

## EXECUTIVE SUMMARY:

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The following comprehensive report details the four technical analyses performed on the VIDA Fitness Center. Owned by David von Storch of Urban Adventures, this VIDA is now the largest of his fitness centers and will serve as the new flagship location in Washington, D.C. This building will also eventually include a new high end restaurant, the Aura Spa, the Bang Salon, and a new office space for his company, Urban Adventures. The 60,370 square foot project includes a 10,920 square foot, three-story addition and the renovation of an existing 49,450 square foot building.

### **Technical Analysis 1: Application of ReRev Energy Harvesting System**

The first technical analysis in this report includes an electrical breadth and introduces a ReRev energy harvesting system that captures the DC energy generated from cardio equipment and converts it to AC power. Applying this system with the cardio equipment would provide renewable energy and long-term cost savings for VIDA, along with a “green” feature that promotes a positive, sustainable image to the public which, in turn, increases the market value for the Owner. Including the incentives for renewable energy, the payback period would be only five years for the installed ReRev equipment at VIDA and has an estimated accrued savings of \$2,085,000 after forty years.

### **Technical Analysis 2: Study of Scheduled Overtime Effects on Worker Productivity**

The second technical analysis investigates the effects of scheduled overtime use during the construction of VIDA. Investigations were conducted and the point was determined at which the overtime costs, decreased quality, and efficiency losses of overtime outweighed the costs of the traditional, 40-hour week. A new work schedule comprised of four 9-hour (4-9s) days and one eight-hour (1-8) day was selected that decreased both the weekly work hours and the number of days worked per week. Utilization of this alternative schedule could have saved subcontractors a total of over \$1.3 million in lost labor costs and decreased the schedule hours by approximately 2%.

### **Technical Analysis 3: Implementation of Job Order Contracting**

The third analysis discusses Job Order Contracting (JOC) and how it can be applied in a unique manner to the VIDA project. This was done by studying the benefits associated with Forrester Construction holding a Job Order Contract with a steel subcontractor for the construction of four VIDA fitness centers. Implementing JOC could also have potentially saved the steel subcontractor approximately \$465,000 and Forrester Construction approximately \$9.9 million from the four fitness centers combined. JOC could also have decreased the procurement and preconstruction durations and allowed for the steel construction to commence 6-8 weeks sooner than scheduled.

### **Technical Analysis 4: Mechanical System Layout Constructability and Value Examination**

The fourth and final analysis, which includes a mechanical breadth, proposes relocating the two exterior duct lines into the interior of the building and redesigning the ductwork on each floor for a more efficient layout. A metrics measuring chart was developed for each ductwork redesign and used to choose Layout 2 as the best solution. Though this layout costs approximately \$85,300 more than the existing layout, it is more aesthetically pleasing, more easily constructible, and adds additional lines to areas of the building that were not conditioned properly.