

BIRIKIM

ENGINEERING & CONSULTANCY

2019

LET'S ACHIEVE THE CHALLENGES **WITH OUR EXPERIENCE**



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It is important to understand that there should be periodic inspections of the entire HVAC system during construction. The inspections are useful to identify the potential issues, to reduce or hopefully eliminate them altogether.

Let's achieve the challenges with our experience.

TAB & Commissioning Balancing Process Management

Professional
Test and
Commissioning
Services




- Respect for ethical values - Working with the best - Integrity - Teamwork - Customer satisfaction - Passion for learning - Empathy - Risk taking and achievement
[Read More >](#)




TROUBLESHOOTING HVAC SYSTEMS

WHAT WE DO ?


DESIGN




COMMISSIONING



CONSULTANCY



SERVICES



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1. Introduction

Birikim Engineering was established on 2019 as an Independent professional

Engineering services provider. **Birikim Engineering** is a modernized 3rd party Commissioning firm engaged in performing Independent Building Systems Commissioning for HVAC and Control Systems, as well as Testing, Adjusting and Balancing of Mechanical HVAC Air and Hydronic (water balancing) systems. **Birikim Engineering** takes pride in our staff and maintains a strong emphasis on training and evaluation of field personnel. **Birikim Engineering** provides in house training for all field personnel. Our focus is to ensure that each customer receives reliable communication, responsive service and a system that meets every design criteria. From customize reports and forms to expert trouble-shooting. Considering the overall investment in a building and the ventilation systems, cost of professional independent testing and balancing, commissioning and troubleshooting is very inexpensive.

To the building owners, the results of Commissioning, testing and balancing are invaluable in finding solutions to complex ventilation systems performance problems prior to final days of your equipment and installation warranties. Overall, the more efficient the ventilation systems are operating, the more saved on operating and maintenance cost for years to come.

Birikim Engineering delivers the highest client satisfaction. Whatever the project or challenge may be, whether a small, Medium or a large campus, **Birikim Engineering** has the perfect team that can maximize your equipment's ability and performance.



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3. Mission, Vision & Core Values

A. Our Mission

Our mission is to be the highest quality, most professional, and responsive firm in the industry.

B. Our Vision

Our Mission is with consistent, conscious consideration of our environment, it is our main business priority to provide customers excellent service and the most efficient performance and evaluation of HVAC equipment. With every system we install, our goal is to maximize comfort and reliability with the highest level of energy savings possible.

C. Core values

- 1) Always take care of our customers
- 2) Integrity at every level
- 3) Empower employees to exceed expectations

These three core values are how we reach toward our mission.

Taking care of our customers is what our company was founded on. We hold this in high regard, and it is very important to us. We believe that if we take care of our customers and are fair with them, they will take care of us and be fair with us. The founders of our company believed in this core value and we have grown in this belief.

Integrity is the foundation of our service. It assures our quality of work and it drive.

4. Services

A. Independent Commissioning services.

ACG Commissioning Guideline, defines commissioning as "a systematic process that facilitates and ensures the required communication, coordination, testing, and verification and results in a building systems perform as intended ".

Commissioning is intended to be an all-inclusive process for the planning, delivery, verification, and managing risks to critical functions performed in, or by, facilities. Commissioning ensures building quality using peer review and in-field or on-site system performance verification. Commissioning also accomplishes higher energy efficiency, environmental health, occupant safety and improves indoor air quality by verifying that the building components are working correctly and that the Commissioning plan is implemented with the highest efficiency.

Essentially, the commissioning process formalizes the review and integration of all project expectations during planning and design, construction, training and occupancy phases by way of inspections and functional performance testing. This initial commissioning event also becomes the Owner's "baseline of reference" for system operations and functional model of the building.

Birikim Engineering approaches the process of commissioning from a proactive, logical and efficiency standpoint. We employ proactive steps and methodology from the very beginning where we begin to search out "common thread" issues and where they are most likely to occur. We then align the building systems in a logical, progressive manner towards installation, verification, start-up and commissioning... a best path or road map to the end of the project. **Birikim Engineering** follows the last edition of ACG Commissioning Guideline as a practical methodology for most of our Commissioning approaches.

4. Services (Continued)

A. Independent Commissioning services (Continued)

Commissioning Management Scope of work:

- Review/Assistance in production of OPR and BOD
- Commissioning Specs Production.
- Commissioning Plan Production.
- Commissioning method statement review
- Review of contractor submittal.
- Coordination of the commissioning plan with project schedule.
- MEP installation site monitoring and reporting.
- Carry out and document system verification.
- Carry out and document system Start-ups.
- Carry out and document Functional performance tests.
- Verification of TAB report results.
- Review and comment O&M manual and Training Material.
- Plan for O&M staff training.
- Submit final commissioning report.
- Carry out document any required Off Season Functional tests.

Commissioning Verification Scope of work:

- Review Commissioning Plan & Program.
- Review of commissioning Method Statements.
- Witnessing of Testing & Commissioning activities.
- Review & Site verification of testing and commissioning results.
- Site Observation Reports.
- Construction & Commissioning progress report.



4. Services (Continued)

B. Testing, Adjusting and Balancing Services (Air and Hydronic).

1) Air Testing & Balancing:

Air balancing is testing, adjusting, and balancing (TAB) commercial air conditioning and ventilation systems. The need for balancing first came in the early 1980's when new and more advanced A/C systems were being developed and installed. As these systems began to get more complex, the need for balancing increased. Most companies were not equipped to handle the TAB inspections. Independent TAB companies were created to handle these tasks.

2) Water Testing & Balancing:

Water balancing crosses a large expanse of different type systems. Chilled, Heating, Domestic, Condenser, and Process water systems require adjustment and balancing for proper operation. Unbalanced distribution of any type of fluid results in inefficiencies and causes the system served to work improperly. Proper water balance has long been ignored in existing facilities and has proven to be the cause of many systems' failure.

3) Smoke Management Services:

Ensure your building meets mandatory fire safety standards and complies with the Fire and Rescue Service and Building Fire Safety Regulation. We can assist with your maintenance regime and advise you promptly if defects are present. With our detailed knowledge we are perfectly placed to manage both new and existing buildings.

4) Clean room, labs, health care and pharmaceutical testing:

Cleanroom Testing and Certification. Cleanrooms, by definition, are designed to control airborne particulate and environmental conditions. Cleanrooms can be positive or negative pressure environments that sweep a specified area with HEPA filtered air.

Services Include: Initial survey, troubleshooting, system analysis & evaluation and recommendation.

4. Services (Continued)

B. Testing & Balancing

Services(Continued) Testing &

Balancing Tasks:

1. Air Balancing

- Perform full performance and static pressure profile for all air conditioning equipment (AHU, FCU, FAN & VAV/CAV boxes) and compare with submittal.
- Set up the amount of airflow that is distributed from each air diffuser.
- Measure total airflow on all A/C and exhaust systems.
- Balance airflow on each supply and exhaust grille.
- Room pressure cascade balancing.
- Measure volts, amps, statics, RPM's, temperatures, and set minimum outside air requirements on all A/C units.

2. Water Balancing

- Perform full performance and water temperature gradient for all water system equipment (Pump, Chiller, Cooling tower, boiler & Heat Exchanger) and compare with submittal.
- Set up the amount of water flow that is distributed from each Balancing valve (For AHU, FCU, and Cooling/Heating Coil & Heat exchangers).
- Balance water flow on all pumps, cooling towers, chillers, boilers, and air handling unit coils.
- Measure total water flow on all Hot, chilled & domestic water.
- Balance airflow on each static or dynamic balancing valve.

4. Services (Continued)

B. Testing & Balancing Services (Continued).

Balancing Tasks: (Continued)

3. Environmental testing

- Measuring temperature & humidity for all air conditioned spaces.
- Sound measurement for spaces, background and equipment.
- Vibration for equipment and spaces structure (sensitive equipment spaces).
- Light intensity test.
- Indoor air quality test.

4. Smoke Control testing

- stair pressurization testing
- zone and purge systems pressurization
- AHU shut down
- motorized smoke and fire dampers

5. Clean rooms, labs and health care testing (Pharmaceutical clean rooms, operating theater, hospital isolation rooms & ICU, and pharmacy).

- Set up the amount of airflow that is distributed from each air diffuser.
- Individual room testing
- Room air flow/air change rate verification.
- Room pressure cascade balancing.
- Calibration of pressure gauges in site
- Calibration of temperature and relative humidity in site.
- Contamination (Particle count) and laboratory room testing.
- HEPA filter DOP testing.
- Air flow pattern visualization test.
- Room Contamination Recovery test.
- Fume Hood & Bio Safety cabinet Test.
- DQ, IQ, PQ & OQ qualification According to GMP

All Clean room Tests and DQ, IQ, PQ & OQ qualification According to GMP & ISO Standards.

4. Services (Continued)

C. Upcoming Green Building Engineering Services:

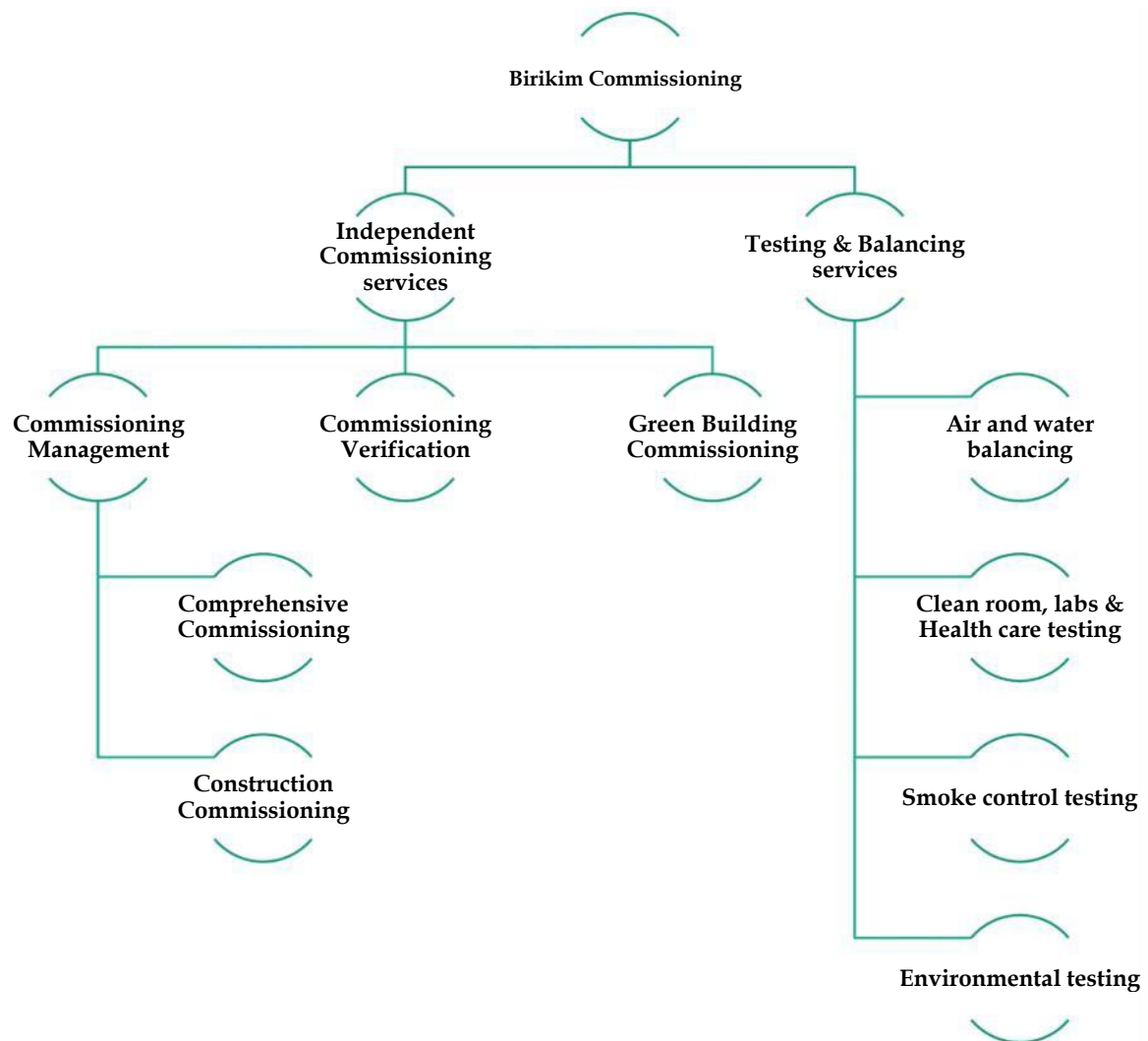
Green Building Commissioning, Modeling and Consultancy:

Energy Commissioning and modeling to analyze critical design factors including: the building's thermal comfort, airflow, energy consumption, daylight and glare, from concept through to production design. During the construction document phase, energy modeling allows comparison of the proposed design to the minimally code-complaint base-case building. In case of LEED/USGBC certification, the calculated savings are limited by ASHREA requirements. Outside of the LEED process, the modeling can be used to look at the energy-use reduction that results from all of the strategies implemented, including massing, orientation, HVAC- system upgrades, novel control strategies, fan systems optimization, and glazing area optimization.



4. Services (Continued)

Birikim Engineering services summary chart



5. Commissioning & Balancing Standards

Birikim Engineering are practicing the following Standards:

A. Building Commissioning, testing & balancing.

- ASHRAE Commissioning Standards
- ACG (AABC Commissioning group) Commissioning Guideline
- CIBSE Commissioning codes
- BSRIA Commissioning codes
- CSA Commissioning code
- AABC TAB Standards
- NEBB TAB & Commissioning Standards



B. Clean room testing & commissioning.

- NEBB clean room Standards.
- GMP.
- ISO 14644.
- HTM-03 (UK).
- FGI Standard.

