STRANG

ARCHITECTURE ENGINEERING INTERIOR DESIGN //PERFORMANCE SPACE®

DESIGN & TECHNOLOGY

DATA CENTER FACILITY DESIGN

Strang's data centers and technology facilities are designed to meet our clients' rigorous requirements for security and survivability. We collaborate to design facilities to support and protect your operations, while meeting or surpassing building codes and standards. With our specialized expertise in computer/switch facilities, redundant building systems, and survivable design, we can help you execute your communication strategies with expedience and flexibility.

Special exterior facility components and features include:

SECURITY

/ "Building within a building" design provides up to three levels of security.
/ Card readers, fingerprint readers and retina scans.
/ Exterior with reinforced concrete block walls and laminated glass.
/ Enhanced on/off hours security through additional motion detection and closed circuit television.
/ SOX compliance assistance.

SURVIVABILITY

/ "Building within a building" design resists accidental or intentional attacks.
/ Maximum resistance through reinforced concrete block.
/ Switch/data center surrounded by two shells.
/ Pre-cast roof structure with three to four inches of poured concrete top.
/ Designed to handle Class 1 through 3 or 4 storms/tornadoes/hurricanes.
/ Lightning and ground protection.
/ Seismic-resistant (where applicable)

ADDITIONAL PROTECTIVE FEATURES

/ Exterior insulation system to prevent interior condensation.
/ Roofing with redundant systems:
  - Concrete topping
  - Two plies mopped vapor barrier
  - Modified Bituman, or built up roof over insulation.
  - Fire resistant "cap" sheet mopped in place
  - Concrete roof pavers interlocked for wind resistance and ice protection from surrounding taller structures
/ Water proofing by siting building away from any flood plain or storm water areas

REDUNDANT BUILDING SYSTEMS

Highly reliable building systems are absolutely imperative to maintaining continuous operations of telecommunication or computer facilities. Strang designs redundant building systems to provide the appropriate back-up for every vital system component, meeting and exceeding required tier ratings.

Strang's data centers and technology facilities are designed to meet rigorous requirements for survivability and security

Redundant building systems are vital to maintaining the continuous operations of tele/data buildings

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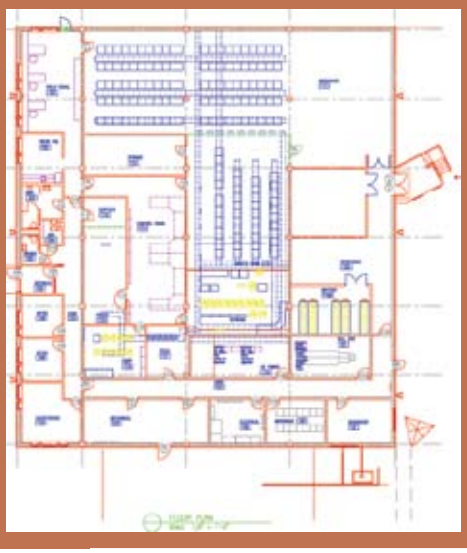

A “building within a building” design concept helps protect the switch from storm debris, falling ice, and unwanted intrusions. Entries to the control and switch area are protected by three levels of security. The telecommunications and mechanical/electrical service areas are accessible without compromising security. Building systems are redundant to at least one level, while the fire protection system alternatives include a dry system or FM200.

ELECTRICAL

/ Dual utility feeds.
/ Generators for backup power with uninterrupted power supply for short term.
/ Telephone fiber with protected dual entrances.
/ Grounding designed and tested for each site.
/ Cable management solutions.

HVAC

/ Redundant airhandlers, coolers or direct expansion coils.
/ Integrated systems to provide cooling to critical high density heat areas.
/ Digital controls to provide auto switch over to back-up system and monitor remotely via personal computer.
/ Controlled environment to meet specifications.
/ Refrigerant cooled cabinets.

FIRE PROTECTION

/ FM 200 or equivalent clean agent systems.
/ Pre-action sprinkler system requiring heat and smoke detection to activate at support spaces.
/ Dual solenoid valves for release.

ENERGY EFFICIENCY

/ Green data centers maximize efficiency through mechanical, electrical, lighting and computer systems.
/ More efficient cooling systems.
/ Heat reclaim when applicable.
/ Co-location solutions.
/ Efficient-equipment tolerances.

THERMAL MANAGEMENT

/ Typical layout with a raised floor and alternating hot and cold aisles.
/ Flexible cooling systems to adapt to technology changes.
/ Reducing leaks.
/ Refrigerant cooling systems.

Some of the important factors to consider for a data center construction project include:

/ Realistic timetables and budgets.
/ Data centers construction must be complete several months before staff occupies the space so systems and equipment can be properly installed and tested.
/ Flexible design with scalable growth path.
/ The architects and engineers must have experience with the technology industry to be familiar with each system, and the foresight to design the building with flexibility to adapt to future changes in technology.

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