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WYC
DRAWING BOOK 6
CHAPTER 2–4

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAILS - INDEX | DATE: 4/ 1/69

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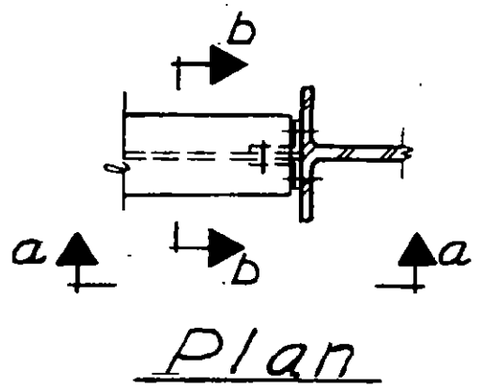
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 101(A) | DATE 5-22-67

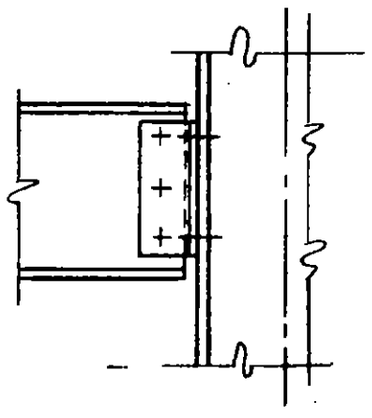
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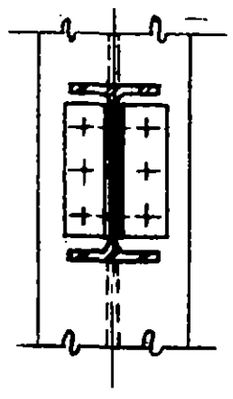


Plan

SCHEDULE	
BM SIZE	DESIGN REACTION*
B 8, 10 WF 12, 10, 8	26.5 K
B 12, 14, 16 WF 16, 14	39.8 K
WF 18	53.0 K
WF 24, 21	66.3 K
WF 30, 27	79.5 K
WF 36, 33	92.8 K



Section a-a



Section b-b

GENERAL NOTES:

For angle size, and bolt size, number and spacing, see AISC part 4.

* Use Design Reaction unless otherwise noted in beam schedule.

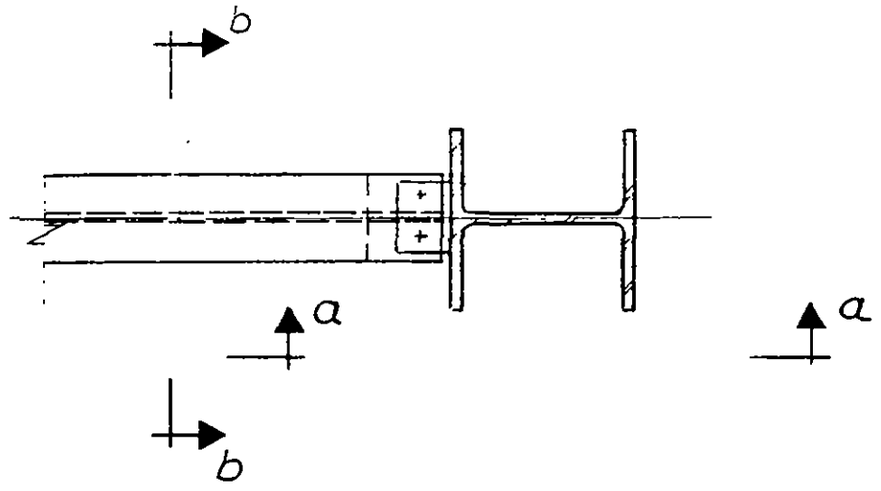
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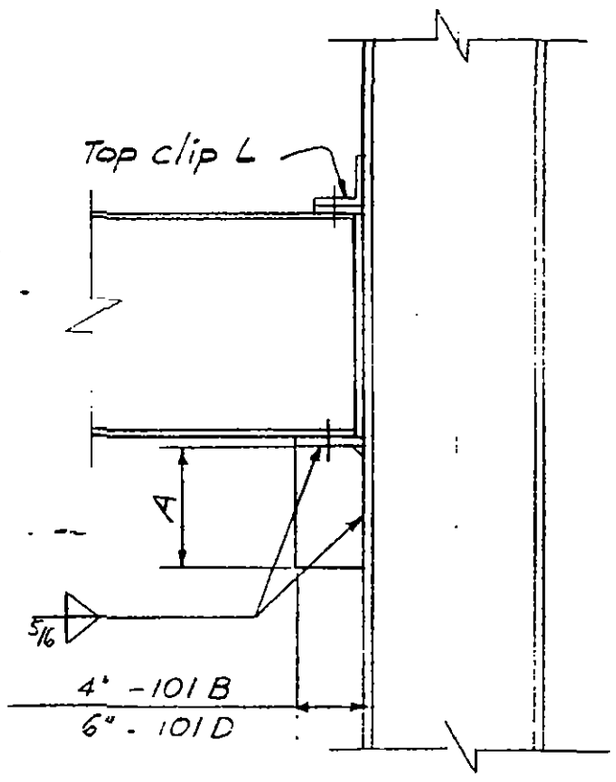
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 101 B, D | DATE 3-14-67

REVISIONS

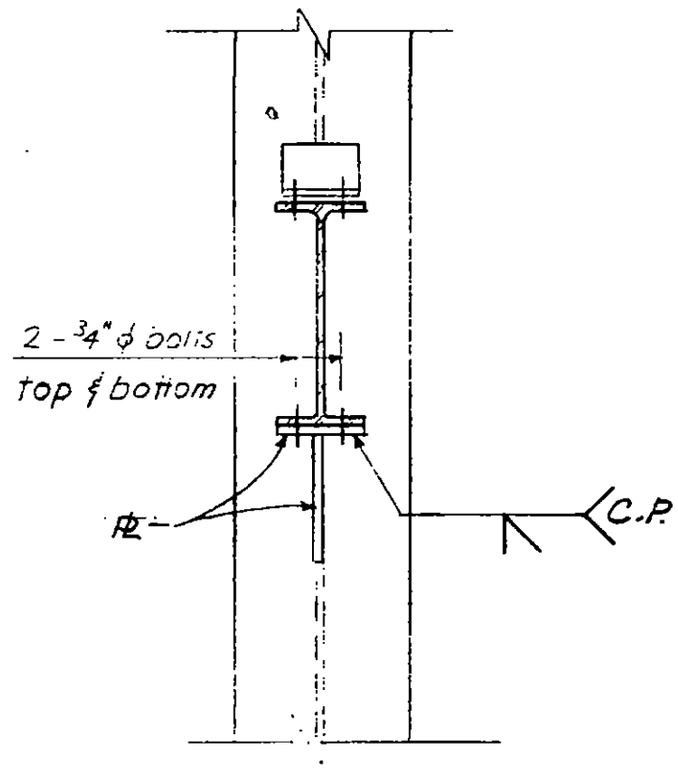


Plan

SCHEDULE			
DETAIL	BEAM SIZE	PL (")	A (")
101 B	10 WF 21 to 10 WF 72	1/2	0'-6"
	10 WF 77 to 10 WF 100	5/8	0'-9"
	12 WF 27 to 12 WF 50	1/2	0'-8"
	12 WF 53 to 12 WF 72	1/2	0'-10"
	12 WF 79 to 12 WF 106	5/8	1'-2"
101 D	12 WF 65 to 12 WF 106	5/8	1'-4"



Section a-a



Section b-b

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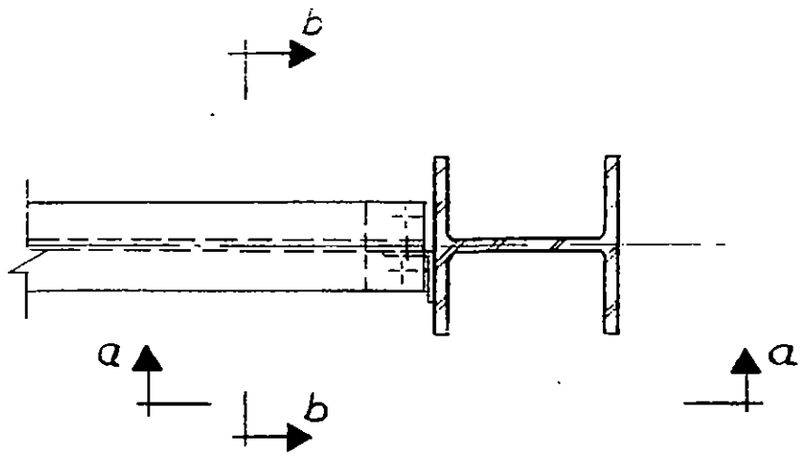
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 'C1-C' | DATE 3-14-67

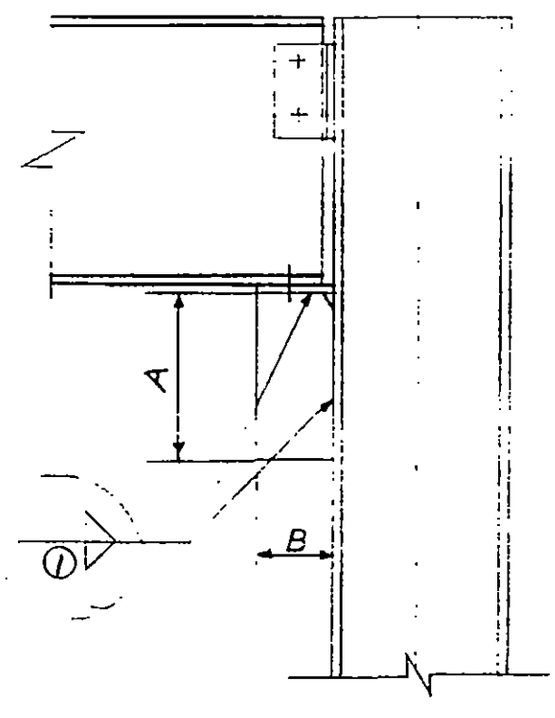
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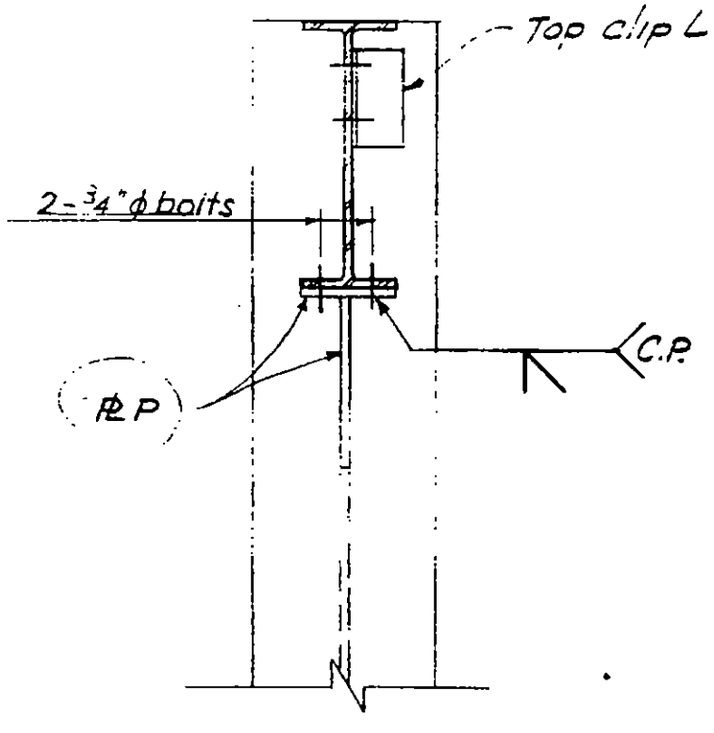


Plan

SCHEDULE				
BEAM SIZE	A	B	℄ P	WELD ①
10 WF	0'-6"	0'-4"	1/2"	5/16
12 WF, 14 WF, 16 WF	0'-9"	0'-4"	1/2"	5/16
21 WF	0'-10"	0'-6"	1/2"	5/16
24 WF	1'-4"	0'-6"	1/2"	5/16
27 WF	1'-6"	0'-7"	5/8"	3/8
33 WF	1'-8"	0'-7 1/2"	3/4"	1/2



Section a-a



Section b-b

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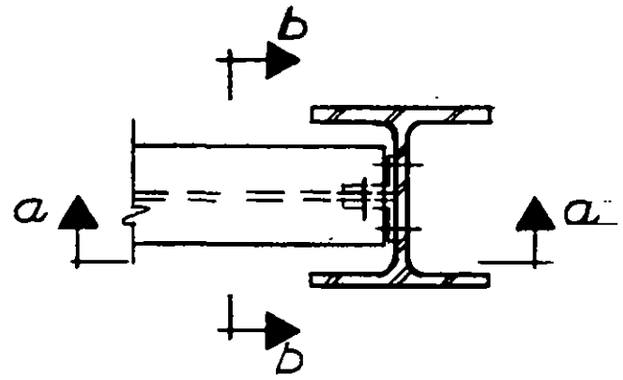
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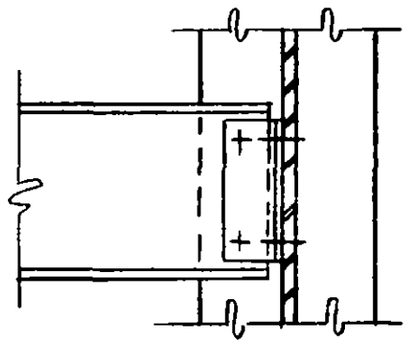
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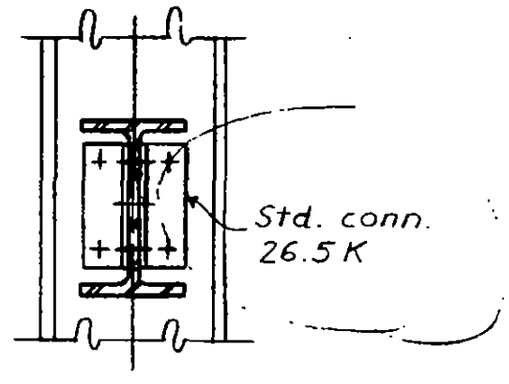
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Section b-b



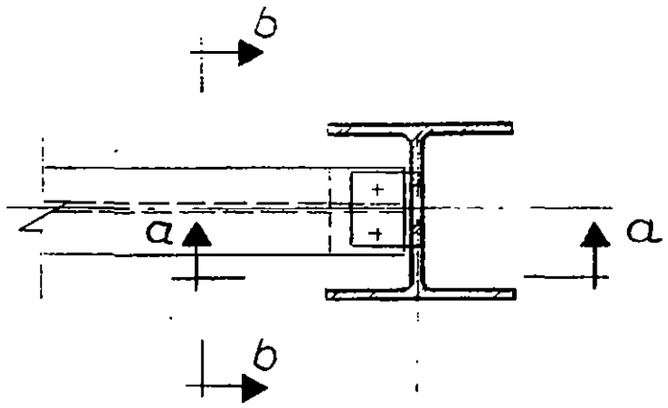
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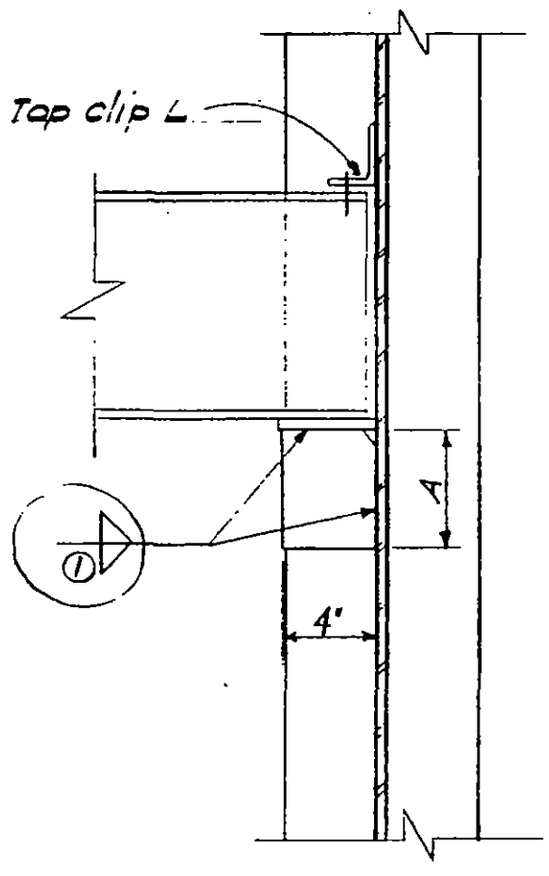
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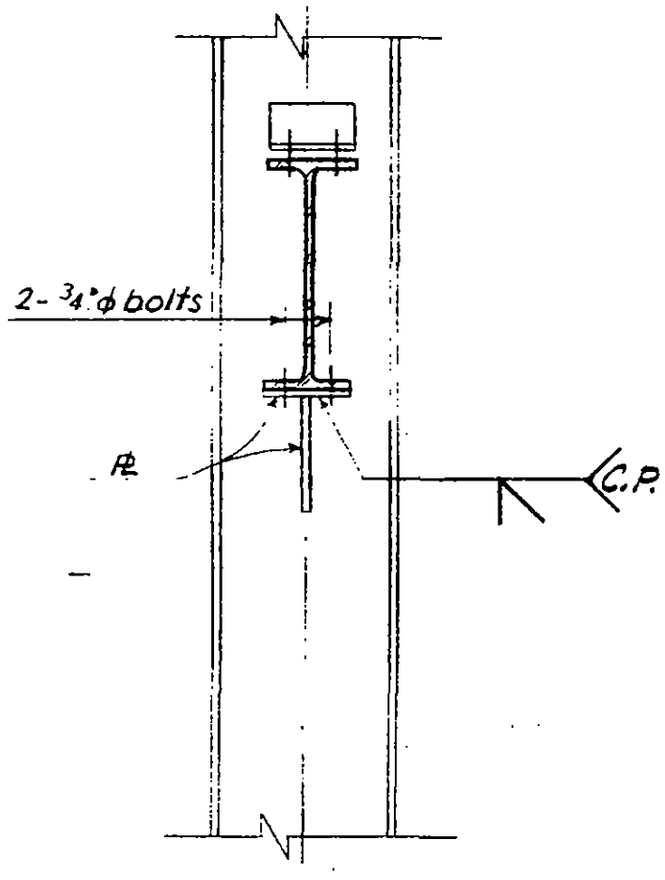


Plan

SCHEDULE			
BEAM SIZE	PL (")	A (")	WELD 1
10 WF 21 to 10 WF 72	1/2	0'-6"	5/16
10 WF 77 to 10 WF 100	5/8	0'-9"	5/16
12 WF 27 to 12 WF 50	1/2	0'-8"	5/16
12 WF 53 to 12 WF 72	1/2	0'-10"	5/16
12 WF 79 to 12 WF 106	5/8	1'-2"	5/16
12 WF 120 to 12 WF 190	3/4	1'-6"	3/8



Section a-a



Section b-b

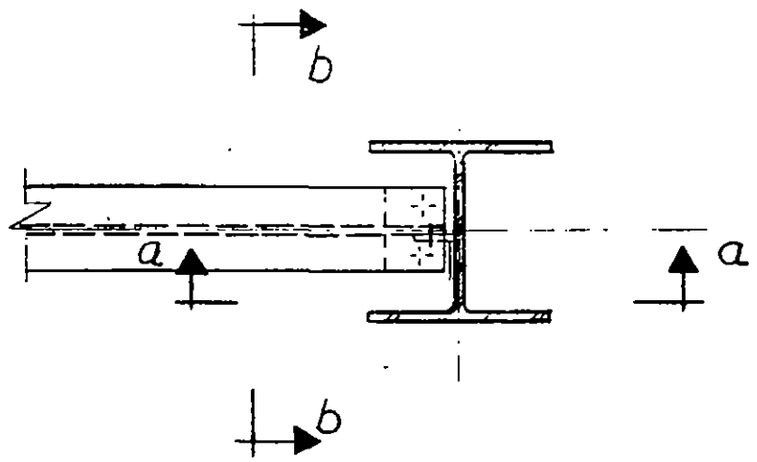
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6-AB2-31

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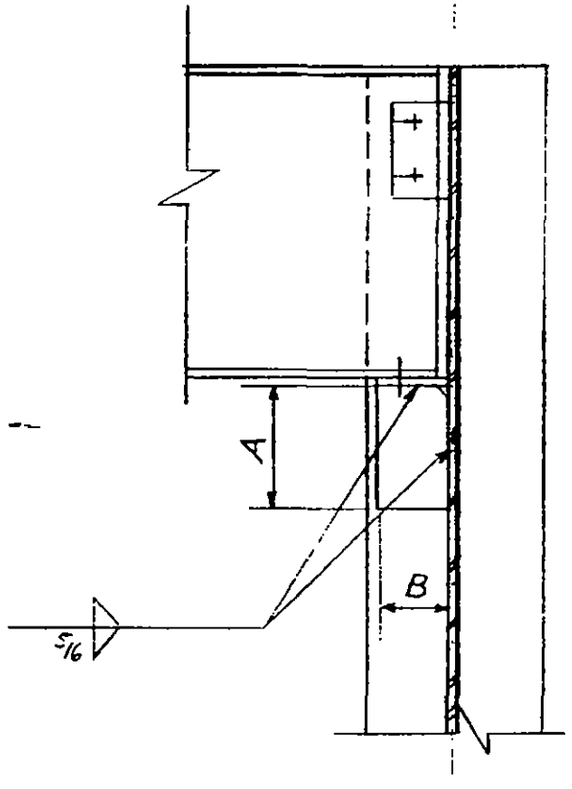
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 102 C | DATE 3-14-67

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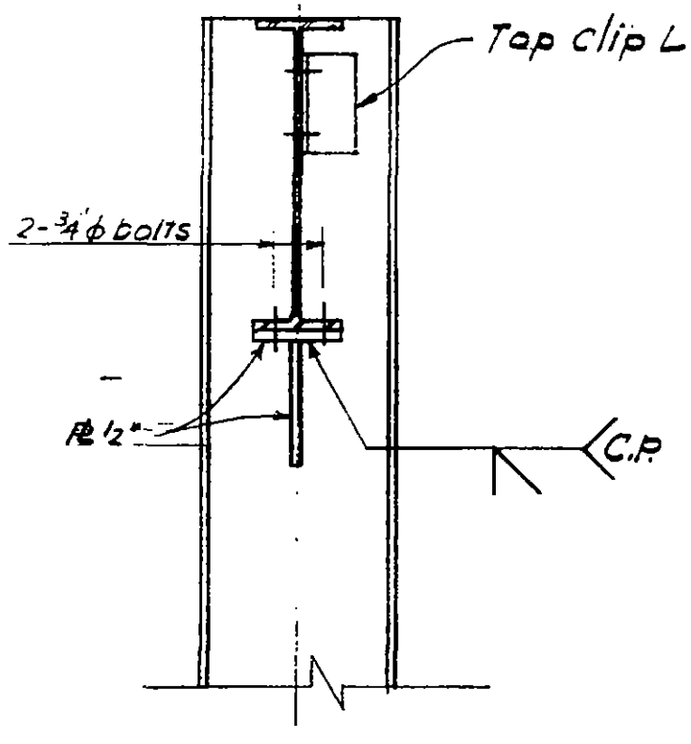


Plan

SCHEDULE		
BEAM SIZE	A	B
10 WF	0'-6"	0'-4"
12WF, 14WF, 16WF	0'-9"	0'-4"
21 WF	0'-10"	0'-6"
24 WF	1'-4"	0'-6"



Section a-a



Section b-b

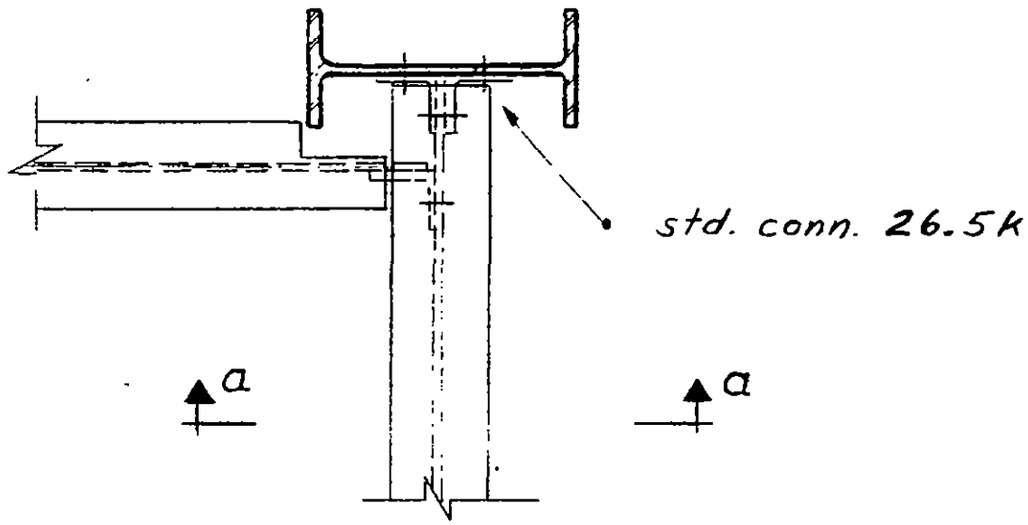
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6-AB2-3.2

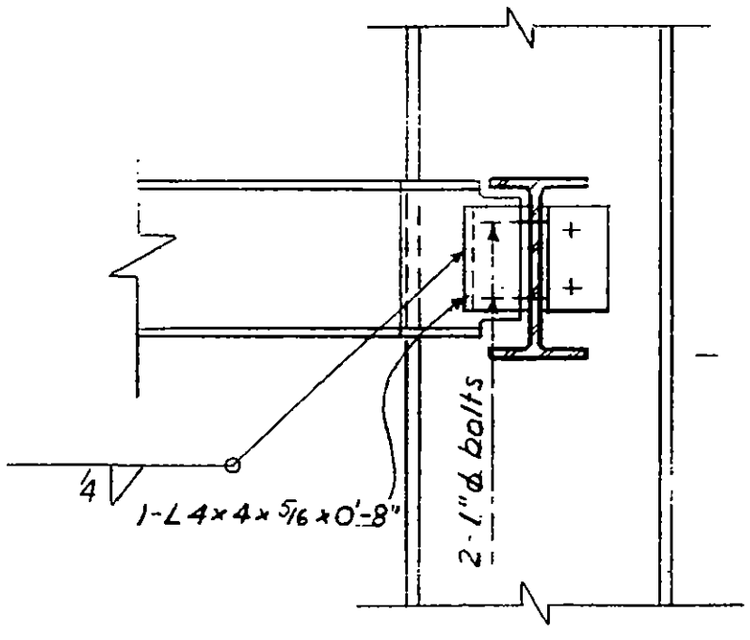
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 103A | DATE 3-14-67

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Plan



Section a-a

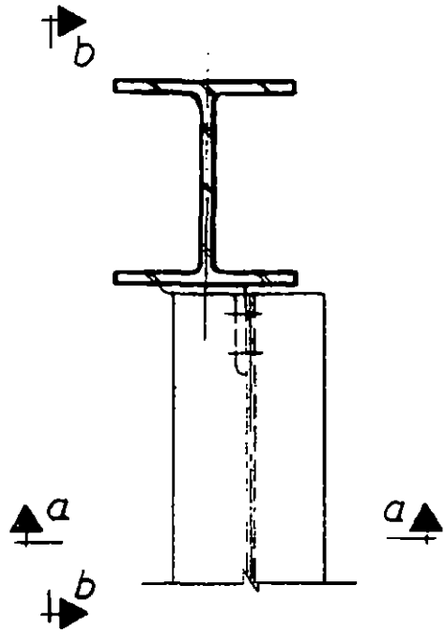
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6-AB2-4

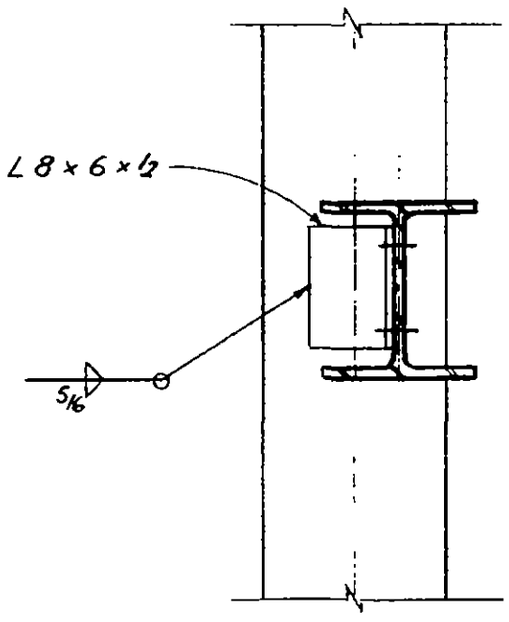
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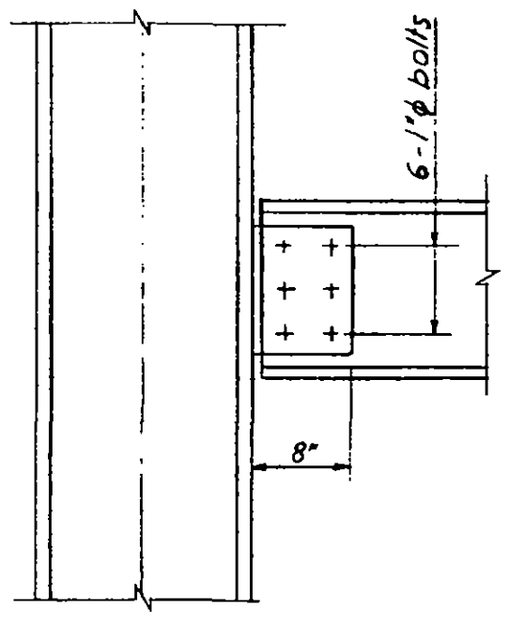
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Plan



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Section b-b

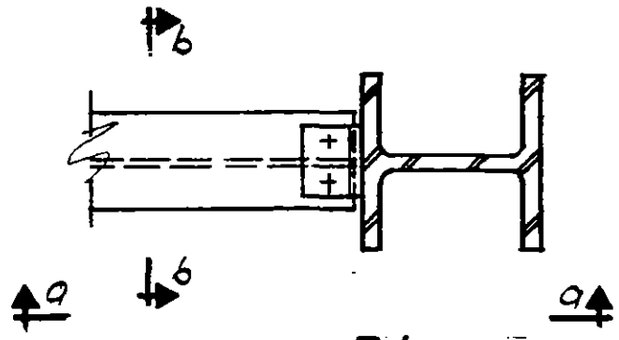
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6-AB2-5

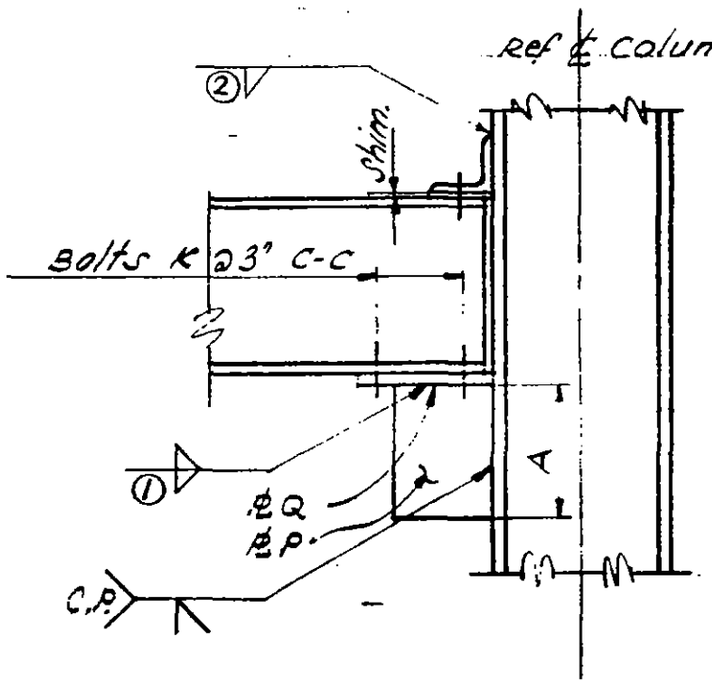
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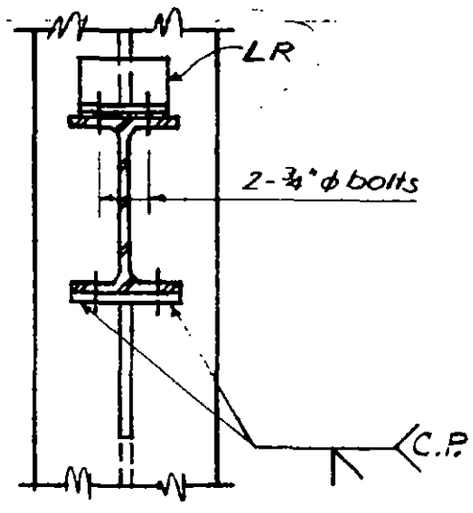
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Plan



Section a-a



Section b-b

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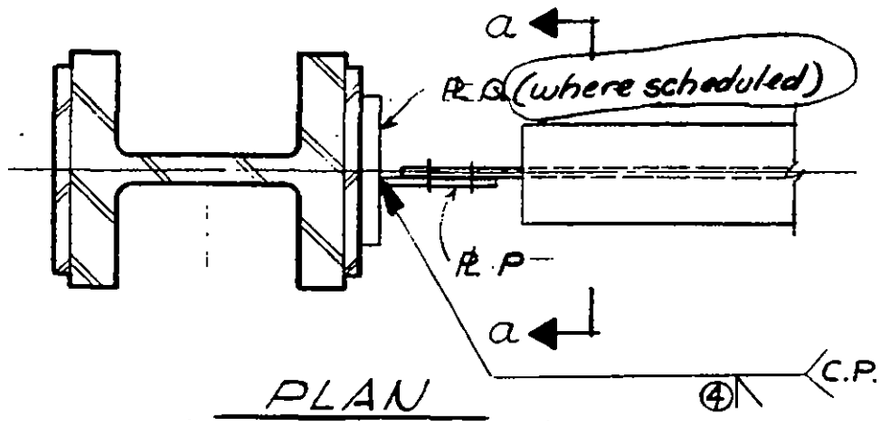
G-AB2-7

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 105 B, E, G, I, J | DATE: 7-28-67

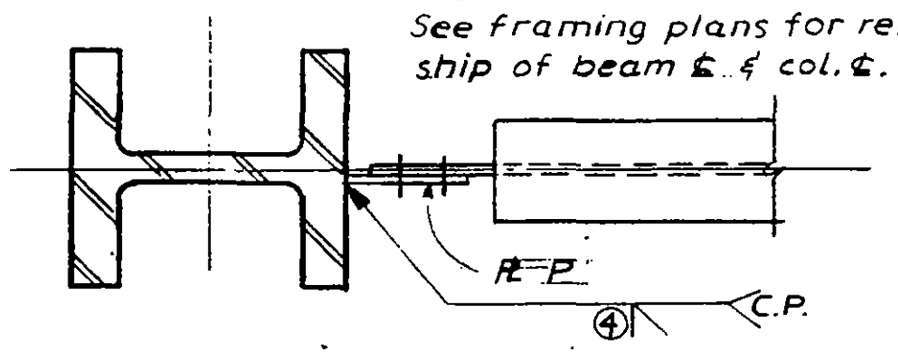
REVISIONS

9-18-67

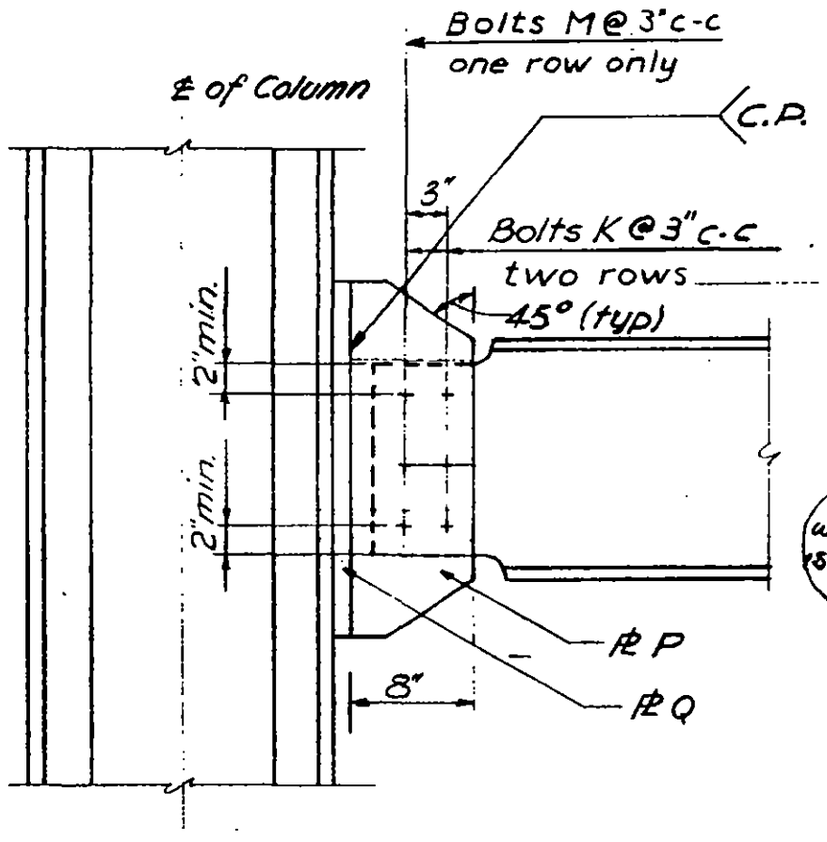


PLAN
col. with cover plate

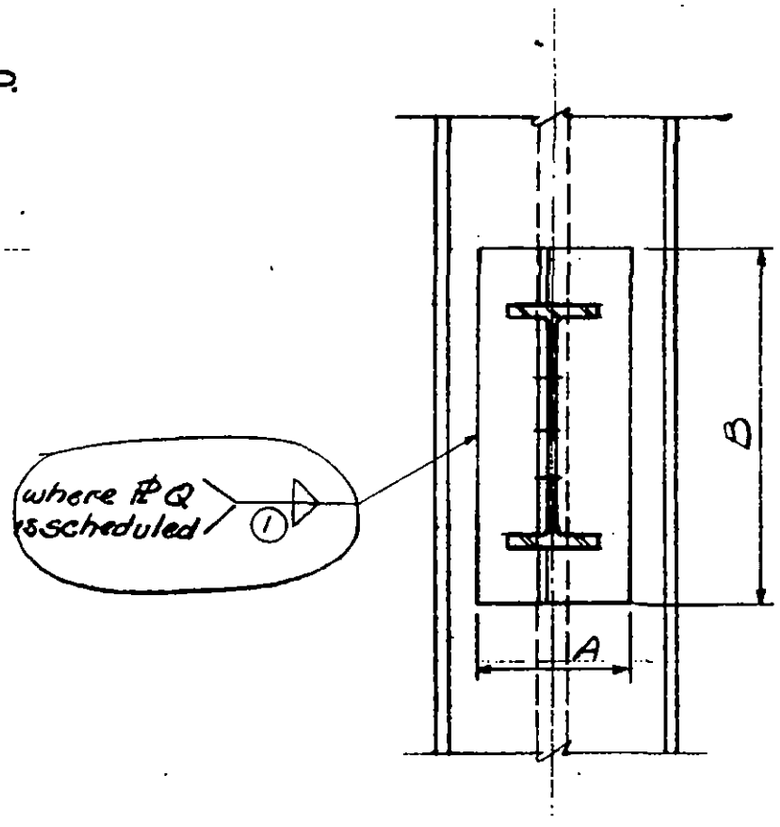
Note:
See framing plans for relationship of beam ℄ & col. ℄.



PLAN
if col. has no cover plate



ELEVATION



SECTION a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
LICENSED BY THE STATE OF NEW YORK

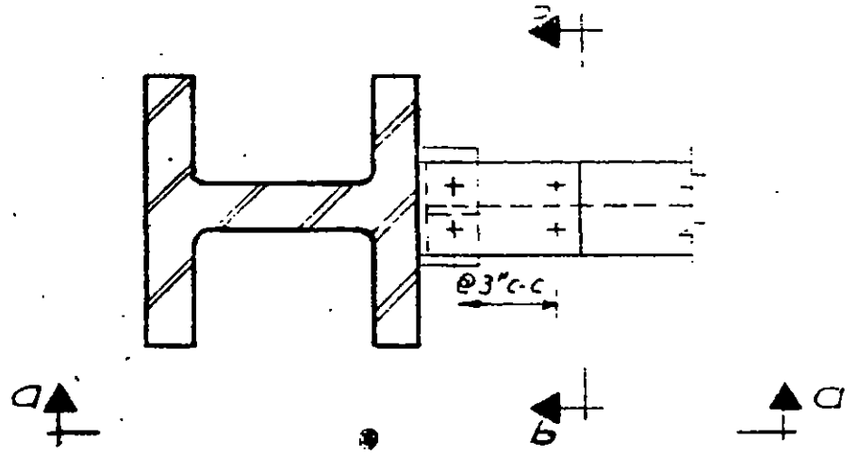
6-AB2-71

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

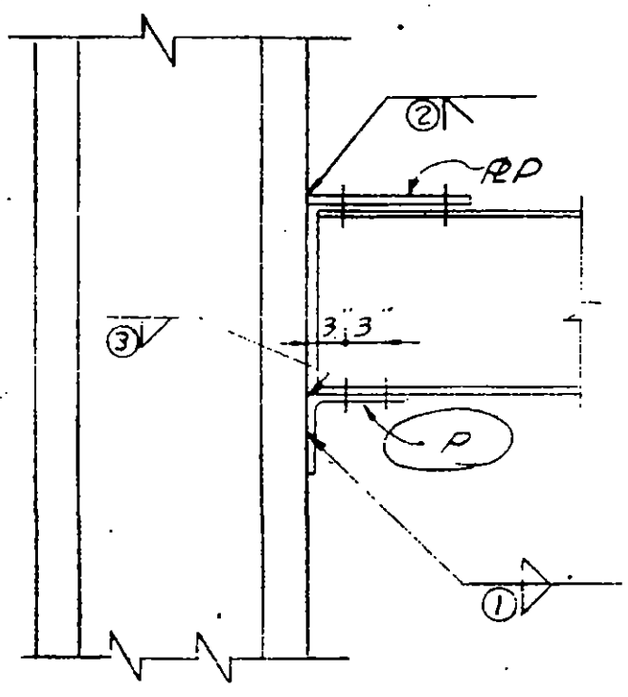
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 105 C,F,K,M | DATE 1-28-67

REVISIONS
9-15-67

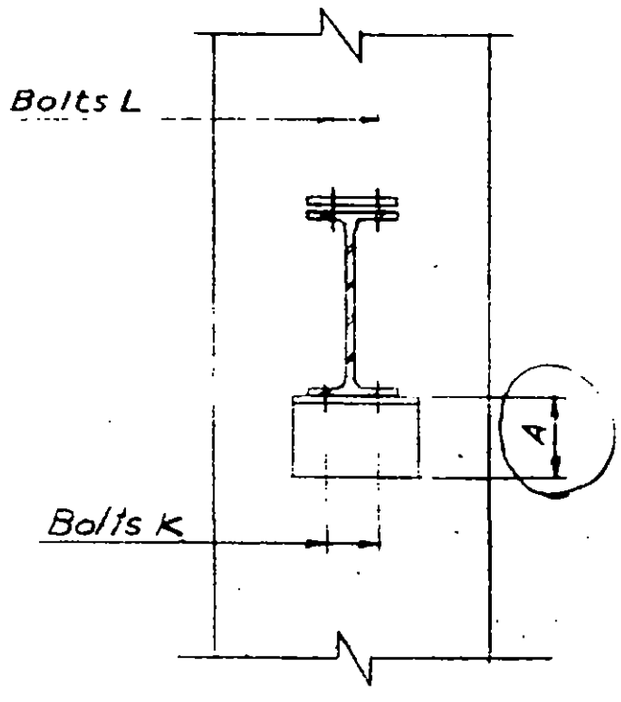
G-AB2-7.4 for Schedule 105 C, & F
G-AB2-7.5 for Schedule 105 K & M



Plan



Section a-a



Section b-b

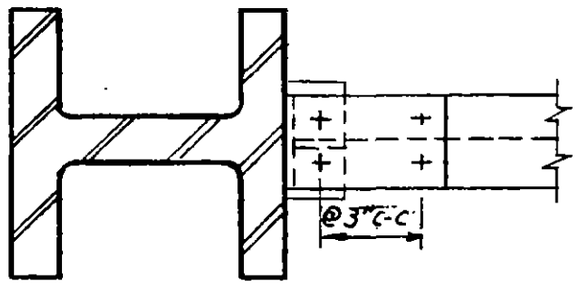
G-AB2-7.2

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

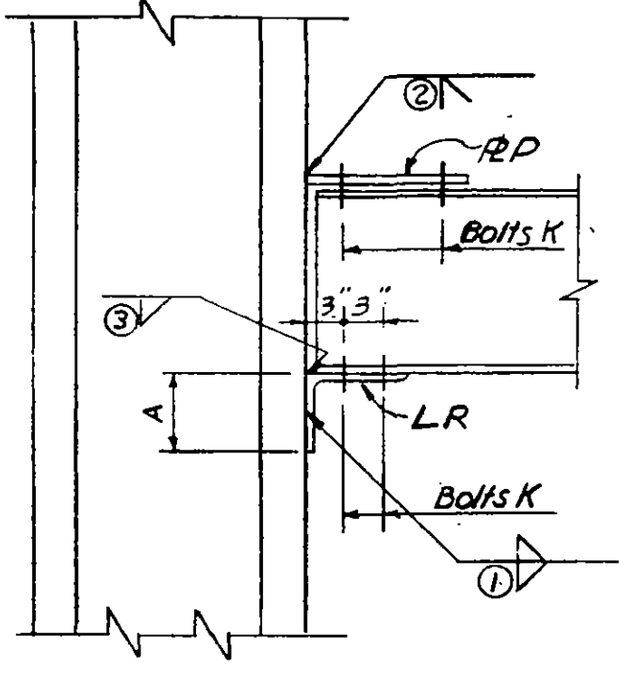
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 105 C D,F,K,M | DATE: 7-28-67

REVISIONS
9-15-67
9-18-67
12-13-67
12-21-67

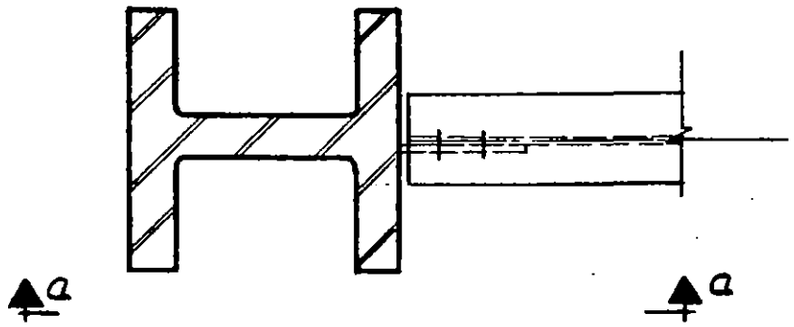
G-AB2-7.4 for Schedule 105 C, D & F
G-AB2-7.5 for Schedule 105 K & M



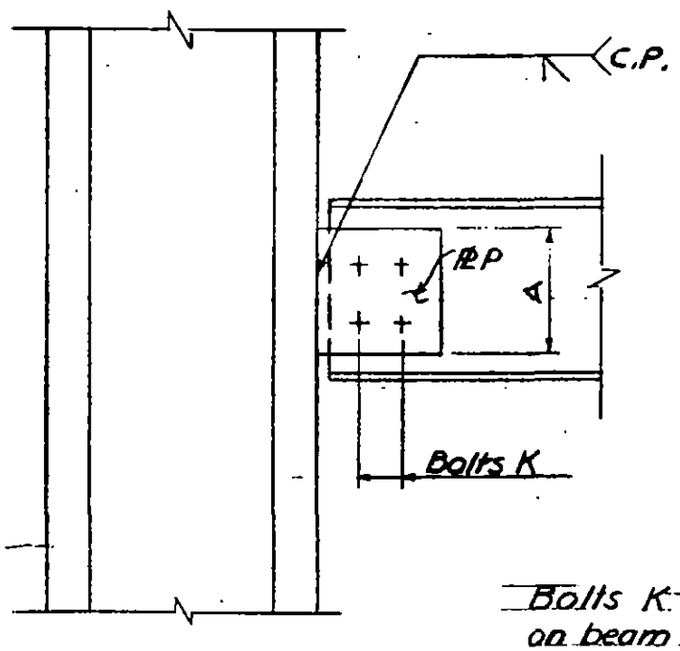
Plan
105 F, & M



Section a-a



Plan
105 C, D & K



Bolts K - W/washers on beam web.

Section a-a

Note:
Use all Applicable scheduled Details, Sheet 10 and above.

G-AB2-

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
REGISTERED OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

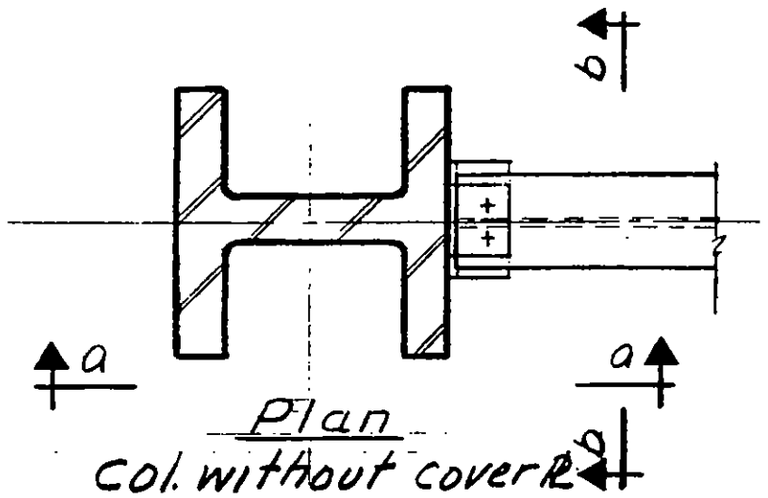
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 105 A, H (L) | DATE 7-5-67

REVISIONS

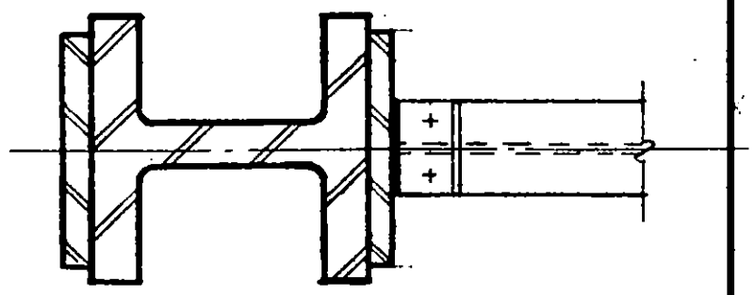
7-28-67

9-15-67

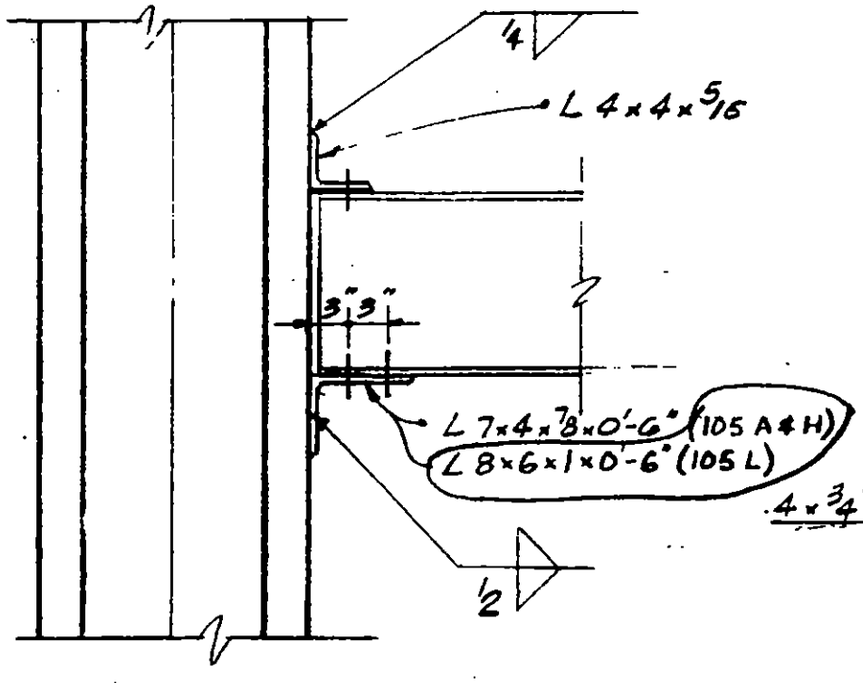
9-18-67



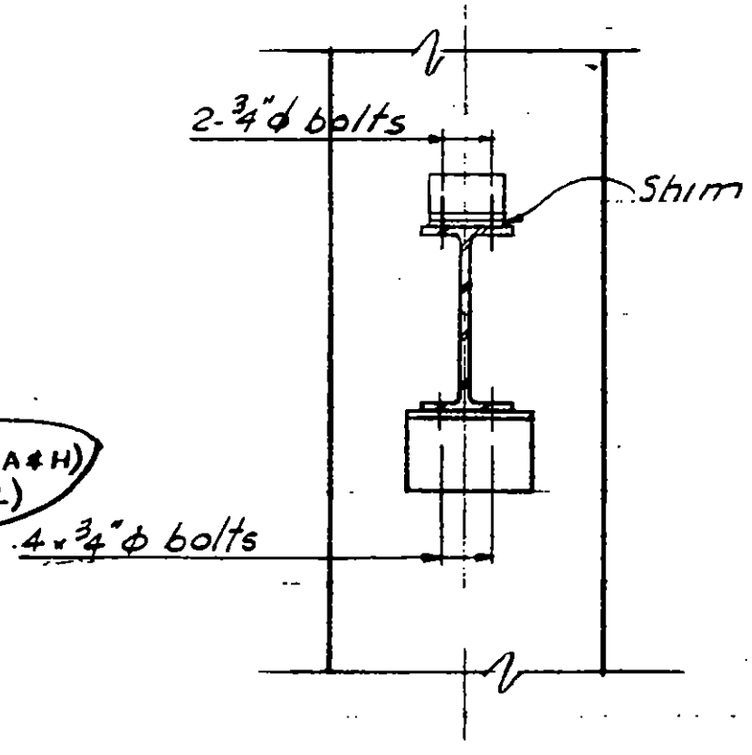
Plan
Col. without cover Pl



Plan
Col. with cover Pl



Section a-a



Section b-b

LESLIE E. ROBERTSON — No. 34360 — REGISTERED ARCHITECT — STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL [illegible] | DATE 7-[illegible]

REVISIONS
1-15-67
9-18-67
11-10-67

Ref. Dwgs.	S-[illegible]-7.1	S-AE2-7.2	S-[illegible]2-7.2	S-AE[illegible]-7.1	S-AE[illegible]-7.2	S-AE[illegible]-7.1
	105E	105C	105C	105E	105F	105G
PLATES						
P	1/2"	3/8"	1/2"	1/2"	1/2"	5/8"
Q	1'3"	—	—	—	—	—
ANGLE						
R	—	7"x4"x[illegible]"x0'-[illegible]"	7"x4"x5/8"x0'-[illegible]"	—	8"x6"x1"x0'-6"	—
LINE DESIGN						
A	0'-10"	0'-4"	0'-4"	—	0'-6"	—
B	1'-3"	—	—	1'-10"	—	1'-10"
BOLTS						
	6 1" ø	4 3/4" ø	4 7/8" ø	—	4 3/4" ø	—
—	—	4 3/4" ø	4 7/8" ø	—	4 3/4" ø	—
—	—	—	—	1'-1 1/2"	—	1'-0" ø
NOTES						
(1)	—	—	—	—	1/2	—
(2)	—	—	—	—	C.P.	—
(3)		—	—		1/2	—
(4)	C.P.	—	—	—	—	C.P.



3-AE-7.4

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 105 B-G | DATE 7-28-67

REVISIONS
9-15-67
9-18-67
11-10-67
12-13-67

Ref. Dwgs.	G-AB2-7.1	G-AB2-7.2	G-AB2-7.2	G-AB2-7.1	G-AB2-7.2	G-AB2-7.1
	105B	105C	105D	105E	105F	105G
PLATES						
P	1/2"	5/8"	5/8"	1/2"	1/2"	3/8"
Q	1'8"	—	—	—	—	—
ANGLE						
R	—	—	—	—	8"x6"x1"x0'-6"	—
DIMENSIONS						
A	0'-10"	0'-6½"	0'-6½"	—	0'-6"	—
B	2'-0"	—	—	1'-10"	—	1'-10"
BOLTS						
K	6-1"ϕ	4-1"ϕ	4-1"ϕ	—	4-⅞"ϕ	—
L	—	—	—	—	4-⅞"ϕ	—
M	—	—	—	7-1⅛"ϕ	—	7-1"ϕ
WELDS						
①	1/2	—	—	—	1/2	—
②	—	—	—	—	C.P.	—
③	—	—	—	—	1/2	—
④	C.P.	—	—	C.P.	—	C.P.

Note: Use Alt. for all scheduled

G-AB2-

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 105 [illegible] | DATE 7-5-67

REVISIONS
9-15-67
9-18-67
10-2-67
11-10-67

Ref. Dwgs.	6-AB2-7.1	6-AB2-7.1	6-AB2-7.2	6-AB2-7.2	6-AB2-7	
	105I	105J	105K	105M	105N	
PLATES						
P	5/8"	3/8"	1/2"	1"	6" x 5/8"	
Q	3/4"	3/4	—	—	5/8"	
ANGLE						
R	—	—	[illegible]	8x6x1x0'-6"	4 x 3 1/2 x 5/16 x 0'-6"	
DIMENSIONS						
A	0'-0"	0'-0	[illegible]	0'-6"	1'-7"	
B	1'-3"	1'-0"	—		—	
BOLTS						
K	6 - [illegible] ϕ	—	4 - 1/8 ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	
L	—	—	4 - 7/8 ϕ	8 - 3/4" ϕ	—	
M	—	1 - 3" ϕ	—	—		
WELDS						
(1)	3/8		3/8	3/4	5/16	
(2)	—	—	—	C.P.	4	
(3)	—			1/2		
4	[illegible]	—	—	—		

6-AB2-7.5

REGISTERED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON [illegible] THE STATE OF

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: SCHEDULE FOR DETAIL '05 I.J.K.M.N | DATE: 7-28-67

REVISIONS
9-15-67
9-18-67
10-2-67
11-10-67
12-21-67

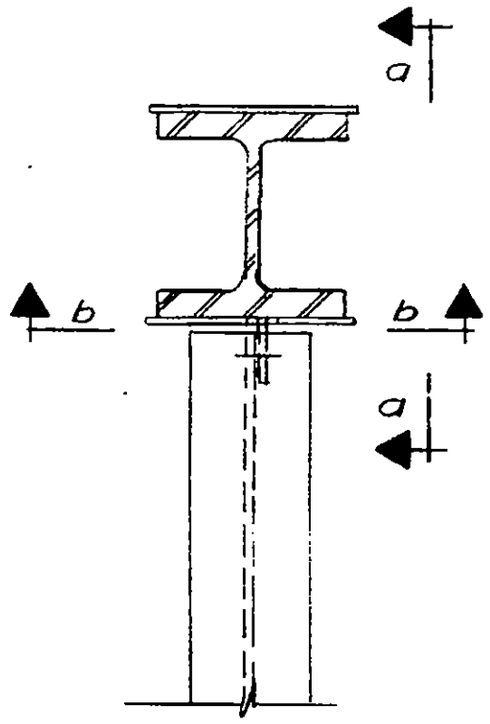
Ref. Dwgs.	6-AB2-7.1	6-AB2-7.1	6-AB2-7.2	6-AB2-7.2	6-AB2-7
	105I	105J	105K Alt.	105M	105N
PLATES					
P	3/8"	3/8"	5/8"	1"	6" x 5/8"
Q	3/4"	3/4"	—	—	5/8"
ANGLE					
R	—	—	—	8 x 6 x 1 x 0'-6"	4 x 3½ x 5/16 x 0'-6"
DIMENSIONS					
A	0'-10"	0'-10"	0'-9½"	0'-6"	1'-2"
B	1'-8"	1'-10"	—	—	—
BOLTS					
K	6 - 3/4" ϕ	—	6 - 7/8" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ
L	—	—	—	8 - 3/4" ϕ	—
M	—	7 - 7/8" ϕ	—	—	—
WELDS					
①	3/8	3/8	—	3/4	5/16
②	—	—	—	C.P.	4
③	—	—	—	1/2	—
④	C.P.	C.P.	—	—	—

LESLIE E. ROBERTSON — LICENSED PROFESSIONAL ENGINEER — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

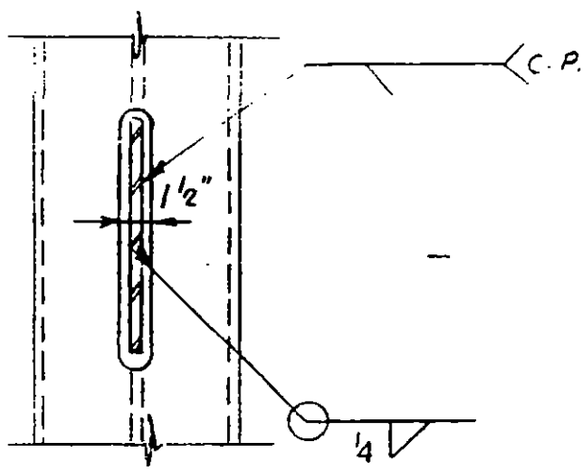
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 105P | DATE 10-5-67

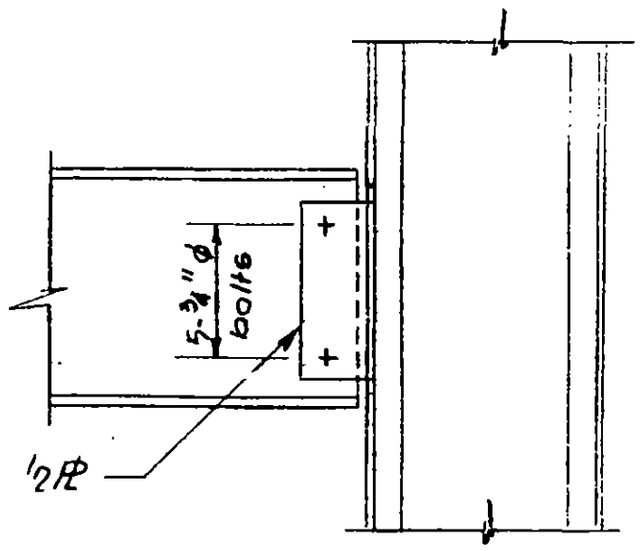
REVISIONS



Plan



Section b-b



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-7.6

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER

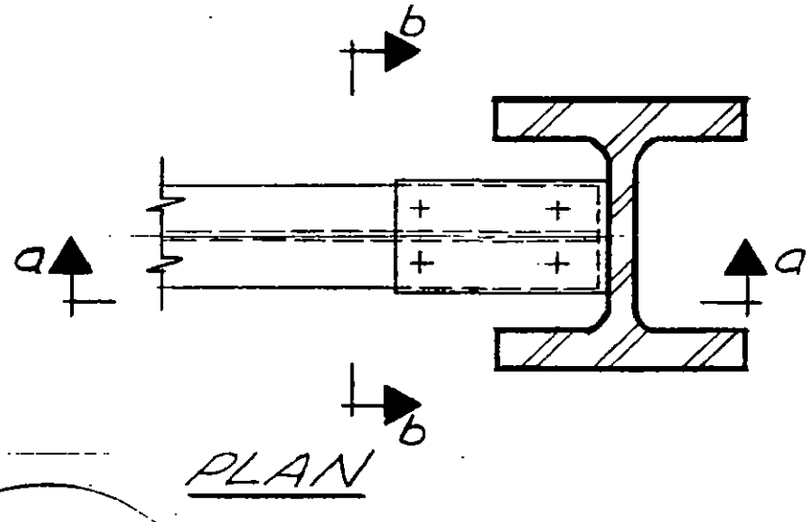
TITLE: CONNECTION DETAIL 106 A,B,D,E,F,G,H,I,J,M,N 106 P,Q & R

DATE: 5-1-67

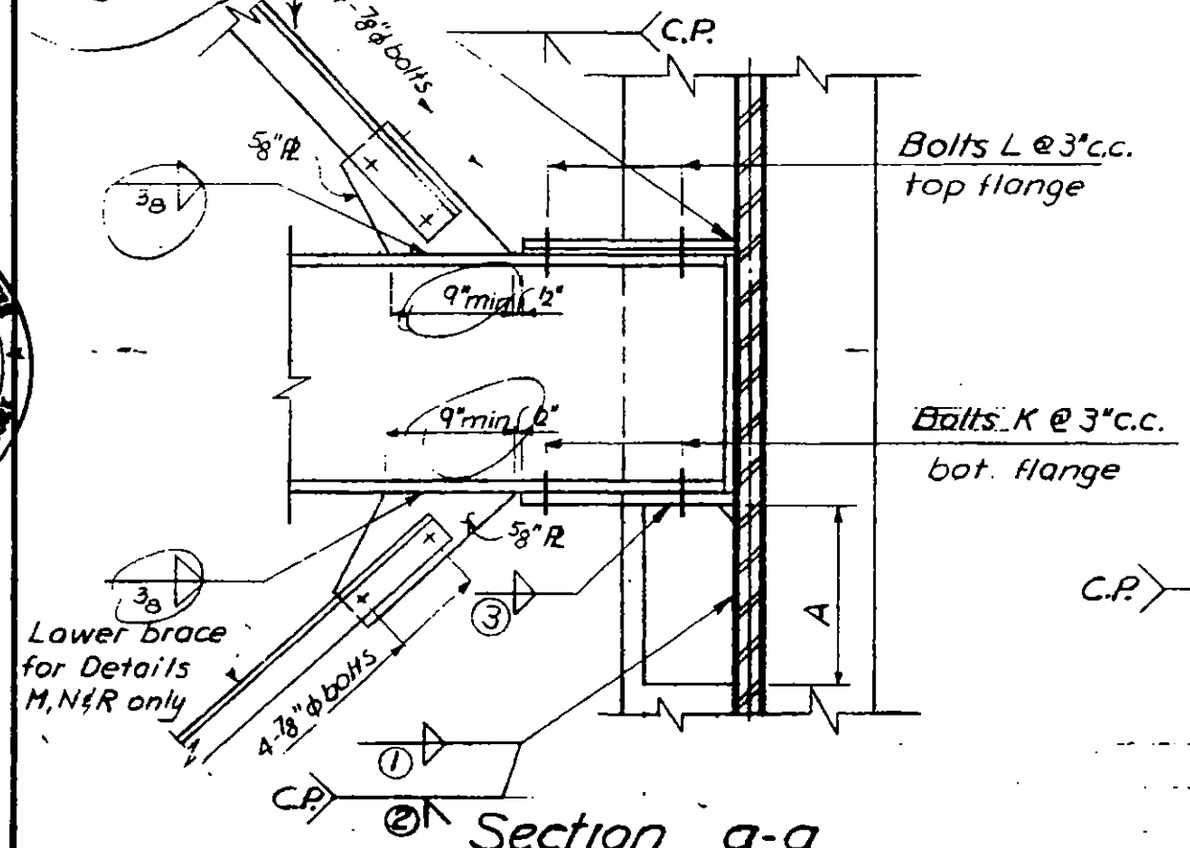
REVISIONS

7-28-67
9-15-67
10-2-67
10-31-67

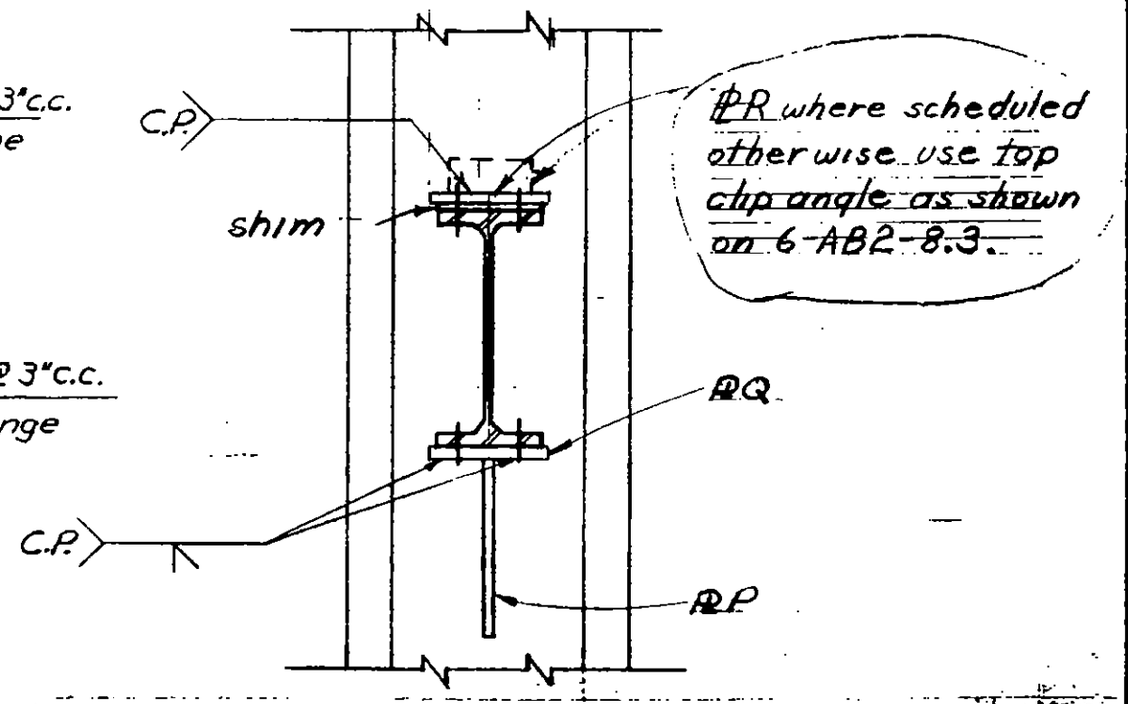
Detail 106 R : See G-AB5-97 for bracing elevation.
Detail 106 I : See G-AB5-97 or G-AB5-98 for bracing elevation
Detail 106 N : See G-AB5-97, G-AB5-98 or G-AB5-100 for bracing elevation
Detail 106 M,J: See G-AB5-100 for bracing elevation
Detail 106 Q : See G-AB5-101 for bracing elevation



PLAN



Section a-a



Section b-b

G-AB2-8

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 106A, B, D, E, F, G | DATE 7-28-67

REVISIONS

3-15-67

11-10-67

	106A	106B	106D	106E	(106F)	106G
PLATES						
P	6"x5/8"	6"x5/8"	5"x1/2"	5"x7/16"	5"x1/2"	7"x5/8"
Q	7 1/2"x5/8"	7 1/2"x5/8"	1/2"	7/16	1/2"	5/8"
R	7 1/2"x5/8"	—	—	—	—	—
DIMENSIONS						
A	1'-0"	1'-0"	0'-10"	0'-11"	0'-10"	1'-2"
BOLTS						
K	4-7/8"ϕ	4-3/4"ϕ	4-3/4"ϕ	4-3/4"ϕ	6-3/4"ϕ	4-3/4"ϕ
L	4-7/8"ϕ	—	—	—	—	—
WELDS						
(1)	—	—	3/8	5/16	3/8	—
(2)	C.P.	C.P.	—	—	—	C.P.
(3)	5/16	5/16	5/16	5/16	5/16	5/16

LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON

G-ABZ-8.1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 106 H, I, J, M, N, P | DATE 10-2-67

REVISIONS

	106 H	106 I	106 J	106 M	106 N	106 P
PLATES						
P	9" x 7/8"	9" x 7/8"	7" x 5/8"	5" x 3/4"	5" x 3/4"	5" x 5/8
Q	7/8"	7/8"	5/8"	3/4"	3/4"	5/8
R	3/8"	3/8"	3/8"	1/2"	1/2"	—
DIMENSIONS						
A	1'-5"	1'-4"	1'-1"	1'-2"	1'-2"	1'-2"
BOLTS						
K	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ
L	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	—
WELDS						
①	—	—	—	—	—	—
②	C.P.	C.P.	C.P.	C.P.	C.P.	C.P.
③	5/16	5/16	5/16	5/16	5/16	5/16

LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON NO. 34300 STATE OF NEW YORK

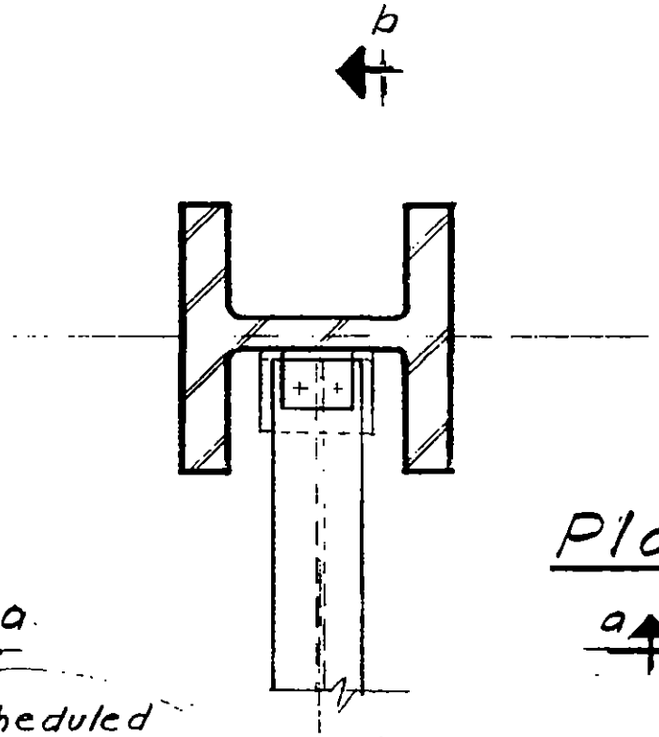
6-AB2-8.2

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 106 C, K, L | DATE 7-5-67

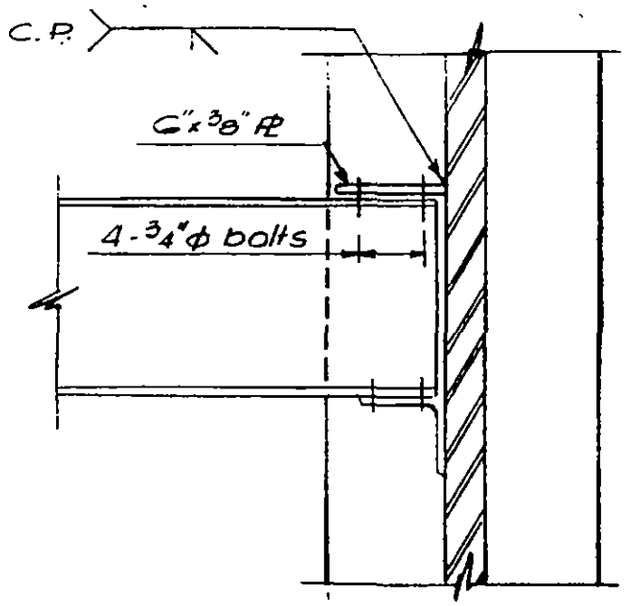
REVISIONS

10-5-67
10-31-67

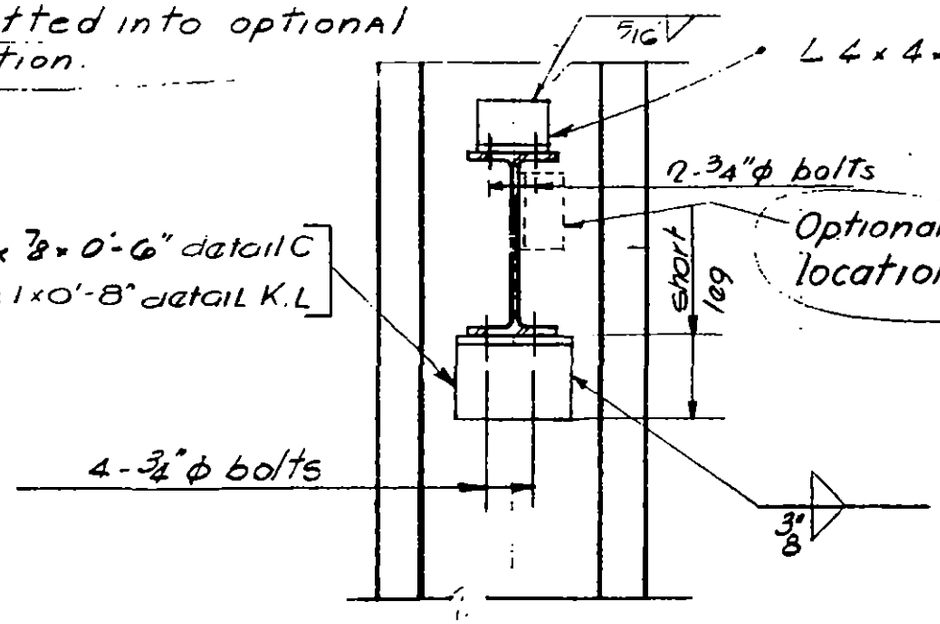


Plan

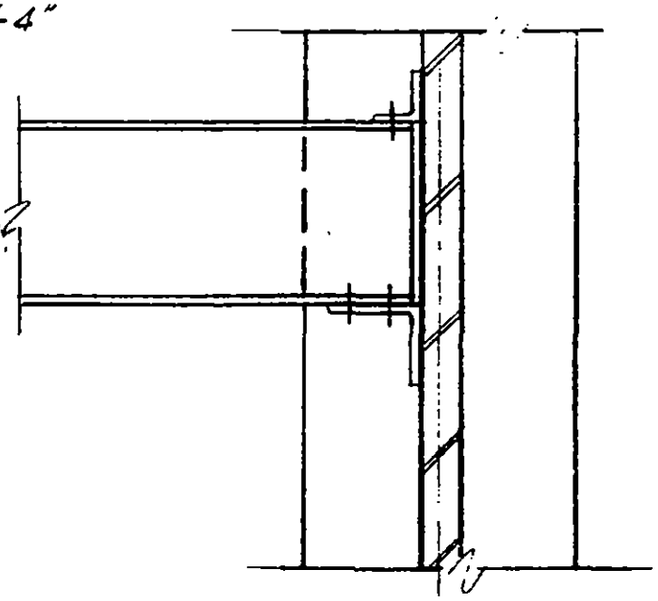
Note: If beam is scheduled for detail 106 on both ends top clip angle may be bolted to column web or fitted into optional location.



Section b-b
106 L only



Section a-a



Section b-b

6-AB2-8.3

LESLIE E. ROBERTSON — No. 34360 — STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 106 Q.R | DATE 10-2-67

REVISIONS

	106 Q	106 R				
PLATES						
P	5" x ¾"	6" x ⅞"				
Q	¾"	⅞"				
R	½"	½"				
DIMENSIONS						
A	1'-2"	1'-4"				
BOLTS						
K	4 - ¾" ϕ	4 - ¾" ϕ				
L	4 - ¾" ϕ	4 - ¾" ϕ				
WELDS						
①	—	—				
②	C.P.	C.P.				
③	5/16	5/16				

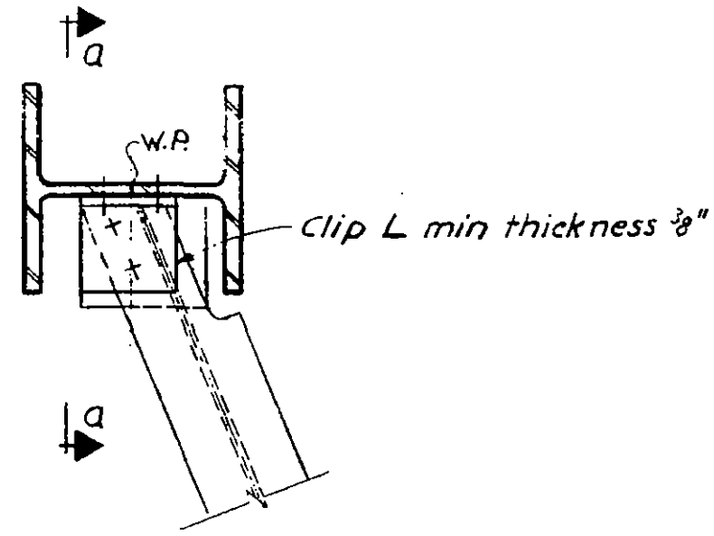
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-8.4

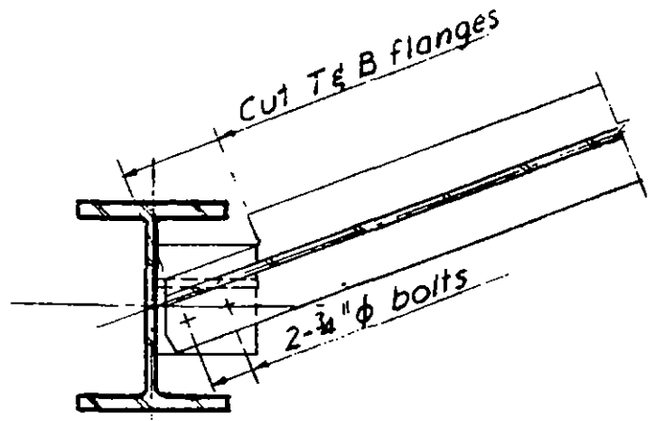
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 107A | DATE 2-9-68

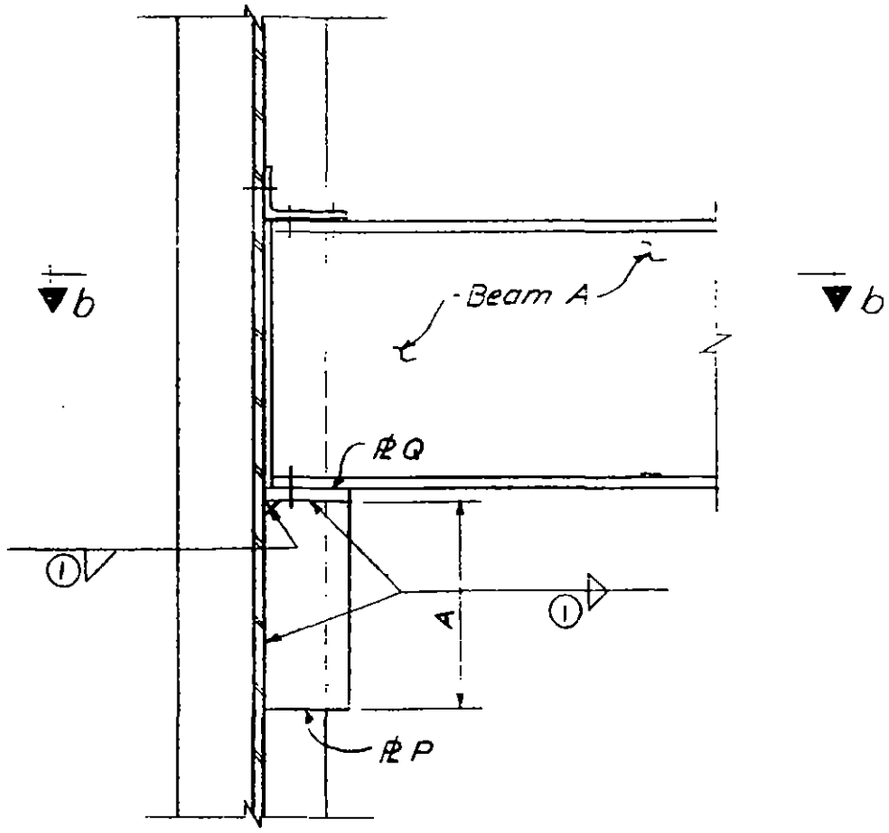
REVISIONS



Plan



Section b-b



Section a-a

SCHEDULE				
BEAM A	DIM. A	℄ P	℄ Q	WELD ①
10WF	0'-9"	⅝"	¾"	⅜
12WF31, 40	1'-0"	⅝"	¾"	⅜
12 WF 50	1'-1"	⅝"	¾"	⅜
12 WF 53	1'-0"	⅝"	¾"	⅜
12 WF 92	1'-4"	⅝"	¾"	⅜
16 WF 78	1'-2"	⅝"	¾"	⅜
24 WF 84	1'-8"	¾"	1"	⅜

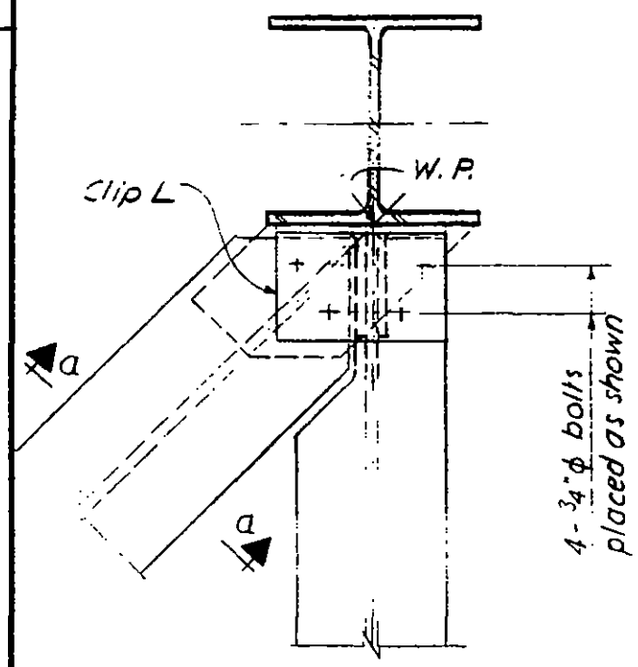
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-9

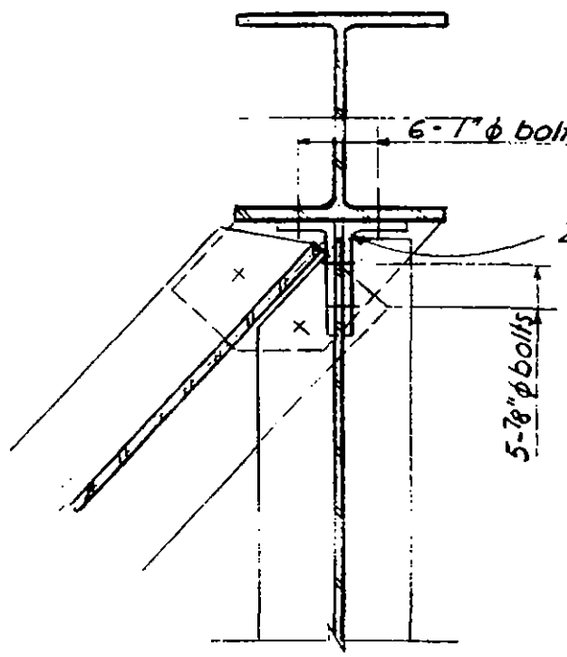
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 108A & B | DATE 2-9-68

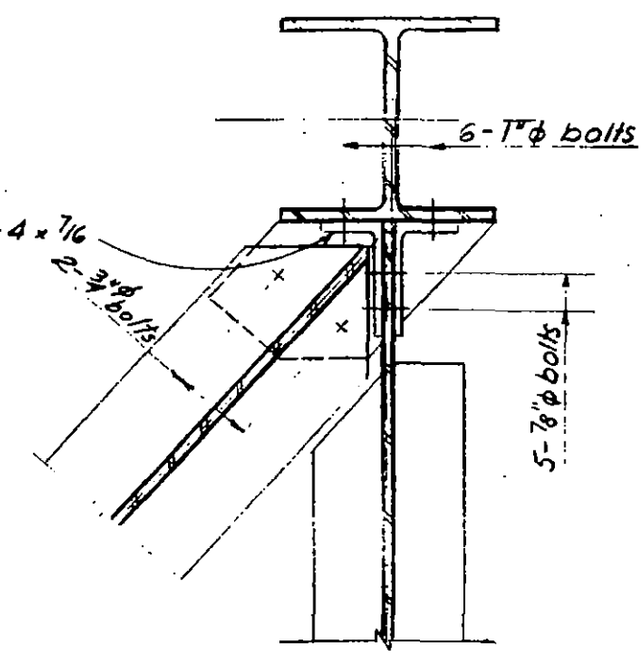
REVISIONS



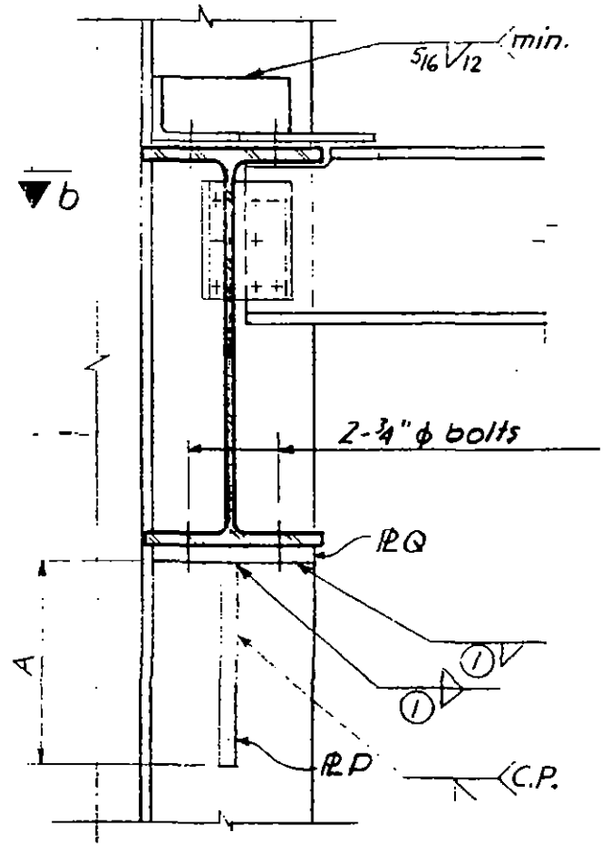
Plan 108A & B



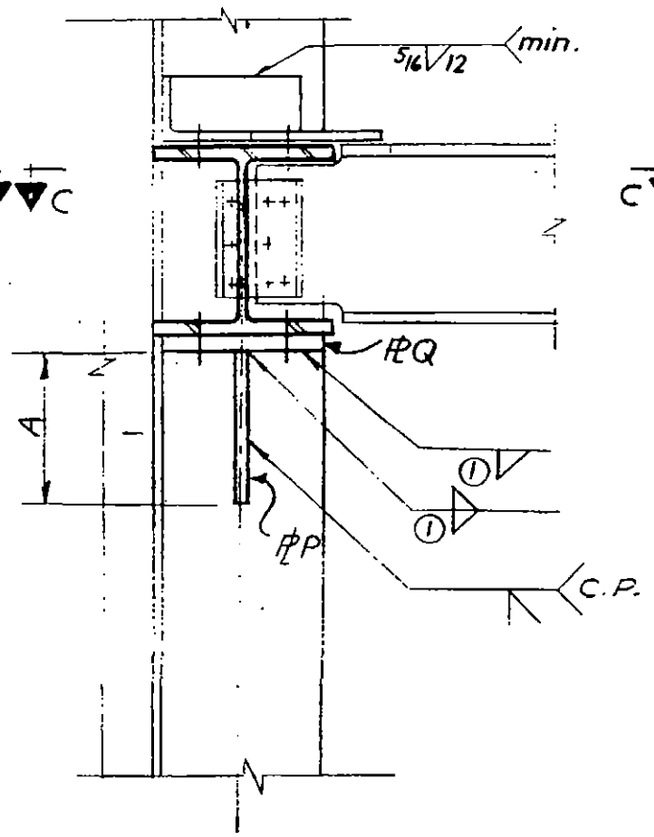
Section b-b



Section c-c



Section a-a
(108A)



Section a-a
(108B)

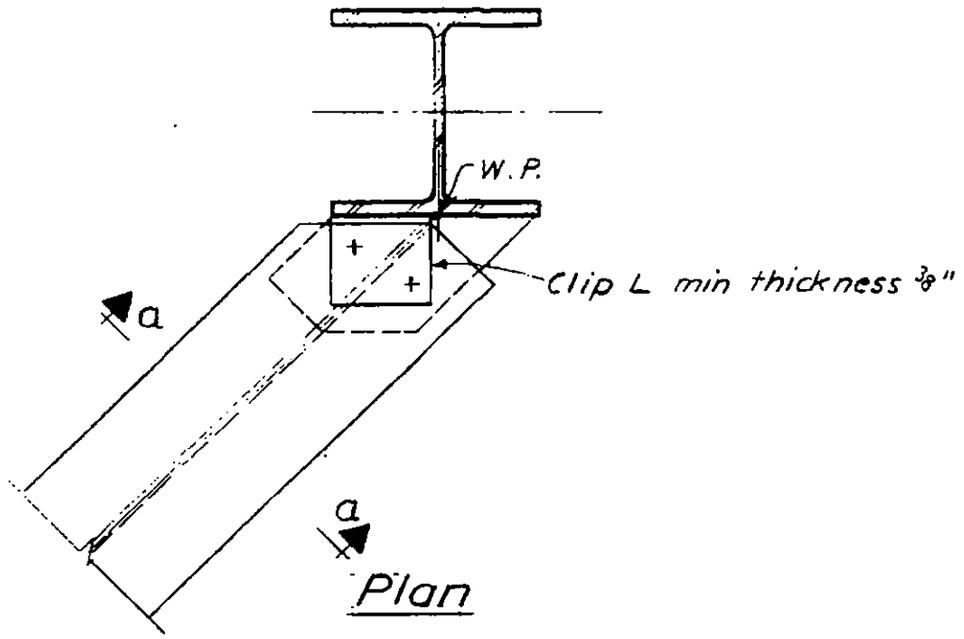
SCHEDULE		
	108A	108B
PL P	7½" x 1" x 1'-8"	7½" x ¾" x 1'-2"
PL Q	1"	¾"
DIM. A	1'-8"	1'-2"
WELD ①	½	½

6-AB2-10

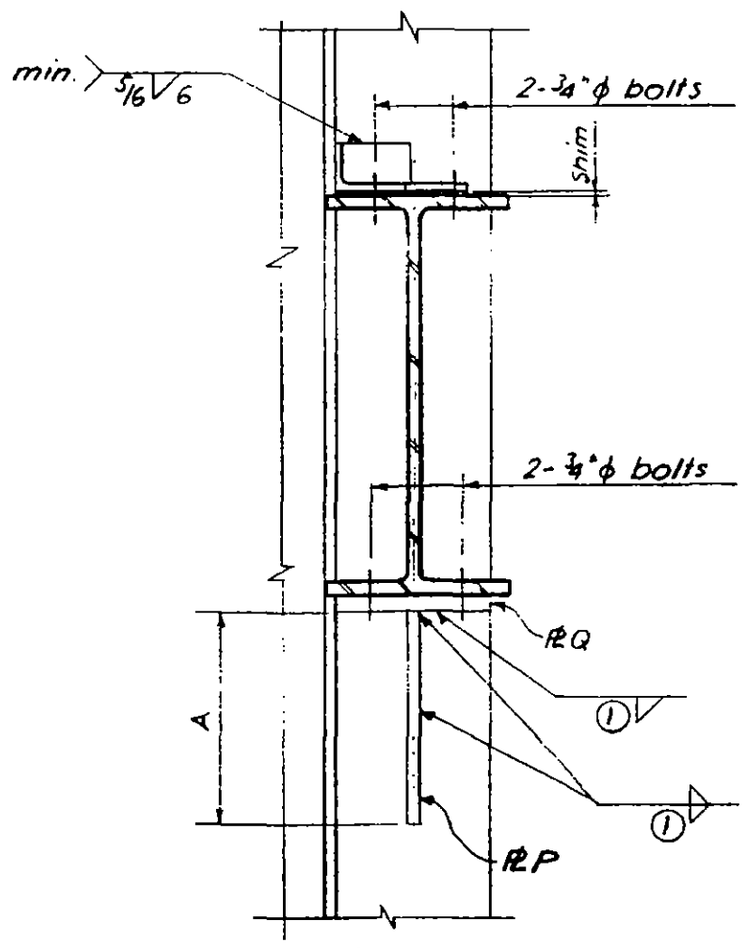
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 109 A | DATE 2-9-68

REVISIONS



Plan



Section a-a

SCHEDULE				
BEAM SIZE	PL P	PL Q	DIM. A	WELD (1)
12 WF	7½" × ¾" × 1'-2"	¾"	1'-2"	½
16 WF	7½" × ¾" × 1'-2"	¾"	1'-3"	½
30 WF	7½" × 1" × 1'-10"	1"	1'-10"	½
33 WF	7½" × 1" × 1'-8"	1"	1'-8"	½

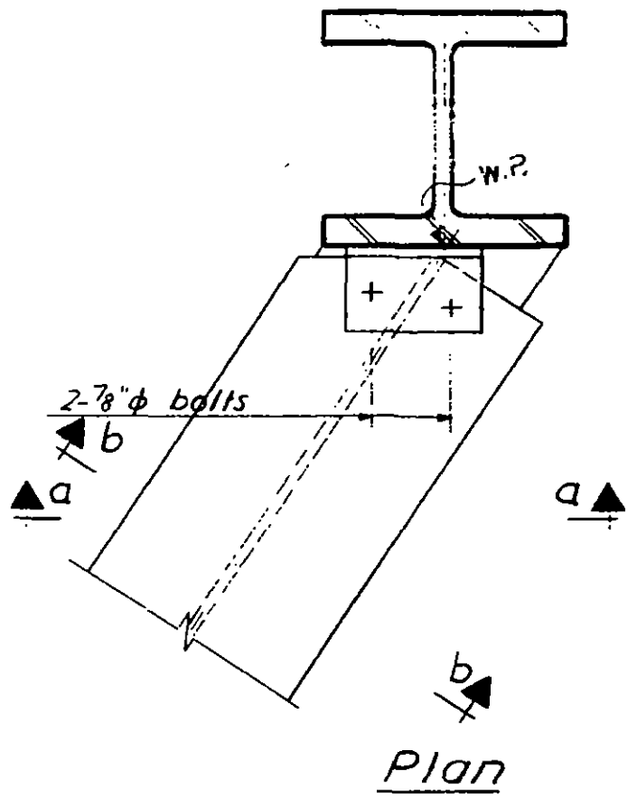
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
LICENSED BY THE STATE OF NEW YORK

6-AB2-11

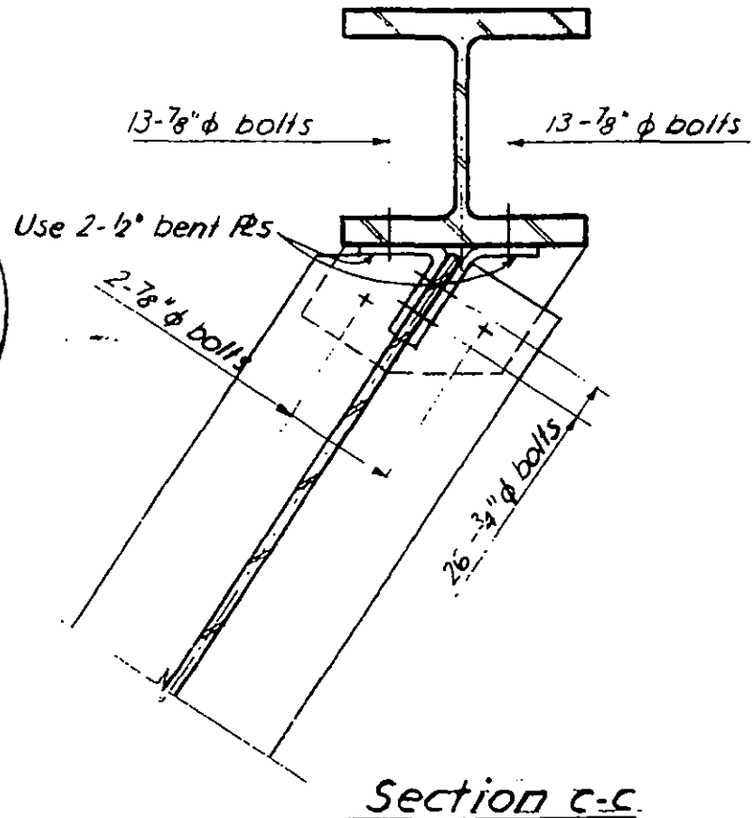
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 109 B | DATE 2-9-68

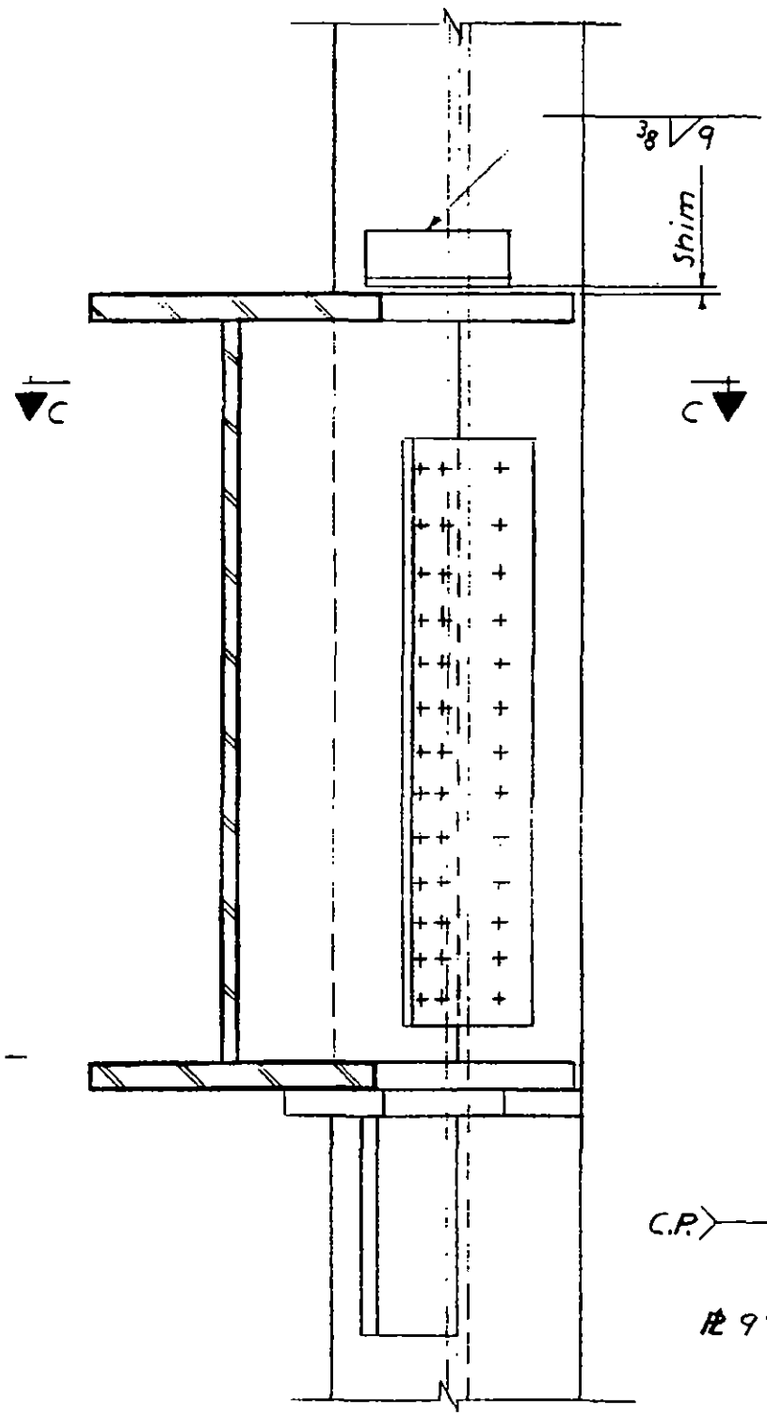
REVISIONS



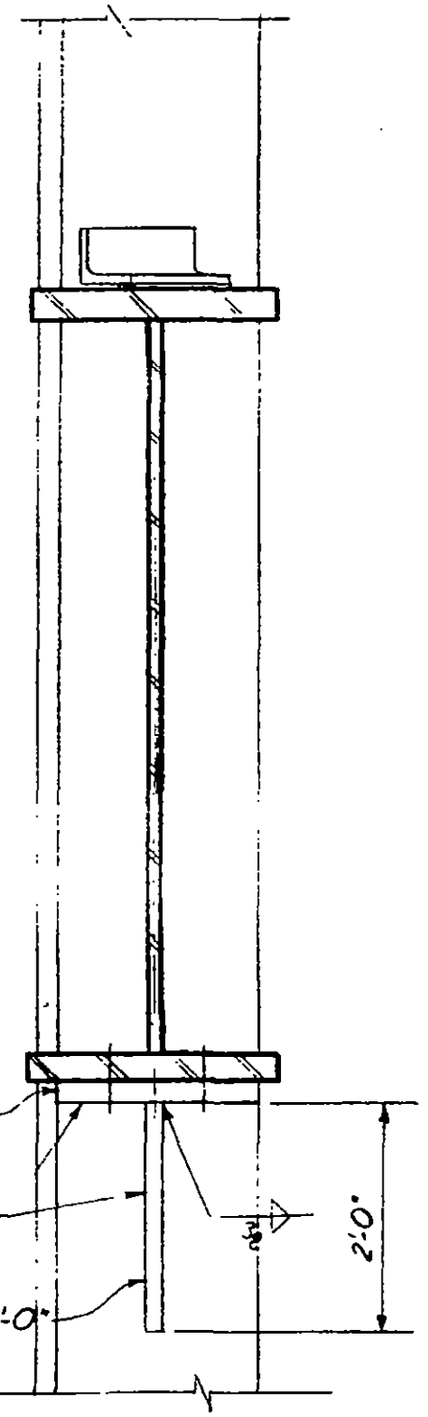
Plan



Section c-c



Section a-a



Section b-b

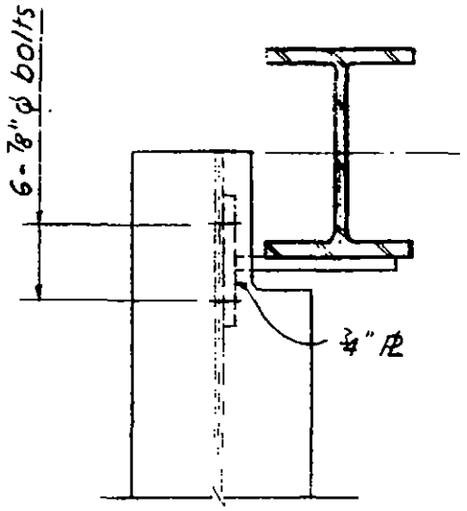
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UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-11.1

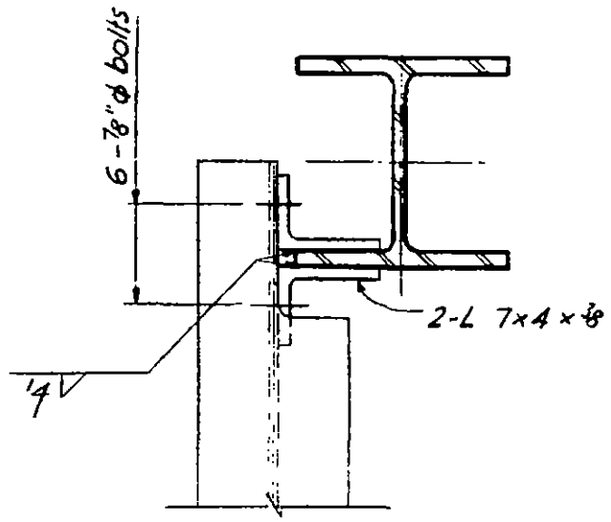
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 110A, 110B | DATE 2-9-68

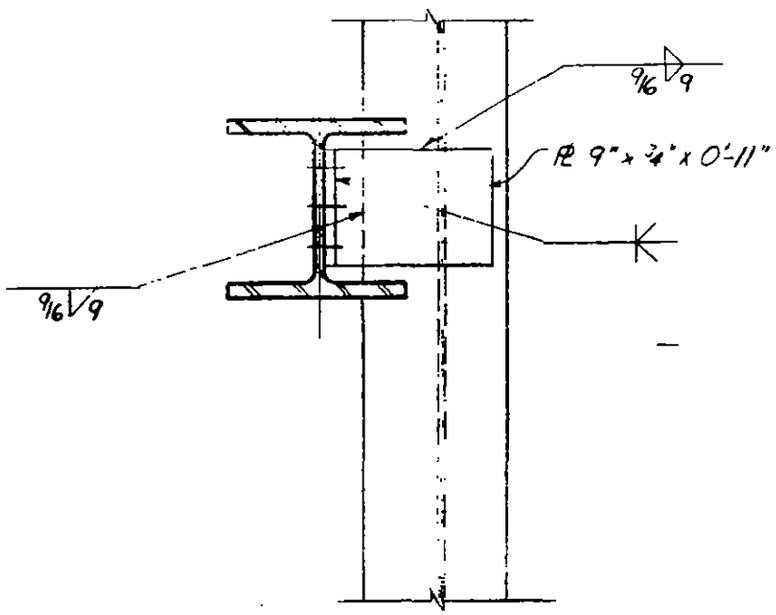
REVISIONS



Plan

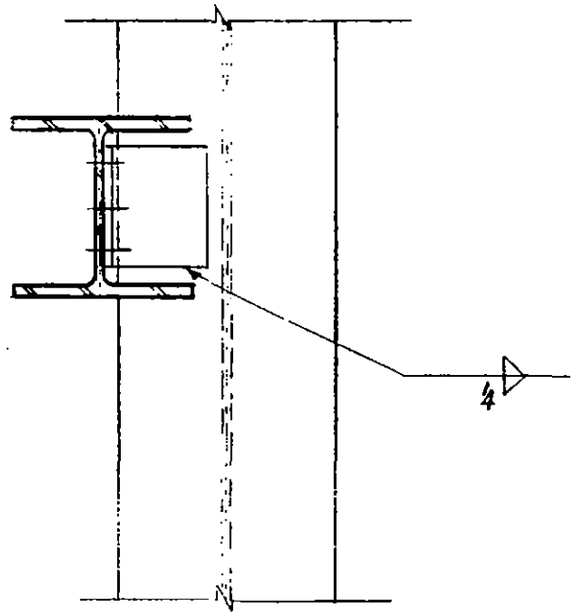


Plan



Section a-a

Detail 110A



Section a-a

Detail 110B

6-AB2-12

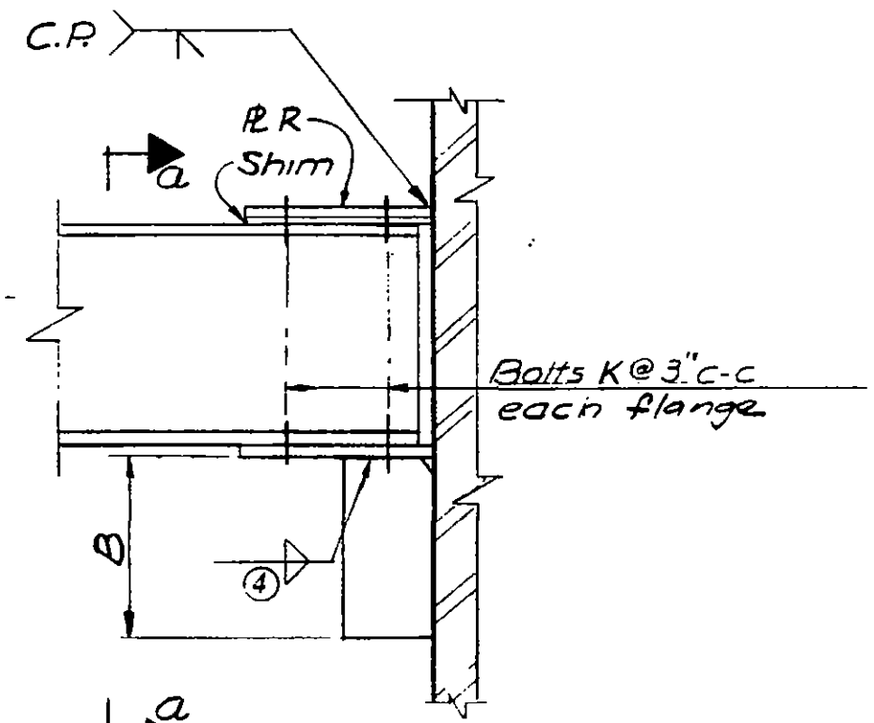
LICENSED PROFESSIONAL ENGINEER
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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

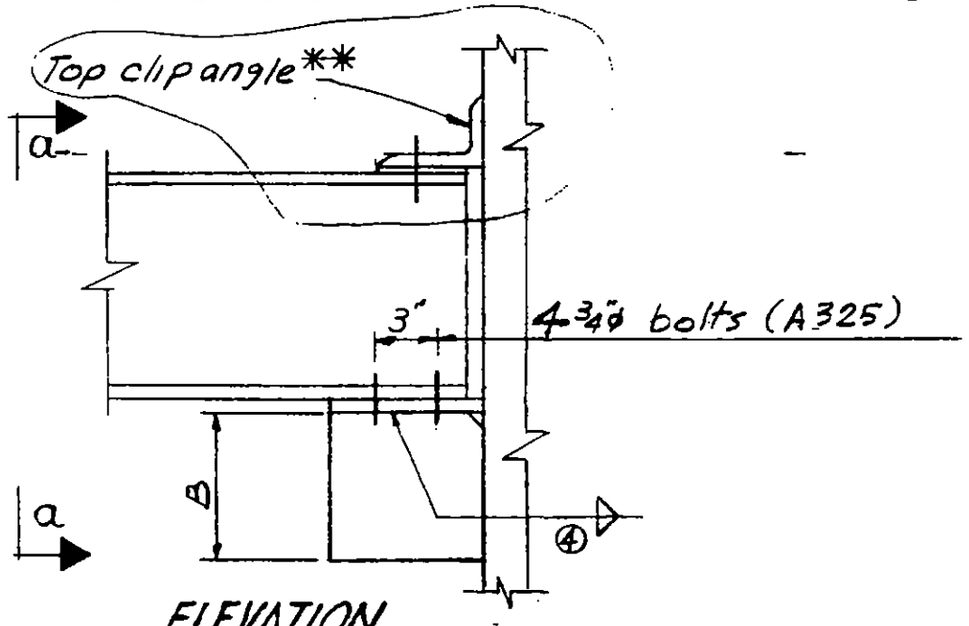
PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAILS IIIA Thru G,J,L & M	5-1-67

REVISIONS

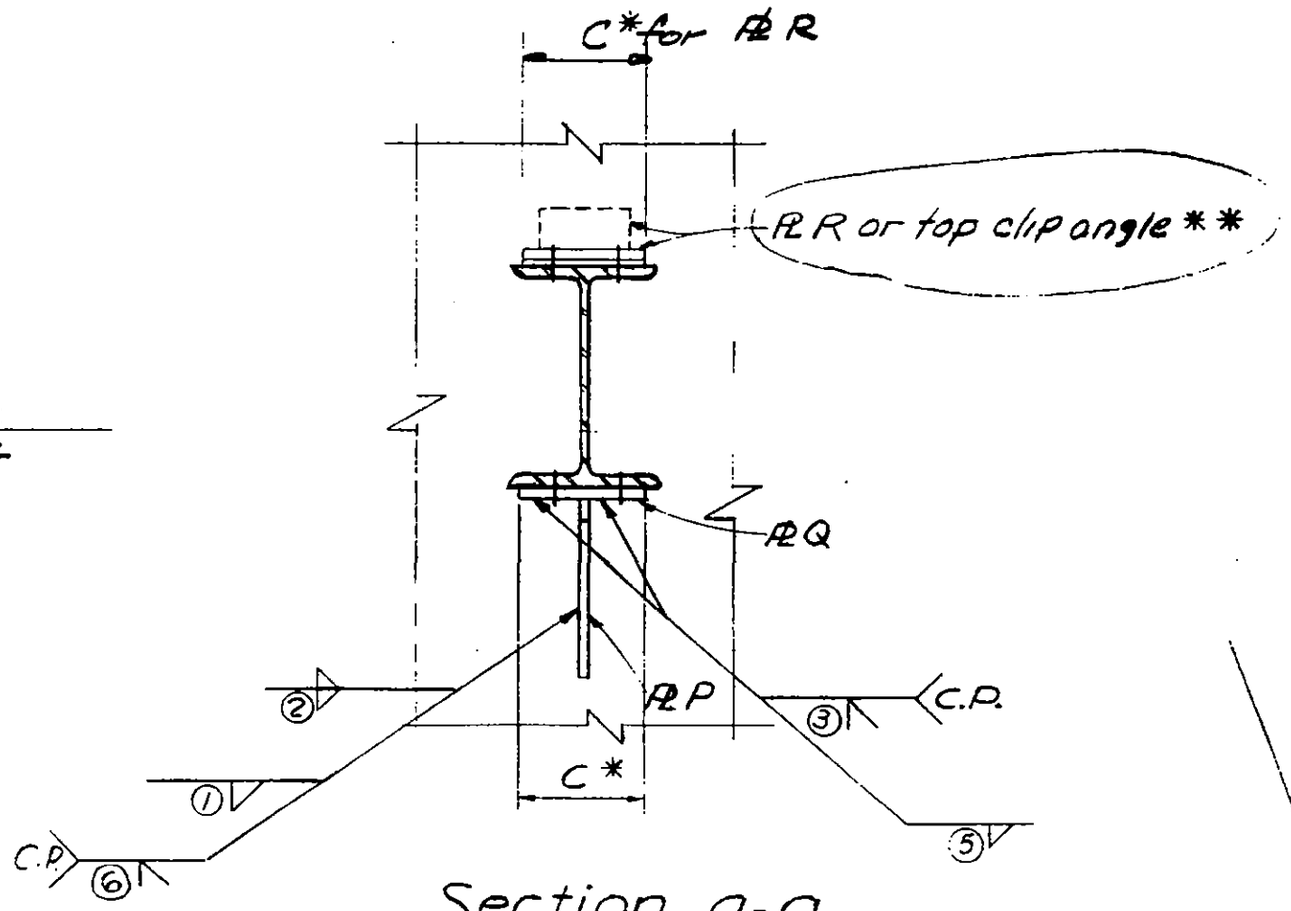
5-9-67
6-30-67
7-28-67



ELEVATION
Where ℄ R is used



ELEVATION
Where top clip angle is used



Section a-a

* Where dimension C is not scheduled it shall be minimum required for bolt edge distance.

** Top clip angle is used where ℄ R is not scheduled. See Dwg. G-AB1-1 for detail of top clip angle.

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G-AB2-13

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: SCHEDULE FOR DETAIL 111 | DATE: 6-30-67

REVISIONS
12-21-67
1-24-68

	111 A	111 B	111 C	111 D	111 E	111 F	111 G
PLATES							
P	5" x 5/8"	6" x 3/4"	6" x 5/8"	6" x 1"	—	8" x 3/4"	6" x 5/8"
Q	7" x 5/8"	7" x 3/4"	18" x 7/8"	24" x 1 1/2"	7" x 1 3/4"	7" x 3/4"	19" x 3/4"
R	—	—	18" x 7/8"	24" x 1 1/2"	—	—	19" x 3/4"
ANGLES							
S	4 x 3 x 5/16 x 0'-6"	4 x 3 x 5/16 x 0'-6"	—	—	4 x 3 x 5/16 x 0'-4"	4 x 3 x 5/16 x 0'-6"	—
DIMENSIONS							
B	0'-10"	1'-2"	1'-0"	1'-4"	—	0'-10"	0'-10"
C					0'-4"		
BOLTS							
K	—	—	10-1 1/8" ϕ (A325)	14-1 1/8" ϕ (A490)	—	—	12-1" ϕ (A325)
WELDS							
①	—	—	—	—	—	—	—
②	3/8	1/2	1/2	—	—	1/2	1/2
③	—	—	C.P.	C.P.	C.P.	—	C.P.
④	5/16	5/16	5/16	1/2	—	1/2	5/16
⑤	3/8	1/2	—	—	—	1/2	—
⑥	—	—	—	C.P.	—	—	—

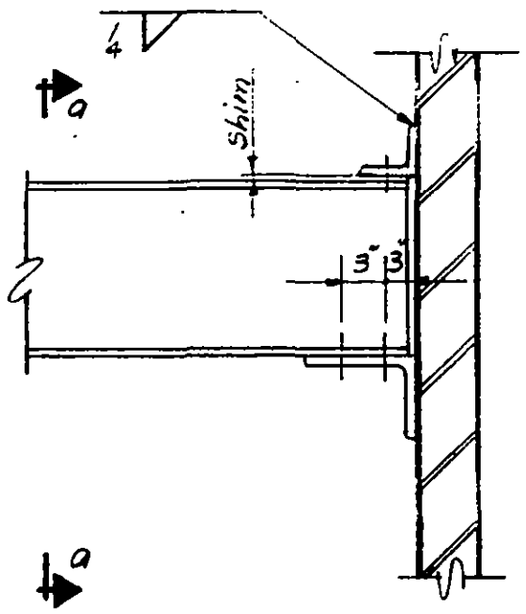
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UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-137

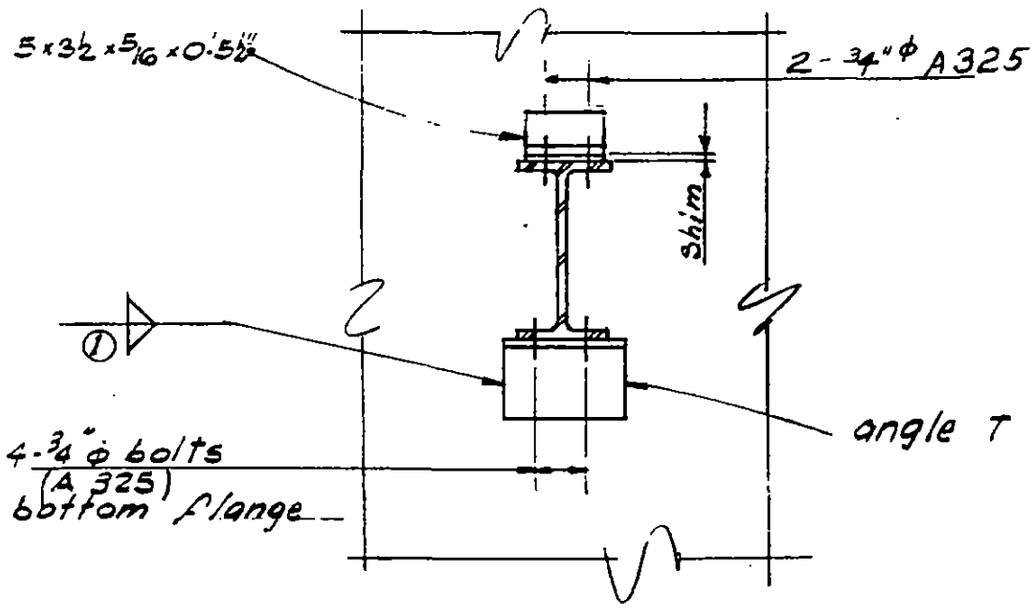
WORTHINGTON, SKILLING, HELLE & JACKSON Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL III H & I | DATE 7-5-67

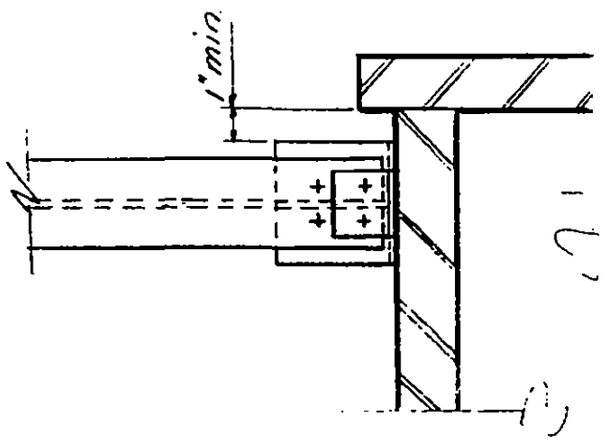
REVISIONS
7-25-67
3-15-67



Elevation



Section a-a



Plan

		8B 8WF17 to 8WF20 12B	8WF24 to 8WF28 10WF, 12WF, 14WF 16WF36 to 16WF50	14B
ANGLES T	III I	L8"x4"x1"x0'-5"	L8"x6"x1"x0'-8"	L8"x6"x1"x0'-8"
	III H	L8"x4"x1"x0'-5"	L8"x4"x1"x0'-8"	L8"x6"x1"x0'-5"
WELDS ①		5/8"	½"	½"

G-AB2-13.8

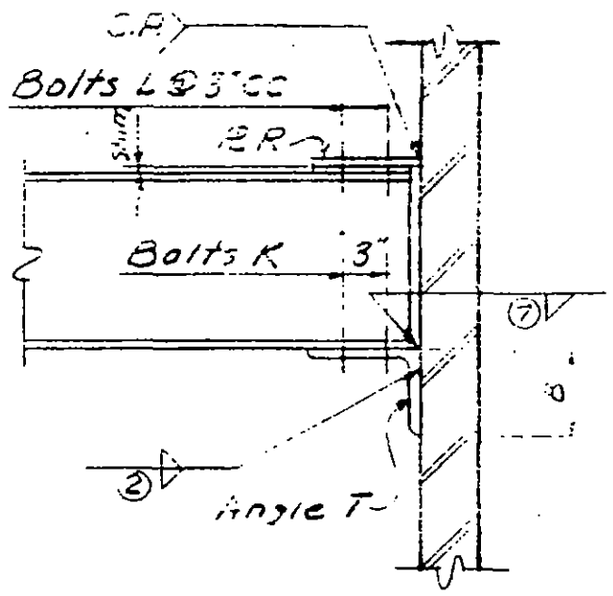
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No. 34360
THE STATE OF NEW YORK

VORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL III K,N,P,Q,U,W | DATE 7-28-67

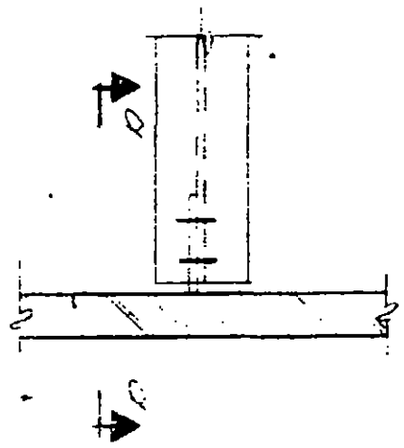
REVISIONS
1 4-15-67
10-5-67
11-16-67

6-AB2-13.4 for schedule

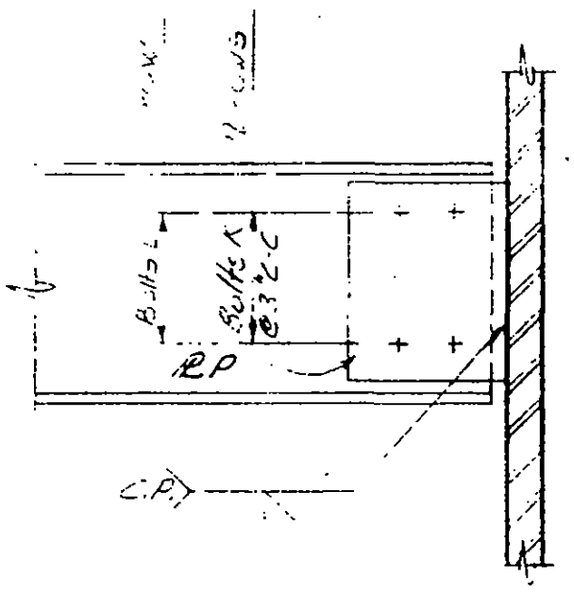


Elevation

6-AB2-13.5 for schedule



Plan



Section a-a

Detail III K,N & P

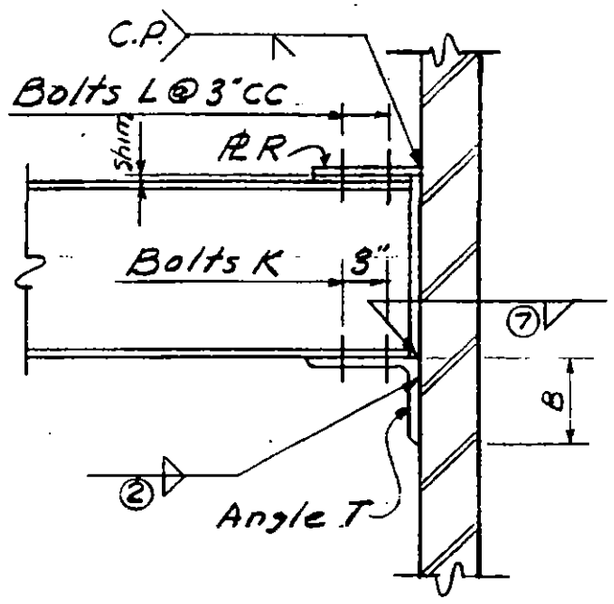
Detail III Q,U,W

6-AB2-13.3

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL III K,N,P,Q,U,W | DATE: 7-28-67

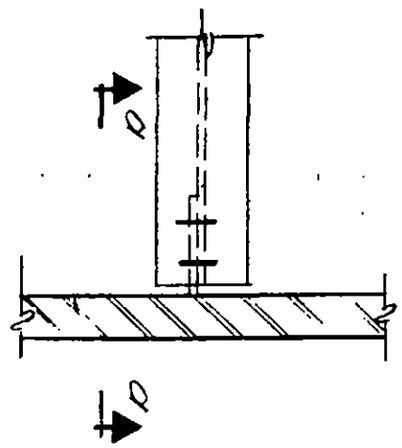
REVISIONS
9-15-67
10-5-67
11-16-67
12-13-67



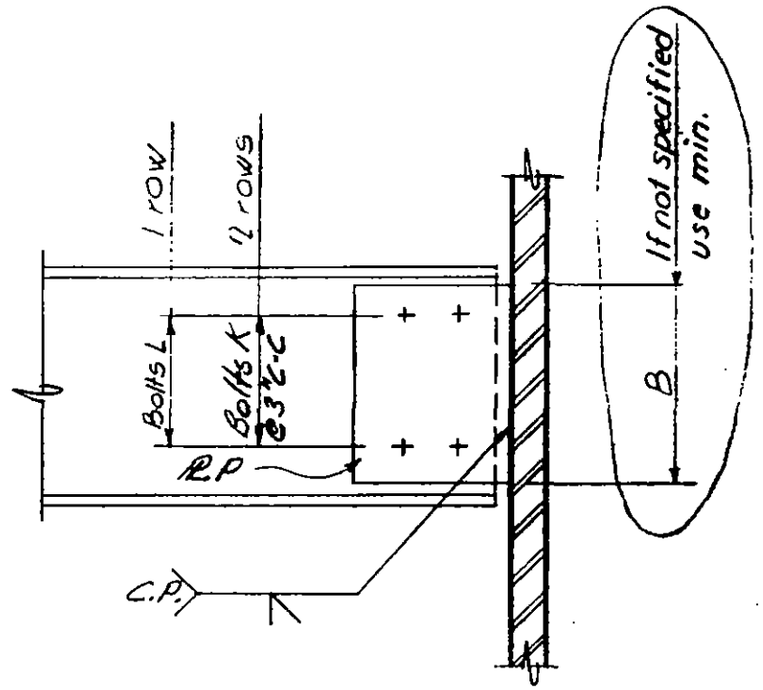
Elevation

Detail III N

For details K & P use bolts w/washers on web



Plan



Section a-a

Note: Use alt. for all scheduled Details, flor 10 and above

Detail III K, P, Q, U, W

G-AB2-1

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PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL III J - P

REVISIONS

15-67

11-10-67

Ref. Dwg.	G-AB2-13	G-AB2-13.3	G-AB2-13	G-AB2-13	G-AB2-13.3	G
	III J	III K	III L	III M	III N	
PLATES						
P	3/4"	—	7" x 3/4"	7" x 5/8"	—	
Q	1/4"	—	7/8"	3/4"	—	
R	-	1/3"	7/8"	3/4"	3/8"	
ANGLE						
J	-	8"x4"x1"x0'-2"	—	—	8"x4"x1"x0'-2"	
DIMENSIONS						
B	1'-3"	0'-4"	1'-3"	1'-0"	0'-4"	
C	—	—	0'-9"	—	—	
BOLTS						
K	—	4-3/4" ϕ	4-1" ϕ	4-7/8" ϕ	4-3/4" ϕ	
L	-	4-3/4" ϕ	4-1" ϕ	—	4-3/4" ϕ	
WELDS						
1	—	—	—			
2	—	3	—	—	5/16	
3	C.P.	—	C.P.	C.P.	—	
4	5/16		3/8	5/16	—	
5	—		—	—	—	
6	C.P.		C.P.	C.P.	1/2	
7	—		—	—	—	

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PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL III J - P | DATE 7-28-67

REVISIONS
5-15-67
11-10-67
12-13-67

Ref. Dwg.	G-AB2-13	G-AB2-13.3	G-AB2-13	G-AB2-13	G-AB2-13.3	G-AB2-13.3
	III J	III K	III L	III M	III N	III P
PLATES						
P	3/4"	3/4"	7" x 3/4"	7" x 5/8"	—	5/8"
Q	3/4"	—	7/8"	3/4"	—	—
R	—	—	7/8"	3/4"	3/8"	—
ANGLE						
T	—	—	—	—	8" x 4" x 1" x 0'-5"	—
DIMENSIONS						
B	1'-3"	0'-6½"	1'-3"	1'-0"	0'-4"	0'-9"
C	—	—	0'-8"	—	—	—
BOLTS						
K	—	4-1" ϕ	4-1" ϕ	4-7/8" ϕ	4-3/4" ϕ	6-1" ϕ
L	—	—	4-1" ϕ	—	4-3/4" ϕ	—
WELDS						
(1)	—	—	—	—	—	—
(2)	—	—	—	—	5/8"	—
(3)	C.P.	—	C.P.	C.P.	—	—
(4)	5/16"	—	3/8"	5/16"	—	—
(5)	—	—	—	—	—	—
(6)	C.P.	—	C.P.	C.P.	1/2"	—
(7)	—		—	—	—	—

Note: Use q/k. For all sch. Details Floor 10 and above

G-AB2-13.4 IE

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PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 111 Q, R, S, T, U, V. | DATE 9-15-67

REVISIONS

10-2-67
10-5-67

Ref. Dwg.	G-AB2-13.3	G-AB2-13.6	G-AB2-13.6	G-AB2-13.6	G-AB2-13.3	G-AB2-13.6
	111 Q	111 R	111 S	111 T	111 U	111 V
PLATES						
P	5/8"	11" x 1"	9" x 7/8"	9" x 7/8"	1/2"	5" x 3/4"
Q	—	1"	7/8"	7/8"	——	3/4"
R	—	3/8"	3/8"	3/8"	——	1/2"
BOLTS						
K	8 - 7/8" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	4 - 3/4" ϕ	——	4 - 3/4" ϕ
L	—	4 - 7/8" ϕ	4 - 7/8" ϕ	4 - 7/8" ϕ	4 - 7/8" ϕ	4 - 3/4" ϕ
DIMENSIONS						
A	—	1'-6"	1'-4"	1'-5"	——	1'-0"
WELDS						
(1)	—	5/16	5/16	5/16	——	5/16

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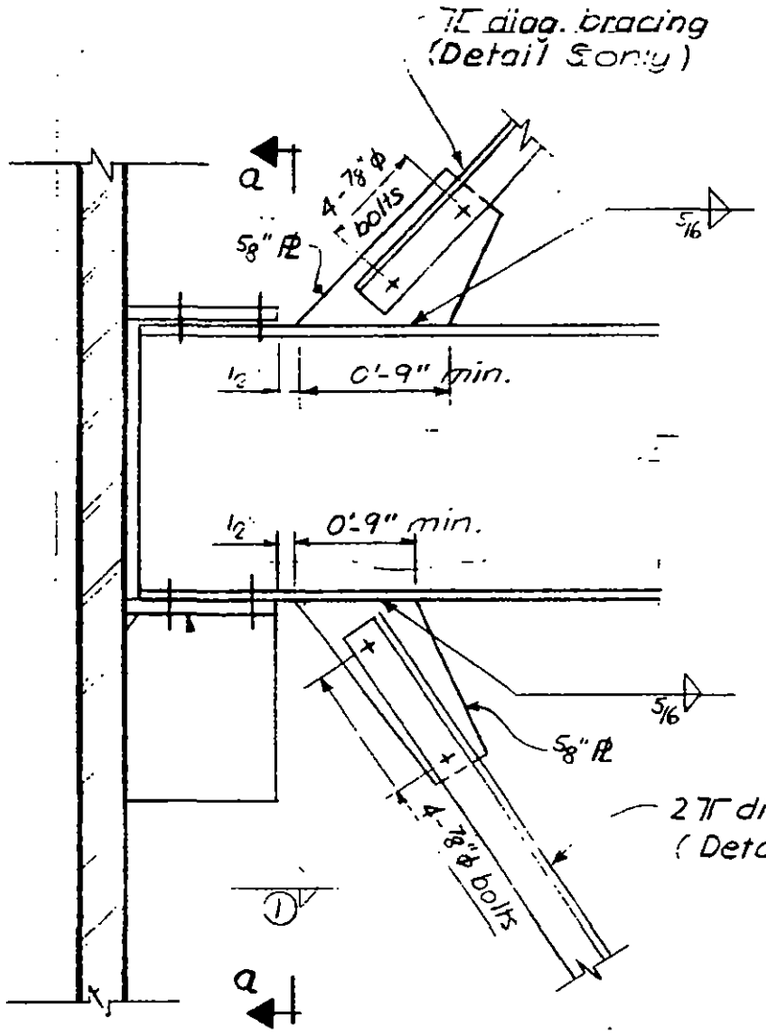
6-AB2-13.5

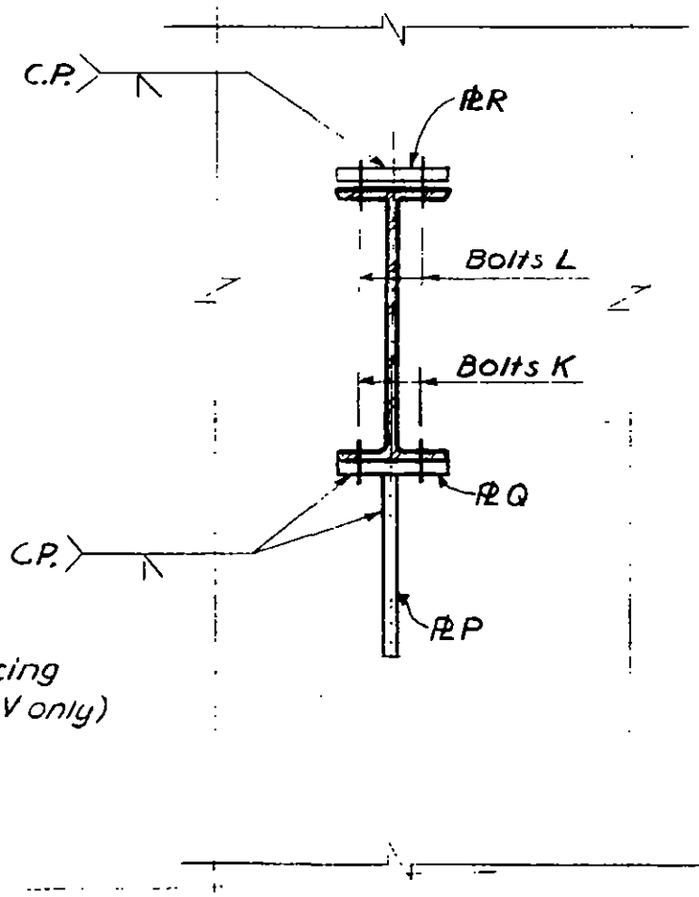
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL III R, S, I & V | DATE 10-2-67

REVISIONS

10-31-67





Detail III R: See G-AB5-97 for bracing elevation
Detail III S, V: See G-AB5-97 or G-AB5-98 for bracing elevation

Elevation

Section a-a

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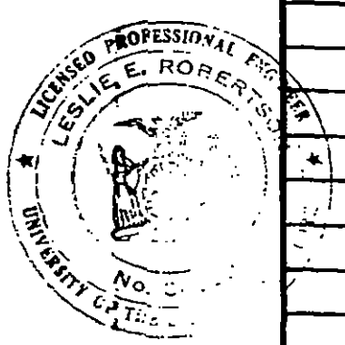
6-AB2-13.6

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL III W | DATE 11-16-67

REVISIONS

REF. DWGS.	6-AB2-13.3					
	III W					
PLATES						
P	3/8"					
BOLTS						
K	4-3/4" ϕ					



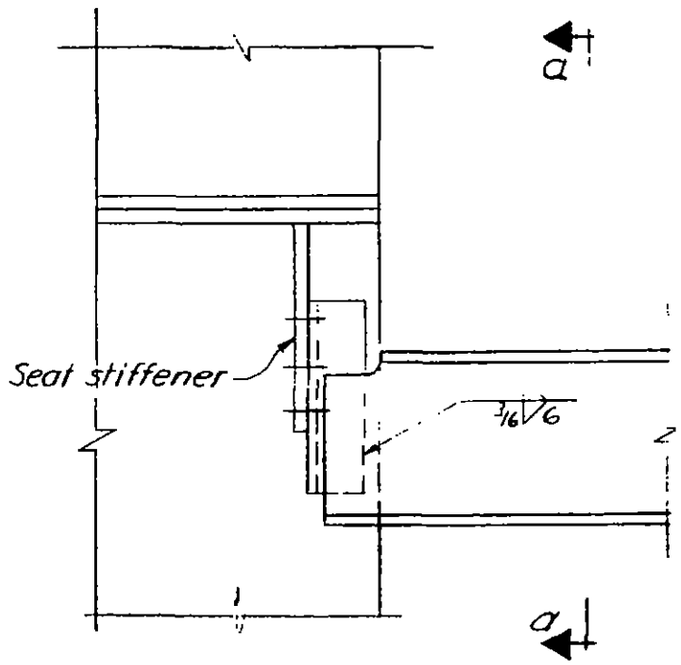
6-AB2-13.7

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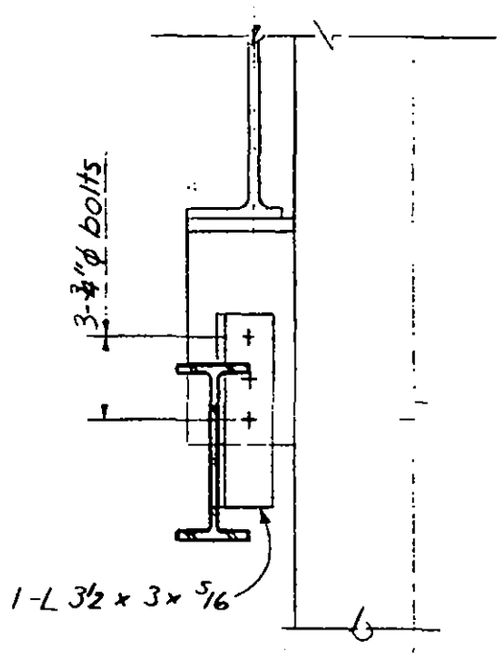
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 113 A, 113 B | DATE 12-21-67

REVISIONS

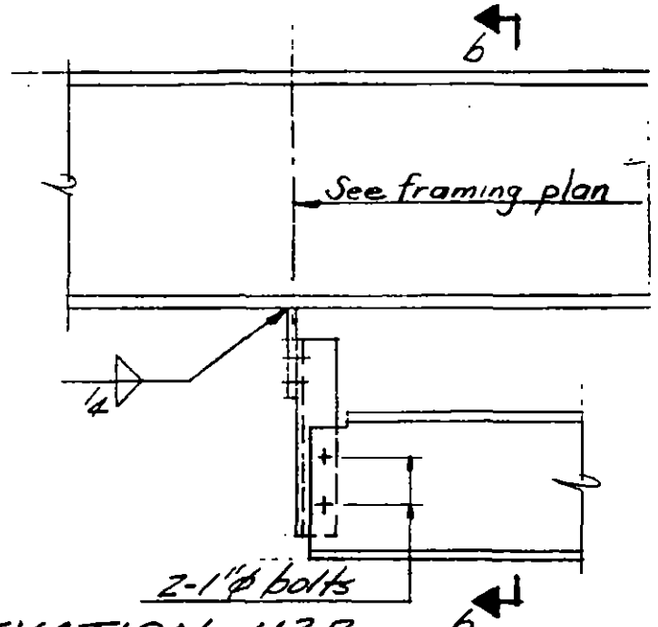
1-10-69



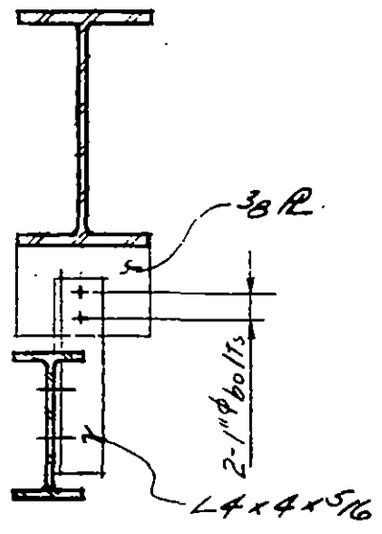
ELEVATION 113A



Section a-a



ELEVATION 113B



Section b-b

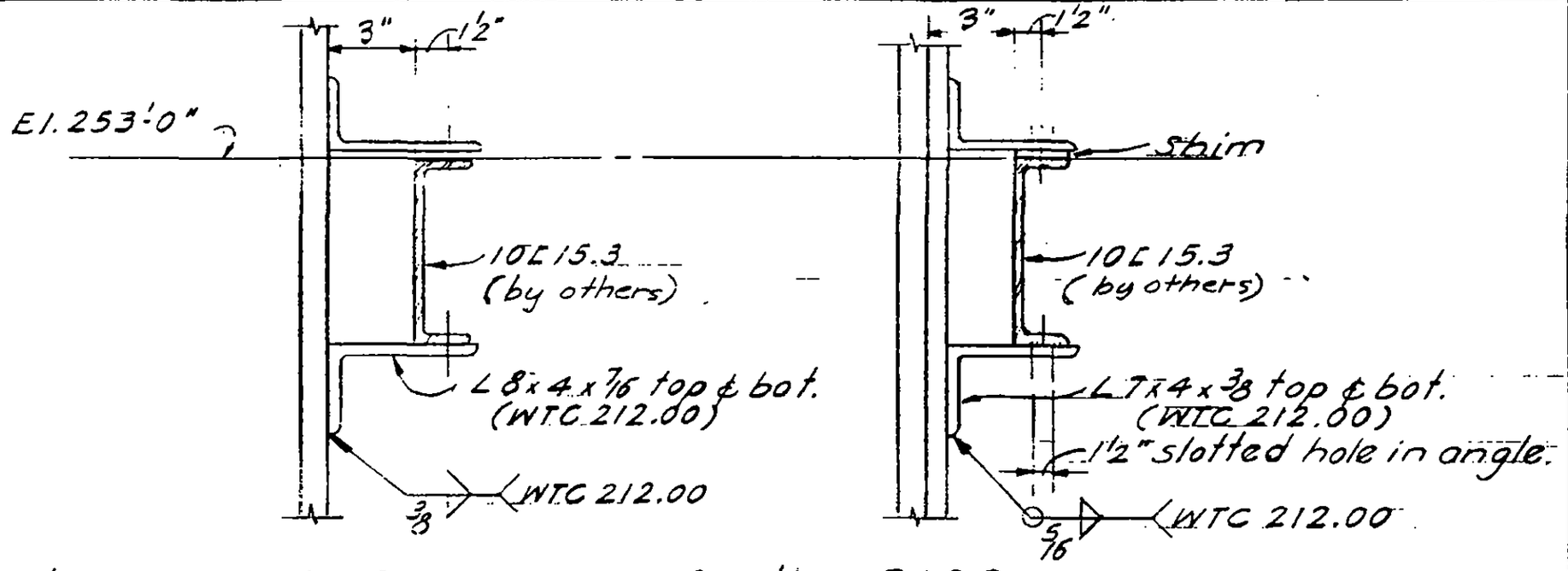
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6-AB2-15

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

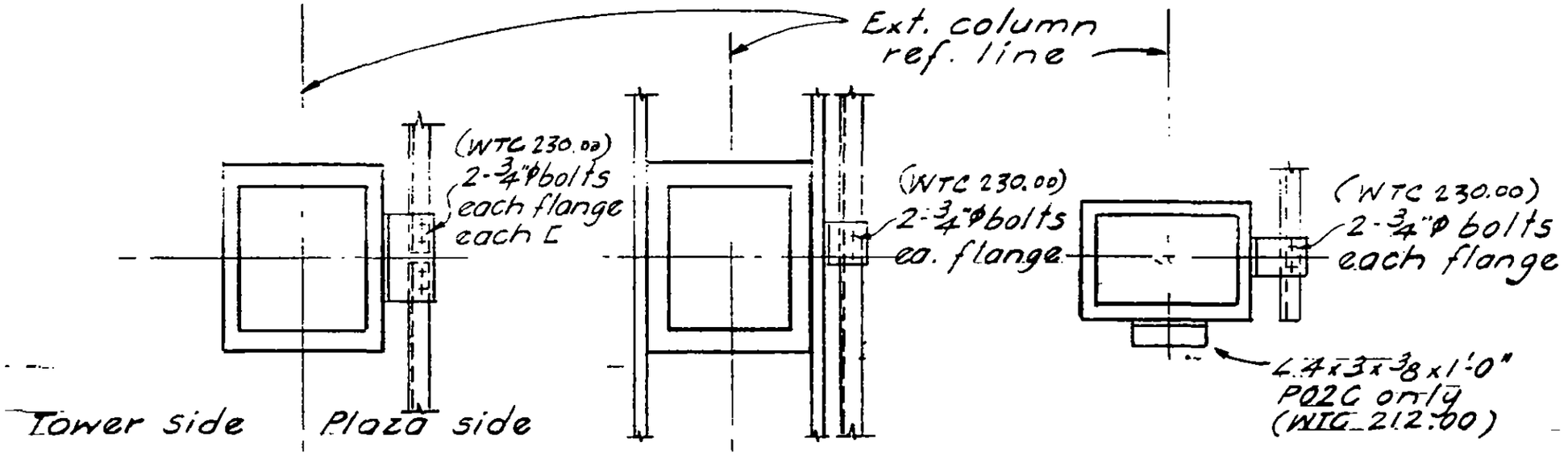
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL P02A - E | DATE 11-7-67

REVISIONS



Section P02 A, C & D

Section P02 B



Plan P02A

Plan P02B

Plan P02 C

Plan P02 D

Plan P02 E

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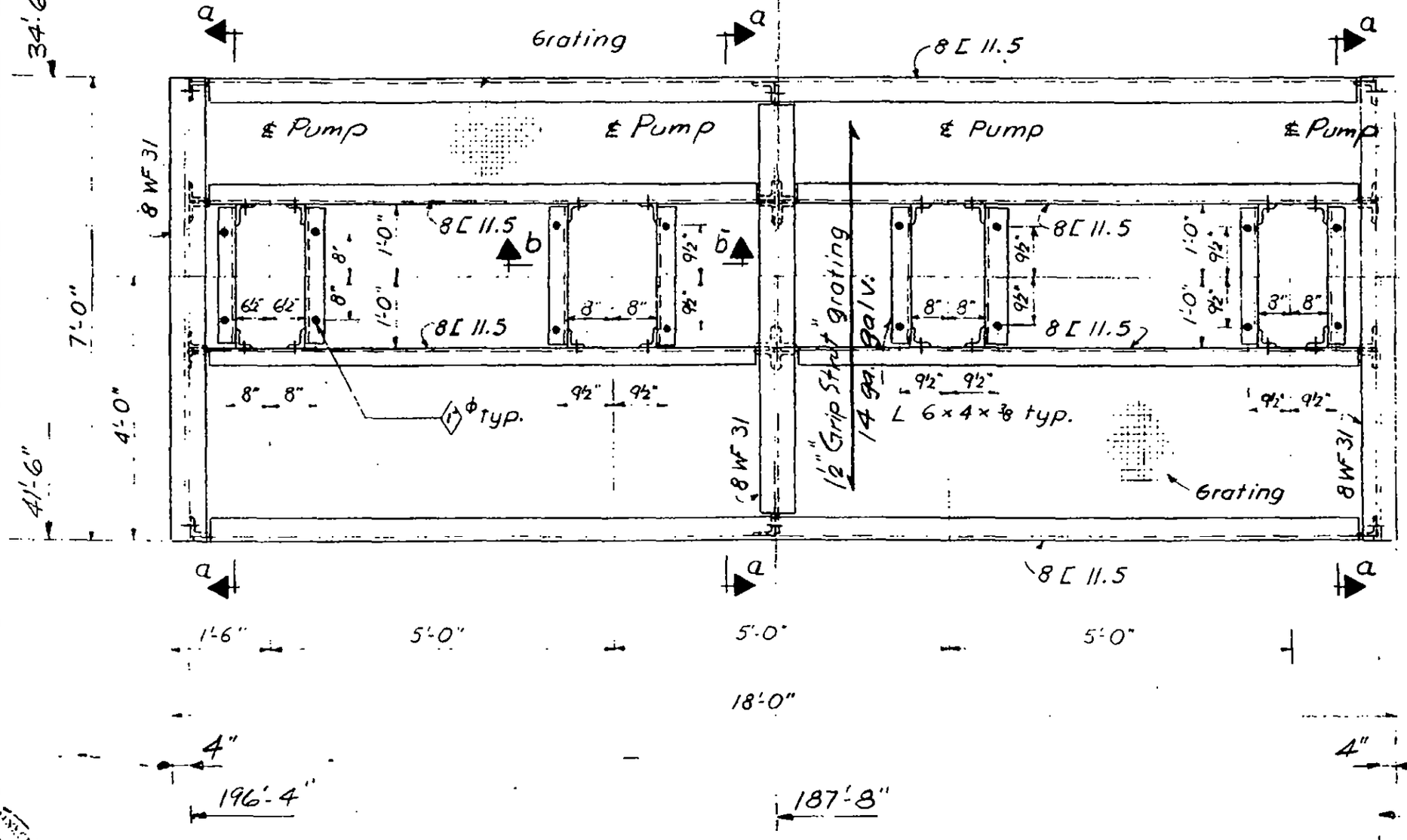
6-AB2-25

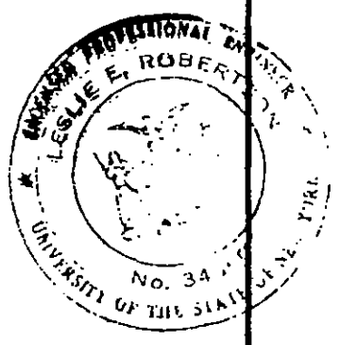
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON | Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM AT SERVICE LEVEL (El. 294') | DATE 12-18-67

REVISIONS

For opening in grating
See approved pump shop dwgs.



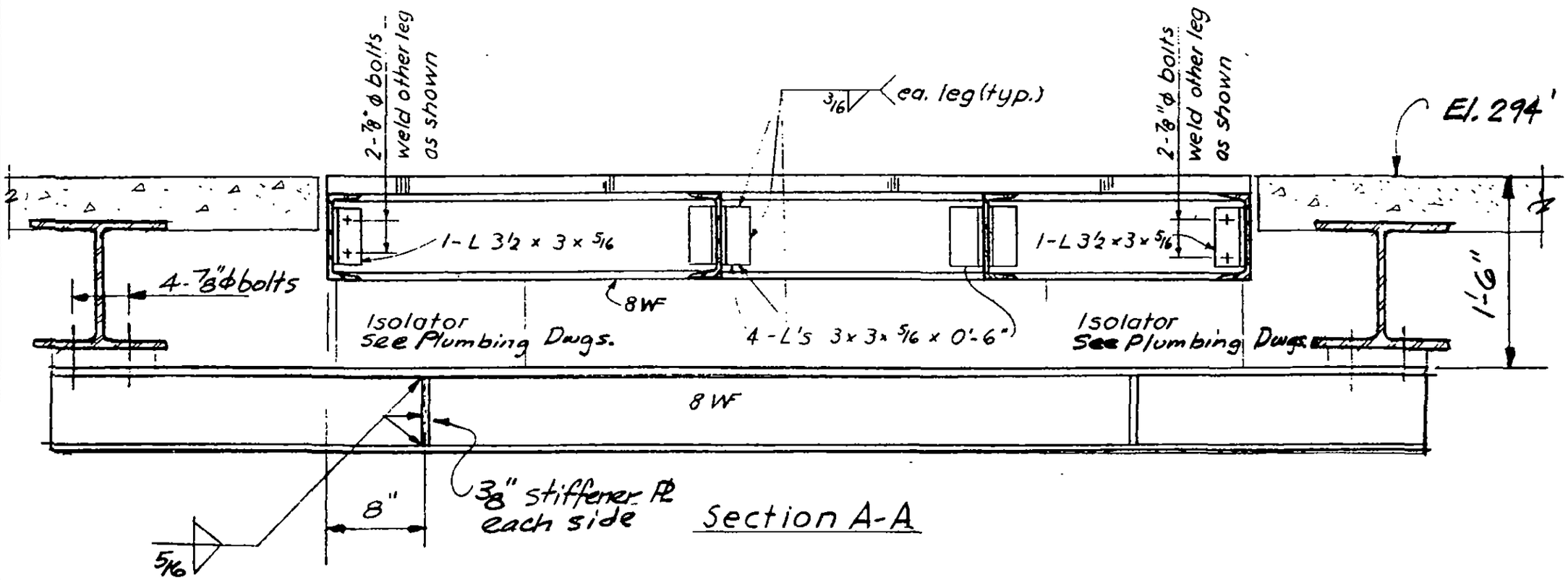


6-AB2-30

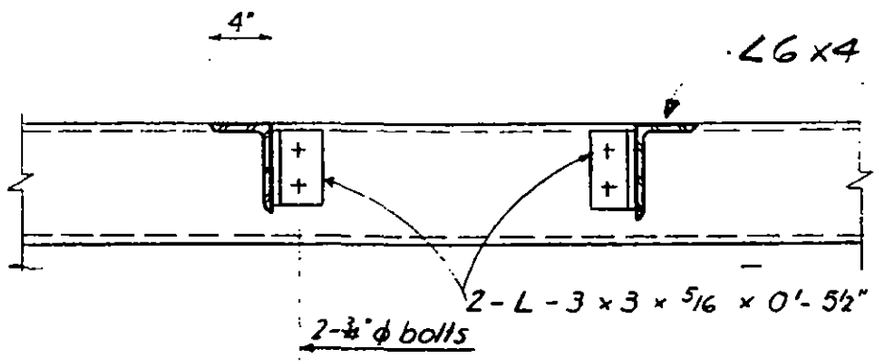
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM AT SERVICE LEVEL (El. 294') | DATE 12-18-67

REVISIONS



Section A-A



Section B-B (typ.)

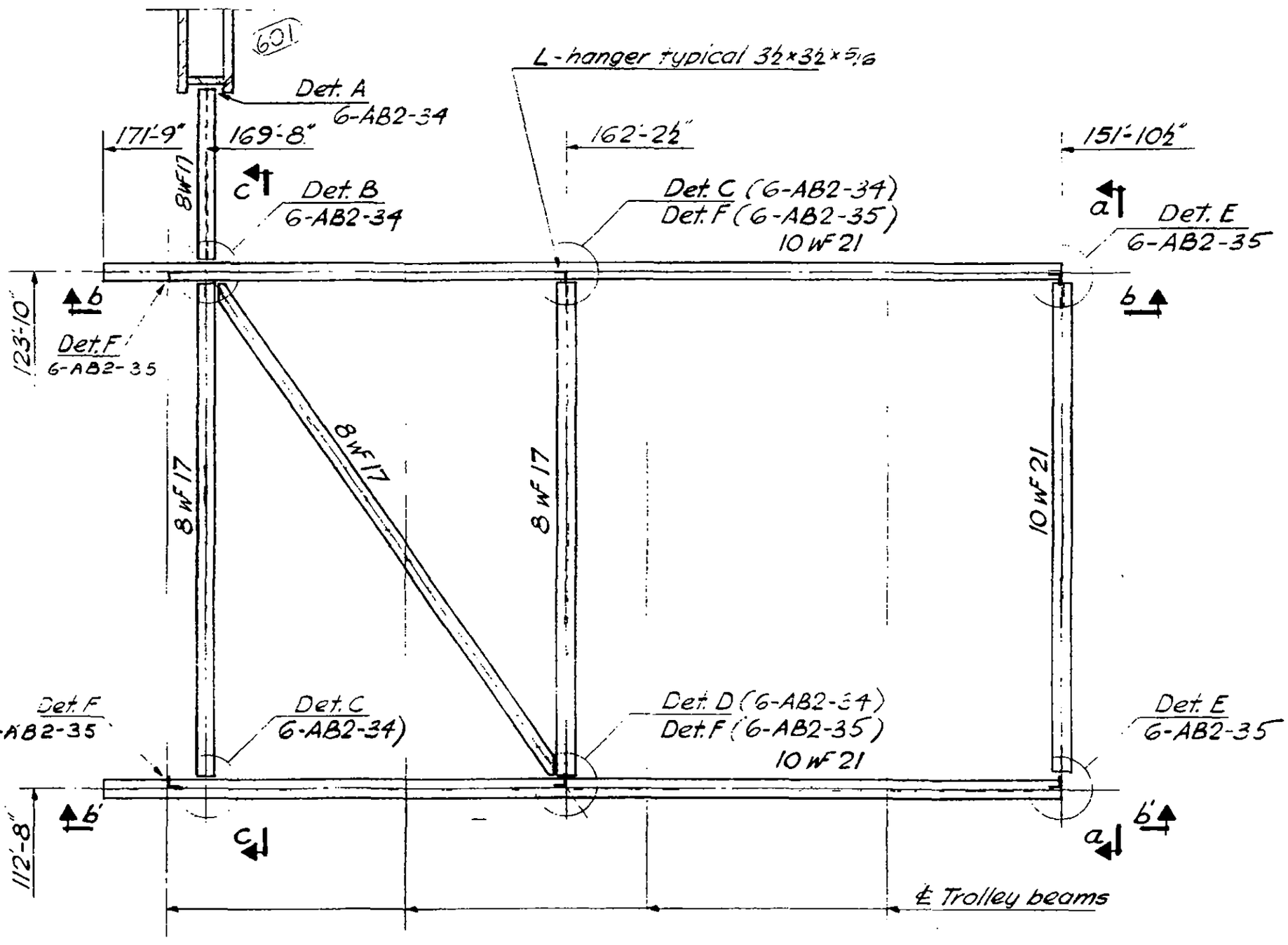
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6-AB2-31

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT | DATE 1-24-68

REVISIONS



Plan

All steel @ (-8'-9") below reference floor 43

For Sections a-a, b-b, b'-b' see 6-AB2-33

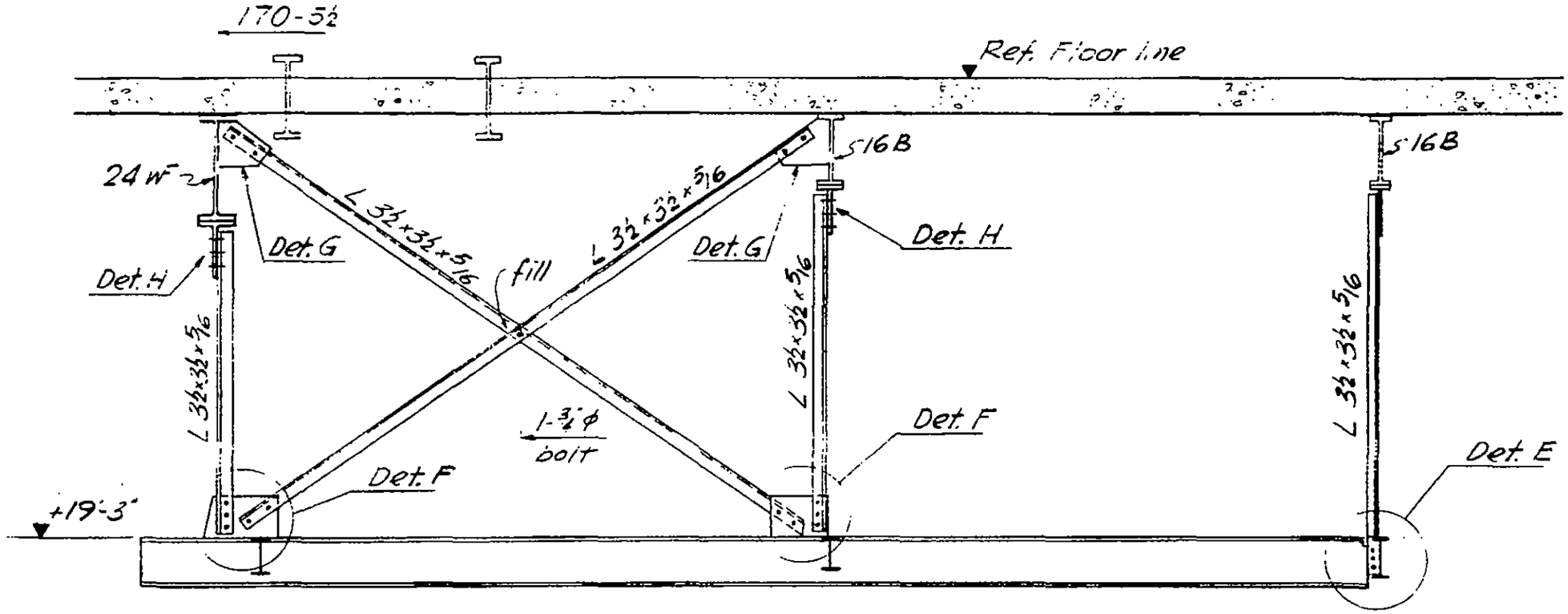
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6-AB2-32

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

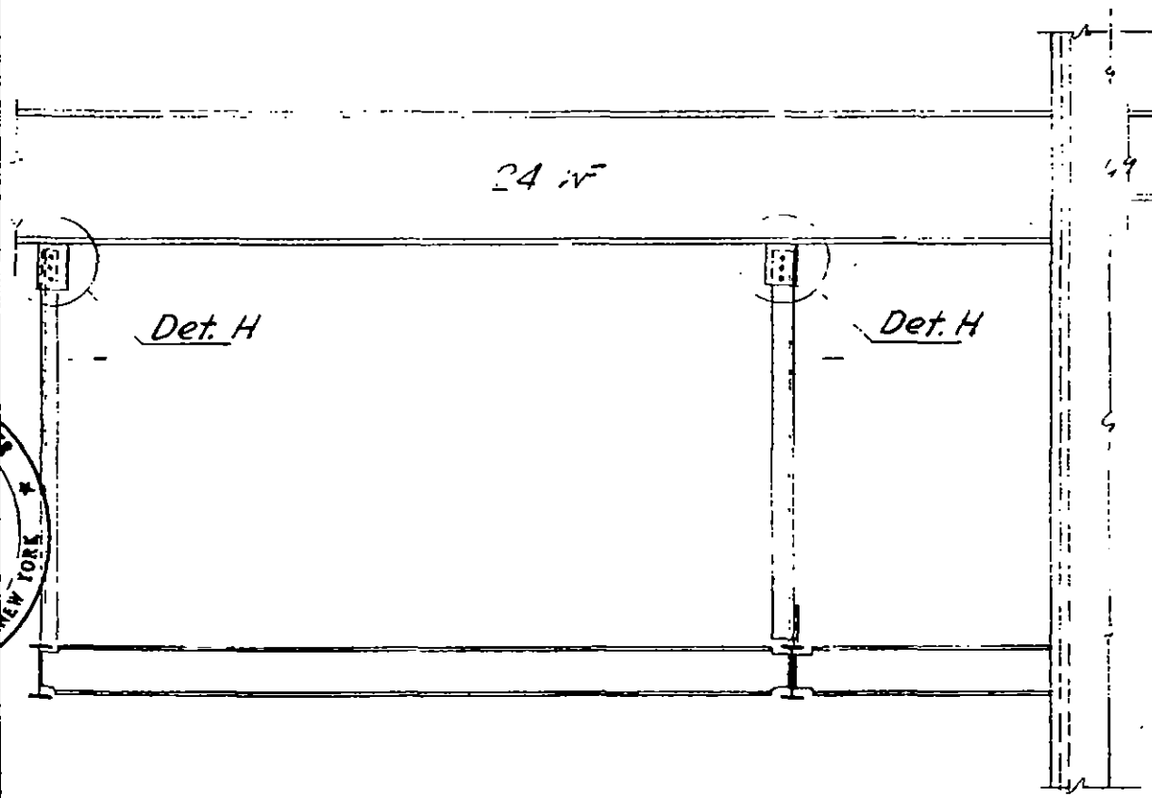
PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT | DATE 1-24-68

REVISIONS

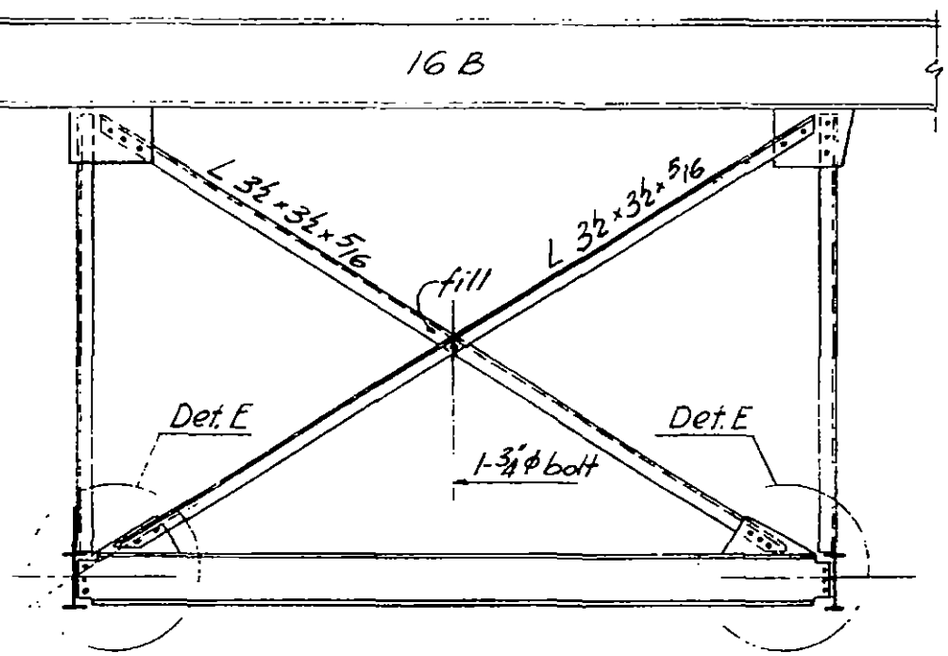


Section b-b (6'-6' similar)

For Details See 6-AB2-35



Section c-c



Section a-a

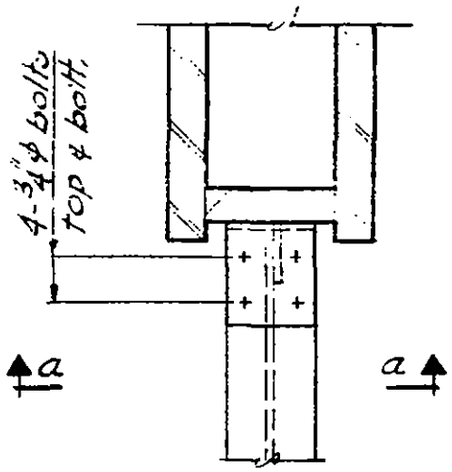
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UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-331

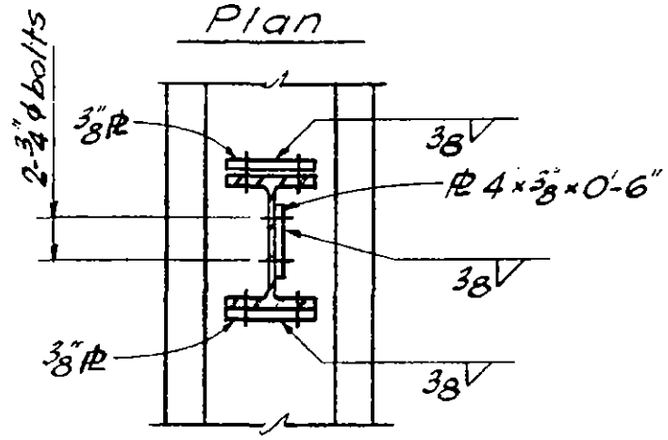
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT DETAILS | DATE 1-24-68

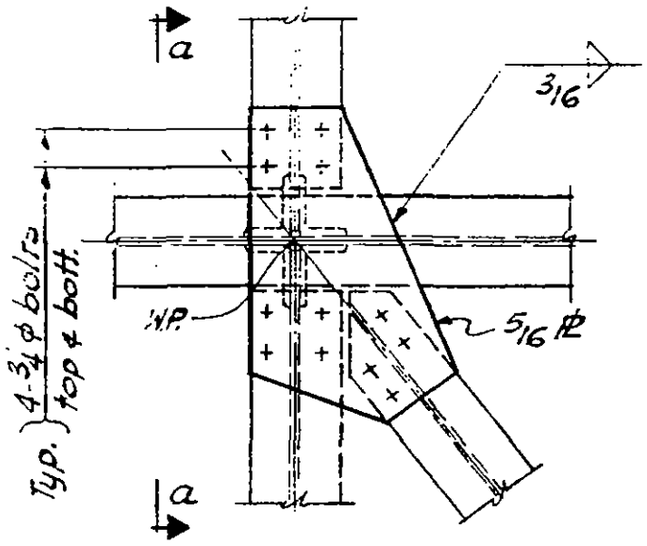
REVISIONS



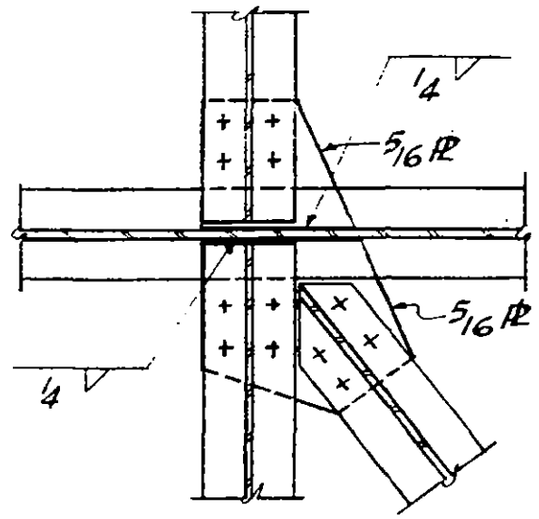
Plan



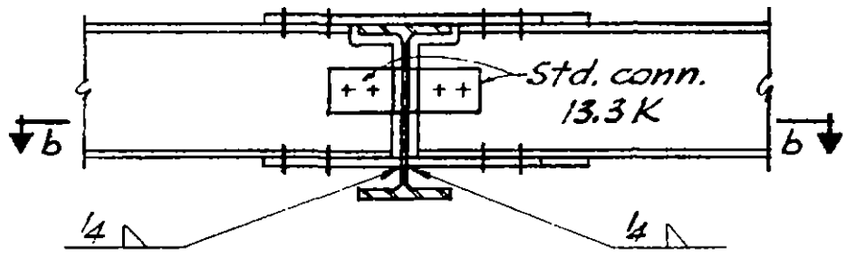
Section a-a



Plan



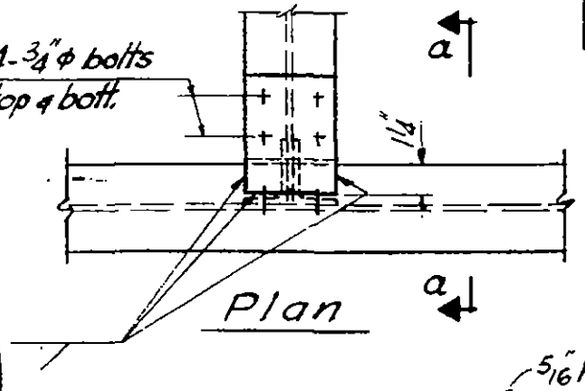
Section b-b



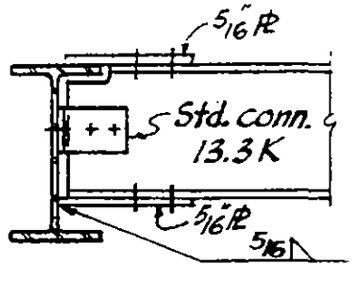
Section a-a

DETAIL A | DETAIL B

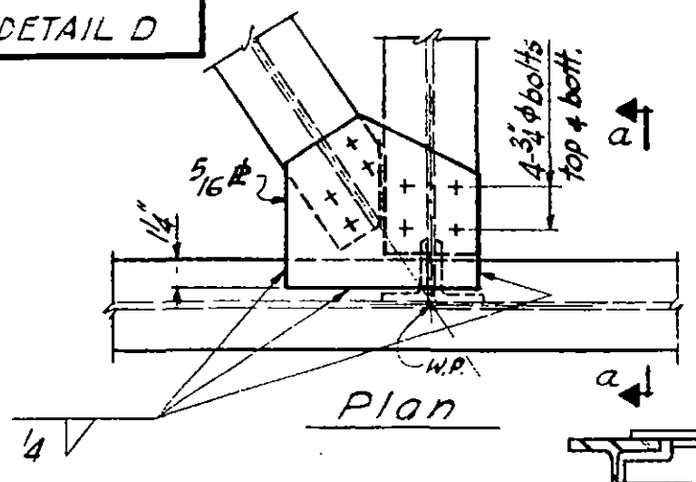
DETAIL C | DETAIL D



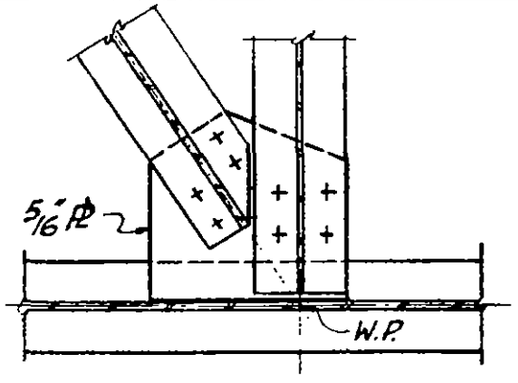
Plan



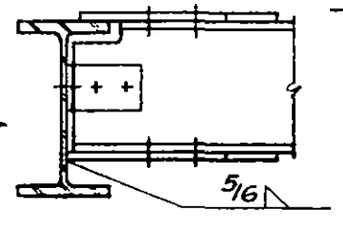
Section a-a



Plan



Section b-b



Section a-a

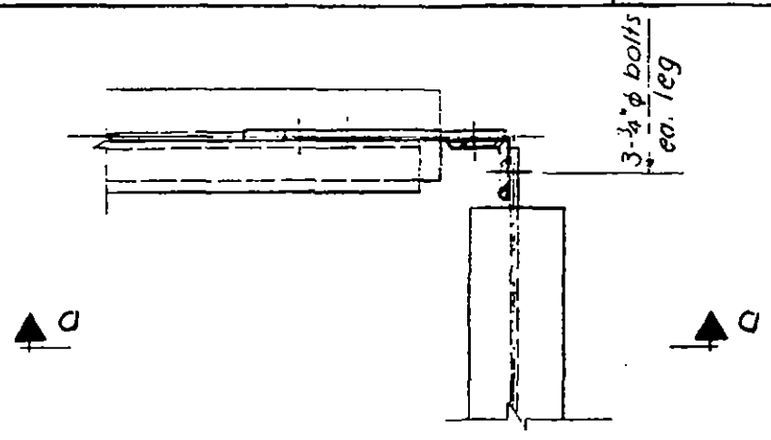
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6-AB2-34

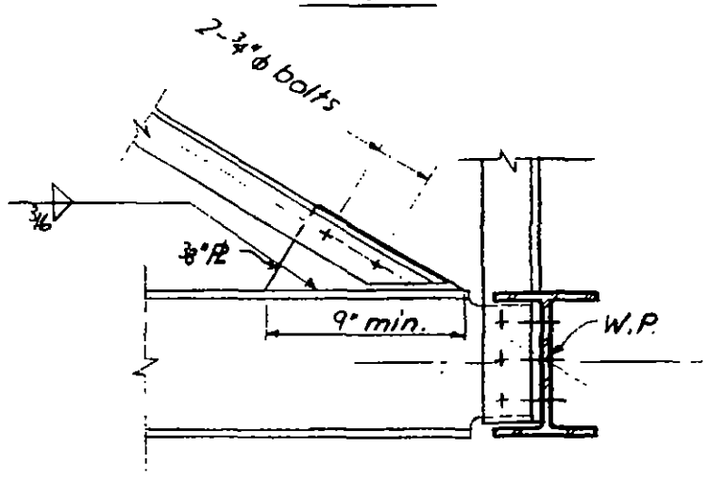
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT DETAILS | DATE 1-24-68

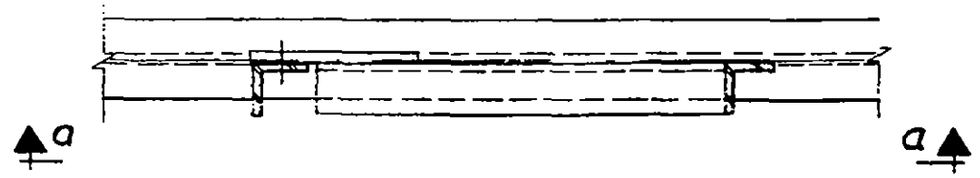
REVISIONS



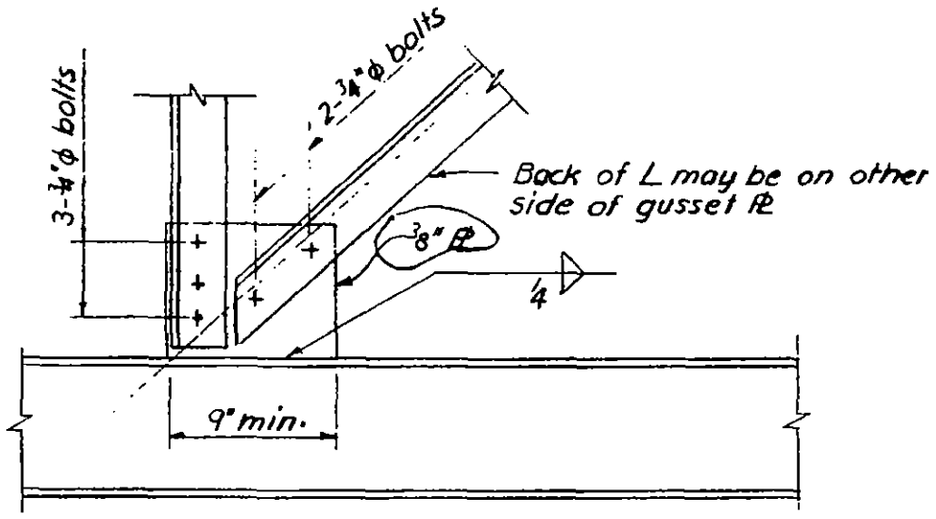
Plan



Section a-a

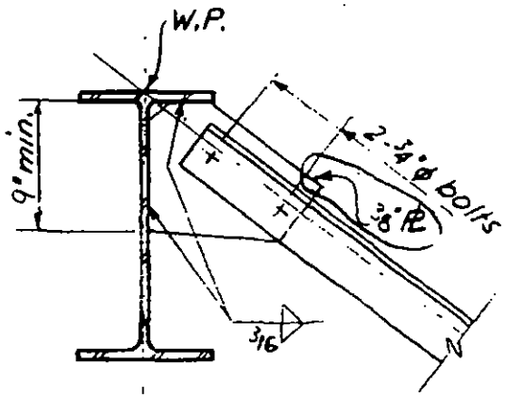


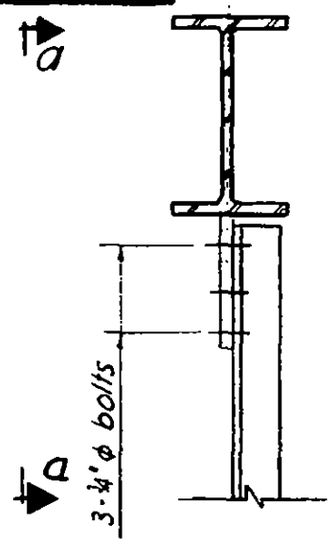
Plan

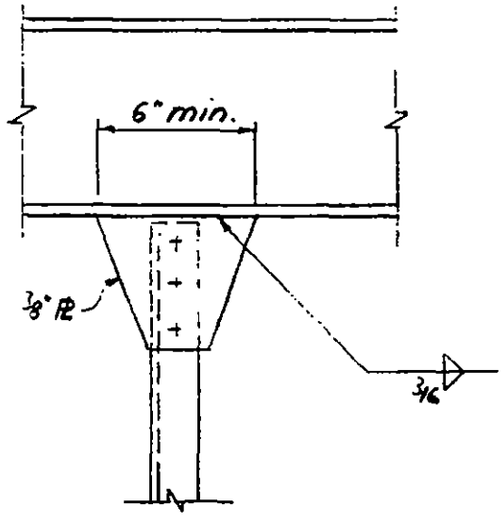


Section a-a

DETAIL E	DETAIL F
DETAIL G	DETAIL H







Section a-a

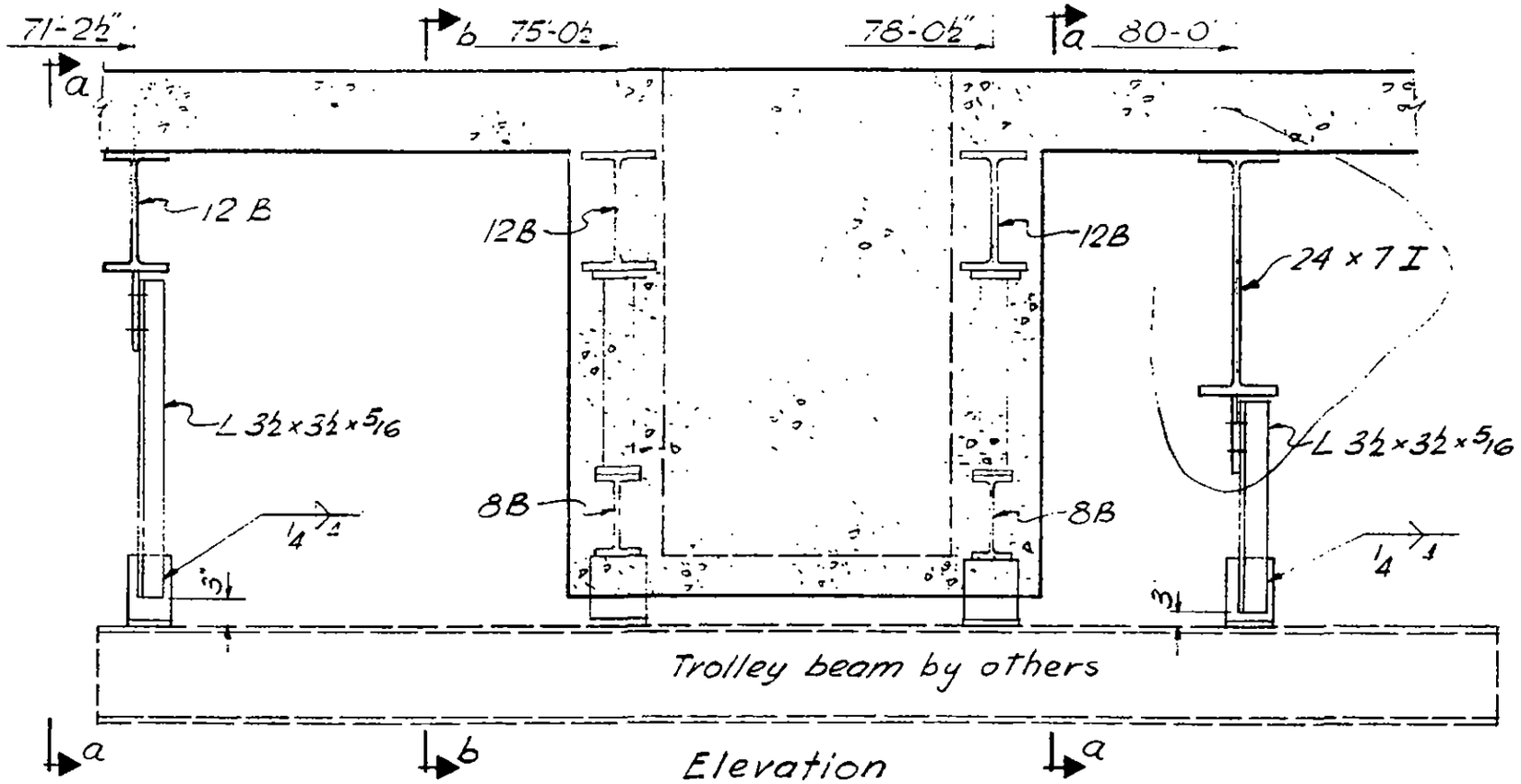
6-AB2-35

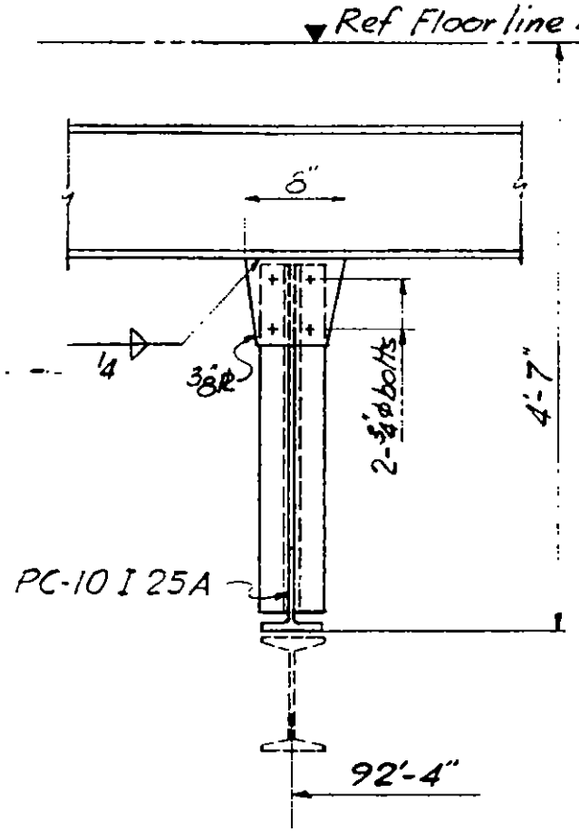
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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

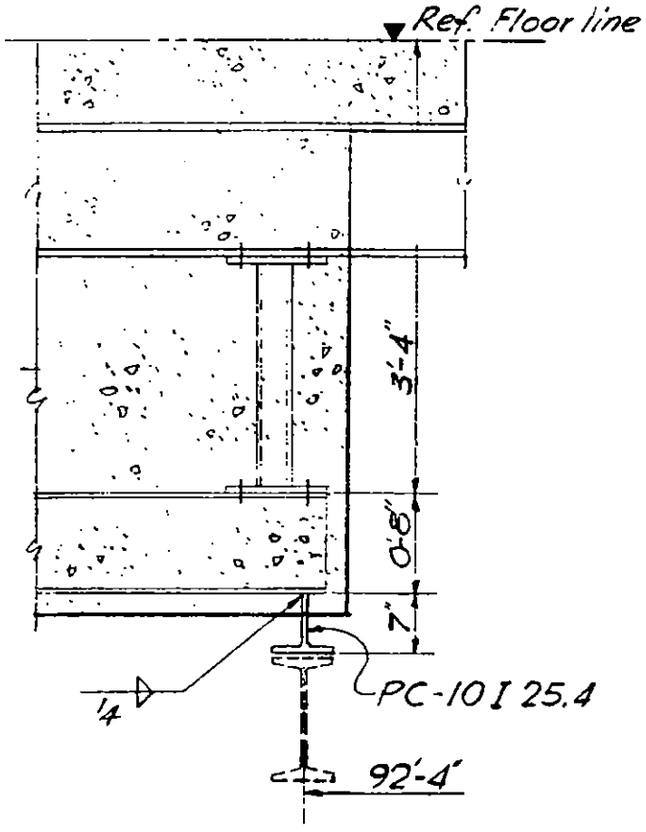
PROJECT THE WORLD TRADE CENTER | TITLE ELEVATOR MACH. ROOM TROLLEY BEAM SUPPORT | DATE 1-24-68

REVISIONS





Section a-a



Section b-b

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UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-36

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM @ 41ST FLOOR | DATE 1-24-68

REVISIONS

3-29-68

Std. conn. 26.5 K

Std. conn. 26.5 K

Std. conn. 26.5 K

8 C 8.5

℄ Isolator

℄ Isolator

℄ Isolator

Direction of grating

Direction of grating

8 x 3 C 18.7

8 x 3 C 18.7

8 x 3 C 18.7

8 x 3 C 18.7

8 x 3 C 18.7

8 x 3 C 18.7

8 WF 31

8 WF 31

8 WF 31

Pump #1

Pump #2

Pump #3

Pump #4

10'-6"

9'-6"

9'-6"

9'-6"

1'-2"

2'-6"

1'-9"

1 ℄ Typical top flange only typ. 5/16

See pump shop dwgs. for opngs (typ.)

L 3½ x 2½ x ¼ x 3'-0" (typ.)

a

a

a

a

b

b

b

b

L 8 WF 17

L Pump ℄

℄ Isolators

C (typ.)

8"

8"

8'

8'

9½"

9½"

9½"

9½"

9½"

9½"

9½"

9½"

11½

11½

11½

11½

L 8 C 8.5

2'-2"

L 8 C 8.5

5'-0"

L 8 C 8.5

Std. conn. 26.5 K

L 8 C 8.5

5'-0"

L 8 C 8.5

2'-2"

4"

9'-8"

9'-8"

Removable grating (typ.)

End of grating

4-¾ ℄ bolts

4-¾ ℄ bolts

5 cut

CUT 5" 5"

½"

½"

Section a-a

Section b-b

2-⅞" ℄ bolts

L 3½ x 3 x 5/16

3/16

L 3½ x 3 x 5/16

2-⅞" ℄ bolts

TYPICAL DETAILS

Edge of pump base or edge of removable grating

End of grating

½"

2½

¾" ℄ bolts @ 6" c.c.

Section c-c

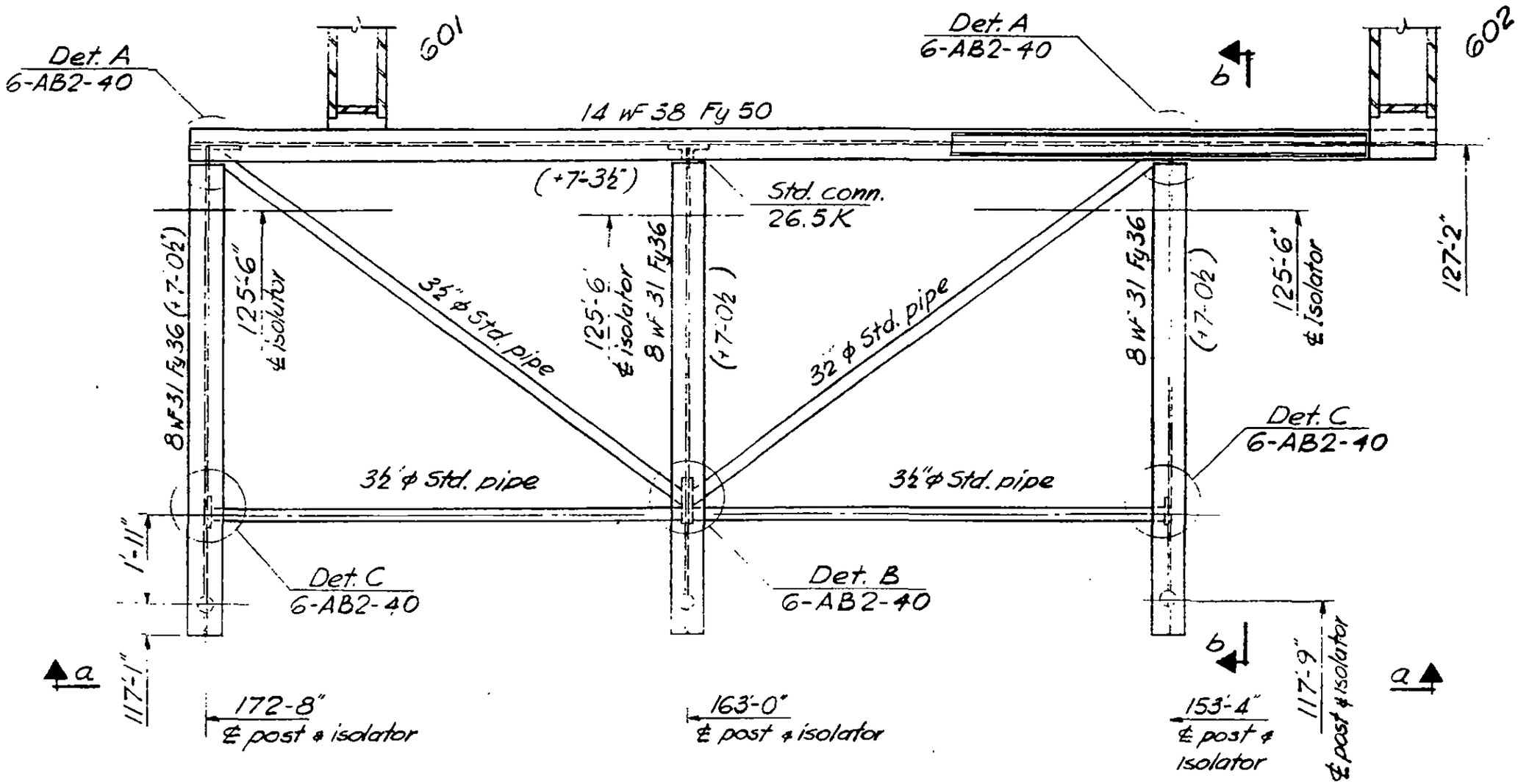
6-AB2-37

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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM SUPPORT @ 41ST FLOOR | DATE 1-24-68

REVISIONS



Plan



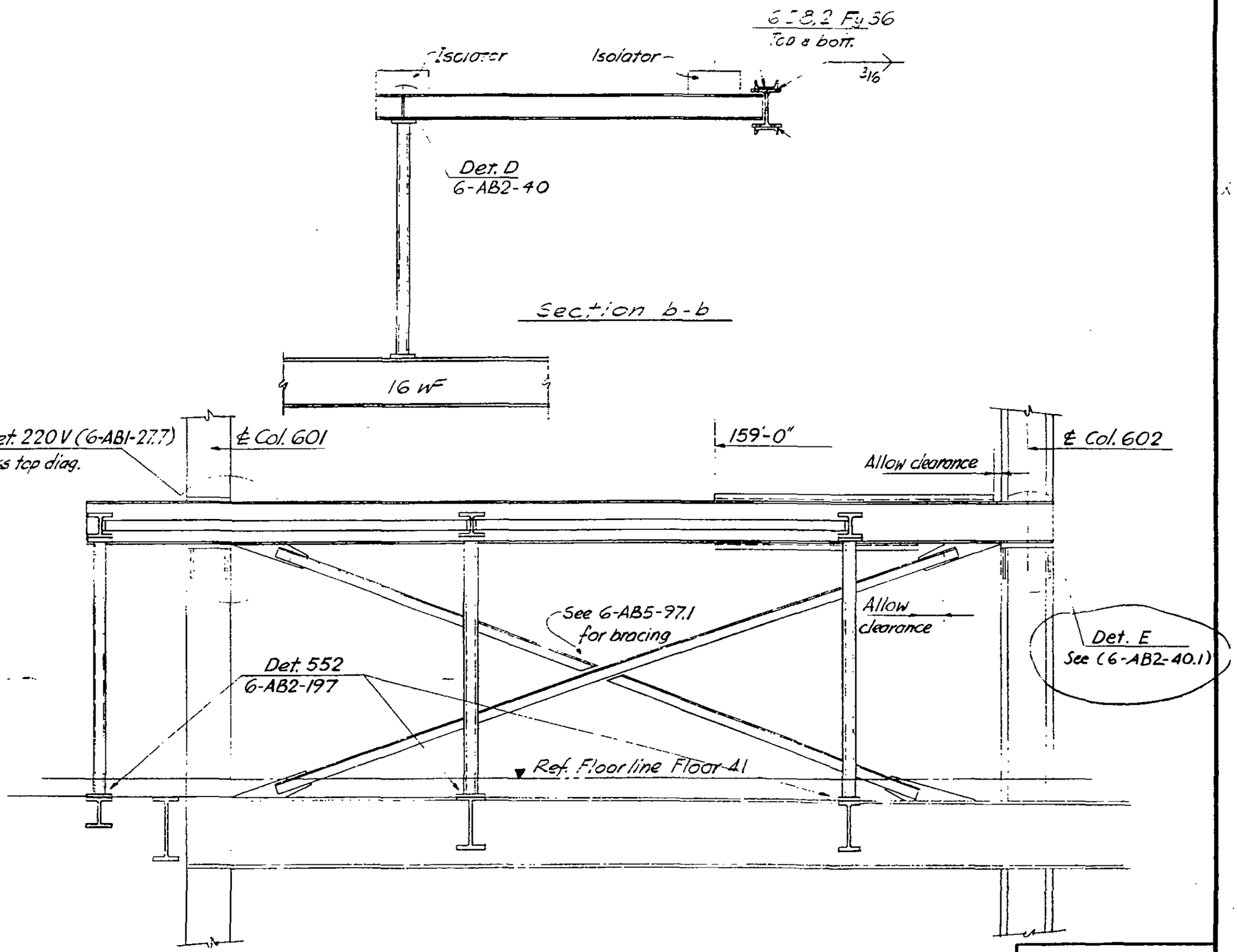
6-AB2-38

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM SUPPORT @ 41ST FLOOR | DATE 1-24-68

REVISIONS

1-29-68



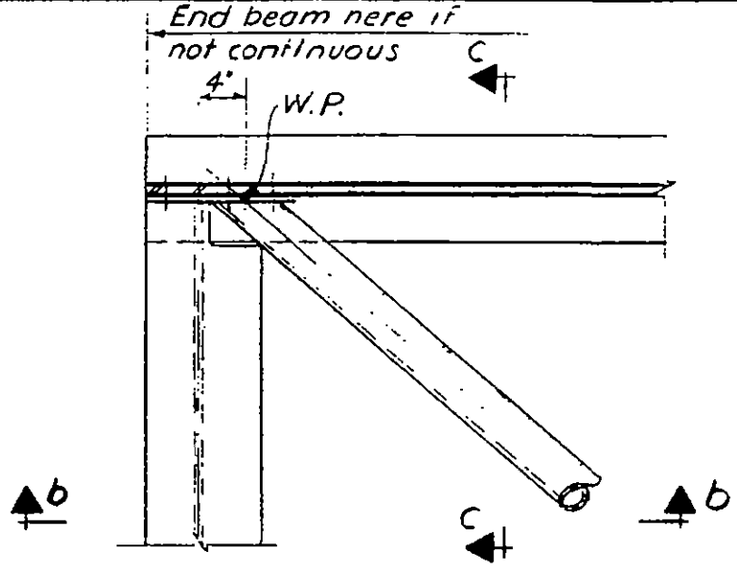
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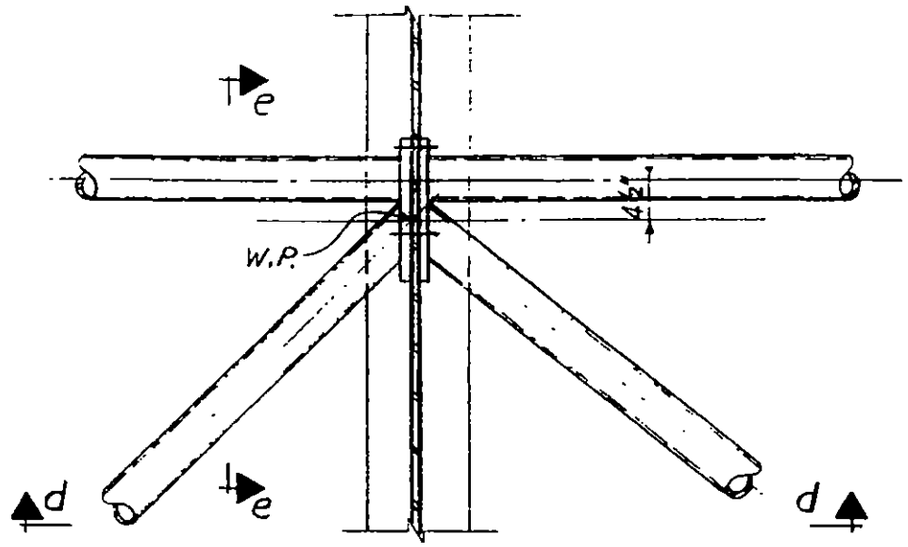
6-AB2-39

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

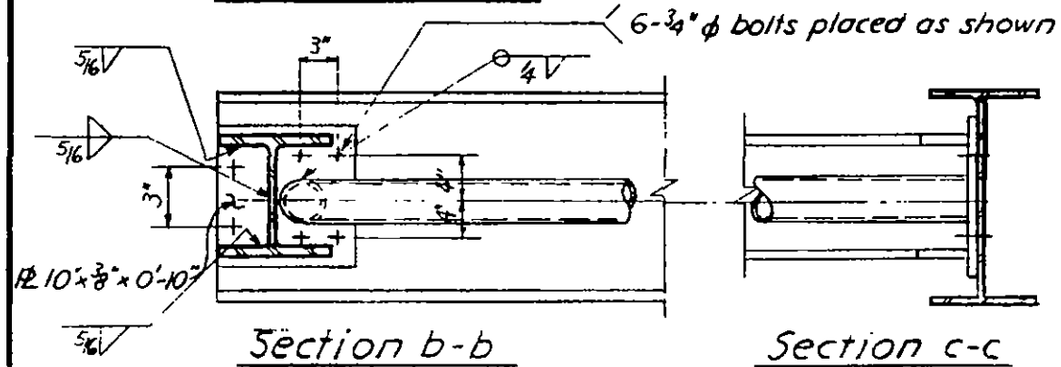
PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM SUPPORT DETAILS AT 41 ST. FLOOR | DATE 1-24-68

REVISIONS





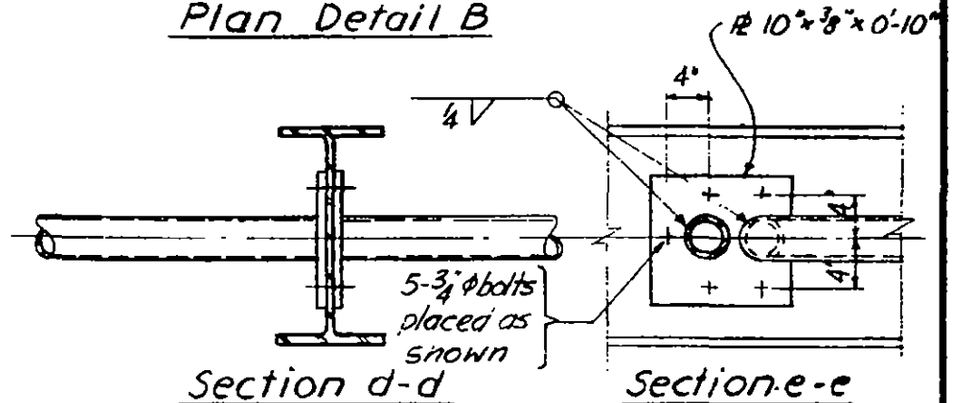
Plan Detail A



Section b-b

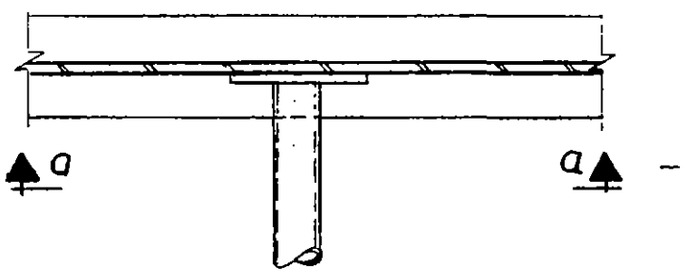
Section c-c

Plan Detail B

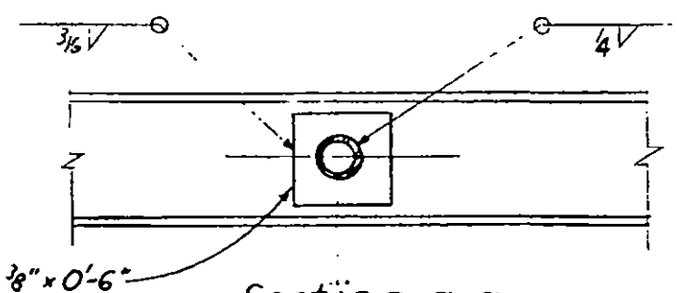


Section d-d

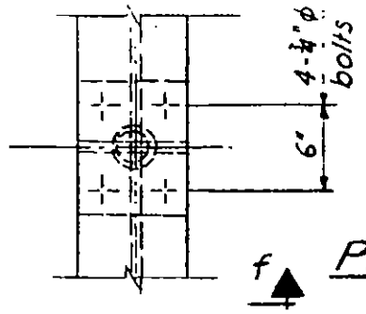
Section e-e



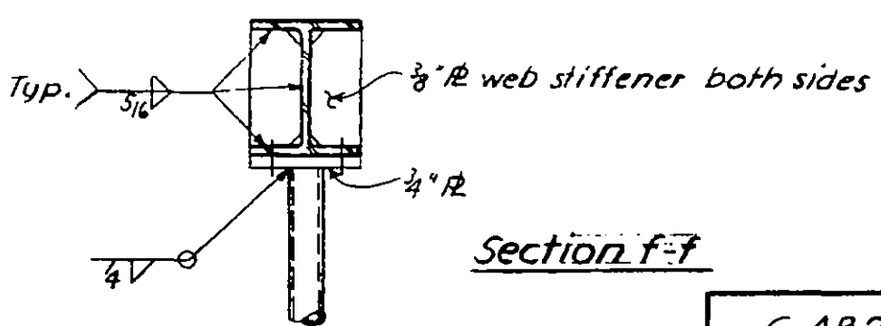
Plan Detail C



Section a-a



Plan Detail D



Section f-f

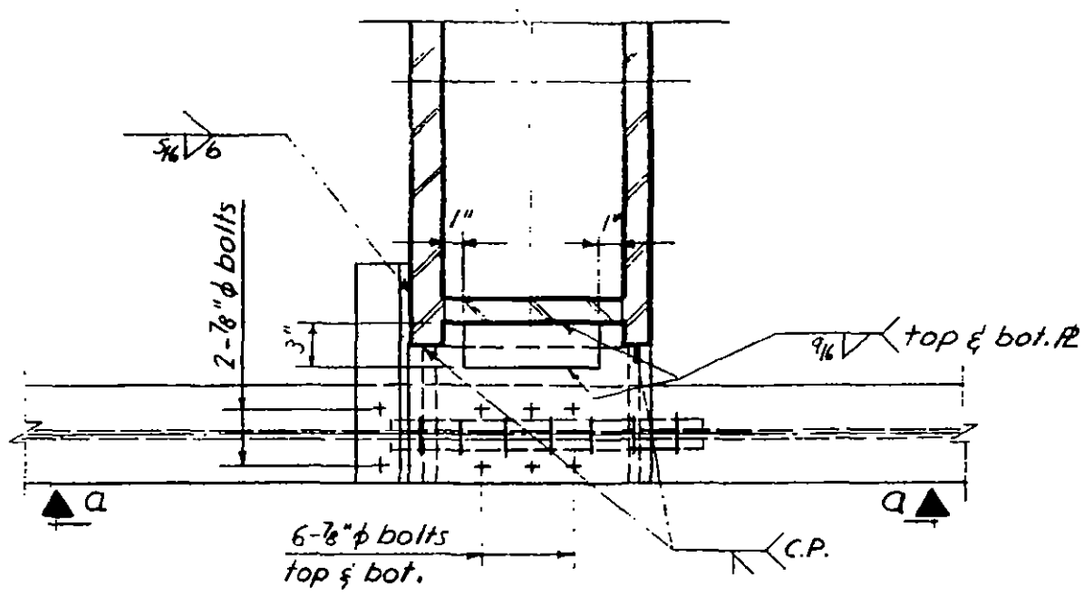
6-AB2-10

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No. 34350
UNIVERSITY OF THE STATE OF NEW YORK

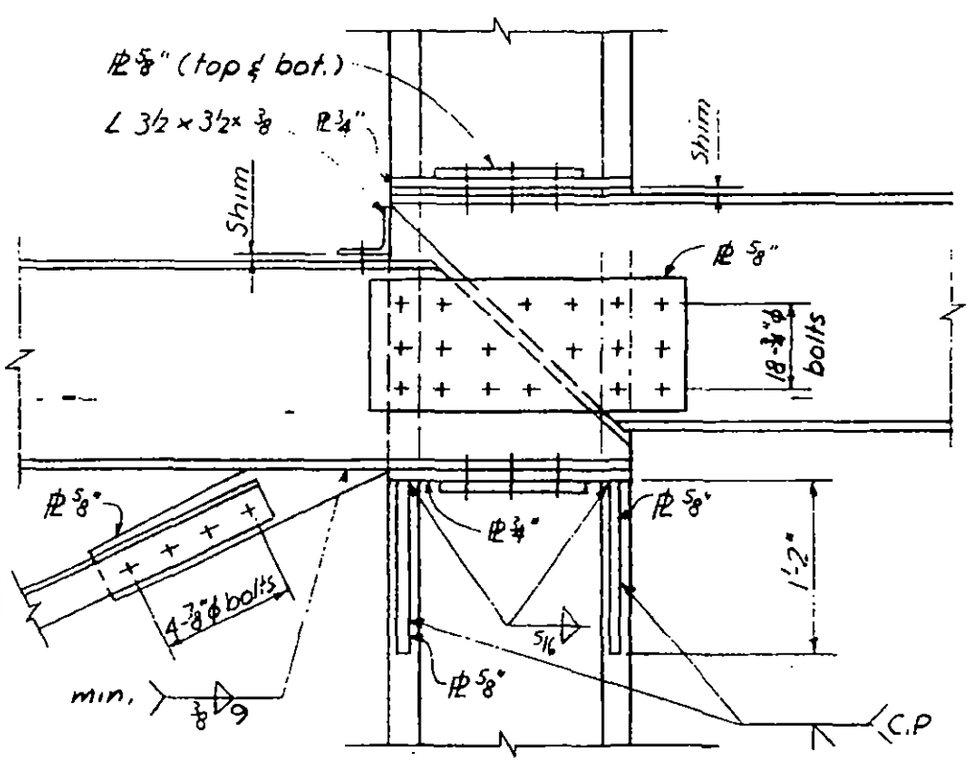
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PROJECT THE WORLD TRADE CENTER | TITLE DETAIL 'E' AT COL. 602, SECONDARY LEVEL ABOVE FL. 41 | DATE 3-29-68

REVISIONS



Plan



Section a-a

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NO. 34360
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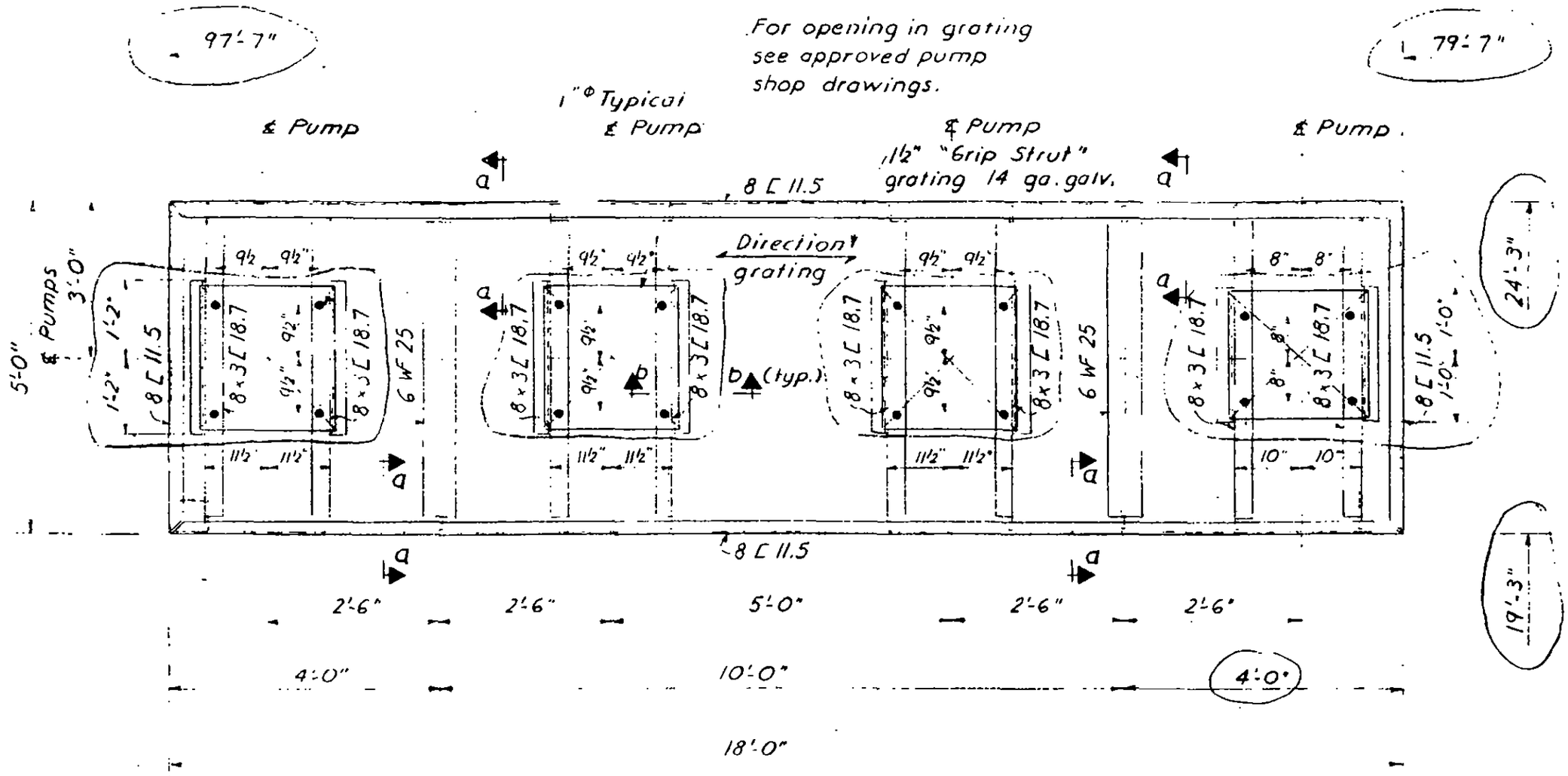
6-AB2-40.1

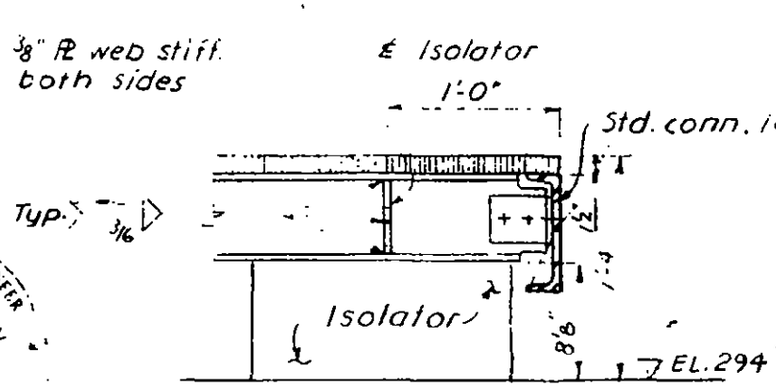
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM EL 294 TOWER B | DATE 2-12-68

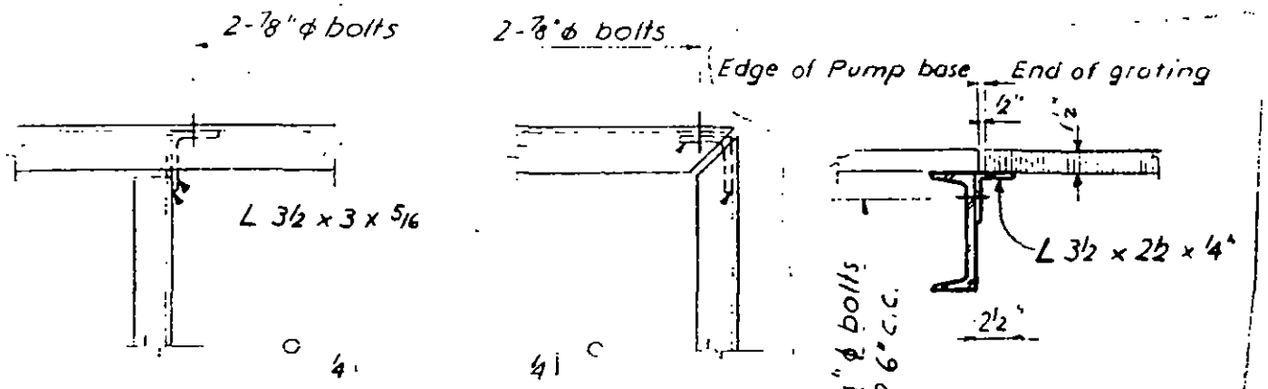
REVISIONS

-11-68





Section a-a



Typical Details

Section b-b

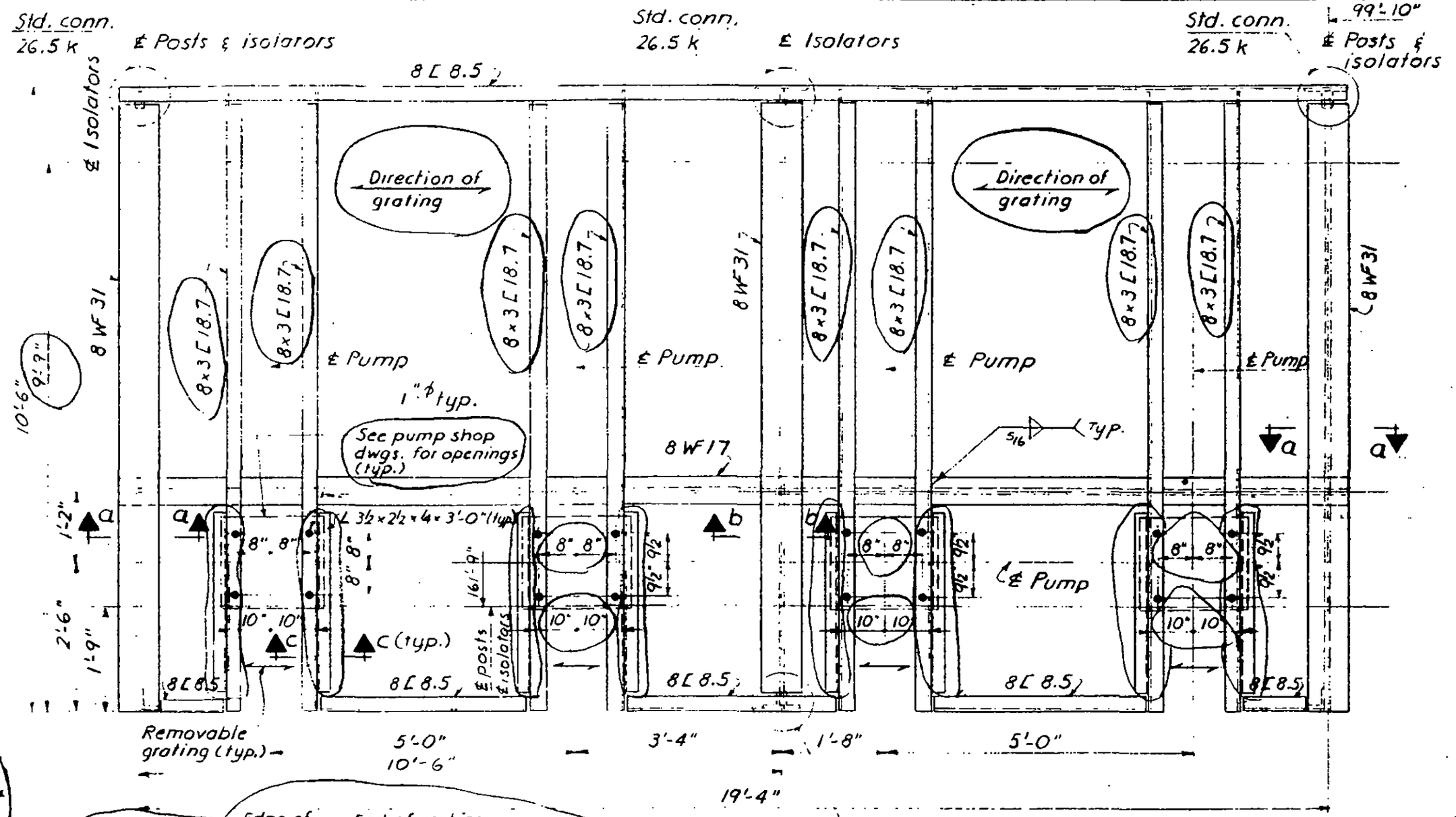
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LESLIE E. ROBERTSON
No. 34[illegible]0
UNIVERSITY OF THE STATE OF NEW YORK

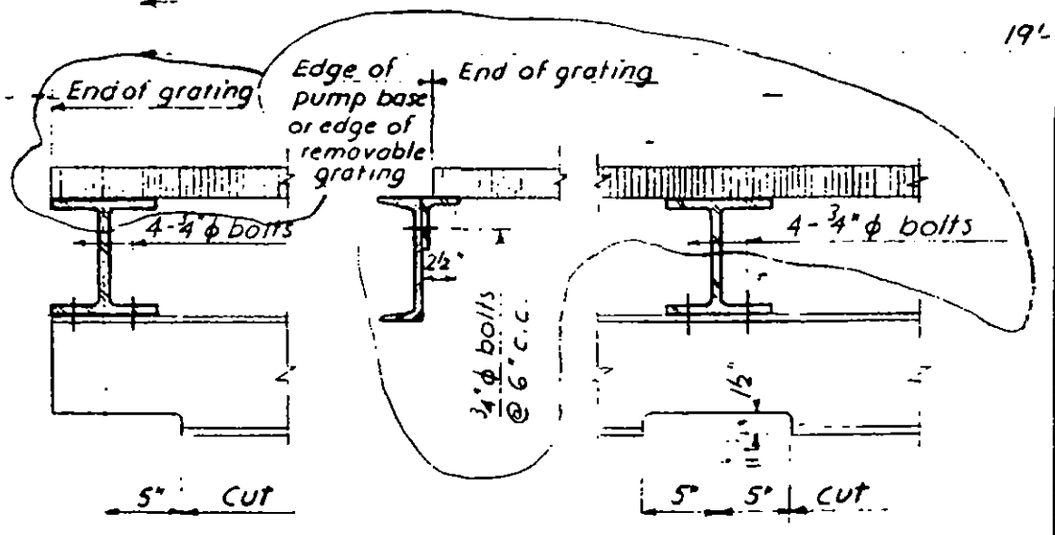
6-AB2-41

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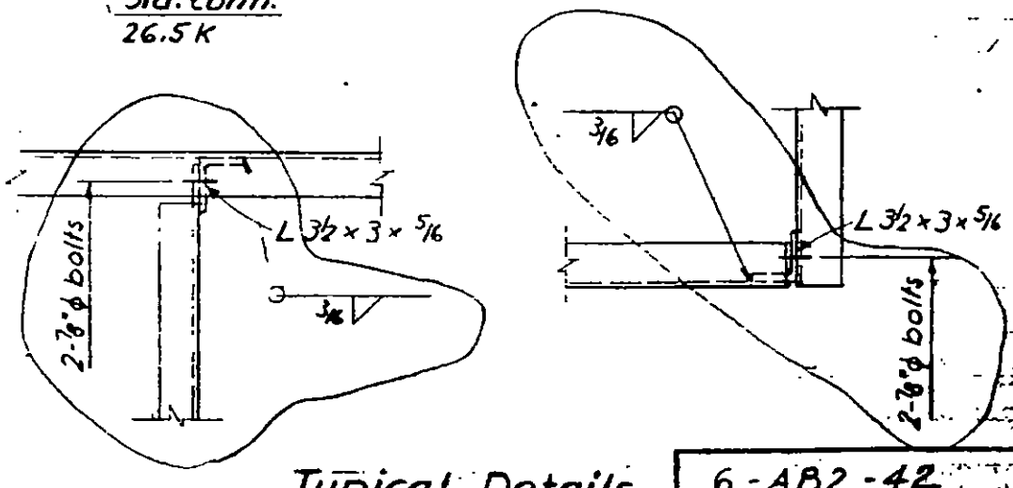
PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM AT 75TH FLOOR | DATE 2-21-68

REVISIONS
- 29 -68





Section a-a Section c-c Section b-b



Typical Details

6-AB2-42

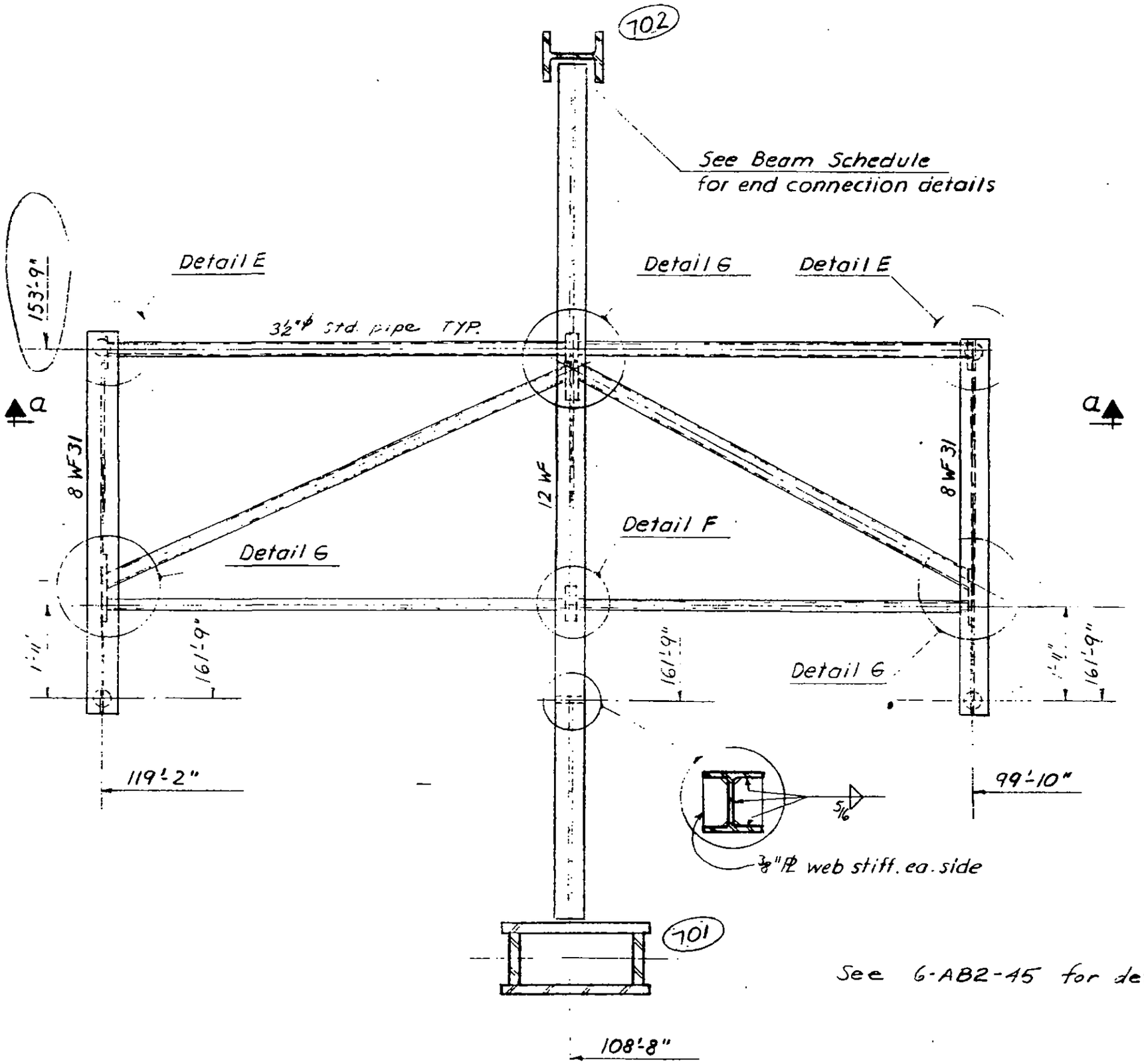
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

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PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM SUPPORT @ 75TH FLOOR | DATE 2-21-68

REVISIONS

1 3-29-68



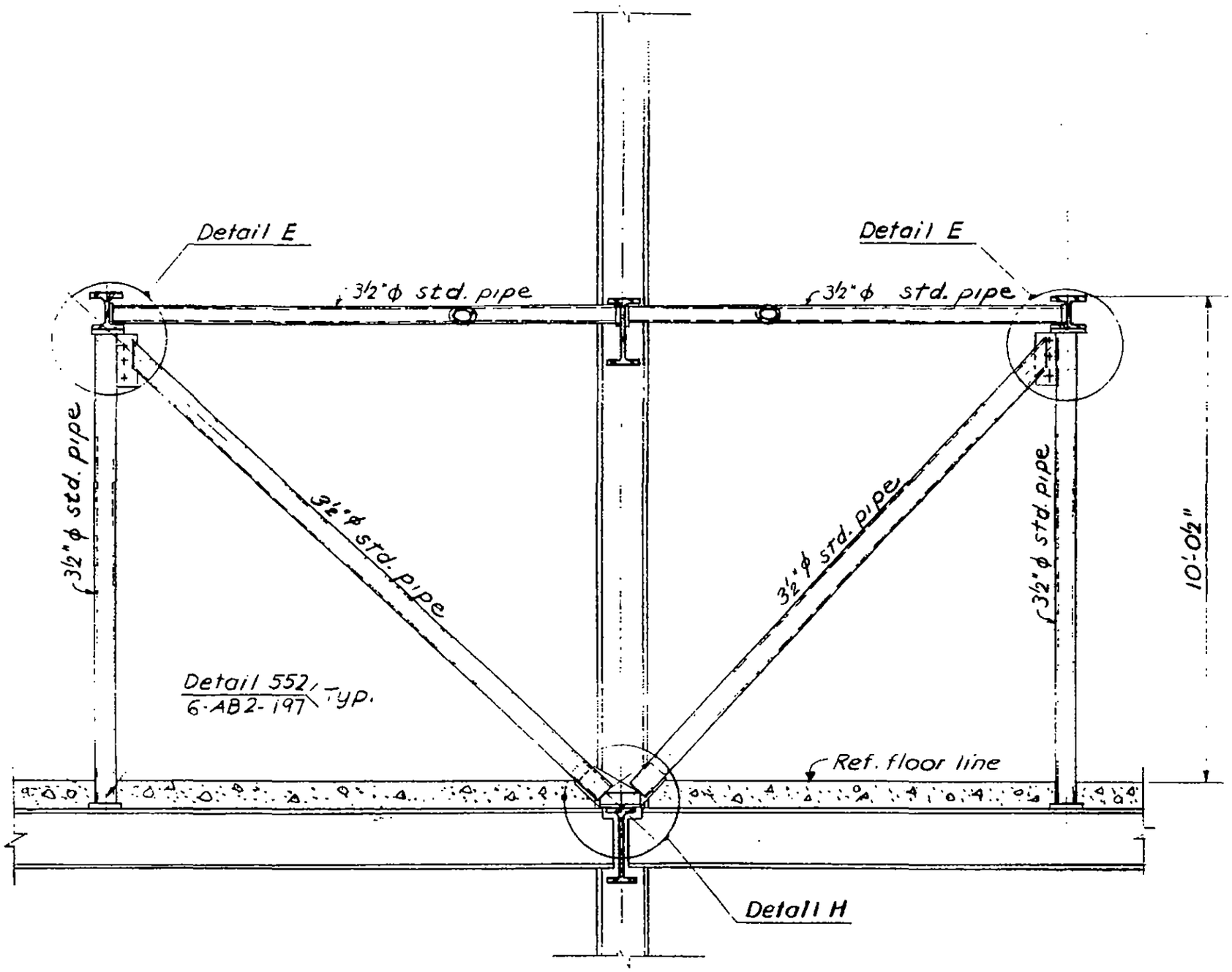
See 6-AB2-45 for details E, F & G

6-AB2-43

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PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM SUPPORT @ 75TH. FLOOR | DATE 2-21-68

REVISIONS



see 6-AB2-45 for details E & H

Section a-a

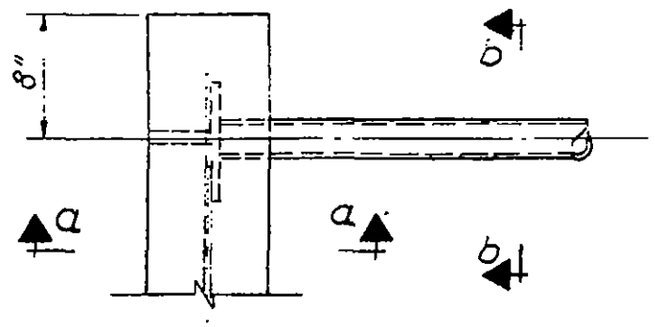
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-44

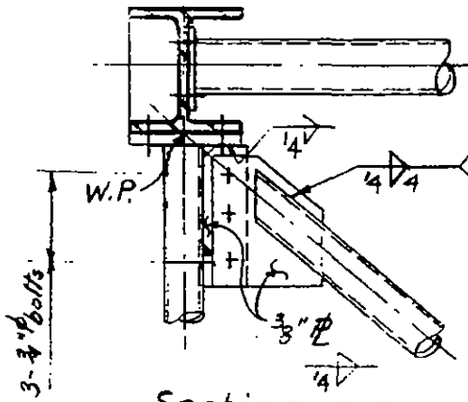
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PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT - DETAILS | DATE 2-21-68

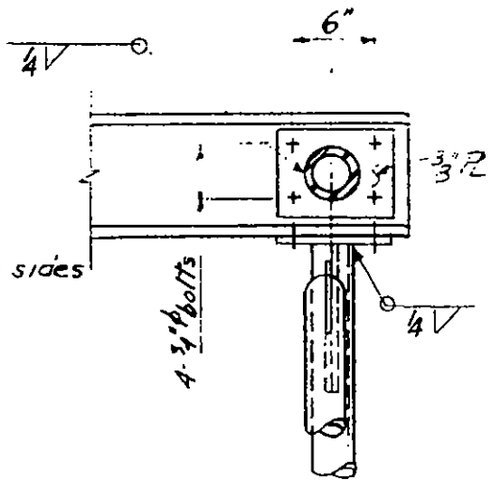
REVISIONS



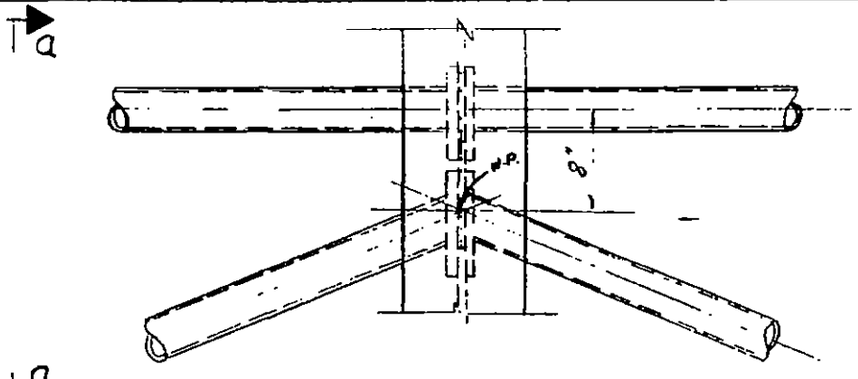
Detail E



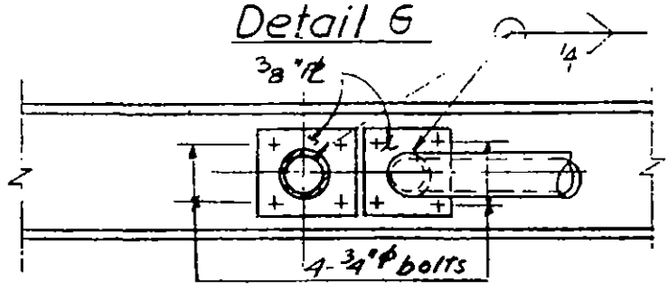
Section a-a



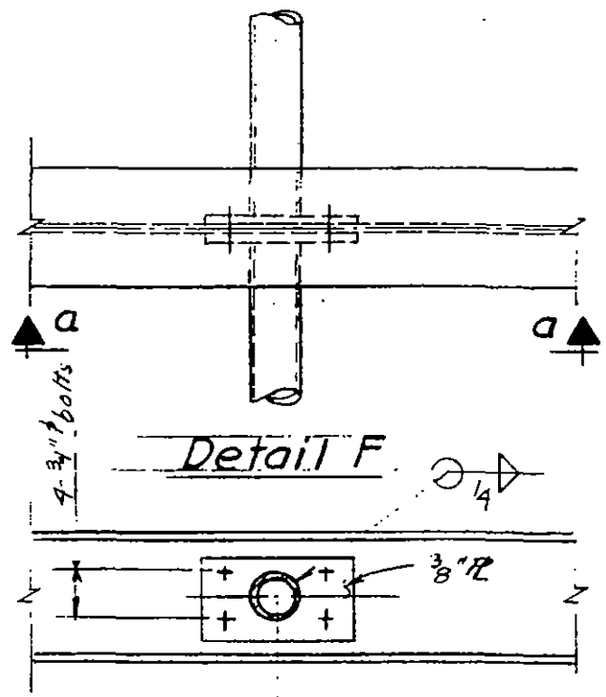
Section b-b



Detail G

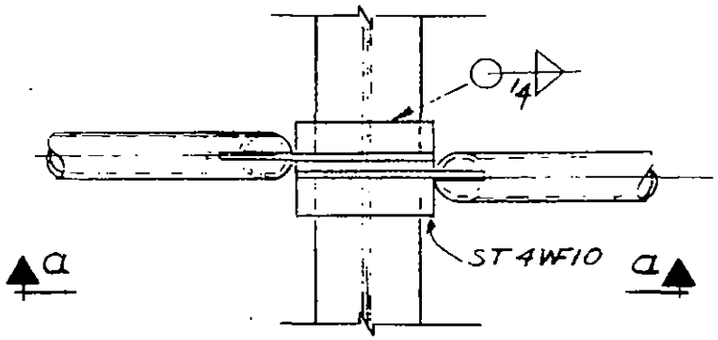


Section a-a

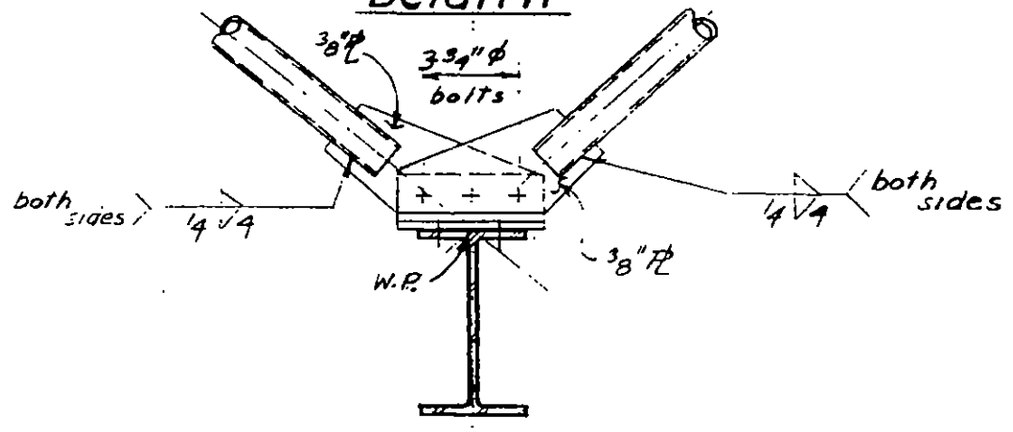


Detail F

Section a-a



Detail H



Section a-a

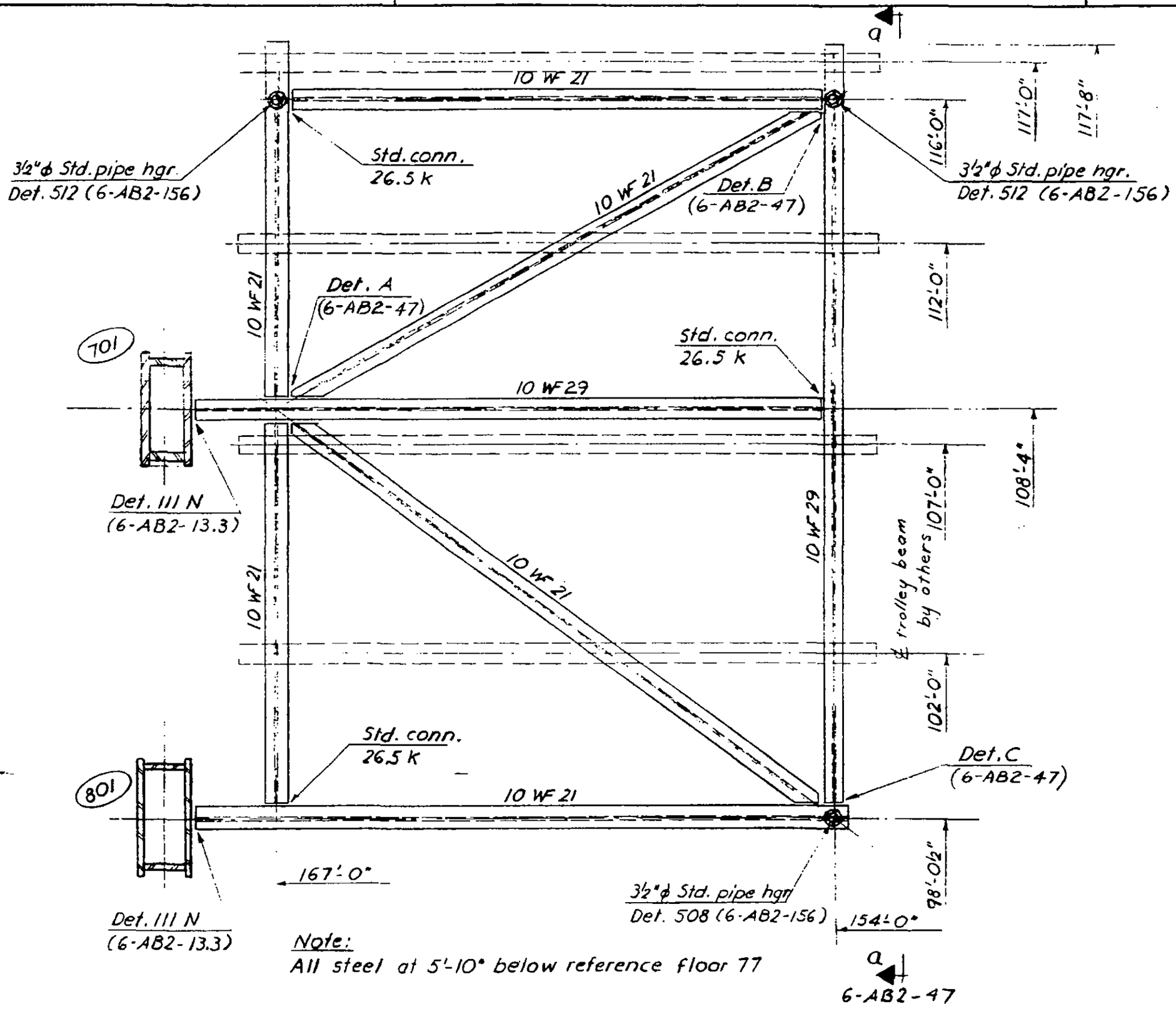
6-AB2-45

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PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT | DATE 2-21-68

REVISIONS



Note:
All steel at 5'-10" below reference floor 77

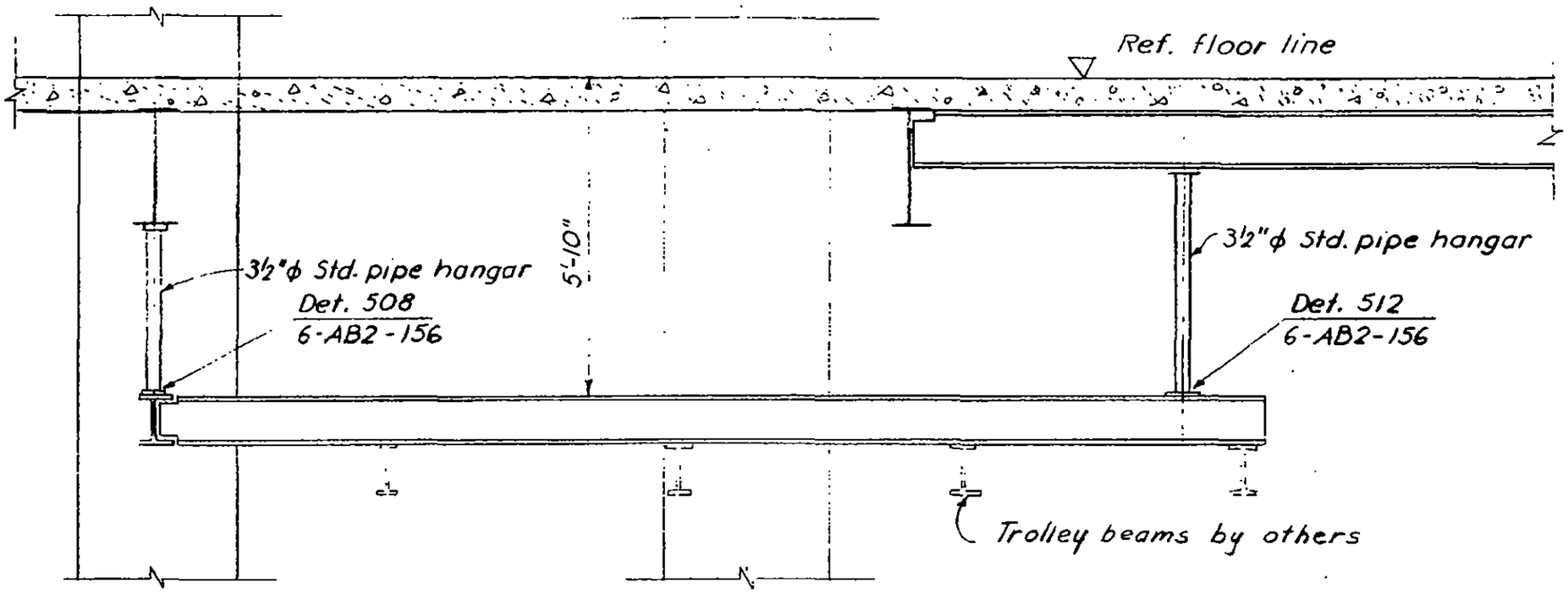
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6-AB2-46

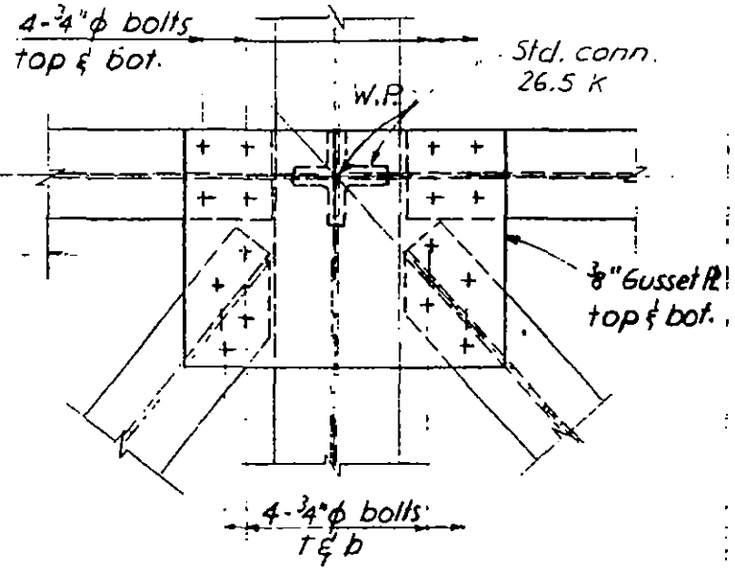
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PROJECT THE WORLD TRADE CENTER | TITLE PUMP PLATFORM TROLLEY SUPPORT | DATE 2-21-68

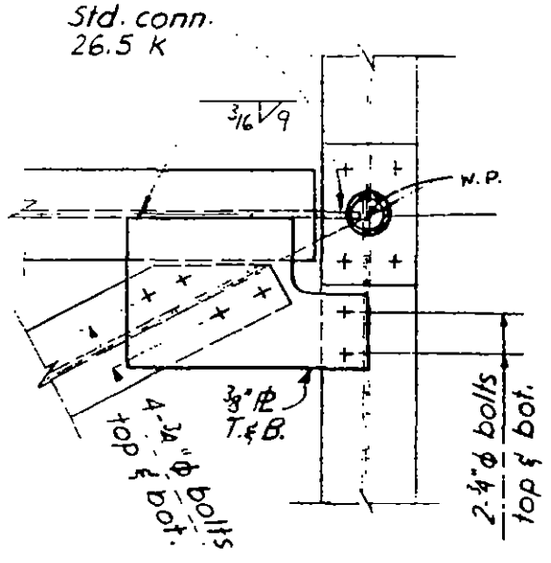
REVISIONS



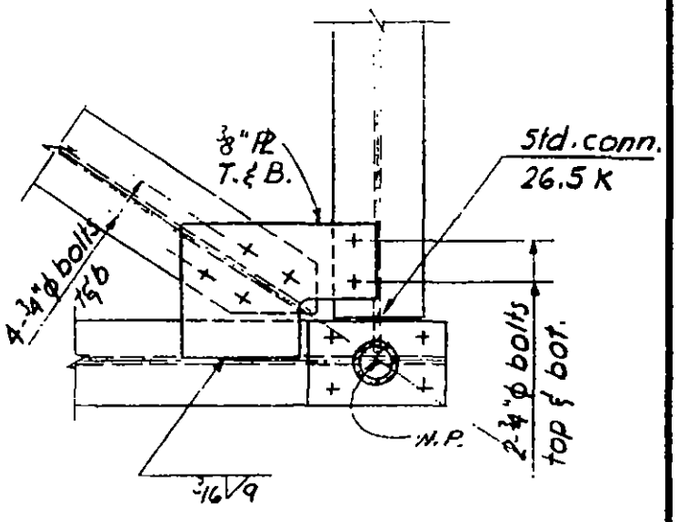
Section a-a



Detail A



Detail B



Detail C

6-AB2-47

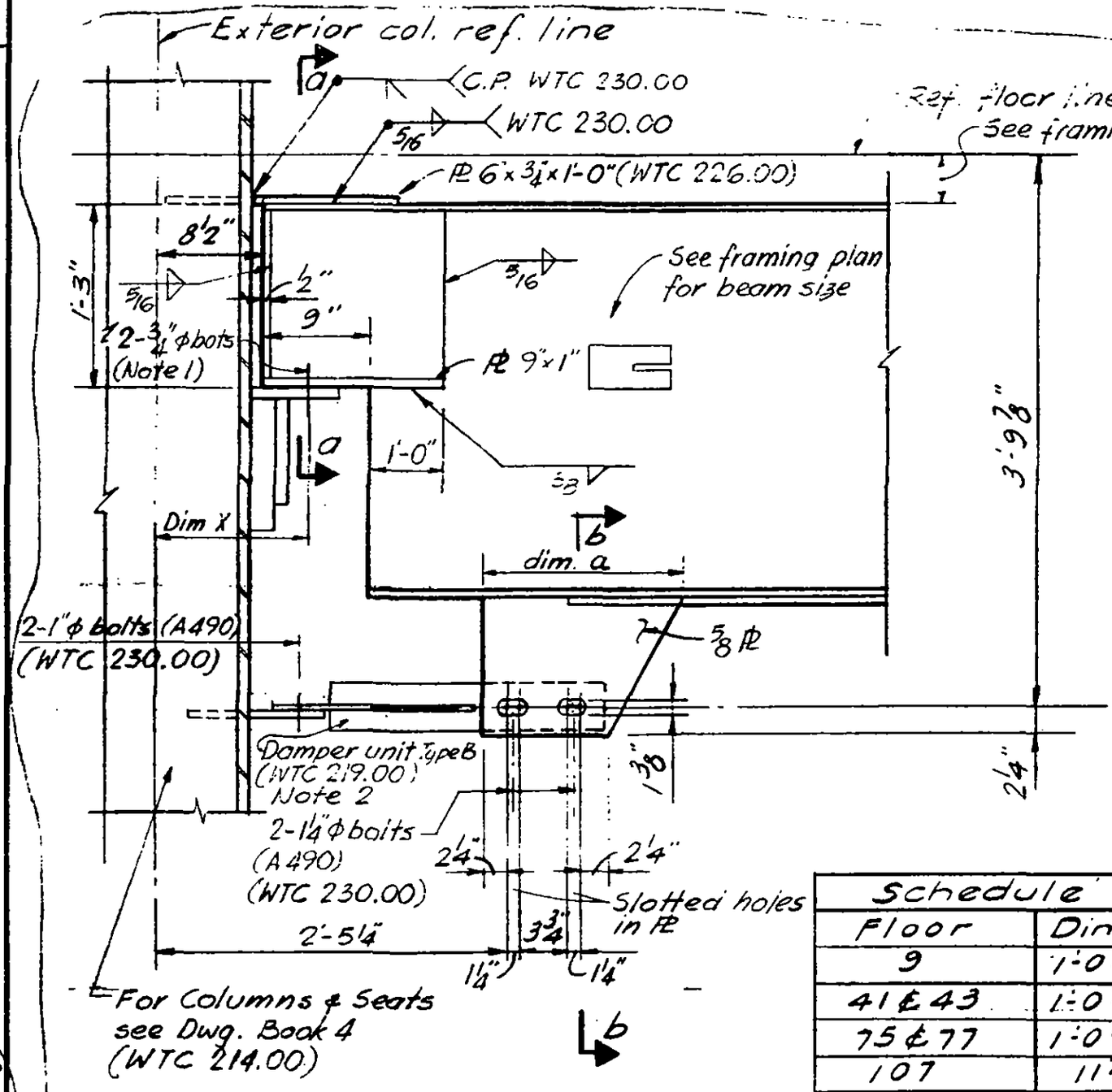
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

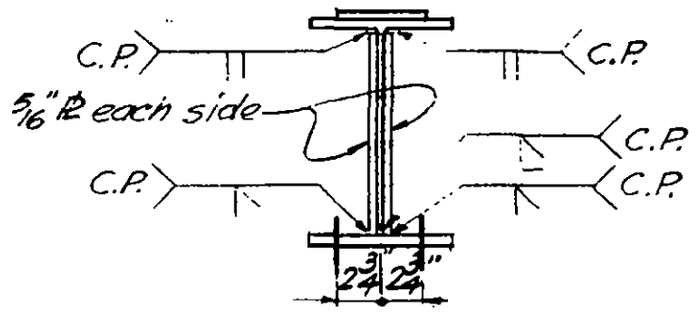
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS 150-153 | DATE 5-22-67

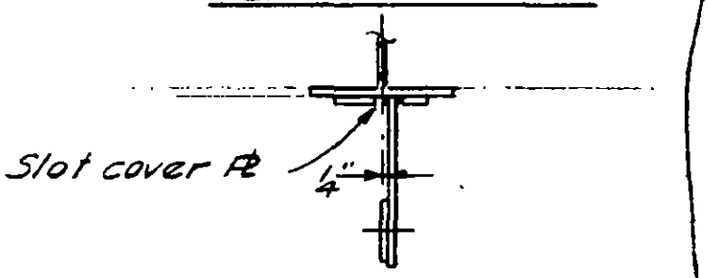
REVISIONS

11-21-67





Section a-a



Section b-b

Schedule	
Floor	Dim "X"
9	1'-0 7/8"
41 & 43	1'-0 7/16"
75 & 77	1'-0 1/16"
107	11 7/8"

DETAIL	DIM. a
150	11"
151	1'-1"
152	1'-4"
153	1'-6"

Note: 1. (Bolts by WTC 230.00) Bolts to be A 307 or A 325 hand tightened. If A 325 are tourqued loosen after top PL is welded & before concrete is cast.

Note: 2. Damping unit to be installed after slab has been cast.

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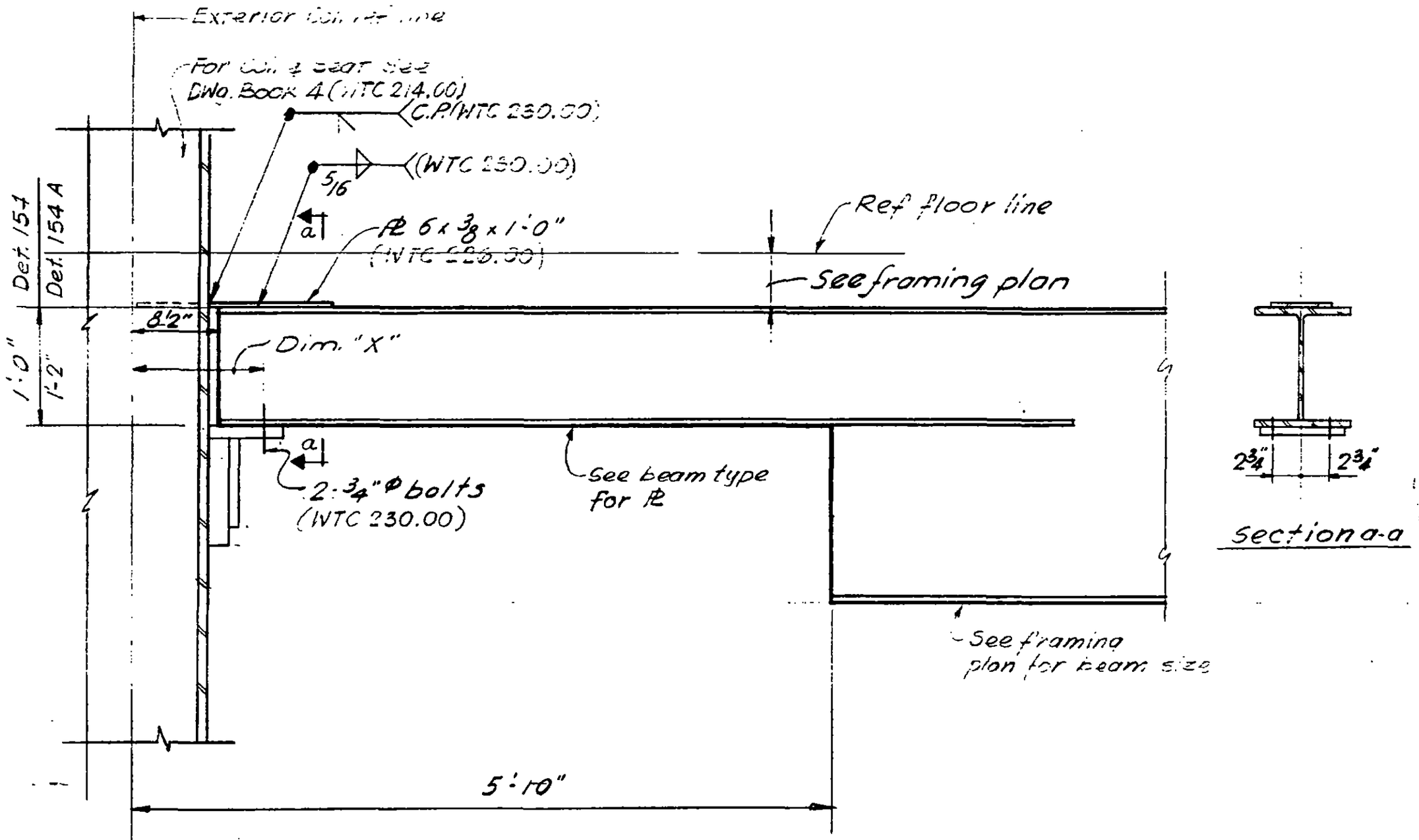
6-AB2-52

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 154 | DATE 6-5-67

REVISIONS

11-21-67



Schedule	
Floors	Dim "X"
44, 46, 47, 48	1-0 3/8"
49	1'-0 5/16"
78, 80, 83	11 15/16"

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6-AB2-53

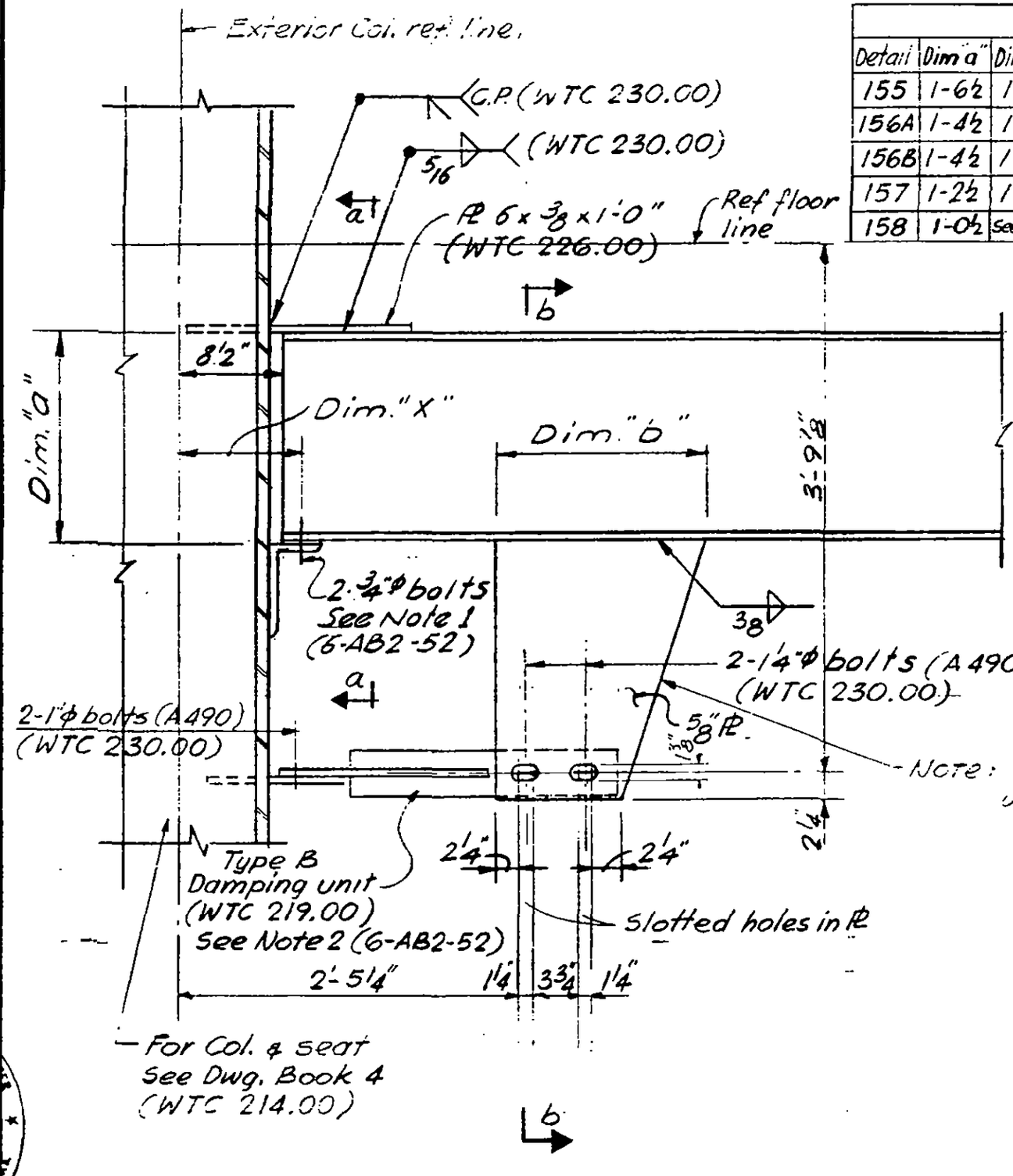
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

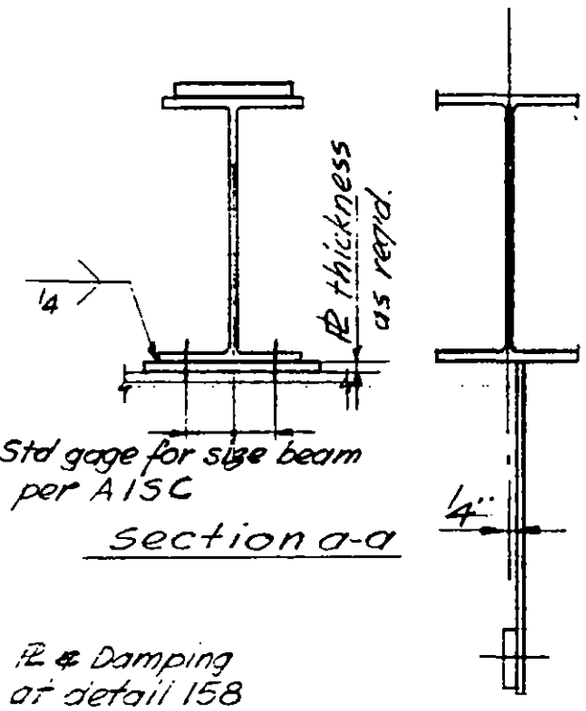
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 155-158 | DATE: 5-22-67

REVISIONS

11-21-67

			Dimension X			
Detail	Dim "a"	Dim "b"	FLR 9	FLRS 41 & 43	FLRS 75 & 77	FLR 107
155	1-6½	1-6	1-0 7/8	1-0 7/16	1-0 1/16	0-11 7/8
156A	1-4½	1-8	1-0 7/8	1-0 7/16	1-0 1/16	0-11 7/8
156B	1-4½	1-8	0-10 7/8	0-10 7/16	0-10 1/16	0-9 7/8
157	1-2½	1-10	0-10 7/8	0-10 7/16	0-10 1/16	0-9 7/8
158	1-0½	See Note	0-10 7/8	0-10 7/16	0-10 1/16	0-9 7/8





Section b-b

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-54

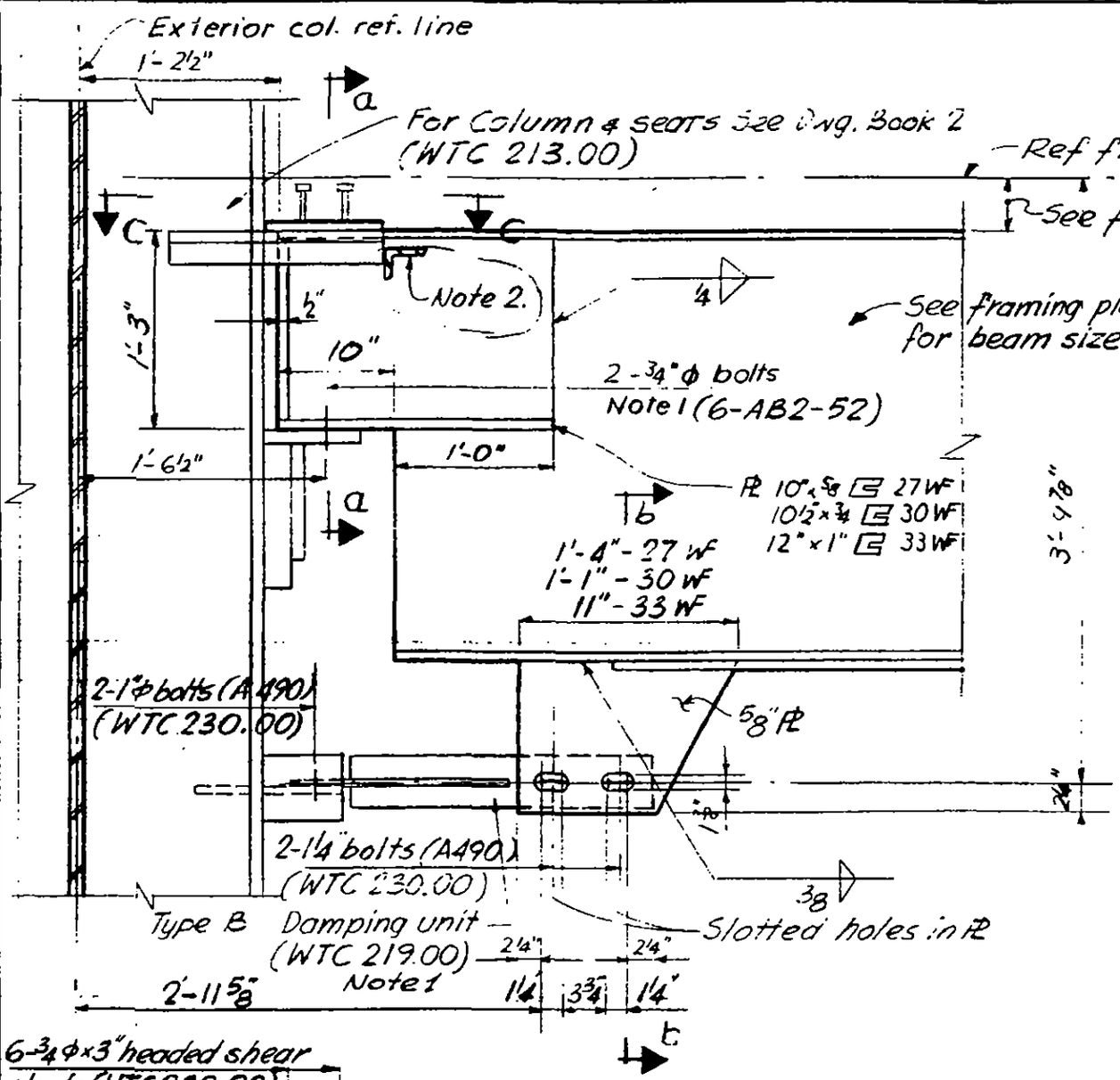
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

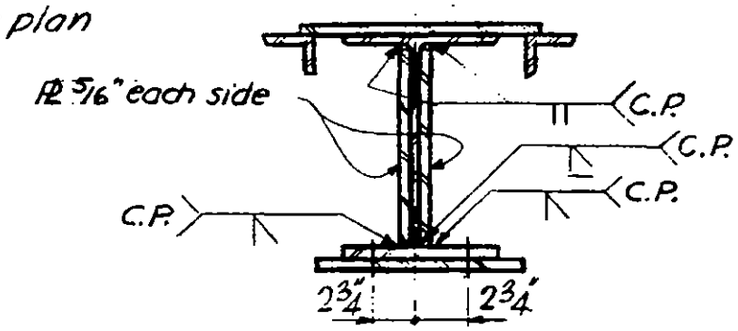
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 159 - 160 | DATE 11-21-67

REVISIONS

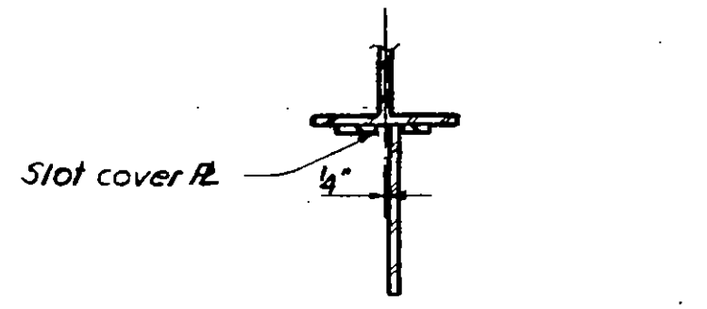
12-21-67

8-29-68



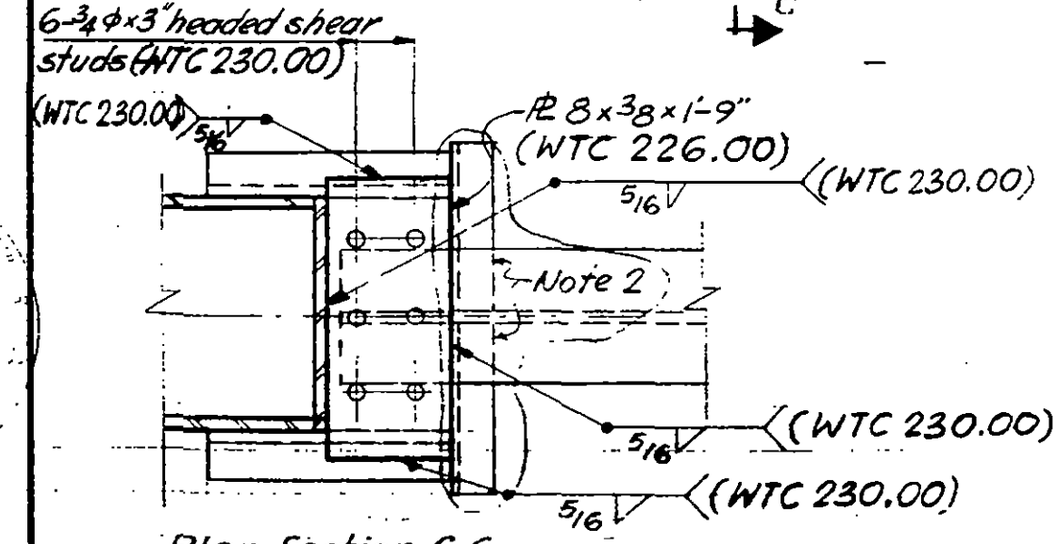


Section a-a



Section b-b

Note: 1. Damping unit to be installed after slab has been cast.
2. Dock shelf L 3x2 for details, see Det. WW 6-AB3-25.



Plan Section C-C

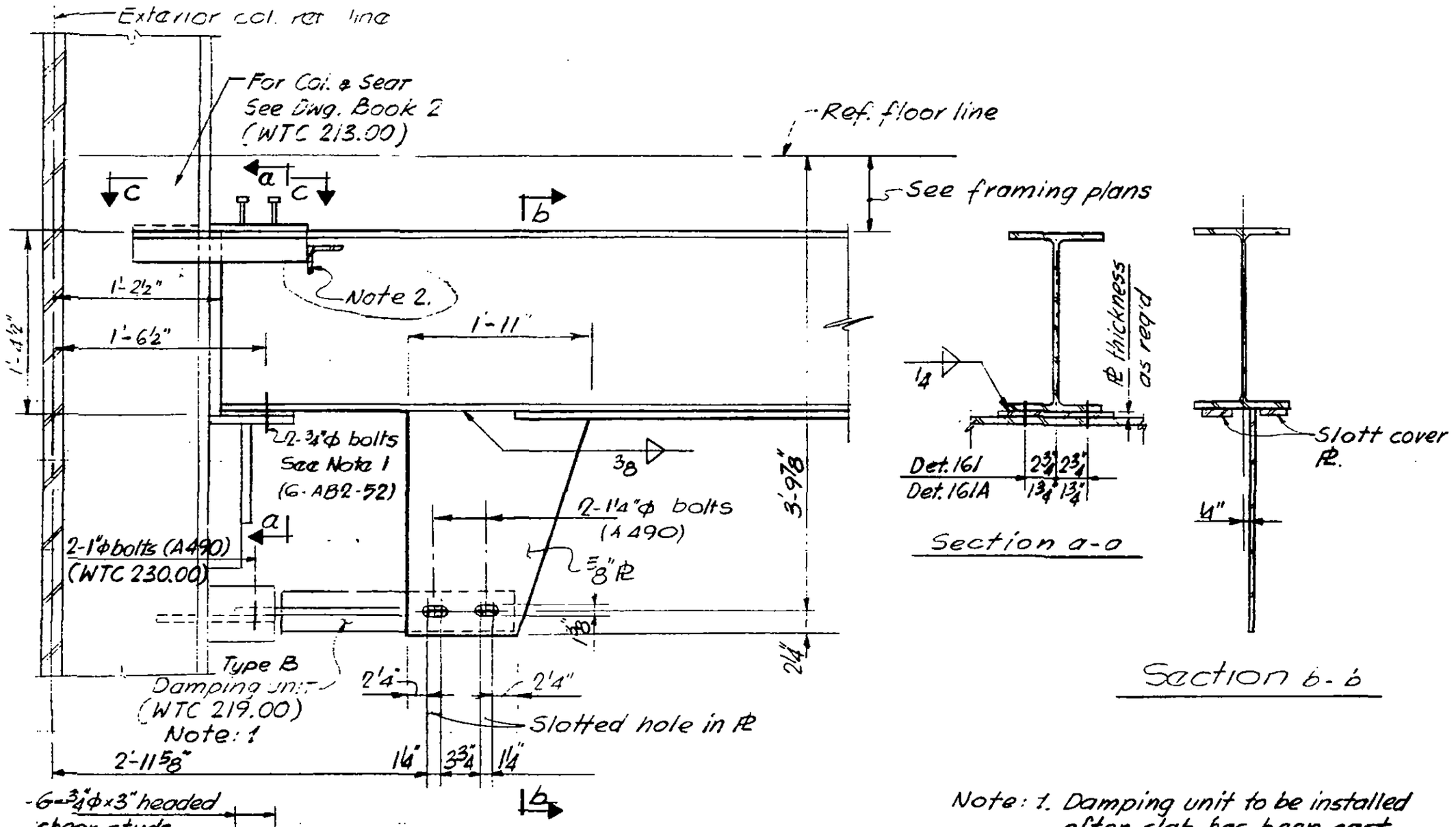
6-AB2-55

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 161, 161A | DATE 11-21-67

REVISIONS

12-20-67
8-29-68



Note: 1. Damping unit to be installed after slab has been cast.

2. Deck shelf L 3×2. for details, see Det. WW 6-AB3-25

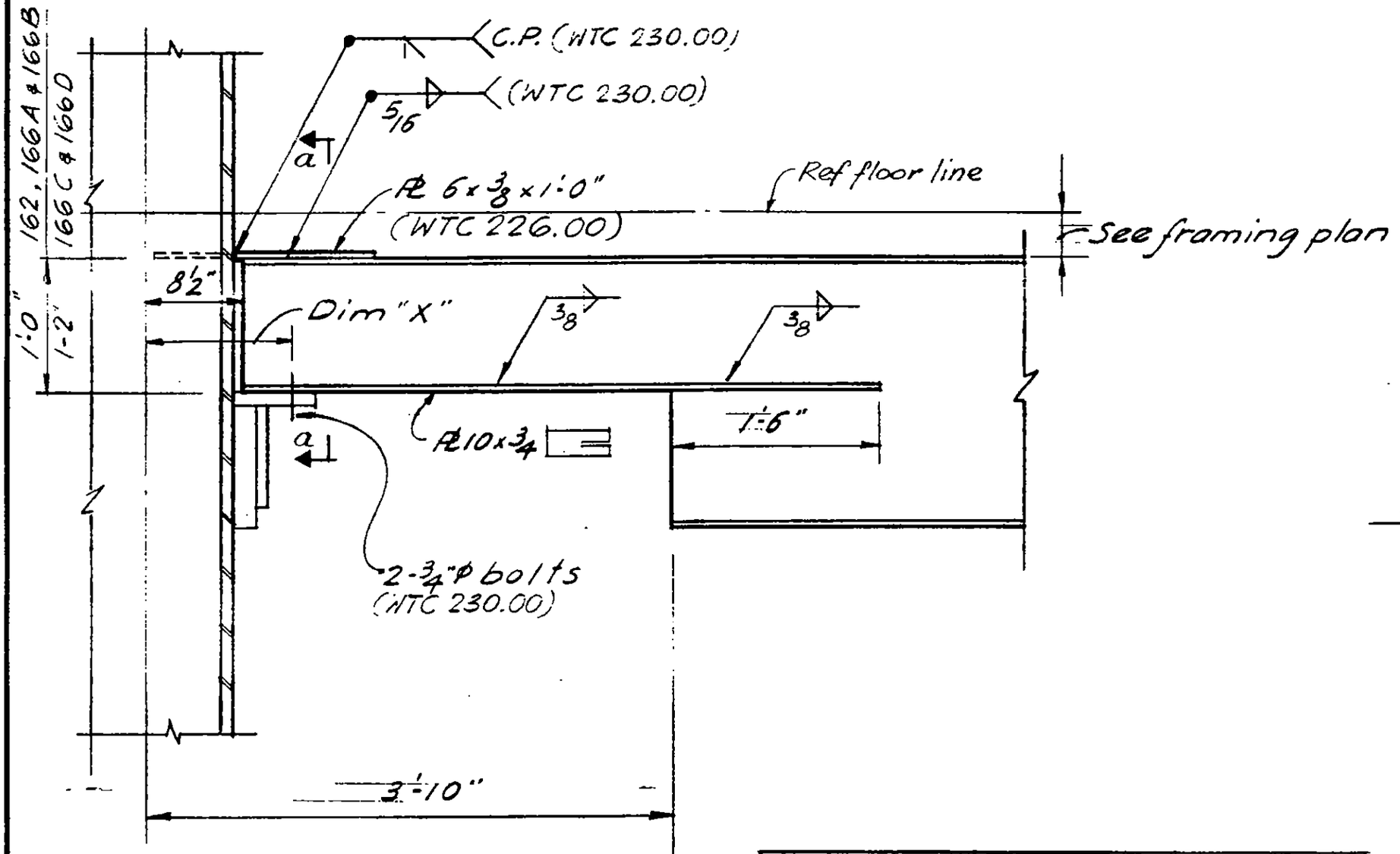
LICENSED PROFESSIONAL ENG. LESLIE E. ROBERTS No. 34360 STATE OF NEW YORK

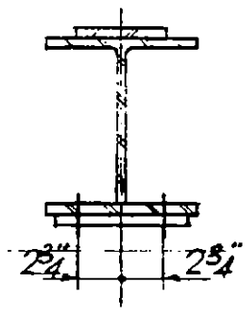
G-AB2-56

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 162 & 166 A - D | DATE 11-21-67

REVISIONS





Section a-a

Schedule Det. 166		
Floor	Dim. X" (166 A & C)	Dim. X" (166 B & D)
44, 46, 47, 48	1'-0 3/8"	10 3/8"
49	1'-0 5/16"	10 5/16"
78, 80 - 83	11 15/16"	9 15/16"

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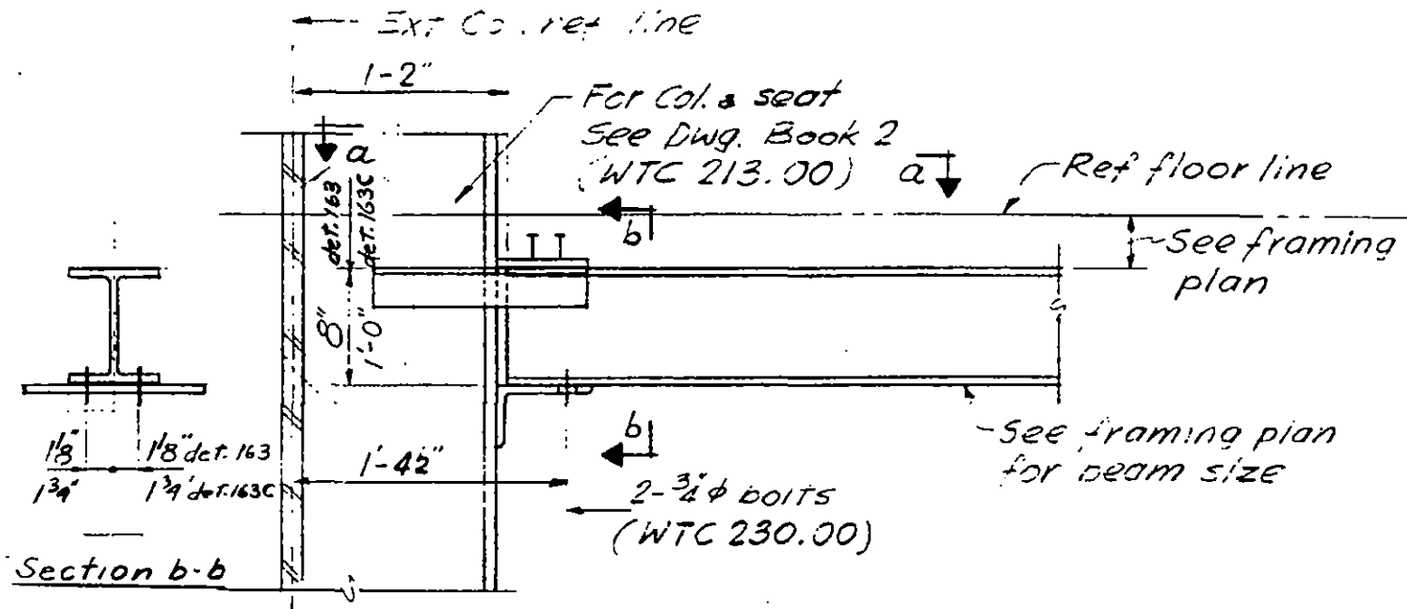
6-AB2-57

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

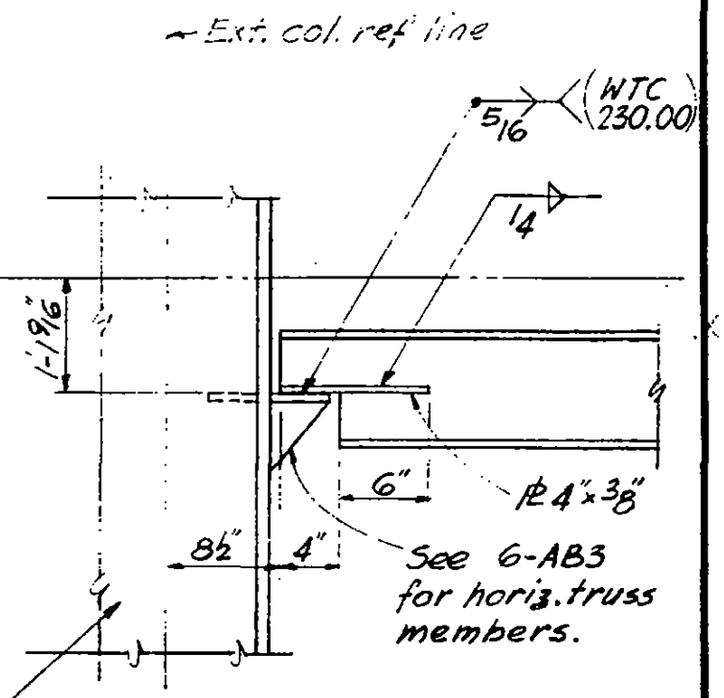
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 163, 163A, B, C | DATE 11-21-67

REVISIONS

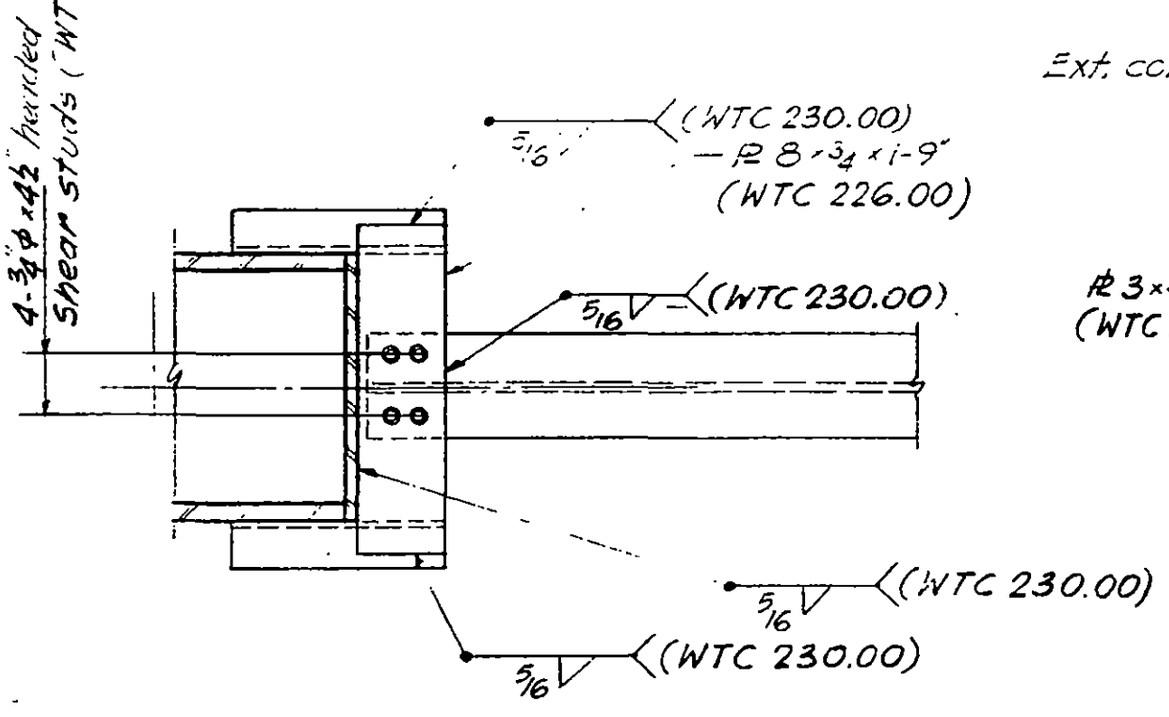
12/21/67



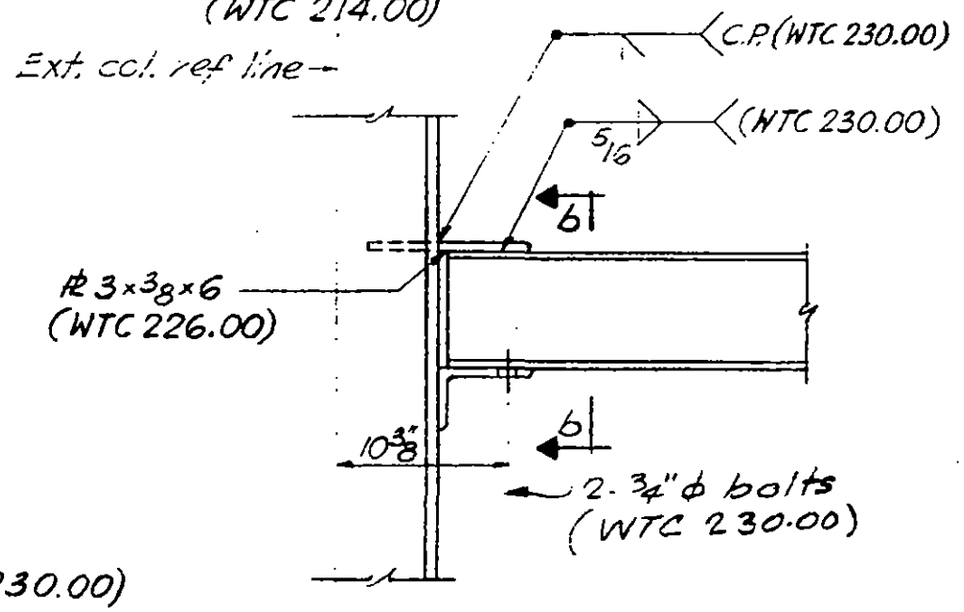
Detail 163 & 163C



Detail 163 A



Section a-a



Detail 163B

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

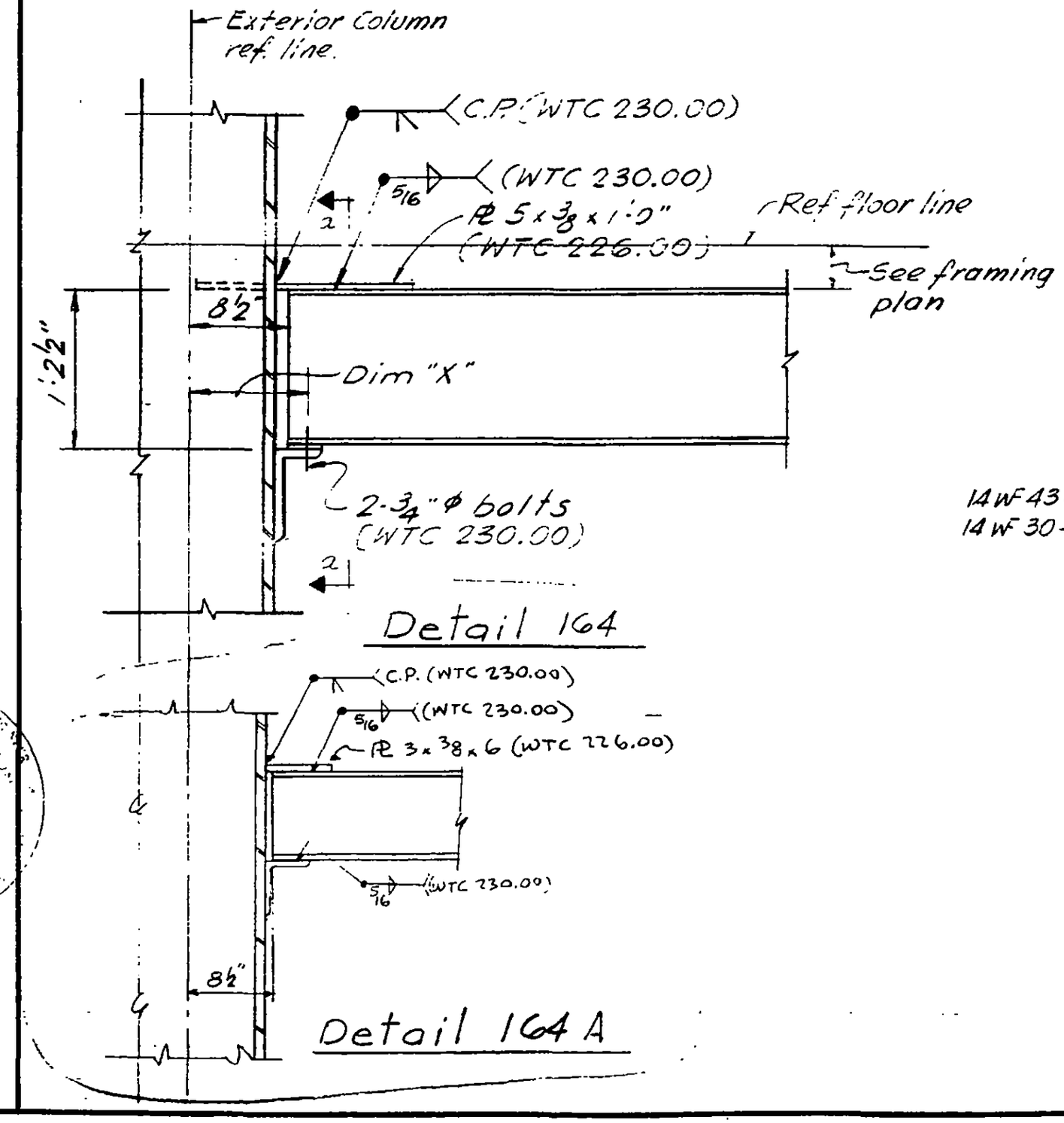
6-AB2-58

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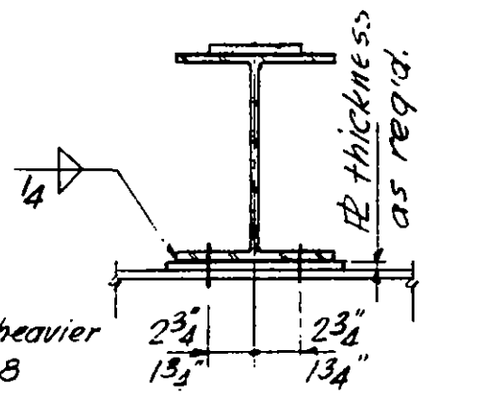
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 164, 164A | DATE 11-21-67

REVISIONS

8-17-68



Schedule	
Floors	Dim. "X"
44	10 3/8"
78	9 15/16"



Section a-a

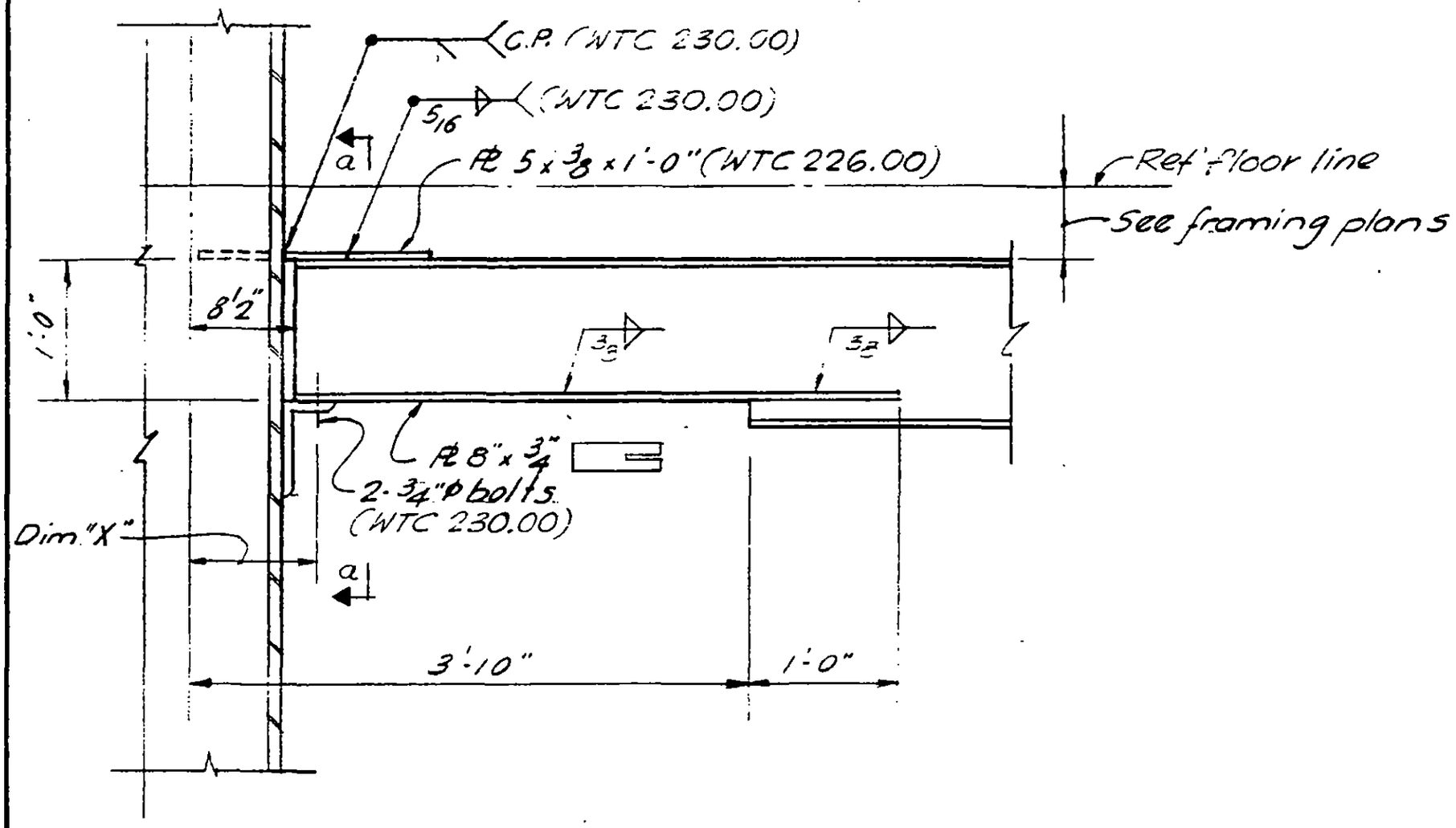
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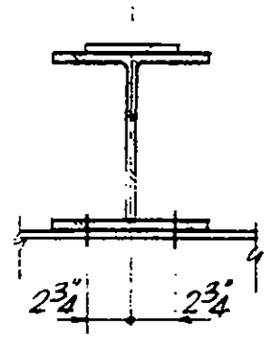
6-AB2-59

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 165 | DATE 11-21-67

REVISIONS





Section a-a

Schedule	
Floors	Dim. "X"
44. 46. 47. 48	10 3/8"
49	10 5/16"
78. 80 - 83	9 15/16"

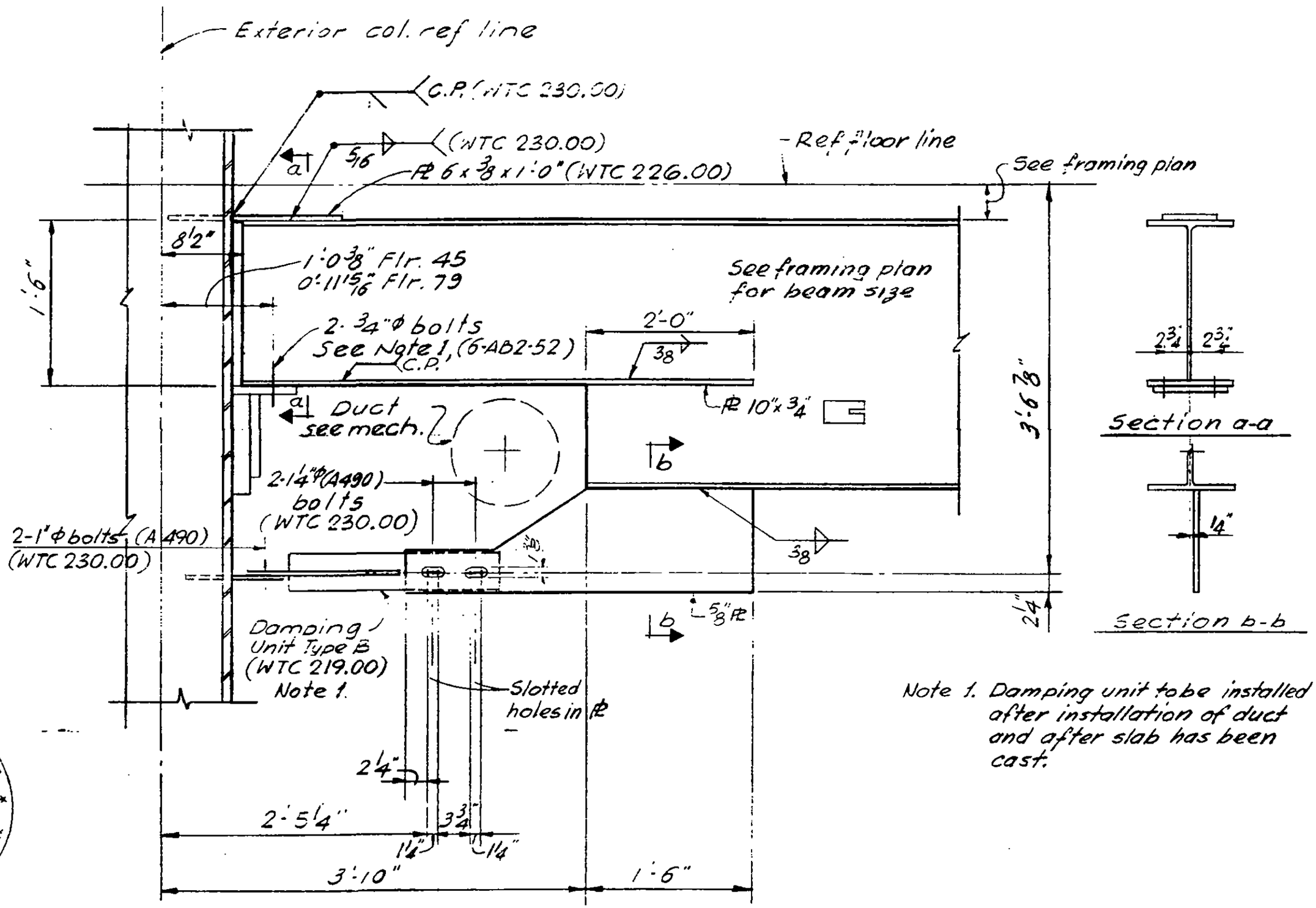
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6-AB2-60

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 167 | DATE 11-21-67

REVISIONS



Note 1. Damping unit to be installed after installation of duct and after slab has been cast.

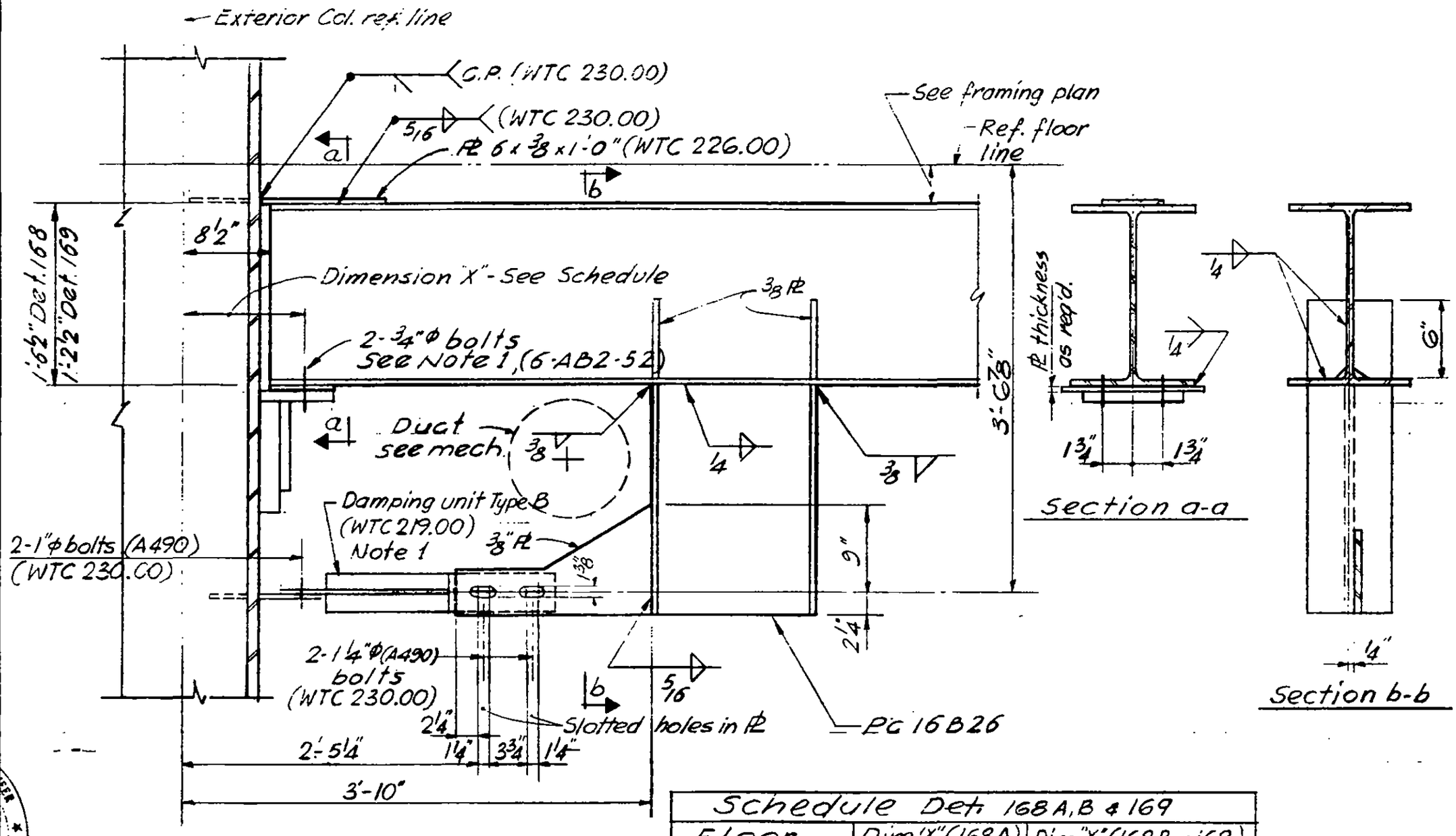
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6-AB2-61

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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 168A & B & 169 | DATE 11-21-67

REVISIONS



Schedule Det. 168A, B & 169		
Floor	Dim "X" (168A)	Dim "X" (168B & 169)
45	1-0 3/8	0-10 3/8
79	0-11 15/16	0-9 15/16

Note 1.
Damping unit to be installed after installation of duct and after slab has been cast.

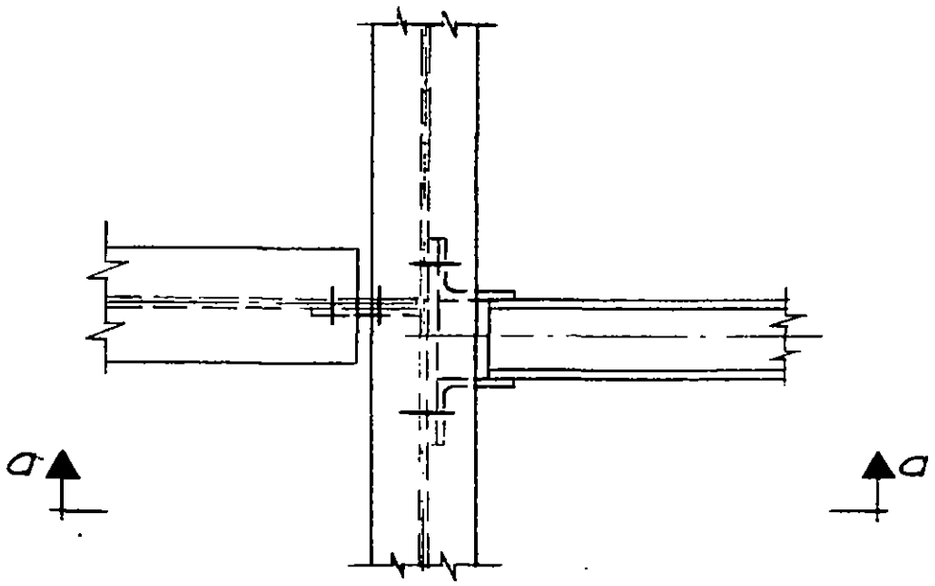
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6-AB2-62

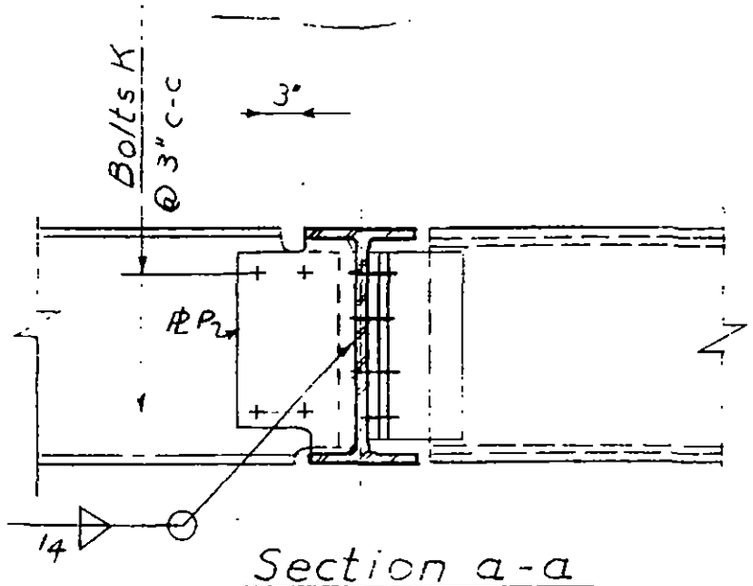
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PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 170 A thru G | DATE: 6-30-67

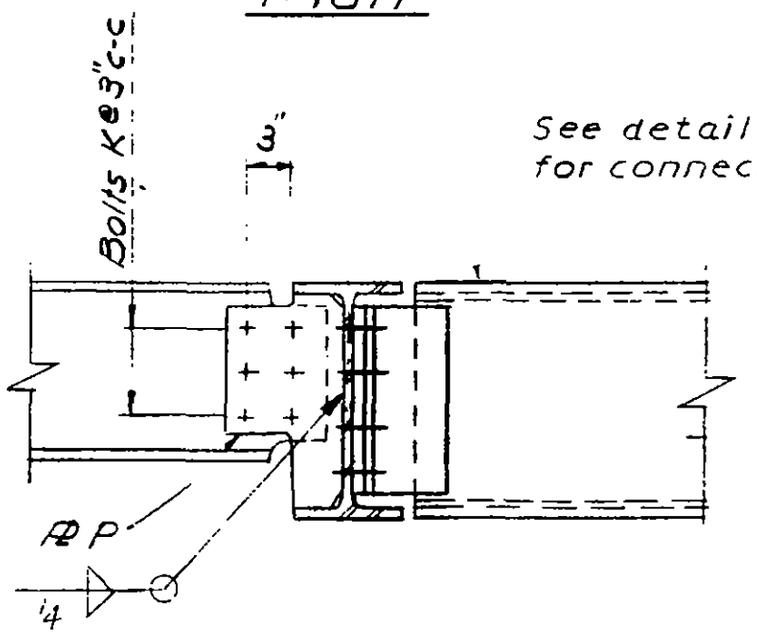
REVISIONS
7-28-67
8-5-67
8-14-67



Plan

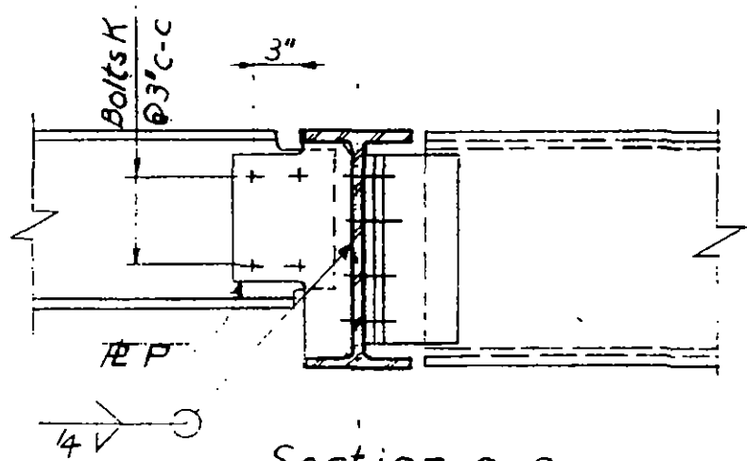


Section a-a
Detail 170 B, E, F

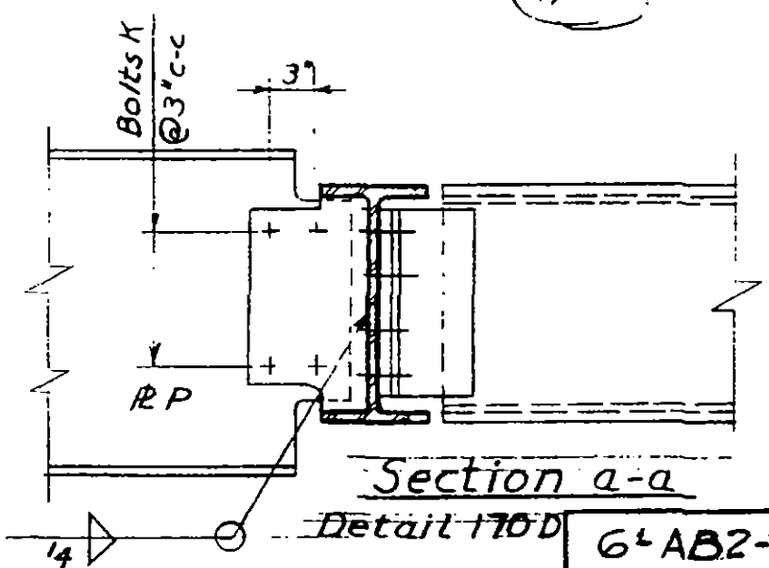


See detail 450 (6 AB1-101) for connection of □

Section a-a
Detail 170 A



Section a-a
Detail 170 C, G



Section a-a
Detail 170 D

6 L AB2-13

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PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 170 A - F | DATE 6-30-67

REVISIONS
7-28-67
8-5-67

	170 A	170 B	170 C	170 D	170 E	170 F
PLATES P	3/8"	3/8"	9/8"	1/2"	7/16"	7/16"
BOLTS K	6-7/8" ϕ (A325)	6-7/8" ϕ	6-7/8" ϕ	8-7/8" ϕ	8 - 3/4" ϕ	8 - 3/4" ϕ

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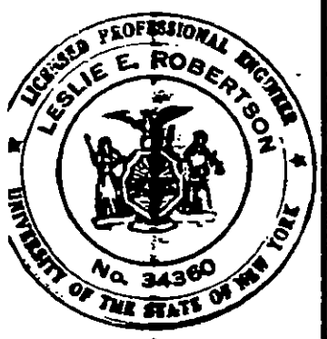
6-AB2-733

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PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 170 G | DATE 8-14-67

REVISIONS

REF. DWG.	G-AB2-73					
	170 G					
PLATES						
P	$\frac{3}{8}$"					
BOLTS	4-$\frac{3}{4}$"ϕ					



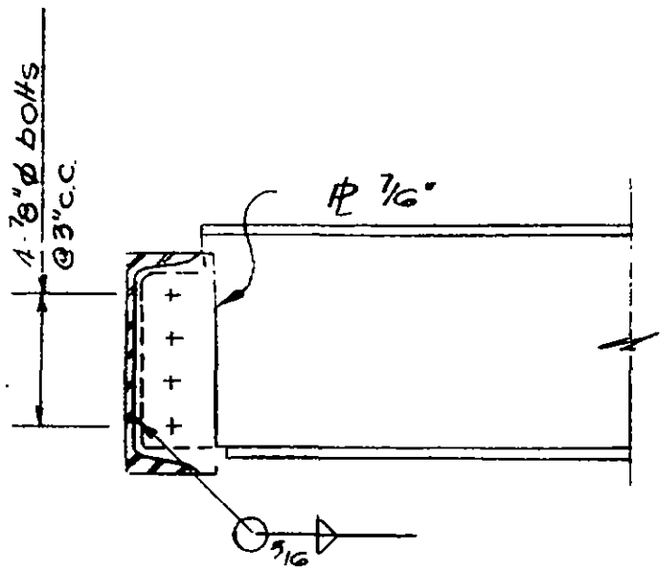
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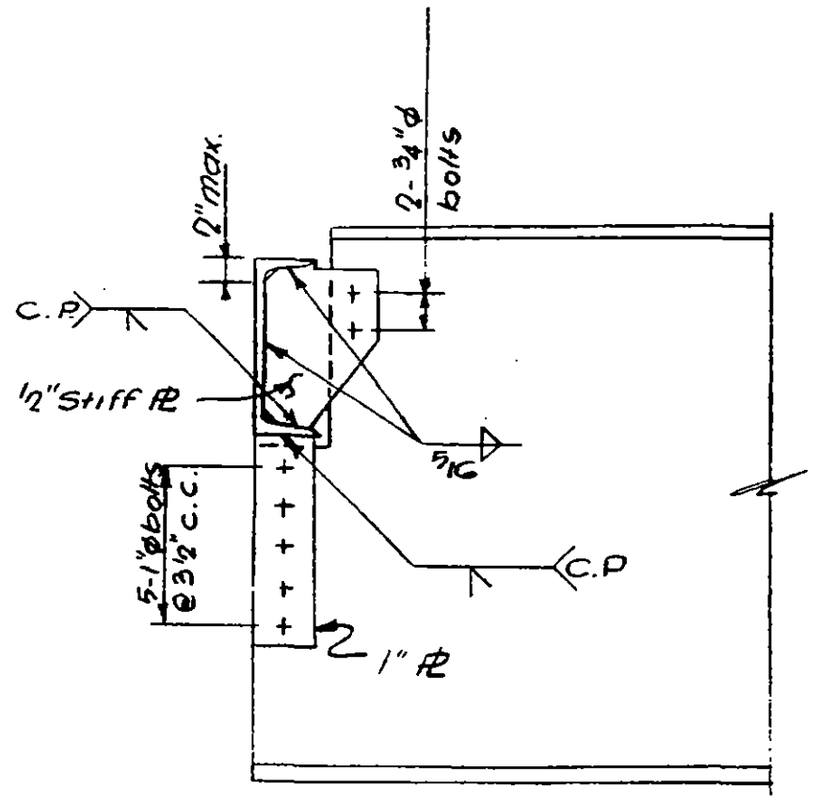
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS 171 A, B | DATE 10-5-67

REVISIONS

1



Elevation
Det. 171 A



Elevation
Det 171 B

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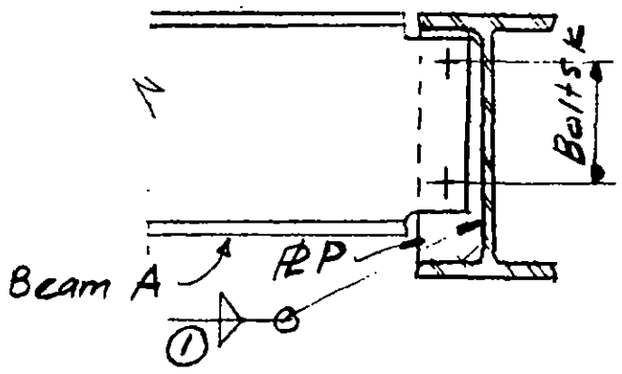
G-AB2-73.5

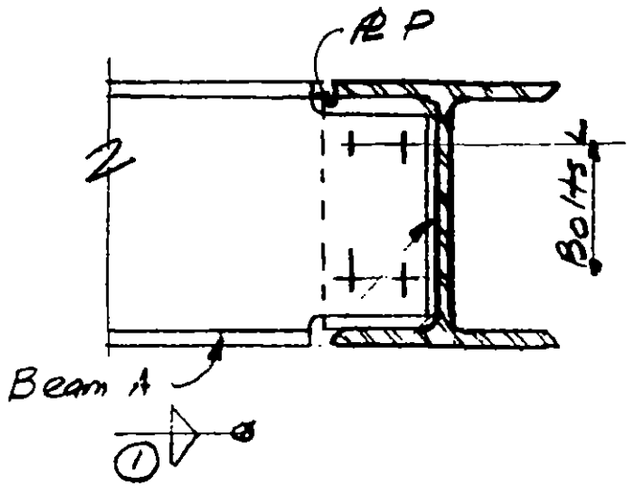
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 172 A, B & C | DATE 5-9-67

REVISIONS

7-28-67
8-5-67
9-15-67
10-2-67
10-5-67
11-17-67





SCHEDULE

Detail	Beam A	Plate P	Bolts K	Bolts L	Weld (1)
172A	24 WF, 24×6I	4"x 1/2"	7-1"ϕ	-	3/8
172A	16 WF, 18 WF	4"x 1/2"	4-7/8"ϕ	-	3/8
172A	12 WF 58 # lighter	7"x 1/2"	—	6-3/4"ϕ	3/8
172A	12 WF 65 # heavier*	7"x 3/4"	-	6-1"ϕ	1/2
172B	14 B	4"x 1/2"	4-3/4"ϕ	-	5/16
172B	10 WF, 12 B	4"x 3/8"	3-3/4"ϕ	—	1/4
172B	12 WF, 14 WF	4"x 3/8"	3-7/8"ϕ	—	1/4
172B	16 WF # 16 B	4"x 3/8"	4-3/4"ϕ	—	1/4
172B	30×7 BU, 38×7 BU	4"x 1/2"	5-7/8"ϕ	—	3/8
172C	12 B	7"x 3/8"	—	4-7/8"ϕ	5/16
172C	8 B	7"x 3/8"	—	4-3/4"ϕ	1/4
172C	18 x 7 1/2 WF	4"x 1/2"	4-1"ϕ	—	3/8

* Except as otherwise shown above

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G-AB2-74

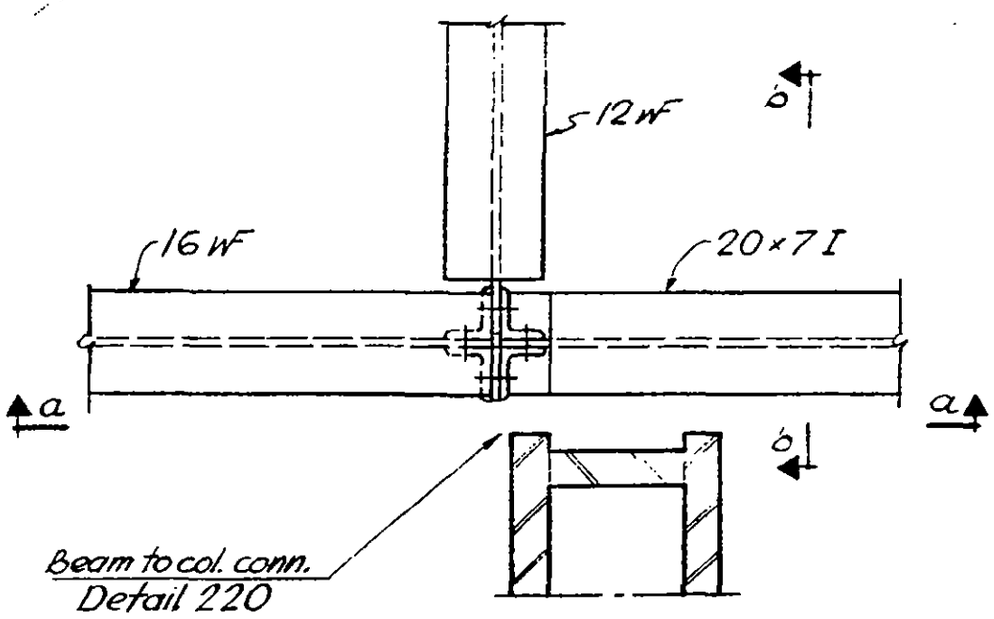
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 173 A | DATE 5-9-67

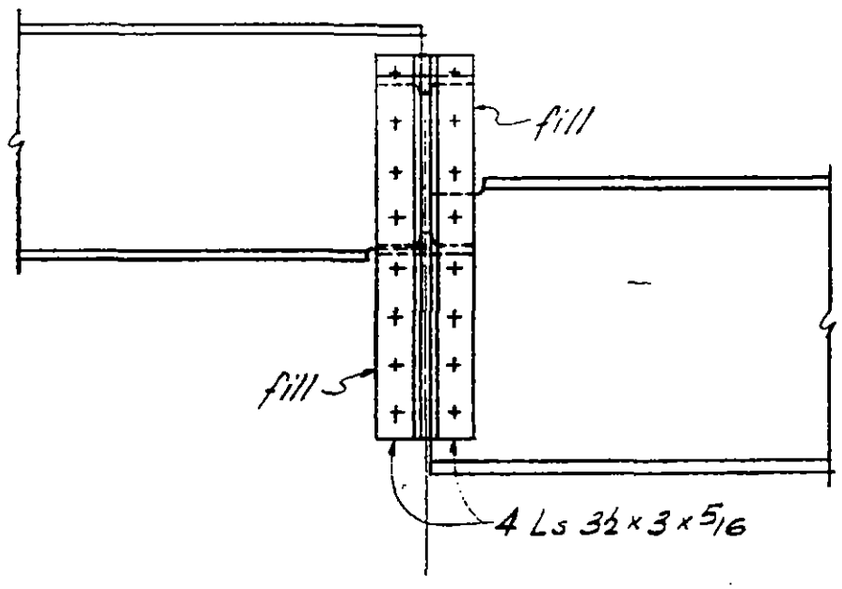
REVISIONS

10-2-67

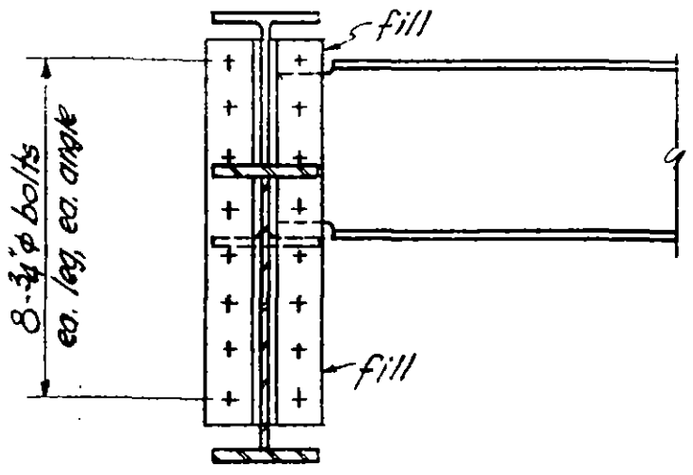
1-24-68



Plan



Section a-a



Section b-b

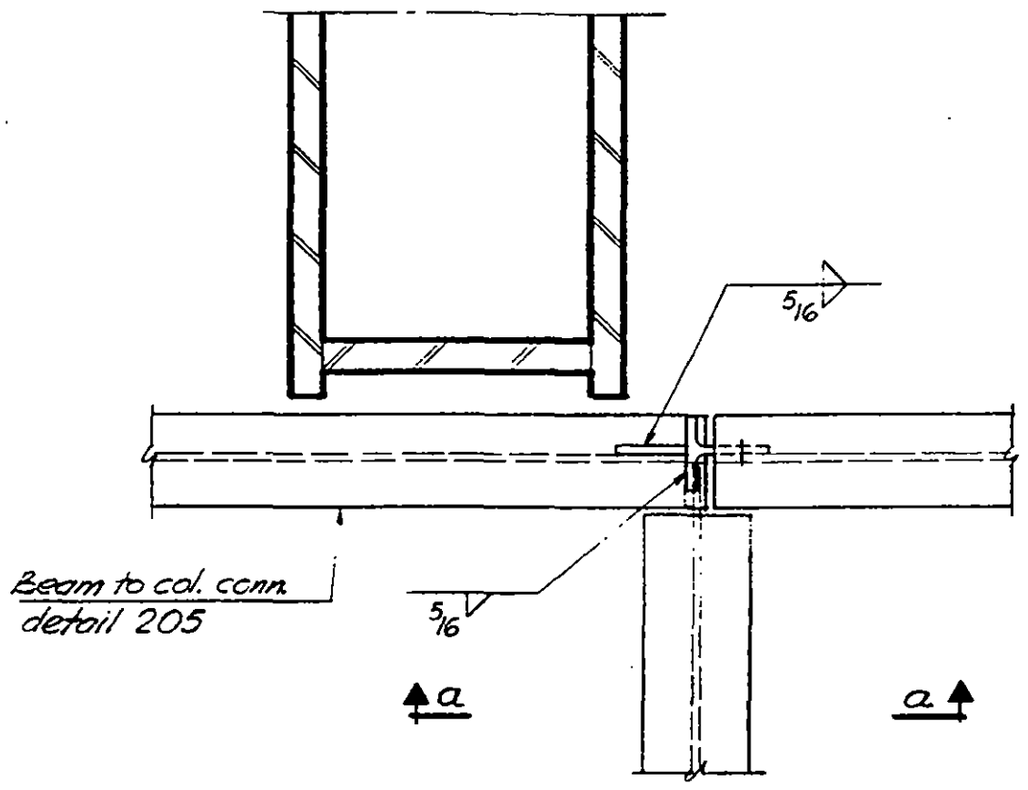
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6-AB2-75

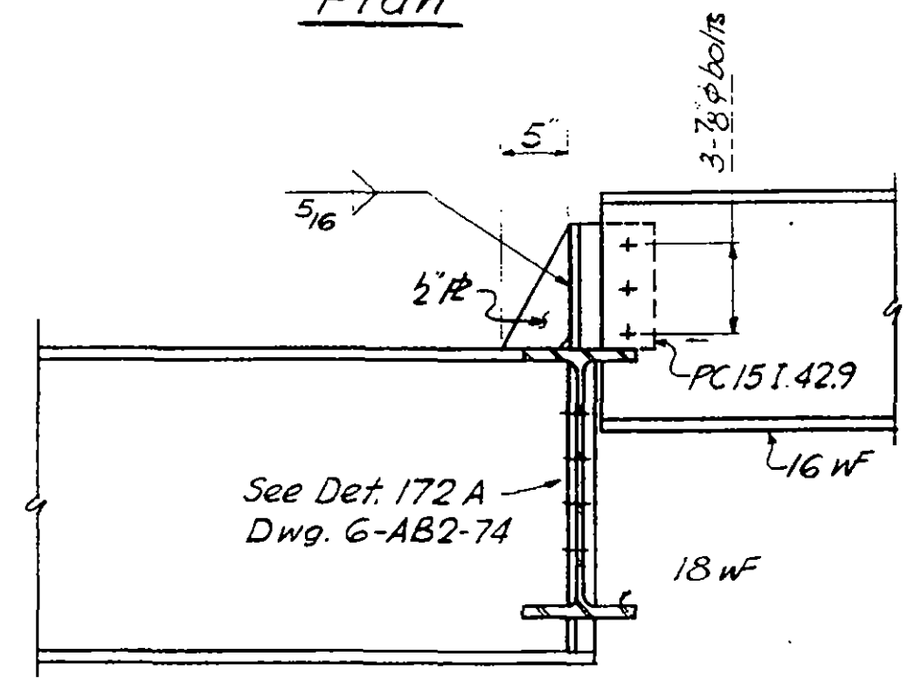
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 173 B | DATE 1-24-68

REVISIONS



Plan



Section a-a

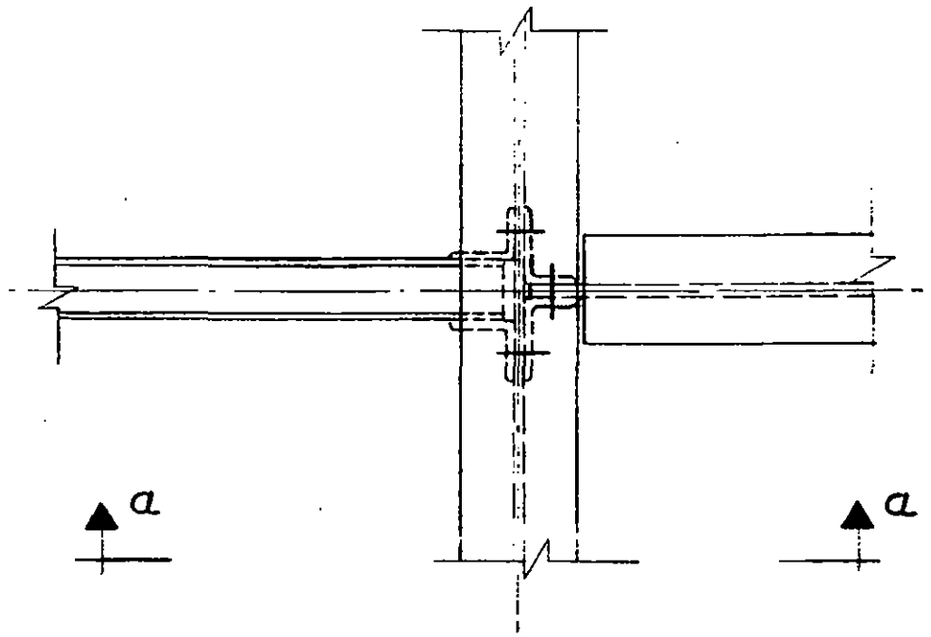
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6-AB2-75.1

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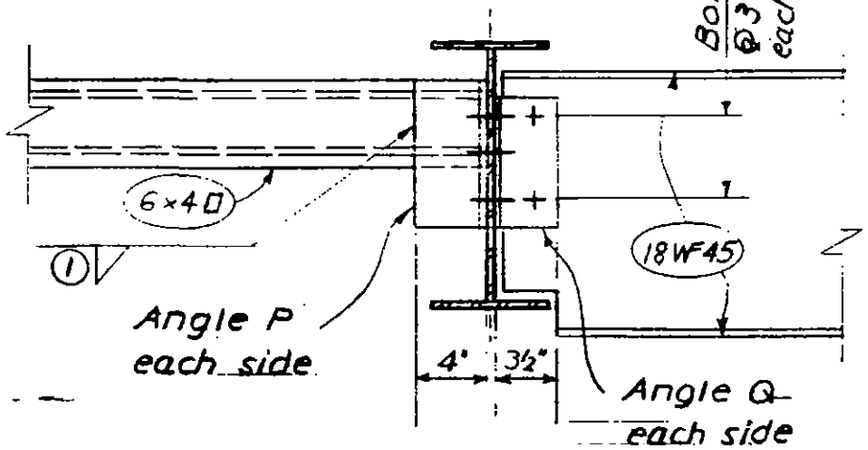
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 174 A,B | DATE 8-5-67

REVISIONS
9-15-67



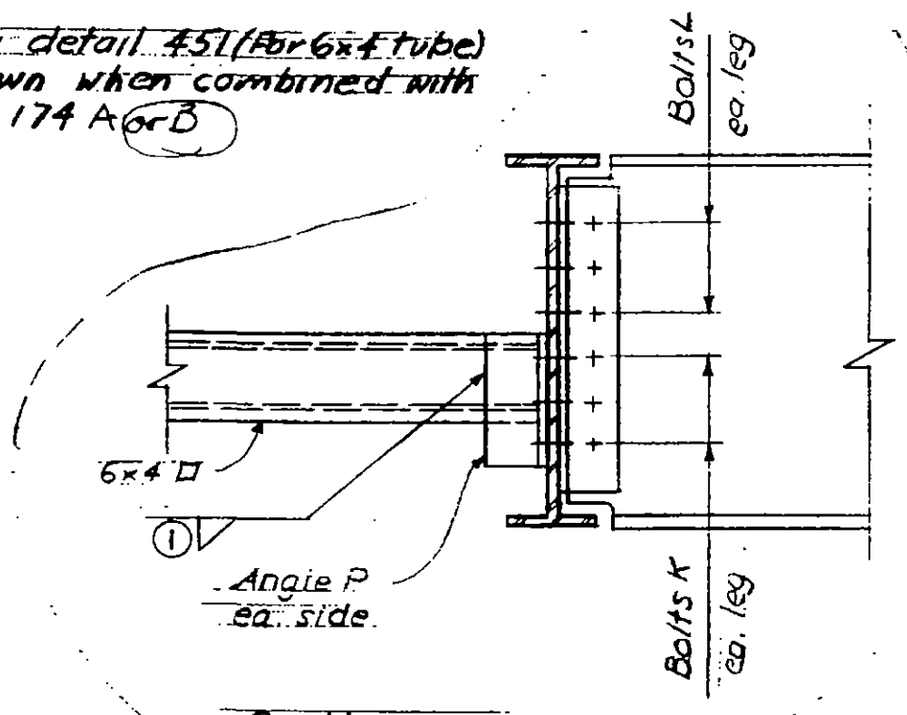
Plan

SCHEDULE		
	174 A	174 B
ANGLES		
P	4 x 3½ x ⅜	4 x 3½ x ⅜
Q	6 x 3½ x ⅜	6 x 3½ x ⅜
BOLTS		
K	3 - ¾" ϕ	3 - ¾" ϕ
L	—	3 - ¾" ϕ
WELDS		
①	¼	¼



Section a-a
174 A

Modify detail 451 (for 6 x 4 tube) as shown when combined with detail 174 A or B



Section a-a
174 B

6-AB2-76

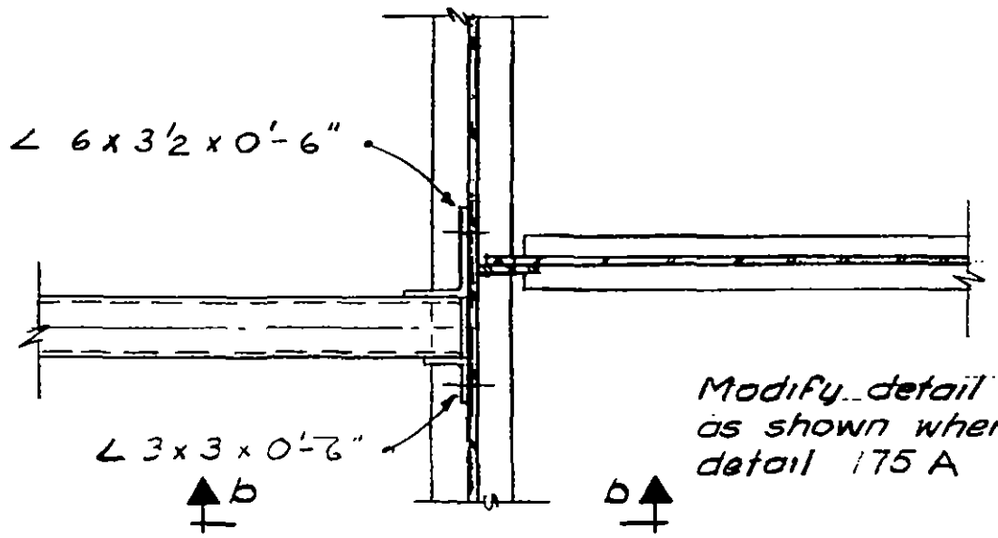
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 175 A | DATE 7-28-67

REVISIONS

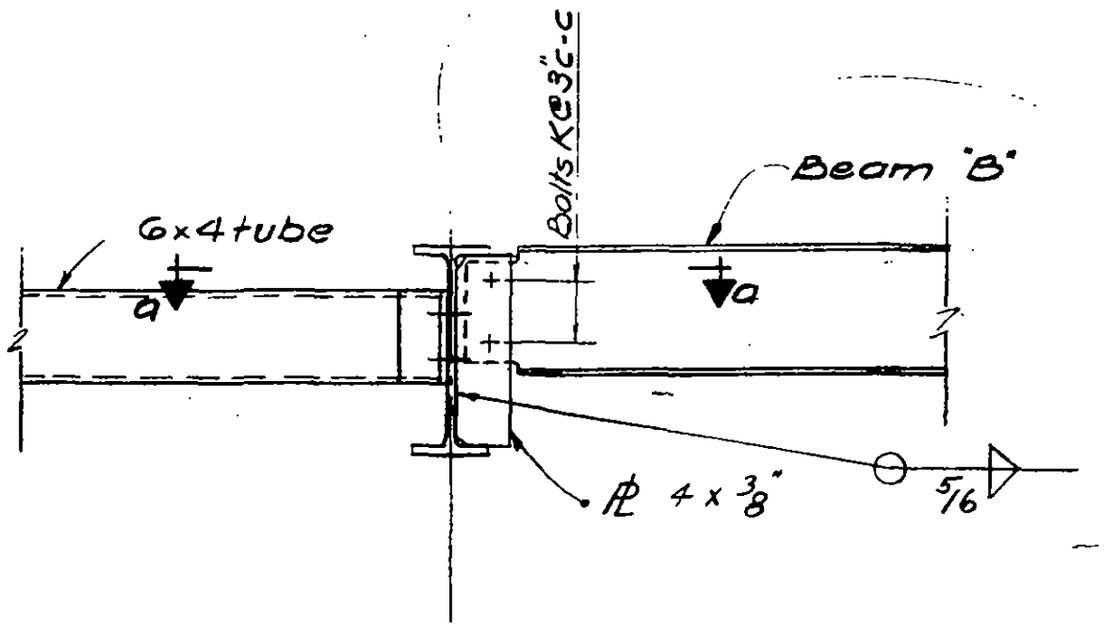
8-5-67



Modify detail 451 (For 6x4 tube) as shown when combined with detail 175 A

Plan a-a

BEAM "B"	Bolts K
8B	2-⅞"ϕ A325
12B	3-⅞"ϕ A325



Section b-b

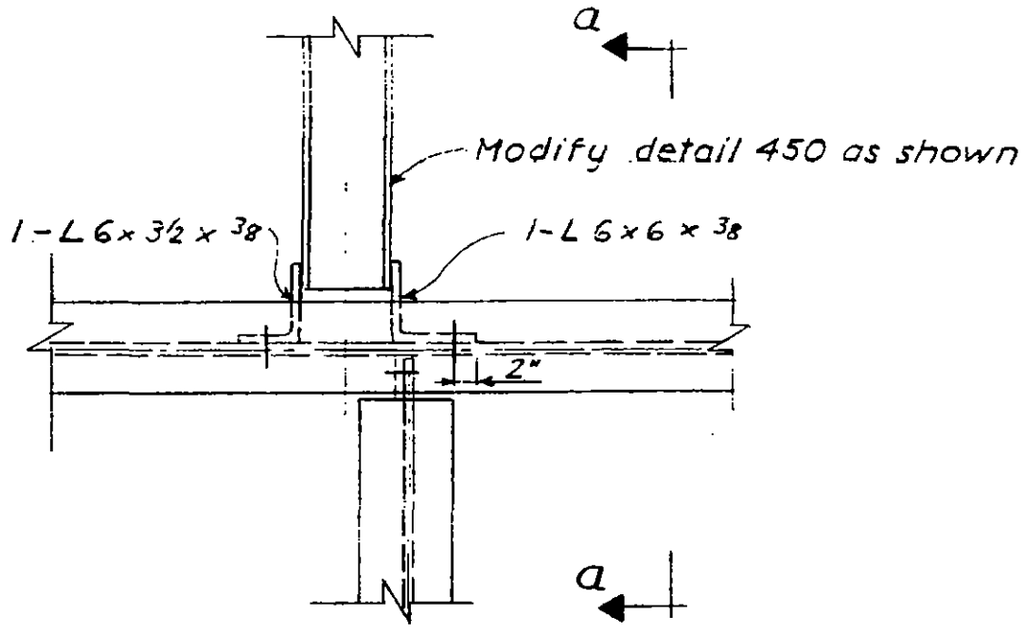
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6-AB2-77

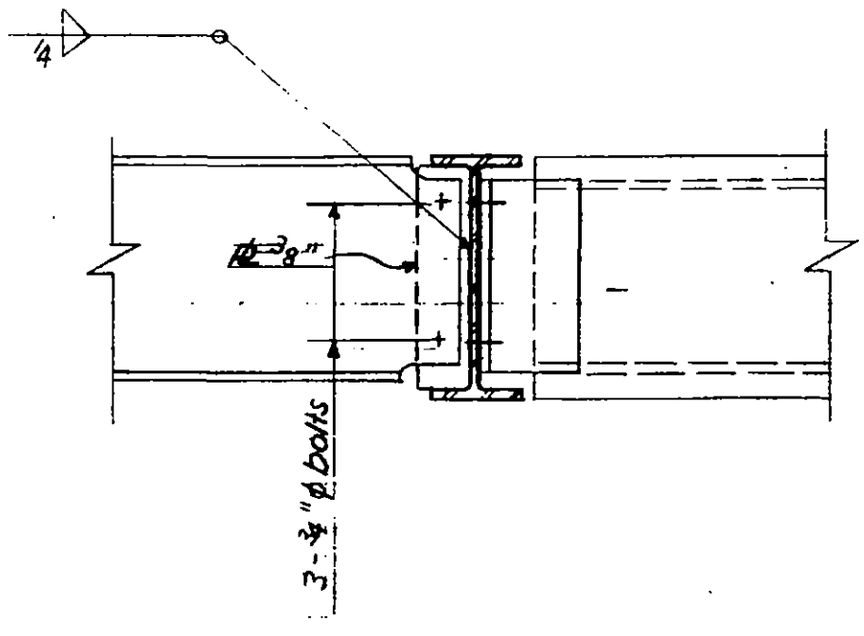
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 175 B | DATE 8-14-67

REVISIONS



Plan



Section a-a

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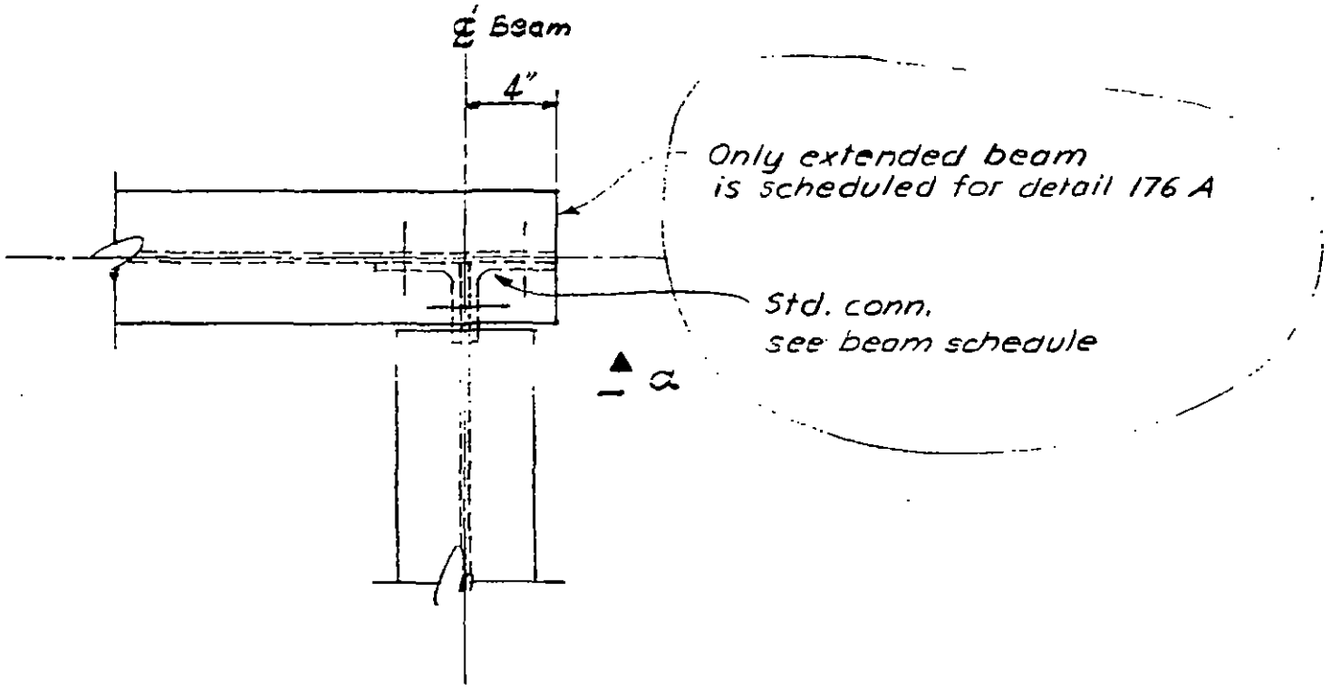
6-AB2-77.1

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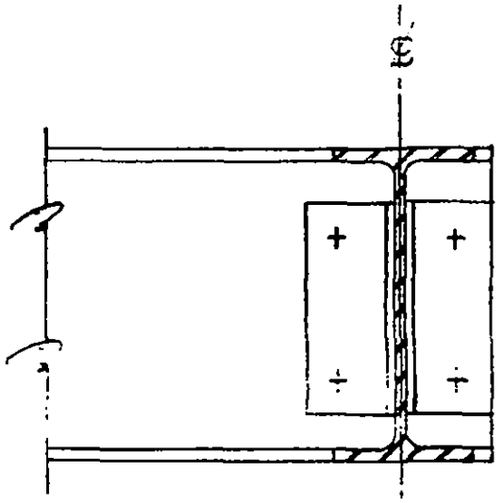
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 176A | DATE: 6-5-67

REVISIONS

0-2-67



PLAN



Section a-a

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6-AB2-78

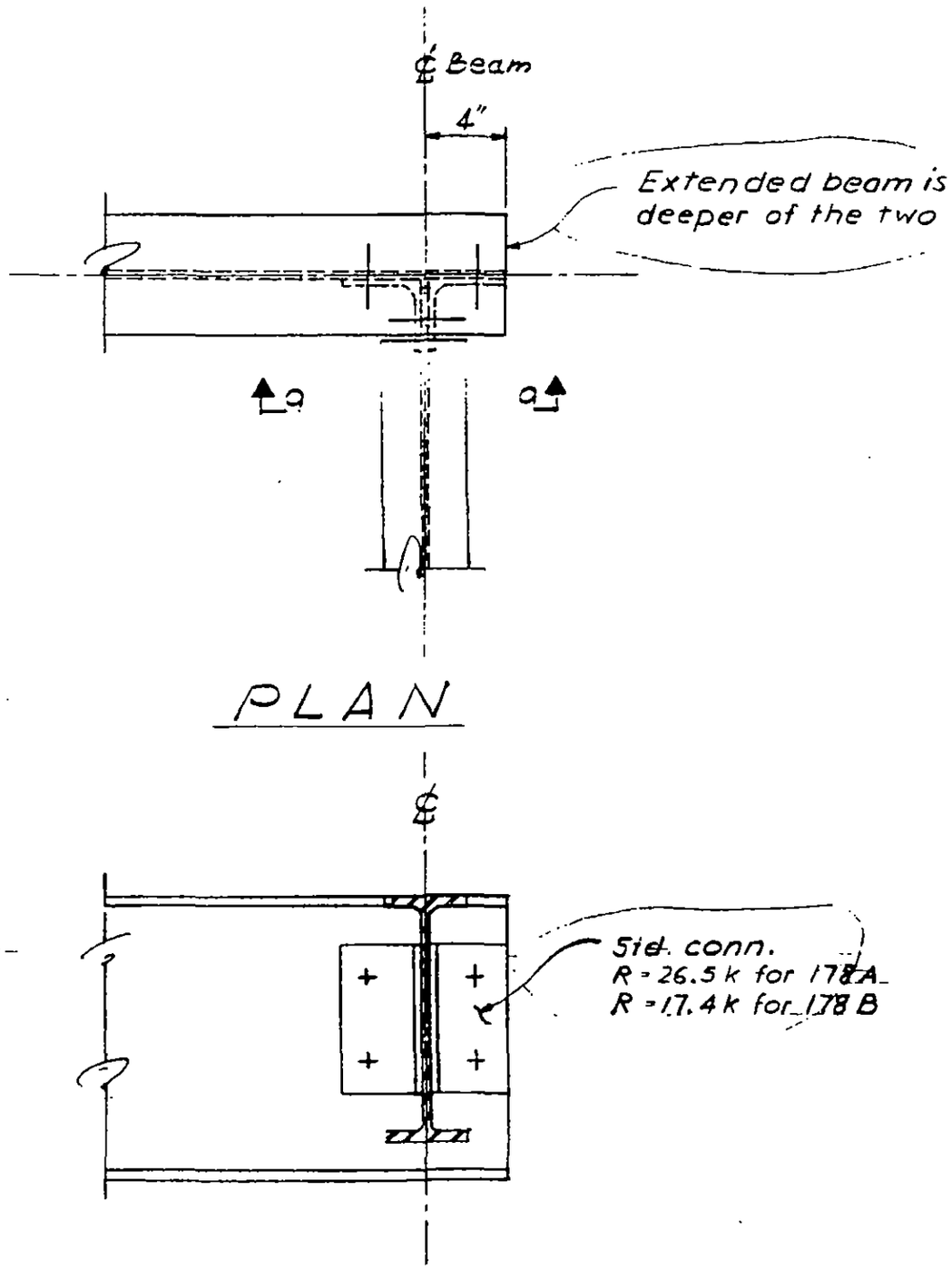
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PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 178 A, B | DATE: 6-5-67

REVISIONS

8-5-67

10-2-67



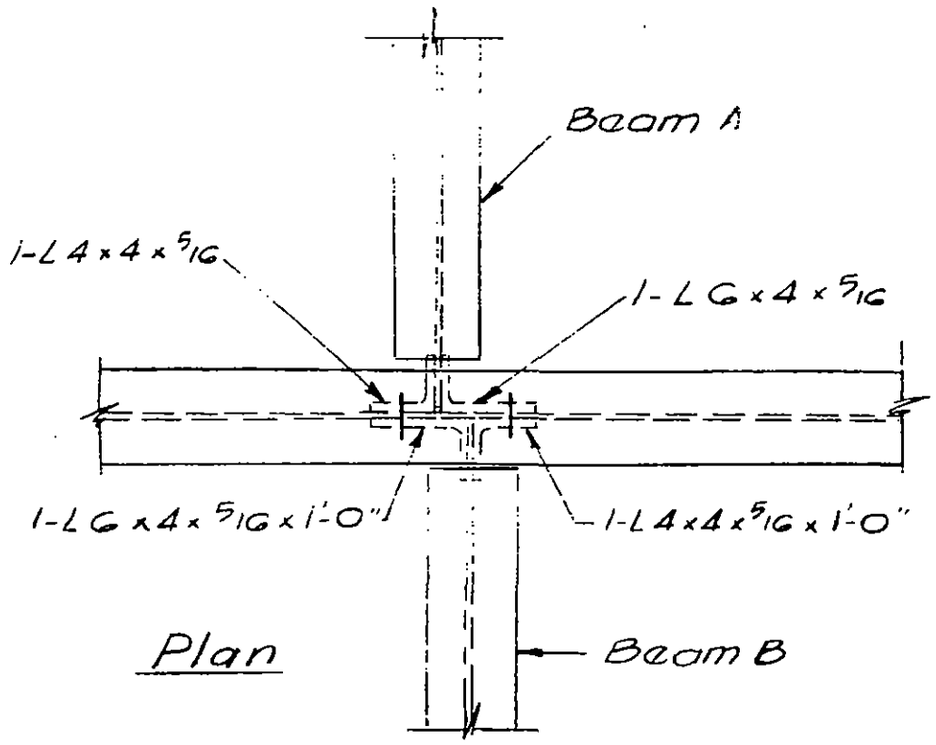
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6-AB2-[redacted]

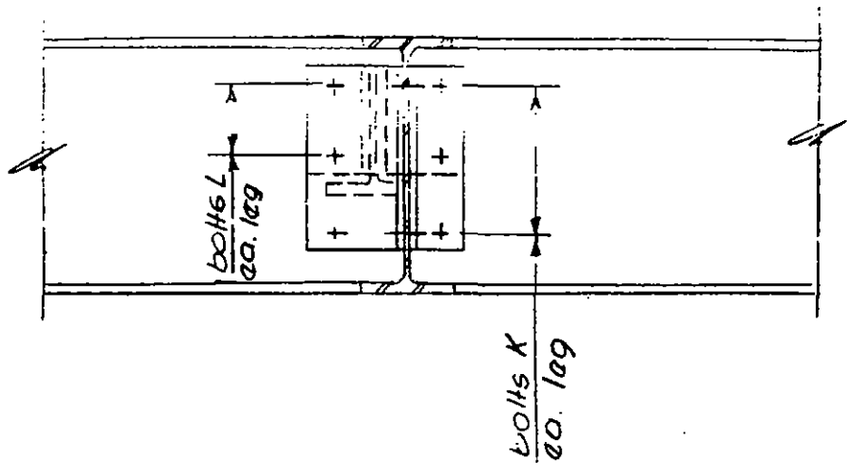
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS 179 A.B | DATE 10-5-67

REVISIONS



Plan



Section a-a

Detail	Beam A	Beam B	bolts K	bolts L
A	12B, 14B	16WF	4-3/4" ϕ	3-3/4" ϕ
B	10B	20 x 6 I	4-7/8" ϕ	2-7/8" ϕ

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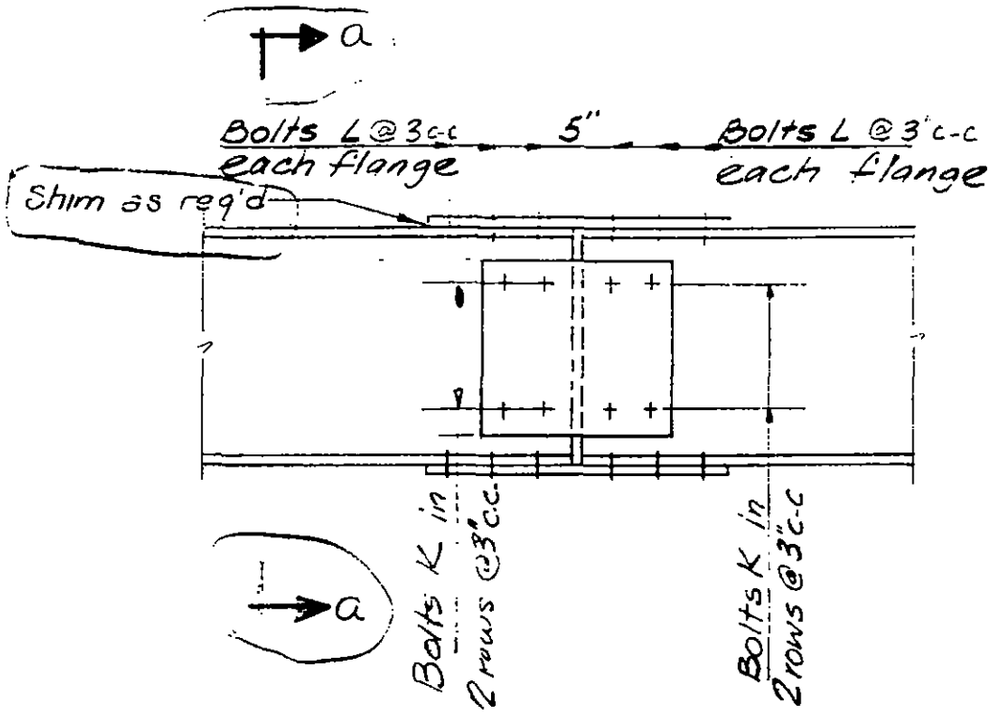
G-AB2-80.5

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PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAILS 401A,B,C, 402A 405, 406, 414A,B, 430A,B,C | DATE 8-5-67

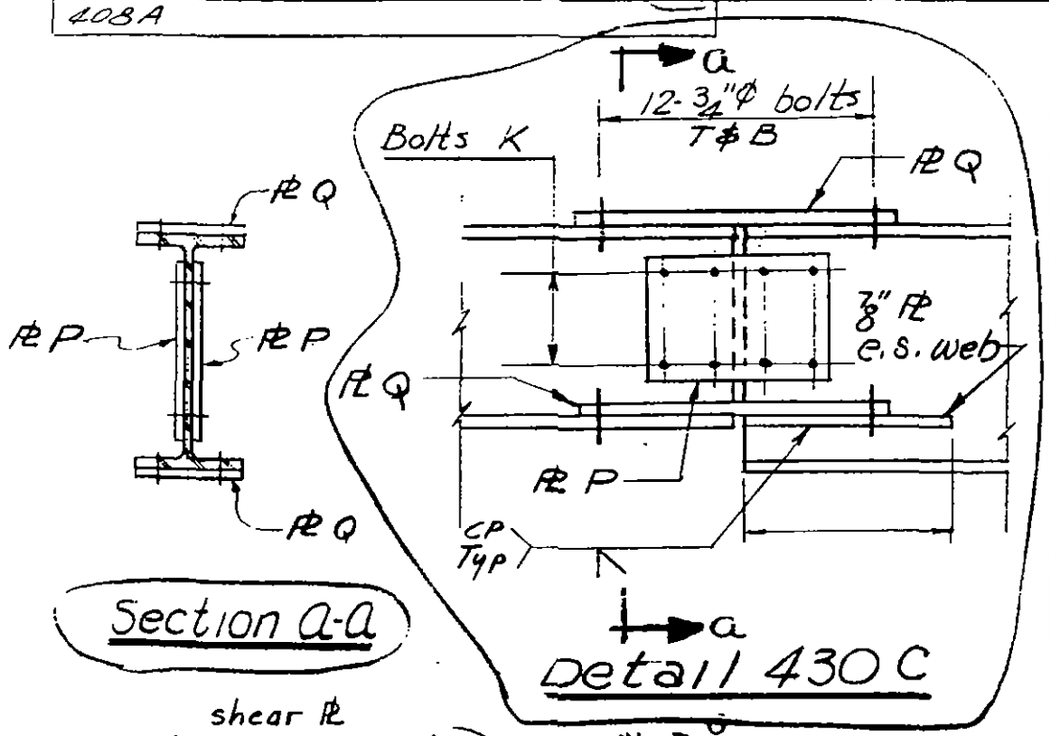
REVISIONS

9-18-68



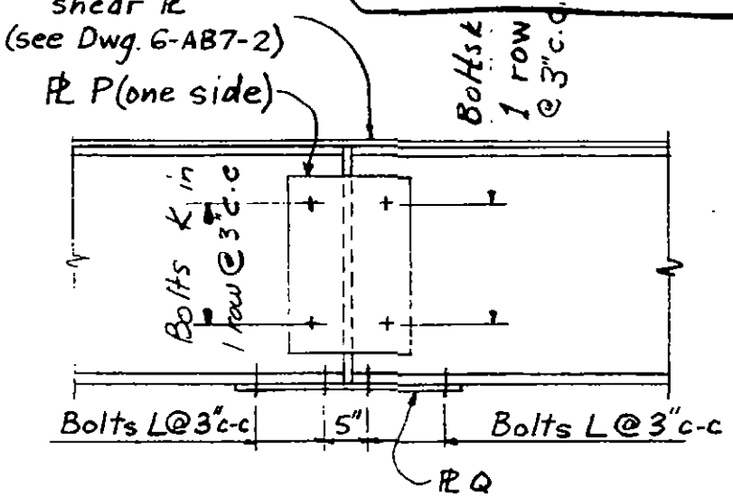
Detail	Bolts K	Bolts L	PL P	PL Q
401A,B	6-7/8"ϕ	6-7/8"ϕ	1/2	1/2
402 A	6-7/8"ϕ	6-7/8"ϕ	1/2	1/2
405	6-7/8"ϕ	6-7/8"ϕ	1/2	1/2
406	4-3/4"ϕ	4-3/4"ϕ	3/8	1/2
414 A,B	8-1"ϕ	6-1"ϕ	3/8	1/2
401 C	6-1 1/8"ϕ	8-1 1/8"ϕ	1/2	3/4
430A	14-7/8"ϕ	6-1 1/8"ϕ	1/2	5/8
408A	8-1"ϕ	6-1"ϕ	3/8	1/2
430B	16-7/8"ϕ	8-1 1/8"ϕ	1/2	7/8
430C	16-7/8"ϕ	8-1 1/8"ϕ	1/2	7/8"

408A



Section a-a

Detail 430C



Detail 406 (only)

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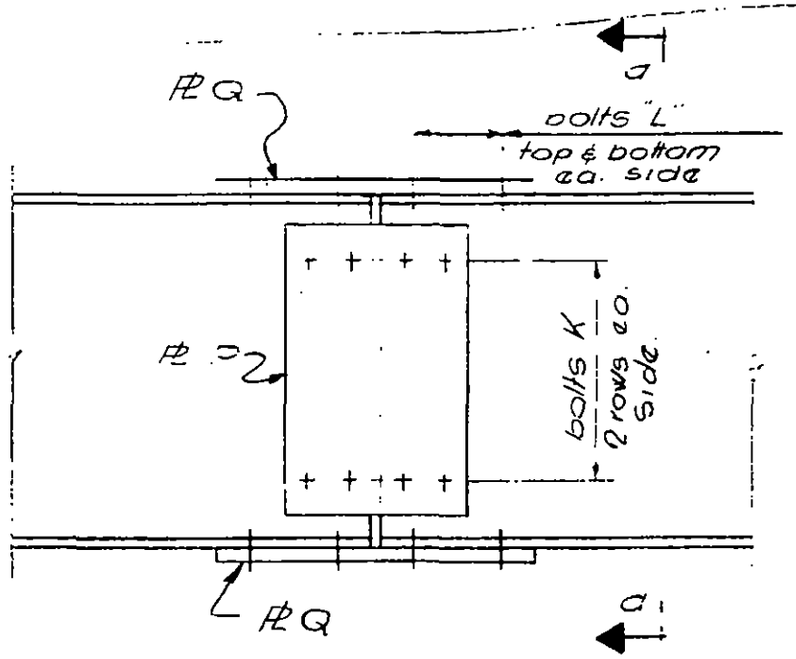
6-AB2-81

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

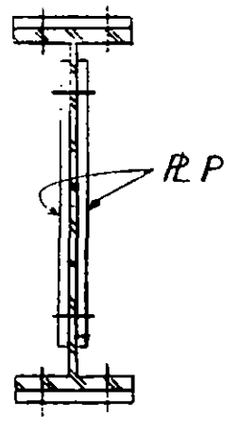
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAILS 403A, 404A, 409A,B,C,D | DATE 8-5-67

REVISIONS

- 2 - 67



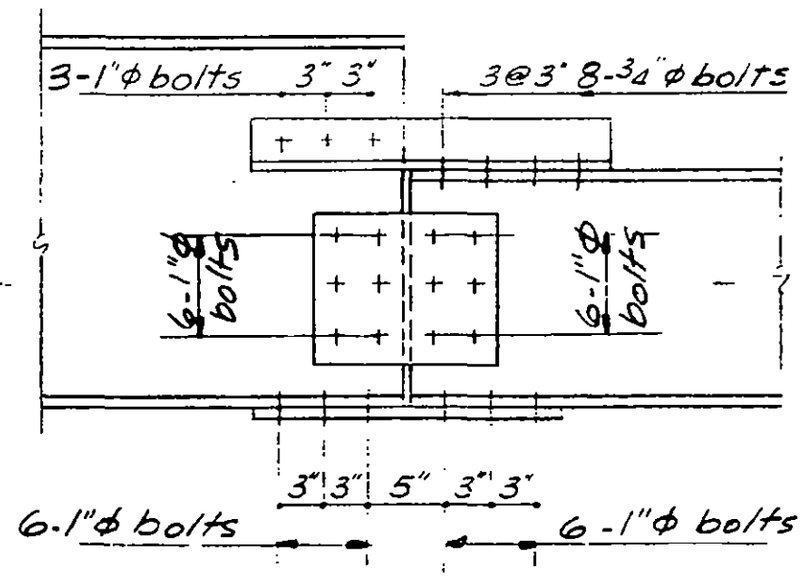
Elevation

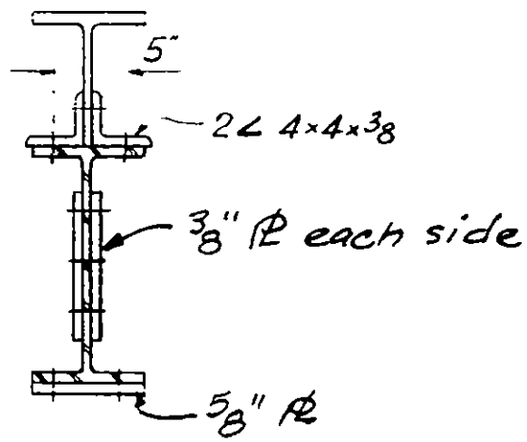


Section a-a

Detail	bolts K	bolts L	PL P	PL Q
403 A	12-1"ϕ	—	1/2"	—
409 A	12-1"ϕ	—	1/2"	—
409 B	12-1"ϕ	6-7/8"ϕ	5/8"	1/2
409 C	12-7/8"ϕ	—	1/2"	—
409 D	12-3/4"ϕ	—	1/2"	—

403 A & 409 A, B, C, D





404A

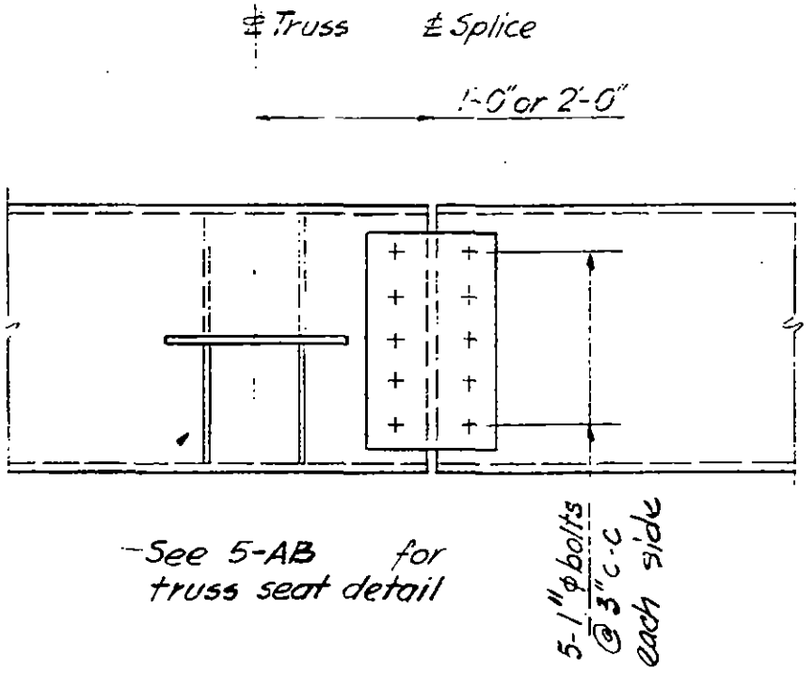
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UNIVERSITY OF THE STATE OF NEW YORK

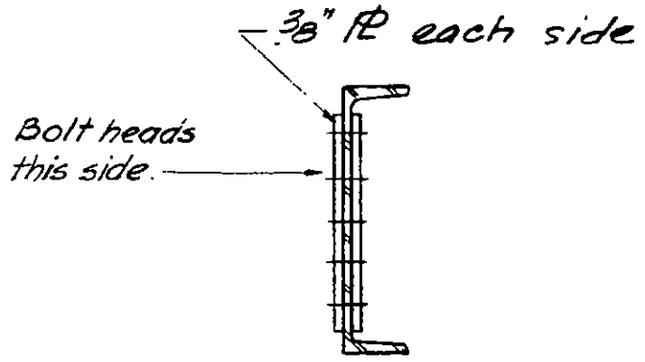
6-AB2-82

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

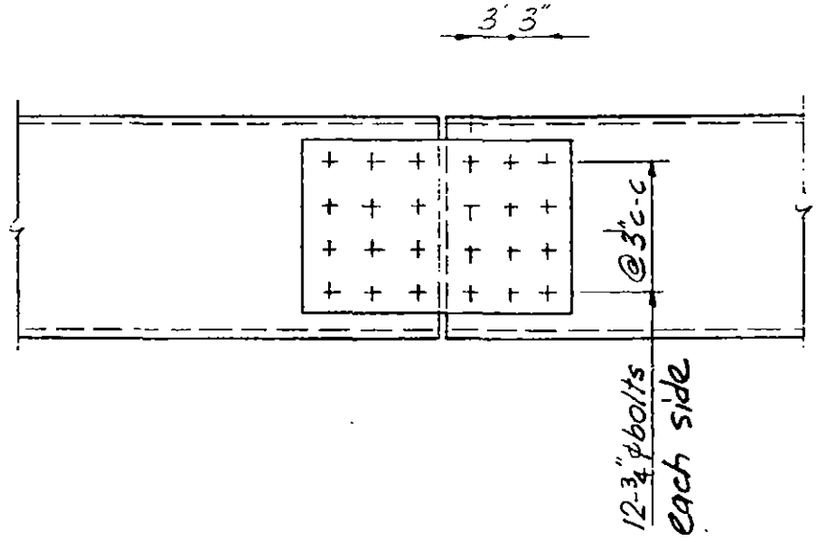
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAILS 410A – 412A, 420A – 425A | DATE 8-5-67

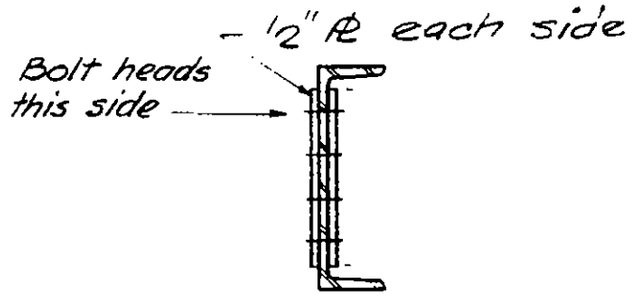
REVISIONS





410A, 411A, 412A





420A, 421A, 422A, 423A, 424A, 425A

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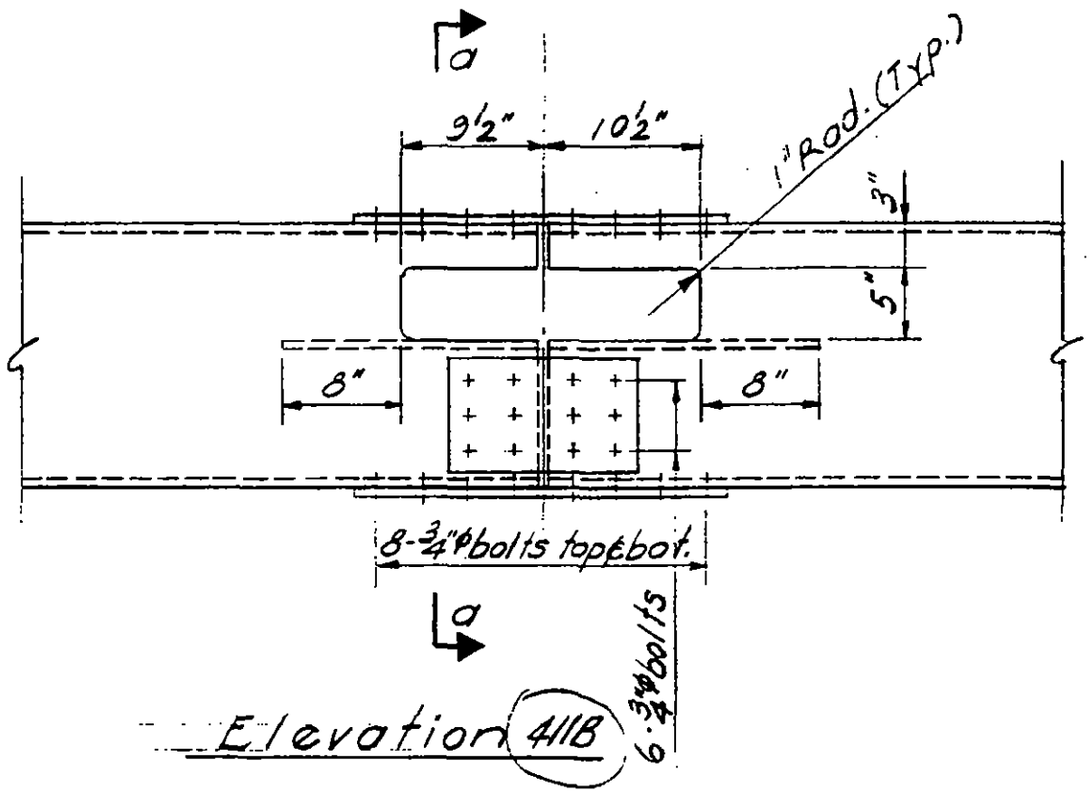
6-AB2-83

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

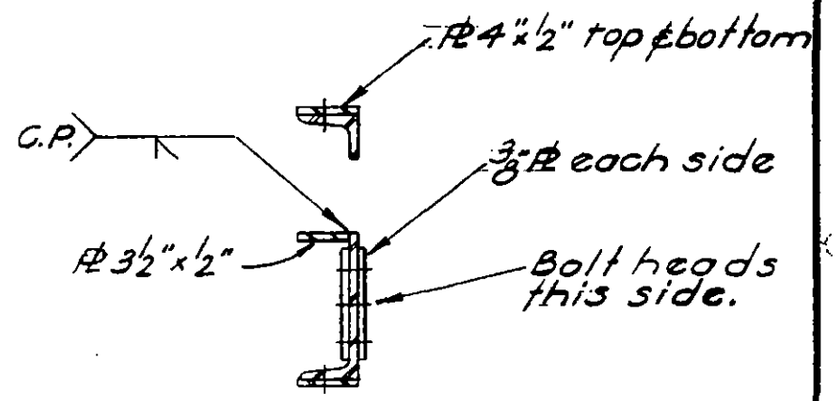
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAIL 411B, 410B | DATE 1-24-68

REVISIONS

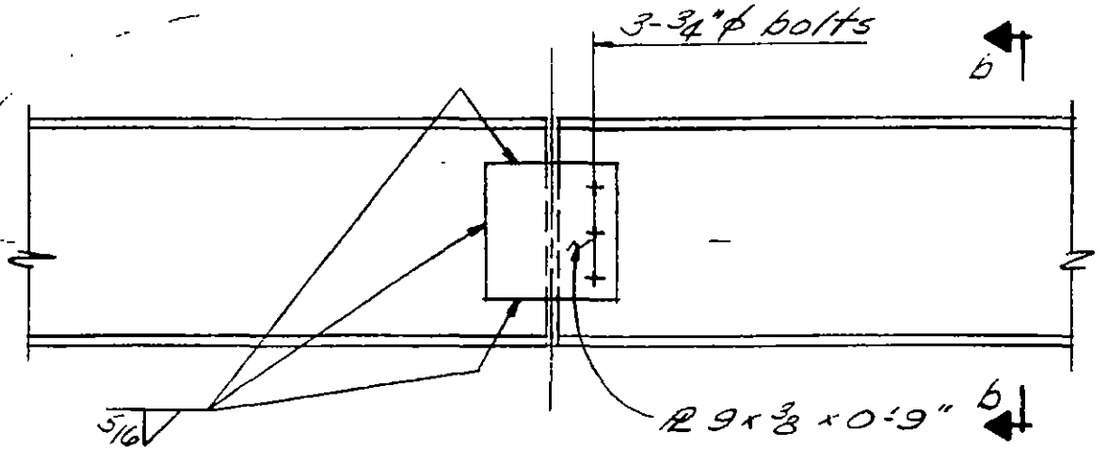
7-17-68



Elevation 411B



Section a-a



ELEVATION 410B



Section b-b

6-AB2-83.1

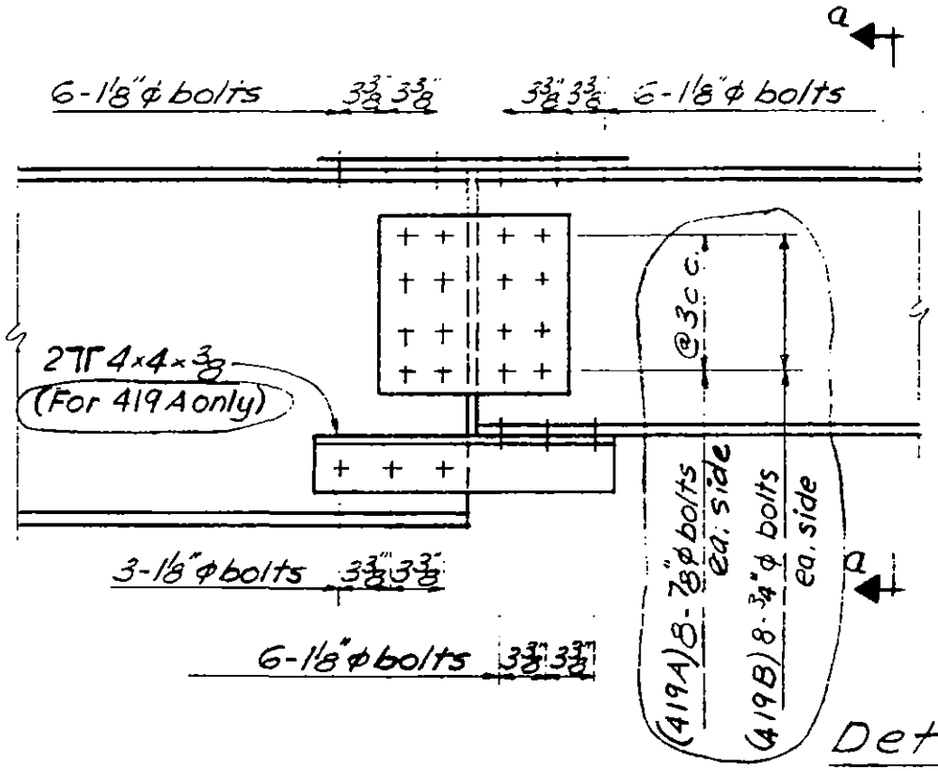
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

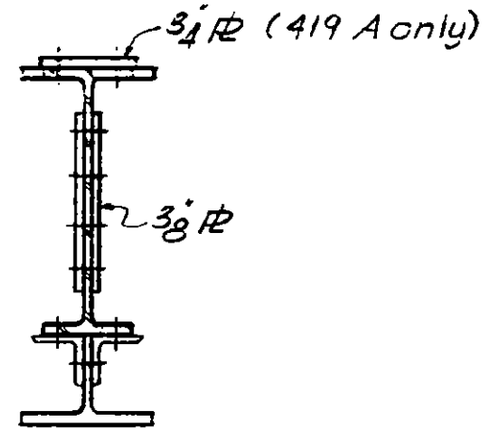
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAIL 419A(B), 449A | DATE 8-5-67

REVISIONS

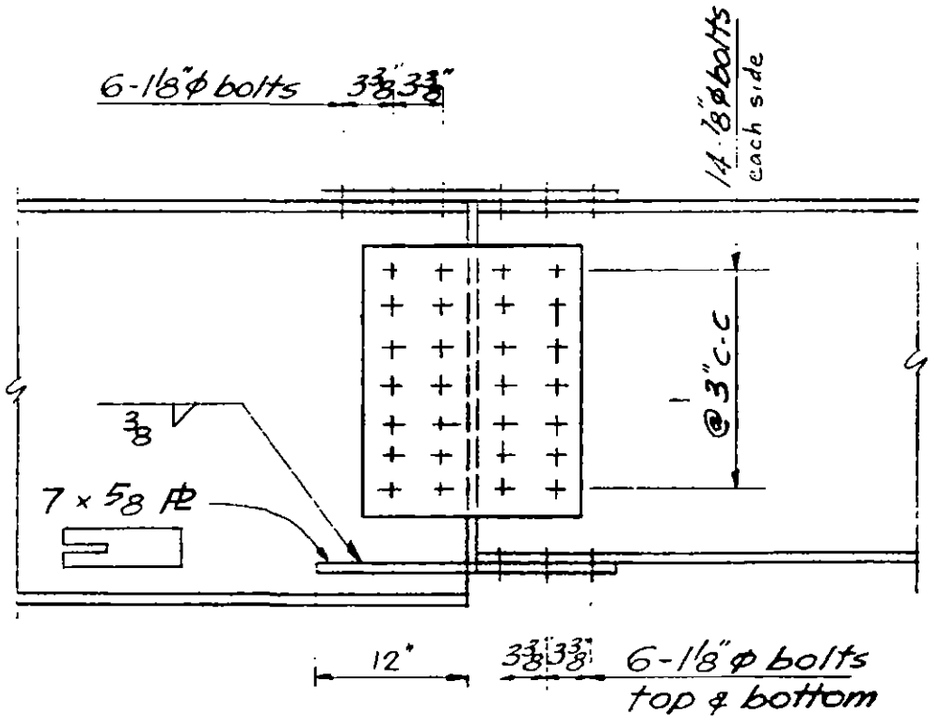
1 10-2-67



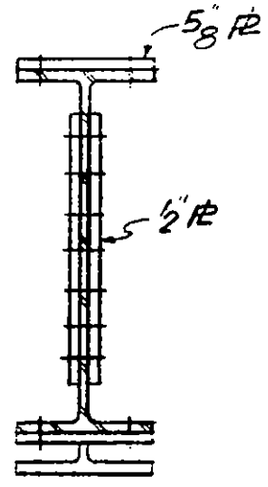
Detail 419A & B



Section a-a



Detail 449A



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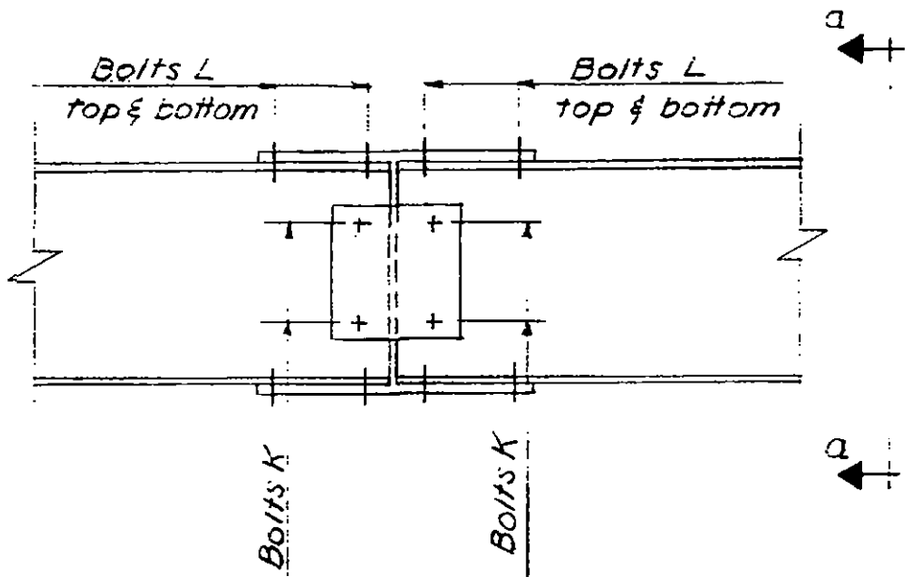
6-AB2-84

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAIL 418 A, B. | DATE 8-14-67

REVISIONS

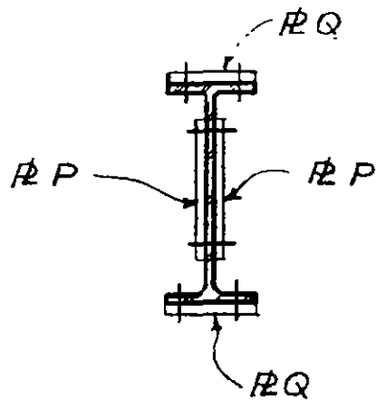
1 5-2-67



Elevation

SCHEDULE

	418A	418B
BOLTS		
K	3-7/8" ϕ	4-3/4" ϕ
L	6-7/8" ϕ	—
PLATES		
P	3/8"	3/8"
Q	5/8"	—



Section a-a

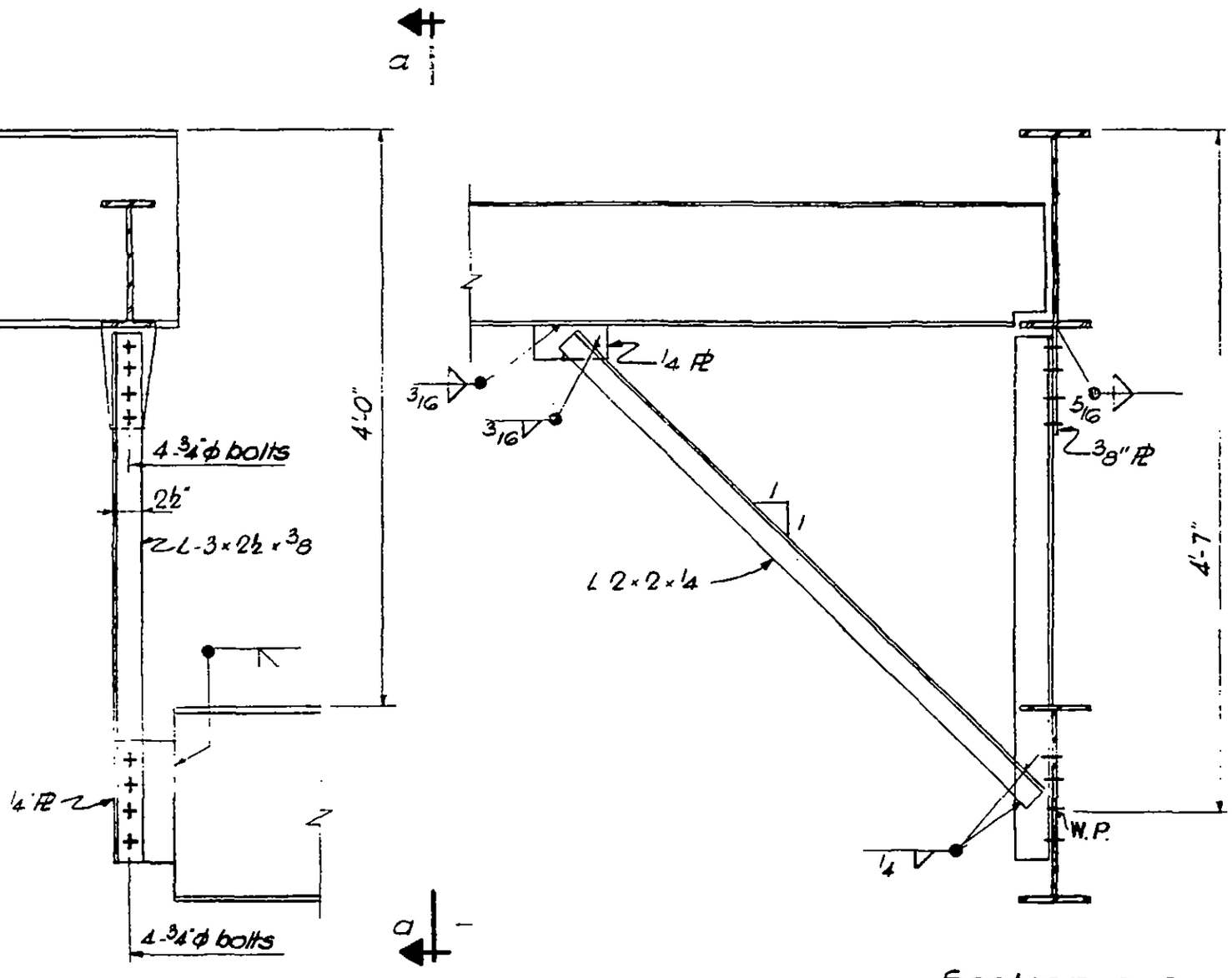
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UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-85

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL 418 C | DATE 9. 25. 68.

REVISIONS



Elevation

Section a-a

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

G.T.H.

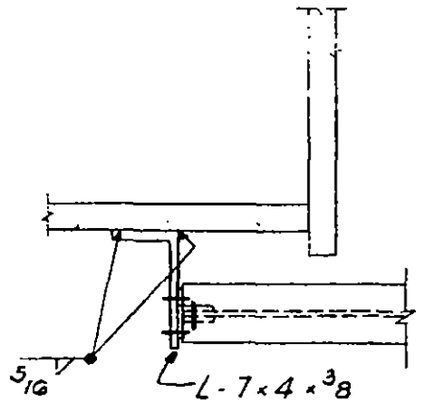
REVIEWED

6-AB2-85.1

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

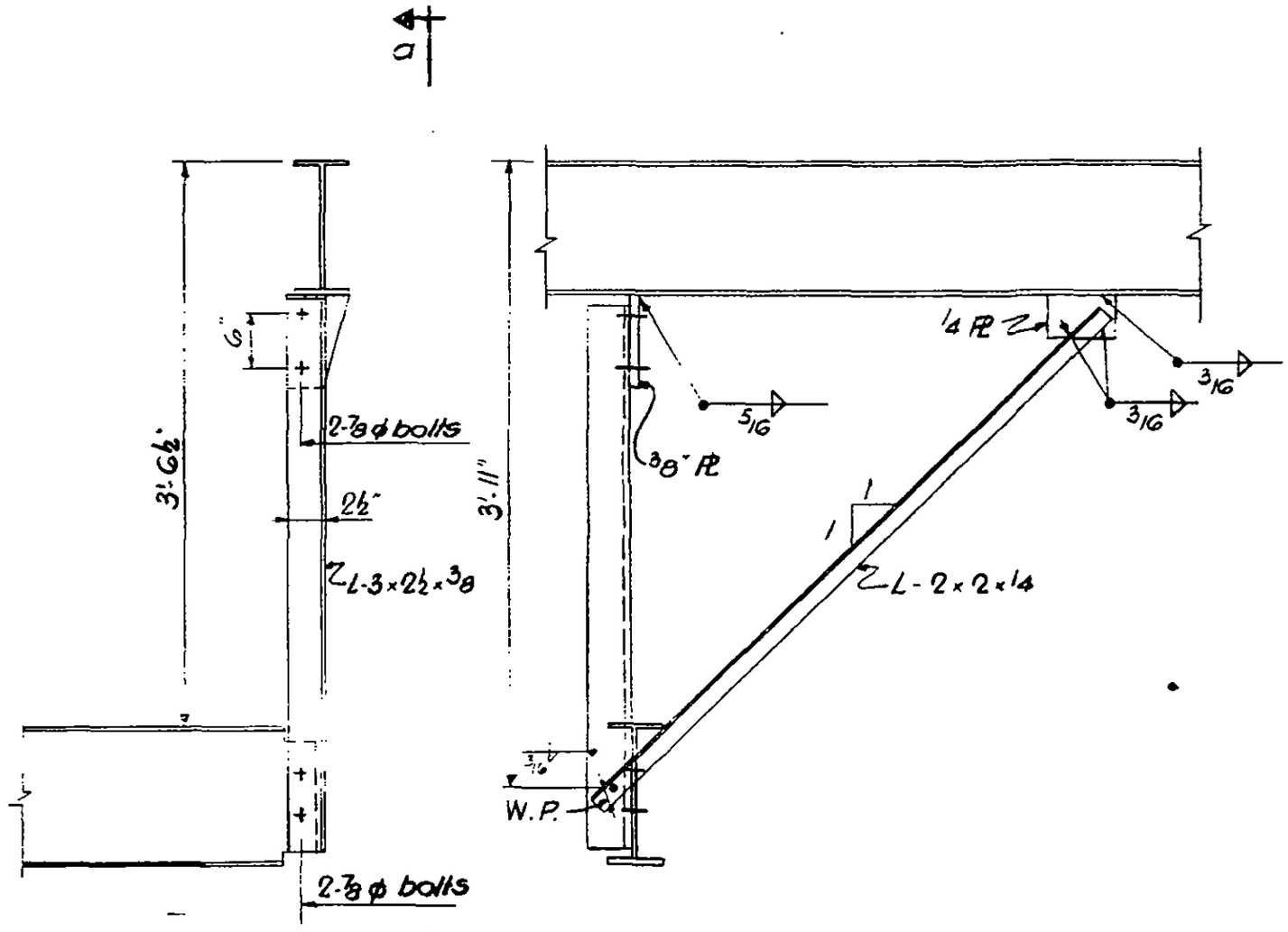
PROJECT THE WORLD TRADE CENTER | TITLE DETAILS 418 D, E | DATE 9. 25. 68.

REVISIONS



Plan

Detail 418 D



Elevation

Section a-a

Detail 418 E

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

G.T.H.

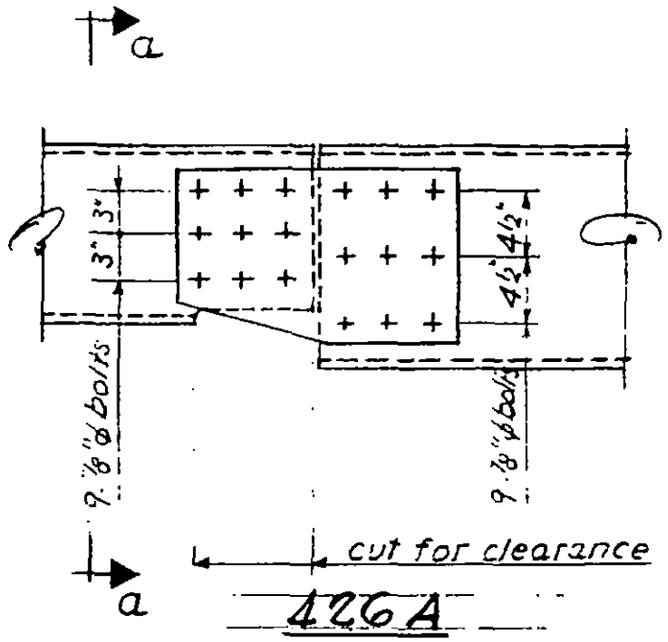
REVIEWED

6-AB2-85.2

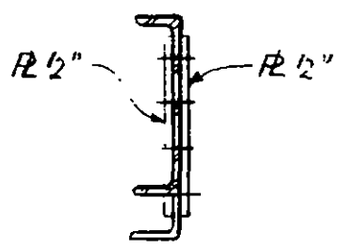
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE CONNECTION 426A, 427A, 428A & 429A | DATE 9-15-67

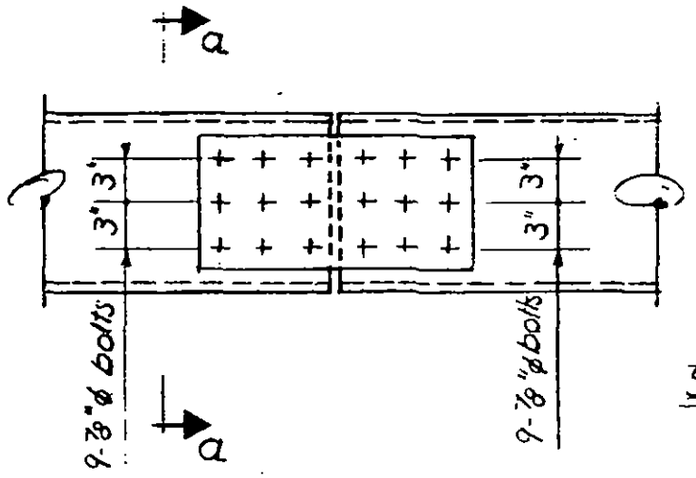
REVISIONS



426A

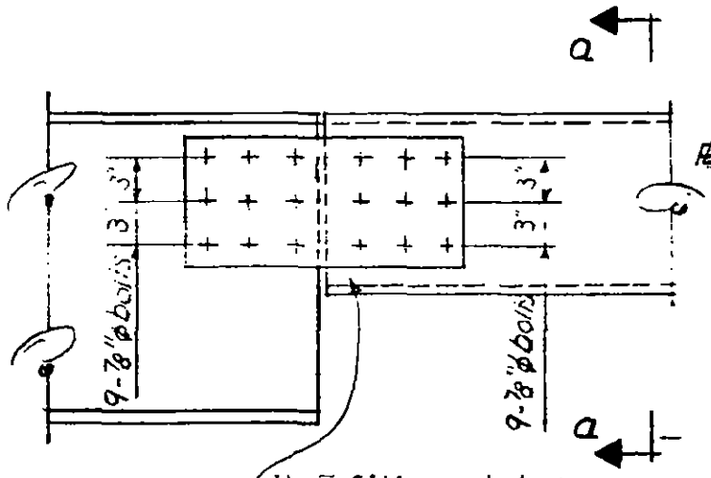


Section a-a

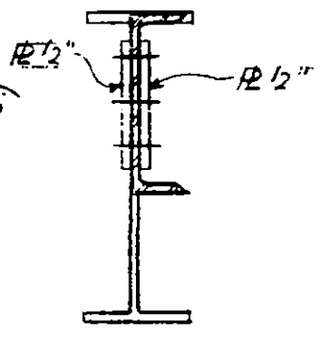


Section a-a

428A

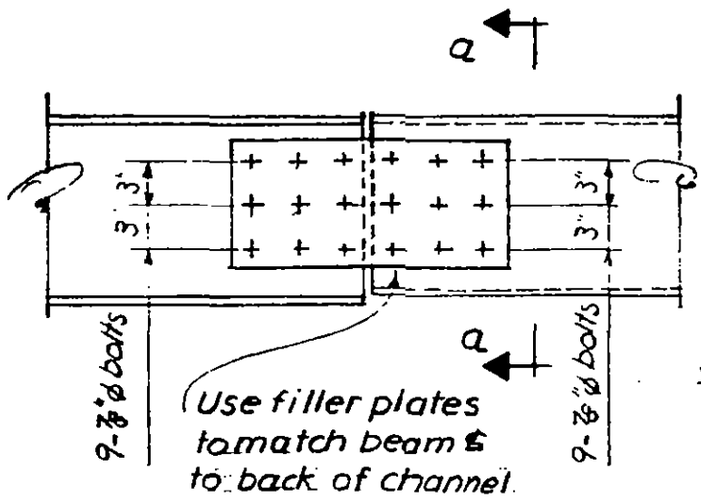


Use filler plates to match beam ℄ to back of channel.



Section a-a

427A



Use filler plates to match beam ℄ to back of channel.

Section a-a

429A

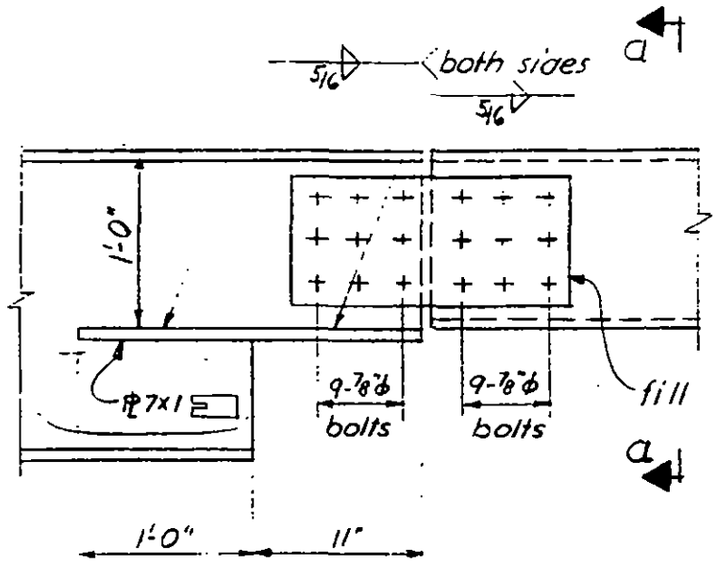
G-AB2-86

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

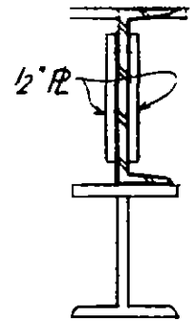
PROJECT THE WORLD TRADE CENTER | TITLE. SPLICE CONNECTION 427 B | DATE 12-21-67

REVISIONS

2-12-68



427 B



Section a-a

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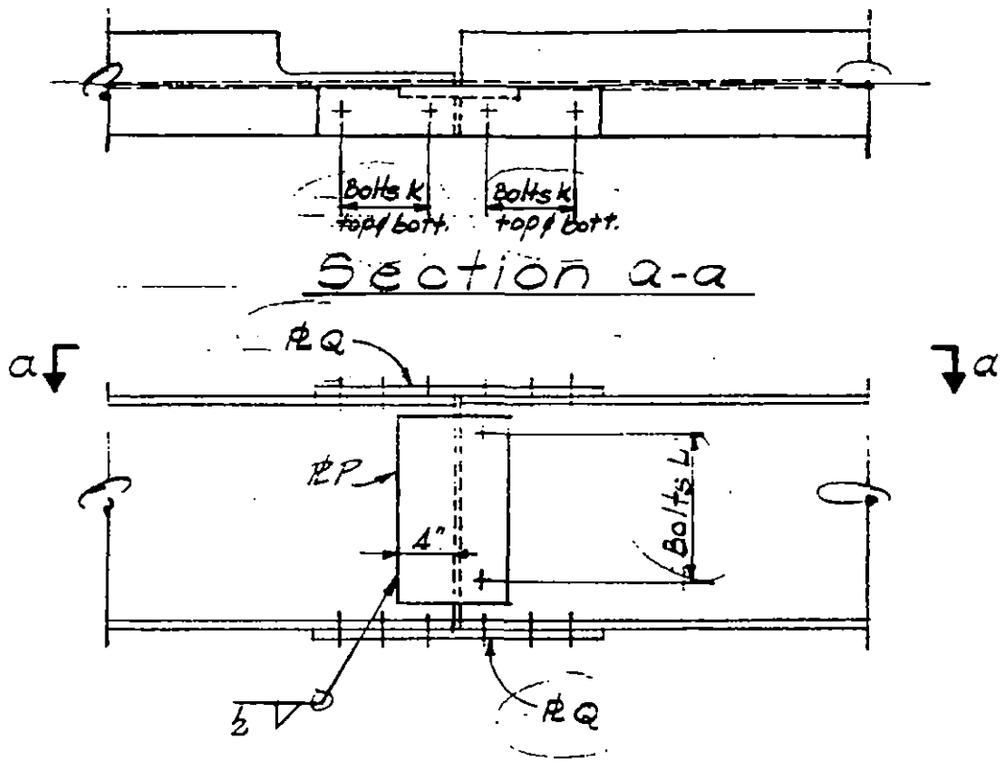
6-AB2-86.1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE CONNECTION 407A, B | DATE 9-15-67

REVISIONS

10-2-67



ELEVATION

SCHEDULE

	407A	407B
BOLTS		
K	3-⅞ ϕ	4-1" ϕ
L	5-⅞" ϕ	7-⅞" ϕ
PLATES		
P	½"	½"
Q	½"	¾"

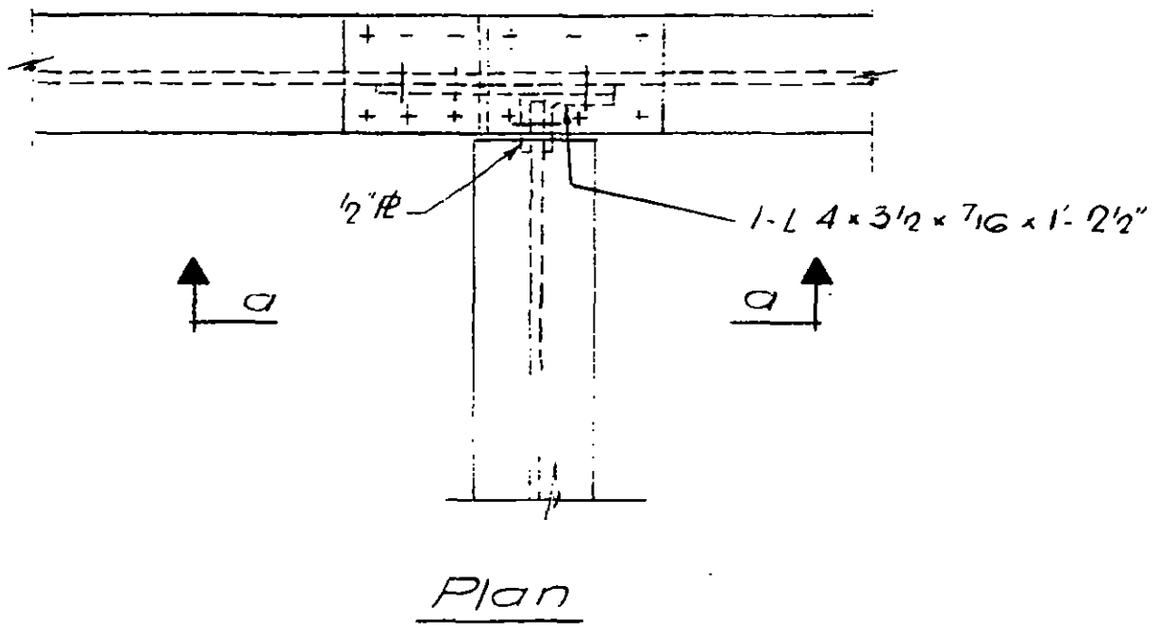
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

G-A82-87

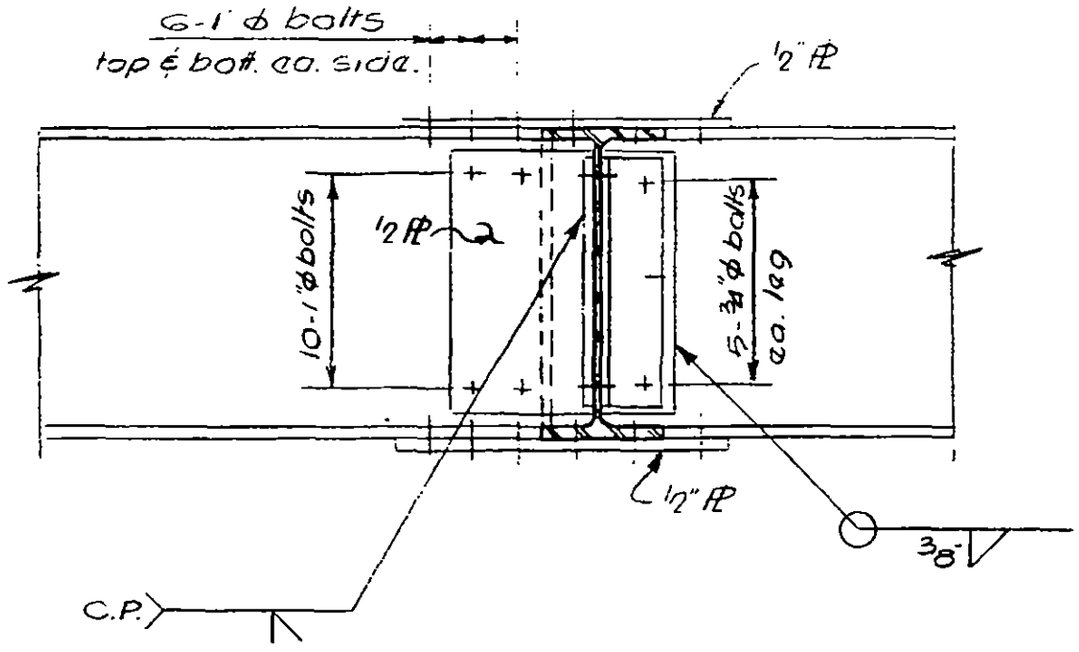
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 438 | DATE 10-2-67

REVISIONS



Plan



Section a-a

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NEW YORK

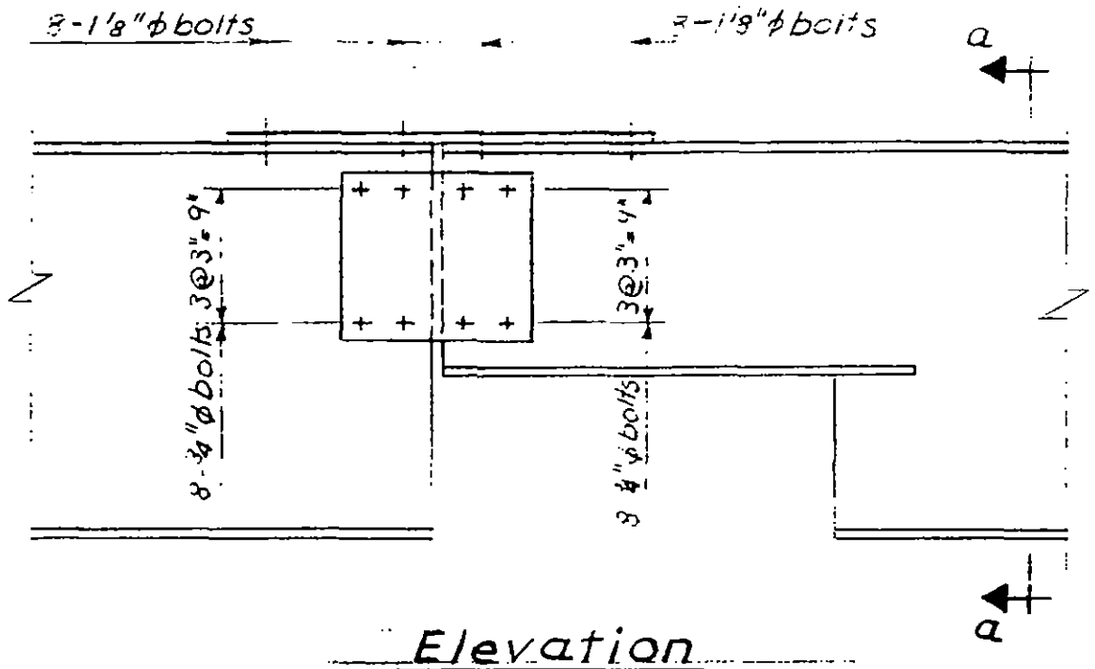
G-AB2-88

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

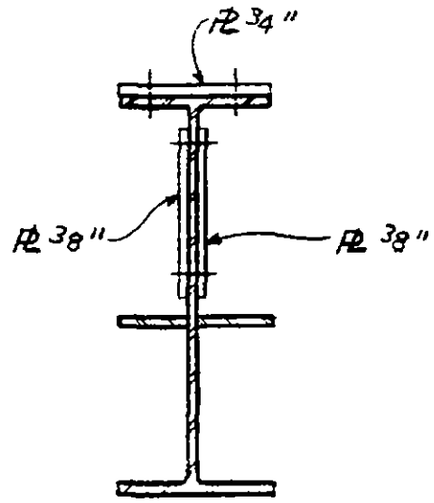
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAIL 433 A & B: | DATE 8-14-67

REVISIONS

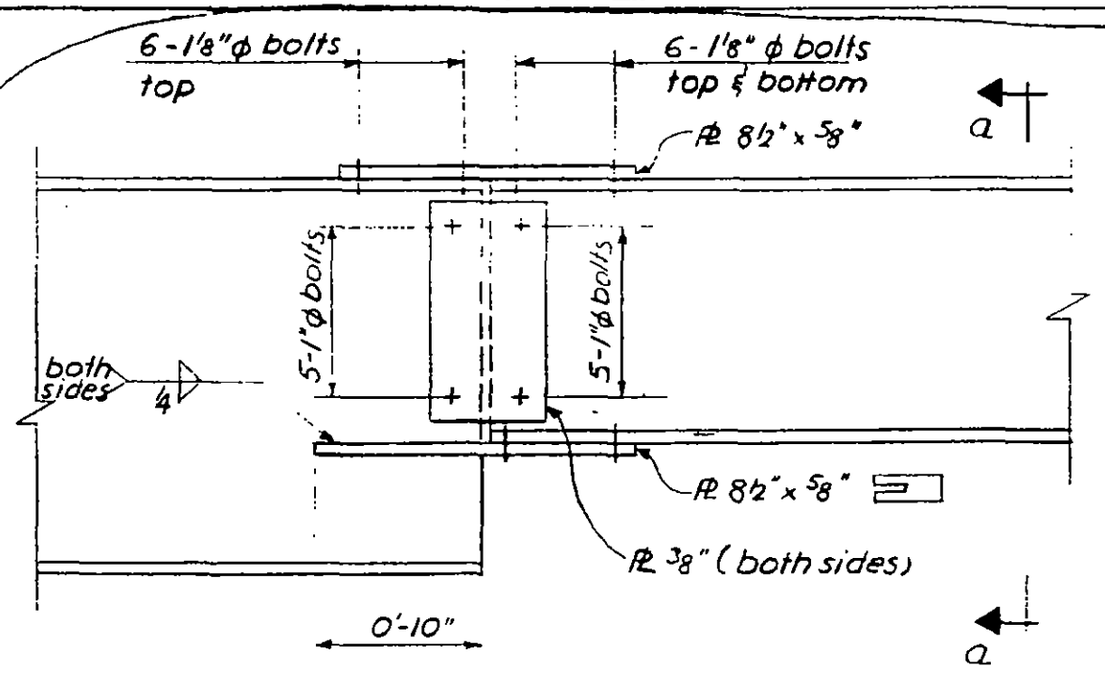
D-2-67



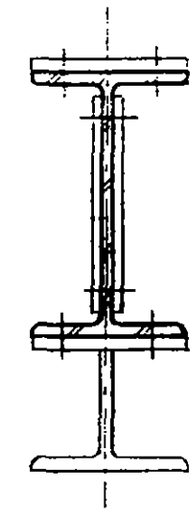
Elevation
Detail 433 A



Section a-a



Elevation
Detail 433 B



Section a-a

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UNIVERSITY OF THE STATE OF NEW YORK

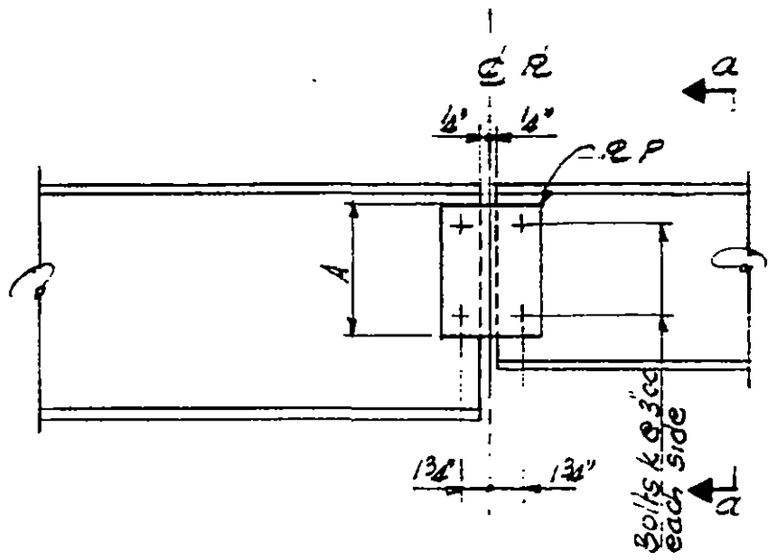
G-AB2-89

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

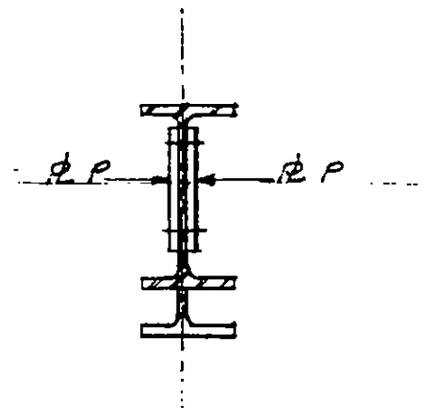
PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAILS 431A, 435A,B, 436A, 437A 439A | DATE 6-30-67

REVISIONS

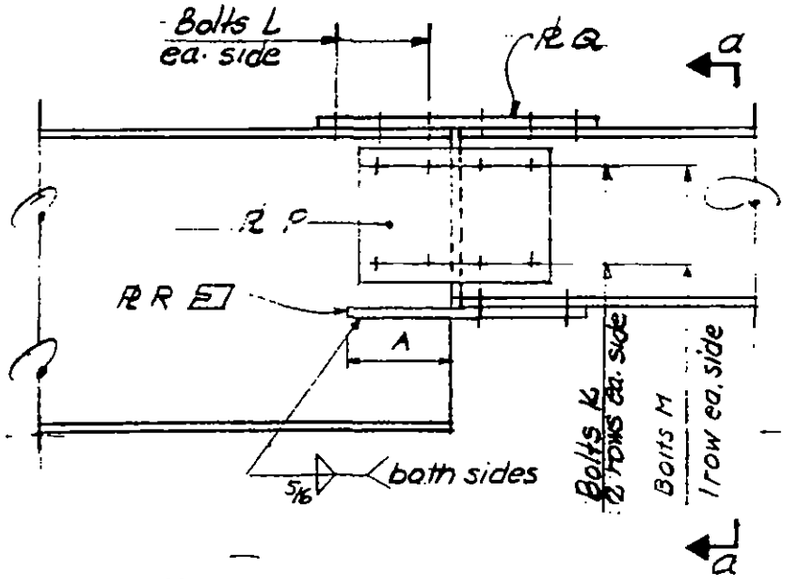
8-5-67
9-15-67
10-2-67
10-5-67



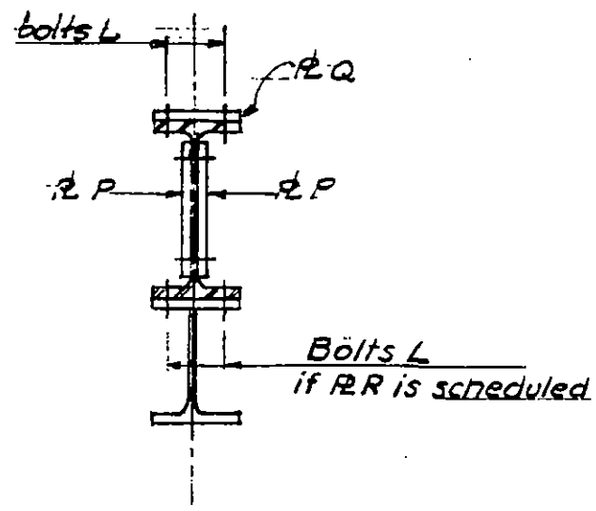
435A, 436A & 439A



Section a-a



431A · 435B. 437A



Section a-a

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G-AB2-90

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 436A, 435A, 435B & 439A 437A 431A | DATE 6-30-67

REVISIONS
3-5-67
10-2-67
10-5-67

	436A	435A	435B	439A	437A	431A
PLATES						
P	5½" x ⅜" x 0'-6"	6" x ⅜" x 0'-9"	⅜"	⅜"	⅜"	⅜"
Q	—	—	½"	—	½"	¾"
R	—	—	—	—	½"	¾"
DIMENSIONS						
A	5½"	0'-9"	—	—	0'-10"	1'-0"
BOLTS						
K	2-¾" ¢ (A325)	3-¾" ¢ (A325)	6-⅞" ¢	6-¾" ¢	—	—
L	—	—	6-⅞" ¢	—	6-1" ¢	6-1⅛" ¢
M	—	—	—	—	5-¾" ¢	8-¾" ¢

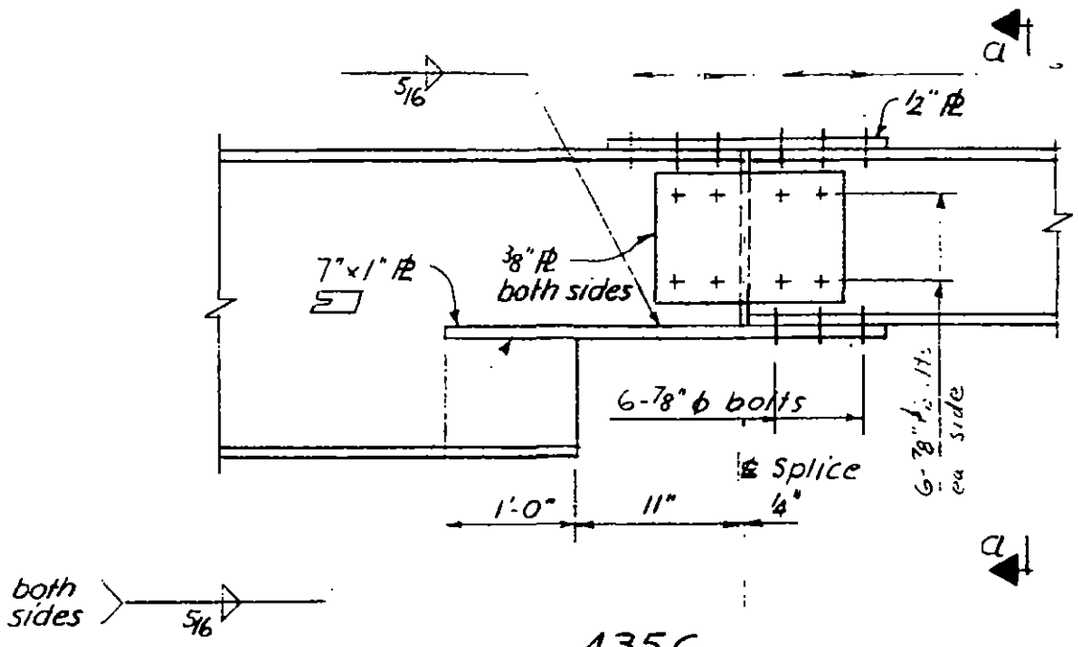
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G-AB2-90.1

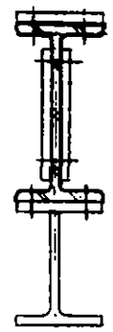
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE DETAIL 435C | DATE 12-21-67

REVISIONS



435C



Section a-a

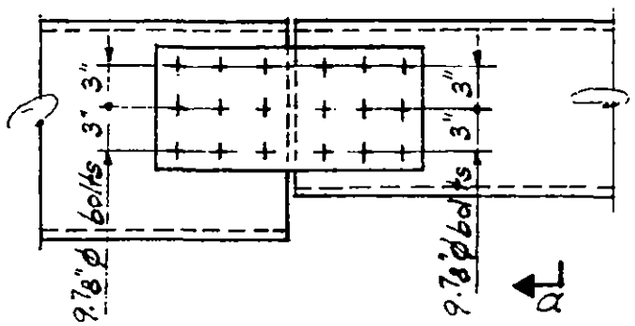
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6-AB2-90.2

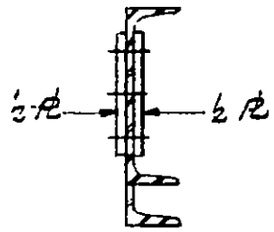
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE CONNECTION 440A, 441A, 442A, 443A | DATE 9-15-67

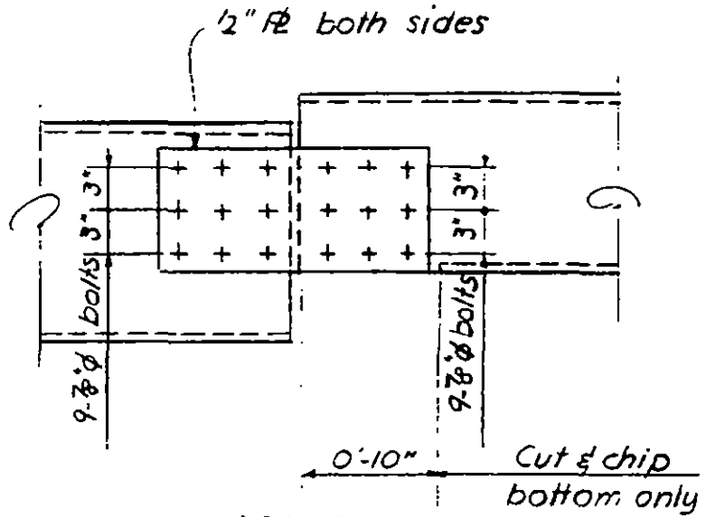
REVISIONS
10-5-67
11-17-67



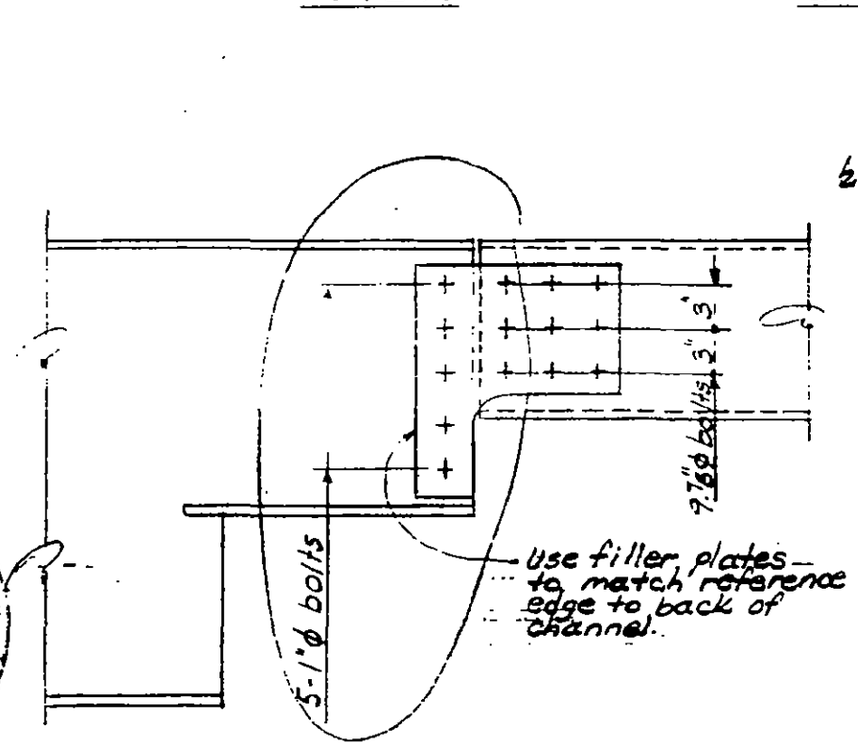
442 A



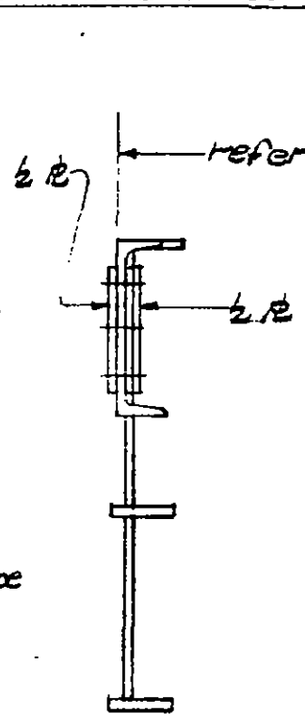
Section a-a

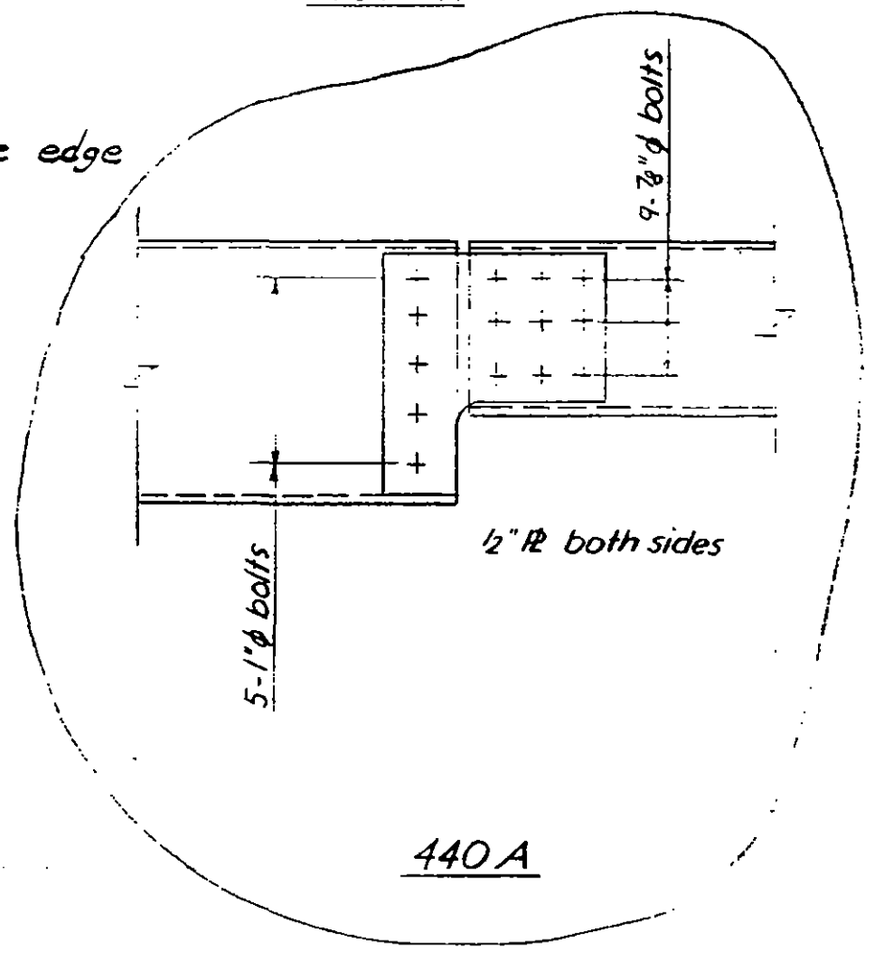


441 A



443 A





440 A

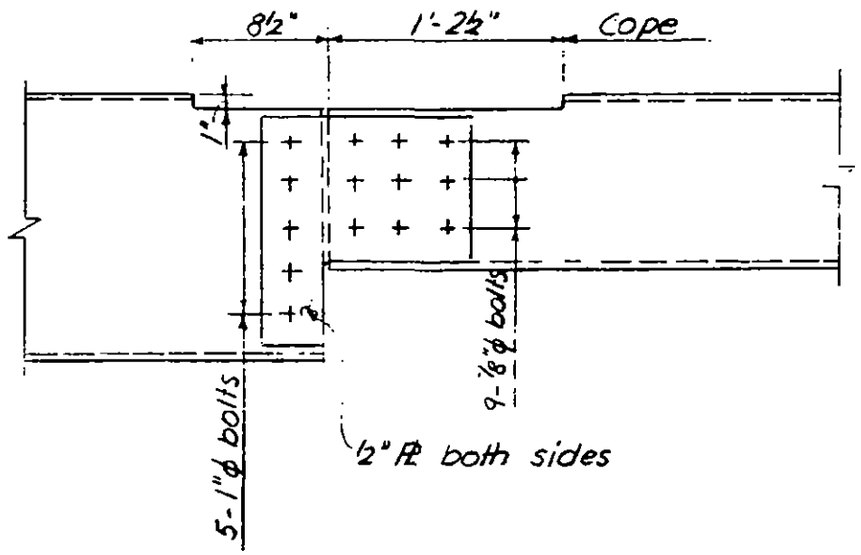
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-91

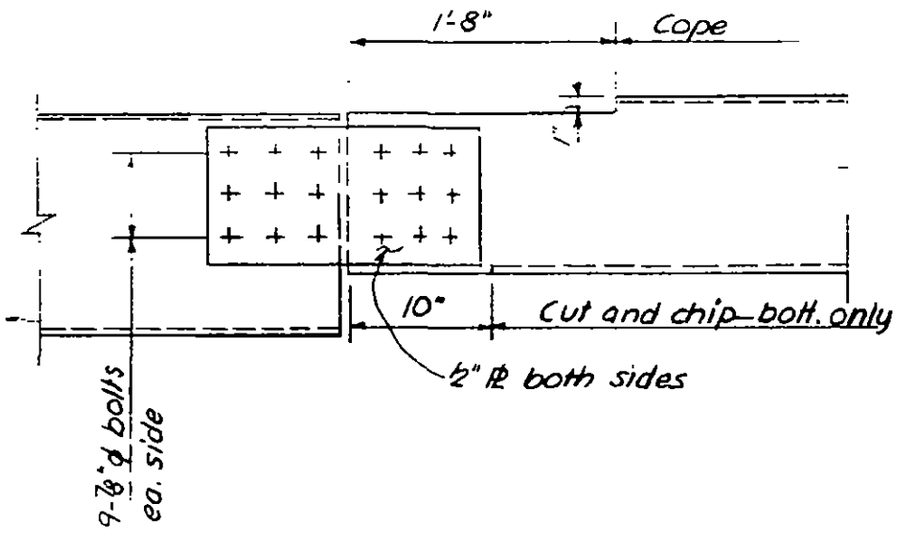
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SPLICE CONNECTION DETAIL 440B, 441B | DATE 11-17-67

REVISIONS



Detail 440B



Detail 441B

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No. 34560
UNIVERSITY OF THE STATE OF NEW YORK

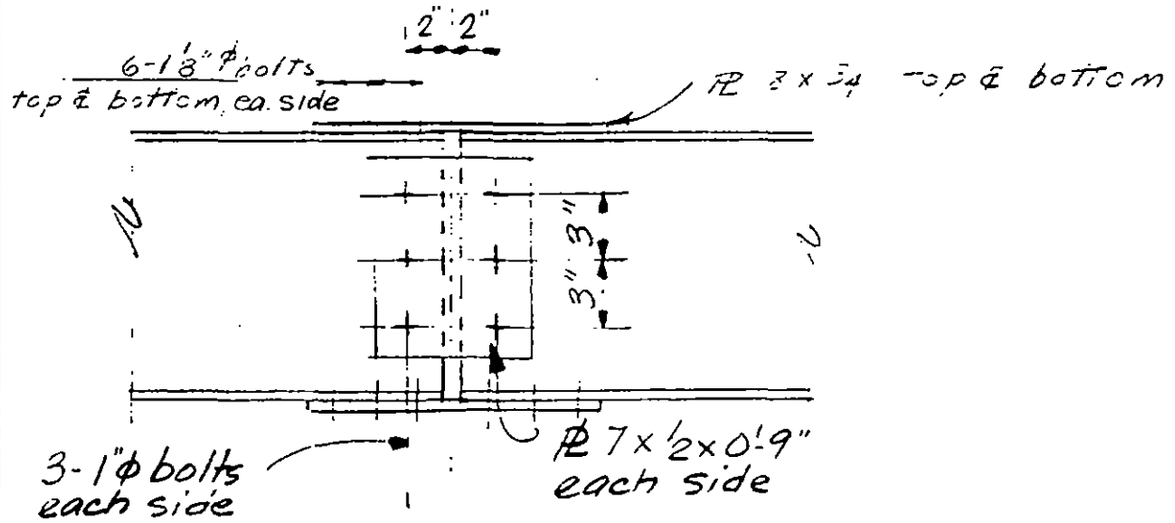
6-AB2-91.1

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 445 A | DATE 7-5-67

REVISIONS

8-5-67



DETAIL 445 A



6-AB2-92

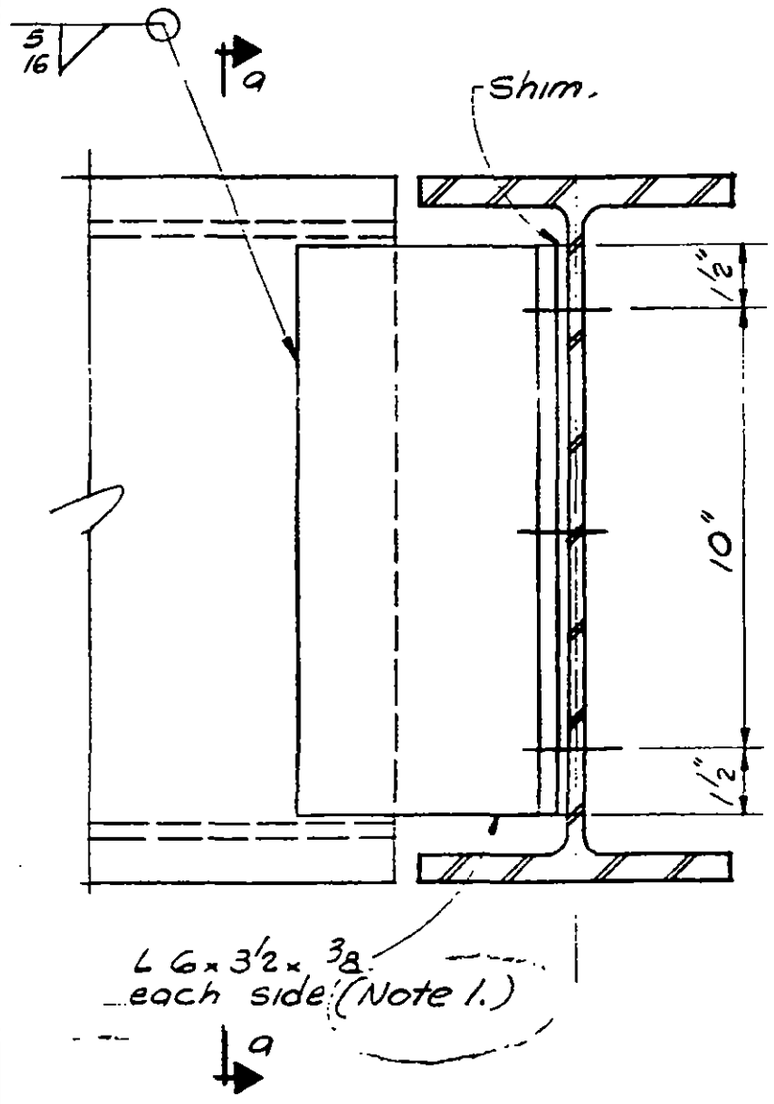
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

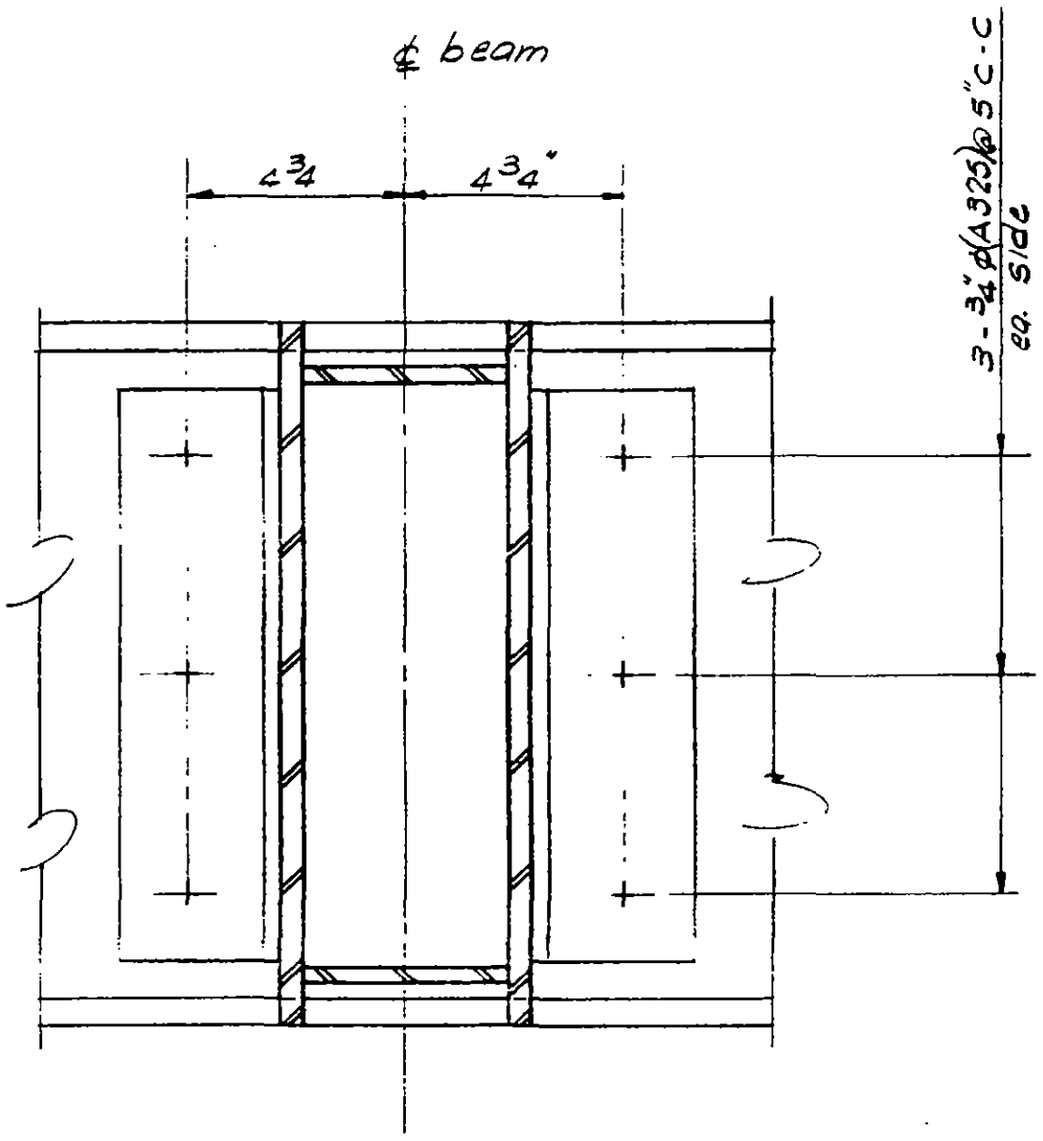
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 450 & 464 | DATE: 5-1-67

REVISIONS

6-30-67

8-5-67





SECTION a-a

Note 1. These angles are modified where detail 175 B is sheduled for far side of beam. (See 6-AB2-77)

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No. 34360
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6-AB2-101

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

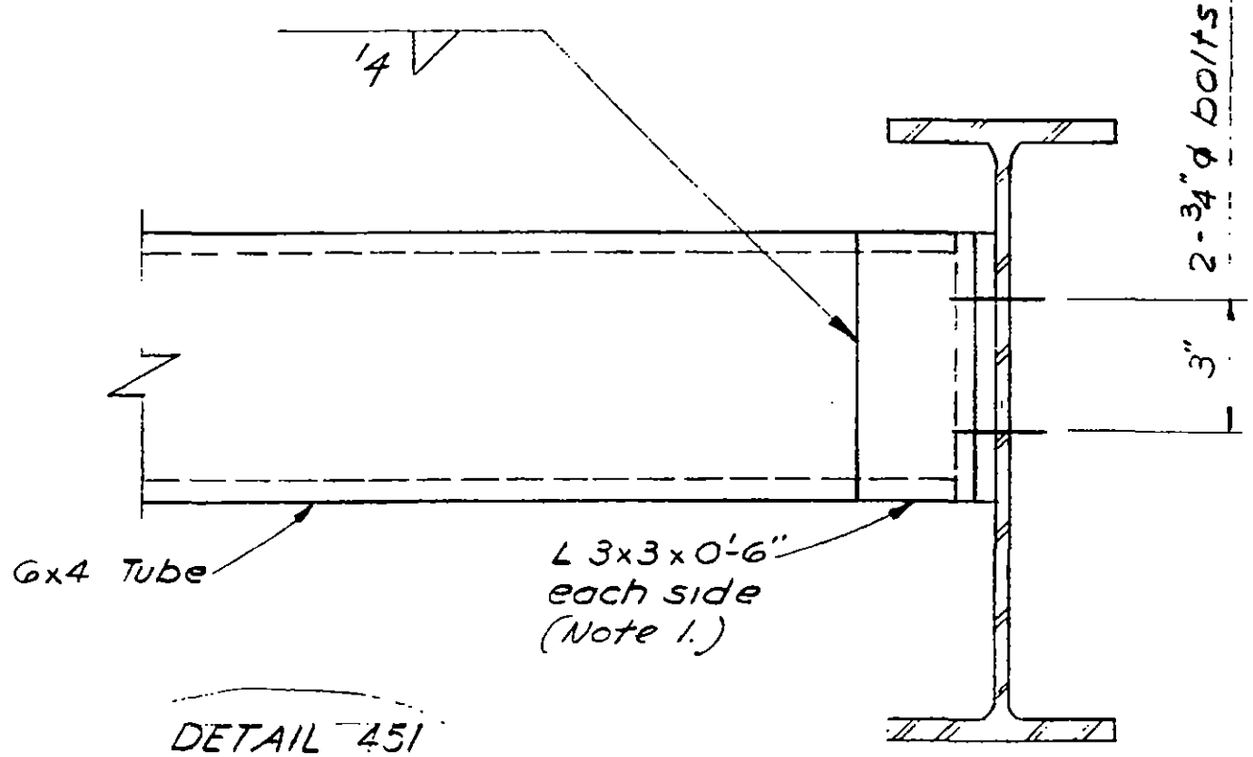
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 451, 451A | DATE: 5-1-67

REVISIONS

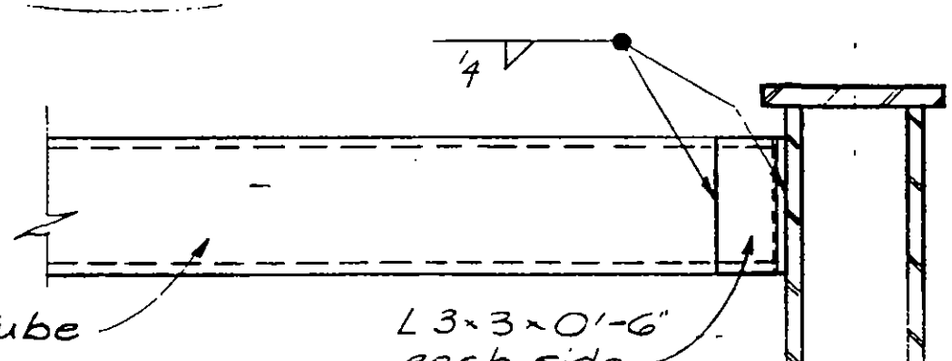
6-19-67

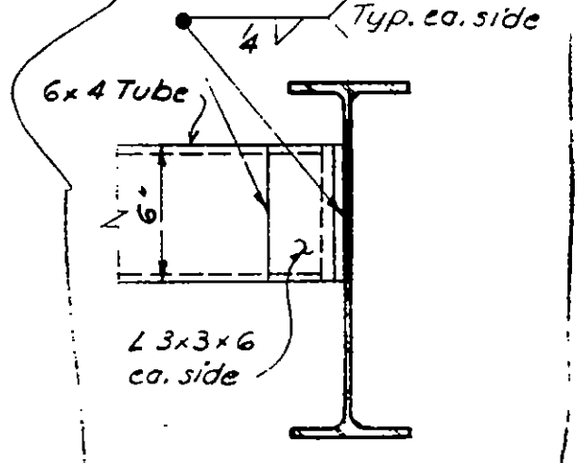
8-5-67

1-10-69



DETAIL 451





DETAIL 451A

Note 1. These angles modified where details 174 & 175 are scheduled for far side of beam. (See 6-AB2-76 & 77)

DETAIL 451

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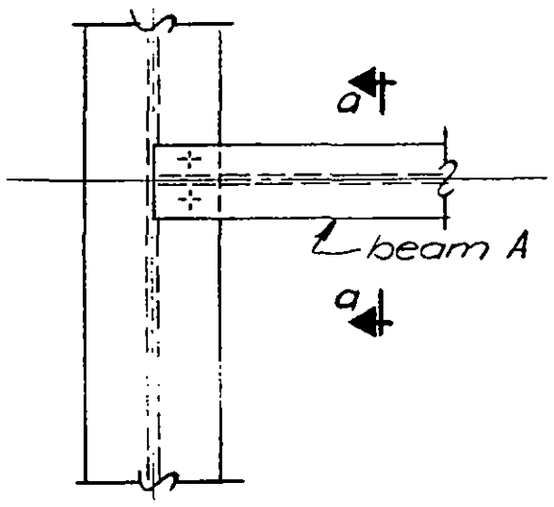
6-AB2-102

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

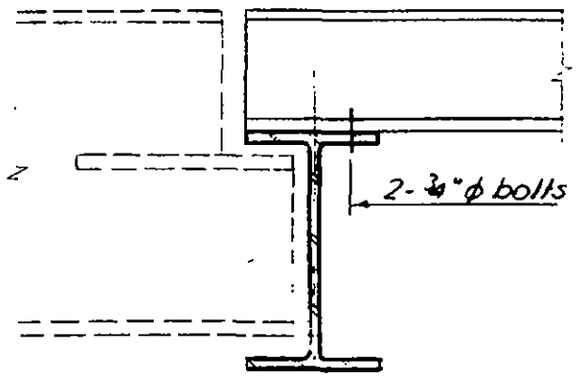
PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAIL 452 A, B, C	5-9-67

REVISIONS

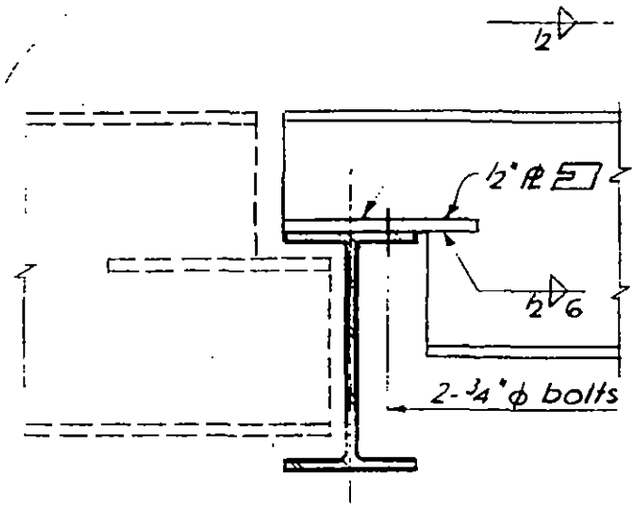
- 9-2-67
- 10-31-67
- 3-11-68
- 5-7-68



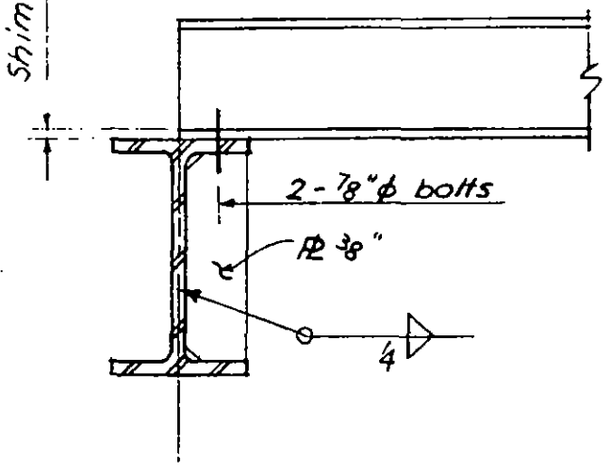
PLAN



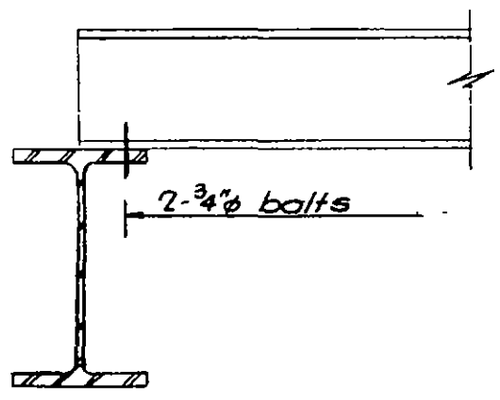
452 B only



452 C



Section a-a beam A-16 WF



Section a-a beam A-8B

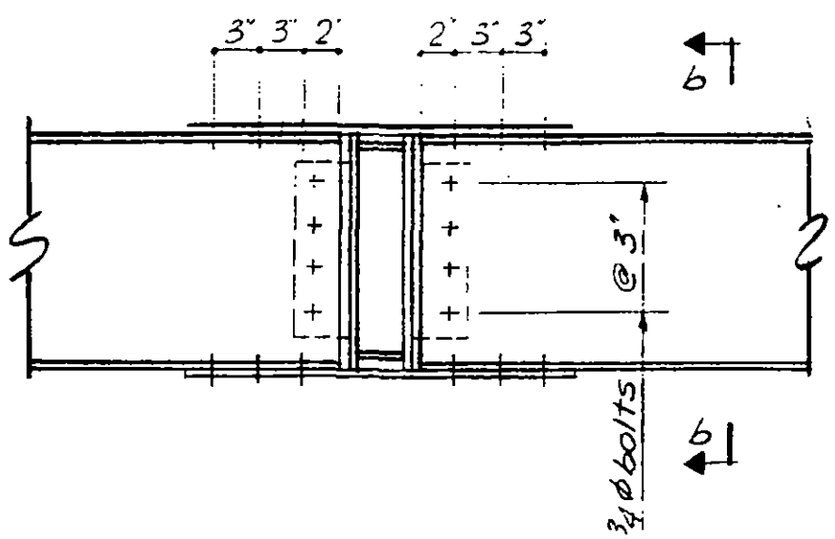
PROFESSIONAL ENGINEER
L. ROBERTSON
No. 34360
STATE OF NEW YORK

G-AB2-103

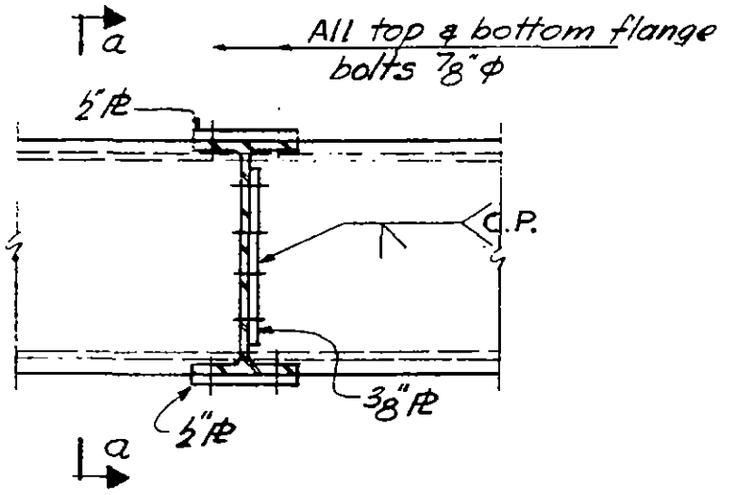
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 453A C | DATE: 6-5-67

REVISIONS
- 9-5-67
- 10-2-67

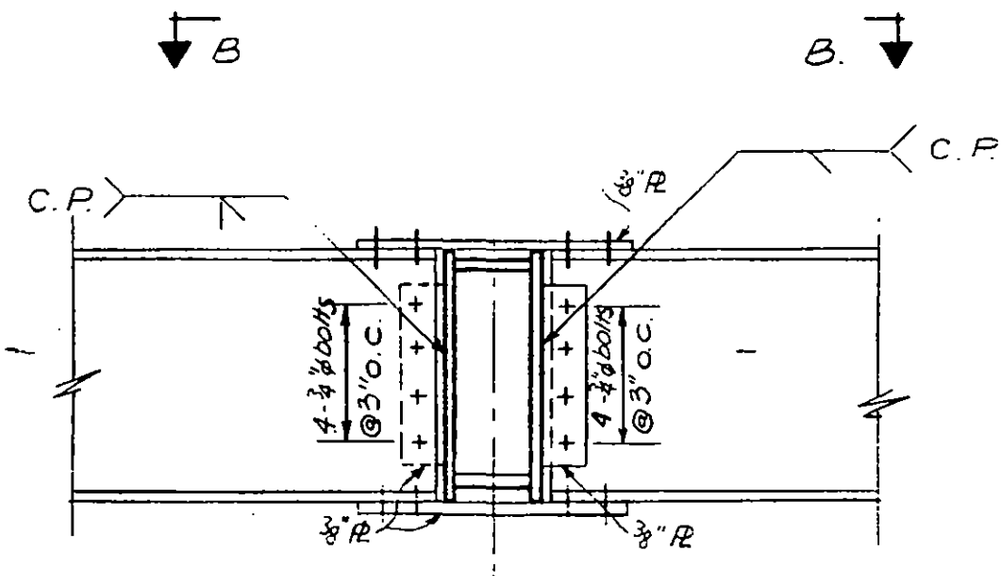


Section a-a



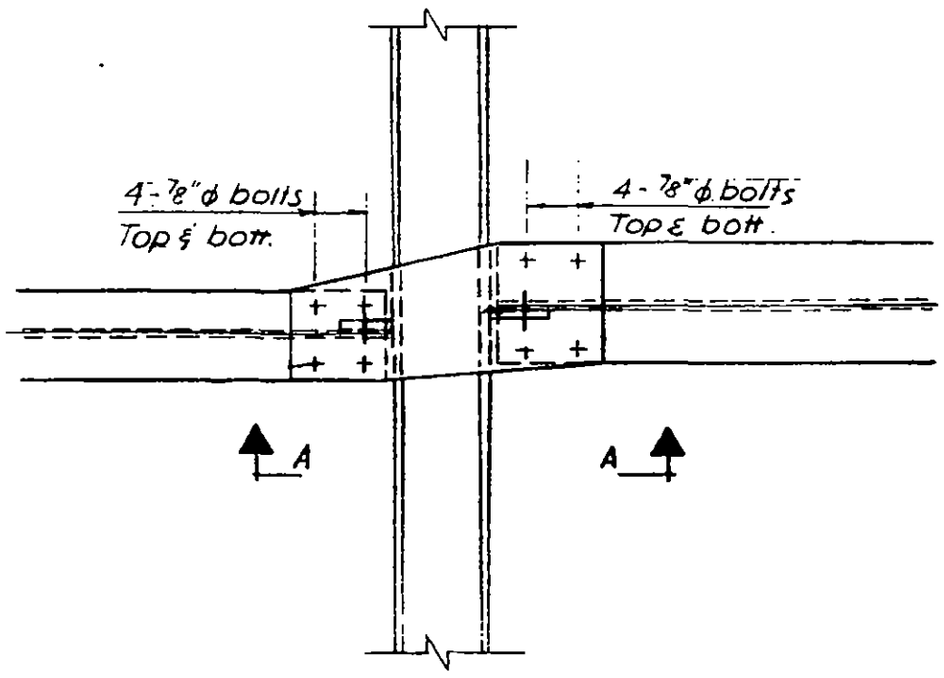
Section b-b

453 A



Section A - A

453 C



Section B-B

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6-AB2-104

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

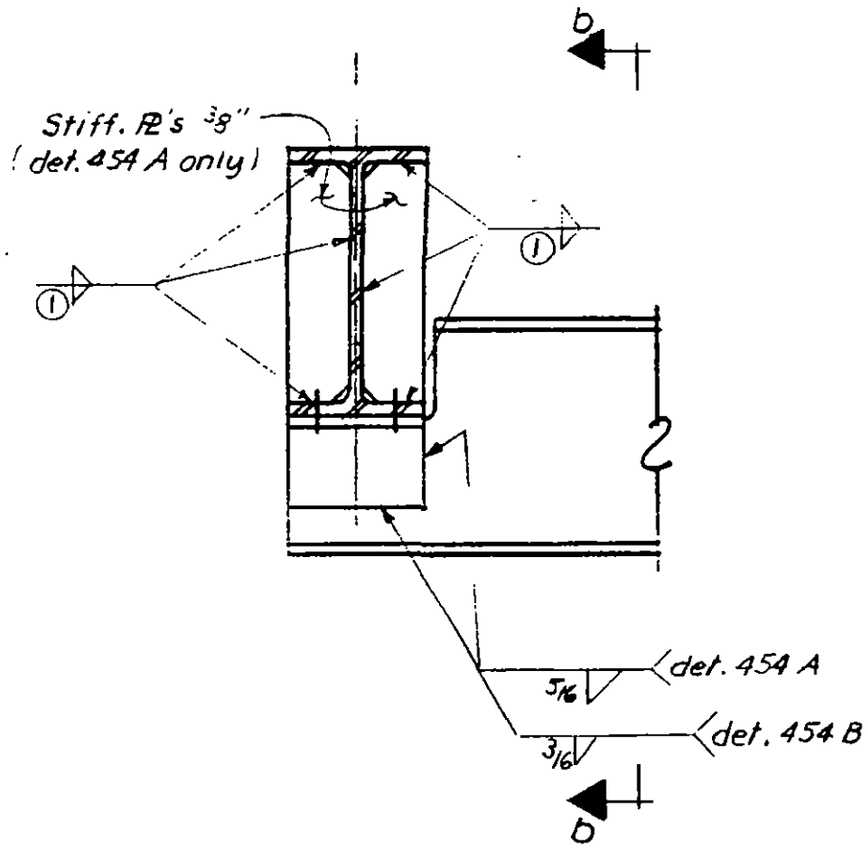
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL ⌐54 A, B, C | DATE: 6-5-67

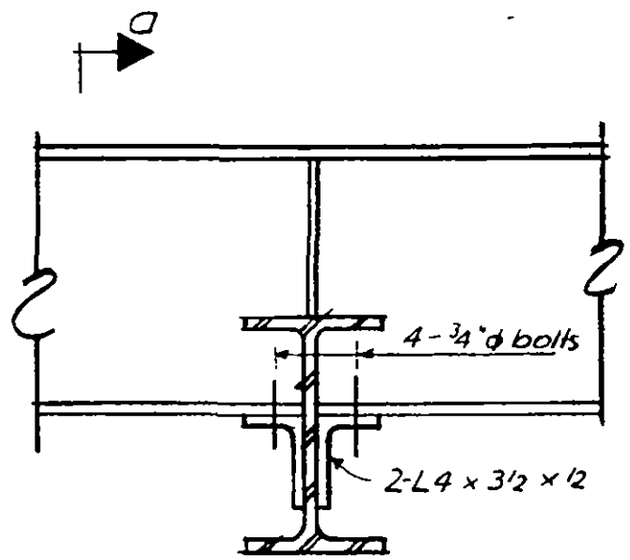
REVISIONS

10-2-67

12-21-67

1-24-68

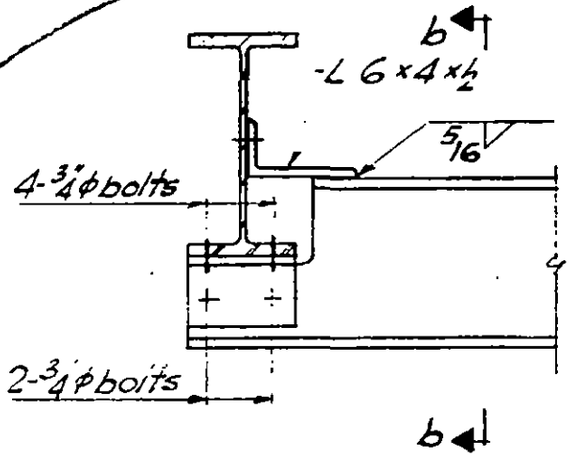


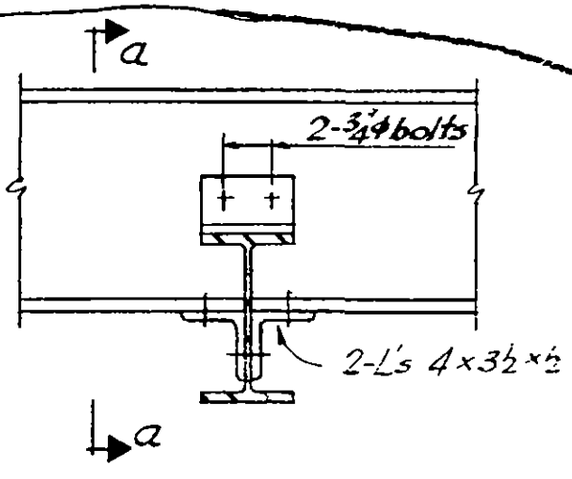


Section a-a

454 A & B

Section b-b





Section a-a

454 C

Section b-b

6-AB2-105

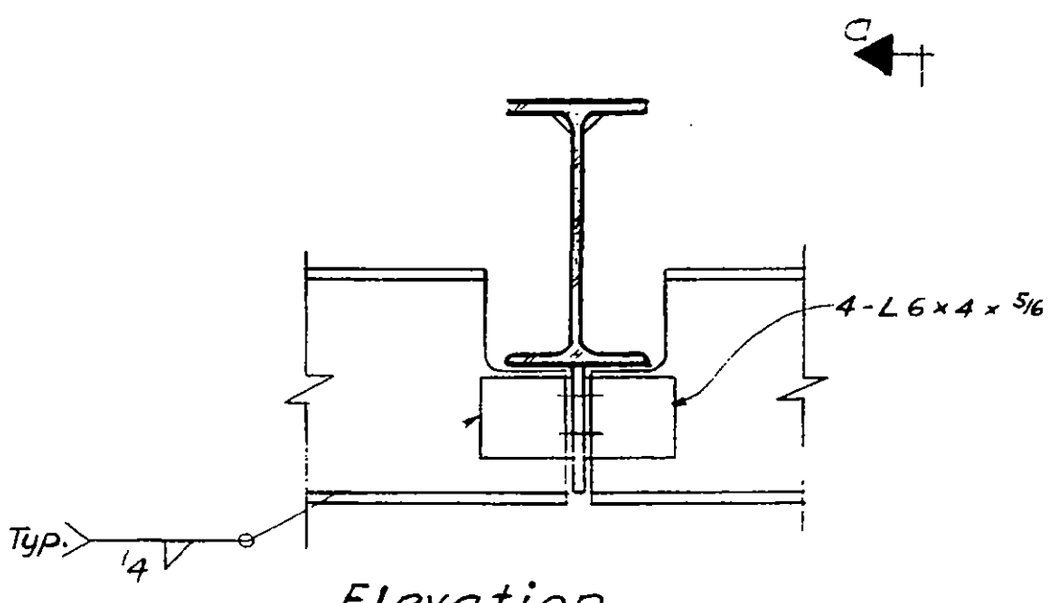
LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

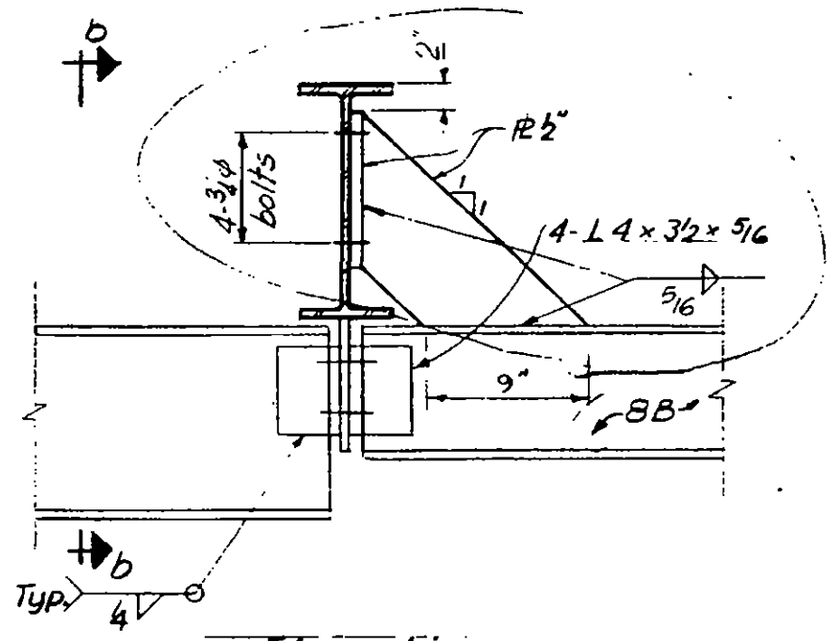
PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAIL 455 A, B	6-5-67

REVISIONS

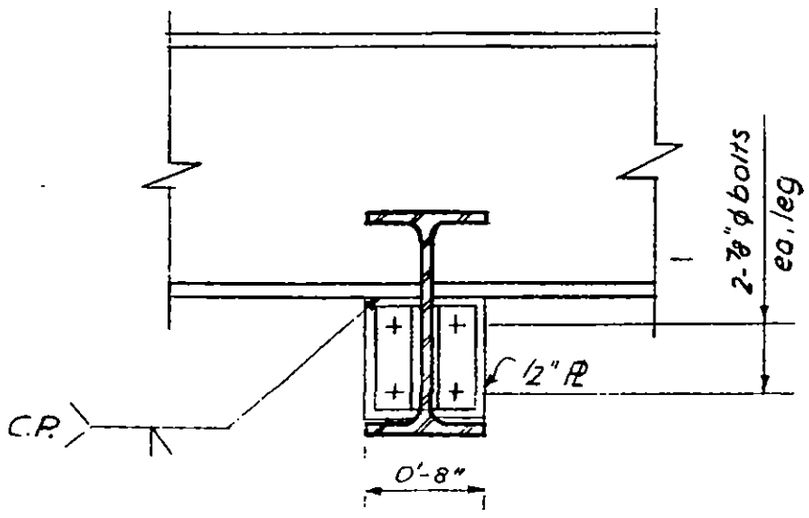
- 10-2-67
- 11-23-67
- 1-24-68



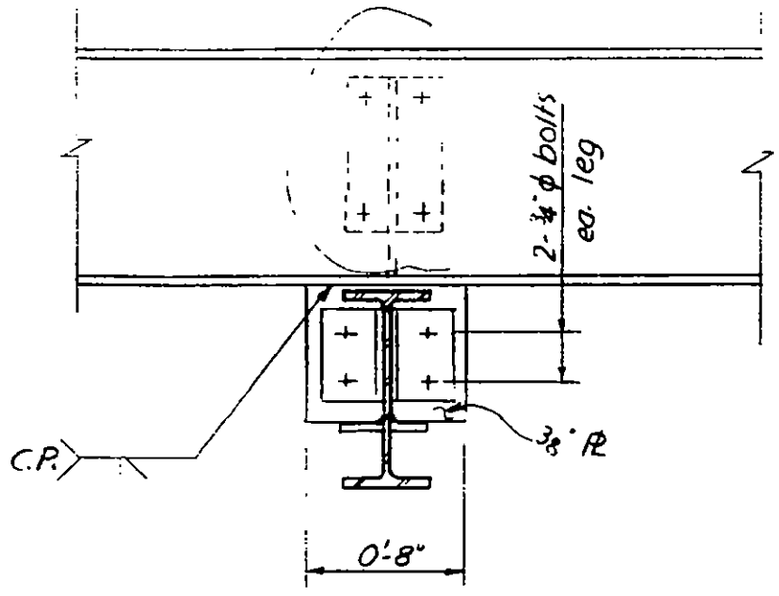
Elevation
Detail 455 A



Elevation
Detail 455 B



Section a-a



Section b-b

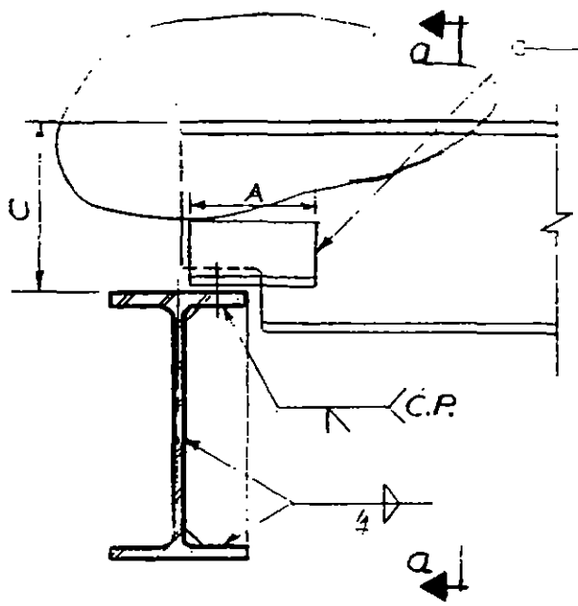
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-106

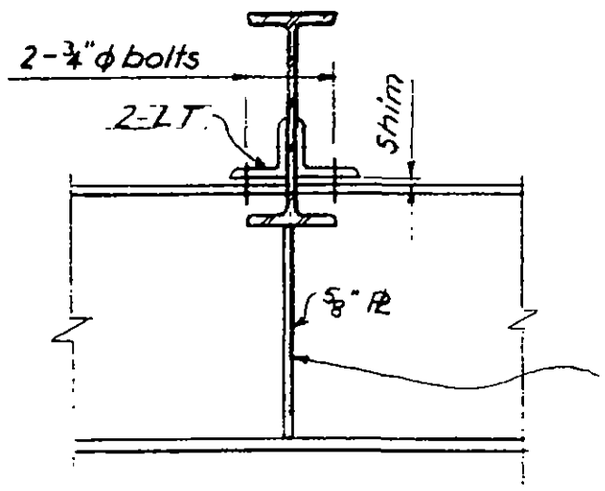
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 456 A,B | DATE 5-9-67

REVISIONS
- 8-5-67
- 10-2-67
- 2-21-68



Elevation

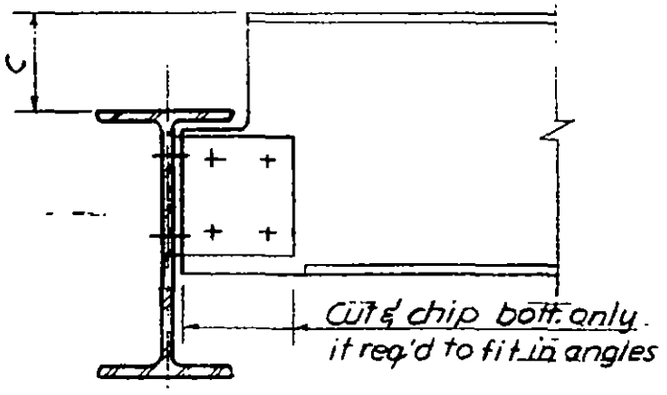


Section a-a

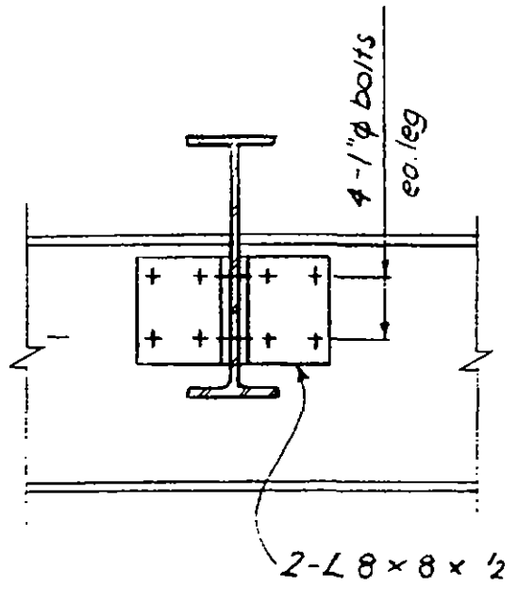
SCHEDULE			
DETAIL	L T	DIM. A	WELD①
456A	4×4×½×0'-6"	0'-6"	⅜
456B	4×4×9/16×0'-10"	0'-9"	5/16

Disregard stiffener if supported.
Beam is a light beam (B).

Detail 456 A & B (C ≥ 8")



Elevation



Section a-a

Detail 456 B (C < 8")

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6-AB2-107

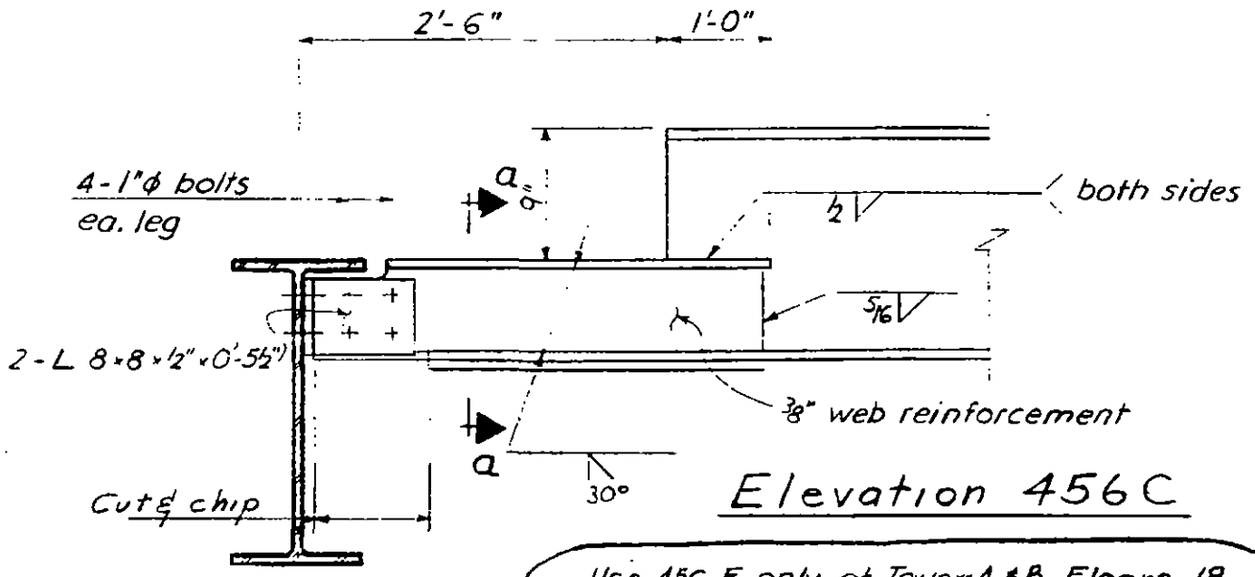
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 456 C.D.E | DATE 11-17-67

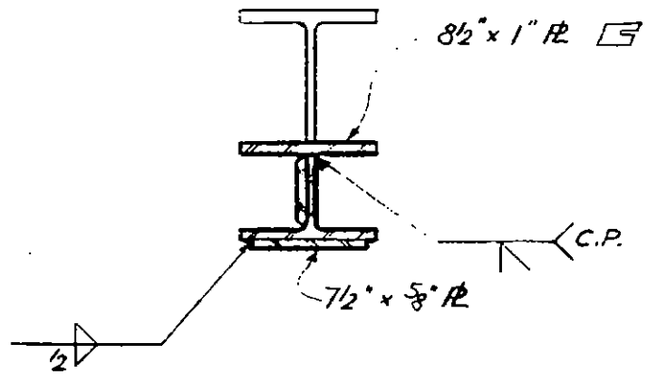
REVISIONS

12-4-67

10-9-68

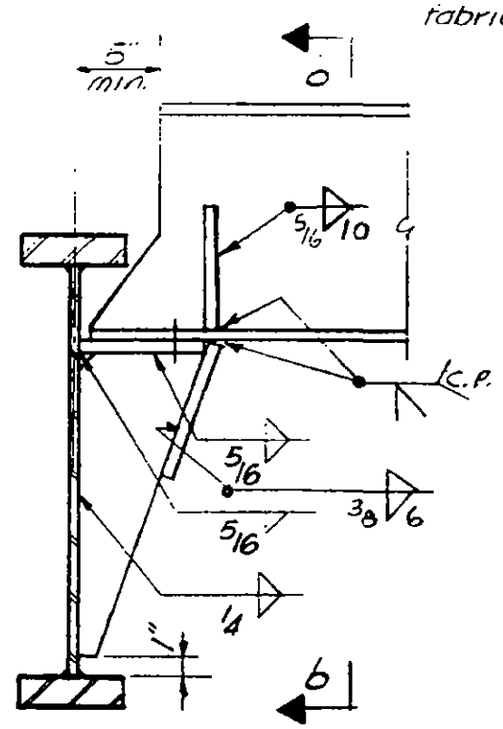


Elevation 456C

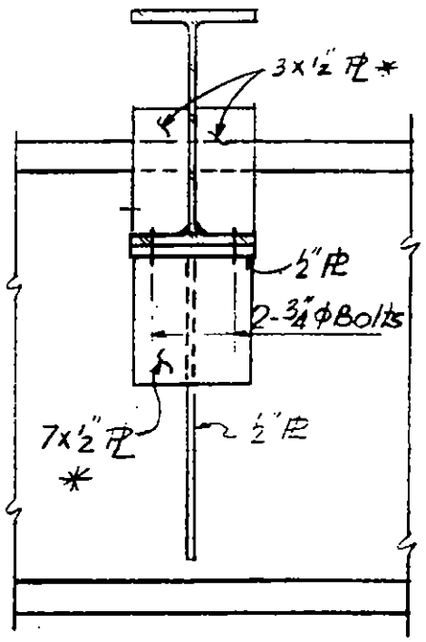


Section a-a

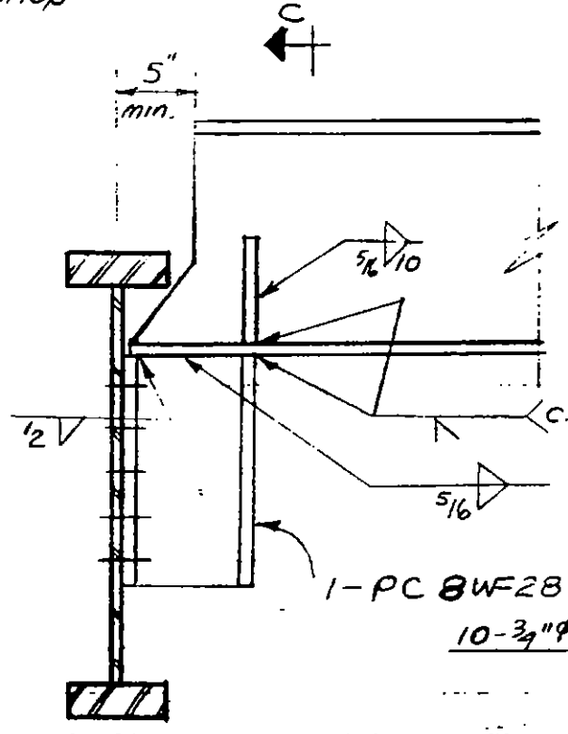
Use 456 E only at Towers A & B, Floors 18, 26, 34, and Tower A floor 56. Plates marked (*) are Revisions after Fabrication, fild installed. All others materials shop fabricated.



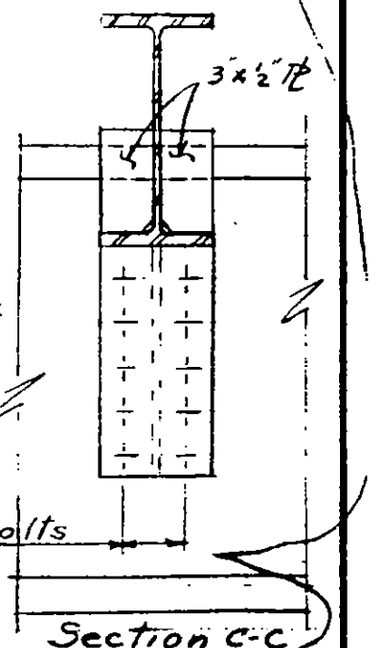
Elevation (456E)



Section b-b



Elevation 456 D



Section c-c

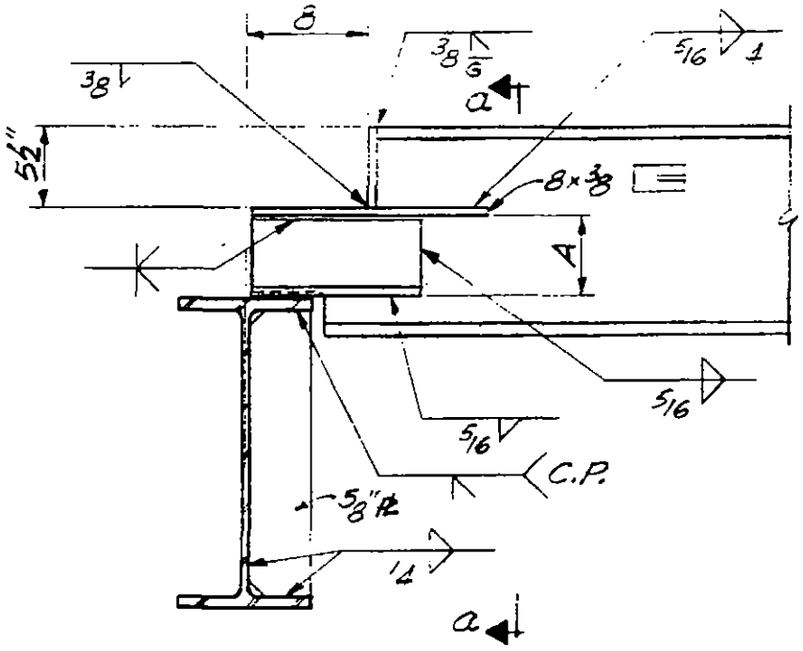
6-AB2-107.1

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. [illegible]
UNIVERSITY OF THE STATE OF NEW YORK

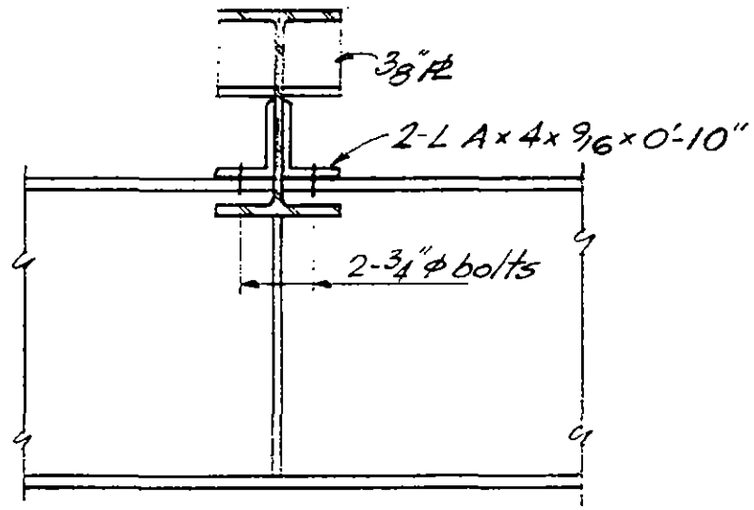
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 456 F G | DATE 9-25-68

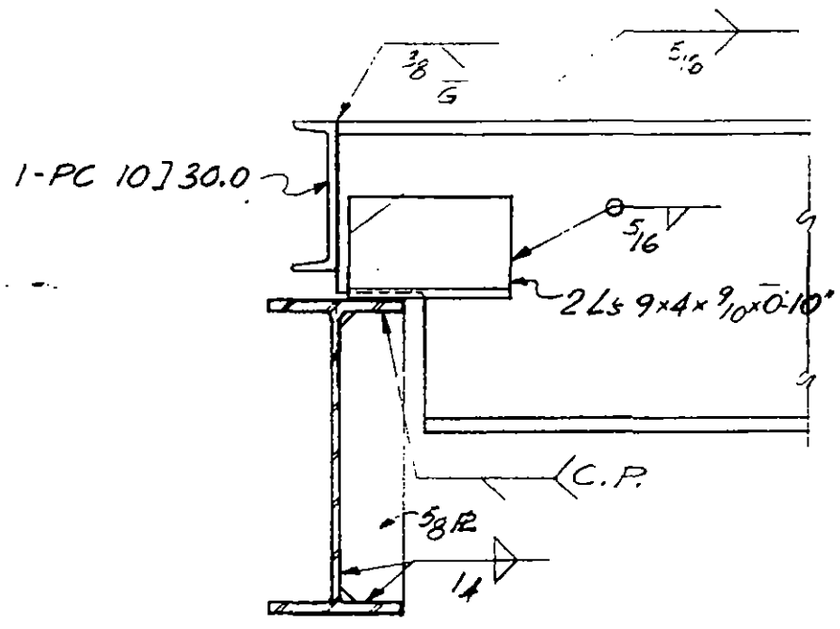
REVISIONS



ELEVATION 456 F



Section a-a



ELEVATION 456 G

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

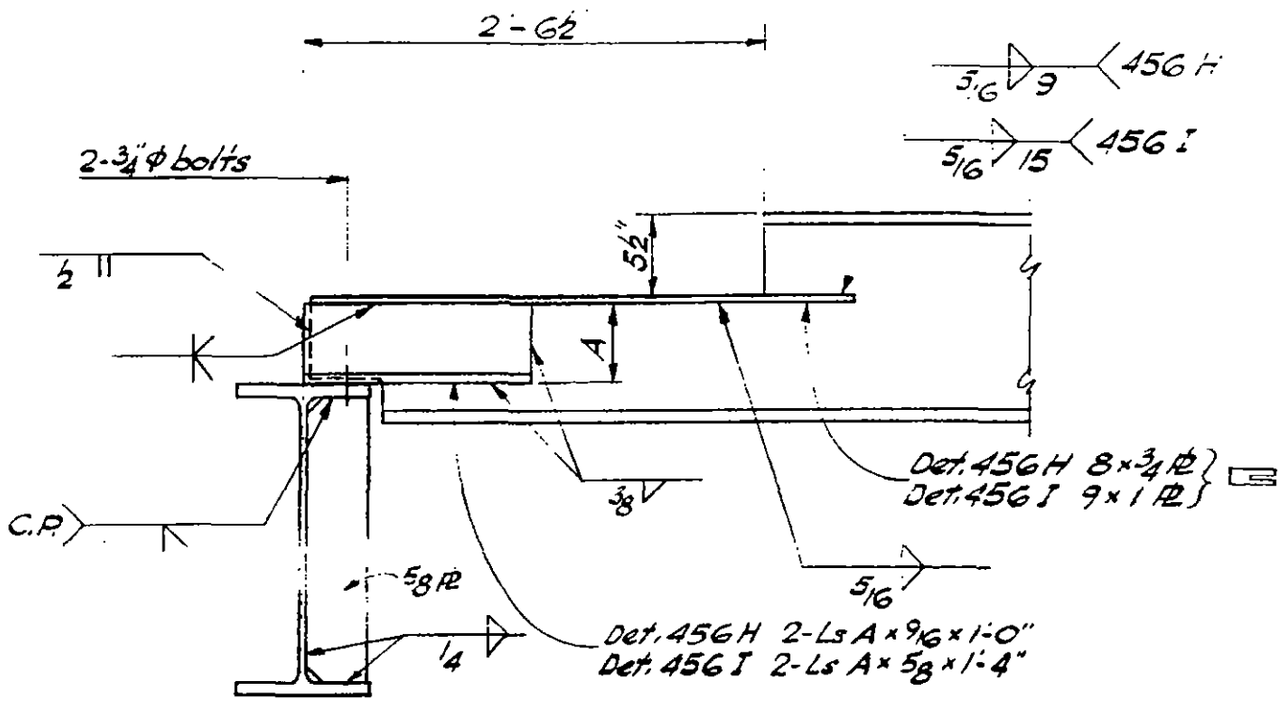
REVIEWED

6-AB2-107.2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

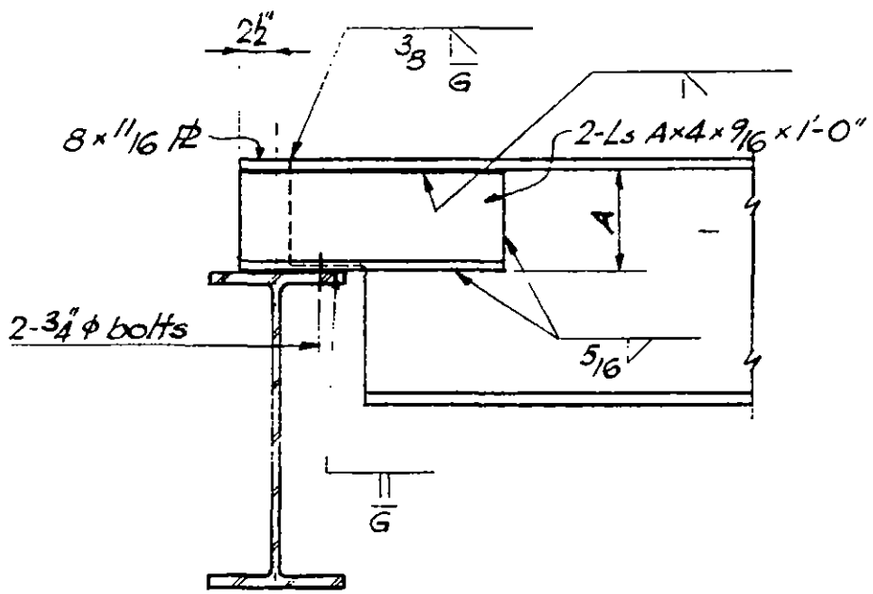
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 456 H I J | DATE 9-25-68

REVISIONS



456 H

456 I



456 J

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

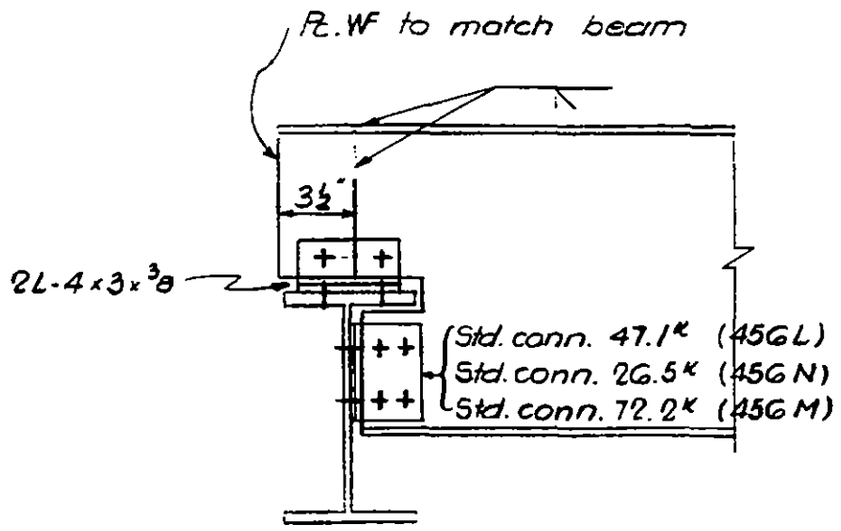
REVIEWED

6-AB2-107.3

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL 45G L, M, N | DATE: 9-25-68

REVISIONS



Detail 45G L, M, N

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

G.T.H.

REVIEWED

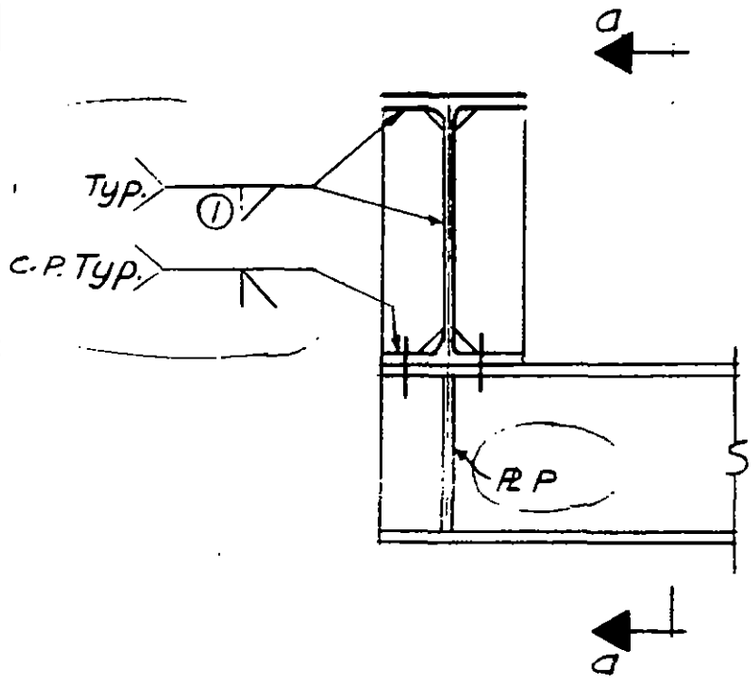
G-AB2-107.4

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

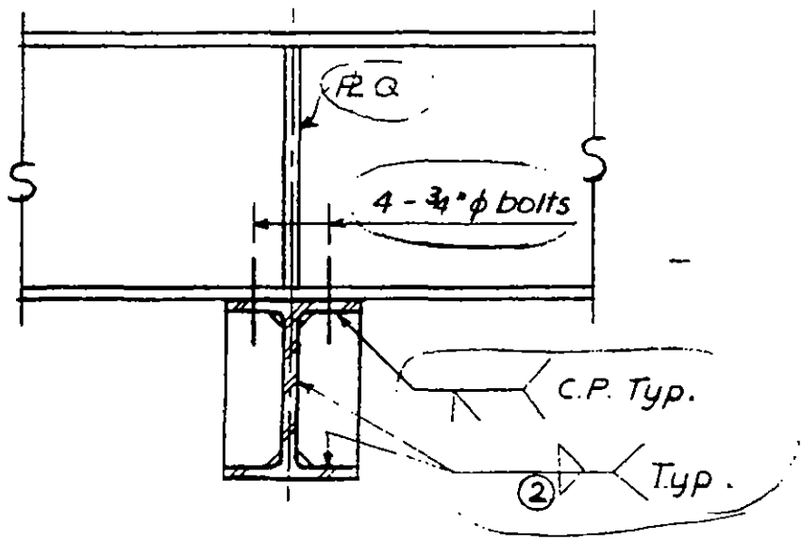
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 457 A | DATE: 6-5-67

REVISIONS

8-14-67



SCHEDULE	
PLATES	
P	3/8"
Q	3/8"
WELDS	
①	3/16
②	3/16



Section a-a

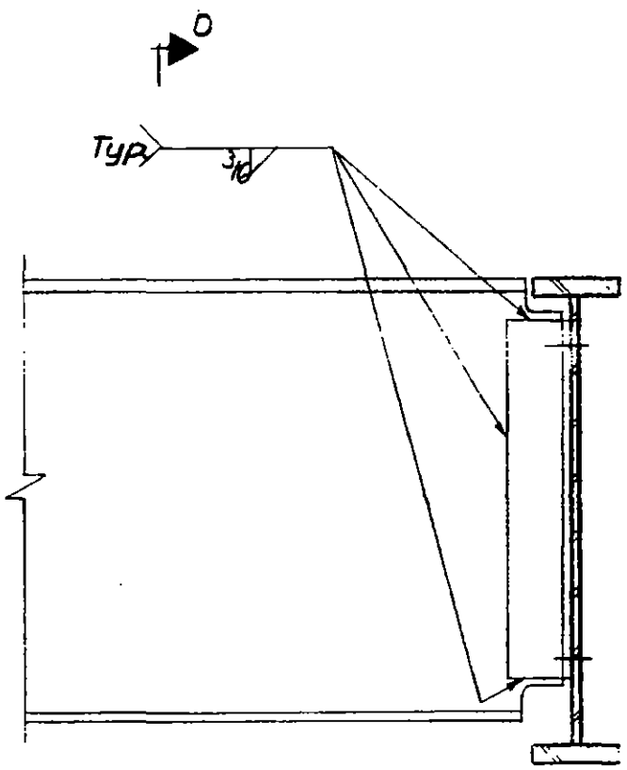
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-108

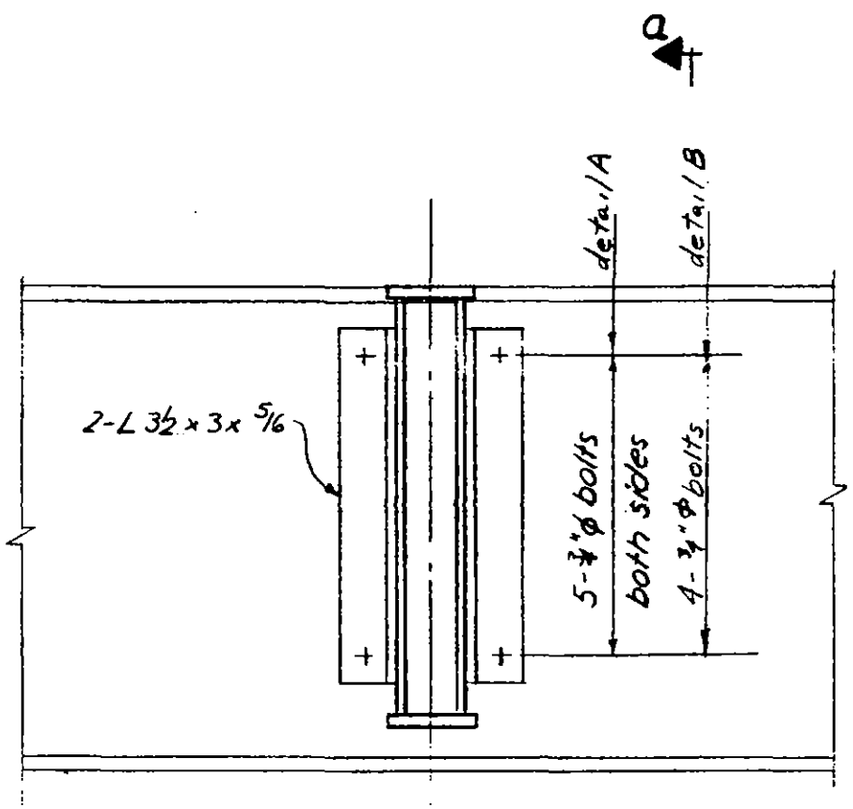
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 458A,B | DATE 12-21-67

REVISIONS



Section a-a



Section b-b

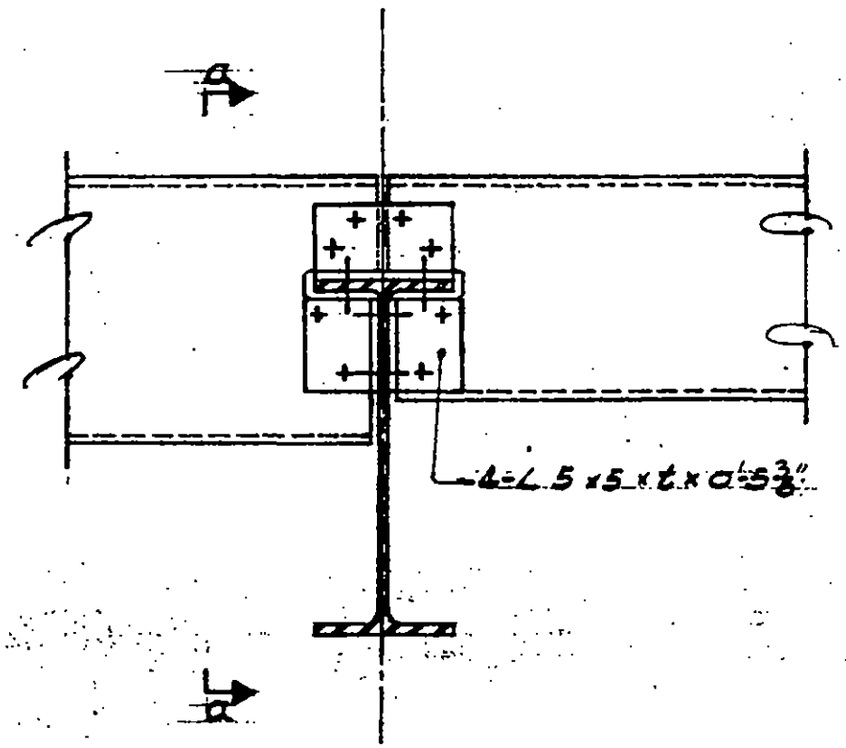
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-109

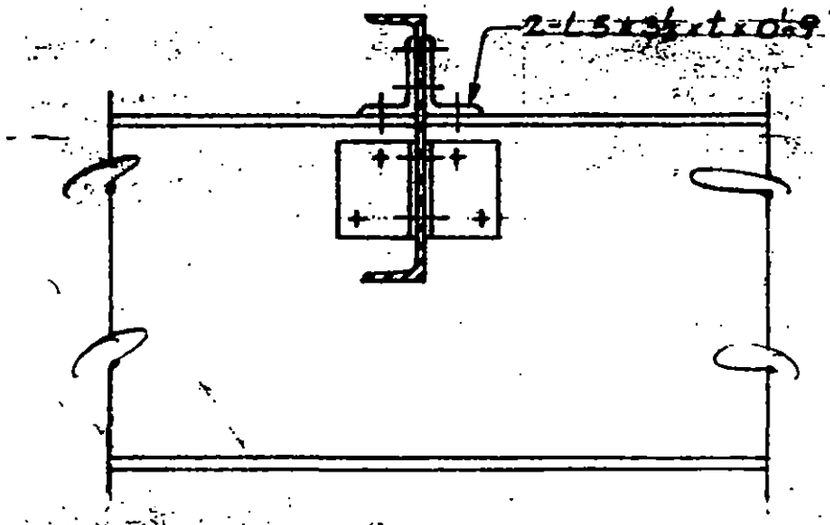
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 459 | DATE 6-5-67

REVISIONS



PLAN



Section a-a

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UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-11

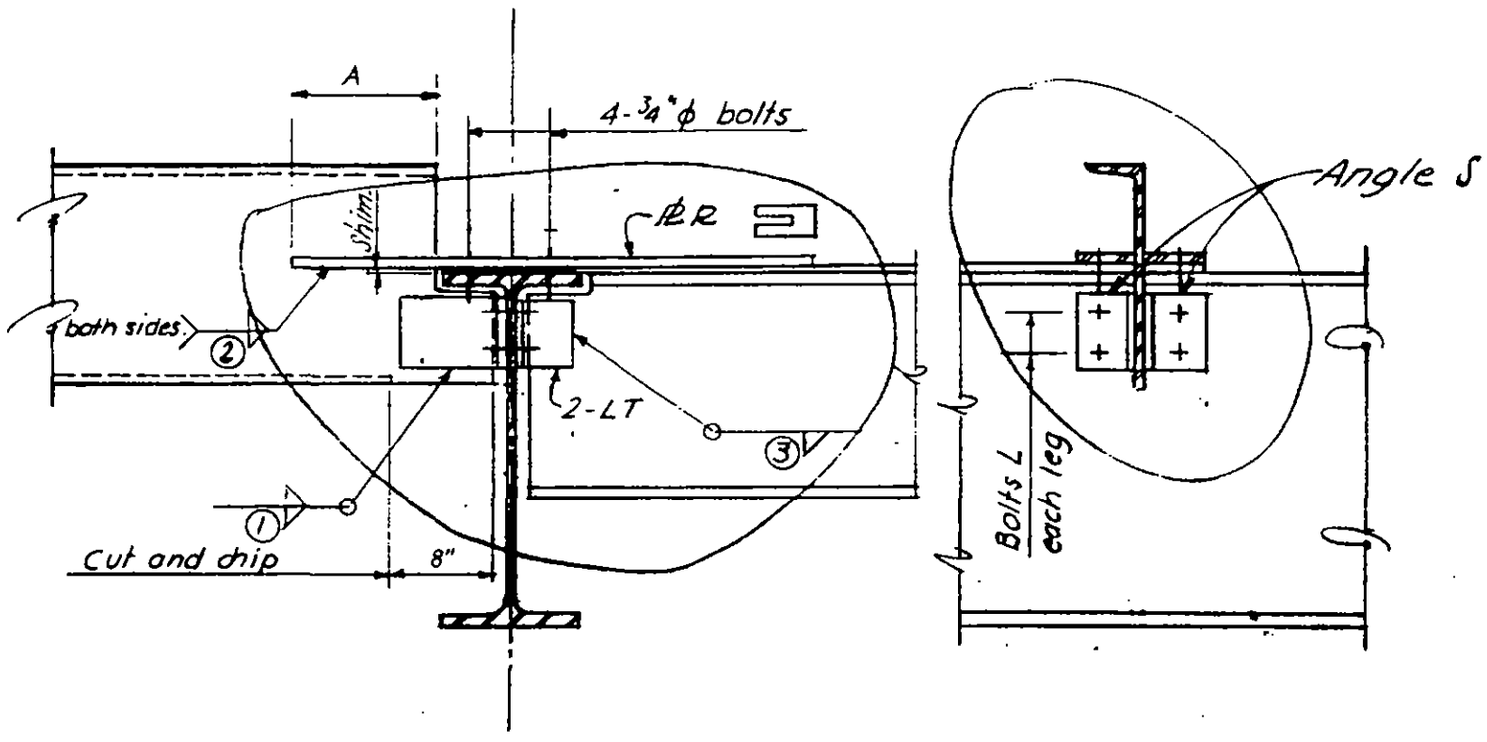
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 460 A | DATE: 6-5-67

REVISIONS

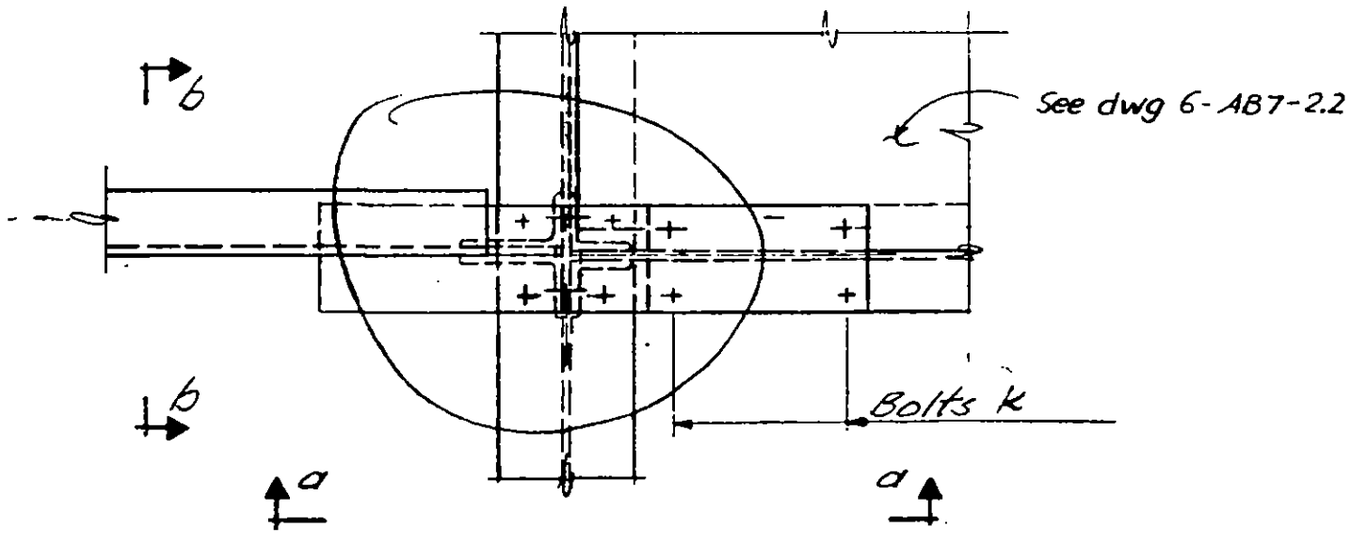
9-15-67

11-10-67



Section a-a

Section b-b



Plan

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UNIVERSITY OF THE STATE OF NEW YORK

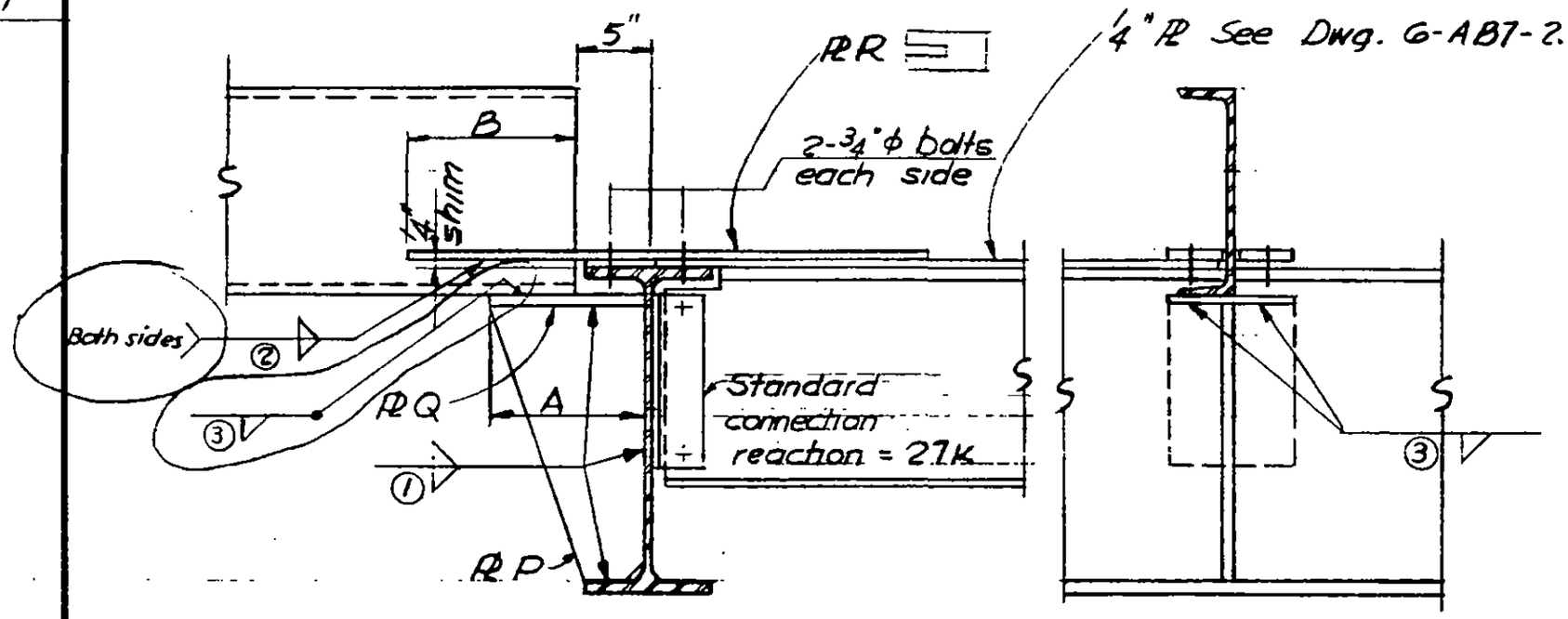
6-AB2-1M

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

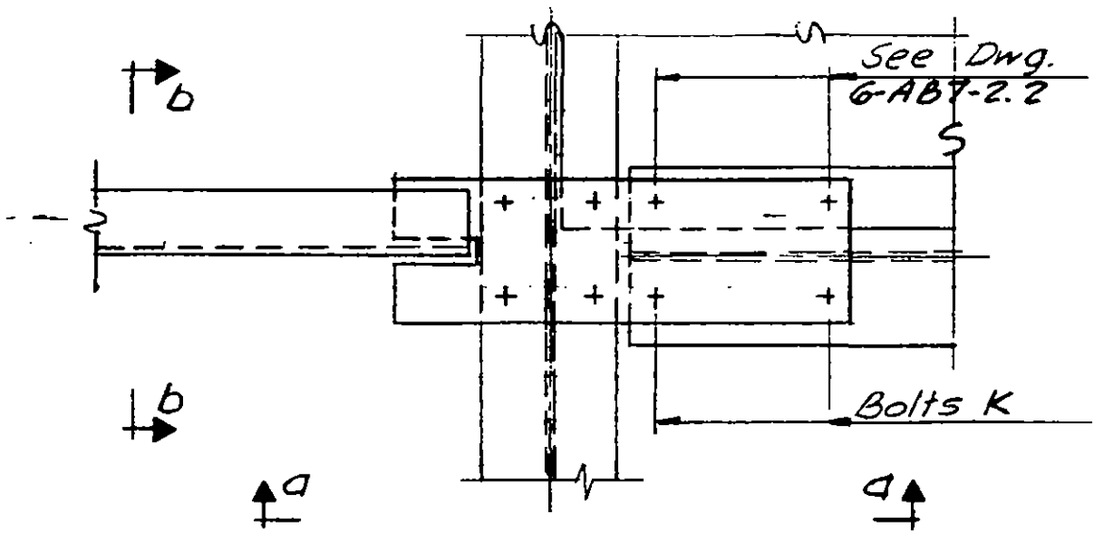
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 460 B | DATE 9-15-67

REVISIONS

11-10-67



Section a-a Section b-b



Plan

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UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-1.1R1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 460 A, B | DATE 9-15-67

REVISIONS

-10-67

	460 A	460 B
PLATES		
P	—	5/8"
Q	—	5/8"
R	6" × 3/4"	1/2"
ANGLES		
S	7 × 4 × 3/8 × 0'-5 1/2"	—
T	4 × 3 1/2 × 3/8 × 0'-5 1/2"	—
DIMENSIONS		
A	0'-6"	0'-11"
B	—	0'-6"
BOLTS		
K	8 - 7/8" ϕ	5 - 1" ϕ
L	2 - 1" ϕ	—
WELDS		
①	7/16	5/16
②	5/16	5/16
③	1/4	3/8

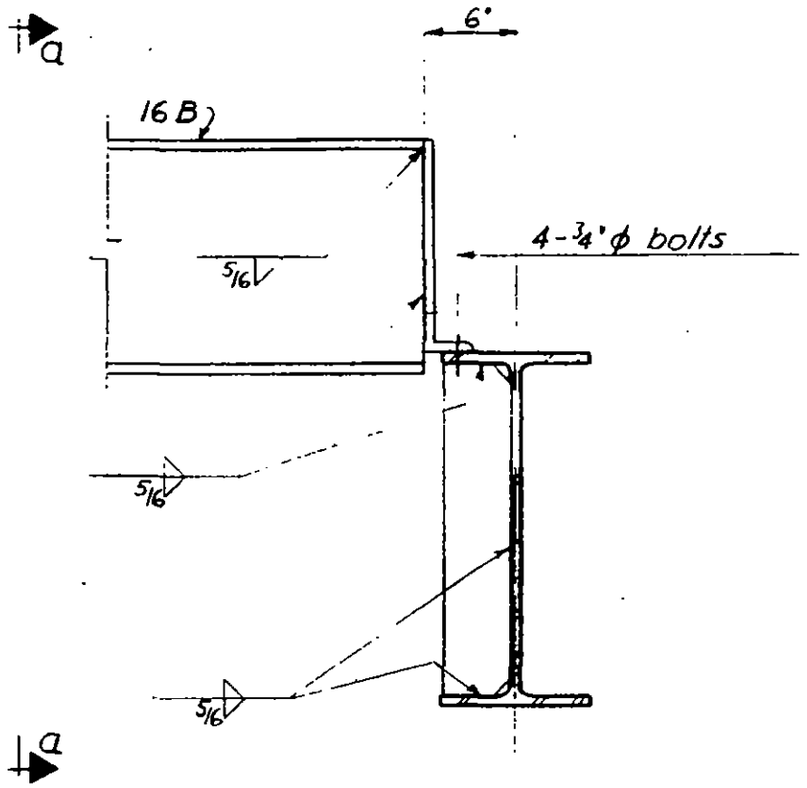
LICENSED PROFESSIONAL ENGINEER
ROBERTSON
No. 34360
STATE OF NEW YORK

G-AB2-111.2

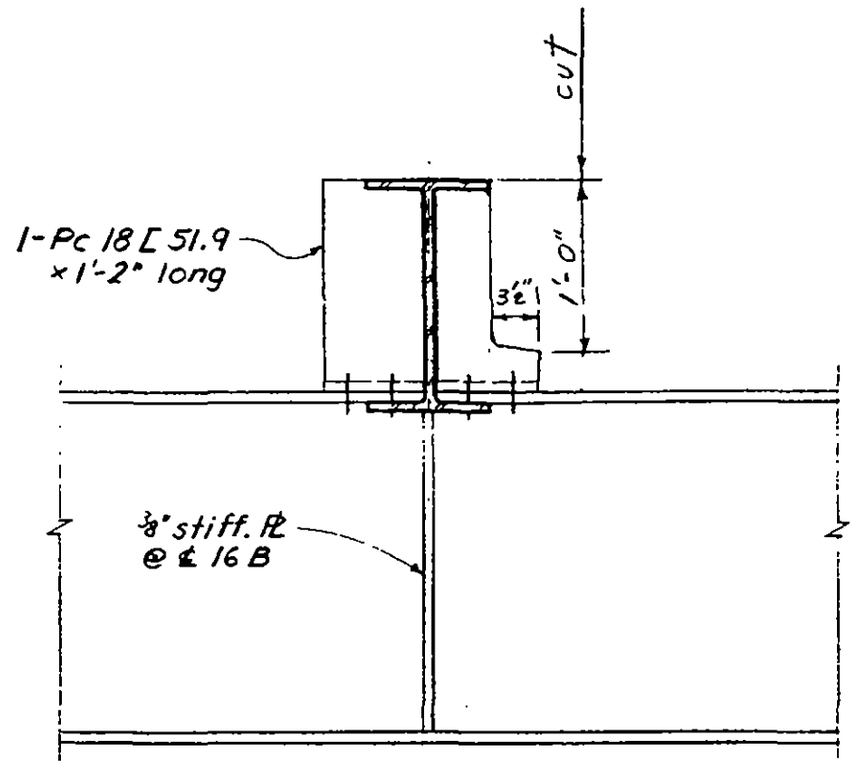
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 462A | DATE 1-24-68

REVISIONS



Elevation



Section a-a

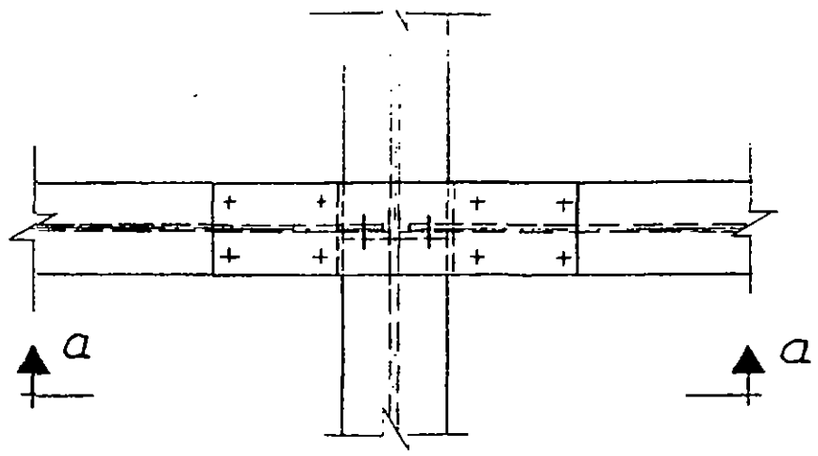


6-AB2-113

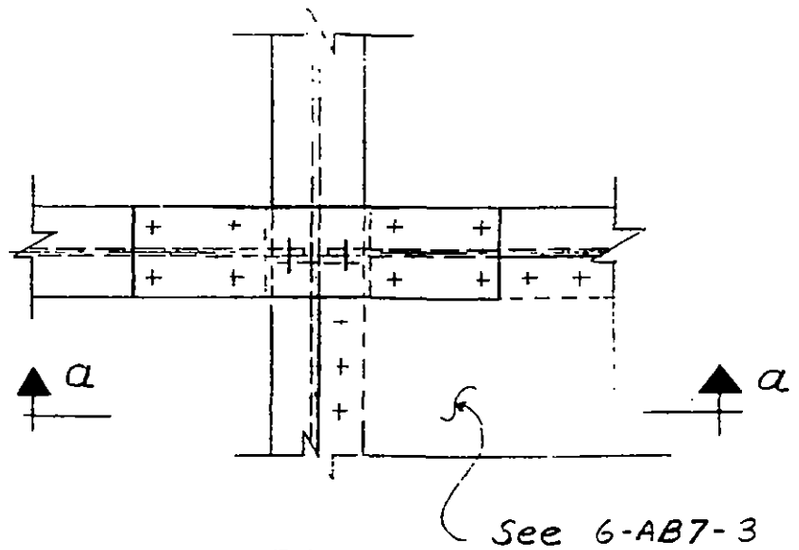
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL #63 A, B | DATE 3-14-67

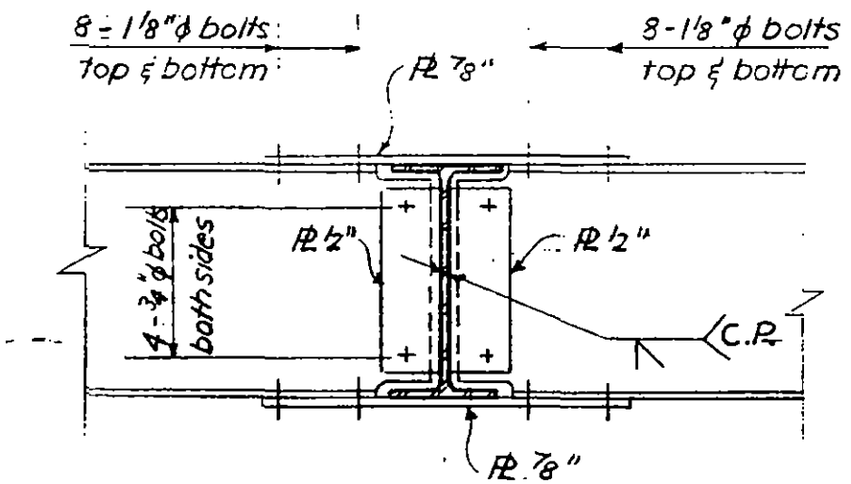
REVISIONS



Plan

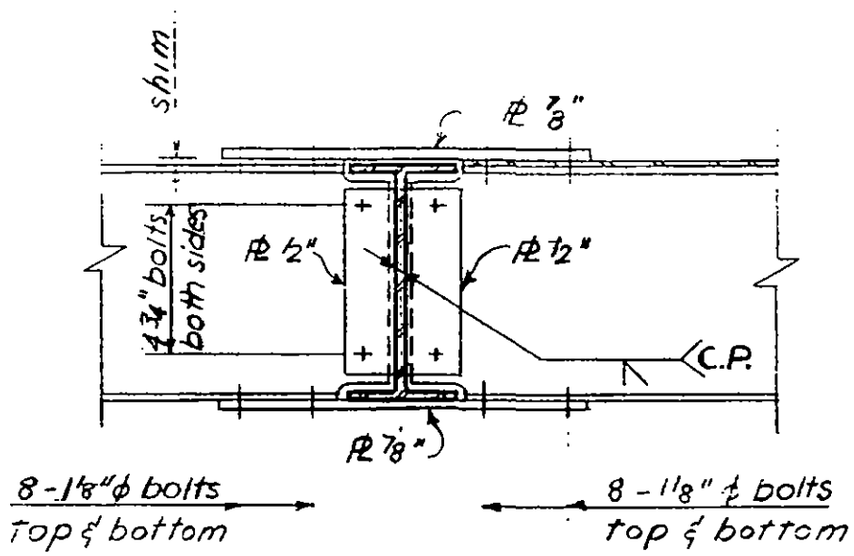


Plan



Section a-a

DETAIL 463 A



Section a-a

DETAIL 463 B

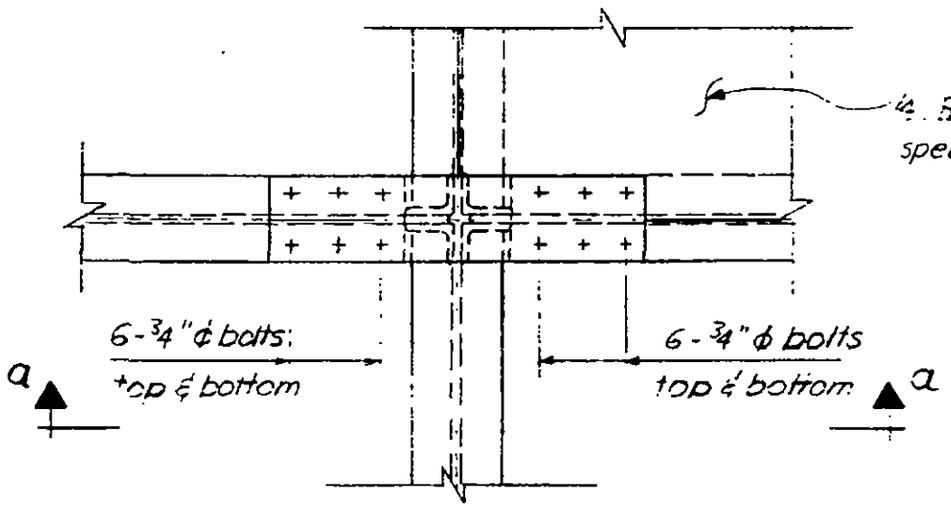
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-114

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

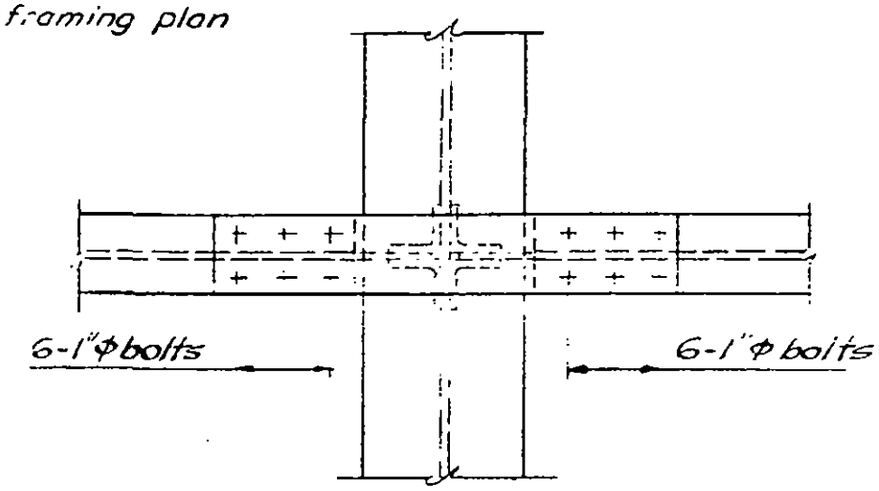
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 463 C, E & F | DATE 9-15-67

REVISIONS
11-10-67
1-24-68
2-9-68

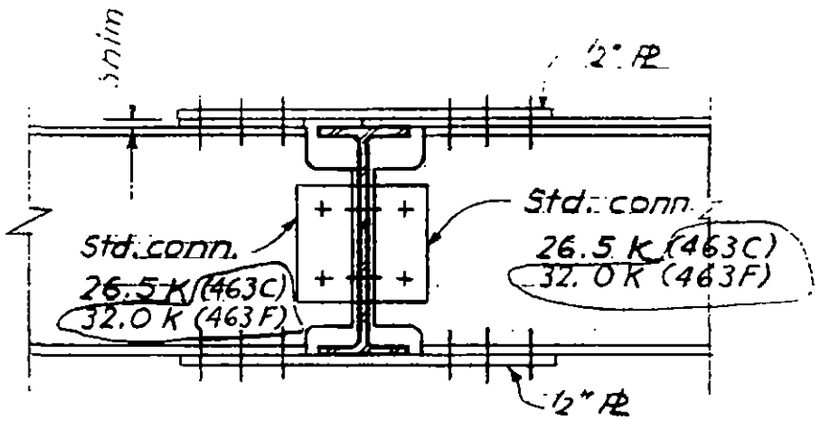


℄ ℙ included in detail only if specified on framing plan

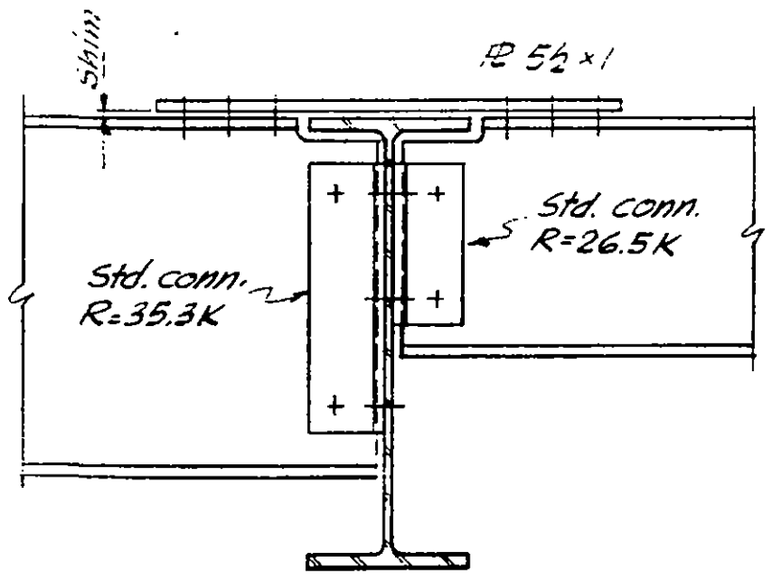
Plan
463 C & F



Plan
463 E



Section a-a



Section a-a

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-114.1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

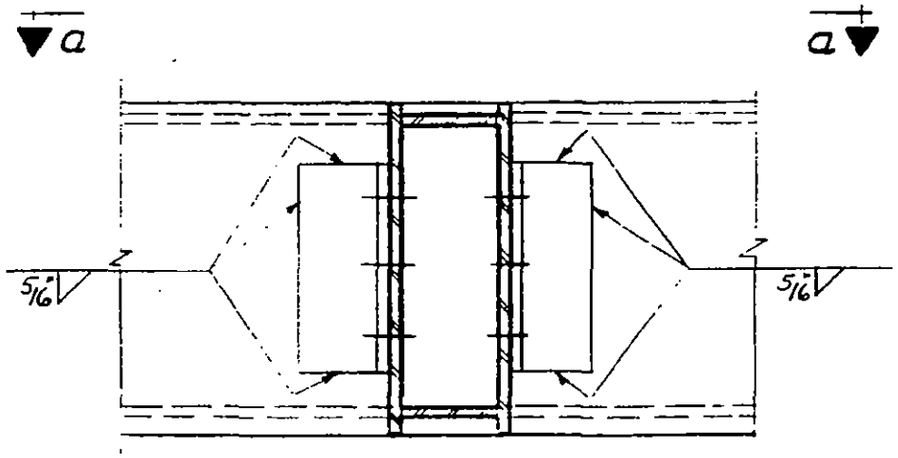
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 465A | DATE 6-5-67

REVISIONS

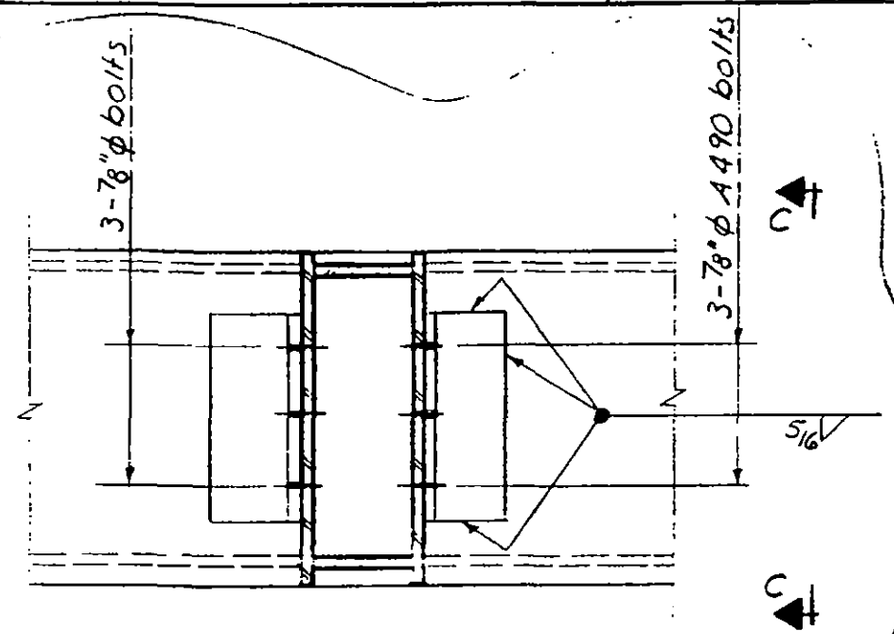
11-23-67

10-24-68

11-22-68

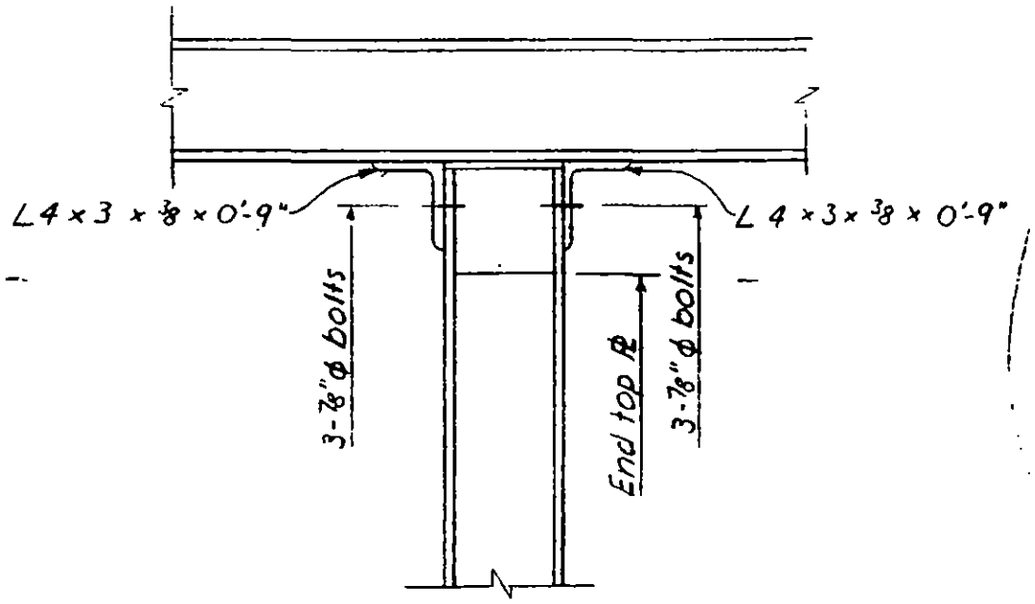


Elevation

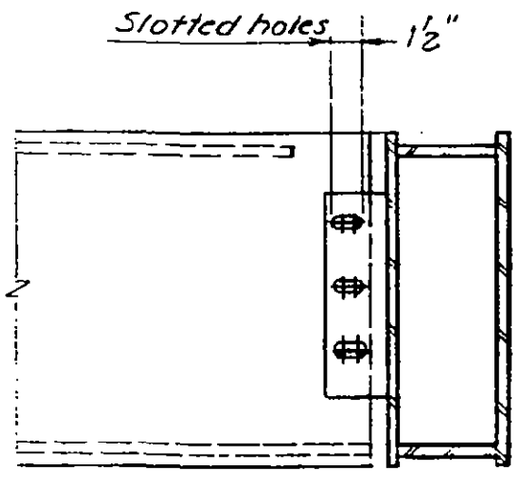


465A (Alternate)

Use where detail 450 is used as opposite end support



Section a-a



Section c-c (Alt.)

LESLIE E. ROBERTSON No. 34960 OF THE STATE OF NEW YORK

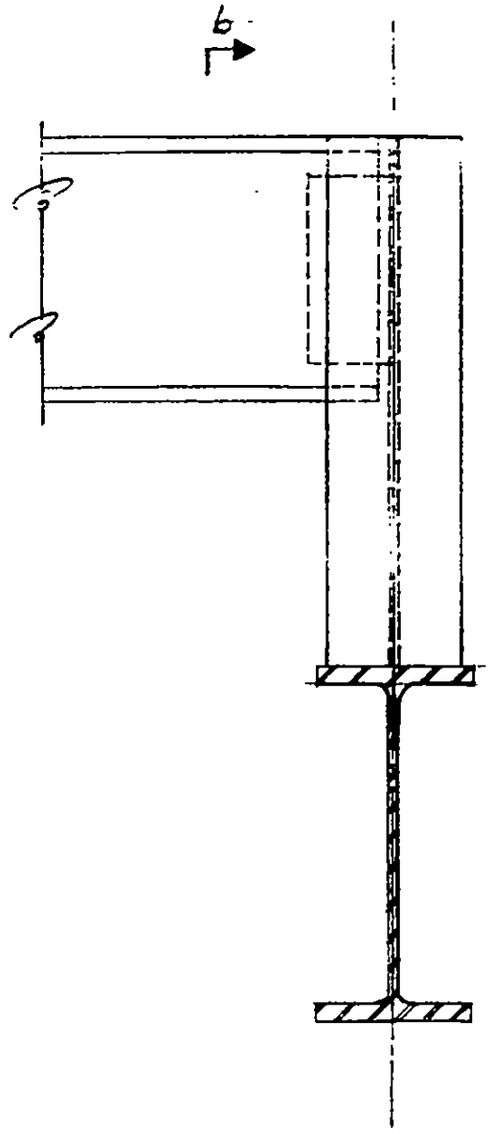
6-AB2-116

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

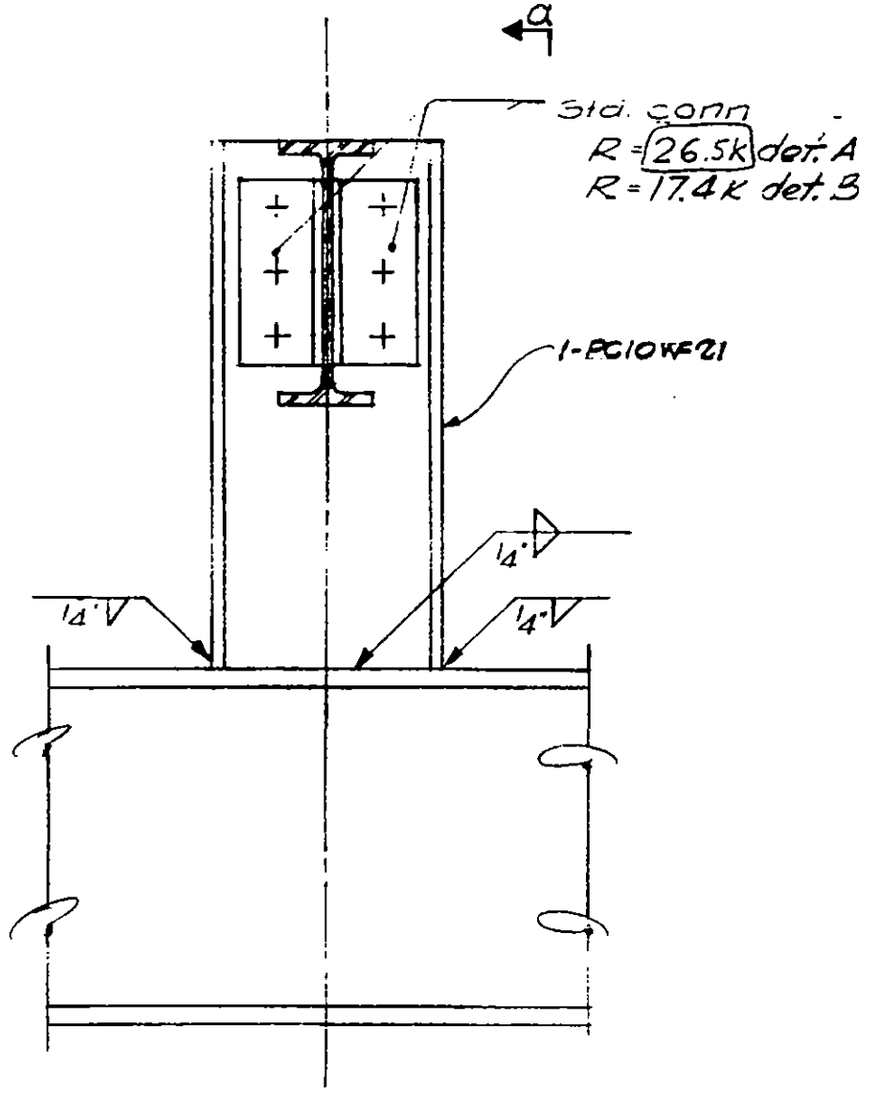
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 466 A. B | DATE 6-5-67

REVISIONS

10-5-67
1-24-68
2-21-68



Section a-a



Section b-b

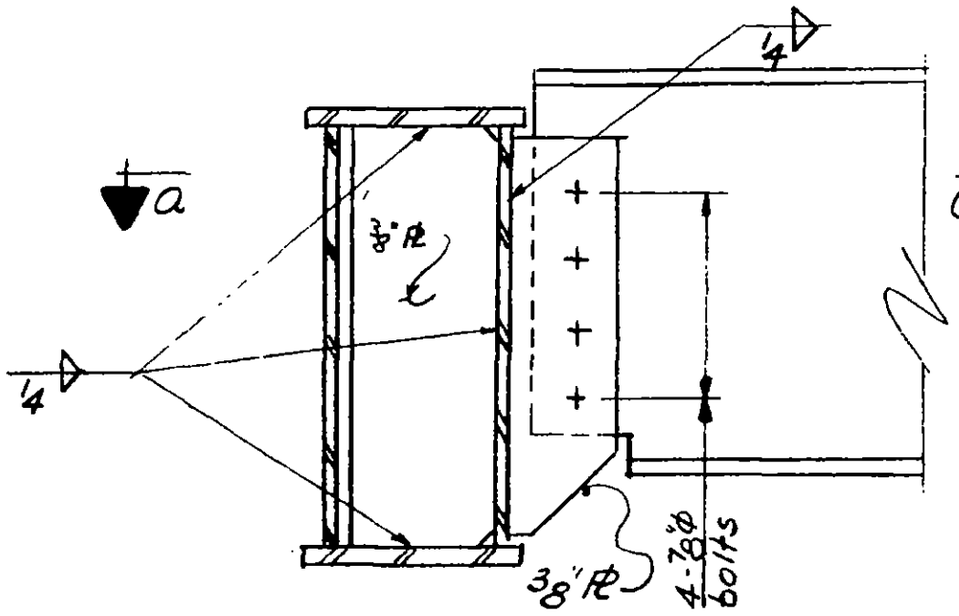
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-117

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

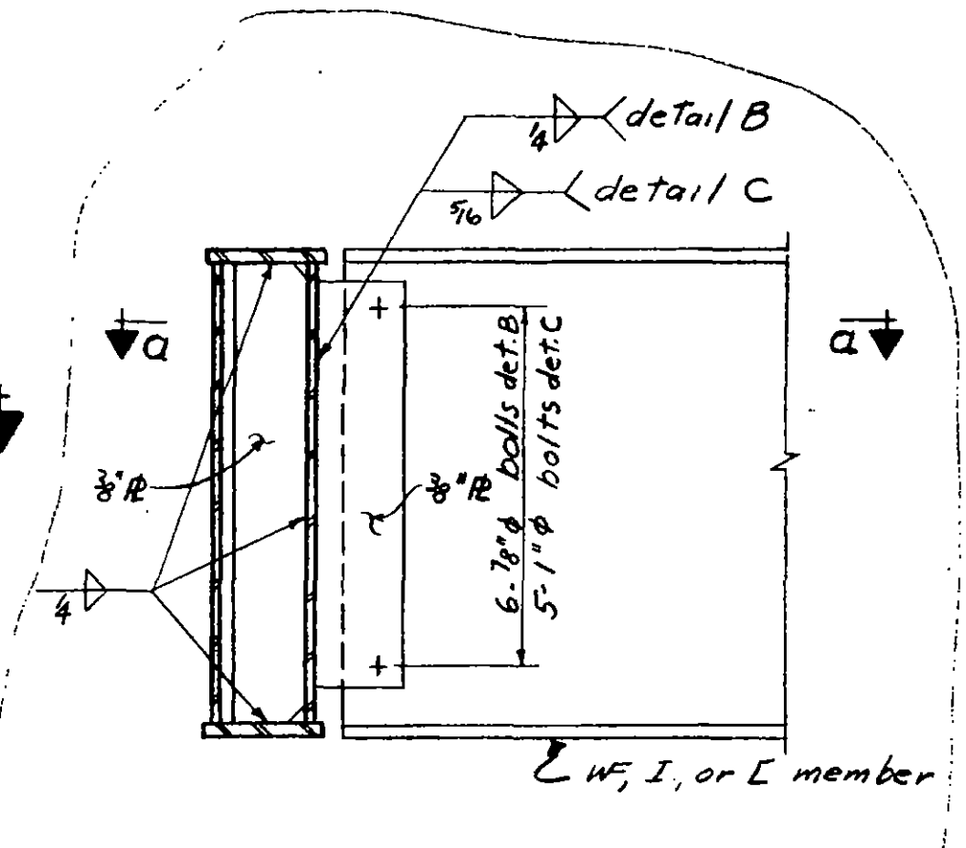
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 467 A,B,C | DATE 6-5-67

REVISIONS
9-15-67
11-10-67
12-21-67

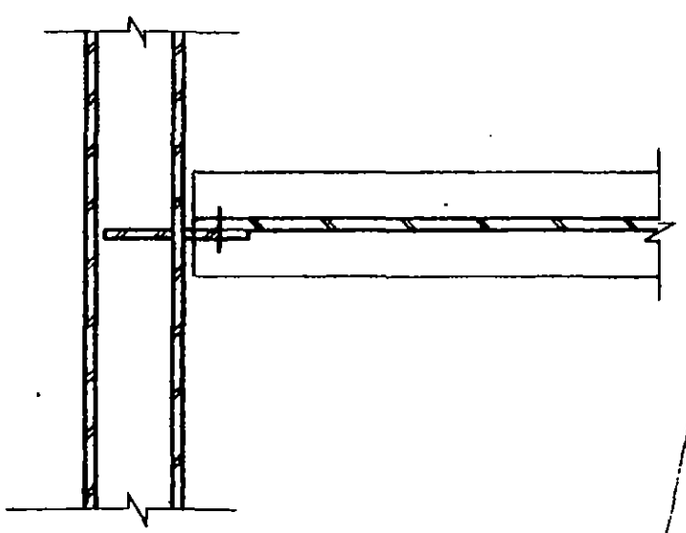


Elevation (467 A)

Section a-a



Elevation (467 B&C)



Section a-a

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-118

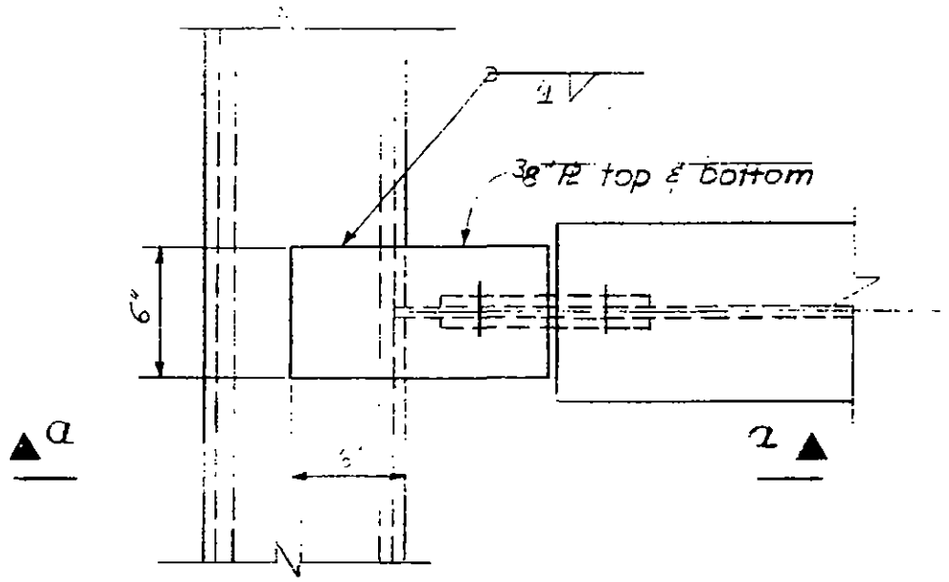
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAIL 469A.B	6-5-67

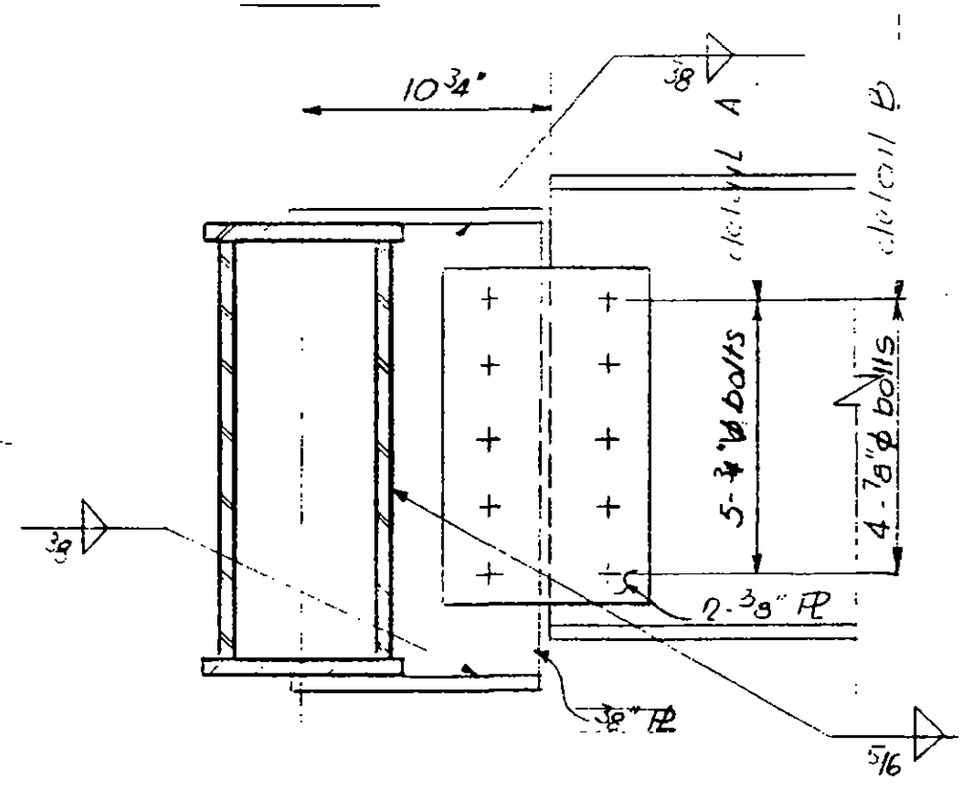
REVISIONS

7-15-67

10-5-67



Plan



Section a-a

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UNIVERSITY OF THE STATE OF NEW YORK

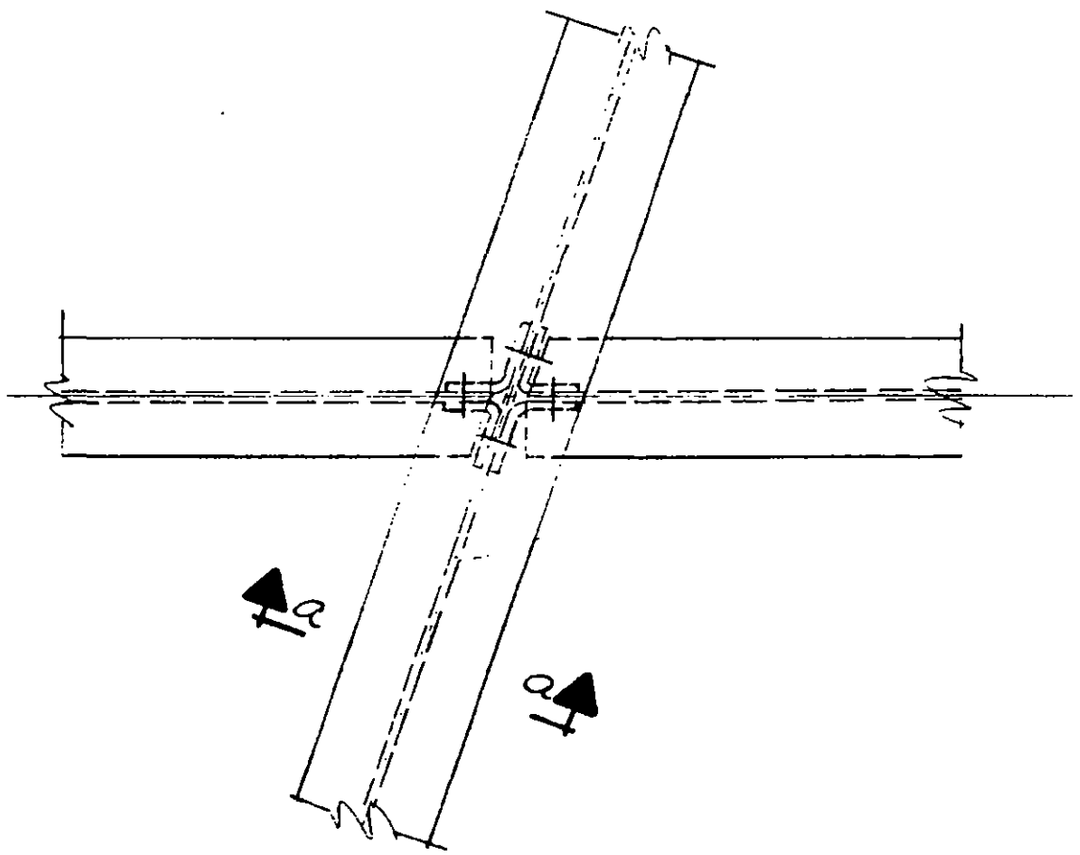
6-AB2-120

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

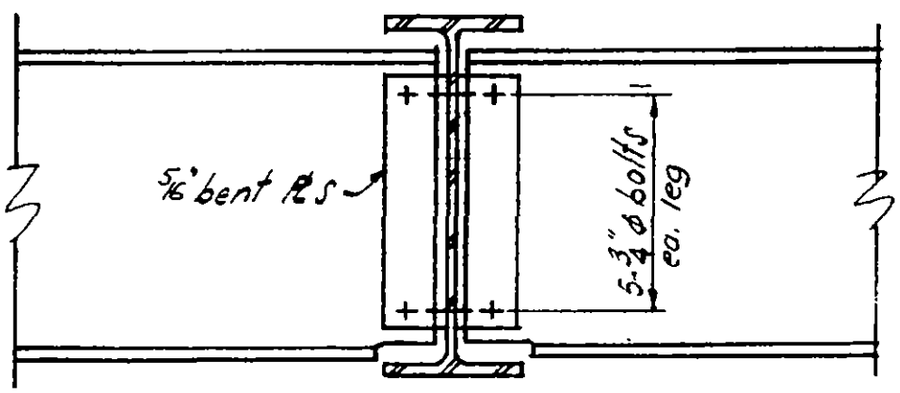
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 470A | DATE 9-15-67

REVISIONS

11-10-67



PLAN



Section a-a

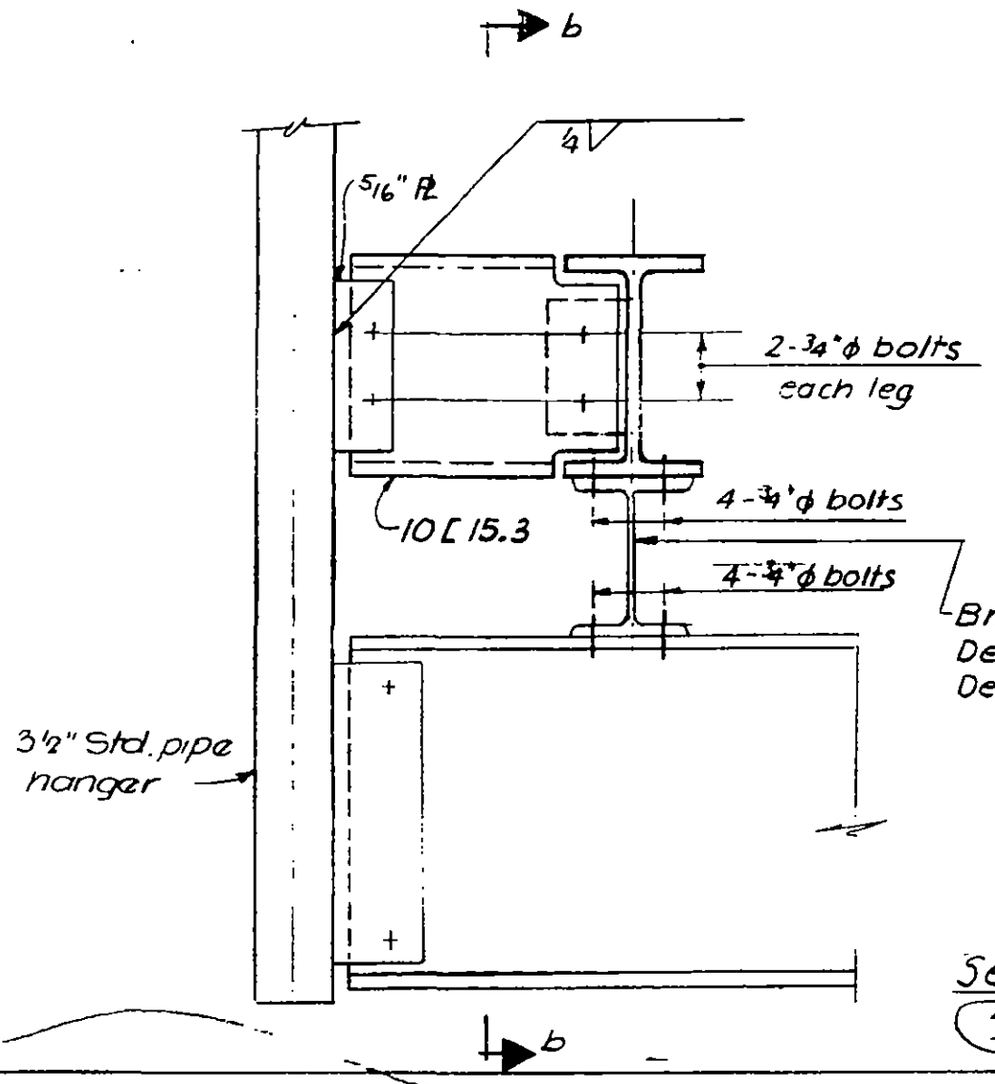
LICENSED PROFESSIONAL ENGINEER
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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-121

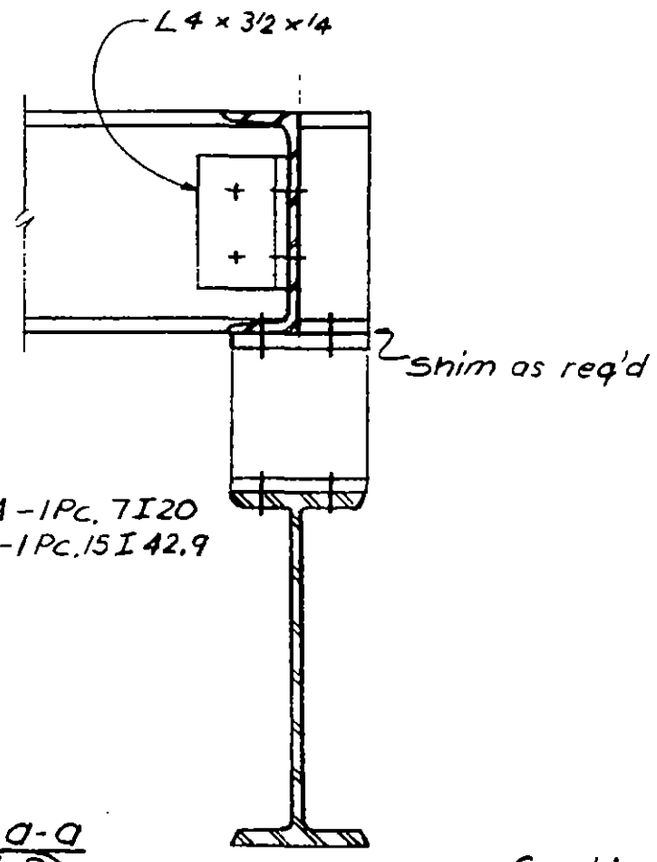
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS 471 A, B, C | DATE 6-5-67

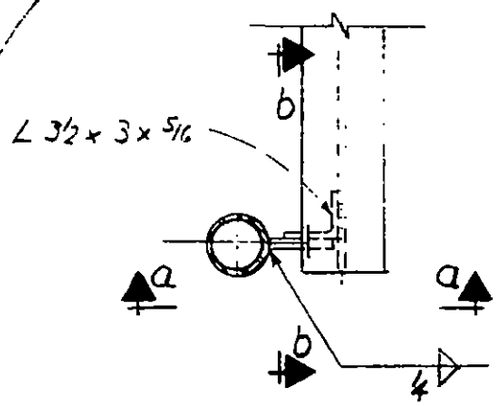
REVISIONS
10-2-67
2-21-68



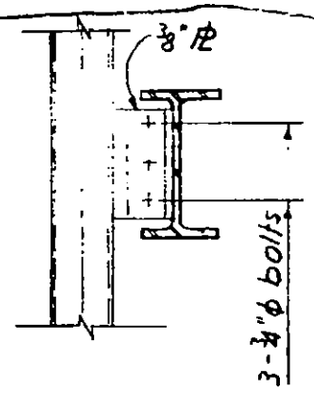
Section a-a
471 A & B



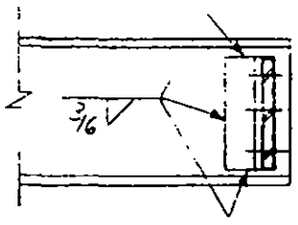
Section b-b



Plan 471C



Section a-a



Section b-b

6-AB2-122

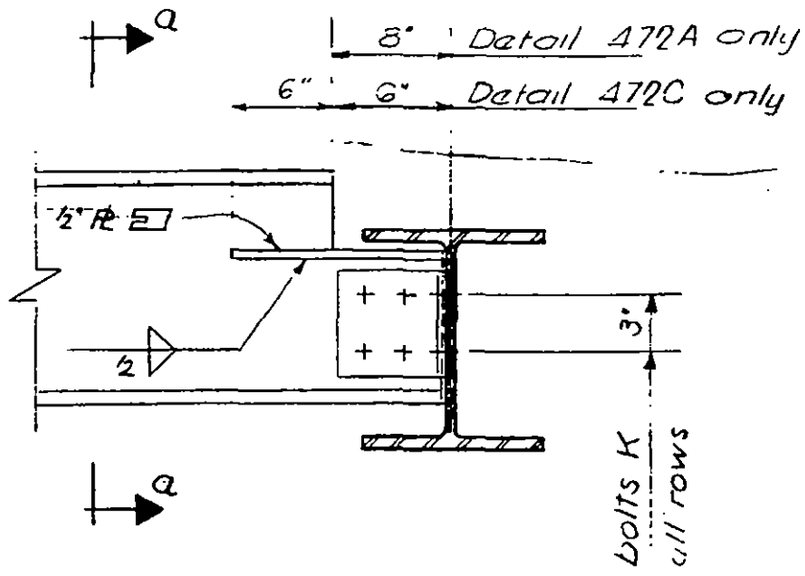
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

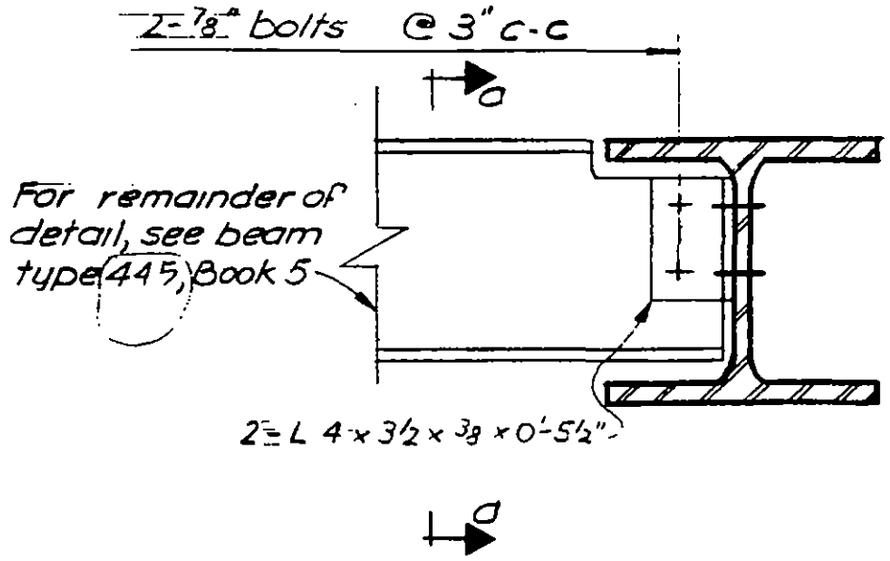
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 472 A, B, C, D, E, F & G | DATE: 8-5-67

REVISIONS

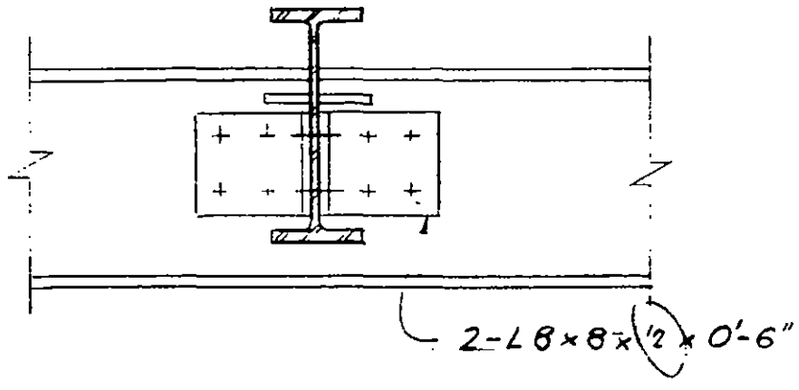
10-23-67
10-31-67



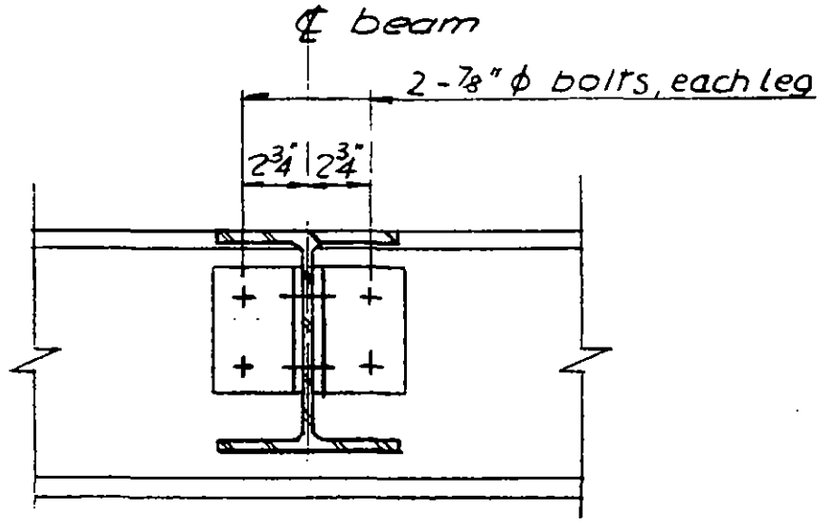
DETAIL A, B, C, D, E & G



DETAIL 472 F



Section a-a



Section a-a

DETAIL A, B, C, D, E — bolts K - ⅞" ϕ bolts
DETAIL G — bolts K - 1" ϕ bolts

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

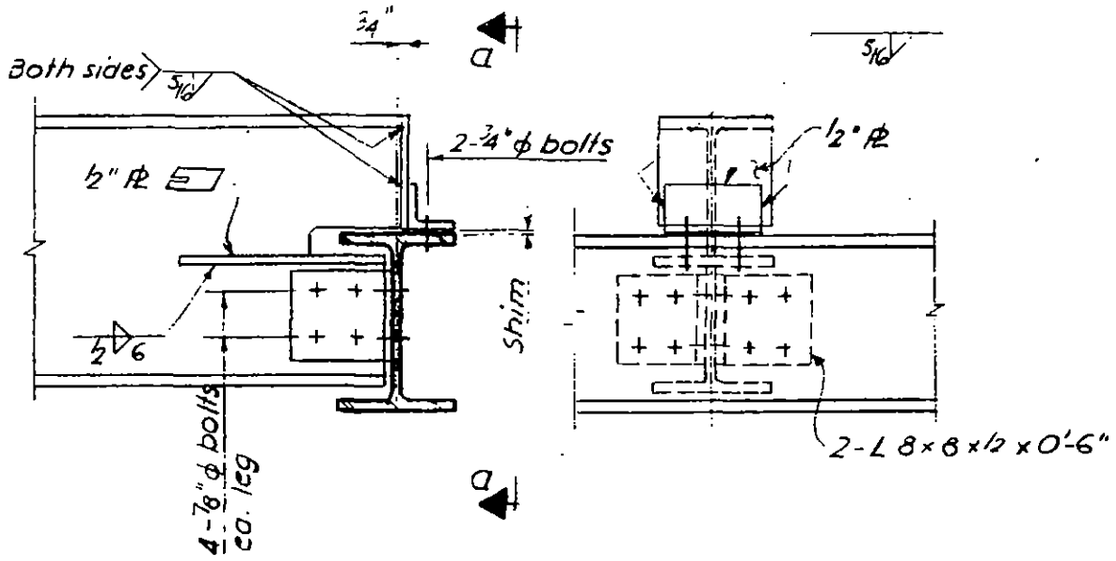
6-AB2-123

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 472 H, I, J, K, L | DATE 5-7-68

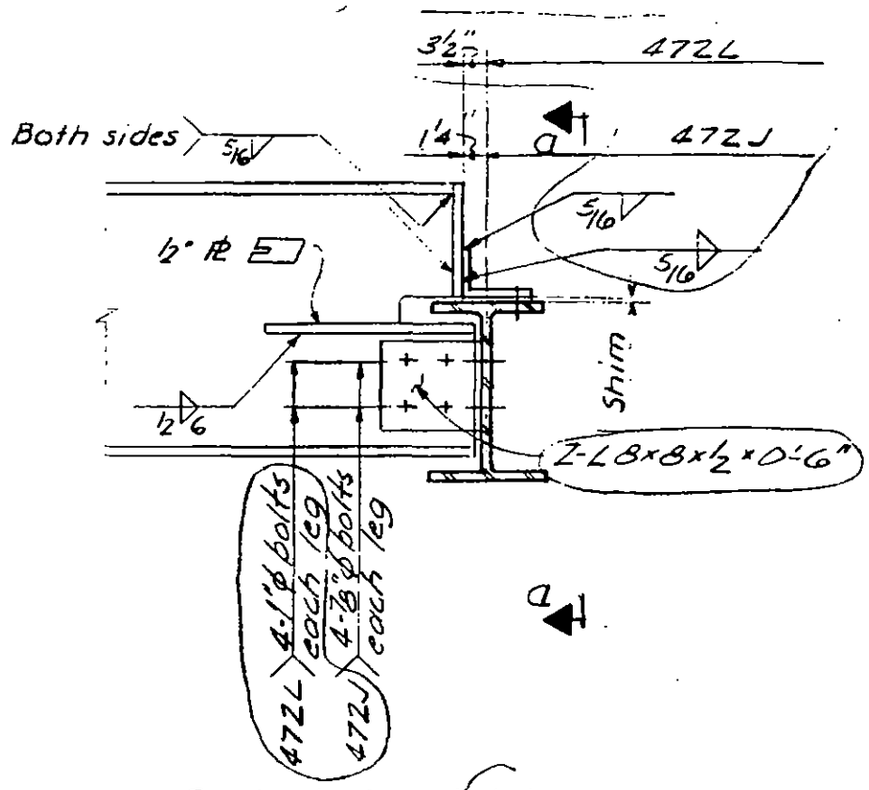
REVISIONS

7-17-68

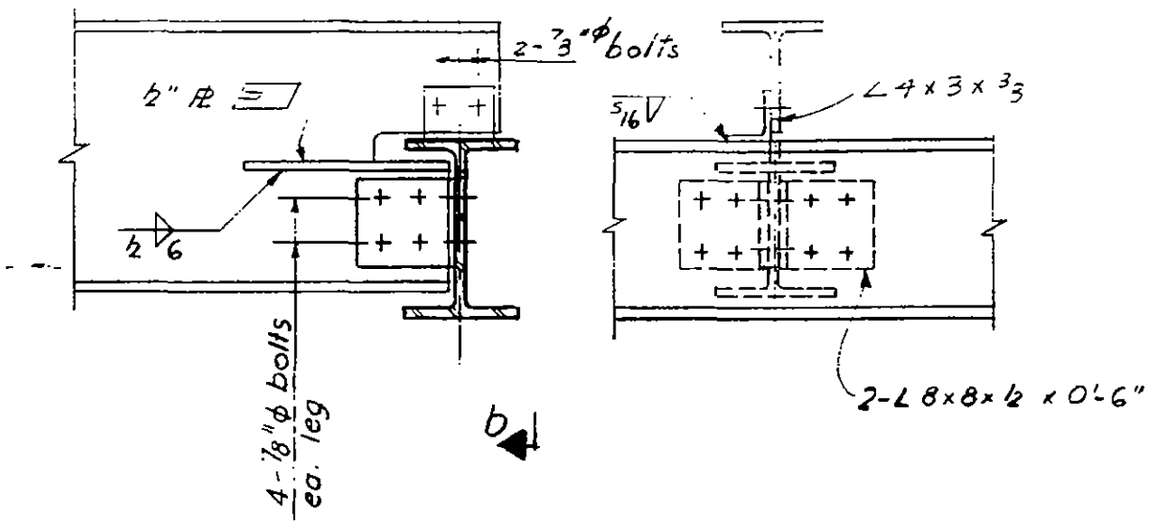


Section a-a

Detail 472 H

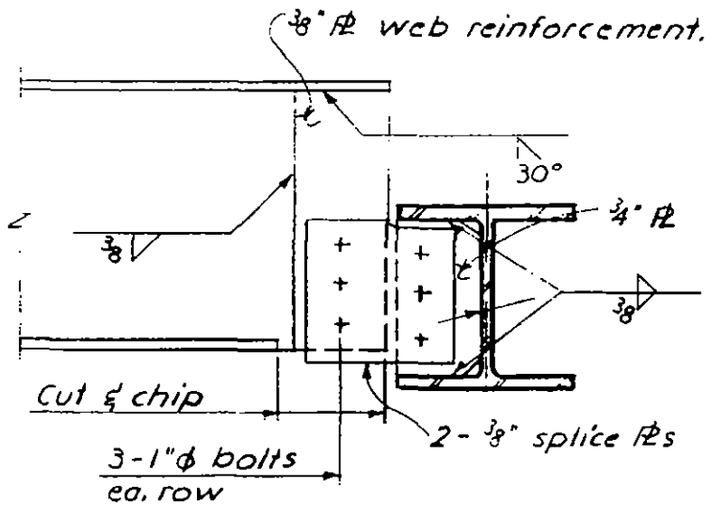


Detail 472 J/L



Section b-b

Detail 472 I



Detail 472 K

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

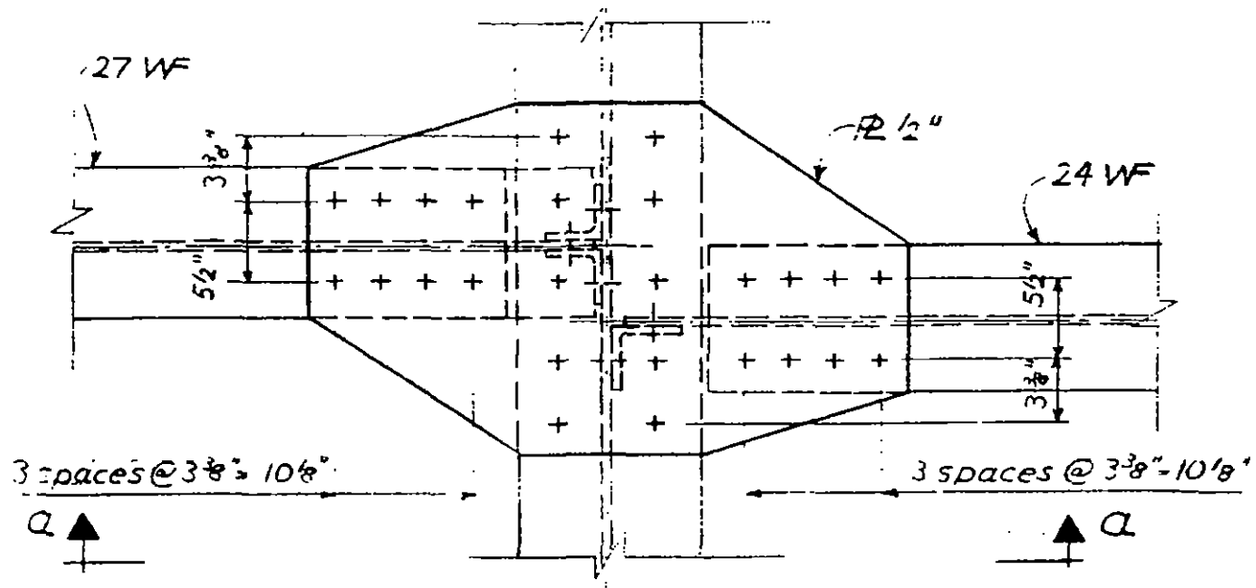
6-AB2-123.1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

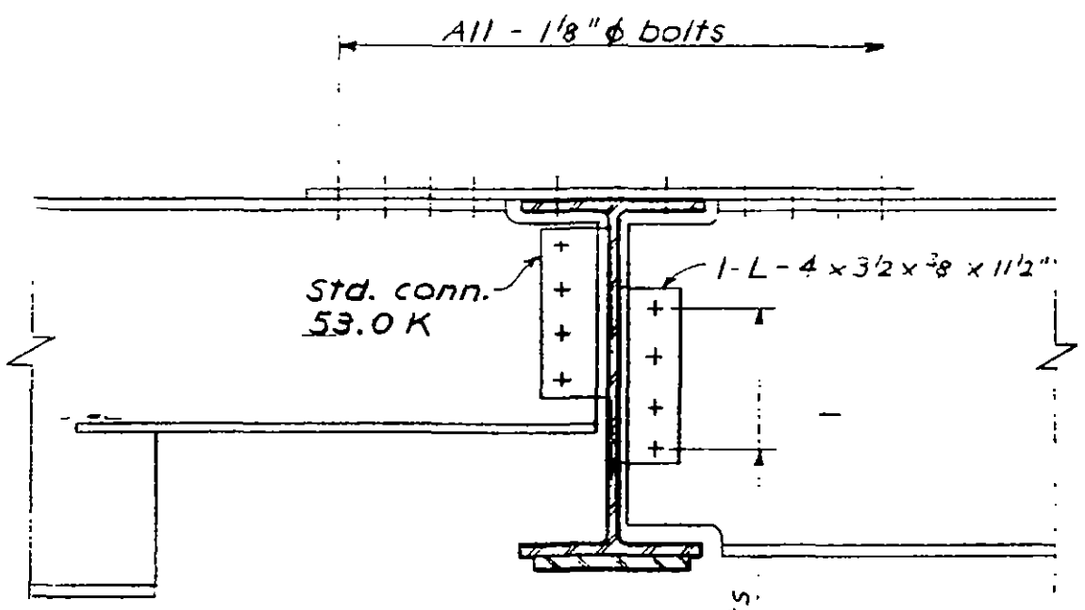
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 473 A & B | DATE 4-14-67

REVISIONS

10-2-67

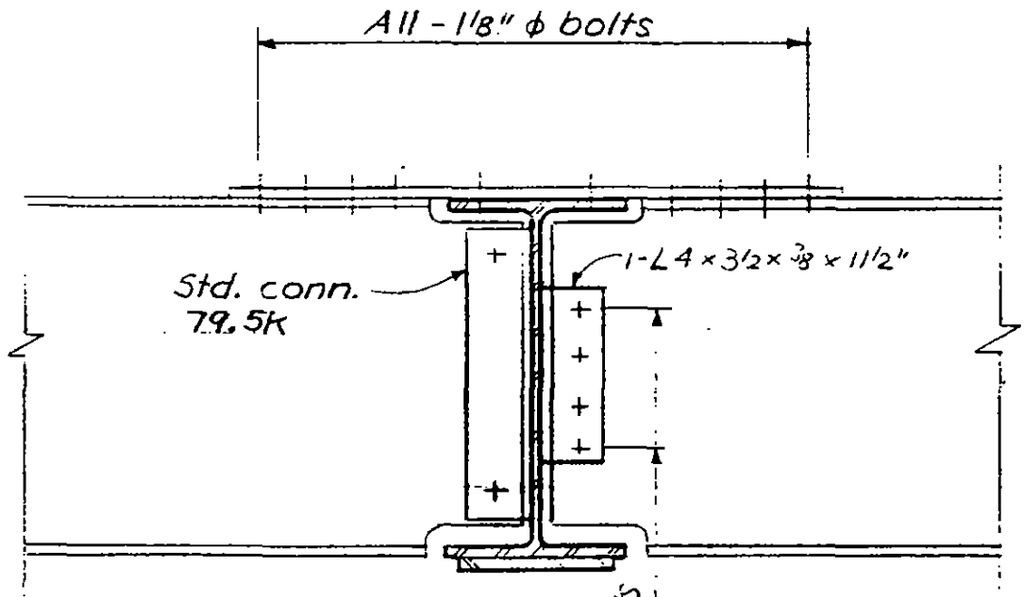


Plan



Section a-a

Detail 473 A



Section a-a

Detail 473 B

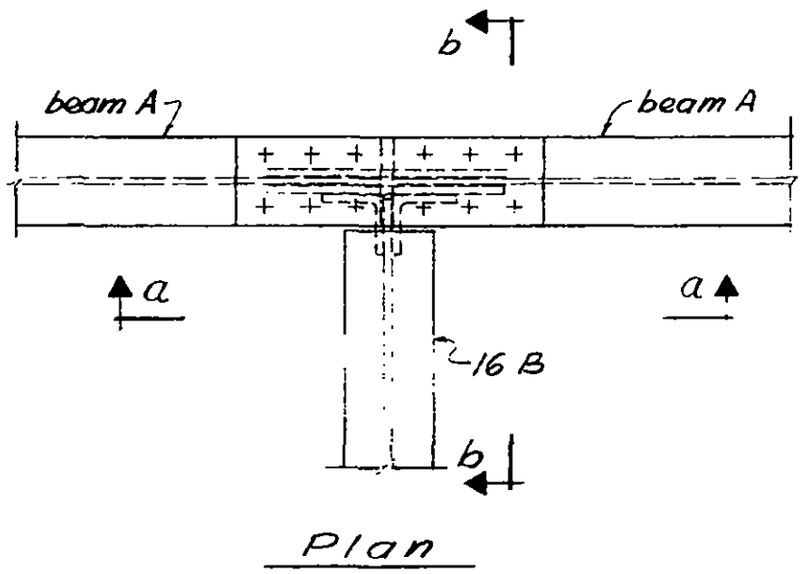
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-124

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

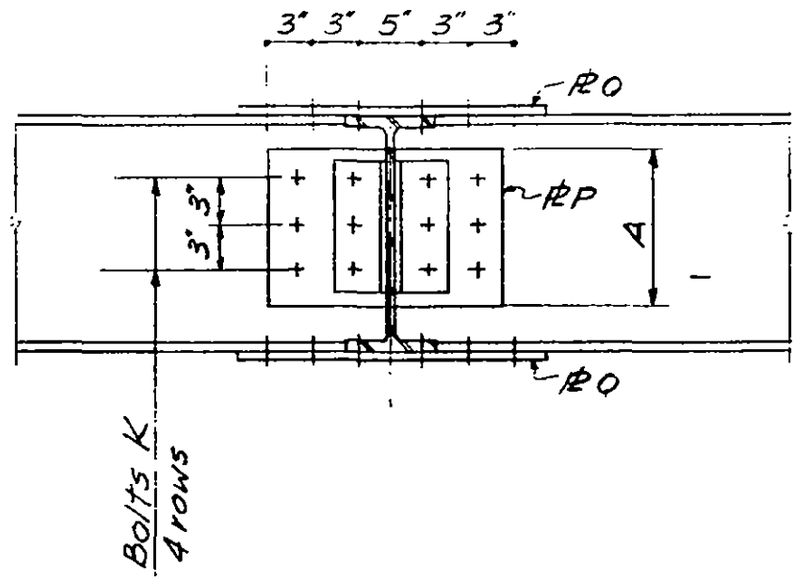
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 474 A | DATE 8-5-67

REVISIONS

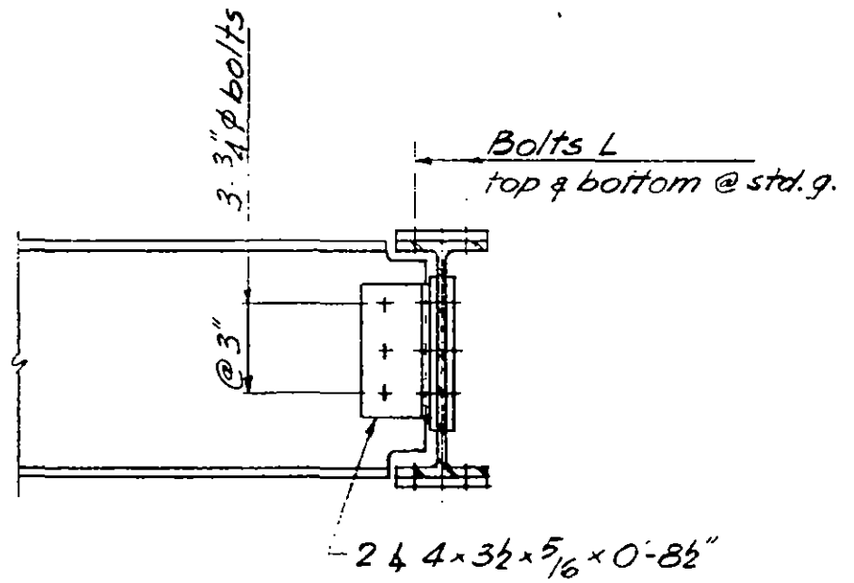


Plan

beams A	bolts K	bolts L	PL P	PL Q	Dim A
16 B	1"ϕ	3/4"ϕ	1/2	1/2	0'-10"
16 WF	1 1/8"ϕ	1"ϕ	5/8	1/2	0'-10"



Section a-a



Section b-b

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

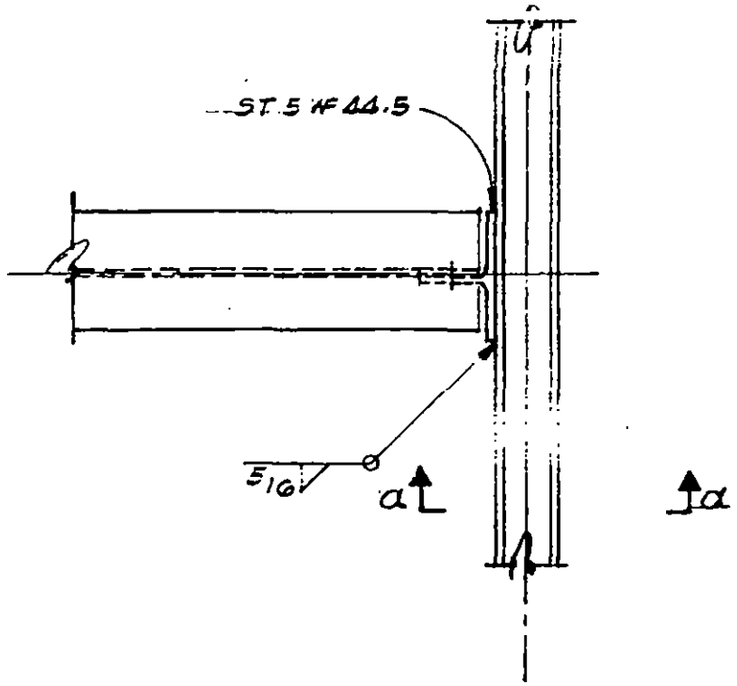
6-AB2-125

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

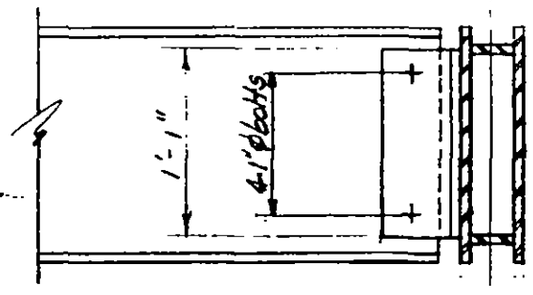
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 475A,B | DATE 10-5-67

REVISIONS

1-23-67

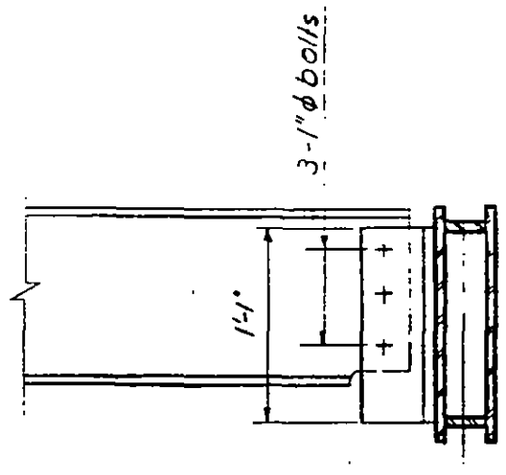


PLAN



Section a-a

Detail 475A



Section a-a

Detail 475B

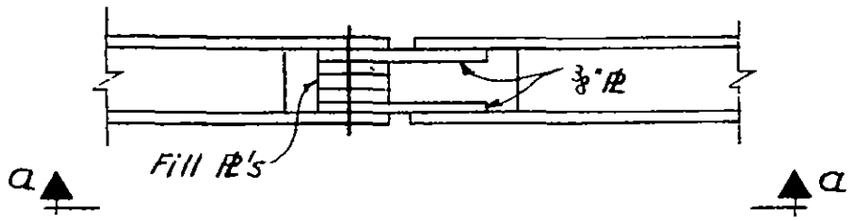
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-126

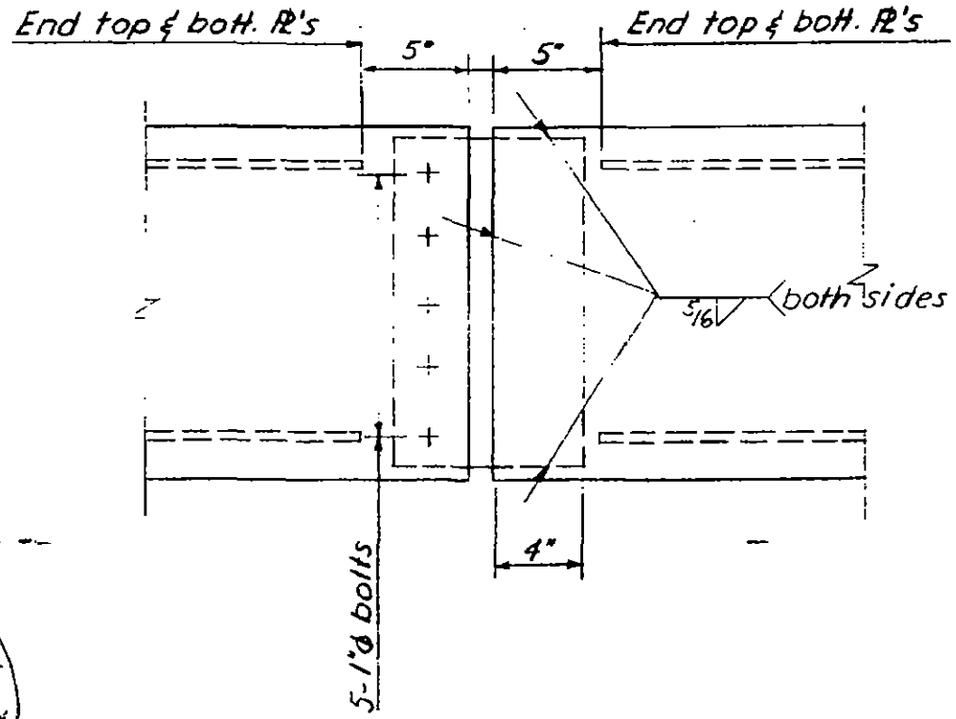
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 477A | DATE 11-23-67

REVISIONS



Plan



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

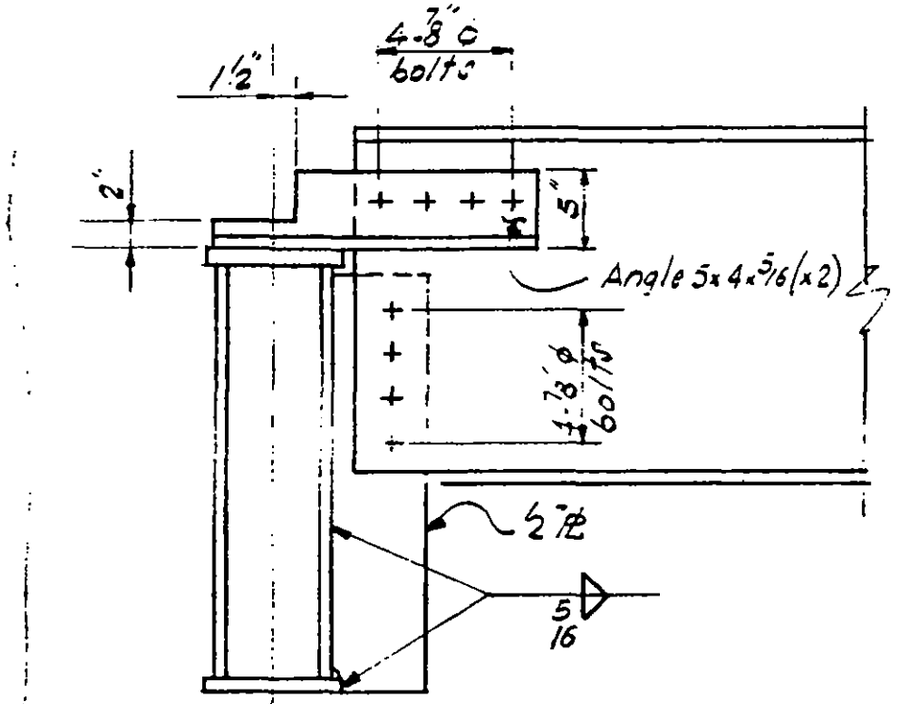
6-AB2-128

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

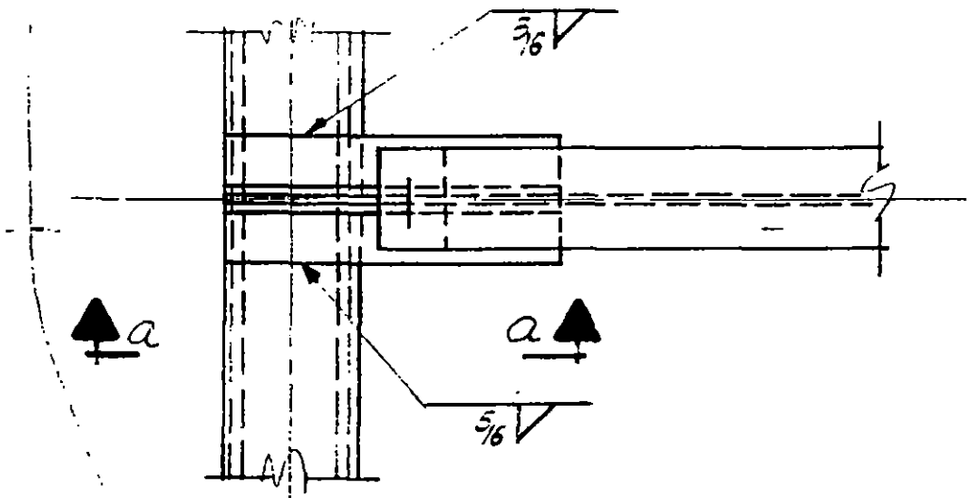
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 479 A | DATE 6-30-67

REVISIONS

— 9-15-67



Section a-a



PLAN

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

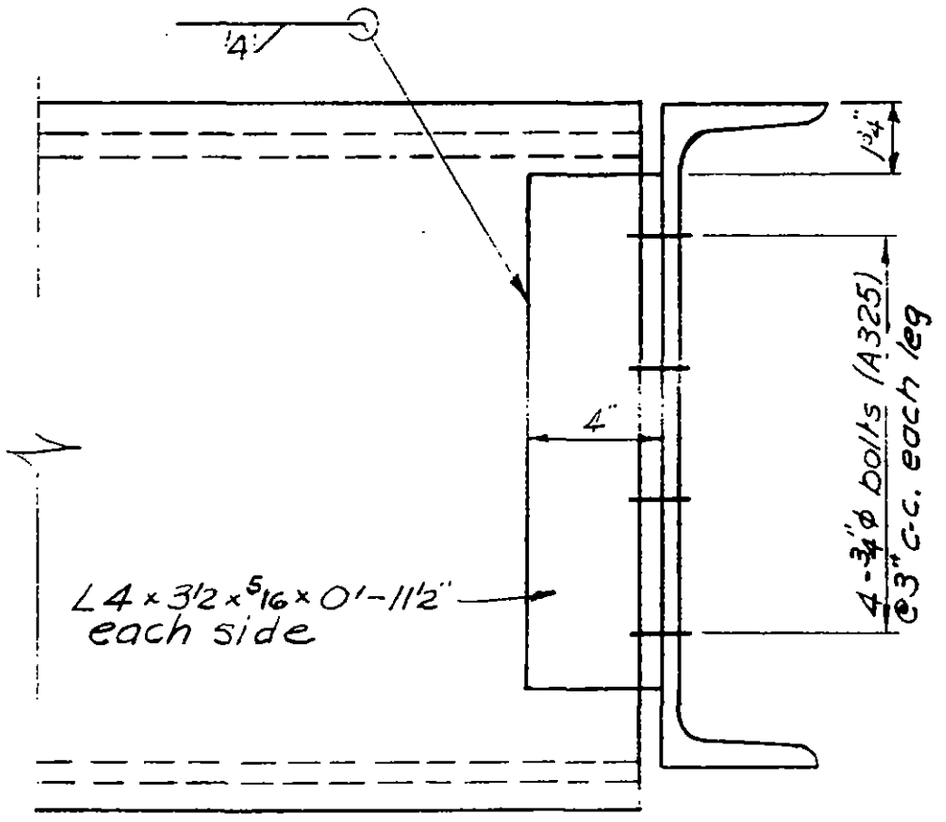
G-AB2-130

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT WORLD TRADE CENTER | TITLE CONNECTION DETAIL 480 | DATE 6-19-67

REVISIONS

8-5-67



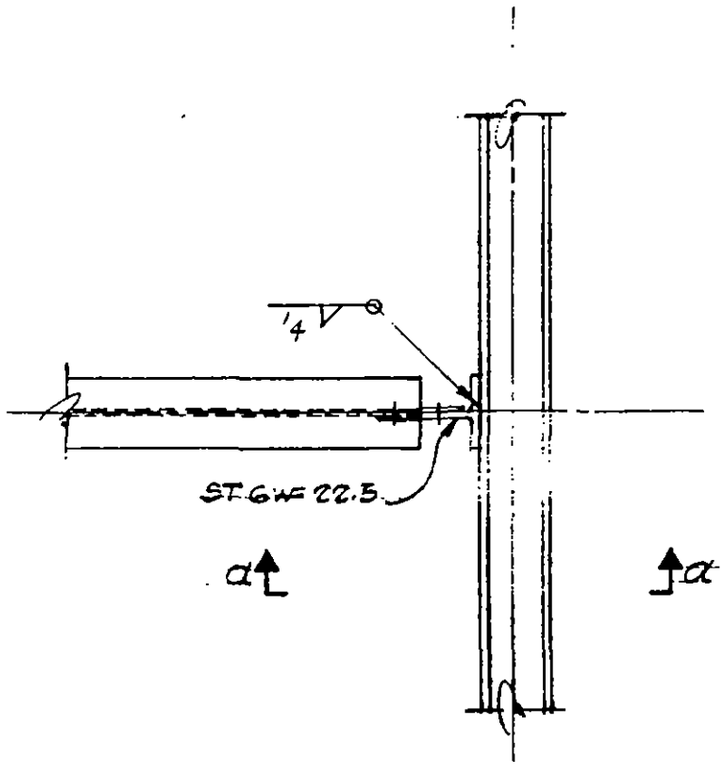
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-ABZ-131

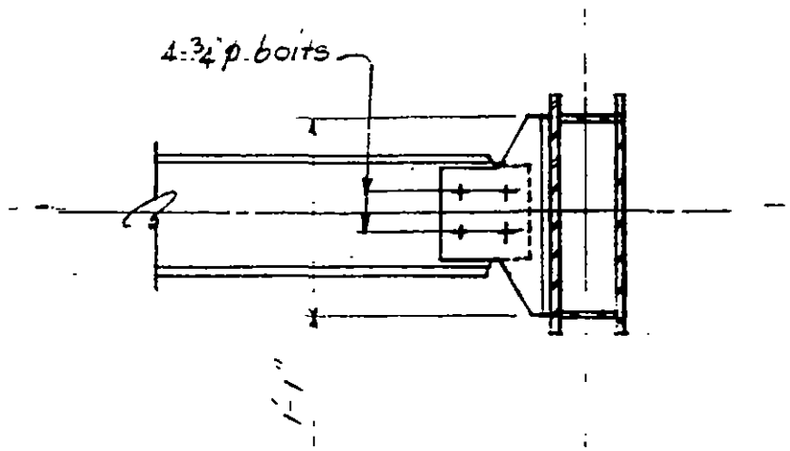
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 481 A | DATE 10-5-67

REVISIONS



PLAN



Section a-a

REGISTERED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

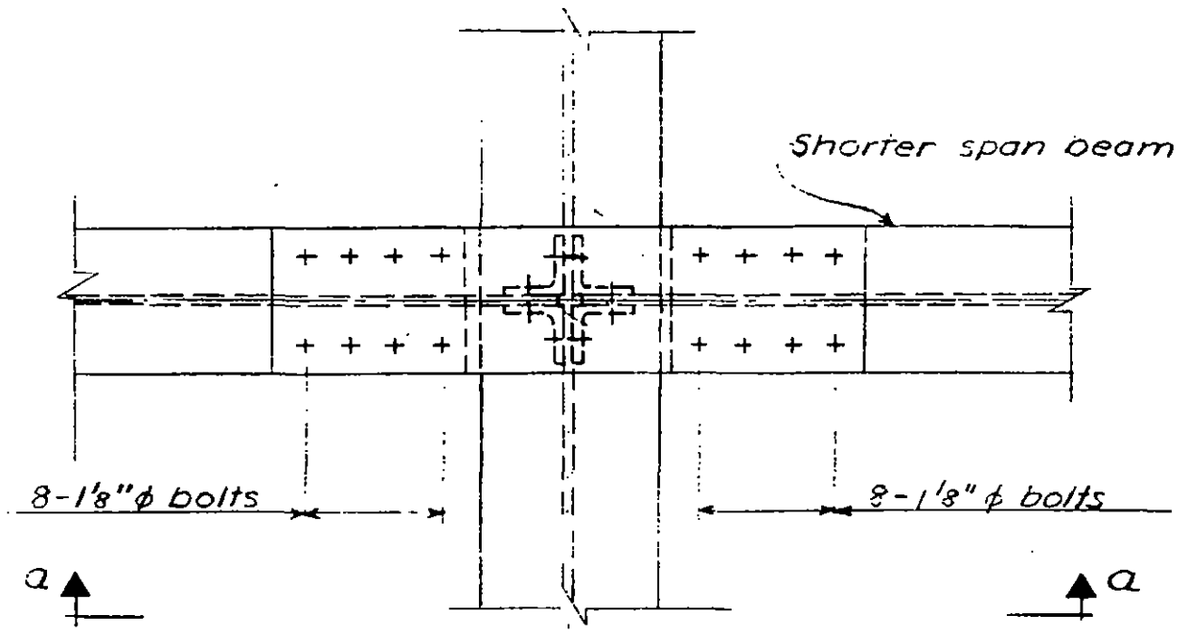
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

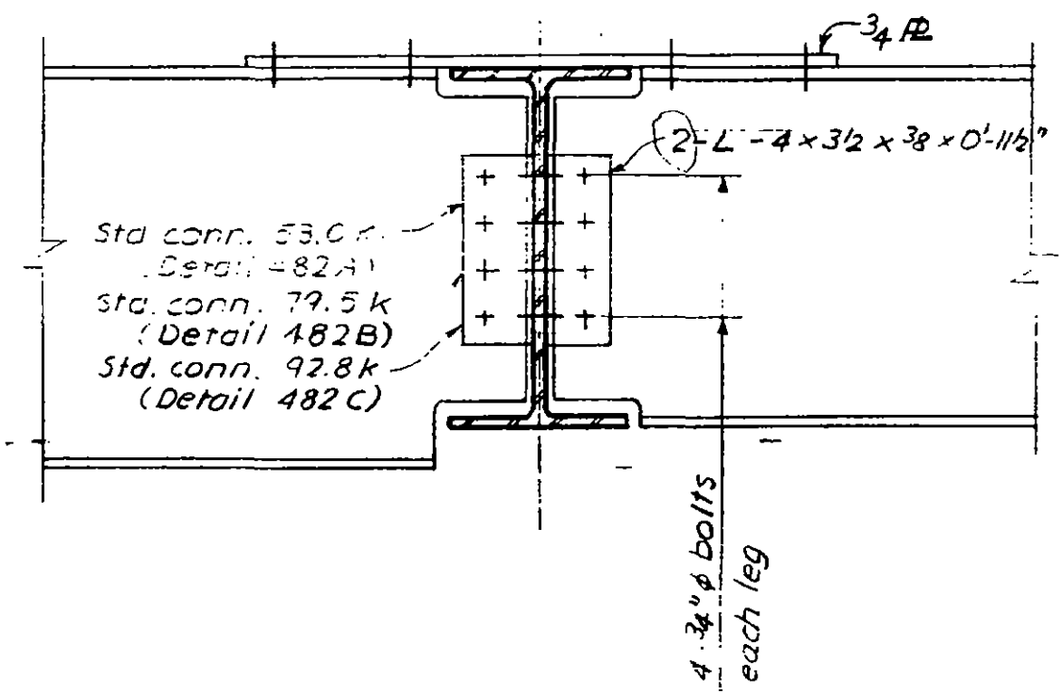
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL #82 A, B, C | DATE 3-14-67

REVISIONS

10-2-67
12-21-67
1-24-68



Plan



Section a-a

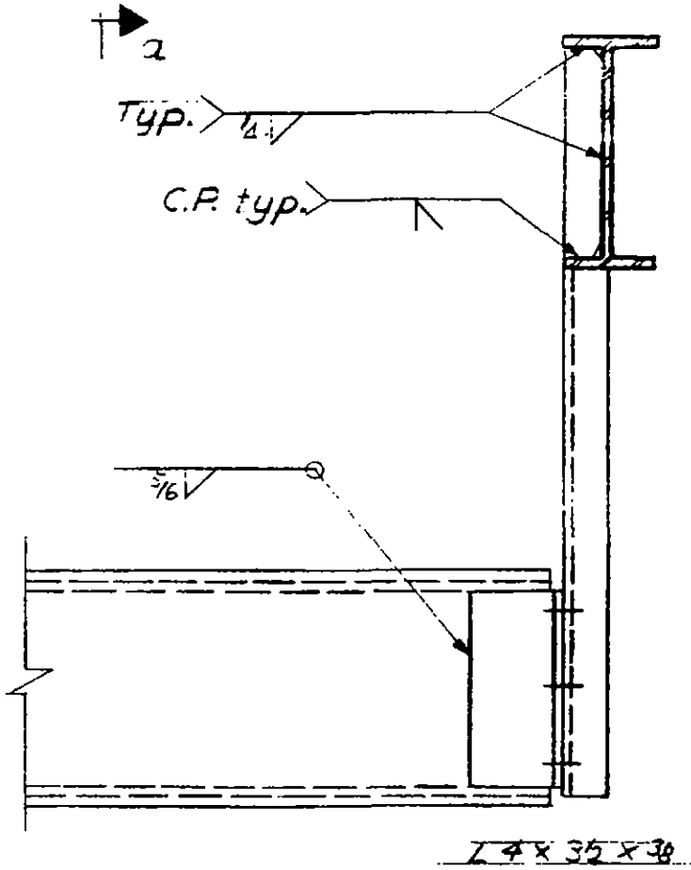
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-133

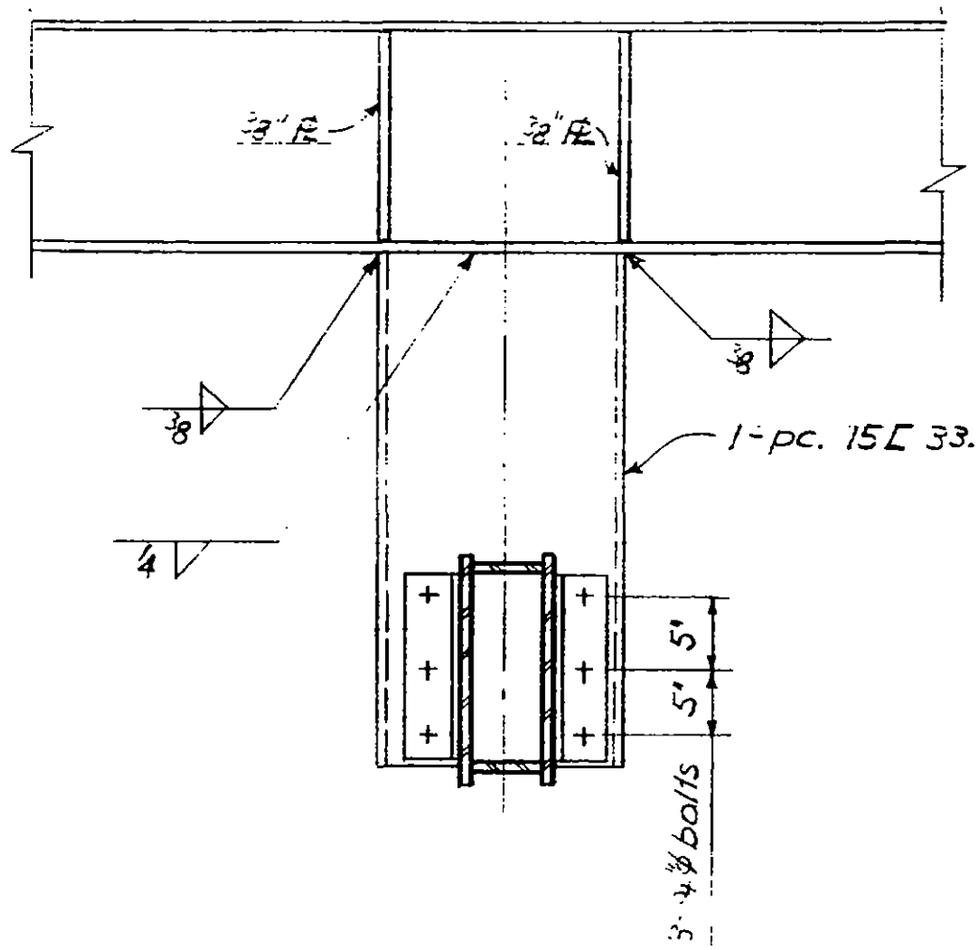
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 483 | DATE 9-29-67

REVISIONS



Elevation



Section a-a

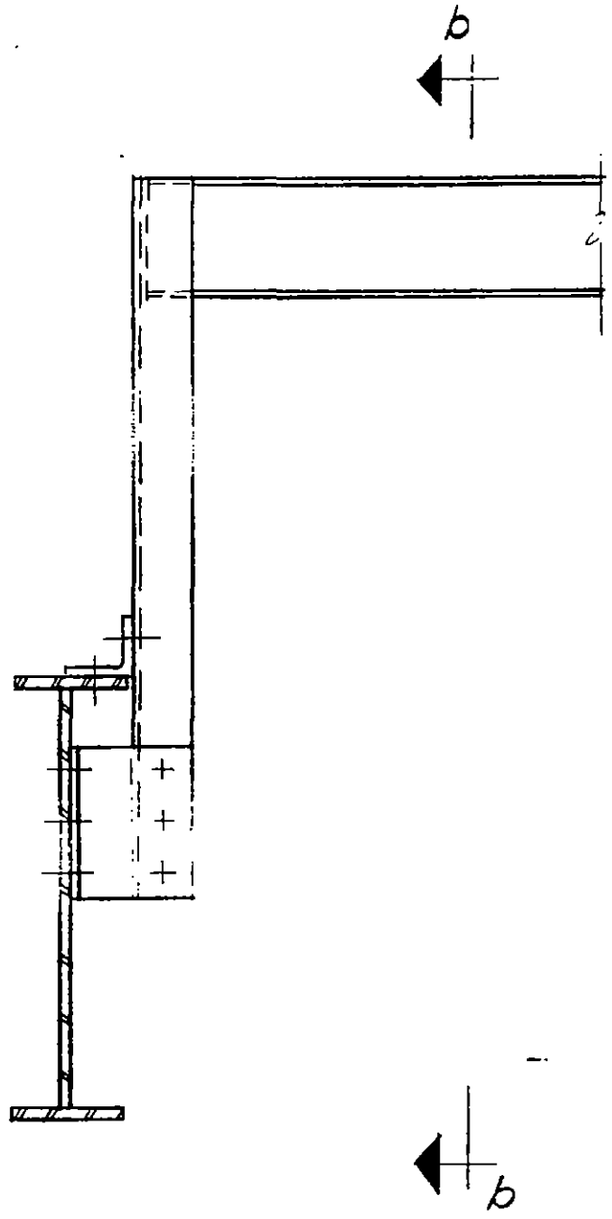
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-134

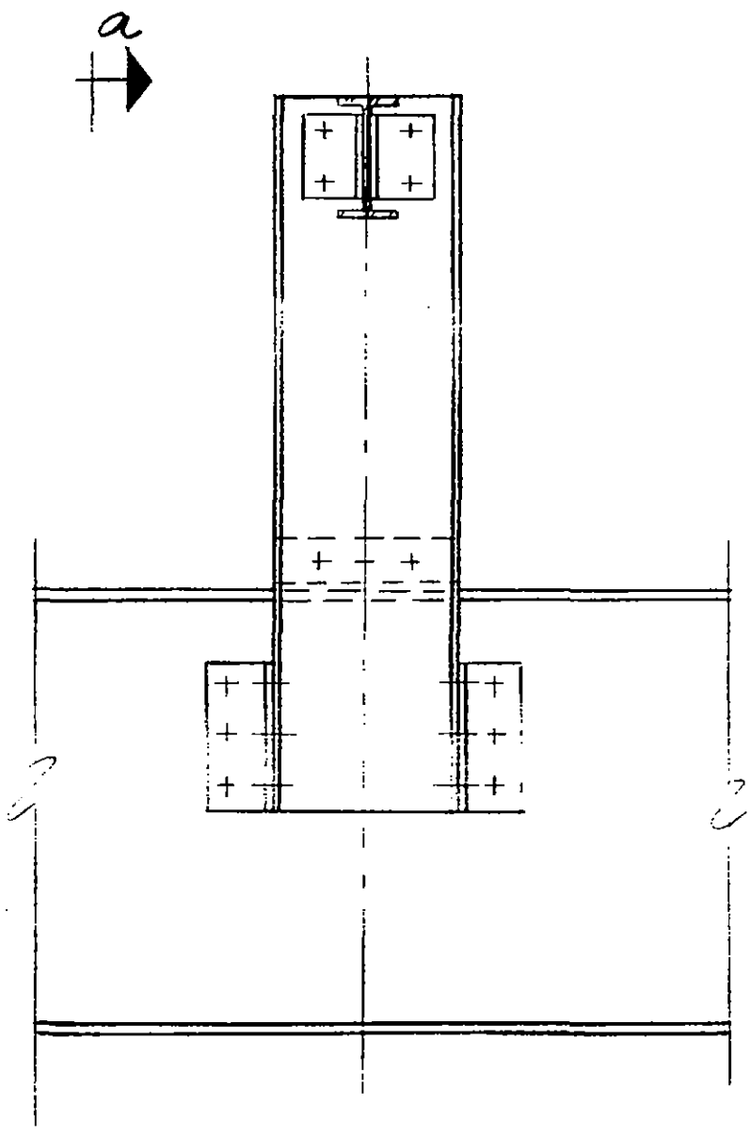
WORTHINGTON, SKILLING, HELLE & JACKSON Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 484 | DATE 6-30-67

REVISIONS



Section a-a



Section b-b

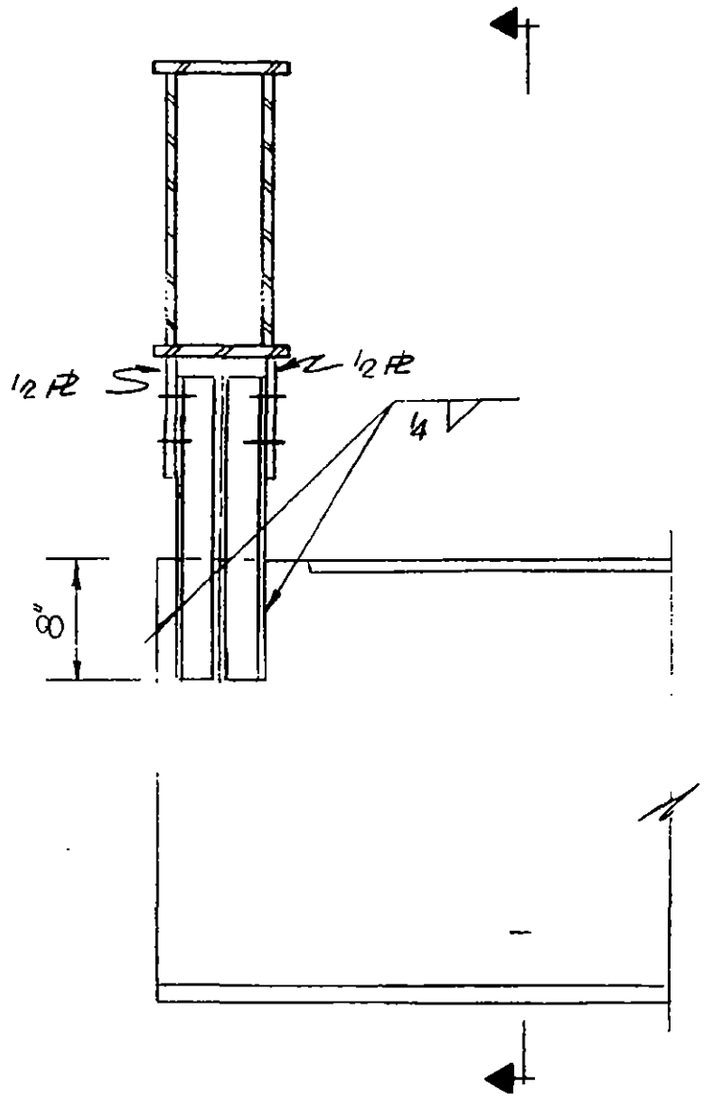
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-135

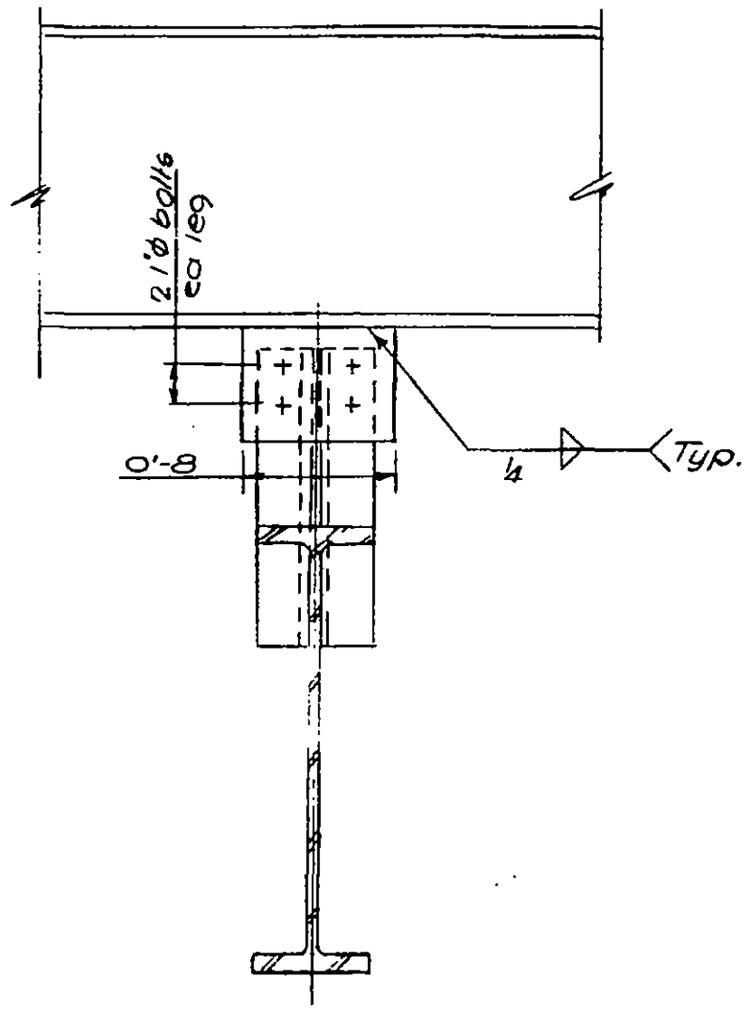
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 485 A | DATE 10-5-67

REVISIONS



Elevation



Section a-a

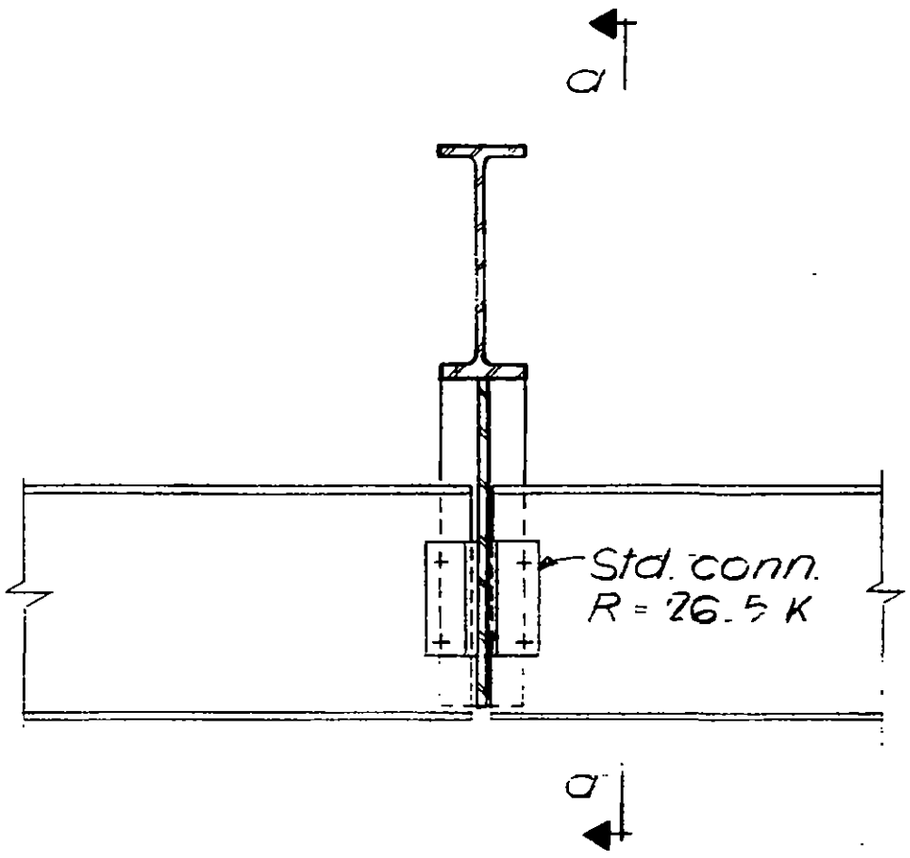
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-136

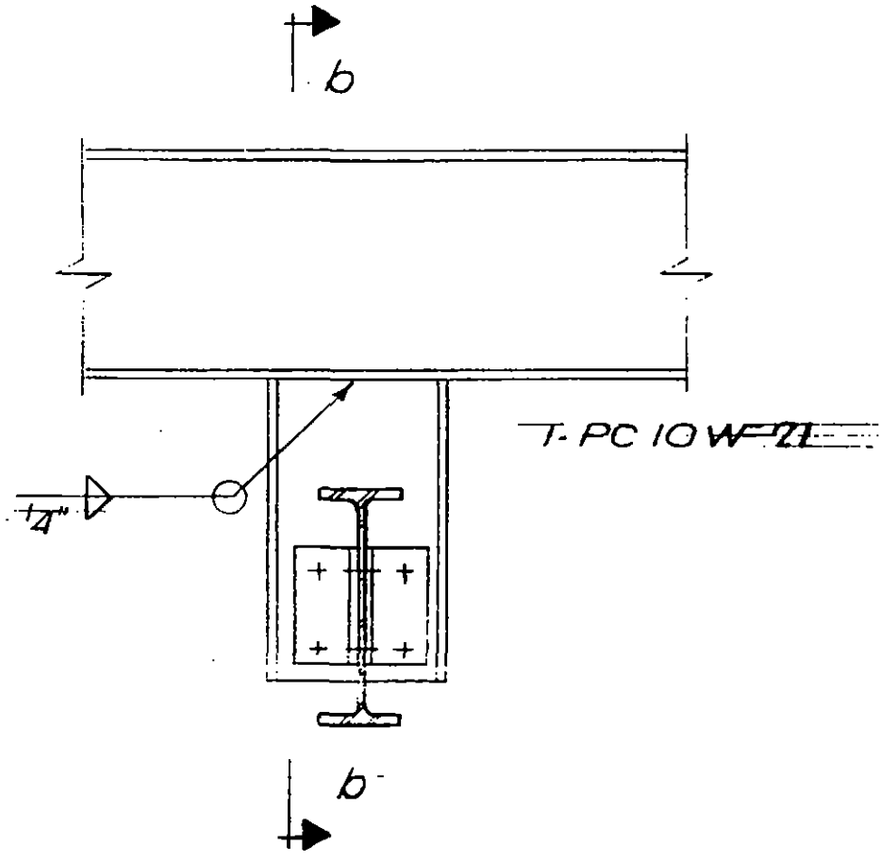
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 486A | DATE 10-5-67

REVISIONS



Elevation b-b



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

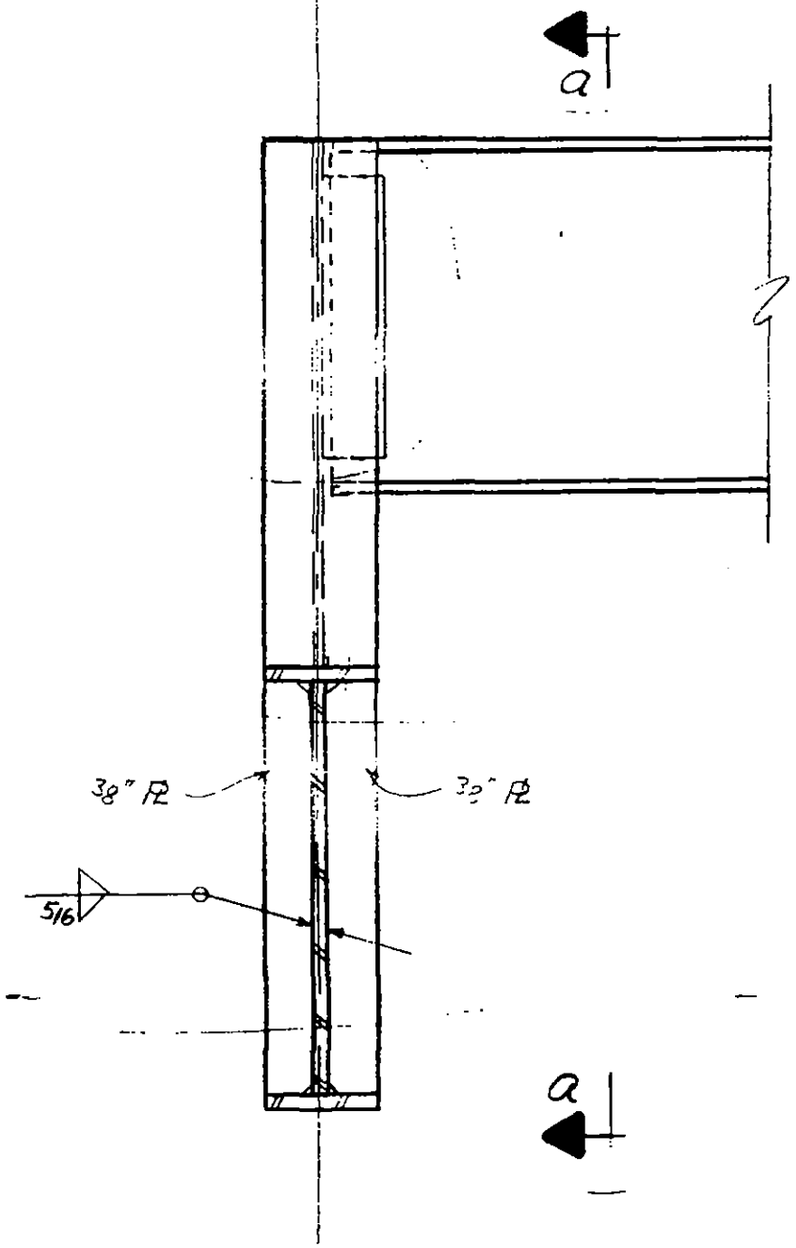
G-ABZ-137

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

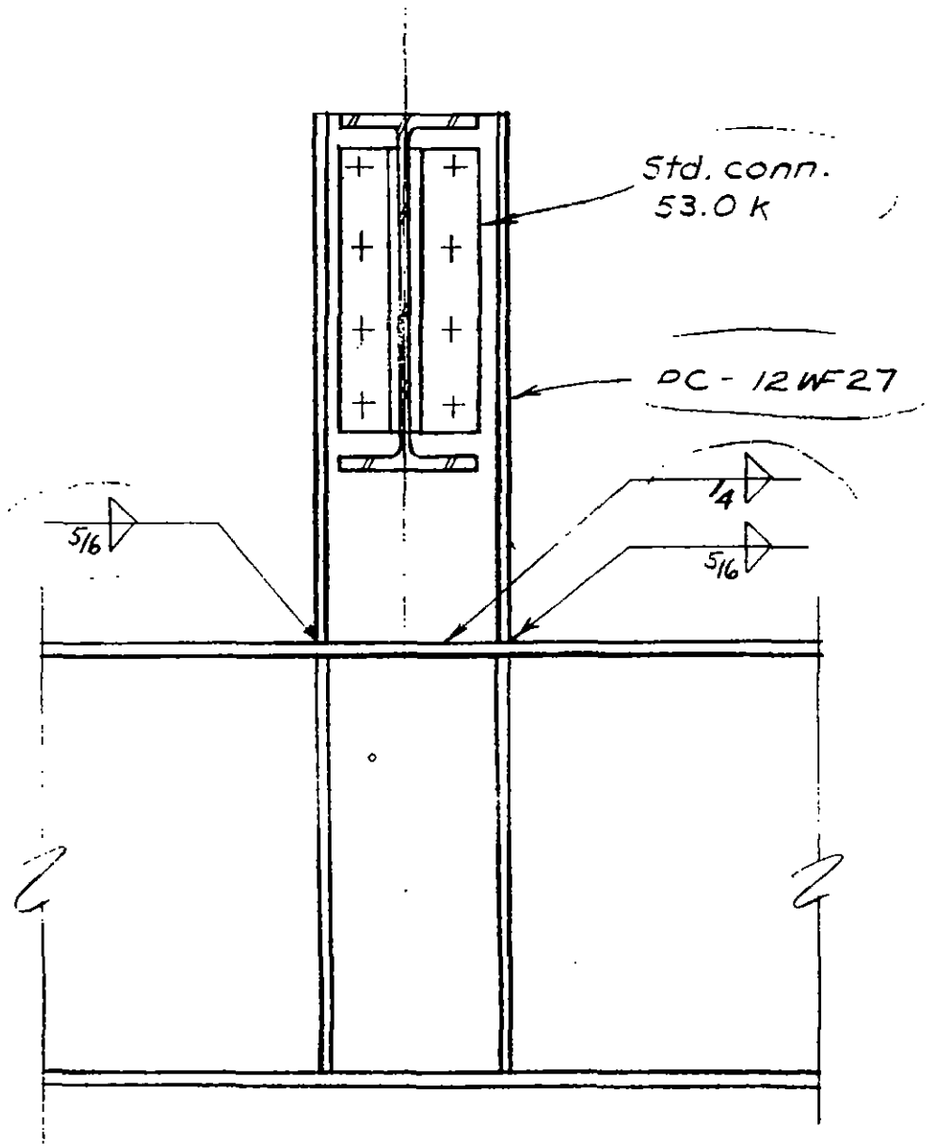
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 487 A | DATE 6-30-67

REVISIONS

9-15-67



Elevation



Section a-a

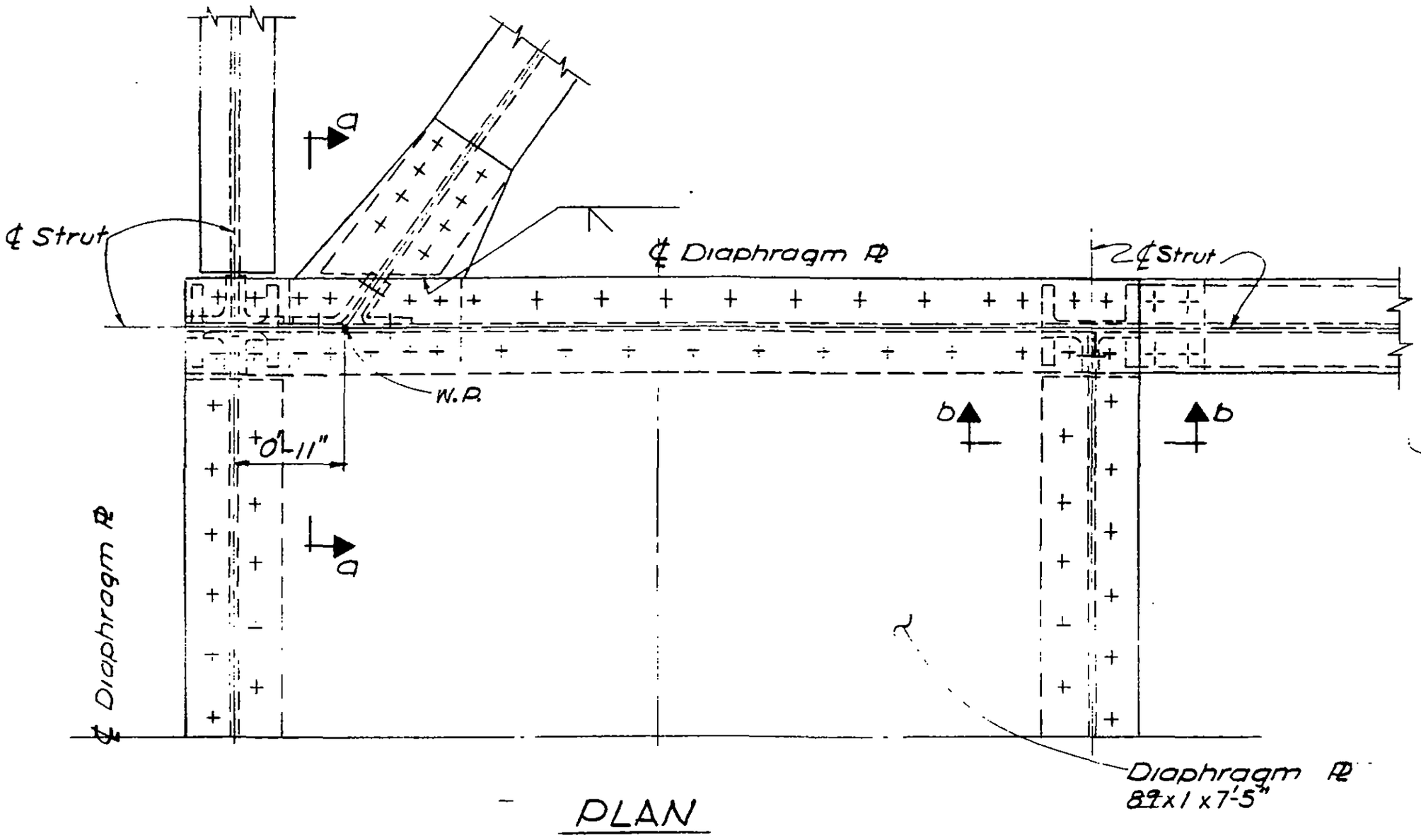
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-138

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 488 | DATE: 7/20/67

REVISIONS



PLAN

Note:
For Sections a-a & b-b
see 6-AB2-139.1

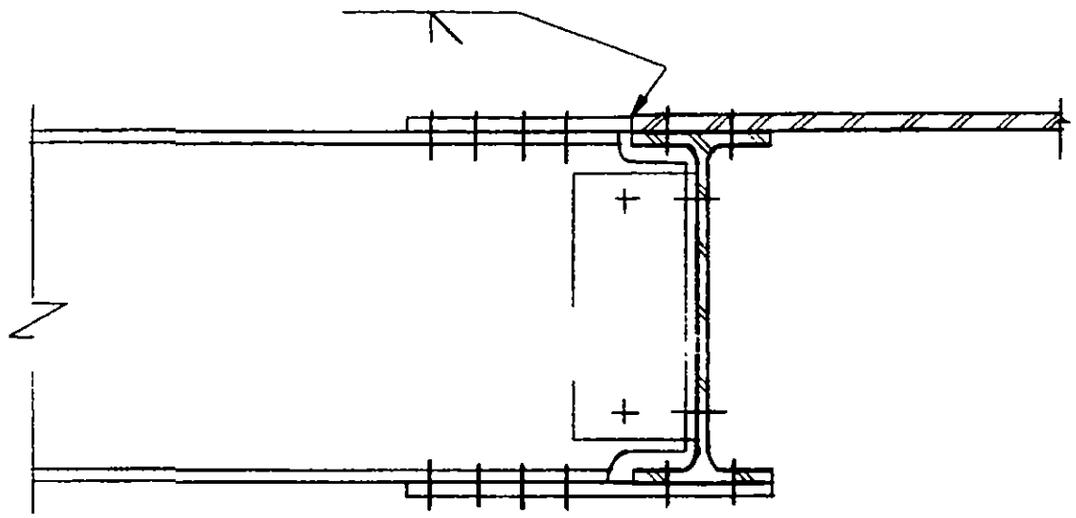
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-139

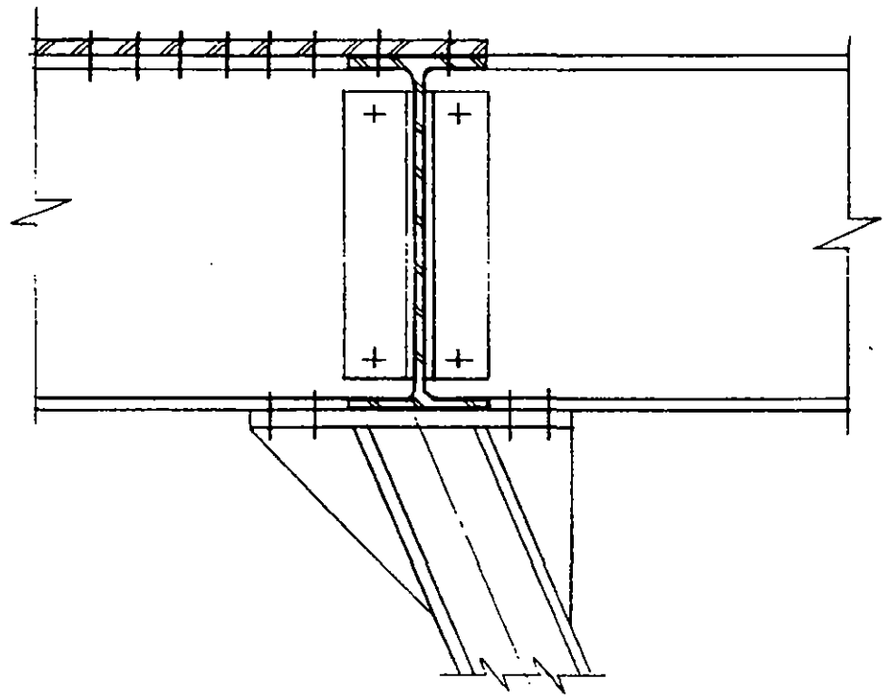
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL-SECTIONS a-a & b-b | DATE: 7/20/67

REVISIONS



Section a-a



Section b-b

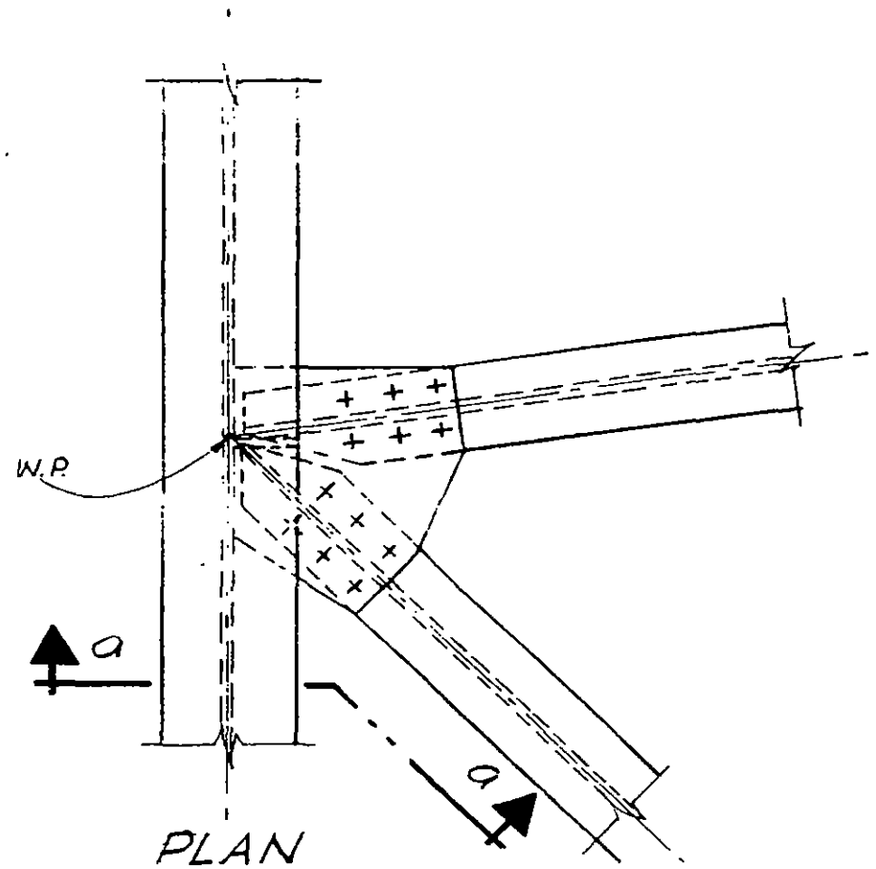
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 24360
STATE OF NEW YORK

G-AB2-139.1

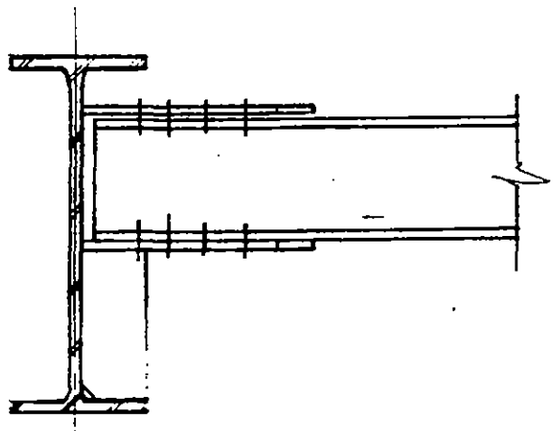
WORTHINGTON, SKILLING, HELLE & JACKSON Civil & Structural Engineers

PROJECT WORLD TRADE CENTER | TITLE CONNECTION DETAIL 489 | DATE 7/20/67

REVISIONS



PLAN



SECTION a-a

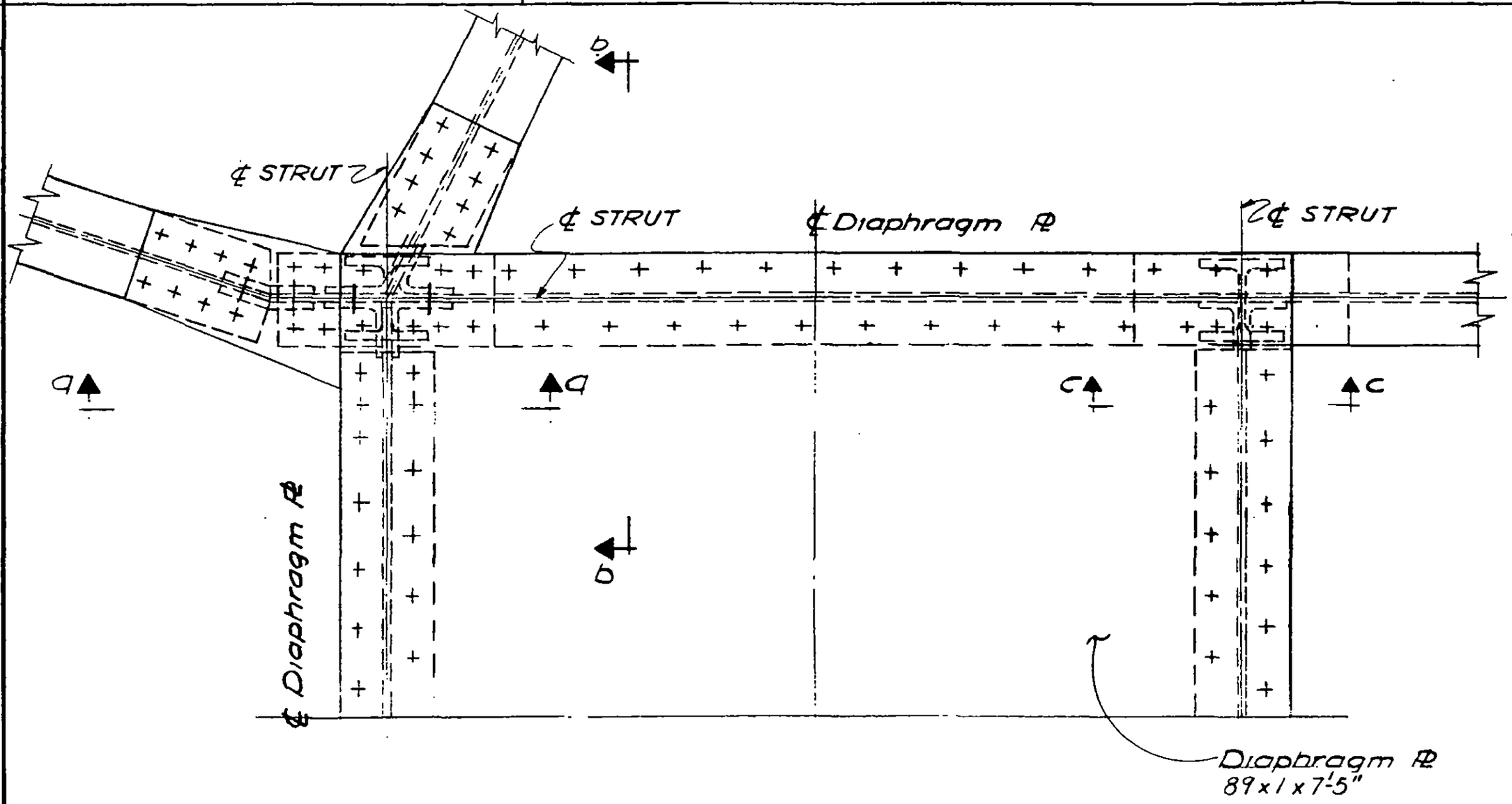
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-140

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 491 | DATE: 7/20/67

REVISIONS



PLAN

Note:
For Sections a-a
b-b & c-c see G-AB2-142.1

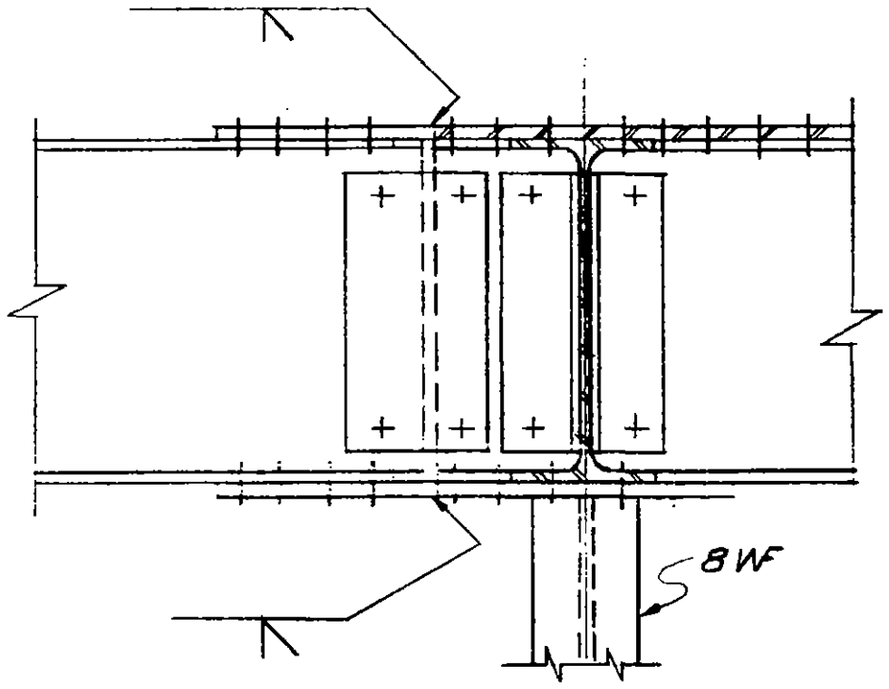
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
NEW YORK

G-AB2-142

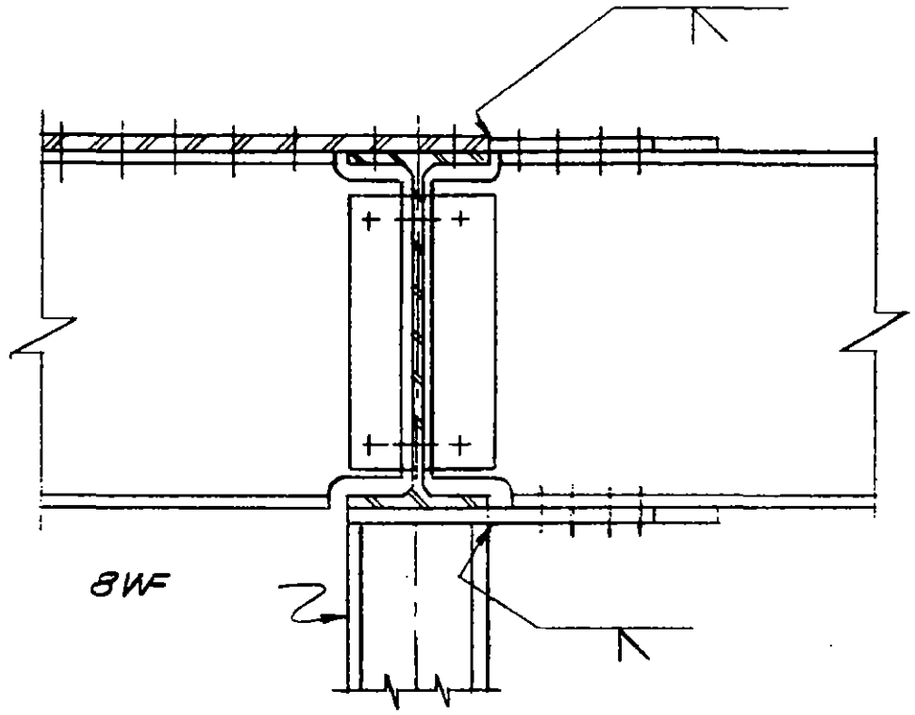
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS - SECTIONS a-a; b-b; c-c | DATE 7/20/67

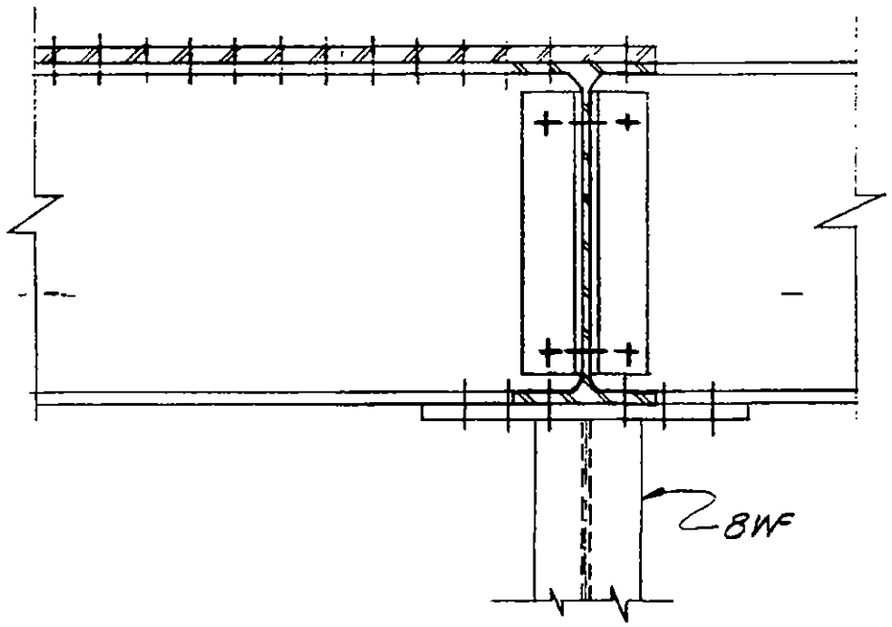
REVISIONS



Section a-a



Section b-b



Section c-c

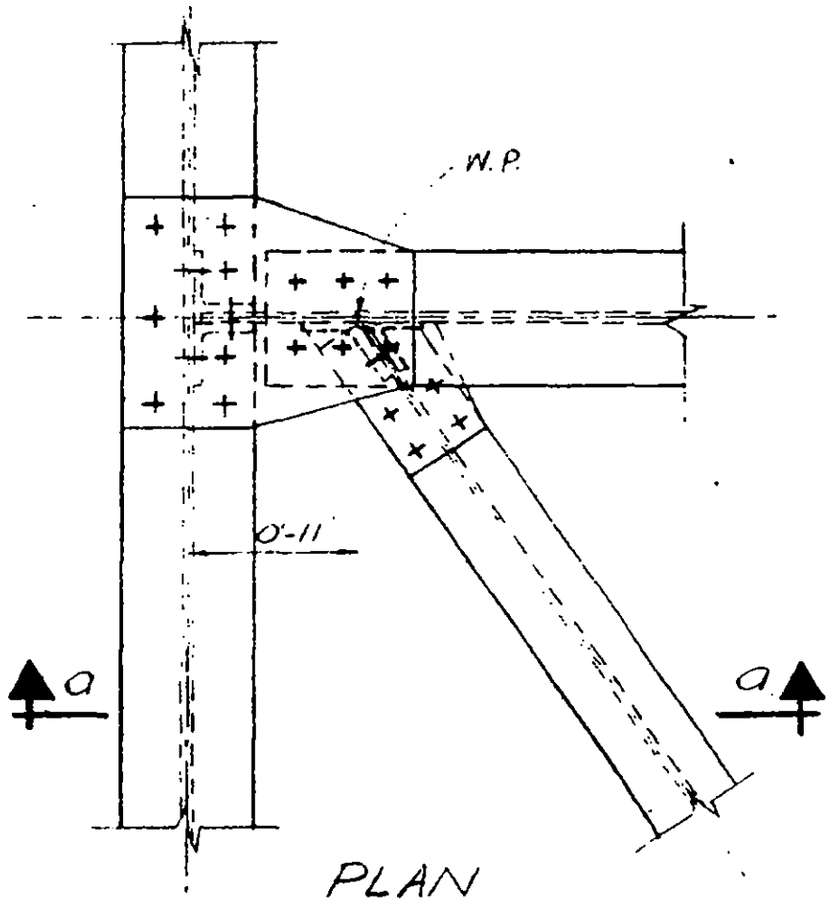
LESLIE E. ROBERTSON — No. 34360 — LICENSED PROFESSIONAL ENGINEER — STATE OF NEW YORK

6-AB2-142.1

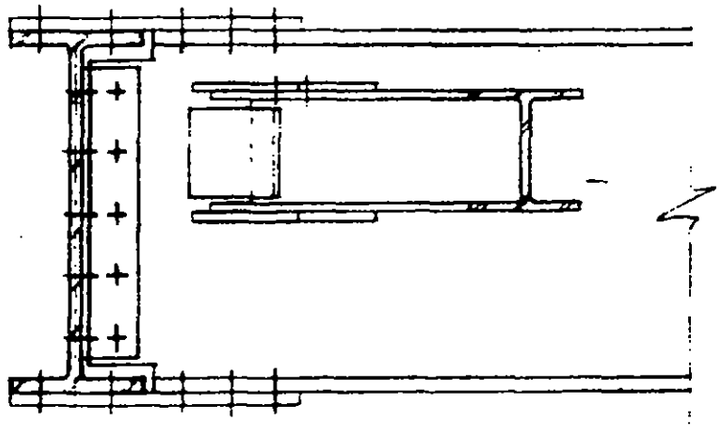
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT WORLD TRADE CENTER | TITLE CONNECTION DETAIL 492 | DATE 7/20/67

REVISIONS



PLAN

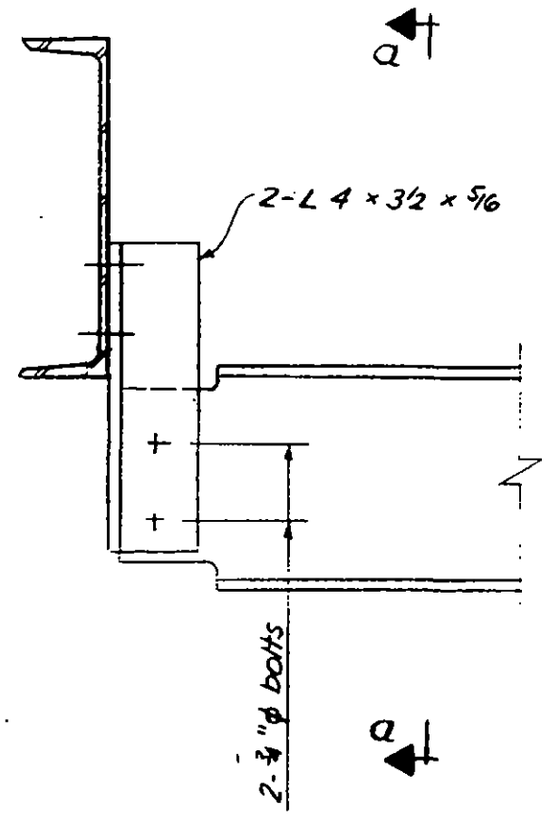


SECTION a-a

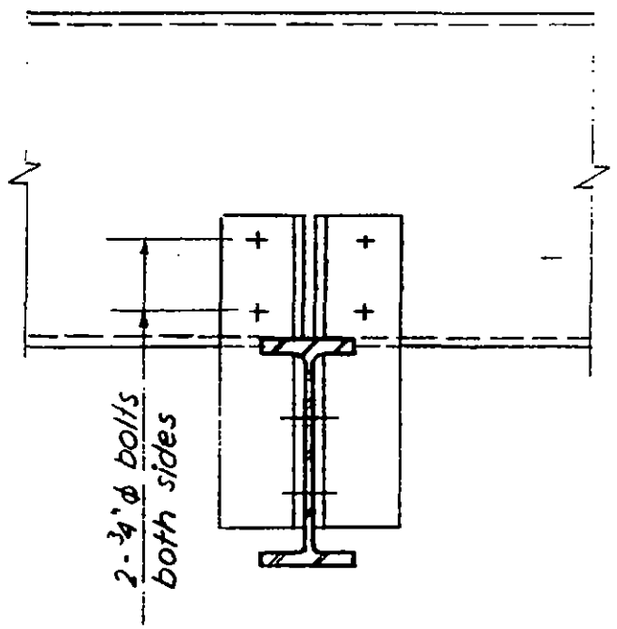
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 493 A | DATE 11-10-67

REVISIONS



ELEVATION



Section a-a

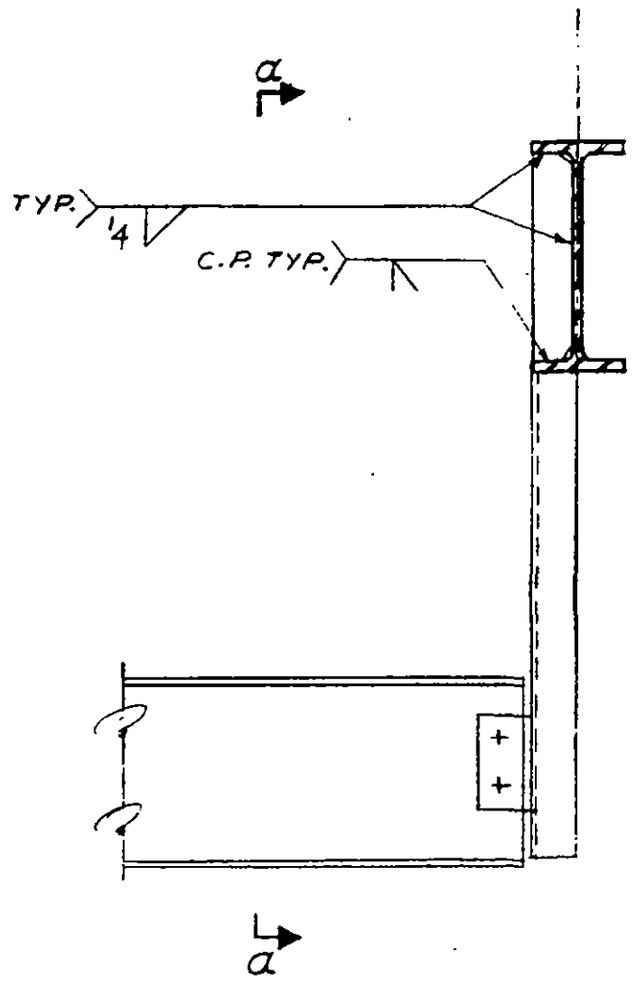
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-144

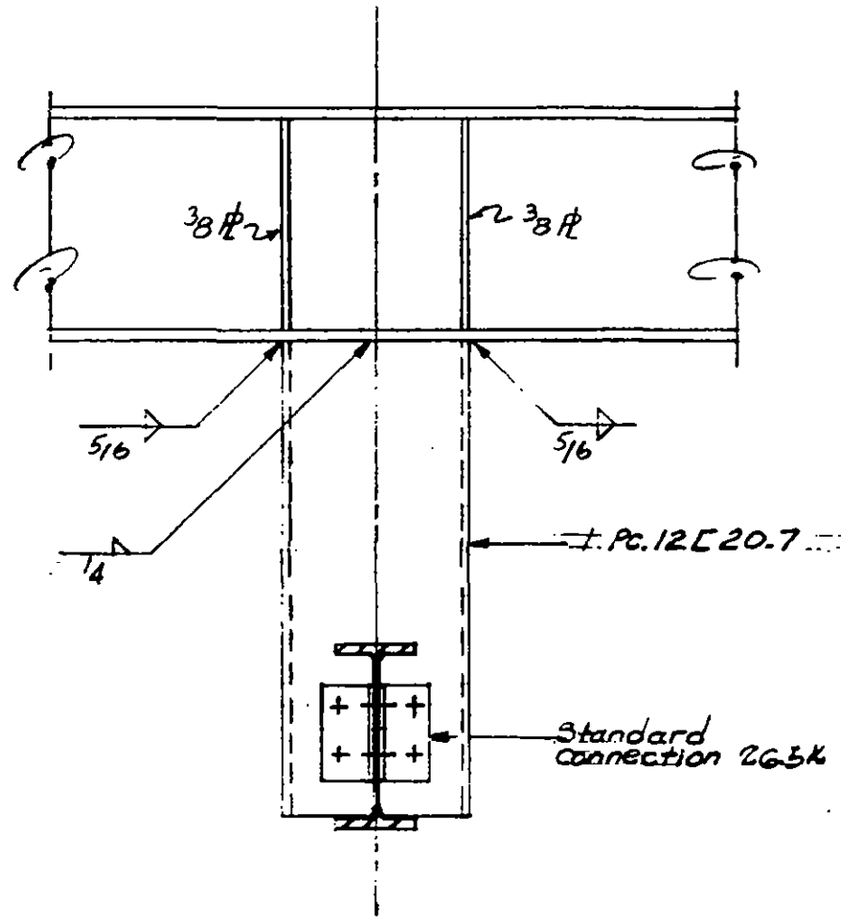
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 494A | DATE 9-29-67

REVISIONS



ELEVATION



Section a-a

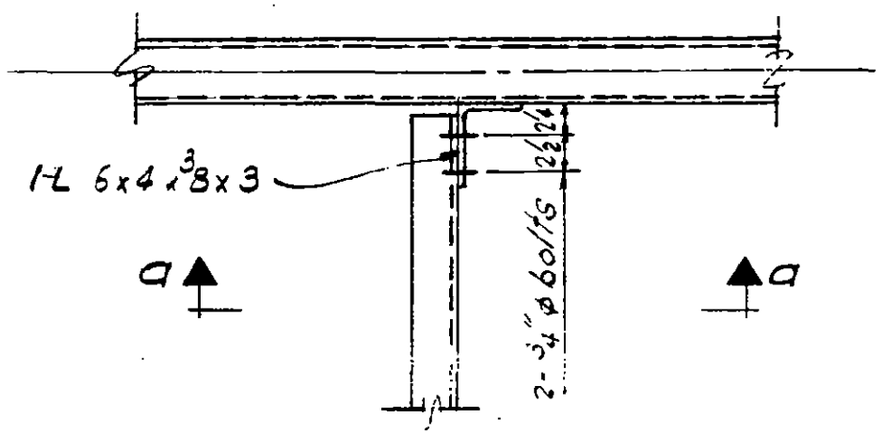
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTS
No. 34360
UNIVERSITY OF THE STATE OF NEW

6-AB2-145

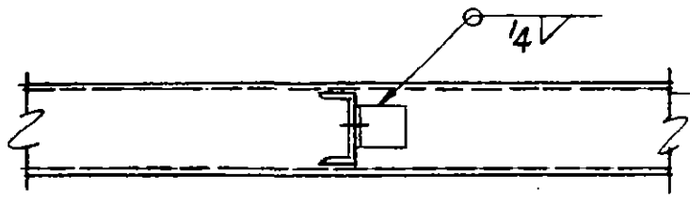
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 496 | DATE 8-5-67

REVISIONS



Plan



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

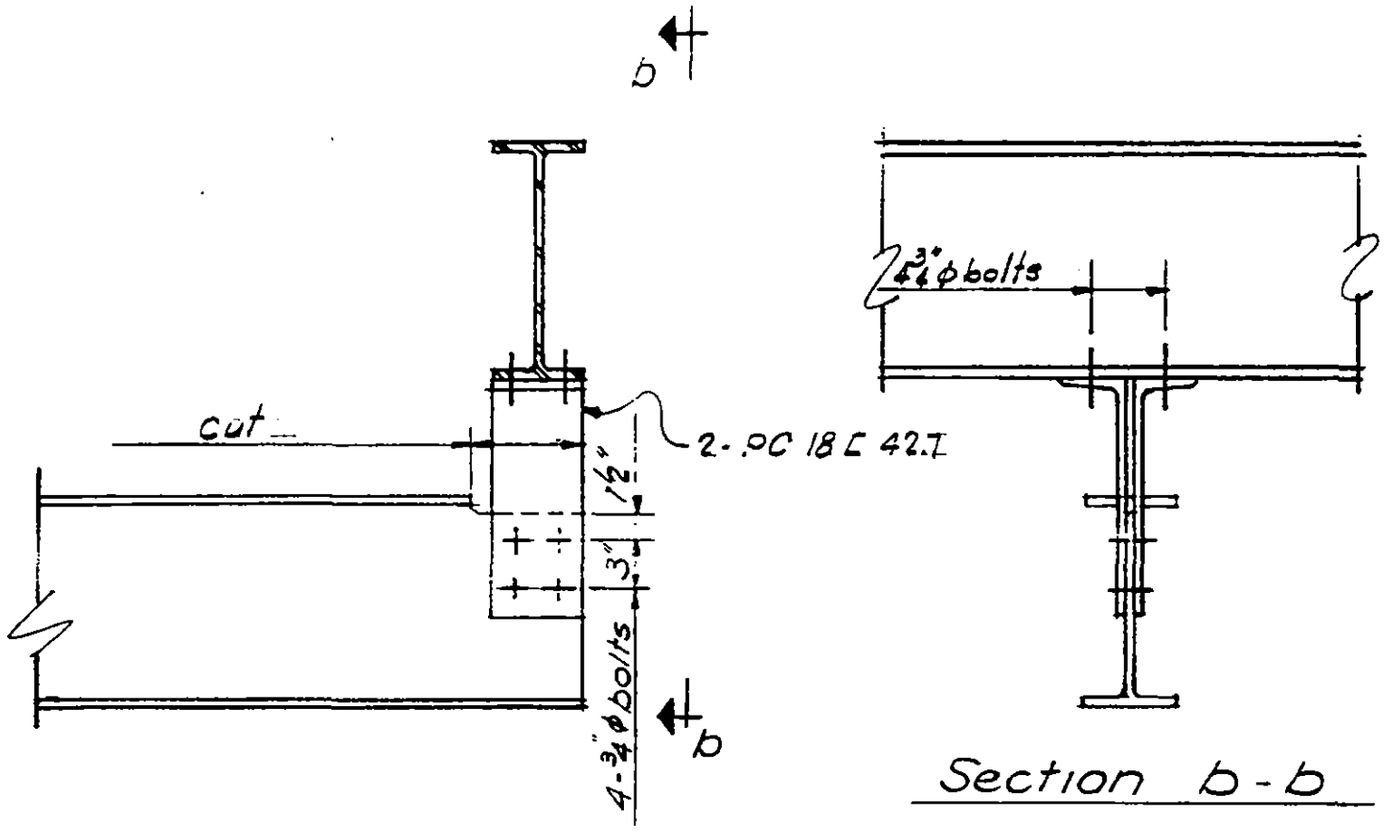
6-AB2-147

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 497 & 498 | DATE 3-5-67

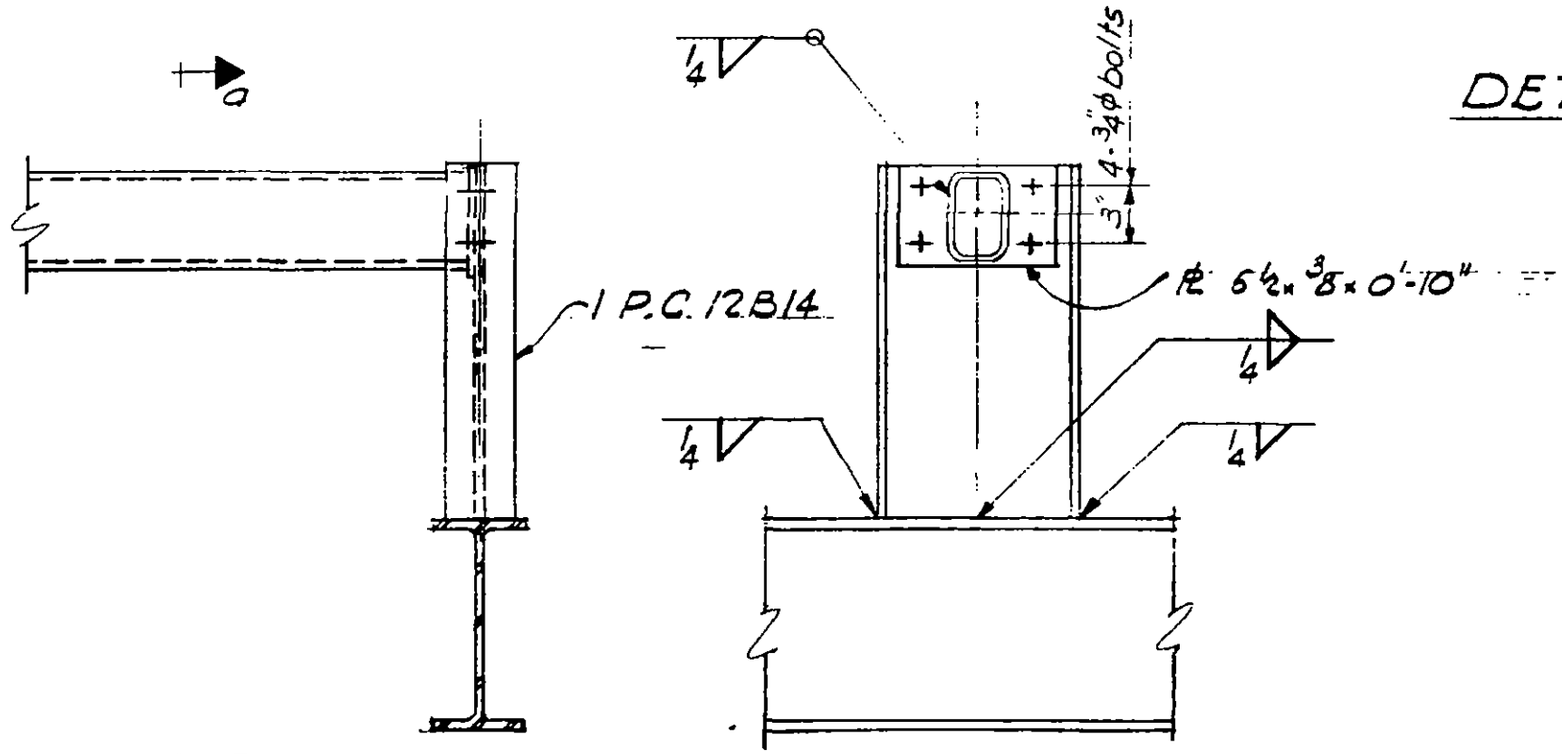
REVISIONS

DETAIL 497



Section b-b

DETAIL 498



Section a-a

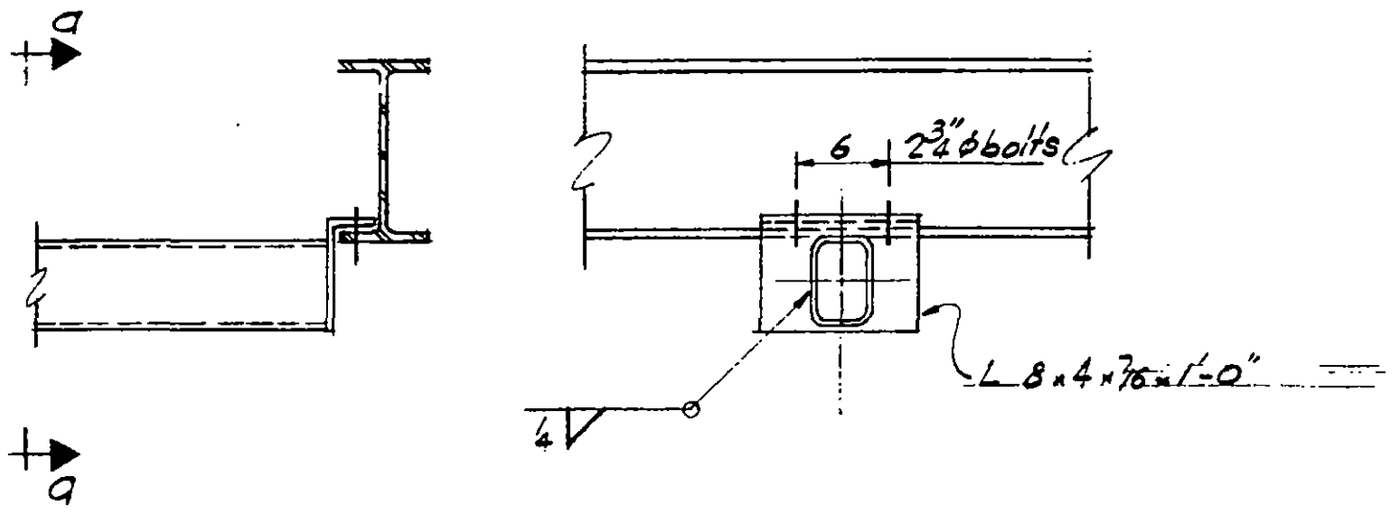
REGISTERED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
CITY OF THE STATE OF NEW YORK

6-AB2-148

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORID TRADE CENTER | TITLE CONNECTION DETAIL 499 | DATE 3-5-67

REVISIONS



Section a-a

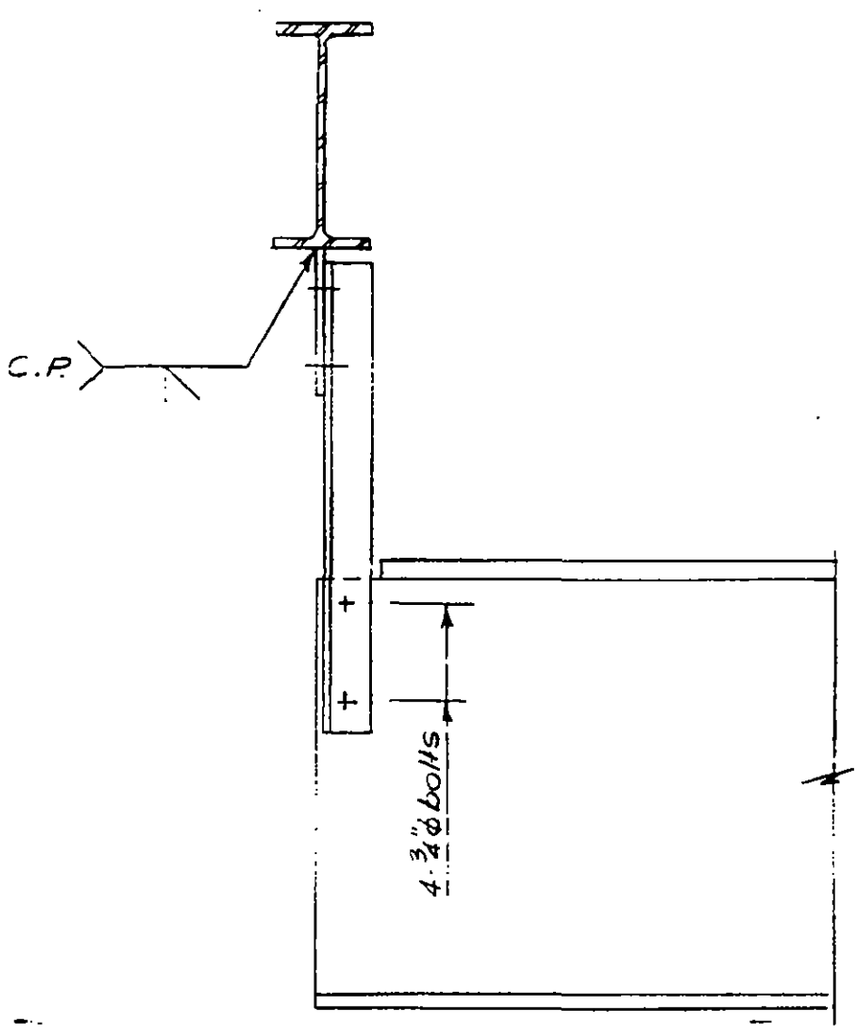
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

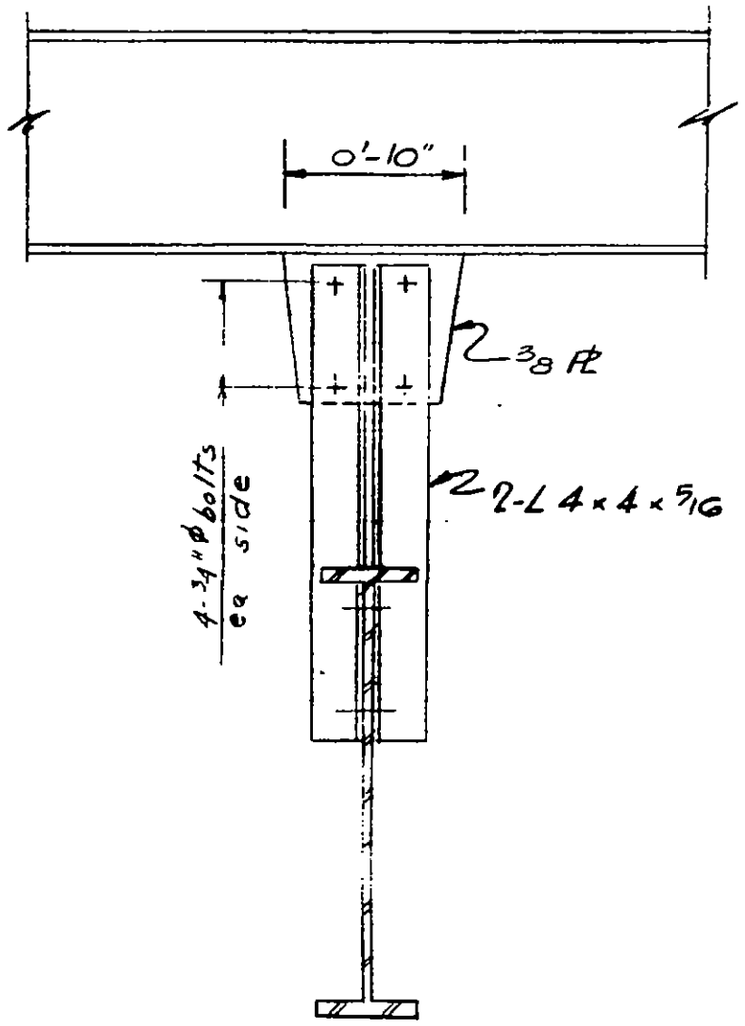
6-AB2-150

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 500 A | DATE 10-5-67

REVISIONS





LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

G-AB2-151

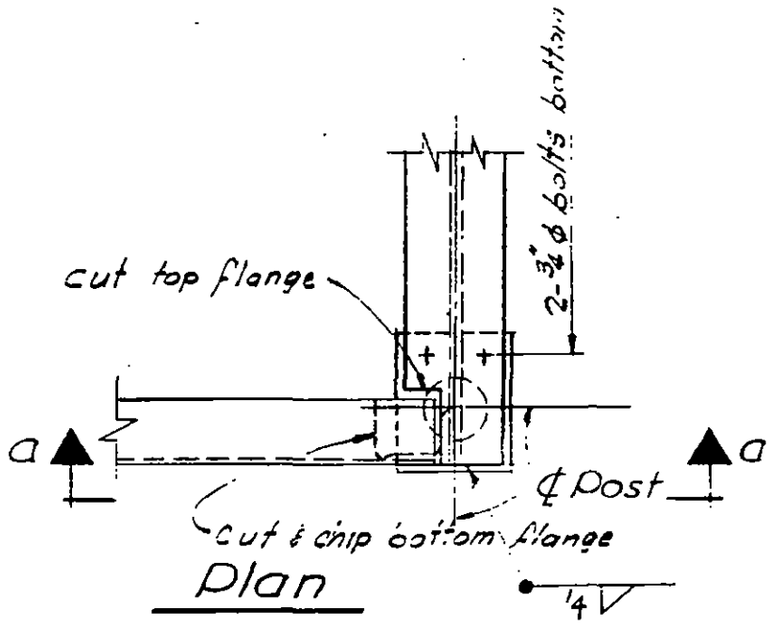
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAILS 501A & 502A | DATE: 5-9-67

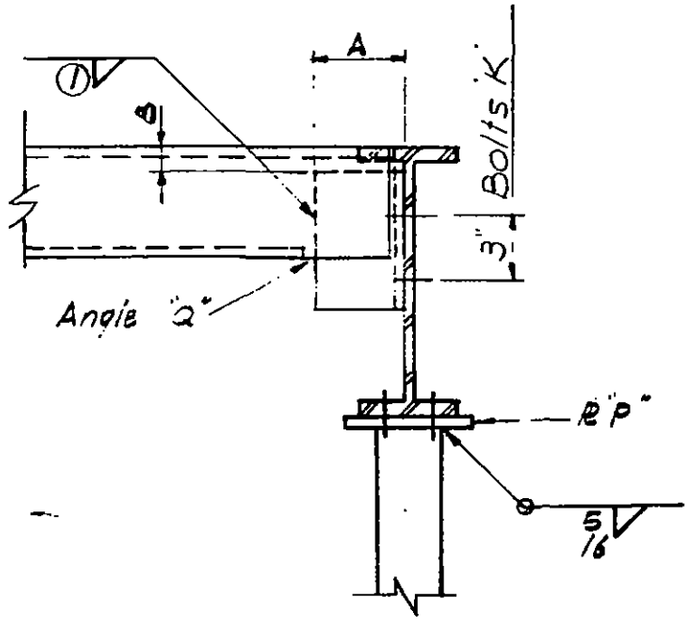
REVISIONS

5-67

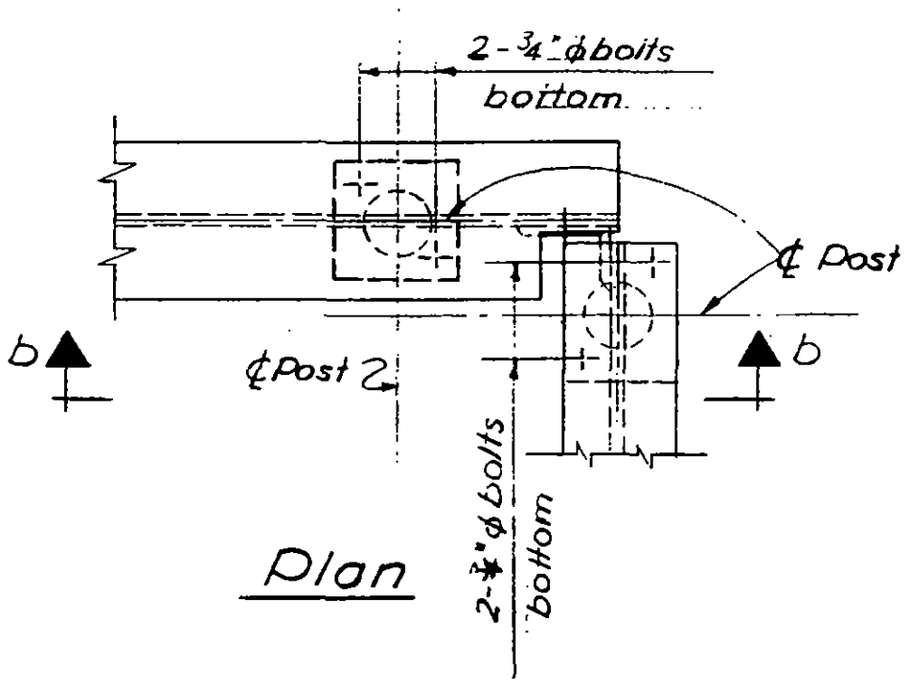
10-2-67



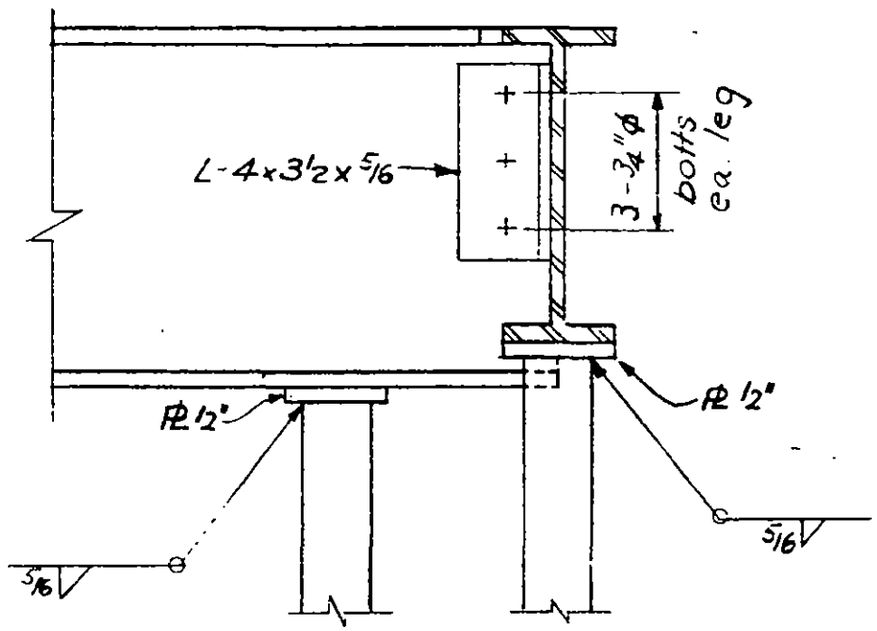
Plan



Section a-a



Plan



Section b-b

DETAIL 501A

DETAIL 502A

G-AB2-152

LESLIE E. ROBERTSON PROFESSIONAL ENGINEER N.Y. 34360 UNIVERSITY OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 501A | DATE 8-5-67

REVISIONS

	501 A					
Plate P	1/2					
Angle Q	3 1/2 × 3 × 3/8					
Dimension A	0'-3"					
B	3/4"					
Bolts K	2-3/4" ϕ					
Weld ①	5/16					



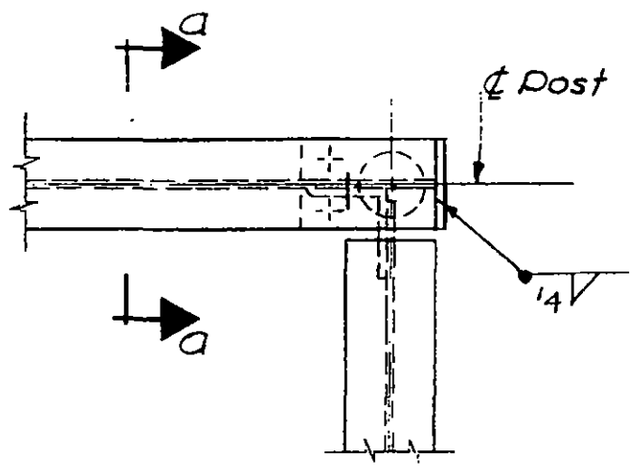
6-AB2-152.1

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

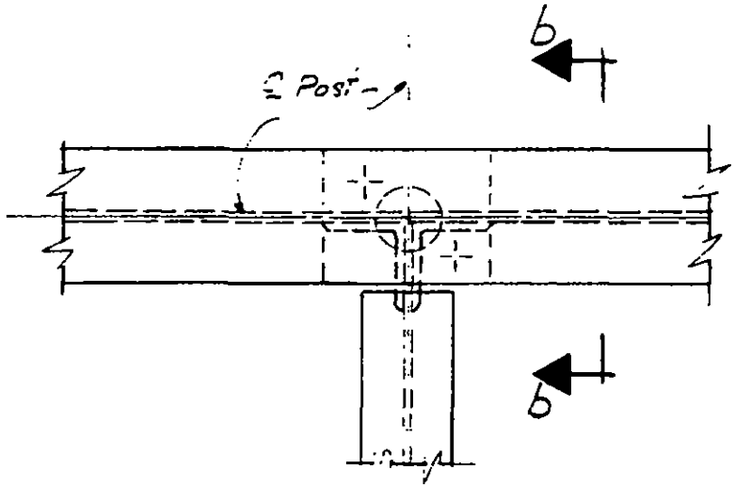
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAILS. 503 A,B, & 504 A | DATE: 5-9-67

REVISIONS

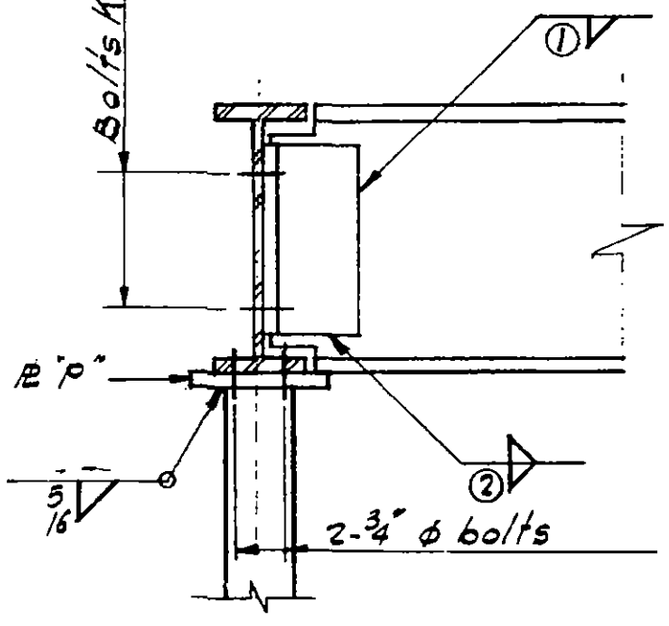
- 5-67
- 8-14-67



Plan



Plan

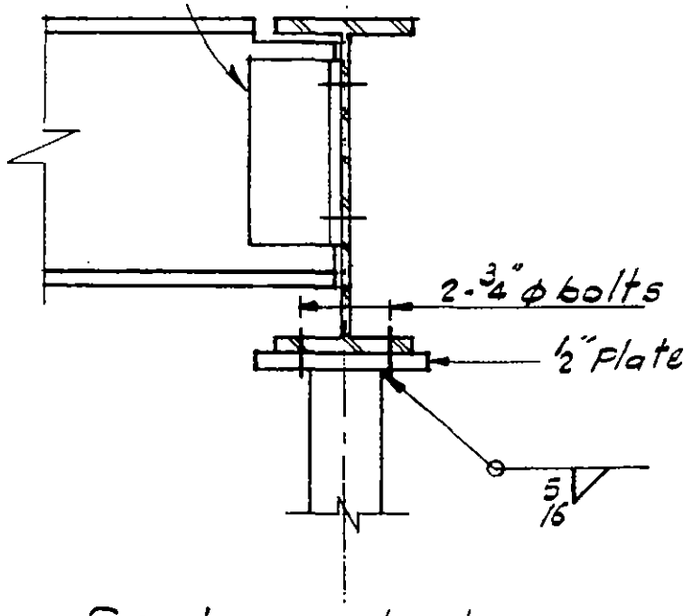


Section a-a

Deeper of two beams sits on post. If two beams of same depth see beam schedule

DETAIL 503 A,B

std. conn. 18.0K



Section b-b

DETAIL 504 A

6-AB2-153

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE SCHEDULE FOR DETAIL 503 A,B | DATE 8-5-67

REVISIONS

-14-67

REF. DWG.	6-AB2-153	6-AB2-153
	503 A	503 B
PLATES		
P	1/2"	5/8"
ANGLE		
Q	4x4x7/16	4x4x7/16
BOLTS		
K	3-1 ϕ	2-7/8" ϕ
WELD		
①	3/8"	3/8"
②	3/8"	3/8"

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
COUNTY OF THE STATE OF NEW YORK

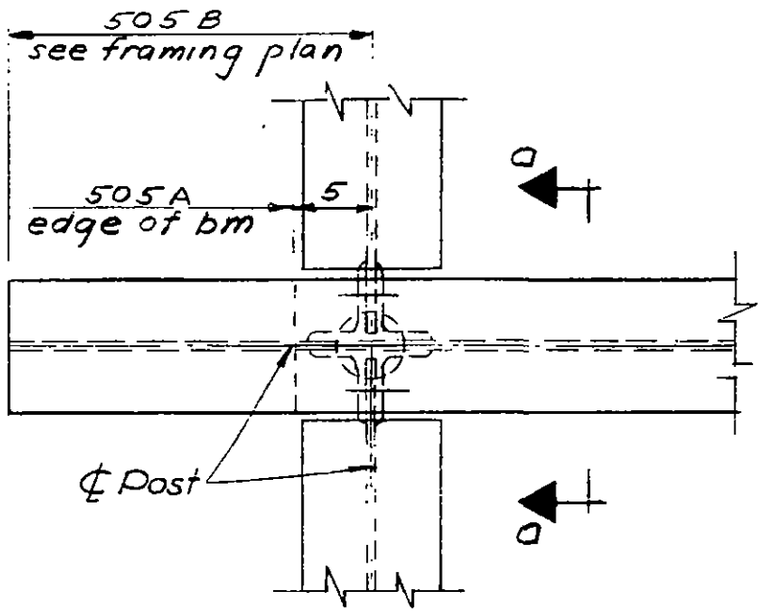
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WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

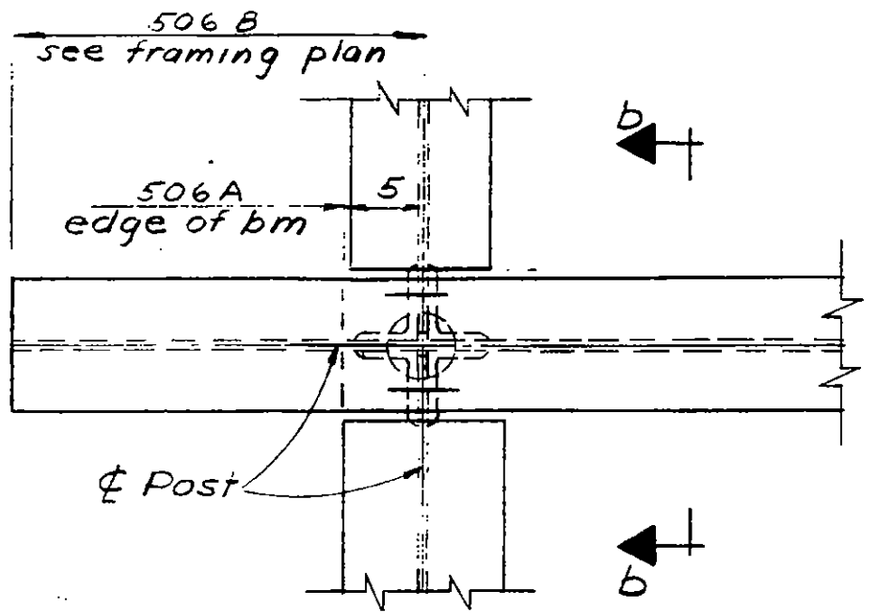
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAILS 505 A,B & 506 A,B | DATE: 5-9-67

REVISIONS

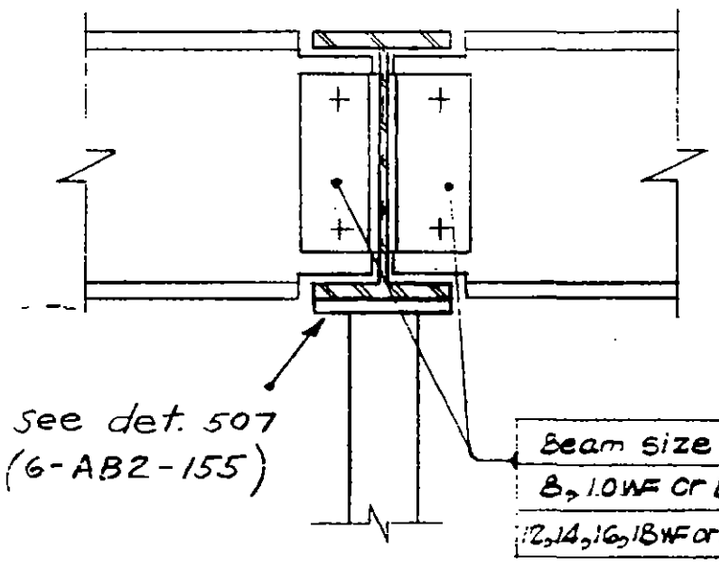
1-19-67
8-14-67
10-2-67



PLAN

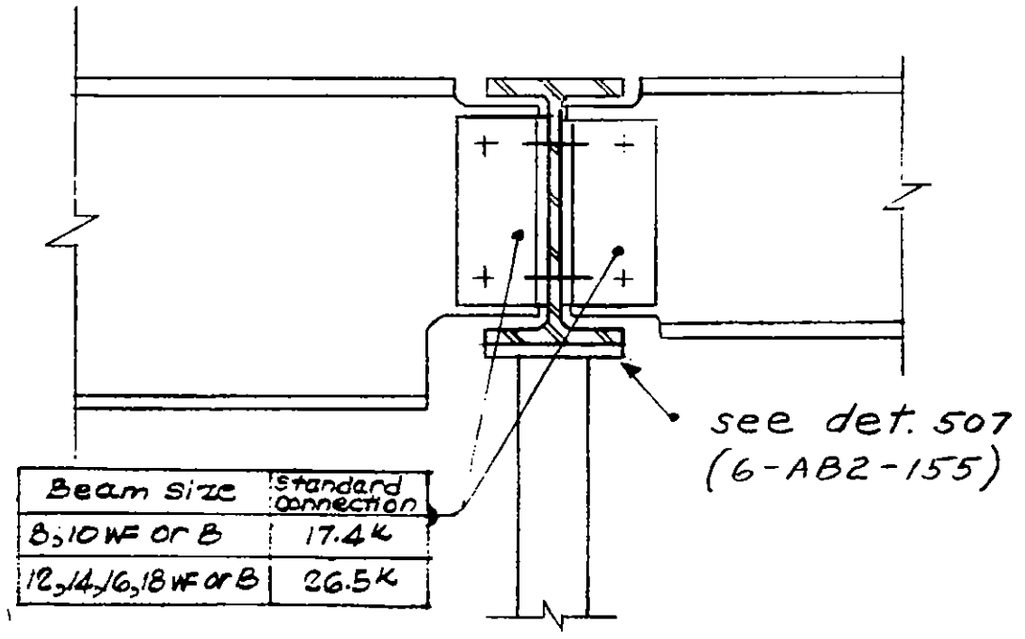


Plan



Beam size	standard connection
8,10 WF or B	17.4K
12,14,16,18 WF or B	26.5K

SECTION a-a



Beam size	standard connection
8,10 WF or B	17.4K
12,14,16,18 WF or B	26.5K

SECTION b-b

DETAIL 505

DETAIL 506

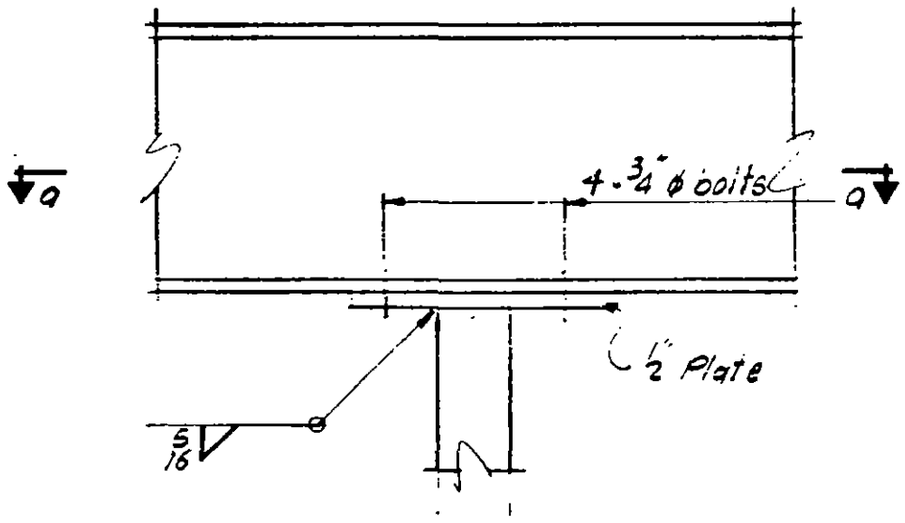
6-AB2-154

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — STATE OF NEW YORK

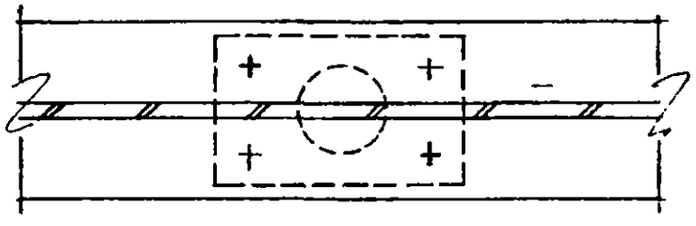
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 507 | DATE: 8-5-67

REVISIONS



Elevation



Section a-a

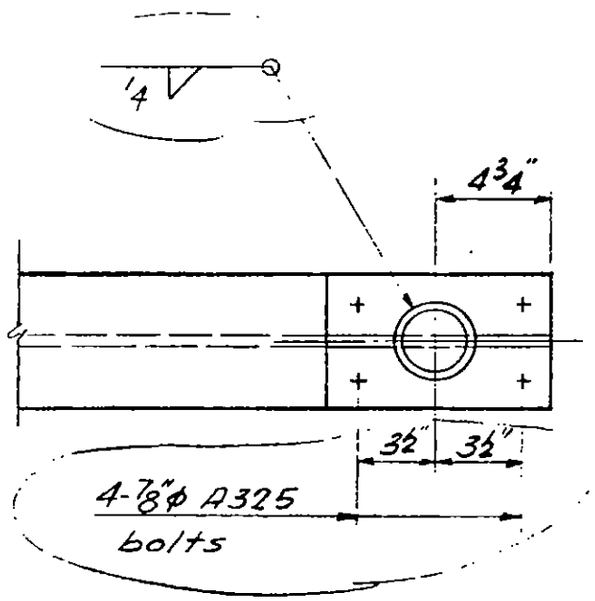
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

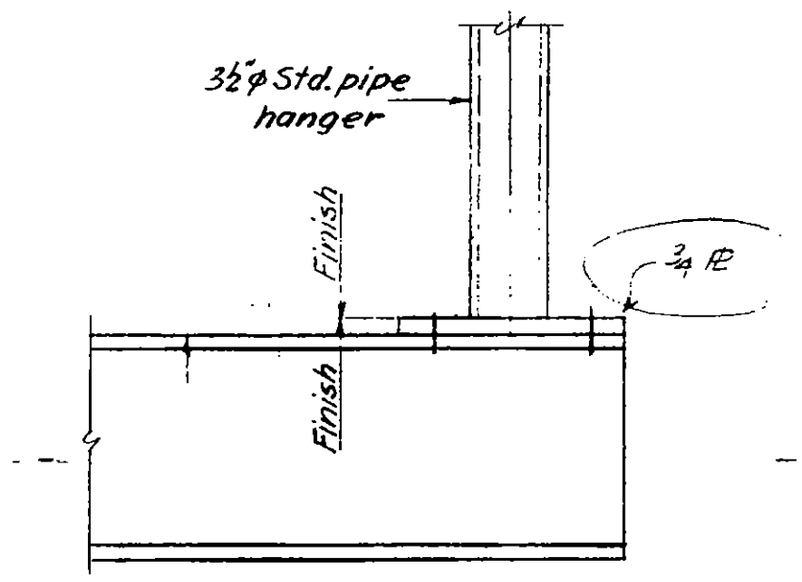
6-AB2-155

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

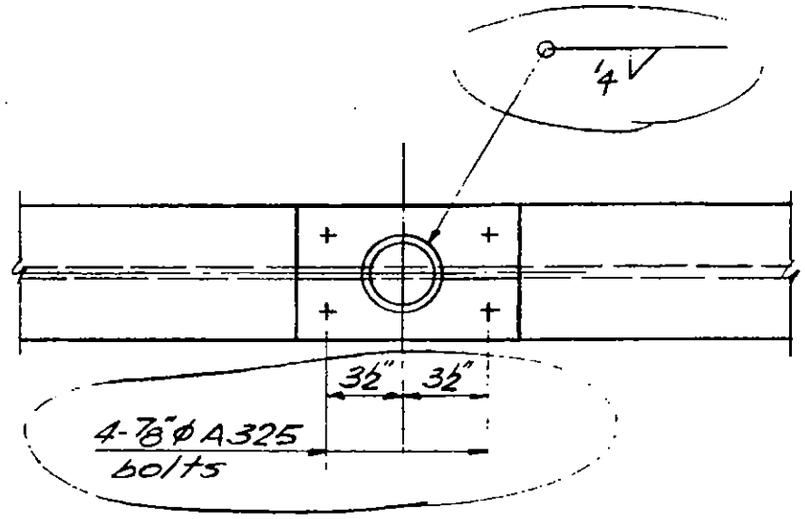
PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAILS 508 & 512	6-5-67

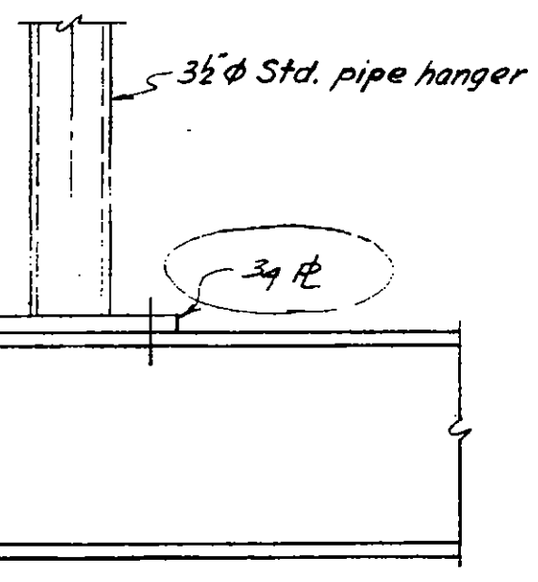
REVISIONS





Detail 508





Detail 512

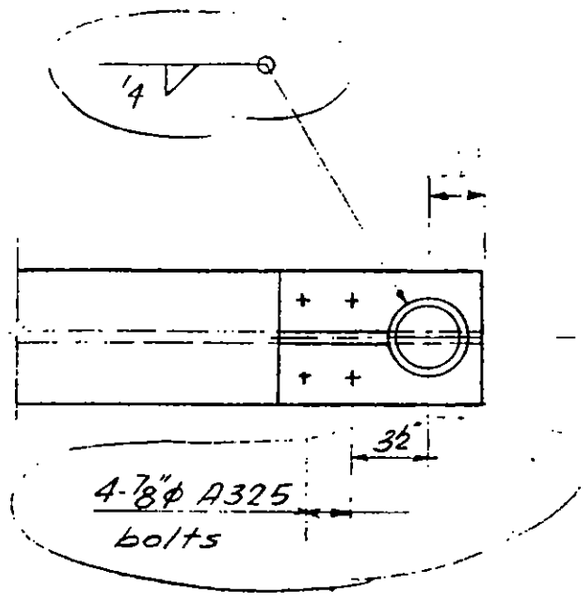
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

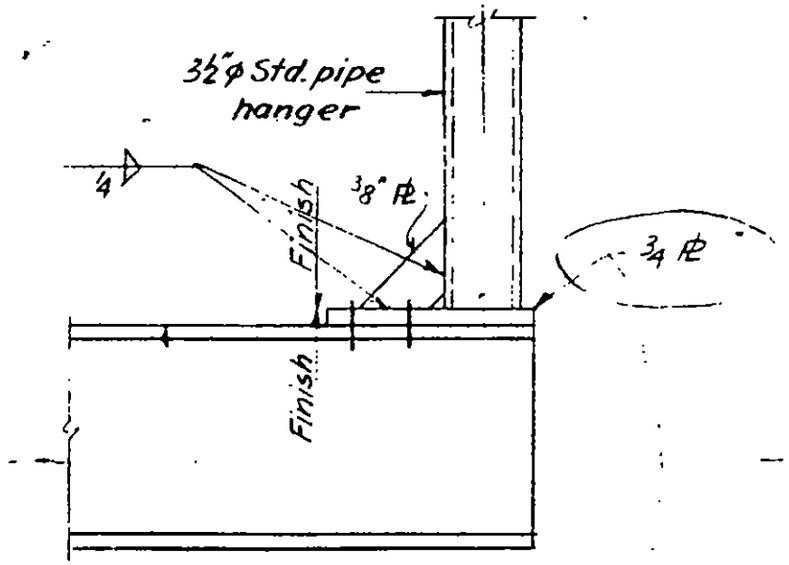
G-AB2-156

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

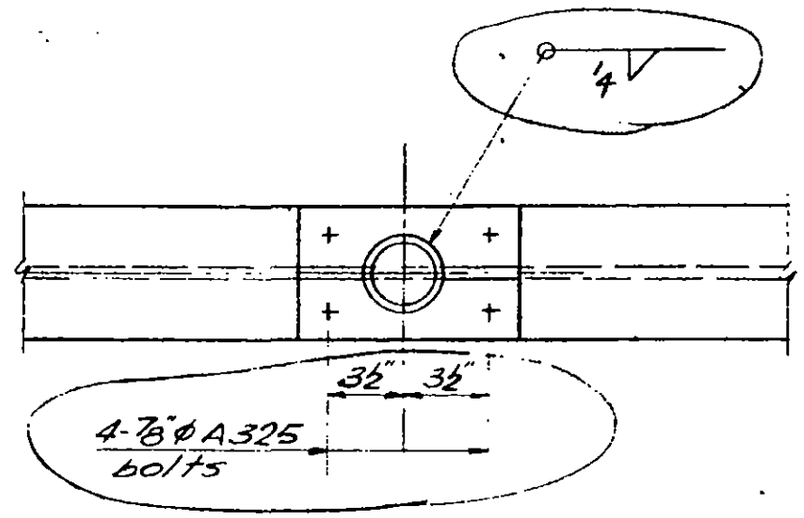
PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAILS 508 & 512 | DATE: 6-5-67

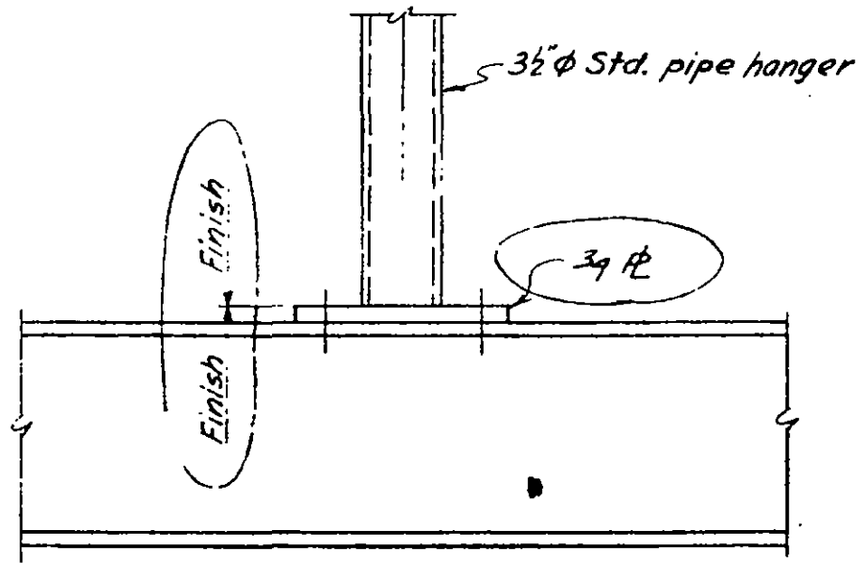
REVISIONS
·17-67





Detail 508





Detail 512

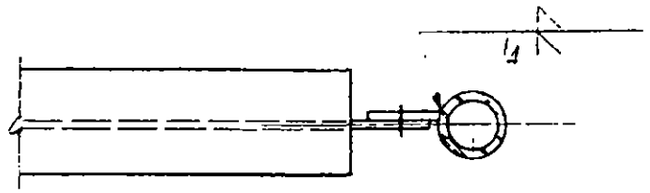
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-156 ALT.

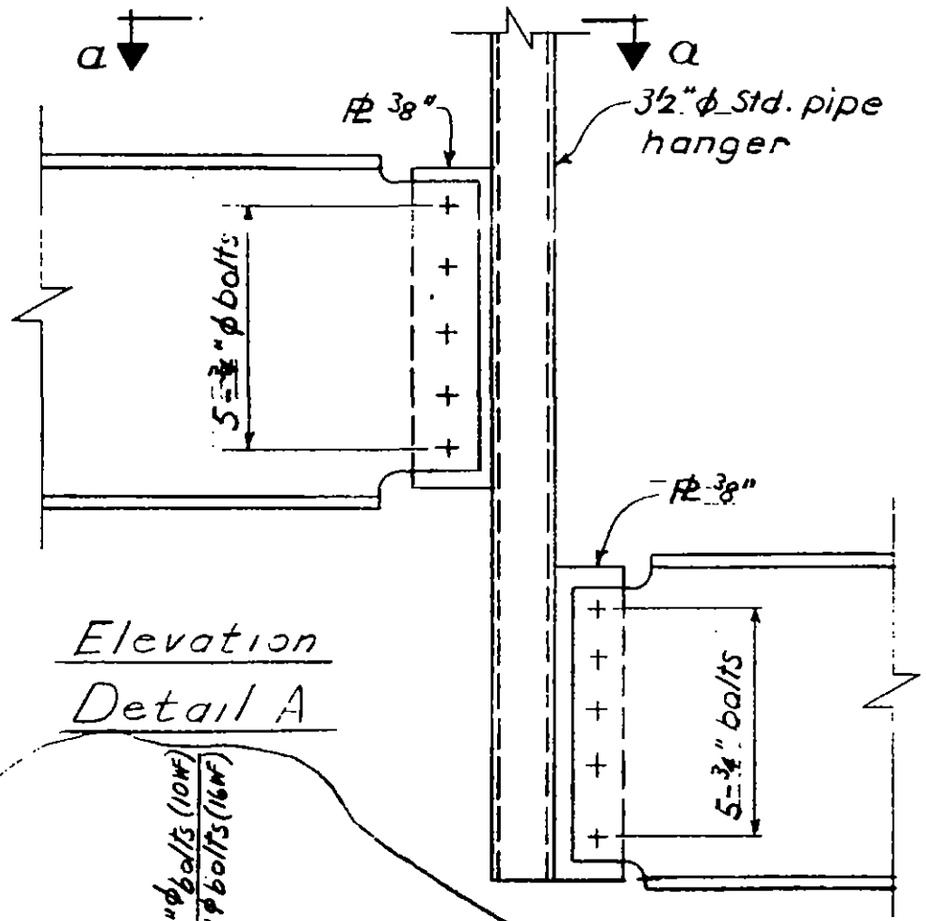
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL 509 A, B, C, D, E | DATE: 6-5-67

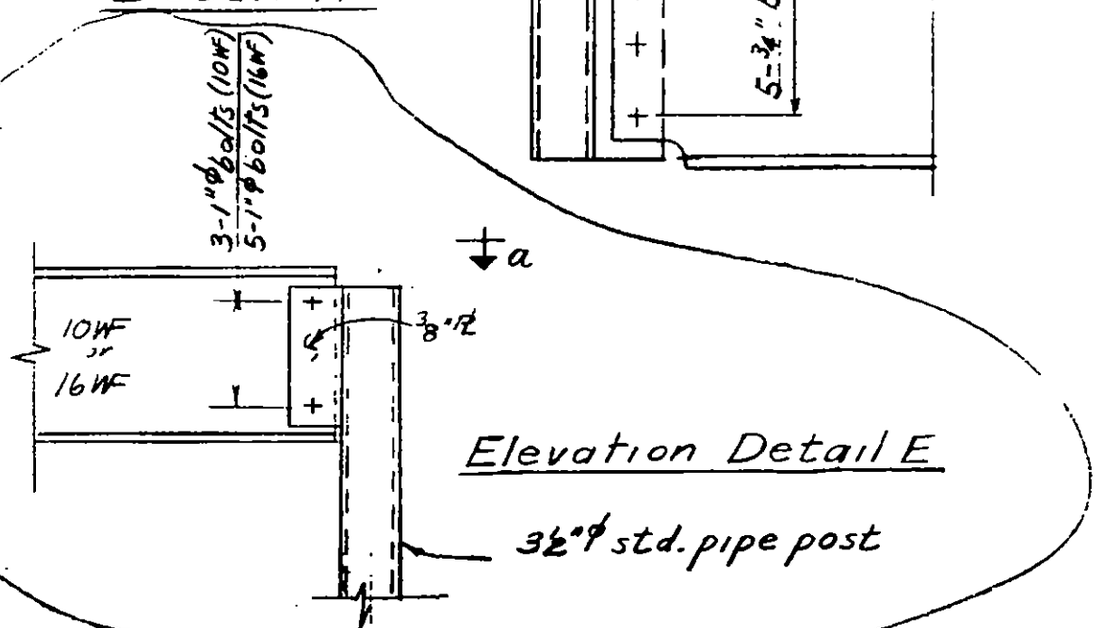
REVISIONS
8-14-67
10-2-67
1-24-68
2-9-68



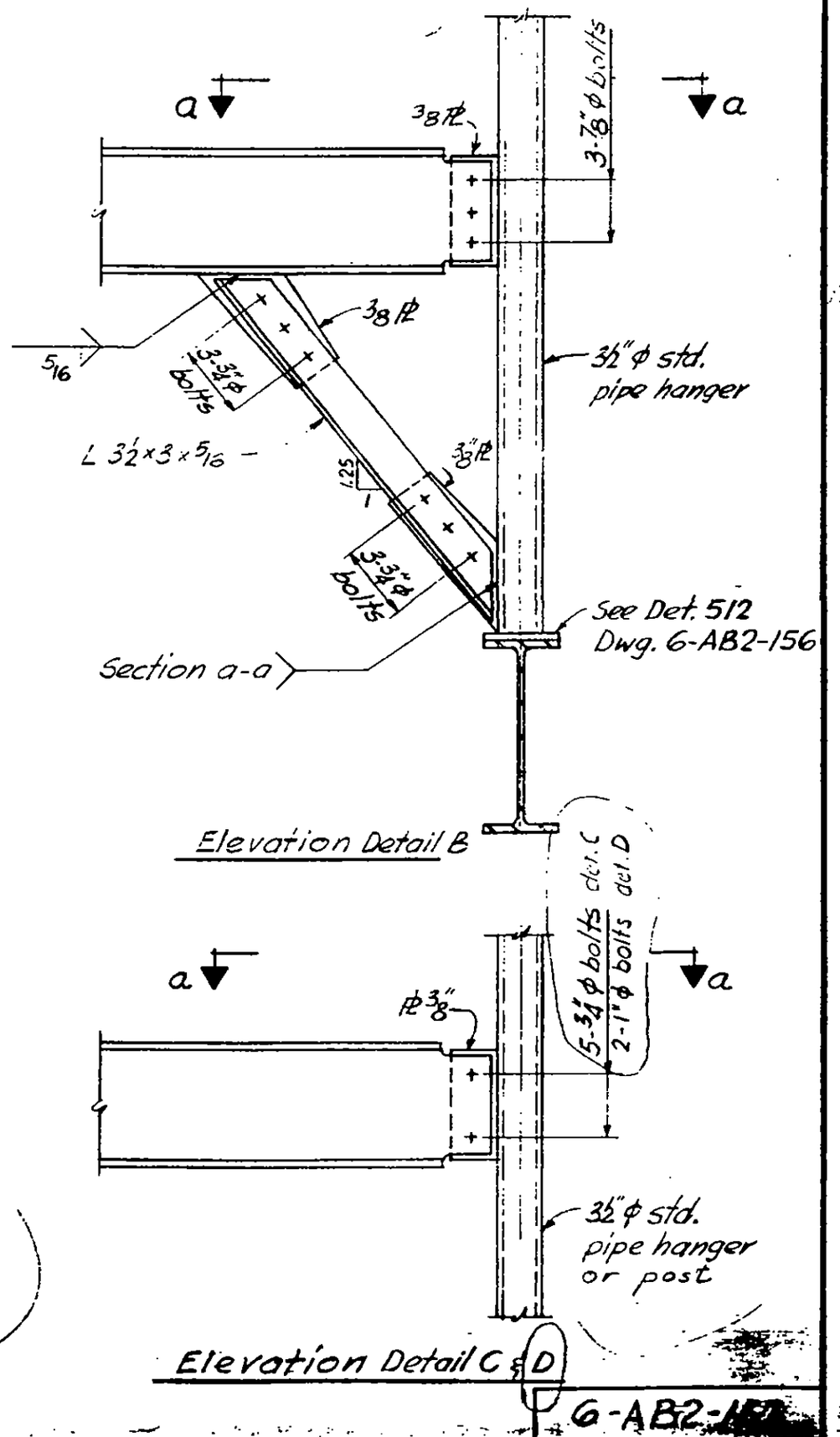
Section a-a (typ.)



Elevation Detail A



Elevation Detail E



Elevation Detail B

Elevation Detail C & D

G-AB2-157

LESLIE E. ROBERTSON — LICENSED PROFESSIONAL ENGINEER — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

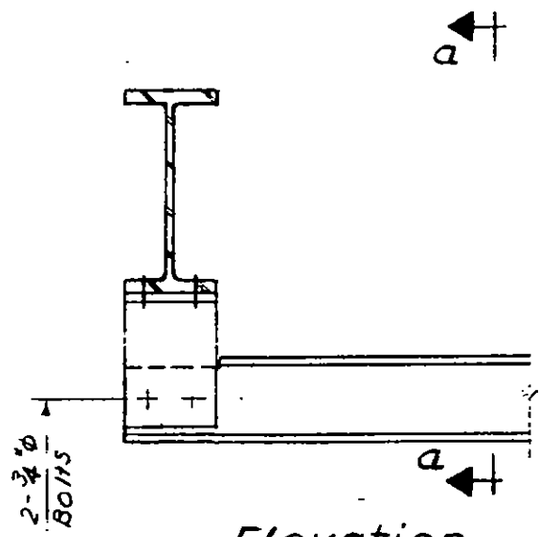
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 510 A, B & C. | DATE 6-5-67

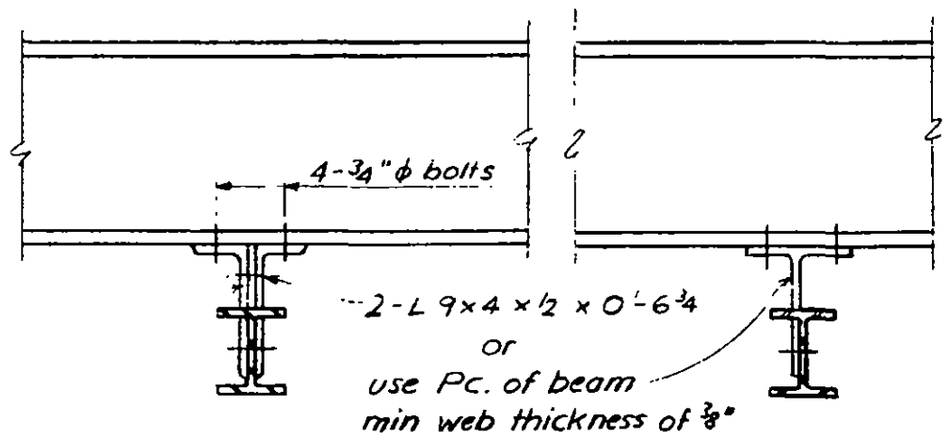
REVISIONS

10-2-67
12-21-67
5-7-68

Detail 510A

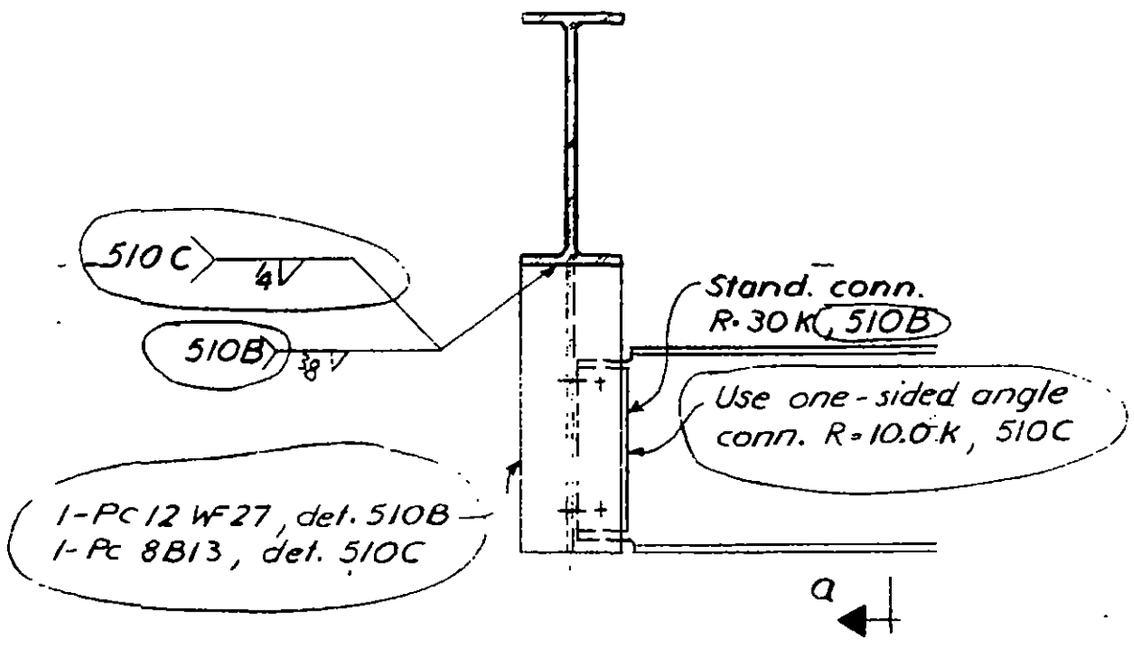


Elevation

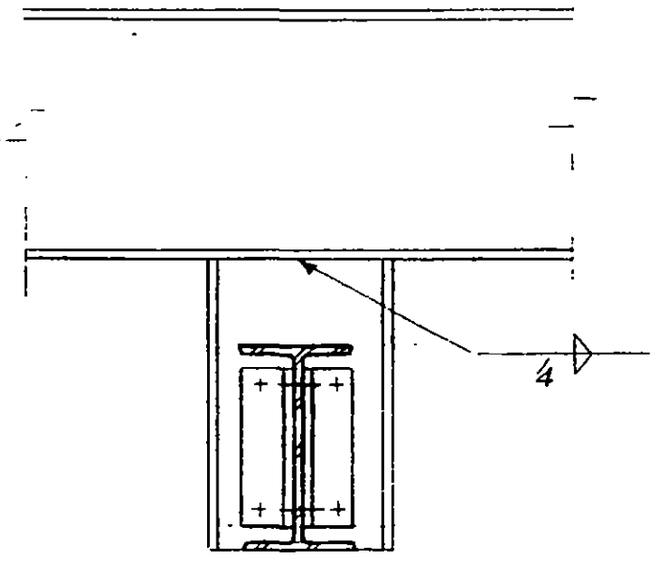


Section a-a

Detail 510 B, C



Elevation



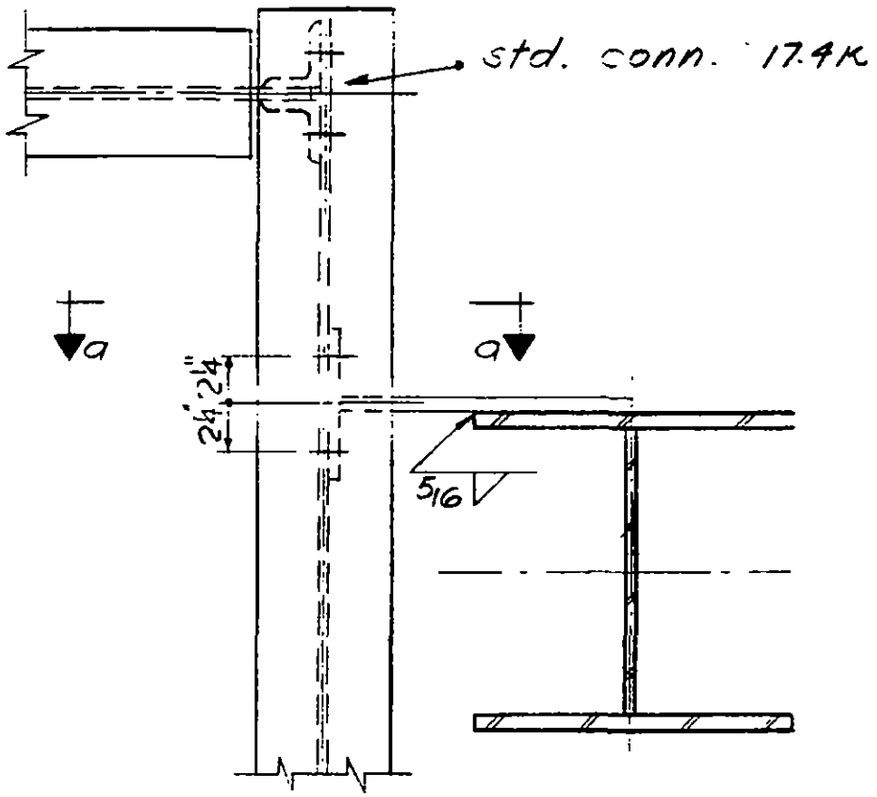
Section a-a

6-AB2-158

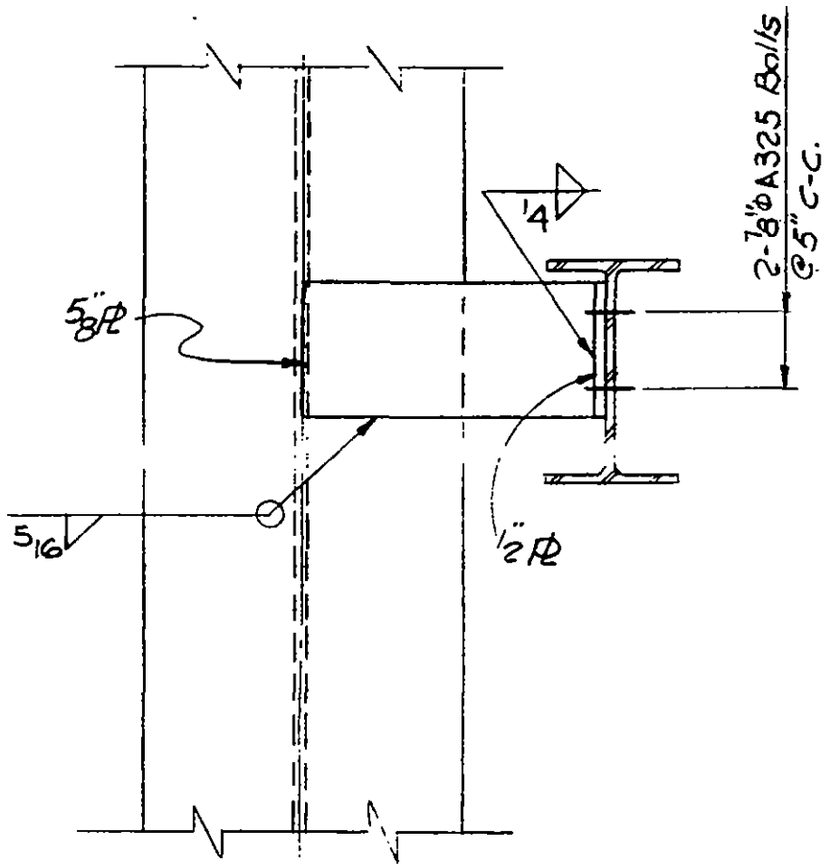
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 513 A | DATE 8-14-67

REVISIONS



Plan



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF THE STATE OF NEW YORK

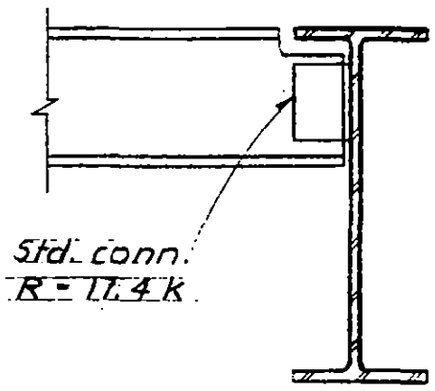
6-AB2-160

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

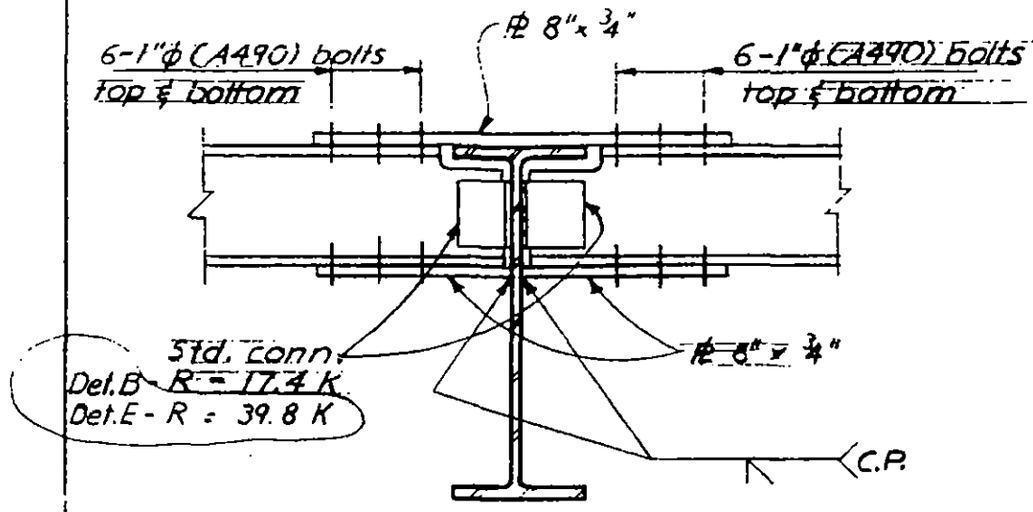
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 515 A-F | DATE 12-21-67

REVISIONS

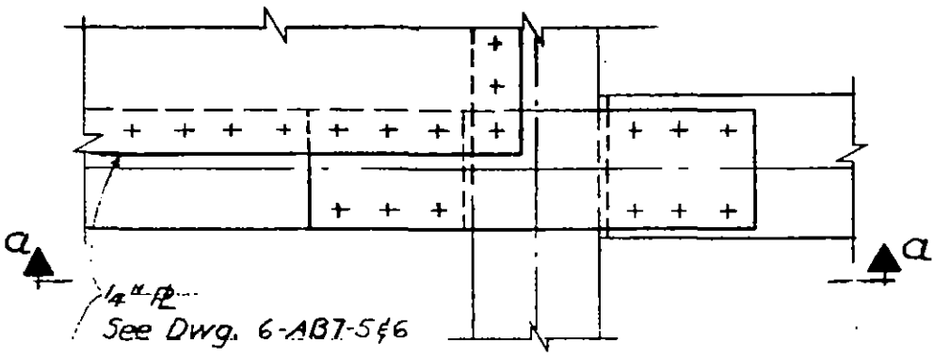
2-9-68



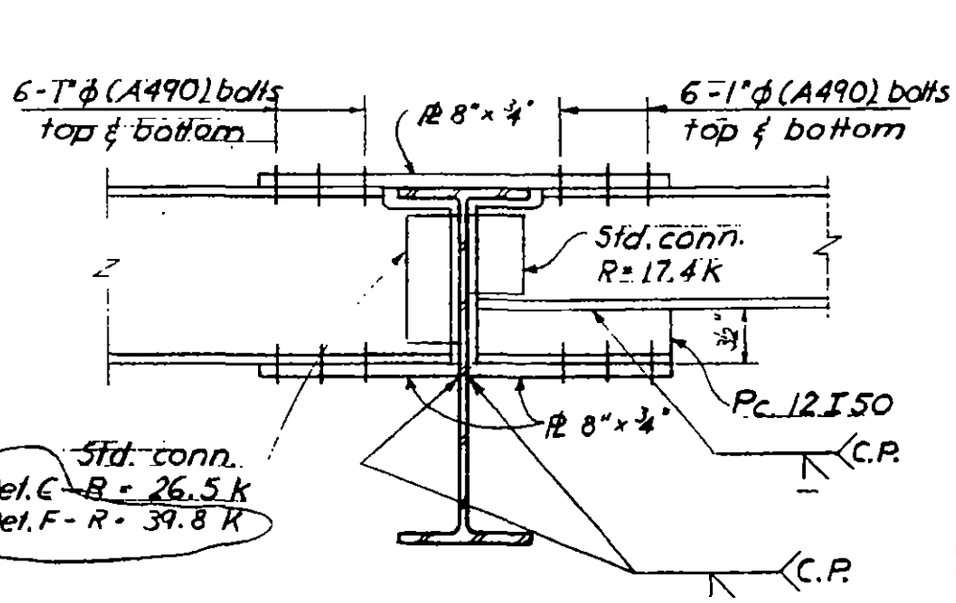
515 A



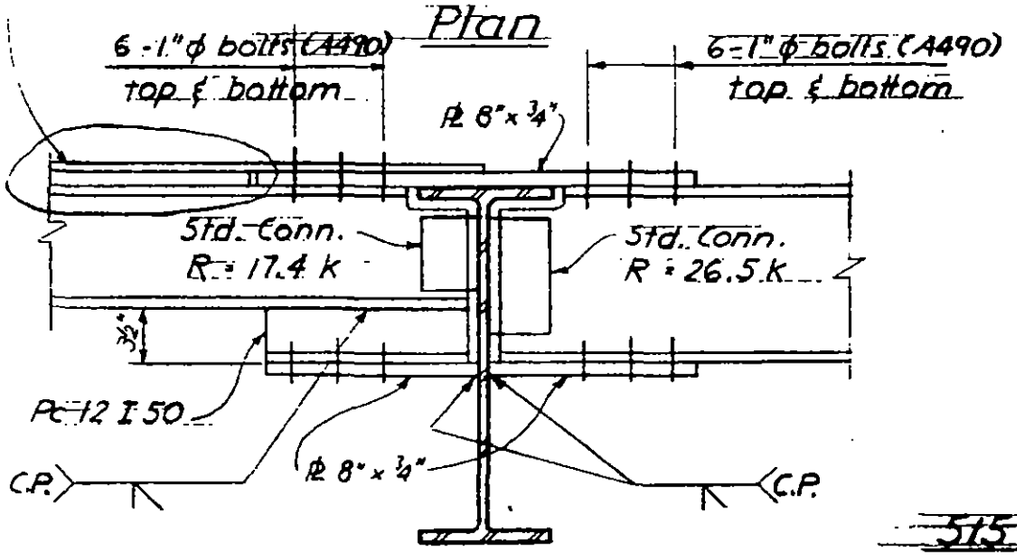
515 B E



Plan



515 C F



515 D

Section a-a

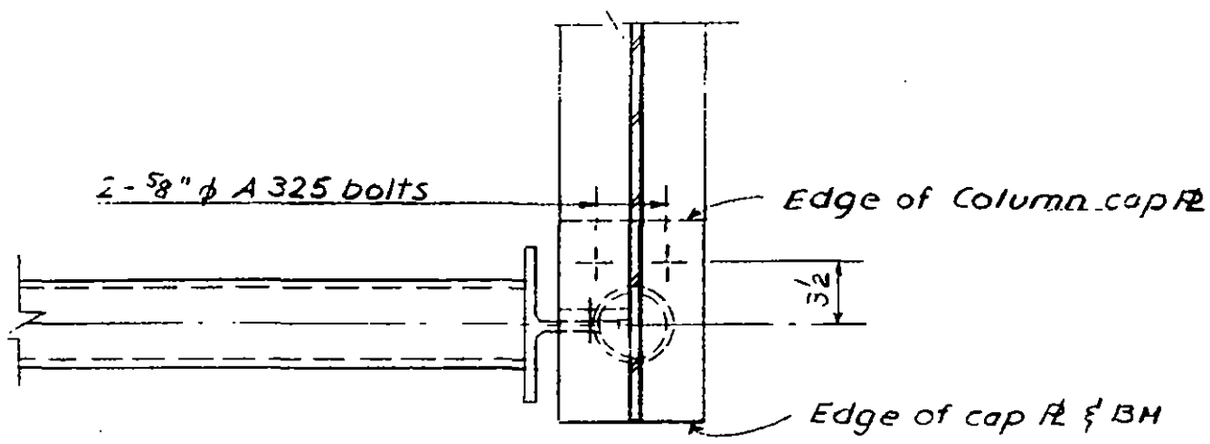
6-AB2-162

REGISTERED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

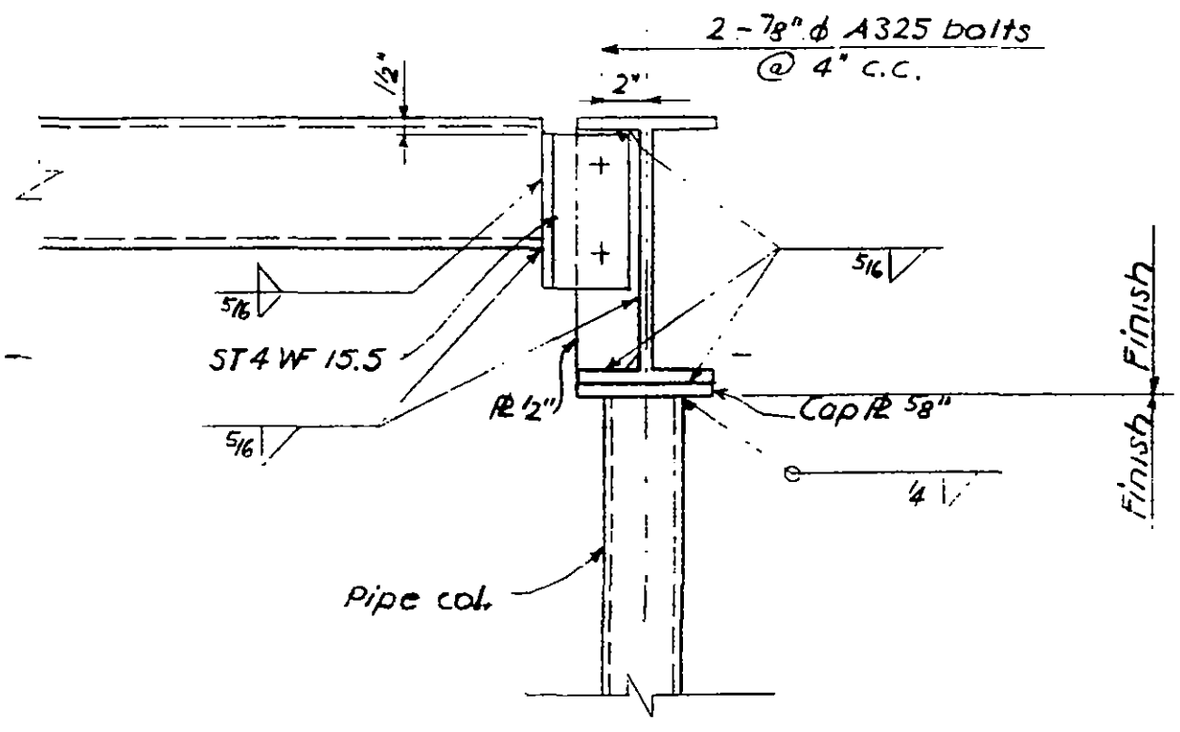
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 5/16 | DATE 3-14-67

REVISIONS



Plan



Elevation

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

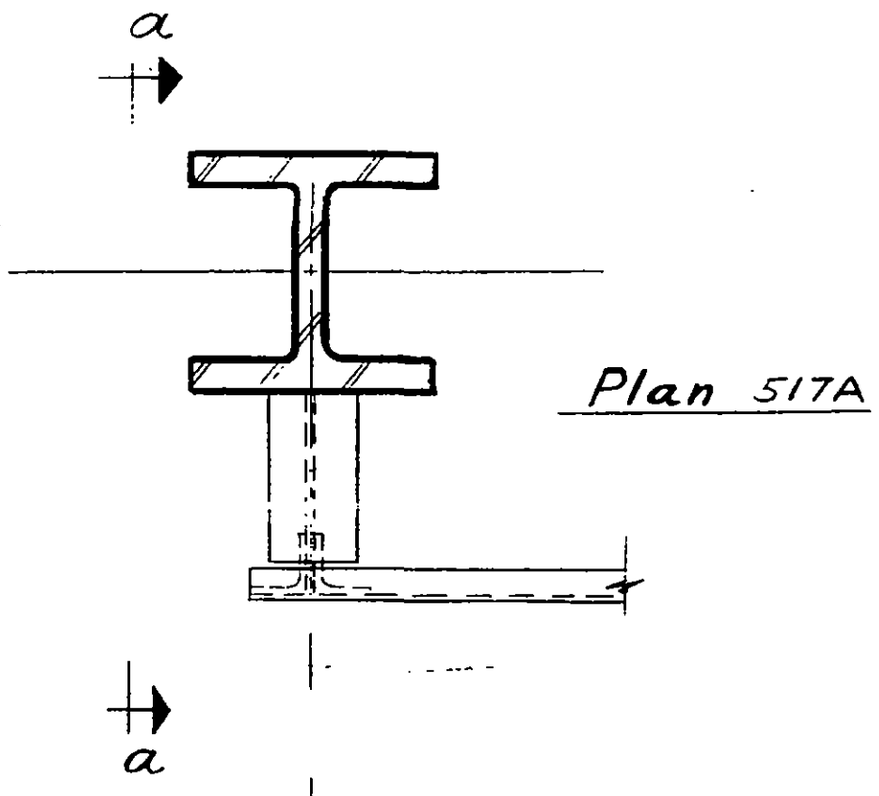
6-AB2-163

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

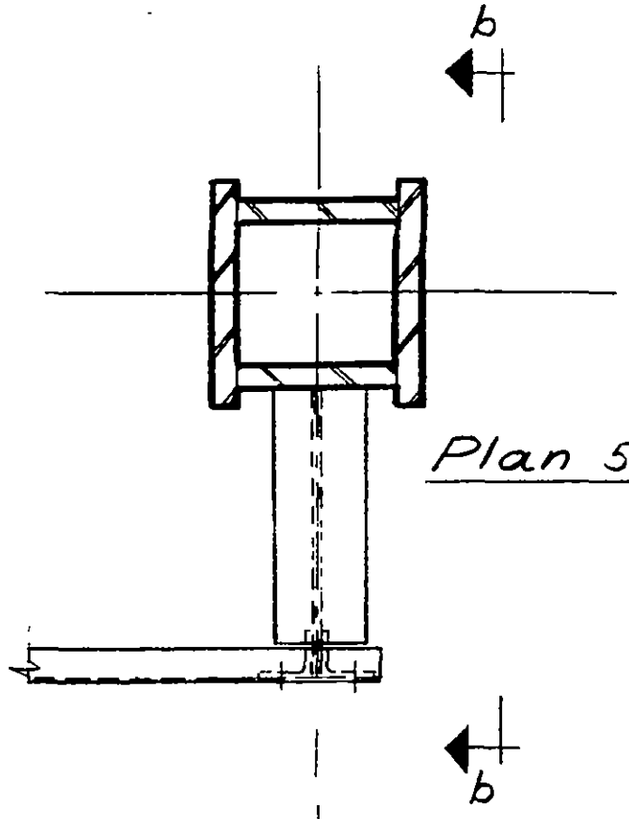
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 517 A,B | DATE 6-30-67

REVISIONS

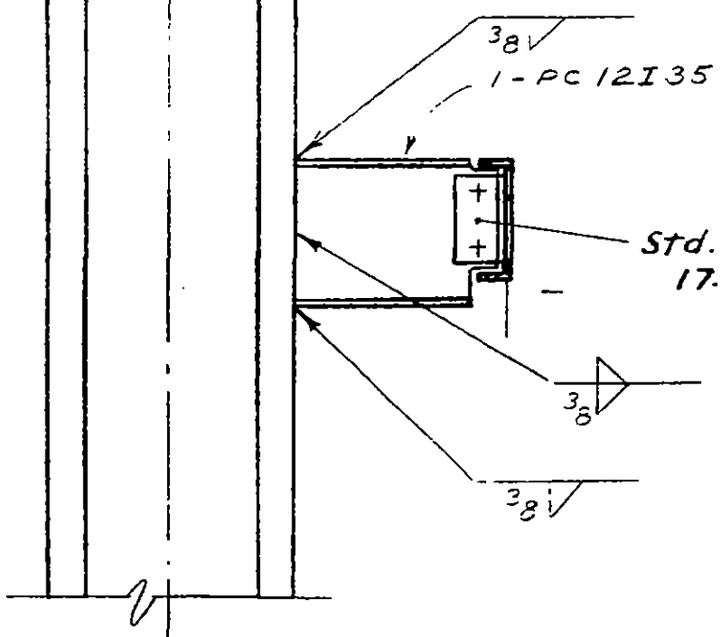
10-5-67



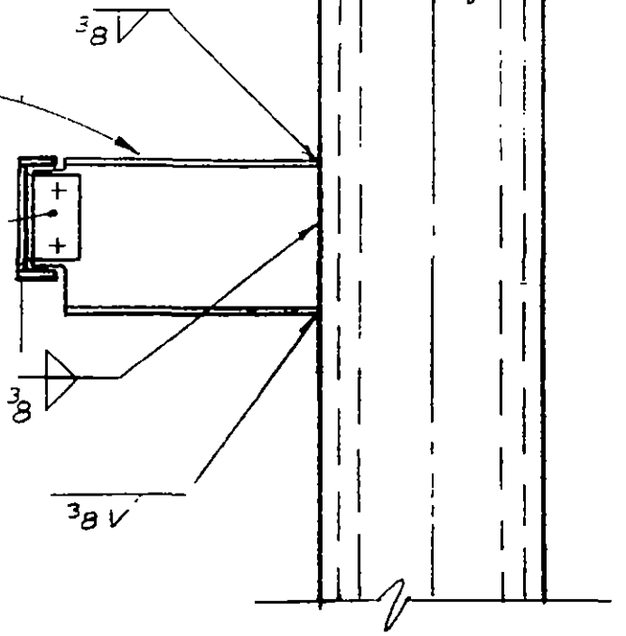
Plan 517A



Plan 517B



Section a-a



Section b-b

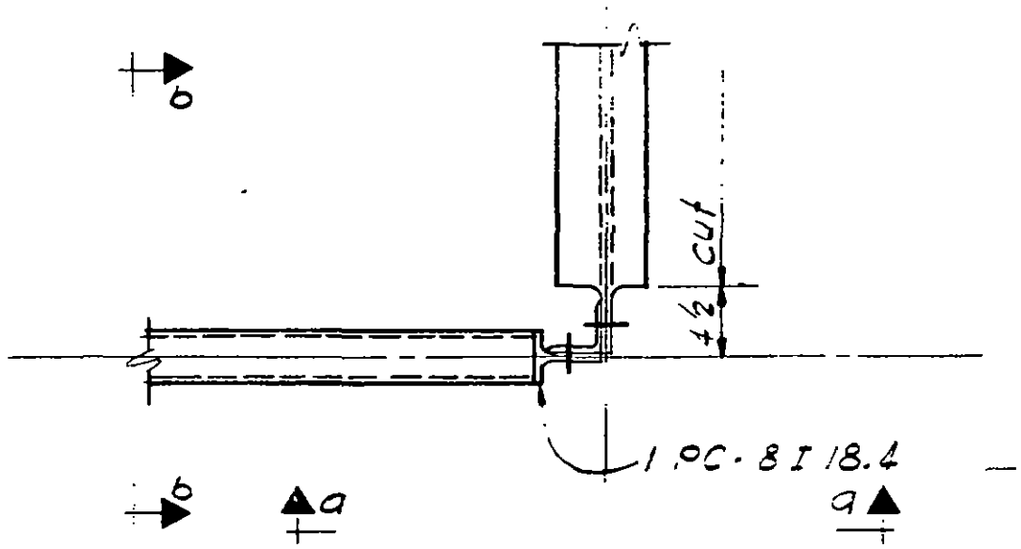
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-164

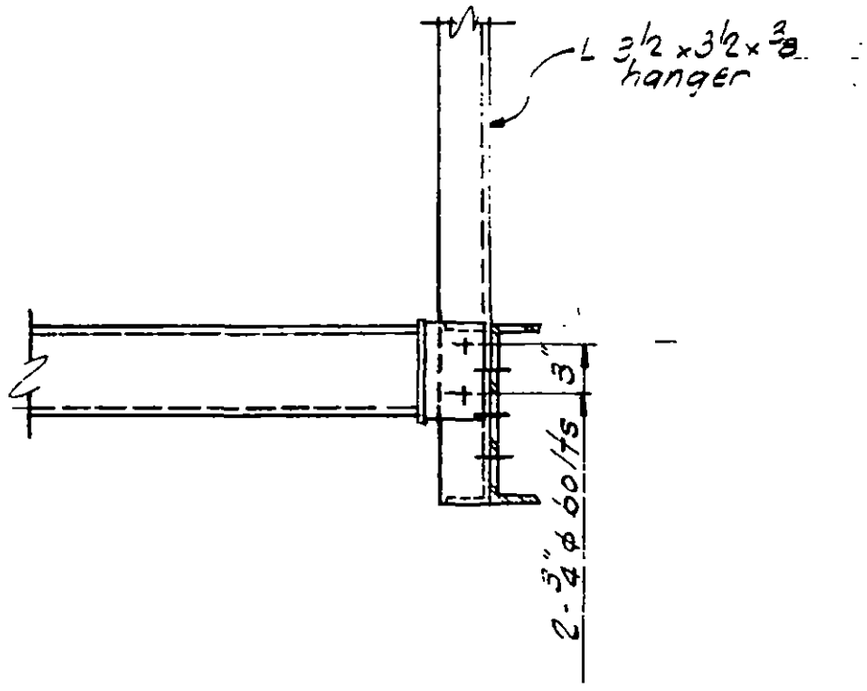
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 3:8 | DATE 8-5-67

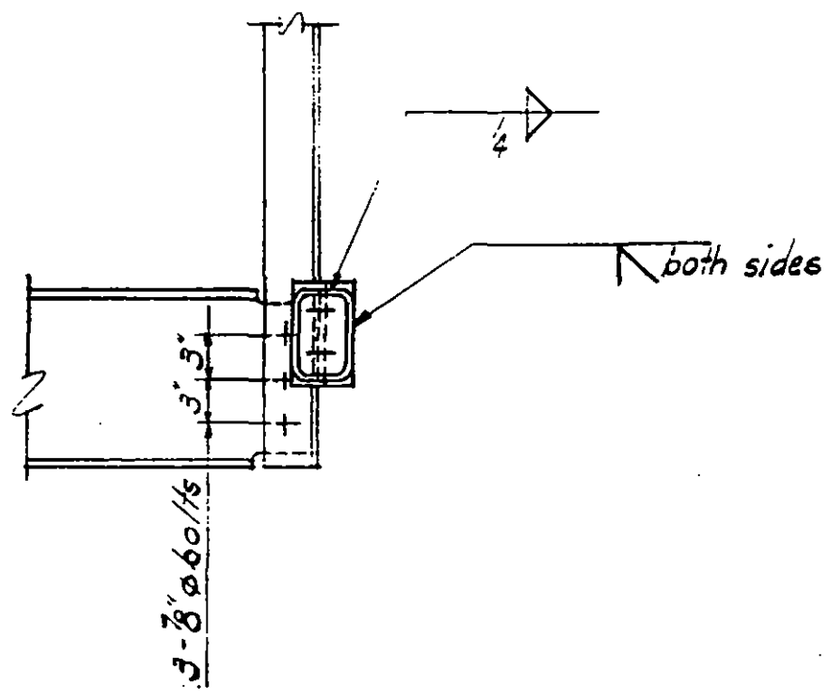
REVISIONS



Plan



Section a-a



Section b-b

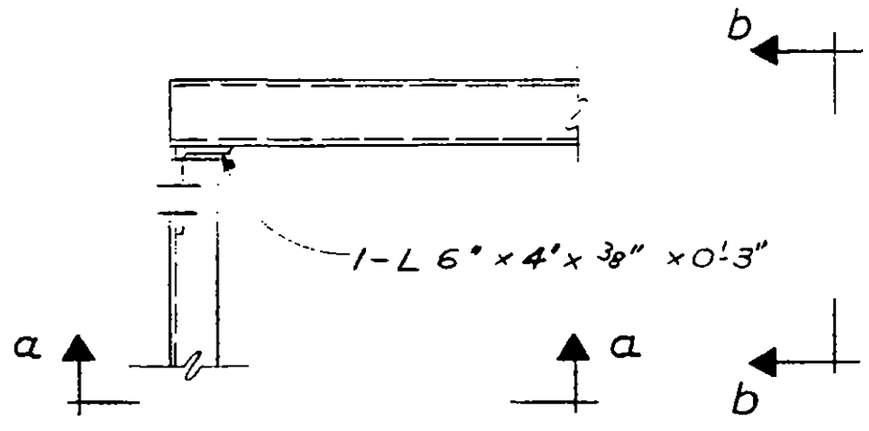
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-165

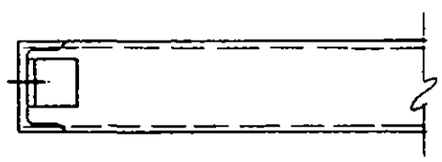
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 519 | DATE 8-5-67

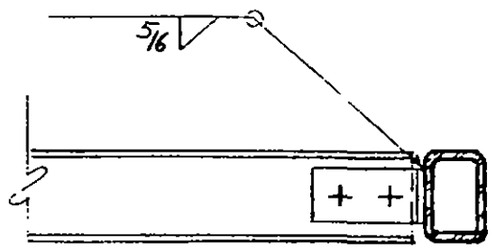
REVISIONS



Plan



Section a-a



Section b-b

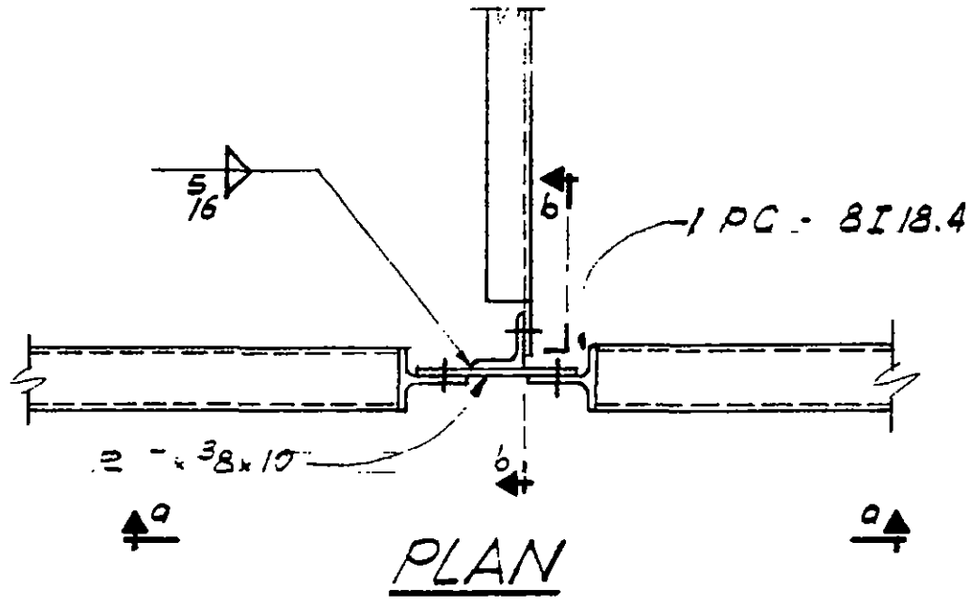
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-166

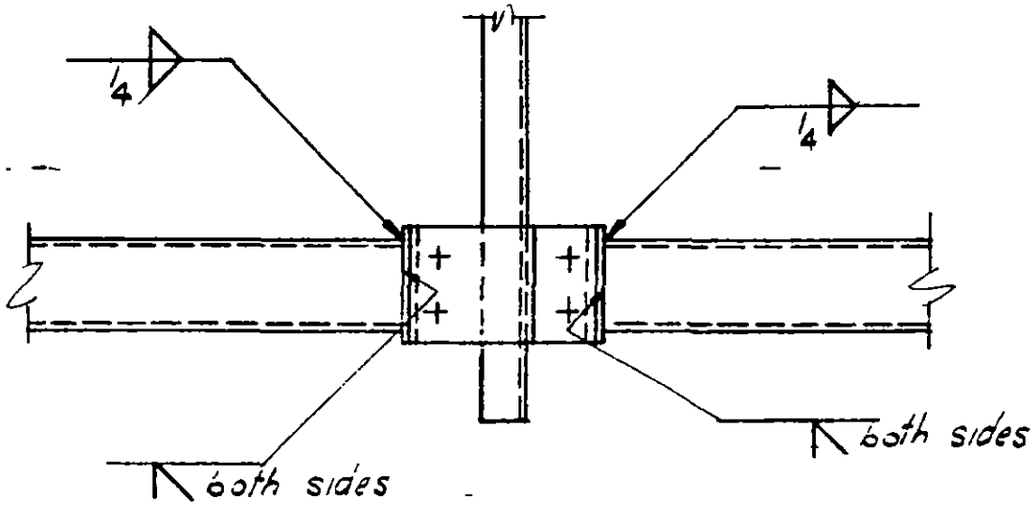
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 520 | DATE 8-5-67

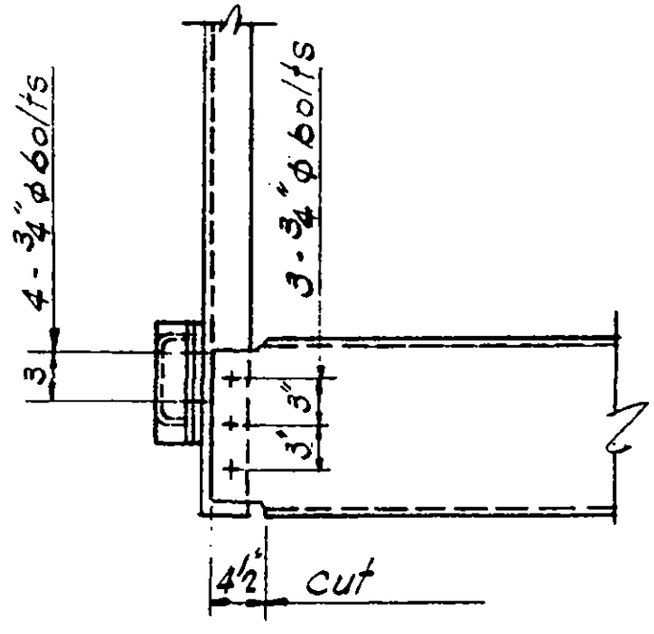
REVISIONS



PLAN



Section a-a



Section b-b

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LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

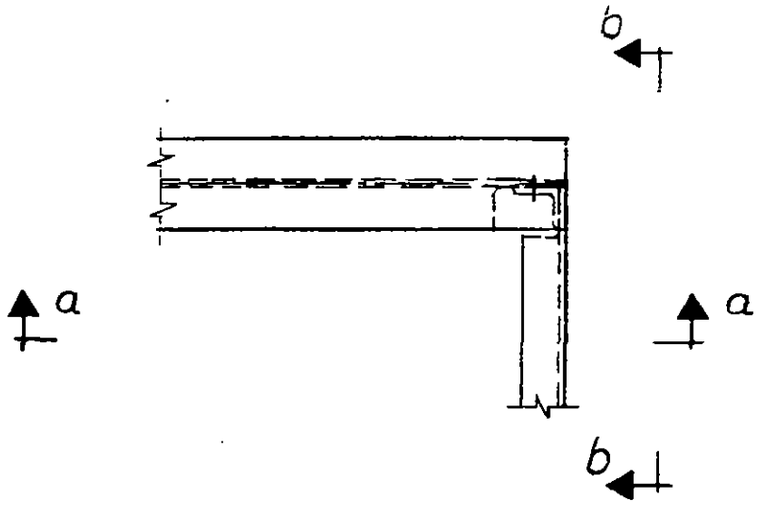
6-AB2-167

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

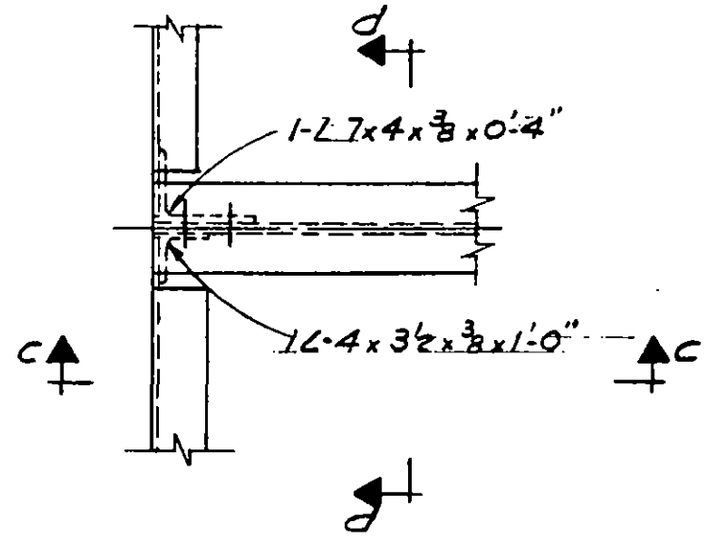
PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAILS 521 & 522 | DATE 8-5-67

REVISIONS

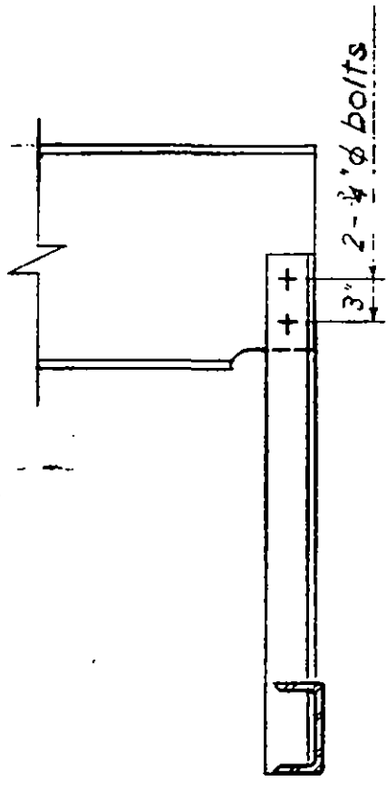
9-29-67

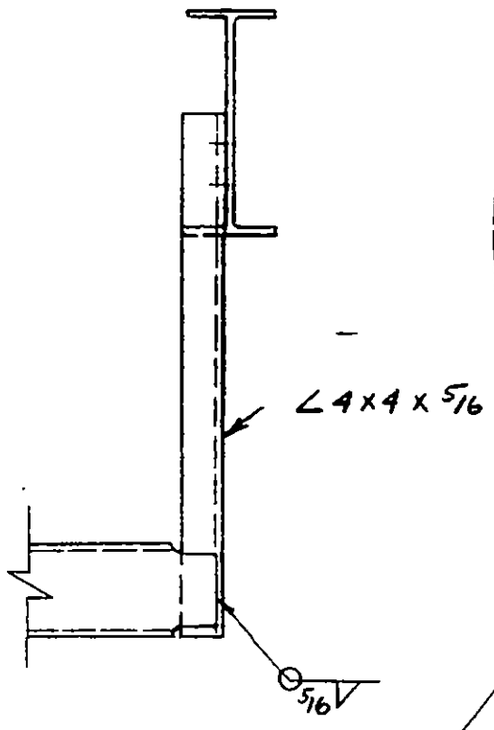


Plan



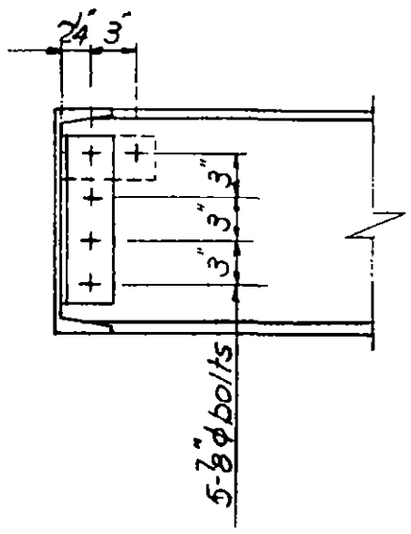
Plan

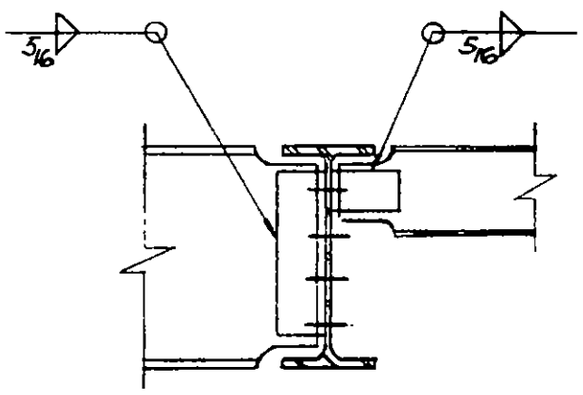




Section a-a Section b-b

DETAIL 521





Section c-c Section d-d

DETAIL 522

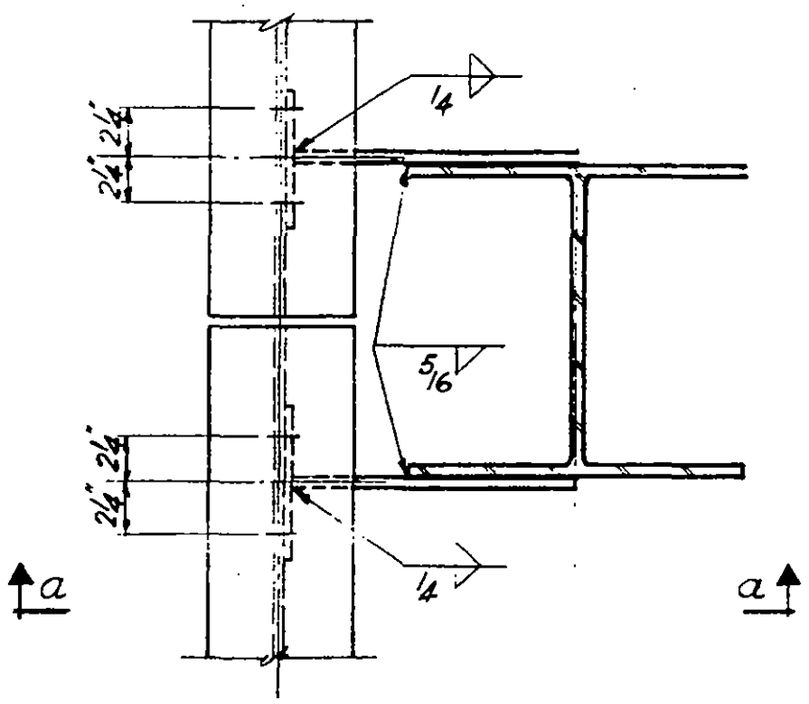
6-AB2-168

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

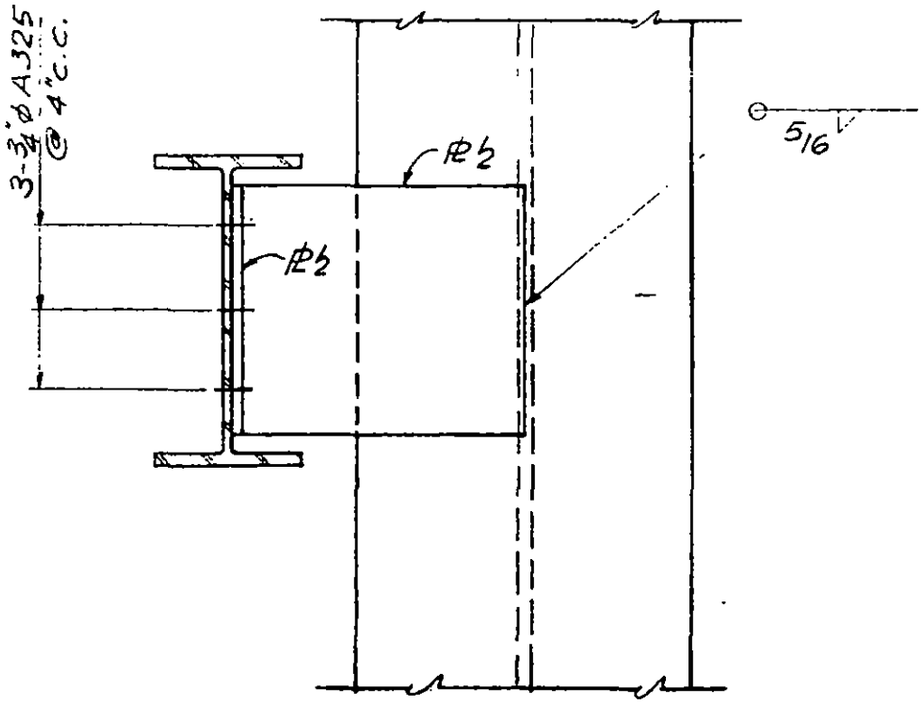
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 524 A | DATE 8-14-67

REVISIONS



Plan



Section a-a

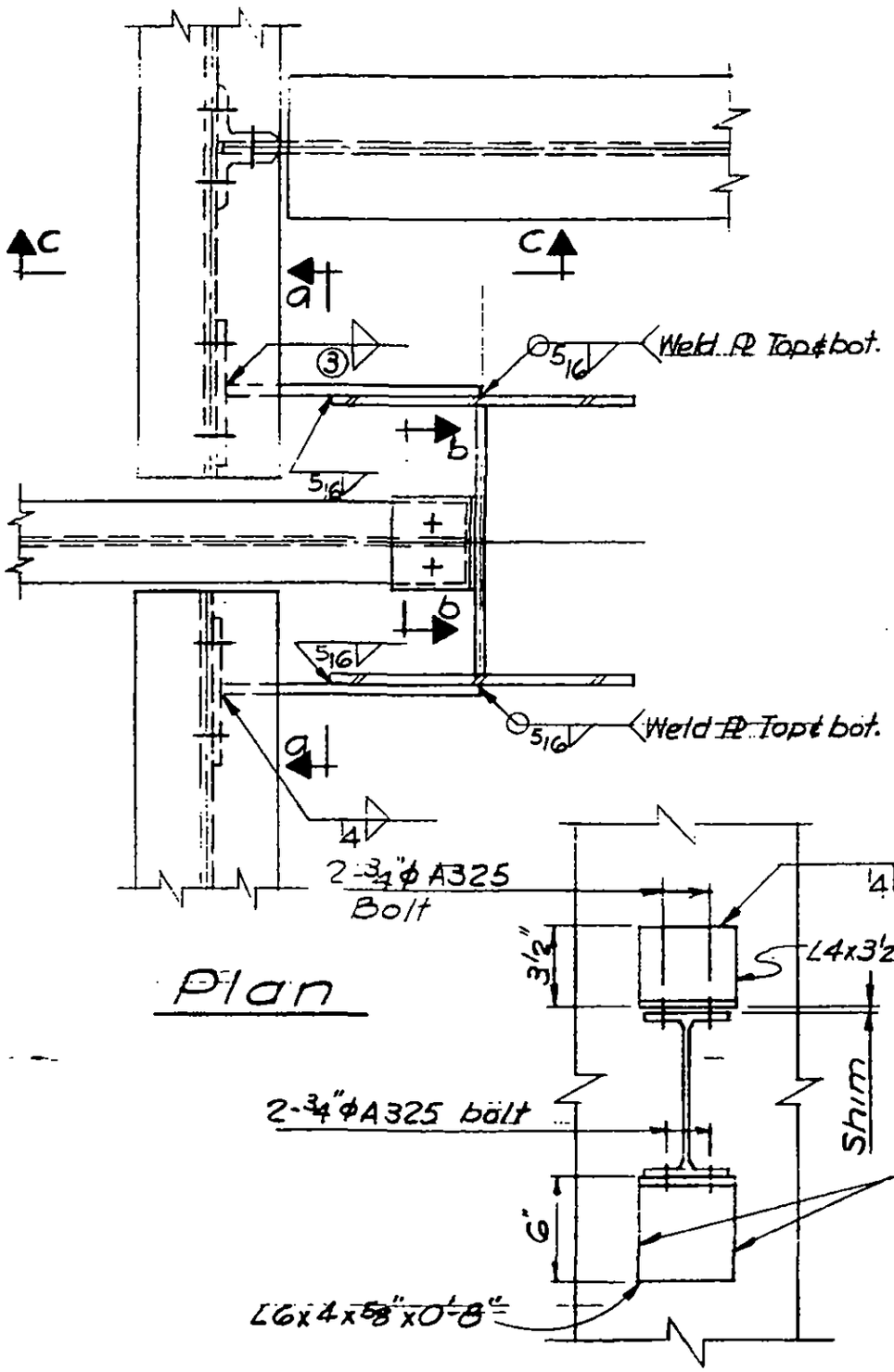
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-169

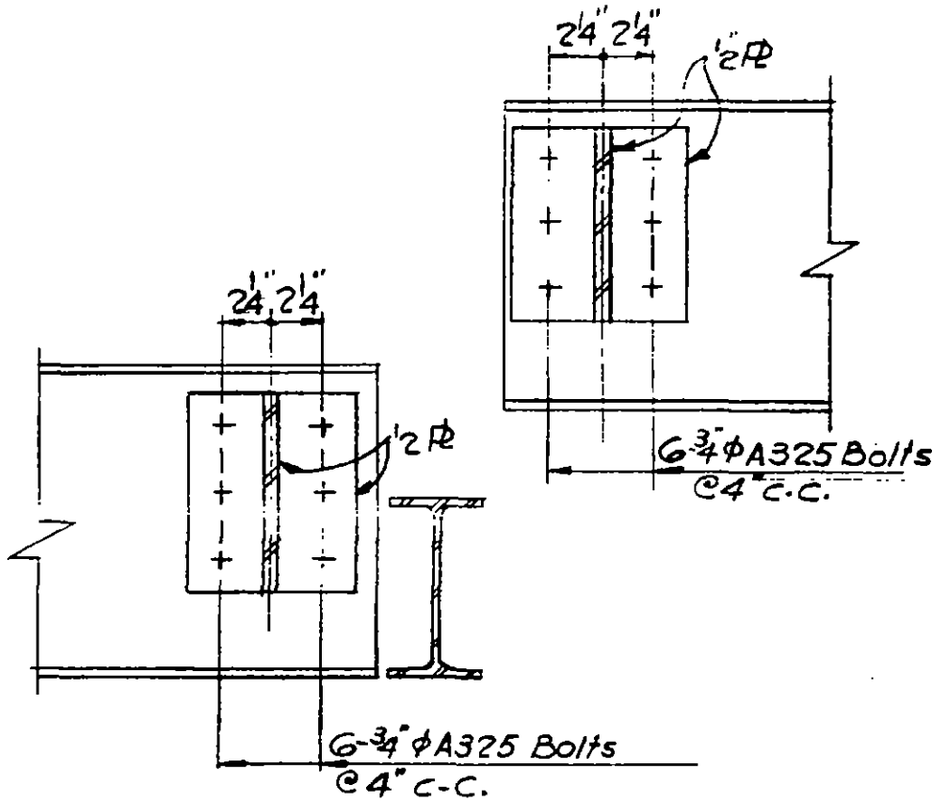
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 525 A | DATE 8-14-67

REVISIONS

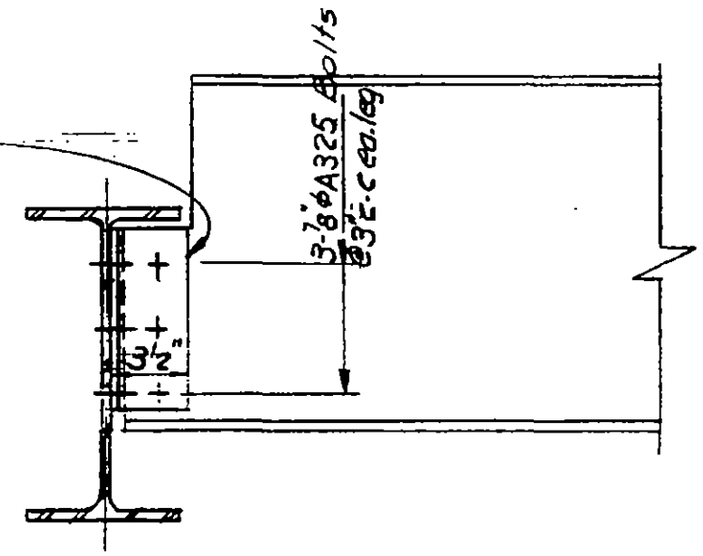


Plan



Section a-a

Section b-b



Section c-c

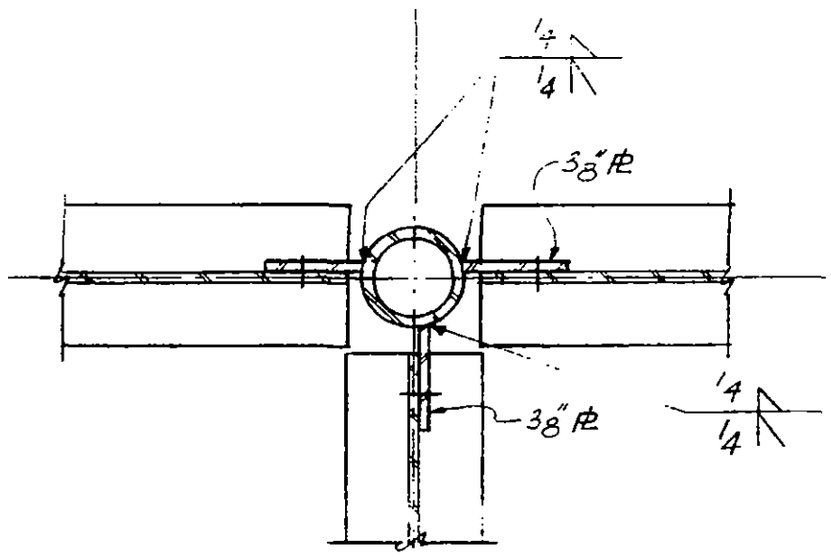
6-AB2-170

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

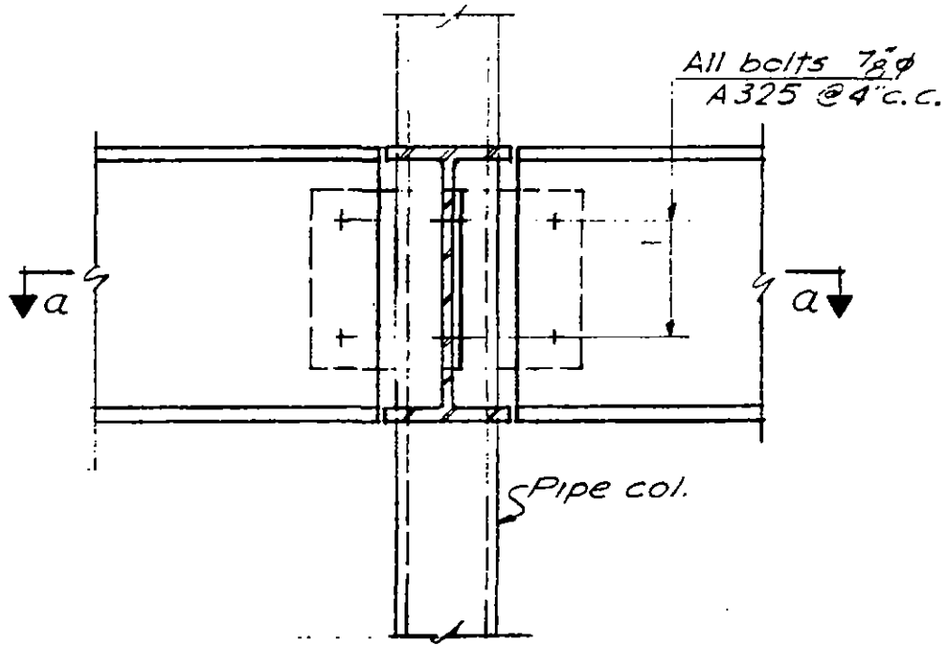
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	CONNECTION DETAIL 526 A	8-14-67

REVISIONS



Section a-a



Elevation

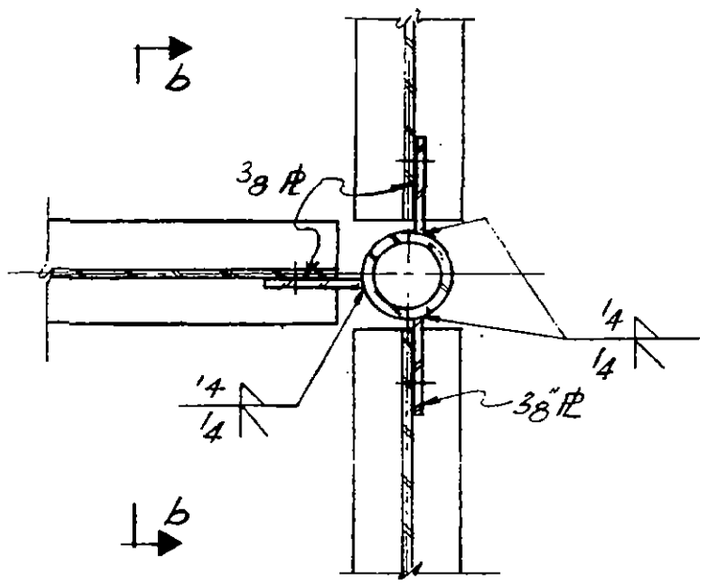
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-171

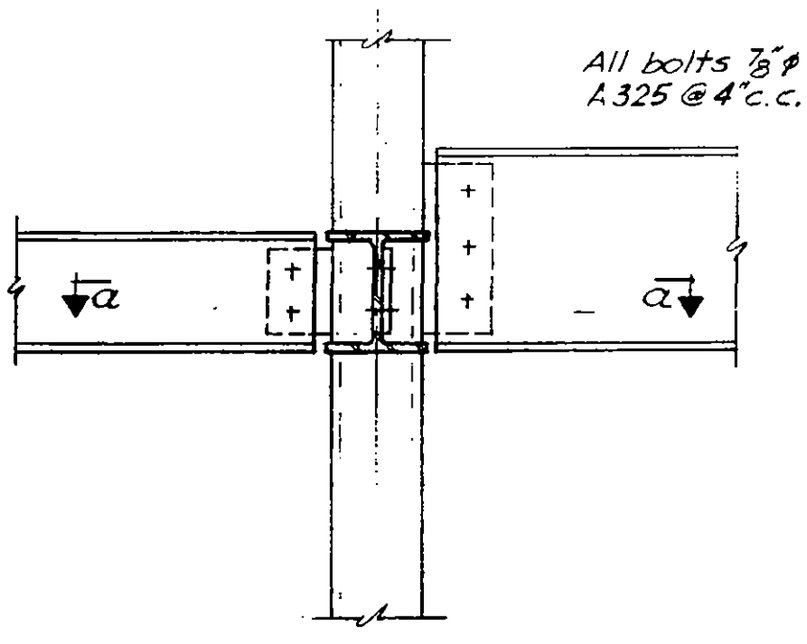
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 527A | DATE 8-14-67

REVISIONS



Plan a-a



Section 6-b

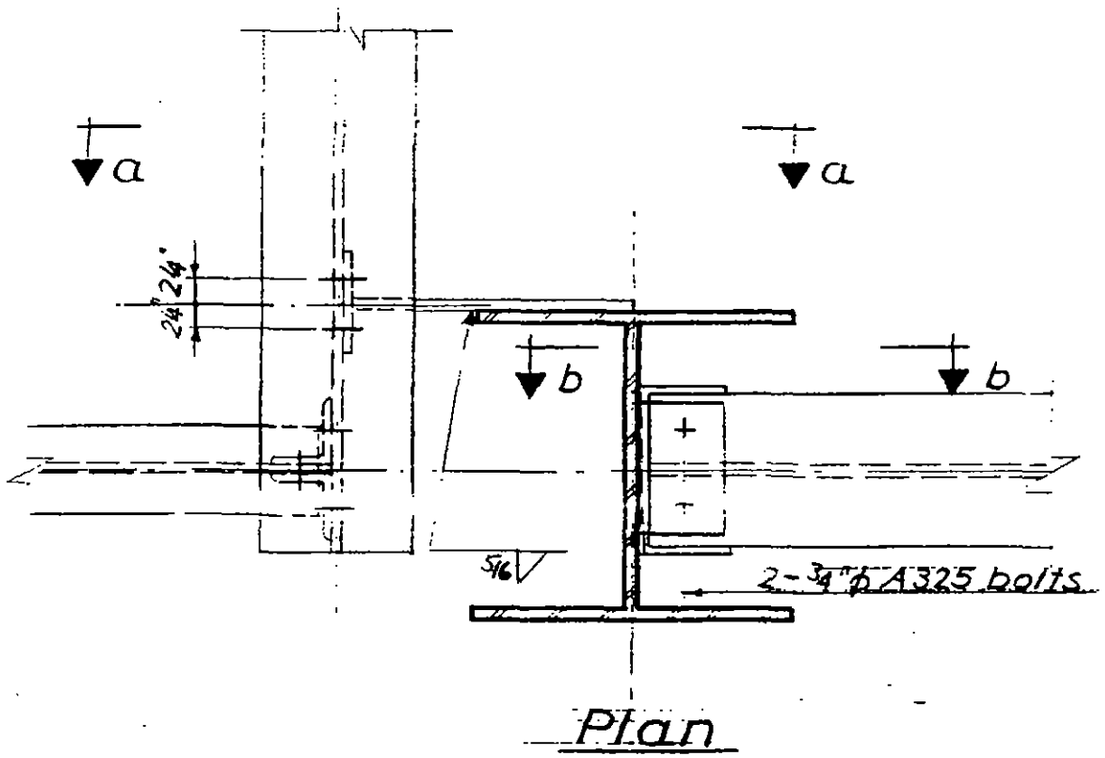
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 24360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-172

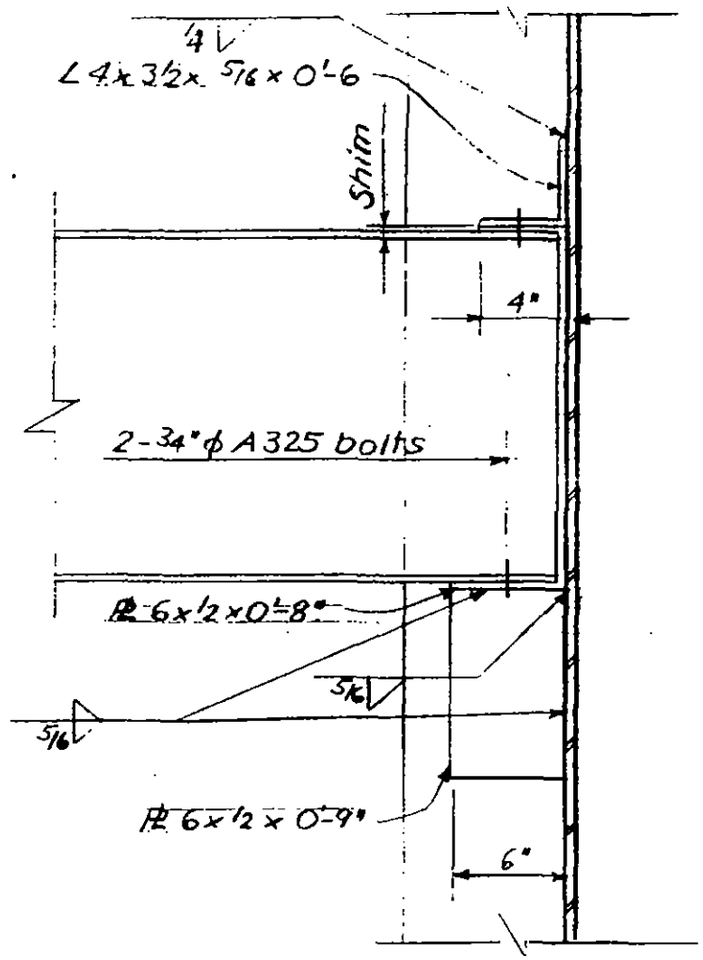
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 528 A | DATE 3-14-67

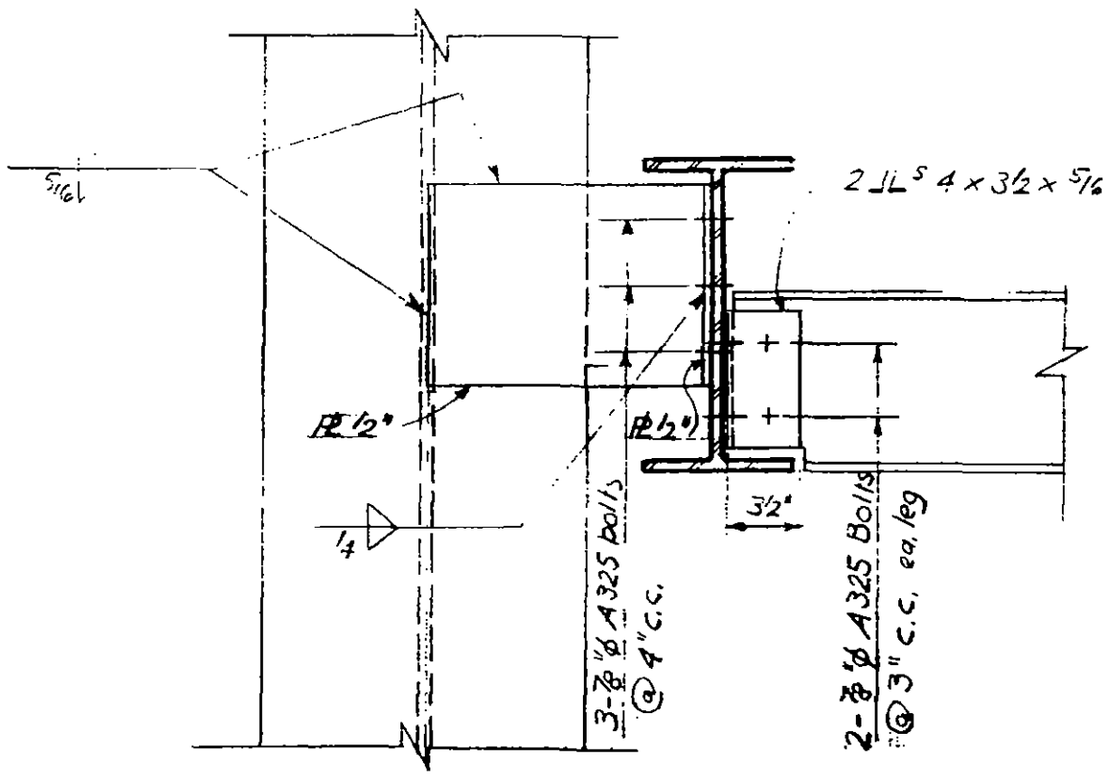
REVISIONS



Plan



Section b-b



Section a-a

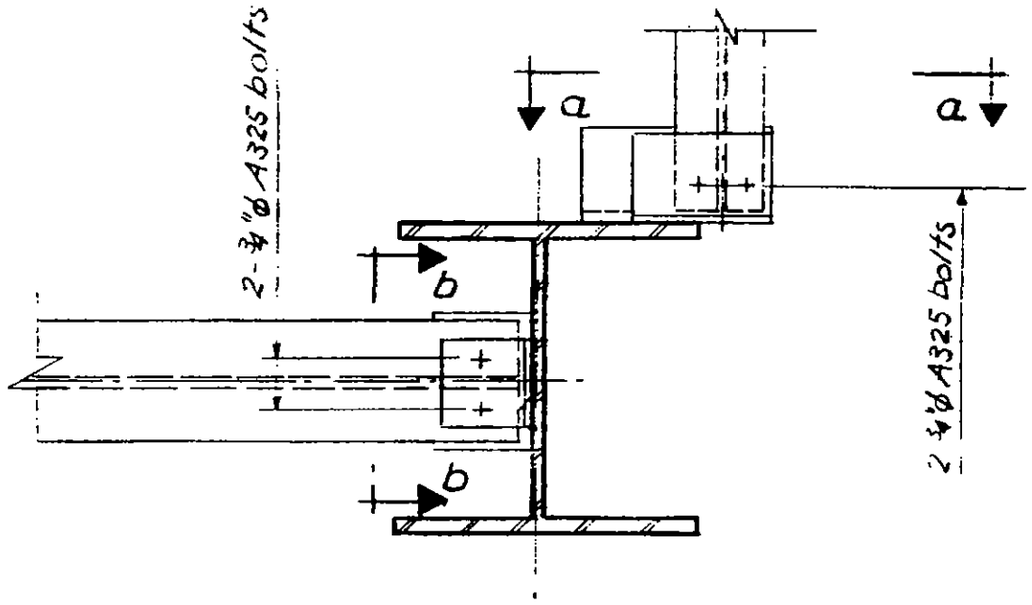
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-173

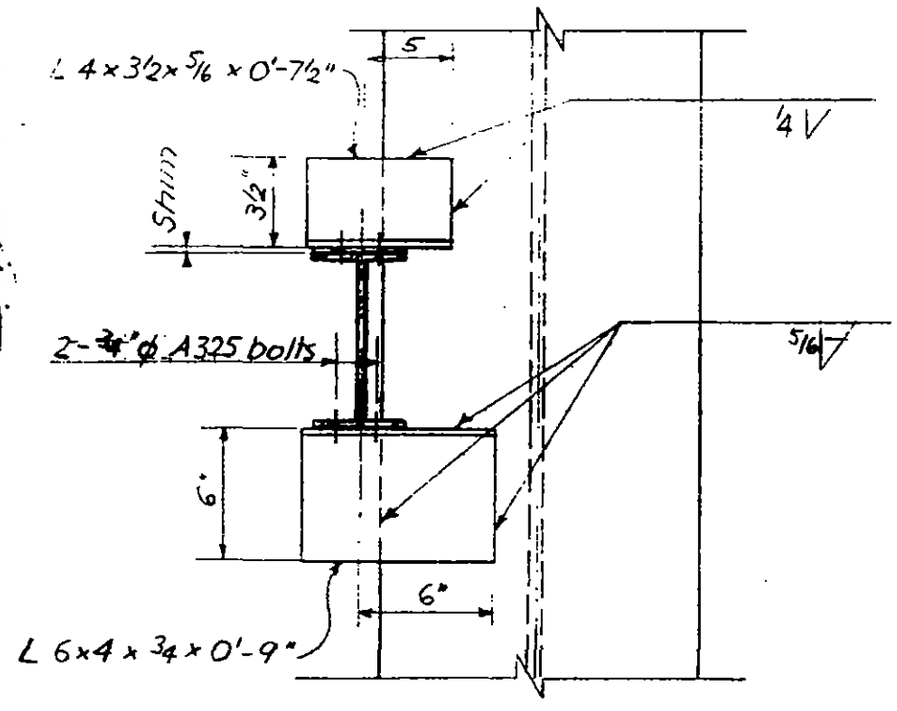
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 529 A | DATE 8-14-67

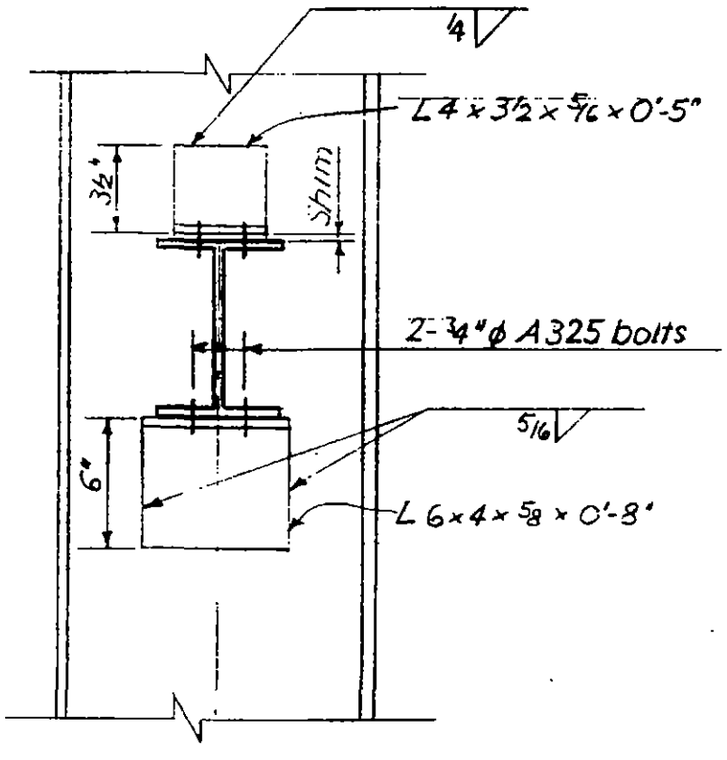
REVISIONS



Plan



Section a-a



Section b-b

6-AB2-174

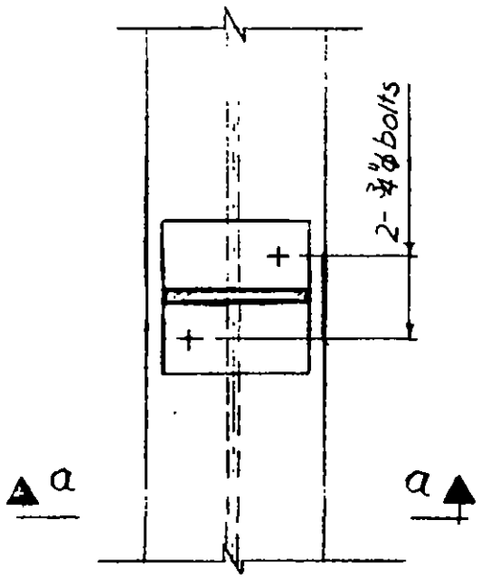
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 530 - 533 | DATE 9-29-67

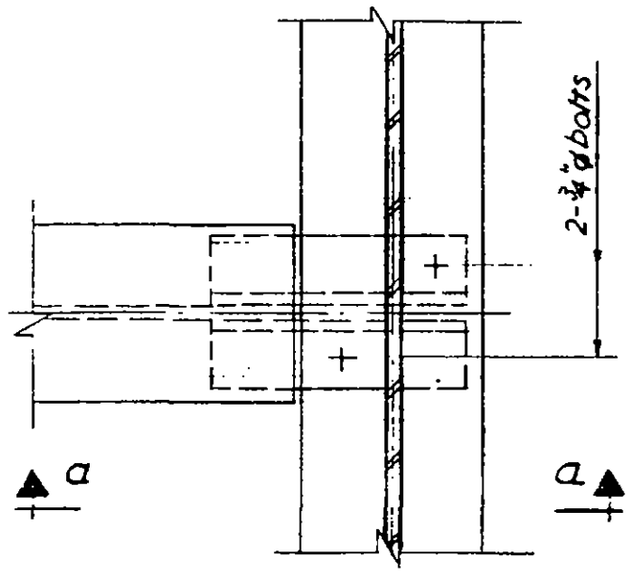
REVISIONS

1-21-68

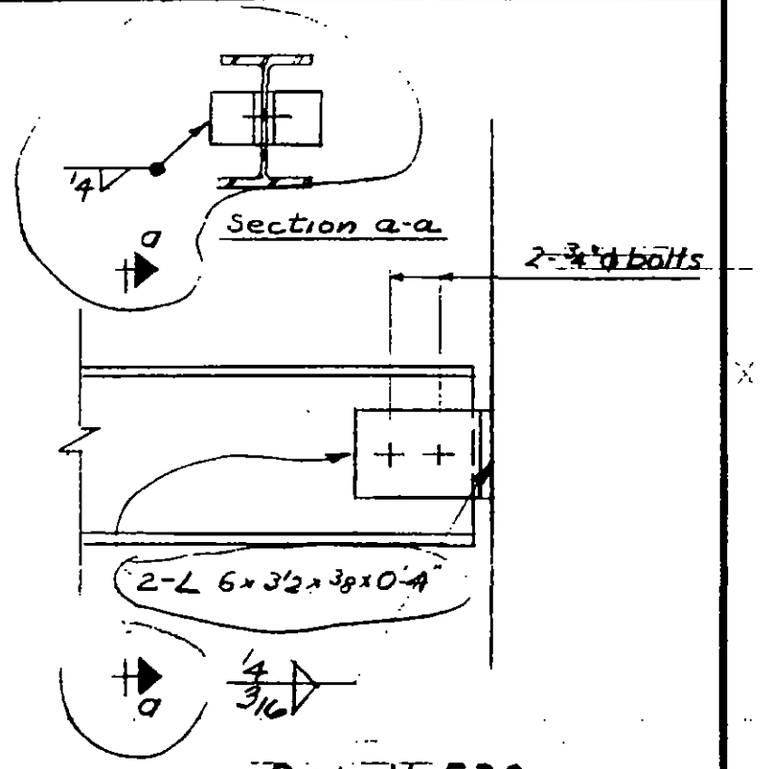
7-17-68



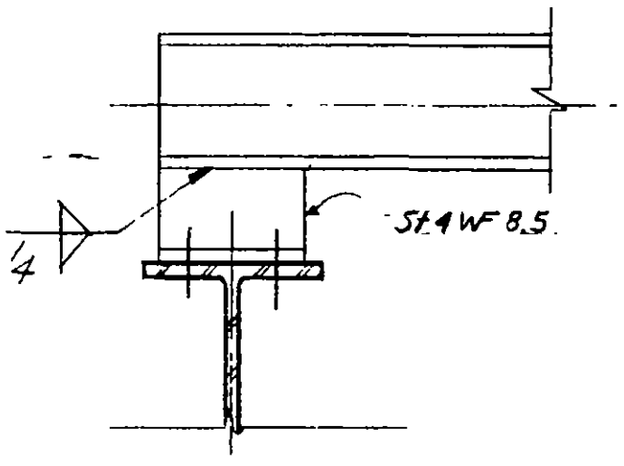
Plan
Detail 530



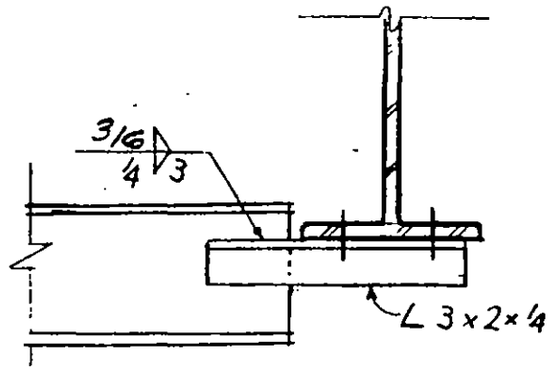
Plan
Detail 531



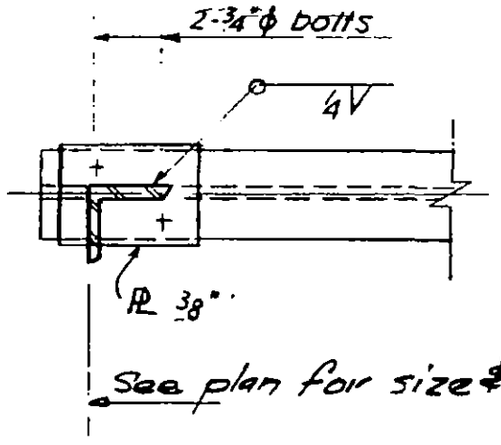
Detail 532



Section a-a



Section a-a



Detail 533

6-AB2-175

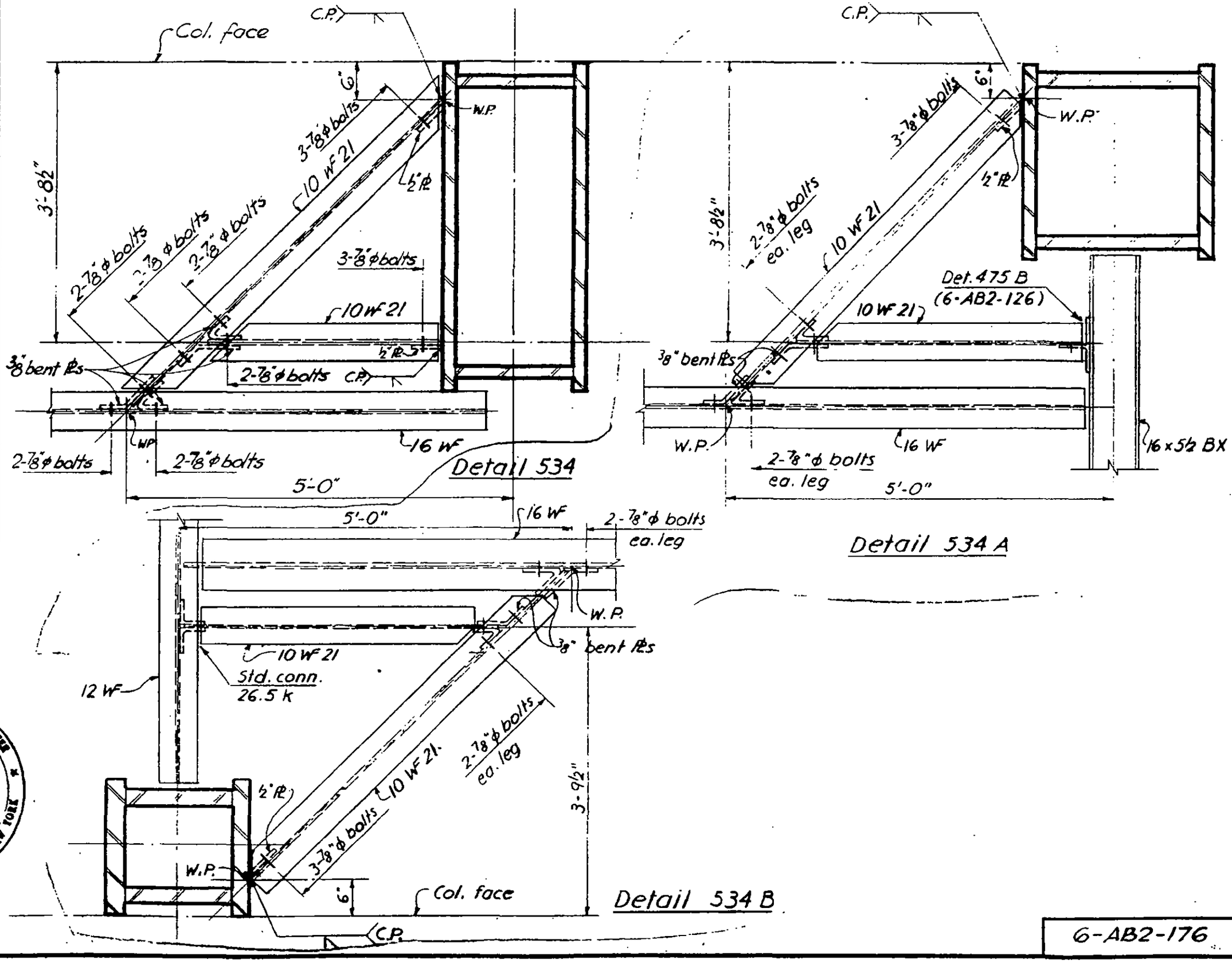
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
THE STATE OF NEW YORK

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL 534, 534A, 534B | DATE 1-24-68

REVISIONS

2-21-68



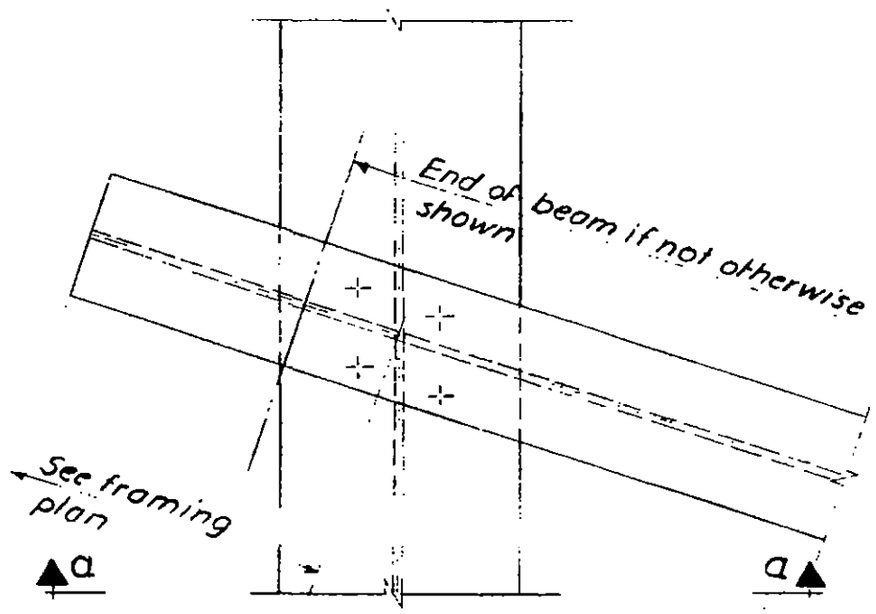
REGISTERED PROFESSIONAL ENGINEER
JAMES E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-176

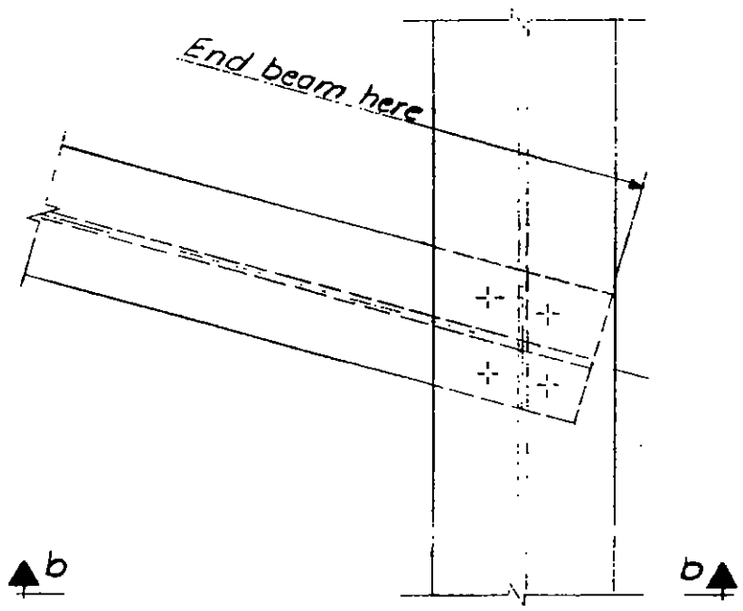
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 535 A , 536 A | DATE 2-9-68

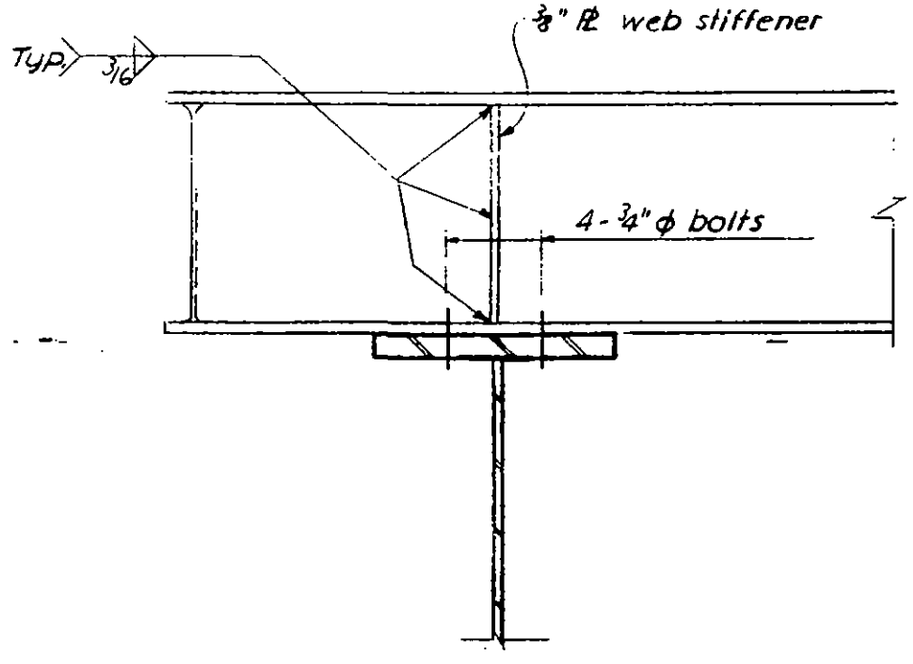
REVISIONS



Plan

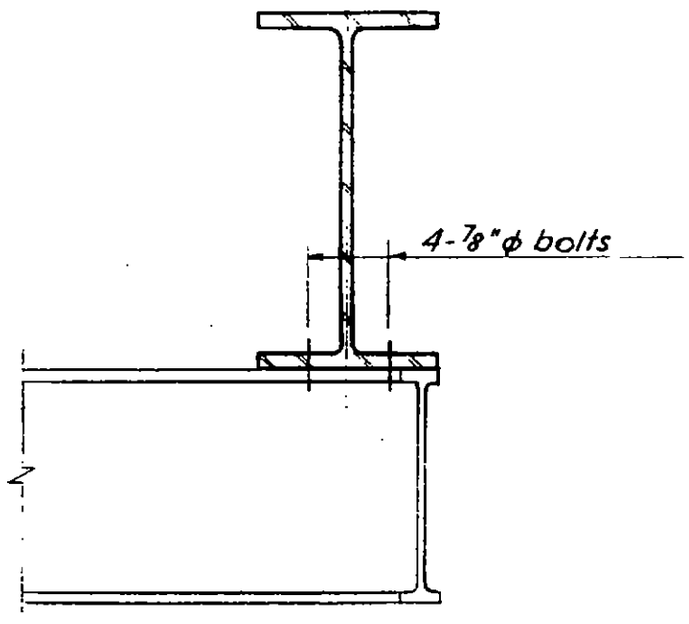


Plan



Section a-a

Detail 535 A



Section b-b

Detail 536 A

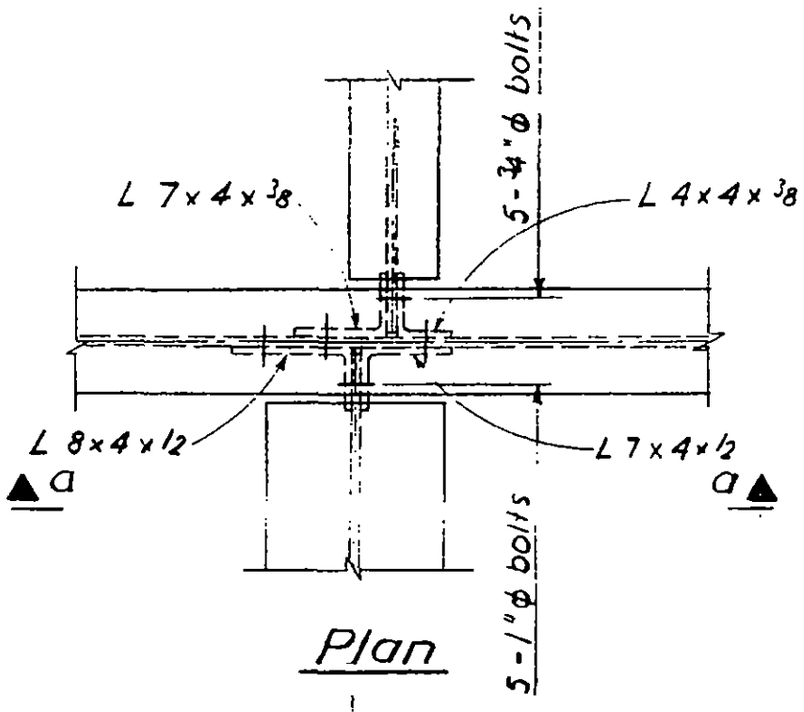
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

6-AB2-177

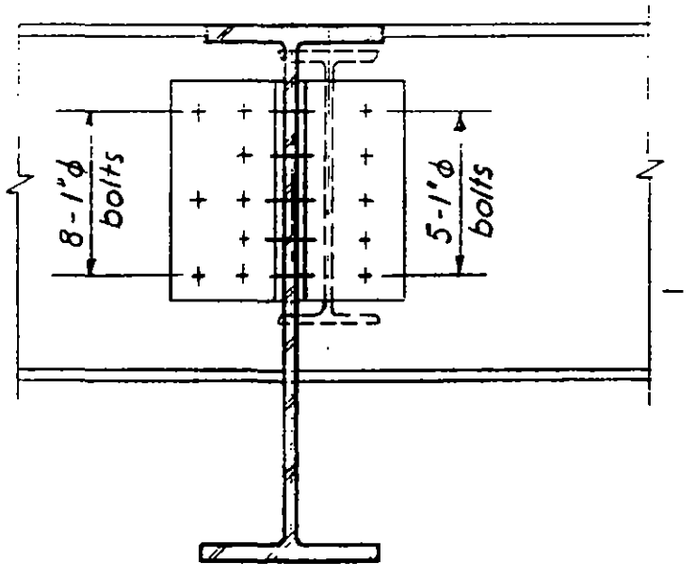
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 537A | DATE 4-17-68

REVISIONS



Plan



Section a-a

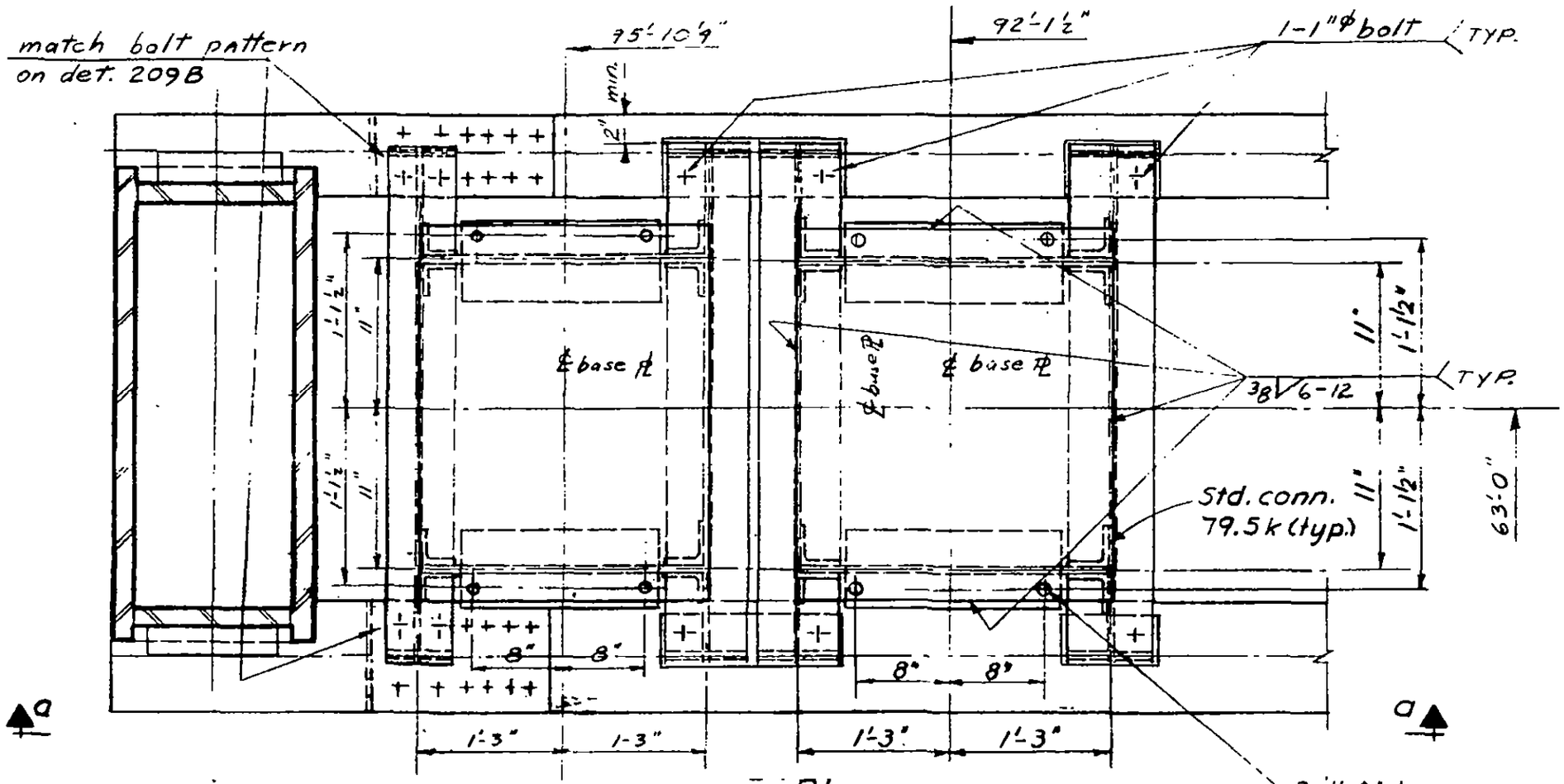
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6-AB2-178

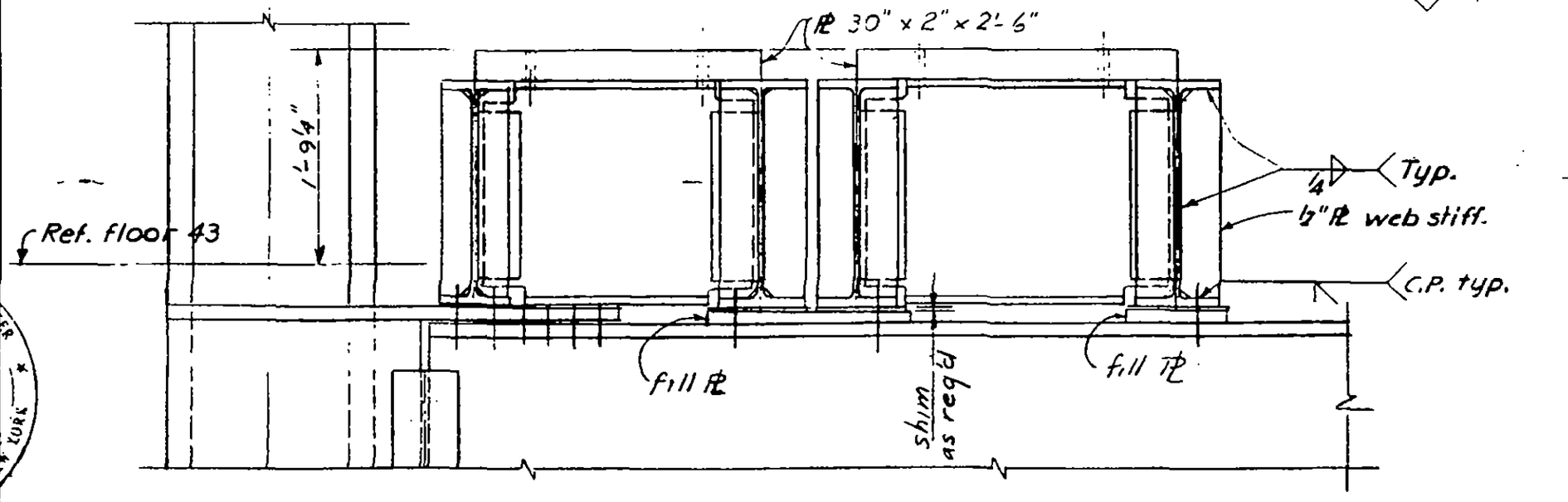
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 538 A | DATE 4-17-68

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Plan



Section a-a

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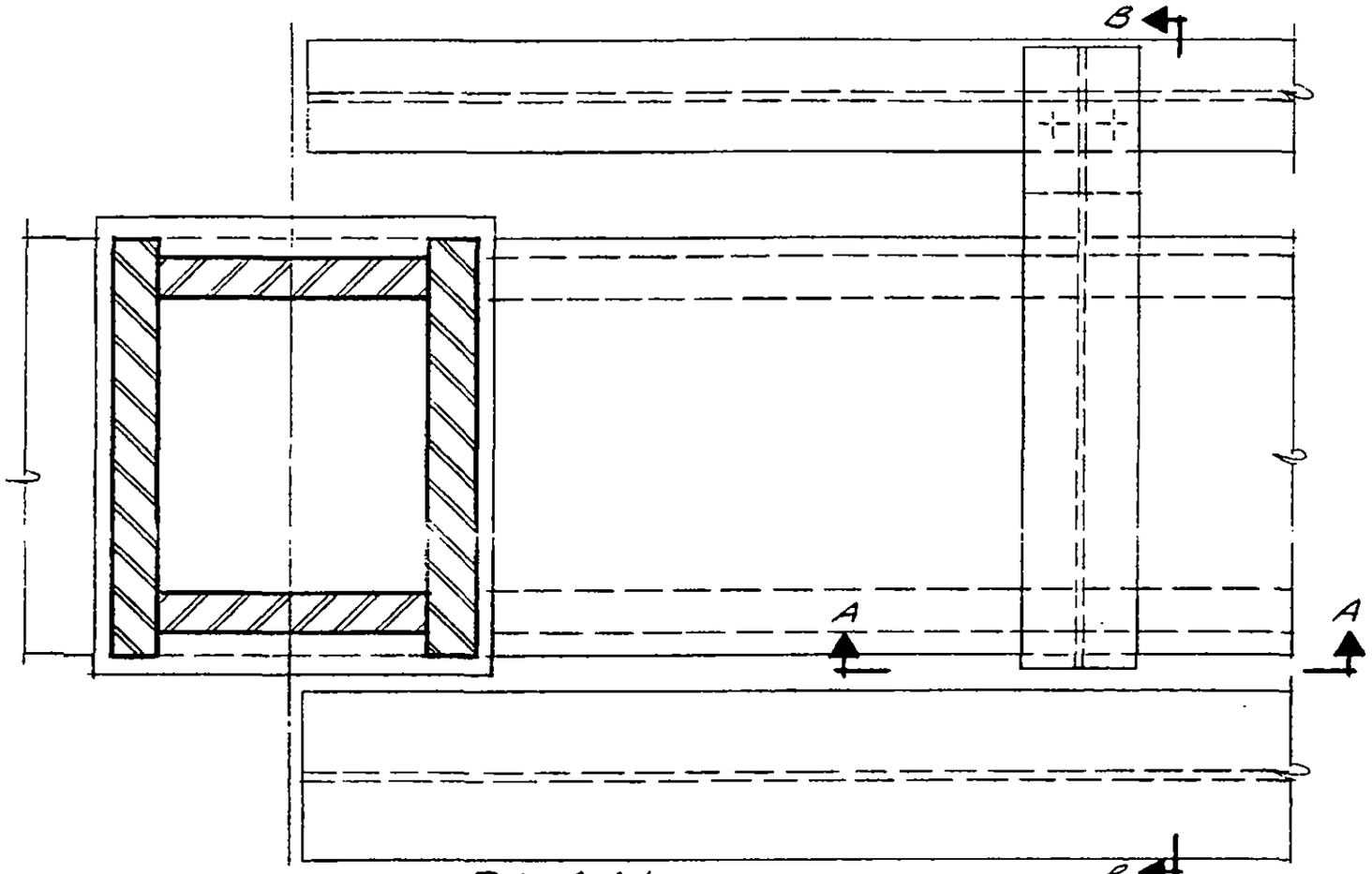
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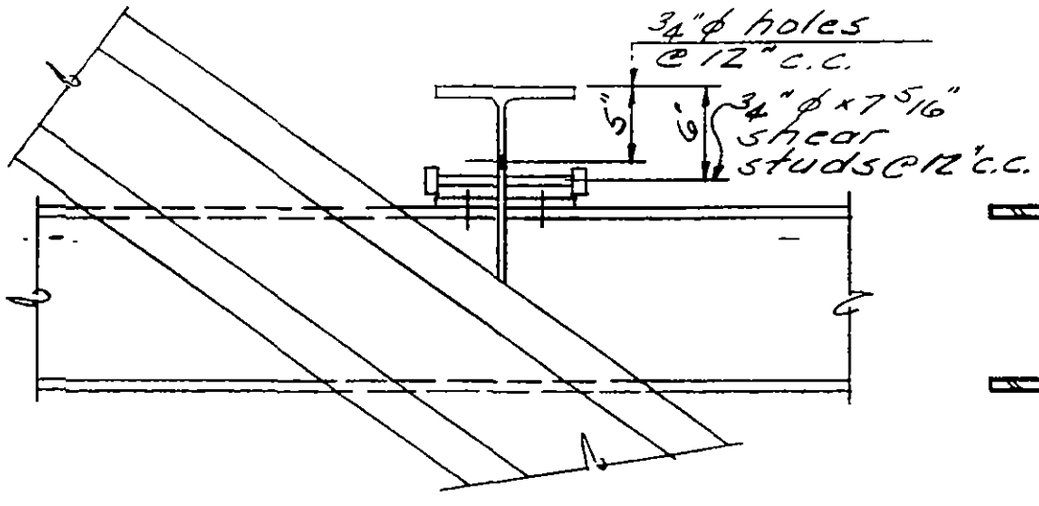
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL 539 | DATE 7-17-68

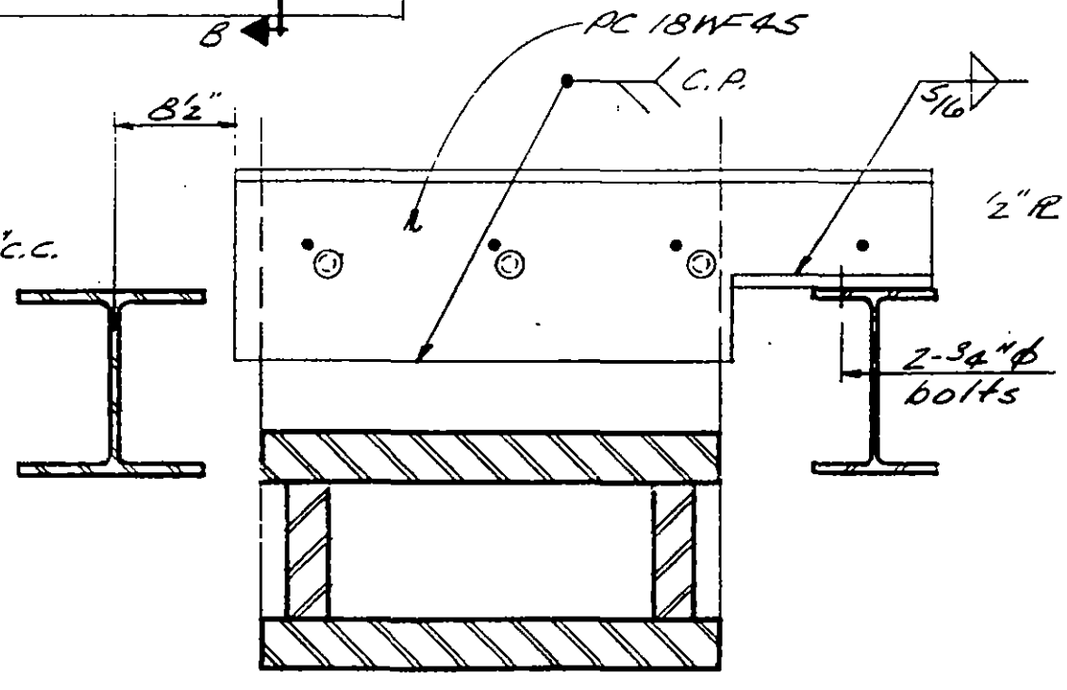
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PLAN



Section a-a



Section b-b

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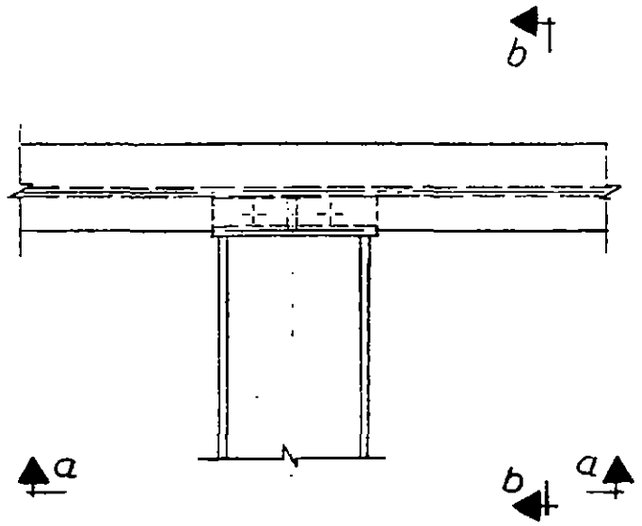
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G-A82-180

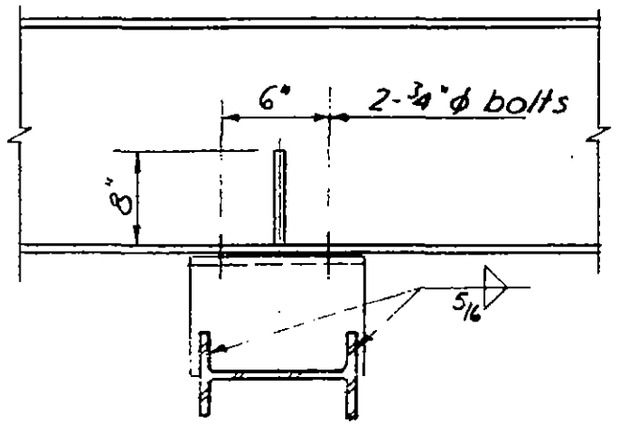
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

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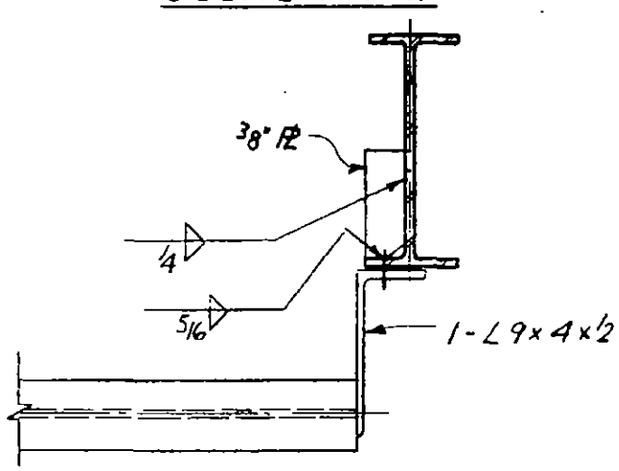
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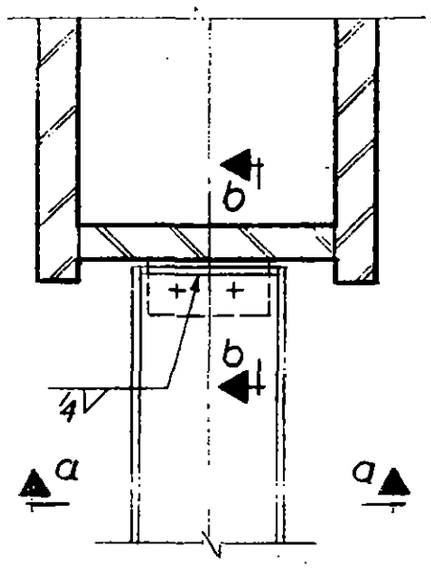
Plan 540A



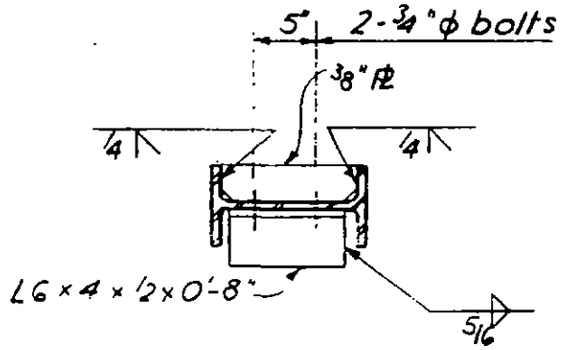
Section a-a



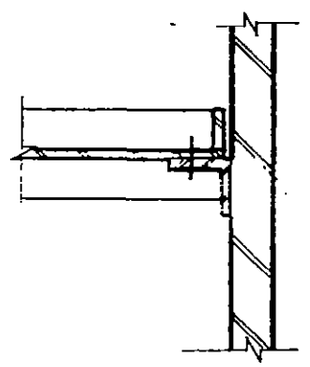
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Plan 541A



Section a-a



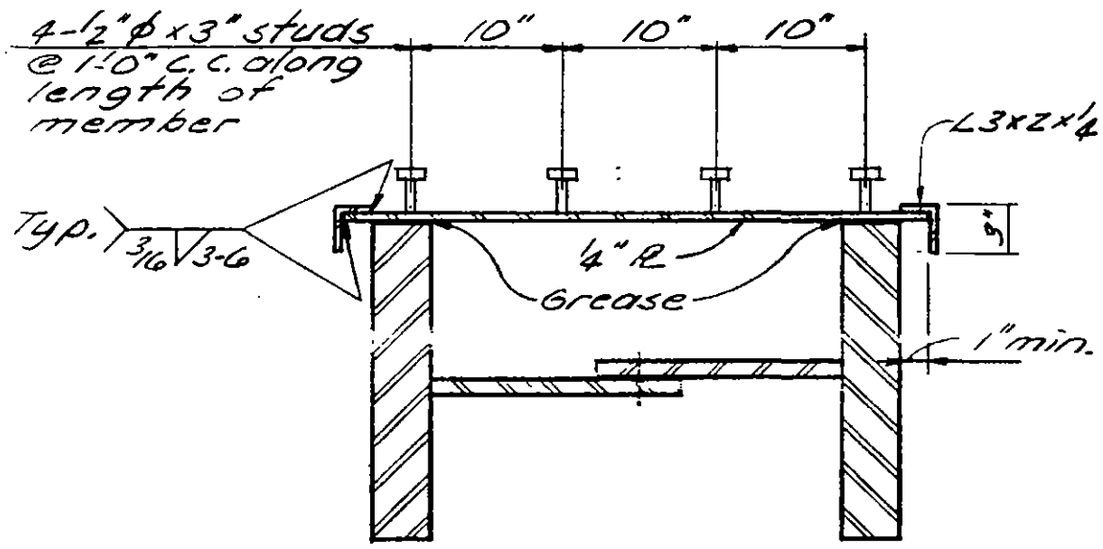
Section b-b

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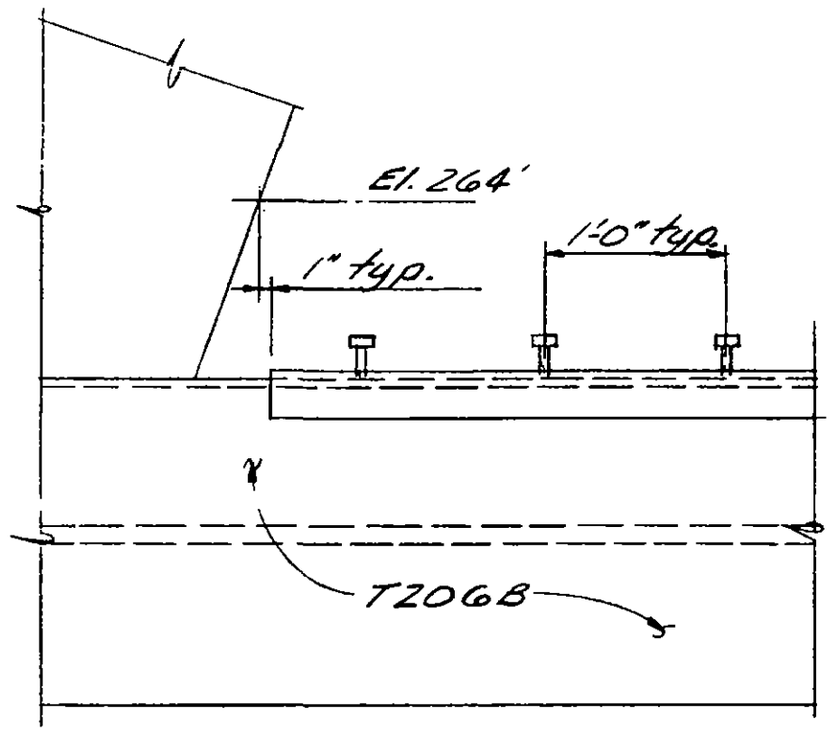
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: SIDE PLATE ON SPANDREL T206B - DET. 542 | DATE: 7-17-68

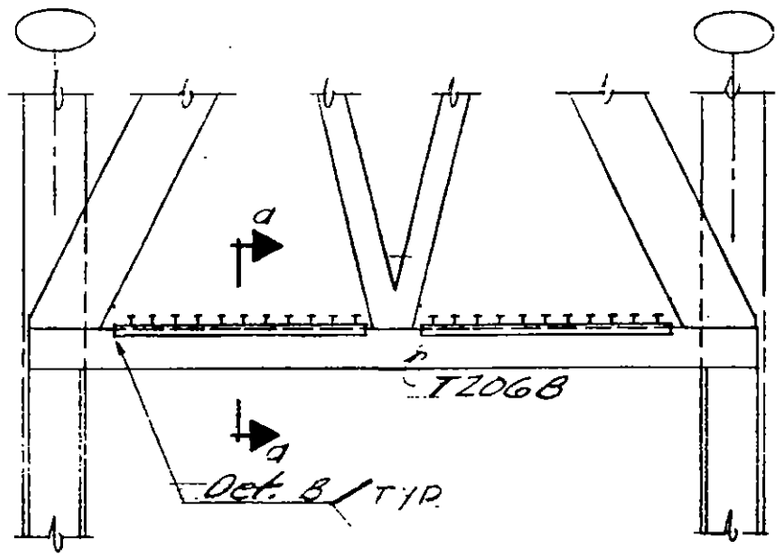
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Section a-a



Det. B



ELEVATION

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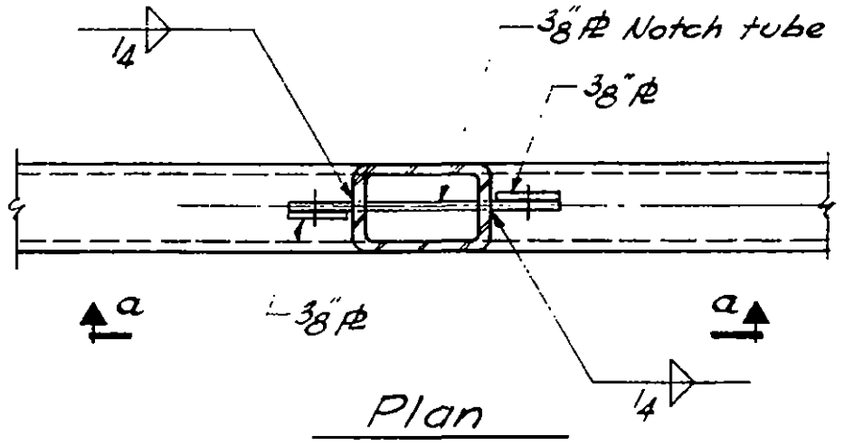
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6-AB2-183

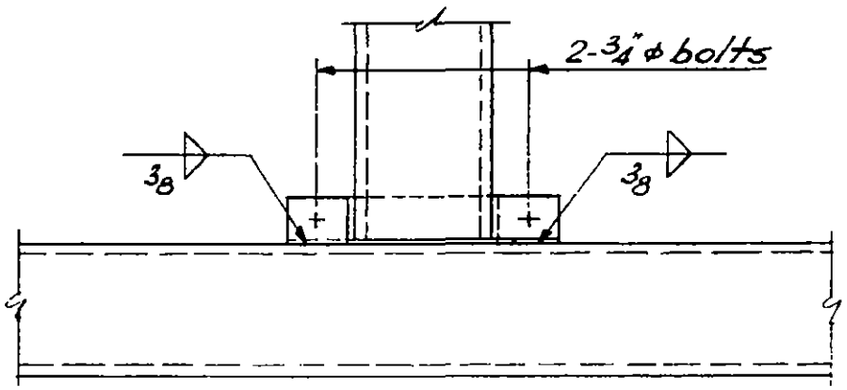
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL 543, 544 | DATE 11-22-68

REVISIONS



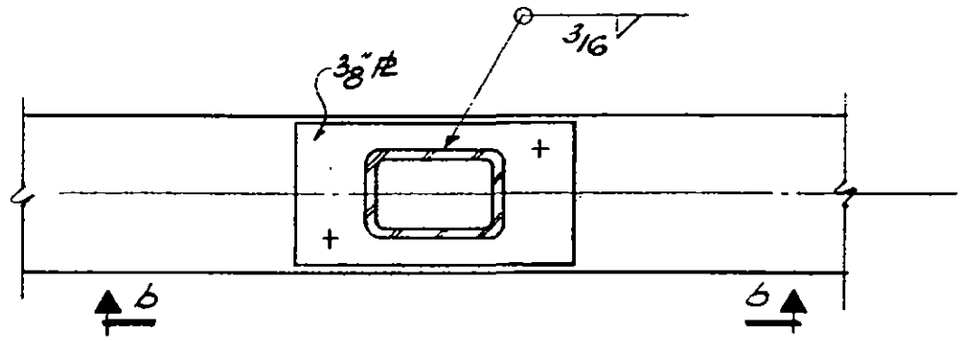
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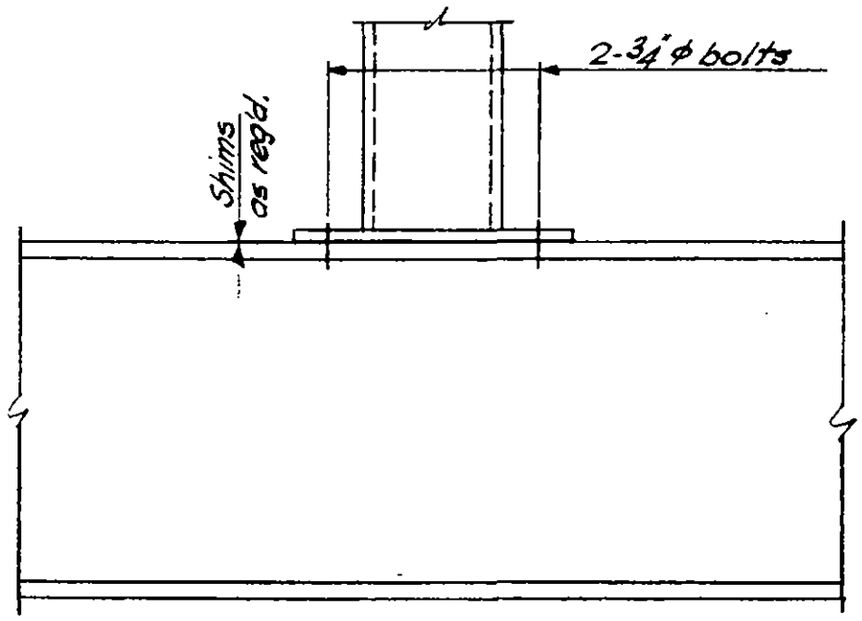
Section a-a

DETAIL 543

Connection to tube sections



Plan



Section b-b

DETAIL 544

Connection to wf sections

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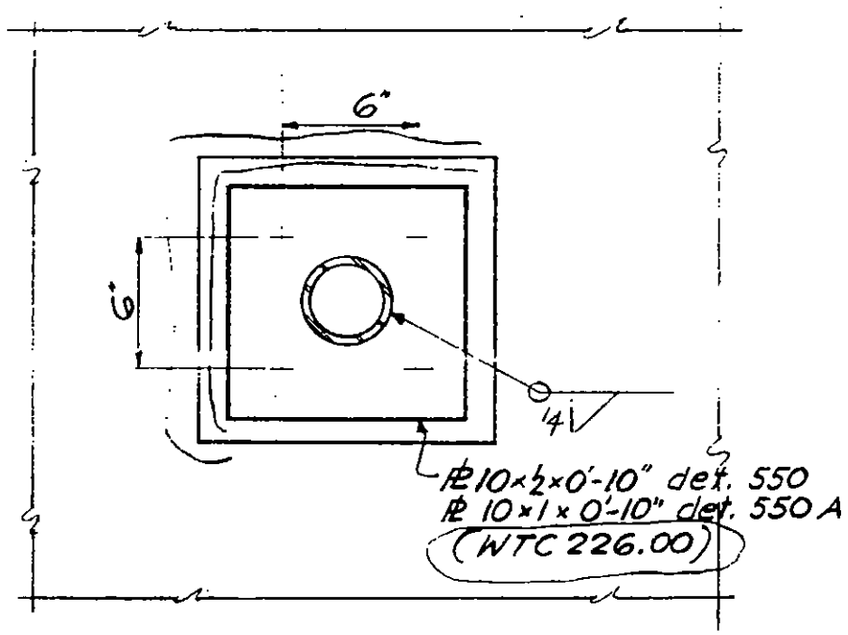
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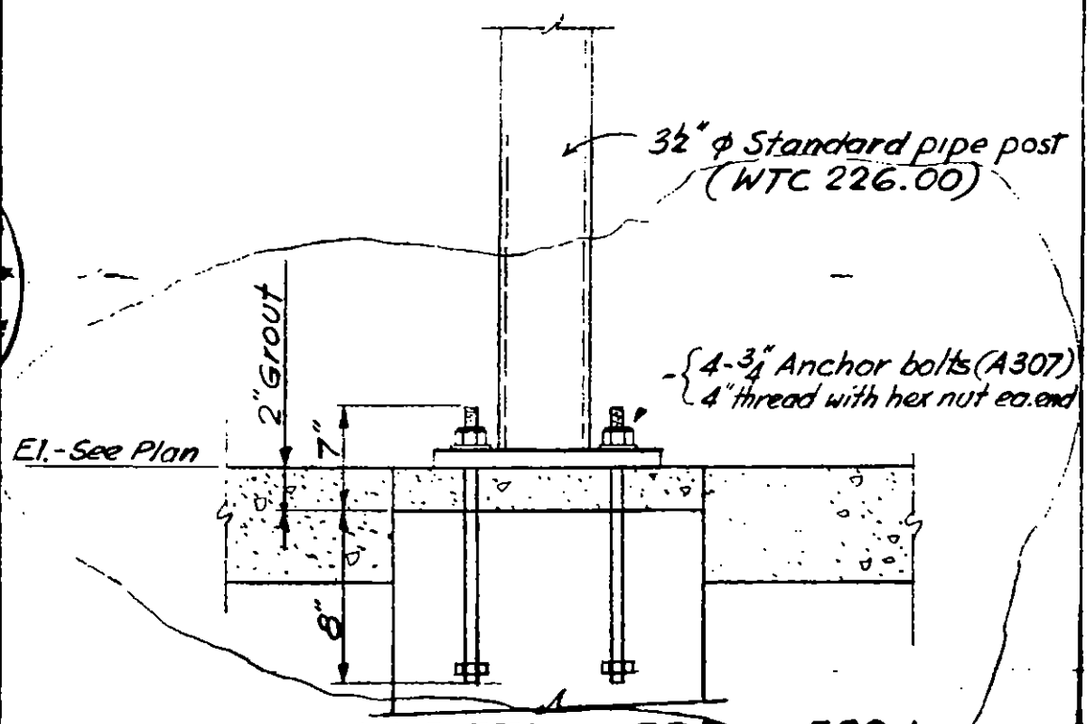
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WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAILS 550. 550A, 551, 552 | DATE 8-5-67

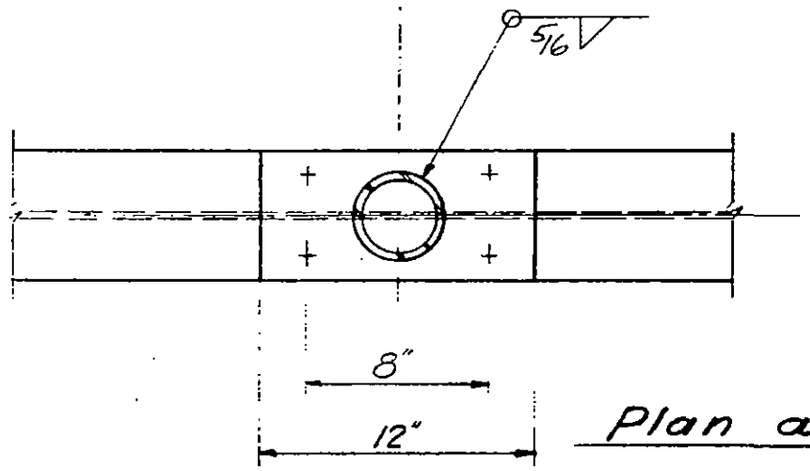
REVISIONS
2-9-68
8-29-68





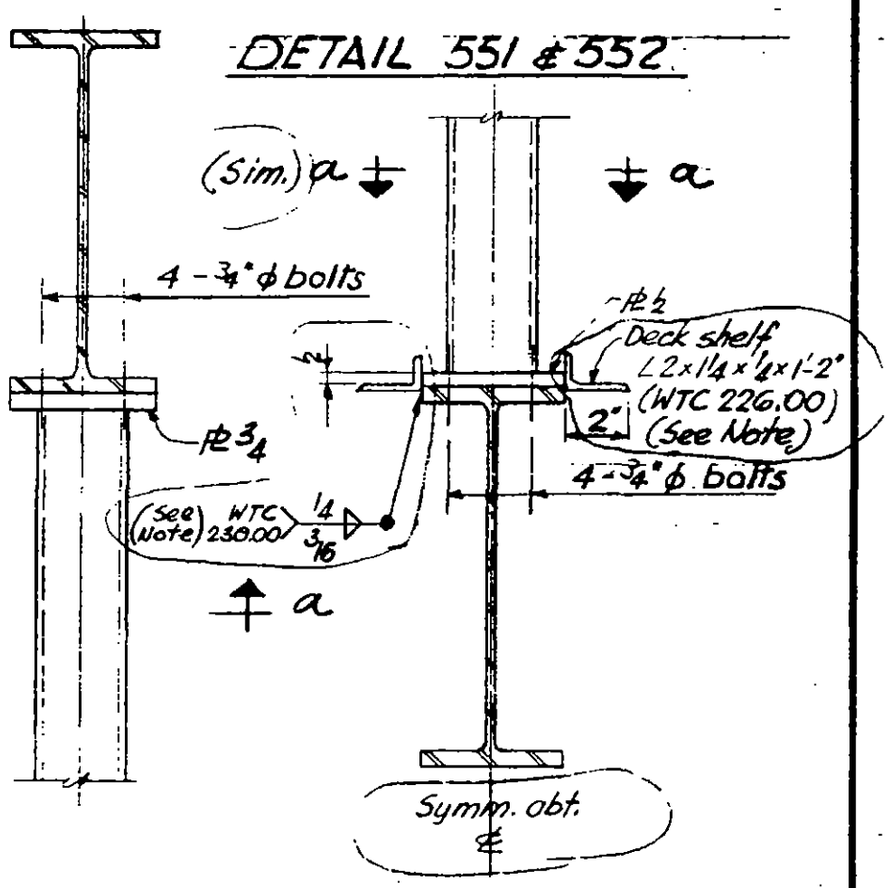
DETAIL 550 & 550A

Note: Detail 552. Deck shelf L to be provided only for posts lying outside of care and @ floors 7, 41, 75 & 108.



Plan a-a

DETAIL 551 & 552



DETAIL 551 (hanger)

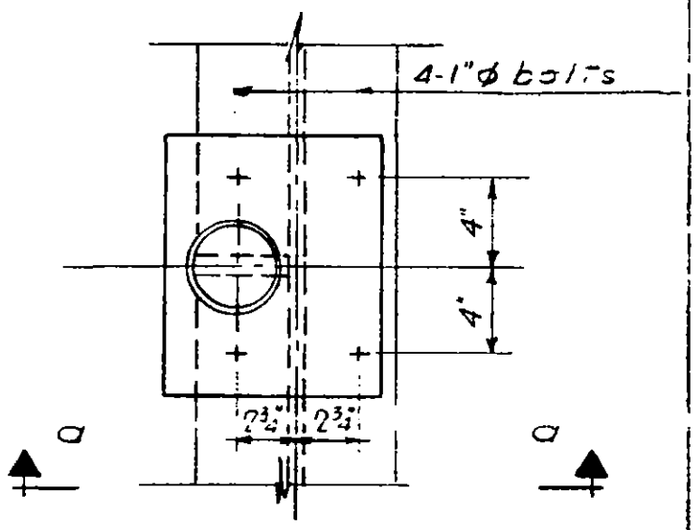
DETAIL 552 (Post)

6-AB2-187

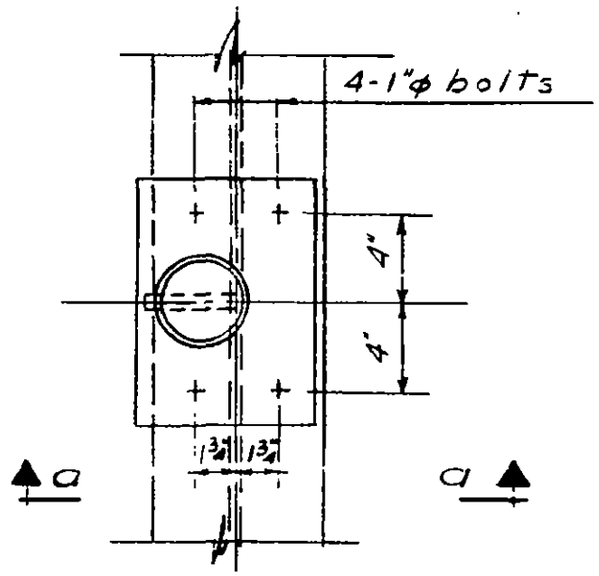
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONNECTIONS DETAIL 553, 554, 555 | DATE 10-2-67

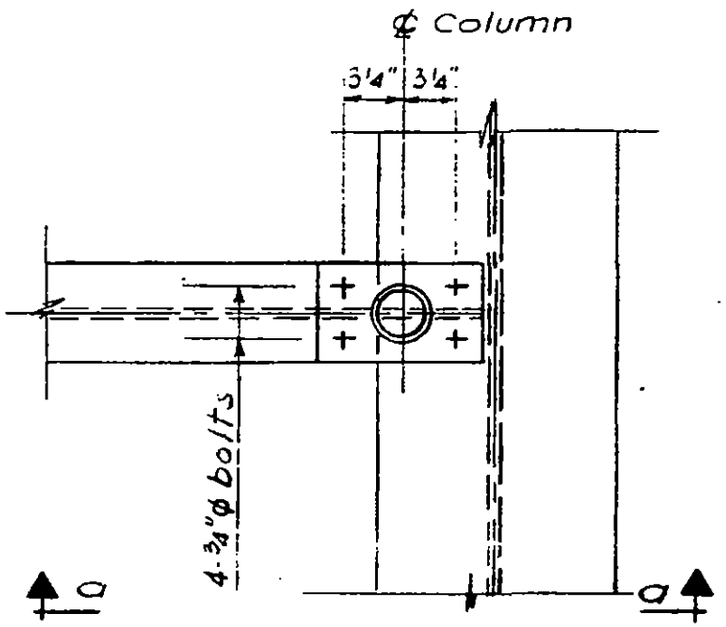
REVISIONS



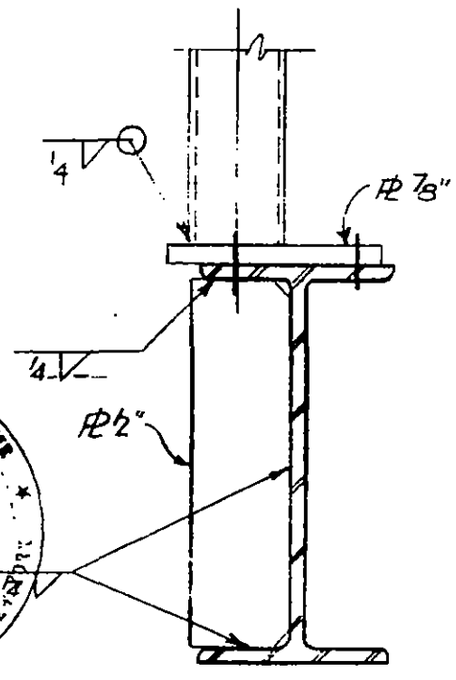
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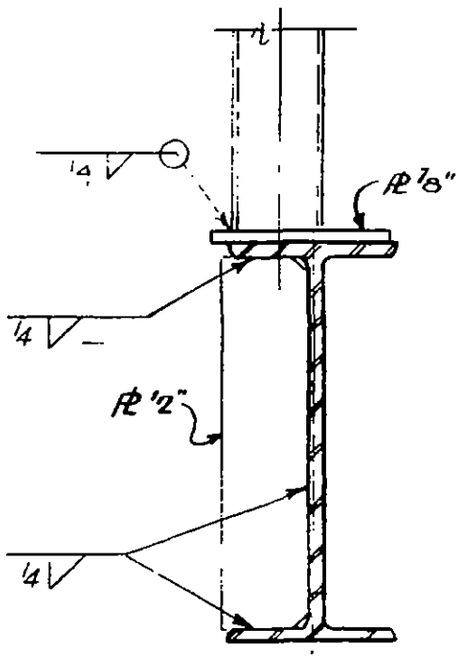
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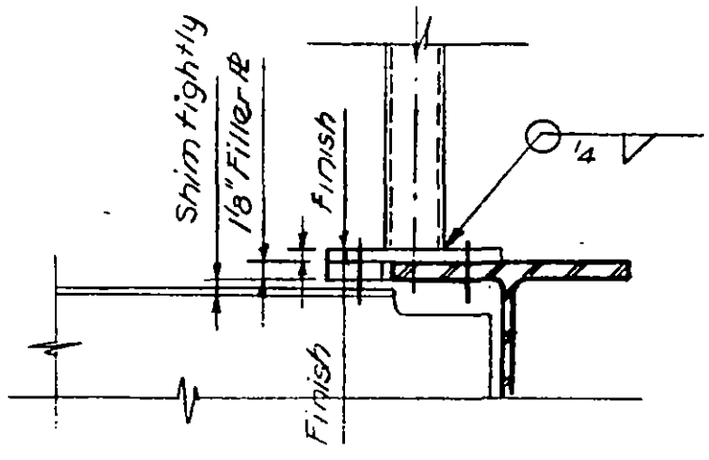
Plan



Section a-a



Section a-a



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

C-AB2-198

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	HORIZONTAL TRUSSES & BRIDGING - INDEX	4/ 1/69

REVISIONS

nted 5-1-69

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6-AB3- 8 HORIZONTAL TRUSS DETAILS C, D & DD
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GENERAL NOTES.

1. ALL MATERIAL AND LABOR CONTRACT WTC 226.00 EXCEPT AS NOTED.
2. FOR EXTERIOR WALL COLUMNS, SPANDRELS AND SEATS SEE DRAWING BOOK 2 (FLOORS 7 & 9) WTC 213.00 AND DRAWING BOOK 4 (FLOORS 10 TO 110) WTC 214.00.



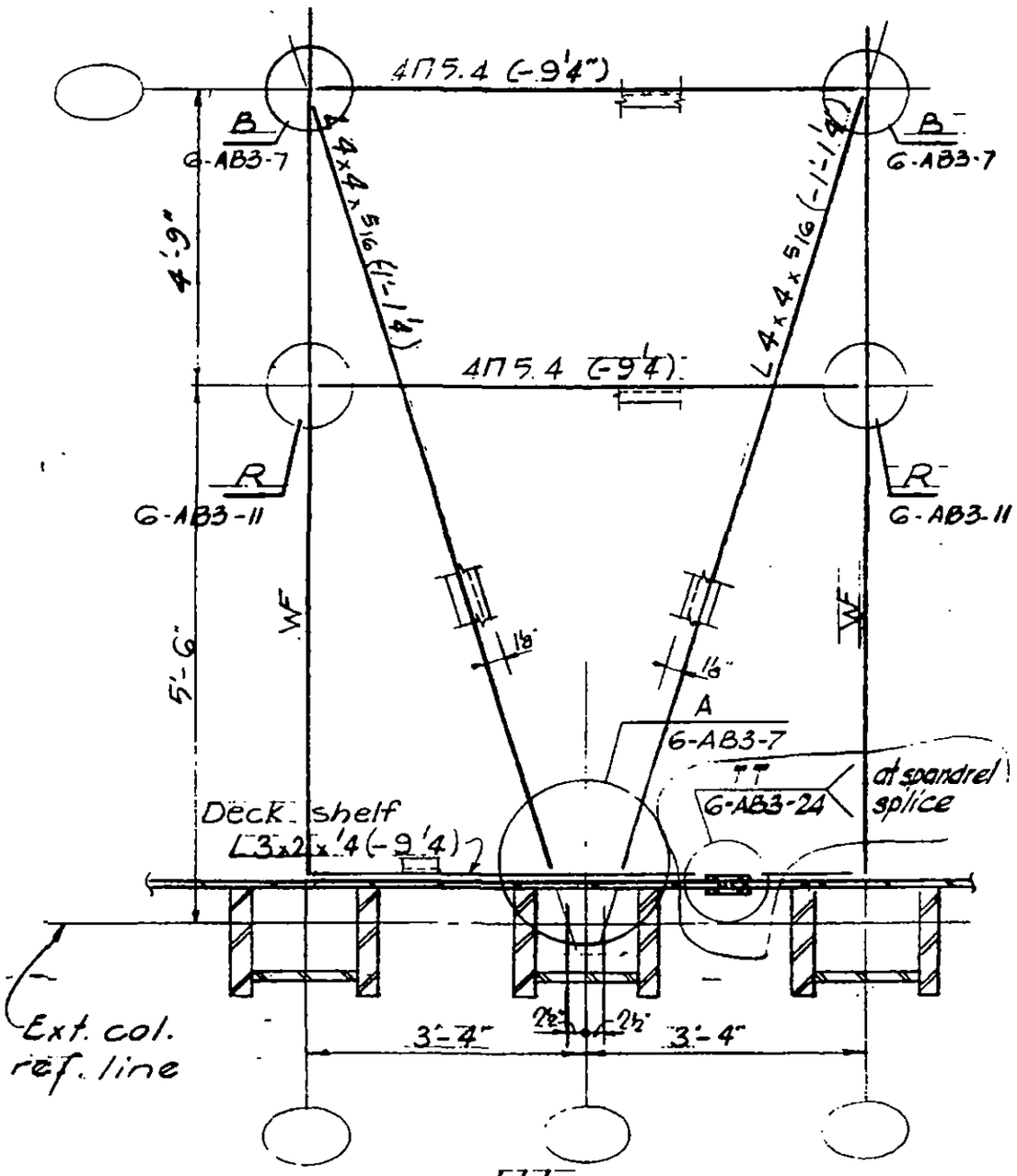
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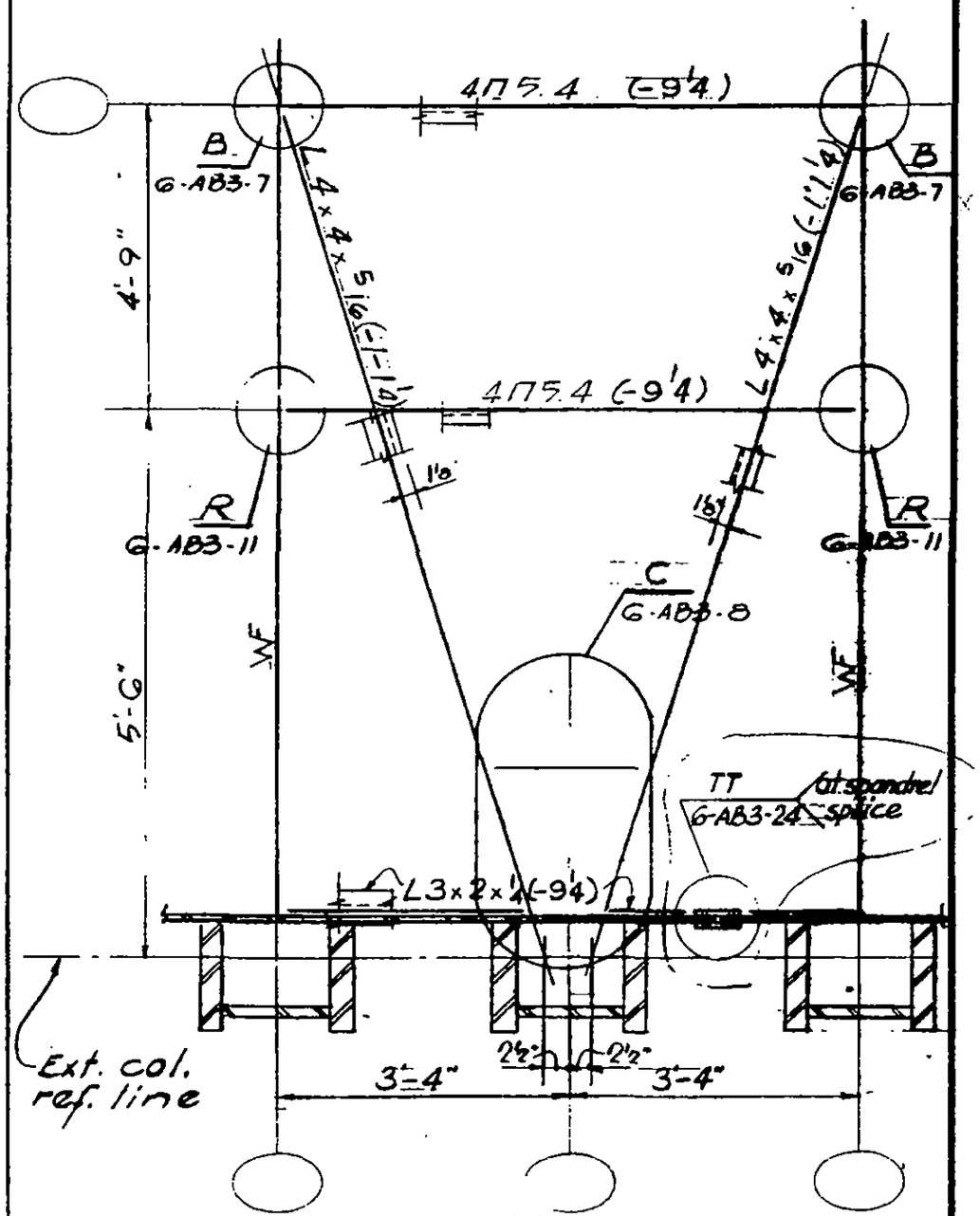
PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H1 & H2 | DATE: 12-20-67

REVISIONS

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H1



H2

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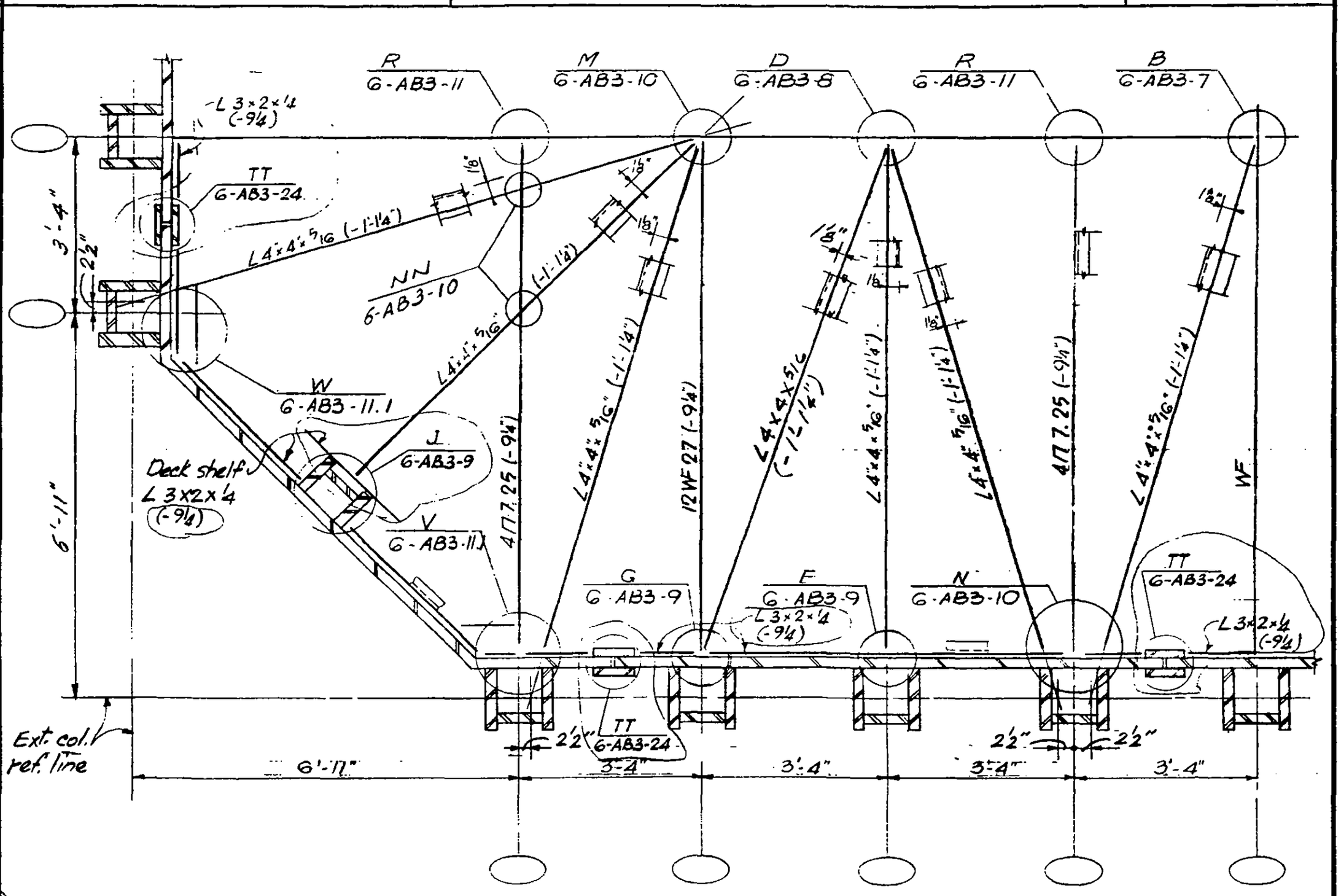
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H3 & H4 | DATE 12-20-67

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8-29-68



H3

H4 opp. hand

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LESLIE E. ROBERTSON
ENG. 34360
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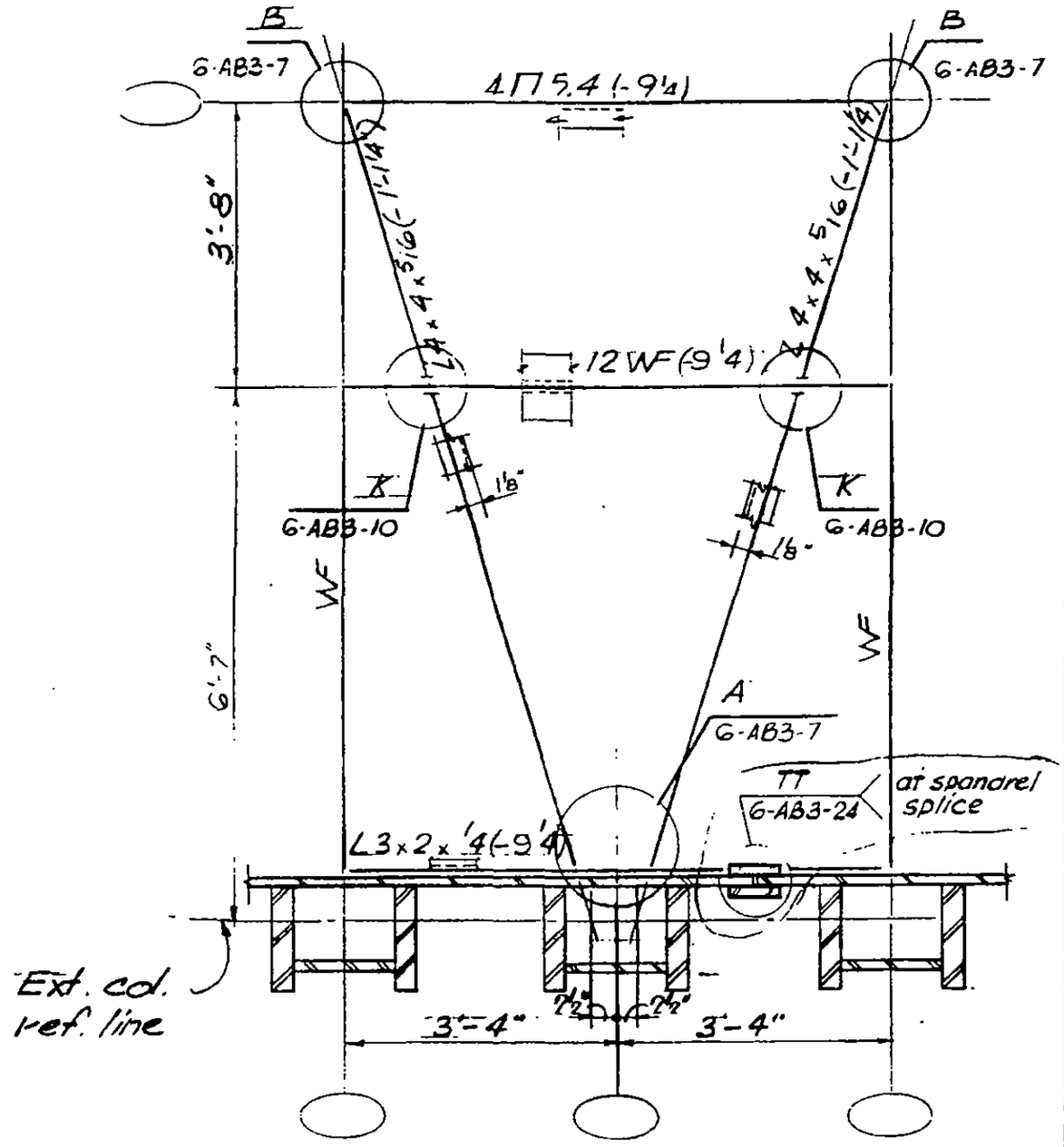
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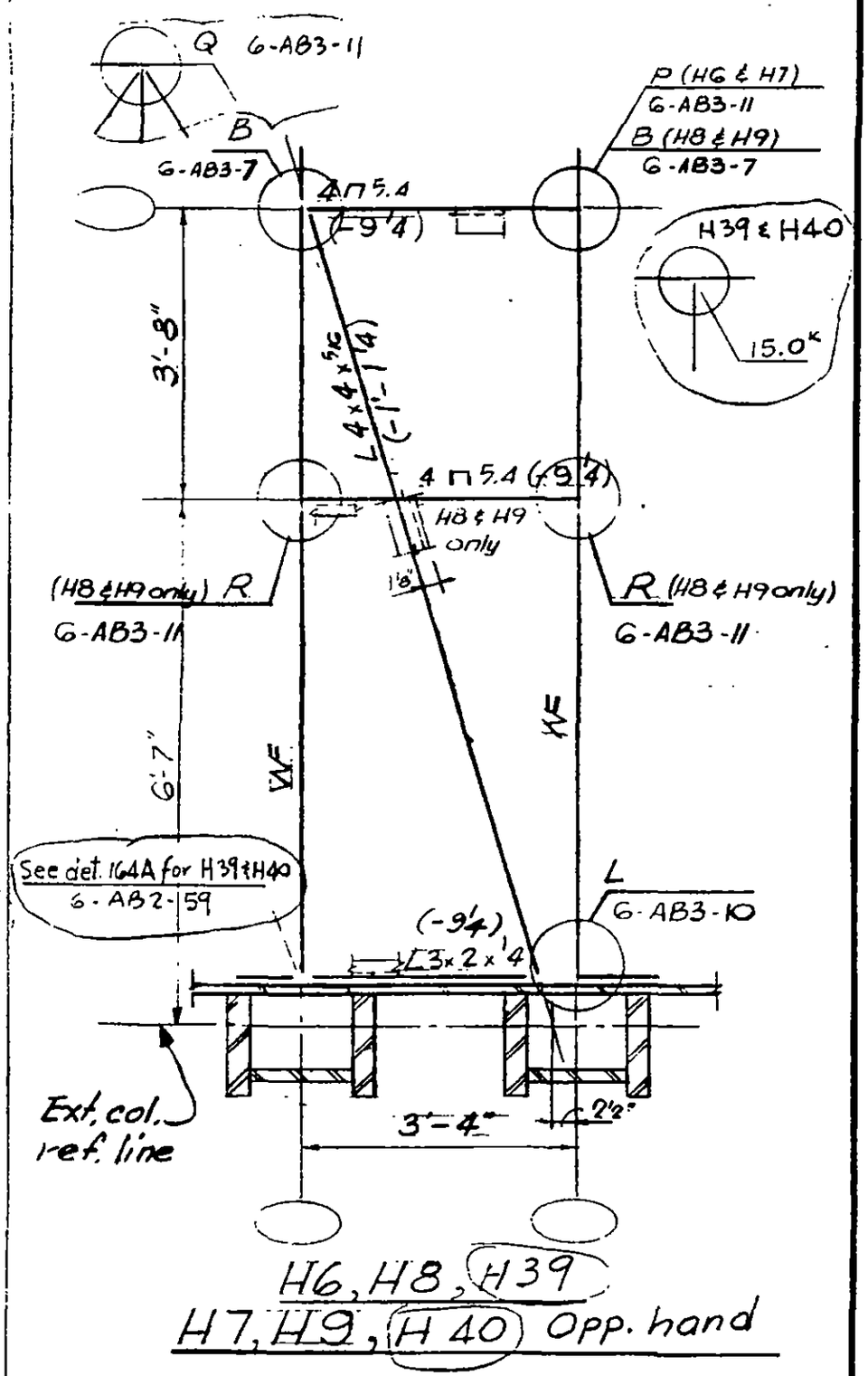
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H5 TO H9, H39 & H40 | DATE: 12-20-67

REVISIONS

1-24-68
8-29-68





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G-AB3-4

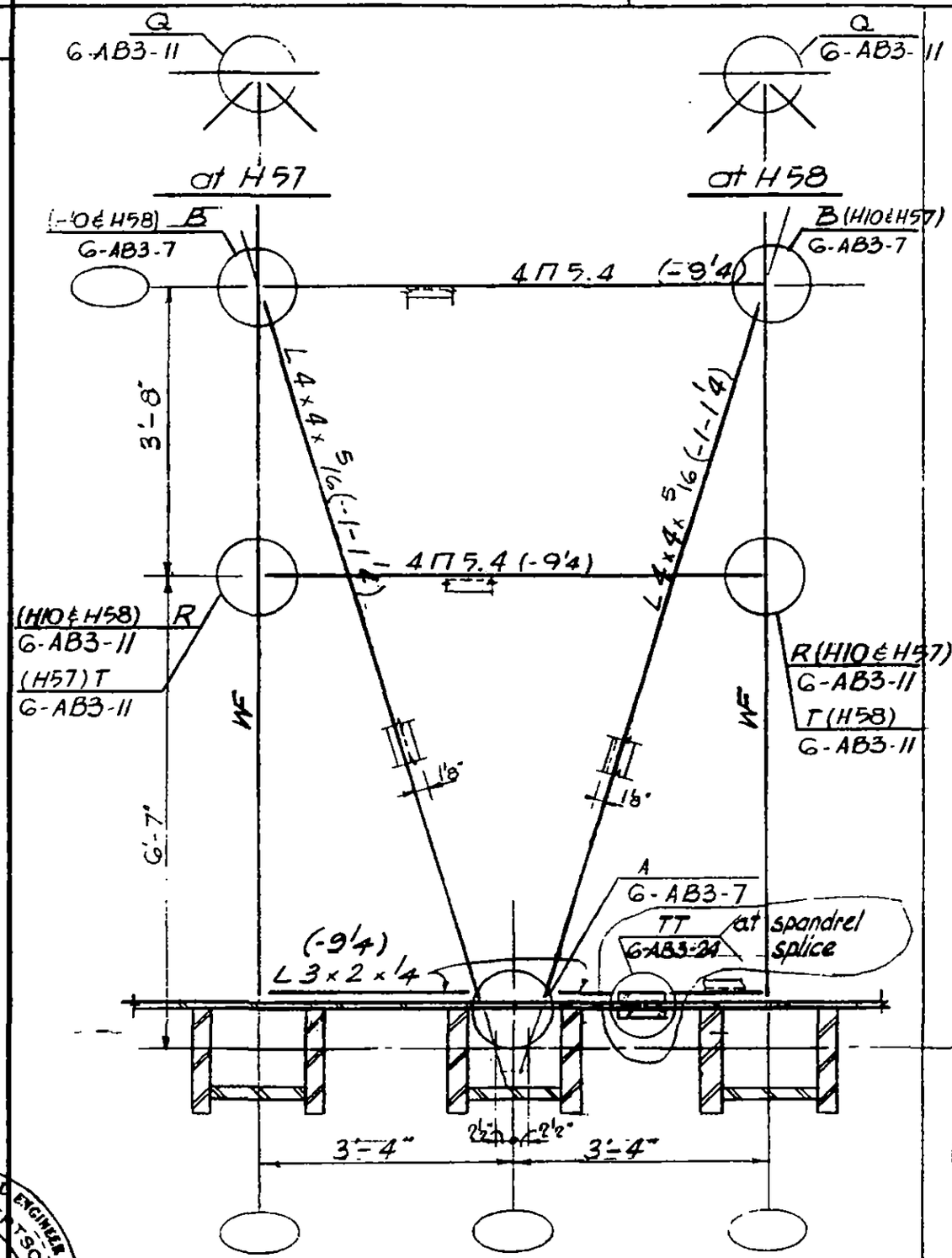
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PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H10, H12, H57, H58 | DATE: 12-20-67

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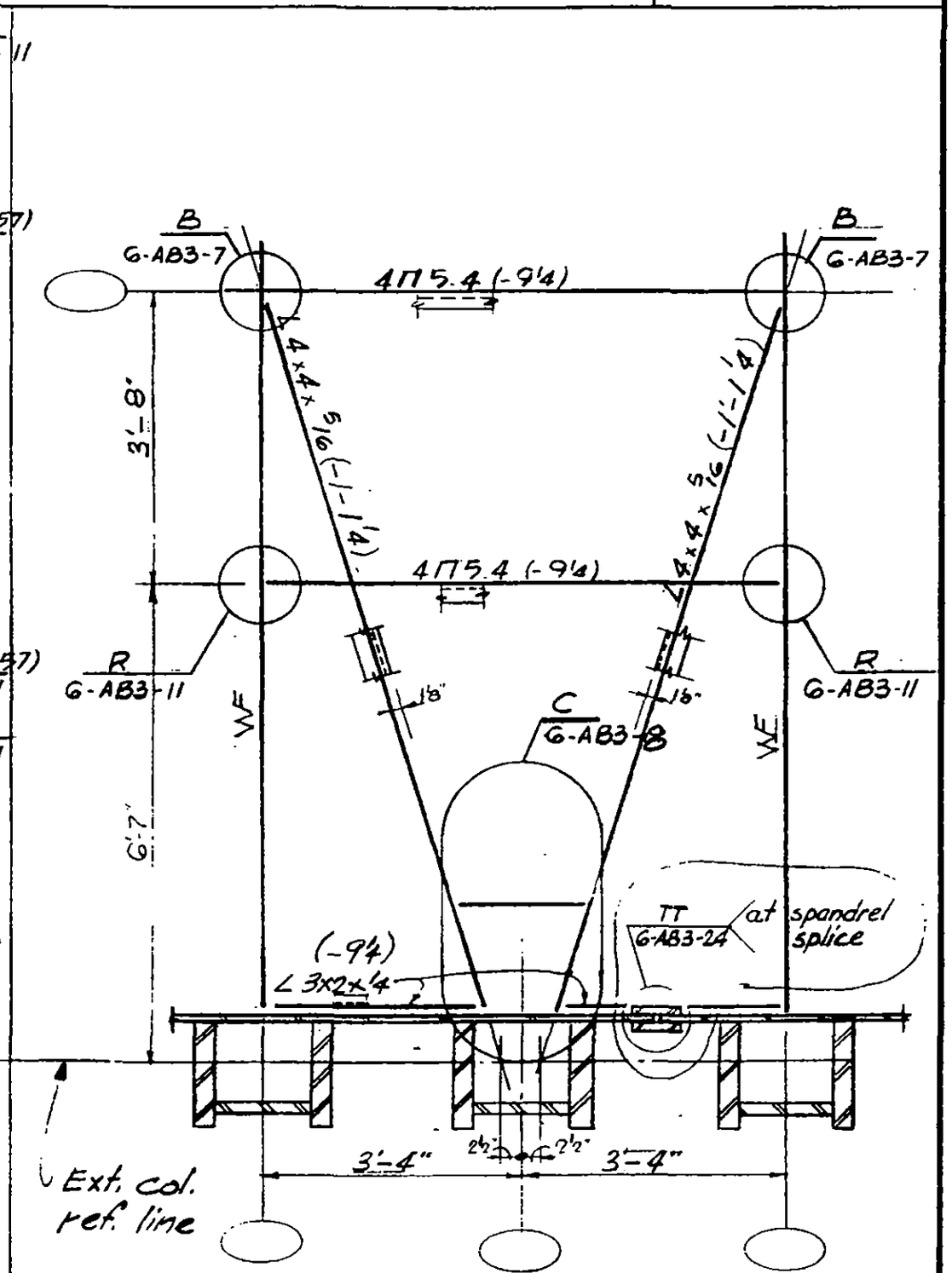
8-29-68



H10

H57 as noted

H58 as noted



H12

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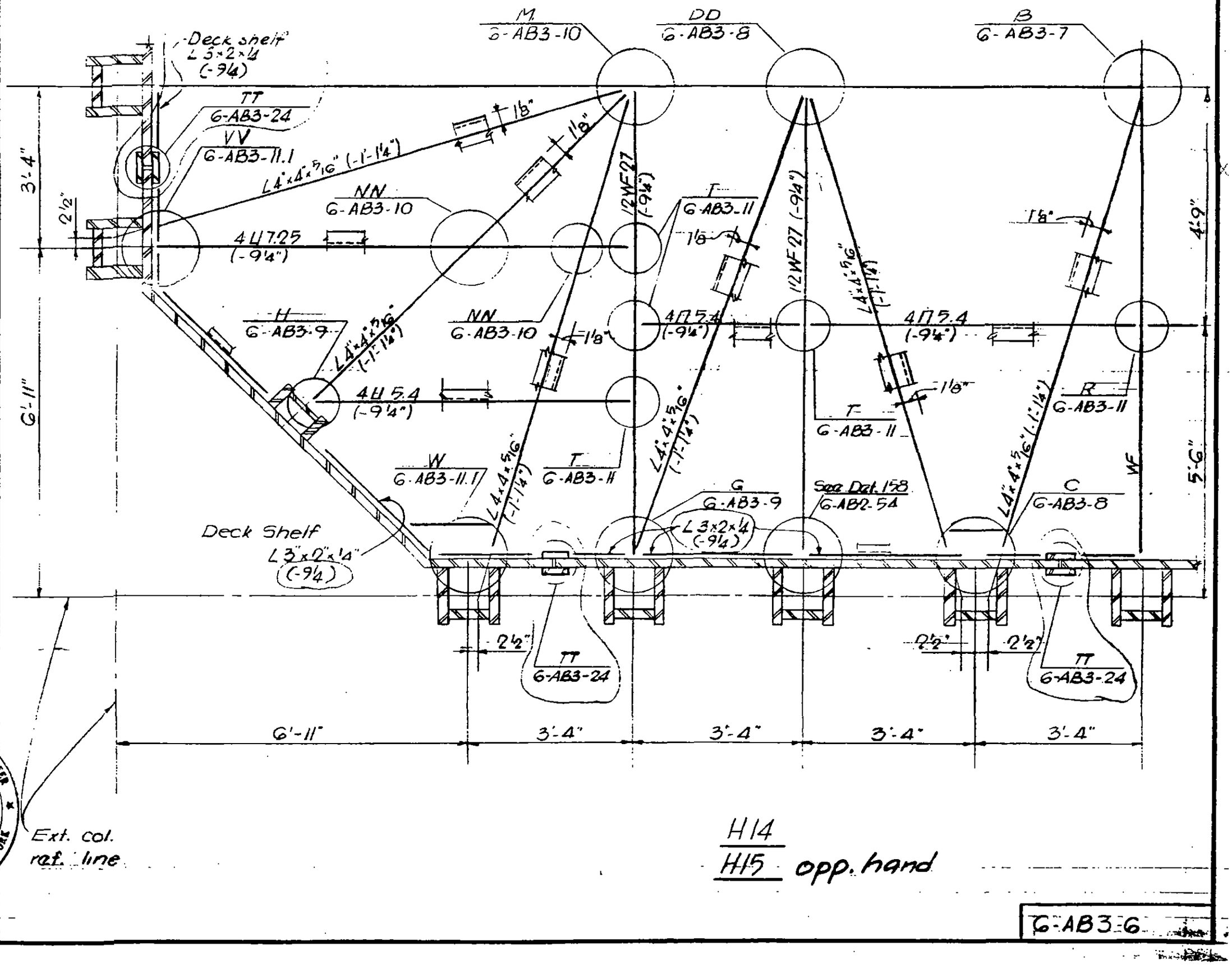
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PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H14 & H15 | DATE 12-20-67

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H14
H15 opp. hand

G-AB3-6

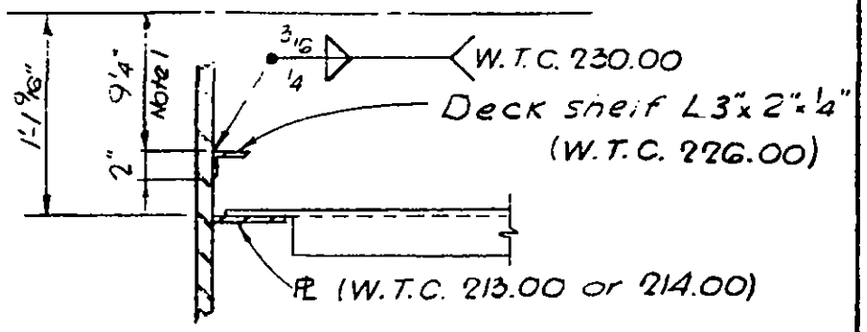
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STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

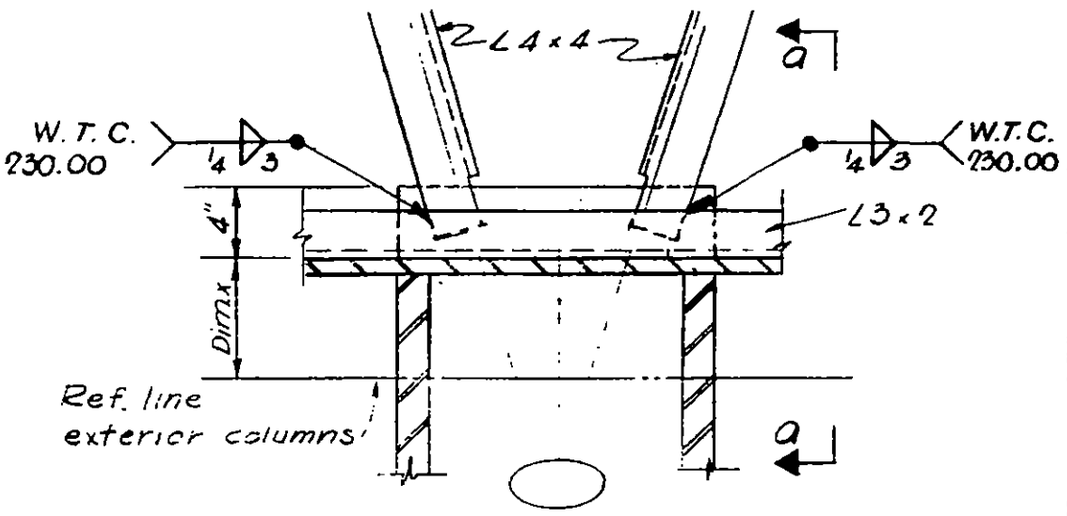
PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS - DETAILS A & B | DATE: 12-20-67

REVISIONS

Note 1: See approved steel deck shop drawings for locations where this dim. is 7 3/4".

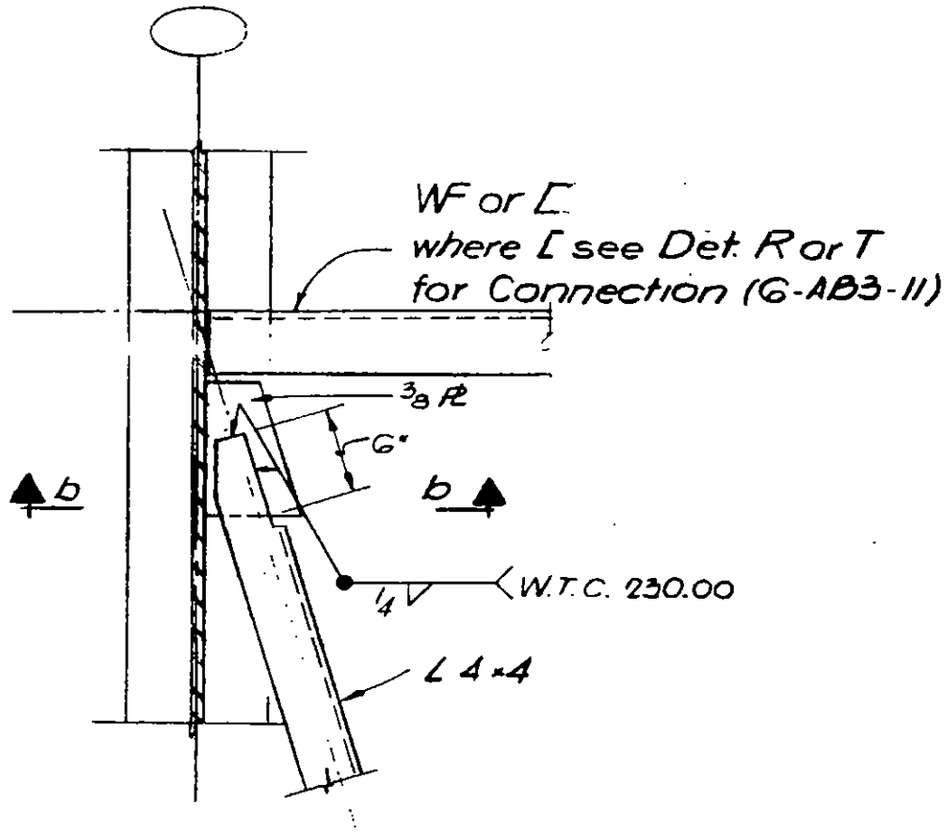


SECTION a-a

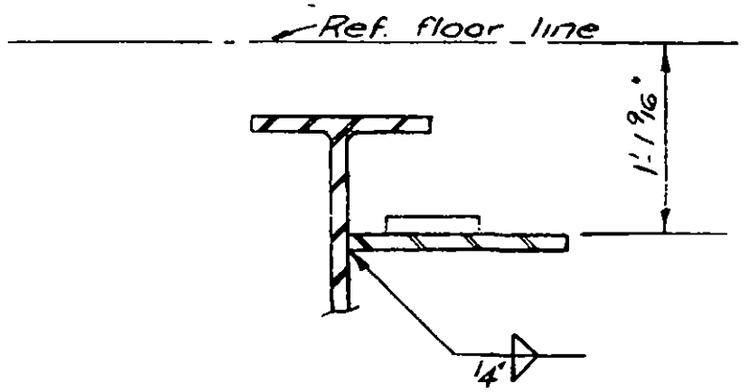


Detail A

Floor	Dim. X
9	7 7/8"
41 & 43	7 7/16"
75 & 77	7 1/16"
107	6 7/8"



Detail B



Section b-b

6-AB3-7

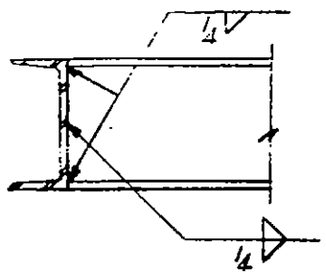
REGISTERED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 3[illegible]
STATE OF NEW YORK

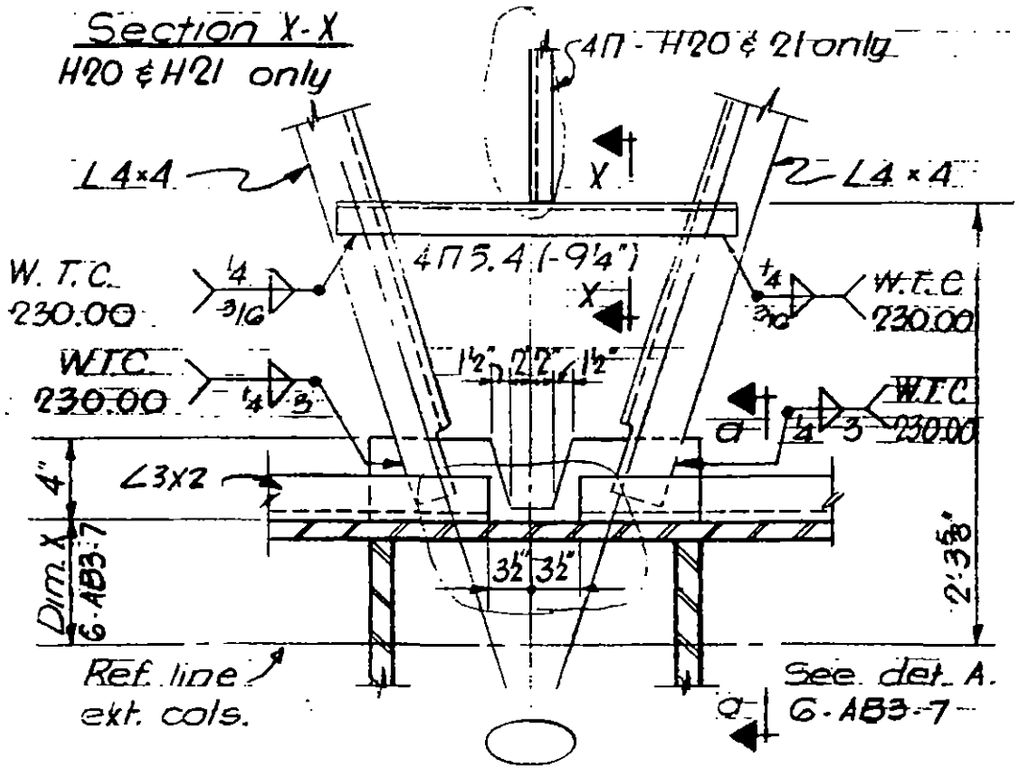
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS C, D & DD | DATE 12-20-67

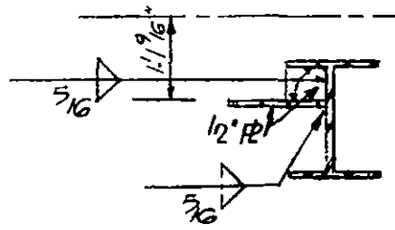
REVISIONS

8-29-68

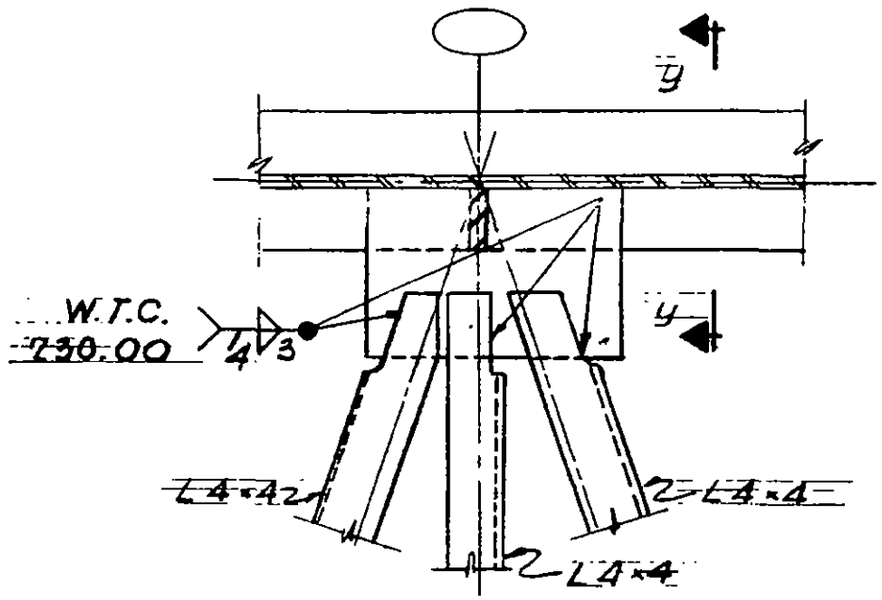




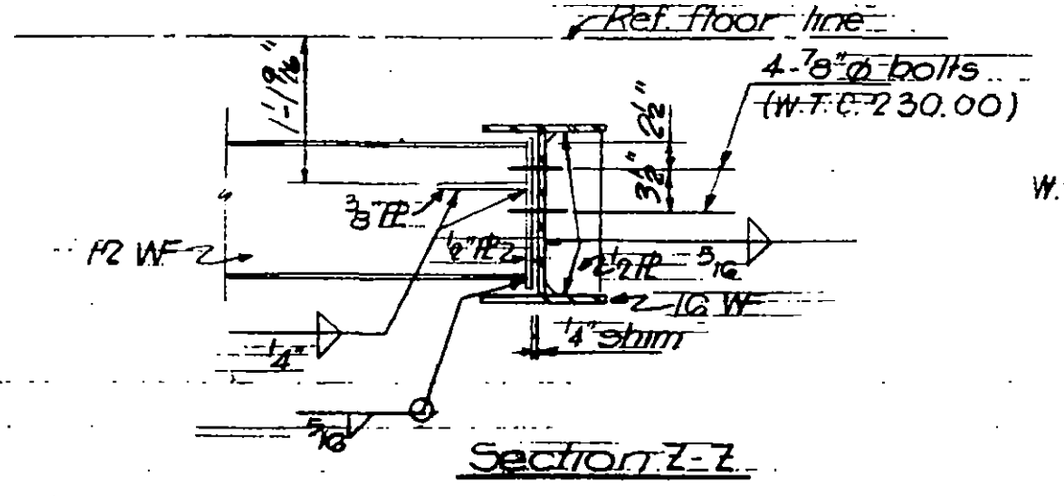
Detail C



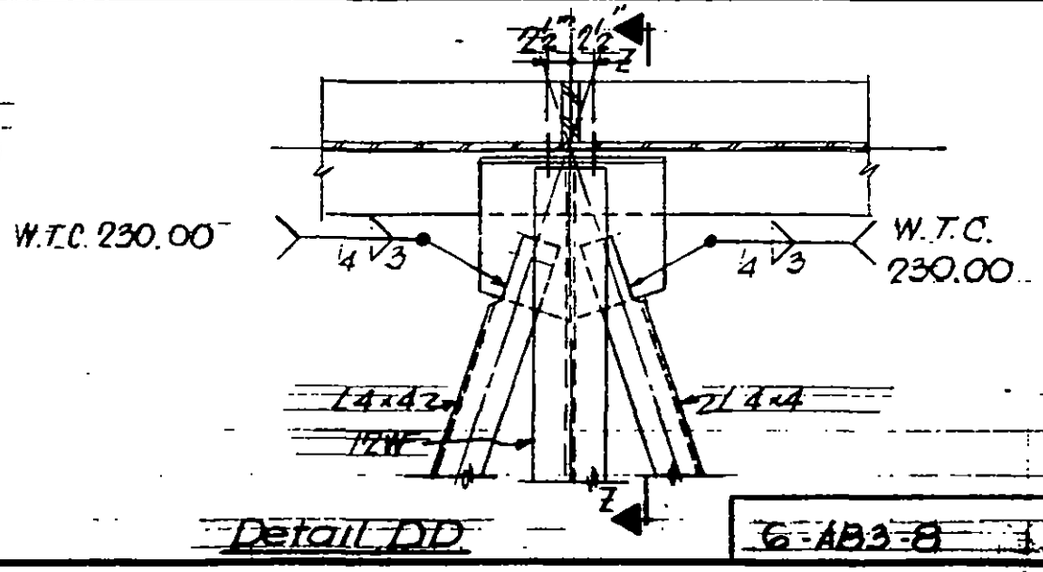
Section y-y



Detail D



Section Z-Z



Detail DD

6-AB3-8

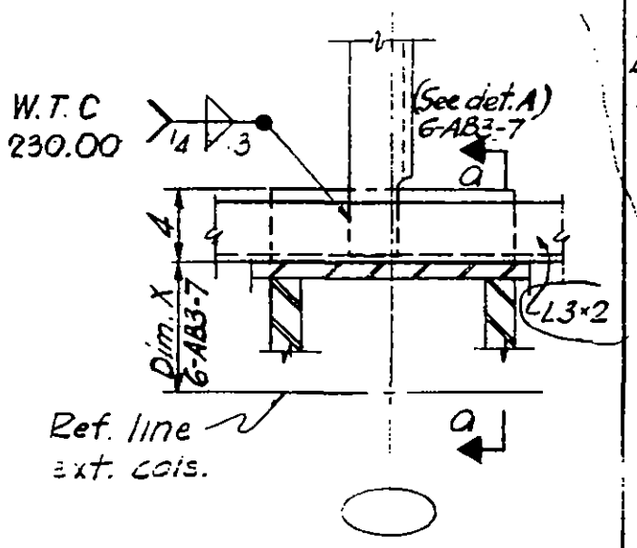
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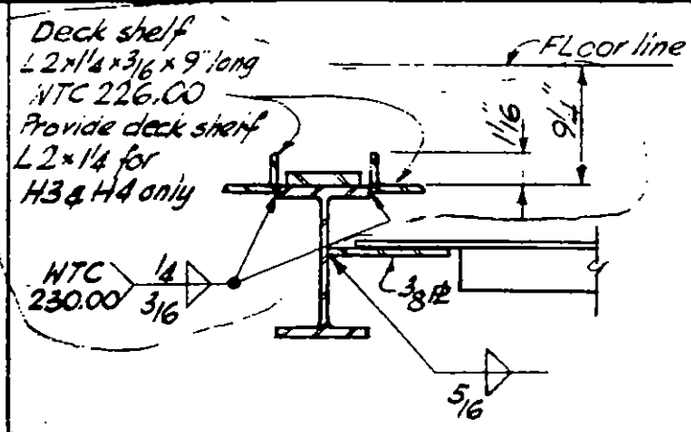
PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS - DETAILS F, G, H & J | DATE: 12-20-67

REVISIONS

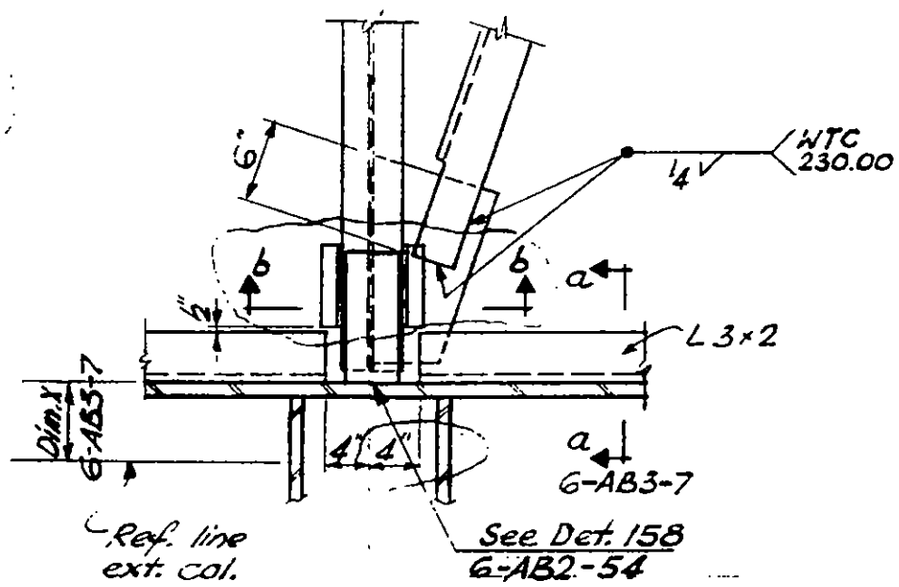
8-29-68



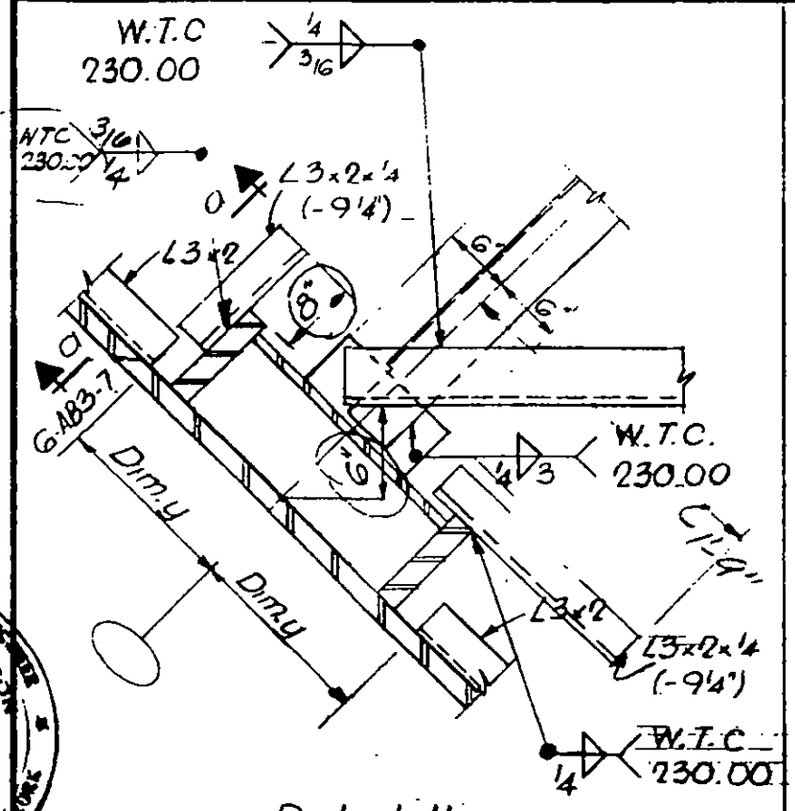
Detail F



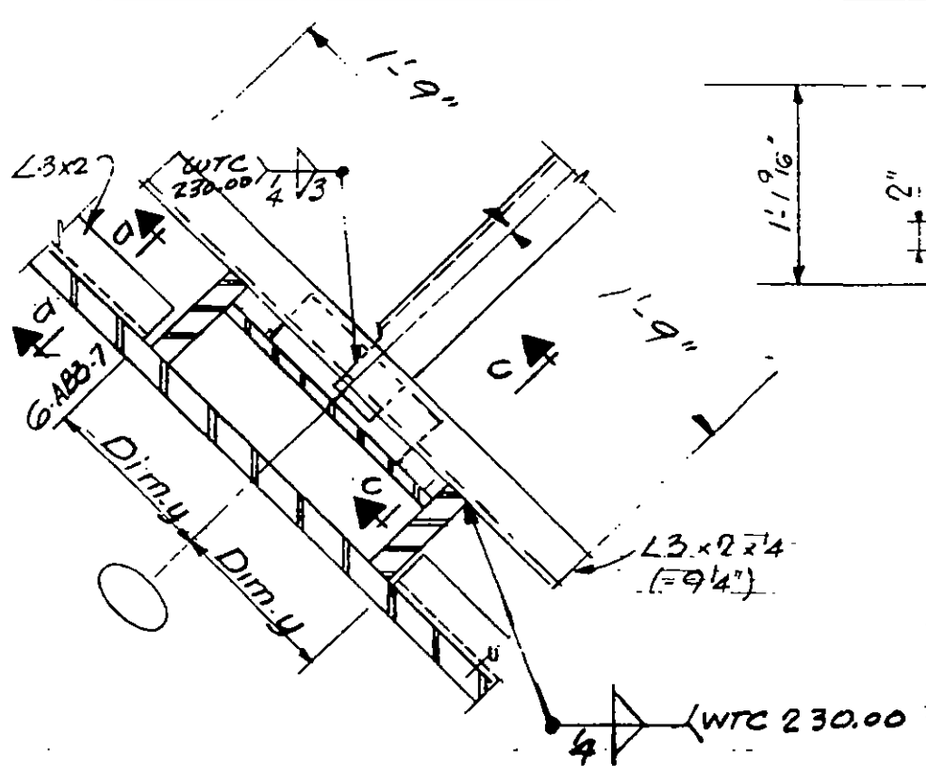
Section 6-6



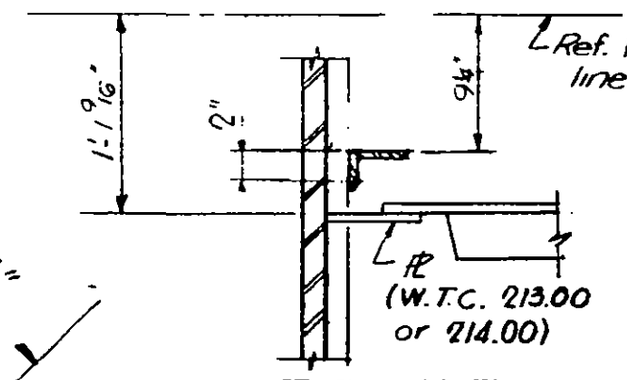
Detail G



Detail H



Detail J



Section C-C

Dim. y		
Floor \ Col. No.	100 & 300	200 & 400
77, 75 & 9	11"	8"
41 & 43	8"	11"

G-AB3-9

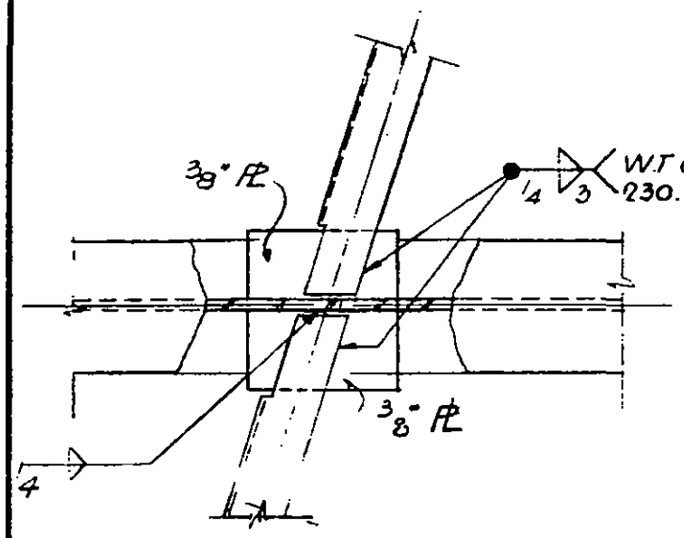
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 STATE OF NEW YORK

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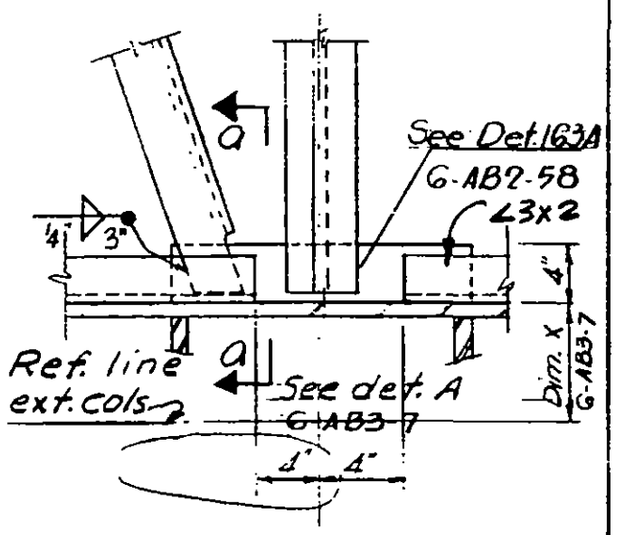
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS K, L, M, N, MM, & NN | DATE 12-20-67

REVISIONS

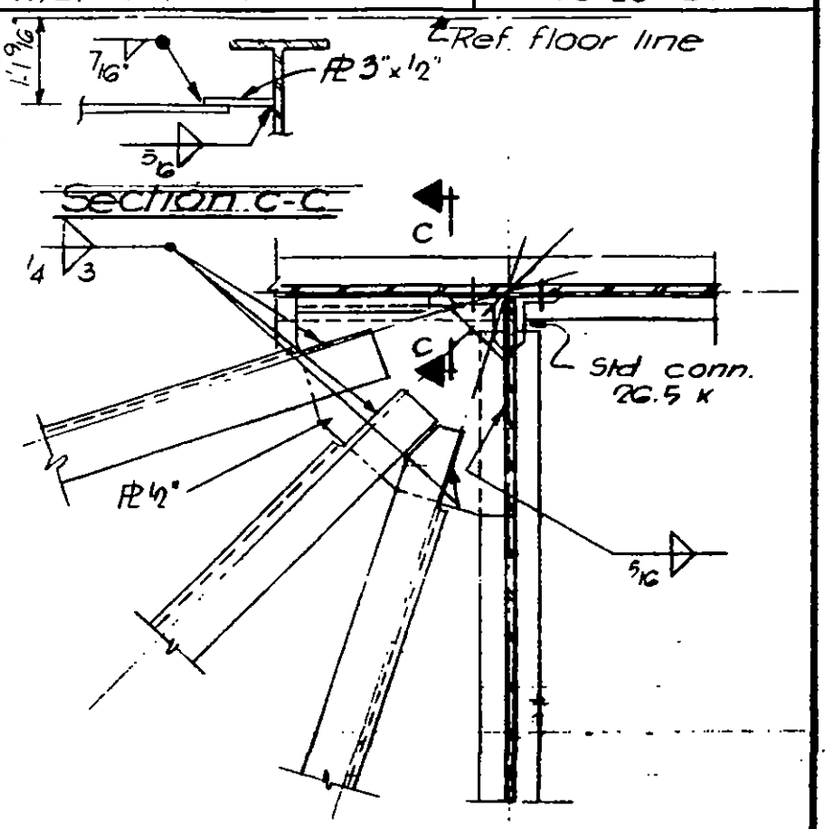
8-29-68



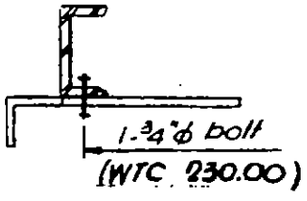
Detail K



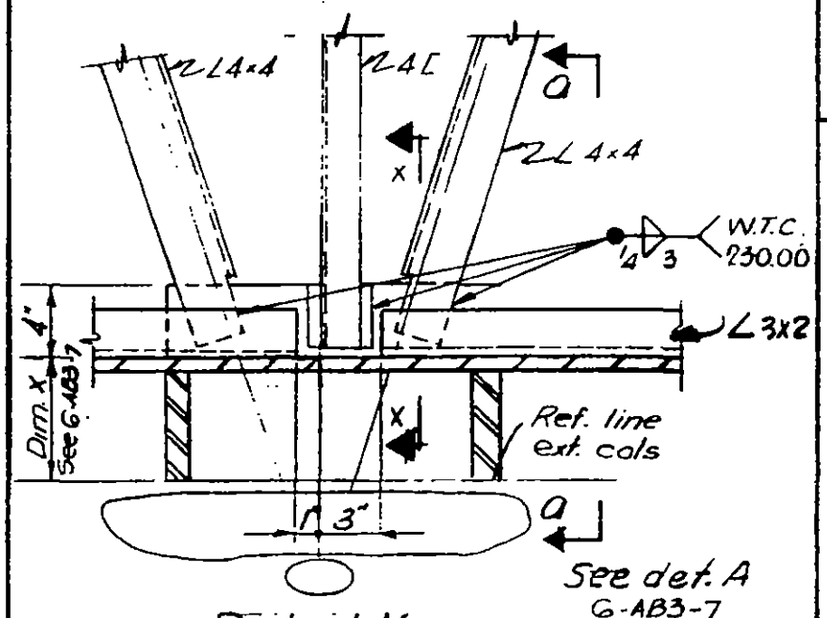
Detail L



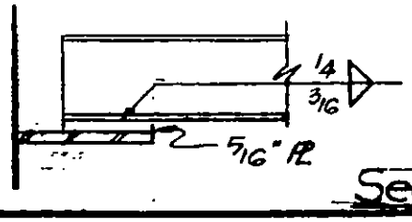
Detail M



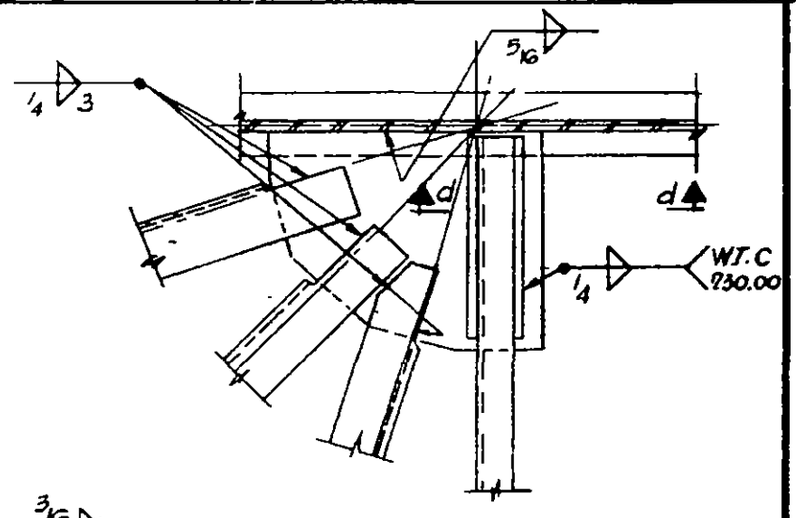
Detail NN



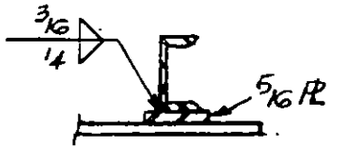
Detail N



Section x-x



Detail MM



Section d-d

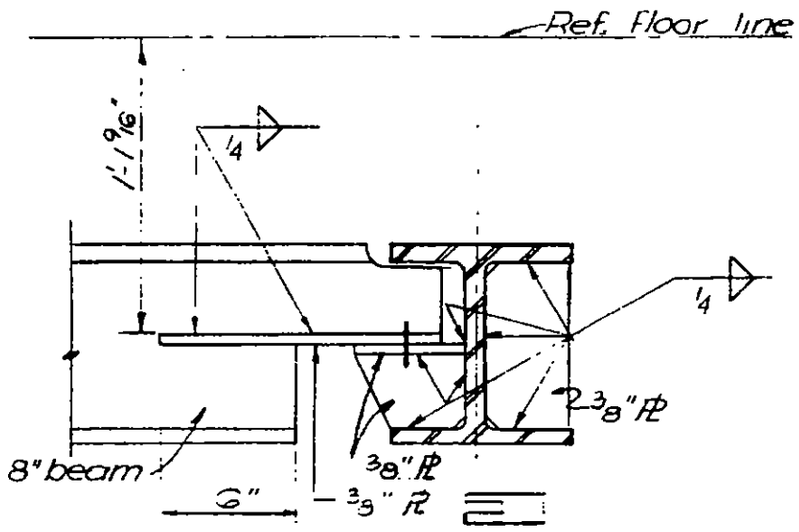
G-AB3-10

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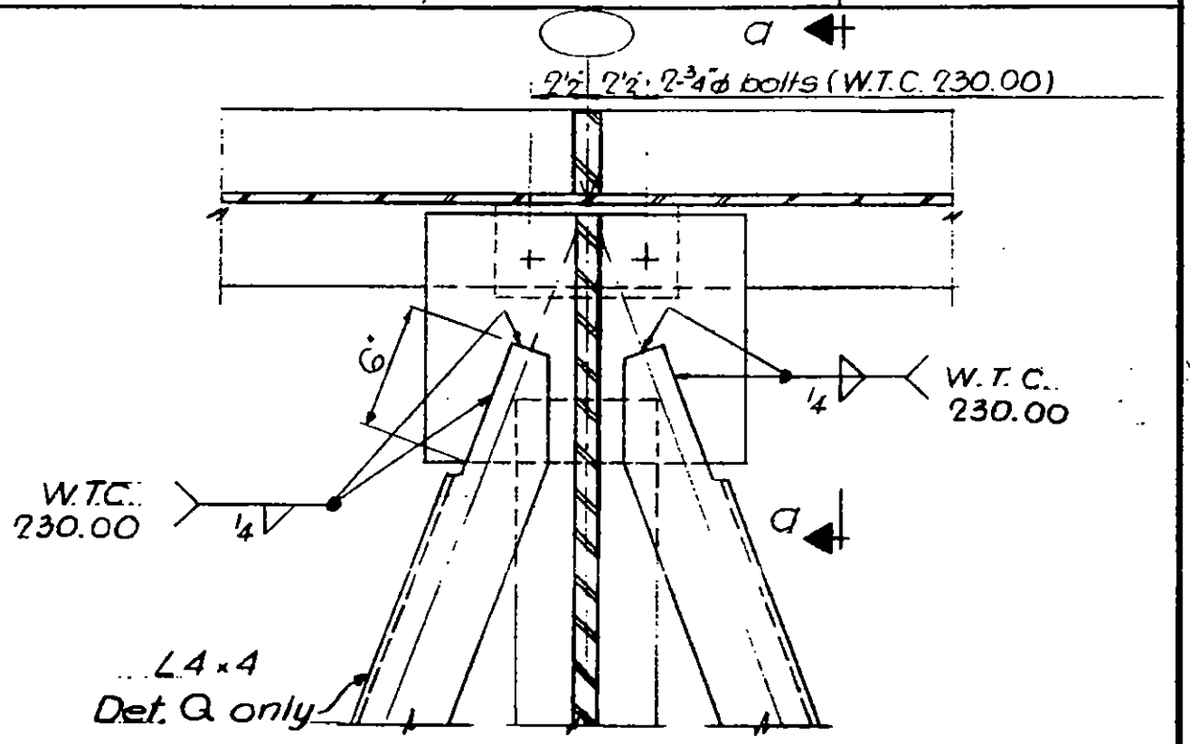
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS P, Q, R & T | DATE 12-20-67

REVISIONS

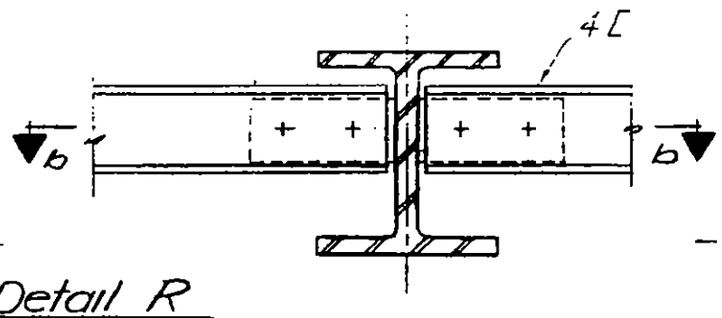


Section a-a

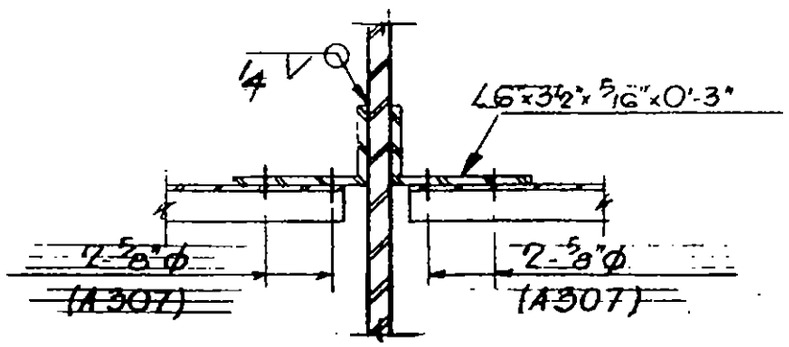


Detail P
Detail Q as noted

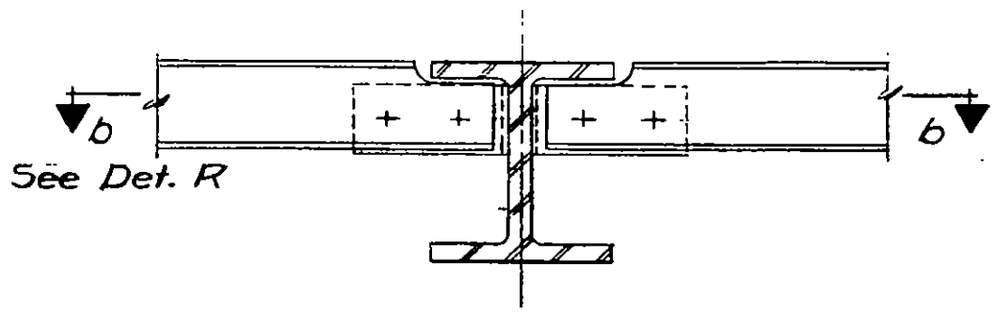
Plan



Detail R



Section b-b



Detail T

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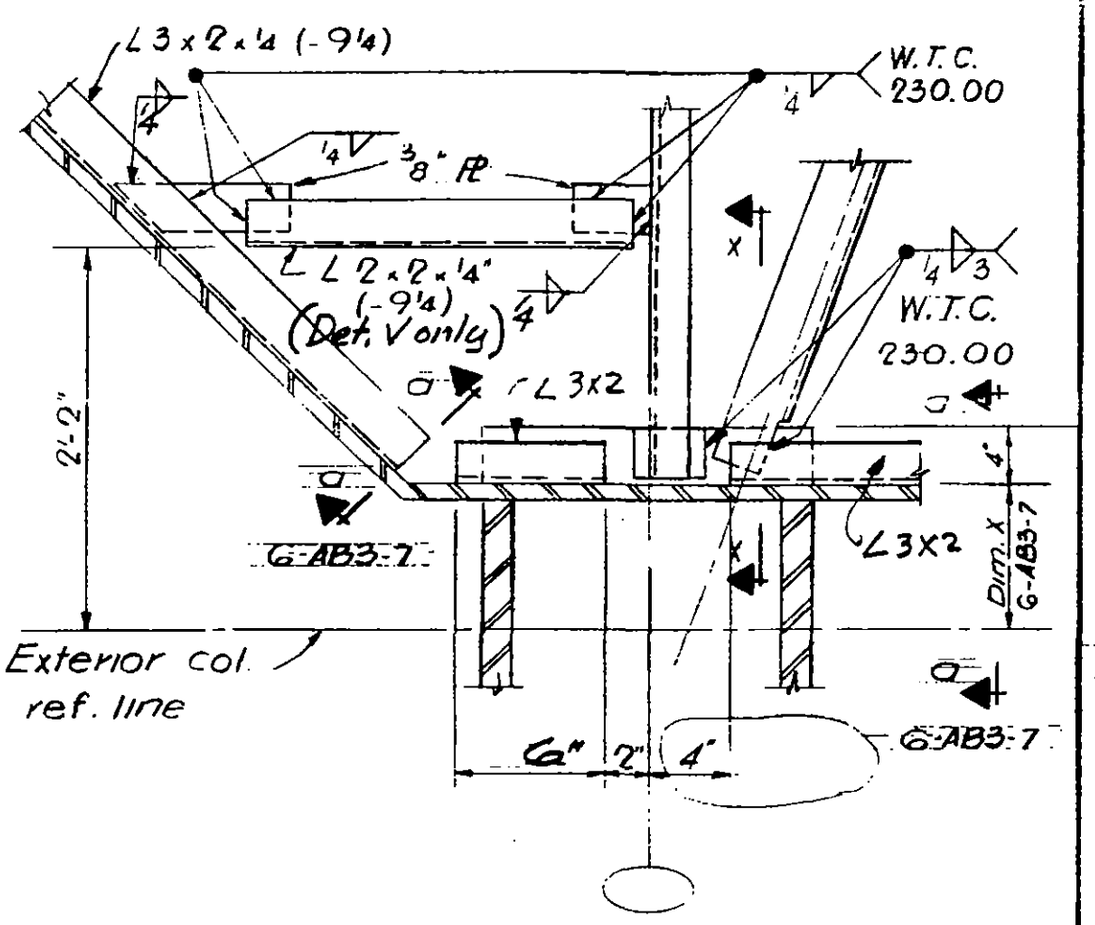
6-AB3-11

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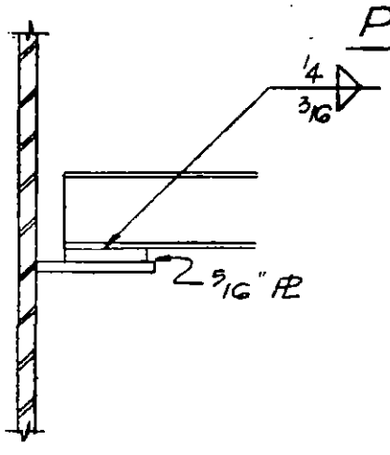
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS V, W & YY | DATE 12-20-67

REVISIONS

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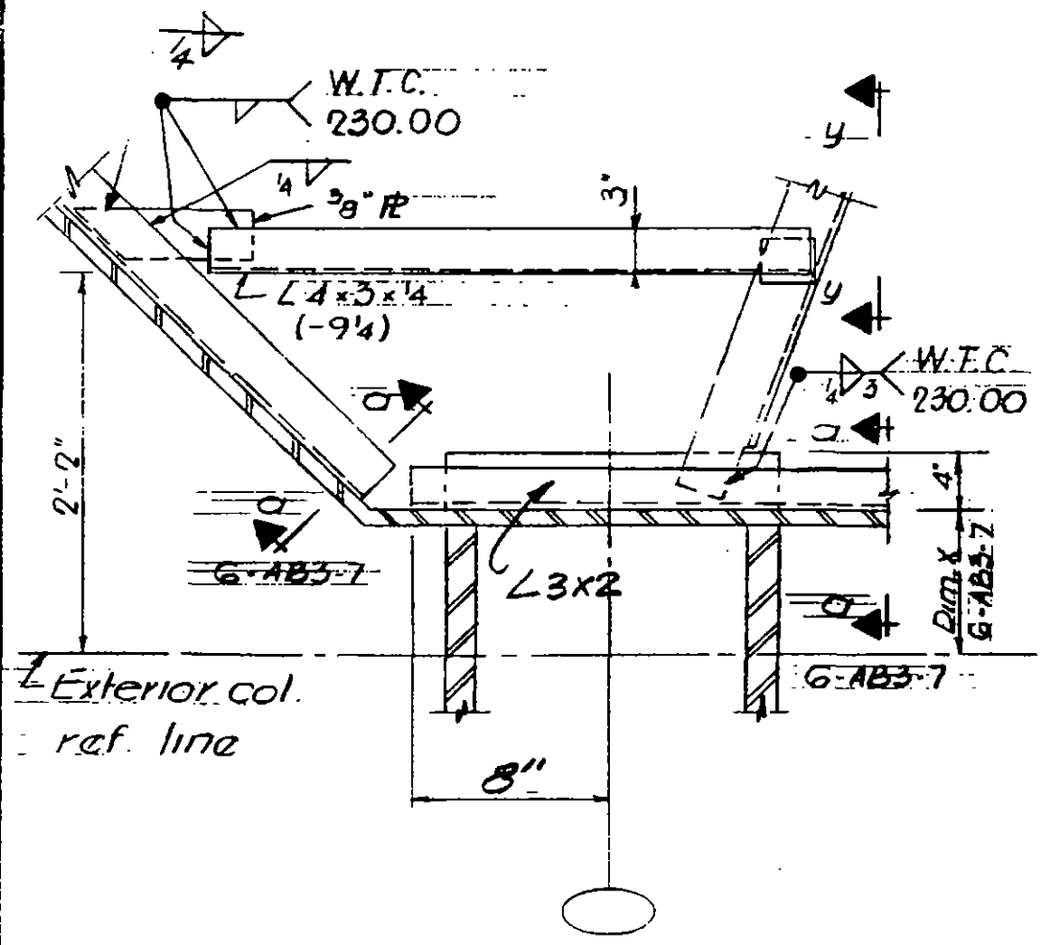


Plan

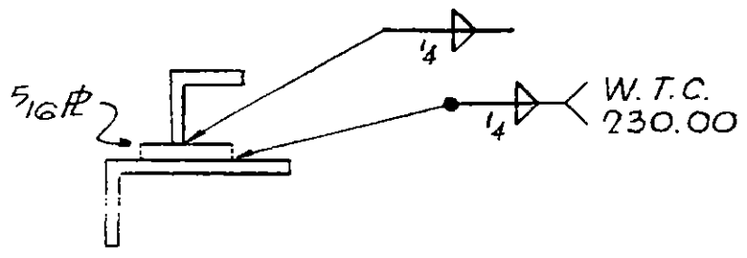


Section X-X

Detail V
Detail VV as noted



Plan



Section y-y

Detail W

G-AB3-11.1

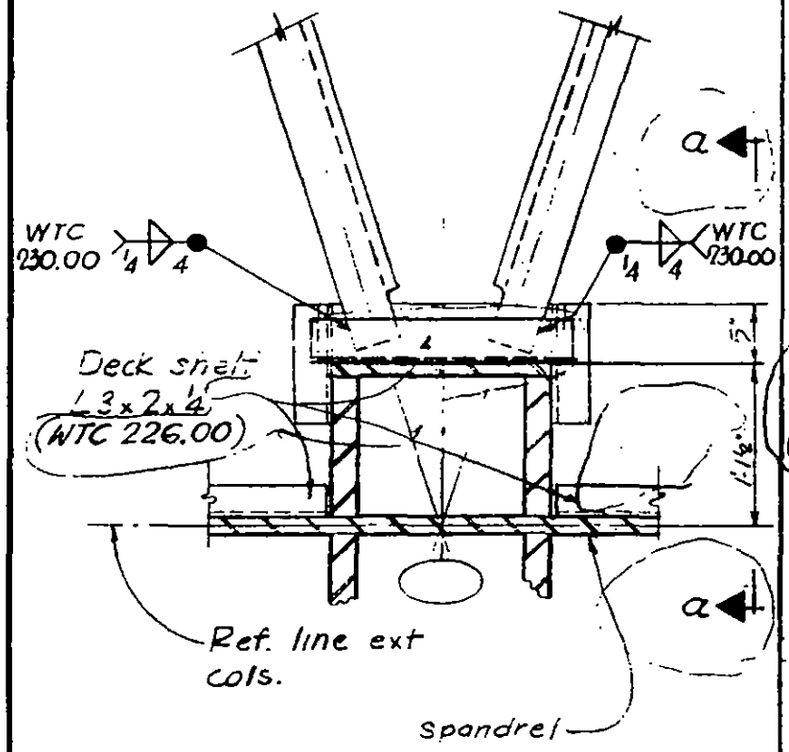
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 UNIVERSITY OF THE STATE OF NEW YORK

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

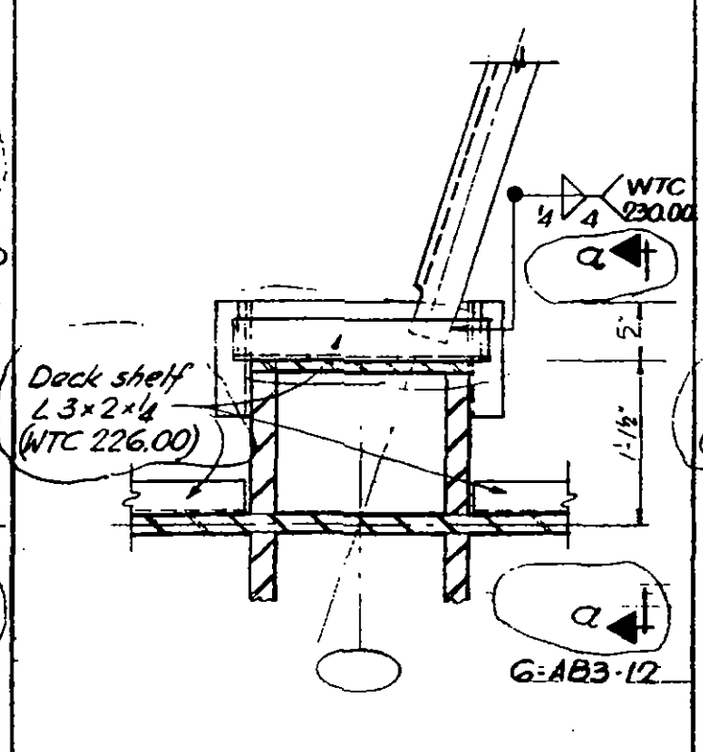
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS DETAIL AA, BB, CC | DATE 12-20-67

REVISIONS

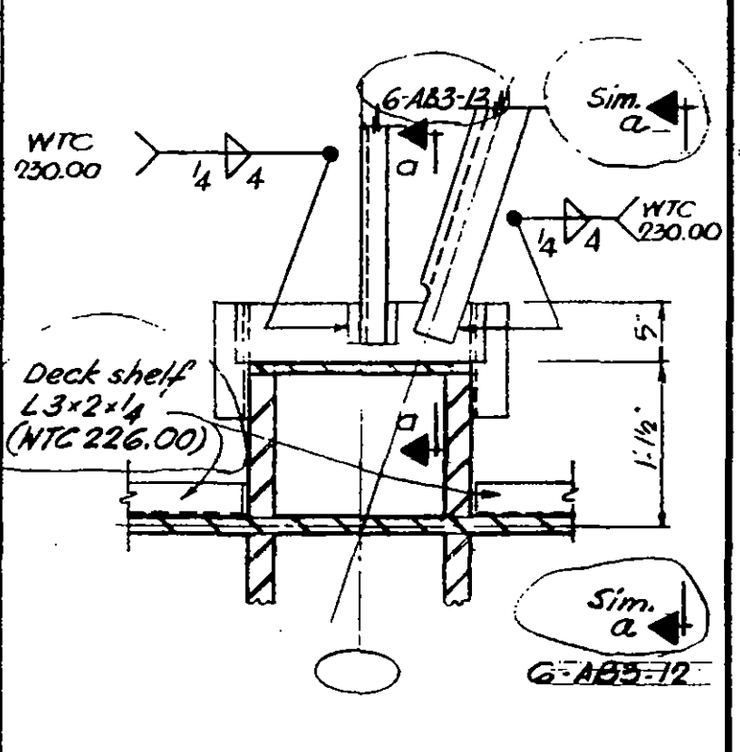
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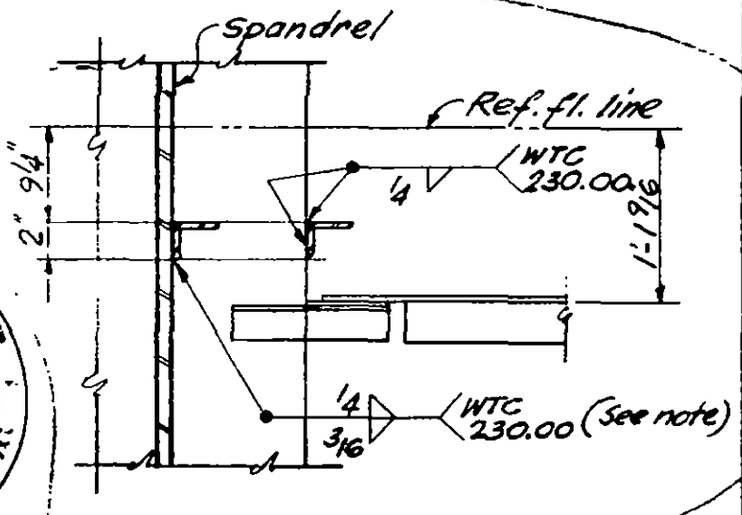
Detail AA



Detail BB



Detail CC



Section a-a

Notes:
1) At spandrel splice for position and weld requirement of deck shelf angle, see Det. UU G-AB3-25

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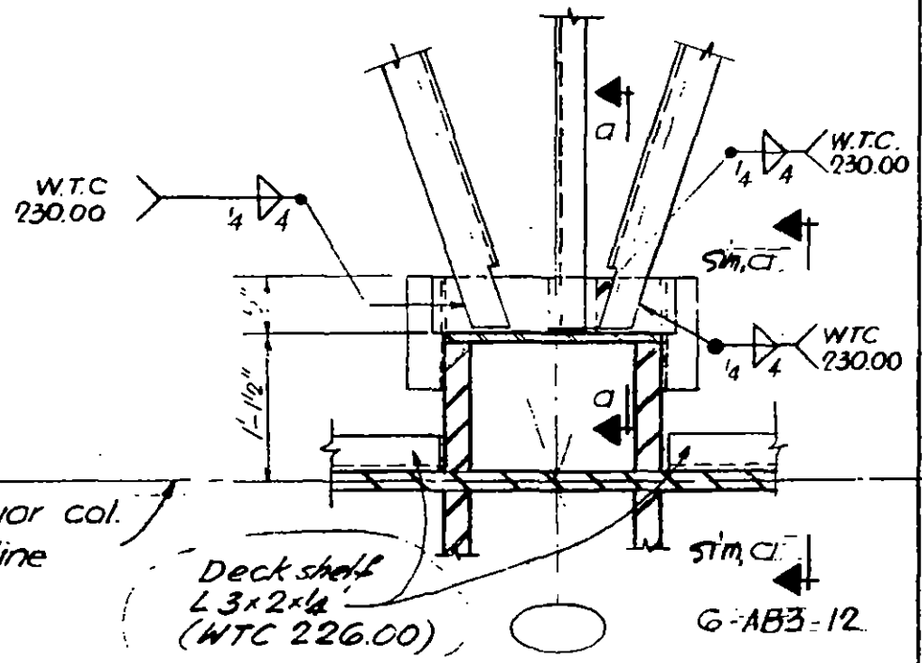
G-AB3-12

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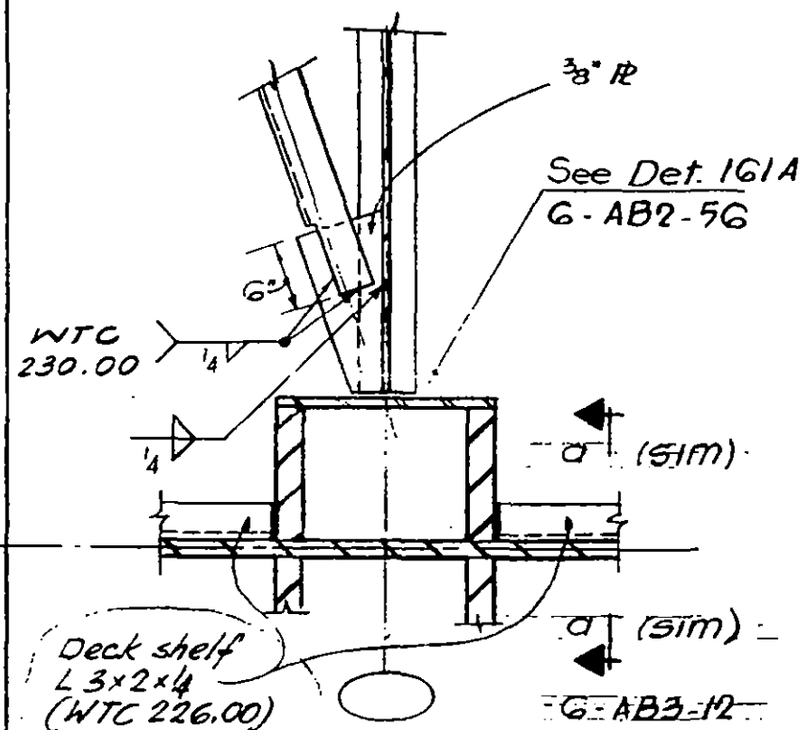
PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS - DETAILS EE & FF | DATE: 12-20-67

REVISIONS

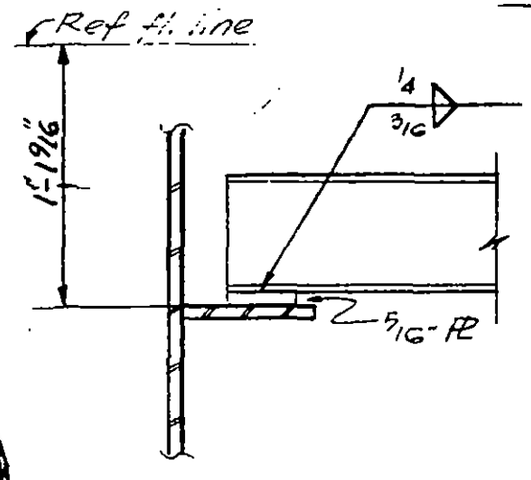
8-29-68



Detail FF



Detail EE



Section a-a

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No. 34360
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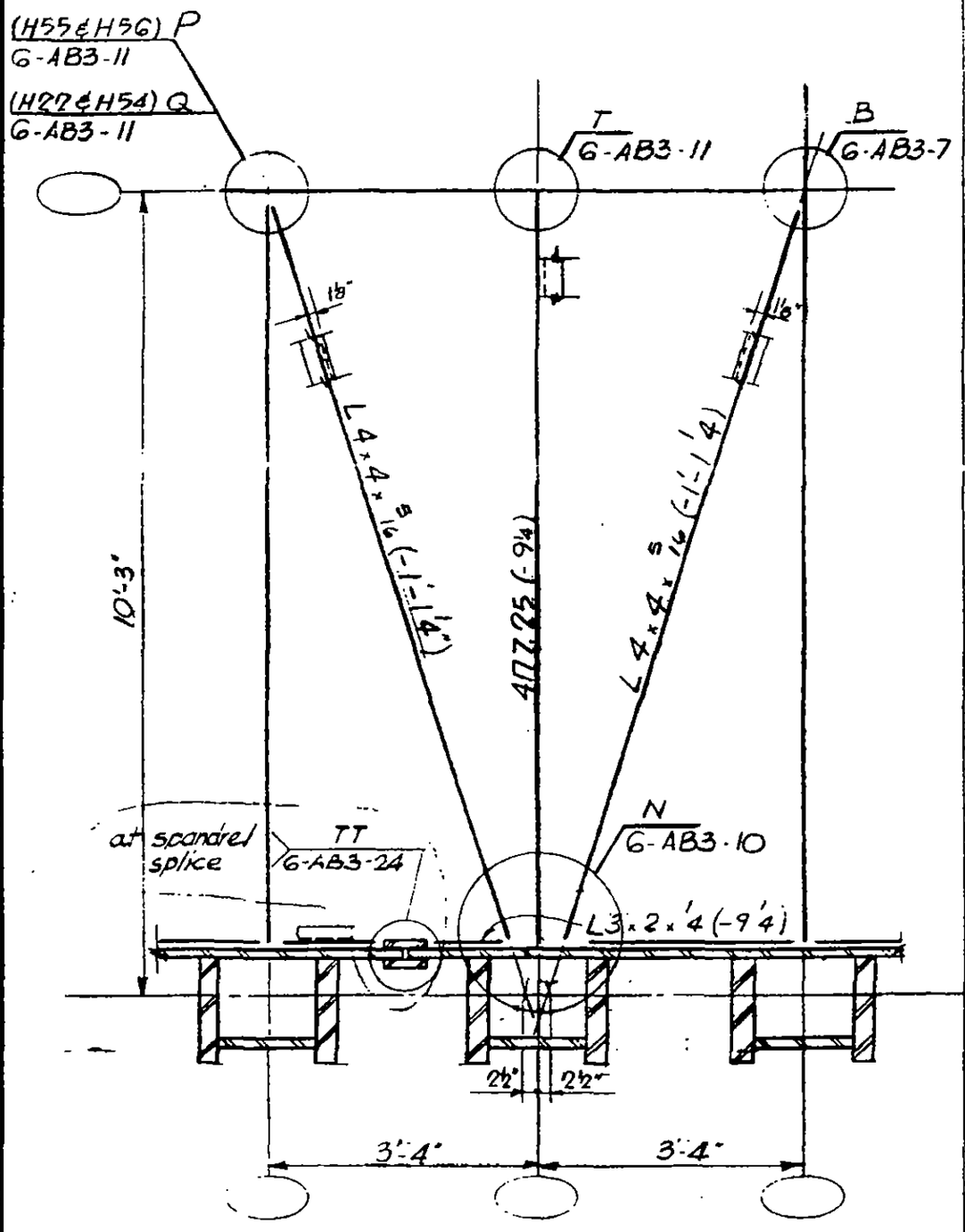
G-AB3-13

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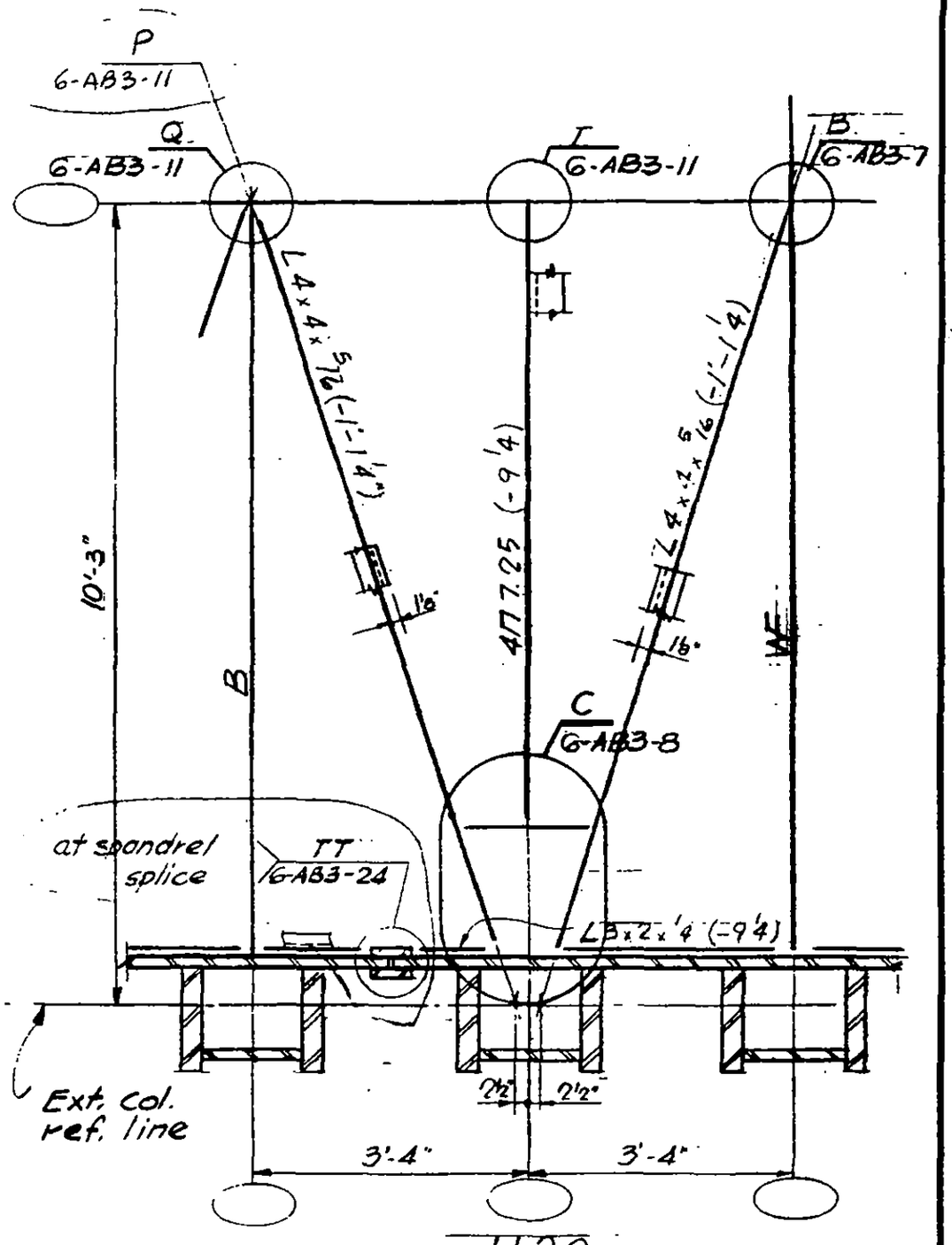
PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H20, H21, H22 H54, H55, H56 | DATE: 12-20-67

REVISIONS

8-29-68



H22
H54 opp. hand
H55 as noted
H56 opp. hand as noted



H20
H21 Opp hand

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STATE OF THE STATE OF NY

G-AB3-14

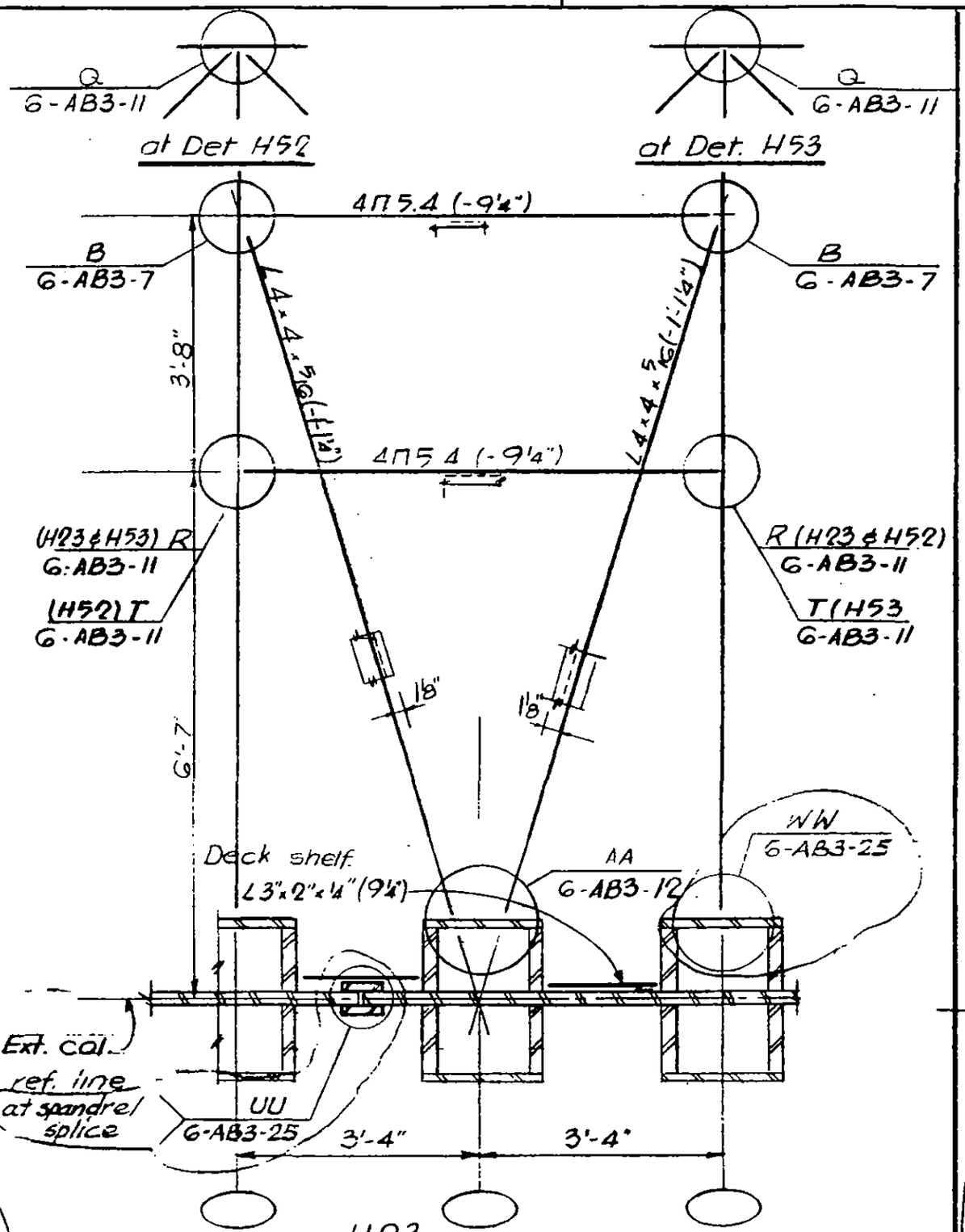
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PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H23. H24. H52 & H53 | DATE 12-20-67

REVISIONS

1-24-68

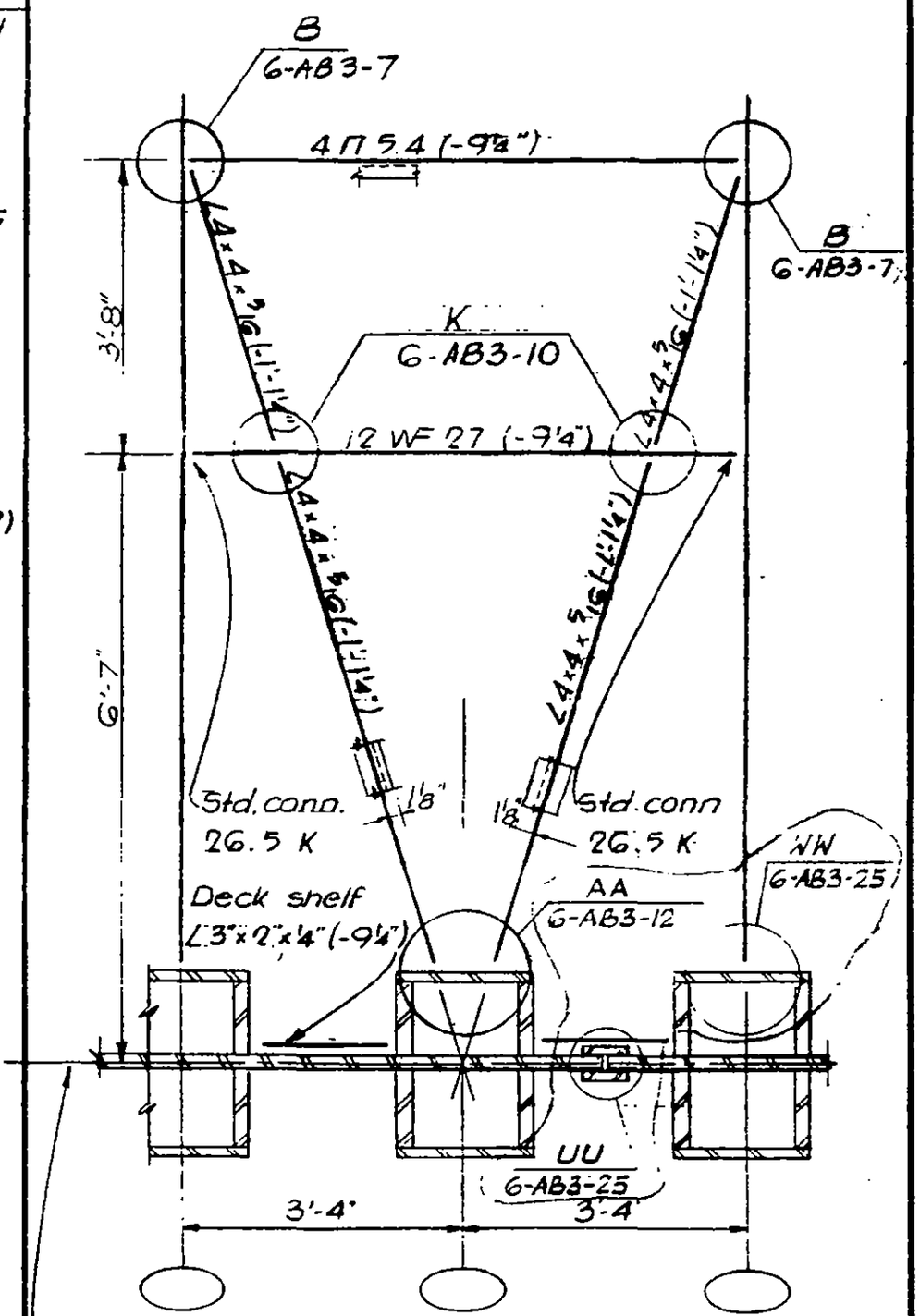
8-29-68



H23

H52 as noted

H53 as noted



H24

G-AB3-15

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No. 34360
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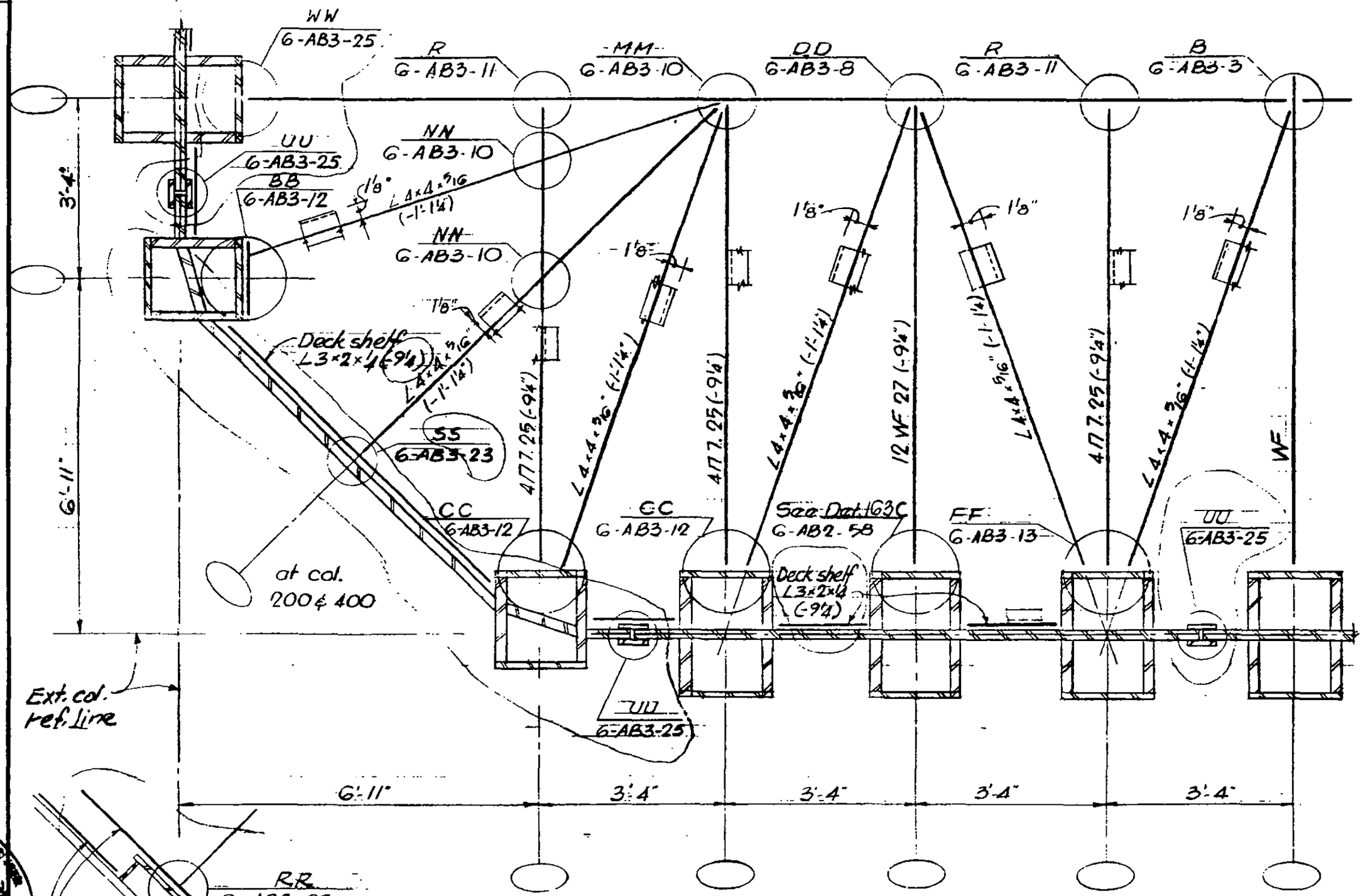
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H25 & H26 | DATE 12-20-67

REVISIONS

12/21/67

8-29-68



H25

H26 opp. hand

G-AB3-16

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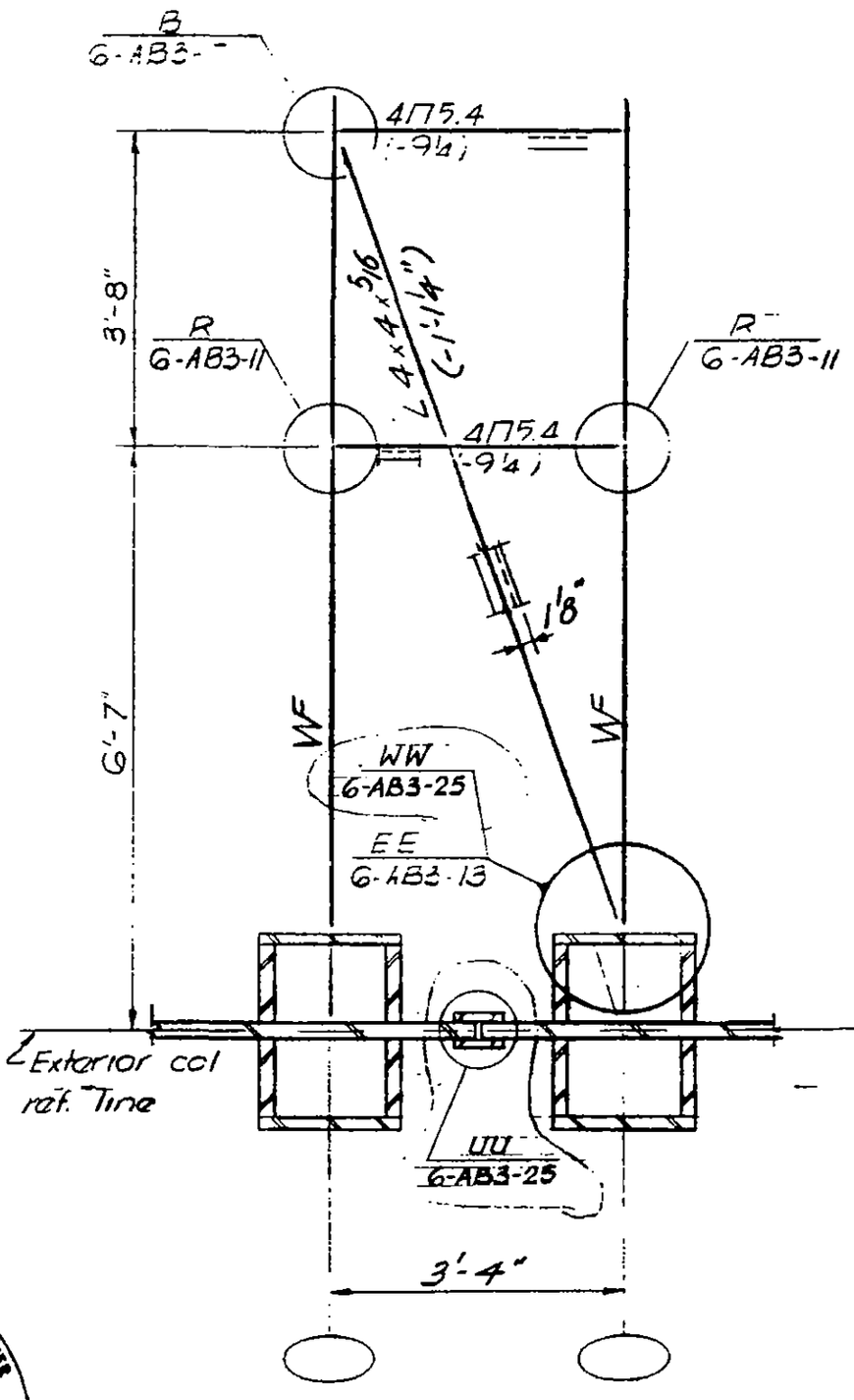
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PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H27, H28 & H51 | DATE 12-20-67

REVISIONS

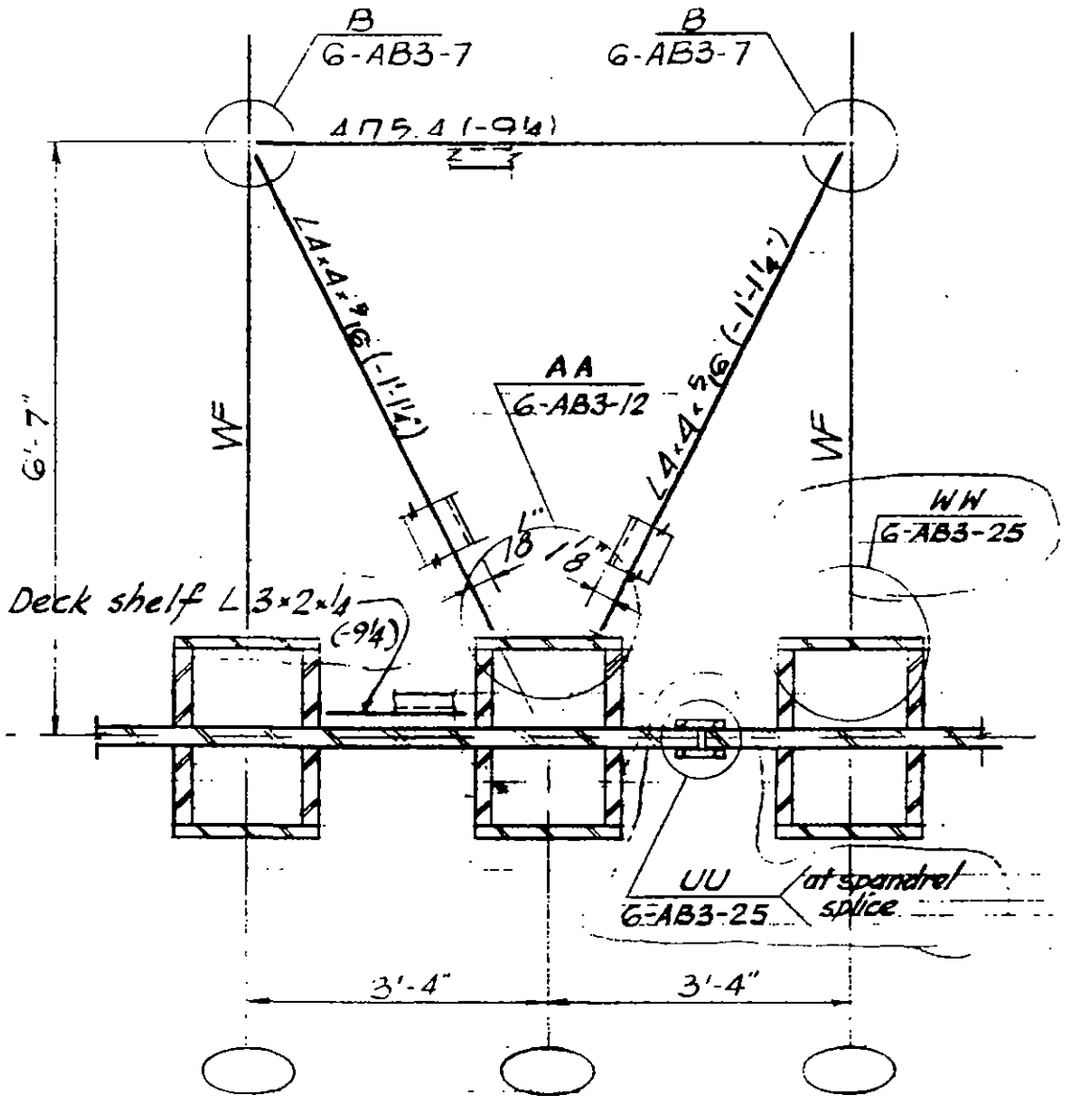
1-24-68

8-29-68



H27

H28 opp hand



H51

G-AB3-17

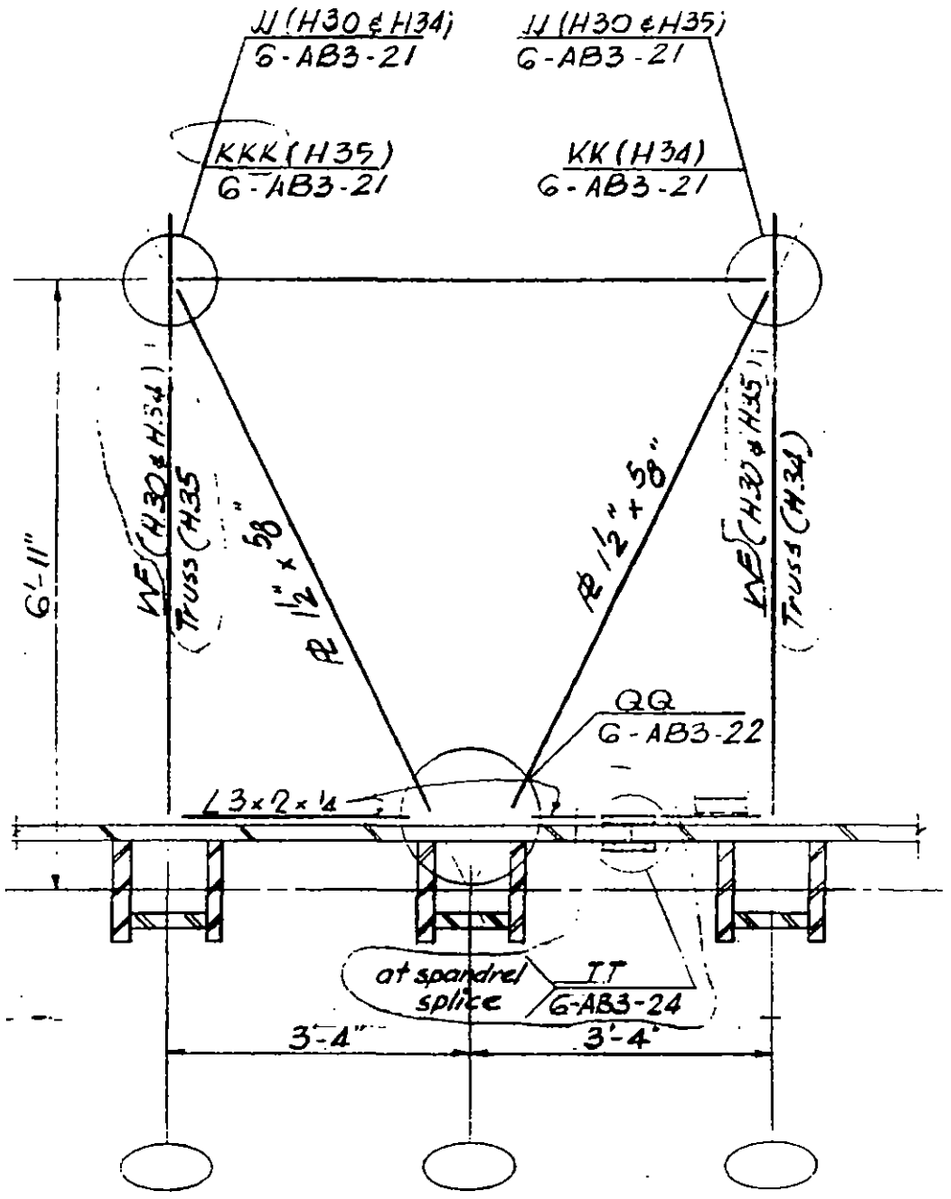
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No. 34360
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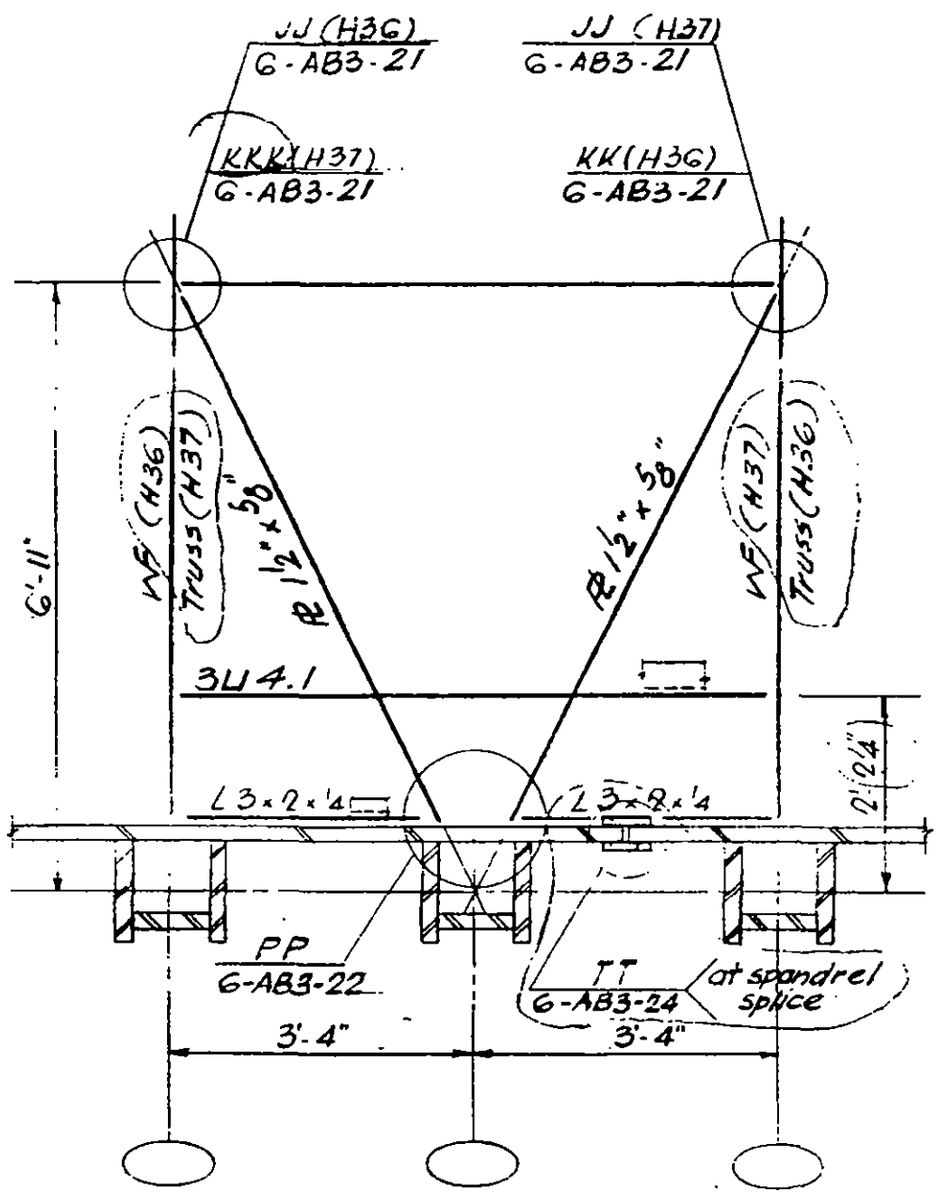
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H30; H34, H35, H36 & H37 | DATE 12-20-67

REVISIONS

8-29-68



H30
H34
H35



H36
H37

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LESLIE E. ROBERTSON
No. 3436
STATE OF NEW YORK

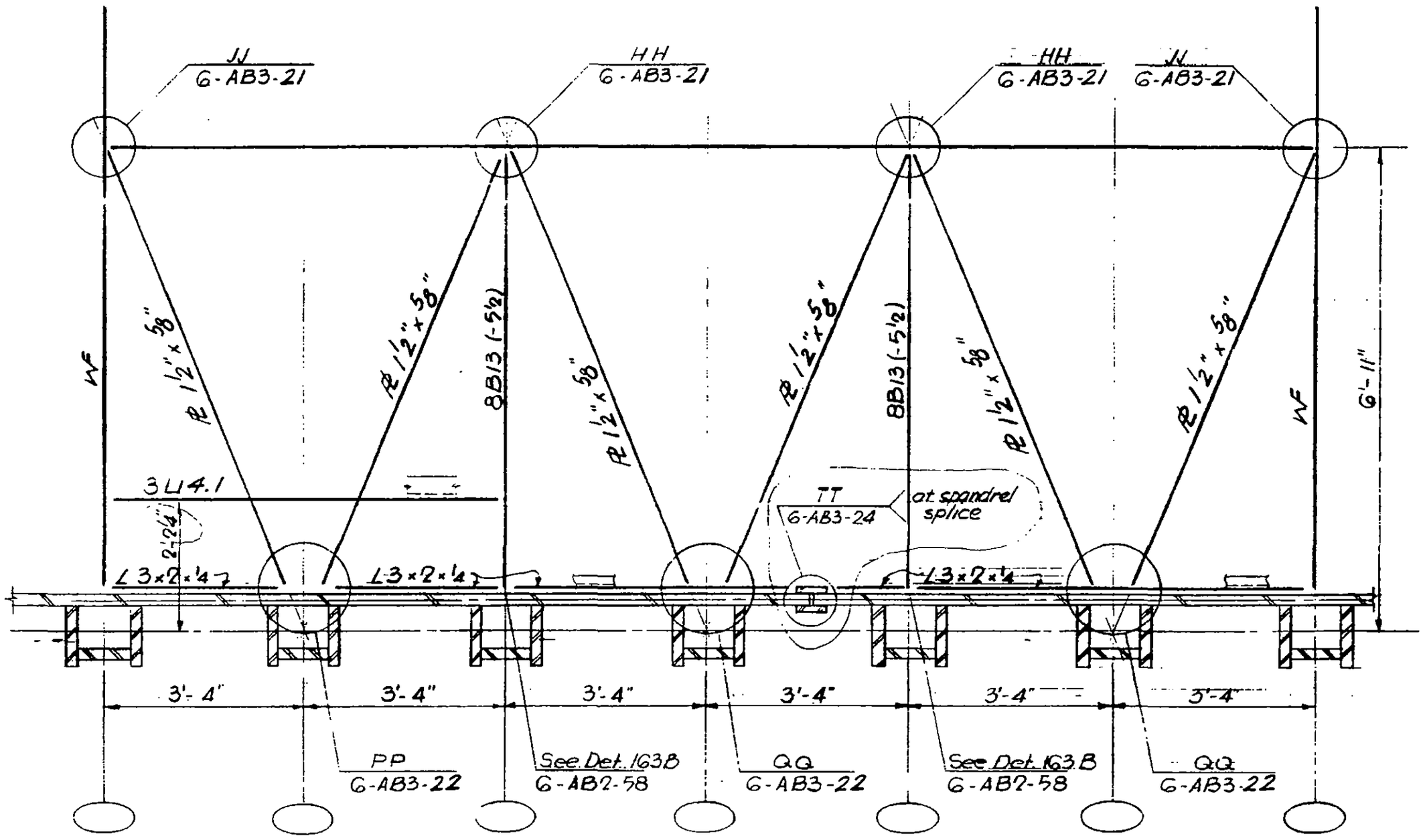
G-AB3-18

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H32 & H33 | DATE 12-20-67

REVISIONS

8-29-68



H32
H33 opp hand

G-AB3-19

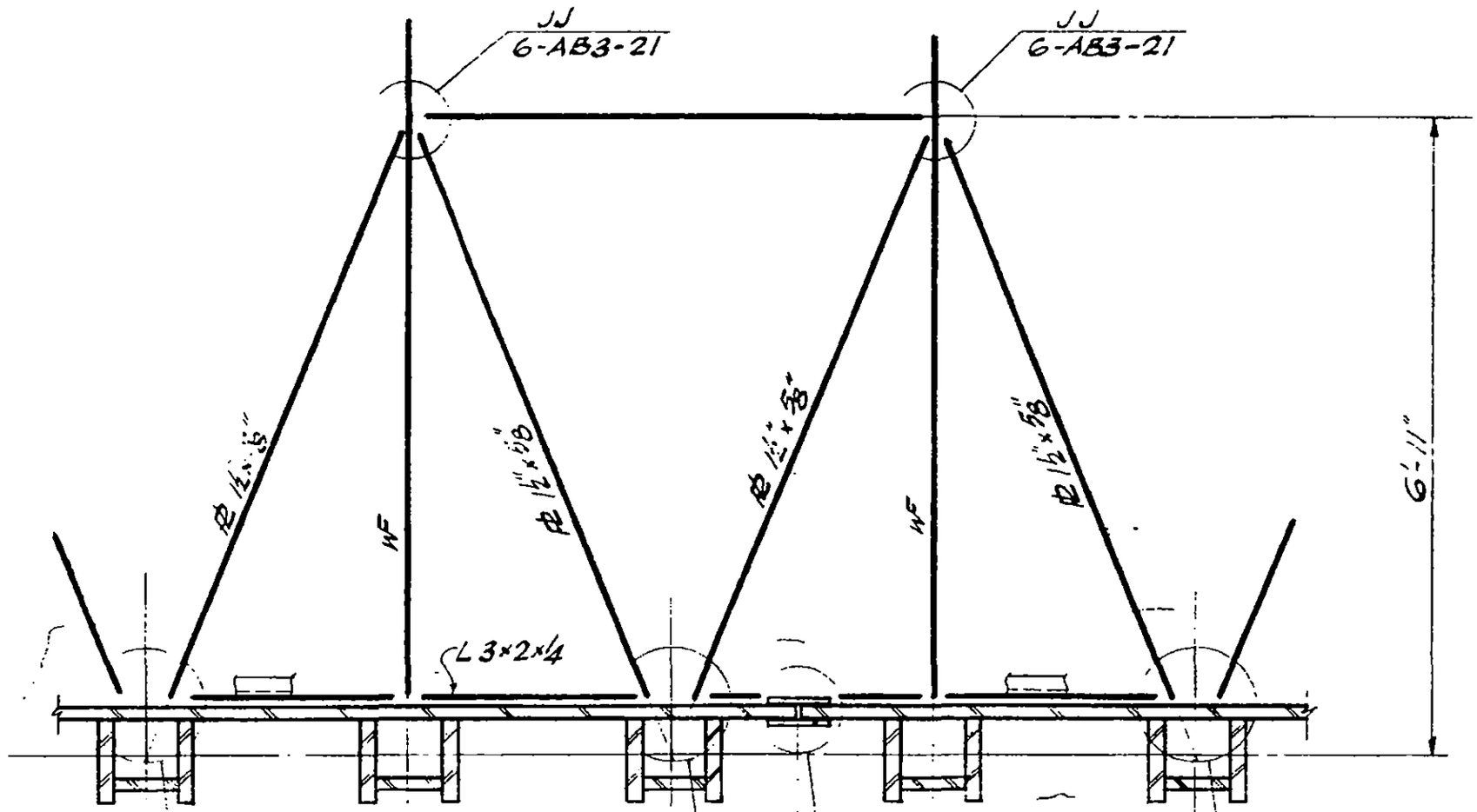
LICENSED PROFESSIONAL ENGINEER
LUDERVILLE L. ROBERTSON
NO. 34380
STATE OF NEW YORK

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS H38 | DATE: 12-20-67

REVISIONS

1 — 8-29-68



Extent of truss @ locations as noted in TABLE "B" only

Extent of truss @ all remaining locations other than those noted in TABLE "A" & "B"

Extent of truss @ location as noted in TABLE "A" only

H38

TABLE "A"	
Fl.	Truss with center col. line
46	242
47	242
48	242
79	442
80	442
81	442
82	442

TABLE "B"	
Fl.	Truss with center col. line
45	418
46	418
47	418
48	418
80	218
81	218
82	218

DESIGNED

DRAWN

REVIEWED

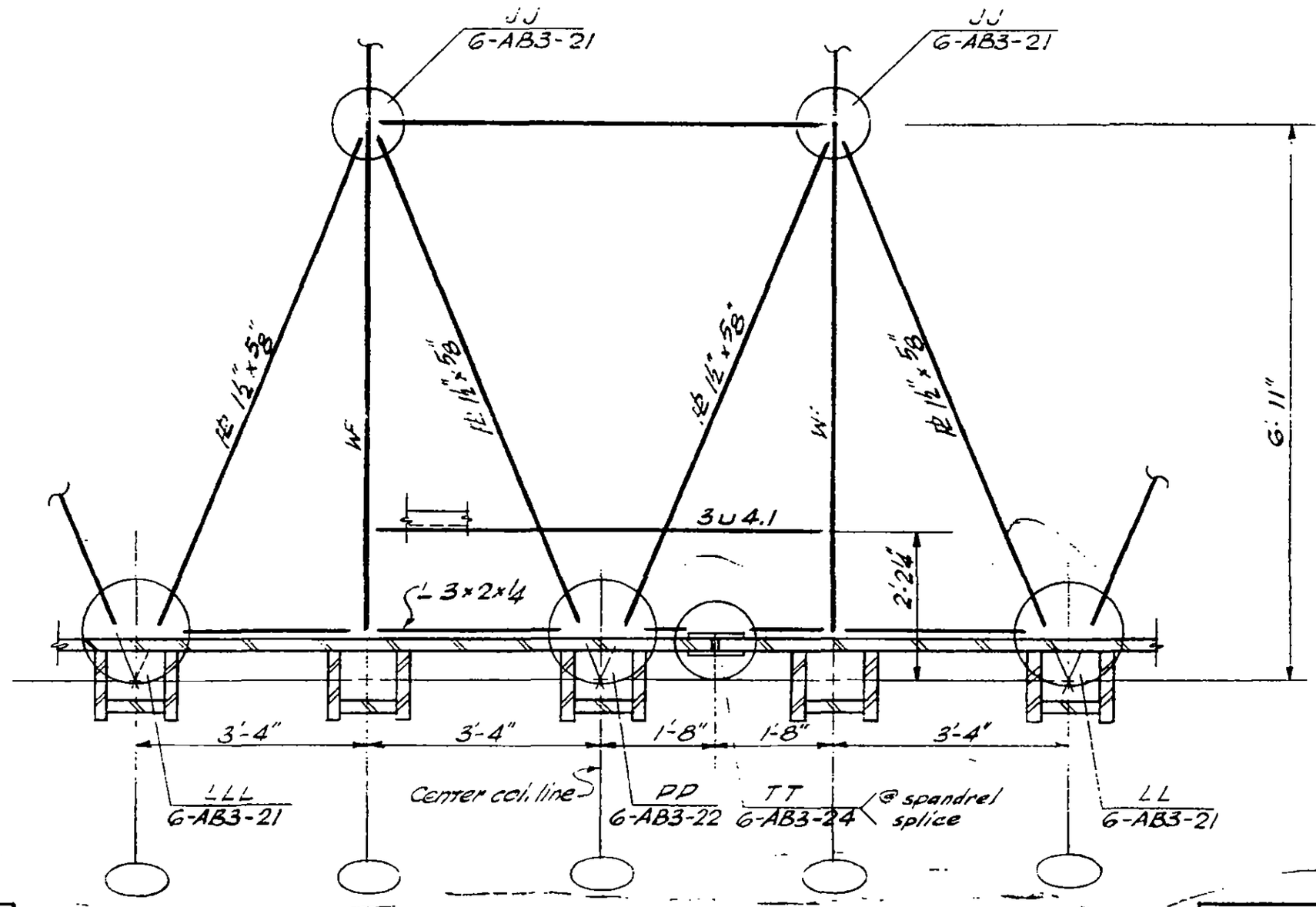
6-AB3-20

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS H31 | DATE 8-27-68

REVISIONS

1



Extent of truss @ locations as noted in TABLE "B" only

Extent of truss @ all remaining locations other than those noted in TABLE "A" & "B"

Extent of truss @ locations as noted in TABLE "A" only

H31

TABLE "A"	
Fl.	Truss with center col. line
44	242, 442
45	242
49	242
78	242, 442
79	242
83	442

TABLE "B"	
Fl.	Truss with center col. line
44	218, 418
45	218
49	418
78	218, 418
79	218
83	218

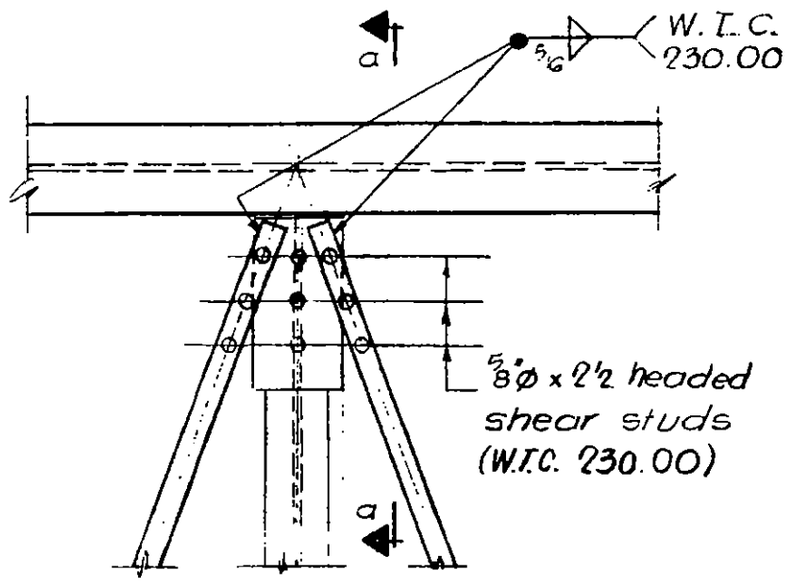
G-AB3-20.1

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

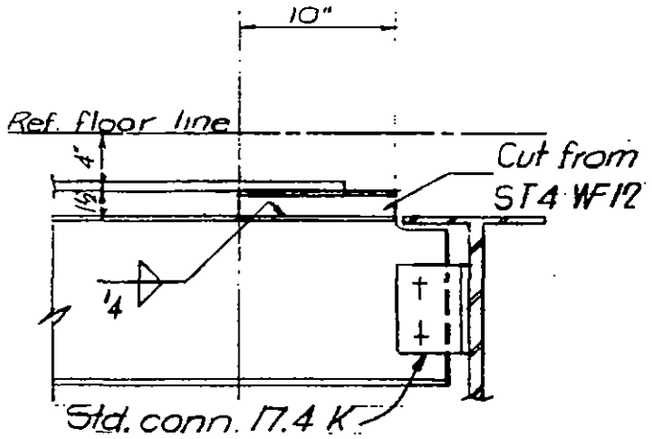
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS-DETAILS HH, JJ, KK, LL, KKK, LLL | DATE 12-20-67

REVISIONS

8-29-68

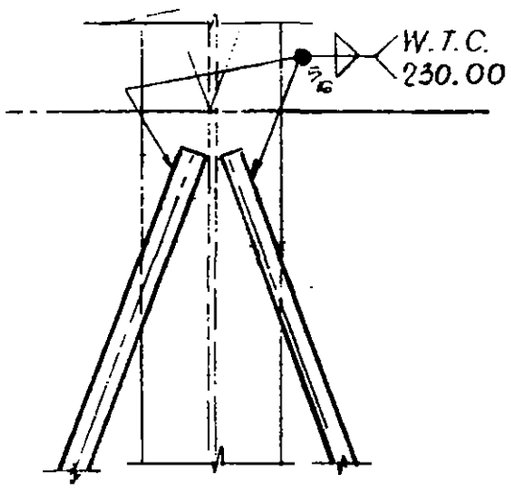


Plan

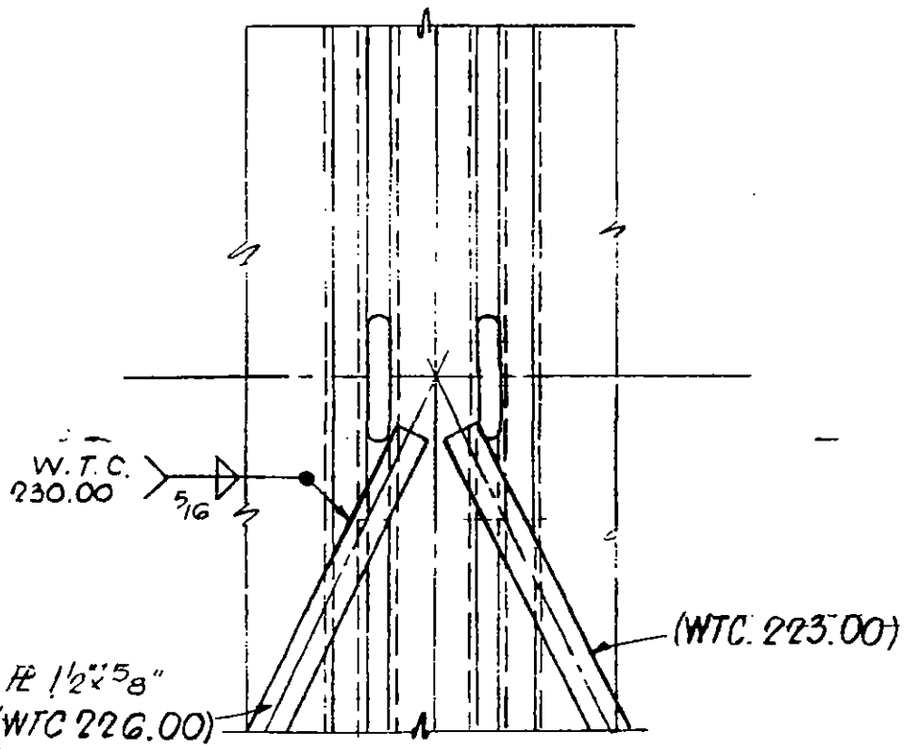


Section a-a

Detail HH

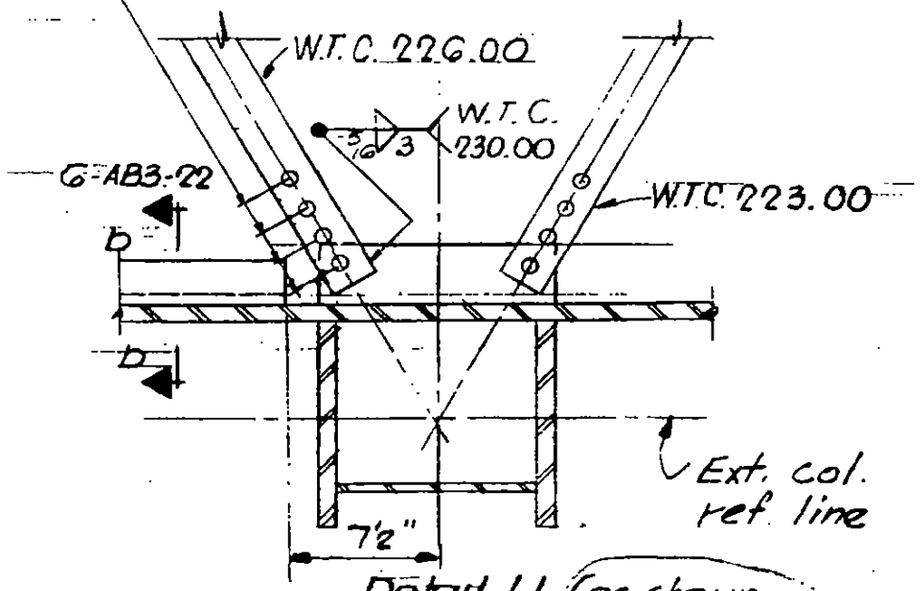


Detail JJ



Detail KK (as shown
Detail KKK (opp. hand)

4-⅝"ø x 2½"
shear studs @ 6" o.c.
(W.T.C. 230.00)



Detail LL (as shown
Detail LLL (opp hand)

G-AB3-2L

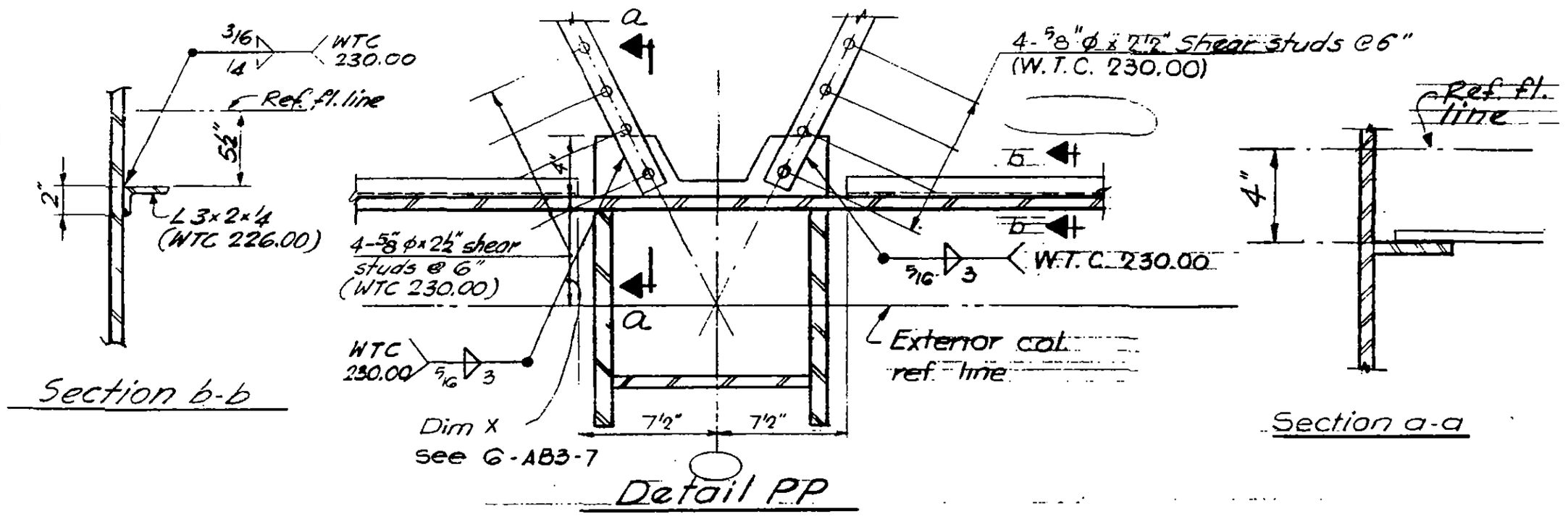
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
NO. 34360
STATE OF NEW YORK

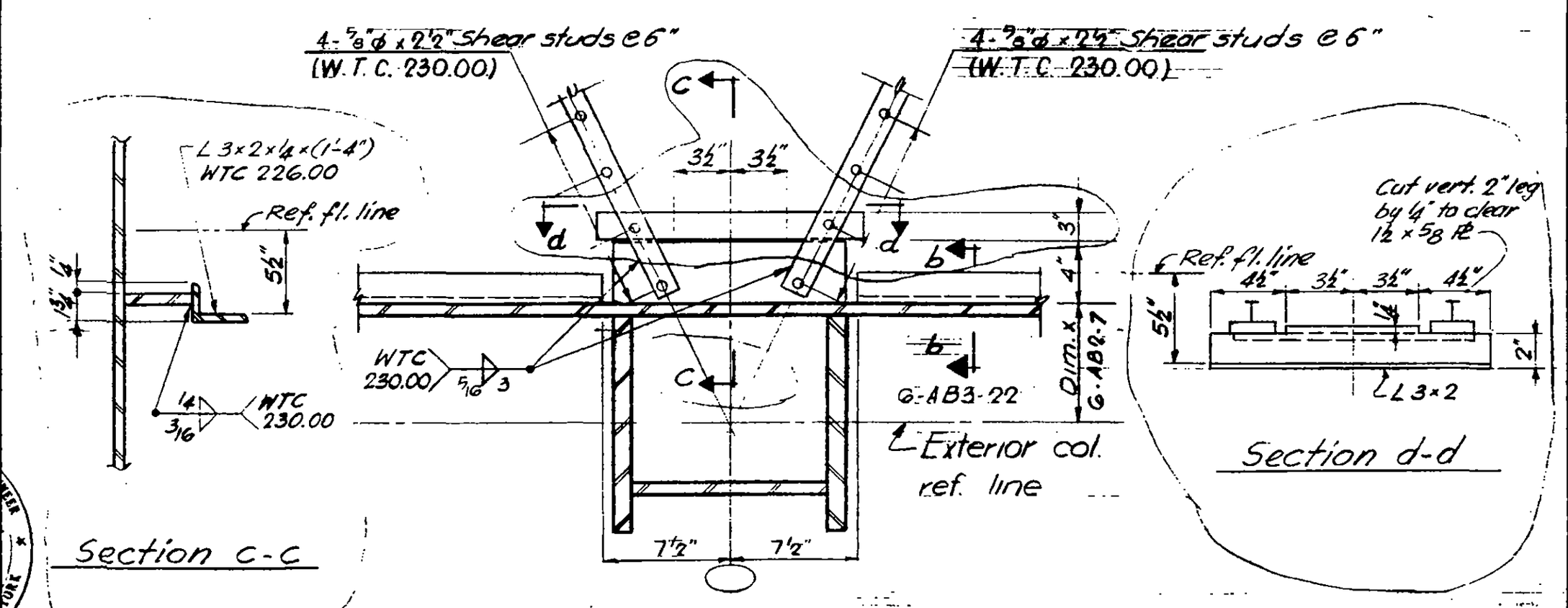
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS PP & QQ | DATE 12-20-67

REVISIONS

8-29-68





LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 STATE OF NEW YORK

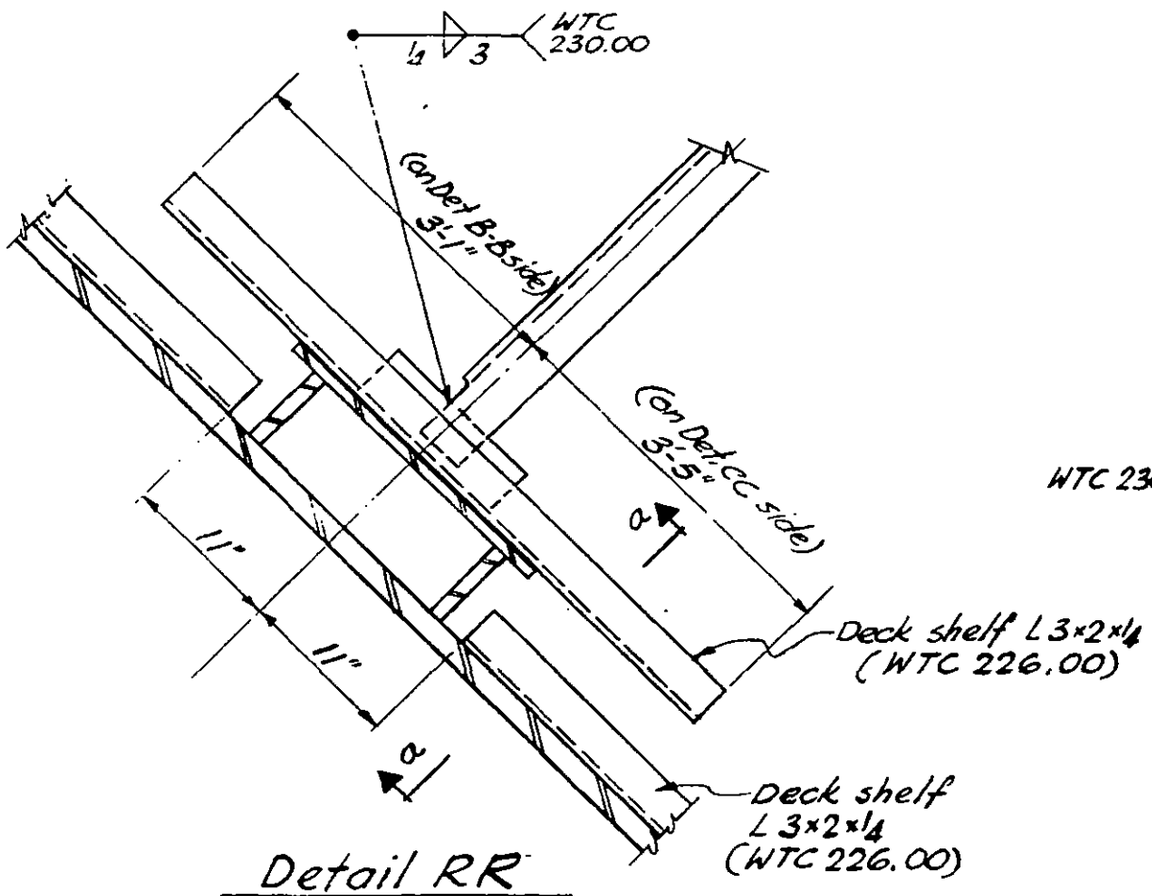
G-AB3-22

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

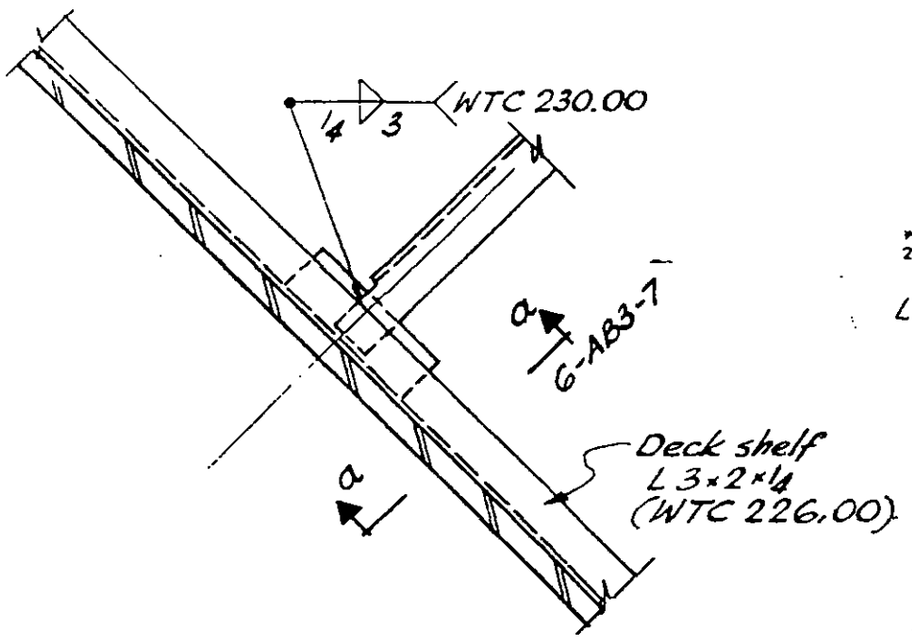
PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS - DETAILS R R. SS | DATE 7-19-68

REVISIONS

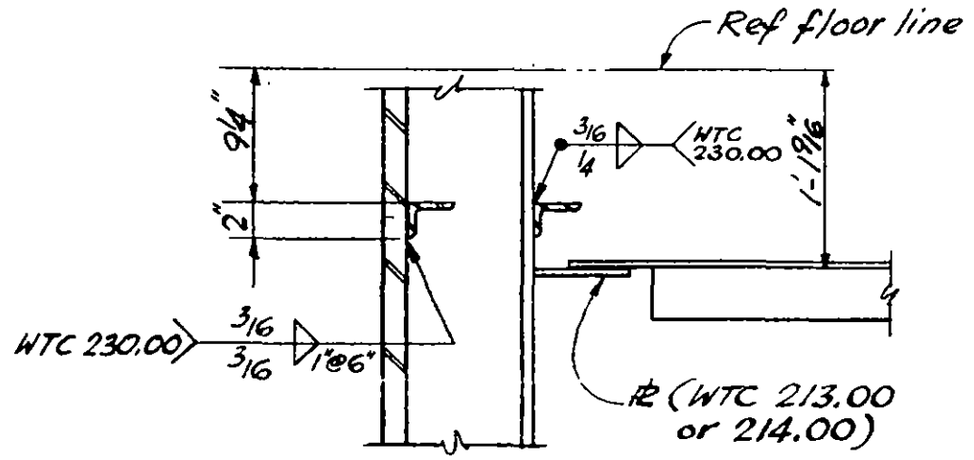
8-29-68



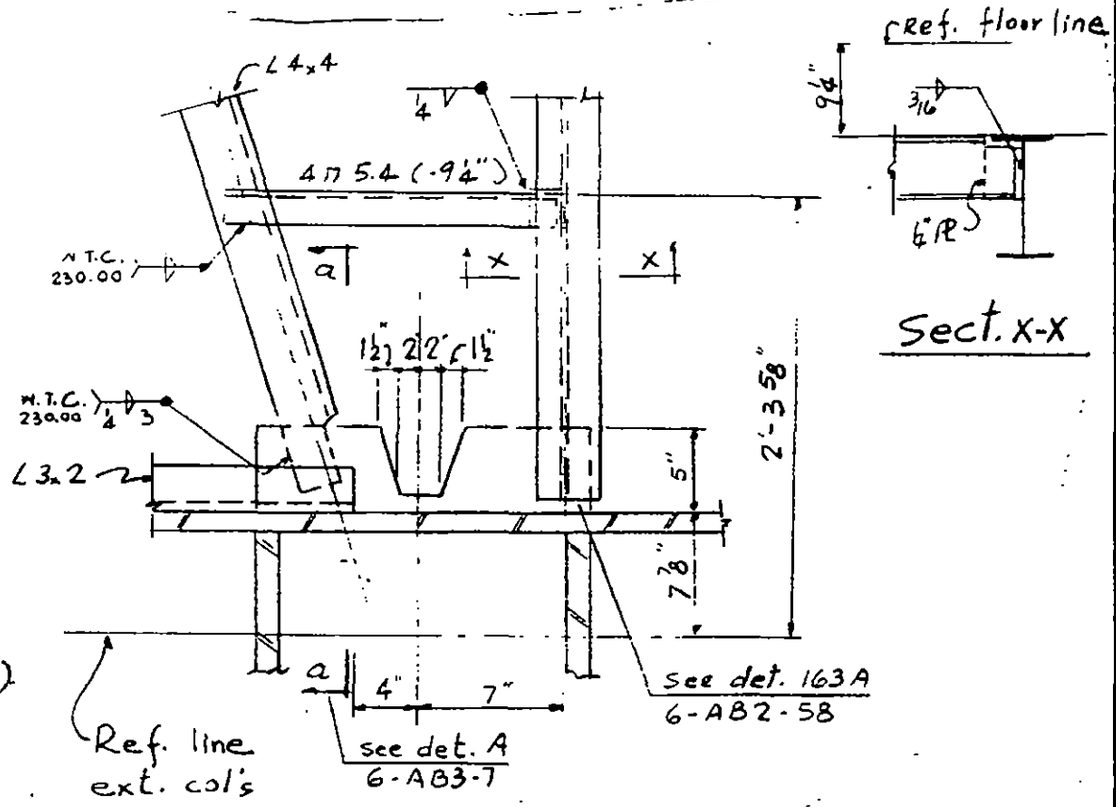
Detail RR



Detail SS



Section a-a



Sect. x-x

Detail XX

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

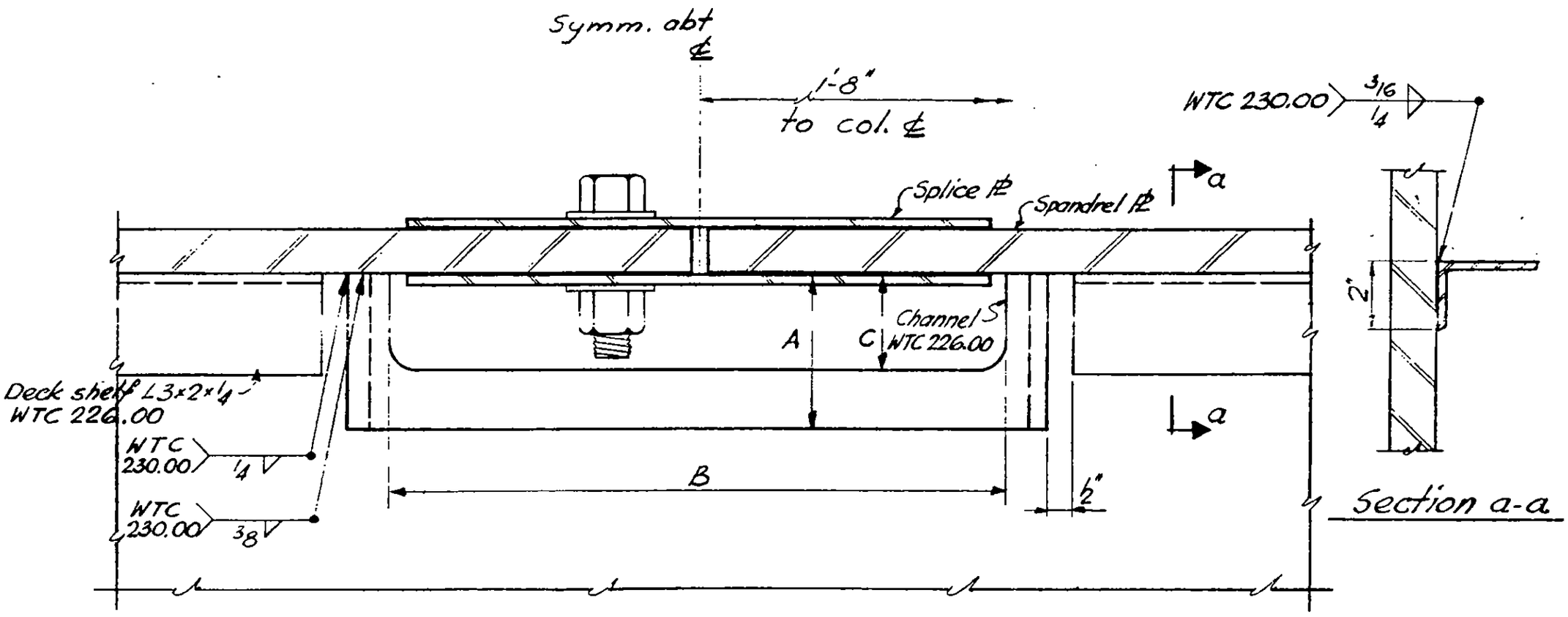
REVIEWED

6-AB3-23

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS - DETAIL TT | DATE: 8-29-68

REVISIONS



Floor	Channel size	A	B	C
9	18 ⊓ 42.7	$4\frac{3}{4}$"	$15\frac{3}{8}$"	$2\frac{3}{4}$"
41, 43, 44, to 48 49, 75 & 77	15 ⊓ 33.9	$4\frac{3}{4}$"	$9\frac{1}{2}$"	$2\frac{3}{4}$"
78 to 83 107, 108, 110	15 ⊓ 33.9	$4\frac{3}{8}$"	$7\frac{1}{2}$"	$2\frac{3}{8}$"

Note: Top of steel of C same as deck shelf L 3x2

Detail TT

DESIGNED

DRAWN

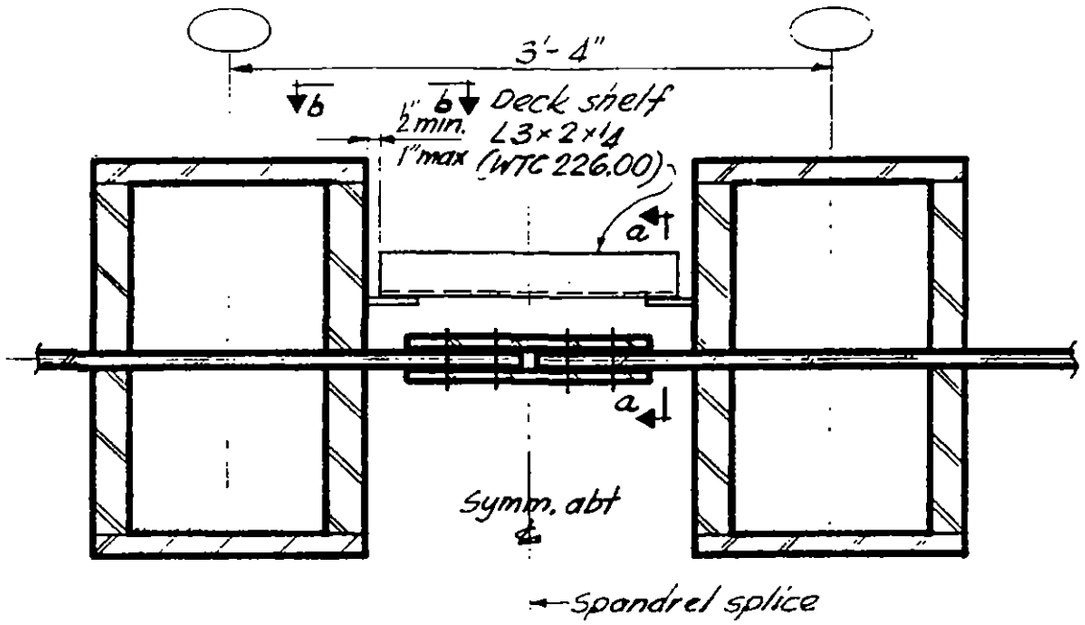
REVIEWED

G-AB3-24

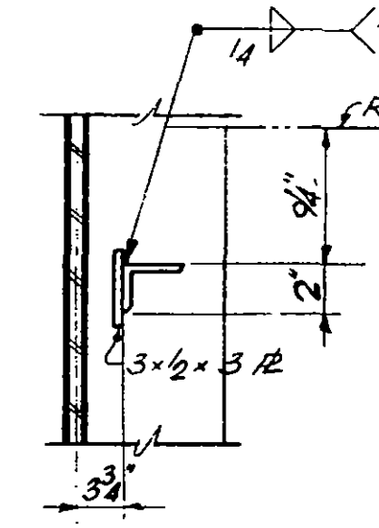
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSS - DETAIL UU & WW | DATE: 8-29-68

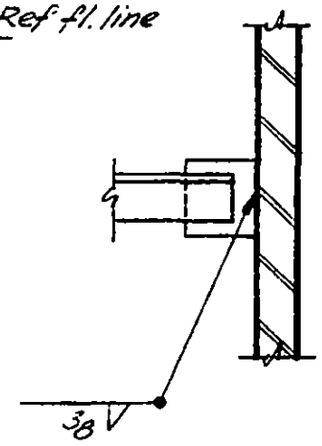
REVISIONS



Plan

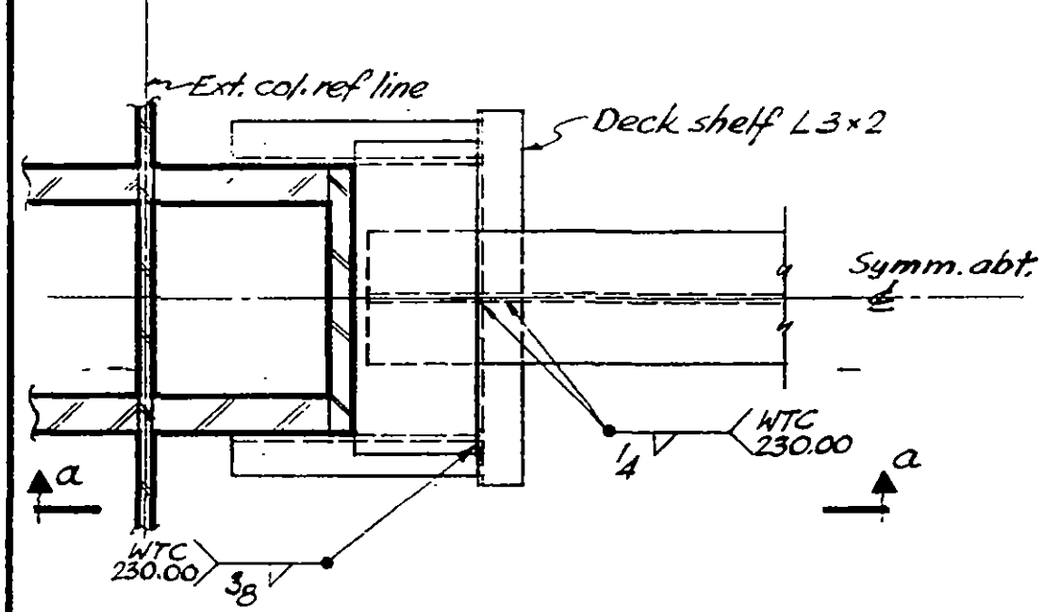


Section a-a



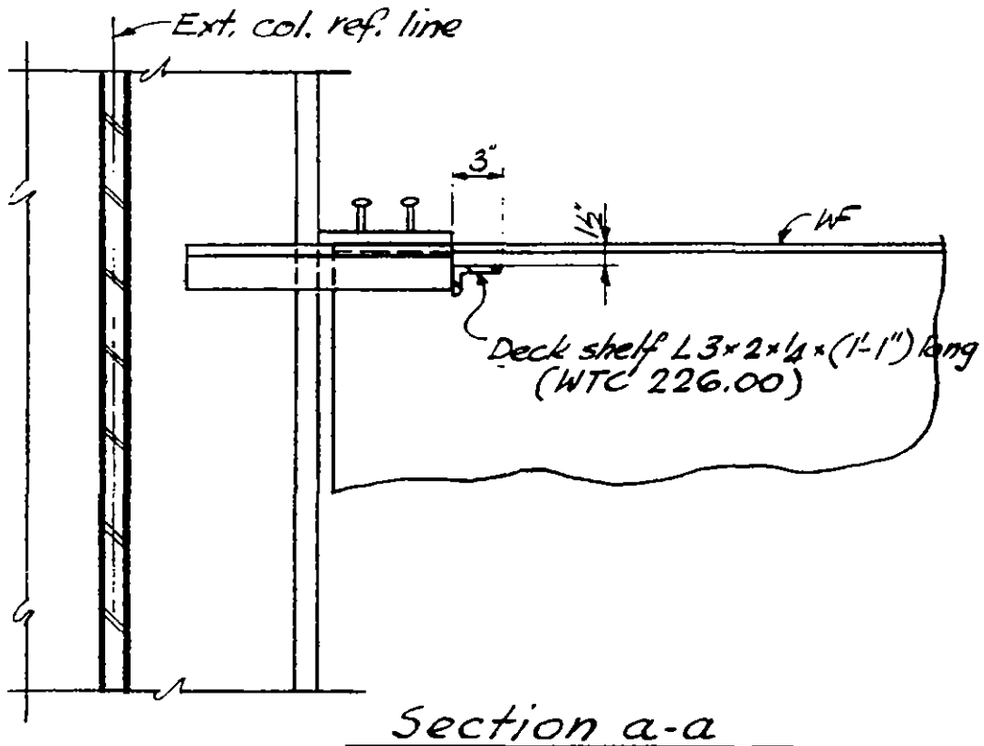
Section b-b

Detail UU



Plan

Note: Det. WW to be used in conjunction with Details 6-AB2-55 & 6-AB2-56



Section a-a

Detail WW

DESIGNED

DRAWN

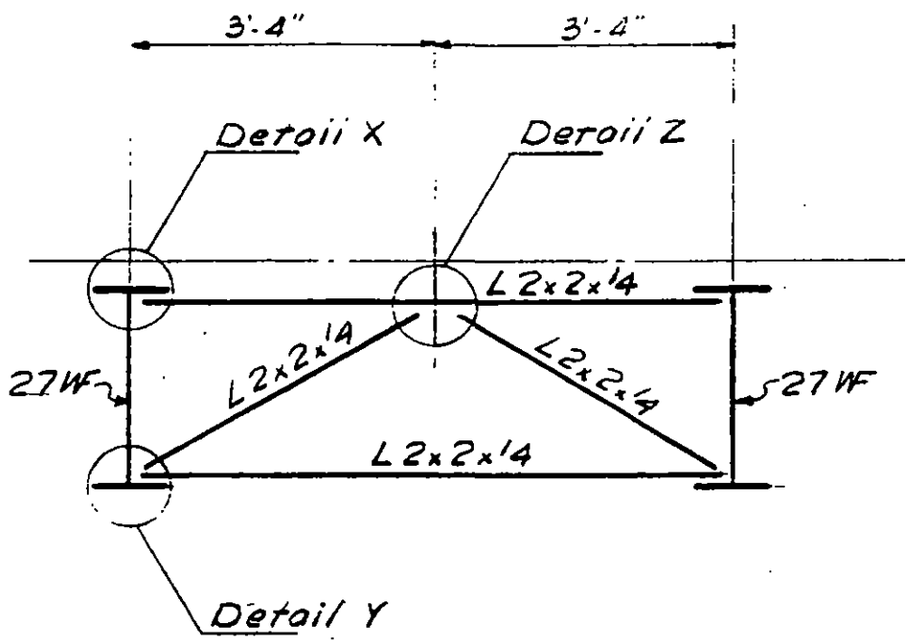
REVIEWED

6-AB3-25

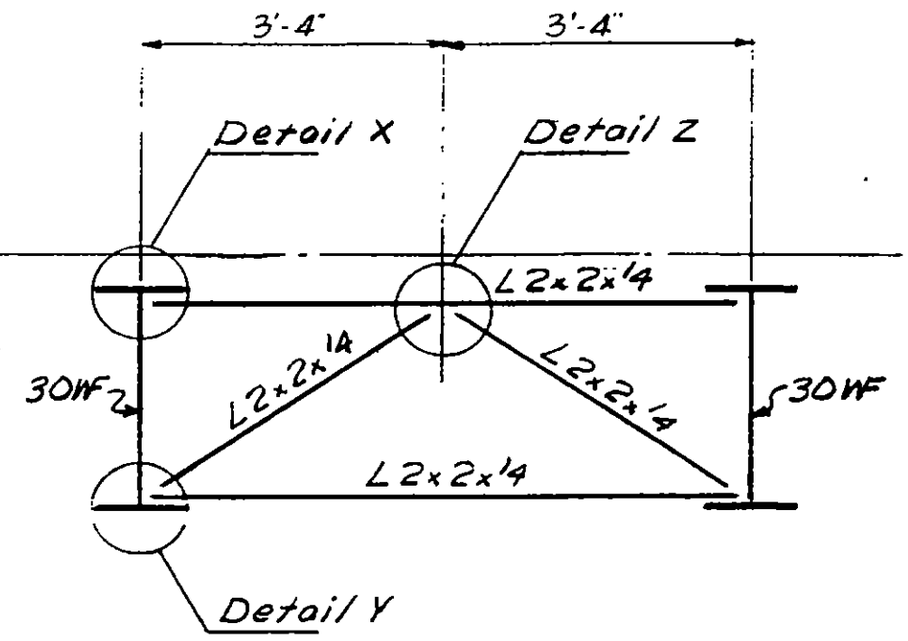
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM FLOOR BRIDGING TYPES B1 THRU B4 | DATE 12-20-67

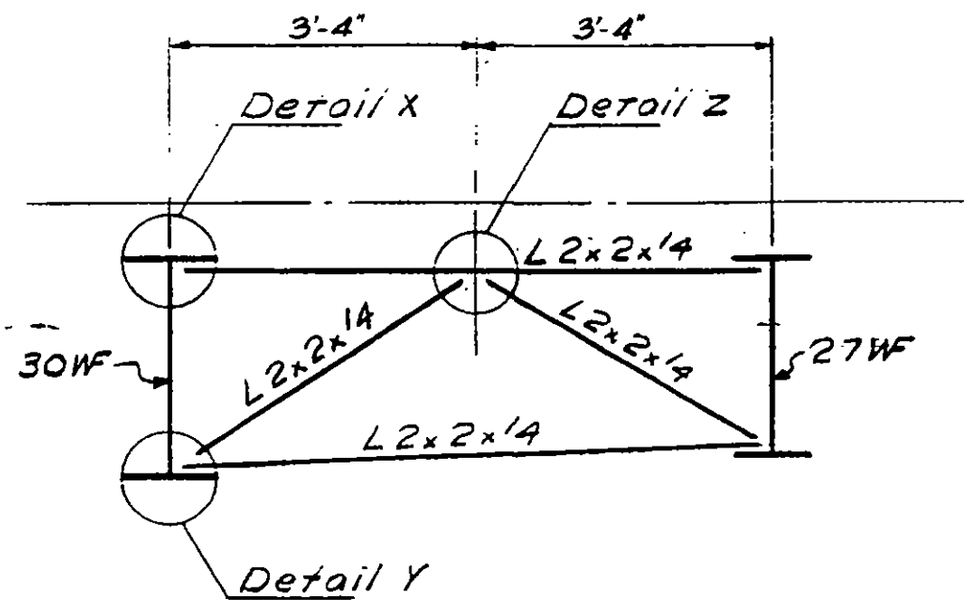
REVISIONS



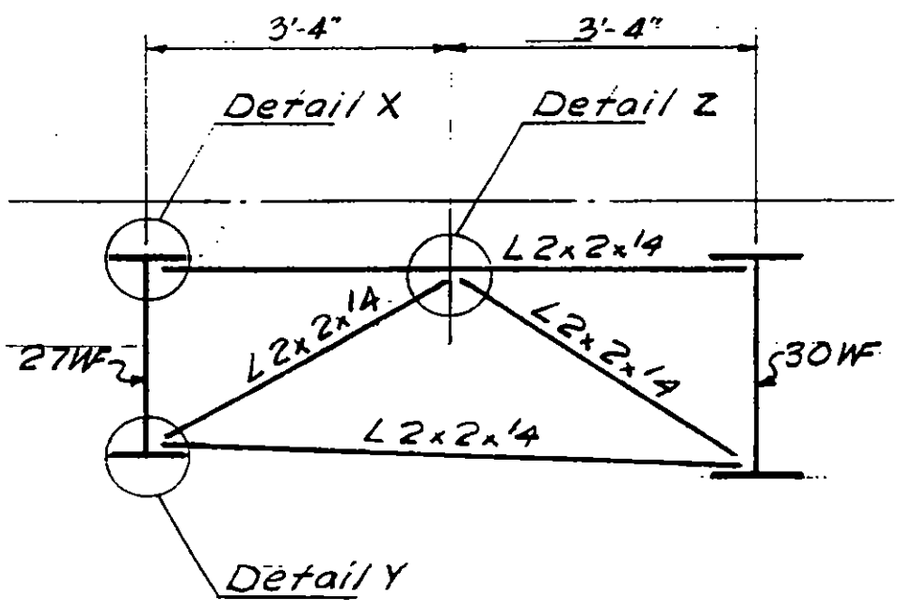
B1



B2



B3



B4

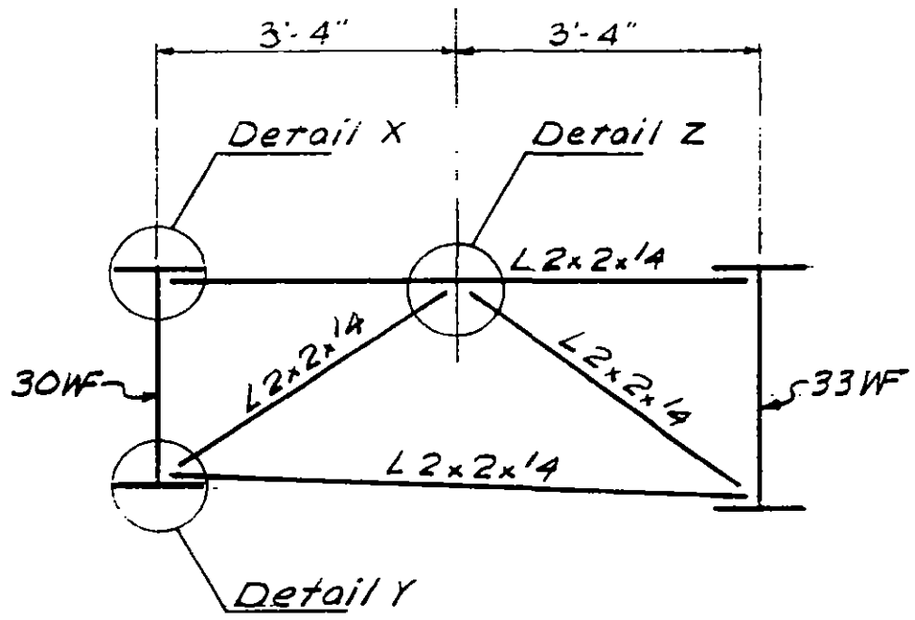
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
CITY OF THE STATE OF NEW YORK

G-AB3-30

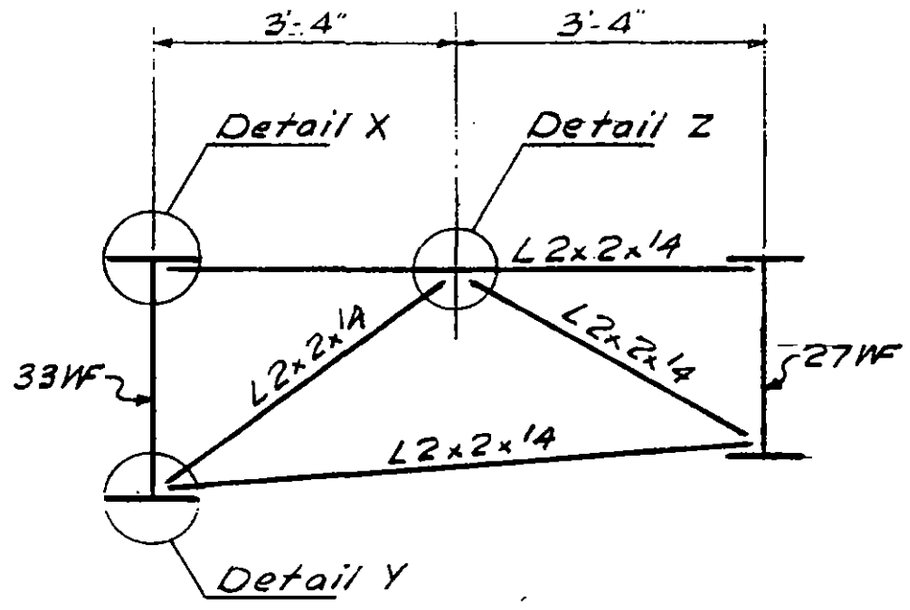
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM FLOOR BRIDGING TYPES B5 THRU B8 | DATE 12-20-67

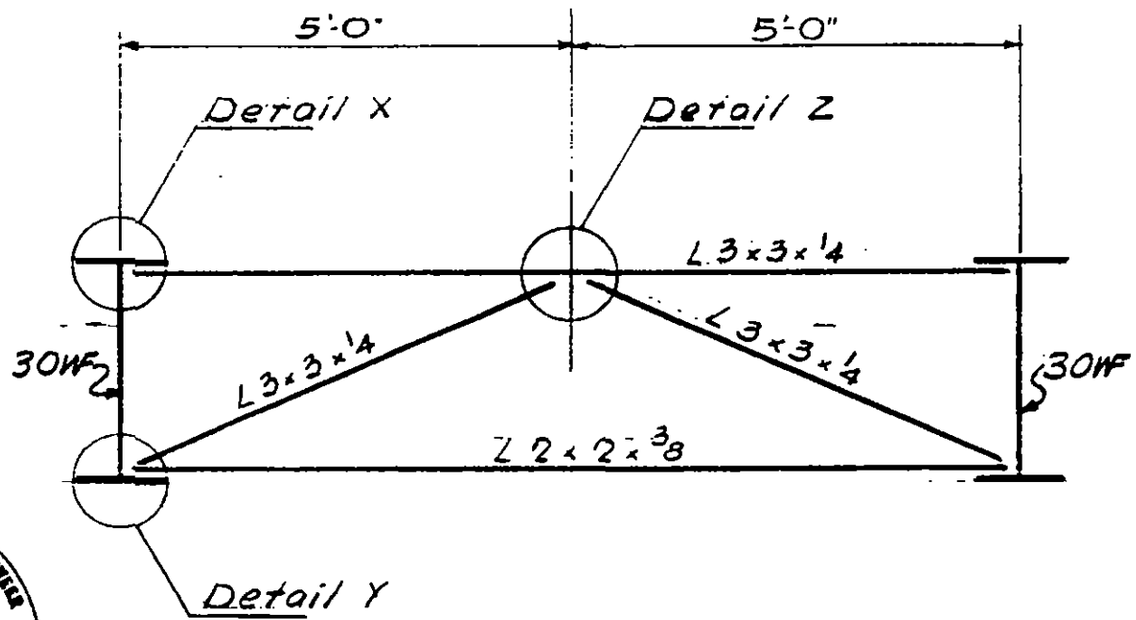
REVISIONS



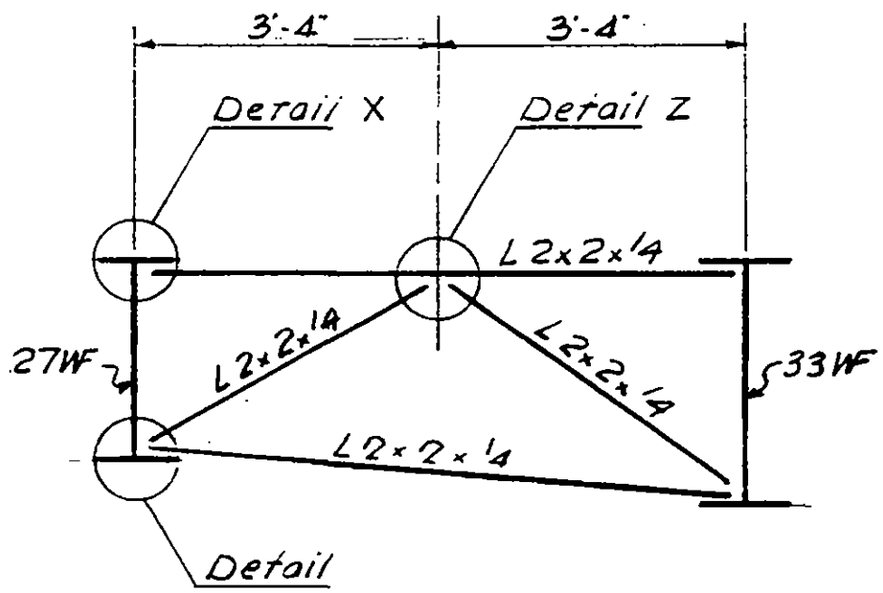
B5



B6



B7



B8

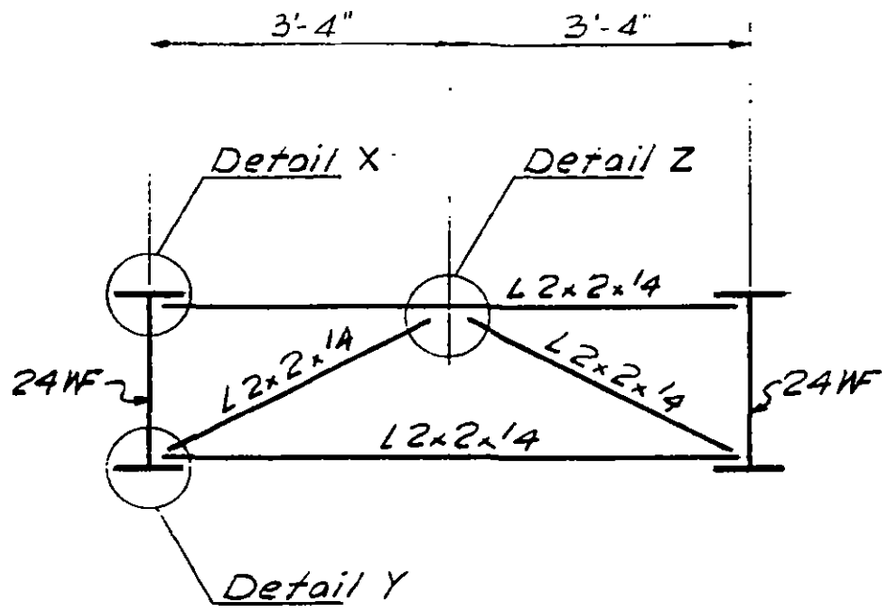
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

6-AB3-31

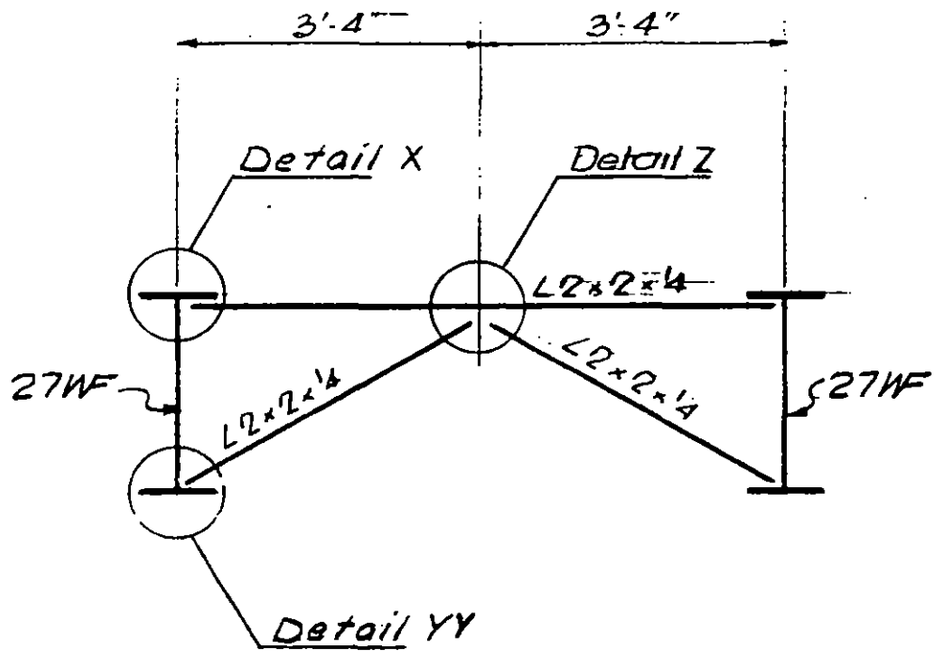
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM FLOOR BRIDGING TYPES B9 THRU B12 | DATE: 12-20-67

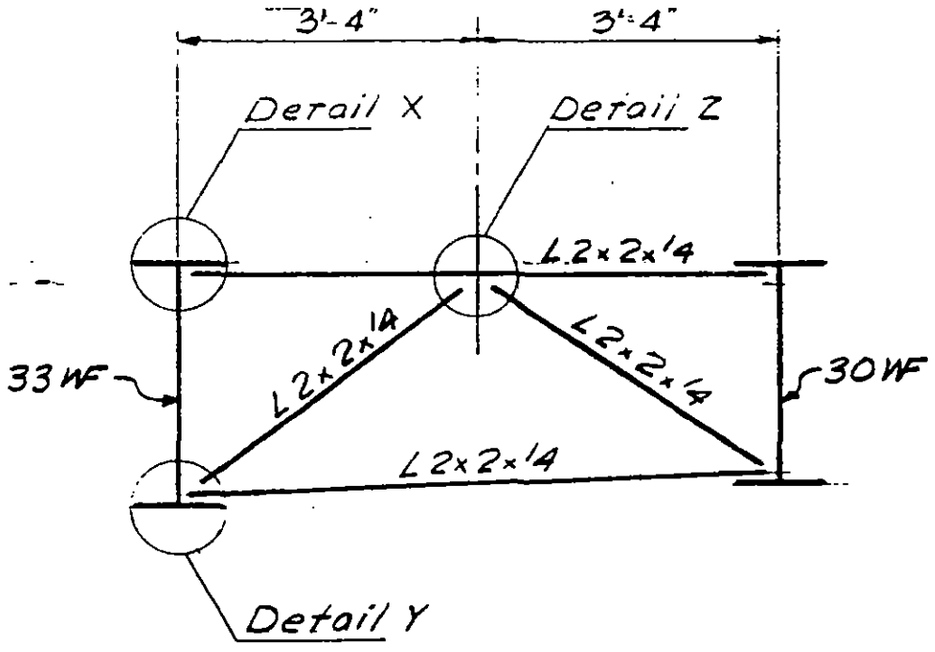
REVISIONS



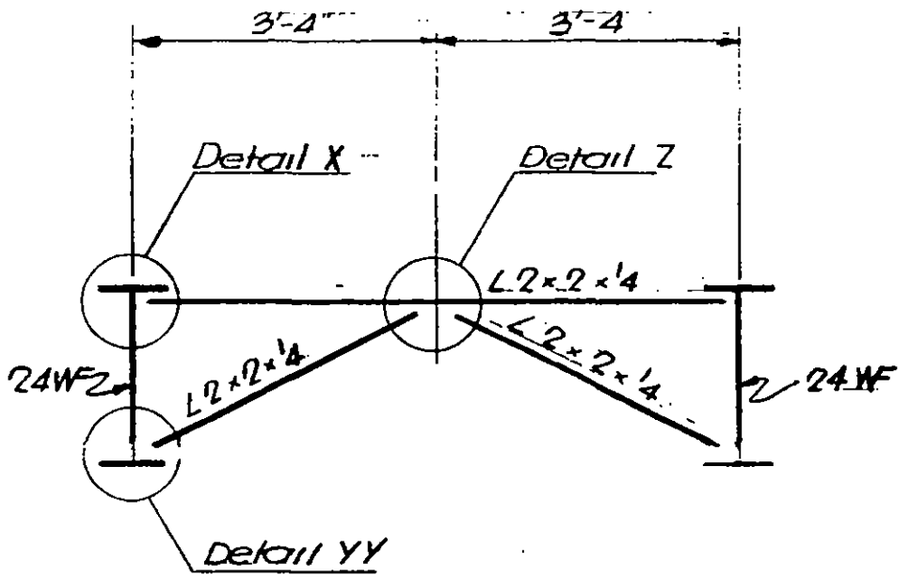
B9



B10



B11



B12

LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34260 STATE OF NEW YORK

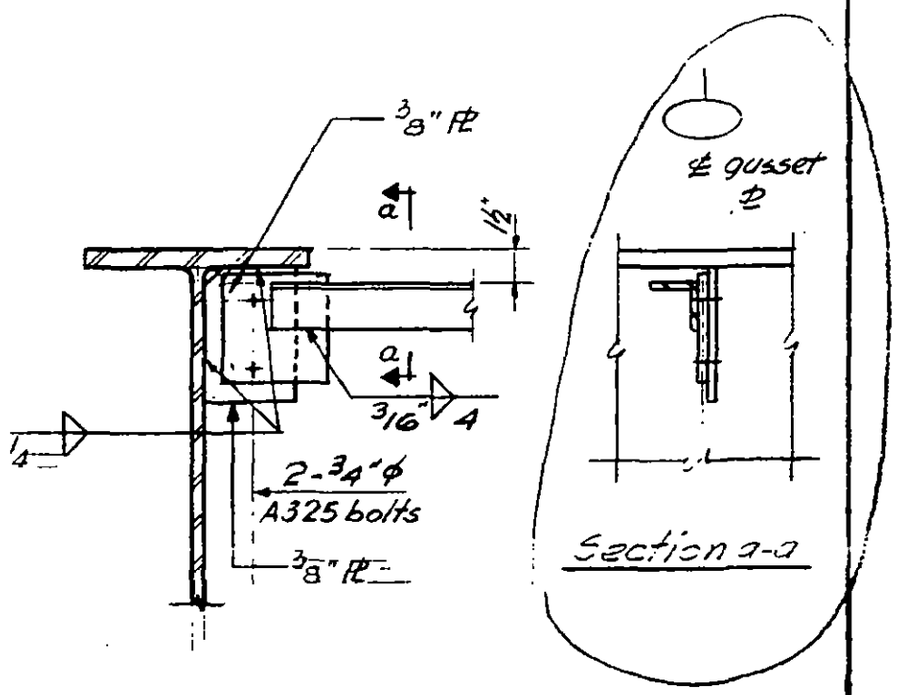
6-AB3-32

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

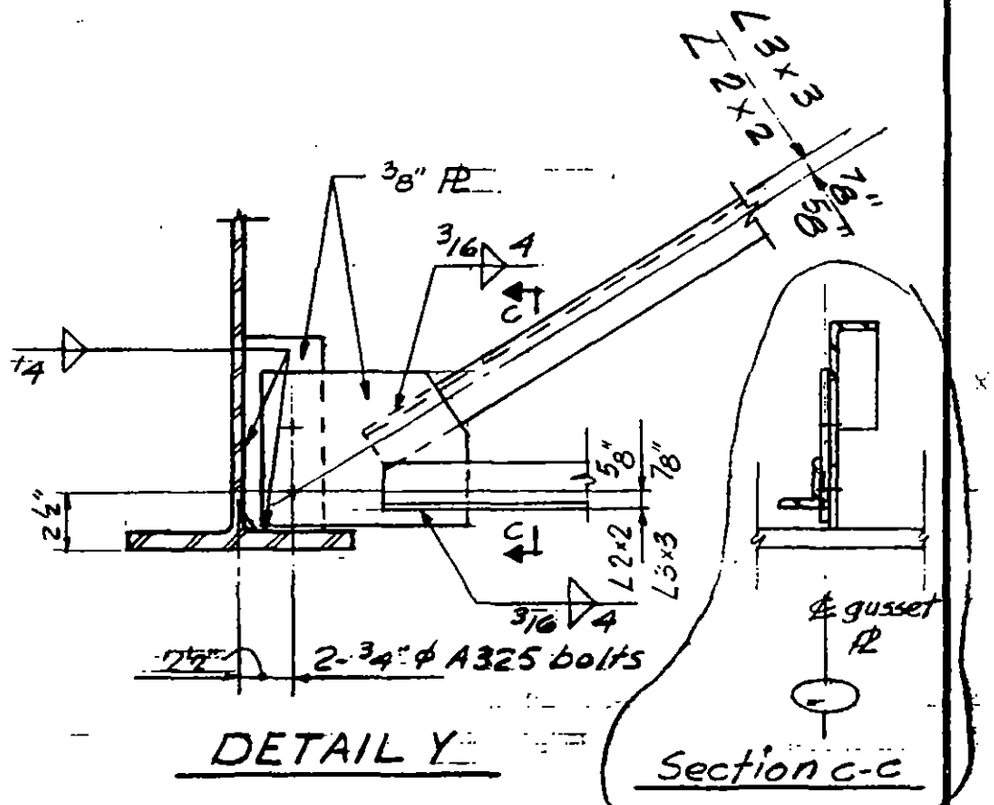
PROJECT THE WORLD TRADE CENTER | TITLE BEAM FLOOR BRIDGING DETAILS | DATE 12-20-67

REVISIONS

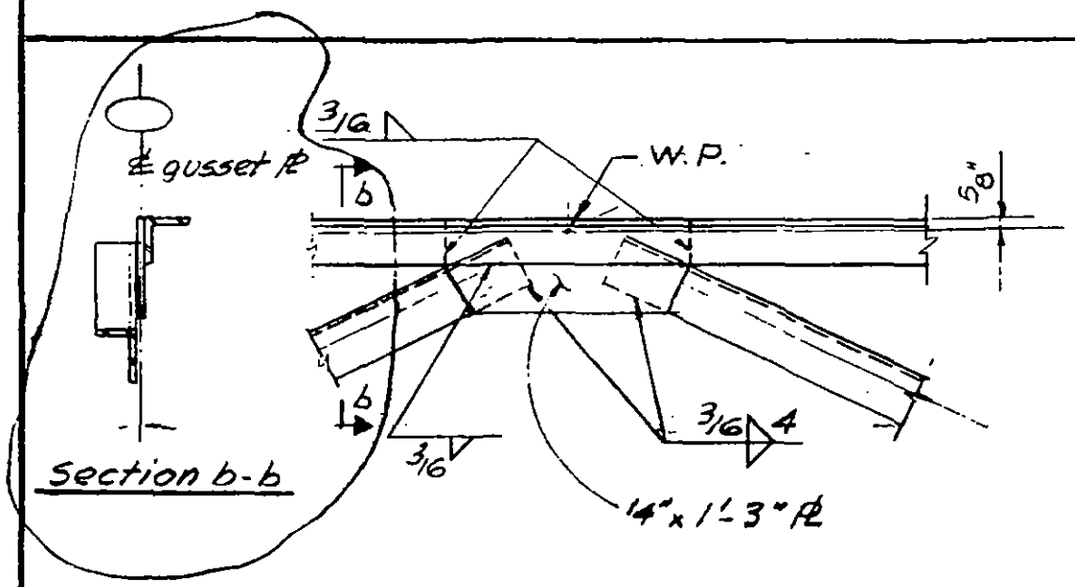
-24-68



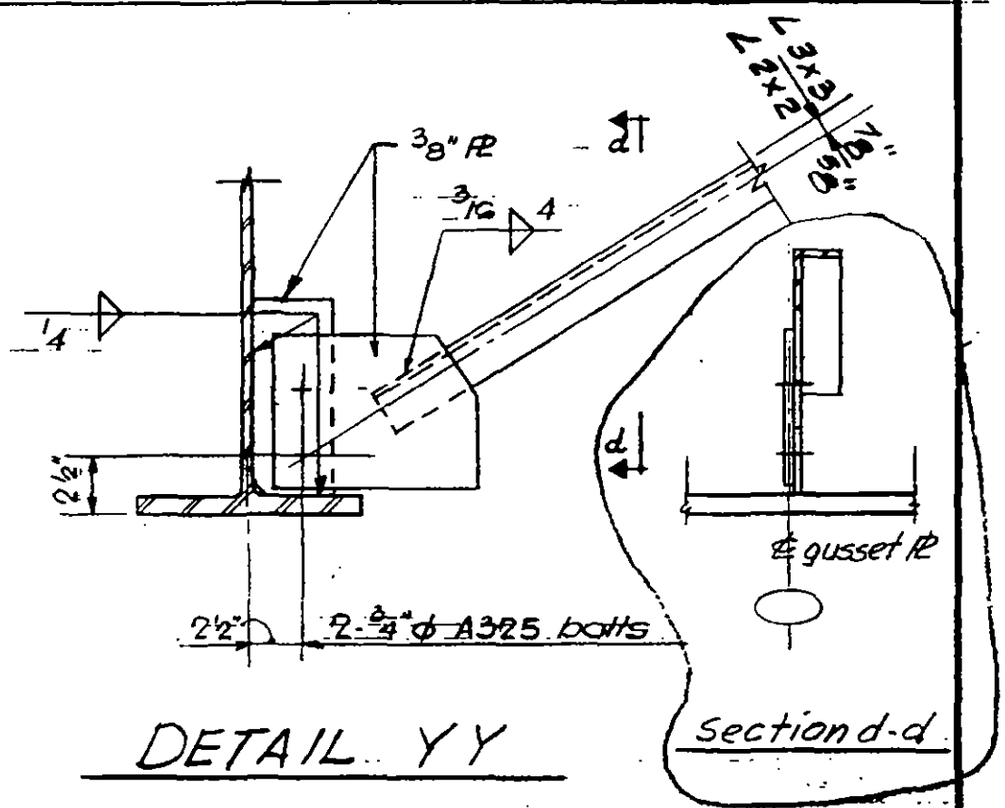
DETAIL X



DETAIL Y



DETAIL Z



DETAIL YY

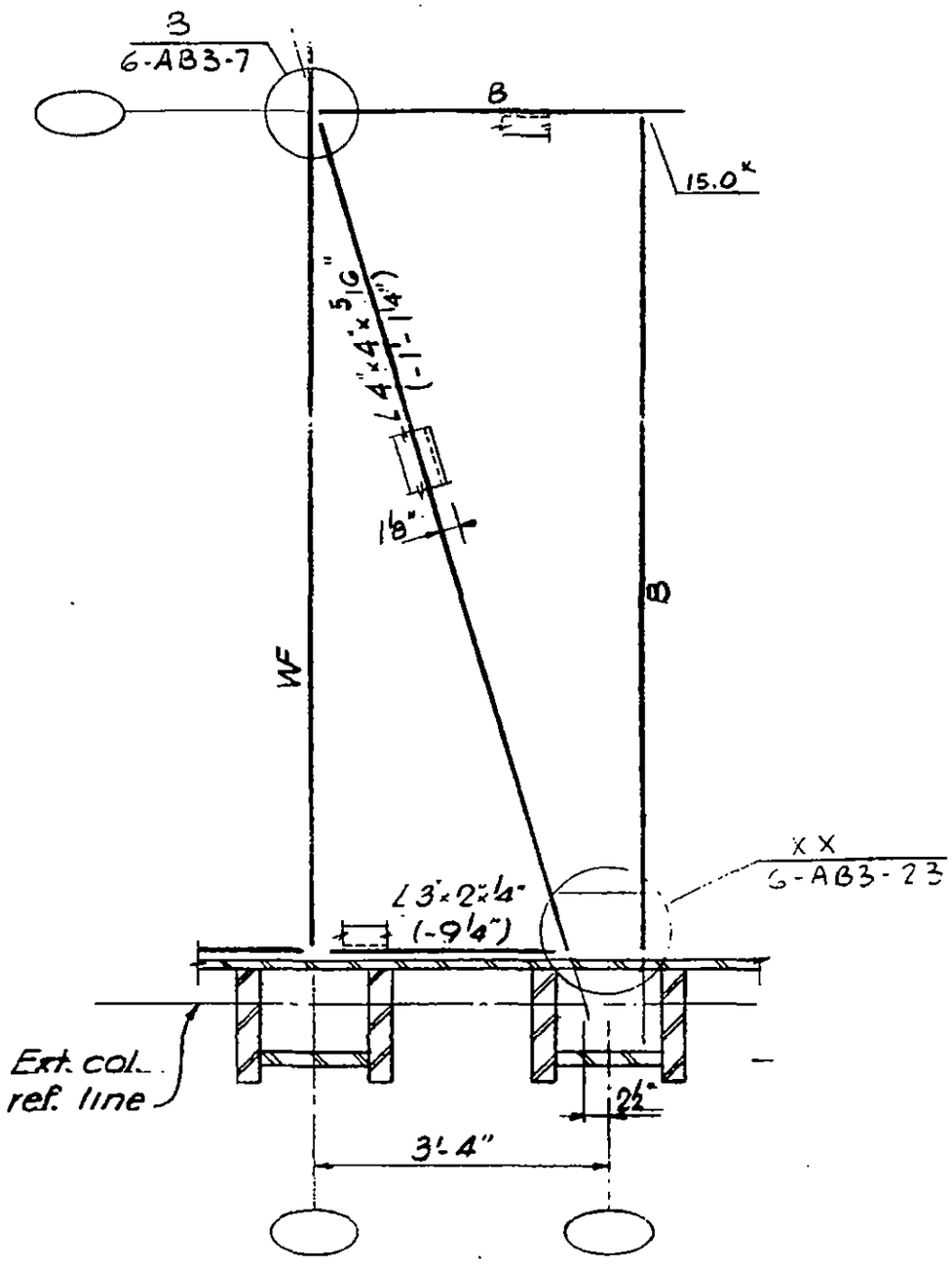
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

C-AB3-33

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H11 & H13 | DATE: 8-17-68

REVISIONS



H 11

H 13 opp. hand

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — REGISTERED BY THE STATE OF NEW YORK

DESIGNED

DRAWN

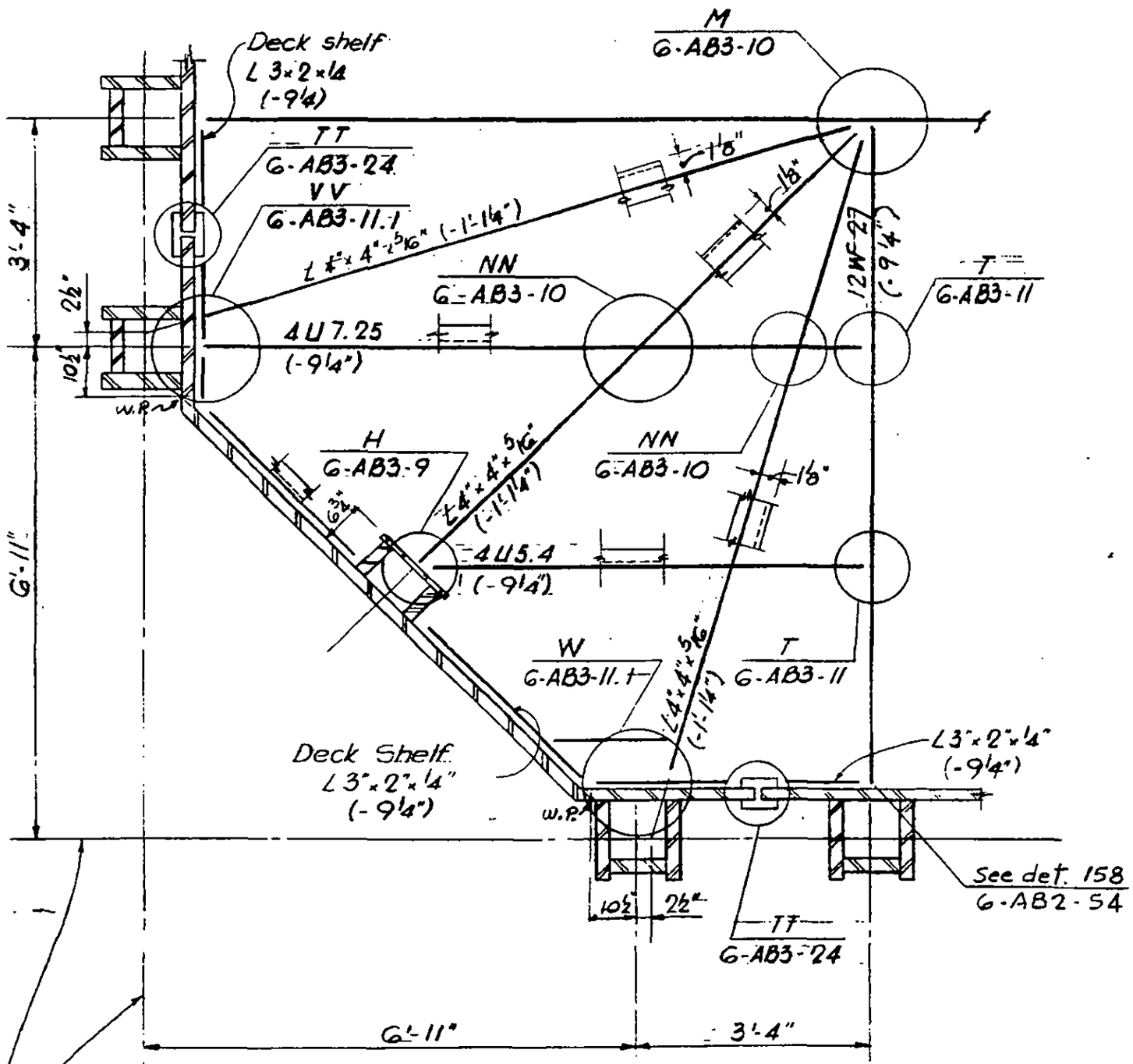
REVIEWED

6-AB3-34

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H16 & H17 | DATE 8-17-68

REVISIONS



H 16

H 17 opp. hand

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

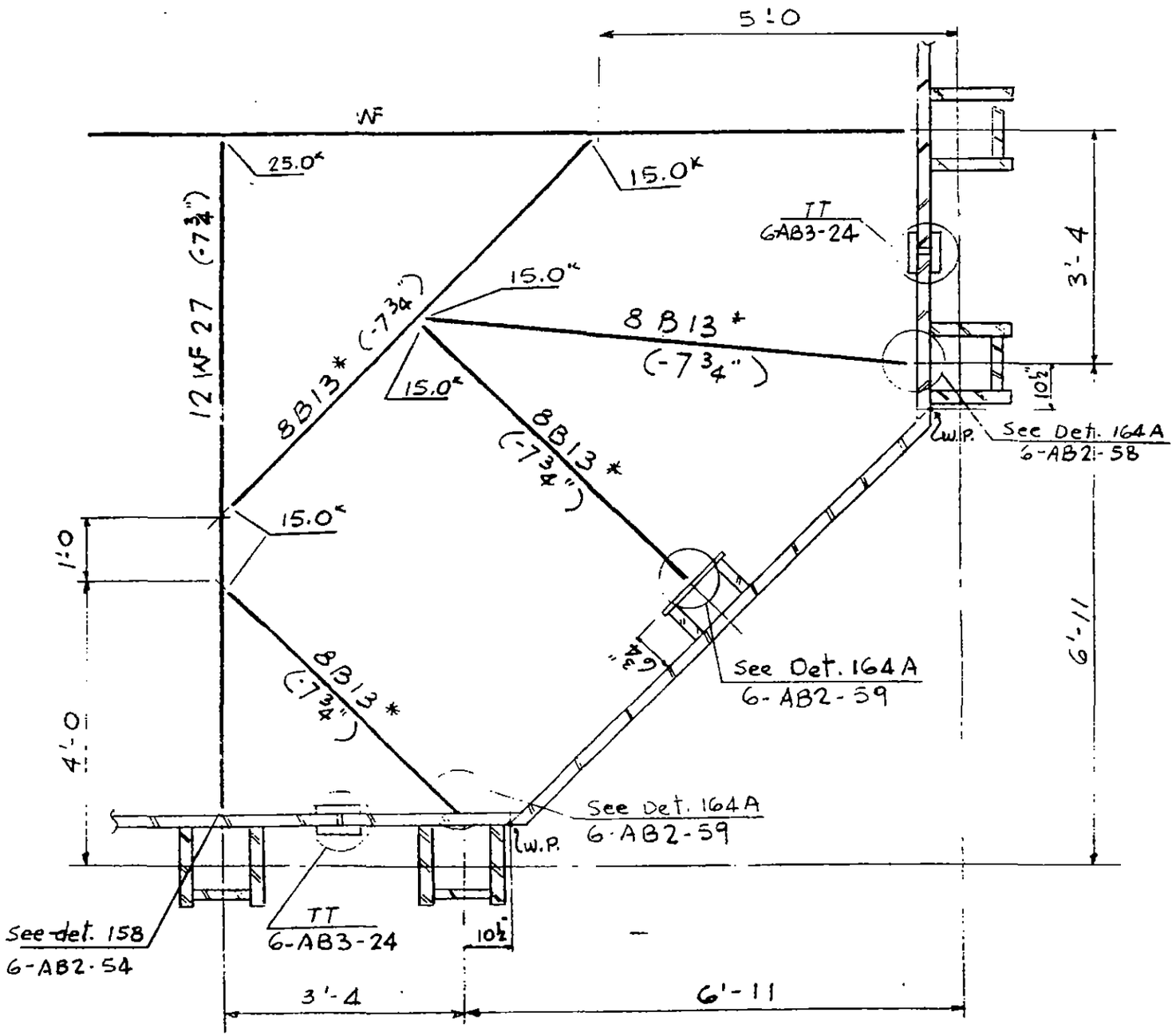
REVIEWED

G-AB3-35

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSSES H18, H19 | DATE 8-17-68

REVISIONS



* 10 studs per beam, ¾"φ x 3" equally spaced.

H 18

H 19 opp. hand

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

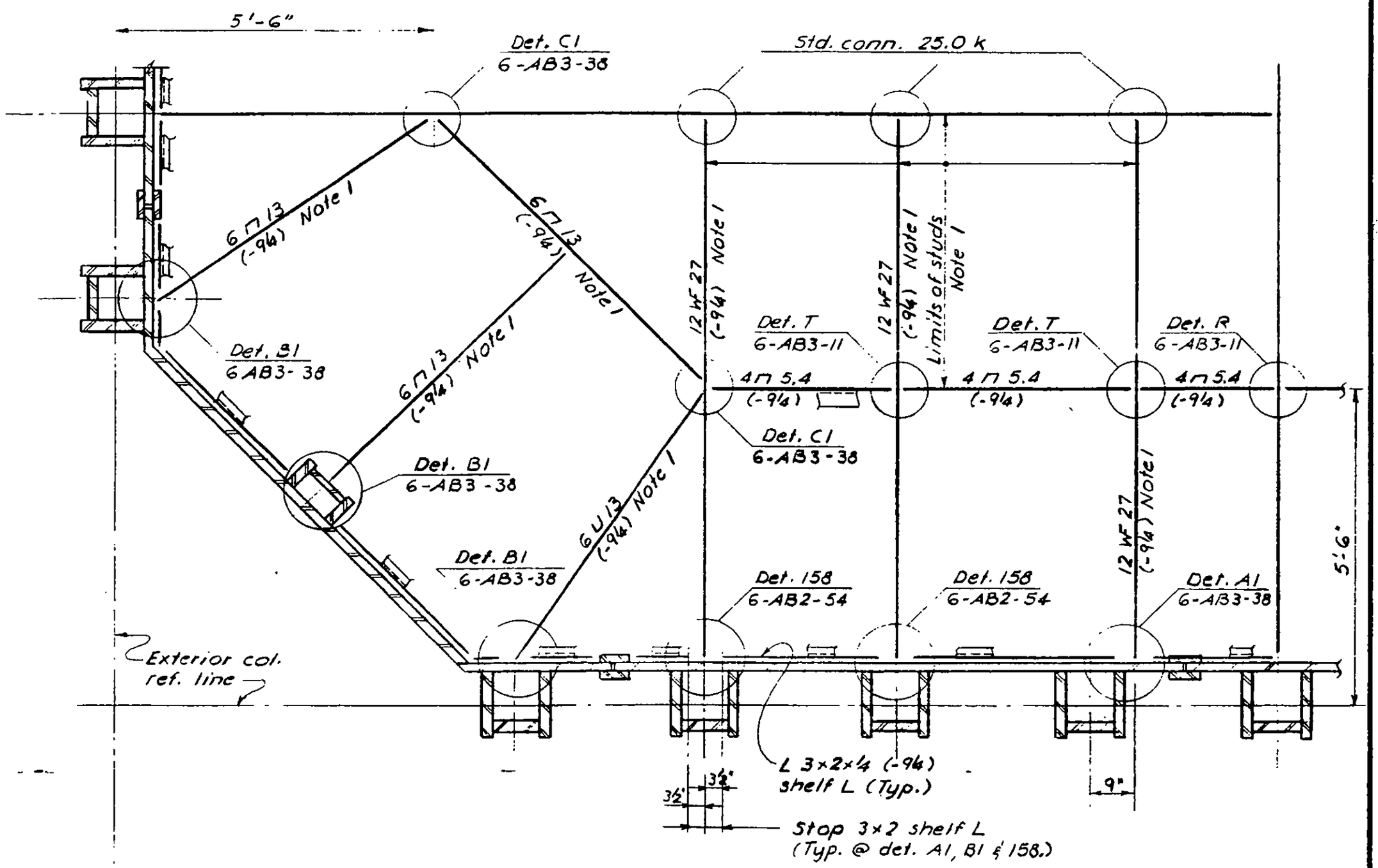
REVIEWED

6-AB3-36

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: HORIZONTAL TRUSSES H40 & H41 | DATE: 1-10-69

REVISIONS



Notes:

1. Provide shear studs on top flange : ¾"ϕ x 3" at 6" c.c.

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34960 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

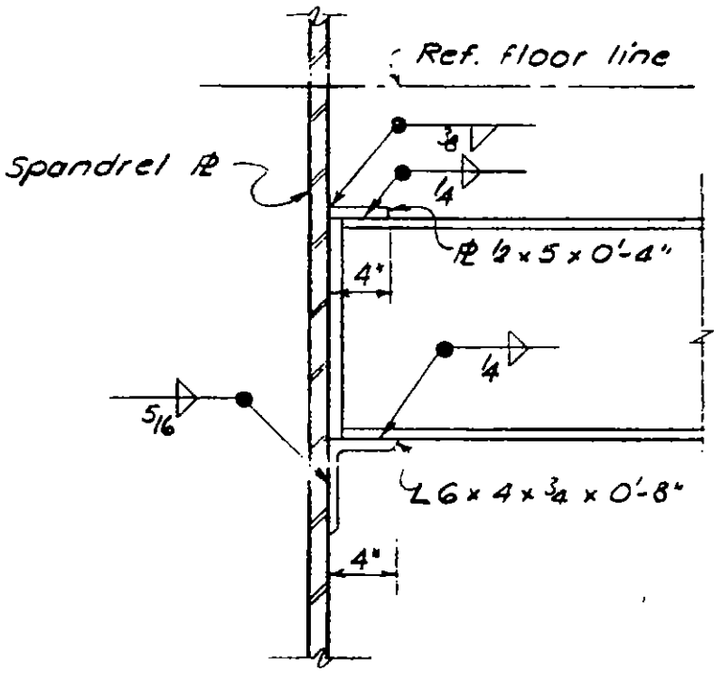
REVIEWED

6-AB3-37

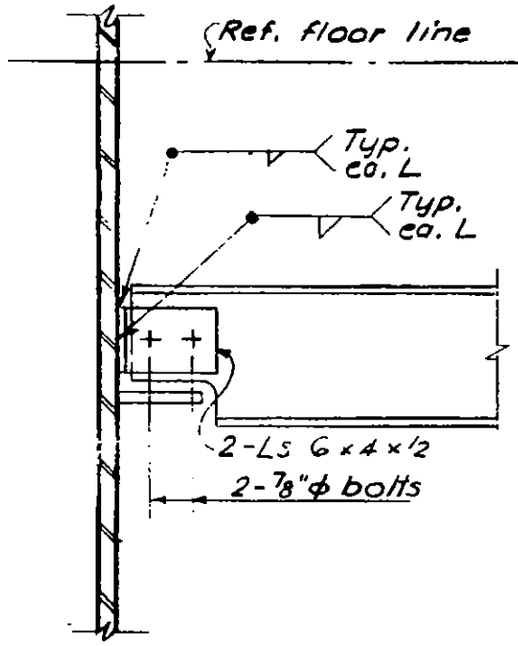
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE HORIZONTAL TRUSS DETAILS | DATE 1-10-69

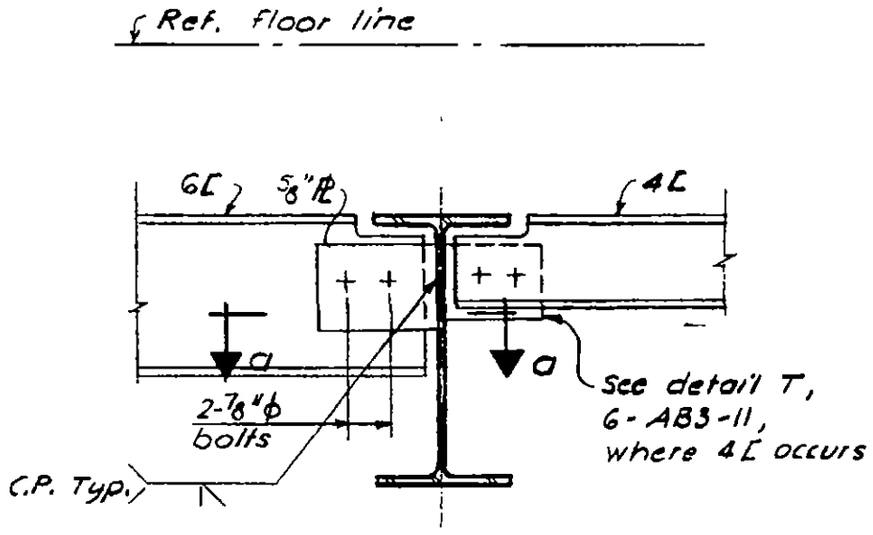
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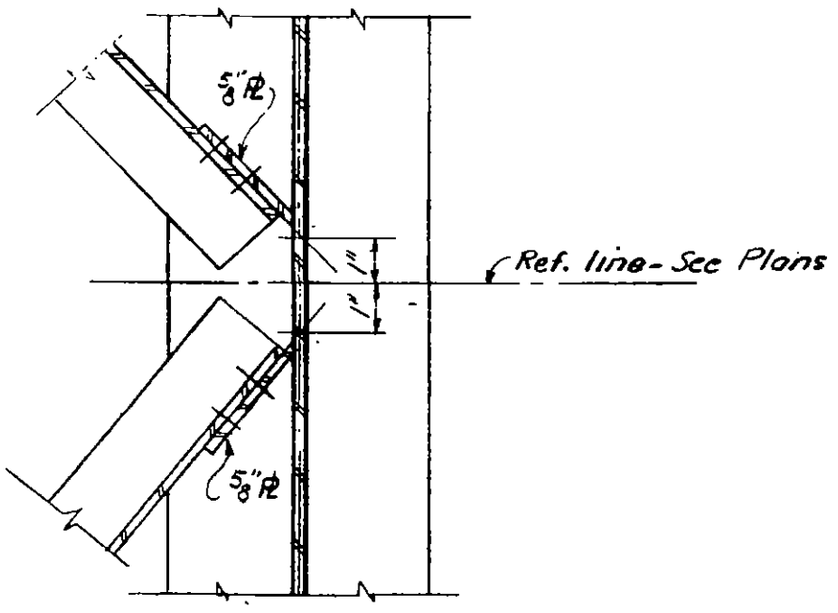
DETAIL A1



DETAIL B1



DETAIL C1



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34960
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

REVIEWED

6-AB3-38

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: LOUVER WALL ELEVATIONS & DETAILS | DATE: 12-20-67

REVISIONS
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Printed 5-1-69

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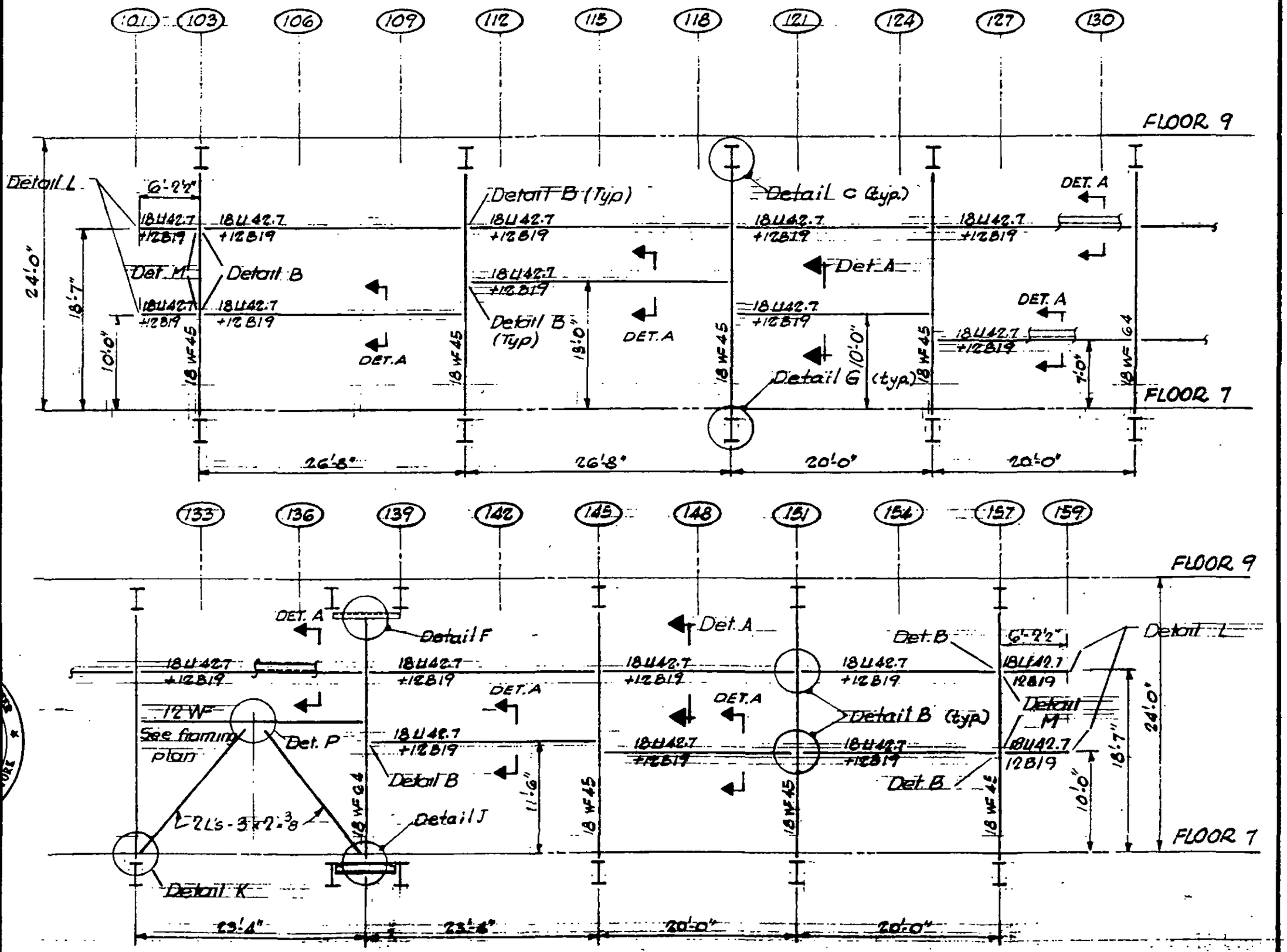
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G-AB4-1

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PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORTS - ELEVATION WALL 100 | DATE 12-20-67

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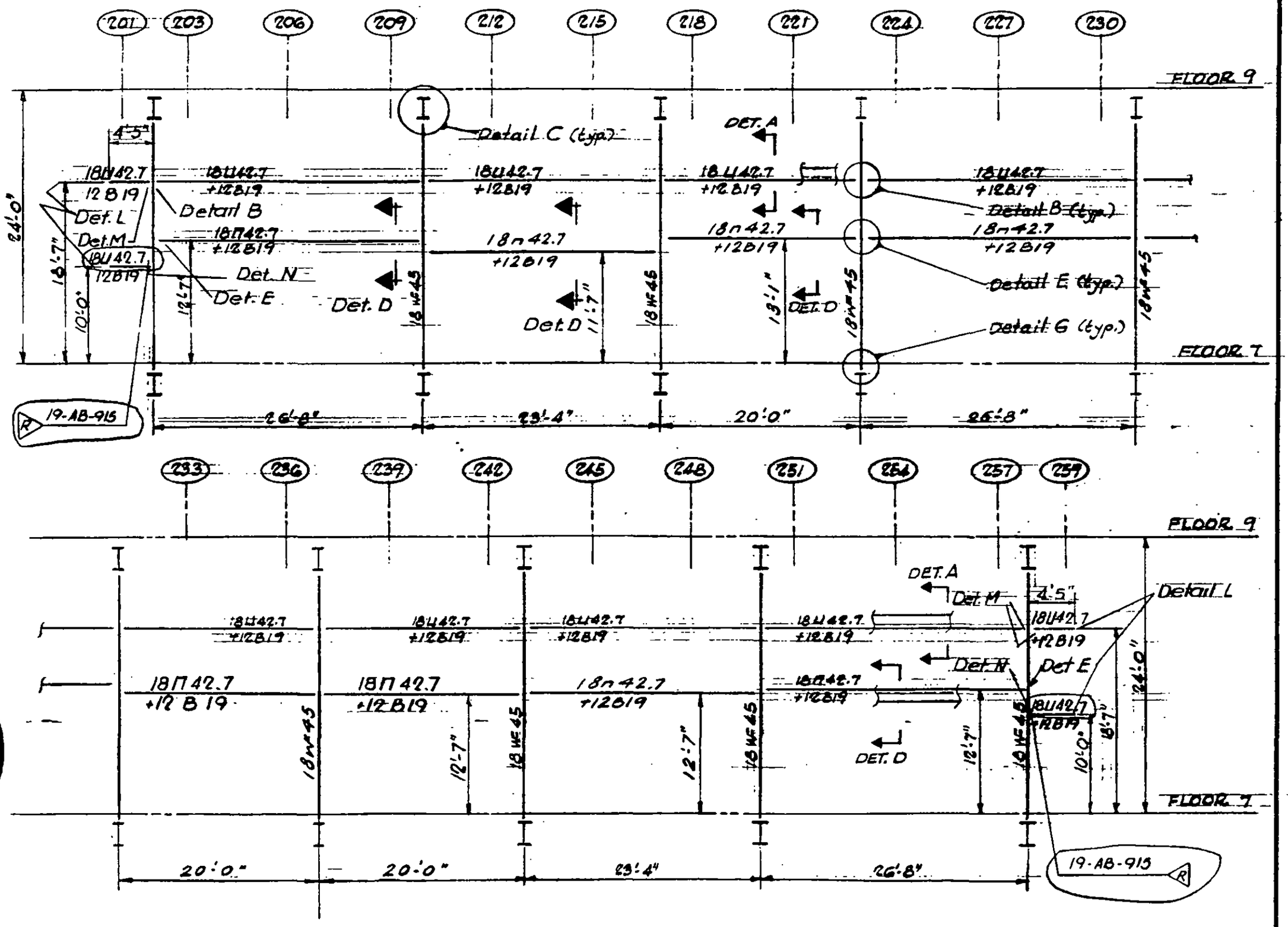
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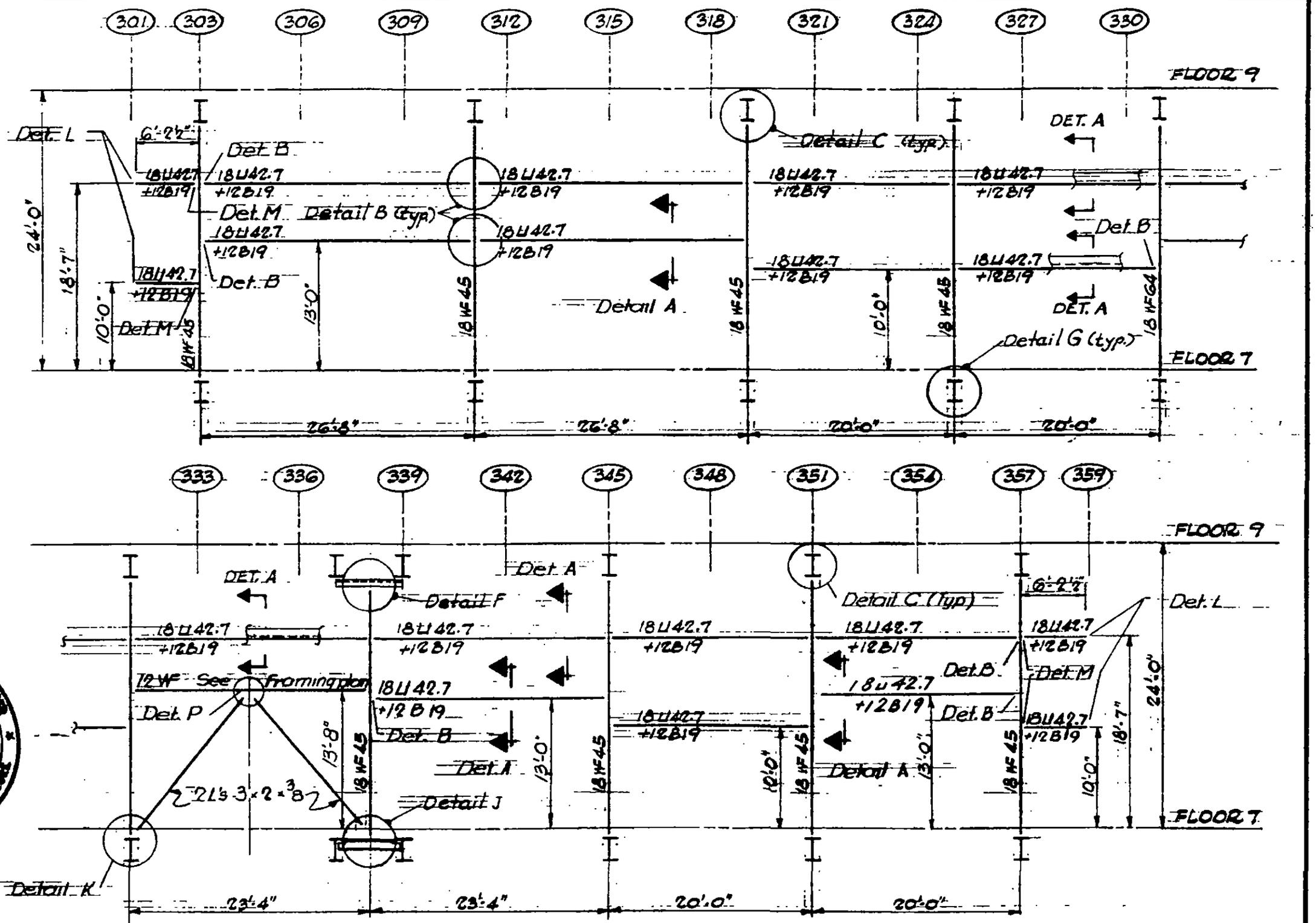
LESLIE E. ROBERTSON
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G-AB4-3

WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

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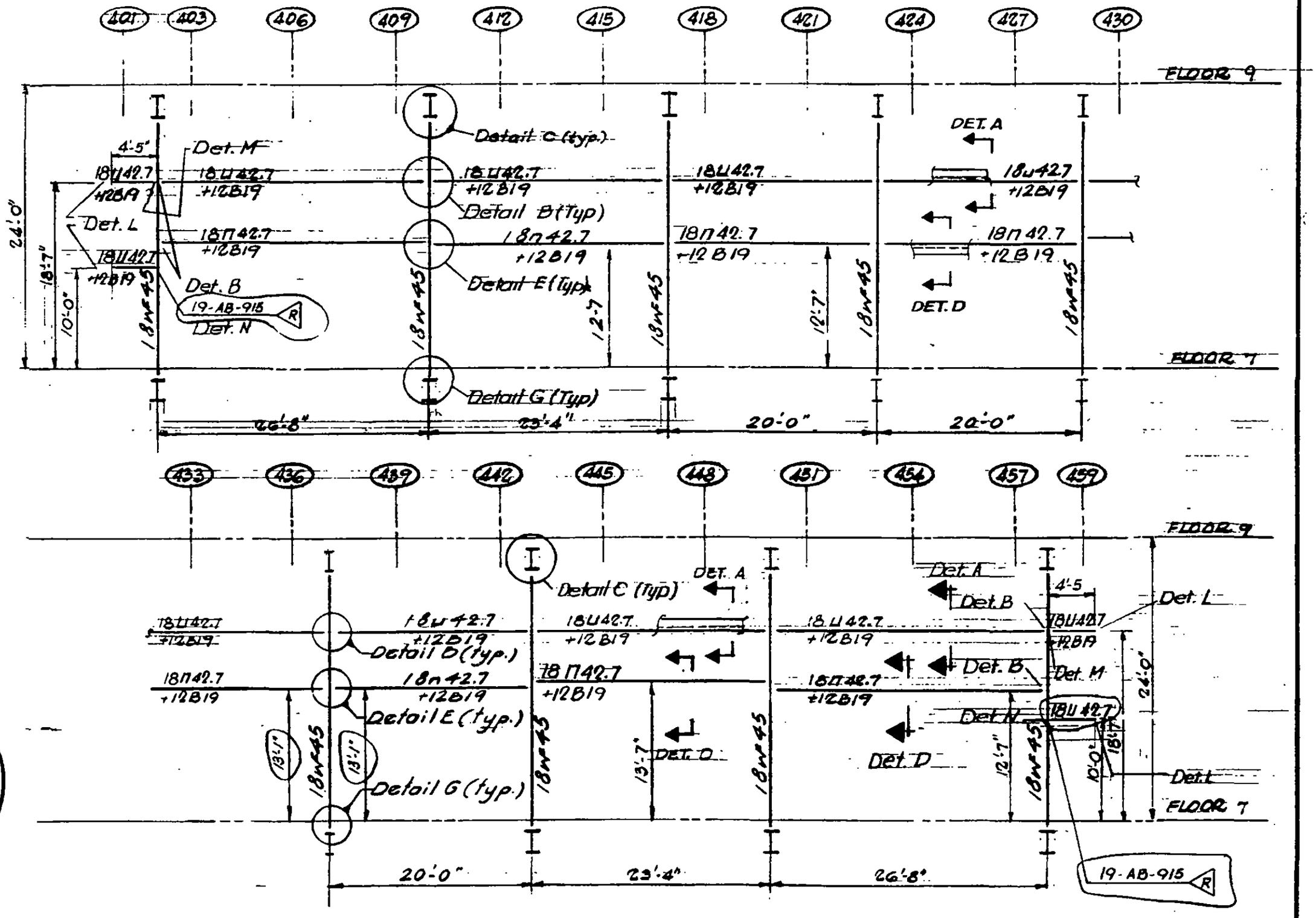
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PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORTS - ELEVATION WALL 400 | DATE 12-20-67

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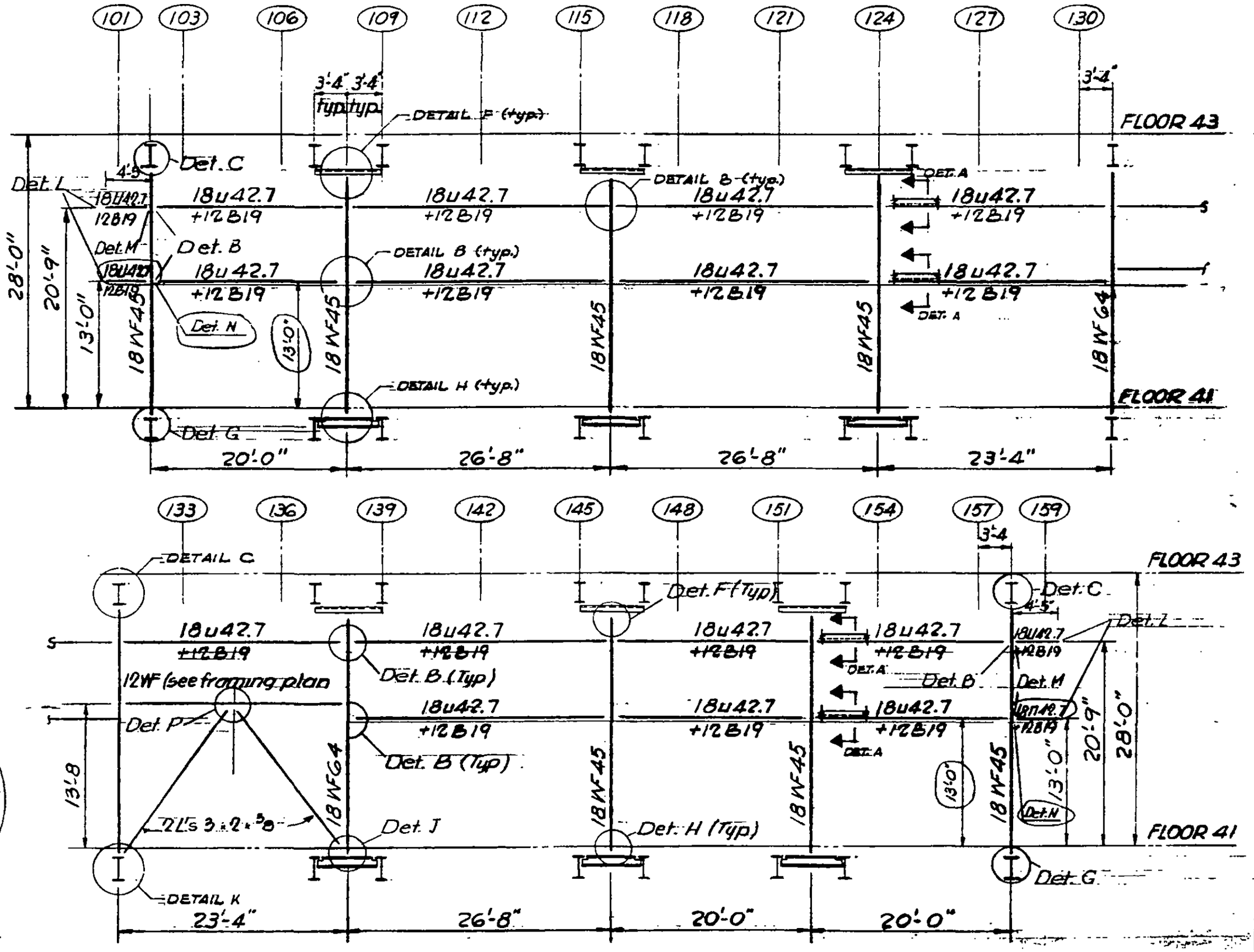
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WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT	TITLE	DATE
THE WORLD TRADE CENTER	LOUVER SUPPORTS - ELEVATION WALL 100	12-20-67

REVISIONS

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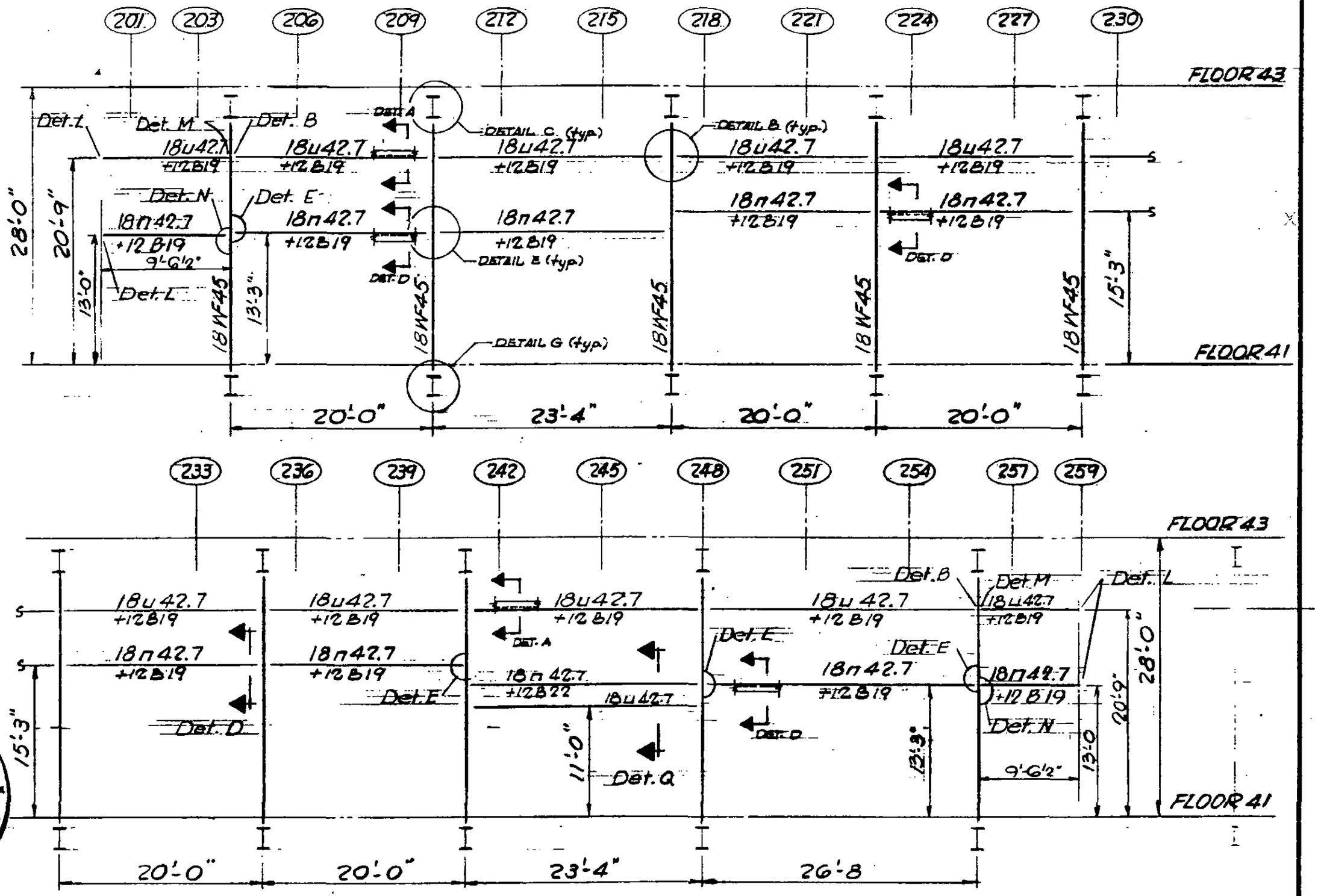
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G-AB4-G

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PROJECT: THE WORLD TRADE CENTER | TITLE: LOUVER SUPPORTS - ELEVATION WALL 200 | DATE: 12-20-67

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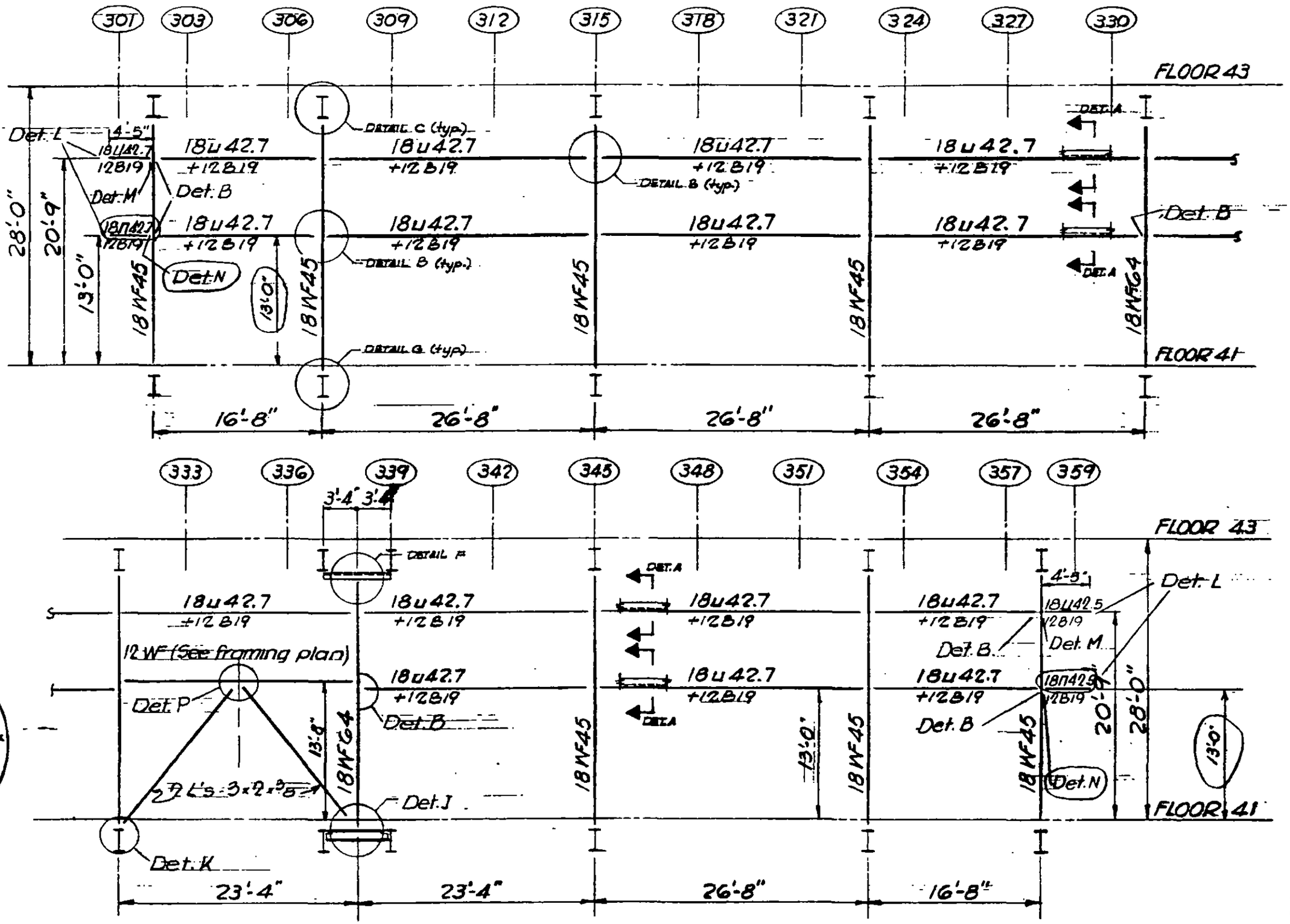
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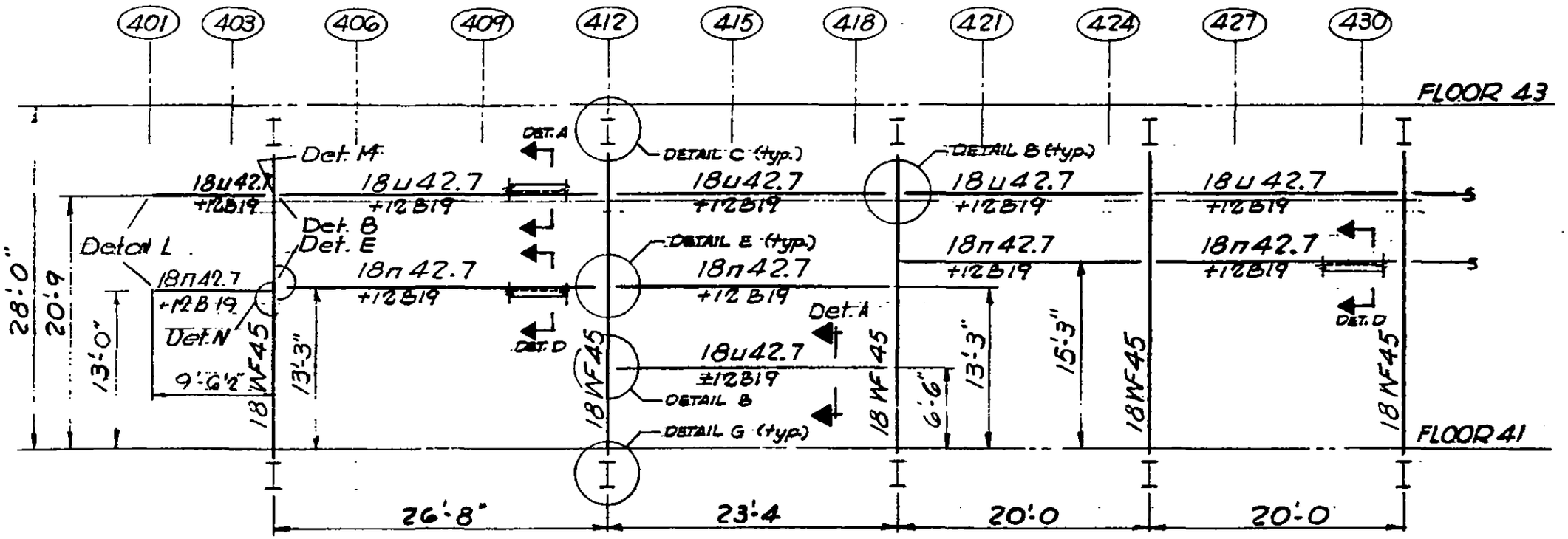
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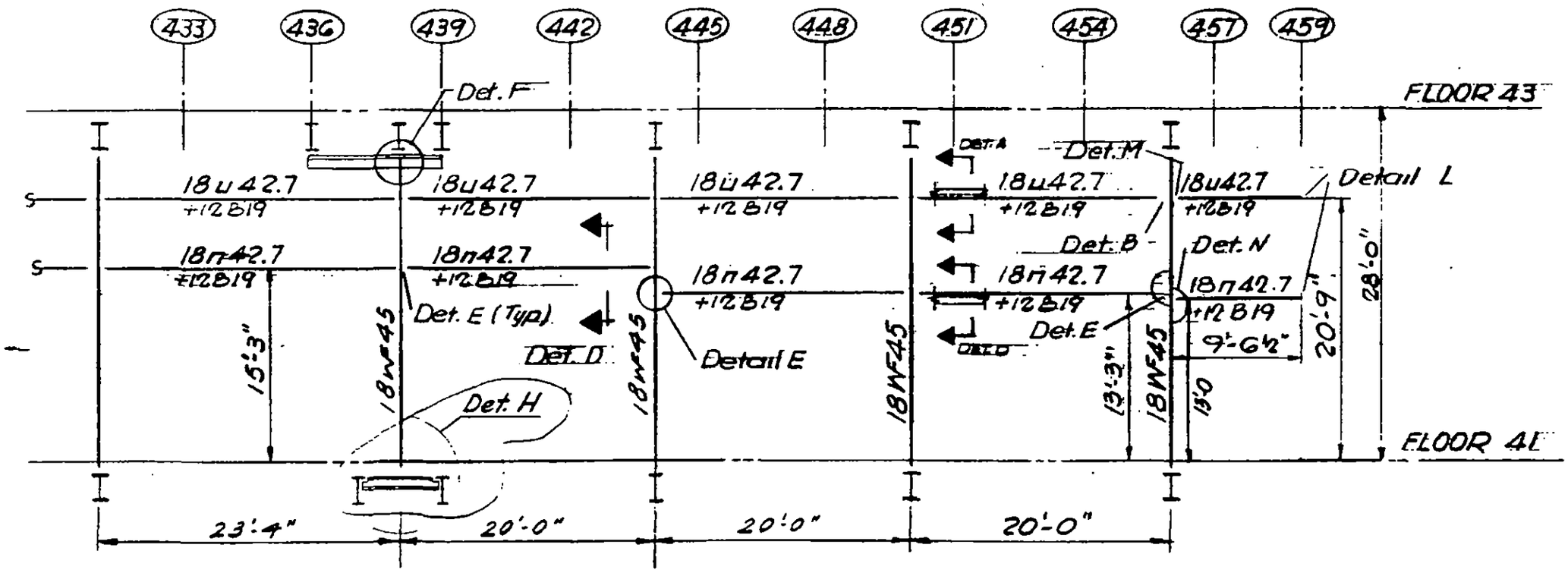
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DATE: 12-20-67

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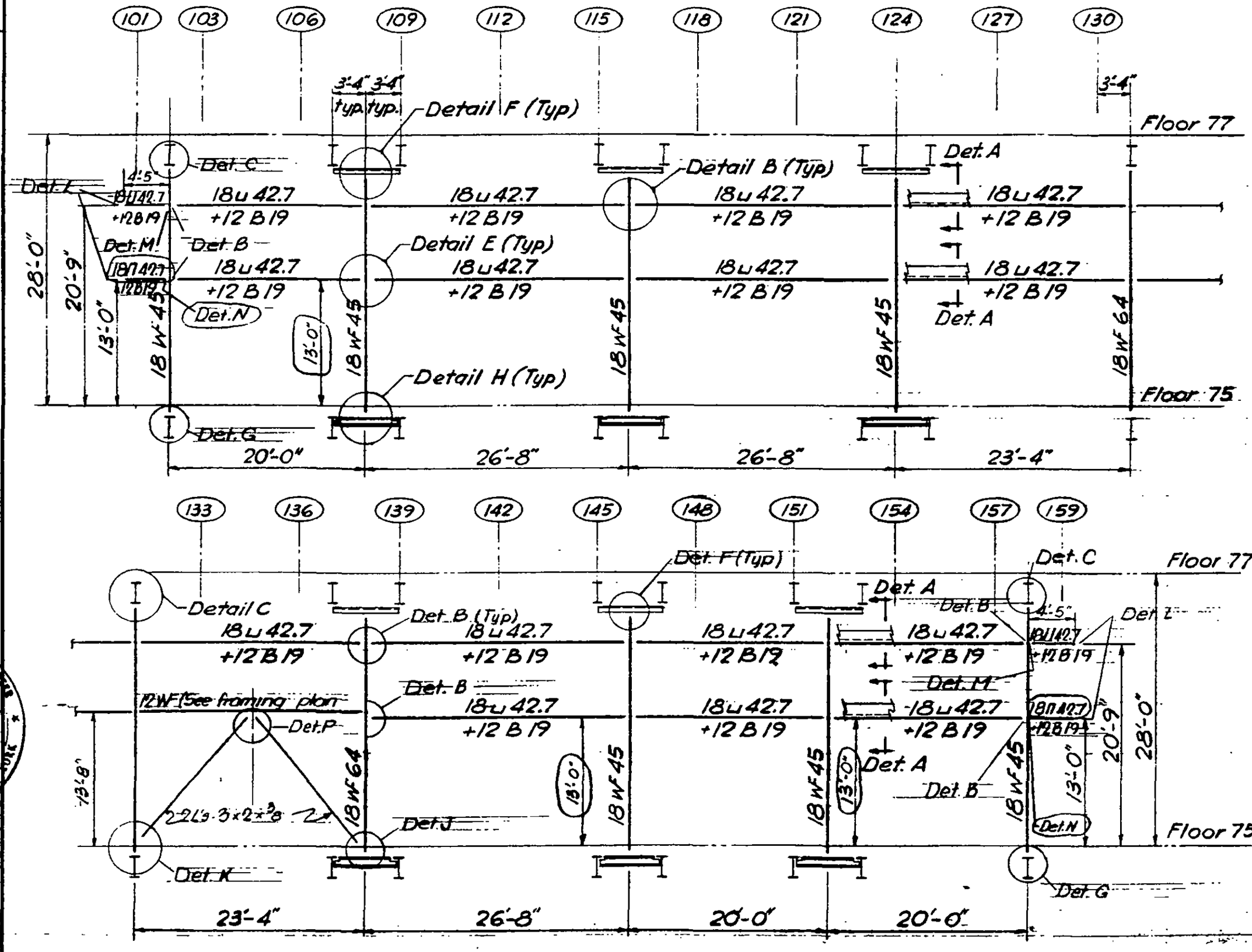
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PROJECT THE WORLD TRADE CENTER | TITLE ELEVATION WALL 100 - LOUVER SUPPORTS | DATE 12-20-67

REVISIONS

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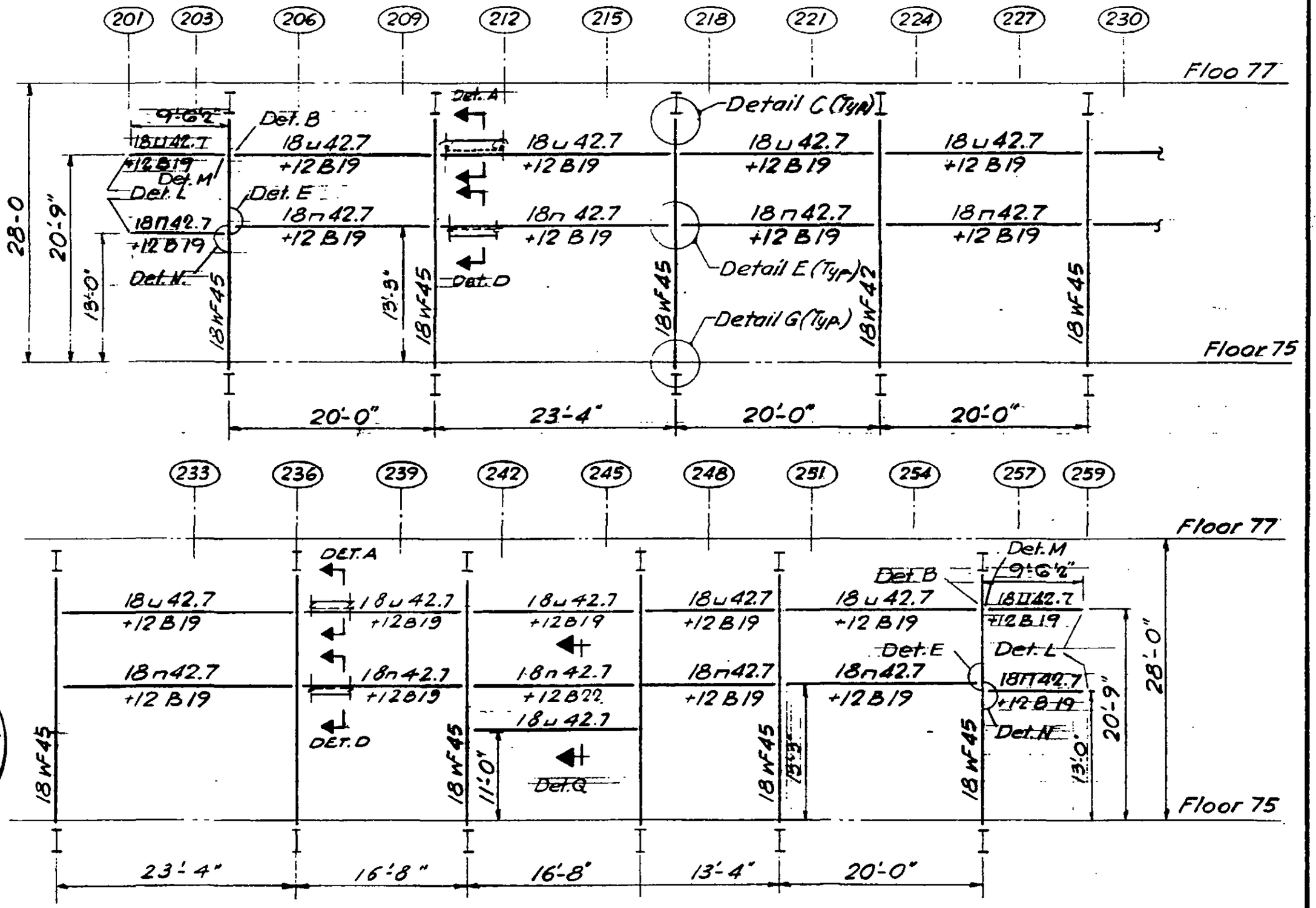
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No. 34360
REGISTERED TO PRACTICE IN THE STATE OF NEW YORK

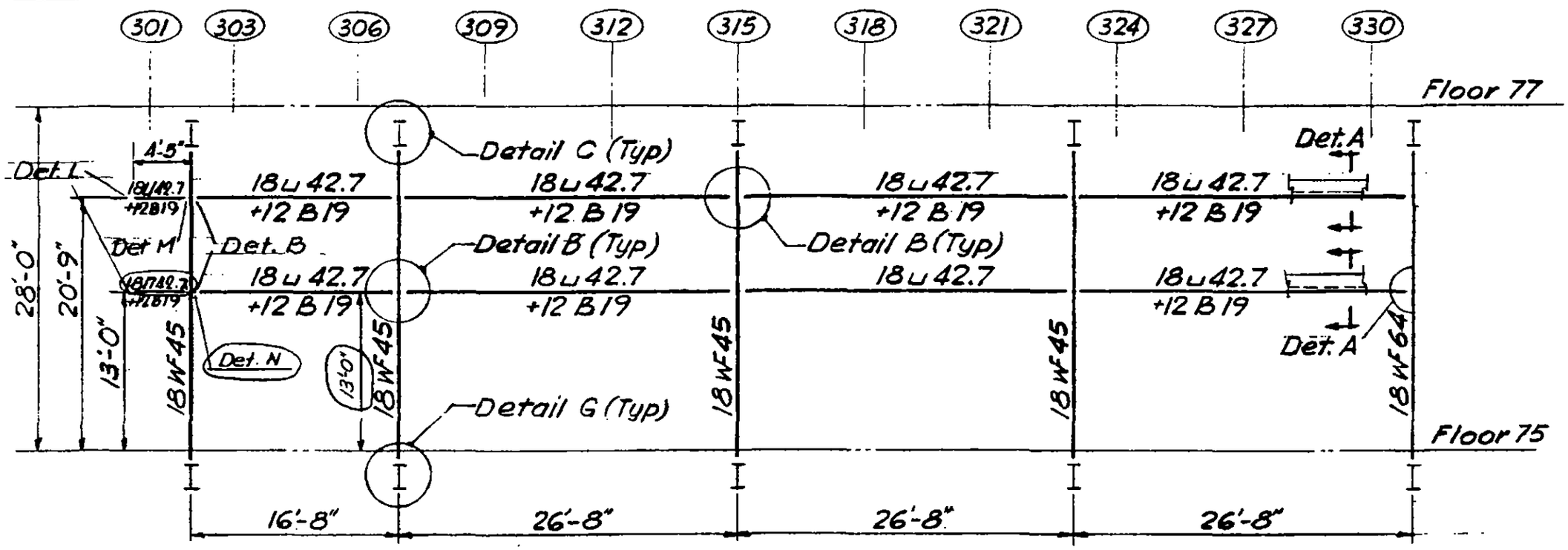
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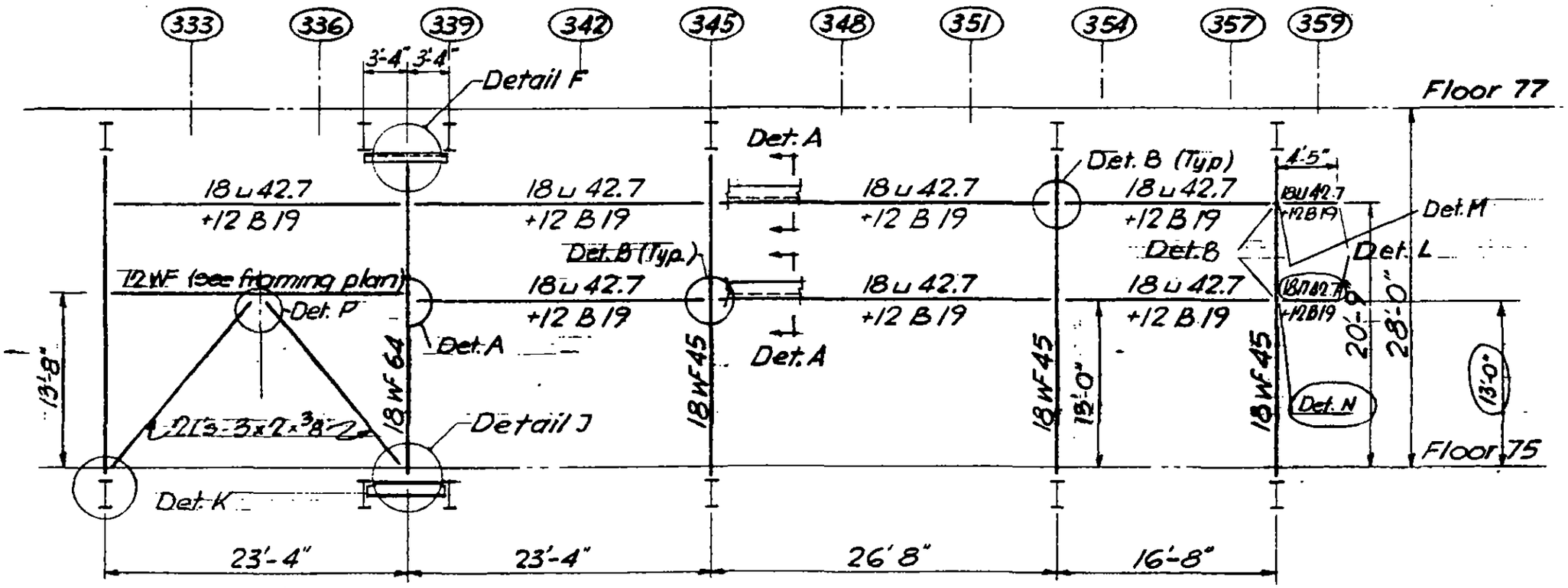
WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

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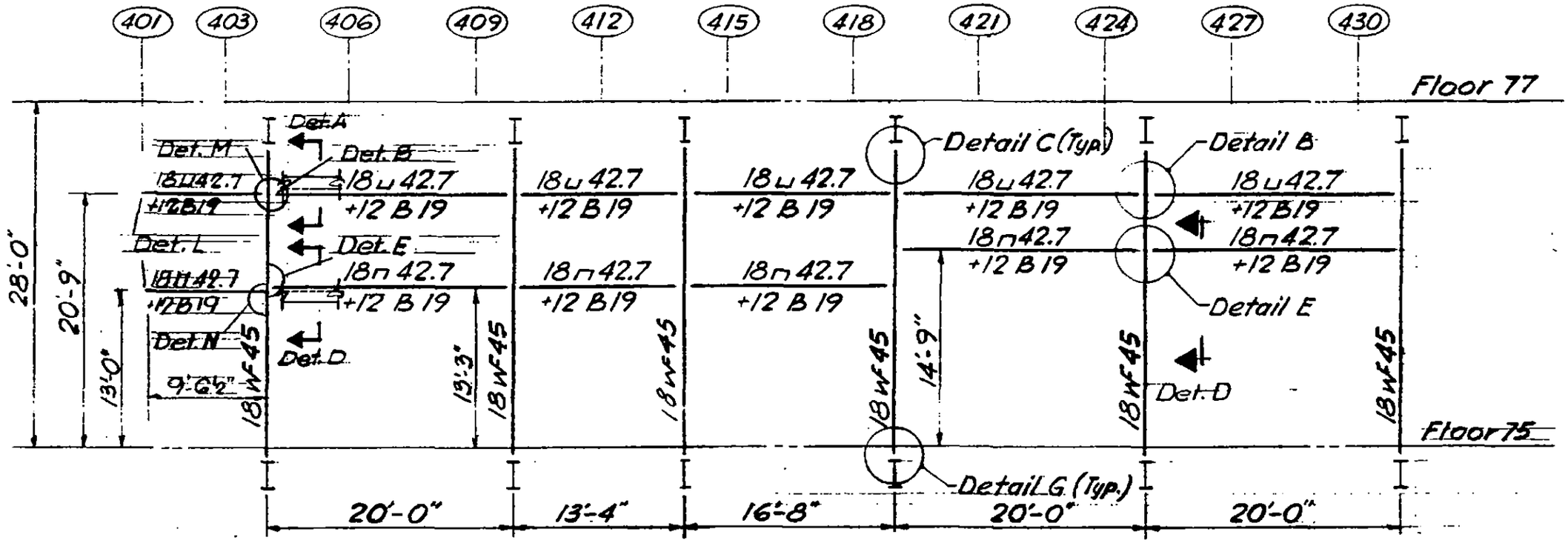
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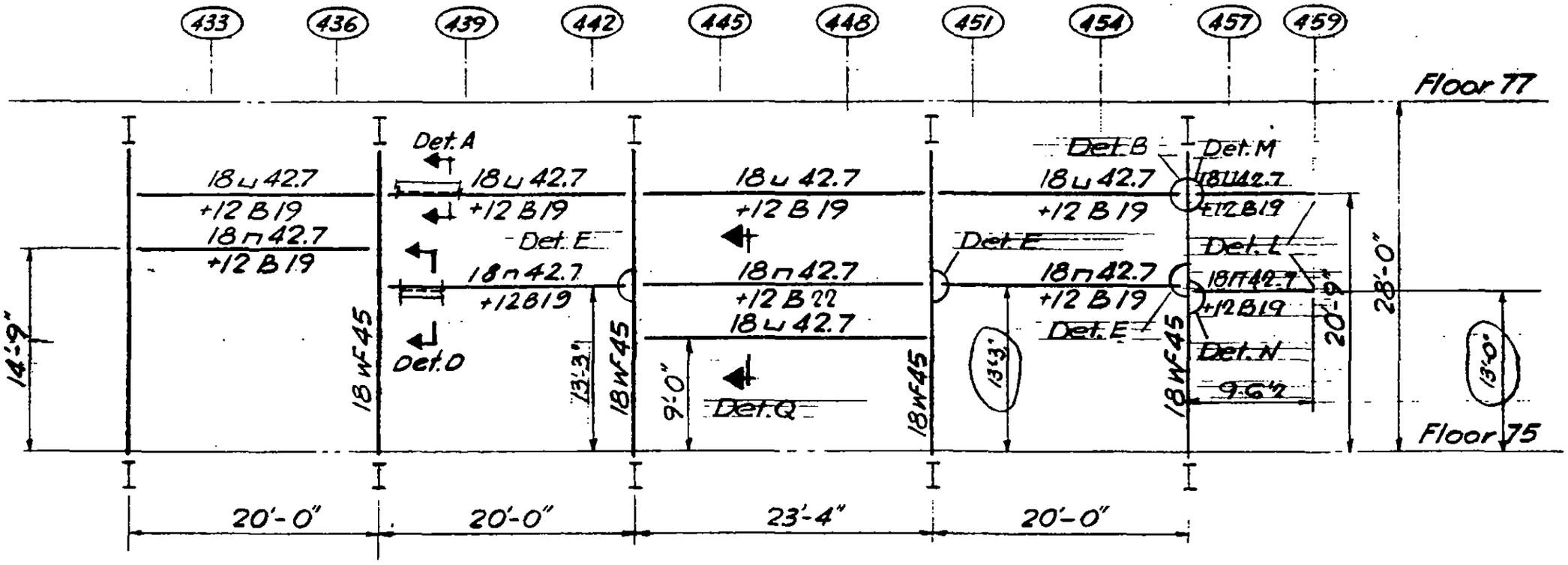
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PROJECT: THE WORLD TRADE CENTER | TITLE: ELEVATION WALL 400 - LOUVER SUPPORTS | DATE: 12-20-67

REVISIONS

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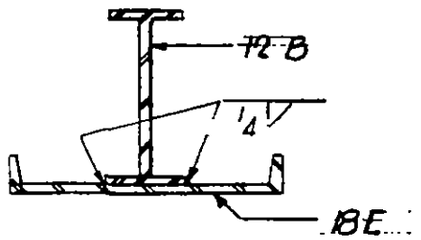
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LESLIE E. ROBERTSON
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UNIVERSITY OF THE STATE OF NEW YORK

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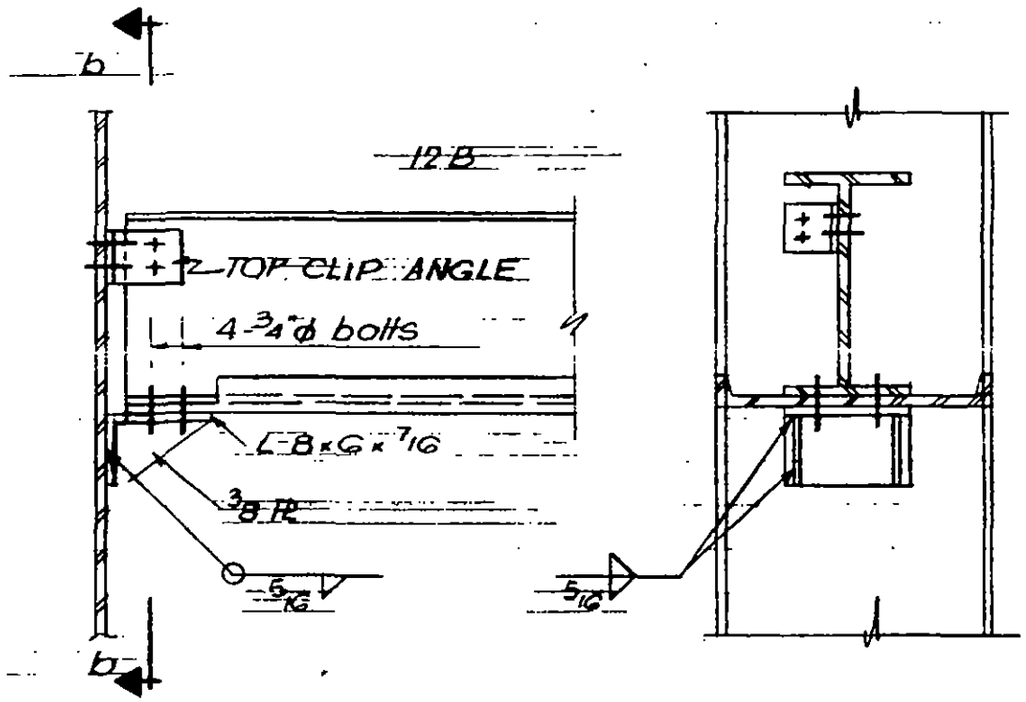
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PROJECT THE WORED TRADE CENTER | TITLE LOUVER SUPPORTS - DETAILS A & B | DATE 12-20-67

REVISIONS



Detail A



Detail B

Section b-b

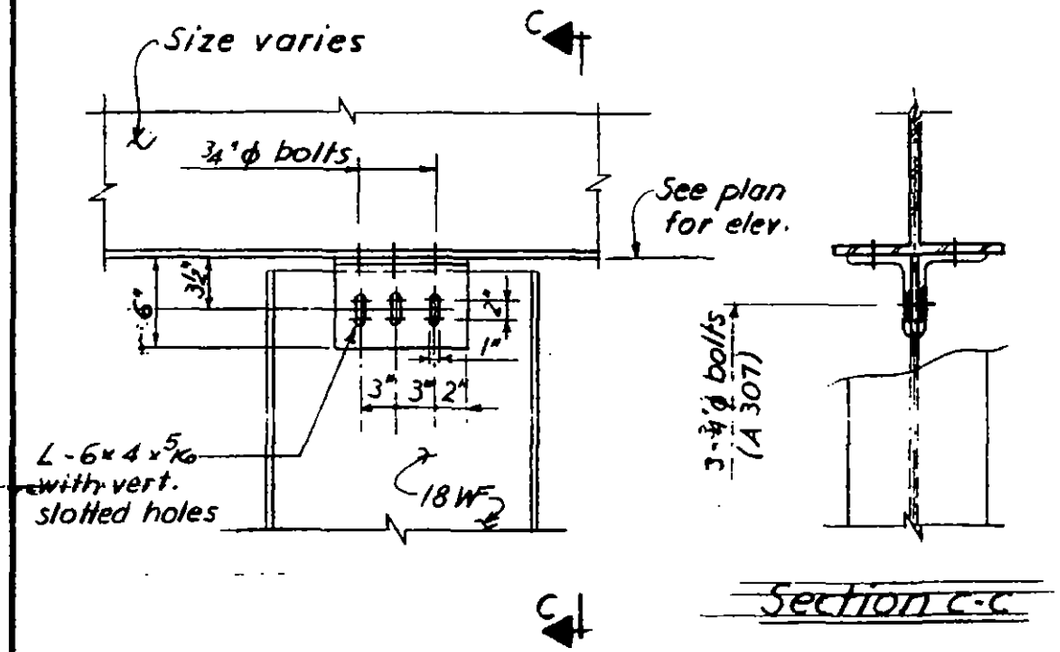
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UNIVERSITY OF THE STATE OF NEW YORK

6-AB4-18

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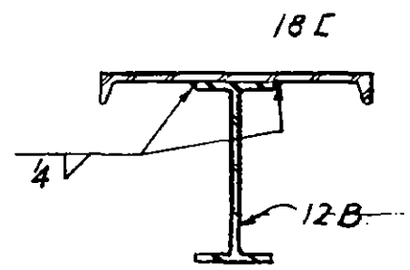
PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORTS - DETAILS C, D & E | DATE 12-20-67

REVISIONS

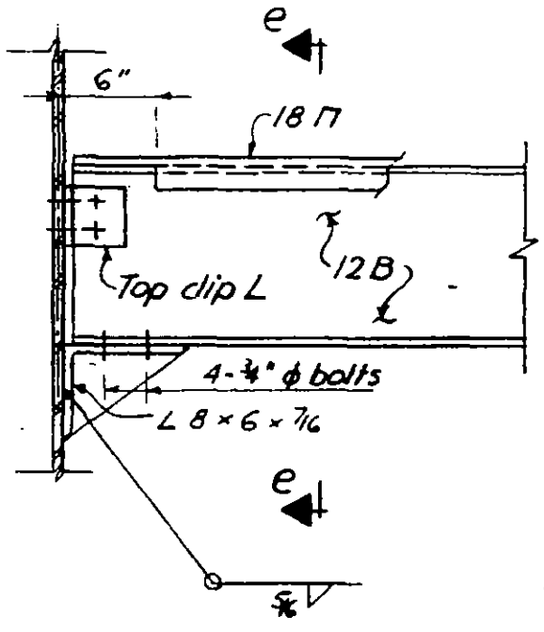


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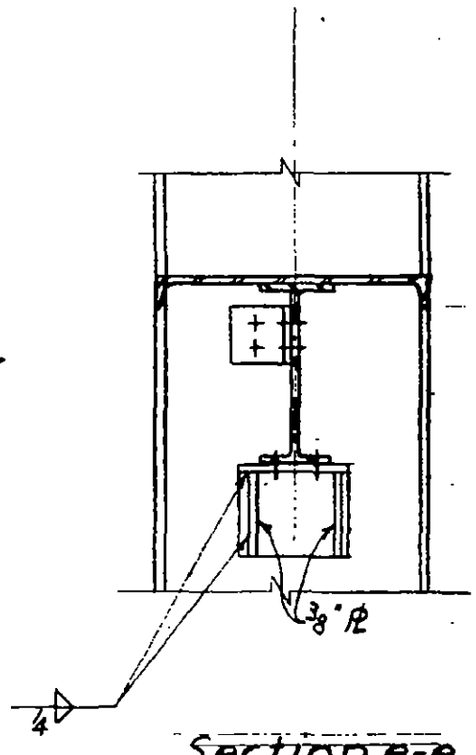
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Detail D



Detail E



Section e-e

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

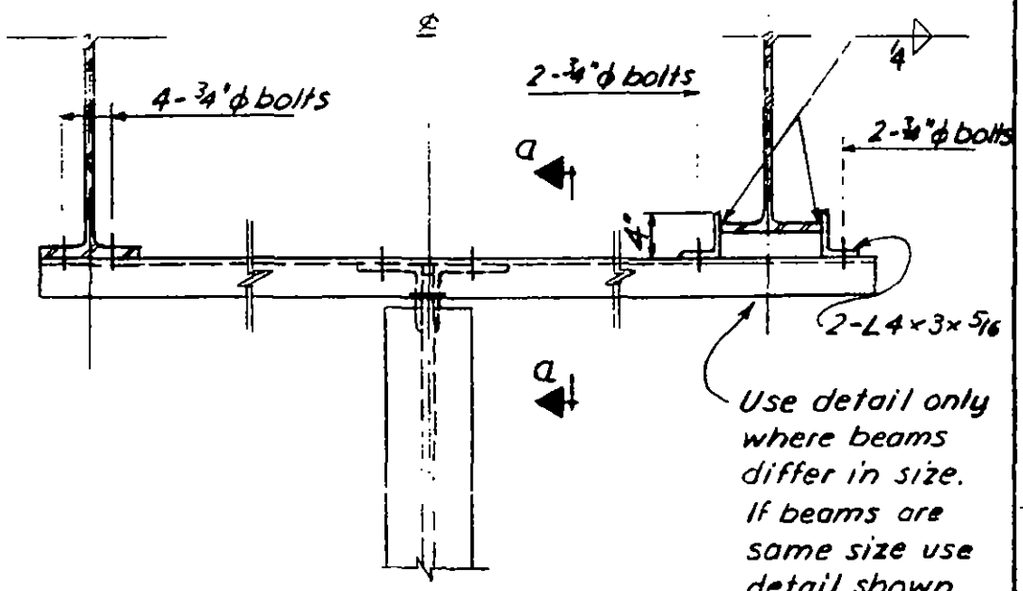
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WORTHINGTON, SKILLING, HELLE & JACKSON — Civil & Structural Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: LOUVER SUPPORTS - DETAILS F & G | DATE: 12-20-67

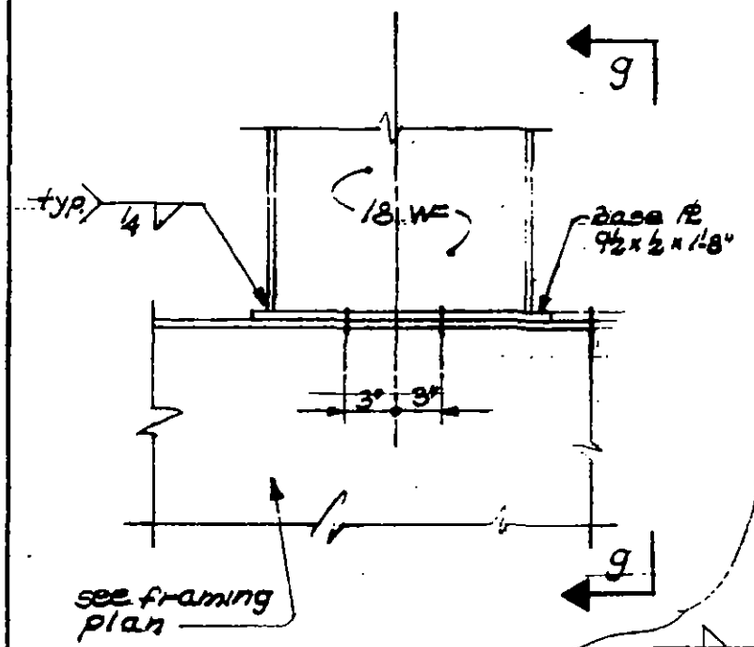
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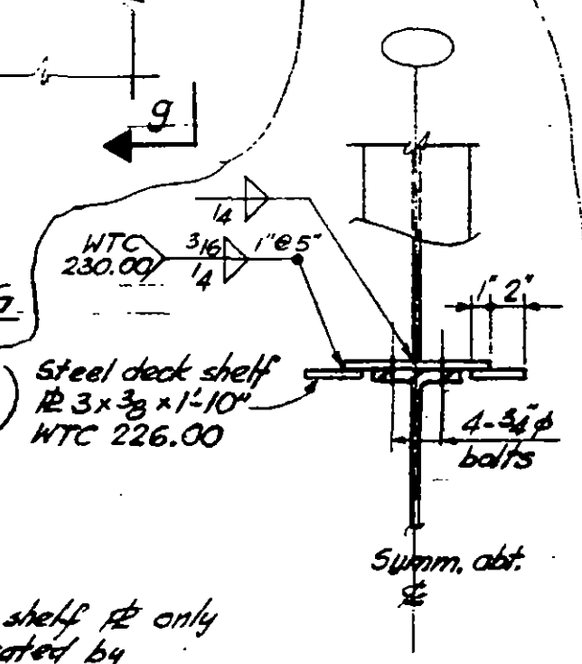
8-29-68



Use detail only where beams differ in size. If beams are same size use detail shown at left.

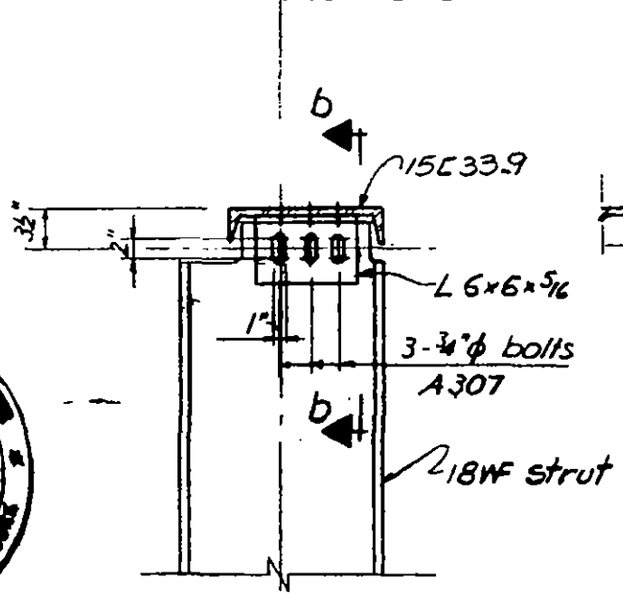
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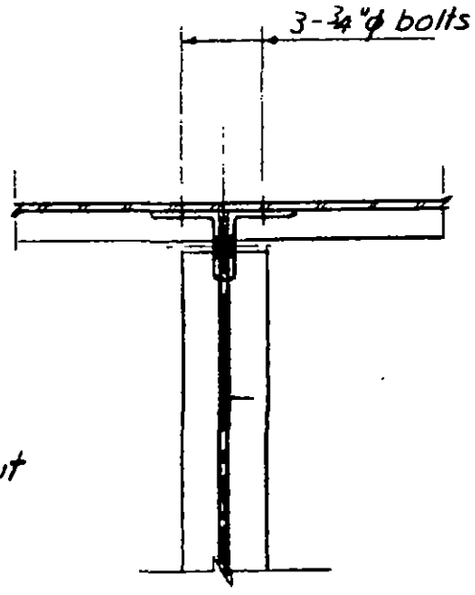


Detail G

Section g-g



Section a-a



Section b-b

Note: Provide steel deck shelf ⌐ only for locations indicated by schedule below:

Floor	@ Column lines
7	103, 157, 303 & 357
41	102, 158, 302 & 358
75	102, 158, 302 & 358

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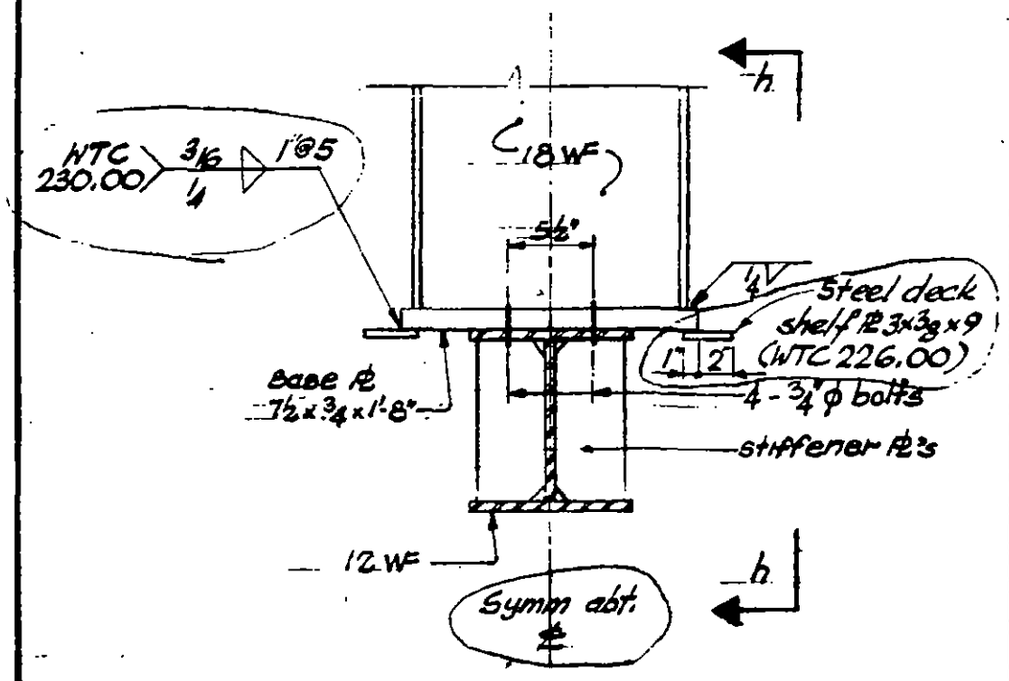
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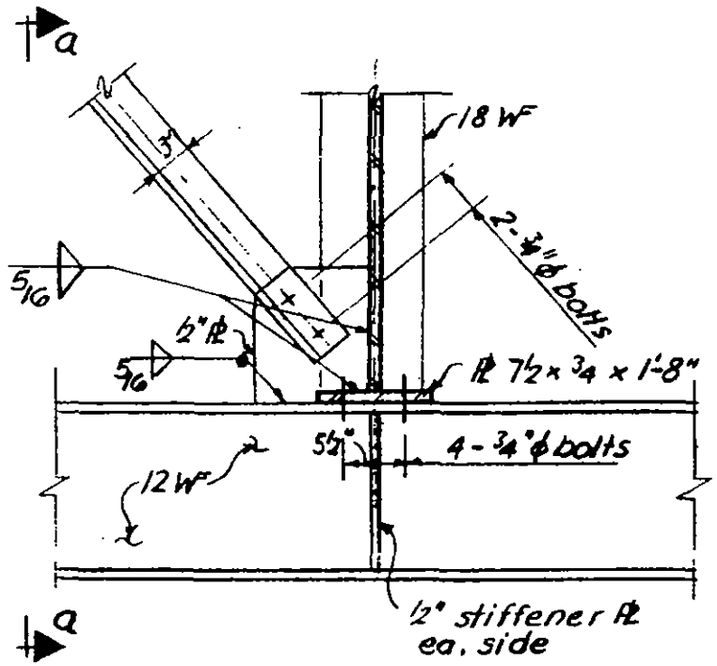
PROJECT: THE WORLD TRADE CENTER | TITLE: LOUVER SUPPORTS - DETAILS H & J | DATE: 12-20-67

REVISIONS

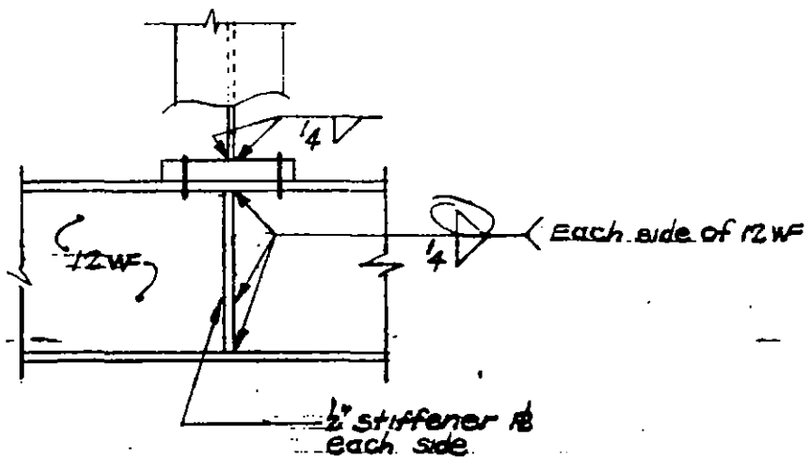
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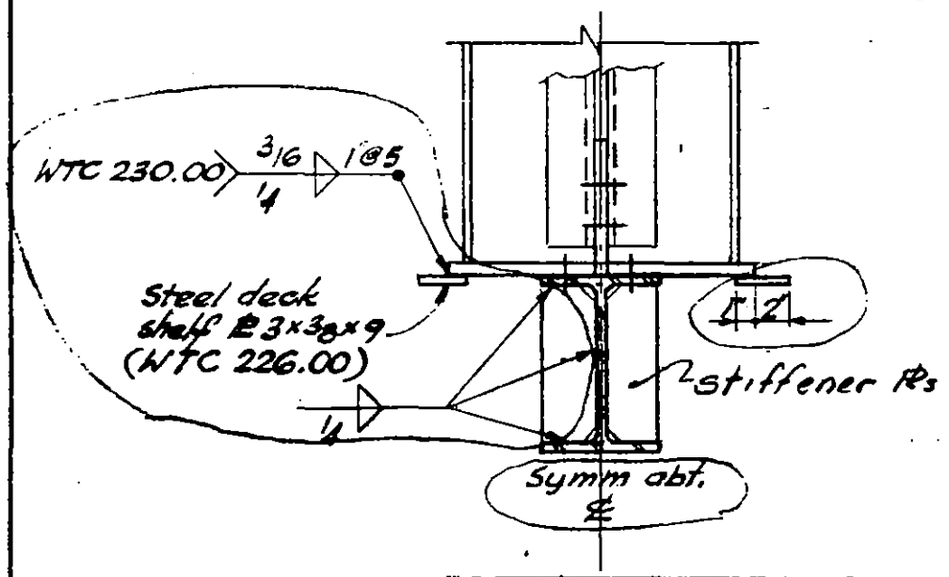
Detail H



Detail J



Section h-h



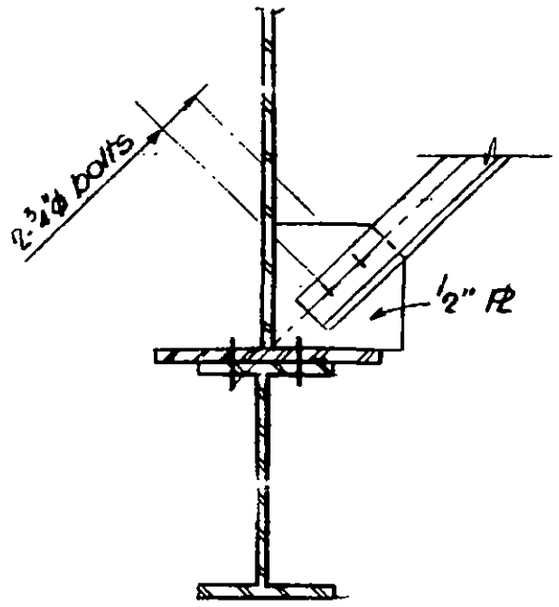
Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34960
STATE OF NEW YORK

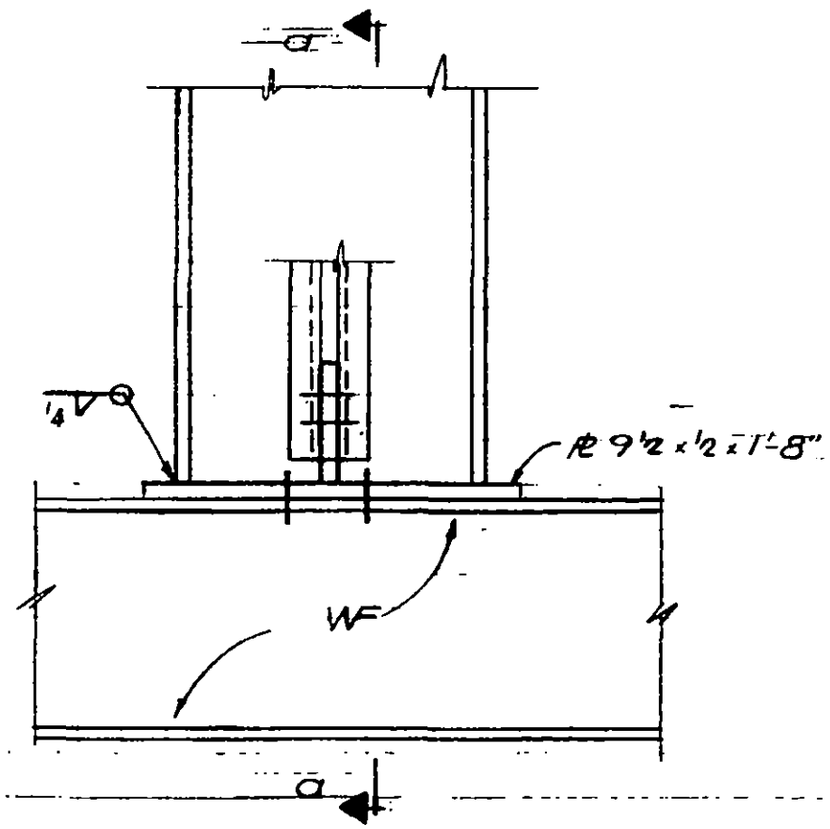
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORTS - DETAILS K & L | DATE 12-20-67

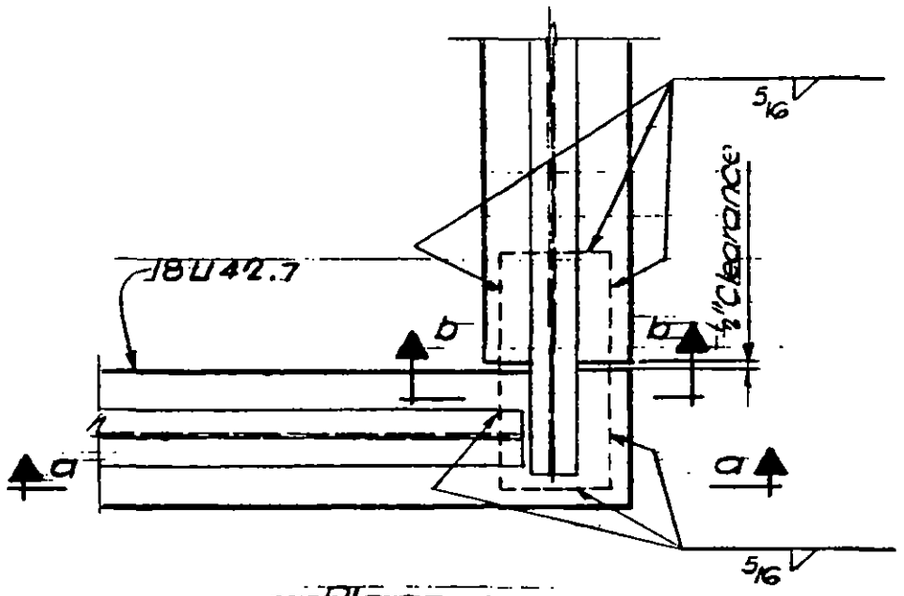
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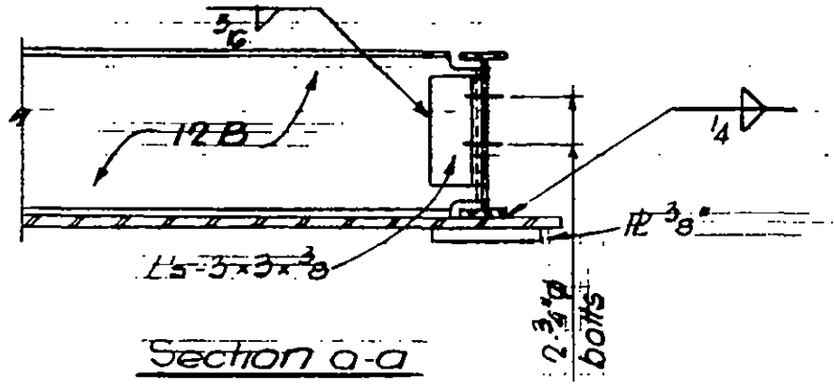
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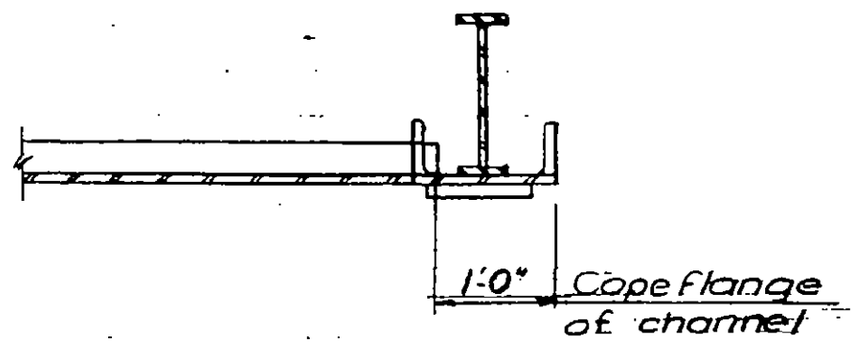
Detail K



Plan



Section a-a



Section b-b

Detail L

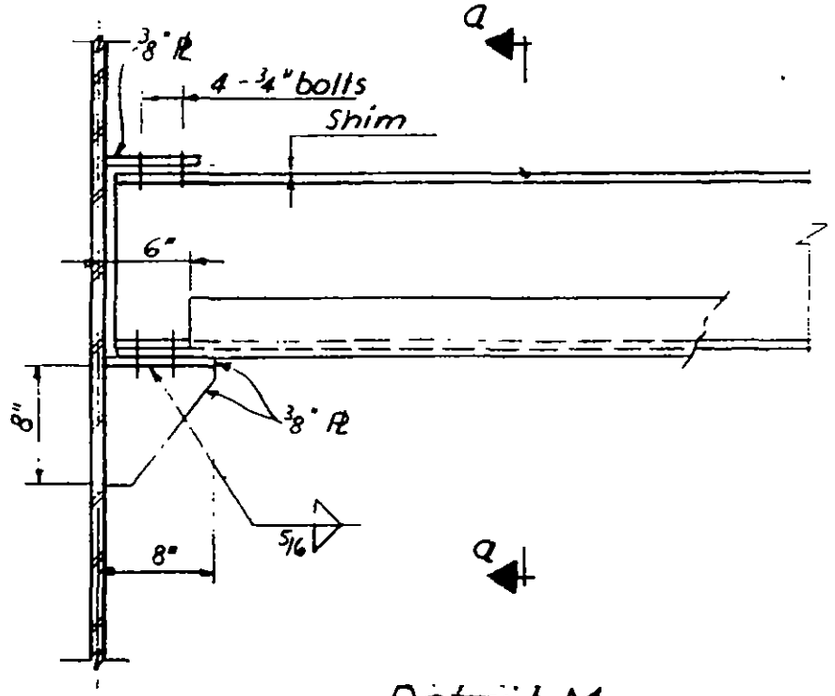
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No. 34360
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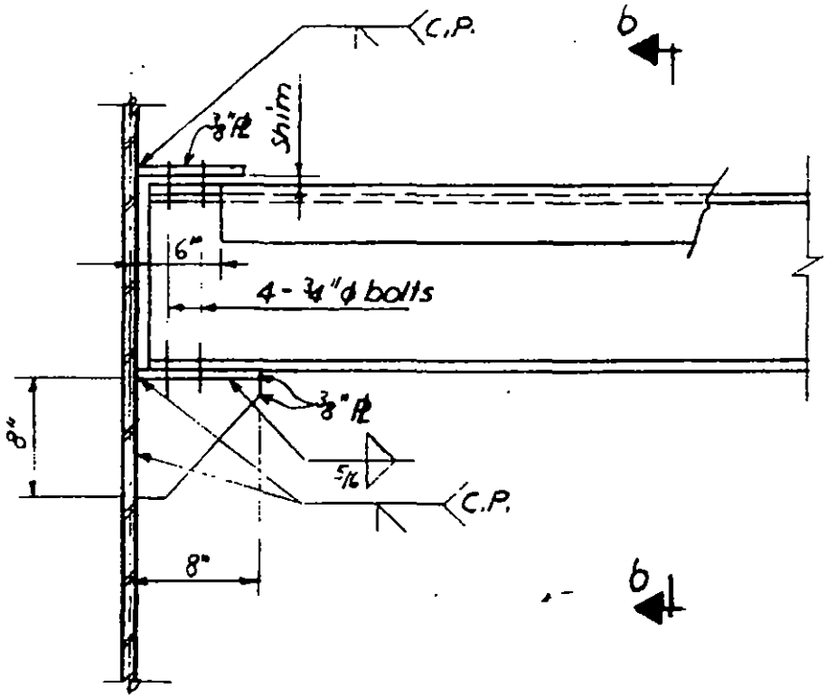
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PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORT - DETAILS M & N | DATE 12-20-67

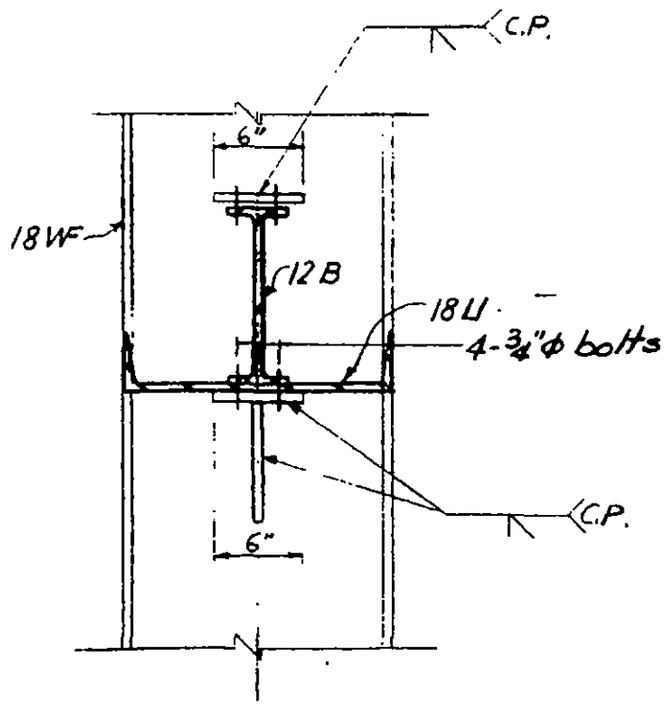
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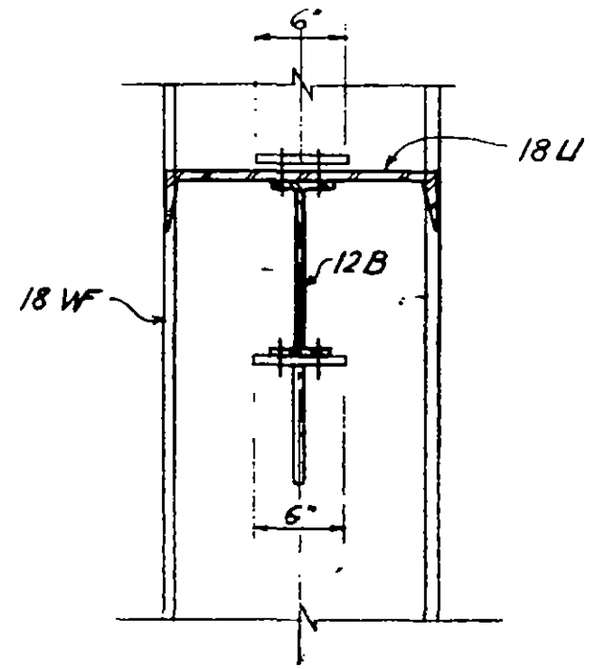
Detail M



Detail N



Section a-a



Section b-b

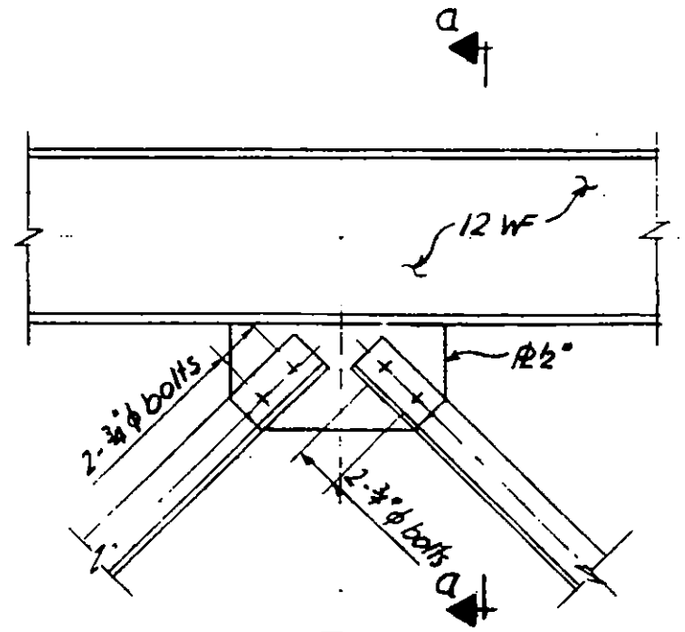
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
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6-AB4-23

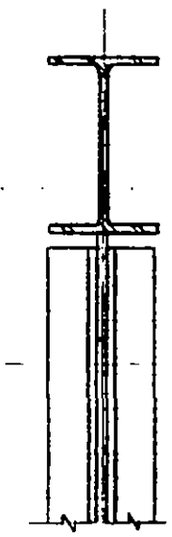
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE LOUVER SUPPORT - DETAILS P & Q | DATE 12-20-67

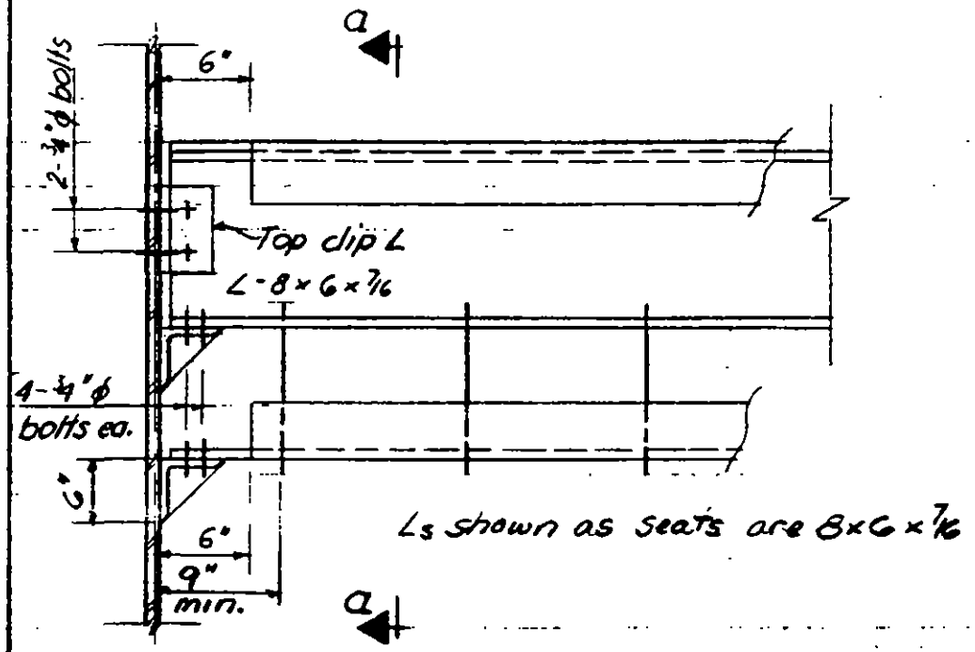
REVISIONS



Detail P

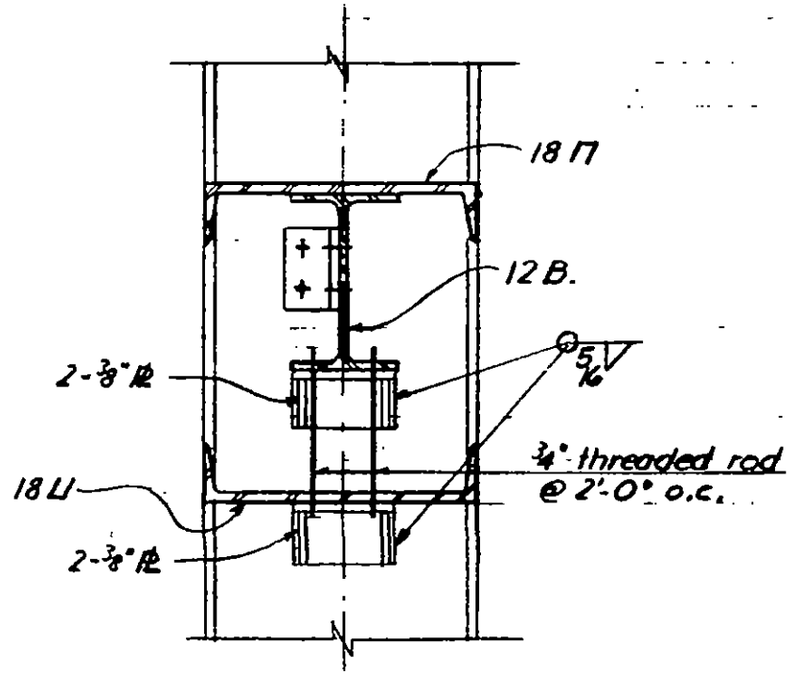


Section a-a



Ls shown as seats are 8×6×7/16

Detail Q



Section a-a

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