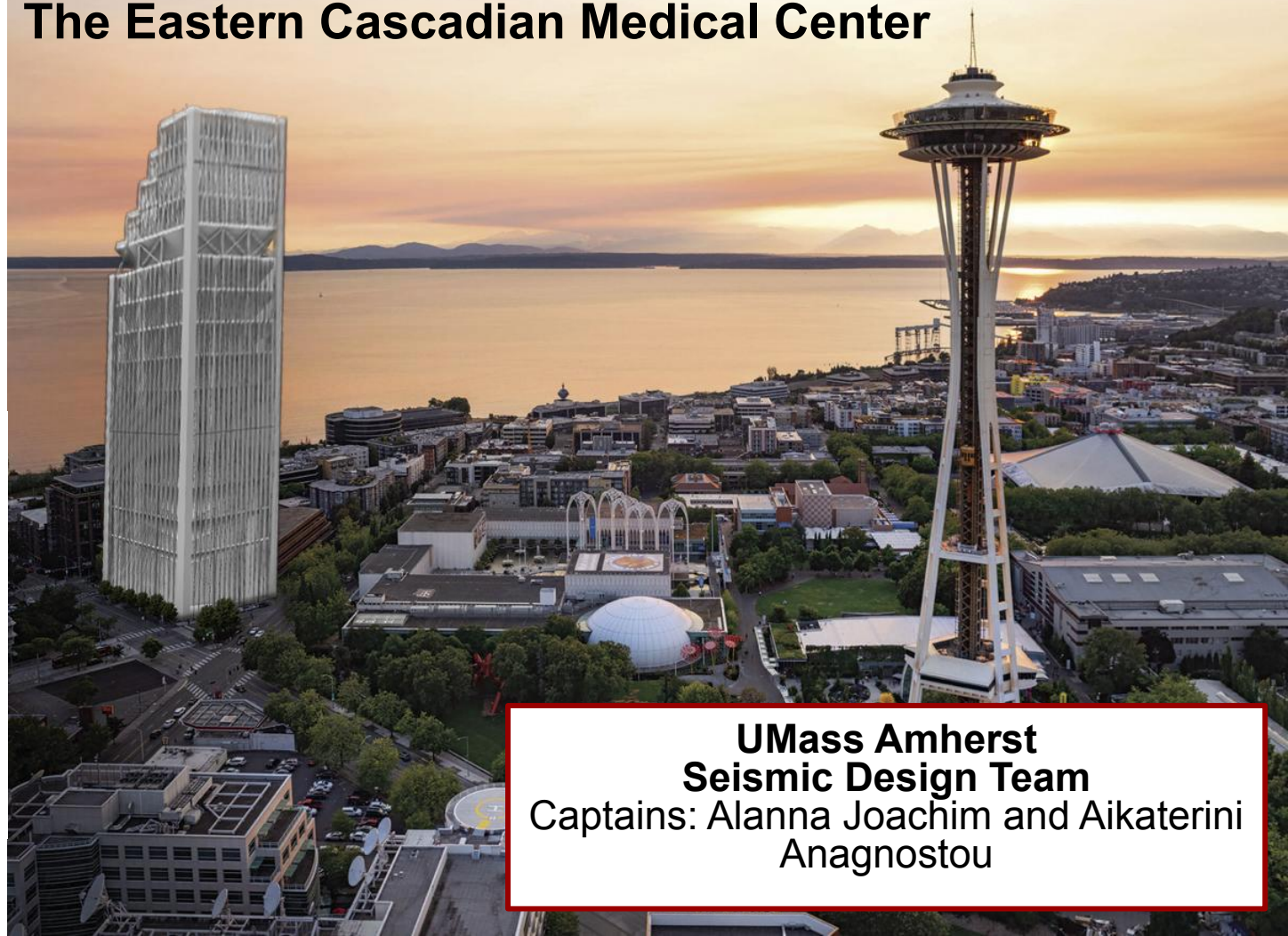




The Eastern Cascadian Medical Center

Members:

Benjamin Andersen
Benjamin Menezes
David Shlimak
Thomas Brown
Holly Russell
Angela Schuessler



**UMASS AMHERST
SEISMIC DESIGN TEAM**

EERI - THE EARTHQUAKE
ENGINEERING RESEARCH
INSTITUTE



**UMass Amherst
Seismic Design Team**
Captains: Alanna Joachim and Aikaterini
Anagnostou

Geotechnical/Seismicity Implications

Site Specific Analysis:

- The boring log showed small layers of decent soil but these stronger layers are interspersed with layers of unstable soil which has potential to liquefy
- Saturated, loose soils in an area with a high water table are all likely to liquefy, loose layers of soil under are of a significant concern for our site
- The Cascadia Subduction zone is within easy reach to Seattle and our site to cause significant damage and consequences

ASCE 7-16

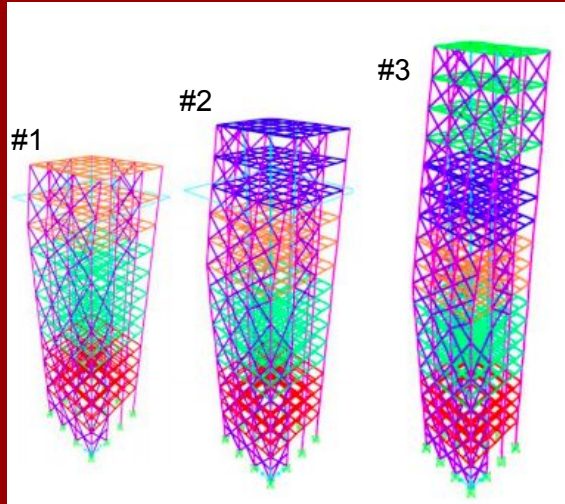
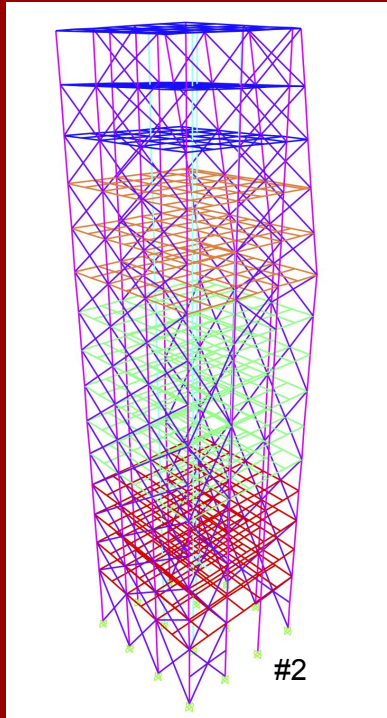
- VS30 = 579 ft/s
- Site Class E which confirms the poor soil in our site
- Risk factor IV (hospital)



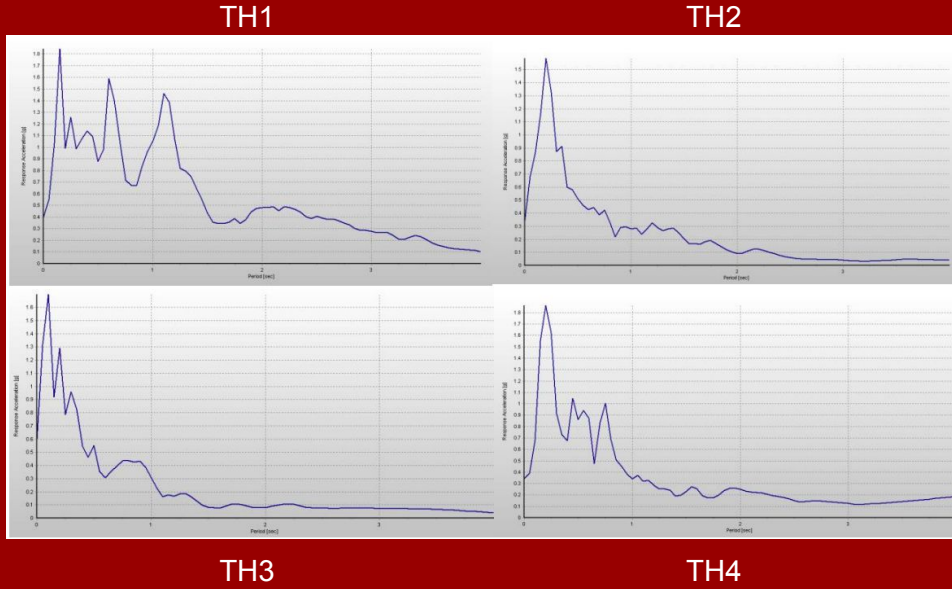
Structural System: Existing and Addition

(Left) Final Addition Design

Response Spectrums for Time Histories

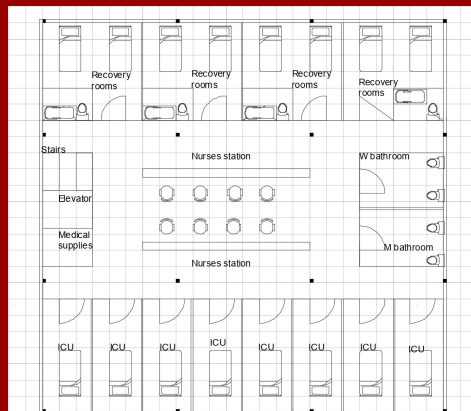


(Above)
Initial 3 Designs for Addition

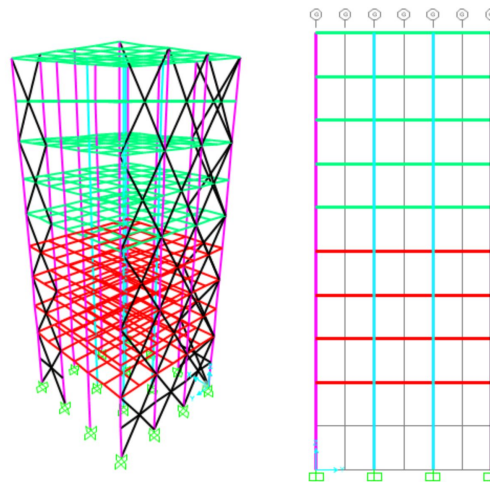
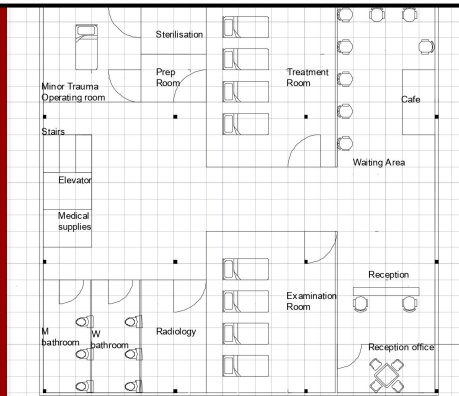


39% increase in floor area from first to second design
24% increase in floor area from second to third design

Addition/Retrofit

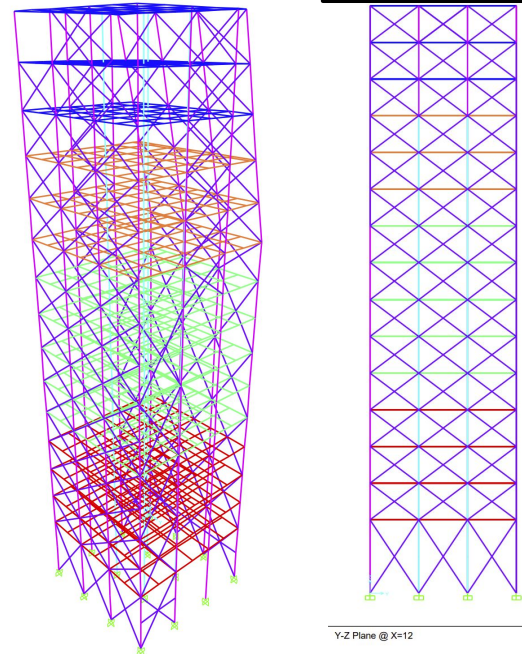


Floor Plans for Covid-19 patients: (above)
 Floor Plan for the Emergency Department: (below)

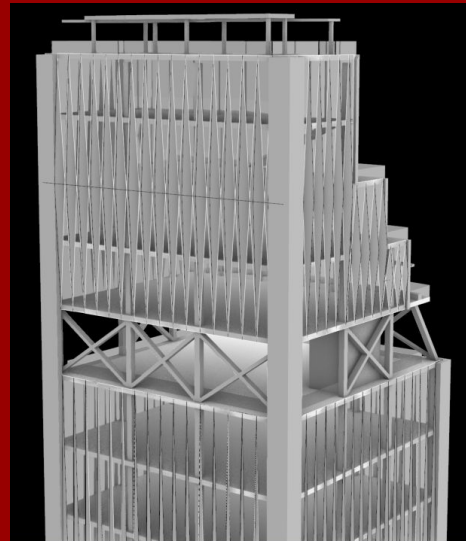
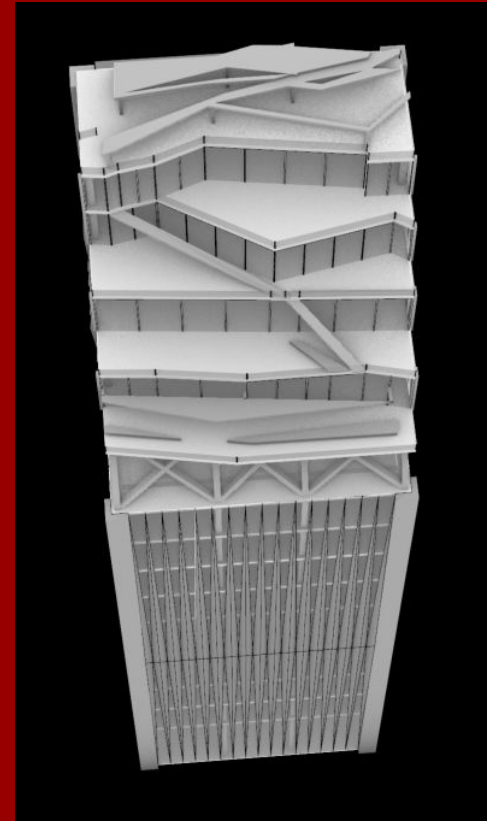
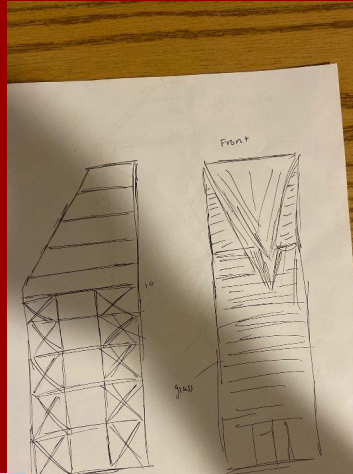
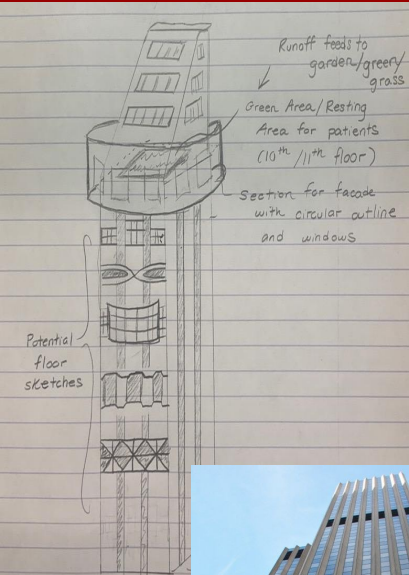


(Left)
 Original Design:
 3D view and East
 Elevation

East elevation



(Right)
 Retrofitted Design
 3D view and East
 Elevation
 - Additional
 bracing added
 on east side



Some original concepts & inspiration...

To final design!