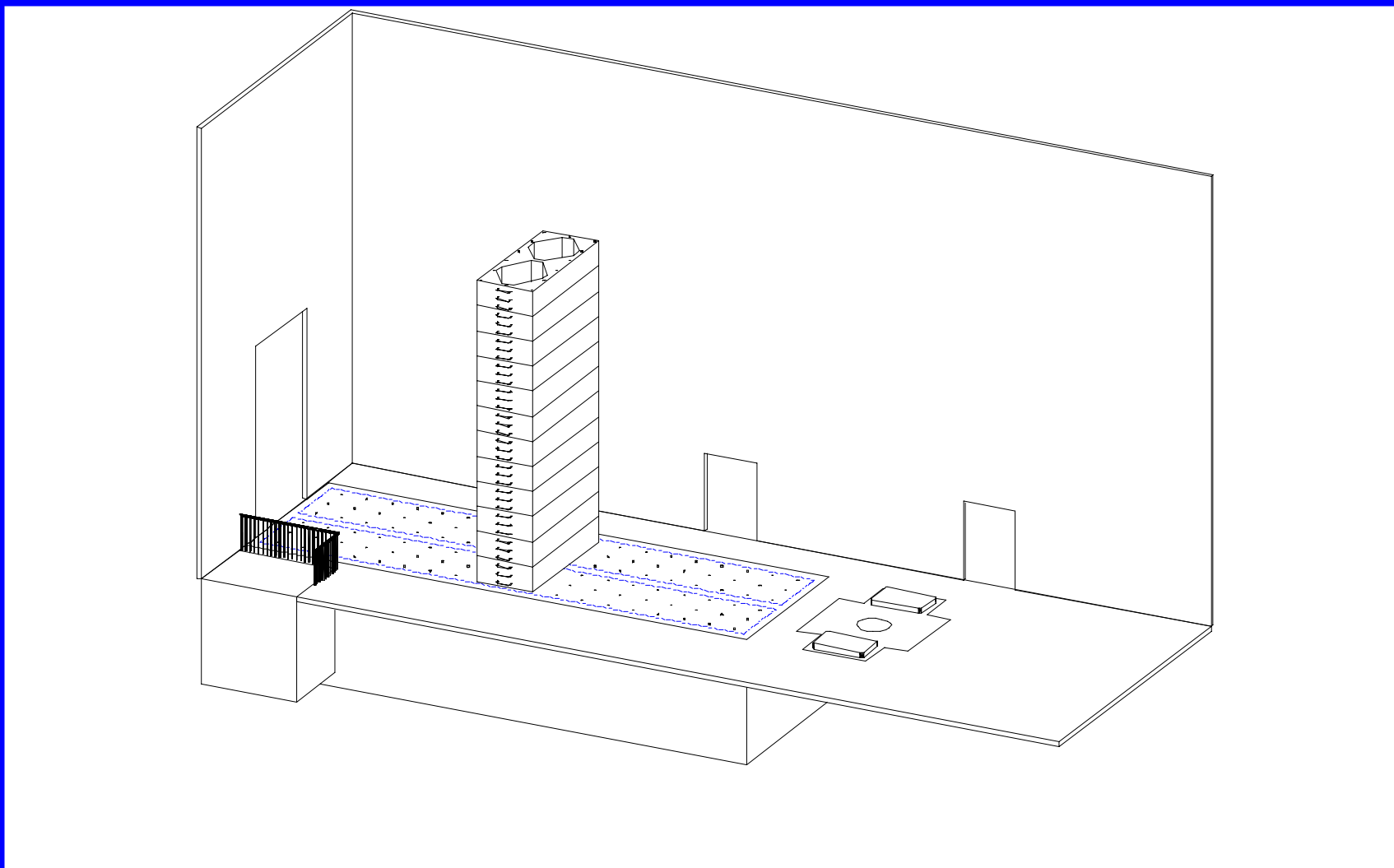


# NEES RRW Equipment Site

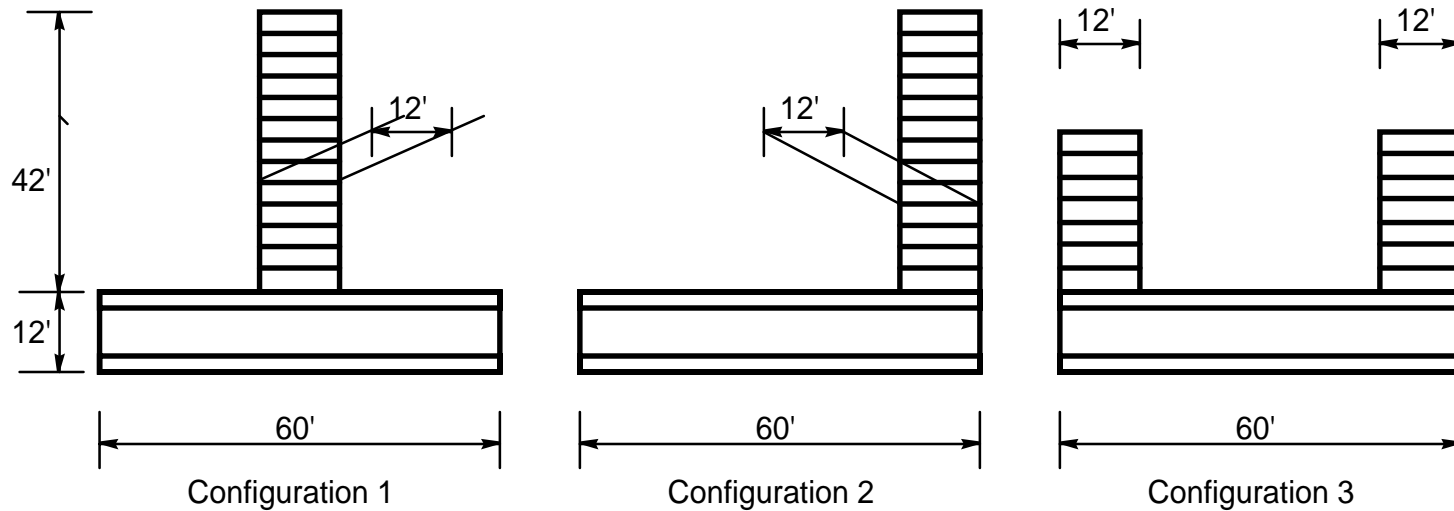
University of California, Berkeley  
Dept. of Civil and Env. Engineering

Jack P. Moehle  
Stephen A. Mahin  
Khalid Mosalam  
John Canny (EECS)  
Bozidar Stojadinovic

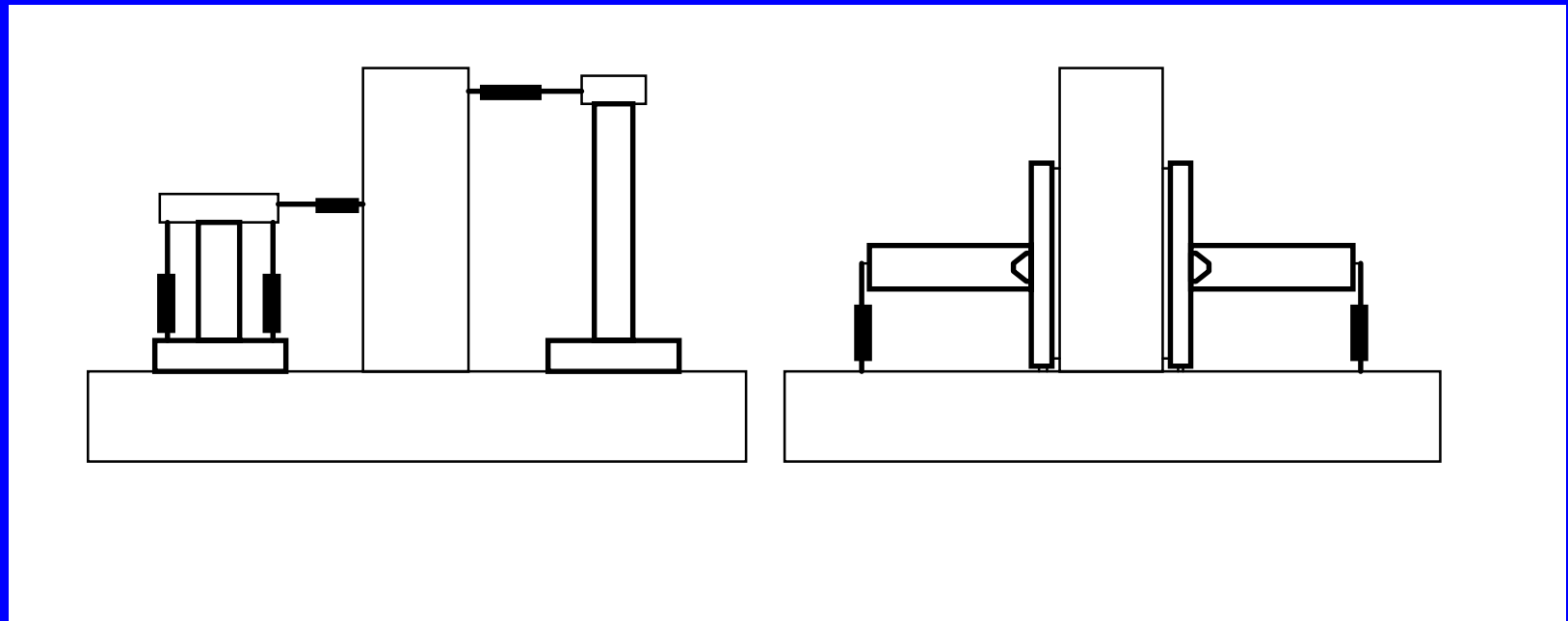
# Reconfigurable Reaction Wall



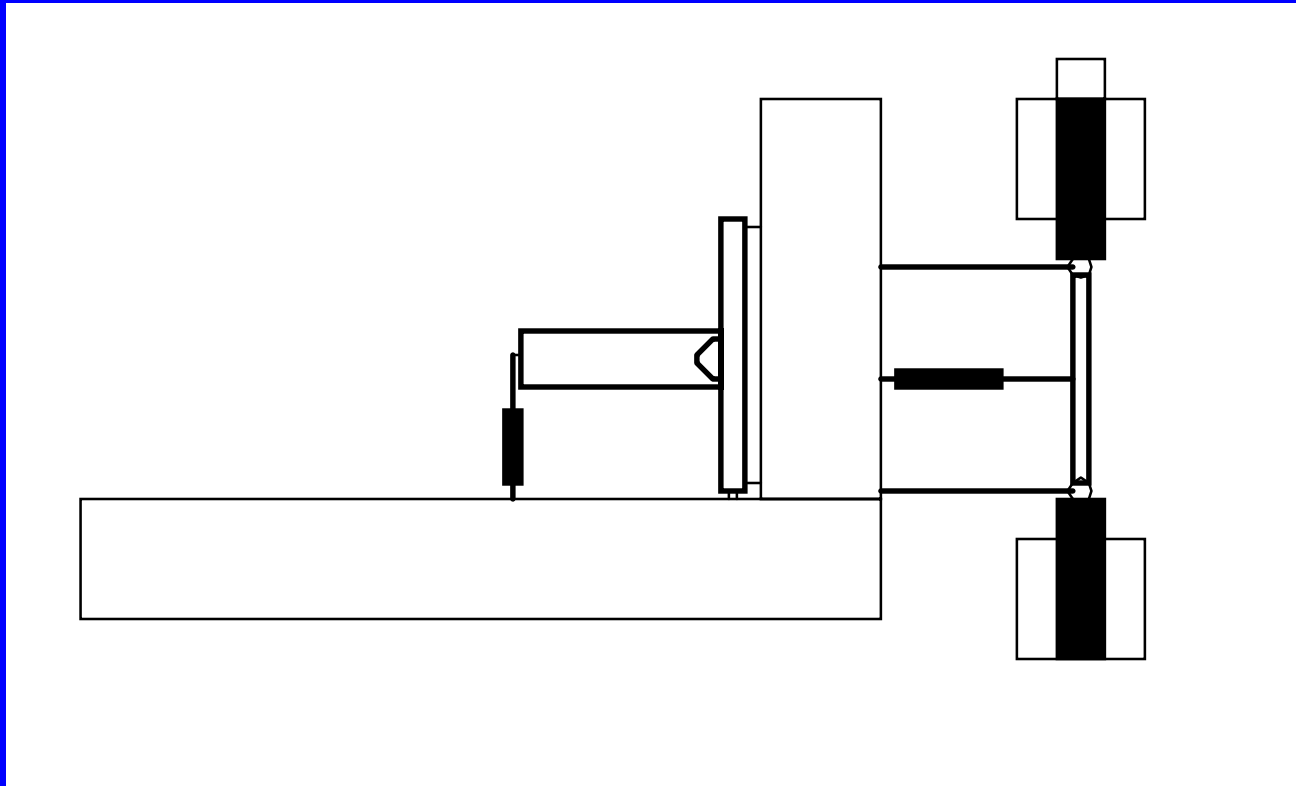
# RRW Configurations



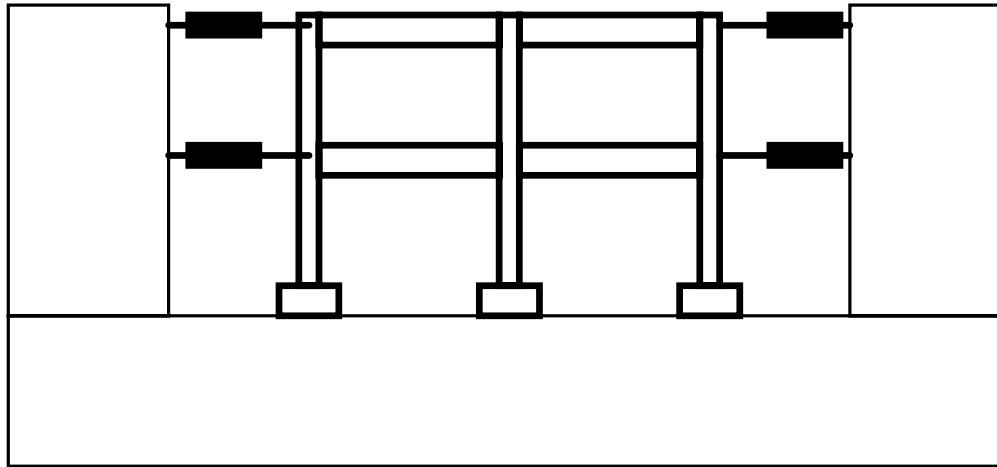
# MS-PDTM Tests



# High Axial Load Tests



# Collapse Mechanism Tests



# Types of Tests

- MS-PDTM (multiply substructured pseudo-dynamic testing)
- Quasi-Static
- Static
- 2-dimensional (planar)
- 3-dimensional (for columns rather than frames)

# Actuators

	Force [kips]	Stroke [in]	Velocity [in/sec]	Sevro-valve [gpm]
2	130/130	+/- 20	20	400
2	40/40	+/- 20	20	250
1	446/600	+/- 20	static	15
2	216/328	+/- 36	static	15

Accumulators: 500 gal forward / 100 gal return pressure.



# Sensors and Controllers

- Standard wired sensors in the control loop (8 channels)
- Wireless and touch-less sensors for other observations (128 channels)
- Controller for simultaneous control of up to 8 servo-hydraulic actuators

# Network

- Current capacity:
  - 100 Mb/sec
- Anticipated 2004 capacity:
  - 2.5 Gb/sec (OC-48)
- Wireless network for sensors and tele-participation

# Hybrid Simulation Engine

Use OpenSees platform ([www.opensees.org](http://www.opensees.org))

to couple:

- physical testing with
- computer modeling

and perform hybrid simulations in one  
common environment

# Tele-Participation

- Real-time high-resolution video and audio feed from multiple cameras on actuated mounts
- Personal Rowing Presence (PRoPs) mobile robot avatar

# PRoPs



# Common Issues

- Hybrid simulation platforms: => OpenSees
- Tele-participation platforms: => PRoPs
- Management and procurement: => team-up
- User policies: => team-up
  - test management
  - student exchange and training

Thank you!