THINKING OUTSIDE THE (BIG) BOX:

In A Dense Urban Environment, Big-Box Retailers Need to Rethink Their Approach to Parking

Image courtesy of Conformity Corporation.

WGI®

When big-box retailers began dominating the landscape in the early 90s, the concept was simple: place a large retail store on an even-larger piece of land. The footprints of these developments were typically so large that parking wasn't an issue. There was plenty of land to provide all the needed parking. Twenty years or so later, parking is a challenge for many big-box retailers. Increasingly, stores are built in urban settings with limited parking space. These stores are built on a restricted footprint, and it can be challenging to find enough space for the store, let alone the parking required to serve it.

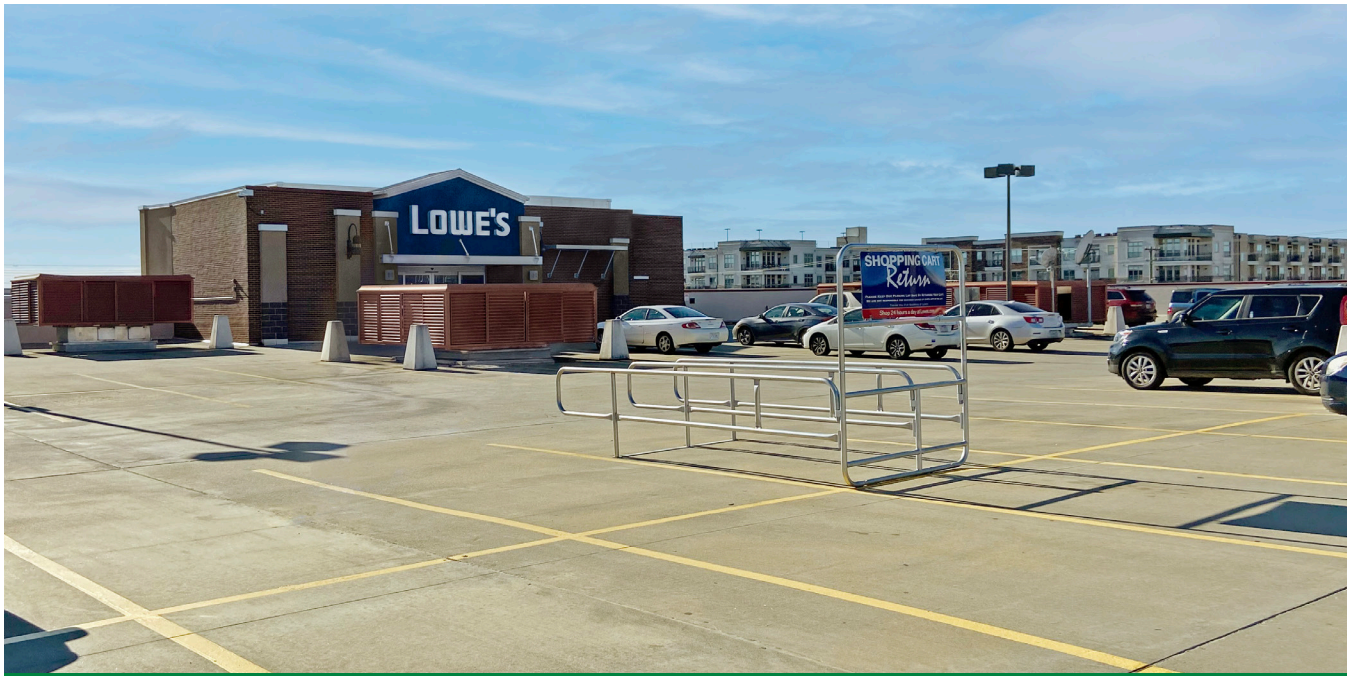
For many, the answer can be found in a type of mixed-use development where one or more parking levels are developed to support the building's retail uses. Mixed-use development certainly isn't new. A staple of urban design for quite some time, it typically includes retail, commercial, residential, and/or services, and the necessary parking. However, application of these principles is relatively new for big-box retail. Big box is a unique retail structure — a single story with a large footprint. The large footprint lends itself to ample parking within the footprint — more so than smaller retail.

Parking in a mixed-use development can be a stand-alone garage adjacent to the buildings it services, or located above or below the retail, within the same building. Multi-level stand-alone parking structures cover a substantial portion of the site, and the grade-level parking spaces are considerably more expensive than the asphalt spaces they displace. While access is more convenient, parking below retail can be more costly, requiring two supported levels of construction (retail floor plus roof) and increasing the overall building height by approximately 12 feet. The elevation difference also impacts loading and deliveries. Parking below typically makes more sense when there are multiple levels of retail, commercial, or residential above the parking. Parking above retail, or roof-top parking, is often the best fit and more cost-effective, adding another purpose to a large expanse of empty roof. Minimizing the built footprint also allows for the development of additional inexpensive surface parking-lot spaces.

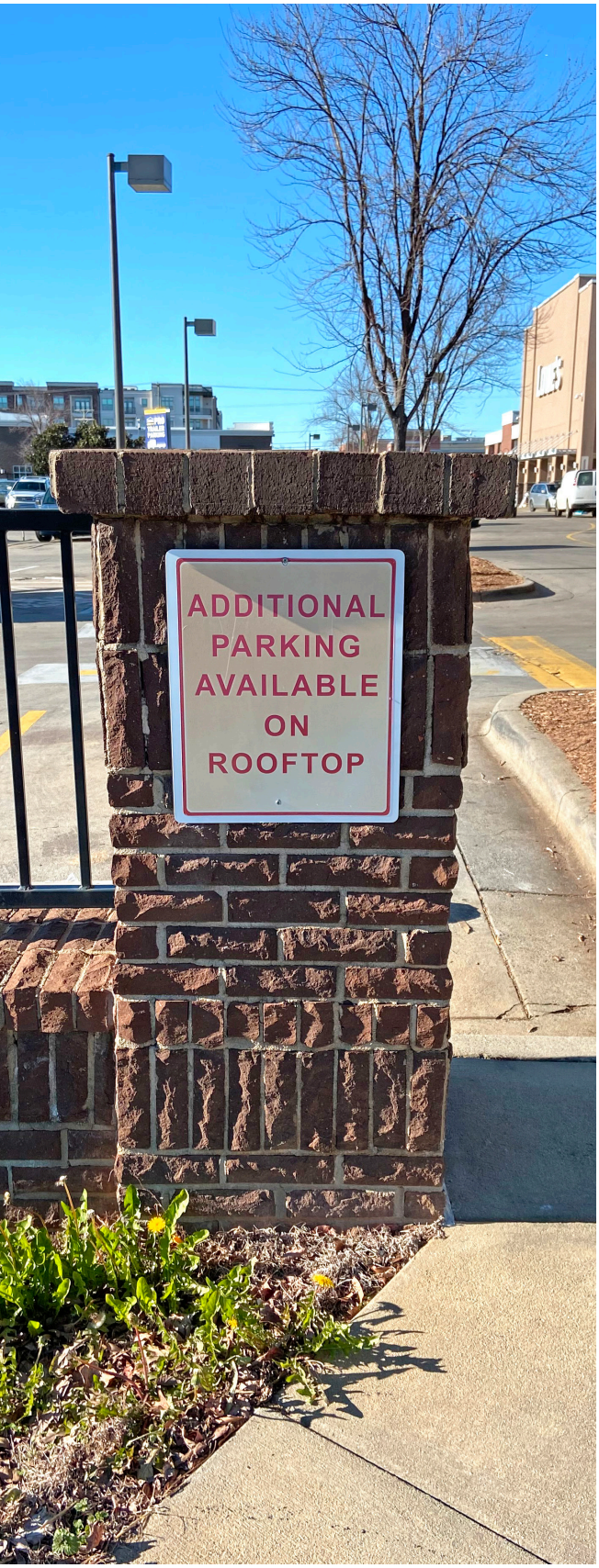
UP ON THE ROOF

When considering roof-top parking, there are a number of considerations to address. Getting vehicles up on the roof is no small feat, typically requiring the construction of a ramp combining retained earth structures and supported slabs. Pedestrian access adds another element to big-box retail in the form of elevators and stairs. Not only must people get down to the store and back up to the parking area, they must also get the shopping carts and merchandise back to their vehicles. Oversized elevators or cart lifts are a must.

Roof-top parking requires the typical parking lot amenities including parking stripes, light poles, shopping cart corrals, and in some cases, landscaping. Also, where snow is common, snow gates or chutes need to be part of the design, allowing snow to be pushed off the parking areas. Like surface parking lots, photovoltaic (e.g. solar) arrays and canopies can be added to roof-top parking areas, generating energy for use in the parking and retail facilities. Concurrently, they provide shade and some weather protection to vehicles parked beneath them. Another unique challenge is weaving the large mechanical units required to heat and cool the large retail building below into a parking area while also protecting them from damage by the vehicles being parked.



Store entrance from roof-top parking area, Charlotte, NC. Note the architectural treatment and protection of the roof-top HVAC units.



It may be surprising that parking has one of the lowest live-load requirements of any development use. Unlike big-box retail that requires a 125 pounds per square foot (psf) live load, at 40 psf parking is only double the minimum roof live load required by most building codes. However, retailers like home improvement stores, may opt for a larger design live load to accommodate heavy construction supplies, and vehicles with trailers needed to haul them. Swapping roofing membrane and insulation for concrete pavement can also add an additional 50 psf to 100 psf of non-structure dead load. While big-box stores may use open-web steel joists and metal deck for the roof structure in many places, roof-top parking typically requires a more robust and heavier structure like steel beam or precast concrete framing with a cast-in-place slab or topping.

Some of the more subtle roof-top parking design considerations include waterproofing, drainage, and durability. Special details and features also avoid premature deterioration of the roof-top parking system. The specification and detailing of the hardscape/pavement, insulation, waterproofing membrane, and their interaction with each other play a vital role in making a roof-top parking project successful.

FLEXIBILITY IS KEY

Retailers are always evolving. As shopping habits change, stores are forced to change in response, sometimes shifting retail areas to distribution or storage centers. The sudden emergence of curbside pick-up areas outside retailers, responding to the COVID-19 crisis, demonstrates how quickly things can change and how important design flexibility is.

The constant changes, such as the addition of loading docks to serve e-commerce, the introduction of more delivery trucks, and the addition of curbside pick-up all impact traffic flow on a property's footprint. Parking facilities must be flexible enough to accommodate these changes. Roof-top parking provides this flexibility for big-box retail by constructing less building and preserving more of the site for circulation and later development. In a future where autonomous vehicles are prevalent, and parking demand reduced, the ramp structure can be removed to free up even more of the site. The roof-top parking could also be converted to future commercial or retail space. Although still a cost premium, designing a building with roof-top parking for future vertical expansion and adaptive reuse costs significantly less than converting a building with a standard roof structure. Using our FlexPark™ planning process, WGI can include this future flexibility in our design.

Vehicle ramp to roof-top parking. Image courtesy of Conformity Corporation.

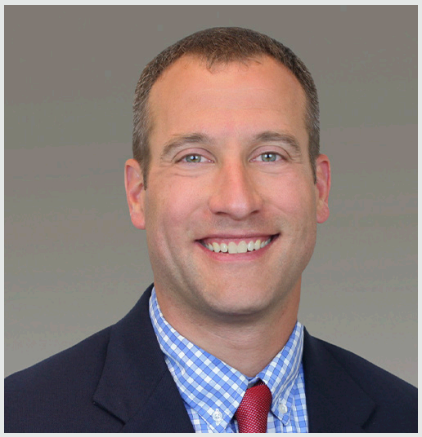
A VITAL NEW CONSIDERATION

As big-box retailers expand into more closely developed urban areas, their parking needs and challenges evolved. Unlike their suburban and rural locations, urban land is at a premium and accommodating the required customer parking is a primary concern. For most big-box retailers, an economical and customer-friendly way to provide parking to customers is above their retail spaces — on the roof.

And when developing this parking, it's essential to include flexibility in the design. The world is changing faster than ever. Established companies are disappearing, and new ones are constantly emerging. The most successful companies of the 2020s will be those that adapt quickly to evolving trends. It's essential for parking assets to be flexible enough to foster that change and to think outside the big box.

LET'S TALK.

For more information about this study or to have a conversation with one of our experts, please contact us:



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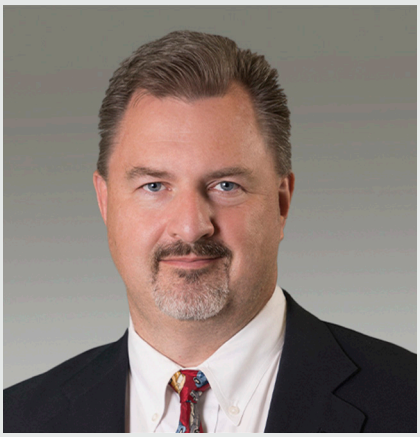

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