



National Centre of Infectious Diseases Singapore



Completion Date
JANUARY 2018

Owner
MINISTRY OF HEALTH OF SINGAPORE, MOH HOLDING PTE LTD.

Project Manager
PM LINK PTE LTD.

Consultants
CPG CONSULTANTS PTE LTD.

Contractor
KAJIMA OVERSEAS (SINGAPORE) PTE LTD.

Engineers
MEINHARDT (SINGAPORE) PTE LTD.

Concrete Producers
ISLAND CONCRETE PTE LTD, PAN-UNITED CONCRETE PTE LTD., ALLIANCE CONCRETE SINGAPORE PTE LTD.

Applicator
JINGSLINK MARKETING PTE LTD

Products
CONCENTRATE, ADMIX C-1000 NF

The National Centre of Infectious Diseases (NCID) is a 330-bed purpose built facility to strengthen Singapore's capability in infectious disease management and prevention. Composed of two blocks of institutional buildings with four levels of basement substructure and three underground pedestrian/vehicular underpass links, NCID was officially opened in September 2019. With state-of-the-art technologies, the health center provides enhanced ability to respond effectively to potential infectious outbreaks and houses Singapore's first high-level isolation unit for highly contagious patients.

Technical Specification

Xypex's crystalline system for concrete waterproofing and durability was proposed, approved, and accepted to provide protection to

the four levels of underground substructure (basement base slabs and perimeters) and three underground pedestrian/vehicular underpass links.

Prior to selection, the [Xypex Technology](#) was tested to EN12390-2 (Water Penetration Under Pressure). The project specification required a maximum water penetration of less than 15 mm and the Xypex [Concentrate](#) and [Admix](#) treated samples achieved average water penetration of 5 mm and 10 mm respectively at 29 days.

The original specification had also required the installation of a membrane on the mud slab but this was replaced by the application of Xypex Concentrate resulting in cost and time savings. An additional waterproofing measure

was included at the interface of the bored tension piles and the raft slab whereby an additional coating of Xypex Concentrate was applied to minimize the incidence of cracking and water transmission.

In order to provide a single and integrated waterproofing system, the specification for a diaphragm wall was changed to contiguous bored piles with a skin wall, treated with Xypex Admix, cast directly against it. At the interface of the raft slab and the bored piles, an additional layer of shotcrete was sprayed against the piles and then a coating of Xypex Concentrate applied to provide additional protection at this critical area.



Both Xypex Admix C-1000 NF and Xypex Concentrate were used in the 19,000 m² 4th level basement slab and skin walls as well the underpass link base slab, walls, and roof. A total of 58,500 m³ of concrete were treated in all. Construction joints were treated with Xypex Concentrate.

Xypex products successfully waterproofed and protected the various underground structures in a timely manner. Following the fitting out of the construction, The National Centre of Infectious Diseases was thankfully operational before the outbreak of the Covid-19 pandemic.

