
ROBERT J. TAIT ELEMENTARY SCHOOL SEISMIC UPGRADE

| | |
|-----------------------------------|---|
| TARGET CONSTRUCTION START: | May 2019 |
| TARGET COMPLETION: | September 2020 |
| PROJECT BUDGET: | \$5.84 Million |
| FUNDING SOURCES: | Ministry of Education Capital Plan - \$7.59 Million (maximum) |
| CONSULTANT: | Craven Huston Powers Architects |
| CONSTRUCTION MANAGER: | Unitech Construction Management Ltd. |
| PROJECT MANAGER: | Richmond Project Team Enquiries: Sam Yoo, 604-295-7000 ext. 4100 |

BACKGROUND

Robert J Tait Elementary School originally opened in 1955 with renovations and additions in 1965, 1968, 1972, 1976, 1980, 1993, 1998, and 1999 to serve Kindergarten to Grade 7. A comprehensive building envelope upgrade was completed in 2015. School District No. 38 (Richmond) has confirmed that Tait Elementary is needed for the long term as part of the overall long-range strategic planning.

Tait Elementary, which consists of three distinct blocks, was seismically assessed using Version 3 of APEGBC's Seismic Retrofit Guidelines. The entire school has a high risk of liquefaction potential requiring substructure upgrades, with Block 1 (1965 addition) having a Seismic Risk Category H2, requiring a superstructure seismic resistance upgrade.

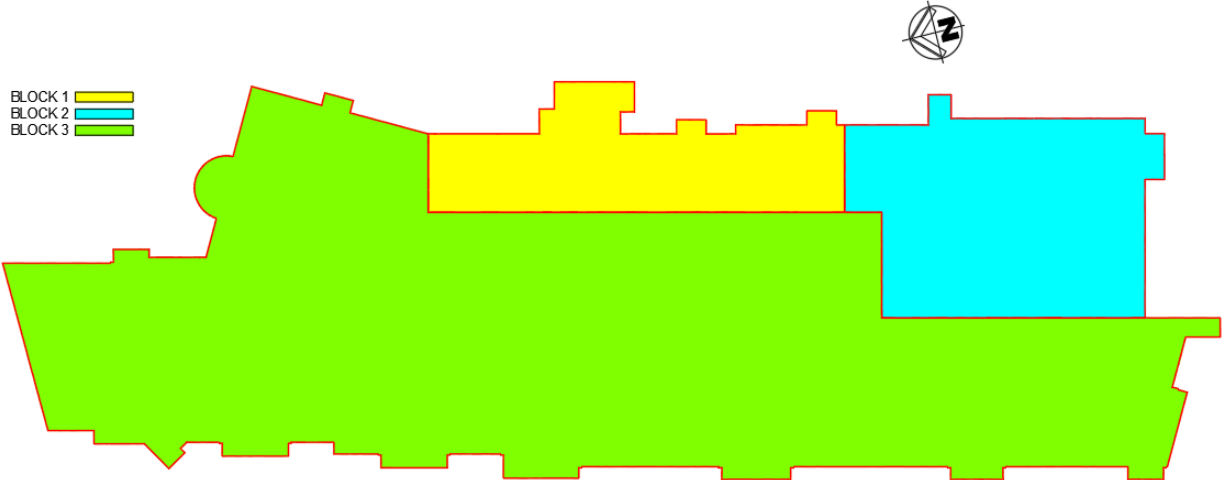
PROJECT SCOPE

- Block 1 (1965 Classrooms) - structural upgrades consisting of: additional shear capacity through new plywood sheathing, blocking and hold-down anchors added in selected locations to existing wood stud walls; vertical reinforcement, grouting and upgraded connections to the roof diaphragm added to concrete block walls in the mechanical room; and plywood sheathing added to the existing timber roof complete with diaphragm chords as required. To mitigate the high risk of liquefaction, structural composite lumber framing and strapping will be added in the crawlspace to reinforce the existing floor diaphragm.
- Blocks 2 (1976 Gymnasium) and Block 3 (1955 Original School, 1980-1998 Additions) - seismic retrofit to achieve a life-safety level for liquefaction mitigation including adding concrete grade and tie beams to the building core as well as reinforcing the existing floor diaphragm by installing strapping complete with structural composite lumber framing.
- Non-structural seismic resistance upgrade to the entire school (added restraint of lighting, HVAC, plumbing and cabinets).
- Restoration of wall/floor/ceiling/exterior finishes and hard/soft landscaping affected by the structural work, addition and demolition.

- Minor removal and replacement of mechanical and electrical equipment to accommodate structural work.

PROJECT STATUS

- The Ministry of Education approved the project 30 July 2018 and signed the Capital Project Funding Agreement for the seismic upgrade of Tait Elementary 13 August 2018, funded from the Seismic Mitigation Program (SMP).
- Design completed May 2019.
- Construction commenced 21 May 2019 but was delayed due to special training required for workers prior to do any work in the crawl space.
- Numerous holes made on the existing floor throughout to gain access and work in the crawl space.
- Approximately 2/3 of the concrete grade beams required in crawl space poured in Summer 2019.
- 3 classrooms in Phase 1 seismically upgraded and renovated in September 2019; 3 classrooms in Phase 2 completed in December 2019.
- New flooring provided to 3 classrooms in Phase 3 during Winter Break 2019.
- Seismic & finish upgrade work of Phase 4 (also 3 classrooms) completed and turned over in mid-February as scheduled.
- Seismic & finish upgrade work of Phase 5 completed.
- New flooring has started to be installed in some common areas.
- Seismic upgrade works in all the classrooms are now complete, June 2020.
- The last phase consists of seismic/renovation work in the washroom(s), mechanical room, common areas and gym. Gym finishes will be updated; boilers will be replaced.
- Structural bracing work for seismic upgrading in the crawl space is now complete, June 2020.
- Acoustic panels installed in gym, June 2020.
- Slab poured over infill insulation & framing completed for new GN washroom, June 2020.
- Floors all prepped and new flooring started to be laid down in corridors, July 2020.
- Started to see final finishes in GN washroom, July 2020.
- Installation of new boilers and tankless domestic water heaters nearing completion, July 2020.
- Roof diaphragm upgraded where required; base sheet of roofing done in this area, July 2020.
- Final inspection with the city took place on September 8 & occupancy attained.
- Exterior railings will start to be replaced in October to address life safety issues, one at a time after school hours if possible to minimize impact on school operations.



Seismic Block Map – Robert J. Tait Elementary School