

SUSTAINABILITY: COMMISSIONING

Streamlining the path to optimal energy performance



“Research shows owners can achieve savings in operations of \$4 over the first five years of occupancy as a direct result of every \$1 invested in commissioning—an excellent return on investment.”

—Whole Building Design Guide, a program of the U.S. National Institute of Building Sciences

Our Service

We are independent energy experts who serve in the role of owner’s advocate. In this role, we provide a vital third-party link between project designers and contractors during the design and construction process, for either new construction or retrofits. Our task is to make sure that your building’s systems are built as you intended and are operating at optimal performance.

We excel at helping buildings reach their highest performance potential. Our engineers have a proven track record of uncovering operational and energy cost savings, with more than 300 projects successfully commissioned since 2000. We address all building systems, including HVAC equipment and controls, lighting and daylighting controls, and domestic hot water and renewable energy systems (photovoltaic, solar thermal hot water, etc.).

Ultimately, you save time and money—and gain peace of mind—when we verify that you have an energy efficient building that will perform according to the intent of the design

RWDI is a valuable partner to clients seeking to...

Explore Innovations

- Design and build with confidence that your vision will be translated from design to reality
- Operate buildings efficiently through systems optimization

Create Opportunities

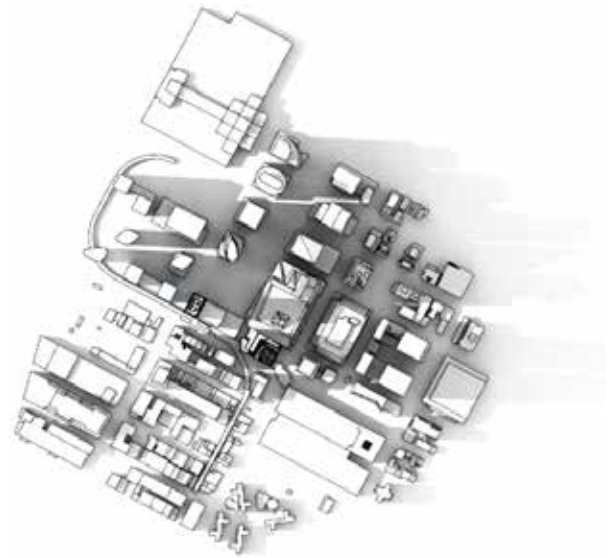
- Find additional energy and cost savings through savvy construction and operation choices
- Improve performance of an existing building, often at little or no cost while realizing maximum savings
- Establish cost-effective maintenance schedules
- Train building engineering staff to perform at optimal levels

Meet Challenges

- Navigate design and construction trade-offs with the help of an independent third party that has no stake in the design
- Move an underperforming building into operational excellence

Fulfill Expectations

- Design and operate your building for optimal performance
- Identify errors in design or early construction while they can still be corrected
- Meet carbon goals



Commissioning Case Study

- Two air handlers were programmed incorrectly. They were providing simultaneous heating and cooling and actively working against each other's programming. Correcting the programming likely saved the project more than \$15,000 in annual energy costs.
- In addition, the temperature sensors were placed on the outside walls and were uninsulated. This configuration caused them to magnify all of their heating or cooling requests. This issue will likely cost the facility another \$2,400 per year if it is not rectified

How we work

Our engineers perform commissioning services both for projects that have energy-certification objectives and for projects that do not. However, commissioning services are especially important when high levels of performance are targeted. Such services help ensure that the building functions in accordance with the owner's requirements and in a way that maximizes efficiencies and lowers costs.

In our view, commissioning must be a multidisciplinary consulting practice. An RWDI commissioning team combines expertise both in green building certification tools and in high-performance engineering. We believe this diversified approach is redefining the role of commissioning around the world. It uniquely positions the commissioning team to work in an integrated fashion with project teams to identify problems and help develop solutions.

Our key skill is recognizing the right time and place to apply expertise within the process. Depending on the project needs and project phase, we can provide services to support

- Integrated design strategies
- Energy modeling and simulation
- Energy certification programs (e.g., LEED, WELL)
- Measurement and verification
- Demonstration of functional performance.

Another aspect of our work is existing building commissioning (ECx) or retrocommissioning (RCx). In a typical process, we first perform

a comprehensive analysis of how operation and maintenance practices affect air-quality, mechanical, plumbing, electrical, envelope and lighting systems; next we compare this performance against current occupant needs. From the results of this analysis, we generate recommended measures and suggested improvements in operations and maintenance that optimize the energy systems. Often, the measures identified are low-cost or no-cost changes with quick, simple paybacks. With this approach, we help bring any building to its highest level of efficiency.

Areas of expertise

- Building automation: verification and integration
- Energy performance: consulting, modeling, and calibration to real-life conditions
- Systems performance verification: air quality, water quality, thermal, visual and acoustic characteristics
- Environmental performance: permitting, design support, performance testing and verification
- Greenhouse gas (GHG) emissions: monitoring, tracking, trending and verification
- Energy performance: measurement and verification
- Mechanical and electrical systems: design support, performance testing and verification

RWDI is a member of the Building Commissioning Association (BCA), and our engineering staff hold various qualifications including Certified Commissioning Authority (CxA) by the Associated Air Balance Council (AABC) Commissioning Group (ACG), ASHRAE Commissioning Process Management Professional (CPMP), and AEE Certified Measurement and Verification Professional (CMVP). Our processes follow ASHRAE Guideline 0, as well as industry-wide accepted standards. Our Commissioning Authorities have commissioned mechanical, electrical and plumbing systems on projects accounting for more than 20 million square feet (1.8 million square meters) in total.

We also have extensive experience performing full energy surveys and analyses, including ASHRAE Level I and II audits. We're experienced in assessing potential energy-savings upgrades and cost-effective measures for improving a building's performance and minimizing its energy consumption. Our on-site evaluations have led to the success of hundreds of energy audits and studies for public and private clients.

