

Full-Scale Structural and Nonstructural Building System Performance during Earthquakes & Post-Earthquake Fire

A Joint Venture between Academe,
Industry and Government

NCSs – Engineering Design

Brian McLaughlin
Senior Engineer, Arup



Project Meeting | September 29, 2010

Overview

- ▶ Arup's Involvement
- ▶ Assumptions
- ▶ Current Design Status/Systems Considered
- ▶ Next Steps

Involvement

- ▶ Mechanical Design
- ▶ Electrical Design
- ▶ Plumbing Design
- ▶ IT/Communications Design
- ▶ Fire / Life Safety Design
- ▶ Structural Oversight

3

Project Meeting | September 29, 2010

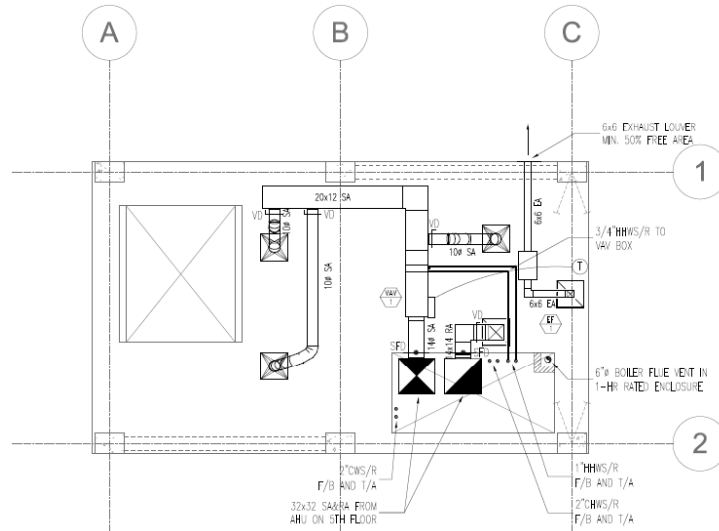
Assumptions

- ▶ Occupancy Types
 - ▶ Office
 - ▶ ICU
 - ▶ Computer Room
 - ▶ Utility
- ▶ Approach to Date
 - ▶ Minimum systems that provide highest level of testing
 - ▶ Typical office floor systems to be further refined as decisions regarding available equipment are made

4

Project Meeting | September 29, 2010

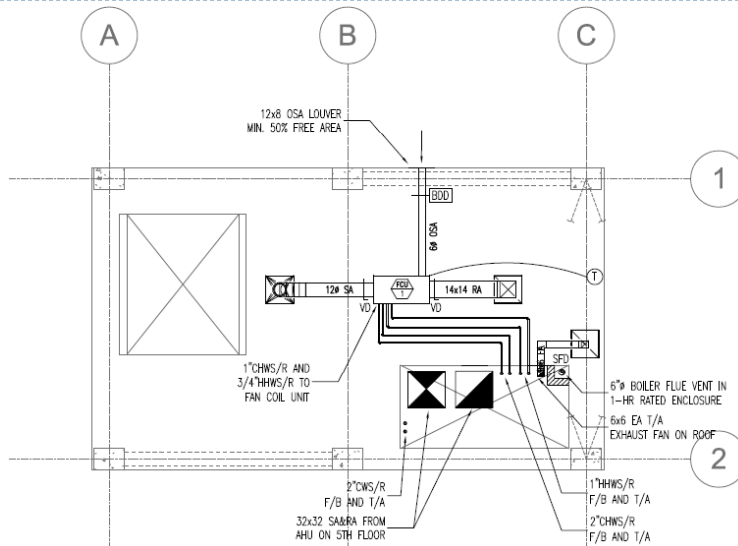
Status – Mechanical – AHU Scheme



5

Project Meeting | September 29, 2010

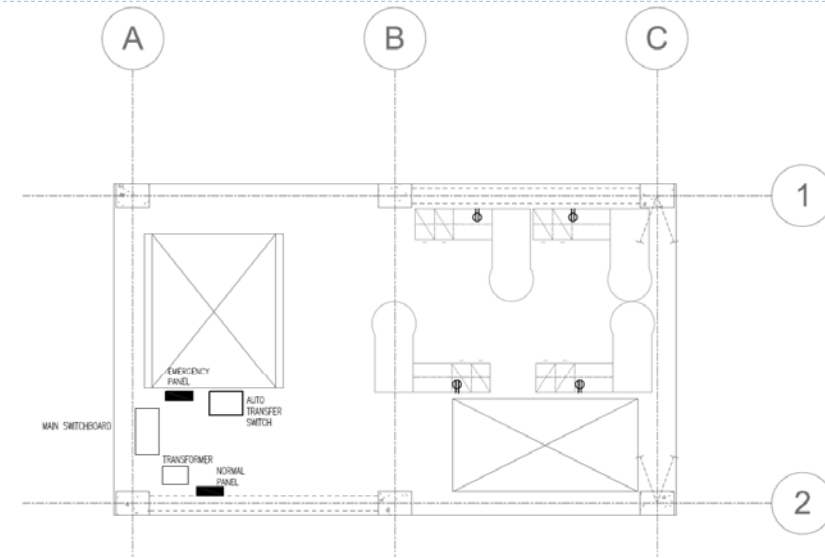
Status – Mechanical – FCU Scheme



6

Project Meeting | September 29, 2010

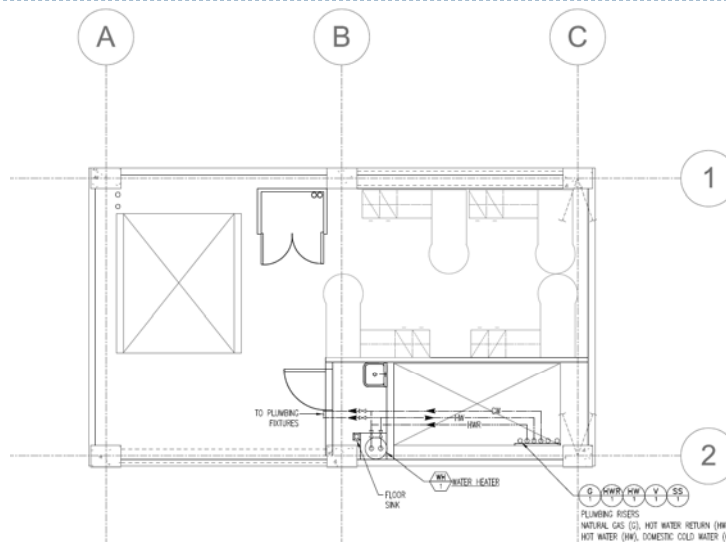
Status – Electrical



7

Project Meeting | September 29, 2010

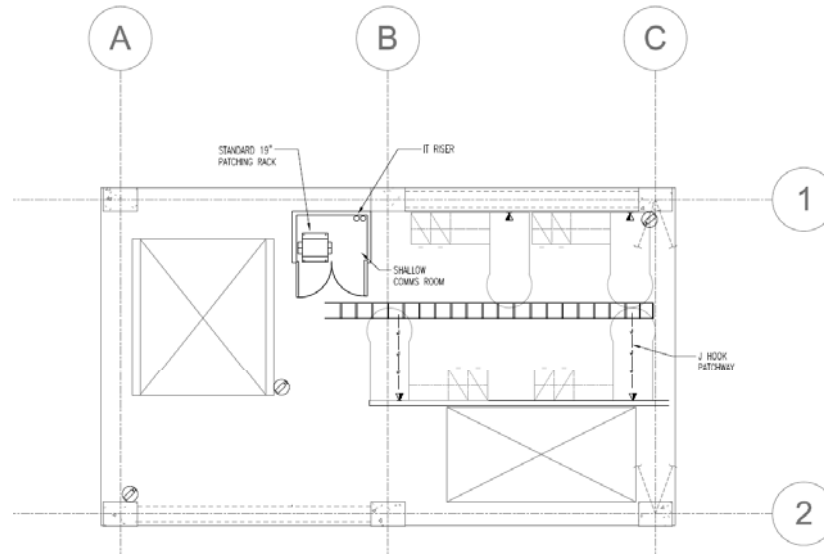
Status – Plumbing



8

Project Meeting | September 29, 2010

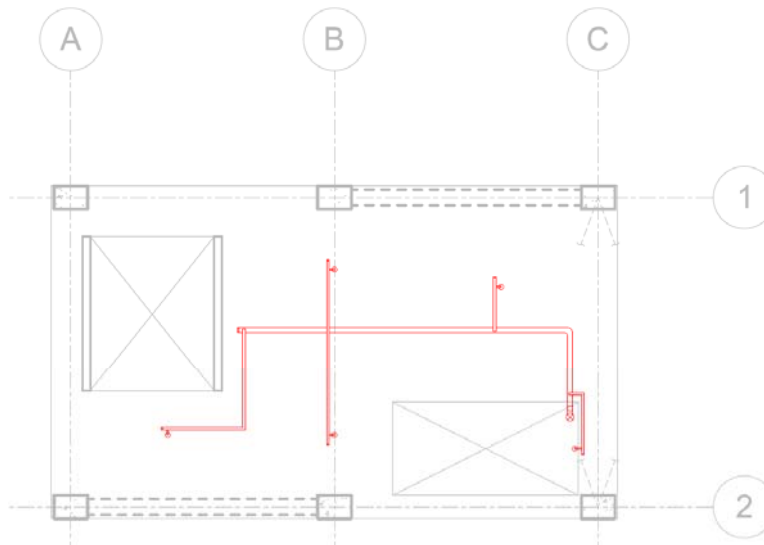
Status – IT/Communications



9

Project Meeting | September 29, 2010

Status – Fire/Life Safety (Sprinklers)



10

Project Meeting | September 29, 2010

Next Steps

- ▶ Clarify equipment/services needed
- ▶ Coordination with team to refine design options
- ▶ Coordination with ISC on equipment-specific issues
- ▶ Review need for Arup Facades involvement
- ▶ Confirm shake table performance to design service connection to table
- ▶ Review of base isolation considerations
- ▶ Review of “utilities”