



[TRUMP's OLD POST OFFICE pavillion](#)



[OW MILLIONS OF TINY INSECTS COLORED GLOBAL TRADE](#)



[ERRY CHRISTMAS IN JULY, FROM SEKO LOGISTICS](#)
[View More Departments >](#)

[Find A Partner](#)
[Solutions](#)



[Commentary](#)

September 25th, 2026 | Written by Mark Plechaty

Rethinking Urban Industrial: Why Vertical Logistics Requires a Different Approach to Building in Dense Cities



The rise of e-commerce and last-mile delivery expectations has placed new pressure on industrial development. Consumers increasingly expect fast fulfillment, yet the land traditionally used for large logistics facilities sits farther from the dense urban centers where

demand is greatest. In cities, available parcels are smaller, more constrained, and often burdened by zoning limitations, flood risks, and aging infrastructure.

Read also: [Tariff Volatility Calls for a More Connected Logistics Network](#)

To close that gap, developers have begun building upward. Multi-story urban logistics facilities are emerging in major cities as a solution to land scarcity, particularly in places where long drive times and limited industrial space leave few alternatives. Yet these projects are not simply warehouses stacked on top of one another. They represent an entirely new building type, one that challenges long-held assumptions about industrial design.

Supply Chain Logistics Summit

Marcus Evans

November 5-6, 2026

The Ritz-Carlton Dallas,
Las Colinas | Dallas, TX

The future of urban logistics depends less on scaling conventional warehouse models upward and more on rethinking how these facilities are conceived, engineered, and delivered. What appears straightforward from the outside often conceals an unusual level of structural complexity, coordination, and long-term planning. That complexity becomes apparent the moment a warehouse floor leaves the ground.

Building Four Stories That Perform Like Fifty

Traditional warehouses spread horizontally across inexpensive land, allowing large footprint to absorb operational needs without placing unusual demands on structure. Urban sites remove that flexibility. To maximize capacity on constrained parcels, developers are forced to pursue multi-level facilities designed for heavy storage, truck access, and future tenant flexibility. The challenge is that the structural demands of these buildings can rival those of much taller structures.

A residential building is designed for a live load of 40 pounds per square foot. Urban logistic facilities, by contrast, may require 500 to 750 pounds per square foot to support forklifts, heavy storage, and varying tenant demands. At the same time, column spacing must remain wide enough to allow efficient circulation and racking systems. The result is a surprising reality: a four- or five-story logistics facility can generate structural loads comparable to those of a 50-story tower. Rather than applying standard warehouse assumptions, teams must recalibrate their thinking about efficiency.

One of the most effective strategies involves deep optimization of the “typical bay,” the structural module repeated throughout a building. Small refinements may seem insignificant in isolation, but when repeated hundreds of times, they can produce major project-wide savings. In steel systems, engineers often target the heaviest members for high-strength steel rather than applying it uniformly across all members. Doing so reduces tonnage where it matters most without significantly increasing costs.

Concrete systems have also evolved to meet these demands. Voided slab technologies, often referred to as bubble deck systems, eliminate unnecessary concrete mass in thick floor slabs by replacing unused material with recycled plastic voids. The outcome is a lighter structure requiring smaller columns and less demanding foundations. That optimization matters because urban industrial projects rarely occupy easy sites.

Difficult Sites Redefine the Project

Unlike suburban warehouses built on open land, urban logistics facilities often occupy constrained parcels near waterfronts, transportation corridors, or former industrial zones. Those sites bring complications. Many low-lying urban parcels sit within flood zones, requiring buildings to elevate operational floors well above grade. On some waterfront sites, flood projections may require facilities to raise slabs by seven feet or more to remain operational during storm events. Achieving that elevation introduces major logistical and cost considerations.

In some cases, teams temporarily import significant amounts of fill to support construction until permanent foundations take over. More often, poor soil conditions require deep foundations capable of bypassing weak upper layers to reach stable material far below ground. For many urban sites, the first several dozen feet of soil contribute little structural value.

That reality has pushed decision makers to coordinate closely with geotechnical team members to optimize foundation systems. Slight adjustments to pile depth or diameter can reduce the number of supports needed, resulting in meaningful savings when applied across large footprints. Site constraints, however, do not disappear once construction ends. In many ways, they intensify during operation.

Durability Is No Longer a Maintenance Issue

Urban logistics facilities face a challenge unfamiliar to most traditional warehouses: heavy truck traffic moving across elevated floors. Ramps, rooftop parking, and upper-level circulation areas endure constant wear from tractor-trailers, delivery vehicles, snow removal and exposure to the elements. In northern climates, de-icing salts create additional risks by penetrating cracks in concrete and corroding reinforcing steel. The consequences can be severe. If a ramp deteriorates to the point of failure, operators may lose access to portions of the facility, disrupting circulation and business continuity. For that reason, durability has become a central design consideration rather than an afterthought.

One increasingly common solution is the “sandwich slab,” a layered system in which a structural slab is protected by waterproofing and a secondary concrete wear surface above. If the upper layer becomes damaged, it can be removed and replaced without compromising the underlying structure.

The strategy may cost more upfront, but it protects the facility’s long-term viability. Localized repairs can often occur over weekends or in phases. Structural failures, by contrast, can interrupt operations for weeks or longer. That emphasis on resilience has also changed how teams evaluate materials and systems.

Constraints Often Lead to Better Solutions

Many urban logistics projects operate under strict height limitations, creating tension between operational goals and structural requirements. Steel framing may seem like the obvious choice given its familiarity in industrial construction. Still, in some facilities, the depth of steel members needed to support elevated loading pushes buildings beyond zoning limits. That challenge has prompted teams to rethink assumptions.

Concrete floor systems with shallower structural depths have allowed some facilities to achieve required capacities while fitting additional floors within height restrictions. What initially appeared to be a limitation turned out to be a more effective solution. Material selection in these environments becomes more than a technical preference. It directly shapes feasibility, flexibility, and cost. Even so, structural ingenuity alone cannot guarantee success if construction sequencing is overlooked.

Construction Strategy Can Make or Break the Schedule

Early urban logistics projects exposed another lesson, that building codes and sequencing matter as much as structural design. In some jurisdictions, once steel construction reaches certain height, permanent stairs and fireproofing must already be in place for worker safety. Yet traditional construction sequencing often delays those elements. Projects that fail to anticipate the requirement risk shutdowns and costly delays.

To avoid that outcome, some teams now construct concrete stair cores before steel erection begins. Those cores satisfy egress requirements while also functioning as lateral stability

systems, eliminating diagonal bracing that would otherwise obstruct warehouse operations. The result is a cleaner floor plate, greater tenant flexibility, and fewer schedule disruptions. Perhaps most importantly, it reflects the broader truth about vertical logistics that anticipating complexity matters more than reacting to it.

A New Building Type Demands New Thinking

Many developers enter urban industrial projects expecting familiar economics rooted in urban warehouse construction. What they encounter instead is a highly engineered building type shaped by structural extremes, difficult sites, durability demands, and operational pressures. The greatest risk is not cost alone, but rather underestimating complexity. As cities continue to demand faster delivery and greater fulfillment efficiency, urban logistics facilities will likely become more common in areas where land scarcity leaves few alternatives. Success, however, will depend on abandoning conventional assumptions and approaching these projects with a different mindset. These facilities reward long-term planning, technical precision, and early collaboration. In doing so, they are redefining industrial development for a world where proximity matters as much as performance.

Author bio

Mark Plechaty is Principal at DeSimone Consulting Engineers. He can be reached at mark.plechaty@desimone.com.

Supply Chain & Logistics Summit

by **Marcus Evans**

November 5-6, 2026

The Ritz-Carlton Dallas,
Las Colinas | Dallas, TX

Chief Procurement Officer Summit

by **Marcus Evans**

November 5-6, 2026

The Ritz-Carlton Dallas,
Las Colinas | Dallas, TX

Top Stories