



University of California, Davis



# The Davis Memorial Hospital

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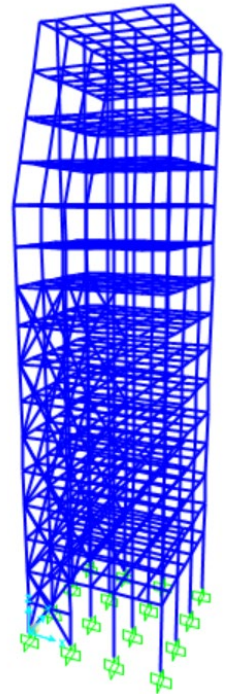
Spring 2021

## Geotechnical/Seismicity

- Analyzed geology and Seismicity of the Greater Seattle Area
- Determined the subsurface challenges and the Site Class per ASCE 7-16
- Prepared a design response spectrum per chapter 11 of ASCE 7-16
- Interpreted the seismic hazard deaggregation
- Selected and scaled time histories for future analysis

## Structural Analysis

- Built a numerical model of existing structure in SAP2000
- Ran a modal (eigenvalue) analysis of numerical model
- Ran the provided Scaled Time Histories on model in N/S & E/W direction
- Determined which floor is the most suitable for housing expensive equipment
- Identified critical members & checked design using American Wood Council's National Design Specification for Wood Construction & NDS Supplement
- Summarized analysis of existing building



## Architecture

### Façade:

- Stained glass exterior
  - glare reduction
  - natural lighting
- Triangular slabs

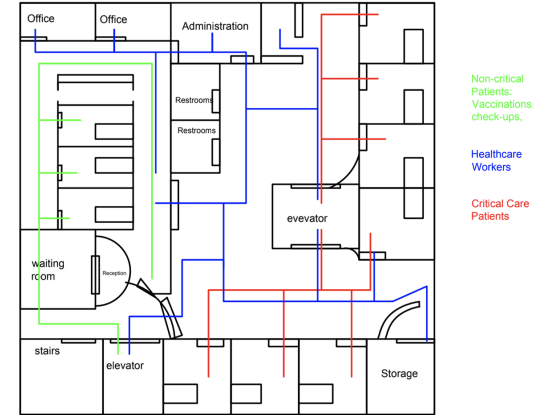
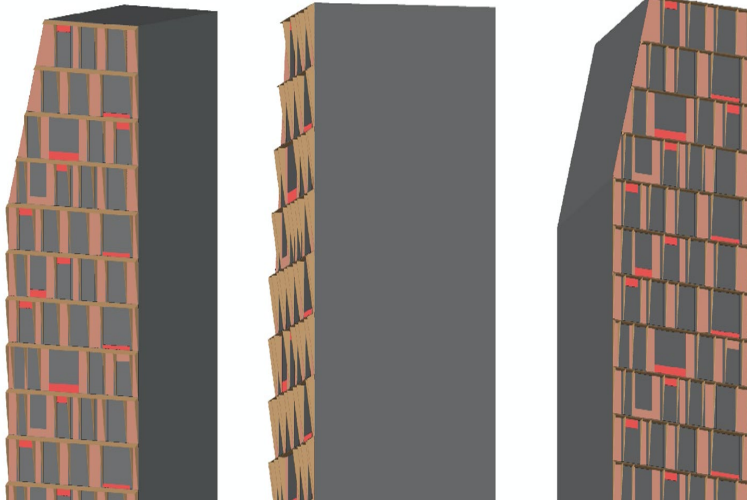


Figure 5: Floor Plan and Expected Flow Plan

### Floor Plan:

- Circular path reduces exposure and clear instructions for flow of patients
- Critical Care Rooms within healthcare worker access

## Retrofit:

- Determine performance of structure
- Propose appropriate retrofit scheme
- Provide calculations that show effectiveness of proposal
- Illustrate balsa wood retrofit scheme
- Calculate 50-year collapse risk & determine minimum reduction factor
- List several common retrofit techniques

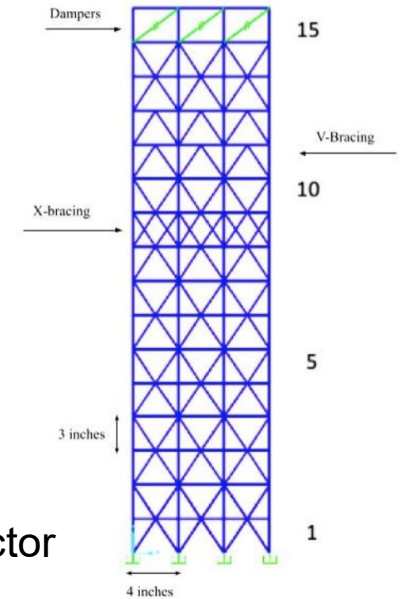


Figure 1: East End of Davis Memorial Hospital, with Retrofit