THE LEADER IN SMART BUILDING SERVICES

CONSULTING ON OVER $2B IN NEW DEVELOPMENT
CUSTOMERS WITH OVER 2 BILLION SQUARE FEET
OUR COMPANY
WHO IS INTELLIGENT BUILDINGS, LLC.

WHAT MAKES US DIFFERENT
THE UNIQUE BLEND OF EXPERTISE

YOUR PROJECT TYPES
THE CATEGORIES OF PROJECTS WE CAN HELP YOU WITH

OUR SERVICES
HOW WE HELP PRIORITIZE AREAS OF FOCUS

OUR METHODOLOGY
THE BASICS

SMART BUILDINGS PROGRAM OVERVIEW
SNAPSHOT OF A SMART BUILDINGS PROGRAM

CYBER SECURITY
SECURING BUILDING MONITORING & CONTROL SYSTEMS

SUMMARY
MANAGING RISK AND MAXIMIZING OPPORTUNITY
We provide planning and implementation management of our next generation strategy for new building projects, existing portfolio optimization and smart community development.

We are a recognized thought leader with numerous industry firsts, including consultation on the award-winning “Smartest Building in America”, conception and development of a Clinton Global Initiative public-private partnership, program management for the largest energy analytics project in North America and development of national smart building standards for the US, Canadian and Singapore federal governments.

We have developed a consistent and proven technology approach for new projects and optimizing existing portfolios that respects the stakeholders and traditional process, while not compromising on the realities of today’s building technology and opportunities of the information age.

Intelligent Buildings has worked extensively throughout the US and Canada in over 85 different cities, along with selected other international work and market research in The Middle East, Asia and Central America.

Headquartered in Charlotte, NC and with staff in Atlanta, Birmingham, Chicago, Dallas, New York, Milwaukee, and Washington, DC, our firm has advised on some of the world’s most “intelligent” buildings and real-estate projects since 2004.
We stand alone in the marketplace because we are the only company that was founded to focus solely on smart building technology consulting and services. Since 2004 we have been a thought leader because we understood there are three legs to the smart building stool which include: 1) buildings and their operational technologies such as control systems, middleware, and protocols, 2) people and processes that includes workflow, management and measurements and 3) information technologies, such as, networking, servers, cloud, and cyber.

**BUILDING SYSTEMS**
Control systems including: HVAC, Lighting, Elevator and Metering

We leverage a range of engineering skill sets including mechanical, electrical, civil, and industrial. With extensive experience on multiple controls systems, middleware, analytics, and other facility technologies, we can evaluate something as narrow as a particular controls system replacement or as broad as developing a “destination architecture” for long-term integration and interoperability.

**PEOPLE & PROCESSES**
Organizational alignment, workflow, management and vendor policy

No technology is effective without organizational alignment. It is necessary to evaluate the changing marketplace and the variety of new technology opportunities in light of the organizational impact. This can impact budget “buckets”, roles and responsibilities and general workflow. We have a deep understanding of the cultural environment in real estate and the various stakeholders’ experiences and sensitivities.

**INFORMATION TECHNOLOGY**
Cloud, analytics, cyber and networks

Today’s controls systems and solutions are based on information technology (IT), including local and wide area networking for interoperability, remote access, and real estate operations centers. Additionally, the rapidly emerging solutions for cloud, big data and analytics require IT experience and credibility. There is, however, a significant skills gap between the realities of the today’s real estate IT and the capability of the traditional support organizations such as architects, engineers, facility and property managers. It is critical for you to have IT skill sets to properly design, install and manage a modern controls network.
We have extensive experience with scale projects and can address a variety of project types including new development, existing portfolios, or smart community planning. We always work to create a unique value proposition for each project and organization.

Core building systems (HVAC, Lighting, Metering, etc.) technology has materially changed in recent years, which creates both risk and opportunity for your development’s financial and strategic objectives. When properly addressed, the current generation of core building systems can be leveraged to create numerous advantages.

Existing portfolios are often caught in a financial paradox with the need or desire to improve customer experience, lower operational costs and become more sustainable – without spending substantial capital. History has shown the way to address that financial paradox is with low-cost, high-value solutions that focus on softer technology and human behavior.

Smart communities are fundamentally about establishing common goals, achieving widespread participation and having credible measurement. This requires diverse knowledge of buildings, people and technology.
**OUR SERVICES**

**STRATEGY & ARCHITECTURE DEVELOPMENT**

Strategy is the foundation of smart real estate and should be concise and clear, with a value proposition that has defined measurement and management criteria. The strategy should be followed with a “destination architecture” for the planned evolution.

- Corporate Tech Roadmap
- Industry Research
- Educational Workshops
- Organizational Alignment
- Financial Analysis
- Risk Analysis

**COMPASS PRIORITY SURVEY**

Our innovative and effective Compass Survey & Workshop provides an accurate gap analysis and allows you to prioritize projects and resources. We use a proprietary analytical framework to score your portfolio across 17 smart building execution elements.

- Organizational Readiness
- Building Standards
- Architecture
- Cyber Security
- Systems
- Documentation

**SMART SOLUTION SELECTION**

Your project or portfolio has a unique profile and only solutions that are a fit should be evaluated. We have profiled all types of smart building solutions, and we will help you cull the candidates to make the best use of your time and select the most effective choice.

- Software
- Unified User Interface
- Services
- Controls
- Applications
- Platforms

**MASTER TECHNOLOGY INTEGRATION**

Master Technology Integration (MTI) is a new type of service for a new type of facility technology environment. MTI manages the risks of today’s chaotic controls technologies while infusing the current IT trends of cloud, big data and analytics.

- Middleware
- Interoperability
- Big Data Analytics
- Cloud
- Tagging and Taxonomy
- Big Data Visualization

**BUILDING CYBER SECURITY**

Cyber security is the technology issue of our day and has been almost completely ignored for building controls systems. You can no longer afford not to address it head on, and we are the market leader in building control systems cyber security.

- Policy & Procedures
- White Hat Probing
- Inventory & Assessment
- Remote Access Mgmt
- System Config Reqs
- Network Monitoring

**PROGRAM MANAGEMENT**

Program management brings the strategy and architecture to life, and requires both experience in the trenches and the ability to link the executive perspective to the realities of the field.

- Project Management
- Program Tech Adviser
- Educational Workshops
- Strat & Standard Compliance
- Progress Reporting
- Measurement
With increasing noise in the smart building marketplace, our time-tested methodologies are more important than ever. We have defined processes for overall program development, as well as specific tasks such as prioritization of efforts, solution selection, financial analysis and organizational alignment. These methods have been proven throughout billions of square feet and decades of experience.

1 DEVELOP A STRATEGY FRAMEWORK

Your strategy framework addresses your current risks, as well as the new opportunities that result from industry and marketplace trends. This is not simply an ROI-based strategy, but a broader value proposition for the business which ties directly to the organization’s highest goals.

FAST START WORKSHOP

This level setting workshop provides critical industry information, case studies, and peer examples which helps develop and document an organizational profile that becomes the foundation of a tailored smart building strategy. The resulting framework is not the three-ring binder about the past - but rather a clear, concise document that aligns the organization and serves as a guide.

2 DETERMINE ORGANIZATIONAL PRIORITIES

Determine your organization’s internal priority areas for budgeting time and money towards a smart building effort.

COMPASS SURVEY

There are many different topics that can and should be addressed; budgets, skill sets, and capacity dictate that there is a priority list that drives where the most resources will be applied early on. Our proven methodology engages you in a survey process that will rate 17 focus areas in the three pillars of “buildings, people and technology” against your goals and capabilities. The unique results for your compass will provide clear direction for your organization.
To segment the system types, we use an evaluation criteria for dozens of control systems to determine if they are categorized as “Core”, “ROI” or “Experience”.

**BULLS-EYE EXERCISE**

Even within your Compass Survey, identifying your business priority areas, there are dozens of systems and system types you can choose from and different ways to evaluate them. The “Bulls-eye” was born of necessity. With a sea of systems and noise in the marketplace, our bulls-eye exercise will clearly determine which systems are your (Core) and which ones should be evaluated as a business case (ROI), and finally which are neither, but support productivity, occupant experience or brand (Experience).

Selecting solution vendors is the final step in getting to action - but they must be a match for your organization.

**QUADRANT MATCHING**

While most of the industry evaluates scores of solutions and vendors for each need, the innovative “Quadrant Matching” exercise enables you to only evaluate solutions and vendors that are a fit for your organization. Solution proposals should not be a free-for-all, for anyone to price and bid. To get the most effective solution and vendor, we match your profile to only those solutions that are a fit.

Program Development brings the strategy and architecture to life and requires a mix of experience to link the executive perspective to the realities of the field.

**CONSULTING OVERSIGHT**

Real estate development and management is burdened by generations of repetitive processes and an entrenched culture that resists change. In order to reduce risks and leverage technology opportunities, a programmatic approach is required which includes monitoring key performance indicators (KPI), workflow adjustments and ongoing strategy compliance. We can provide full-time staff to supplement your workforce or simply monitor progress on a periodic basis.
We have developed the industry’s first cyber security assessment methodology specifically for building controls systems. This approach is based on the NIST (National Institute of Science and Technology) cyber security framework that has been widely accepted and includes the categories of identify, detect, protect, respond and recover. Beyond the NIST cyber framework, we found there were no subsequent methods or procedures for building controls systems (BCS), only for industrial controls systems (ICS). Hence the creation of Building Controls Systems - Cyber Assessment Methods & Procedures (BCS-CAMPsm).

BCS-CAMPsm will give you an objective score on each key category in the NIST framework and, more specifically, for each of the building control system sub-categories which will tell you exactly what you need to shore up to improve your score and reduce your risks.
BUILDING CYBER COMPASS

Similar to our strategy compass, our building cyber security compass will identify where you are now as an organization and guide you on which areas you want to prioritize for budget, resources, and timing.
CYBERSAFE BUILDING MONITORING

After assessing, prioritizing, and remediating your building cyber security risks, ongoing management is essential. There are three key functional areas that the Intelligent Buildings Cybersafe service addresses:

1. **IB GATE** *(Remote Access)*

   Both vendors and staff should access building controls systems through a purpose-built, secure-access cloud. This will authenticate users before allowing them to access the building systems through a virtual private network (VPN). The connection point at the building can only communicate with the authentication cloud, and no other entry method is allowed.

2. **IB SCAN** *(System Inventory & Configuration)*

   Even authenticated users must adhere to policies and best practices after they have accessed the control system(s) remotely. Password change frequency, password custody, authorized user lists, connected device inventory, and other critical policy can be monitored and automatically flagged when out of compliance.

3. **IB WATCH** *(Network Traffic)*

   Even when remote access is properly managed, organizations are at risk from internal or in-building breaches. This can be the result of network-hopping, physical connections onsite or other “back door” methods. Unlike traditional IT networks, these networks include building automation and control system “field devices”. We will establish and document the normal network traffic patterns and automatically flag any unauthorized connections.
MANAGING RISK AND MAXIMIZING OPPORTUNITY

Core building systems (HVAC, lighting, metering, etc.) technology has materially changed in recent years, which creates both risk and opportunity for your development’s financial and strategic objectives.

The changes have occurred faster than the traditional real estate support structure such as architects, engineers and contractors could keep up.

Modern-day controls systems such as HVAC, lighting and metering, are run by computer servers, networks and remote access, yet most organizations haven’t integrated information technology (IT) into design, construction and operations, and subsequently have not aligned internal departments. That creates risks that the generational skills gaps will create greater capital expenses or project delays, leading to rising operational and maintenance costs. In addition, most controls are proprietary systems that lock owners and managers into high services costs and licensing fees, with limited flexibility. Finally, since these IT-based controls systems have been implemented by non-IT vendors, there is a significant risk of cyber security vulnerability.

However, when properly addressed with our “OCN” (Open, Converged and Normalized) standards and specifications, which require open systems, eliminate overlapping infrastructure, and support cyber security, you not only mitigate risks but leverage these systems to create numerous advantages such as:

- Data-driven decision-making
- Higher asset utilization
- Reduced capital and operational cost structure
- Risk identification and management
- Brand support and enhancement
- Sustainability