

3D TIMBER FRAME  
SCALE: N.T.S.

- A0 COVER
- A1 FIRST FLOOR PLAN
- A2 SECOND FLOOR PLAN
- A3 ELEVATIONS & SECTIONS
- TF1 TIMBER FRAME - BENTS
- TF2 TIMBER FRAME - ELEVATIONS
- TF3 TIMBER FRAME - FLOOR & ROOF
- S1 FOUNDATION PLAN

**DESIGN CRITERIA:**

**BUILDING CODES:**

IBC 2015 MASSACHUSETTS WITH AMENDMENTS  
 AMERICAN CONCRETE INSTITUTE (ACI) 301, 318  
 CONCRETE REINFORCING STEEL INSTITUTE (CRSI)  
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)  
 ANSI/AF&PA NDS-1997 NATIONAL DESIGN SPECIFICATION (NDS)

**DESIGN LOADS:**

ROOF SNOW LOAD = 25 PSF  
 ROOF DEAD LOAD = 20 PSF  
 FLOOR DEAD LOAD = 20 PSF  
 FLOOR LIVE LOAD = 40 PSF  
 WIND LOAD = 140 MPH  
 SEISMIC DESIGN CATEGORY = B  
 FROST DEPTH = 48"  
 ALLOWABLE SOIL BEARING = 2500 PSF (ASSUMED)

SEE ARCHITECTURAL, MECHANICAL & ELECTRICAL DRAWINGS FOR DIMENSIONS AND DETAILS REQUIRED AS STRUCTURAL WORK, WHICH ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS. ANY DISCREPANCY THAT EXISTS BETWEEN WHAT IS SHOWN AND ACTUAL MUST BE BROUGHT TO THE ATTENTION OF HARDWICK POST & BEAM/ ENGINEER PRIOR TO THE START OF CONSTRUCTION. THE REPRODUCTION OF ANY CONTRACT DOCUMENTS, IN FULL OR IN PART, FOR THEIR USE AS SHOP DRAWINGS WILL NOT BE ACCEPTED AND WILL BE RETURNED AS REJECTED. SUBMITTALS VIA FACSIMILE ARE ALSO UNACCEPTABLE AND WILL NOT BE REVIEWED.

**GENERAL NOTES:**

- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR OTHER CONDITIONS WHICH DIFFER FROM WHAT IS INDICATED ON THE DRAWINGS.
- DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR WITH THOSE SHOWN ON THE ARCHITECTURAL DRAWINGS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER AND ENGINEER PRIOR TO CONSTRUCTION.
- CONSTRUCTION MATERIALS SHALL NOT BE PLACED, STACKED OR OTHERWISE STORED UPON ANY STRUCTURAL ELEMENT IN A MANNER WHICH EXCEEDS THE LIVE LOAD CAPACITY OF THE ELEMENT. UNLESS OTHERWISE NOTED, THIS LIVE LOAD CAPACITY IS 40 PSF.
- NOTES, DETAILS AND DIMENSIONS ON INDIVIDUAL DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE PROCEEDING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, TEMPORARY BRACING/SHORING AGAINST WIND, SNOW, EQUIPMENT, MATERIAL STORAGE AND/OR OTHER LOADS WHICH MAY ARISE PRIOR TO THE COMPLETION OF CONSTRUCTION. PERIODIC INSPECTIONS BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THESE ITEMS NOR ANY OPINION REGARDING THE ADEQUACY OF SUCH MEASURES.

**TIMBERFRAME SPECIFICATIONS:**

- \* These drawings depict an exposed, heavy timber framed structure.
- \* The timber frame is designed and detailed to handle gravity loads on the roof and second floor. The lateral loads on the building will be resisted by the SIPs building envelope and those SIPs shall be designed and detailed to resist those lateral loads. The timber frame also may be providing support to the SIPs in resisting transverse wind pressure.
- \* The timbers are DOUGLAS FIR, unless noted otherwise. The timbers meet the WWPB standards for #2 (or better). Their moisture content, at fabrication, is approximately 20%.
- \* The timber sizes shown are NOMINAL. The timber sizes are subject to slight revision; but only under the direct supervision of the ENGINEER OF RECORD for the frame.
- \* The timber connections are based on traditional methods - using mortises, tenons, splines, pegs, and keys. The connections are designed and detailed under the direct supervision of ENGINEER OF RECORD for the frame.
- \* All timber joinery must be approved by ENGINEER OF RECORD for the frame.
- \* All metal connectors (at post feet, for example) are to be Simpson or equal.

**CONCRETE NOTES:**

- CONCRETE SHALL COMPLY WITH THE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", REINFORCING STEEL SHALL COMPLY WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE" EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE INDICATED.
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, AND A MAXIMUM WATER-CEMENT RATIO OF 0.46. CONCRETE EXPOSED TO DE-ICING SALTS SHALL BE FORMULATED USING AIR ENTRAINING ADMIXTURES PROVIDING NOT LESS THAN 4.5 PERCENT NOR MORE THAN 7.0 PERCENT ENTRAINED AIR. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260.
- CONCRETE DESIGN MIX SHALL BE PROPORTIONED SUCH THAT CONCRETE SLUMP, AT THE POINT OF PLACEMENT, SHALL BE NO LESS THAN 1 INCH NOR MORE THAN 3 INCHES FOR REINFORCED STRUCTURAL CONCRETE, 4 INCHES FOR ALL OTHER CONCRETE. WATER SHALL NOT BE ADDED TO THE CONCRETE BEFORE PLACEMENT UNLESS PRIOR APPROVAL IS RECEIVED IN WRITING FROM THE STRUCTURAL ENGINEER.
- CONCRETE SLABS ON GRADE SHALL BE PLACED OVER A VAPOR BARRIER LAPPED A MINIMUM OF SIX INCHES AND SEALED.
- CONCRETE SHALL BE CONSOLIDATED USING VIBRATORY EQUIPMENT AND/OR HAND RODDING AND TAMPING UNTIL CONCRETE IS UNIFORMLY DISTRIBUTED AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS.
- CONTRACTOR SHALL PROTECT CONCRETE FROM PHYSICAL DAMAGE OR REDUCED STRENGTH DURING MIXING, PLACEMENT AND CURING. COLD WEATHER CONCRETE PLACEMENT SHALL COMPLY WITH ACI 306.
- CONCRETE REINFORCEMENT SHALL BE GRADE 60 STEEL MEETING THE REQUIREMENTS OF ASTM A615 EXCEPT FOR STIRRUPS AND TIES WHICH MAY BE GRADE 40 STEEL.
- REINFORCEMENT SHALL NOT BE SPLICED NOR WELDED EXCEPT AS DETAILED OR AS AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER. LAP SPLICES SHALL BE A MINIMUM OF 40 BAR DIAMETERS UNLESS OTHERWISE NOTED ON THE DRAWINGS. HORIZONTAL REINFORCEMENT IN WALLS SHALL BE SPLICED USING CORNER BARS OF EQUAL SIZE AND SPACING AROUND ALL CORNERS AND AT ALL INTERSECTIONS.
- VERTICAL REINFORCEMENT SHALL BE DOWELED INTO FOUNDATION. DOWELS SHALL TERMINATE WITH A STANDARD HOOK NOT LESS THAN SIX INCHES OR 12 BAR DIAMETERS, WHICHEVER IS GREATER.
- WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A185. LAP WIRE FABRIC A MINIMUM OF ONE FULL MESH PLUS 2 INCHES AT SIDES AND ENDS AND TIE TOGETHER.
- PROVIDE CLEAR CONCRETE COVER OVER REINFORCEMENT AS FOLLOWS:  
 CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"  
 CONCRETE EXPOSED TO EARTH OR WEATHER - #6 AND LARGER.....2"  
 #5 AND SMALLER, WWF.....1-1/2"  
 CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND .....1-1/2"
- ANCHOR BOLTS SHALL CONFORM TO ASTM A307. EXPANSION BOLTS SHALL BE HILTI KWIK BOLTS OR APPROVED EQUIVALENT. EXPANSION BOLTS SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. WHERE EMBEDMENT LENGTH, EDGE DISTANCE(S) AND/OR SPACING REQUIREMENTS OF THE MANUFACTURER CANNOT BE MET, EPOXY ANCHORS SHALL BE USED.
- NON SHRINK GROUT SHALL BE 5000 PSI FIVE STAR GROUT OR APPROVED EQUAL, INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ANCHOR BOLTS SHALL BE 5/8" DIA. WITH A MINIMUM EMBEDMENT LENGTH OF 6 INCHES IN GRADE BEAM (SEE DETAIL A). ANCHOR BOLTS SHALL BE INSTALLED AT 48" O.C. AND AT EACH BUILDING CORNER. SILL PLATES SHALL BE SECURED TO FOUNDATION WITH NUT & WASHERS.
- CONCRETE SLABS ON GRADE SHALL HAVE W2.9xW2.9 6x6 WWF REINFORCEMENT CENTERED IN SLAB OR #4's @ 18" EA. WAY, CENTERED.

**DESIGN CRITERIA:**

<b>DEAD LOAD</b>	
-ROOF	15 PSF (PLUS TIMBER SELF WEIGHT)
-FLOORS	15 PSF
<b>SNOW LOAD</b>	
-GROUND SNOW	40 PSF
-EXPOSURE FACTOR, CE	1.0
-IMPORTANCE FACTOR	1.0 (CATEGORY "II" BUILDING)
-THERMAL FACTOR, CT	1.0
-ROOF SLOPE FACTOR, Cs	1.0
<b>LIVE LOAD</b>	
-ROOF	20 PSF (DOES NOT GOVERN)
-FLOORS	40 PSF
-STORAGE LOFT	40 PSF
<b>WIND</b>	
-3 SEC. GUST WIND SPEED	125 MPH (ASCE 7-16 ULTIMATE)
-EXPOSURE	B
-RISK CATEGORY	II
-INT. PRESSURE COEFF.	+0.18
<b>SEISMIC</b>	
-RISK CATEGORY	II
-IMPORTANCE FACTOR, Ie	1.0 (CATEGORY II BUILDING)
-SITE CLASS	D (ASSUMED)
-Ss	0.17
-S1	0.06
-DESIGN CATEGORY	B



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**PROPOSED PROJECT:**

TIMBER FRAME BARN

**CLIENT:**

BILL CAVANARO  
 5 STILLPOINT MEADOWS ROAD  
 WEST TISBURY, MA

**GENERAL PROJECT INFO:**

TIMBER FRAME BARN  
 WEST TISBURY, MA  
 DOUGLAS FIR

**DATE:** 6-10-22

**DRAWN BY:** RMS

**CHECKED BY:** GM

**SCALE:** SEE DRAWNG

STD 1/2" CHAMFER  
 STD SMOOTH PLANED  
 STD OIL EXPOSED FACES



**FIRE TOWER**  
 ENGINEERED TIMBER  
 21 Norman Avenue  
 Delran, NJ 08075  
 401.654.4600  
 ben@fret.com

NO.	REVISIONS	DATE
1	CONCEPT	2-2-22
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COVER PAGE

PAGE NUMBER

A0





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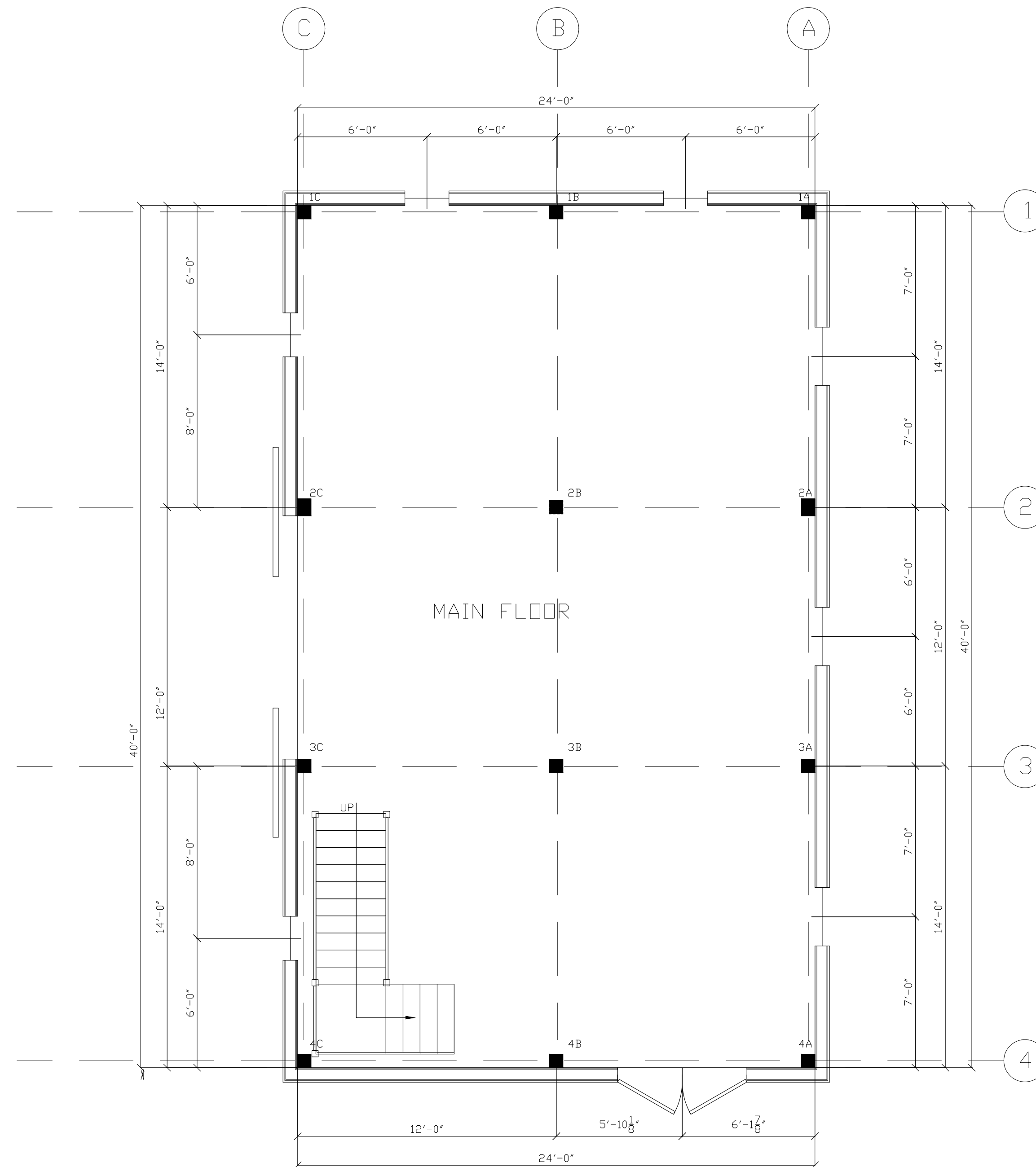
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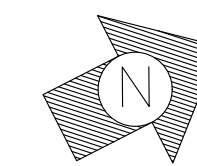
FLOOR PLAN

PAGE NUMBER

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○ MAIN FLOOR PLAN  
 SCALE: 1/4" = 1'-0"



EXTERIOR WALLS ARE 6.5" SIP PANEL   
 INTERIOR WALLS ARE 2X4 @ 16"O.C.



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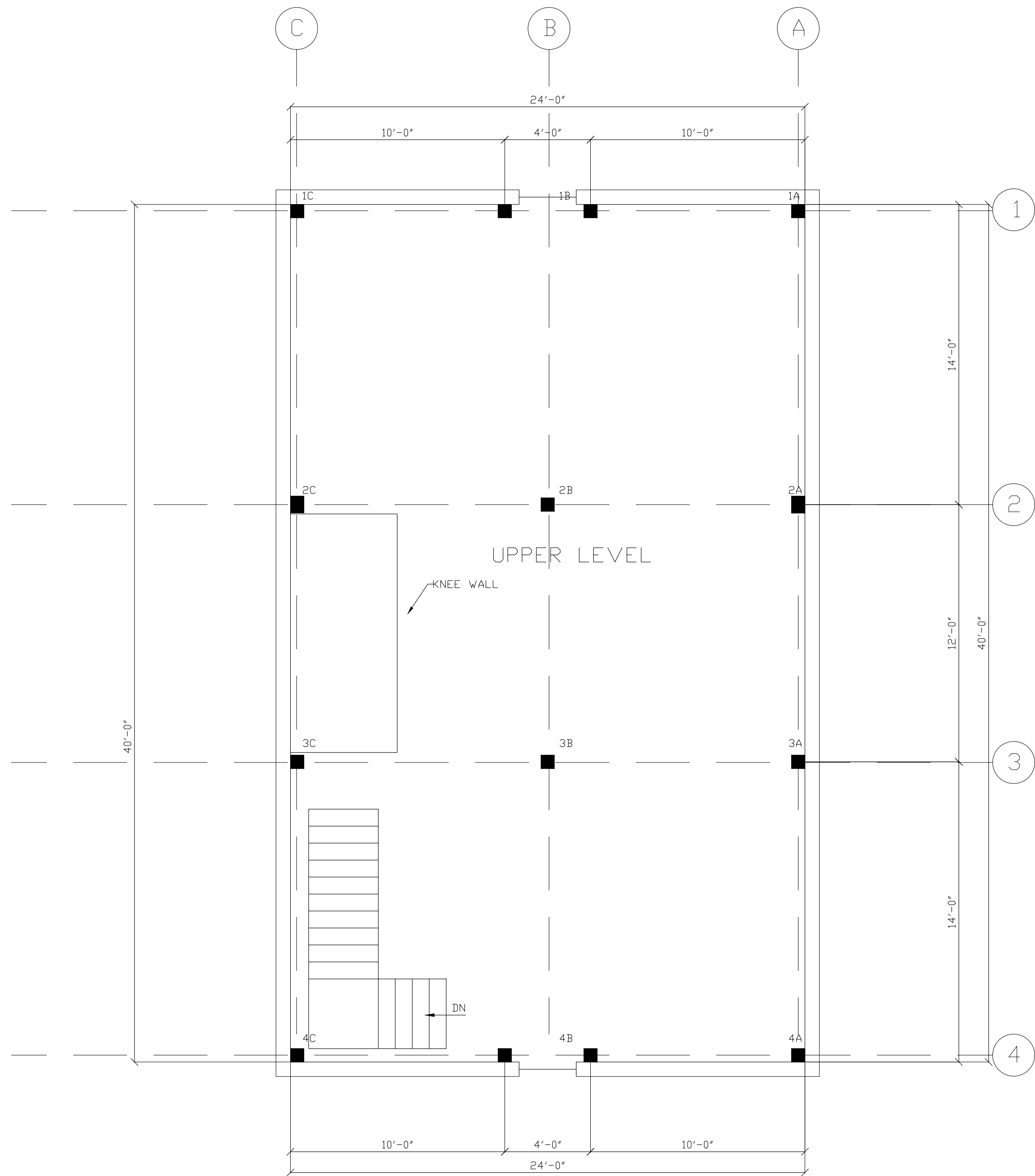
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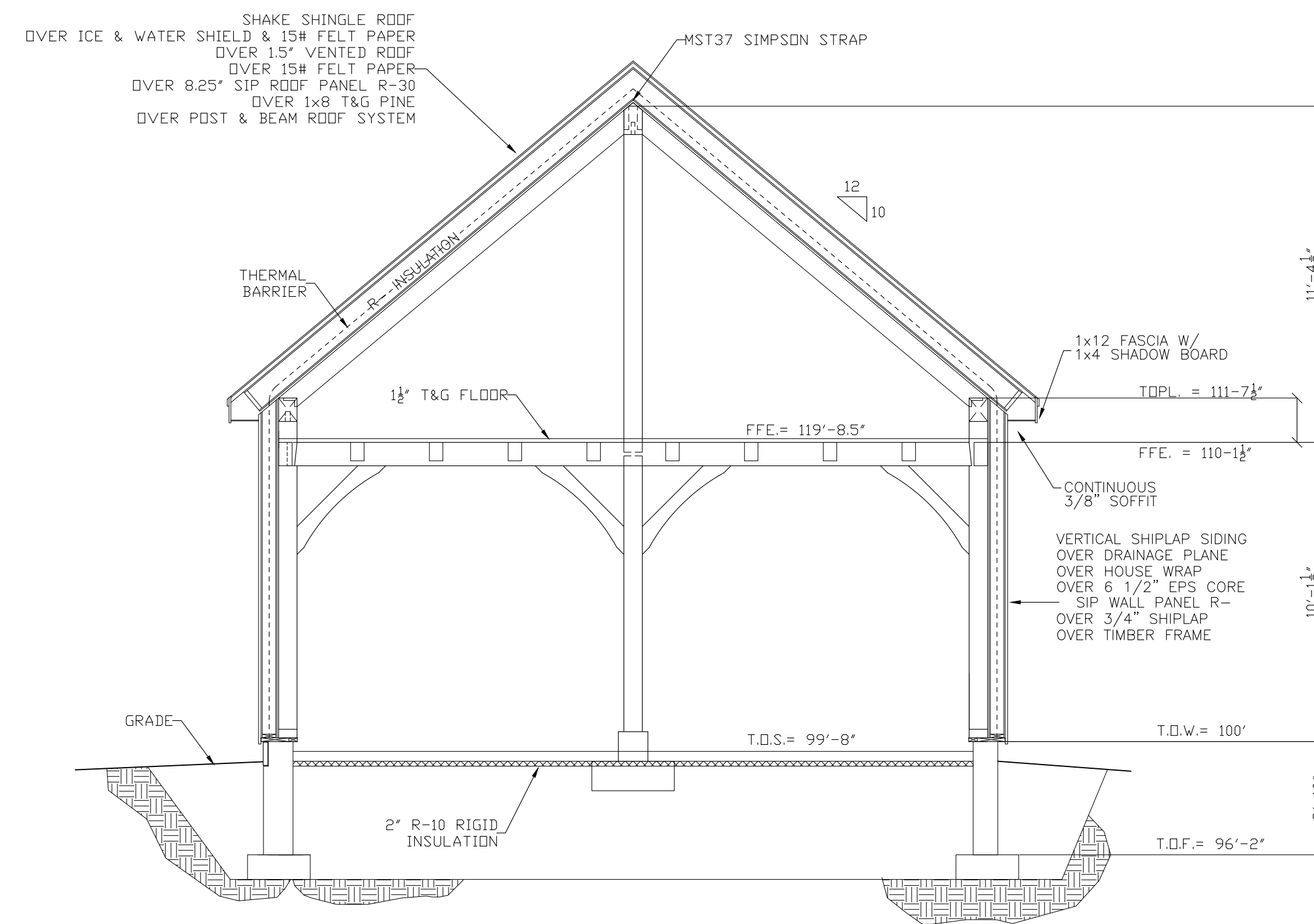
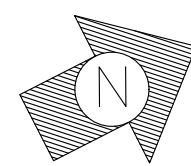
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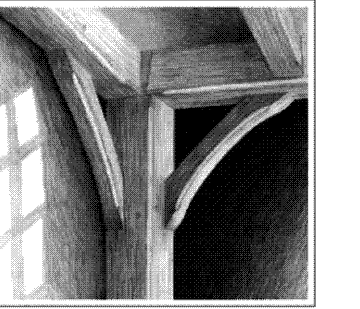
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UPPER FLOOR PLAN  
 SCALE: 1/4" = 1'-0"



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



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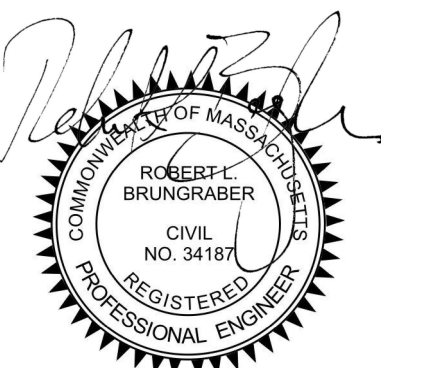
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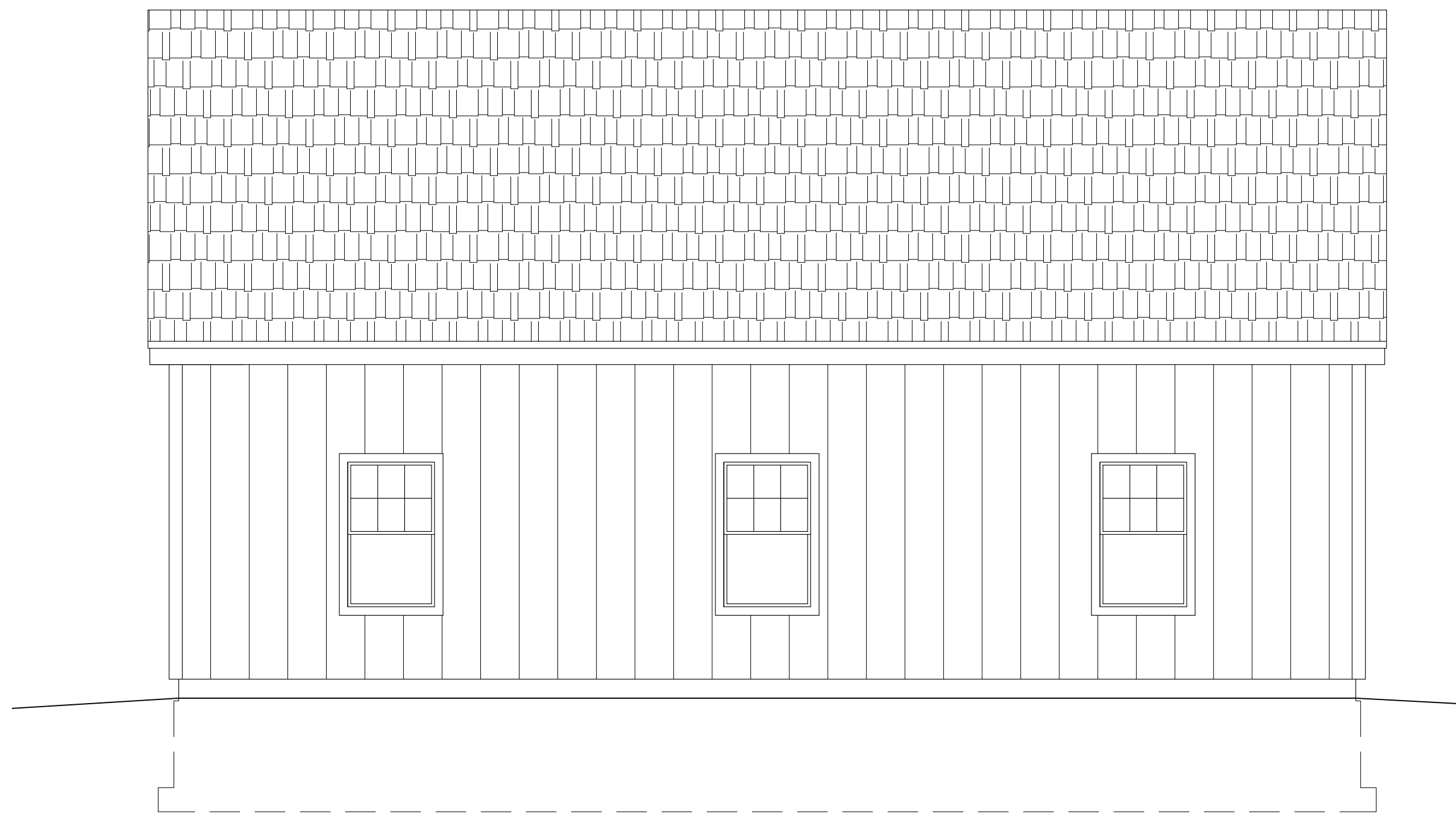
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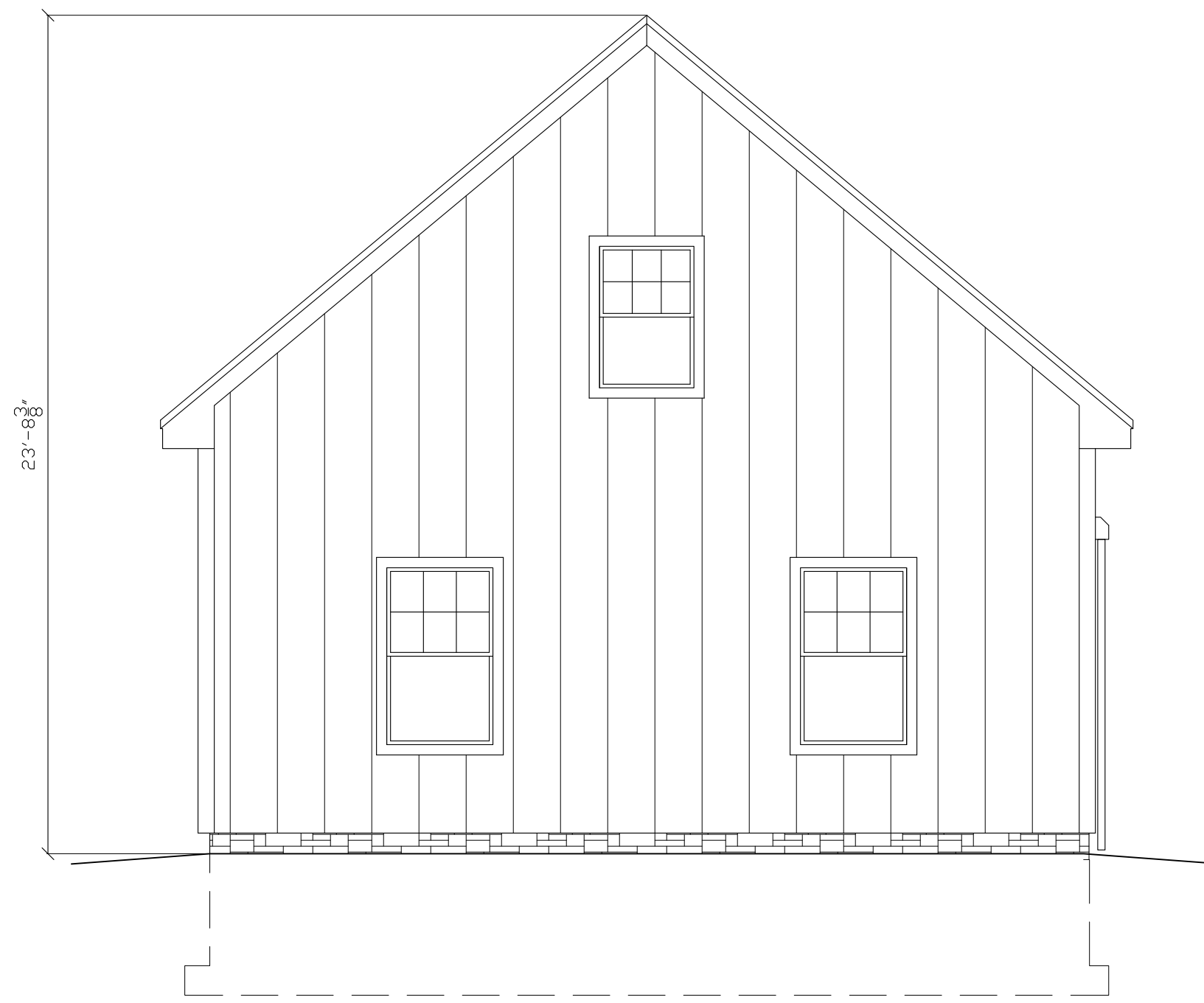
ELEVATIONS

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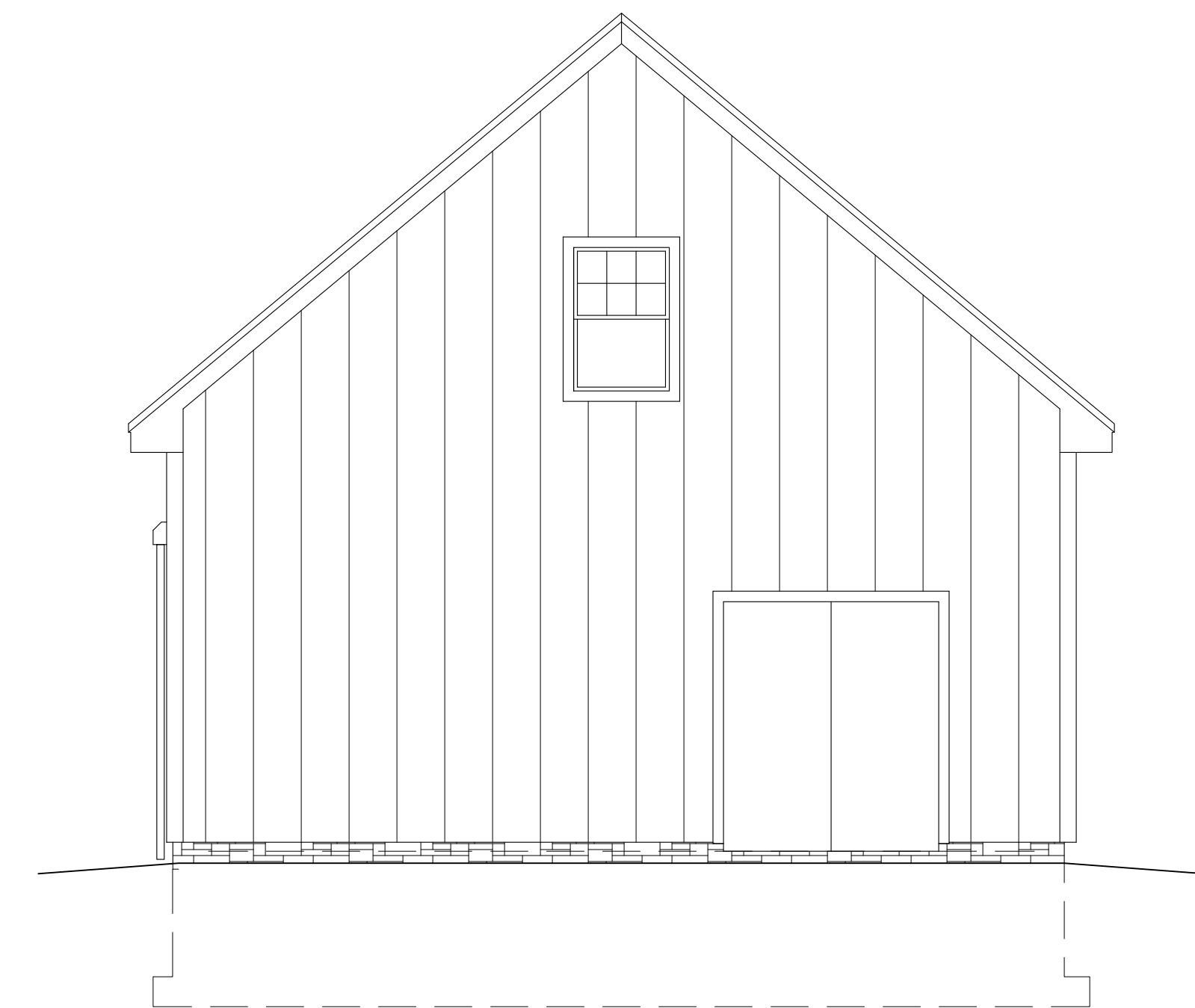
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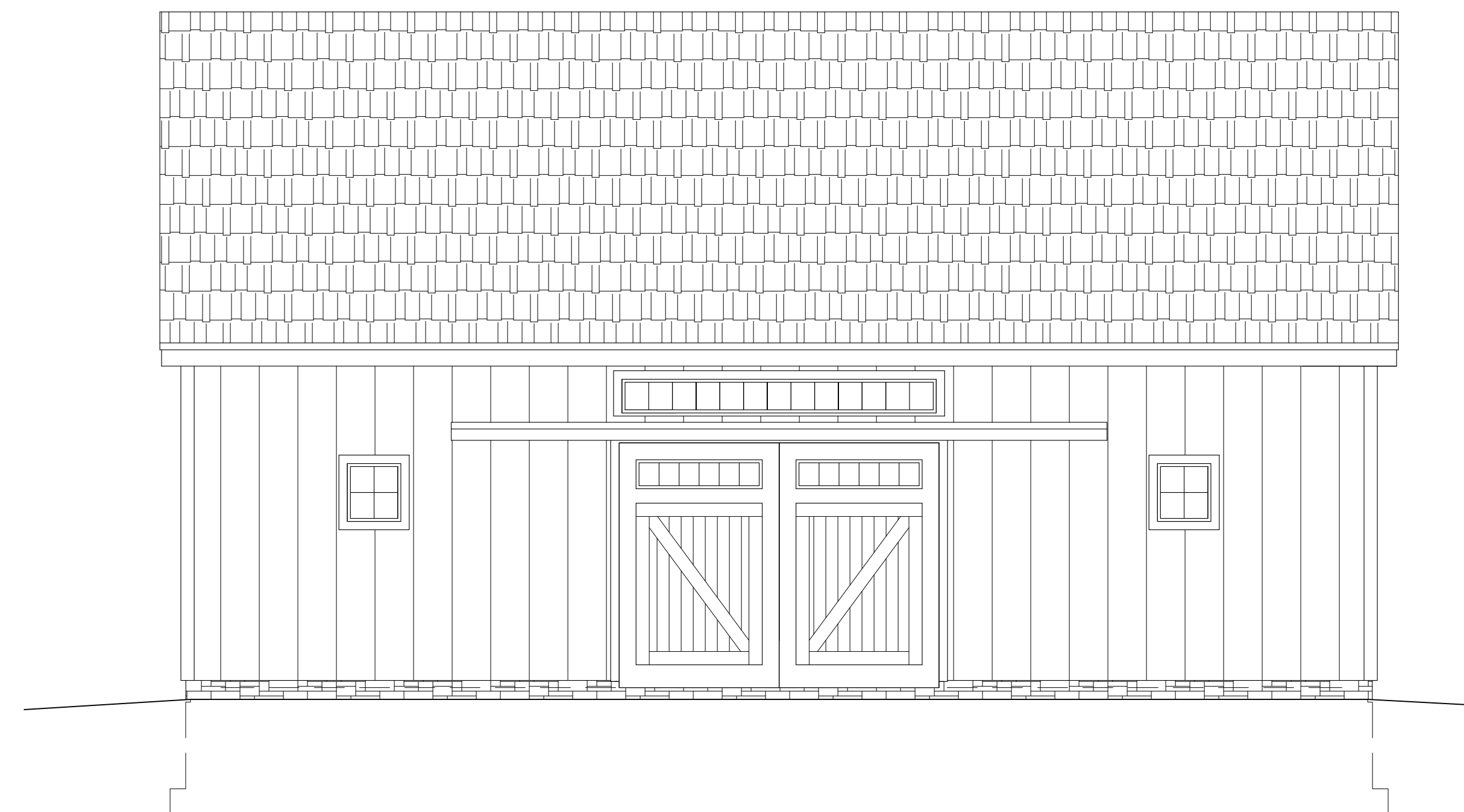
**SOUTH ELEVATION**  
 SCALE: 1/4" = 1'-0"



**NORTH ELEVATION**  
 SCALE: 1/4" = 1'-0"



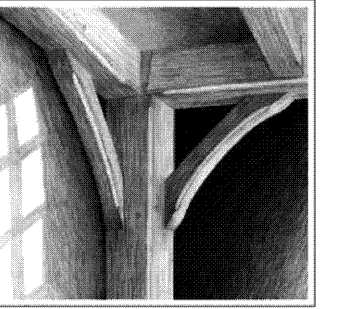
**EAST ELEVATION**  
 SCALE: 1/4" = 1'-0"



**WEST ELEVATION**  
 SCALE: 1/4" = 1'-0"







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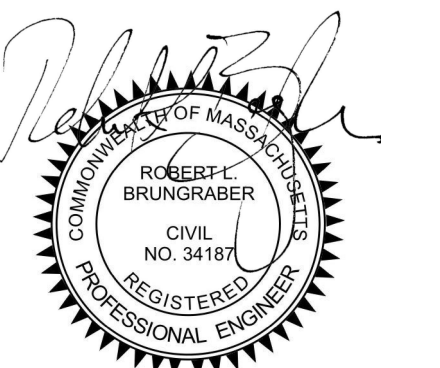
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 STD OIL EXPOSED FACES



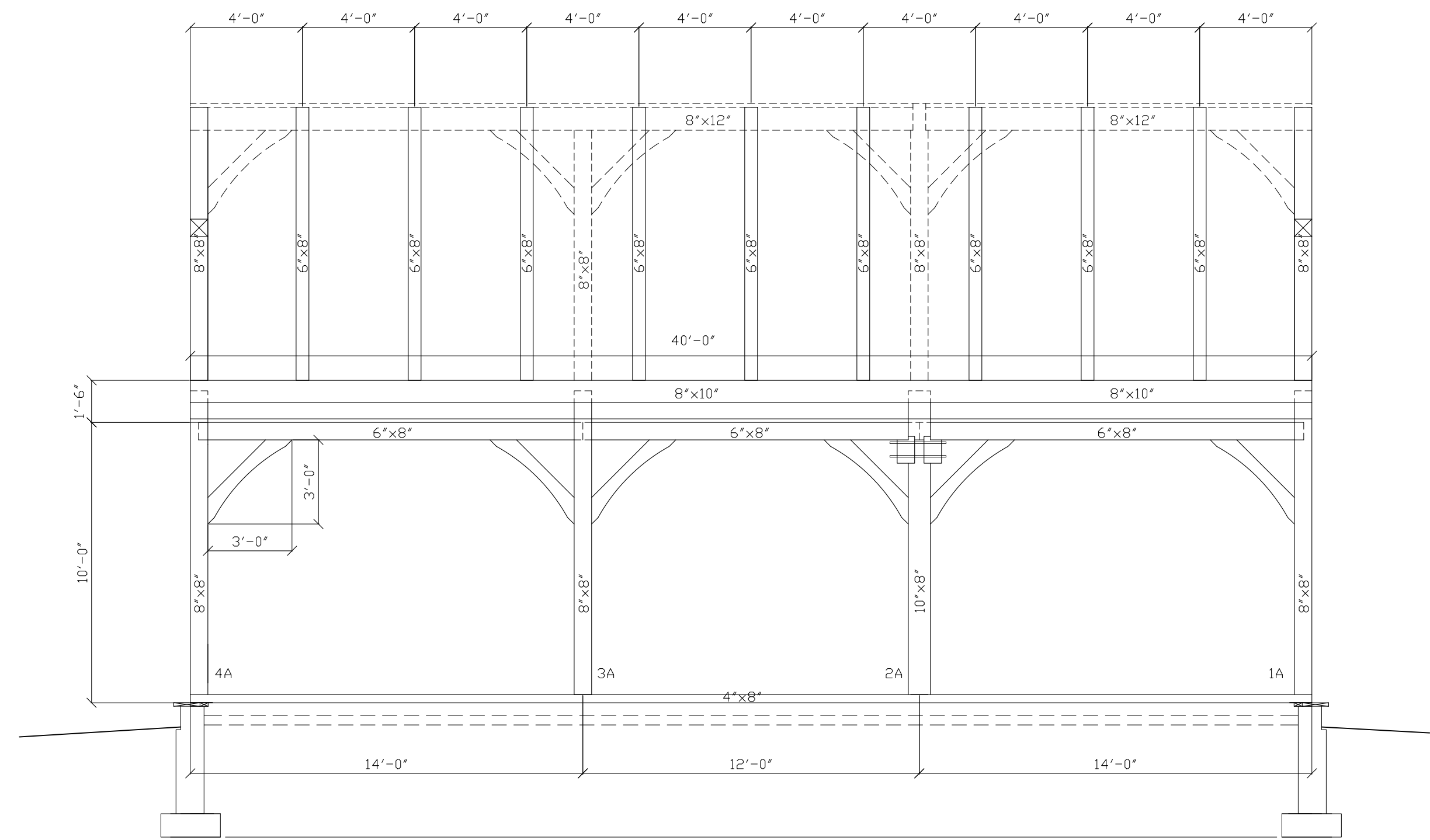
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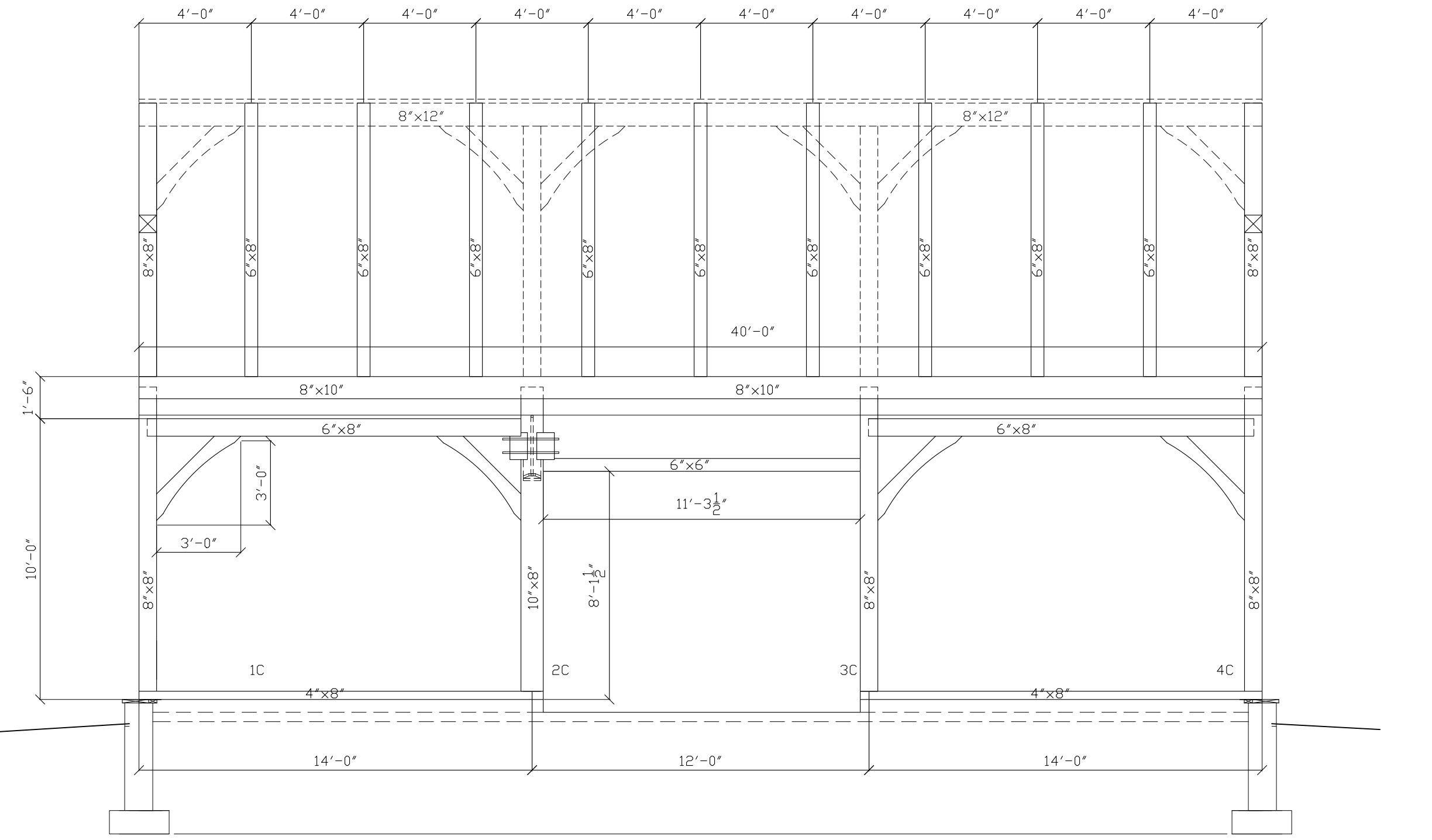
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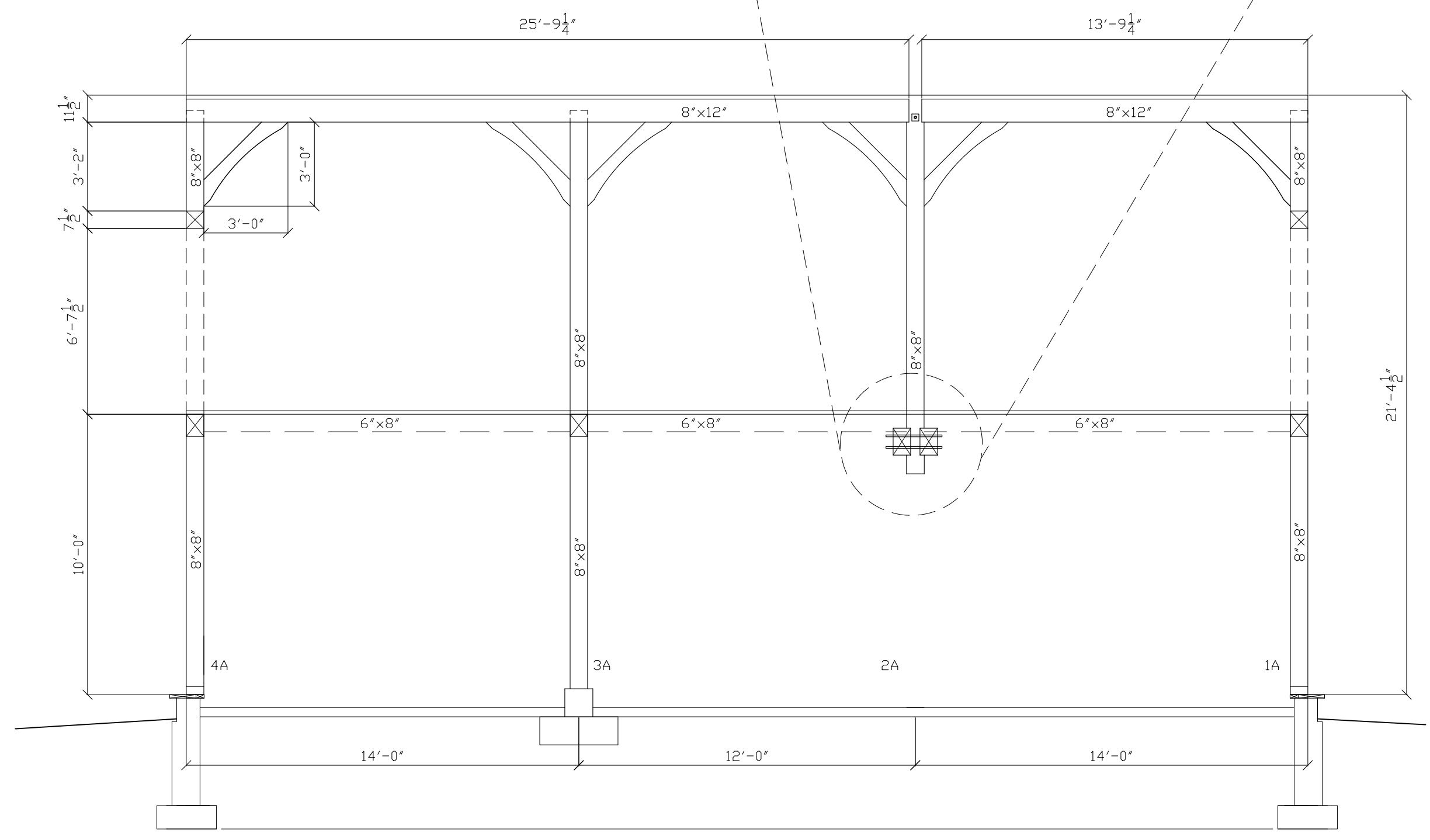
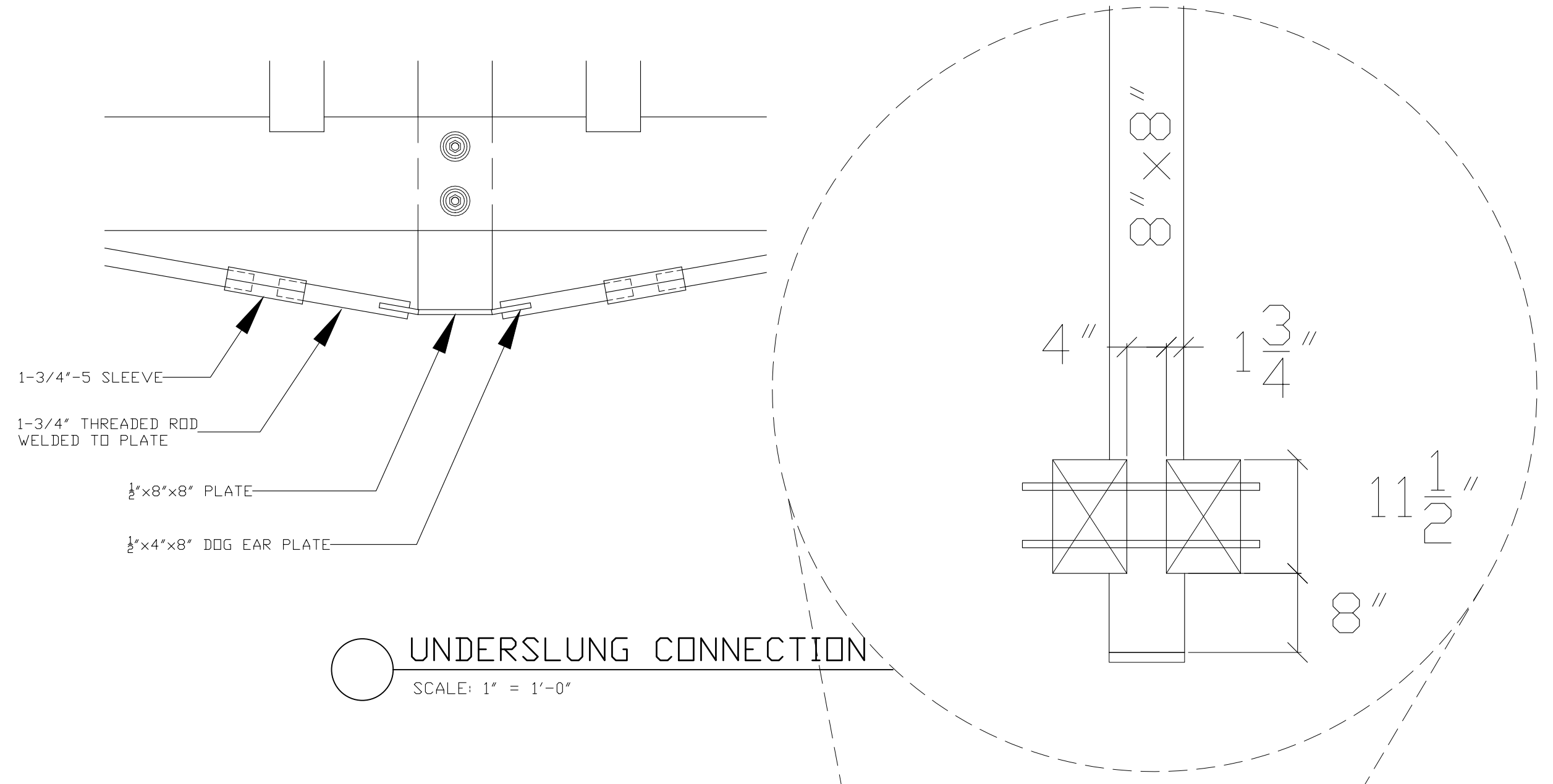
TF2 OF 3



**ELEVATION A**  
 SCALE: 1/4" = 1'-0"



**ELEVATION C**  
 SCALE: 1/4" = 1'-0"



**ELEVATION B**  
 SCALE: 1/4" = 1'-0"





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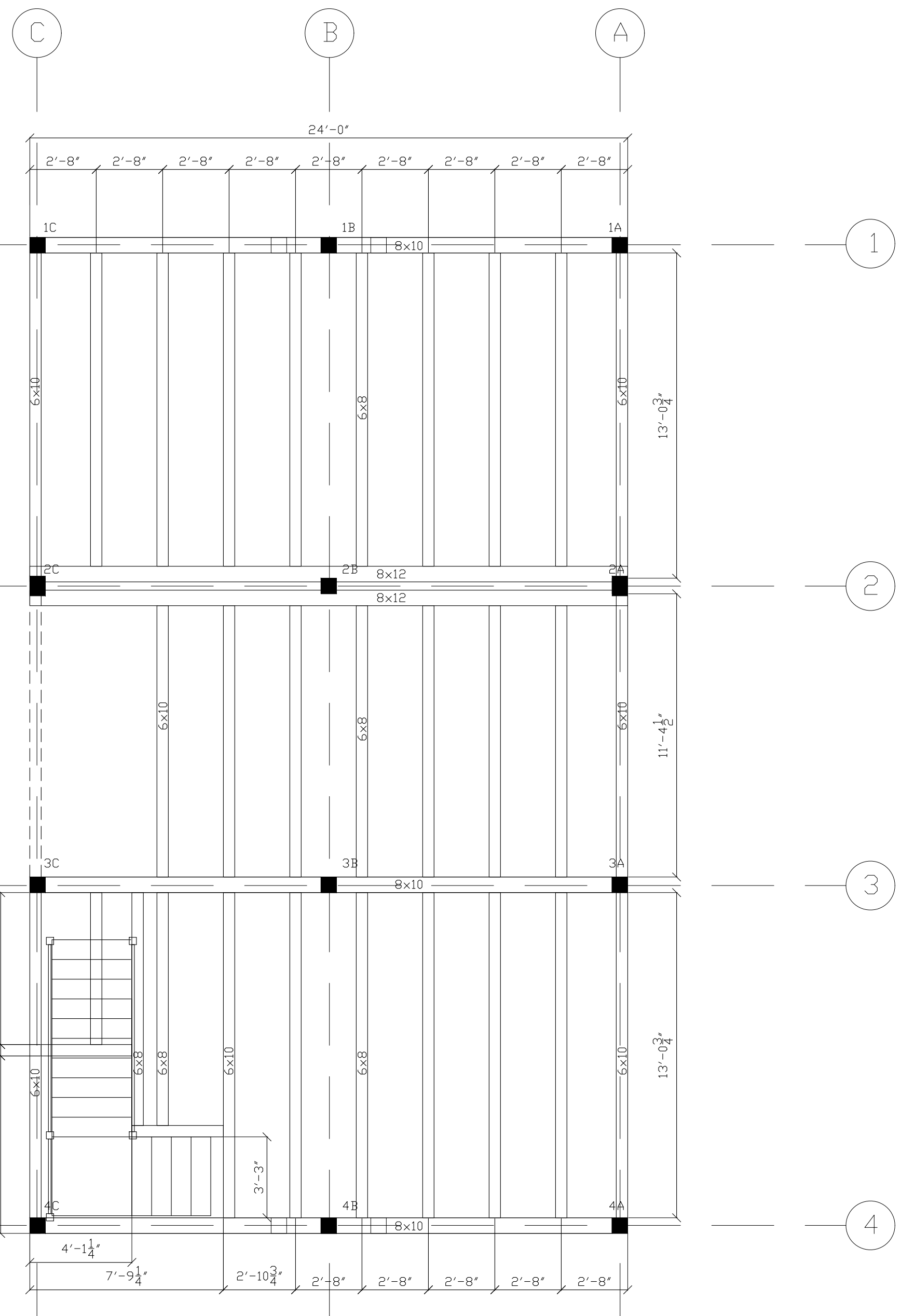
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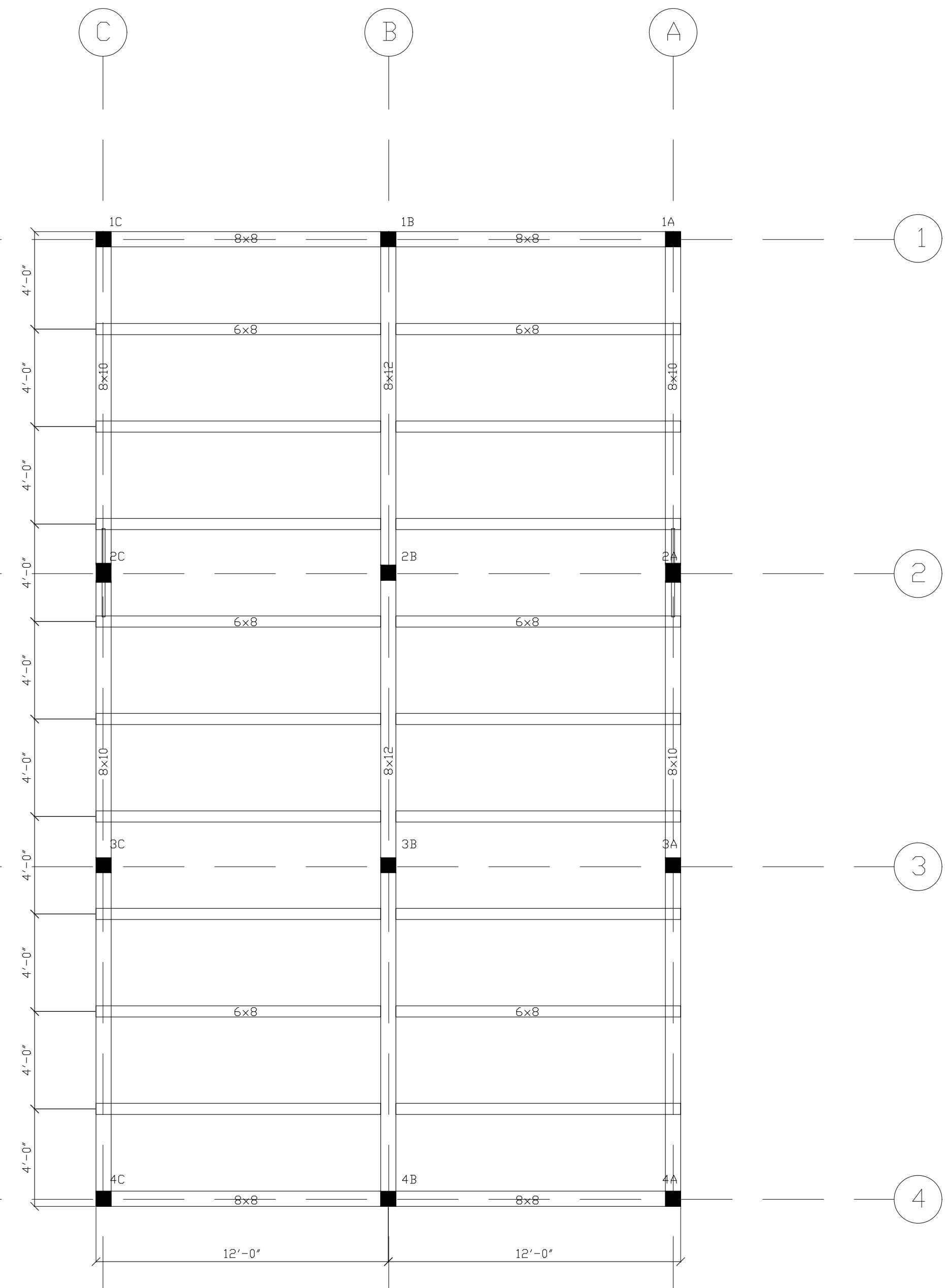
FLOOR-ROOF

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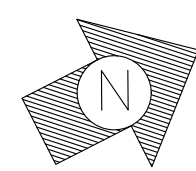
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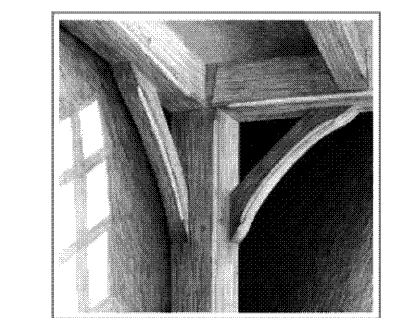


TIMBER FLOOR PLAN  
 SCALE: 1/4" = 1'-0"



TIMBER ROOF PLAN  
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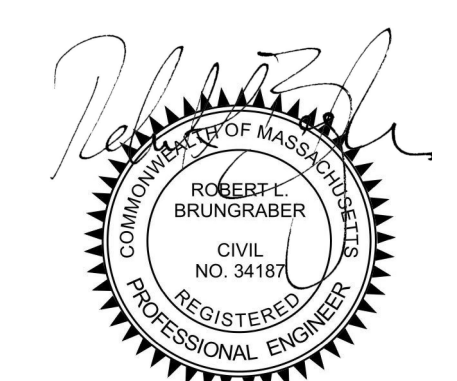
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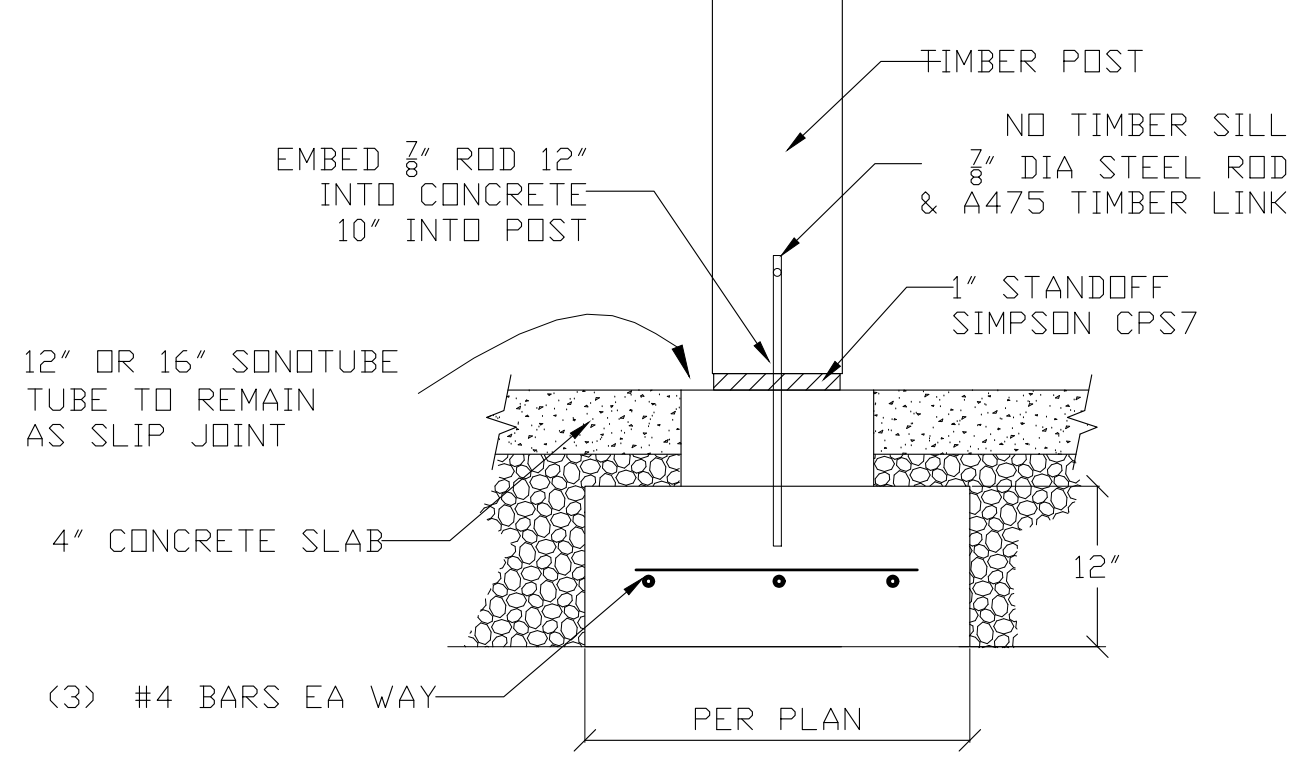
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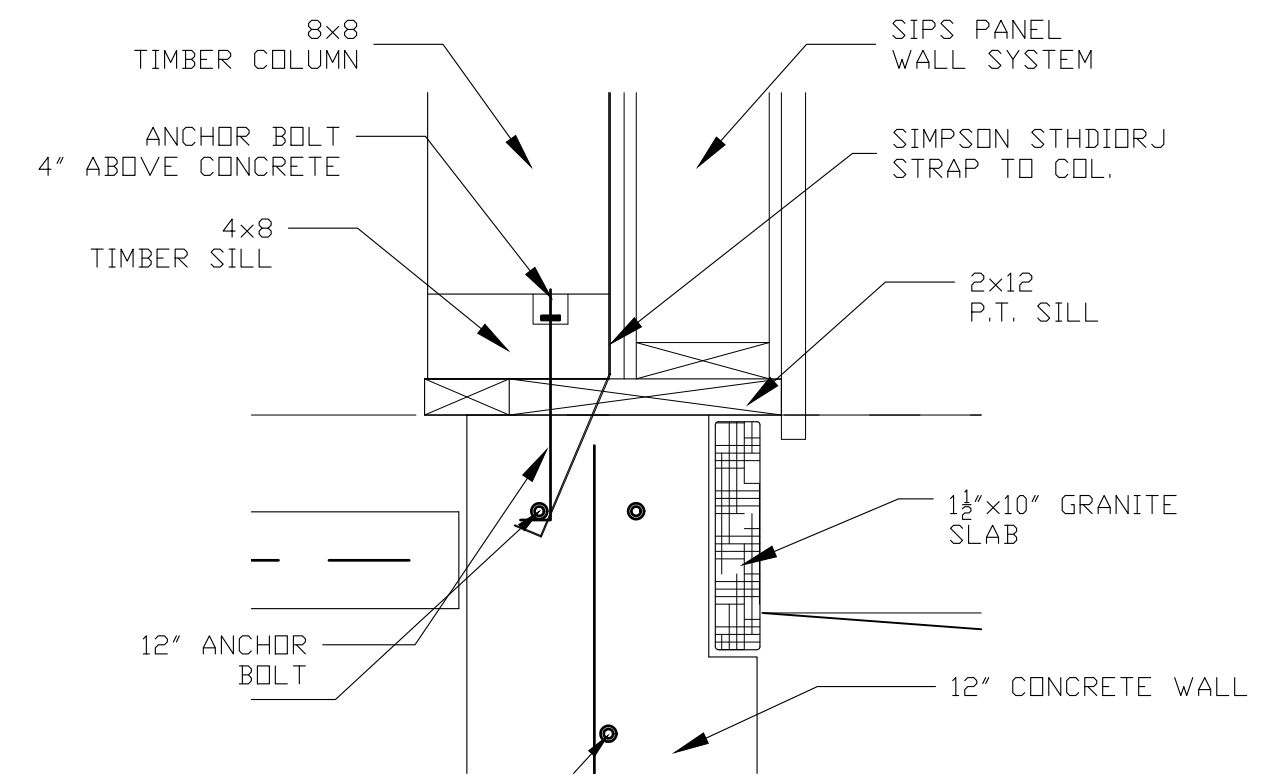
**FOUNDATION**

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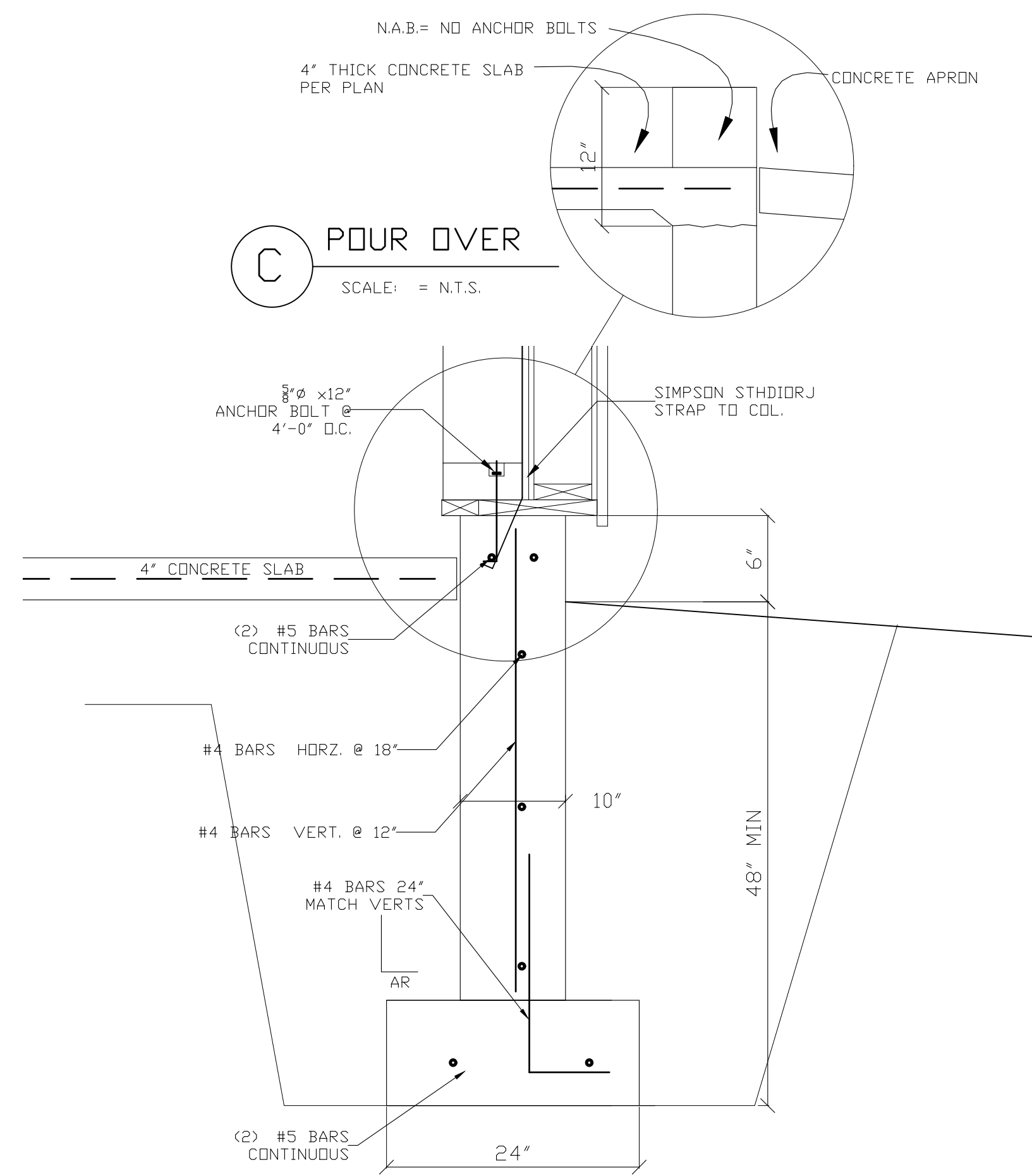
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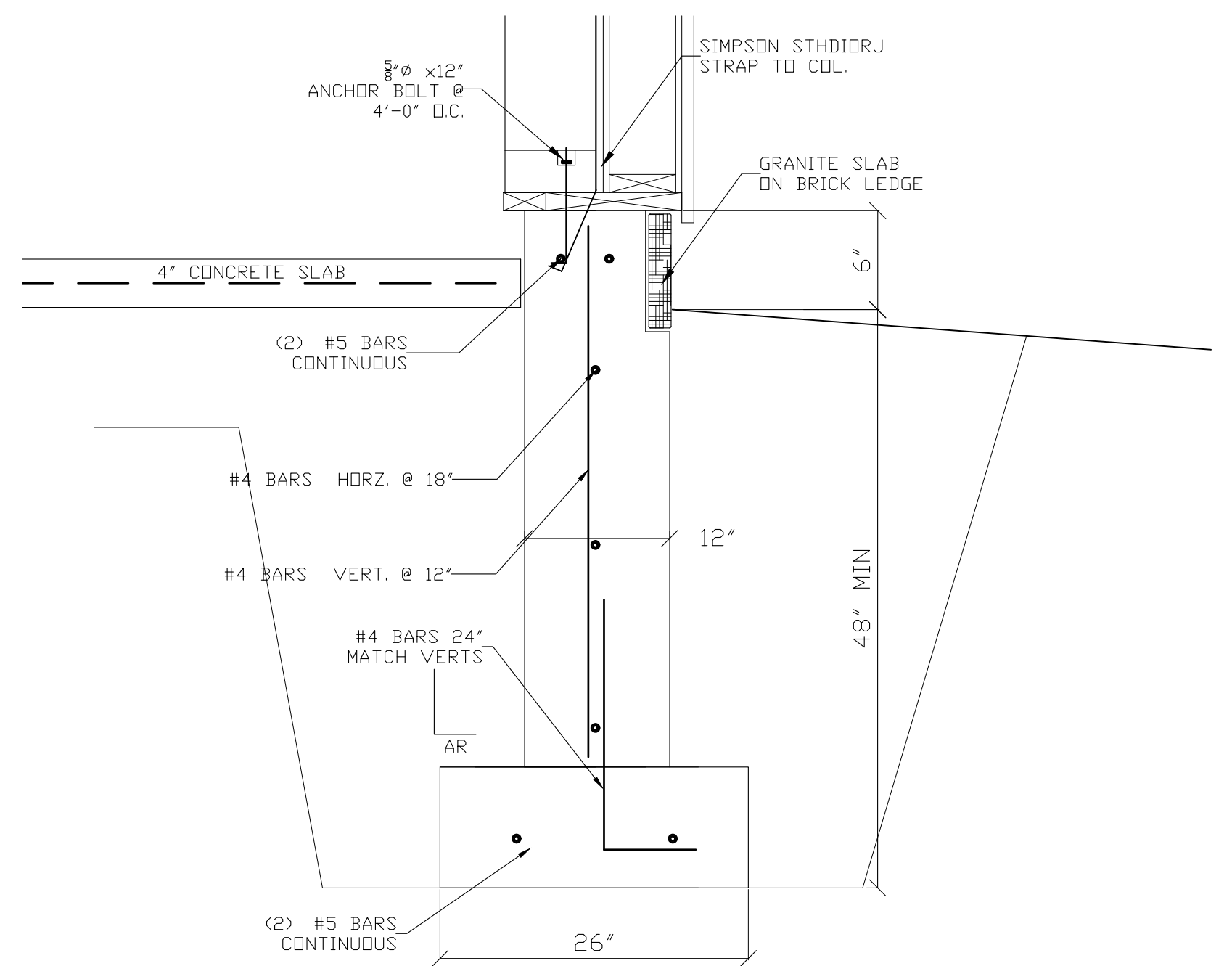
**D ISOLATED PAD**  
 SCALE: 3/4" = 1'-0"  
 U.O.N. ALL BARS ARE GRADE 40



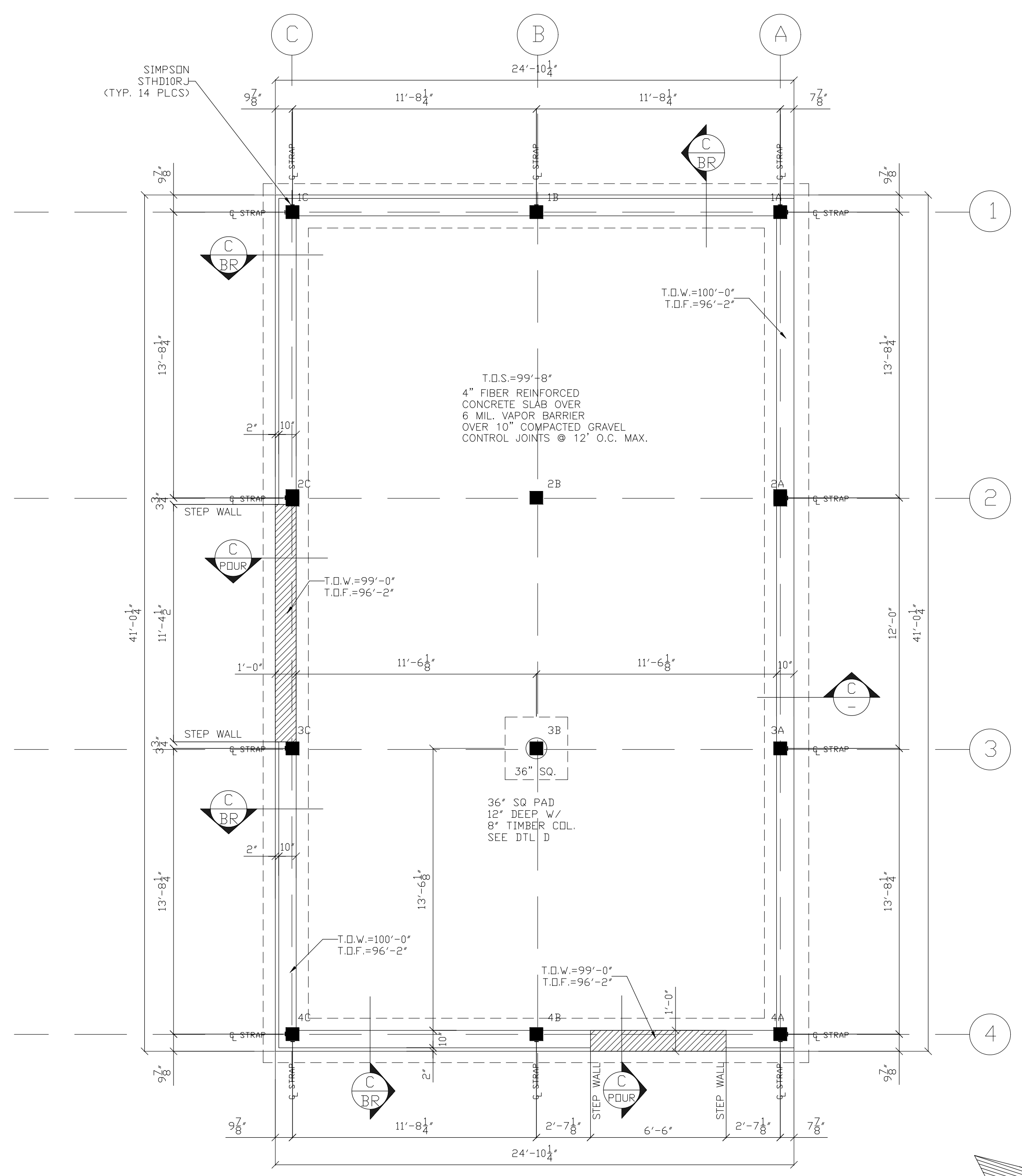
**C TIMBER SILL TO CONCRETE**  
 SCALE: = N.T.S.



**C FROST WALL**  
 SCALE: 3/4" = 1'-0"



**C BRICK LEDGE FROST WALL**  
 SCALE: 3/4" = 1'-0"



**FOUNDATION PLAN**  
 SCALE: 1/4" = 1'-0"

