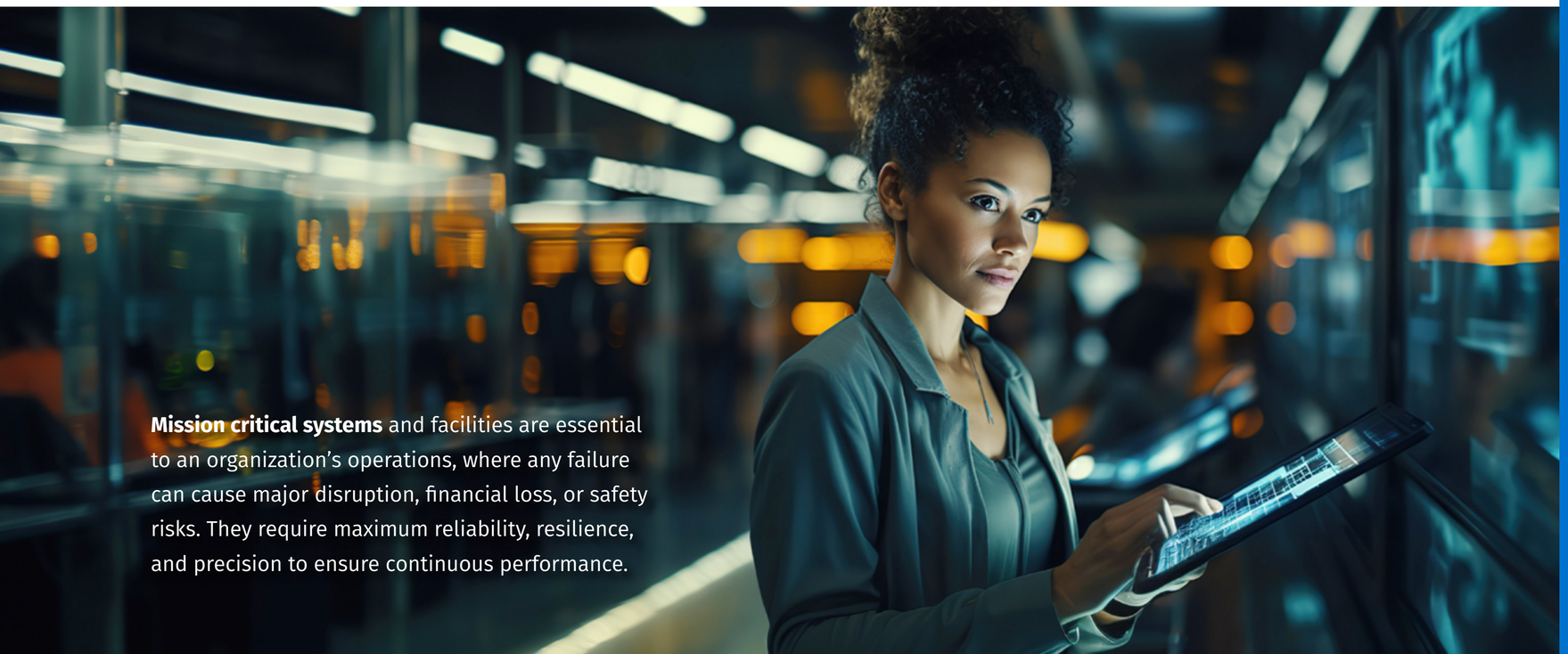
Trinity Consultants

AN INTRODUCTION TO

Data Center Expertise

WORKINGBUILDINGS | CERAMI | LONGMAN LINDSEY | VALCOUSTICS | JAFFE HOLDEN

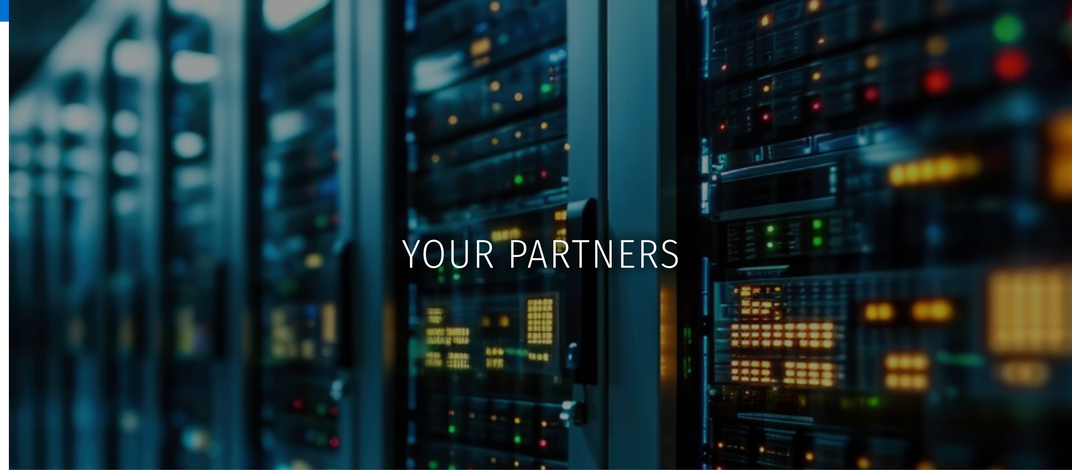


Mission critical systems and facilities are essential to an organization's operations, where any failure can cause major disruption, financial loss, or safety risks. They require maximum reliability, resilience, and precision to ensure continuous performance.

WHO WE ARE

Trinity Consultants' Built Environment Pillar unites industry-leading firms — Cerami, Longman Lindsey, Valcoustics, Jaffe Holden, and WorkingBuildings — to elevate how people experience, interact with, and depend on the spaces around them. Their collective expertise spans acoustics, audiovisual and IT systems, commissioning, and operational support. With a strong emphasis on technical mastery and human-centered design, these firms have delivered impactful solutions across mission-critical environments and cultural landmarks. From Cerami and Longman Lindsey's decades of acoustic and AV innovation to Valcoustics' science-driven noise and vibration expertise in Canadian infrastructure, and Jaffe Holden's celebrated contributions to performing arts acoustics, the pillar integrates exceptional talent to redefine built environments globally.

This unified force is complemented by WorkingBuildings, specialists in commissioning and operational performance for complex facilities like hospitals, biotech labs, and data centers. Their proprietary CxAlloy platform ensures seamless quality assurance from design through operations. Together, these firms offer end-to-end solutions that balance aesthetic, acoustic, and functional demands — ensuring spaces sound better, work smarter, and perform flawlessly. Whether fine-tuning an auditorium's acoustics or safeguarding compliance in life sciences, the Built Environment Pillar turns complexity into clarity with precision, innovation, and purpose.



YOUR PARTNERS

PLANNING PHASE

Needs Assessment:
Define purpose, capacity, scalability, and compliance requirements

Budgeting and Funding:
Determine costs (CapEx & OpEx) and secure funding

Stakeholder Alignment:
Identify key stakeholders and align expectations

Site Selection / Due Diligence Phase:
Fiber / service provider diligence – fiber feasibility & constructability, security macro threat assessment, acoustics codes/noise review

Master Planning / Site Enablement:
Campus connectivity master Planning (carrier access vaults, manholes, ductbank infrastructure, campus / building distribution pathways), threat assessment & perimeter security planning, scoustics community considerations

DESIGN PHASE

Campus and Building Design:
Outside plant pathways and cabling, security command centers, access control and video surveillance, operations/monitoring center

Architectural/MEP Coordination:
Space planning, equipment planning, resiliency and availability, power, cooling, fire protection requirements

IT Infrastructure Design:
Equipment rack layouts, network/ cabling architecture, ISP/OSP cabling

Security & Compliance:
Physical and cybersecurity, regulatory compliance

CONSTRUCTION & BUILD PHASE

Procurement:
Order equipment, hardware, infrastructure materials

Site Preparation:
Civil work, foundation, structural components

Installation:
Electrical systems, cooling, fire suppression, raised floors, racks

Integration:
Power systems, network infrastructure, monitoring systems

COMMISSIONING & TESTING PHASE

Systems Testing:
Verify functionality of power, cooling, and fire safety systems

IT Load Testing:
Simulate load and performance scenarios

Certification and Compliance Audits:
Confirm standardslike Tier levels or ISO compliance

Final Walkthrough and Acceptance:
Client/management approval for production handoff

OPERATIONS PHASE

Monitoring and Management:
24/7 NOC, DCIM tools, predictive analytics

Maintenance:
Preventive and corrective maintenance of hardware and infrastructure

Security Operations:
Access control, surveillance, and policy enforcement

Capacity Planning and Scaling:
Continuous evaluation for future upgrades

DATA CENTER EXPERTS

Acoustics, Technology, and Security

With extensive expertise in mission-critical environments, the team provides integrated acoustics, technology, and security consulting tailored to the unique operational demands of data centers. Advanced acoustical design ensures compliance with ANSI/ASA and ISO standards for noise and vibration control, mitigating the impacts of high-capacity cooling equipment, standby generators, and MEP systems to protect sensitive IT infrastructure and maintain occupant comfort in adjacent areas. Using predictive modeling and on-site measurements, the team addresses sound power levels (SPL), transmission loss (TL), and vibration criteria (VC) to reduce risk and deliver a quiet, stable operating environment.

The technology and security consulting practice integrates physical and digital layers of protection to safeguard uptime, data integrity, and overall facility resilience. Expertly designed and implemented structured cabling systems, network infrastructure, and audiovisual (AV) solutions align with Tier-level expectations and Uptime Institute standards. Comprehensive physical security strategies — including perimeter hardening, IP-based CCTV surveillance, access control systems and security operations centers — support zero-trust policies and regulatory compliance (e.g., PCI DSS, ISO/IEC 27001).

Leveraging thorough risk assessments, advanced analytics, and a collaborative, end-to-end approach, the team delivers secure, high-performance, and future-ready data centers that meet the industry's most rigorous operational and regulatory requirements. Advanced acoustical design ensures compliance with ANSI/ASA and ISO standards for noise and vibration control, mitigating the impacts of high-capacity cooling equipment, standby generators, and MEP systems to protect sensitive IT infrastructure and maintain occupant comfort in adjacent areas. Using predictive modeling and on-site measurements, the team addresses sound power levels (SPL), transmission loss (TL), and vibration criteria (VC) to reduce risk and deliver a quiet, stable operating environment.

DATA CENTER EXPERTS

Commissioning and Sustainability

With decades of unmatched expertise, our team delivers excellence in the highly specialized field of data center commissioning (Cx). Mission-critical systems — including mechanical, electrical, and plumbing (MEP) infrastructure, uninterruptible power supply (UPS), backup generators, building automation systems (BAS), and building management systems (BMS) — are rigorously tested and verified to operate as designed, ensuring uptime and meeting stringent owner project requirements (OPR).

From design reviews through integrated systems testing (IST) and turnover, a comprehensive, phased approach identifies single points of failure, mitigates risks, and delivers optimal reliability, redundancy (N, N+1, 2N), and energy efficiency (e.g., improved Power Usage Effectiveness, or PUE) throughout the facility lifecycle. For hyperscale, colocation, enterprise, and edge data centers, the tailored Cx process aligns all stakeholders — including design engineers, contractors, and operations teams — and achieves results that exceed industry benchmarks for mission-critical environments.

The proven methodology not only validates system performance under both normal and failure modes but also equips owner-operators with detailed commissioning reports, training, and operational documentation to sustain reliability and efficiency long after substantial completion. Clients rely on this expertise to enhance operational continuity, minimize mean time to repair (MTTR), optimize energy performance, and meet sustainability and compliance targets, all while maintaining aggressive construction schedules and budget constraints. With a relentless focus on QA/QC, risk mitigation, and collaboration, this team serves as a trusted partner in delivering Tier-certified, resilient, and future-ready data centers.

DATA CENTER TECHNOLOGY DESIGN CAPABILITIES

By working in genuine collaboration with you, we will identify the areas where our expertise delivers the greatest value. Together, we will design a tailored solution that aligns precisely with your unique needs and objectives.

Our services may include:

- **End-to-end solutions** – Comprehensive support from concept to completion
- **Single-stage services** – Focused expertise to address specific challenges
- **Multi-stage solutions** – Integrated delivery across key project phases
- **Single-discipline offerings** – Targeted support in a specialized field
- **Multi-disciplinary approaches** – Coordinated expertise across multiple domains

OUR EXPERTS

As global digital demand continues to grow exponentially, data center development is scaling at an unprecedented pace. Our team delivers integrated engineering, commissioning, and specialty consulting services tailored to the data center industry — ensuring regulatory compliance, high-performance design, and operational excellence. Expertise includes acoustics and noise control, technology and audiovisual (AV) systems design, physical security consulting, and comprehensive commissioning of mission-critical systems to validate performance and reliability.

Trusted by some of the world's largest technology companies, the team's expertise continues to evolve alongside this dynamic and mission-critical sector. With a deep understanding of the regulatory, operational, and technical complexities unique to data centers, their holistic solutions support resilient, sustainable, and future-ready growth. When it comes to data centers, Trinity Consultants is the partner of choice.

OUR TEAM

Peter Babigian, PE, RCDD, LEED AP

Director - Client Development and Technology

Peter heads the technology group's consulting business, leading a team of 35+ experts in AV, IT and Security. With innovative technology strategy, thought leadership, design solutions and true client centric partnerships, Peter's technology team has designed IT infrastructure for multiple hyperscale data centers and other facilities. Peter is our subject matter expert for technology strategy, visioning, and design best practices for every market sector from mission-critical data centers and trading floors to million-square-foot headquarters facilities for top global companies.

EMAIL ME

Joshua Cassarino

Associate Principal - Acoustic Design

Josh brings more than a decade of experience in data center and on-site power generation design and construction. As the data center acoustics lead for Trinity Consultants' Built Environment group, he partners with leading hyperscalers and colocation providers across the country, guiding projects from due diligence through site commissioning. He has worked closely with sound attenuation manufacturers to develop innovative solutions that enable densification without compromising acoustic performance or airflow. His technical leadership and cross-disciplinary approach make him a vital contributor to the development of high-performance infrastructure.

EMAIL ME

Ron Provost, RCDD

Associate Principal - Technology Design

Ron is a seasoned technology infrastructure designer with over 25 years of experience managing multi-million dollar network transport installations, particularly for financial institutions, data centers, and other critical facilities. Ron creates detailed telecommunication system designs based on both industry standards, as well as the established needs of each project. He is focused on providing strategic insight, especially on the impact of IP-related convergence on IT infrastructure, and guidance on efficiencies and best practices.

EMAIL ME

Carmen Danescu, RCDD

Associate Principal - Technology Design

Carmen is our security and IT infrastructure lead, designing sophisticated security systems to safeguard staff and property and IT infrastructure to support current and future building needs, tailored to specific client needs, and foresight. With 25+ years managing security and multi-disciplinary projects for facilities of all types, including office buildings, hotels, and airports, research labs and manufacturing, she is a fount of knowledge regarding access control, security cameras, video surveillance, and sensors.

EMAIL ME

OUR TEAM

ACOUSTICS & TECHNOLOGY

Janear Collins

Senior Associate - Technology Design

Janear is a Senior Associate with over five years of installation and more than ten years of design and project management experience in Audiovisual, IT, and Security systems. He brings deep expertise in the design and implementation of critical infrastructure for data centers and other mission-critical facilities across the U.S., ensuring systems are robust, secure, and future-ready. Janear plays a key role in delivering integrated AV, IT, and Security standard design, control, and risk mitigation protocols that align with industry best practices and client-specific requirements.

EMAIL ME

Victor Alfonso Hernandez

Senior Associate - Technology Design

Victor is a Senior Associate with over eight years of experience as a technology consultant, specializing in AV, IT, and security systems for data centers and other mission-critical facilities. He brings strong expertise in managing and coordinating large-scale construction, interior renovation, and corporate relocation projects, with a focus on delivering resilient, high-performance infrastructure. Victor is skilled in strategic planning, project budgeting, and overseeing day-to-day project deliverables and implementation.

EMAIL ME

OUR TEAM

Cody Fincher, P.E.
Commissioning Authority

Cody is a professional engineer and has been involved with the installation, design, construction, and commissioning of electrical systems for over 18 years, 15 of which have been spent with WorkingBuildings. Cody has provided electrical and fire/life safety commissioning services in data centers, hospitals, laboratories, and government facilities. Cody has worked directly for the General Contractor to support, lead, schedule, and manage the QC and commissioning process on multiple large, fast-paced data centers. Cody is active in 7x24 Exchange events to keep abreast of current trends in the data center industry.

EMAIL ME

Tony Martin, PE, CCP CXA, CEM LEED AP
Director – Commissioning

Tony is a professional engineer with more than 23 years of experience with mechanical systems, 20 of which have been spent with WorkingBuildings. He serves as WorkingBuildings' Director of Healthcare services. In this role, he provides oversight and technical direction for commissioning and energy use analysis for a variety of facility types including hospitals, clinics, and compounding pharmacies.

EMAIL ME

Jesse Pressley
Mechanical Commissioning Authority

Jesse is a Mechanical Commissioning Authority for WorkingBuildings. He routinely performs design reviews and sequence verification and functional testing.

EMAIL ME

Chandler Cochran
Assistant PM/Mechanical Commissioning Authority

Chandler is a Mechanical Commissioning Authority for WorkingBuildings. Chandler develops functional performance test scripts and pre-energization/post energization tests for multiple engineering disciplines and HVAC/Electrical equipment, reviews construction documents and specs for all functional testing to ensure equipment operates as desired and specified by owner, architect, and design engineers, and writes and designates installation issues for equipment, to signal to the contractor responsible that changes need to be made to ensure the project is completed on time and deficiencies are resolved.

EMAIL ME

OUR TEAM

Jesse Roach
Electrical Commissioning Authority

Jesse is an electrical commissioning authority for WorkingBuildings for six years, and has been involved with the installation, design, and commissioning of electrical systems. Jesse has provided electrical, fire/life safety and security commissioning services in data centers, laboratories, and hospitals. Jesse is an Army veteran with experience maintaining and repairing the AH-64D (Apache) airframe electrical, avionics and armament systems.

EMAIL ME

Imran Rustam
Senior Electrical Commissioning Authority

Imran has been involved with the installation, design, and commissioning of electrical systems for over 12 years, six of which have been at WorkingBuildings. Imran has provided electrical, fire/life safety, security and access control system commissioning services in data centers and mission critical facilities. Imran has expertise in leading factory acceptance testing, onsite functional performance testing of electrical systems, and working knowledge of both low voltage and medium voltage, normal and emergency power distribution systems.

EMAIL ME

Kendric Roberts
Mechanical Commissioning Authority

Kendric is a Mechanical Commissioning Authority with WorkingBuildings. He performs Level 4 commissioning on data center projects, executing commissioning activities on all mechanical equipment. Kendric performs functional, static, and dynamic testing of all mechanical systems, prepares punch lists reports, and determines corrective measures for on-site problems. He coordinates with general contractors, subcontractors, and vendors to ensure operational standards of equipment. He reviews project drawings and submittals.

EMAIL ME

Scott Stilwell
Senior Commissioning Project Manager

Scott is a Senior Commissioning Project Manager with WorkingBuildings. Scott has over twenty years of experience managing critical environment and facility activities. His experience includes managing capital improvement and repair projects and assessing facility equipment and process techniques.

EMAIL ME

OUR TEAM

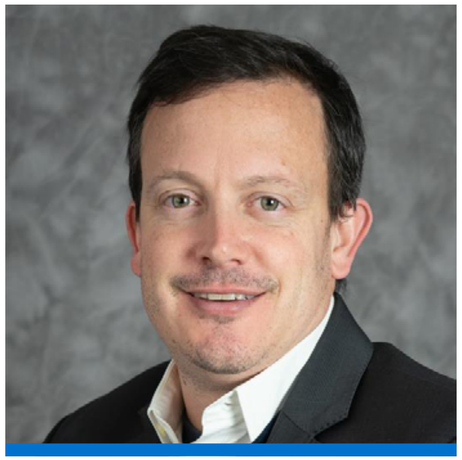
COMMISSIONING & SUSTAINABILITY

John McFarland, PE, CCP, CEM, LEED AP BD+C

Principal – Commissioning

As a Principal at WorkingBuildings, John manages and provides Commissioning, Sustainable Consulting and Building Quality Assurance Services for a wide variety of projects including state-of-the-art data centers, educational facilities, office buildings, and research facilities.

EMAIL ME



Ross Wallace, LEED AP BD+C & ND

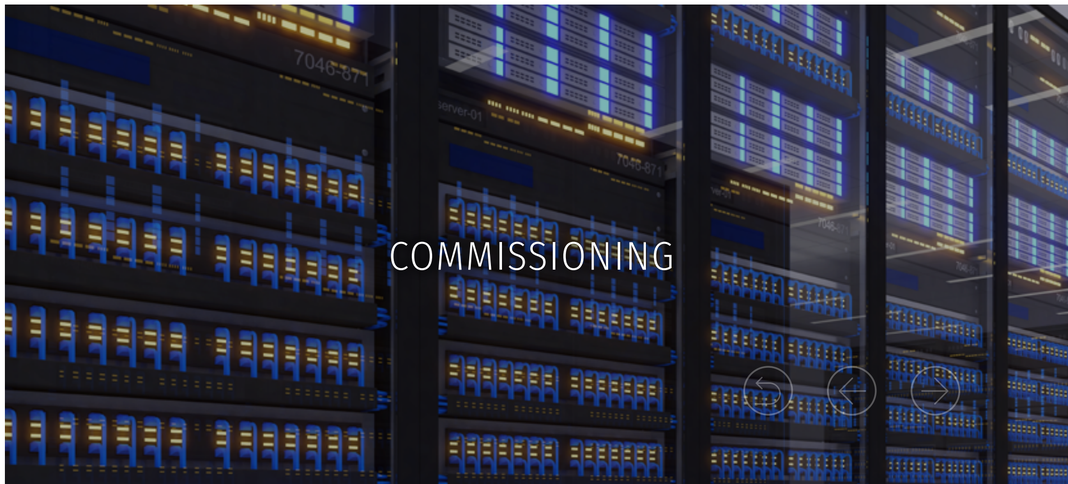
Senior Sustainability Consultant

Ross is a leading multi-disciplinary designer and sustainability consultant working to drive best practices across the built environment. He has over nine years of experience providing sustainability services and has worked on over 130 LEED certified projects.

EMAIL ME

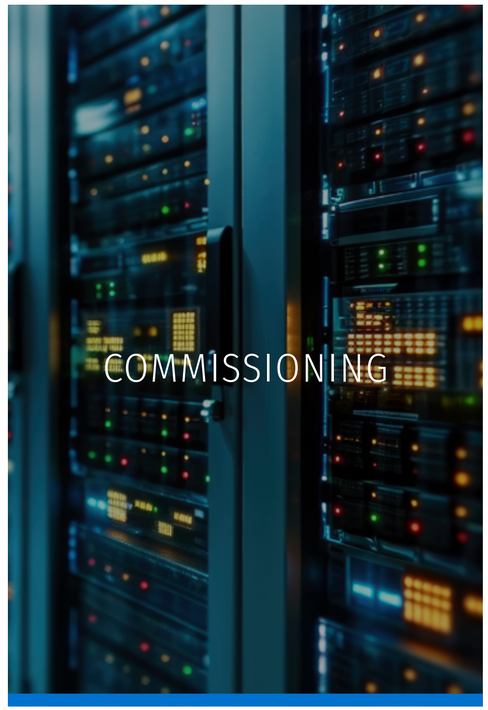
DATA CENTER EXPERTISE

Trinity Consultants delivers specialized expertise in the built environment for data centers, integrating acoustics, AV/IT, and security solutions to support resilient, high-performance facilities. Our multidisciplinary approach ensures operational continuity, compliance, and scalability across hyperscale, colocation, and enterprise data center projects.



OUR EXPERTISE

Our team of data center experts serves as a trusted partner throughout the entire construction lifecycle — from initial design and strategic planning to on-site coordination, system integration, and project closeout. We bring deep technical knowledge, cross-disciplinary insight, and a commitment to excellence that ensures every phase delivers on performance, efficiency, and long-term value.



PLANNING AND DESIGN EXPERIENCE

CONFIDENTIAL HYPERSCALE AI DATA CENTER

2GW+ OVER 3 CAMPUSES

CONFIDENTIAL FINANCIAL DATA CENTER

40MW

CONFIDENTIAL HYPERSCALE DATA CENTER

400MW+

CONFIDENTIAL CAMPUS AND DATA CENTER

1M+ SF

COMCAST TECHNOLOGY AND DATA CENTER

10MW

CONFIDENTIAL CLIENT

40MW

CONFIDENTIAL DATA CENTER

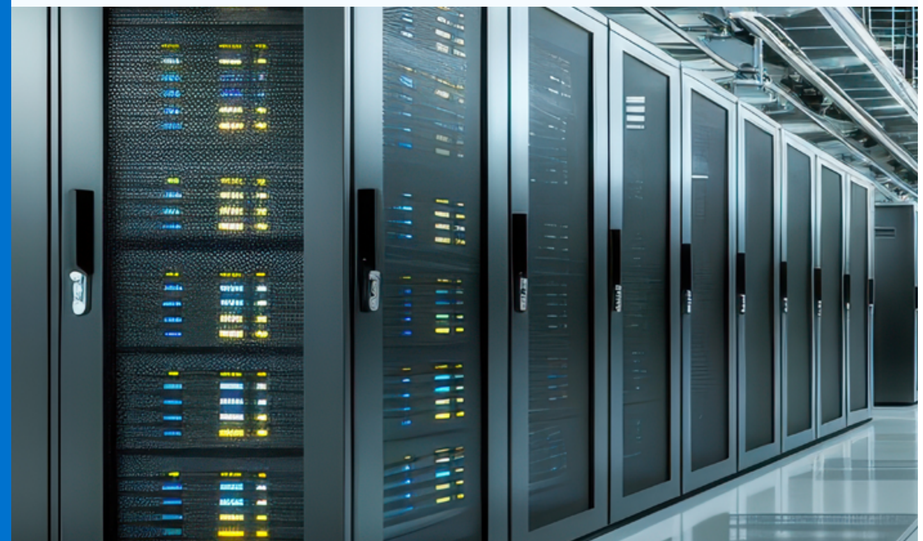
30MW

CONFIDENTIAL CLIENT

Hyperscale AI Data Center

CAPACITY

2 x 1 GW Campuses
2 x 240 MW Campuses
1 x 120 MW Campus



SUMMARY

Trinity was selected as the provider for telecommunications master planning, pathways design and cabling design for a client building multiple new data centers both on their property and in leased colocation campuses. Trinity is under a multi-year contract with this confidential client and its Architects/Engineers-of-Record to perform outside plant master planning, both campus and interior pathways planning and design, and structure cabling planning and design for several million-square-foot data center campuses.

We are providing full design for two large data center campuses each consisting of three areas, each consisting of two data center buildings containing over 40 rows of front-end and back-end network equipment at 40MW capacity, two substations, detached administration and warehouse buildings, with guard houses and perimeter security fencing. We are also providing outside plant master planning services for two data center campuses each consisting of two areas with two large data center buildings per area.

Our contract for these projects includes all MEP and civil engineering coordination, design of campus conduit duct banks, entrance facilities, and design of five-tier overhead cable tray system and all associated outside and inside plant low voltage cabling supporting fully redundant connectivity. Our responsibility includes full 3-D BIM design and modeling, and all cable pull and patch schedules.

In addition, our team is designing full pathways and cabling for three data center buildings of 250,000 SF each for our client to occupy as an expansion to a large existing colocation campus.sustainable, and future-ready data center growth.

CONFIDENTIAL CLIENT

Financial Data Center

CAPACITY

40 MW

SUMMARY

A premier global multimedia financial data and news organization retained Trinity to provide technology consulting and project management for a large regional data center to improve overall communications resiliency. The data center features 120,000 square feet of redundant data halls designed to 18.5KW/cabinet loads, three robust carrier entrance facilities, network operations center, and support office space.

Our team was responsible for designing and implementing the project to mitigate risk and provide this client with the ability to provide redundancy for the provision of customer-facing financial information services. Key stakeholders included the Network Operations Team (NOC), the Network Design and Information Systems Team (NDIS) and the Computer Center Operations Team (LAN/R&D). Our responsibilities included coordination of all interdependencies and requirements of these constituents. Our role on the project was focused on data center design and construction support. Our mission was to design the new facility and enhance communications resiliency, while ensuring outcomes met the expectations of the R&D and Networks groups to provide mission critical services to their clients.

This project included outside plant master planning and pathways design including all carrier/ISP interfaces, POE rooms, carrier rooms, multi-tier ladder racks and cable tray conveyances, all MEP coordination, BIM modeling and clash detection/resolution.

CONFIDENTIAL CLIENT

Hyperscale Data Center

CAPACITY

400 MW+

SUMMARY

Trinity participated in the program management, preconstruction and construction of multiple “Mission Critical” data centers totaling more than 100,000 SF within a campus setting. Our designs incorporated state-of-the-art energy efficient strategies. The master plan included site design & development; site utilities; critical infrastructure; utility substations; central utility plants; large scale generation plants; critical environment construction; office & support spaces; high, medium, & low voltage distribution systems & associated equipment; combined air & water side mechanical distribution systems, & multiple redundancy levels.

Trinity has provided commissioning services for this client at four separate campuses, assisted in delivering over 400MW of data center capacity. We have been involved in all aspects of QC and commissioning on these projects from Level 1 to Level 5.

CLIENT

Campus & Data Center

SQUARE FEET

1 Million+

SUMMARY

Our firm provided space planning, MEP requirements and coordination, infrastructure design, and construction administration for two large data halls. Our design included over 420 high-density (16 KW/cabinet) and medium-density (10 KW/cabinet) equipment cabinets to support mission critical broadcast and communication needs for a confidential client's tv, streaming services and other business units. Work included carrier entrance facilities, equipment rooms, and 40 telecommunication distribution rooms.

The scope of this very complicated project included full 3D pathways and spaces design and coordination, IT infrastructure, multi-tier ladder rack systems, hot aisle containment, high capacity fiber trunking, splicing, and distribution, as well as local UTP cabling.

We continue to provide IT, AV, security and acoustical consulting for our client's downtown NYC campus consolidation. Our ongoing consulting role includes developing the technology vision and strategy to combine many different business entities into one campus and integrating their disparate communication and collaboration solutions into a common platform. Our design and implementation oversight for 650,000 SF of workplace, 250,000 SF of broadcast, and over 140,000 SF. of amenity space. Our design objective for this project is to enable seamless collaboration between business units through technology solutions that facilitate a unified ‘always on’ operational culture.

CLIENT

Comcast Technology & Data Center

CAPACITY

10 MW

SUMMARY

To support Comcast and NBC live broadcasting requirements, we provided space planning, development of MEP requirements and complete design and construction administration for two redundant data center facilities within the headquarters building. The data center design included over 500 medium-density (10KW/cabinet) and high-density (15 KW/cabinet) cabinets. Our design included cabinets and cooling, high capacity spliced fiber, carrier entrance facilities, and connectivity to Comcast urban campus via conduits through underground tunnels. We also designed connectivity to other Comcast data center facilities, and “tether” equipment rooms and cabling to interconnect the new data center with the rest of the Comcast urban campus.

The new Comcast Technology Center is a rare mega project in Philidelphia that speaks directly to stakeholders, making it accessible to the public and casting Comcast as serving the public. As the technology consultants to Comcast, we handled Comcast’s communication technology and acoustic design and helped to synchronize their communications.

CONFIDENTIAL CLIENT

Data Center for Supercomputer

CAPACITY

40 MW

SUMMARY

Trinity supported a confidential client on the development of a $600 million supercomputer, which held the title of the world's fastest until 2024 and achieved exascale computing performance.

Commissioned systems included a 40 MW Central Energy Plant (CEP), a water-cooled supercomputer, and associated hydronic and air subsystems. The CEP featured pumps, cooling towers, and heat exchangers, while the supercomputer incorporated cooling distribution units, rear door heat exchangers, and innovative control strategies for high-efficiency cooling.

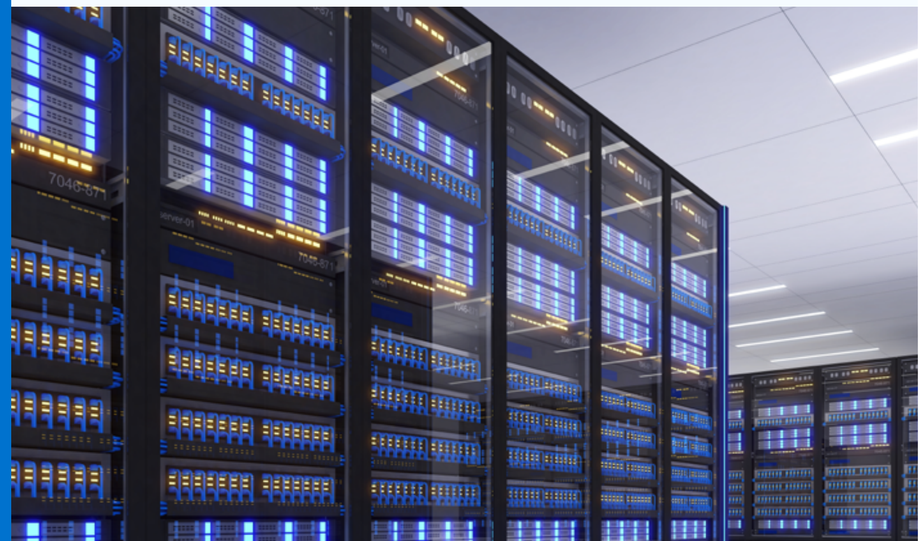
Trinity was proud to contribute to this groundbreaking, mission-critical project.

CONFIDENTIAL CLIENT

Data Center

CAPACITY

30 MW



SUMMARY

Situated in Ashburn, VA, this Confidential Data Center is the region's premier full-service facility, catering to businesses seeking space in a highly competitive geographic market. Our firm was selected as the acoustic consultant for this expansive 427,300 SF project. We provided comprehensive acoustical assessments for this site, in addition to supporting other locations nationwide.

COMMISSIONING

HYPERSCALE, MULTI-DATA CENTER CAMPUS – SOUTHEAST

250MW

"SWEET TEA" FACILITY - NATIONAL SECURITY AGENCY

10MW

CONFIDENTIAL HYPERSCALE MULTI-DATA CENTER

120MW

CVS CAREMARK 2100 DATA CENTER

~4MW

I TELLIGENCE DATA CENTER

~5MW

TIFT REGIONAL MEDICAL CENTER DATA CENTER

~3MW

CONFIDENTIAL CLIENT

Hyperscale, Multi-Data Center Campus - Southeast

CAPACITY

250 MW

SUMMARY

A hyperscale company constructing seven data centers across four sites engaged WorkingBuildings, part of Trinity Consultants, to support commissioning readiness and ensure that all systems would operate as intended. With downtime costs estimated at $1 million per minute, quality control and commissioning were critical to achieving the Tier 3 facilities' targeted 99.982% uptime, which included Tier 4 features like redundant power and cooling systems that allow for maintenance without disruption.

WorkingBuildings provided comprehensive electrical, mechanical, plumbing, fire alarm, fire protection, and security quality control and commissioning services for a new greenfield data center campus consisting of four buildings—each over 300,000 square feet and at least 60 MW in capacity, totaling more than 250 MW across the site.

WorkingBuildings supported commissioning activities across Levels 1 through 5, including documentation, scheduling, and the review of NETA testing reports throughout construction.

CLIENT

"Sweet Tea" Facility, Fort Gordon – National Security Agency

CAPACITY

10 MW

SUMMARY

WorkingBuildings provided electrical and mechanical commissioning for this data center facility. This (Tier III designed) data center was supplied by multiple UPS plants, multiple closed transition unit substations, and medium voltage (MV) generator paralleling gear. Static switches enhanced the redundancy throughout the data center at both the UPS and PDU level. Cooling for the data center was provided by two redundant chiller plants to supply chilled water to CRAC units spaced throughout the data center areas.

CONFIDENTIAL CLIENT

Hyperscale, Multi-Data Center Campus - Midwest

CAPACITY

120 MW

SUMMARY

A hyperscale company constructing seven data centers across four sites engaged WorkingBuildings, part of Trinity Consultants, to support commissioning readiness and ensure that all systems would operate as intended. With downtime costs estimated at $1 million per minute, quality control and commissioning were critical to achieving the Tier 3 facilities' targeted 99.982% uptime, which included Tier 4 features like redundant power and cooling systems that allow for maintenance without disruption.

This effort encompassed multiple projects across several sites, including a 120 MW data center spanning over 600,000 square feet—the largest on the campus.

WorkingBuildings provided electrical and mechanical commissioning services as part of a major expansion to the existing facility. Additionally, our team provided QC & Cx of independent modular electrical buildings.

CLIENT

CVS Caremark 2100 Data Center

CAPACITY

~4 MW

SUMMARY

A leading provider of prescription coverage for employees of businesses, health plans, unions and state and local governments across the U.S. planned to build a new data center and office building adjacent to its company headquarters. The pharmacy benefits provider has long been committed to sustainable design and construction, having incorporated LEED standards and best practices in sustainability into the design and construction of new buildings for more than a decade now. Therefore, the company sought LEED certification for the office portion of the project.

To support this effort, the provider engaged WorkingBuildings, part of Trinity Consultants, to perform Level Four (L4) and Level Five (L5) commissioning services to help prevent long-term maintenance issues and wasted energy, ensuring that the data center and office would operate efficiently and effectively over the life of the building.

With the commissioning process critical to ensuring high performance, the company wanted to proactively identify any design and construction issues related to the building's mechanical, electrical, fire alarm, fire protection and plumbing systems. Better system performance not only optimizes data center performance, but also decreases energy consumption and operation and maintenance costs while increasing availability and safety—all of which were key goals for the company.

CLIENT

I telligence Data Center

CAPACITY

~5 MW

SUMMARY

To support current and future growth, a confidential client acquired an eight-acre site in Blue Ash, Ohio, and initiated construction on a 70,000-square-foot office building alongside a 16,000-square-foot data center.

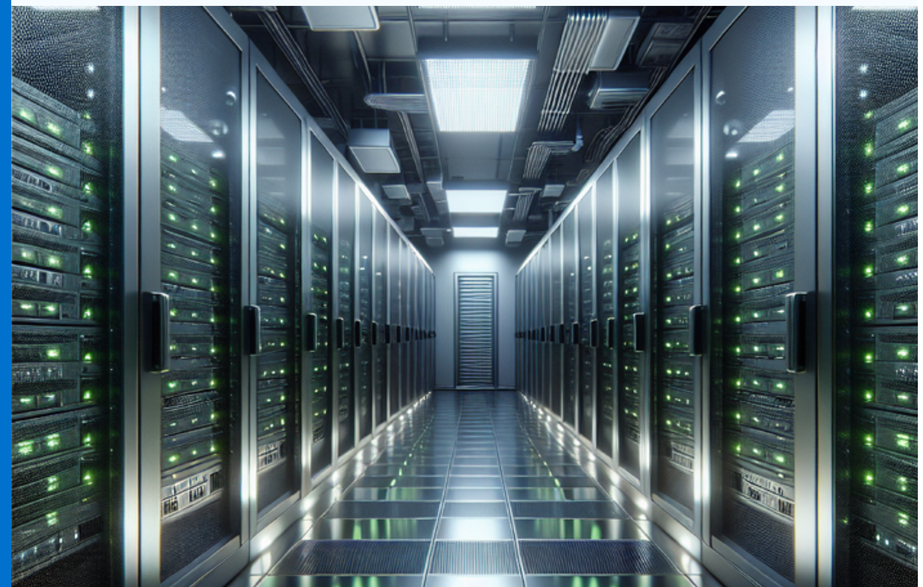
WorkingBuildings provided commissioning services for the mechanical, electrical, fire alarm, and fire protection systems serving the 16,000-square-foot data center and adjacent office facility. The data center was designed with 2N electrical and mechanical redundancy, in-row rack cooling, variable flow chilled water systems, and gaseous fire suppression.

CLIENT

Tift Regional Medical Center
Data Center

CAPACITY

~3 MW



SUMMARY

WorkingBuildings provided electrical commissioning authority (CxA) services for this 15,000-square-foot enterprise data center. The facility is powered by dual UPS systems and supported by three backup generators through paralleling switchgear.

Designed to support critical IT infrastructure, including Computerized Patient Order Entry systems, the data center includes office and conference space, essential utility systems, and 4,300 square feet of raised floor dedicated to server equipment.

Classified as a hardened facility, the data center was built to ensure a secure and resilient environment, featuring specialized climate control, enhanced security measures, redundant systems, and structural reinforcement to withstand extreme weather conditions, including hurricane-force winds.

OUR SERVICES

At Trinity, we partner with clients across the full data center project life cycle, beginning with strategic design and site planning that lays the foundation for long-term performance and resilience. Our team collaborates early to align on project goals, optimize site layouts, and anticipate critical infrastructure needs. We bring specialized expertise in acoustics, helping to mitigate noise and vibration from mechanical and electrical systems, ensuring compliance and protecting sensitive equipment. Our sustainability-focused approach integrates efficiency and environmental performance into every phase, helping clients meet energy goals, reduce operating costs, and align with evolving regulations.

As the project progresses, we deliver integrated technology consulting—spanning structured cabling, network infrastructure, and physical security systems—to support uptime, scalability, and Tier-level expectations. Our commissioning (Cx) experts rigorously test and validate systems through every stage, from design reviews to integrated systems testing and closeout, ensuring each component performs as intended under real-world conditions. With a collaborative, hands-on approach, Trinity serves as a long-term partner—not just through project delivery, but in building the foundation for scalable, future-ready data center operations.

ACOUSTICS, TECHNOLOGY AND SECURITY SERVICES

Acoustic Design

- Acoustics and Vibration
- Architectural, Building Services and Interior Acoustics
- Mechanical Noise & Vibration Control
- Sound Masking and Acoustic Privacy
- Data Center Acoustic and Vibration Analysis
- Data Center Environmental Analysis
- Structural Dynamics
- Vibration Analysis and Control
- Environmental Assessments
- Community and Industrial Noise Control
- Monitoring for Transportation and Construction
- Acoustic Simulations
- Code Analysis and Compliance
- Impact Analysis
- Troubleshooting

Audiovisual

- Video Walls and Large Format Displays
- Network Operations/ Control Center Design
- Shared Conferencing Solutions
- Background Music and Paging Systems
- Cable/Satellite Television Distribution
- Digital Signage
- Digital/Video Wayfinding

Computational Fluid Dynamics (CFD) Modeling

- Analyze the data center airflow management and data center design
- Predict airflow and temperature distributions in data centers
- Assess data center layout and performance and validate any proposed design changes
- Identify hot spots or regions outside any acceptable temperature range
- Predict the effectiveness of cooling varying IT layouts and determine the feasibility of supporting proposed cabinet deployments
- Perform dispersion analysis of auxiliary equipment to determine the concentrations of pollutants

Technology Infrastructure

- Strategy and Advisory Services
- Program Management
- Outside Plant Pathways and Cabling Design
- Data Center Pathways and Cabling Design
- Predictive Wireless Performance Modeling
- Power over Ethernet (PoE) Lighting
- "Smart Building" Systems
- Integrated Building Network Systems
- High-Performance Wi-Fi and Distributed Antenna Systems
- Data Center, Trading Floor and Mission Critical Facilities
- Regional, Municipal and Campus Telecommunications Master Planning

Sustainability

- LEED Certification
- WELL Building Standard
- GHG Emissions Management
- Life Cycle Analysis and Carbon Footprint Development
- Energy Management
- CDP Verification and Assurance
- Digital Solutions

Security

- Threat Assessment
- Risk Mitigation Strategies
- Electronic Security System Design
- Access Control
- Video Surveillance
- Visitor Management/ Visitor Experience
- BioMetric, Facial Recognition
- Authentication

ICT CONSIDERATIONS/ DELIVERABLES

ICT SYSTEMS

To ensure seamless integration and optimal performance, our comprehensive consultancy services will take your design intent and apply it to the specific building characteristics which will include:

- User engagement and requirements capture
- Independent technical assurance
- Technical specification and design
- Trusted advisor for installer appointment and through construction
- Peace of mind for successful handover

MAIN ICT AREAS COVERED

DATA CENTER

Data Center Design (ICT)

Data Center Strategy

Data Center Migration

Due Diligence

Feasibility and Risk Assessment

INTEGRATION WITH OTHER OPERATIONAL BUILDING SYSTEMS

Mechanical and Electrical

Civil - Structural - Architectural

BMS and EPMS

CONTAINMENT STRATEGY

Containment Fill Ratios

Labeling Strategy

Access Strategy

Installation Standards

Earthing

ACTIVE INFRASTRUCTURE

Active Network Switching

Manufacturer and Performance Specifications

Firewalls and Routing Design

WiFi Infrastructure

Cyber Security Principles

OUTSIDE PLANT

Labeling and Construction Standards for CVs and OSPs

Design Standards for POE locations

TECHNOLOGY SPACE DESIGN AND INSTALLATION DETAIL

MMR

IDF’s and IDAs

NOC

LEVELS OF COMMISSIONING

DESIGN AND PLANNING

Formation of a Competent and Dedicated Commissioning Team

Development of a Comprehensive 100% Design

Performing Design Reviews

Conducting Single Point of Failure Reviews

Establishment of a Clear Commissioning Process

Conducting Productive Meetings and Workshops

Discussion and Agreement on Commissioning Document Expectations

Defining and Agreeing Upon Requirements for Factory Testing

Create, Issue, and Approval of Commissioning Documentation

FACTORY WITNESS ACCEPTANCE TESTING

Identify for correction every defect in equipment and components BEFORE leaving the manufacturing site.

Level 1 is identified on eachpiece of equipment completed and passed Level 1 Factory Testing and QA/QC checks.

INSTALLATION VERIFICATION

Review Quality Assurance / Quality Control procedures then carefully inspect equipment and observe field installation and implementation of the QA/QC of all equipment and services.

Level 2 is identified to signify the completion of component delivery, installation, and pre-start up activities.

START-UP AND PRE-FUNCTIONAL TESTING

Confirm all L3 documentation is complete, develop prefunctional checklists and compare consistency with CM and subcontractor and ensure completeness and comprehensiveness, then witness startup/ energization and L3 testing events.

Level 3 is identified for commissioning. The data center enters the pre-commissioning and pre-functional energization and systems start up phase at this stage.

FUNCTIONAL PERFORMANCE TESTING

Inspect critical equipment and systems to confirm readiness by functional testing then observe performance in all conditions.

Level 4 is identified after functional testing works have been completed on the equipment and associated systems.

INTEGRATED SYSTEM TESTING (IST)

After authoring the Methods of Procedure, observe testing and complete reliability of the integrated systems.

No identification is required for level 5 work.

CLOSE OUT

Review O&M manuals and verify completeness, review training documentation, participate in lessons learned, and provide Final Commissioning Report

We have experience performing expert consulting services all across the U.S. and Canada

RETURN TO BEGINNING