

INTRODUCED: April 14, 2025

AN ORDINANCE No. 2025-082

To authorize the special use of the property known as 3202 Monument Avenue for the purpose of a dwelling unit within an accessory building to a single-family detached dwelling, upon certain terms and conditions.

Patron – Mayor Avula (By Request)

Approved as to form and legality
by the City Attorney

PUBLIC HEARING: MAY 12 2025 AT 6 P.M.

WHEREAS, the owner of the property known as 3202 Monument Avenue, which is situated in a R-6 Single-Family Attached Residential District, desires to use such property for the purpose of a dwelling unit within an accessory building to a single-family detached dwelling, which use, among other things, is not currently allowed by section 30-412.5, concerning yards, of the Code of the City of Richmond (2020), as amended; and

WHEREAS, in accordance with section 17.11 of the Charter of the City of Richmond (2020), as amended, it has been made to appear that, if granted subject to the terms and conditions set forth in this ordinance, the special use granted by this ordinance will not be detrimental to the safety, health, morals and general welfare of the community involved, will not tend to create

AYES: _____ NOES: _____ ABSTAIN: _____

ADOPTED: _____ REJECTED: _____ STRICKEN: _____

congestion in streets, roads, alleys and other public ways and places in the area involved, will not create hazards from fire, panic or other dangers, will not tend to overcrowding of land and cause an undue concentration of population, will not adversely affect or interfere with public or private schools, parks, playgrounds, water supplies, sewage disposal, transportation or other public requirements, conveniences and improvements, and will not interfere with adequate light and air; and

WHEREAS, (i) the City Planning Commission has conducted a public hearing to investigate the circumstances and conditions upon which the Council is empowered to authorize such use, (ii) the City Planning Commission has reported to the Council the results of such public hearing and investigation and its recommendations with respect thereto, and (iii) the Council has conducted a public hearing on this ordinance at which the person in interest and all other persons have had an opportunity to be heard;

NOW, THEREFORE,

THE CITY OF RICHMOND HEREBY ORDAINS:

§ 1. **Finding.** Pursuant to section 30-1050.1 of the Code of the City of Richmond (2020), as amended, the Council hereby finds that the special use set forth in and subject to the terms and conditions of this ordinance will not (i) be detrimental to the safety, health, morals and general welfare of the community involved, (ii) tend to create congestion in streets, roads, alleys and other public ways and places in the area involved, (iii) create hazards from fire, panic or other dangers, (iv) tend to overcrowding of land and cause an undue concentration of population, (v) adversely affect or interfere with public or private schools, parks, playgrounds, water supplies, sewage disposal, transportation or other public requirements, conveniences and improvements, or (vi) interfere with adequate light and air.

§ 2. **Grant of Special Use Permit.**

(a) Subject to the terms and conditions set forth in this ordinance, the property known as 3202 Monument Avenue and identified as Tax Parcel No. W000-1476/019 in the 2025 records of the City Assessor, being more particularly shown on a survey entitled “Survey of Portions of Lot 21, 23 & Lot 22 Block E, Shepards Plan, Richmond, Virginia,” prepared by A. G. Harocopos & Associates, P.C., and dated February 2, 2024, a copy of which is attached to and made a part of this ordinance, hereinafter referred to as “the Property,” is hereby permitted to be used for the purpose of a dwelling unit within an accessory building to a single-family detached dwelling, hereinafter referred to as “the Special Use,” substantially as shown on the plans entitled “3202 Monument Avenue,” prepared by Obsidian, and dated May 23, 2024, hereinafter referred to as “the Plans,” copies of which are attached to and made a part of this ordinance.

(b) The adoption of this ordinance shall constitute the issuance of a special use permit for the Property. The special use permit shall inure to the benefit of the owner or owners of the fee simple title to the Property as of the date on which this ordinance is adopted and their successors in fee simple title, all of which are hereinafter referred to as “the Owner.” The conditions contained in this ordinance shall be binding on the Owner.

§ 3. **Special Terms and Conditions.** This special use permit is conditioned on the following special terms and conditions:

(a) The Special Use of the Property shall be as a dwelling unit within an accessory building to a single-family detached dwelling, substantially as shown on the Plans.

(b) The height of the accessory structure shall not exceed two stories, substantially as shown on the Plans.

(c) All building elevations and site improvements shall be substantially as shown on the Plans, and subject to the issuance of a Certificate of Appropriateness by the Commission of

Architectural Review.

(d) All mechanical equipment serving the Property shall be located or screened so as not to be visible from any public right-of-way.

§ 4. **Supplemental Terms and Conditions.** This special use permit is conditioned on the following supplemental terms and conditions:

(a) All required final grading and drainage plans, together with all easements made necessary by such plans, must be approved by the Director of Public Utilities prior to the issuance of the building permit.

(b) Storm or surface water shall not be allowed to accumulate on the land. The Owner, at its sole cost and expense, shall provide and maintain at all times adequate facilities for the drainage of storm or surface water from the Property so as not to adversely affect or damage any other property or public streets and the use thereof.

(c) Facilities for the collection of refuse shall be provided in accordance with the requirements of the Director of Public Works. Such facilities shall be located or screened so as not to be visible from adjacent properties and public streets.

(d) Any encroachments existing, proposed on the Plans or contemplated in the future shall require separate authorization and shall be subject to the applicable provisions of the Code of the City of Richmond (2020), as amended, and all future amendments to such laws.

(e) In all other respects, the use of the Property shall be in accordance with the applicable underlying zoning regulations.

§ 5. **General Terms and Conditions.** This special use permit is conditioned on the following general terms and conditions:

(a) No permit implementing this special use permit shall be approved until satisfactory evidence has been presented to the Zoning Administrator that any delinquent real estate taxes

applicable to the Property have been paid.

(b) The Owner shall be bound by, shall observe and shall comply with all other laws, ordinances, rules and regulations applicable to the Property, except as otherwise expressly provided in this ordinance.

(c) Words and phrases used in this ordinance shall be interpreted to have the meanings ascribed to them by section 30-1220 of the Code of the City of Richmond (2020), as amended, unless the context clearly indicates that a different meaning is intended.

(d) Notwithstanding any other provision of law, this special use permit is being approved due, in part, to the mitigating effects of each and every condition attached hereto; consequently, if any portion of this ordinance is determined to be invalid for any reason by a final, non-appealable order of any Virginia or federal court of competent jurisdiction, the invalidity shall cause the entire ordinance to be void and of no further effect from the effective date of such order.

(e) The privileges granted by this ordinance may be revoked pursuant to the provisions of sections 30-1050.7 through 30-1050.11 of the Code of the City of Richmond (2020), as amended, and all future amendments to such laws. Failure to comply with the terms and conditions of this ordinance shall constitute a violation of section 30-1080 of the Code of the City of Richmond (2020), as amended, and all future amendments to such law, or any other applicable laws or regulations.

(f) When the privileges granted by this ordinance terminate and the special use permit granted hereby becomes null and void, whether as a result of the Owner relinquishing this special use permit in a writing addressed to the Director of Planning and Development Review or otherwise, use of the Property shall be governed thereafter by the zoning regulations prescribed for the district in which the Property is then situated.

§ 6. **Implementation.** The Commissioner of Buildings is authorized to issue a building

permit substantially in accordance with the Plans for the Special Use subject to the terms and conditions set forth in this ordinance. An application for the building permit shall be made within 1,096 calendar days following the date on which this ordinance becomes effective. If either the application for the building permit is not made within the time period stated in the previous sentence or the building permit terminates under any provision of the Virginia Statewide Building Code, this ordinance and the special use permit granted hereby shall terminate and become null and void.

§ 7. **Effective Date.** This ordinance shall be in force and effect upon adoption.



City of Richmond

Intracity Correspondence

O&R Transmittal

DATE: February 11, 2025

TO: The Honorable Members of City Council

THROUGH: The Honorable Dr. Danny Avula, Mayor (by request)
(This is no way reflects a recommendation on behalf of the Mayor)

THROUGH: Sabrina Joy-Hogg, Interim Chief Administrative Officer

THROUGH: Sharon L. Ebert, DCAO for Economic Development and Planning

FROM: Kevin J. Vonck, Director of Planning & Development Review

RE: To authorize the special use of the property known as 3202 Monument Avenue for the purpose of one dwelling unit within an accessory building to a single-family detached dwelling, upon certain terms and conditions.

ORD. OR RES. No. _____

PURPOSE: The applicant is requesting a Special Use Permit to authorize a single-family detached dwelling with an accessory structure containing a dwelling unit within the R-6 Single-Family Attached Residential District. This special use permit will allow a dwelling unit within an accessory structure. The applicant wishes to construct a second story above an existing accessory structure. While the use is permitted, the existing structure does not meet the requirements regarding side and rear setbacks as detailed in Sections 30-412.5 of the Code of the City of Richmond, as amended.

BACKGROUND: The property is in The Museum District neighborhood, on the northern side of Monument Avenue, between Tilden Street and Cleveland Street. The property is a ,750 square foot (.155 acre) parcel of land, improved with a single-family detached dwelling. The City's Richmond 300 Master Plan designates a future land use for the subject property as Neighborhood Mixed-Use, which is defined as "Existing or new highly walkable urban neighborhoods that are predominantly

residential with a small, but critical, percentage of parcels providing retail, office, personal service, and institutional uses.” (Richmond 300, p. 82).

Intensity: Building heights are generally two to four stories. Buildings taller than four stories may be found along major streets (see Street Typologies Map). Parcels are generally between 1,500 and 5,000 sq. ft.

Primary Uses: Single-family houses, accessory dwelling units, duplexes, small multi-family buildings (typically 3-10 units), and open space.

Secondary Uses: Large multifamily buildings (10+units), retail/office/personal service, institutional, cultural, and government.

The current zoning for this property is R-6 Single-Family Attached Residential. It is also located within the Monument Avenue City Old and Historic District. The surrounding area is generally residential.

COMMUNITY ENGAGEMENT: The Museum District Association, the Fan Area Business Alliance, and the Historic Monument Avenue civic associations were notified of this request.

STRATEGIC INITIATIVES AND OTHER GOVERNMENTAL: Richmond 300 Master Plan; Ordinance to be considered by the Planning Commission on February 18, 2024 (tentative)

FISCAL IMPACT: \$2,400 Application Fee

DESIRED EFFECTIVE DATE: Upon adoption

REQUESTED INTRODUCTION DATE: March 24, 2025

CITY COUNCIL PUBLIC HEARING DATE: April 21, 2025

REQUESTED AGENDA: Consent

RECOMMENDED COUNCIL COMMITTEE: Planning Commission, April 15, 2025

AFFECTED AGENCIES: Office of Chief Administrative Officer

Law Department (for review of draft ordinance)

RELATIONSHIP TO EXISTING ORD. OR RES.: None

ATTACHMENTS: Draft Ordinance, Application Form, Applicant’s Report, Plans, Survey

STAFF: Alyson Oliver, Planner, Land Use Administration (Room 511) 646-3709



Application for **SPECIAL USE PERMIT**

Department of Planning and Development Review
Land Use Administration Division
900 E. Broad Street, Room 511
Richmond, Virginia 23219
(804) 646-6304
<http://www.richmondgov.com/>

Application is hereby submitted for: (check one)

- ☒ **special use permit, new**
☐ **special use permit, plan amendment**
☐ **special use permit, text only amendment**

Project Name/Location

Property Address: 3202 Monument Ave Date: 9.2.24
Parcel I.D. #: _____ Fee: _____
Total area of affected site in acres: _____

(See **page 6** for fee schedule, please make check payable to the "City of Richmond")

Zoning

Current Zoning: residential

Richmond 300 Land Use Designation: _____

Proposed Use

(Please include a detailed description of the proposed use in the required applicant's report)

second floor atop carriage house in rear
Existing Use: garage

Is this property subject to any previous land use cases?

Yes ☐ No ☒ If Yes, please list the Ordinance Number: _____

Applicant/Contact Person: Caleb Valentine

Company: Clean Square LLC

Mailing Address: 2116 Clarke St

City: Henrico State: VA Zip Code: 23228

Telephone: (814) 441-7645 Fax: ()

Email: valentinekcj@gmail

Property Owner: Steven Minyard

If Business Entity, name and title of authorized signee: _____

(The person or persons executing or attesting the execution of this Application on behalf of the Company certifies that he or she has or have been duly authorized and empowered to so execute or attest.)

Mailing Address: 3202 Monument Ave

City: Richmond State: VA Zip Code: 23221

Telephone: (214) 883-7394 Fax: ()

Email: daniel.s.crisler@gmail.com

Property Owner Signature: [Signature]

The names, addresses, telephone numbers and signatures of all owners of the property are required. Please attach additional sheets as needed. If a legal representative signs for a property owner, please attach an executed power of attorney. **Faxed or photocopied signatures will not be accepted.**

NOTE: Please attach the required plans, checklist, and a check for the application fee (see Filing Procedures for special use permits)

From: [Caleb Valentine](#)
To: [Oliver, Alyson E. - PDR](#)
Subject: Re: Special Use Permit
Date: Friday, February 14, 2025 2:51:52 PM
Attachments: [image002.png](#)

CAUTION: This message is from an external sender - Do not open attachments or click links unless you recognize the sender's address and know the content is safe.

As requested:

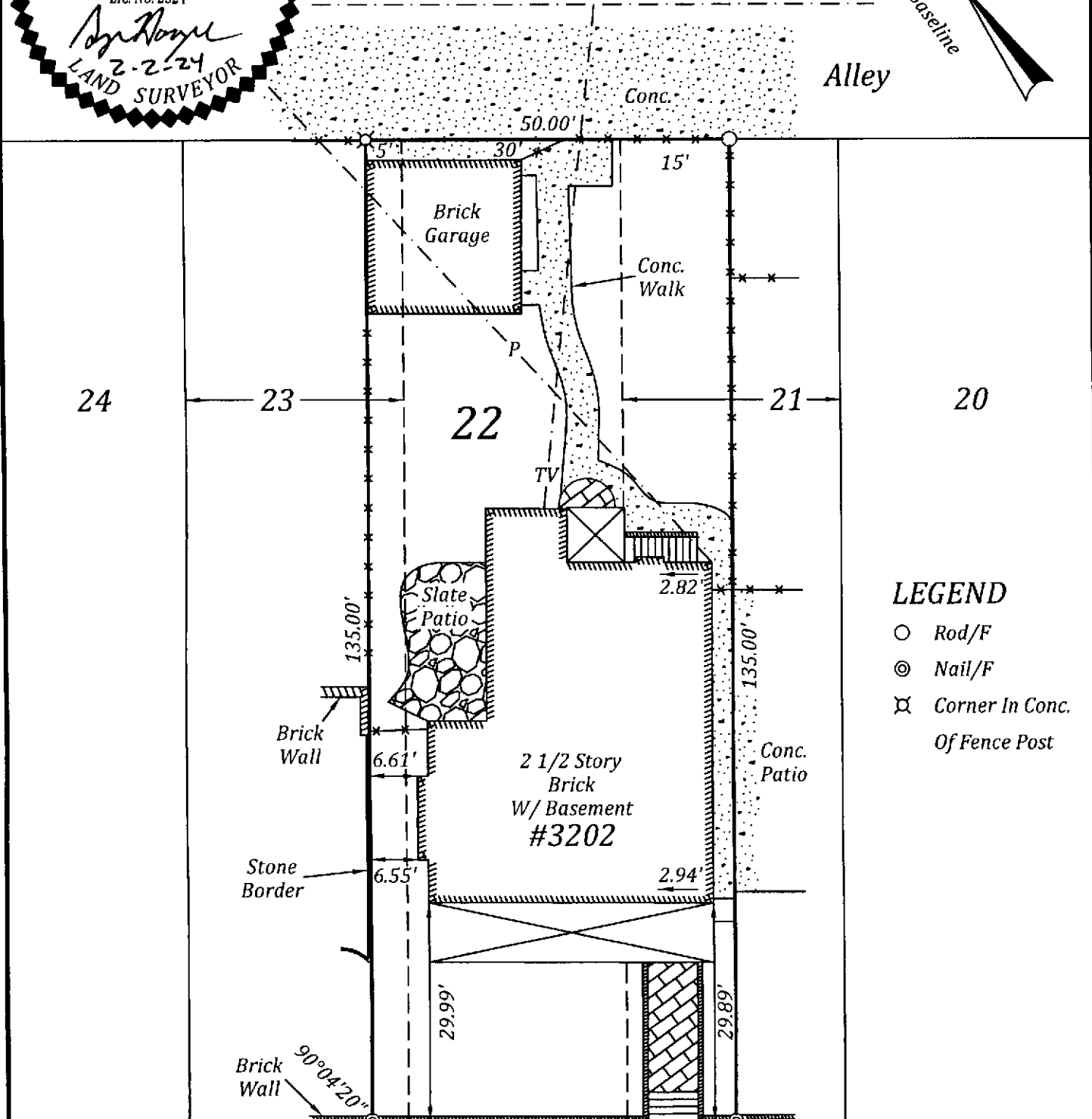
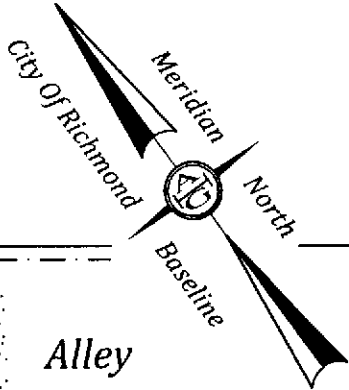
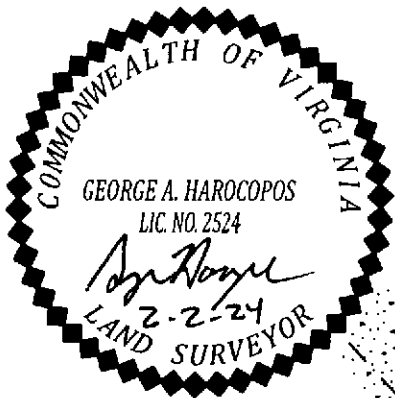
The client contacted us to design and build additional living space above their carriage house "garage". The space will have a small terrace facing the main home and will contain a common area, and bathroom. Access will be via stairs inside the back yard, and all cosmetics will match original home in accordance with local architectural guidelines.

Thanks.
Caleb

This is to certify that on 02/02/2024
I made an accurate field survey of the known premises
shown hereon; that all improvements known or visible
are shown hereon; that there are no encroachments by
improvements either from adjoining premises, or from
subject premises upon adjoining premises, other than
shown hereon.

NOTE: THIS LOT APPEARS
TO BE IN FEMA FLOOD ZONE
X AS SHOWN ON FEMA
FLOOD INSURANCE RATE MAP
PANEL 5101290028D

NOTE:
This survey has been prepared without
the benefit of a title report and does
not therefore necessarily indicate all
encumbrances on the property.



- LEGEND**
- Rod/F
 - ⊙ Nail/F
 - ⊗ Corner In Conc. Of Fence Post

MONUMENT AVENUE

SURVEY OF
PORTIONS OF LOT 21, 23 & LOT 22 BLOCK E
SHEPARDS PLAN
RICHMOND, VIRGINIA

JN 53265

A. G. HAROCOPOS & ASSOCIATES, P.C.
CERTIFIED LAND SURVEYOR AND CONSULTANT
4920 E. MILL RIDGE PKWY. SUITE 200 MIDLOTHIAN VA. 23112
Office 804 744 2630 FAX 804 744 2632
E-MAIL AGHAROCOPOS72@GMAIL.COM
Scale 1"=20' Date 02/02/24 Drawn by GAH

NOTE: PLAT PREPARED FOR THE EXCLUSIVE
USE OF THE CONVEYANCE TO
DAN CRISLER

3202 Monument Avenue

Building Permit Plans

Owner	Engineer	Property Information	
Steven Craig & Jeannie Denise Mynard 3202 Monument Ave. Richmond, VA, 23221	Obsidian, Inc. Charles R. Field, P.E. 417 North 22nd Street Richmond, VA 23223 804.647.1583 obsidianva@gmail.com	Parcel ID Zoning Use Setbacks	W0001476019 R-6 Residential Front Yard = 15 feet Side Yard = 5 feet Rear Yard = 5 feet Lot Coverage = 55%

Table of Contents		Room Area Tabulation	
G0.1	Cover Sheet	Name	Area
G0.2	Notes	Second Floor	
V1.1	Site Plan	Kitchen/Living Area	95 SF
A1.1	Floor Plan	Office	88 SF
A1.2	Floor Plan	Bath	69 SF
A2.1	Elevations	Linen	9 SF
A3.1	Sections	Closet	9 SF
A5.1	Details	Bedroom	126 SF
A5.2	Details		395 SF
A9.1	Exterior Renderings	Grand total	395 SF

NCS Sheet Identification Standards

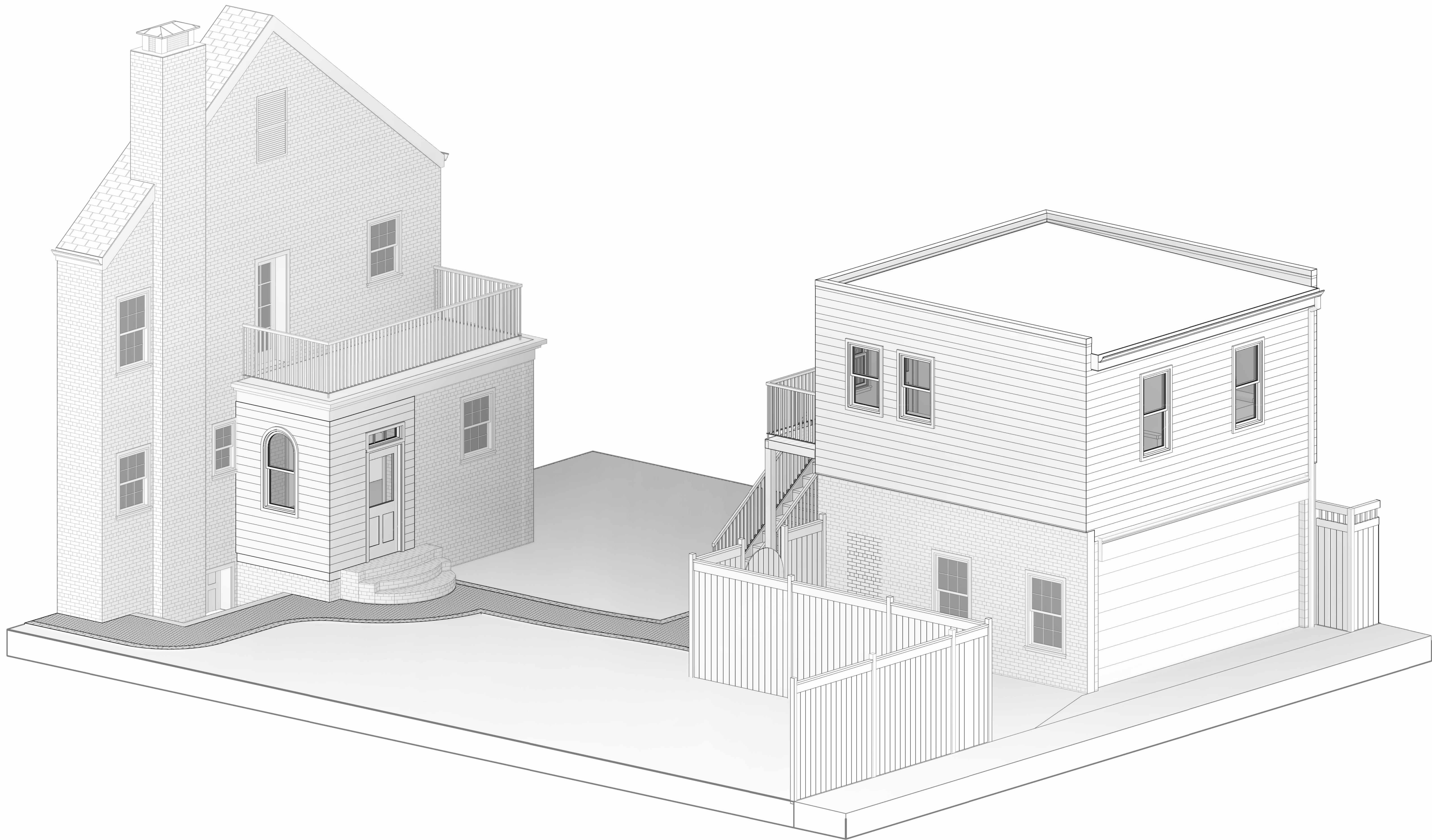
Discipline Designators	Sheet Type Designator
G General –Sheet list, symbols, code summary	0 General: Symbol legend, abbreviations, general notes
H Hazardous Materials Abatement, handling, etc.	1 Plans
V Survey / Mapping	2 Elevations
B Geotechnical	3 Sections
C Civil	4 Large Scale Drawings: plans, elevations, sections
L Landscape	5 Details
S Structural	6 Schedules and Diagrams
A Architectural	7 User Defined (Calculations for Obsidian, Inc.)
I Interiors	8 User Defined
Q Equipment	9 3D drawings: isometric, perspective, photos
F Fire Protection	
P Plumbing	
D Process	
M Mechanical	
E Electrical	
W Distributed Energy	
T Telecommunications	
R Resource Existing conditions / buildings	
X Other Disciplines	
Z Contractor / Shop Drawings	
O Operations	

N-#-##

Sheet Sequence Number

Sheet Type Designator

Discipline Designator



Scope of Work

Scope of work will generally consist of building a single story ADU on top of existing brick garage, adding a single parking space adjacent to the existing garage, and changing the location of the man-door into the garage, in accordance with the Virginia Residential Code, 2018.

General Notes

1. The structure will be constructed in accordance with the 2018 edition of the "Virginia Residential Code", the Virginia Statewide Uniform Building Code and the applicable City of Richmond ordinances.
2. The contractor is responsible for compliance with City, State and Federal job site safety requirements.
3. These plans are being provided without the benefit of external review by a third party. The client accepts responsibility for plans as drawn and will notify designer of any deficiencies that may be encountered during plan review or construction; the contractor or contractors agent discovers missing or in complete details or conflicting items for construction, they are obliged to call these items to the attention of the designer. Failure to do so may result in the designer disallowing any claims for cost incurred due to these deficiencies.
4. The contractor shall verify all dimensions and conditions prior to start of work, and any discrepancies will immediately be brought to the attention of the engineer.
5. Plans and specifications in some instances, do not contain specific instructions for installation or preparation methods. Contractor and their subs are responsible for following ASTM standards and applicable codes.
6. All decorative elements and finishes are to be selected by owner and/or interior designer and contractor to verify with owner and/or interior designer pertaining to any special requirements for ordering and installation prior to ordering and installation.
7. Glazing in windows shall be tempered if the bottom edge is less than 18" above floor, in walls enclosing bathtub or showers, within 24" of arc of either vertical edge of a door, or less than 36" above the plane of stairways or landings. Glazing in all fixed and operable panels of swinging, sliding and bifold doors shall be tempered.
8. Carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages. The carbon monoxide detector shall comply with NFPA 720 and UL 2075.
9. Enclosed accessible space under stairs shall have walls, under-stair surface, and any soffits protected on the enclosed side with 1/2" gypsum board.
10. Bathrooms and water closet compartments shall be provided with not less than the 3 sf of glazing area (one-half must be operable) or an exhaust fan in compliance with Section M1507 of the code.
11. Provide a fire extinguisher (2-A:10-B-C) in the kitchen area if the home does not contain an approved sprinkler system.
12. Smoke alarms shall be installed in the following locations:
 - In each sleeping room.
 - Outside each separate sleeping area in the immediate vicinity of the bedrooms.
 - On each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
 - Smoke alarms shall be installed not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower.
13. The structure shall be protected from subterranean termites by one of the following methods or a combination of these methods:
 - Chemical termiticide treatment, as provided in Section R318.2.
 - Termite baiting system installed and maintained according to the label.
 - Pressure-preservative-treated wood in accordance with the provisions of Section R317.1.
 - Naturally durable termite-resistant wood.
 - Physical barriers as provided in Section R318.3 and used in locations as specified in Section R317.1.
14. Basements, habitable attics, and every sleeping room shall have at least one operable emergency escape and rescue opening. The sill height shall be not more than 44" to the bottom of the clear opening. Openings not on grade level shall have a min net clear opening of 5.7 sf. Openings on grade level or below shall have a min net clear opening of 5 sf. The min clear opening height shall be 24". The min clear opening width shall be 20".
15. Attic access shall be provided with a minimum size of 22" x 30"
16. All lumber unless otherwise noted is to be Southern Pine No. 2.
17. There will not be a fire sprinkler system.
18. There is no proposed fire detection system or alarm.
19. The occupancy is Residential Group R-3.
20. The construction type is V-B.
21. There are 2 stories.
22. The house is located in Climate Zone 4.
23. VRC 2018 minimum insulation and fenestration requirements:
 - Fenestration U-factor: 0.32
 - Skylight U-factor: 0.55
 - Ceiling R-value: 49
 - Wood frame wall R-value: 15 cavity or 13 + 1 continuous
 - Mass wall R-value: 8/13
 - Floor R-value: 19
 - Basement wall R-value: 10/13
 - Slab R-value & depth: 10, 2ft
 - Crawlspace wall R-value: 10/13
24. Load criteria:
 - Bearing soil capacity = 1500 psf*
 - Floor live load = 40 psf
 - Floor dead load = 10 psf
 - Roof live load = 20 psf
 - Roof dead load = 10 psf
 - Snow loads = 20 psf
 - Basic Wind speed = 115 mph
 - Seismic Category: B.
 - Exposure: B.
- * In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1 has been assumed.

Print plans at 24" x 36", Arch L

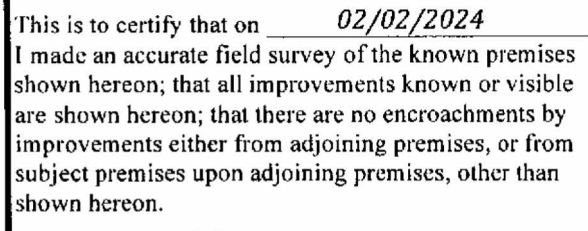
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City of Richmond, VA

3202 Monument Avenue
Daniel Crisler

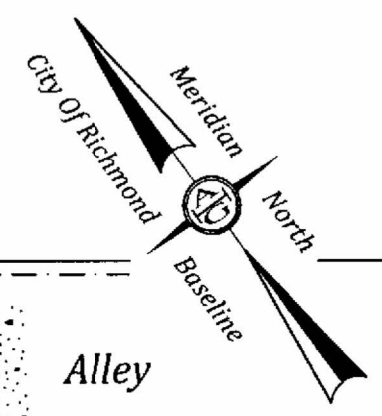


Obsidian



NOTE: THIS LOT APPEARS
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X AS SHOWN ON FEMA
FLOOD INSURANCE RATE MAP
PANEL 5101290028D

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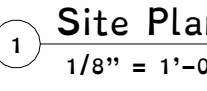
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SURVEY OF
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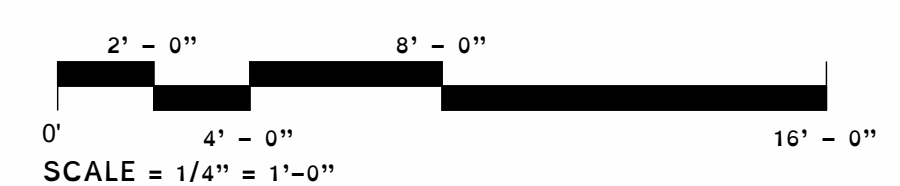
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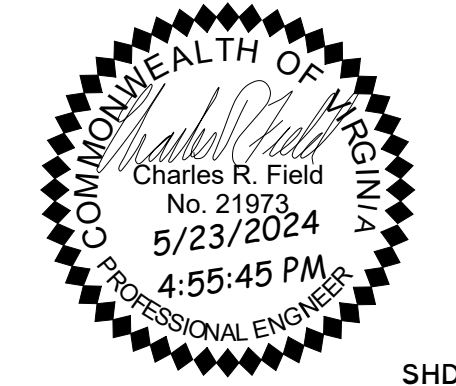
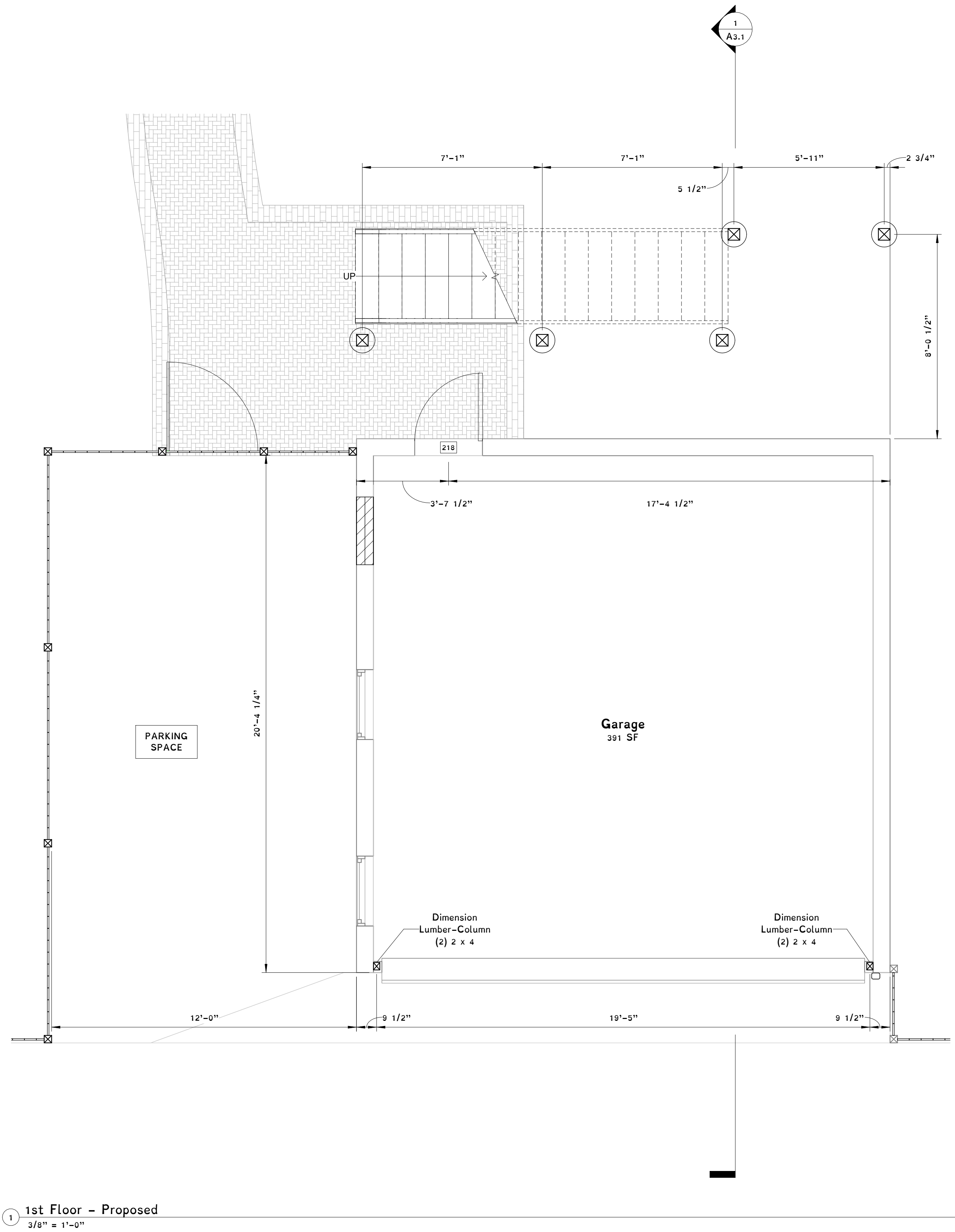
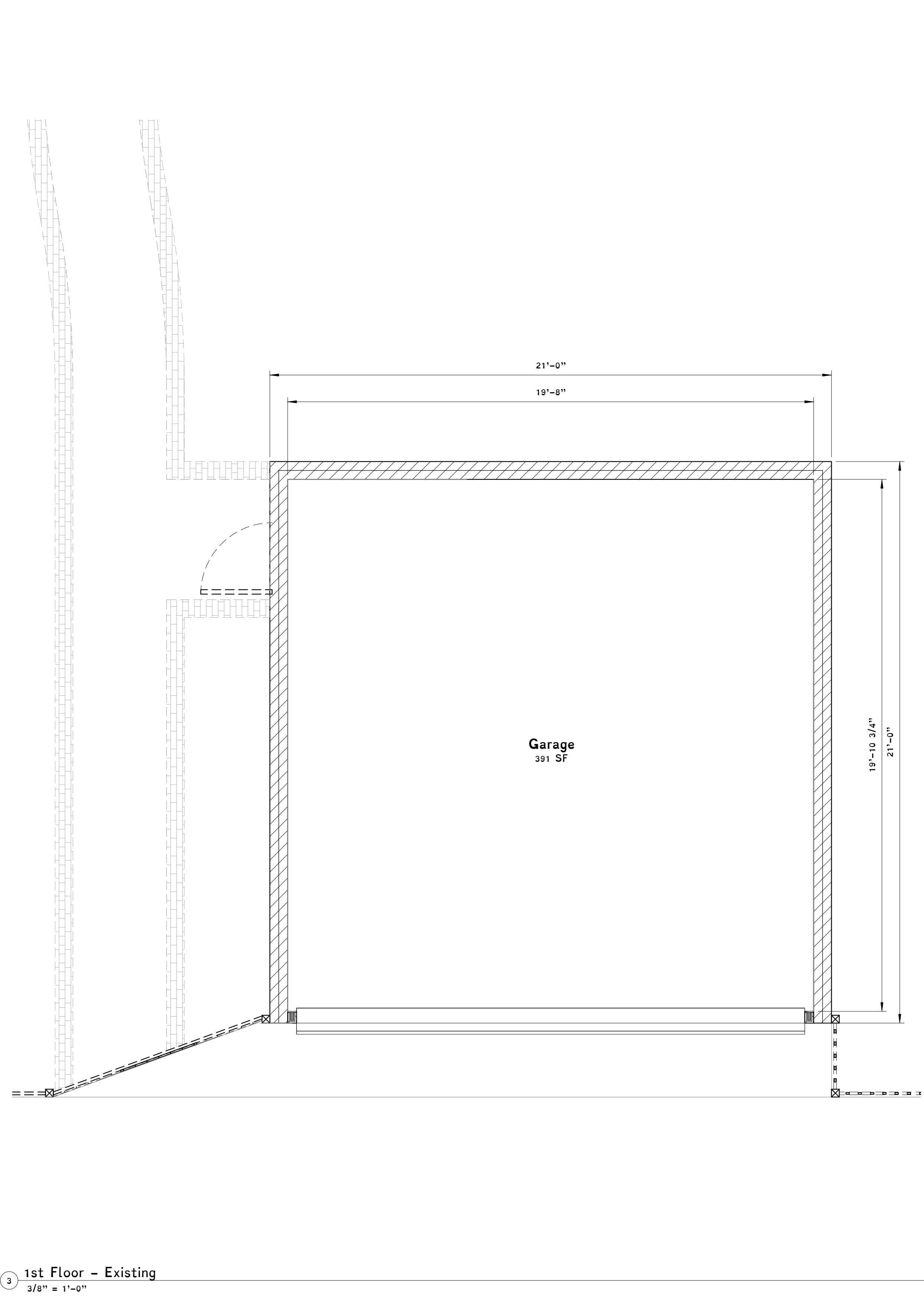
A. G. HAROCOPOS & ASSOCIATES, P.C.
CERTIFIED LAND SURVEYOR AND CONSULTANT
 4920 E.M.H.I.RIDGE PKWY. SUITE 200 MIDLOTHIAN VA. 23112
 Office 804 744 2630 FAX 804 744 2632
 E-MAIL AGHAROCOPOS72@GMAIL.COM
 Scale 1"=20' Date 02/02/24 Drawn by GAH

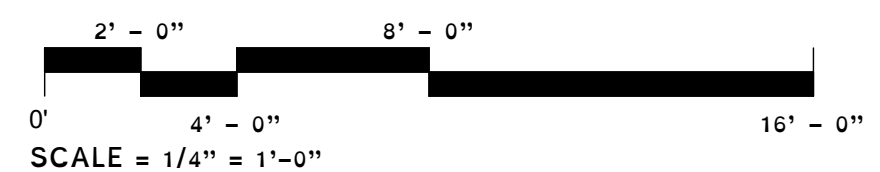
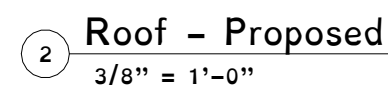
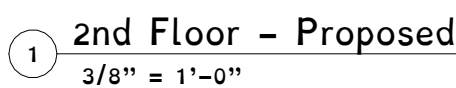


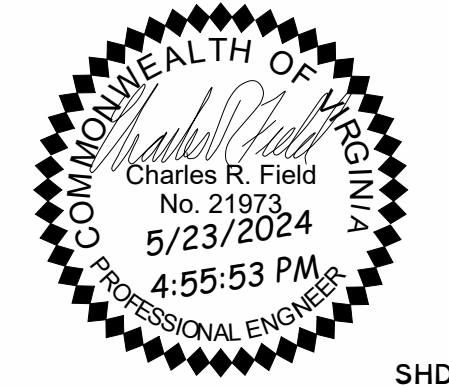
Notes:

1. The finish grade around the structure shall slope away from the foundation a minimum of 6" for a minimum distance of 10 feet (5%).

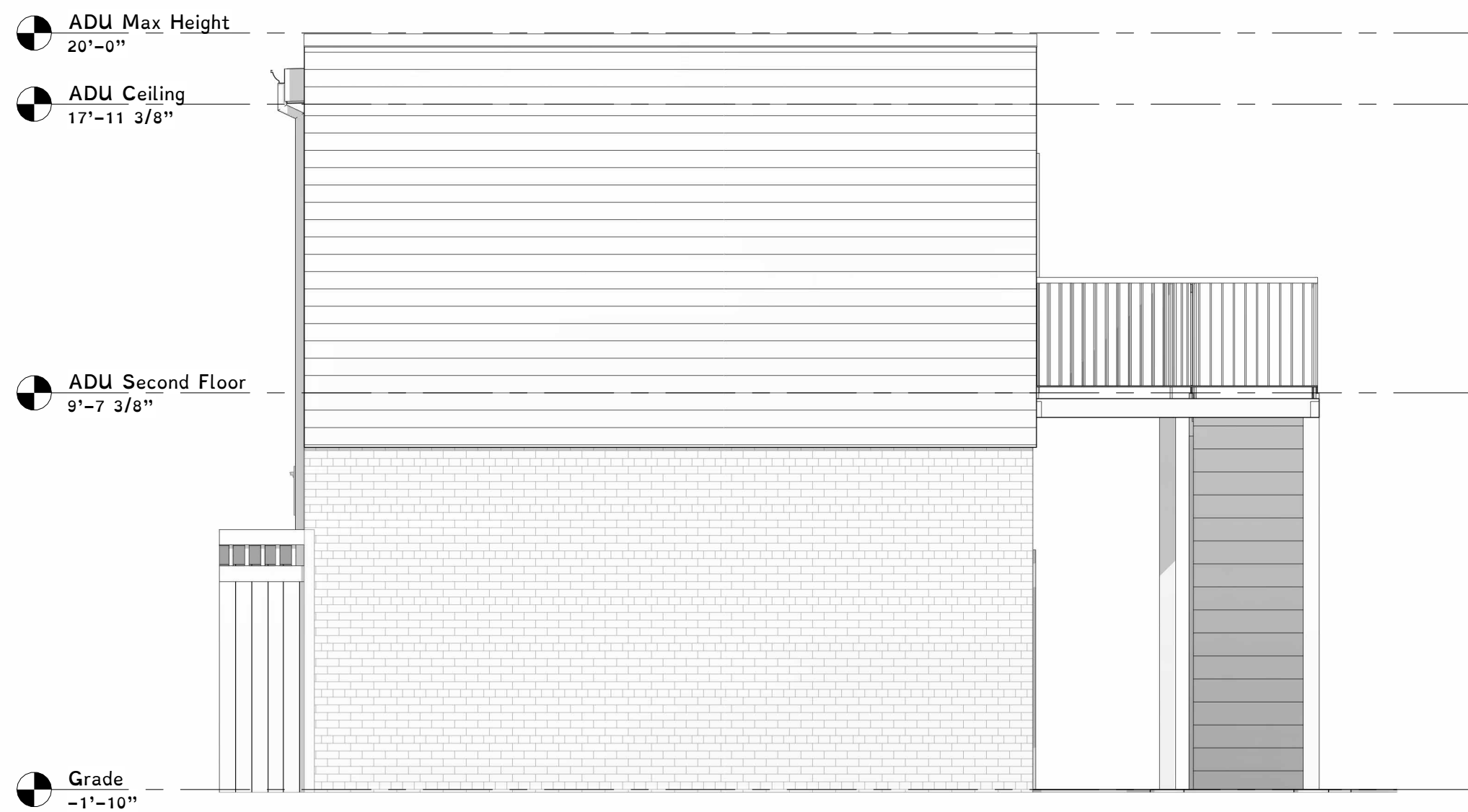








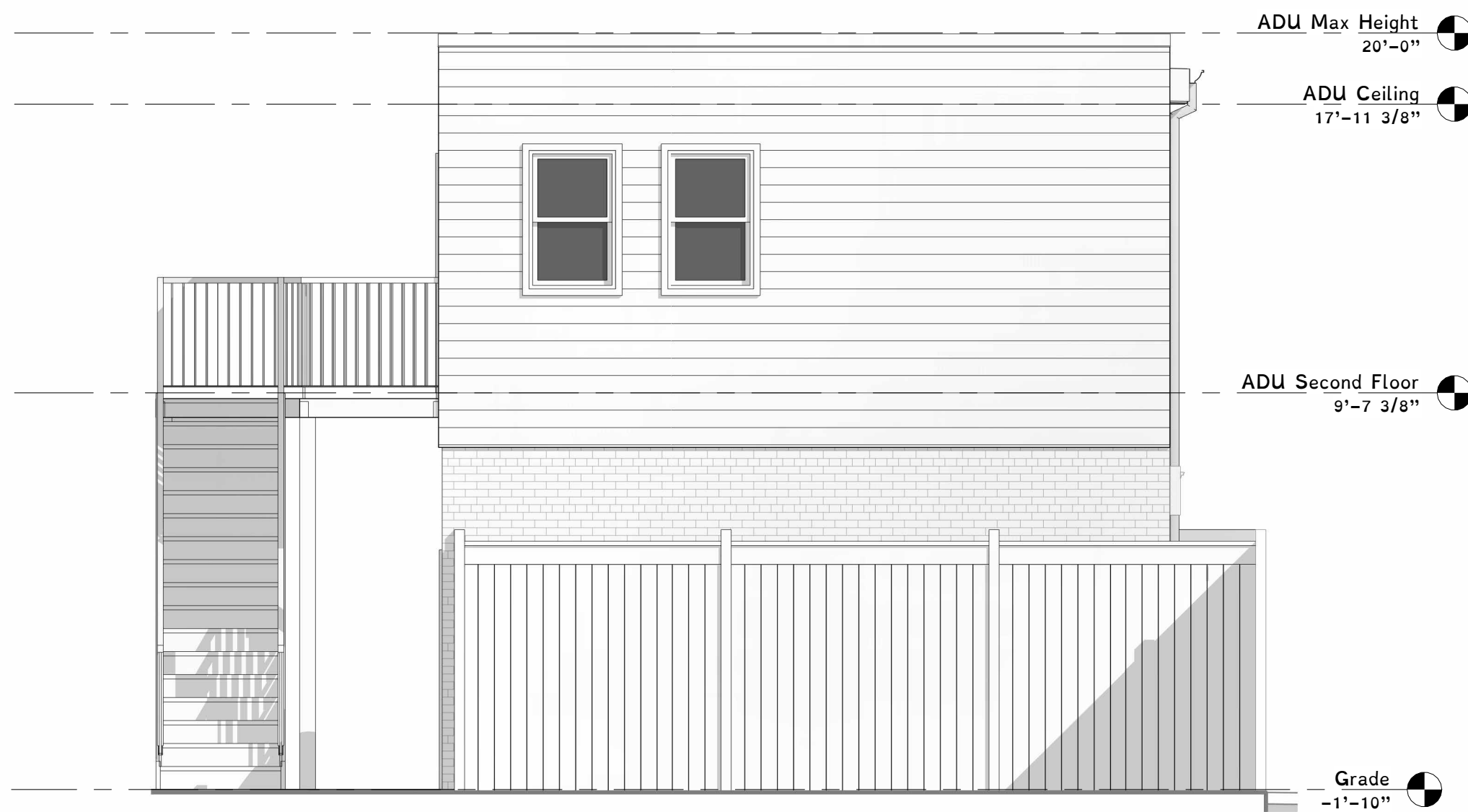
4 Proposed South
1/4" = 1'-0"



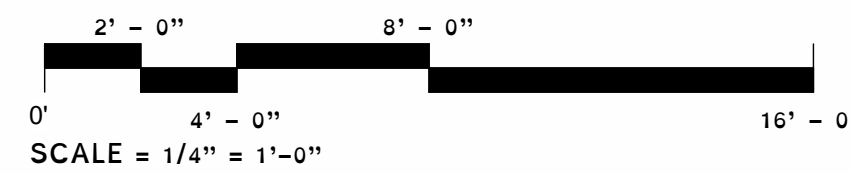
2 Proposed East
1/4" = 1'-0"



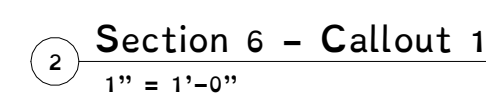
3 Proposed North
1/4" = 1'-0"



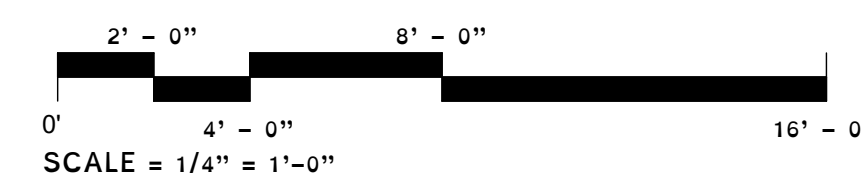
5 Proposed West
1/4" = 1'-0"



**3202 Monument Avenue
Daniel Crisler**

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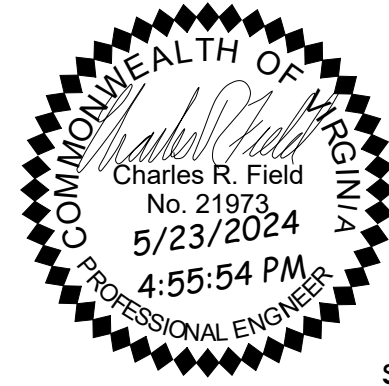
Grade	Mark	Family	Width	Height	Header	Casing Quantity
ADU Second Floor	218	Single- Exterior windowed door	2'-8"	6'-8"	(2)L 3 1/2" x 3 1/2" x 3/8"	32'-0"
	208	Single- Exterior windowed door	3'-0"	6'-8"	H.1 (2) 2 x 4	32'-8"
	209	Single- Exterior windowed door	3'-0"	6'-8"	H.1 (2) 2 x 4	32'-8"
	211	Single Pocket Door	2'-8"	6'-8"	(2) 2 x 4	32'-0"
	212	Single Pocket Door	2'-8"	6'-8"	(2) 2 x 4	32'-0"
	213	Single-Panel 6	2'-0"	6'-8"	(2) 2 x 4	30'-8"
	214	Single-Panel 6	2'-6"	6'-8"	(2) 2 x 4	31'-8"
						223'-8"



Details

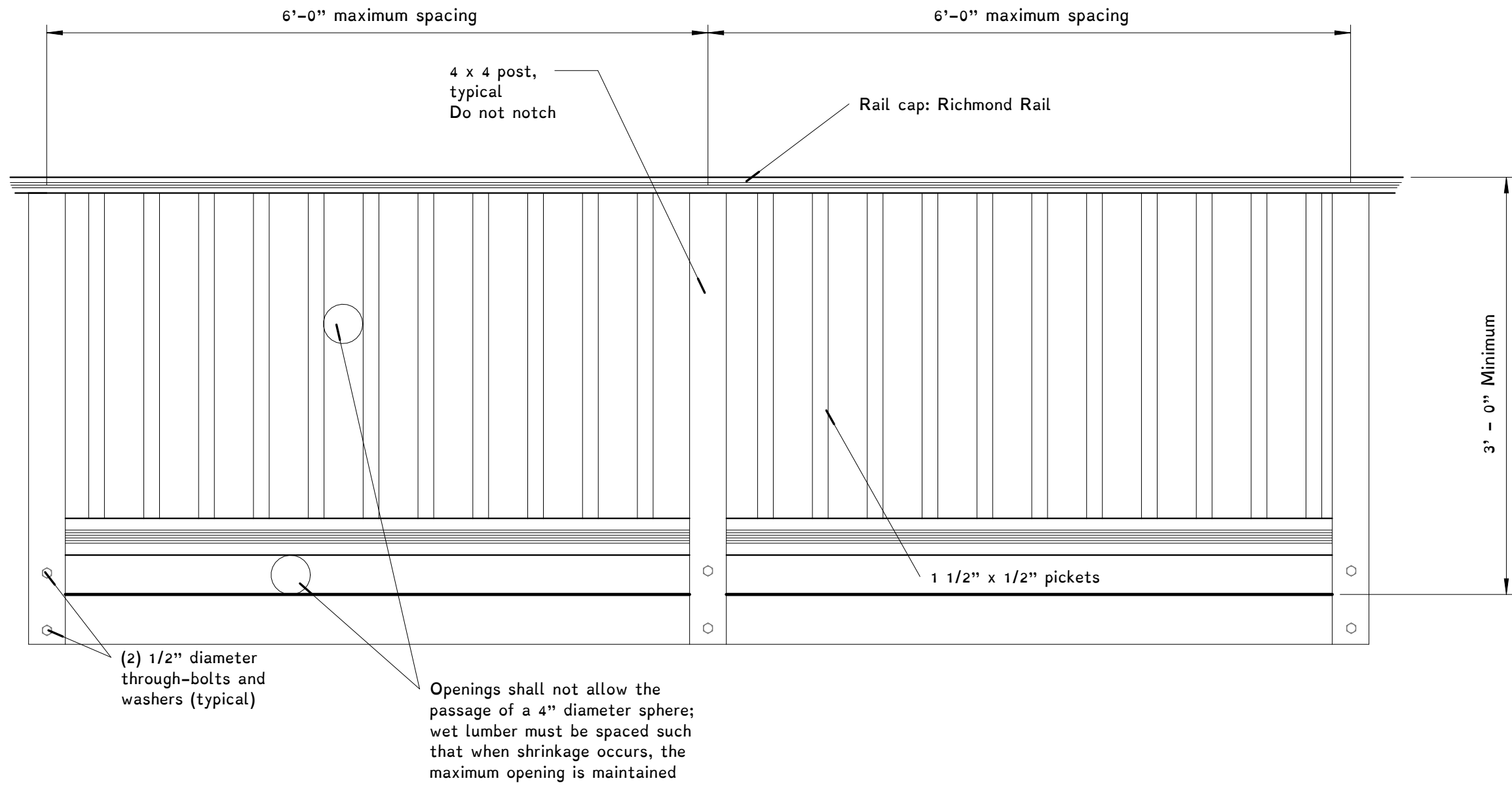
3202 Monument Avenue
Daniel Crisler

City of Richmond, VA

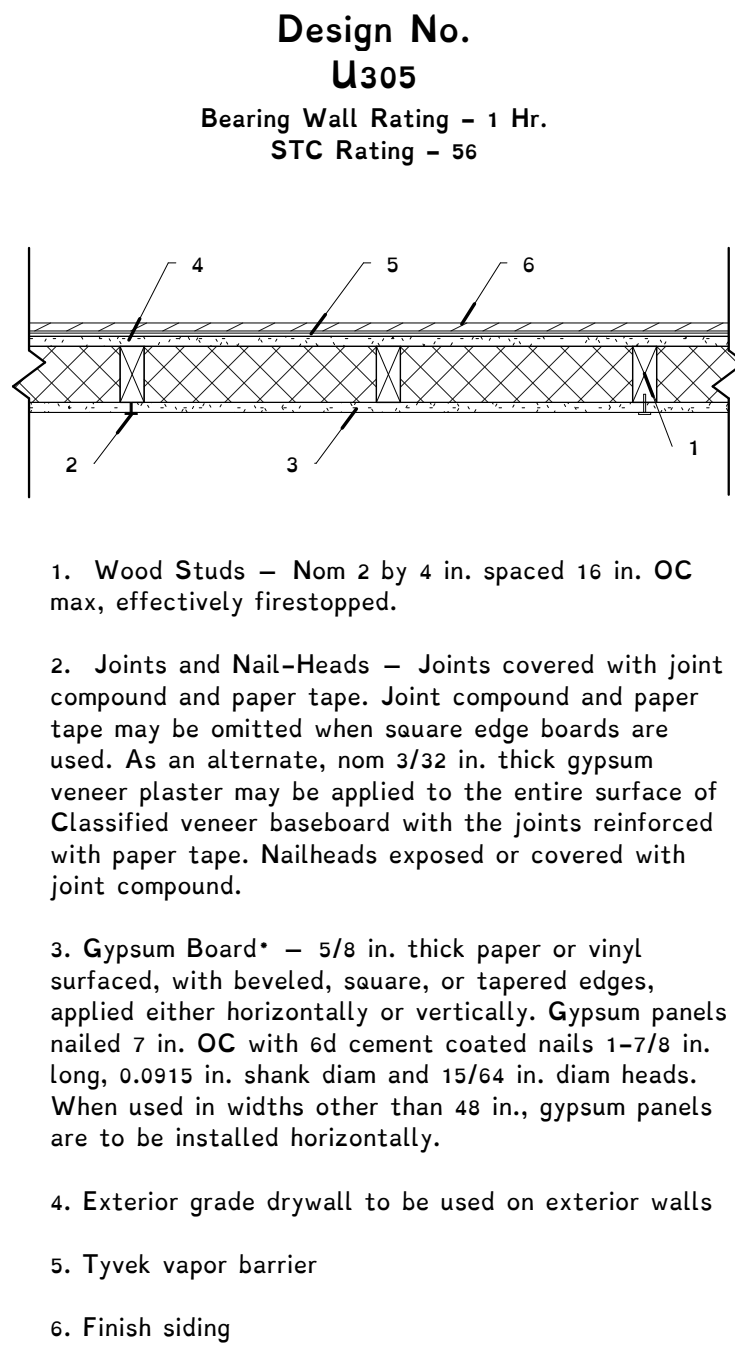


SHD

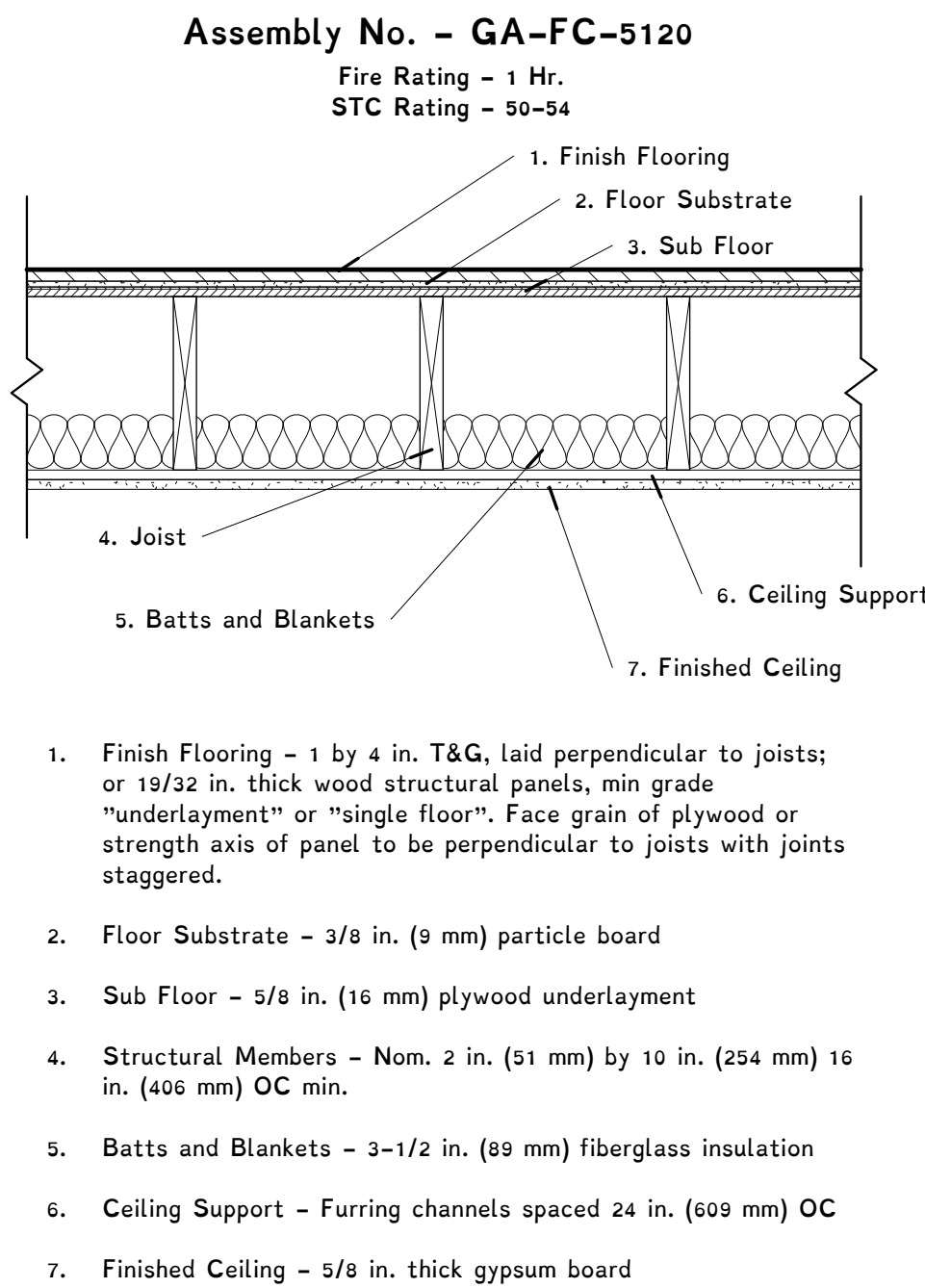
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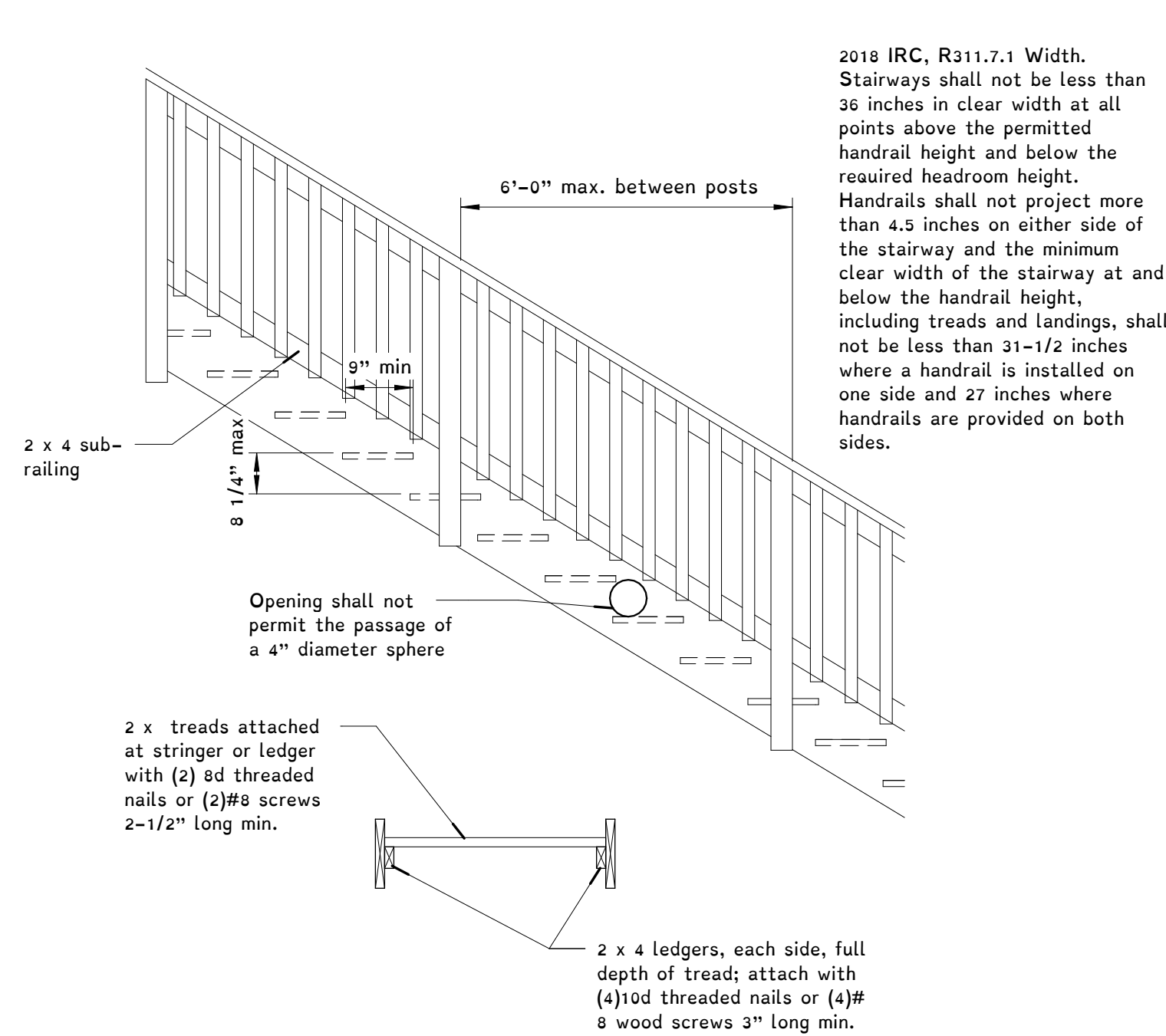
12 Richmond Rail Detail
1" = 1'-0"



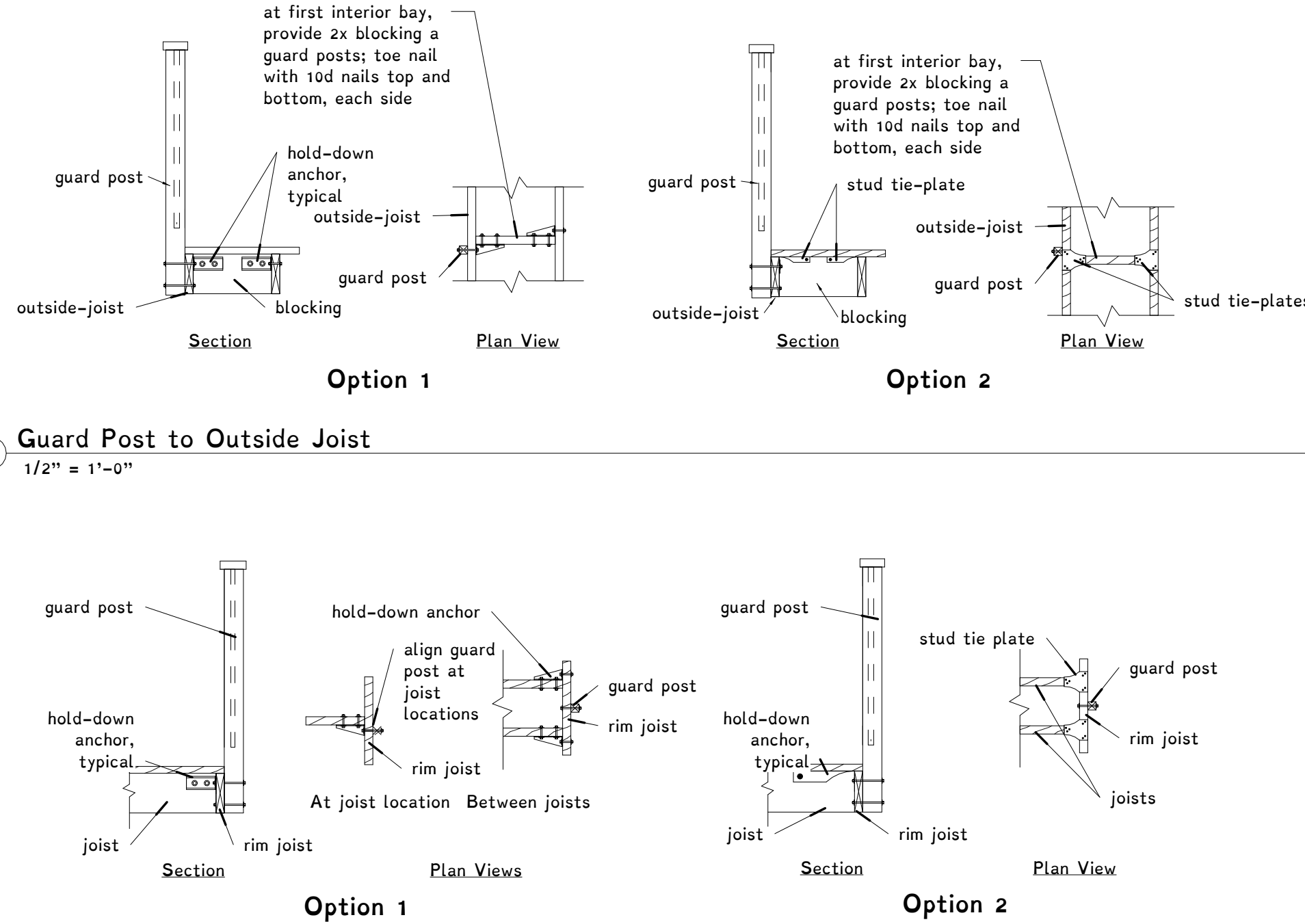
1 1 Hr Exterior Wall – Stud, U305
1" = 1'-0"



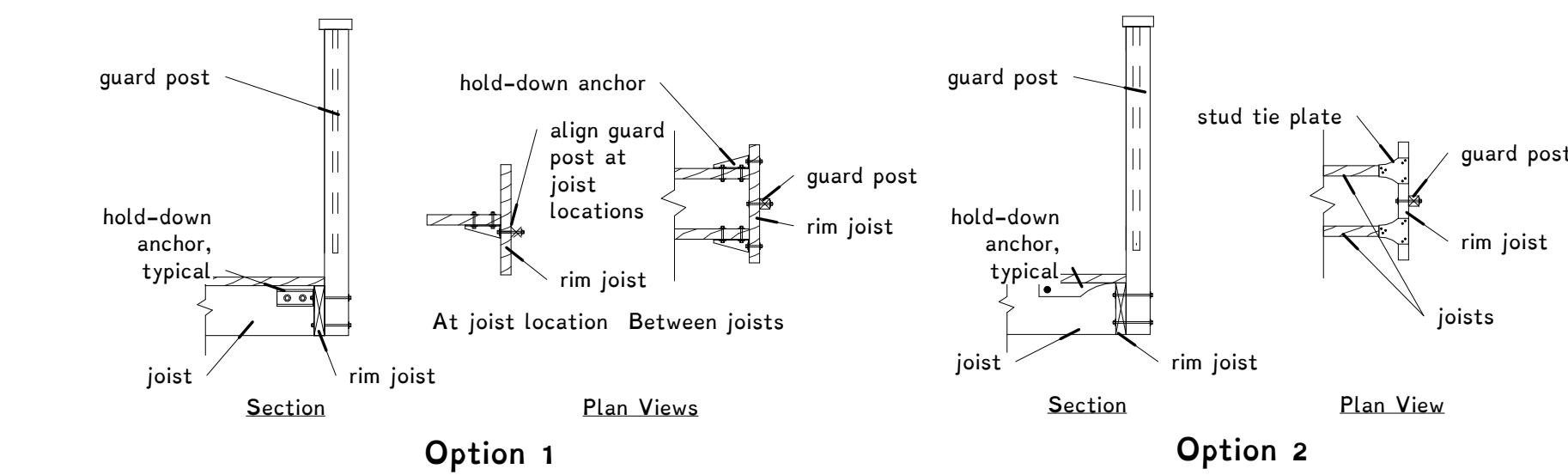
2 1 Hr Floor – Wood Joist, GA-FC-5120
1" = 1'-0"



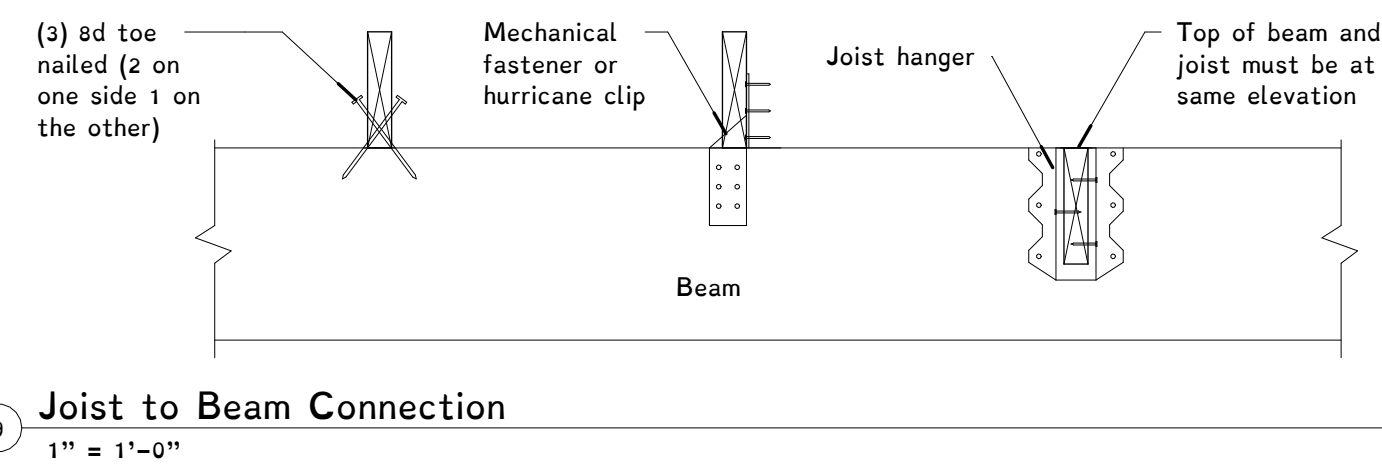
13 Stair Detail
1/2" = 1'-0"



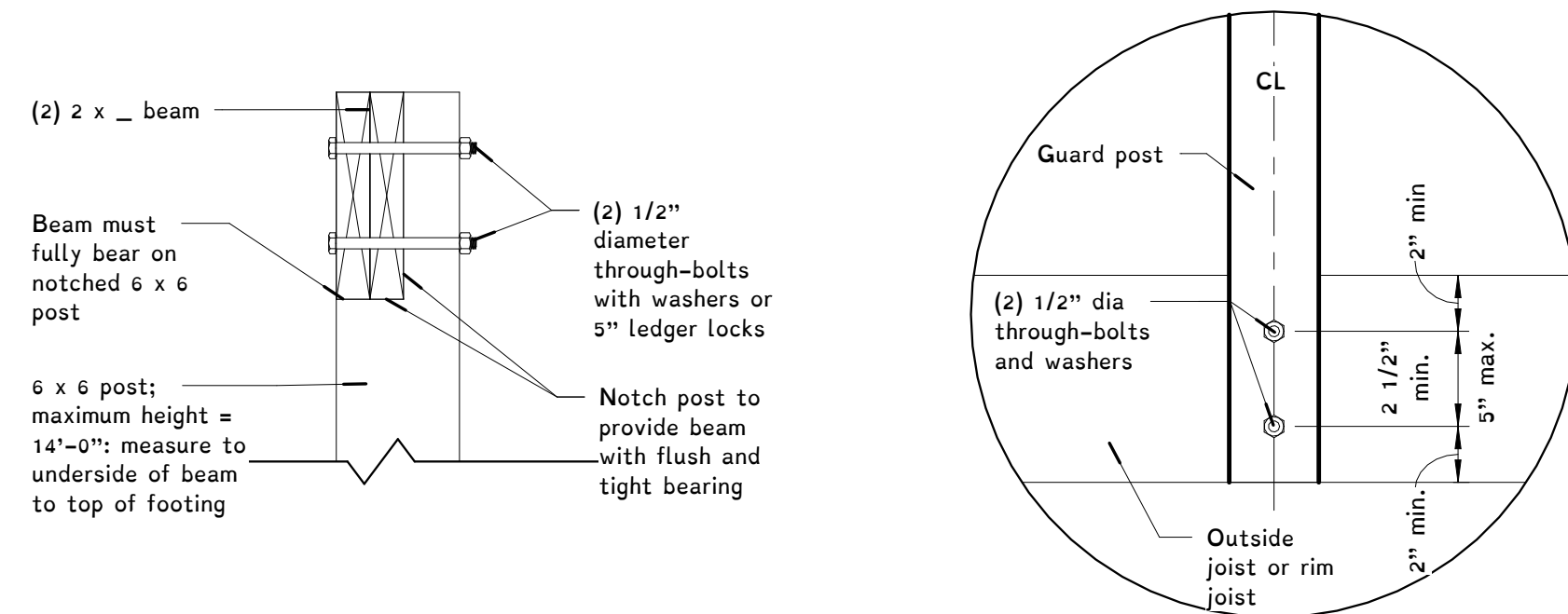
7 Guard Post to Outside Joist
1/2" = 1'-0"



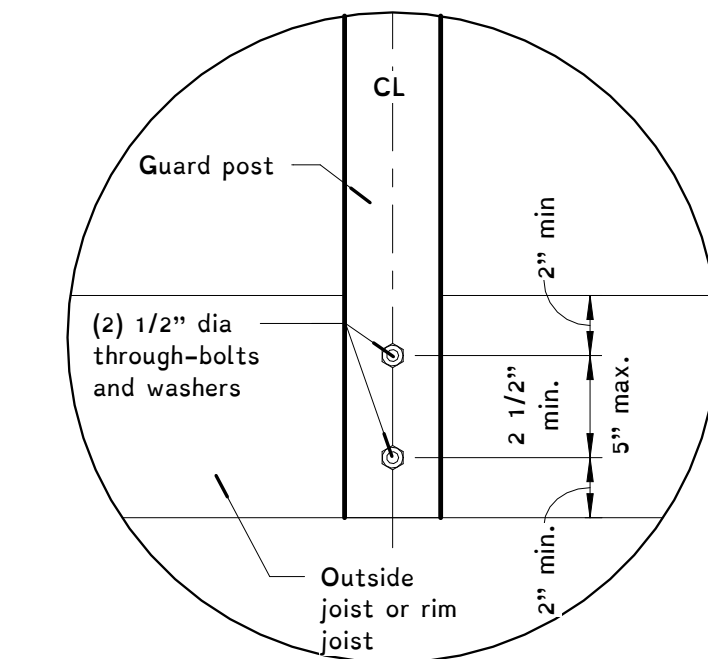
8 Guard Post to Rim Joist Detail
1/2" = 1'-0"



9 Joist to Beam Connection
1" = 1'-0"



11 Post to Beam Connection Detail
1 1/2" = 1'-0"



6 Guard Post Attachment
1 1/2" = 1'-0"

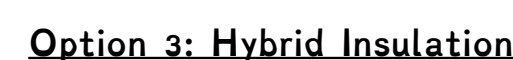
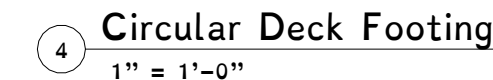
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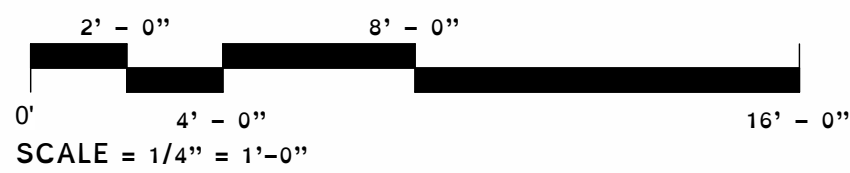
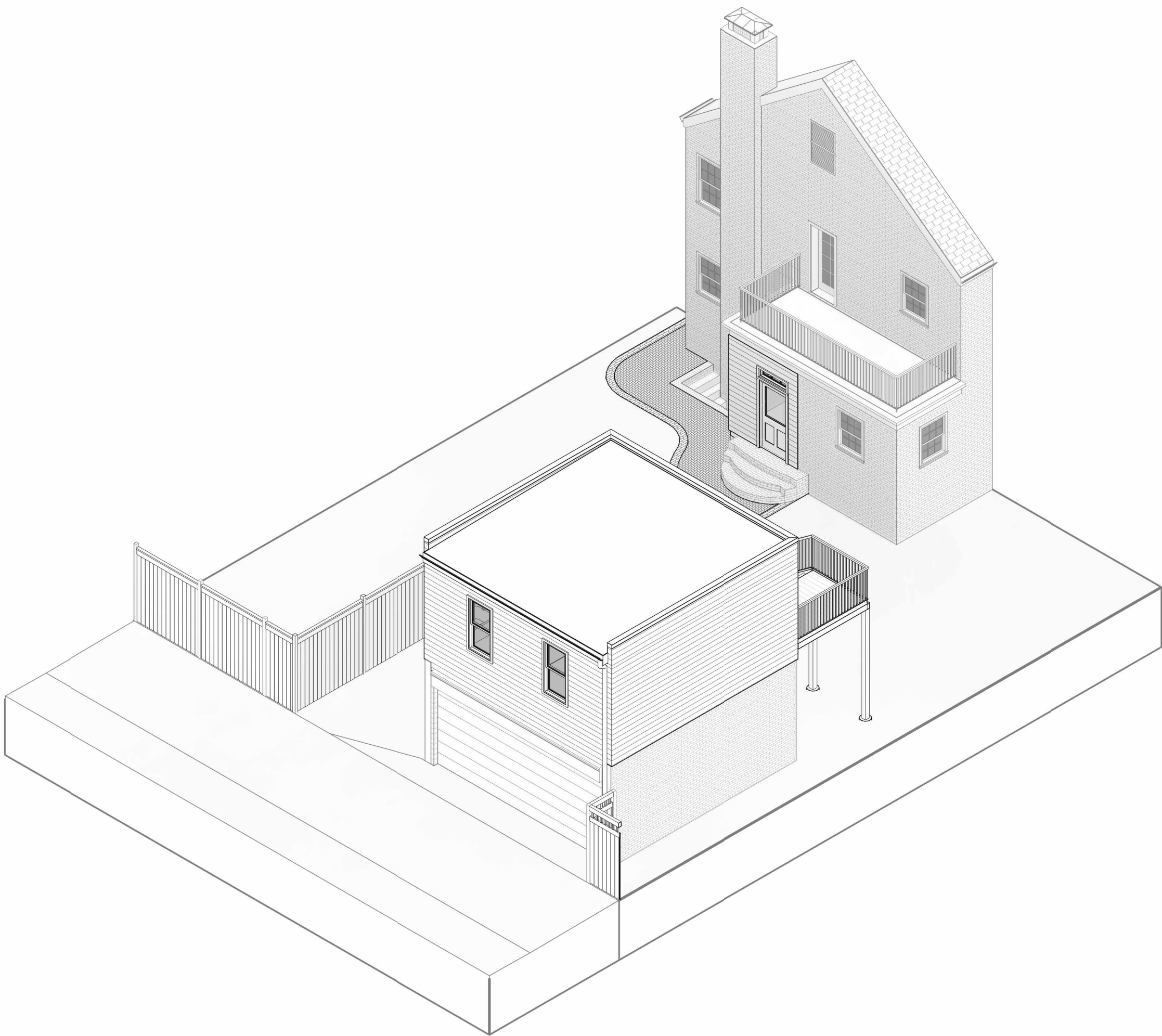
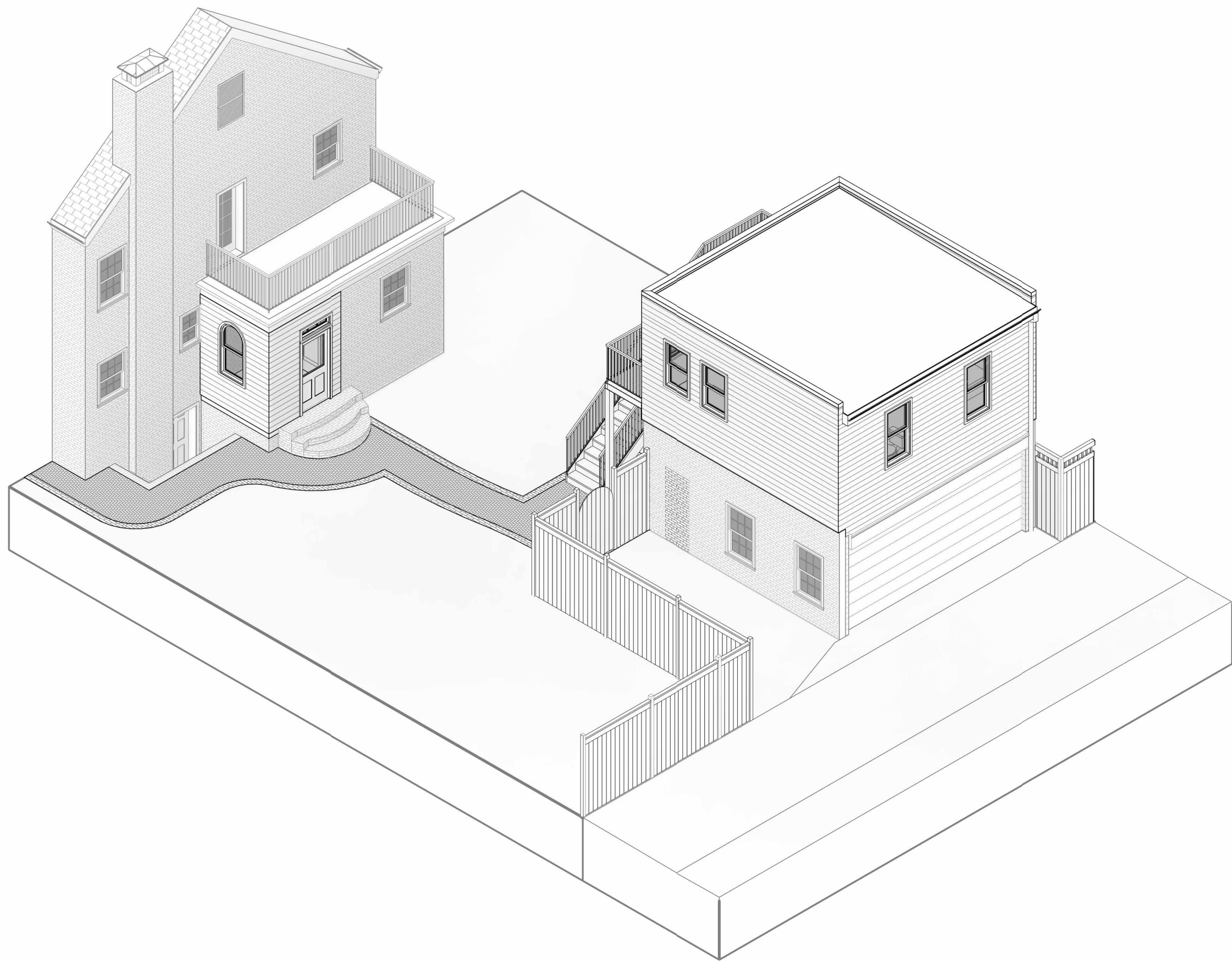
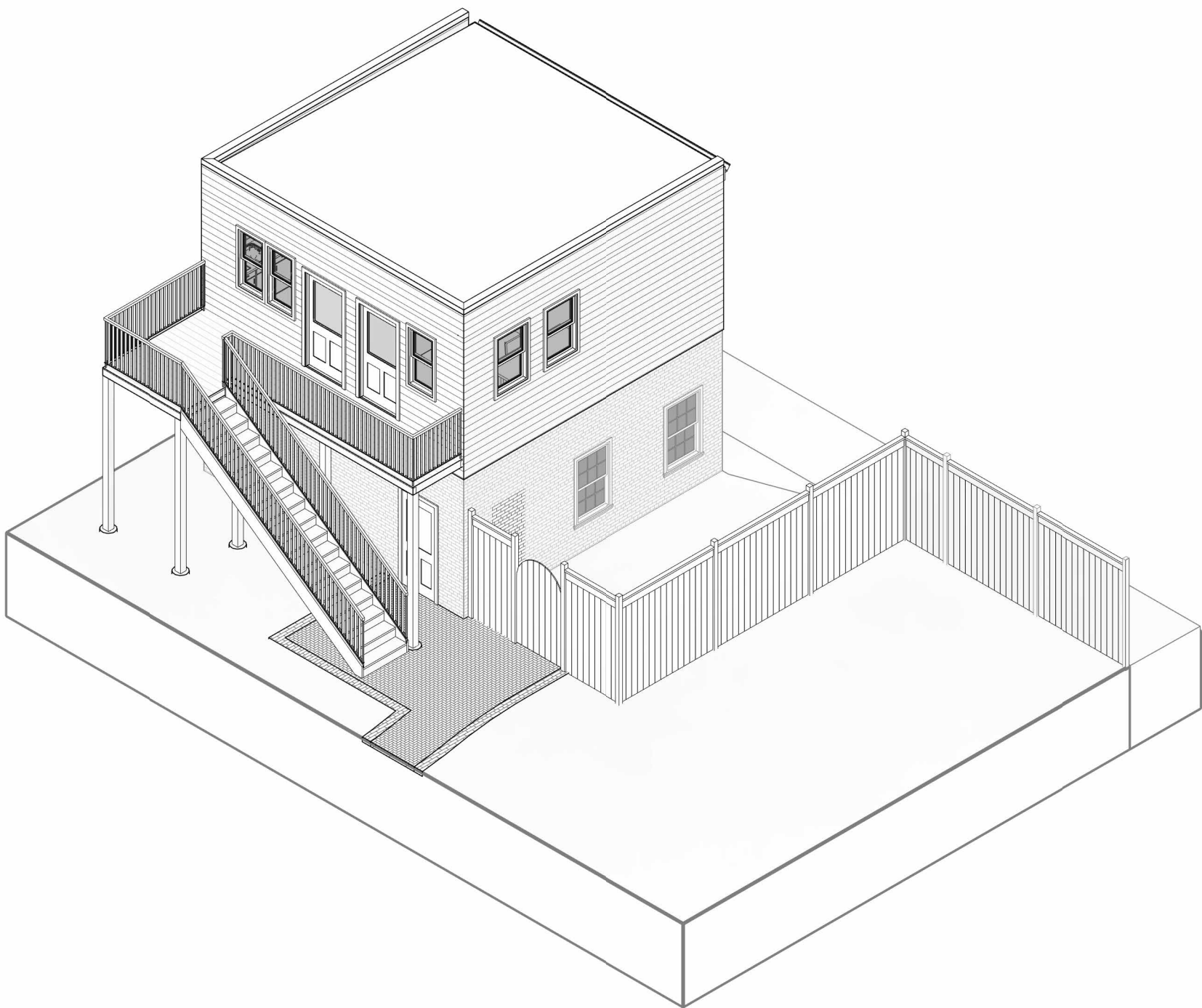
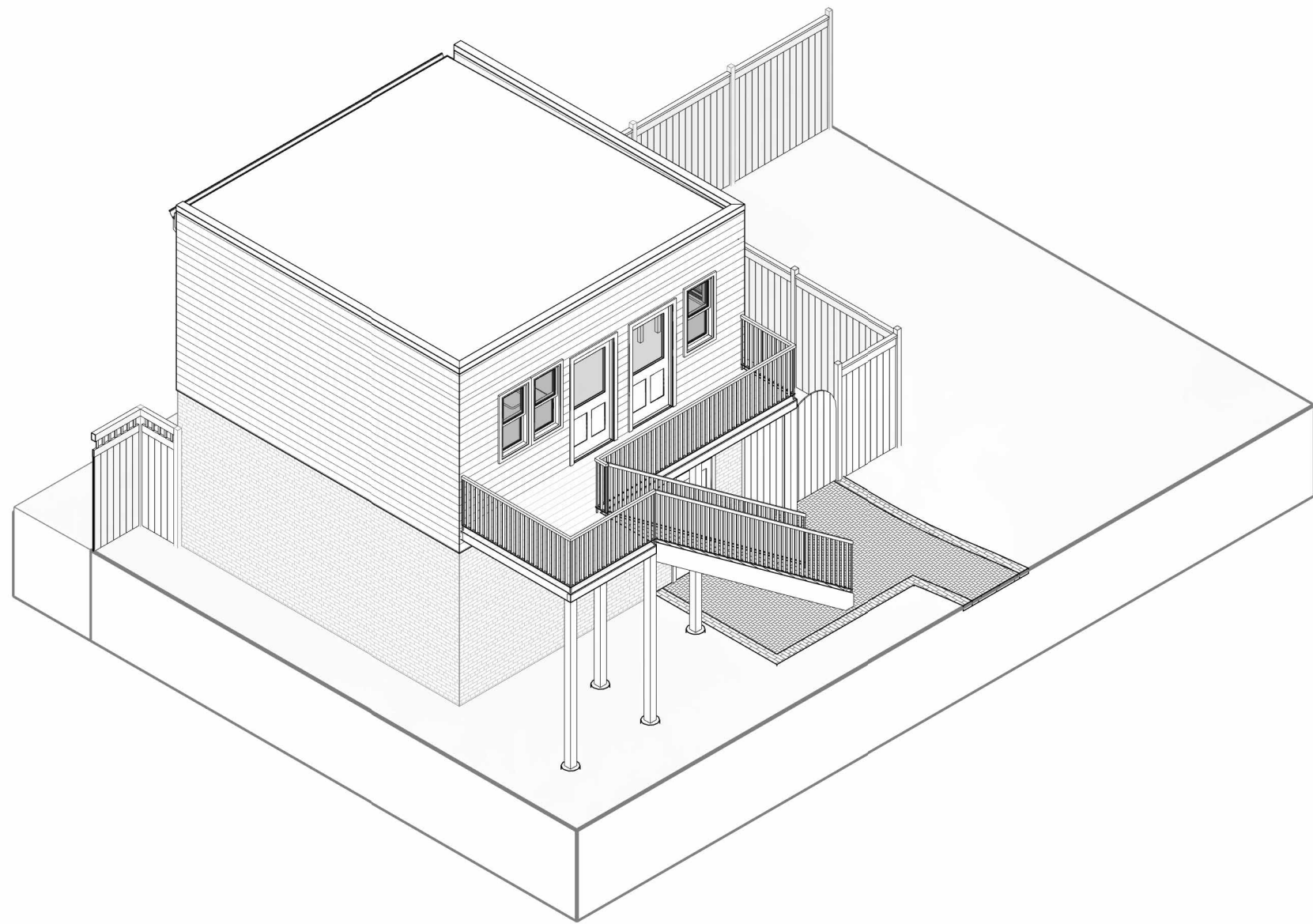
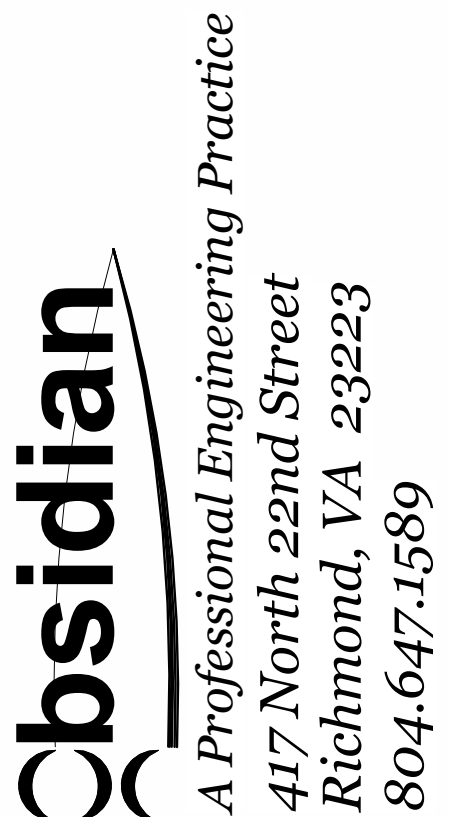
**3202 Monument Avenue
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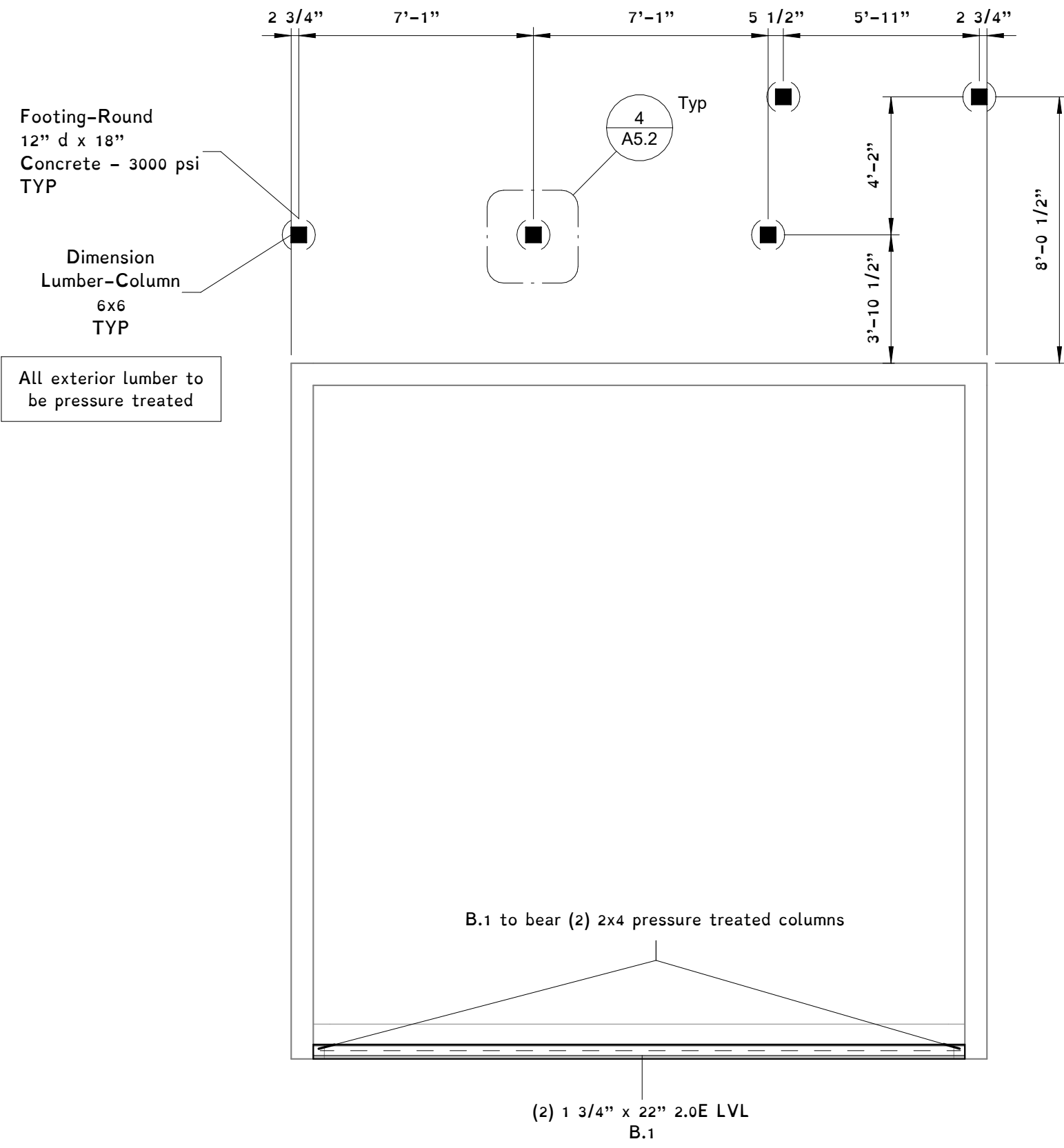


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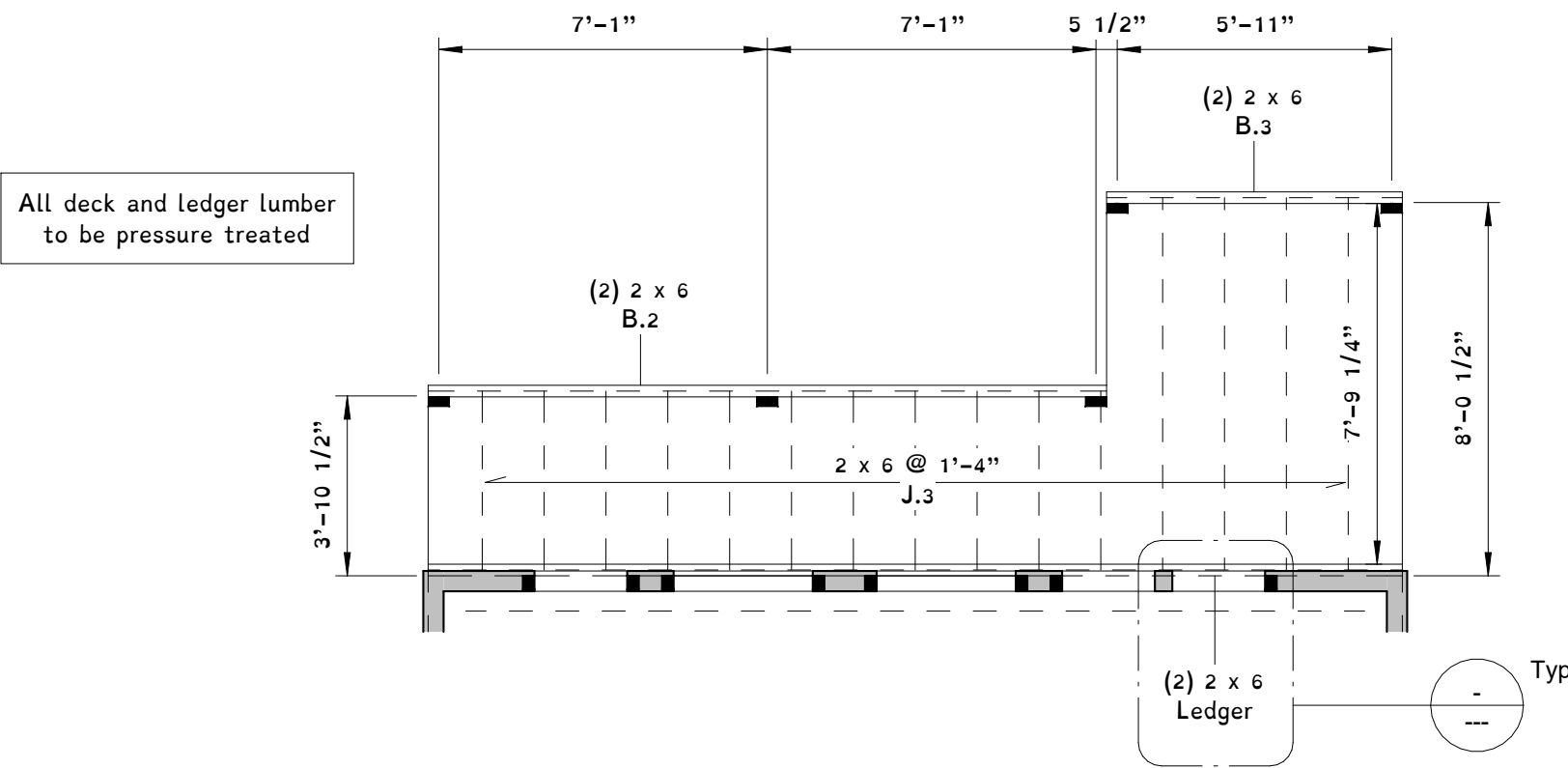


1 Unvente
1'' = 1' - 0''

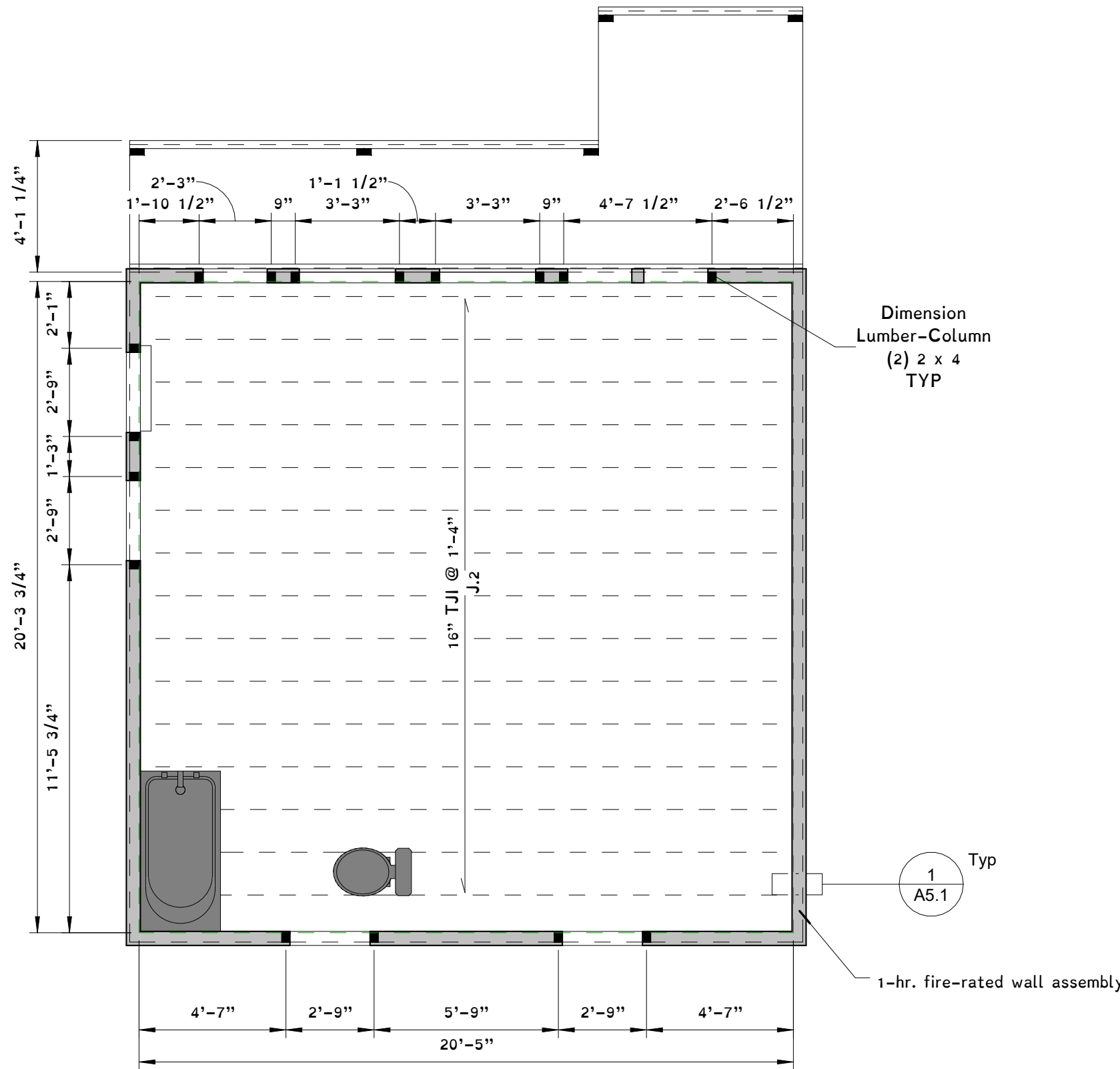




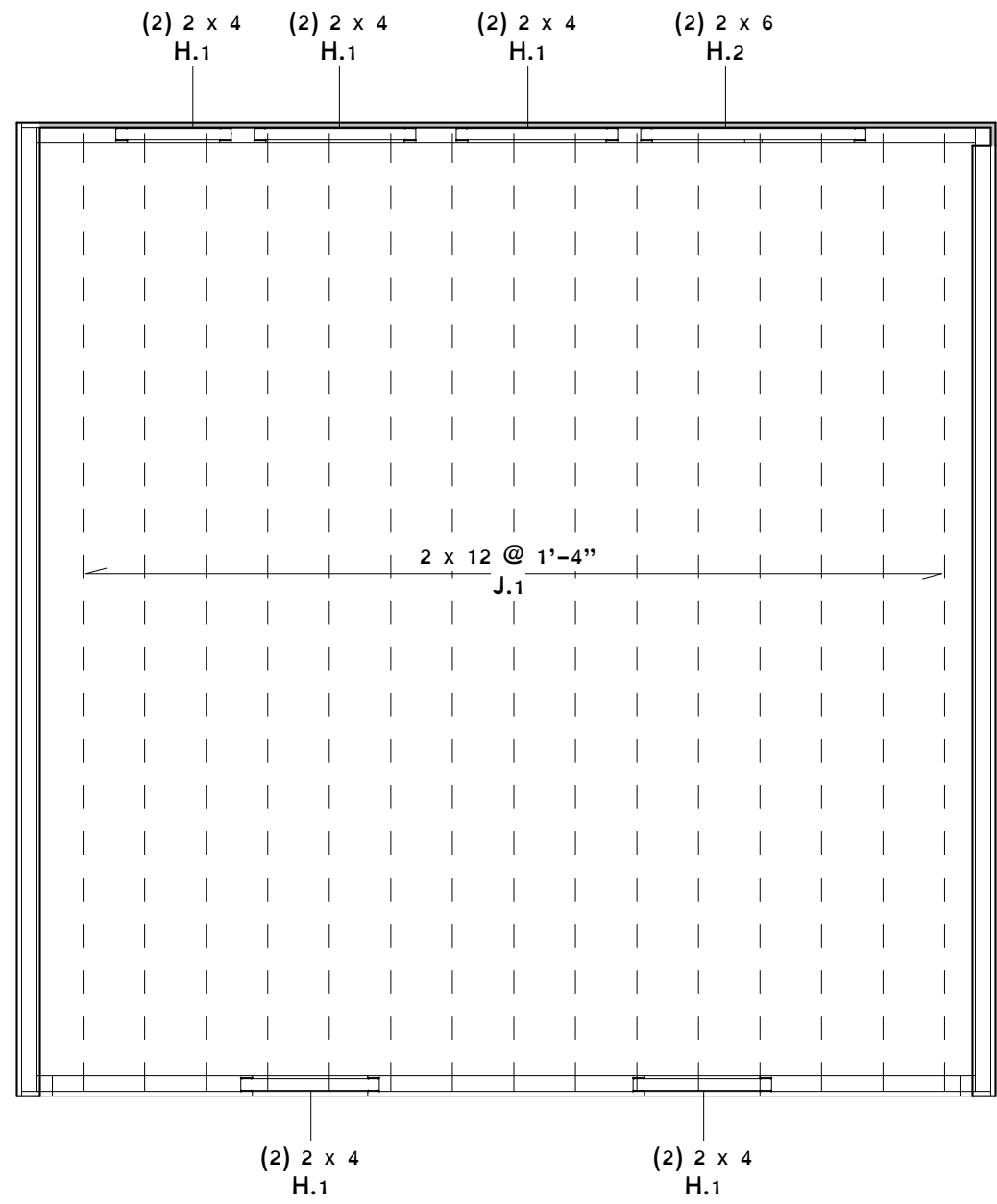
3 ADU 1st Floor - Footings and Garage Beam
1/4" = 1'-0"



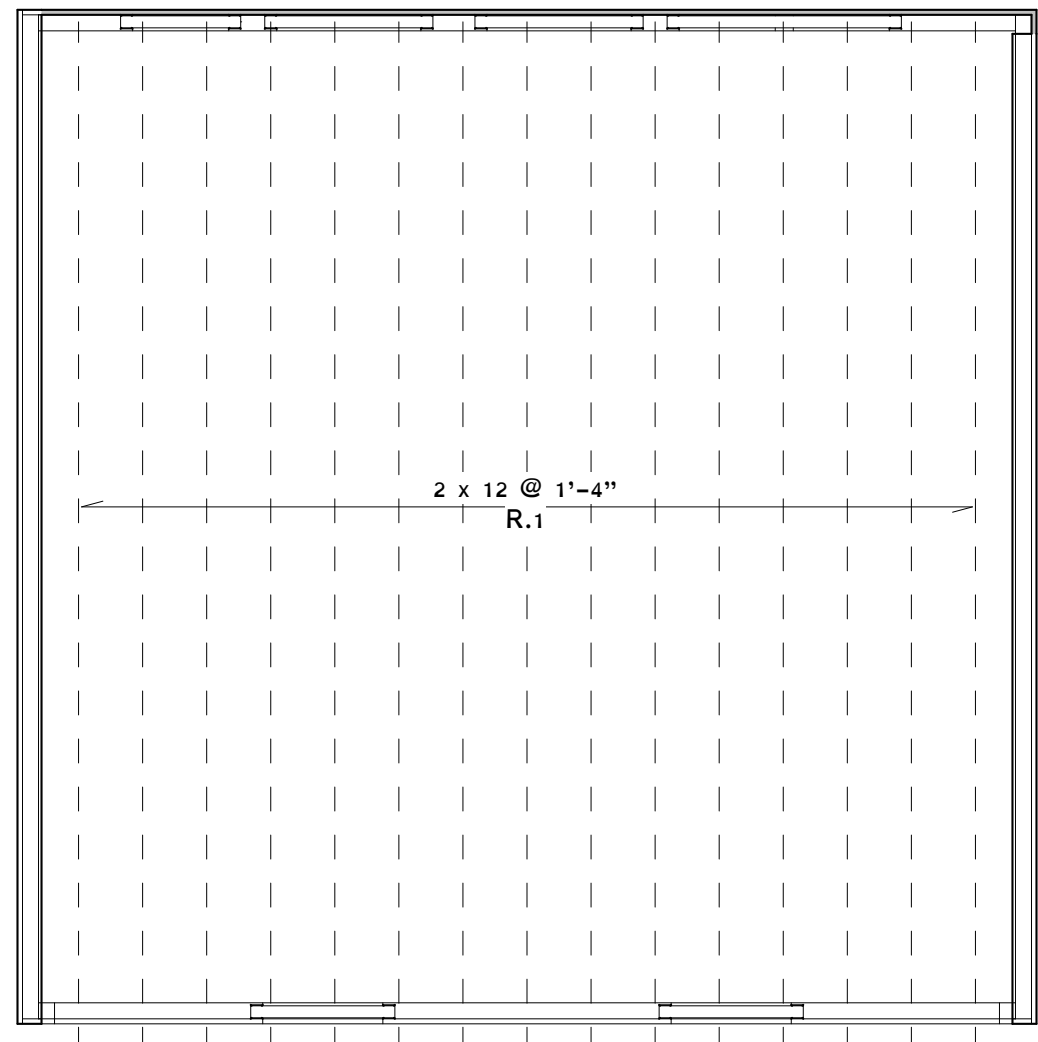
5 ADU 2nd Floor --Deck Structure
1/4" = 1'-0"



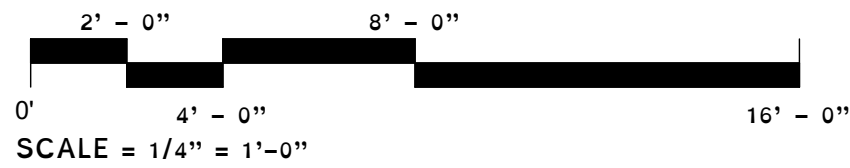
4 ADU 2nd Floor - Proposed
1/4" = 1'-0"



1 ADU 2nd Floor - Ceiling and Headers
1/4" = 1'-0"



2 ADU Roof - Proposed
1/4" = 1'-0"



S1.1

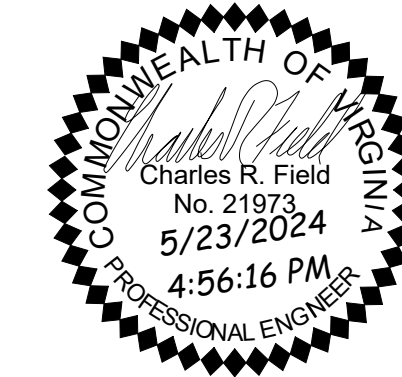
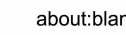
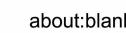
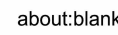
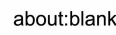
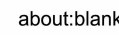
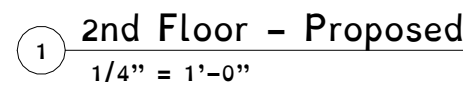
Structure
3202 Monument Avenue
Daniel Crisler

City of Richmond, VA

May 23, 2024

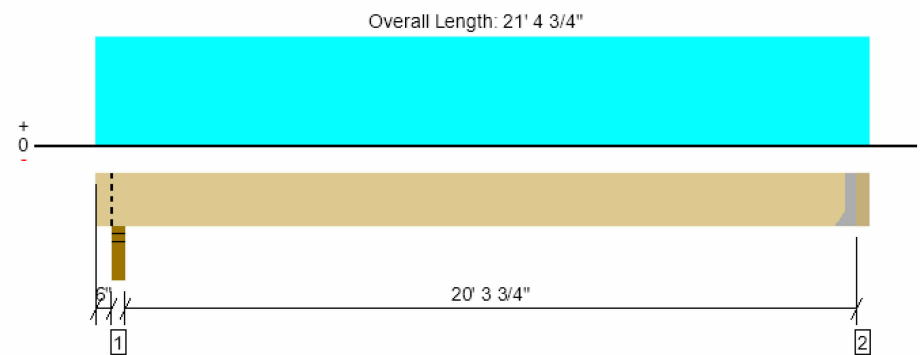


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ADU Member Name	Results (Max UTIL %)	Current Solution	Comments
R.1	Passed (86% M)	1 piece(s) 2 x 12 SP No.2 @ 16" OC	
J.1 Ceiling Joists	Passed (46% M)	1 piece(s) 2 x 12 SP No.2 @ 16" OC	
J.2 ADU 2nd Floor Joists	Passed (89% R)	1 piece(s) 16" TJI@ 560 @ 24" OC	
J.3 Deck Joists	Passed (84% AL)	1 piece(s) 2 x 6 SP No.2 @ 16" OC	
H.1 ADU 2nd Floor Headers	Passed (86% M)	2 piece(s) 2 x 4 SP No.2	
H.2 ADU 2nd Floor Header (Double Window)	Passed (89% M)	2 piece(s) 2 x 6 SP No.2	
H.3 Mudroom Headers	Passed (51% M)	2 piece(s) 2 x 4 SP No.2	
B.1 Garage Header	Passed (64% R)	2 piece(s) 1 3/4" x 22" 2.0E Microlam® LVL	
B.2 Deck Beam	Passed (54% M)	2 piece(s) 2 x 6 SP No.2	
B.3 Deck Beam	Passed (71% M)	2 piece(s) 2 x 6 SP No.2	

MEMBER REPORT
ADU, R.1
1 piece(s) 2 x 12 SP No.2 @ 16" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	477 @ 21' 1 1/4"	1271 (1.50")	Passed (38%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	433 @ 20' 2"	2461	Passed (18%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	2438 @ 10' 10 9/16"	2843	Passed (86%)	1.25	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.422 @ 10' 10 10 1/2"	0.682	Passed (J583)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.727 @ 10' 5 10 1/2"	1.023	Passed (J233)	--	1.0 D + 1.0 Lr (All Spans)

Member Length : 21' 1 1/4"

System : Roof

Member Type : Joist

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

Member Rich : 2.2612

- Deflection criteria: LL (J360) and TL (J240).
- Overhang deflection criteria: LL (J2360) and TL (J2240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Roof Live	Factored	
1 - Stud wall - SYP	3.50"	3.50"	1.50"	218	290	508	Blocking
2 - Hanger on 1 1/4" SYP Ledger	3.50"	Hanger ¹	1.50"	210	280	490	See note 1

1 - Blocking panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

2 - At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger

3 - See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 1" o/c	
Bottom Edge (Lu)	21' 1" o/c	

Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
Support	LLJ282	1.94"	N/A	6-10d x 1.5	5-10d	
2 - Face Mount Hanger	LLJ282	1.94"	N/A	6-10d x 1.5	5-10d	

1 - Refer to manufacturer notes and instructions for proper installation and use of all connectors.

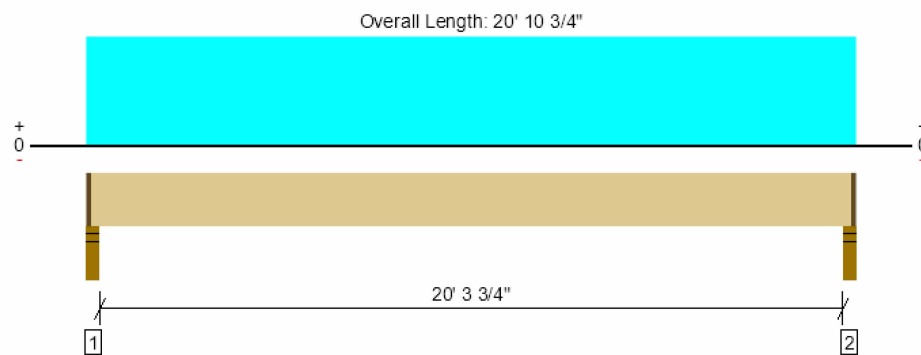
Vertical Load	Location (Side)	Spacing	Dead (0.90)	Roof Live (1.25)	Comments
1 - Uniform (PSF)	0 to 21' 4 3/4"	16"	15.0	20.0	Roof Load

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator					

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Stuart Dumas Obsidian (804) 647-1589 stuart.dumas@gmail.com	

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File Name: Monument Avenue, 3202
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MEMBER REPORT
ADU, J.1 Ceiling Joists
1 piece(s) 2 x 12 SP No.2 @ 16" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	207 @ 2 1/2"	1907 (2.25")	Passed (11%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	184 @ 1' 2 3/4"	1969	Passed (9%)	1.00	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1048 @ 10' 5 3/8"	2274	Passed (46%)	1.00	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.212 @ 10' 5 3/8"	0.512	Passed (J999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.318 @ 10' 5 3/8"	1.024	Passed (J774)	--	1.0 D + 1.0 Lr (All Spans)

Member Length : 20' 8 1/4"

System : Floor

Member Type : Joist

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

Member Rich : 2.2612

T3-Pro™ Rating

- Deflection criteria: LL (J480) and TL (J240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - SYP	3.50"	2.25"	1.50"	70	139	209	1 1/4" Rim Board
2 - Stud wall - SYP	3.50"	2.25"	1.50"	70	139	209	1 1/4" Rim Board

1 - Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	13' 4" o/c	
Bottom Edge (Lu)	20' 8" o/c	

Maximum allowable bracing intervals based on applied load.

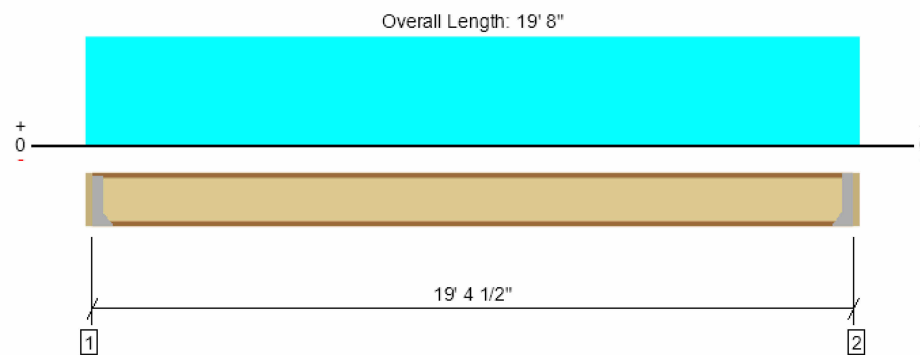
Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 20' 10 3/4"	16"	5.0	10.0	Atc w/o Storage

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator					

ForteWEB Software Operator	Job Notes
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MEMBER REPORT
ADU, J.2 ADU 2nd Floor Joists
1 piece(s) 16" TJI@ 560 @ 24" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1008 @ 1 3/4"	1265 (1.75")	Passed (80%)	1.00	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	1008 @ 1 3/4"	2710	Passed (37%)	1.00	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	4880 @ 9' 10"	12925	Passed (38%)	1.00	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.217 @ 9' 10"	0.484	Passed (J999+)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.282 @ 9' 10"	0.969	Passed (J825)	--	1.0 D + 1.0 Lr (All Spans)

Member Length : 19' 4 1/2"

System : Floor

Member Type : Joist

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

Member Rich : 2.2612

T3-Pro™ Rating

- Deflection criteria: LL (J480) and TL (J240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Engineered Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the T3-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 16" SYP Ledger	1.75"	Hanger ¹	1.75" / 1	236	787	1023	See note 1
2 - Hanger on 16" SYP Ledger	1.75"	Hanger ¹	1.75" / 1	236	787	1023	See note 1

1 - At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger

2 - See Connector grid below for additional information and/or requirements.

3 - Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	0' 0" o/c	
Bottom Edge (Lu)	19' 8" o/c	

JT1 joists are only analyzed using Maximum Allowable bracing solutions.

Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
Support	Connector not found	N/A	N/A	N/A	N/A	
1 - Face Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	
2 - Face Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	

1 - Refer to manufacturer notes and instructions for proper installation and use of all connectors.

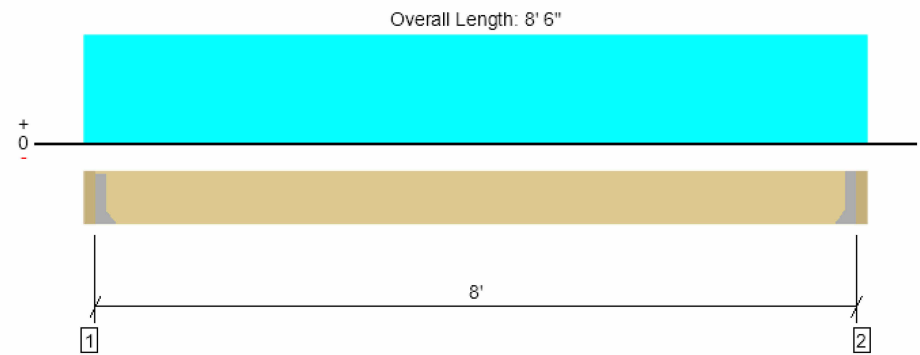
Vertical Load	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 19' 8"	24"	12.0	40.0	ADU 2nd Floor Load

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator	

MEMBER REPORT
ADU, J.3 Deck Joists
1 piece(s) 2 x 6 SP No.2 @ 16" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	277 @ 3"	1271 (1.50")	Passed (22%)	--	1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	246 @ 8 1/2"	663	Passed (26%)	1.00	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	555 @ 4' 3"	725	Passed (77%)	1.00	1.0 D + 1.0 Lr (All Spans)
Live Load Defl. (in)	0.169 @ 4' 3"	0.200	Passed (J569)	--	1.0 D + 1.0 Lr (All Spans)
Total Load Defl. (in)	0.219 @ 4' 3"	0.400	Passed (J437)	--	1.0 D + 1.0 Lr (All Spans)

Member Length : 8'

System : Floor

Member Type : Joist

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

Member Rich : 2.2612

T3-Pro™ Rating

- Deflection criteria: LL (J480) and TL (J240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 5 1/2" SYP Ledger	3.00"	Hanger ¹	1.50"	68	227	295	See note 1
2 - Hanger on 5 1/2" SYP beam	3.00"	Hanger ¹	1.50"	68	227	295	See note 1

1 - At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger

2 - See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	0' 0" o/c	
Bottom Edge (Lu)	8' 0" o/c	

Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
Support	LLJ26	1.50"	N/A	6-10d x 1.5	4-10d x 1.5	
1 - Face Mount Hanger	LLJ26	1.50"	N/A	6-10d x 1.5	4-10d x 1.5	
2 - Face Mount Hanger	LLJ26	1.50"	N/A	6-10d x 1.5	4-10d x 1.5	

1 - Refer to manufacturer notes and instructions for proper installation and use of all connectors.

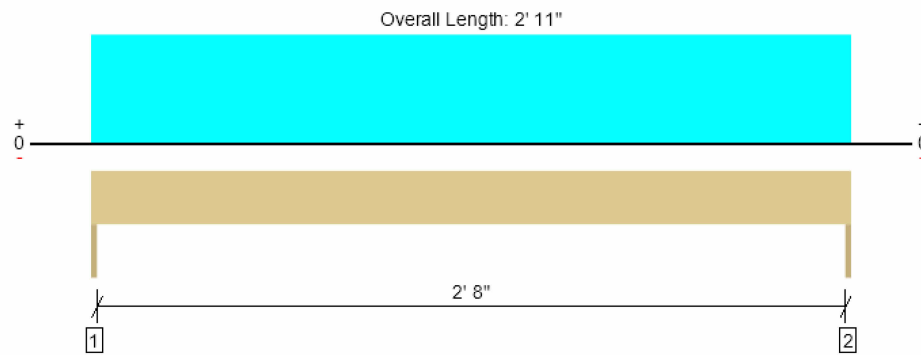
Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 8' 6"	16"	12.0	40.0	Deck Load

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File Name: Monument Avenue, 3202
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MEMBER REPORT
ADU, H.1 ADU 2nd Floor Headers
2 piece(s) 2 x 4 SP No.2



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	828 @ 0	2543 (1.50")	Passed (33%)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Shear (lbs)	592 @ 5"	1531	Passed (39%)	1.25	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Moment (Ft-lbs)	604 @ 1' 5 1/2"	703	Passed (86%)	1.25	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Live Load Defl. (in)	0.032 @ 1' 5 1/2"	0.073	Passed (J999+)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Total Load Defl. (in)	0.062 @ 1' 5 1/2"	0.146	Passed (J568)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)

Member Length : 2' 11"

System : Wall

Member Type : Header

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

Member Rich : 2.2612

T3-Pro™ Rating

- Deflection criteria: LL (J480) and TL (J240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Trimmer - SYP	1.50"	1.50"	1.50"	402	152	416	828 None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	402	152	416	828 None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 11" o/c	
Bottom Edge (Lu)	2' 11" o/c	

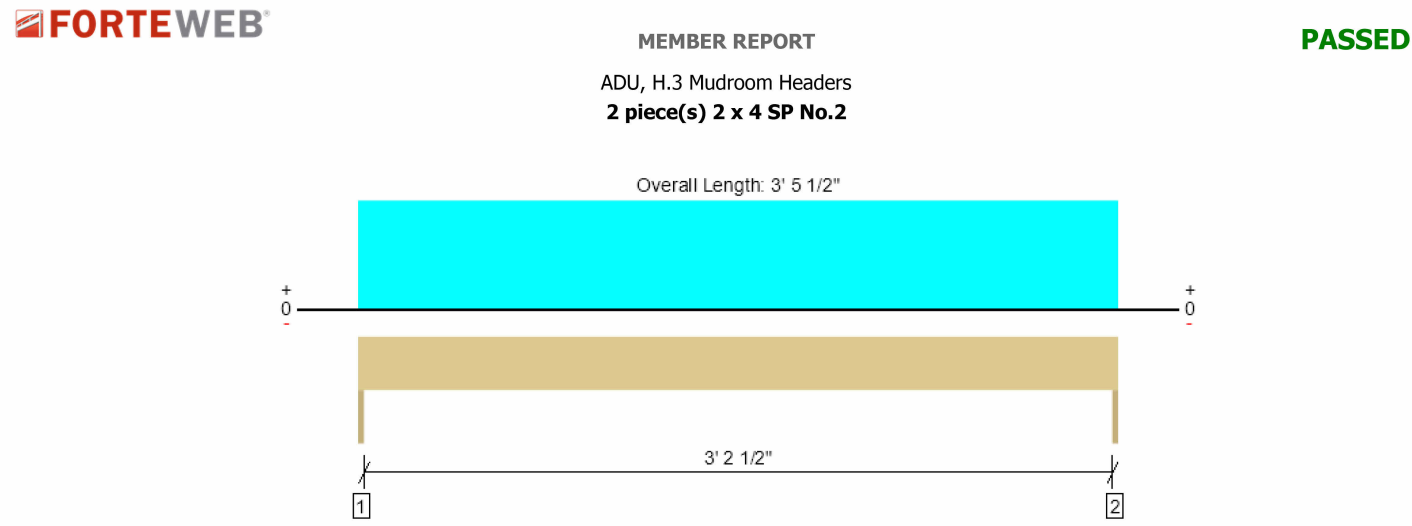
Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (1.25)	Comments
0 - Self Weight (PLF)	0 to 2' 11"	N/A	2.7	--	--	
1 - Uniform (PSF)	0 to 2' 11"	10' 5"	15.0	--	20.0	Roof Load
2 - Uniform (PSF)	0 to 2' 11"	10' 5"	5.0	10.0	--	Atc w/o Storage
3 - Uniform (PSF)	0 to 2' 11"	3' 10 1/4"	16.8	--	20.0	Awning Load

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Design Results	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	334 @ 0	2543 (1.50")	Passed (13%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	254 @ 5"	1225	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	289 @ 1' 8 3/4"	562	Passed (51%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.031 @ 1' 8 3/4"	0.086	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.041 @ 1' 8 3/4"	0.173	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 3' 5 1/2"

System : Wall

Member Type : Header

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)		
	Total	Available	Required	Dead	Floor Live	Factored
1 - Trimmer - SYP	1.50"	1.50"	1.50"	81	254	334
2 - Trimmer - SYP	1.50"	1.50"	1.50"	81	254	334

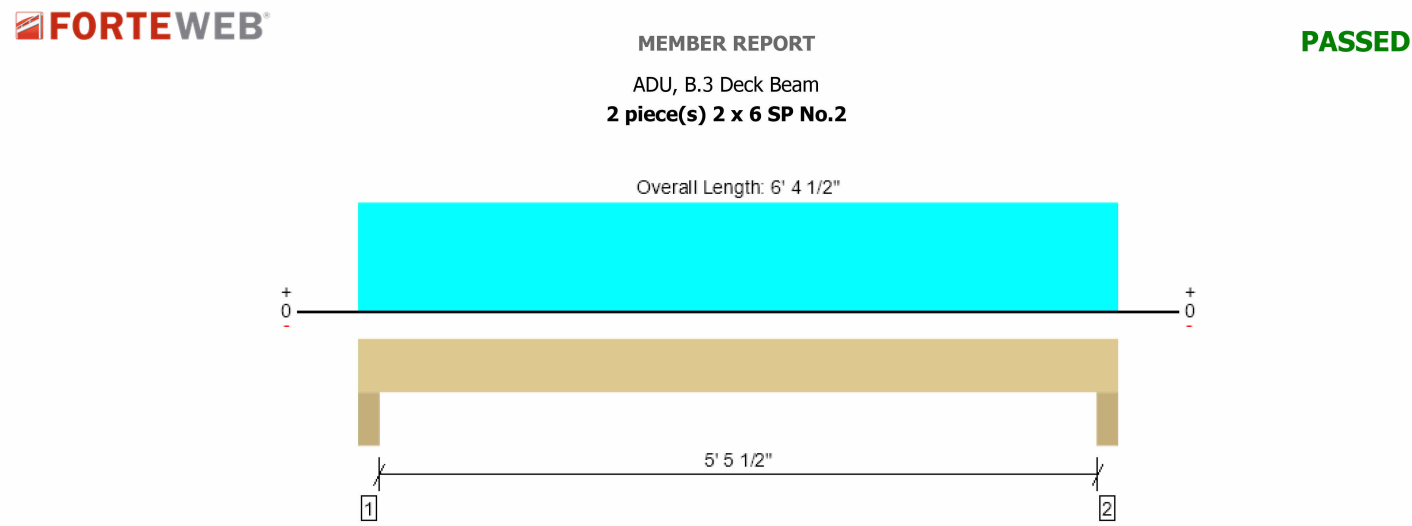
Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 6" o/c	
Bottom Edge (Lu)	3' 6" o/c	

Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 5 1/2"	N/A	2.7	--	
1 - Uniform (PSF)	0 to 3' 5 1/2"	3' 6"	12.0	40.0	Battery Load

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Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	704 @ 4"	9323 (5.50")	Passed (8%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	502 @ 11"	1925	Passed (26%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	900 @ 3' 2 1/4"	1260	Passed (71%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.068 @ 3' 2 1/4"	0.143	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.091 @ 3' 2 1/4"	0.285	Passed (L/755)	--	1.0 D + 1.0 L (All Spans)

Member Length : 6' 4 1/2"

System : Floor

Member Type : Flush Beam

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)		
	Total	Available	Required	Dead	Floor Live	Factored
1 - Column - SYP	5.50"	5.50"	1.50"	173	531	704
2 - Column - SYP	5.50"	5.50"	1.50"	173	531	704

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 5" o/c	
Bottom Edge (Lu)	6' 5" o/c	

Maximum allowable bracing intervals based on applied load.

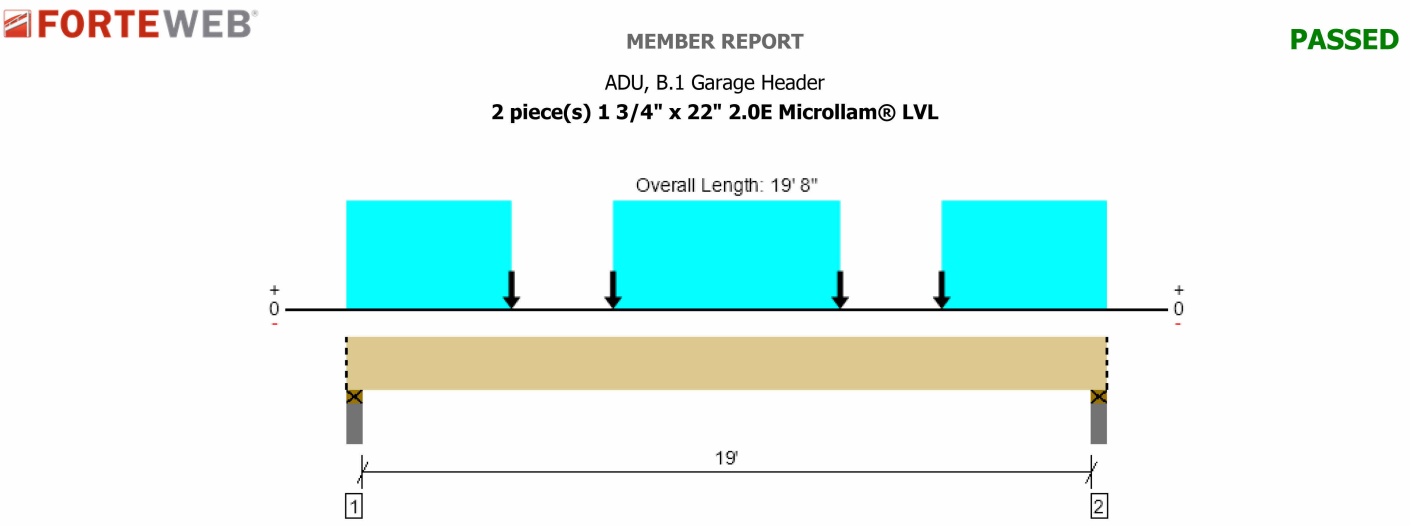
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 6' 4 1/2"	N/A	4.2	--	
1 - Uniform (PSF)	0 to 6' 4 1/2" (Back)	4' 2"	12.0	40.0	Deck Load

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Print plans at 24" x 36", Arch D



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	5068 @ 2 1/2"	7910 (4.00")	Passed (64%)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Shear (lbs)	3384 @ 2' 2"	14630	Passed (23%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	19901 @ 9' 10"	56332	Passed (35%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.149 @ 9' 10"	0.481	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)
Total Load Defl. (in)	0.297 @ 9' 10"	0.962	Passed (L/779)	--	1.0 D + 0.75 L + 0.75 Lr (All Spans)

Member Length : 19' 6"

System : Floor

Member Type : Drop Beam

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)		
	Total	Available	Required	Dead	Floor Live	Factored
1 - Plate on concrete - SYP	4.00"	4.00"	2.56"	2527	1583	1806
2 - Plate on concrete - SYP	4.00"	4.00"	2.56"	2527	1583	1806

Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 6" o/c	
Bottom Edge (Lu)	19' 8" o/c	

Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (1.25)	Comments
0 - Self Weight (PLF)	0 to 19' 6"	N/A	23.5	--	--	
1 - Uniform (PSF)	0 to 4' 3 1/4" (Top)	10' 5"	15.0	--	20.0	Roof Load
2 - Uniform (PSF)	0 to 4' 3 1/4" (Top)	10' 5"	5.0	10.0	--	ABC w/o Storage Load
3 - Point (lb)	4' 3 1/4" (Top)	N/A	402	416	152	Point Load From H.L.
4 - Point (lb)	6' 10 3/4" (Top)	N/A	402	416	152	Point Load From H.L.
5 - Point (lb)	12' 9' 1/4" (Top)	N/A	402	416	152	Point Load From H.L.
6 - Point (lb)	15' 4 3/4" (Top)	N/A	402	416	152	Point Load From H.L.
7 - Uniform (PSF)	6' 10 3/4" to 12' 9' 1/4" (Top)	10' 5"	15.0	--	20.0	Roof Load
8 - Uniform (PSF)	6' 10 3/4" to 12' 9' 1/4" (Top)	10' 5"	5.0	10.0	--	ABC w/o Storage Load
9 - Uniform (PSF)	15' 4 3/4" to 19' 6" (Top)	10' 5"	15.0	--	20.0	Roof Load
10 - Uniform (PSF)	15' 4 3/4" to 19' 6" (Top)	10' 5"	5.0	10.0	--	ABC w/o Storage Load

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Masonry Wall Lintel Beam Calculations

3202 Monument Avenue
City of Richmond, VA
Prepared By: CRF

Beam over Garage Doors

Selected Beam	2L3-1/2X3-1/2X3/8
Length of Beam (L) =	2.67 ft
Steel Grade =	A 50
Modulus of Elasticity (E) =	29,000,000 psi
Moment of Inertia (I) =	5.72 in ⁴
Flange Thickness (T _w) =	0.25 in
Member Depth (d) =	4 in
Section Modulus (S) =	2.05 in ³

Shear (V)	
V = w / 2	
Load Area	1.78 sf
Load Thickness	8 inches
Load Volume	1 Ft ³
Wall Density	150 pcf
Loading (w) =	178 lbs
V =	89 lbs

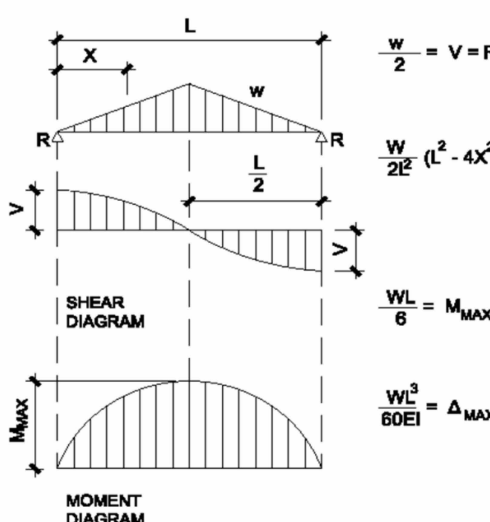
Maximum Shear Stress

f _v = V/A	
Area (T _w * d = A) =	1.0 in ²
f _v =	89.0 psi
F _v (max allowed) =	20,000 psi

Bending

f _b = $\frac{M_{max}}{S}$	
Maximum Moment (M) =	79 ft-lbs
f _b =	464 psi
Safety Factor	0.66
F _b (allowable) =	33000 psi

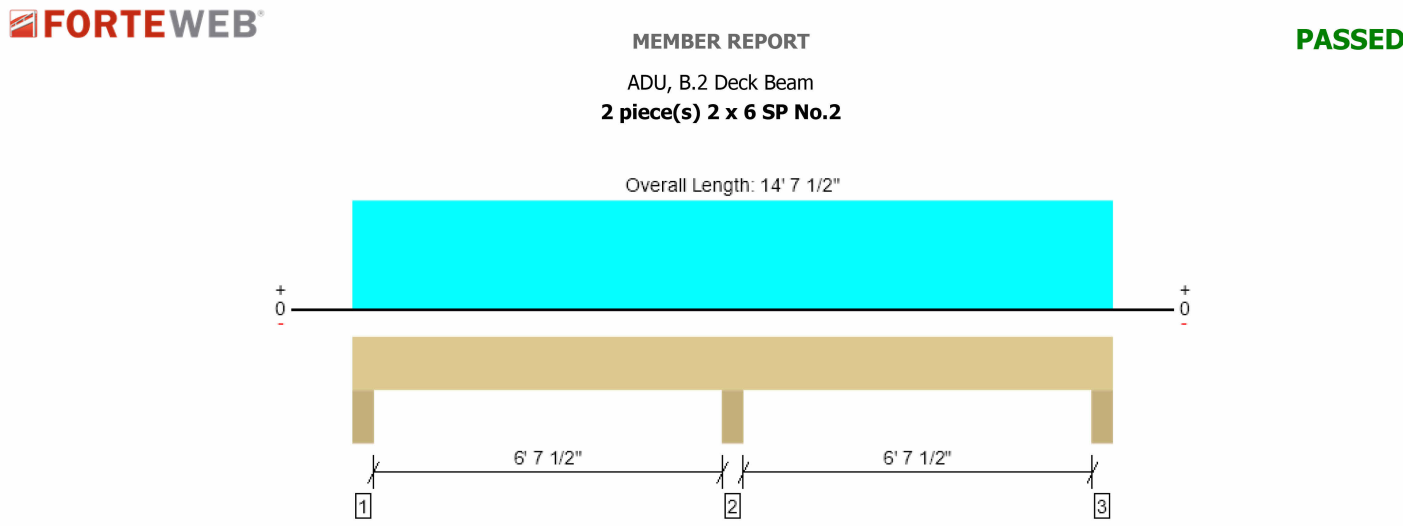
Deflection	
d _{actual} = $\frac{wL^3}{60 EI}$	
d _{actual} =	0.001 inches
D _{allowed} = $\frac{L}{360}$	0.089 inches



Page 1 of 2

5/23/2024

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Design Results	Actual @ Location	Allowed	Result	LDF	Load Combination (Pattern)
Member Reaction (lbs)	982 @ 7' 3/4"	9323 (5.50")	Passed (11%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	413 @ 8"	1925	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	485 @ 7' 3 3/4"	1260	Passed (54%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.054 @ 3' 7 1/2"	0.124	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.065 @ 11' 7/8"	0.349	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 14' 7 1/2"

System : Floor

Member Type : Flush Beam

Building Use : Residential

Building Code : IRC 2018

Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)		
	Total	Available	Required	Dead	Floor Live	Factored
1 - Column - SYP	5.50"	5.50"	1.50"	86	282/36	368
2 - Column - SYP	5.50"	5.50"	1.50"	255	727	982
3 - Column - SYP	5.50"	5.50"	1.50"	86	282/36	368

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' 8" o/c	
Bottom Edge (Lu)	14' 8" o/c	

Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 14' 7 1/2"	N/A	4.2	--	
1 - Uniform (PSF)	0 to 14' 7 1/2" (Back)	2' 1"	12.0	40.0	Deck Load

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Print plans at 24" x 36", Arch D

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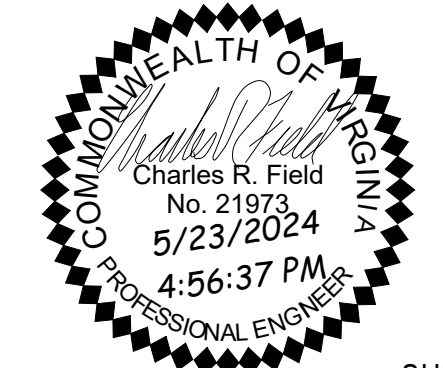
S7.2

Calculations

3202 Monument Avenue

Daniel Crisler

City of Richmond, VA



Obsidian

A Professional Engineering Practice

417 North 22nd Street

Richmond, VA 23223

804.647.1589

Description

Date

Rev.

May 23, 2024

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