the southern portion was framed over a crawlspace. From within that unfinished space of the basement, one can observe the original basement foundation walls. These walls consist of a partial height concrete wall with a band of solid brick construction that extends to the underside of the first-floor joists above. The rear addition was constructed over a crawlspace. The foundation walls within the crawlspace utilized a similar construction except the upper portion of the wall was wood-framed.

A detached garage structure sits in close proximity to the house. Although access to the interior of that building was not available at the time of our visit, the structure appears to be similar in vintage and construction to the main residence. The structure is presumed to be comprised of wood roof rafters, wood floor joists and wood stud walls, with a grade supported concrete slab and concrete foundations.

Building Condition

At the time of our visit, we observed the following structural deficiencies:

- **Masonry deterioration.** The exterior surface of the brick veneer had been painted. The application of an exterior house paint to masonry construction is problematic. The paint creates a barrier on the outside of the masonry that can trap any moisture that enters the wall in the brick. This trapped moisture can damage the mortar and masonry through the expansion that occurs when the water freezes. As the water freezes and expands within the wall, it will exert an outward pressure on the masonry construction. When this pressure exceeds the tensile capacity of the masonry, the brick or mortar will crack and can spall off. There is evidence of this damage at several locations around the house. See Photos One through Three. It is likely that similar deterioration is present in areas that were not visible due to the presence of interior finishes and the painted exterior. It appears that there has been ongoing maintenance on these walls to repair the damage as it occurs, including the replacement of a portion of the chimney. See Photo Four.

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This maintenance will be necessary throughout the life of the house to preserve the integrity of the building envelope for as long as the masonry remains painted. To avoid this continual maintenance, the paint would need to be removed from the face of the brick. Unfortunately, the process to remove the paint often results in significant damage to the face of the brick, which then can only be remedied by its removal and replacement. Given the amount of existing face brick that appears to be experiencing some degree of moisture degradation, it is our opinion that the entirety of the exterior masonry walls should be considered for remediation.

- **Soft & Sagging floors.** Upon our walk-through of the interior of the residence, we experienced several rooms in which the structure felt soft/bouncy and others that had very discernible dips/undulations in the plane of the floor. These conditions were apparent on both the first and second floor at various locations throughout the house. It is not uncommon for structures of this age to have some degree of deflection in the floors as a result of long-term creep, a naturally occurring phenomenon in wood. The bounce and discernable sagging however, appear to be more the result of floor spans that are pushing the limits for the provided joist sizing coupled with a lack of alignment in the weight bearing elements from second floor down to the supporting foundations. The second floor is generally partitioned off into small rooms and corridors that result in the presence of numerous interior walls that are clad in heavy plaster and also bear the weight of the attic and ceiling construction above. The layout of the first floor was typically much more open with large rooms, many of which extended from exterior wall to exterior wall. The observed performance of the floors suggest that those long clear spans and heavy loads were not fully accounted for in the original construction. Where interior walls partition off first floor spaces, the same issues are present in the first floor framing. These overloaded and over spanned conditions result in excessive displacements in the structure. An example of this was observed in the roof plane above the attached garage, where the second-floor wall sits inboard of the exterior bearing wall. The sag in the second joists caused by these roof loads is also apparent in the plane of the roof directly above. See Photo Five. Correcting these conditions will likely require the addition of substantial reinforcing to both the first and second floor structures.

Conclusions

The structural deficiencies presented above require attention/remediation prior to re-occupancy of the residence. While the specific scope of the required retro-fit work can only be determined after a more comprehensive survey and analysis of the structure is completed, it appears quite probable that the cost of the repairs will be significant.

The opinions and comments presented in this report are based exclusively on the visual observations and conditions of the structure at the time of our visit, the qualified knowledge and experience of this office, and the information provided by those parties requesting the inspection and those present during our visit. No guarantee or warranty as to the future life or performance of the remaining structure is intended or implied.

Yours very truly,

PEASE BORST & ASSOCIATES, LLC

Jeffrey R. Borst

Attachments – Photos One through Five

Photo One – Deteriorated masonry on the veneer of the detached garage.

Photo Two – Deteriorated masonry on a chimney on the main house.

Photo Three – Deteriorated masonry at the base on a chimney on the main house.

Photo Four – The upper portion of this chimney had been replaced. Additional deterioration appears to be present in the brick below the repaired section of masonry.

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Photo Five – A sag in the roof plane above the garage is evidence of similar sagging in the second-floor joists within.

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January 20, 2022

Melichar Architects
207 E. Westminster, Suite 104
Lake Forest, Illinois 60045

Attention: Ms. Diana Melichar

Reference: 650 lake Road
Lake Forest, Illinois

Dear Ms. Melichar:

In accordance with your request, we completed a second, follow-up visit to the subject property on Monday, December 20, 2021. The scope of our services at this time was limited to visual observations only and did not encompass the sampling or testing of the existing building materials, nor did it include the calculation or assessment of existing member capacities with respect to anticipated loads, except as specifically noted herein.

Our original visit to the subject residence took place on December 9, 2020. At that time, we visually observed the condition of the structure and documented our findings in a written report dated December 21, 2020. The condition of the various structural components that comprise the residence and the deficiencies that were identified in that report remain applicable.

The purpose of this current visit was to re-observe the existing structure, predicated on the recent removal of the interior finishes from the existing wall, floor and ceiling framing. Our observation of the newly exposed structural components revealed the following additional concerns:

Wall Framing:

- A significant number of the window and door openings that occur in load bearing walls were found to be framed without structural headers. Additionally, the additional cripple and king studs that are normally found on either side of a wall opening to account for the discontinuity that occurs in the wall stud framing as a result of the penetration are also absent from the existing structure. Appropriate framing will need to be inserted into the existing wall structure.

- The rear-west and north-side exterior walls are two story wood framed walls that were built using balloon frame methodology. With this approach, the floor joists are lapped along the side of the wall studs and the studs continue above the second floor joist bearing level. Those wall studs should continue as one piece to the level of the roof rafter bearing, however, many of the wall studs were found to be spliced at a point several feet above the second floor level. The resulting discontinuity diminishes the ability of the second floor studs from carrying the vertical and lateral loads which they are subject to. All of the wall existing studs that are spliced in this manner will need to be reinforced.

- The exterior walls at the south half of the residence as well across the front of the structure are constructed with 3-wythe load bearing brick masonry at the first floor and a combination of brick masonry and wood framed walls at the second floor level above. With this construction, the ends of the second floor joists have been buried directly within the cross section of the masonry. Predicated on the porous nature of the face brick utilized at this structure, the damp environment in which the joist bearing ends exist has subject those members to decay.

Floor Framing:

- As noted in the report from our previous visit, the first and second floor framing was perceived to be noticeably deflected and soft/bouncy when walked upon. Now that the framing is exposed, it is readily apparent that the size and spacing of the wood joists is deficient for the spans and loading conditions that exist at several locations throughout the house. Significant reinforcing and in some cases restructuring of the floor framing will be required to bring the framing into compliance with code. That corrective work will present a number of difficulties including the following:
  - The current floors have a deflected profile that conflicts with both the straight nature of the new framing components and the level profile of the final floor condition. We do not recommend attempting to shore the existing framing back to a level condition due to the ancillary damage that can occur to the surrounding structure as well as the fact that the existing framing has almost certainly taken on some degree of permanent set that would be impossible to overcome. As a result, most of the existing floor sheathing will need to be removed to install the new framing creating significant stability issues for the structure during construction.
  - As mentioned previously in this report, some of the existing floor framing bears within the cross section of the existing masonry walls. Where new framing is required to strengthen the existing floors, the original bearing condition cannot be replicated due to the difficulty it would present to the installation process, the resulting weakening of the masonry walls due to the enlarging of the bearing pockets and the long-term risk of having wood in direct contact with the masonry. More likely, the new framing will require the construction of a second bearing wall set to the inside of the existing walls to properly carry the loads. Those walls will need to carry down thru the structure to a new foundation, reducing the habitable space within the residence, not to mention the difficulty of constructing a structure within a structure.

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Roof/Ceiling Framing:

- The roof and ceiling framing is constructed with dimensional lumber, the size and layout for which was likely based largely on the expertise of the carpentry crew building those components. Roofs that have hips and valleys are inherently more sophisticated in their behavior structurally and as such, there is often a disconnect between what gets built and sound engineering principles. Redundancies inherent to the structure and the presence of miscellaneous support posts are often relied upon to keep the structure stable. Over time however, the unintended application of load to the ceiling, wall and/or floor framing members below, that were never designed to support those loads, has resulted in structural behavioral issues with the roof framing. Such is the case with the roof structure at this residence. While the roof has a predominately gabled roof profile, valleys are present where the gables turn in their orientation and intersect one another. Reinforcing of the roof and ceiling framing to instate the proper support for the valleys and ridges of the roof will be required to develop the proper load paths for the applied loadings.

Conclusions

The structural deficiencies present at this residence are significant and must be fully addressed to both make the residence habitable and to reinstate its compliance with code. The scope and cost of that effort will be similarly significant.

The opinions and comments presented in this report are based exclusively on the visual observations and conditions of the structure at the time of our visit, the qualified knowledge and experience of this office, and the information provided by those parties requesting the inspection and those present during our visit. No guarantee or warranty as to the future life or performance of the remaining structure is intended or implied.

Yours very truly,

PEASE BORST & ASSOCIATES, LLC

Jeffrey R. Borst