

# CASE STUDY

## State of Hawaii DGS RCx Program State Capitol, Keelikolani & Kalanimoku Buildings Honolulu, Hawaii

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EMC is currently performing RCx on three multi-story buildings in downtown Honolulu. The three buildings being evaluated are the 269,000 SF State Capitol Building, the 178,600 SF Keelikolani Building (also known as the Tax Building), and the 203,000 SF Kalanimoku Building (also known as the DAGS building). Building optimization through the RCx program will fulfill the following goals:

- \* Reduce energy use and operational costs;
- \* Improve space comfort and reduce occupant complaints;
- \* Improve indoor environmental quality;
- \* Bring equipment to its proper operational state and reduce premature equipment failures;
- \* Improve facility operation and maintenance procedures and reduce staff time spent on emergency or complaint calls.

The projects are divided into three main phases. The initial Planning Phase is used to gather building information, assess the current building energy use via utility bill evaluation, and create testing plans. The Detailed Investigation phase begins with extensive field testing and monitoring to assess the current equipment operation and identify operational issues. Data is gathered over time to create a baseline for system operation. In the second portion of the Detailed Investigation phase, the information acquired during the Planning and Field Testing phases is processed and utilized to develop a baseline for building energy use and estimate potential energy savings for recommended measures.

Field testing and monitoring has been completed for all three buildings. Initial Findings reports summarizing the field testing and preliminary recommendations have been issued for two buildings, with the 3rd to follow shortly. Initial opportunities found will result in significant energy savings and will improve the temperature and indoor air quality in many of the spaces. There are many additional energy saving opportunities that will be evaluated in the next phase project. With current utility rates in the State of Hawaii, the electricity cost for these three buildings combined is over \$3,000,000 per year. Reducing the energy use by 10% will reduce energy consumption by approximately 2,000,000 kwh/year, reduce operating costs by over \$300,000/year and lower CO2 emissions by approximately 3,500,000 lbs/yr.

### Owner:

State of Hawaii  
Department of  
General Services

### Contact:

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### Phone:

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### Schedule:

On-going

### Budget:

Retro-Cx Opportunities  
are under evaluation  
for cost and benefits.



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## Company Overview

EMC is dedicated to creating sustainable facilities by optimizing performance through energy modeling and analysis, building automation systems application, advanced mechanical and electrical design, construction management, and building commissioning to achieve lower energy costs, improved comfort, and increased productivity.

## Experience

Since 1976, EMC has been a leader in delivering high performance building solutions. As a multidiscipline firm, we have strong credentials in mechanical, electrical, and control systems retrofit and modernization and energy engineering and commissioning.

## Where do EMC's experts work?

You'll find us in schools, colleges, hospitals, government facilities, healthcare, and all types of private sector structures from supermarkets to office towers. In fact, EMC's engineers and technicians go wherever new facilities are under construction or existing structures or systems are operating at less than peak performance.



Whether you need a retrofit or a modernization or a new high performance building, you can rely on EMC to bring engineering excellence to your project.

Imagine reducing operating costs, improving comfort, increasing productivity, and getting your building's problems fixed quickly. EMC's services are the key!

Making buildings work. **Better.**



## Services

### **BUILDING COMMISSIONING/RETRO-COMMISSIONING**

The commissioning process for new buildings and major renovations, provides facility owners with assurance the facility is functioning to meet their project requirements. Commissioning is the only process that assures a quality outcome. Whether you manage a new or existing facility, it's really difficult to know unless an independent commissioning expert has evaluated your systems. EMC's retro-commissioning services provide low cost, high return operating improvements that reduce operating costs. Think of it as a building "tune-up".

### **SUSTAINABLE DESIGN**

More organizations are considering Green building systems and renovations. But to go Green--affordably--you need integrated sustainable design. EMC provides energy simulation modeling, daylighting, and high performance systems concepts to meet LEED requirements. We're ready to advise and coordinate and show you how to make the wise choices that deliver real environmental and economic benefit.

### **ENERGY ENGINEERING**

Energy and how it's used affects quality-of-life and the global environment. Our core business is creating energy systems that optimize energy use. Our energy-engineering services ensure that you meet today's needs while planning for tomorrow's growth. This includes audits, assessments and implementation of energy improvement projects.

### **FACILITY DESIGN**

Integrated systems design is crucial to facility renovation and modernization, particularly in high performance facilities. EMC understands how to take cutting edge mechanical, electrical, and building automation system technology and integrate it into real world solutions. And we can do it while your facilities stay in operation.

### **DESIGN/BUILD**

Identifying your facility's energy issues is just half the battle. You then need a retrofit strategy that maintains the building environment and minimizes system downtime through every phases of construction. EMC is skilled at engineer-led, design/build projects, including efforts funded through Energy Savings Performance Contracting.

### **TRAINING**

Today's building systems are complex. But EMC believes any operations and maintenance team is up to the challenge--if properly trained. We offer an extensive program of live and videotaped training classes and seminars, onsite and hands-on.

### **WATER RESOURCES MANAGEMENT**

With over 30 years of water resource management experience, EMC staff can assist you in securing a cost-effective, long term water supply; reduce your water demand, and decrease your operational costs. We offer expert services to water suppliers, major water users and industries, and to local/ regional governments.

## OFFICE LOCATIONS

Denver, CO \* Atlanta, GA \* Salt Lake City, UT \* Irvine, CA \* Raleigh, NC \* West Palm Beach, FL

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