

PRRD - NORTH PEACE FALL FAIRGROUNDS: ADELINE KELLY BUILDING

Occupancy Change Code Review and Cost Estimate

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McElhanney



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PREVIOUS WORK

- 2023 – McElhanney review of NPFF:
 - Topographic survey and capture RPAS imagery of site.
 - Structural and BC 2018 Fire Code assessment of (almost) all existing structures.
 - Prioritized repair/replacement Class D (+/- 50%) cost estimation.
 - Adeline Kelly building and bleacher roofs were not evaluated per client request.
- 2024 – McElhanney document review of Adeline Kelly Building:
 - Review of all existing documents and compilation of findings against the original 2012 BCBC.
 - Comparison with 2018 BCBC.
 - Baseline cost review and presentation to PRRD staff.



SCOPE OF WORK & METHODOLOGY

After the previous work was complete, the need for a full code review was identified.

- Architectural Scope of Work: (Meiklejohn Architectural Design (MAD) Studio)
 - Code review of required upgrades to meet 2024 BCBC, three or four season building.
 - Conceptual floor plans incorporating kitchen and washroom facilities.
- Structural Scope of Work: (McElhanney)
 - Structural calculations considering climatic and structural requirements to meet 2024 BCBC.
 - Cost estimation and recommendation for path forward.
 - Presentation of findings.

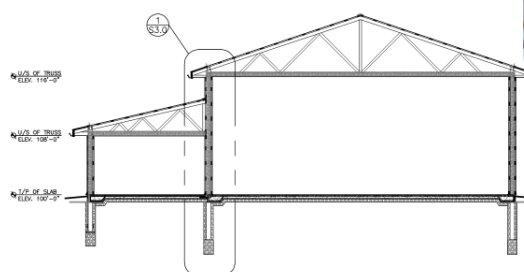


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OVERVIEW OF BUILDING AND HISTORY

Timber “Pole Shed” structure built in ~2014

- Timber trusses and “pole” walls with wood strapping. Poles embedded in gravel foundation holes. Concrete slab-on-grade.
- Designed and constructed as F-2 medium hazard industrial occupancy.
- Kitchen and washroom facilities proposed in ~2021 not completed.
- Some structural deficiencies from original construction completed ~2023 by original engineer.



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KEY FINDINGS

Architectural

- Existing building does not meet the original building code to which it should have been designed.
- Occupancy change from F-2 to A-2 (assembly) requires full building code upgrade. For a three or four season building, per BCBC 2024 there needs to be appropriate:
 - Sprinkler system not required for fire suppression.
 - Heating and insulation (4 season only), ventilation, plumbing, and electrical wiring.
 - Washrooms capable of accommodating a 300-person occupancy.
- Critical life safety items missing including fire alarms, fire fighting access & water supply, and fire rated assemblies.



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KEY FINDINGS

Structural

- Incorrect design loads for climatic wind (32% high) and snow (24% low). Appears to have neglected seismic loading in design.
- Badly overloaded foundations compared to geotechnical design values (266% to 354%).
- Wind and seismic (lateral force) resisting system not recognized in Canadian design codes.
- Structural fixes and upgrades seem achievable but extremely invasive and costly.
 - Removing cladding, replacing roof trusses, stripping the walls down to posts.
 - If geotechnical parameters are confirmed to be severely insufficient, posts would need extensive remedial reinforcement.
- Limited durability of the wood post foundation would result in a significantly reduced service life of the building.

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COST TO UPGRADE

Architectural and Structural Upgrades

- Class D cost estimate per EGBC guidelines ($\pm 50\%$).
- Costs for firefighting provisions were not included.
- Roof cladding, wall cladding, and sliding doors can be salvaged for replacement.
- Foundation retrofit only considers members likely part of a lateral force resisting system. More retrofits may be required pending geotechnical analysis.
- Optional item cost (\$/sqft) includes insulation and 1,400 sqft kitchen addition.

Costs were reviewed by WL Construction (FSJ) and deemed appropriate.



COST TO UPGRADE

Architectural and Structural Upgrades

Item	Item Description	Low	High	Contingency	Square Feet	\$ Per Sq.Ft. (High)
		Estimate	Estimate			
Retrofit	Construction Costs	\$ 511,798	\$ 741,237	45%	4256	\$ 174
	Soft Costs	\$ 23,747	\$ 26,247	11%	4256	\$ 6
	Project Total:	\$ 535,545	\$ 767,484	43%		\$ 180
	Optional Item Costs	\$ 225,440	\$ 296,536	32%	5656	\$ 212
	Project Total:	\$ 760,985	\$ 1,064,020	40%	5656	\$ 188
New Building	Equivalent building, wood framed, medium finishes	\$ 1,847,957	\$ 2,375,944	29%	5656	\$ 420



PATH FORWARD

Options for Future Plans



Key Points:

- Remediation invasive and expensive
- Anticipate shortened service life



ALTERNATIVE BUILDING OPTIONS

- Pre-engineered steel building
 - ~\$200/sqft to \$300/sqft
 - Common and readily available
 - Industrial looking
- New improved timber framed building (kitchen and washrooms)
 - ~\$325/sqft to \$425/sqft
 - Easy to build and maintain
 - Modern or rustic looking



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QUESTIONS



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