

**Terminal 2 Renovation (LEED® Gold)
Completed 2012 - San Francisco**

Empowered was the Commissioning Authority for the prestigious Terminal 2 Renovation that achieved LEED Gold certification. This project was a complete renovation of the facility and included many energy efficient and emerging technology applications such as displacement ventilation and daylight harvesting. Empowered was requested to fulfill the commissioning role based on the successful results of other energy efficiency projects including an airport-wide Investment Grade Energy Audit, re-design of the central boiler plant and retro-commissioning of the International Terminal. The 800,000 square foot facility is served by the central plant for both hot and chilled water. Empowered has worked closely with the design team to improve the sequences of operation and improve operational efficiency.

This project was a shining example of how Empowered's integrated commissioning approach can deliver functional systems with minimal issues. The entire construction team was deeply engaged in the commissioning effort, and the General Contractor's commissioning coordinator ensured that issues were addressed soon after being discovered and communicated to the team by our Commissioning Authority (CxA). Our methodical approach to functional testing allowed us to comprehensively test the lighting controls system, finding errors such as improperly wired relays, lack of override capability, and missing photocell controls. We identified much of issues during a thorough trend review of HVAC points, in which our team discovered such issues as flat-lined sensors, sensors recording erroneous data,



and zone controllers failing to maintain their zone temperature at setpoint.

The Terminal 2 Renovation was also a cutting-edge project that attempted to showcase new technologies which Empowered had not previously encountered. For instance, the terminal uses a Photo Catalytic Oxidation (PCO) filtration system to filter outside air entering the air handling units. Through our site observations and installation verification, Empowered found that final filters were degrading because the installed filters were not rated for UV light. To address the problem, the mechanical contractor replaced the filters with a more advanced filter, which will help the facility avoid higher future maintenance costs.



About Empowered

Empowered Solutions is a leading consultative energy solutions company founded and comprised of expert energy engineers, commissioning agents, controls system designers, and project managers. We help our customers capture their performance advantage through a unique blend of controls innovation, commissioning, and energy engineering expertise.