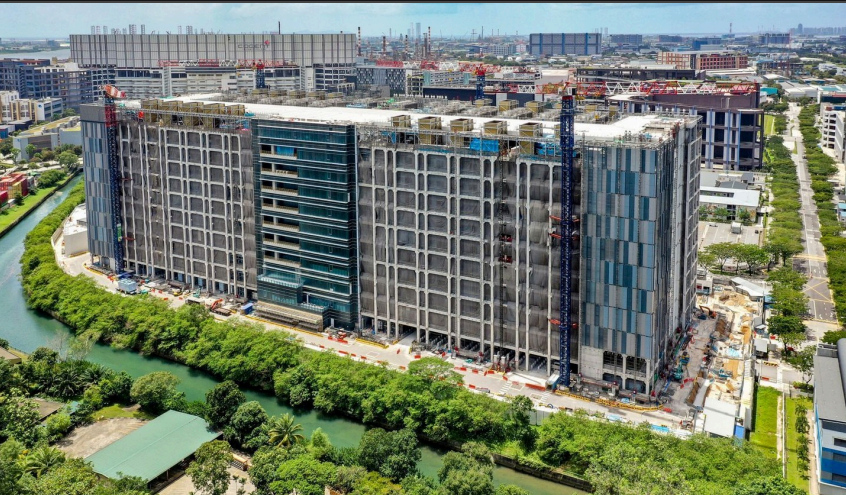


A MASSIVE UNDERTAKING

How Fortis built one of the world's most complex data centers



Fortis stacked 1.8M sq ft into 11 stories in land-scarce Singapore, absorbed an AI redesign mid-build, and coordinated the whole thing floor by floor inside a single shared model in Resolve.

WHY IT WAS COMPLEX

- The campus' vertical design forced highly congested MEPF into tight floors.
- The three-year timeline shrunk to eighteen months.
- A global team spanning 17 countries and 9 companies.

88X ROI

return on the Resolve investment

3 months

ahead of the original completion date

197 weeks

of labor saved

887 issues

identified in Resolve after model fully clash coordinated

These outcomes reflect the planning, field execution, and leadership Fortis delivered with Resolve as the coordination and review layer that kept a global team aligned.

CHALLENGE

Redesign mid-construction

Halfway through construction, the project took an unexpected turn. What started as a data-storage facility needed to become an AI data center and change from air-cooled to liquid-cooled. There was no time to pause and redesign from a clean sheet.

Nearly half the building had to be rethought and redesigned while construction was ongoing. The team received over 2,000 design changes during the project.

Grace Ambasan, a VDC Manager on the project, hadn't used VR prior to the Singapore project. She became the most active Resolve user on the project. A change that is hard to convince others is necessary in a flat-screen meeting becomes self-evident once everyone is standing in the space.

SOLUTION

VR reviews staged by team

The VR review workflow was already in place, so Fortis could push the new design out to every stakeholder and keep the team aligned and on schedule.

Fortis ran the reviews in stages so input arrived when it was useful: trade partners first, then the design team, then the client. Each pass resolved the issues it was best placed to resolve before handing off to the next.

"Reviewing in Resolve showed me what I'd been missing. In the most compact spaces, I could zoom right down to a single rod or damper. On a screen it looks fine; in VR you feel there's no room to reach it at all."



Grace Ambasan
VDC Manager, Fortis Construction

CHALLENGE

A global team that could not picture the same building

A redesign only works if everyone understands it the same way. On this project, that was the hard part.

The team came from 17 countries, spoke nearly a dozen languages, and represented a wide array of disciplines across engineering and construction. They held identical sets of drawings, yet no two people shared the same mental image.

SOLUTION

VR became a common language

Resolve became the shared model everyone could step inside, at full scale, on wireless headsets from anywhere in the world.

"There was not a common language of understanding until it was visual, in the VR headset. Some people look at a drawing set and cannot imagine scale or dimensions off of it at all. But once they put themselves inside of it, it is like, oh, that twenty-foot ceiling is actually really high."



Todd Andersen
Project Executive, Fortis Construction



1.8M sq ft climbing 11 stories instead of sprawling across open land.



A team spanning 17 countries walking the same model at full scale, together.

CHALLENGE

Cables that could not move

Supply chain constraints required the owners to pre-purchase tens of millions of dollars of cable and trays well ahead of time to ensure they'd be ready during construction. But the order locked in specs from an early design, before the team broke ground and the project changed. When the redesign pushed new elements into already-tight spaces, the telecom baskets ran too close to electrical trunking, causing potential signal disruption. It never would show up as a clash, but it would fail if it made it to the field.

SOLUTION

Realtime collaboration

- Stakeholders walked the congested zones together, at full scale, before anything was committed to the field.
- In realtime, they came up with solutions to reroute around the fixed cable trays inside the model.
- Issues were captured, exported, and shared with trade partners straight from the platform.



Roughly 70% of the MEPF was DfMA, coordinated floor by floor in one shared model.

CHALLENGE

Tight walkways a screen can't show

The DfMA catwalks were another major test, and the best case for why a headset beats a flat screen. Access platforms sat five to six meters above the floor, threaded between overhead and low-level services. On a drawing they looked workable. Standing on them in Resolve, the team found missing guardrails, grab bars, and access ladders in the wrong place, and corridors too tight to evacuate someone who went down. Those risks sneak through 2D drawings. They are obvious the moment you walk the space.

SOLUTION

Instant approvals after live VR reviews

Dushyant Negi ran the architect and engineers through those spaces as live demonstrations.

"Some changes are hard to make the case for on a screen. Once everyone is standing in the space in VR, the right call becomes obvious, and the changes get approved instantly. In your usual collaborative platforms like Navisworks, you would not catch these issues."



Dushyant Negi
BIM Coordinator, Fortis Construction

THE PAYOFF

Early, despite everything

A redesign across six levels, mid-build, on a schedule already compressed from three years to eighteen months, should have been a prescription for delays, change orders, and cost overruns.

Instead, the team finished *ahead of schedule*.

197 weeks

of labor saved

3 months

ahead of the original
completion date

887 issues

caught and resolved before
the field

"Our success in Singapore came down to one thing: *everyone together in the model in Resolve*, standing next to each other even if they were across the world from each other."



Hardarshan Singh
VDC Manager, Fortis Construction