

# DETAILS AND SIGNIFICANCE OF VARIOUS ABUTMENT BACKFILL MODELS

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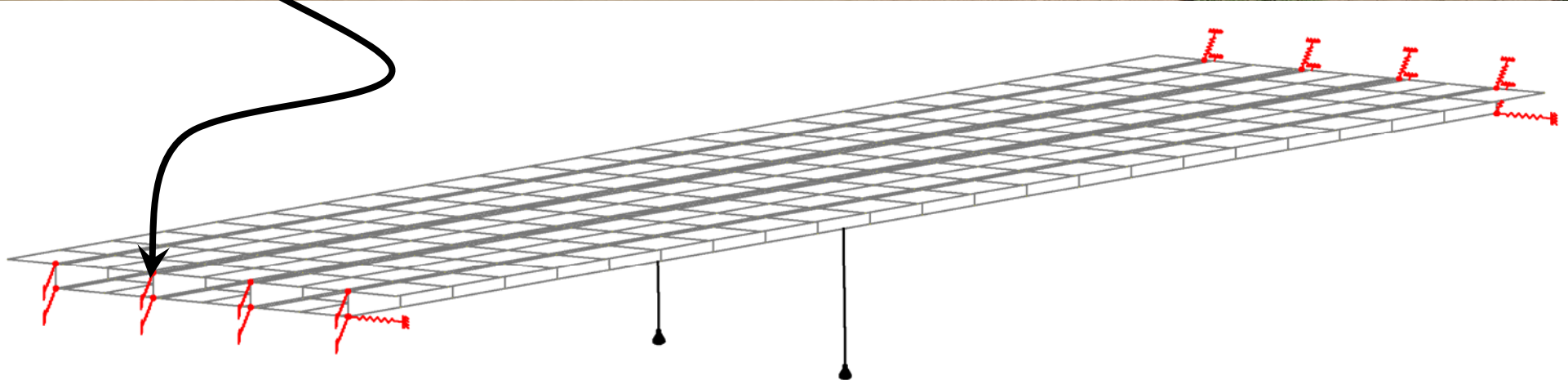
Senior Bridge Engineer

Office of Earthquake Engineering

California Department of Transportation



# OBJECTIVE: ABUTMENT SPRING





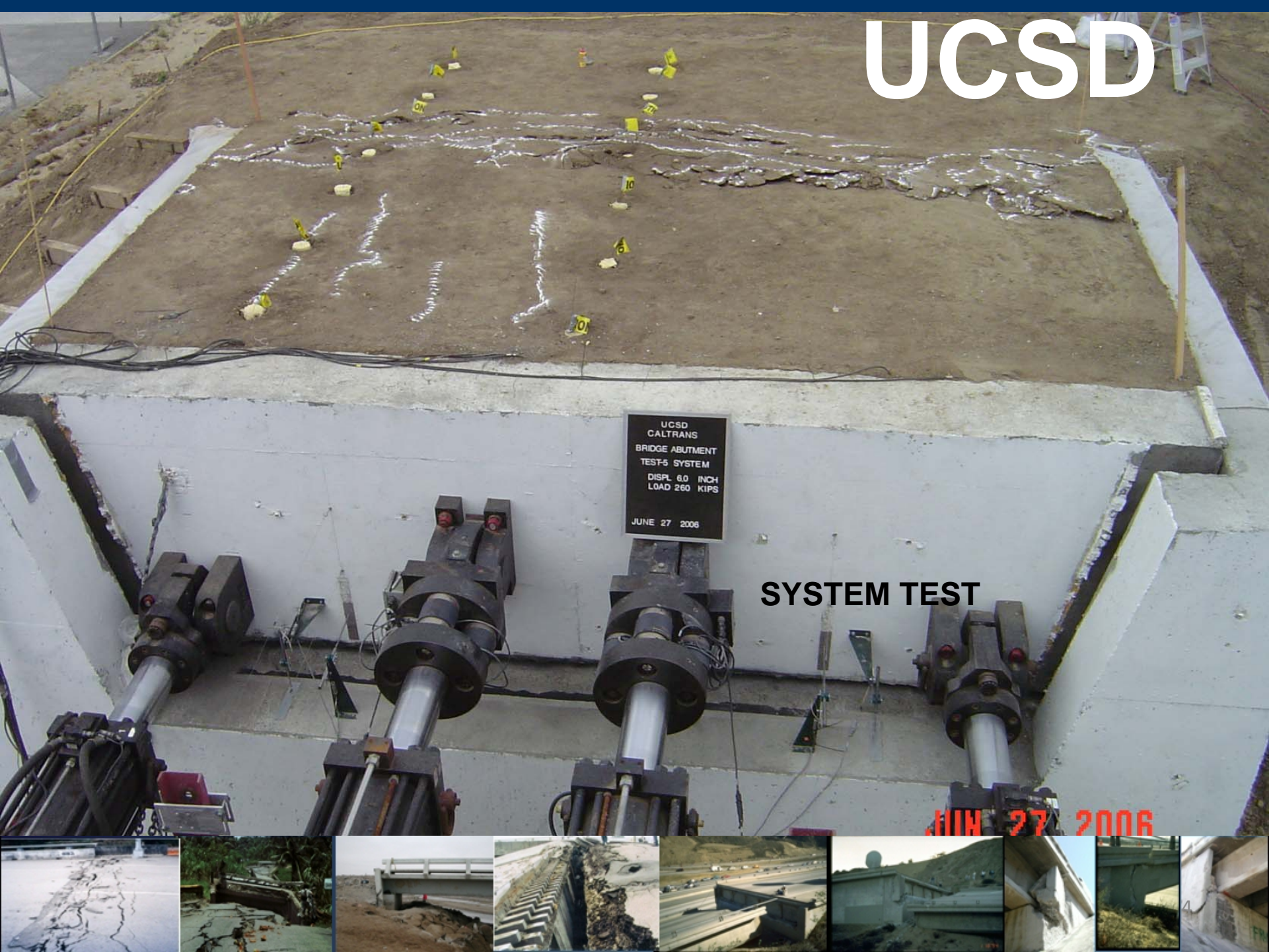


01/31/2005





# UCSD



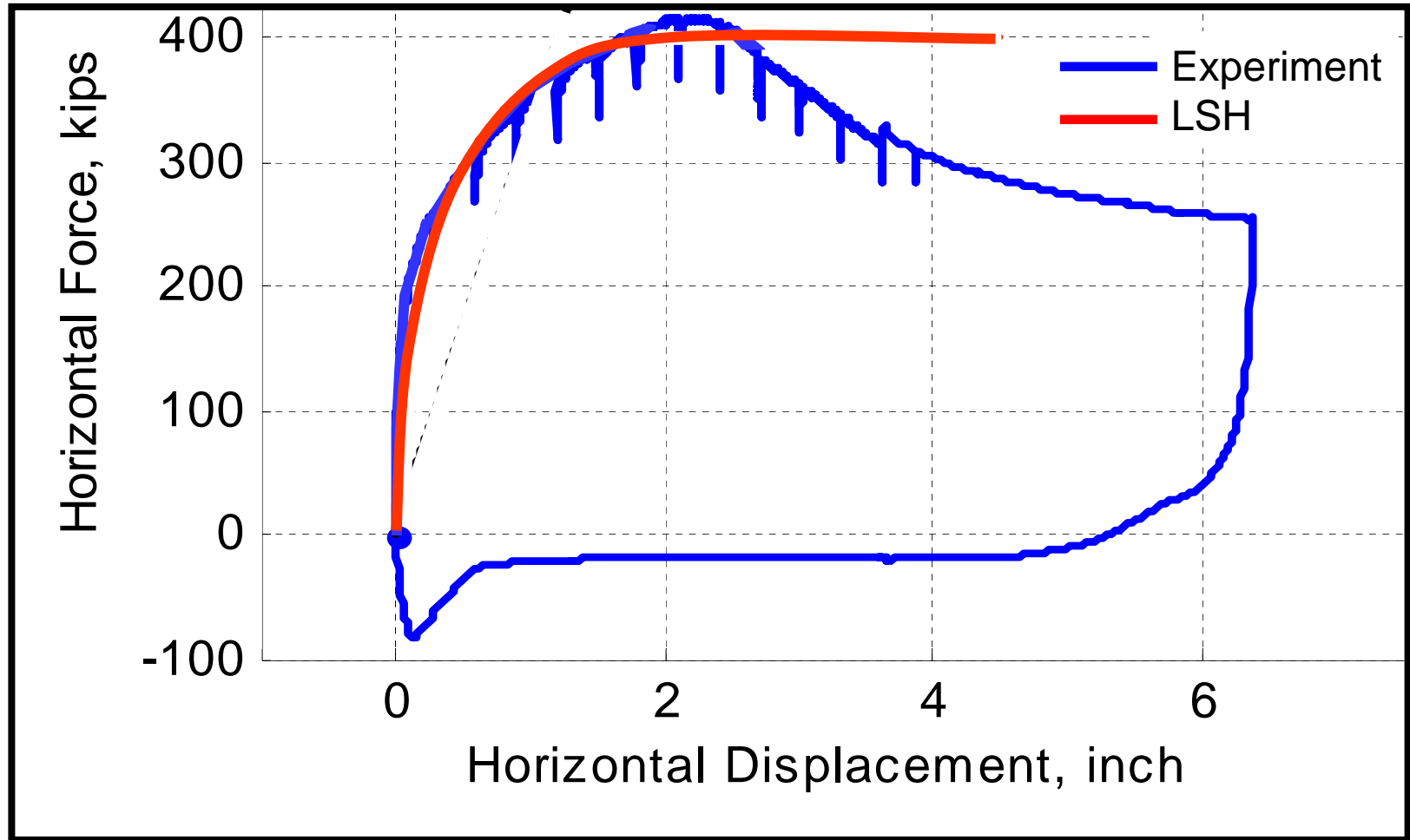
UCSD  
CALTRANS  
BRIDGE ABUTMENT  
TEST-5 SYSTEM  
DISPL 6.0 INCH  
LOAD 260 KIPS  
JUNE 27 2006

SYSTEM TEST

JUN 27 2006

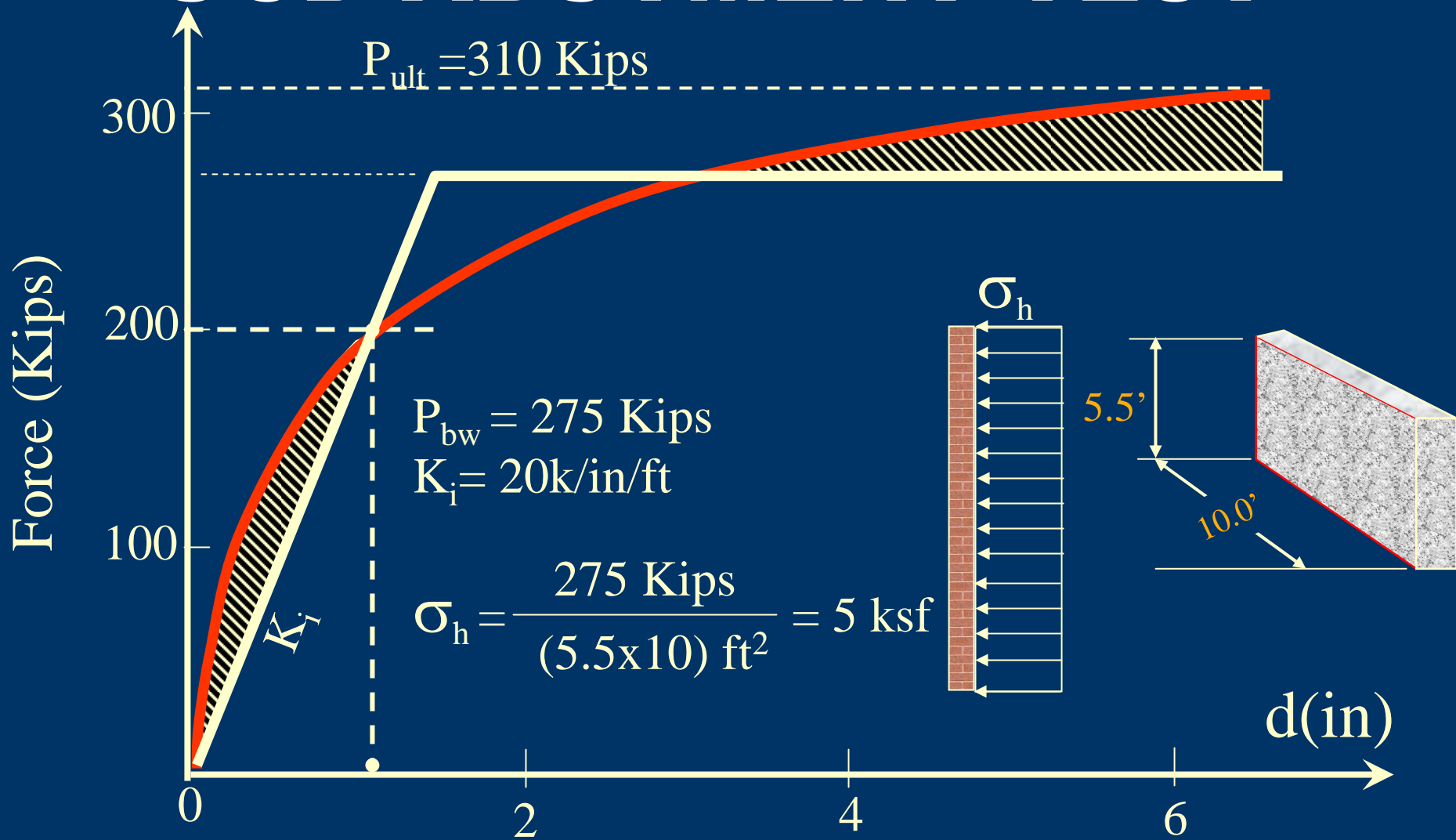


# UCSD ABUTMENT

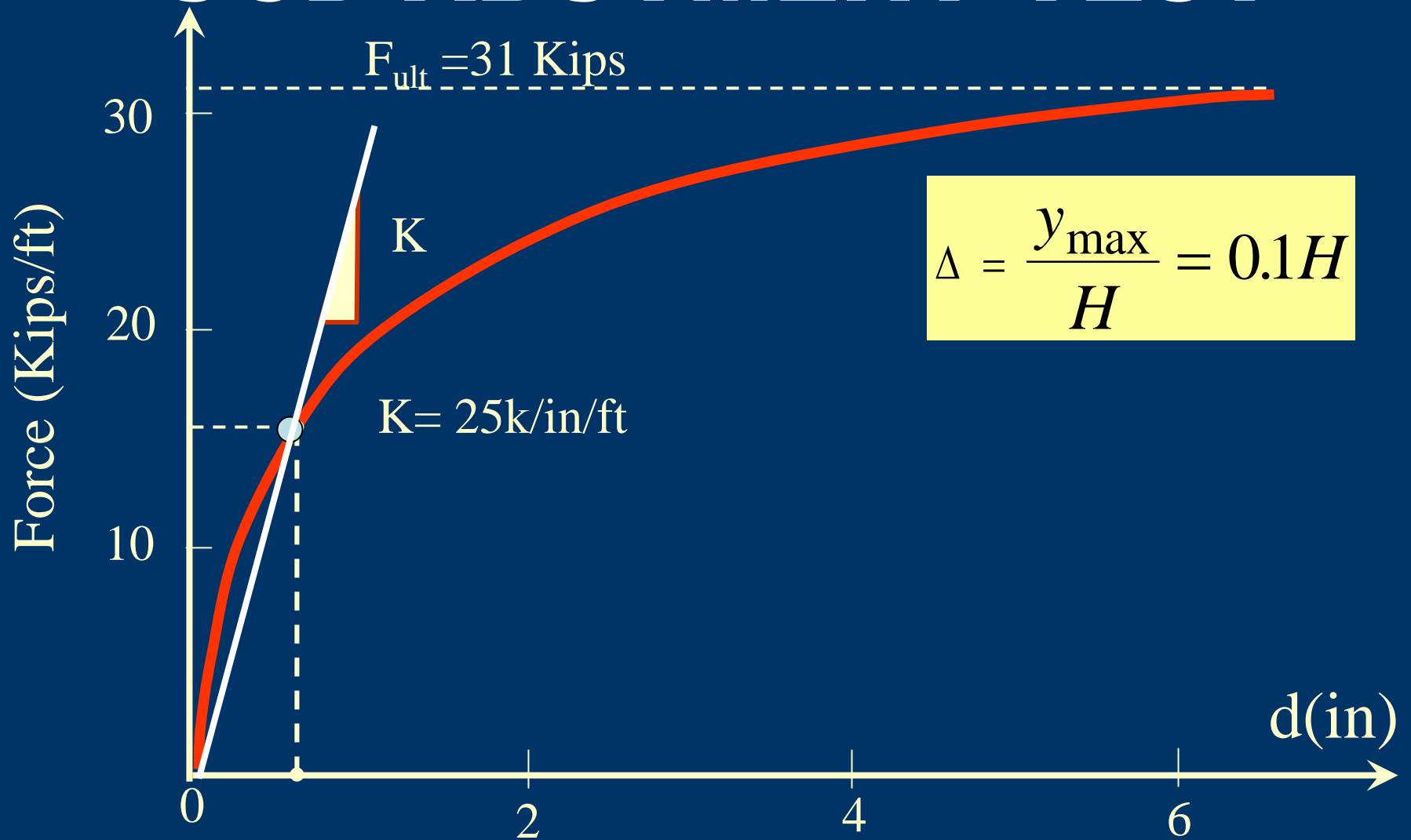




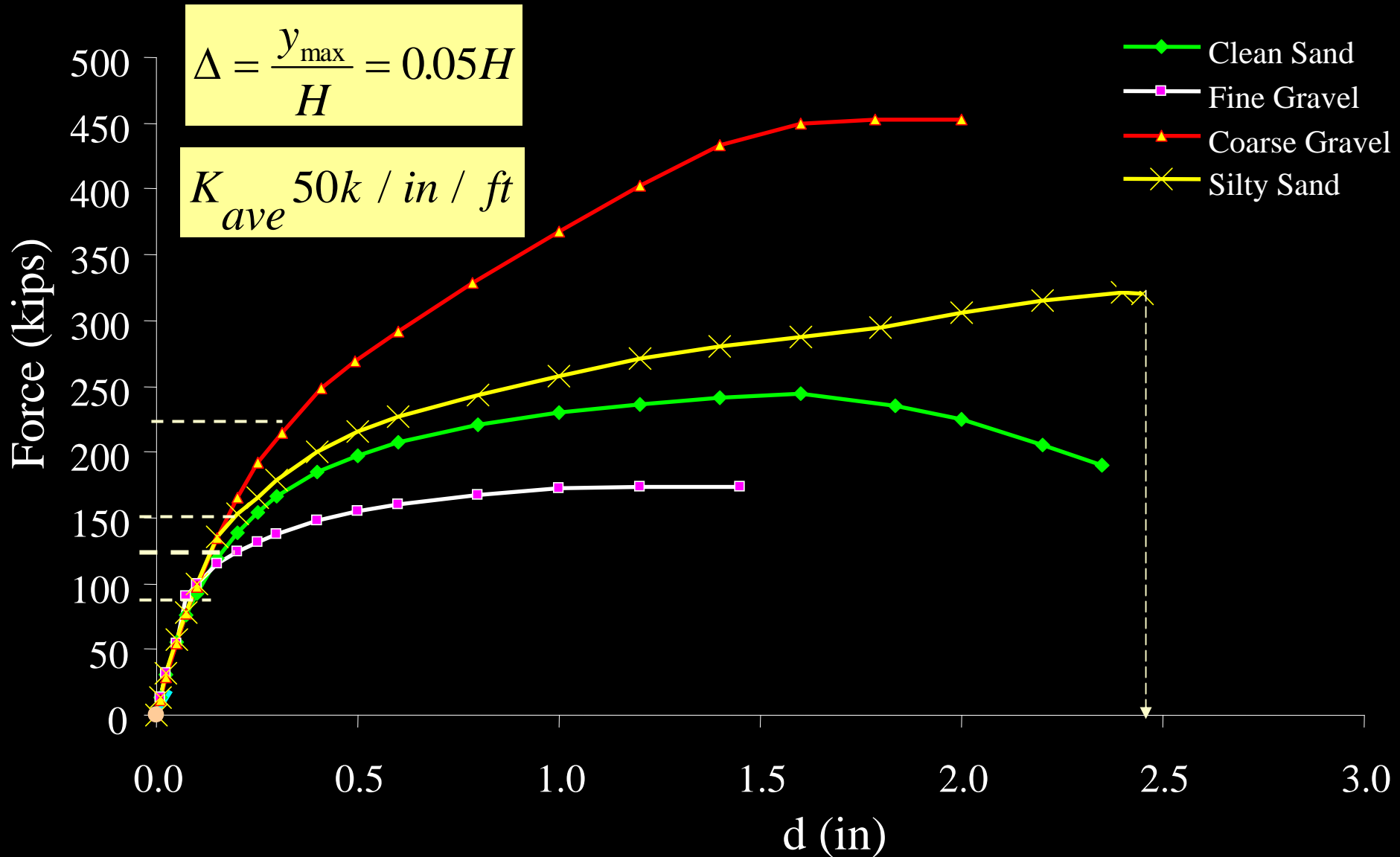
# UCD ABUTMENT TEST



# UCD ABUTMENT TEST



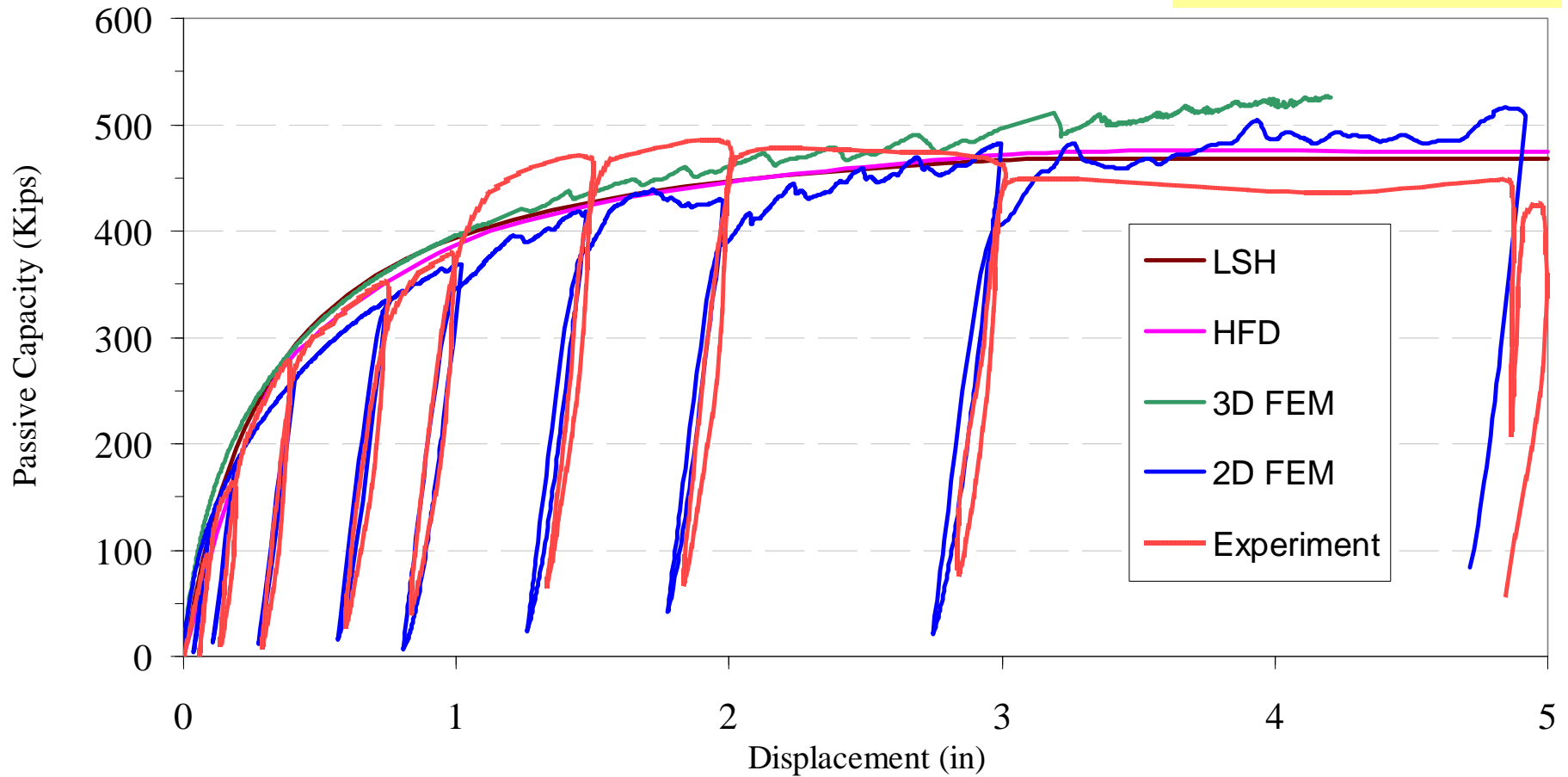
# BYU PILE CAP EXPERIMENT

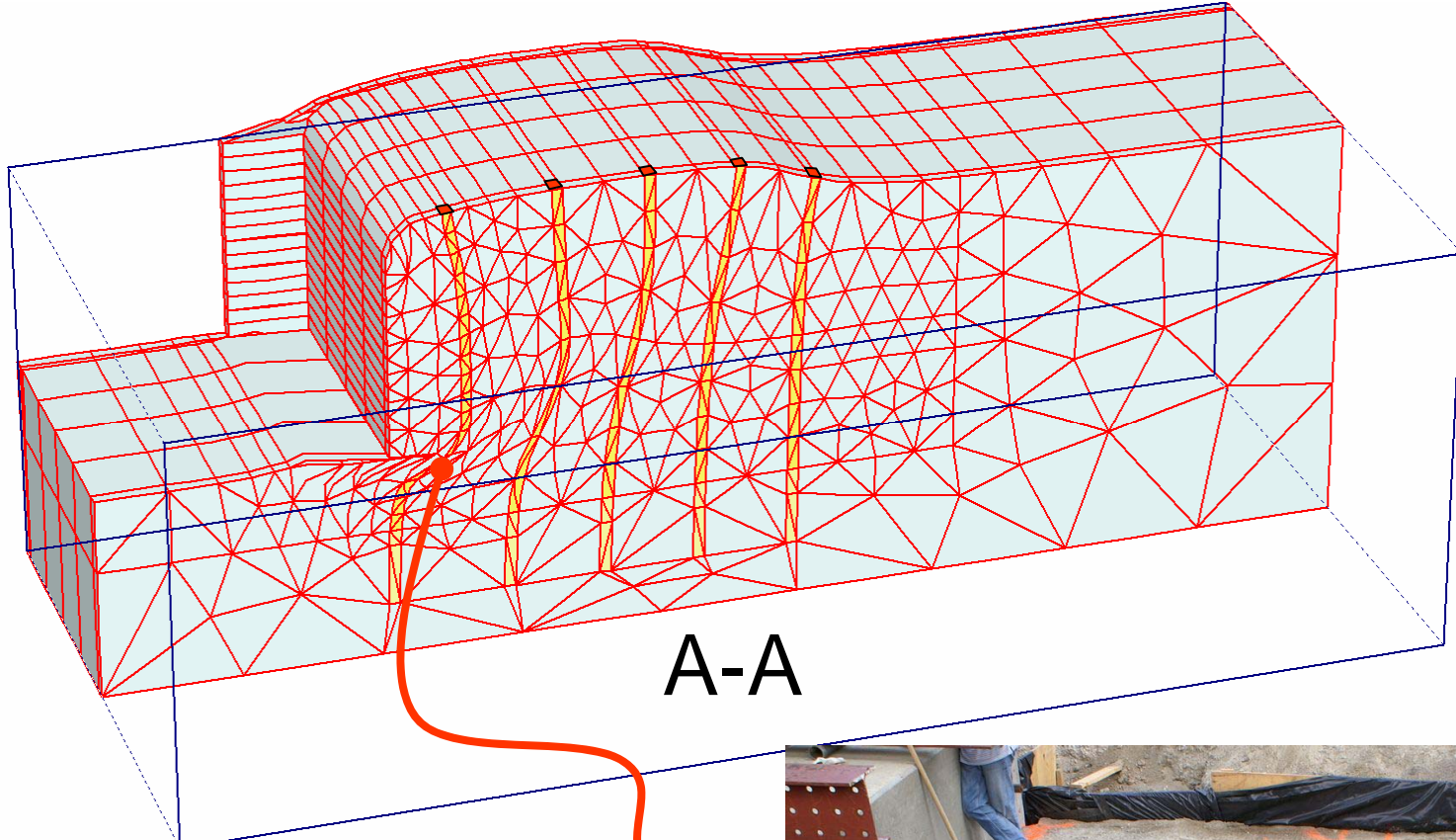




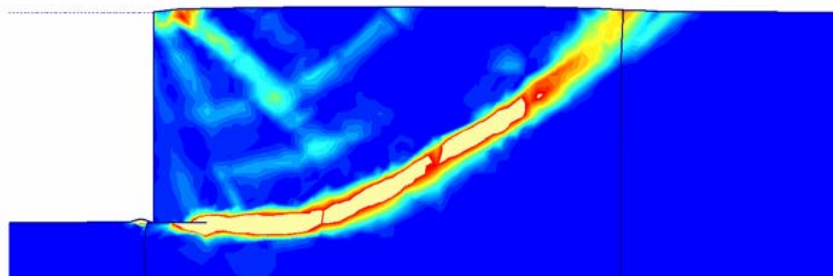
# UCLA ABUTMENT

$$\Delta = \frac{y_{\max}}{H} = 0.05H$$

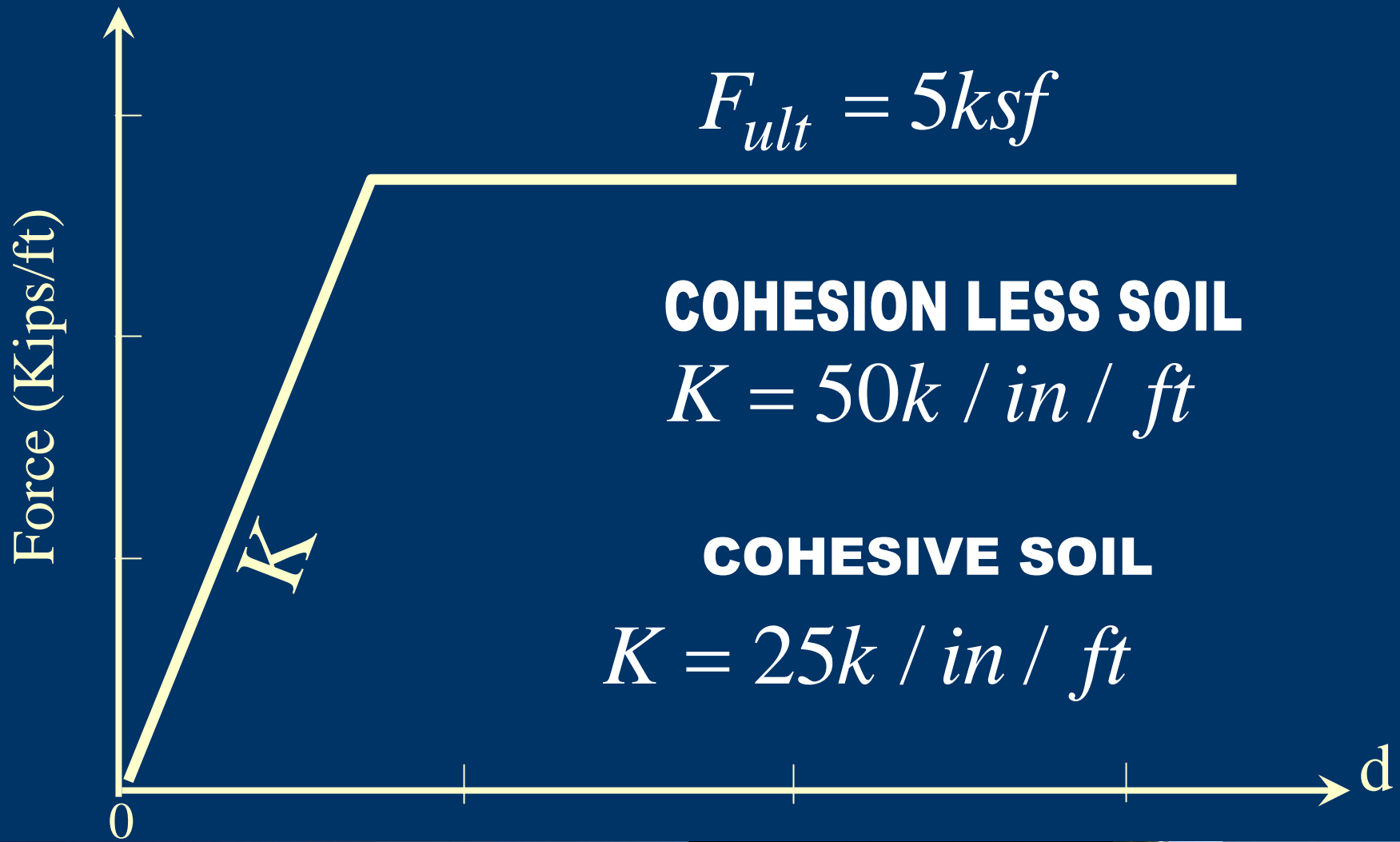




A-A

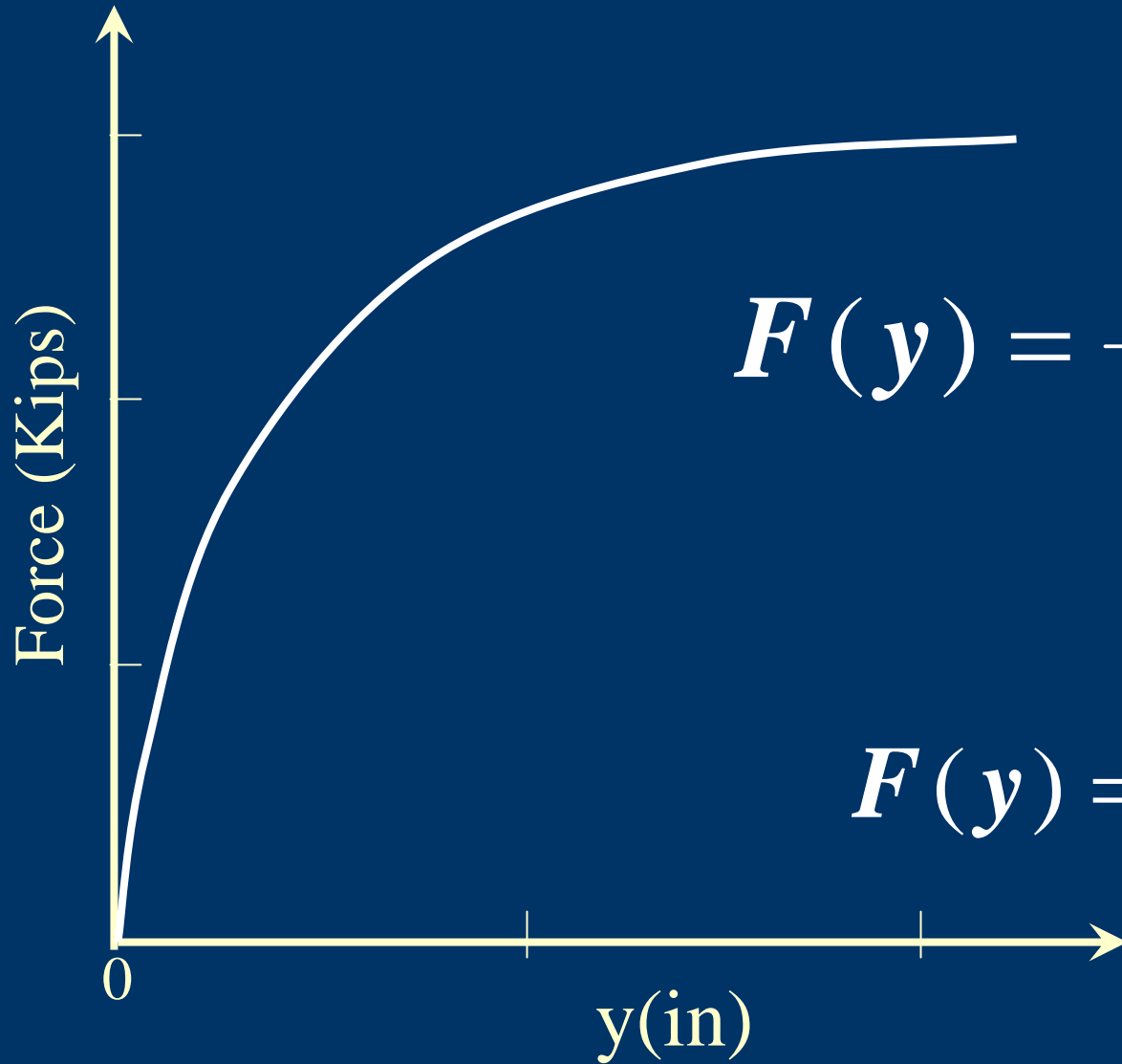


# PRACTICAL ABUTMENT MODEL





# PRACTICAL ABUTMENT MODEL



**SANDY SOIL**

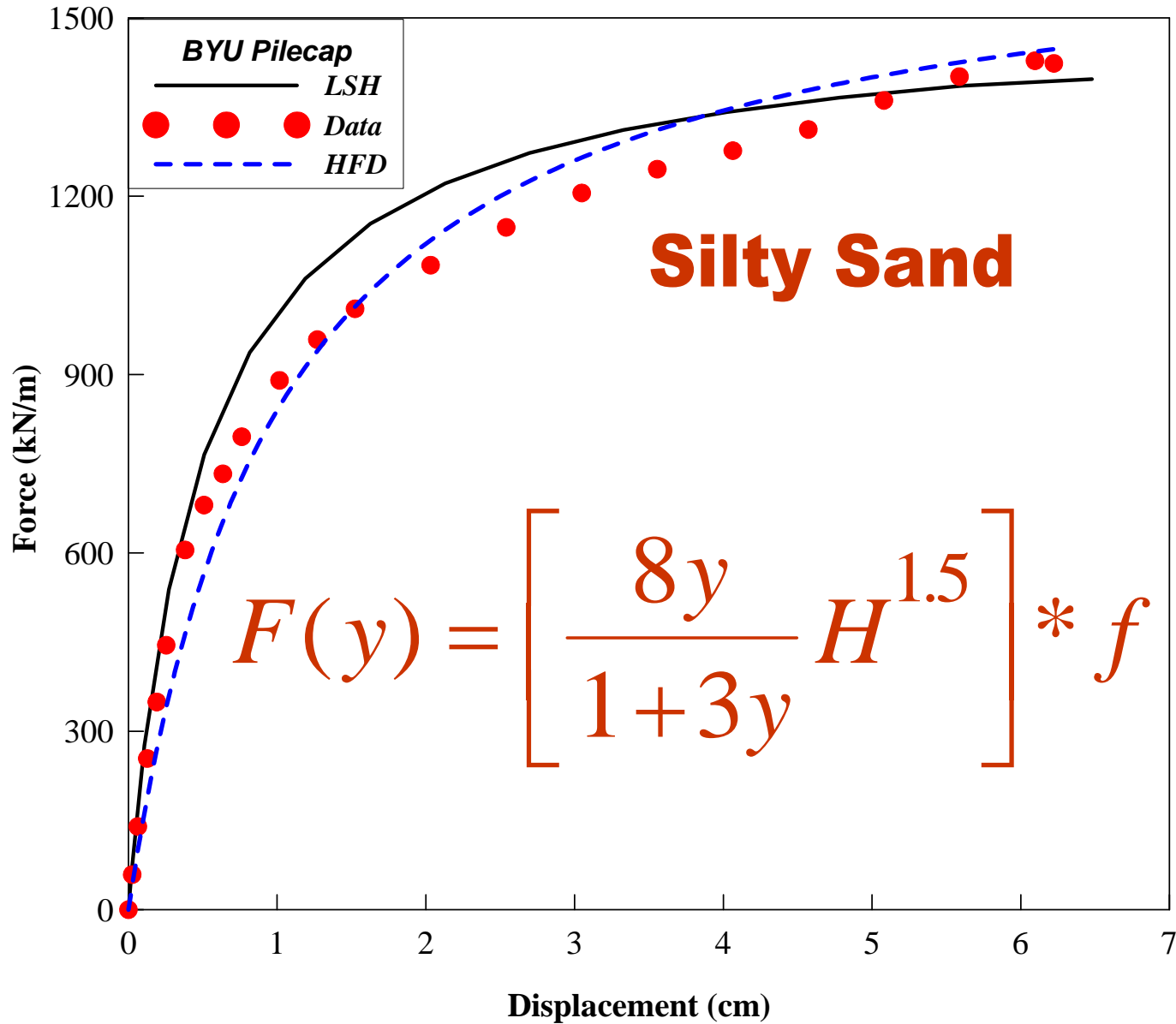
$$F(y) = \frac{8y}{1+3y} H^{1.5}$$

**COHESIVE SOIL**

$$F(y) = \frac{8y}{1+1.3y} H$$



# BYU



# REALITY





# MSE ABUTMENT



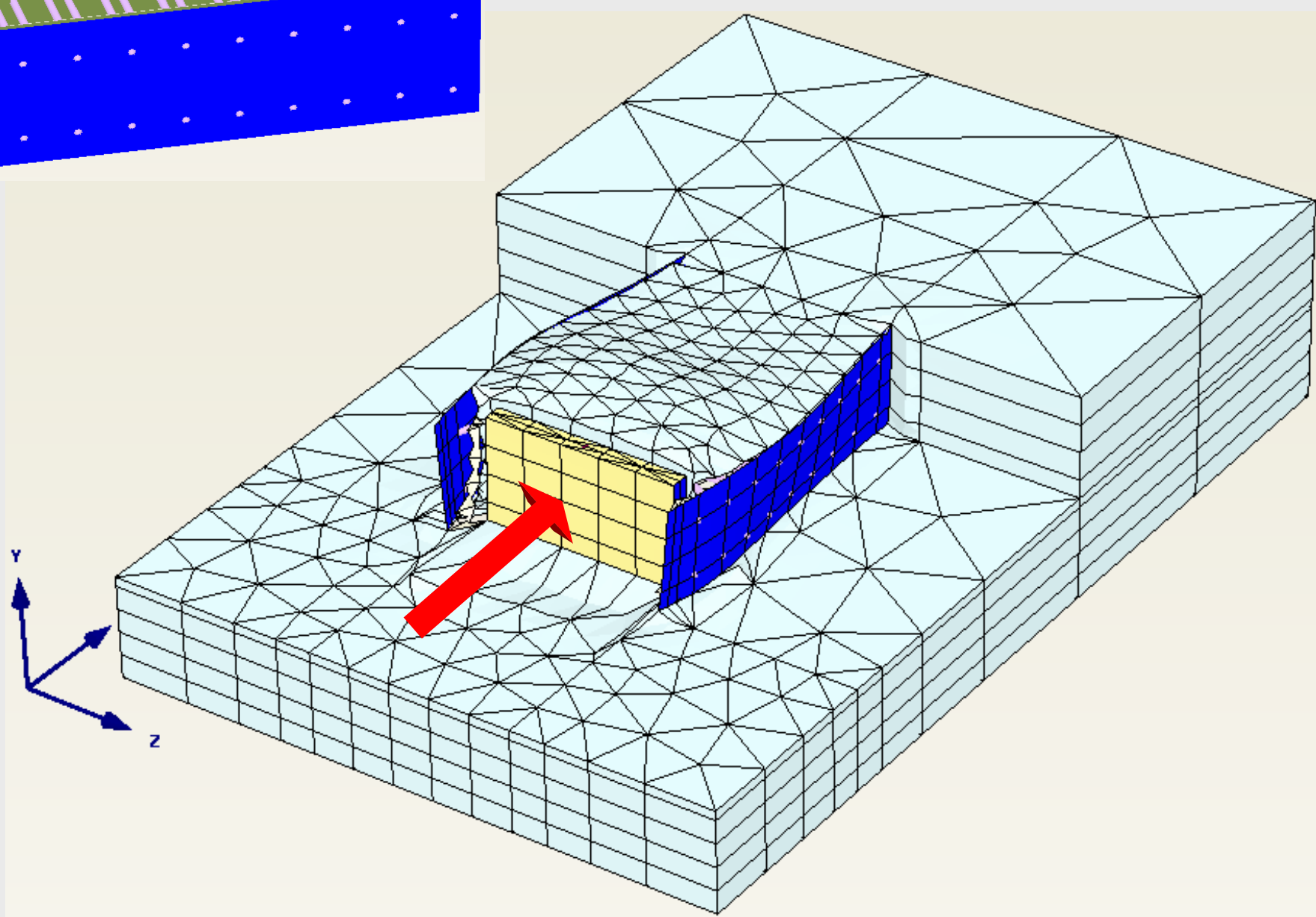
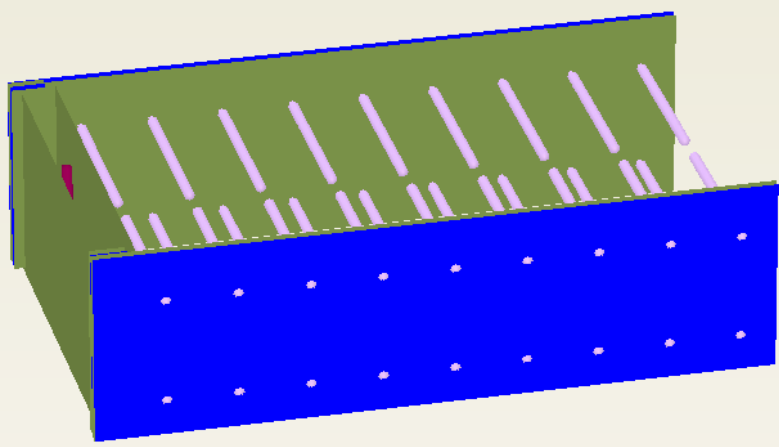
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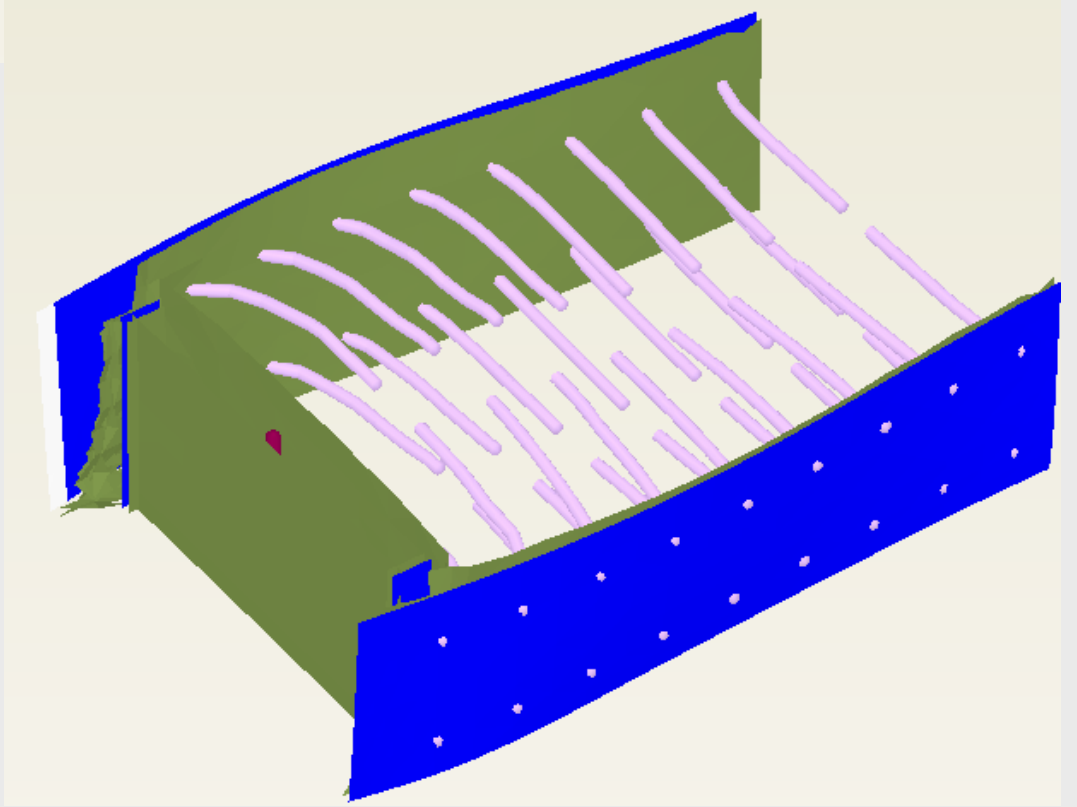
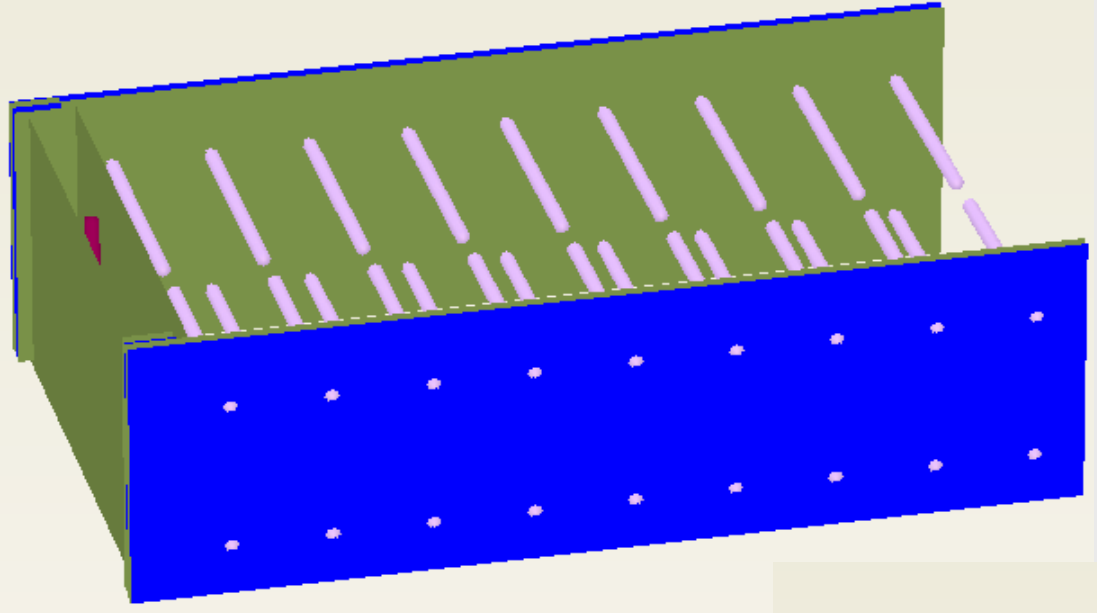
# BYU MSE ABUTMENT



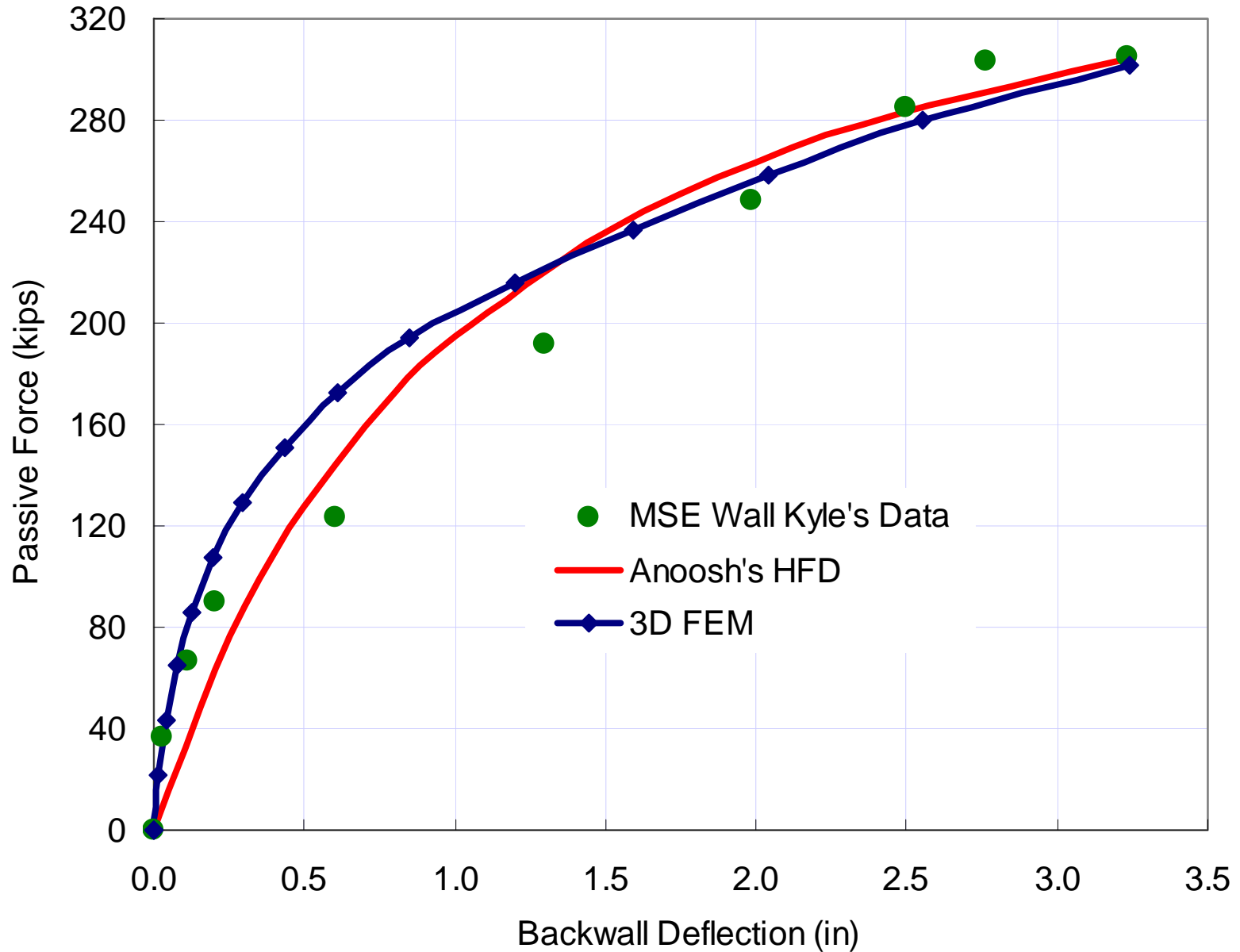




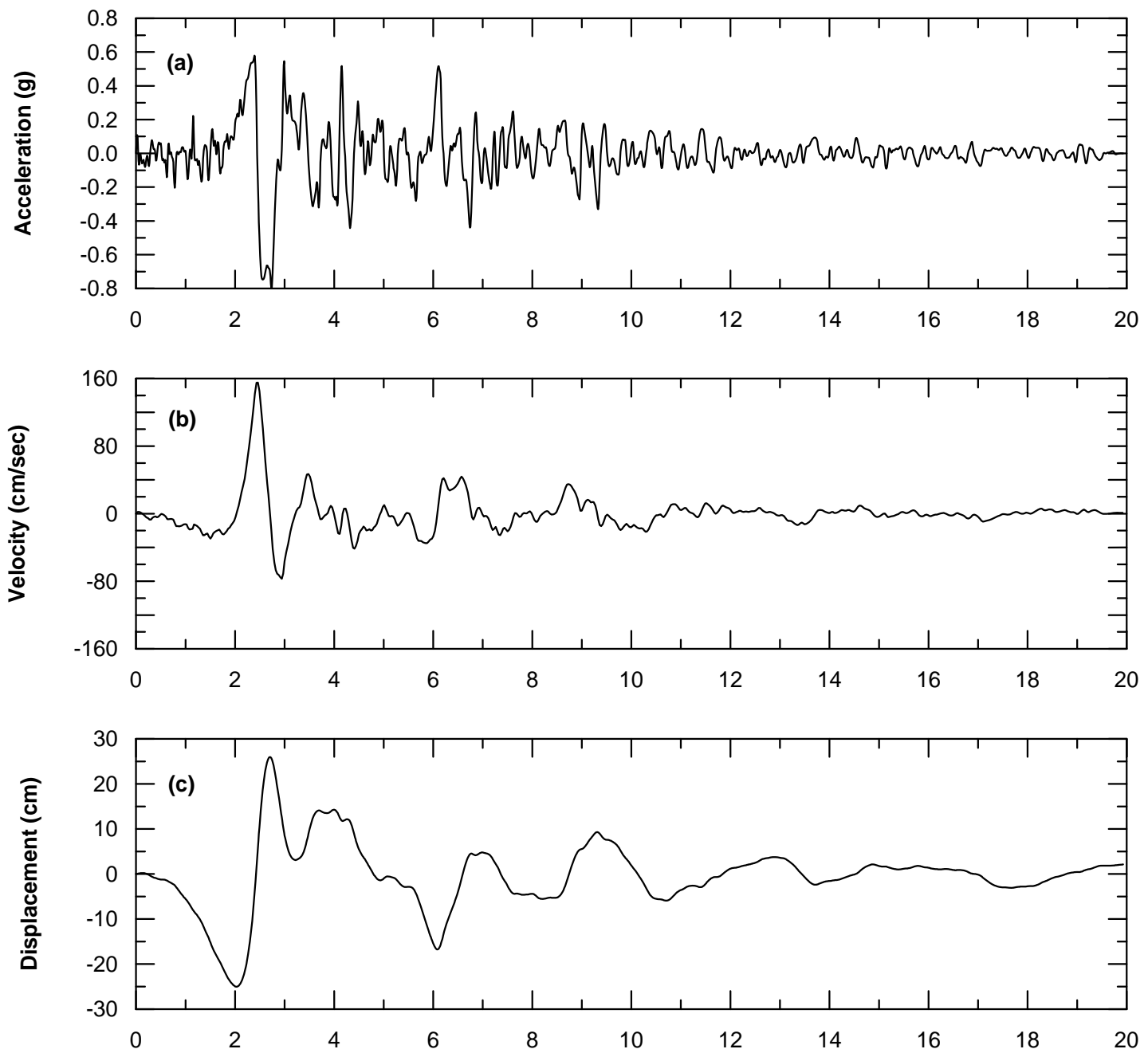




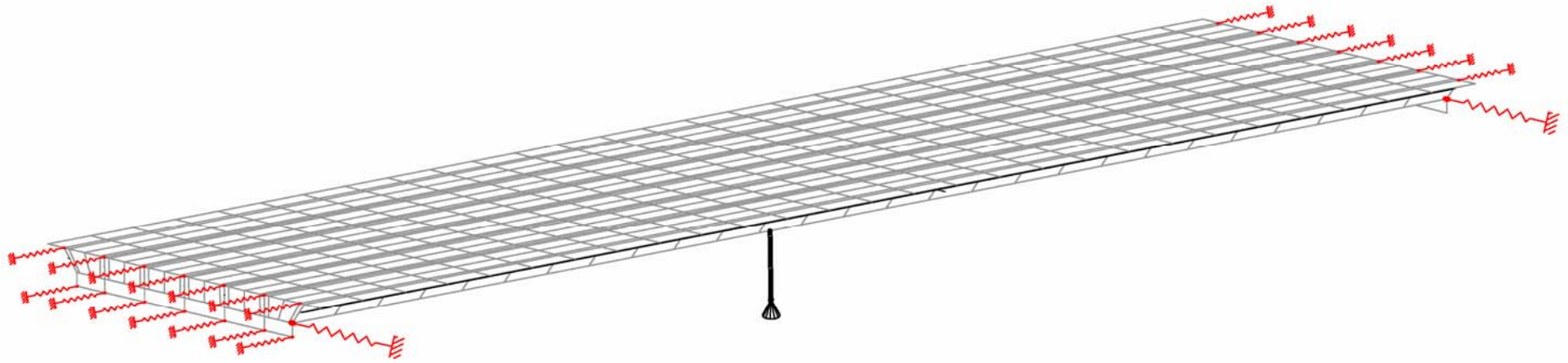
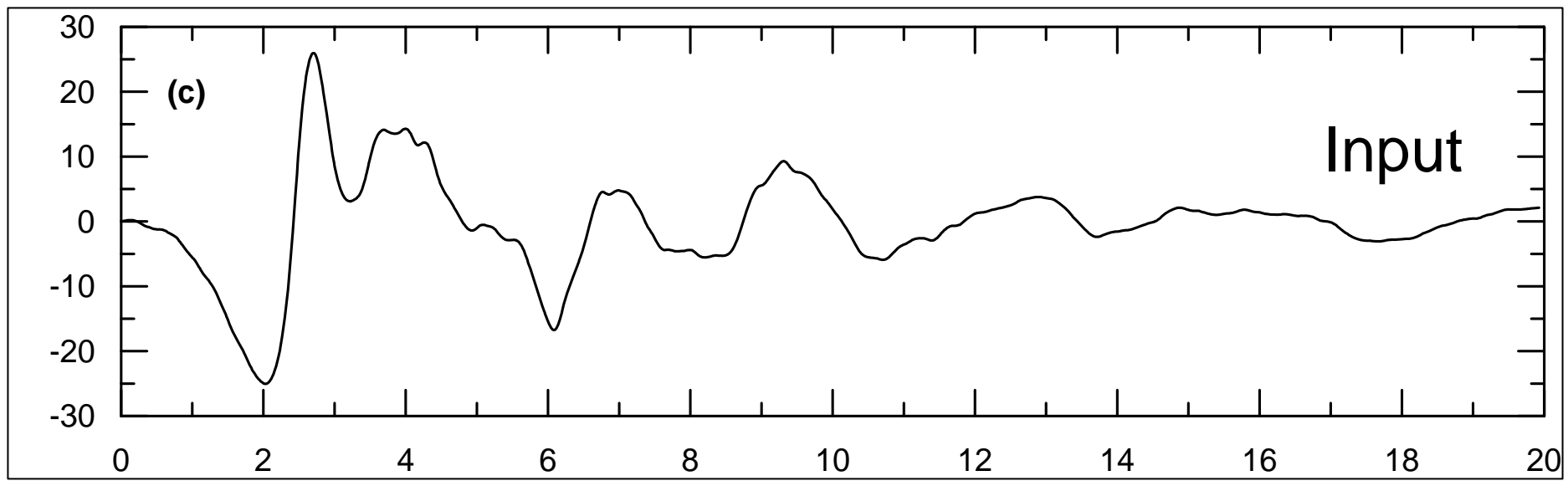
# BYU MSE ABUTMENT





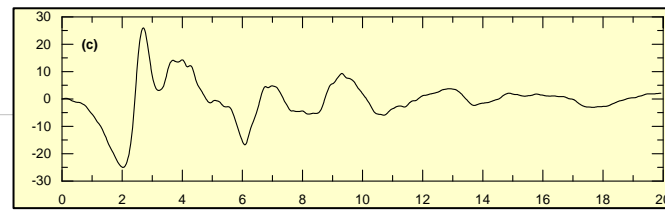
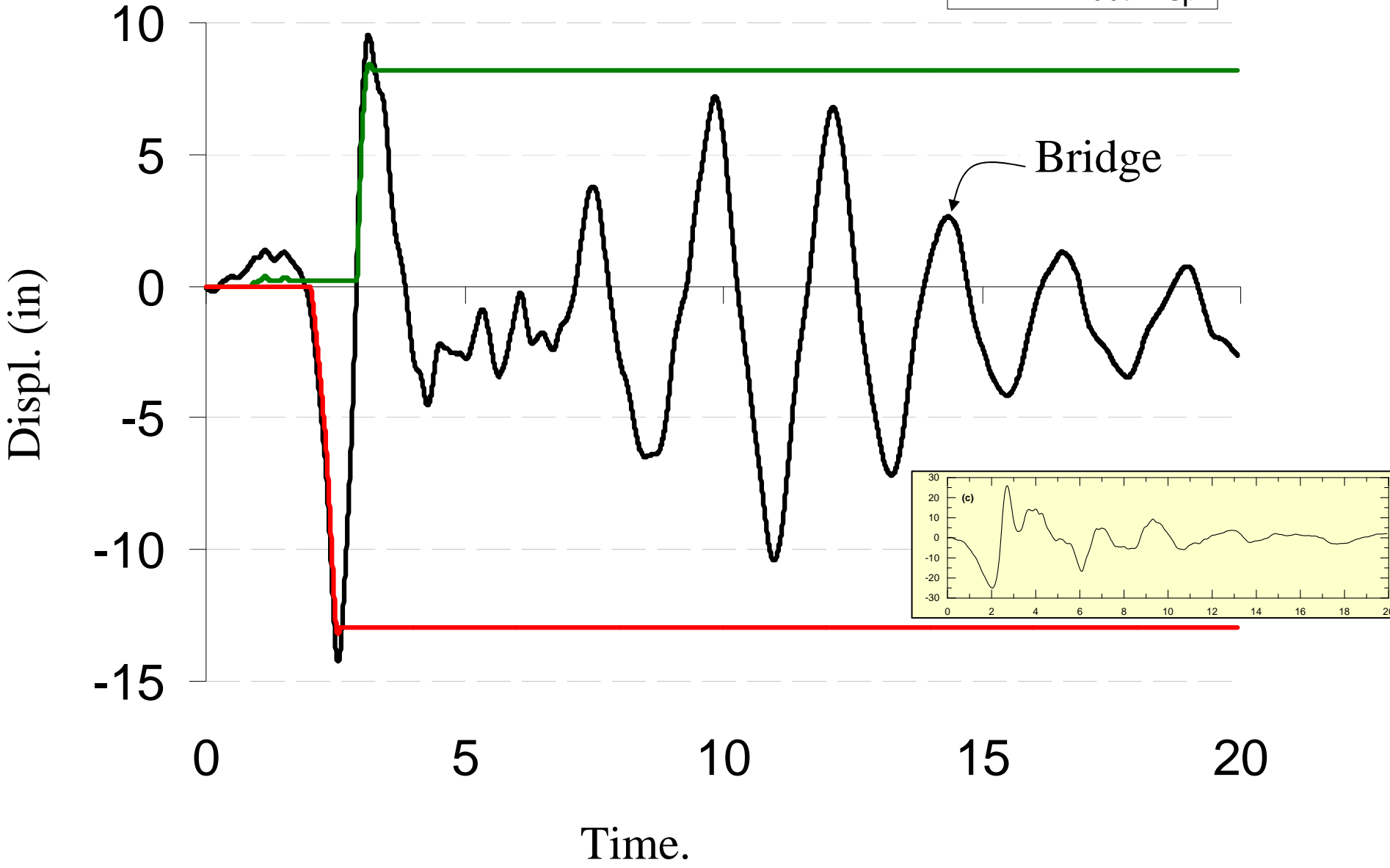
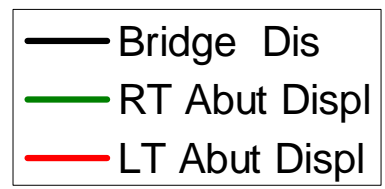


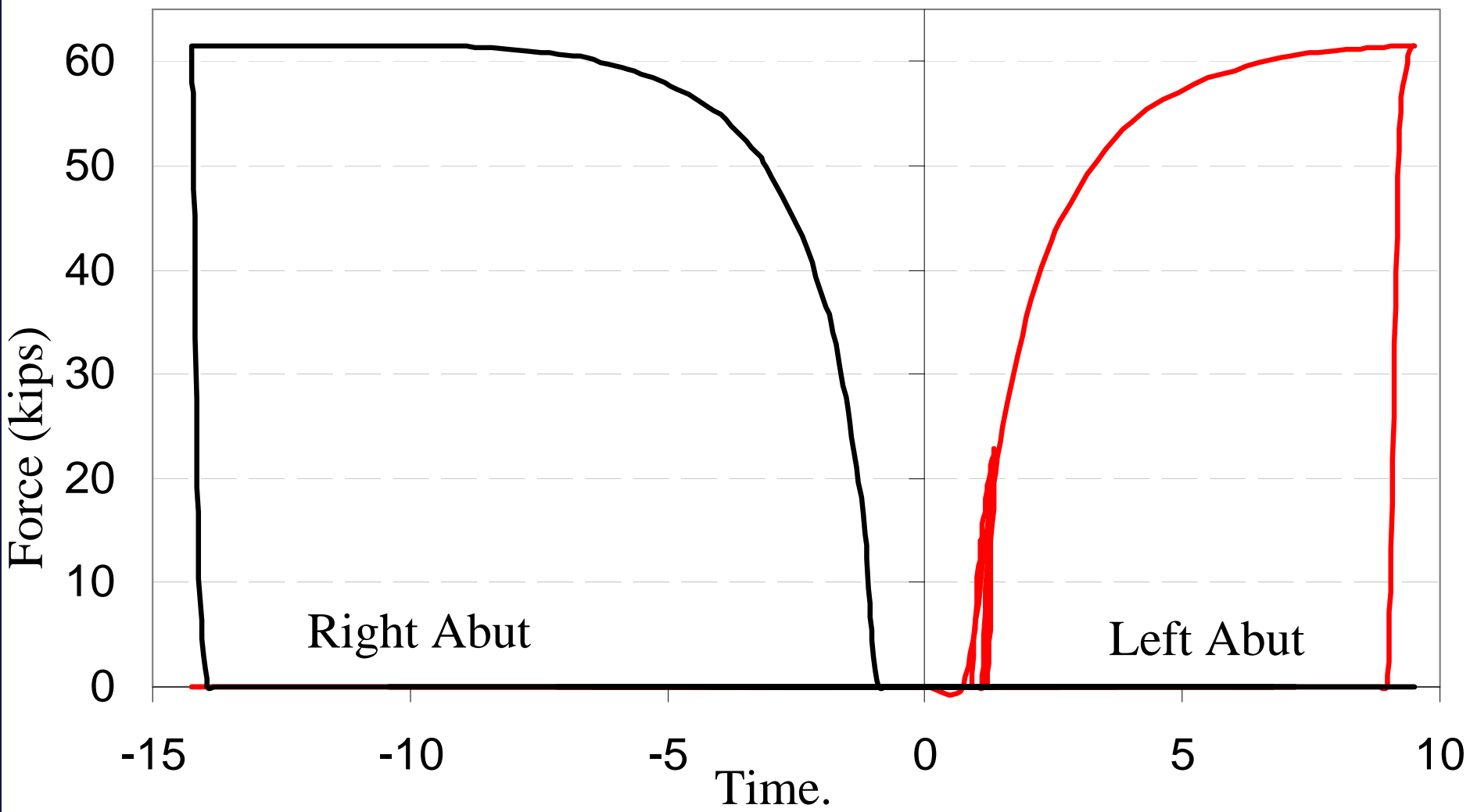
**Longitudinal Component of Renaldi Input Motion: (a) Acceleration; (b) Velocity; (c) Displacement**

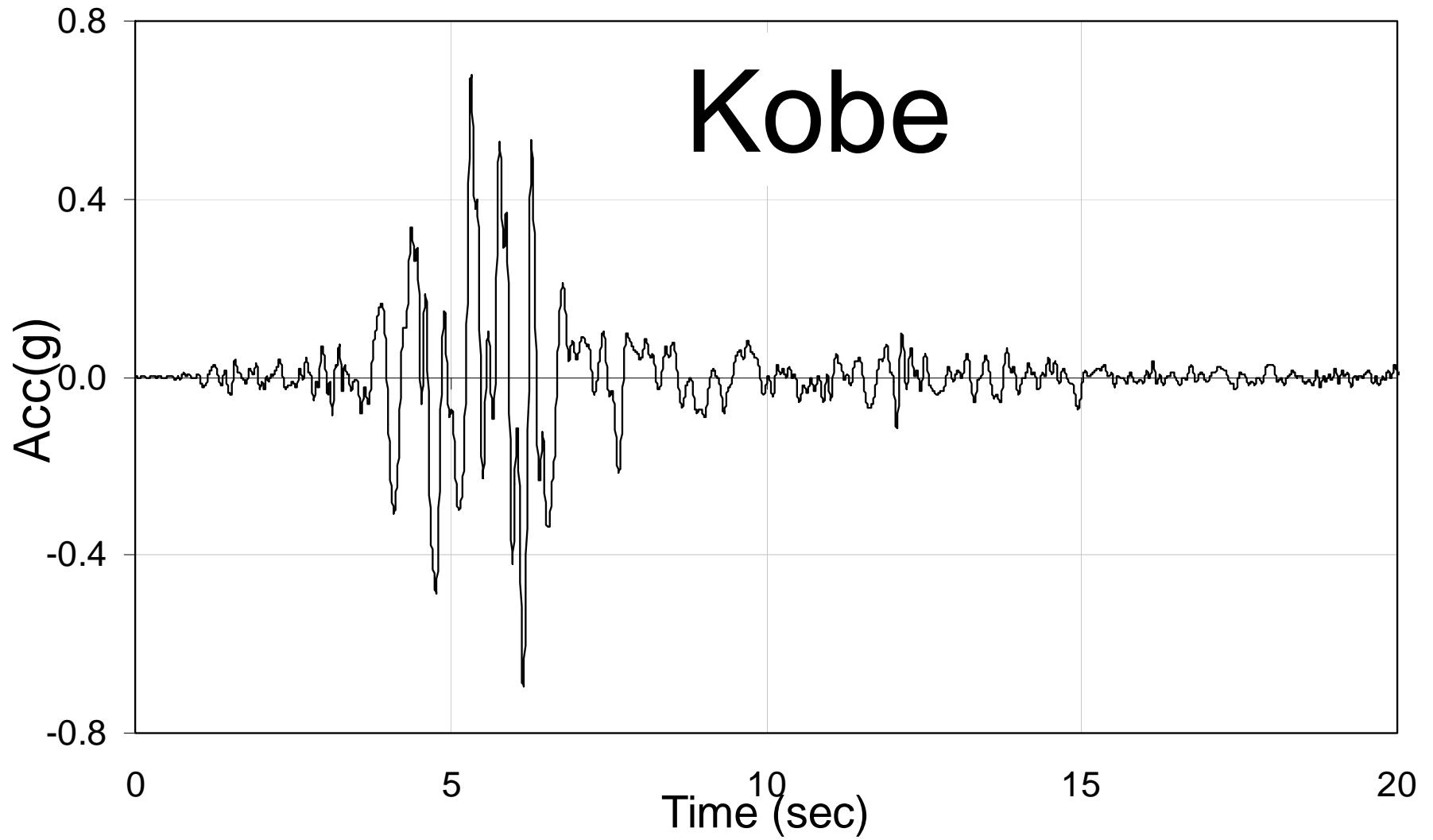




# RENALDI EQ

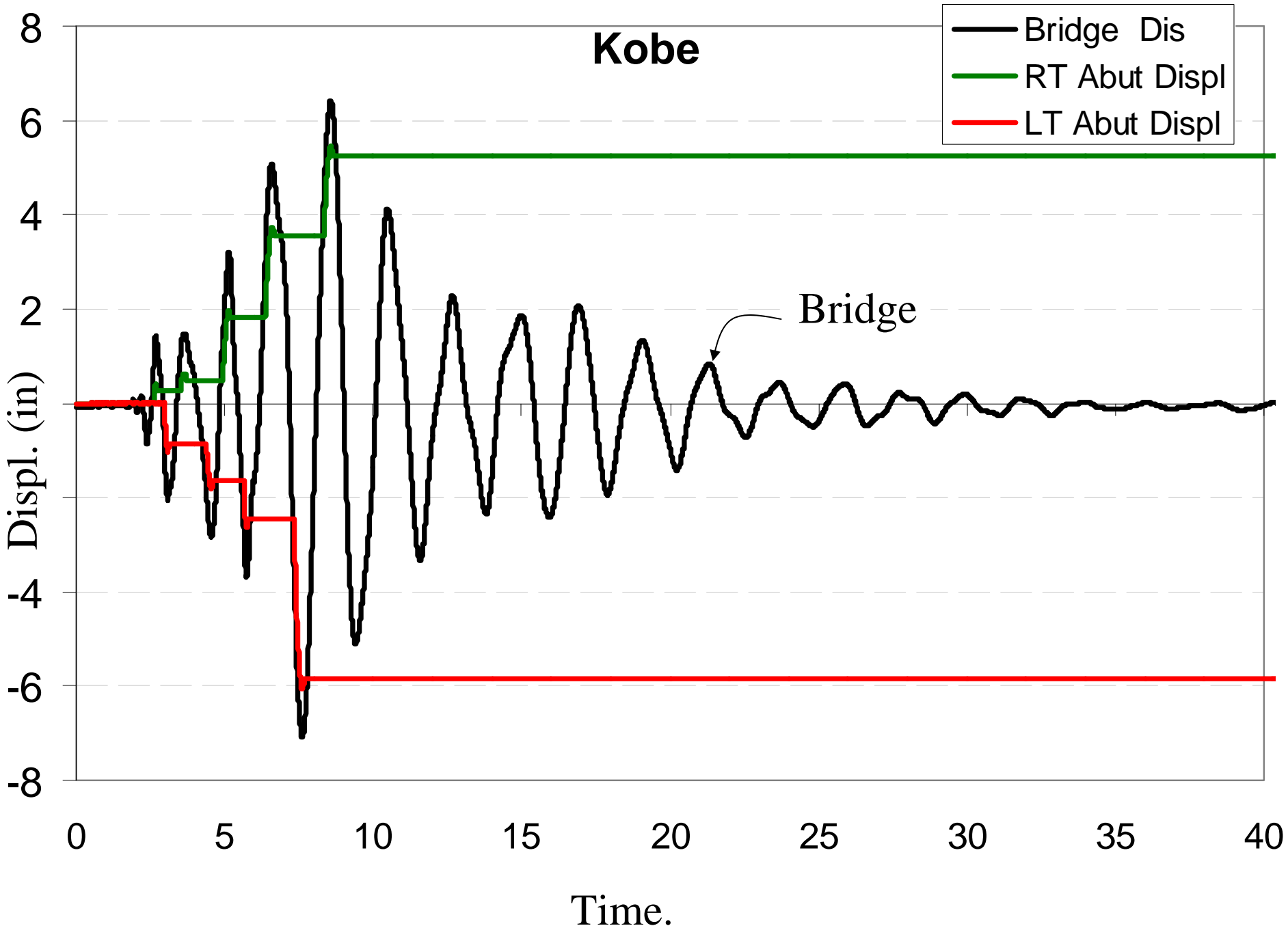


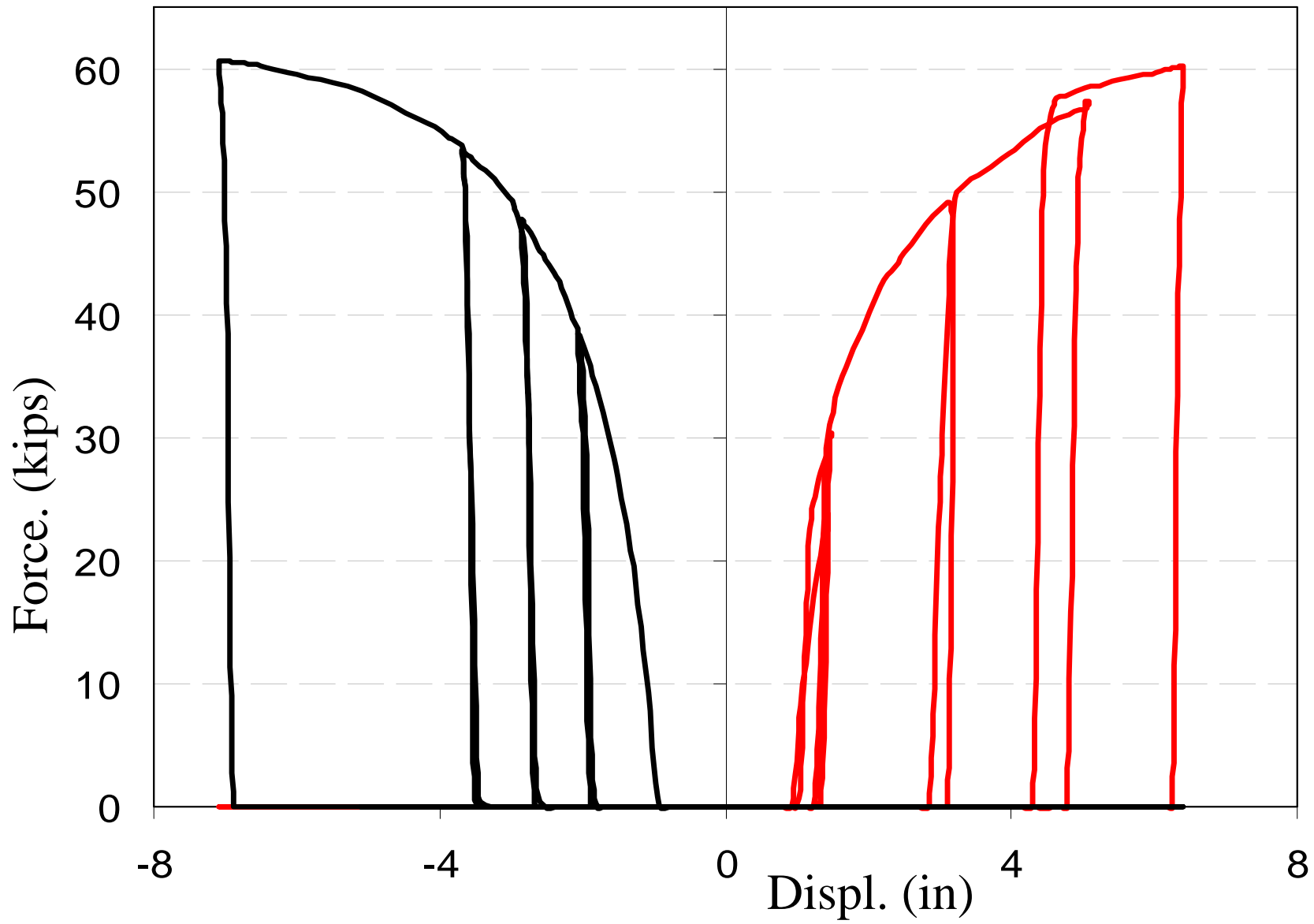




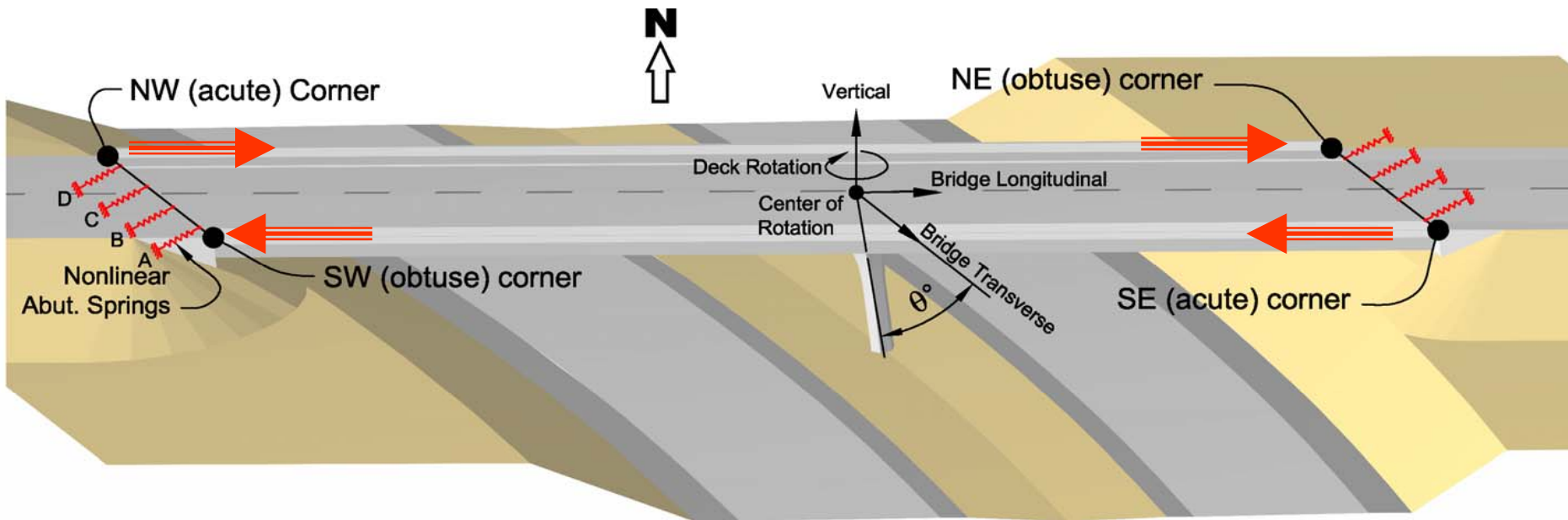


# Kobe

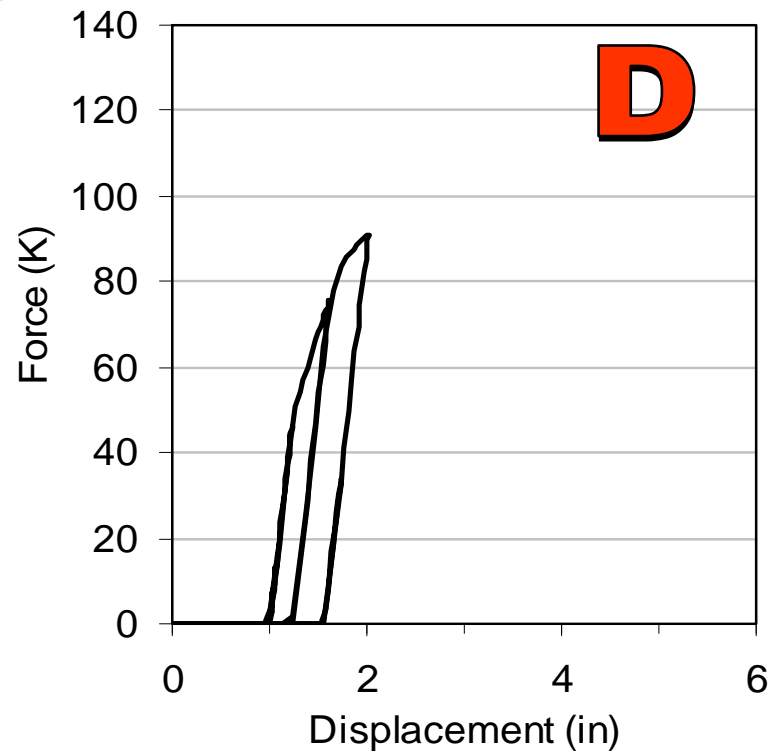
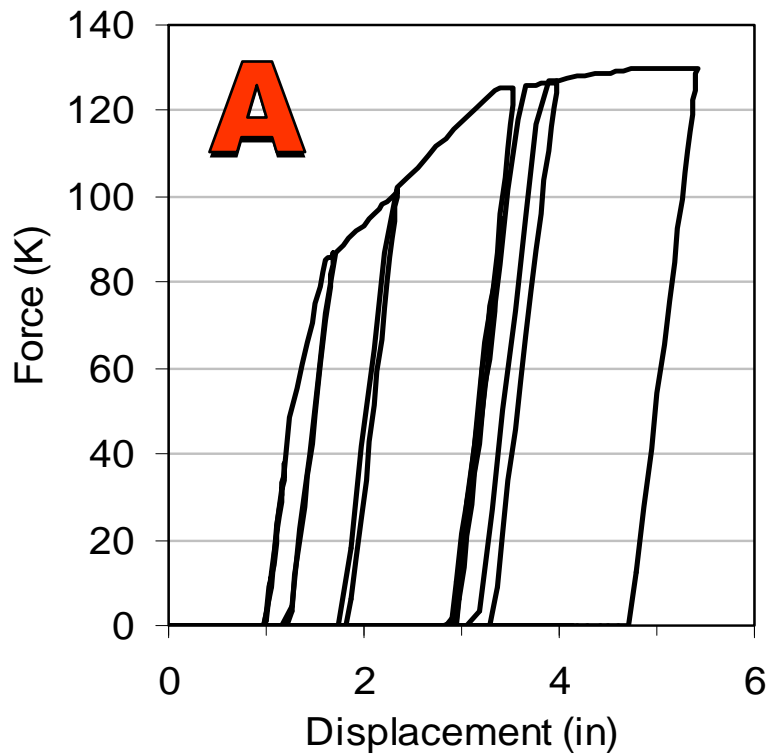
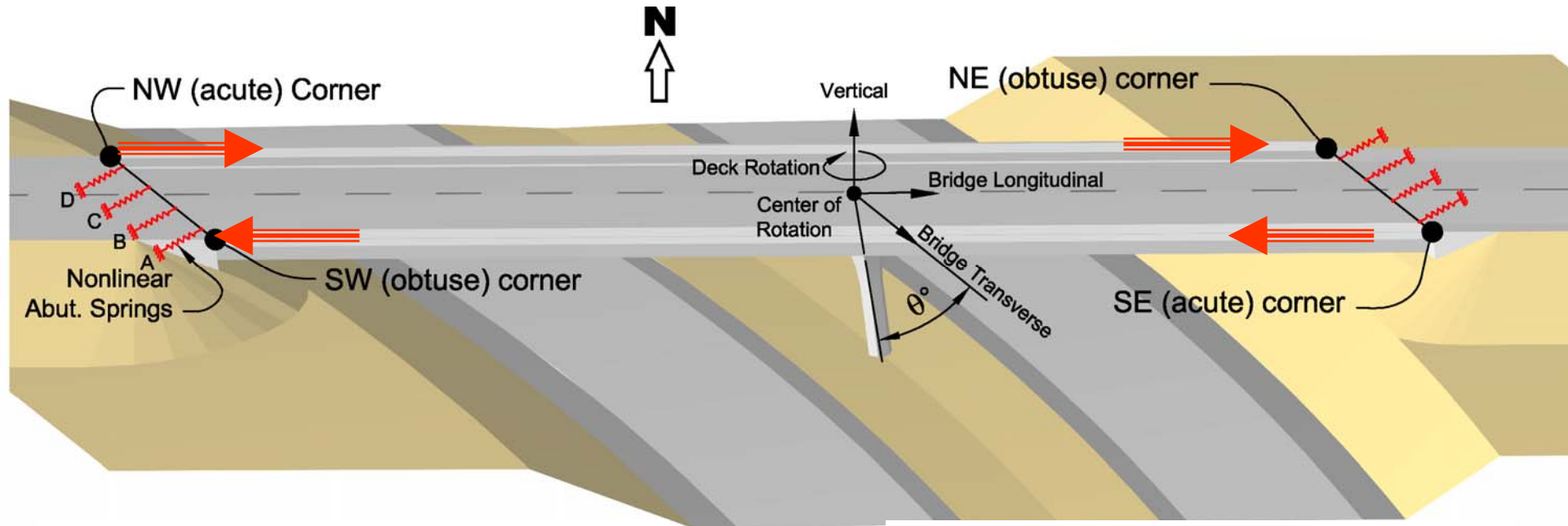


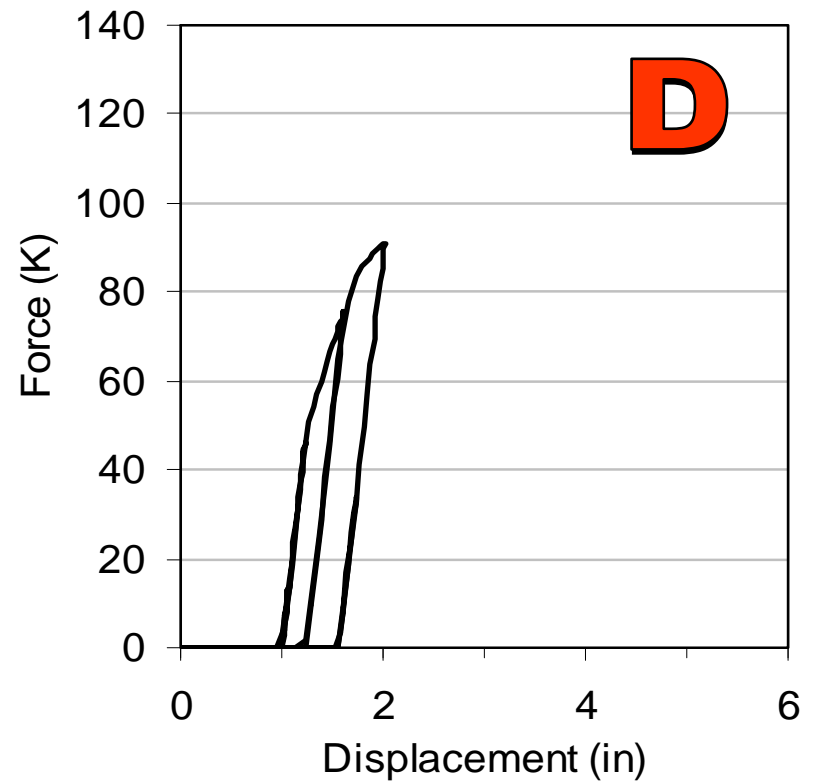
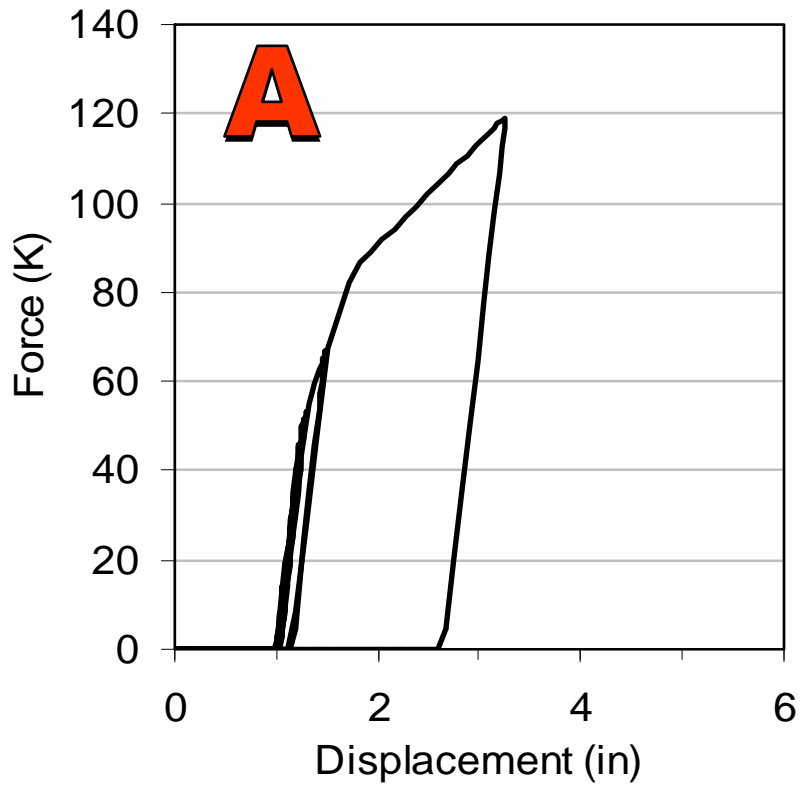
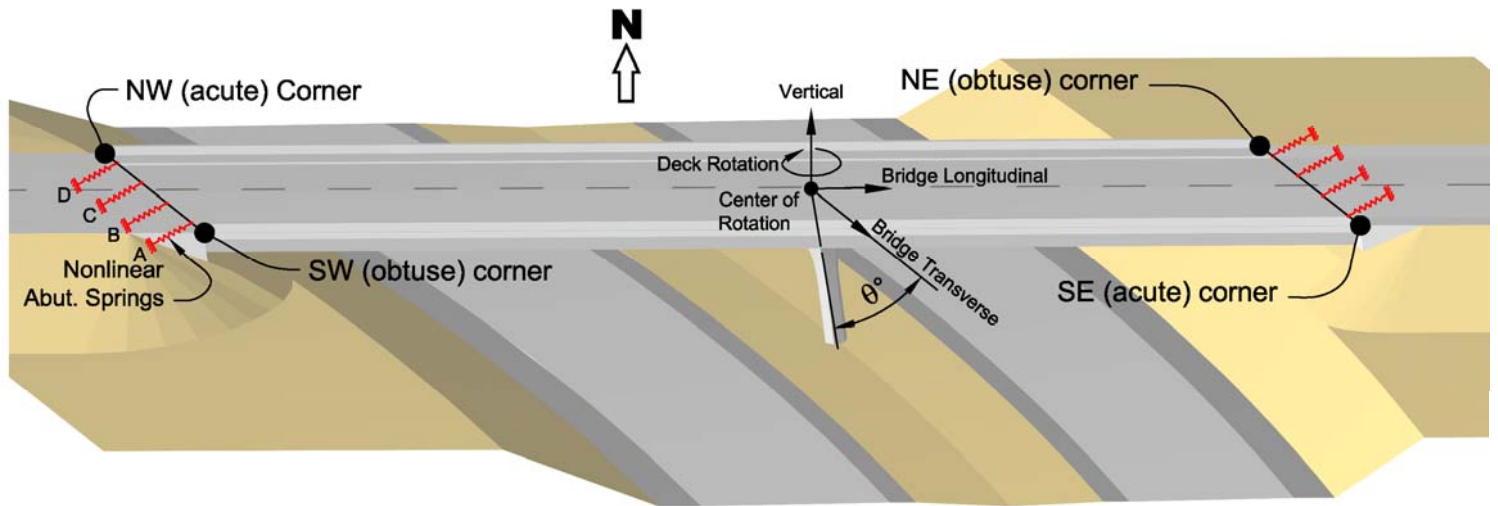


# CURVED BRIDGES









# CURVED BRIDGES

