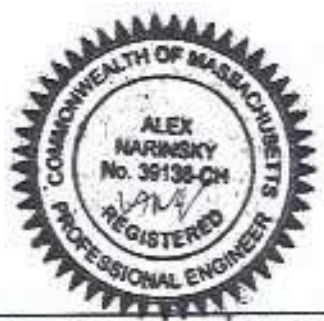
3RD FLOOR ADDITION

175 Allerton Road Newton

DEVELOPED BY - ALEX NARINSKY

№	Sheet name
2	List of drawings
3	FAR calculations
4	Lot Plan
5	Site Plan
6	Basement Floor Plan
7	First Floor Plan
8	Second floor plan
9	Planning Attic Floor Plan
10	Attic Area
11	Plan roof
12	Facade C-A
13	Facade 1-4
14	Facade A-C
15	Facade 4-1
16	A SECTION
17	B SECTION
18	F SECTION
19	Detail 1,2
20	3D View 1 - 2
21	3D View 3 - 4
22	Attic floor plan. Deck, beam scheme
23	Second floor plan. Deck plan
24	C SECTION. Deck
25	Calculation of the design of the ridge beam
26	Attic floor plan. Plan roof. Construction
27	Roof. Construction 3D View 01
28	Roof. Construction 3D View 02
29	Roof. Construction 3D View 03
30	Roof. Construction 3D View 04



	LIST OF DRAWINGS	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 2

(617) Telephone 796-1060
(617) 796 1086Telefax
City of Newton, Massachusetts
TDD/TTY
(617) 796-1089
Department of Inspectional Services
www.newtonma.gov
Commonwealth Avenue 1000 Newton, Massachusetts 02459
Setti D. Warren John Lojek
Mayor Commissioner

FLOOR AREA RATIO WORKSHEET

For Residential Single and Two Family Structures

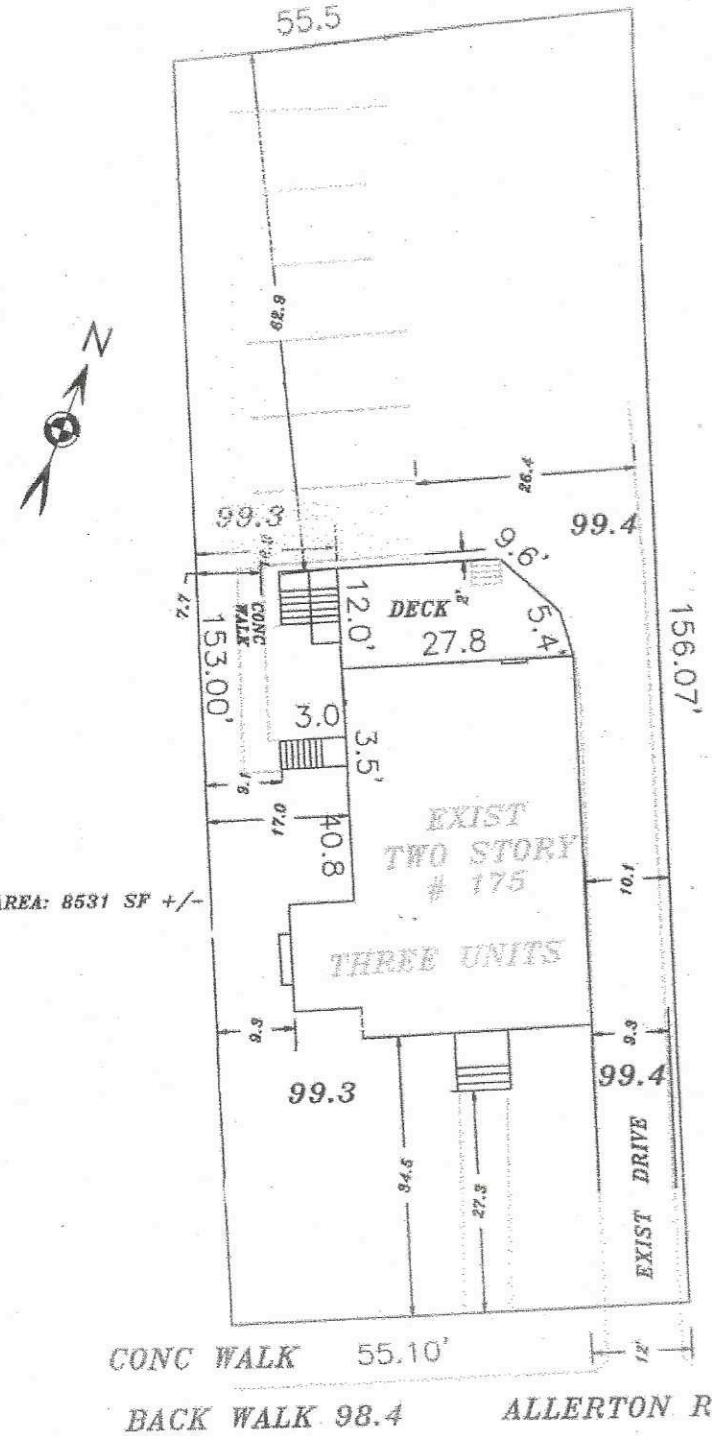
Property address: 175 Allerton Road, Newton, MA, 02461

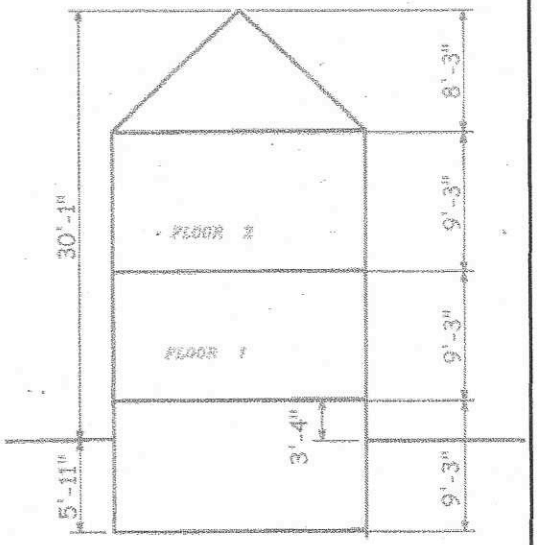
Zoning District: SR2 **Lot Size:** 8530

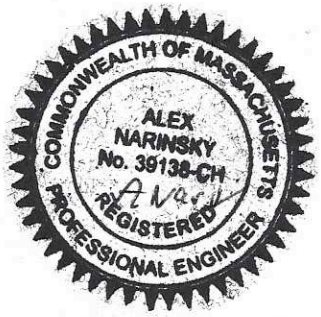
FAR Calculations for Regulations Effective As Of October 15, 2011	
Inputs (square feet)	
1. First story	1245
2. Attached garage	
3. Second story	1245
4. Atria, open wells, and other vertical spaces (if not counted in first/second story)	
5. Certain floor area above the second story[5b]	455
6. Enclosed porches[7b]	
7. Mass below first story[8b]	605
8. Detached garage	
9. Area above detached garages with a ceiling height of 7' or greater	
10. Other detached accessory buildings (one detached building up to 120 sq. ft. is exempt)	
FAR of Proposed Structure(s)	
A. Total gross floor area (sum of rows 1-9 above)	3550
B. Lot size	8530
C. FAR = A/B	0.416
Allowed FAR	
Allowable FAR	0.40
Bonus of .02 if eligible[4b]	0.02
TOTAL Allowed FAR	0.42

	LOT PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 4

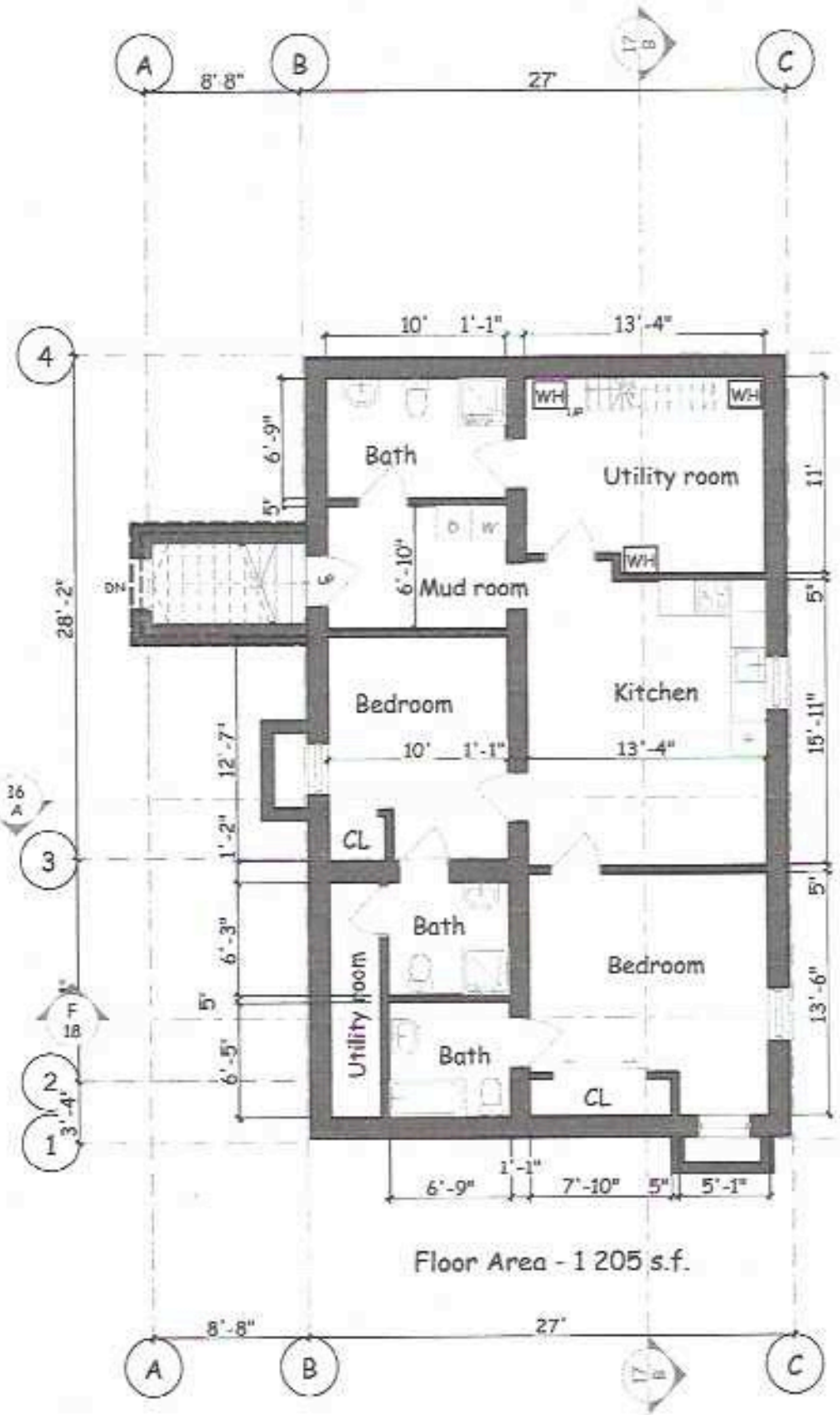
SITE PLAN
175 ALLERTON RD
NEWTON, MA.







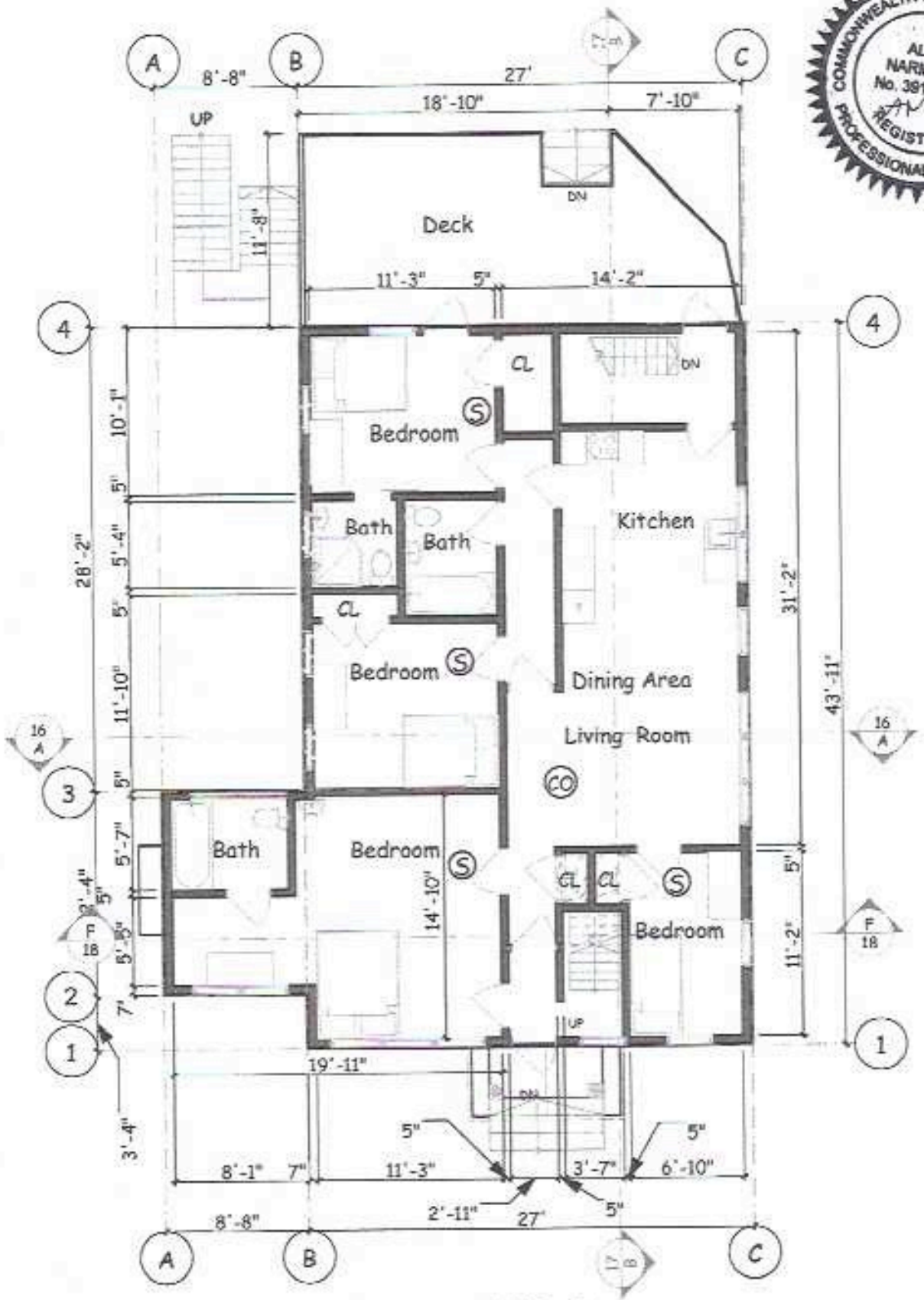
	SITE PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 5



Floor Area - 1 205 s.f.

ALEX NARINSKY No. 39138-CH REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

1/8" = 1'-0"	BASEMENT FLOOR PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 6

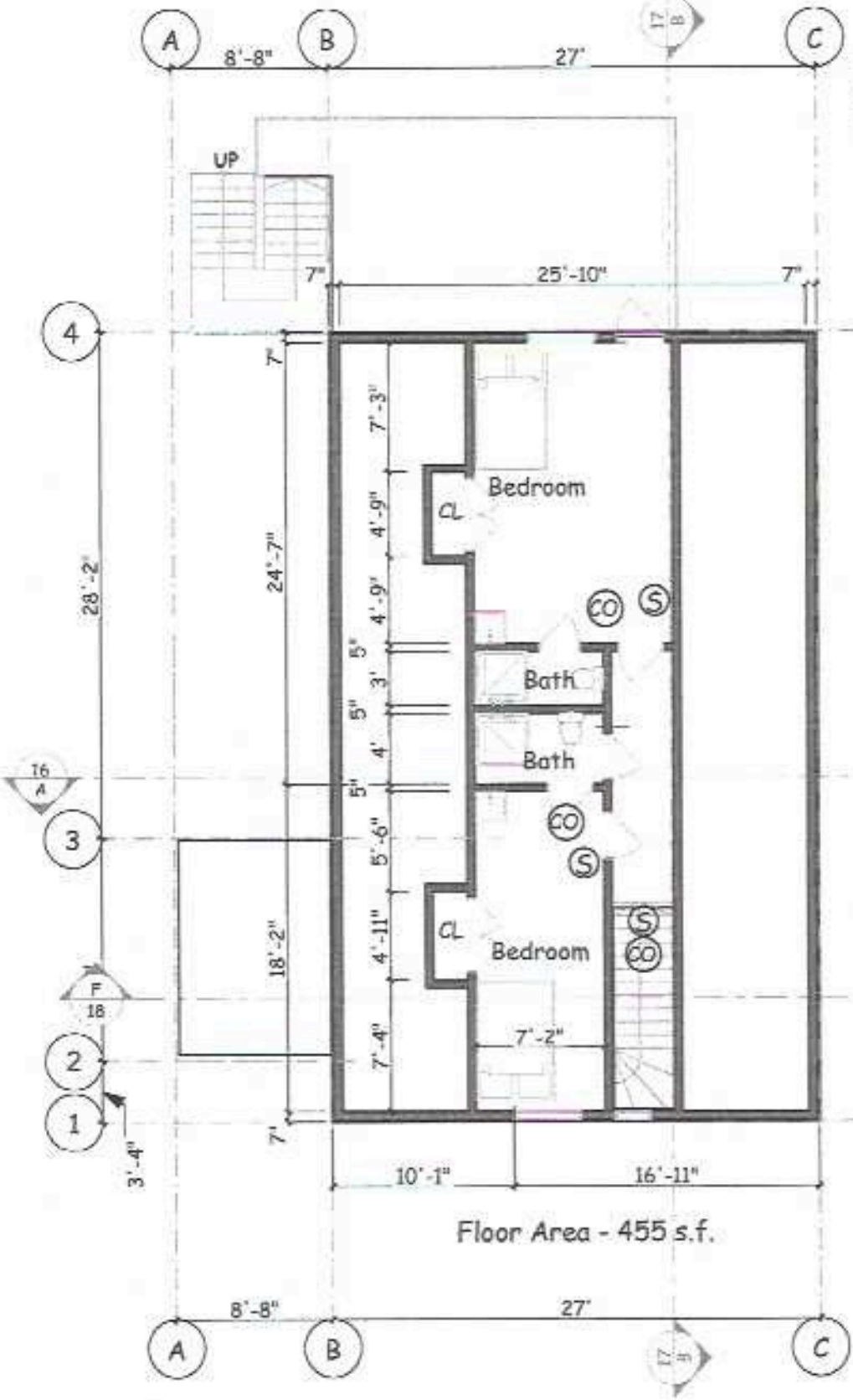


Floor Area - 1 245 s.f.

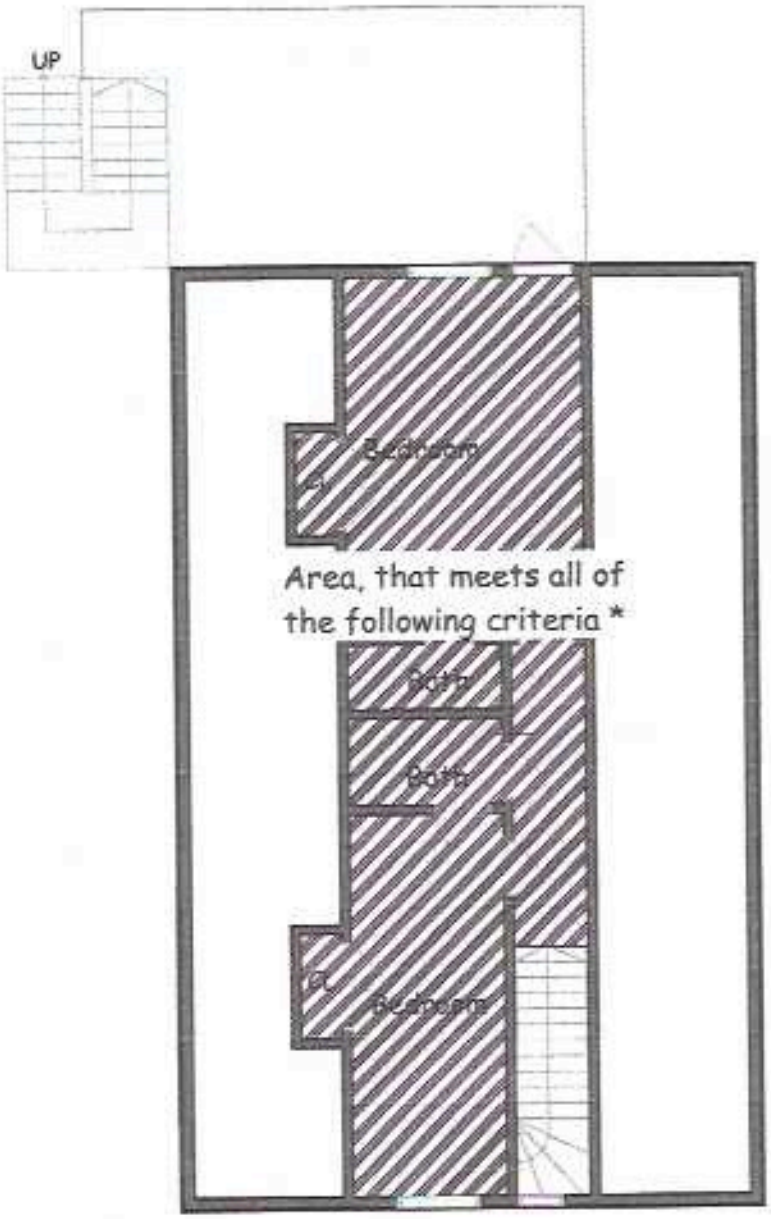
1/8" = 1'-0"	FIRST FLOOR PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 7

COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

1/8" = 1'-0"	SECOND FLOOR PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 8



1/8" = 1'-0"	PLANNING ATTIC FLOOR PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 9

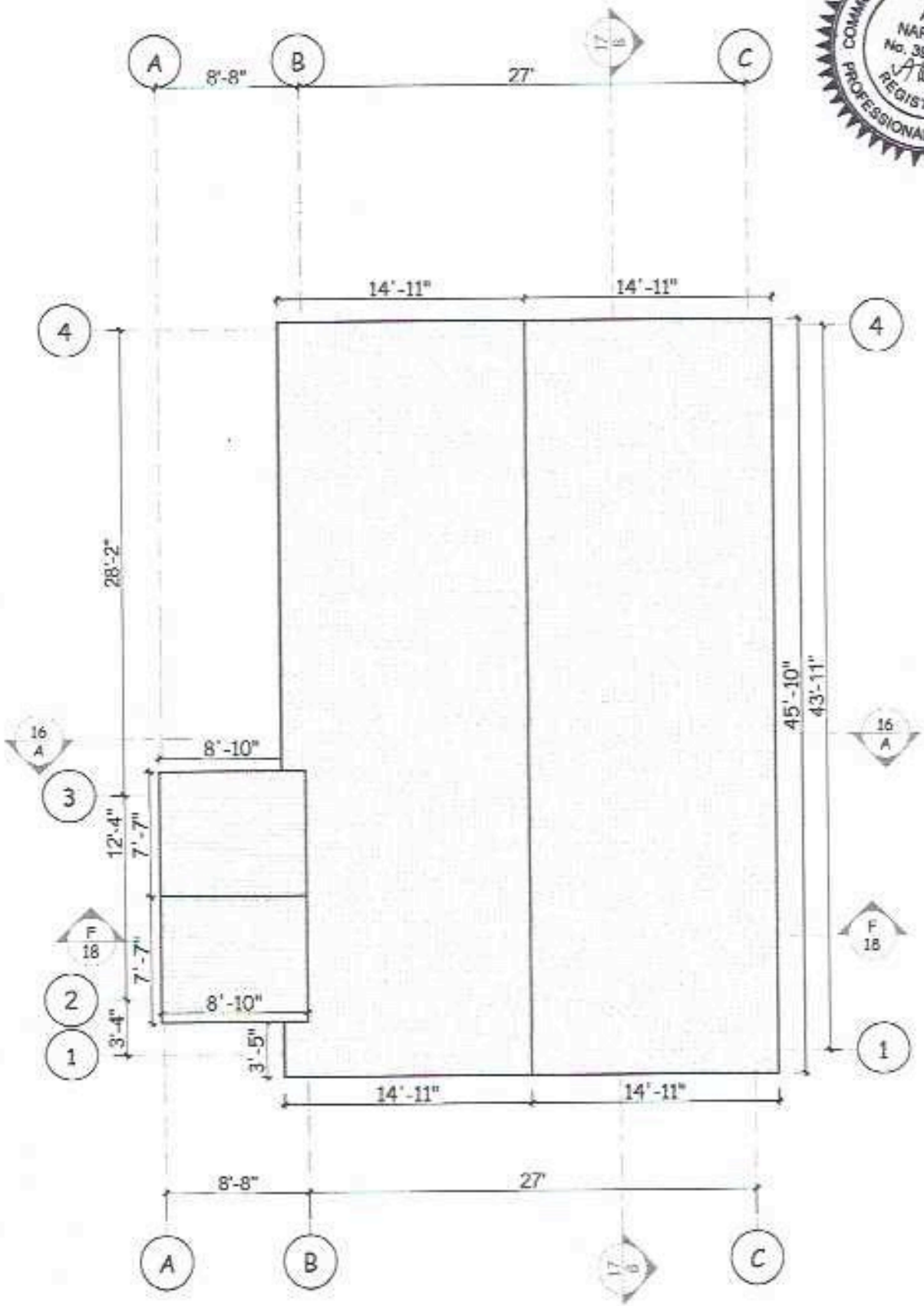


Floor Area - 455 s.f.

* https://apps.newtonma.gov/apps/test/p/12020197/FAR-worksheet.pdf

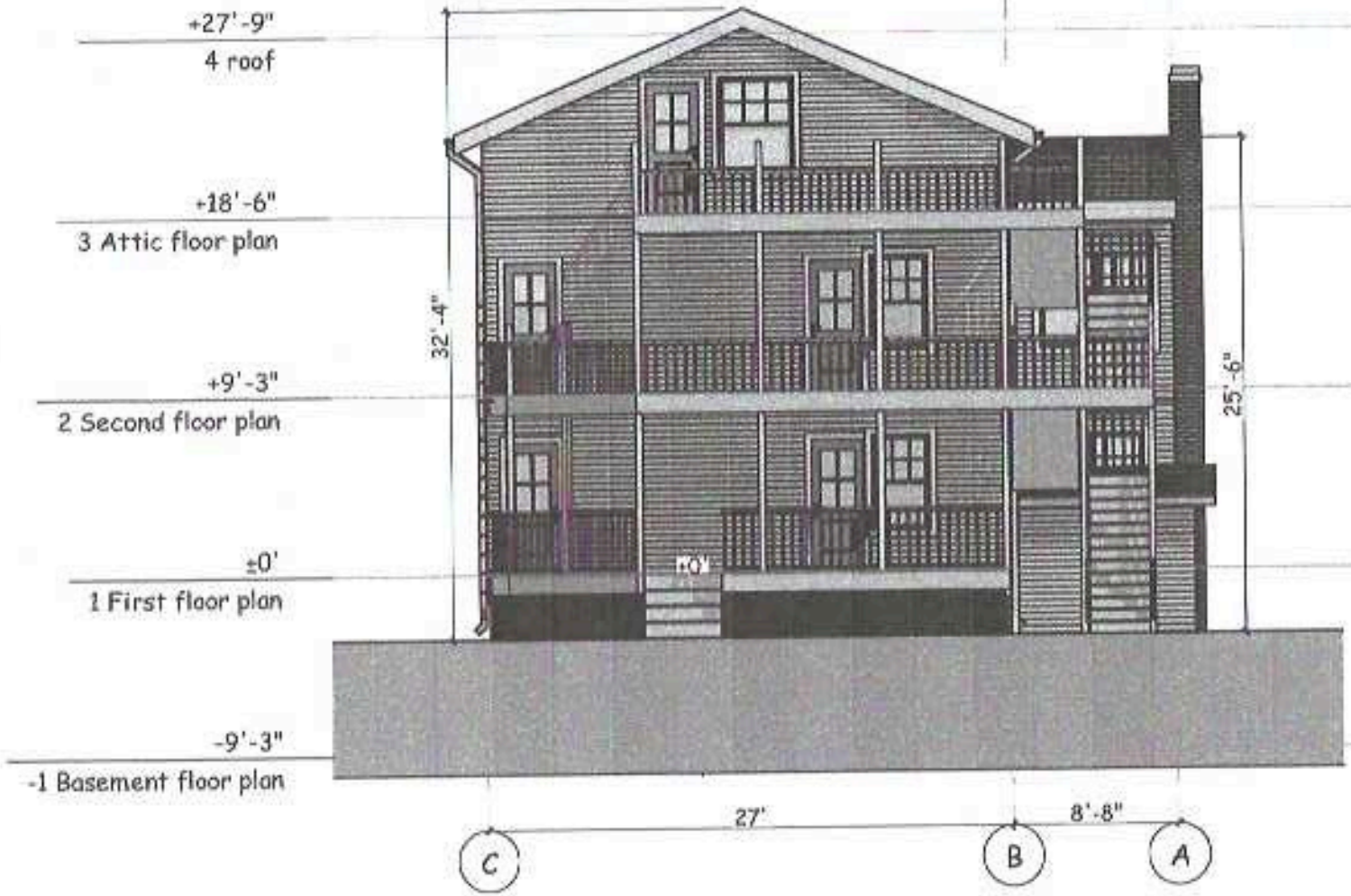
- Lies below the area of a horizontal plane that is 5' above it and which touches the side walls and/or the underside of the roof rafters;
- Is at least 7' in any horizontal dimension as measured with in the area having a wall height of at least 5' or more;
- Has a minimum ceiling height of 7' on at least 50 percent of its required floor area; AND
- Has a floor area of not less than 70 sq. ft. as measured within the floor area having a wall height of 5' or more.

1/8" = 1'-0"	ATTIC AREA	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 10



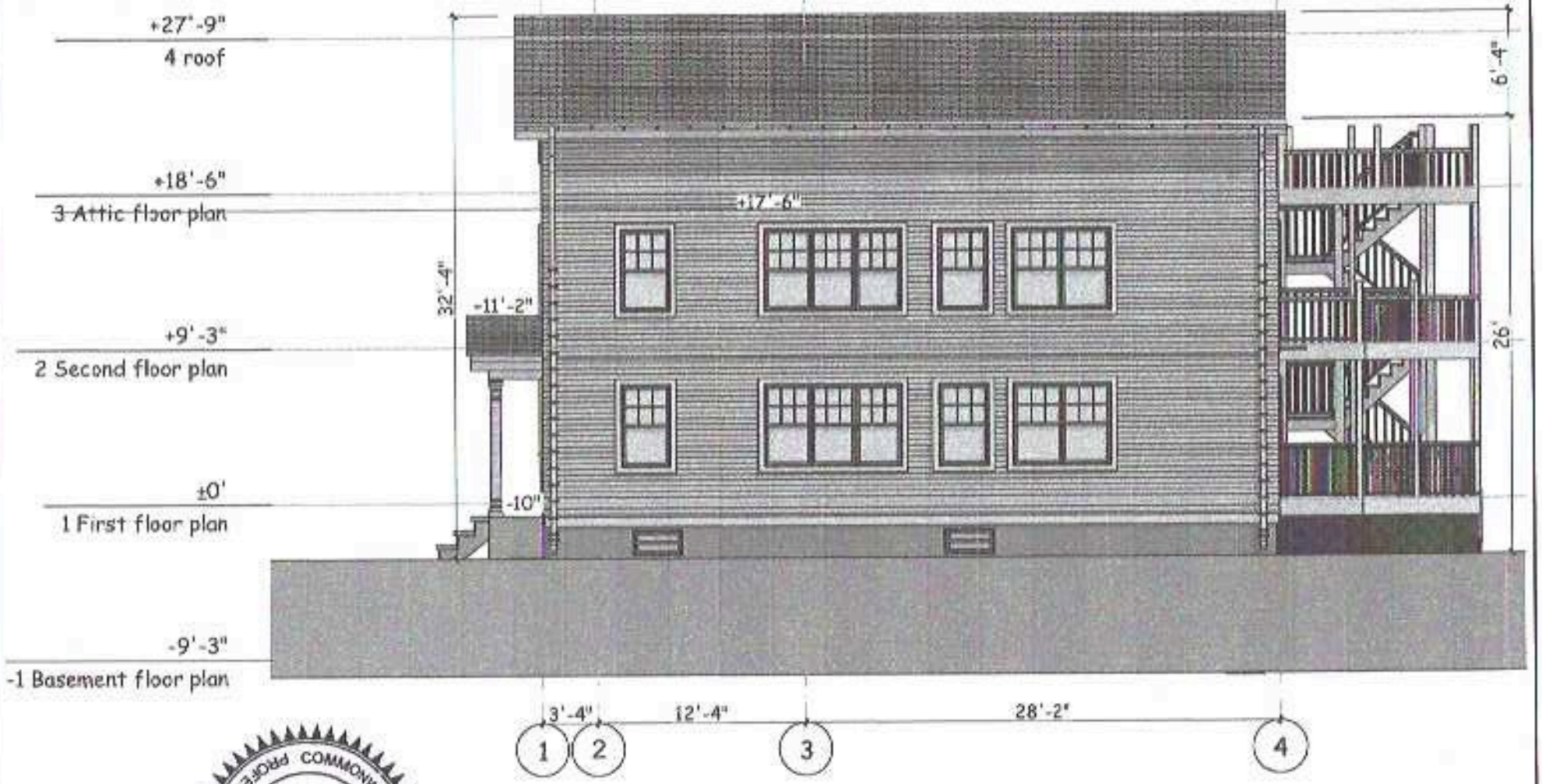
COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

1/8" = 1'-0"	PLAN ROOF	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 11



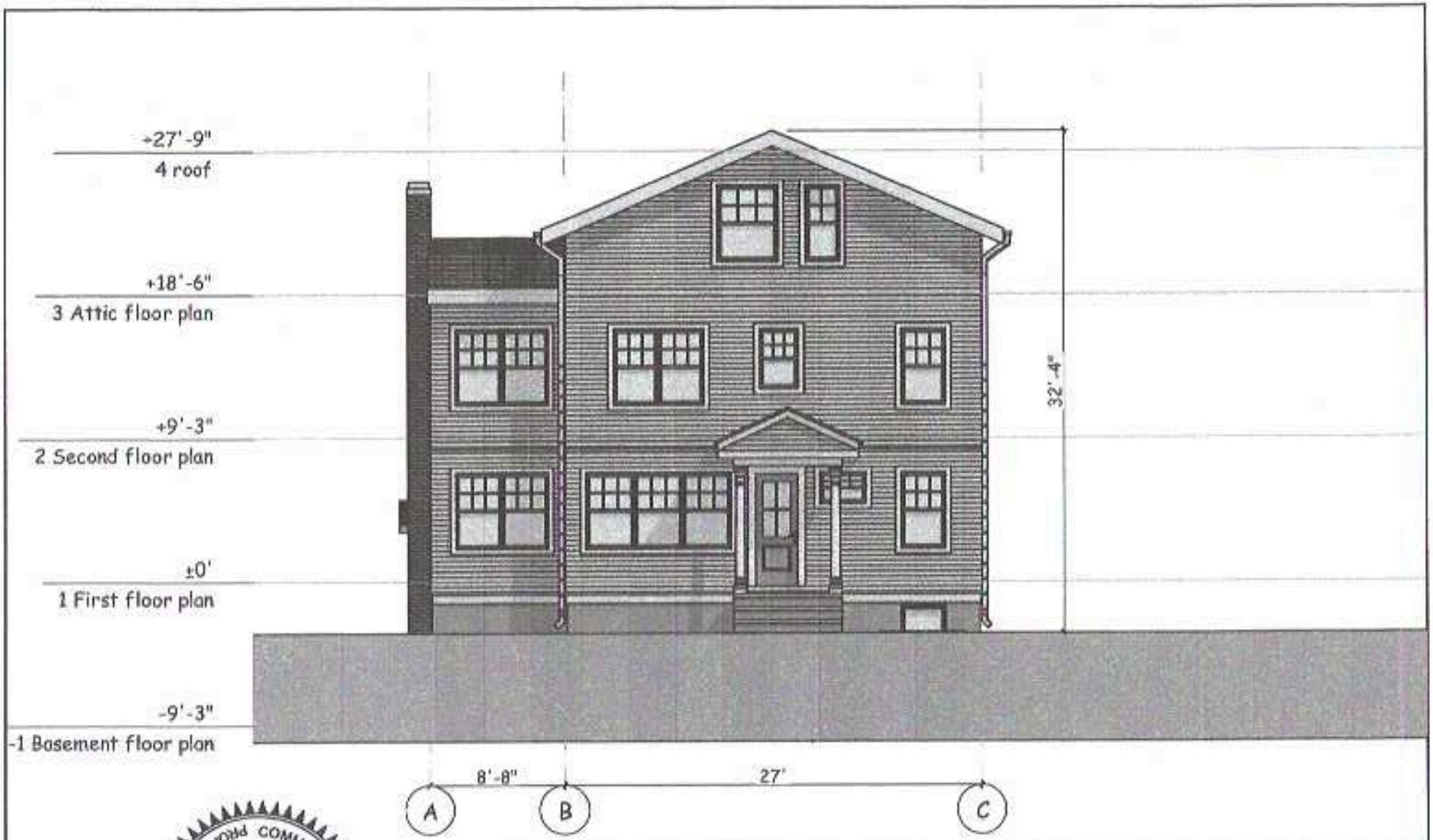
COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER
REGISTERED
ALEX NARINSKY
No. 39138-CH

1/8" = 1'-0"	FACADE C-A	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMEIER 12



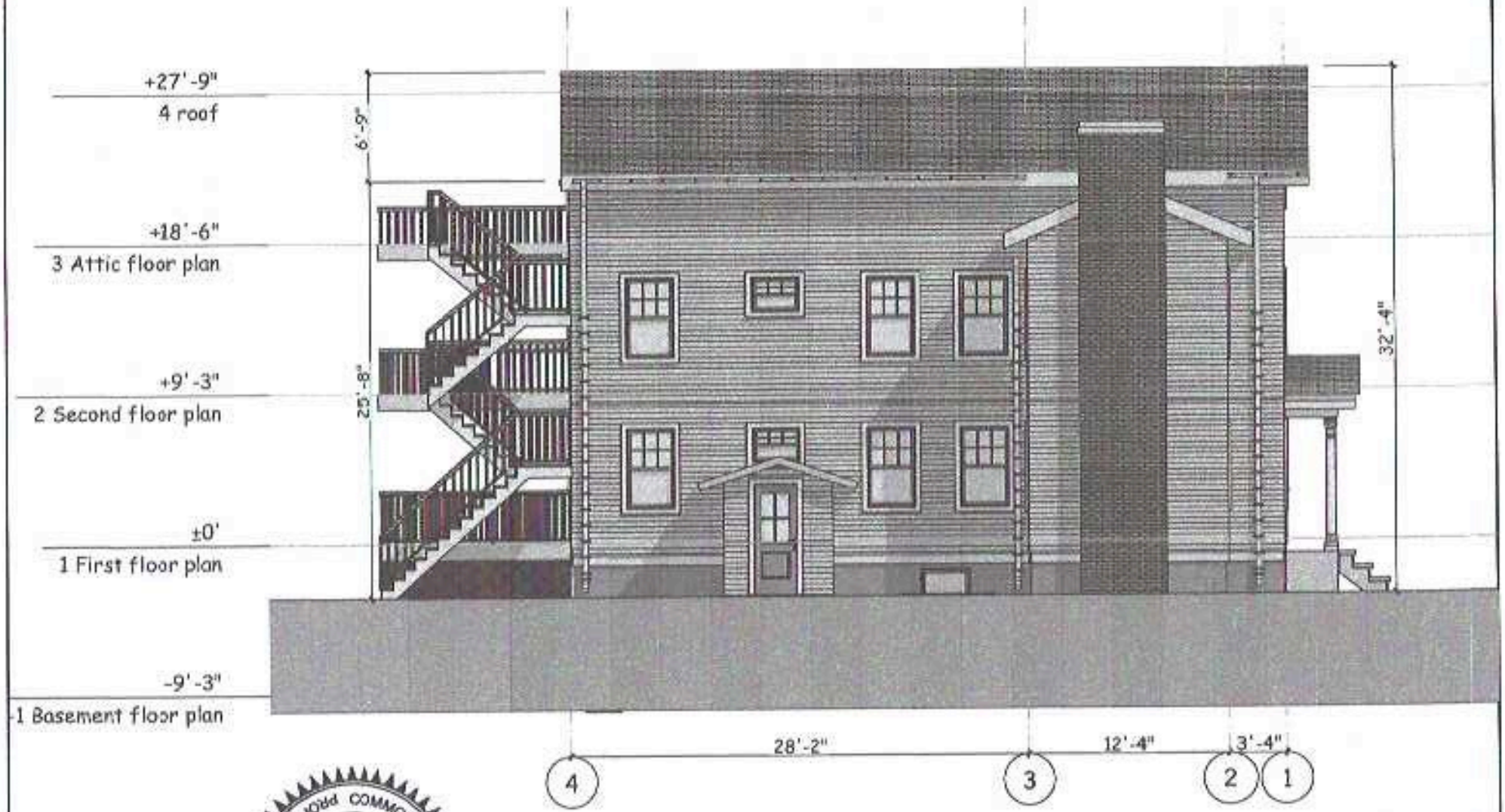
COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER
REGISTERED
ALEX NARINSKY
No. 39138-CH

1/8" = 1'-0"	FACADE 1-4	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 13



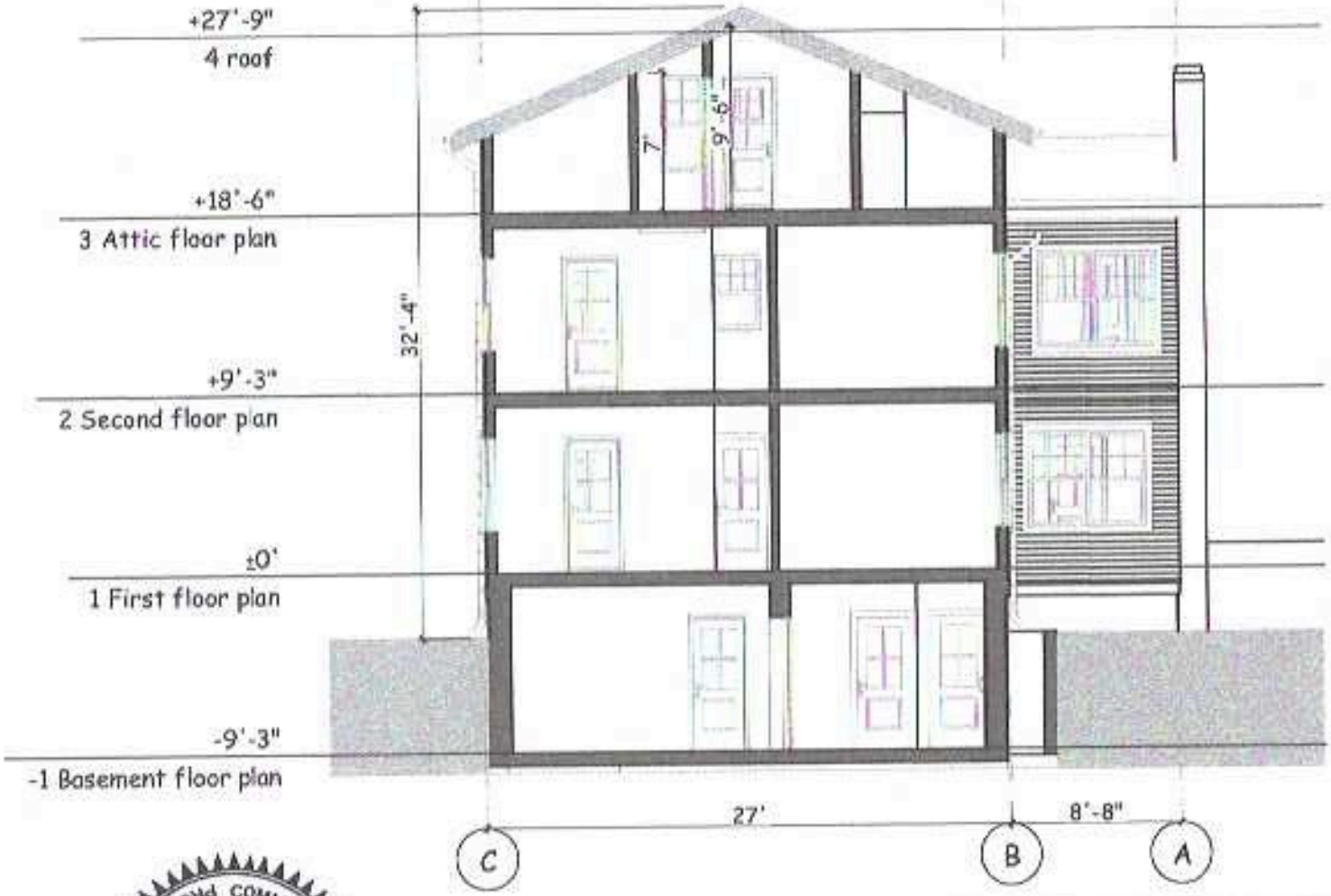
COMMONWEALTH OF MASSACHUSETTS PROFESSIONAL REGISTERED ENGINEER ALEX NARINSKY No. 39138-CH

1/8" = 1'-0"	FACADE A-C	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 14



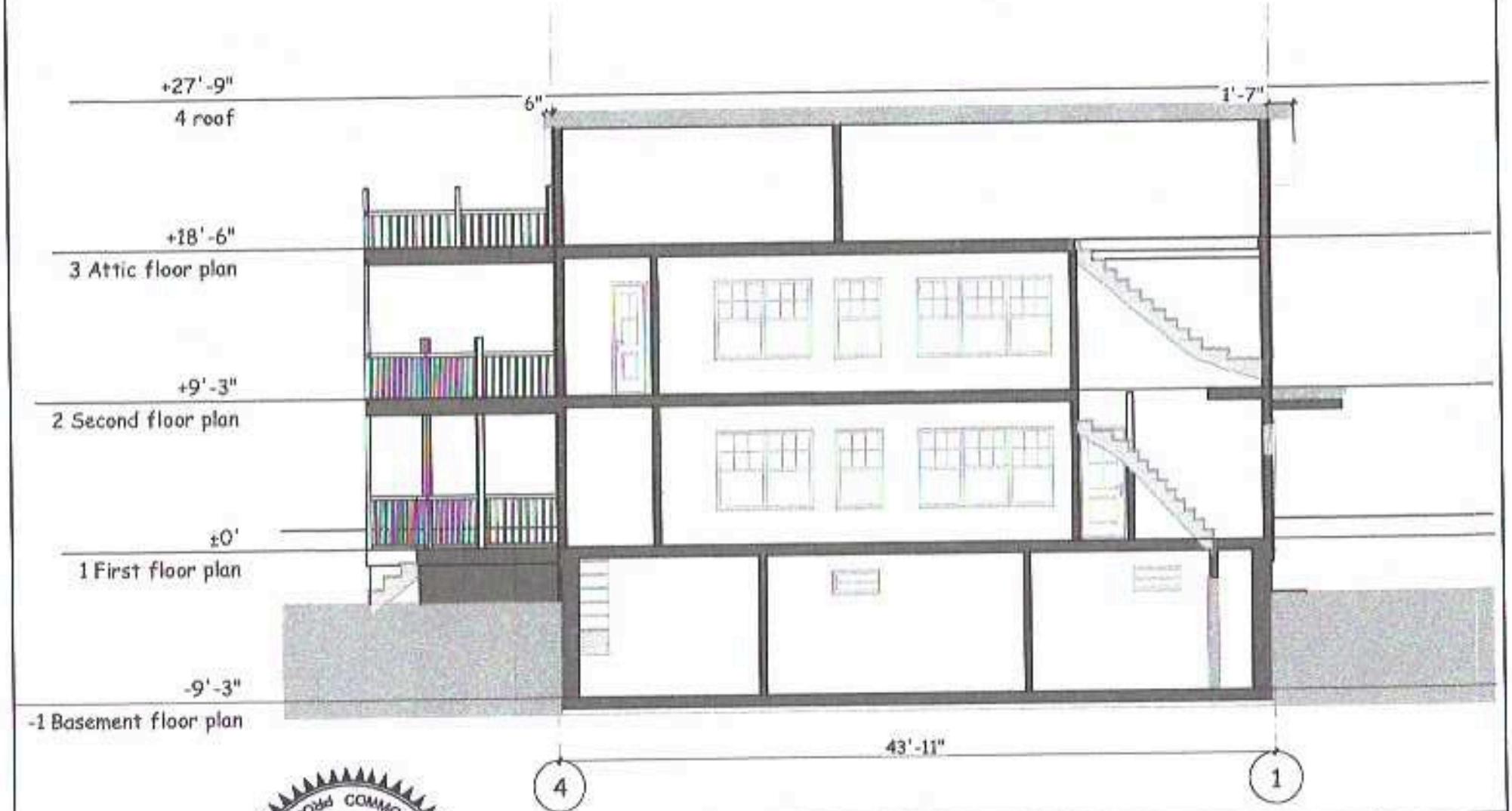
COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

1/8" = 1'-0"	FACADE 4-1	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 15



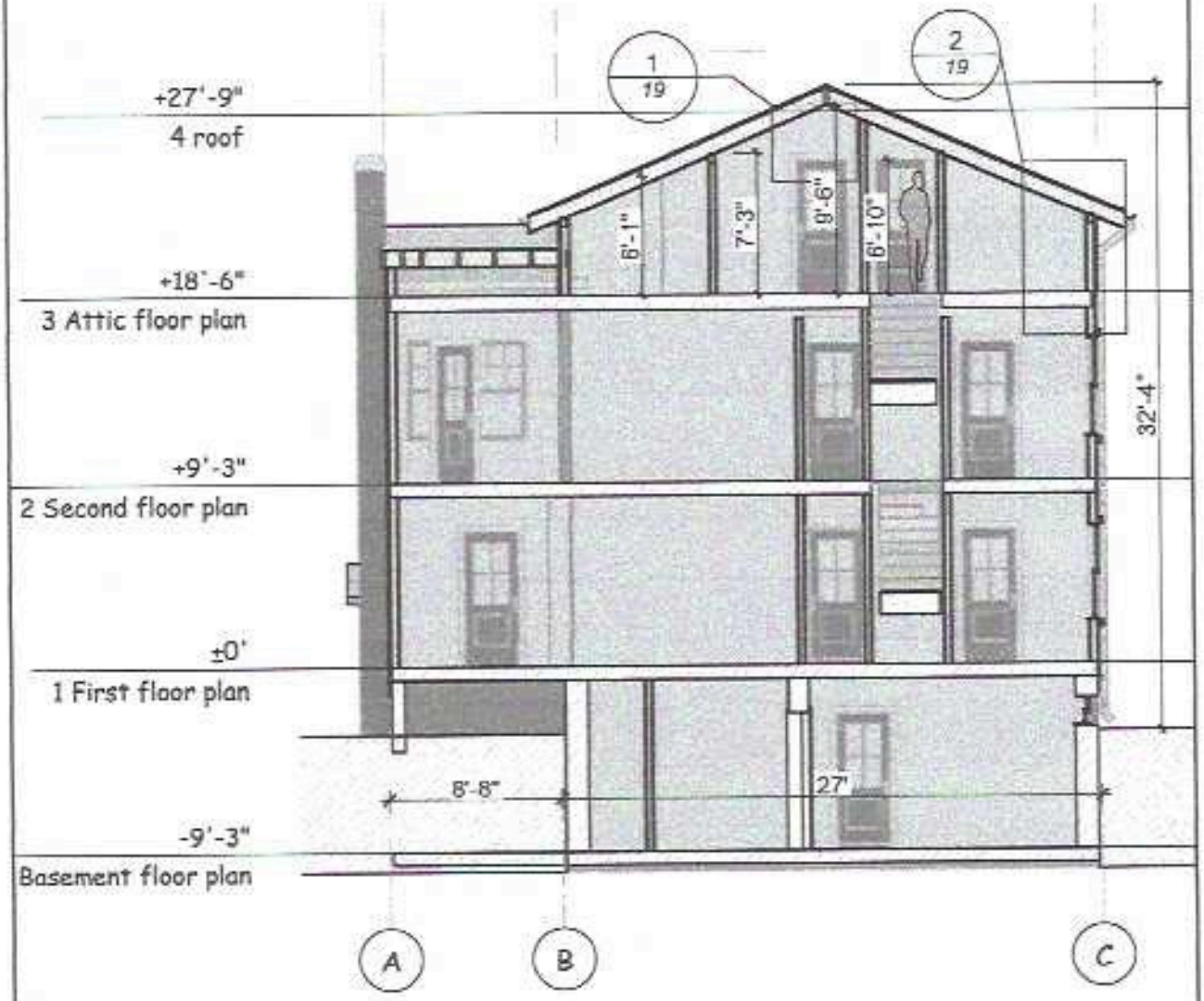
COMMONWEALTH OF MASSACHUSETTS PROFESSIONAL ENGINEER REGISTERED ALEX NARINSKY No. 39138-CH

1/8" = 1'-0"	A SECTION	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 16



COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED
PROFESSIONAL ENGINEER

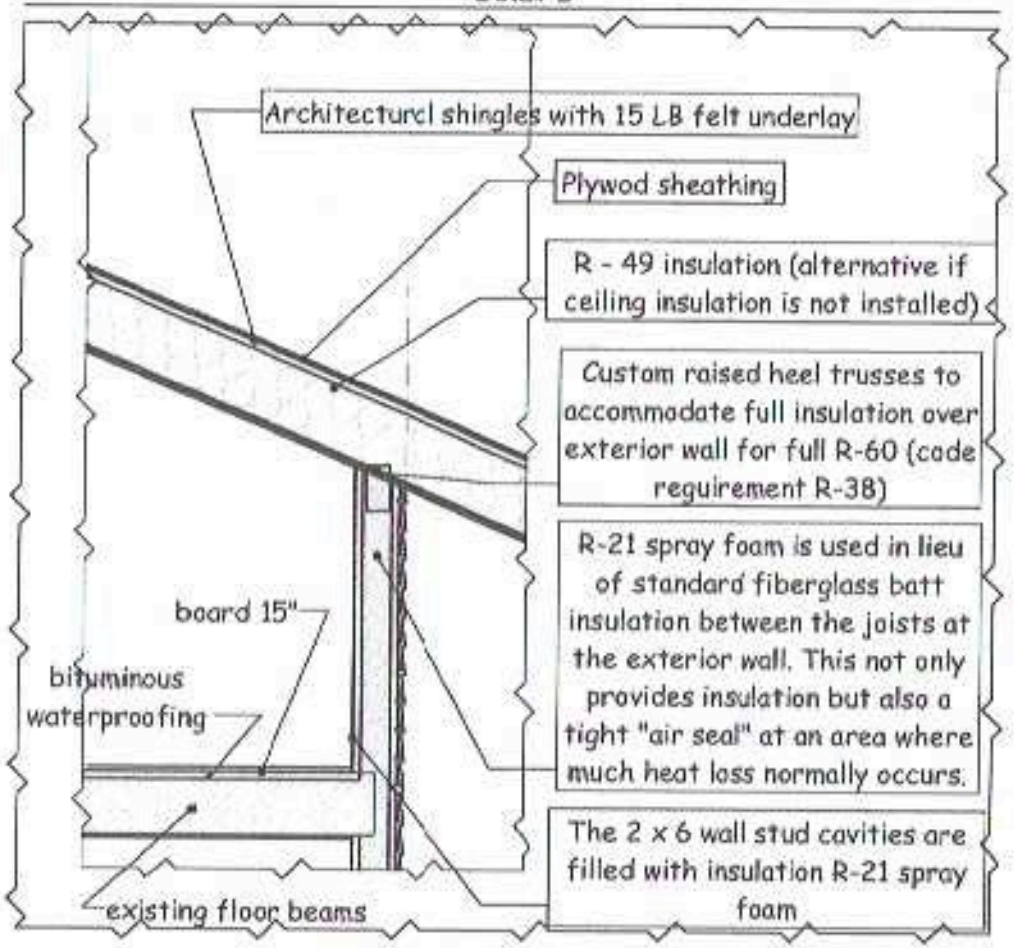
1/8" = 1'-0"	B SECTION	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 17



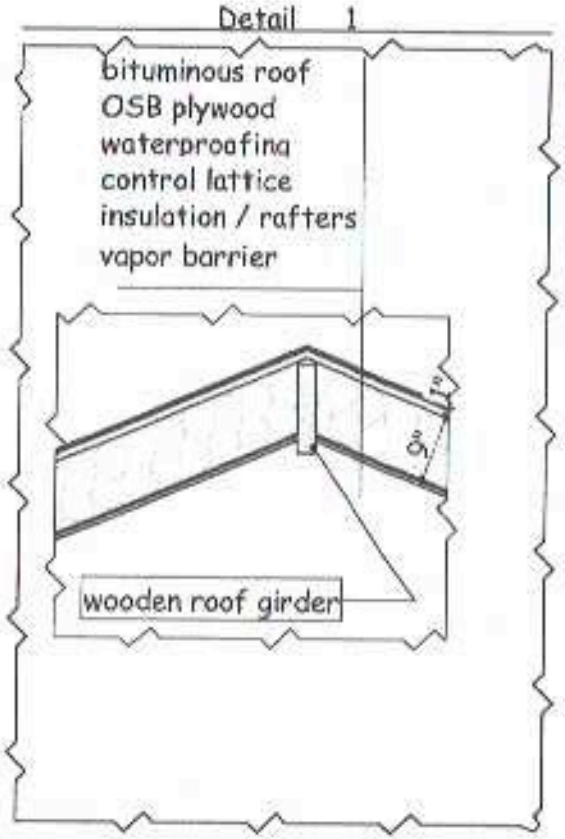
R-21 spray foam is used in place of standard wall and krishi insulation.

1/8" = 1'-0"	F SECTION	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 18

Detail 2



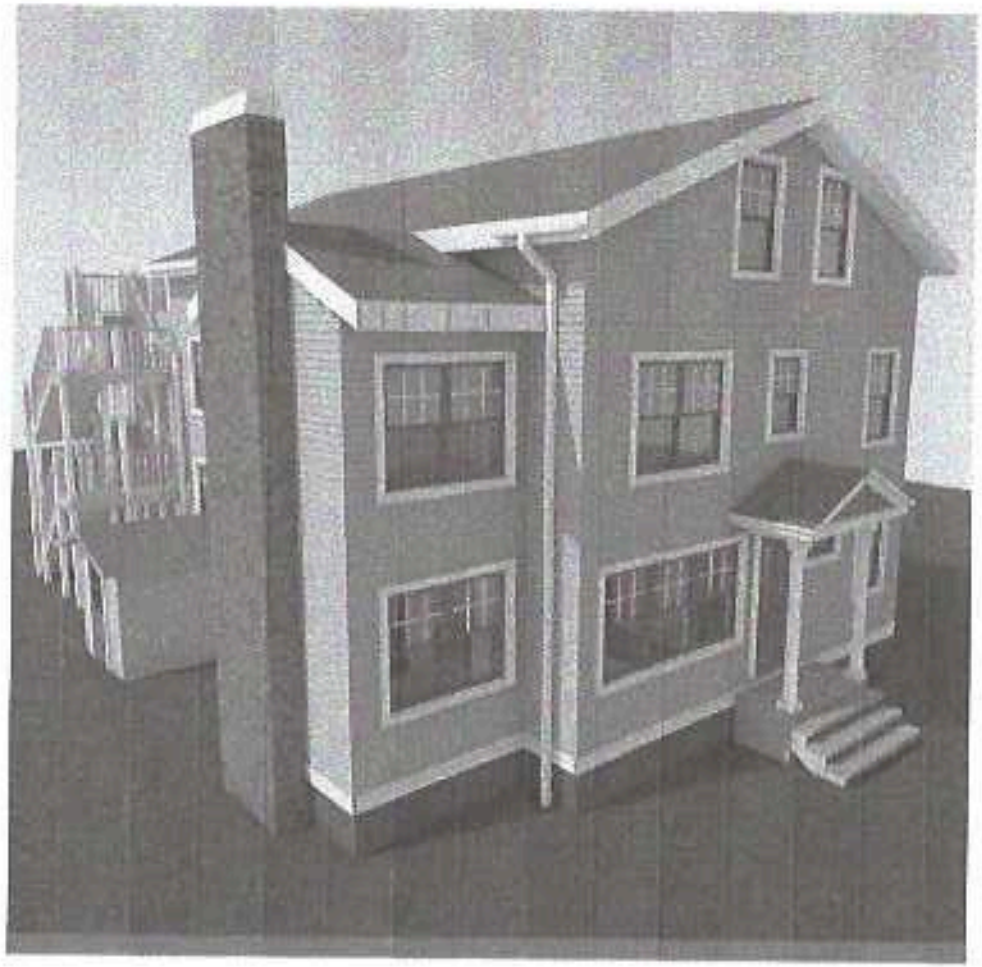
Detail 1

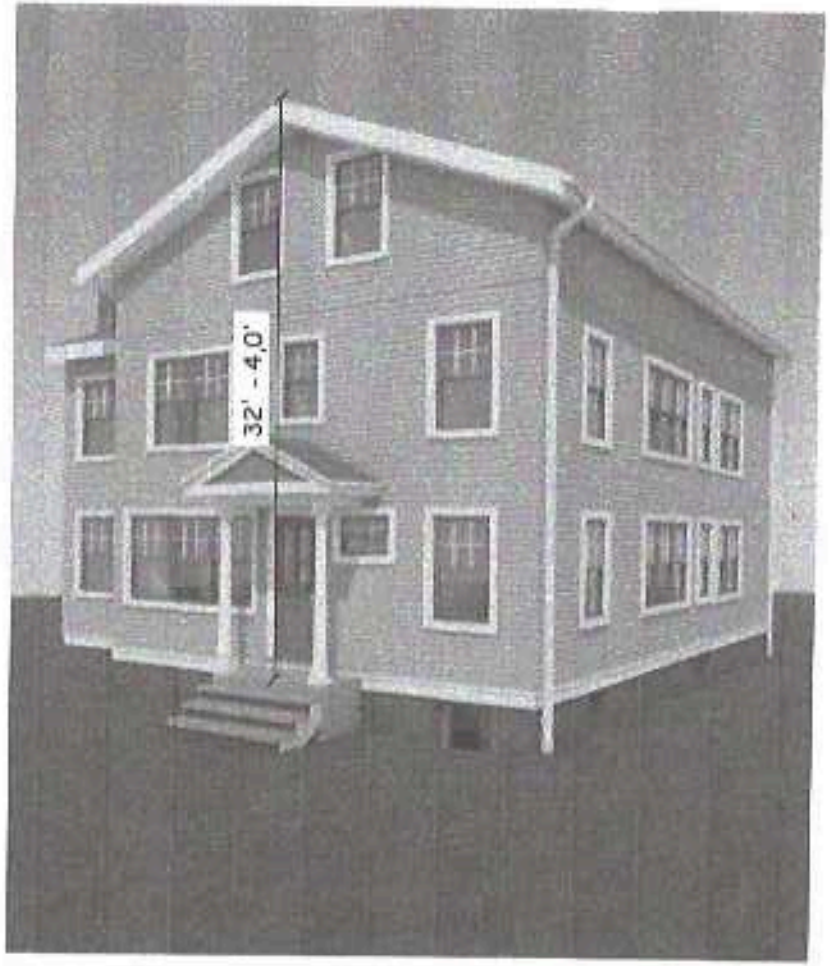


R-21 spray foam is used in place of standard wall and krishi insulation.

COMMONWEALTH OF MASSACHUSETTS PROFESSIONAL ENGINEER REGISTERED ALEX NARINSKY No. 39138-CH

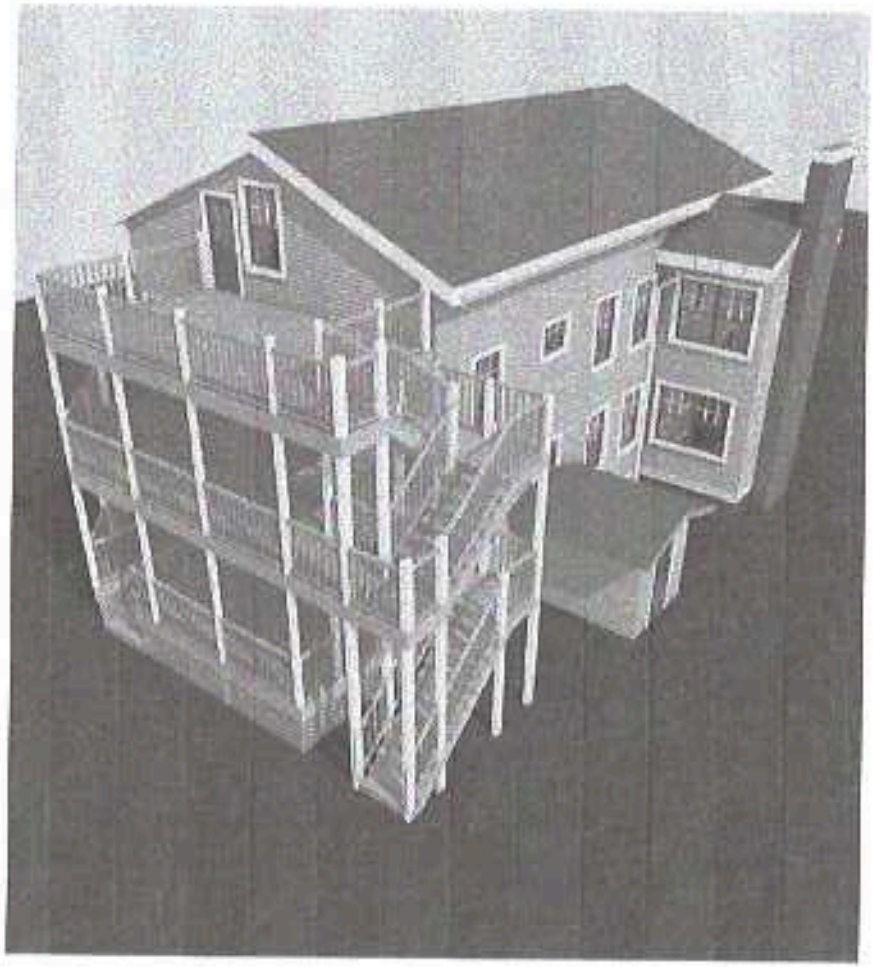
	DETAIL 1,2	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 19

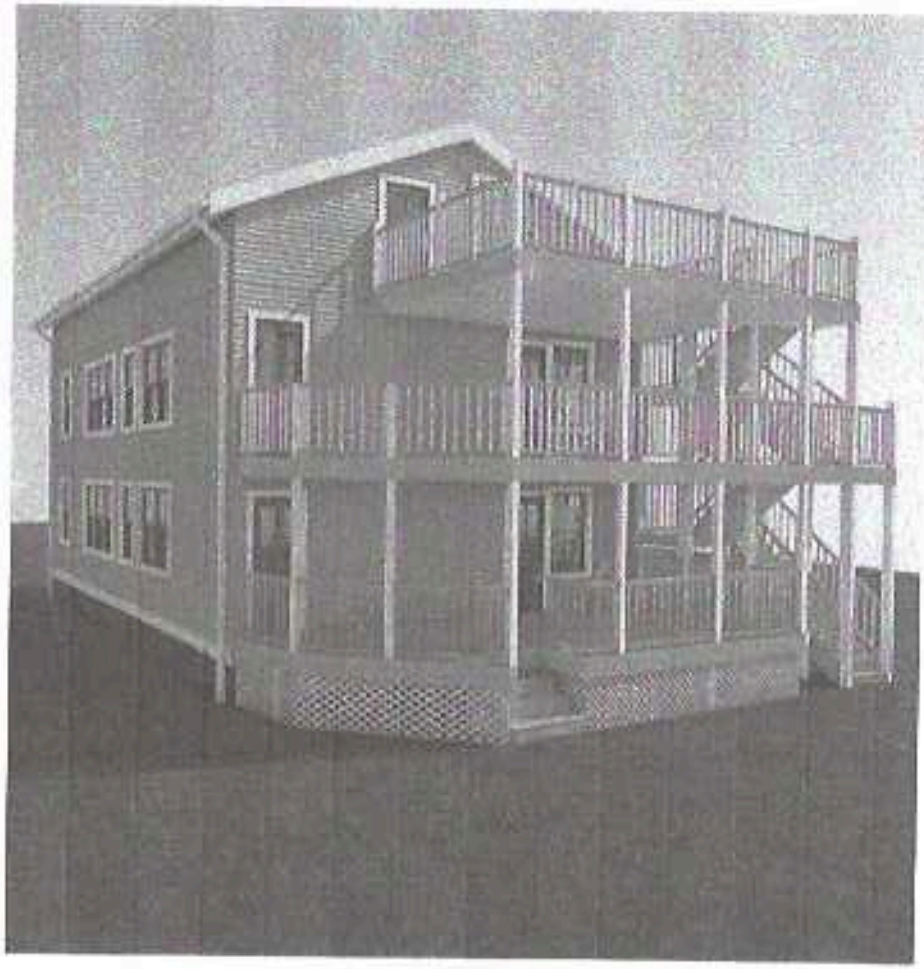




COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

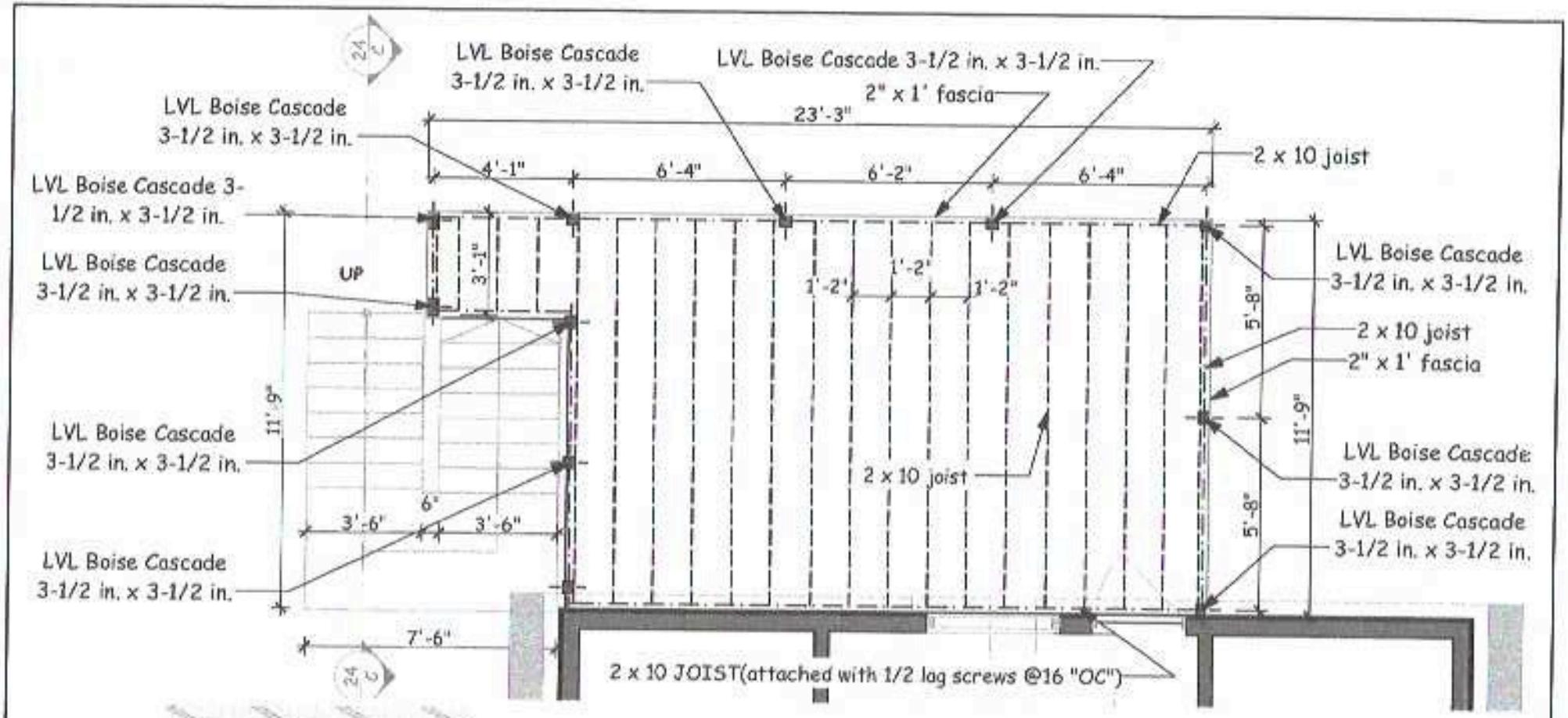
	3D VIEW 1 - 2	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 20

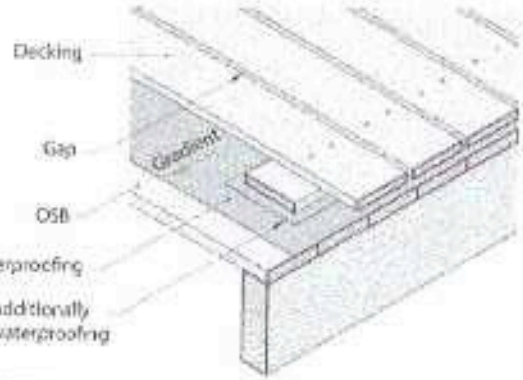




COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER
ALEX NARINSKY
No. 39138-CH
REGISTERED

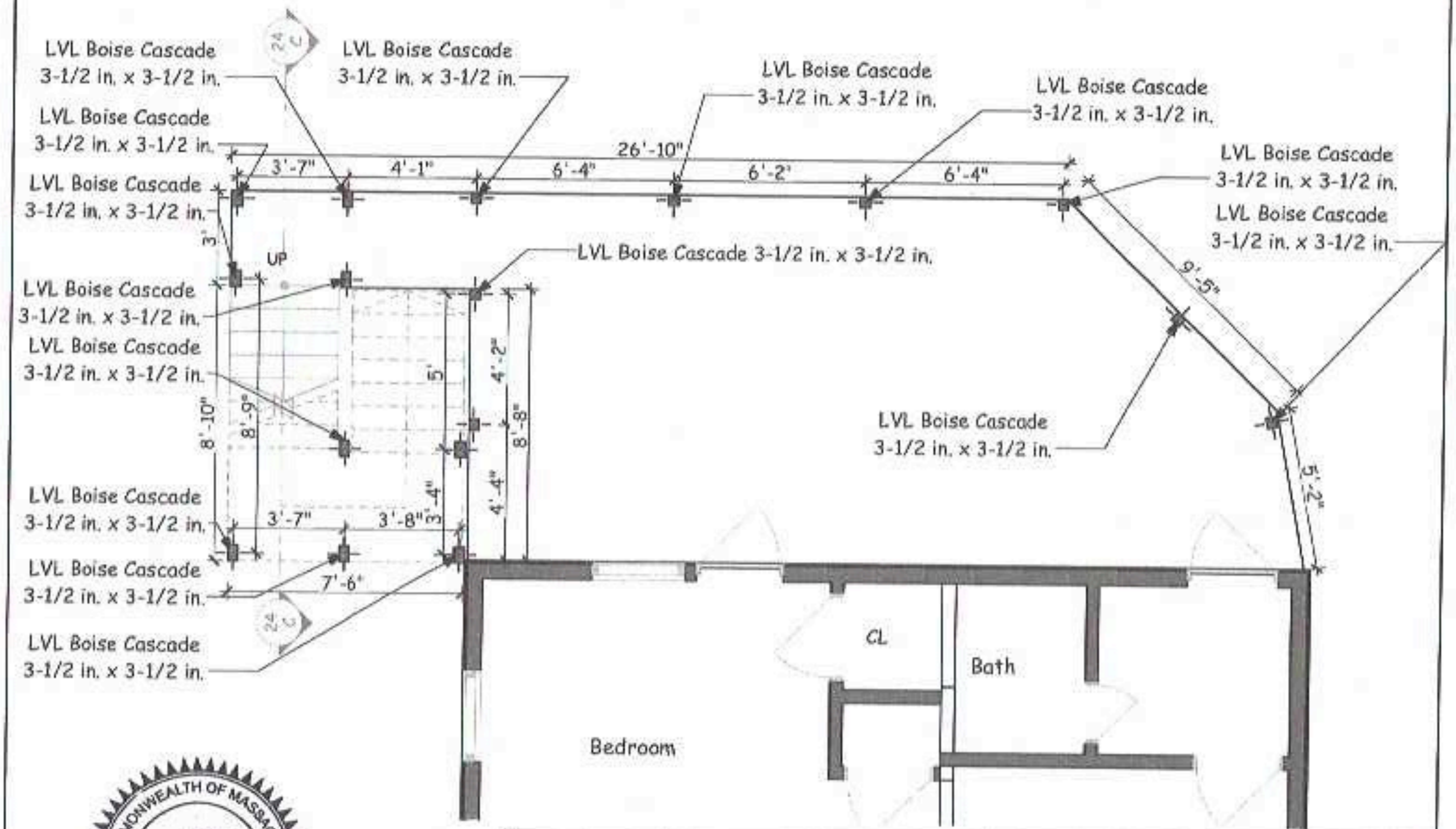
	3D VIEW 3 - 4	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 21





COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED
PROFESSIONAL ENGINEER

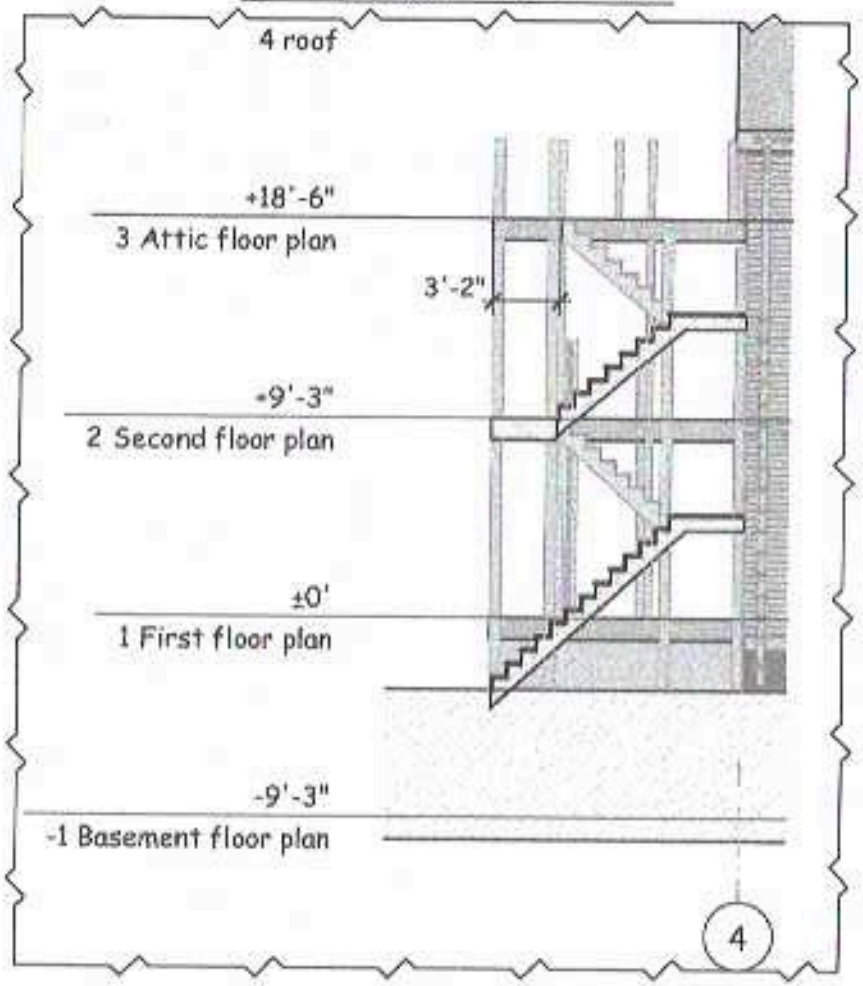
1/4" = 1'-0"	ATTIC FLOOR PLAN. DECK, BEAM SCHEME	DEVELOPED BY ALEX NARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 22



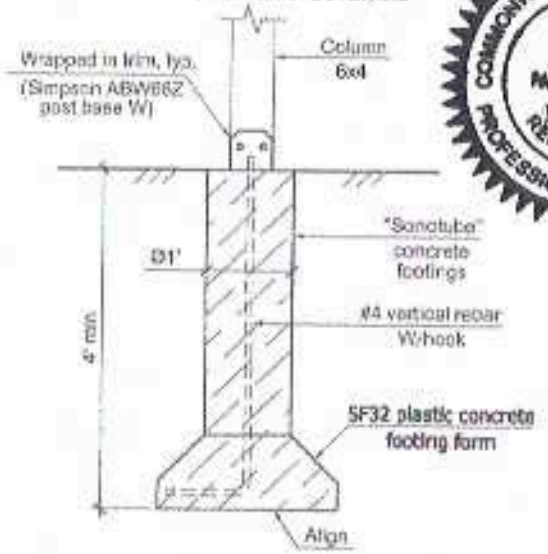
COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED
PROFESSIONAL ENGINEER

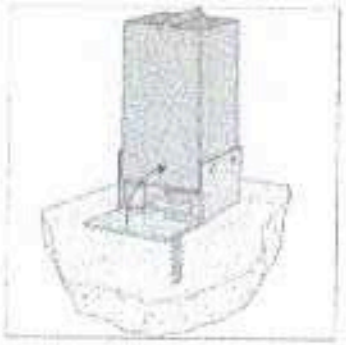
1/4" = 1'-0"	SECOND FLOOR PLAN. DECK PLAN	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 23

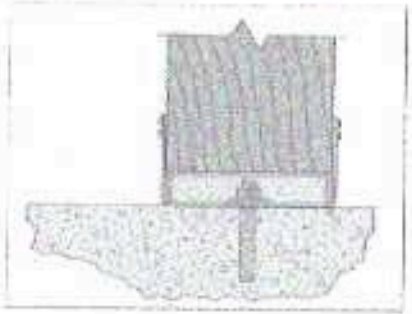
C SECTION 1/8" = 1'-0"



section for new columns







All dimensional lumber must be of construction grade or better
All exposed wood must be pressure treated
All exposed connectors and fasteners must be galvanized
Newel posts shall be no more than 6-0 apart;
Use concrete Fc=3000 psi.

1/8" = 1'-0"	C SECTION. DECK	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 24

Beam Design

L 4.5m beam length

G 0.5kPa dead load W_u -0.7kPa wind up

Q 0.25kPa live load W_d 0.3kPa wind down

t_w 2.6m tributrary width

Load combinations

w_1 1.35 G t_w = 1.755 $\frac{kN}{m}$ w_3 0.9 G t_w + W_u t_w = -0.65 $\frac{kN}{m}$

w_2 1.2 G t_w + 1.5 Q t_w = 2.535 $\frac{kN}{m}$ w_4 1.2 G t_w + W_d t_w = 2.34 $\frac{kN}{m}$

Governing distributed load on beam

w_{max} max $w_1, w_2, abs\ w_3, w_4$ = 2.535 $\frac{kN}{m}$ maximum UDL

Moment and shear forces

M $\frac{w_{max} (L)^2}{8}$ = 6.417 kN m Maximum Moment in beam

V $\frac{w_{max} (L)}{2}$ = 5.704 kN Maximum Shear force in beam

Timber Beam- LVL Boise cascade 3.5" x 9"

0.8

f_b 16.5 MPa $\frac{L}{b}$ = 51.136 $\frac{d}{b}$ = 2.591

f_s 6 MPa k_1 0.8 I_t $\frac{b}{12} d^3$ = 8.692

k_2 0.8

A_s $\frac{2}{3}$ b d = 1.338 10^4 mm^2 k_4 1.14 Z_t $\frac{b}{6} d^2$ = 7.624

k_5 1 10^7 mm^4

ϕM_n k_1 k_4 k_5 k_8 f_b Z_t = 7.343 kN m 10^5 mm^3

Serviceability Deflection

def_{all} $\frac{L}{300}$ = 15 mm allowable deflection

w_{sls} G t_w + 0.6 W_u t_w = 0.062 $\frac{kN}{m}$ wind serviceability UDLshort term

w_{sls} G t_w + 0.7 Q t_w = 1.755 $\frac{kN}{m}$ gravity serviceability UDLshort term

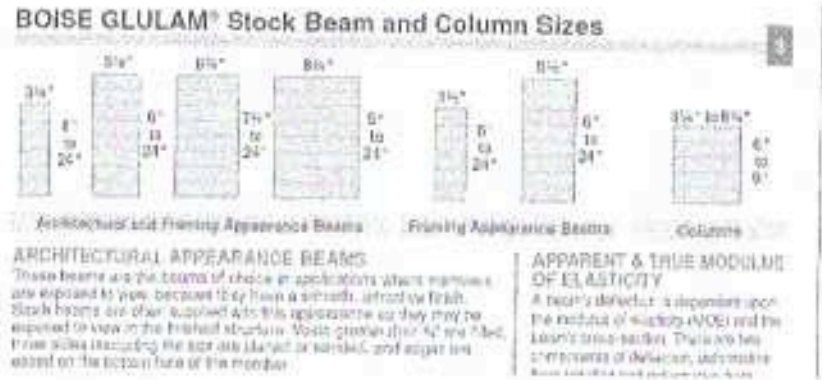
b

88mm d 228mm

I

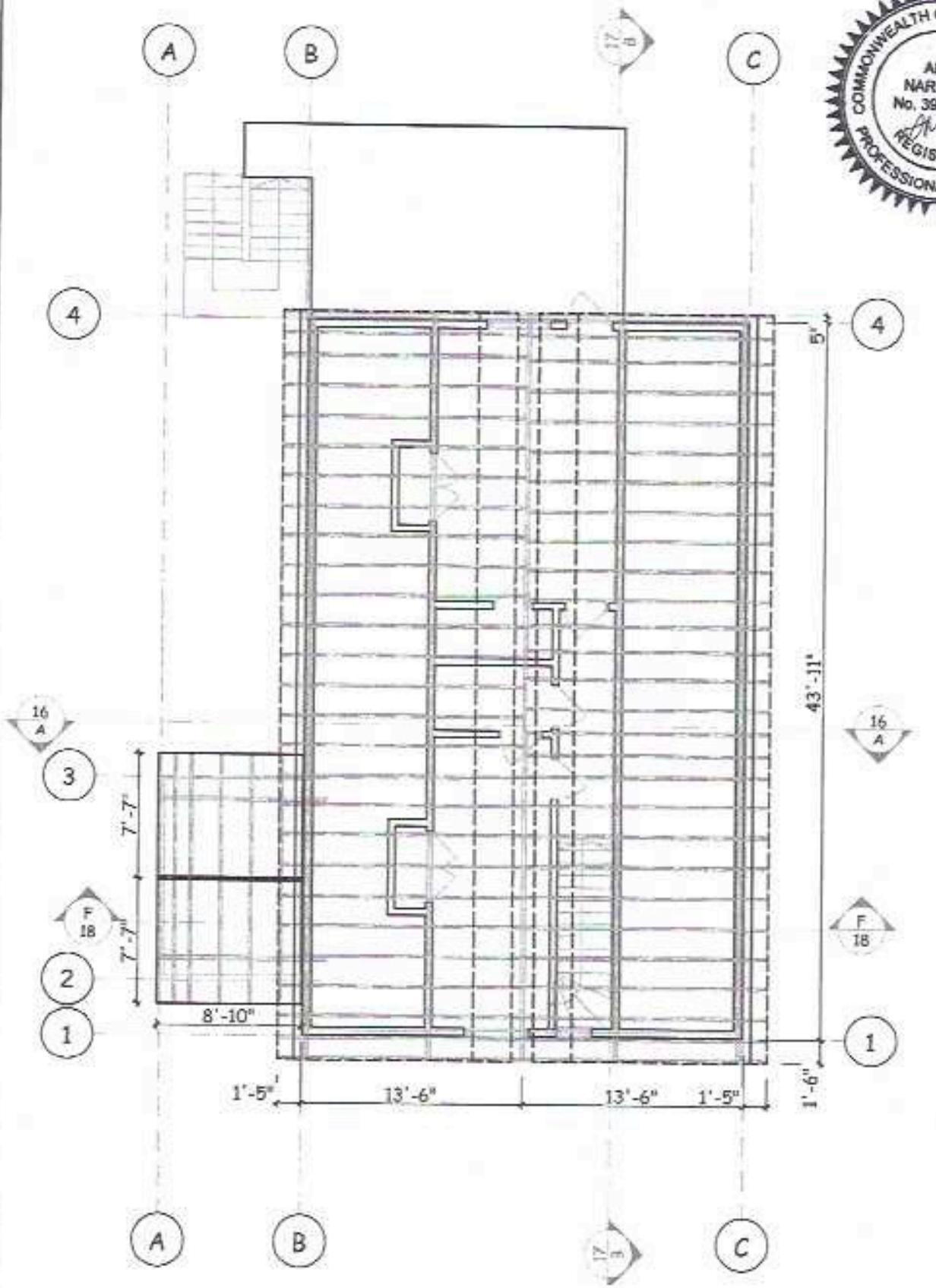
$\frac{b\ d^3}{12}$ = $8.692 10^{-5}$ m^4 E 12.4GPa k_2 2

def $\frac{5\ w_{sls}\ L^4}{384\ E\ I}$ k_2 = 17.369mm actual deflection midspan of beam- acceptable

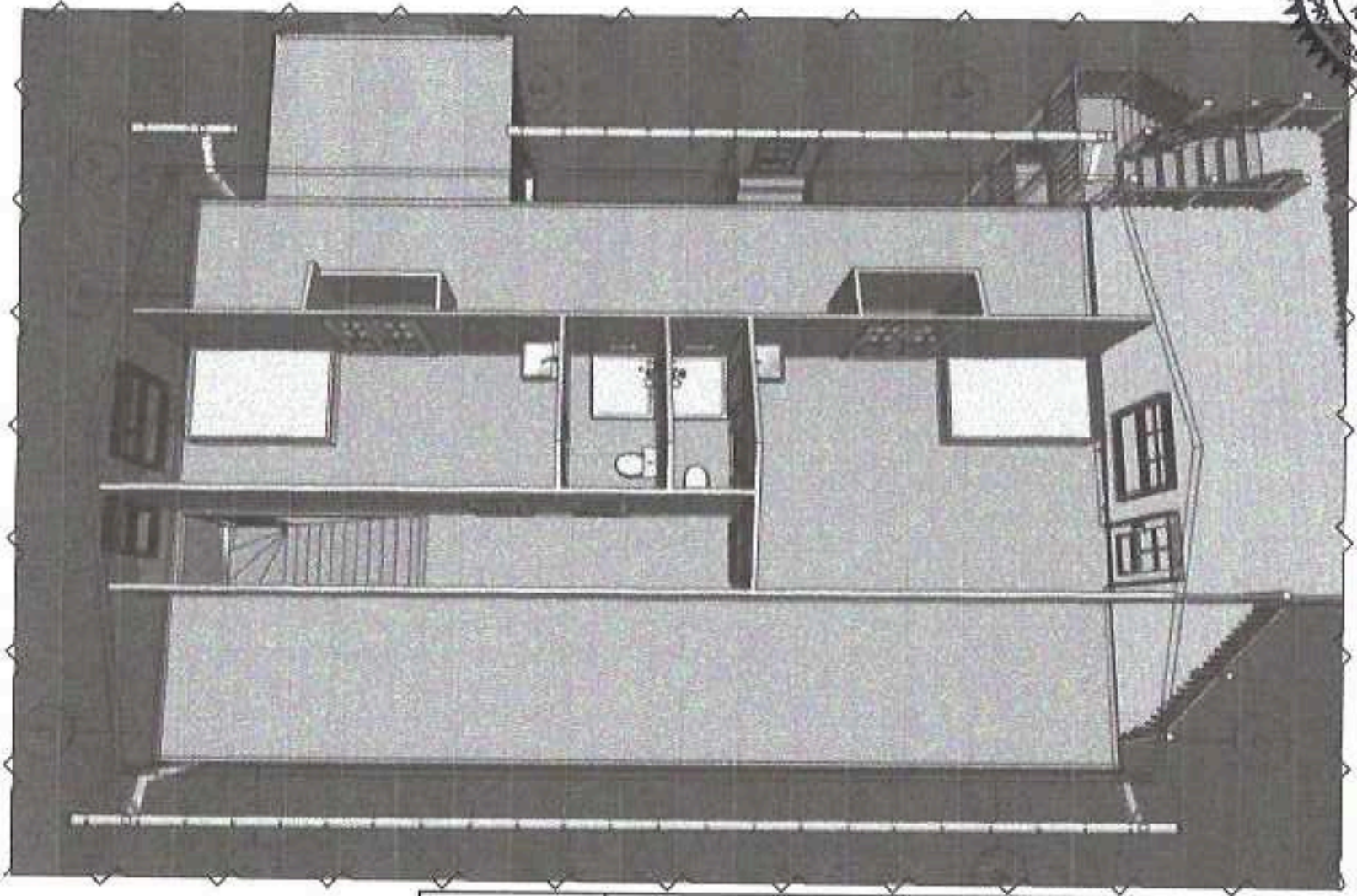


Therefore use 3.5 x 9 inch Boise Glulam timber ridge beam.

	CALCULATION OF THE DESIGN OF THE RIDGE BEAM	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 25

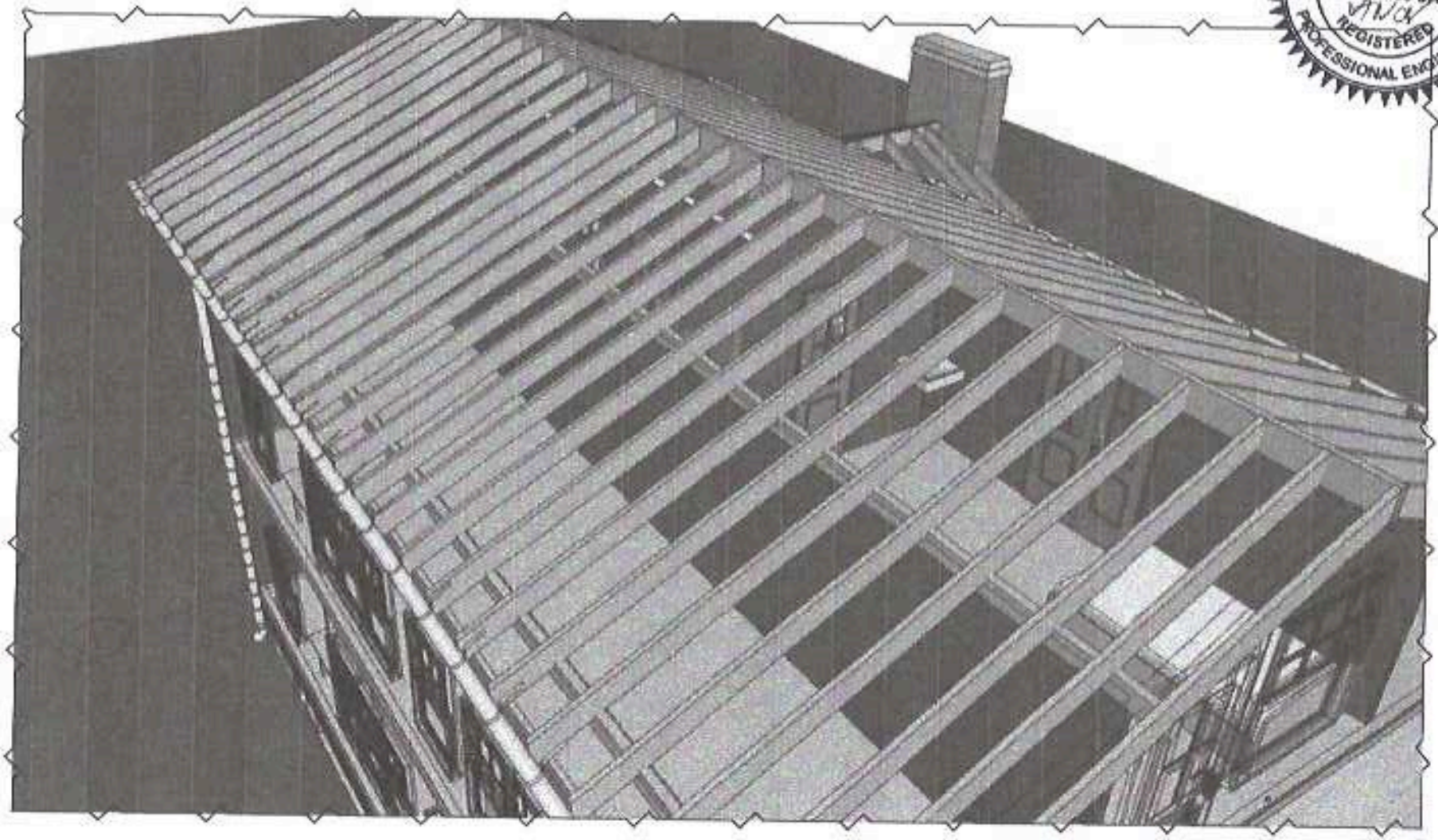


1/8" = 1'-0"	ATTIC FLOOR PLAN. PLAN ROOF. CONSTRUCTION	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 26



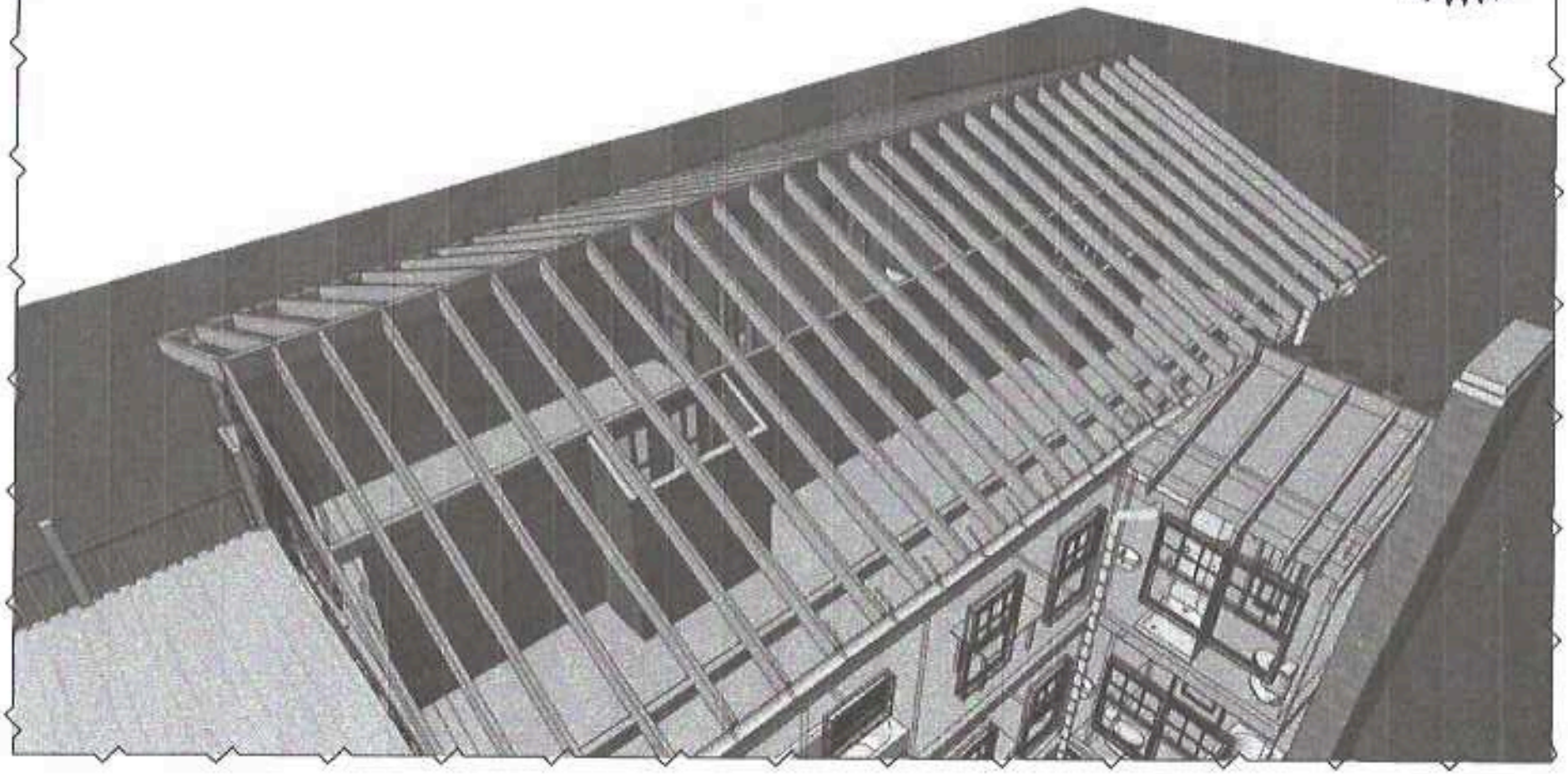
COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

	ROOF. CONSTRUCTION 3D VIEW 01	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 27



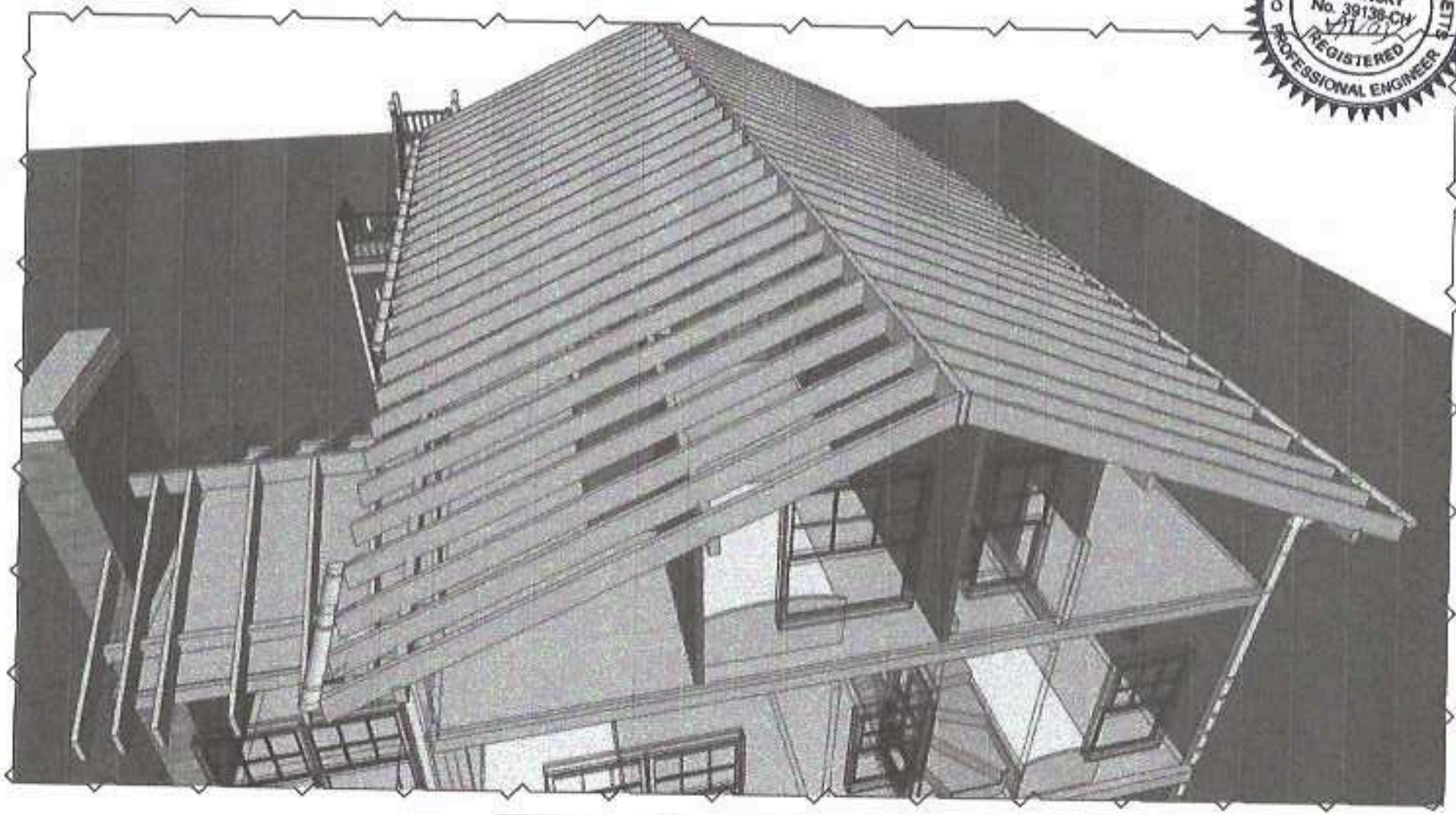
COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

	ROOF. CONSTRUCTION 3D VIEW 02	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 28



COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED PROFESSIONAL ENGINEER

	ROOF. CONSTRUCTION 3D VIEW 03	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 29



COMMONWEALTH OF MASSACHUSETTS
ALEX NARINSKY
No. 39138-CH
REGISTERED
PROFESSIONAL ENGINEER

	ROOF. CONSTRUCTION 3D VIEW 04	DEVELOPED BY ALEXNARINSKY, PE, LICENSE EN 39138-CH MA 02165	SHEET NUMBER 30