



## ITI COMMISSIONING

Site commissioning, one of the most important topics in building management, is the process of ensuring that a building performs according to its design intent and the needs of its owners and occupants (Anderson, 1997). Although ideally begun during the initial planning stages of a building, site commissioning continues to be inconsistent. Most buildings today do not undergo a complete commissioning process.

Despite the growing evidence base supporting the benefits of site commissioning, many new buildings are completed without the thorough remediation of operating problems, documentation, and training required for overall efficiency. Commissioning of existing buildings (including review of electrical, mechanical, and other control systems) can result in a more energy-efficient building, improved space comfort, better air quality, and an overall increased owner and tenant satisfaction.

At **Richardson Building Diagnostics**, we are committed to providing the highest quality building inspection services available, before, during, and after the site commissioning process - whether commercial/industrial inspections, infrared building surveys, infrared roof surveys, infrared electro-mechanical surveys, or infrared data center surveys. Our professionally trained, certified Thermographers meet and exceed industry standards and the expectations of our client base.

The use of infrared Thermography technology during the site commissioning process can increase building efficiency, by improving the function of electrical, mechanical, and other control systems. Infrared Thermography technology can detect problems not otherwise found with traditional inspection methods. The use of infrared inspection systems is a cost-effective method for finding problems in the early stages, preventing equipment failure, property damage, or injury.

### Infrared Technology Site Commissioning

The commissioning process should include these types of equipment and considerations. The following infrastructure support equipment should be evaluated for proper installation and function:

- ✓ Cooling systems, including chillers and all HVAC equipment
- ✓ CRAC (computer room air-conditioning) units
- ✓ All associated switchgear
- ✓ Emergency diesel generator systems
- ✓ ATS (automatic transfer switch) equipment
- ✓ UPS modules
- ✓ Resistive load banks and associated cables/connectors
- ✓ Static transfer switches
- ✓ Rotary UPS system, if applicable
- ✓ Battery banks, breakers and charging systems
- ✓ Transformers (utility and site)
- ✓ PDU (power distribution unit) equipment
- ✓ All distribution electrical panels
- ✓ Electrical/Lighting
- ✓ Plumbing
- ✓ Heating/Ventilation/Air-Conditioning
- ✓ Refrigeration
- ✓ Utility Services (electricity, water, natural gas)
- ✓ Standby Emergency Power Generators
- ✓ Elevators
- ✓ Fire Alarm/Fire Suppression Systems
- ✓ Facility Management System (Meta sys)



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## **BUILDING DIAGNOSTICS**

COMPREHENSIVE ENERGY SOLUTIONS

### **Infrared Technology Surveys**

- ✓ All normal switchgear and electrical panels need to be checked under load
- ✓ Test generator leads and emergency source for the automatic transfer switches under load
- ✓ Resistive load banks must be attached to the PDU's and tested with increasing load percentages
- ✓ Each UPS module must be tested independently, including a full load battery test
- ✓ UPS battery connections and individual battery cells should be checked during and after discharge
- ✓ Rotary UPS systems must be checked during operation. Rotary systems utilize the same rectifier technology as static topologies on the front end to create DC current from AC, but use spanning motor-generators to recreate the sine wave on the output.
- ✓ Each PDU must be tested on both the preferred and alternate sources as well as in each respective bypass
- ✓ All normal transfers should be verified operable
- ✓ PDU distribution breakers must be checked after they are put into service on the panel board