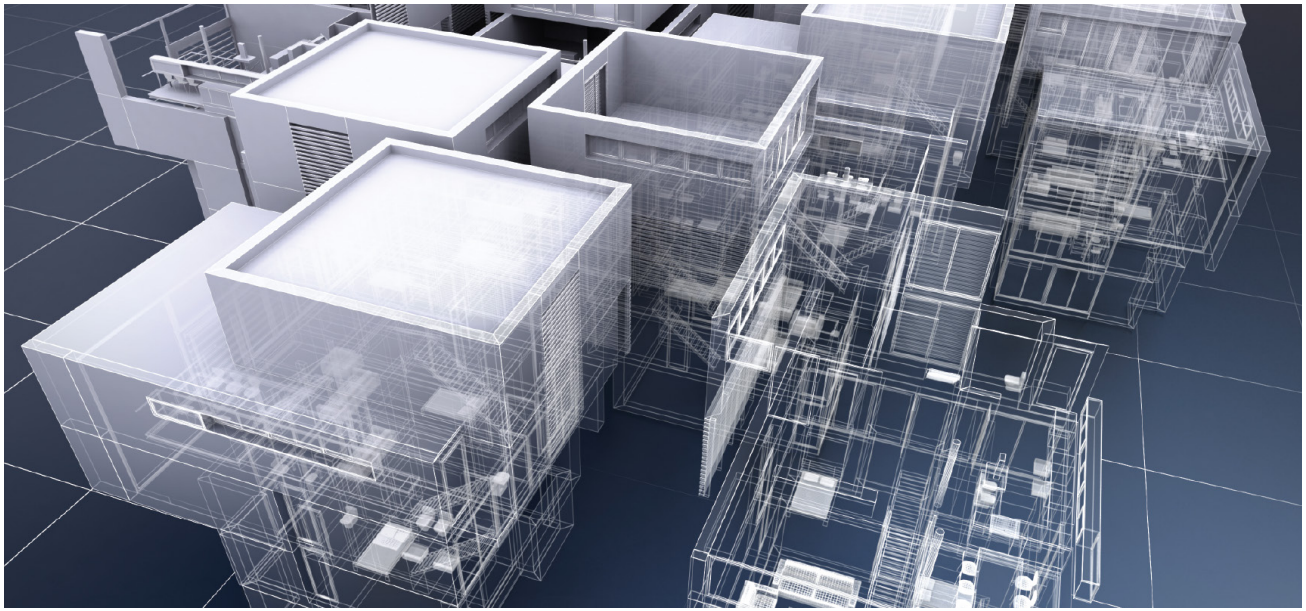
VIRTUAL DESIGN AND CONSTRUCTION

Digital Twins for Building Infrastructure



TRANSFORM BUILDING MANAGEMENT WITH DIGITAL TWIN SERVICES

Michael Baker International's digital twin offerings for buildings are revolutionizing the management and optimization of the built environment. By offering a virtual replica of a physical building, integrating all associated technologies, systems, equipment and sensors, we provide a cohesive solution that delivers real-time insights into building performance. This comprehensive approach to building management enables immediate adjustments to optimize efficiency and provides valuable data to improve the design of future buildings.

By integrating advanced data analytics and Internet of Things (IoT) technologies through digital twins, building owners can create smarter, more sustainable buildings. These services not only enhance operational efficiency but also contribute to sustainability goals, making them an essential tool for any client.

WHY MICHAEL BAKER?

Client-First Approach

We specialize in crafting tailored solutions to address our clients' unique and complex challenges. Our team collaborates closely with clients to understand their current position and guide them to a desired destination. We offer solutions that are hosted in diverse environments and seamlessly integrated across multiple systems, ensuring that even the most isolated data sources are connected and utilized effectively.

Improved Outcomes

Our solutions help clients track energy usage, reduce operational costs and ensure compliance with sustainability standards. This approach not only improves project outcomes but also fosters long-term partnerships built on trust and expertise.

Diverse Experience

Our solutions cater to both public and private sectors, including federal, commercial, industrial and institutional clients. With this experience, we support diverse infrastructures, including commercial headquarters, military installations, and sensitive compartmented information facilities (SCIFs) and more.

CAPABILITIES

- Building Information Modeling (BIM) & Virtual Design & Construction Coordination
- Building System Cybersecurity, Including Industrial Control Systems (ICS) & Operational Technology (OT) System Protection with Real-Time Data Integration
- Cybersecurity Maturity Model Certification (CMMC) 2.0 Level 2 Compliance Services to Assess Department of Defense Cybersecurity Requirements
- Data Acquisition, Standardization, Governance & Exchange
- Data Science & Analytics – Operational Insights, Sustainability Goals & Net-Zero Compliance
- Digital Strategy Consulting
- Precise Indoor Mapping Collected via LiDAR & Modeled Utilizing our Best-Practice Scan to BIM Process
- SaaS Platform – Public Safety, Emergency Response & Scenario Modeling
- Smart Building Strategy, Assessment, Design & Commissioning

ABOUT MICHAEL BAKER

Michael Baker is a 4,500-person full-service engineering and consulting company with more than 85 years of experience deeply rooted in technology and innovation.
We specialize in cradle-to-cradle digital transformation and operational efficiencies for the built environment. Our goal is to help clients maximize asset performance, reduce operational costs and increase operational efficiency.

CONTACT

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Visit mbakerintl.com/practices/virtual-design-and-construction to learn more about our services.

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BENEFITS AND ADDED VALUE

Visualization
Use data-rich, scenario-based modeling to fully simulate impacts at any stage of the asset's lifecycle.

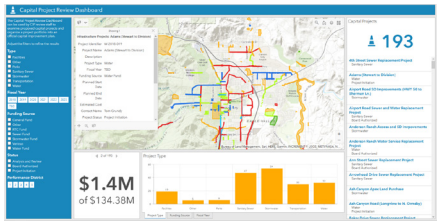
Real-Time Monitoring
Continuously monitor a building's performance.

Sustainability Life-cycle Assessments
Track energy usage, operational and embodied carbon, greenhouse gas (GHG) emissions and adherence to sustainability standards like net zero and LEED®.

Predictive Maintenance and Troubleshooting
Quickly identify and resolve issues and detect potential problems early to reduce downtime and maintenance costs.

Optimize
Utilize space more efficiently, ensuring every square foot is optimized for comfort and productivity.

Compliance
Collect building data throughout project life cycles to ensure compliance with standards.



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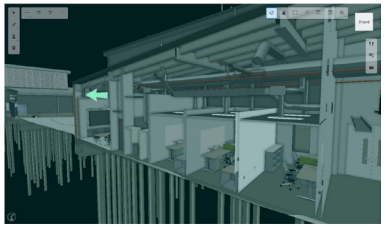
CASE STUDIES



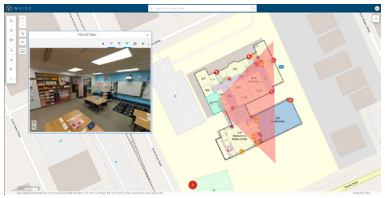
Tyndall Air Force Base

Tyndall AFB, Panama City, Florida

Michael Baker has played a significant role in supporting Tyndall Air Force Base with digital twin technology. As part of the Tyndall Reconstruction Program, Michael Baker, in collaboration with the Baker-Stanley-Cardno Joint Venture (BSC JV), provided architecture and engineering services to repair, reshape and rebuild the base after it sustained severe damage from Hurricane Michael in 2018.

The Tyndall Reconstruction Program, valued at $3.8 billion, involved the design and construction of 120 new facilities and the renovation of 34 existing ones across various disciplines. Michael Baker used BIM to integrate design, construction and asset management information into a comprehensive 4D digital twin model of the Tyndall AFB reconstruction program. This model can be updated on an ongoing basis, ensuring that the base remains resilient, efficient and sustainable.





Indoor Mapping

Michael Baker's indoor mapping solutions are designed to provide building owners with comprehensive and innovative tools to manage their properties more efficiently and make informed decisions about maintenance, renovations and overall building management. By leveraging advanced geospatial technology, our indoor mapping services offer detailed 2D and 3D virtual representations of interior spaces.

Indoor mapping allows building owners to visualize and monitor their assets in real-time, ensuring optimal use of space and resources. Also, indoor mapping can be used to enhance public safety through scenario modeling, enabling better emergency preparedness.

In addition, Michael Baker's indoor mapping solutions support sustainability and compliance efforts. By providing accurate and up-to-date information on energy usage, space utilization and environmental impact, our services help building owners meet regulatory requirements and achieve sustainability goals.