RT ENVIRONMENTAL & CONSTRUCTION PROFESSIONAL

CONSTRUCTION PROFESSIONAL LIABILITY RISK PROFILE

DATA CENTERS

All contractors face professional liability exposure due to the services they provide. For some, professional services may include actual engineering, inherent construction management or field modifications to plans and specifications. For others, it is simply inherent or actual construction management or field modifications. What determines the extent of exposure is the type of contract and project delivery method under which the contractor is engaged and the services they are contracted to perform. This professional liability risk profile presents potential professional risk associated with Data Centers.

DEFINING CHARACTERISTICS

Data centers require highly specialized engineering, strict environmental controls, and complex integration between mechanical, electrical, cooling, and automation systems. Unlike traditional construction, data center projects often begin with incomplete or evolving design documents, fast-tracked schedules, and intensive commissioning processes. This creates elevated professional liability exposure for contractors, engineers, design-builders, and specialty trades.

Professional services may include mechanical/electrical/plumbing (MEP) engineering, redundancy planning, energy modeling, fire protection engineering, controls programming, commissioning, and construction management. Because owners depend on extremely high reliability (N, N+1, 2N systems), even small design or coordination errors can lead to major economic losses, increasing the risk of professional liability claims.

POTENTIAL PROFESSIONAL LIABILITY EXPOSURES

DESIGN SERVICES

Responsibility for design services on data center projects may involve in-house engineers or subcontracted design professionals. Errors in HVAC load calculations, electrical distribution design, redundancy configurations, battery/uninterruptible power supplies (UPS) integration, or structural load capacity can result in overheating, downtime, or equipment damage. Even when design is subcontracted, the design-builder or general contractor (GC) often retains primary or vicarious liability for economic losses arising from negligent design services. Cross-over pollution claims may arise out of negligent design of water filtration and water processing.

SPECIALTY SUBCONTRACTORS

Many specialty subcontractors on data center projects perform both design and installation. MEP contractors often design critical cooling loops, chilled-water routing, or electrical pathways. Specialty trades such as fire suppression, controls integration, battery systems, generator vendors, and security/alarm installers frequently provide design elements within their scope. If their work contains errors, the design-builder or GC may assume vicarious professional liability for these negligent professional services.

SPECIFICATIONS

Data center projects frequently rely on performance-based specifications tied to uptime, redundancy, cooling capacity, and power density requirements. Contractors must design-build systems that meet these outcomes without prescriptive instructions. Errors in interpreting performance criteria, designing to required Power Usage Effectiveness (PUE) metrics, or meeting redundancy specifications can result in inadequate system performance or overheating. Early-phase construction is often performed with partially completed drawings (30-50%), increasing the likelihood that early design errors will cascade into later failures.

CONTACT

RT ECP | 2465 Kuser Road, Suite 202 | Hamilton, NJ 08690
Phone: (609) 298-3516 | Fax: (609) 298-6254 | Email: rtecp@rtspecialty.com
Or contact your local RT Specialty broker or underwriter.
rtspecialty.com

FIELD MODIFICATIONS

Changes made during construction such as rerouting ductwork, adjusting cable trays, altering generator sequence settings, or modifying cooling loops are professional decisions. Improper field modifications can compromise redundancy, airflow, or electrical load balance. Decisions made to save time or costs ("value engineering") can unintentionally reduce system capacity or violate design intent, creating professional liability exposure for design-builders and GCs.

BUILDING INFORMATION MODELING (BIM)

BIM is widely used to coordinate the dense mechanical, electrical, and cable infrastructure within a data center. Errors in BIM modeling such as incorrect clash detection, spatial coordination mistakes, or inaccurate digital equipment specifications may lead to installation conflicts, rework, delays, or system failures. Any resulting project delays or downstream system inefficiencies may trigger professional liability claims.

CONSTRUCTION MANAGEMENT (CM)

Design-builders and GCs inherently perform construction management functions even when not contracted explicitly for CM services. These activities include coordinating specialty trades, sequencing complex MEP tie-ins, validating shop drawings, overseeing commissioning steps, and ensuring system startup procedures follow design intent. Errors in managing these professional services can cause misinstallation, improper system integration, delayed commissioning, or failure to meet redundancy requirements, each of which may lead to professional liability allegations. Due to the size and scope of data center projects, coupled with the often remote locations where the they are planned, construction managers face even greater pressures when it comes to the scheduling and sequencing of often strained staffing resources.

CONTRACTUAL RISK

Contracts between design-builders, engineers, and specialty contractors may include limitations of liability (LoLs) for professional services. When LoLs cap a design professional's exposure to modest amounts (i.e., their fees), the contractor may remain responsible for substantial downstream damages resulting from design errors. This is especially critical in data centers, where uptime requirements and financial impacts of outages are high, and contractors protective coverage may not respond if damages exceed recoverable amounts from the design professional. While many data center construction contracts utilize mutual waivers of consequential damages, contractors are not immune to contractual risk.