DIRC Progress at IU

- Reviewed large print package from SLAC (available for distribution)
- From SLAC prints, developed models concerning end window (flange, window frame)
- Created several FEA simulations and physical test process to answer questions regarding window strength
- Currently building coponents for window test
- In process of building mock bar box for shipping tests

FEA Findings

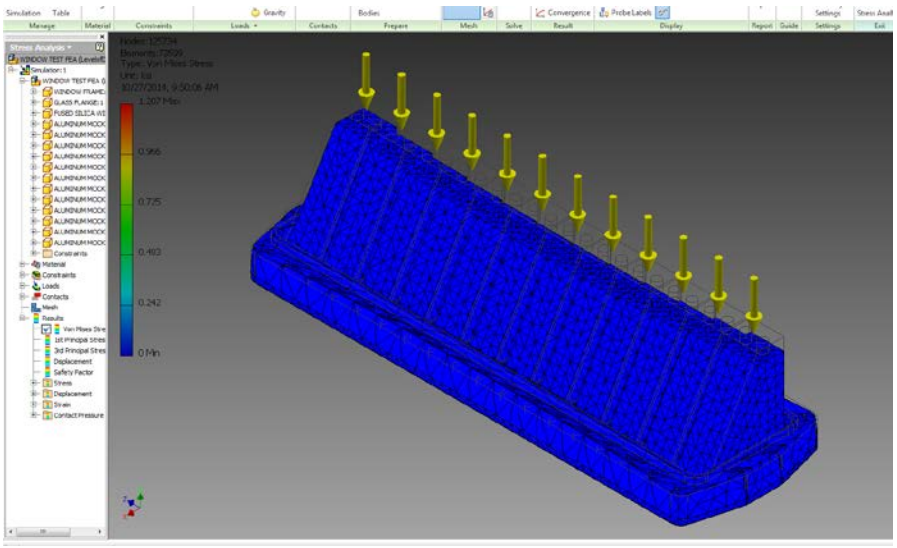

Figure 1 – Results of FEA, prototypical loading, wedge and window components in “bonded” state

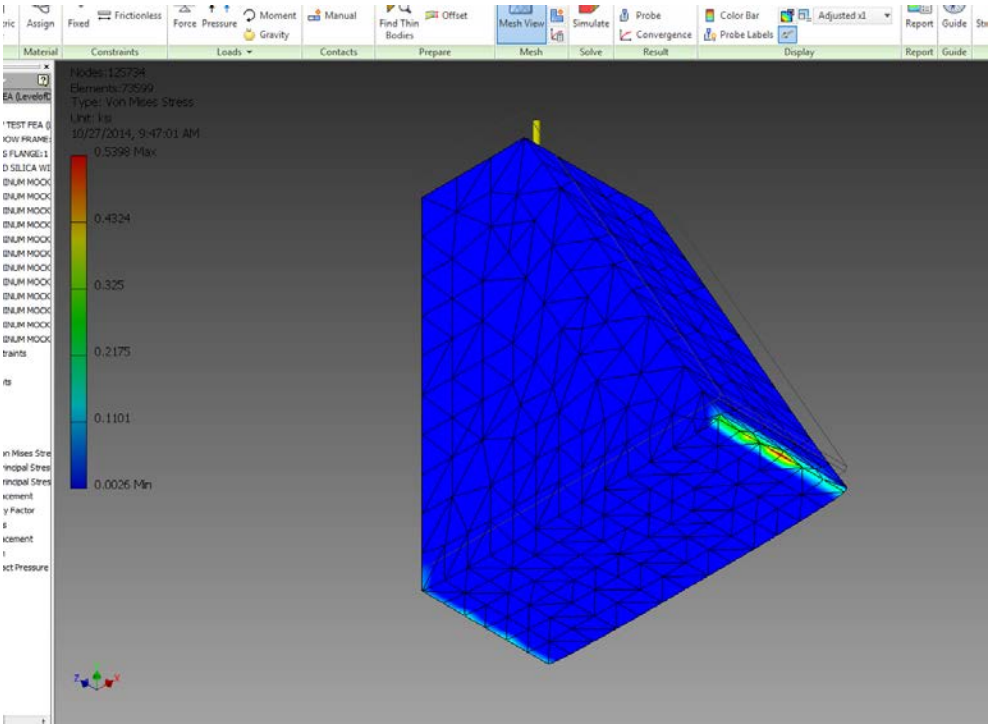

Figure 2 – Highest observed stress point in prototypical loading, in “bonded” condition. Wedge 7 (middle of array) leading edge experiencing ~540 psi stress (as compared to 680 psi recommended design stress)

Component	Max Stress (psi) 43 lb. force bonded state	Max Stress (psi) 86 lb. force bonded state	Max Stress (psi) 43 lb. force sliding no separation state	Max Stress (psi) 86 lb. force sliding no separation state
Window	219	438	243	483
Wedge No. 7	538	1078	342	638

Table 1 – FEA simulation results for fused silica components, varying conditions

Some arguments for horizontal orientation

- Safer for man and machine
- Eliminate situations where max stress in fused silica is a concern
- Eliminate situation where air bubbles are trapped under flanges
- Use exiting lifting fixtures, techniques, **knowledge**

Mock Bar Box

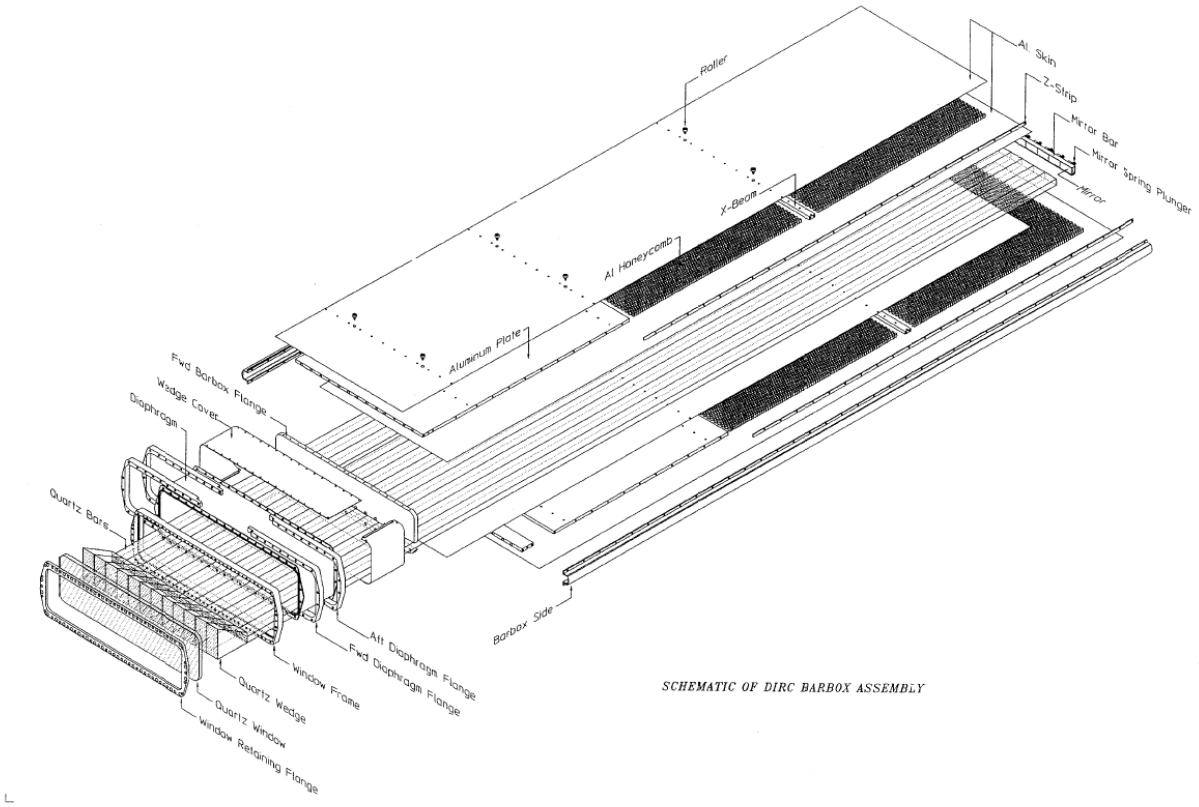

Figure 3 – Schematic of DIRC Barbox

1.485 inches * 16.970 inches

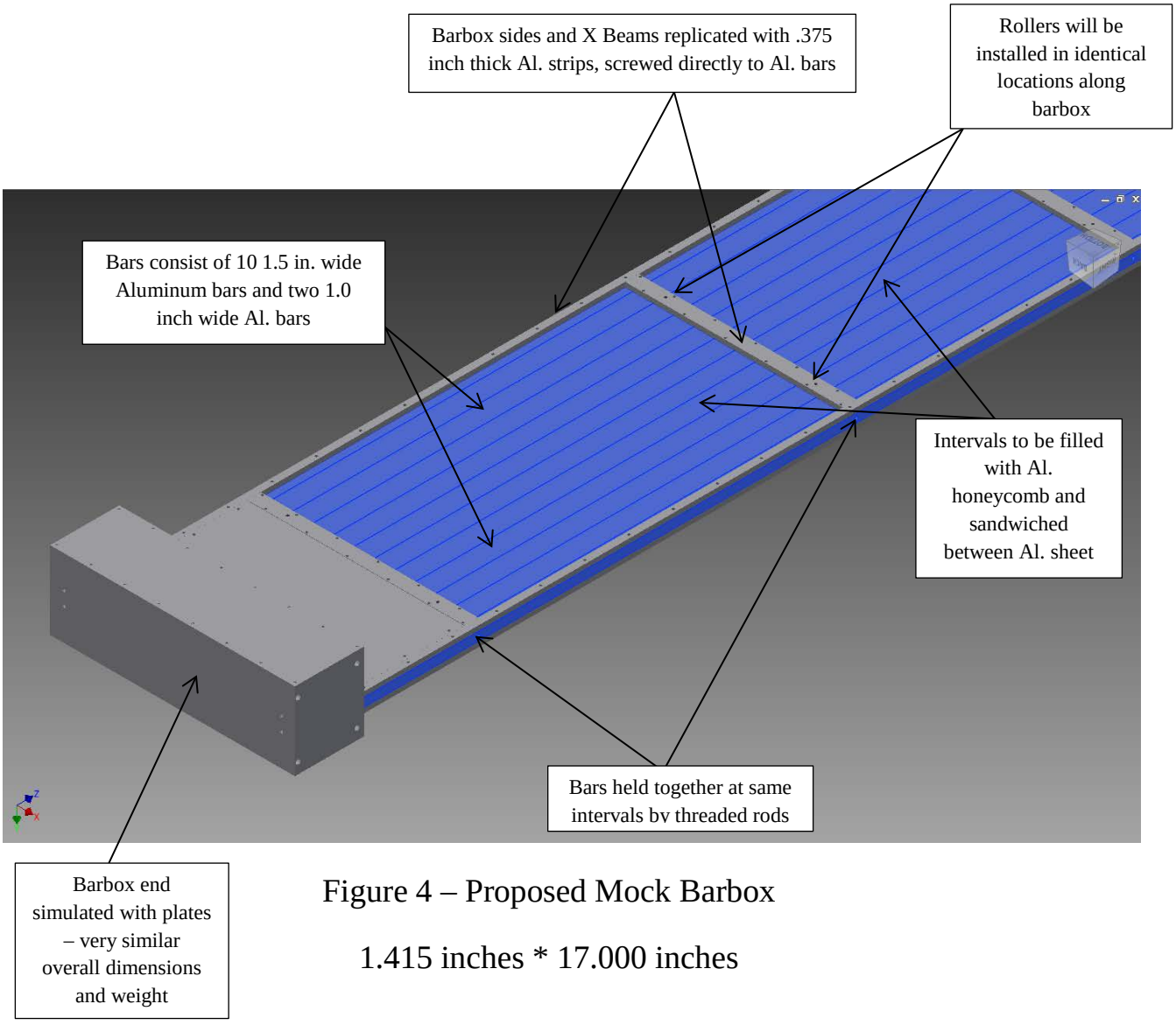

Figure 4 – Proposed Mock Barbox

1.415 inches * 17.000 inches