

How PPVC works

Case study with NTU North Hill



1. Each time, 40-50 empty modules manufactured in prefabrication plants in China are shipped to Singapore. They have floor tiles, windows, internal door frames and internal boards installed.



2. Modules arrive in Singapore's ports and are transferred to fit-out yards. Modules have to be fitted out within 1-2 weeks with lights, electrical wiring, sprinkler pipes, switches, fans, toilet piping, hot water supply, toilet floor casting and tiling, doors etc. Only the water closets and basins are left incomplete.



3. Every day, about 6-8 modules are delivered to the construction site to be lifted and assembled. Only after they are hoisted up are the sanitary drainage pipes connected manually to the units below them until everything is linked to the main drainage vertical stack. Mechanical and electrical services and floor tiling are then installed along the corridors to complete the project.

Lessons learnt

- Long-span structures are more challenging to build using PPVC as longer modules require more planning for transportation.
- It still costs more to use PPVC due to lack of economies of scale, and the high cost of shipping empty modules. Containers are charged by volume, not weight.
- Transportation of large modules has to be done within restricted hours at night.
- Designs need to be confirmed early, with minimal changes allowed afterwards.
- Planning has to be precise to minimise the need for storage.