

EXECUTIVE SUMMARY

The following report details the construction engineering and management techniques for the **AEVITAS** design of 350 Mission Street in San Francisco, California.

With the end goal of designing a net-zero high-rise building in the heart of San Francisco, **AEVITAS** developed the overarching attitude of [ZERO**impact**], encompassing four design goals of [ZERO**interruption**], [ZERO**energy**], [ZERO**waste**], and [ZERO**emissions**]. Through integrated design analysis, **AEVITAS** achieves these goals through effective and efficient collaboration. **AEVITAS** is an integrated design team, composed of representatives from the construction, structural, electrical, and mechanical disciplines. Through a unified effort, 350 Mission’s environmental impact has subsided. Information about the design of 350 Mission can be found in **AEVITAS’** reports as detailed in Table 1.

TABLE 1: SYSTEM OVERVIEW BREAKDOWN

<i>ARCHITECTURAL</i>	Floor Plan Changes, Vestibule Addition, Integrated Public Art Piece
<i>FAÇADE</i>	Natural Ventilation Louvers, Seismic Connections, Electrochromic Glazing
<i>MECHANICAL</i>	Radiant Floor System, Natural Ventilation Louvers, Dedicated Outdoor Air System
<i>LIGHTING</i>	LED Lighting, DALI Controls Responsive to Daylighting and Occupancy, Task Lighting
<i>ENERGY GENERATION</i>	Onsite Solar Array, Offsite Solar Array, Human Waste to Power Converter
<i>ELECTRICAL</i>	AC and DC Distribution, Natural Gas-Powered Fuel Cells, Dual Electrical Risers
<i>STRUCTURAL</i>	Steel Superstructure, Braced Frame Core, Composite Beams and Deck, Outrigger System, Concrete Substructure
<i>CONSTRUCTION</i>	Production Planning, Matrix Scheduling, Waste Management, BIM Execution Planning, Site Planning

350 Mission is located in the South of Market (SoMa) district of downtown San Francisco, a diverse neighborhood housing several prominent high rise buildings. The area is consistently congested with an extremely small site area providing little to no laydown area outside of the building footprint.

With the early development of a Building Information Management and Modeling Execution plan, preparation was in place to manage and maintain efficiency. Coordination measures were taken to ensure integration throughout all aspects of planning, design, construction, and operation of 350 Mission. Through the building model components given, **AEVITAS** has presented a project delivery method of Bridging Design-Build with a five year ‘maintain’ addition to the contract. This method will allow for specialty contractors to act as multiple primes and have greater influence in construction to aid in deriving a net-zero design.

Facilities Integration Management Modeling is a practice **AEVITAS** developed to continue operating the building at maximum productivity after construction. Through methods of Building Information Modeling, data about all building systems is tied into a central core of information to aid in maintenance and education for all users at 350 Mission.

Because a net-zero approaches will typically cost more than traditional construction methods, **AEVITAS** endeavored to reduce cost through time savings. Waste management is employed to ensure a [ZERO**impact**] attitude throughout design, construction, and operation. A variety of scheduling techniques were used throughout the different areas of the project to increase efficiency. Matrix scheduling, phase planning, and short interval production scheduling methods were utilized to achieve an overall building schedule of 25 months and a cost of \$158,951,700.