

# 53 WACHUSETT STREET DESIGN

JOHN BONINA

MATTHEW RABASCO

JAMES RIOS

ADVISOR: PROF. LEONARD ALBANO

## DESIGN 2 OF 2: BUILDING REPLACEMENT

NOTE: This is a student project and does not reflect the views of Professional Engineers.

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**G-001**

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G-002

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100	E-003	PV SOLAR PANEL SECTION 2	3/32" = 1'-0"
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102	FP-001	BASEMENT SPRINKLER LAYOUT	1/8" = 1'-0"
103	FP-002	FIRST FLOOR SPRINKLER LAYOUT	1/8" = 1'-0"
104	FP-003	SECOND FLOOR SPRINKLER LAYOUT	1/8" = 1'-0"

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**G-003**

PAGE NO: 002A

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NOTES:

1. ALL WOOD MEMBERS USED SHALL BE NO. 1 MIXED SOUTHERN PINE, OR APPROVED EQUAL WITH PROPERTIES AT LEAST EQUAL TO THE DESIGN VALUES LISTED BELOW:

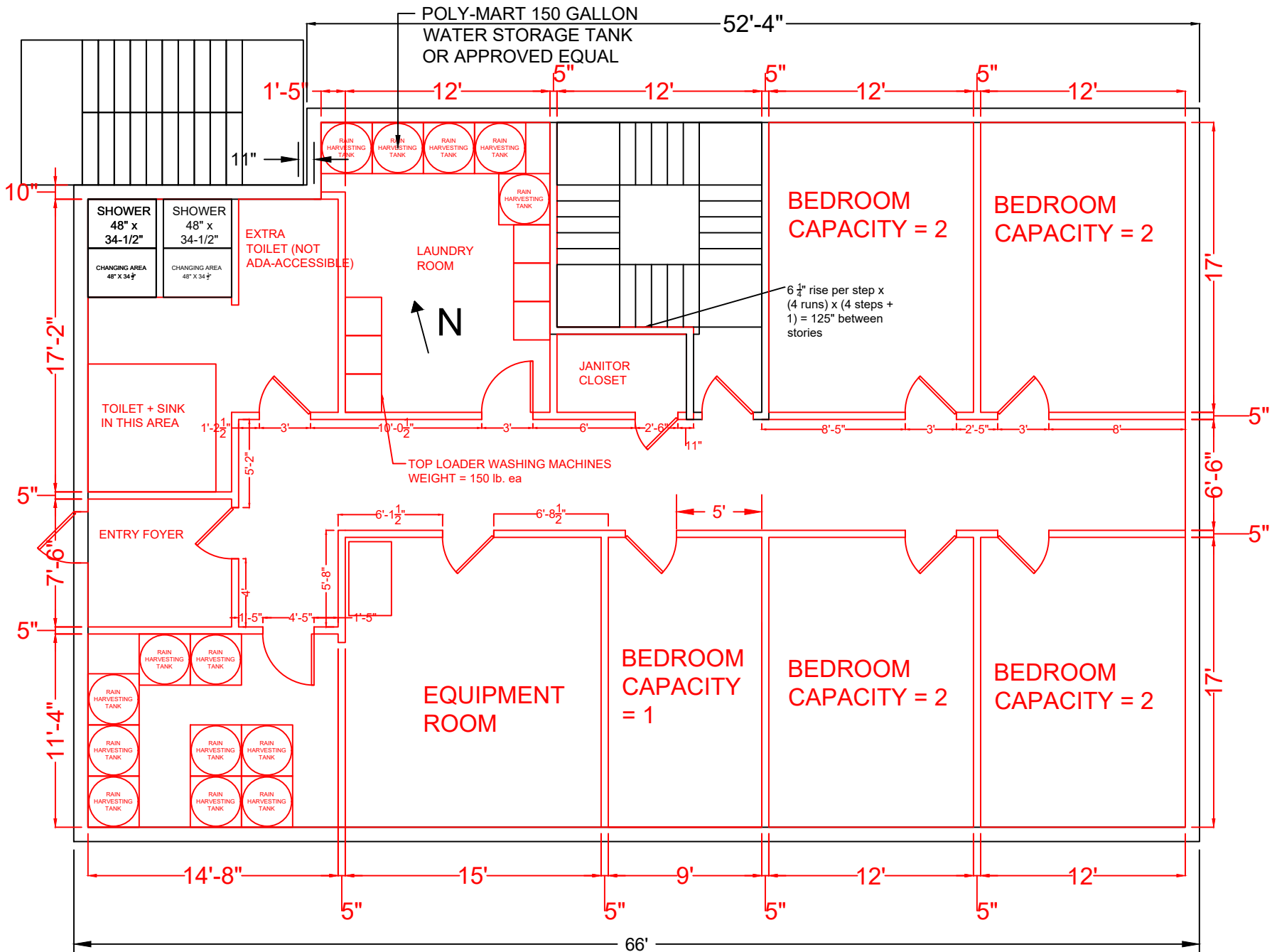
No. 1 SOUTHERN PINE PROPERTIES	
PARAMETER	ALLOWABLE STRESS (PSI)
BENDING	1,450
TENSION	875
COMPRESSION	1,650
SHEAR	175
ELASTIC MODULUS	1,500,000
ELASTIC MODULUS (MIN.)	550,000

2. IF SELECT STRUCTURAL OR NO. 3 MIXED SOUTHERN PINE IS REQUIRED, SUCH WOOD OR AN APPROVED EQUAL MUST HAVE STRUCTURAL PROPERTIES AT LEAST EQUAL TO THE DESIGN VALUES LISTED BELOW:

ALLOWABLE STRESSES (PSI) BY SOUTHERN PINE GRADE		
PARAMETER	No. 3	SELECT STRUCTURAL
BENDING	650	2,050
TENSION	400	1200
COMPRESSION	850	1,800
SHEAR	175	175
ELASTIC MODULUS	1,200,000	1,600,000
ELASTIC MODULUS (MIN.)	440,000	580,000

3. THE REQUIRED STRENGTHS OF OTHER STRUCTURAL MATERIALS ARE GIVEN BELOW:
  - 3.1. CONCRETE:  $f_c = 3,000$  PSI
  - 3.2. REINFORCING STEEL (GR. 40):  $f_y = 40,000$  PSI
4. WATER STORAGE TANKS SHALL BE POLY-MART 150-GALLON WATER STORAGE TANKS, OR APPROVED EQUAL WITH THE FOLLOWING PROPERTIES:
  - 4.1. CAPACITY > 150 GALLONS
  - 4.2. DIAMETER > 30"
  - 4.3. HEIGHT < 96"
  - 4.4. WEIGHT < 50 LB. (EA.)

53 Wachusett Street Design MQP J. Bonina M. Rabasco J. Rios	DRAWING TITLE	DWG NO:	PAGE NO: 003
	STRUCTURAL GENERAL NOTES	S-000	SCALE: N/A
			DRAWN BY: J. BONINA

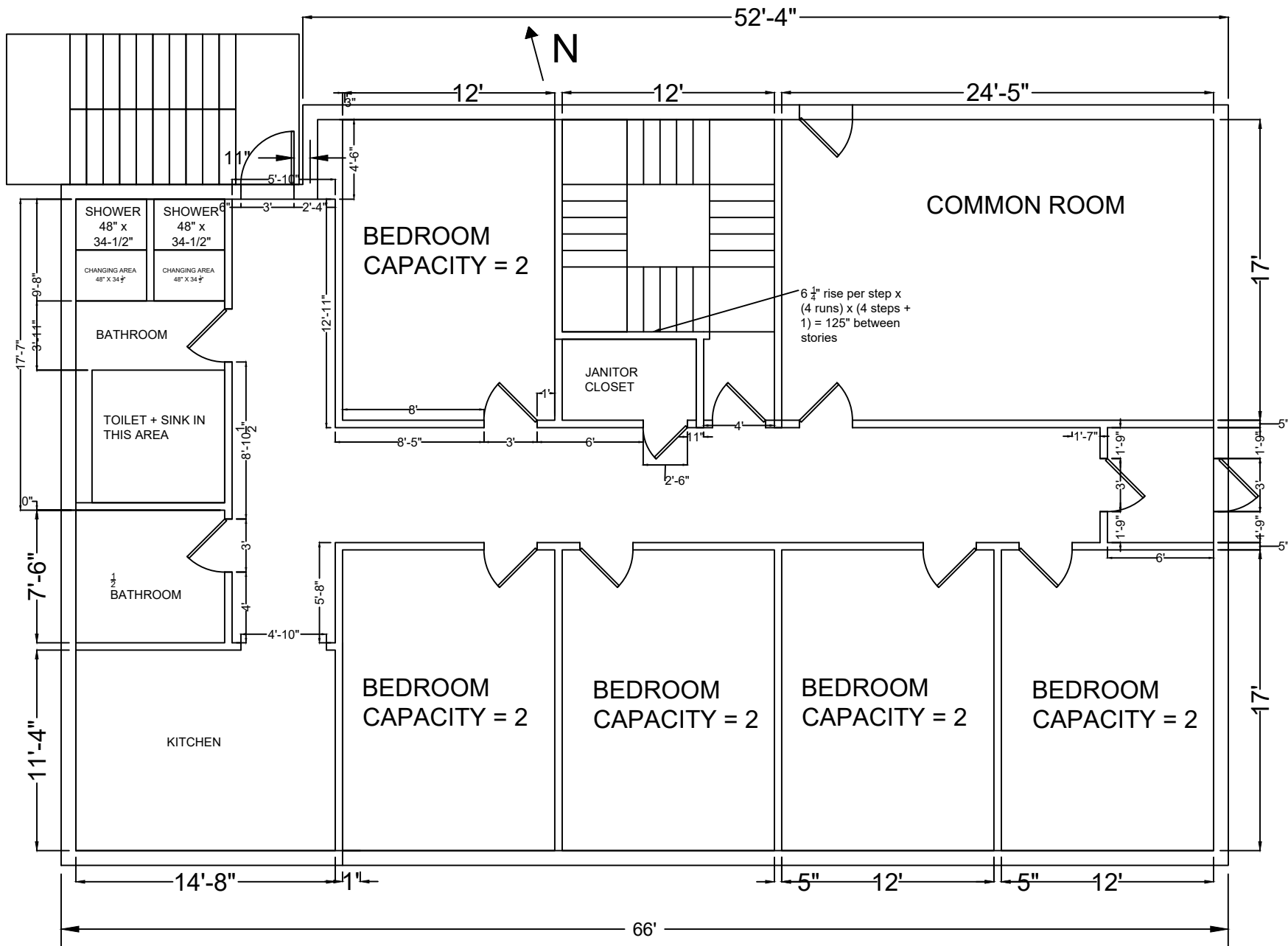


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DRAWING TITLE  
**PROPOSED BASEMENT LAYOUT**

DWG NO:  
**S-001**

PAGE NO: 004  
 SCALE: 1/8" = 1'-0"  
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PROPOSED FIRST FLOOR LAYOUT

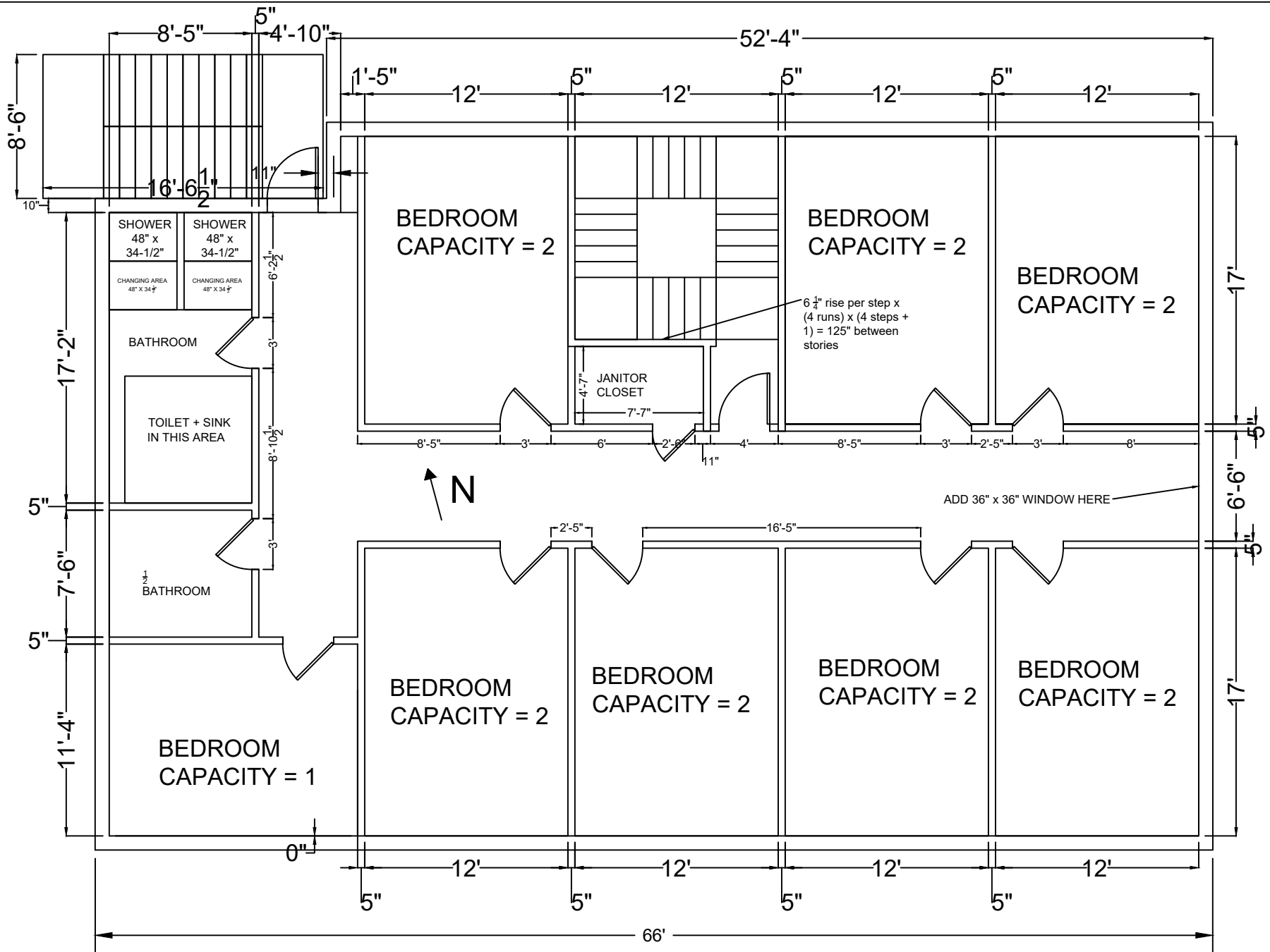
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SCALE: 1/8" = 1'-0"

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PROPOSED SECOND FLOOR LAYOUT

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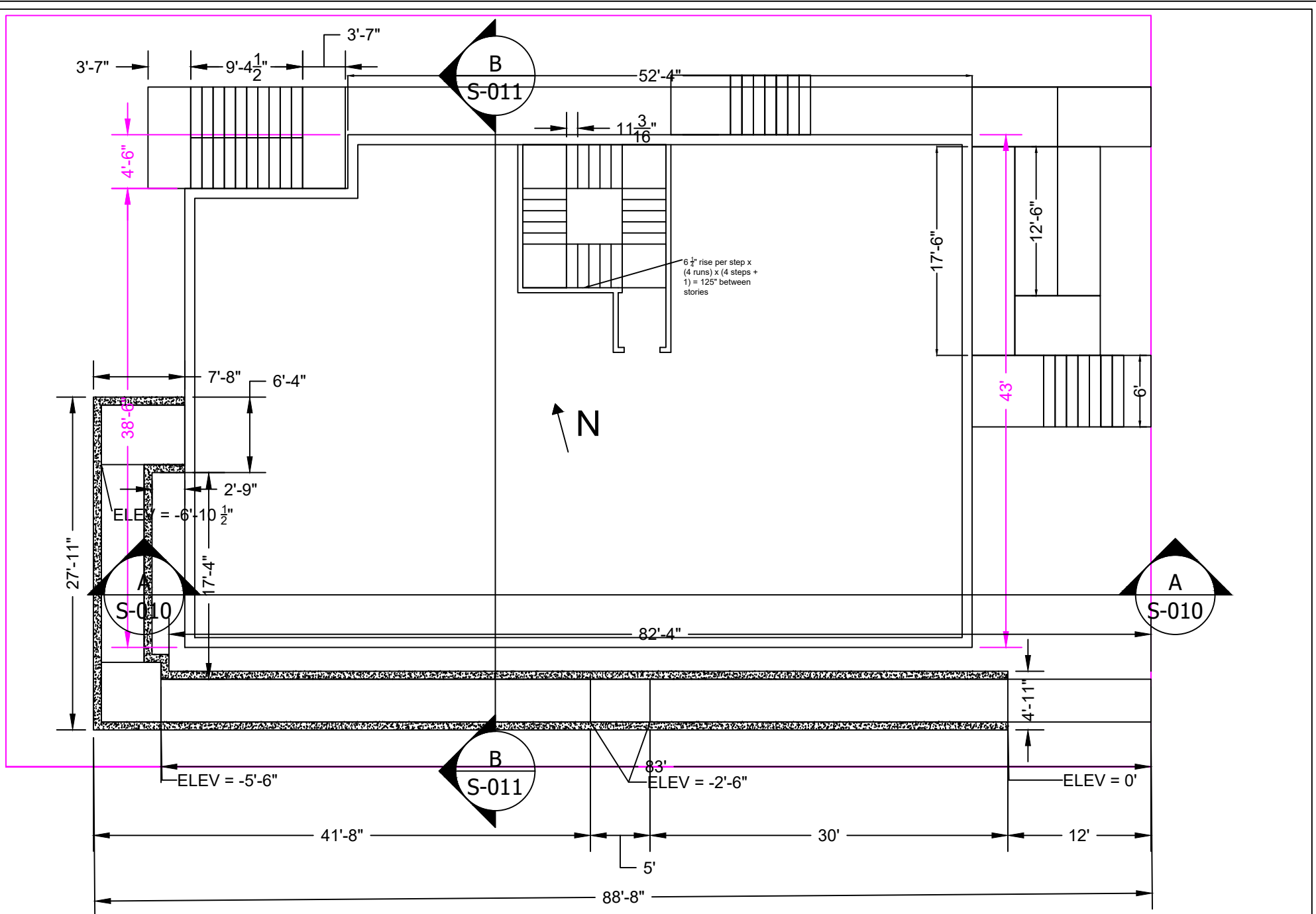
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SCALE: 1/8" = 1'-0"

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PROPOSED EXIT RAMP LAYOUTS

DWG NO:

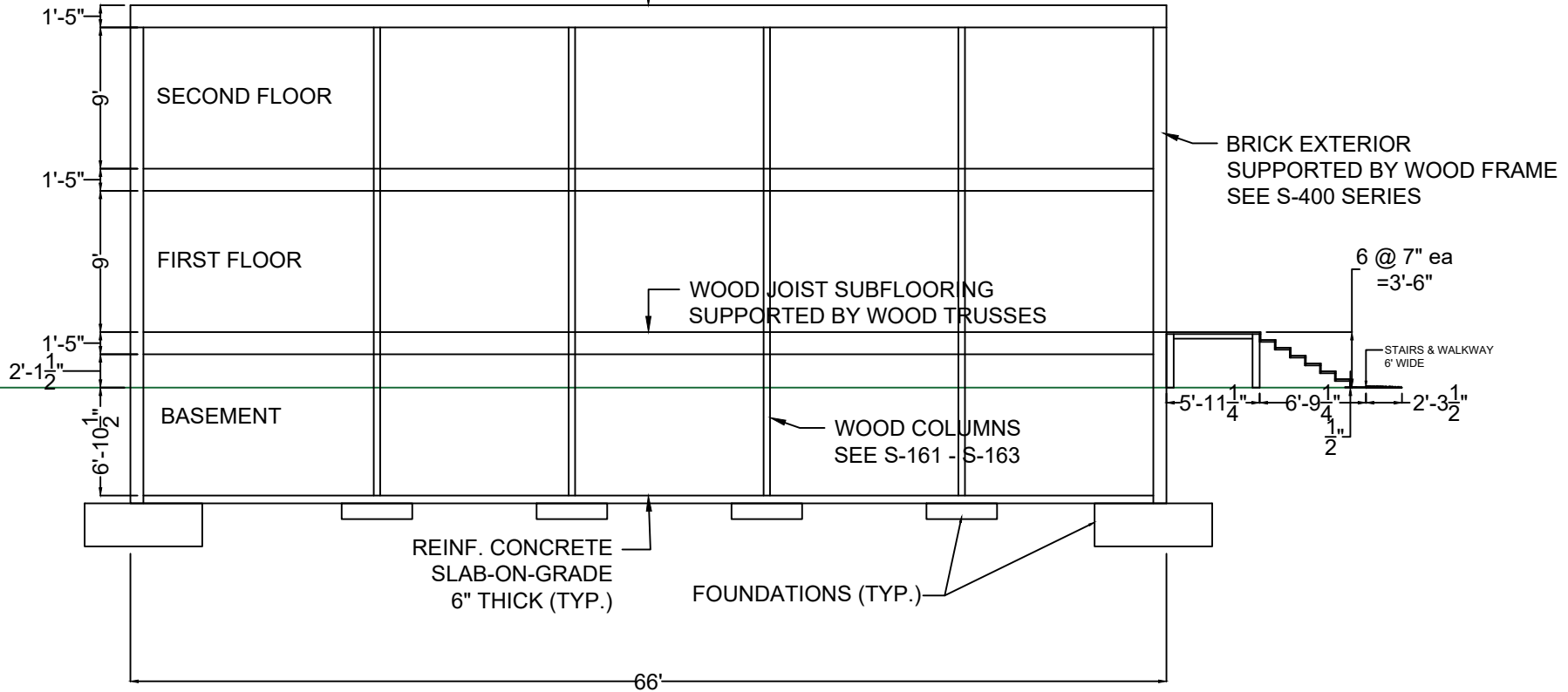
S-004

PAGE NO: 007

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

DRAWN BY: J. BONINA

SOLAR PANELS ON ROOF  
DEAD LOAD = 2 PSF



**A**  
S-003

# BUILDING SOUTH ELEVATION

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

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PROPOSED BUILDING SOUTH ELEVATION

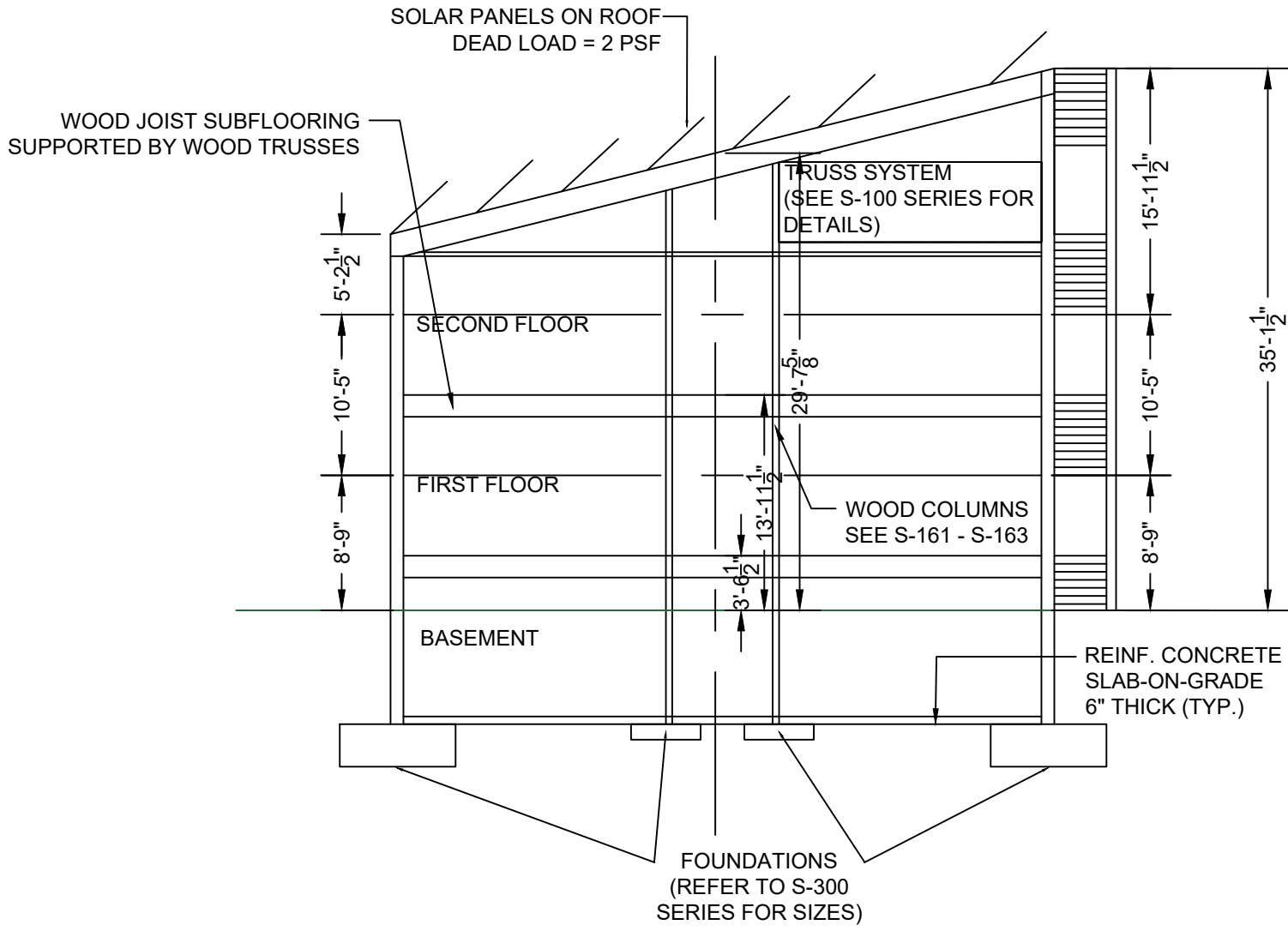
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**S-010**

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**B**  
S-003

**BUILDING EAST ELEVATION**

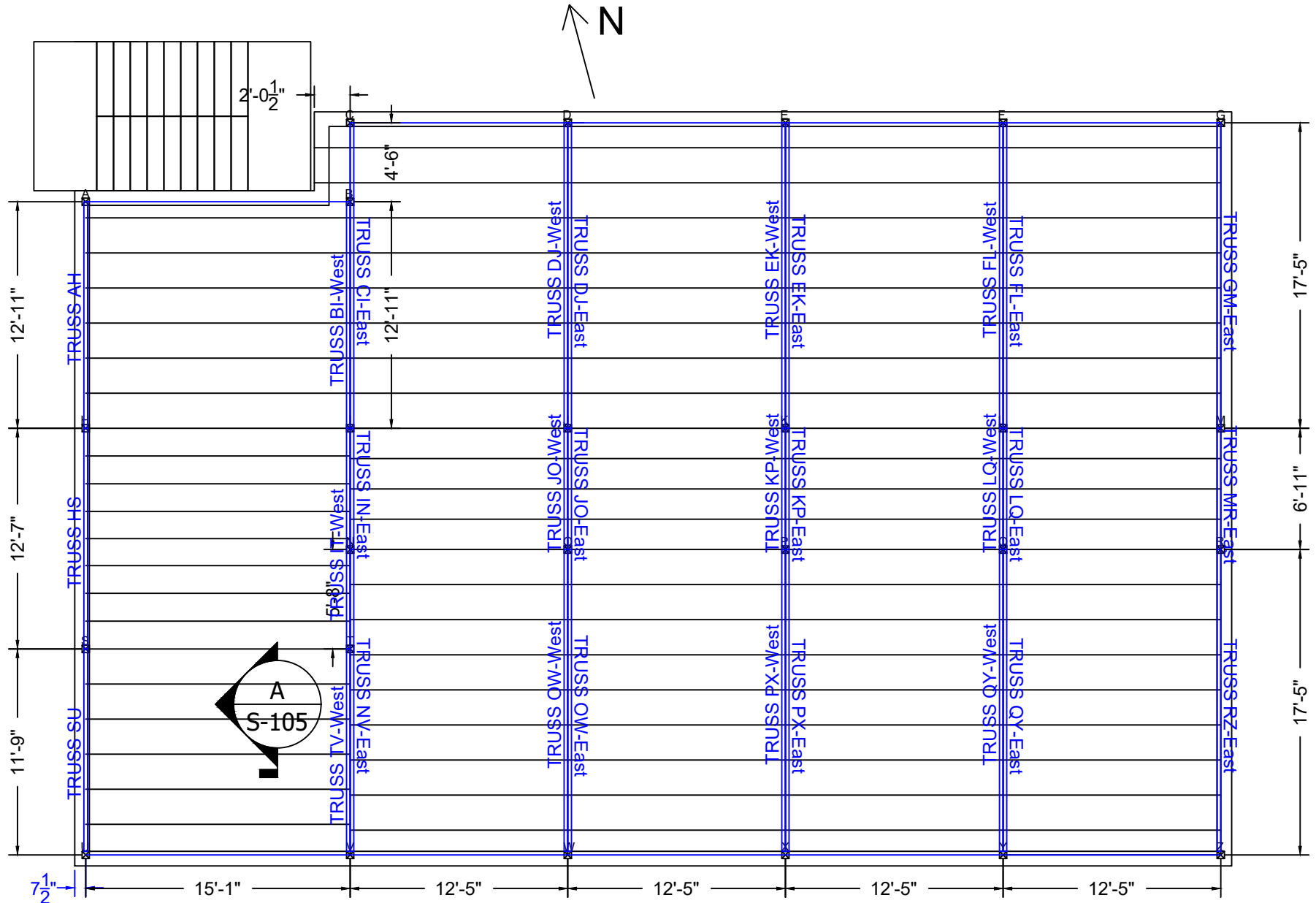
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DRAWING TITLE  
 PROPOSED BUILDING EAST ELEVATION

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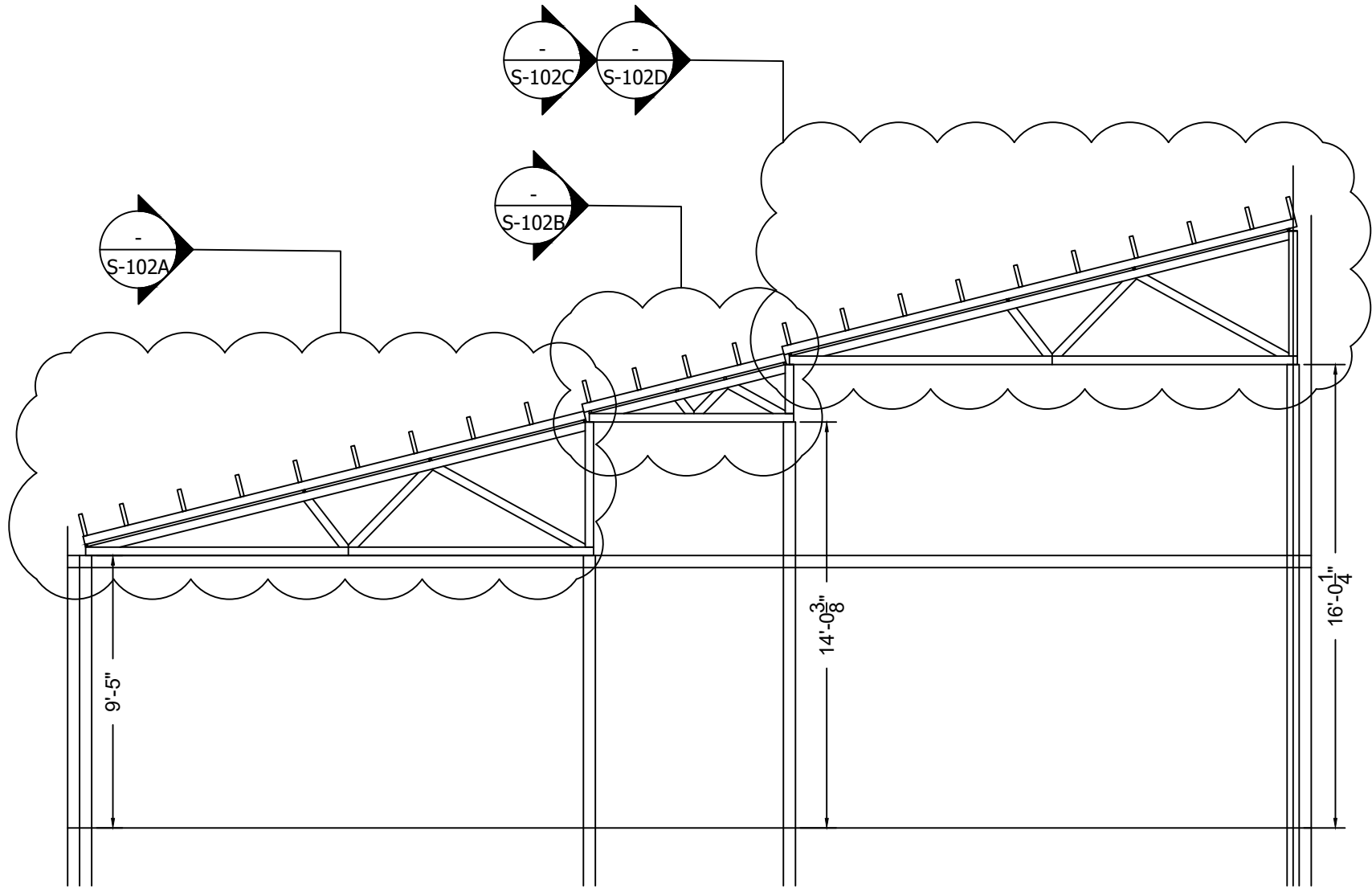


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DRAWING TITLE  
 BEAM, GIRDER, AND COLUMN LAYOUTS

DWG NO:  
 S-101

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ROOF TRUSS WEST SECTION

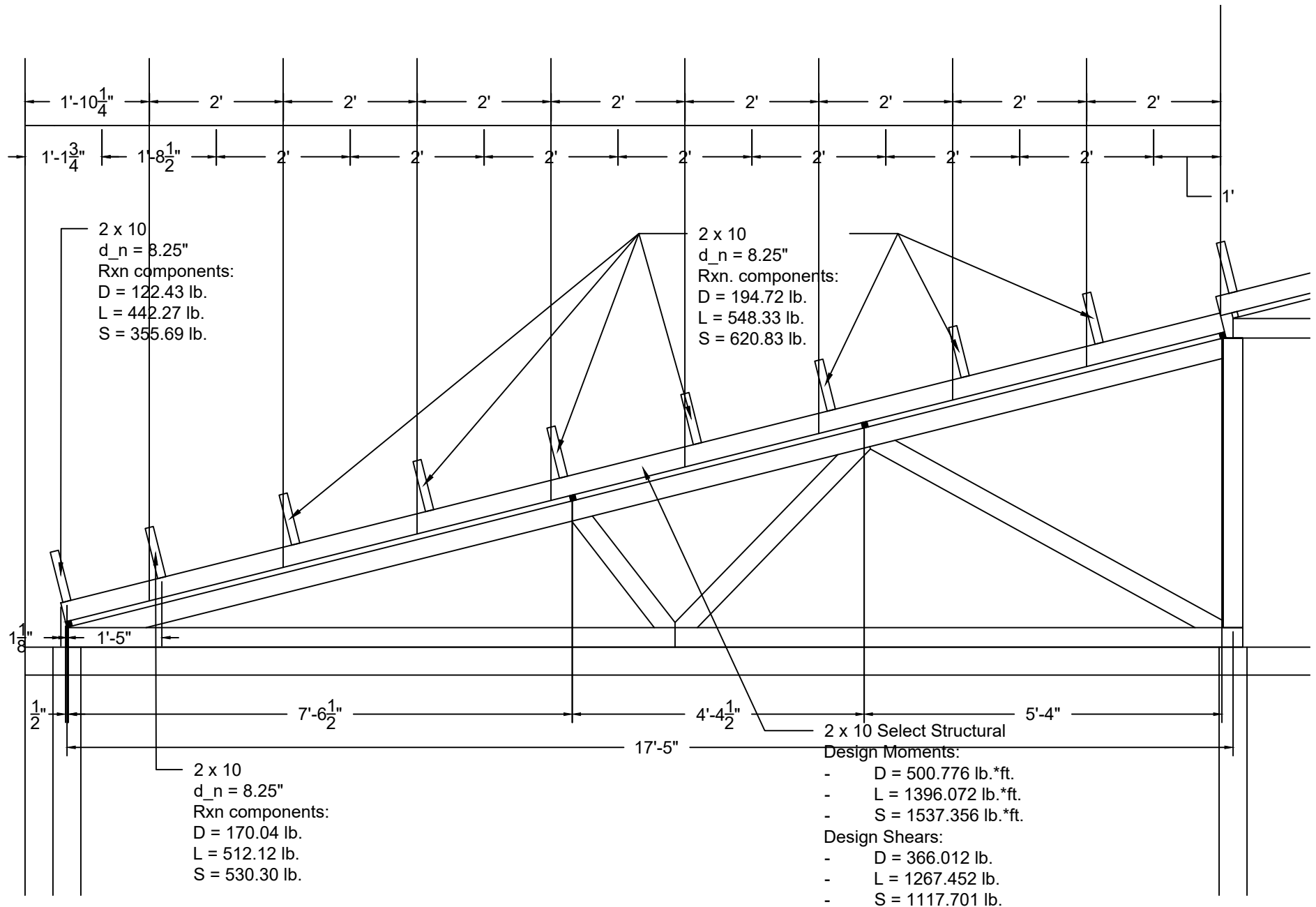
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**S-102**

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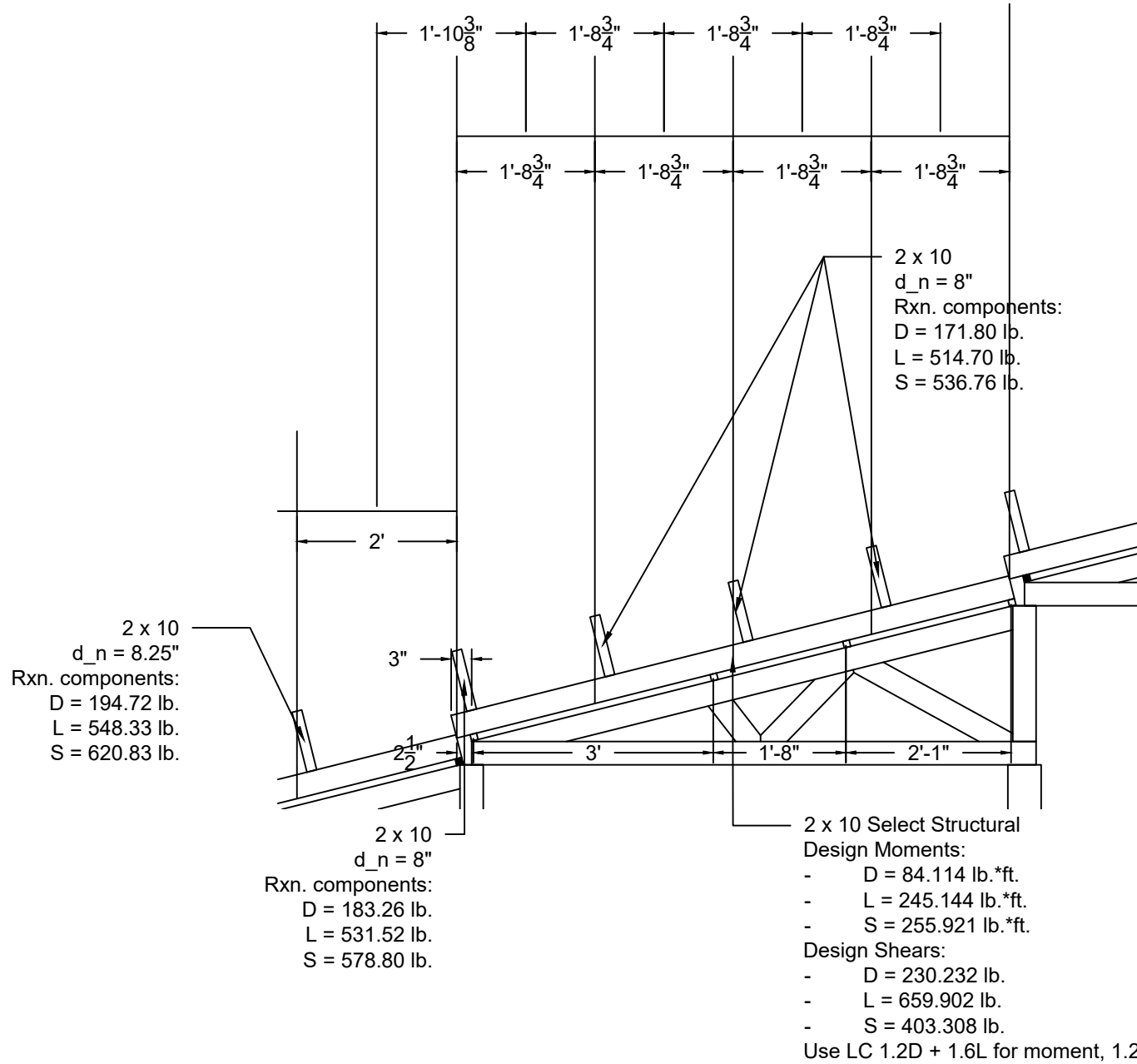


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DRAWING TITLE  
 ROOF TRUSS DETAILS  
 TRUSSES NV-East, OW, PX, QY, and RZ

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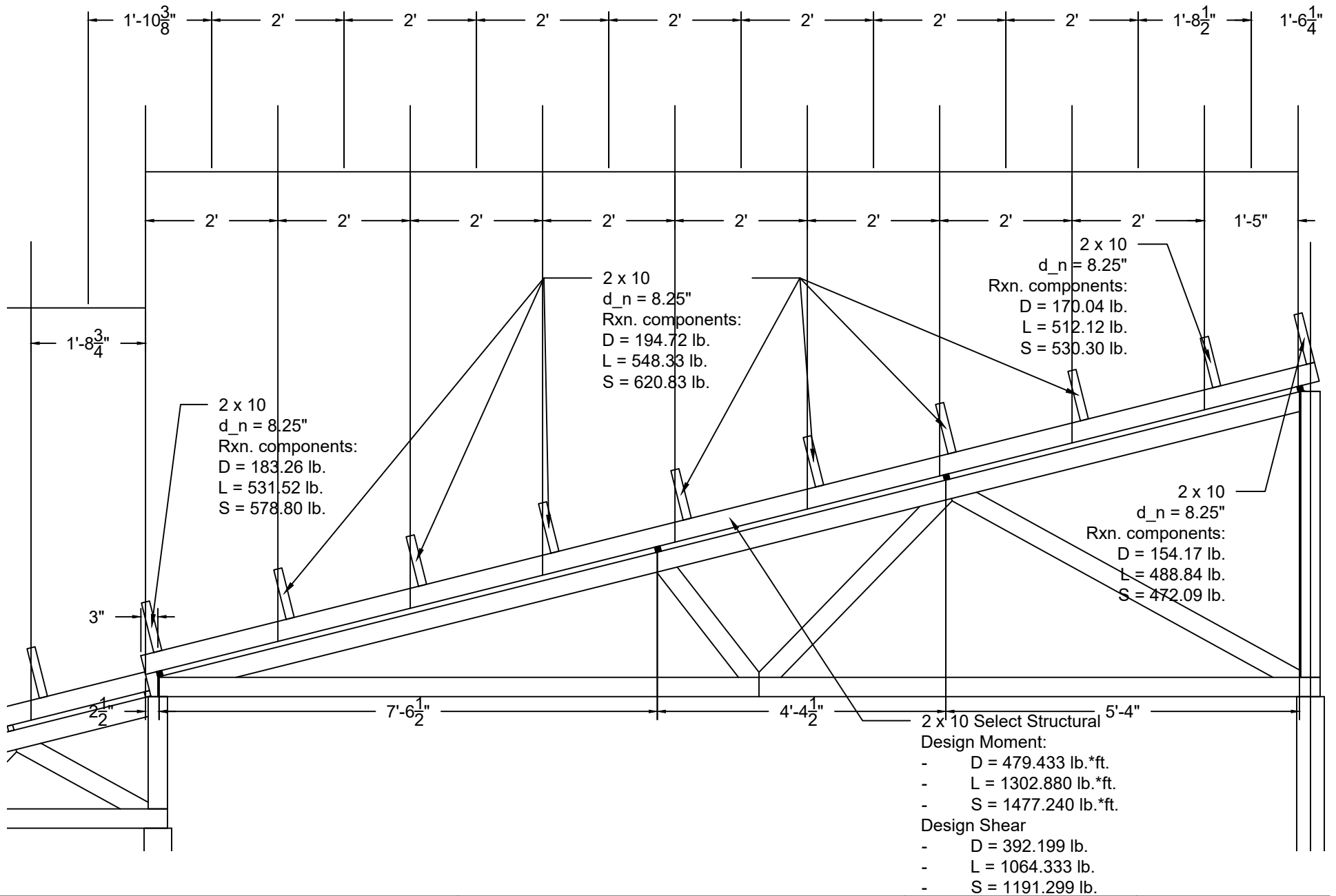


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DRAWING TITLE  
 ROOF TRUSS DETAILS  
 TRUSSES IN-East, JO, KP, LQ, and MR

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**S-102B**

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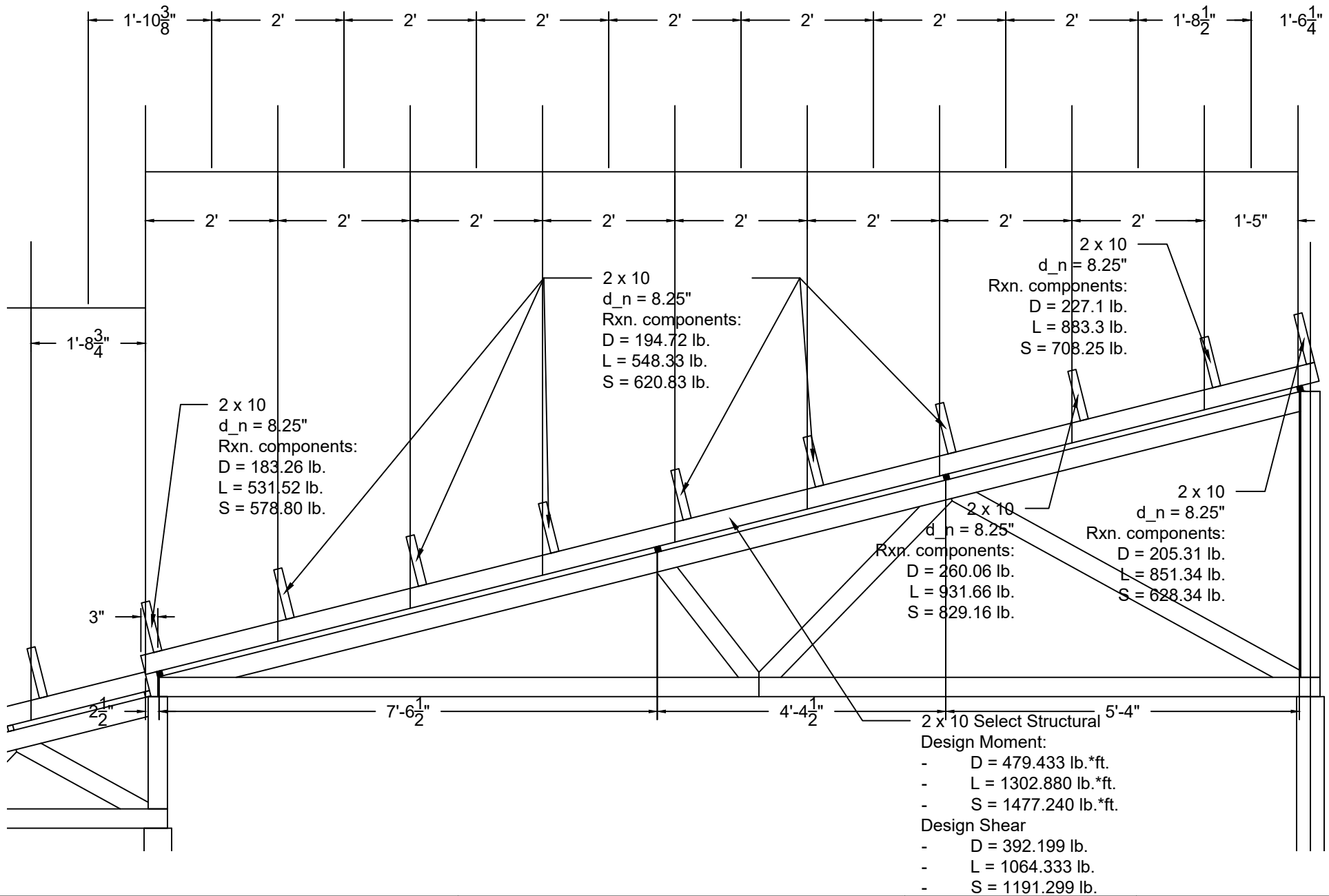
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 ROOF TRUSS DETAILS  
 TRUSSES DJ, EK, FL, and GM

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ROOF TRUSS DETAILS  
 TRUSS CI-East

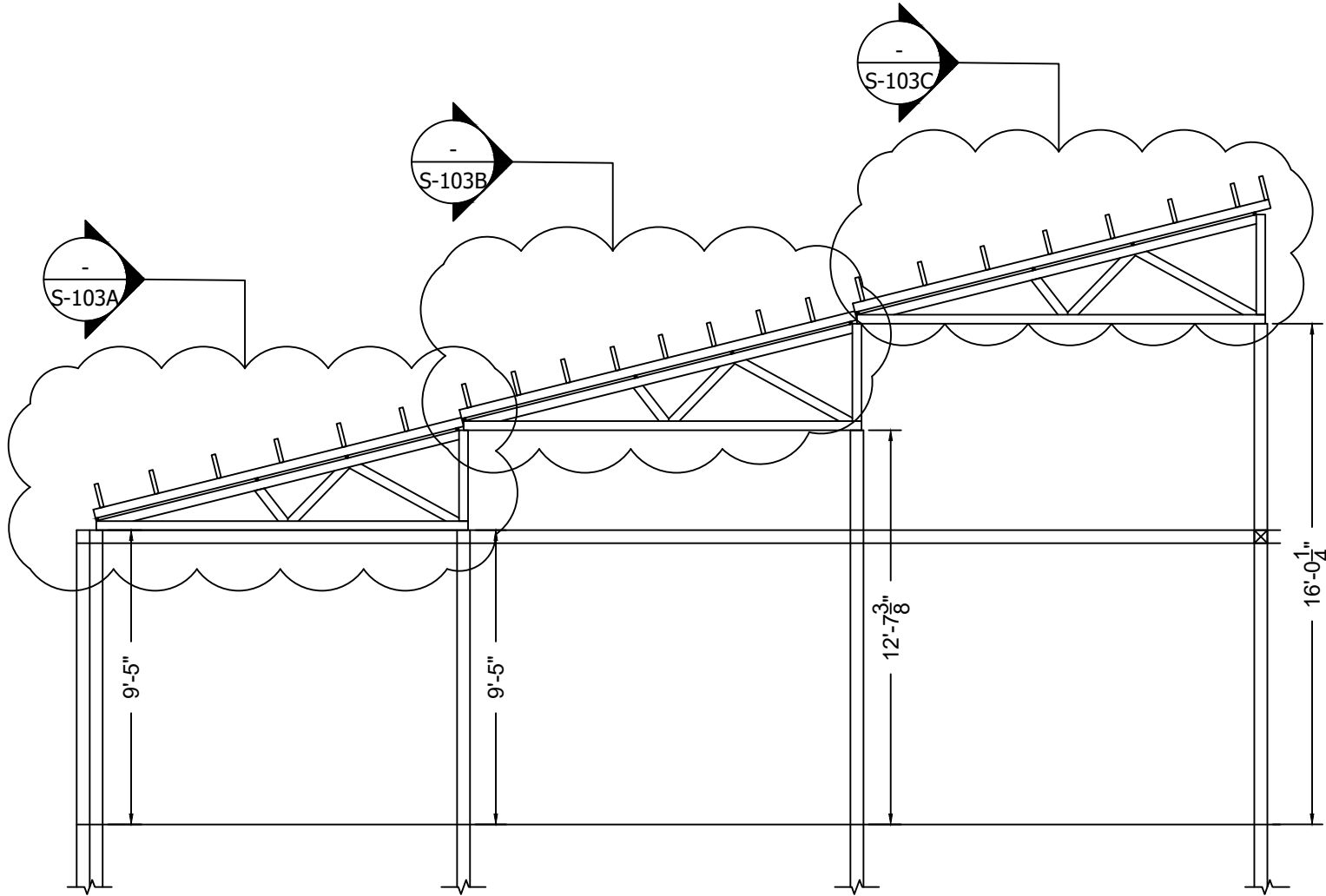
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S-102D

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SCALE: 1/2" = 1'-0"

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ROOF TRUSS SECTION B

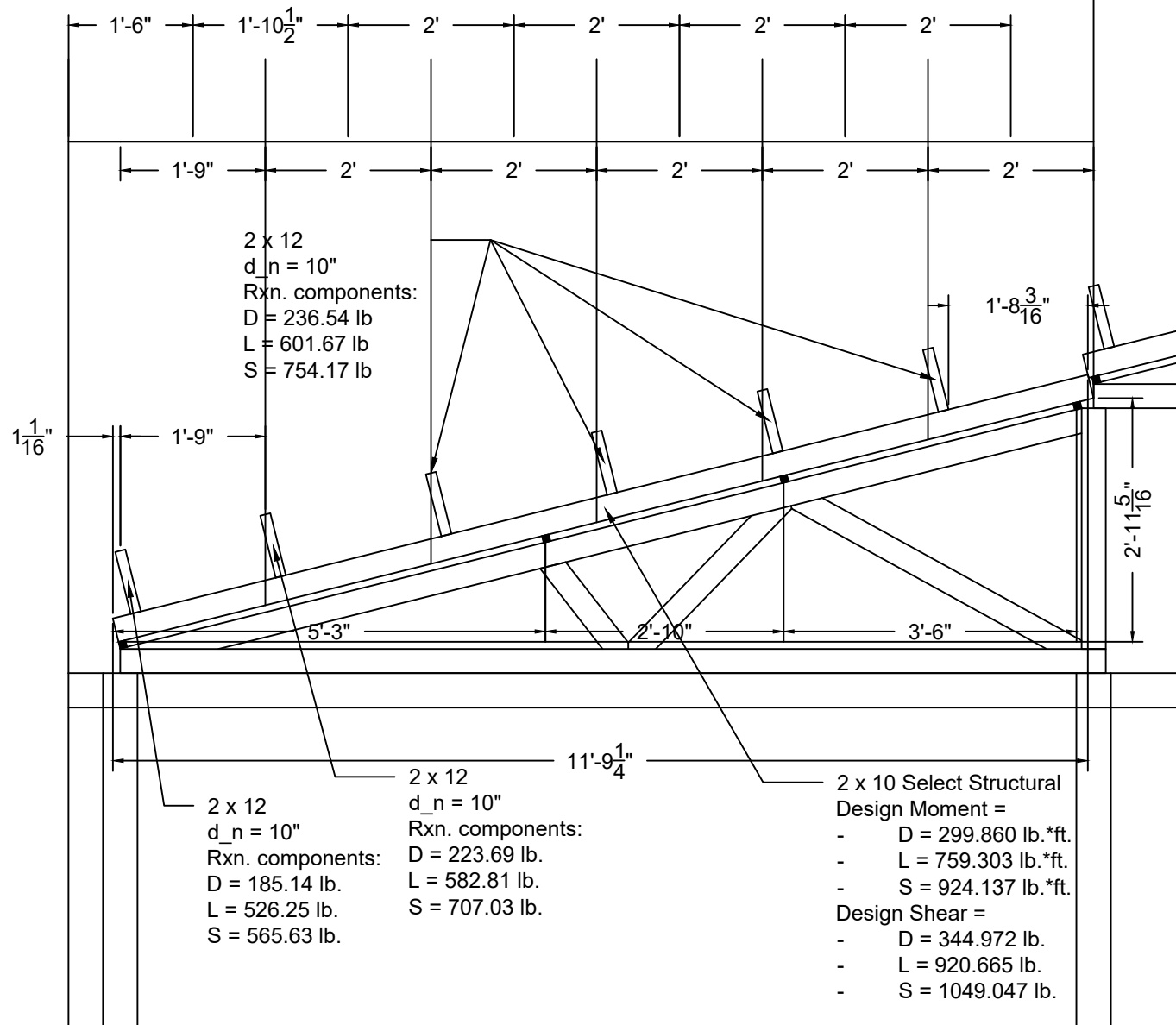
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**S-103**

PAGE NO: 016

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

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ROOF TRUSS TYPE B DETAILS  
SHEET 1

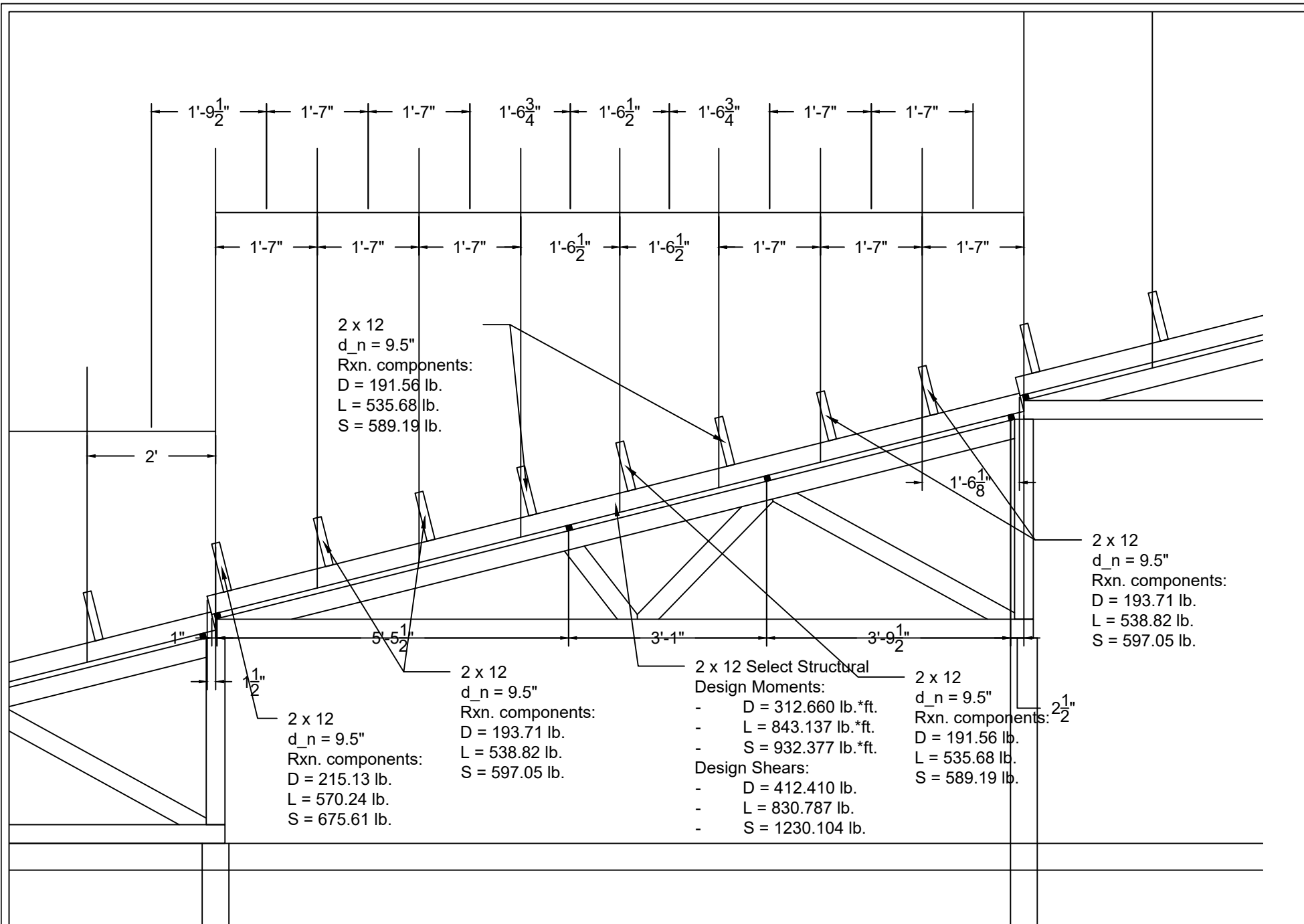
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SCALE: 1/2" = 1'-0"

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ROOF TRUSS TYPE B DETAILS  
SHEET 2

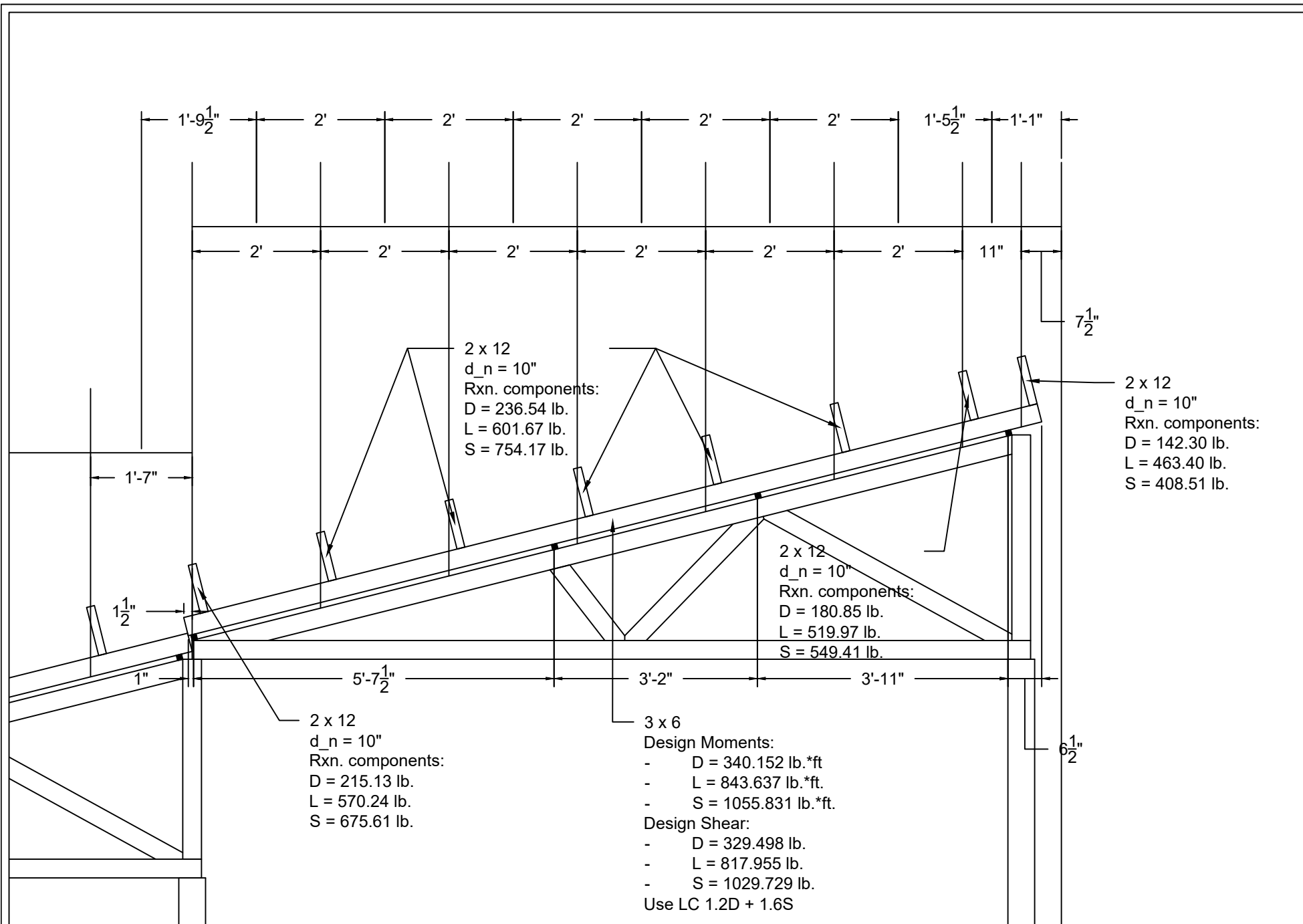
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ROOF TRUSS TYPE B DETAILS  
SHEET 3

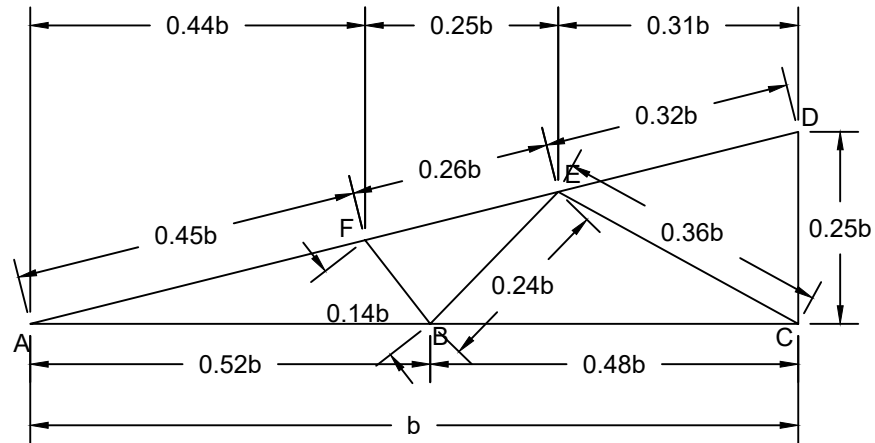
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S-103C

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SCALE: 1/2" = 1'-0"

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# TRUSSES BY SPAN (b)	
SPAN (b)	# TRUSSES
11'-9"	2
12'-7"	2
12'-11"	2
6'-11"	8
17'-5"	16

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ROOF TRUSS  
PROPORTIONS AND QUANTITIES

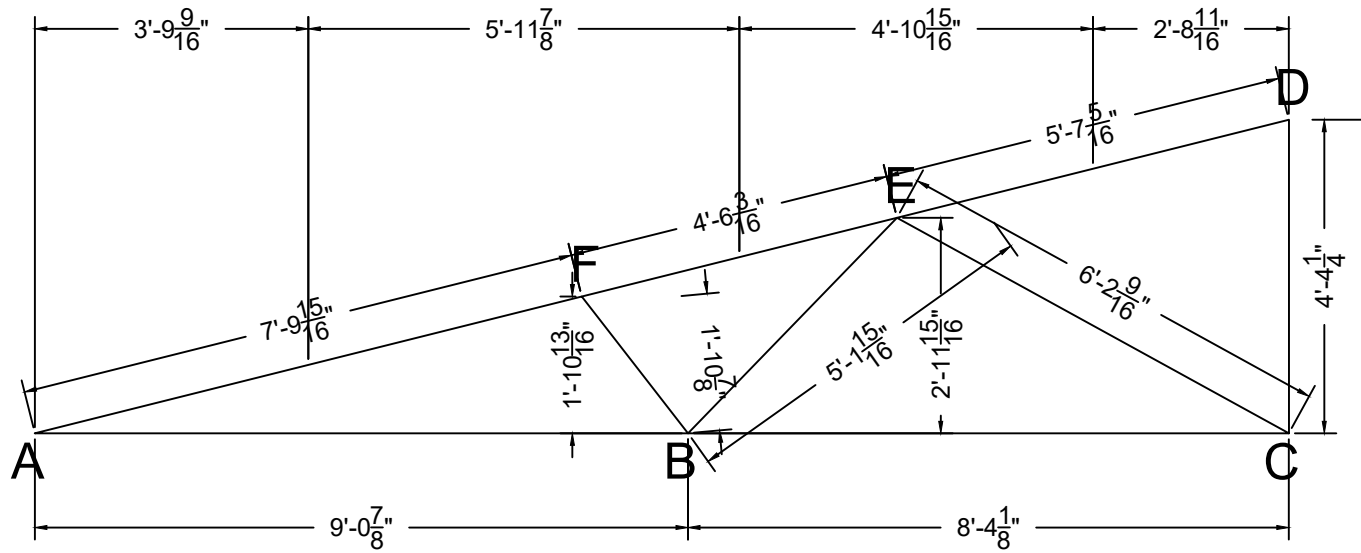
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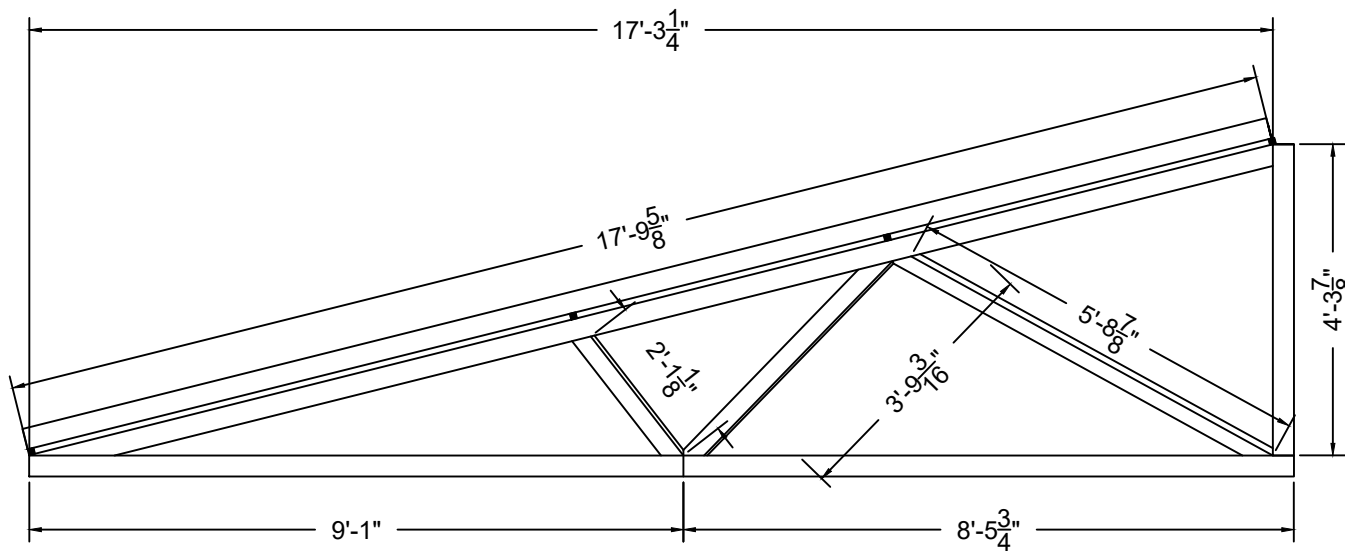
PAGE NO: 020

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DRAWN BY: J. BONINA



## 1. DIMENSIONS FOR ANALYSIS



## 2. SHOP DRAWINGS

MEMBER LENGTHS	
	17'-9 5/8"
	2'-1 5/8"
	3'-9 3/16"
	5'-8 7/8"
	4'-3 7/8"
	9'-1"
	8'-5 3/4"
	TOTAL:
	51'-3 15/16"
	2 x 4 Weight
	1.28 lb./ft.
	TRUSS WEIGHT:
	65.7 lb.
	2 x 10 EXTRA CHORD
	17'-9 5/8"
	3.37 lb./ft.
	60.0 lb.
	TRUSS + EXTRA CHORD
	125.7 lb.

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DRAWING TITLE

TRUSS DIMENSIONS  
TRUSSES NV-East, OW, PX, QY, and RZ  
TRUSSES CI-East, DJ, EK, FL, and GM

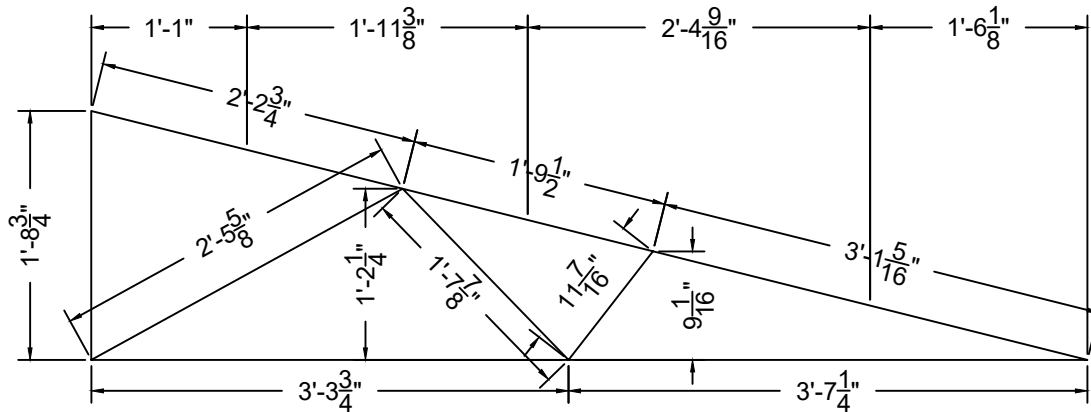
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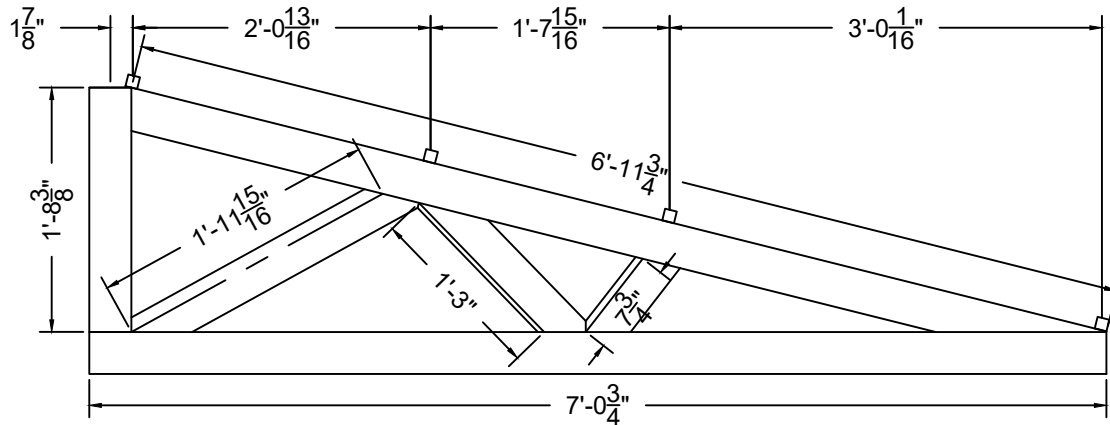
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SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA



### 1. DIMENSIONS FOR ANALYSIS



### 2. SHOP DRAWINGS

MEMBER LENGTHS
6'-11 3/4"
0'-7 3/4"
1'-3"
1'-11 15/16"
1'-8 3/8"
7'-0 3/4"
TOTAL:
19'-7 9/16"
2 x 4 Weight
1.28 lb./ft.
TRUSS WEIGHT:
25.1 lb.
2 x 10 EXTRA CHORD
6'-11 3/4"
3.37 lb./ft.
23.5 lb.
TRUSS + EXTRA CHORD
48.6 lb.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS DIMENSIONS  
TRUSSES IN-East, JO, KP, LQ, and MR

DWG NO:

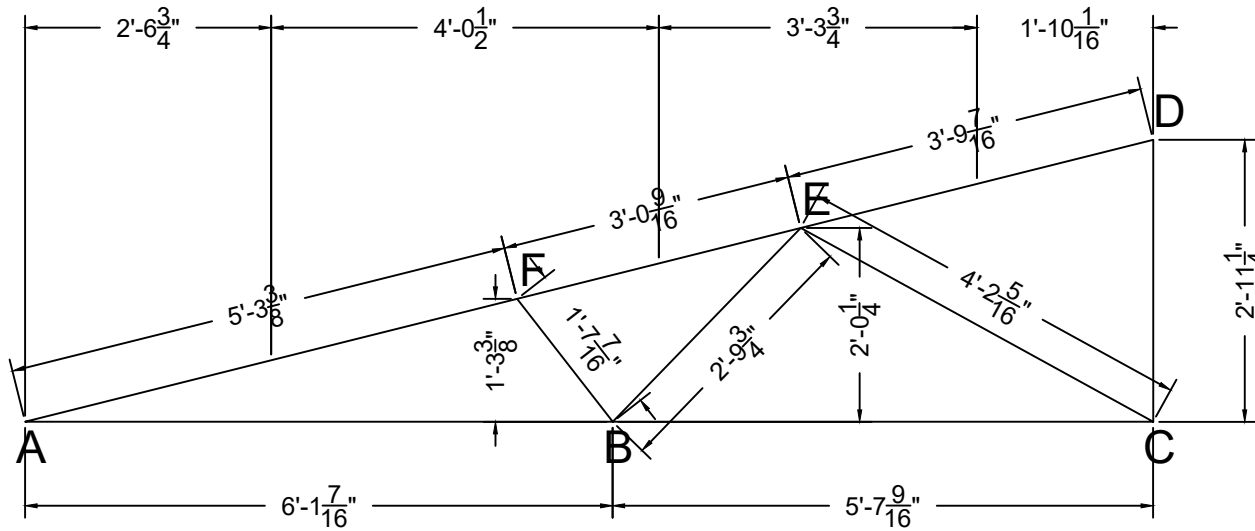
S-104B

PAGE NO: 022

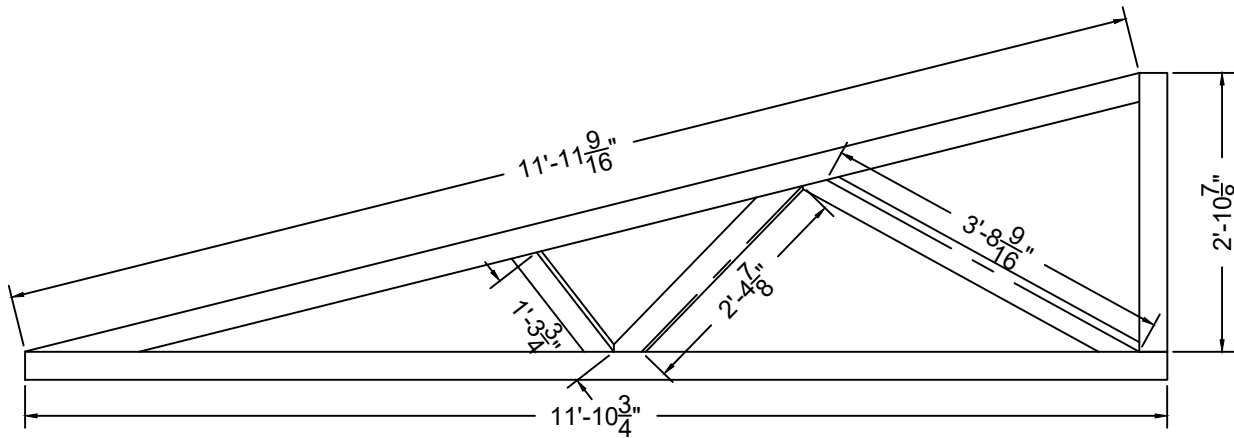
SCALE: 3/4" = 1'-0"

DRAWN BY: J. BONINA





1. DIMENSIONS FOR ANALYSIS



2. SHOP DRAWINGS

MEMBER LENGTHS
11'-11 9/16"
1'-3 3/4"
2'-4 7/8"
3'-8 9/16"
2'-10 7/8"
11'-10 3/4"
TOTAL:
34'-2 3/8"
2 x 4 Weight
1.28 lb./ft.
TRUSS WEIGHT:
43.8 lb.
2 x 10 EXTRA CHORD
11'-11 9/16"
3.37 lb./ft.
40.3 lb.
TRUSS + EXTRA CHORD
84.1 lb.

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M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS DIMENSIONS  
TRUSSES SU and TV-West

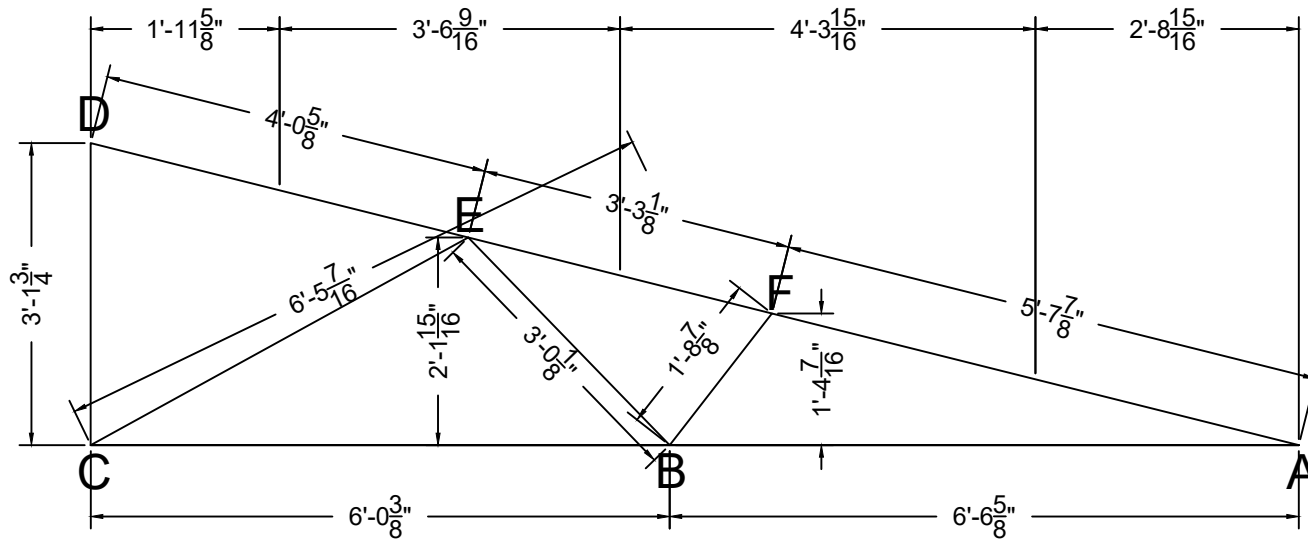
DWG NO:

S-104C

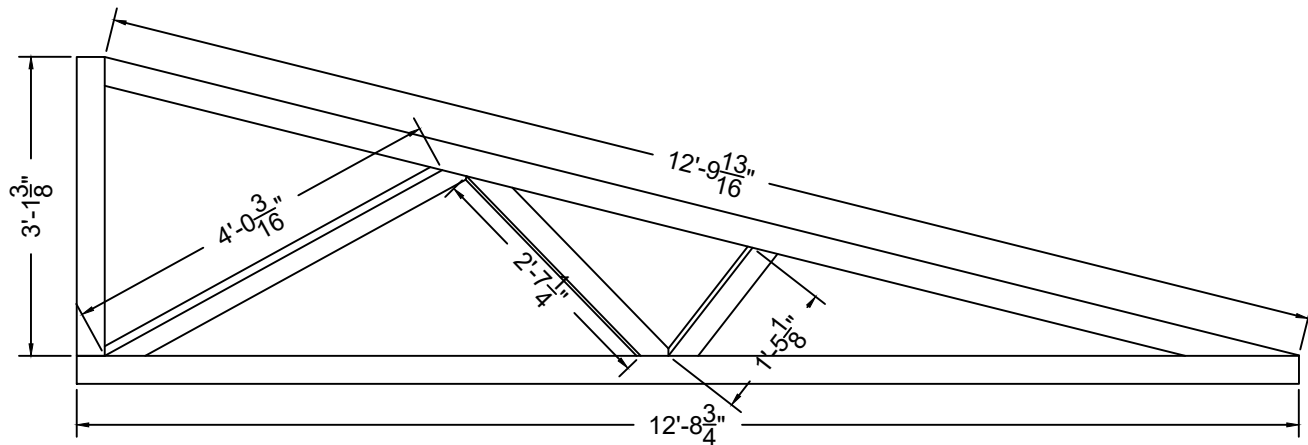
PAGE NO: 023

SCALE: 1/2" = 1'-0"

DRAWN BY: J. BONINA



1. DIMENSIONS FOR ANALYSIS



2. SHOP DRAWINGS

MEMBER LENGTHS
12'-9 13/16"
1'-5 1/8"
2'-7 1/4"
4'-0 3/16"
3'-1 3/8"
12'-8 3/4"
TOTAL:
36'-8 1/2"
2 x 4 Weight
1.28 lb./ft.
TRUSS WEIGHT:
47.0 lb.
2 x 12 EXTRA CHORD
12'-9 13/16"
4.10 lb./ft.
52.6 lb.
TRUSS + EXTRA CHORD
99.5 lb.

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M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS DIMENSIONS  
TRUSSES HS and IT-West

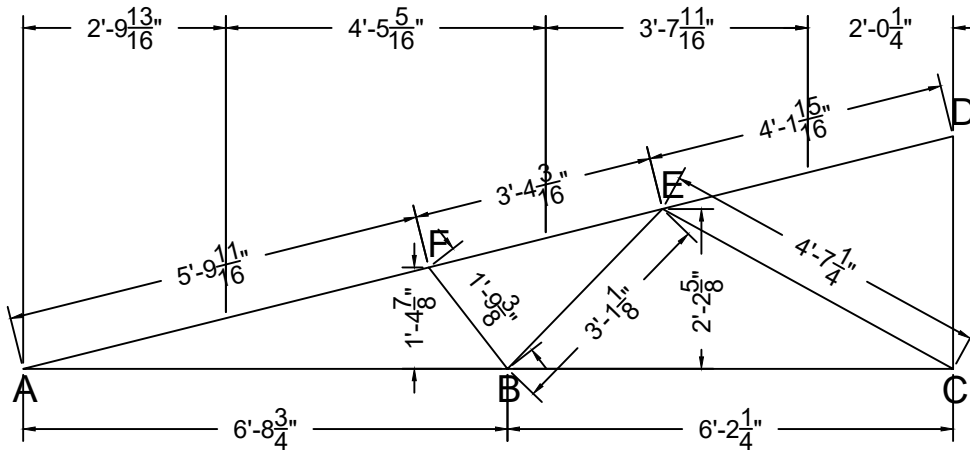
DWG NO:

S-104D

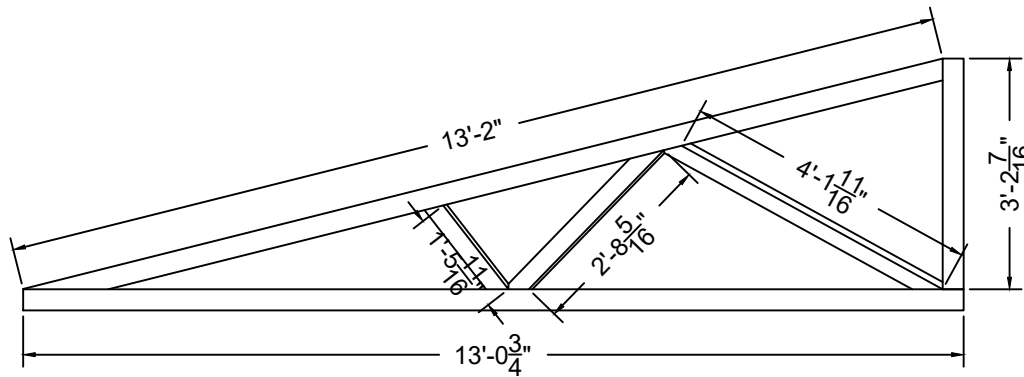
PAGE NO: 024

SCALE: 1/2" = 1'-0"

DRAWN BY: J. BONINA



1. DIMENSIONS FOR ANALYSIS



2. SHOP DRAWINGS

MEMBER LENGTHS	
	13'-2"
	1'-5 11/16"
	2'-8 5/16"
	4'-1 11/16"
	3'-2 7/16"
	13'-0 3/4"
	TOTAL:
	37'-8 7/8"
	2 x 4 Weight
	1.28 lb./ft.
	TRUSS WEIGHT:
	48.3 lb.
	2 x 12 EXTRA CHORD
	13'-2"
	4.10 lb./ft.
	54.0 lb.
	TRUSS + EXTRA CHORD
	102.3 lb.

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M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS DIMENSIONS  
TRUSS AH and BI-West

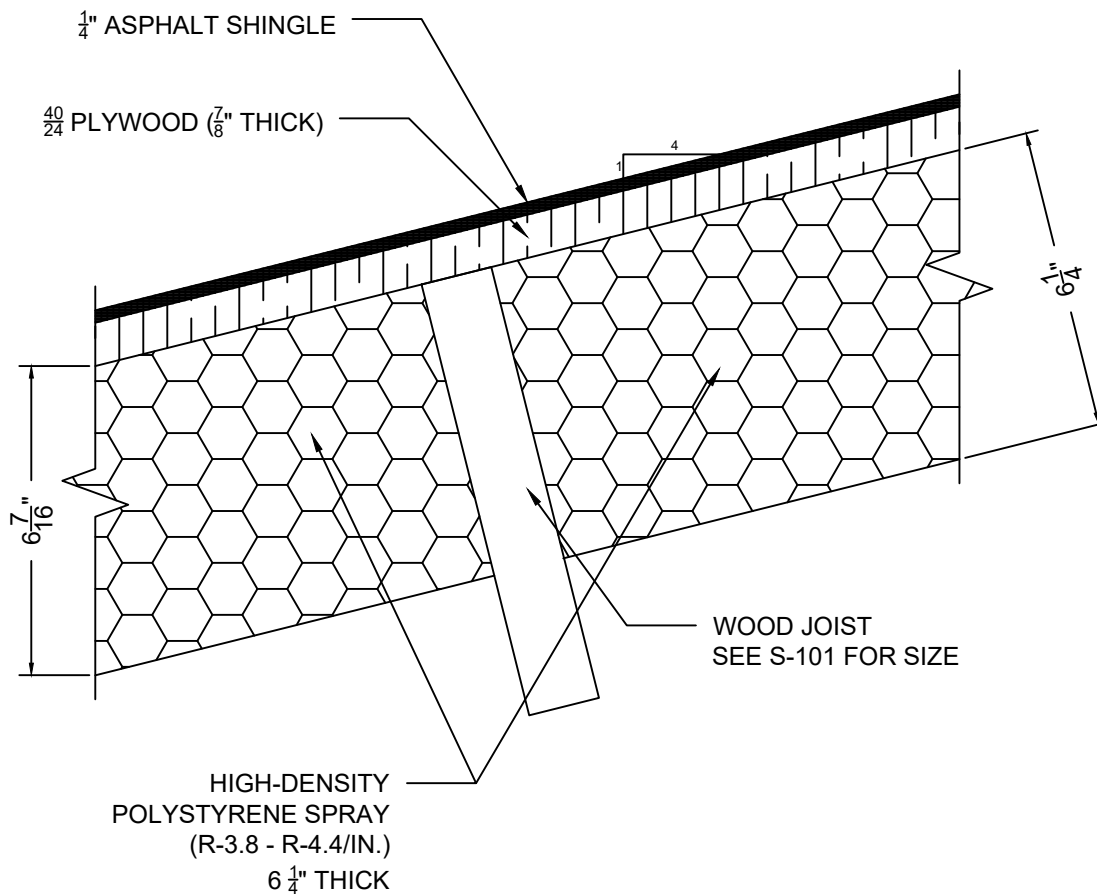
DWG NO:

S-104E

PAGE NO: 025

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA



**A**  
S-101

**ROOF FRAMING SECTION (TYP.)**

Scale: 3" = 1'-0"

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 J. Rios

DRAWING TITLE

ROOF FRAMING  
 DETAILS

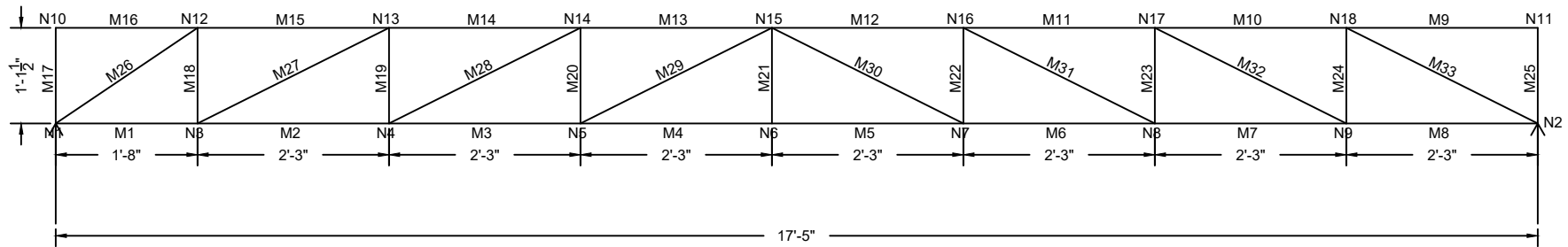
DWG NO:

**S-105**

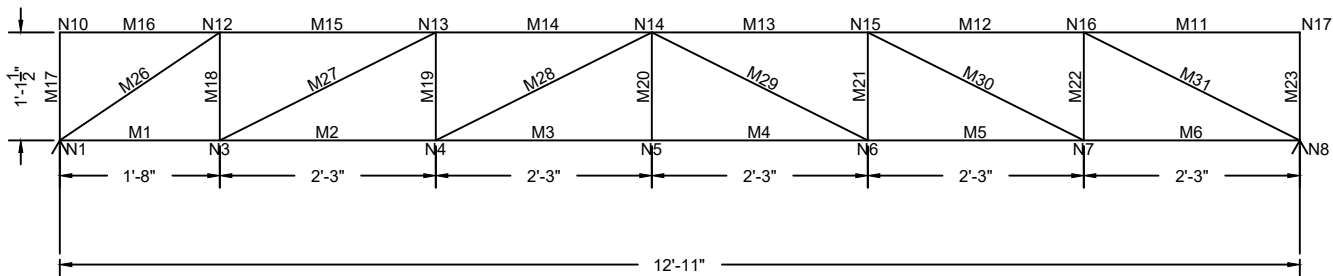
PAGE NO: 026

SCALE: 3" = 1'-0"

DRAWN BY: J. BONINA



**A** TYPICAL TRUSS SECTION A  
S-122 Scale: 3/8" = 1'-0"



**B** TYPICAL TRUSS SECTION B  
S-122 Scale: 3/8" = 1'-0"

NOTES:

1. REFER TO S-114 FOR MEMBER SIZES FOR TRUSS A
2. REFER TO S-115 FOR MEMBER SIZES FOR TRUSS B

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J. Rios

DRAWING TITLE

TRUSS SECTIONS  
SHEET 1

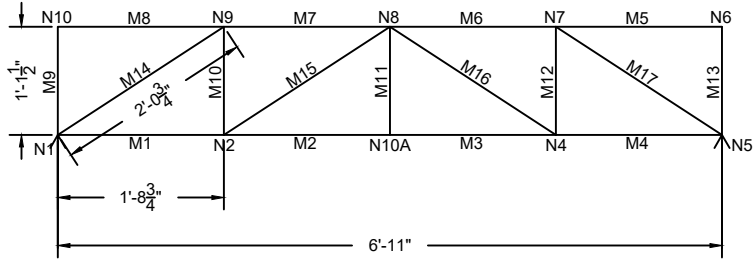
DWG NO:

S-111

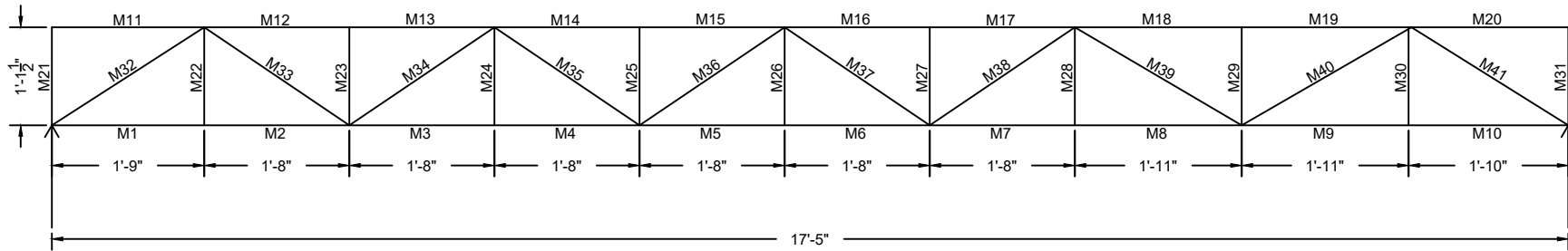
PAGE NO: 027

SCALE: 1/2" = 1'-0"

DRAWN BY: J. BONINA



**C** TYPICAL TRUSS SECTION C  
 S-122 Scale: 3/8" = 1'-0"



**D** TYPICAL TRUSS SECTION D  
 S-122 Scale: 3/8" = 1'-0"

NOTES:

1. REFER TO S-116 FOR MEMBER SIZES FOR TRUSS C
2. REFER TO S-117 FOR MEMBER SIZES FOR TRUSS D

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 J. Rios

DRAWING TITLE

TRUSS SECTIONS  
 SHEET 2

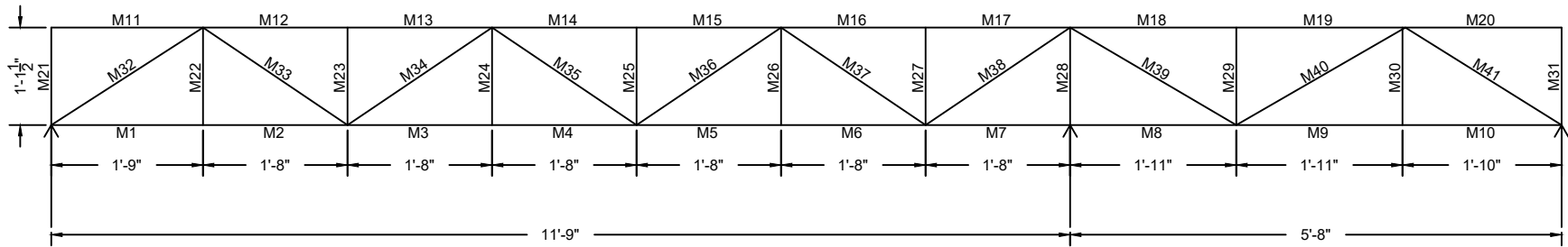
DWG NO:

S-112

PAGE NO: 028

SCALE: 1/2" = 1'-0"

DRAWN BY: J. BONINA



**E** TYPICAL TRUSS SECTION E  
 S-122 Scale: 3/8" = 1'-0"

- NOTES:  
 1. REFER TO S-118 FOR MEMBER SIZES FOR TRUSS E

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 J. Rios

DRAWING TITLE

TRUSS SECTIONS  
 SHEET 3

DWG NO:

S-113

PAGE NO: 029

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA

Member	Length (in)	Truss FL	Truss FL	Truss EK	Truss EK	Truss DJ	Truss DJ
		(1st Floor)	(2nd Floor)	(1st Floor)	(2nd Floor)	(1st Floor)	(2nd Floor)
		Shape	Shape	Shape	Shape	Shape	Shape
M1	20	4X6	3X6	3X6	3X6	3X6	3X6
M2	27	2X6	2X4	2X4	2X4	2X4	2X4
M3	27	2X6	2X6	2X6	2X6	2X4	2X6
M4	27	3X6	2X6	2X6	2X6	2X4	2X6
M5	27	3X6	2X6	2X6	2X6	2X4	2X6
M6	27	3X6	2X6	2X6	2X6	2X4	2X6
M7	27	2X4	2X4	2X4	2X4	2X4	2X4
M8	27	4X6	3X6	3X6	3X6	3X6	3X6
M9	27	2X4	2X4	2X4	2X4	2X4	2X4
M10	27	4X6	3X6	3X6	3X6	3X6	3X6
M11	27	6X6	4X6	4X6	4X6	3X6	4X6
M12	27	6X8	4X6	6X6	4X6	3X6	4X6
M13	27	6X8	4X6	6X6	4X6	3X6	4X6
M14	27	6X6	4X6	4X6	4X6	3X6	4X6
M15	27	4X6	3X6	3X6	3X6	3X6	3X6
M16	20	2X4	2X4	2X4	2X4	2X4	2X4
M17	13.5	2X6	3X6	2X6	3X6	4X6	3X6
M18	13.5	3X6	2X6	2X6	2X6	2X4	2X6
M19	13.5	2X6	2X4	2X4	2X4	2X4	2X4
M20	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M21	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M22	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M23	13.5	2X6	2X4	2X4	2X4	2X4	2X4
M24	13.5	3X6	2X6	2X6	2X6	2X4	2X6
M25	13.5	4X6	3X6	4X6	3X6	4X6	3X6
M26	24.13	4X6	3X6	3X6	3X6	3X6	3X6
M27	30.187	4X6	3X6	3X6	3X6	3X6	3X6
M28	30.187	3X6	3X6	3X6	3X6	2X6	3X6
M29	30.187	2X6	3X6	2X4	3X6	2X4	3X6
M30	30.187	2X4	3X6	2X4	3X6	2X4	3X6
M31	30.187	3X6	3X6	3X6	3X6	2X6	3X6
M32	30.187	4X6	3X6	3X6	3X6	3X6	3X6
M33	30.187	6X6	3X6	3X6	3X6	3X6	3X6

53 Wachusett Street Design MQP  
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M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS MEMBER SIZES  
TRUSS TYPE A

DWG NO:

**S-114**

PAGE NO: 030

SCALE: N/A

DRAWN BY: J. BONINA



Member	Length (in)	Truss BI (1st Floor)		Truss BI (2nd Floor)	
		Shape	Code Check (1" nail)	Shape	Code Check (1" nail)
M1	20	3X6	0.503	3X6	0.503
M2	27	2X6	0.027	2X6	0.027
M3	27	2X6	0.514	2X6	0.514
M4	27	2X6	0.514	2X6	0.514
M5	27	2X6	0.234	2X6	0.234
M6	27	3X6	0.358	3X6	0.358
M11	27	2X6	0.000	2X6	0.000
M12	27	3X6	0.778	3X6	0.778
M13	27	4X6	0.807	4X6	0.807
M14	27	4X6	0.746	4X6	0.746
M15	27	3X6	0.594	3X6	0.594
M16	20	2X6	0.000	2X6	0.000
M17	13.5	3X6	0.486	2X6	0.399
M18	13.5	2X6	0.734	2X6	0.734
M19	13.5	2X4	0.483	2X4	0.483
M20	13.5	2X4	0.002	2X4	0.002
M21	13.5	2X4	0.282	2X4	0.282
M22	13.5	2X6	0.608	2X6	0.608
M23	13.5	3X6	0.743	2X6	0.506
M26	24.13	4X6	0.466	4X6	0.466
M27	30.187	3X6	0.630	3X6	0.630
M28	30.187	2X6	0.639	2X6	0.639
M29	30.187	2X6	0.342	2X6	0.342
M30	30.187	3X6	0.521	3X6	0.521
M31	30.187	4X6	0.585	4X6	0.585

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 J. Rios

DRAWING TITLE

TRUSS MEMBER SIZES  
 TRUSS TYPE B

DWG NO:

**S-115**

PAGE NO: 031

SCALE: N/A

DRAWN BY: J. BONINA

Label	Length (in)	Truss IN (1st Floor)	Truss IN (2nd Floor)	Truss JO (1st Floor)	Truss JO (2nd Floor)	Truss KP (1st Floor)	Truss KP (2nd Floor)	Truss LQ (1st Floor)	Truss LQ (2nd Floor)
M1	20.75	2X4	3X6	2X4	2X4	2X6	2X4	2X6	2X4
M2	20.75	3X6	3X6	3X6	2X6	3X6	2X6	3X6	2X6
M3	20.75	3X6	3X6	3X6	2X6	3X6	2X6	3X6	2X6
M4	20.75	2X4	3X6	2X4	2X4	2X6	2X4	2X6	2X4
M5	20.75	4X6	3X6	3X6	2X4	2X4	2X4	2X4	2X4
M6	20.75	2X4	3X6	2X4	2X4	2X4	2X4	2X6	2X4
M7	20.75	2X4	3X6	2X4	2X4	2X4	2X4	2X6	2X4
M8	20.75	2X4	3X6	2X4	2X4	2X4	2X4	2X4	2X4
M9	13.5	4X6	2X4	3X6	2X4	2X6	2X4	2X6	2X4
M10	13.5	3X6	2X4	4X6	2X4	2X4	2X4	2X4	2X4
M11	13.5	4X6	2X4	4X6	2X4	2X4	2X4	2X4	2X4
M12	13.5	4X6	2X4	4X6	2X4	2X4	2X4	2X4	2X4
M13	13.5	3X6	2X4	4X6	2X4	2X6	2X4	2X6	2X4
M14	24.755	3X6	2X6	3X6	2X4	2X6	2X4	2X6	2X4
M15	24.755	2X4	2X6	2X4	2X4	2X4	2X4	2X4	2X4
M16	24.755	3X6	2X6	3X6	2X4	2X4	2X4	2X4	2X4
M17	24.755	2X4	2X6	2X4	2X4	2X6	2X4	2X6	2X4

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS MEMBER SIZES  
TRUSS TYPE C

DWG NO:

**S-116**

PAGE NO: 032

SCALE: N/A

DRAWN BY: J. BONINA

Member	Length (in)	Truss OW (1st Floor)	Truss OW (2nd Floor)	Truss PX (1st Floor)	Truss PX (2nd Floor)	Truss QY (1st Floor)	Truss QY (2nd Floor)
M1	21	2X6	2X6	2X6	2X6	2X6	2X6
M2	20	2X6	2X6	2X6	2X6	2X6	2X6
M3	20	2X6	2X6	2X6	2X6	2X6	2X6
M4	20	2X6	2X6	2X6	2X6	2X6	2X6
M5	20	3X6	3X6	3X6	3X6	3X6	3X6
M6	20	3X6	3X6	3X6	3X6	3X6	3X6
M7	20	2X6	2X6	2X6	2X6	2X6	2X6
M8	23	2X6	2X6	2X6	2X6	2X6	2X6
M9	23	2X6	2X6	2X6	2X6	2X6	2X6
M10	22	2X6	2X6	2X6	2X6	2X6	2X6
M11	21	2X4	2X6	2X4	2X6	2X4	2X6
M12	20	3X6	3X6	3X6	3X6	3X6	3X6
M13	20	3X6	3X6	3X6	3X6	3X6	3X6
M14	20	4X6	4X6	4X6	4X6	4X6	4X6
M15	20	4X6	4X6	4X6	4X6	4X6	4X6
M16	20	4X6	4X6	4X6	4X6	4X6	4X6
M17	20	4X6	4X6	4X6	4X6	4X6	4X6
M18	23	3X6	3X6	3X6	3X6	3X6	3X6
M19	23	3X6	3X6	3X6	3X6	3X6	3X6
M20	22	2X4	2X6	2X4	2X6	2X4	2X6
M21	13.5	3X6	2X6	3X6	2X6	3X6	2X6
M22	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M23	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M24	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M25	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M26	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M27	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M28	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M29	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M30	13.5	2X4	2X4	2X4	2X4	2X4	2X4
M31	13.5	3X6	2X6	2X6	2X6	2X6	2X6
M32	24.965	3X6	3X6	3X6	3X6	3X6	3X6
M33	24.13	3X6	3X6	3X6	3X6	3X6	3X6
M34	24.13	2X6	2X6	2X6	2X6	2X6	2X6
M35	24.13	2X6	2X6	2X6	2X6	2X6	2X6
M36	24.13	2X4	2X6	2X4	2X6	2X6	2X6
M37	24.13	2X4	2X6	2X4	2X6	2X6	2X6
M38	24.13	2X6	2X6	2X4	2X6	2X6	2X6
M39	26.669	2X6	2X6	2X6	2X6	2X6	2X6
M40	26.669	3X6	3X6	3X6	3X6	3X6	3X6
M41	25.812	3X6	3X6	3X6	3X6	3X6	3X6

53 Wachusett Street Design MQP  
J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

TRUSS MEMBER SIZES  
TRUSS TYPE D

DWG NO:

S-117

PAGE NO: 033

SCALE: N/A

DRAWN BY: J. BONINA

Member	Length (in)	Truss NV (1st floor)		Truss NV (2nd floor)	
		Shape	Code Check (1" nail)	Shape	Code Check (1" nail)
M1	21	2X4	0.049	2X6	0.061
M2	20	2X4	0.034	2X6	0.055
M3	20	3X6	0.535	2X6	0.580
M4	20	3X6	0.535	2X6	0.580
M5	20	2X4	0.244	3X6	0.134
M6	20	2X4	0.244	3X6	0.134
M7	20	3X6	0.784	2X6	0.853
M8	23	2X6	0.786	2X6	0.445
M9	23	2X4	0.627	2X6	0.302
M10	22	2X4	0.591	2X6	0.294
M11	21	2X4	0.000	2X6	0.000
M12	20	3X6	0.626	3X6	0.414
M13	20	3X6	0.626	3X6	0.414
M14	20	3X6	0.654	4X6	0.321
M15	20	3X6	0.654	4X6	0.321
M16	20	2X6	0.222	4X6	0.115
M17	20	2X6	0.222	4X6	0.115
M18	23	2X4	0.206	3X6	0.107
M19	23	2X4	0.206	3X6	0.107
M20	22	2X4	0.000	2X6	0.000
M21	13.5	3X6	0.563	2X6	0.664
M22	13.5	2X4	0.001	2X4	0.001
M23	13.5	2X4	0.298	2X4	0.180
M24	13.5	2X4	0.002	2X4	0.001
M25	13.5	2X4	0.298	2X4	0.180
M26	13.5	2X4	0.001	2X4	0.002
M27	13.5	2X4	0.298	2X4	0.231
M28	13.5	4X8	0.659	3X6	0.716
M29	13.5	2X4	0.379	2X4	0.392

Member	Length (in)	Truss NV (1st floor)		Truss NV (2nd floor)	
		Shape	Code Check (1" nail)	Shape	Code Check (1" nail)
M30	13.5	2X4	0.001	2X4	0.002
M31	13.5	2X6	0.619	2X6	0.340
M32	24.965	3X6	0.494	3X6	0.321
M33	24.13	2X6	0.808	3X6	0.331
M34	24.13	2X4	0.445	2X6	0.197
M35	24.13	2X4	0.298	2X6	0.049
M36	24.13	2X6	0.711	2X6	0.369
M37	24.13	3X6	0.430	2X6	0.558
M38	24.13	4X6	0.740	3X6	0.653
M39	26.669	3X6	0.690	2X6	0.834
M40	26.669	2X4	0.730	3X6	0.066
M41	25.812	2X4	0.462	3X6	0.197

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

TRUSS MEMBER SIZES  
 TRUSS TYPE E

DWG NO:

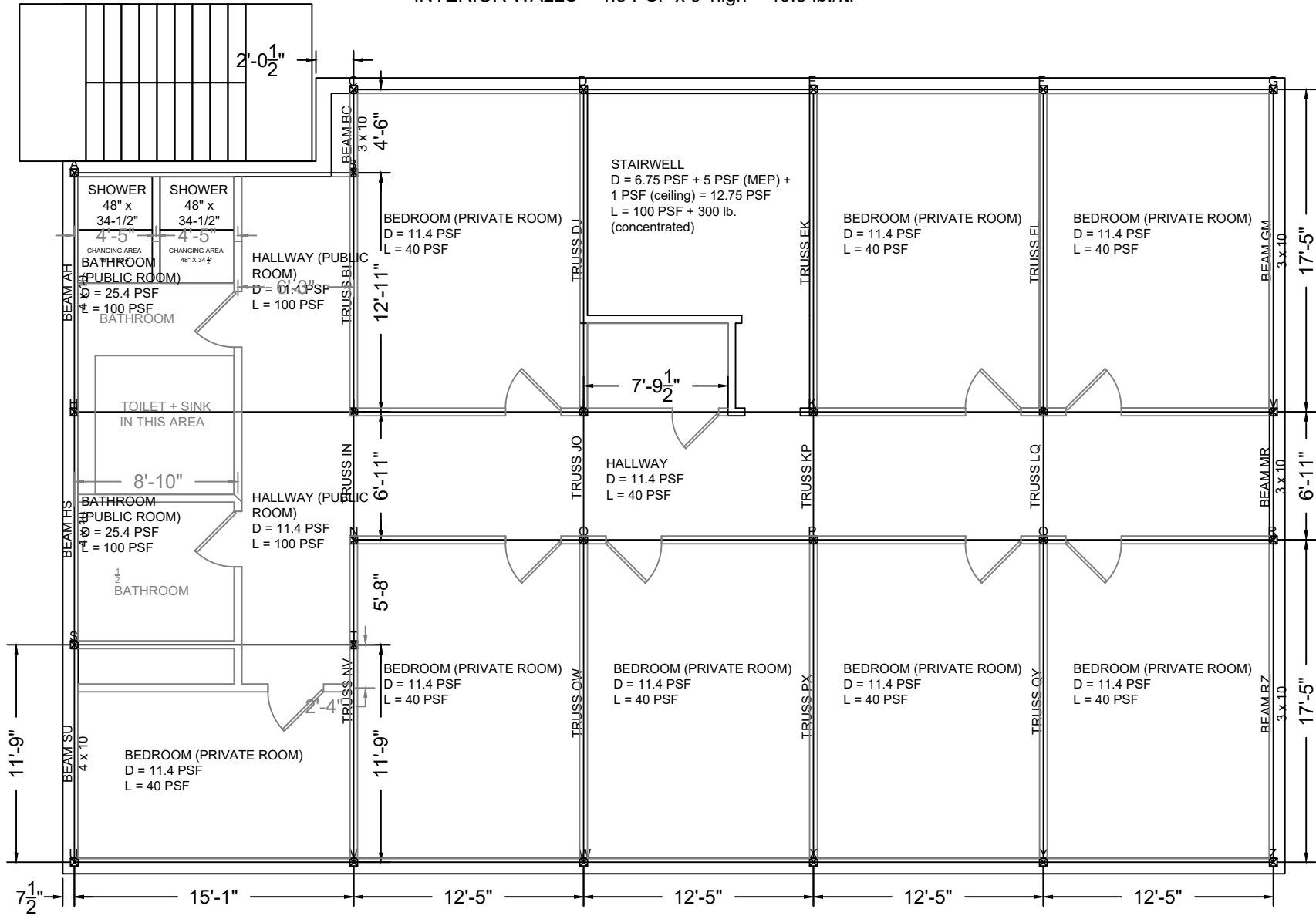
**S-118**

PAGE NO: 034

SCALE: N/A

DRAWN BY: J. BONINA

DEAD LOADS FOR WALLS:  
 EXTERIOR WALLS = 44.06 PSF x 10' - 5" high = 459.0 lb./ft.  
 INTERIOR WALLS = 4.5 PSF x 9' high = 40.5 lb./ft.



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SECOND FLOOR LOADING

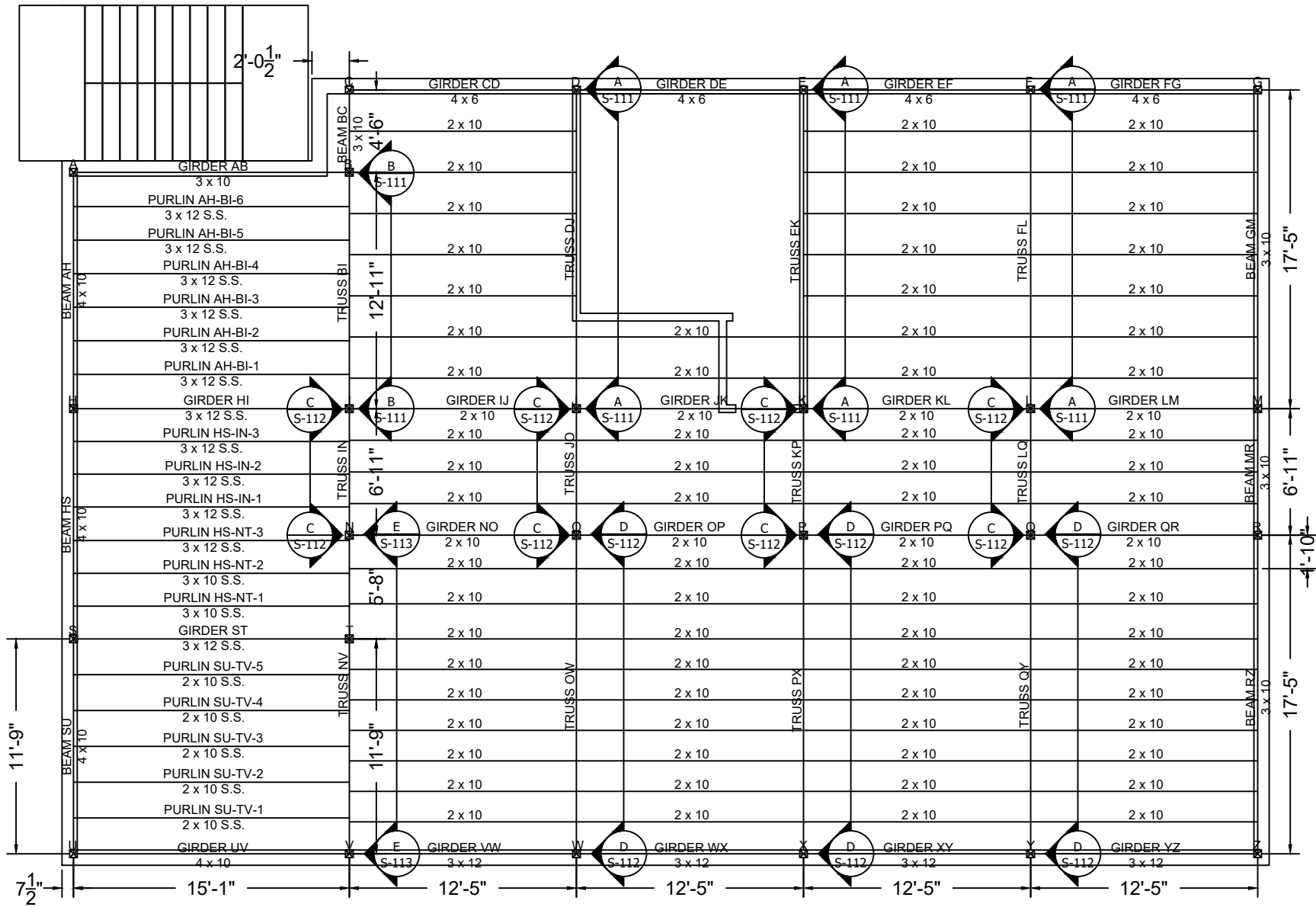
DWG NO:

S-121

PAGE NO: 035

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

DRAWN BY: J. BONINA



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SECOND FLOOR FRAMING PLAN

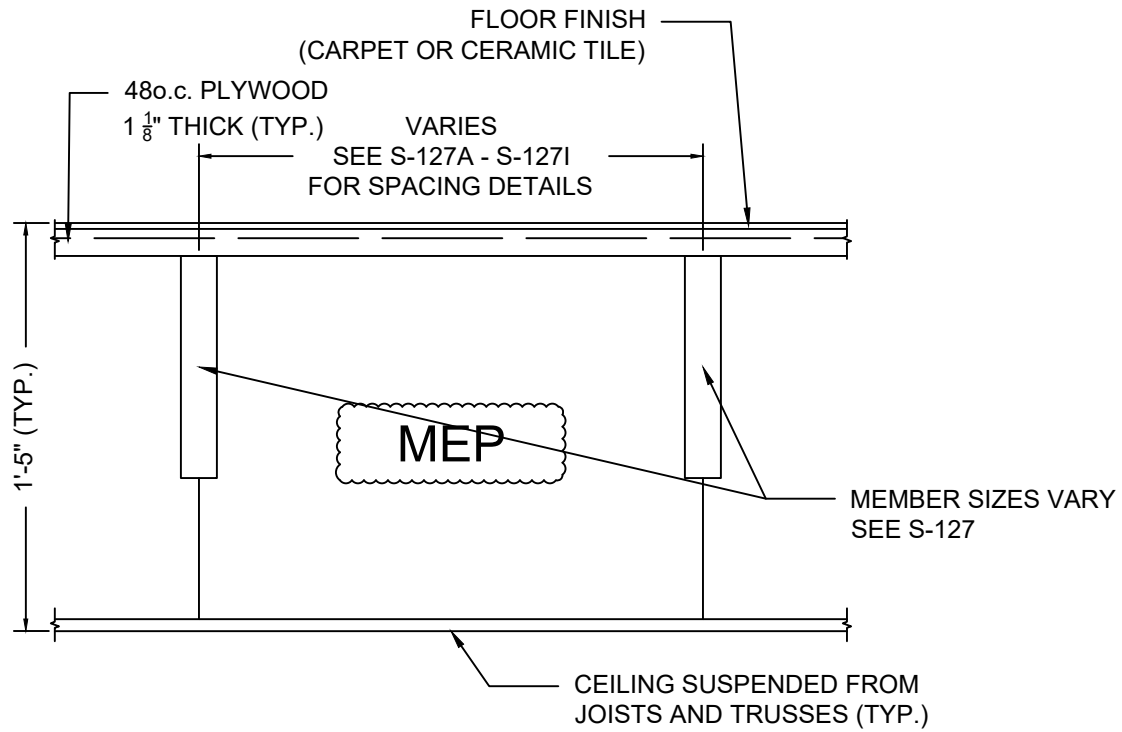
DWG NO:

S-122

PAGE NO: 036

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

DRAWN BY: J. BONINA



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DRAWING TITLE

TYPICAL FRAMING SECTION  
FIRST AND SECOND FLOOR

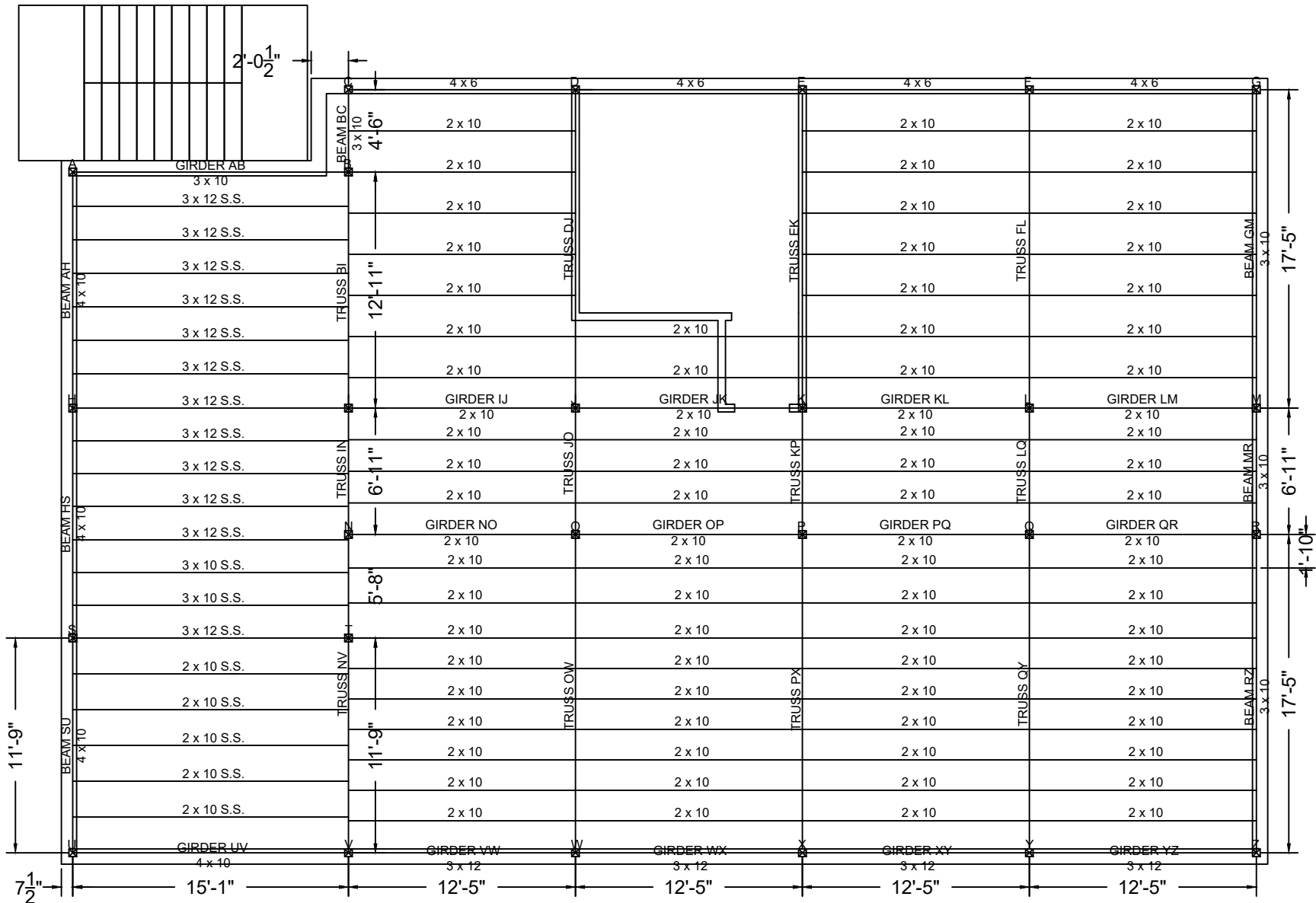
DWG NO:

S-123

PAGE NO: 037

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

DRAWN BY: J. BONINA



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DRAWING TITLE

SECOND FLOOR DESIGN SHEAR REACTIONS  
OVERVIEW

DWG NO:

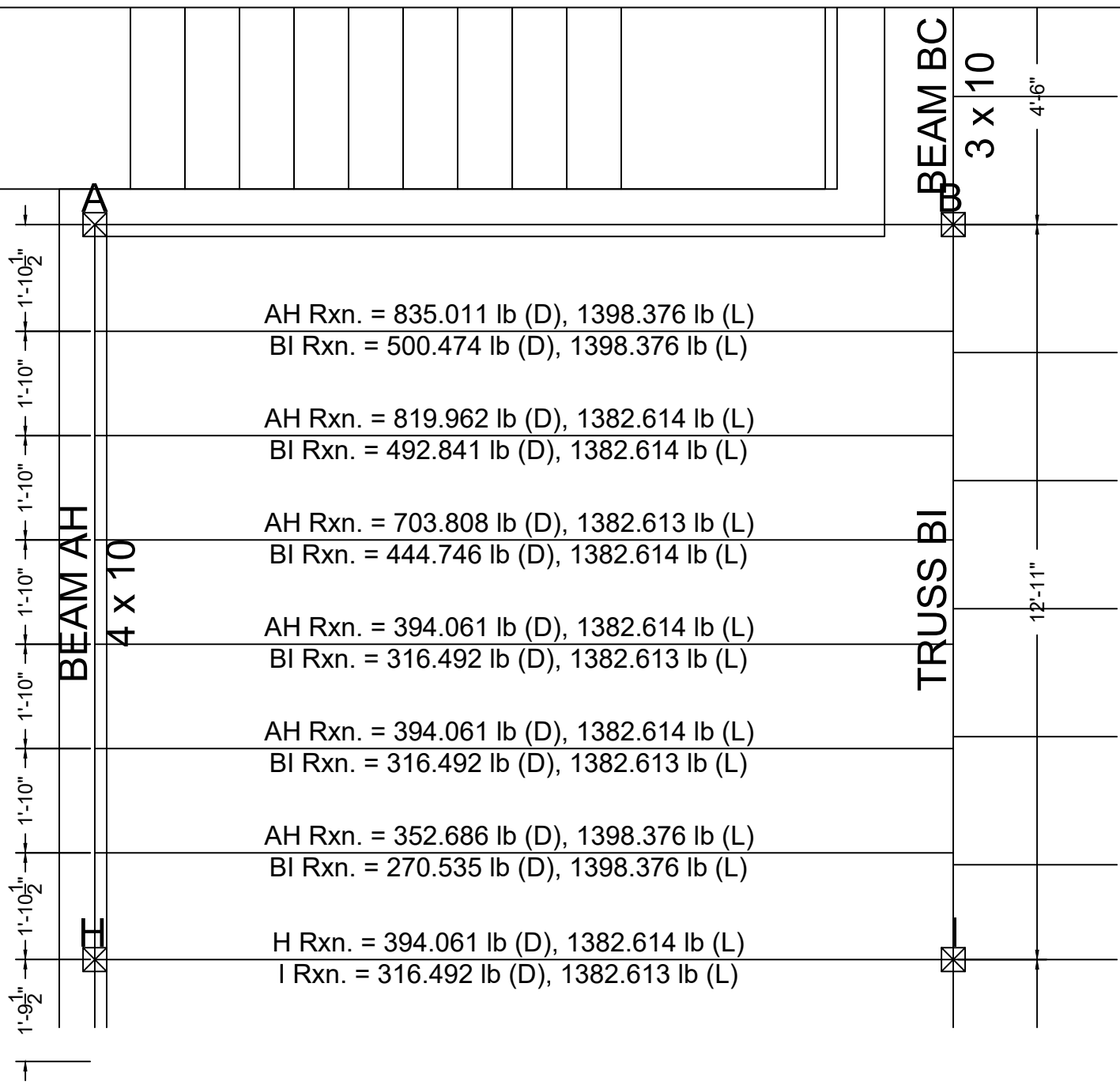
S-127

PAGE NO: 038

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

DRAWN BY: J. BONINA



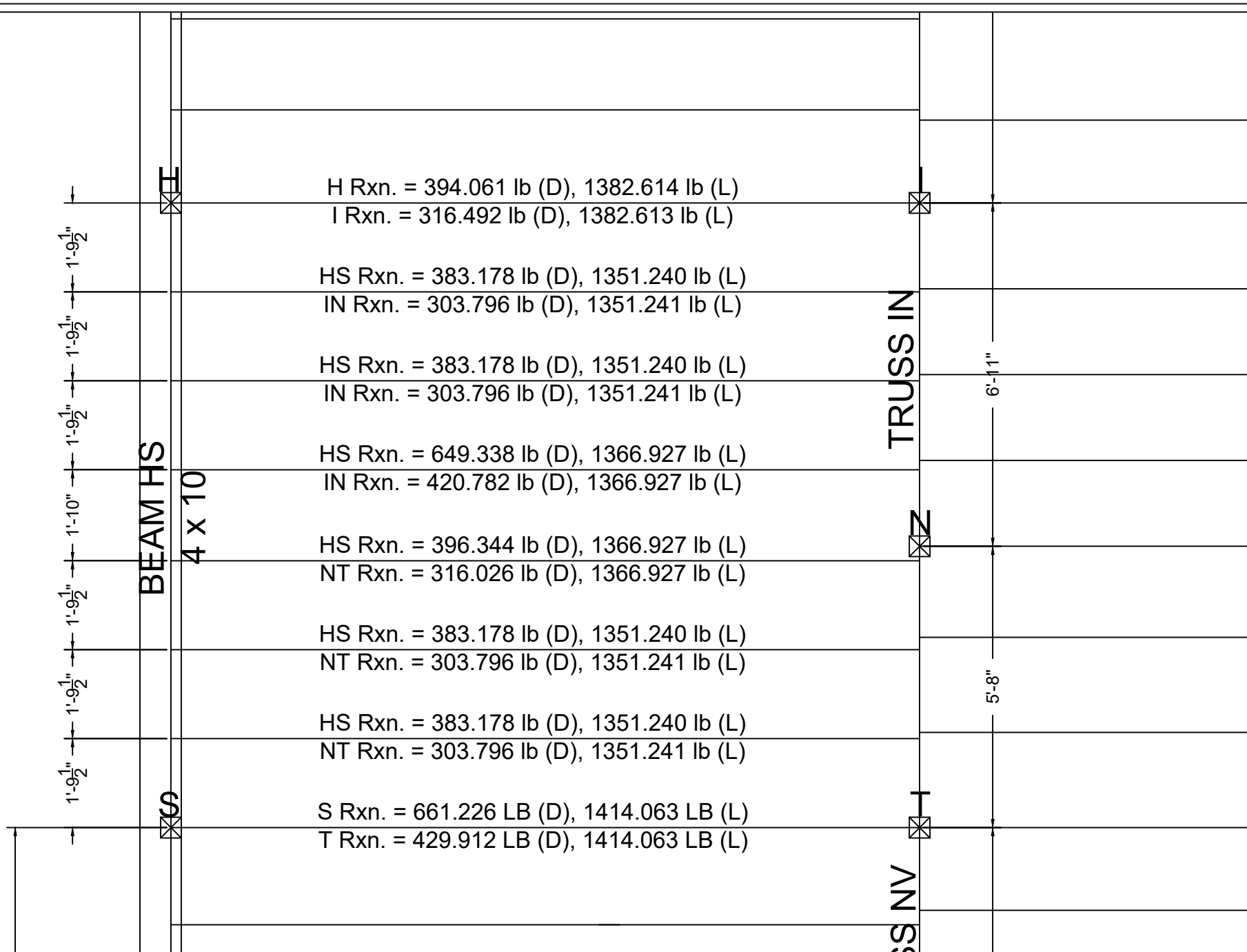


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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 1

DWG NO:  
 S-127A

PAGE NO: 039  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



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SECOND FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 2

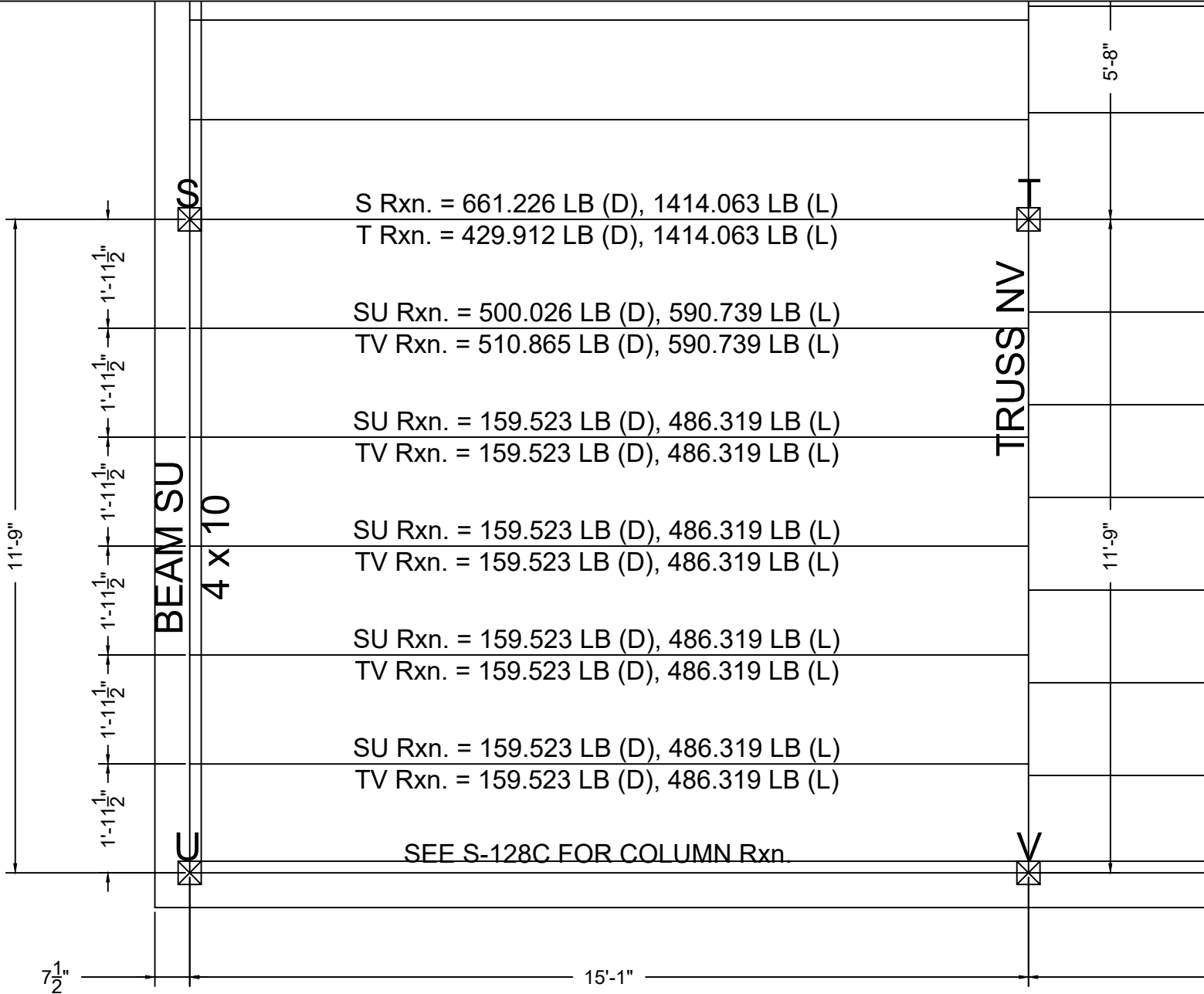
DWG NO:

S-127B

PAGE NO: 040

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA

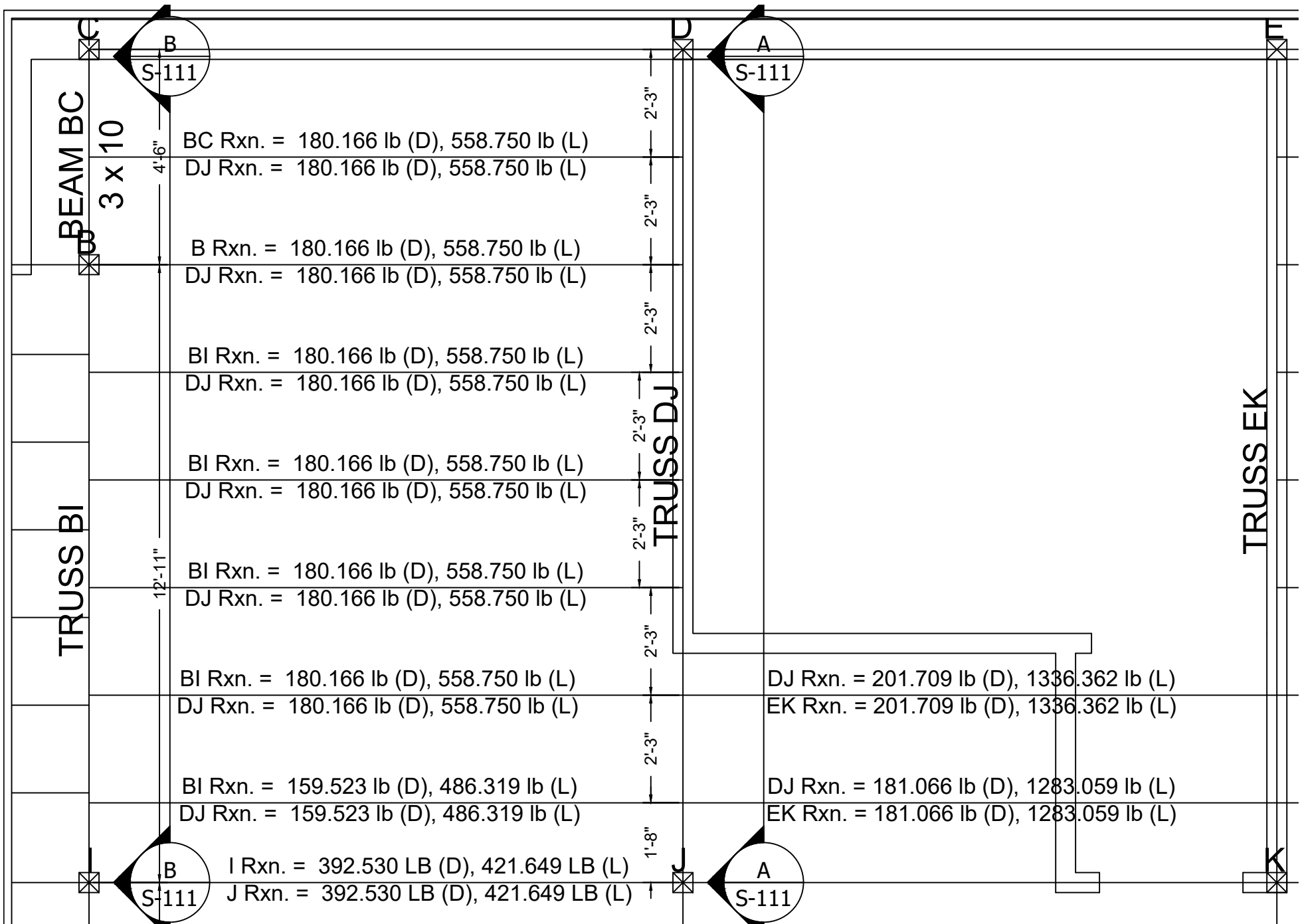


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 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 3

DWG NO:  
**S-127C**

PAGE NO: 041  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA

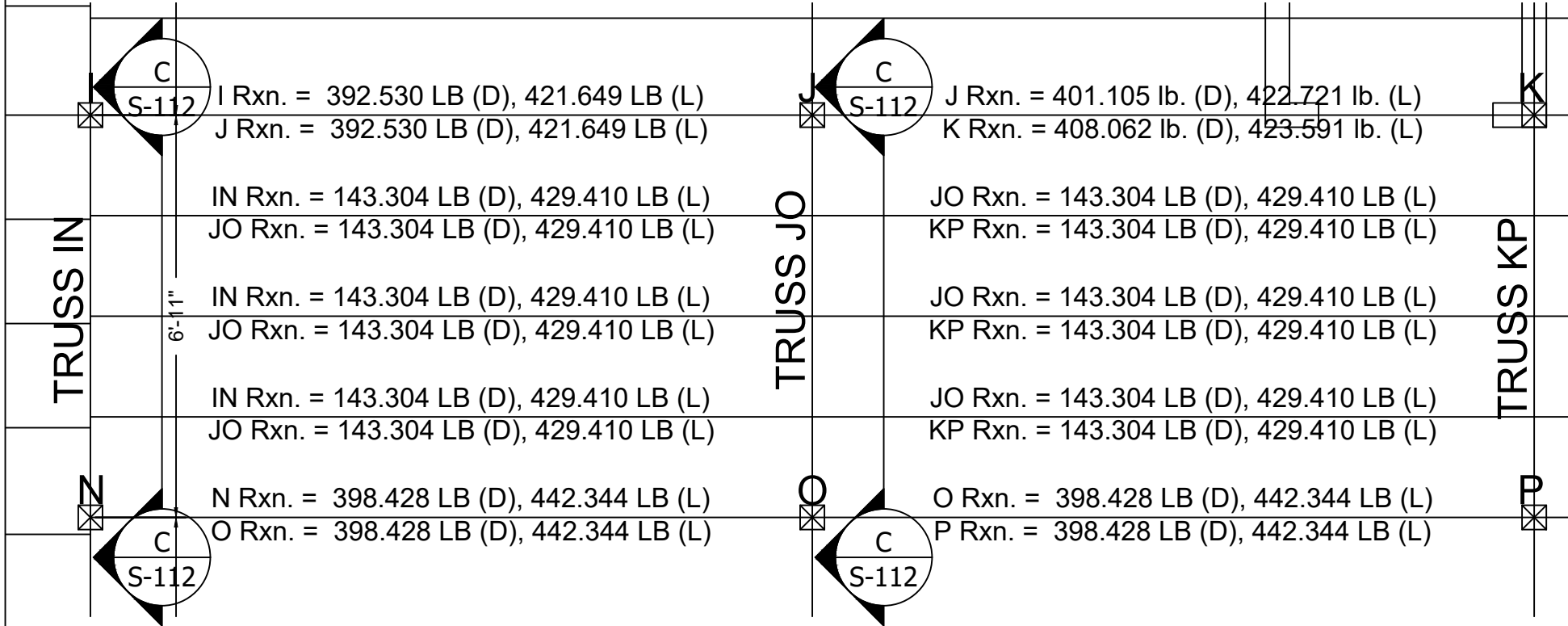


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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 4

DWG NO:  
**S-127D**

PAGE NO: 042  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



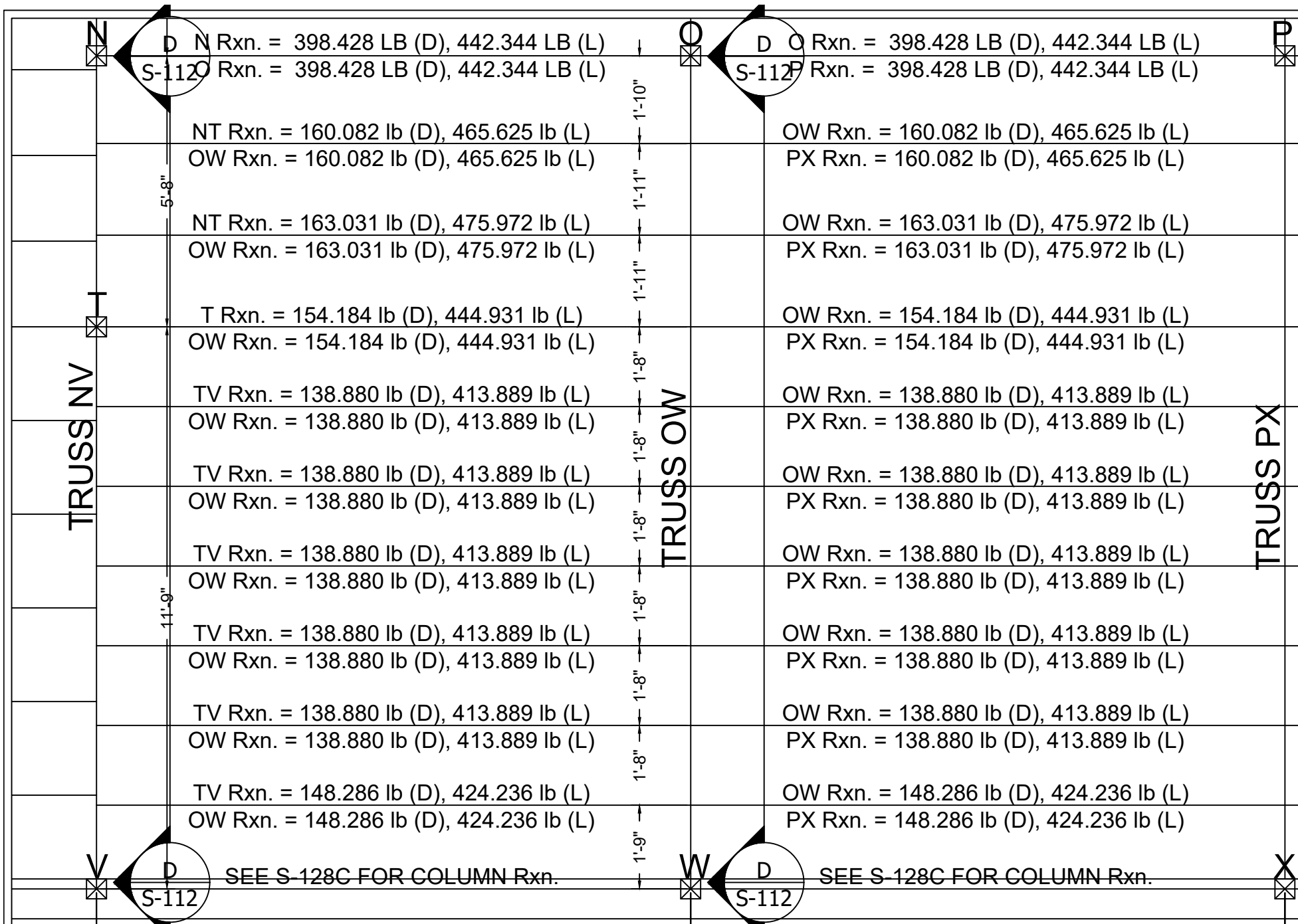
NOTE:  
 SEE DWG'S S-128A THROUGH S-128C FOR REACTIONS AT COLUMNS.  
 REFER TO "2nd Floor - Roof" COLUMN FOR DESIGN LOADS.

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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 5

DWG NO:  
**S-127E**

PAGE NO: 043  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA

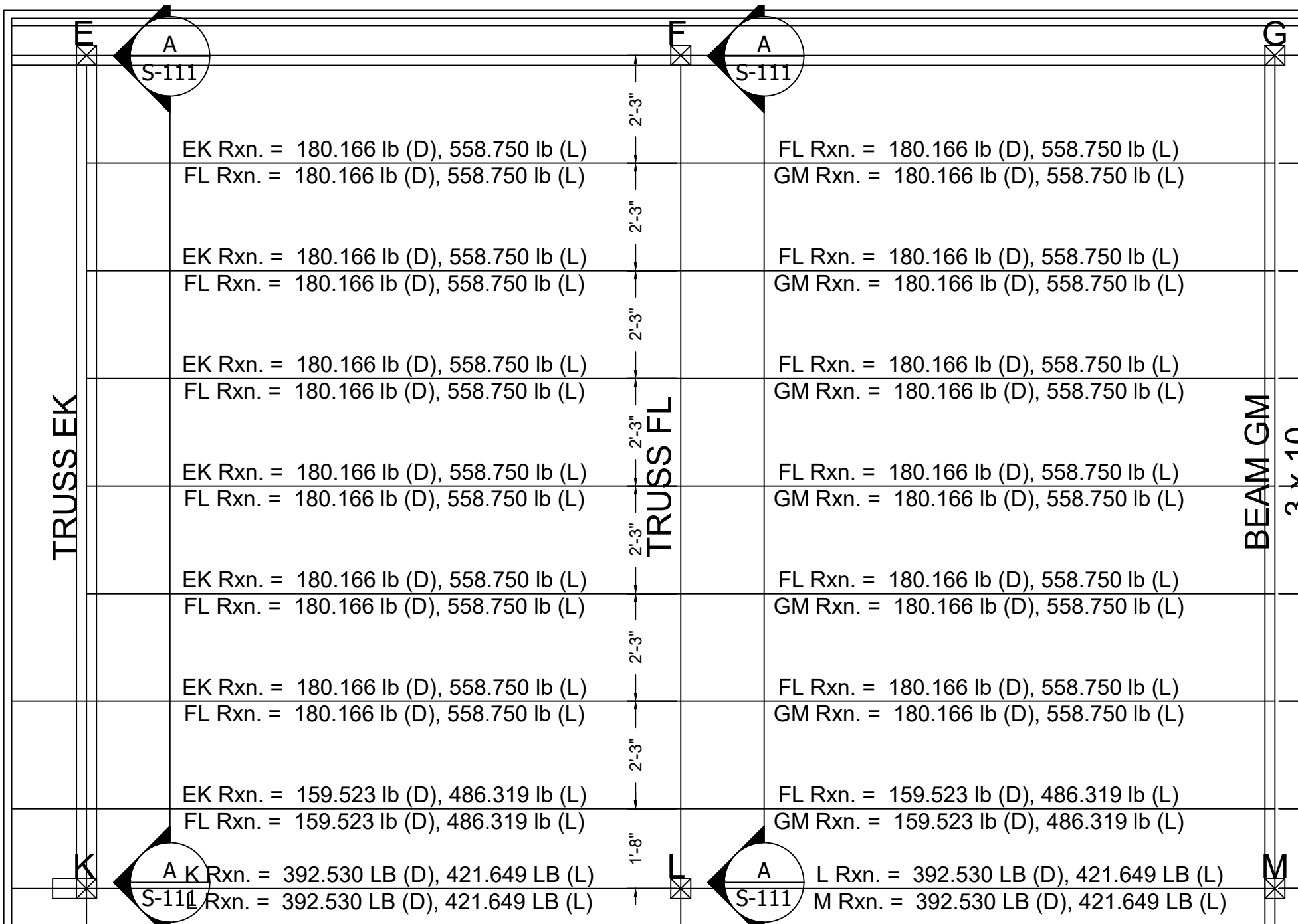


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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 6

DWG NO:  
 S-127F

PAGE NO: 044  
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 DRAWN BY: J. BONINA

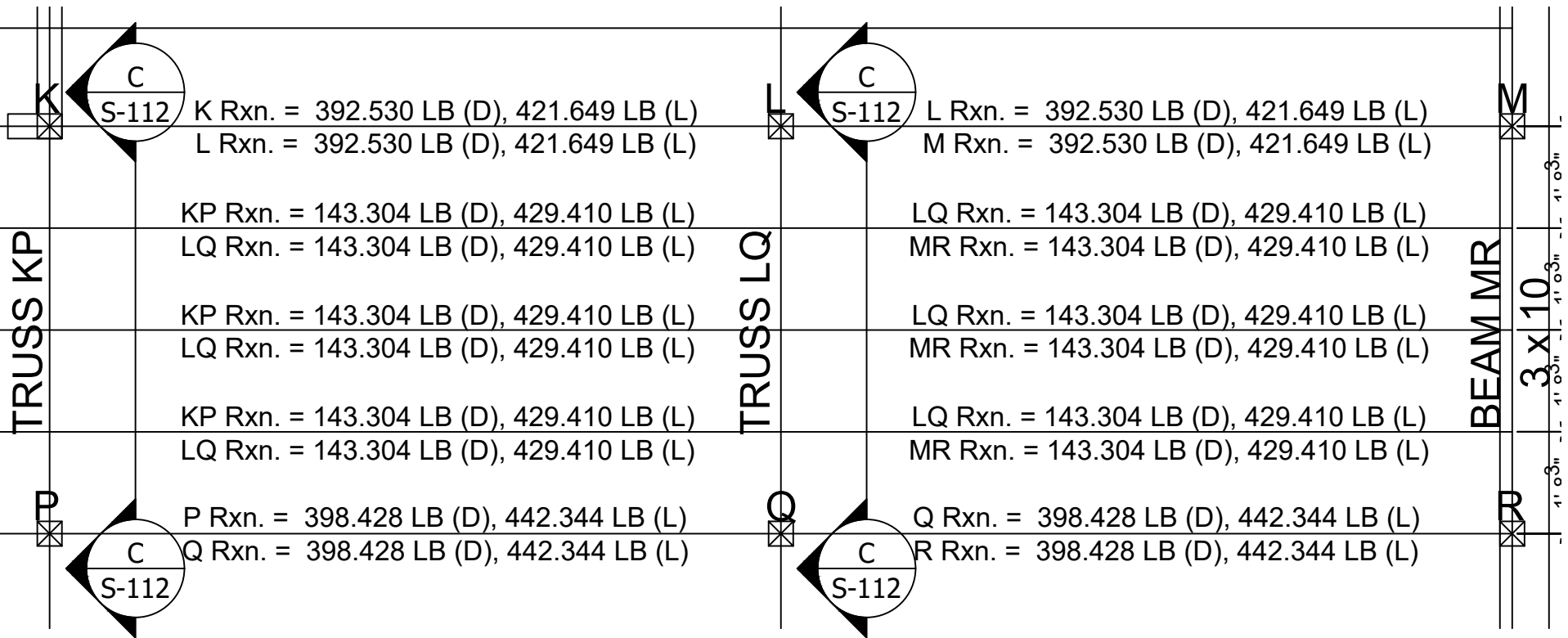


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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 7

DWG NO:  
 S-127G

PAGE NO: 045  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



NOTE:  
 SEE DWG'S S-128A THROUGH S-128C FOR REACTIONS AT COLUMNS.  
 REFER TO "2nd Floor - Roof" COLUMN FOR DESIGN LOADS.

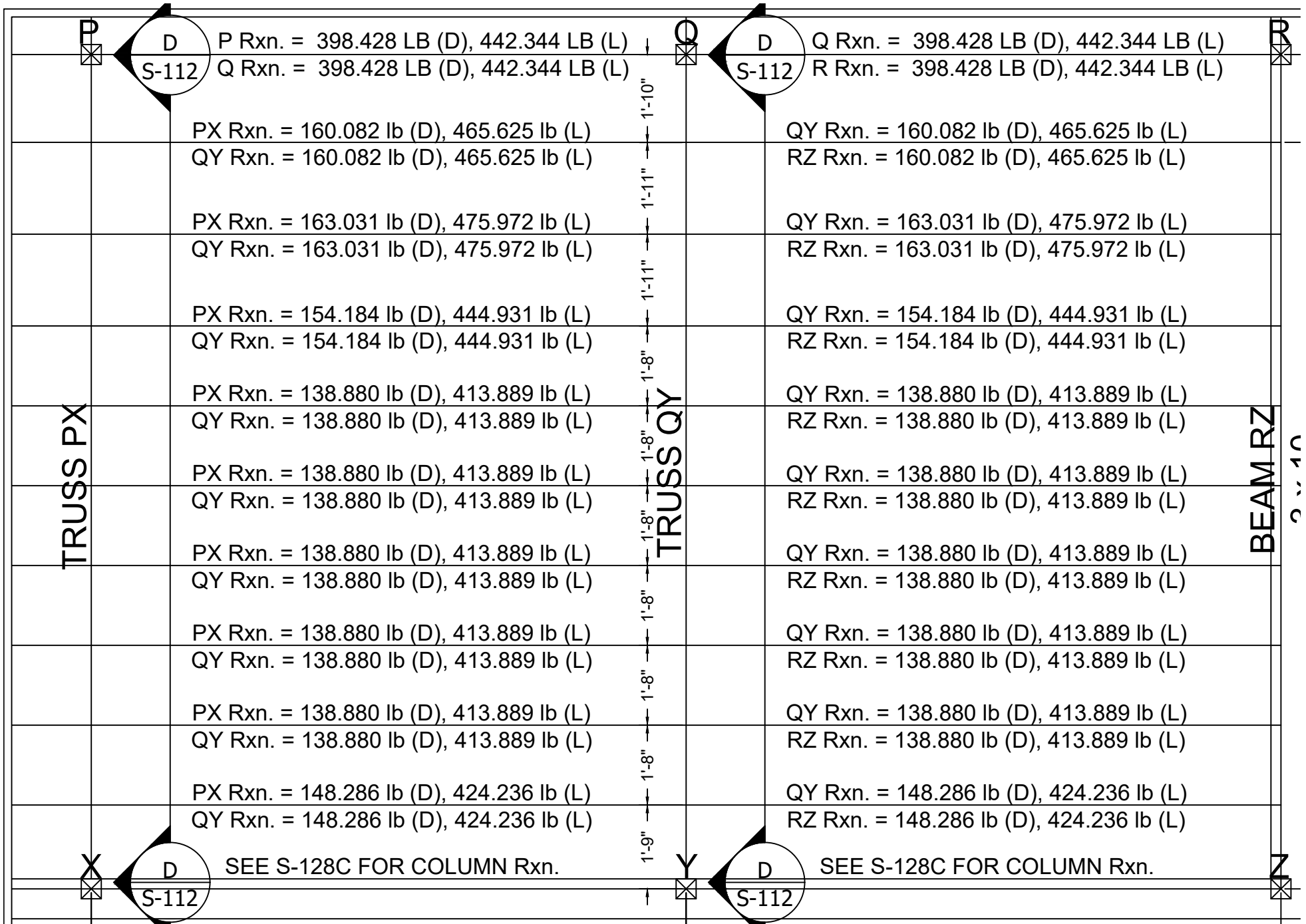
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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 8

DWG NO:  
 S-127H

PAGE NO: 046  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA





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DRAWING TITLE  
 SECOND FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 9

DWG NO:  
 S-1271

PAGE NO: 047  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA

DESIGN LOADS - COLUMN A			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-5801.00	-15733.92	-19497.55
Live	-837.00	-5135.13	-6792.44
Snow	-4692.99	-4727.04	-4742.37
Roof Live	-3869.20	-3882.82	-3888.96
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN D			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-6272.64	-16041.85	-23553.00
Live	-65.50	-2704.22	-5335.50
Snow	-5429.97	-5780.12	-5969.58
Roof Live	-4729.87	-4869.93	-4945.71
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN G			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-4995.89	-12549.59	-18843.35
Live	-349.12	-1742.88	-3323.06
Snow	-5208.59	-5389.81	-5483.21
Roof Live	-4642.02	-4713.87	-4750.89
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN B			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3517.50	-8943.14	-14477.34
Live	-81.70	-6088.77	-12833.45
Snow	-2768.39	-3196.70	-3276.45
Roof Live	-2357.78	-2783.53	-2841.27
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN E			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-6275.75	-16445.57	-22101.00
Live	-69.72	-2754.98	-8150.99
Snow	-5431.98	-5804.39	-5925.78
Roof Live	-4730.67	-4879.63	-4928.19
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN H			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-4778.07	-15312.44	-21127.75
Live	-671.28	-7257.21	-11980.56
Snow	-4811.36	-4811.36	-4811.36
Roof Live	-4102.60	-4102.60	-4102.60
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN C			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3865.87	-9397.16	-13424.46
Live	-120.00	-518.43	-873.72
Snow	-2859.44	-3136.08	-3282.03
Roof Live	-2557.20	-2722.55	-2806.66
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN F			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-6291.85	-17797.69	-23877.65
Live	-196.14	-4809.70	-12456.95
Snow	-5417.29	-5817.07	-5936.56
Roof Live	-4724.80	-4884.71	-4932.51
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN I			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2136.90	-5104.28	-10662.65
Live	0	-9440.21	-20533.84
Snow	-6169.98	-5177.74	-8262.73
Roof Live	-5352.22	-4593.9	-7270.01
Wind	0	0.00	0.00

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COLUMN LOADS (LBS.)  
 SHEET 1 OF 3

DWG NO:

**S-128A**

PAGE NO: 048

SCALE: N/A

DRAWN BY: J. BONINA

DESIGN LOADS - COLUMN J			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2606.41	-5077.42	-7885.91
Live	0	-6096.77	-15226.92
Snow	-7555.09	-7555.10	-7555.09
Roof Live	-6850.86	-6850.86	-6850.00
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN M			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-5218.05	-9986.85	-14811.41
Live	-379.10	-2280.21	-4880.37
Snow	-3499.41	-3630.39	-3721.04
Roof Live	-3173.20	-3291.97	-3374.16
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN P			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2523.13	-5601.98	-6140.75
Live	0	-5981.72	-12708.96
Snow	-7445.26	-7445.26	-3731.39
Roof Live	-6736.79	-6736.79	-3376.32
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN K			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2559.024	-6369.66	-8994.29
Live	0	-6518.86	-17601.01
Snow	-7555.092	-7555.09	-7555.09
Roof Live	-6850.86	-6850.86	-6850.86
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN N			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-1479.87	-3456.62	-5317.67
Live	0.00	-5839.67	-12272.84
Snow	-4185.49	-4235.81	-4251.48
Roof Live	-3835.58	-3878.80	-3892.26
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN Q			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2541.96	-5206.64	-8432.91
Live	0.00	-5133.58	-13386.84
Snow	-7445.26	-7445.26	-7445.26
Roof Live	-6736.79	-6736.79	-6736.79
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN L			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2559.024	-4762.72	-7793.68
Live	0	-4766.19	-21678.42
Snow	-7555.09	-7555.09	-7555.09
Roof Live	-6850.86	-6850.86	-6850.86
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN O			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2523.13	-5642.38	-7041.30
Live	0	-5998.86	-11252.69
Snow	-7445.26	-7445.26	-7445.26
Roof Live	-6736.79	-6736.79	-6736.79
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN R			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-5411.95	-11362.57	-17287.36
Live	-423.00	-2343.21	-4747.61
Snow	-3467.88	-3606.36	-3674.70
Roof Live	-3137.91	-3263.20	-3325.05
Wind	0.00	0.00	0.00

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COLUMN LOADS (LBS.)  
 SHEET 2 OF 3

DWG NO:

**S-128B**

PAGE NO: 049

SCALE: N/A

DRAWN BY: J. BONINA

DESIGN LOADS - COLUMN S			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-4725.18	-10096.23	-14919.42
Live	-952.18	-4002.37	-7162.43
Snow	-4574.21	-4574.21	-4574.21
Roof Live	-3902.66	-3902.66	-3902.66
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN V			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3213.28	-5948.46	-8878.54
Live	-80.77	-2533.33	-6474.37
Snow	-5372.36	-5438.53	-5478.13
Roof Live	-4729.40	-4767.00	-4786.31
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN Y			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3359.43	-6803.37	-10253.73
Live	-81.52	-4147.51	-8213.85
Snow	-5739.41	-5784.11	-5824.85
Roof Live	-5350.29	-5368.17	-5384.47
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN T			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2304.03	-5274.74	-9013.98
Live	0	-6950.72	-16701.31
Snow	-6656.83	-6582.25	-6559.03
Roof Live	-5718.20	-5654.14	-5634.19
Wind	0	0.00	0.00

DESIGN LOADS - COLUMN W			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3346.50	-6756.67	-6742.63
Live	-93.82	-4175.78	-8355.90
Snow	-5732.68	-5778.68	-5771.12
Roof Live	-5347.59	-5365.99	-5362.97
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN Z			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-4402.97	-9427.47	-14606.85
Live	-452.17	-1605.67	-2871.82
Snow	-5682.48	-4704.37	-4727.30
Roof Live	-5326.90	-5335.42	-5345.89
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN U			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-2698.28	-7549.69	-11579.64
Live	-128.49	-1315.48	-2873.42
Snow	-4923.28	-4942.83	-4954.50
Roof Live	-4075.70	-4083.52	-4088.19
Wind	0.00	0.00	0.00

DESIGN LOADS - COLUMN X			
Basic Load Case	2nd Floor - Roof	1st Floor - 2nd Floor	Basement - 1st Floor
Dead	-3281.99	-6693.55	-8554.64
Live	-78.51	-4142.18	-8032.74
Snow	-5732.68	-5778.68	-5778.68
Roof Live	-5347.59	-5365.99	-5365.99
Wind	0.00	0.00	0.00

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COLUMN LOADS (LBS.)  
 SHEET 3 OF 3

DWG NO:

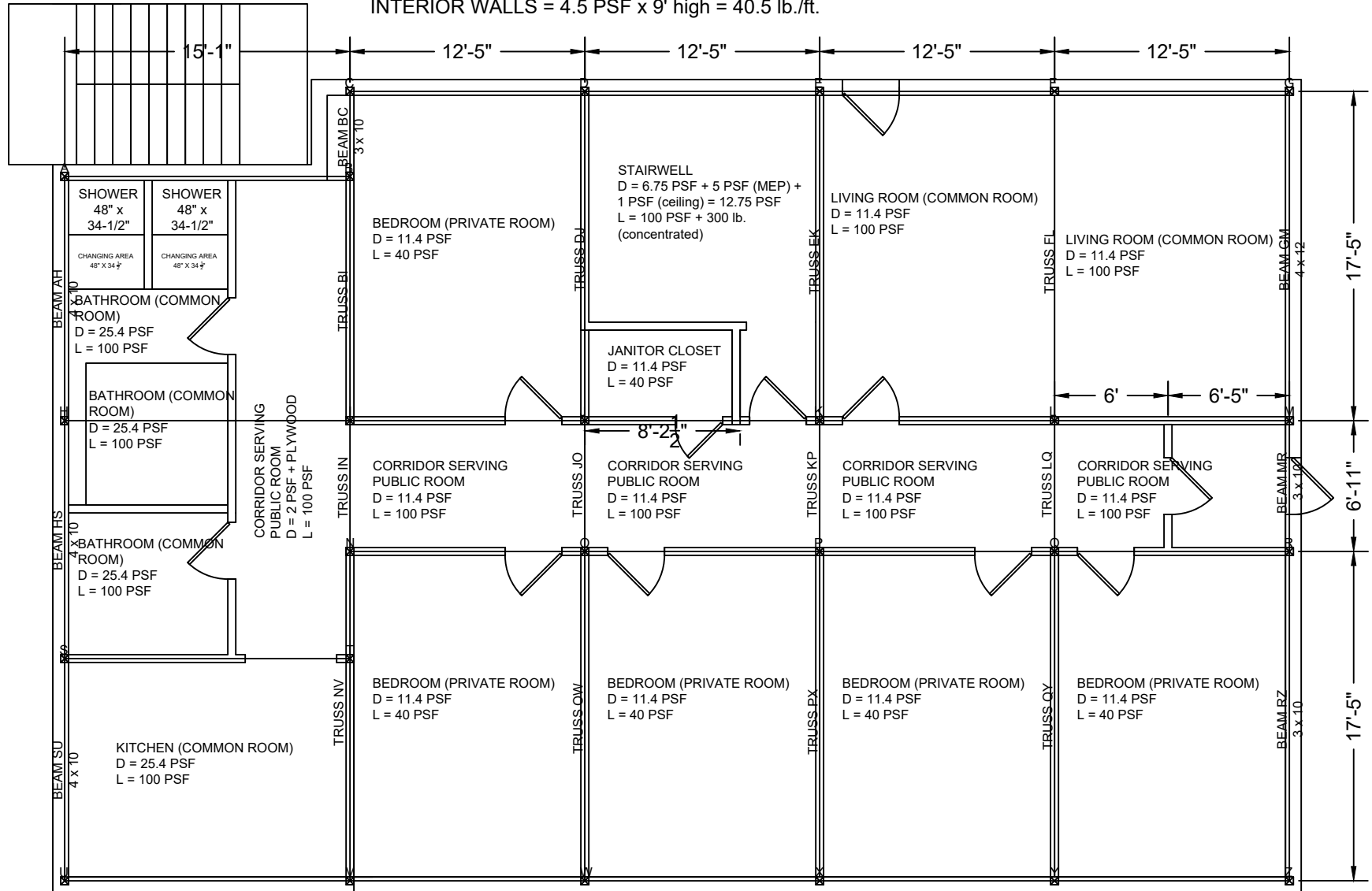
**S-128C**

PAGE NO: 050

SCALE: N/A

DRAWN BY: J. BONINA

DEAD LOADS FOR WALLS:  
 EXTERIOR WALLS = 44.06 PSF x 10' - 5" high = 459.0 lb./ft.  
 INTERIOR WALLS = 4.5 PSF x 9' high = 40.5 lb./ft.



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FIRST FLOOR LOADING

DWG NO:

S-131

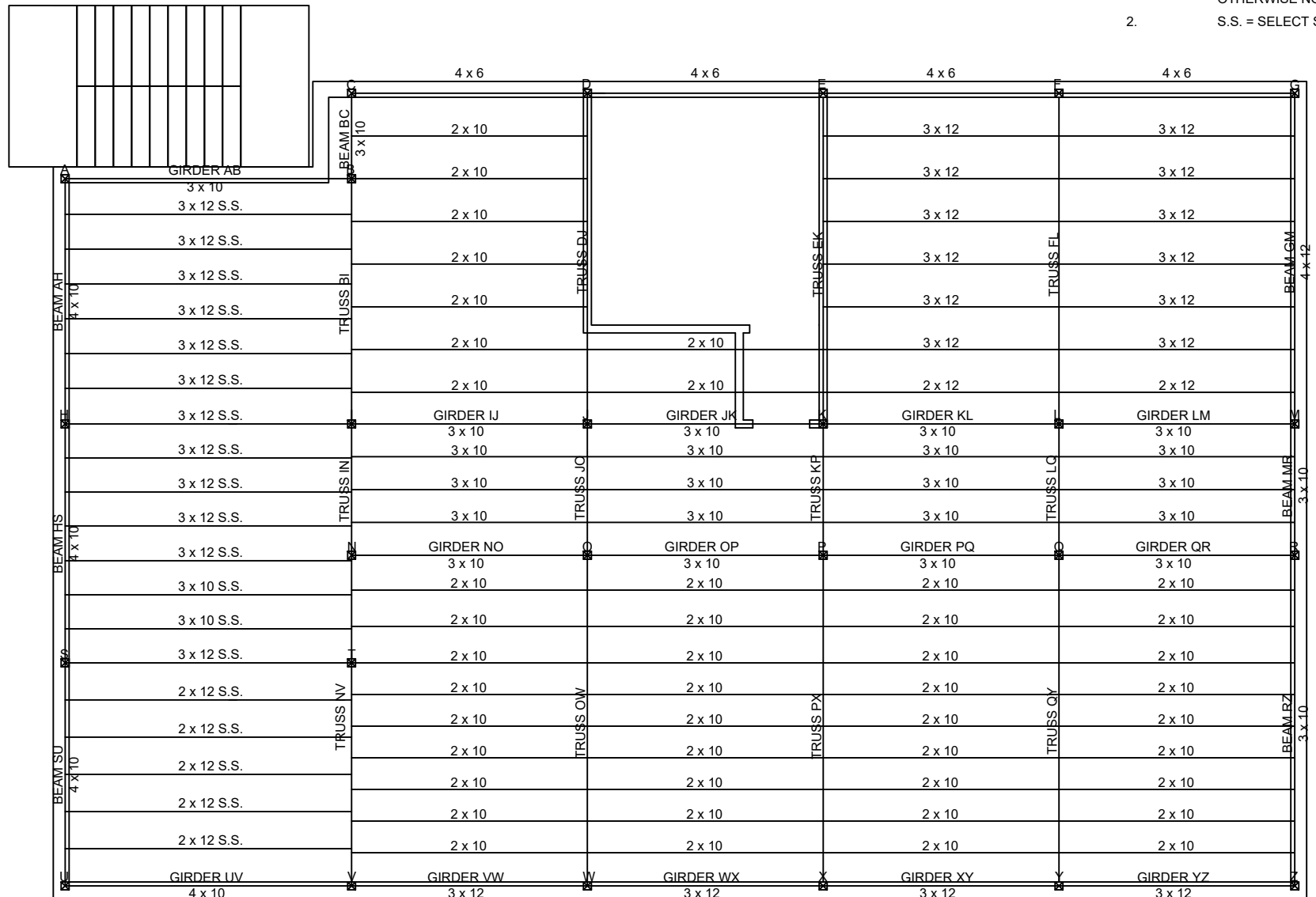
PAGE NO: 051

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

DRAWN BY: J. BONINA

**NOTES:**

1. ALL WOOD SHALL BE No. 1 MIXED SOUTHERN PINE UNLES OTHERWISE NOTED.
2. S.S. = SELECT STRUCTURAL



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FIRST FLOOR PURLIN LAYOUT

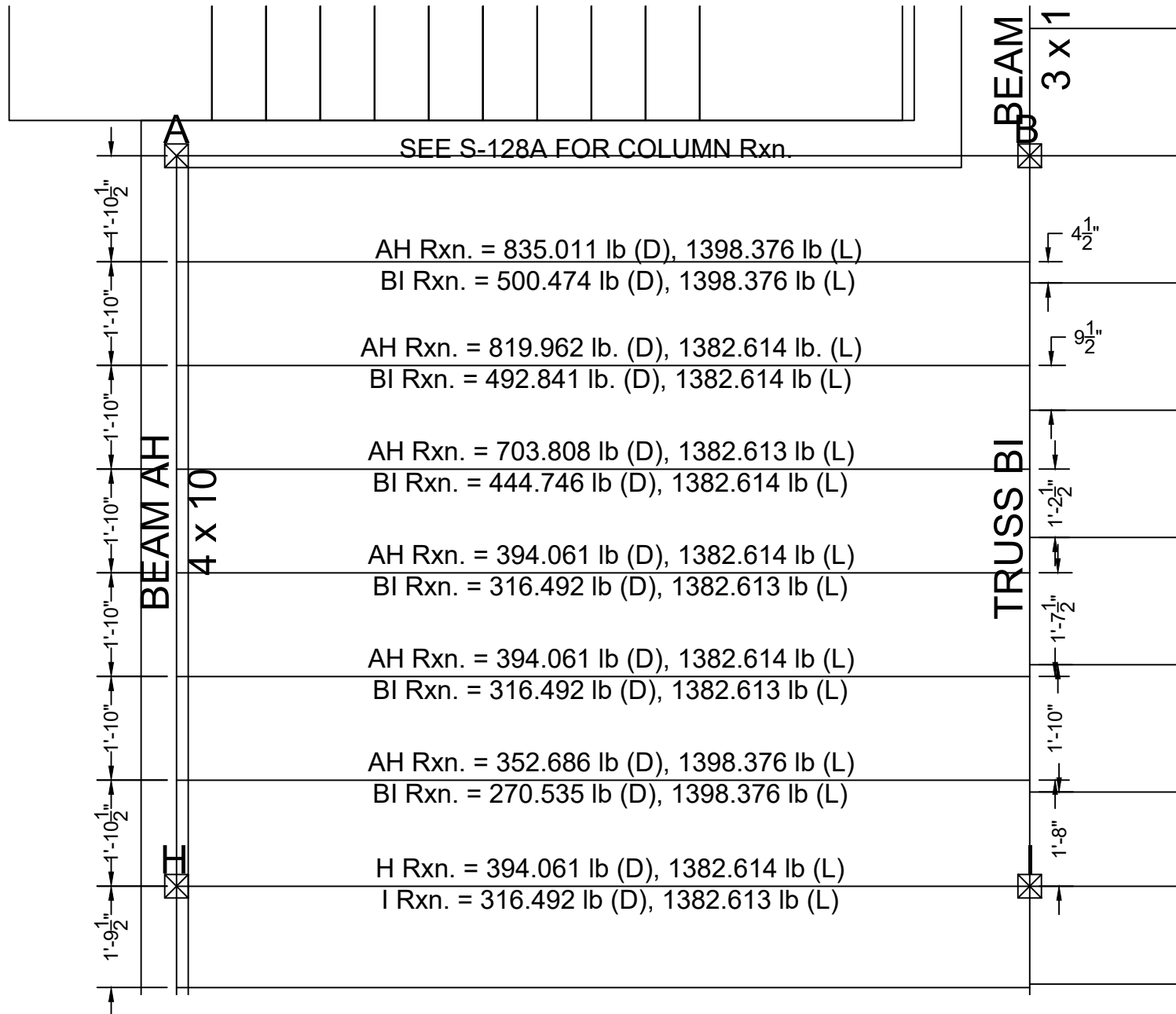
DWG NO:

S-132

PAGE NO: 052

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

DRAWN BY: J. BONINA



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DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 1

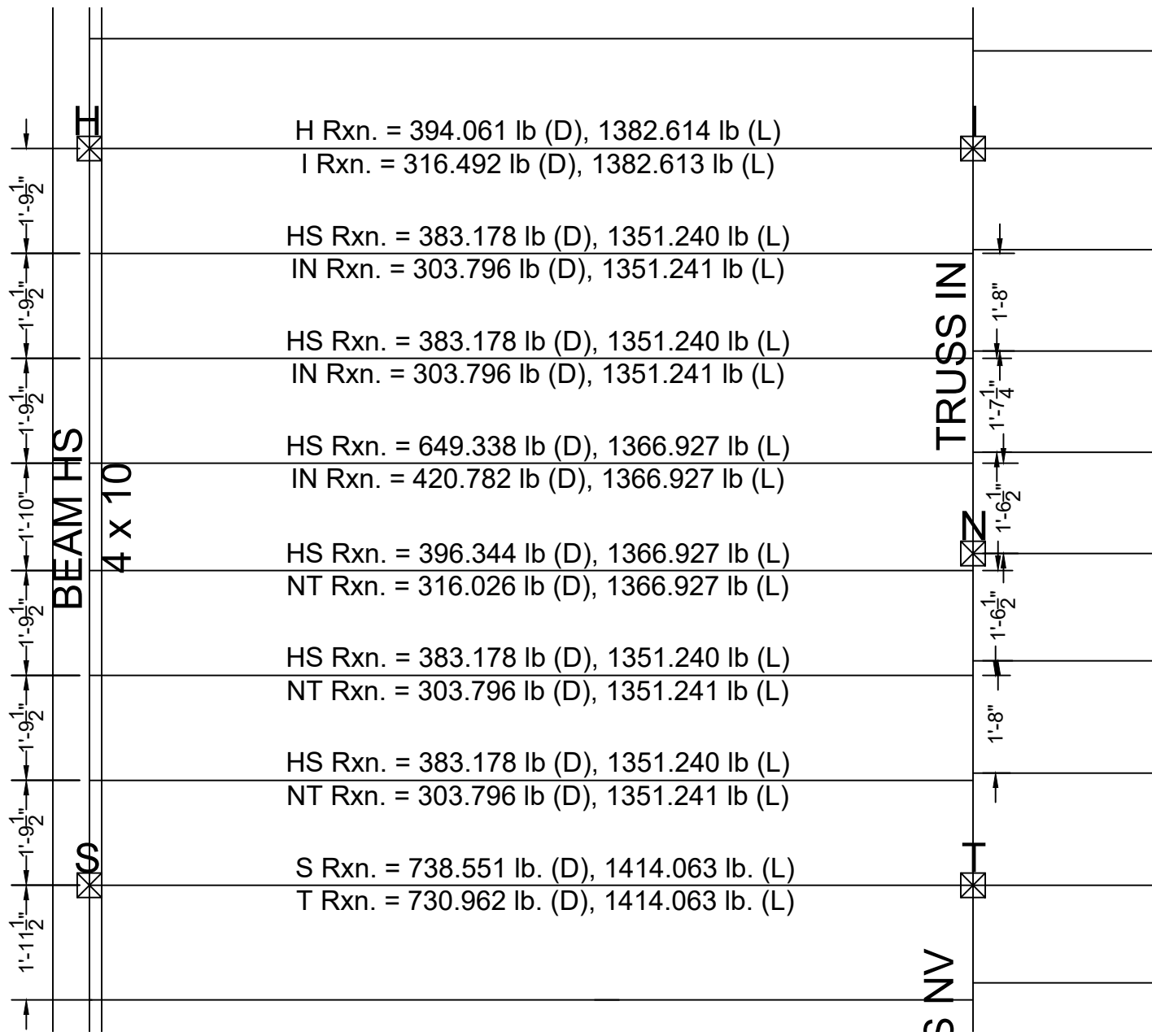
DWG NO:

S-133A

PAGE NO: 053

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA



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DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 2

DWG NO:

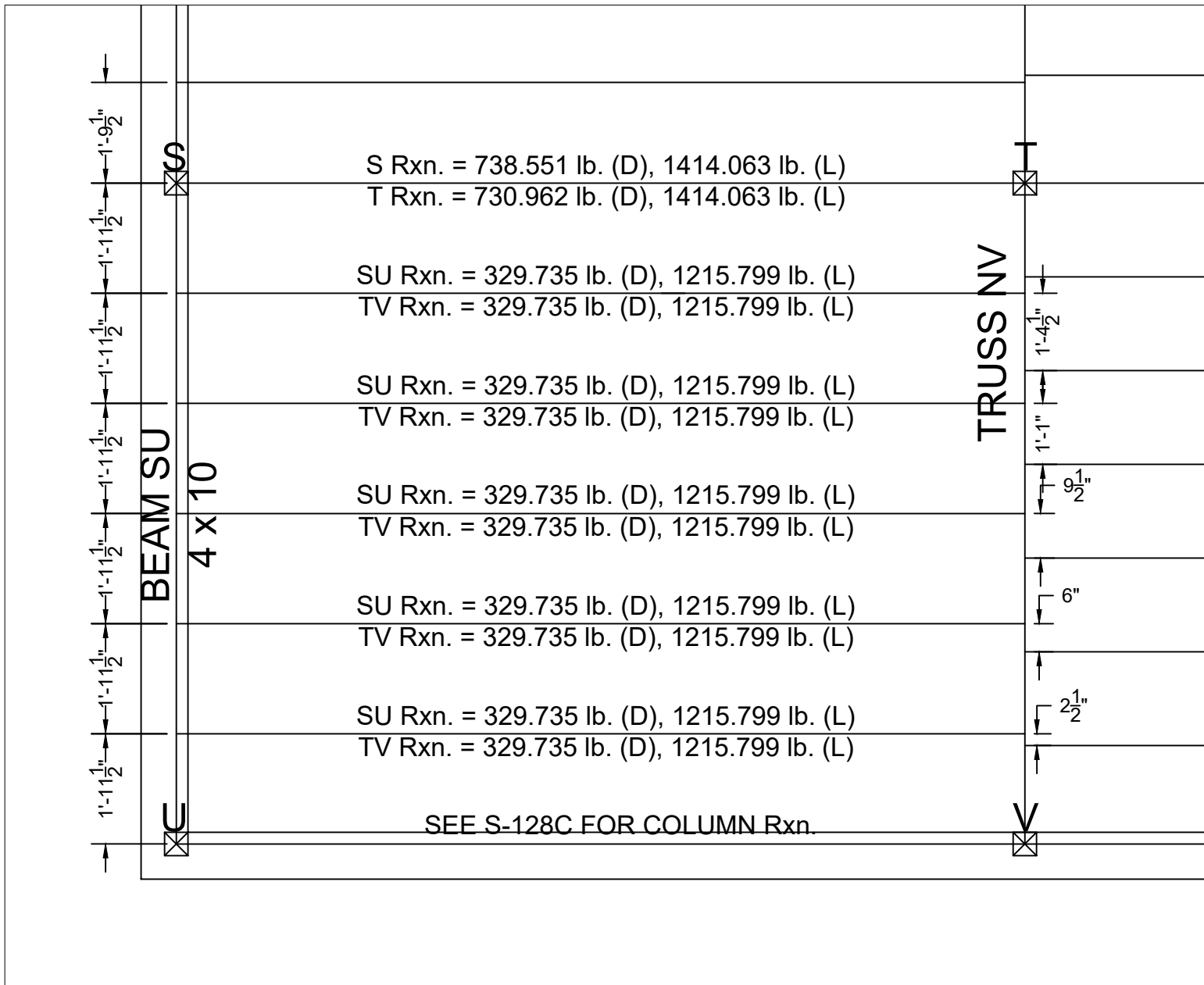
S-133B

PAGE NO: 054

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA





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DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 3

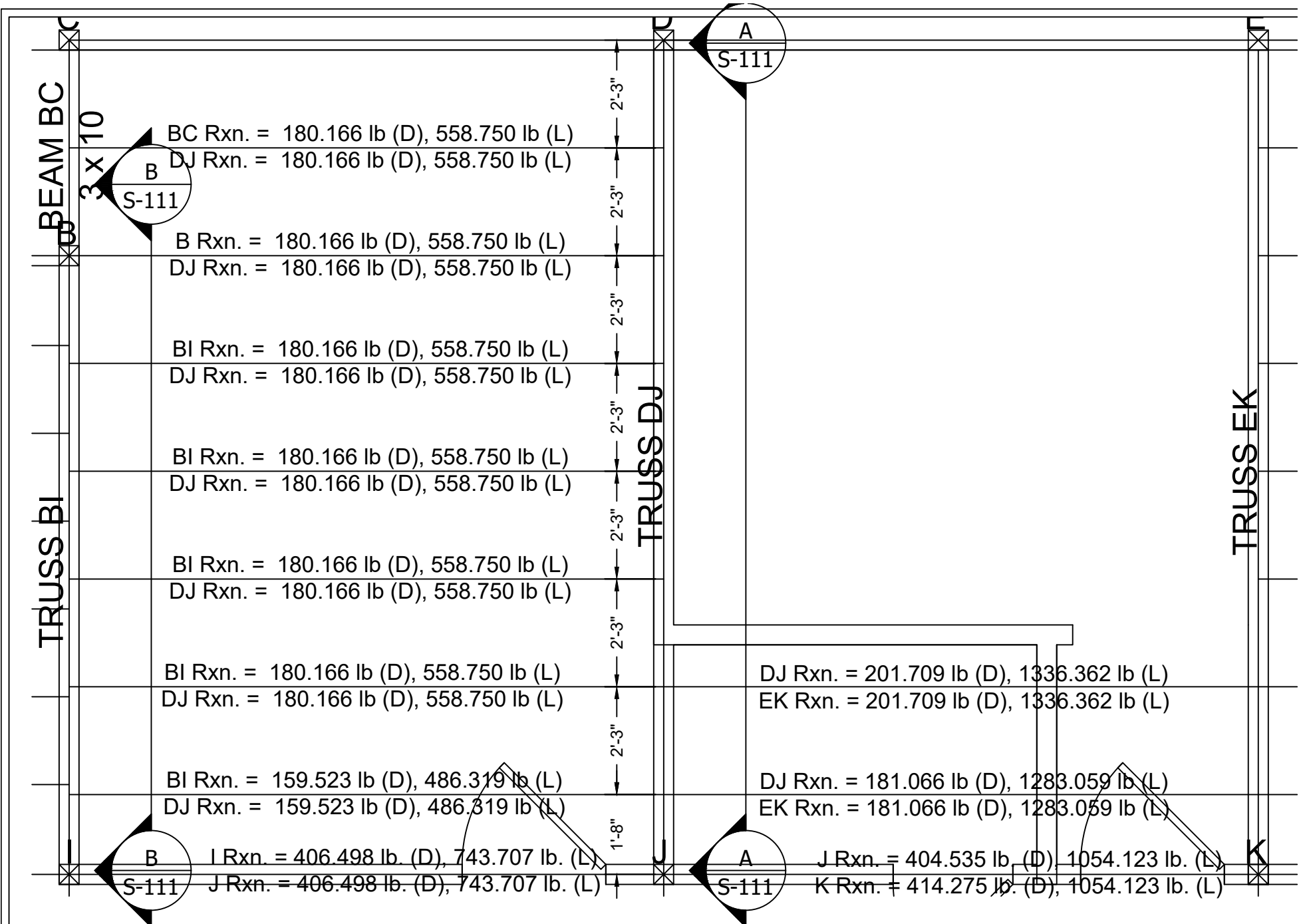
DWG NO:

S-133C

PAGE NO: 055

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA

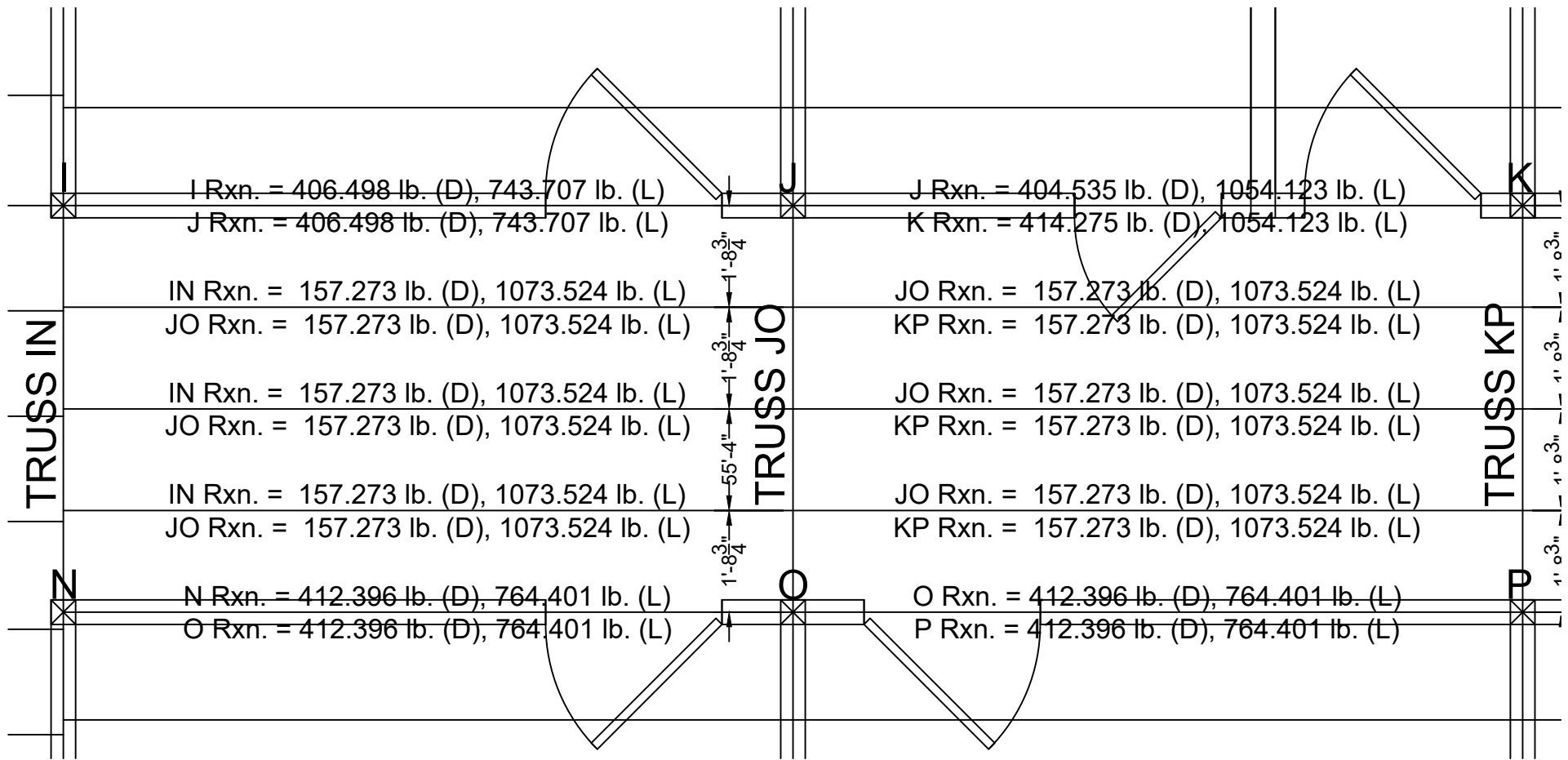


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DRAWING TITLE  
 FIRST FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 4

DWG NO:  
**S-133D**

PAGE NO: 056  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



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M. Rabasco  
J. Rios

DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 5

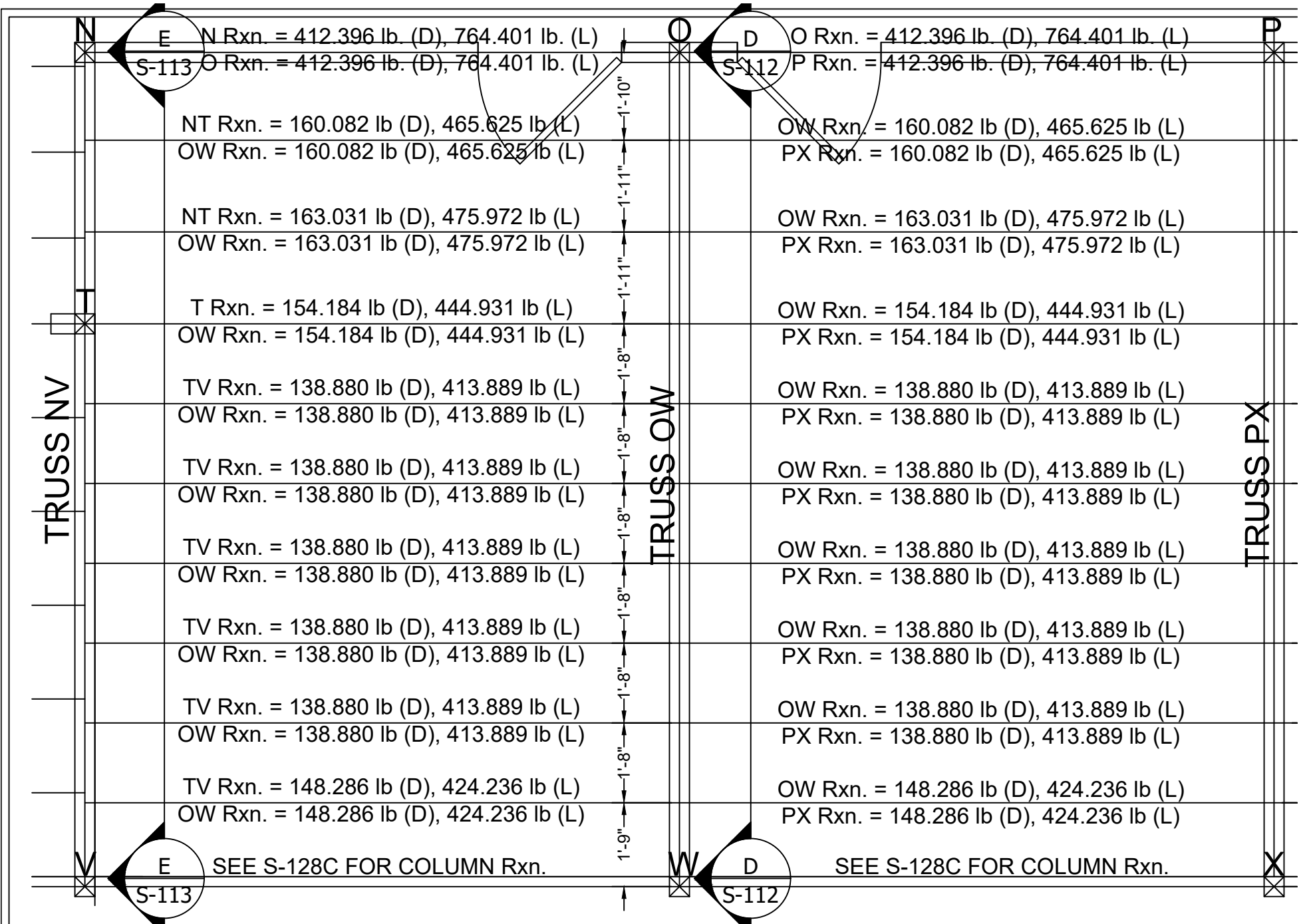
DWG NO:

S-133E

PAGE NO: 057

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA

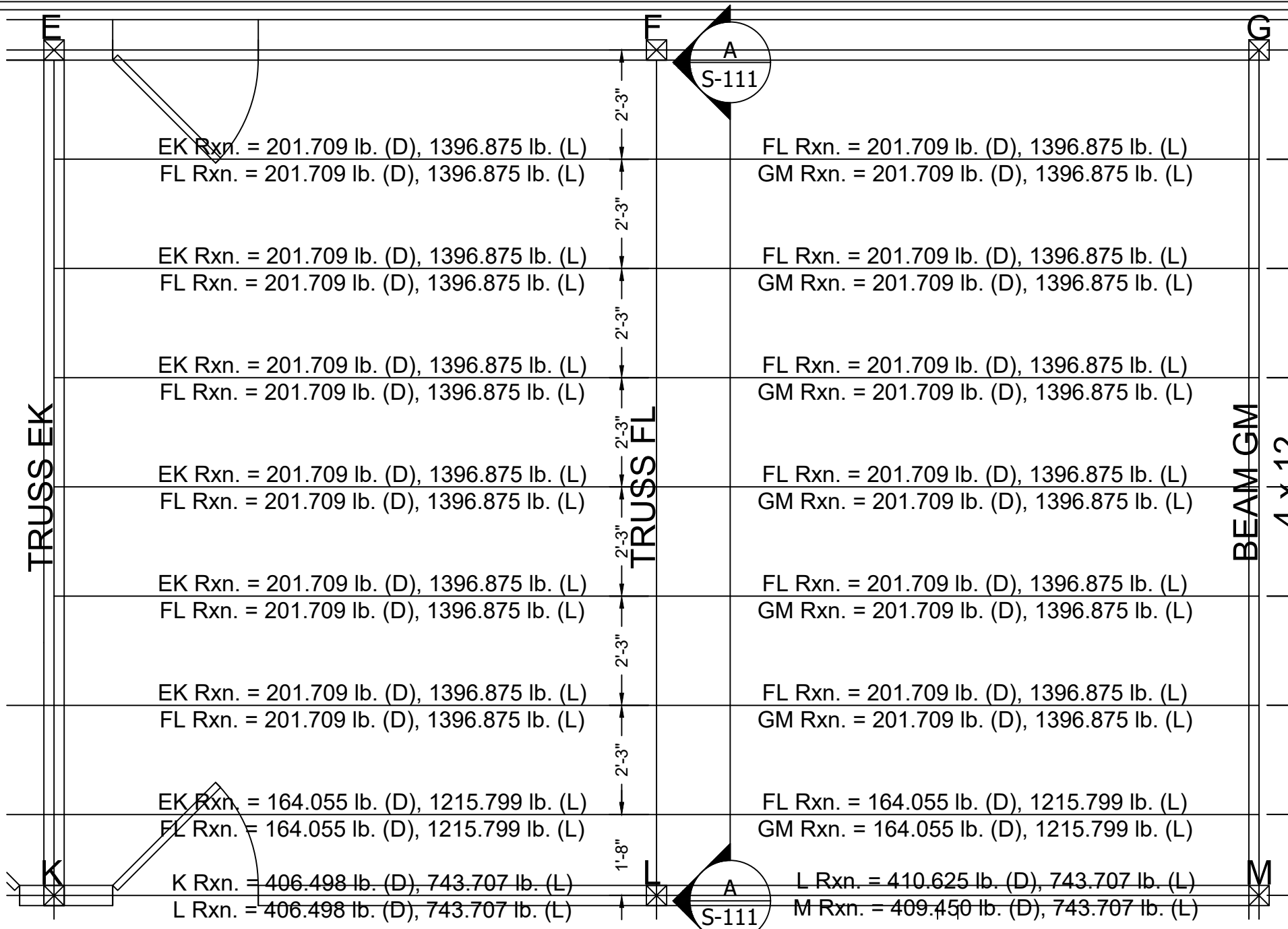


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DRAWING TITLE  
 FIRST FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 6

DWG NO:  
 S-133F

PAGE NO: 058  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
DETAIL SHEET 7

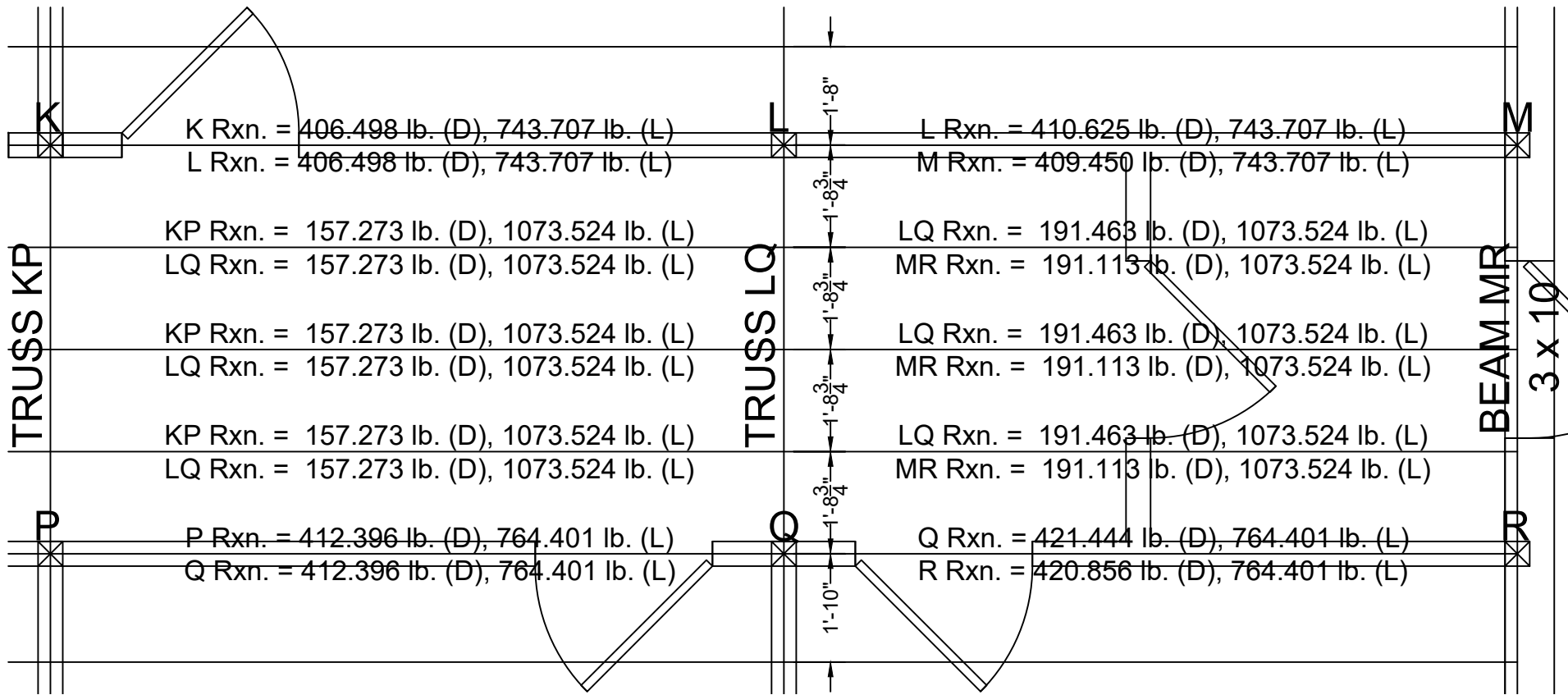
DWG NO:

S-133G

PAGE NO: 059

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA



53 Wachusett Street Design MQP

J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

FIRST FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 8

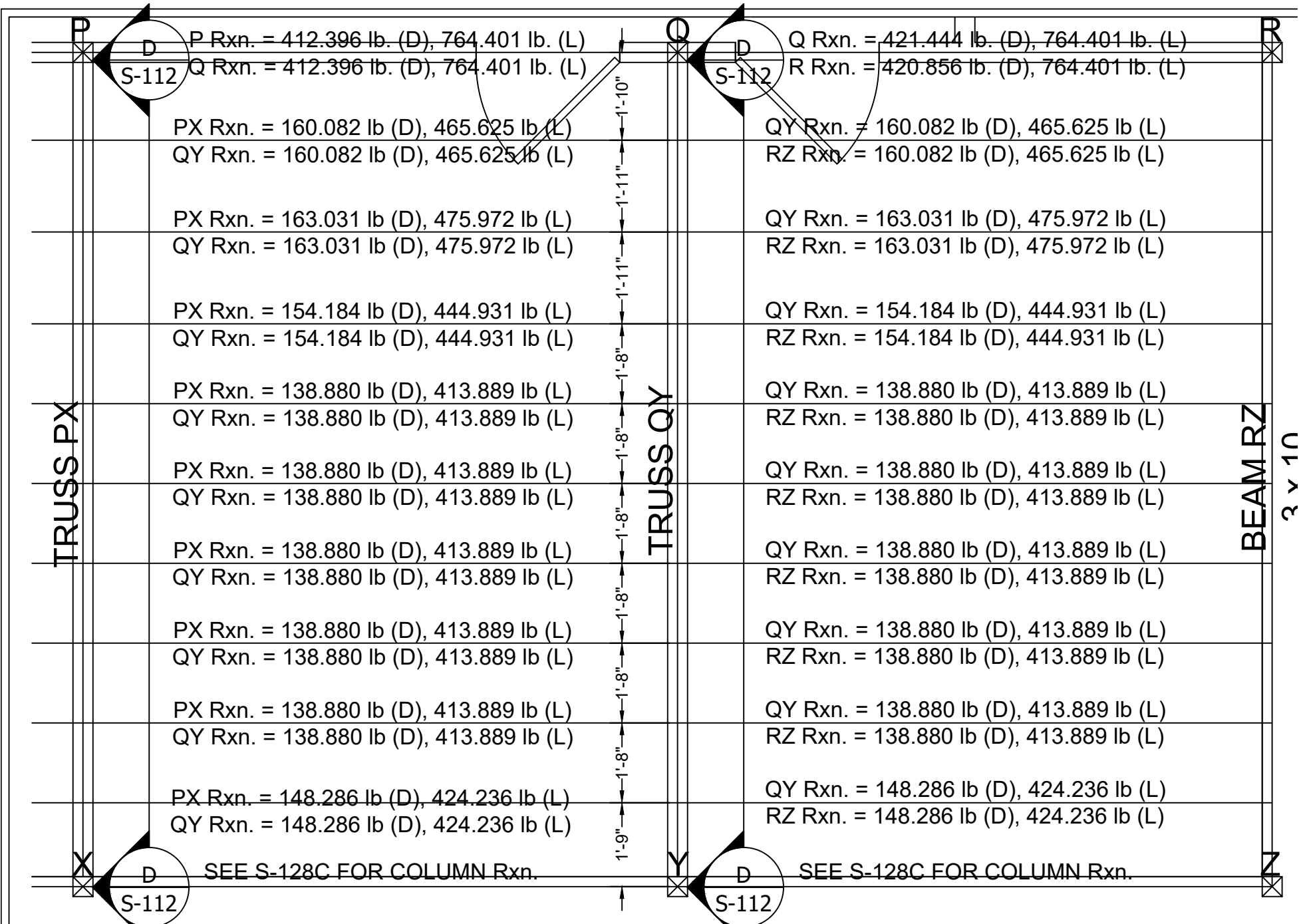
DWG NO:

S-133H

PAGE NO: 060

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA



53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE  
 FIRST FLOOR DESIGN SHEAR REACTIONS  
 DETAIL SHEET 9

DWG NO:  
 S-133I

PAGE NO: 061  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY: J. BONINA



1 RENDERING - BEDROOM (TYP.)  
Scale: N/A



2 RENDERING - COMMON ROOM  
Scale: N/A

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J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

FIRST FLOOR RENDERINGS  
BEDROOM AND COMMON ROOM

DWG NO:

S-134A

PAGE NO: 062

SCALE: N/A

DRAWN BY: J. BONINA





1

## RENDERING - KITCHEN

Scale: N/A



2

## RENDERING - BATHROOM

Scale: N/A

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

FIRST FLOOR RENDERINGS  
BATHROOM AND KITCHEN

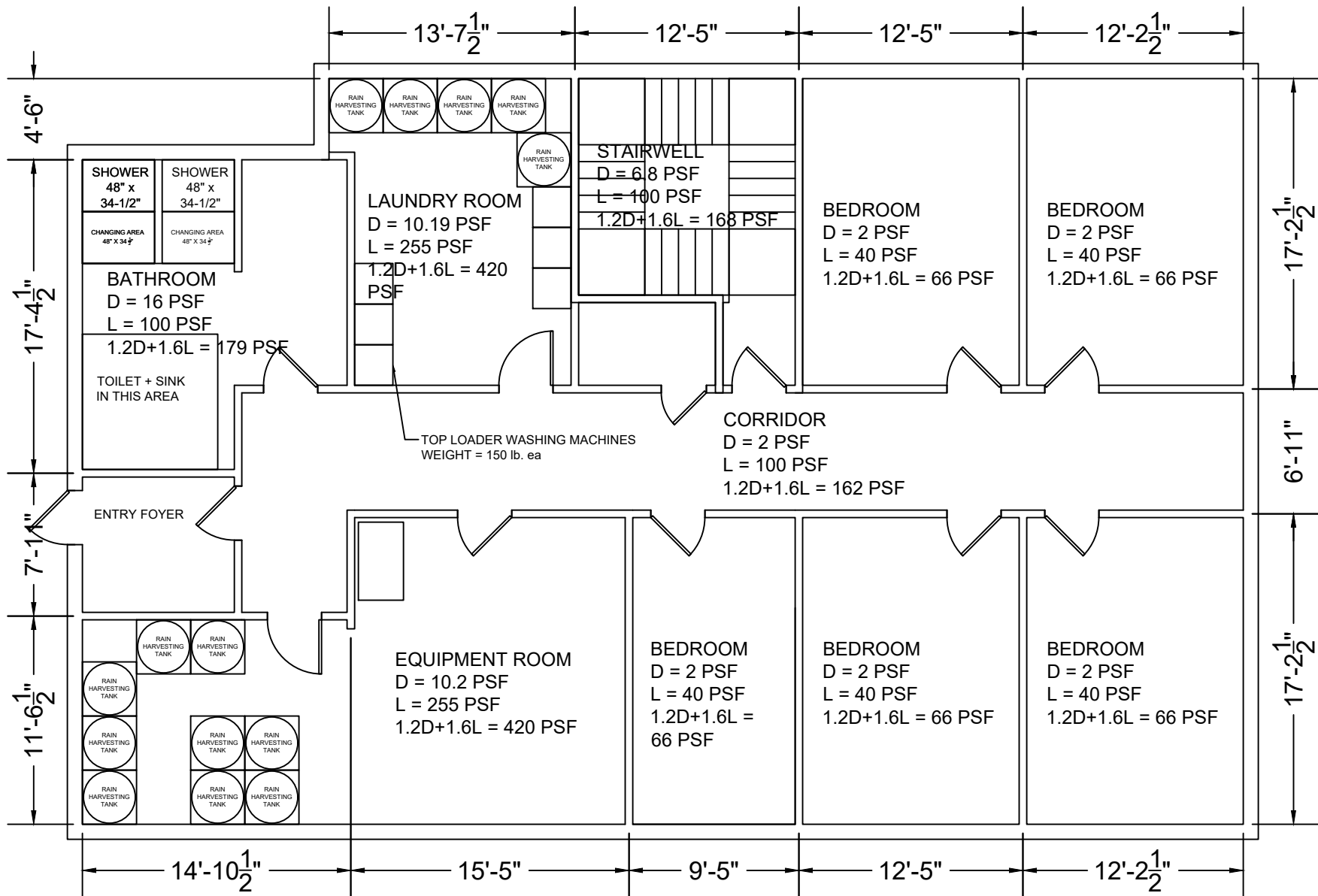
DWG NO:

**S-134B**

PAGE NO: 063

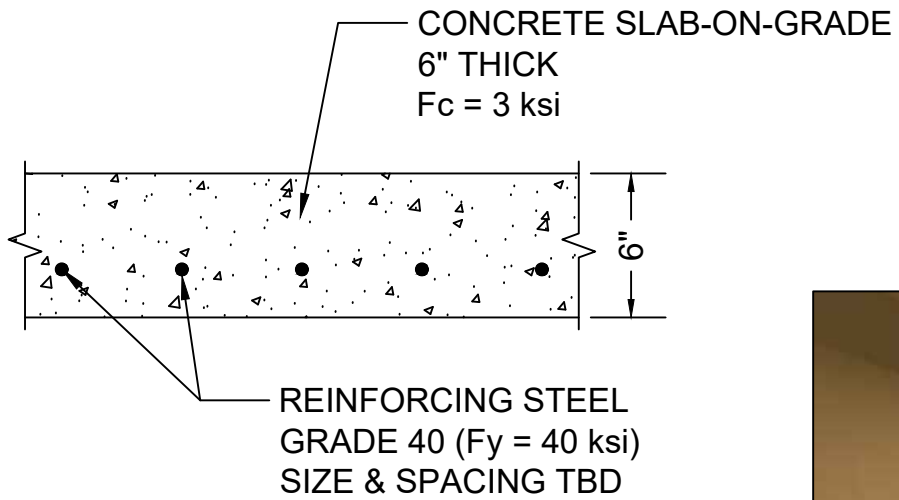
SCALE: N/A

DRAWN BY: J. BONINA



- NOTE:
- LOADS SHOWN DO NOT INCLUDE CONCRETE DENSITY  $\rho = 12.5 \text{ lb/ft}^2/\text{in.}$
  - SEE S-141 FOR FLOORING SECTION

<p>53 Wachusett Street Design MQP          J. Bonina          M. Rabasco          J. Rios</p>	<p>DRAWING TITLE          DESIGN LOADS          BASEMENT</p>	<p>DWG NO:  <b>S-140</b></p>	<p>PAGE NO: 064          SCALE: 1/8" = 1'-0"          DRAWN BY: J. BONINA</p>
---	--	----------------------------------	---

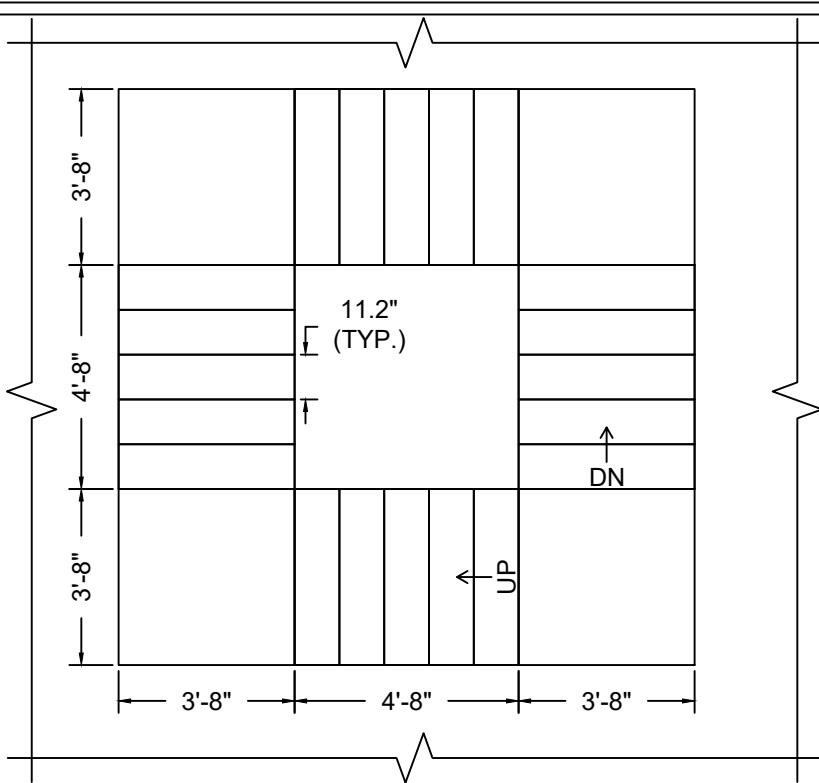


**1** **BASEMENT FLOORING (TYP.)**  
Scale: 1-1/2" = 1'-0"



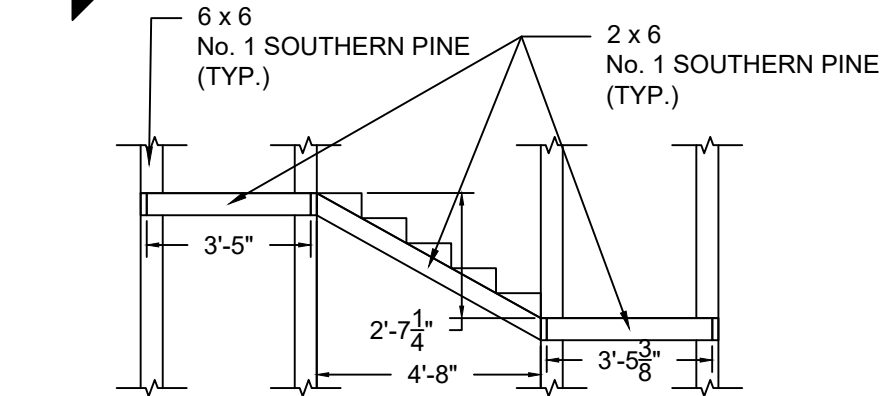
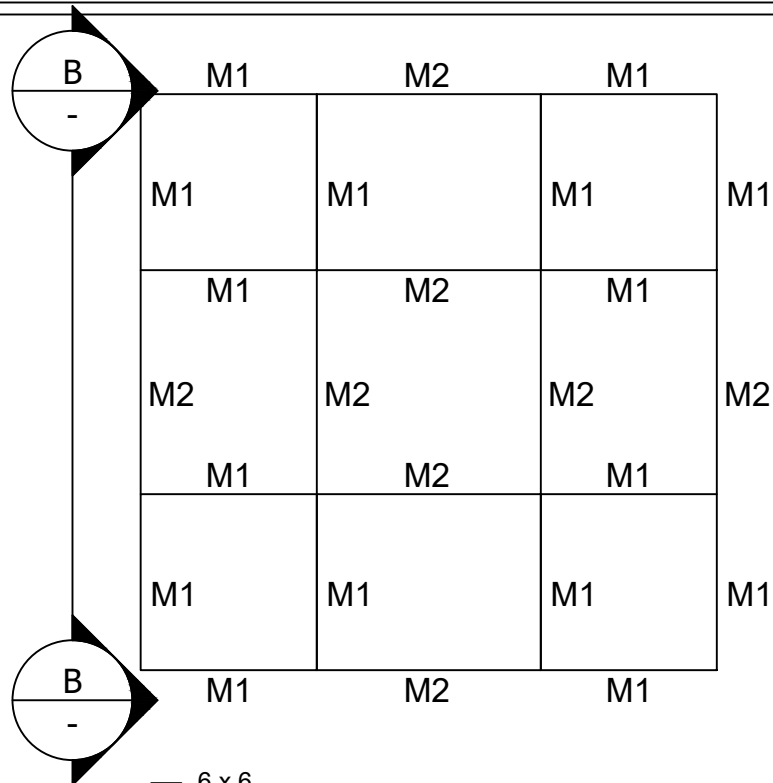
**2** **RENDERING - LAUNDRY ROOM**  
Scale: N/A

<p>53 Wachusett Street Design MQP J. Bonina M. Rabasco J. Rios</p>	<p>DRAWING TITLE  SLAB-ON-GRADE DETAILS LAUNDRY ROOM RENDERING</p>	<p>DWG NO:  <b>S-141</b></p>	<p>PAGE NO: 065 SCALE: VARIES DRAWN BY: J. BONINA</p>
--	--	--------------------------------------	---



**A** STAIR LAYOUT (TYP.)  
Scale: 1/4" = 1'-0"

STAIRWELL JOIST SIZES		
	M1	M2
DESIGN MOMENT (lb.*ft.)	521.95	845.48
ALLOWABLE MOMENT (lb.*ft.)	1578.32	1578.32
SIZE	2 x 6	2 x 6



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

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J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

STAIRWELL LAYOUT (TYP.)

DWG NO:

**S-151**

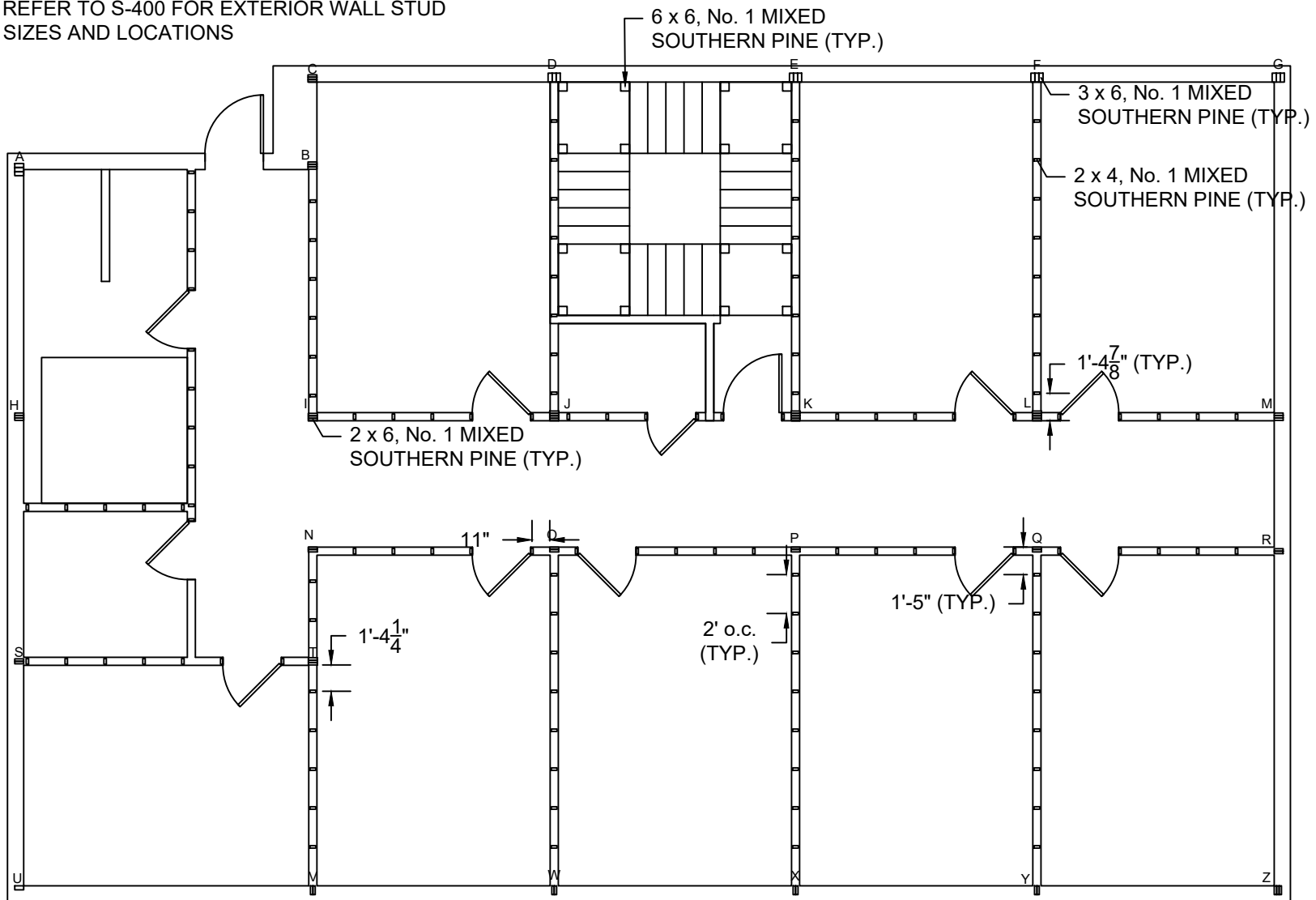
PAGE NO: 066

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

DRAWN BY: J. BONINA

NOTES:

1. STUDS, WHERE NOT SHOWN, SHALL BE PLACED AT DOOR FRAMES AND 24" O.C. IN WALLS.
2. REFER TO S-400 FOR EXTERIOR WALL STUD SIZES AND LOCATIONS



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J. Rios

DRAWING TITLE

COLUMN LAYOUT  
SECOND FLOOR - ROOF

DWG NO:

S-161

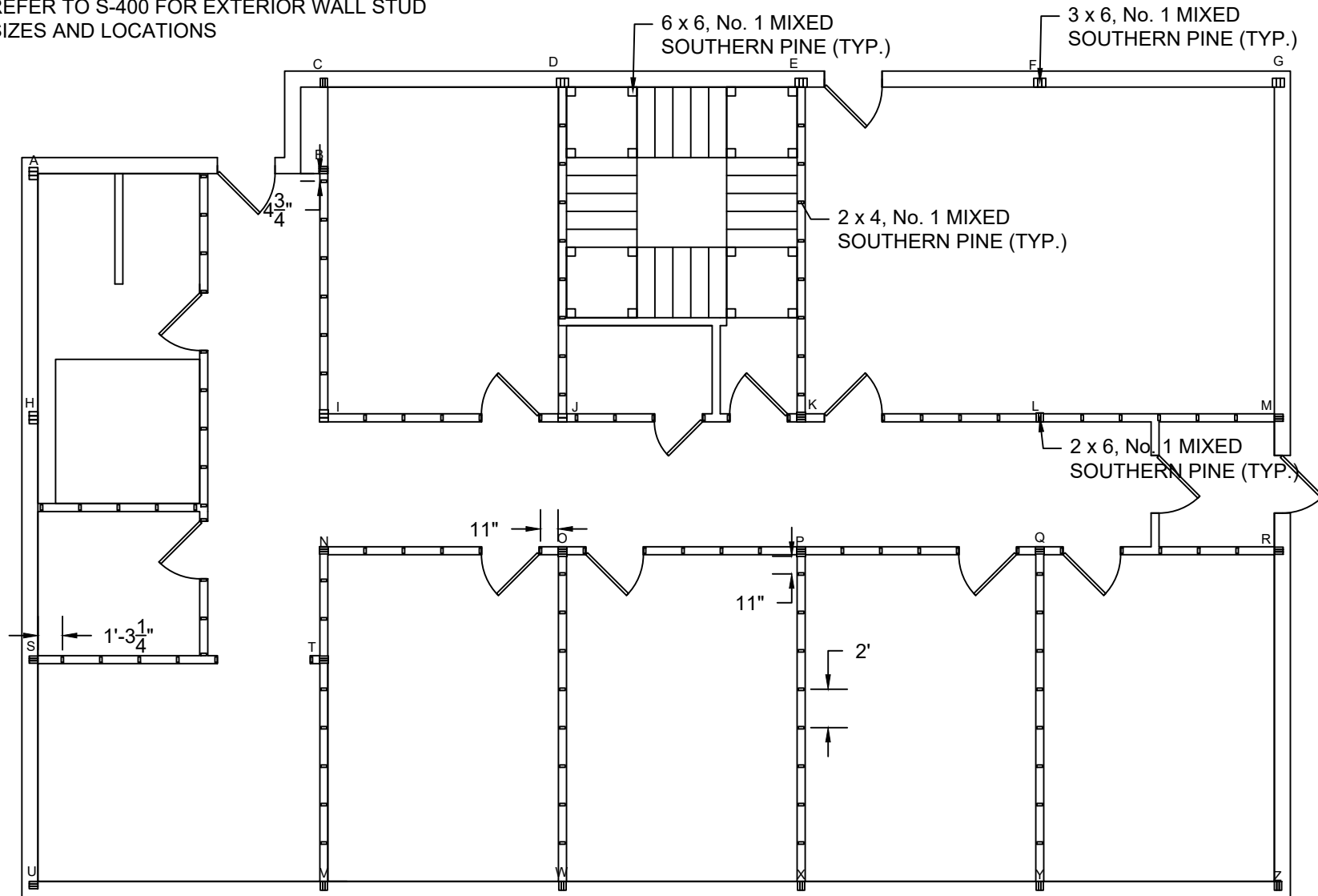
PAGE NO: 067

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

DRAWN BY: J. BONINA

NOTES:

1. STUDS, WHERE NOT SHOWN, SHALL BE PLACED AT DOOR FRAMES AND 24" O.C. IN WALLS.
2. REFER TO S-400 FOR EXTERIOR WALL STUD SIZES AND LOCATIONS



53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

COLUMN LAYOUT  
FIRST FLOOR - SECOND FLOOR

DWG NO:

S-162

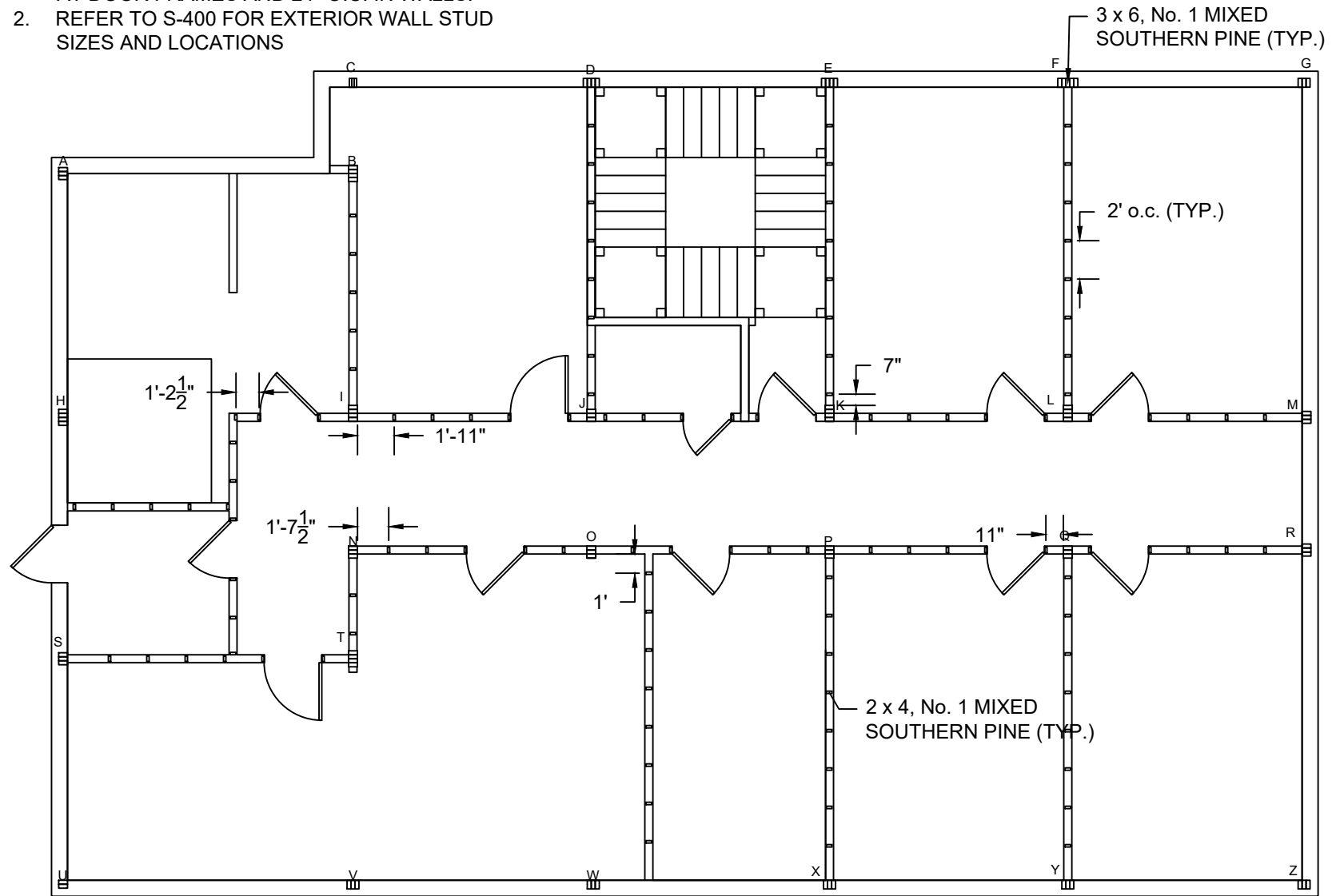
PAGE NO: 068

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

DRAWN BY: J. BONINA

NOTES:

1. STUDS, WHERE NOT SHOWN, SHALL BE PLACED AT DOOR FRAMES AND 24" O.C. IN WALLS.
2. REFER TO S-400 FOR EXTERIOR WALL STUD SIZES AND LOCATIONS



53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

COLUMN LAYOUT  
BASEMENT - FIRST FLOOR

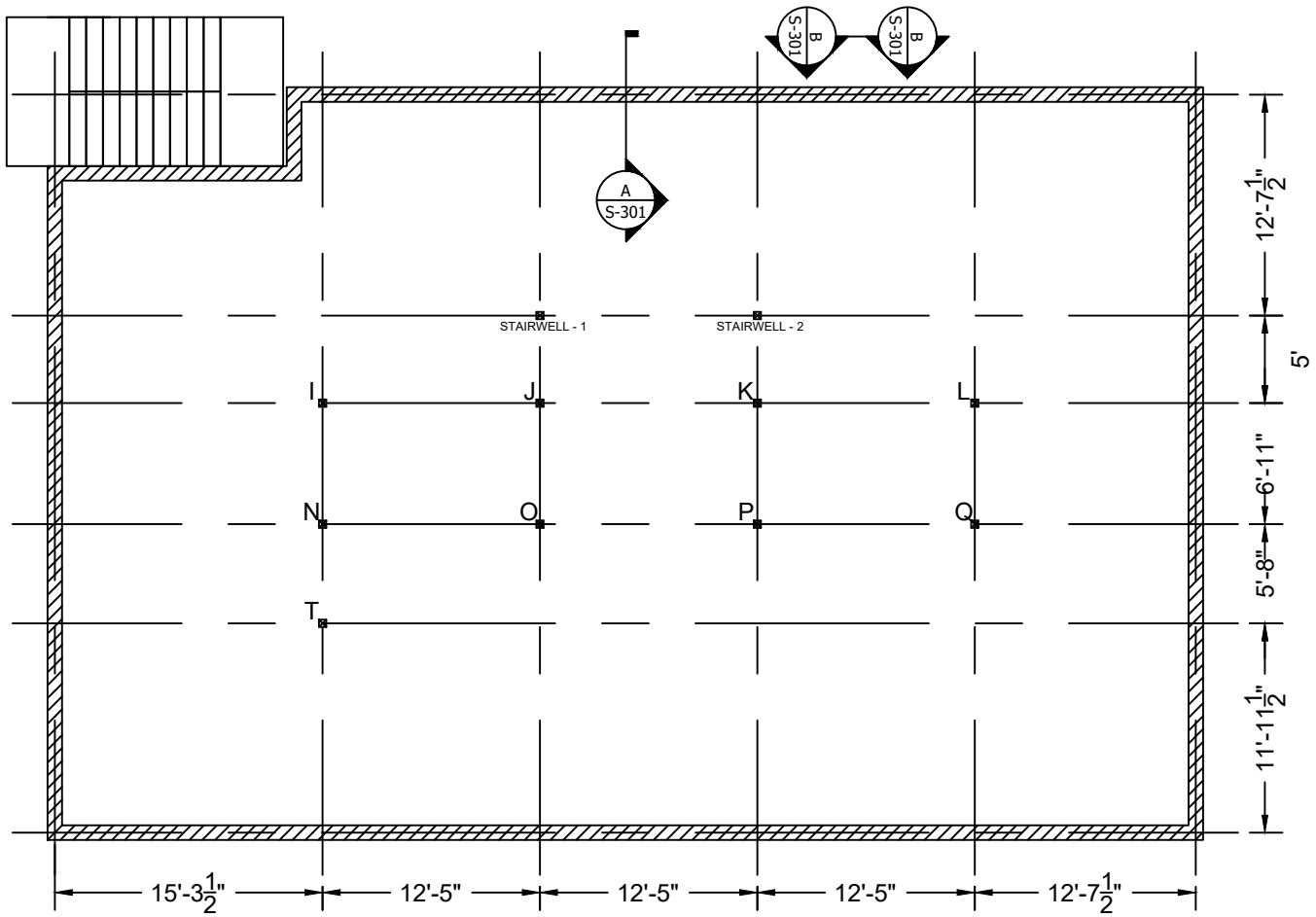
DWG NO:

S-163

PAGE NO: 069

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

DRAWN BY: J. BONINA



**LEGEND:**

- ▨ STRIP FOOTING FOUNDATION (SEE DWG S-301)
  - ▣ SPREAD FOOTING FOUNDATION (SEE DWG S-302)
- EXCEPTION: SEE DWG S-303 FOR FOUNDATIONS:  
STAIRWELL-1, STAIRWELL-2.

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M. Rabasco  
J. Rios

DRAWING TITLE

FOUNDATION LOCATIONS

DWG NO:

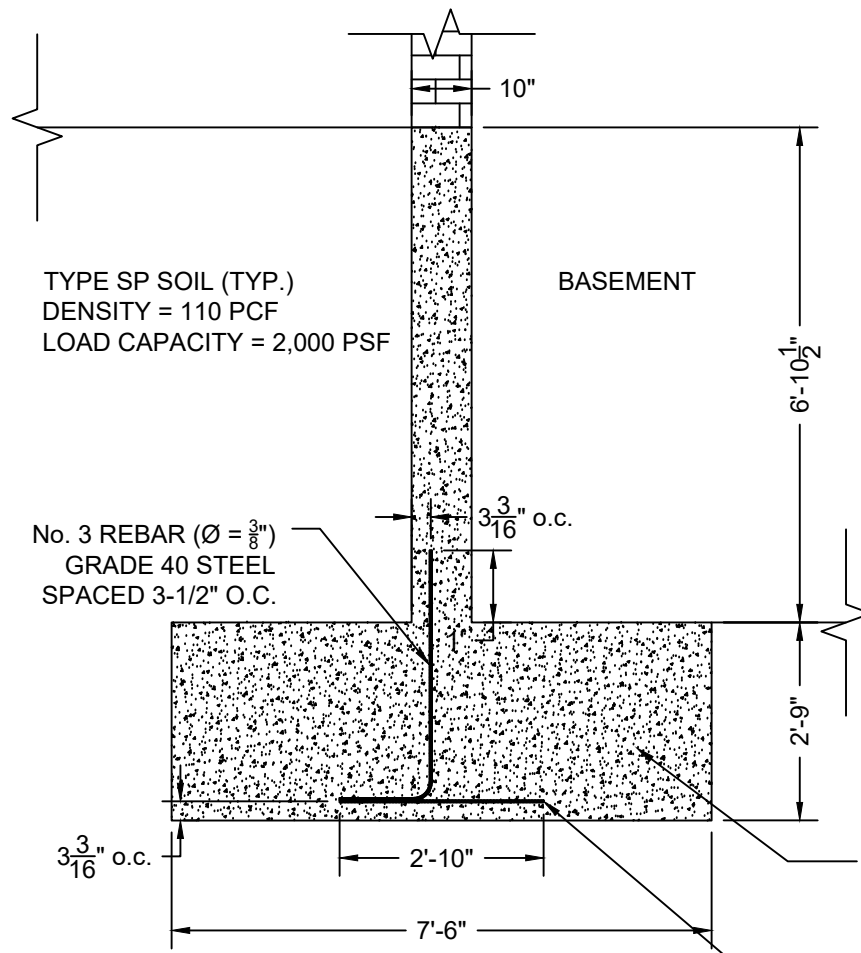
**S-300**

PAGE NO: 070

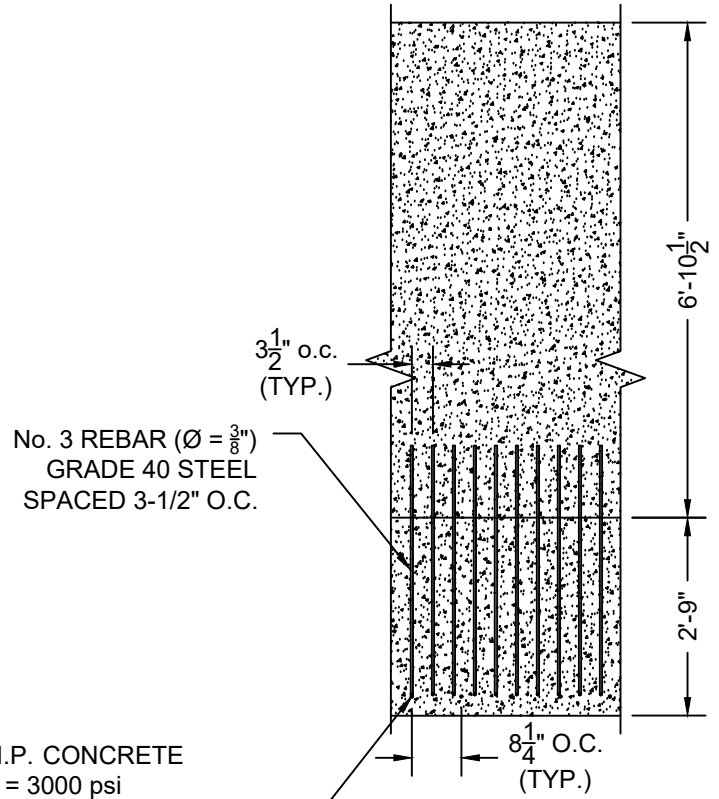
SCALE: 3/32" = 1'-0"

DRAWN BY: J. BONINA





**A** STRIP FOOTING - SECTION  
Scale: 3/8" = 1'-0"



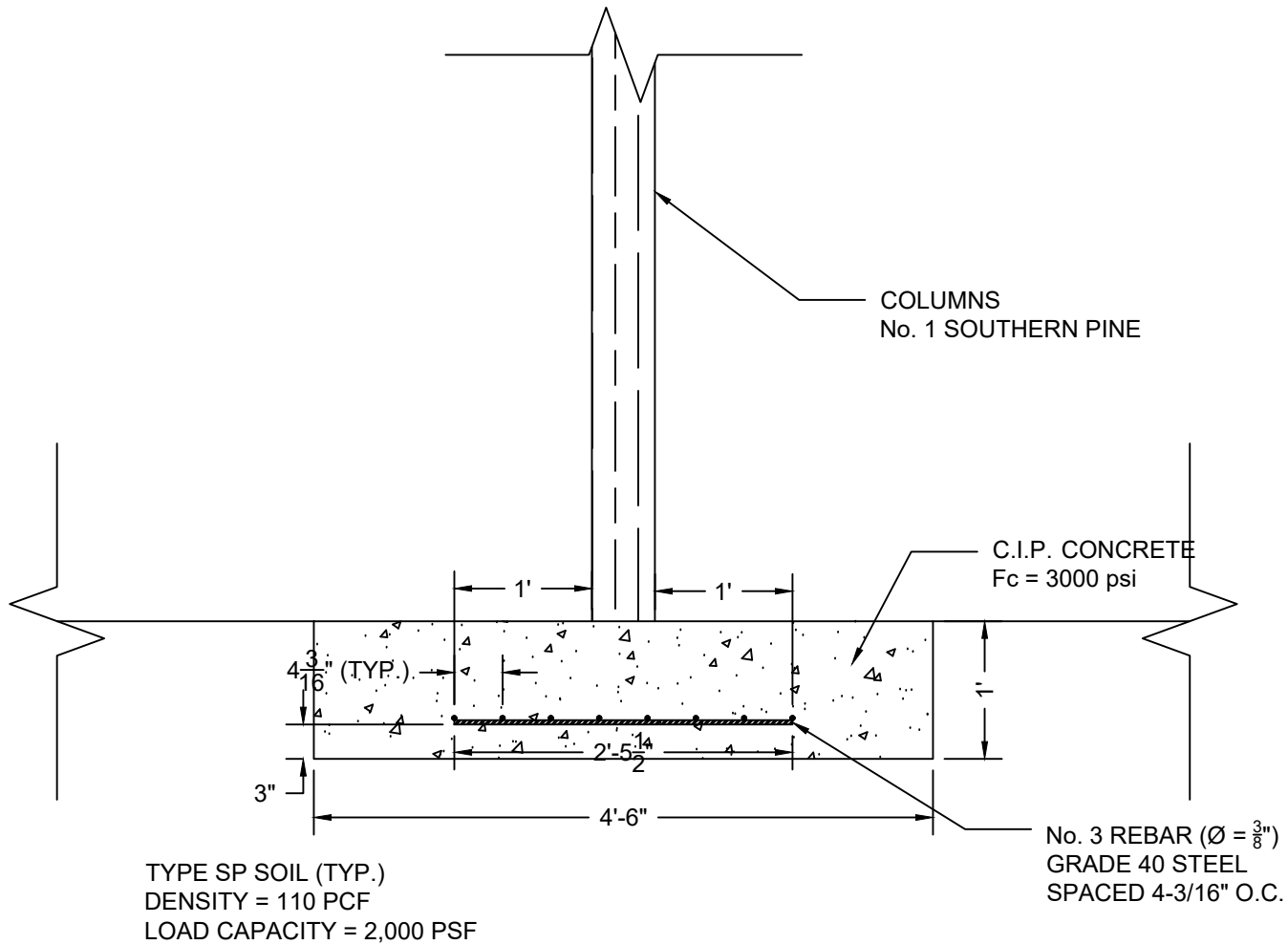
**B** STRIP FOOTING - ELEV.  
Scale: 3/8" = 1'-0"

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J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE  
STRIP FOOTING FOUNDATIONS  
SECTION VIEW

DWG NO:  
S-301

PAGE NO: 071  
SCALE: 3/8" = 1'-0"  
DRAWN BY: J. BONINA



NOTE:  
THIS DWG APPLIES TO ALL SPREAD FOOTING FOUNDATIONS  
EXCEPT FOR:  
- STAIRWELL-1  
- STAIRWELL-2  
FOR ELEVATIONS FOR THESE FOUNDATIONS, SEE DWG S-303.

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J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

SPREAD FOOTING FOUNDATIONS  
54" BASE DIMENSION

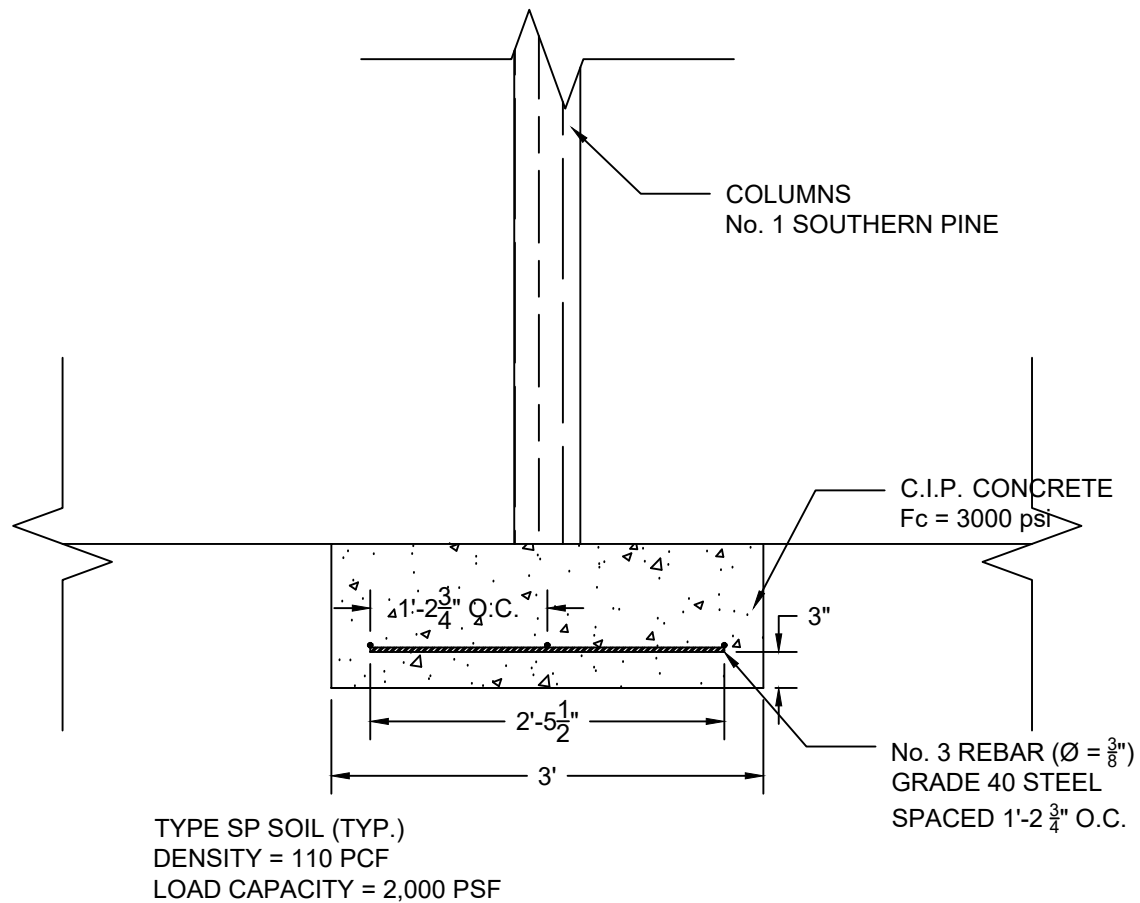
DWG NO:

S-302

PAGE NO: 072

SCALE: 3/4" = 1'-0"

DRAWN BY: J. BONINA



**NOTE:**

THIS DWG ONLY APPLIES TO THE FOLLOWING FOUNDATIONS:

- STAIRWELL-1
- STAIRWELL-2

FOR ALL OTHER FOUNDATIONS, SEE DWG S-302.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

SPREAD FOOTING FOUNDATIONS  
36" BASE DIMENSION

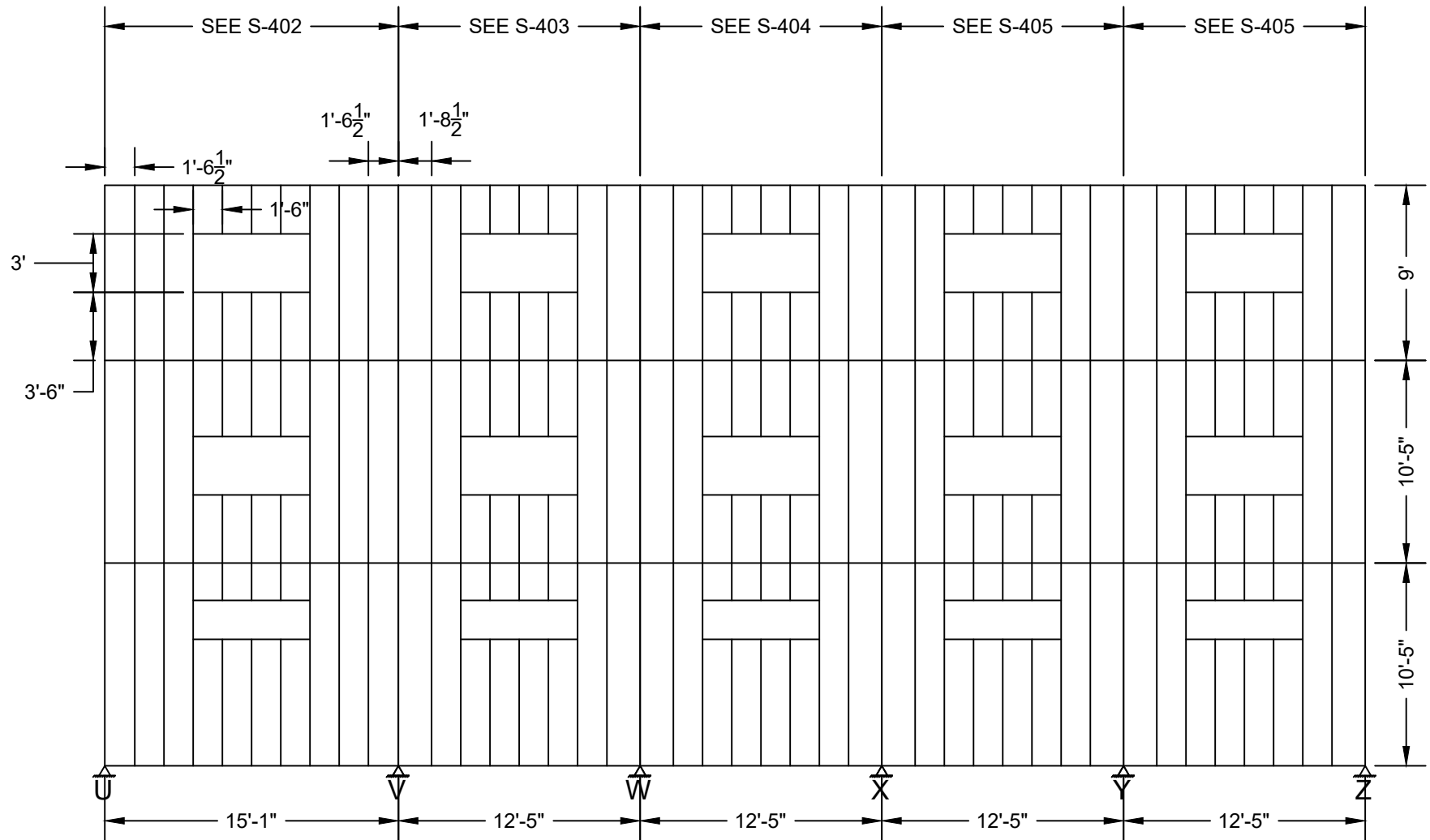
DWG NO:

**S-303**

PAGE NO: 073

SCALE: 3/4" = 1'-0"

DRAWN BY: J. BONINA



**NOTES:**

1. FOR LUMBER SIZES FOR STUDS, SEE DWG'S S-402 - S-406.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S \_\_\_\_.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

SOUTH WALL STUD LAYOUT  
OVERVIEW

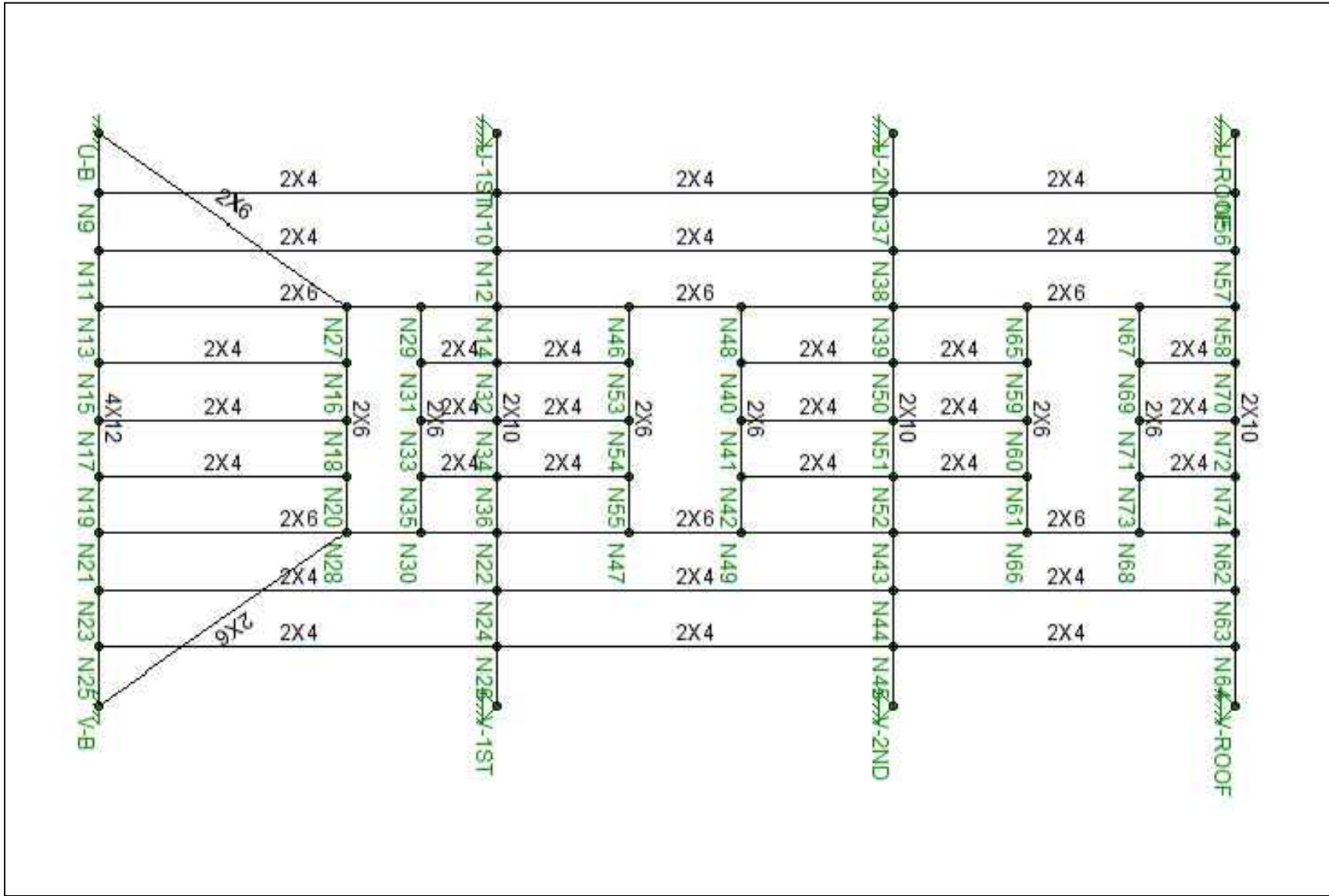
DWG NO:

**S-401**

PAGE NO: 074

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

DRAWN BY: J. BONINA



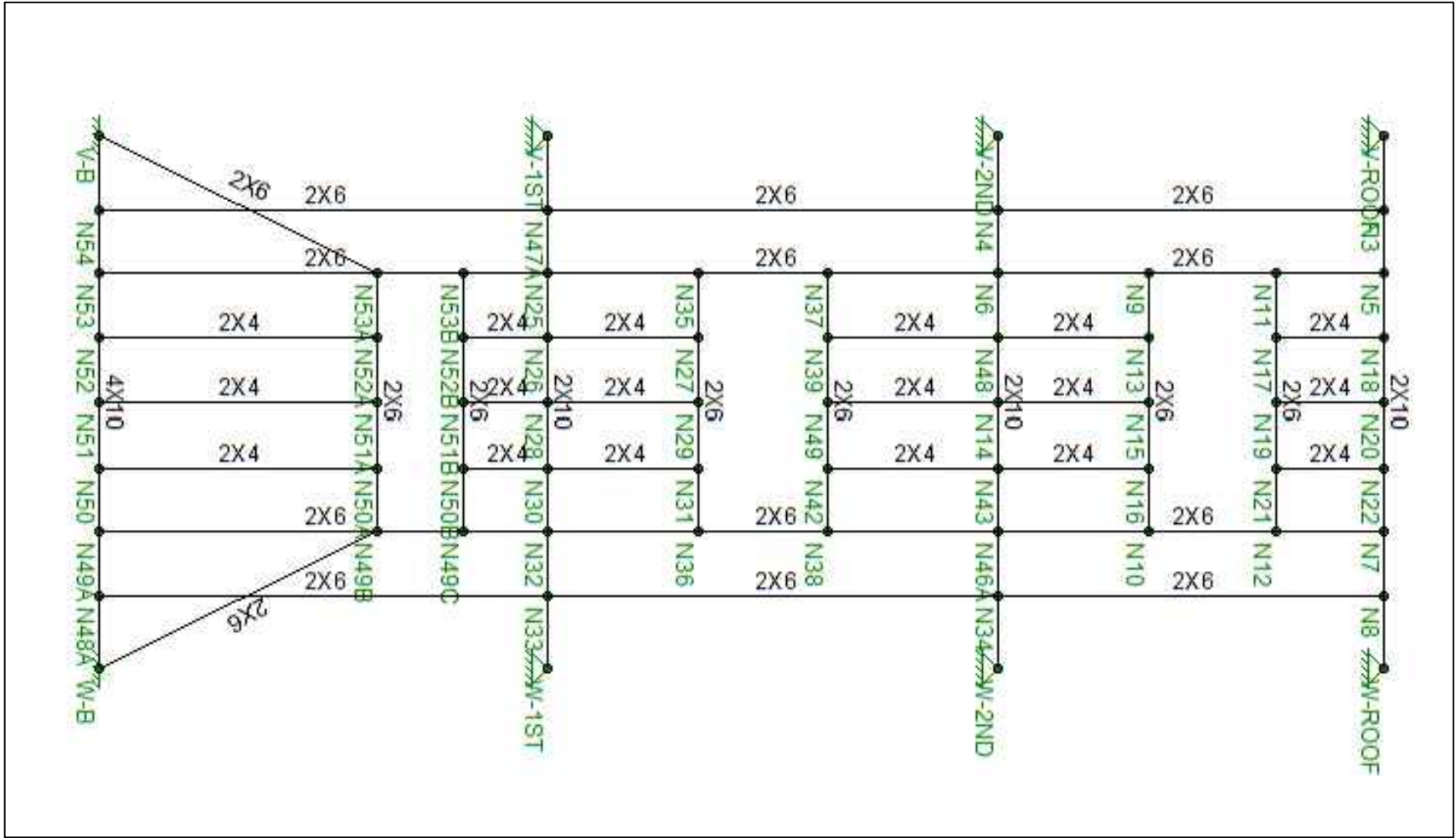
- NOTES:
1. FOR LOCATION OF FRAME IN WALL, SEE DWG. S-401.
  2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.
  3. THIS DWG. IS ROTATED 90 DEGREES CLOCKWISE.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE  
 SOUTH WALL STUD LAYOUT  
 DETAILS - FRAME UV

DWG NO:  
**S-402**

PAGE NO: 075  
 SCALE: 1/4" = 1'-0"  
 DRAWN BY: J. BONINA



NOTES:

1. FOR LOCATION OF FRAME IN WALL, SEE DWG. S-401.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.
3. THIS DWG. IS ROTATED 90 DEGREES CLOCKWISE.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

SOUTH WALL STUD LAYOUT  
 DETAILS - FRAME VW

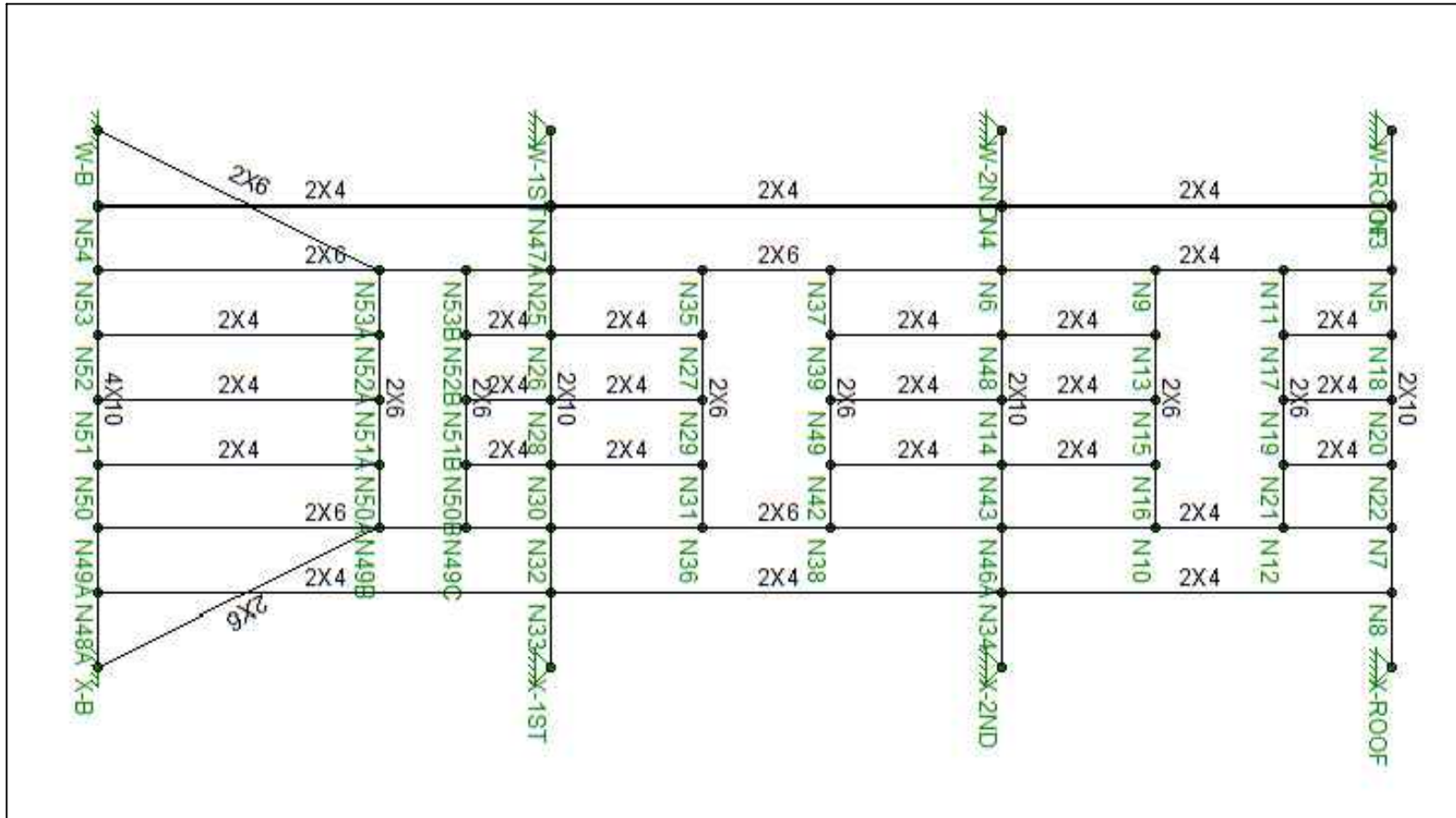
DWG NO:

S-403

PAGE NO: 076

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

DRAWN BY: J. BONINA



NOTES:

1. FOR LOCATION OF FRAME IN WALL, SEE DWG. S-401.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.
3. THIS DWG. IS ROTATED 90 DEGREES CLOCKWISE.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

SOUTH WALL STUD LAYOUT  
DETAILS - FRAME WX

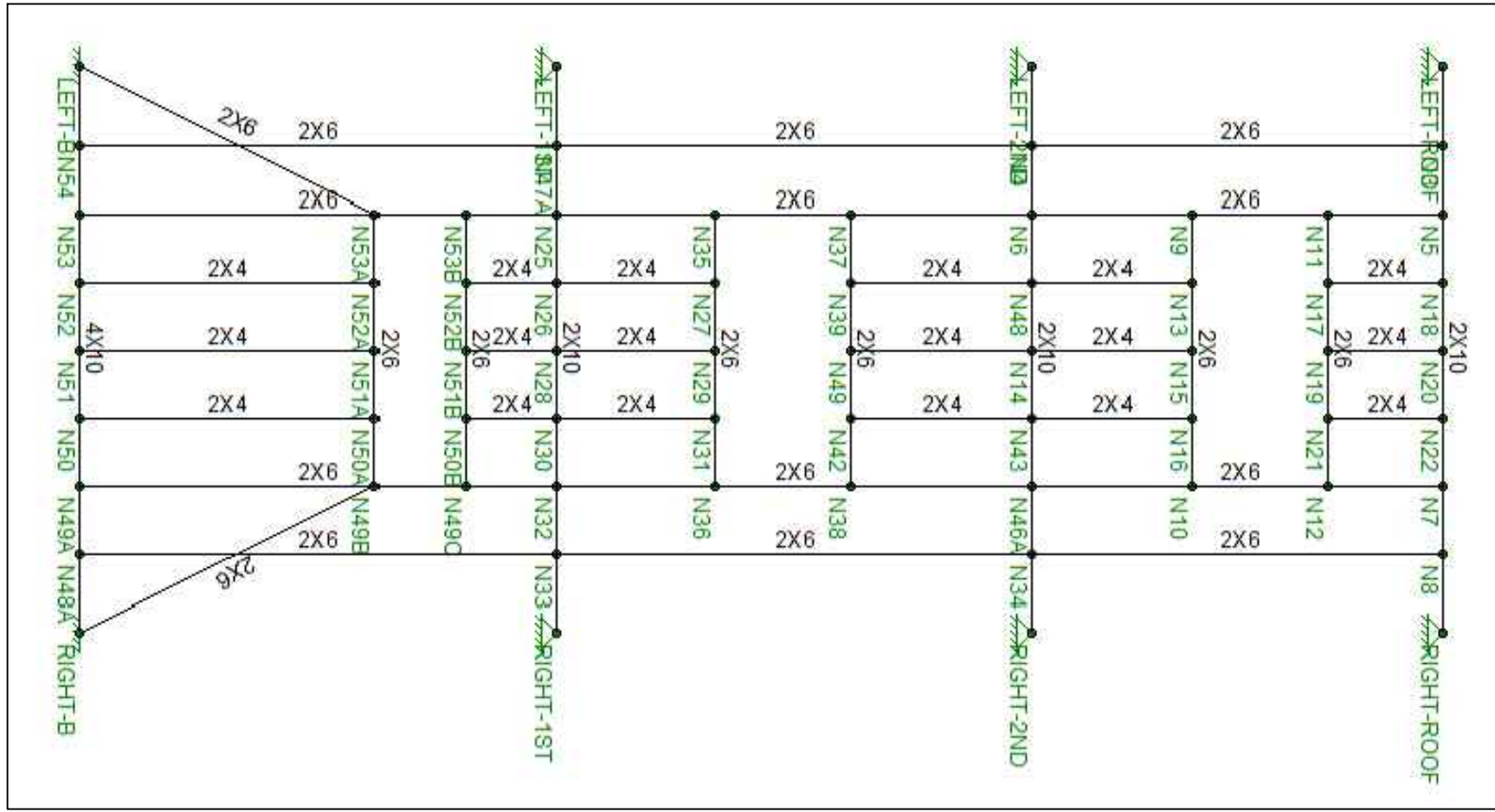
DWG NO:

S-404

PAGE NO: 077

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

DRAWN BY: J. BONINA



- NOTES:
1. FOR LOCATION OF FRAME IN WALL, SEE DWG. S-401.
  2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.
  3. THIS DWG. IS ROTATED 90 DEGREES CLOCKWISE.

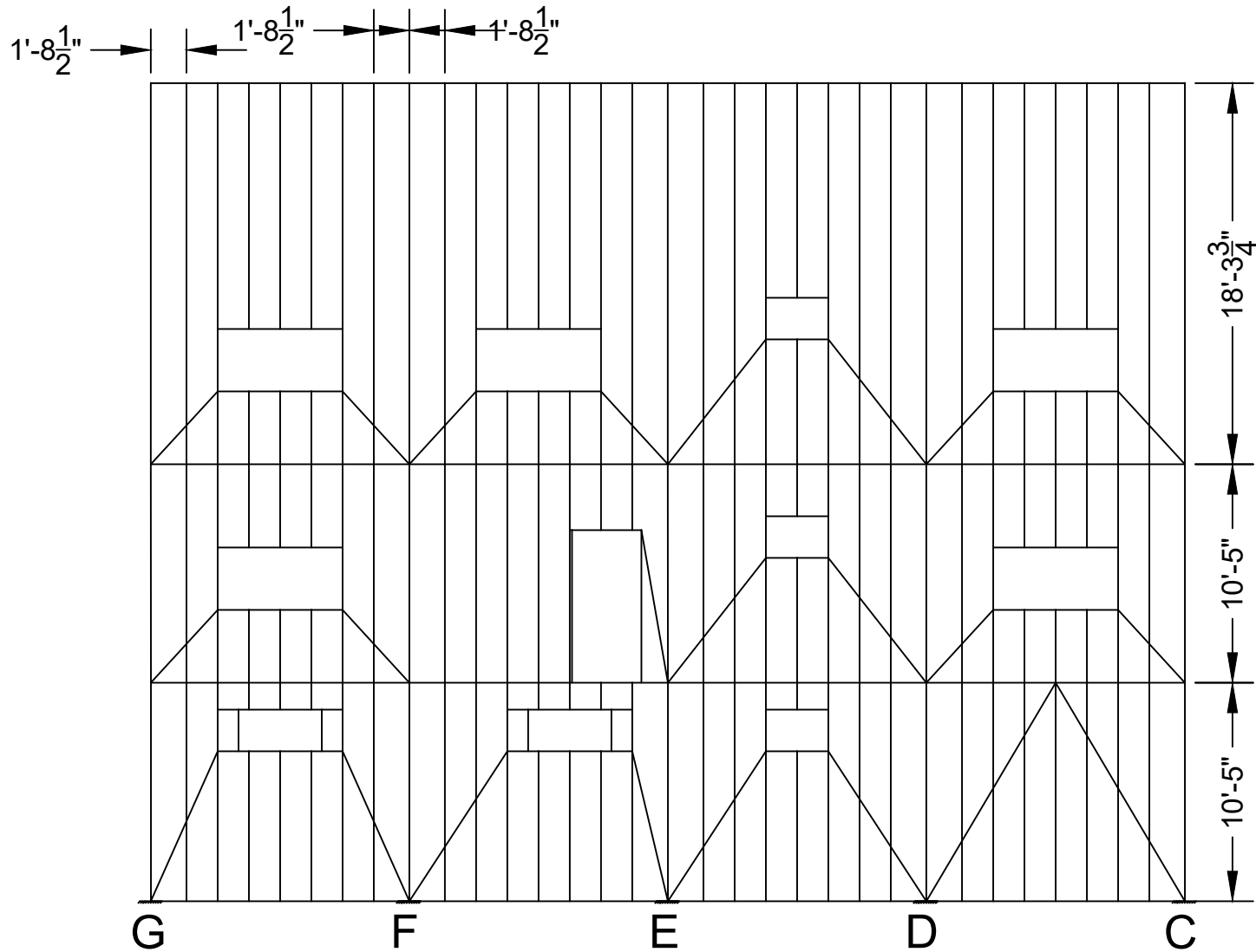
53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE  
 SOUTH WALL STUD LAYOUT  
 DETAILS - FRAMES XY AND YZ

DWG NO:  
**S-405**

PAGE NO: 078  
 SCALE: 1/4" = 1'-0"  
 DRAWN BY: J. BONINA





NOTES:

1. FOR LUMBER SIZES FOR STUDS, SEE DWG'S S-412 - S-416.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP

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M. Rabasco  
J. Rios

DRAWING TITLE

NORTH WALL STUD LAYOUT  
OVERVIEW

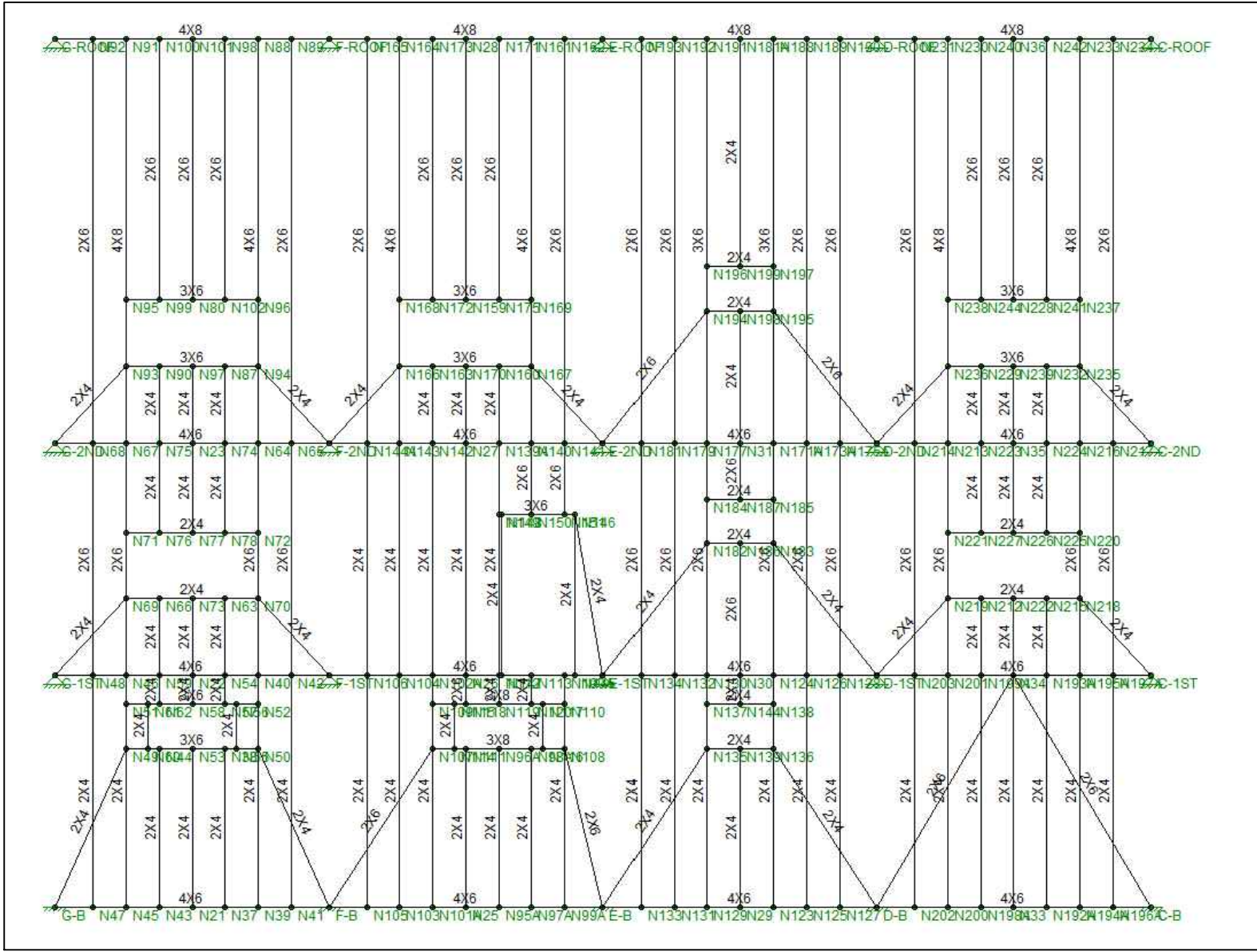
DWG NO:

S-411

PAGE NO: 079

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

DRAWN BY: J. BONINA



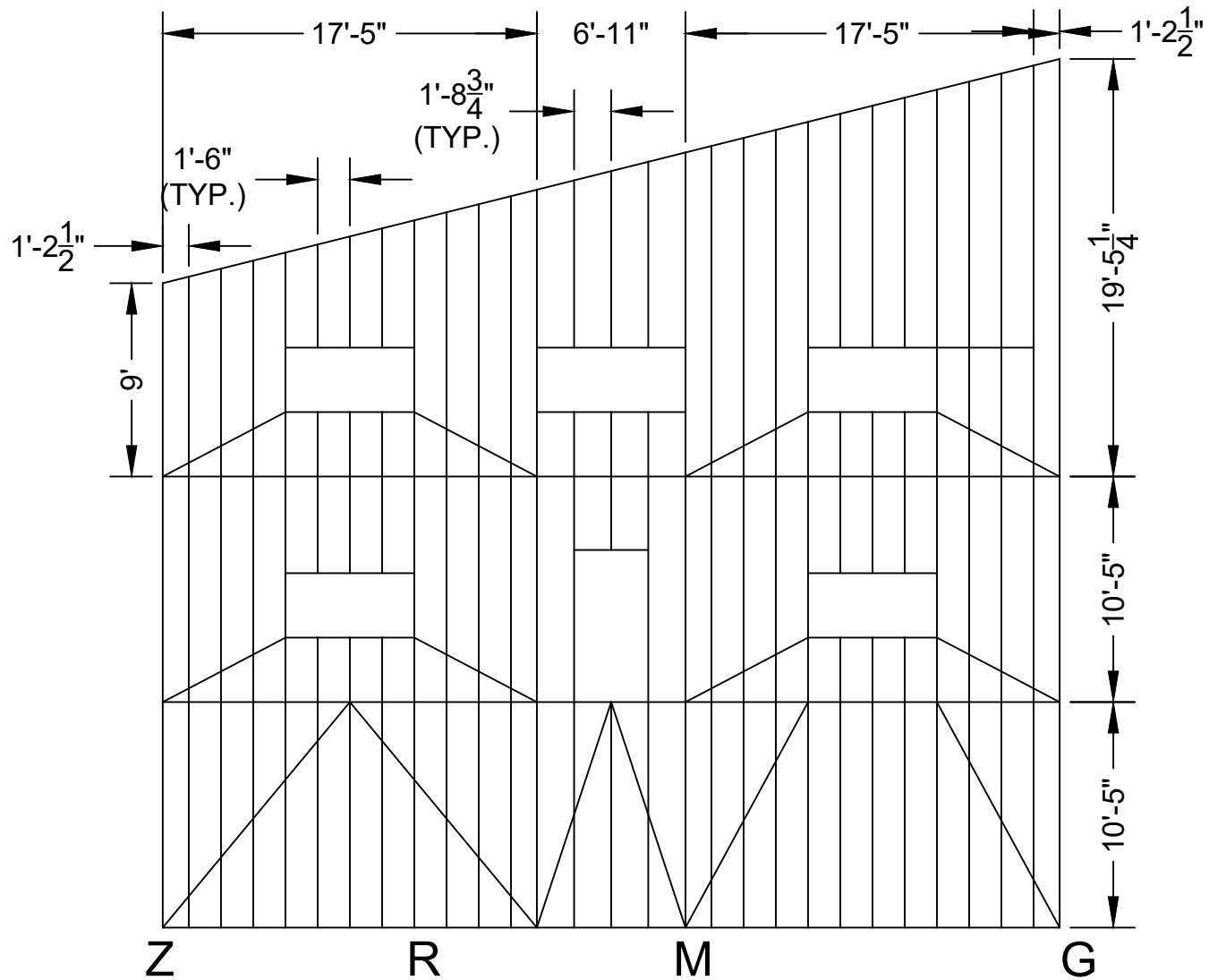
- NOTES:
- FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE  
 NORTH WALL STUD LAYOUT  
 MEMBER SIZES

DWG NO:  
 S-412

PAGE NO: 080  
 SCALE: 1/8" = 1'-0"  
 DRAWN BY: J. BONINA



NOTES:

1. FOR LUMBER SIZES FOR STUDS, SEE DWG S-422.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

EAST WALL STUD LAYOUT  
OVERVIEW

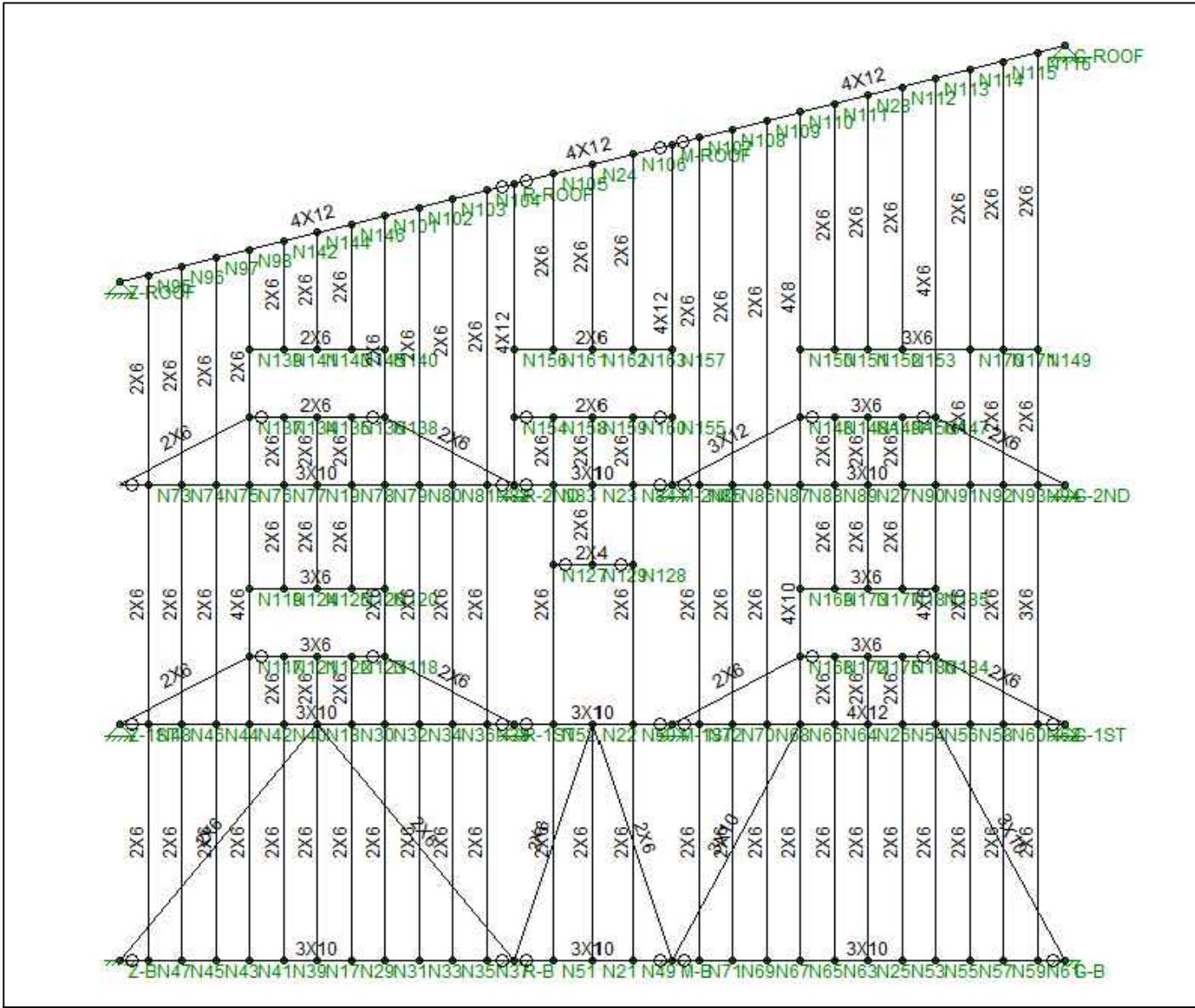
DWG NO:

S-421

PAGE NO: 081

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

DRAWN BY: J. BONINA



NOTES:

- FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

EAST WALL STUD LAYOUT  
 MEMBER SIZES

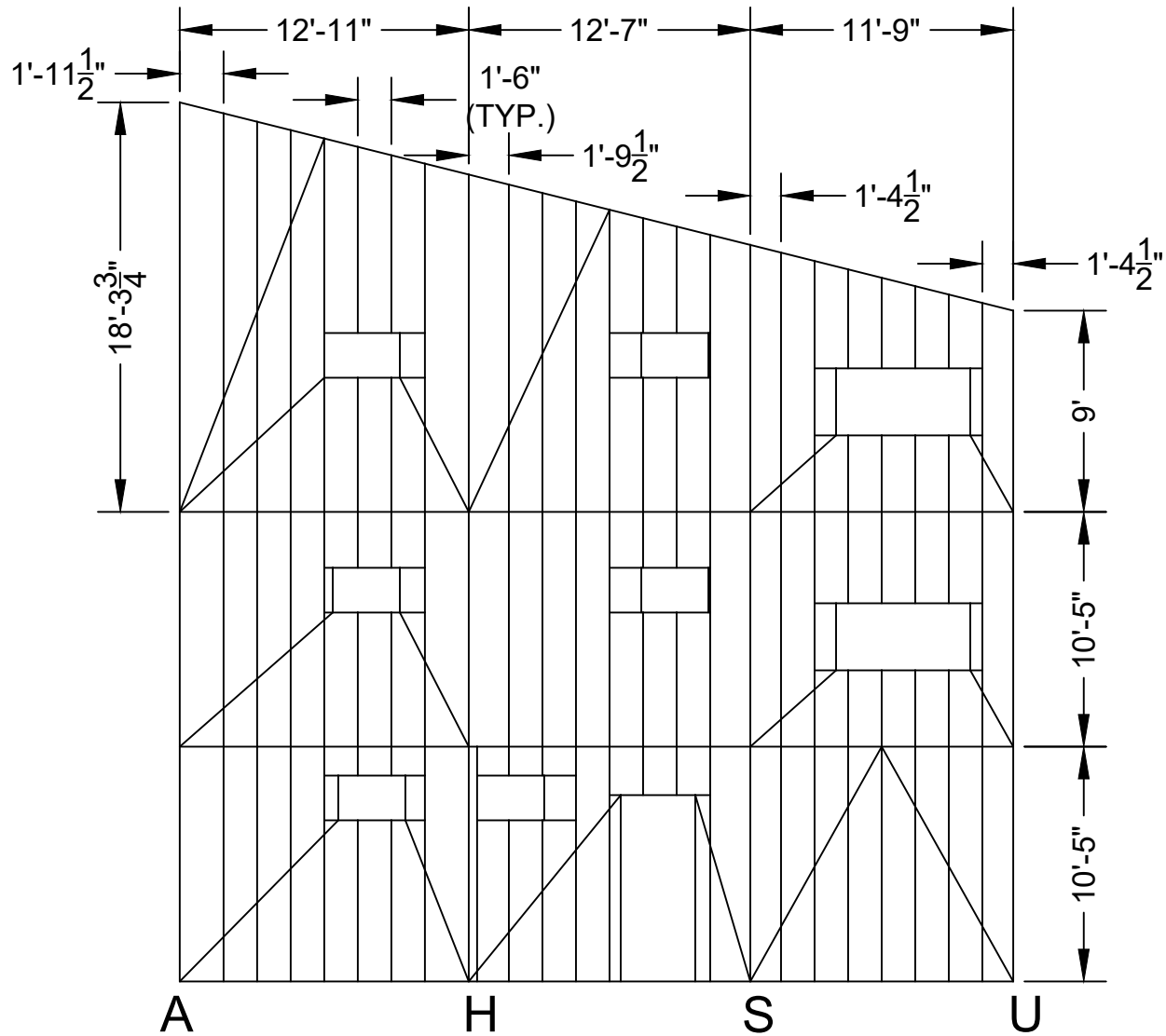
DWG NO:

S-422

PAGE NO: 082

SCALE: N/A

DRAWN BY: J. BONINA



NOTES:

1. FOR LUMBER SIZES FOR STUDS, SEE DWG'S S-432 - S-433.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP

J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

WEST WALL STUD LAYOUT  
OVERVIEW

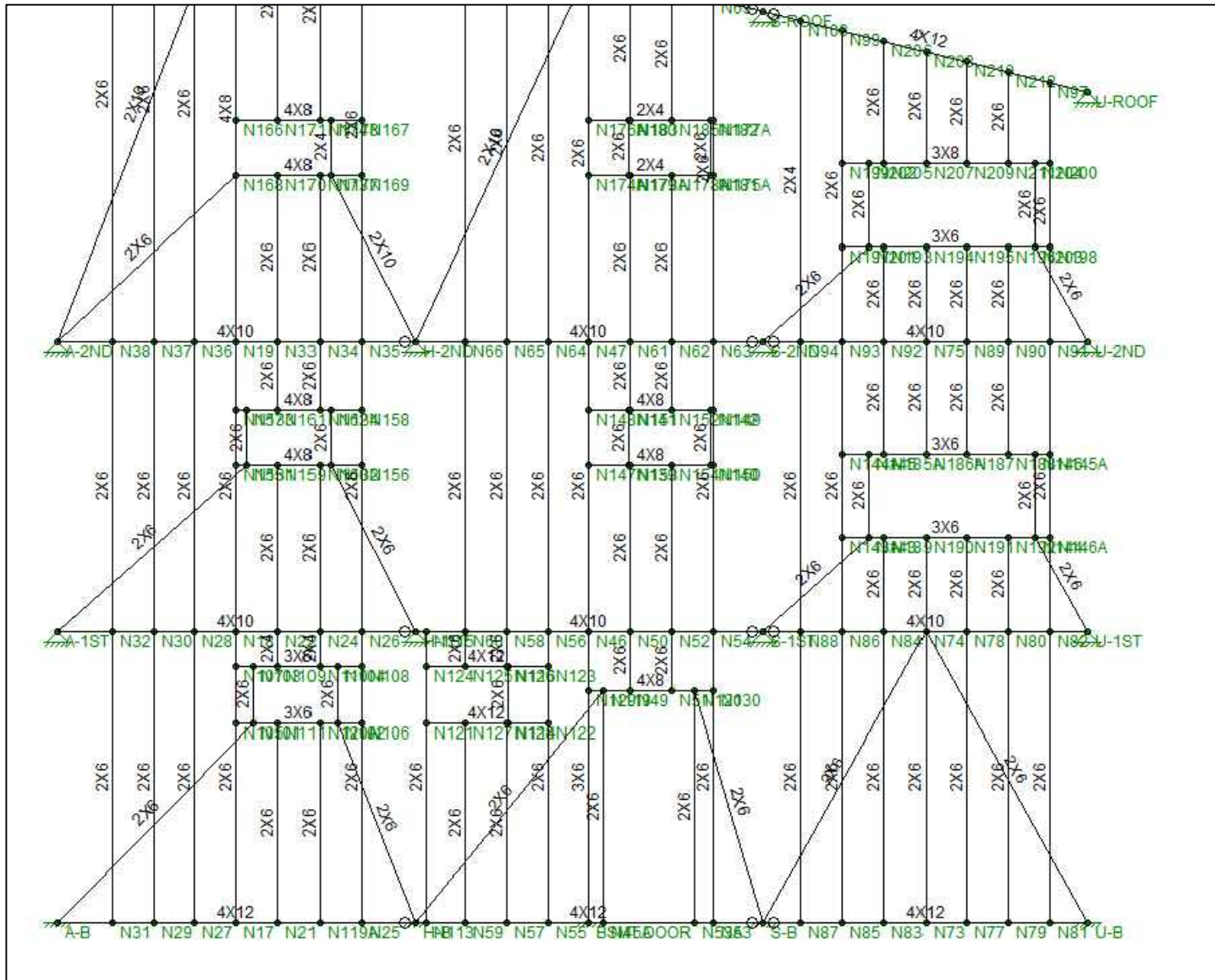
DWG NO:

S-431

PAGE NO: 083

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

DRAWN BY: J. BONINA



NOTES:

1. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

WEST WALL STUD LAYOUT  
 MEMBER SIZES (1 OF 2)

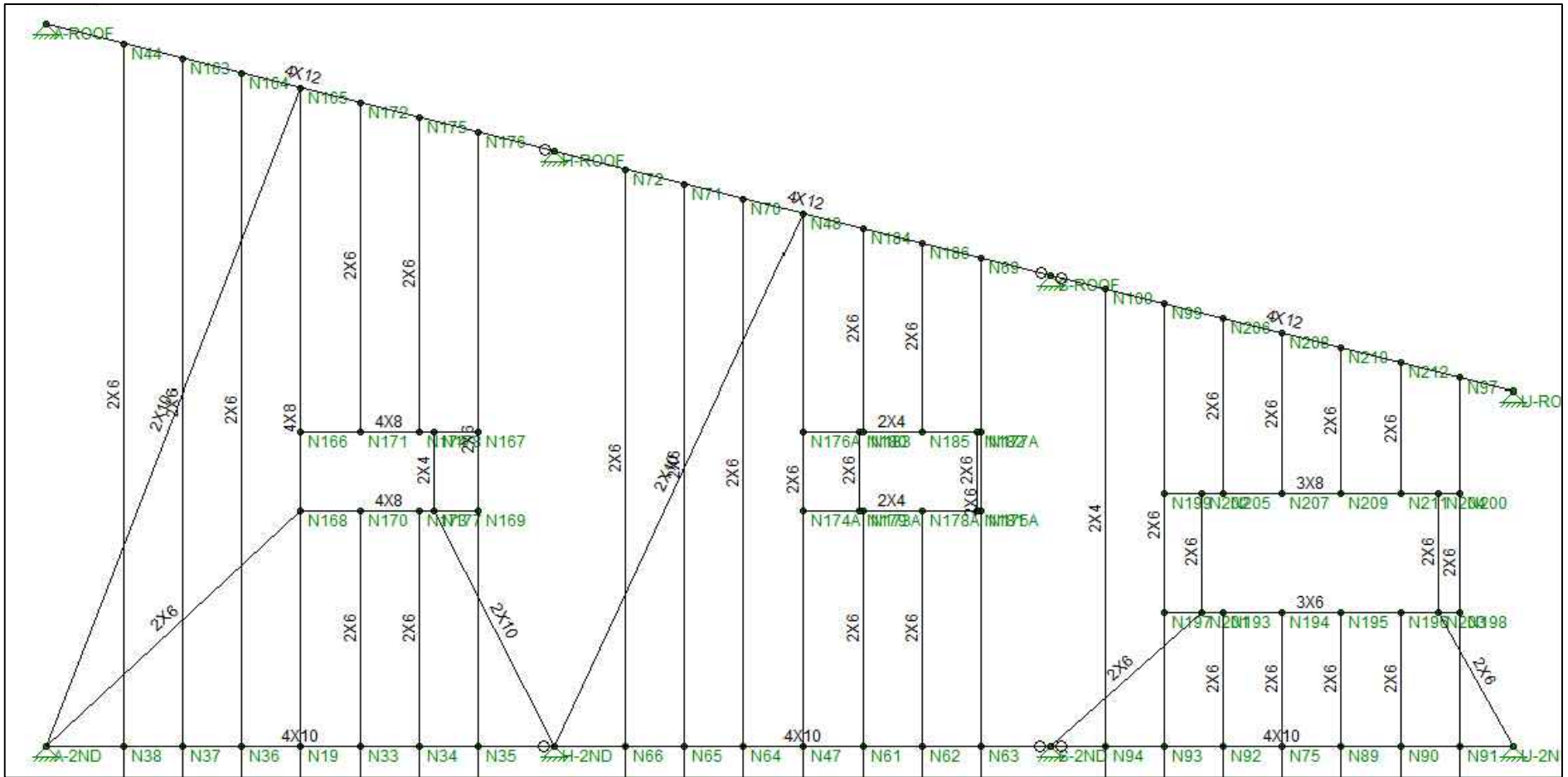
DWG NO:

S-432

PAGE NO: 084

SCALE: N/A

DRAWN BY: J. BONINA



NOTES:

1. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

WEST WALL STUD LAYOUT  
 MEMBER SIZES (2 OF 2)

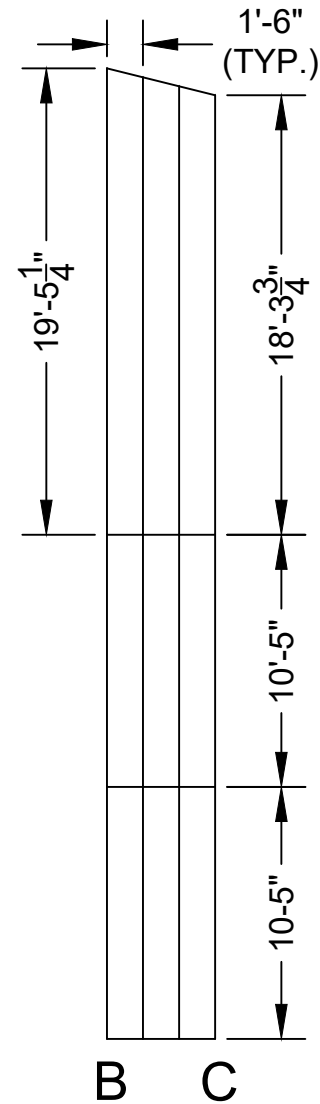
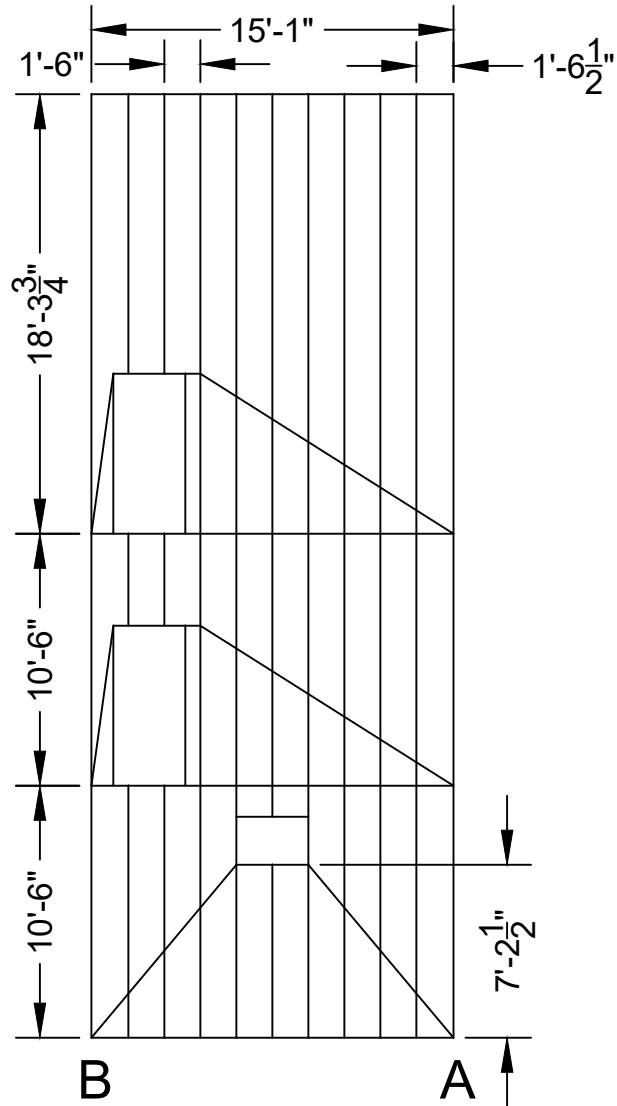
DWG NO:

S-433

PAGE NO: 085

SCALE: N/A

DRAWN BY: J. BONINA



NOTES:

1. FOR LUMBER SIZES FOR STUDS, SEE DWG S-442.
2. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

WEST WALL STUD LAYOUT  
 OVERVIEW

DWG NO:

S-441

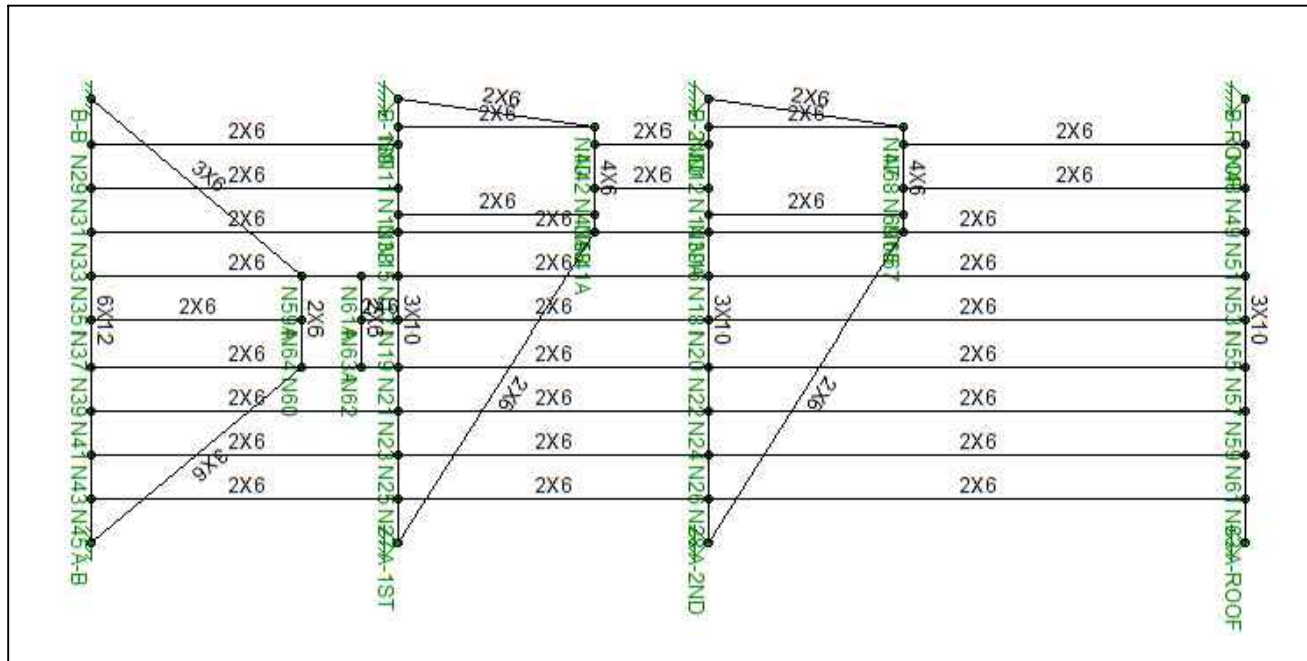
PAGE NO: 086

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

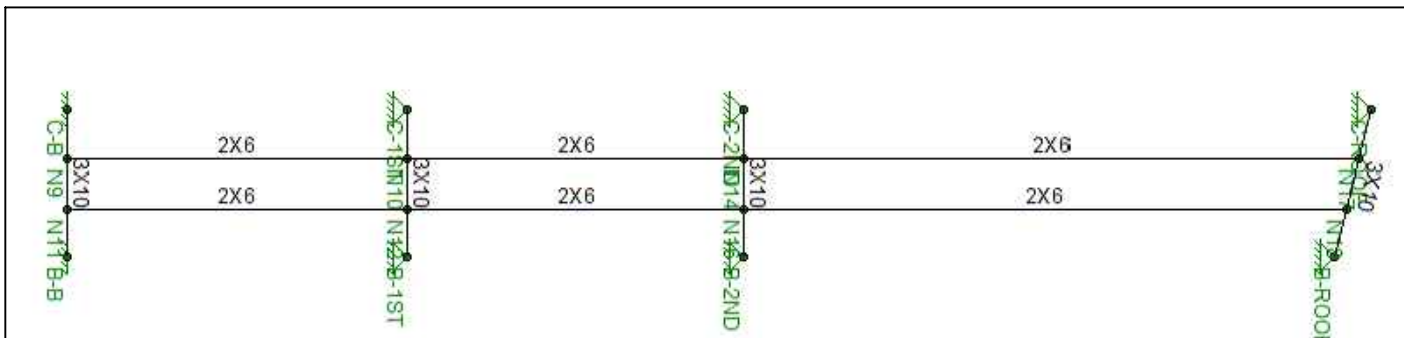
DRAWN BY: J. BONINA



# FRAME AB



# FRAME BC



**NOTES:**

1. FOR PLYWOOD DETAILS AND DETAILS FOR PLYWOOD-TO-STUD CONNECTIONS, SEE DWG'S S-450 - S-459.

53 Wachusett Street Design MQP  
 J. Bonina  
 M. Rabasco  
 J. Rios

DRAWING TITLE

FRAME AB AND BC STUD LAYOUT  
 MEMBER SIZES

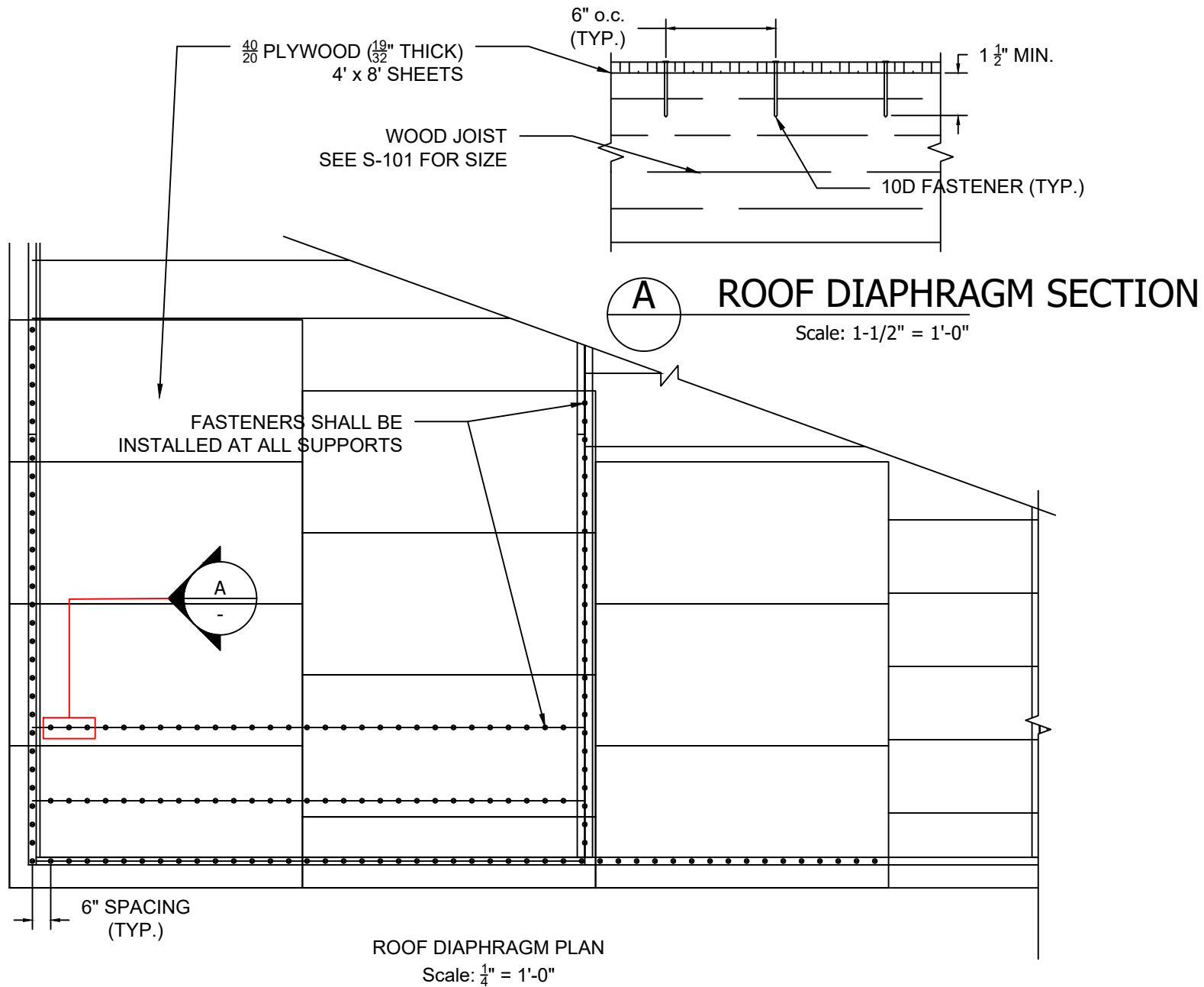
DWG NO:

S-442

PAGE NO: 087

SCALE: N/A

DRAWN BY: J. BONINA



53 Wachusett Street Design MQP  
J. Bonina  
M. Rabasco  
J. Rios

DRAWING TITLE

ROOF DIAPHRAGM  
LAYOUT AND DETAILS

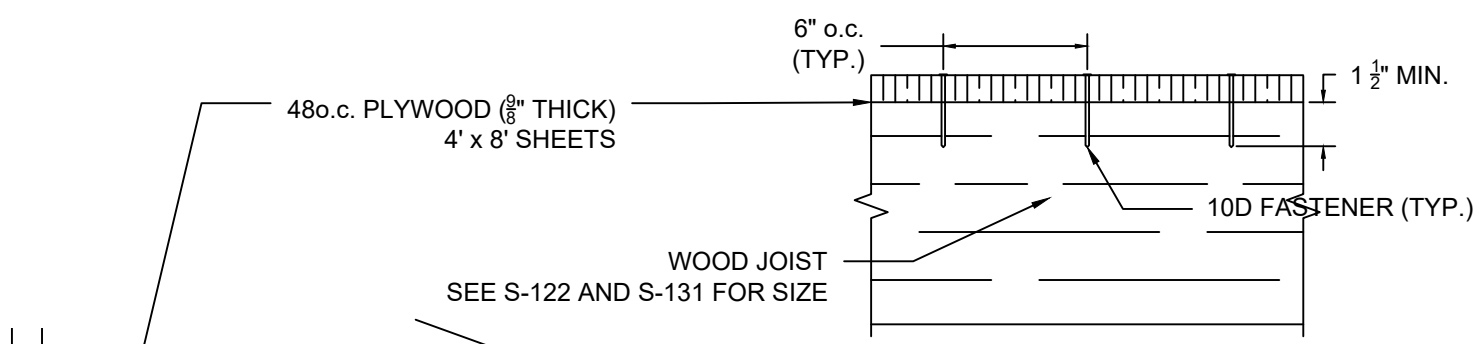
DWG NO:

S-450

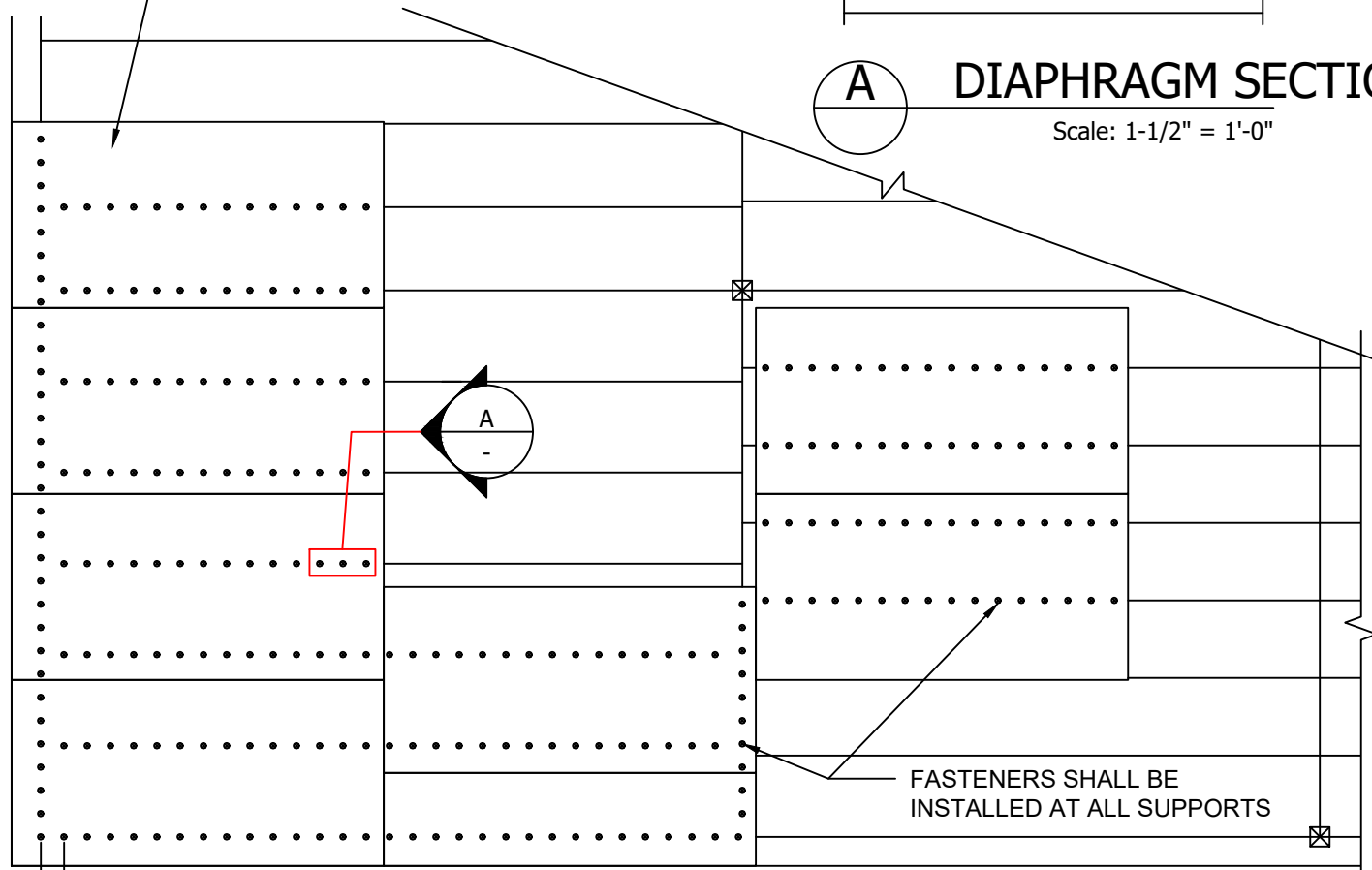
PAGE NO: 088

SCALE: VARIES

DRAWN BY: J. BONINA

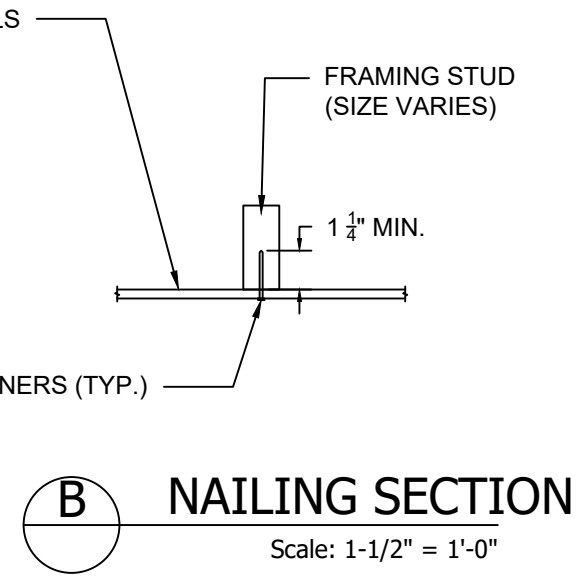
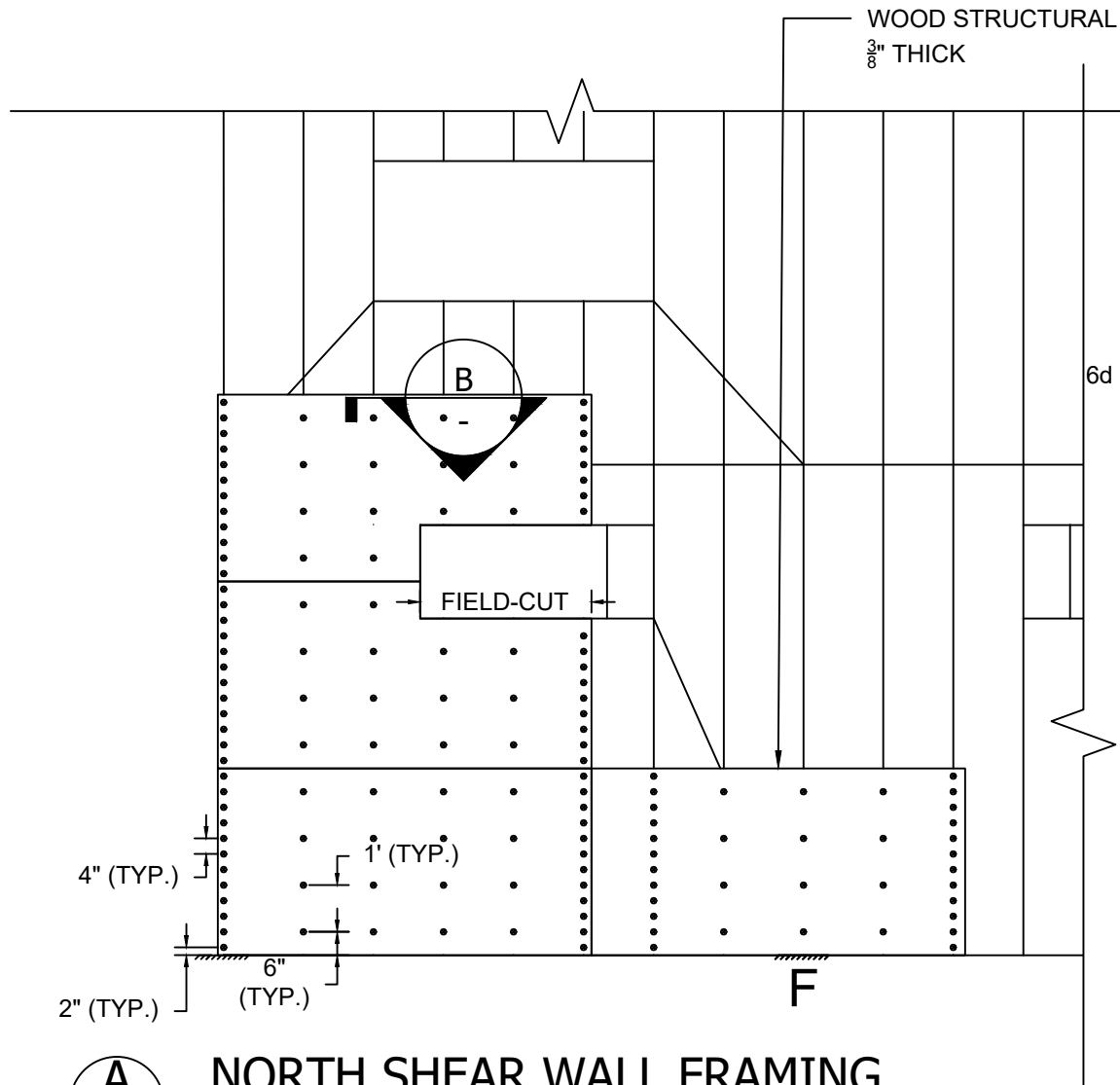


**A** DIAPHRAGM SECTION  
Scale: 1-1/2" = 1'-0"



FIRST AND SECOND FLOOR DIAPHRAGM PLAN  
Scale: 1/4" = 1'-0"

<p>53 Wachusett Street Design MQP J. Bonina M. Rabasco J. Rios</p>	<p>DRAWING TITLE FIRST AND SECOND FLOOR DIAPHRAGM LAYOUT AND DETAILS</p>	<p>DWG NO: <b>S-451</b></p>	<p>PAGE NO: 089 SCALE: VARIES DRAWN BY: J. BONINA</p>
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**A** NORTH SHEAR WALL FRAMING  
 Scale: 1/4" = 1'-0"

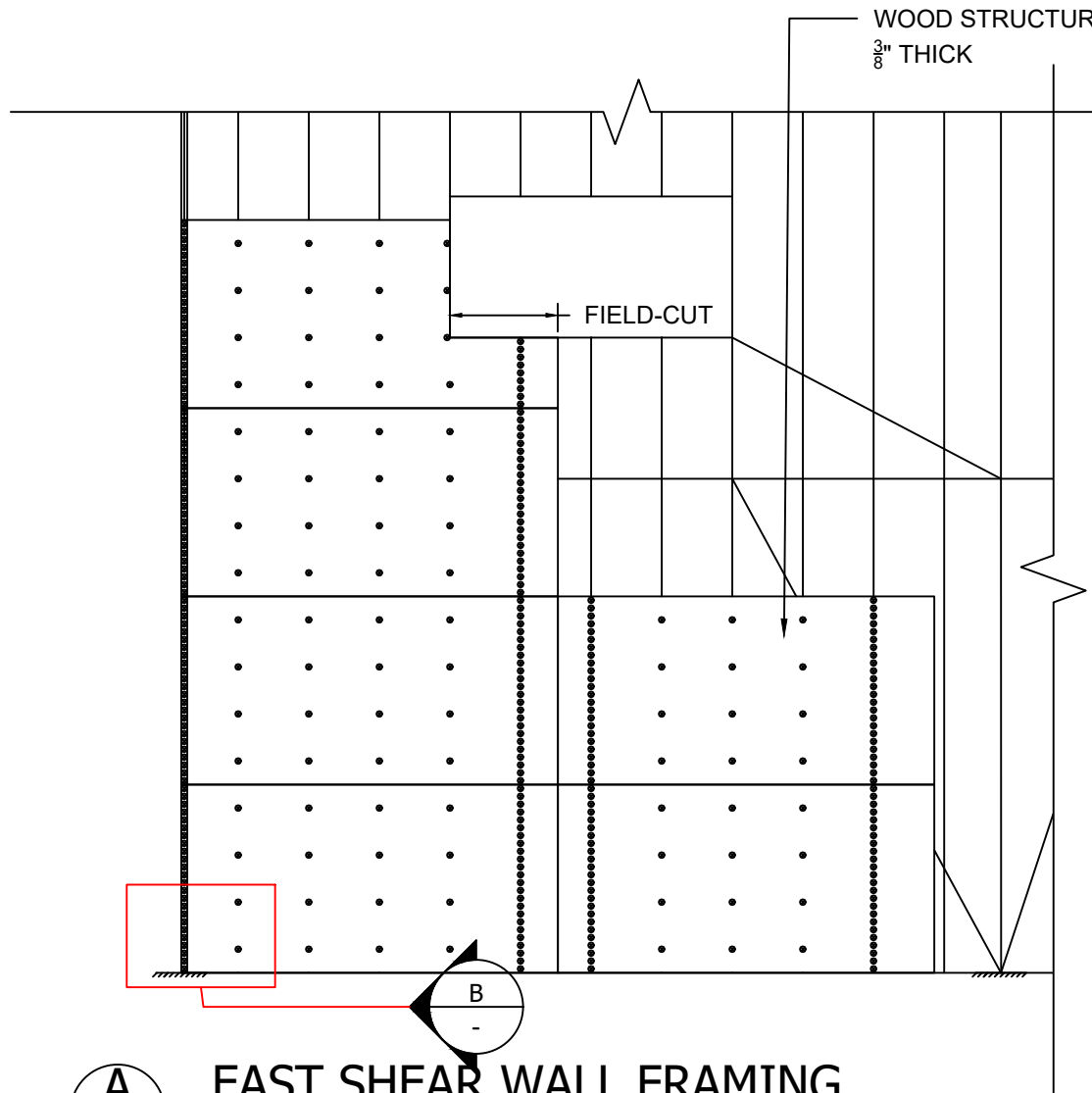
**B** NAILING SECTION  
 Scale: 1-1/2" = 1'-0"

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 M. Rabasco  
 J. Rios

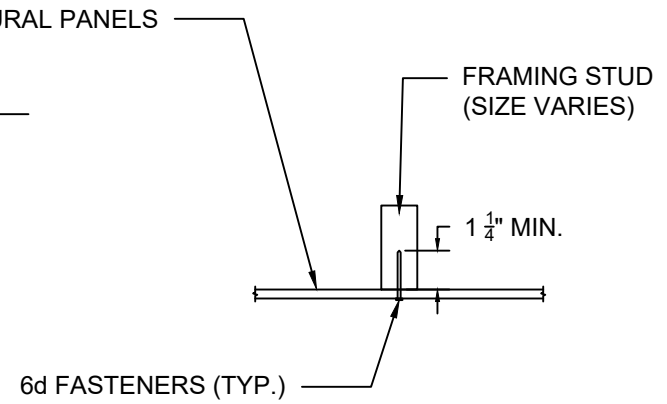
DRAWING TITLE  
 NORTH SHEAR WALL  
 PLAN AND SECTION

DWG NO:  
**S-455**

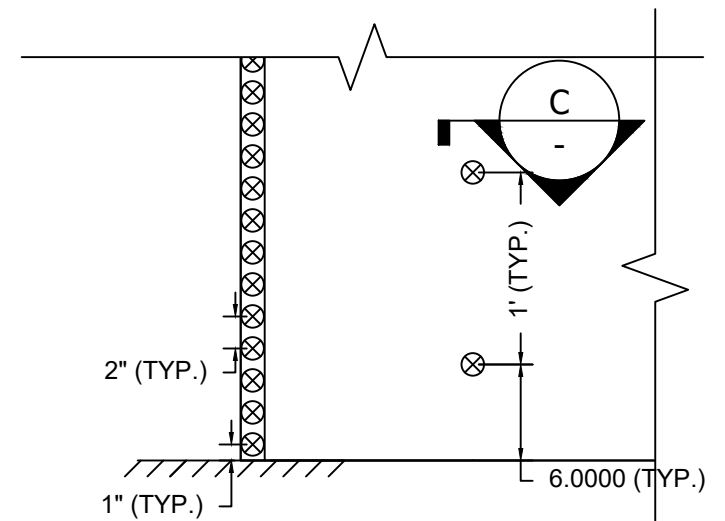
PAGE NO: 090  
 SCALE: VARIES  
 DRAWN BY: J. BONINA



**A** EAST SHEAR WALL FRAMING  
Scale: 1/4" = 1'-0"



**C** FRAMING SECTION (TYP.)  
Scale: 1 1/2" = 1'-0"



**B** FRAMING DETAIL (TYP.)  
Scale: 1" = 1'-0"

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J. Rios

DRAWING TITLE

EAST SHEAR WALL  
PLAN AND SECTION

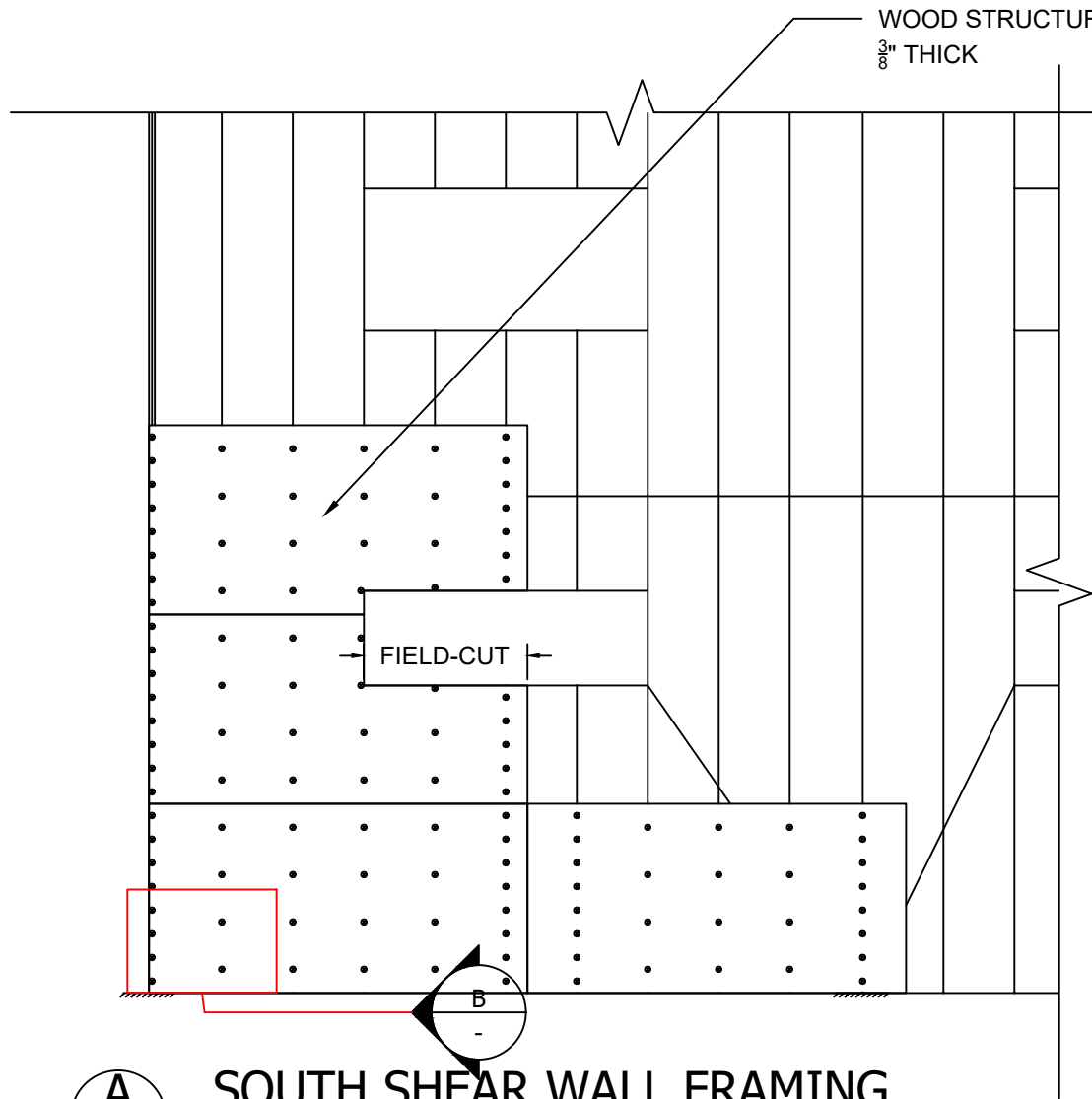
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S-456

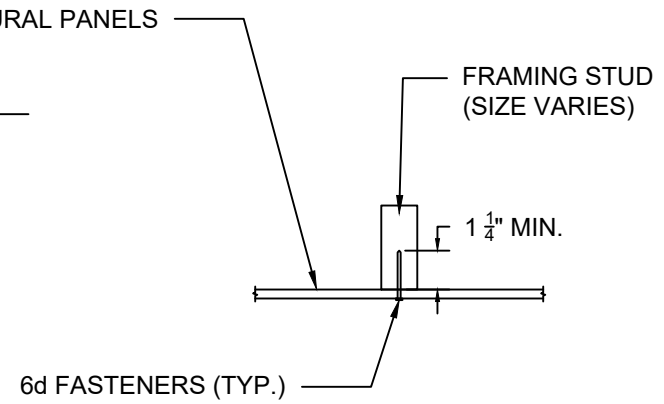
PAGE NO: 091

SCALE: VARIES

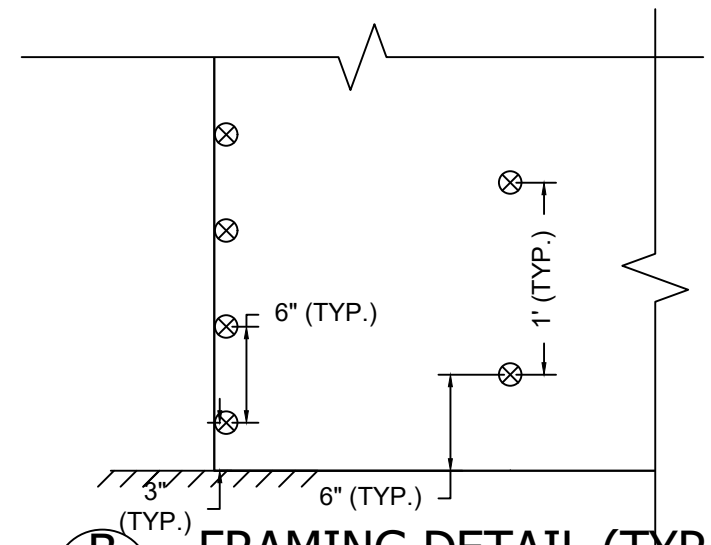
DRAWN BY: J. BONINA



**A** SOUTH SHEAR WALL FRAMING  
Scale: 1/4" = 1'-0"



**C** FRAMING SECTION (TYP.)  
Scale: 1 1/2" = 1'-0"



**B** FRAMING DETAIL (TYP.)  
Scale: 1" = 1'-0"

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DRAWING TITLE

SOUTH SHEAR WALL  
PLAN AND SECTION

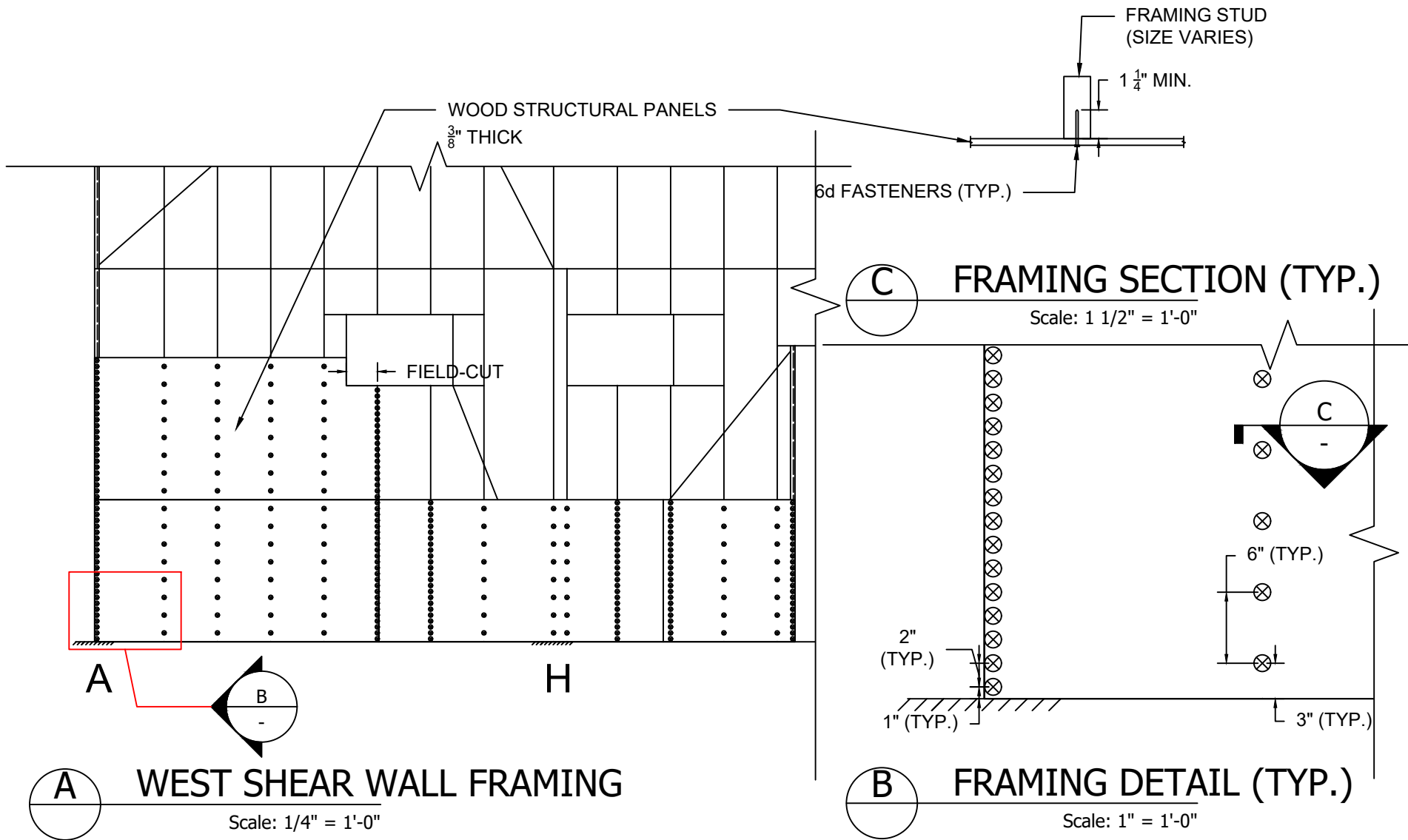
DWG NO:

S-457

PAGE NO: 092

SCALE: VARIES

DRAWN BY: J. BONINA



**A** WEST SHEAR WALL FRAMING  
Scale: 1/4" = 1'-0"

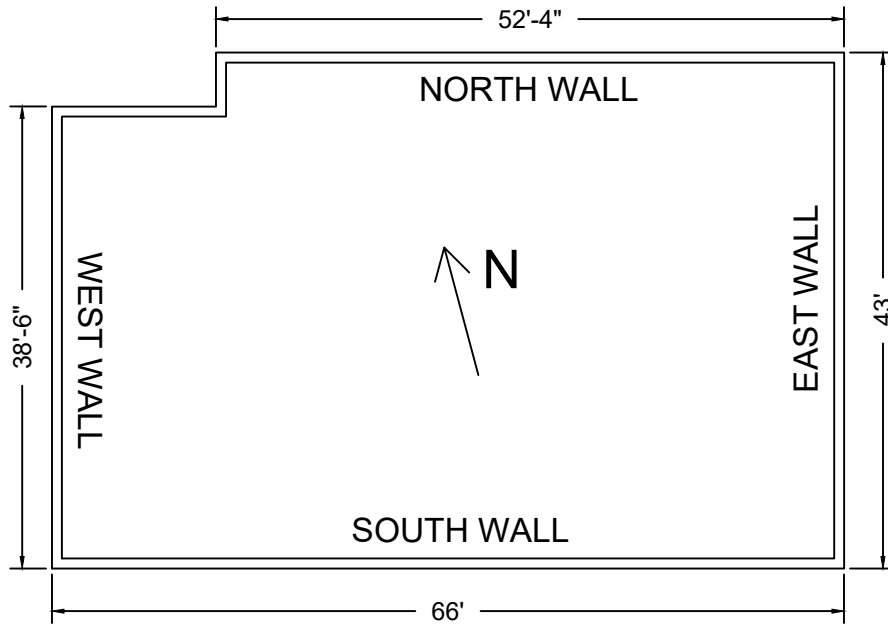
**B** FRAMING DETAIL (TYP.)  
Scale: 1" = 1'-0"

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DRAWING TITLE  
WEST SHEAR WALL  
PLAN AND SECTION

DWG NO:  
**S-458**

PAGE NO: 093  
SCALE: VARIES  
DRAWN BY: J. BONINA



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M. Rabasco  
J. Rios

DRAWING TITLE

DIAPHRAGM DIMENSIONS

DWG NO:

**S-459**

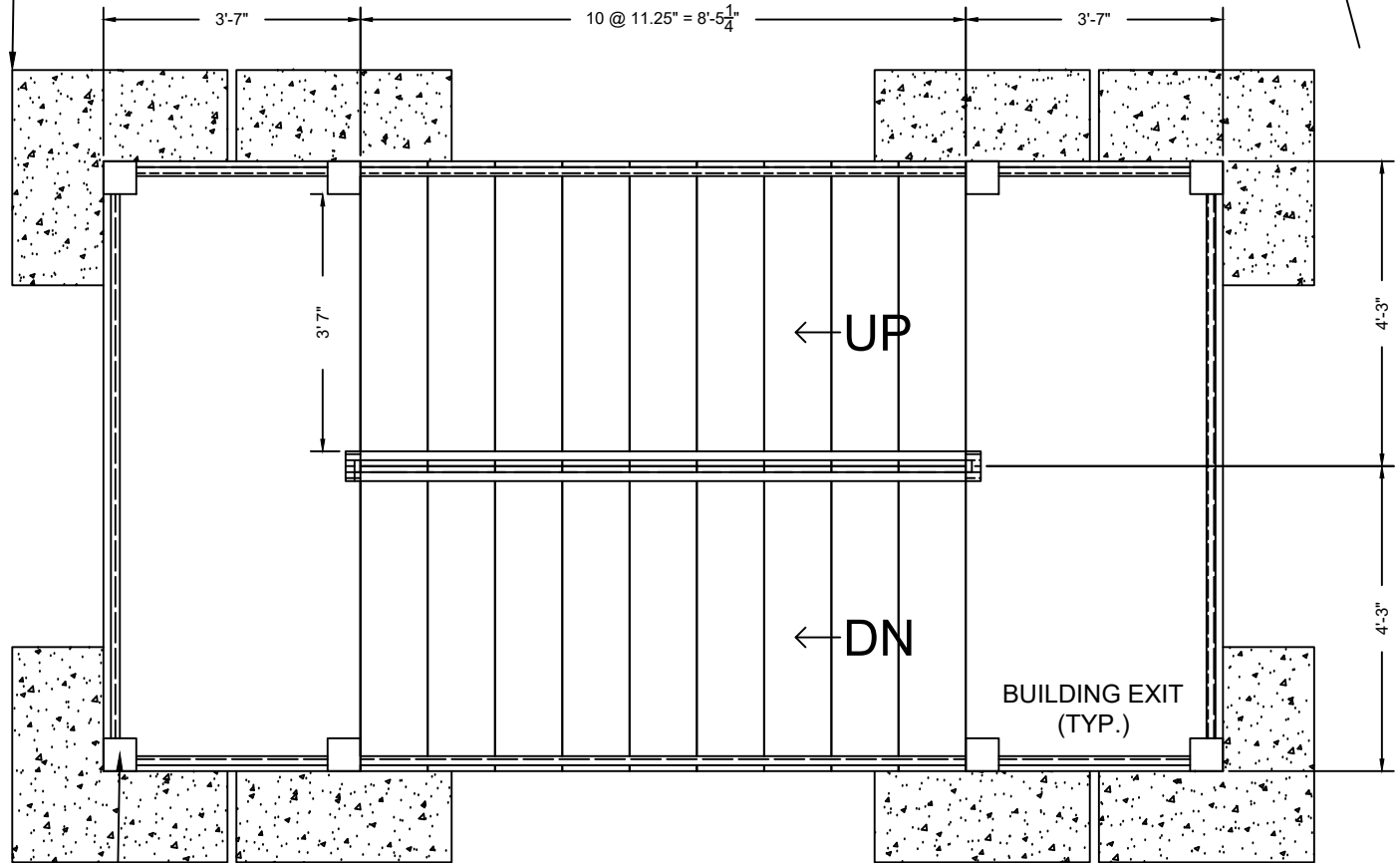
PAGE NO: 094

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

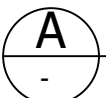
DRAWN BY: J. BONINA



36" W x 12" H  
SPREAD FOOTING FOUNDATION  
SEE DWG. S-503



6 x 6 COLUMN  
No. 1 SOUTHERN PINE  
(TYP.)



# TYPICAL FIRE ESCAPE PLAN

Scale: 3/8" = 1'-0"

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M. Rabasco  
J. Rios

DRAWING TITLE

FIRE ESCAPE  
TYPICAL PLAN

DWG NO:

S-501

PAGE NO: 095

SCALE: 3/8" = 1'-0"

DRAWN BY: J. BONINA

2 x 6 STRINGER  
AT LANDING (TYP.)  
No. 1 MIXED  
SOUTHERN PINE

3 x 10 STRINGER  
ALONG RISING SECTIONS (TYP.)  
No. 1 MIXED SOUTHERN PINE

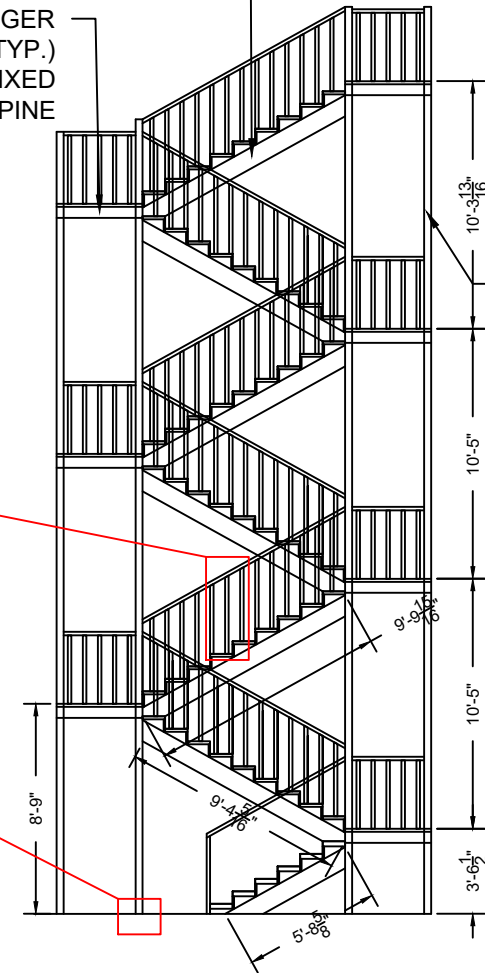
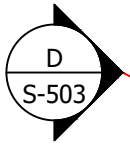
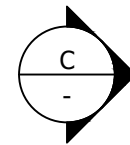
2 x 6 STRINGER  
AT LANDING (TYP.)  
No. 1 MIXED  
SOUTHERN PINE

1.5" x 1.75"  
No. 3 MIXED SOUTHERN PINE  
(TYP.)

6 x 6 COLUMN  
No. 1 MIXED SOUTHERN  
PINE (TYP.)

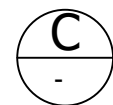
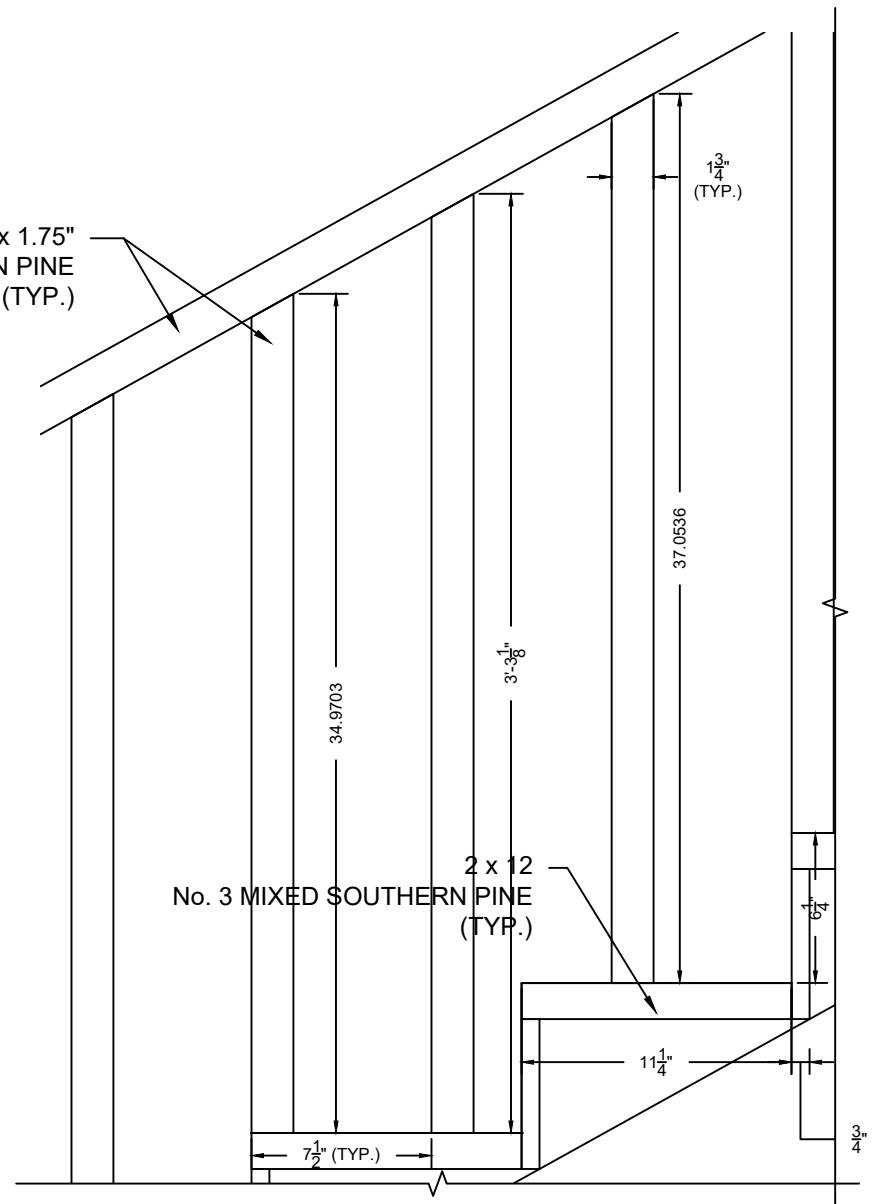
No. 3 MIXED SOUTHERN PINE  
(TYP.)

2 x 12  
(TYP.)



### B ELEVATION OVERVIEW

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



### C ELEVATION DETAILS

Scale: 1-1/2" = 1' - 0"

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J. Rios

DRAWING TITLE

FIRE ESCAPE  
ELEVATION

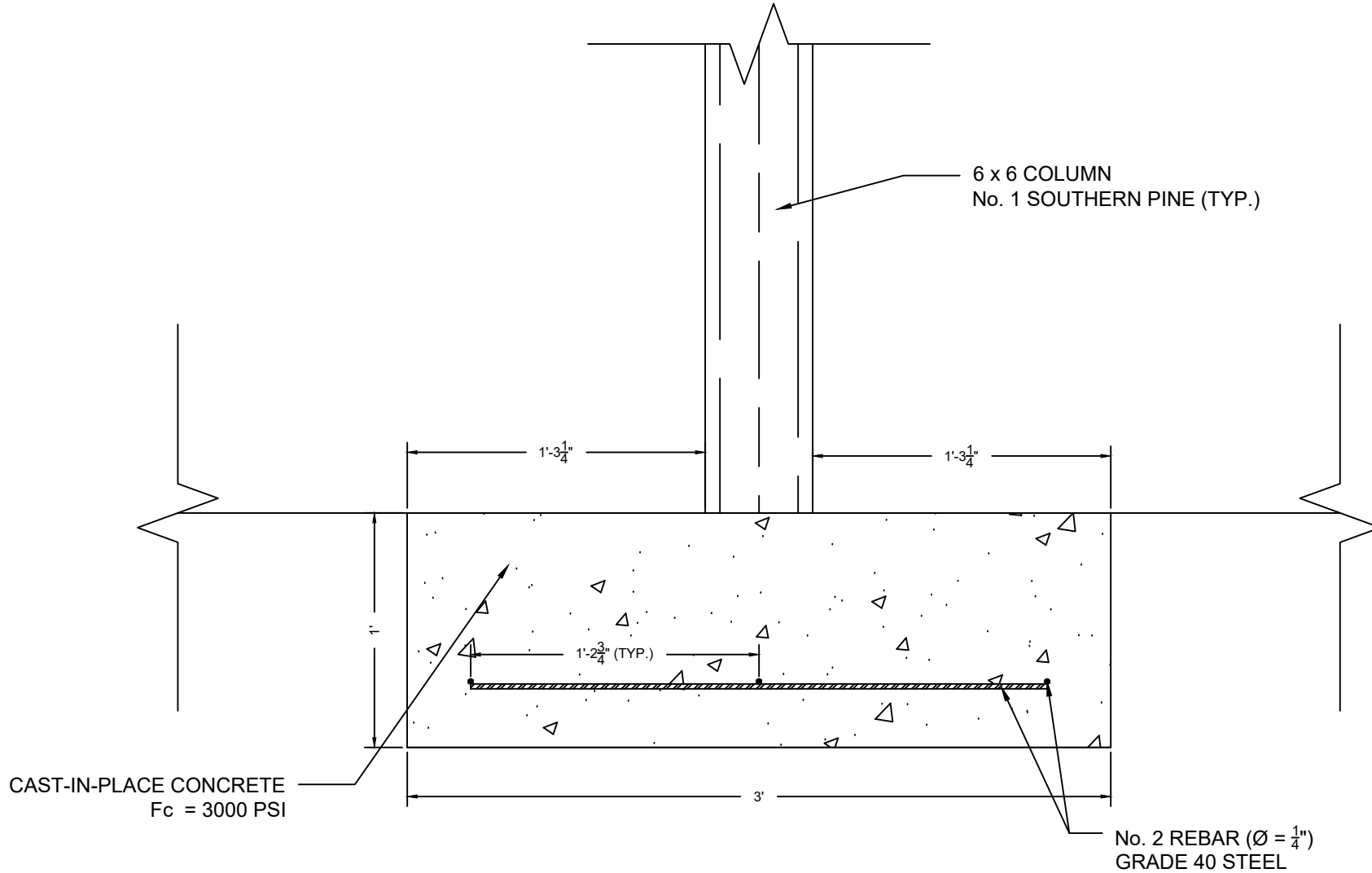
DWG NO:

S-502

PAGE NO: 096

SCALE: AS SHOWN

DRAWN BY: J. BONINA



**D**  
S-502

# FIRE ESCAPE FOOTINGS

Scale: 1 1/2" = 1'-0"

53 Wachusett Street Design MQP  
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M. Rabasco  
J. Rios

DRAWING TITLE

FIRE ESCAPE  
FOOTING SECTION

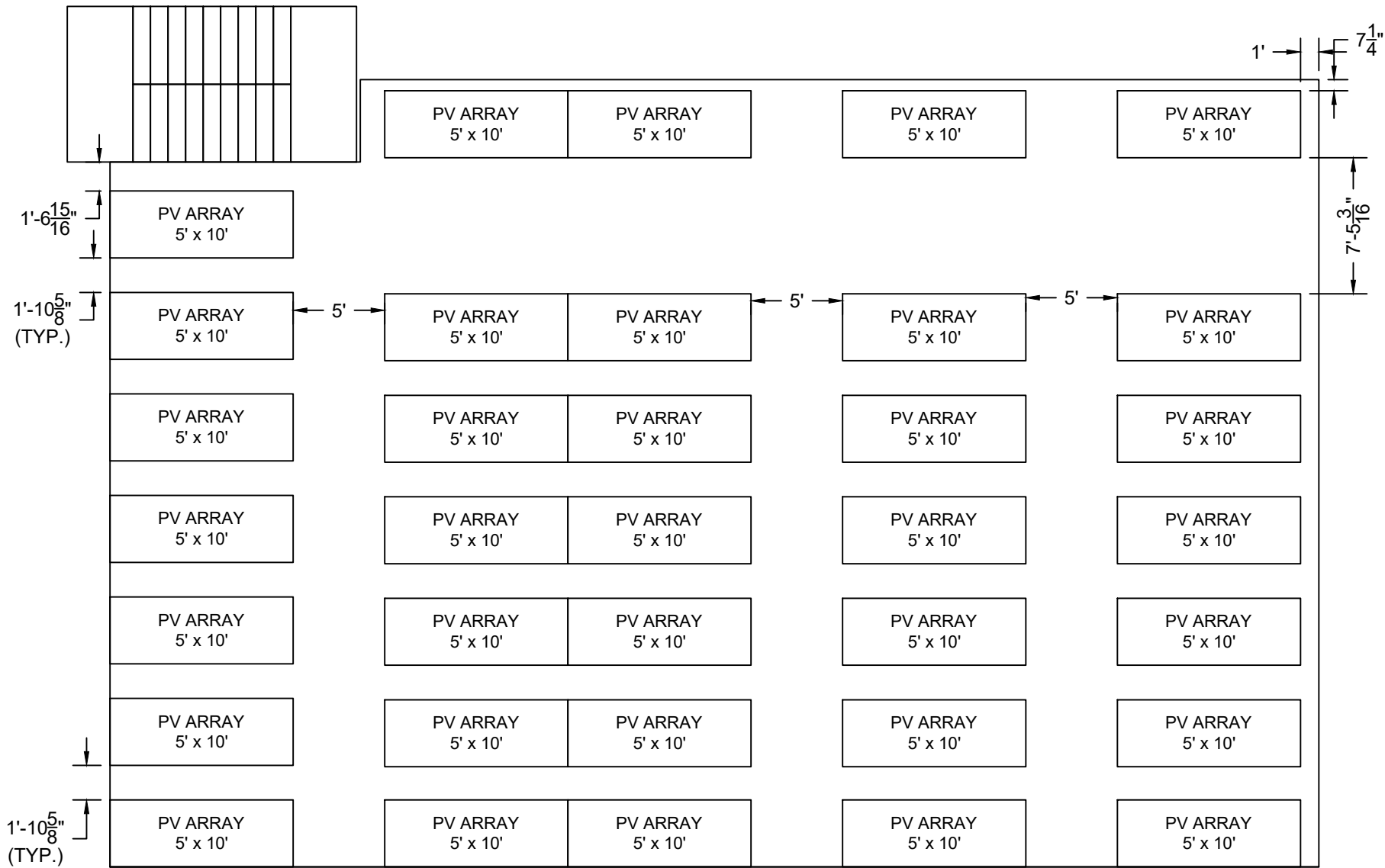
DWG NO:

**S-503**

PAGE NO: 097

SCALE: 1 1/2" = 1'-0"

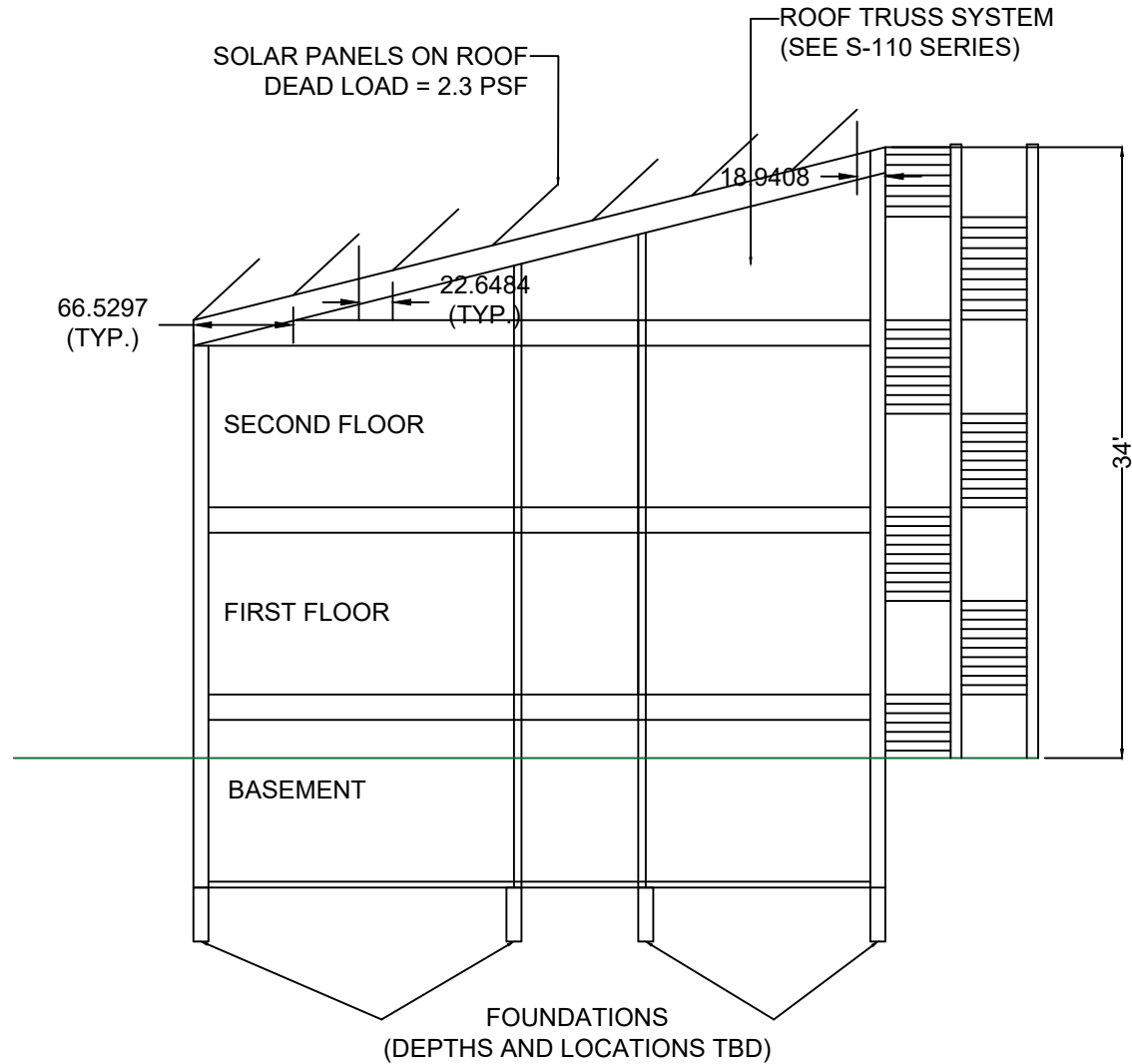
DRAWN BY: J. BONINA



NOTE: ALL PLAN DIMENSIONS SHOWN SHALL BE MEASURED IN A HORIZONTAL PLANE. THE ROOF HAS A 15° SLOPE.

<p>53 Wachusett Street Design MQP          J. Bonina          M. Rabasco          J. Rios</p>	<p>DRAWING TITLE          PV SOLAR PANEL PLAN</p>	<p>DWG NO:          E-001</p>	<p>PAGE NO: 098          SCALE: 1/8" = 1'-0"          DRAWN BY: J. BONINA</p>
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TOTAL SOLAR PANELS:  
 35 x 5' x 10' PV SOLAR ARRAY  
 TOTAL COVERAGE = 1750 SF



**A**  
 E-001

**SOLAR PANEL SECTION AT WEST BLDG. END**

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

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 M. Rabasco  
 J. Rios

DRAWING TITLE

PV SOLAR PANEL SECTION 1

DWG NO:

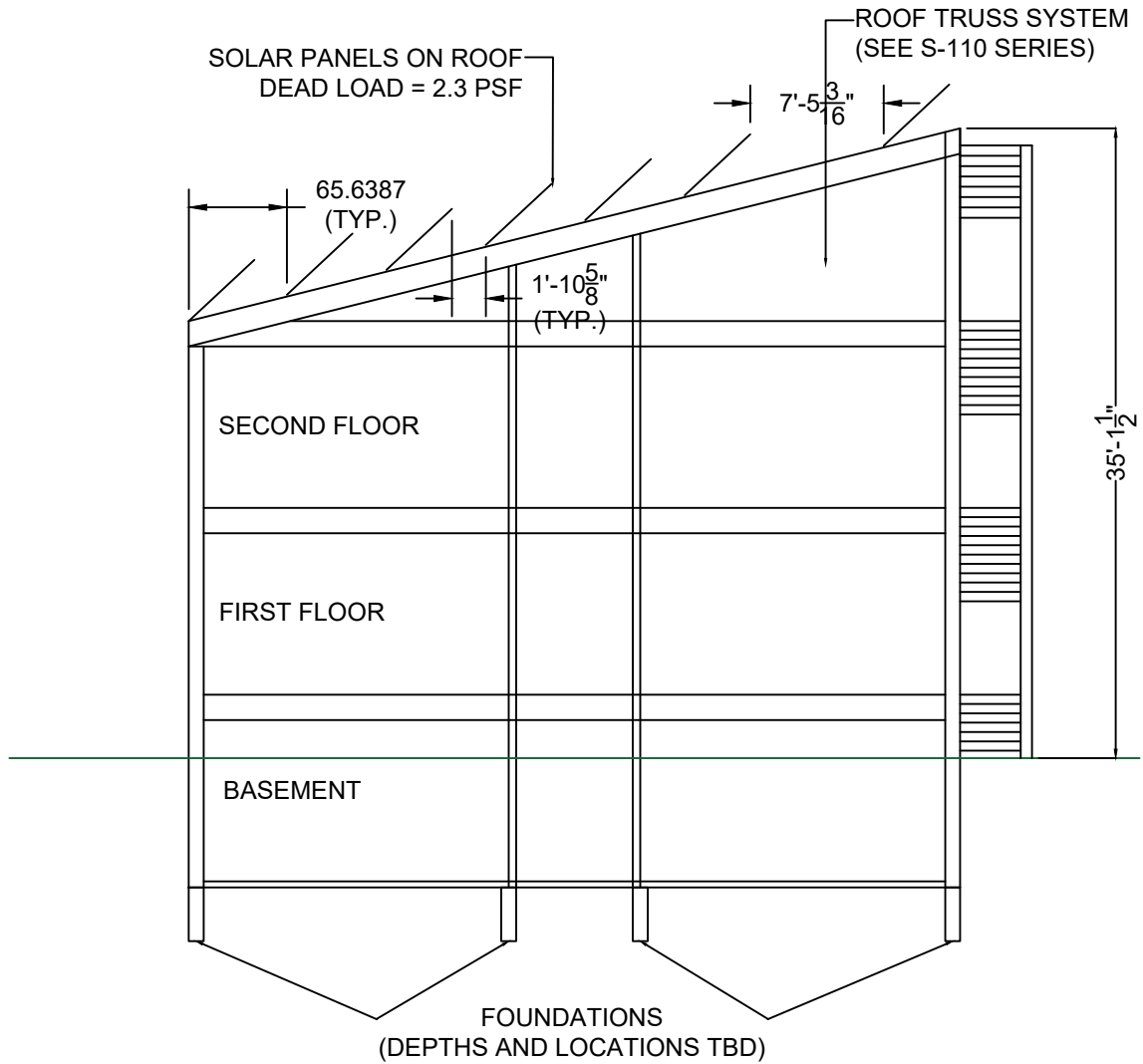
**E-002**

PAGE NO: 099

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

DRAWN BY: J. BONINA

TOTAL SOLAR PANELS:  
 35 x 5' x 10' PV SOLAR ARRAY  
 TOTAL COVERAGE = 1750 SF



**B**  
 E-001

**TYPICAL SOLAR PANEL SECTION**

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

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 M. Rabasco  
 J. Rios

DRAWING TITLE

PV SOLAR PANEL SECTION 2

DWG NO:

**E-003**

PAGE NO: 100

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

DRAWN BY: J. BONINA

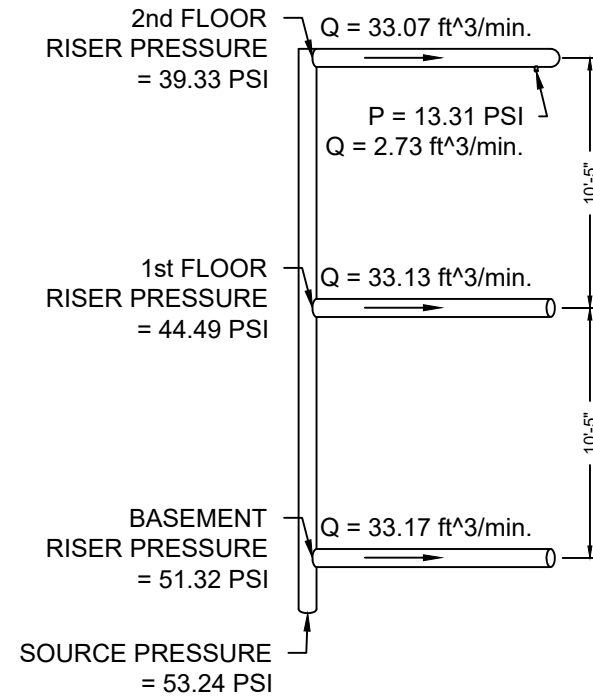
**NOTES:**

1. THE FOLLOWING MODELS SHALL BE USED FOR EACH COMPONENT:

COMPONENT	MODEL
SPRINKLER	Viking VK102
HORIZONTAL PIPE	COPPER, 2" DIAM.
VERTICAL PIPE	COPPER, 3" DIAM.

- 2. A TOTAL OF 22.96 LF OF VERTICAL PIPE IS NECESSARY FOR THIS PROJECT.
- 3. NECESSARY PIPING QUANTITIES FOR THE HORIZONTAL PIPE ARE SHOWN BELOW:

PIPING QUANTITIES			
Count	Name	d1	Total Length (LF)
6	Horizontal Pipe	8'-0 9/32"	48'-1 11/16"
4	Horizontal Pipe	12'-2"	48'-8"
4	Horizontal Pipe	12'-5"	49'-8"
3	Horizontal Pipe	14'-8"	44'-0"
3	Horizontal Pipe	1'-8"	5'-0"
3	Horizontal Pipe	5'-11 1/2"	17'-10 1/2"
3	Horizontal Pipe	4'-7 5/32"	13'-9 15/32"
3	Horizontal Pipe	22'-3"	66'-9"
3	Horizontal Pipe	52'-0 25/32"	156'-2 11/32"
3	Horizontal Pipe	24'-8"	74'-0"
2	Horizontal Pipe	24'-7"	49'-2"
1	Horizontal Pipe	12'-5 1/16"	12'-5 1/16"
			585'-8 1/32"



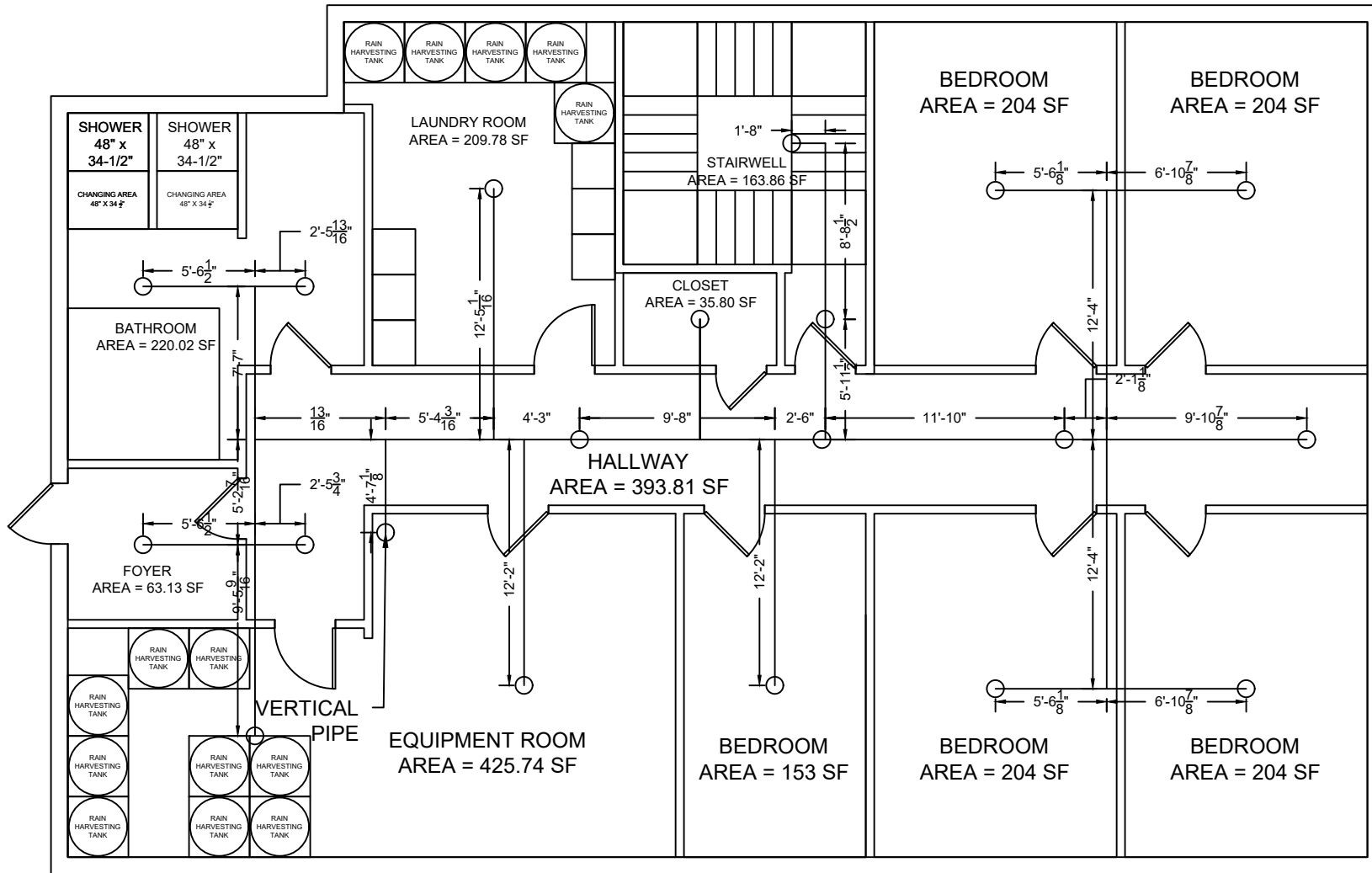
DESIGN PRESSURES

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 M. Rabasco  
 J. Rios

DRAWING TITLE  
 GENERAL FIRE PROTECTION NOTES

DWG NO:  
 FP-000

PAGE NO: 101  
 SCALE: N/A  
 DRAWN BY: J. BONINA



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M. Rabasco  
J. Rios

DRAWING TITLE

BASEMENT SPRINKLER LAYOUT

DWG NO:

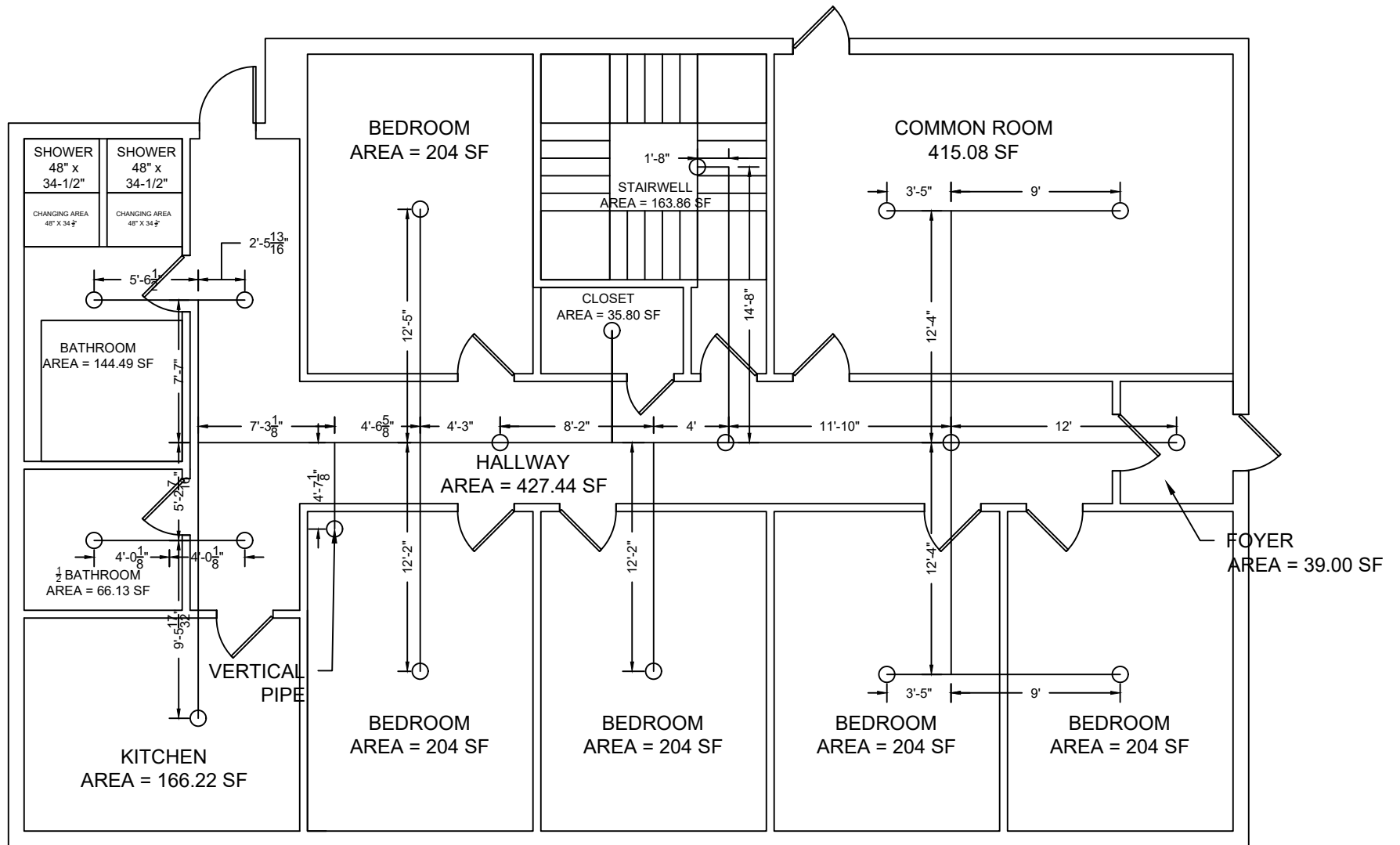
FP-001

PAGE NO: 102

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

DRAWN BY: J. RIOS





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M. Rabasco  
J. Rios

DRAWING TITLE

FIRST FLOOR SPRINKLER LAYOUT

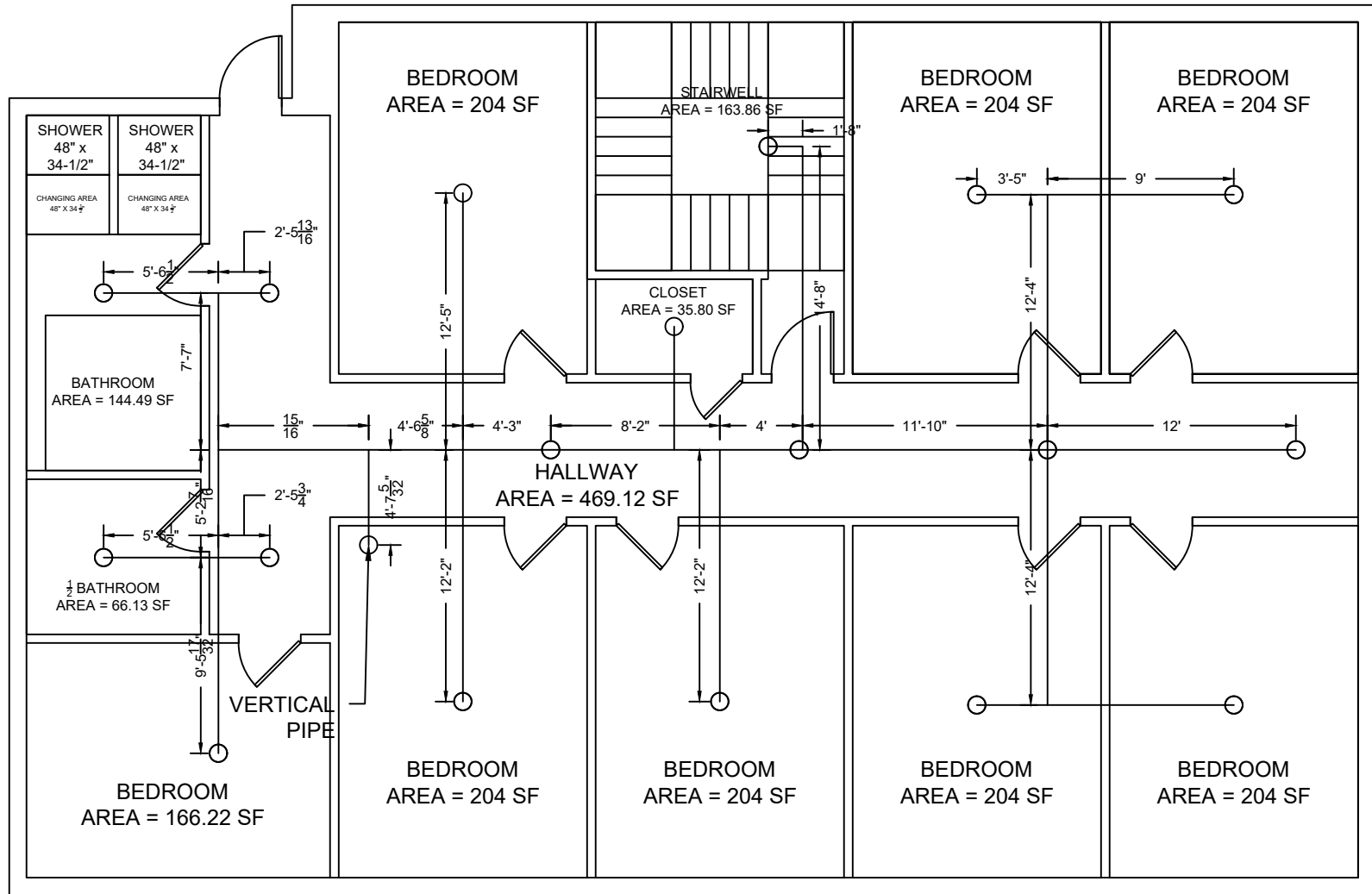
DWG NO:

FP-002

PAGE NO: 103

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

DRAWN BY: J. RIOS



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M. Rabasco  
J. Rios

DRAWING TITLE

SECOND FLOOR SPRINKLER LAYOUT

DWG NO:

FP-003

PAGE NO: 104

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

DRAWN BY: J. RIOS