

# THE COMMISSIONING PROCESS OF DATA CENTERS: WEITZ MISSION CRITICAL PLAYBOOK HIGHLIGHT

The commissioning process, is the process where hyper-scale data center clients ensure that all systems are installed, tested, and operational in accordance with project specifications, industry standards and owner requirements. ***This structured approach verifies, and documents system performance helping to mitigate risks before the data center goes live.***

While many associate the commissioning process with the final sign off of a project, the work can start much earlier in project timeline. When designing a project there is a review of what lessons were learned in previous projects to avoid them. This allows Weitz to be able to offer continuous improvement in it's work process, and identify potential roadblocks before boots hit the ground.

During the work process onsite. A series of tags are used to identify the stage of each piece of equipment in the process. This gives an immediate visual indicator on what stage each item is in. While there are some colors that are standard, others are unique to each jobsite and are discussed at the start of the process.

The process of commissioning goes through six distinct phases.

## 1. Pre-commissioning

Pre-commissioning establishes the foundation for a successful commissioning effort by confirming that systems are installed in accordance with approved design documents, specifications, and the commissioning plan. This phase includes detailed reviews of drawings, submittals, and O&M manuals, along with completion of readiness and installation checklists. All equipment is inspected for proper installation, labeling, grounding, and safety compliance to ensure the site is fully prepared for energization and testing activities.

## 2. Factor Acceptance & Site Acceptance Testing

Factory Acceptance Testing (FAT) verifies that equipment meets performance, control, and functional requirements at the manufacturer's facility prior to shipment, reducing risk and minimizing field issues. Site Acceptance Testing (SAT) is conducted after delivery and installation to confirm equipment integrity, proper wiring, and functional operation, ensuring no damage or deficiencies occurred during transportation or installation. Together, FAT and SAT provide confidence that equipment is ready for startup and commissioning.

## 3. Start up & Functional Testing

During startup and functional testing, equipment is energized and started in accordance with manufacturer-recommended procedures and safety protocols. Individual components and systems are tested to confirm proper operation, sequencing, and control logic. Alarms, interlocks, and fail-safe responses are verified to ensure systems operate as intended under normal and abnormal conditions, and

### CONTRIBUTOR:

**Michael Eissa**  
Commissioning Director  
Mission Critical  
michael.eissa@weitz.com



### Commissioning Pre-Planning

1. Cx Plan
2. Test Script Plan
3. Cx Detailed Schedule
4. Pre-Energization Plan
5. Load Bank Plan
6. Energy Marshal Plan

baseline performance data is recorded that powers the site. In this stage, Weitz also makes use of infrared imaging to ensure that there are no areas of intense heat.

## 4. Acceptance Phase

The acceptance phase focuses on demonstrating that installed systems meet the design intent, contract requirements, and owner operational expectations. Performance testing is executed in accordance with approved test procedures, and any identified deficiencies are documented, tracked, and resolved. Formal acceptance is obtained once all requirements are met and systems are verified as complete and functional.

## 5. Integrated Systems Testing

Integrated Systems Testing (IST) validates the coordinated operation of all critical data center systems, including electrical, mechanical, controls, and life safety systems. This phase simulates real-world operational scenarios and failure events to confirm system redundancy, resiliency, and recovery sequences. IST ensures the facility can support continuous operations and respond correctly to planned and unplanned events.

## 6. Close-out & Handover

The close-out and handover phase completes the commissioning process by finalizing documentation, closing all open issues, and delivering the complete commissioning record. Approved as-built drawings, O&M manuals, test results, and final reports are turned over to the owner. Training is provided to operations personnel, and responsibility for the facility is formally transitioned to the operations team for ongoing use and maintenance. The main system of catching errors will usually come from a software system (Most Commonly Nexus or Alloy). These systems detect and identify errors that occur within the system, and are then assigned to the pertinent team to address the issue.

Commissioning ensures that we deliver an effective product to our clients. ***It also serves as the process that allows Weitz to continuously improve our processes through tracking learned items in previous projects, ensuring we deliver top quality to our clients ever time.***

## WEITZ MISSION CRITICAL'S PLAYBOOK

The Weitz Company's Mission Critical team recently launched a companywide data center construction training tool. This tool supports the growing demand for skilled professionals capable of executing complex projects in high-pressure environments, driven by the rapid expansion of the data center market. At Weitz, we know excellence takes dedication, continuous learning, and collaboration and this tool sets our teams up for success no matter where they are building across the nation or what their past data center building experience may be.

Learn more about our Weitz Mission Critical experience and team at: <https://www.weitz.com/data-center-construction/>.

## ABOUT THE WEITZ COMPANY

Founded in 1855, The Weitz Company, a subsidiary of Orascom Construction PLC, is a full-service construction company, general contractor, design builder, and construction manager that serves all 50 U.S. states. Weitz is one of the oldest general contractors in the United States and an industry leader in Aviation construction, Industrial construction, Mission Critical construction, and Commercial construction. Headquartered in Des Moines, Iowa, The Weitz Company annually ranks in the top tier of Engineering News-Record (ENR) magazine's Top 400 Contractors and Building Design+Construction's Giants 300 Contractors lists. You can read more about The Weitz Company at [www.weitz.com](http://www.weitz.com)

