Project Managing a Large Scale Build on a Small Job Site

A Customer Success Story

SCHUFF STEEL

A DBM GLOBAL COMPANY

Project Details

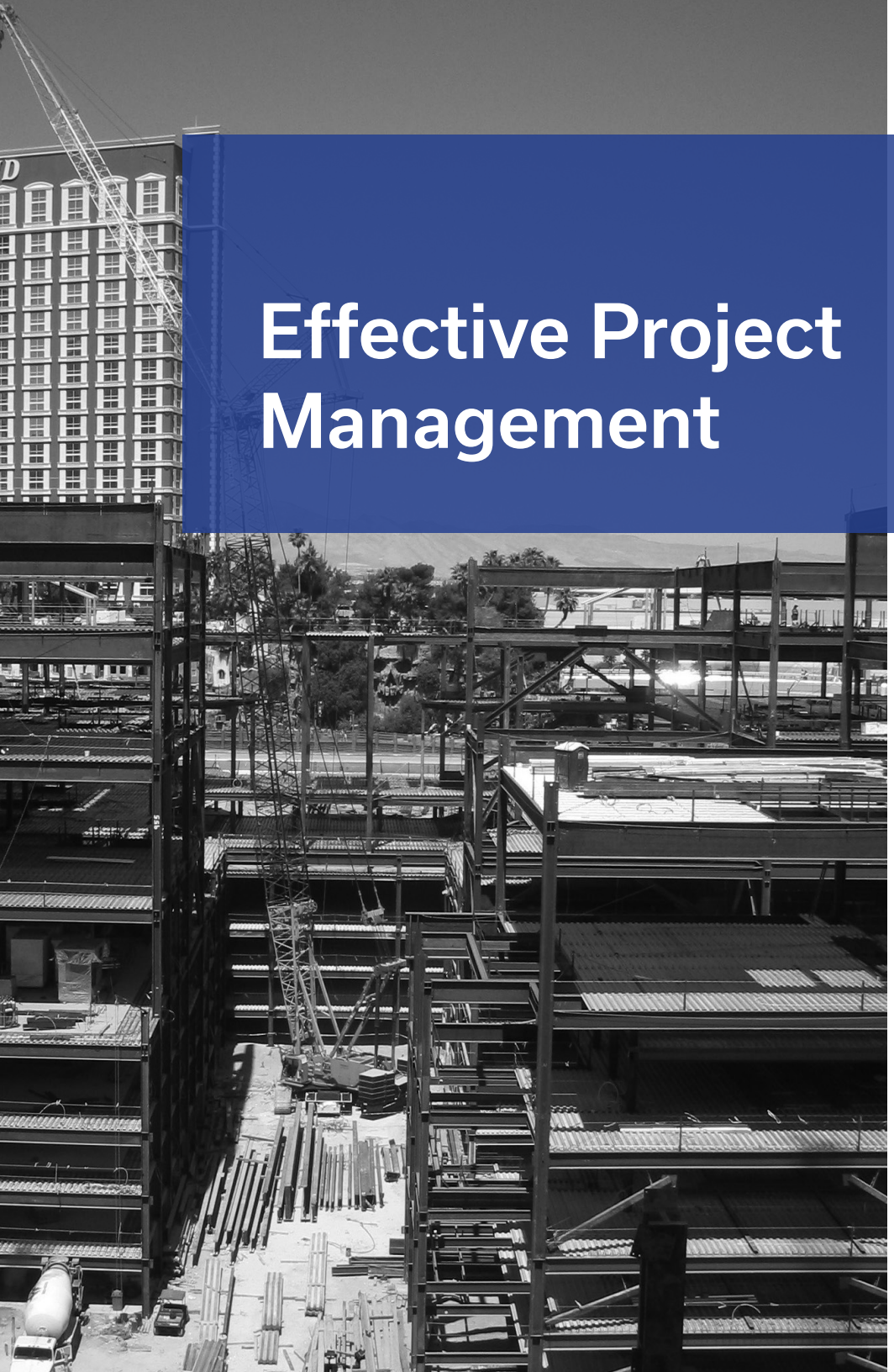
The Palazzo consists of a 4,000-vehicle underground parking structure, street level casino, shopping and entertainment podium, 2,000-seat theater, and a 52-story hotel tower. These structures fill the entire triangular shaped project site that is bound on one side by Las Vegas Boulevard and the existing Venetian Resort on the other.

Three tower cranes were used to erect the 52-story high rise. Two Manitowoc 2250s and five other cranes were used to build the podium and underground garage.

The completed steel-framed structure is clad with EIFS, stone and glass and rises 645 feet tall. At the peak of construction, Schuff employed 350 ironworkers on the project.

During the course of the 1.3 million man-hours expended at The Palazzo, Schuff had a lost time rate of 1.38, which is about 2 1/2 times lower than the national average of 3.1. In addition, Schuff employed five full time safety professionals for the duration of the project; this amount of coverage far exceeds the norm for a steel erector.

Our expertise in project management has a direct impact on the high level of safety we are able to offer our workers which is also why Schuff Steel has one of the best Experience Modification Rates (EMR) in the steel erection industry.



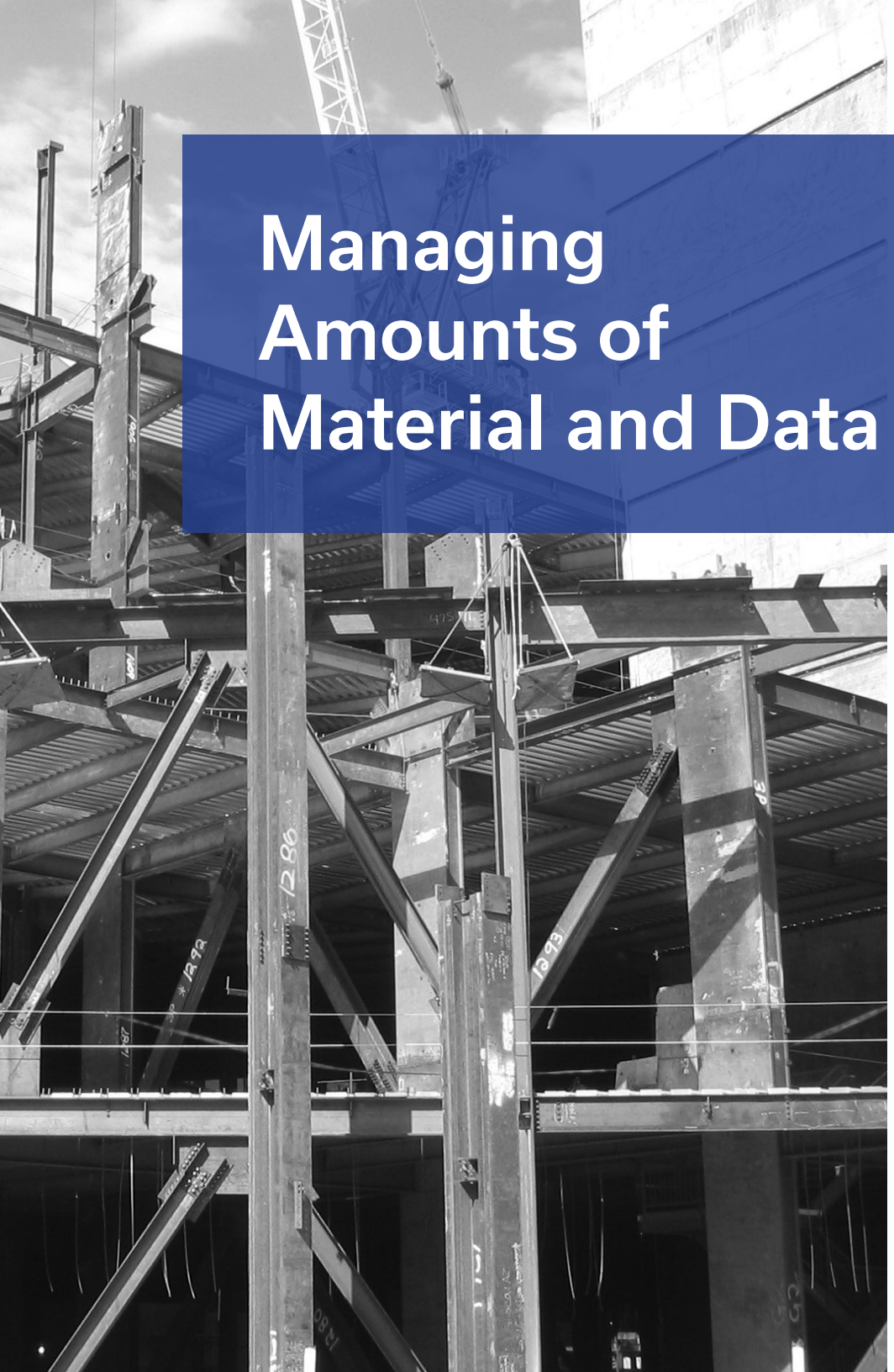
Effective Project Management

Its sheer size presented numerous issues for the Schuff Steel Project Management team in regards to scheduling and erecting. Because of this, one year was spent in the preconstruction phase strategically planning around the challenges that would arise.

Working with the structural engineer and the detailers the preconstruction team built the project in Tekla Structures working through details and challenges before construction started.

The entire project required 70,000 tons of structural steel. At the time of this project, The Palazzo was the largest commercial steel project in the United States. Schuff fabricated 60 percent of the steel at its own shops and outsourced the remaining 40 percent. In total, 24 fabrication plants were required to complete the massive project.

Prior to The Palazzo, typical high-rise construction in Las Vegas was with concrete. Building with steel proved to be less expensive, faster and more flexible than building with concrete on this project.



Managing Amounts of Material and Data

The Palazzo required 70,000 tons of structural steel along with other materials including 52,000 beams, columns and braces, 1,100,000 structural bolts, 7,000,000 square feet of metal decking and 1,250,000 shear studs and a total of 35,000 shop drawings. Our most significant challenge was managing the logistics.

Utilizing partnerships for a solution

Ensuring all the materials for the project were ready and prepared for erection meant seamlessly managing the procurement, fabrication and transportation within our own fabrication shops as well as the 24 outsourced fabrication plants. We accomplished this efficiently by utilizing our proprietary software Schuff Integrated Management System (SIMS) to barcode and track every piece of steel in both the Schuff Steel shops and the outsourced shops, while managing costs and scheduling implications.

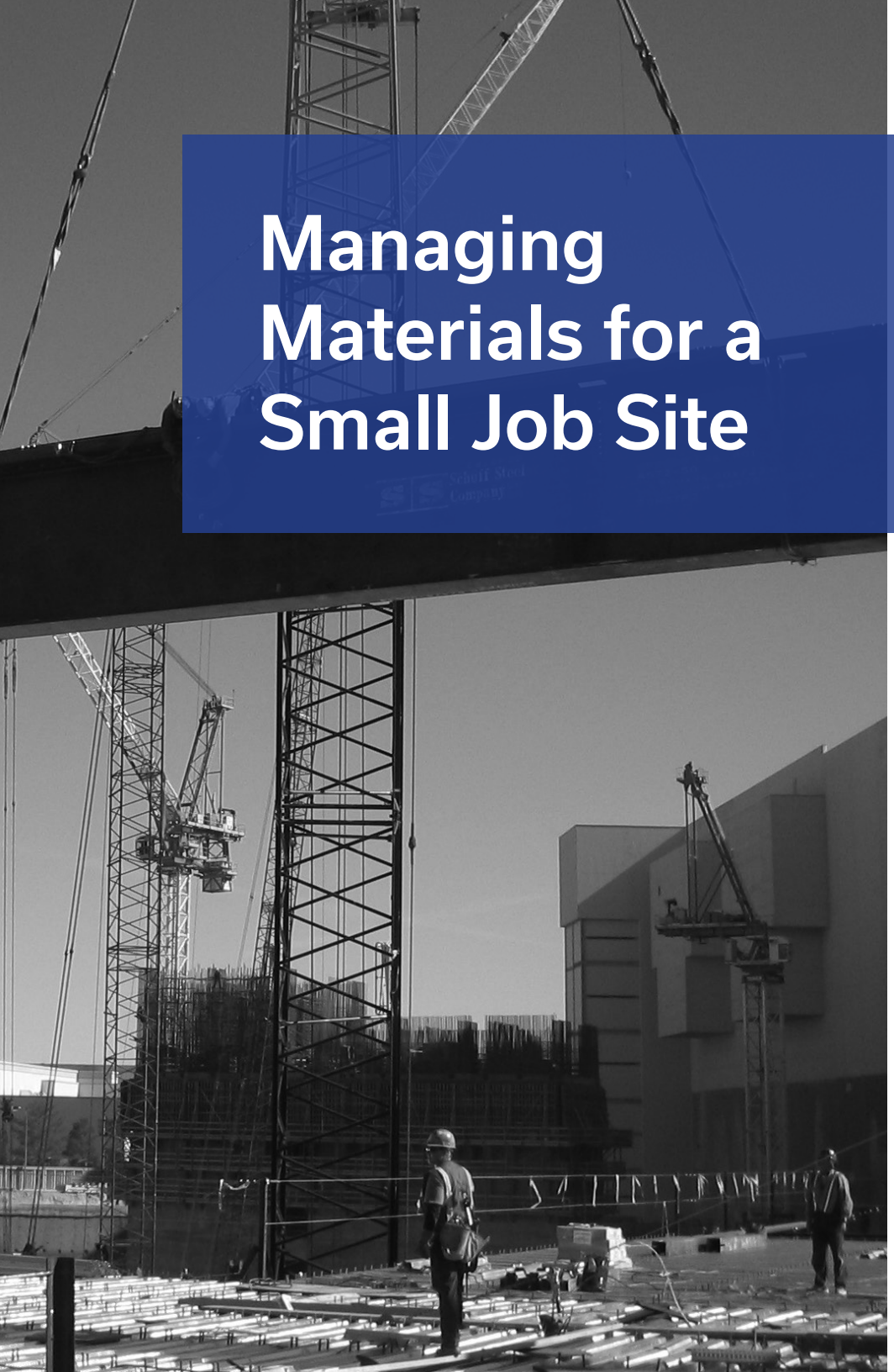
Complex Design Challenges

Maintaining efficiency in a large project is difficult enough, but The Palazzo also presented its own complex design challenges. Multi-level suite designs ensured no suite had a flat floor. Designated areas were sunken by two steps, such as the living room. Working within the intricate designs would take more time and detail.

Innovating a solution

Typically high-rise builds would use more concrete, but in this situation structural steel would be more manageable for time and budget. Steel also lends itself to more intricate design as found in the multi-level suites.

The amount of structural steel used in this project proved to be faster and more efficient throughout the build. Schuff Steel was able to turn over a floor per week on the tower portion of the build. Each floor totaled 70,000 square feet.



Managing Materials for a Small Job Site

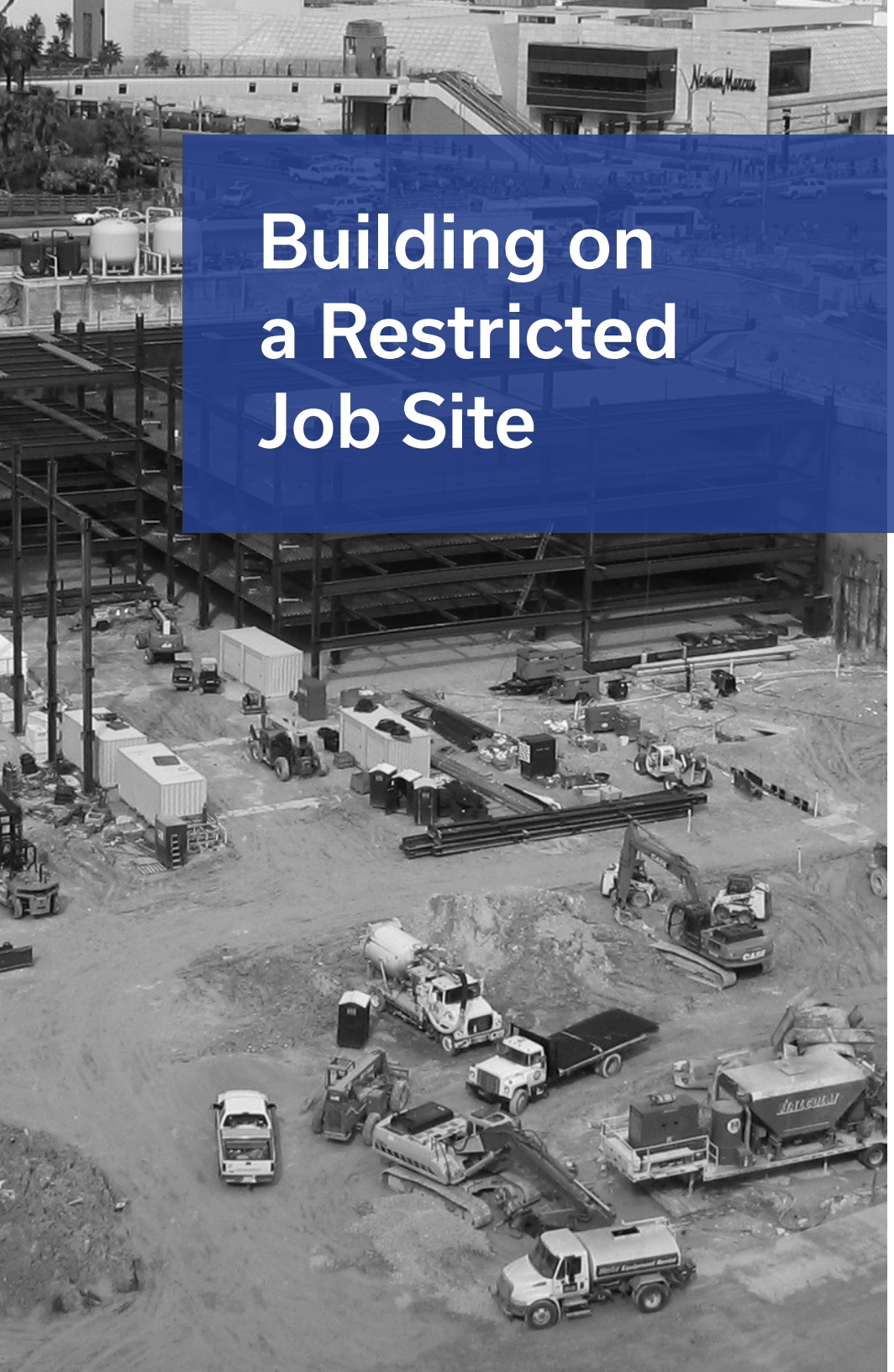
The extremely small job site proved to further complicate the project. All of the material needed was to be built into just seven acres of land situated on the Las Vegas Boulevard with limited access.

Coordinating a solution

Once the material was prepared, coordination would be key to achieving success. All the contractors, not just Schuff Steel, had access to one delivery spot on the entire property; so detailed planning was the only option to manage the influx of materials.

It took 5,500 truckloads to deliver all of the material to the job site and an immense amount of coordination. Schuff Steel worked in continual communication with the general contractor on site, as well as its vendors and suppliers.

To make up for the small job site, Schuff Steel stored materials and performed pre-erection work at a 23-acre rented property eight miles from the job site. The steel was trucked to the job site daily, primarily at night.



Building on a Restricted Job Site

The limited size of the job site also presented the challenge of erecting the structure efficiently within the restricted space. This small footprint also forced the parking structure to be underground directly beneath the building.

Setting critical paths for the best solution

Once the excavation of the 50 feet deep parking garage area was complete, steel erection began. The general construction plan was to erect the four-story garage and four-story podium above simultaneously. Work progressed from the corners of the property toward the center, eventually leaving just a small “alley” where workers and materials could continue to enter the project site. As the tower structure progressed above, the alley was filled to complete the garage and podium structures.

Through the flexibility of steel construction and with our project management expertise, we were able to effectively manage the large expectations of the build within the small footprint of the job site.

Project Team

SCHUFF STEEL

Owner
Las Vegas Sands Corporation

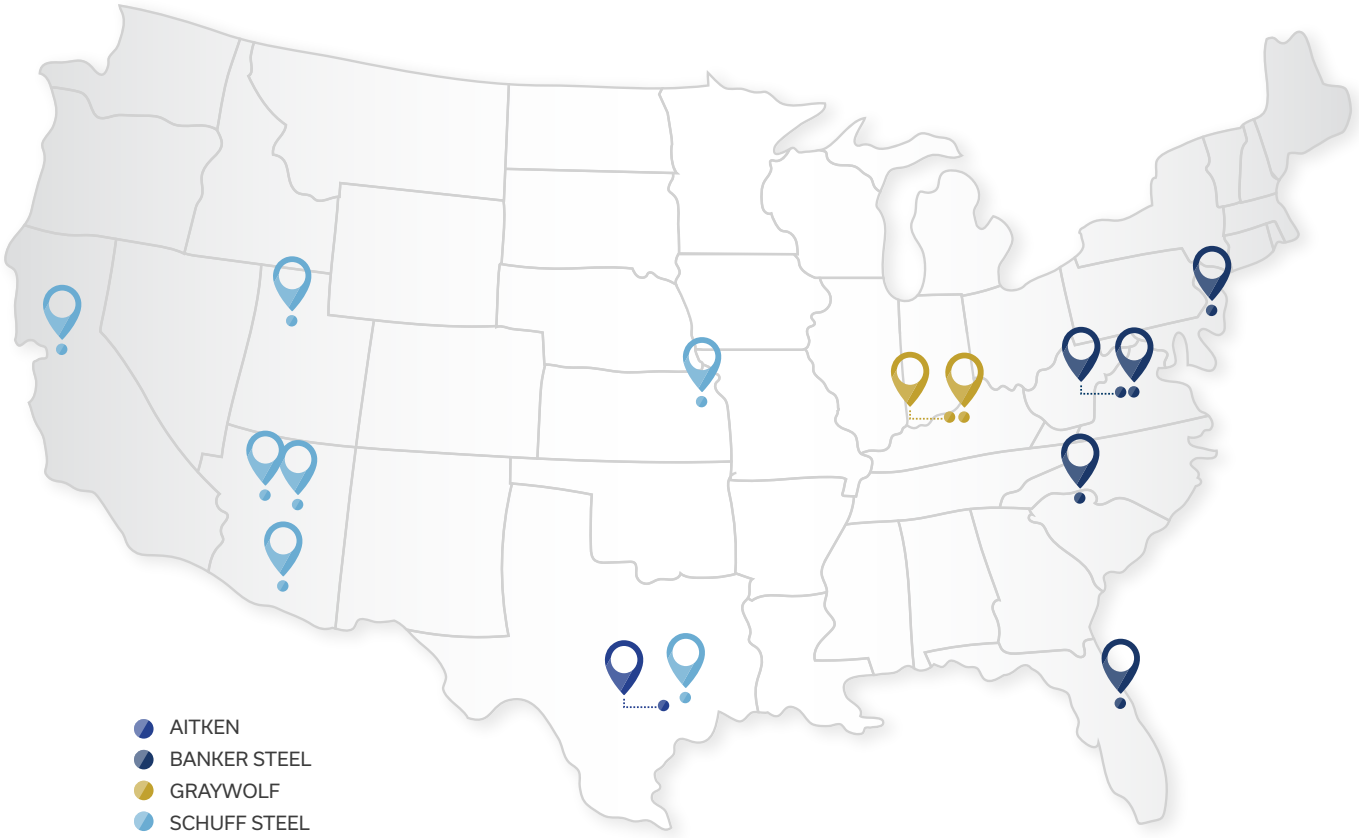
Contractor
Taylor International

Architect
HKS Inc

Structural Engineer
Walter P Moore

Steel Fabricator and Erector
Schuff Steel Company

Steel Detailers
DBM Vircon



Nationwide Footprint

With Schuff Steel's building expertise and nationwide footprint of fabrication shops and subfabricators, we are able to perform the largest, most complex projects from coast-to-coast. We have demonstrated time and again our ability to execute projects with the highest level of quality and performance, while bringing significant value to our customers through enhancing design, mitigating risk and saving time.

In addition to our 7 fabrication plant locations, we have access to another 8 within the DBM Global platform of companies, for a total of 2.2M square feet under roof.

Get in Touch

sales@schuff.com

7
Fabrication Plants

1.325M
Sqft Under Roof

Get in Touch

schuffsteel.com

SCHUFF STEEL

A DBM GLOBAL COMPANY