

Last year, ELEVATOR WORLD featured a story on the construction of 3 World Trade Center (3 WTC) (EW, July 2016). Since then, your author toured the building with Schindler to see firsthand the progress being made. Completion remains in sight for early 2018 as numerous companies work together to rebuild from the ground up.

The same Schindler leadership that managed the team in 4 WTC (EW, September 2014) is at 3 WTC now, including Andy Werkhoven, general manager; Jerry Piserchia, senior project manager; Candace McGinty, project

manager; Sean
Murphy, lead
foreman; and Patrick
Dineen, field
superintendent.
Dineen speaks highly
of the core group
that has worked on
both towers: "It was
kind of almost a

seamless transition over here." They communicate and work well together. "It's easy to work with people — I don't know, how would you say it? 'People-people.' It's not always 'business, business, business.' And," pointing to 4 WTC, "like I said, we went from there to here."

Dineen is a second-generation elevator man. His father entered the elevator business when he immigrated from Ireland in the 1950s and worked at the same elevator company for 45 years until he retired at 70 years old. Dineen went to work with the union during the summer holidays. After a couple of years of going back and forth, he came on for good. Dineen says he feels his age when he tells people, "The first building I ever worked in with my dad is right down here — and it's been modernized already!" He worked as an apprentice and then as a foreman for several years until he had hip-replacement surgery in 2007 and was offered a superintendent position. His experience has been invaluable:

"You know, a guy from the field has seen it, done it, dealt with it. Whereas, sometimes you hear the stories about — and again, I'm not knocking them but — a younger superintendent who doesn't know, has never seen the elevator business and doesn't know the moves and the steps. . . . I think it's easier to talk to the guys if they've known that you've done it."

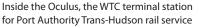
Dineen takes good care of his men. While we were looking in the men's locker room, we met an elevator constructor who recently had a MRI scan on his damaged knee. After he said that his knee was fine, Dineen responded, "It's getting there?" — prompting a more honest answer from the man.

## The Elevators

After installing the first few rounds of guide rails, Schindler technicians use Wurtec's Skyclimber to run on the guide rails as they install the rest. This working platform has a scaffold motor and two cables. Once a set of guide rails are lined

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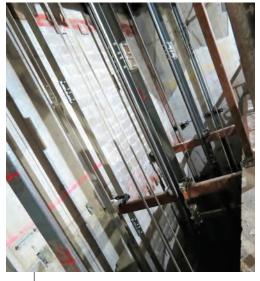




The Schindler FM560 in C Bank



- Machines in E Bank



F Bank with guide rails installed

up, set and tightened, the installer motors up in the Skyclimber to the next level to install another set.

A lot of consideration and planning went into how parts and equipment were identified and delivered, making it easier for the installers on site. Dineen commented, "Wasting time looking for stuff — that's where you eat it." The brackets are manufactured in Vietnam and come in crates, one per bank per floor. They are loaded onto outside construction hoists using electric pallet jacks. The team widened the counterweight, which allowed them to use two brackets instead of six. They also used a Nelson stud welder to weld the brackets straight to the divider-beam steel, instead of having to use a C-clamp.

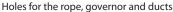
Once the frames are installed, Schindler gives general contractor Tishman Construction the go ahead to put up the walls so that the elevator constructors are kept safe from anything falling through the hoistway. Schindler, in turn, is motivated to move quickly when there isn't a stop on a floor for an express elevator. This space will be used for bathrooms; otherwise, it would be unused. Various teams are constantly alternating between installing rails and entrances, closing up the walls or building bathrooms. It is a coordinated dance of construction crews.

Schindler installed the PORT system, its destination-dispatch technology. When the system is placed in Fire service mode, the solenoid pops open a panel that allows emergency personnel to select any floor of their choice. PORT allows them to use a little less wiring, only requiring some Ethernet cable from the power-over-Ethernet box to each elevator, which communicates back to the machine room. Regenerative-power technology allows the elevators to give power back to the building.

We went to one of the machine rooms to look at the Schindler FM630 machines. One has a capacity of 4000 lb. and another 6000 lb., and they run at 1,000 fpm. The biggest machines, the FM710, are on the roof. The four cars in the service bank range from 6000-10,000 lb. and run at 1,000 fpm. F Bank has cars that run at 1,800 fpm.

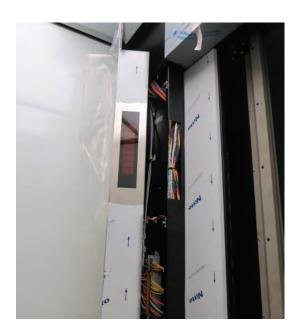
As the tower rises, there are brief windows of time when the machines must be dropped in with a crane on the machine-room







C Bank controllers



Destination indicator



Pit equipment

floors before construction resumes. "It all goes in a cycle," says Dineen. Before the concrete is poured on the floor, the elevator constructors lay out a mylar template with blockout kits for the rope, governor and duct holes. The general contractor pours the concrete and cleans out the penetrations for the elevator constructors. The next day, the concrete is hard enough to walk on; so, the machines are craned in via the side of the building, tied to a chain fall, mounted on skates, wheeled across the floor, hoisted up into place and covered. They may sit for a week or two before the elevator constructors get access to them again.

Hooks in the ceiling allow the constructors to hang the machines up on 6-T. chain falls. They also use hydraulic

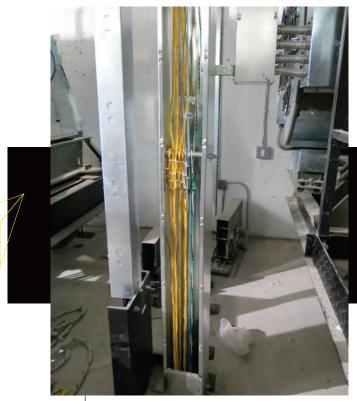
rams to align the machines to the template. They then put 1000-lb. sheaves underneath the machines and use templates to come off the access control lines. Once these are set, the constructors drop the lines and check to see if they are plumb. If not, a surveyor will come to ascertain whether the general contractor made a mistake or the building is beginning to drift slightly.

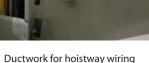
## Challenges

A great deal of coordination and logistics go into the construction of the building and installation of the equipment. For example, since the staircase needs to be fully staved off from work done on the hoistways, guide rails for C Bank had to be transported from downstairs, instead of loaded and fed to the third floor.

Schindler had to move equipment through the lobby during the brief timeframe constructors were constantly installing car and counterweight frames, along with pit equipment, for 44 elevators. It was also a challenge to have all the conduits run for the elevators' communication systems before tenants began moving in below. There have been issues with security when trying to work on the pits for the A Bank cars, which are inside retail stores. "Coordination and figuring out how you can avoid conflicts is a big thing," Dineen concludes.

As the field superintendent, Dineen is challenged to make sure the employees under him work well together. "Again, just that all the guys play nice in the sandbox, too. You know, you got a lot of different







Flat traveling cable

personalities. . . . But, for the most part, we have a really good group here." Some of the men include apprentices whose fathers Dineen apprenticed under when he was younger, and there are some military veterans who came through the International Union of Elevator Constructors' "Helmets to Hard Hats" program.

The elevator industry's good reputation for safety on the job often precedes them. Dineen says:

"Every job we go to, during my first meeting with the safety guy on the job, before we even get there, he'll say, 'Oh, I dealt with elevator guys on another job, and I know you guys have a stringent safety policy. I'm sure I'm not going to have any problems with you guys."

Dineen conducts weekly "Toolbox Talks," a discussion over a monthly video sent over from headquarters, and audits to ensure they have the equipment and training they need. "Every month I tell them — because guys sometimes just don't - 'It's all in your Elevator Industry Field Employees' Safety Handbook.' Lot of information in there, so, you just have to be able to find it, but it's all in there."

## **Never Forget**

We rode up an Alimak Hek construction hoist on the side of the building. The weather was mild that day, so a cool breeze blew through the slits in the orange cabin wall through which you could make out various buildings in the Financial District. The elevator operator played some rock music over his phone, which was connected to a Bluetooth speaker. Everyone on the hoist was quiet and appeared focused on the day's agenda. We got up to one of the top floors and looked around. "This is where you want your office," said Dineen, pointing to a corner. "Right here, so you can get that view — Statue of Liberty. . . . You could have a corner desk right here, a million-dollar view." Pointing to the neighboring 4 WTC, Dineen pointed out that it is approximately a 1,000-ft. rise, while 3 WTC is 1,250 ft. "So, those people have lost their view north that they might have had a year ago." The views from the top floors were breathtaking — especially since there were no windows, with only some loose netting around the perimeter. Dineen parted the net in places so your author could take some photos of the Brooklyn Bridge,

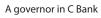
Jenga, 432 Park Avenue, along with the 9/11 Memorial Pools and museum.

When Dineen was a young apprentice, one of his instructors worked for Otis and served as the shop steward at the WTC. He would bring Dineen and his classmates down to the center to show them the equipment and let them perform hands-on tasks such as removing a step from an escalator. Dineen formed lifelong relationships with members of the industry during his visits.

On September 11, 2001, Dineen was across the Hudson River, working in Jersey City. After the first plane hit the North Tower, he received a phone call from a friend asking if he could see anything. "And I'm like, 'I'm right there and I don't see anything.' And I'm going, 'We don't see anything." Due to the angle, Dineen and his colleagues couldn't tell what was going on. They turned on the radio and heard some kind of plane had hit the building. Then, they saw an airliner banking very low over the river.

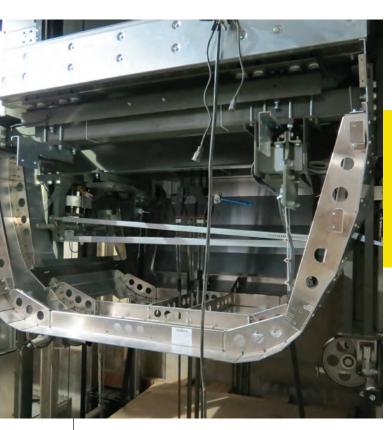
"And, I'll never forget," Dineen went on, "a guy who still works for the door installer, he was over there with us. He goes, 'Where the hell is he going?'" They







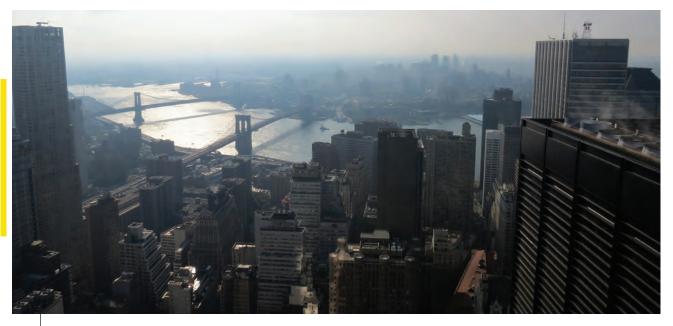
Machine with maintenance platform



- A high-speed elevator's lower aerodynamic shroud



Service switch control panel



View of Brooklyn Bridge from 3 WTC



A million-dollar view: looking out to Ellis Island

watched as the plane hit the South Tower. Dineen says they felt the impact before they heard the sound of the crash. As the foreman, it was his responsibility to make sure everybody got down and everything was locked up as much as possible. He got in his car and started driving when another friend called him. "He says, 'What the —? This is unbelievable.' And, as he was saying that, I looked in my rearview mirror, and the first tower just went down."

It's personal for everyone; they all lost friends that day. Dineen says, "Somehow, some way, there's a tie to

somebody that got lost down here." Dineen and his men take pride in being part of the rebuilding of the WTC. "Besides the Memorial," Dineen says, "it's just nice to have people back down here — that's really the thing." He's brought his family down to the center many times. One of his sons would draw pictures, and on one, he wrote, "World Trade Center 4 — Built by Schindler and My Dad." Early next year, it will be time for another picture.