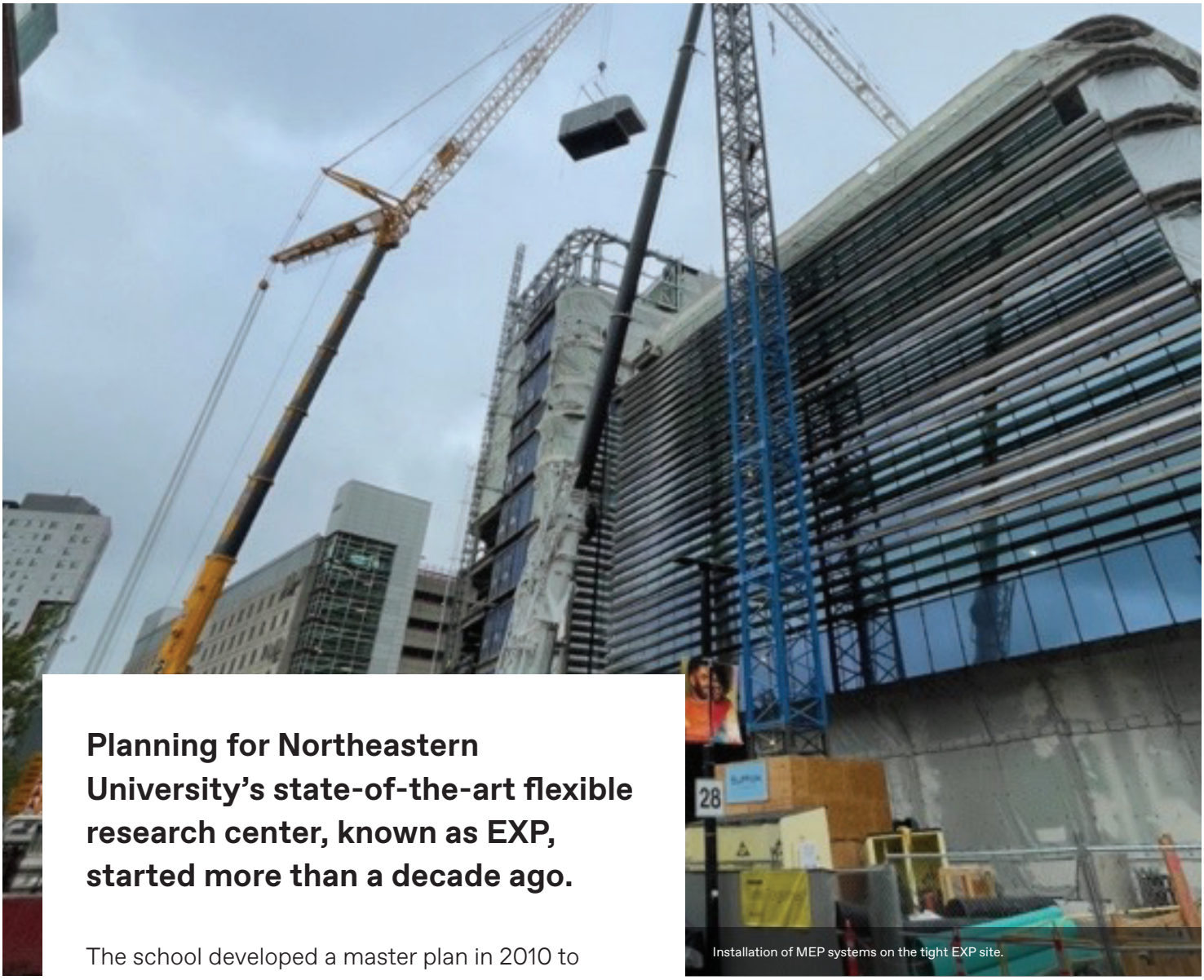
CASE STUDY

Northeastern University's EXP

Robust planning leads to future flexibility at Northeastern University's EXP

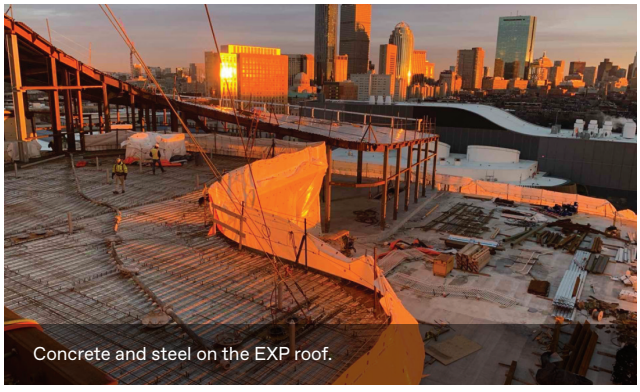
SUFFOLK



Planning for Northeastern University's state-of-the-art flexible research center, known as EXP, started more than a decade ago.

The school developed a master plan in 2010 to create a new academic campus across from its main campus and worked with Suffolk to build the connection between the two: the Interdisciplinary Science and Engineering Complex (ISEC), an award-winning 230,000-square-foot facility that became the cornerstone for this burgeoning area. As Northeastern University eyed the future and committed to creating a globally networked ecosystem for research, innovation, and entrepreneurship, the 350,000-square-foot EXP — and its numerous future-facing components — was born.

Installation of MEP systems on the tight EXP site.

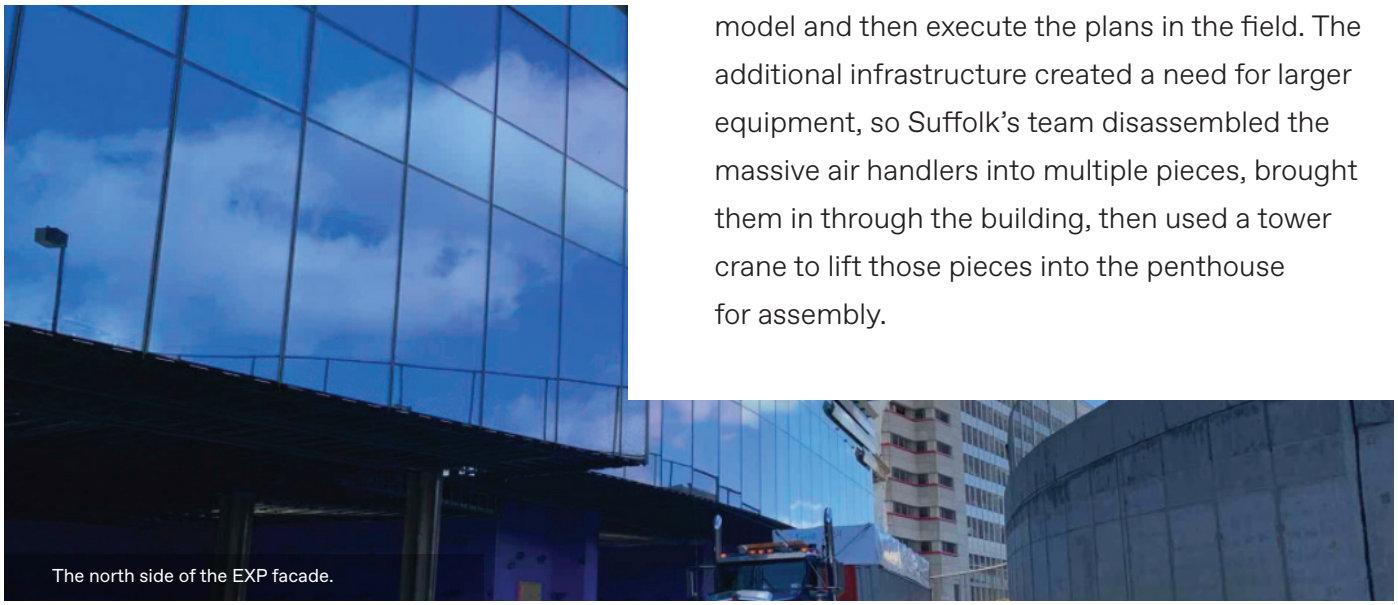

Concrete and steel on the EXP roof.

An interior view of the building's central stair.

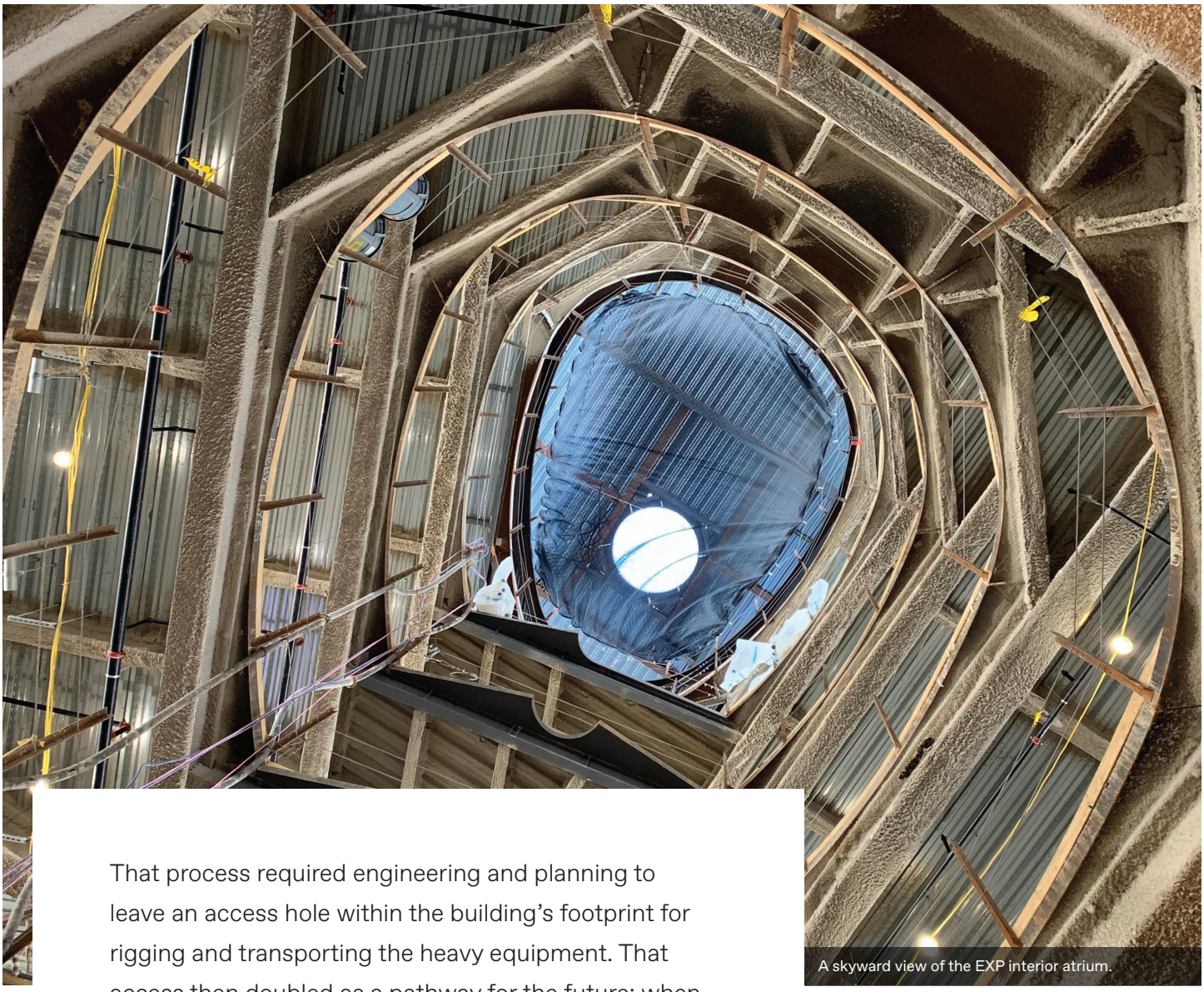
Northeastern University's team designed EXP's modern research space to be completely flexible, allowing conversion from dry labs to wet labs as needed to accommodate different occupants. The space was laid out to promote collaboration between students across disciplines, and when complete will include teaching and research labs, classrooms, makerspace, dedicated space for innovative work in autonomous vehicles, drones and robots, a cafe, and a faculty club. The exterior of the building was designed to harmonize with the ISEC and the pedestrian bridge, which will connect the two buildings.

To enable that flexibility, Suffolk undertook a robust pre-planning effort to ensure all spaces could mechanically accommodate various end uses, saving Northeastern University from having to renovate rooms in the future. Modeling was key for the two-story mechanical penthouse, which would take on more power, plumbing, and exhaust duct space to allow for changes from dry to wet labs and vice versa.

Suffolk collaborated closely with Northeastern University, the designers and several trades to coordinate the elements of the penthouse in the model and then execute the plans in the field. The additional infrastructure created a need for larger equipment, so Suffolk's team disassembled the massive air handlers into multiple pieces, brought them in through the building, then used a tower crane to lift those pieces into the penthouse for assembly.



The north side of the EXP facade.



A skyward view of the EXP interior atrium.

That process required engineering and planning to leave an access hole within the building's footprint for rigging and transporting the heavy equipment. That access then doubled as a pathway for the future: when changing over labs, Northeastern University could easily transport lab equipment into the basement and replace mechanical systems.

Because the flexibility needs required such thorough coordination and modeling, **the team was able to leverage prefabrication techniques to speed up mechanical installations.** Subcontractors produced and delivered precut, pre-welded fittings for the different gases that would serve the labs, and plumbers arrived with lengths of pipes on struts so they could install up to eight strands of pipe at once, creating an efficient and quick installation and a pleasing aesthetic in the exposed ceiling.

The generator landing on the building's roof.

Another view of the north side of the EXP facade, which has 1,400 custom engineered panels.

Suffolk accomplished all this work on an extremely tight urban site, on Northeastern University's occupied campus and between the active ISEC, the railroad tracks serving Amtrak and the Massachusetts Bay Transit Authority, a bus station and some of Boston's busiest thoroughfares. The team's hand-in-hand work with Northeastern University and its designers to model the project, pre-plan as many aspects as possible, and select local subcontractors to plan and execute the work led to another collaboration between Suffolk and the school, as the company will build an addition to Northeastern University's Matthews Arena —the oldest standing ice arena in the U.S. Work on the EXP building is scheduled for completion in 2023.

By the numbers:

10
Years spent on master planning for research area

350,000
Square Feet

300
workers on site daily

1,400
unique custom engineered **panels for the façade**