



CASE STUDY

Snake Tray's Snake Bus Powers Major Financial Services Group's New World Headquarters

The Client/Situation

A 58-story multi-tenant skyscraper is one of the newest additions to New York's Manhattan skyline. Tenants are free to build out their leased space however they wish. One of those tenants is among the world's largest and most influential financial services organizations.

Eventually, the financial services firm will occupy 17 floors of the building, with each floor providing 31,000 square feet of office space. Fifteen of those floors have a 12-inch raised access floor (RAF) with the Snake Bus power distribution system installed underneath. For this project, the client decided to keep all the environmental and air handling systems overhead and run only the power and networking cables under the floor. This would accommodate the frequent layout changes management expects as more employees return to the office full-time.



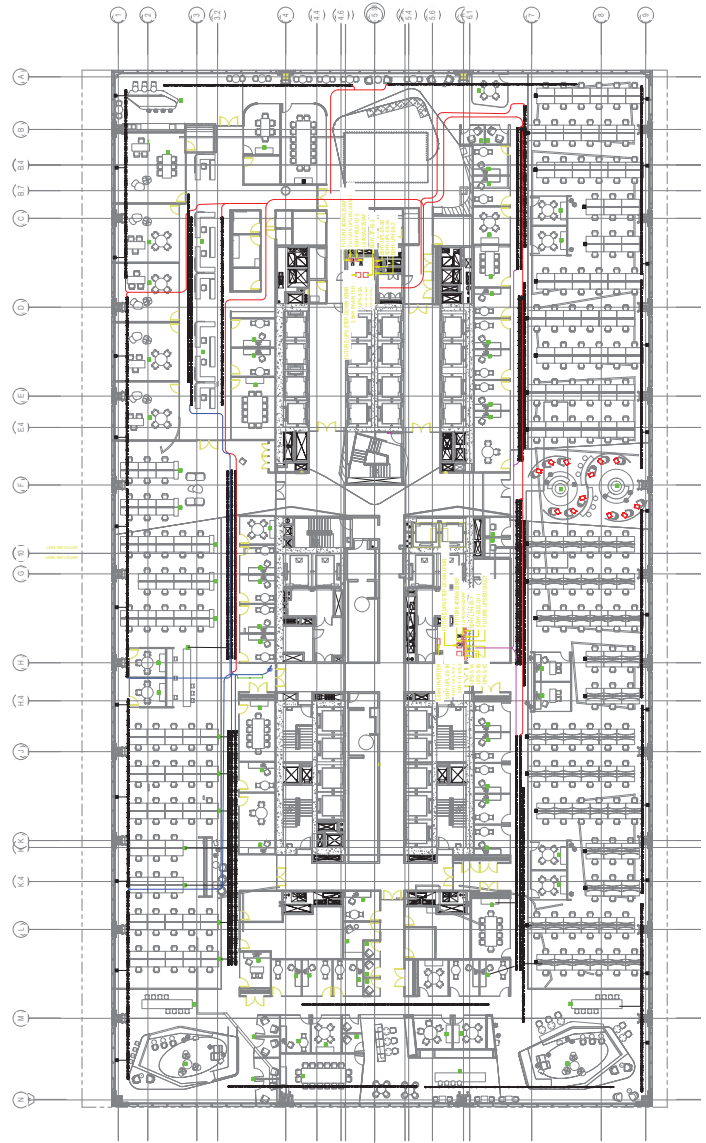
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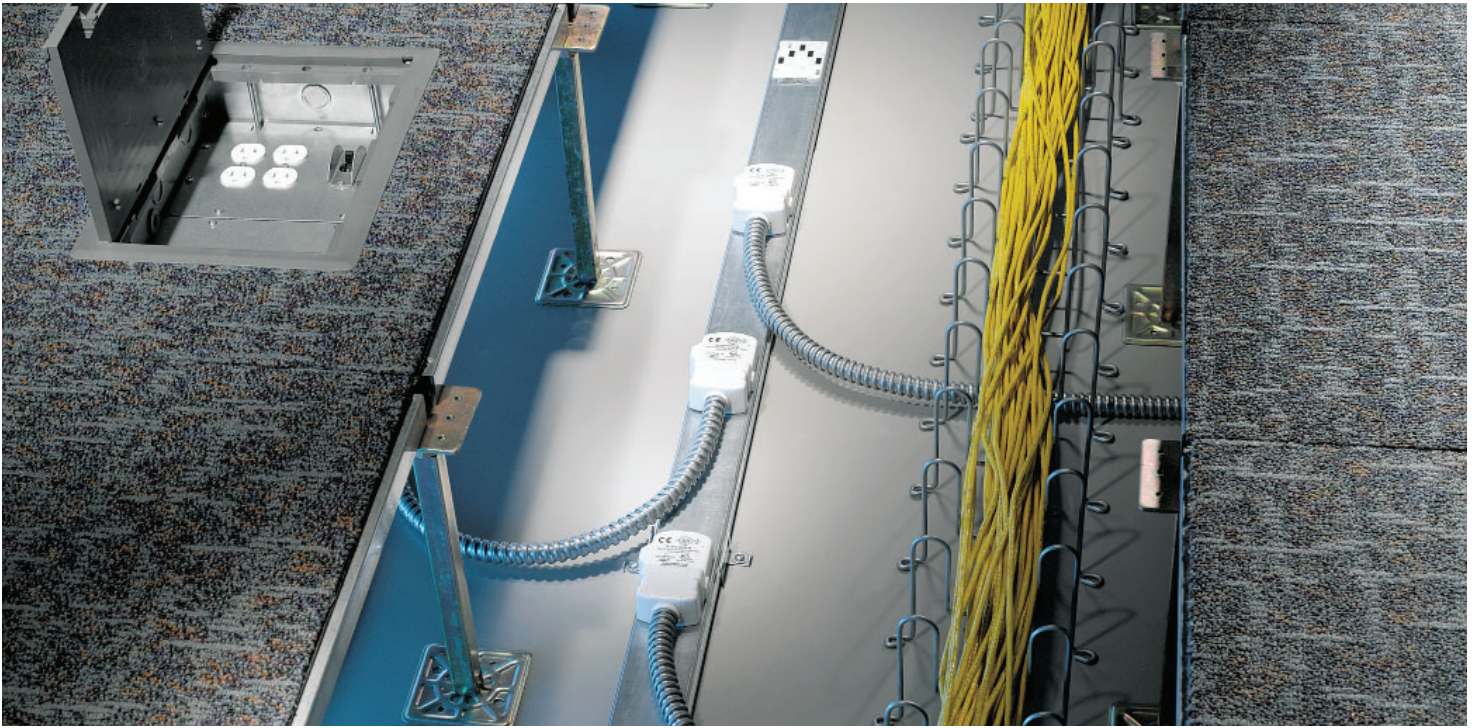
The Challenge

Construction of the skyscraper and the build out of tenant space was concurrent with the peak of supply chain issues caused by the COVID-19 pandemic. This not only caused delays and scheduling conflicts in the production and completion of the electrical infrastructure, but the uncertainties in furniture availability, raised access flooring materials, and floor layout resulted in more indecision that further complicated the project. Let's dig a little deeper.

Contributing Factors

- **Late to the party.** Plans originally called for using traditional pipe and wire to electrify the building. It wasn't until schedules were finalized and construction had begun that the client realized they needed to scrap plans for fixed conduit and junction boxes and install a modular, flexible power distribution system instead.
- **Poor initial design.** Electrical engineers reached out to inquire about Snake Bus. Snake Tray responded with some preliminary schematics and then things went radio silent. Three months had passed when the client informed Snake Tray of the decision to go with Snake Bus. In the interim, they created the power distribution blueprints for all 17 floors for what they thought they needed.
- But bus bar technology is very different from traditional pipe and wire and has specific tolerances, some of which were unknown to the engineers, who exceeded them in several places. This resulted in multiple design issues on every floor: Key track components were missing or specified improperly. Some tracks were too long; others were not sufficiently energized. Additional feeds from the electrical closet were required to power Snake Bus's unique three-phase technology for electrical redundancy and a variable power circuit to support energy conservation mechanisms built into today's smart buildings.
- But it was too late to radically change the approved drawings. As a result, Snake Tray was forced to reengineer the entire electrical layout for 17 floors of a building already under construction. The loss of three months of lead time would also impact raw material procurement and production, especially during the pandemic.
- **Client indecision.** Even as the components for the power distribution system and raised access floor were being installed, the client had yet to choose a furniture manufacturer for walls and cubicles, the type and data port configuration for the recessed floor boxes at each workstation, or finalize the layout of each floor. Basically, each floor was being erected as a 31,000 square foot open office space with no clear plan or commitment to exact equipment and furniture placement. (Fortunately, that plays right into the strengths of a modular power distribution solution).





The Snake Tray Solution

Snake Bus was chosen as the power distribution system due to its inherent flexibility for designing the electrical and data pathways and future change/add/move simplicity, ease and speed of installation, and reduced costs. As the floor layouts were yet to be finalized, the flexible Snake Bus system did not have to perfectly align with anything; just be reasonably close to anticipated workstation positions.

The Snake Bus track sections snap together like Lego™ blocks in seconds and have receptacles positioned every 12 inches for connection to modular tap-offs (called Snake Whips) that deliver power to individual offices and workstations precisely where needed. And because Snake Bus provides up to three times the amount of power as a single-phase system, it future-proofs the space by accommodating massive amounts of power-hungry machines.

Snake Bus Under Floor Power Distribution System Defined

Snake Tray's prefabricated Snake Bus power distribution system is the fastest, easiest, and most cost-effective way to wire a commercial space for flexible power distribution underneath raised access floors. It brings efficiencies

and predictability to power distribution for spaces from 1,000 to 1,000,000 square feet. Snake Bus is compatible with all post and panel raised floor systems, as well as low profile access floors and will not interfere with under floor air circulation.

The modular Snake Bus system uses proprietary bus bar technology instead of copper wire and conduit to provide up to 50 Amp, three-phase, 208V service for 18KW of power wherever it is needed in one easy-to-install track – that's three times the power of conventional systems. More energy efficient than traditional wiring, Snake Bus uses 30% less copper and experiences less voltage drop over long runs, further reducing energy consumption.

Simultaneous installation of RAF and Snake Bus

During normal times, the Snake Bus tracks would be laid down and affixed to the base floor before the support posts and stringers for the RAF were installed. Once the floor panels were in place, installers would lift the panels to connect the Snake Whips and replace solid panels with recessed floor boxes exactly where needed.

But these weren't normal times. Breaks in the supply chain and material shortages caused by the pandemic interrupted construction and delivery schedules. As it turned out, the Snake Bus and RAF components arrived at the project site simultaneously. To regain lost time, installation needed to overlap. Fortunately, the speed with which Snake Bus tracks are installed allowed the electricians to stay just ahead of the floor installers.

To manage the frequent changes to floor box configuration, Snake Tray created retrofit kits for installers to swap out the electrical, data, and telecommunication interfaces to match each change order. Nimble manufacturing allowed Snake Tray to make these changes on the fly that would have been outrageously expensive or nearly impossible using traditional pipe and wire.

Finally, because Snake Tray is an American company that sources and manufactures all its products here in the USA, Snake Tray was able to circumvent many of the supply chain and raw material procurement headaches that would have plagued international suppliers and potentially further delayed the project.

Business Outcomes

- Speed to completion. Fifteen floors of complete electrical infrastructure representing over 500,000 square feet of floor space powered by Snake Bus track – plus the installation of Snake Whip tap offs and enclosures – were completed in eight months. Had these been “normal times” Snake Tray is confident installation time could have been cut in half.
- In fact, a few of the electrical contractors on the job had never used Snake Bus before but found the product so intuitive there was virtually no learning curve.
- Reduced capital and labor costs through speed of installation. Once the plans were revised and Snake Bus production ramped up to full capacity, installers on the job site were laying Snake Bus tracks as fast as they could be manufactured. It is estimated that the Snake Bus modular wiring solution saved approximately 30% over the cost of labor for traditional pipe and wire while delivering inherently more capacity and flexibility.



- One particular area of savings was the recessed floor boxes that bring power and data ports to the surface. Once the Snake Bus tracks were in place and a position for the enclosure selected, installers simply plug a Snake Whip attached to an enclosure into the nearest receptacle, and drop the enclosure into the pre-cut floor tile. Done. Snake Tray enclosures arrive pre-wired to customer port and power specifications and are pre-tested. Approximate time to completion: 2 minutes each.
- If using pipe and wire, electricians would have to run conduit to each termination point and fish multiple wires through the pipe to each floor box location. Then, disassemble the floor box, pull the wires up through the box, make the connections to each plug and port, reassemble the floor box, and drop it into position. Approximate time to completion: 2 hours each.
- Clearly, Snake Bus delivers a huge delta on labor savings for every single connection.
- Floor layout flexibility. The financial services firm has the flexibility it needs to reconfigure office space as necessary with minimal expense. Cubicles, conference rooms, and equipment can easily be moved to new positions without the mess and expense of having to add fixed conduit and an enclosure at a new termination point. Snake Bus components can be moved and reused as needed for Day 2 and beyond as more employees return to the office. Simply lift a floor tile and plug a Snake Whip and enclosure into its new desired position. Snake Tray makes it easy to take maximum advantage of RAF.

Snake Bus: The BEST Power Distribution System for Under RAF

If Snake Tray can deliver these kinds of results in the middle of pandemic and broken supply chain with little time for planning and preparation, imagine what we can do for your next power distribution project. Our team of engineers is standing by to map out your custom solution with Snake Bus, the world's best power distribution system for under raised access floors. Contact us to learn more.



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