

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY <sup>f</sup>	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP <sup>g</sup>	ICE BARRIER UNDERLAYMENT REQUIRED <sup>h</sup>	FLOOD HAZARDS <sup>9</sup>	AIR FREEZING INDEX <sup>j</sup>	MEAN ANNUAL TEMP <sup>k</sup>
	Speed <sup>d</sup> (mph)	Topographic effects <sup>e</sup>	Special wind region <sup>l</sup>	Wind-borne debris zone <sup>m</sup>		Weathering <sup>a</sup>	Frost line depth <sup>b</sup>	Termite <sup>c</sup>					
50	126	NO	NO	NO	B	Severe	48"						

- a. Weathering may require a higher strength concrete or *grade* of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2(3). The *grade* of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C145, C216 or C652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). The *jurisdiction* shall fill in the frost line depth column with the minimum depth of footing below finish *grade*.
- c. The *jurisdiction* shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
- d. The *jurisdiction* shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(4)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. The outdoor design dry-bulb temperature shall be selected from the columns of 97<sup>th</sup>-percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the *building official*.
- f. The *jurisdiction* shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. The *jurisdiction* shall fill in this part of the table with (a) the date of the *jurisdiction's* entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective FIRMs and BFBMs or other flood hazard map adopted by the authority having *jurisdiction*, as amended.
- h. In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall fill in this part of the table with "NO."
- i. The *jurisdiction* shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- j. The *jurisdiction* shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- l. In accordance with Figure R301.2(4)A, where there is local historical data documenting unusual wind conditions, the *jurisdiction* shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- m. In accordance with Section R301.2.1.2.1, the *jurisdiction* shall indicate the wind-borne debris wind zone(s). Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.

The *building thermal envelope* shall meet the requirements of Table R402.1.2, based on the *climate zone* specified in Chapter 3.

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT <sup>a</sup>										
CLIMATE ZONE	FENESTRATION U-FACTOR <sup>b</sup>	SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b, e</sup>	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE <sup>i</sup>	FLOOR R-VALUE	BASEMENT <sup>c</sup> WALL R-VALUE	SLAB <sup>d</sup> R-VALUE & DEPTH	CRAWL SPACE <sup>c</sup> WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.32	0.55	0.25	38	20 or 13+5 <sup>h</sup>	8/13	19	5/13 <sup>f</sup>	0	5/13
4 except Marine	0.32	0.55	0.40	49	20 or 13+5 <sup>h</sup>	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.30	0.55	NR	49	20 or 13+5 <sup>h</sup>	13/17	30 <sup>g</sup>	15/19	10, 2 ft	15/19
6	0.30	0.55	NR	49	20+5 <sup>h</sup> or 13+10 <sup>h</sup>	15/20	30 <sup>g</sup>	15/19	10, 4 ft	15/19
7 and 8	0.30	0.55	NR	49	20+5 <sup>h</sup> or 13+10 <sup>h</sup>	19/21	38 <sup>g</sup>	15/19	10, 4 ft	15/19

- a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of insulation, the installed R-value of the insulation shall not be less than the R-value specified in the table.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

**Exception:** In Climate Zones 1 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30.
- c. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation on the interior of the basement wall. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. Alternatively, compliance with "15/19" shall be R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home.
- d. R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation R-value for slabs, as indicated in the table. The slab edge insulation for heated slabs shall not be required to extend below the slab.
- e. There are no SHGC requirements in the Marine Zone.
- f. Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.
- g. Alternatively, insulation sufficient to fill the framing cavity and providing not less than an R-value of R-19.
- h. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "13+5" means R-13 cavity insulation plus R-5 continuous insulation.
- i. Mass walls shall be in accordance with Section R402.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.

← Jurisdiction to fill in table.



Isometric views are for visualization of concept only and are NOT to scale. Two tone siding is shown to delineate new work from existing. New siding and trim to match existing.

[illegible]

COVER

PROJECT DESIGNED FOR:  
**Jeff Lizotte**  
181 Burbank Road  
Sutton MA

DATE:

11/21/2022

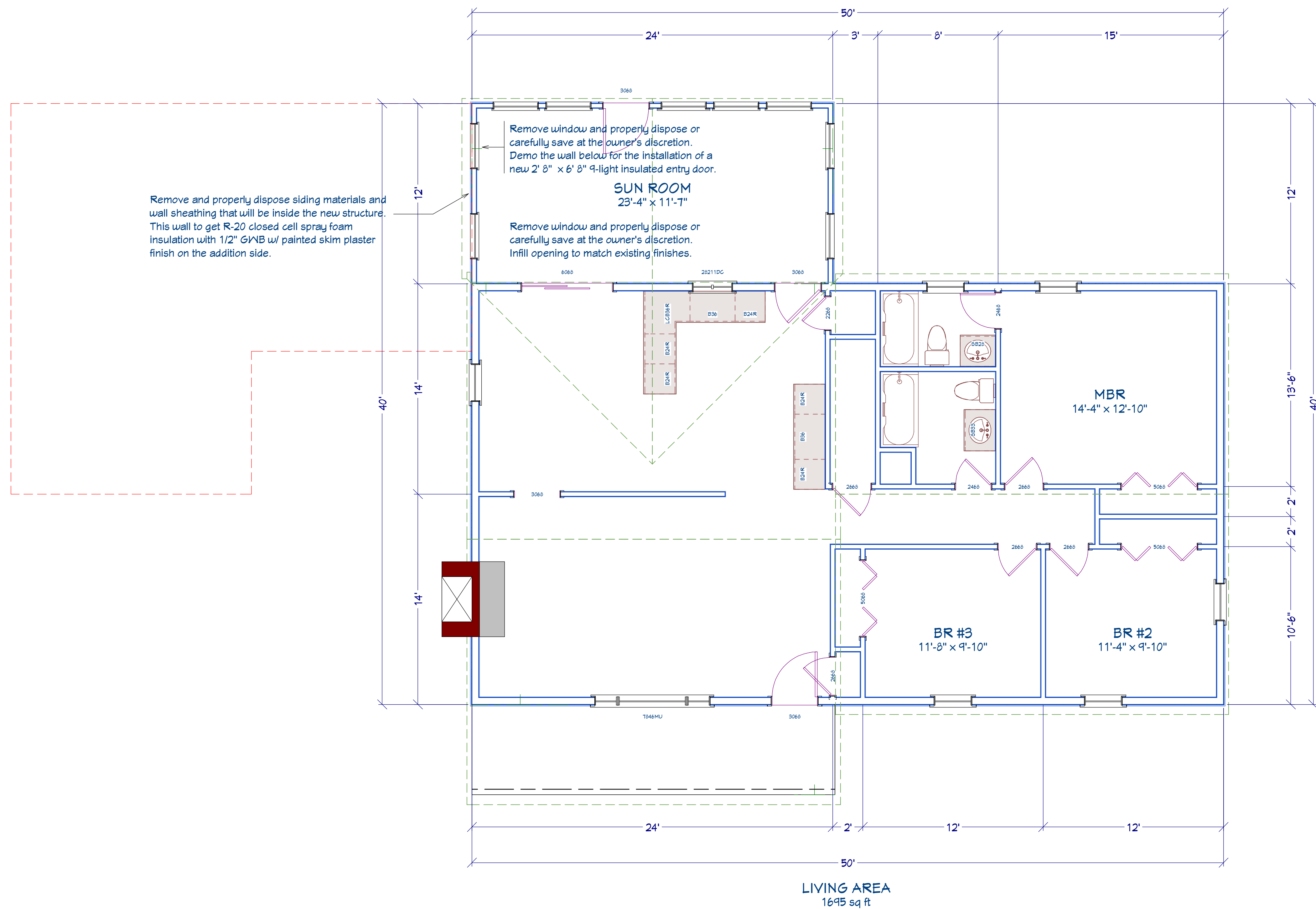
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A-0

ALL NEW framing and construction to be in accordance with MA Code 780 CMR 9th Edition and IRC 2015 and for 1 & 2 Family Residential Construction and where applicable, the IEBC 2015. While good faith effort has been made to incorporate as much of that information as practical in these documents, human error or omission is possible. It is the licensed builder's responsibility to review these documents prior to construction and to proceed in accordance with applicable codes.





Existing 1st Floor Plan 1/4 in = 1 ft



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REVISION TABLE	
NUMBER	DATE


Existing / Demolition
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PROJECT DESIGNED FOR: <b>Jeff Lizotte</b> 181 Burbank Road Sutton MA
-------------------------------------------------------------------------------

DATE:
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11/21/2022

SCALE:
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SHEET:
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A-1





Proposed Left Elevation 1/4 in = 1 ft



Proposed Front Elevation 1/4 in = 1 ft



Proposed Rear Elevation 1/4 in = 1 ft

Provide gutters and downspouts to direct roof rainwater runoff away from the building.

New siding and roofing to match existing or replace all as new.

New windows to match existing style and size as close as practical.

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REVISION TABLE		REVISION BY	DESCRIPTION
NUMBER	DATE		

## Elevations

PROJECT DESIGNED FOR:  
**Jeff Lizotte**  
181 Burbank Road  
Sutton MA

DATE:

11/21/2022

SCALE:

SHEET:

A-2

Window r.o.'s are approximate. Builder to verify and match existing before framing or ordering windows.



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A-3



R408.1 Ventilation

The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a *basement*) shall have ventilation openings through foundation walls or exterior walls. The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m<sup>2</sup>) for each 150 square feet (14 m<sup>2</sup>) of under-floor space area, unless the ground surface is covered by a Class 1 vapor retarder material. Where a Class 1 vapor retarder material is used, the minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m<sup>2</sup>) for each 1,500 square feet (140 m<sup>2</sup>) of under-floor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building.

R408.2 Openings for Under-Floor Ventilation

The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m<sup>2</sup>) for each 150 square feet (14 m<sup>2</sup>) of under-floor area. One ventilation opening shall be within 3 feet (915 mm) of each corner of the building. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed 1/4 inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grill or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm) thick.

**Exception:** The total area of ventilation openings shall be permitted to be reduced to 1/150 of the under-floor area where the ground surface is covered with an approved Class 1 vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.

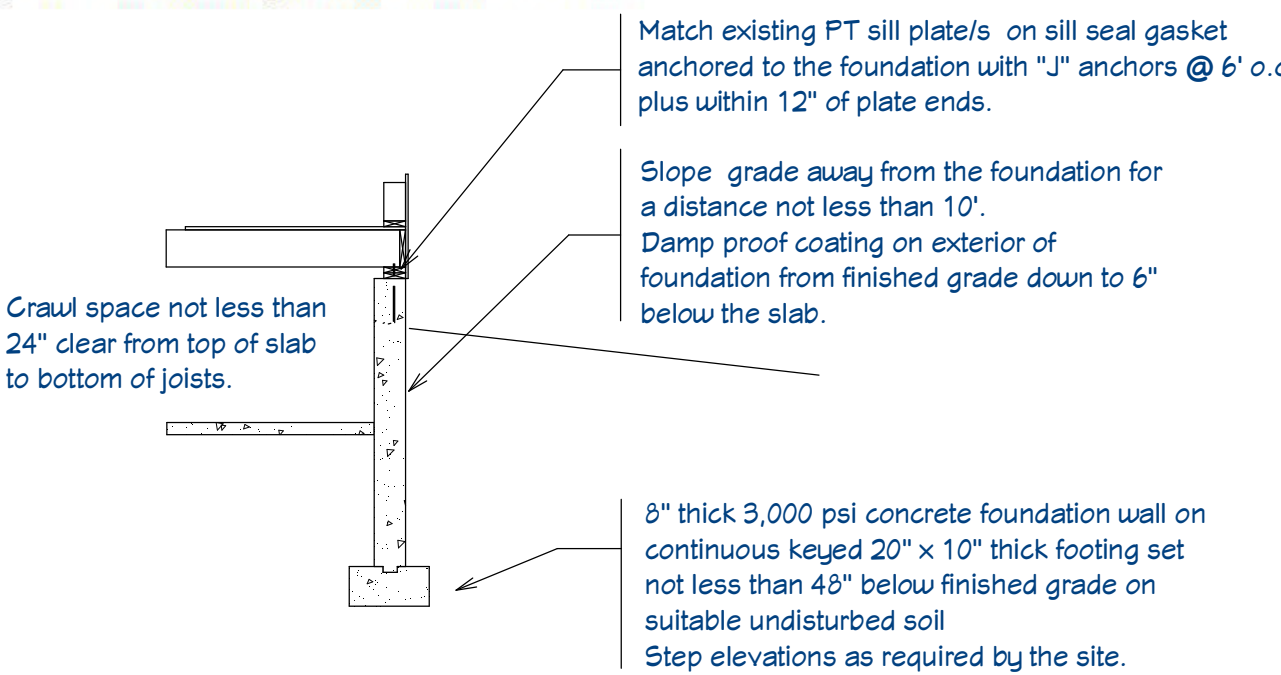
TABLE R404.1.2(1)  
MINIMUM HORIZONTAL REINFORCEMENT FOR CONCRETE BASEMENT WALLS<sup>a</sup>

MAXIMUM UNSUPPORTED HEIGHT OF BASEMENT WALL (feet)	LOCATION OF HORIZONTAL REINFORCEMENT
≤ 8	One No. 4 bar within 12 inches of the top of the wall story and one No. 4 bar near mid-height of the wall story.
> 8	One No. 4 bar within 12 inches of the top of the wall story and one No. 4 bar near third points in the wall story.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa.  
a. Horizontal reinforcement requirements are for reinforcing bars with a minimum yield strength of 40,000 psi and concrete with a minimum concrete compressive strength of 2,500 psi.  
b. See Section R404.1.3.2 for minimum reinforcement required for foundation walls supporting above-grade concrete walls.

TABLE R404.1.2(4) MINIMUM VERTICAL REINFORCEMENT FOR 10-INCH NOMINAL FLAT CONCRETE BASEMENT WALLS <sup>a, b, c, d, e, f, g, h, i</sup>				
MAXIMUM UNSUPPORTED WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>a</sup> (feet)	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)		
		Soil classes <sup>a</sup> and design lateral soil (psf per foot of depth)		
		GW, GC, GR, GW, SP 45	GM, GC, SM, SM, SC and ML 60	SC, ML-CL and inorganic CL 60
8	4	NR	NR	NR
	5	NR	NR	NR
	6	NR	NR	NR
	7	NR	NR	NR
	8	6 @ 48	6 @ 35	6 @ 28
9	4	NR	NR	NR
	5	NR	NR	NR
	6	NR	NR	NR
	7	NR	NR	6 @ 31
	8	NR	6 @ 31	6 @ 28
10	4	NR	NR	NR
	5	NR	NR	NR
	6	NR	NR	NR
	7	NR	NR	6 @ 28
	8	NR	6 @ 28	6 @ 28
	9	6 @ 33	6 @ 28	6 @ 21
	10	6 @ 28	6 @ 23	6 @ 17

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.1571 kPa<sup>2</sup>/m, 1 pound per square inch = 6.895 kPa.  
NR = Not required.  
a. Soil classes are in accordance with the Unified Soil Classification System. Refer to Table R405.1.  
b. Table values are based on reinforcing bars with a minimum yield strength of 60,000 psi concrete with a minimum specified compressive strength of 2,500 psi and vertical reinforcement being located at the centerline of the wall. See Section R404.1.3.3.7.2.  
c. Vertical reinforcement with a yield strength of less than 60,000 psi and/or bars of a different size than specified in the table are permitted in accordance with Section R404.1.3.3.7.6 and Table R404.1.2(9).  
d. NR indicates no vertical reinforcement is required.  
e. Deflection criterion is L/240, where L is the height of the basement wall in inches.  
f. Interpolation is not permitted.  
g. Where walls will retain 4 feet or more of unbalanced backfill, they shall be laterally supported at the top and bottom before backfilling.  
h. See Section R404.1.3.2 for minimum reinforcement required for basement walls supporting above-grade concrete walls.  
i. See Table R608.3 for tolerance from nominal thickness permitted for flat walls.  
j. The use of this table shall be prohibited for soil classifications not shown.



SECTION F1-F1

Less than 7' vertical unbalanced fill.  
No vertical re-bar required.

R408.3 Unvented Crawl Space

Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where the following items are provided:

1. Exposed earth is covered with a continuous Class 1 vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall or insulation.
2. One of the following is provided for the under-floor space:
  - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m<sup>2</sup>) of crawl space floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11 of this code.
  - 2.2. Conditioned air supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m<sup>2</sup>) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11 of this code.
  - 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

R408.4 Access

Access shall be provided to all under-floor spaces. Access openings through the floor shall be a minimum of 18 inches by 24 inches (457 mm by 610 mm). Openings through a perimeter wall shall be not less than 16 inches by 24 inches (407 mm by 610 mm). Where any portion of the through-wall access is below grade, an areaway not less than 16 inches by 24 inches (407 mm by 610 mm) shall be provided. The bottom of the areaway shall be below the threshold of the access opening. Through wall access openings shall not be located under a door to the residence. See Section M1305.1.4 for access requirements where mechanical equipment is located under floors.

Section R406 Foundation Waterproofing and Dampproofing

R406.1 Concrete and Masonry Foundation Dampproofing

Except where required by Section R406.2 to be waterproofed, foundation walls that retain earth and enclose interior spaces and floors below grade shall be dampproofed from the higher of (a) the top of the footing or (b) 6 inches (152 mm) below the top of the basement floor, to the finished grade. Masonry walls shall have not less than 3/8 inch (9.5 mm) portland cement paring applied to the exterior of the wall. The paring shall be dampproofed in accordance with one of the following:

1. Bituminous coating.
2. Three pounds per square yard (1.63 kg/m<sup>2</sup>) of acrylic modified cement.
3. One-eighth-inch (3.2 mm) coat of surface-bonding cement complying with ASTM C 887.
4. Any material permitted for waterproofing in Section R406.2.
5. Other approved methods or materials.

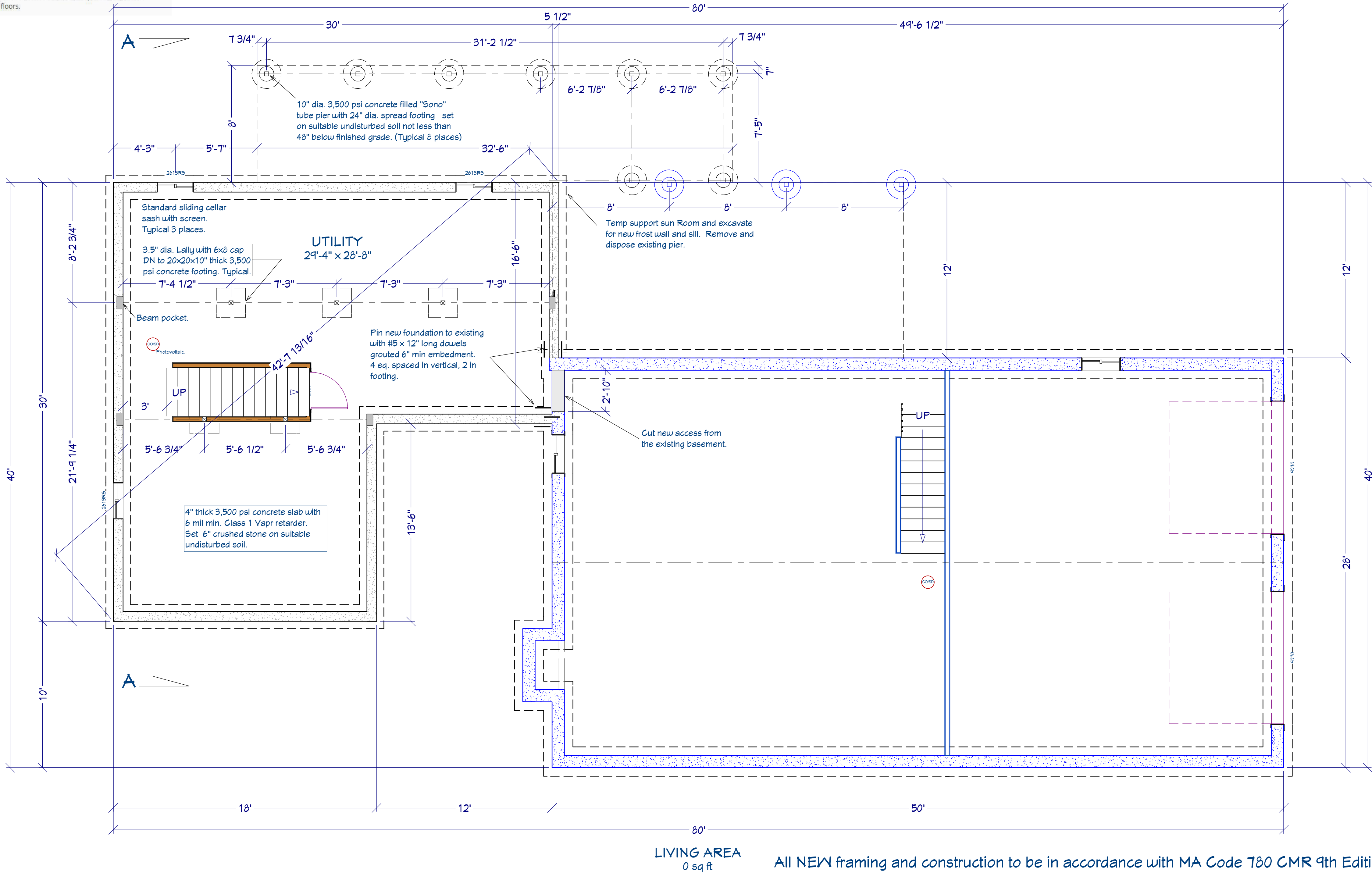
**Exception:** Parging of unit masonry walls is not required where a material is approved for direct application to the masonry.

Concrete walls shall be dampproofed by applying any one of the listed dampproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

STRUCTURAL LOADS:

Roof - Snow Load: 50 psf  
Roof - Dead Load: 15 psf  
Floors - Live Load: 40 psf (Bedrooms @ 30psf)  
Floors - DL: 10 psf + 2psf for hardwood or tile floor areas.  
Attic - Live Load: 10 psf (No Storage attic.)  
Attic - Dead Load: 10 psf

- New headers for exterior wall openings to be per R602.7(1)  
- New headers for interior bearing wall openings to be per R602.7(2)



LIVING AREA  
0 sq ft

Proposed Foundation Plan 1/4 in = 1 ft

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REVISION TABLE

NUMBER	DATE	REVISION	DESCRIPTION

FOUNDATION PLAN

SECTIONS

PROJECT DESIGNED FOR:

Jeff Lizotte

181 Burbank Road

Sutton MA

DATE:

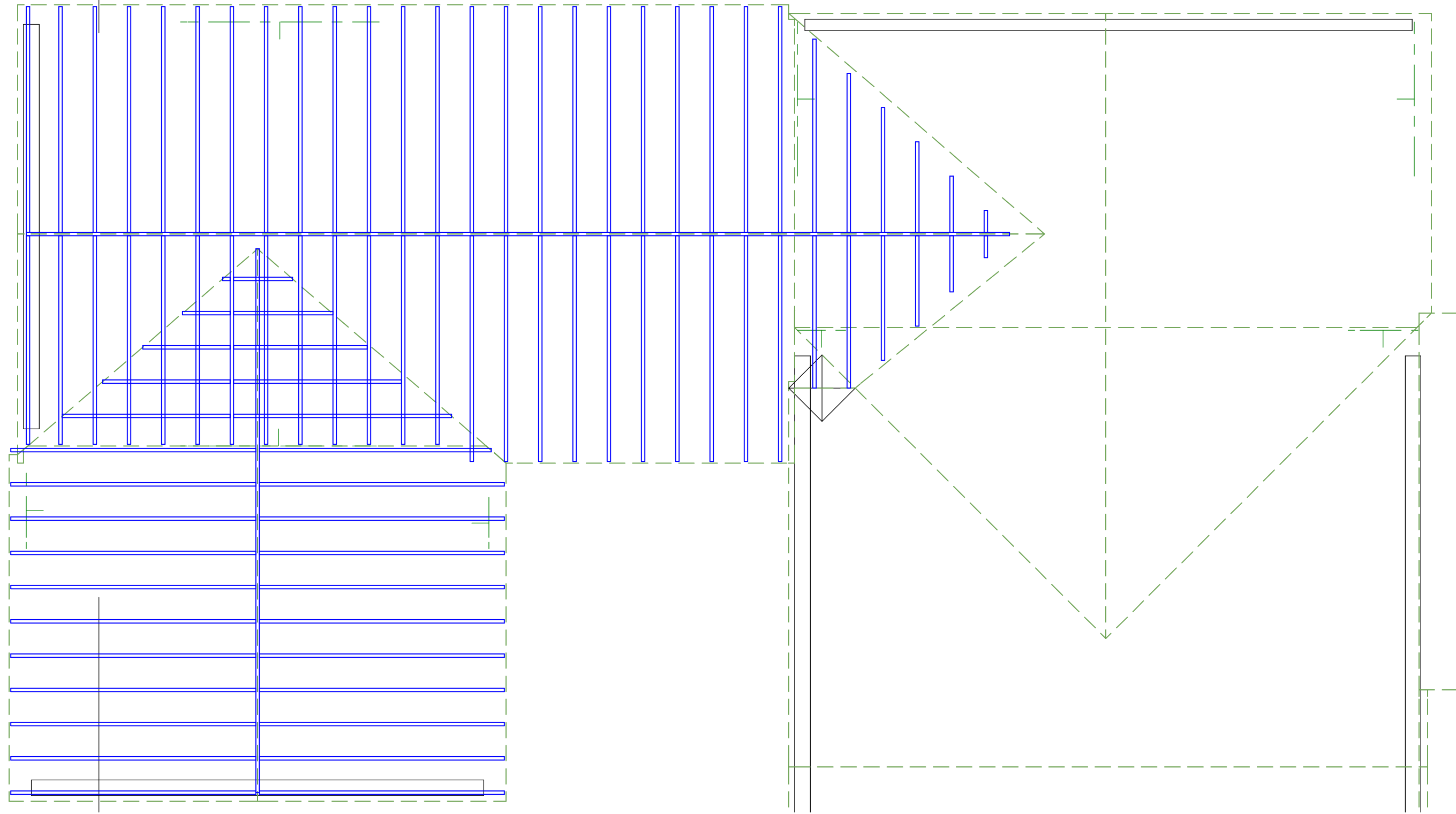
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SCALE:

SHEET:

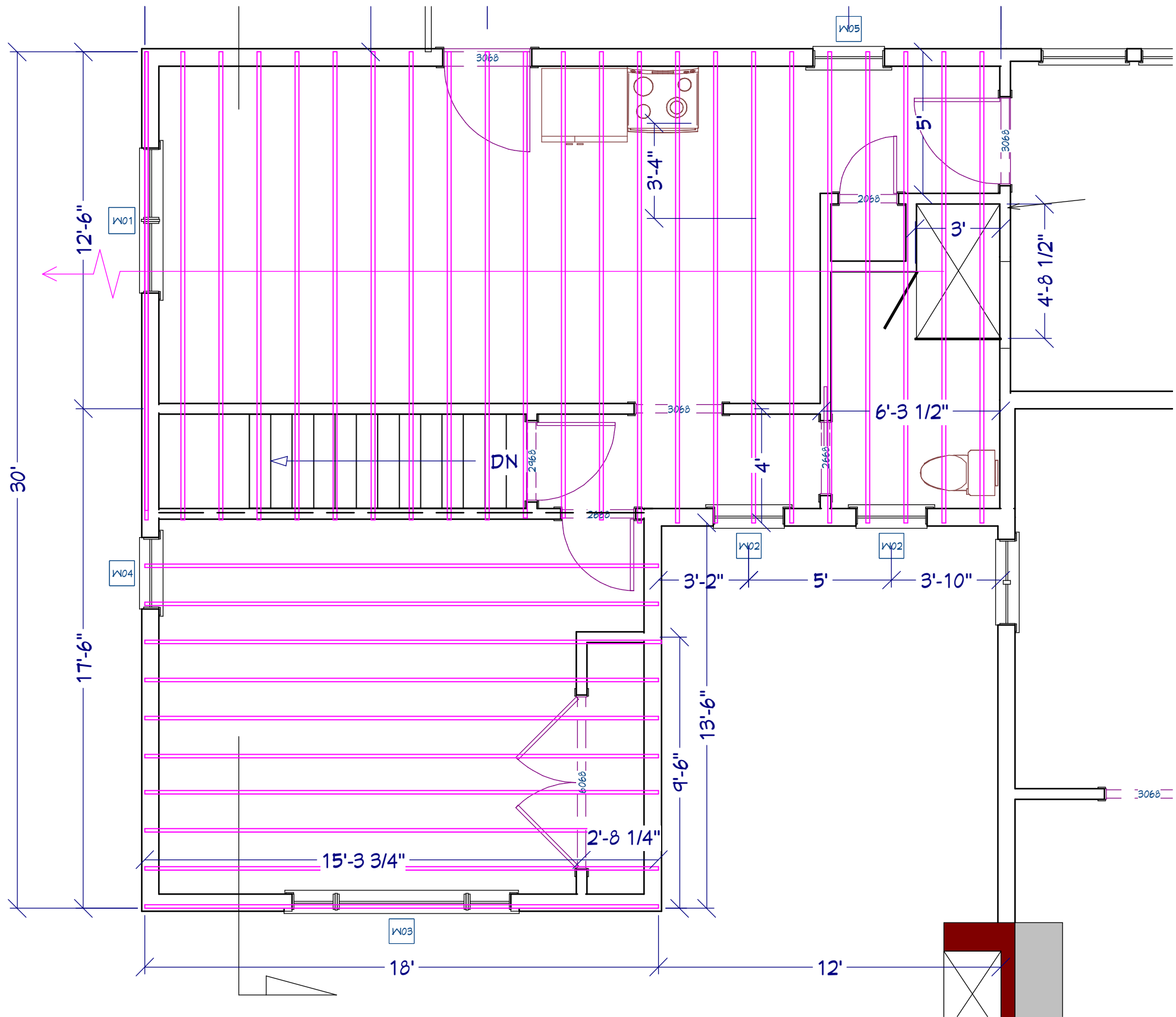
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Proposed Roof Plan 1/4 in = 1 ft

All LVL beam sizes to be verified by the manufacturer / supplier.  
2x8 KD #25PF ceiling joists @ 16" o.c.



Ceiling Frame 1/4 in = 1 ft

All LVL beam sizes to be verified by the manufacturer / supplier.  
2x8 KD #25PF ceiling joists @ 16" o.c.  
Insulation is deeper than the framing, therefore NO Storage Attic  
10psf LL max.

ROOF FRAMING NOTES:

- All Rafters to be 2x8 KD #25PF @ 16" o.c. U.N.O.
- 2x ridge boards stacked if necessary to cover rafter plumb cuts.
- Rafters connect to flush beams or ledgers with one USP# JA3 or MPT bendable metal framing connector OR slopeable rafter hanger.
- Overlay roof areas to bear on 2x valley cleats.
- Valley cleats to be properly fastened through the lower roof sheathing to the lower roof rafters.
- Provide 1/2" CDX sheathing with 15# felt paper - OR - 1/2" Zip-Roof® sheathing System with seams taped and rolled.
- Connect rafters with raised ceilings to the bearing wall plates with USP # RT-1 uplift connectors or equal.
- Provide Ice and Water shield as follows: 2-rows x 36" wide at eaves, 1-row x 36" wide at roof rake edges, centered at roof / wall intersections, and centered in Valleys.
- Provide aluminum drip edge around the perimeter of all roof areas.
- Provide step flashing in addition to ice and water shield wherever a sloped roof runs beside a wall.

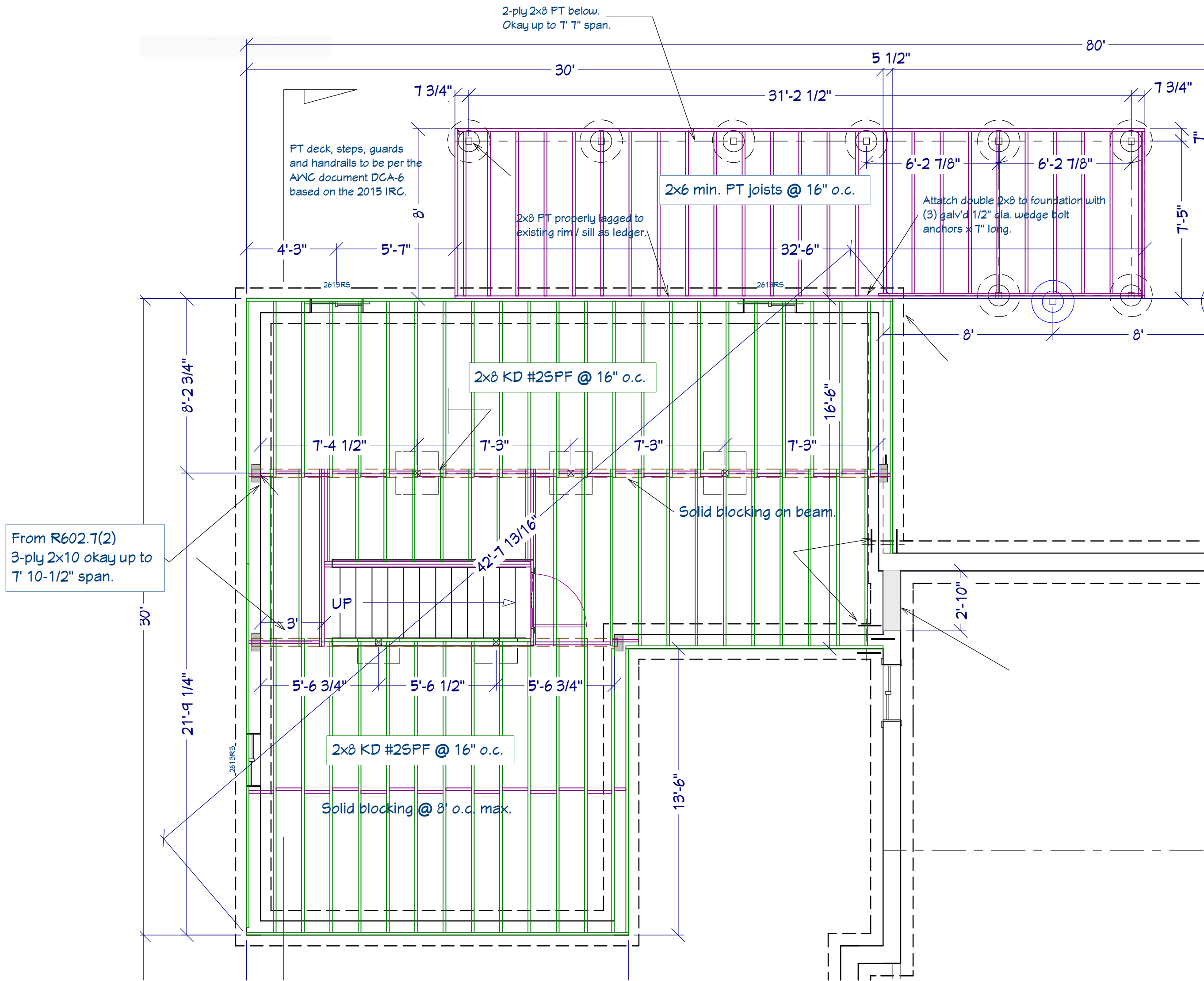
CEILING FRAMING NOTES:

- All new ceiling joists to be 2x8 KD #25PF @ 16" o.c.
- R-49 insulation will be deeper than the framing, therefore NO Storage: 10psf max. LL
- Headers for exterior wall openings to be per R602.7(1)
- Headers for interior bearing wall openings to be per R602.7(2)

STRUCTURAL LOADS:

- Roof - Snow Load: 50 psf  
Roof - Dead Load: 15 psf  
Floors - Live Load: 40 psf (Bedrooms @ 30psf)  
Floors - DL: 10 psf + 2psf for hardwood or tile floor areas.  
Attic - Live Load: 10 psf (No Storage attic.)  
Attic - Dead Load: 10 psf

- New headers for exterior wall openings to be per R602.7(1)
- New headers for interior bearing wall openings to be per R602.7(2)



1st Floor Frame 1/4 in = 1 ft

All LVL beam sizes to be verified by the manufacturer / supplier.  
2x10 KD #25PF floor joists @ 16" o.c. (Match existing. - VIF)

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REVISION TABLE		REVISED BY		DESCRIPTION	
NUMBER	DATE				

Framing Plans

PROJECT DESIGNED FOR:  
**Jeff Lizotte**  
181 Burbank Road  
Sutton MA

DATE:

11/21/2022

SCALE:

SHEET:

S-1