

SERVICE FEATURE

Delivering Today's High-Performance Intelligent Buildings

High-performance buildings rely on sophisticated, connected controls for heating, air conditioning, energy management, lighting and other systems. Many of these control systems function in proprietary silos, with little interoperability and integration. Modernizing control systems, including open architectures, and implementing a master systems integration strategy that utilizes advanced building, connected IP controls provides owners and operators the connectivity and access to the data required to manage, operate and control buildings in today's environment.



Effectively utilizing data in an ever-evolving built environment reduces operating costs, increases energy efficiency and resilience, and contributes to reducing carbon emissions and meeting sustainability goals. Data must be presented in a unified and consistent format to maximize its integrity and accuracy.


Burns & McDonnell is committed to helping critical infrastructure owners and operators implement modern control systems with open architecture and facility analytics, which diagnoses near real-time performance and anticipates maintenance needs. The integration of building, lighting and other DDC controls with traditional and ongoing commissioning results in comprehensive solutions to identify and streamline cost and operational efficiencies to improve building performance and sustainability.



Figure 1: Typical Pathway to High Performance Intelligent Buildings.

Pursuing High-Performance Intelligent Buildings


The following represents how integrating commissioning, IP-based DDC building controls and ongoing commissioning delivers high-performance intelligent buildings.



Commissioning (Cx)

- Assess existing building functions, codes and standards.
- Perform condition assessments.
- Perform energy audits and support pursuit of energy rebates.
- Baseline existing buildings.
- Perform new and existing building commissioning.
- Perform quality assurance design reviews.
- Perform equipment life cycle analysis.
- Perform ongoing commissioning.





Building, Lighting and Other DDC

- Perform operational technology (OT) network design.
- Perform HVAC, lighting, and other DDC controls design.
- Perform DDC upgrades, retrofits and modernizations.
- Perform construction management.
- Perform DDC tuning and optimization.
- Provide DDC commissioning.
- Provide ongoing DDC support.



Ongoing Commissioning



- Assess analytic readiness.
- Identify and address cybersecurity requirements.
- Perform ongoing energy analysis.
- Provide fractional labor support.
- Provide fault detection and diagnostics support.
- Provide ongoing operations and maintenance optimization support.
- Onboard and integrate energy monitoring systems.
- Perform energy analysis and ongoing commissioning support.



High-Performance Intelligent Buildings



A service that bundles commissioning, building systems and controls, and ongoing commissioning. It integrates the three with a continuous optimization mindset and an analytics-driven solution to optimize operations, maintenance and energy use practices. With a vision to support clients in achieving the full potential of building, facility and campus infrastructure technology, and O&M staff, Burns & McDonnell leverages engineering, construction, OT/IT and commissioning capabilities to deliver high-performance intelligent buildings through:

- Providing design-build services to upgrade aging buildings and infrastructure.
- Combining technical experience with numerous Cx guidelines to match clients' needs and industry standards while providing program-level uniformity and standardization.
- Optimizing the ongoing operation of each facility through existing building Cx, energy audits and retro-Cx services.
- Integrating permanent energy monitoring systems, energy analysis and ongoing Cx.
- Providing near-real-time equipment performance information to facility operators through energy management and analytics solutions that track energy consumption, detect faulty equipment and identify unusual energy or power consumption.
- Creating a customized road map toward analytics implementation and onboarding as well as an operational workflow benefit analysis of various analytics platforms and decision tree for processing software identified issues.
- Promoting an ongoing preventative maintenance program.

Burns & McDonnell brings the necessary integration of building controls and analytics experience as well as engineering, construction and commissioning capabilities to optimize your operation and maintenance program quickly and efficiently. The combination of this extensive knowledge means that operation and maintenance of your critical facilities will be improved through actionable insights derived from your data. As an employee-owned firm, we think like business owners to find the most suitable, cost-efficient solution to meet your goals and ultimately deliver on our mission to make you successful.

About Burns & McDonnell



Burns & McDonnell is a family of companies bringing together an unmatched team of engineers, construction and craft professionals, architects, and more to design and build our critical infrastructure. With an integrated construction and design mindset, we offer full-service capabilities. Founded in 1898 and working from dozens of offices globally, Burns & McDonnell is 100% employee-owned. For more information, visit burnsmcd.com.