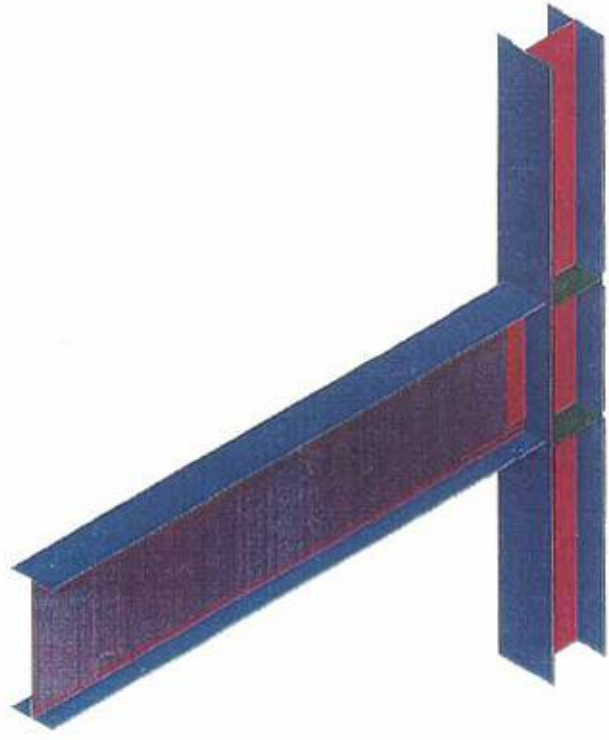


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Tucson, AZ 85728 (520) 299-4574 fax  
rom@azstarnet.com

ANSYS 5.3  
NOV 21 1996  
02:42:19  
ELEMENTS  
REAL NUM  
  
XV = 1  
YV = 1  
ZV = 1  
\*DIST = 88.593  
\*XF = -11.79  
\*YF = 23.46  
\*ZF = 52.9  
PRECISE HIDDEN  
EDGE

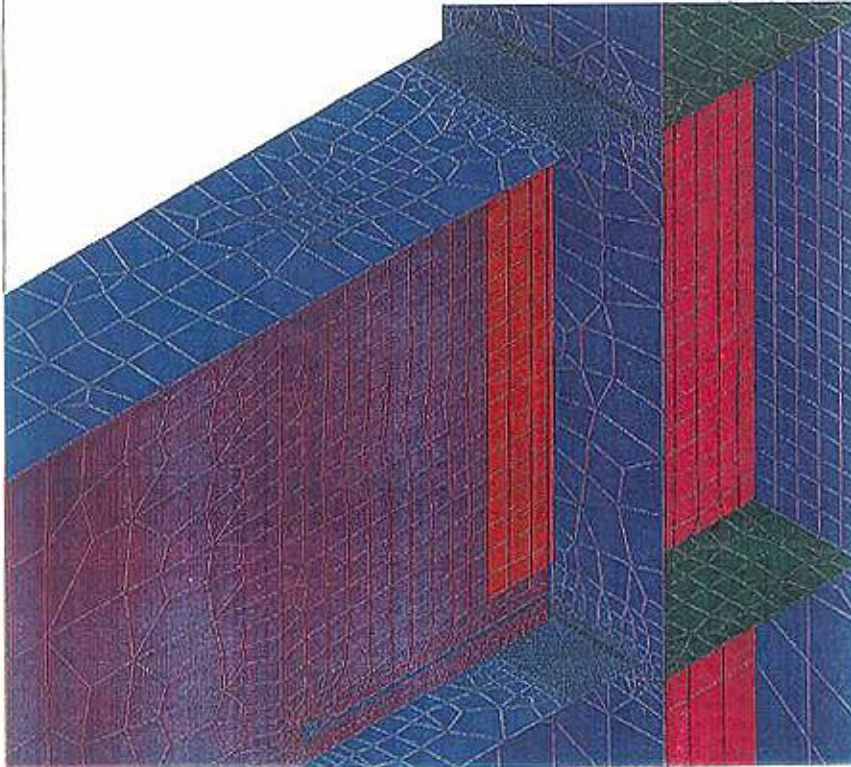


W36x150 Bm, W14x311 Col, 18"x0.38" Slot, 1" CP

Figure 1: ATC-24 Beam and Column Test Assembly

1 ROM Engineering, Inc. P.O. Box 65170 (520) 299-4574  
Tucson, AZ 85728 (520) 299-4574 Fax  
rome@azsolar.com

ANSYS 5.3  
NOV 21 1996  
02:40:54  
ELEMENTS  
REAL NUM  
XV = 1  
YV = 1  
ZV = 1  
\*DIST = 22.303  
\*XF = 17.578  
\*YF = 20.411  
\*ZF = 26.582  
PRECISE HIDDEN



W36x150 Bm, W14x311 Col, 18"x0.38" Slot, 1" CP

Figure 2: Finite Element Mesh at the Connection

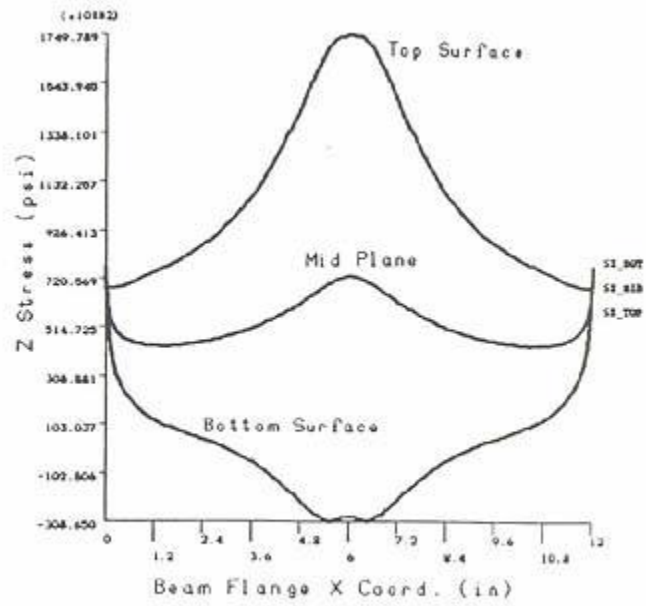


Figure 3: Flange/Weld Flexural Stress Distribution

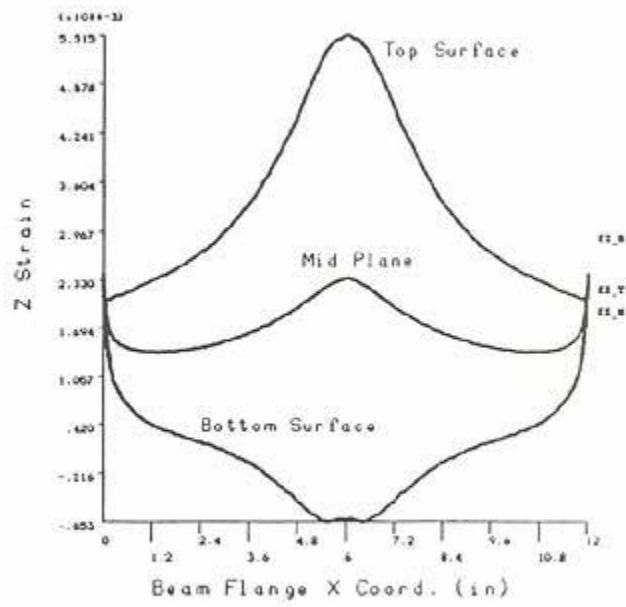
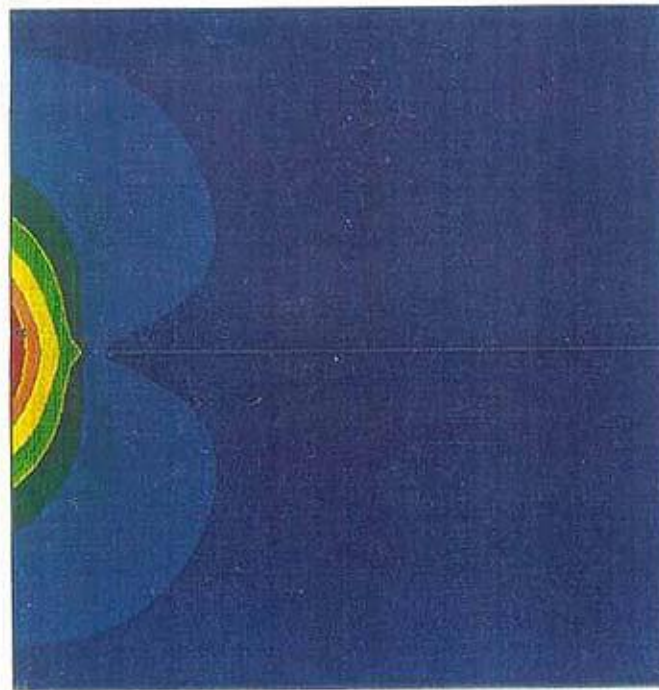


Figure 4: Flange/Weld Flexural Strain Distribution

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ANSYS 5.3  
NOV 21 1996  
01: 50: 55  
MODAL SOLUTION  
STEP=1  
SUB =1  
TIME=1  
S2 (AVG)  
TOP  
RSYS=0  
DMX = .150228  
SMN =10509  
SMNB=8308  
SMX =197070  
SMXB=199574

XV = 0  
YV = 1  
ZV = .612E-16  
• DIST=7.724  
• XF = .1647  
• YF =17.53  
• ZF =3.918  
A-ZS=90  
Z-BUFFER  
EDGE  
10509  
31238  
51967  
72696  
93425  
114154  
134883  
155612  
176341  
197070

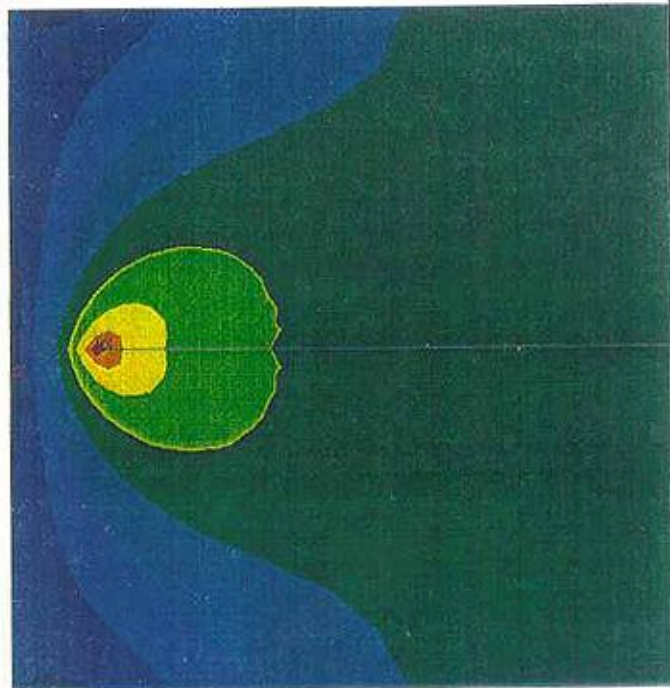


W36x150 Bm, W14x311 Col, Top Surf of Tension Flg, 50 ksi Nom S2

Figure 5: Top Surface Tension Flange Flexural Stresses

<sup>1</sup> ROM Engineering, Inc. P.O. Box 68170 (520) 299-4574  
Tucson, AZ 85728 (520) 299-4574 fax  
rom@bazzar.net.com

ANSYS 5.3  
NOV 21 1996  
01:52:05  
MODAL SOLUTION  
STEP=1  
SUB = 1  
TIME=1  
S7 (AVG)  
BOTTOM  
RSYS=0  
DMX = .150228  
SMN = -20259  
SMNB = -25193  
SMX = 119784  
SMXB = 138551  
  
XV = 0  
YV = 1  
ZV = .612E-16  
\*DIST = 7.724  
\*XF = .1647  
\*YF = 17.53  
\*ZF = 3.918  
A-ZS=90  
Z-BUFFER  
EDGE  
-20259  
-4699  
10862  
26422  
41982  
57542  
73103  
88663  
104223  
119784

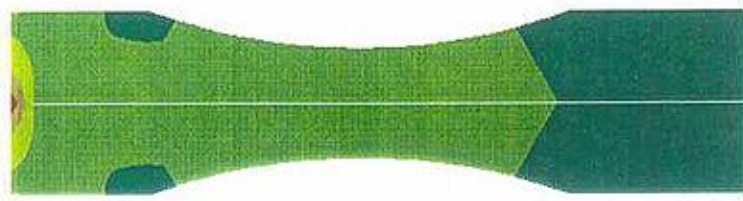


W36x150 Bm, W14x311 Col, Bottom Surf of Tension Flg, 50 ksi Hom

Figure 6: Bottom Surface Tension Flange Flexural Stresses

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Tucson, AZ 85728 (520) 299-4574 fax  
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ANSYS 5.3  
AUG 5 1997  
09:57:00  
PLOT NO. 1  
NODAL SOLUTION  
STEP=1  
SUB =1  
TIME=1  
SZ (AVG)  
TOP  
RSYS=0  
DMX =1.454  
SMN =-122025  
SMNB=-155247  
SMX =172336  
SMXB=183621



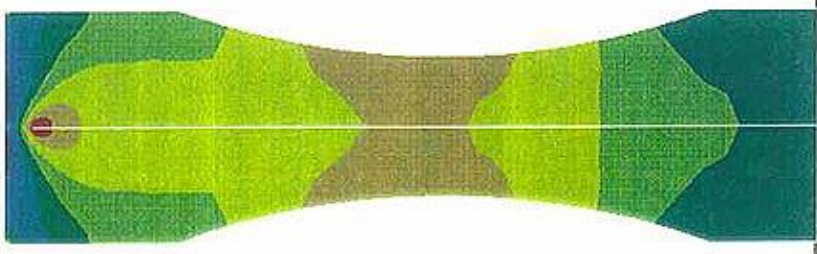
YV =1  
\*DIST=28.799  
\*XF =4.196  
\*YF =16.64  
\*ZF =18.58  
A-ZS=90  
Z-BUFFER  
EDGE  
-122025  
-89318  
-56611  
-23905  
74216  
106923  
139629  
172336

W36x150, W14x311, Top-Flange Top-Surface Z Stress, 50 ksi nom

Figure 7: RBS Top Surface Tension Flange Flexural Stresses

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Tucson, AZ 85728 (520) 299-4574 fax  
rome@aratacnet.com

ANSYS 5.3  
AUG 5 1997  
10:07:10  
PLOT NO. 1  
NODAL SOLUTION  
STEP=1  
SUB =1  
TIME=1  
SZ (AVG)  
BOTTOM  
RSYS=0  
DMX =1.454  
SMN =-13061  
SMNB=-17108  
SMX =76129  
SMXB=94215



YV =1  
\*DIST=22.57  
\*XF =-.507078  
\*YF =17.455  
\*ZF =19.018  
A-ZS=90  
Z-BUFFER  
EDGE  
-13061  
-3151  
6759  
16669  
46399  
56309  
66219  
76129

W36x150, W14x311, Top-Flange Bott-Surface Z Stress,50 ksi nom

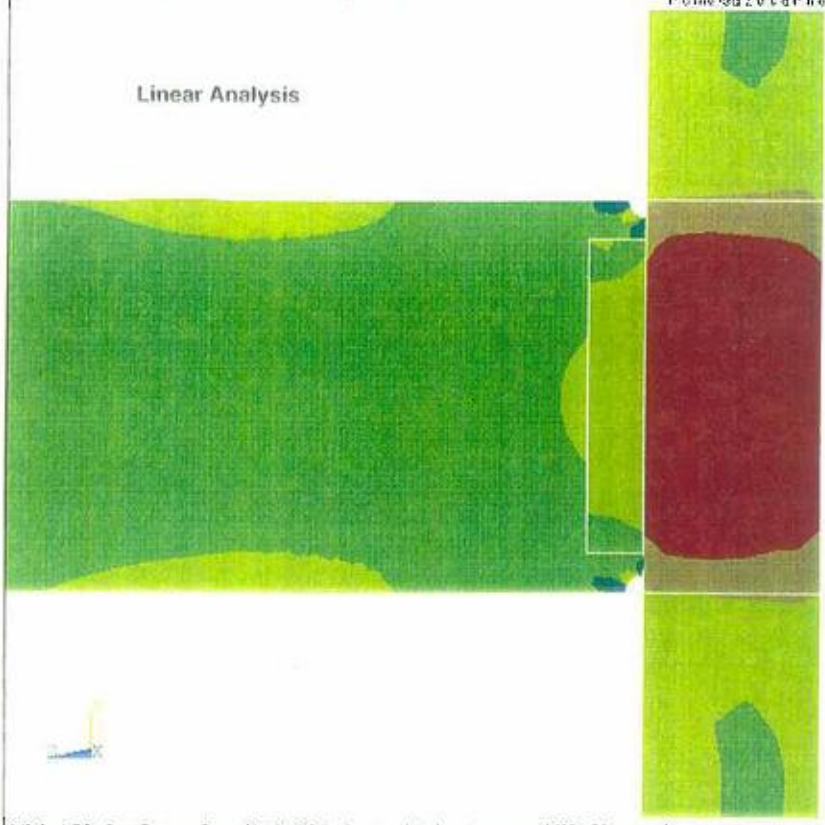
Figure 8: RBS Bottom Surface Tension Flange Flexural Stresses



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 Tucson, AZ 85728 | (520) 299-4574 fax  
 rome@azelaraet.com

ANSYS 5.3  
 AUG 5 1997  
 10:41:27  
 PLOT NO. 1  
 NODAL SOLUTION  
 STEP=1  
 SUB =1  
 TIME=1  
 SYZ (AVG)  
 RSYS=0  
 PowerGraphics  
 EFACET=1  
 AVRES=Real  
 DMX =1.217  
 SMN =-57757  
 SMX =19975

Linear Analysis

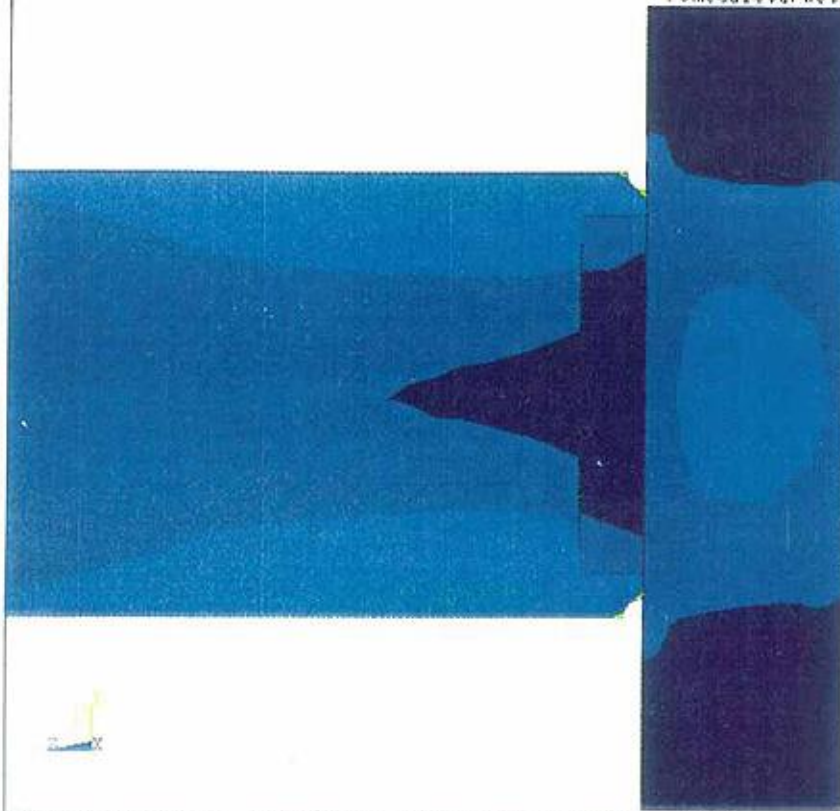


W36x150 PogBone Bm, W14x455 Col, 50 ksi nom, SYZ Shear Stress

Figure 9: RBS Beam and Column Web Shear Stress Distribution

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Tucson, AZ 85728 (520) 299-4574 fax  
rome@aznet.net.com

ANSYS 5.3  
AUG 5 1997  
10:58:17  
PLOT NO. 1  
NODAL SOLUTION  
STEP=1  
SUB =1  
TIME=1  
EPTOEQV (AVG)  
PowerGraphics  
EFACET=1  
AVRES=Real  
DMX =1.217  
SMN =.392E-05  
SMX =.006022



M36x150 DogBone Bm, W14x45S Col, 50 ksi nom, Von Mises Strain

Figure 10: RBS Beam and Column Web von Mises Stress and Strain Distribution