EXECUTIVE SUMMARY:

Throughout the design process, our team's approach has been to integrate new and innovative ideas across all disciplines to achieve several key design goals. We wanted to create and iconic building that sets a precedent for sustainable architecture in San Francisco. We were able to accomplish this by meeting and exceeding our driving objectives. Our overall team goals are as follows:

1. **To address the energy efficiency of the building as a whole and achieve a near net-zero design.**

   As a team, we worked together to reduce the overall impact of 350 Mission on the grid. By taking intense measures to reduce energy, and designing multiple on-site energy production systems, we were able to reduce the amount of off-site non-renewable energy consumed by the building by more than 75%.

2. **To analyze potential system choices**

   We conducted a detailed comparison and analysis of various building systems, resulting in our utilization of the following:

   Building Envelope – double façade
   Mechanical - under floor air distribution (UFAD)
   Energy Production - combined heat and power & Photovoltaic
   Carbon Reduction – algae bioreactors fed from CHP system

   Each system was analyzed on both a performance, and life-cycle-cost basis, to ensure that they helped us fulfill our design goal of near-net-zero energy use, and also benefitted the owner in the long-term.

3. **To reduce the impact of a design level seismic event on the integrity of the building through the design and construction of the mechanical, electrical, and structural systems.**

   By utilizing a primarily steel structural system, we were able to reduce the impact of a seismic event and ensure immediate occupancy after a design-level earthquake. Our structural system also restricts the building movement to 39.0 inches, which is less than one half of the code allowable drift of 82 inches, by resisting lateral force with a combination of braced frames connected by deep girders in the core.

   We designed a mechanical and electrical system in the raised access floor that incorporates easily accessible components to facilitate quick assessment of damage and possible repairs. Our electrical distribution system is designed with multiple small points of failure, reducing the probable impact of a seismic event.

In addition to these three main design objectives, we also considered other goals to increase the marketability of the building. We designed an intricate hanging column structure to keep the iconic lobby as open as possible. We have included, in our design, a location to allow future tenants to place a staircase in the office which allows them to create a multi-story workplace. This feature allows the building to adapt to the local market and provide a more versatile source of profits for the owner.

Further, to encourage community acceptance, while also meeting the code, we designed our building to a LEED Platinum level. This demonstrates our commitment to a sustainable building; a benefit to not only the owner and tenants, but the community as a whole.