

ABSTRACT

This program designs truss members, wood or steel, tension or compression in accordance with the 1969 AISC Specifications. Program has provision built in to accept input data from a time sharing terminal by means of the LN20 paper tape reader. Input data can be entered manually for designers without LN20. Price \$95.00

INPUT

Axial force
Length of member
Bolt size and member thickness
Elasticity and yield strength
Radius of gyration

OUTPUT

Allowable stress
Allowable force
Slenderness ratio

The first part of the report deals with the general situation in the country. It is a very interesting and informative study of the economic and social conditions of the country at that time. The author has done a great deal of research and has gathered a wealth of material which is presented in a clear and concise manner. The report is well written and is a valuable contribution to the study of the country's development.

The second part of the report deals with the specific details of the country's development. It is a very detailed and thorough study of the various aspects of the country's growth. The author has done a great deal of research and has gathered a wealth of material which is presented in a clear and concise manner. The report is well written and is a valuable contribution to the study of the country's development.

The third part of the report deals with the future prospects of the country. It is a very interesting and informative study of the various factors which will influence the country's development in the years ahead. The author has done a great deal of research and has gathered a wealth of material which is presented in a clear and concise manner. The report is well written and is a valuable contribution to the study of the country's development.

The fourth part of the report deals with the various aspects of the country's development. It is a very detailed and thorough study of the various aspects of the country's growth. The author has done a great deal of research and has gathered a wealth of material which is presented in a clear and concise manner. The report is well written and is a valuable contribution to the study of the country's development.

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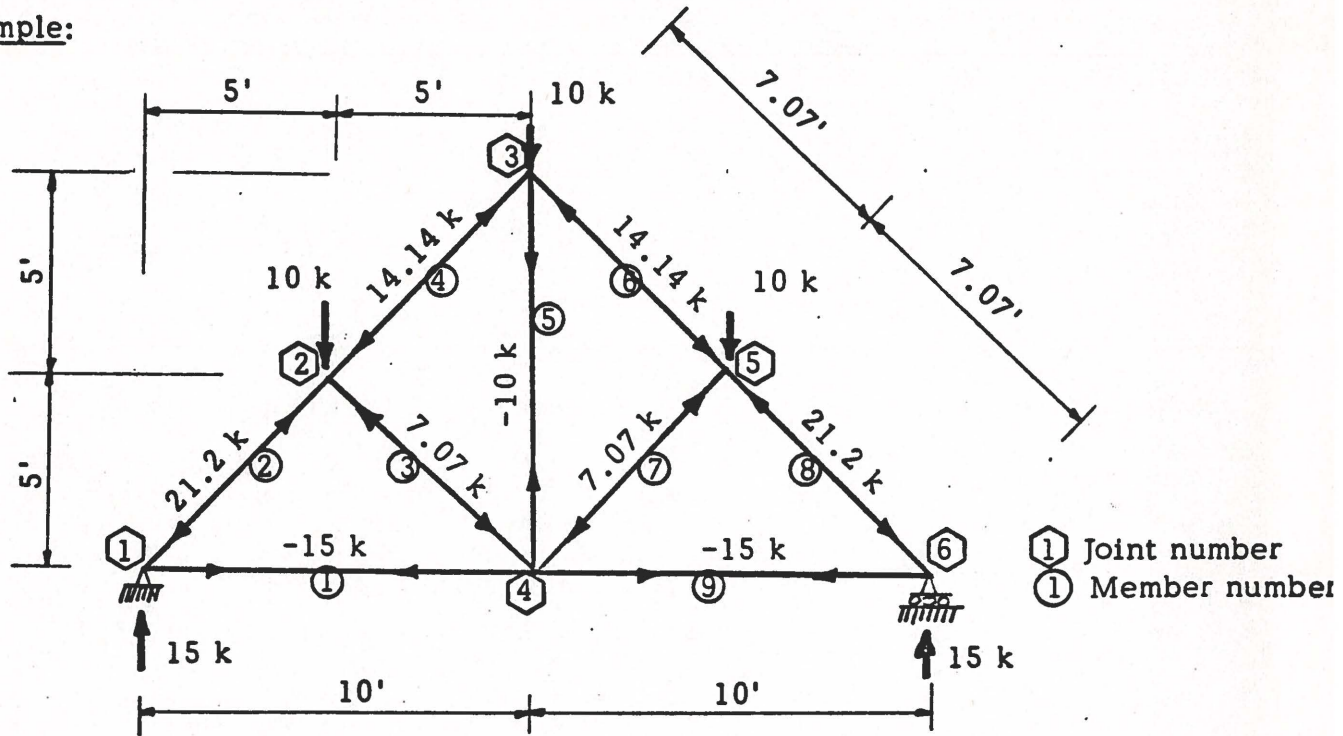
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TRUSS MEMBER DESIGN

C. P. 53

Example:



Given the truss shown above, design the members using A36 steel.

1927 - 1928



Number of members to be designed = 4
 Manual input, input code = 1
 A36 steel, $F_y = 36$ ksi
 $E = 29000$ ksi

Design the bottom cord; members 1 and 9.

$P = 15$ kips tension
 Member length, $L = 10$ ft.

Initial try: L 2-1/2 x 2 x 3/8

$A = 1.55$ in.²
 Use one row of bolts
 Try 1/2 in. bolts

$r_{min} = .577$
 Angle thickness = .375

Computations:

Slenderness ratio, $Kl/r = 207.97$
 Effective area (area of section minus area of
 bolt holes) = 1.34 in.²
 $P_{allow} = 28.9$ kips

Try smaller member, L 2-1/2 x 2 x 5/16

$r_{min} = .584$
 Angle thickness = .3125
 $A = 1.31$ in.²

Computations:

Slenderness ratio, $Kl/r = 205.5$
 Effective area = 1.135
 $P_{allow} = 24.516$ kips

USE L 2-1/2 x 2 x 5/16

Input 0 to design next member.

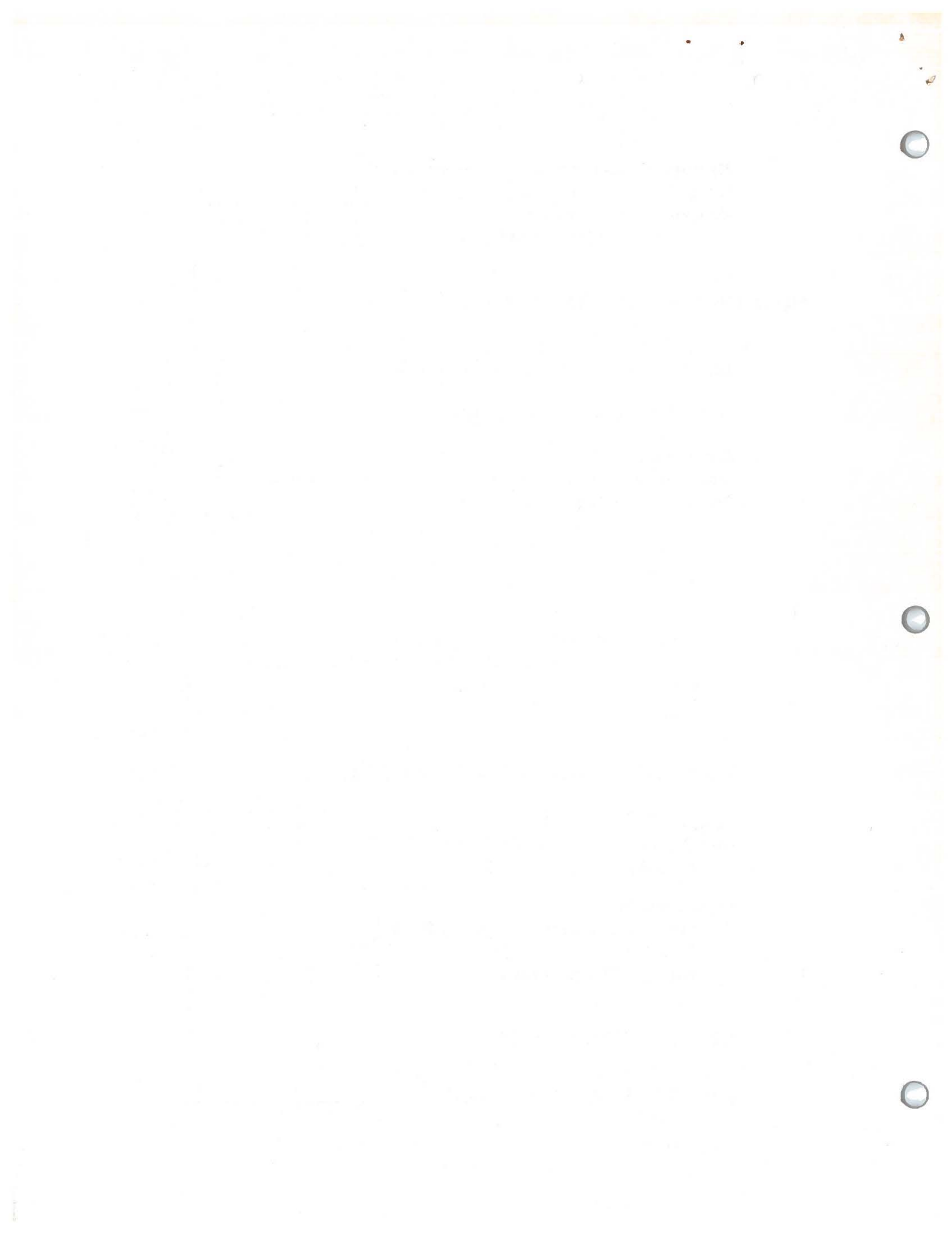
4 S
 1 S
 36 S
 29000 S

-15 S
 10 S
 1.55 S
 1 S
 0.5 S

0.577 S
 0.375 S
 207.972 b0
 1.340 e0
 28.944 A0

0.584 S
 0.3125 S
 1.31 S
 205.479 b0
 1.135 e0
 24.516 A0

0 S



Design top cord; members 2, 4, 6, and 8.

P = 21.2 kips compression
Member length = 7.07 ft.

Initial try: L 3 x 2 x 1/2

A = 2.25 in.²
r_{min} = .546

Computations:

Slenderness ratio, Kl/r = 155.38
Allowable stress, Fa = 6.18 ksi
P_{allow} = 13.9 kips

21.2 S
7.07 S
2:25 S
0:546 S
155.384 b0
6:182 B0
13:909 A0

Try larger member, L 3 x 2-1/2 x 5/16

r_{min} = .744
A = 1.62 in.²

Computations:

Slenderness ratio, Kl/r = 114.03
Allowable stress, Fa = 11.1 ksi
P_{allow} = 17.98 kips

0:744 S
1.62 S
114:032 b0
11:098 B0
17:978 A0

Try larger member, L 3 x 2-1/2 x 7/16

r_{min} = .729
A = 2.21 in.²

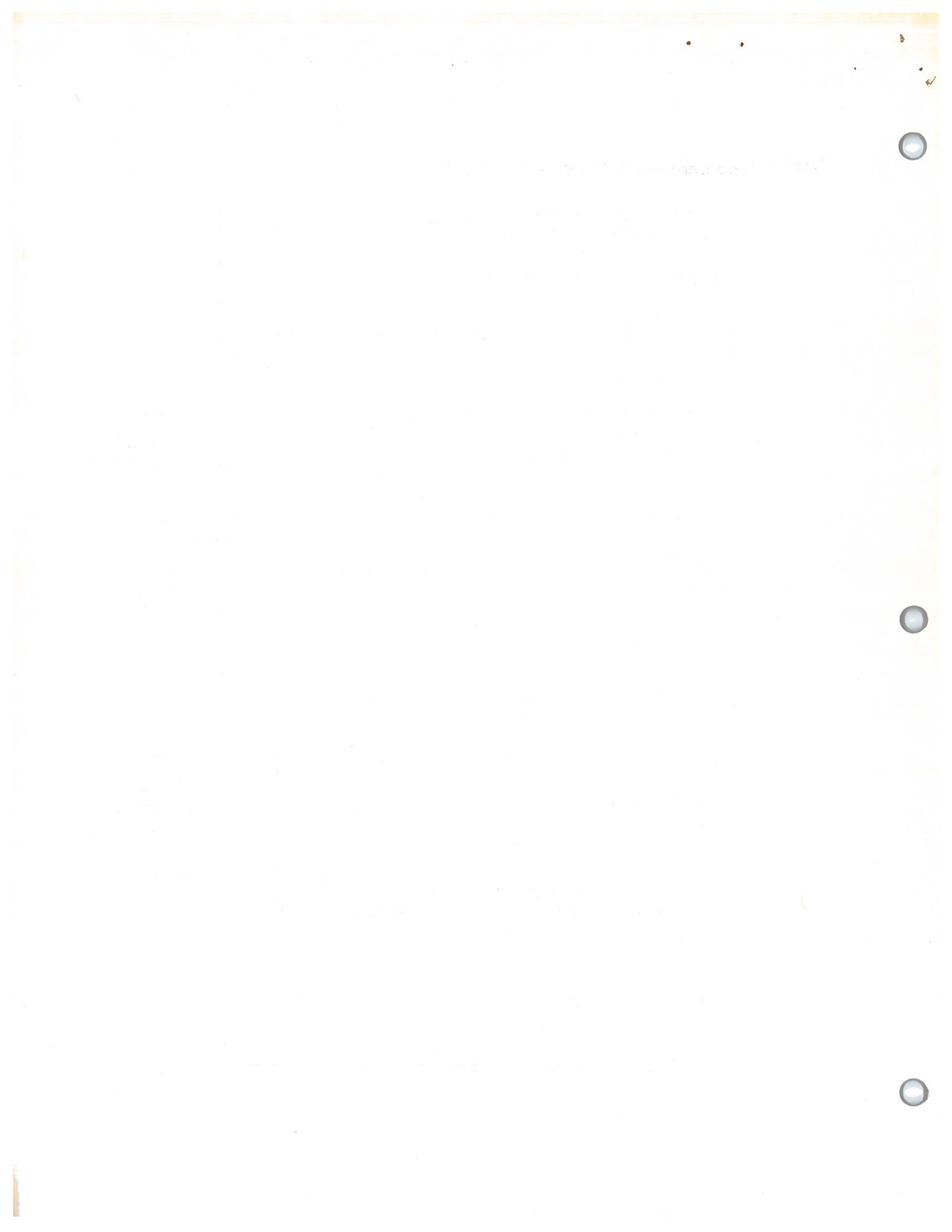
Computations:

Slenderness ratio, Kl/r = 116.38
Allowable stress, Fa = 10.77 ksi
P_{allow} = 23.81 kips

0:729 S
2.21 S
116:378 b0
10:773 B0
23:808 A0
0 S

USE L 3 x 2-1/2 x 7/16

Input 0 to design next member.



Design members 3 and 7.

$P = 7.07$ kips compression
 Member length = 7.07 ft.

Initial try: L 2 x 1-1/2 x 1/4

$A = .813$ in.²
 $r_{min} = .432$

Computations:

Slenderness ratio, $Kl/r = 196.39$
 Allowable stress, $F_a = 3.87$ ksi
 $P_{allow} = 3.15$ kips

Try larger member, L 2-1/2 x 2 x 3/16

$r_{min} = .6$
 $A = .809$ in.²

Computations:

Slenderness ratio, $Kl/r = 141.4$
 Allowable stress, $F_a = 7.47$ ksi
 $P_{allow} = 6.04$ kips

Try larger member, L 2-1/2 x 2 x 5/16

$r_{min} = .584$
 $A = 1.31$ in.²

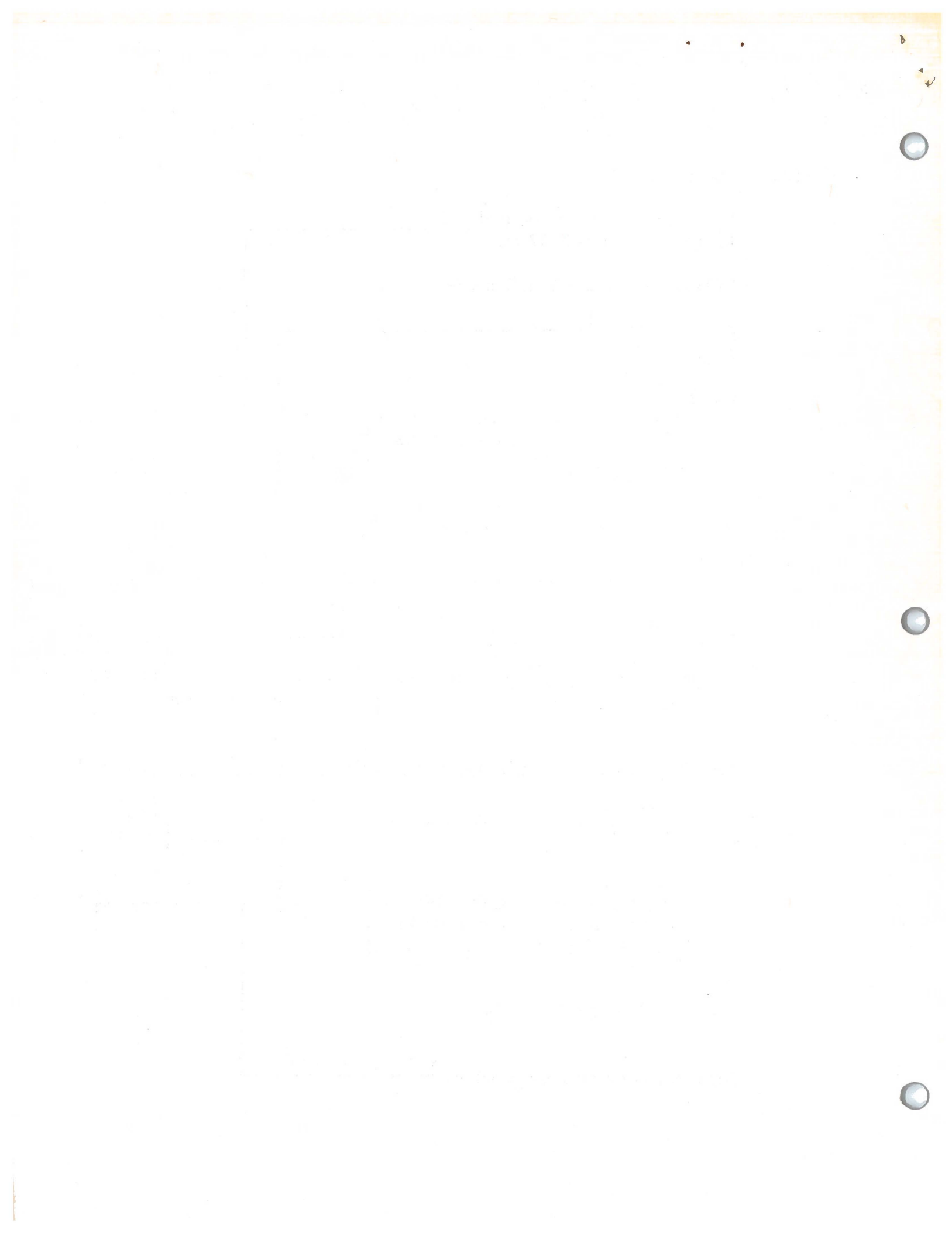
Computations:

Slenderness ratio, $Kl/r = 145.27$
 Allowable stress, $F_a = 7.07$ ksi
 $P_{allow} = 9.26$ kips

USE L 2-1/2 x 2 x 5/16

Input 0 to design next member.

[	7.07	S
[	7.07	S
[	0.813	S
[	0.432	S
[	196.388	B0
[	3.870	B0
[	3.146	A0
[	0.6	S
[	0.809	S
[	141.400	B0
[	7.465	B0
[	6.039	A0
[	0.584	S
[	1.31	S
[	145.273	B0
[	7.072	B0
[	9.264	A0
[	0	S



Design member 5.

P = 10 kips tension
 Member length, L = 10 ft.]

Initial try: L 3 x 2-1/2 x 3/16

A = .996 in.²
 Use one row of bolts
 Try 1/2 in. bolts]

r_{min} = .761
 Angle thickness = .1875 in.]

Computations:

Slenderness ratio, Kl/r = 157.69
 Effective area = .891 in.²
 P_{allow} = 19.25 kips]

[-10 S
 10 S
 C: .996 S
 1 S
 C: .5 S
 0.761 S
 C: .1875 S
 157.687 b0
 0.891 e0
 19.245 A0

Try smaller member, L 3 x 2 x 3/16

r_{min} = .583
 Angle thickness = .1875 in.
 A = .902 in.²]

Computations:

Slenderness ratio, Kl/r = 205.8
 Effective area = .797 in.²
 P_{allow} = 17.215 kips]

[0.583 S
 0.1875 S
 0.902 S
 205.831 b0
 0.797 e0
 17.215 A0

Try smaller member, L 2-1/2 x 2 x 3/16

r_{min} = .6
 Angle thickness = .1875 in.
 A = .809 in.²]

Computations:

Slenderness ratio, Kl/r = 200
 Effective area = .704 in.²
 P_{allow} = 15.21 kips]

[0.6 S
 0.1875 S
 0.809 S
 200.000 b0
 0.704 e0
 15.206 A0

0 S

USE L 2-1/2 x 2 x 3/16

