

DOCUMENT DATA FORM

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Drawing book 11 - TRUSS Details

Include work order no. and floor no. if applicable

Roll # DB02

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KEYWORDS - HIGHLIGHT ALL THAT APPLY

Level 1

Bankers Trust	Project 4	WTC 1 - North Tower	Add
Below Grade	Project 5	WTC 2 - South Tower	
Concourse	Project 6	WTC 3 - Marriot Hotel	
Electrical Substation	Project 7	WTC 4 - South Plaza Bldg.	
Liberty Plaza	Project 8	WTC 5 - North Plaza Bldg	
PATH Station	WFC 1 - Oppenheimer Dow	WTC 6 - Customs House	
PATH Terminal	WFC 2 - Tower B	WTC 7	
Project 1	WFC 3 - American Express	WTC Complex	
Project 2	WFC 4 - Tower D	WTC Plaza	
Project 3			

Level 2

Accident analysis & risk	Fire protection	Misc. Performance Problems	Structural
Architectural	Fire service	News coverage	Tenant alterations
Data request	Landscaping	Police	Tenant Space
Emergency management	Management	Security	Add
Evacuation	Mech./elec.		

Level 3

1993 explosion	Cranes	Frame	Roof	Weight
A/E fitout	Criteria	Frame analysis	Safety	Weld detail
A-242	Dampers	Frequency	Schedule	Weld size
A-36	Debris	Fuel	Sculpture	Welding
A-497	Deck	Furniture layout	Security system	Wind
Aircraft Impact	Deflection	Generators	Shear knuckle	Windows
Air cooled condensers	Demolition	Guidelines	Shear test	Yield strength
Analysis	Design	Gypsum board	Shear Stud	Add
Angles	Detailing	Hat truss	Shop drawings	
Antenna	Doors	Human comfort	Shortening	Drawing
Artifacts	Drawings	HVAC	Slab	books
Asbestos	Eastern States Steel	Index	Slurry wall	
Base plate	Egress	Inspection	Smoke control	
Beams	Elevator	Insulation	Smoke test	
Bid documents	Elevator Shaft	Job number	Spandrel beam	
Bid Invitation	Emergency	Joist	Specifications	
Bow tie	communications	L-50	Splices	
Bracing	Equipment	Lighting	Sprinkler	
Bridging truss	Erection marks	Loads	Stability	
Building code	Errors & Omissions	Maintenance	Stairways	
Calculations	Escalator	Marking	Standards	
Carpet	Expansion joint	Mesh reinforcement	Steel	
Ceilings	Exterior columns	Mill inspection	Steel composition	
Certification	Fabrication	Model	Stiffness	
Chillers	Family member	Mullion	Structural review	
Cladding	Field survey	Operations	Surveillance	
Collapse	Fire alarms	Paint	Survey	
Columns	Fireproofing	Partition layout	Survivor	
Communication systems	Fire spread	Partitions	Tenant list	
Composite truss	Fire testing	Photos	Tenant occupancy	
Computer output	Firetower	Pipes	Testing	
Computer program	Flag Pole	Plumbing	Tie	
Concrete	Flammability	Prestressing	Tolerances	
Connections	Floor	Probability, uncertainty	Transfer Girders	
Construction	Floor load	Quality control	Truss	
Contract	Floor slab	Ramp	Vestibule	
Core beams	Floor system	Reinforcing	Vibration	
Core columns	Floor trusses	(strengthening)	Walls	
Corrosion	Formwork	Renovation	Water supply	
Cracking	Foundations	Repair	Weather	
	Fracture	Research & Development		

BOOK 11

TRUSS

DETAILS

PROJECT THE WORLD TRADE CENTER

TITLE TRUSS ELEVATION

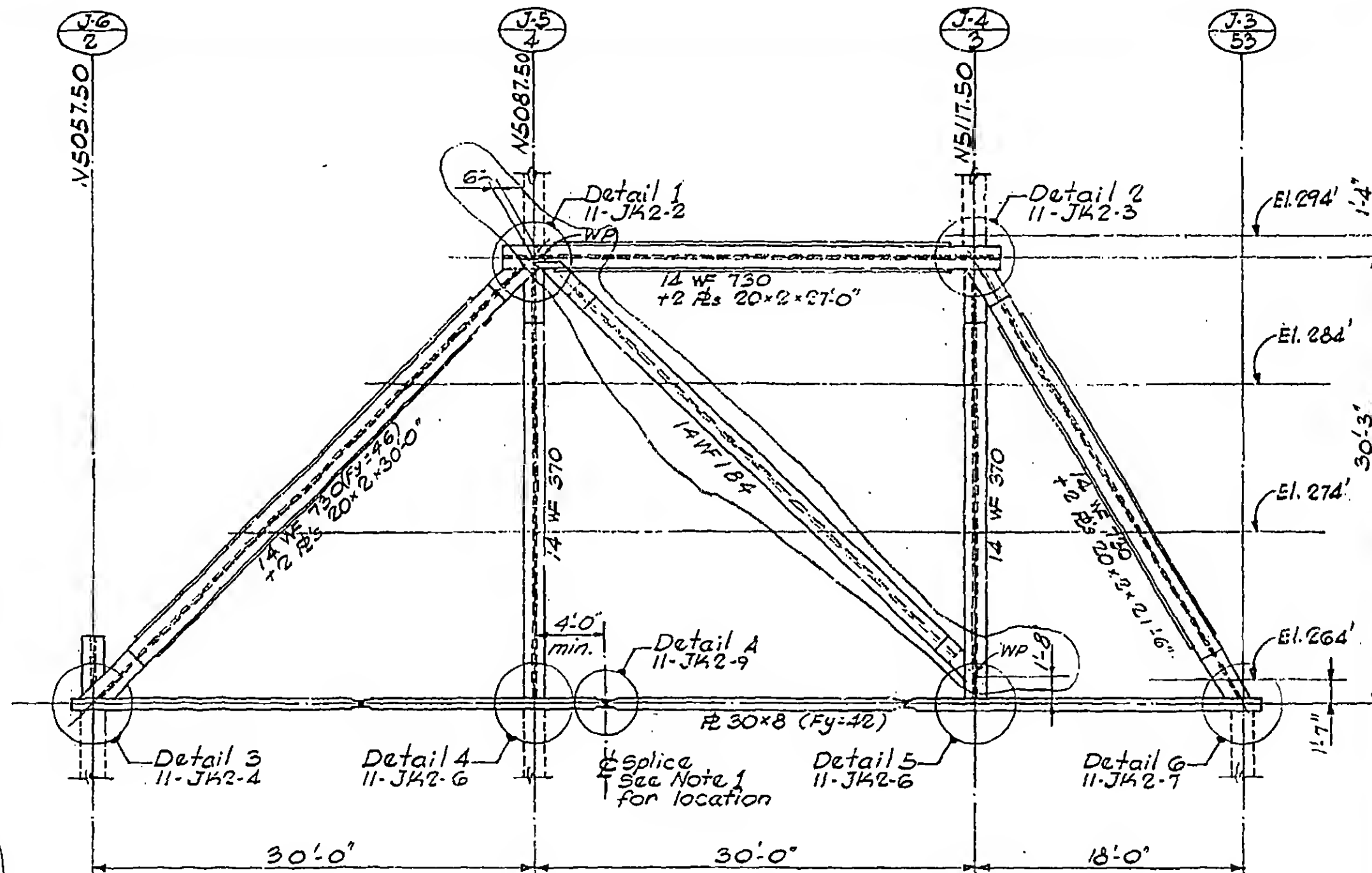
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4-5-68

4-26-68

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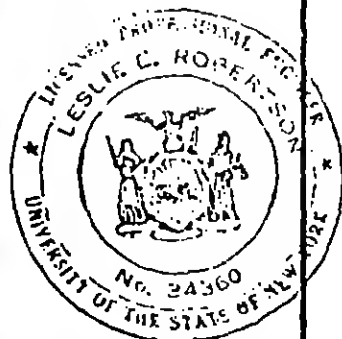
TRUSS JT-1

1/8" = 1'-0"

(at W10290.00)

Notes:

1. Number and location of splices at Contractors option.
2. For intermediate support of bottom chord see Det. B, 11-JK2-9.
3. All steel shall have a minimum yield stress of 36 ksi, except as noted.



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11-J1-2

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TITLE TRUSS ELEVATION

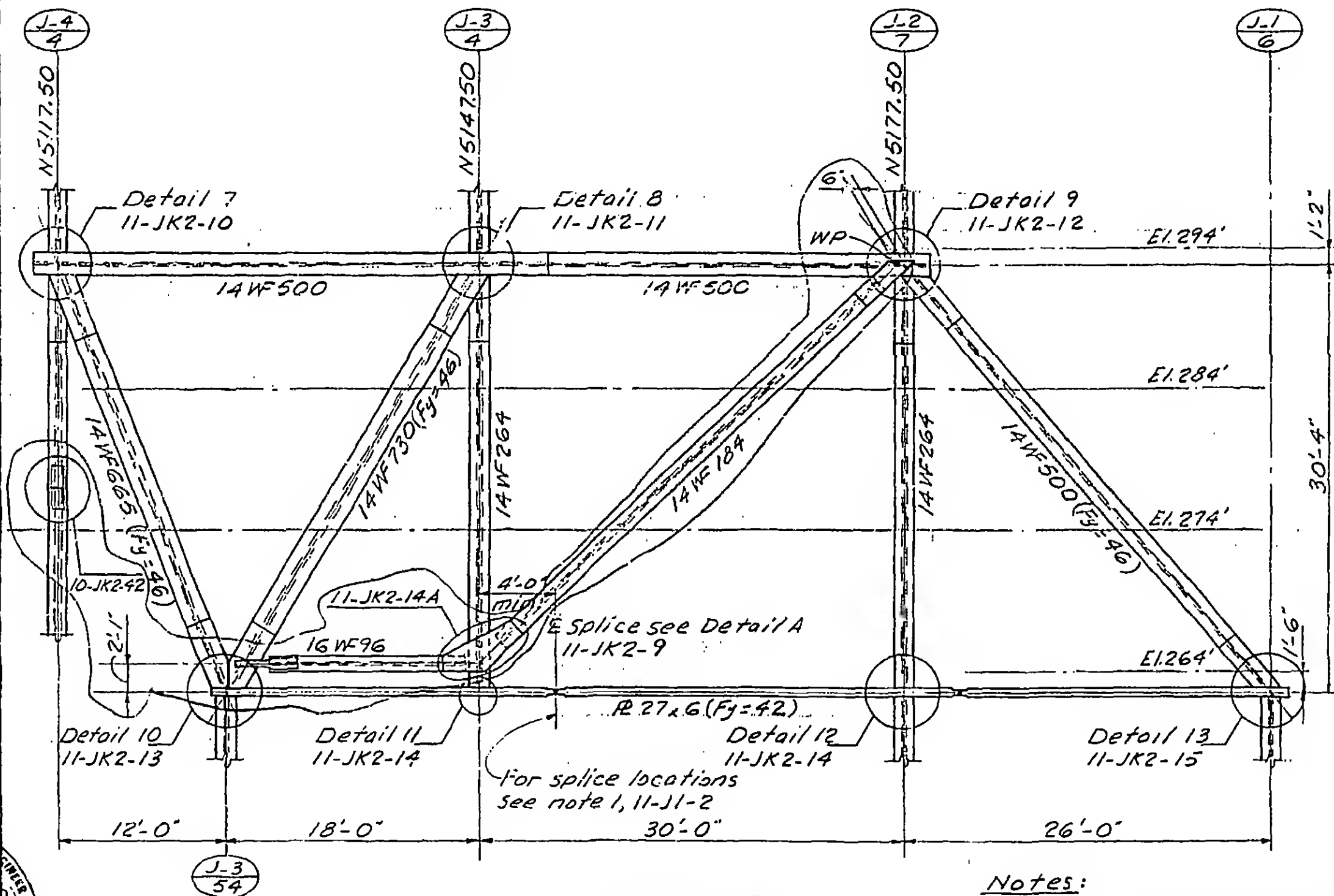
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TRUSS JT-2

1/8"=1'-0"

(of W10260.00)

Notes:

1. For intermediate support of bottom chord see Detail B, 11-JK2-9.
2. All steel shall have a minimum yield stress of 36 ksi, except as noted.

11-J1-3



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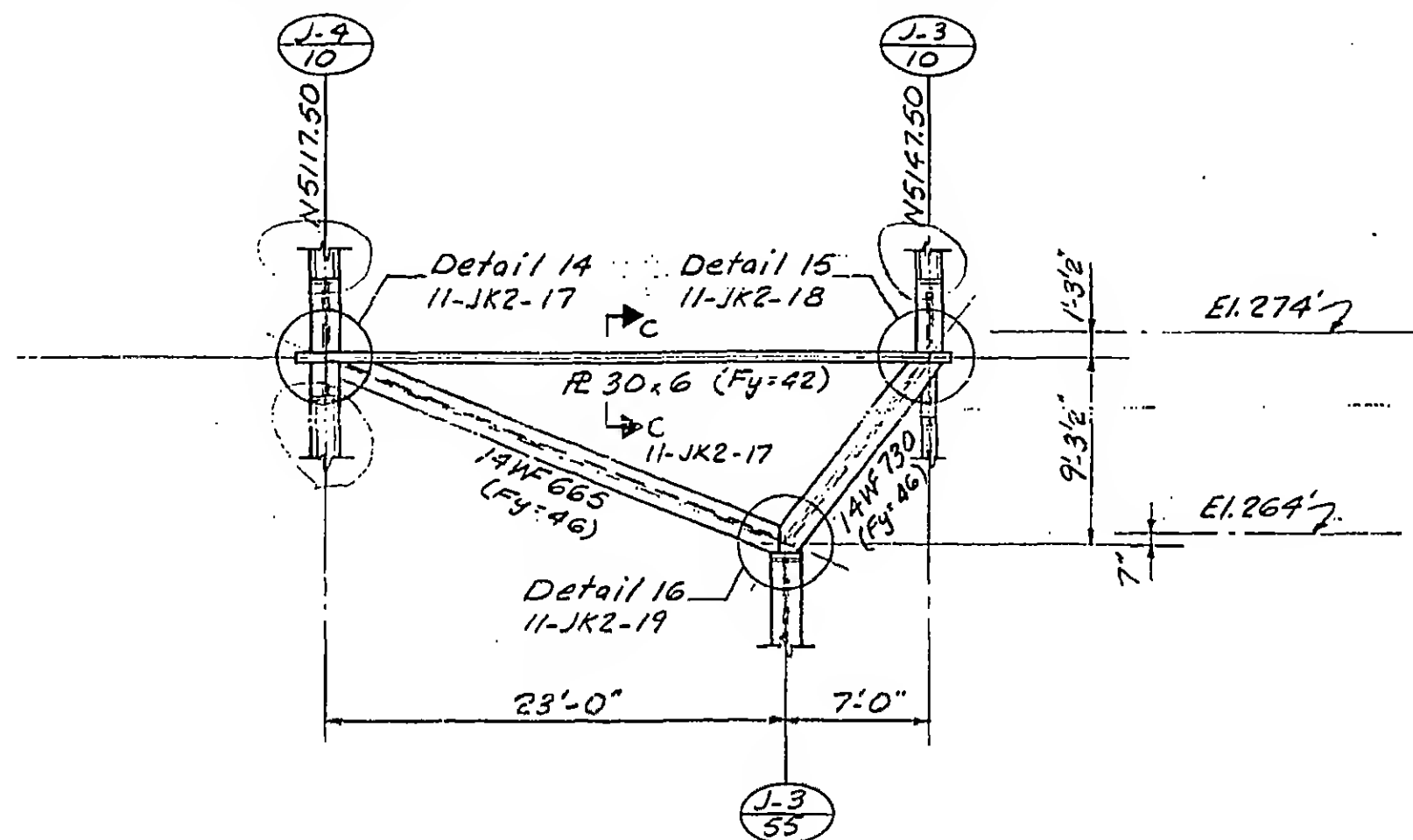
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TRUSS JT-3

'8" = 1'-0"

(at W10080.00)

Note:

All steel shall have a minimum yield stress of 36 ksi, except as noted.



11-J1-4

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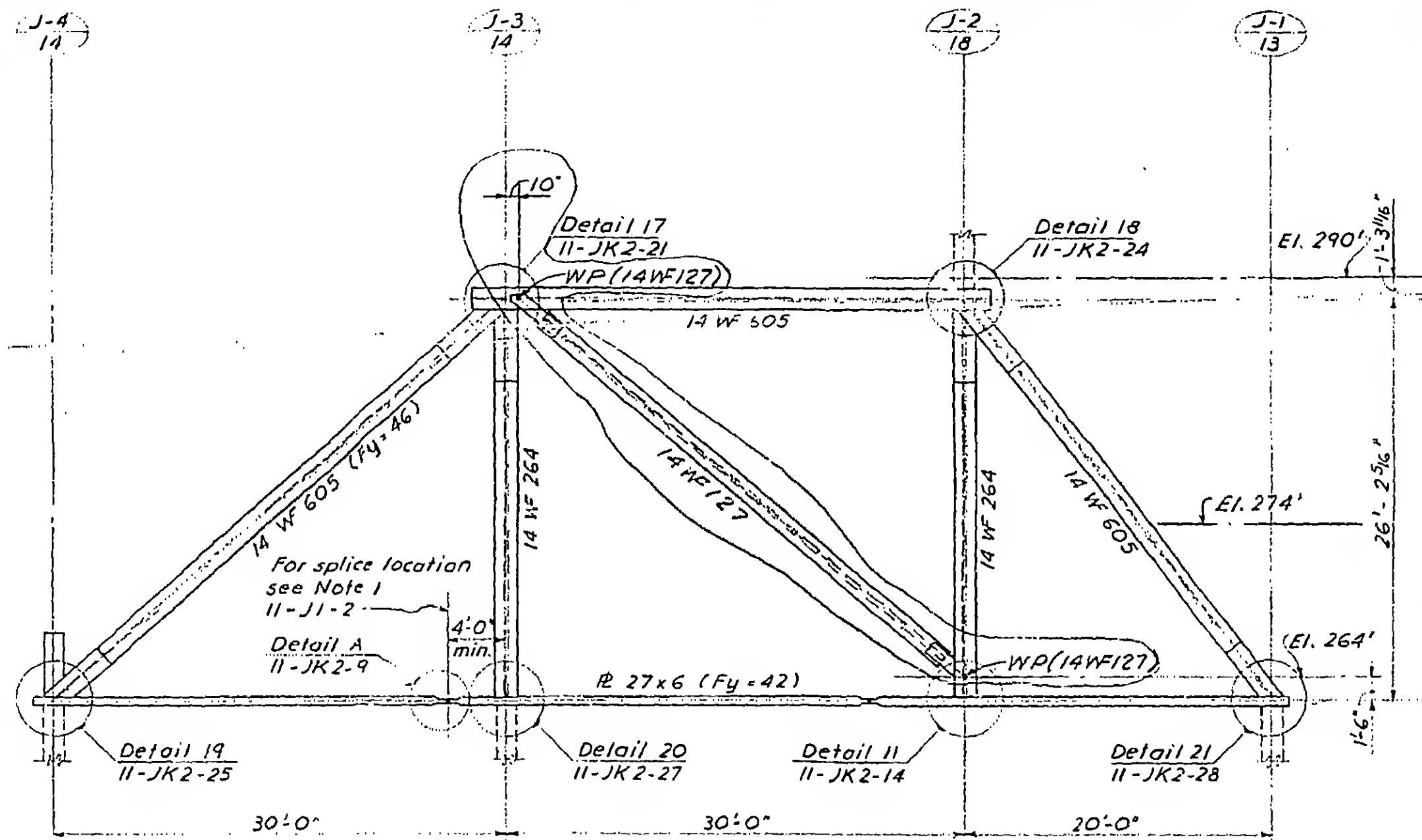
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Notes :

1. For intermediate support of bottom chord see Detail B, 11-JK2-9.
2. All steel shall have a minimum yield stress of 36 ksi, except as noted.

TRUSS JT-4

18" - 1'0"

(at W 9974.50)



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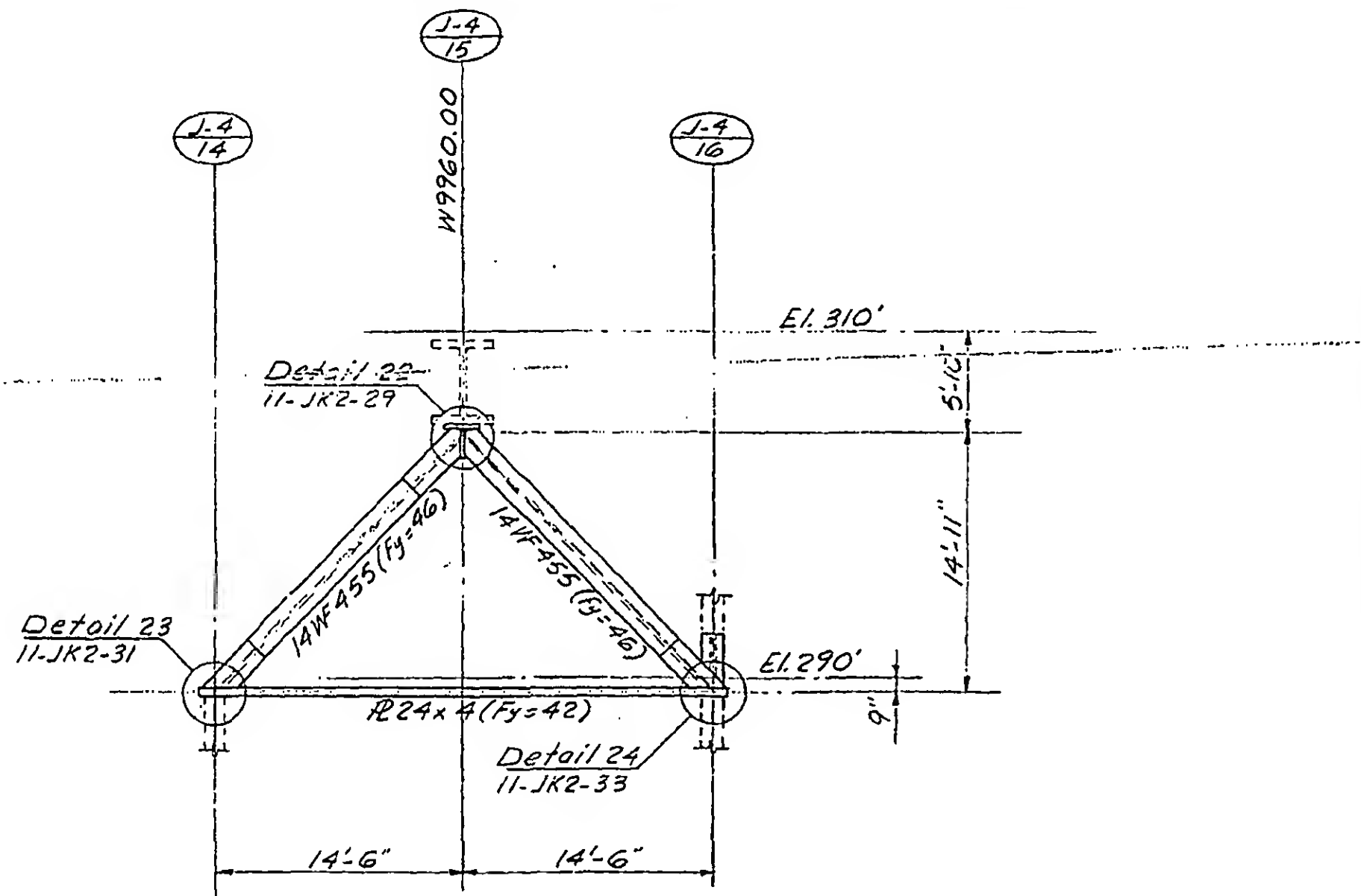
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TITLE TRUSS ELEVATION

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TRUSS JT-5

18" = 1'-0"

(at N 5117.50)

Note:

1. All steel shall have a minimum yield stress of 36Ksi, except as noted.
2. For tie-bar (bottom chord) material see note on Detail A, 11-JK2-9



11-J1-6

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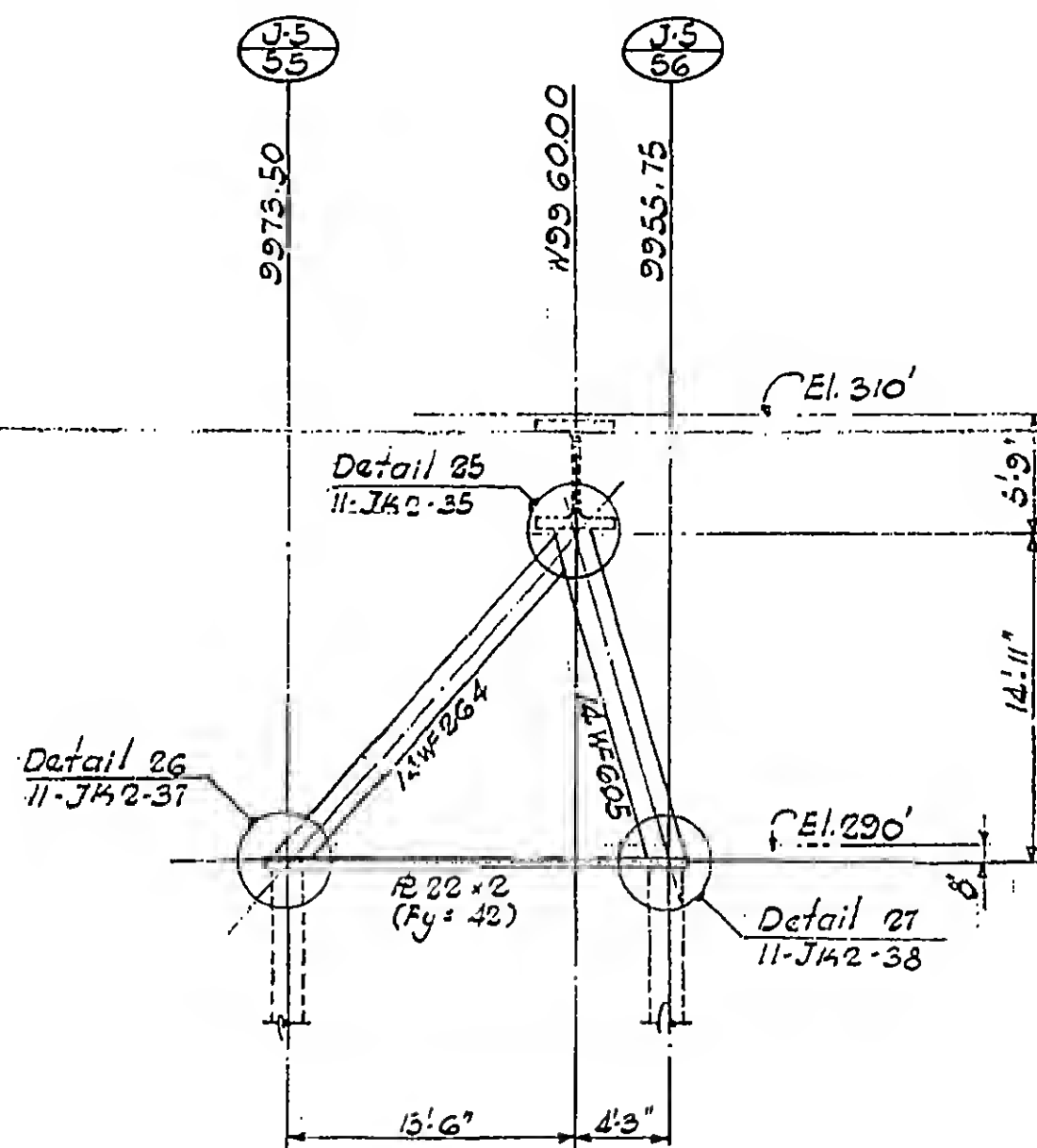
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TRUSS JT-6

1/8" = 1'-0"

(at N5072.50)

Note:

1. All steel shall have a minimum yield stress of 36 K.S.I., except as noted.
2. For tie-bar (bottom chord) material, see note or Detail A, 11-JK2-9.



11-J1-7

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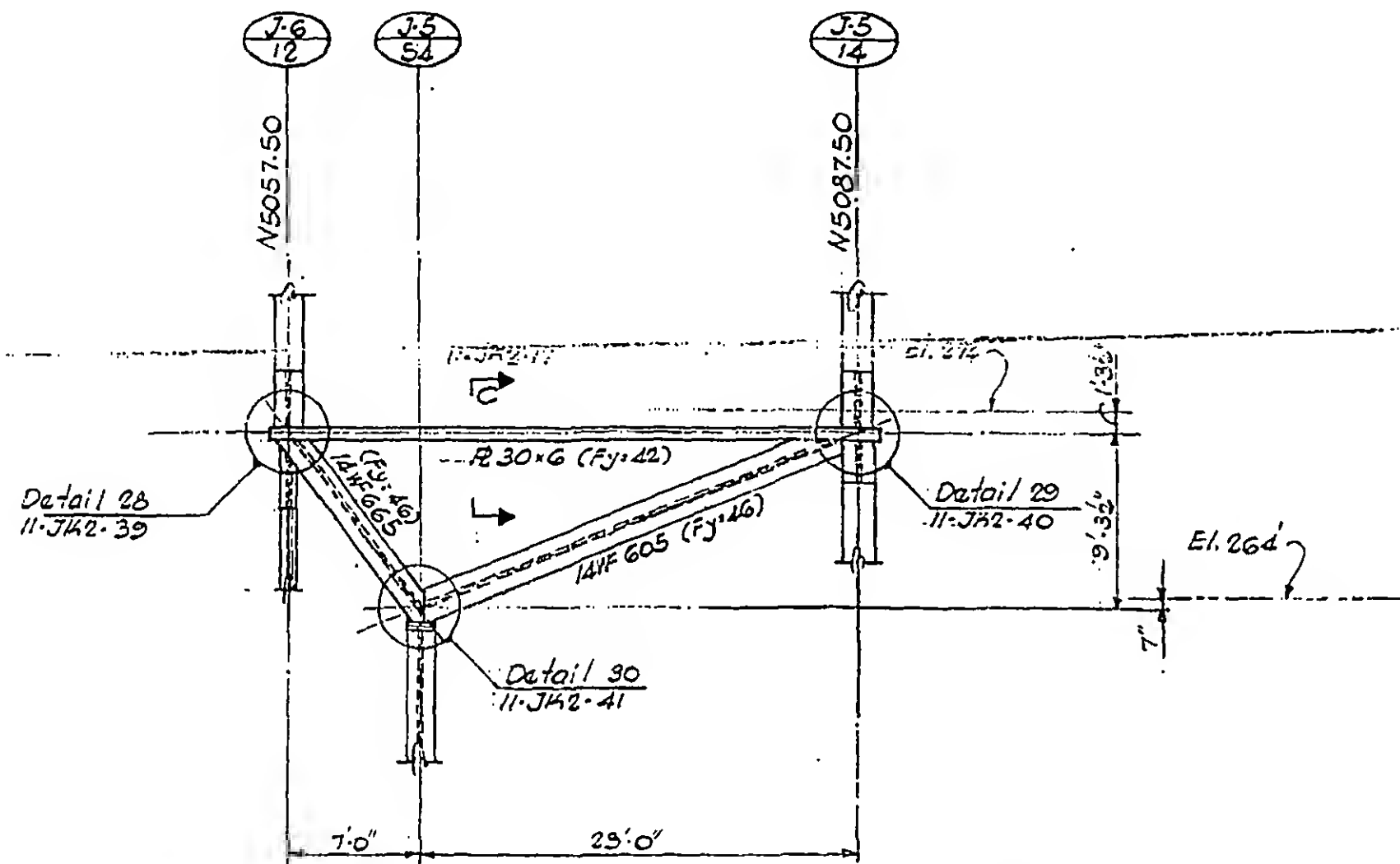
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TRUSS JT-7

 $\frac{1}{8}'' = 1'-0''$
(at W9990.00)

Notes:

1. All steel shall have a minimum yield stress of 36 ksi, except as noted.
2. For tie-bar (top chord) material see note on Detail A, 11-JK2-9



11-J1-8

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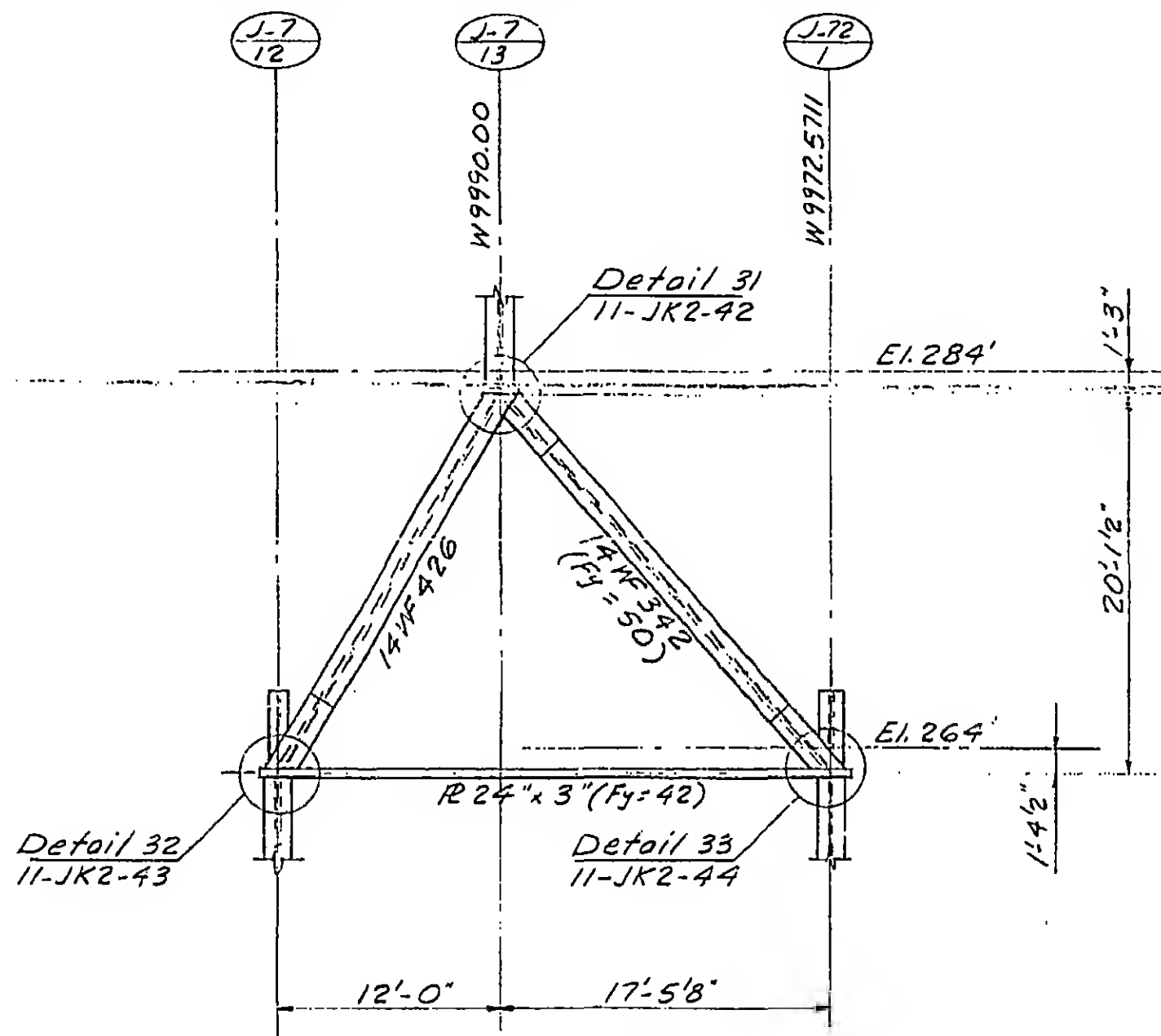
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TRUSS JT-8

'8" = 1'-0"

(at N5027.50)

Notes:

1. For intermediate support of bottom chord see Detail B, 11-JK2-9.
2. All steel shall have a minimum yield stress of 36 Ksi, except as noted.
3. For tie-bar (bottom chord) material see note on Detail A, 11-JK2-9.

11-11-9



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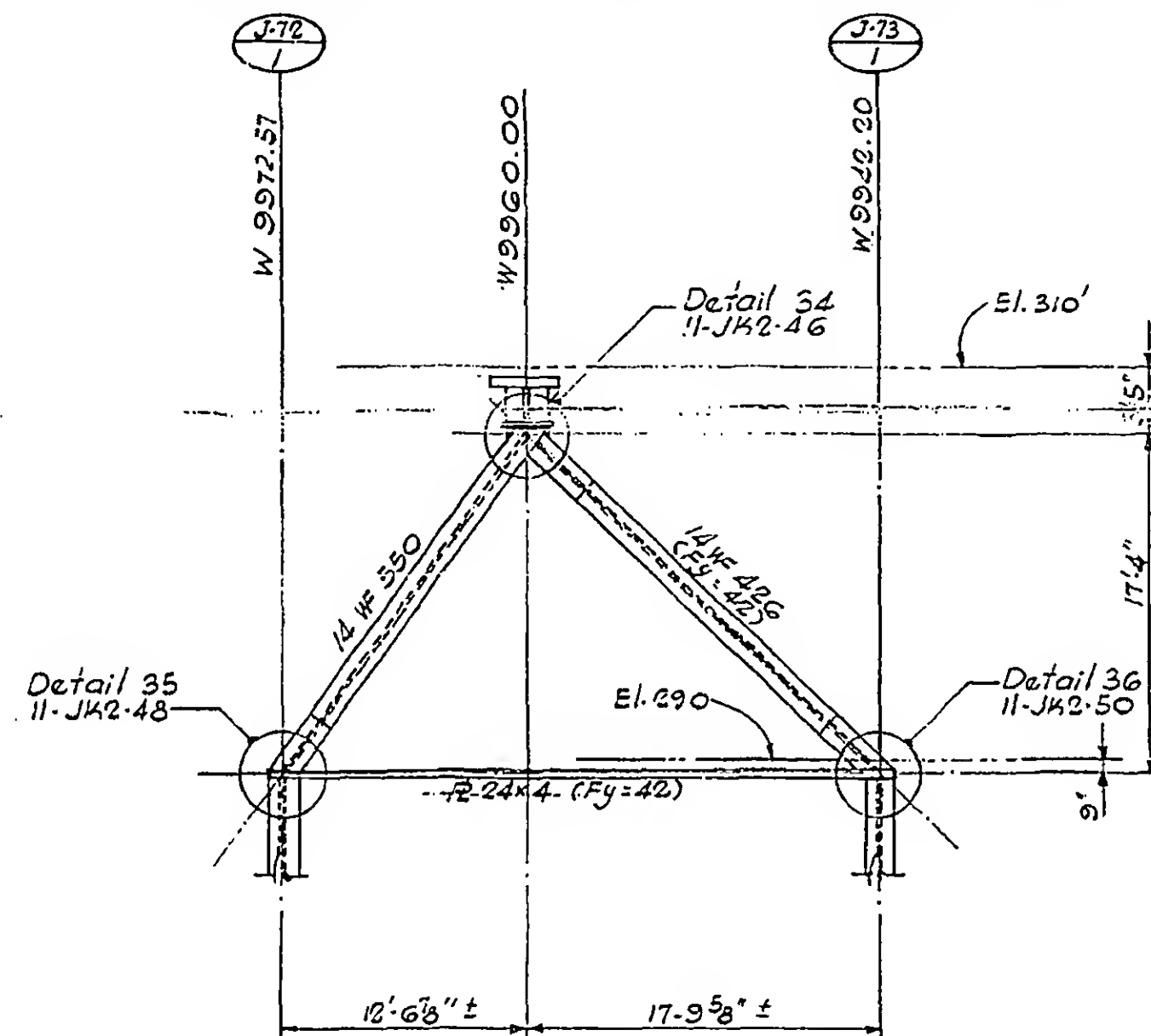
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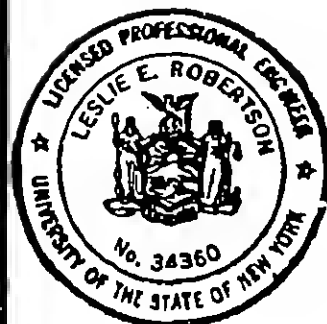


TRUSS JT-9

 $\frac{1}{8}'' = 1'-0''$
 (at N5027.50)

Notes:

1. All steel shall have a minimum yield stress of 36 ksi, except as noted.
2. For tie-bar (bottom chord) material see note on Detail A, 11-JK2-9.



11-J1-10

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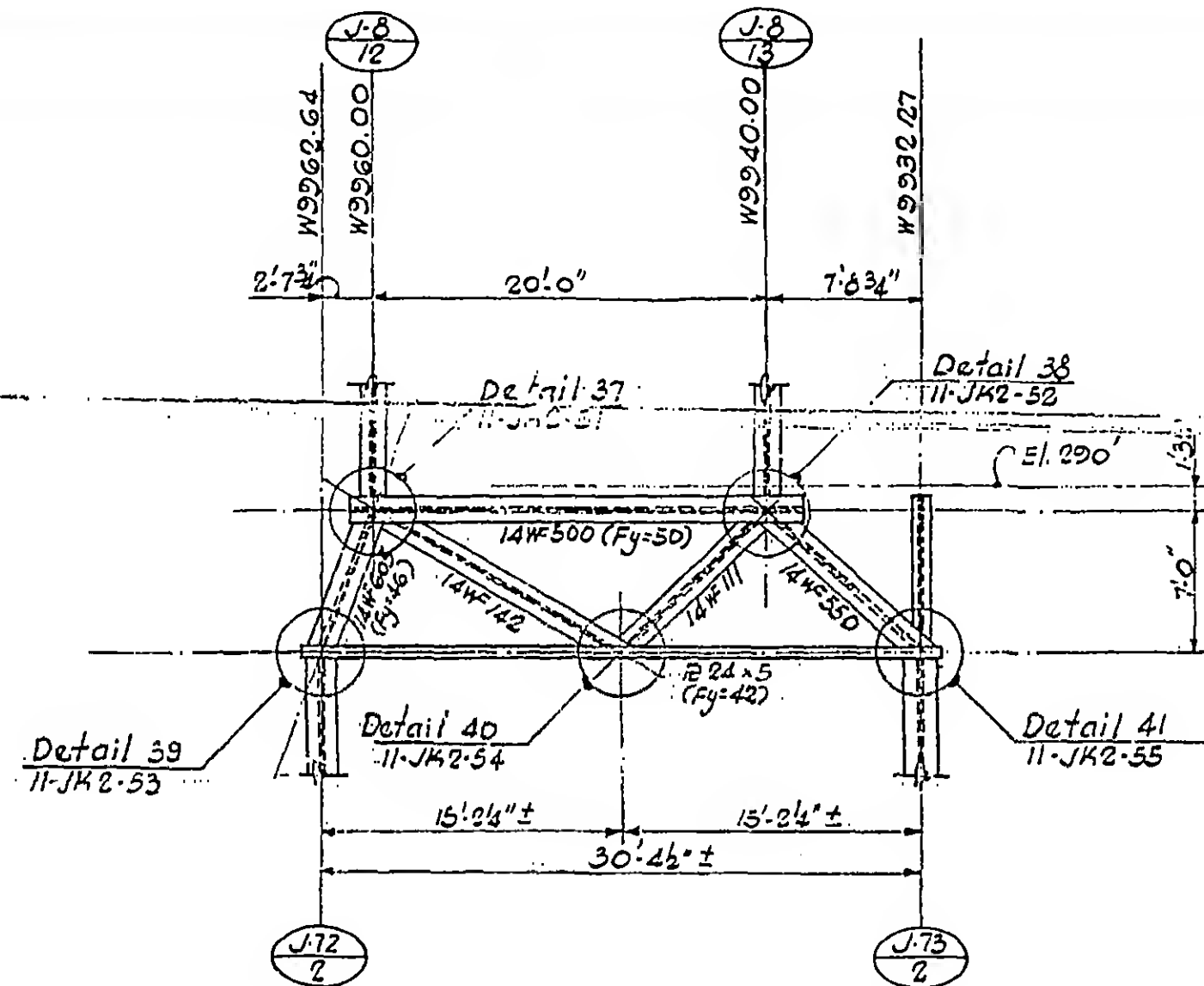
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TITLE TRUSS ELEVATION

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TRUSS JT-10

1/8" = 1'-0"
(at N4997.50)

Notes:

1. All steel shall have a minimum yield stress of 36 ksi, except as noted.
2. For tie-bar (bottom chord) material see note on Detail A, 11-JK2-9.



11-J1-11

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TITLE TRUSS ELEVATION (KT-3)

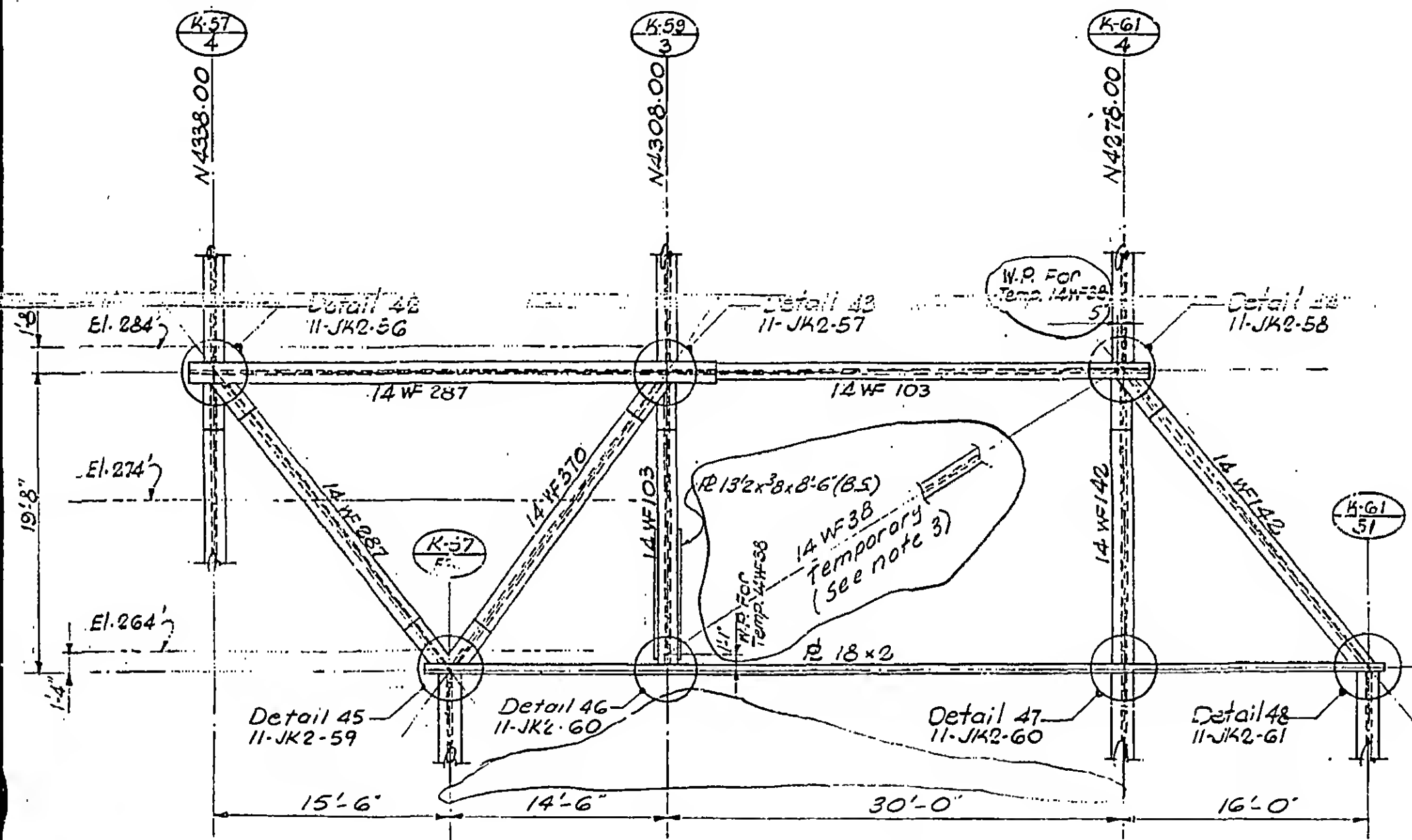
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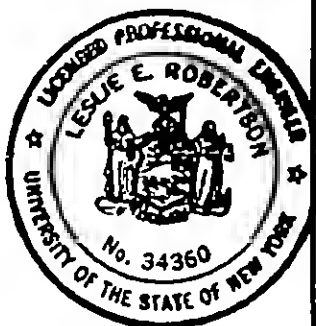
Notes:

1. For intermediate support of bottom chord, see Detail B, 11-JK2-9.
2. All steel shall have a minimum yield stress of 36 ksi, except as noted.
3. Temporary 14WF33 to remain in place until column K57-4 is erected with framing and floor slab at this column complete to El. 332, when it shall be removed.

TRUSS KT-3

$18^{\circ} = 1^{\circ} 0'$
(of W10034 +)

11-K1-26



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DRAWING NO.

11-JK1-0

11-J1-2 Thru 11

11-K1-26

11-JK2-2 Thru 61

TITLE

Drawing Index

Truss Elevation (Zone J)

Truss Elevation (Zone K)

Truss Details



11-JK1-0

PROJECT THE WORLD TRADE CENTER

TITLE	TRUSS DETAIL 1
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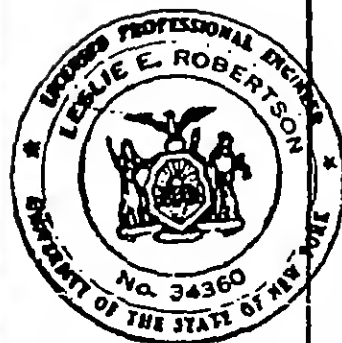
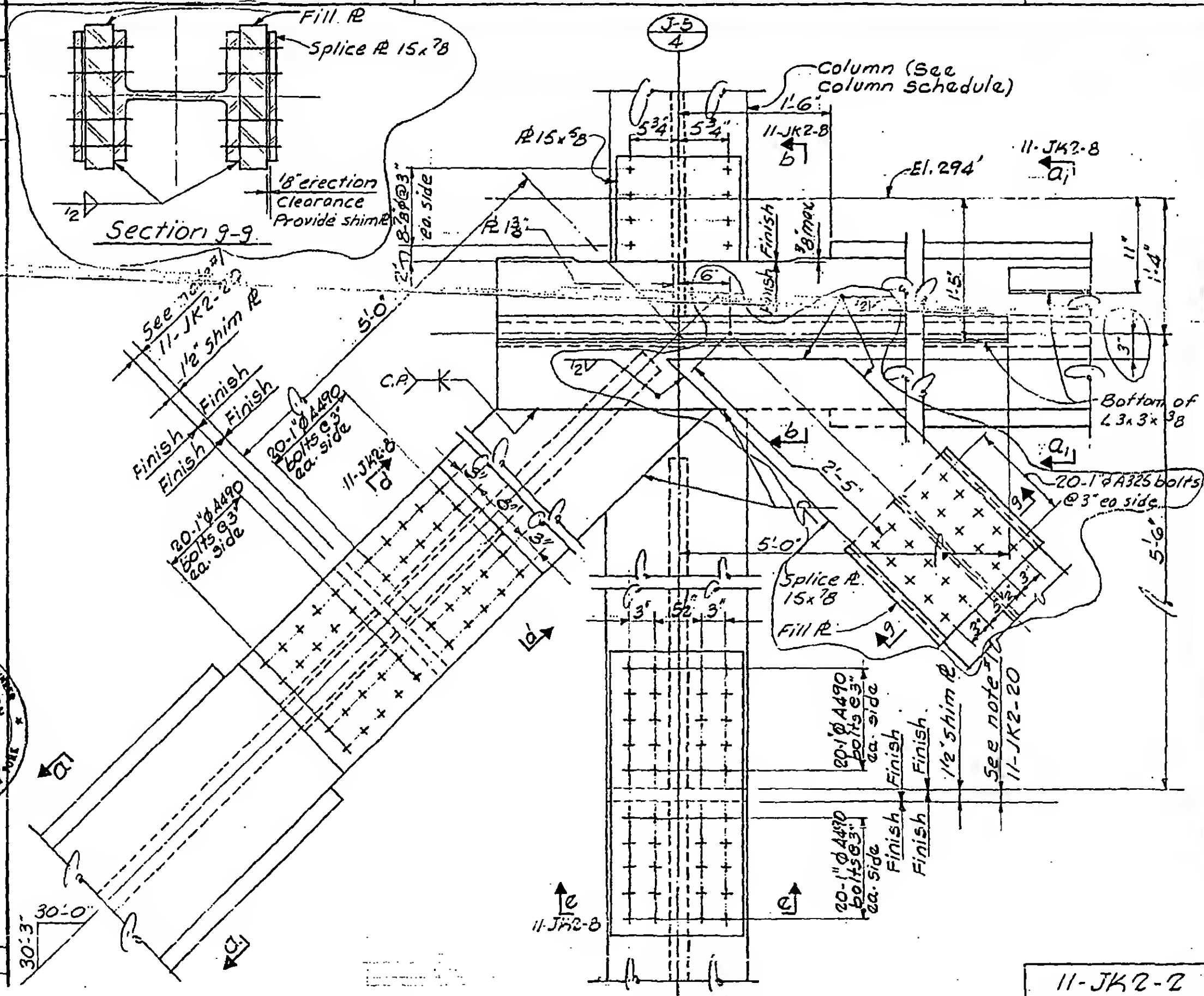
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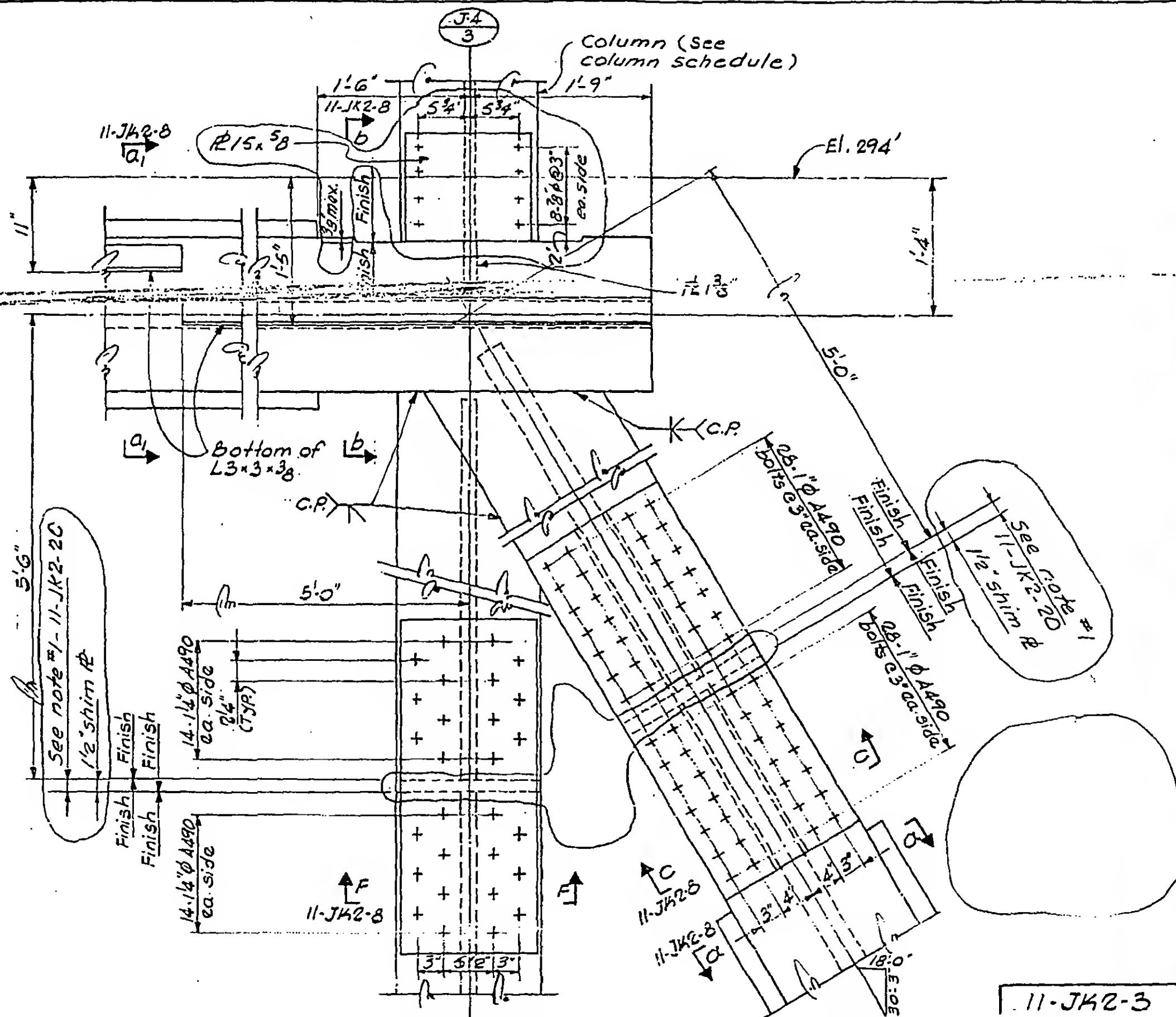
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11-JK2-2

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TITLE

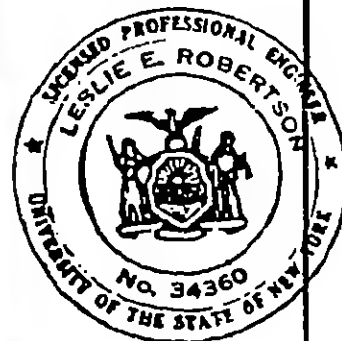
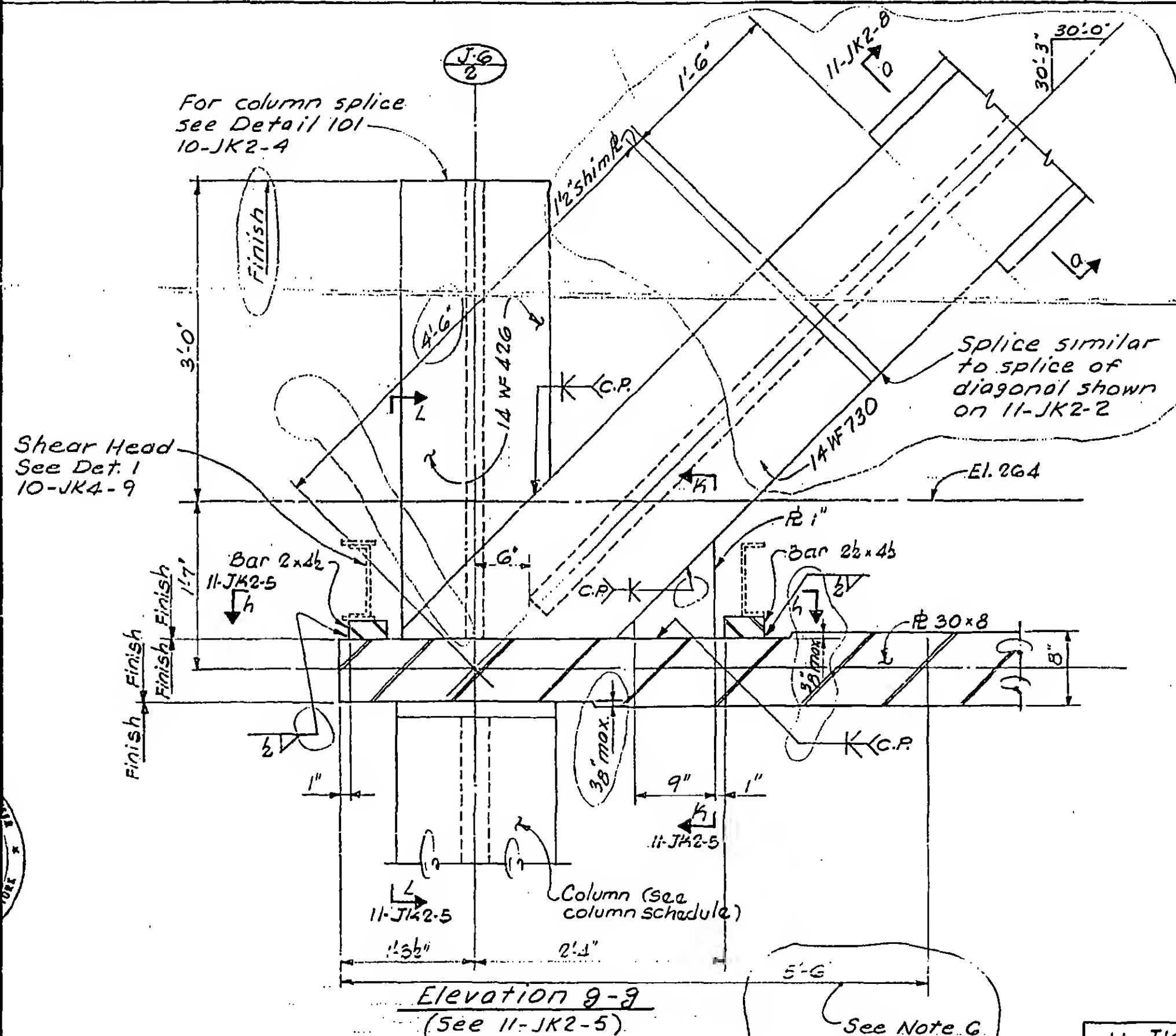
TRUSS DETAIL 3

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11-JK2-4

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TITLE

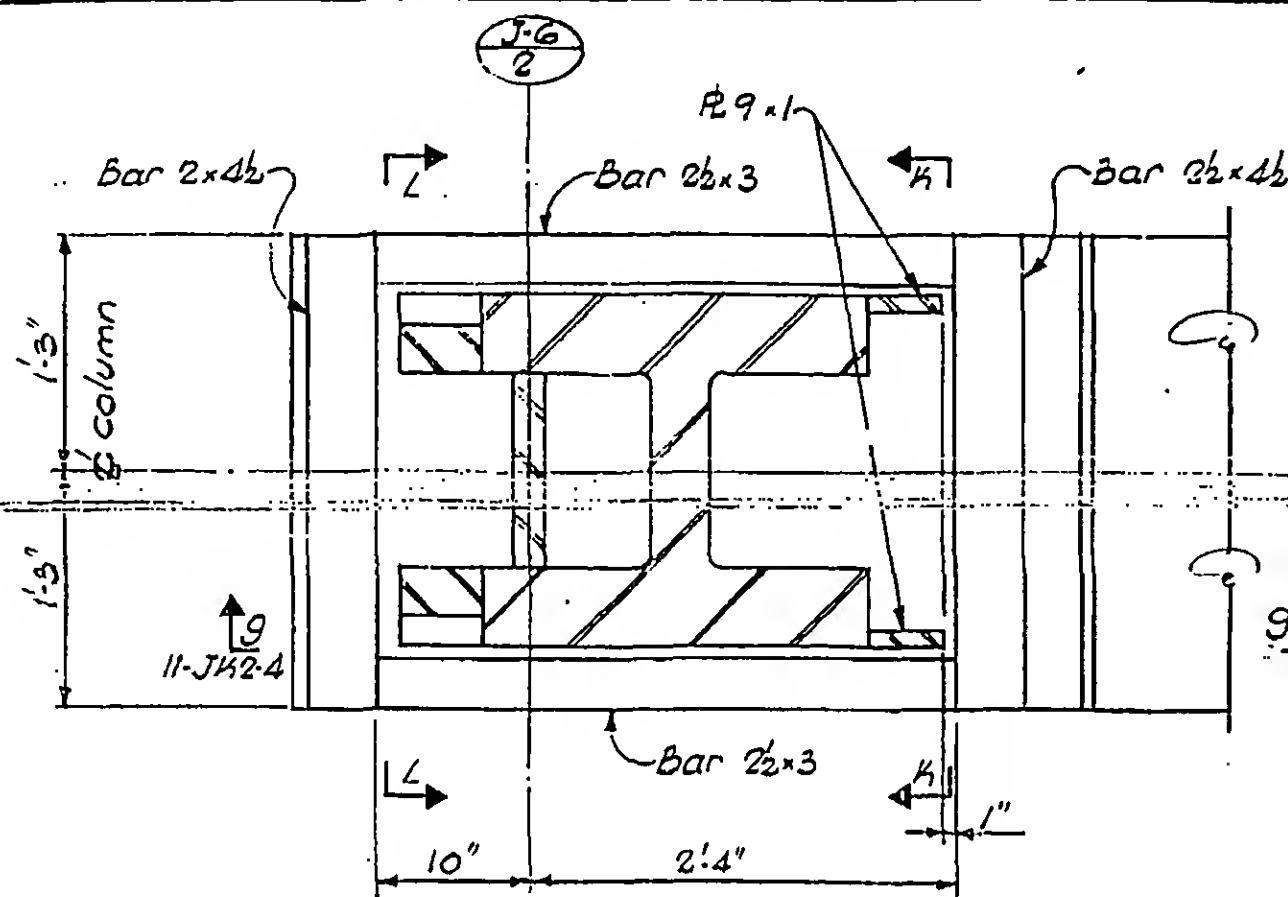
TRUSS DETAIL 3

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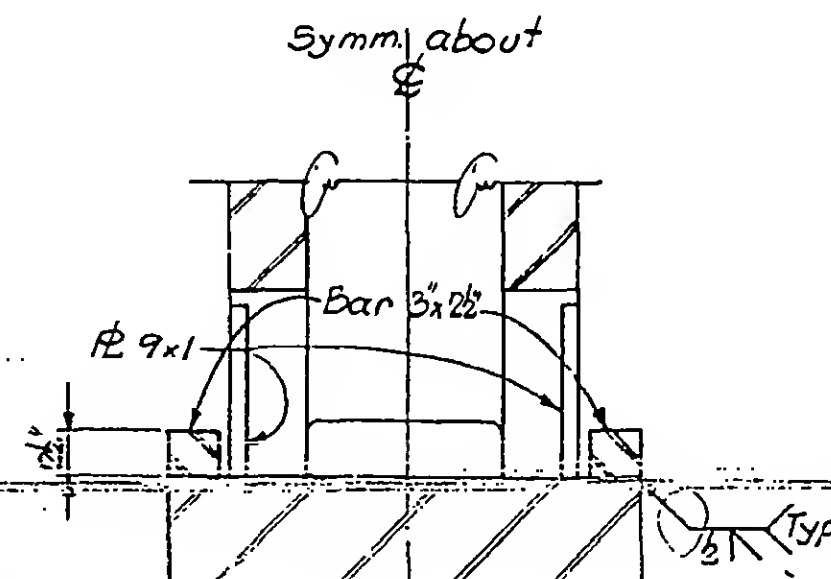
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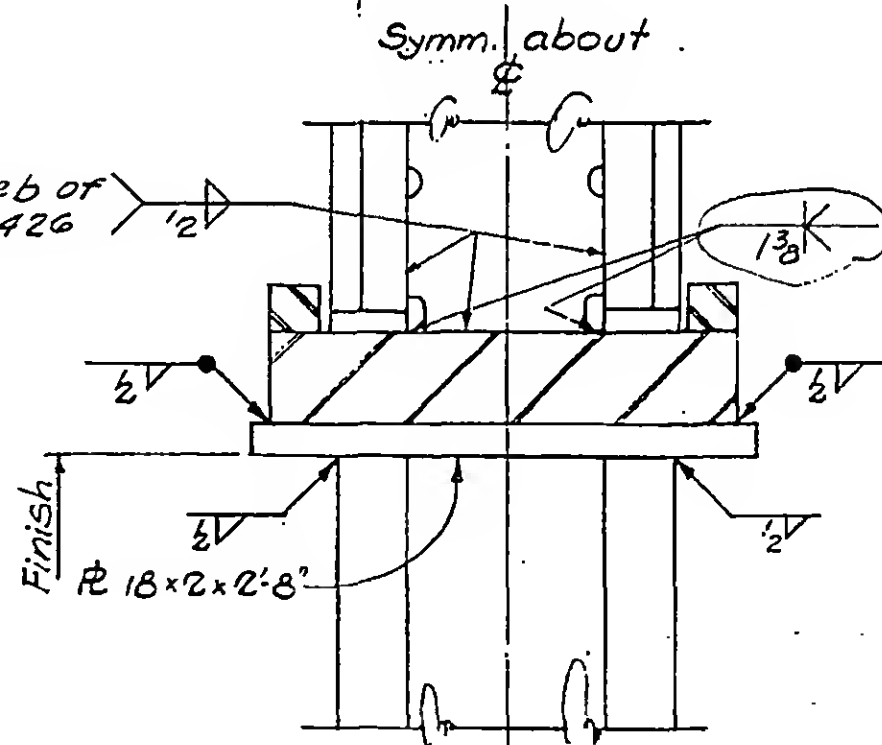
4-26-68



PLAN h-h



Section K-K



Section L-L



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TITLE TRUSS DETAILS

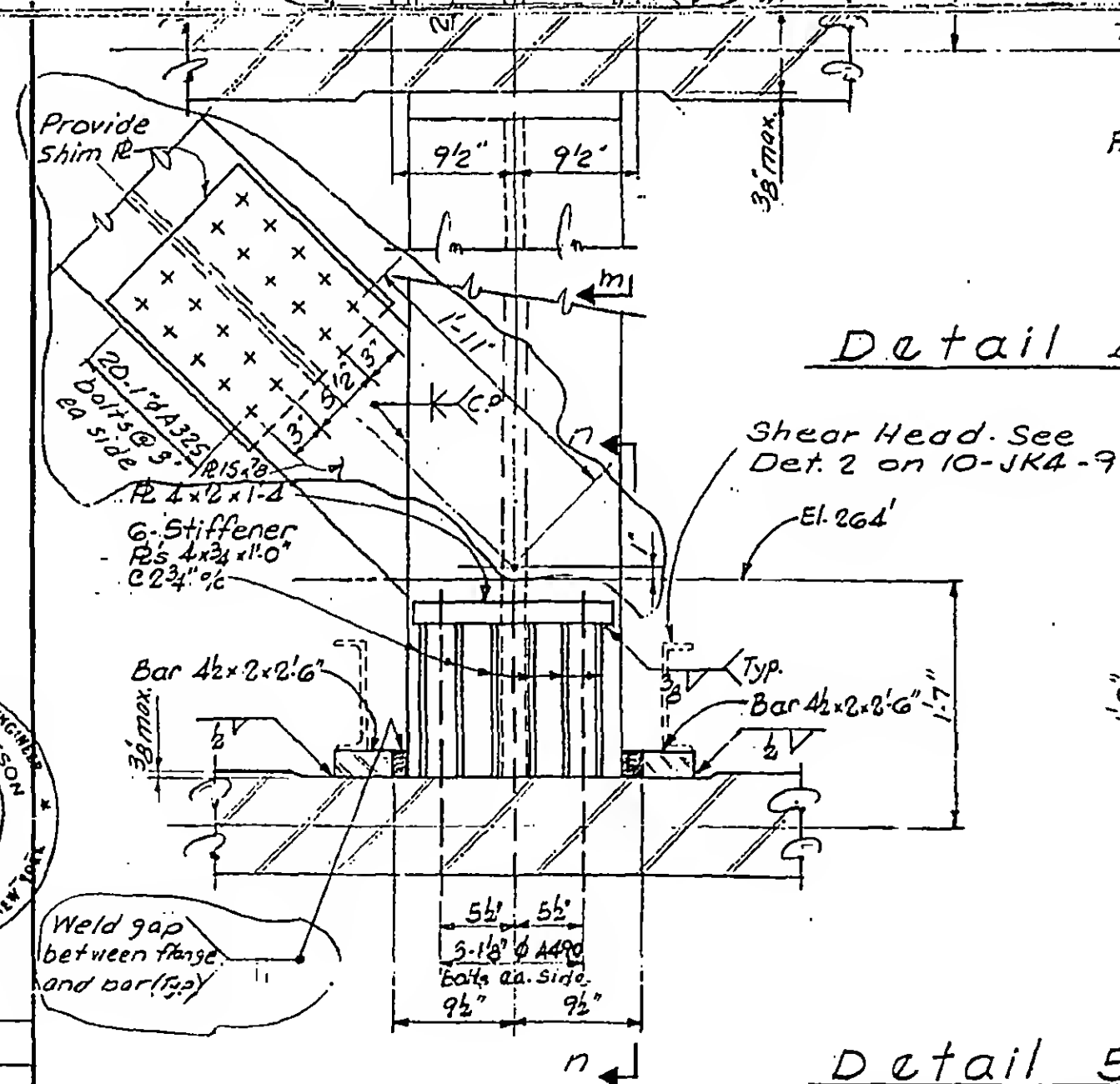
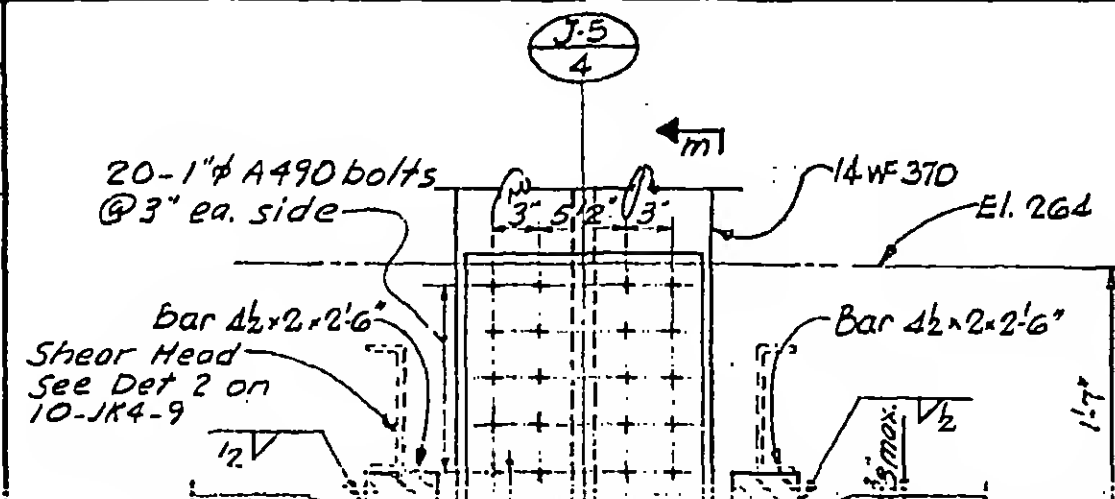
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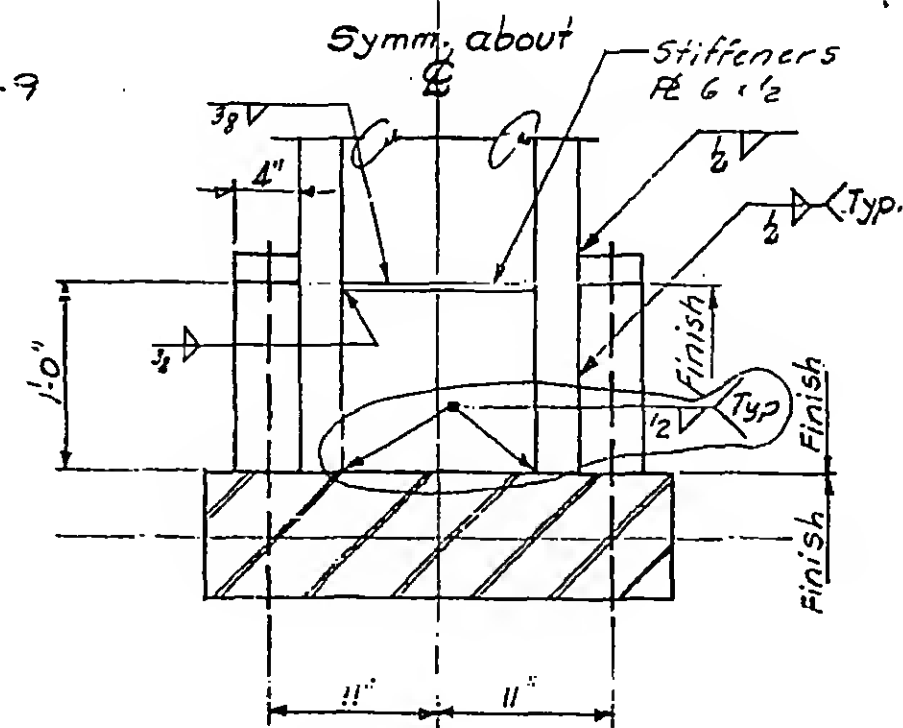
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Detail 4

Section m-m



Detail 5

Section n-n

11-JK2-6



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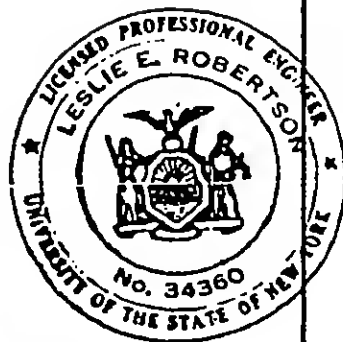
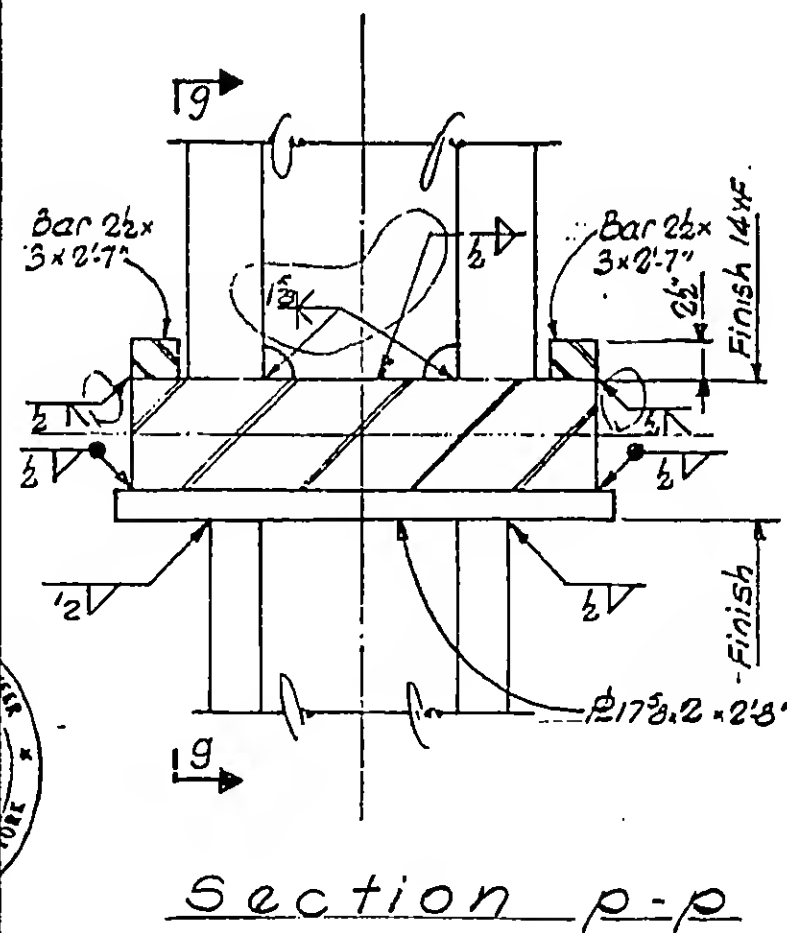
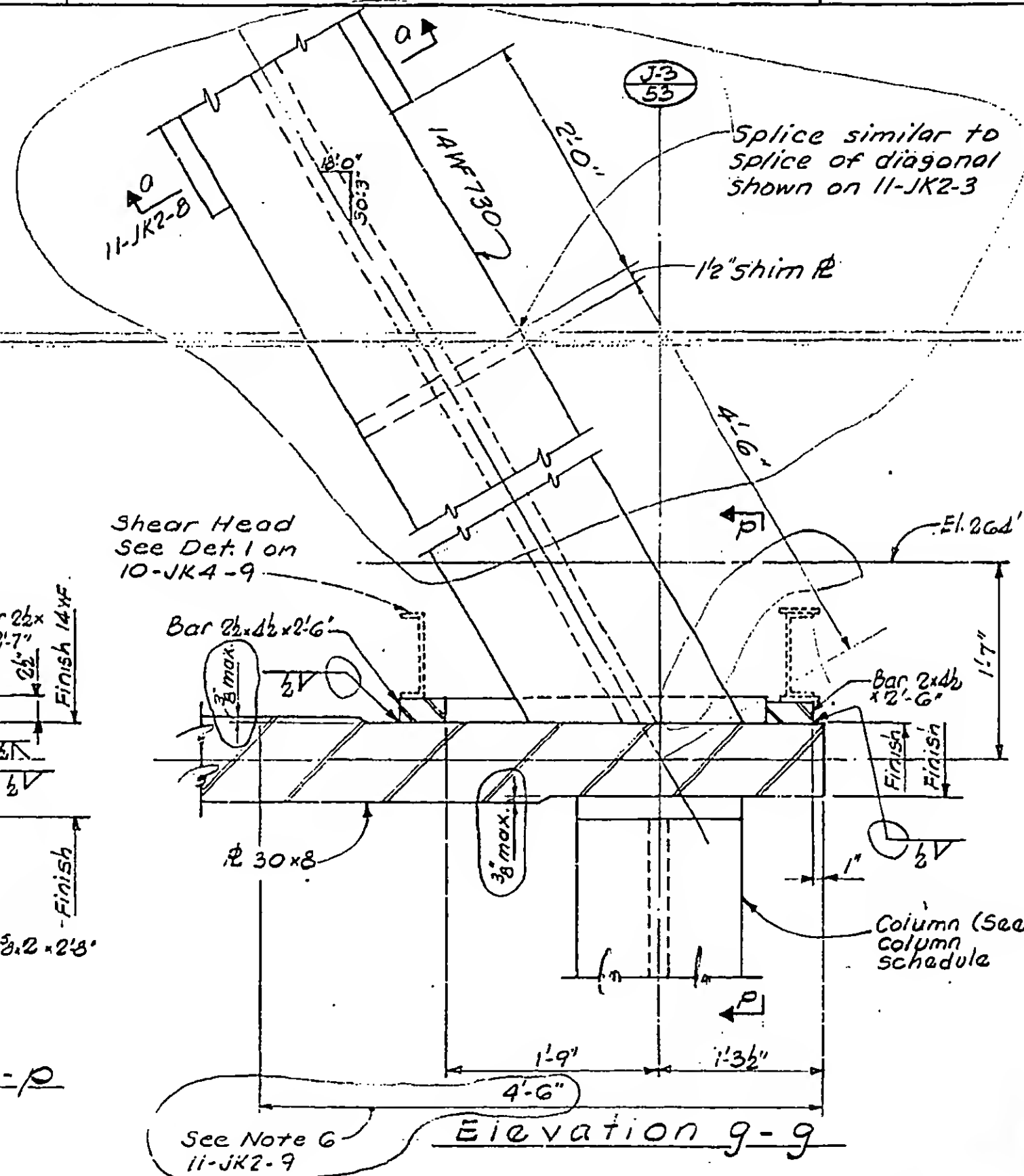
TITLE TRUSS DETAIL 6

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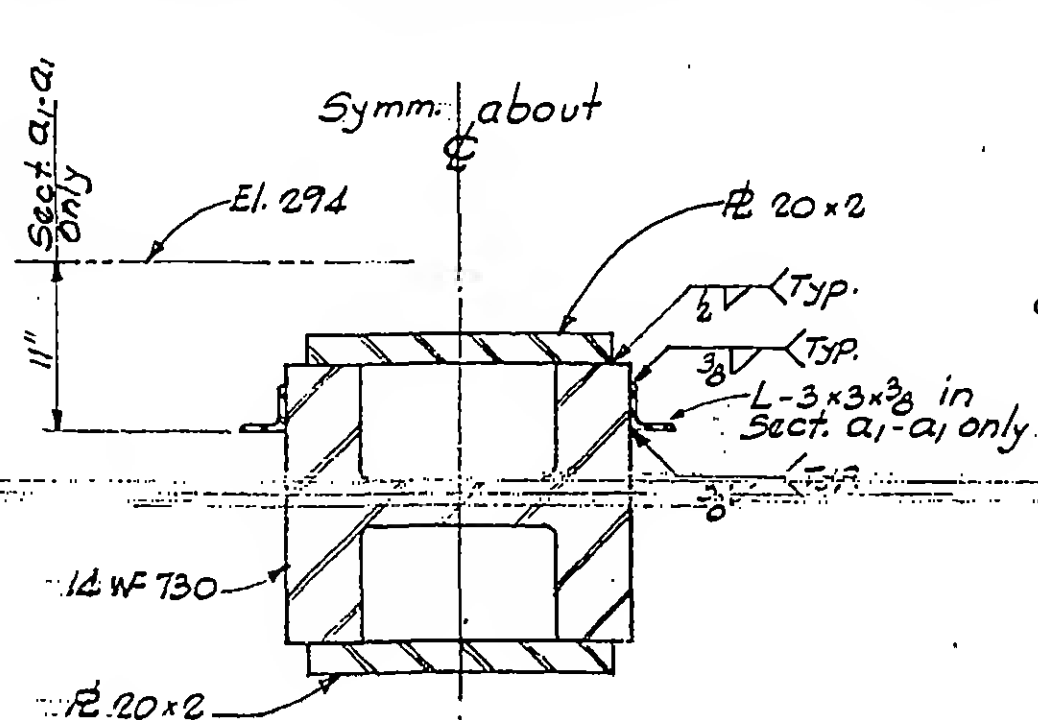
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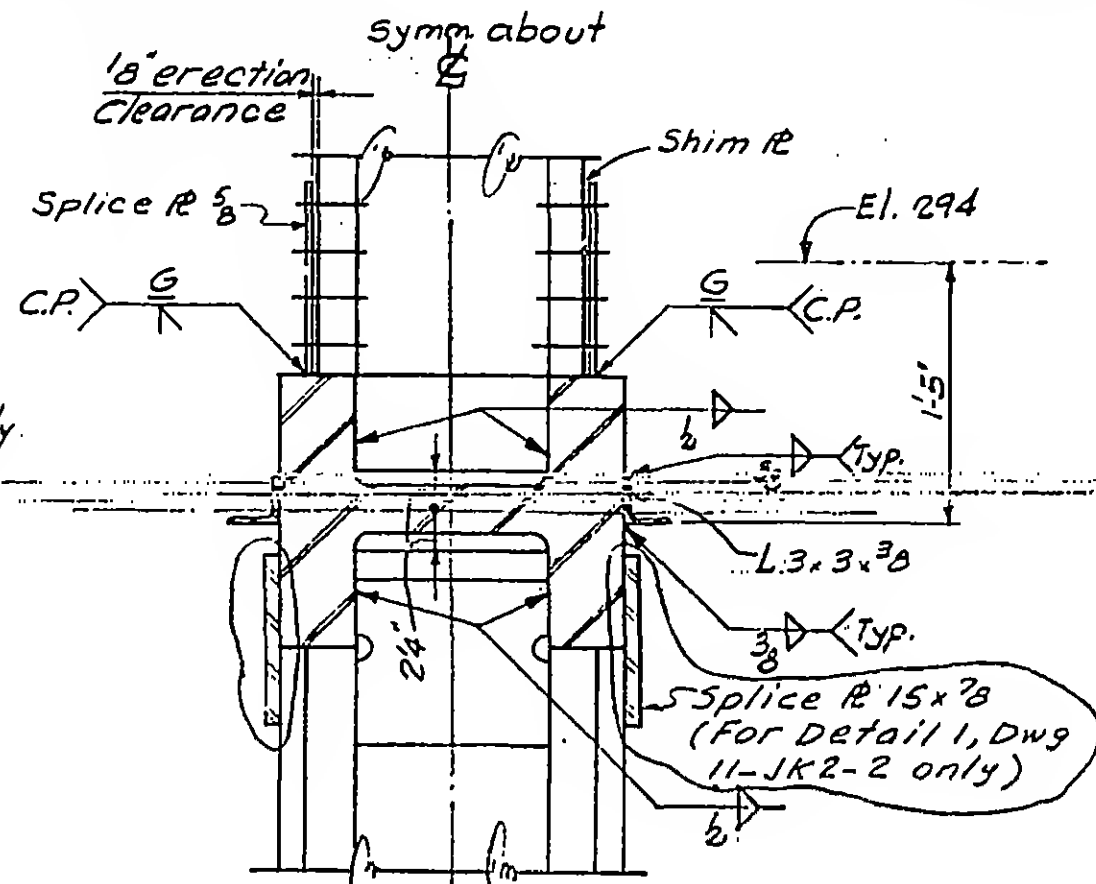
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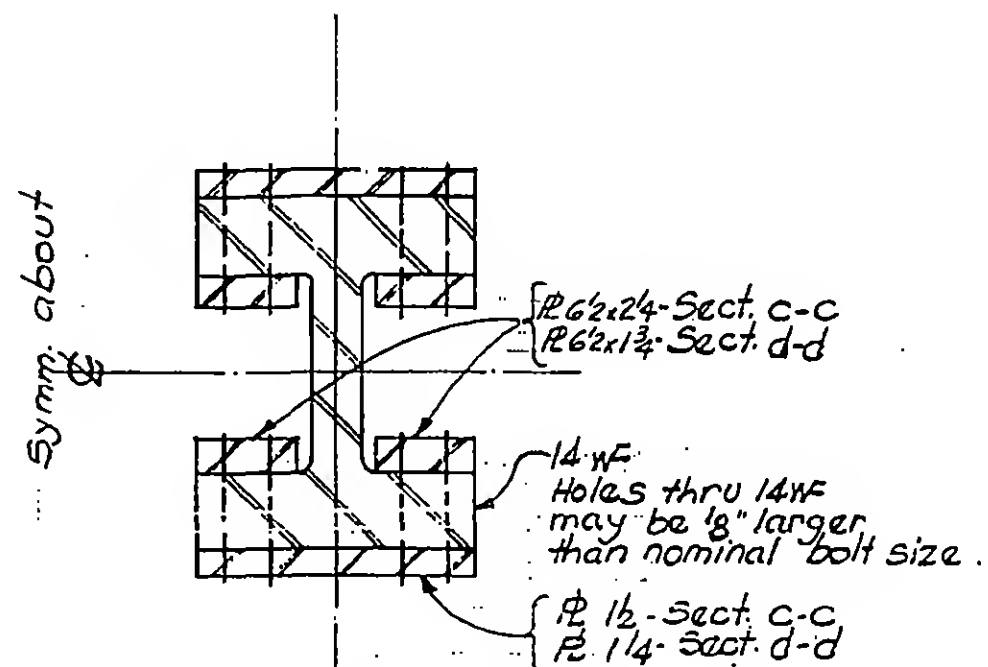
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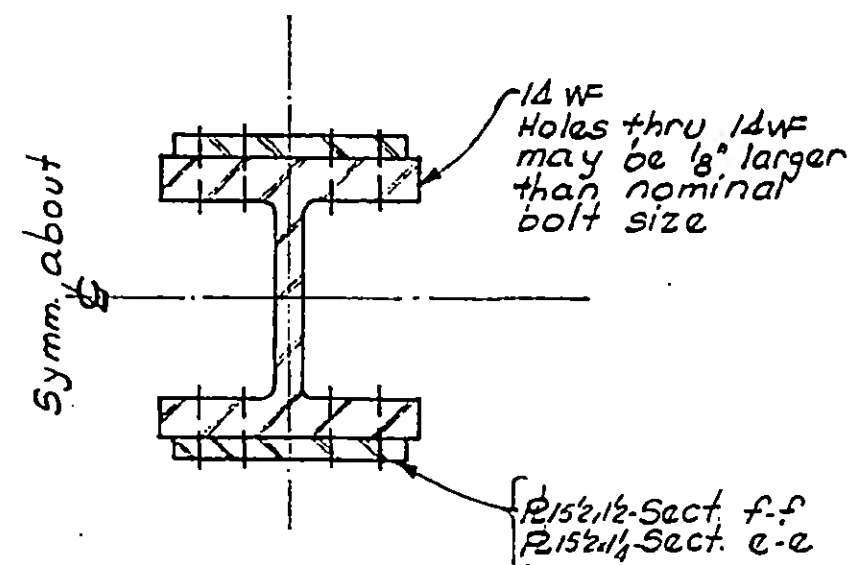
Section a-a
Section a1-a1



Section b-b



Section c-c
Section d-d



Section e-e
Section f-f



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11-JK2-8

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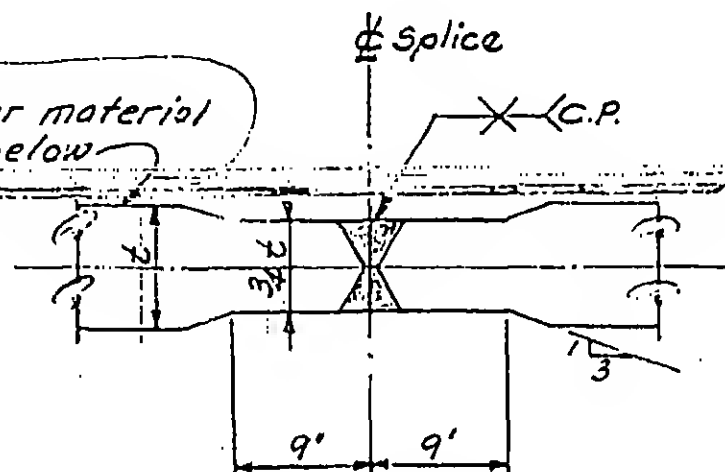
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For tie-bar material
see note below



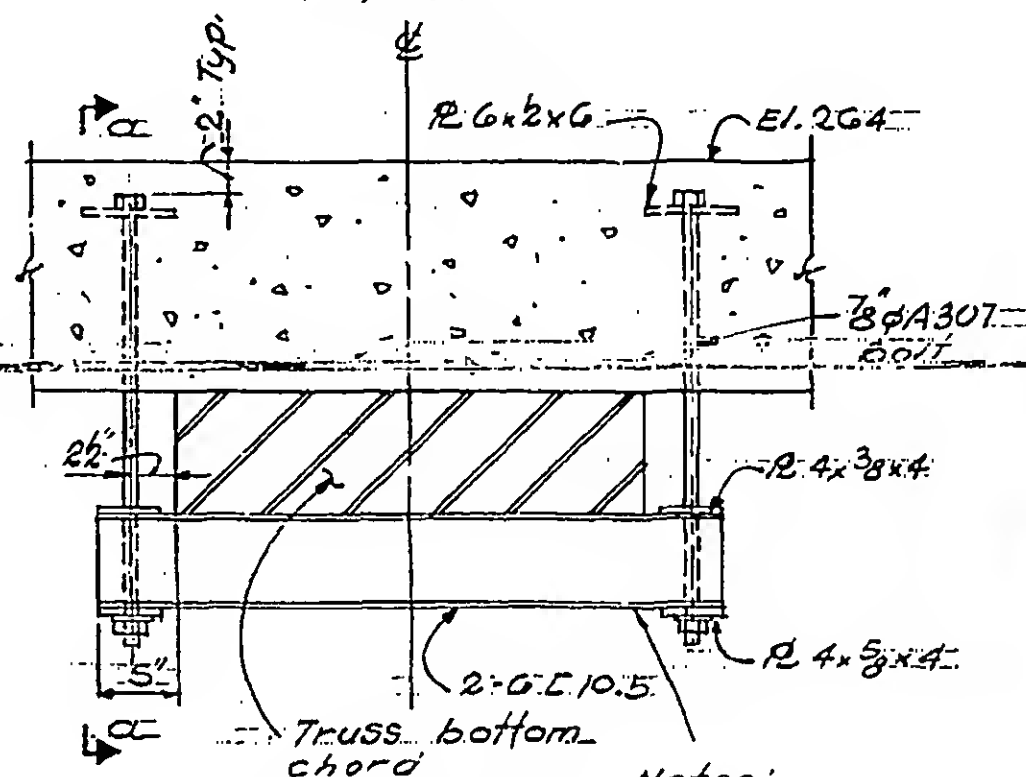
Typical detail for
shop splice of single
plate chord members

NOTE:

Tie bar material shall conform to the following:

1. To be made to coarse grain practice.
2. To be silicon killed.
3. To be forging quality.
4. To be ordered to vacuum degassed practice with extra top discard.
5. To be 100% ultrasonically inspected in specified areas in accordance with ASTM A435-65.
6. In the locations shown in the drawings, steel plate shall be free of gross internal discontinuities exceeding
 - (a) 3 square inches measured as the projected area on the surface of the plate, or 3 inches in maximum dimension measured parallel to the plane of the plate, or both.
 - (b) 1/32 inch when measured in the direction of the thickness of the plate.
 - (c) The sum of the maximum dimensions of each discontinuity intersected by any plane perpendicular to the longitudinal axis of the plate shall not exceed 4 inches.
 - (d) At surfaces on the plate where the plate is joined to the flanges of diagonal members, the plate shall be free of gross internal discontinuities exceeding 1 sq. inch in area within widths of 10 inches centered on the flanges of the diagonals and within a depth of 3 inches from the surface of the plate.

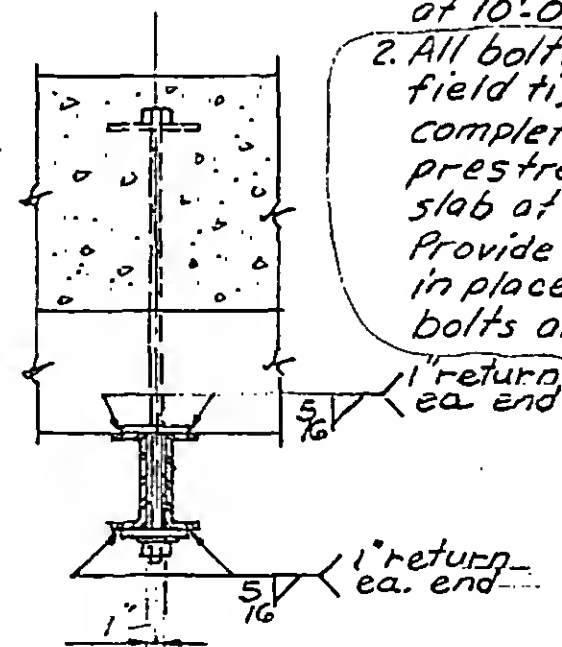
Detail A

Symm. about
TRUSS

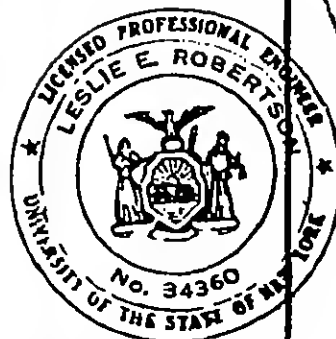
Detail B

Notes:

1. Intermediate supports spaced at 10'-0" max.
2. All bolts to be field tightened after completion of prestress work for slab at El. 264. Provide temp. sup'ts. in place of I before bolts are tightened.



Section a-a



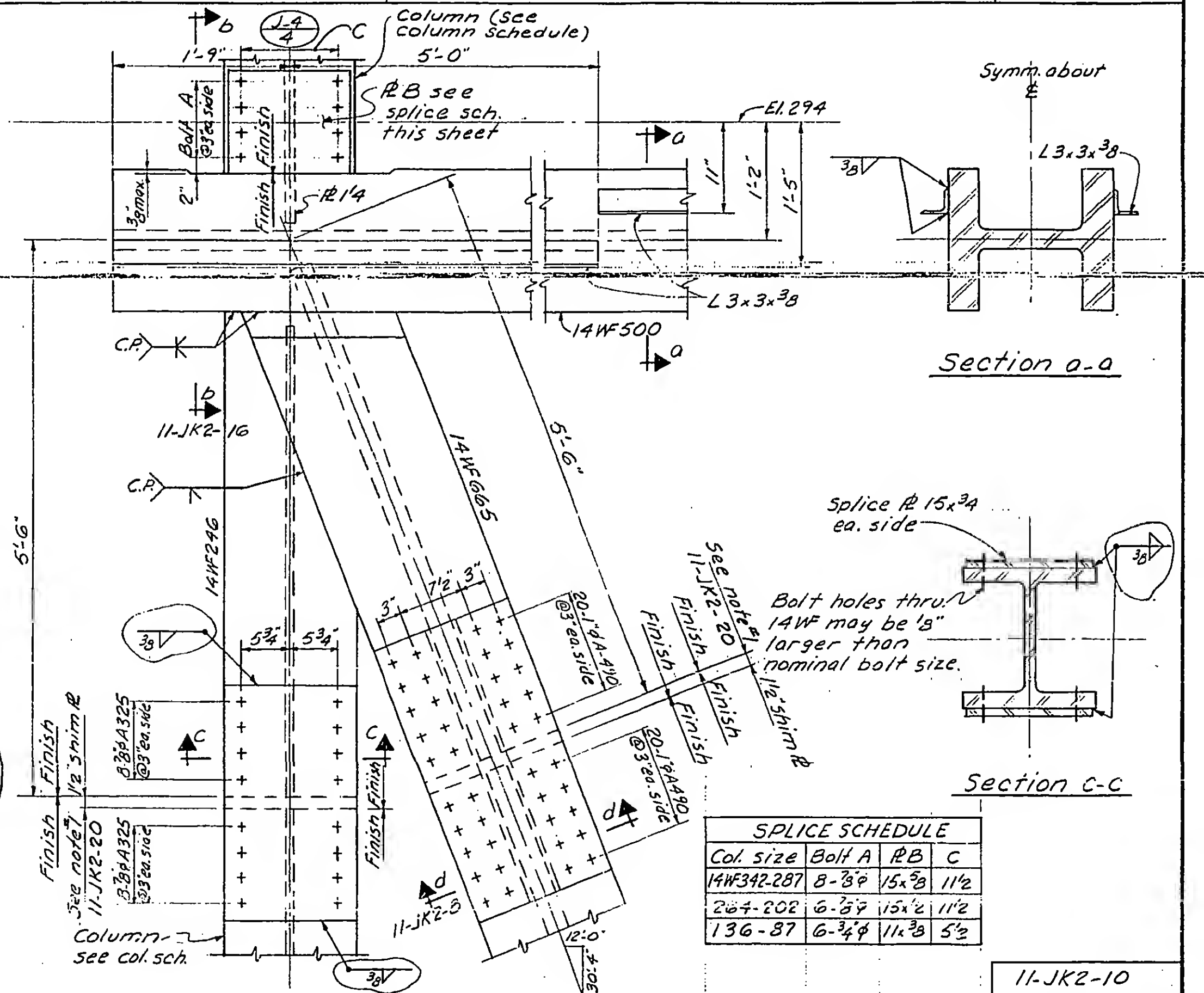
11-JK2-9

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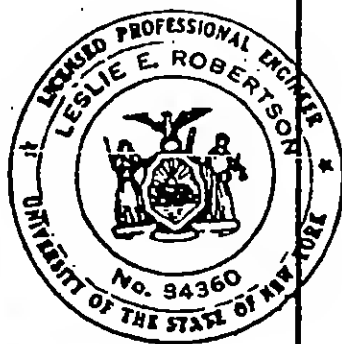
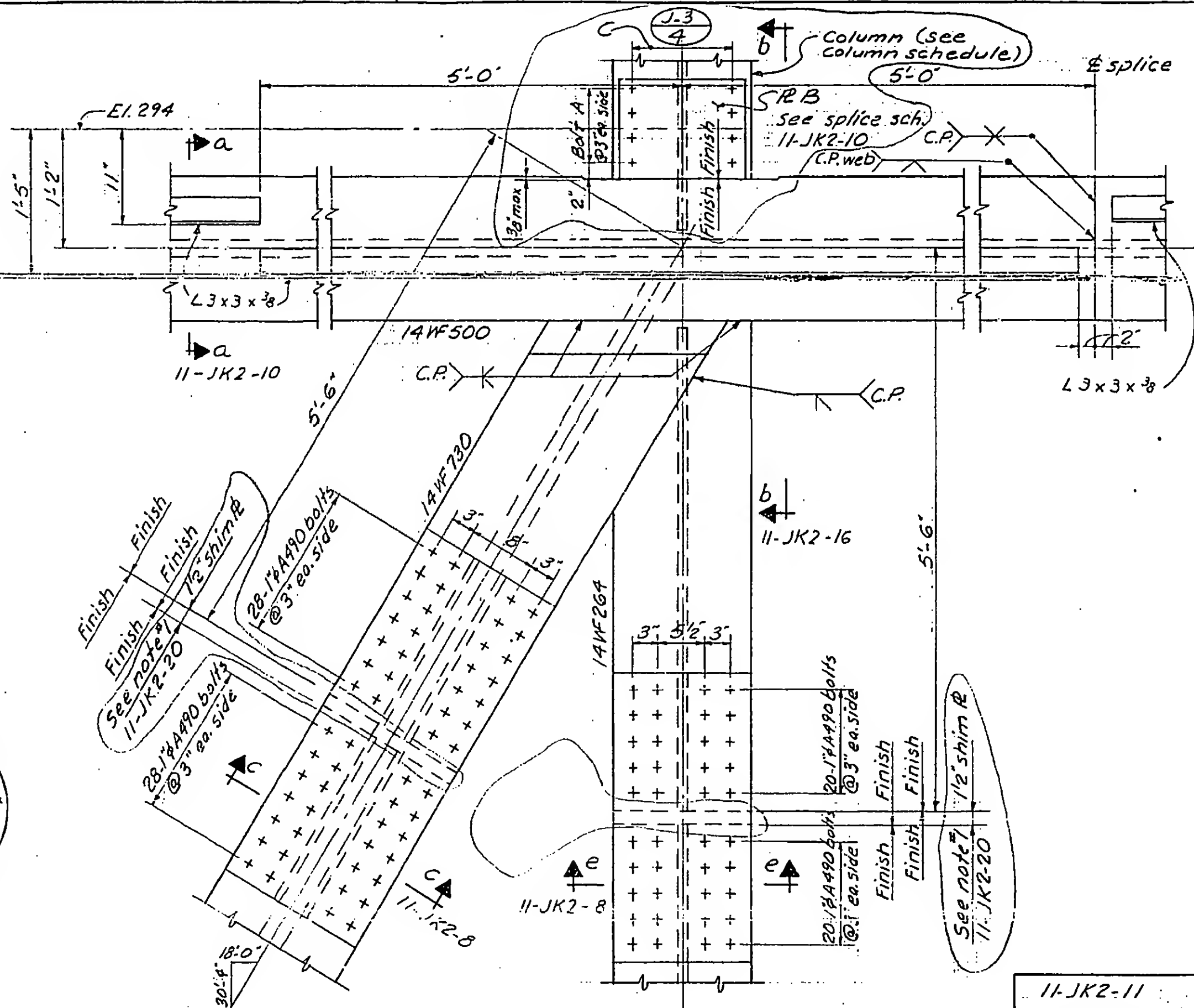


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TITLE

TRUSS DETAIL 9

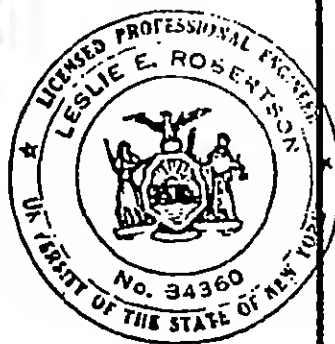
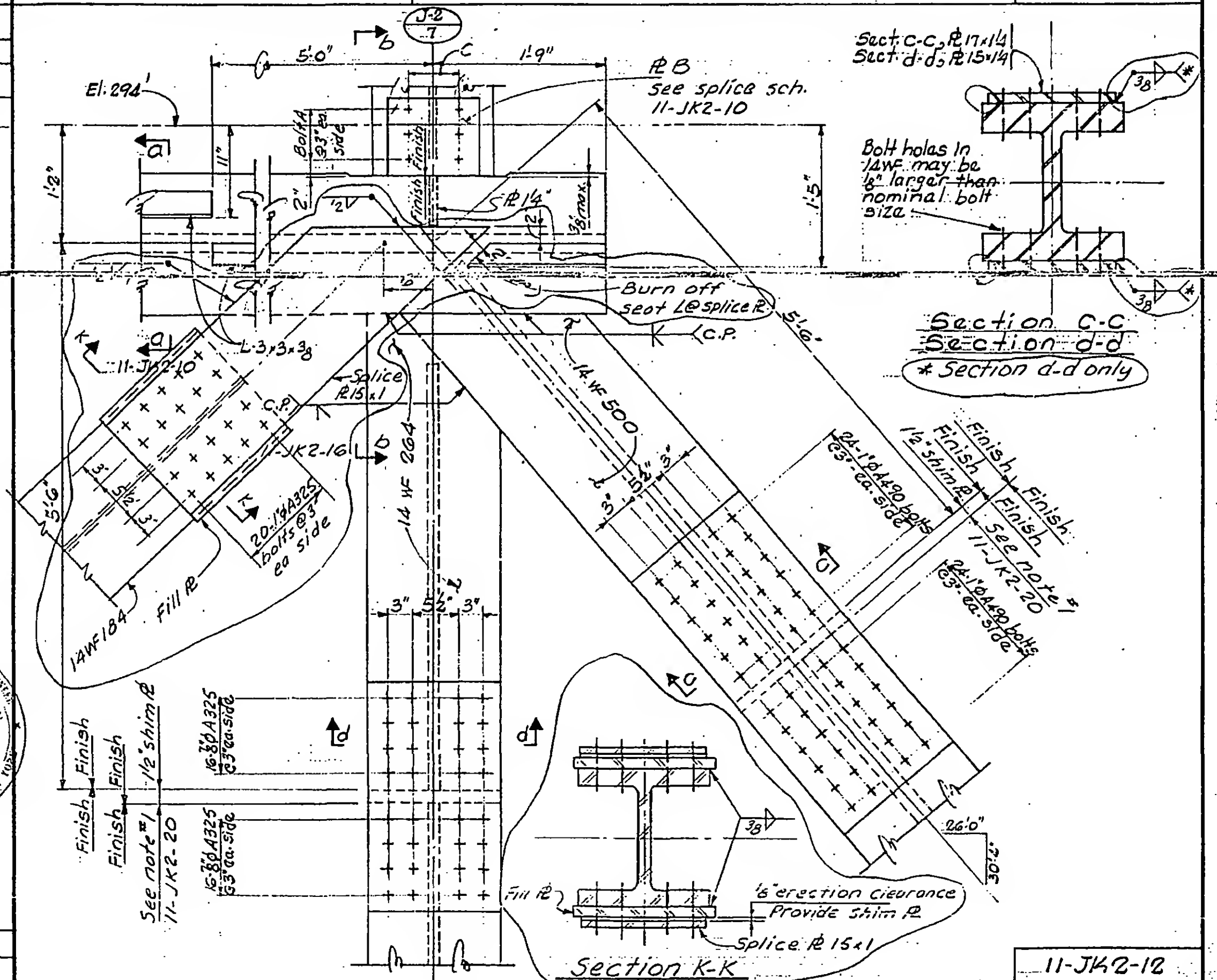
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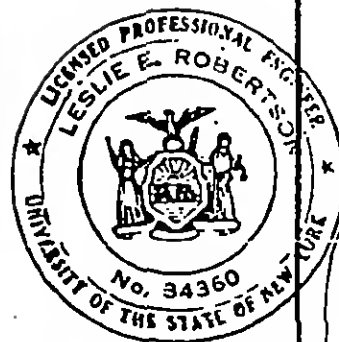
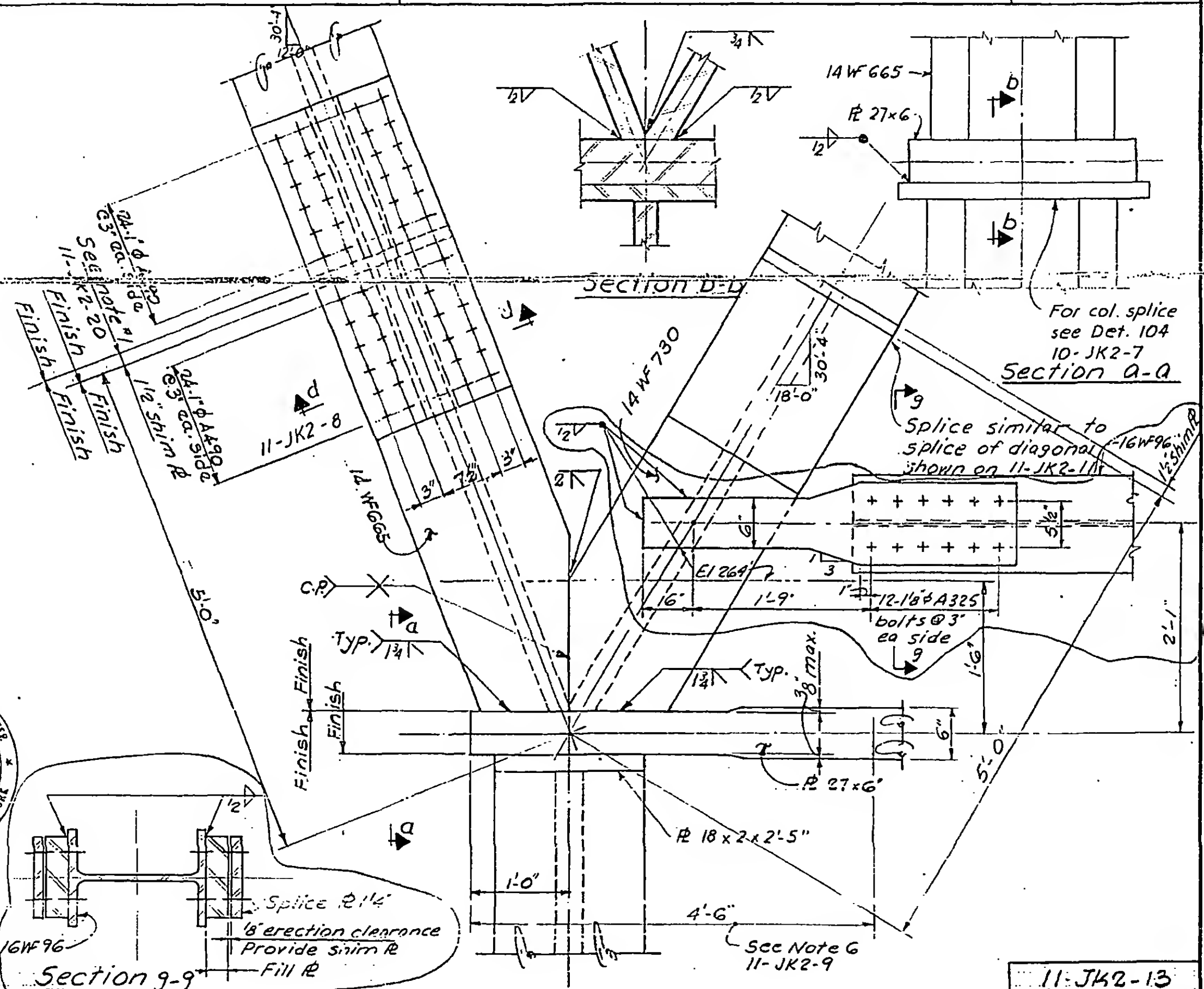
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TITLE TRUSS DETAIL 11 & 12

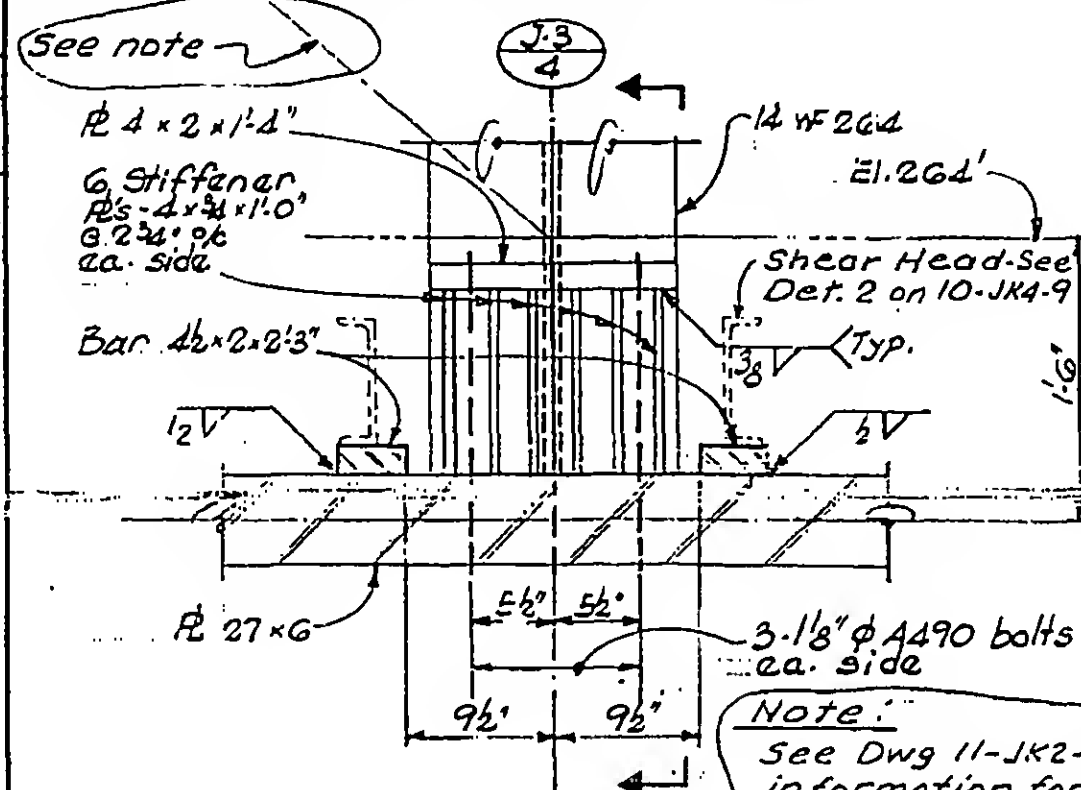
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4-5-68

4-26-68

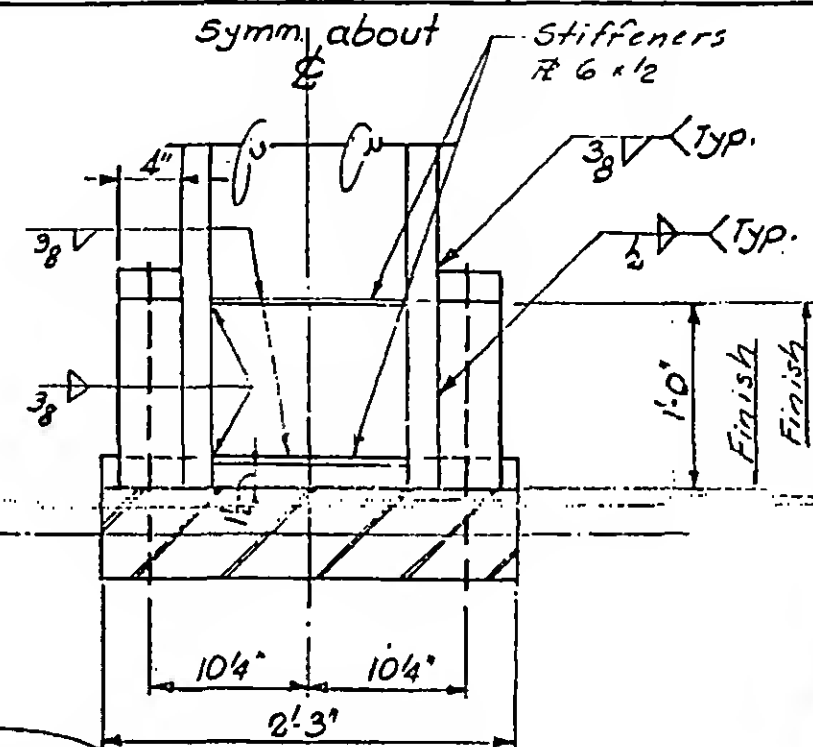
4-18-69



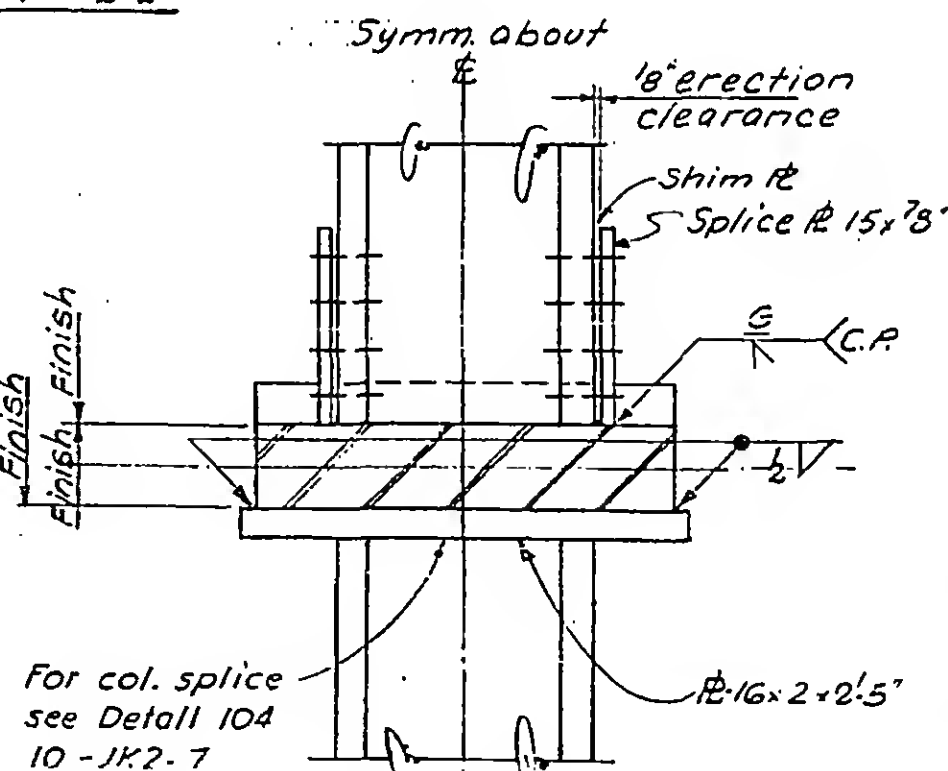
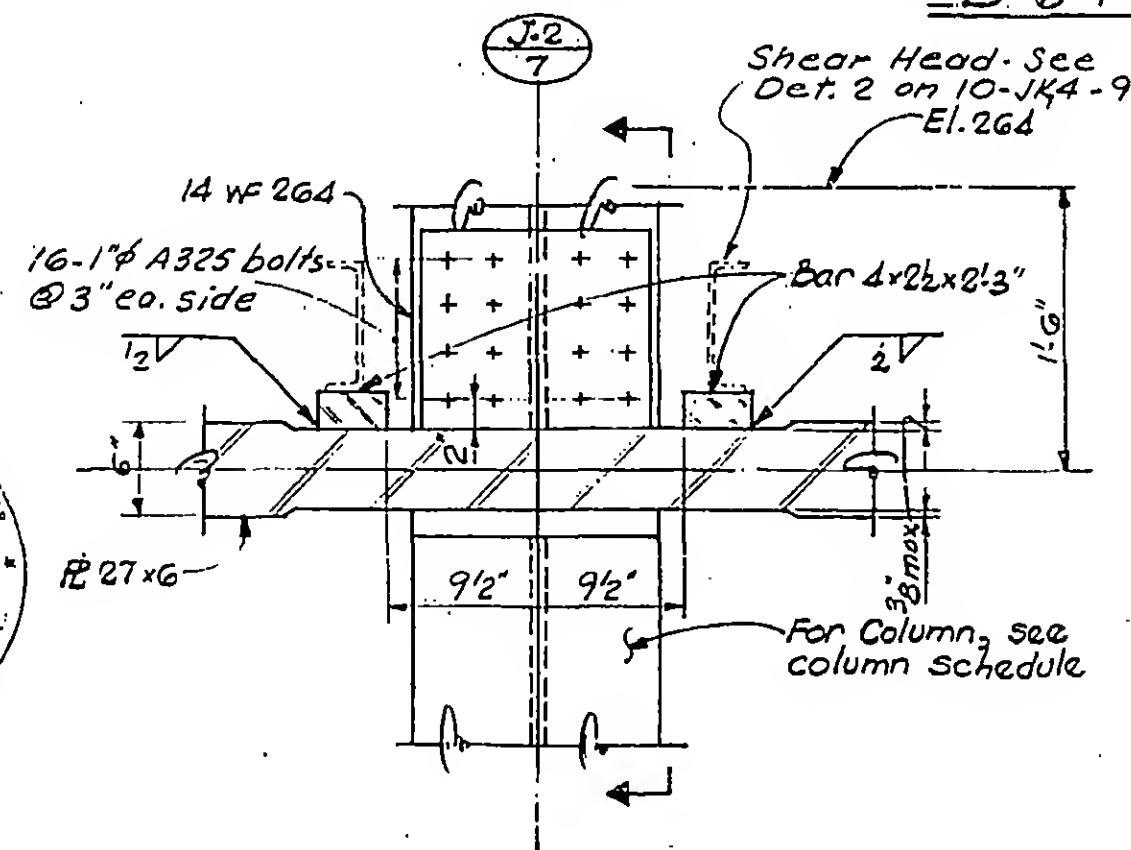
Note:

See Dwg 11-JK2-14B for additional
information for Truss JT-4 only

Detail 11



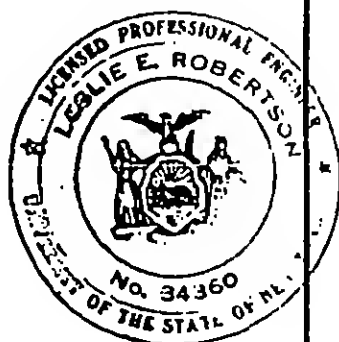
Section



Section

Detail 12

11-JK2-14



DRAWN
A.F.
REVIEWED
E.L.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

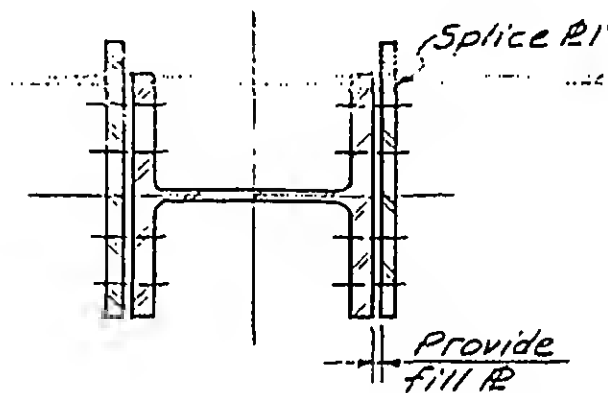
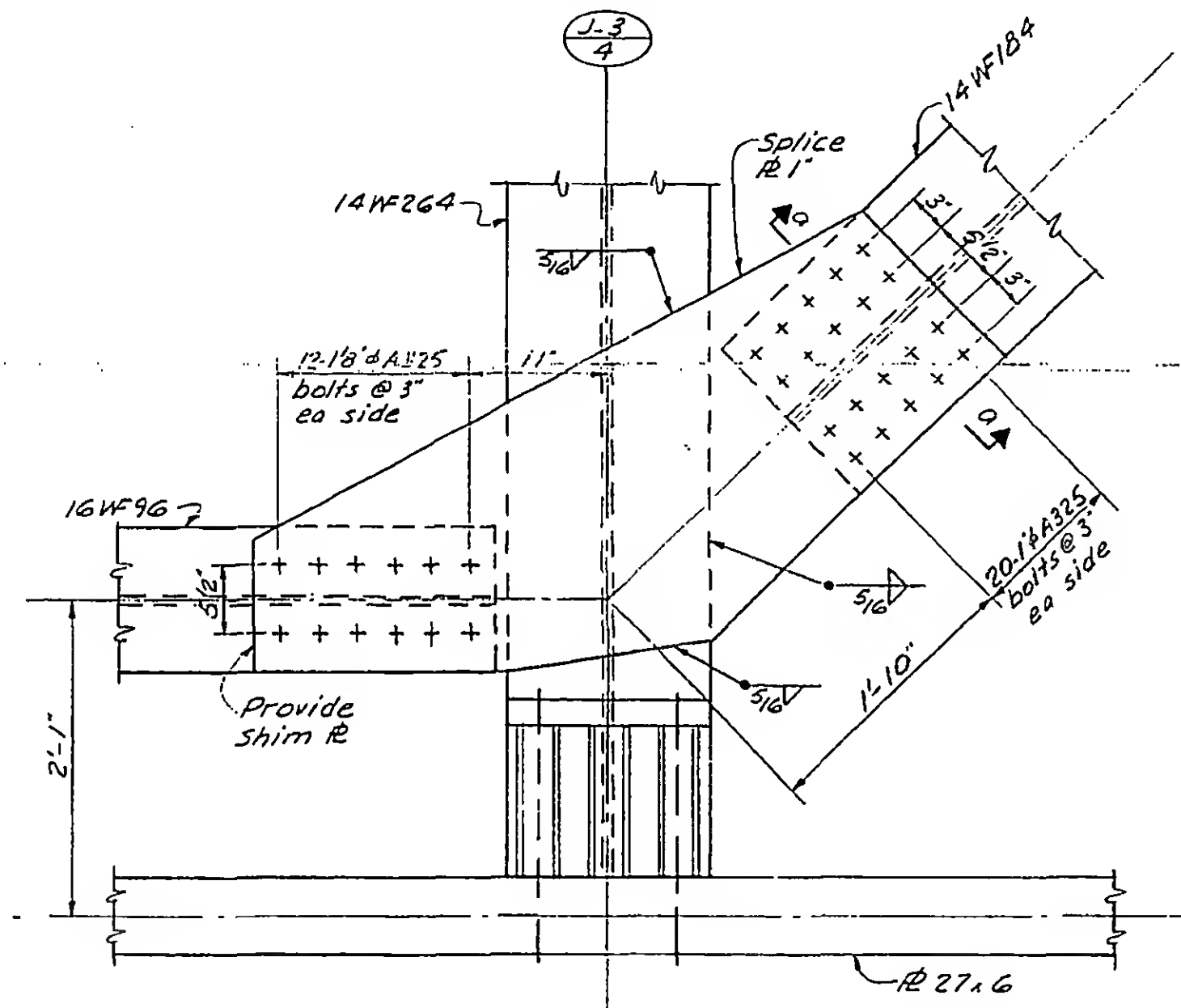
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

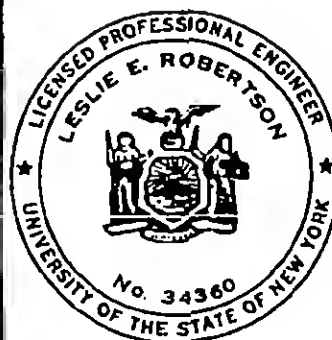
TITLE TRUSS DETAILS (JT-2)

DATE 4-18-69

REVISIONS



Section A-A



DESIGNED

DRAWN
A.F.

REVIEWED
E.L.

11-JK2-14A

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

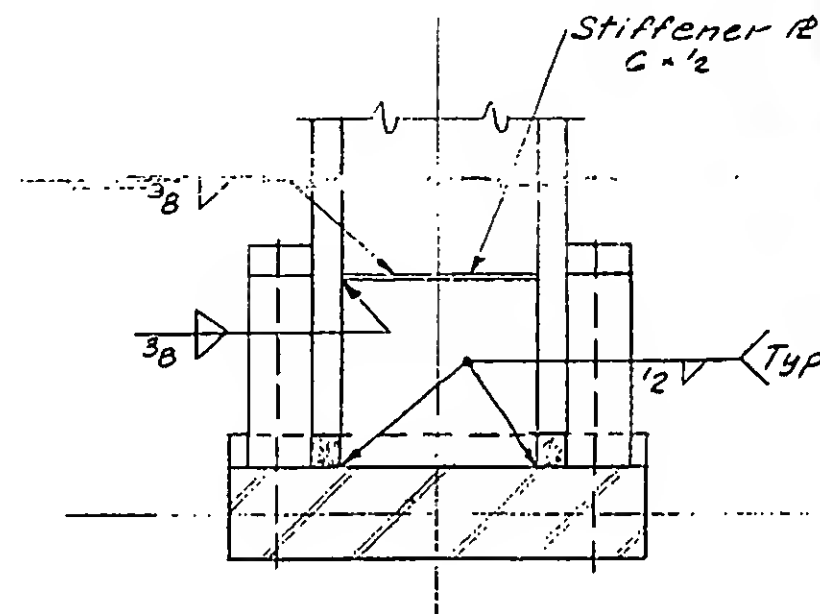
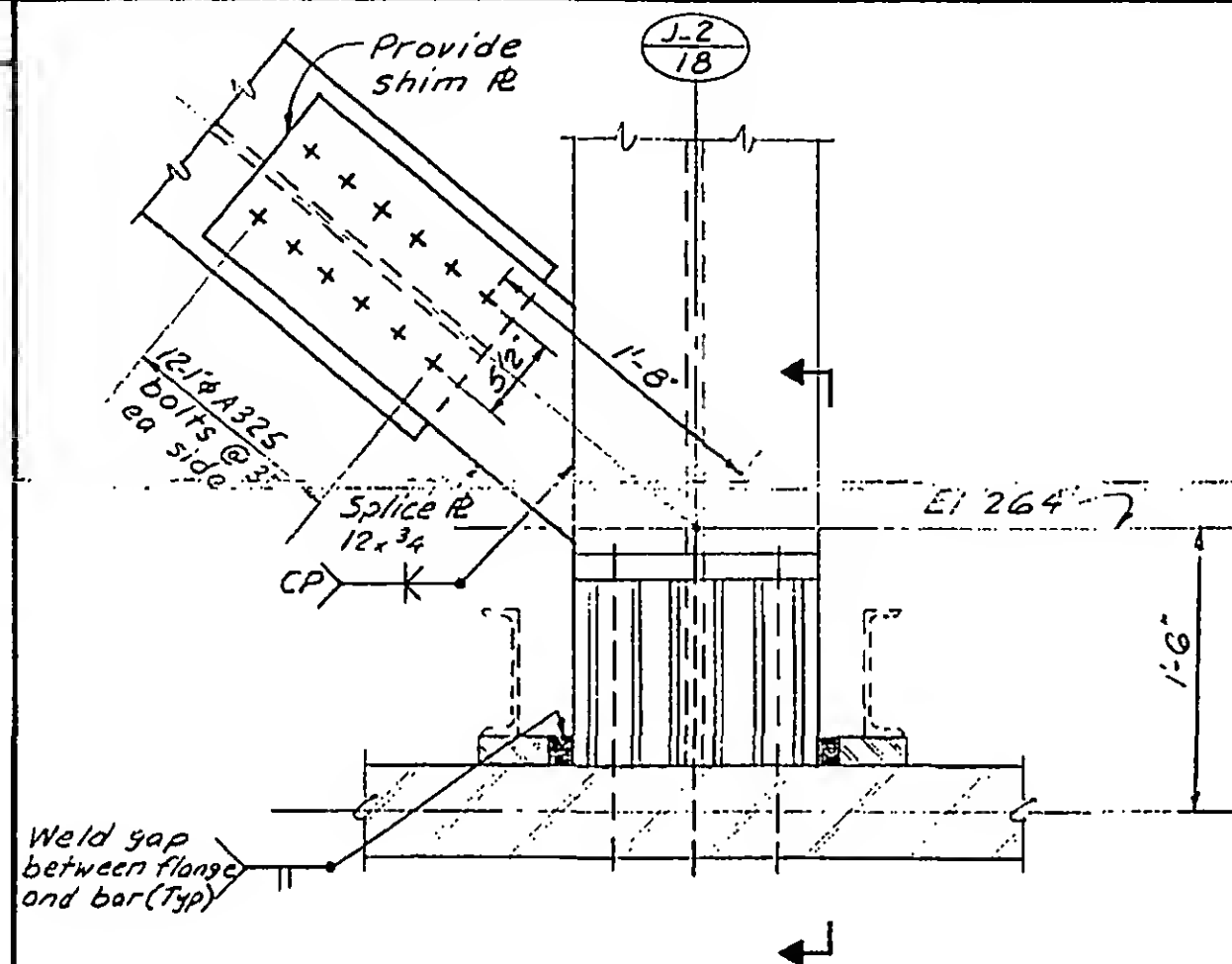
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

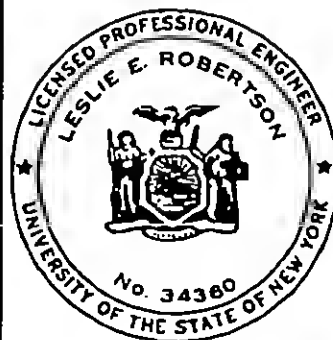
TITLE TRUSS DETAIL (JT-4)

DATE 4-18-69

REVISIONS



Section



DESIGNED

DRAWN
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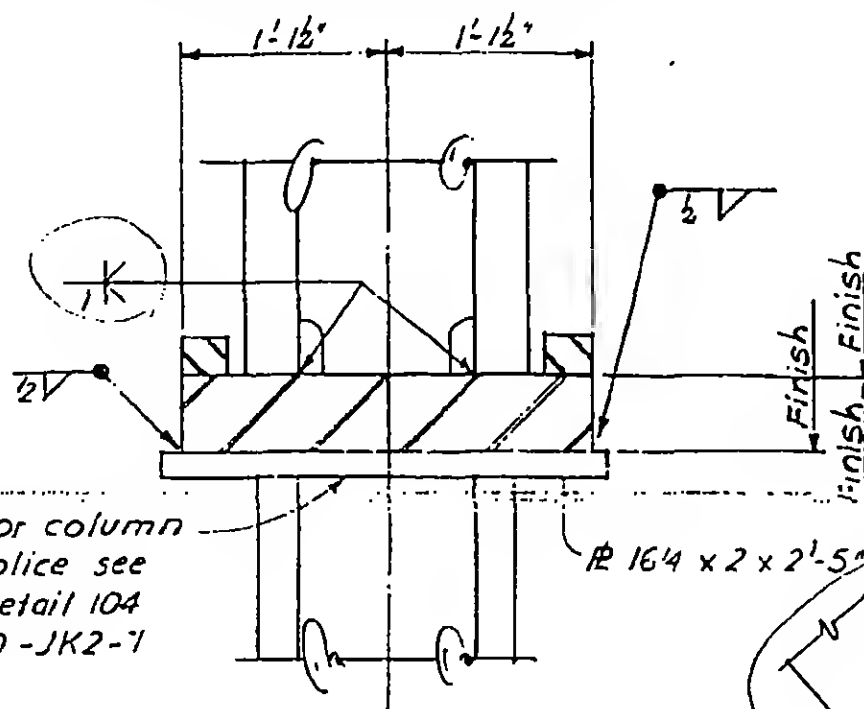
REVIEWED
E.L.

11-JK2-14B

REVISIONS

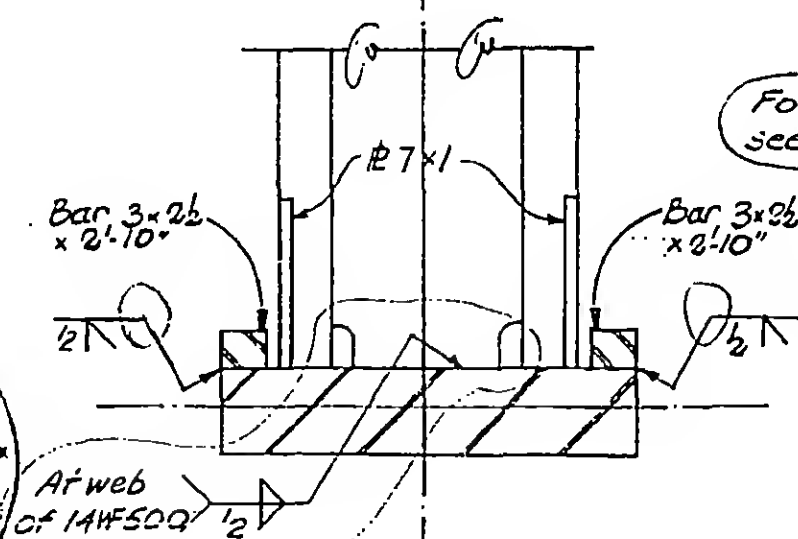
4-5-68

4-26-68



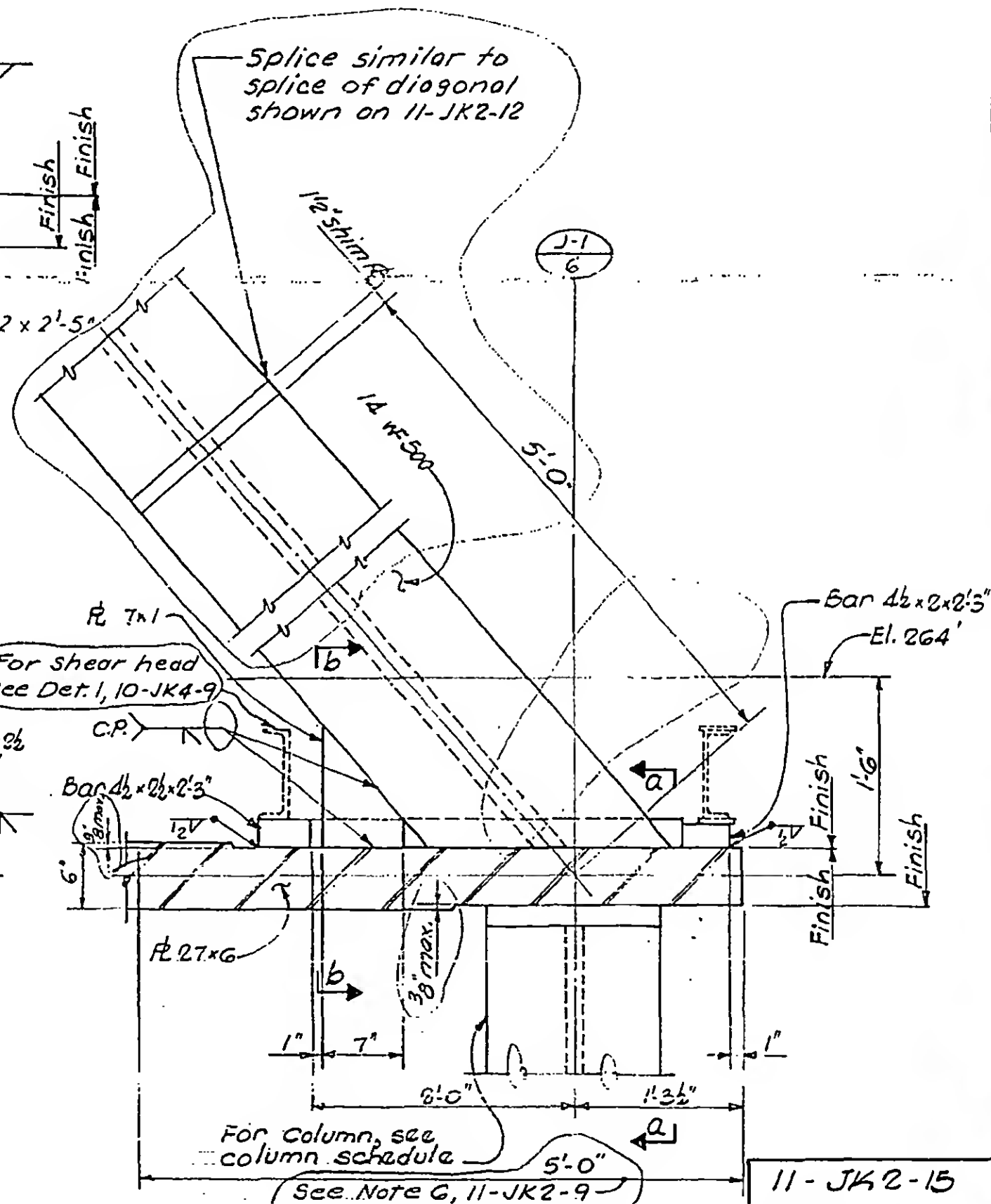
For column
splice see
Detail 104
10-JK2-7

Section a-a



Arweb
of 14W50Q $\frac{1}{2}$

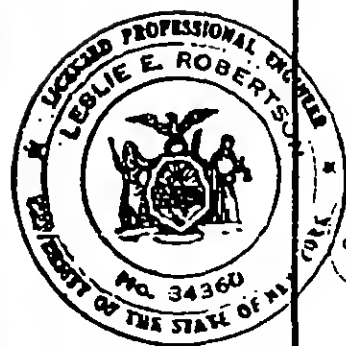
Section b-b



For Column, see
column schedule

See Note C, 11-JK2-9-

11 - JK 2-15

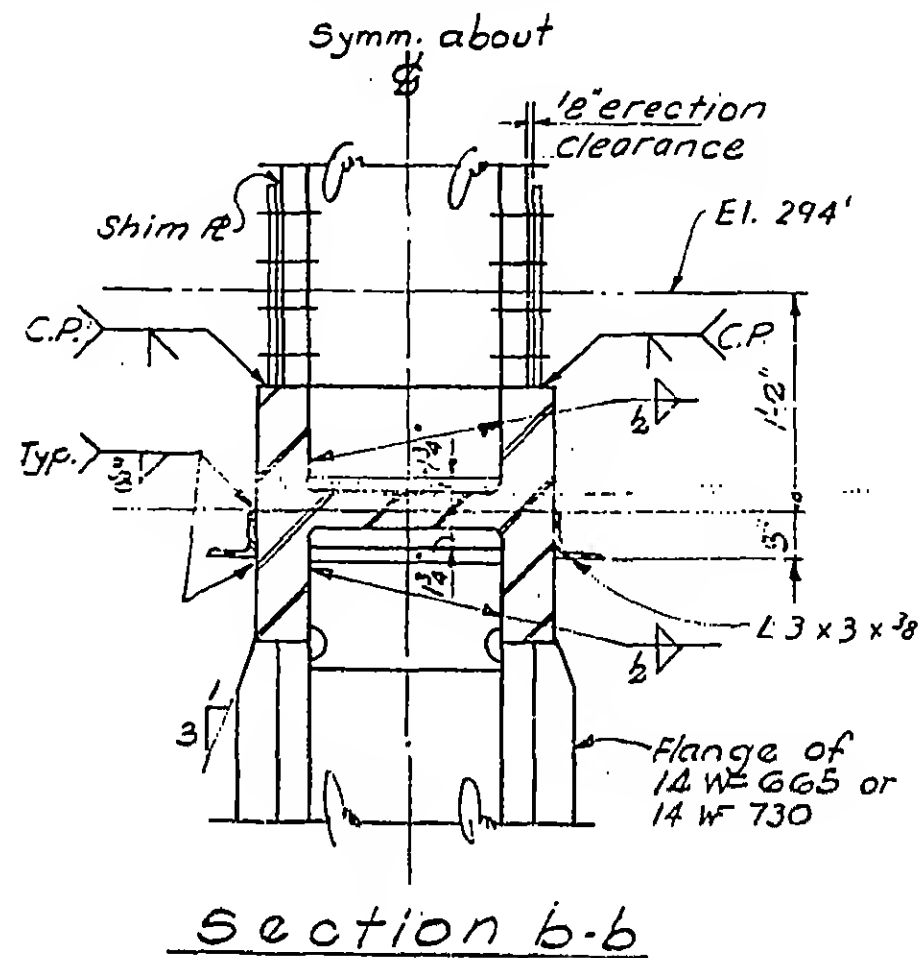


REVISIONS

4-5-68

4-26-68

4-18-69



Note:

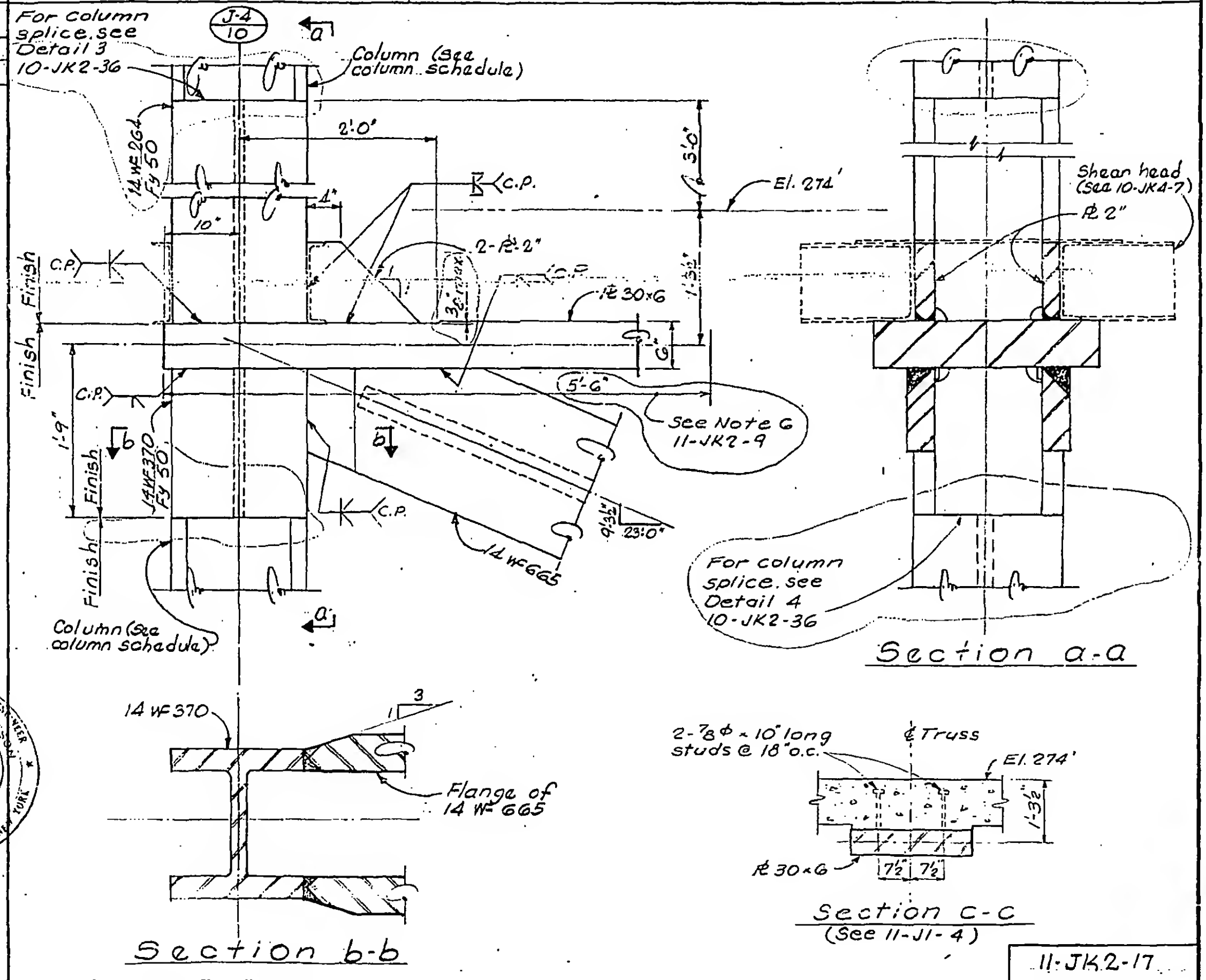
Splice @ 15x1 not shown
(For Detail 9, Dwg 11-JK2-12 only)



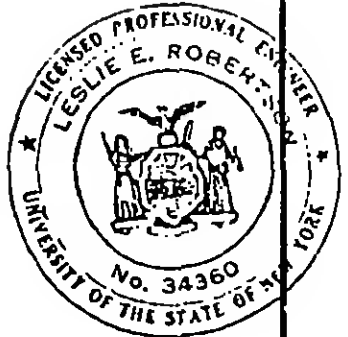
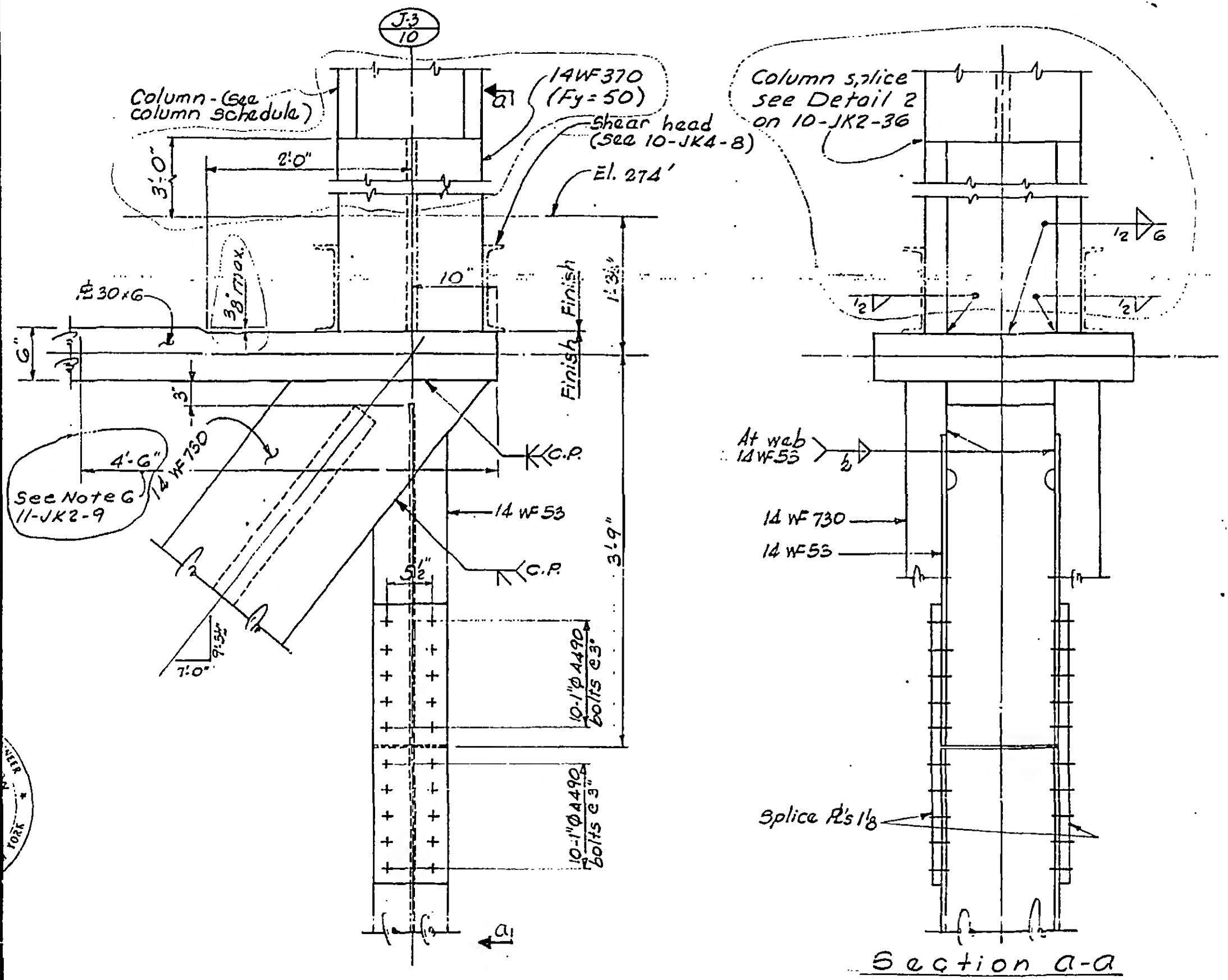
DRAWN
 A.F.
 REVIEWED
 E.L.

11-JK2-16

REVISIONS
4-5-68
4-26-68



REVISIONS
4-5-68
4-26-68



SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

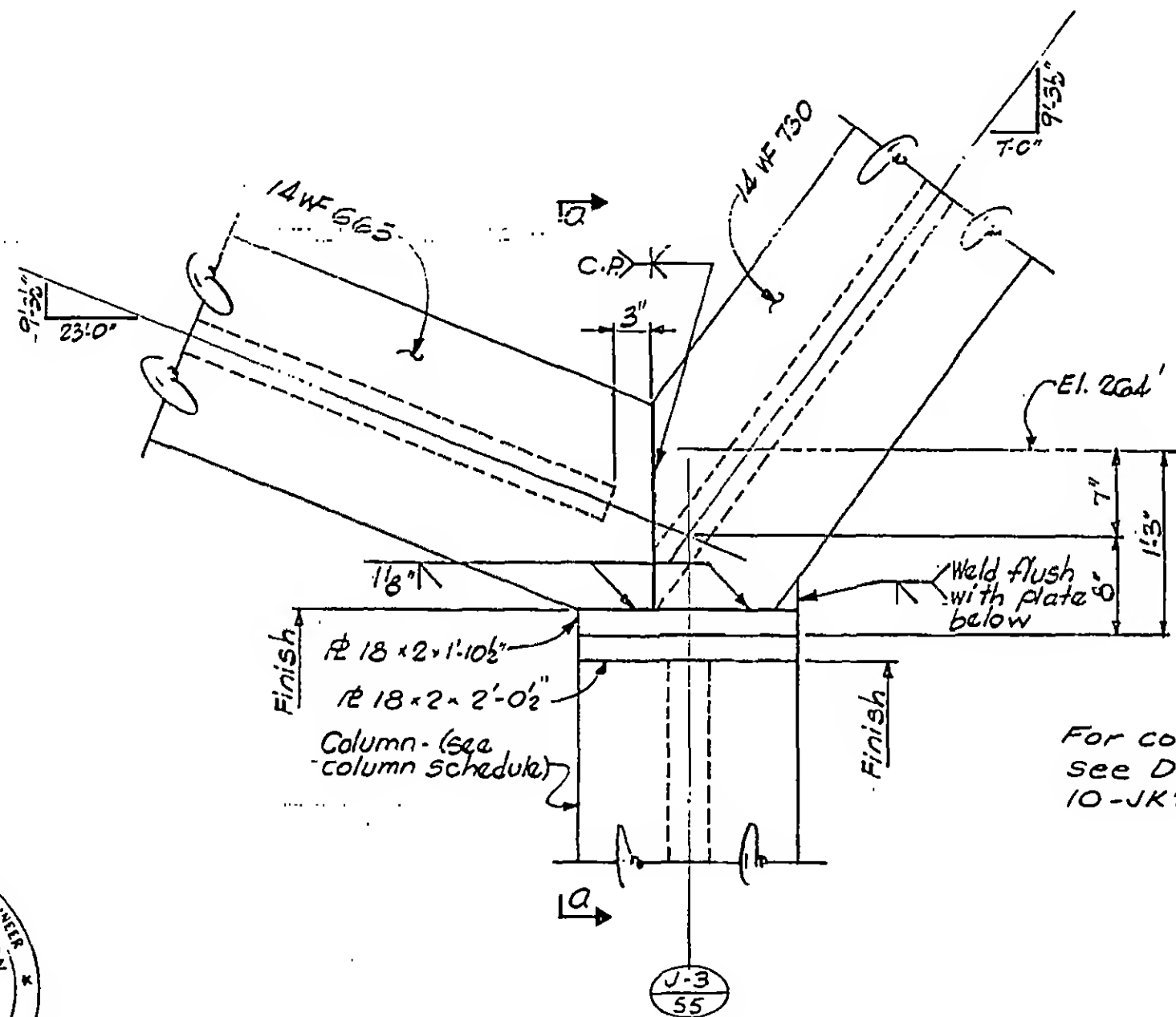
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 16

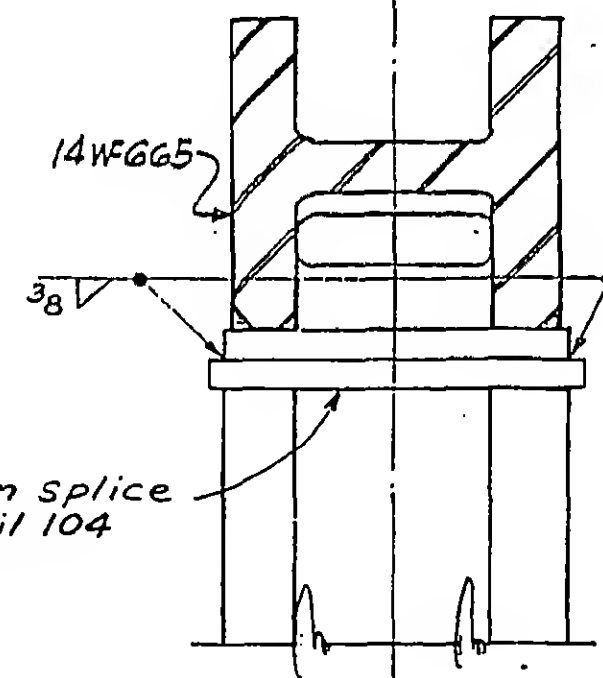
DATE 5-15-67

REVISIONS

4-5-68



For column splice
see Detail 104
10-JK2-7

Section a-a

11-JK2-19

PROJECT *THE WORLD TRADE CENTER*TITLE *TRUSS DETAILS*DATE *4-26-68*

REVISIONS

NOTE 1

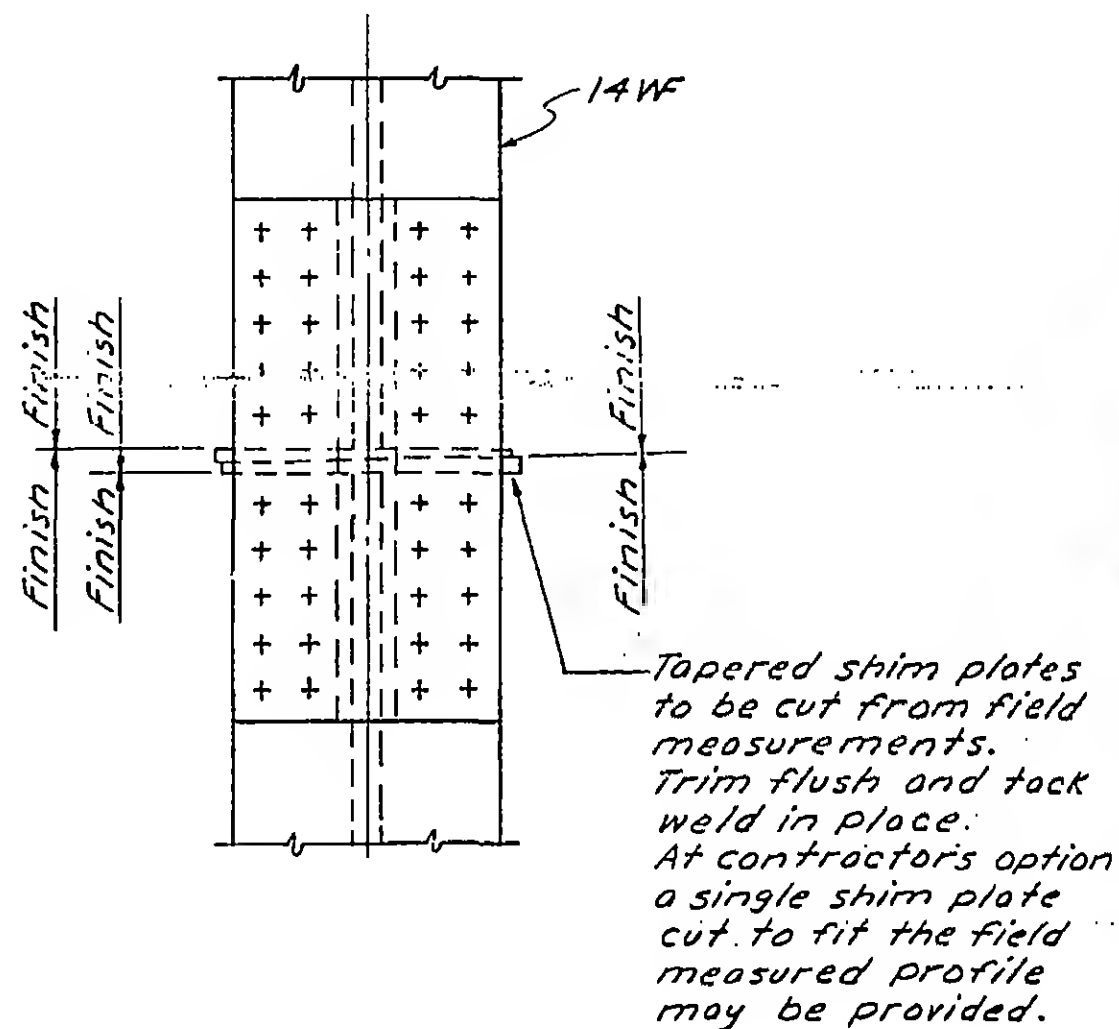
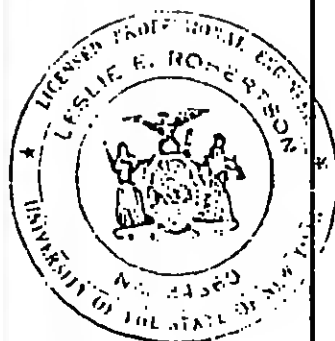
Trusses shall be shop assembled.

All joints provided with shim plates depend upon contact bearing, and shall bear evenly with respect to the centroid on the contact area. The contact area consists of the two flange areas of the members.

When assembled in the shop, at least 75 per cent of the entire contact area shall be in full bearing and the separation of any remaining portion shall not exceed 0.01 inch.

When re-assembled in the field, at least 65 per cent of the entire contact area shall be in full bearing and the separation of any remaining portion shall not exceed 0.02 inch.

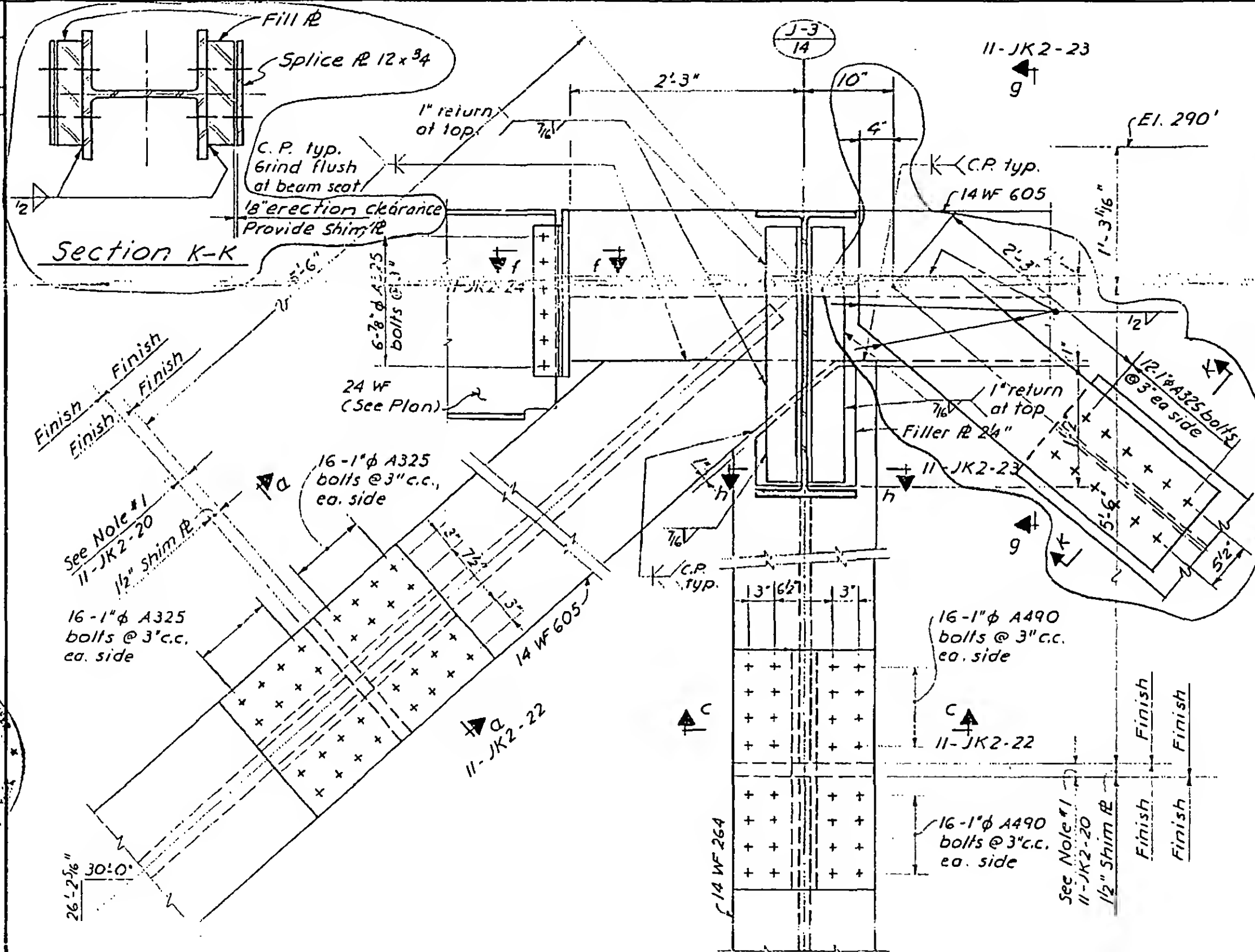
Where the joining of the members in the field does not meet these tolerances, the erection contractor shall provide and install tapered shim plates to achieve full bearing as indicated on Detail A (this sheet).

Detail A

REVISIONS

5-1-68

4-18-69



DRAWN
A.L.
REVIEWED
E.L.

11-JK2-21

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

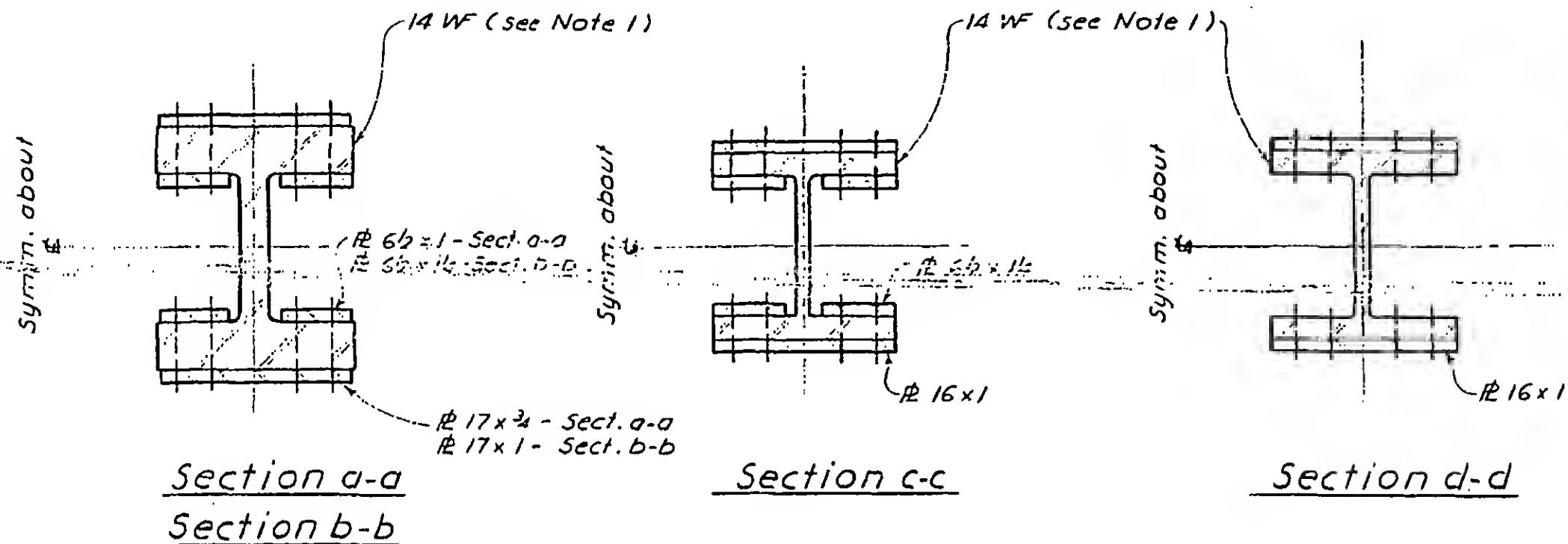
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAILS

DATE 5-15-67

REVISIONS

5-1-68

Note:

1. Bolt holes thru 14 WF may be 1/8" larger than nominal bolt size.



11-JK2-22

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

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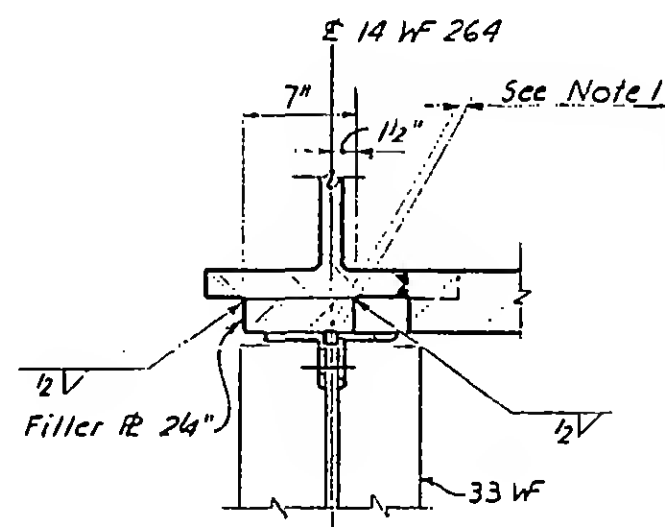
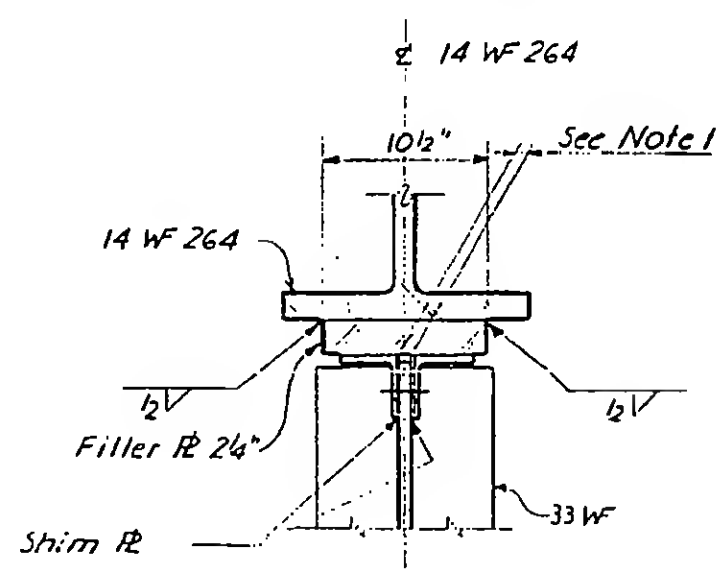
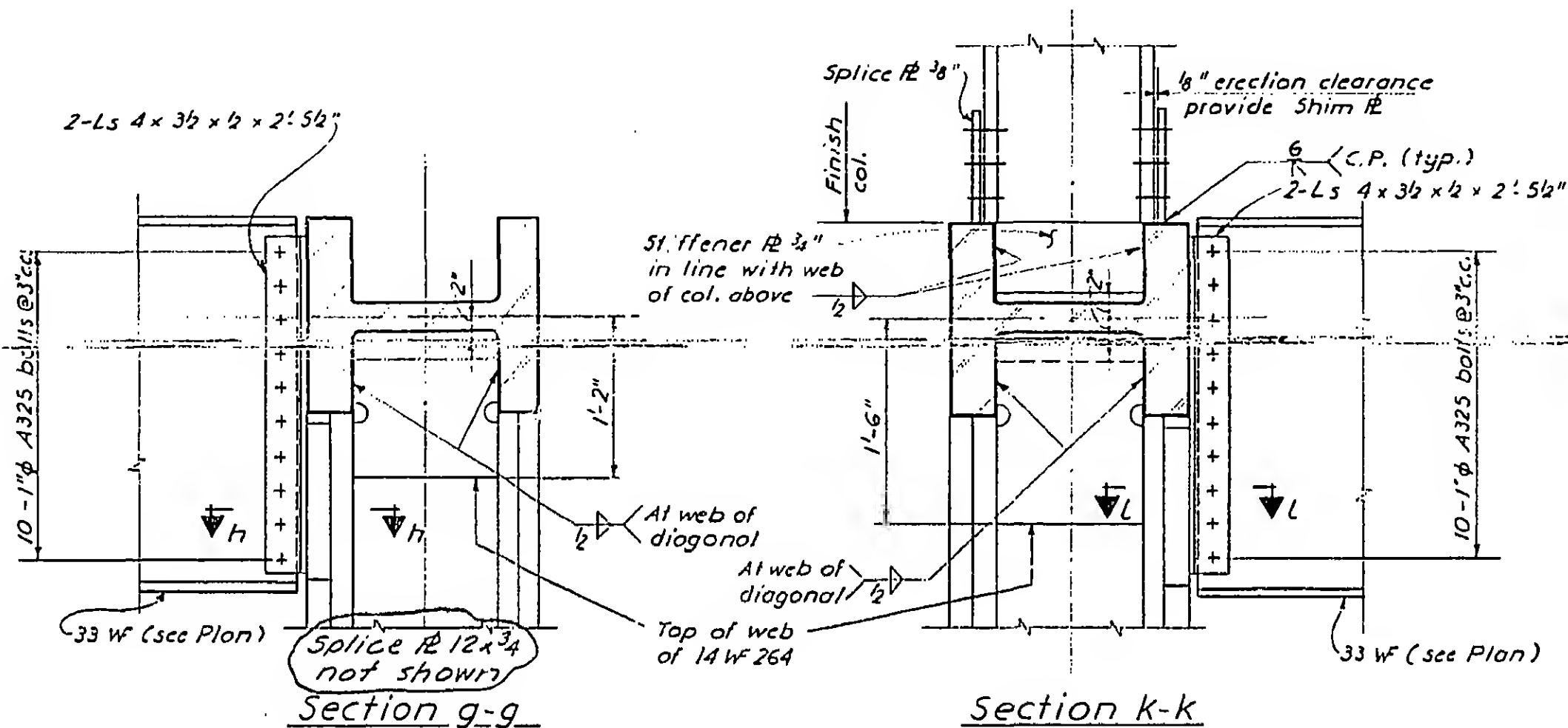
PROJECT THE WORLD TRADE CENTER TITLE TRUSS DETAILS

DATE 5-15-67

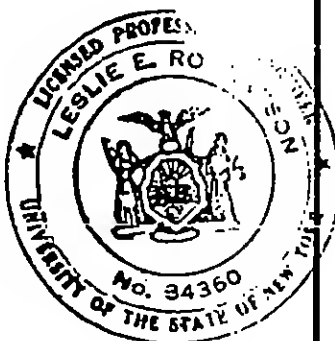
REVISIONS

5-1-68

4-18-69



Note 1:
Erection clearance each side of beam web should not be more than 1/16". Provide shim between beam web and L's if required to insure surface contact for H.S. bolts.

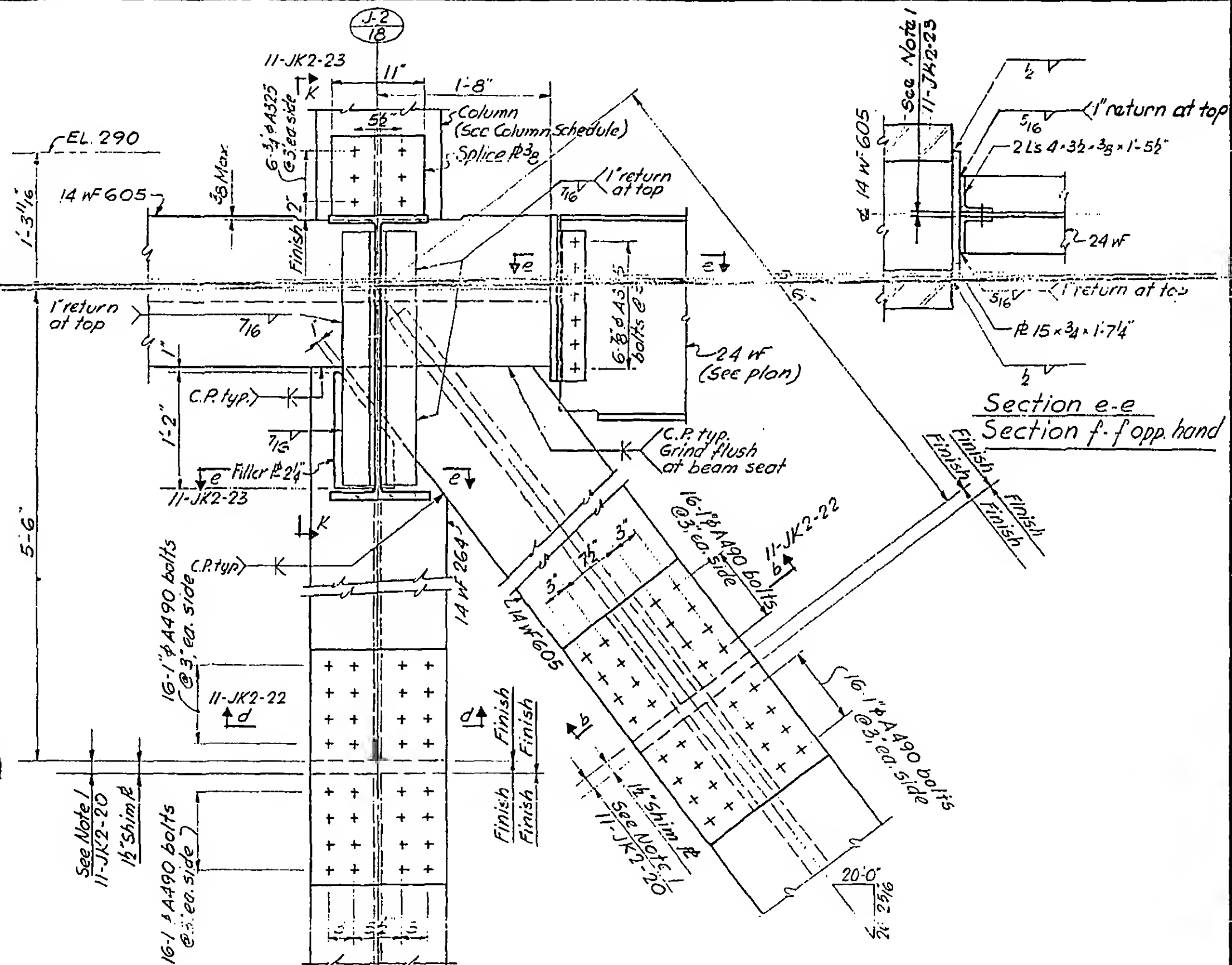


DRAWN
A.F.
REVIEWED
E.L.

11-JK2-23

REVISIONS

5-1-68

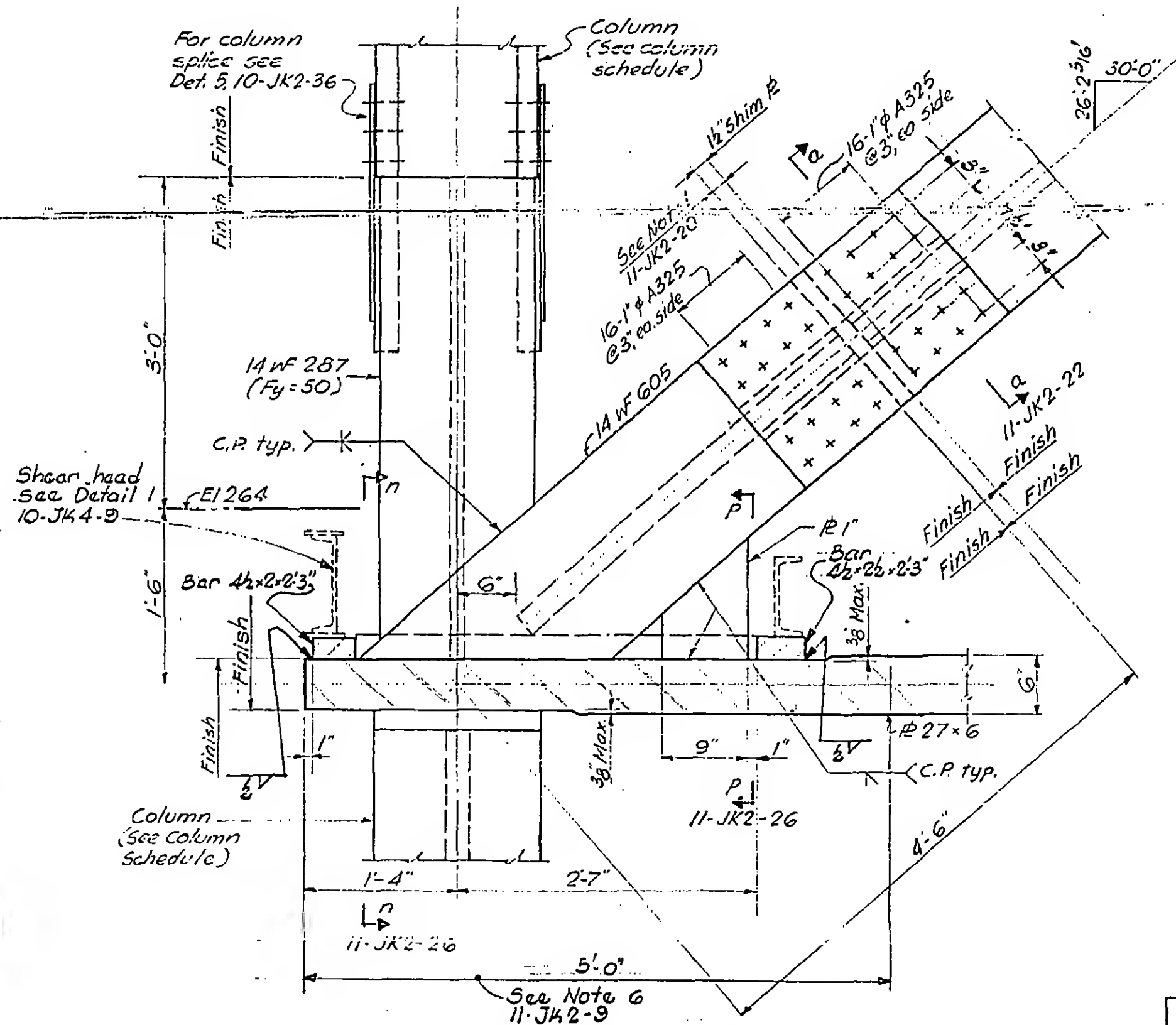


11-JK2-24



REVISIONS

5-1-68



11-JK2-25

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

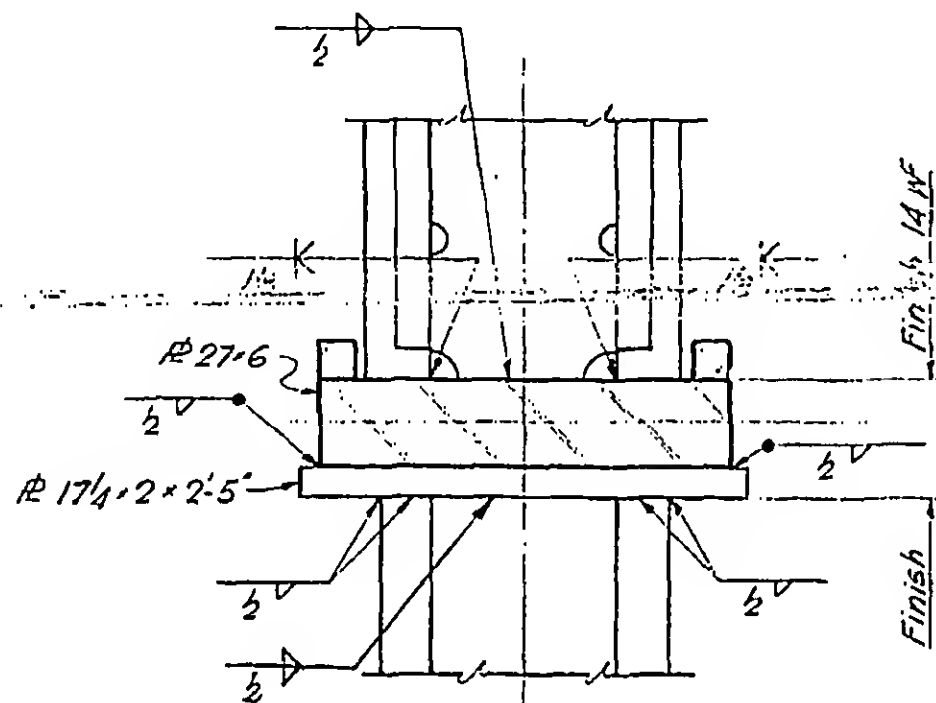
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAILS

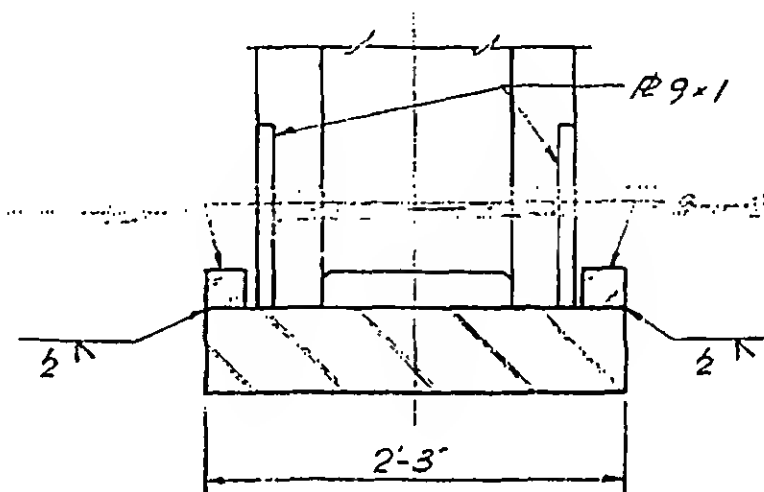
DATE 5-15-67

REVISIONS

5-1-68



Section n-n



Section p-p



11-JK2-26

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

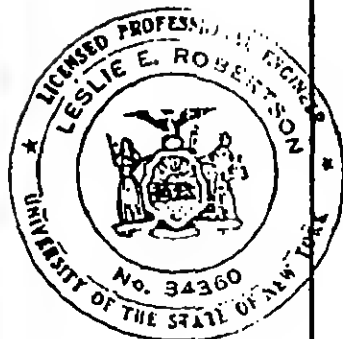
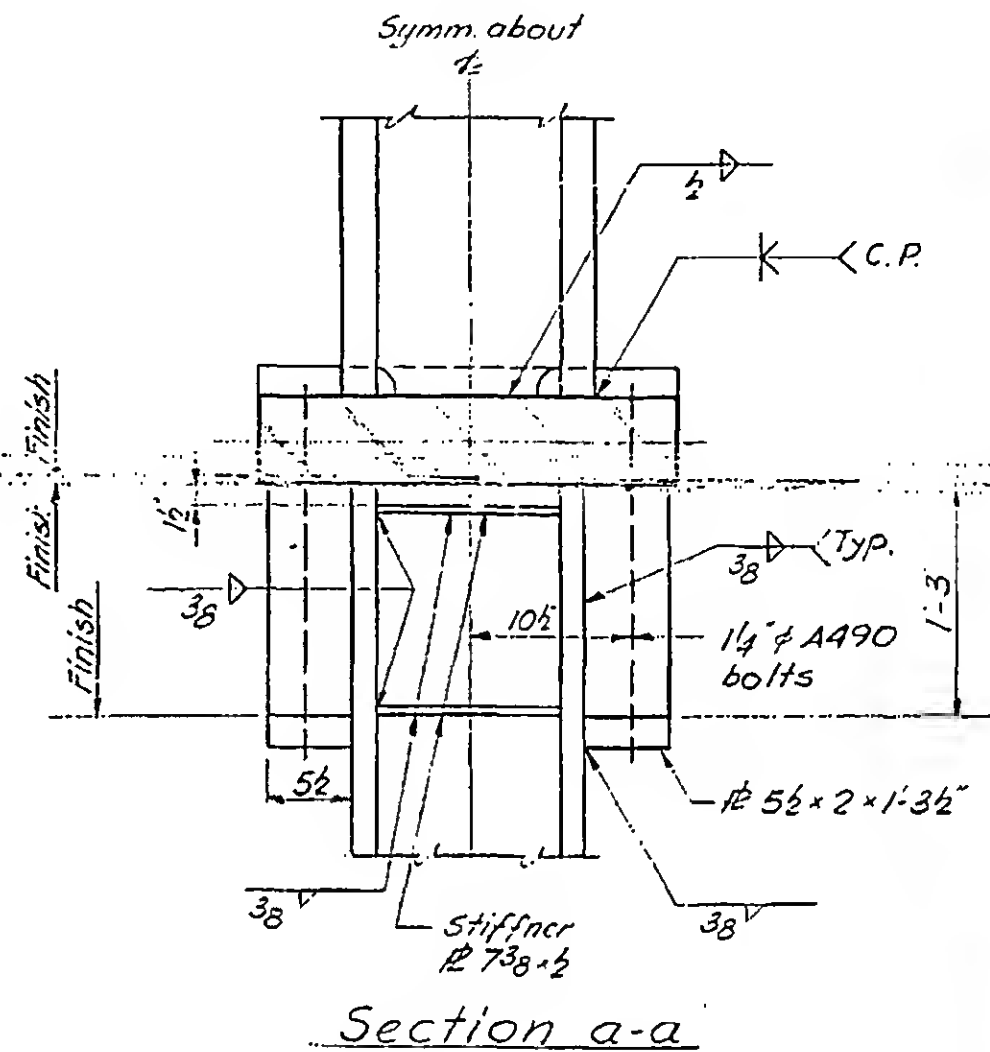
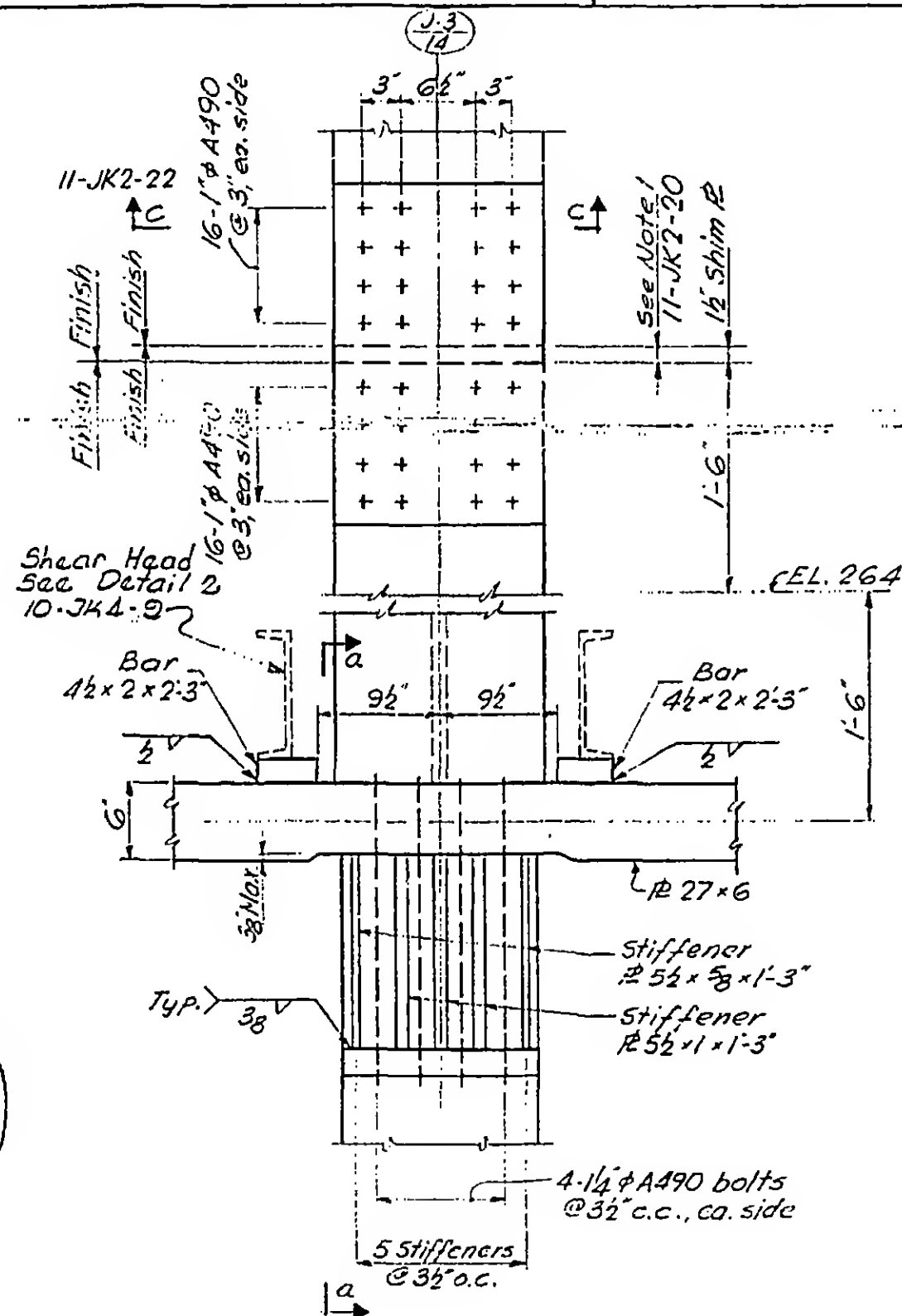
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 20

DATE 5-15-67

REVISIONS

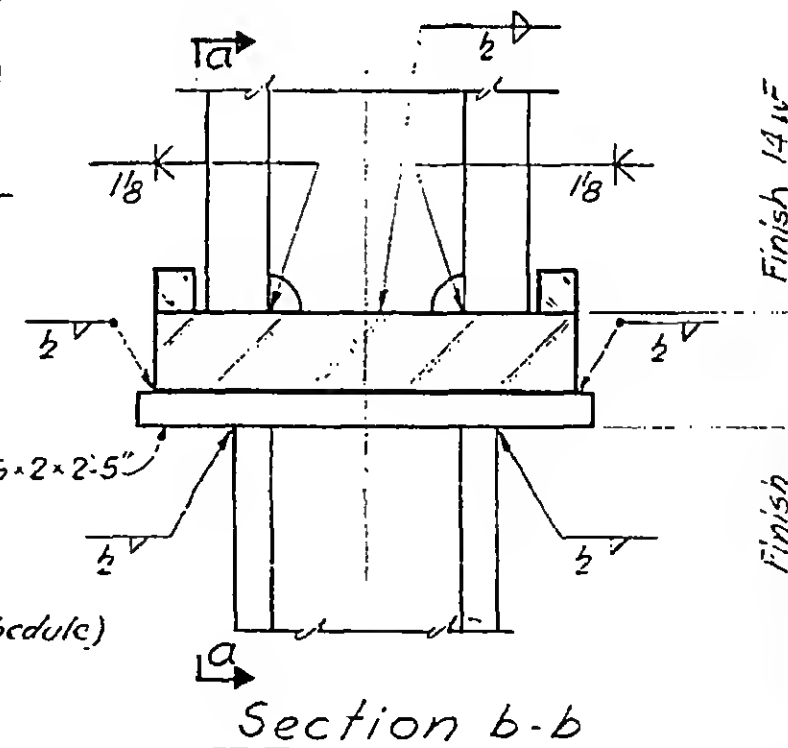
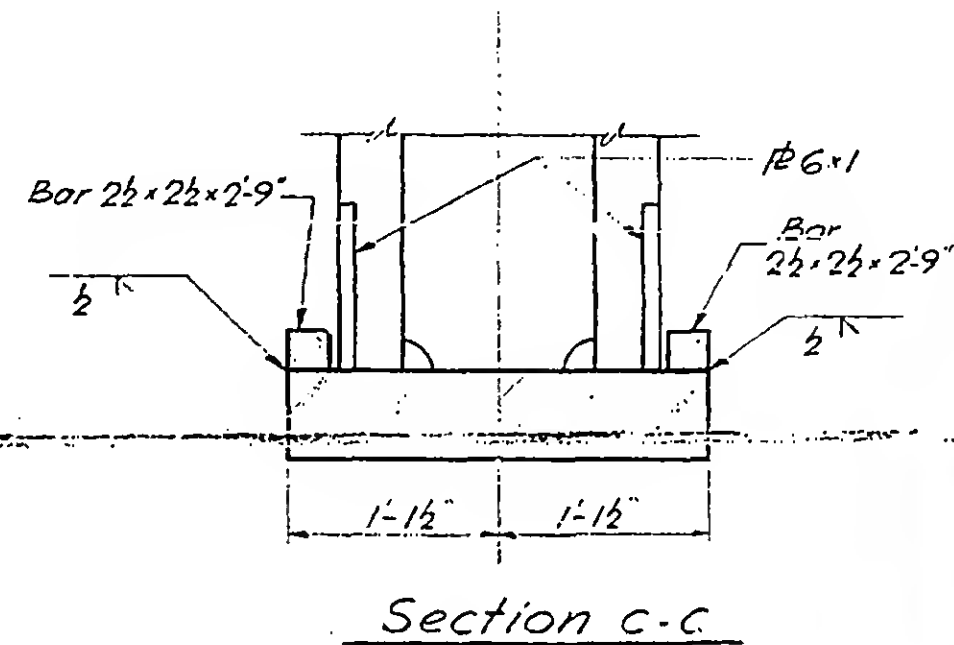
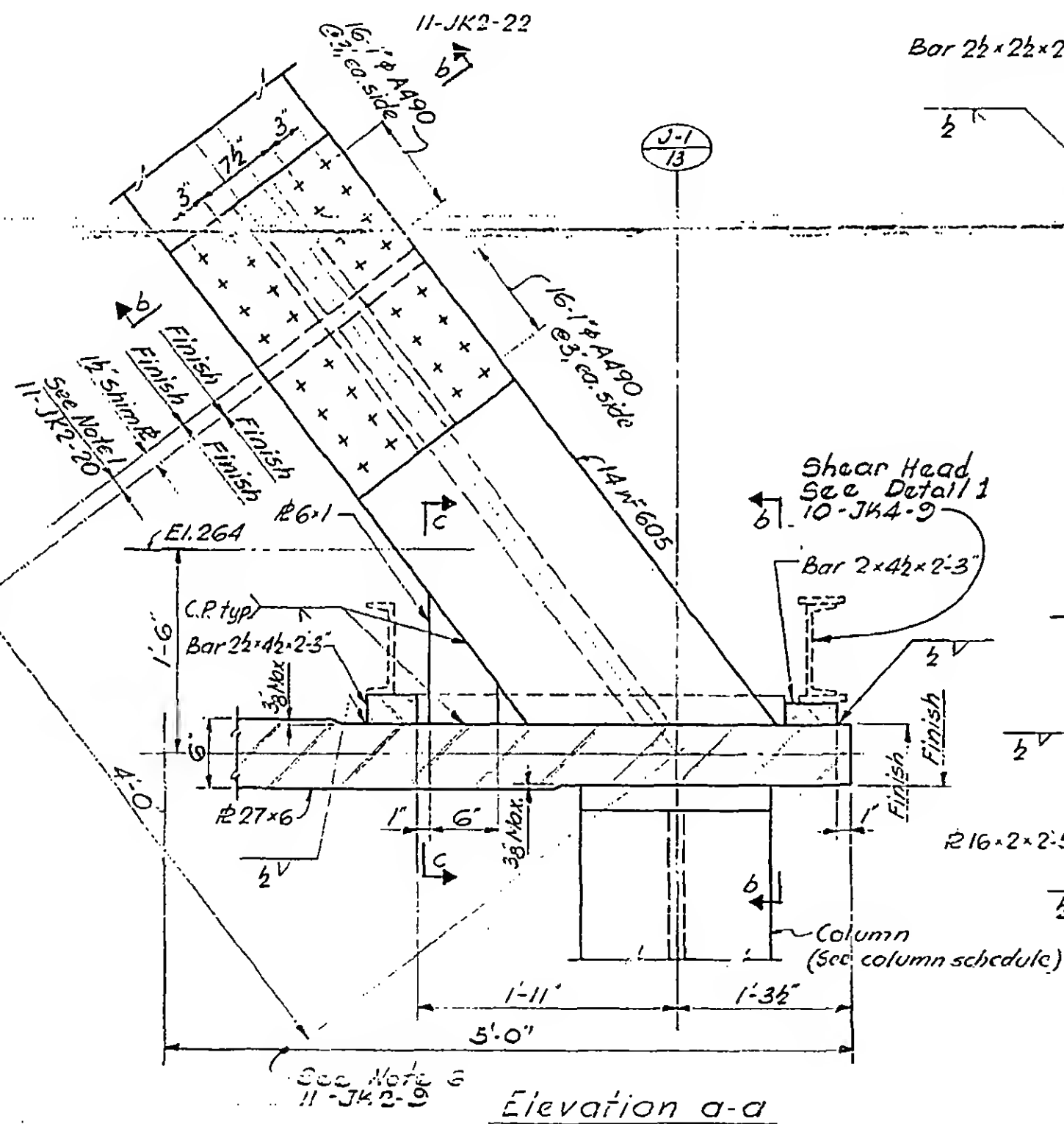
5-1-68



11-JK2-27

REVISIONS

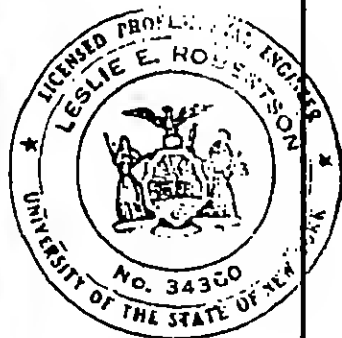
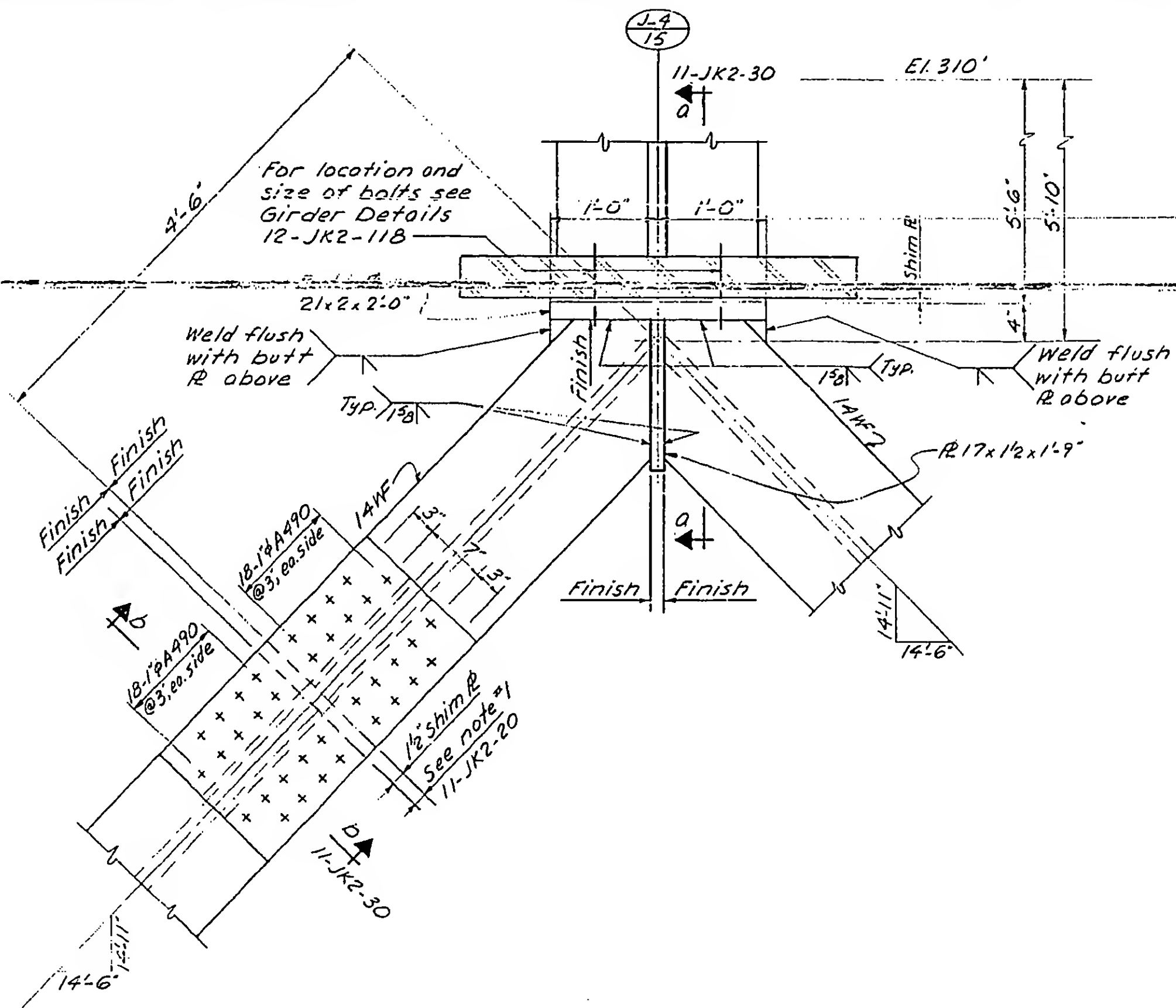
5-1-68



11-JK2-28

REVISIONS

5-1-68



11-JK2-29

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

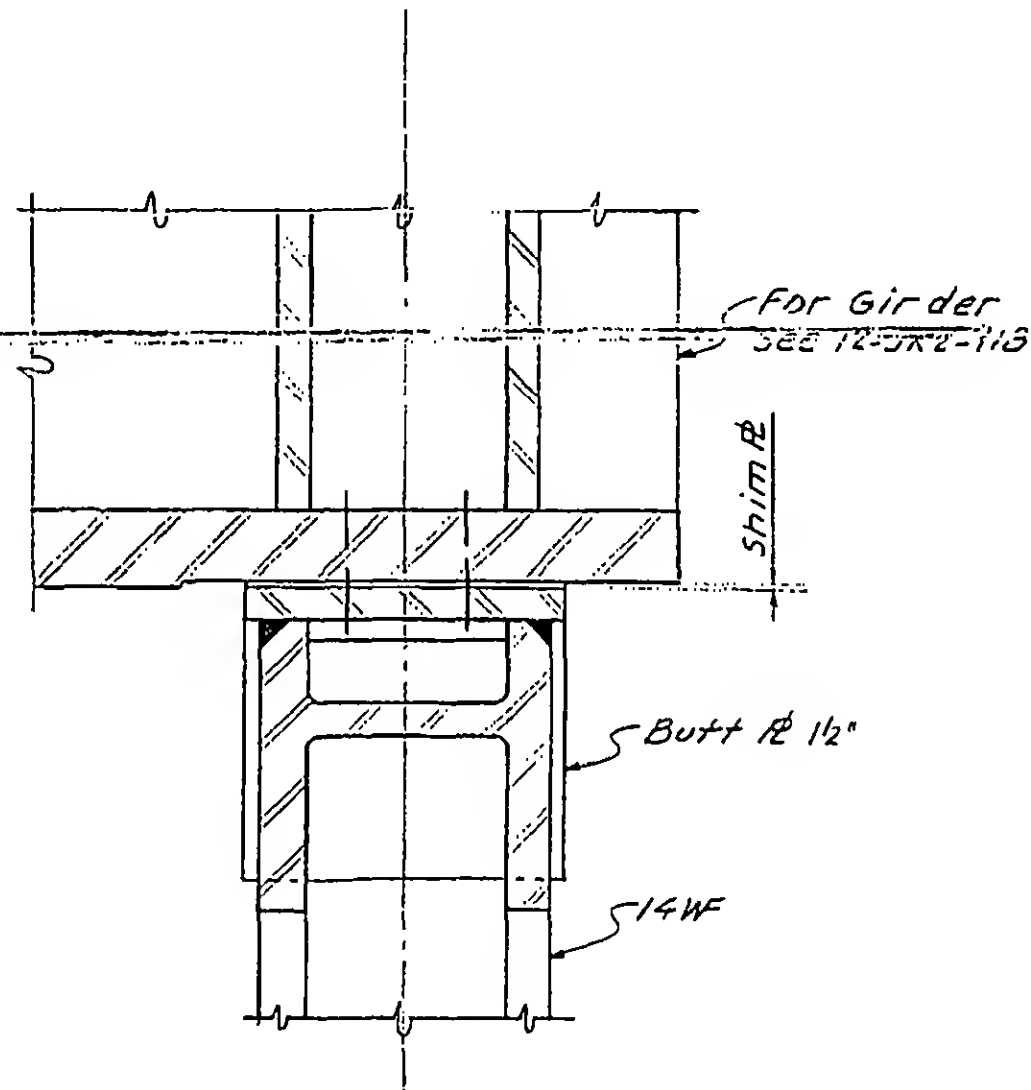
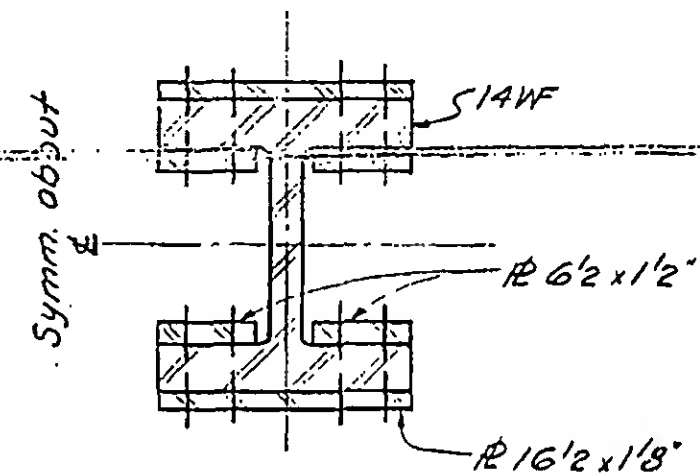
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER TITLE TRUSS DETAILS

DATE 5-15-67

REVISIONS

5-1-68

Section a-aSection b-b

Note:
Bolt holes thru 14WF
may be 1/8" larger than
nominal bolt size.



11-JK2-30

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

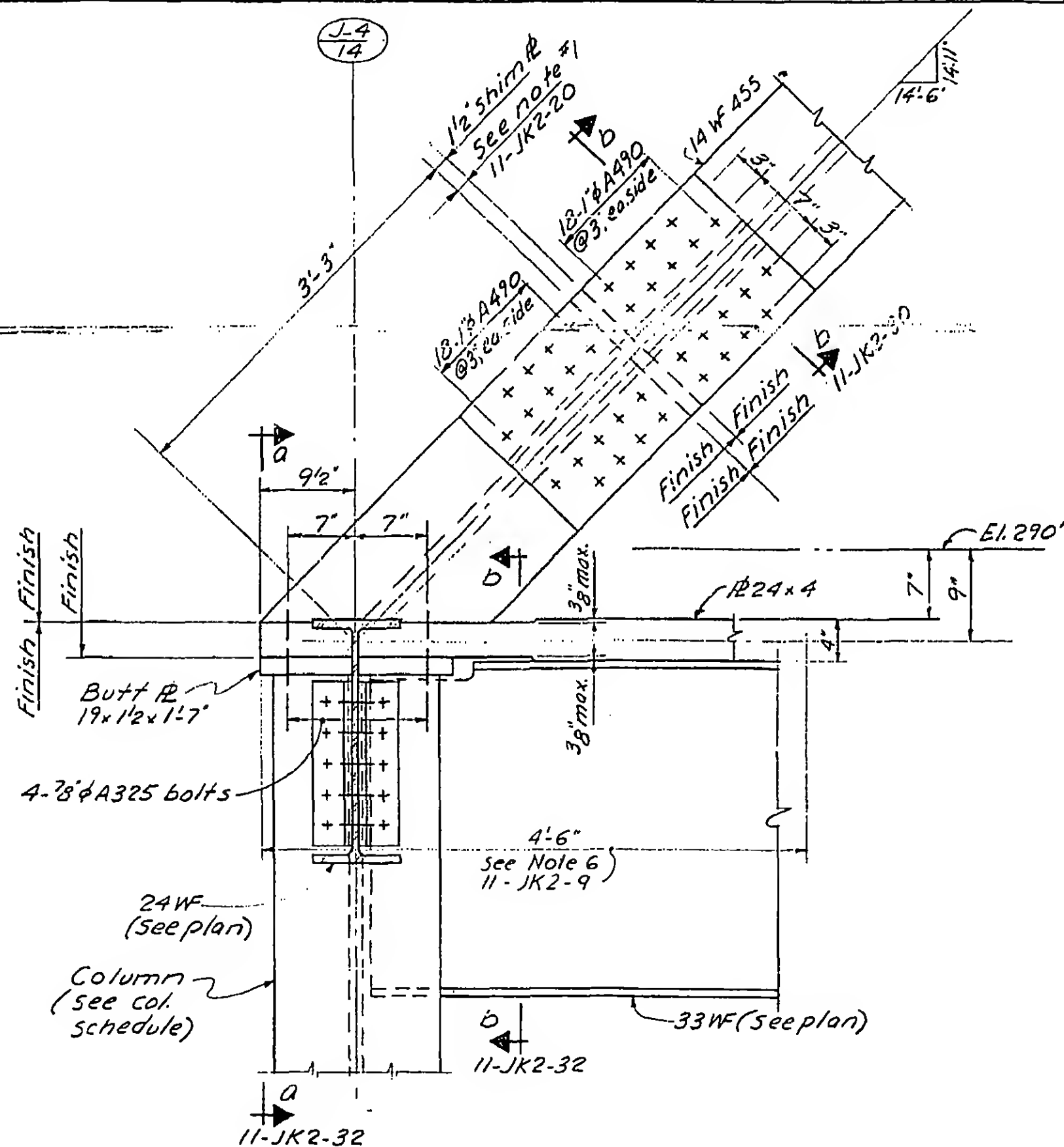
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 23

DATE 5-15-67

REVISIONS

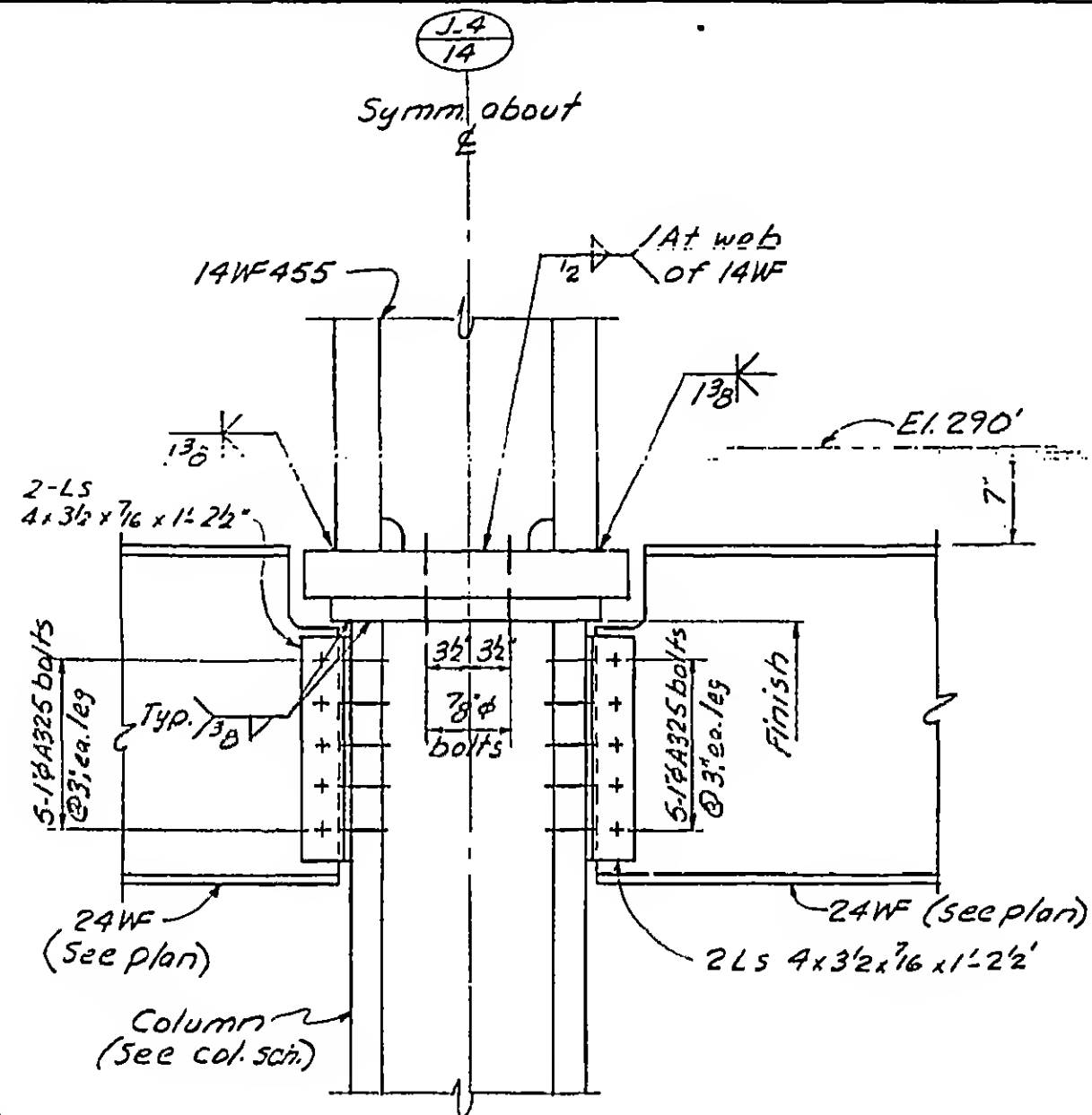
5-1-68



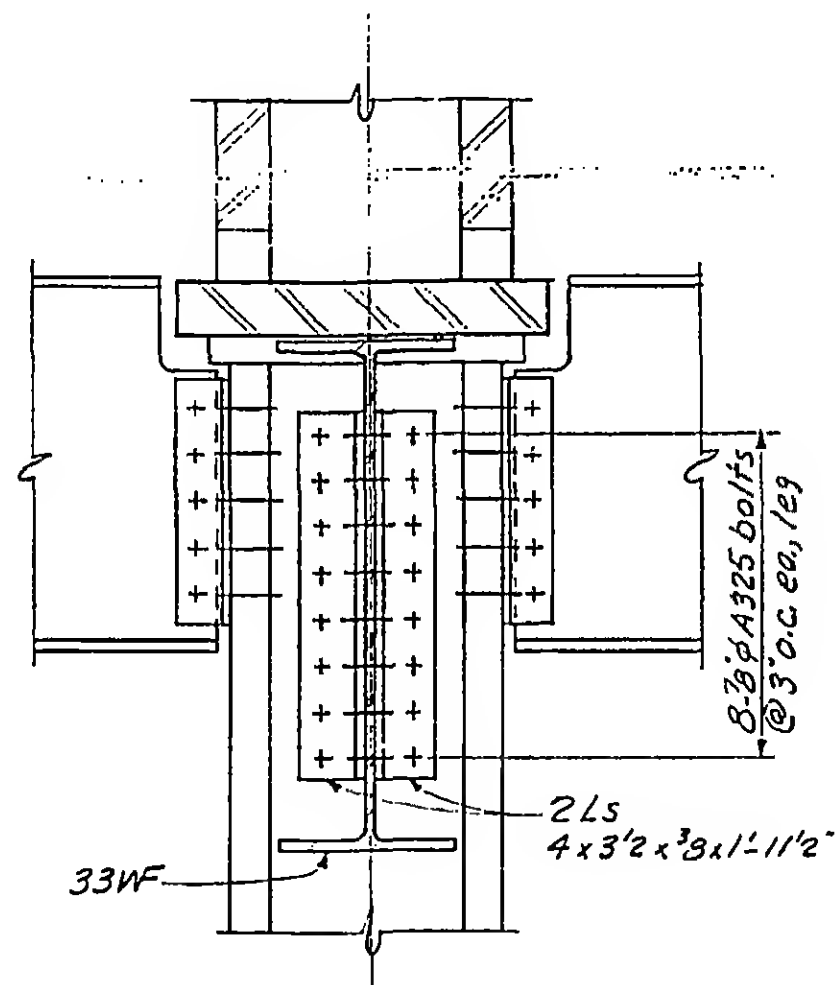
11-JK2-31

REVISIONS

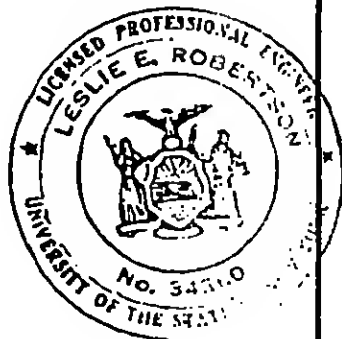
5-1-68



Section a-a



Section b-b



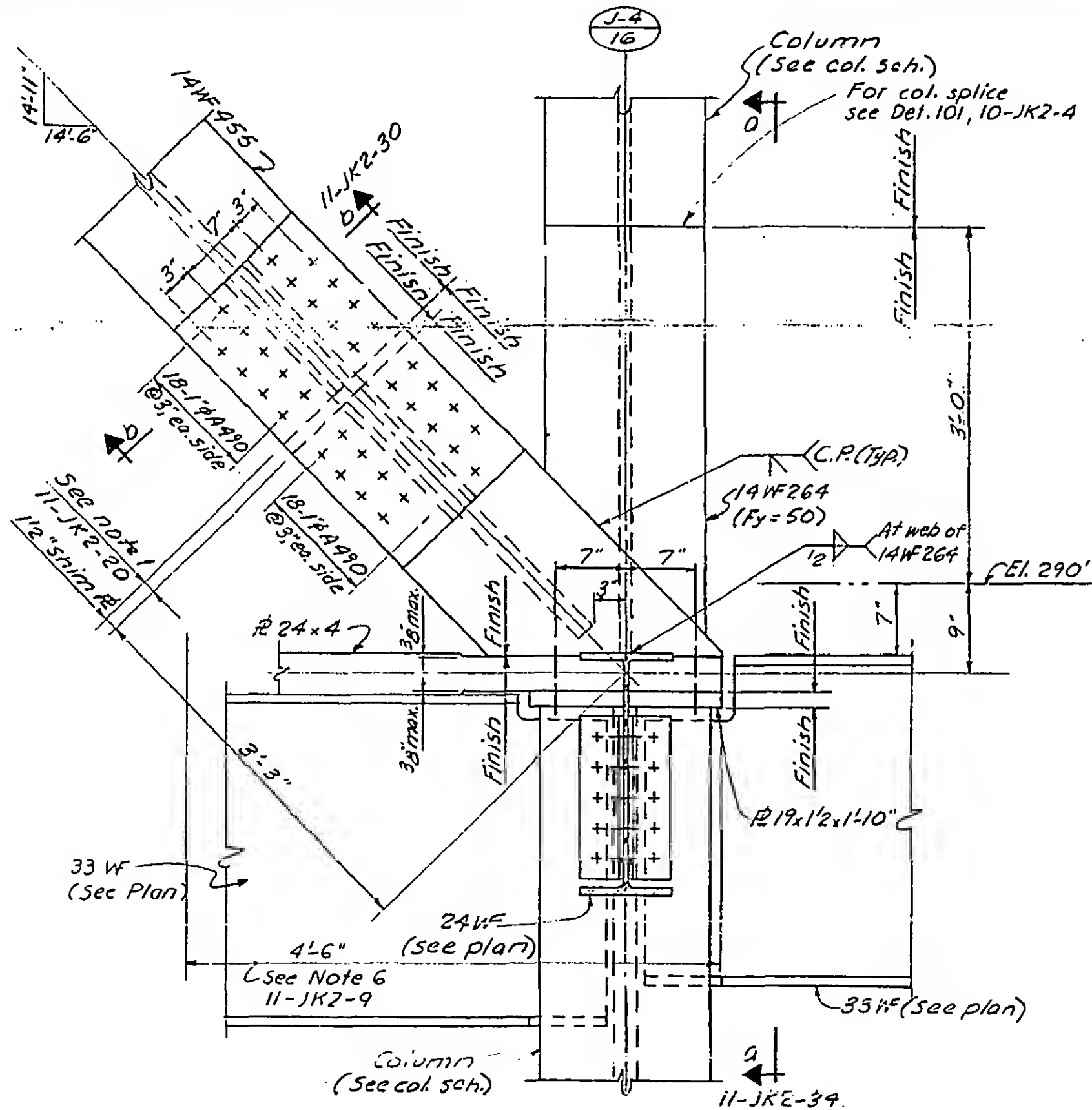
Structural & Civil Engineers

TITLE	TRUSS DETAIL 24
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DATE 5-15-67

REVISIONS

5-1-68

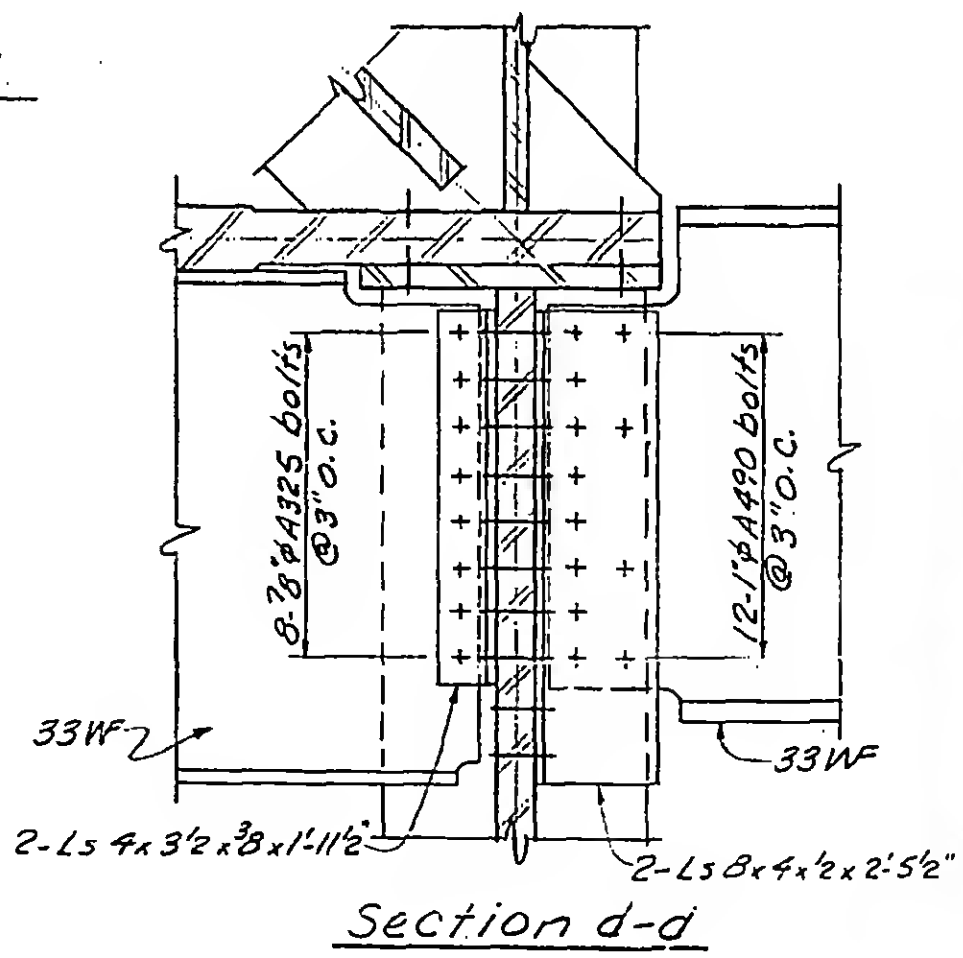
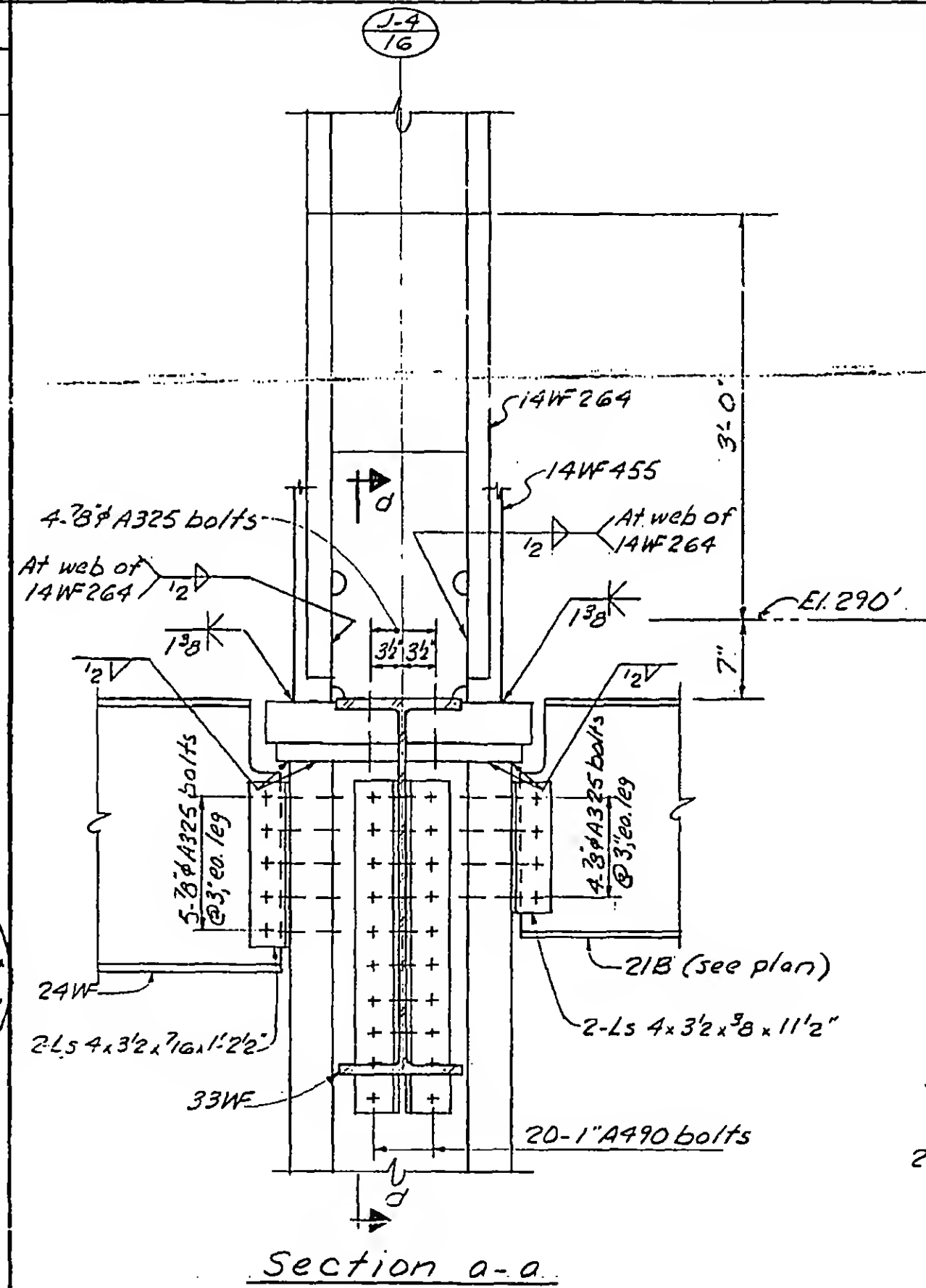


11-JK2-33



REVISIONS

5-1-68



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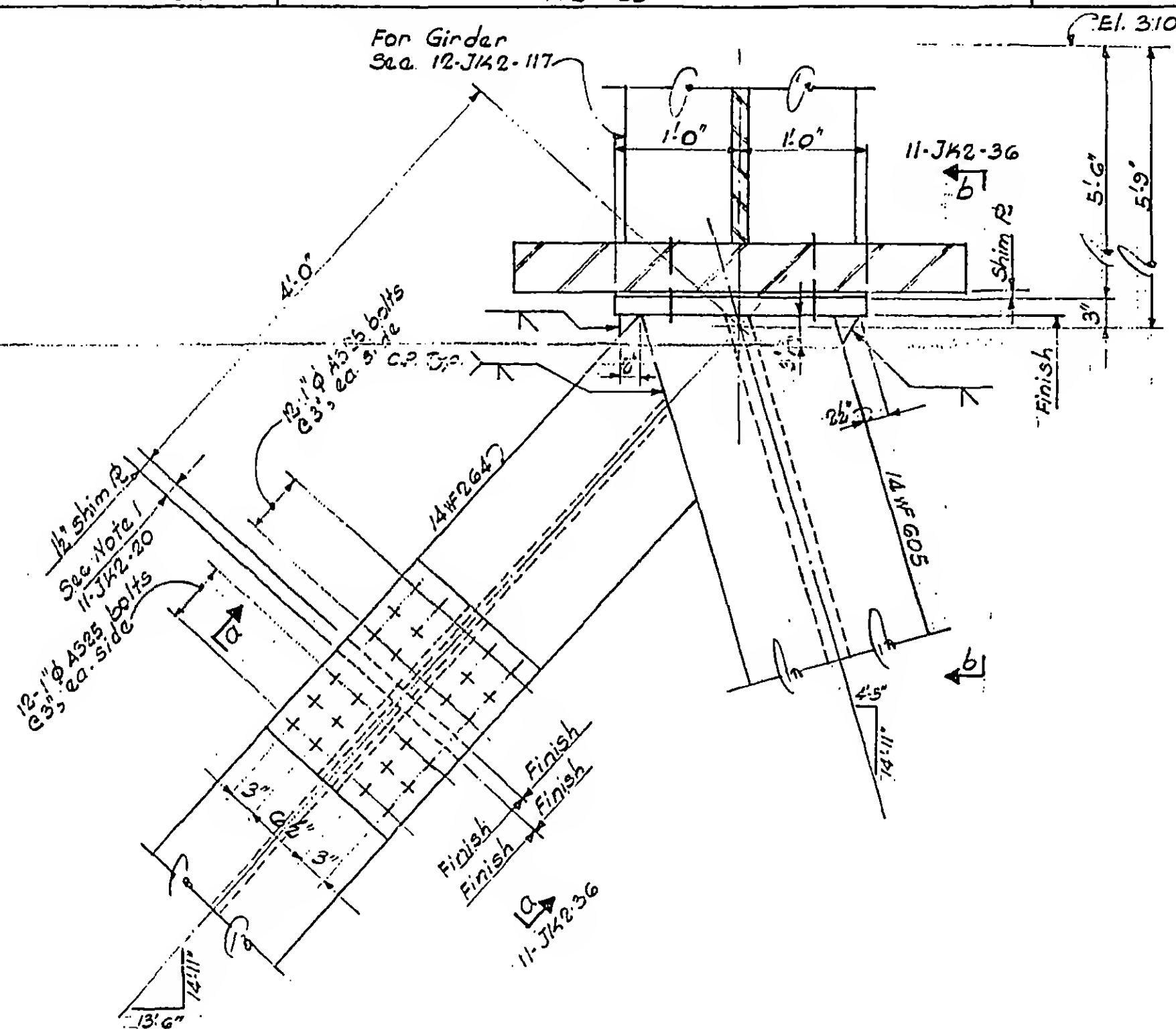
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 25

DATE 5-15-67

REVISIONS

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11-JK2-35

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

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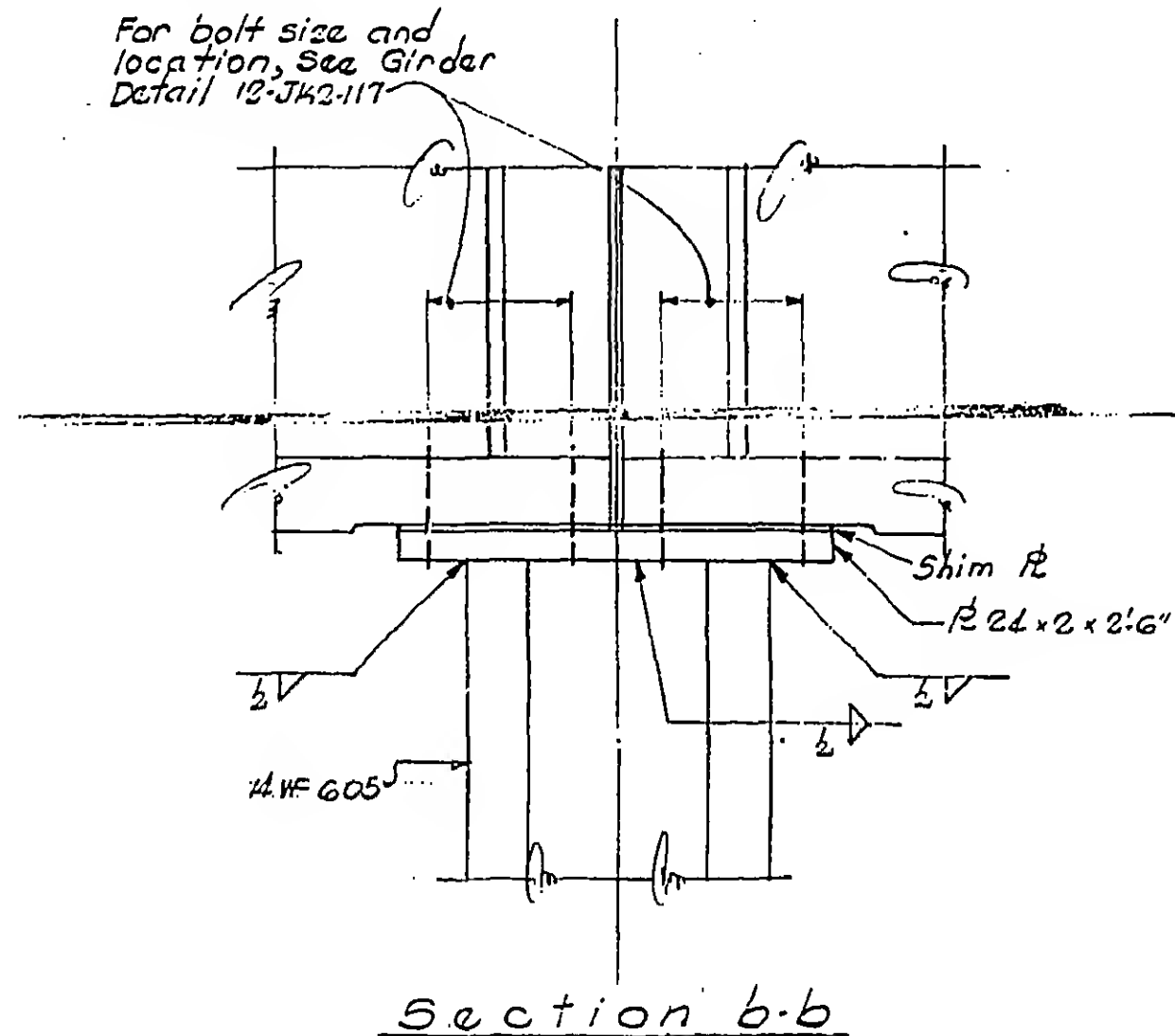
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL

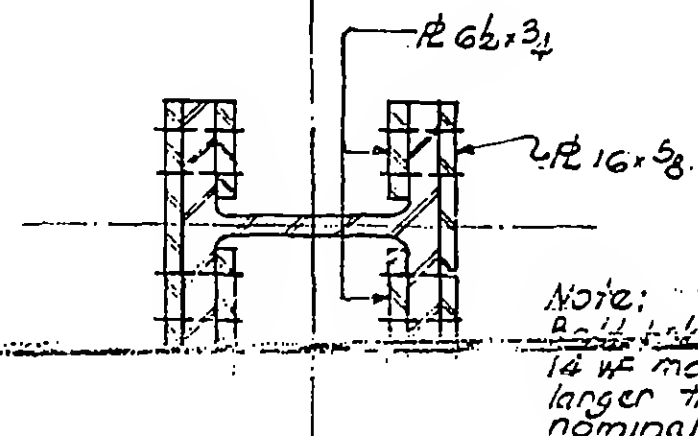
DATE 5-1-68

REVISIONS

For bolt size and
location, See Girder
Detail 12-JK2-117



Symm. about

Section a-a

11-JK2-36

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

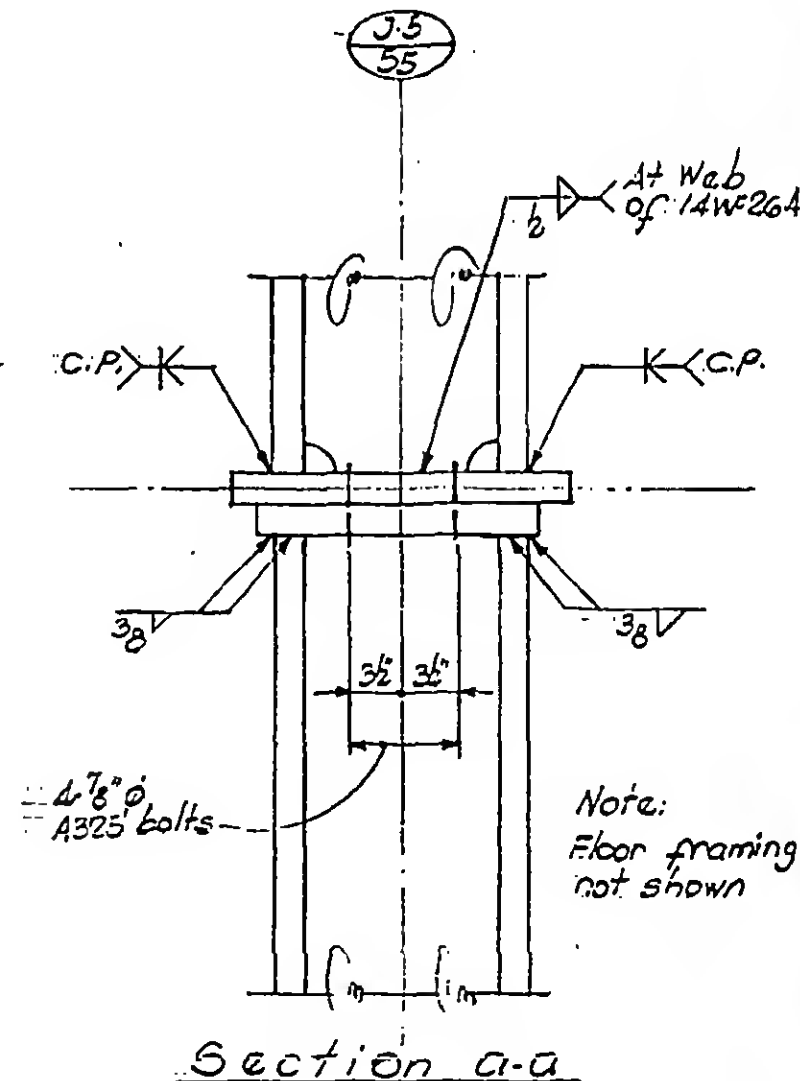
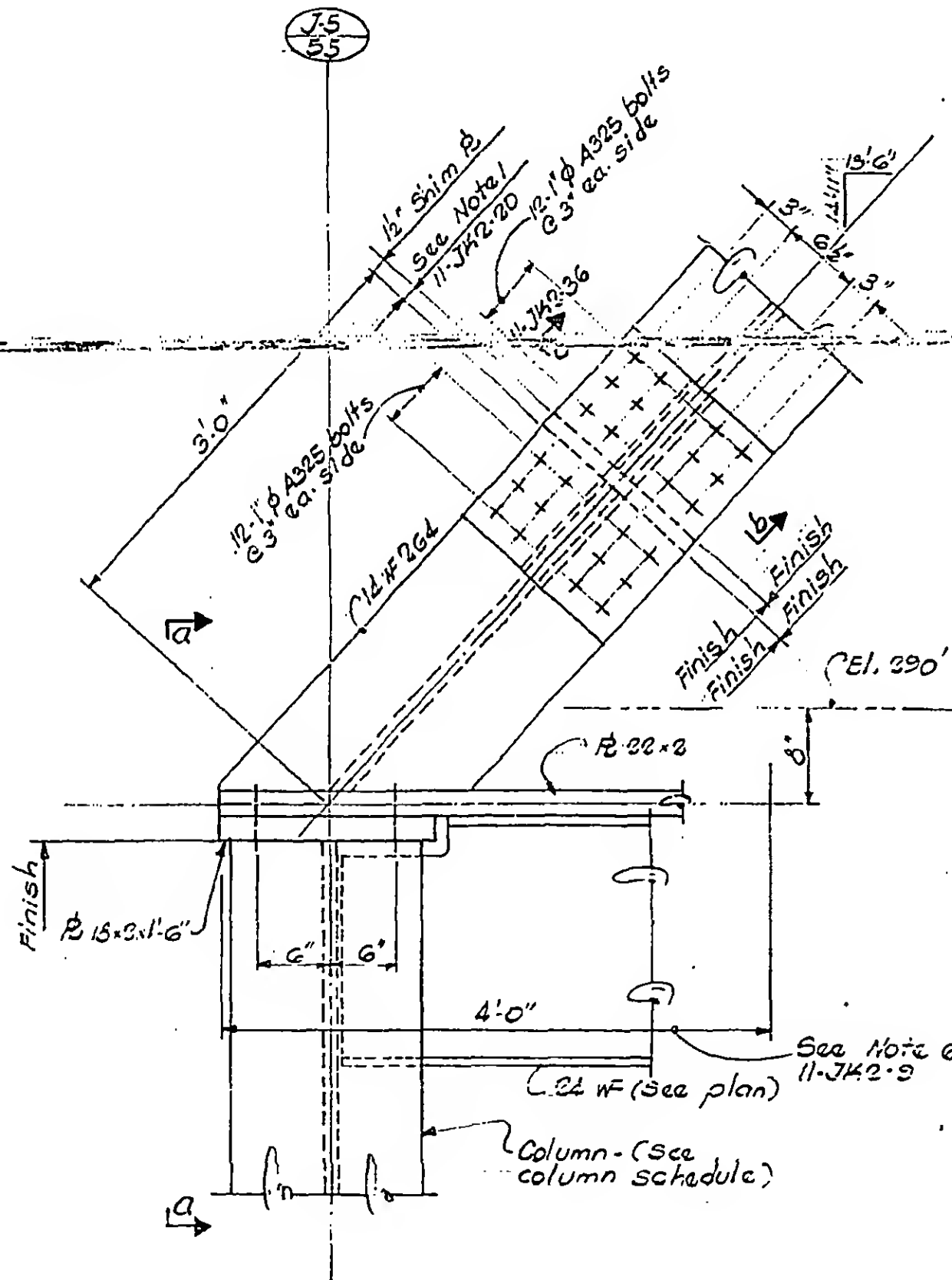
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 26

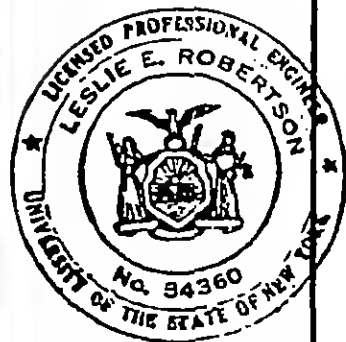
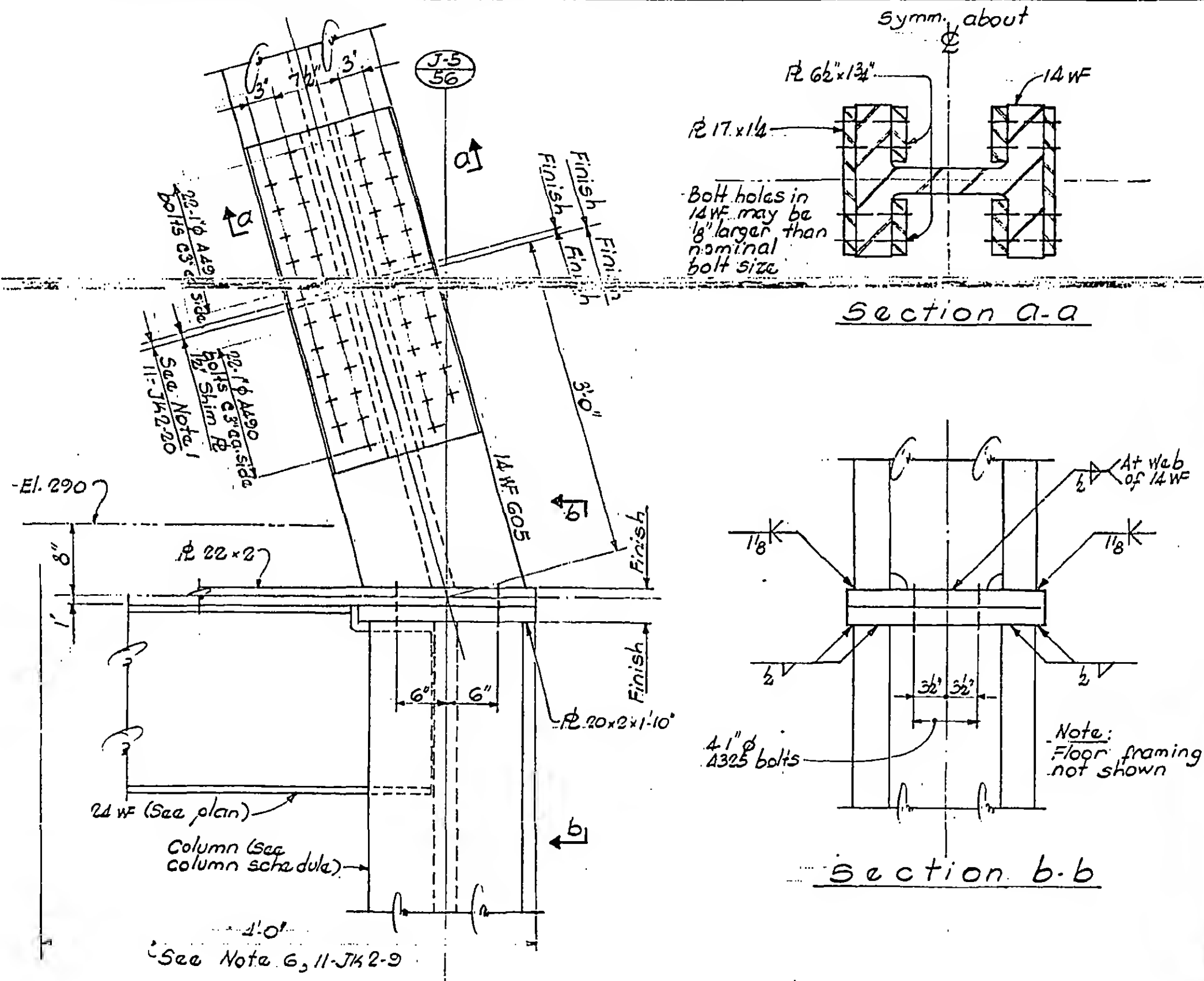
DATE 5-1-68

REVISIONS

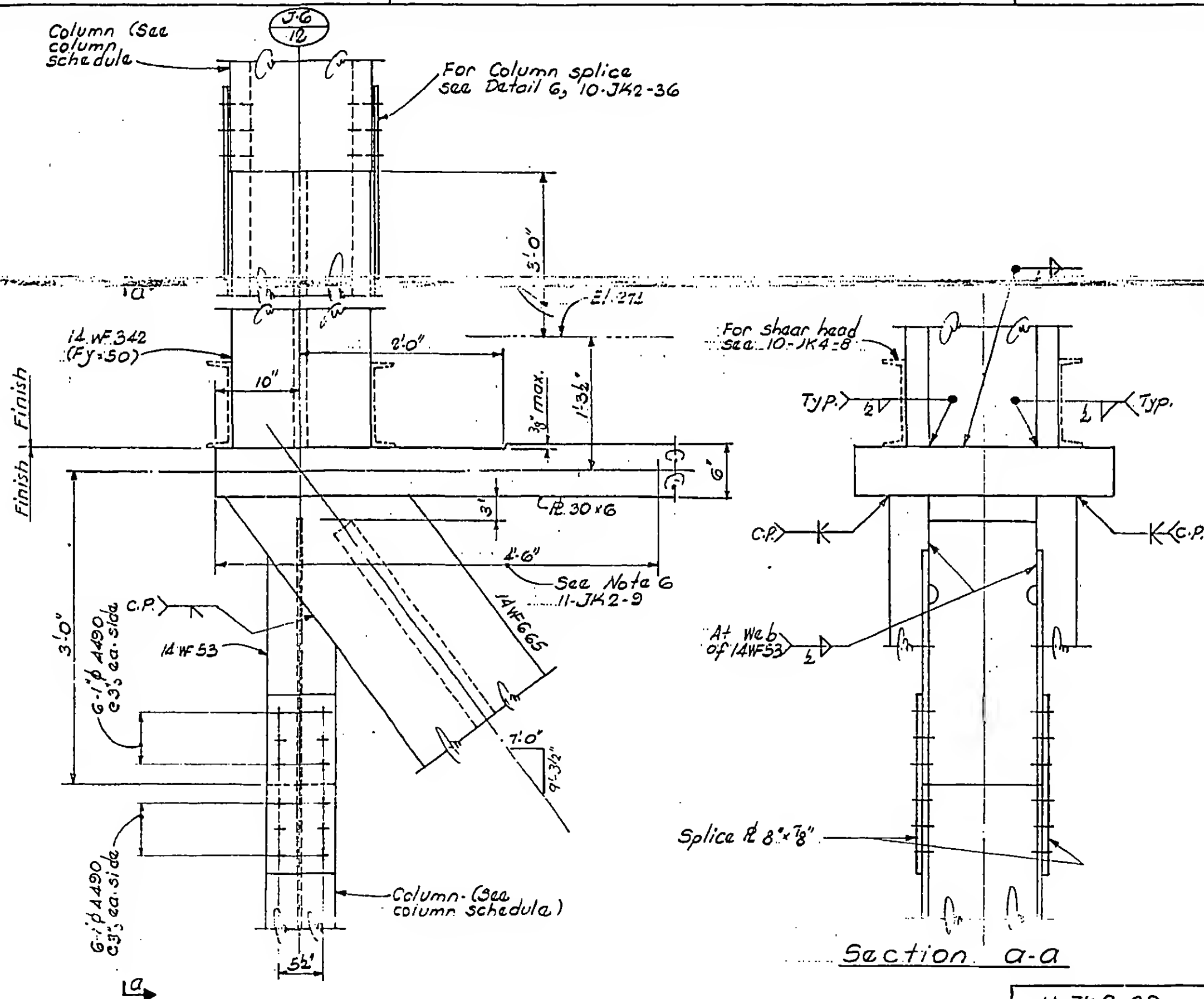


11-JK2-37

REVISIONS



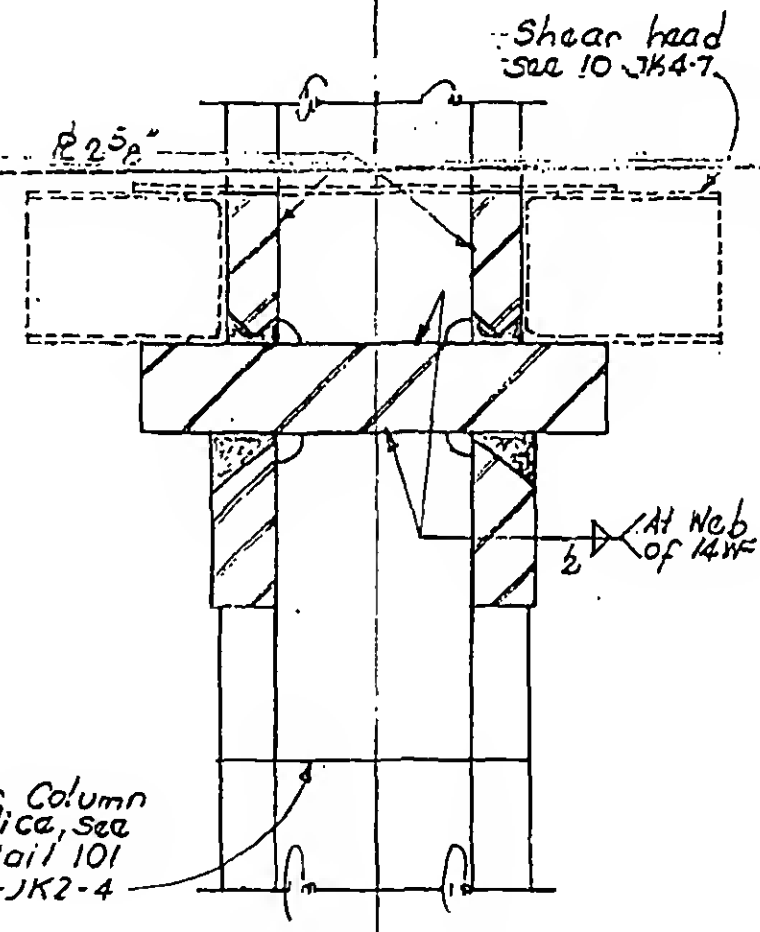
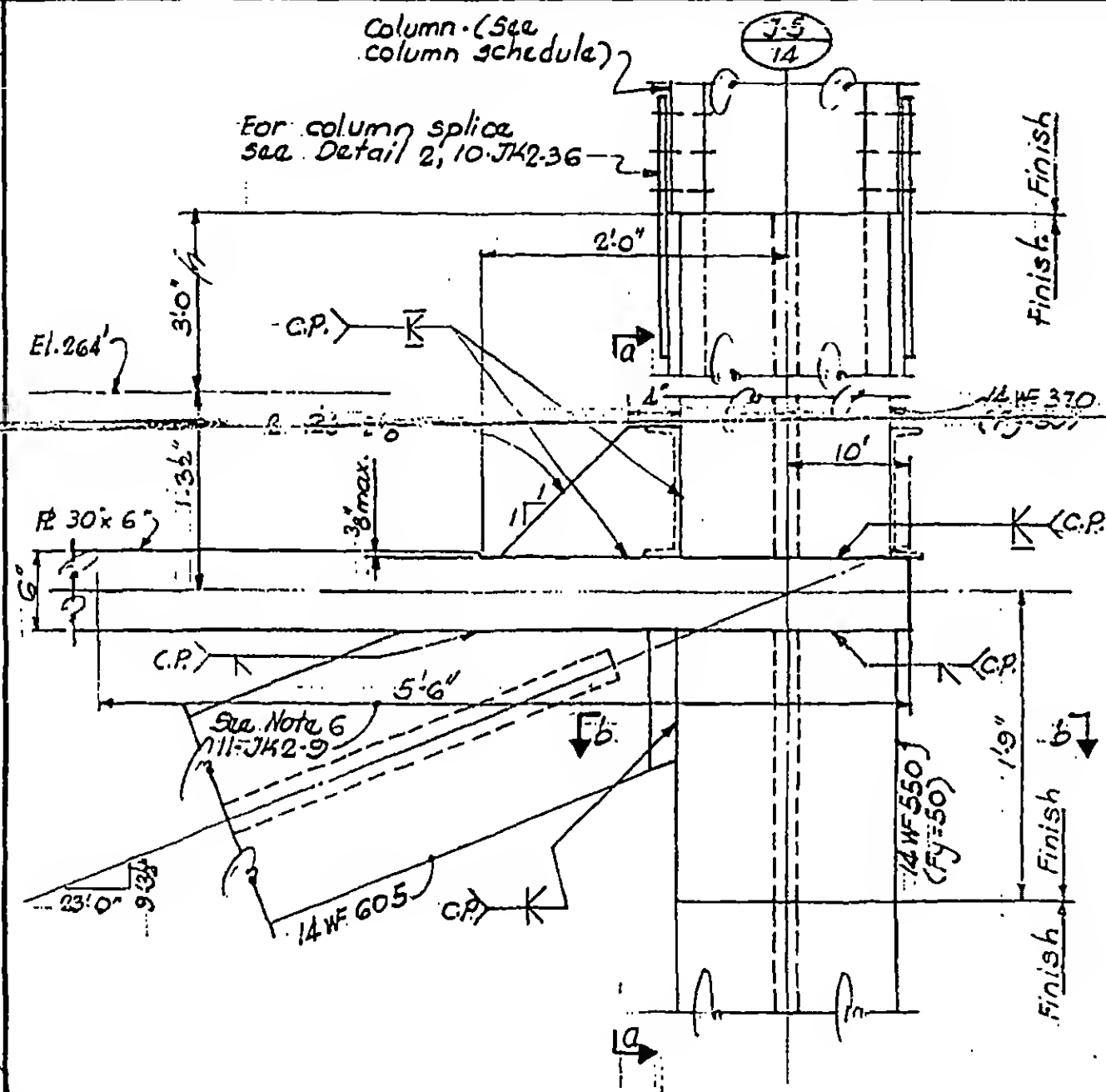
REVISIONS



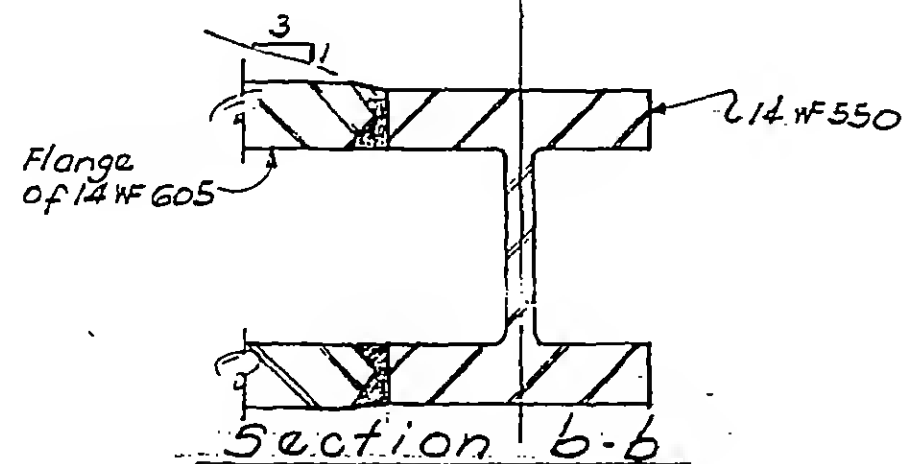
11-JK2-39



REVISIONS



Section a-a

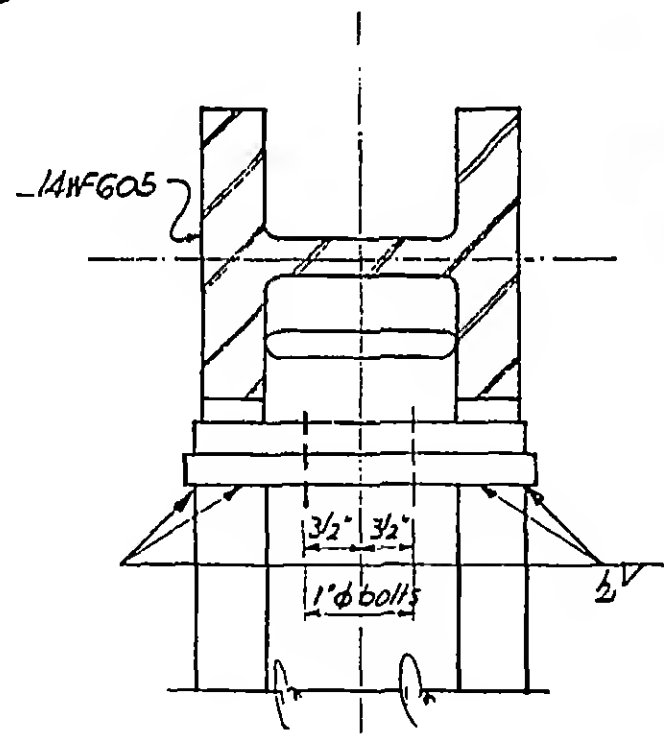
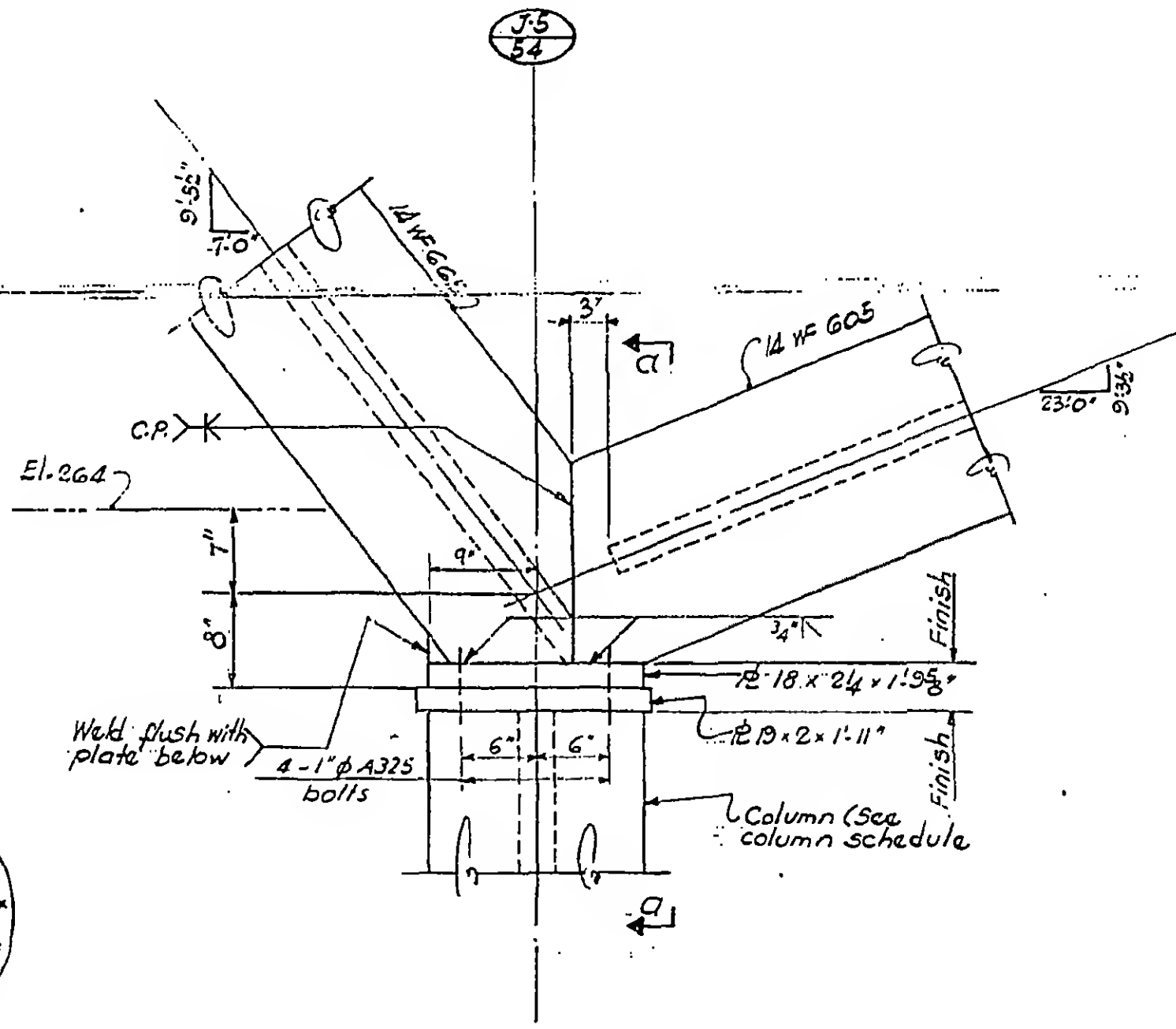


Section 6-b



11-JK2-40

REVISIONS



Section a-a



SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

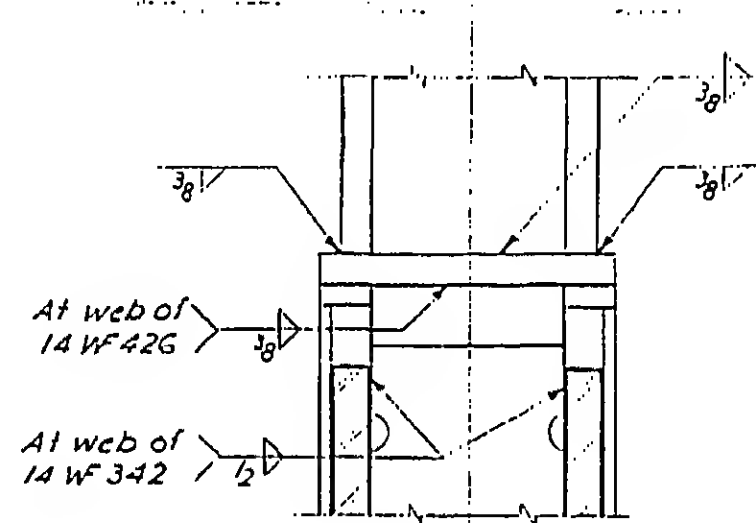
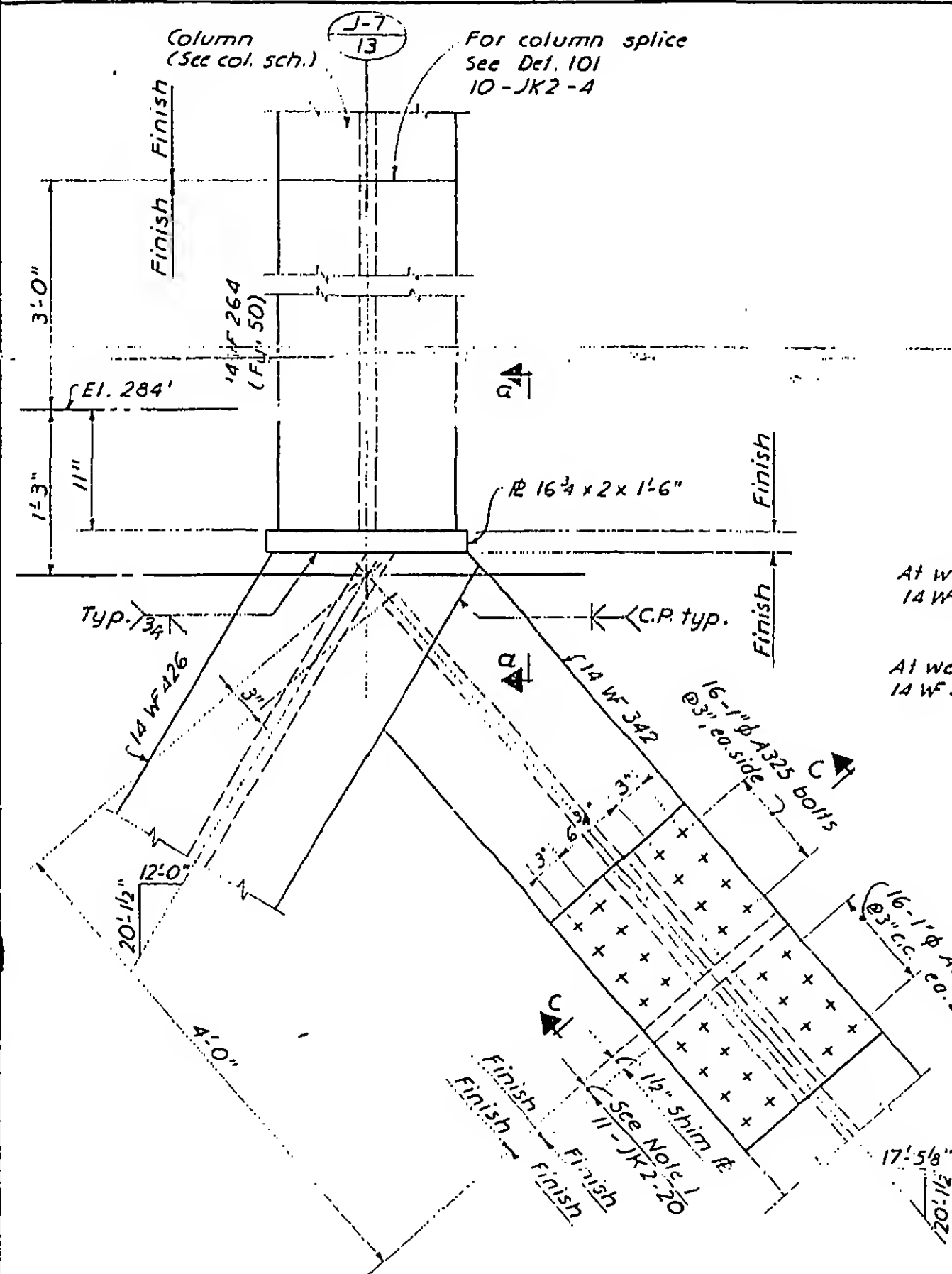
Structural & Civil Engineers

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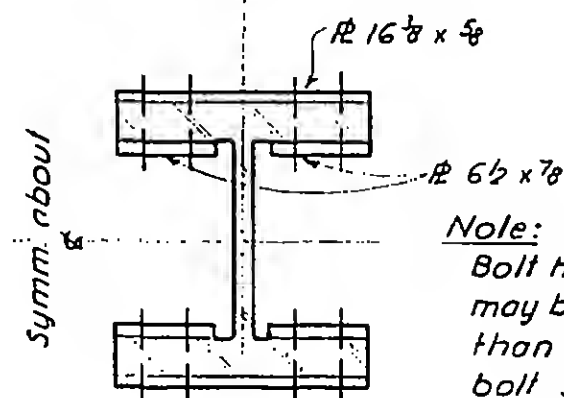
TITLE TRUSS DETAIL 31

DATE 5-1-68

REVISIONS

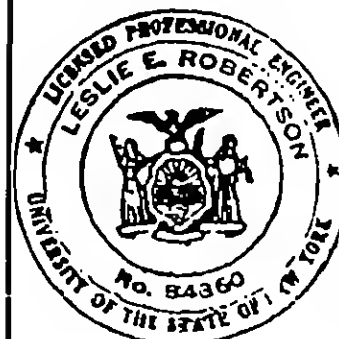


Section a-a



Section c-c

Note:
Bolt holes in 14 WF
may be 1/8" larger
than nominal
bolt size



11-JK2-42

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

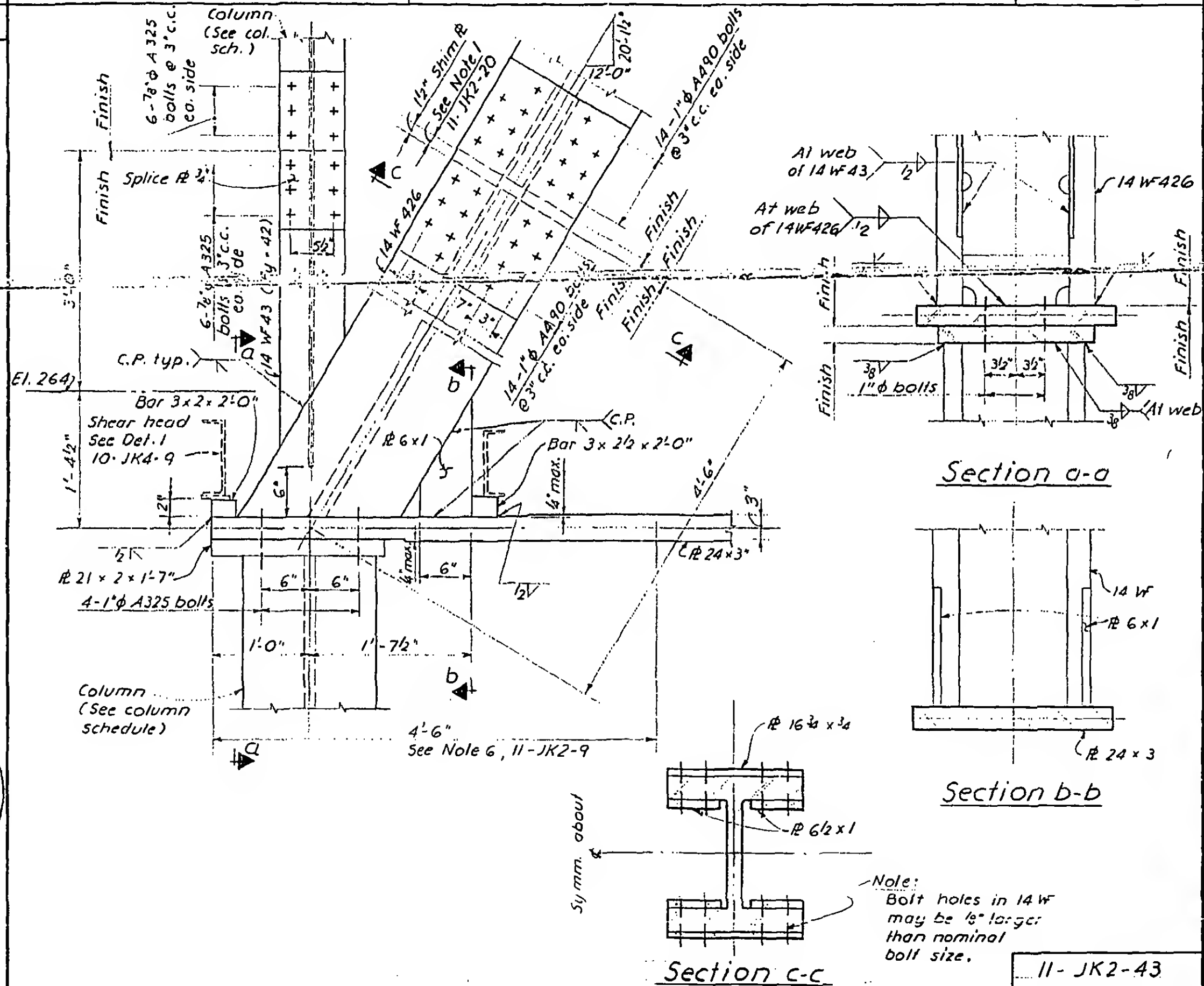
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 32

DATE 5-1-68

REVISIONS



SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

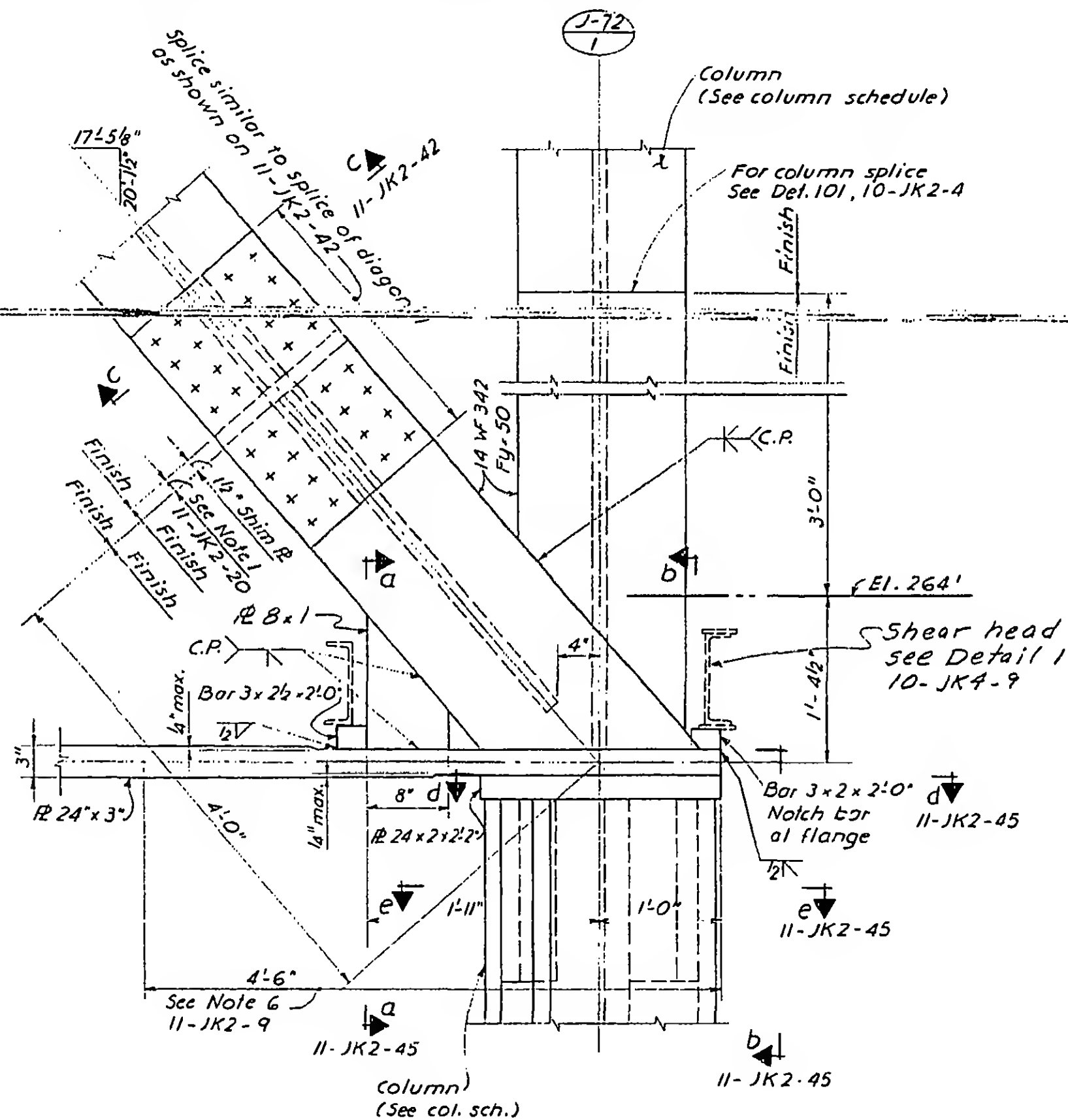
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 33

DATE 5-1-68

REVISIONS



11-JK2-44

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

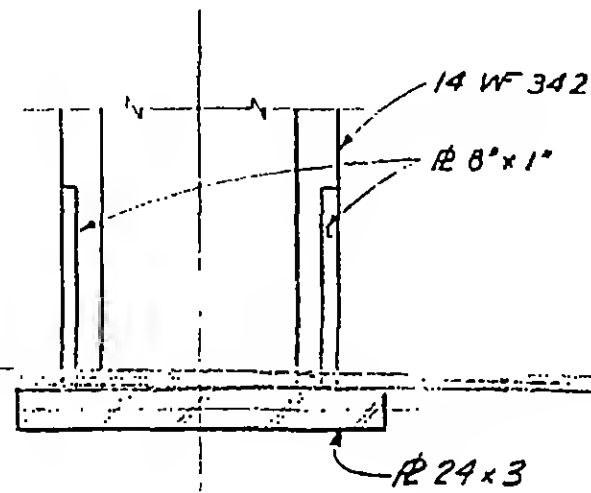
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

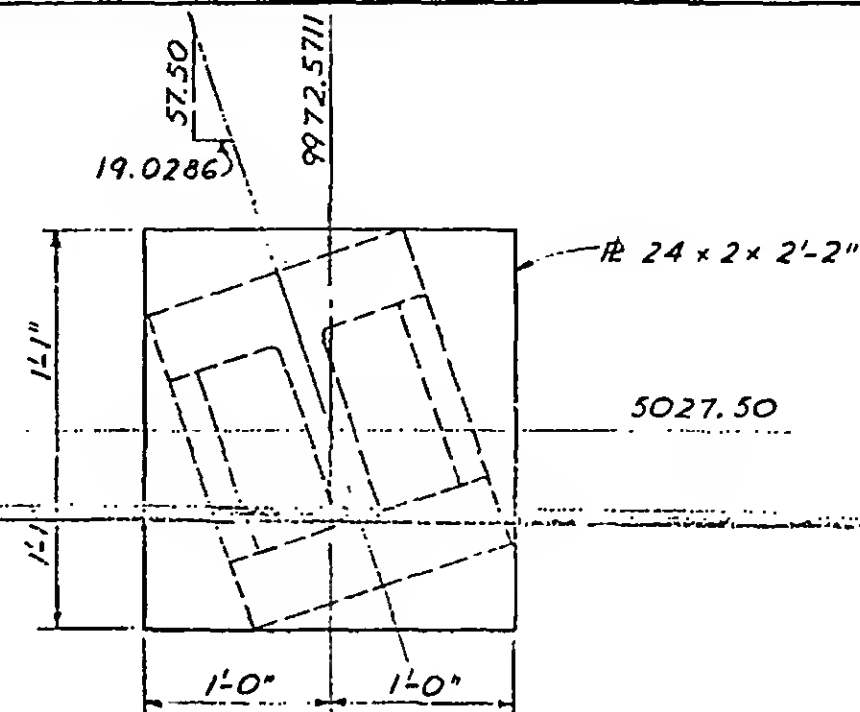
TITLE TRUSS DETAIL 33

DATE 5-1-68

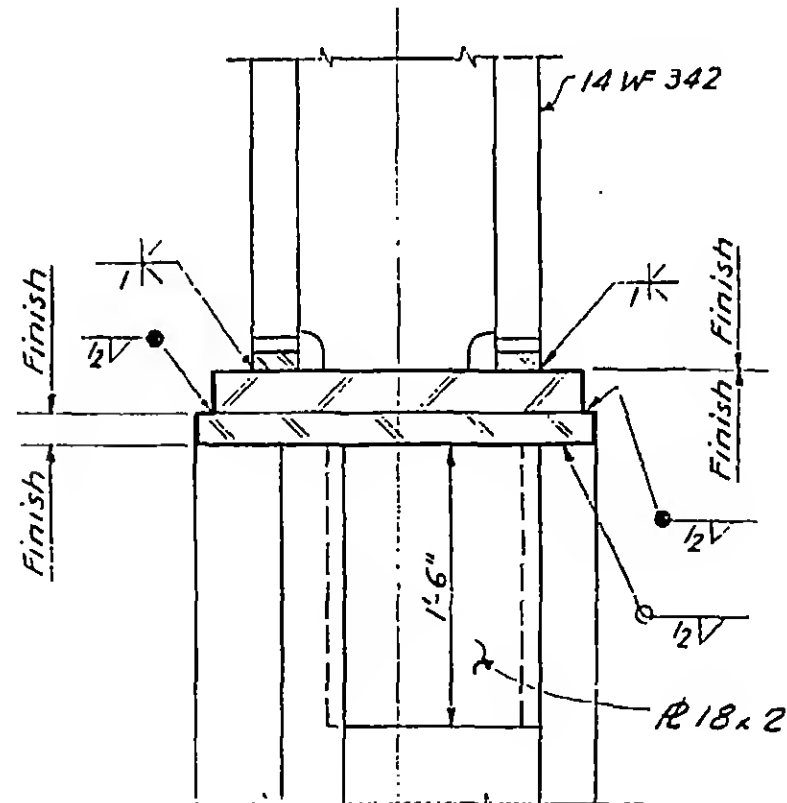
REVISIONS



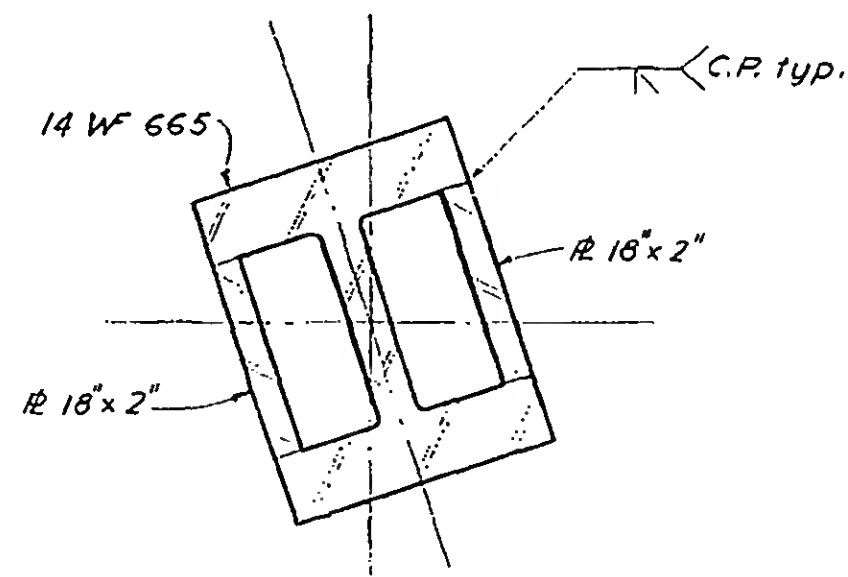
Section a-a



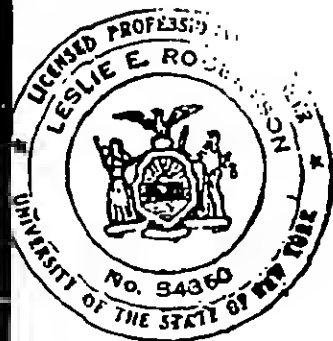
Section d-d



Section b-b

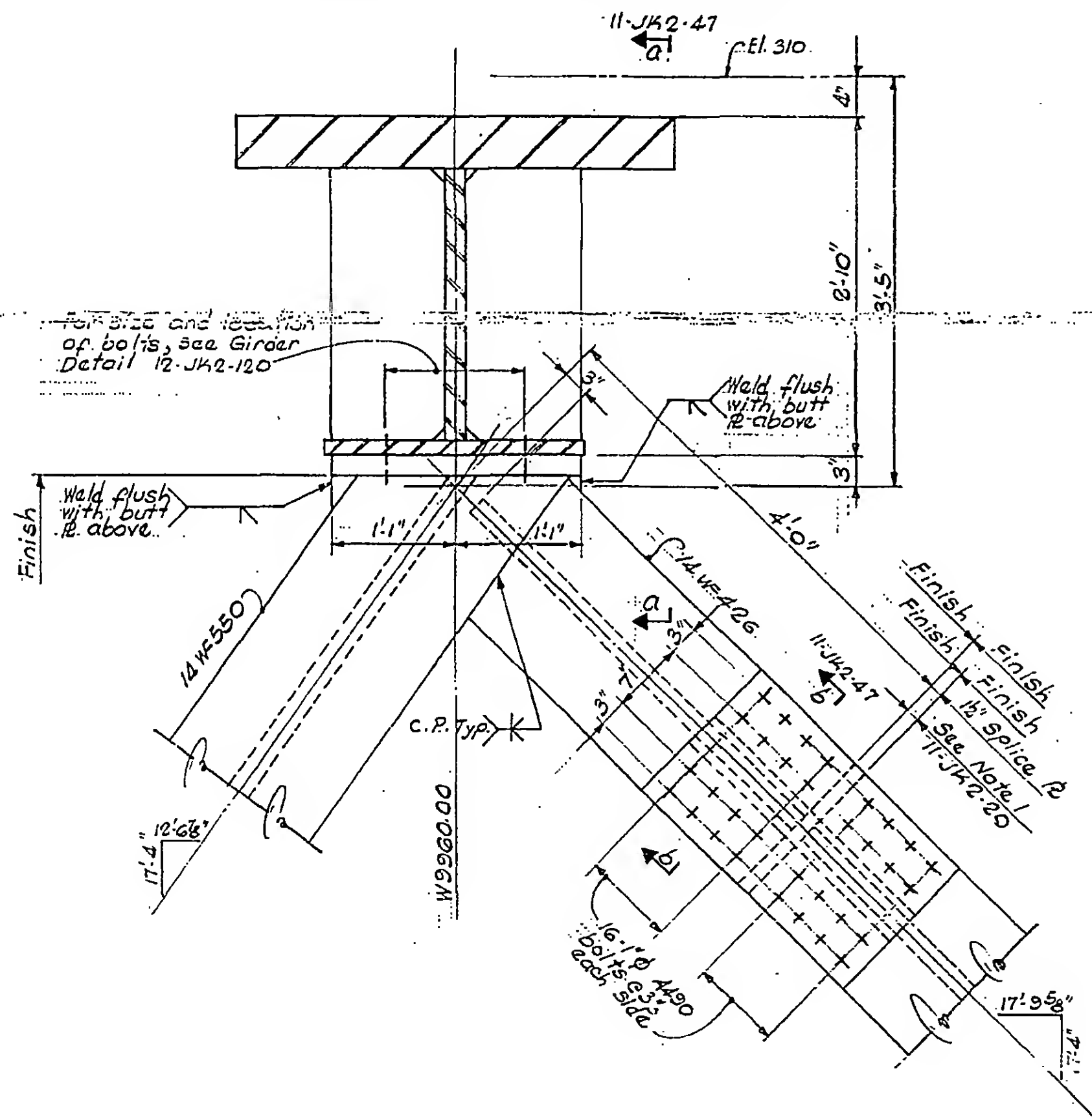


Section e-e



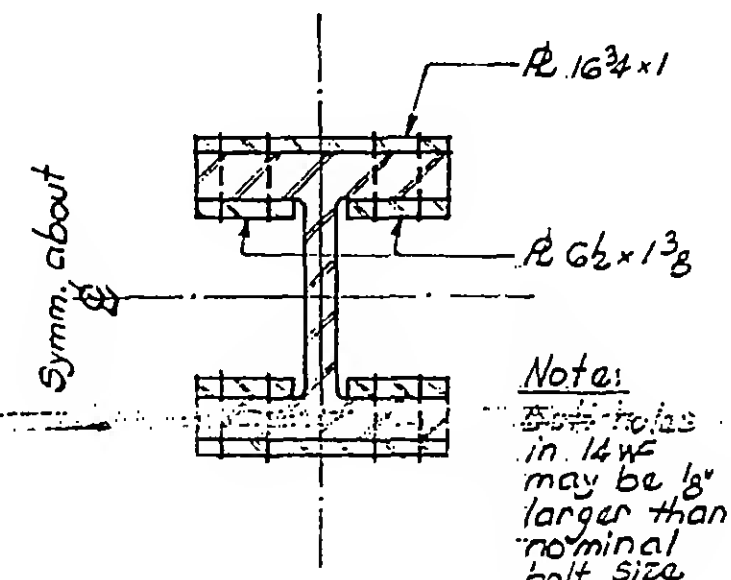
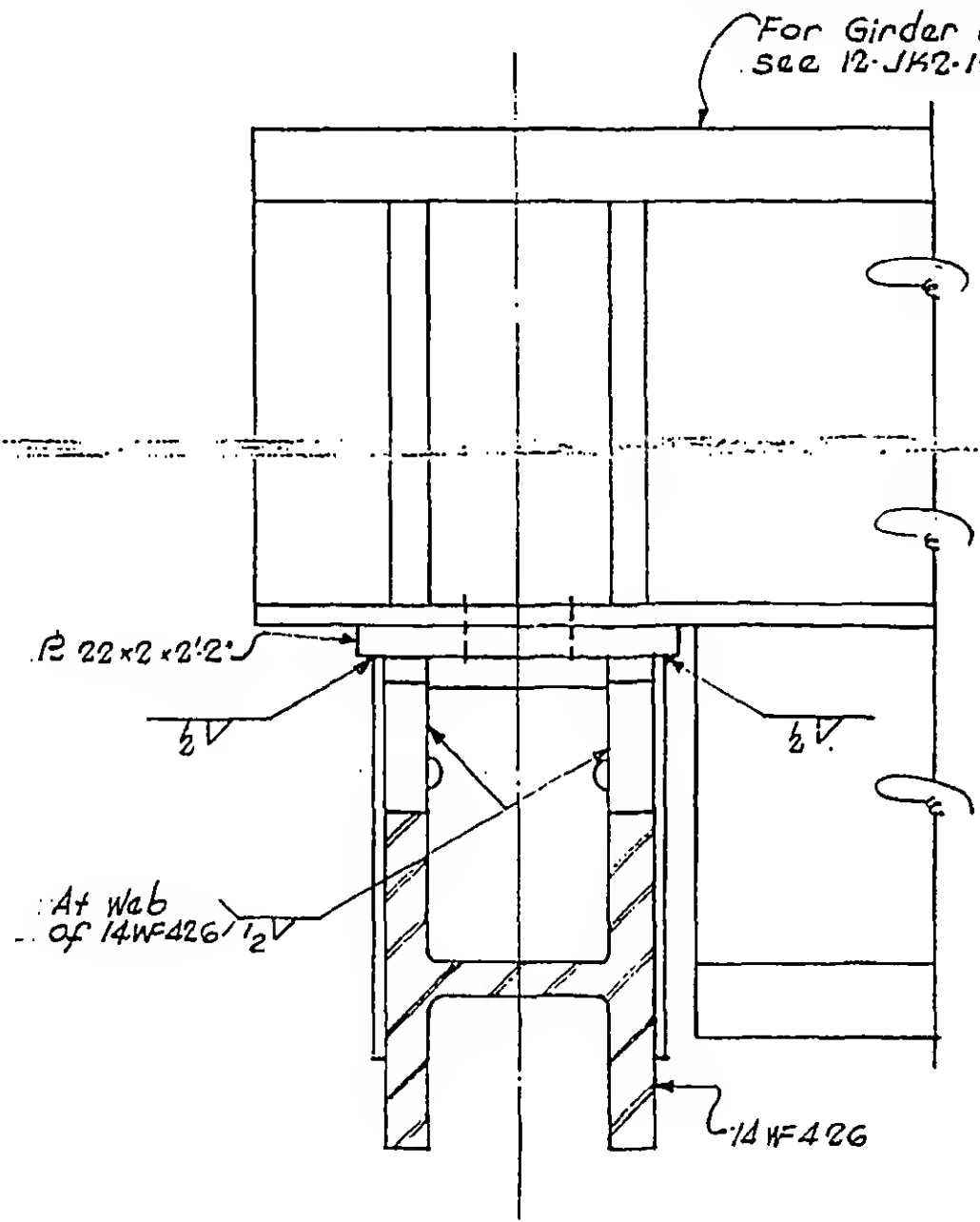
11-JK2-45

REVISIONS



11-JK2-46

REVISIONS

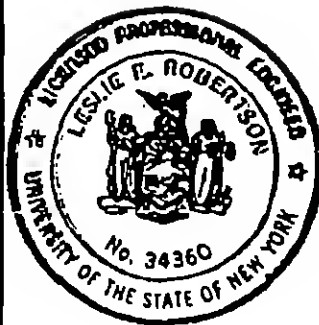
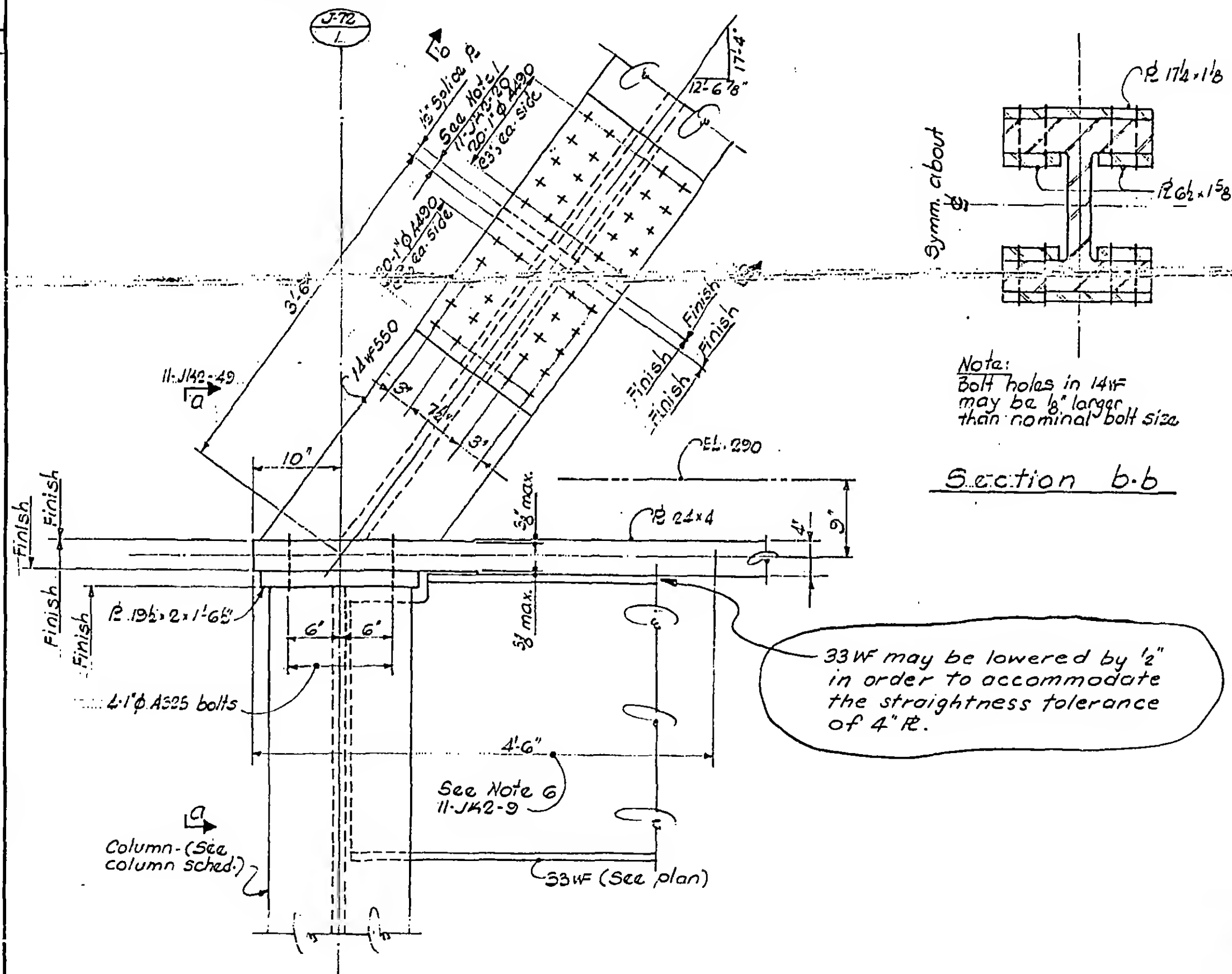


Note:
 Bolt holes
 in 14 WF
 may be 1/8"
 larger than
 nominal
 bolt size.



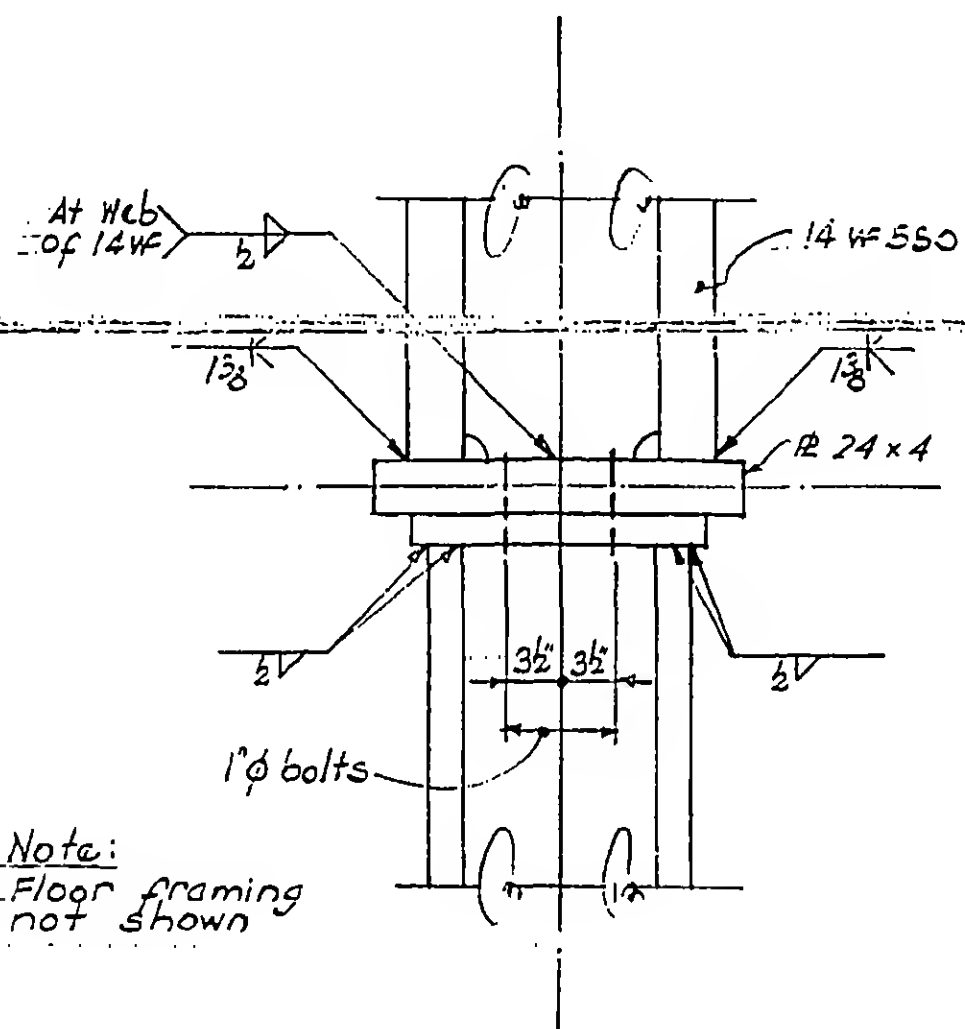
REVISIONS

12-3-68



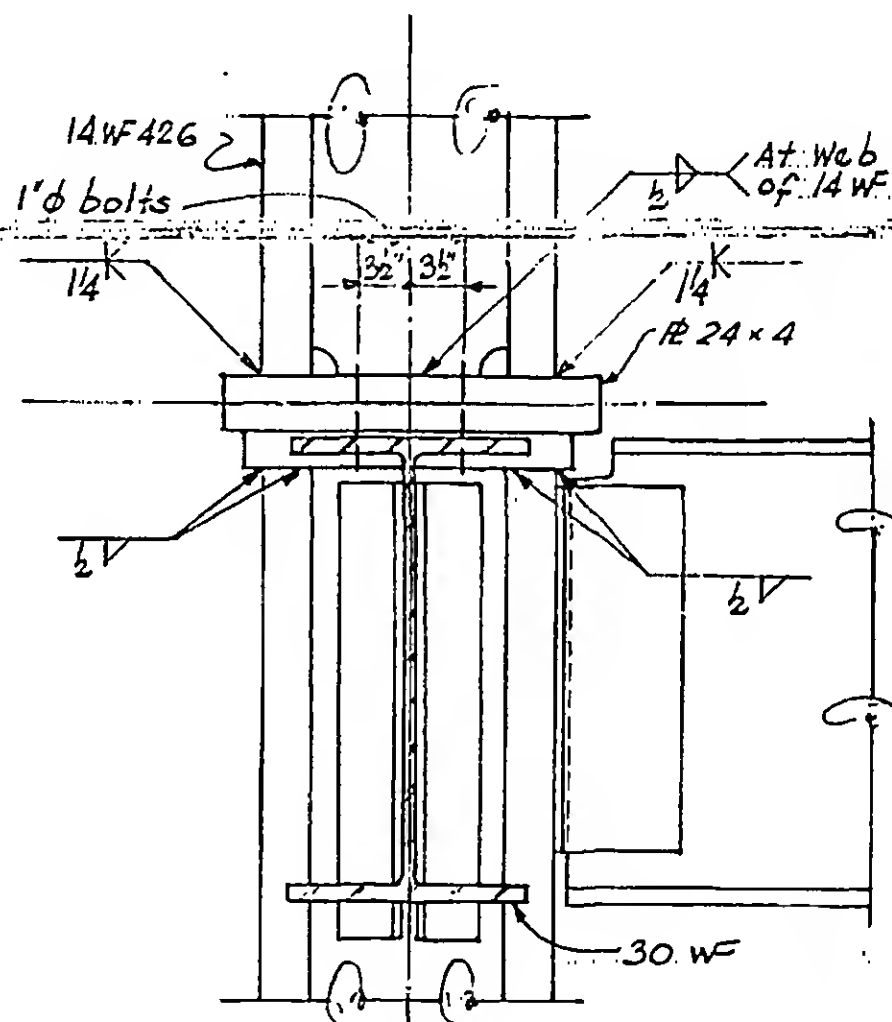
11-JK2-48

REVISIONS



Note:
- Floor framing
not shown

Section a-a



Section b-b



11-JK2-49

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

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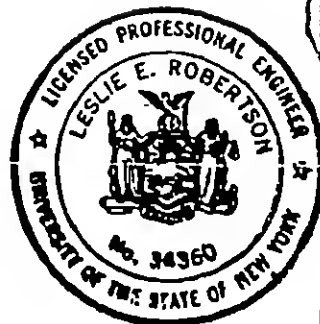
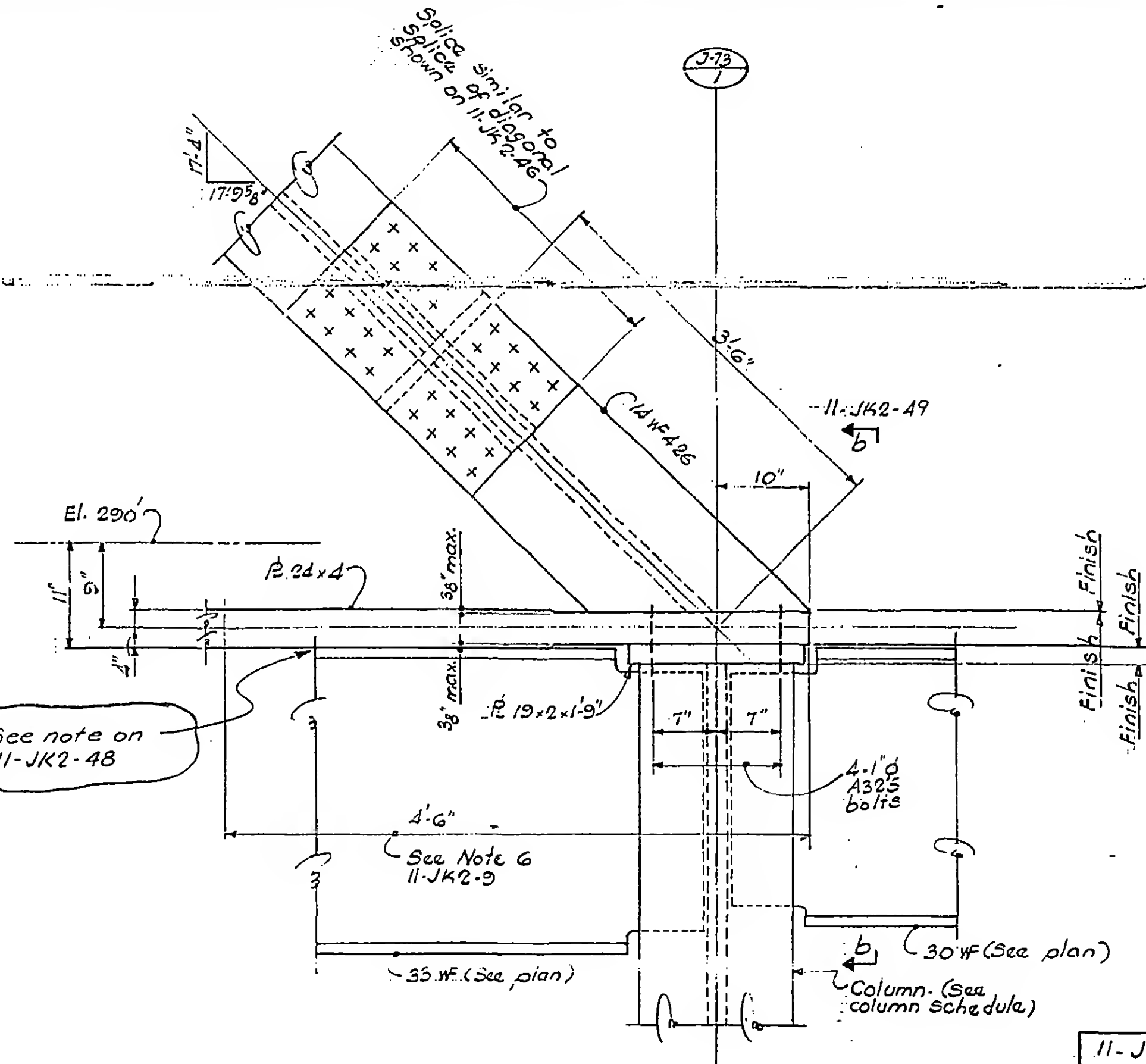
PROJECT THE WORLD TRADE CENTER

TITLE TRUSS DETAIL 36

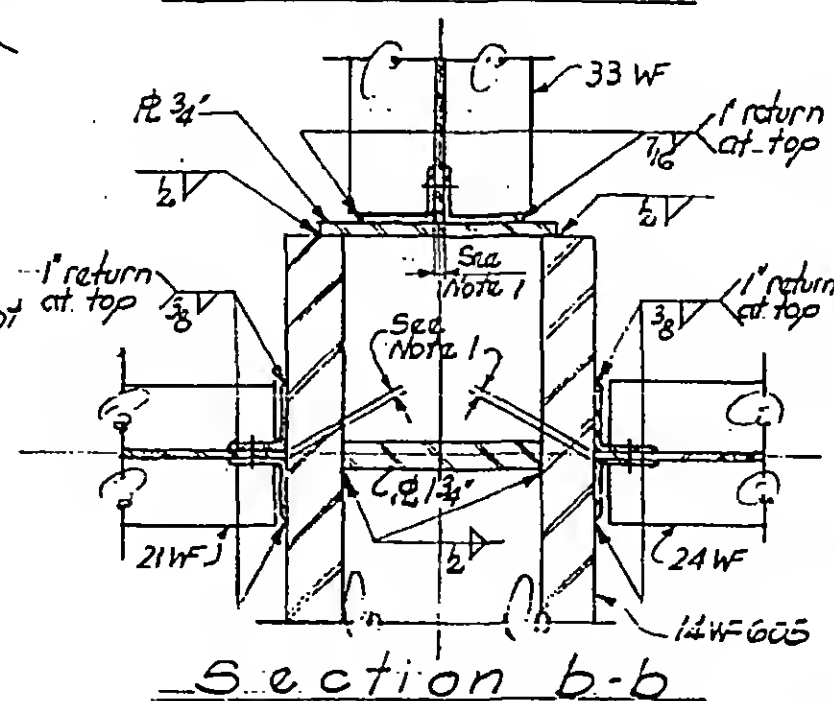
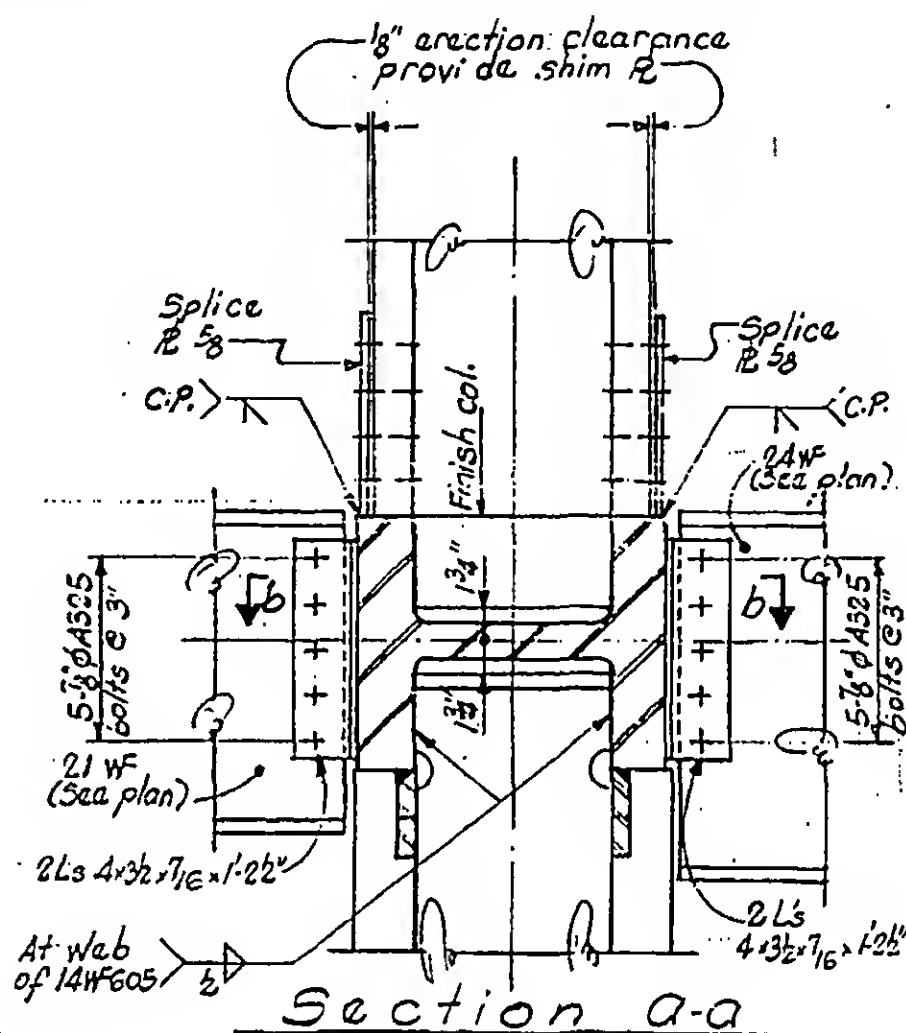
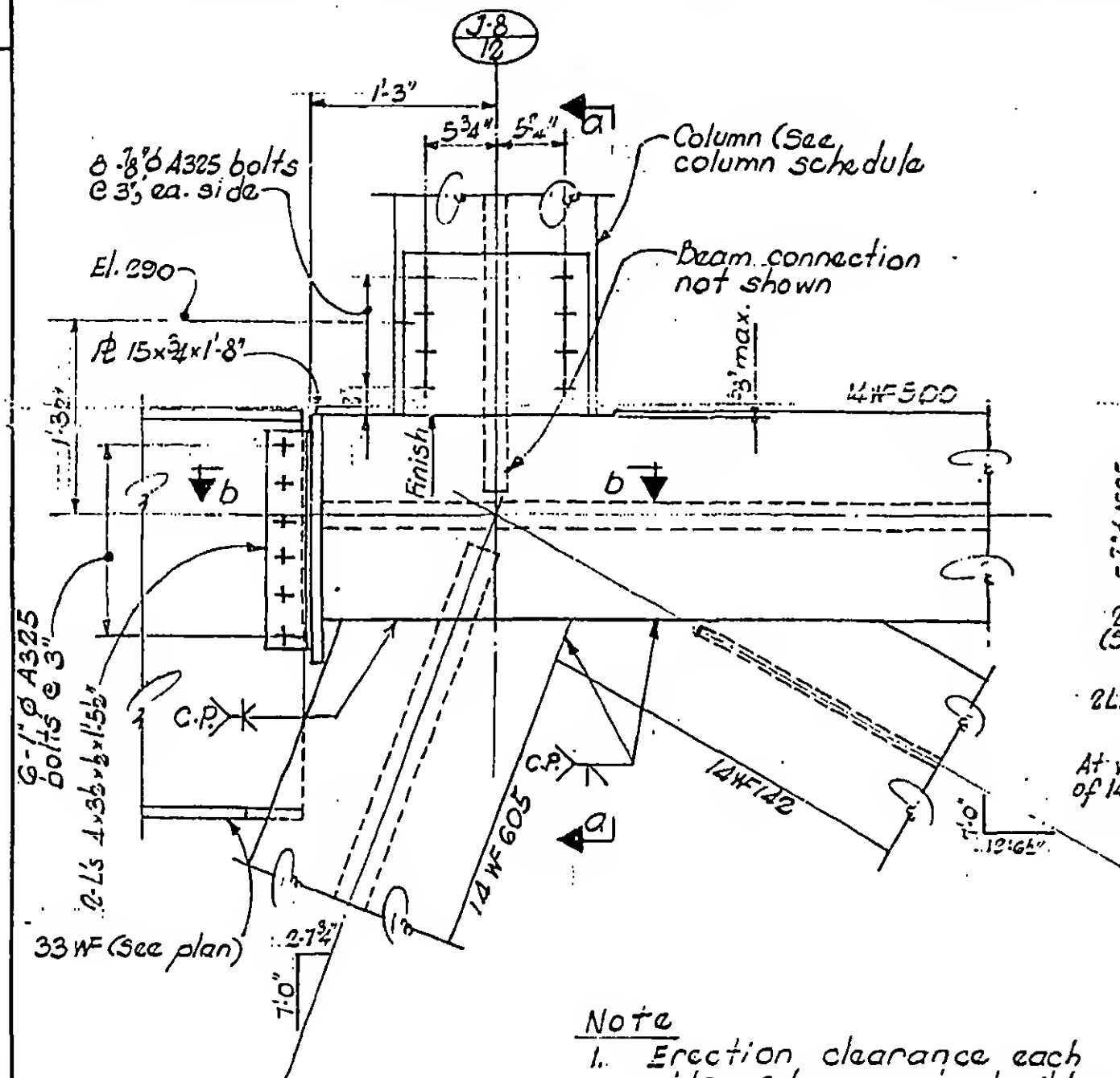
DATE 6-7-68

REVISIONS

12-3-68



REVISIONS

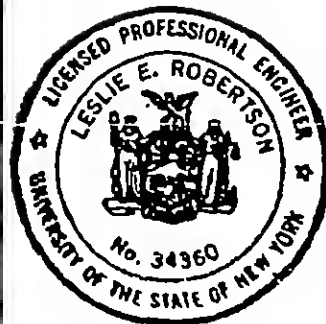
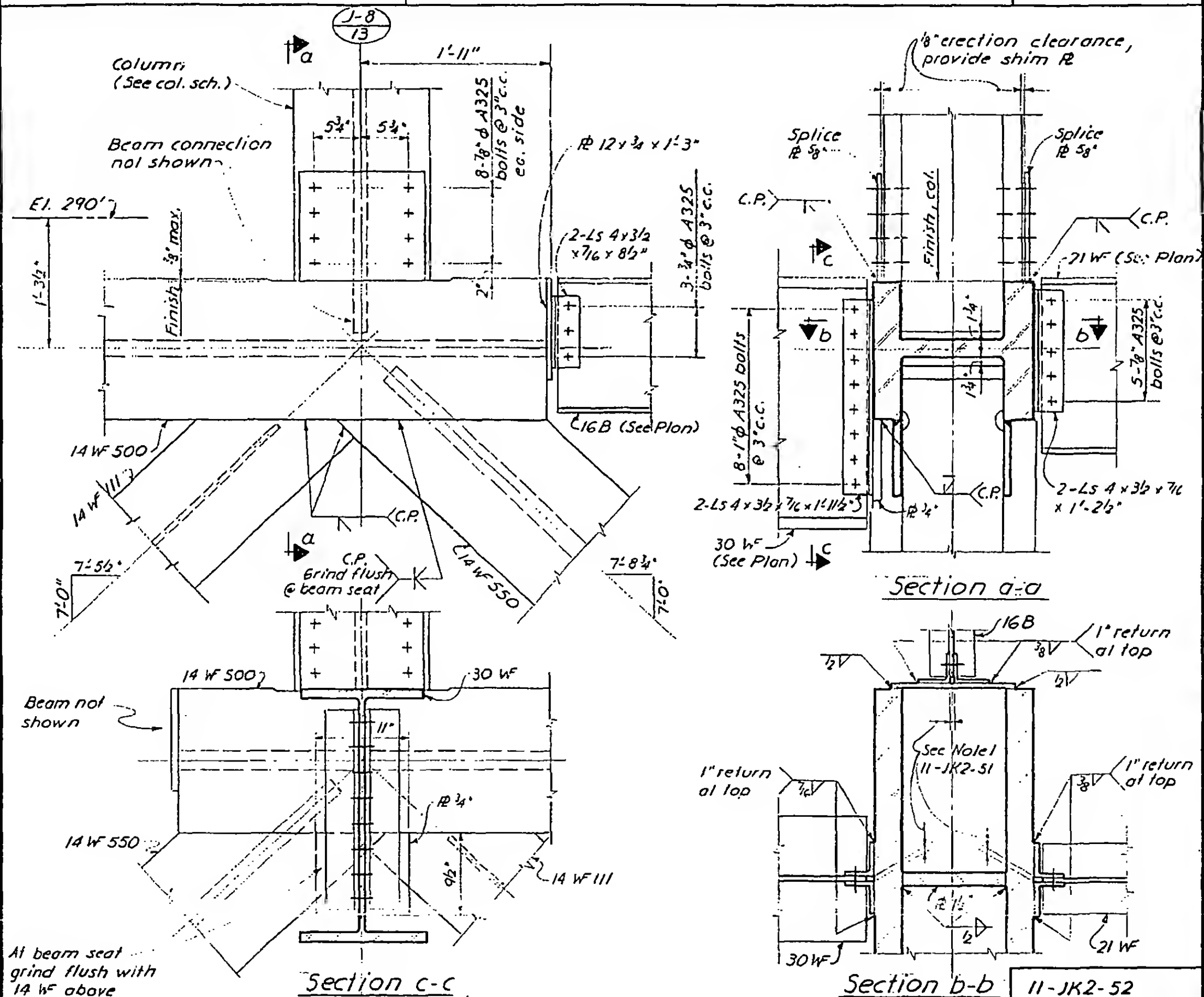


Note

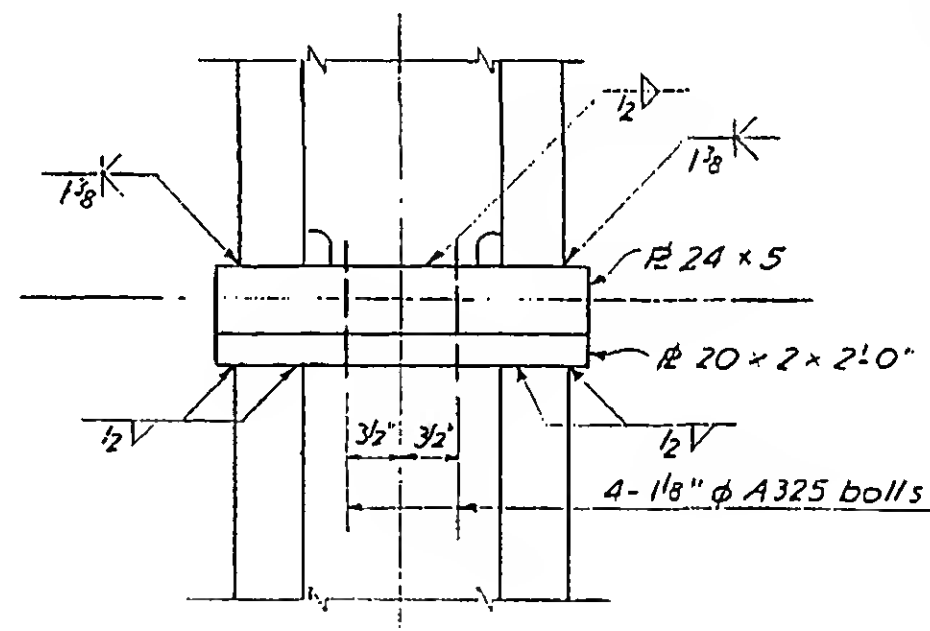
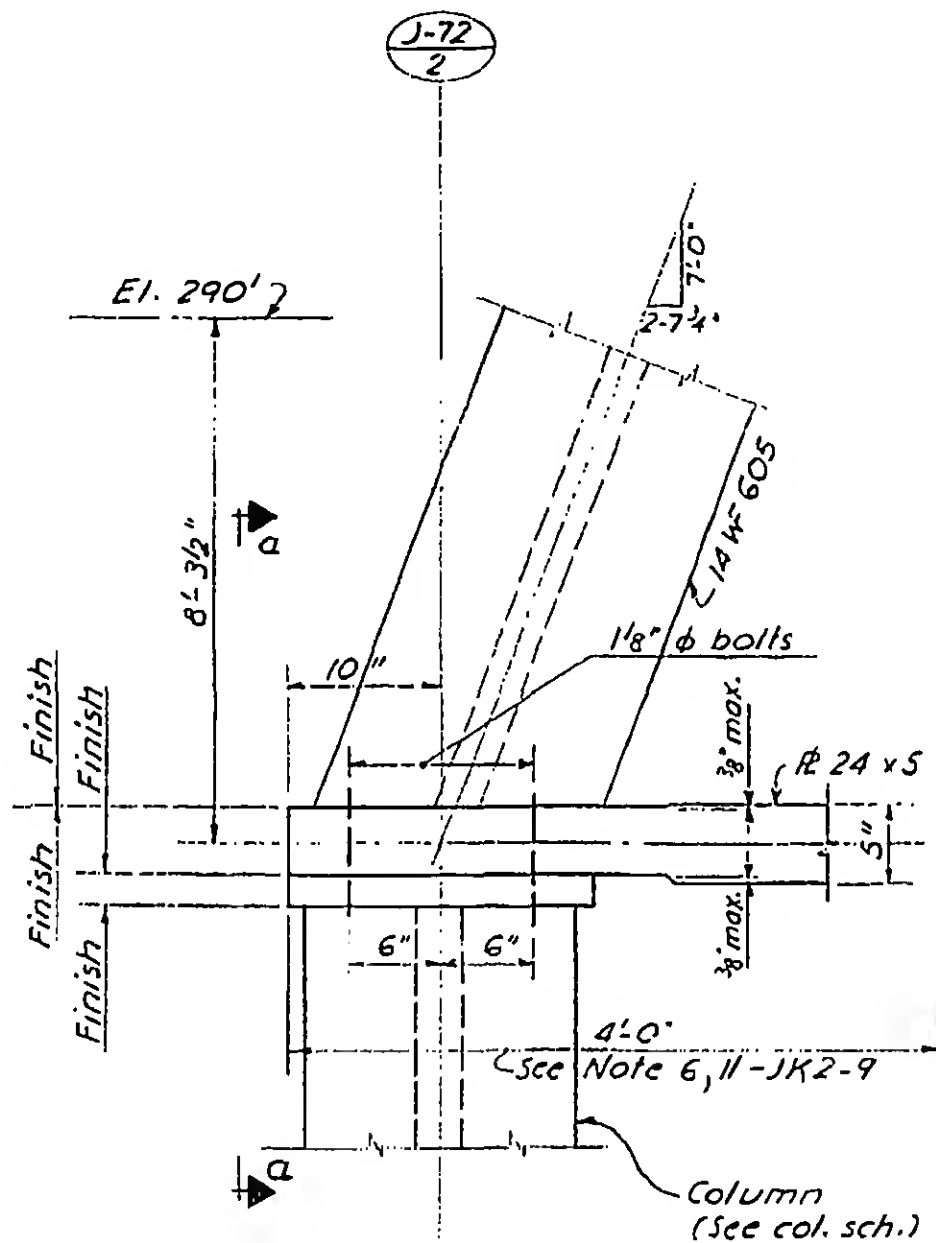
1. Erection clearance each side of beam web should not be more than 1/16". Provide shim between beam web and angles if required to insure surface contact for H.S. bolts.



REVISIONS



REVISIONS



Section a-a



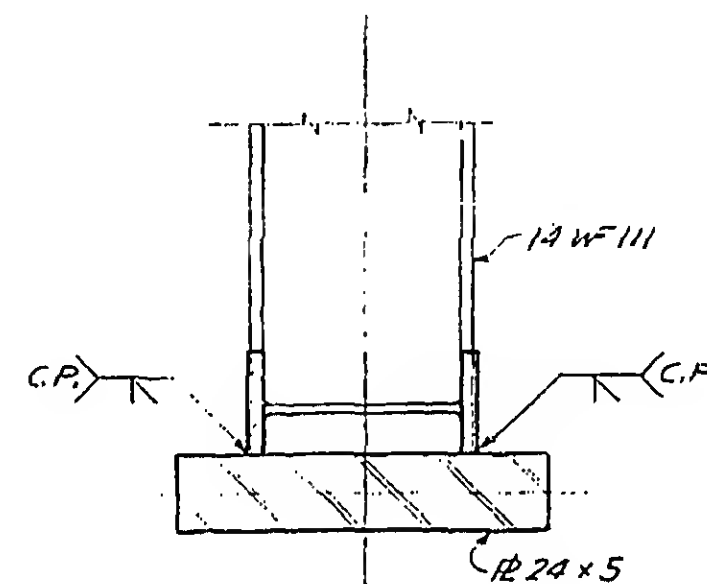
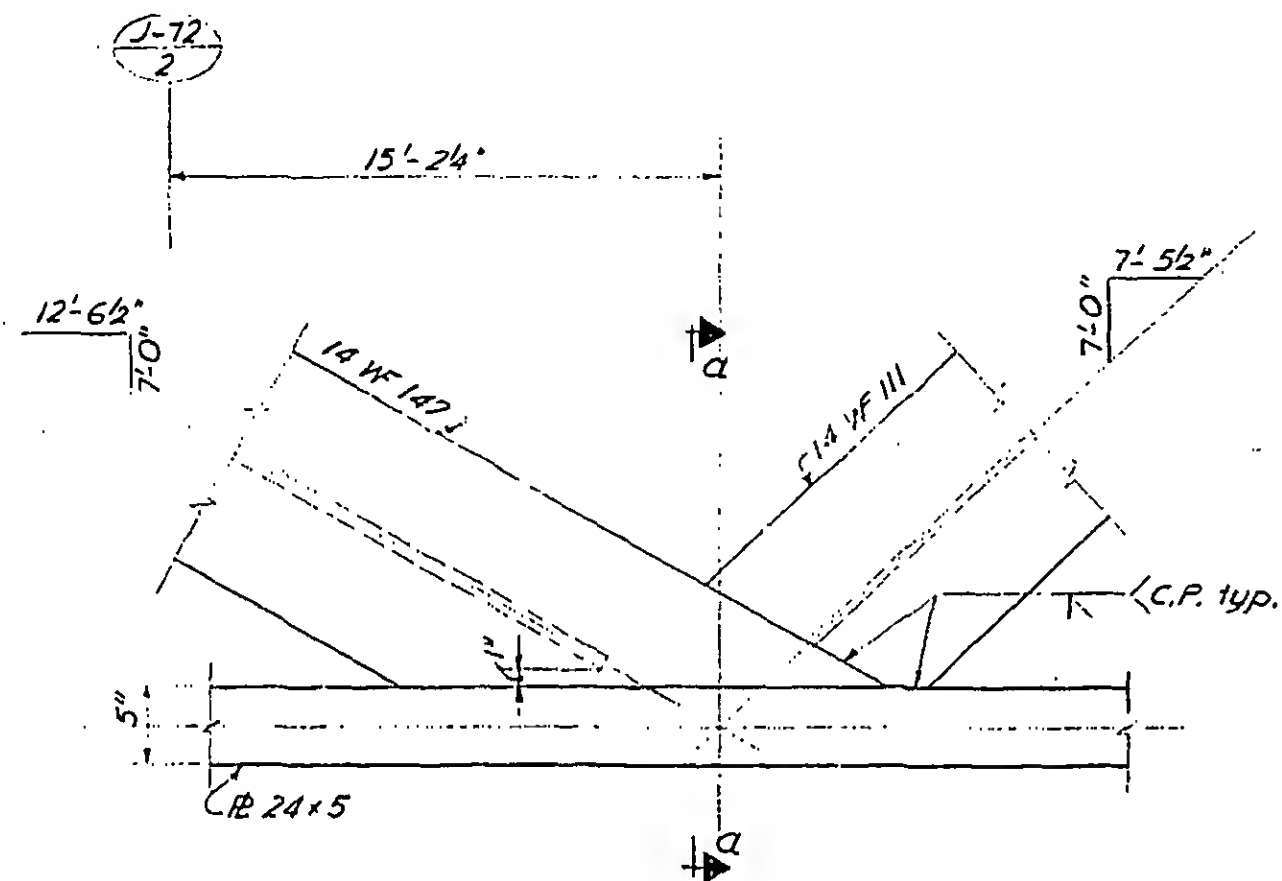
11-JK2-53

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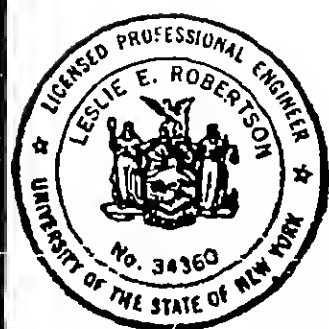
PROJECT	THE WORLD TRADE CENTER	TITLE	TRUSS DETAIL 40
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DATE 6-7-68

REVISIONS

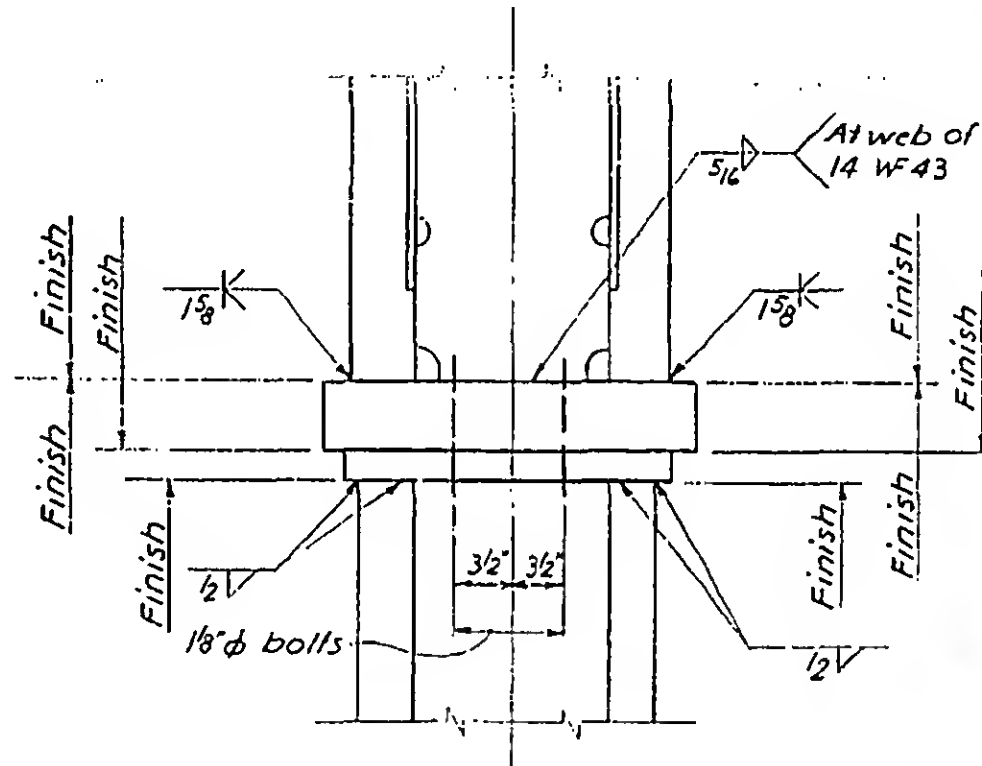
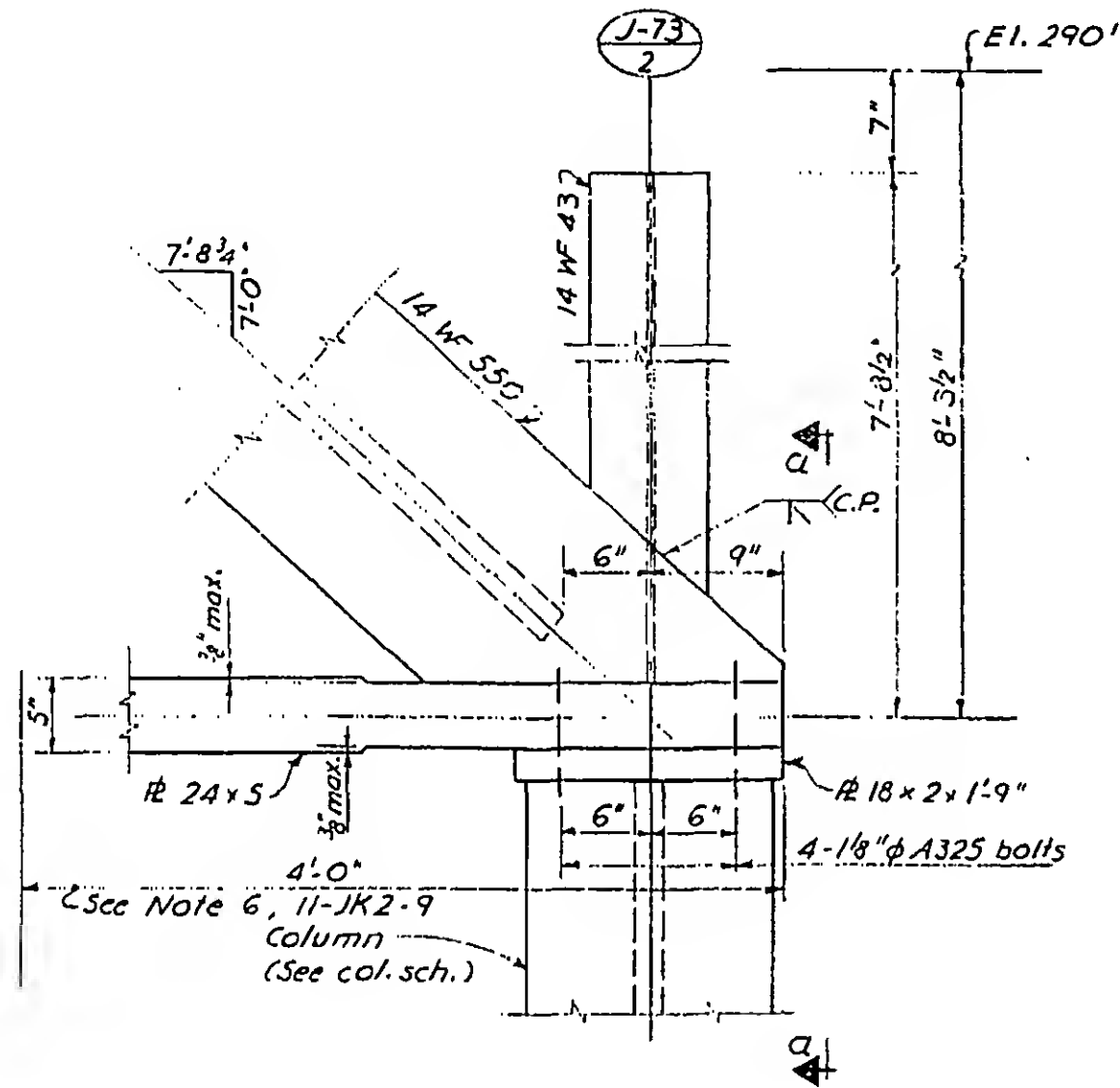


Section a-a

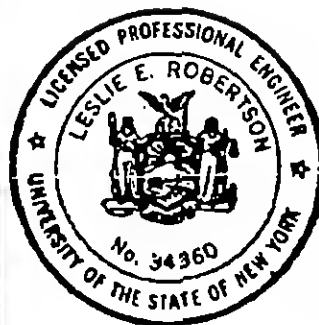


11-JK2-54

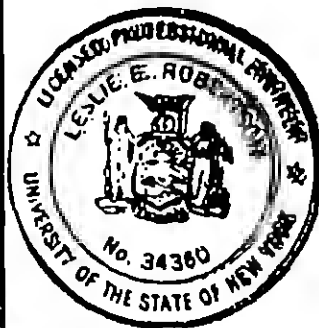
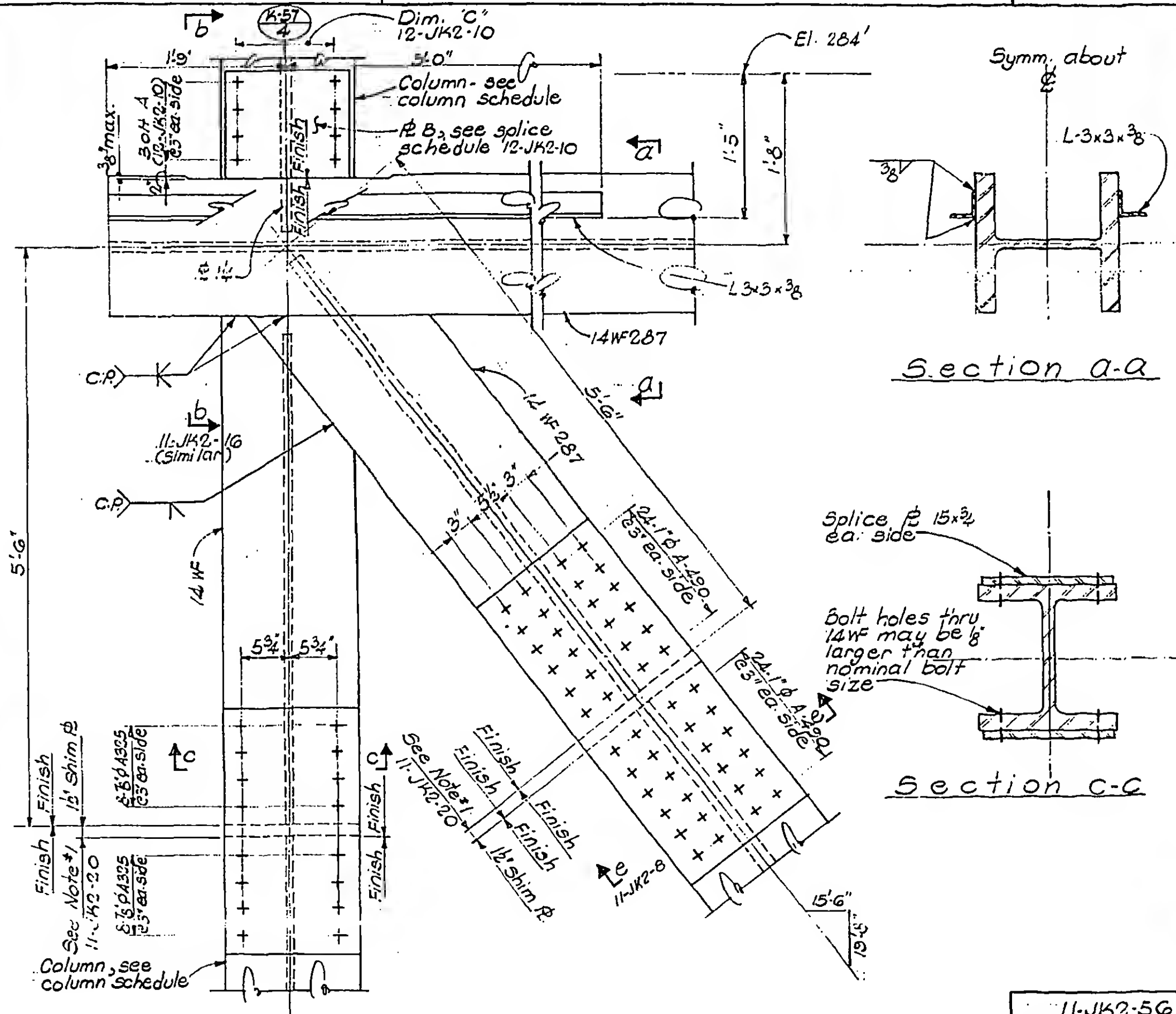
REVISIONS



Section a-a



REVISIONS



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DRAWN

REVIEWED

11-JK2-56

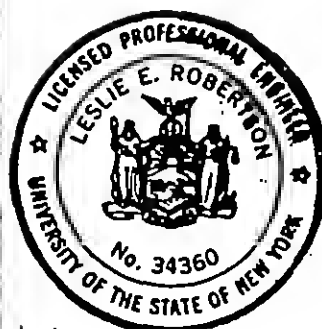
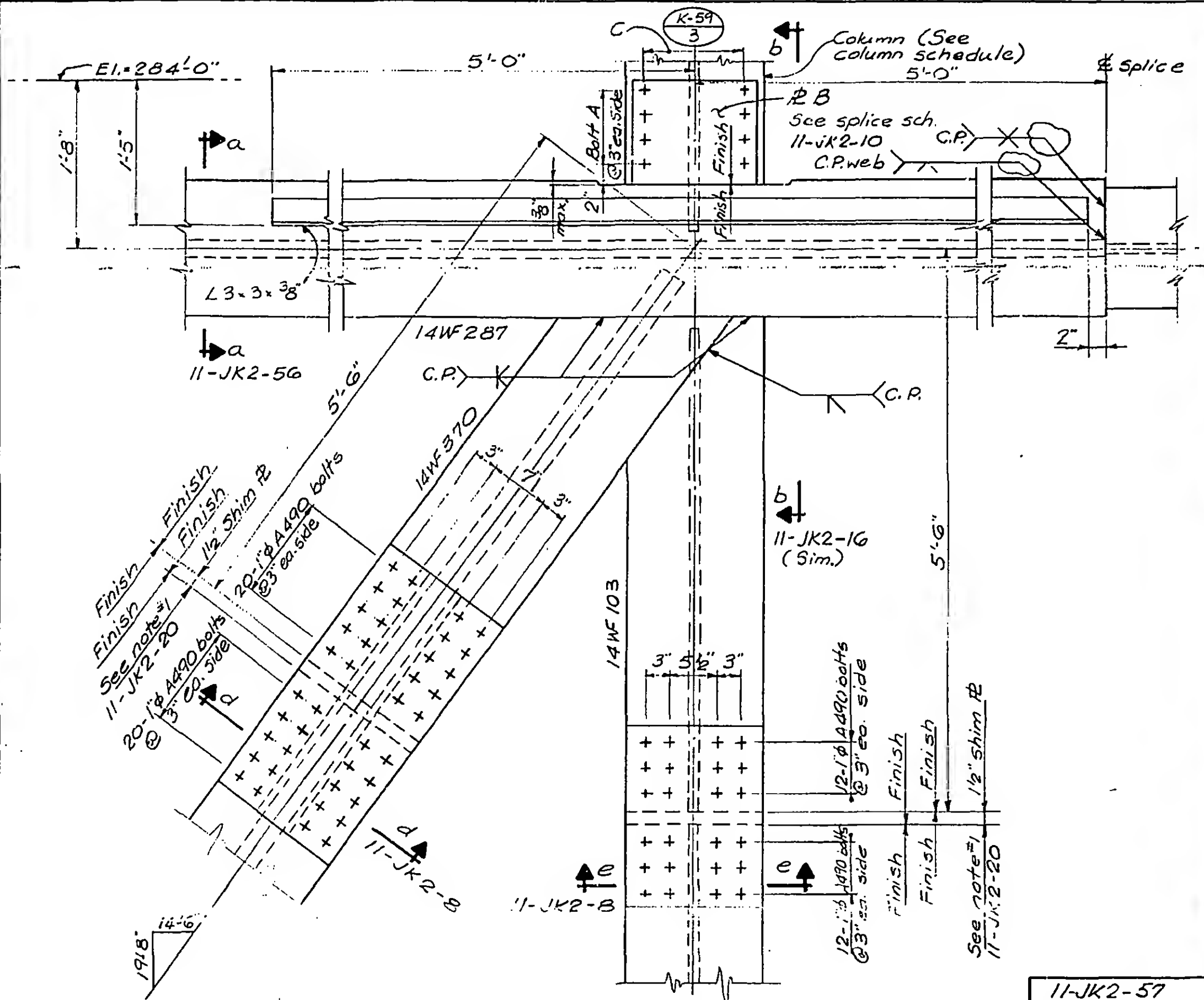
Structural & Civil Engineers

TITLE TRUSS DETAIL 43

DATE 9-4-68

REVISIONS

10-15-68



20180509

DRAWN

REVIEWER

11-JK2-57

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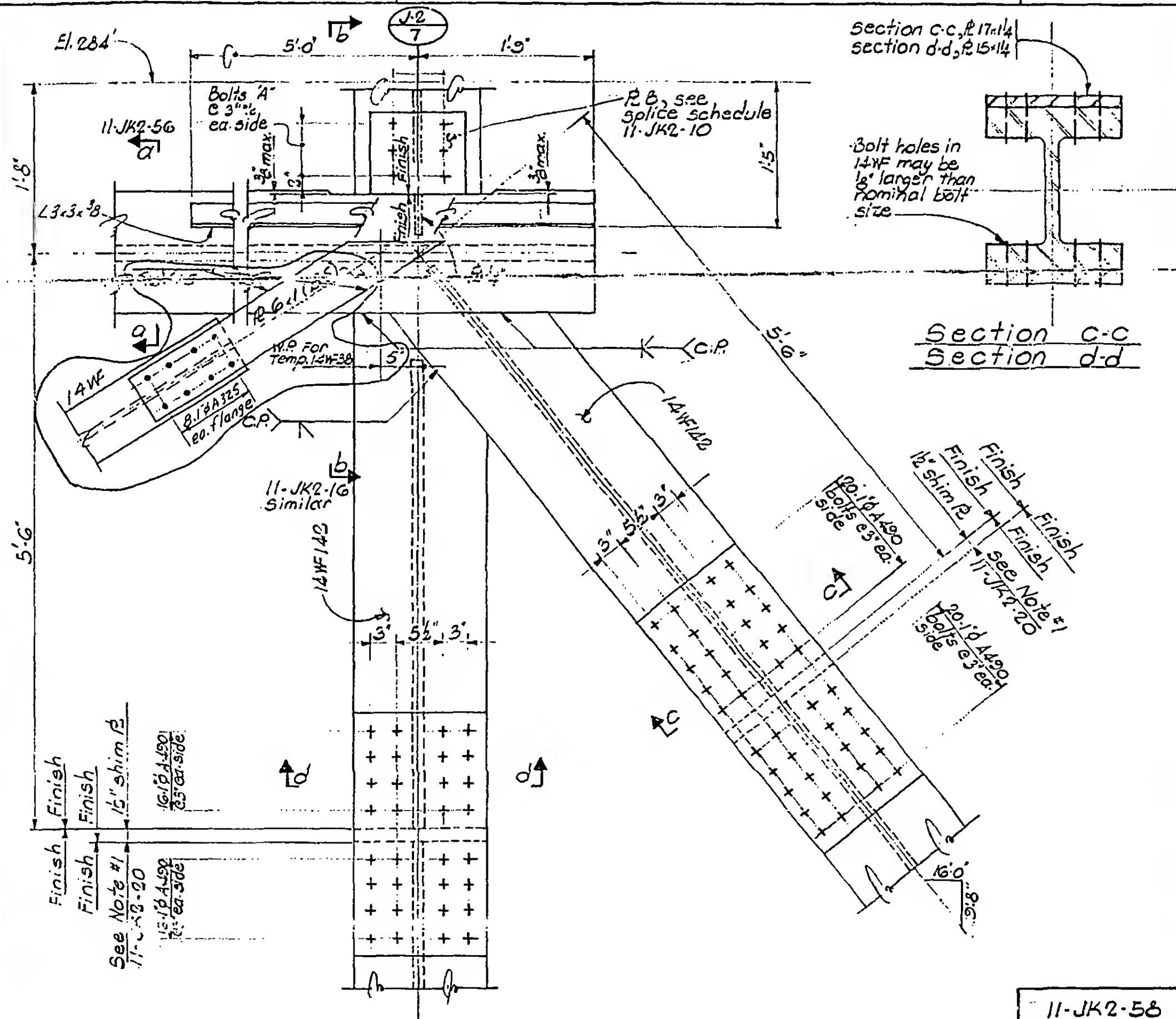
PROJECT THE WORLD TRADE CENTER

TITLE	TRUSS DETAIL 44
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DATE 9-4-68

REVISIONS

3-21-69



ה'תשנ"ח

DRAWN

S.C.

REVIEWED

E.L.

11-JK2-58

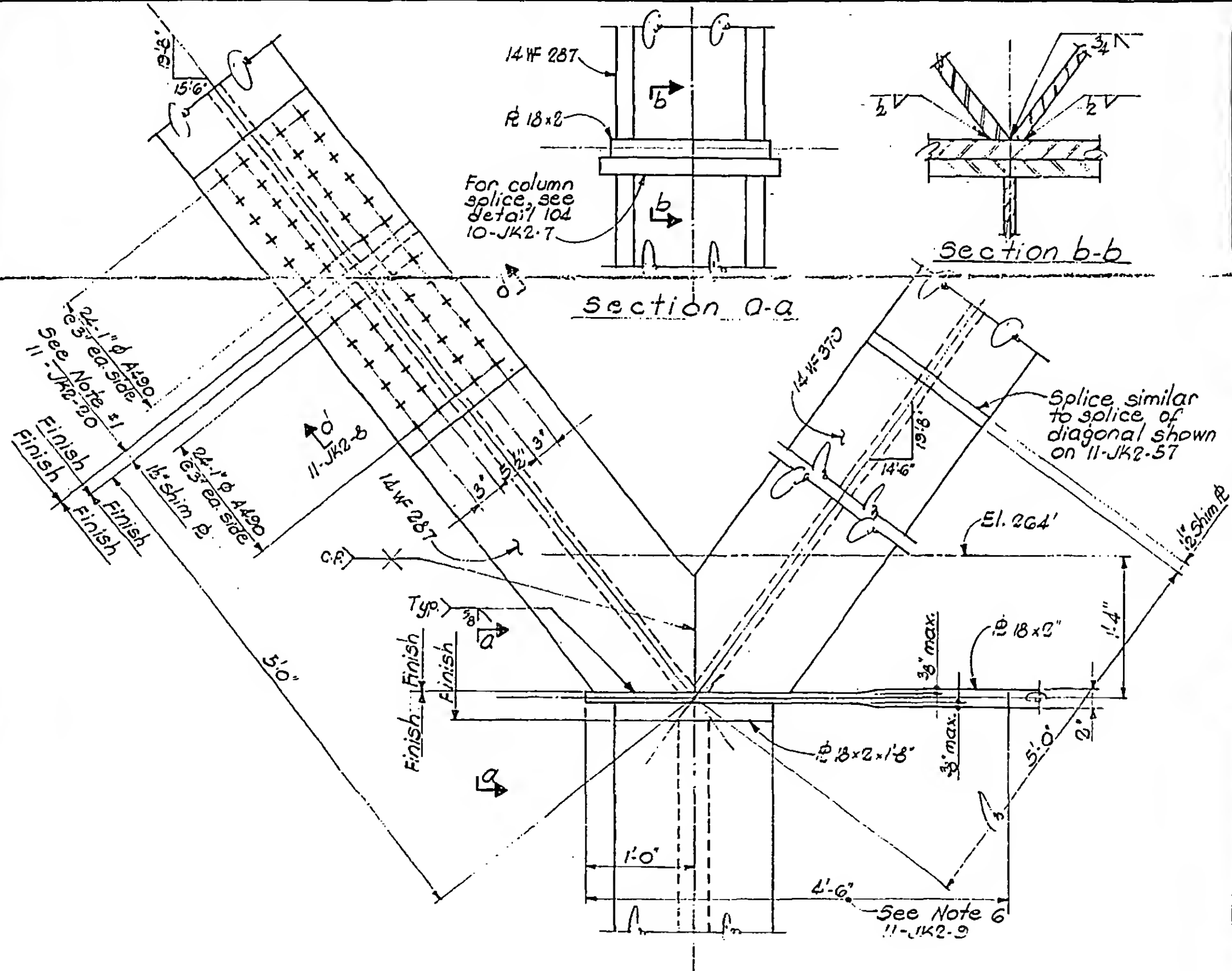
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE	TRUSS DETAIL 45
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DATE 9-4-68

REVISIONS



MEMORANDUM

DRAWN

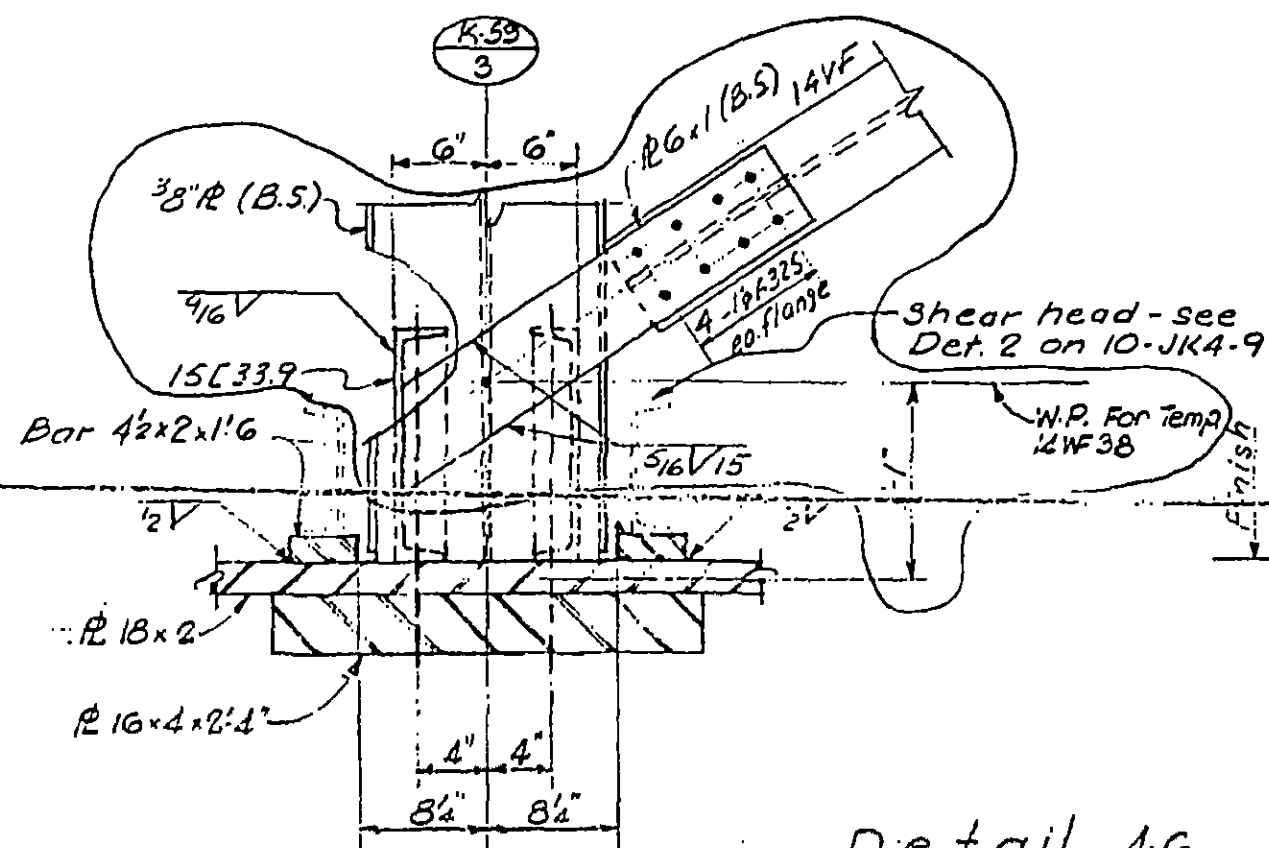
REVIEWED

11-JK2-59

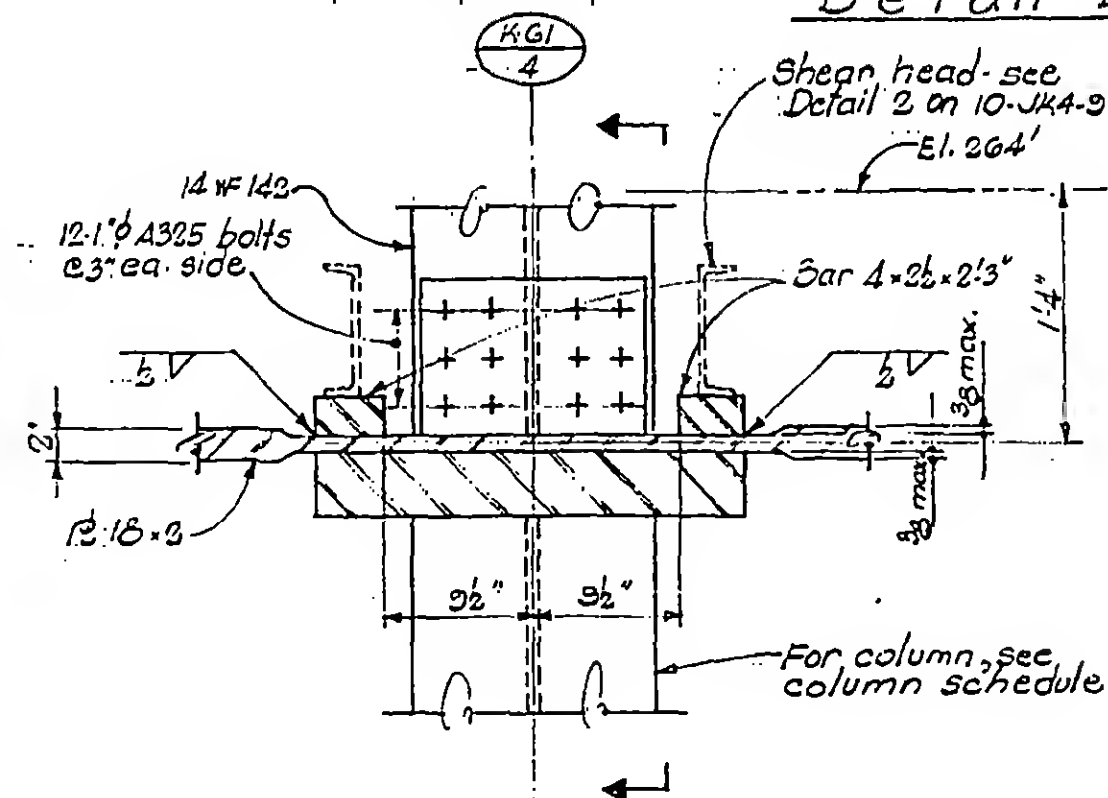
REVISIONS

1-8-69

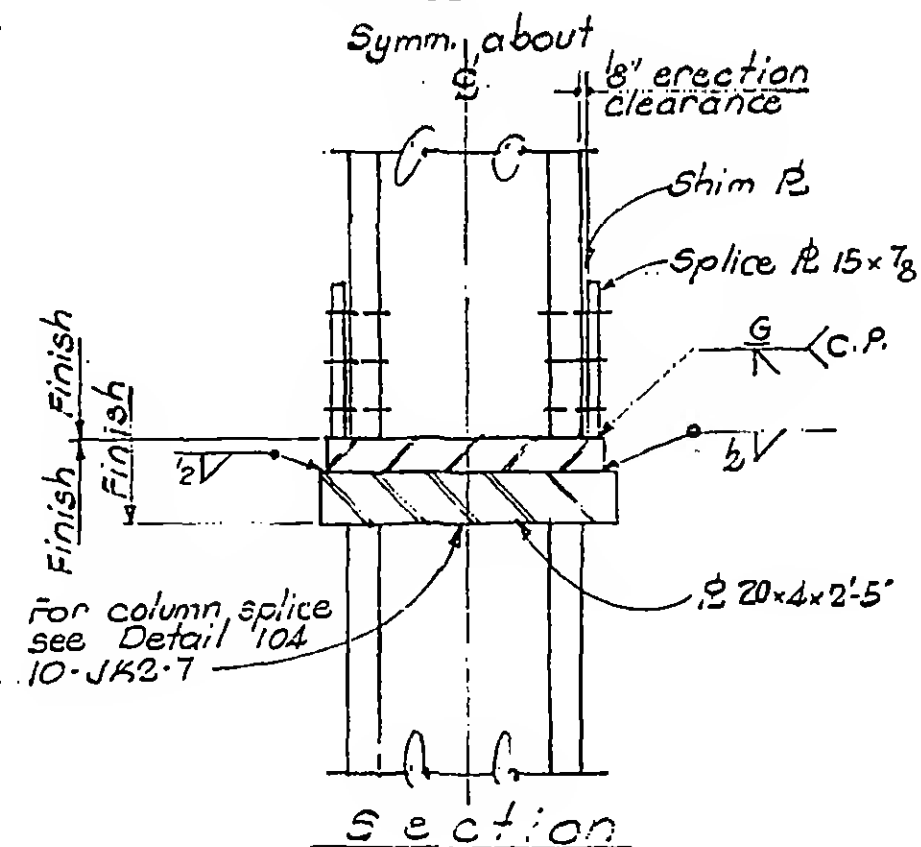
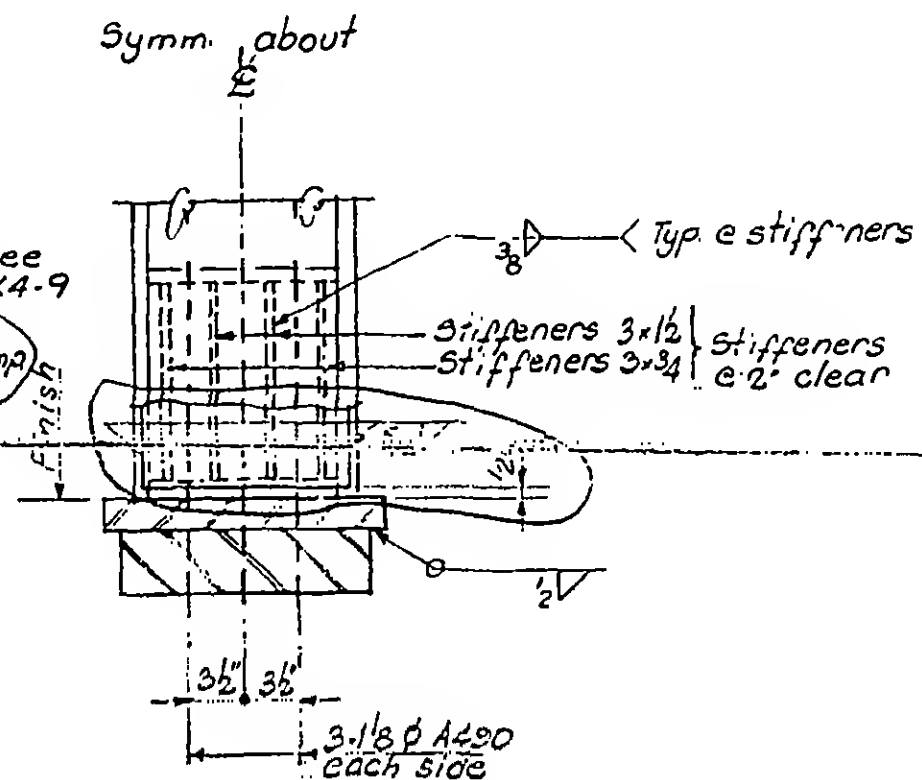
3-21-69



Detail 46



Detail 47



12-24-68

DESIGNED

DRAWN
S.C.

REVIEWED
E.L.

11-542-60

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

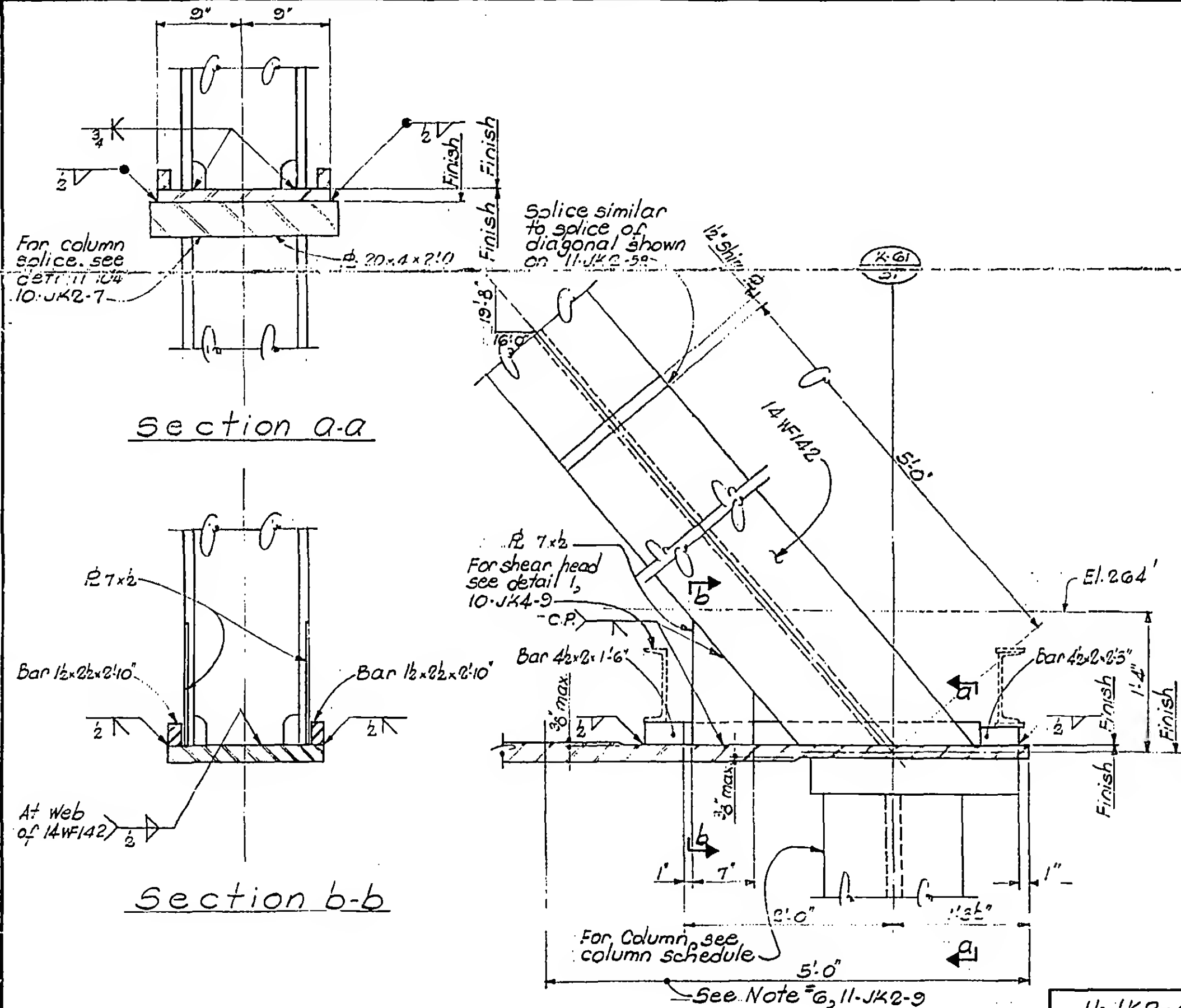
PROJECT THE WORLD TRADE CENTER

TITLE

TRUSS DETAIL 48

DATE 9-4-68

REVISIONS



DESIGNED

DRAWN

REVIEWED

493!-11-137

WTU-1041-LERA