Fermilab

NOvA-Doc-9236

Particle Physics Division

Mechanical Department Engineering Note

Number: MD-ENG-472 Date: 29MAY2013

Project: NOvA

Project Internal Reference: DRWG #493063

Title: MINI BLOCK & MUON CATCHER STREADY REST

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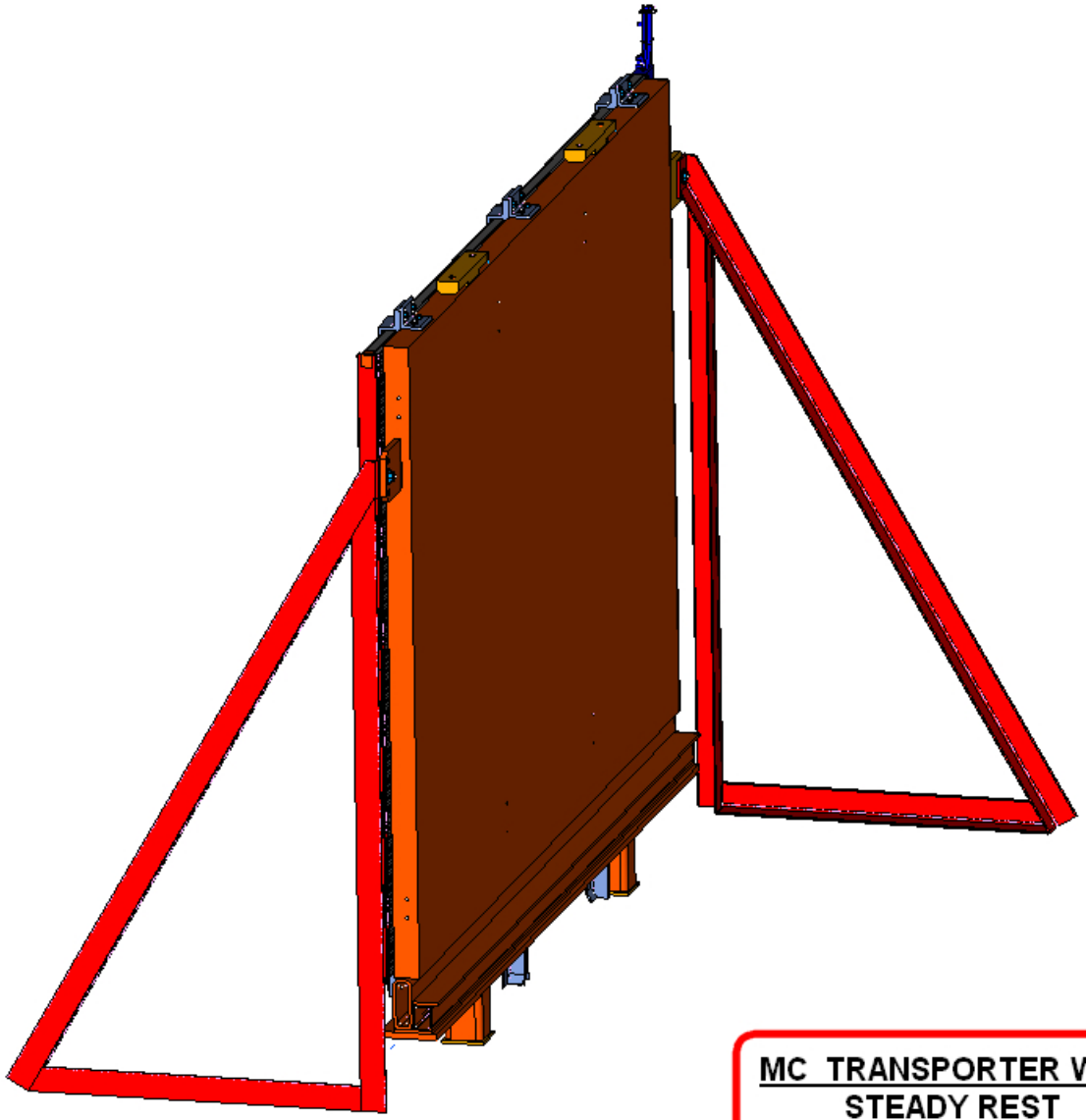
Key Words:

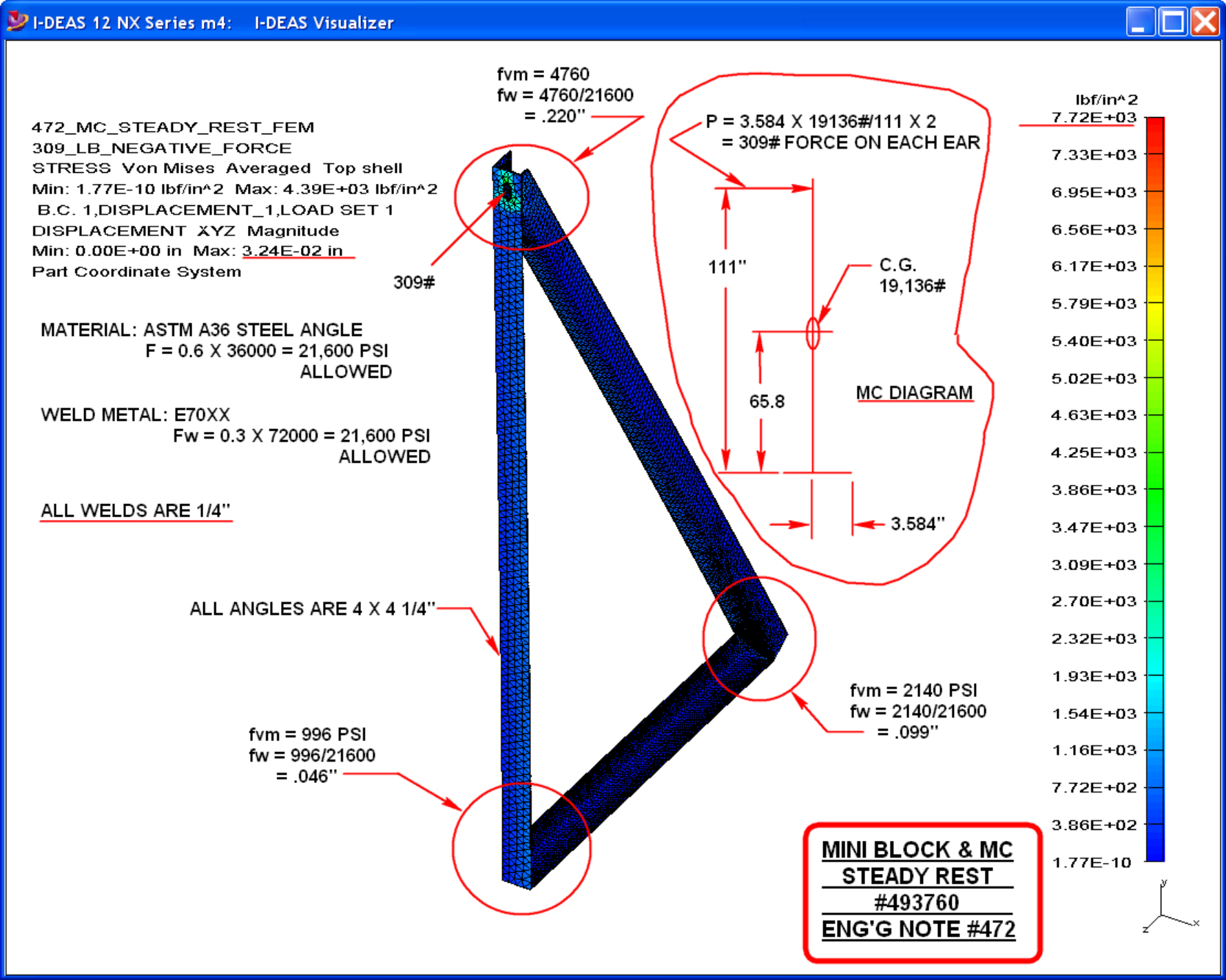
Abstract/Summary: MINI BLOCK & MUON CATCHER WILL BE HELD STEADY WHILE THE CRANE HOOK IS DISENGAGED AND THE SPREADER BAR IS CONNECTED

Applicable Codes: AISC MANUAL OF STEEL CONSTRUCTION 9TH EDITION WELDING IN ACCORDANCE TO STRUCTURAL STEEL WELDING CODE ANSI/AWS D1.1

I-DEAS 12 NX Series m4: PPD TDM : 1_MODELFILES : C:\PPD_IDM_PPD-117870\EMV_NOvA_ND_02_MAY_2013.mf1



MC TRANSPORTER WITH STEADY REST


I-DEAS 12 NX Series m4: I-DEAS Visualizer
472_MC_STEADY_REST_FEM
309_LB_NEGATIVE_FORCE
STRESS Von Mises Averaged Top shell
Min: 1.77E-10 lbf/in^2 Max: 4.39E+03 lbf/in^2
B.C. 1,DISPLACEMENT_1,LOAD SET 1
DISPLACEMENT XYZ Magnitude
Min: 0.00E+00 in Max: 3.24E-02 in
Part Coordinate System
MATERIAL: ASTM A36 STEEL ANGLE
F = 0.6 X 36000 = 21,600 PSI
ALLOWED
WELD METAL: E70XX
Fw = 0.3 X 72000 = 21,600 PSI
ALLOWED
ALL WELDS ARE 1/4"
fvm = 4760
fw = 4760/21600
= .220"
309#
P = 3.584 X 19136#/111 X 2
= 309# FORCE ON EACH EAR
111"
C.G.
19,136#
65.8
MC DIAGRAM
3.584"
ALL ANGLES ARE 4 X 4 1/4"
fvm = 2140 PSI
fw = 2140/21600
= .099"
fvm = 996 PSI
fw = 996/21600
= .046"
lbf/in^2
7.72E+03
7.33E+03
6.95E+03
6.56E+03
6.17E+03
5.79E+03
5.40E+03
5.02E+03
4.63E+03
4.25E+03
3.86E+03
3.47E+03
3.09E+03
2.70E+03
2.32E+03
1.93E+03
1.54E+03
1.16E+03
7.72E+02
3.86E+02
1.77E-10
MINI BLOCK & MC
STEADY REST
#493760
ENG'G NOTE #472