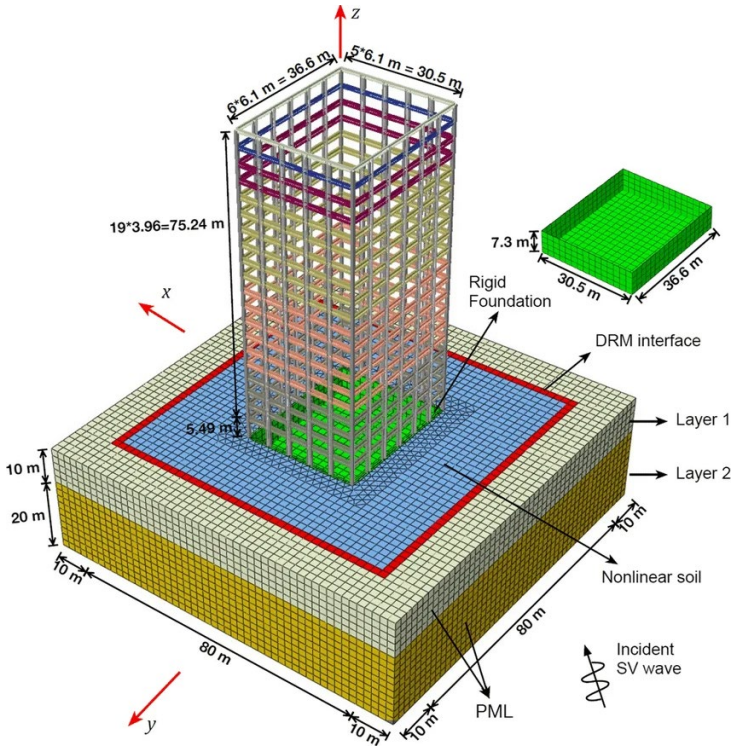

State of Practice for Seismic Structure-Soil-Structure Interaction Analysis.

Kirk Ellison, Senior Geotechnical Engineer, ARUP

Over the past decade, seismic structure-soil-structure interaction (SSSI) analysis has evolved from being state-of-the-art to readily implementable in practice. Agencies such as BART, LA Metro, San Francisco Public Utilities Commission, Caltrans, and the Transbay Joint Powers Authority now routinely rely on SSSI analyses with ground motion time histories to assess the potential impact of new construction on the performance of their nearby existing assets during a seismic event.

This presentation will focus on 3 short case studies to highlight how model sophistication, agency requirements, and client expectations have evolved over the past 12 years:

1) the Salesforce Transit Center and adjacent high rises (circa 2013)

2) the Mariposa Pump Station and adjacent sewer box (circa 2017)

3) the Lower Alemany Stormwater Tunnel and adjacent Caltrans overpass foundations (circa 2023)

The presentation will also discuss an ongoing effort to develop clear guidance for acceptable screening criteria and analysis methodology to evaluate the potential significance of seismic SSSI effects for sensitive underground infrastructure.

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