COMMISSIONING DEPARTMENT



GlobeTech strives to improve quality in building services sector by offering professional commissioning services. There is a lack of attention to start-up and commissioning which we believe is the most crucial stage of any facility.

Engineering companies do a good job of engineering projects, which is their specialty and construction companies do a good job of constructing the projects, which is again their specialty. However, start-up is normally handled by a gathering of people that are interested in the project but do not start-up the facilities as a specialty. GlobeTech specialises in start-up and commissioning facilities with a focus to get the facility from a construction site into operation as safely and expeditiously as possible. Commissioning also can restore existing buildings to high productivity through, upgrade and tune-up of existing systems.

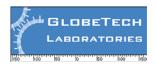
Poor pre-commissioning, commissioning and initial operations techniques result in an inefficient system which can cause long-term problems and prove costly. Our personnel assure that the projects are carried out in a professional and timely manner while still keeping our high business standards and work ethic. Overall, GlobeTech is characterized as a dependable resource, which seeks to be identified not only a "member", but also an "asset" to anyone's project team.

We are here to ...

- start-up, pre-commission and commission the facility
- improve system balance
- · improve efficiency and energy saving
- improve system and equipment function
- prepare a commissioning plan
- · verify and document equipment and system performance
- perform initial operation, maintenance and performance testing
- · operate and maintain facility until is stabilized and all problems are resolved
- compile the operating and maintenance manuals
- · write commissioning report
- · assist in operations and maintenance
- train operation and maintenance personnel
- assist in plant shutdowns and turnarounds

Benefits of commissioning include...

- early detection of potential problems
- precise tune-up of HVAC systems and controls
- · ensure system functions as designed
- · better building documentation
- trained building operators
- shortened occupancy transition period
- lower operation and maintenance cost
- lower utility bills
- healthy and comfortable work environment



Start-up Services

Our team of experts can

- Manage the start-up effort, ensuring compliance with the associated specifications and contracts for an efficient and timely turnover to the client.
- Implement a coordinated operations control program ensuring good communication and smooth execution of operational activities.
- Develop and maintain a detailed start-up schedule to track start-up progress.
- Perform advanced planning, preparation, and implementation of start-up activities and major milestones
- Develop clear start-up procedures as required by contract to coordinate the start-up effort.
- Manage and maintain open communications and relationships with clients.
- Establish and maintain an operations log and operations instructions

Measurement Services

GlobeTech offer expertise to aid industries in their measurement needs and optimise systems to eliminate inefficiencies, thereby reducing operating costs.

Our measurement experts who are proficient in measurement can thoroughly check your present system to ensure that you are *getting what you pay for*. This type of audit will determine the quality of your measurement and steps that you need to take for improvement.

In regard of *system balancing* our experts can determine where imbalances are occurring. GlobeTech will make recommendations based on the client's present system, budget restraints, to reduce and eliminate system imbalances using the most cost-effective means available. This includes, but is not limited to, developing data gathering and archiving systems. Also, determine where to place effective check metering and explore any other options to improve *system balances*.

Commissioning Services

Commissioning is the process by which the heating, ventilation and air conditioning (HVAC) system of a building is tested and balanced according to established standards prior to acceptance by the building owner.

Commissioning proves that the building and its systems work as intended. To accomplish this we perform tests, evaluations and document the operation, performance and function of the systems.

Functional and Performance Verification

The project specifications provide the contractors with a clear description of the extent of verification and testing required. The specifications detail responsibilities, testing requirements including what to test, under which conditions to test, reporting, acceptance criteria, acceptable test methods, documentation and scheduling requirements. Tests, which should be verified, include:

- Adjusting, balancing and performance
- Equipment performance
- Subsystem performance consisting of equipment combinations
- Integrated system performance

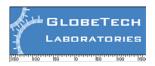
Commissioning Reports

In accordance with the commissioning plan, validation reports are prepared to document specific decisions, actions and their resultant effect on meeting the owner's design intent. Systems are tested, test results are analysed, and performance validated to demonstrate that systems perform according to the design intent under a variety of conditions.

The commissioning report is the primary record document for commissioning each building system. The report would include the final commissioning plan, the completed design intent document, the completed basis of design document, the design, contract documents and performance validation reports, and final commissioning finding and recommendations.

Operation & Maintenance Documentation and Training

GlobeTech undertakes the preparation of Operation and Maintenance manuals as well as the training of operators and maintenance personnel.



Re-commissioning

Re-commissioning can involve troubleshooting, testing, and adjusting systems to achieve the original design performance. Furthermore, identify and fix existing problems, such as indoor air quality and to increase energy efficiency. The re-commissioning process most often focuses on reducing energy waste, obtaining energy cost savings for the owner, and identifying and fixing existing problems. Buildings are not static entities, but rather are comprised of dynamic systems that need to be monitored and adjusted to continue to operate properly. GlobeTech can fix your problems and save you money.

We Can

- Evaluate design and current system requirements
- Review design criteria vs. current system performance
- Provide value analysis
- Prepare a re-commissioning plan
- Verify and document equipment and system performance
- Direct system tests and balances
- Provide re-training for operation of equipment and systems
- Review operations and maintenance manuals