



The future of data center construction in NYC: Trends, challenges, and innovation

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As demand for digital infrastructure accelerates, the New York City (NYC) Metropolitan Area has emerged as a key hub for data center development. However, developers, REITs, and facility managers are facing growing challenges, from power constraints and labor shortages to evolving cybersecurity risks and sustainability demands.

To understand the shifting landscape, contributing author, Andrea Mesis-Bruno, founder and president of D&A Construction Advisors, a consulting firm for commercial contractors and real estate developers sat down with Chris Nangano, director of Mission Critical at Doyle Construction, and shared insights into how the industry is adapting to meet the needs of hyperscale operators, corporate tenants, and commercial real estate investors.

Power Constraints and Grid Challenges

Power availability remains the primary bottleneck for new data center projects in NYC and other high-demand markets. “The major challenges facing the construction data center and mission-critical sectors today revolve around power generation and the sustainability of our electrical infrastructure,” said Nangano.

The strain on the electrical grid is only expected to intensify with the rise of AI-driven workloads and expanding cloud services. “As we look to the future, the pressing question remains: how will our grid support the increasing demands of data centers and the rise of AI technologies?” Nangano said.

This concern has driven closer collaboration between data center developers and power utilities, with REITs and facility managers prioritizing grid-ready locations and backup power solutions as part of their investment strategies.

The Role of PropTech in Sustainable Data Center Construction

In response to mounting energy concerns and environmental regulations, developers are increasingly turning to PropTech solutions to enhance sustainability and reduce power consumption. “In sustainable data center construction, integrating Power over Ethernet systems has shown promising results in reducing energy consumption while enhancing operational efficiency.” said Greg Silverman, VP of sales from MHT Technologies. “Our recent project at a high security data center for the State of NJ demonstrated the potential of PoE systems to meet stringent regulatory requirements and support environmental objectives. These technologies play a critical role in optimizing the use of resources and improving sustainability in data centers.”

Key innovations include:

- AI-driven energy optimization to reduce cooling demands;
- Smart building management systems (BMS) for real-time efficiency tracking;
- Digital twins to simulate and refine designs before construction begins.

By integrating these technologies at the construction stage, firms can minimize operational inefficiencies and streamline compliance with NYC’s evolving energy regulations. Paul Soames, owner of Ryan Soames Engineering advises developers, “The importance of understanding the electrical load, diversity and future expansion to meet incoming power demands as well as opportunities for renewable energy to support the system in consideration of LL97 requirements.”

Labor Shortages and Workforce Challenges

Despite strong demand for new projects, the shortage of skilled labor is creating delays and increasing costs.

“Qualified labor is a significant concern, not just on the field side but also in management. We need to address this gap to ensure project success,” said Nangano.

With an aging workforce and fewer young professionals entering mission-critical construction, developers must innovate in both recruitment and training.

“The industry is at a crossroads where we must innovate not only in technology but also in how we attract and retain skilled professionals,” he adds.

To mitigate this, leading firms are expanding apprenticeship programs, leveraging automation in construction, and incorporating modular prefabrication to reduce reliance on traditional labor-intensive methods.

Cybersecurity: A Growing Concern in Construction

While cybersecurity is typically considered an operational risk, it is becoming increasingly relevant during the construction phase as projects rely on cloud-based design tools, IoT-enabled site monitoring, and digital supply chain management.

“The threats to data centers are evolving. Any electronic device capable of pulling data poses a risk, and we must be proactive in our security measures,” said Nangano.

To address these vulnerabilities, developers are implementing:

- End-to-end encryption for design and infrastructure plans;
- Secure digital collaboration platforms for construction teams;
- Strict access controls to prevent unauthorized data exposure.

“Investing in secure, compartmentalized data centers is no longer optional; it’s a necessity for protecting sensitive information against cyber threats,” said Nangano.

The AI Boom and Its Impact on Construction Efficiency

AI is transforming how data centers are designed and built, allowing developers to streamline processes and reduce construction timelines.

“AI is revolutionizing our industry by enhancing efficiency in project management and construction processes. It’s about time we fully embrace these innovations,” said Nangano.

AI-driven solutions now enable:

- Predictive maintenance for on-site equipment;
- Automated materials tracking to prevent supply chain delays;
- Algorithmic scheduling to optimize workforce deployment.

“The integration of AI tools not only streamlines operations but also allows teams to focus on strategic decision-making rather than administrative tasks,” Nangano said.

REITs and the Future of Data Center Investment in NYC

Historically, commercial real estate investors prioritized office space and retail assets, but data centers are now viewed as high-value infrastructure investments.

“We are witnessing a significant shift in how real estate players view data centers, recognizing them as valuable assets comparable to traditional commercial spaces,” said Nangano.

This shift is reflected in major NYC REITs, such as:

- Vornado Realty Trust, which has been exploring data center partnerships;
- COLO providers such as Digital Realty and Equinix are expanding NYC-based assets;
- Blackstone and Brookfield, allocating capital to hyperscale developments.

“The post-COVID landscape has changed the game, and data centers are now at the forefront of investment strategies for many major real estate firms,” Nangano said.

The Road Ahead for Data Center Construction

Looking forward, the future of data center construction in NYC will be shaped by sustainability mandates, AI-driven efficiencies, and strategic power collaborations.

“As we adapt to emergency demands and sustainability changes, the future of data center construction will hinge on our ability to innovate and implement best practices,” Nangano concludes.

With power constraints, workforce challenges, and shifting regulations, developers and investors must remain agile to capitalize on the next generation of mission-critical real estate.

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