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singapore

Construction projects using new technologies to quadruple by 2020



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Firms need to rely less on manpower or plans risk being held back or deferred, says Lawrence Wong

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SINGAPORE — If construction projects in Singapore continue to remain manpower-intensive, plans in the pipeline, including more flats, hospitals and MRT lines, could be hindered, warned National Development Minister Lawrence Wong yesterday. He also announced a goal to quadruple, in three years, the proportion of public projects built using new technologies.

Speaking at the official opening of the new sports hall at Nanyang Technological University (NTU) — built using an innovative timber construction technology known as mass engineered timber that reduced manpower needs by 25 per cent — Mr Wong said such more productive technologies are “a major game-changer” in the way the future Singapore is built.

Mass engineered timber are produced using wood harvested from sustainably managed forests, and prefabricated, saving installation time and manpower. This technology also boasts having the lowest energy and water consumption as compared to conventional building materials.

“If we continue to rely on existing building methods ... we will end up simply with a far larger pool of foreign workers than we can possibly accommodate in Singapore,” he said.

“The shortage of workers ends up becoming a bottle-neck and a constraint in our development — we end up having to hold back or defer projects.”

The mass engineered timber technology used for the three-storey sports hall — dubbed The Wave because of the shape of its 72m roof — reduced structural construction time by one-third.

Besides this method, there are other more productive options, such as structural steel and Prefabricated Prefinished Volumetric Construction, cited Mr Wong.

“If we were to use similar technologies, like what NTU has done, for all our construction projects, we can potentially carry out billions more in projects with the same number of workers today,” he added.

Today, about 10 per cent of construction projects use new techniques like mass engineered timber. By 2020, the Government aims to increase this to 40 per cent.

Mr Wong said: “It is an ambitious target, but we will make it happen and we believe we can do so because there is a significant pipeline of construction projects which are public sector in nature — led by public sector agencies. The public sector agencies will drive, lead and require the contractors to adopt new technologies which are more productive.”

The Wave is the first large-scale building in South-east Asia built using this green technology.

It is big enough to house nearly 1,000 spectators and three full-sized basketball courts even though there are no columns needed to prop up the roof that is made up of seven timber arches weighing over 440 tonnes. Buildings with large roofs typically require scaffoldings as support, and beams may also have to be orientated along the shorter side of the structure.

The facility also provides five times better heat insulation than concrete and has a special cooling system that chills the air as it enters the hall so that no conventional air-conditioning systems are needed.

For example, each external wall has two layers with a pocket of air between them that insulates the heat on hot days. The walls have special metal coils installed

with chilled water flowing through them, cooling wind that enters the hall while allowing warmer air to escape through convection.

Other eco-friendly features include energy-saving LED lighting and solar powered systems. These features are estimated to reduce energy use by over 40 per cent, NTU said.

Sports science and management undergraduate Vernetta Phang, 21, had a good experience playing in the new hall during her inter-hall games.

“It feels a lot more open as compared to the old one, as it has more ventilation and higher roof. Generally I think the entire place looks a lot more ‘fresh’ because of the use of wooden floor and walls,” she said.



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