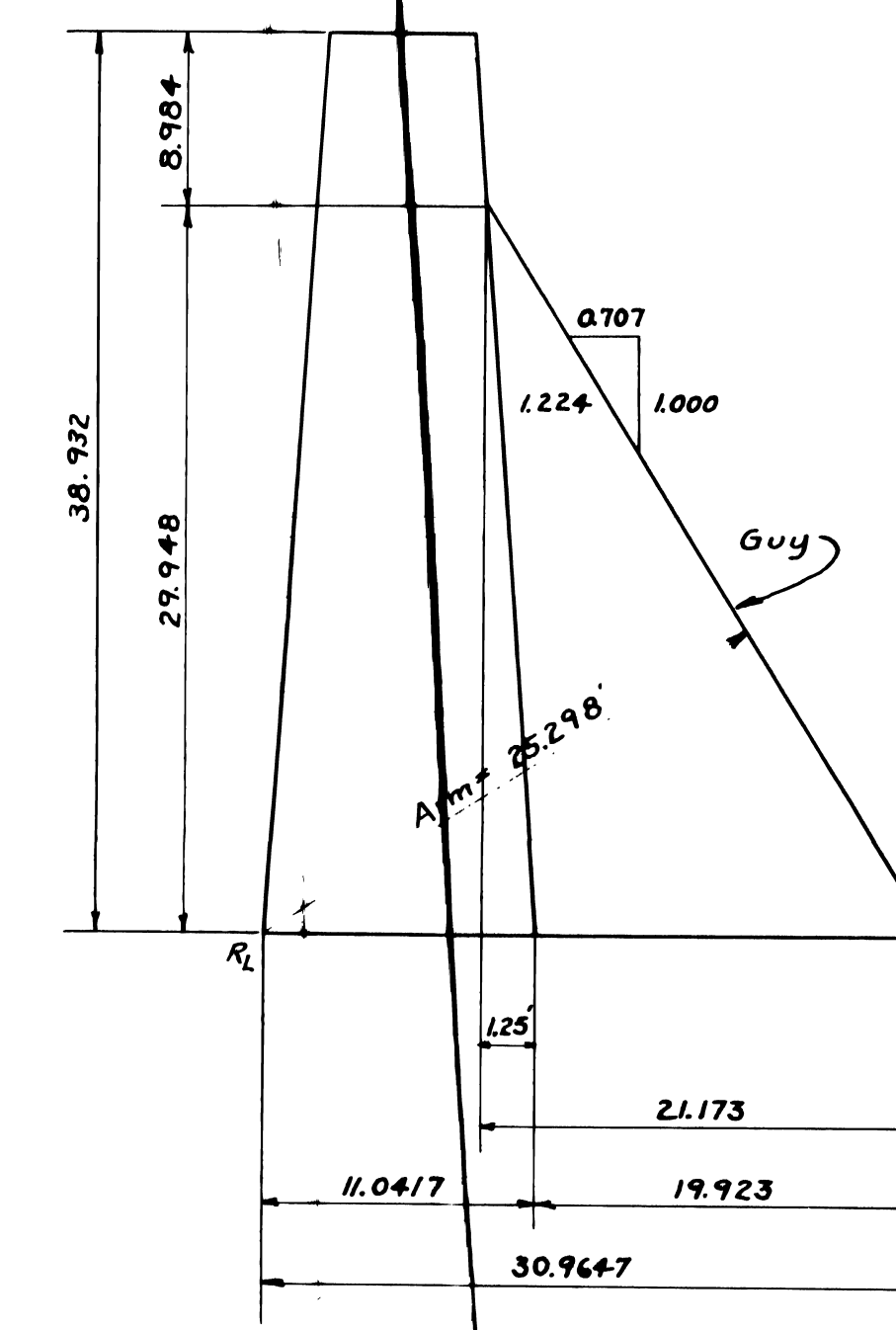


SPACE DIAGRAM
Scale: 1/2" = 1'-0"



CALCULATION OF GUY REACTION

$$\frac{113791}{12} = 0.9983$$

$$(39)(0.9983) = 38.932$$

$$(9)(0.9983) = 8.984$$

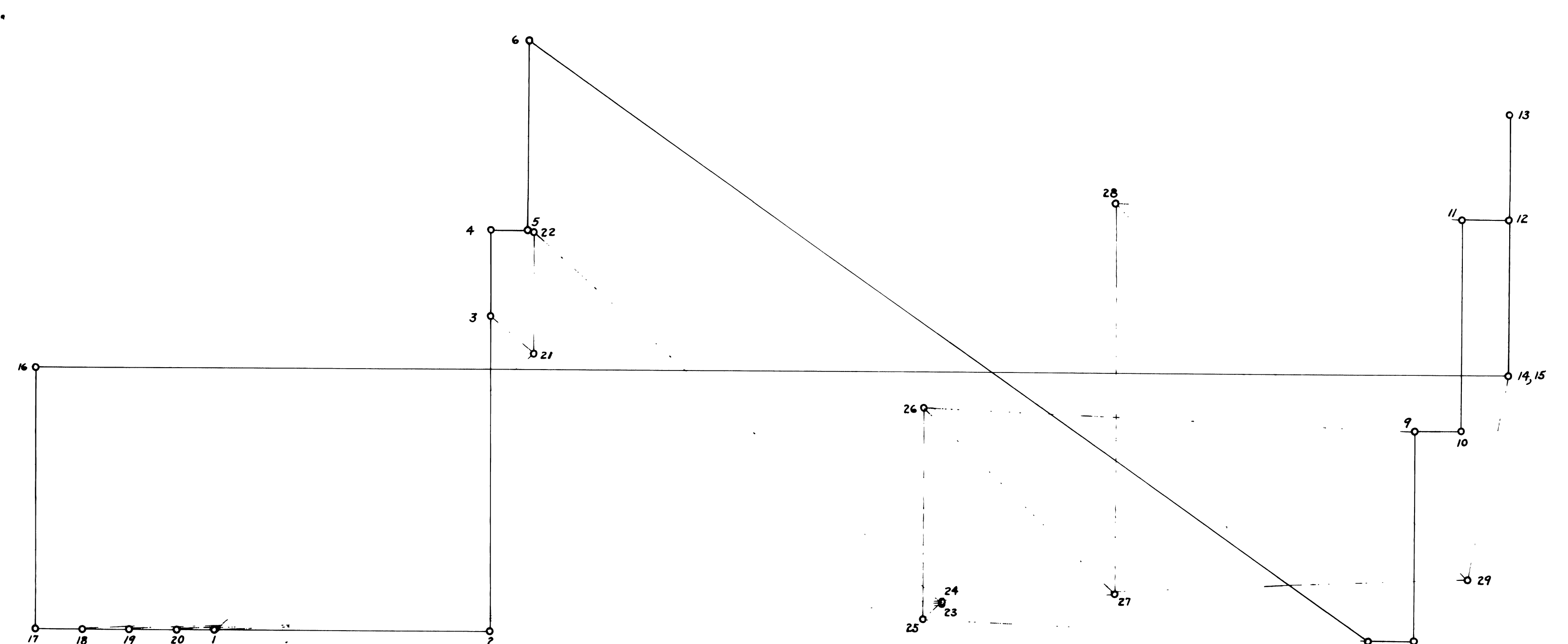
$$\frac{29948}{x} = \frac{0.707}{x}$$

$$x = (29.948)(0.707) = 21.173$$

$$\text{Arm} = \frac{30964.7}{2.224} = 25.298'$$

By $\Sigma M_R = 0$

$(7)(25.3) + (1500)(0.92)$	$+ (254)(0.42) = 106.68$	$= (1155)(9.78) = 11,526.9$
$(254)(0.83) = 210.82$	$= (1141)(19.97) = 22,785.77$	
$(207)(1.25) = 258.75$	$= (1035)(29.95) = 30,998.25$	
$(207)(9.77) = 2026.53$	$= (471)(38.93) = 18,336.03$	
$(254)(0.21) = 259.34$	$= (1718)(43.43) = 74,612.74$	
$(254)(10.63) = 2700.02$		
$(7)(25.3) + 8280$	$+ 7896.14 = 158,259.69$	
	$(7)(25.3) = 158,259.69 - 16,176.14$	
	$T = \frac{142,083.55}{2.53} = 5616'$	



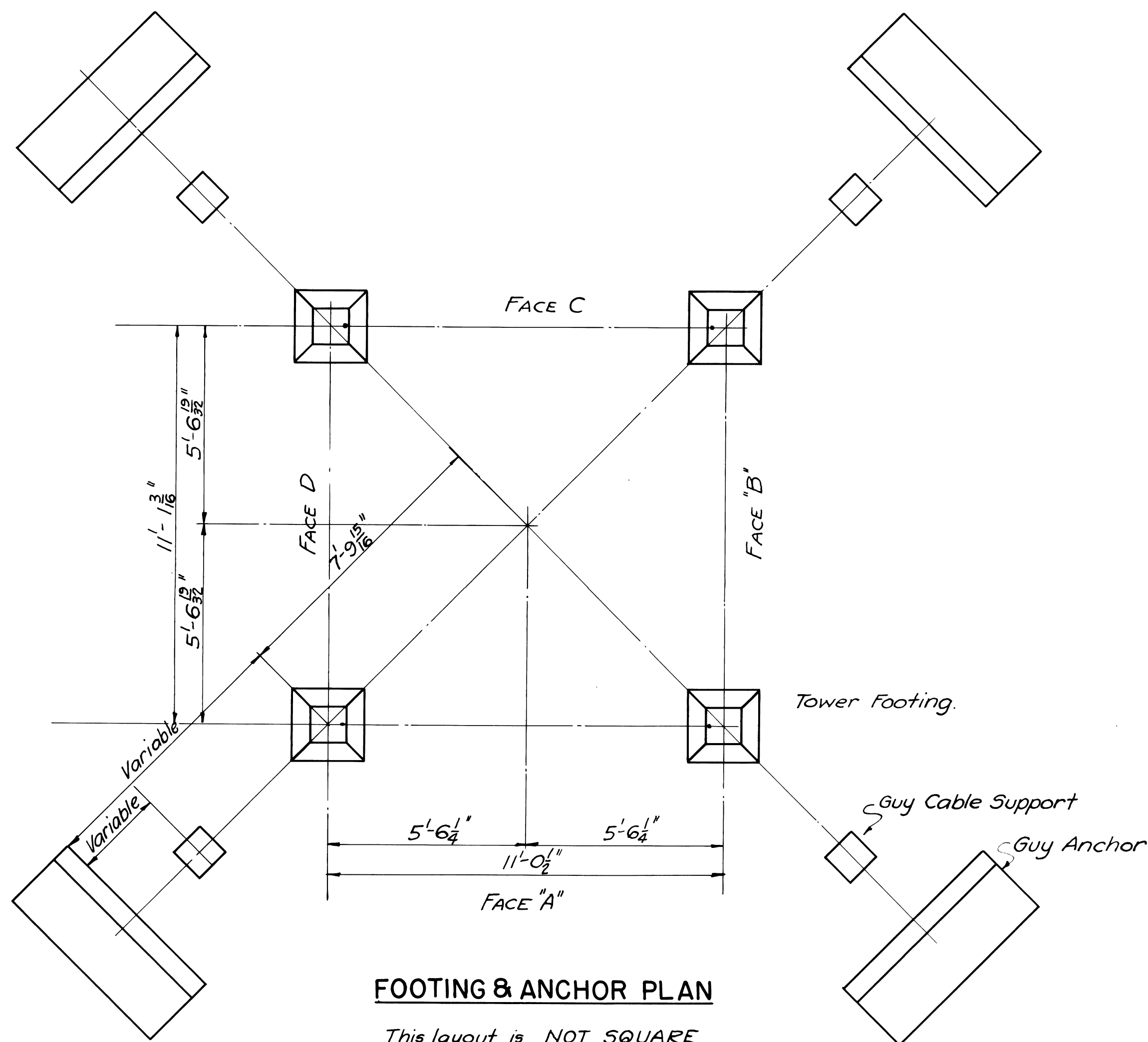
FORCE DIAGRAM
Scale: 1" = 500 lb

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

REGION SIX J. FRANKLAND, REGIONAL ENGINEER

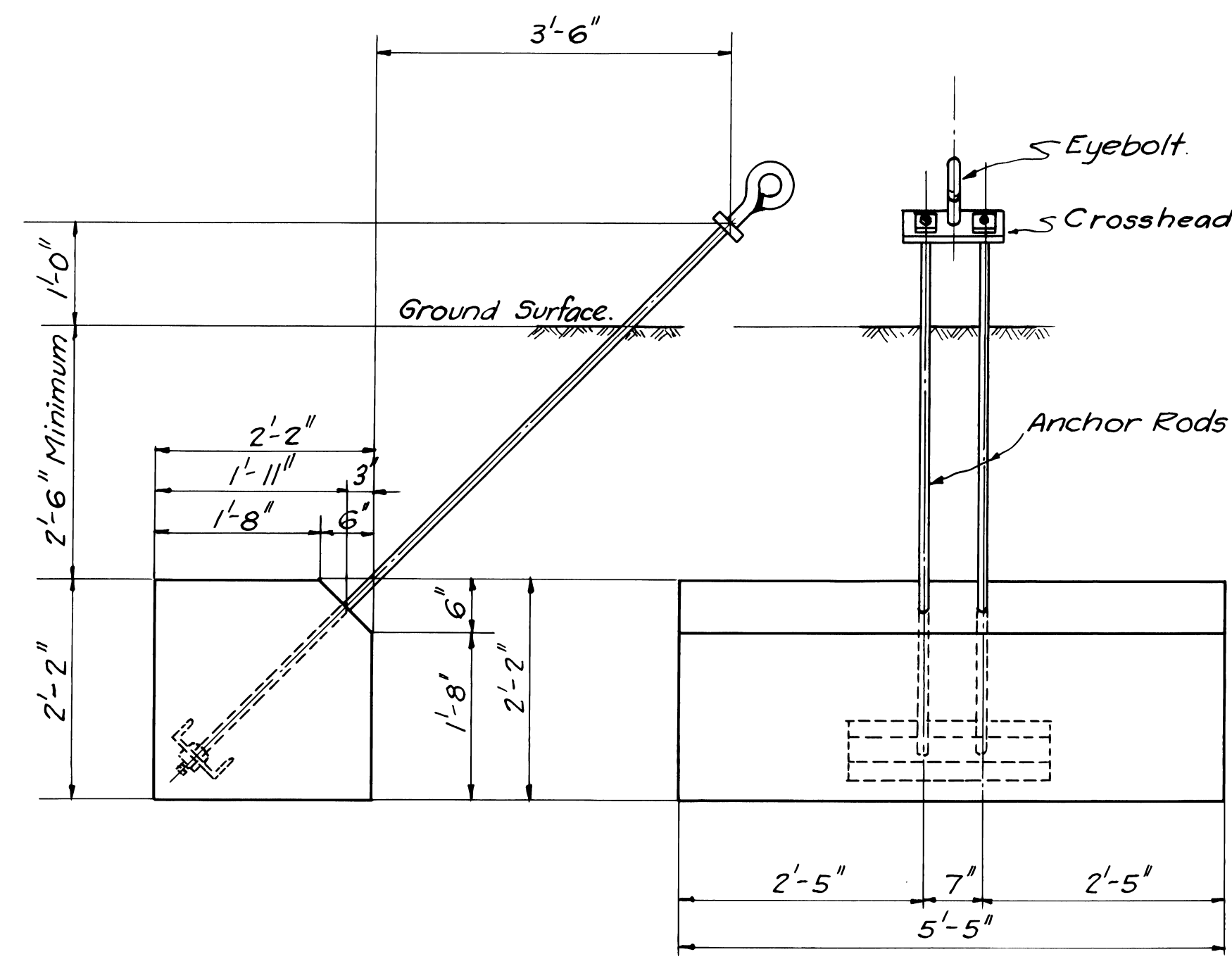
STANDARD LOOKOUT TOWER
41 FOOT-TYPE CT5
STRESS DIAGRAM

DESIGNED: W.W.G. DRAWN: W.W.G. CHECKED: W.P.H.
SCALE AS SHOWN APPROVED: DWT: ROY, R.L. 1/28/58
ASSISTANT REGIONAL FORESTER

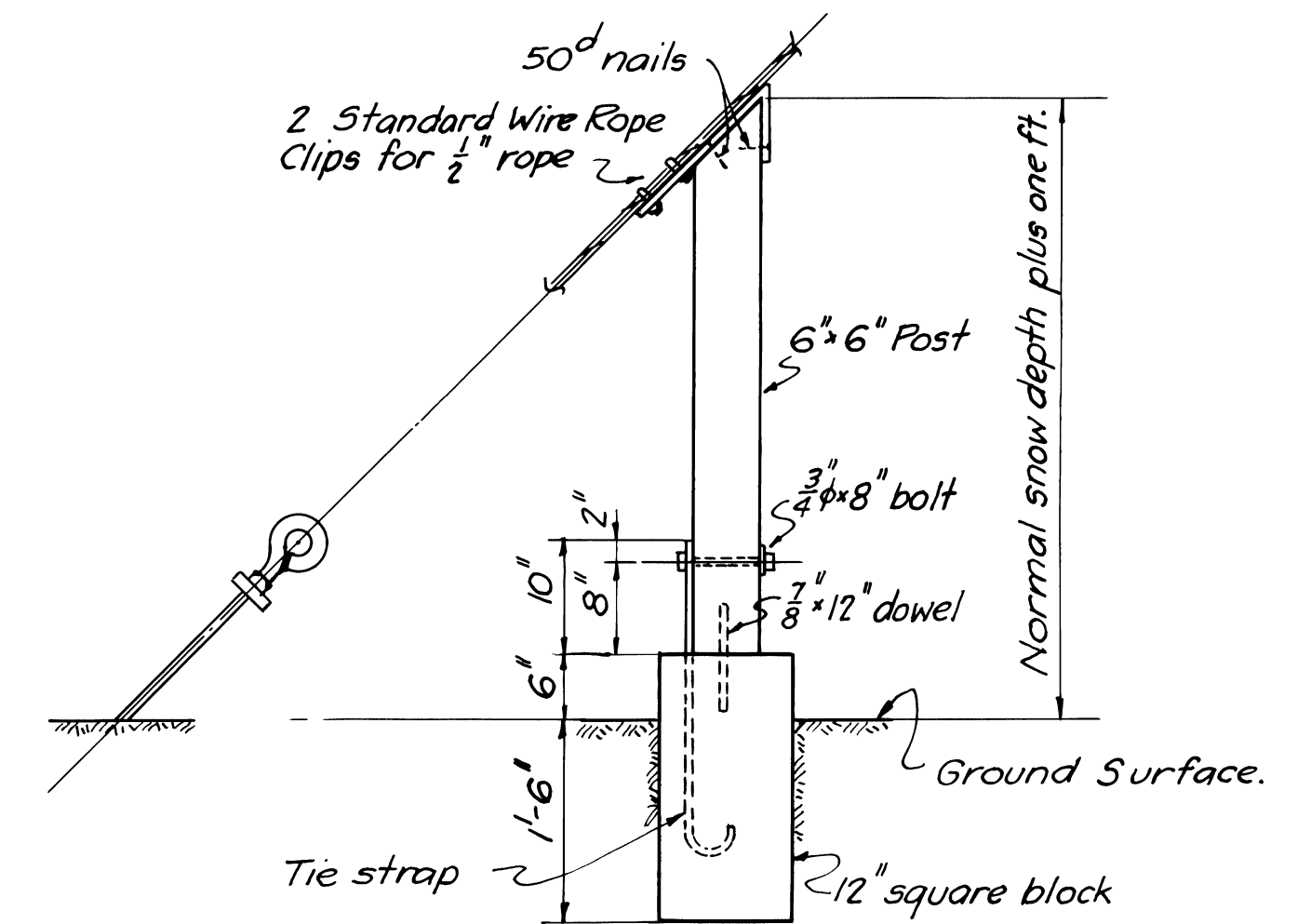


FOOTING & ANCHOR PLAN

This layout is NOT SQUARE. Cables shall slope at 45° and variable dimensions for guy anchors shall be determined in the field to fit the ground.

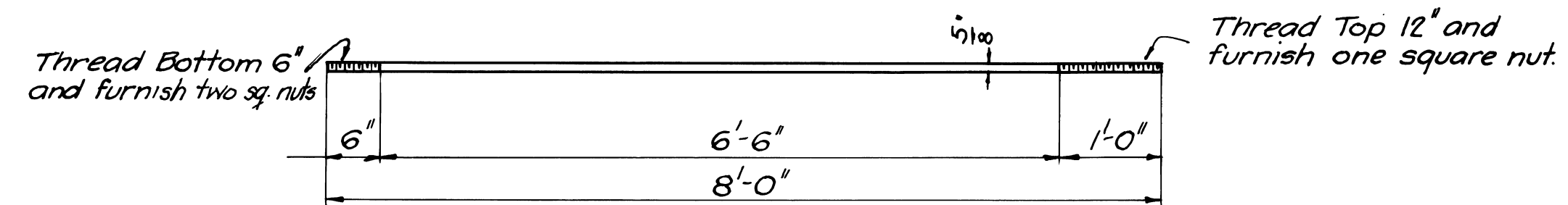


ANCHOR DETAIL



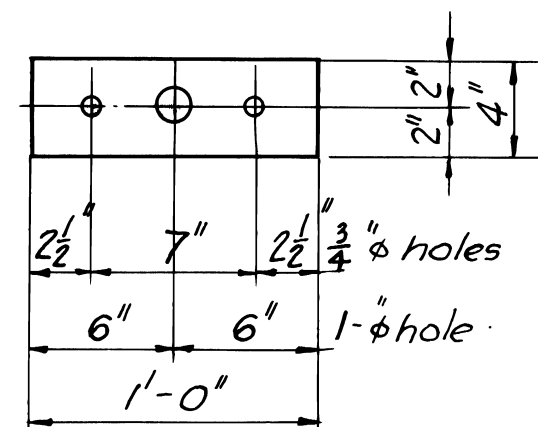
GUY CABLE SUPPORT

Use of this support is optional and shall be determined in the field.



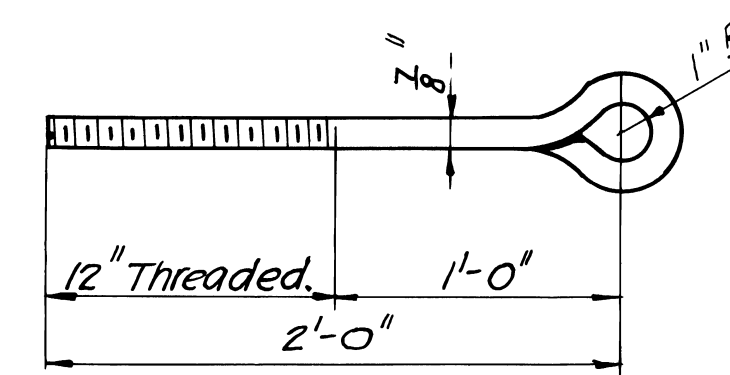
ANCHOR ROD

Make 8 - 3/8" φ x 8'-0" galvanized rods. Threading and nuts as shown.



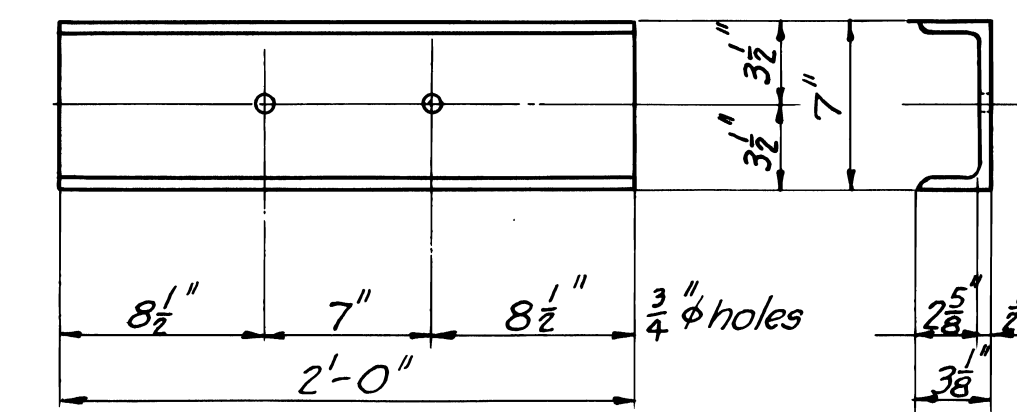
CROSSHEAD

Make 4 - 4" x 4" x 1/4" plate Mild steel, galvanized.



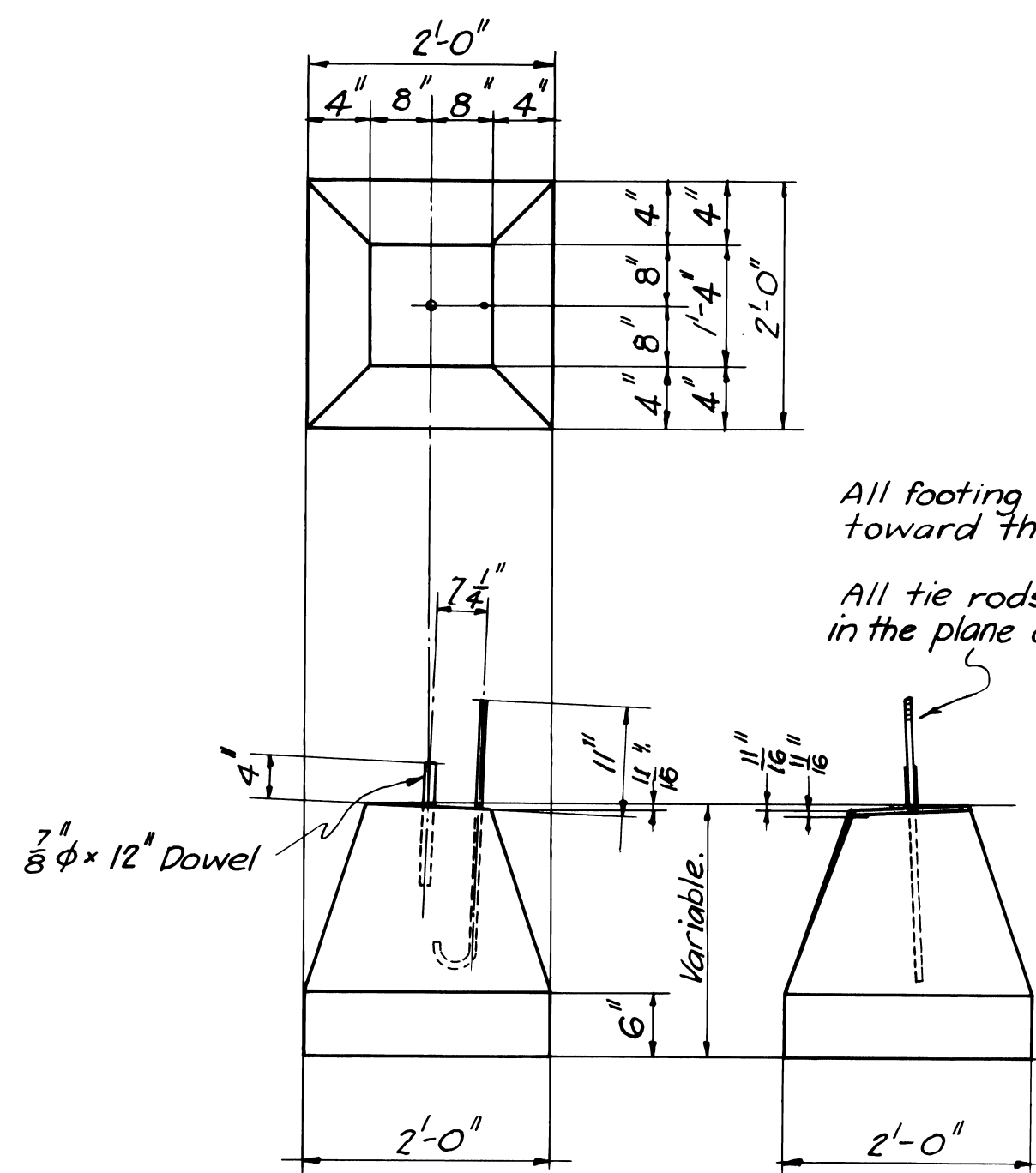
EYEBOLT

Make 4 - 7/8" φ x 2'-0" galvanized eyebolt. Eye forged and welded. Furnish two hex nuts each.



ANCHOR PLATE

Make 4 as shown, galvanized.

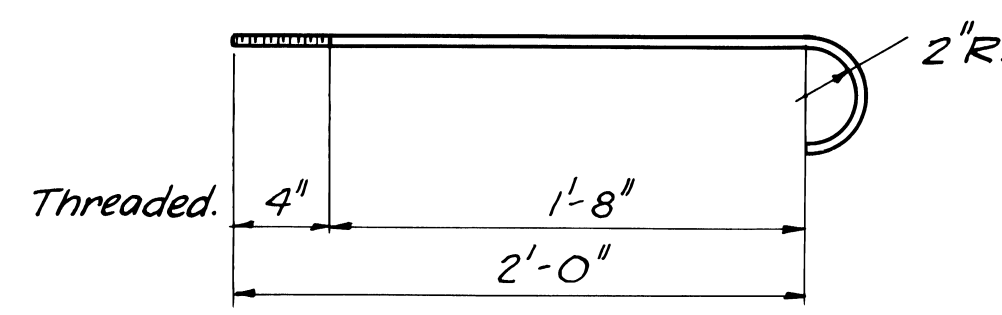


TOWER FOOTING

Footing tops to be about six inches above ground surface.

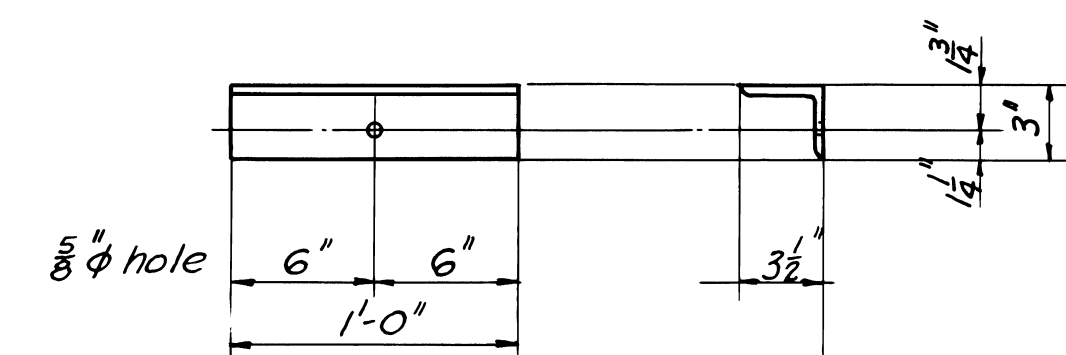
All footing tops must slope toward the tower center.

All tie rods shall be in Face A, or Face C in the plane of the face, to the inside.



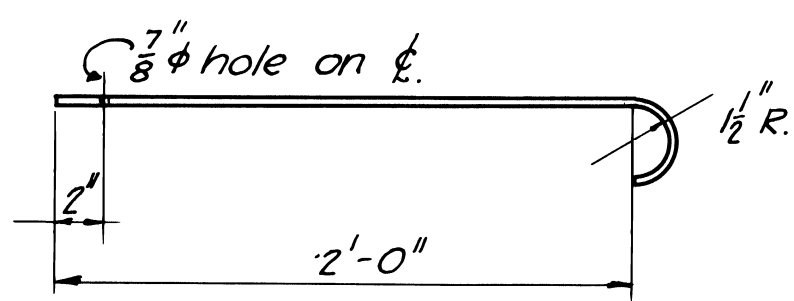
FOOTING TIE ROD

1/2" φ x 2'-7" galvanized rod. Furnish one square nut ea. Make 4.



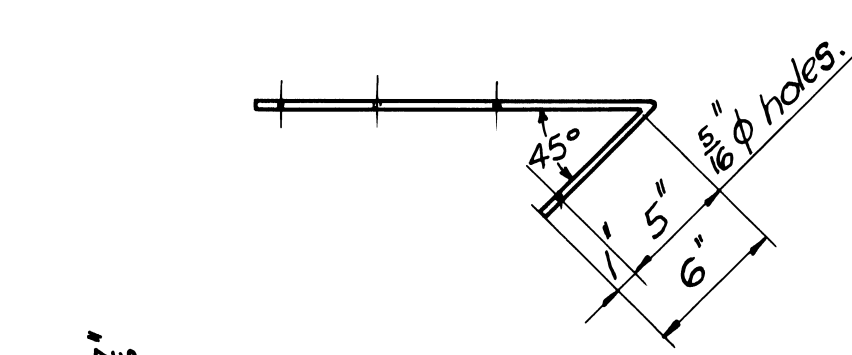
FOOTING ANGLE

3 1/2" x 3" x 1'-0" galvanized angle. Make 4. This angle is held down by the footing tie rod, and passes over H6.



TIE STRAP

3/8" x 3" x 2'-6" galvanized strap. Make 4.



SNOW POST CAP

4" x 4" x 1'-10" galvanized plate. Make 4.

In addition to detailed material, furnish:

- 8 - 3/8" φ x 12" dowels, plain galvanized.
- 4 - 3/4" x 5/8" machine bolts "
- 4 - 3/4" malleable washers "

CONCRETE

- 1:3:5 Mix.
- Volume - Approximately 5 yds.
- Cement - 5.5 barrels.
- Sand - 2.5 cu. yds.
- Gravel - 4.1 cu. yds.

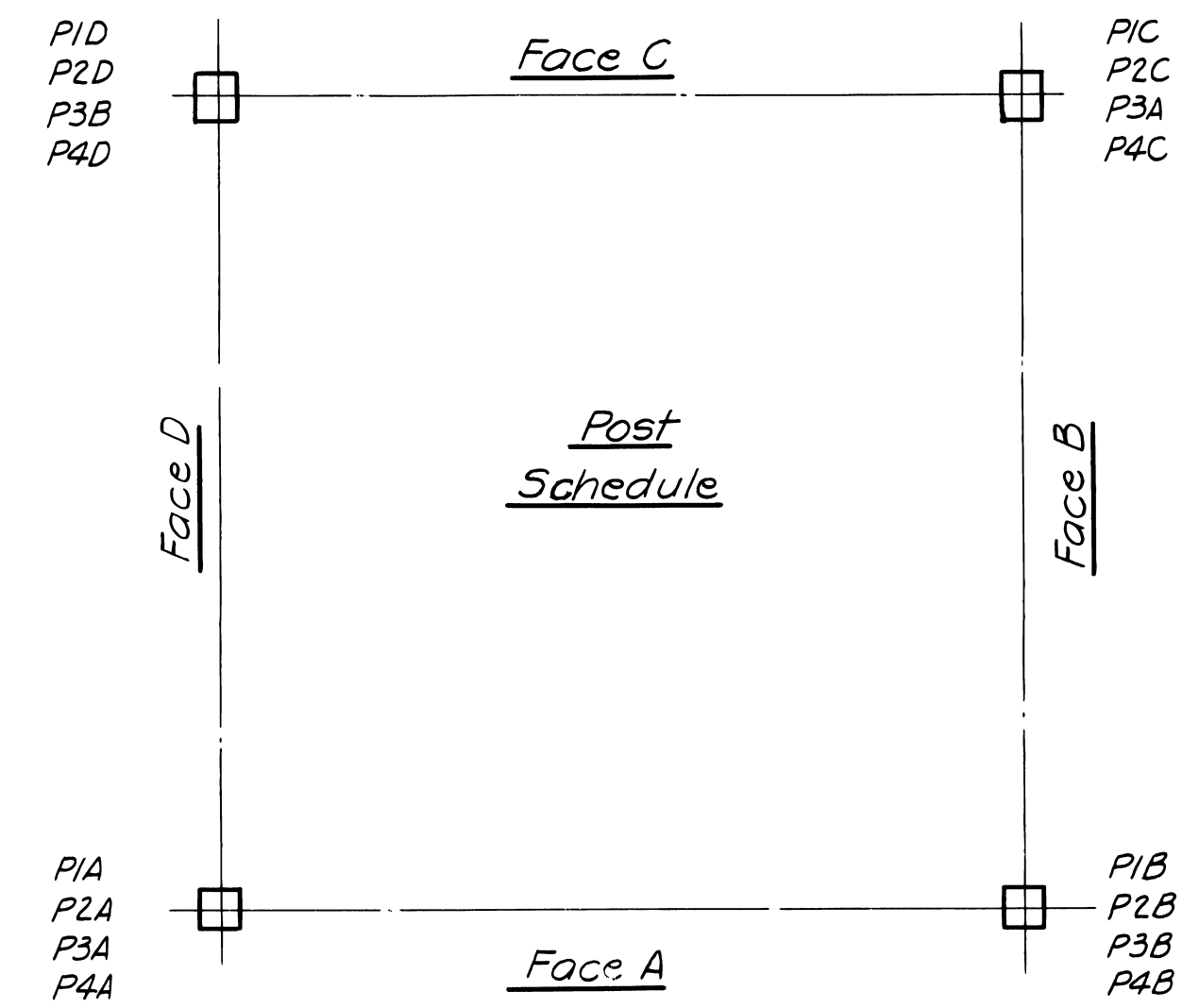
Revised Jan 22-1941

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

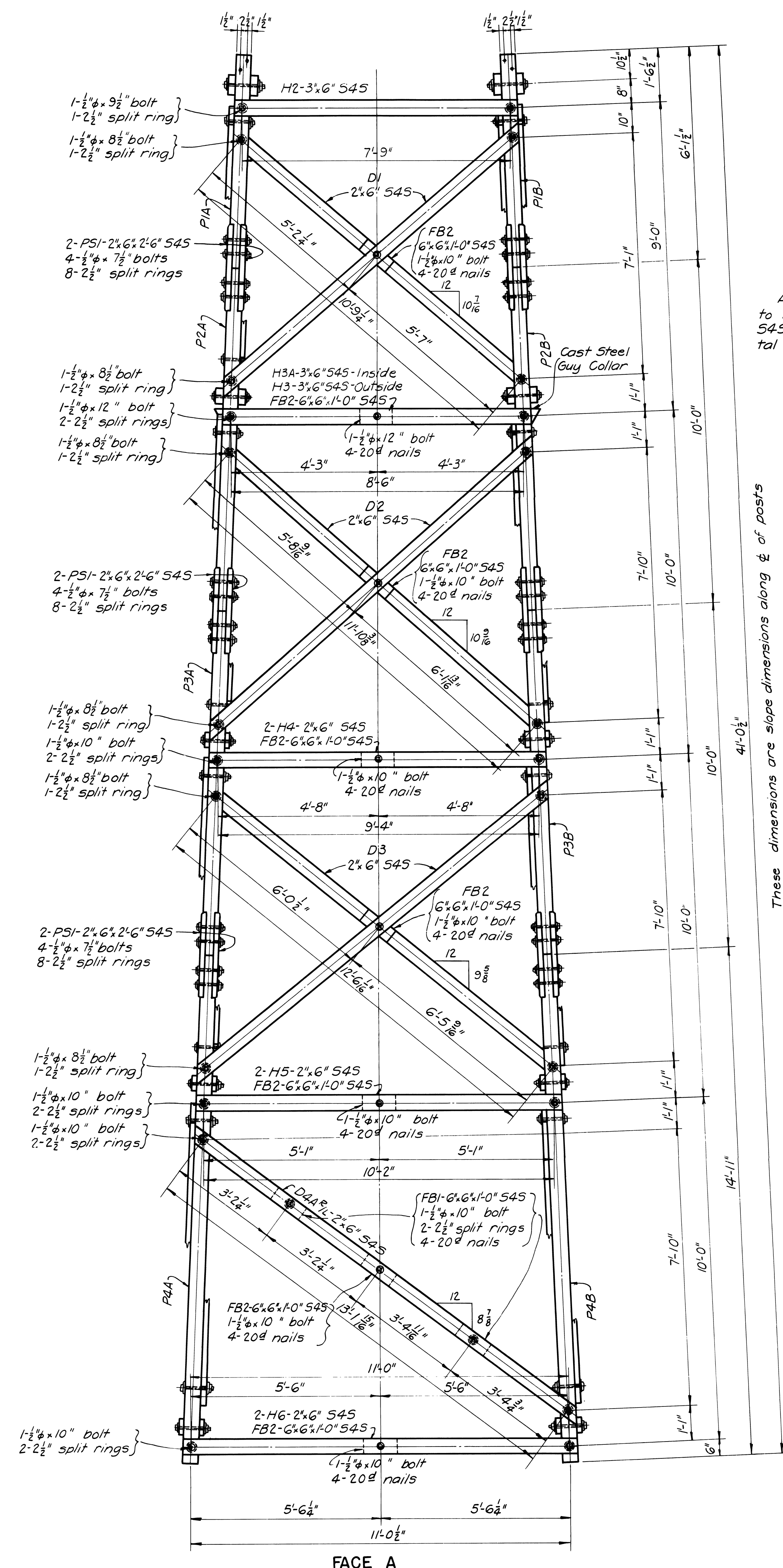
REGION SIX JAMES FRANKLAND, REGIONAL ENGINEER

**STANDARD LOOKOUT TOWER
41- FOOT TYPE CT-5
FOUNDATION PLAN**

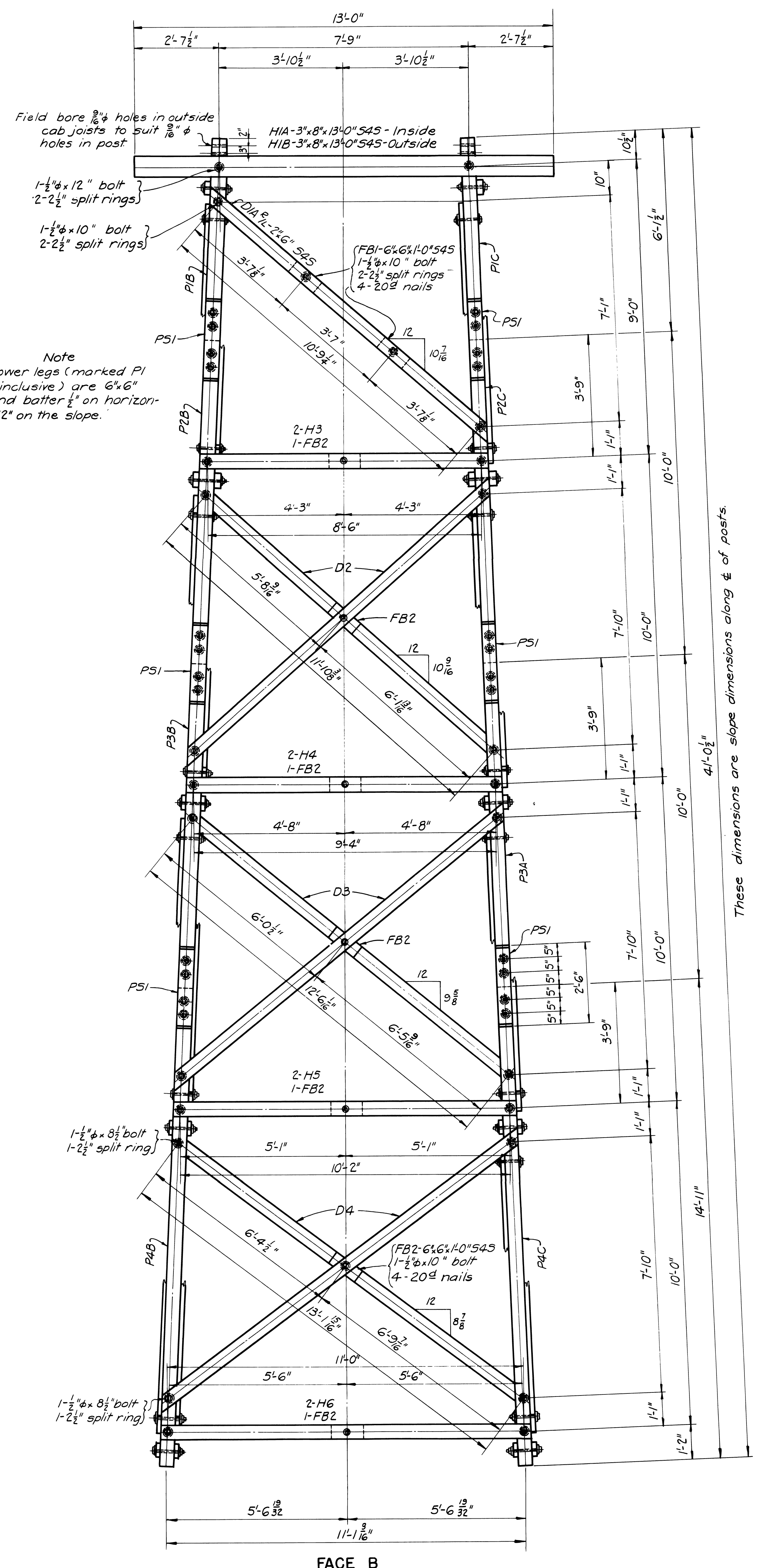
DESIGNED B.C.O. DRAWN B.C.O. TRACED B.C.O.
SCALE NONE CHECKED W.D.S.
APPROVED DATE MARCH, 1938.
ASSISTANT REGIONAL FORESTER



Erection schedule of posts by panels from top of tower



Face C same as Face A except bottom panel has two diagonals D4 instead of diagonals D4A^{R/L}.



Joint hardware details same as Face A, except as noted. See Face A for sizes of marked members where not otherwise shown.

Face D same as Face B except top panel has two diagonals D1 instead of diagonals DIA^{R/L}.

These dimensions are slope dimensions along ϕ of posts

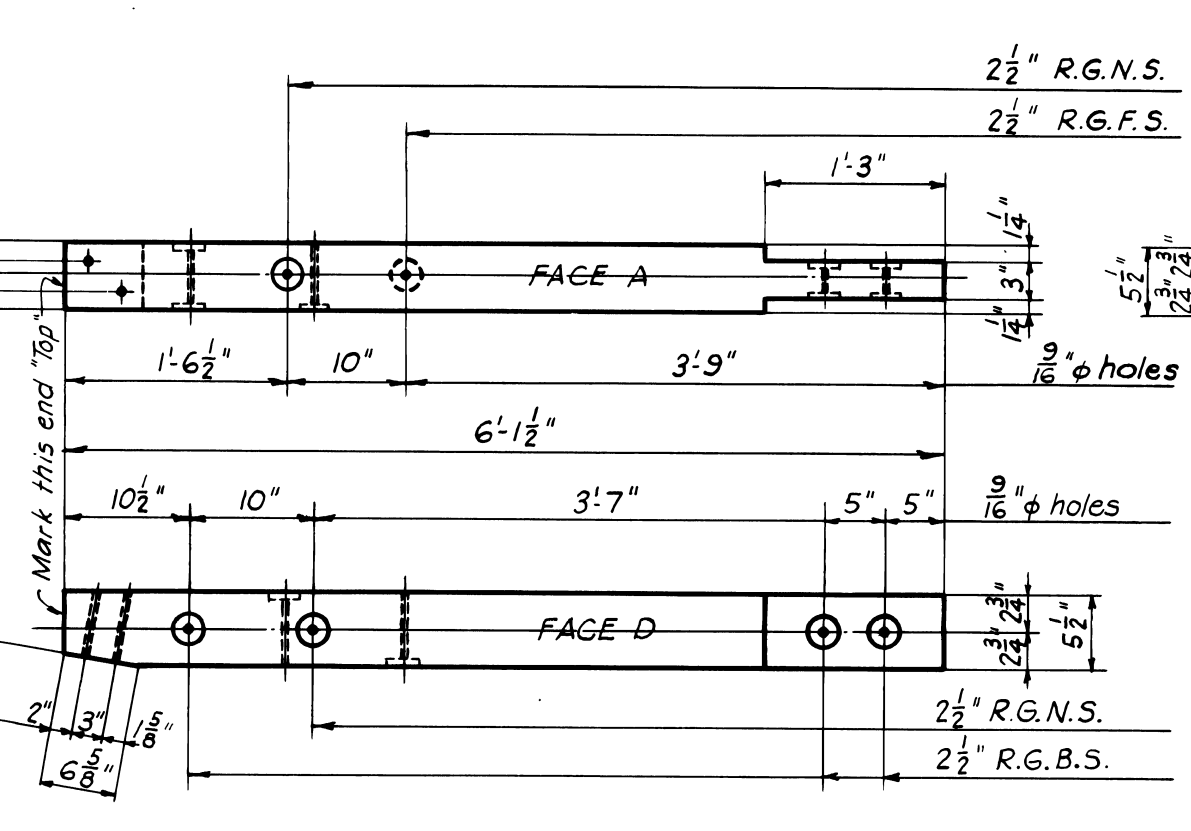
These dimensions are slope dimensions along ϕ of posts

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

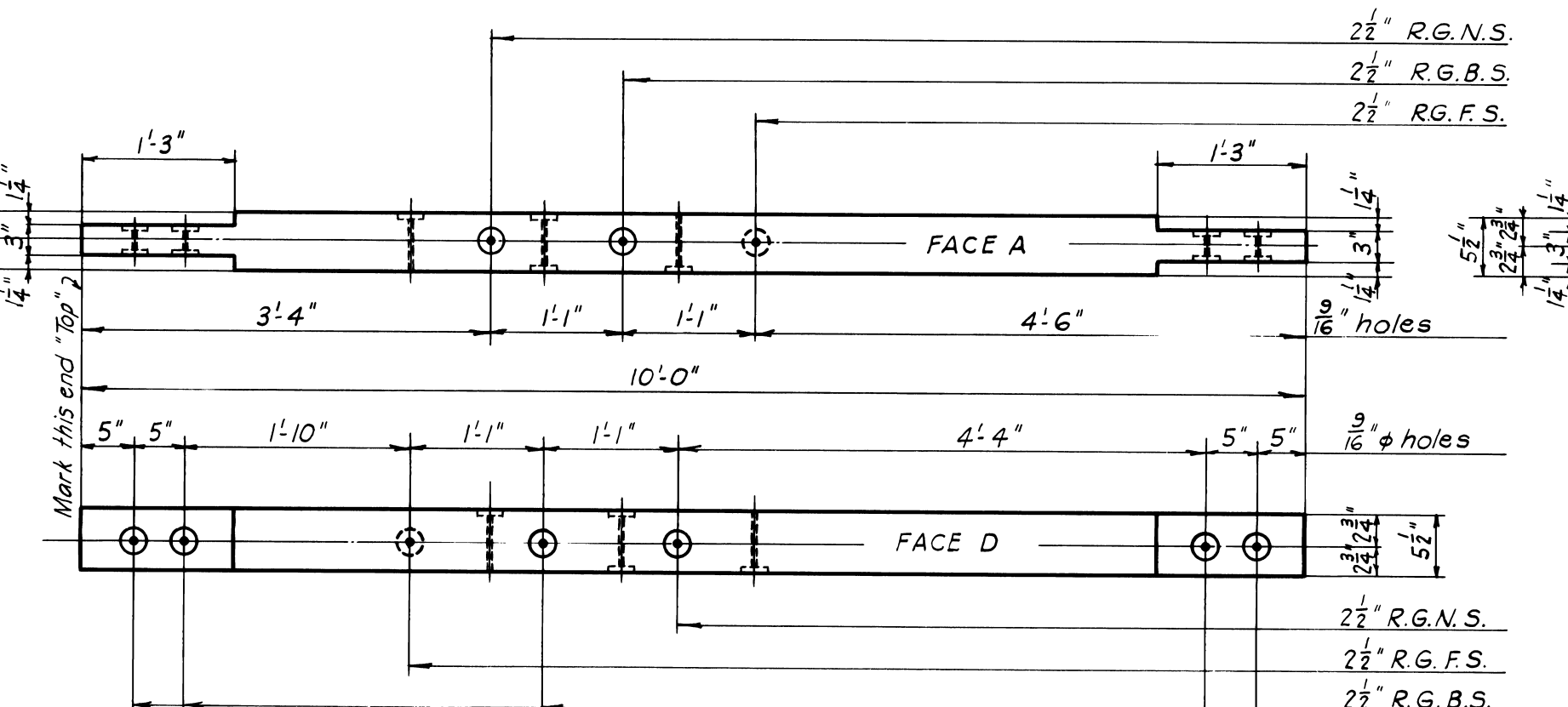
REGION SIX JAMES FRANKLAND-REGIONAL ENGINEER

STANDARD LOOKOUT TOWER
41-FOOT TYPE CT-5
GENERAL PLAN

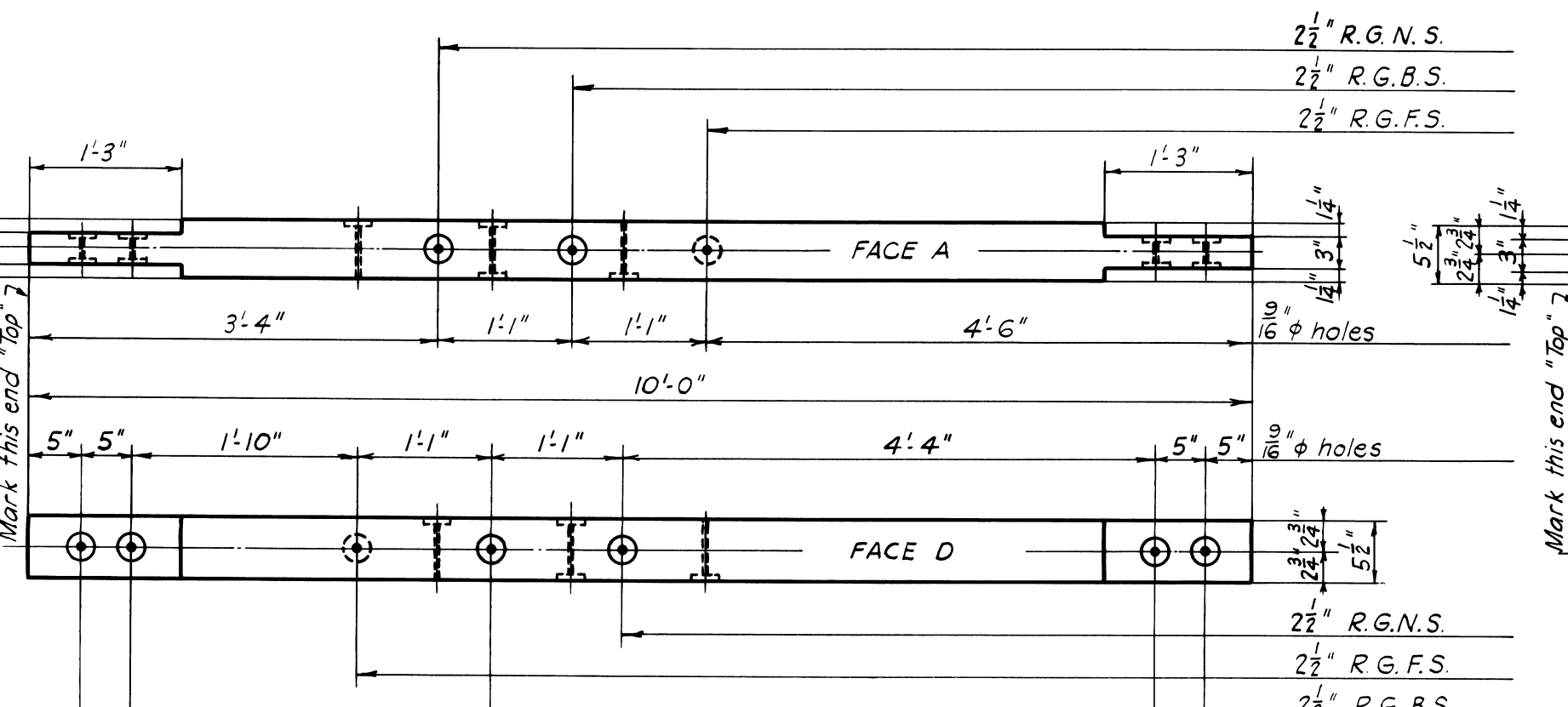
DESIGNED W.G. DRAWN W.G. TRACED H.R.S.
SCALE 1/2"=1'-0" CHECKED W.C.S.
APPROVED [Signature] ASSISTANT REGIONAL FORESTER DATE MARCH 1938



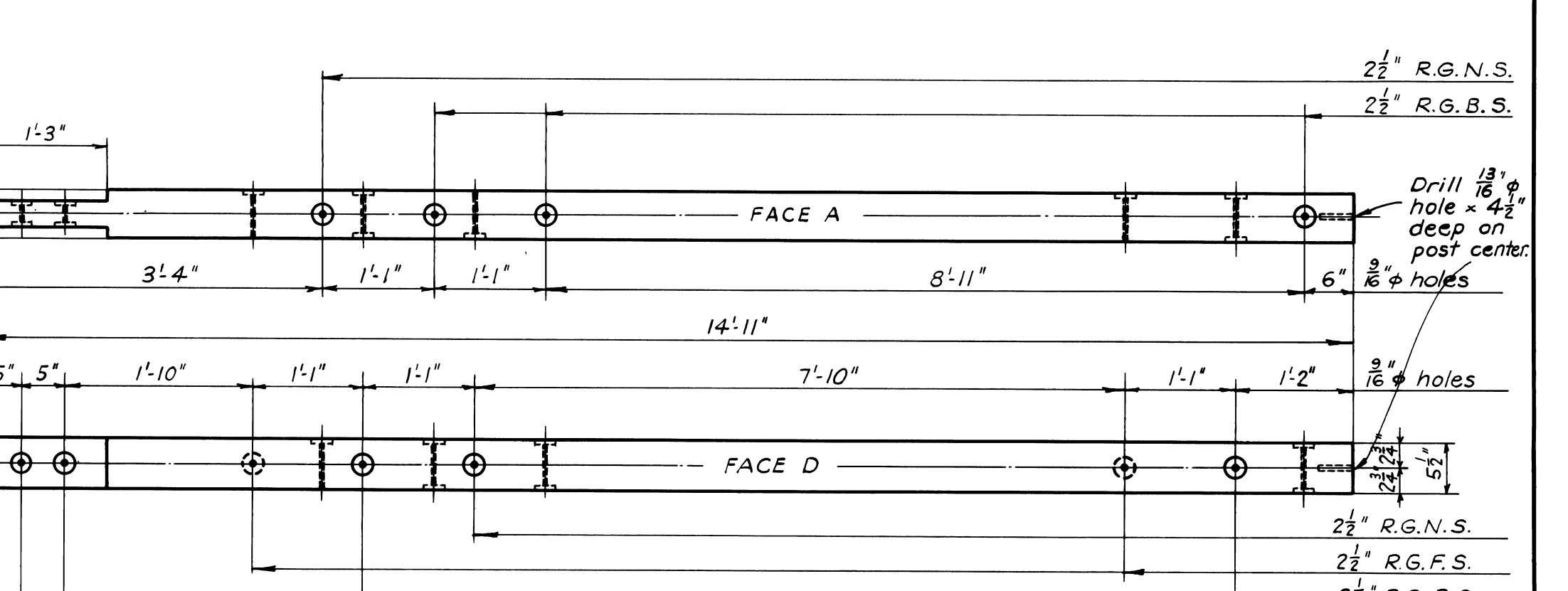
P1A
Make 1-6x6x6 1/2 S4S



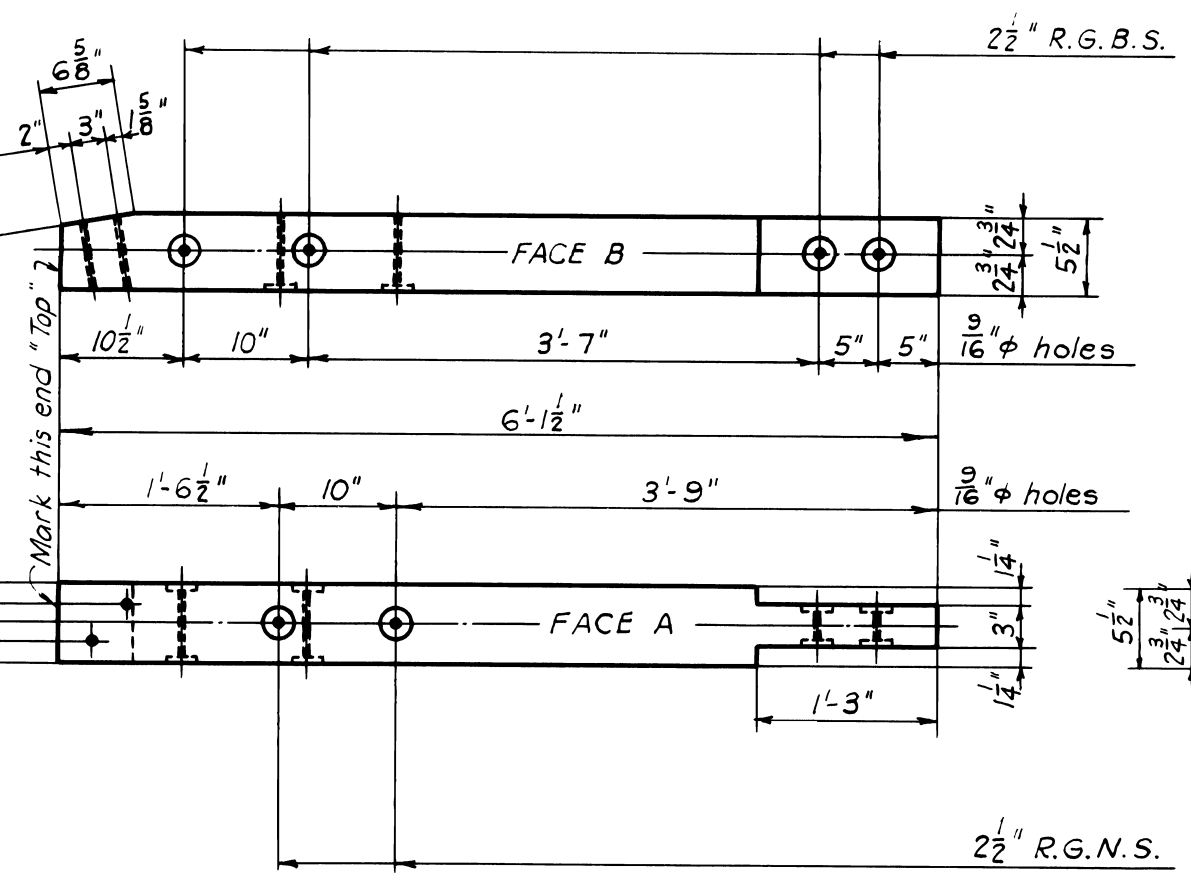
P2A
Make 1-6x6x10 S4S



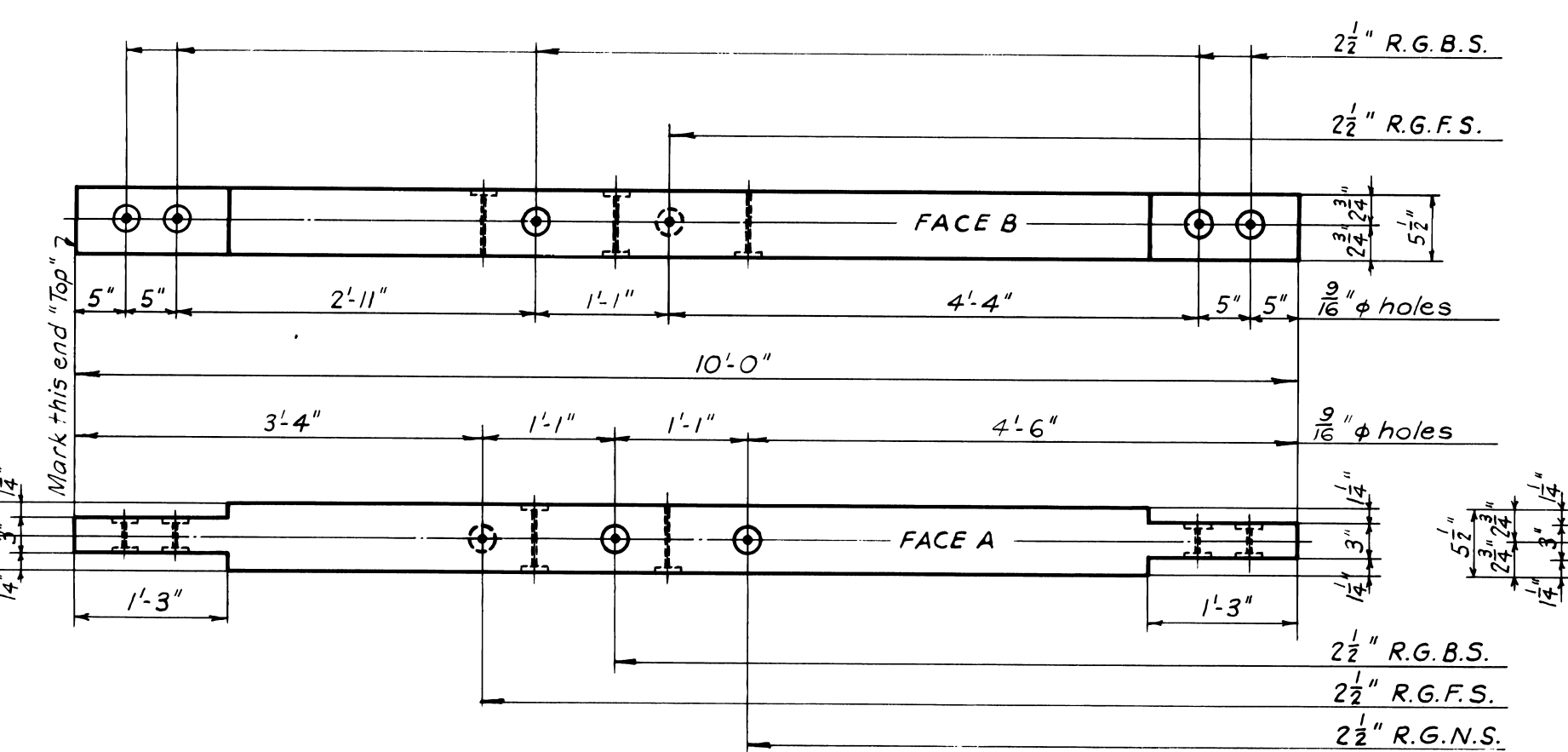
P3A
Make 2-6x6x10 S4S



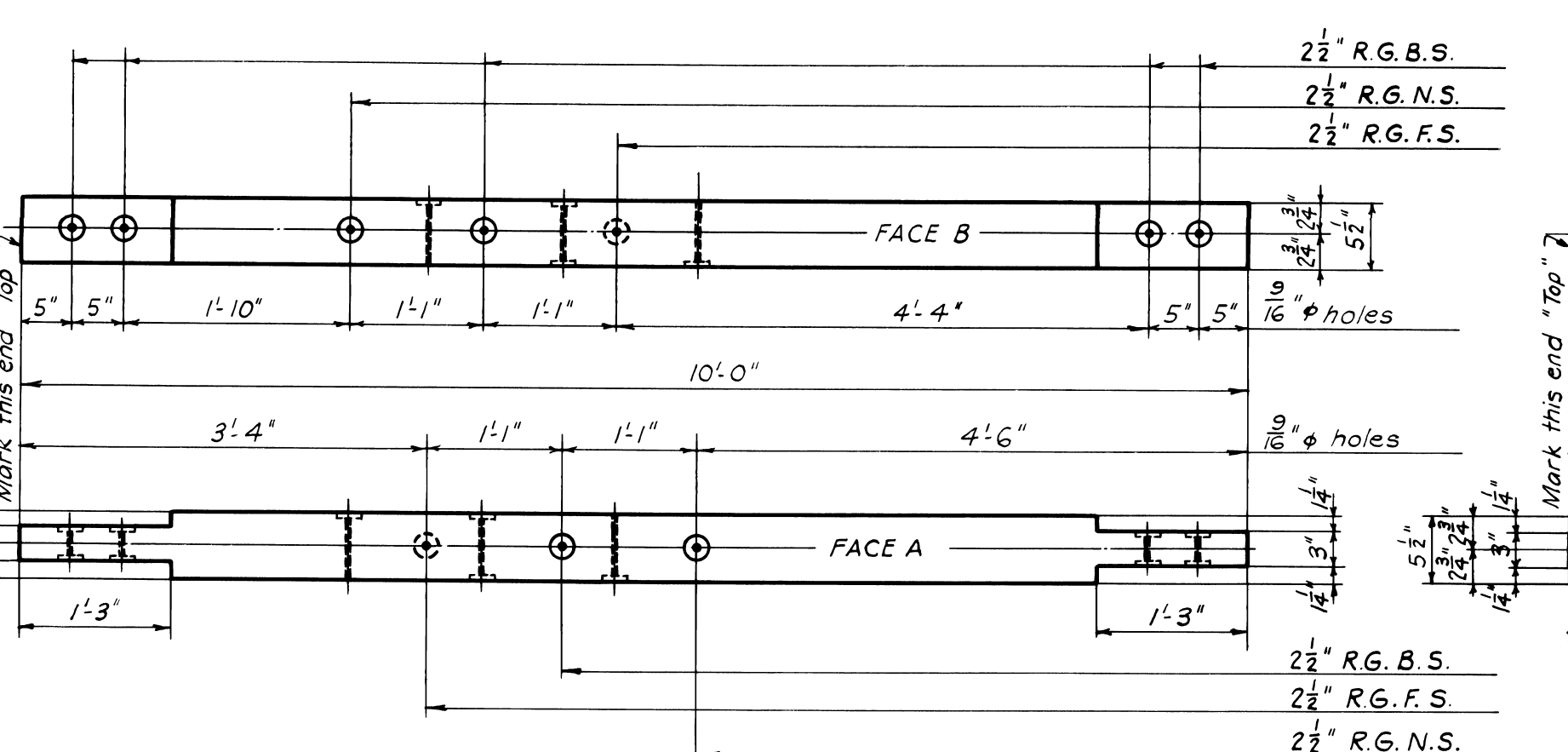
P4A
Make 1-6x6x14 1/11 S4S



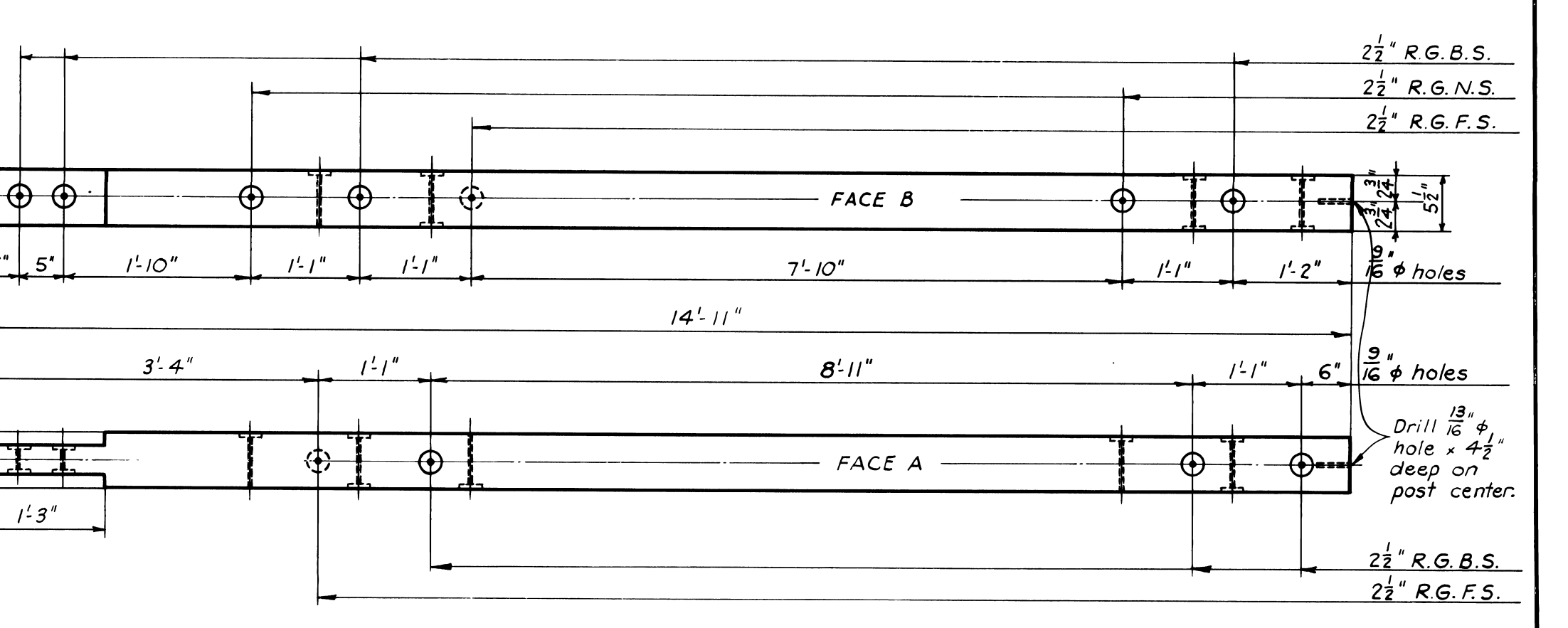
P1B
Make 1-6x6x6 1/2 S4S



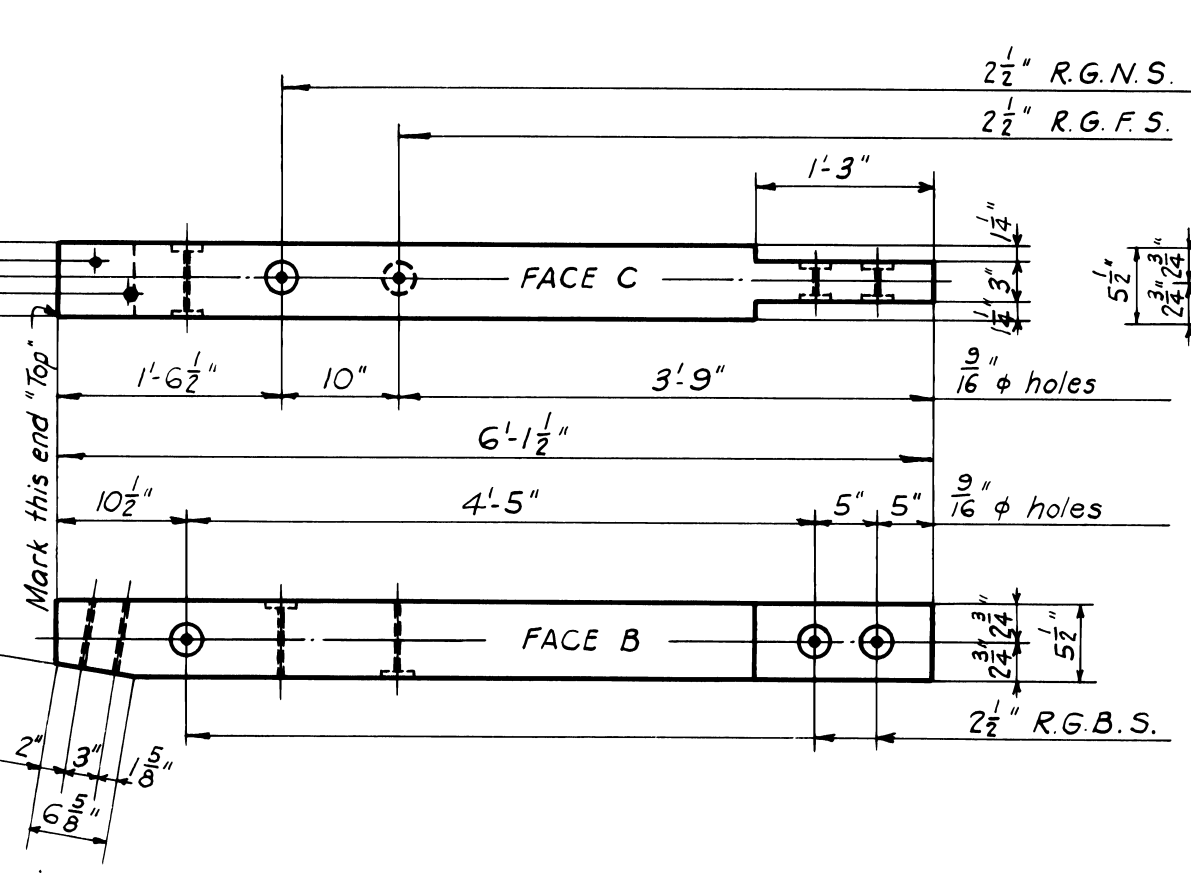
P2B
Make 1-6x6x10 S4S



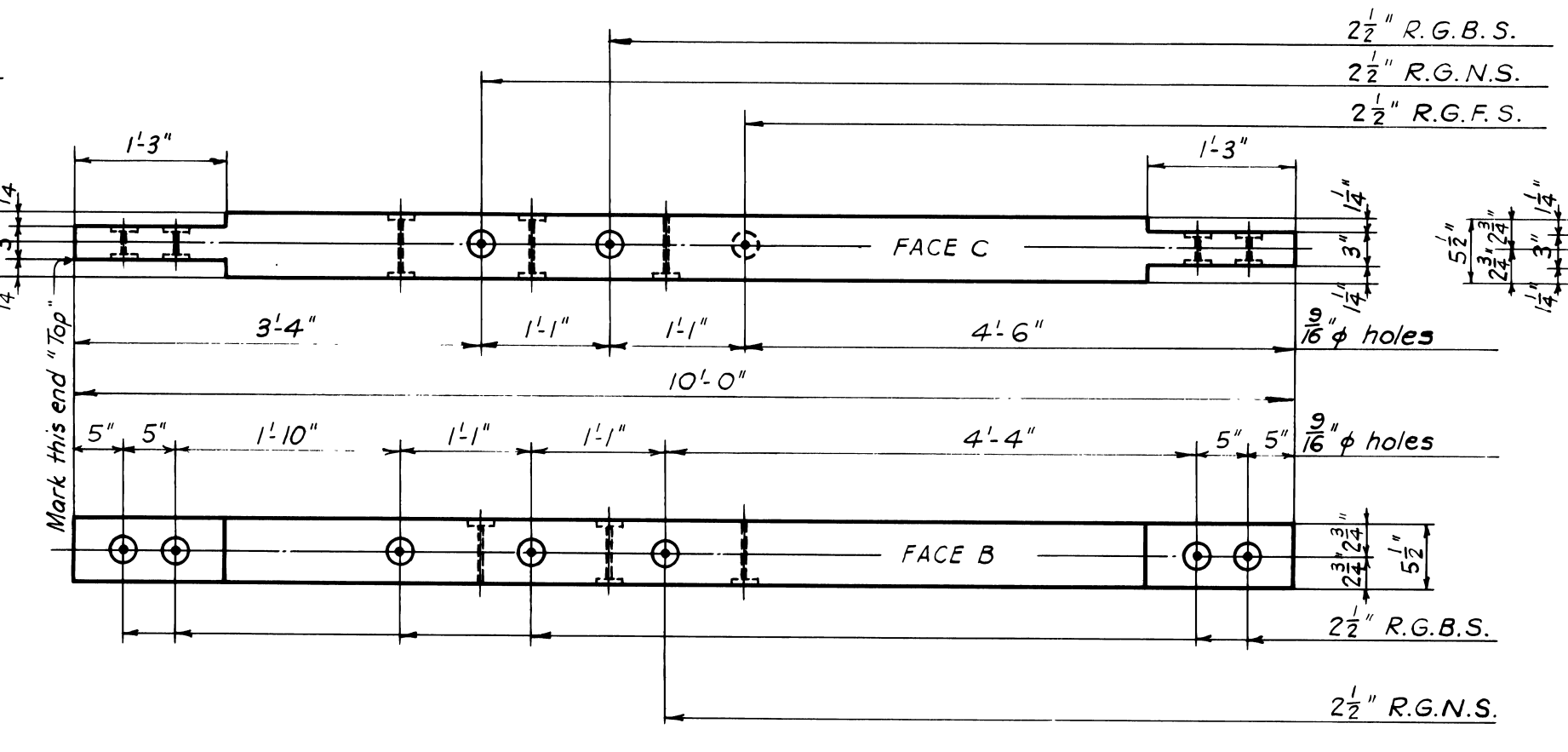
P3B
Make 2-6x6x10 S4S



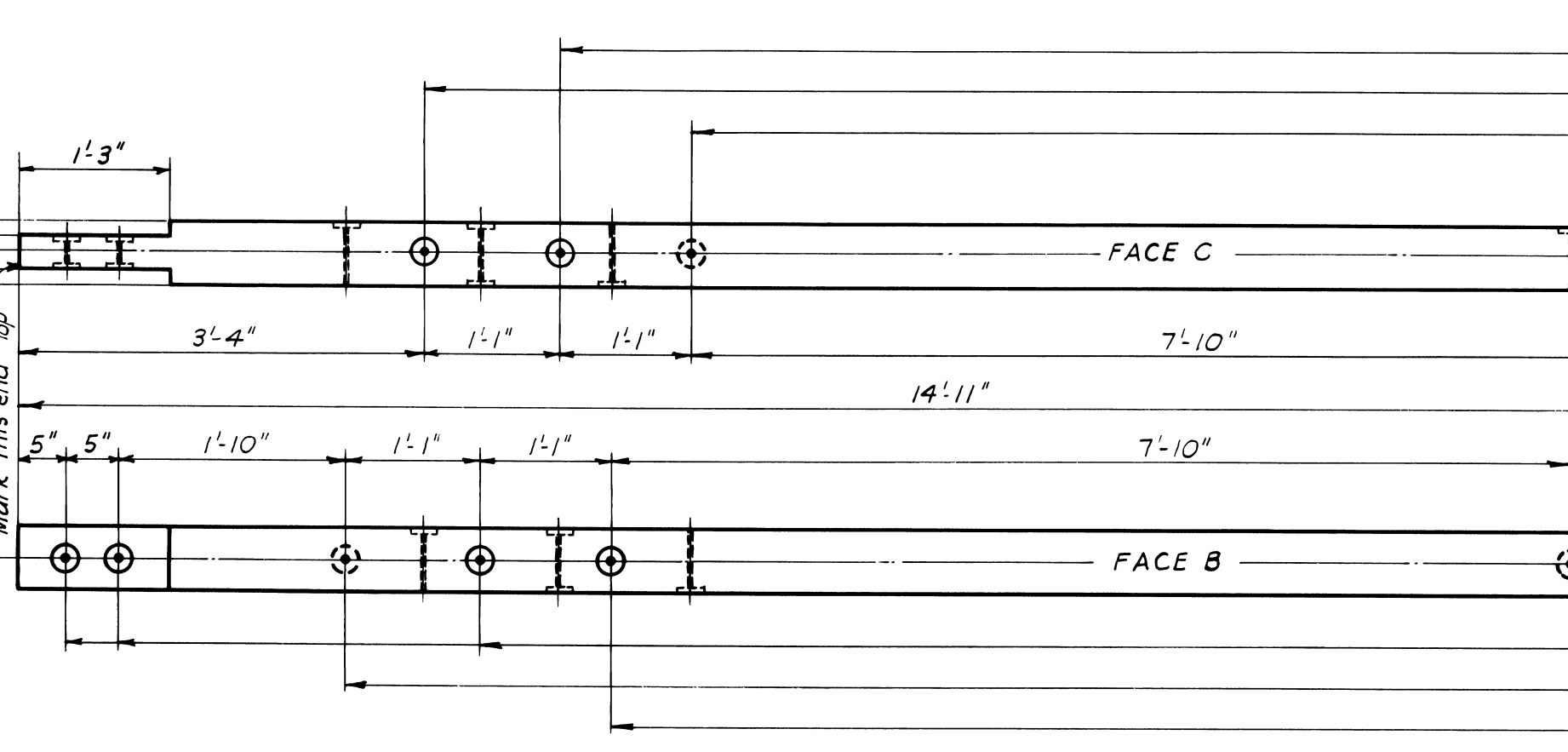
P4B
Make 1-6x6x14 1/11 S4S



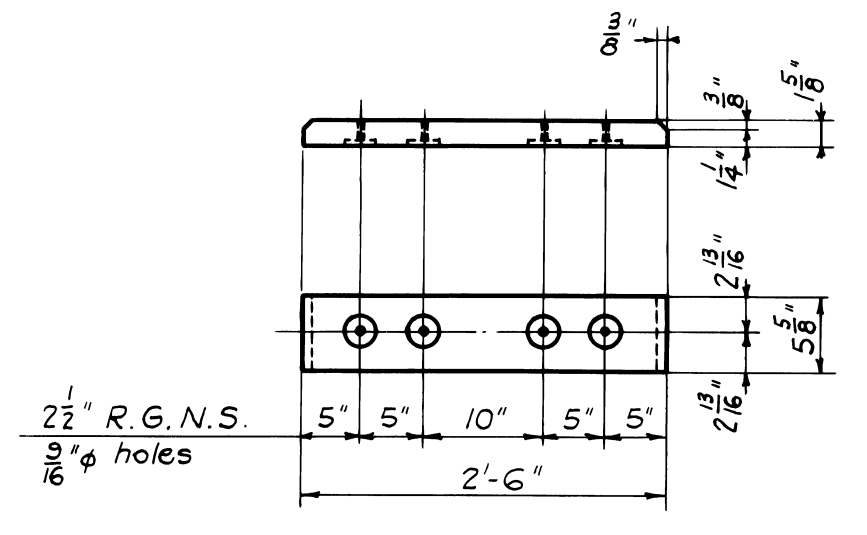
P1C
Make 1-6x6x6 1/2 S4S



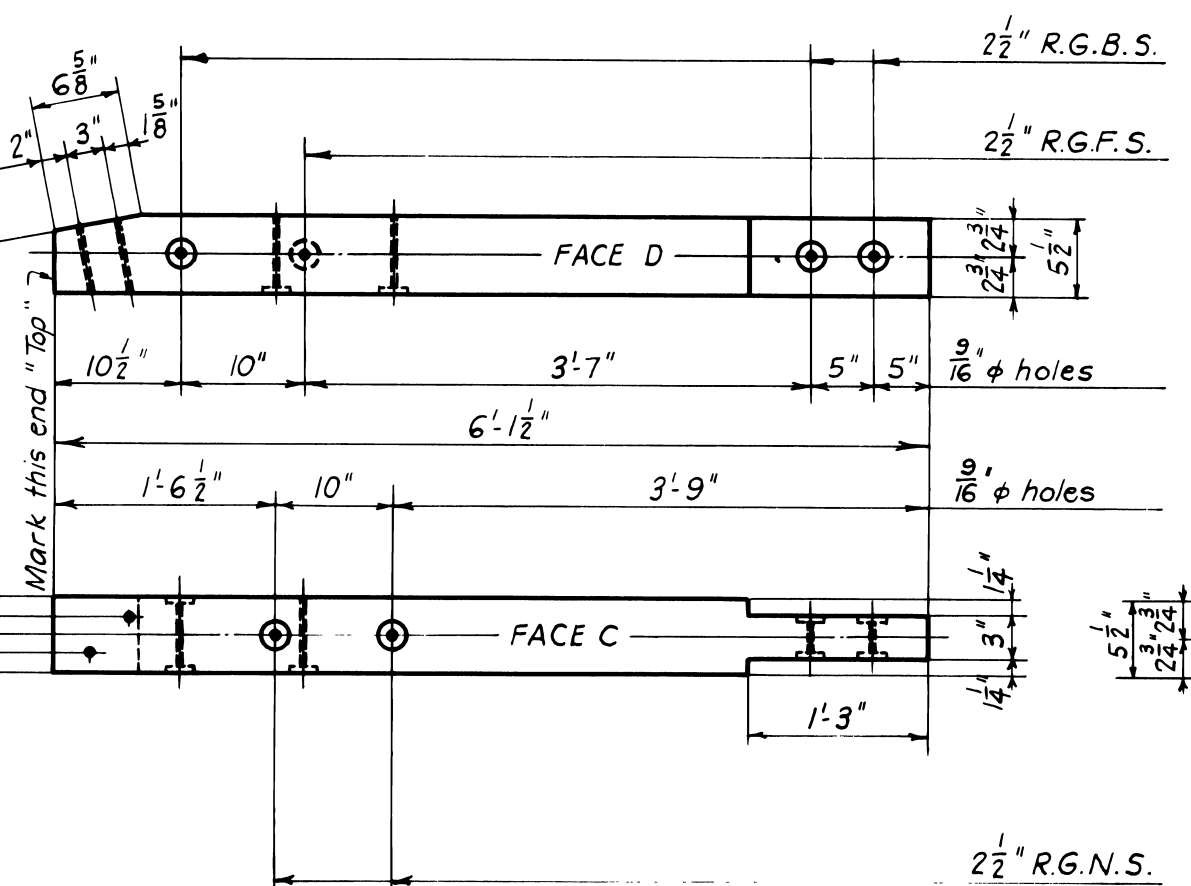
P2C
Make 1-6x6x10 S4S



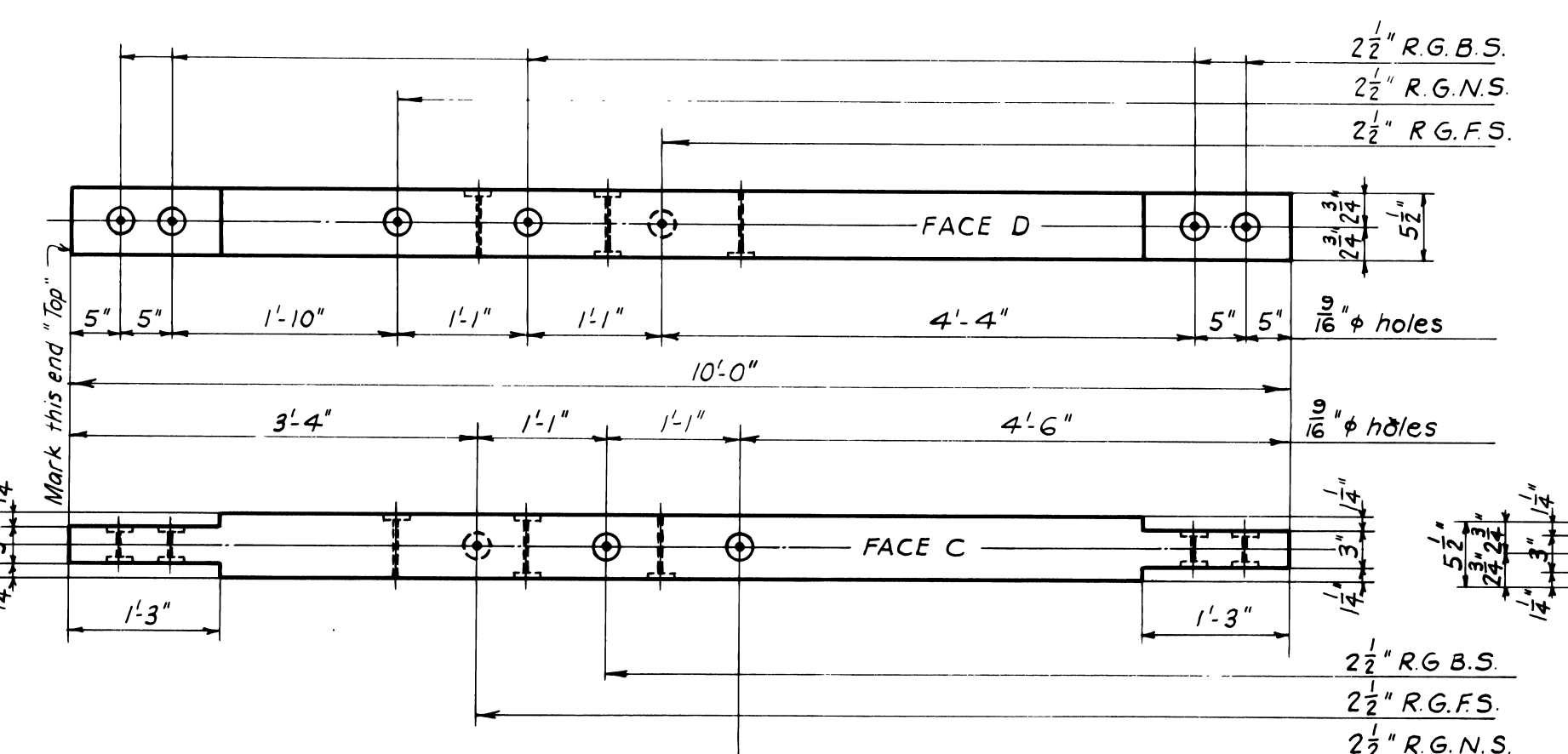
P4C
Make 1-6x6x14 1/11 S4S



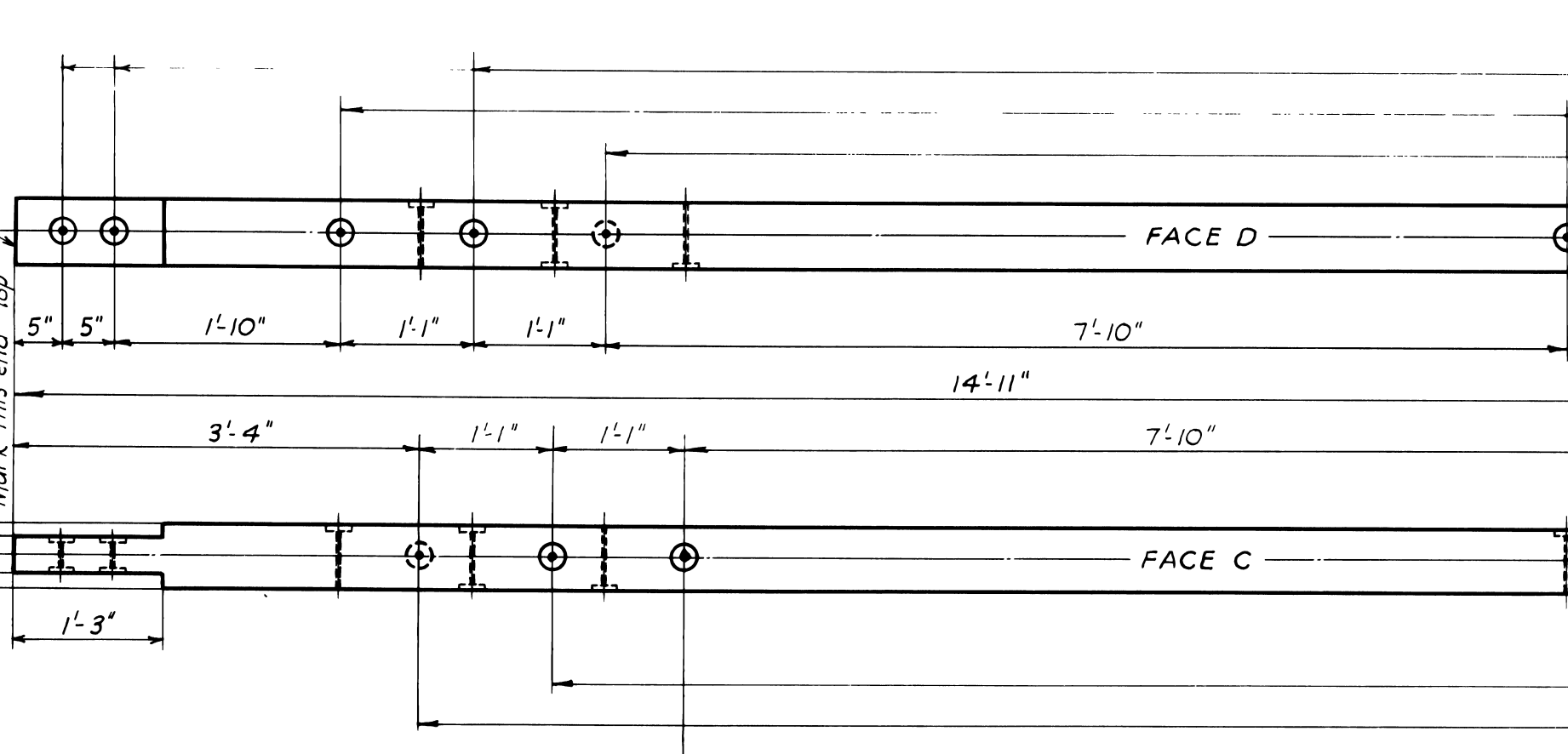
P51
Make 24-2x6x2 1/6 S4S



P1D
Make 1-6x6x6 1/2 S4S



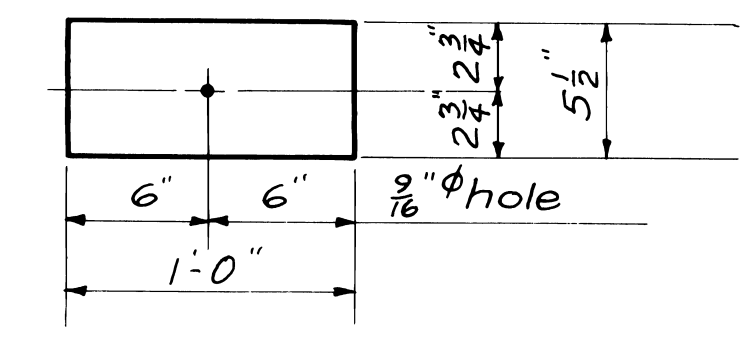
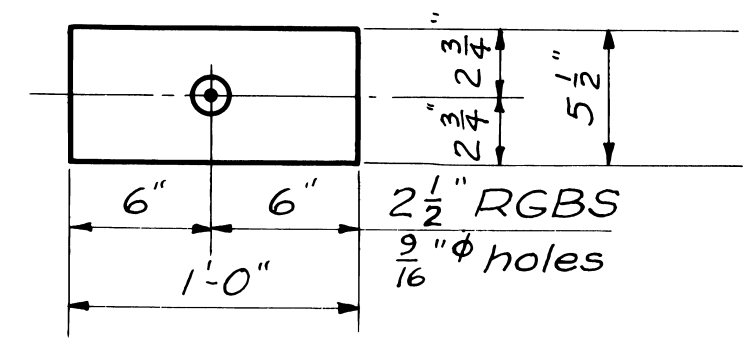
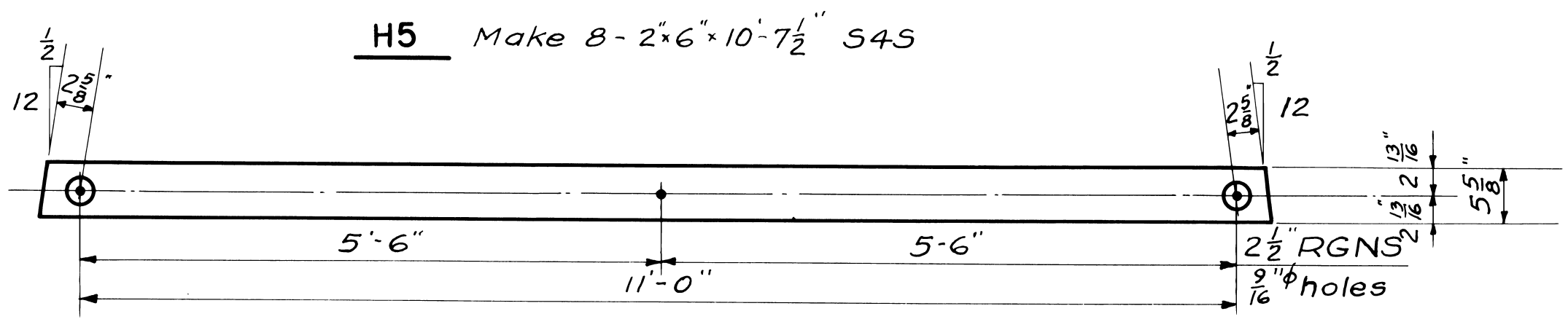
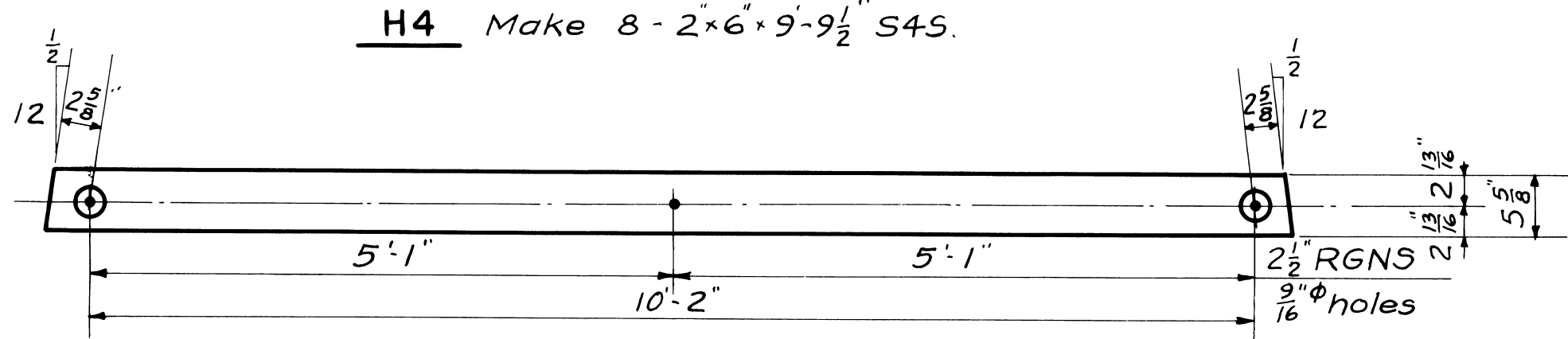
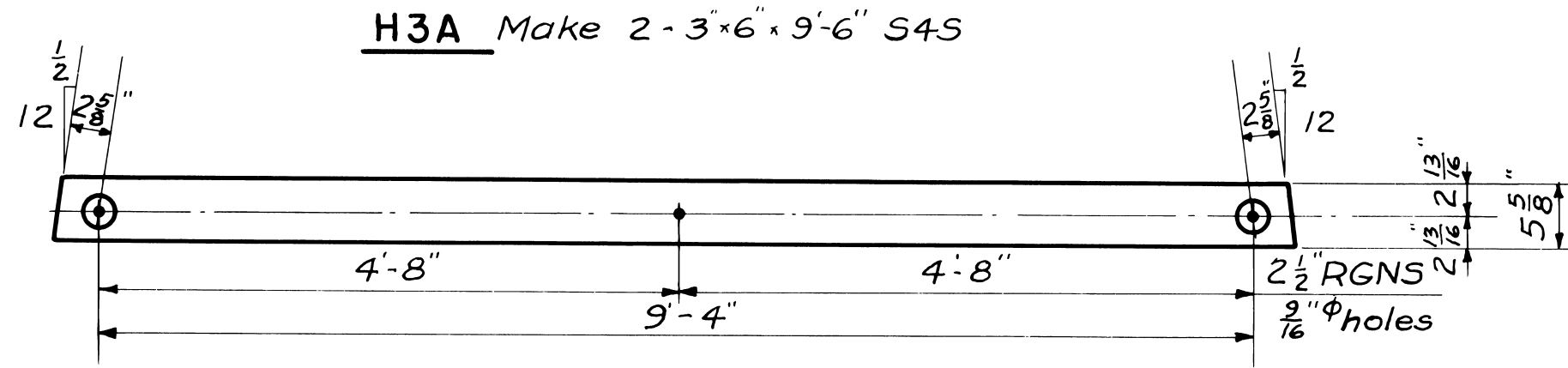
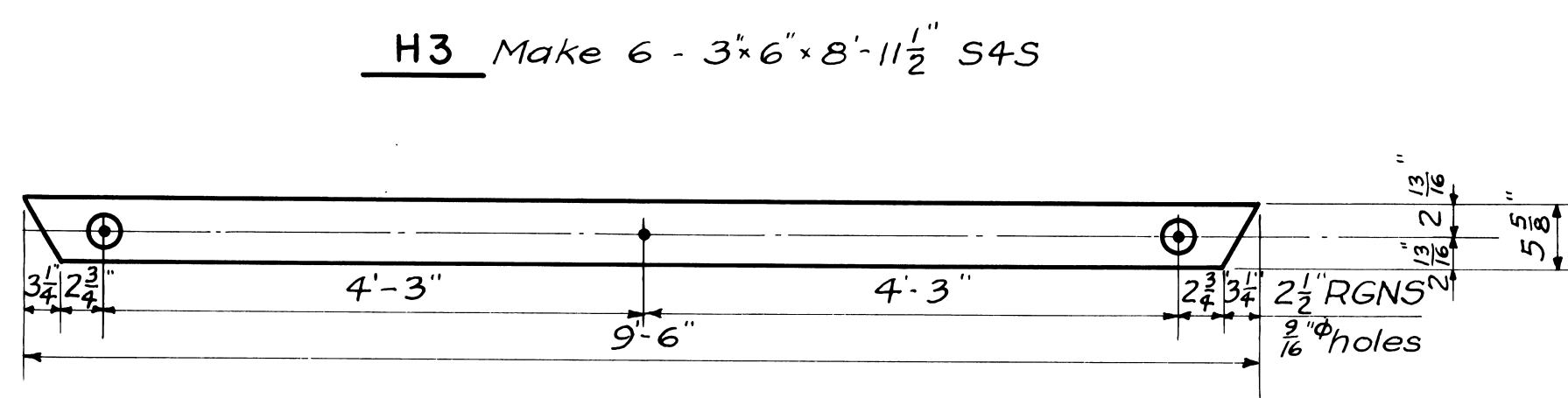
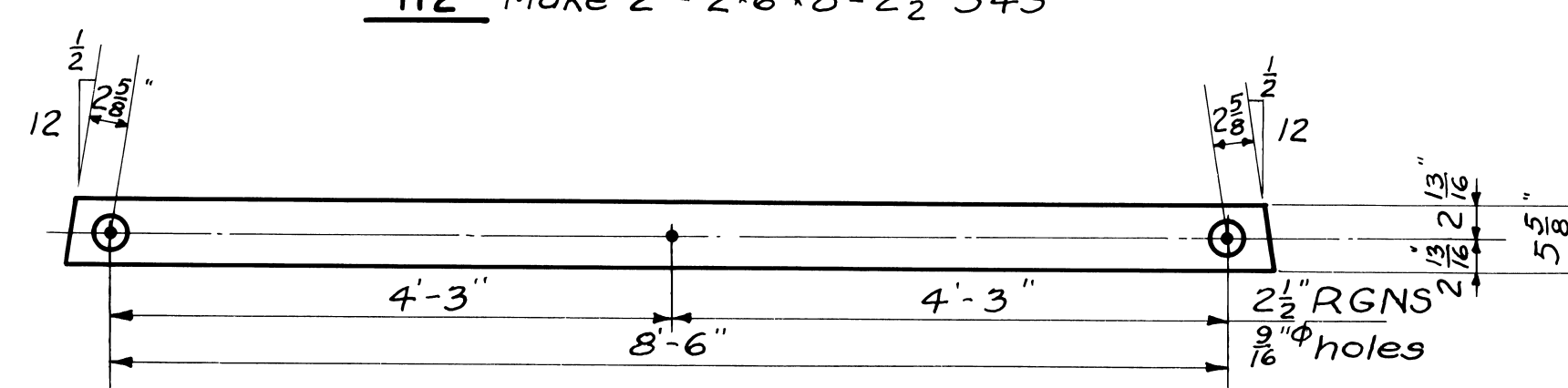
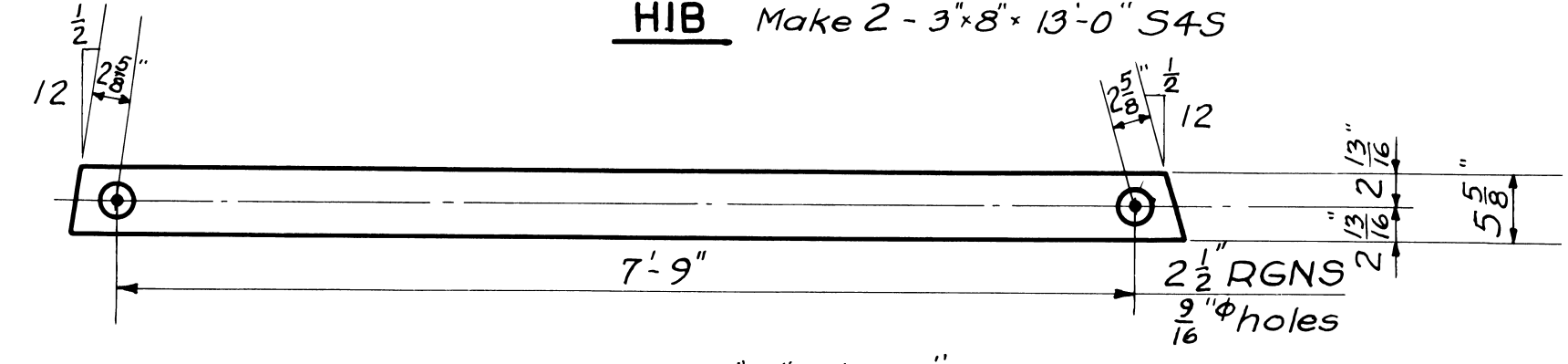
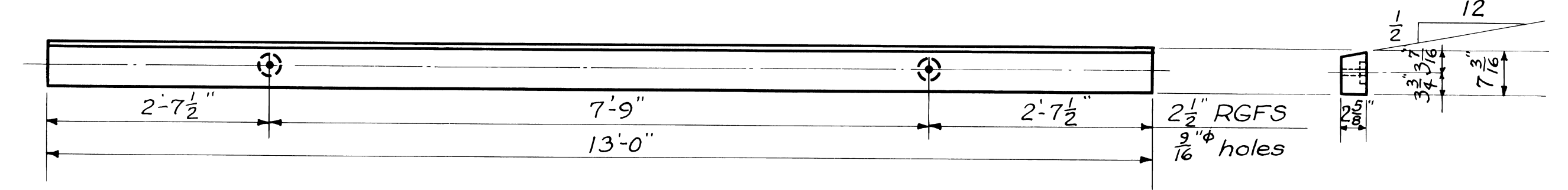
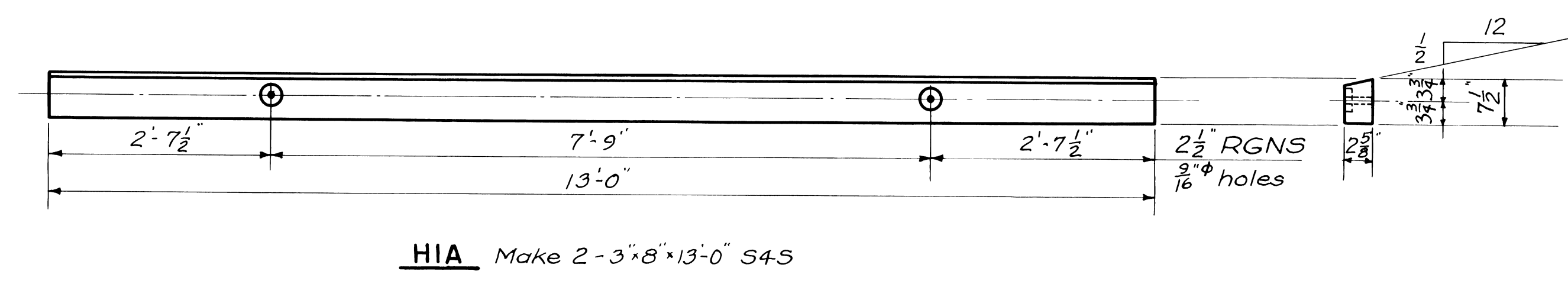
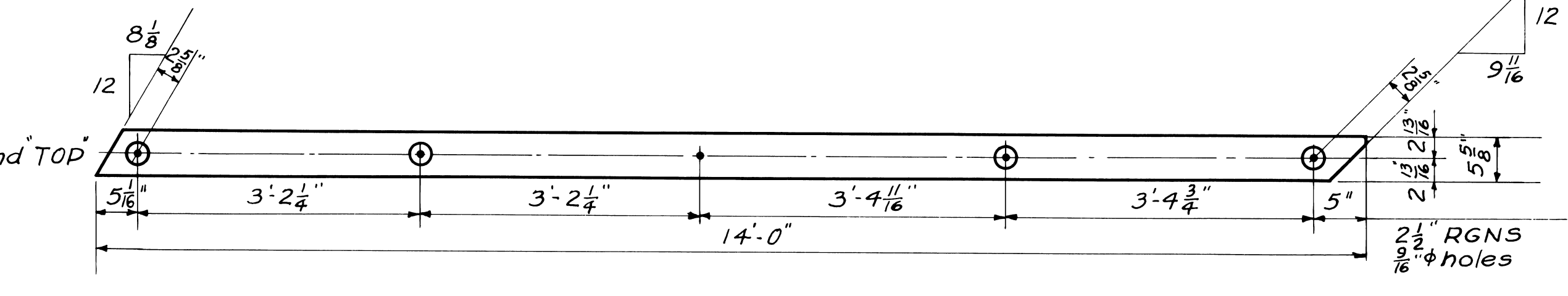
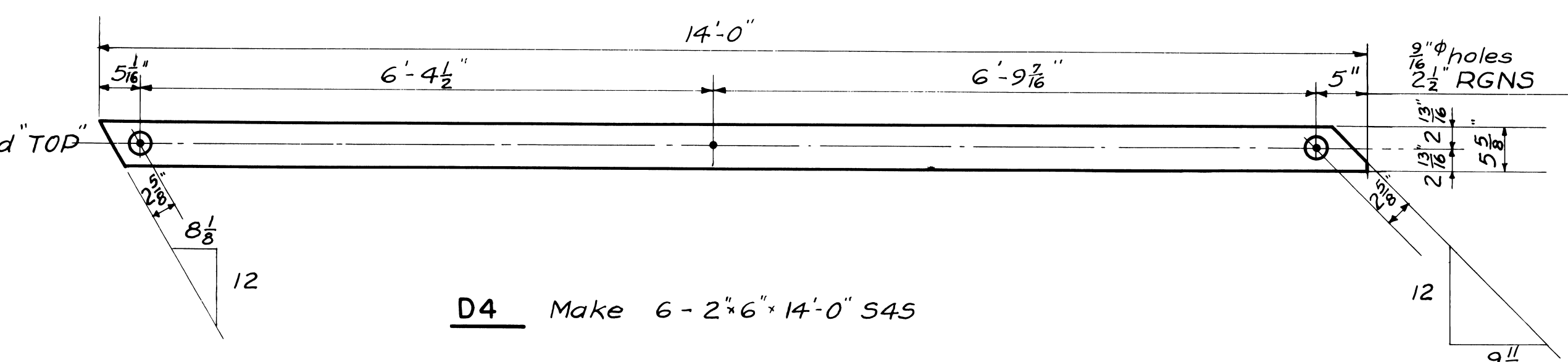
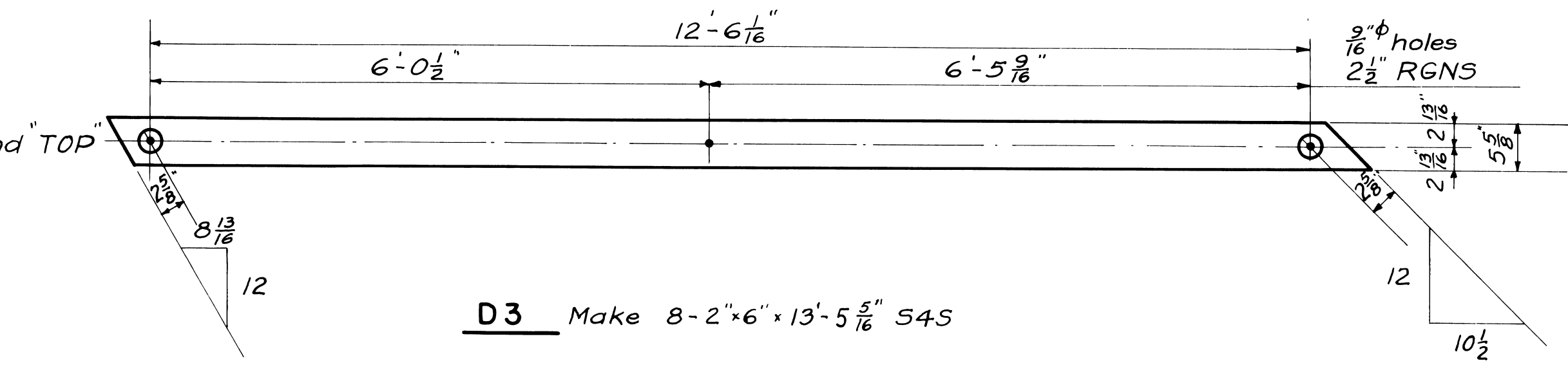
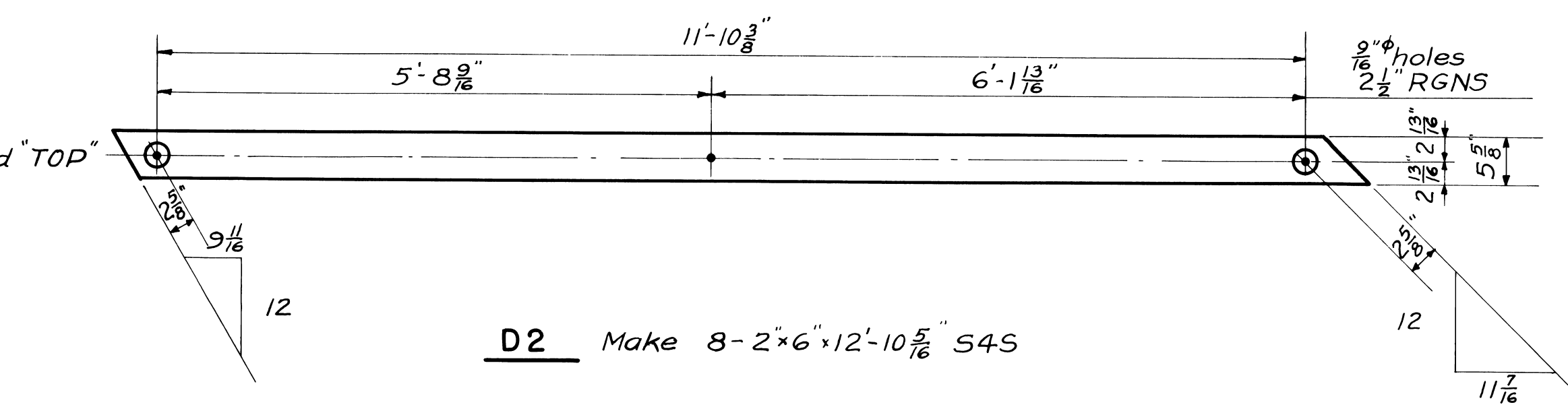
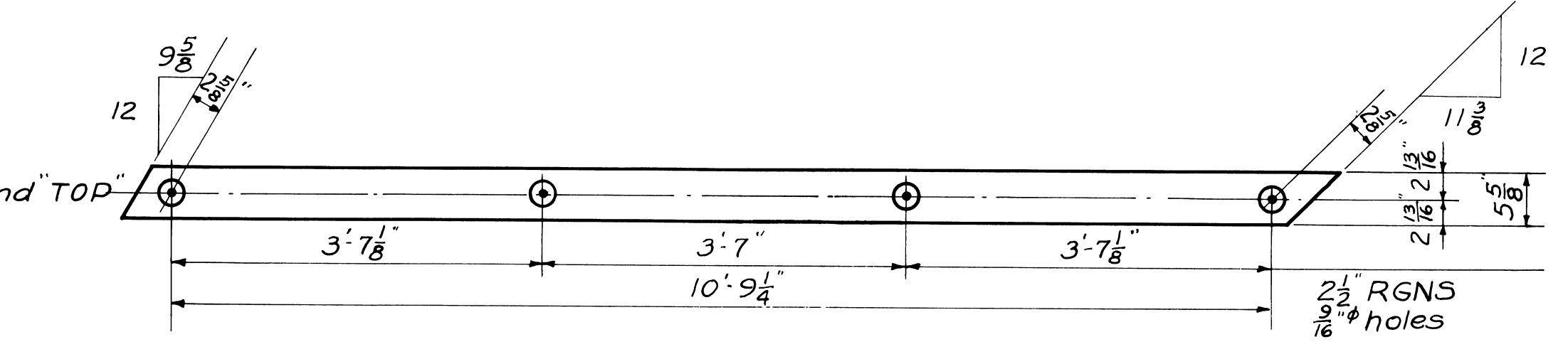
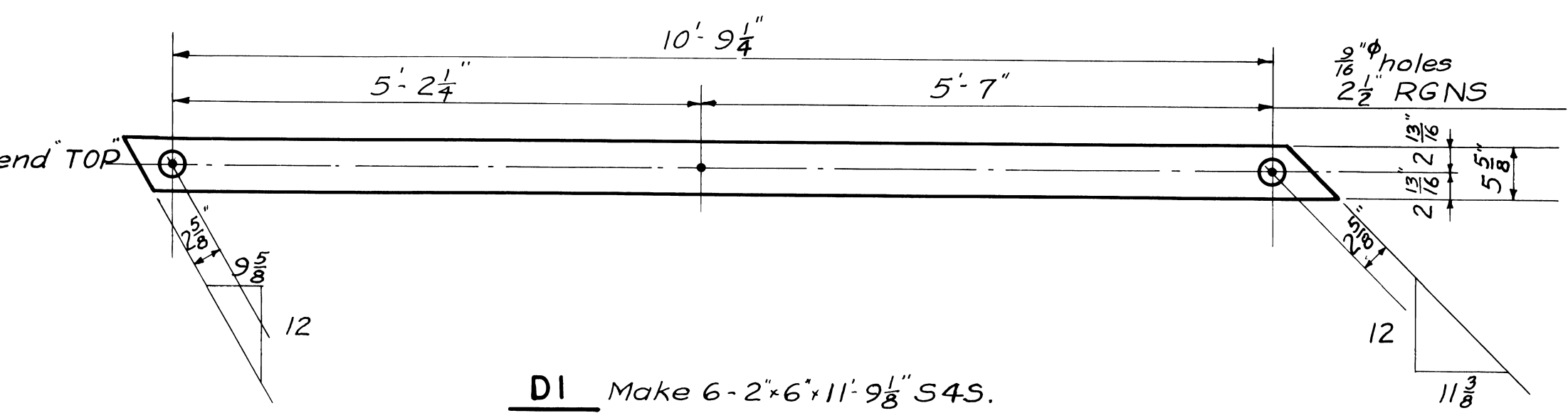
P2D
Make 1-6x6x10 S4S



P4D
Make 1-6x6x14 1/11 S4S

NOTE:
R.G.B.S. = Ring groove both sides
R.G.N.S. = Ring groove near side
R.G.F.S. = Ring groove far side

Revised 2-24-41 by W.G. P4 dowel holes from 15/16" φ.
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
 REGION SIX JAMES FRANKLAND, REGIONAL ENGINEER
STANDARD LOOKOUT TOWER
41 FOOT TYPE CT-5
SHOP DETAILS
 DESIGNED W.G. DRAWN H.R.S. TRACED W.G.
 SCALE NONE CHECKED W.D.S.
 APPROVED DATE APRIL 6, 1938
 ASSISTANT REGIONAL FORESTER

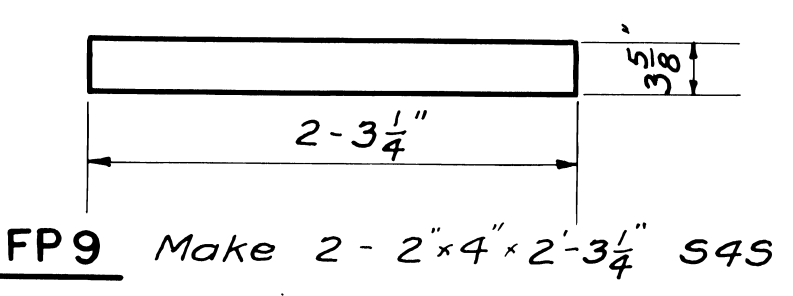
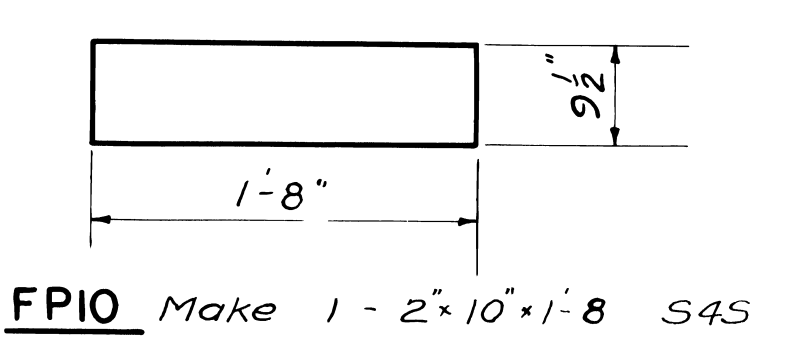
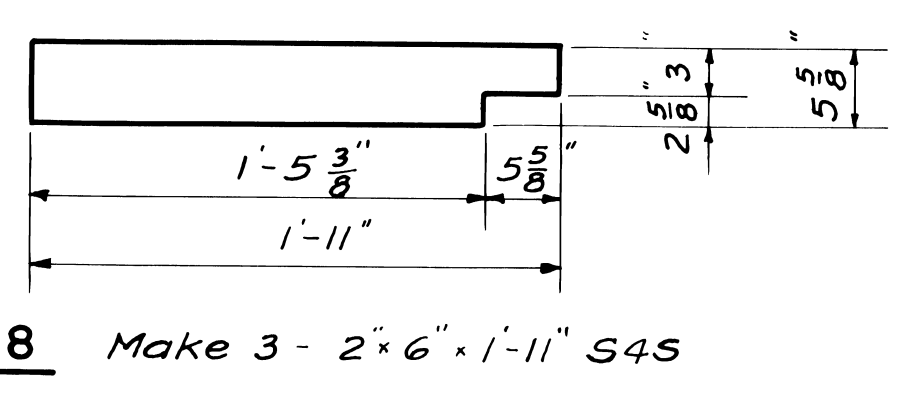
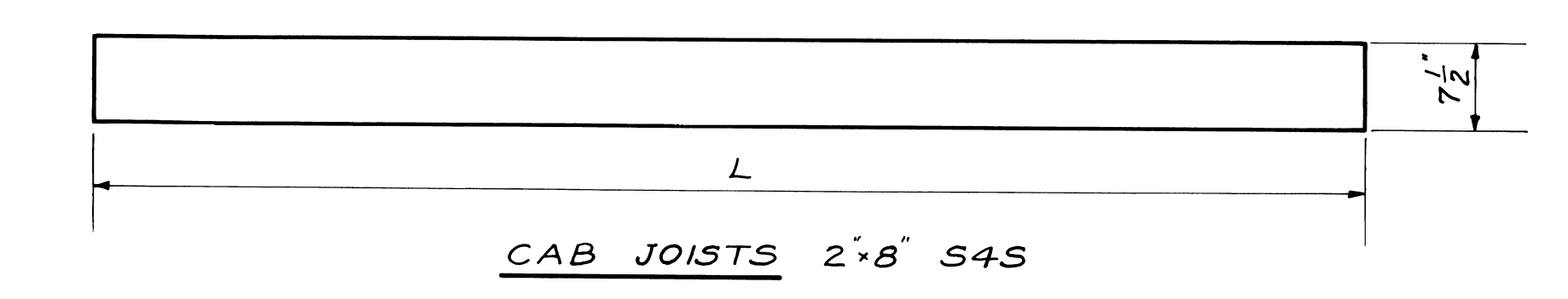
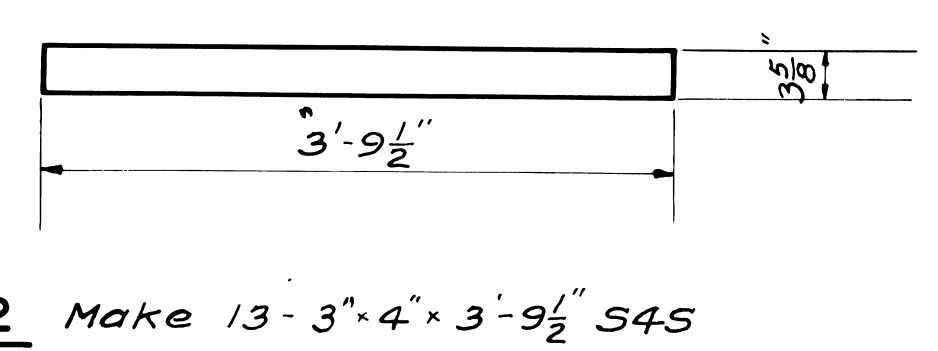
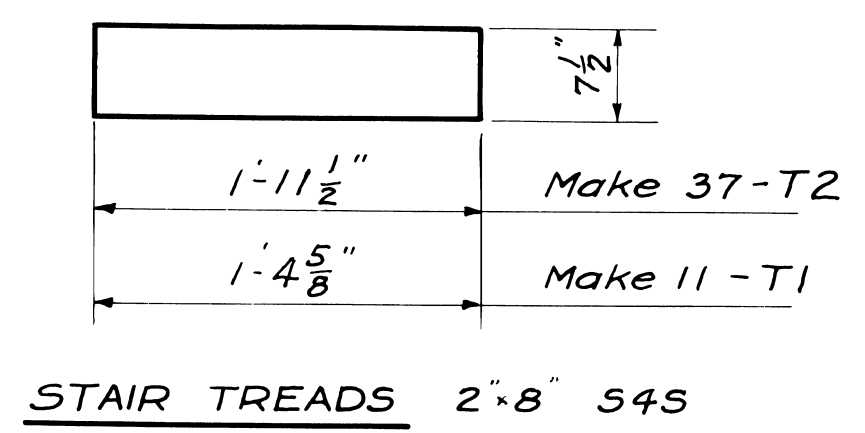
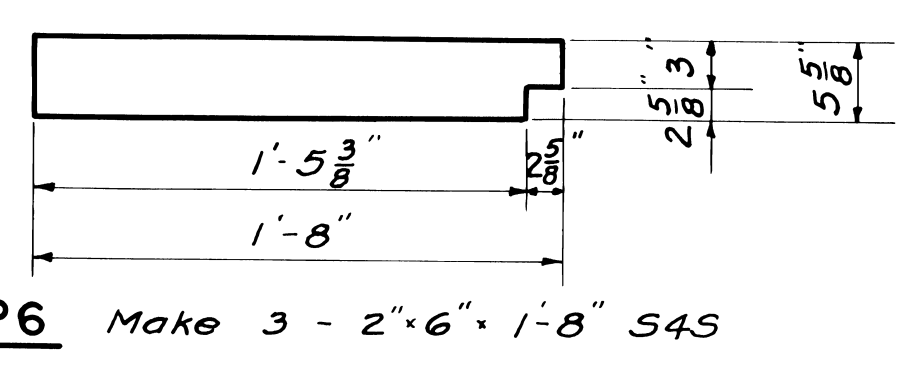
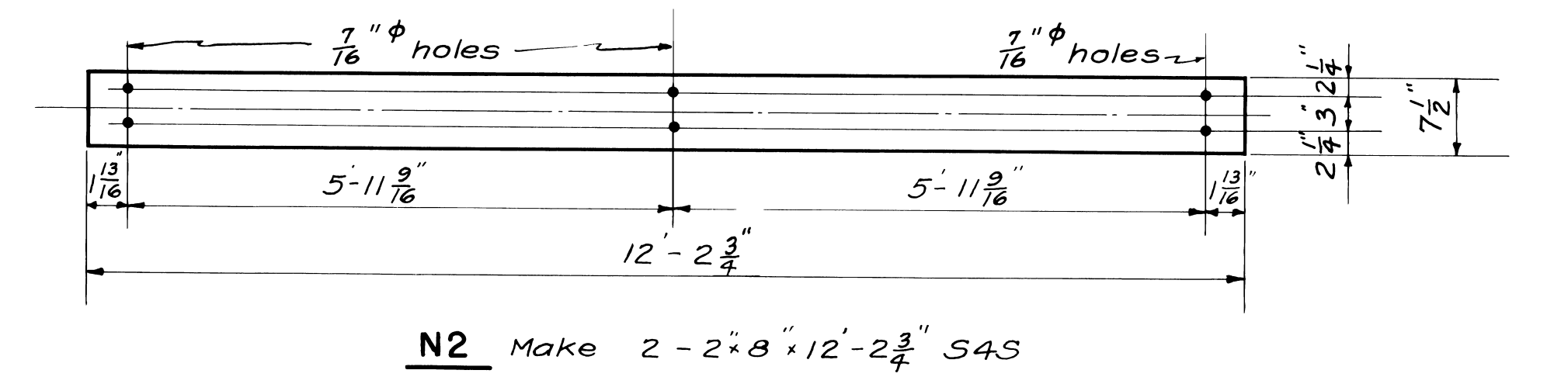
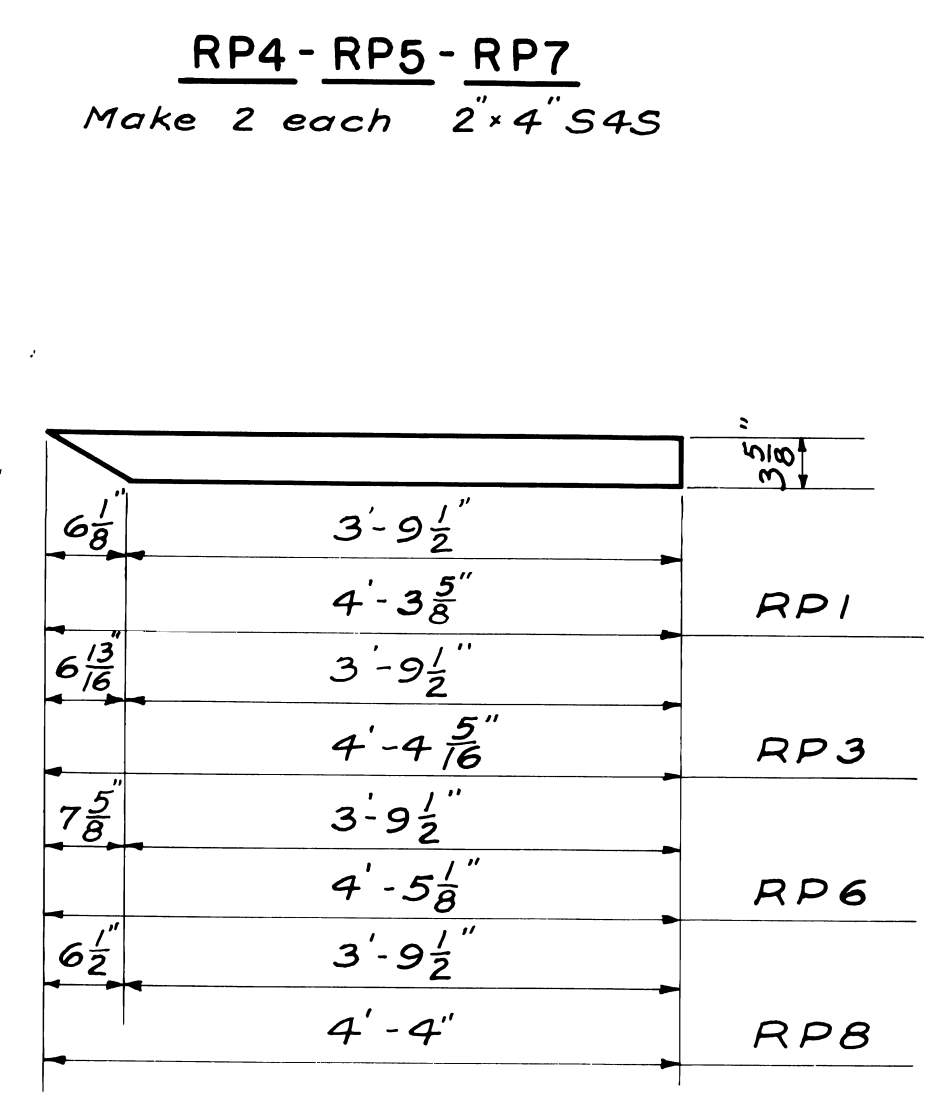
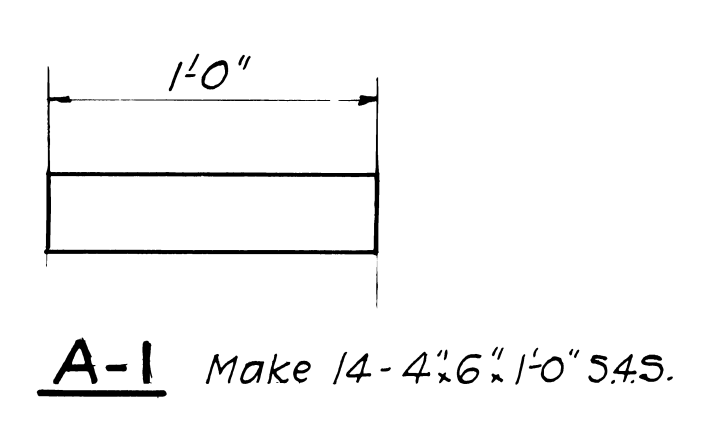
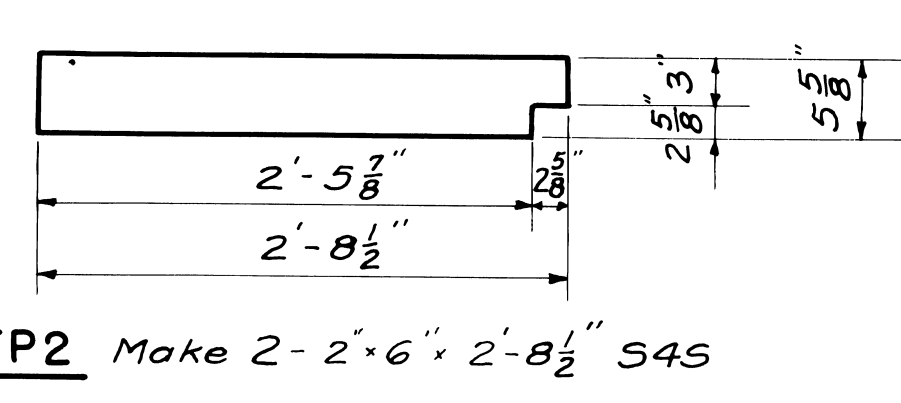
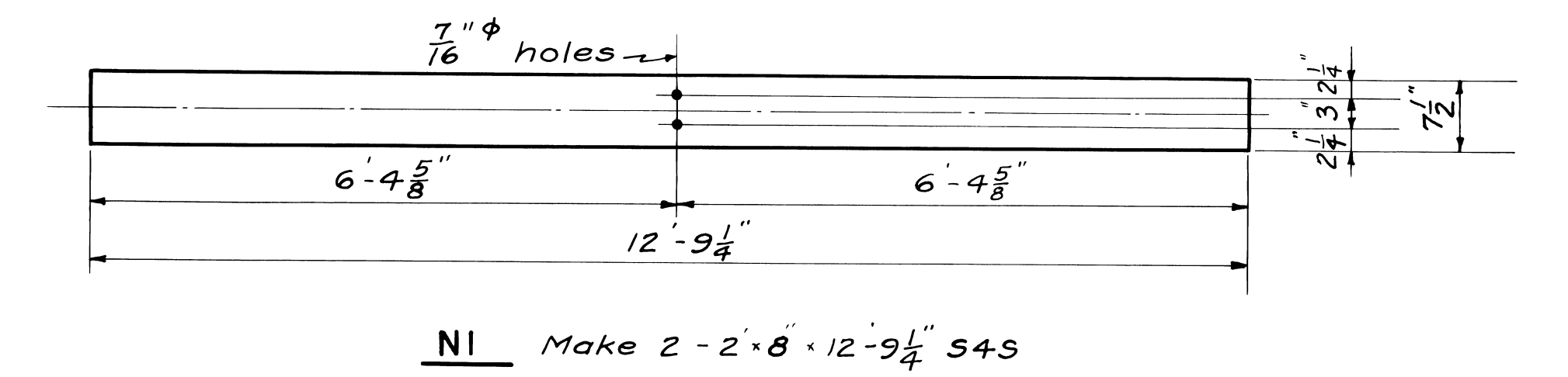
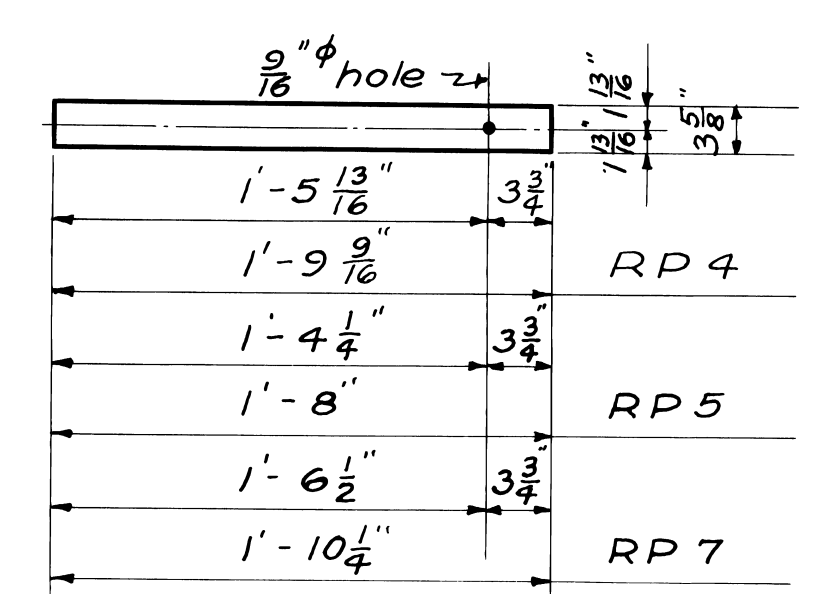
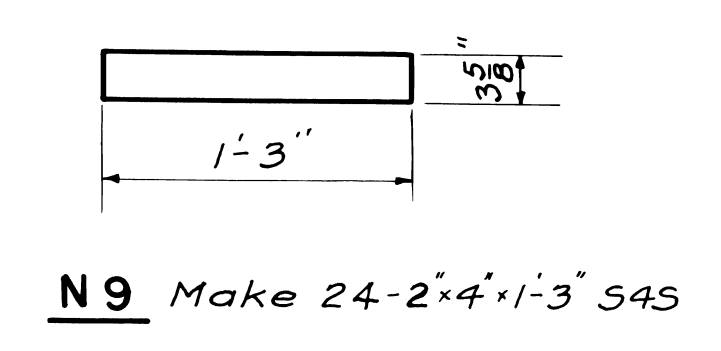
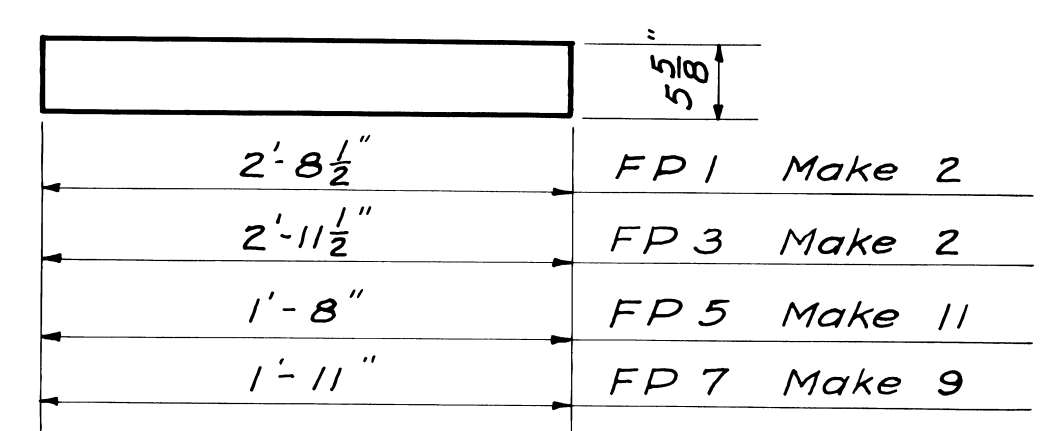
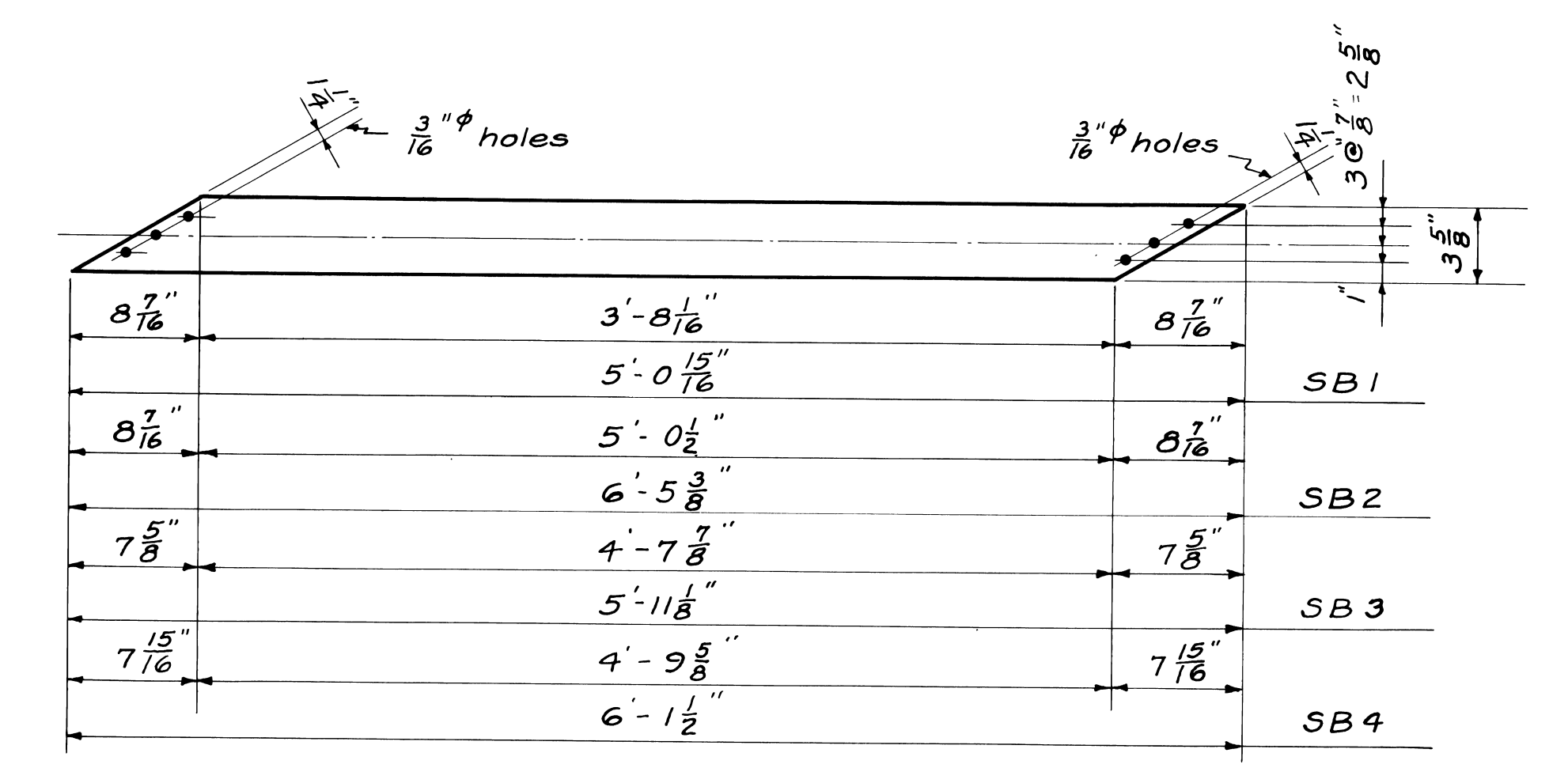
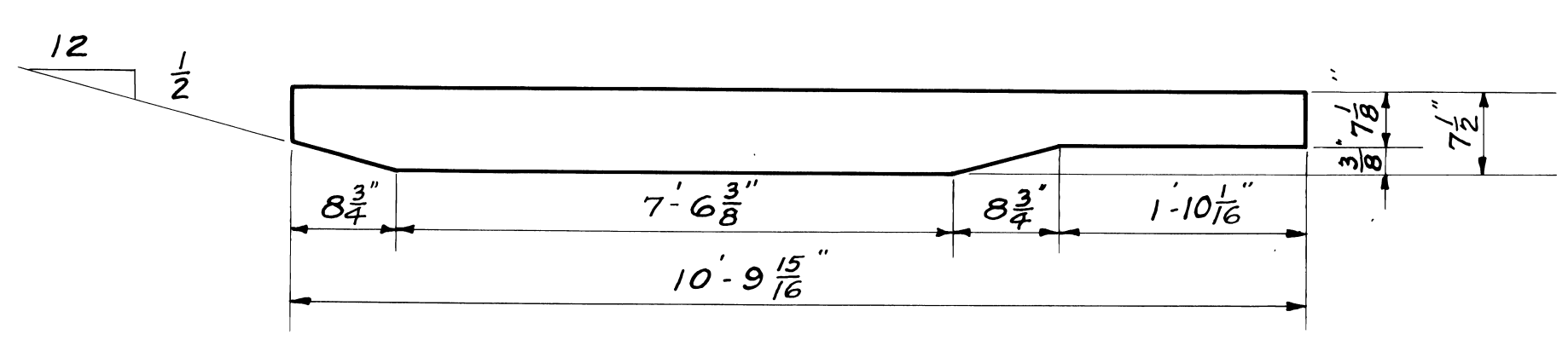
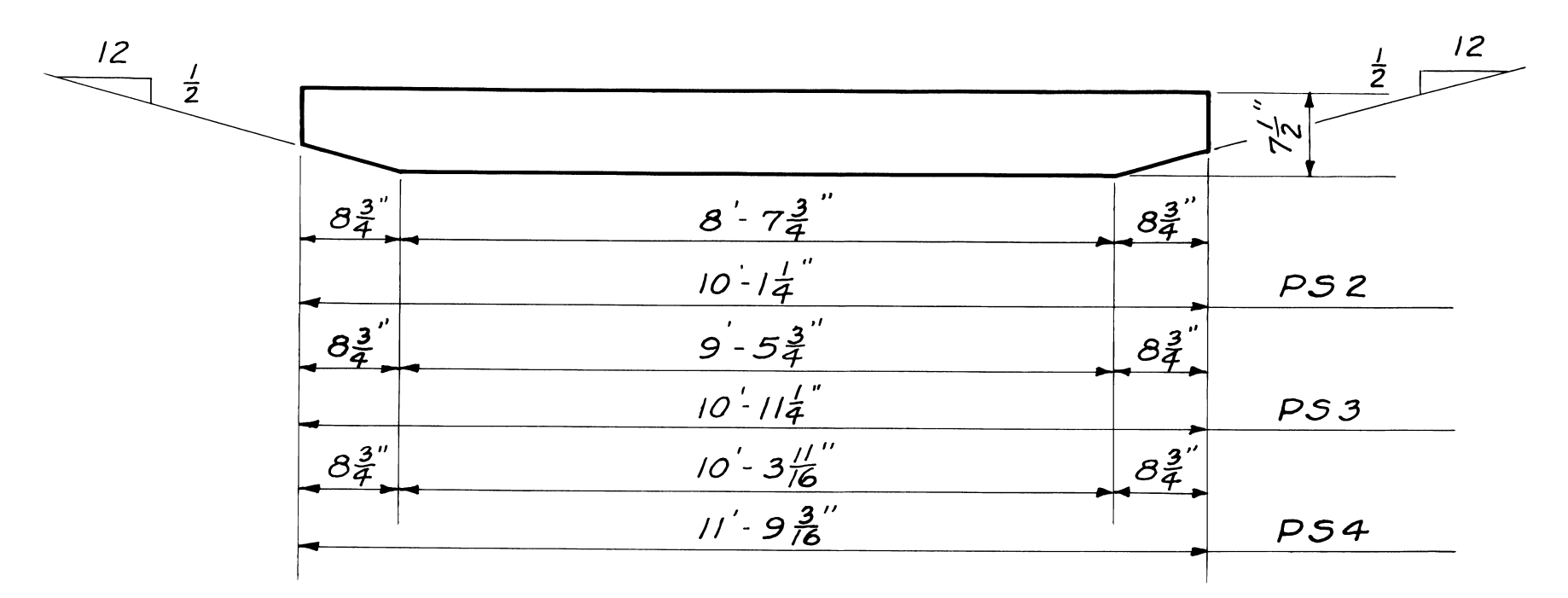
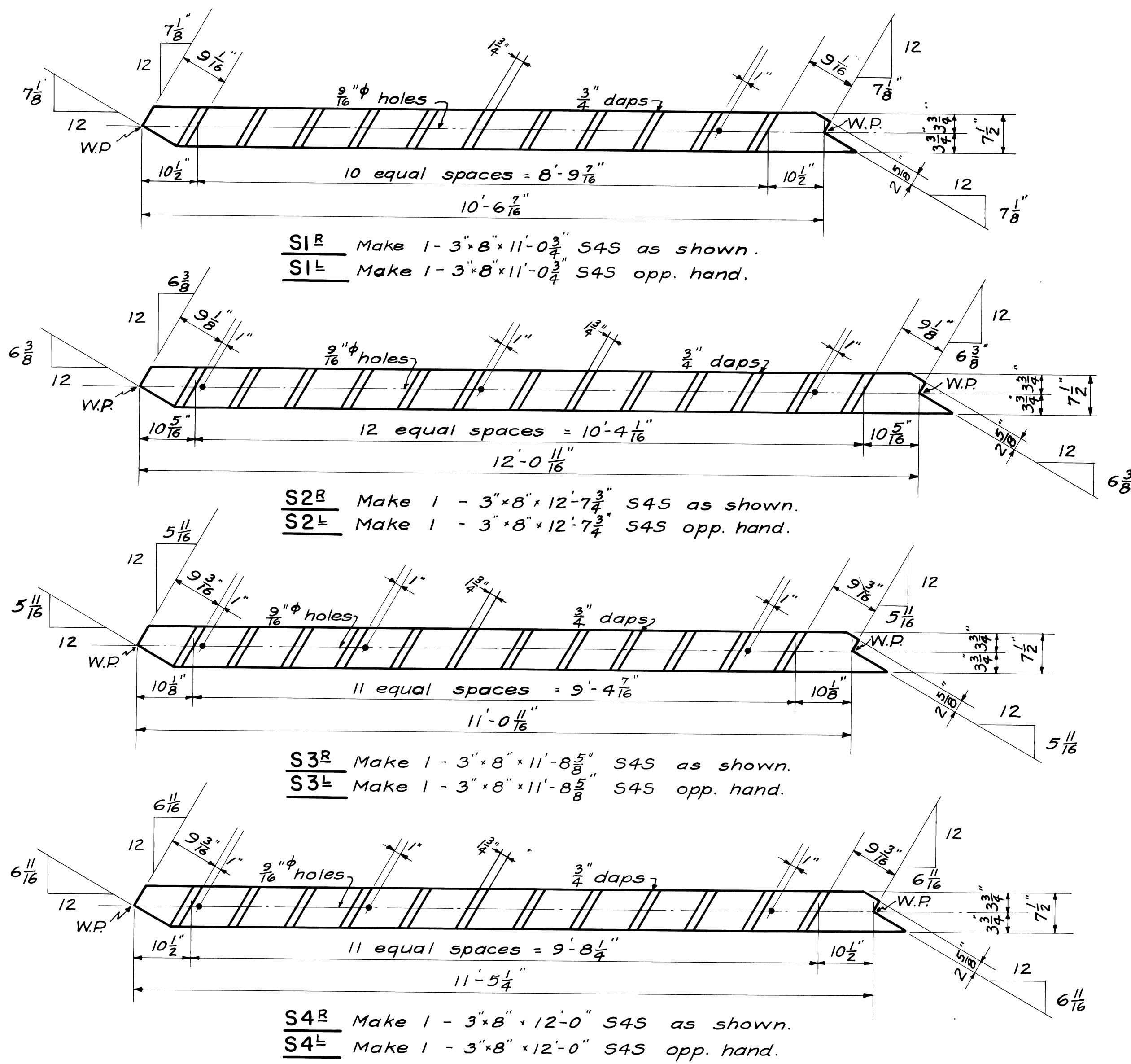


Revised 3-8-39 by W.G.
DIA 4/C

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION SIX J. FRANKLAND REGIONAL ENGINEER

STANDARD LOOKOUT TOWER
41-FOOT TYPE CT-5
SHOP DETAILS

DESIGNED W.G. DRAWN H.R.S. TRACED L.L.L.
SCALE NONE CHECKED W.D.S.
APPROVED J. Frankland DATE APRIL 1938
ASSISTANT REGIONAL FORESTER



Mark	No. req'd	Length - L
N3	3	10'-4 ³ / ₈ "
N4	5	12'-2 ³ / ₄ "
N5	1	5'-2 ³ / ₈ "
N6	2	1'-8 ³ / ₈ "
N7	4	1'-2 ¹ / ₂ "
N8	2	1'-5 ³ / ₈ "

Revised July 25-1940 by W.D.S.

U. S. DEPARTMENT OF AGRICULTURE
 FOREST SERVICE

REGION SIX J. FRANKLAND REGIONAL ENGINEER

**STANDARD LOOKOUT TOWER
 41-FOOT TYPE CT-5
 SHOP DETAILS**

DESIGNED W.G. DRAWN L.L.L. TRACED L.L.L.
 SCALE NONE CHECKED B.C.O.
 APPROVED [Signature] ASSISTANT REGIONAL FORESTER DATE APRIL 1939

TREATED TOWER MATERIAL

ITEM No.	MARK	SIZE	LENGTH	DESCRIPTION	F.B.M.	
1	1	DIA	6x6	8'-1 1/2"	Top Posts	27
2	1	PIB	"	8'-1 1/2"	"	27
3	1	PIC	"	8'-1 1/2"	"	27
4	1	PID	"	8'-1 1/2"	"	27
5	1	P2A	"	12'-0"	Intermediate Posts	36
6	1	P2B	"	12'-0"	"	36
7	1	P2C	"	12'-0"	"	36
8	1	P2D	"	12'-0"	"	36
9	2	P3A	"	12'-0"	"	72
10	2	P3B	"	12'-0"	"	72
11	1	P4A	"	16'-11"	Bottom Posts	54
12	1	P4B	"	16'-11"	"	54
13	1	P4C	"	16'-11"	"	54
14	1	P4D	6x6	16'-11"	"	54
15	24	PS1	2x6	2'-6"	Post Splices	60
16	6	D1	"	11'-9 1/8"	Top Diagonals	72
17	1	DIA ^B	"	11'-9 1/8"	"	12
18	1	DIA ^L	"	11'-9 1/8"	"	12
19	8	D2	"	12'-10 5/16"	Interm. Diagonals	104
20	8	D3	"	13'-5 7/16"	"	112
21	6	D4	"	14'-0"	Bottom Diagonals	84
22	1	D4A ^B	"	14'-0"	"	14
23	1	D4A ^L	"	14'-0"	"	14
24	2	H2	2x6	8'-2 1/2"	Top Horizontals	18
25	6	H3	3x6	8'-11 1/2"	Interm.	81
26	2	H3A	3x6	9'-6"	"	30
27	8	H4	2x6	9'-9 1/2"	"	80
28	8	H5	"	10'-7 1/2"	"	88
29	8	H6	2x6	11'-5 1/2"	Bottom	96
30	4	FBI	6x6	1'-0"	Filler Blocks	12
31	31	FB2	6x6	1'-0"	"	93
32				TOTAL F.B.M.	1594	

As required by specifications, material for posts is listed 2'-0" greater than shop detail lengths to eliminate seasoning end checks.

UNTREATED LUMBER

ITEM No.	MARK	SIZE	LENGTH	DESCRIPTION	F.B.M.	
1	2	—	2x4	14'-0"	Handrails	19
2	11	—	"	12'-0"	"	89
3	1	—	"	9'-0"	"	6
4	1	—	"	7'-0"	"	5
5						
6						
7						
8						
9						
10						
11						
12						
13						
14				TOTAL F.B.M.	119	

**TREATED STAIR MATERIAL
FOR TOWER USING CAB WITH CATWALK**

ITEM No.	MARK	SIZE	LENGTH	DESCRIPTION	F.B.M.	
1	2	H1A	3x8	13'-0"	Top Horizontals	52
2	2	H1B	"	13'-0"	"	52
3	1	S1 ^B	"	11'-0 3/4"	Stair Stringers	24
4	1	S1 ^L	"	11'-0 3/4"	"	24
5	1	S2 ^B	"	12'-7 3/4"	"	26
6	1	S2 ^L	"	12'-7 3/4"	"	26
7	1	S3 ^B	"	11'-8 5/8"	"	24
8	1	S3 ^L	"	11'-8 5/8"	"	24
9	1	S4 ^B	"	12'-0"	"	24
10	1	S4 ^L	"	12'-0"	"	24
11	2	PS1	3x8	10'-9 15/16"	Platform Stringers	44
12	2	PS2	3x8	10'-1 1/4"	"	44
13	2	PS3	"	10'-11 1/4"	"	44
14	2	PS4	3x8	11'-9 3/16"	"	48
15	2	SB1	2x4	5'-0 7/16"	Stair Braces	8
16	2	SB2	"	6'-5 3/8"	"	10
17	2	SB3	"	5'-11 1/8"	"	8
18	2	SB4	2x4	6'-1 1/2"	"	10
19	2	N1	2x8	12'-9 1/4"	Cab Joists	35
20	2	N2	"	12'-2 3/4"	"	35
21	3	N3	"	10'-4 3/4"	"	45
22	5	N4	"	12'-2 3/4"	"	88
23	1	N5	"	5'-2 7/8"	"	8
24	2	N6	"	1'-8 3/8"	"	6
25	4	N7	"	1'-2 1/8"	"	7
26	2	N8	2x8	1'-5 3/4"	"	4
27	2	RP1	3x4	4'-3 5/8"	Handrail Posts	10
28	14	RP2	"	3'-9 1/2"	"	56
29	2	RP3	"	4'-4 7/16"	"	10
30	2	RP4	2x4	1'-9 7/16"	"	3
31	2	RP5	"	1'-8"	"	3
32	2	RP6	3x4	4'-5 1/8"	"	10
33	2	RP7	2x4	1'-10 1/4"	"	3
34	2	RP8	3x4	4'-4"	"	10
35	2	FP1	2x6	2'-8 1/2"	Floor Planks	6
36	2	FP2	"	2'-8 1/2"	"	6
37	2	FP3	"	2'-11 1/2"	"	6
38	11	FP5	"	1'-8"	"	20
39	3	FP6	"	1'-8"	"	5
40	9	FP7	"	1'-11"	"	18
41	3	FP8	2x6	1'-11"	"	6
42	2	FP9	2x4	2'-3 1/4"	"	4
43	1	FP10	2x10	1'-8"	"	4
44	24	N9	2x4	1'-3"	Cab Joist Ties	20
45	11	T1	2x8	1'-4 5/8"	Stair Treads	22
46	37	T2	2x8	1'-11 1/2"	"	99
47	14	A1	4x6	1'-0"	Stringer Ties	28
48						
49				TOTAL F.B.M.	1093	

NOTE:

All the material listed shall be furnished S4S.
 Treated Material and Untreated Lumber, listed in the left column, shall be purchased with all orders.
 Treated Stair Material, listed in the center column, shall be purchased only for towers where a catwalk is to be constructed with the cab.
 Alternate Treated Stair Material, listed in the right column, shall be purchased only for towers where the catwalk is to be omitted. See sheet L-10002 for details of stairs with catwalk omitted.

**ALTERNATE TREATED STAIR MATERIAL
FOR TOWER WHERE CATWALK IS OMITTED**

ITEM No.	MARK	SIZE	LENGTH	DESCRIPTION	F.B.M.	
1	2	HA	3x8	8'-4"	Top Horizontals	36
2	2	HB	"	8'-4"	"	36
3	1	S1A ^B	"	11'-6 9/16"	Stair Stringers	24
4	1	S1A ^L	"	11'-6 9/16"	"	24
5	1	S2A ^B	"	11'-8 1/8"	"	24
6	1	S2A ^L	"	11'-8 1/8"	"	24
7	1	S3 ^B	"	11'-8 5/8"	"	24
8	1	S3 ^L	"	11'-8 5/8"	"	24
9	1	S4 ^B	"	12'-0"	"	24
10	1	S4 ^L	3x8	12'-0"	"	24
11	1	PS1A	3x10	9'-5 3/16"	Platform Stringers	25
12	2	PS2	3x8	10'-1 1/4"	"	44
13	2	PS3	"	10'-11 1/4"	"	44
14	2	PS4	3x8	11'-9 3/16"	"	48
15	2	SB1A	2x4	5'-0 3/8"	Stair Braces	8
16	2	SB2A	"	5'-1 7/16"	"	8
17	2	SB3	"	5'-11 1/8"	"	8
18	2	SB4	2x4	6'-1 1/2"	"	10
19	2	N1A	2x8	7'-3 1/4"	Cab Joists	21
20	9	N2A	"	8'-8"	"	108
21	1	N3A	"	1'-4 1/8"	"	3
22	1	N4A	"	3'-2 3/8"	"	6
23	2	N5A	"	1'-9 1/4"	"	6
24	2	N6A	"	1'-5 3/4"	"	4
25	2	N7A	2x8	1'-2 1/8"	"	4
26	2	RPIA	3x4	4'-6 3/8"	Handrail Posts	10
27	1	RP2A	"	3'-7 5/8"	"	4
28	1	RP2B	"	3'-7 5/8"	"	4
29	2	RP3A	"	4'-7 5/8"	"	10
30	2	RP4A	2x4	1'-7 1/4"	"	3
31	2	RP5	"	1'-8"	"	3
32	2	RP6	3x4	4'-5 1/8"	"	10
33	2	RP7	2x4	1'-10 1/4"	"	3
34	2	RP8	3x4	4'-4"	"	10
35	19	FP5	2x6	1'-8"	Floor Planks	32
36	4	FP6	"	1'-8"	"	7
37	11	FP7	"	1'-11"	"	22
38	4	FP8	2x6	1'-11"	"	8
39	3	FP9	2x4	2'-3 1/4"	"	6
40	1	FP10	2x10	1'-8"	"	4
41	20	N9	2x4	1'-3"	Cab Joist Ties	18
42	12	T1A	2x8	1'-5 1/2"	Stair Treads	24
43	36	T2	"	1'-11 1/2"	"	96
44	12	RP2	3x4	3'-9 1/2"	Handrail Posts	48
45	14	A-1	4x6	1'-0"	Stringer Ties	28
				TOTAL F.B.M.	961	

Revised July 25-1940 by W.D.S.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

REGION SIX J. FRANKLAND REGIONAL ENGINEER

STANDARD LOOKOUT TOWER
41-FOOT TYPE CT-5
BILL OF LUMBER

DESIGNED W.G. DRAWN L.L.L. TRACED L.L.L.
SCALE _____ CHECKED _____
APPROVED [Signature] DATE APRIL 1938
ASSISTANT REGIONAL FORESTER

BILL OF IRON					
No.	SIZE	LENGTH	DESCRIPTION	LOCATION	WEIGHT
77	$\frac{1}{2}''$	$7\frac{1}{2}''$	Machine Bolts	Post Splices	40
93	"	$8\frac{1}{2}''$	" "	Diagonals to Posts	54
8	"	$9\frac{1}{2}''$	" "	Top Horizontals to Posts	5
87	"	10"	" "	Lower " " "	57
27	"	12"	" "	Middle " " "	21
* 1	"	22"	" "	Stair Stringers	2
6	"	$28\frac{1}{2}''$	" "	" "	11
3	"	32"	" "	" "	7
273	$2\frac{1}{2}''$		"TECO" or equal split rings		75
765	$\frac{1}{2}''$		Malleable C.I. Washers		95
4			Cast Steel Guy Collars	See Detail.	60
32	$\frac{1}{2}''$		Drop Forged Cable Clips		21
	$\frac{1}{2}''$		$\frac{6}{19}$ Plough Steel Wire Rope	Length to suit field.	
4	$\frac{1}{2}''$		Thimbles for $\frac{1}{2}'' - \frac{6}{19}$ wire rope.		3
	20d		Common Nails.	FB, FP, 5B, Cab Joists	22
	40d		" "	S1, S2, ST1, ST2	15
	30d		" "	N9	5
	10d		" "	RP	3
46	$\frac{1}{2}''$	$6\frac{1}{2}''$	Machine Bolts	Stair Stringers	21
40	$\frac{3}{8}''$	5"	Carriage Bolts	Hand Rail	8
12	"	6"	" "	" "	3
4	"	7"	" "	" "	1

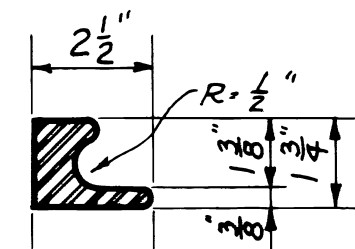
60- $\frac{3}{8}''$ Cut Washers.

All above items except C.S. Guy Collar to be galvanized.

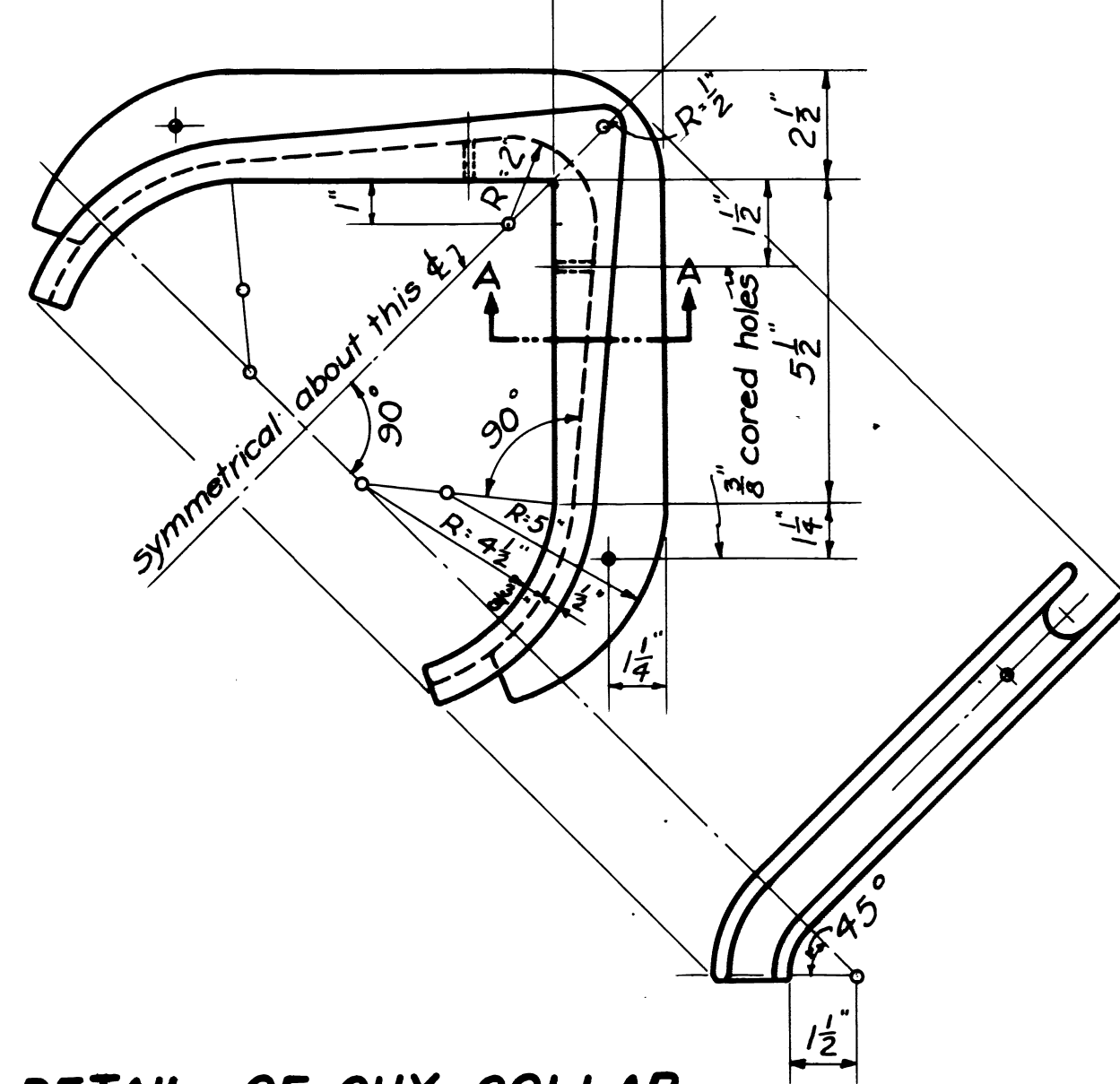
* The asterisked item shall be revised as follows for towers where the alternate stair material is used:

Replace $1 - \frac{1}{2}'' \phi \times 22''$ bolt with $2 - \frac{1}{2}'' \phi \times 22\frac{1}{2}''$ bolt.

This note is applicable only to towers having no catwalk (see sheet L-10002)



SECTION A-A



DETAIL OF GUY COLLAR

Scale 3" = 1'-0"

Material - Cast Steel

Revised. July 25-1940 by W.D.S.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

REGION SIX

J. FRANKLAND REGIONAL ENGINEER

STANDARD LOOKOUT TOWER
41-FOOT TYPE CT-5
BILL OF HARDWARE

DESIGNED W.G. DRAWN L.L.L. TRACED L.L.L.
SCALE 3" = 1'-0" CHECKED B.C.C.
APPROVED [Signature] DATE APRIL 1938
ASSISTANT REGIONAL FORESTER