in shadow of disaster

architectural timestamps + tectonic ecologies

People are drawn to places of safety, familiarity and stability - places they call home. The built environment then becomes a visible measurement of the security of a community: if structures are intact, so are the people housed within them. Yet each year with increasing intensity and frequency, natural disasters are wrecking buildings and communities all over the globe. The unstoppable force of a natural disaster remains undetectable and unpredictable, even with scientific experts employing the most technologically–advanced monitoring systems.

Due to its diverse landscapes and amount of coastal territory, the United States consistently suffers from natural disasters. According to data from the National Oceanic and Atmospheric Administration, 2017 endured the most massive natural disasters (in terms of cost, fatalities, and climatic measurements) than any year prior, indicating escalation rather than stagnation of annual disaster occurrences.[1]

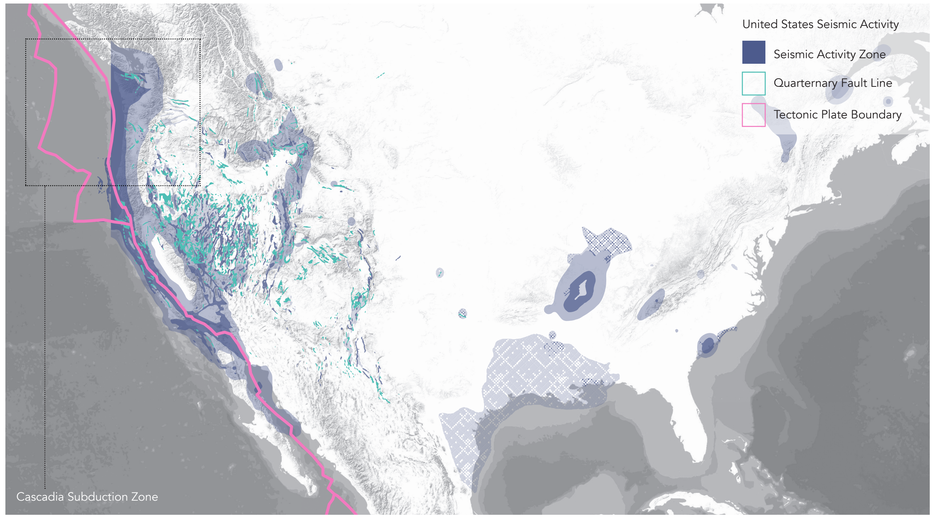
So what role does architecture play in this intersection of natural processes and the urban environment?

Located in the Cascadia subduction zone, Seattle, Washington, is "due" for a massive (8.0–9.0 magnitude or higher) earthquake, followed by a tsunami that could inundate coastal areas under 5 meters of water. As speculation into a predicted reality, this project reimagines the Pacific Northwest City of Seattle as an urban environment existing under the threat of this "really big" quake and killer wave.[2] Fantastical responses to this disaster operate (1) within timestamps taken before, during and after this catastrophe occurs; and (2) within the surface, underground and off-shore ecologies of Seattle.

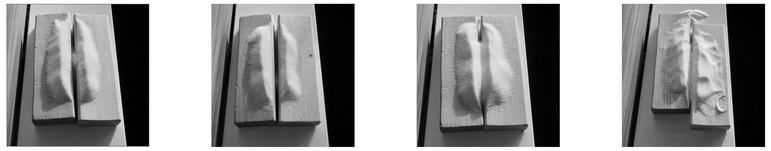
What architectural processes can tap into the destructive path of this lethal quake and inundation to protect and guide Seattle's urban population? In what ways can light as an architectural tactic become a beacon of safety, an indicator of relief, a sign of remediation in the shadow of disaster? This thesis intends to cross multiple scales of design to create visions of future fictions that could soon resemble future realities.

1. Laura Santhanam, "2017 is on Track to be a Record-Setting Year for Massive Natural Disasters in the U.S," PBS News Hour, October 13, 2017.
2. Schulz, Kathryn. "The Really Big One." The New Yorker, July 20, 2015.



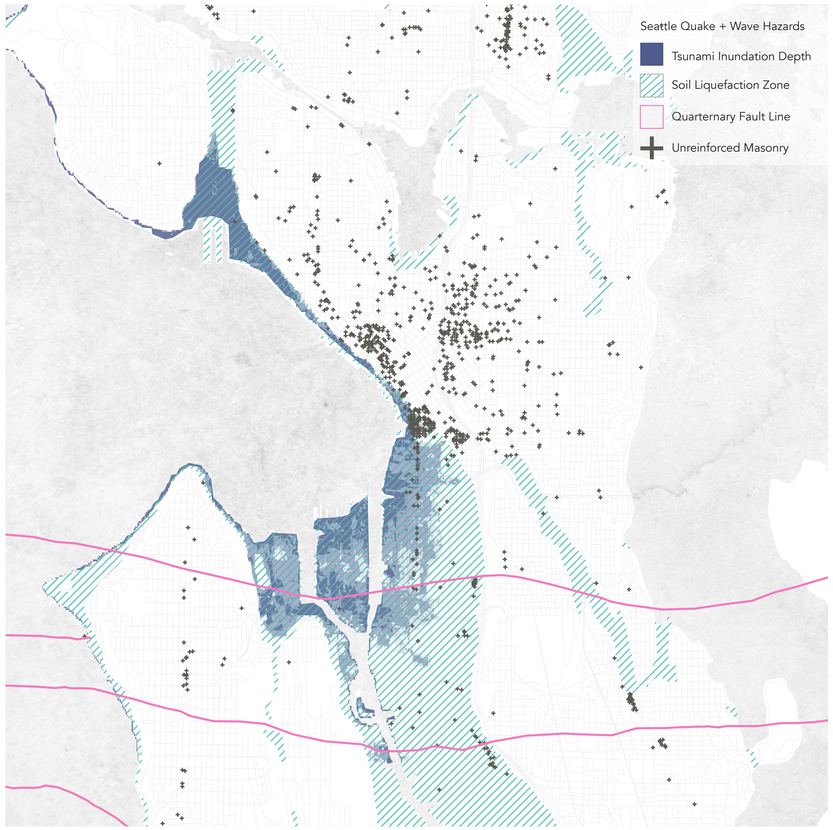


Tectonic plates react in different waveforms from seimic activity as investigated here:



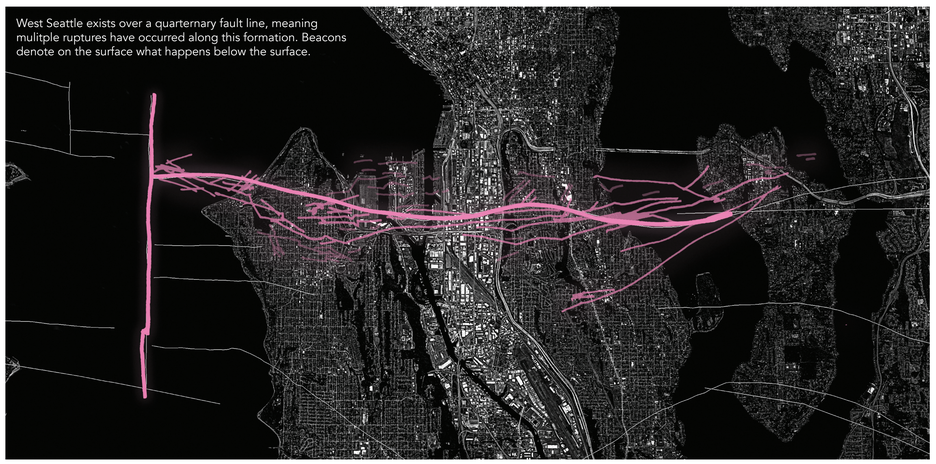
s-wave | rayleigh wave | love wave | p-wave







Each pink striation represents a magnitude 8.0 or higher earthquake within the Cascadia subduction zone. Each beaker represents a century of time.The 21st century anxiously awaits the "really big one."



West Seattle exists over a quarternary fault line, meaning mulitple ruptures have occurred along this formation. Beacons denote on the surface what happens below the surface.

