

# School District 5 Southeast Kootenay Long Range Facilities Plan



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REVISION HISTORY

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# Executive Summary

The Long-Range Facilities Plan (LRFP) provides direction and support to School District #5 (SD5), in their capital planning. Like many school districts in British Columbia, SD5 faces unique challenges as they manage their effort to build appropriate spaces for students, rather than fitting students into preexisting spaces. Priority considerations for SD5 include the following:

- The uniqueness of the region. SD5 is spread over 5 regions and in good weather, the distance is covered in two hours. During the school year, the roads can be impacted by snow, avalanche, and flooding.
- Ministry initiatives that impact space utilization, such as new accessible washrooms, indigenous education initiatives, itinerant spaces for professionals such as speech & speech pathologists.
- Ministry initiatives for provision of Childcare spaces

Priority capital program improvements consist of the following:

- A replacement/renovation to Mount Baker Secondary School is a priority for the school district. The school is challenged by the existing structural limitations and cannot be adapted for current and future learning.
- A new Middle School for Fernie. The City is seeing population increase and current capacity overage is accommodated via 10 portable classrooms at the current Elementary School site.
- A replacement elementary school for FJ Mitchell Elementary School in Sparwood. The existing facility is projected to be at or slightly above its operating capacity for the foreseeable future and the facility has among the highest FCI's in the district.
- A replacement elementary school for Gordon Terrace Elementary in Cranbrook. The facility is ill-suited to serving the community in its current configuration and not readily renovated to suit.
- A replacement elementary school for Amy Woodland Elementary School in Cranbrook. This facility has the highest FCI within the district and is projected to maintain a reasonable level of enrolment for the foreseeable future.

# 1. Project Introduction and Overview

## 1.1 Project Purpose

The Ministry of Education fulfills many functions, and one of its core responsibilities is the provision of access to funds for the K-12 public education system. This funding includes capital funding for school construction, operational funding for ongoing renovations, and funding for building upgrades required to maintain the condition of existing capital assets. The Ministry is fiscally responsible for management of the capital procurement process with all costs associated with capital and operating funding incorporated within its budget.

The purpose of the Long-Range Facilities Plan (LRFP) is to provide a consistent medium for school districts to demonstrate and calculate how they are managing their facilities in an efficient, economic, and effective way considering changes in student enrolment over time and their specific educational programming goals. The LRFP lays out the various management strategies regarding the School District inventory of capital assets, placing the need for projects in a district-wide context. Though not required as a component of a Five-Year Capital Plan submission, the LRFP should support capital project requests and is to be available for reference and provision to help inform the Ministry's capital plan review process.

### 1.1.1 Capital Asset Planning System

Following the guidelines set in the government's Capital Asset Planning System, the Ministry of Education has shared accountability and responsibility for capital expenditures to specific school boards of education, while retaining public accountability for ensuring that schools are planned, designed, and constructed in a cost-effective manner. Under the Ministry's resulting procurement process, boards of education are required to develop and submit a project specific sheet for each project determined to be of the highest priority for an upcoming five-year capital plan, with either a project specific Project Request Fact Sheet (PRFS), or a project specific Demolition Project Request Fact Sheet (DPRFS).

### 1.1.2 Ministry of Education—Long Range Facility Plan (LRFP)

The Ministry of Education (British Columbia) published the 2022/23<sup>1</sup> Capital Plan Instructions in May 2021. Within this document, Part 1 describes the necessity and reasoning for a Long-Range

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<sup>1</sup> <https://www2.gov.bc.ca/assets/gov/education/administration/resource-management/capital-planning/capital-plan-instructions-for-2022-23-submissions.pdf> retrieved February 14<sup>th</sup>, 2022

Facilities Plan (LRFP). It is assumed that this document will follow the instructions as described in the 2022/23 Capital Plan Instructions, as follows:

A Long-Range Facilities Plan (LRFP) should not just serve to identify capital projects needed in a school district in the same manner that the Five-Year Capital Plan Summary provides a prioritized list of all capital projects requested for funding consideration. The LRFP should instead present a wide-ranging vision for the use of a board's current and potential future inventory of capital assets, providing broad strategies for the most-effective delivery of education programs. Another critical consideration for the LRFP should be the alternative community use of space in open schools and closed schools, as well as the use of school property.

As a comprehensive planning tool, a LRFP is expected to cover a 10-year timeframe, at a minimum, and outline how a board of education intends to manage an inventory of existing facilities and planned new facilities during that time. An LRFP should be realistic in terms of expectations for the Ministry's allocation of capital funding for the replacement of existing schools and the creation of new space through the construction of new schools and additions to existing schools. A LRFP loses its credibility with the public and its ultimate utility to the school district if it abounds with anticipated capital investments in a school district without having the reasonable justification that identified capital projects will be supported by the Ministry.

Focusing on schools, the development of the LRFP should involve a comparison of the current situation in a school district to a variety of possible future scenarios. Close consideration should be given to a variety of known variables along with possible future influences.

For the current situations, the LRFP should examine how best to utilize available space to accommodate current student enrolment, while ensuring a prudent application of available operating funds and maintenance funds for those open schools with students in attendance.<sup>2</sup>

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<sup>2</sup> [long-range facilities plan guidelines - march 2019 pdf.pdf \(gov.bc.ca\)](#) retrieved February 14, 2022

## 1.2 School District No. 5 (Southeast Kootenay)

“The Southeast Kootenay School District is in the southeast corner of the Province of British Columbia. This region features spectacular mountain scenery, clean lakes, forested hillsides, and wide-open spaces. With an approximate population of 36,000 most people reside in the communities of Cranbrook, South Country (Baynes Lake, Grasmere, Elko, Galloway and Jaffray), Fernie, Sparwood and Elkford.”<sup>3</sup>

“In Southeast Kootenay, we set high expectations for our students. Our students thrive in an innovative and academically enriched educational environment. Our caring and supportive school communities value family involvement and foster clear values that build confidence, character, and good citizenship every day. We encourage our students to participate in a wide array of co-curricular activities and motivate each child to reach his or her individual potential.”<sup>4</sup>

### 1.2.1 SD5 Schools and Organizations

SD5 consists of 17 schools, located in 5 communities: Cranbrook, Fernie, Sparwood, Elkford, and Jaffray. The geographical area of SD5 is distinct and encompasses a variety of municipalities. The distance between communities is best provided in driving times to the size of the school district. The driving time from Cranbrook to Elkford is approximately 2 hours in good driving conditions. Due to the local climate and mountain roads, driving time may be considerable higher in winter months or impossible due to snow, avalanche or flooding events

In this LRFP, each of the communities are identified and analyzed as separate and distinct communities. This is due to a variety of factors including, but not limited to, the size and distance between each of the different communities, and the importance of the educational facilities within each community.

As shown in the table below, Cranbrook has 10 schools: 7 elementary schools, 2 middle schools, and 1 secondary school. The communities of Fernie, Sparwood, and Elkford each currently have an elementary school and a secondary school. The community of Jaffray has a K–10 school.

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<sup>3</sup> [About Us - Southeast Kootenay \(sd5.bc.ca\)](http://sd5.bc.ca) retrieved February 1<sup>st</sup>, 2022

<sup>4</sup> [About Us - Southeast Kootenay \(sd5.bc.ca\)](http://sd5.bc.ca) retrieved February 2, 2022

## SD5 Facilities

School Name:	Grades	Year Built
Amy Woodland <i>(Cranbrook)</i>	K to 6	1958
Gordon Terrace <i>(Cranbrook)</i>	K to 6	1972
Highlands <i>(Cranbrook)</i>	K to 6	1977
Kootenay Orchards <i>(Cranbrook)</i>	K to 6	1995
Pinewood <i>(Cranbrook)</i>	K to 6	1982
Steeples <i>(Cranbrook)</i>	K to 6	1980
École TM Roberts <i>(Cranbrook)</i>	K to 6	1962
École Isabella Dicken <i>(Fernie)</i>	K to 6	1964
Frank J Mitchell <i>(Sparwood)</i>	K to 6	1970
Rocky Mountain <i>(Elkford)</i>	K to 6	1982
Jaffray K-6 <i>(Jaffray)</i>	K to 6	1957
School Name:	Grades	Year Built
Laurie Middle <i>(Cranbrook)</i>	7 to 9	1962
Parkland Middle <i>(Cranbrook)</i>	7 to 9	1998
Mount Baker Secondary <i>(Cranbrook)</i>	10 to 12	1951
Fernie Secondary <i>(Fernie)</i>	7 to 12	1998
Sparwood Secondary <i>(Sparwood)</i>	7 to 12	2008
Elkford Secondary <i>(Elkford)</i>	7 to 12	1982
Jaffray 7-10 <i>(Jaffray)</i>	7 to 10	1957

### 1.2.2 Bussing

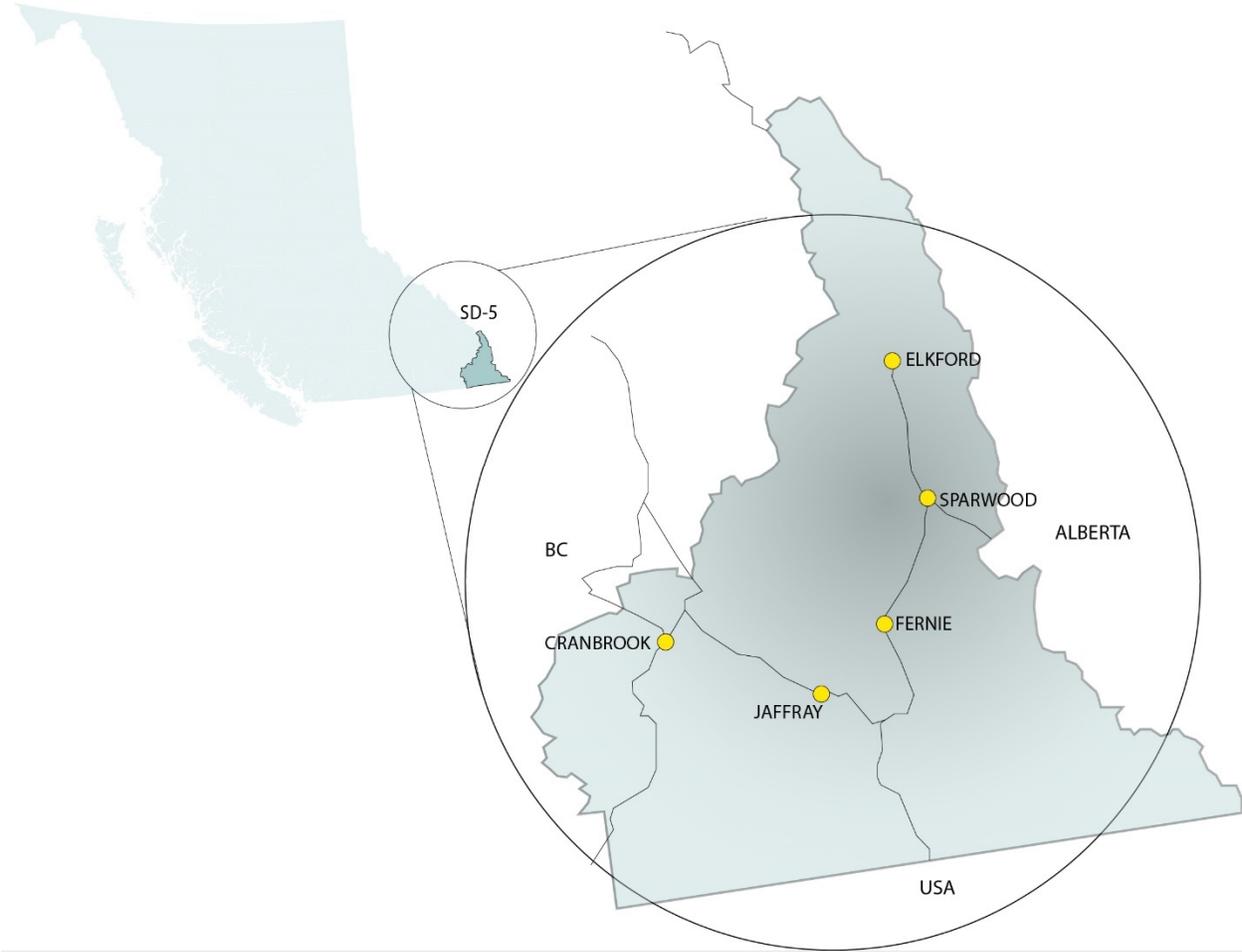
Due to the distribution of students within each community, SD5 provides bus transportation for students to schools. SD5 oversees bus routes and determines all routes within each municipality internally.

### 1.2.3 Other School Properties

The School District operates additional programs. These include the Kootenay Discovery School, Kootenay Education Services, and Kootenay Learning Campus. In addition, the school district currently leases one of their facilities to local industry; this lease is a turn-key arrangement whereby the tenant is fully responsible for all ongoing maintenance and repair while the school district maintains ownership of the land.

To address the dynamic nature of the school district's population, the Board of Education of School District #5 has noted "In our rural, remote, and forgotten corner of this great province, with a School District that includes four (4) municipal governments and a portion of the Regional District of East Kootenay (RDEK), future school sites continue to be approved and purchased by the provincial government when there is an urgent need to proceed with a new school in growing areas."

In support of this, property in Fernie at the intersection of Montane Parkway and Cokato Road is in the process of acquisition, intended to be the site for new construction of Fernie Middle School.



## 1.3 Methodology

The LRFP was developed using iterative interactive process including a variety of stakeholders, representatives, and departmental staff. A kick-off meeting was held with the SD5 Board, from which necessary supporting information was identified and ultimately provided to the report authors. Since the 2017 LRFP, SD5 undertook a thorough digitization of each school facility within the district, with the exception of Parkland Middle School. This permitted an update to area analyzes included in previous LRFP reports. SD5 Board of Education was presented with initial findings of this report, including: a review of school conditions, review of school methodologies, trending school demographics and capacities, and finally the preliminary findings of the report.

Several means of analysis were considered to determine the correct course of action for the future of the facilities. The current physical conditions of the specific schools were first reviewed, assessed from the Facility Condition Assessment summary provided by SD5. Methodology for determining school areas was in accordance with Provincial area standards, while current and projected student enrolment demographics have been provided utilizing Barager projections. These demographic projections are then compared to the nominal and operational capacities of each school. Finally, these analyses were synthesized into a study, sorting future student projections into groups of classrooms, numerically identifying the number of classrooms by which each school either exceeds or is deficient. In this way, the projected student populations, whether positive or negative, can be seen and compared against the different grades, schools, and towns which make up the School District.

At the School District's request, the March 2021 report from the BC School Trustees Association entitled "The Case for Increased School Life Cycle Funding" was also reviewed for its insights and recommendations related to near- and long-term capital maintenance program funding; a copy is included as Appendix N to this report.

### 1.3.1 Long Range Facilities Plan (LRFP)

The LRFP follows all requirements as defined by the Ministry of Education. As described, SD5 includes five different communities, united together. Understanding that SD5 provides educational services in five different communities is essential and, therefore, the LRFP is developed by creating an overall understanding of the school district, as well as a detailed analysis of each community. The LRFP provides the following:

- Section 1: Project Introduction and Overview

- Sections 2-4: Identifies key inputs by SD5
  - Enrolment (historical and projected)
  - Building Condition Assessment Summary
  - Capacity and Use
- Sections 5-9: Identify and analyze key inputs of SD5, by community
  - Enrolment (historical and projected)
  - Building Condition Assessment Summary
  - Capacity and Use
  - Potential options and analysis
  - Recommendations by school and by community
- Section 10: Implementation Strategy
  - Summary and estimated timeline for improvement recommendations
- Section 11: SD5 non-school & vacant properties
  - Summary of SD5 holdings including non-school use, leases, and vacant properties.

### **1.3.3 Planning Assumptions and Constraints**

The following project and planning assumptions were discussed and confirmed with SD5 representatives, and are reflected in this LRFP:

- Maintain educational services in each community
- All non-curriculum programs will continue to operate (e.g., strong start)
- Full day kindergarten will be neither modified nor altered
- Early Childhood Initiatives are important and continue to operate
- Classroom sizes will reflect new enrolments and capacities
- Indigenous Instructional Space (FSS) is a need
- Support for on-line learning is to be maintained
- French Immersion programs are to continue and may require expansion
- Before- and after-school care requires spaces adequate for partnering with local operators
- Considerations for community engagement and amenities for community residents

## 2. Historical and Projected Enrolment

### 2.1 Methodology

The projected enrolment data is a specialty of Baragar Systems. The Baragar Systems software generates projected enrolment numbers, using standard projections but critically 'without local knowledge.' Baragar generates these enrolment numbers by inputting local and district population rates, births, childcare credit data, and other relevant information. As these predictions did not consider local knowledge, many factors could change specific enrolment predictions, such as the status of new residential developments, the strength of the specific local industries, and changes in private school enrolments.

Kindergarten enrolment rates can be volatile and difficult to predict. Baragar also uses assumptions about 'feeder schools' to make enrolment predictions, and considers the relationships between Elementary, Middle, and Secondary Schools. In addition to the enrolment data provided by Baragar Systems, economic leaders in each of the SD5 communities were engaged to ensure the Baragar Systems data reflected their outlook. In each case, the economic leaders' thoughts were aligned with the enrolment projections. The Baragar information included data during Covid-19. Currently, it is unclear if there is any impact from Covid-19 on projected enrolment.

### 2.2 Historical and projected enrollment summary

The historical and projected enrolment summary for SD5 is shown in the table below. The overall district enrolment projections indicate an incremental reduction at each sequential 5-year increment, with an overall reduction in enrolment of approximately 5.6% in the 15-year time horizon. This reduction is currently weighted more heavily toward the K-6 elementary-aged students at 9.4% versus grade 7-12 middle & secondary students at 1.3%. The overall enrolment projections in the Cranbrook, Sparwood, Elkford, and Jaffray communities generally indicate incremental reduction in anticipated enrolments over the each of the 5-year projection periods, with a few schools indicating single-period increases. Project Enrolments within Fernie indicate growth. In Fernie, projections show an 8% growth in total enrolment. Detailed enrolment projections, including enrolment by school and by grade, can be found in Appendices A–E.

<b>SD5 ENROLMENT PROJECTIONS</b>								
<b>School Info:</b>	<b>Projected Enrolment</b>						<b>15 yr. Enrolment Δ</b>	
<b>School Name:</b>	<b>2021</b>	<b>2026</b>	<b>2031</b>	<b>2036</b>	<b>Nom. Cap</b>	<b>Op. Cap</b>	<b>Δ</b>	<b>Δ %</b>
Amy Woodland	272	263	268	269	295	273	-3	-1.1%
Gordon Terrace	266	241	239	241	265	247	-25	-9.4%
Highlands	213	184	168	166	265	247	-47	-22.1%
Kootenay Orchards	218	237	212	211	240	224	-7	-3.2%
Pinewood	132	131	115	111	145	135	-21	-15.9%
Steeple	190	171	157	159	240	224	-31	-16.3%
École TM Roberts	354	346	335	331	385	359	-23	-6.5%
École Isabella Dicken	529	539	518	518	455	425	-11	-2.1%
Frank J Mitchell	396	403	372	358	360	336	-38	-9.6%
Rocky Mountain	263	202	194	192	265	247	-71	-27.0%
Jaffray K-6	137	132	140	135	145	135	-2	-1.5%
<b>Grades K to 6 Subtotal</b>	<b>2970</b>	<b>2849</b>	<b>2718</b>	<b>2691</b>	<b>3060</b>	<b>2852</b>	<b>-279</b>	<b>-9.4%</b>
Laurie Middle	394	361	335	326	500	500	-68	-17.3%
Parkland Middle	450	448	442	433	600	600	-17	-3.8%
Mount Baker Secondary	808	901	887	798	850	850	-10	-1.2%
Fernie Secondary	439	529	571	528	600	600	89	20.3%
Sparwood Secondary	286	311	315	289	300	300	3	1.0%
Elkford Secondary	193	238	197	171	570	570	-22	-11.4%
Jaffray 7-10	76	66	60	66	125	125	-10	-13.2%
<b>Grades 7 to 12 Subtotal</b>	<b>2646</b>	<b>2854</b>	<b>2807</b>	<b>2611</b>	<b>3545</b>	<b>3545</b>	<b>-35</b>	<b>-1.3%</b>
<b>Total</b>	<b>5616</b>	<b>5703</b>	<b>5525</b>	<b>5302</b>	<b>6580</b>	<b>6397</b>	<b>-314</b>	<b>-5.6%</b>

# 3. Facility Condition Assessment Summary

## 3.1 Capital Asset Management System (CAMS) Facility Rating Index

The BC Ministry of Education has established a Capital Asset Management System (CAMS) for all schools in the province and has contracted with VFA Inc. to conduct facility condition audits.

The purpose of the facility condition audit is to determine the equivalent age and condition of each school building(s). The condition includes structural, architectural, mechanical, electrical, plumbing, fire protection, equipment and furnishings and life safety. An audit of site conditions is also included.

The audit determines what resources will be required over the coming years to maintain or replace aging facilities. Each school is given a rating called the Facility Condition Index (FCI). This is a comparative index allowing the Ministry to rank each school against all others in the province and is expressed as a decimal percentage of the cost to remediate maintenance deficiencies divided by the current replacement value i.e., 0.26. For practical purposes, the ratings have the following meaning:

### FCI Rating General Assessment

**0.00 to 0.05:** Near new condition. Meets present and near future requirements.

**0.05 to 0.15:** Good condition. Meets all present requirements.

**0.15 to 0.30:** Has significant deficiencies but meets minimum requirements. Some significant building system components nearing the end of their normal life cycle.

**0.30 to 0.60:** Does not meet requirements. Immediate attention is required to some significant building systems. Some significant building systems at the end of their life cycle. Parts may no longer be in stock or exceedingly difficult to obtain. Elevated risk of failure of some systems.

**0.60 and above:** Does not meet requirements. Immediate attention is required to most of the significant building systems. Most building systems at the end of their life cycle. Parts may no longer be in stock or exceedingly difficult to obtain. Elevated risk of failure of some systems.

The following building condition assessment summaries were provided by SD5. As described above, the assessments were procured by the Ministry of Education, performed by VFA Inc., and the results of the assessments were provided to SD5. The detailed VFA reports are not included in the LRFP but can be provided by SD5 upon request.

<b>SD5 Facility Condition Index</b>				
<b>School Name:</b>	<b>Grades</b>	<b>Year Built</b>	<b>FCI</b>	<b>FCI Year</b>
Amy Woodland <i>(Cranbrook)</i>	K to 6	1958	0.56	2016, 2021
Gordon Terrace <i>(Cranbrook)</i>	K to 6	1972	0.39	2016, 2021
Highlands <i>(Cranbrook)</i>	K to 6	1977	0.39	2021
Kootenay Orchards <i>(Cranbrook)</i>	K to 6	1995	0.30	2021
Pinewood <i>(Cranbrook)</i>	K to 6	1982	0.45	2021
Steeple <i>(Cranbrook)</i>	K to 6	1980	0.34	2016, 2021
École TM Roberts <i>(Cranbrook)</i>	K to 6	1962	0.42	2016, 2021
École Isabella Dicken <i>(Fernie)</i>	K to 6	1964	0.44	2021
Frank J Mitchell <i>(Sparwood)</i>	K to 6	1970	0.53	2021
Rocky Mountain <i>(Elkford)</i>	K to 6	1982	0.32	2016, 2021
Jaffray K-6 <i>(Jaffray)</i>	K to 6	1957	0.31	2021
<b>K to 6 Subtotal</b>		<b>Average</b>	<b>0.40</b>	
Laurie Middle <i>(Cranbrook)</i>	7 to 9	1962	0.33	2016, 2021
Parkland Middle <i>(Cranbrook)</i>	7 to 9	1998	0.23	2021
Mount Baker Secondary <i>(Cranbrook)</i>	10 to 12	1951	0.46	2016, 2021
Fernie Secondary <i>(Fernie)</i>	7 to 12	1998	0.20	2021
Sparwood Secondary <i>(Sparwood)</i>	7 to 12	2008	0.08	2021
Elkford Secondary <i>(Elkford)</i>	7 to 12	1982	0.30	2021
Jaffray 7-10 <i>(Jaffray)</i>	7 to 10	1957	0.31	2021
<b>7 to 12 Subtotal</b>		<b>Average</b>	<b>0.27</b>	
<b>BC Avg (2020) – 0.47</b>		<b>SD5 Average</b>		<b>0.35</b>

## 3.2 Condition Assessment Summary

As outlined in the table above, there are concerns related to the condition of the majority of schools in the SD5. Per the Ministry of Education, as of 2020, the average FCI for schools in BC is 0.47. Despite ongoing and attentive maintenance by the School District, the current assessment reports outline significant issues requiring immediate attention, bringing into question the viability of several school facilities as long-term capital assets in their current configurations.

In SD5, three of the schools are rated as being in 'worse than the provincial average'. However, regardless of the average, schools with FCI ratings of 0.30 or higher face potentially significant challenges regarding their building systems, and these deficiencies need to be addressed so that the school has an opportunity to remain a viable long-term asset. Facility Condition Assessment reports for SD5 were updated in July and August 2021.

The 2021 average school has an FCI rating of 0.35, which is an improvement since the 2017 LRFD FCI average of 0.43. This minimal improvement shows a relatively flat FCI number over the next 15 years, with similar maintenance attention.

Throughout SD5, many Individual schools show relatively high FCI ratings and could be good targets for replacements. Currently, all elementary schools within the district fall within the elevated risk category with FCI's between 0.30 and 0.60, requiring some level of immediate attention. Amy Woodland Elementary in Cranbrook and Frank J. Mitchell Elementary in Sparwood are well above the provincial average and are approaching the most elevated risk category. Gordon Terrace Elementary in Cranbrook, while not above the provincial average, has a split-level layout that introduces significant operational and accessibility challenges that hinder its future viability. Also in Cranbrook, Mount Baker Secondary School has the highest FCI of all Secondary Schools within SD5 at 0.46, and as described within the report includes several other relevant considerations indicating replacement is a priority. Isabella Dicken Elementary School in Fernie also has an elevated FCI, which is anticipated to be mitigated via the classroom addition currently underway; a new Middle School within the City of Fernie is a significantly higher priority.

# 4. School Capacities

## 4.1 Capacity and Utilization Analysis

This section identifies the capacity and utilization analysis for SD5, describing and quantifying the relative use of existing facilities within SD5. There are a couple notes pertinent to the establishment of capacities related to the Design Aid Sheets:

- The operating and nominal capacities were calculated following the Design Aid Sheet format set out in the Area Standards document. Floor plans showing spaces and Design Aid sheets can be found in Appendix F through Appendix J of this document.
- The Area Standards Document does not allow for fluctuations in mechanical areas in different climates.
- Note that the Area Standards Document does not fully consider the significance of gathering places for SD5's indigenous population, nor does the Design Space allow for vestibules in cold and snowy climates, which are present in some schools in the district.
- Portable classrooms, while able to accommodate growth or change in student population in the near-term, do not provide a high-value long-term solution for the school and school community. They also increase visual barriers that could potentially place students in a compromised position and occupy site area better suited to playgrounds and outdoor educational and recreational activities.

The Design Aid Sheets were completed utilizing the number of students as defined within the Area Standards document. However, to reflect current conditions within SD5, consideration was given to the class size and composition as elucidated in the School District Working Document. It does not consider the potential exceedance or class size flexibility components as those are case-by-case considerations at the individual school level.

Class Size & Class Composition			
Class Size Limits		Class Composition	
Grade	Language	High Incidence Students with Special Needs	Low Incidence Students with Special Needs
K	20	N/L	2
K-1	20		
1-3	22		
1-3 SPLIT	22		
1-3 MULTI-AGE	22		

3-4 SPLIT	24	A maximum of two (2) dependent and/or low-incidence high-cost students integrated into any regular classroom (applies to all grade levels)
4-7 SPLIT	26	
4-7	29	
8-12	30	

The table below summarizes the capacities calculated via the Design Aid Sheets. A utilization value was calculated for the Kindergarten, Elementary, and Secondary student cohorts. A Utilization of 100% represents that a school is operating at maximum capacity throughout the day; that is not a practical approach to utilization as Schools and School Boards require flexibility to accommodate fluctuations in grade cohorts and class size resulting from fluctuating birthrates and demographic shifts. A utilization of 90% is considered a reasonable target.

### SD5 UTILIZATION PROJECTIONS

School Name:	Operating Capacity 2021			Operating Capacity 2036			Utilization 2021			Utilization 2036		
	K	E	S	K	E	S	K	E	S	K	E	S
Amy Woodland	37	235	-	33	236	-	93%	101%	-	83%	101%	-
Gordon Terrace	33	232	-	32	210	-	85%	112%	-	85%	101%	-
Highlands	15	198	-	20	146	-	37%	96%	-	50%	71%	-
Kootenay Orchards	35	183	-	30	181	-	88%	100%	-	75%	99%	-
Pinewood	22	102	-	15	96	-	110%	89%	-	75%	99%	-
Steeple	31	159	-	24	146	-	78%	86%	-	60%	79%	-
École TM Roberts	47	307	-	46	285	-	78%	103%	-	77%	95%	-
Laurie	-	-	394	-	-	326	-	-	79%	-	-	65%
Parkland	-	-	450	-	-	433	-	-	75%	-	-	87%
Mount Baker	-	-	808	-	-	798	-	-	95%	-	-	95%
Cranbrook Subtotal	<b>220</b>	<b>1416</b>	<b>1652</b>	<b>200</b>	<b>1300</b>	<b>1557</b>	<b>81%</b>	<b>98%</b>	<b>83%</b>	<b>72%</b>	<b>92%</b>	<b>82%</b>
Isabella Dicken	81	448	-	67	451	-	103%	130%	-	84%	131%	-
Fernie Secondary	-	-	439	-	-	528	-	-	73%	-	-	88%
Fernie Subtotal	<b>81</b>	<b>448</b>	<b>439</b>	<b>67</b>	<b>451</b>	<b>528</b>	<b>103%</b>	<b>130%</b>	<b>73%</b>	<b>84%</b>	<b>131%</b>	<b>88%</b>
Frank J Mitchell	66	332	-	53	305	-	107%	120%	-	85%	108%	-
Sparwood	-	-	286	-	-	289	-	-	95%	-	-	96%
Sparwood Subtotal	<b>66</b>	<b>332</b>	<b>286</b>	<b>53</b>	<b>305</b>	<b>289</b>	<b>107%</b>	<b>120%</b>	<b>95%</b>	<b>85%</b>	<b>108%</b>	<b>96%</b>
Rocky Mountain	27	236	-	26	166	-	68%	114%	-	65%	80%	-
Elkford Secondary	-	-	193	-	-	171	-	-	52%	-	-	46%
Elkford Subtotal	<b>66</b>	<b>332</b>	<b>572</b>	<b>53</b>	<b>305</b>	<b>578</b>	<b>68%</b>	<b>114%</b>	<b>52%</b>	<b>65%</b>	<b>80%</b>	<b>46%</b>
Jaffray	22	115	76	20	115	66	110%	100%	60%	100%	100%	53%
Jaffray Subtotal	<b>22</b>	<b>115</b>	<b>76</b>	<b>20</b>	<b>115</b>	<b>66</b>	<b>110%</b>	<b>100%</b>	<b>60%</b>	<b>100%</b>	<b>100%</b>	<b>53%</b>
<b>Total</b>	<b>455</b>	<b>2643</b>	<b>3025</b>	<b>393</b>	<b>2476</b>	<b>3018</b>	<b>87%</b>	<b>105%</b>	<b>76%</b>	<b>76%</b>	<b>97%</b>	<b>76%</b>

# 5. Cranbrook Area Schools

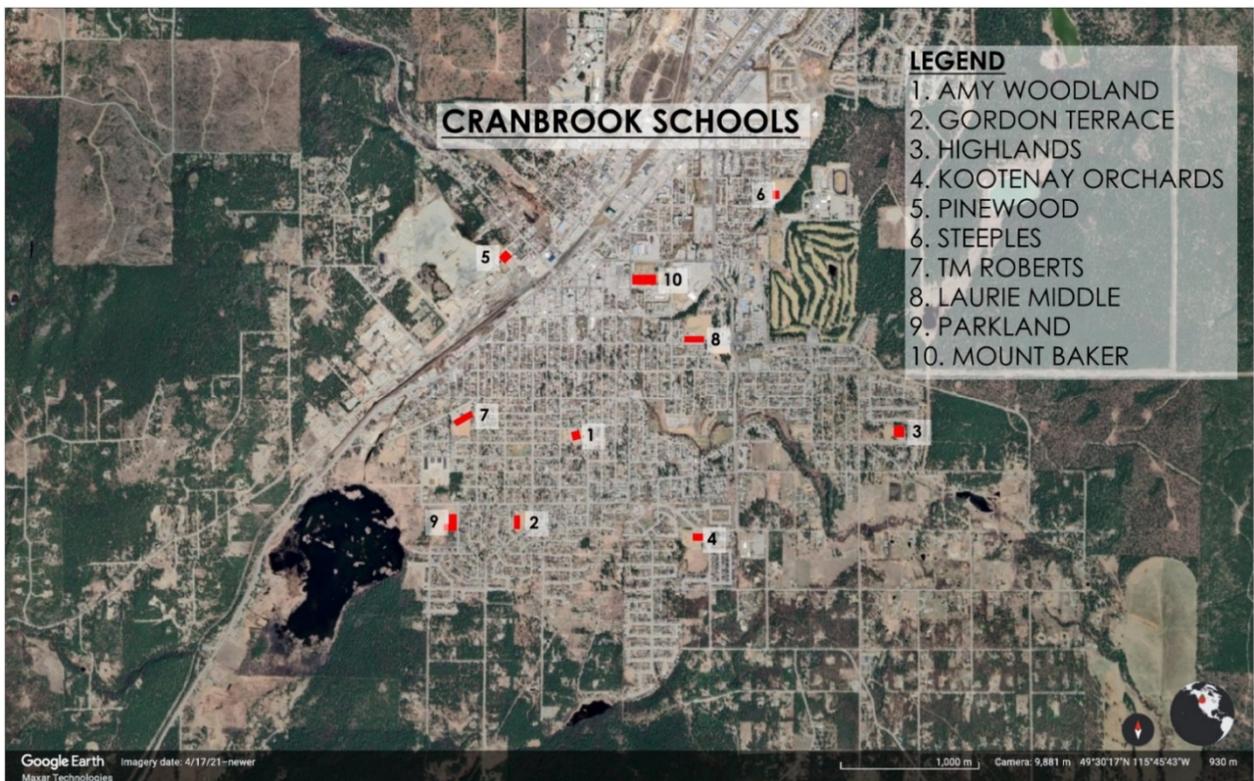
## 5.1 Historical and Projected Enrolment Summary

The Cranbrook area schools are projected to experience an overall decline in enrolment over the next 10-15 years, with the largest anticipated decline in the Middle School cohort, followed by Elementary, and a small decline at the Secondary School level.

Detailed enrolment projections, developed by Baragar Systems without local knowledge, are provided in Appendix A: Historical and Projected Enrolment – Cranbrook Area Schools

The table in Section 4.1 identifies the capacity and use analysis for SD5. It describes the space use of the existing schools within SD5. Overall, the spatial needs of SD5 are projected to decline along with the student population. While current square footage is well utilized, with declining populations and aging buildings, adjustments will be required to match projected populations.

The operating and nominal capacities were calculated following the Design Aid Sheet format set out in the Area Standards document. Design Aid sheets can be found in Appendix F through Appendix J of this document.



## 5.2 Cranbrook Elementary Schools

The following tables summarize each Cranbrook elementary school's capacity and projected enrolment.

<b>Amy Woodland Elementary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	K - 37, E- 235	K - 33, E- 230	K - 33, E- 235	K - 33, E- 236
<b>Operational Capacity</b>	K - 40, E- 233			
<b>Enrolment vs Capacity</b>	K - 92.5%, E- 101%	K - 82.5%, E- 98.7%	K - 82.5%, E- 101%	K - 82.5%, E- 101%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently at capacity	Projected at capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.56			
<b>Specialty Programs</b>	Strong Start			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

<b>Gordon Terrace Elementary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	K - 34, E- 232	K - 31, E- 210	K - 31, E- 208	K - 31, E- 210
<b>Operational Capacity</b>	K - 40, E- 207	K - 40, E- 207	K - 40, E- 207	K - 40, E- 207
<b>Enrolment vs Capacity</b>	K - 85%, E- 112%	K - 85%, E- 101%	K - 85%, E- 100%	K - 85%, E- 101%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently over capacity	Projected at capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.39			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

<b>Highlands Elementary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	K - 15, E- 198	K - 20, E- 164	K - 20, E- 148	K - 20, E- 146
<b>Operational Capacity</b>	K - 40, E- 207			
<b>Enrolment vs Capacity</b>	K - 37%, E- 96%	K - 50%, E- 80%	K - 50%, E- 72%	K - 50%, E- 71%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently at capacity	Projected at capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.39			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

<b>Kootenay Orchards Elementary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	K - 35, E- 183	K - 30, E- 207	K - 29, E- 183	K - 30, E- 181
<b>Operational Capacity</b>	K - 40, E- 184	K - 40, E- 184	K - 40, E- 184	K - 40, E- 184
<b>Enrolment vs Capacity</b>	K - 87.5%, E- 100%	K - 75%, E- 113%	K - 73%, E- 100%	K - 75%, E- 99%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently at capacity	Projected over capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.3			
<b>Specialty Programs</b>	Strong Start			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

Pinewood Elementary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K - 22, E- 102	K - 16, E- 115	K - 14, E- 101	K - 15, E- 96
<b>Operational Capacity</b>	K - 20, E- 115	K - 20, E- 115	K - 20, E- 115	K - 20, E- 115
<b>Enrolment vs Capacity</b>	K - 110%, E- 89%	K - 80%, E- 100%	K - 65%, E- 88%	K - 75%, E- 84%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently at capacity	Projected at capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.45			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

Steeple Elementary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K - 31, E- 159	K - 24, E- 147	K - 24, E- 133	K - 24, E- 146
<b>Operational Capacity</b>	K - 40, E- 184	K - 40, E- 184	K - 40, E- 184	K - 40, E- 184
<b>Enrolment vs Capacity</b>	K - 77.5%, E- 86%	K - 60%, E- 80%	K - 60%, E- 72%	K - 60%, E- 79%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.34			
<b>Specialty Programs</b>	Strong Start, Speech/Language/Counsellor, Computer room			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

<b>École TM Roberts Elementary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	K - 47, E- 307	K - 46, E- 300	K - 46, E- 289	K - 46, E- 285
<b>Operational Capacity</b>	K - 60, E- 299	K - 60, E- 299	K - 60, E- 299	K - 60, E- 299
<b>Enrolment vs Capacity</b>	K - 78.3%, E- 103%	K - 76.6%, E- 100%	K - 76.6%, E- 97%	K - 76.6%, E- 95%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently at capacity	Projected at capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.42			
<b>Specialty Programs</b>	French Immersion, One on One Education, Youth care, Sensory room			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

### 5.2.1 Considerations for Improved Use and Optimization - Elementary

Cranbrook Elementary Schools are projected to experience negative growth over the next fifteen years with an overall enrolment decrease of 157 students, a 9.5% decrease.

Cranbrook Elementary Schools are projected to see the largest share of enrolment decline. As these demographic trends continue, student population is anticipated to decrease, resulting in a larger proportion of classrooms underutilized by 2036.

In Cranbrook, many Individual schools show a relatively high FCI rating and could be good targets for replacement. In Cranbrook, Amy Woodland Elementary, École TM Roberts Elementary, and Gordon Terrace Elementary are all in the elevated risk 0.3 to 0.6 category of requiring immediate attention.

### 5.2.2 Key Findings and Recommendations - Elementary

#### Amy Woodland Elementary School

Amy Woodland Elementary School has the highest (poorest) facility condition index of all the SD5 schools and will require major upgrades to be brought up to minimum requirements. The school has declining enrolment, and without changes it must be considered for replacement

due to its condition. It will likely require significant funding to allow the school to be brought up to current requirements, and this may not provide the most appropriate use of capital funding.

### **Gordon Terrace Elementary School**

Gordon Terrace Elementary School has changing enrolments, the school is currently adequate, however demographics show declining enrolment in ten years. Currently the facility meets minimum requirements and has good utilization. Given these factors, adherence to regular maintenance schedules should allow the condition of this school to be managed and remain a viable long-term asset for SD5.

### **Highlands Elementary School**

Highlands Elementary School is one of the least utilized schools in Cranbrook. However, the school district has done an excellent job of improving the condition of the facility in recent years. It is unlikely that this facility will be able to be part of the long-term asset management strategy in Cranbrook. Given the projected enrolment numbers, this facility may not be the best long-term asset for SD5.

### **Kootenay Orchards Elementary School**

Kootenay Orchards Elementary School has good projected enrolment, and strong utilization. The school is rated with an FCI of 0.30 and is one of the highest rated schools in Cranbrook. It will still require the appropriate building system improvements; this school should serve as a long-term asset for the SD5. In addition, Kootenay Orchards' planning reflects 21st century learning principles, and the school has been designed as to allow for an addition. If the addition is used for kindergarten, it would increase the overall capacity of the school to 280, would allow for two full kindergartens per year and alleviate pressure off other schools in the district.

### **Pinewood Elementary School**

Pinewood Elementary School has rapidly declining enrolment projections and while it's currently at high capacity, is projected to lose most students out of all the schools of SD5. It also has a higher FCI of 0.49 and will require significant upgrades in the future. It is recommended that potentially closing this facility by 2026 or 2031 be an option, and that the capacity of the school district overall be increased to accommodate these students. If it is not closed, improvements to building systems must be initiated so the school can serve as a long-term asset for the SD5.

### **Steeples Elementary School**

Steeples Elementary has low enrolment projections, however they are not projected to decline as much in the coming years as other Cranbrook Elementary schools. In addition, the building has brought up its FCI index to 0.34, and is the second highest rated elementary in Cranbrook, behind Kootenay Orchards. Steeples can be a good long-term asset for the SD5, if the enrolment can pick up from other district school changes.

### **École TM Roberts School**

École TM Roberts School is projected to lose the most enrolment over the next fifteen years. Currently, the school is at capacity, with a rating of 99%, meaning the school is slightly overused. The school also has an FCI of 0.42 and will require maintenance and upgrades. In time, improving the condition of the facility should be manageable. With appropriate building system improvements, this school should serve as a long-term asset for the SD5

### 5.3 Cranbrook Middle and Secondary Schools

Laurie Middle School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	394	361	335	326
<b>Operational Capacity</b>	500	500	500	500
<b>Enrolment vs Capacity</b>	78.8%	72.2%	67.0%	65.2%
<b>Grade Configuration</b>	7 to 9	7 to 9	7 to 9	7 to 9
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.33			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

Parkland Middle School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	450	448	442	433
<b>Operational Capacity</b>	600	600	600	600
<b>Enrolment vs Capacity</b>	75.0%	74.8%	74.0%	86.6%
<b>Grade Configuration</b>	7 to 9	7 to 9	7 to 9	7 to 9
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.23			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

<b>Mount Baker Secondary School: Summary</b>				
	<b>Current (2021)</b>	<b>5 Year (2026)</b>	<b>10 Year (2031)</b>	<b>15 Year (2036)</b>
<b>Enrolment Projections</b>	808	901	887	798
<b>Operational Capacity</b>	850	850	850	850
<b>Enrolment vs Capacity</b>	95.0%	106.0%	104.0%	93.8%
<b>Grade Configuration</b>	10 to 12	10 to 12	10 to 12	10 to 12
<b>Summary</b>	Currently at capacity	Projected over capacity	Projected over capacity	Projected at capacity
<b>Facility Condition Index</b>	0.46			
<b>Specialty Programs</b>	French Immersion, Theatre, Elders in Residence			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

### 5.3.1 Considerations for Improved Use and Optimization – Middle & Secondary

#### Middle Schools (Grade 7–9)

The Cranbrook Middle and Secondary Schools are projected to experience negative growth over the next fifteen years with an overall enrolment decrease of 85 students, a 10% decrease.

Cranbrook Middle Schools are also projected to absorb the greatest share of under-used spaces. As demographic trends indicate student population decreases, the current quantity of classrooms appears adequate.

Many Individual schools show a relatively high FCI ratings and could be good targets for replacements. In Cranbrook, Mount Baker Secondary, Amy Woodland Elementary, École TM Roberts Elementary, and Gordon Terrace Elementary are all in the elevated risk 0.3 to 0.6 category of requiring immediate attention.

#### Secondary School (Grade 10–12)

Mount Baker Secondary School is projected to be over enrolment capacity in the near term and at-capacity in the long-term; A new replacement facility, either entirely new or partial, is likely necessary to serve the district's needs.

## 5.3.2 Key Findings and Recommendations – Middle & Secondary

### **Middle Schools (Grades 5-8 or 7-9)**

The middle schools can accommodate the current and projected enrolment within their current capacities, with some room to bring in new students. Laurie Middle School is in acceptable condition and is at the provincial average. Parkland Middle School has one of the best FCI scores in the entire school district. For Laurie, attention may be required to address some building systems as they may be at the end of their life cycle and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset for SD5. In the long term, the schools may require investigation into the need to modernize these facilities to meet evolving educational standards (e.g., 21st century learning, technological requirements, etc.).

### **Secondary School (Grade 10-12)**

Mount Baker Secondary School enrolment is projected to be at-capacity or over- capacity. The facility, with a FCI of 0.46, will require significant upgrades to be portions of the facility or be at risk of failure. Repairs and maintenance within the building face known building code challenges due to its age and construction type. In addition, the school does not meet 21st century learning principles, technology requirements, or CPTED safety and security principles which are standard in more contemporary facilities. Demolishing and rebuilding this facility, in whole or in part as suggested by the Feasibility Study undertaken by the District, may be the best long-term use of the District's capital, and further study into a replacement facility is recommended.

# 6. Fernie Area Schools

## 6.1 Historical and Projected Enrolment Summary

The Fernie Area Schools projections show significant growth over the next 15 years. An overall enrolment increase of 8% will create deficiencies related to accommodating students within existing facilities.

As described in the Historical and Projected Enrolment Section 2.0, Baragar Systems developed the enrolment projections. The detailed enrolment projections, organized by school and by grade, are provided in Appendix B: Historical and Projected Enrolment—Fernie Area Schools.

## 6.2 Summary: École Isabella Dicken Elementary School

École Isabella Dicken Elementary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K - 81, E- 448	K - 67, E- 472	K - 67, E- 451	K - 67, E- 451
<b>Operational Capacity</b>	K - 80, E- 345	K - 80, E- 345	K - 80, E- 345	K - 80, E- 345
<b>Enrolment vs Capacity</b>	K - 102.5%, E- 130%	K - 84%, E- 137%	K - 84%, E- 131%	K - 84%, E- 131%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently over capacity	Projected over capacity	Projected over capacity	Projected over capacity
<b>Facility Condition Index</b>	0.44			
<b>Specialty Programs</b>	French Immersion, StrongStart, Day Care (3rd Party)			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

### 6.3 Summary: Fernie Secondary School

Fernie Secondary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	439	529	571	528
<b>Operational Capacity</b>	600	600	600	600
<b>Enrolment vs Capacity</b>	73.0%	88.0%	95.0%	88.0%
<b>Grade Configuration</b>	7 to 12	7 to 12	7 to 12	7 to 12
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected at capacity	Projected at capacity
<b>Facility Condition Index</b>	0.2			
<b>Specialty Programs</b>	French Immersion			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

### 6.4 Considerations for Improved Use and Optimization

The current grade configuration of a K–6 school and a 7–12 school creates a surplus of students at k-6, and deficit of students at 7-12. If grades 5 - 8 were moved to a new middle school, the current facilities would better align to projected enrolment figures and student need. The schools' current configurations align well with the rest of SD5 and create a strong symmetry for extra-curricular activities. However, the discrepancy in capacity and enrolment in the elementary school requires further investigation to understand potential mitigation strategies, such as accommodating grades 9–12 at Fernie Secondary School.

Per the enrolment summary above, grade realignments to a K–4, 5-8, and 9–12 grade configurations would adequately relieve the capacity concerns at the École Isabella Dicken Elementary School; however, it would become necessary to build a new 5-8 school in Fernie. Isabella Dicken Elementary currently employs (10) modular classrooms; without appropriate attention, the need for additional space to accommodate these communities will continue in the near, mid, and long term.

### 6.5 Key Findings and Recommendations

The École Isabella Dicken Elementary School has significant issues related to both required capacity and the condition of the school. While enrolment is projected to remain flat over the

next 15 years, the school currently requires (10) portable classrooms to address need, representing ~40% of the current school population.

This delta between enrolment and capacity cannot be effectively managed through modular solutions; additional capacity in Fernie appears required. Additionally, the existing school is in poor condition, requiring immediate and significant upgrades to address major system and infrastructure deficiencies. The (4) classroom building addition, currently underway, will aid relief of the student capacity issues. However, a new middle school would free up space to accommodate an array of functions delivered by the school district, such as: Indigenous instructional spaces, online learning, childcare, before and after school care, and community spaces for cradle to grave residents. SD5 is in the process of acquiring a property in Fernie to accommodate the development of new middle school construction.

The Fernie Secondary School is well positioned to serve as a long-term asset for SD5. It provides capacity that meets the projected growth in secondary aged student enrolment. The facility is also in good condition and requires only adherence to typical maintenance schedules to ensure its longevity. In the long term, it will require investigation into the need to modernize the facility to meet evolving educational standards (e.g., 21st century learning, technological requirements, etc.).

# 7. Sparwood Area Schools

## 7.1 Historical and Projected Enrolment Summary

The Sparwood Area Schools projections show limited growth over the next 15 years. A projected decrease in enrolment of 5% shows a flat growth rate that allows for consistent enrolments in the foreseeable future.

As described in the Historical and Projected Enrolment Section 2.0, Baragar Systems developed the enrolment projections. The detailed enrolment projections, organized by school and by grade, are provided in Appendix C: Historical and Projected Enrolment—Sparwood Area Schools.

## 7.2 Summary: Frank J Mitchell Elementary School

Frank J Mitchell Elementary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K - 66, E- 332	K - 57, E- 346	K - 53, E- 319	K - 53, E- 305
<b>Operational Capacity</b>	K - 60, E- 276			
<b>Enrolment vs Capacity</b>	K - 107%, E- 120%	K - 95%, E- 123%	K - 88%, E- 114%	K - 85%, E- 108%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently over capacity	Projected over capacity	Projected over capacity	Projected over capacity
<b>Facility Condition Index</b>	0.53			
<p>Facility Summary: The school does not meet current requirements. Attention is required to address some significant building systems, as they may be at the end of their life cycle, and at risk of failure. There may be significant costs associated with renewing the building systems to ensure it remains a viable asset moving forward for SD5.</p>				

### 7.3 Summary: Sparwood Secondary School

Sparwood Middle School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	286	311	315	289
<b>Operational Capacity</b>	300	300	300	300
<b>Enrolment vs Capacity</b>	95.3%	104.0%	105.0%	96.3%
<b>Grade Configuration</b>	7 to 12	7 to 12	7 to 12	7 to 12
<b>Summary</b>	Currently at capacity	Projected over capacity	Projected over capacity	Projected at capacity
<b>Facility Condition Index</b>	0.08			
<p>Facility Summary: The school is in near new condition. It should meet present and near future requirements</p>				

### 7.4 Considerations for Improved Use and Optimization

Sparwood Secondary School is projected to be close to capacity. Frank J. Mitchell Elementary is also projected to be slightly over capacity. Additional space will be required in Sparwood to accommodate projected enrolments and increase flexibility in the community.

### 7.5 Key Findings and Recommendations

Frank J. Mitchell Elementary School is slightly overcapacity. However, this discrepancy in enrolment to capacity is expected to decline slightly in the next fifteen years and can be comfortably managed with the current facilities. The condition of the facility is extremely poor, at 0.53 and is one of the worst scores in the school district. It may require significant funding to address the deficiencies. Additionally, renovations of this magnitude may cause interruptions / disruptions to the delivery of education and may impact the safety of students.

Because of the significant improvements required at the school, and the potential disruption such a renewal could require, it is recommended that the school be replaced. A potential site for the new school to be considered is in the new subdivision. A K-3 school, combined with an early learning hub could provide additional safety and convenience for younger students to attend school near home, and relieve pressure off Frank J. Mitchell Elementary.

The Sparwood Secondary School is well positioned to serve as a long-term asset for the SD5. However, in the next few years the facility is projected to be over capacity. The facility is in excellent condition and requires only adherence to typical maintenance schedules to ensure its longevity. In the long-term, it will require investigation into the need to modernize the facility to meet evolving educational standards (e.g., 21st century learning, technological requirements, etc.).

# 8. Elkford Area Schools – Key Findings and Recommendations

## 8.1 Historical and Projected Enrolment Summary

The Elkford Area School enrolment is projected to have a small, but negative enrolment growth over the next 15 years. A projected decrease in enrolment of -20% shows a negative growth rate in the foreseeable future.

As described in the Historical and Projected Enrolment Section 2.0, Baragar Systems developed the enrolment projections. The detailed enrolment projections, organized by school and by grade, are provided in Appendix D: Historical and Projected Enrolment—Elkford Area Schools.

## 8.2 Summary: Rocky Mountain Elementary School

Rocky Mountain School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K - 27, E- 236	K - 26, E- 176	K - 26, E- 168	K - 26, E- 166
<b>Operational Capacity</b>	K - 40, E- 207	K - 40, E- 207	K - 40, E- 207	K - 40, E- 207
<b>Enrolment vs Capacity</b>	K - 67.5%, E- 114%	K - 65%, E- 85%	K - 65%, E- 81%	K - 65%, E- 80%
<b>Grade Configuration</b>	K to 6	K to 6	K to 6	K to 6
<b>Summary</b>	Currently over capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.32			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

### 8.3 Summary: Elkford Secondary School

Elkford Secondary School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	193	238	197	171
<b>Operational Capacity</b>	375	375	375	375
<b>Enrolment vs Capacity</b>	51.5%	63.0%	52.5%	45.6%
<b>Grade Configuration</b>	7 to 12	7 to 12	7 to 12	7 to 12
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.3			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

### 8.4 Considerations for Improved Use and Optimization

The projected enrolment for the Elkford community does not exceed the available capacity for both schools in the municipality for the future. While there is space to accommodate a grade reconfiguration, as there is space available in both schools, this is not a recommended avenue for future optimization.

Elkford Secondary School is under-capacity and due to the relatively flat enrolment projections, it is expected to remain under capacity in the future. However, this facility serves a critical role in the community and is in comparatively good repair. It would be a significant disservice to the community to consider closure of the school due to the current enrolment; further, redistributing the students to Rocky Mountain Elementary School and/or Sparwood Secondary School would only result in those schools becoming significantly over capacity. In addition, it would introduce significant impediments to enrolment due to commute and challenging road conditions between the communities. Neither Rocky Mountain Elementary School nor the Sparwood Secondary School have the capacity available to accommodate the students currently housed at Elkford Secondary School. Redistributing these students would incur significant costs to SD5, as these neighbouring schools would need to develop additional capacity to accommodate these students. Without redistribution, these schools would not require additional capacity. As such, SD5 does consider maintaining Elkford Secondary as a priority.

## **8.5 Key Findings and Recommendations**

The Rocky Mountain Elementary School meets the current and projected enrolment, with a facility that is in acceptable condition and does not present significant issues or concerns. Assuming buildings system components are replaced on time and regular maintenance schedules are executed, this school should remain a long-term asset for the SD5.

Elkford Secondary school is in acceptable condition but may require improvements to building systems. Therefore, it is recommended that the Elkford Secondary School building systems be maintained, and that modernization of the facility be considered to meet evolving educational standards (e.g., 21st century learning, technological requirements, etc.).

# 9. Jaffray Area Schools – Key Findings and Recommendations

## 9.1 Historical and Projected Enrolment Summary

The Jaffray Elementary/Jr. Secondary School is projected to have a projected enrolment pattern where there is a flat, slow decline in students in the projected enrolment window. Ultimately, the enrolment change is relatively flat.

As described in the Historical and Projected Enrolment Section 2.0, Baragar Systems developed the enrolment projections. The detailed enrolment projections, organized by school and by grade, are provided in Appendix E: Historical and Projected Enrolment—Jaffray Area School.

## 9.2 Summary: Jaffray Elementary and Secondary School

Jaffray Elementary & Middle School: Summary				
	Current (2021)	5 Year (2026)	10 Year (2031)	15 Year (2036)
<b>Enrolment Projections</b>	K-22, E-115, M-76	K-20, E-112, M-66	K-20, E-120, M-60	K-20, E-115, M-66
<b>Operational Capacity</b>	K-20, E-115, M-125	K-20, E-115, M-125	K-20, E-115, M-125	K-20, E-115, M-125
<b>Enrolment vs Capacity</b>	K - 110%, E- 100%, M-61%	K - 100%, E- 97%, M-53%	K - 100%, E- 105%, M-48%	K - 100%, E- 100%, M-53%
<b>Grade Configuration</b>	K to 10	K to 10	K to 10	K to 10
<b>Summary</b>	Currently under capacity	Projected under capacity	Projected under capacity	Projected under capacity
<b>Facility Condition Index</b>	0.31			
<b>Specialty Programs</b>	Preschool			
<p>Facility Summary: The school has significant deficiencies but meets minimum requirements. Some significant building system components may be nearing the end of their normal life cycle.</p>				

### **9.3 Considerations for Improved Use and Optimization**

The projected enrolment for Jaffray Elementary/Jr. Secondary School is below the capacity available at the school. However, there is little desire to either redistribute students to schools in neighbouring communities, nor to repatriate students in grade 11 and 12.

### **9.4 Key Findings and Recommendations**

The Jaffray Elementary/Jr. Secondary School operates under capacity and has for some time. However, as described in the previous section, there is little desire to either redistribute students to schools in other communities, nor to repatriate students in grade 11 and 12.

The school is in acceptable condition, and upgrades to building systems may be required in the medium and long term. The needs of the community require that the school continues to operate as is, with improvements to the building systems to ensure the school remains viable in the long term.

# 10. Implementation Strategy and Conclusions

## 10.1 Implementation Strategy

Through the development of the LRFP, significant building improvements have been recommended via replacement, renovation, or expansion. The implementation strategies for these activities have been identified in each section but are summarized below. The execution of this implementation strategy is contingent on a variety of factors including the availability of funding and potential adjustment to address new issues that may require immediate mitigation. This schedule assumes the following:

- Regular maintenance will be funded and executed at each facility, on-time and to the extent described in the maintenance packages.
- If a facility is identified to require replacement but funding is received to upgrade the condition of the facility instead, the anticipated replacement and/or renovation strategy may require re-examination.
- Modernizing facilities to meet evolving educational standards (e.g., 21st century learning, technological requirements, etc.) will occur as required and are not specifically identified

## 10.2 Conclusions

As described throughout the LRFP, the following key findings and conclusions have been identified:

### 10.2.1 Cranbrook Elementary Schools

Cranbrook Elementary Schools are projected to be under capacity against both the current and projected enrolments. Six of the seven schools are at or well above the provincial average FCI, requiring significant building system upgrades in the near future. There may be an opportunity to reconfigure the elementary schools to allow for greater density, and better conditioned schools to react to the educational challenges of the 21<sup>st</sup> century. If two of the worst rated schools were renovated or rebuilt, and one was eliminated, the schools could be better positioned for future enrolment projections. However, this consideration should be investigated further as it may compromise the SD5's ability to react to future changes in the

Ministry of Education mandates and protocols, including reduced class sizes, implementing additional community programs (Strong Start), etc.

### **10.2.2 Cranbrook Middle and Secondary Schools**

Cranbrook middle and secondary schools are not expected to experience significant enrolment growth over the next 15 years. Laurie Middle School and Mount Baker Secondary School should be able to accommodate their projected enrolments but have significant building deficiencies that require mitigation. Mount Baker was built in 1952 and has significant building systems which are near failing. The replacement of Mount Baker Secondary School is to be considered; partial replacement to take advantage of currently acceptable facilities is recommended.

### **10.2.3 Fernie Area Schools**

There is significant enrolment growth projected for the Fernie area. This will have an impact on both existing schools, but more so on the École Isabella Dicken Elementary School where it is projected to require a significant expansion to accommodate the additional students. An addition to École Isabella Dicken is in the design process. Meanwhile, the school is in poor condition which will create challenges for the SD5 to accommodate the growth in students. A new middle school is recommended, with reconfiguration of schools to K-4, new middle 5-8, and 9-12.

### **10.2.4 Sparwood Area Schools**

Enrolment in both the Sparwood schools is expected to slightly decline, however Frank J Mitchell Elementary is currently over capacity, with the issue lessening in the next ten years. Frank J. Mitchell Elementary School is also in extremely poor condition and should be scheduled for replacement.

### **10.2.5 Elkford Area Schools**

The Elkford area schools are below capacity and are expected to experience a minor decline in enrolment. The schools are in poor condition, however, providing K–12 education in the community should continue to be maintained. Improvements to the Elkford Secondary School are required to ensure the ongoing delivery of K–12 education in Elkford.

### **10.2.6 Jaffray Area School**

The Jaffray Elementary/Jr. Secondary School meets the projected enrolment, and this school is expected to continue to provide K–10 educational programs in the community. The facility is below capacity, and in poor condition and will require building upgrades to ensure its long-term viability.

# 11. Non-School and Vacant SD5 Properties

Though a detailed analysis of the vacant and non-school properties which are owned by the SD5 is out of scope for the LRFP, it is important to identify all assets owned by SD5:

Key City Theatre – Cranbrook - leased out

Mountainview Elementary School – Sparwood – partially leased out

Grasmere School – Grasmere – vacant

Kootenay Orchards Elementary adjacent lot – Cranbrook – vacant, used as sports field

Muriel Baxter lot – Cranbrook – vacant, used as dog park

Sparwood Heights lot – Sparwood - vacant

Newgate lot – East Kootenay Assessment Area – Vacant

These sites should be evaluated as long-term assets as part of implementing an asset management strategy.

## List of Appendices

# Appendix A Historical and Projected Enrolment – Cranbrook Area Schools

### A.1 Cranbrook Enrolment vs Capacity

CRANBROOK ENROLMENT VS NOMINAL CAPACITY								
School:	2021 Nom		2026 Nom		2031 Nom		2036 Nom	
Grades K to 6	Δ	Δ CR						
Amy Woodland	-23	0	-32	-1	-27	-1	-26	-1
Gordon Terrace	1	0	-24	0	-26	-1	-24	0
Highlands	-52	-2	-81	-3	-97	-3	-99	-3
Kootenay Orchards	-22	0	-3	0	-28	-1	-29	-1
Pinewood	-13	0	-14	0	-30	-1	-34	-1
Steeple	-50	-2	-69	-2	-83	-3	-81	-3
École TM Roberts	-31	-1	-39	-1	-50	-2	-54	-2
Grades K-6 Subtotal	-190	<b>-5</b>	-262	<b>-7</b>	-341	<b>-12</b>	-347	<b>-11</b>
Grades 7-9								
Laurie	-106	-4	-139	-5	-165	-6	-174	-6
Parkland	-150	-6	-152	-6	-158	-6	-167	-6
Grades 7-9 Subtotal	-256	<b>-10</b>	-291	<b>-11</b>	-323	<b>-12</b>	-341	<b>-12</b>
Grades 10-12								
Mount Baker	-42	-1	51	2	37	1	-52	-2
Grades 10-12 Subtotal	-42	<b>-1</b>	51	<b>2</b>	37	<b>1</b>	-52	<b>-2</b>
Total	-488	<b>-16</b>	-502	<b>-16</b>	-627	<b>-23</b>	-740	<b>-25</b>

<b>CRANBROOK ENROLMENT VS OPERATIONAL CAPACITY</b>								
School:	2021 Op		2026 Op		2031 Op		2036 Op	
Grades K to 6	Δ	Δ CR						
Amy Woodland	-1	0	-10	0	-5	0	-4	0
Gordon Terrace	19	0	-6	0	-8	0	-6	0
Highlands	-34	-1	-63	-2	-79	-3	-81	-3
Kootenay Orchards	-6	0	13	0	-12	0	-13	0
Pinewood	-3	0	-4	0	-20	0	-24	-1
Steeple	-34	-1	-53	-2	-67	-2	-65	-2
École TM Roberts	-5	0	-13	0	-24	-1	-28	-1
Grades K-6 Subtotal	-64	<b>-2</b>	-136	<b>-4</b>	-215	<b>-6</b>	-221	<b>-7</b>
Grades 7-9								
Laurie	-106	-4	-139	-5	-165	-6	-174	-6
Parkland	-150	-6	-152	-6	-158	-6	-167	-6
Grades 7-9 Subtotal	-256	<b>-10</b>	-291	<b>-11</b>	-323	<b>-12</b>	-341	<b>-12</b>
Grades 10-12								
Mount Baker	-42	-1	51	2	37	1	-52	-2
Grades 10-12 Subtotal	-42	<b>-1</b>	51	<b>2</b>	37	<b>1</b>	-52	<b>-2</b>
Total	-362	<b>-13</b>	-376	<b>-13</b>	-501	<b>-17</b>	-614	<b>-21</b>

## A.2 Amy Woodland Elementary School

<b>Amy Woodland Elementary School</b>								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Δ
<b>K</b>	37	33	-10.8%	33	0.0%	33	0.0%	-10.8%
<b>1</b>	34	34	0.0%	35	2.9%	35	0.0%	2.9%
<b>2</b>	33	33	0.0%	36	9.1%	36	0.0%	9.1%
<b>3</b>	42	33	-21.4%	39	18.2%	39	0.0%	-7.1%
<b>4</b>	38	41	7.9%	40	-2.4%	40	0.0%	5.3%
<b>5</b>	44	46	4.5%	42	-8.7%	42	0.0%	-4.5%
<b>6</b>	44	43	-2.3%	43	0.0%	44	2.3%	0.0%
<b>Total</b>	<b>272</b>	<b>263</b>	<b>-3.3%</b>	<b>268</b>	<b>1.9%</b>	<b>269</b>	<b>0.4%</b>	<b>-1.1%</b>

### A.3 Gordon Terrace Elementary School

Gordon Terrace Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	34	31	-8.8%	31	0.0%	31	0.0%	-8.8%
1	34	28	-17.6%	32	14.3%	32	0.0%	-5.9%
2	37	32	-13.5%	33	3.1%	33	0.0%	-10.8%
3	37	38	2.7%	34	-10.5%	34	0.0%	-8.1%
4	36	32	-11.1%	36	12.5%	36	0.0%	0.0%
5	43	40	-7.0%	37	-7.5%	37	0.0%	-14.0%
6	45	40	-11.1%	36	-10.0%	38	5.6%	-15.6%
<b>Total</b>	<b>266</b>	<b>241</b>	<b>-9.4%</b>	<b>239</b>	<b>-0.8%</b>	<b>241</b>	<b>0.8%</b>	<b>-9.4%</b>

### A.4 Highlands Elementary School

Highlands Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	15	20	33.3%	20	0.0%	20	0.0%	33.3%
1	31	24	-22.6%	22	-8.3%	22	0.0%	-29.0%
2	32	24	-25.0%	23	-4.2%	23	0.0%	-28.1%
3	27	23	-14.8%	25	8.7%	25	0.0%	-7.4%
4	30	35	16.7%	25	-28.6%	25	0.0%	-16.7%
5	40	21	-47.5%	25	19.0%	25	0.0%	-37.5%
6	38	37	-2.6%	28	-24.3%	26	-7.1%	-31.6%
<b>Total</b>	<b>213</b>	<b>184</b>	<b>-13.6%</b>	<b>168</b>	<b>-8.7%</b>	<b>166</b>	<b>-1.2%</b>	<b>-22.1%</b>

### A.5 Kootenay Orchards Elementary School

Kootenay Orchards Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	35	30	-14.3%	29	-3.3%	30	3.4%	-14.3%
1	41	32	-22.0%	30	-6.3%	29	-3.3%	-29.3%
2	24	30	25.0%	29	-3.3%	30	3.4%	25.0%
3	29	30	3.4%	31	3.3%	30	-3.2%	3.4%
4	36	34	-5.6%	30	-11.8%	31	3.3%	-13.9%
5	22	36	63.6%	30	-16.7%	29	-3.3%	31.8%
6	31	45	45.2%	33	-26.7%	32	-3.0%	3.2%
<b>Total</b>	<b>218</b>	<b>237</b>	<b>8.7%</b>	<b>212</b>	<b>-10.5%</b>	<b>211</b>	<b>-0.5%</b>	<b>-3.2%</b>

## A.6 Pinewood Elementary School

Pinewood Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	22	16	-27.3%	14	-12.5%	15	7.1%	-31.8%
1	14	18	28.6%	15	-16.7%	14	-6.7%	0.0%
2	20	17	-15.0%	14	-17.6%	15	7.1%	-25.0%
3	15	17	13.3%	17	0.0%	16	-5.9%	6.7%
4	15	19	26.7%	16	-15.8%	16	0.0%	6.7%
5	17	26	52.9%	18	-30.8%	16	-11.1%	-5.9%
6	29	18	-37.9%	21	16.7%	19	-9.5%	-34.5%
<b>Total</b>	<b>132</b>	<b>131</b>	<b>-0.8%</b>	<b>115</b>	<b>-12.2%</b>	<b>111</b>	<b>-3.5%</b>	<b>-15.91%</b>

## A.7 Steeples Elementary School

Steeples Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	31	24	-22.6%	24	0.0%	24	0.0%	-22.6%
1	26	20	-23.1%	22	10.0%	22	0.0%	-15.4%
2	31	22	-29.0%	22	0.0%	22	0.0%	-29.0%
3	26	24	-7.7%	23	-4.2%	23	0.0%	-11.5%
4	19	23	21.1%	24	4.3%	24	0.0%	26.3%
5	28	30	7.1%	22	-26.7%	22	0.0%	-21.4%
6	29	28	-3.4%	20	-28.6%	22	10.0%	-24.1%
<b>Total</b>	<b>190</b>	<b>171</b>	<b>-10.0%</b>	<b>157</b>	<b>-8.2%</b>	<b>159</b>	<b>1.3%</b>	<b>-16.3%</b>

## A.8 École TM Roberts Elementary School

École TM Roberts Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	47	46	-2.1%	46	0.0%	46	0.0%	-2.1%
1	49	50	2.0%	47	-6.0%	47	0.0%	-4.1%
2	50	48	-4.0%	45	-6.3%	45	0.0%	-10.0%
3	47	52	10.6%	47	-9.6%	47	0.0%	0.0%
4	47	49	4.3%	49	0.0%	49	0.0%	4.3%
5	52	49	-5.8%	48	-2.0%	48	0.0%	-7.7%
6	62	52	-16.1%	53	1.9%	49	-7.5%	-21.0%
<b>Total</b>	<b>354</b>	<b>346</b>	<b>-2.3%</b>	<b>335</b>	<b>-3.2%</b>	<b>331</b>	<b>-1.2%</b>	<b>-6.5%</b>

### A.9 Laurie Middle School

Laurie Middle School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
7	125	132	5.6%	106	-19.7%	107	0.9%	-14.4%
8	131	119	-9.2%	108	-9.2%	111	2.8%	-15.3%
9	138	110	-20.3%	121	10.0%	108	-10.7%	-21.7%
<b>Total</b>	<b>394</b>	<b>361</b>	<b>-8.4%</b>	<b>335</b>	<b>-7.2%</b>	<b>326</b>	<b>-2.7%</b>	<b>-17.26%</b>

### A.10 Parkland Middle School

Parkland Middle School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
7	161	152	-5.6%	145	-4.6%	145	0.0%	-9.9%
8	153	150	-2.0%	151	0.7%	146	-3.3%	-4.6%
9	136	146	7.4%	146	0.0%	142	-2.7%	4.4%
<b>Total</b>	<b>450</b>	<b>448</b>	<b>-0.4%</b>	<b>442</b>	<b>-1.3%</b>	<b>433</b>	<b>-2.0%</b>	<b>-3.8%</b>

### A.11 Mount Baker Secondary School

Mount Baker Secondary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
10	282	290	2.8%	301	3.8%	270	-10.3%	-4.3%
11	293	320	9.2%	305	-4.7%	279	-8.5%	-4.8%
12	233	291	24.9%	281	-3.4%	249	-11.4%	6.9%
<b>Total</b>	<b>808</b>	<b>901</b>	<b>11.5%</b>	<b>887</b>	<b>-1.6%</b>	<b>798</b>	<b>-10.0%</b>	<b>-1.2%</b>

# Appendix B Historical and Projected Enrolment – Fernie Area Schools

## B.1 Fernie Enrolment vs Capacity

<b>FERNIE ENROLMENT VS NOMINAL CAPACITY</b>								
School:	2021 Nom		2026 Nom		2031 Nom		2036 Nom	
	Δ	Δ CR						
<b>Fernie Grades K-6</b>								
École Isabella Dicken	99	3	109	4	88	3	88	3
<b>Fernie Grades 7-9</b>								
Fernie Secondary	-161	-6	-71	-2	-29	-1	-72	-2
<b>Subtotal</b>	-62	-3	38	2	59	2	16	1

<b>FERNIE ENROLMENT VS OPERATIONAL CAPACITY</b>								
School:	2021 Op		2026 Op		2031 Op		2036 Op	
	Δ	Δ CR						
<b>Fernie Grades K-6</b>								
École Isabella Dicken	123	5	133	5	112	4	112	4
<b>Fernie Grades 7-9</b>								
Fernie Secondary	-161	-6	-71	-2	-29	-1	-72	-2
<b>Subtotal</b>	-38	-1	62	3	83	3	40	2

## B.2 École Isabella Dicken Elementary School

École Isabella Dicken Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
K	81	67	-17.3%	67	0.0%	67	0.0%	-17.3%
1	74	69	-6.8%	69	0.0%	69	0.0%	-6.8%
2	92	69	-25.0%	71	2.9%	71	0.0%	-22.8%
3	72	76	5.6%	74	-2.6%	74	0.0%	2.8%
4	73	77	5.5%	76	-1.3%	76	0.0%	4.1%
5	63	94	49.2%	79	-16.0%	79	0.0%	25.4%
6	74	87	17.6%	82	-5.7%	82	0.0%	10.8%
<b>Total</b>	<b>529</b>	<b>539</b>	<b>1.9%</b>	<b>518</b>	<b>-3.9%</b>	<b>518</b>	<b>0.0%</b>	<b>-2.1%</b>

## B.3 Fernie Secondary School

Fernie Secondary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
7	71	108	52.1%	84	-22.2%	86	2.4%	21.1%
8	72	84	16.7%	88	4.8%	85	-3.4%	18.1%
9	74	78	5.4%	82	5.1%	80	-2.4%	8.1%
10	70	69	-1.4%	99	43.5%	85	-14.1%	21.4%
11	81	98	21.0%	102	4.1%	101	-1.0%	24.7%
12	71	92	29.6%	116	26.1%	91	-21.6%	28.2%
<b>Total</b>	<b>439</b>	<b>529</b>	<b>20.5%</b>	<b>571</b>	<b>7.9%</b>	<b>528</b>	<b>-7.5%</b>	<b>20.3%</b>

# Appendix C Historical and Projected Enrolment – Sparwood Area Schools

## C.1 Sparwood Enrolment vs Capacity

<b>SPARWOOD ENROLMENT VS NOMINAL CAPACITY</b>								
School Name:	2021 Nom		2026 Nom		2031 Nom		2036 Nom	
	Δ	Δ CR						
<b>Sparwood Grades K-6</b>								
Frank J Mitchell	36	1	43	1	12	0	-2	0
<b>Sparwood Grades 7-12</b>								
Sparwood	-14	0	11	0	15	0	-11	0
<b>Subtotal</b>	22	1	54	1	27	0	-13	0

<b>SPARWOOD ENROLMENT VS OPERATIONAL CAPACITY</b>								
School Name:	2021 Op		2026 Op		2031 Op		2036 Op	
	Δ	Δ CR						
<b>Sparwood Grades K-6</b>								
Frank J Mitchell	60	2	67	2	36	1	22	0
<b>Sparwood Grades 7-12</b>								
Sparwood	-14	0	11	0	15	0	-11	0
<b>Subtotal</b>	46	2	78	2	51	1	11	0

## C.2 Frank J Mitchell Elementary School

Frank J Mitchell Elementary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
<b>K</b>	64	57	-10.9%	53	-7.0%	53	0.0%	-17.2%
<b>1</b>	54	55	1.9%	51	-7.3%	51	0.0%	-5.6%
<b>2</b>	65	57	-12.3%	53	-7.0%	52	-1.9%	-20.0%
<b>3</b>	52	57	9.6%	52	-8.8%	50	-3.8%	-3.8%
<b>4</b>	52	60	15.4%	54	-10.0%	51	-5.6%	-1.9%
<b>5</b>	59	63	6.8%	56	-11.1%	51	-8.9%	-13.6%
<b>6</b>	50	54	8.0%	53	-1.9%	50	-5.7%	0.0%
<b>Total</b>	<b>396</b>	<b>403</b>	<b>1.8%</b>	<b>372</b>	<b>-7.7%</b>	<b>358</b>	<b>-3.8%</b>	<b>-9.6%</b>

## C.3 Sparwood Secondary School

Sparwood Middle School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
<b>7</b>	49	57	16.3%	50	-12.3%	47	-6.0%	-4.1%
<b>8</b>	63	50	-20.6%	52	4.0%	48	-7.7%	-23.8%
<b>9</b>	46	52	13.0%	54	3.8%	49	-9.3%	6.5%
<b>10</b>	54	56	3.7%	57	1.8%	49	-14.0%	-9.3%
<b>11</b>	38	50	31.6%	50	0.0%	51	2.0%	34.2%
<b>12</b>	36	46	27.8%	52	13.0%	45	-13.5%	25.0%
<b>Total</b>	<b>286</b>	<b>311</b>	<b>8.7%</b>	<b>315</b>	<b>1.3%</b>	<b>289</b>	<b>-8.3%</b>	<b>1.0%</b>

# Appendix D Historical and Projected Enrolment – Elkford Area Schools

## D.1 Elkford Enrolment vs Capacity

<b>ELKFORD ENROLMENT VS NOMINAL CAPACITY</b>								
School Name:	2021 Nom		2026 Nom		2031 Nom		2036 Nom	
Elkford Grades K-6	Δ	Δ CR						
Rocky Mountain	-2	0	-63	-2	-71	-2	-73	-2
Elkford Grades 7-12								
Elkford Secondary	-182	-7	-137	-5	-178	-7	-204	-8
<b>Subtotal</b>	-184	<b>-7</b>	-200	<b>-7</b>	-249	<b>-9</b>	-277	<b>-10</b>

<b>ELKFORD ENROLMENT VS CAPACITY FINDINGS</b>								
School Name:	2021 Op		2026 Op		2031 Op		2036 Op	
Elkford Grades K-6	Δ	Δ CR						
Rocky Mountain	16	0	-45	-1	-53	-2	-55	-2
Elkford Grades 7-12								
Elkford Secondary	-182	-7	-137	-5	-178	-7	-204	-8
<b>Subtotal</b>	-166	<b>-7</b>	-182	<b>-6</b>	-231	<b>-9</b>	-259	<b>-10</b>

## D.2 Rocky Mountain Elementary School

Rocky Mountain School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
<b>K</b>	27	26	-3.7%	26	0.0%	26	0.0%	-3.7%
<b>1</b>	33	30	-9.1%	27	-10.0%	27	0.0%	-18.2%
<b>2</b>	41	21	-48.8%	28	33.3%	28	0.0%	-31.7%
<b>3</b>	43	30	-30.2%	28	-6.7%	28	0.0%	-34.9%
<b>4</b>	35	29	-17.1%	27	-6.9%	27	0.0%	-22.9%
<b>5</b>	42	30	-28.6%	27	-10.0%	27	0.0%	-35.7%
<b>6</b>	42	36	-14.3%	31	-13.9%	29	-6.5%	-31.0%
<b>Total</b>	<b>263</b>	<b>202</b>	<b>-23.2%</b>	<b>194</b>	<b>-4.0%</b>	<b>192</b>	<b>-1.0%</b>	<b>-27.0%</b>

## D.3 Elkford Secondary School

Elkford Secondary School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
<b>7</b>	33	44	33.3%	23	-47.7%	30	30.4%	-9.1%
<b>8</b>	40	44	10.0%	31	-29.5%	31	0.0%	-22.5%
<b>9</b>	31	37	19.4%	33	-10.8%	30	-9.1%	-3.2%
<b>10</b>	36	43	19.4%	34	-20.9%	30	-11.8%	-16.7%
<b>11</b>	30	40	33.3%	35	-12.5%	30	-14.3%	0.0%
<b>12</b>	23	30	30.4%	41	36.7%	20	-51.2%	-13.0%
<b>Total</b>	<b>193</b>	<b>238</b>	<b>23.3%</b>	<b>197</b>	<b>-17.2%</b>	<b>171</b>	<b>-13.2%</b>	<b>-11.4%</b>

# Appendix E Historical and Projected Enrolment – Jaffray Area Schools

## E.1 Jaffray Enrolment vs Capacity

<b>JAFFRAY ENROLMENT VS NOMINAL CAPACITY</b>								
School Info	2021 Nom		2026 Nom		2031 Nom		2036 Nom	
School Name:	Δ	Δ CR						
Jaffray (K-6)	-8	0	-13	0	-5	0	-10	0
Jaffray (7-10)	-49	-1	-59	-2	-65	-2	-59	-2
<b>Subtotal</b>	-57	<b>-1</b>	-72	<b>-2</b>	-70	<b>-2</b>	-69	<b>-2</b>

<b>JAFFRAY ENROLMENT VS OPERATIONAL CAPACITY</b>								
School Info	2021 Op		2026 Op		2031 Op		2036 Op	
School Name:	Δ	Δ CR						
Jaffray (K-6)	12	0	7	0	15	0	10	0
Jaffray (7-10)	-49	-2	-59	-2	-65	-2	-59	-2
<b>Subtotal</b>	-37	<b>-2</b>	-52	<b>-2</b>	-50	<b>-2</b>	-49	<b>-2</b>

## E.2 Jaffray Elementary and Secondary School

Jaffray Elementary & Middle School								
Grade	2021	2026	% Δ	2031	% Δ	2036	% Δ	15 Yr % Change
<b>K</b>	22	20	-9.1%	20	0.0%	20	0.0%	-9.1%
<b>1</b>	18	24	33.3%	20	-16.7%	20	0.0%	11.1%
<b>2</b>	19	13	-31.6%	20	53.8%	20	0.0%	5.3%
<b>3</b>	18	24	33.3%	21	-12.5%	21	0.0%	16.7%
<b>4</b>	26	16	-38.5%	18	12.5%	18	0.0%	-30.8%
<b>5</b>	16	19	18.8%	19	0.0%	18	-5.3%	12.5%
<b>6</b>	18	16	-11.1%	22	37.5%	18	-18.2%	0.0%
<b>7</b>	28	16	-42.9%	12	-25.0%	18	50.0%	-35.7%
<b>8</b>	16	15	-6.3%	19	26.7%	17	-10.5%	6.3%
<b>9</b>	18	24	33.3%	14	-41.7%	17	21.4%	-5.6%
<b>10</b>	14	11	-21.4%	15	36.4%	14	-6.7%	0.0%
<b>Total</b>	<b>136</b>	<b>117</b>	<b>-14.0%</b>	<b>119</b>	<b>1.7%</b>	<b>120</b>	<b>0.8%</b>	<b>-11.8%</b>

# Appendix F Design Aid Sheets – Cranbrook Area Schools

F.1 Amy Woodland Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	Amy Woodland Elementary School		Grades: K to 6	
District:	SD 5 (Southeast Kootenay)			
Previous Capacity -	315			
2021 Enrolment -	272			
2036 Projected Enrolment -	269			
School Capacity:				
Nominal: (Kinder)	40	Elementary -	275	Total: 315
Operating: (Kinder)	40	Elementary -	253	Total: 293

**PART 1 - BASIC AREAS**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		134	100	34	0
Gen. Instruction	11	801	1040	-239	239
Gen. Storage		118	60	58	0
Gym Activity		367	380	-13	13
Gym Ancillary		38	65	-27	27
Media / Tech Centre		153	180	-27	27
Multi-Purpose		93	100	-7	7
Spec. Education		243	160	83	0
Mechanical		30	80	-50	50
Kindergarten	2	153	180	-27	27
Design Space		561	490	71	0
Modulars Kindergarten					0
Modulars gen. instruction					0
Modular other					0
Other	1	68	0	0	
Subtotal		2759	2835	-144	390

**PART 2 - TOTAL AREAS**

	E - Existing		F - New	
Total Basic Areas	Ai	2759	Di	390
			Ji	2759
<b>Total Gross Allowable Area</b>				<b>3149</b>

**Comments:**

Elementary Average Classroom Capacities

Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25

General Kindergarten Average Classroom Capacities

Nominal -	20	Operating -	20
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1 Classroom used for Strong Start  
Design space estimate 23.5% x 202 m2

**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017  
General Nominal & Operating Capacity from Ministry of Education Area Standards 2012  
Total Areas from CAD area plans provided by School Board  
Number of classroom calculated based of floor plans provided.

F.2 Gordon Terrace Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	Gordon Terrace Elementary School		Grades: K to 6
District:	SD 5 (Southeast Kootenay)		
Previous Capacity -	300		
2021 Enrolment -	266		
2036 Projected Enrolment -	241		
School Capacity:			
Nominal: (Kinder)	40	Elementary -	225
Operating: (Kinder)	40	Elementary -	207
		Total:	265
		Total:	247

**PART 1 - BASIC AREAS**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		114	80	34	0
Gen. Instruction	9	711	800	-89	89
Gen. Storage		70	40	30	0
Gym Activity		411	380	31	0
Gym Ancillary		45	65	-20	20
Media / Tech Centre		203	160	43	0
Multi-Purpose	2	139	100	39	0
Spec. Education	1	162	120	42	0
Mechanical		30	60	-30	30
Kindergarten	2	162	180	-18	18
Design Space		615	410	205	0
Modulars Kindergarten					0
Modulars gen. instruction					0
Modular other					0
Other		12	0	0	0
Subtotal		2674	2395	267	157

**PART 2 - TOTAL AREAS**

	E - Existing	F - New
Total Basic Areas	Ai 2674	Di 157
		Ji 2674
<b>Total Gross Allowable Area</b>		<b>2831</b>

**Comments:**

Elementary Average Classroom Capacities			
Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25
General Kindergarten Average Classroom Capacities			
Nominal -	20	Operating -	20
1 classroom used for special education, 1 classroom used for band			
1 classroom used for Multipurpose			
Design space estimate 23.5% x		<b>157</b>	

**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017  
 General Nominal & Operating Capacity from Ministry of Education Area Standards 2012  
 Total Areas from CAD area plans provided by School Board  
 Number of classroom calculated based of floor plans provided.

### F.3 Highlands Elementary School



# F.4 Kootenay Orchards Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	Kootenay Orchards Elementary School		Grades: K to 6	
District:	SD 5 (Southeast Kootenay)			
Previous Capacity -	250			
2021 Enrolment -	218			
2036 Projected Enrolment -	211			
School Capacity:				
Nominal: (Kinder)	40	Elementary -	200	Total: 240
Operating: (Kinder)	40	Elementary -	184	Total: 224

**PART 1 - BASIC AREAS**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		211	80	131	0
Gen. Instruction	8	548	800	-252	252
Gen. Storage		38	40	-2	2
Gym Activity		449	380	69	0
Gym Ancillary		62	65	-3	3
Media / Tech Centre		314	160	154	0
Multi-Purpose		80	100	-20	20
Spec. Education		37	120	-83	83
Mechanical		11	65	-54	54
Kindergarten	2	181	180	1	0
Design Space		648	410	238	0
Modulars Kindergarten					0
Modulars gen. instruction					0
Modular other					
Other			0	0	
Subtotal		2579	2400	179	414

**PART 2 - TOTAL AREAS**

	E - Existing		F - New	
Total Basic Areas	Ai	2579	Di	414
			Ji	2579
<b>Total Gross Allowable Area</b>				<b>2993</b>

<b>Comments:</b>				
Elementary Average Classroom Capacities				
Nominal	25	Operating -(average K-6)	23	
		Operating -(grades 1-3)	22	
		Operating -(grades 4-7)	25	
General Kindergarten Average Classroom Capacities				
Nominal -	20	Operating -	20	
Design space estimate 23.5% x		<b>414</b>		

<b>Other Notes:</b>	
Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017	
General Nominal & Operating Capacity from Ministry of Education Area Standards 2012	
Total Areas from CAD area plans provided by School Board	
Number of classroom calculated based of floor plans provided.	

# F.5 Pinewood Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	Pinewood Elementary School				
District:	SD 5 (Southeast Kootenay)				
Previous Capacity -	150				
2021 Enrolment -	132				
2036 Projected Enrolment -	111				
Nominal: (Kinder)	20	Elementary -	125	Total:	145
Operating: (Kinder)	20	Elementary -	115	Total:	135

**PART 1 - BASIC AREAS-**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		80	80	0	0
Gen. Instruction	5	344	480	-136	136
Gen. Storage		12	40	-28	28
Gym Activity		354	265	89	0
Gym Ancillary		100	65	35	0
Media / Tech Centre	1	186	160	26	0
Multi-Purpose		0	0	0	0
Spec. Education	1	93	100	-7	7
Mechanical		0	45	-45	45
Kindergarten	1	86	90	-4	4
Design Space		222	280	-58	58
Modulars Kindergarten					0
Modulars gen. instruction					0
Modular other	1	82			0
Other		0	0	0	
Subtotal		1559	1605	-128	278

**PART 2 - TOTAL AREAS**

	E - Existing		F - New	
Total Basic Areas	Ai	1559	Di	278
			Ji	1559
<b>Total Gross Allowable Area</b>				<b>1837</b>

**Comments:**

Elementary Average Classroom Capacities

Nominal	25	Operating -(average k-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25

General Kindergarten Average Classroom Capacities

Nominal -	20	Operating -	20
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1 classroom used for Student Services & 1 classroom used for Computer

1 portable used for Storage

Design space estimate 23.5% x	220
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**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017

General Nominal & Operating Capacity from Ministry of Education Area Standards 2012

Total Areas from CAD area plans provided by School Board

Number of classroom calculated based of floor plans provided.

# F.6 Steeples Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	Steeple Elementary School		Grades: K to 6
District:	SD 5 (Southeast Kootenay)		
Previous Capacity -	215		
2021 Enrolment -	190		
2036 Projected Enrolment -	159		
School Capacity:			
Nominal: (Kinder)	40	Elementary -	200
Operating: (Kinder)	40	Elementary -	184
		Total:	240
		Total:	224

**PART 1 - BASIC AREAS**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		126	80	46	0
Gen. Instruction	8	875	800	75	0
Gen. Storage		92	40	52	0
Gym Activity		425	380	45	0
Gym Ancillary		96	65	31	0
Media / Tech Centre		210	160	50	0
Multi-Purpose	1	86	100	-14	14
Spec. Education	3	307	120	187	0
Mechanical		25	65	-40	40
Kindergarten	2	183	180	3	0
Design Space		515	410	105	0
Modulars Kindergarten					0
Modulars gen. instruction					0
Modular other	1	91			0
Other		0	0	0	
Subtotal		3031	2400	540	54

**PART 2 - TOTAL AREAS**

	E - Existing	F - New
Total Basic Areas	Ai 3031	Di 54
		Ji 3031
<b>Total Gross Allowable Area</b>		<b>3085</b>

**Comments:**

Elementary Average Classroom Capacities			
Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25
General Kindergarten Average Classroom Capacities			
Nominal -	20	Operating -	20
1 Classroom used as Multipurpose room			
Special Education used as Student Services, Aboriginal Education, Speech/Language/Counsellor			
Design space estimate 23.5% x		<b>54</b>	

**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017	
General Nominal & Operating Capacity from Ministry of Education Area Standards 2012	
Total Areas from CAD area plans provided by School Board	
Number of classroom calculated based of floor plans provided.	

F.7 École TM Roberts Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	École TM Roberts Elementary School		Grades: K to 6
District:	SD 5 (Southeast Kootenay)		
Previous Capacity -	360		
2021 Enrolment -	354		
2036 Projected Enrolment -	331		
School Capacity:			
Nominal: (Kinder)	60	Elementary -	325
Operating: (Kinder)	60	Elementary -	299
		Total:	385
		Total:	359

**PART 1 - BASIC AREAS**

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		150	100	50	0
Gen. Instruction	13	1035	1280	-245	245
Gen. Storage		88	70	18	0
Gym Activity		351	380	-29	29
Gym Ancillary		31	65	-34	34
Media / Tech Centre		131	180	-49	49
Multi-Purpose	1	87	100	-13	13
Spec. Education	3	252	180	72	0
Mechanical		25	90	-65	65
Kindergarten	3	292	270	22	0
Design Space		546	560	-14	14
Modulars Kindergarten					
Modulars gen. instruction					
Modular other	1	86			0
Other		0	0	0	0
Subtotal	18	3074	3275	-287	449

**PART 2 - TOTAL AREAS**

	E - Existing	F - New
Total Basic Areas	Ai 3074	Di 449
		Ji 3074
<b>Total Gross Allowable Area</b>		<b>3523</b>

**Comments:**

Elementary Average Classroom Capacities			
Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25
General Kindergarten Average Classroom Capacities			
Nominal -	20	Operating -	20
1 portable used as storage			
Design space estimate 23.5% x			<b>435</b>

**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017  
 General Nominal & Operating Capacity from Ministry of Education Area Standards 2012  
 Total Areas from CAD area plans provided by School Board  
 Number of classroom calculated based of floor plans provided.

F.8 Laurie Middle School



F.9 Parkland Middle School



F.10 Mount Baker Secondary School



# Appendix G Design Aid Sheets – Fernie Area Schools

G.1 École Isabella Dicken Elementary School

## DESIGN AID SHEET FOR ELEMENTARY SCHOOLS

School Name:	École Isabella Dickens Elementary School		Grades: K to 6	
District:	SD 5 (Southeast Kootenay)			
Previous Capacity -	355			
2021 Enrolment -	529			
2036 Projected Enrolment -	518			
School Capacity:				
Nominal: (Kinder)	80	Elementary -	375	Total: 455
Operating: (Kinder)	80	Elementary -	345	Total: 425

### PART 1 - BASIC AREAS

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		133	100	33	0
Gen. Instruction	15	1121	1360	-239	239
Gen. Storage		91	70	21	0
Gym Activity		390	380	10	0
Gym Ancillary		195	65	130	0
Media / Tech Centre		183	180	3	0
Multi-Purpose		0	100	-100	100
Spec. Education		283	200	83	0
Mechanical		76	90	-14	14
Kindergarten	4	458	360	98	0
Design Space		781	580	201	0
Modulars Kindergarten					
Modulars gen. instruction	9				
Modular other					
Other			0	0	
<b>Subtotal</b>		<b>3711</b>	<b>3485</b>	<b>226</b>	<b>353</b>

### PART 2 - TOTAL AREAS

	E - Existing	F - New
Total Basic Areas	Ai 3711	Di 353
		Ji 3711
<b>Total Gross Allowable Area</b>		<b>4064</b>

#### Comments:

Elementary Average Classroom Capacities			
Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25
General Kindergarten Average Classroom Capacities			
Nominal -	20	Operating -	20
6 portables used for Gen. Instruction and 1 used for Strong Start			
Design space estimate 23.5% x	<b>353</b>		

#### Other Notes:

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017  
 General Nominal & Operating Capacity from Ministry of Education Area Standards 2012  
 Total Areas from CAD area plans provided by School Board  
 Number of classroom calculated based of floor plans provided.

# G.2 Fernie Secondary School



# Appendix H Design Aid Sheets – Sparwood Area Schools

H.1 Frank J Mitchell Elementary School

**DESIGN AID SHEET FOR ELEMENTARY SCHOOLS**

School Name:	FJ Mitchell Elementary School		Grades: K to 6
District:	SD 5 (Southeast Kootenay)		
Previous Capacity -	385		
2021 Enrolment -	396		
2036 Projected Enrolment -	358		
School Capacity:			
Nominal: (Kinder)	60	Elementary - 300	Total: 360
Operating: (Kinder)	60	Elementary - 276	Total: 336

PART 1 - BASIC AREAS					
Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		142	100	42	0
Gen. Instruction	12	969	1280	-311	311
Gen. Storage		0	70	-70	70
Gym Activity		471	380	91	0
Gym Ancillary		171	65	106	0
Media / Tech Centre		135	180	-45	45
Multi-Purpose		0	100	-100	100
Spec. Education		119	180	-61	61
Mechanical		5	85	-80	80
Kindergarten	3	252	270	-18	18
Design Space		872	550	322	0
Modulars Kindergarten					
Modulars gen. instruction	3	249			
Modular other					
Other		74	0	0	
Subtotal		3459	3260	-124	685

PART 2 - TOTAL AREAS		
	E - Existing	F - New
Total Basic Areas	Ai 3459	Di 685
		Ji 3459
<b>Total Gross Allowable Area</b>		<b>4144</b>

<b>Comments:</b>			
Elementary Average Classroom Capacities			
Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25
General Kindergarten Average Classroom Capacities			
Nominal -	20	Operating -	20
1 Classroom used for Strong Start			
Design space estimate 23.5% x 454			

<b>Other Notes:</b>	
Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017	
General Nominal & Operating Capacity from Ministry of Education Area Standards 2012	
Total Areas from CAD area plans provided by School Board	
Number of classroom calculated based of floor plans provided.	

## H.2 Sparwood Secondary School



# Appendix I Design Aid Sheets – Elkford Area Schools

## I.1 Rocky Mountain Elementary School

## DESIGN AID SHEET FOR ELEMENTARY SCHOOLS

School Name:		Rocky Mountain Elementary School		Grades: K to 6	
District:		SD 5 (Southeast Kootenay)			
Previous Capacity -		265			
2021 Enrolment -		263			
2036 Projected Enrolment -		192			
School Capacity:					
Nominal: (Kinder)	40	Elementary -	225	Total:	265
Operating: (Kinder)	40	Elementary -	207	Total:	247

### PART 1 - BASIC AREAS-Pre Nov. 2016

Space Function	CR	A - Existing	B - Allowable	C - Deficit	D - New
Administration / Health		125	80	45	
Gen. Instruction	9	664	880	-216	216
Gen. Storage		42	60	-18	18
Gym Activity		359	380	-21	21
Gym Ancillary		200	65	135	
Media / Tech Centre		135	180	-45	45
Multi-Purpose		84	100	-16	
Spec. Education		0	160	-160	160
Mechanical		13	70	-57	
Kindergarten	2	170	180	-10	10
Design Space		303	450	-147	32
Modulars Kindergarten					
Modulars gen. instruction					
Modular other		83			120
Other		0	0	0	
Subtotal		2178	2605	-510	622

### PART 2 - TOTAL AREAS

	E - Existing		F - New	
Total Basic Areas	Ai	2178	Di	622
			Ji	2178
<b>Total Gross Allowable Area</b>				<b>2800</b>

#### Comments:

Elementary Average Classroom Capacities

Nominal	25	Operating -(average K-6)	23
		Operating -(grades 1-3)	22
		Operating -(grades 4-7)	25

General Kindergarten Average Classroom Capacities

Nominal -	20	Operating -	20
-----------	----	-------------	----

1 portable used for CR

1 portable used for Strong Start

Design space estimate 23.5% x 470

## I.2 Elkford Secondary School

**DESIGN AID SHEET FOR MIDDLE / SECONDARY SCHOOLS**

School Name:	Elkford Secondary	Grades: 7 to 12	Elective Modules		6
District:	SD 5 (Southeast Kootenay)				
Previous Capacity -	375				
2021 Enrolment -	193				
2036 Projected Enrolment -	171				
School Capacity:	Capacity:	375 Elementary Capacity -			
		Secondary Capacity -	375		

**PART 1 - ACADEMIC/VOCATIONAL**

Space Function	1A - Existing			1B - Modules			1C - New Core			1D - New Elective				
	Description	Area	Mods	Core	Deficit	Surplus	Description	Area	Mods	Description	Area	Mods		
Business Education	Commerce 1	60	0.55	2.0	0.60									
	Commerce 2	94	0.85											
Fine Arts	Art	115	0.88	1.0	0.12									
Home Economics	Food	178	1.55	1.0										
Industrial Education	Woodworking	282	1.03	2.0										
	Metal working	292	1.46											
	Covered work area	173												
Science	Science (4)	570	1.40	4.0										
Other					0.0									
General Instruction	( 7 ) rooms 75-95 m2	482	6.03	E: 0 S: 6										
	( ) other rooms													
Sub-totals		2246		16.0			(1.69)	0			0			

**PART 2 - SERVICE/ACTIVITY**

Space Function	CR	E - Existing	F - Allowable	G - Deficit	H - New
Administration / Health		223	155	68	0
Counseling		0	50	-50	50
Gen. Storage		33	75	-42	42
Gym Activity		825	500	325	0
Gym Ancillary		206	100	106	0
Media / Tech Centre		110	260	-150	150
Multi-Purpose		103	100	3	0
Spec. Education		97	200	-103	103
Instructional Space	16	2246	1940	306	0
Mechanical		102	120	-18	18
Design Space		1095	855	240	0
Modular					
Other		0	0	0	
Subtotal		5040	4355	685	363

**Other Notes:**

Facility Operating Capacity & Enrolment from Long Range Facility Plan 2017  
 General Nominal & Operating Capacity from Ministry of Education Area Standards 2012  
 Total Areas from CAD provided by School Board  
 Number of classroom calculated based of floor plans provided.

**PART 3 - TOTAL AREAS**

	N - Existing	P - New
Existing Acad./Voc.	2246	
Core A/V Additions		2246
Elective A/V Additions		
Service Activity	5040	363
Sub-total		
<b>Total Gross Allowable Area</b>		<b>2246</b>

**Comments:**

Gym Activity Includes: Gym, Weight Area (on mezzanine)  
 Media / Tech Centre Includes: Library  
 Special Education Includes: ABED, YCW  
 Instructional Space Includes: General Classrooms, Science, Science Prep Area, Industrial Education, Home Economics, Fine Arts, Business

per area guidelines	per floor plan
science 2	science 2
core general instruction 4	core general instruction 5
elective modules 6	commerce 1, commerce 2, art, food, woodworking, metal working 6
core modules 4	1 core general instruction, 2 science 3
<b>total 16</b>	<b>total 16</b>

# Appendix J Design Aid Sheets – Jaffray Area Schools

## J.1 Jaffray Elementary and Secondary School



# Appendix K Grade Reconfiguration – Fernie Area Schools

K.1 Fernie Elementary and Secondary School

# School District #5 Grade Reconfiguration

March 31st, 2022



SCHOOL DISTRICT 5  
SOUTHEAST KOOTENAY

# FERNIE SCHOOLS

- High School
- Middle School
- Elementary School

# DRAFT

FERNIE SECONDARY

ISABELLA DICKEN

PURCHASED(?) SITE OF  
NEW CONSTRUCTION

# DRAFT

Mt Fernie  
Provincial  
Park

## SD5 UTILIZATION PROJECTIONS

School Name:	Operational Capacity			Projected Enrolment 2021			Utilization 2021			Projected Enrolment 2031			Utilization 2031		
	K	E	S	K	E	S	K	E	S	K	E	S	K	E	S
Isabella Dicken K-6	80	345	-	81	448	-	101%	130%	-	67	451	-	84%	131%	-
Fernie Secondary 7-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fernie Subtotal	-	-	600	81	448	439	101%	130%	73%	67	451	571	84%	131%	95%

# Reconfigurations

## Isabella Dicken Elementary K-4

Minimal renovations to reconfigure serving grades K-6 to K-4

Currently ten (10) temporary portable classrooms rooms necessary to accommodate the student population

## New Middle School 5-8

## Fernie Secondary 9-12

Minimal renovations to reconfigure serving grades 7-12 to 9-12

Reconfiguration will accommodate service programs utilizing existing facilities, such as: Indigenous instructional spaces, online learning, childcare, before and after school care, community space for cradle to grave residents

# Proposed Reconfigurations

## SD5 UTILIZATION PROJECTIONS

School Name:	Operational Capacity			Projected Enrolment 2021			Utilization 2021			Operating Capacity 2031			Utilization 2031		
	K	E	S	K	E	S	K	E	S	K	E	S	K	E	S
Grades K-6:															
Isabella Dicken K-4	80	345		81	448	-	101%	130%	-	67	290	-	84%	84%	-
New Construction 5-8	-	-	350	-	-	-	-	-	73%	-	-	333	-	-	95%
Fernie Secondary 9-12			600	-	-	439	-	-	-	-	-	399	-	-	67%
Fernie Subtotal				81	448	439	101%	130%	73%	67	290	366	84%	84%	81%

# Total Data Summary

Elementary Schools grades K-4.  
2031 K-4 projected enrolment - 357  
K-4 projected capacity - 425

Middle Schools grades 5 - 8  
2031 5-8 projected enrolment - 333  
5-8 projected capacity - 350

Secondary Schools Grades 9 - 12  
2031 9-12 projected enrolment - 399  
9-12 projected capacity - 600

Isabella Dickens

New Middle School

Fernie Secondary

# Appendix L Grade Reconfiguration – Cranbrook Area Schools

L.1 Cranbrook Elementary and Secondary School

# School District #5 Grade Reconfiguration

March 23rd, 2022



SCHOOL DISTRICT 5  
SOUTHEAST KOOTENAY

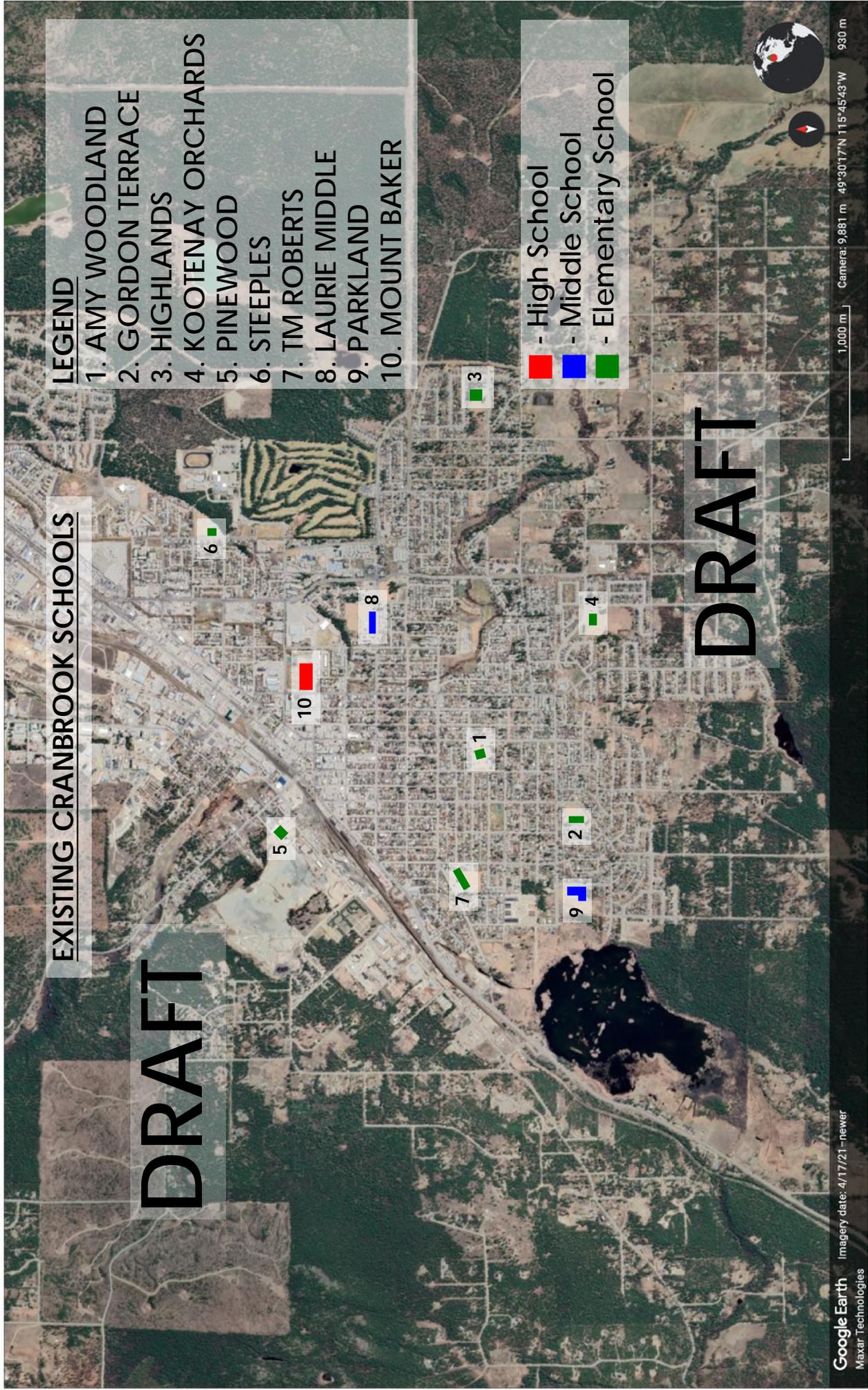
## EXISTING CRANBROOK SCHOOLS

# DRAFT

## LEGEND

1. AMY WOODLAND
2. GORDON TERRACE
3. HIGHLANDS
4. KOOTENAY ORCHARDS
5. PINEWOOD
6. STEEPLES
7. TM ROBERTS
8. LAURIE MIDDLE
9. PARKLAND
10. MOUNT BAKER

- High School
- Middle School
- Elementary School



1,000 m Camera: 9,881 m 49°30'17"N 115°45'43"W 930 m

## SD5 EXISTING UTILIZATION PROJECTIONS

School Name:	Operational Capacity			Projected Enrolment 2021			Utilization 2021			Projected Enrolment 2031			Utilization 2031		
	K	E	S	K	E	S	K	E	S	K	E	S	K	E	S
Amy Woodland	40	233	-	37	235	-	93%	101%	-	33	235	-	83%	101%	-
Gordon Terrace	40	207	-	33	232	-	85%	112%	-	32	208	-	85%	101%	-
Highlands	40	207	-	15	198	-	37%	96%	-	20	148	-	50%	71%	-
Kootenay Orchards	40	184	-	35	183	-	88%	100%	-	29	183	-	75%	99%	-
Pinewood	20	115	-	22	102	-	110%	89%	-	14	101	-	65%	88%	-
Steeples	40	184	-	31	159	-	78%	86%	-	24	133	-	60%	72%	-
École TM Roberts	60	299	-	47	307	-	78%	103%	-	46	289	-	77%	97%	-
Elementary Subtotal	200	989	-	150	949	-	81%	98%	-	133	854	-	71%	90%	-
Laurie	-	-	500	-	-	394	-	-	79%	-	-	326	-	-	65%
Parkland	-	-	600	-	-	450	-	-	75%	-	-	433	-	-	87%
Middle Subtotal	-	-	1100	-	-	844	-	-	77%	-	-	759	-	-	76%
Mount Baker	-	-	850	-	-	808	-	-	95%	-	-	798	-	-	95%
<b>Cranbrook Total</b>	<b>200</b>	<b>989</b>	<b>1950</b>	<b>150</b>	<b>949</b>	<b>1652</b>	<b>81%</b>	<b>98%</b>	<b>83%</b>	<b>133</b>	<b>854</b>	<b>1557</b>	<b>71%</b>	<b>90%</b>	<b>82%</b>

# Facility and Grade Reconfigurations

Criteria for evaluation:

1. Facility location and distribution
2. Facility size
3. Facility current condition

# High School (9-12) Reconfigurations

## **Mt. Baker**

Central location in north side of Cranbrook

Currently used as a high School

High priority to rebuild due to school condition and District priority

## **Parkland**

Central location in Cranbrook (compliments Mt. Baker)

Designed and built as a high school

Minimal reconfigurations anticipated



**SCHOOL DISTRICT 5**  
SOUTHEAST KOOTENAY

# Middle School (5-8) Reconfigurations

## Laurie

Existing Middle school to remain in service

## École TM Roberts

Central location for consolidated students

Largest size elementary school in the district

Facility in reasonable condition (\*minimal upgrades anticipated)

## Amy Woodland

Central location for consolidated students

Large size and higher capacity



\*Renovations and upgrades may be required



SCHOOL DISTRICT 5  
SOUTHEAST KOOTENAY

# Elementary (K-4) Reconfigurations

## Highlands

Neighbourhood scale facility  
Lower capacity

## Kootenay Orchards

Neighbourhood scale facility  
Lower capacity  
Facility supports elementary school function

## Pinewood

Neighbourhood scale facility  
Needs to remain a elementary

## Steeple

Neighbourhood scale facility  
Lower capacity

## Gordon Terrace

*Potential 5 - 8 swing campus to  
accommodate future demographic shifts or  
district need.*

# Proposed Reconfigurations

## SD5 UTILIZATION PROJECTIONS

School Name:	Operational Capacity			Enrollment 2021			Utilization 2021			Projected Enrollment 2031*			Utilization 2031		
	K	E	S	K	E	S	K	E	S	K	E	S	K	E	S
Gordon Terrace K - 4	40	207	-	33	232	-	83%	112%	-	51	203	-	128%	98%	-
Highlands K - 4	40	207	-	15	198	-	38%	96%	-	40	163	-	100%	79%	-
Kootenay Orchards K - 4	40	184	-	35	183	-	88%	99%	-	49	188	-	123%	102%	-
Pinewood K - 4	20	115	-	22	102	-	110%	89%	-	34	130	-	170%	113%	-
Steeples K - 4	40	184	-	31	159	-	78%	86%	-	44	159	-	110%	86%	-
K - 4 Subtotal	180	897	-	136	874	-	79%	96%	-	218	843	-	126%	96%	-
École TM Roberts 5-8	-	-	425	-	-	-	-	-	-	-	-	411	-	-	97%
Amy Woodland 5-8	-	-	375	-	-	-	-	-	-	-	-	361	-	-	96%
Laurie 5 - 8	-	-	500	-	-	394	-	-	79%	-	-	461	-	-	92%
5 - 8 Subtotal	-	-	1300	-	-	394	-	-	79%	-	-	1233	-	-	95%
Parkland 9-12	-	-	600	-	-	442	-	-	74%	-	-	536	-	-	89%
Mount Baker 9 - 12	-	-	850	-	-	808	-	-	95%	-	-	536	-	-	63%
9 - 12 Subtotal	-	-	1450	-	-	1250	-	-	84%	-	-	1072	-	-	76%
<b>Cranbrook Total</b>	180	897	2750	136	874	1644	79%	96%	83%	218	843	2305	126%	96%	88%



\* Assuming equal distribution of elementary students from TM Roberts and Amy Woodlands



SCHOOL DISTRICT 5  
SOUTHEAST KOOTENAY

# CRANBROOK SCHOOLS RECONFIGURED

# DRAFT

## LEGEND

- 1. AMY WOODLAND
- 2. GORDON TERRACE
- 3. HIGHLANDS
- 4. KOOTENAY ORCHARDS
- 5. PINEWOOD
- 6. STEEPLES
- 7. TM ROBERTS
- 8. LAURIE MIDDLE
- 9. PARKLAND
- 10. MOUNT BAKER

10 (Rebuild)  
Mount Baker  
Grades 9 - 12

1 (Reconfigure)  
Amy Woodland  
Grades 5 - 8

7 (Reconfigure)  
TM Roberts  
Grades 5 - 8

9 (Reconfigure)  
Parkland  
Grades 9 - 12

- Reconfigured 9 - 12 School
- Reconfigured 5 - 8 School
- Reconfigured K - 4 School

# DRAFT

# Total Data Summary - Elementary & Middle

Elementary Schools grades K-4.  
2031 K-4 projected enrolment - 1,038  
K-4 projected capacity - 1,157

Middle Schools grades 5 - 8  
2031 5-8 projected enrolment - 1,233  
5-8 projected capacity - 1,200

Highlands  
Gordon Terrace  
Pinewood  
Steeples  
Kootenay Orchards

Laurie  
TM Roberts  
Amy Woodland

# Total Data Summary - Secondary Schools

Secondary Schools Grades 9 - 12  
2031 9-12 projected enrolment - 1,072  
9-12 projected capacity - 1,450

Option 1 Mt. Baker rebuilt to  
current capacity of 850 students

Option 2 Mt. Baker rebuilt to  
projected capacity of 600 students

Mt. Baker  
Parkland



SCHOOL DISTRICT 5  
SOUTHEAST COQUITAN

# Appendix M Mount Baker Secondary School Facility Review

## M.1 Facility Review



berry architecture  
+associates



**MOUNT BAKER SECONDARY  
SCHOOL FACILITY REVIEW**

Prepared for School District 5,  
Southeast Kootenay

By Berry Architecture + Associates

**May, 2021**



**SCHOOL DISTRICT 5**  
SOUTHEAST KOOTENAY





berry architecture  
+associates



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berry architecture  
+associates

## 1.0

# Executive Summary

### 1.1 Introduction

Berry Architecture + Associates was retained by School District 5, Southeast Kootenay, to conduct a facility review and make future development recommendations for Mount Baker Secondary School in Cranbrook, BC. A site review was completed by George Berry and Cody Lyzenga of Berry Architecture on Saturday, January 16th, 2021.

The objective of the facility review is to evaluate the condition of the Mount Baker Secondary School. We also brought in the team from Falcon Engineering to review the mechanical and electrical systems and Bolen Engineering to complete a structural review. Based on the architectural and engineering reports, we will provide a recommendation for the future development of the school.

When we complete a facility review, we focus on several areas of concern, but our primary focus is always life safety--this includes fire ratings, exiting, and travel distances to points of egress. We also consider the cost of the current facility operations and maintenance and the condition of the existing finishes, such as the floors, walls, and ceilings.

The building has reached a point where the facility's operational costs are considerably higher than they would be for a new building. Operational costs quickly end up costing more than the initial capital costs. Another area of consideration is the educational environment. Does the existing school facilitate strong learning, a progressive, respectful, and safe environment? Will it help or hinder the educational experience of the students?

### 1.2 Facility Description

Mount Baker Secondary School (MBSS) was originally constructed in 1949 and has undergone several major and minor additions and renovations over the years. The SD 5 Maintenance and Operations Department has done a great job over the years to keep this old and tired building in operation. MBSS is a wood framed building which is primarily a two-storey building. All references to the building code refer to the 2018 Edition of the British Columbia Building Code (BCBC).

MBSS is effectively divided into three areas; each of these areas is separated by a two-hour concrete block wall. These areas are shown on Figure 1 below.

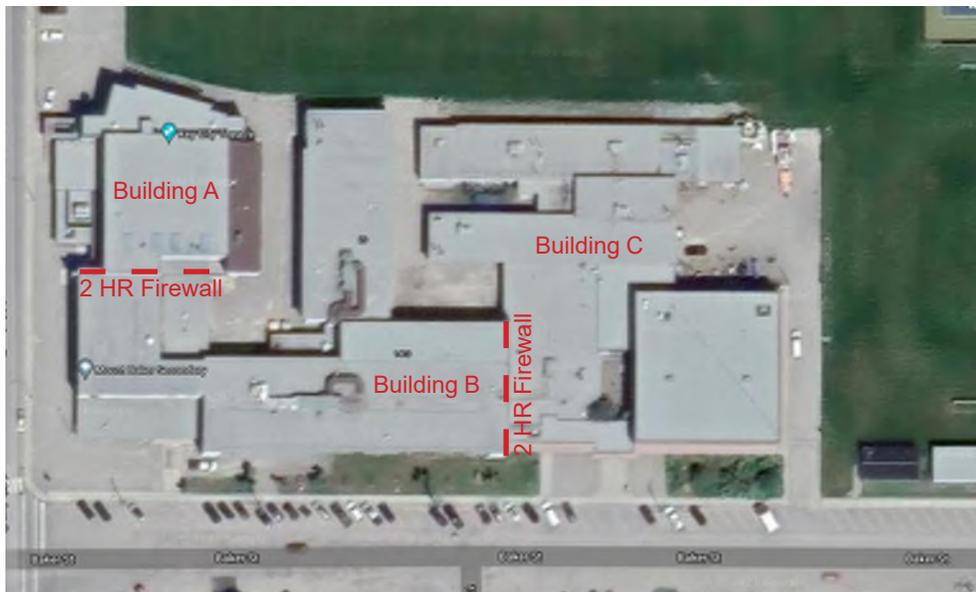


Figure 1

The three zones are divided into separate building code classifications as described below:

Building A: Key City Theatre  
Classification: A1  
Building Area: 1,490 m<sup>2</sup>  
Sprinklered with combustible construction

Building B: Classrooms, Administration, Library, and Music Rooms  
Classification: A2  
Building Area: 3,511 m<sup>2</sup>  
Sprinklered with combustible construction

Building C: Vocational Area and Gym  
Classification: A2  
Building Area: 3,760 m<sup>2</sup>  
Sprinklered with combustible construction

For the purpose of this report, we have divided the facility into five areas as shown in Figure 2. Each of these areas will be divided further and discussed in the report.



Figure 2

Zone 1 is the Key City Theatre and is not part of this report. The theater has recently undergone a major renovation and modernization. Zone 2 is comprised of the band and drama rooms, as well as the drama set room and the north entry with the washrooms and elders' room. Zone 3 encompasses the central administration, library, basement area, classrooms, and the classroom wing which runs north/south. The 4th zone includes the gymnasium and industrial arts wing, and Zone 5 comprises the two portables to the east of the school.



## 2.0

# Zone Summary

### 2.1 Zone 1

Zone 1 of the building is the Key City Theatre; it is considered as a Group A Division 1 building of approximately 1517 m<sup>2</sup> and would be classified in section 3.2.2.22 of the 2018 BC Building Code. The theatre has recently undergone a major upgrade to the operational areas and the mechanical and electrical systems and is not considered in this report. If further information on this part of the building is required, we would be pleased to provide that evaluation.

### 2.2 Zone 2

Zone 2 of the building is the elders' room and the band and drama rooms. This area of the building is classified as Group A Division 2 and would fall in section 3.2.2.26 with an approximate area of 917 m<sup>2</sup>.

This area of the building is in good condition overall. A structural upgrade is currently planned for the roof above the band and drama rooms. The existing roof over these rooms does not meet the current structural loading conditions for snow load, so a significant upgrade is currently being planned. Upon completion of this upgrade, no concerns will remain.

The band and drama rooms appear to function well as teaching spaces. The band room has a mezzanine which contains practice rooms, a recording room, and equipment and music storage. This area complies with the current building codes and does not present any major areas of concern. Exiting from this mezzanine area is via stairs adjacent to the entry to the band room, with a second controlled exit through the drama room. The stairs to the mezzanine areas in both the band room and drama room do not comply with the current building code and would present a fall hazard in the case of a rapid exit in an emergency situation. The band room should also have a full acoustic review completed to ensure that proper acoustics are provided. This is a strong program at MBSS and is important in the educational development of the students.

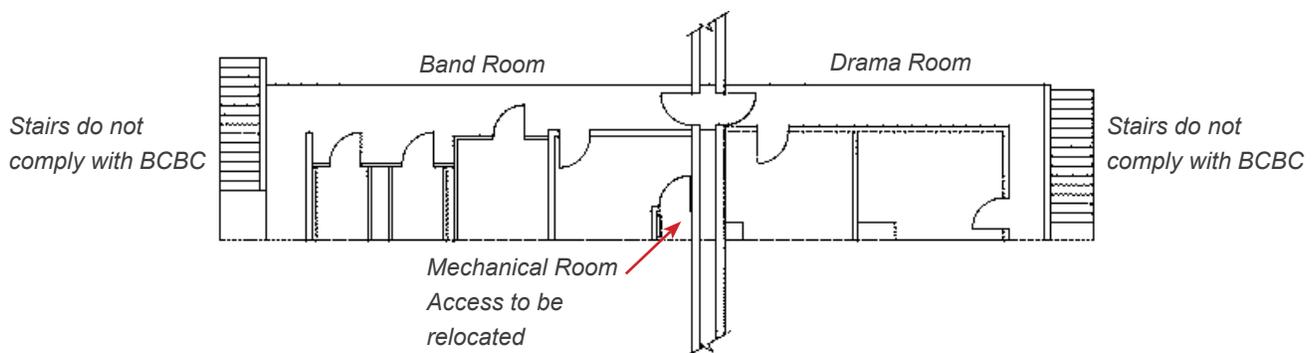


Figure 3

The access to the roof and mechanical space for this area is in a storage room on the mezzanine. This is not a good location, and an extensive investigation should be undertaken to determine if this access can be relocated to a safer and more convenient location.

The drama area is in need of a fresh upgrade and full repainting of the space. It has a mezzanine that is accessed from a stair directly inside the room door with a second secured access from the band room mezzanine. The storage rooms on the mezzanine are completely full and do not provide adequate storage. Additional drama storage should be investigated. Across the corridor from the drama room is the stage craft room. This room functions well and is in a good location with respect to the usage.

In the main corridor of this zone are the elders' room and men's and women's washrooms. The washrooms are old and should be fully upgraded. This applies to both the men's and women's washrooms.

While an elders' room would be a space that is not typically funded from a provincial level, it is extremely important and regularly used at MBSS. MBSS has a strong connection to the Ktunaxa Nation and many First Nations students are in attendance. An elders' room is an important part of the educational growth of the First Nations students. Further discussions should take place with the local elders with respect to this area if the school is approved for a modernization.

The overall condition of this zone is good, and the band, drama, and stage craft shop could continue to be used in the future. There are a few areas in the band and drama rooms that have suspected Asbestos Mastic that would require further investigation if these spaces are renovated. They currently do not present a health issue unless they are disturbed. I would expect that these areas, with proper care and maintenance, would have a useful use expectancy of at least 20 years.

### **2.3 Zone 3**

Zone 3 is the original portion of the school and has several areas that date back to 1949. This area is classified as Group A Division 2 and would fall in section 3.2.2.26 with an approximate area of 2444 m<sup>2</sup>.

There are several operational and building code issues related to this area. A major operational concern also relates to student, staff, and support personnel safety. The main administration area should be connected directly to the primary entry. This connection will provide the maximum security for the school. All visitors and staff, as well as students arriving late, should be required to immediately check in to the administration suite. By locating the administration suite directly adjacent to the main entry, this additional security can be provided. We would redesign the entry to require all visitors to flow through the administration suite and check in prior to entering the school. This is the best way to maintain a safe environment and know who is in the building at all times. With the current school layout, this would be difficult to develop without an addition to the front of the building.

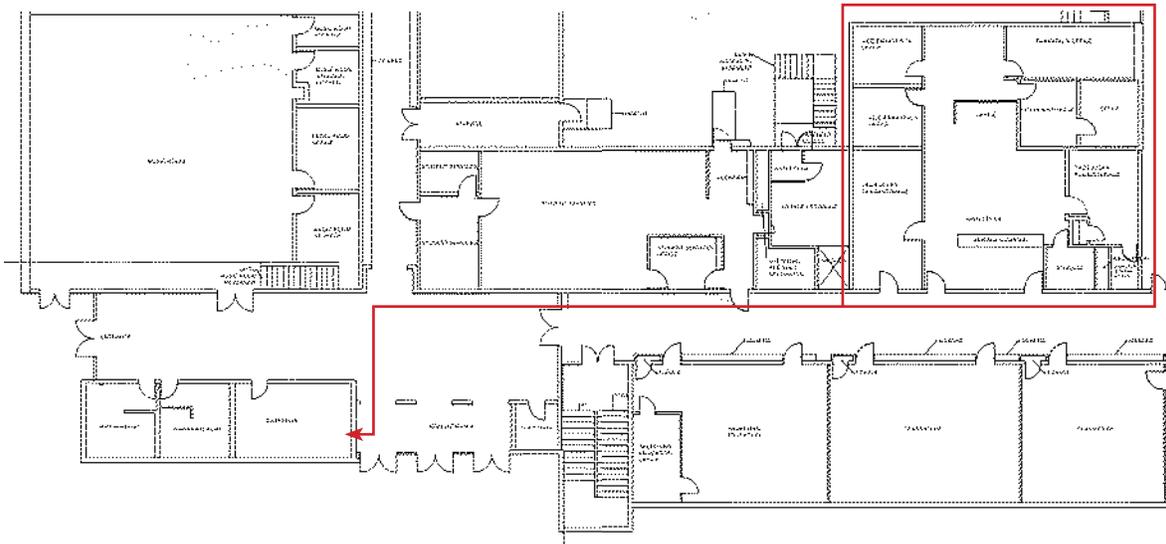
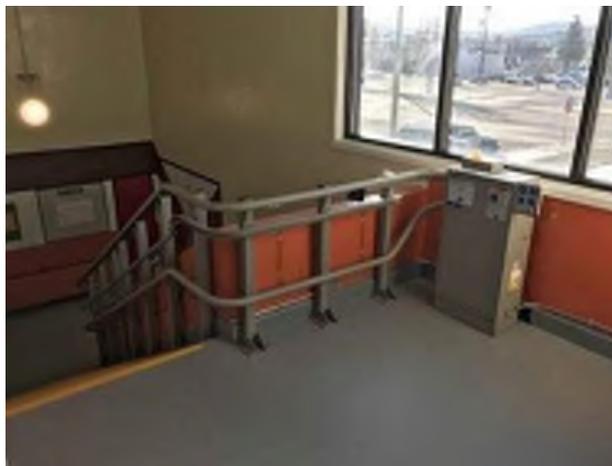


Figure 4

Many of the classrooms in this area have had the flooring replaced over the years, but there is no continuity in the finishes and it looks very much like a patchwork quilt. The classrooms are standard old-fashioned rectangular rooms that are not set up to accommodate the teaching methods of today. There is a lack of breakout spaces, common teaching spaces, and open flexible spaces that the teachers can customize to maximize educational opportunities. The current classroom layouts are a hindrance to the newest, progressive instructional methods to maximize students' abilities and opportunities to learn.

The overall condition of this part of the school is good in terms of the interior finishes since much of the floor has been replaced, most of the lockers in the school are reasonably new, and the overall condition of the wall paint and ceiling tiles are good. The SD 5 maintenance staff do a great job of keeping this old school operational. However, as the school ages, the expenses will increase every year. This portion of the school is over 70 years old and spending significant capital to maintain a building of this age is not a good economic direction.

The school has several handicapped accessibility issues. Currently, there is a handrail lift on the front west stair, and a small lift was installed recently in the corridor of the north central wing on the second floor. While a handrail lift does provide vertical movement for people in wheelchairs, it does not address all the other items related to accessibility. These items include movement of equipment and the movement of stretchers and other emergency equipment. The handrail lift should be replaced with an elevator. There are also some areas of the school within the offices that are not fully accessible. The school should be 100% accessible to all students, staff, and visitors. This would be an expensive renovation to obtain, but it could be achieved.



*Handrail lift should be replaced with an elevator*

Figure 5

Overall, the north wing of the central original school is in fair condition, as a result of ongoing maintenance from the SD 5 team. This wing presents challenges for teaching in old style classrooms that have been converted and modernized several years ago. The art room on the second floor at the end of this wing has some code related issues with respect to the ventilation of the kiln in this space which must be addressed.



*Ventilation and safety concern with kiln in this Art Room*

Figure 6

This area of the school is also located over the basement. The basement contains a mechanical/boiler room, main electrical panels, storage rooms, and the custodian workspace. These rooms do not have the correct fire resistance rating, and it would be extremely difficult to correct this in their current condition. There are fire rating concerns between these rooms and the adjacent rooms and corridors, as well as the floor assembly above these spaces. Both the mechanical and storage rooms require a one-hour fire resistance rating on both the walls and the floor assemblies. With the amount of equipment, piping, and electrical attached to the ceiling, it would not be practical to even attempt to complete a true fire rating separation between the basement and the main floor. This is extremely problematic and is a life safety issue.

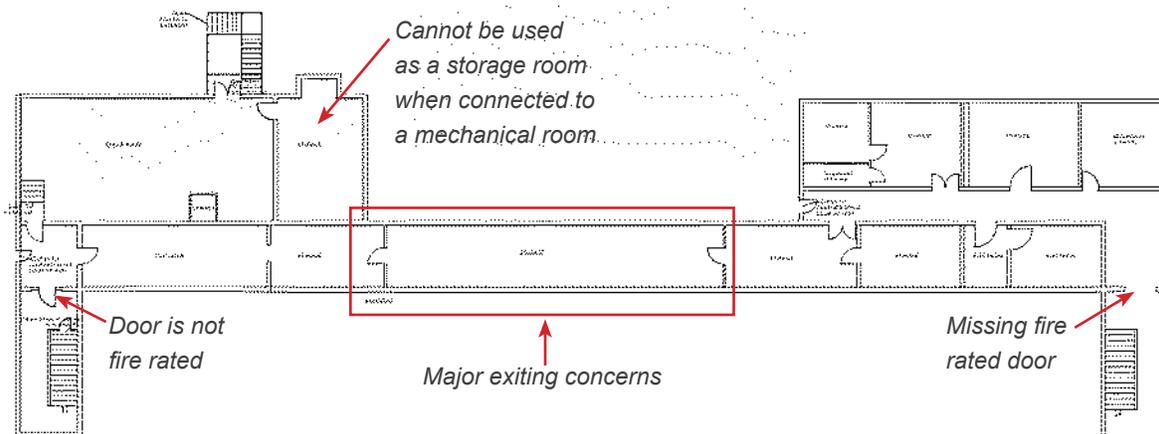


Figure 7

Another major concern is the lack of fire rated doors separating the basement from the stairwells to the main floor. According to the building code, a basement must be completely fire separated from the main floor; this includes the floor and wall assemblies as well as the doors and exiting stairwells. The basement doors on the west stairwell are not fire rated, and there are no doors on the east stairwell near the gym.

The travel distance in the basement to exits is also a concern. Two means of exiting must be provided; and in the current layout, exiting is either through a storage room or the custodian's office in the basement. This could be corrected by relocating some doors in the basement and changing the usage of some rooms, but again it would be an expensive renovation. The storage room accessed from the boiler room is a serious issue. There are items stored in this space that would require individuals to access this mechanical room when the space should be off limits to anyone who is not trained and does not need to access the mechanical space. This space is also not fire protected from the remainder of the building.

Overall, the basement presents a major fire safety issue--there is a lack of the required fire resistance ratings, incorrect travel distances, and no properly rated doors at the bottom of the stairs. This area should be off limits except for trained personnel until the fire protection issues can be resolved.

## 2.4 Zone 4

Zone 4 of the school is the gym area along with the lunchroom, foods room, and vocational study area. This area is classified as Group A Division 2, sprinklered, combustible construction and would fall in section 3.2.2.26 with an approximate area of 3,666 m<sup>2</sup>.

Overall, this area is in good condition but presents many operational challenges. The gym is in good condition; however, the change rooms would require full modernization, including both the shower areas and the change areas with lockers. Though it may be handy for access to the exterior, the doors from the change room areas should be eliminated for security reasons. The gym is also smaller than permitted under BC Education guidelines and could have an addition of approximately 170 m<sup>2</sup>. This would be very useful space to incorporate storage, new change rooms, and improved space for the instructors.

The weight room, mechanical, and electrical rooms on the second level are considered as a second floor. Fire rated doors must be installed at the top of the stairs, and further investigation should be undertaken to verify that all the required fire ratings are in place. Also, the female staff change room is in a poor location on the second floor. This should be relocated to the main floor so it can be utilized correctly.

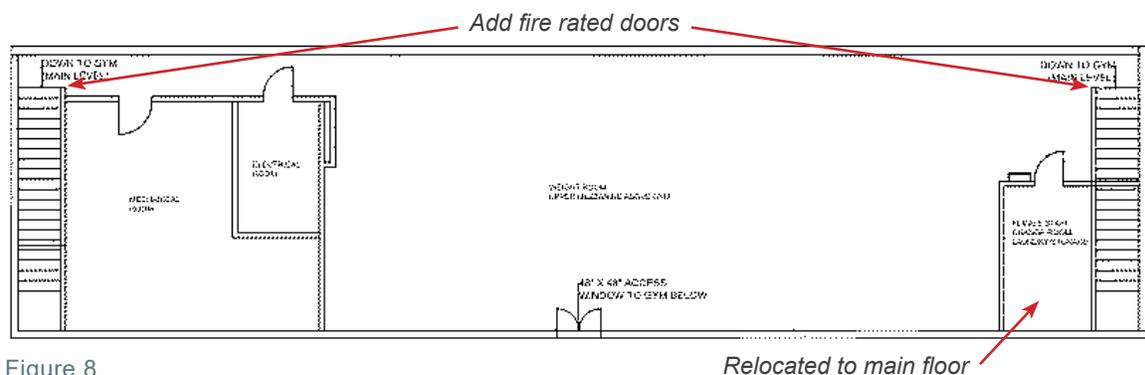


Figure 8

The lunch room is located near the gym off the main corridor. In the lunch room, there is an office and the breakfast club kitchen. The breakfast club kitchen does not meet the current building code for ventilation, preparing food, and serving. This space is too small to be utilized for its current function and should be increased in size. There is a great opportunity to expand it by enclosing the courtyard which is located directly beside it. The other possibility would be to reconfigure the entries to the gym and incorporate the underused space of the old auxiliary gym.

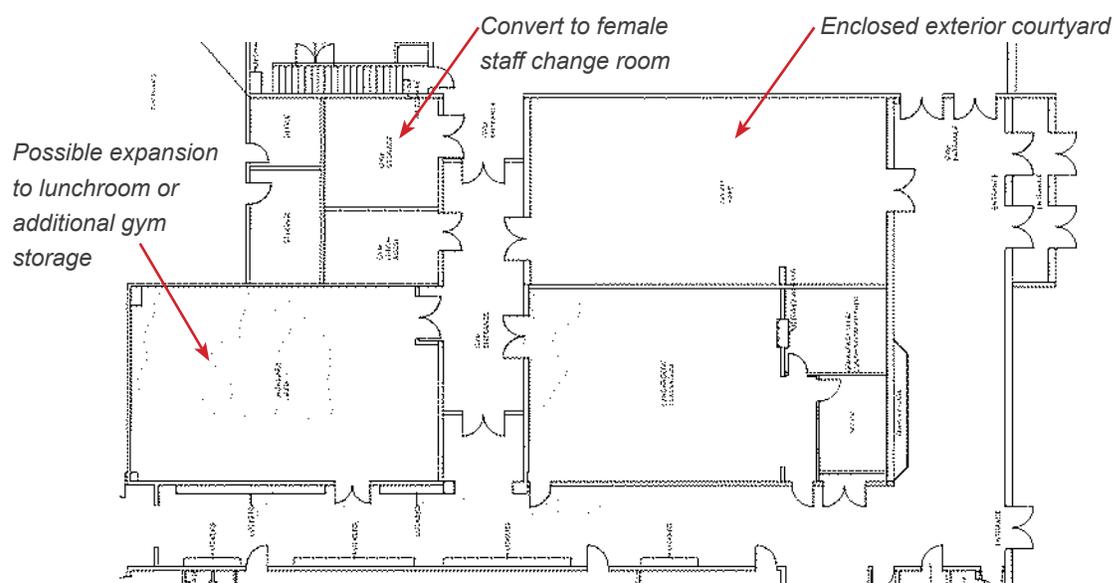


Figure 9

Also located in Zone 4 is the foods room. This room is due for a major renovation, but it could remain in this location. The cabinets and countertops are old and should be replaced, the overall layout is not efficient for teaching, the appliances are due for replacement, and the ventilation in this space does not meet the current building code.

The auxiliary gym was set up for taking photos during our review, and this space could be re-purposed for a better use. There are a several other uses for this space that would make better sense; for example, it could become a storage room for the gym to free up needed space in the gym or it could be combined with the small lunch room to increase its size. This space is in fair condition and could certainly be reused.

A major aspect of the instructional direction at Mount Baker is the Vocational Arts programs, consisting of Electronics, Design and Drafting, Auto Mechanics, and Wood and Metal Working. These areas of the building are in good condition and should receive a full upgrade to ensure their continued lifespan. With a more modern and instructionally-friendly layout, these areas could have improved supervision, safety, and instructional collaboration between the various areas.

There are a few building codes items that could be easily addressed. A couple of mezzanines do not have proper access, a women's washroom should be added to these areas, and all the fire ratings should be verified further to ensure they comply with the current BCBC.

Overall, this space is in good condition and should be maintained. I do not believe that this amount of area or equipment would be provided with a 100% new school, yet it is a very important part of the students' instructional life at MBSS.

## 2.5 Zone 5

Zone 5 of the school consists of two portables located to the east of the school. These portable classrooms are classified as Group A Division 2, combustible construction and would fall in section 3.2.2.26 with an approximate area of 179 m<sup>2</sup>. These classrooms are currently being used for outdoor education programs and associated equipment storage. They are in good condition and could be reused. If a major modernization and addition is approved, the area utilized by these portables would be added into the overall school, and SD 5 could then re-purpose these portables to another location if needed or they could be used for additional outdoor storage.



## 3.0

# Subconsultant Summary

### 3.1 Structural

Brandon Bolen of Bolen Engineering completed a visual site review of MBSS. Based on his report, there appear to be no major structural concerns at this time. One structural area that is being addressed immediately is the completion of a major roof loading increase for the band and drama rooms. This roof repair is scheduled to be completed as soon as possible and will address some long-term loading issues.

While the current building code does not require the building structure to be upgraded for the increase in snow load, we do have concerns that the increased loading could cause some major structural and life-safety issues. The major location of concern is the roof over the original school. This roof was constructed in 1949 to the design factors of the time. The loading design factors have increased considerably over the years and, as such, we do have some concerns with this area. It would be reasonable to assume that the building would most likely fail for seismic and wind loading calculations as well.

### 3.2 Electrical

Dan Le Blanc, C. Tech, from Falcon Engineering completed and was in charge of the electrical review. The main electrical service to the school is 750 kVA and is supplied through a pad mounted transformer. This service is in good condition. The remainder of the electrical system is in poor to fair condition. Much of the wiring is old and not properly supported, and it is assumed that over the years of renovation, there is abandoned wire in the building that should be removed. Many of the panels are full, and there is a shortage of electrical receptacles that work correctly for the teaching stations. The lighting in the school generally meets the expected levels, but there are several T8 fluorescent luminaires remaining as well as possibly some old T12 still remaining. SD 5 has replaced some luminaires with LED luminaires, but only on a one for one situation. Overall, the school can work with the current power loading supplied, but the main systems inside the building require replacement.

### 3.3 Mechanical

The Mechanical report was completed by Andrew Stringer, P. Eng, from Falcon Engineering. The report was based on several site reviews and an outstanding knowledge of the building and the current operational systems at MBSS. Overall, the mechanical systems are in good condition; however, many of the systems are at the end of their service lives. Most of the systems do not comply with current codes, standards, guidelines, or ASHRAE 90.1 energy requirements. The systems have been well maintained over the years, but they are currently not configured to good engineering practices. Through significant upgrades to the mechanical systems, the school district will see considerable energy savings. All recently installed equipment can be re-purposed into a new building, based on a seasonal construction schedule.



### 3.4 Asbestos Containing Materials

An Asbestos Containing Materials Assessment report was completed in March of 2017 by Peak Environmental Ltd. to determine if asbestos containing products remained in MBSS. The school has completed a few hazardous material removal projects over the years, but some asbestos does remain in the building in limited locations. The remaining asbestos does not present a current health hazard. The SD 5 Maintenance Department has done a great job of identifying and containing any asbestos products. SD 5 has installed stickers on the entry doors of every space that clearly identify any hazardous materials that may be in the room.

I must point out that while hazardous material reviews are extensive, they cannot guarantee to identify all items of concern. The challenge presented by asbestos in a building occurs when it needs to be renovated or undergo even minor changes or addition of products. In situations like these, the work must be completed by specially trained personnel. The identified areas of hazardous material in MBSS are in highly controlled regions, such as under the flooring, in window putty, and in the mechanical rooms. None of these items present an immediate concern but would have to be addressed in the case of any renovation or demolition. In our project budgets, we have carried a line item that relates directly to hazardous material abatement. As a result of this, any renovation to the noted areas in the attached report (Appendix D) would require full abatement, resulting in an increase in cost which may push the likelihood of any renovation out of economic possibility.

ACMIS			ASBESTOS CONTAINING MATERIAL IDENTIFICATION SYSTEM
2016 / 2017 / 2018 / 2019			
NOT	RESTRICTED	CONTAINING	AREA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FLOORING
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DRYWALL TAPE COMPOUND
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEXTURED COATING
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	T-BAR CEILING PANELS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WINDOW PUTTY/SEALANT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CMU BLOCK WALL INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEMENT PIPE / CEMENT BOARD
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PIPE FITTING INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	STRAIT PIPE INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DUCT JOINT SEALANT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AREA ACM FREE

Refer to the Asbestos Inventory Report for this site for additional information.

ACMIS Door Frame Label



## 4.0

# Community Outreach

### Community Outreach

Mount Baker Secondary School is an essential part of the Cranbrook community. School District 5 completed a community input session where they received almost 600 responses to the survey. The survey responses demonstrated that MBSS is extremely important to the residents of the City of Cranbrook. There were also over 75 people who indicated that they would be interested in being part of a planning group for any significant work to be completed at Mount Baker. These individuals range from former students and staff to community members, elected officials, and current staff. The dedication that the community has expressed for MBSS is outstanding.

The survey indicated that there were three options which would be investigated: full replacement, partial replacement, and major renovation. The majority of the respondents, 79.5%, wanted a full replacement of the school, 4.3% wanted a partial replacement, 12.3 % wanted a major renovation, and 3.9% did not have a preference. A few major points came out in the community survey:

1. A strong desire to keep the trades area;
2. The need to build without a major disruption to the current facility;
3. The teachers deserve proper heating and ventilation;
4. Build a proper school;
5. Don't just "put lipstick on a pig";
6. MBSS is nearing 70 years of operations; and,
7. Mount Baker has already gone through a renovation and outlived its viability; it's time for a new school.

As a result of COVID-19 protocols, we were not able to have an open house in-person meeting with the community; however, the response received from the survey was excellent. The challenge that occurred was that we could not explain the difference between a full replacement and what a major renovation could entail. The high response was for a full replacement; however, when we read the comments, most respondents wanted to keep the band and drama areas and the trades (auto mechanics, metals, wood working, and electronics) area.

Should the project move forward, we would highly recommend that a community meeting is held and, subsequently, a community project team is developed to assist with the project. Mount Baker Secondary School is much more than simply a school in Cranbrook, it is a vital part of the community.

A full summary of the survey responses can be provided if necessary.



## 5.0

# Budget

### Budget

The proposed project budget for MBSS has been separated into two options. The first budget number is for a 100% new construction school that is based on the approved educational areas allocated by BC Education. At the current time, it is difficult to determine an accurate budget number because of volatile market pricing for materials and labour. We have based the project budget number on the most accurate information we have been able to obtain. The budget numbers supplied from BC Education are for the 2016/17 year. We have added inflation rates to these numbers, and we have also used budget numbers from a recently completed school in Kelowna and discussions with general contractors experienced in educational facilities.

The second budget is for the hybrid model (renovation and new addition) proposed. This option keeps the band and drama rooms as well as the gym and Industrial Arts area. The original 1949 portion of the school would be demolished and replaced with a new build portion.

	Percentage	Area (m2)	Area (ft2)			
New Build		10,240	110,222.34	\$ 4,122.76		\$ 42,217,077.76
Abatement						\$ 300,000.00
Demo		12,402	133,493.89	\$ 85.00		\$ 1,054,170.00
					<b>Subtotal</b>	<b>\$ 43,571,247.76</b>
Contingency	15%					\$ 6,535,687.16
Professional Fees	8.08%					\$ 4,048,640.34
F, F, + E	2%					\$ 1,002,138.70
					<b>Total</b>	<b>\$ 55,157,713.96</b>

Figure 10, Option 1 - New School



	Extent	Disciplines	Area (m2)	Area (ft2)	Cost		Total
Zone 1 - Main	Minor Renovation	Architectural	1,517.00	16,328.84	\$ -	/m2	\$ -
Zone 1 - 2nd			954.00	10,268.76	\$ -	/m2	\$ -
Zone 2 - Main	Minor Renovation	Architectural	917.00	9,870.50	\$ 274.85	/m2	\$ 252,038.15
Zone 2 - 2nd			108.00	1,162.50	\$ 500.00	/m2	\$ 54,000.00
Zone 3 - Main	Demolition	All	2,444.00	26,306.97	\$ 50.00	/m2	\$ 122,200.00
Zone 3 - 2nd			2,376.00	25,575.03	\$ 50.00	/m2	\$ 118,800.00
Zone 3	Haz-Mat Removal		4,820.00	51,882.00	\$ 20.00	m2	\$ 96,400.00
Zone 4 - Main	Major Renovation	Architectural	3,666.00	39,460.46	\$ 650.00	/m2	\$ 2,382,900.00
Zone 4 - 2nd			240.00	2,583.34	\$ 650.00	/m2	\$ 156,000.00
Zone 5			180.00	1,937.50	\$ -	/m2	\$ -
Zone 1,2,4	Mechanical						\$ 6,000,000.00
Zone 1,2,4	Electrical						\$ 2,000,000.00
<b>Total Area of Existing School</b>			<b>12,402.00</b>	<b>133,493.89</b>			<b>Subtotal \$ 11,182,338.15</b>
Zone 6	New Construction	All	4,820.00	51,882.00	\$ 4,122.76	m2	\$ 19,871,710.43
F, F, + E		2.0%					\$ 621,080.97
Site Work			1,629.33	17,537.98	\$ 110.35	m2	\$ 179,801.24
Abatement	Cash Allowance						\$ 150,000.00
<b>Subtotal</b>							<b>\$ 32,004,930.79</b>
Contingency		15%					\$ 4,800,739.62
Professional Fees		8.08%					\$ 2,973,888.17
							<b>Total \$ 39,779,568.58</b>

Figure 11, Option 2 - Hybrid



## 6.0

# Recommendation

### Recommendation

Based on the detailed facility review, an extensive review of past reports and drawings, the community input, and discussions with staff and trustees from School District 5, we have compiled a detailed recommendation for Mount Baker Secondary School.

First, parts of the school are over 70 years old and should not be modernized or renovated. This portion of the school has outlived the service life of the building and would require a major investment to bring the school up to the correct building code levels, life safety levels, and instructional levels of a school today. This would be an expensive, disruptive, and inadvisable financial investment.

Second, the students would undergo major instructional disruption if a renovation of the existing facility was completed. There are several unknown factors that would require a large project contingency, in the range of 25%, to be part of the financing if a renovation of the existing school was undertaken.

Third, the current layout of the school is not set up for progressive instructional techniques. It is designed for the instructional methods used 40+ years ago; and in its current state, it presents major challenges for the teachers. In fact, it is most likely hindering students' education and is certainly not designed to make the best use of the instructional tools used today.

Fourth, if a 100% new school was constructed, many of the features and newer equipment currently in MBSS could be lost. SD 5 will be spending considerable financial resources on upgrading the roof structure over the band and drama rooms to address immediate structural concerns. The vocational arts area offers a wide range of programs, is highly used, and is an important instructional component in the region. There are also great opportunities to expand the community outreach of these areas. They are in good condition and have several years of life service remaining in them. With a new school build, this amount of area and specialized equipment would likely not be directly funded. The gym was constructed in 1989 and is working well; with minor renovations in this area, the gym could continue to function for many years to come.

Fifth, while the sports field to the north of the current school appears to be large, it would be a tight construction site for both the contractor staging area and the final school if a 100% new build was constructed.

It is our recommendation that a hybrid new build and renovation/modernization proposal is explored. Under this option, we would propose that the following areas remain and are renovated: band, drama, foods, lunchroom, auxiliary gym, main gym, and vocational arts (industrial shops). The original 1949 wing and the north classroom wing would be removed. We would then recommend that a new addition is constructed to replace the removed portions on the sports field to the north of the existing school. See Figures 12 -15 below. Through creating a hybrid development, much of the recently completed work by SD 5 could be reused. Most of the lockers in the school have been replaced and are in good condition and could be relocated and reused. Several of the schools' boilers have been replaced in recent years, and they could also be re-purposed. The roof upgrades to the band room and drama room would remain in place and not present any issues. Other areas such as the gym have been maintained very well, and we are proposing that these areas remain. The valuable vocational arts facilities would be preserved, and students will be able to continue to reap the benefits of these programs.

We would work with School District 5, BC Education, and the community to ensure MBSS continues to be the strong community facility that it is currently. With this proposed direction, a new Mount Baker Secondary School could grow with Cranbrook and provide progressive educational opportunities for future generations of students. A hybrid solution would result in a low level of disruption to the students and staff, maintain the positive aspects of MBSS, and provide the best financial value to all the funders. In Section 5.0 above, we have included a project budget for the development of a new school as per BC Education standards and a project budget for the hybrid model. These numbers are based on the best available information at the time of this report. However, with the current construction budget challenges related to COVID-19 and supply chain issues, a high initial project contingency should be factored into the budget. Along with utilizing high construction budget numbers because of the volatile market, we have included an additional 15% COVID-19 construction contingency in our project budgets.



Figure 12 - Phase 1



Figure 13 - Phase 2

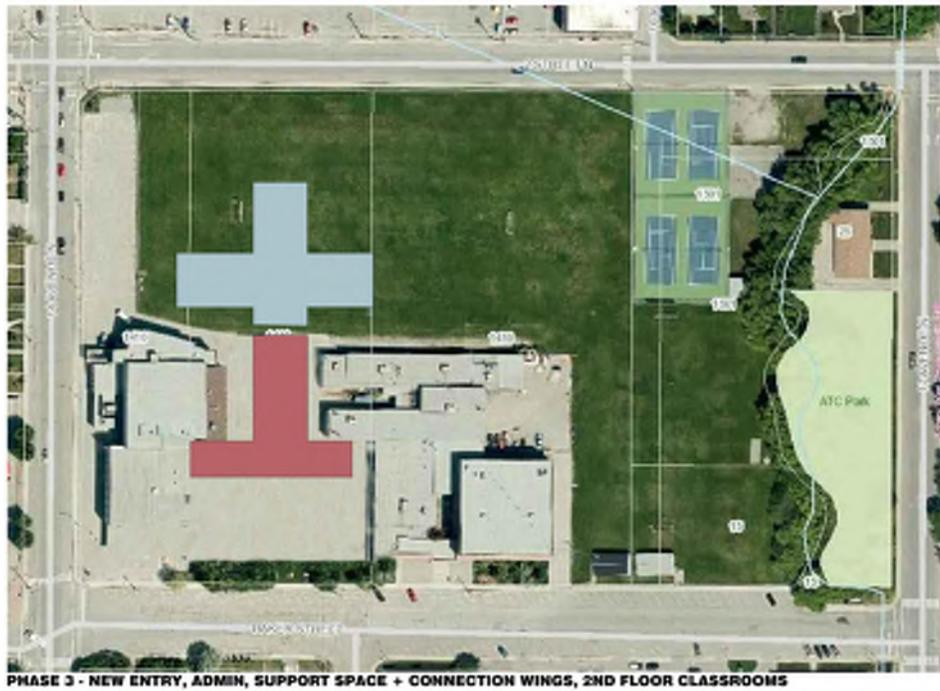


Figure 14 - Phase 3

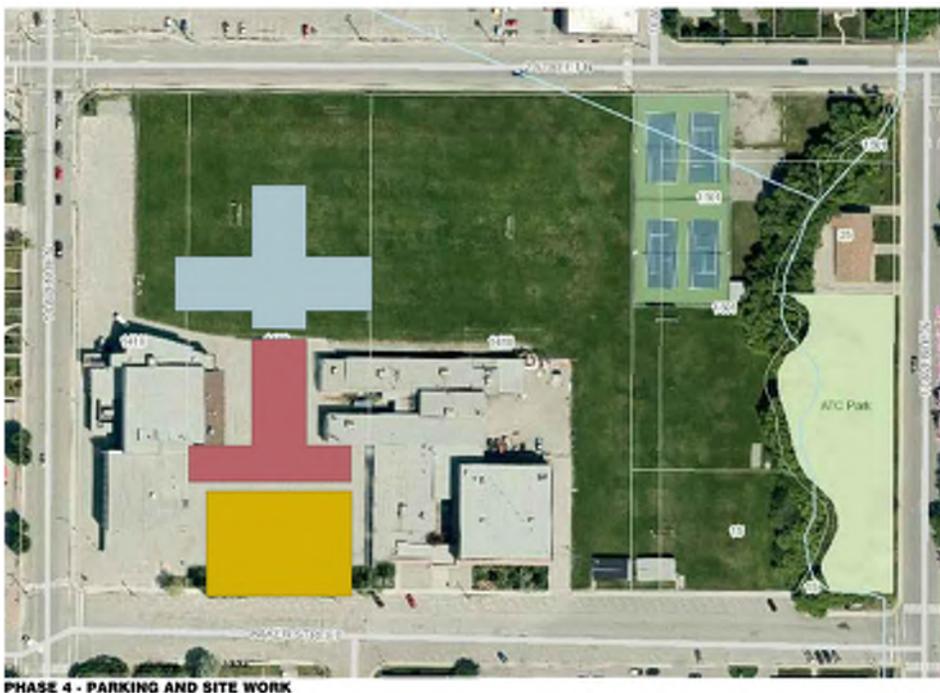


Figure 15 - Phase 4

Appendix A

# Structural Report





Berry Architecture  
Suite 200, 5218 – 50<sup>th</sup> Ave  
Red Deer, AB

Project No. 2021-008  
Date: 2021-01-26

Attention: **George Berry, Architect**

**Re: Structural Condition Review Report  
Mt. Baker Secondary School  
1410 Baker Street, Cranbrook, BC**

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## 1.0 Introduction

Bolen Engineering Inc. (Bolen Engineering) presents this report on the observed structural condition of the building at the above noted address. It is the understanding of Bolen Engineering that this report was commissioned to review the existing structural condition of the building and to review for obvious visible signs of structural distress or damage. It is also our understanding that this review is intended to be non-intrusive in nature and as such will be limited to a review of visual structural components. The detailed design of structural repairs (if required) is considered beyond the scope of this report.

Brandon Bolen, P. Eng, a structural engineer employed at Bolen Engineering, attended the site on January 16<sup>th</sup>, 2021 along with Mr. George Berry and Mr. Cody Lyzenga of Berry Architecture as well as Mr. Joe Tank of School District #5. While on site Bolen Engineering recorded observations, collected measurements and took photographs. A selection of relevant photograph has been included.

## 2.0 References

Our review and report preparation is based upon previous information included in the following documents:

- 1947 Architectural Drawings prepared by Sharp & Thomson, Berwick, Pratt Architects
- 1949 Architectural Drawings prepared by Sharp & Thomson, Berwick, Pratt Architects
- 1990 Architectural Drawings prepared by David Brockington Architect
- 2000 Mount Baker Secondary School Upgrade Drawings prepared by Wiebe Forest Engineering Ltd.
- 2003 Mount Baker High School Roof Structure Assessment Drawing prepared by Armstrong and Nelson Engineers and Land Surveyors
- 2009 Field Review and Structural Evaluation Report prepared by Nelson Engineering Inc.
- 2019 Mount Baker Secondary School Building Condition Assessment Report prepared by Stantec Architecture Limited and Stantec Consulting Limited

## 3.0 Background

The existing building has been thoroughly reviewed on several occasions in the past and a catalogue of the original construction dates, different additions, construction types, and previous structural conditions has been included in these previous reference documents listed above. Bolen Engineering has relied on this information as well as our observations made during our initial site review in the preparation of this report. It is not the intention of this report to duplicate any previous cataloguing of structural systems within the existing building. For information on the existing building construction, reference should be made to the above noted documents.

## 4.0 Observations

### 4.1 Current Structural Condition

During the course of our site review, Bolen Engineering observed each of the structural systems which make up the structure of the school including foundations (where accessible), floor systems, bearing walls and support columns, and roof systems. Our observations of the existing structural systems were reviewed and compared with the previous structural reports and existing drawings to determine if any new or ongoing structural issues were observed.

### 4.2 Roof Systems

The existing roof systems of the building are of varied construction types as noted in the previous reports and drawing sets. Structural repairs to some of the existing timber roof trusses have previously been completed as noted within the previous reports and were observed while on site. The existing roof systems appear to be in generally good condition with no significant signs of obvious visible structural distress observed.



Photo #1 – Typical Heavy Timber Roof Trusses



Photo #2 – Typical Glulam Roof Beams

#### 4.3 Bearing Walls and Support Columns

Bearing walls within the structure typically consist of wood framed bearing walls with some masonry walls at locations as noted on the previous reference drawing sets noted. The bearing walls and support columns appeared to be generally plumb with no significant lateral deflection observed.

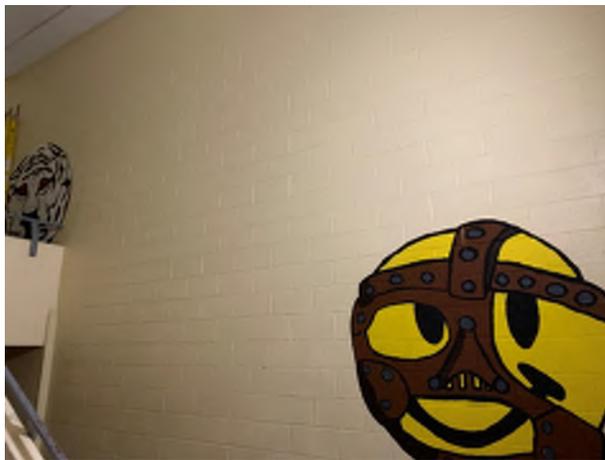


Photo #3 – Stairwell Masonry Wall

#### 4.4 Floor Systems

The existing floor systems of the building are of varied construction types as noted in the previous reference reports and drawing sets. Some minor floor undulations were observed within the main floor classrooms of the original building as well as within the cafeteria area, however these undulations are relatively minor and do not appear to constitute a significant structural concern. The existing floor systems appear to be in generally good condition considering the age of the structure with no significant signs of obvious visible structural distress observed.



Photo #4 – Typical Floor System

#### 4.5 *Suspended Concrete Floor Slab*

The suspended concrete floor slab system which exists over the partial basement area of the building consists of a 5" thick reinforced concrete slab supported by intermediate assumed reinforced cast in place concrete beams which are supported by concrete foundation walls.



Photo #5 – Typical Suspended Slab System



Photo #6 – Typical Suspended Slab System over Boiler Room

One crack was observed within the floor slab over the corridor within the original building. This crack was noted within the 2009 Nelson Engineering report as well as in the 2019 Stantec report. Comparison of photos did not reveal any additional damage or displacement at the crack location indicating that the crack is likely not propagating. In other locations reviewed, the floor slab system generally appeared to be in reasonable condition considering the age of the building, with no obvious visible signs of structural distress observed.



Photo #7 – Observed Suspended Slab Crack

#### 4.6 Slab on Grade Concrete Floor

The slab on grade floor systems exists within the partial basement area and consists of assumed reinforced concrete slabs of unknown thickness. The floor slab appeared to be in reasonable condition considering the age of the building. Some undulations in the floor surface as well some concrete cracking was observed.

#### 4.7 Foundations

The foundations for the building appear to be of reinforced concrete construction, however due to the limited and non-intrusive nature of our review the vast majority of the foundations could not be visually reviewed. Within the basement area, the concrete foundation walls were exposed for our review. These walls appeared to be in reasonable condition with no obvious, visible signs of structural distress observed.



Photo #8 – Typical Foundation Walls

#### 5.0 Discussion

It should be noted the Building Code loading requirements have been revised over the years and in particular the climatic (snow) loading requirements. It is worth noting that ground snow loading values for the Cranbrook area have increased from 44 psf (1969) to 62.7 psf (2018). Buildings may have been designed and constructed to loading requirements at the time of construction, however some structural components may not meet current BC Building Code (2018) requirements.

An important piece of information to note when reviewing an existing building is that the BC Building Code recognizes this changing loading requirement and accepts or “grandfathers” previously conforming buildings under the current code requirements, provided there is not a change in occupancy/use or major structural renovations, as per Article 1.1.1.2 of the BC Building Code as well as Article A 1.1.1.2, (excerpt below). As such, existing structural components of a building which do not currently meet BC Building Code requirements (ie: roof structures) are not required to be upgraded to current BC Building Code requirements unless the existing components are showing signs of structural distress or a change in applied load/occupancy has occurred.

### 1.1.1.2. Application to Existing Buildings

1) Where a *building* is altered, rehabilitated, renovated or repaired, or there is a change in *occupancy*, the level of life safety and *building* performance shall not be decreased below a level that already exists. (See Note A-1.1.1.2.(1).)

**A-1.1.1.2.(1) Application to Existing Buildings.** This Code is most often applied to existing or relocated buildings when an owner wishes to rehabilitate a building, change its use, or build an addition, or when an enforcement authority decrees that a building or class of buildings be altered for reasons of public safety. It is not intended that the British Columbia Building Code be used to enforce the retrospective application of new requirements to existing buildings or existing portions of relocated buildings, unless specifically required by local regulations or bylaws. For example, although the British Columbia Fire Code could be interpreted to require the installation of fire alarm, standpipe and hose, and automatic sprinkler systems in an existing building for which there were no requirements at the time of construction, it is not intended that the British Columbia Fire Code be applied in this manner to these buildings unless the authority having jurisdiction has determined that there is an inherent threat to occupant safety and has issued an order to eliminate the unsafe condition, or where substantial changes or additions are being made to an existing building or the occupancy has been changed. (See also Note A-1.1.1.1.(1) of Division A of the British Columbia Fire Code.)

*Figure 1: BC Building Code Articles 1.1.1.2 and A1.1.1.2*

## 6.0 Opinions & Recommendations

Based upon the above noted observations and discussion, Bolen Engineering provides the following opinions and recommendations:

- 1. Structural Recommendations from Previous Reports:** In the previous structural condition reports, repair and maintenance was recommended for minor structural issues (ie: concrete crack repair, rear exterior basement stair concrete spalling repair, etc). A review of the existing building indicates that these repairs have not been completed at this time. **Bolen Engineering highly recommends that the School District follow the recommendations of these previous reports as to structural repairs and maintenance required in order to prolong the life of the affected structural systems and reduce future damage.**
- 2. Roof Systems:** The roof systems of the building appear to be in generally good condition considering the age of the building. Some repairs to the existing trusses were observed when on site however no new obvious visible signs of structural distress were observed during the course of our review. **Based upon these observations it is the opinion of Bolen Engineering that the roof structure of the building is currently performing satisfactorily, and it is reasonable to assume that it will continue to perform satisfactorily in the future. The roof systems should be monitored annually for any signs of structural distress in the future however no modifications or repairs are necessary at this time.**
- 3. Bearing Walls and Support Columns:** The bearing walls and support columns in the interior as well as along the exterior of the building appear to be in generally good condition with no obvious signs of structural distress observed. **Based upon these observations and analysis it is the opinion of Bolen Engineering that the support columns of the building are currently performing satisfactorily, and it is reasonable to assume that it will continue to perform satisfactorily in the future. The bearing walls and support columns should be monitored annually for any signs of structural distress in the future however no modifications or repairs are necessary at this time.**

4. **Floor Systems:** Some minor floor undulations were observed within the main floor classrooms of the original building as well as within the cafeteria area, however these undulations are relatively minor and do not appear to constitute a significant structural concern. The floor systems of the building appear to be in generally good condition considering the age of the building. **Based upon these observations it is the opinion of Bolen Engineering that the floor systems of the building are currently performing satisfactorily, and it is reasonable to assume that it will continue to perform satisfactorily in the future. The floor systems should be monitored annually for any signs of structural distress in the future however no modifications or repairs are necessary at this time.**
5. **Suspended Concrete Floor Slabs:** The suspended concrete floor slab appeared to be in reasonable condition considering the age of the building. One crack was observed within the corridor area of the partial basement however this crack did not appear to be propagating and had been previously observed in 2009 and 2019. **Based upon these observations it is the opinion of Bolen Engineering that the suspended concrete floor slab of the building is currently performing satisfactorily, and it is reasonable to assume that it will continue to perform satisfactorily in the future. The suspended concrete floor slabs should be monitored annually for any signs of structural distress and the observed crack should be sealed as recommended in the 2019 Stantec report.**
6. **Slab on Grade Concrete Floors:** The slab on grade concrete floor appears to be in reasonable condition considering the age of the building. Some cracking and damage was observed at the time of our review, however the damage would not be considered excessive or structural in nature. **As such, it is the opinion of Bolen Engineering that no structural repairs are required to the floor slab.**
7. **Foundations:** The building foundations were mainly concealed at the time of our review, however the observed foundations appeared to be in reasonable condition considering the age of the building. **Based upon these observations it is the opinion of Bolen Engineering that the foundations of the building are currently performing satisfactorily, and it is reasonable to assume that it will continue to perform satisfactorily in the future. The building foundations should be monitored annually for any signs of structural distress in the future however no modifications or repairs are necessary at this time.**
8. **Required Building Upgrades:** Many of the structural systems within the existing building were constructed to a previous building code and as such do not meet the current loading requirements of the BC Building Code. In accordance with the requirements of the BC Building Code, the building structural systems are not required to be upgraded to meet the new building requirements unless the structural systems are exhibiting signs of structural distress, or there is a change in occupancy/loading. **As the structural systems within the building appear to be performing satisfactorily and no occupancy change is anticipated, it is the opinion of Bolen Engineering that the structural systems within the building are meeting the BC Building Code criteria. All structural systems within the building should be regularly monitored (annually) for signs of structural damage or distress. Should any such signs be observed a structural engineer should be contacted immediately for review.**

It should be noted that the remaining portions of the building were not reviewed by Bolen Engineering for BC Building Code compliance. Any and all comments made above refer only to the observed structural elements of the building. The condition of “Non-Structural” items, including but not limited to architectural, finishes, occupant safety, fire protection, civil, geotechnical, mechanical, electrical and building envelope, or any other non-structural items have not been reviewed by Bolen Engineering.

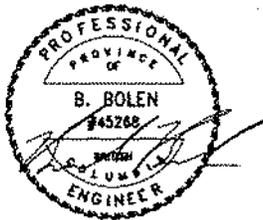
It should be noted that the life span and functionality of any structural system is limited and eventually failure will occur. This report is not intended to suggest that the original anticipated life span has been extended due to our review of the framing structure.

**7.0 Limitations:**

This report has been compiled in a fashion consistent with the standard of care and skill which can ordinarily be expected of a member of the engineering profession under similar conditions. No warranty is made, whether implied or express. This document has been prepared for the sole use and benefit of this project and client only and represents the professional opinions and judgements of Bolen Engineering based upon the knowledge and information available at the time this report was prepared. Any and all recommendations provided by Bolen Engineering are based upon our non-intrusive site review as well as any information provided by the client. It is common for other issues to exist in a building which may not be detected during our review as they are not readily accessible or are hidden from view. As such, should additional issues be noted during construction or at a later date, Bolen Engineering should be notified immediately. Bolen Engineering cannot be held responsible in any way for unknown or hidden site conditions. Any persons relying on this report do so at their own risk. The observations, opinions, recommendations, and all other content contained within this report are specific and applicable to this project only and are not applicable to any other project. If reference is to be made to this report, it must be made to the report in its entirety.

We trust that this report satisfies your requirements for this project. If you have any additional questions or concerns, please contact the undersigned at (250) 464-9268 or (250) 464-1107.

Sincerely,



Brandon Bolen, P. Eng  
Structural Engineer

Reviewed



Ian Jones, ASCT  
Engineering Technologist

Appendix B

# Electrical Report





MECHANICAL ELECTRICAL GEDEXCHANGE

1715 Dickson Avenue Suite 210 Kelowna British Columbia V1Y 9G6  
250 762 9993 f 250 861 3290 [www.falcon.ca](http://www.falcon.ca)

## **ELECTRICAL ASSESSMENT REPORT**

**FOR:**

**MOUNT BAKER SECONDARY SCHOOL**

1410 BAKER STREET

CRANBROOK, BC V1C 1B2

**FALCON PROJECT NUMBER:**

19168.003

**DATE:**

2021-02-18

## 1. INTRODUCTION

1. The purpose of this report is to evaluate the existing condition of the electrical systems and make recommendations for upgrades and replacement at Mount Baker Secondary School, in Cranbrook, BC.
2. This report is based on site reviews of the building conducted on June 5, 2019 and February 10, 2021.
3. Existing building electrical maintenance manuals were not available for review. Some of the original construction electrical drawings were available for review.
4. This report is intended to identify the basis of the electrical design prior to starting detailed design work. Also included is a limited external review of the conditions and configuration of the existing electrical systems where they are apparent.
5. The assessment of the existing electrical systems condition are rated as follows:
  1. **Critical** – The electrical system has failed or is a life safety issue.
  2. **Poor** – The electrical system has passed its rated life and failure could happen at any time.
  3. **Fair** – The electrical system has less than 50% of its rated service life remaining. The system/equipment has minor issues and is operating as intended.
  4. **Good** - The electrical system has more than 50% of its rated service life remaining. The system/equipment has no issues and is operating as intended.

## 2. EXECUTIVE SUMMARY

1. In general, the electrical systems are in poor to good condition. Many of the electrical systems are nearing the end of their service lives. Electrical systems in poor and fair conditions will be identified in this report for upgrade and/or replacement.
2. Code compliance issues with the electrical system will be addressed where required.
3. In general, equipment and systems will be selected with an emphasis on construction costs and maintainability.
4. In general, the electrical systems do follow the current edition of the Canadian Electrical Code.
5. The electrical systems do not comply with the current ASHRAE 90.1 energy requirements.

**3. DESCRIPTION OF EXISTING BUILDING**

1. Area of building: 4020 m<sup>2</sup>.
2. Original construction date: 1949.
3. Known renovations within the building.
  - Year 1965 – Additions and Alterations
  - Year 1987 – Gymnasium Addition
  - Year 1988 – Heating System Upgrade
  - Year 1990 – Theatre Renovations
  - Year 1998 – Work Shops Electrical Updates
  - Year 2020 – Key City Theatre Renovations
4. Description of existing building structural systems:
  1. The building is two storey on a partial basement and is considered combustible construction.
  2. Most spaces in the building, except service and washroom/change rooms, have T-Bar ceilings.

**4. EXISTING CONDITIONS**

**1. Electrical Service**

**Condition Good**

1. The electrical service is fed from a BC Hydro supplied 750 kVA pad mounted transformer, located south of the building along Baker Street.
2. The transformer feeds the main breaker in the Main Distribution Centre (MDC) located in the basement of the school.
3. The electrical service currently does not meet the BC Hydro standards for an electrical service of this size. BC Hydro now requires direct access to their metering equipment but no changes are required at this time. The metering Current Transformer (CT) section in the MDC does meet the BC Hydro space requirements for their equipment.
4. A review of the electrical load for the building should occur once any mechanical upgrades have been confirmed. However, it is anticipated that a service upgrade is not required.

**2. Distribution**

**Condition Poor/Fair**

1. The transformer feeds a 3P-1600 Amp main breaker in a 1600 Amp – 120/208 Volt – 3 Phase – 4 Wire MDC located in the main electrical room on the basement level.

2. The MDC is fed through a wireway with a main breaker/CT section and a section for sub-service breakers. The MDC was manufactured by Siemens and is over 30 years old. Parts for this equipment are available.
3. The MDC has several sub breakers for local panels, motor control centre (in the Boiler Room) and HVAC equipment. The largest feeds are as follows:
  1. 3P-1000A Sub Distribution Centre CDP-2
  2. 3P-800A Theatre Distribution Centre SDC-2; this distribution centre is being upgraded as part of the Theatre upgrades.
  3. 3P-600A - 150kVA transformer 208:600-volt step-up transformer for the cooling tower.
  4. 3P-600A Sub Distribution Centre CDP-3; Gym Distribution Centre.
4. The Shop panels are fed from a splitter (3P-400) feed from CDP-2.
5. The panels are manufactured by Siemens, Square D, Federal Pioneer, and Westinghouse. The majority of these panels are in poor to fair condition and are nearing the end of their rated life and are full (no spare breaker space). These panels should be replaced as required to serve additional loads or during a renovation.
6. Existing motor control devices are 30 plus years old. These are in fair condition and should be replaced when required.
7. The electrical distribution equipment is assessed to be in poor to fair condition. The MDC, CDP-2 and CDP-3 are in fair condition. The majority of the panels and motor control equipment are in poor condition, due to their age and the availability of replacement parts.

### 3. Wiring

#### Condition Poor/Fair

1. Existing feeders are RW90 copper, and possibly aluminum conductors in conduit. There are some Teck 90 (ACWU90) cables used for loads after the building was constructed.
2. The branch circuit wiring is AC-90 cables (BX) to electrical devices and luminaires from the panel.
3. During the construction and renovation of the building, conduit and cables were not fire stopped. Some new cables and conduits have been installed in the last 15 years and have been fire stopped.
4. Much of the wiring is original to the building and past their expected life
5. Wiring in the Crawlspace, both line voltage and communication cabling, is not supported as per the Electrical Code. Some of the wiring is lying on the floor with some wiring/cabling supported by building elements, e.g., plumbing piping.
6. It is assumed some of the wiring within the building has been abandoned and should be removed.

**4. Connected Loads****Condition Fair**

1. The receptacle layout and quantity of devices is less than desirable for current teaching. Several power bars and extension cords have been used for workstations due to the lack of properly located receptacles.
2. All the Shop equipment has disconnect switches as per WorkSafeBC requirements.
3. Each Shop has an emergency electrical shut-off system installed. The Shop panels are connected via a key switch/pushbutton controlled contactor. These contactors are over 30 years old.
4. The main boilers for the school have an emergency shut-off switch as required by WorkSafeBC. The boilers serving the Gymnasium do not.
5. Platform stair lifts have been provided to provide accessibility into the school. These all have service disconnect switches.
6. No roll shutters are installed on the building.

**5. Lighting****Condition Poor**

1. Lighting in the building consists of surface/suspended and recessed T8 fluorescents with electronic ballast luminaires. There could be some T12 and magnetic ballasts within the building.
2. Some luminaires in the building have been replaced with LED luminaires in a one-for-one replacement.
3. The luminaires are old and dated with many of the acrylic lenses turned yellow from the UV exposure. There are several luminaires missing lenses.
4. The lighting levels throughout the building generally meet the requirements of the Illuminating Engineering Society of North America recommendations for each space.
5. The lighting power density is higher than the allowable by the current version of ASHRAE 90.1 currently enforced in British Columbia but would have met code requirements at the time of installation.
6. Lighting control is provided by line voltage switching. Many classrooms have two switches to provide 50% or 100% lighting levels.
7. Exterior lighting is controlled via a time clock and photocell control.

## 6. Exit and Emergency Lighting

### Condition Fair

1. Exit lights in the space are older style red exits with a mix of older metal (non-LED) and newer plastic-LED units. These are located as required to identify the egress routes. These exit lights do not meet the current requirements of the British Columbia Building Code but would have complied at the time of installation. They should be replaced when they fail or during a renovation.
2. Emergency lighting power is provided via battery packs and remote heads. There is a mix of different style battery packs throughout the building. Small packs have been added where required and as needed. There would be some maintenance savings with reducing the number of battery packs within the building.
3. Remote heads, with MR16 lamps, provide emergency lighting for egress routes.
4. The emergency lighting in general meets the requirements of the current edition of the Building Code.

## 7. Fire Alarm

### Condition Good

1. The fire alarm control panel is currently being upgraded to a Notifier network system as part of the Key City renovations.
2. The building has a fire protection sprinkler system installed. A review of the flow pressures should be undertaken to confirm if a sprinkler fire pump is required. No sprinkler heads were observed in the main Electrical Room.
3. The fire alarm system consists of the following:
  1. Manual break glass pull stations have been installed at the required egress locations as required by Code.
  2. Smoke detectors in the egress routes in the Theatre area of the building and for control of the fire curtain at the Theatre stage.
  3. Smoke detectors are located at the top of the stair shafts.
  2. Fire detectors (smoke or heat detectors) have been installed in selected spaces within the building.
  3. There are fire alarm bells (250mm) and strobe lights located throughout the building.

4. A graphic fire alarm annunciator has been provided at the main entry to the school and the main entry to the Key City Theatre.

## **8. Security Systems**

### **Condition Good**

1. The intruder alarm system consists of DSC control and expander panels. This type of panel is currently available.
2. Intrusion detection consists of passive infra-red wall mounted detectors.
3. No door contact switches were observed.
4. Keypads have been located at principal entries to the building.
5. There is a Closed-Circuit Television System in the building. The system is relatively new and appears to meet the Owner's requirements.
6. There are cameras at the building entries and in the corridors.
7. Monitors for the camera are in the Main Office. The storage capacity of the NVR is unknown.

## **9. Voice/Data Communications**

### **Condition Good**

1. There is at least one telephone and data outlet per classroom.
2. The telephone and data outlets are wired with Category 5e cabling. Some telephone wiring in the building is wired with non-category cables.
3. All data and voice wiring appears to be terminated at the data rack next to the General Office. No other data rack was found.
4. There are wireless antennae throughout the building. It is assumed these provide data Wi-Fi connections for most of the staff in the building.

## **10. Public Address System**

### **Condition Good**

1. The public address system is manufactured by Rauland, is of recent vintage and is microprocessor controlled. This is a single zone system with no two-way communications between the General Office and the Classrooms.
2. There is one speaker per classroom and there are wall mounted speakers in the corridor.
3. The Gymnasium has a stand-alone sound system.

## 5. RECOMMENDATIONS

### 1. Power/Distribution

1. The electrical distribution system is in “fair” condition due to age, available spare capacity and availability of replacement parts. It recommended that any electrical distribution equipment older than 1988 be replaced. The following is a general description of the recommended upgrades to the electrical distribution system.
2. Existing panels will be replaced one-for-one in the same locations with new panels.
3. Additional panels will be provided in selected areas for additional loads.
4. The new and replacement panels will be rated at 225A-120/208 volt – 3 Phase-4 Wire and will be complete with the following features:
  - Tin-plated aluminum bussing.
  - Bolt-on breakers.
  - Lockable doors.
  - Each panel will have a minimum of 25% spare space for future loads.
  - Circuit breaker locks for security equipment, exit signs, and emergency lighting.
  - Each panel will have 3@1P-15A and 3@1P-20A spare breakers.
5. The Transient Voltage Surge Suppression (TVSS) filters will be provided on the main service to protect the electrical distribution system from spikes and sags. The TVSS unit will be Type 2 surge protective device (SPD) as per UL 1449 Standards. Minimum surge current capacity based on ANSI / IEEE c62.41 category A.
6. The electrical distribution equipment newer than 1988 is in “fair” condition and should be replaced in the next 10 to 15 years as spare parts become harder to obtain.

**Budget - \$300,000**

### 2. Wiring

1. Many of existing feeders and branch circuit wiring is original to the building. It is recommended that an infra-red survey of all electrical equipment and connections be completed and temperatures measured be recorded. Any feeders that are not within the recommended temperature reading should be replaced.

**Budget – Infra-Red Survey \$25,000**

2. Provide fire stopping throughout the building.

**Budget - \$20,000****3. Connected Load**

1. Replace existing receptacles and provide new receptacles in the classrooms as required.

**Budget - \$75,000****4. Lighting**

1. The existing luminaires will be replaced one-for-one in their existing locations.
2. Lighting levels will be in accordance with ASHRAE/IESNA (Illuminating Engineering Society of North America) recommendations.
3. Interior luminaires will have a colour temperature of 3500-degree kelvin; exterior luminaires will be 4000 degrees.
4. The luminaires will be capable of dimming to 1% light output using a 0-10VDC control system.
5. The existing lighting controls will be replaced with dimmers to control the lighting output in a space.
6. Occupancy sensors will be provided to automatically shut off the lights in each space. Occupancy sensors will not be provided in the Shops, Mechanical Rooms or any other areas with operating equipment.
7. Exterior spaces with large window areas will have daylight photocell sensors to reduce the luminaire light as the natural light increases in the space. In the open office areas, each luminaire near the window will have an integral photocell to prevent false dimming from window shades.
8. The existing line voltage switches will remain in the Electrical and Mechanical Rooms.
9. Vacancy sensors will be provided in all spaces.
10. The system will be connected to the building DDC system.

**Budget \$280,000****5. Exit and Emergency Lighting**

1. The existing exit and emergency lighting system will be upgraded to meet the current British Columbia Building code.
2. Battery packs will be consolidated into a minimum number of packs to

reduce maintenance costs.

3. Remote heads will be replaced with vandal-proof heads complete with 4-watt LED lamps.
4. New exit lights will be complete with an aluminum housing and with on-board battery. The minimum energy use will be less than 2 watts.

**Budget - \$35,000**

**6. Fire Alarm**

1. No recommendations.

**7. Security Systems**

1. No recommendations.

**8. Voice/Data Communications**

1. No recommendations.

**9. Public Address System**

1. No recommendations.

**10. Estimates**

1. All estimates are Class C.

**6. PHOTOGRAPHS**



Typical Sub Distribution Centre



Typical Wiring Methods



Typical Wiring without Fire Stopping



Typical Remote Head and Exit Light



Typical Second Floor Lighting



Typical Lighting



Corridor Lighting

**END OF REPORT**

Appendix C

# Mechanical Report



## **MECHANICAL ASSESSMENT REPORT**

**FOR:**

**MOUNT BAKER SECONDARY SCHOOL**

1410 BAKER STREET

CRANBROOK, BC V1C 1B2

**FALCON PROJECT NUMBER:**

19168.003



## 1. INTRODUCTION

1. The purpose of this report is to evaluate the existing condition of the Mechanical systems and make recommendations for upgrades and replacement at Mount Baker Secondary School, in Cranbrook, BC.
2. This report is based on site reviews of the building conducted on multiple site reviews conducted up to October 22<sup>nd</sup>, 2019.
3. Existing building mechanical maintenance manuals were not available for review. Some of the original construction mechanical drawings were available for review.
4. This report is intended to identify the basis of the mechanical design prior to starting detailed design work. Also included is a limited external review of the conditions and configuration of the existing electrical systems where they are apparent.
5. The assessment of the existing mechanical systems condition are as follows:
  1. **Critical** – The mechanical system has failed or is a life safety issue.
  2. **Poor** – The mechanical system has passed its rated life and failure could happen at any time.
  3. **Fair** – The mechanical system has less than 50% of its rated service life remaining. The system/equipment has minor issues and is operating as intended.
  4. **Good** - The mechanical system has more than 50% of its rated service life remaining. The system/equipment has no issues and is operating as intended.

### 3. EXECUTIVE SUMMARY

1. The facility appears to be well utilized.
2. The existing mechanical systems are not in good condition. Many systems are at the end of their service lives.
3. The existing mechanical systems do not comply with codes, standards, or guidelines.
4. The existing mechanical systems do not comply with present ASHRAE 90.1 energy requirements.
5. The existing mechanical systems are not configured to good engineering practice.
6. The existing mechanical systems use a disproportionate amount of energy.
7. Significant upgrades to the mechanical systems are required.
8. The new systems and equipment proposed within this study have a proven track record on previous similar upgrades.

### 3. DESCRIPTION OF EXISTING BUILDING

1. Area of building: 11,319 m<sup>2</sup>.
2. Original construction date: 1949.
3. Known renovations within the building.
  - Year 1965 – Additions and Alterations
  - Year 1987 – Gymnasium Addition
  - Year 1988 – Heating System Upgrade
  - Year 1990 – Theatre Renovations
  - Year 1998 – Work Shops Electrical Updates
  - Year 2020 – Key City Theatre Renovations
4. Description of existing building structural systems:
  1. The building has two storeys over a partial basement and is considered combustible construction.
  2. Most spaces in the building, except service and washroom/change rooms, have T-Bar ceilings.

#### 4. EXISTING CONDITIONS

##### 1. Primary Energy Systems



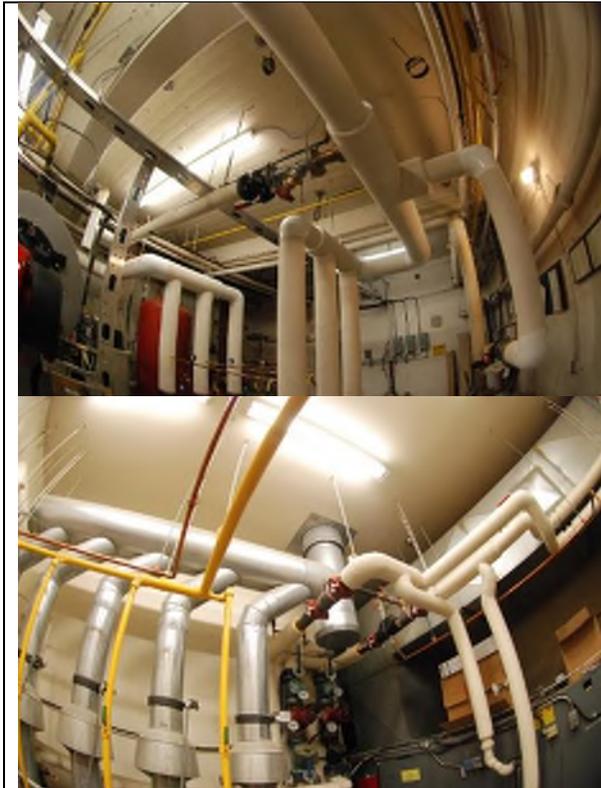
##### Observations:

1. The primary heating is provided by two Viessmann natural gas condensing boilers that have modulating capacity control, which serve perimeter heating coils and wall fin units.
2. A bank of Hydrotherm modular natural draft boilers serve the Gym area.
3. The Viessmann boiler was installed in 2016.
4. Barring unforeseen internal problems, the Viessmann boilers are in “good” condition and can be expected to provide good service for the foreseeable future.
5. **The Hydrotherm boiler installation does not comply with current codes.** There is an isolation valve between the boilers and their low-water cut-out. This creates a risk of the boilers operating without water. The boiler isolation valve is currently chained open as a safety measure.
6. The Hydrotherm boilers are in “critical” condition. They are considered to be obsolete and an energy liability.
7. The size and height of the chimneys serving the Hydrotherm boilers will contribute to excessive ‘stand-by’ energy losses.
8. The system configuration will not allow modern boilers to operate at condensing temperatures during the design heating load but will allow lower temperature operation during shoulder seasons.

##### Recommendations:

1. The Hydrotherm boilers serving the gym area are being replaced with new high efficiency boilers. As of the writing of this report, this project is in progress.
2. Additional boilers will be required to meet the outside air heating demand of the proposed system.

## 2. Energy Transportation Systems

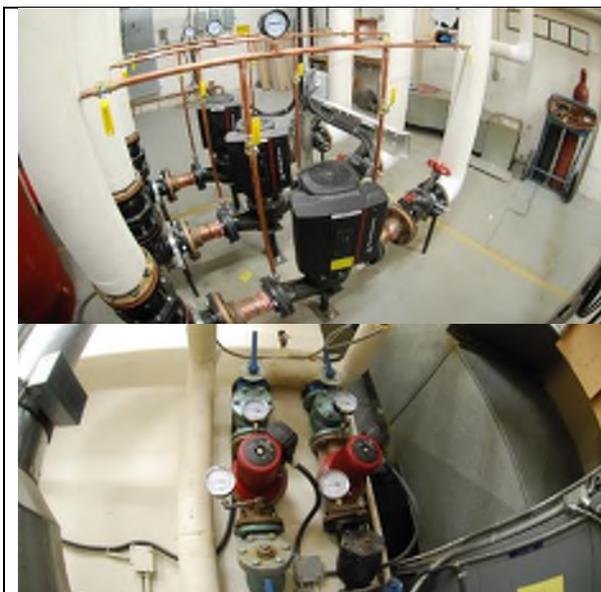


**Observations:**

1. The hydronic piping systems appear to be original, with the exception of piping reconfigured around the new Viessmann boilers.
2. Barring unforeseen internal problems, much of these systems may be expected to provide good service for the foreseeable future. Any piping that is intended for re-use should be sampled to ensure that it is still in good condition.
3. The insulation on the hydronic piping is discoloured in places but is otherwise in good working order.

**Recommendations:**

1. These systems will be reconfigured as required to suit the proposed upgrade.



**Observations:**

1. The hydronic pumping systems have been upgraded recently and are in "good" condition.

**Recommendations:**

1. Some reconfigurations will be required as part of the proposed upgrade.

### 3. Terminal Heating and Cooling Equipment



**Observations:**

1. The bulk of the occupied zones are served by Engineered Air gas fired, electrically cooled roof top units, which provide outside air as well as some heating and cooling.
2. Some additional spaces such as the Gym and Music Room are served by heating-only air handling units.
3. The Industrial Education area is served by individual rooftop units.
4. Perimeter heating is provided by hot water radiant panels as well as wall fin and fan coil units.
5. Unfortunately, the configuration of the existing systems is problematic in that the systems have multiple zones, which are served by a single unit and have supply air being short circuited to the return air systems. In rooms with higher ceilings, stratification of warm air is preventing the supply air from reaching the occupied zone.
6. The air handlers are nearing the end of their service lives. They range from "fair" to "poor" condition but are not configured to current design practices.
7. Many of these systems are not compatible with modern high efficiency, low temperature heating systems.

**Recommendations:**

1. These systems will need to be upgraded in order to improve comfort and energy efficiency.
2. A combination of vertical unit ventilators, fan coil units, and dedicated outdoor air systems should be provided. Larger zones should be served by separate air handling systems.



Observations:

1. The terminal systems for ancillary or unoccupied areas, such as entry ways and storage rooms, are based on hydronic force flow and baseboard heating systems.
2. These systems are not compatible with modern high efficiency, low temperature heating systems.

Recommendations:

1. These systems will need to be upgraded in order to improve energy efficiency.

#### 4. Controls

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. The control system is a Delta Version 3.4 DDC system and is in “good” condition.</li> <li>2. The building has not been provided with CO2 measuring devices and cannot modulate outside air control to meet the requirements of the zones.</li> <li>3. Terminal system units for ancillary or unoccupied areas, such as entry ways and storage rooms, have not been provided with control that will prevent operation while the remainder of the building is in night setback.</li> </ol> <p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. These systems will need to be upgraded to provide CO2 demand-based ventilation control.</li> <li>2. Reconfiguration will be required to suit the proposed design.</li> </ol>
---	--

#### 5. Exhaust Air Systems

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. Dedicated general exhaust systems have been provided for equipment that generates objectionable odours.</li> <li>2. The spun aluminum type roof mounted exhaust systems have suffered excessive vandalism.</li> </ol> <p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. The exhaust fans should be replaced as required.</li> </ol>
---	--

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. Automotive carbon monoxide systems do not comply with current WorkSafeBC Guidelines and good engineering practice.</li> </ol> <p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Automotive exhaust systems should be upgraded.</li> </ol>
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Observations:

1. Science Fume Hood – Fume hood and exhaust systems do not comply with current ASHRAE 110, WorkSafeBC Guidelines and good engineering practice.

Recommendations:

1. Fume hood exhaust systems should be upgraded.



Observations:

1. Home Economics range hood exhaust systems do not comply with current good engineering practice.
2. Dilution exhaust systems have not been found to be as effective as residential style range hoods installed directly over the ranges.

Recommendations:

1. Home Economics exhaust systems should be upgraded to provide residential style hoods over each range, however this will not be practical without a major millwork upgrade. **Note that this work is outside of the present scope but should be included with a future architectural upgrade.**



Observations:

1. Art Room kiln exhaust systems do not comply with current good engineering practice. Slot style exhaust hoods provide better source capture and control of odours and contaminants.
2. One of the kiln exhaust hoods will not lower into place due to interference from a sprinkler pipe.
3. The kiln exhaust system is in "critical" condition.

Recommendations:

1. Provide a slot style exhaust hood behind the kiln and enclose the kiln in a new dedicated room to contain odours. **Note that this work is outside of the present scope but should be included with a future architectural upgrade.**

## 6. General Plumbing Systems

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. Most plumbing fixtures have been upgraded as required.</li> <li>2. Hand lavatories have not been provided with the hands-free fixtures.</li> </ol>
	<p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Manual lavatory faucets should be replaced with hands-free units to reduce water consumption and improve hygiene.</li> </ol>
	

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. Custodian sinks comply with current WorkSafeBC procedures.</li> </ol>
	<p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. No upgrades are anticipated as part of this program.</li> </ol>



Observations:

1. Domestic hot water heaters are gas fired natural draft units.
2. This style of heater is energy wasteful and has significant standby losses.
3. The Gym Changerooms and adjacent areas are served by two hot water heaters in the Gym Mechanical Room. The remainder of the school is served by a hot water heater in the main boiler room.
4. Two of the three hot water heaters have been recently replaced with new natural draft heaters.
5. The hot water heaters are in "fair" condition.



Recommendations:

1. As the hot water heaters approach the end of their service lives, they should be replaced with condensing hot water heaters.



Observations:

1. Acid waste piping has not been installed on Science Room sanitary drainage systems.

Recommendations:

1. Provide under sink acid neutralizers to serve each Science Room sink.

## 7. Safety & Environmental Protection Plumbing Systems



### Observations:

1. Emergency eyewashes and showers with companion water tempering systems, which are plumbed into the domestic water systems to meet current Code requirements, have not been provided for the Shop, Science Labs, or Science Prep Room.
2. An emergency eyewash and shower has been provided off a corridor near the Science Rooms, but it is behind a locked door and is not considered accessible.
3. These systems are in "critical" condition.

### Recommendations:

1. Emergency eyewashes and showers should be provided in each Science Room, Wood Shop, Metal Shop, Automotive Shop and Science Prep Room.



### Observations:

1. Cross contamination and premise isolation devices have not been provided on water service and sprinkler stations, which are typically required by most municipalities.
2. A bypass is present that will allow water to circumvent the backflow preventer. This does not comply with current codes. This condition is considered "critical".

### Recommendations:

1. These systems should be upgraded. The Dual Check Valve Assembly should be relocated to downstream of the bypass.



Observations:

- ◆ A flammable storage cabinet in the Science Prep Room has been vented according to manufacturers and WorkSafeBC Guidelines, however the cabinet in the Automotive Shop has not.

Recommendations:

- ◆ Provide Schedule 40 steel vent piping as required.

## 8. Fire Protection Systems



Observations:

1. Fire protection systems were installed in 1979. The system can be considered to be nearing the end of its service life.
2. Existing sprinkler station utilizes wet system valves in lieu of flow switches. The wet system valves require extensive annual maintenance and should be replaced.
3. The City of Cranbrook reduced its water supply pressure, and coverage is likely no longer adequate. This situation is considered "critical" as the facility's fire protection system may no longer be functional.

Recommendations:

1. Much of the fire protection system likely needs to be replaced.
2. A section of piping should be removed to evaluate internal corrosion.
3. A fire pump may need to be added in order to provide adequate sprinkler coverage.

	<p>Observations:</p> <ol style="list-style-type: none"> <li>1. Forge Area – if a sprinkler head operates while the forge or melting crucible are heating, the contact between the water and hot or molten metal can have dangerous consequences.</li> </ol>
	<p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Sprinkler heads should be removed from areas where the spray could make direct contact with forge or melting crucible.</li> </ol>

#### 4.0 Considerations for Mechanical System Upgrade

Caveat. This review is intended to provide an external review of the conditions and configuration of the existing mechanical systems where they are apparent. The inside condition of many systems (hydronic, gas heating or refrigerant systems for example) will affect the longevity of the equipment, and that assessment can only be achieved by qualified technicians performing an invasive inspection of the equipment. If there is reason to consider this sort of review, then those recommendations are listed in the text of the report. The main purpose of the report is to develop budgets for systems that need to be substantially upgraded. Individual equipment that needs to be replaced under what would be considered a maintenance function are generally not included in the report.

This facility would be well suited to a unit ventilator system based on hot water heating and chilled water cooling systems. The system should be designed to accommodate future connection to a geoexchange or air-source heat pump system in order to support contemplated provincial action on electrification of building heat.

An upgrade to the existing mechanical system will improve the operation, comfort, energy consumption, Code compliance and maintenance of the facility. The specific recommendations are listed in the text of the report. The recommendations provided are based on successful implementation of similar systems in previous upgrades.

Andrew Stringer P. Eng.



## Appendix A – Order of Magnitude Estimate for Budgetary Guidance

MOUNT BAKER SECONDARY											21-May-03
MECHANICAL SYSTEMS UPGRADE											TOTAL
	qty		Equipment Unit Cost	Duct Unit Cost	Piping Unit Cost	Total Unit Cost	Equipment Cost	Duct Cost	Piping Cost	Total Cost	
Boiler - Condensing - 399,000 Bluh Input	5	Unit @	\$10,000	\$4,000	\$6,000	\$20,000	/Unit \$50,000	\$20,000	\$30,000	\$100,000	
Minor Circ Pumps	11	Unit @	\$1,000		\$500	\$1,500	/Unit \$11,000	\$0	\$5,500	\$16,500	
Main Circulation Piping - Insulated	20	Meter @			\$604	\$604	/Meter \$0	\$0	\$13,000	\$13,000	
DHW Tank - Gas Fired Condensing	2	Unit @	\$7,000	\$1,500	\$3,500	\$12,000	/Unit \$14,000	\$3,000	\$7,000	\$24,000	
DHW Recirc Pump	1	Unit @	\$350		\$500	\$850	/Unit \$350	\$0	\$500	\$850	
110 ton Adiabatic Dry Cooler (Plus heat of compr)	1	Unit @	\$145,000		\$45,000	\$190,000	/Unit \$145,000	\$0	\$45,000	\$190,000	
Heat Pump - Water to Water - 50 ton	3	Unit @	\$50,000		\$25,000	\$75,000	/Unit \$150,000	\$0	\$75,000	\$225,000	
Major Circ Pumps	7	Unit @	\$10,000		\$5,000	\$15,000	/Unit \$70,000	\$0	\$35,000	\$105,000	
Expansion Tanks - Large Bladder Type, ASME	2	Unit @	\$5,000		\$1,500	\$6,500	/Unit \$10,000	\$0	\$3,000	\$13,000	
Hydronic Tanks	2	Unit @	\$18,000		\$6,000	\$24,000	/Unit \$36,000	\$0	\$12,000	\$48,000	
Hydronic Tank Insulation	2	Unit @	\$5,000		\$5,000	\$10,000	/Unit \$10,000	\$0	\$0	\$10,000	
Chemical Treatment	1	Unit @	\$5,000		\$5,000	\$10,000	/Unit \$5,000	\$0	\$0	\$5,000	
Glycol - 4-pipe fan coil, 20% PG	1	Unit @	\$10,000		\$10,000	\$20,000	/Unit \$10,000	\$0	\$0	\$10,000	
Main Circulation Piping Through Building	900	Meter @			\$330	\$330	/Meter \$0	\$0	\$297,000	\$297,000	
Vertical Unit Ventilator - 1200 cfm	46	Unit @	\$9,500	\$10,000	\$2,700	\$22,200	/Unit \$437,000	\$460,000	\$124,200	\$1,021,200	
Large Rooftop Unit - 7000 cfm	5	Unit @	\$54,000	\$30,000	\$1,500	\$85,500	/Unit \$270,000	\$150,000	\$7,500	\$427,500	
Low Temp Force Flows	33	Unit @	\$2,600		\$1,200	\$3,800	/Unit \$85,800	\$0	\$39,600	\$125,400	
Fan Coil - 4 Pipe - 1200 cfm	7	Unit @	\$4,500	\$10,000	\$2,700	\$17,200	/Unit \$31,500	\$70,000	\$18,900	\$120,400	
Reheat Coil - Hydronic	11	Unit @	\$2,400		\$1,200	\$3,600	/Unit \$26,400	\$0	\$13,200	\$39,600	
DOAS Units	3	Unit @	\$54,000	\$10,000	\$1,500	\$65,500	/Unit \$162,000	\$30,000	\$4,500	\$196,500	
Controls - CO2 Sensors or Motion Detectors	51	Point @	\$1,200		\$1,200	\$61,200	/Point \$61,200	\$0	\$0	\$61,200	
Controls - Variable Speed Drive	5	Unit @	\$5,000		\$5,000	\$25,000	/Unit \$25,000	\$0	\$0	\$25,000	
Controls - Typical Controls Devices	566	Point @	\$500		\$500	\$283,000	/Point \$283,000	\$0	\$0	\$283,000	
Balancing	1	Allow @	\$49,000		\$49,000	\$49,000	/Allow \$49,000	\$0	\$0	\$49,000	
CO - Overhead Flexible	2	Unit @	\$2,400	\$2,400		\$4,800	/Unit \$4,800	\$4,800	\$0	\$9,600	
Science Fume Hood (ASHRAE 110)	3	Unit @	\$10,000	\$10,000	\$2,500	\$22,500	/Unit \$30,000	\$30,000	\$7,500	\$67,500	
Hand Lav OK New IR Trim	24	Unit @	\$500	\$200		\$700	/Unit \$12,000	\$4,800	\$0	\$16,800	
DHW Tank - Gas Fired Condensing	3	Unit @	\$4,500	\$1,500	\$3,500	\$9,500	/Unit \$13,500	\$4,500	\$10,500	\$28,500	
DHW Recirc Pump	3	Unit @	\$350		\$350	\$700	/Unit \$1,050	\$0	\$1,050	\$2,100	
Acid Neutralizer (Under Sink)	18	Unit @	\$300		\$500	\$800	/Unit \$5,400	\$0	\$9,000	\$14,400	
Eyewash/Shower and TMV	5	Unit @	\$2,500		\$2,500	\$5,000	/Unit \$12,500	\$0	\$12,500	\$25,000	
Reconfigure Domestic Water entry	1	Unit @	\$2,500		\$2,500	\$5,000	/Unit \$2,500	\$0	\$2,500	\$5,000	
Flammable Storage Cabinet - New 2" Sched 40	1	Unit @			\$750	\$750	/Unit \$0	\$0	\$750	\$750	
Replace Wet Valve with Flow Switch	5	Unit @			\$2,500	\$2,500	/Unit \$0	\$0	\$12,500	\$12,500	
Square Panel - Roof Mount	6	Unit @	\$1,000	\$2,000		\$3,000	/Unit \$6,000	\$12,000	\$0	\$18,000	
Slotted Back - Pick Up For Kiln	2	Unit @	\$1,200	\$1,200		\$2,400	/Unit \$2,400	\$2,400	\$0	\$4,800	
Industrial Vent Set - Roof Mount	2	Unit @	\$4,000	\$4,000		\$8,000	/Unit \$8,000	\$8,000	\$0	\$16,000	
Home Ventilation Upgrade	1	Allow @	\$17,000	\$26,000		\$43,000	/Allow \$17,000	\$26,000	\$0	\$43,000	
Remove Sprinkler Near Aluminum Melting Crucib	1	head @			\$500	\$500	/head \$0	\$0	\$500	\$500	
Replace Fire Sprinkler System	11,319	Sq.m. @			\$35	\$35	/Sq.m. \$0	\$0	\$397,000	\$397,000	Pending condition review
Fire Pump	1	Unit @	\$50,000		\$50,000	\$100,000	/Unit \$50,000	\$0	\$50,000	\$100,000	Pending schematic design
<b>Mechanical Subtotal</b>							\$2,107,400	\$825,500	\$1,234,700	\$4,167,600	<b>\$4,167,600</b>
Electric - Power to Major Equipment	11	Unit @				\$4,500	/Unit \$0	\$0	\$0	\$49,500	
Electric - Power to Minor Equipment	130	Unit @				\$1,500	/Unit \$0	\$0	\$0	\$195,000	
Electric - Generator for Fire Pump	1	Unit @				\$40,000	/Unit \$0	\$0	\$0	\$40,000	Pending schematic design
General Trades - Generator for Fire Pump	1	Allow @				\$10,000	/Allow \$0	\$0	\$0	\$10,000	Pending schematic design
General Trades - Boiler Plant	1	Unit @				\$5,000	/Unit \$0	\$0	\$0	\$5,000	
Roofing - Boiler Plant	1	Unit @				\$3,000	/Unit \$0	\$0	\$0	\$3,000	
General Trades - Unit Ventilators/Fan Coils	53	Unit @				\$1,700	/Unit \$0	\$0	\$0	\$90,100	
General Trades - Rooftop Units	8	Unit @				\$7,000	/Unit \$0	\$0	\$0	\$56,000	
Roofing - Rooftop Units	8	Unit @				\$3,000	/Unit \$0	\$0	\$0	\$24,000	
General Trades - Science Fume Hood	3	Unit @				\$1,000	/Unit \$0	\$0	\$0	\$3,000	
Roofing Science Fume Hood	3	Unit @				\$1,000	/Unit \$0	\$0	\$0	\$3,000	
General Trades - DHW Tank	3	Unit @				\$750	/Unit \$0	\$0	\$0	\$2,250	
Roofing - DHW Tank	3	Unit @				\$500	/Unit \$0	\$0	\$0	\$1,500	
<b>Other Trades Subtotal</b>							\$0	\$0	\$0	\$482,350	<b>\$482,350</b>
Geoechange Field										\$640,000	
Playing Field Repair										\$50,000	
Demolition										\$232,500	
Misc (Mobilization, Bonding, Permits, Inspection Fees)										\$232,500	
Overhead and Profit										\$697,500	
Escalation (increases from typical Budgets or Location Factor)										\$558,000	
<b>General Subtotal</b>										\$2,410,500	<b>\$2,410,500</b>
taxes										\$353,100	<b>\$353,100</b>
<b>TOTAL CONSTRUCTION BUDGET</b>											<b>\$7,413,650</b>
Asbestos Allowance										\$222,500	<b>\$222,500</b>
Contingency										\$593,100	<b>\$593,100</b>
Fees and Disbursements										\$741,400	<b>\$741,400</b>
<b>TOTAL PROJECT BUDGET</b>											<b>\$8,970,550</b>



berry architecture  
+associates

## Appendix D

# Asbestos Containing Materials Report



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# **ASBESTOS CONTAINING BUILDING MATERIALS INVENTORY AND ASSESSMENT REPORT**

## ***MOUNT BAKER SECONDARY SCHOOL***

**1410 Baker Street  
Cranbrook, BC**

**Prepared for:** ***School District No. 5 (Southeast Kootenay)***  
940 Industrial Road No. 1  
Cranbrook BC V1C 4C6

**Prepared by:** ***Peak Environmental Ltd.***  
951 Pinewood Place  
West Kelowna, BC V1Z 3G7  
*File: 3482 MBS R01nn Asbestos Inventory Report 03-28-2017*

**Report Date:** March 28, 2017

On-site survey for this March 28, 2017 report was completed on September 9, 2016. All observations and conditions herein are respective to this / these date(s) and to dates listed in the Revision History.

**PEAK ENVIRONMENTAL LTD.**  
250-862-0971 / 1-877-518-7325 (PEAK) Toll Free

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**Report Revision History**

Version	Issue Date	Survey Date	Change Description	Submitted by
1	3/28/2017	9/9/2016	Initial Report	Peak Environmental Ltd.

## PART I - EXECUTIVE SUMMARY

### 1 PROJECT SCOPE

Peak Environmental Ltd. was retained by School District No. 5 (Southeast Kootenay) to perform an assessment and review of Mount Baker Secondary School for asbestos-containing building materials. The purpose of this survey is to collect samples of building materials to determine their asbestos content, identify and record locations, calculate potential for future damage and provide quantities, remediation cost estimates and a prioritized abatement schedule based on building occupant risk of exposure to asbestos containing fibres. The asbestos assessment was conducted to comply with the requirements outlined in the WorkSafeBC Occupational Health and Safety Regulation 6.4 - Inventory.

In addition to the list of asbestos-containing materials, an inventory of non-asbestos materials was also compiled in order to provide a record showing that all building materials were investigated for asbestos content. Materials obviously not asbestos-containing (eg. wood, metal, ceramic, concrete, etc.) are listed in [Appendix E](#).

This is an occupied building survey, and as such, predominantly non-destructive sampling methods were used in order to prevent breaching of exterior membranes or the destruction of finished surfaces. Exterior concrete block or brick walls (CMUs) have been cored to test for vermiculite in this facility. Carpets were only lifted to inspect for concealed flooring where the application is a peel and stick type or where edges could be lifted without damaging the carpet. Please refer to [3.0 Project Scope](#) for a detailed Scope of Work.

Asbestos-containing building materials identified within the facility are detailed on the attached summary sheets, spreadsheets and drawings (Appendices A-F). These documents should be reviewed to ascertain the exact locations (to the extent possible) and descriptions of asbestos applications within the building(s) on this site.

## 2 RESULTS AND RECOMMENDATIONS

### 2.1 RESULTS

#### 2.1.1 Asbestos-Containing Applications in Mount Baker Secondary School

##### ASBESTOS-CONTAINING APPLICATIONS:

Applications that are known to contain asbestos.

- **Throughout Applications:**
  - Furnishings (Jf1)
  - Cement rain water leader piping (Jp1)
  - Mechanical duct mastic (M3/M4)
  - Window putty (Mw1)
  - Sanitary pipe packing (N1)
- **Basement:**
  - Fire door (X1)
- **Main Floor:**
  - Vinyl floor tiles (H4)
  - Cement board in radiators (J2)

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

---

- Paper backed vinyl sheeting (lp1)
- **Second Floor:**
  - Cement board in radiators (J2)

**APPLICATIONS WITH IMMEDIATE OR PRIORITY 1 ABATEMENT CODE:**

- Applications in poor condition in high risk areas that should be removed as soon as possible.
- No applications with Immediate or Priority 1 abatement code were noted in this facility.

**SUSPECT ASBESTOS-CONTAINING APPLICATIONS:**

Applications that are present but have not been analyzed to confirm asbestos content. **All Suspect applications must be sampled prior to disturbance through renovation or demolition activities.**

- Mastic on acoustic ceiling texture (M5)
- Mastic on ceiling tiles (M6)
- Window putty (Mw2/Mw3/Mw4)
- Exterior stucco (S1/S2)

**POTENTIAL ASBESTOS-CONTAINING APPLICATIONS**

Concealed asbestos-containing building applications that may be present based on building age, but were not observed or identified through this assessment due to inaccessibility, live electrical or mechanical systems, building occupancy or requirement for breaching building membrane.

Electrical insulation (wire insulation, arc insulating pads)	Pipe flange gaskets
Glues and adhesives (eg. under flooring, glue up ceiling tile)	Roofing materials, tar and gravel roofing, roof felts, tar patching compounds and membranes

**2.1.2 Areas of Restricted Entry:**

No areas with poor condition asbestos or areas which would require special entry procedures were identified in this building.

**2.2 RECOMMENDATIONS FOR ASBESTOS-CONTAINING APPLICATIONS**

- Remove all materials designated as Immediate or Priority 1, as per the schedule in [Appendix D](#).
- Asbestos-containing applications designated Priority 2 or 3 removal should be managed in-place as outlined in Section 8.3 [Management](#).
- Any work resulting in the disturbance, dislodging or removal of asbestos or potentially asbestos contaminated material must be performed in accordance with the requirements detailed in Parts 6.3 through 6.7 of the OHS Regulation and the School District No. 5 (Southeast Kootenay) Exposure Control Plan created for this site. Site specific work procedures as outlined in Part 6.8 of the OHS Regulation must be created for each instance where asbestos removal is required or there is a potential for disturbing asbestos containing applications. A Risk Assessment is required prior to any asbestos abatement work per Part 6.6-1 of the Guidelines.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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Once removed, asbestos containing material must be transported and disposed of in accordance with the federal Transportation of Dangerous Goods Act and Regulations and Section 40 of the BC Ministry of Environment Hazardous Waste Regulation.

- Contractors performing work within this facility must review these documents prior to performing their work duties to ensure that asbestos applications are not inadvertently disturbed, resulting in the possible release of asbestos fibres into the ambient air.
- Contractors working on this site must also complete the sign-off sheet in Appendix A, stating that they have reviewed the spreadsheets and drawings and are aware of the asbestos applications located within this facility.
- Update the asbestos inventory report subsequent to all removal or other abatement activities.

## PART II - ASBESTOS SURVEY

### 3 PROJECT SCOPE

Peak Environmental Ltd. was retained by School District No. 5 (Southeast Kootenay) to perform an assessment and review of Mount Baker Secondary School for asbestos-containing building materials. The purpose of this survey is to collect samples of building materials to determine their asbestos content, identify and record locations, calculate potential for future damage and provide quantities, remediation cost estimates and a prioritized abatement schedule based on building occupant risk of exposure to asbestos containing fibres. The asbestos assessment was conducted to comply with the requirements outlined in the WorkSafeBC Occupational Health and Safety Regulation 6.4 - Inventory.

The following list defines the scope and exclusions of this Project:

#### 3.1 SCOPE OF WORK

- A. Inspect all accessible spaces including ceiling, crawl spaces, pipe chases and mechanical areas for asbestos-containing materials. Refer to [Appendix A](#) for a list of inaccessible spaces in this building.
- B. Collect and analyze bulk samples of all building materials suspected of containing asbestos as required in Section [20.112](#) of the WorkSafeBC Occupational Health and Safety Regulation.
- C. Provide a complete and comprehensive [Materials Inventory](#) (Appendix D) for all building materials confirmed or suspected of containing asbestos.
- D. Provide a detailed list of building materials (floors, walls, mechanical, etc.) on a room by room basis in the Ancillary ([Appendix E](#))
- E. Drill Concrete Masonry Unit (CMU) walls to determine presence of vermiculite insulation where exposed exterior block or brick walls are visible.
- F. Document all locations and descriptions of confirmed and suspect asbestos containing applications.
- G. Provide approximate abatement costs on a per application basis. Where the extent of the application cannot be determined without the use of destructive sampling methods, the application is listed, but without estimated abatement costs.
- H. Provide a recommended removal schedule, and an Operations and Maintenance (O&M) Program categorized by application type.
- I. Submit an Asbestos Inventory Report detailing the results and recommendations of the survey.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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**3.2 EXCLUSIONS TO PROJECT SCOPE**

- A. The survey is limited to fixed buildings. Portables and underground systems on the grounds are not part of this survey.
- B. Roofing materials are excluded as per exemptions listed in the Asbestos Hazard Emergency Response Act (AHERA) inventory inspection requirements.
- C. Ceiling and crawlspaces spaces are only included in this survey to the extent that the space is accessible without the need for destructive sampling.
- D. Areas classified as confined spaces as defined by WorkSafeBC are not within the scope of the survey.
- E. Areas / applications inaccessible without the use of destructive sampling, including, but not limited to:
  - i. possible concealed flooring (beneath newer flooring or carpet applications). Carpets are only lifted to inspect for concealed flooring where it can be done without damaging the carpet.
  - ii. packing and gasketing materials in heating boiler, HVAC ventilation and air-conditioning systems, domestic hot and cold water and hot water heat piping systems
  - iii. mastic and mastic glues associated with weatherproofing
  - iv. fire doors
  - v. inaccessible pipes and pipe fittings
  - vi. vermiculite within concrete block walls concealed beneath newer or concealing building finishes
- F. This report does not provide a pre-demolition or pre-renovation Hazardous Materials Report as per OHS Regulation Section 20.112, a Risk Assessment as per Part 6.6(2) or an Exposure Control Plan as per Part 6.3 as outlined in the WorkSafeBC Occupational Health and Safety Regulation.

**4 RECOMMENDATIONS FOR USING THIS ASBESTOS INVENTORY REPORT****4.1 WHO SHOULD USE THIS REPORT****4.1.1 Asbestos Program Manager**

- Create and maintain site specific work procedures with respect to the asbestos containing materials located at the site.
- Develop and maintain safe work practices as they relate to asbestos containing materials located at the site, including the use of appropriate protective equipment.
- Ensure proper worker training and supervision is maintained as they relate to asbestos containing materials located at the site.
- Ensure a Hazardous and Regulated Materials Assessment is created before work begins on the demolition or salvage of machinery, equipment, buildings or structures as per Part 20.112 Hazardous Materials as outlined in the WorkSafeBC Occupational Health and Safety Regulation.
- Ensure a Risk Assessment as outlined in Part 6.6(2) is prepared prior to any work that may impact identified asbestos applications.

**4.1.2 Building Maintenance / Operations Staff**

- Maintain an awareness of the location, risk level and management requirements of all asbestos-containing materials in the facility.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

- Ensure that the asbestos inventory is updated subsequent to the removal of any asbestos-containing material.
- Ensure that custodial and other staff are aware of the location and condition of any asbestos-containing material.
- Execute all activities for asbestos applications which are recommended for in-place management, including monitoring of the application's condition for any changes.
- Effect and coordinate all recommended removal activities.
- Ensure that all contractors working in the vicinity of any asbestos application are aware of the application (contractors should sign the Contractor Sign-off Sheet), and arrange for the removal or other recommended abatement method of any asbestos-containing material that could be damaged by the contractor's activities.

**4.1.3 Custodial Staff**

- Maintain an awareness of asbestos-containing applications within the facility, and of any special care or procedure required to handle (or avoid) these applications.
- Immediately report any visible changes or damage to asbestos-containing materials to Operations.

**4.1.4 Contractors**

- Review this report and be aware of any asbestos-containing materials located in areas where construction/demolition/renovation activities are to be carried out.
- Sign the [Contractor Sign-off Sheet](#) at the end of this Report.

**4.2 RECOMMENDATIONS FOR USING THE REPORT**

**4.2.1 Prior to Renovation or Maintenance Activities**

Step	Location in Report
1. Locate the room(s) on the drawings and review for asbestos applications *	<a href="#">Appendix B</a> (Drawings)
2. Review Legend for possible applications not on drawing	<a href="#">Appendix B</a> (Drawings)
3. Verify applications in affected rooms & any applications listed as occurring 'throughout' the facility	<a href="#">Appendix D</a> (Inventory)
4. Refer to list of Suspect Applications – sample prior to disturbing	<a href="#">Appendix A</a> or <a href="#">D</a> (Inventory)
5. Refer to list of Potential Applications to determine which additional non-verified applications may be present	<a href="#">Appendix A</a>
6. Check room(s) for location of asbestos applications	<a href="#">Appendix E</a> (Ancillary)
7. Refer to photo of application for precise appearance if necessary	<a href="#">Appendix F</a> (Photos)
8. Update Report after all abatement initiatives	

\*Room numbers on drawings DO NOT correspond to actual room numbers.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

**4.2.2 Immediate and Priority 1 Removal**

Step	Location in Report
1. Review list of materials recommended for Immediate or Priority 1 removal	<a href="#">Immediate &amp; Priority 1 Removal</a> , or <a href="#">Appendix D</a> (Inventory)
2. Identify rooms that contain these materials and have been designated for Immediate or Priority 1 removal*	<a href="#">Appendix D</a> (Inventory)
3. Locate the affected rooms on the drawing	<a href="#">Appendix B</a> (Drawings)
4. Ascertain exact location of application within the room(s)	<a href="#">Appendix E</a> (Ancillary)
5. Determine the approximate cost for removal/reapplication	<a href="#">Appendix D</a> (Inventory)
6. Update Report after all abatement initiatives	

**4.2.3 In-Place Management**

Step	Location in Report
1. Review list of all asbestos-containing materials in the facility	<a href="#">Appendix A</a>
2. Identify the removal priority for each material by location	<a href="#">Appendix D</a> (Inventory)
3. Manage removal priority 2 and 3 materials in-place until removal as part of a renovation or demolition project. Identify in-place management recommendations well as any concerns specific to the application	<a href="#">Management</a>
4. Determine locations and extents of each application to be managed in-place	<a href="#">Appendix B</a> (Location Drawings) and <a href="#">Appendix D</a> (Inventory)

**5 METHODOLOGY**

**5.1 MATERIALS INVENTORY**

A complete inventory is carried out to record any materials which might contain asbestos. The intent of this inventory is to assure staff and contractors that all visible and accessible materials have been inspected and identified as asbestos-containing or non-containing. New application ceiling tiles, vinyl flooring applications and stucco identified as being post 1990, are considered to be non-asbestos with no verification samples collected, but are included in the inventory as non-containing applications. Materials obviously not asbestos-containing (eg. wood, metal, ceramic, concrete, etc.) are listed in the Ancillary ([Appendix E](#)).

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT****5.1.1 Building Inspection**

This is an occupied building survey, and as such, samples of potentially asbestos-containing building materials were collected in a manner minimizing damage to finished surfaces. To preserve the integrity of building membranes and finished surface materials, these applications were not disturbed to ascertain the presence of possible concealed layers (*i.e.* flooring was not pulled up to determine if older layers of flooring were concealed underneath, roofing materials were not sampled).

**5.1.2 Visual Inspection**

All accessible spaces of the building are entered and visually inspected unless specified in [Appendix A](#) as inaccessible spaces.

1. Materials presumed to contain asbestos are classified as either friable or non-friable. [WorkSafeBC Regulation Part 6](#) defines friable as an *asbestos-containing material that is crumbled or powdered or can be crumbled or powdered by hand pressure*.
2. 'Homogeneous areas' are identified for each application. A homogeneous area is defined as an area containing material that is 'uniform in texture, colour, date of application, and identical in every other way'.
- B. Each application is then placed into one of the following categories as defined by the Asbestos Hazard Emergency Response Act (AHERA).

Surfacing Material: defined as a material that is sprayed on, troweled on, or otherwise applied to surfaces (structural members, walls, ceilings, *etc.*) for acoustical, decorative, fireproofing, or other purposes.

Thermal System Insulation: defined as a material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

Miscellaneous: defined as materials which do not fall into the above two categories - typically ceiling tiles and flooring applications.

1. A physical assessment is then carried out for each application to determine:
  - condition
  - potential for future disturbance

The above listed assessments are then used to rank each application for [Removal Priority](#).

**5.1.3 Sampling**

In some instances, applications are visually identified as *Known Asbestos* based on the experience of the surveyor. Materials such as pre-1978 insulating cements, corrugated paper pipe insulation, asbestos pipe and cement boards are known to contain asbestos. If these materials are identified, they are noted as being asbestos-containing and no verification samples are collected.

Sample collection is carried out according to the requirements defined in WorksafeBC OHS Guideline Part 20. The following application specific procedures are descriptions of sampling methods only and do not indicate that these materials were sampled during this project.

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**5.1.3.1 *Drywall Taping Compound, Plaster and Stipple Ceiling Texture***

Representative samples are collected and analyzed for asbestos content for each of these applications. For any facility where multiple samples of an application return both asbestos-containing and non-asbestos results, all homogeneous applications should be considered asbestos-containing. Prior to any renovation or demolition work, additional sampling should be carried out before excluding any areas as non-asbestos-containing.

For any facility having additions or renovations, representative sampling was carried out in each addition/renovation area that was of a different age from the rest of the facility (homogeneous area).

**5.1.3.2 *Vinyl Flooring and Ceiling Tiles***

Samples of vinyl flooring and ceiling tiles are collected based on visible size, color and pattern. Flooring and ceiling tile applications with the same surface coloring and patterns are considered a homogeneous application throughout the building. Representative samples of each unique application are collected and analyzed for asbestos content.

Carpeting was only lifted to inspect for underlying flooring applications where the carpet would not be, or already was damaged or where the carpet is peel and stick. **Concealed asbestos flooring applications may be present under carpeting, new application vinyl sheeting or wood subflooring materials that could not be observed through this non-destructive assessment. Inspection and sampling for concealed flooring applications should be performed as part of a Hazardous Materials Assessment prior to any renovation activities which may impact these applications.**

**5.1.3.3 *Vermiculite Insulation***

Exposed exterior Concrete Masonry Unit (CMU) (concrete block and/or brick) walls are drilled and inspected for the presence of vermiculite insulation as part of the asbestos material inventory.

In the event that no vermiculite insulation is found through the coring process, any breaching of CMU walls should be done with caution as there remains a potential for vermiculite to be present in some wall cavities for the following reasons:

- a. Not all channels inside block walls are uniformly filled with vermiculite insulation, and some channels may not be filled at all. Sampling an empty channel does not guarantee that all channels or blocks are empty.
- b. The presence of bond beam blocks vermiculite above the beam. If sampling is carried out below such a blockage, the presence of vermiculite will not be observed.

Any disturbance to CMU walls due to demolition or renovation activities should be preceded by: a) determining if an interior block wall was initially an exterior wall, and b) carrying out additional sampling on the wall(s) to be disturbed. Original structure block walls are delineated on the floor plan, however, this is only an estimation of the walls' location and extent, and should be used as an approximate reference only. **No or limited drilling of interior block walls was performed to ascertain if interior walls, which may have previously been exterior walls, contain vermiculite.** Drilling of interior walls should be performed prior to renovation activities which may impact concealed vermiculite applications. Drill locations for this assessment are indicated on the floor plan (Appendix B) and show whether vermiculite was present or not.

**Note:** It is possible that CMU walls are concealed by brick or stucco finishing applications on the building exterior, and by drywall on the building's interior. In any such case, the presence of CMU walls is impossible to ascertain without removing the exterior membrane or interior finishes.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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**5.1.4 Building Finishes and Membranes**

No sampling of building finishes or membranes is performed where sample collection would cause or create a leak or irreversible damage to the building, building finishes or systems. Examples of materials which are suspect but not sampled in order to avoid destruction or degradation of the building finish or membrane include (but are not limited to) exterior soffit stipple and exterior stucco. Stucco samples are collected only if the material is already crumbled or damaged, or by specific request of School District No. 5 (Southeast Kootenay).

**5.2 LABORATORY ANALYSIS**

Collected samples are sent to an accredited laboratory for analysis using Polarized Light Microscopy (PLM) in accordance with the [NIOSH 9002](#) method which specifies a level of detection (LOD) of 1% or less to determine asbestos content. As defined in Section 6.1 of the OHS Regulation, all materials containing 0.5 percent or greater of asbestos, and vermiculite insulation containing any asbestos, shall be considered to be asbestos-containing.

Because the amount of asbestos in vermiculite insulation may be below the LOD for PLM analysis, whenever the analysis result is negative, the sample must be further analyzed using TEM (Transmission Electron Microscopy) in accordance with the [Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation](#) (EPA/600/R-04/004, dated January 2004). When the PLM analysis result is 'trace', the sample is accepted as asbestos-containing and no further testing is required.

**5.3 REPORTING AND REMOVAL PRIORITY CLASSIFICATION****5.3.1 Reporting Conventions**

The various sections in this report provide the information required to comply with an Asbestos Inventory Assessment as defined by WorkSafeBC. Specifically:

- **Report body** provides information relating to:
  - Summary of asbestos-containing materials identified in the building (Executive Summary)
  - Project scope and methodology for survey, sample collection and analysis
  - Recommendations for abatement, in-place management and disposal of asbestos-containing materials
- **Appendix A:**
  - Summary of asbestos-containing materials identified in the building
  - Any restricted areas due to asbestos contamination materials in poor condition
  - Areas that could not be accessed during the survey
- **Appendix B:**
  - Drawing showing most asbestos application and asbestos and lead sample locations
- **Appendix C:**
  - Laboratory asbestos analysis results
- **Appendix D:**
  - Inventory and description of all building materials identified
  - Removal priority / risk classification of asbestos-containing materials

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- **Appendix E:**
  - Room by room Ancillary showing locations of all asbestos-containing materials (where extent has been ascertained)
- **Appendix F:**
  - Photos of all asbestos containing materials
- **Inventory Budget** - A separate abatement budget is provided as an estimate of abatement costs

Building materials confirmed or presumed to be asbestos-containing are listed in this report in one of three categories:

**1. Asbestos-containing application**

The application has been identified as asbestos-containing either by visual inspection or by sample analysis.

**2. Suspect asbestos application**

The application is confirmed to be present but was not sampled due to either inaccessibility or in order to prevent breaching of exterior membranes or risk of occupant exposure. All applications listed as Suspect must be sampled prior to disturbance through renovation or demolition activities.

**3. Potential asbestos application**

Concealed asbestos-containing building applications that may be present based on the age of the building, but were not observed or identified through this assessment due to inaccessibility, live electrical or mechanical systems, building occupancy or requirement for breaching building membranes. Any materials not listed in or identified through this assessment, including potential asbestos-containing materials, should be assessed using destructive sampling and analysis procedures prior to demolition or renovation work which may impact these materials.

All reference to 'friable' materials in this report includes applications designated as having High or Moderate friability. 'Low' friability is synonymous with 'non-friable'.

**5.3.2 Removal Priority**

Removal Priority is determined using an Asbestos Management Index (AMI) score based on a matrix of multiple criteria including: application friability, visibility, condition, accessibility, condition altering factors (*i.e.* vibration), potential for future damage and friability of the asbestos-containing material. The following classification is used in [Appendix D](#):

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Priority	AMI Score	Definition
Immediate	49 or greater	Application should be removed immediately (as soon as possible) because there is a distinct possibility of fibre release. The application should be abated or the area restricted (as specified for the particular application) till the time of abatement
1	40 to 48	Remove within one year due to the application's condition, location or the surrounding area's use; damage to the application is probable. The application should be abated or the area restricted (as specified for the particular application) until the time of abatement
2	36 to 39	Remove in conjunction with proposed building renovations or maintenance
3	< 35	Removal is only required prior to renovation or demolition activities

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**5.3.3 Building Materials Codes**

An alphanumeric coding system is used to denote all identified asbestos, suspect asbestos and non-asbestos containing building materials.

Materials are grouped by type, and each application type is assigned an alpha character (e.g. floor tile = H; drywall taping compound = P; ceiling tiles = G, etc.).

Application types are then further divided into visually differentiated subcategories or classes where each class is assigned a numeric value. Continuing with the above example, classes of floor tile might include: H1, H2, H3; drywall taping compound: P1, P2, P3; and ceiling tile: G1, G2, G3, etc.). Each application subcategory (e.g. H1) is given a visual description and is classified as *Asbestos*, *Suspect Asbestos* or *Non-Asbestos* in Appendix D.

This coding system permits the visual differentiation of materials within a type group. Using the flooring example, H1 might represent a 9x9" asbestos-containing red vinyl floor tile, and H2 a 12x12" non-asbestos green vinyl floor tile.

The coding system used for material type groups in the Ancillary Information pages (Appendix E) and Inventory Spreadsheets (Appendix D) is provided in the table to the right.

Code	Description
A	Ceiling Texture
Ac	Acoustic Insulation
Af	Spray-Applied Fireproofing
B	Pipe Insulation
C	Cement Pipe Fitting
D	Cement Parging
E	Exhaust Breeching
F	Insulating Paper Wrap
Fj	Insulating Paper Joint
G	Ceiling Panel
H	Vinyl Floor Tile
I	Vinyl Sheet Flooring
Ip	Paper Backed Flooring
J	Cement Board
Jf	Asbestos Furnishings
Jp	Cement Pipe
Jw	Cement Board Window Panel
K	Equipment Gasketing
Kp	Pipe Gasketing
L	Incandescent Light Pad
M	Mastic Glue / Sealant
Mw	Window Putty
N	Pipe Roving/Packing - Sanitary Piping
O	Floor Levelling Cement
P	Drywall Tape Comp.
Pl	Plaster
Qf	Roofing Felt
Qs	Roofing Shingle
R	Refractory Cement
S	Exterior Wall Stucco
Ss	Exterior Soffit Stucco
T	Bldg Thermal Insulation
U	Friction Materials (Elevator Brake Shoes)
V	Vermiculite Wall
Va	Vermiculite Attic
W	Woven Textile
BLANKS	
X	
Y	
Z	

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**5.3.4 Asbestos Containing Material Identification System (ACMIS)**

The ACMIS system was developed by Peak Environmental to ensure the safety of all individuals who may be at risk when working with, or around asbestos containing materials. The system is designed to protect workers from potential exposure to asbestos containing materials as well as to facilitate the management and control of these materials within School District No. 5 (Southeast Kootenay) facilities.

Asbestos containing materials identified through this assessment report are indicated on site using material identification labels placed as close to the upper door hinge as possible, inside the door frame leading into each functional area (room).

Building finishes and mechanical systems, either exposed within the area or concealed within accessible ceilings spaces or under carpeting, are listed on the door frame label. Hole punch marks are used to identify each material as non-asbestos, suspect or confirmed asbestos. The label also indicates the date of the assessment or label update with a hole punch through the appropriate year.

Areas deemed to be free of asbestos containing materials are indicated with the hole punched next to the "AREA ACM FREE" line at the bottom of the label.

Areas where friable asbestos containing materials are present above suspended T-bar ceilings or areas where access hatches are present within hard fixed ceilings, will be appropriately labeled with a sticker placed immediately beneath the asbestos application or at ten foot intervals in areas where surfacing materials, such as ceiling texture, are present.

**ACMIS**  
Asbestos Containing  
Material Identification System  
2016 / 2017 / 2018 / 2019

NON SUSPECT CONTAINING

AREA# \_\_\_\_\_

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FLOORING
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DRYWALL TAPE COMPOUND
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEXTURED COATING
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	T-BAR CEILING PANELS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WINDOW PUTTY/SEALANT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CMU BLOCK WALL INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CEMENT PIPE / CEMENT BOARD
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PIPE FITTING INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	STRAIT PIPE INSULATION
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DUCT JOINT SEALANT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AREA ACM FREE

Refer to the Asbestos Inventory Report for this site for additional information

ACMIS Door Frame Label



Ceiling ACM Warning Label

It is imperative that prior to carrying out any work within facilities that have been assessed for asbestos containing materials, that all maintenance, contractor or trades personnel inspect the door frame labels to determine if ACMs are present within the work area. Furthermore, to prevent the potential release of asbestos fibres, ceiling surfaces must be inspected for "Concealed ACM Above" labels prior to accessing ceiling space areas.

**Note:** The door frame labels should be used in conjunction with the report. Prior to carrying out any work that penetrates the surface finishes of a room, always consult Appendix A for any *Potential Asbestos* applications, Appendix D for any applications listed as *Throughout* and Appendix E for information specific to a room or area. For example, a vermiculite filled concrete block wall may be present behind a non-asbestos drywall surface but will not be listed on the door frame label.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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**6 POTENTIAL FOR ASBESTOS FIBRE RELEASE AND WORKER EXPOSURE**

Any work that may disturb or potentially disturb asbestos containing or contaminated materials must be performed following the requirements outlined in the School District No. 5 (Southeast Kootenay) Exposure Control Plan created for this site. Where such a plan does not exist, site specific work procedures as outlined in Part 6.8 of the OHS Regulation must be created for each instance where there is a potential of disturbing asbestos containing applications.

Highly friable asbestos-containing materials, such as insulating cements, ceiling textures, mechanical insulation, vermiculite insulation and asbestos paper products pose the greatest risk of exposure to building occupants as they are easily crumbled by hand, releasing airborne asbestos fibres when damaged or exposed. Non-friable materials, such as vinyl flooring and cement asbestos board pose a lower risk as they are not easily crumbled by hand and must be broken or mechanically abraded to release asbestos fibres.

The risk of asbestos fibre release into the ambient air increases when asbestos applications are disturbed through demolition, renovation or maintenance activities that abrade the material. Dry burnishing vinyl sheet flooring or tile applications also increases the risk of asbestos exposure. These applications should never be dry burnished. The risk of exposure can increase even with low friable applications if damaged and the condition deteriorates.

Moderate and highly friable asbestos applications located in un-controlled locations such as corridors or washrooms, or adjacent to air movement equipment, or found to be in poor or damaged condition, have been prioritized for abatement. Any such applications located in areas where control of access is limited are scheduled for phased removal ([Appendix D](#)).

All remaining non-friable asbestos applications should be managed in place until removal in conjunction with planned building renovation or maintenance work or abatement prior to any work which may impact and damage the applications.

All asbestos applications identified in this report should be routinely inspected to ensure their condition has not deteriorated, resulting in the potential release of asbestos fibres. Damaged and exposed asbestos applications should be immediately removed by a qualified asbestos abatement contractor.

**7 AREAS OF RESTRICTED ENTRY DUE TO POOR CONDITION ASBESTOS APPLICATIONS**

No areas with poor condition asbestos or areas which would require special entry procedures were identified in this building.

**8 REMEDIAL WORK****8.1 IMMEDIATE AND PRIORITY 1 REMOVAL WORK**

No areas with Immediate or Priority 1 asbestos removal work were identified in this building.

**8.2 PRIORITY 2 AND 3 REMOVAL WORK**

- Non friable asbestos-containing applications in poor condition and friable applications located in un-controlled areas (e.g. corridors and washroom areas) are assigned Removal Priority 2 and should be scheduled for abatement within 3-5 years.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

- Non friable applications in good condition or applications in fair condition but located in access controlled areas are assigned Removal Priority 3 and can be managed in place until removal in conjunction with planned building maintenance, abatement or renovation activities.
- Applications can become damaged at any time and therefore should be routinely inspected for damage and delamination. Any damaged, delaminating or exposed asbestos materials should be removed, repaired or enclosed to prevent the possible release of asbestos fibres.
- All asbestos-containing materials should be removed prior to any abatement or renovation activities.
- Removal phases are indicated in Appendix D.

**8.3 MANAGEMENT****8.3.1 All Asbestos-Containing Applications**

- All applications identified as requiring Immediate or Priority 1 Abatement (as listed in [Appendix D](#)) should be scheduled for abatement and in the interim, protected from further damage or degradation which could result in the release of asbestos fibres.
- All asbestos-containing applications remaining within this building should be managed in-place, until abatement, with bi-annual or quarterly inspections to ensure that their condition has not deteriorated, resulting in the possible release of asbestos fibres. Asbestos applications that are located in areas where space utilization has changed, may have an increased risk for potential future damage, necessitating an increased priority for removal. Any materials showing signs of damage, delamination or exposed asbestos should be abated immediately.
- All applications identified in this report must be removed prior to any work that may impact asbestos applications. An abatement Risk Assessment as per Part 6.6(2) [Risk assessment before demolition, alteration, or repair](#) and an Exposure Control Plan as per Part 6.3 Exposure Control Plan as outlined in the WorkSafeBC Occupational Health and Safety Regulation must be created prior to the disturbance of asbestos containing materials.
- Maintenance and custodial staff must be made aware of all identified asbestos-containing materials listed in this report, and should be trained in the safe handling of asbestos in accordance with WorkSafeBC regulations and the School District No. 5 (Southeast Kootenay) Exposure Control Plan created for this site, where such plan exists.
- Teachers should be aware of any potential asbestos contact during classroom activities such as presence of vermiculite insulation debris on ceiling tiles or disturbing drywall compound.
- All contractors working in the facility must be aware of any asbestos applications in their area of work.

**8.3.2 Specific Asbestos-Containing Applications**

All asbestos-containing applications listed below are subject to the management techniques outlined in [Section 8.3](#), in addition to any details provided for the specific application.

**8.3.2.1 Friable Applications****VINYL ASBESTOS FLOORING (PAPER-BACKED)**

- Inspect for delamination, cracking or wearing that have exposed the asbestos paper backing. Sections of flooring with exposed paper backing should be removed to prevent the release of asbestos fibres into the ambient air.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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8.3.2.2 Non-Friable Applications

**CEMENT ASBESTOS PIPE**

- Exposed pipes should be painted to add a layer of protection from damage then monitor the painted surface for damage. Store items at a sufficient distance to avoid being knocked into the pipes. If the pipe is located in an area where it is vulnerable to major damage, it should be encased for protection.

**CEMENT ASBESTOS BOARD**

- Typically located on a building's exterior under windows, or inside on walls/ceilings. Replace panels if damaged; do not attempt to repair.

**MASTIC GLUES, SEALANTS AND CAULKING**

- Mastics, sealants and caulking can be managed in place until removal for renovation or maintenance purposes unless the application is damaged. Glues may be present under flooring and cannot be sampled until the flooring is removed. Ensure glues are sampled prior to any flooring removal projects.

**STUCCO**

- Requires multiple, large-sized samples that are of a destructive nature, therefore sampling should only be carried out when necessary due to renovation or demolition activities.
- For facilities where stucco samples have been confirmed to contain asbestos, all such applications should be considered as asbestos-containing until confirmed otherwise.

**VINYL ASBESTOS FLOORING (SHEET OR TILE OTHER THAN ASBESTOS PAPER-BACKED)**

- Dry burnishing activities should not be performed on asbestos flooring applications.

## **PART III – ASBESTOS CONTAINING WASTE**

### **9 ASBESTOS CONTAINING WASTE REGULATIONS AND GUIDELINES**

All identified hazardous materials must be removed prior to demolition or renovation activities.

#### **9.1 PROVINCIAL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS**

Workplace health and safety is regulated in British Columbia by WorkSafeBC under the Workers' Compensation Act (effective April 15, 1998), as amended by the Workers' Compensation (Occupational Health and Safety) Amendment Act (effective October 1, 1999). The Act defines the general duties and obligations of the employer, employees and others at the work site.

Specific actions and work practices are outlined in the WorkSafeBC Occupational Health and Safety (OHS) Regulation for specific work practices. The OHS Regulation contains legal requirements that must be met by all workplaces under the inspection jurisdiction of WorkSafeBC. Asbestos is governed by Section 6 - Substance Specific Requirements, specifically Sections 6.1 through 6.32 and by Section 20 - Construction, Excavation and Demolition, specifically Section 20.112 Hazardous materials.

WorkSafeBC has published [Safe Handling of Asbestos, A Manual of Standard Practices](#). This manual outlines basic information on asbestos and asbestos products, health hazard requirements for worker protection, safe work procedures and principles that should be followed in selecting the most suitable technique for the safe abatement of asbestos-containing materials. This document provides a guide to current practices which are to be followed in the Province of British Columbia.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

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**9.2 ENVIRONMENTAL REGULATIONS**

In British Columbia, environmental matters pertaining to production and disposal of waste generally fall under the jurisdiction of the Ministry of Environment (MoE), pursuant to the Waste Management Act (RSBC) 1996, as amended October 1997. The waste regulation under the Waste Management Act relating to hazardous building materials is the Special Waste Regulation (SWR), BC Regulation 63/88.

The Hazardous Waste Regulation BC Reg. 63/88, OC 268/88, including amendments up to BC Reg. 319/2004 established by the MoE, outlines the requirements for the storage, transportation, treatment, recycling and disposal of hazardous wastes in the Province of British Columbia. The regulation outlines the materials and criteria to be used to characterize waste as hazardous.

**9.3 TRANSPORTATION OF ASBESTOS CONTAINING WASTE**

The transportation of hazardous wastes is governed under the Federal Transportation of Dangerous Goods Act and Regulations which outline the requirements for storage, handling, and transportation of regulated products and waste.

**PART IV – REPORT LIMITATIONS**

This report is for the purpose of identifying asbestos containing materials located within this building, and assigning specific removal priority associated with building occupant risk of exposure to asbestos materials. While this assessment was conducted with the utmost detail and diligence, there may exist instances where asbestos containing applications are present in the building but not identified through this report. Pursuant to Section 20.112 Hazardous Materials in the OHS Regulation, a project specific detailed pre-renovation assessment for asbestos and other hazardous or regulated materials should be conducted prior to any work of salvage, cutting, damaging or demolishing, in part or in whole, building finishes, components, machinery, equipment, buildings or structures.

Site conditions and building construction may have not permitted the complete inspection of some void spaces. These spaces may contain asbestos applications not identified in this report. Any suspect materials located within void spaces should be inspected and/or tested to determine if they are asbestos-containing.

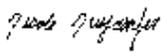
There was limited inspection of sub-flooring applications located beneath carpeting and vinyl flooring materials, occurring only where lifting the covering flooring / carpet would not result in damage. Furthermore, such sub-flooring inspections were only triggered by anecdotal information from staff regarding the presence of a sub-floor, or where there was a visible difference in flooring levels that prompted further investigation. Where a second layer of vinyl flooring material was discovered, samples were collected to determine their asbestos content. No inspection of sub-flooring applications was performed once a structural member was discovered (i.e. wood or concrete). There is a possibility that subsequent asbestos flooring applications, not identified in this report, may be located beneath carpeting, false floors or a covering layer of vinyl flooring. Any suspect materials sandwiched between multiple flooring layers should be inspected or tested to determine if they are asbestos-containing.

This report is not an asbestos abatement risk assessment nor can it be used as an asbestos abatement Exposure Control Plan. The report is specifically limited to the identification of asbestos containing materials and to the creation of a recommended abatement schedule. A site or project specific risk assessment and asbestos exposure control plan must be prepared prior to the removal or disturbance of asbestos containing materials identified in this report.

**ASBESTOS CONTAINING BUILDING MATERIAL INVENTORY AND ASSESSMENT REPORT**

Any quantities listed in these documents are estimates only. Peak Environmental Ltd. accepts no liability for inaccurate or misleading quantities listed in these documents.

Facility Assessor:   
Stephen Ferguson, ASCT., President  
AHERA Certified Building Insp. No: CABIR-12-018

Report Preparation:   
Nicole Nuszdorfer, Project Technician  
AHERA Certified Building Insp. No: CABIR-12-018

Final Report Review:   
Stephen Ferguson, ASCT., President  
AHERA Certified Building Insp. No: CABIR-12-018

*File: 3482 MBS R01nn Asbestos Inventory Report 03-28-2017*

This report has been prepared for the sole use of School District No. 5 (Southeast Kootenay). The conclusions and recommendations presented in this report are the best judgment of the author. In the event that this report is provided to a third party without the written consent of Peak Environmental Ltd., any use that a third party makes of this report, or any reliance on the decisions made based on this report, are the sole responsibility of that third party. Peak Environmental Ltd. accepts no responsibility for damages, should any occur, that are suffered by any third party as a result of decisions made or actions taken based on this report.

**APPENDIX A**  
**ASBESTOS-CONTAINING MATERIALS SUMMARY &**  
**CONTRACTOR SIGN-OFF SHEET**

The following asbestos applications have been identified within Mount Baker Secondary School. The attached asbestos location drawings and spreadsheets should be reviewed for the exact location of all known asbestos applications within this facility (to the extent possible).

**APPLICATIONS CONTAINING ASBESTOS:**

- **Throughout Applications:**
  - Furnishings (Jf1)
  - Cement rain water leader piping (Jp1)
  - Mechanical duct mastic (M3/M4)
  - Window putty (Mw1)
  - Sanitary pipe packing (N1)
- **Basement:**
  - Fire door (X1)
- **Main Floor:**
  - Vinyl floor tiles (H4)
  - Cement board in radiators (J2)
  - Paper backed vinyl sheeting (Ip1)
- **Second Floor:**
  - Cement board in radiators (J2)

**APPLICATIONS WITH IMMEDIATE OR PRIORITY 1 ABATEMENT CODE:**

- No applications with Immediate or Priority 1 abatement code were noted in this facility.

**SUSPECT APPLICATIONS:**

- Mastic on acoustic ceiling texture (M5)
- Mastic on ceiling tiles (M6)
- Window putty (Mw2/Mw3/Mw4)
- Exterior stucco (S1/S2)

**POTENTIAL ASBESTOS APPLICATIONS:**

Concealed asbestos-containing building materials may be present but could not be identified due to inaccessibility, live electrical or mechanical systems, building occupancy, or the requirement for breaching building membranes. Based on the building era, the following materials may be present and if encountered, should be sampled and analyzed for asbestos content prior to disturbance:

Electrical insulation (wire insulation, arc insulating pads)	Pipe flange gaskets
Glues and adhesives (eg. under flooring, glue up ceiling tile)	Roofing materials, tar and gravel roofing, roof felts, tar patching compounds and membranes

**School District No. 5 (Southeast Kootenay)**  
**HAZARDOUS & REGULATED MATERIALS ASSESSMENT REPORT**

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**INACCESSIBLE AREAS:**

The following areas were not accessible during the survey:

- Storage 011

**AREAS OF RESTRICTED ENTRY:**

No areas with poor condition asbestos or areas which would require special entry procedures were identified in this building.



## **APPENDIX B**

# **ASBESTOS LOCATION DRAWINGS**





**PEAK ENVIRONMENTAL LTD.**  
 561 Pinewood Place  
 Vancouver, BC V6P 1A1  
 1-877-518-PEAK (7326)  
[www.peakenvironmental.ca](http://www.peakenvironmental.ca)

Project No.: 3482  
 Drawing: MOUNTBAKER  
 SECONDARY  
 SCHOOL  
 BASEMENT &  
 SECOND FLOOR  
 1410 Burrard St.  
 Cranbrook, BC

Title: ASBESTOS  
 CONTAINING  
 BUILDING  
 MATERIAL  
 LOCATIONS

Owner: **SCHOOL  
 DISTRICT NO. 5  
 (SOUTHEAST KOOTENAY)**  
 540 Industrial Road, Unit 1  
 Cranbrook, BC V1C 4G3

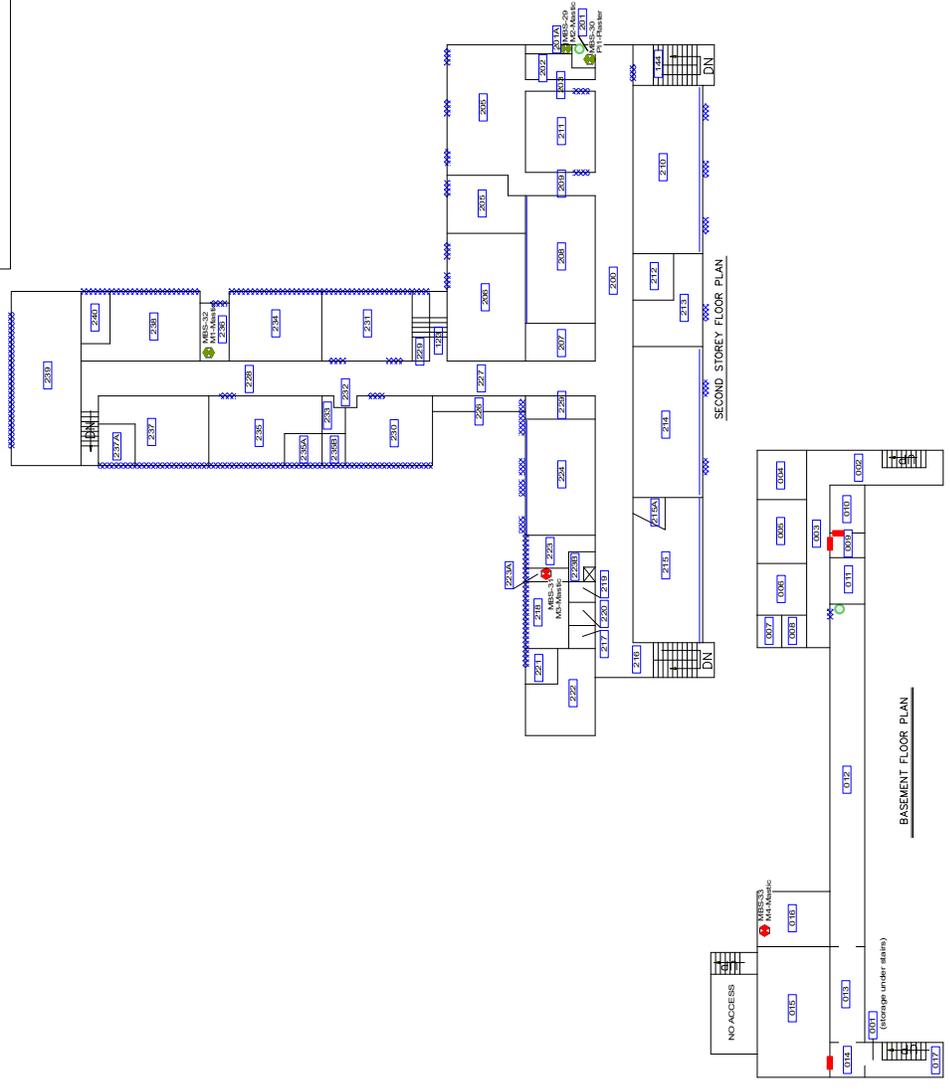
- Legend:
- ASBESTOS OR ASBESTOS WINDOW PUTTY
  - FIRE DOORS WITH ASBESTOS CORE
  - CEMENT ASBESTOS BOARD IN RADIATOR
  - BORE HOLE LOCATION WITH NO VERMICULITE
  - ASBESTOS BULK SAMPLE MATERIAL
  - ASBESTOS BULK SAMPLE MATERIAL

Date: 03.28.2017  
 Revision: 1 : 500  
 Scale: 1 : 500  
 Drawn by: N. Nuscederfer

DRAWING NUMBER  
**MBS ASB 2-2**



ASBESTOS CONTAINING APPLICATIONS NOT SHOWN ON DRAWING:  
 FURNISHINGS  
 CEMENT RAIN WATER LEADER PIPING  
 MECHANICAL DUCT MASTICS  
 SANITARY PIPE JOINTS PACKING  
 SUSPECT ASBESTOS APPLICATIONS



## **APPENDIX C**

# **ANALYTICAL BULK SAMPLE RESULTS**



# Bulk Sample Report

201 – 990 Hillside Avenue  
Victoria, B.C. V8T 2A1  
778-406-0933  
[admin@islandehs.ca](mailto:admin@islandehs.ca)

Client: Client  
Date Received: 21 September-2016  
Analyst: SD/IH

Project #: 4000-3482  
Client: Peak Environmental Ltd.  
Site: Mount Baker Secondary / SD 5

Sample #	Location	Material	Analysis Date	Layer	Description	%	Asbestos	%	Other Materials	%
1	Vestibule 100	*Window Putty	5-Oct-16	1	Black putty	100	Chrysotile	1	Non fibrous	99
2	Corridor 101	*Window Putty	5-Oct-16	1	Grey putty	100	None detected	0	Non fibrous	100
3	Storage 105A	*Drywall Tape Compound	5-Oct-16	1	Paint	20	None detected	0	Non fibrous	100
4	Storage 105A	*Floor Tile	5-Oct-16	2	White chalky filler	80	None detected	0	Non fibrous	100
5	NO SAMPLE SUBMITTED		5-Oct-16	1	White tile	100	None detected	0	Non fibrous	100
6	Vestibule 105J	*Drywall Tape Compound	5-Oct-16	1	Paint	10	None detected	0	Non fibrous	100
7	Mechanical Room 105K	*Floor Levelling Cement	5-Oct-16	2	White chalky filler	90	None detected	0	Non fibrous	100
8	Mechanical Room 105K	*Floor Tile	5-Oct-16	1	Grey leveling cement	100	None detected	0	Non fibrous	100
9	Mechanical Room 105K	*Duct Sealant	5-Oct-16	1	White tile	100	None detected	0	Non fibrous	100
10	Storage 107	*Floor Tile	5-Oct-16	2	Paint	50	None detected	0	Non fibrous	100
11	Art Room 108	*Drywall Tape Compound	5-Oct-16	2	Red/Brown sealant	50	None detected	0	Wollastonite	10
12	Art Room 108	Plaster	5-Oct-16	1	Grey/White tile	90	None detected	0	Non fibrous	90
13	Custodial Room 110	Plaster	5-Oct-16	2	Black mastic	10	None detected	0	Wood/Cellulose	5
14	Classroom 114	Drywall Tape Compound	5-Oct-16	1	Paint	30	None detected	0	Non fibrous	95
15	Custodial 128A	Drywall Tape Compound	5-Oct-16	2	White chalky filler	70	None detected	0	Non fibrous	100
			5-Oct-16	1	White cement	30	None detected	0	Non fibrous	100
			5-Oct-16	2	Grey cement	50	None detected	0	Hair	1
			5-Oct-16	3	Grey cement	99	None detected	0	Non fibrous	99
			5-Oct-16	1	Paint	20	None detected	0	Non fibrous	100
			5-Oct-16	2	White cement	30	None detected	0	Non fibrous	100
			5-Oct-16	3	Grey cement	50	None detected	0	Hair	1
			5-Oct-16	1	Paint	30	None detected	0	Non fibrous	99
			5-Oct-16	2	White chalky filler	70	None detected	0	Non fibrous	100
			5-Oct-16	1	White chalky filler	50	None detected	0	Non fibrous	100
			5-Oct-16	2	Drywall	50	None detected	0	Cellulose	50

Analyzed in accordance with NIOSH Method 9002



Project #: 4000-3482  
 Client: Peak Environmental Ltd.  
 Site: Mount Baker Secondary / SD 5

Sampled by: Client  
 Date Received: 21 September-2016  
 Analyst: SD/IH

# Bulk Sample Report

201 – 990 Hillside Avenue  
 Victoria, B.C. V8T 2A1  
 778-406-0933  
[admin@islandehs.ca](mailto:admin@islandehs.ca)

Sample #	Location	Material	Analysis Date	Layer	Description	%	Asbestos	%	Other Materials	%
16	Library 138	Window Putty	5-Oct-16	1	Paint	20	None detected	0	Non fibrous	100
				2	White putty	80	None detected	0	Non fibrous	100
17	Work Room 138B	Drywall Tape Compound	5-Oct-16	1	Paint	30	None detected	0	Non fibrous	100
				2	White chalky filler	70	None detected	0	Non fibrous	100
18	Food 147	Cement Board	5-Oct-16	1	Grey board	100	Chrysotile	30	Non fibrous	70
19	Office 153B	*Floor Sheeting	5-Oct-16	1	Beige vinyl	50	None detected	0	Non fibrous	100
				2	White fibrous backing	50	Chrysotile	70	Cellulose	20
									Non fibrous	10
20	Planner 164	Drywall Tape Compound	5-Oct-16	1	Paint	30	None detected	0	Non fibrous	100
				2	White chalky filler	70	None detected	0	Non fibrous	100
21	Cafeteria 173	Insulating Cement	5-Oct-16	1	White cement	100	None detected	0	Glass	30
									Cellulose	10
									Non fibrous	60
22	Custodial 179B	*Drywall Tape Compound	5-Oct-16	1	Paint	30	None detected	0	Non fibrous	100
				2	White chalky filler	70	None detected	0	Non fibrous	100
23	Corridor 180	Window Putty	5-Oct-16	1	Black putty	100	None detected	0	Cellulose	20
									Non fibrous	80
24	Corridor 180	Drywall Tape Compound	5-Oct-16	1	Paint	50	None detected	0	Non fibrous	100
				2	White chalky filler	50	None detected	0	Cellulose	2
									Non fibrous	98
25	PE Office 184	Drywall Tape Compound	5-Oct-16	1	Paint	50	None detected	0	Non fibrous	100
				2	White chalky filler	50	None detected	0	Non fibrous	100
26	Gym Storage 187	Drywall Tape Compound	5-Oct-16	1	Paint	50	None detected	0	Non fibrous	100
				2	White chalky filler	50	None detected	0	Non fibrous	100
27	Storage 188	Drywall Tape Compound	5-Oct-16	1	Paint	40	None detected	0	Non fibrous	100
				2	White chalky filler	60	None detected	0	Non fibrous	100
28	Mechanical Room 192	Insulating Cement	5-Oct-16	1	White cement	100	None detected	0	Glass	30
									Cellulose	10
									Non fibrous	60
29	Pipe Chase 201A	*Duct Sealant	5-Oct-16	1	Beige sealant	100	None detected	0	Non fibrous	100
30	Custodial Room 201	Plaster	5-Oct-16	1	Paint	20	None detected	0	Non fibrous	100
				2	White cement	30	None detected	0	Non fibrous	100
				3	Grey cement	50	None detected	0	Hair	1
									Non fibrous	99

Analyzed in accordance with NIOSH Method 9002



# Bulk Sample Report

Project #: 4000-3482  
 Client: Peak Environmental Ltd.  
 Site: Mount Baker Secondary / SD 5

Sampled by: Client  
 Date Received: 21 September-2016  
 Analyst: SD/IH

201 – 990 Hillside Avenue  
 Victoria, B.C. V8T 2A1  
 778-406-0933  
[admin@islandehs.ca](mailto:admin@islandehs.ca)

Sample #	Location	Material	Analysis Date	Layer	Description	%	Asbestos	%	Other Materials	%
31	Pipe Chase 223A	Duct Sealant	5-Oct-16	1	Silver metallic sealant	100	Chrysotile	5	Non fibrous	95
32	Washroom 236	*Duct Sealant	5-Oct-16	1	Paint	50	None detected	0	Non fibrous	100
				2	Grey sealant	50	None detected	0	Non fibrous	100
33	Storage 016	Duct Sealant	5-Oct-16	1	Silver metallic sealant	100	Chrysotile	5	Non fibrous	95

\*Sample smaller than recommended by WorkSafe BC guidelines



**APPENDIX D**  
**ASBESTOS CONTAINING MATERIALS INVENTORY AND**  
**PRIORITIZED ABATEMENT SCHEDULE**

SCHOOL DISTRICT NO. 5 (SOUTHEAST KOOTENAY) ASBESTOS CONTAINING BUILDING MATERIALS INVENTORY AND ABATEMENT BUDGET ESTIMATES

ROOM #	ROOM DESCRIPTION	MATERIAL		ASSESSMENT							ABATEMENT				FOOT NOTE
		CODE	DESCRIPTION	VIS	CONDITION	HEIGHT	AIR or VIBRATION	ENCLOSED SPACE	ACCESSIBLE TO PUBLIC	FRIABILITY	FUTURE DAMAGE POTENTIAL	QUANTITY	UNIT	RATE	

**MOUNT BAKER SECONDARY SCHOOL - 1410 BAKER STREET CRANBROOK, BC**

**KNOWN ASBESTOS CONTAINING BUILDING MATERIALS**

Throughout Application	Jf1	Asbestos Furnishings	Vis	Good	L	N	N	N	High	Low	Low	Unit	-	\$	-	3	26	*2
Throughout Application	Jp1	Cement Pipe	Encl	Good	L	N	N	N	Low	Low	Low	LF	-	\$	-	3	7	*3
Throughout Application	M3	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	-	\$	-	3	10	
Throughout Application	Mw1	Window Mastic	Vis	Good	L	N	N	N	High	Low	Low	Unit	-	\$	-	3	26	*4
Throughout Application	N1	Sanitary Pipe Packing	Encl	Good	L	N	N	N	Low	High	Low	Unit	-	\$	-	3	27	

**Basement:**

009 Electrical Room	X1	Fire Door	Encl	Good	L	N	N	N	Low	High	Low	Unit	-	\$	-	3	27	
010 Electrical Room	X1	Fire Door	Encl	Good	L	N	N	N	Low	High	Low	Unit	-	\$	-	3	27	
015 Boiler Room	X1	Fire Door	Encl	Good	L	N	N	N	Low	High	Low	Unit	-	\$	-	3	27	
016 Storage	M4	Mastic Glue / Sealant	Vis	Good	L	N	N	N	High	Low	Low	SF	-	\$	-	3	26	

**Main Floor:**

117G Server Room	H4	Vinyl Floor Tile	Vis	Good	L	N	N	N	High	Low	Low	SF	-	\$	-	3	26	
131 Closet	H4	Vinyl Floor Tile	Vis	Good	L	N	N	N	High	Low	Low	SF	-	\$	-	3	26	
147 Foods	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	
153B Office	Jp1	Paper Backed Flooring	Encl	Good	L	N	N	N	Low	High	Low	SF	-	\$	-	3	27	*1
163 Wood Shop	Jp1	Cement Pipe	Vis	Good	L	N	N	N	Mod	Low	Low	LF	-	\$	-	3	16	
170 Metal Shop	Jp1	Cement Pipe	Vis	Good	L	N	N	N	High	Low	Low	LF	-	\$	-	3	26	

**Second Floor:**

208 Classroom	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	
210 Classroom	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	
214 Classroom	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	
215 Classroom	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	
224 Classroom	J2	Cement Board	Con	Good	L	N	N	N	Low	Low	Low	Unit	-	\$	-	3	10	

**SUSPECT ASBESTOS CONTAINING BUILDING MATERIALS**

Exterior	S1	Exterior Wall Stucco	Vis	Good	L	N	N	N	High	Mod	Mod	SF	-	\$	-	3	35	*6
Exterior	S2	Exterior Wall Stucco	Vis	Good	L	N	N	N	High	Mod	Mod	SF	-	\$	-	3	35	*6
Throughout Application	Mwx	Window Mastic	Vis	Good	L	N	N	N	High	Low	Low	Unit	-	\$	-	3	26	*5
105B Office	M6	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	160	\$	-	3	10	*6
105D Practice	M6	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	80	\$	-	3	10	*6
105I Storage	M6	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	80	\$	-	3	10	*6
109A Drama	M6	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	125	\$	-	3	10	*6
181 Gym	M5	Mastic Glue / Sealant	Con	Good	L	N	N	N	Low	Low	Low	SF	9000	\$	-	3	10	*6

ROOM #	ROOM DESCRIPTION	CODE	MATERIAL DESCRIPTION	VIS	CONDITION	HEIGHT	Air or VIBRATION	ENCLOSED SPACE	ASSESSMENT				UNIT	RATE	ABATEMENT			FOOT NOTE
									ACCESSIBLE TO PUBLIC	FRIBLITY	FUTURE DAMAGE POTENTIAL	QUANTITY			COST	PRIORITY	REMOVAL	
191	Weight Room	M5	Mastic Glue / Sealant	Con	Good	L	N	N	Low	Low	Low	2000	SF	\$ -	-	3	10	*6
195	Stairwell	M5	Mastic Glue / Sealant	Con	Good	L	N	N	Low	Low	Low	60	SF	\$ -	-	3	10	*6

**MOUNT BAKER SECONDARY SCHOOL - 1410 BAKER STREET CRANBROOK, BC**

IMMEDIATE ABATEMENT AND RE-APPLICATION COSTS \$ -

PRIORITY 1 RECOMMENDED ABATEMENT AND RE-APPLICATION COSTS \$ -

PRIORITY 2 RECOMMENDED ABATEMENT AND RE-APPLICATION COSTS \$ -

PRIORITY 3 RECOMMENDED ABATEMENT AND RE-APPLICATION COSTS \$ -

**TOTAL ASBESTOS ABATEMENT COSTS FOR THIS FACILITY**  
 (Excluding furnishings, enclosed rain water leader piping, mastics, window putty, sanitary pipe packing, cement board and suspect asbestos stucco) \$ -

**FOOT NOTES**

- \*1 Asbestos containing paper backed vinyl floor sheeting on counter top.
- \*2 Do not repair if damaged; remove as asbestos waste.
- \*3 See Appendix B: Drawings for known locations. Additional piping may be enclosed within wall and ceiling spaces throughout the facility.
- \*4 See Appendix E: Room by Room Inventory for known locations.
- \*5 Project specific sampling of window Mw2/Mw3 & Mw4 window putty applications is required to confirm or deny the presence of asbestos in each window unit. All units are considered
- \*6 Sampling of this material has not been performed to protect building finishes. This application must be assessed prior to disturbance.

**GENERAL NOTES:**

- 1 Abatement, re-application and consulting costs are based on individual applications. Prices will vary depending upon timing and scope of work. It is recommended that revised budget numbers be prepared once an abatement scope of work is ascertained.
- 2 Functional area numbers are representative of the survey drawings provided with this report and may not indicate actual room numbers.
- 3 Only known and visible asbestos materials are listed. There is a distinct possibility that asbestos materials may be present in wall, ceiling and floor void spaces not identified in this report. Any materials located in void spaces should be sampled for asbestos content prior to disturbance.
- 4 This is an occupied building assessment for asbestos containing materials. No sampling of building membrane materials was conducted where such sampling could breach the water tightness of the building. Additionally, applications routinely sampled prior to building demolition were not assessed during this inspection; concealed flooring applications beneath flooring or sub-flooring covering materials where coring would be required to identify these concealed materials, were not sampled. A pre-demolition assessment should be performed prior to building demolition.

ROOM #	ROOM DESCRIPTION	CODE	MATERIAL DESCRIPTION	ASSESSMENT										ABATEMENT				FOOT NOTE
				VIS	CONDITION	HEIGHT	AIR or VIBRATION	ENCLOSED SPACE	ACCESSIBLE TO PUBLIC	FRIABILITY	FUTURE DAMAGE	QUANTITY	UNIT	RATE	COST	REMOVAL PRIORITY	AMI SCORE	

**MOUNT BAKER SECONDARY SCHOOL - 1410 BAKER STREET CRANBROOK, BC**

FRIABILITY	CONDITION	HEIGHT
HIGH (easily crumbled by hand)	GOOD (no visible signs of disturbance)	L - Low application height less than 10' from floor
MOD (not easily crumbled by hand)	FAIR (visible signs of disturbance, no debris noted on ground)	H - Low application height greater than 10' from floor
LOW (tool or implement required to disturb)	POOR (delamination/deterioration evident/imminent, may have debris on ground)	
ACCESSIBILITY TO PUBLIC	VIS (VISIBILITY)	UNITS
LOW (controlled, infrequent access; out of hand reach)	Vis - Application is exposed and visible	SF - Square Foot
MOD (controlled access or out of hand reach)	Con - Application is concealed but accessible beneath covering materials	Unit - Per unit
HIGH (uncontrolled access and within hand reach)	Encl - Application is enclosed and inaccessible (such as asbestos paper backing on vinyl floor sheeting is enclosed beneath a covering layer of vinyl)	FTG - Fitting or Pipe Elbow
		LF - Linear Foot
REMOVAL PRIORITY	ENCLOSED SPACE	
IMM AMI SCORE 49 OR GREATER - Immediate removal recommended. There is a distinct possibility of asbestos fibre release		
1 AMI SCORE 40 TO 48 - Remove within one year due to this application's condition, location or surrounding area's use; damage is probable		
2 AMI SCORE 36 TO 39 - Manage in place or removal in conjunction with proposed building renovations or maintenance is recommended		
3 AMI SCORE LESS THAN 36 - Manage in place or removal prior to renovation or demolition activities is recommended		

MATERIAL	VISUAL DESCRIPTION - ASSESSED LOCATION	SURVEYED MATERIALS DESCRIPTIONS AND SAMPLE NUMBERS	SAMPLE No.	CONTENT
<b>ASSESSED AND SUSPECT ASBESTOS CONTAINING APPLICATIONS</b>				
A1 Stipple Texture	Troweled concrete texture - Vestibule 100			Known Non-Asbestos Application
A2 Stipple Texture	Splatter texture - Corridor 101			Known Non-Asbestos Application
A3 Stipple Texture	Acoustic thermal insulation - Gym 181			Known Non-Asbestos Application
B1 Pipe Insulation	Fiberglass pipe insulation with fiberglass pipe fittings - Vestibule 105J			Known Non-Asbestos Application
C1 Cement Pipe Fitting	Insulating cement on pipe fitting - Cafeteria 173		MBS-21	Non Asbestos
C2 Cement Pipe Fitting	Insulating cement on pipe fitting - Mechanical room 192		MBS-28	Non Asbestos
D1 Cement Parging	DHWT End cap insulation (same as C2) - Mechanical room 192		MBS-28	Non Asbestos
E1 Exhaust Breeching	Foil faced Fiberglass duct insulation - Corridor 137			Known Non-Asbestos Application
G1 Ceiling Panel	2x4' Short omni-directional fissures with large and small pinholed mineral fibre tile - Corridor 101			Known Non-Asbestos Application
G2 Ceiling Panel	1x1' Fissured and pinholed compressed cellulose tile - Office 105B			Known Non-Asbestos Application
G3 Ceiling Panel	1x2' and 1x1' Smooth faced compressed cellulose staple up tile - Classroom 114			Known Non-Asbestos Application
G4 Ceiling Panel	2x4' Cross directional fissures with large and small pinholed compressed cellulose tile - General office 117			Known Non-Asbestos Application

SCHOOL DISTRICT NO. 5 (SOUTHEAST KOOTENAY) ASBESTOS CONTAINING BUILDING MATERIALS INVENTORY AND ABATEMENT BUDGET ESTIMATES

ROOM #	ROOM DESCRIPTION	CODE	MATERIAL DESCRIPTION	VIS	CONDITION	HEIGHT	Air or VIBRATION ENCLOSED SPACE ACCESSIBLE TO PUBLIC	FRIABILITY	FUTURE DAMAGE POTENTIAL	QUANTITY	UNIT	RATE	ABATEMENT			FOOT NOTE
													COST	REMOVAL PRIORITY	AMI SCORE	

**MOUNT BAKER SECONDARY SCHOOL - 1410 BAKER STREET CRANBROOK, BC**

SURVEYED MATERIALS DESCRIPTIONS AND SAMPLE NUMBERS

**SAMPLE No. CONTENT**

**MATERIAL VISUAL DESCRIPTION - ASSESSED LOCATION**

**ASSESSED AND SUSPECT ASBESTOS CONTAINING APPLICATIONS**

ROOM #	ROOM DESCRIPTION	MATERIAL DESCRIPTION	VIS	CONDITION	HEIGHT	Air or VIBRATION ENCLOSED SPACE ACCESSIBLE TO PUBLIC	FRIABILITY	FUTURE DAMAGE POTENTIAL	QUANTITY	UNIT	RATE	COST	REMOVAL PRIORITY	AMI SCORE	FOOT NOTE
G5	Ceiling Panel	2x4' Directional long and short waves fissures with pinholed compressed cellulose tile - Office 117A										Not Sampled	Known Non-Asbestos Application		
G6	Ceiling Panel	1x1' Small holed compressed cellulose staple up tile - Classroom 237										Not Sampled	Known Non-Asbestos Application		
H1	Vinyl Floor Tile	12x12" White with minimal dark streaked VFT - Storage 105A										MBS-04	Non Asbestos		
H2	Vinyl Floor Tile	12x12" Off white VFT - Mechanical room 105K										MBS-08	Non Asbestos		
H3	Vinyl Floor Tile	12x12" Cream with small grey and white spotted VFT - Storage 107										MBS-10	Non Asbestos		
H4	Vinyl Floor Tile	9x9" Green with dark green and white spotted VFT - Server room 117G										Not Sampled	<b>Known Asbestos Application</b>		
I1	Vinyl Sheet Flooring	Brown with and cream wave pattern jute back Marmoleum - Corridor 101										Not Sampled	Known Non-Asbestos Application		
I2	Vinyl Sheet Flooring	White with small blue/grey spotted Tarkett VSF - Laundry 114D										Not Sampled	Known Non-Asbestos Application		
I3	Vinyl Sheet Flooring	Tan rust and brown wave pattern jute back Marmoleum - Copy room 116										Not Sampled	Known Non-Asbestos Application		
I4	Vinyl Sheet Flooring	Beige with small brown and cream spotted pattern Tarkett VSF - Vestibule 120										Not Sampled	Known Non-Asbestos Application		
I5	Vinyl Sheet Flooring	Brown with cream splotch pattern jute back Marmoleum - Classroom 124										Not Sampled	Known Non-Asbestos Application		
I6	Vinyl Sheet Flooring	Cream with light and dark brown wave pattern jute back Marmoleum - Work room 125										Not Sampled	Known Non-Asbestos Application		
I7	Vinyl Sheet Flooring	Beige with small brown and cream spotted pattern Tarkett VSF - Vestibule 120										Not Sampled	Known Non-Asbestos Application		
I8	Vinyl Sheet Flooring	Teal with green and cream small spotted Tarkett VSF - Custodial 145										Not Sampled	Known Non-Asbestos Application		
Ip1	Paper Backed Flooring	Beige brown and cream random size square mosaic pattern counter top - Office 153B										MBS-19	<b>Chrysoile Asbestos 70%</b>		
J1	Cement Board	Silica board behind perimeter radiators - Art room 108										Not Sampled	Known Non-Asbestos Application		
J2	Cement Board	Grey cement board behind perimeter radiators - Food 147										MBS-18	<b>Chrysoile Asbestos 30%</b>		
J3	Cement Board	Fibre cement board - Welding shop 170A										Not Sampled	Known Non-Asbestos Application		
Jf1	Asbestos Furnishings	Moulded asbestos plastic furnishings - Office 114B										Not Sampled	Known Non-Asbestos Application		
Jp1	Cement Pipe	Asbestos cement rain water leader piping - Wood shop 163										Not Sampled	<b>Known Asbestos Application</b>		
M1	Mastic Glue / Sealant	Red/brown duct joint sealant - Mechanical room 105K										Not Sampled	<b>Known Asbestos Application</b>		
M1	Mastic Glue / Sealant	Red/brown duct joint sealant - Washroom 236										MBS-09	Non Asbestos		
M2	Mastic Glue / Sealant	Tan duct joint sealant - Pipe chase 201A										MBS-32	Non Asbestos		
M3	Mastic Glue / Sealant	Silver duct joint sealant - Pipe chase 223A										MBS-29	Non Asbestos		
M4	Mastic Glue / Sealant	Grey sealant around old fan unit - Storage 016										MBS-31	<b>Chrysoile Asbestos 5%</b>		
M5	Mastic Glue / Sealant	Mastic on (A3) acoustic insulation - Gym 181										MBS-33	<b>Chrysoile Asbestos 5%</b>		
M6	Mastic Glue / Sealant	Mastic on (G2) ceiling tiles - Office 105B										Not Sampled	<b>Suspect Asbestos</b>		
												Not Sampled	<b>Suspect Asbestos</b>		

SCHOOL DISTRICT NO. 5 (SOUTHEAST KOOTENAY) ASBESTOS CONTAINING BUILDING MATERIALS INVENTORY AND ABATEMENT BUDGET ESTIMATES

ROOM #	ROOM DESCRIPTION	CODE	MATERIAL DESCRIPTION	ASSESSMENT							ABATEMENT				FOOT NOTE
				VIS	CONDITION	HEIGHT	AIR or VIBRATION	ENCLOSED SPACE	ACCESSIBLE TO PUBLIC	FRIBILITY	FUTURE DAMAGE POTENTIAL	QUANTITY	UNIT	RATE	

**MOUNT BAKER SECONDARY SCHOOL - 1410 BAKER STREET CRANBROOK, BC**

SURVEYED MATERIALS DESCRIPTIONS AND SAMPLE NUMBERS

**MATERIAL VISUAL DESCRIPTION - ASSESSED LOCATION**

**SAMPLE No. CONTENT**

**ASSESSED AND SUSPECT ASBESTOS CONTAINING APPLICATIONS**

Mwx Window Mastic  
Window putty - Throughout application (project specific sampling recommended to confirm or deny the presence of asbestos in each unit)

Mw1 Window Mastic  
Black interior window putty - Vestibule 100

Mw2 Window Mastic  
Grey interior and exterior window putty - Corridor 101

Mw3 Window Mastic  
White hard window putty - Library 138

Mw4 Window Mastic  
Black window putty - Corridor 180

N1 Sanitary Pipe Packing  
Cast iron sanitary bell and spigot joint packing - Storage 001

O1 Levelling Compound  
Floor levelling cement - Mechanical room 105K

P1 Drywall Tape Comp.  
White drywall tape compound - Storage 105A

P1 Drywall Tape Comp.  
Beige drywall tape compound - Vestibule 105J

P1 Drywall Tape Comp.  
White drywall tape compound - Art room 108

P1 Drywall Tape Comp.  
White drywall tape compound - Classroom 114

P1 Drywall Tape Comp.  
White drywall tape compound - Custodial 128A

P1 Drywall Tape Comp.  
White drywall tape compound - Work room 138B

P1 Drywall Tape Comp.  
White drywall tape compound - Planner 164

P1 Drywall Tape Comp.  
White drywall tape compound - Custodial 179B

P2 Drywall Tape Comp.  
White drywall tape compound - Corridor 180

P2 Drywall Tape Comp.  
White drywall tape compound - PE Office 184

P2 Drywall Tape Comp.  
White drywall tape compound - Gym Storage 187

P2 Drywall Tape Comp.  
White drywall tape compound - Storage 188

P1 Plaster  
Finished plaster - Art room 108

P1 Plaster  
Finished plaster - Custodial room 110

P1 Plaster  
Finished plaster - Custodial room 201

S1 Exterior Wall Stucco  
Rock dash exterior stucco - Exterior

S2 Exterior Wall Stucco  
Concrete troweled texture finished exterior stucco - Auto shops exterior

T1 Bldg Thermal Insulation  
Fiberglass batt insulation - Attic spaces

T2 Bldg Thermal Insulation  
Kraft backed rock wood insulation - Attic spaces

X1 Fire Door  
Metal clad corrugated asbestos paper fire door - Electrical room 009

Under Sampled **Suspect Asbestos**  
MBS-01 **Chrysotile Asbestos** 1%  
MBS-02 Non Asbestos  
MBS-16 Non Asbestos  
MBS-23 Non Asbestos  
Not Sampled **Known Asbestos Application**  
MBS-07 Non Asbestos  
MBS-03 Non Asbestos  
MBS-06 Non Asbestos  
MBS-11 Non Asbestos  
MBS-14 Non Asbestos  
MBS-15 Non Asbestos  
MBS-17 Non Asbestos  
MBS-20 Non Asbestos  
MBS-22 Non Asbestos  
MBS-24 Non Asbestos  
MBS-25 Non Asbestos  
MBS-26 Non Asbestos  
MBS-27 Non Asbestos  
MBS-12 Non Asbestos  
MBS-13 Non Asbestos  
MBS-30 Non Asbestos  
Not Sampled **Suspect Asbestos**  
Not Sampled **Suspect Asbestos**  
Not Sampled Known Non-Asbestos Application  
Not Sampled Known Non-Asbestos Application  
Not Sampled **Known Asbestos Application**

**APPENDIX E**  
**ANCILLARY INFORMATION - ROOM BY ROOM**  
**MATERIALS INVENTORY**

ROOM BY ROOM INVENTORY

Mount Baker Secondary School

Date: 09-09-2016

mm/dd/yyyy

ANCILLARY INFORMATION

TB-Tack Board / GWB-Gypsum Wall Board / BW-Brick Wall / CBW-Concrete Block Wall / Car-Carpet / Conc-Concrete / STR-Structure / WD-Wood / FRP-fiberglass reinforced plastic  
 All applications are below accessible below 8 foot height unless otherwise noted as (h)-high for applications above 8' or as being (at)-Application concealed above T-bar ceilings /  
 (\*) - assumed applications room not accessible / (af)-concealed above fixed ceilings / (uc)-concealed beneath carpeting / (uw)-concealed beneath vinyl sheeting / (ul)-concealed beneath laminate flooring

Application quantities are shown in Brackets (50) - All applications are in good condition unless noted as ... (p) poor or (f) fair  
 present within the rooms listed herein, but not shown on this spreadsheet.  
 Yellow highlighting indicates asbestos applications  
 BLUE highlighting indicates suspect asbestos application

Room No.	Room Name	Top Visible Floor Layer	Second Floor Layer	Third Floor Layer	North Wall	East Wall	South Wall	West Wall	First Visible Ceiling	Second Ceiling	Third Ceiling	Mech. Piping	Pipe Fitting	Mech. Ducting	Other		
		<b>BUILDING MATERIAL IDENTIFICATION CODES</b>															
		D - Cement Parging	E - Exhaust Breaching	G - Ceiling Panel	H - Vinyl Floor Tile	J - Cement Board	K - Equipment Gasketing	L - Incandescent Light Pad	M - Mastic Glue / Sealant	N - Pipe Roving/Packing	O - Floor Leveling Cement	Qs - Roofing Shingle	R - Refractory Cement	Ss - Exterior Soffit Stucco	T - Bldg Thermal Insulation	U - Friction Materials	
		A - Texture Coating	B - Pipe Insulation	C - Cement Pipe Fitting	F - Insulating Paper Joint	I - Vinyl Sheet Flooring	Jp - Cement Pipe	Jw - Cement Board Window Panel	Kp - Pipe Gasketing	Lp - Paper Backed Flooring	Mw - Window Ruffy	N1	N1/N1	M1/M2/M3	Mw1/Jf1	V - Vermiculite Wall	
		Ac - Acoustic Insulation	Af - Spray-Applied Fireproofing	Bp - Insulating Paper Joint	Fb - Insulating Paper Joint	Ib - Insulating Paper Joint	Jb - Cement Pipe	Jw - Cement Board Window Panel	Kp - Pipe Gasketing	Lp - Paper Backed Flooring	Mw - Window Ruffy	N1	N1/N1	M1/M2/M3	Mw1/Jf1	Va - Vermiculite Attic	
		Ac - Acoustic Insulation	Af - Spray-Applied Fireproofing	Bp - Insulating Paper Joint	Fb - Insulating Paper Joint	Ib - Vinyl Sheet Flooring	Jb - Cement Pipe	Jw - Cement Board Window Panel	Kp - Pipe Gasketing	Lp - Paper Backed Flooring	Mw - Window Ruffy	N1	N1/N1	M1/M2/M3	Mw1/Jf1	W - Woven Textile	
		Ac - Acoustic Insulation	Af - Spray-Applied Fireproofing	Bp - Insulating Paper Joint	Fb - Insulating Paper Joint	Ib - Vinyl Sheet Flooring	Jb - Cement Pipe	Jw - Cement Board Window Panel	Kp - Pipe Gasketing	Lp - Paper Backed Flooring	Mw - Window Ruffy	N1	N1/N1	M1/M2/M3	Mw1/Jf1	X - Fire Doors	
	Throughout Applications																
	Exterior				S1/S2/BW	S1/S2/BW	S1/S2/BW	S1/S2/BW									Jf1
	Ceiling Spaces	Str			Str	Str	Str	Str	Str								Mw2
	<b>BASEMENT</b>																
001	Storage	Conc			Conc	Conc	Conc	Conc	P1								
002	Corridor	Conc			Conc	Conc	Conc	Conc	Conc								
003	Corridor	Conc			Wd	Conc	Conc	Conc	Wd								
004	Fan Room	Conc			Conc	Conc	Conc	P1	Str								
005	Storage	Conc			Conc	Conc	Conc	Wd	Wd								
006	Storage	Conc			Conc	Conc	Conc	Wd	Str								
007	Storage	Conc			Conc	Conc	Conc	Wd	Str								
008	Storage	Conc			Wd	Wd	Wd	Wd	Str								
009	Electrical Room	Conc			Conc	Conc	Conc	Conc	Conc								X1
010	Electrical Room	Conc			Conc	Conc	Conc	Conc	Conc								X1
011	Storage	No Access															
012	Corridor	Conc			Conc	Conc	Conc	Conc	Conc								
013	Custodial	Conc			Conc	Conc	Conc	Conc	Conc								
014	Vestibule	Conc			Conc	Conc	Conc	Conc	Conc								
015	Boiler Room	Conc			Conc	Conc	Conc	Conc	Conc								X1/Kp1









ROOM BY ROOM INVENTORY

Mount Baker Secondary School

Date: 09-09-2016

mm/dd/yyyy

ANCILLARY INFORMATION

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All applications are below accessible below 8 foot height unless otherwise noted as (h)-high for applications above 8' or as being (at)-Application concealed above T-bar ceilings /

(\* ) - assumed applications room not accessible / (af)-concealed above fixed ceilings / (uc)-concealed beneath carpeting / (uw)-concealed beneath vinyl sheeting / (ul)-concealed beneath laminate flooring

Application quantities are shown in Brackets (50) - All applications are in good condition unless noted as ... (p) poor or (f) fair

Present or visually site confirmed asbestos applications are noted on these Ancillary Pages. Additional asbestos applications may be present within the rooms listed herein, but not shown on this spreadsheet.

Yellow highlighting indicates asbestos applications

BLUE highlighting indicates suspect asbestos application

Room No.	Room Name	Top Visible Floor Layer	Second Floor Layer	Third Floor Layer	North Wall	East Wall	South Wall	West Wall	First Visible Ceiling	Second Ceiling	Third Ceiling	Mech. Piping	Pipe Fitting	Mech. Ducting	Other
130	Classroom	I1			Wd	Wd	Wd	Wd	G1	Str					Mw1 (8)
131	Closet	H4			Wd	Wd	Wd	Wd	P1						
132	Washroom	I1			Wd	Wd	Wd	Wd	Wd					M1	
133	Classroom	I6			Wd	Wd	Wd	Wd	G3						Jf1/Mw1 (8)/Mw2 (1)
134	Classroom	I6			Wd	Wd	Wd	Wd	G3						Jf1/Mw1 (8)/Mw2 (1)
135	Custodial	I1			P1	P1	P1	P1	P1						
136	Classroom	I1			Wd	Wd	Wd	Wd	P1						Mw1 (8) / Jf1
137	Corridor	I1			Wd	CBW	Wd	Wd/Glass	G1					E1(at)	
138	Library	I7			Wd	Wd	Wd	Wd	G1/G4/P11						Mw1/2/3 (6)
138A	Storage	Carpet			P1	P1	P1	Wd	P1					M1	
138B	Work Room	I7			Wd	P1/G3	Wd/G3	Wd	P1						
138C	Storage	I7			P1	P1	P1	P1	P1						
139	Classroom	I7			Wd	CBW	Wd	Wd	G1/G4						Mw1 (4)
140	Work Room	I1			Wd	Wd	Wd	Wd	P1						Mw1 (6)
141	Classroom	I1			Wd	Wd	Wd	Wd	P1						Mw1 (3)
142	Medical Room	I1			P1	P1/P1	P1	P1	P1						
142A	Medical Washroom	I1			P1	P1	P1	P1	P1						

ROOM BY ROOM INVENTORY

Mount Baker Secondary School

Date: 09-09-2016

mm/dd/yyyy

ANCILLARY INFORMATION

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(\* ) - assumed applications room not accessible / (af)-concealed above fixed ceilings / (uc)-concealed beneath carpeting / (uw)-concealed beneath vinyl sheeting / (ul)-concealed beneath laminate flooring

Application quantities are shown in Brackets (50) - All applications are in good condition unless noted as ... (p) poor or (f) fair

Presently known or visually site confirmed asbestos applications are noted on these Ancillary Pages. Additional asbestos applications may be present within the rooms listed herein, but not shown on this spreadsheet.

Yellow highlighting indicates asbestos applications

BLUE highlighting indicates suspect asbestos application

Room No.	Room Name	Top Visible Floor Layer	Second Floor Layer	Third Floor Layer	North Wall	East Wall	South Wall	West Wall	First Visible Ceiling	Second Ceiling	Third Ceiling	Mech. Piping	Pipe Fitting	Mech. Ducting	Other
		D - Cement Parging	G - Ceiling Panel	H - Vinyl Floor Tile	J - Cement Board	L - Incandescent Light Pad	O - Floor Leveling Cement	R - Refractory Cement	Ss - Exterior Soffit Stucco	T - Bldg Thermal Insulation	U - Vermiculite Wall	V - Vermiculite Wall	Va - Vermiculite Attic	W - Woven Textile	X - Fire Doors
		E - Exhaust Breaching	F - Insulating Paper Wrap	I - Vinyl Sheet Flooring	Jf - Asbestos Furnishings	M - Mastic Glue / Sealant	P - Drywall Tape Comp.	Ss - Exterior Soffit Stucco	T - Bldg Thermal Insulation	U - Friction Materials	V - Vermiculite Wall	Va - Vermiculite Attic	W - Woven Textile	X - Fire Doors	
		F - Insulating Paper Joint	Ib - Paper Backed Flooring	Jw - Cement Board Window Panel	Kp - Pipe Gasketing	Lp - Plaster	N - Pipe Roving/Packing	O - Floor Leveling Cement	R - Refractory Cement	Ss - Exterior Soffit Stucco	T - Bldg Thermal Insulation	U - Friction Materials	V - Vermiculite Wall	Va - Vermiculite Attic	W - Woven Textile
		Fb - Insulated Duct Boot			Jw - Cement Board Window Panel										
143	Custodial	I1			P11	CBW	P11	P11	P11						
144	Stairwell	I1			Conc	Conc/CBW	Conc	Conc	Conc						
145	Custodial	I8			P1	P1	P1/Wd	CBW	P11						
146	Student Lounge	I1			Wd	Wd	Wd	Wd	G1						Mw1 (1)
147	Foods	I1			Wd	Wd	Wd	CBW/Glas	G3						Mw1 (6)/J2
147A	Storage	I1			Wd	Wd	Wd	Wd	G3						Mw1 (1)
148	Office	I1			P1	Wd	P1	CBW	P11						
149	Multi-purpose	Rubber tile			P11	P11	P11	P11	P11						
150	Corridor	I1			Wd	Wd	Wd	Wd	G1						
151	Corridor	I1			Wd	Wd	Wd	Wd	G3						Mw1 (-)
152	Custodial	I8			P11	P11	P11	P11	P11						
153	Electronics	I1			P1	P1	P1/CBW	P1	P1/G1						Mw1 (-)/Jf1
153A	Storage	I1			P1	P1	P1	P1	G1						
153B	Office	Carpet			P1	P1	P1	P1	G1						Mw1 (1)/Jp1(1)
154	Classroom	I1			Wd	Wd	Wd	Wd	G3						
155	Classroom	I1			Wd	Wd	Wd	Wd	G3						Jf1
155A	Vestibule	I1			Wd	Wd	Wd	Wd	G3						
155B	Dark Room	I1			Wd	Wd	Wd	Wd	G3						
155C	Dark Room	I1			Wd	Wd	Wd	Wd	G3						

Peak Environmental Ltd.

250-862-0971 / 1-877-518-PEAK (7325) Toll Free



ROOM BY ROOM INVENTORY

Building Name: Mount Baker Secondary School

Date: 09-09-2016

mm/dd/yyyy

ANCILLARY INFORMATION

Application quantities are shown in Brackets (50) - All applications are in good condition unless noted as ... (p) poor or (f) fair  
 present within the rooms listed herein, but not shown on this spreadsheet.  
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 (\*) - assumed applications room not accessible / (af)-concealed above fixed ceilings / (uc)-concealed beneath carpeting / (uw)-concealed beneath vinyl sheeting / (ul)-concealed beneath laminate flooring

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 present within the rooms listed herein, but not shown on this spreadsheet.

Room No.	Room Name	Top Visible Floor Layer	Second Floor Layer	Third Floor Layer	North Wall	East Wall	South Wall	West Wall	First Visible Ceiling	Second Ceiling	Third Ceiling	Mech. Piping	Pipe Fitting	Mech. Ducting	Other			
																Building Material	Identification Codes	K - Equipment Gasketing
		D - Cement Parging	G - Ceiling Panel	H - Vinyl Floor Tile	J - Cement Board	Jf - Asbestos Furnishings	Kp - Pipe Gasketing	L - Incandescent Light Pad	M - Mastic Glue / Sealant	O - Floor Leveling Cement	P - Drywall Tape Comp.	R - Refractory Cement	Ss - Exterior Soffit Stucco	T - Bldg Thermal Insulation	V - Vermiculite Wall	Va - Vermiculite Attic	W - Woven Textile	X - Fire Doors
170B	Foundry	Conc			CBW	J3	CBW	J3	J3									
170C	Welding Shop	Conc			J3	J3	CBW	CBW	J3					M1				
170D	Welding Shop	Conc			J3	J3	J3	J3	J3					M1				
171	Office	Hwd			Wd	Wd	Wd	Wd	G3							Mw1(2)		
172	Storage	Hwd			Wd	Wd	Wd	Wd	Wd					M1				
173	Cafeteria	I1			Wd	Wd	Wd	Wd	Pl1				B1	M1		Jf1/ Mw1(6)		
174	Kitchen	I1			P1	P1	P1	Wd	P1				C1(4L)					
175	Office	I1			Wd	P1	P1	P1	P1									
176	Closet	Carpet			P1	P1	P1	P1	-									
177	Washroom	Ceramic			Wd	P1	P1	P1	P1									
177A	Vestibule	I1			P1	P1	P1	P1	P1									
178	Washroom	Ceramic			P1	P1	P1	P1	P1									
179	Washroom	Ceramic			P1	P1	P1	P1	P1									
179A	Vestibule	I1			P1	P1	P1	P1	P1									
179B	Custodial	I1			P1	P1	P1	P1	P1									
180	Corridor	I1			P2	CBW	P2	P2	G1/G4	P2		B1(at)				Mw4(15)		
180A	Vestibule	I1			P2	P2	P2	P2	G1/G4									
181	Gym	Hwd			CBW	CBW	CBW	CBW	A3 / M5 on Q-Deck									
182	Gym Storage	Conc			CBW	P2	CBW	P2	P2									

ROOM BY ROOM INVENTORY

Building Name: Mount Baker Secondary School  
 Date: 09-09-2016  
 mm/dd/yyyy

ANCILLARY INFORMATION

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**BUILDING MATERIAL IDENTIFICATION CODES**  
 A - Texture Coating D - Cement Parging G - Ceiling Panel J - Cement Board K - Equipment Gasketing N - Pipe Roving/Packing Qs - Roofing Shingle U - Friction Materials  
 Ac - Acoustic Insulation E - Exhaust Breaching H - Vinyl Floor Tile Jf - Asbestos Furnishings Lp - Paper Backed Flooring M - Mastic Glue / Sealant Mw - Window Ruffy O - Floor Leveling Cement R - Refractory Cement Ss - Exterior Wall Stucco V - Vermiculite Wall  
 Af - Spray-Applied Fireproofing F - Insulating Paper Wrap I - Vinyl Sheet Flooring Jp - Cement Pipe Jw - Cement Board Window Panel Kp - Pipe Gasketing O - Dryw all Tape Comp. P - Plaster Qf - Roofing Felt P - Dryw all Tape Comp. R - Exterior Wall Stucco Va - Vermiculite Attic  
 B - Pipe Insulation Fj - Insulating Paper Joint Ip - Insulated Duct Boot Jw - Cement Board Window Panel M - Mastic Glue / Sealant Mw - Window Ruffy O - Dryw all Tape Comp. P - Plaster Qf - Roofing Felt P - Dryw all Tape Comp. R - Exterior Wall Stucco Ss - Exterior Wall Stucco W - Woven Textile  
 C - Cement Pipe Fitting Fb - Insulated Duct Boot Ip - Insulated Duct Boot Jw - Cement Board Window Panel Kp - Pipe Gasketing O - Dryw all Tape Comp. P - Plaster Qf - Roofing Felt P - Dryw all Tape Comp. R - Exterior Wall Stucco Ss - Exterior Wall Stucco W - Woven Textile X - Fire Doors

Room No.	Room Name	Top Visible Floor Layer	Second Floor Layer	Third Floor Layer	North Wall	East Wall	South Wall	West Wall	First Visible Ceiling	Second Ceiling	Third Ceiling	Mech. Piping	Pipe Fitting	Mech. Ducting	Other
182A	Closet	Conc			P2	P2	CBW	P2	P2						
183	Change Room	Conc/ Ceramic			CBW/P2	P2	CBW/P2	P2	P2				C1(1)		
184	PE Office	I1			P2	P2	CBW	P2	P2						
185	PE Office	I1			P2	P2	CBW	P2	P2						
185A	Shower Room	Conc			P2	P2	P2	P2	P2						
186	Change Room	Conc/ Ceramic			CBW/P2	P2	CBW/P2	P2	P2/G1						
187	Gym Storage	Conc			CBW	P2	CBW	P2	P2						
187A	Storage	Conc			P2	P2	P2	P2	P2						
188	Storage	Conc			P2	CBW	P2	P2	P2					B1	
189	Corridor	I1			P2	P2	P2	P2	G1	P2					Mw4(6)
189A	Storage	Conc			P2	P2	P2	P2	P2						
190	Stairwell	I1			CBW	P2	CBW	CBW	P2						
191	Weight Room	I1/Rubber			CBW/P2	CBW/P2	Wd	CBW/P2	A3 / M5 on G-Deck						
192	Mechanical Room	Conc			P2	CBW/P2	P2	CBW/P2	P2					B1	D1(1)
193	Electrical Room	Conc			P2	Wd	Wd	Wd	P2						
194	Change Room	I1			P2	P2	CBW	P2	P2						
195	Stairwell	I1			CBW	CBW	P2	P2	A3 / M5 on G-Deck						

ROOM BY ROOM INVENTORY

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																A - Texture Coating	D - Cement Parging	G - Ceiling Panel	J - Cement Board
	SECOND FLOOR																		
200	Corridor	I1			Wd	CBW	Wd	Wd/Glass	G1	G3				Mw1(2)					
201	Custodial	I1			Pl1	CBW	Pl1	Pl1	Pl1										
201A	Pipe Chase	Wd			Str	CBW	Str	Str	Str			N1		M2					
300	Attic Space	Str			Str	Str	Str	Str	Str					M1/M2	T1				
202	Washroom	I1			Wd/FRP/Pl1	Wd/FRP/Pl1	Wd/FRP/Pl1	Wd/FRP/Pl1	Pl1										
203	Corridor	I1			P1	P1	-	P1/Pl1	G1						Mw1(1)				
204	Classroom	I1			Wd	Wd	Wd	Wd	G4	Str					Mw1(2)/3				
205	Science Prep	I1			Wd	Wd	Wd	Wd	G4	Str					Mw1(1)				
206	Classroom	I1			Wd	Wd	Wd	Wd	G4	Str					Mw1(2)				
207	Storage	I1			Wd	P1	Wd	P1	G1										
208	Classroom	I1			Wd	Wd	Wd	Wd	Pl1										
209	Corridor	I1			Wd	Wd	-	Wd	G1										
210	Classroom	I1			Wd	Wd	Wd	Wd	G3										
211	Classroom	I1			Wd	Wd	Wd	Wd	G3										
212	Office	I1			Wd	Wd	Wd	Wd	G3										
213	Science Prep	I1			Wd	Wd	Wd	Wd	G1										
214	Classroom	I1			Wd	Wd	Wd	Wd	G1										
215	Classroom	I1			Wd	Wd	Wd	Wd	G1										

ROOM BY ROOM INVENTORY

Mount Baker Secondary School

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215A	Chemical Storage	I1			Wd	Wd	Wd	Wd	P11						
216	Vestibule	I1			Wd	Wd/PI1	PI1	Wd/PI1	P11					M1	
217	Washroom	I1			Wd/PI1	Wd/PI1	Wd/PI1	Wd/PI1	P11						
218	Conference Room	I1			Wd	PI1/Wd	Wd	Wd	P11						Mw1(6)
219	Vestibule	I1			P11	P11	P11	P11	P11			B1			
220	Washroom	I1			Wd/PI1	Wd/PI1	Wd/PI1	Wd/PI1	P11						
221	Copy Room	I1			Wd/PI1	Wd	Wd	Wd/PI1	P11					M1	Mw1(1)
222	Staff Room	I1			P1	P1	P1	P1	G1	Str					
223	Washroom	I1			PI1/FRP	PI1/FRP	PI1/FRP	PI1/FRP	P11						
223A	Pipe Chase	Wd			Str	Str	Str	Str	Str			B1/N1			
223B	Pipe Chase	Wd			Str	Str	Str	Str	Str			B1/N1		M3	
224	Classroom	I1			Wd	Wd	Wd	Wd	G1					M1	Mw1(3)/J2
225	Science Prep	I1			P3	Wd	Wd/PI3	P3	G1						Mw1(2)
226	Storage	I4			Wd	Wd	Wd	Wd	Wd						
227	Corridor	I1			Wd	Wd	-	Wd	G1						
228	Corridor	I1			Wd	Wd	-	Wd	G1						Mw1(12)
229	Custodial	I1			Wd	Wd	Wd	Wd	G3						
230	Classroom	I6			Wd	Wd	Wd	Wd	G3						Mw1(8)/Jf1
231	Classroom	I6			Wd	Wd	Wd	Wd	G3						Mw1(8)/Jf1

ROOM BY ROOM INVENTORY

Mount Baker Secondary School

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																Other	Other
BUILDING MATERIAL IDENTIFICATION CODES																	
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Ac - Acoustic Insulation		E - Exhaust Breaching		H - Vinyl Floor Tile		Jf - Asbestos Furnishings		Kp - Pipe Gasketing		O - Floor Leveling Cement		R - Refractory Cement		V - Vermiculite Wall			
Af - Spray-Applied Fireproofing		F - Insulating Paper Wrap		I - Vinyl Sheet Flooring		Jb - Cement Pipe		L - Incandescent Light Pad		P - Dryw all Tape Comp.		S - Exterior Wall Stucco		Va - Vermiculite Attic			
B - Pipe Insulation		Fj - Insulating Paper Joint		Ip - Paper Backed Flooring		Jw - Cement Board Window Panel		M - Mastic Glue / Sealant		Pl - Plaster		Ss - Exterior Soffit Stucco		W - Woven Textile			
C - Cement Pipe Fitting		Ib - Insulated Duct Boot						Iw - Window Ruffy		Qf - Roofing Felt		T - Bldg Thermal Insulation		X - Fire Doors			
232	Custodial	I1			Wd	Wd	Wd	Wd	Wd								
233	Washroom	I1			Pl1/FRP	Pl1/FRP	Pl1/FRP	Pl1/FRP	Pl1								
234	Classroom	I6			Wd	Wd	Wd	Wd	G3							Mw1(8)/Jf1	
235	Classroom	I6			Wd	Wd	Wd	Wd	G3							Mw1(8)/Jf1	
235A	Office	I6			Wd	Wd	Wd	Wd	G3							Mw1(2)	
235B	Storage	I6			Wd	Wd	Wd	Wd	G3					M2		Mw1(2)	
236	Washroom	I1			Pl1	Pl1	Pl1	Pl1	Pl1							Mw1(1)	
237	Classroom	I1			Wd	Wd	Wd	Wd	G6							Mw1(6)/Jf1	
237A	Office	I1			Wd	Wd	Wd	Wd	G6							Mw1(2)	
238	Classroom	I1			Wd	Wd	Wd	Wd	G6							Mw1(8)/Jf1	
239	Art Room	I1			Wd	Wd	Wd	Wd	G3							Mw1(9)/Jf1	
240	Office	I1			Wd	Wd	Wd	Wd	G6							Mw1(2)	



**BUILDING CONSTRUCTION  
SURVEY INFORMATION SHEET**

SURVEY INFORMATION							
Surveyor:	SF/BK	Date:	09/09-11/2016	Building:	Mount Baker Secondary		
Survey Type:	<input type="checkbox"/> Full Hazmat	<input type="checkbox"/> Limited Scope	<input type="checkbox"/> Pre-Demo	<input type="checkbox"/> Pre-Reno	<input type="checkbox"/> Pre-Purchase	<input checked="" type="checkbox"/> Inventory Only	
Details:	<input type="checkbox"/> Floors Cored	<input checked="" type="checkbox"/> Walls Cored	<input checked="" type="checkbox"/> Carpet Lifted	<input checked="" type="checkbox"/> Drawings	<input type="checkbox"/> Bldg Vacant	<input checked="" type="checkbox"/> Bldg Occupied	

BUILDING INFORMATION							
Construction:	<input checked="" type="checkbox"/> 1950's	Date	<input type="checkbox"/> Ft <sup>2</sup> / M <sup>2</sup>	<input checked="" type="checkbox"/> Wood Frame	<input checked="" type="checkbox"/> Brick / Block	<input type="checkbox"/> Steel Stud	<input type="checkbox"/> CIP Concrete
	<input type="checkbox"/> 2	Stories	<input checked="" type="checkbox"/> Crawlspace Full	<input type="checkbox"/> C/sp Partial	<input type="checkbox"/> Basement Full	<input checked="" type="checkbox"/> Bsmet Partial	<input type="checkbox"/> Attic Space
Additions(s)	<input checked="" type="checkbox"/> Observed	<input type="checkbox"/> Reported	1960/80's	Date	<input type="checkbox"/> Renovated (yes)	<input checked="" type="checkbox"/> Renovated (No)	
Roofing:	<input type="checkbox"/> Shingle	<input checked="" type="checkbox"/> Tar and Gravel	<input checked="" type="checkbox"/> Torch-on	<input type="checkbox"/> Metal	<input type="checkbox"/> Concrete	<input type="checkbox"/> Other Non-Asb	
Exterior:	<input checked="" type="checkbox"/> Wood	<input type="checkbox"/> Metal/Vinyl	<input type="checkbox"/> Concrete	<input checked="" type="checkbox"/> Stucco	<input checked="" type="checkbox"/> Masonry	<input type="checkbox"/> Other Non-Asb	
Exterior Panels	<input checked="" type="checkbox"/> Wood	<input type="checkbox"/> Metal/Vinyl	<input type="checkbox"/> Concrete	<input type="checkbox"/> Stucco	<input type="checkbox"/> Other Non-Asb		
Window Frames	<input checked="" type="checkbox"/> Putty	<input checked="" type="checkbox"/> Glazing	<input type="checkbox"/> Rubber	<input checked="" type="checkbox"/> Caulking	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	
Interior:	<input checked="" type="checkbox"/> Wood	<input checked="" type="checkbox"/> Plaster	<input checked="" type="checkbox"/> Drywall	<input type="checkbox"/> Covered D/W	<input type="checkbox"/> Concrete	<input type="checkbox"/> Other Non-Asb	
Interior Ceilings:	<input checked="" type="checkbox"/> Wood	<input checked="" type="checkbox"/> Plaster	<input checked="" type="checkbox"/> Drywall	<input checked="" type="checkbox"/> T-Bar	<input checked="" type="checkbox"/> Concrete	<input checked="" type="checkbox"/> Exposed Str	
Heating:	<input checked="" type="checkbox"/> Hot Water	<input type="checkbox"/> Wood	<input type="checkbox"/> Furnace	<input type="checkbox"/> Roof Top	<input type="checkbox"/> Electric	<input type="checkbox"/> Other Non-Asb	
Heat Distribution:	<input checked="" type="checkbox"/> Radiant	<input checked="" type="checkbox"/> Ducted	<input type="checkbox"/> Baseboard	<input type="checkbox"/> Other Non-Asb			
Thermal Insulation:	<input type="checkbox"/> Vermiculite	<input checked="" type="checkbox"/> Fiberglass	<input checked="" type="checkbox"/> Rock Wool	<input type="checkbox"/> Cellulose	<input type="checkbox"/> Wood Chip	<input type="checkbox"/> Other Non-Asb	

MECHANICAL INSULATION							
Ducting:	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Cork	<input checked="" type="checkbox"/> Fiberglass	<input type="checkbox"/> Rock Wool	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Other Non-Asb	
Duct Joints:	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Asbestos Tape	<input type="checkbox"/> Vinyl Tape	<input checked="" type="checkbox"/> Joint Sealant	<input type="checkbox"/> Foil Tape	<input type="checkbox"/> Other Non-Asb	
Water Piping:	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Fiberglass	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Cork	<input type="checkbox"/> Foam	<input type="checkbox"/> Other Non-Asb	
Pipe Fittings:	<input type="checkbox"/> None	<input type="checkbox"/> Cement (exposed)	<input type="checkbox"/> Cement (con)	<input checked="" type="checkbox"/> Fiberglass	<input checked="" type="checkbox"/> PVC	<input checked="" type="checkbox"/> Other Non-Asb	
Rain Water Leader:	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Cast Iron	<input type="checkbox"/> Copper	<input type="checkbox"/> Asbestos Pipe	<input type="checkbox"/> Plastic	<input type="checkbox"/> Other Non-Asb	
Roof Drain Bowls:	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Fiberglass	<input type="checkbox"/> Asbestos	<input type="checkbox"/> Other Non-Asb			
Sanitary:	<input checked="" type="checkbox"/> Plastic	<input type="checkbox"/> Copper	<input checked="" type="checkbox"/> Cast Iron	<input checked="" type="checkbox"/> Asbestos Pipe	<input type="checkbox"/> Other Non-Asb		

POTENTIAL ASBESTOS APPLICATIONS							
Internal Boiler or tank Insulation	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present	Glues (ceiling tile, floor)	<input type="checkbox"/> Assessed	<input checked="" type="checkbox"/> Potential	<input type="checkbox"/> Not Present
Block, Brick or Tile Mortar	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present	Vermiculite Insulated Wall	<input type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input checked="" type="checkbox"/> Not Present
Internal Chimney Liner	<input type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input checked="" type="checkbox"/> Not Present	Vermiculite Insulated Attic	<input type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input checked="" type="checkbox"/> Not Present
Electrical Insulation	<input type="checkbox"/> Assessed	<input checked="" type="checkbox"/> Potential	<input type="checkbox"/> Not Present	Window Putty	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present
Floor Leveling Compound	<input type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input checked="" type="checkbox"/> Not Present	HVAC Duct Mastic	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present
Fire Doors	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present	Pipe Flange Gaskets	<input type="checkbox"/> Assessed	<input checked="" type="checkbox"/> Potential	<input type="checkbox"/> Not Present
Roofing Materials	<input type="checkbox"/> Assessed	<input checked="" type="checkbox"/> Potential	<input type="checkbox"/> Not Present	Sanitary Piping	<input checked="" type="checkbox"/> Assessed	<input type="checkbox"/> Potential	<input type="checkbox"/> Not Present



**SURVEYOR COMMENTS**

NON-ACCESSIBLE ROOMS / AREAS:

ASBESTOS OR AREAS OF CONCERN:

GENERAL COMMENTS:

Peak Environmental Ltd.  
250-862-0971 / 1-877-518-PEAK (Toll Free)

## **APPENDIX F**

# **SITE PHOTOGRAPHS**



Picture No. 1: Non asbestos ceiling tiles



Picture No. 2: Non asbestos ceiling texture



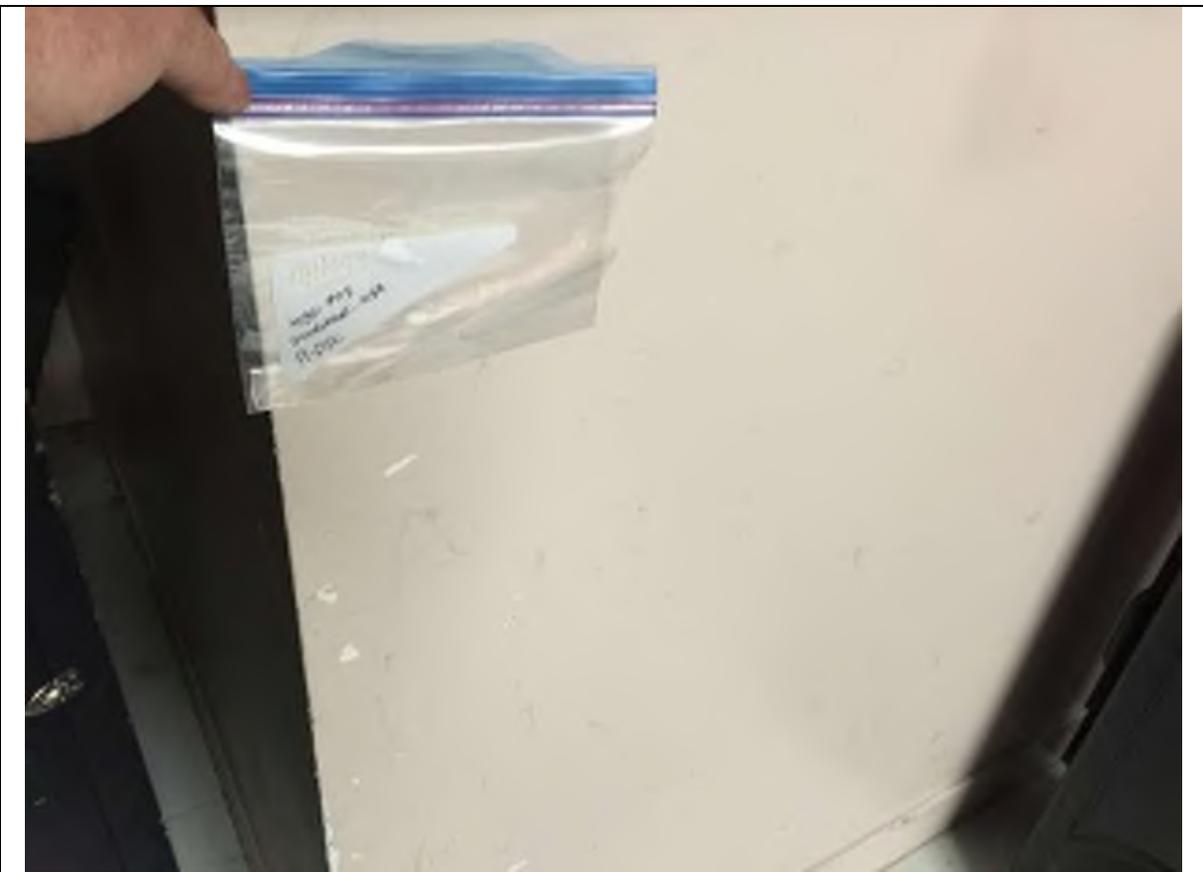
Picture No. 3: *Asbestos containing window putty (Mw1)*



Picture No. 4: Non asbestos texture (A2)



Picture No. 5: Non asbestos vinyl floor sheeting (I1)



Picture No. 6: Non asbestos drywall taping compound (P1)



Picture No. 7: Non asbestos vinyl floor tiles (H1)



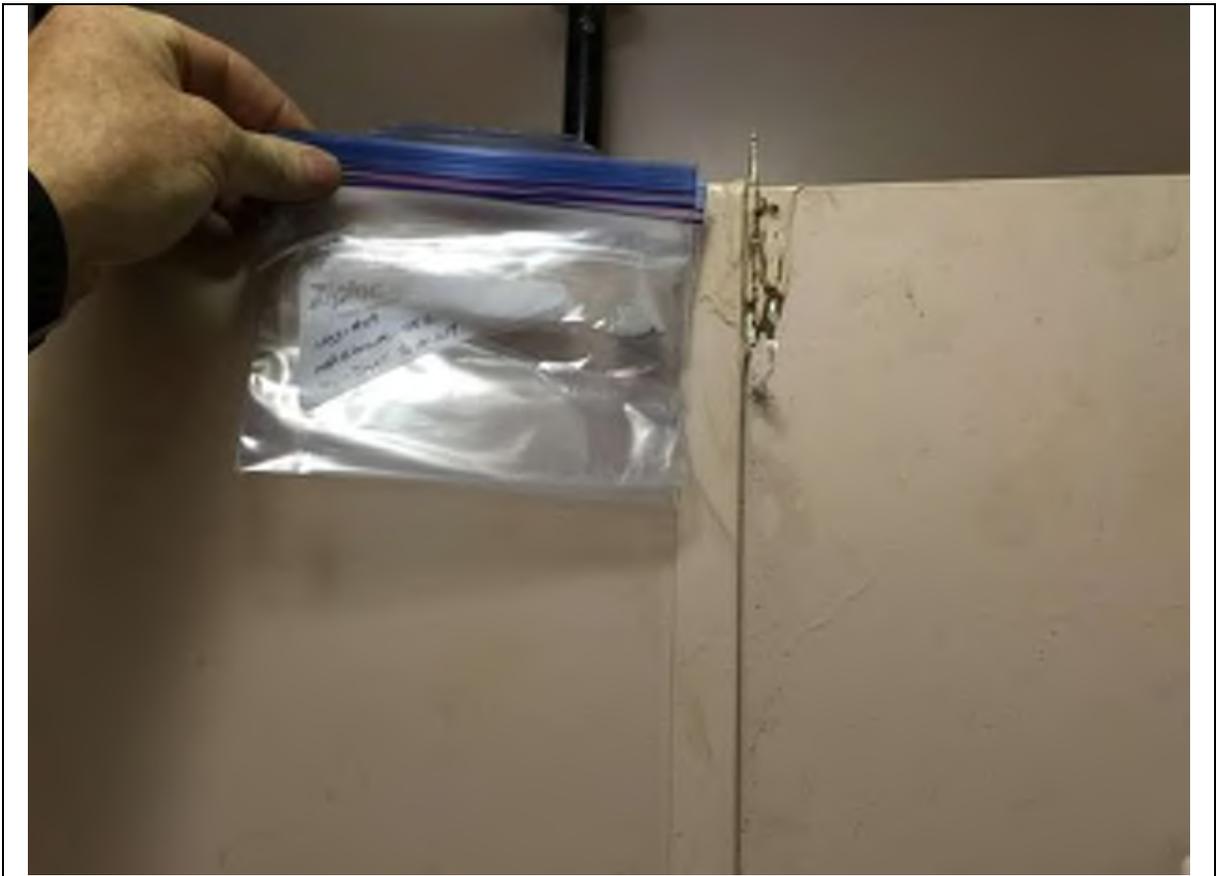
Picture No. 8: Non asbestos ceiling tile (G2)



Picture No. 9: Non asbestos vinyl floor tiles (H2)



Picture No. 10: Non asbestos leveling compound beneath floor tiles (O1)



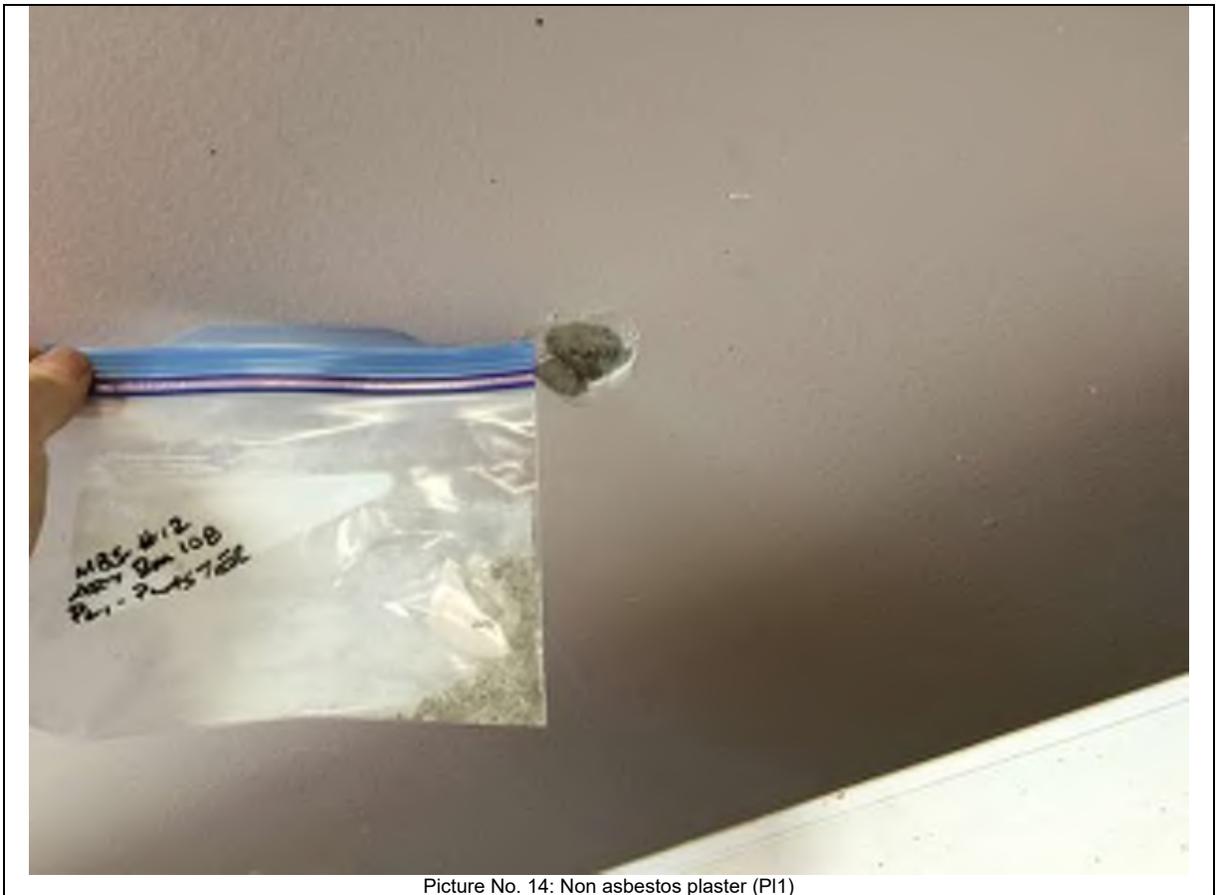
Picture No. 11: Non asbestos mastic on ducting (M1)



Picture No. 12: Non asbestos vinyl floor tiles (H3)



Picture No. 13: Cement asbestos board in radiators (J2)



Picture No. 14: Non asbestos plaster (PI1)



Picture No. 15: Non asbestos ceiling tile (G3)



Picture No. 16: *Asbestos furnishing (Jf1)*



Picture No. 17: Non asbestos vinyl floor sheeting (I2)



Picture No. 18: Non asbestos vinyl floor sheeting (I3)



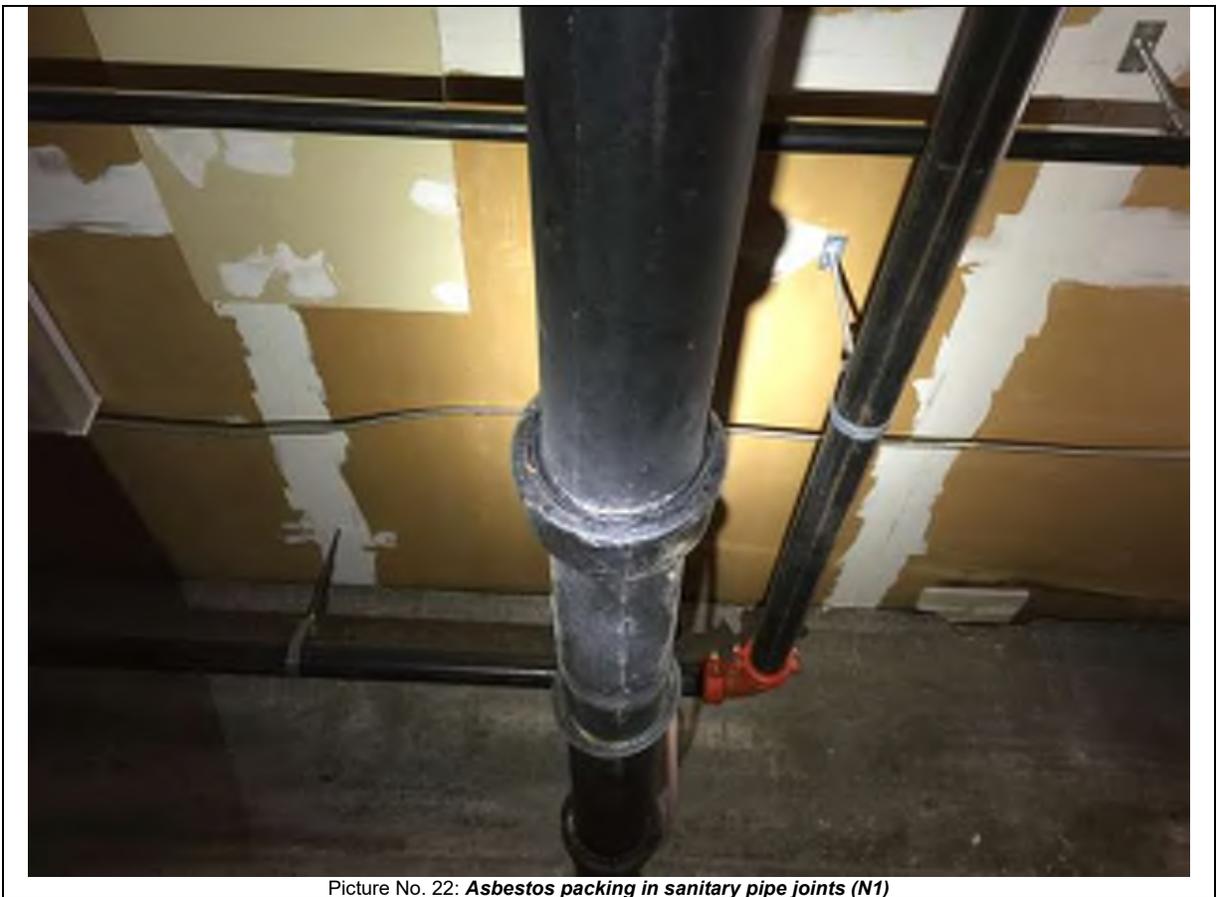
Picture No. 19: Non asbestos ceiling tiles (G3/G4)



Picture No. 20: **Asbestos containing vinyl floor tiles (H4)**



Picture No. 21: Non asbestos vinyl floor sheeting (I4)



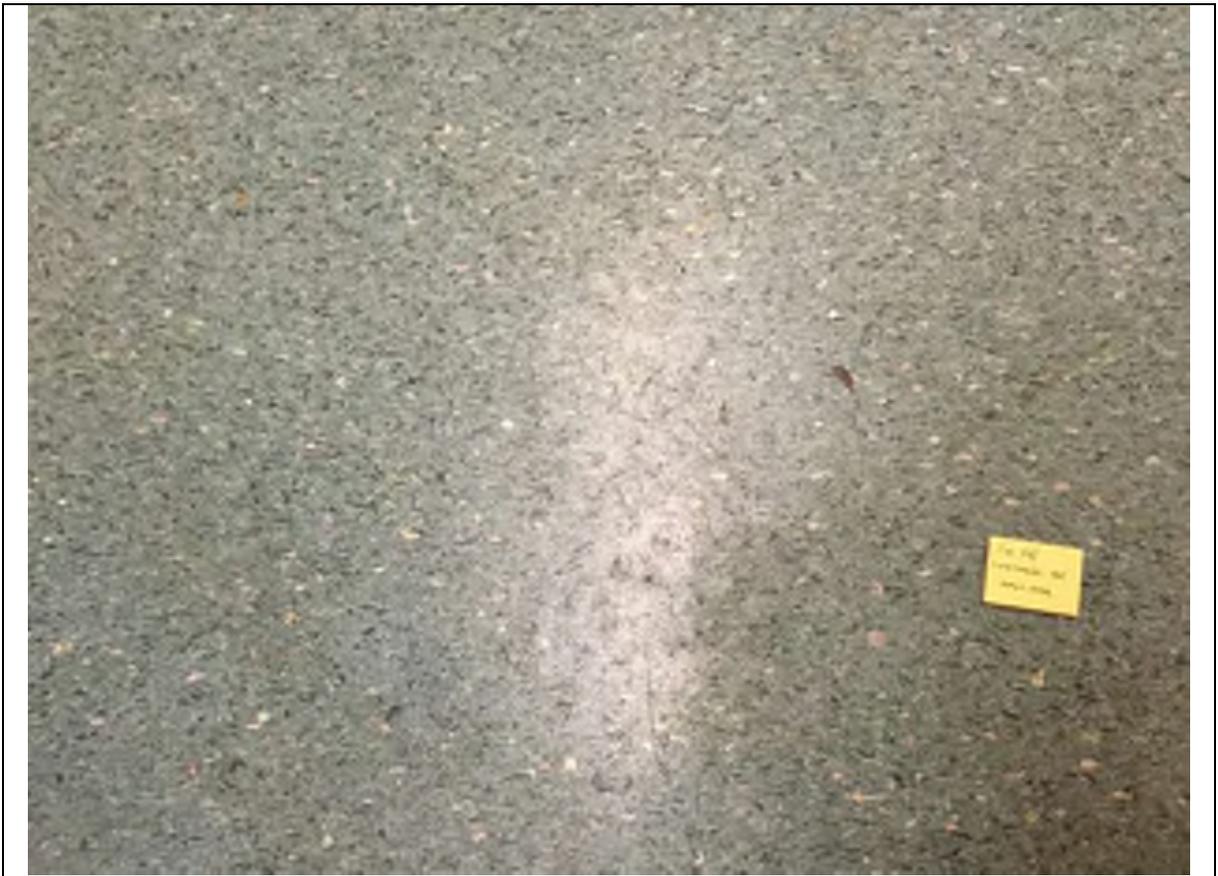
Picture No. 22: *Asbestos packing in sanitary pipe joints (N1)*



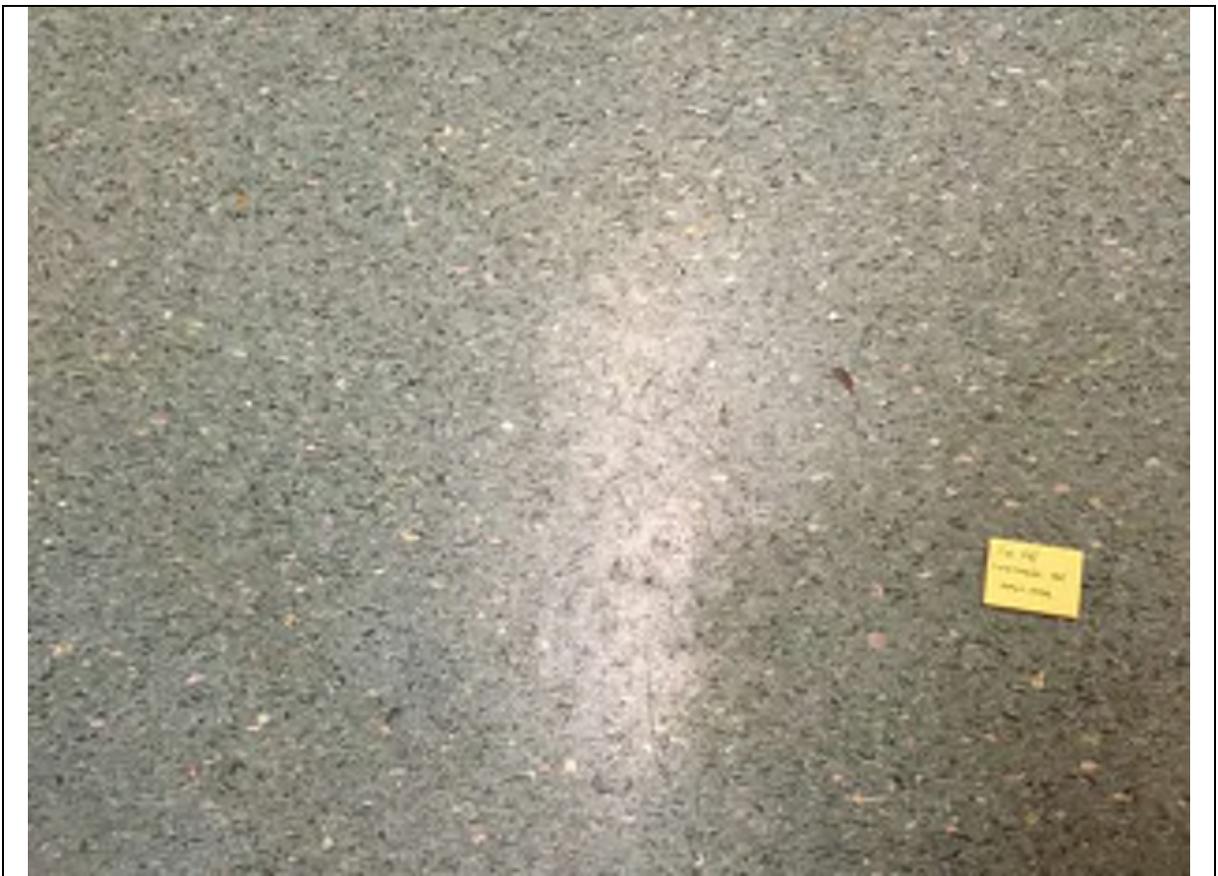
Picture No. 23: Non asbestos vinyl floor sheeting (I5)



Picture No. 24: Non asbestos vinyl floor sheeting (I6)



Picture No. 25: Non asbestos vinyl floor sheeting (I7)



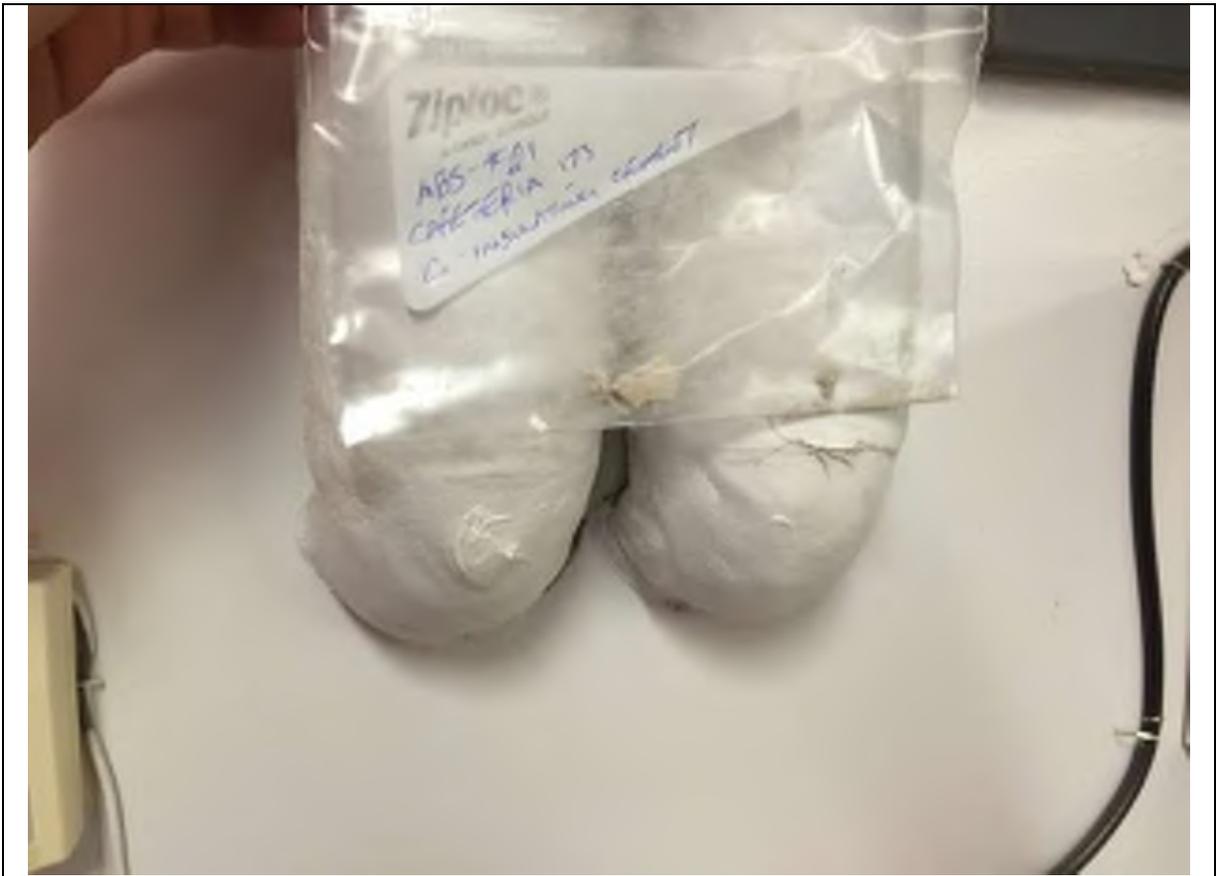
Picture No. 26: Non asbestos vinyl floor sheeting (I8)



Picture No. 27: **Asbestos containing paper backed vinyl floor sheeting (lp1)**



Picture No. 28: **Suspect asbestos stucco applications (S1/S2)**



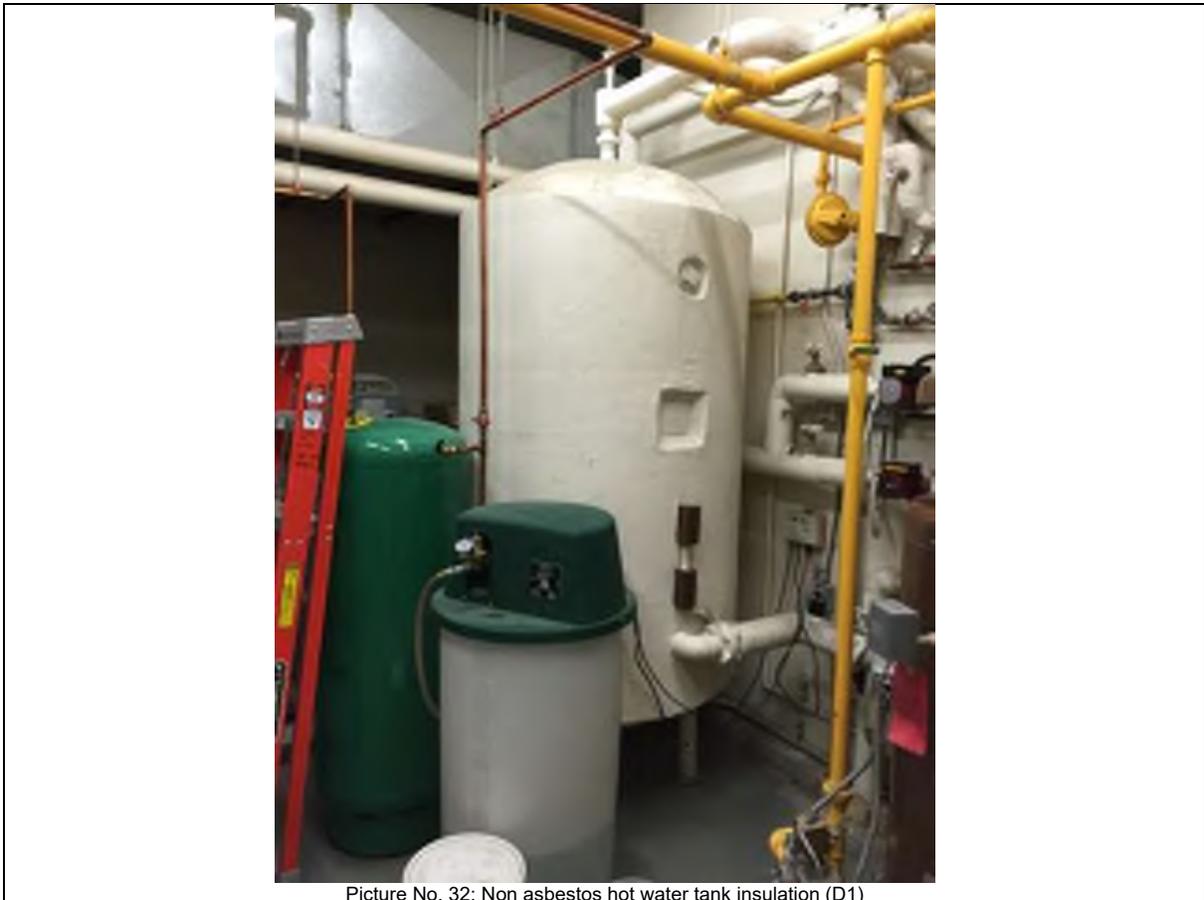
Picture No. 29: Non asbestos pipe fittings (C1)



Picture No. 30: Suspect asbestos mastic on acoustic insulation (M5)



Picture No. 31: *Potential for asbestos pipe flange gaskets*



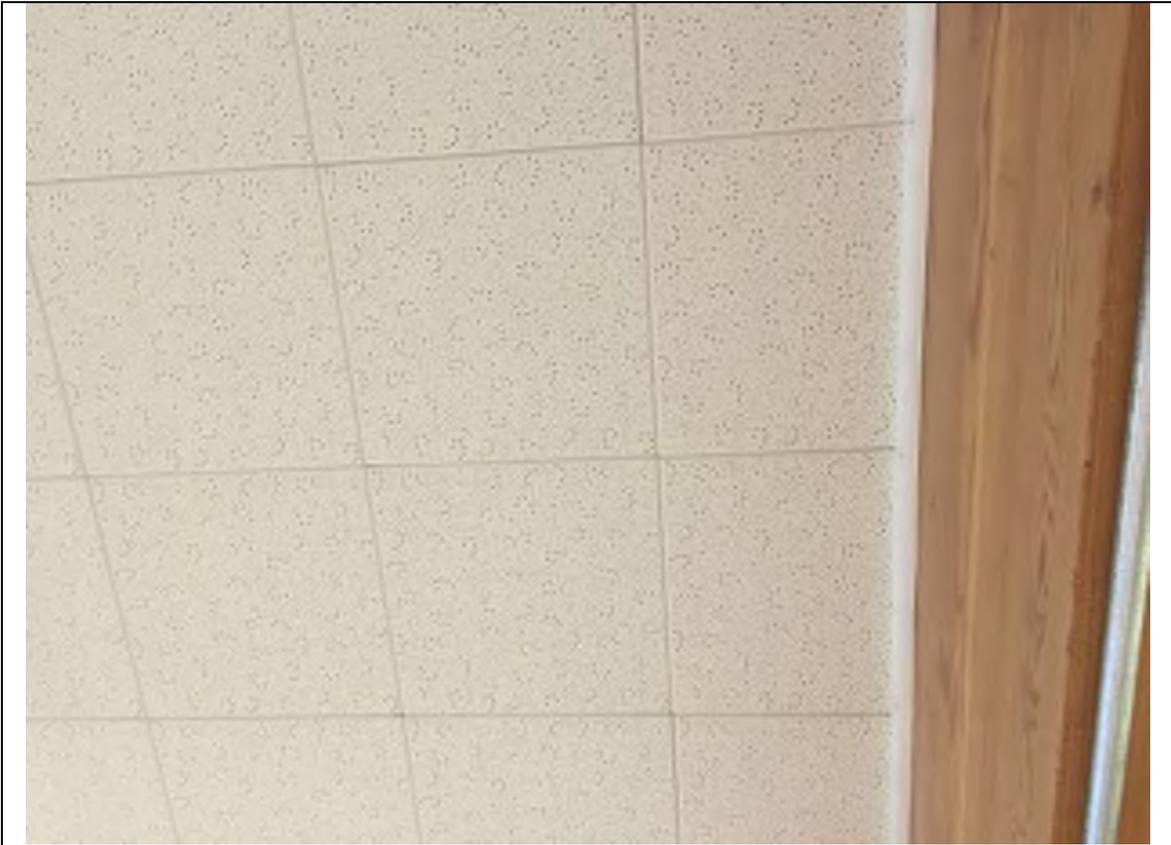
Picture No. 32: *Non asbestos hot water tank insulation (D1)*



Picture No. 33: Non asbestos duct mastic (M2)



Picture No. 34: Asbestos containing mechanical duct mastic (M3)



Picture No. 35: *Suspect asbestos mastic on glued up ceiling tiles (M6)*



Picture No. 36: *Fire door with asbestos core (X1)*



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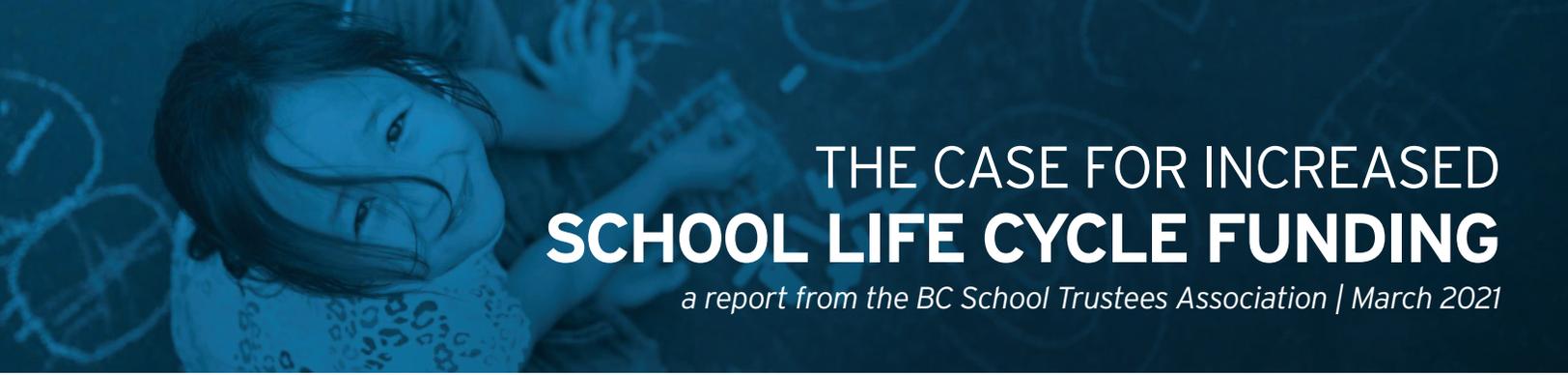
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# Appendix N Report provided by BC School Trustees Association

## N.1 The Case for Increased School Life Cycle Funding



# THE CASE FOR INCREASED SCHOOL LIFE CYCLE FUNDING

*a report from the BC School Trustees Association | March 2021*

## Introduction

Life cycle maintenance refers to the work which must be completed over the “life” of a building to ensure it remains in peak operating condition. A roof may need to be replaced a few times over the typical 50 to 60 year life of a public school building, as will mechanical and electrical systems. Structural and building envelope upgrading may also be required. This is not an exhaustive list but serves to provide examples of the type of work included in life cycle maintenance.

By all accounts B.C. schools suffer from an ever-increasing level of deferred life cycle maintenance. Several measures of this situation are offered in the following pages. One critical measure suggests the shortfall in 2020 needed to address deferred maintenance in the public school system is \$237M (see Figure 1, page 3).

The intent of this paper is to define the problem and make recommendations for consideration by government to correct the shortfall.

The context of these recommendations is also worthy of consideration given the need for economic recovery following the COVID-19 pandemic and the potential for significant infrastructure investments to fuel that recovery.

Premier Horgan’s November 2020 mandate letter to Minister of Education Jennifer Whiteside offers additional context. The letter directs the minister to “continue to invest in new and modernized schools, including focussing on meeting seismic requirements and climate change and energy efficiency standards as set out in our Clean BC plan.”

In 2020 the routine capital program funded by the provincial government for schools totaled \$204M. By comparison the estimated cost of repairs and maintenance recommended by building system engineers engaged by the Ministry was more than double that amount at \$441M.

# Summary of Recommendations

1. That a building life cycle plan be developed for each new public school facility at the time of construction including an indication of the annual contributions necessary to fully implement the plan over time.
2. That the Annual Facilities Grant (currently \$115M) be increased by:
  - a. inflation (currently roughly 2%), plus
  - b. an amount equivalent to the annual contribution necessary to implement the detailed life cycle plan for new buildings (roughly 3%) and
  - c. a minimum of 15% for “catch up” each year amounting to a minimum of \$139.5M in 2021/22, \$168.5M in 2022/23, \$203.6M in 2023/24, \$246M in 2024/25, etc., noting that annual increases should continue until the recommended deferred maintenance costs can be covered.
3. That School Enhancement Program funding (currently \$64M) be increased by:
  - a. inflation (currently roughly 2%) and
  - b. a minimum of 15% for “catch up” each year amounting to a minimum of \$75M in 2021/22, \$88M in 2022/23, \$103.2M in 2023/24 and \$121M in 2024/25, etc., noting that annual increases should continue until the recommended immediate deferred maintenance costs can be covered and
4. That the Carbon Neutral Capital program be increased a minimum of 100% in 2021/22 and 10% per year thereafter amounting to \$33.4M in 2021/22, \$36.74M in 2022/23, \$40.41M in 2023/24 and \$44.45M in 2024/25.
5. That the provincial government carry out the required research to identify appropriate technologies and determine the funding required to achieve provincial government energy conservation objectives for existing public buildings outlined in the Clean BC program; and further, that the provincial government work with the federal government to provide the necessary funding to achieve those objectives.
6. That the need for more up-to-date learning environments to support student success and the level of accumulated deferred maintenance both be given greater consideration in the decision-making process about whether to complete major renovations or replace school buildings as they approach the end of their useful life.
7. That a review of the process to determine the Facility Condition Index be undertaken by the Ministry of Education in concert with school district Directors of Facilities and Maintenance to ensure accuracy incorporating more frequent local updates.
8. That a review of the Building Envelope Program be completed by the Ministries of Education and BC Housing in concert with school district Directors of Facilities and Maintenance to ensure adequate funding is available to finally complete all building envelope repairs that stemmed from the “leaky condo” era.
9. That all of the additional funding identified as being required in this paper be provided beyond the current Ministry of Education funding envelope.

# Background

## Deferred Maintenance

Figure 1 (below) identifies historic routine capital program allocations, deferred maintenance recommended within 1 year, deferred maintenance recommended within 5 years, and the change in the average provincial facility condition index (FCI) of school facility assets.

The listed capital programs in Figure 1 include the Annual Facilities Grant (AFG), the Carbon Neutral Capital Program (CNCP), the School Enhancement Program (SEP) and the Building Envelope Program (BEP) all of which contribute to addressing facility life cycle maintenance requirements. It will be noted Figure 1 captures a long term trend toward poorer conditions in school buildings, along with a growing estimate of unfunded immediate deferred maintenance costs (a \$237M shortfall in 2020).

If the trend toward a worse average facility condition index were to continue at a certain point the province would experience a crisis of needing to replace many school buildings all at once. That may not occur for several years, however, the trend is definitely of concern. The FCI descriptor on page four of this paper and the current average FCI rating of 0.47 suggest many school buildings must already be in the poor or very poor rating category.

We have based all of our analysis on data obtained from the Ministry of Education. It has been identified by some districts that more detailed and frequent analysis is needed on the process of assessing school buildings and that the analysis should involve school district staff involved in facility maintenance, to ensure the FCI is accurate and up to date. As a consequence we have made a recommendation for such a review to be completed at the earliest opportunity.

Fiscal Year	EDUC Routine Capital Program Allocations (AFG, BEP, CNCP, SEP) plus AFG operating	Immediate Deferred Maintenance (Cost of repairs and upgrades required within 1 year) n.i.c. closed schools	Total Deferred Maintenance (Cost of repairs and upgrades required within 5 years) n.i.c. closed schools	Average Provincial Facility Condition Index (FCI) for Total Asset Inventory
2020/21	\$204M	\$441M	\$7.05B	0.47
2019/20	\$192M	\$491M	\$6.95B	0.44
2018/19	\$193M	\$396M	\$6.70B	0.43
2017/18	\$195M	\$343M	\$6.28B	0.43
2016/17	\$174M	\$332M	\$6.26B	0.42
2015/16	\$152M	\$305M	\$6.09B	0.42
2014/15	\$98M	\$296M	\$5.98B	0.41
2013/14	\$98M	\$254M	\$5.41B	0.38
2012/13	\$96M	\$236M	\$5.38B	0.37

Figure 1 - Source: Ministry of Education

## Facility Condition Index

The BC Ministry of Education has established a Capital Asset Management System (CAMS) for all schools in the province and has contracted with VFA Inc. to conduct facility condition audits.

The purpose of the facility condition audit is to determine the equivalent age and condition of each school building. The condition includes structural, architectural, mechanical, electrical, plumbing, fire protection, equipment and furnishings and life safety. An audit of site conditions is also included.

The audit determines what resources will be required over the coming years to maintain or replace aging facilities. Each school is given a rating called the Facility Condition Index (FCI). This is a comparative index that allows the Ministry to rank each school against all others in the province and is expressed as a decimal percentage of the cost to remediate maintenance deficiencies divided by the current replacement value (i.e. 0.26).

According to VFA Inc., FCI ratings have the following meanings:

### 0.00 to 0.05 - Excellent

Near new condition.  
Meets present and foreseeable future requirements.

### 0.05 to 0.15 - Good

Good condition. Meets all present requirements.

### 0.15 to 0.30 - Average

Has significant deficiencies, but meets minimum requirements. Some significant building system components nearing the end of their normal life cycle.

### 0.30 to 0.60 - Poor

Does not meet requirements. Immediate attention required to some significant building systems. Some significant building systems at the end of their life cycle. Parts may no longer be in stock or very difficult to obtain. High risk of failure of some systems.

### 0.60 and above - Very Poor

Does not meet requirements. Immediate attention required to most of the significant building systems. Most building systems at the end of their life cycle. Parts may no longer be in stock or very difficult to obtain. High risk of failure of some systems.

*The FCI is a significant factor the Ministry of Education uses to determine funding priorities for rejuvenation or replacement projects. Generally, a school will not be considered for replacement unless the FCI is close to 0.60 or above.*

## How Deferred Maintenance is Calculated

In Figure 1 immediate deferred maintenance refers to those projects which are recommended by the engineering firm engaged by MOE to complete facility condition assessments each year. While the projects included in those recommendations do not necessarily involve building systems that will fail in the next year, preventive maintenance is always better than reactive or crisis maintenance. Building systems need to be properly maintained before they fail.

Building condition assessments are completed by engineers who are specialists in this field. They rely upon their knowledge of building systems to know where the sweet spot is.....that place where an ounce of prevention avoids a pound of cure and where replacement is more cost effective than constant repairs. Deferred maintenance reflects the work these specialists indicate should be done which has not been done as a result of inadequate funding. It is appropriately a requirement of government that building condition assessments are completed so government can direct limited funding to the areas of greatest need. We commend government for that, however, identifying and not addressing other maintenance requirements must still be considered a shortfall.

## Capital Maintenance Project Requests/ Allocations

Figure 2 (below) documents shortfalls in each of several capital programs over the past five years.

The number of projects and funding for requests beyond the actual number of projects and funding provided by the ministry are reported for

- the Carbon Neutral Capital Program (CNCP),
- the School Enhancement Program (SEP),
- the Bus Acquisition Program (BUS) and
- the Playground Equipment Program (PEP).

All of these programs indicate the inadequacy of current levels of funding. Full program descriptions are available [here](#).

Unlike other programs listed in Figure 2, the Annual Facilities Grant is based on what is provided to districts by formula. Districts seek approval from the ministry on how they intend to use their AFG allocation. The best indication of an AFG shortfall is that provided in Figure 1. Figure 3 (page 5) provides another indication of less than adequate AFG funding.

The Building Envelope Program (BEP) identified in Figure 1 is not listed in Figure 2. We are advised the annual funding provided for this program amounts to approximately \$10M each year and is intended to address building envelope issues arising during the “leaky condo” years and will be phased out over time as they are addressed. Some additional funding for this purpose has been provided through litigation. We are advised by some districts relying on this funding that it is inadequate and, therefore, we are making a recommendation that the program be reviewed by the Ministry of Education and BC Housing Authority in concert with affected school districts and appropriately funded to address outstanding projects.

### Figure 2 - Source: Ministry of Education

#### 2020/21

AFG	2993 projects submitted in district spending plans, \$113.5M total allocated
BUS	165 project requests valued at \$24.2M. 101 projects approved for \$14.6M.
CNCP	124 project requests valued at \$40M. 67 projects approved for \$16.7M.
PEP	137 projects requests valued at \$12M. 40 projects approved for \$5M.
SEP	413 project requests valued at \$207.8M, 164 projects approved for \$64M

#### 2019/20

AFG	2768 projects submitted in district spending plans, \$113.5M total allocated
BUS	148 project requests valued at \$21.8M. 87 projects approved for \$12.8M.
CNCP	112 project requests valued at \$36.3M. 19 projects approved for \$5M.
PEP	146 requests valued at \$14M. 50 projects approved for \$5M.
SEP	431 requests valued at \$219.5M. 138 projects approved for \$65M.

#### 2018/19

AFG	2605 projects submitted in district spending plans, \$113.5M total allocate
BUS	123 project requests valued at \$16.M. 93 projects approved for \$13M.
CNCP	90 project requests valued at \$26.5M. 19 projects approved for \$5M.
PEP	158 project requests valued at \$15M. 51 projects approved for \$5M.
SEP	415 project requests valued at \$145M. 175 projects approved for \$65M.

#### 2017/18

AFG	2704 projects submitted in district spending plans, \$108.5M total allocated
BUS	134 project requests valued at \$16.2M. 73 projects approved for \$10M.
CNCP	91 project requests valued at \$30.6M. 15 projects approved for \$5M.
SEP	346 project requests valued at \$167M. 130 projects approved for \$55M.

#### 2016/17

AFG	2123 projects submitted in district spending plans, \$108.5M total allocated
BUS	126 project requests valued at \$16M. 73 projects approved for \$10.8M.
CNCP	85 project requests valued at \$22.2M. 25 projects approved for \$5M.
SEP	462 project requests valued at \$277.3M. 146 projects approved for \$70M.

## Annual Facility Grant

Figure 3 tracks changes in the Annual Facilities Grant since 2002 indicating increases in that specific area of funding have risen by far less than inflation even though capital costs have risen significantly during that same period.

Given the shortfalls noted earlier we have recommended increases to the AFG program which are considerably greater than inflation beyond 2021/22. These increases and those recommended to other education routine capital programs are required to address the growing levels of deferred maintenance identified in Figure 1.

The result of underfunding public school life cycle funding is that many BC schools suffer from poor life cycle maintenance, looking and feeling tired, and creating less than ideal learning conditions.

As important, they cost more to operate than they should, taking money away from student educational resources. Fairly straight forward energy efficiency upgrades can redirect hundreds of thousands of dollars back into education operating budgets in addition to helping achieve the climate change targets established by the province.

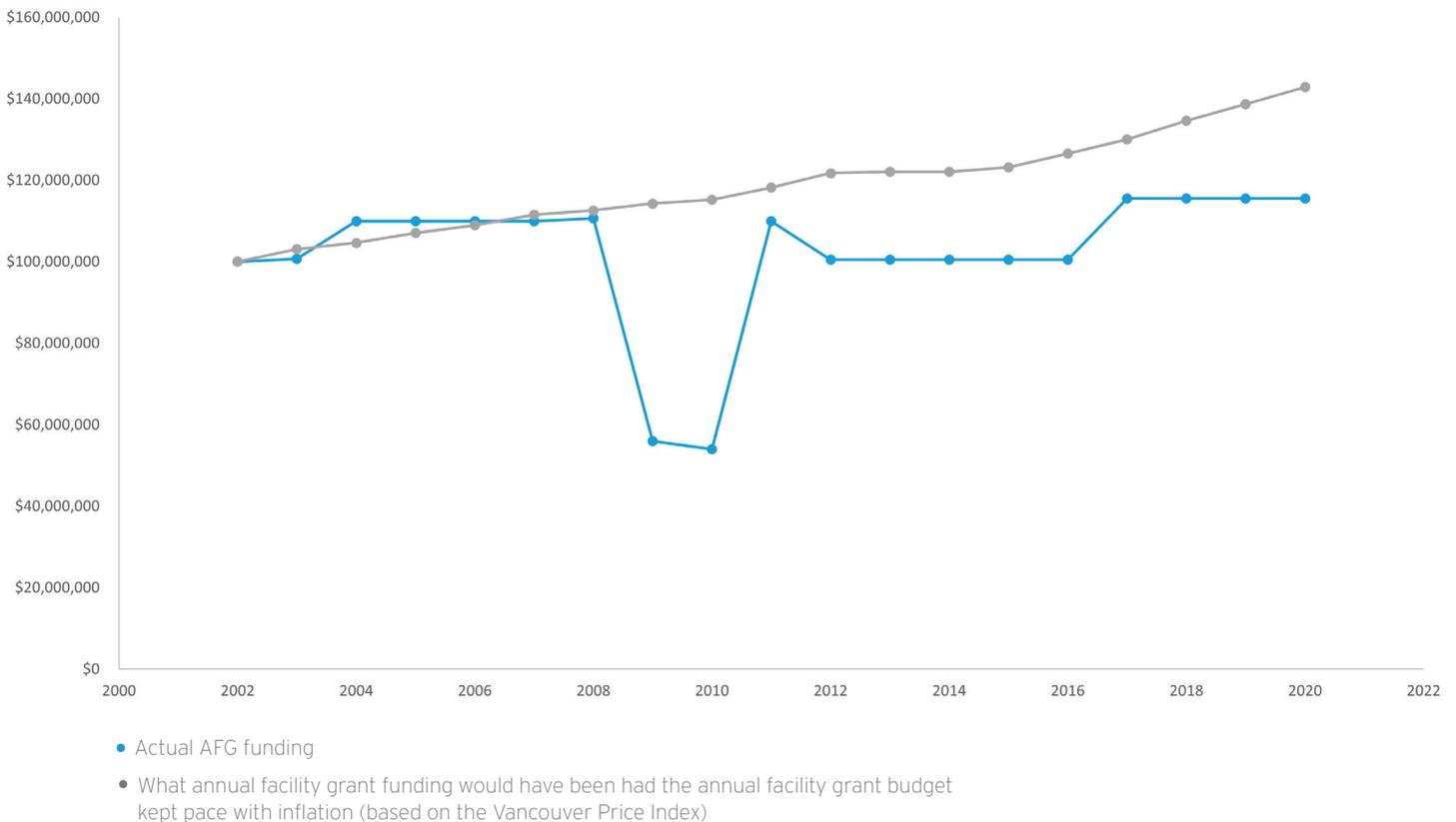


Figure 3 - data sourced from the Ministry of Education. The graph identifies the value of the Annual Facilities Grants (AFGs) awarded for each year beginning in 2002 compared to the amount which should have been budgeted given inflation (based on the Vancouver Consumer Price Index).

## Investments in New Schools, Seismic Upgrading and School Replacements

It can be said districts and government do a reasonable job of ensuring schools are safe which is a clear priority. The only exception may be those schools for which recommended seismic upgrading has not yet been completed. To their credit government has identified seismic retrofitting as a priority. Unfortunately, government and the boards of education involved in addressing this situation seem to be having some difficulty catching up to the problem, especially since seismic survivability standards appear to be increasing. Keeping up to the need for capital funding for new schools and additions on top of the seismic upgrade program has been extremely challenging. Despite this Government has made substantial attempts to address these issues with increased funding as noted in Figure 4.

	B2018	B2019	B2020
SEISMIC	126M	220M	310M
NEW & ADDITION	102M	166M	332M

*Figure 4 - Source: Ministry of Education*

A few school replacements are also being funded which will have an impact on the facility condition index as very old schools are fully replaced. The amounts provided over the past three years for full building replacements are \$9.8M in 2018, \$31.4M in 2019 and \$56M in 2020.

All three of these areas of funding (for new schools, additions and seismic upgrading) are important and, although they are not the subject of this discussion paper, we must assume plans have been developed which define the level of funding required to complete seismic upgrades and construct new schools to keep pace with growth in the system.

While these needs are being more appropriately addressed we cannot forget the amount of funding required to address deferred maintenance in existing buildings. New schools and seismic upgrading are both needed. They tend to enjoy a higher profile than maintenance projects in existing schools. However, the latter are equally important if we are to fulfill our responsibility as trustees of important public assets.

Data obtained from the Ministry of Education illustrates a growing level of deferred maintenance and the degree to which we are failing in this responsibility.

## Regional Differences and Equity

During the process of writing this paper the capital working group heard from many school districts both verbally and in writing. A few quotations are shared from the written input on the following page. Apart from validating the need for additional life cycle funding to address deferred maintenance some also raised the need to consider regional differences and matters of equity.

There is no question that growth and seismic survivability are demanding the bulk of limited capital funding. As reported earlier, allocations for 2020 for these two categories of work amounted to \$642 million. This can be compared to education routine capital funding (including AFG from operating) in the same year of \$204M which, as we've noted, is \$237M less than the amount recommended by building system engineers..

Needed upgrades and renovations (deferred maintenance) are often addressed when seismic work or additions are completed. It only makes sense that those upgrades should occur at the same time as major structural work is being undertaken. Of course the addition of upgrades, seismic work and the need for school expansions can also factor into the decision on whether or not to replace an older school. There comes a point in the calculation when complete replacement makes more sense from a purely fiscal analysis.

There really cannot be any arguments as to why \$642M (or more) is needed on an annual basis to address the critical issues of growth and seismic survivability,

especially given the number of portables growing districts are having to purchase from operating funding to ensure there is enough space to accommodate their students. Reducing the number of portables being used in this fashion is a stated goal of government. In the report we've suggested that more detailed analysis and planning may be required to ensure adequate resources in these areas.

However, if funding is limited and seismic mitigation, new schools and school expansions are identified as priorities it means that the replacement of older schools and deferred maintenance (which is the subject of this paper) are severely underfunded. Since the majority of growth and seismic work are occurring in urban areas it is understandable why many of our more rural districts believe they are receiving an inadequate level of attention from government.

On top of that many of them exist in areas that experience more extreme climates, with disproportionate heating and maintenance costs during the winter months. Underfunding programs like the Carbon Neutral Capital Program, which could have an even more significant impact in areas experiencing extreme climates, adds to this sense of regional disparity.

There is another point some districts shared which bears repeating and it is embodied in the following phrase offered by one of our committee members, "your environment fosters your culture". To illustrate, one of the schools referenced by District 72, Campbell River, is 57 years old with an FCI of .69 which is very poor or critical on some FCI scales. Putting any significant amount of money into



deferred maintenance doesn't make a lot of sense at this stage given the strong case for replacement, and yet there is no funding for replacement despite several years of the project topping the district's capital request. It happens that the school is situated in an area of the community experiencing a disproportionate amount of poverty and a vulnerable student population. The result is a community within the district that is perceived to be under-served, with the consequent perception that the need of students for an appropriate and positive physical learning environment is somehow less of a priority in this school than in other SD72 school communities.

This is not a situation we can collectively ignore if we are to create positive learning environments for all of the children of our province...if we are to ensure equity within our education system. The only thing that will address this is increased funding for education routine capital programs and school replacements, and not at the expense of seismic upgrading or addressing growth. All of these needs must be addressed.

## Rules and Standards Have Changed Over the Last Fifty Years.

Standards for health and safety have changed considerably over time with ever increasing and appropriate measures to address such issues as the use of asbestos many years ago, lead content in the water more recently and seismic survivability. The cost of energy has gone up considerably as well, demanding measures to become more efficient, not only to keep costs down but also to reduce green house gas emissions and, literally, save the planet. Government is now requiring that school buildings meet reasonable standards for energy efficiency reducing emissions by 50% from 2007 levels by 2030 and achieving net zero targets for new buildings by 2032. That is very appropriate and to be applauded as we consider the design of new schools, but what about our existing building infrastructure? It is not unusual for schools to be in service for over fifty years. How do we reduce the carbon footprint of buildings constructed that many years ago and ensure they are safe and efficient, not to mention providing positive learning environments for children?

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*".....it costs more to operate buildings that are in poor repair which takes away from student educational resources.....the quality of our buildings, especially in rural/remote locations is a factor in staff recruitment and retention."*

### **SD60 North Peace**

*"Thirteen of our twenty buildings are in the poor or very poor FCI category. Thus we utilize every dollar of our annual facilities grant just trying to triage our most urgent maintenance needs. The district submits an annual plan for the spending then always adjusts based on a roof that sprouts a leak or a boiler that fails. There are never enough funds to address all of the needs thus building deferred maintenance requirements and costs continue to grow."*

### **SD71 Comox Valley**

*"One wonders what our future selves might wish that we had done today to succeed in managing this challenging problem in the long run...In our experience a majority of projects that are a good fit for CNCP funding tend to be more expensive projects, including HVAC rooftop units, heating, water and electrical systems. The gap between existing equipment and the much lower Clean BC targets (to be achieved with enhanced systems and equipment) would possibly justify .....a doubling in the current amount (of available funding)."*

### **SD 37, Delta**

*"As a district with most of our buildings more than 30 years old funding to do exterior upgrades to schools would greatly improve student, staff, parent and community morale in our public education system."*

### **SD 28, Quesnel**

*"Since much of the provincial funding for the Building Envelope Program flows through the BC Housing Authority it creates some further complexity. That the fund is only \$10M annually is a significant detriment to addressing more costly maintenance. The funding is simply insufficient. For example, we have two schools each of which require more than the annual fund provided. As a result these projects never get approved, the buildings are deteriorating more rapidly than others which significantly increases operating costs and (reduces) building life.....the leaky condo era was 1981-98 and 22 years later the building envelope is still a significant issue"*

### **SD43, Coquitlam**

*".....we are particularly concerned about the specific challenges facing many rural and remote communities in northern BC. The window of time that districts are able to perform cost effective building and maintenance is smaller and northern districts can face significantly higher building and maintenance costs during colder months than other districts might."*

### **SD57, Prince George**

# How Can We Address the Problem?

Boards of education have long expressed the concern that the annual allocation of capital funding to address deferred maintenance is inadequate. Figure 1 provides a relatively clear substantiation of that claim.

Many municipal governments have addressed this problem for their own facility infrastructure by developing life cycle plans at the point of constructing new buildings, identifying each building's life cycle costs well into the future and putting sufficient funding into a reserve each year to ensure the identified work can be addressed as it comes up in the plan. Roofs, mechanical and electrical systems all need to be replaced several times over the life of a building. Given the extremes of our climate regular reviews and repair/replacement of building envelopes is another aspect of the ongoing work which needs to be addressed more than once during the life of a building.

Strata councils are required in legislation to have lifecycle plans which they are wise to implement to avoid surprise assessments as major issues arise. It is a preferred approach to set monthly strata fees at a level sufficient to accommodate everything in the plan rather than wait until something breaks down and requires an emergency repair or replacement and a somewhat unexpected assessment. An unanticipated \$10,000 bill, or greater, can be a significant blow to a family's budget, not to mention the disruption if replacement is left until something like a water line breaks.

Many commercial buildings operate this way as well with a portion of every lease payment for common costs allocated to life cycle projects.

The cost to address the reported shortfalls for school facility life cycle maintenance is significant (\$237M per year) and couldn't possibly be addressed all at once. We have suggested other sources of funding that could be tapped in another paper of the BCSTA Capital Working Group ([School Site Acquisition Charges - Issues and Solutions](#)). Implementing the recommendations offered in that paper would free up more capital funding over the long term. This is a long term problem and, we submit, requires a steady and considered long term approach to address the issue. If the recommended changes had been made in the years prior government could have saved \$42M in land acquisition costs in 2018 and similar amounts going forward. However, nothing we can suggest short of additional government funding will be sufficient to bring the entirety of public K-12 education infrastructure up to the desired level very quickly.

## Life Cycle Plan Recommendations

To begin we are suggesting that the ministry require a standardized life cycle plan be developed for every new school building that is constructed into the future....and further....that an adequate annual contribution be added to the Annual Facilities Grant of the school district in which the facility is located to address the lifecycle needs of that building over time.

Ideally school districts would work backwards and create such plans for all their existing buildings and apply to the ministry for the annual funding required to sustain the overall building life cycle plan. That is likely unrealistic given the increased amount of funding required as indicated by the high number of requests made and relatively few which are approved. In 2019/20 the amount allocated by the province to lifecycle maintenance (the combination of AFG, SEP, CNCP and BEP) was \$205M against a recommended amount of \$441M. As noted earlier the recommended amount is derived from the work of building system engineers engaged by MOE to complete the facility condition assessment each year.

Ideally the annual allocation from the ministry would address the annual deficit (\$237M). Since that is unrealistic in the short term we are suggesting a gradual "catch up" to eventually achieve enough annual funding to meet existing building life cycle needs, concurrent with a new system of lifecycle planning and funding for new buildings as they come on board.

In summary we are recommending annual increases in the Annual Facilities Grant, the School Enhancement Program and the Carbon Neutral Capital Program until the total recommended level of funding required to complete recommended immediate deferred maintenance can be achieved.

## Annual Facilities Grant Recommendations

The current AFG allocation in 2020/21 is \$115.5M. We are recommending that amount be increased each year with the addition of:

- the annual contribution identified as being required in new facility life cycle plans plus
- inflation (currently roughly 2%) plus
- a minimum of 15% beyond inflation intended to reduce the shortfall for existing buildings over time.

The investment made in constructing new schools and additions in 2020 was \$332M. In order to provide a rough estimate of the annual life cycle contribution required for new facilities we have anticipated that cost to be the initial capital cost divided by a fifty year life or \$6.6M. That can be roughly translated to 3% of the current combined investment in AFG and SEP. The actual amount added to the system each year should be based on the specific lifecycle plans prepared for each building in the prior year. However, for the purposes of this paper and its recommendations we have simplified the calculation.

This formula would amount to AFG funding of approximately \$139.5 in 2021/22, \$168.5M in 2022/23, \$203.6M in 2023/24 and \$246M in 2024/25.

## School Enhancement Program Recommendations

We are also recommending an annual increase in the School Enhancement Program (SEP). The SEP funding provided for 2020/21 is \$64M. We are recommending that amount be increased each year with the addition of:

- inflation (currently roughly 2%) plus
- a minimum of 15% beyond inflation intended to reduce the shortfall for existing buildings over time

This would amount to SEP funding of \$75M in 2021/22, \$88M in 2022/23, 103.2M in 2023/24 and \$121M in 2024/25.

Both of these programs would continue to increase using these formulas beyond 2025 until the amount being budgeted is sufficient to address the deferred maintenance shortfall.

We have selected a 15% factor in our formula for “catch up” recognizing it will still take several years to do so. If the “catch up” provision was increased to 20% over \$500M would be available in 2025. A smaller “catch up” amount would extend the time needed to achieve the required level of funding and complete the required work.

## Carbon Neutral Capital Program Recommendations

We must also consider the Carbon Neutral Capital Program. Expenditures in this program are often used to replace electrical, mechanical or other systems which need to be replaced in the regular course of completing life cycle maintenance. It only makes sense that completing upgrades to systems to make them more energy efficient would be completed at the same time.

There is another significant argument to be made for increased funding beyond the amount already provided in the Carbon Neutral Capital Program. Reduced consumption generally means reduced operating costs, which can then be redirected to student achievement.

We are hoping the total amount of funding required to achieve the net zero targets established by the province for new buildings and improved efficiency for existing buildings (50% reduced consumption by 2030) will be the subject of further investigation and recommendations by government and is beyond the scope of this paper. However, we do feel it is appropriate in the context of this discussion to suggest a minimal ramping up of the Carbon Neutral Capital Program. It can be seen in Figure 2 that funding requests for this work totalled 2.5 times the available funding in 2020. Total requests amounted to \$40M in 2020/21 while the available funding amounted to only \$16.7M.

We are concerned the amount of annual funding currently available in the Carbon Neutral Capital Program for public schools is significantly less than the amount required to achieve Clean BC objectives. We are recommending the annual allocation to the Carbon Neutral Capital Program be doubled in the next year and increased by 10% per year thereafter. At this point we do not know if that level of investment will be sufficient to achieve the goals of the Clean BC program. We do know that most districts have already completed the easiest upgrades beginning with lighting systems followed by more efficient Boiler and HVAC equipment as mechanical systems reach the end of their life expectancy. What remains are projects which will be needed to achieve the Clean BC goals by 2030. They are very likely to be more complex and expensive as conversions from traditional to more innovative systems using alternative clean energy sources are contemplated. We are recommending CNCP allocations over the next four years should be \$33.4M in 2021/22, \$36.74M in 2022/23, \$40.41M in 2023/24 and \$44.45M in 2024/25. These increases are considered to be the minimum required. A more detailed analysis on what it will take to achieve Clean BC goals by 2030 may indicate the need for even greater resources. We are also recommending that analysis be undertaken by the provincial government as soon as possible.

Of course Initial capital funding for new buildings should be based on achieving as close to net zero emission targets as possible going forward, leading to new buildings fully achieving the net zero target by 2032.

Access the Clean BC program details [here](#).

## Renovate or Replace?

Many districts and the Ministry of Education face difficult decisions as schools approach the end of their useful life (fifty to sixty years of service) and encounter the need to complete relatively costly seismic upgrades and building system upgrades if they are to continue safely accommodating students in those facilities.

The dilemma is that schools built so many years ago often do not include the kind of learning environments we want to offer to students. For example most older secondary schools do not include the kind of trades and technical training facilities which are commonplace in modern secondary schools. Most older elementary schools do not provide the kind of break out space needed for Education Assistants to work one on one with students who have specialized needs, resulting in hallways filled with EAs and their assigned students when working in regular classrooms is not appropriate.

Unfortunately in the process of making capital submissions for older facilities to the Ministry of Education many school districts have experienced a direction from government to plan for the least expensive solution which will ensure student safety and meet basic building system requirements. This is often occurring without adequately addressing the needs of students. With that the case we are recommending that decisions concerning whether or not to complete major upgrades or replace older buildings which have effectively reached the end of their useful life (50 to 60 years) include greater consideration of the changing learning needs of students. Full replacement may cost more than renovations in the short term but will often be more educationally effective and justifiable given a longer term perspective.

Moreover, all of the deferred maintenance of an older facility being considered for renovation must be considered in the calculation to determine the comparable costs of renovation vs replacement.

## Conclusion

Building new schools and additions as our student population grows is important as is completing seismic upgrades to ensure our buildings are survivable in the event of an earthquake. With that said ensuring regular, appropriately timed life cycle maintenance on all school facilities is equally necessary to fully achieve our goal of providing safe and efficient school facilities which provide excellent learning environments for children. Accomplishing that can only be achieved with adequate annual funding provided by government. We have offered several recommendations along with a formula which should be used to catch the system up to address the ever increasing levels of deferred maintenance currently being experienced by school districts in British Columbia, and urge consideration of those recommendations and the proposed formula by government. Maintaining our schools is not a luxury that can wait until the economy is better. We need to act now to avoid serious problems in the future.

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