



**2013/14**  
**Capital Plan**

**Allowances, Rates and  
Costing Factors  
Supplement**

(For Capital Planning Purposes Only)

Resource Management Division

April 2013

## ***PREFACE:***

The **2013/14 Capital Plan Allowances, Rates and Costing Factors Supplement** is to be used in conjunction with the **2013/14 Capital Plan Instructions** in the preparation of 2013/14 Capital Plan submissions. The Supplement contains the various allowances, rates, and costing factors for calculating the budgets for capital projects included in a board of education's capital plan submission to the Ministry of Education.

These values are provided for capital planning purposes only. Project budgets will be finalized in the Capital Project Funding Agreement co-signed by the Board Chair and Minister of Education.

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### ***Notes to 2013/14 Capital Plan Allowances, Rates and Costing Factors Supplement:***

- **Table 4: COSTING FACTORS FOR LOCATION**  
Updated to 1<sup>st</sup> Quarter 2013.

<b>TABLE 1(a): BASE BUDGET RATES FOR CONSTRUCTION OF NEW SCHOOL PROJECTS SEE Appendix A: OVERVIEW OF THE PROTOTYPICAL COST MODEL</b>	
Type of School	Base Budget Rate
Elementary School	\$1765/ m <sup>2</sup>
Middle School	\$1785/ m <sup>2</sup>
Secondary School	\$1810/ m <sup>2</sup>

<b>TABLE 1(b): BASE BUDGET RATES FOR CONSTRUCTION OF ADDITION PROJECTS SEE Appendix A: OVERVIEW OF THE PROTOTYPICAL COST MODEL</b>	
Type of School	Base Budget Rate
Elementary School	\$1765/ m <sup>2</sup>
Middle School	\$1785/ m <sup>2</sup>
Secondary School	\$1810/ m <sup>2</sup>

<b>TABLE 1(c): PERCENTAGE RATES FOR RENOVATIONS ASSOCIATED WITH ADDITION PROJECTS</b>			
<b>Note: The actual percentage rate for a new addition having an area between those listed in Column 1 is determined by interpolating the two corresponding costing factors to one decimal place. Percentage rates for new addition areas greater than 2000 m<sup>2</sup> will be determined by the Ministry on an individual basis.</b>			
New Addition Area	Percentage of New Addition Construction Budget		
	Elementary School	Middle School	Secondary School
0 to 250 m <sup>2</sup>	20.0	21.0	22.0
500 m <sup>2</sup>	15.0	15.5	16.0
750 m <sup>2</sup>	12.0	12.5	13.0
1,000 m <sup>2</sup>	9.5	10.0	10.5
1,250 m <sup>2</sup>	7.5	8.0	8.5
1500 m <sup>2</sup>	6.5	7.0	7.0
1750 m <sup>2</sup>	5.5	6.0	6.0
2000 m <sup>2</sup>	5.0	5.5	5.5

**TABLE 1(d)**  
**TYPICAL RENOVATION ITEMS ASSOCIATED WITH ADDITION PROJECTS**

**Note:** Specific renovation items must be identified for addition projects submitted as part of the Five-Year Capital Plan submission.

<b>Item:</b>	<b>Included in Allowance</b>	<b>Supplementary Building Item</b>
<b>General</b> - Reconfigure space <i>immediately adjacent</i> to addition - Localized demolition - Demolish existing school - Hazardous material removal (e.g., asbestos)	Yes Yes No No	  Yes (Cost estimate) Yes (Cost estimate)
<b>Access</b> - Increase exiting for existing building Upgrade handicapped accessibility (except two-storey elevator) - Install handicapped elevator for existing 2-storey building	Yes Yes  No	   Yes (Cost estimate)
<b>Loss Prevention</b> - Adjustments to existing sprinkler system where affected by addition/minor extensions to serve addition - Upgrade existing fire alarm system - Fire separation between existing building and addition - Sprinkler system to previously unsprinklered building	 Yes Yes Yes No	   Yes (Cost estimate)
<b>Electrical Service</b> - Upgrade main service to supply addition	Yes	
<b>Mechanical Service</b> - Upgrade/revise existing service to supply addition	Yes	
<b>Structural Seismic Mitigation</b> - Upgrading to existing building	No	Yes (Cost estimate)

<b>TABLE 2: COSTING FACTORS FOR PROJECT SIZE</b>			
	<b>Elementary School</b>	<b>Middle School</b>	<b>Secondary School</b>
<b>Gross Floor Area (m<sup>2</sup>)</b>	<b>Costing Factor</b>	<b>Costing Factor</b>	<b>Costing Factor</b>
<500	1.05	N/A	N/A
500	1.05	N/A	N/A
1,000	1.04	N/A	N/A
2,000	1.02	1.05	1.09
3,000	1.00	1.05	1.08
4,000	0.99	1.04	1.07
5,000	0.98	1.03	1.05
6,000	N/A	1.02	1.04
7,000	N/A	1.00	1.04
8,000	N/A	0.99	1.02
9,000	N/A	0.98	1.02
10,000	N/A	0.98	1.01
12,000	N/A	0.98	1.00
15,000	N/A	0.98	0.98
17,000	N/A	0.98	0.98
20,000	N/A	0.98	0.98

**Note:** The actual costing factor for a qualifying new school or an addition to an existing school having an area between those listed in Column 1 is determined by interpolating the two corresponding costing factors to three decimal places.

<b>Table 3: SUPPLEMENTARY BUILDING ALLOWANCE</b>	
<b>Premium<sup>1</sup> costs for abnormal site conditions within the building footprint:</b>	<b>Costing Factor<sup>2</sup></b>
<ul style="list-style-type: none"> <li>• 5 – 10 percent sloping site requiring: cut and/or imported fill; retaining capacity for foundation walls; stepped footings; exterior steps/ramps</li> </ul>	0.01
<ul style="list-style-type: none"> <li>• &gt;10 percent sloping site requiring: cut and/or imported fill; retaining capacity for foundation walls; stepped footings; exterior steps/ramps</li> </ul>	0.03
<ul style="list-style-type: none"> <li>• Unsuitable subsurface material requiring over-excavation and back-filling</li> </ul>	0.03
<ul style="list-style-type: none"> <li>• Surface or subsurface rock requiring blasting; or bearing condition requiring pre-loading</li> </ul>	0.05
<ul style="list-style-type: none"> <li>• Subsurface condition requiring piling or soil densification</li> </ul>	0.08
<b>Total cost of the following items:</b>	<b>Cost</b>
<ul style="list-style-type: none"> <li>• Fire code-mandated sprinklers for previously unsprinklered building (addition project)</li> </ul>	Cost estimate
<ul style="list-style-type: none"> <li>• Fire code-mandated handicapped elevator for existing two-storey building (addition project)</li> </ul>	Cost estimate
<ul style="list-style-type: none"> <li>• Handicapped elevator for <i>required</i> two-storey new building, where cost model is a one-storey building</li> </ul>	Cost estimate
<ul style="list-style-type: none"> <li>• Seismic upgrading to existing building (addition project)</li> </ul>	Cost estimate
<ul style="list-style-type: none"> <li>• Demolition and disposal of existing building (replacement project)</li> </ul>	Cost estimate
<ul style="list-style-type: none"> <li>• Hazardous material removal and disposal, including asbestos, PCBs (addition project; replacement project)</li> </ul>	Cost estimate

**Footnotes:**

- <sup>1</sup> Unit rates for construction already provide for typical work in these areas. The Supplementary Building Allowance therefore covers only premium costs for extraordinary work not covered under the unit rates.
- <sup>2</sup> Costing Factors are provided for budgeting purposes. Supplementary Building Cost Factors are multiplied by (*adjusted unit rate x approved new area*) and carried as a separate line item on the request form. Supplementary Building items should be compiled to form a budget total for this funding category; however, individual items and amounts or factors must be identified.

<b>TABLE 4: COSTING FACTORS FOR LOCATION</b>		
<b>A costing factor for location may be applied to projects in specified school districts to allow for variations in construction costs due to design loads and local market conditions.</b>		
<b>LOCATION</b>		<b>1<sup>st</sup> QUARTER 2013</b>
<b>District No.</b>	<b>Town</b>	<b>Location Factor</b>
5	Cranbrook	1.185
5	Fernie	1.195
6	Golden	1.185
6	Invermere	1.185
6	Kimberley	1.185
8	Creston	1.185
8	Kaslo	1.210
8	Nelson	1.185
10	Nakusp	1.222
19	Revelstoke	1.196
20	Castlegar	1.170
20	Trail	1.170
22	Vernon	1.118
23	Kelowna	1.118
27	Williams Lake	1.286
28	Quesnel	1.311
33	Chilliwack	1.046
34	Abbotsford	1.015
35	Langley	1.015
36	Surrey	1.015
37	Delta	1.020
38	Richmond	1.045
39	Vancouver	1.076
40	New Westminster	1.056
41	Burnaby	1.066
42	Maple Ridge	1.056
43	Coquitlam	1.071
44	North Vancouver	1.108
45	West Vancouver	1.108
46	Sechelt	1.266
47	Powell River	1.319
48	Squamish	1.181
48	Whistler	1.286
49	Bella Coola	1.680
50	Haida Gwaii	1.733
51	Grand Forks	1.170
51	Midway	1.170
52	Prince Rupert	1.365
53	Keremeos	1.118
53	Oliver	1.144

**TABLE 4: COSTING FACTORS FOR LOCATION (cont.)**

LOCATION		1 <sup>st</sup> QUARTER 2013
District No.	Town	Location Factor
54	Houston	1.398
57	Prince George	1.234
58	Merritt	1.118
58	Princeton	1.170
59	Dawson Creek	1.451
60	Fort St. John	1.478
61-63	Greater Victoria	1.092
64	Ganges	1.185
67	Penticton	1.102
67	Summerland	1.102
68	Nanaimo	1.102
69	Parksville	1.129
70	Port Alberni	1.192
71	Courtenay	1.170
72	Campbell River	1.170
73	Kamloops	1.082
73	Clearwater	1.170
74	Cache Creek	1.144
74	Lillooet	1.208
75	Mission	1.082
78	Agassiz	1.092
78	Hope	1.107
79	Duncan	1.133
79	Lake Cowichan	1.159
81	Fort Nelson	1.505
82	Kitimat	1.523
82	Terrace	1.444
83	Armstrong	1.118
83	Salmon Arm	1.118
84	Gold River	1.398
85	Port Hardy	1.365
87	Stikine	2.096
91	Burns Lake	1.451
91	Vanderhoof	1.398
92	New Aiyansh	1.785

**Note: Location costing factor for School District No. 93 (Conseil Scolaire Francophone) is the factor for the community in which a CSF facility is located.**



<b>TABLE 5: PLANNING FEES SCALE FOR NEW CONSTRUCTION PROJECTS</b>							
<b>Project Area (m<sup>2</sup>)</b>	<b>&lt;1000</b>	<b>1000</b>	<b>2500</b>	<b>4000</b>	<b>6000</b>	<b>8000</b>	<b>&gt;8000</b>
Percentage Rate of Construction Cost:	11.0	11.0	10.0	9.75	9.5	9.0	9.0

<b>Table 6(a): SITE DEVELOPMENT ALLOWANCE ELEMENTARY SCHOOLS</b>				
<b>Item</b>	<b>Building Type</b>			
	<b>New Building on New Site</b>	<b>New Building on Existing Site</b>	<b>500 m<sup>2</sup> Addition</b>	<b>1000 m<sup>2</sup> Addition</b>
Site Preparation (incl. clearing, grading, base prep)	Y	Y	Y	Y
All-weather Playing Field (irrigated and drained)	Y	N	N	N
Paved Play Area	Y	Y	N	N
Playground Equipment	Y	Y	N	N
Concrete Paving				
- Building perimeter	Y	Y	Y	Y
- Building entrance	Y	Y	N	Y
- Walkways	Y	Y	N	Y
Asphalt Paving				
- Roads and Drop off (incl. Drainage and lighting)	Y	Y	N	N
- Parking	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>
Perimeter Fencing	Y	Y	N	N
Exterior Signage	Y	Y	N	Y
Flag Pole	Y	Y	N	N
Garbage Enclosure	Y	Y	N	N
Bike Racks	Y	Y	N	Y
Road Crossing	Y	Y	N	Y
Landscaping	Y	Y	Y	Y
Services to building:				
- Electrical	Y	Y	N	Y
- Mechanical	Y	Y	N	N
- Connection Charges	Y	Y	N	N
<b>Sub total:</b>	<b>\$950,000</b>	<b>\$700,000</b>	<b>\$45,000</b>	<b>\$130,000</b>
<b>Note: Apply appropriate location factor from Table 4 - Costing Factor for Location.</b>				

**Table 6(b):  
SITE DEVELOPMENT ALLOWANCE  
MIDDLE AND SECONDARY SCHOOLS**

Item	Building Type					
	New Building on New Site (<1500 capacity)	New Building on New Site (>1500 capacity)	New Building on Existing Site	500 m <sup>2</sup> Addition	1000 m <sup>2</sup> Addition	2000 m <sup>2</sup> Addition
Site Preparation (incl. clearing, grading, base prep)	Y	Y	Y	Y	Y	Y
Playing Field (not incl. all-weather drainage)	Y (1 field)	Y (2 fields)	N	N	N	N
Paved Play Area	Y	Y	Y	N	N	N
Concrete Paving						
- Building perimeter	Y	Y	Y	Y	Y	Y
- Building entrance	Y	Y	Y	N	Y	Y
- Walkways	Y	Y	Y	N	Y	Y
Asphalt Paving						
- Roads and Drop off (incl. Drainage and lighting)	Y	Y	Y	N	N	Y
- Parking	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>	<i>Excluded See Table 6(c)</i>
Fencing	Y	Y	Y	N	N	N
Exterior Signage	Y	Y	Y	N	Y	Y
Flag Pole	Y	Y	Y	N	N	N
Garbage Enclosure	Y	Y	Y	N	N	N
Bike Racks	Y	Y	Y	N	Y	Y
Road Crossing	Y	Y	Y	N	Y	Y
Landscaping	Y	Y	Y	Y	Y	Y
Building Services						
- Electrical	Y	Y	Y	N	Y	Y
- Mechanical	Y	Y	Y	N	N	Y
- Connection Charges	Y	Y	Y	N	N	Y
<b>Sub total:</b>	<b>\$1,600,000</b>	<b>\$2,300,000</b>	<b>\$950,000</b>	<b>\$45,000</b>	<b>\$130,000</b>	<b>\$350,000</b>

**Note: Apply appropriate location factor from Table 4 - Costing Factor for Location.**

<b>TABLE 6(c) SUPPLEMENTARY SITE ALLOWANCES</b>	
<b>The premium<sup>1</sup> cost of the following items:</b>	<b>Costing Factor<sup>2</sup></b>
Slope greater than 10 percent on playfields and parking lots requiring cut and imported fill, retaining walls, barriers or guards, steps, etc.	0.02
Unsuitable road subsurface bearing material requiring over-excavation and back filling.	0.03
<b>Note: Apply appropriate location factor from Table 4 - Costing Factor for Location.</b>	
<b>The calculated cost of the following items:</b>	
Roads and Surface Parking (includes drainage and lighting)	<ul style="list-style-type: none"> <li>• 2.0 parking spaces per 25 students, Grades K-10 (based on nominal capacity)</li> <li>• 4.5 parking spaces per 25 students, Grades 11 and 12 (based on nominal capacity)</li> <li>• Allowance of \$4,500 per parking space</li> </ul>
<b>Note: Apply appropriate location factor from Table 4 - Costing Factor for Location.</b>	
<b>The total cost of the following items:</b>	
Premium cost of site enhancement / remediation required by external agency (e.g., Ministry of Water Land and Air Protection requirements for salmon-bearing stream protection/re-routing)	Cost estimate
Premium cost of abnormal site access requirements (e.g., more than two entrances, unavoidable long driveway from road, unusually long fire lane)	Cost estimate
Premium cost of hazardous material removal (e.g., buried oil tank, contaminated soil)	Cost estimate
New playfield on existing site, where an existing field is unavoidably displaced by the new building or addition.	Cost estimate
New paved play area on existing site, where existing paved play area is unavoidably displaced by the new building or addition.	Cost estimate
Temporary accommodation during construction period. Portable relocation and set-up cost based on current Ministry allowance.	Cost estimate
Parking spaces to comply with local government bylaw requirements.	Cost estimate

**Footnotes:**

<sup>1</sup> Site Development Allowances Tables 6(a) and 6(b) provide for typical site work. The Supplementary Site Allowance covers only premium costs for extraordinary work not covered under the Site Development Allowances.

<sup>2</sup> Costing Factors are provided for budgeting purposes. Supplementary Site Cost Factors are multiplied by the total construction value and carried as a separate line item on the request form. Total construction value is defined as the total estimated cost of: Site Development, Supplementary Site, Building, and Supplementary Building categories. Supplementary Site items should be compiled to form a budget total for this funding category; however, individual items and amounts or factors must be identified.

<b>TABLE 6(d): ALLOWABLE OFFSITE EXPENSES</b>	
<b>Item</b>	<b>Cost</b>
New fire hydrants	Cost estimate
New perimeter sidewalk and curbing	Cost estimate
Service extension required to reach new site	Cost estimate

<b>TABLE 7: EQUIPMENT ALLOWANCE</b>	
<b>The equipment allowance will be calculated as a percentage of the base budget rate for new construction, multiplied by the approved area of new construction and freight rate allowance for the location of the school district office.</b>	
<b>Type of Space</b>	<b>Percentage Rate</b>
New Elementary School	13.0
New Junior Middle School (Grades 6, 7 & 8)	17.3
New Senior Middle School (Grades 7, 8, & 9)	21.6
New Secondary School	25.9
<b>Note: The equipment allowance for secondary schools with a nominal capacity greater than 1200 students will be determined by the Ministry on an individual project basis.</b>	
<b>Note: The equipment allowance for replacement space is calculated as 25% of new space.</b>	

**TABLE 8:  
FREIGHT RATE ALLOWANCE (EQUIPMENT)**

<b>SD No.</b>	<b>Location of School District Office</b>	<b>Freight Rate Allowance (percentage rate)</b>
5	Cranbrook	9.843
6	Invermere	10.193
8	Nelson	8.609
10	Nakusp	9.047
19	Revelstoke	8.806
20	Trail	8.609
22	Vernon	8.609
23	Kelowna	7.517
27	Williams Lake	7.403
28	Quesnel	7.513
33	Chilliwack	1.050
34	Abbotsford	0.000
35	Langley	0.000
36	Surrey	0.000
37	Delta	0.000
38	Richmond	0.000
39	Vancouver	0.000
40	New Westminster	0.000
41	Burnaby	0.000
42	Maple Ridge	0.000
43	Coquitlam	0.000
44	North Vancouver	0.000
45	West Vancouver	0.000
46	Gibsons	1.710
47	Powell River	5.675
48	Squamish	0.957
49	Hagensborg	28.792
50	Haida Gwaii	28.792
51	Grand Forks	8.609
52	Prince Rupert	15.020
53	Oliver	8.609
54	Smithers	11.490
57	Prince George	7.780
58	Merritt	8.609
59	Dawson Creek	11.840
60	Fort St. John	12.370
61	Victoria	3.420
62	Langford	3.570
63	Saanichton	3.290

**TABLE 8: (cont.)  
 FREIGHT RATE ALLOWANCE (EQUIPMENT)**

<b>SD No.</b>	<b>Location of School District Office</b>	<b>Freight Rate Allowance (percentage rate)</b>
64	Salt Spring Island	5.483
67	Penticton	8.609
68	Nanaimo-Ladysmith	3.170
69	Parksville	3.570
70	Port Alberni	3.940
71	Courtenay	5.238
72	Campbell River	5.238
73	Kamloops	7.517
74	Ashcroft	6.993
75	Mission	0.000
78	Hope	1.500
79	Duncan	3.530
81	Fort Nelson	17.891
82	Terrace	13.550
83	Salmon Arm	8.609
84	Gold River	5.675
85	Port Hardy	7.010
87	Dease Lake	20.680
91	Vanderhoof	8.966
92	New Aiyansh	14.720

**Note: Freight rate allowance for School District No. 93 (Conseil Scolaire Francophone) is the allowance for the community in which a CSF facility is located.**

**TABLE 9:  
 CAPITAL ALLOWANCE FOR SCHOOL BUSES**

Each year, on behalf of the ministry, the Association of School Transportation Services of BC (ASTSBC) conducts a Request for Standing Offer (RFSO) with school bus suppliers. Actual capital allowances for school buses will be based on prices established by the most recent RFSO.

**NOTE: THESE FIGURES ARE ESTIMATES AND SHOULD BE USED FOR CAPITAL PLANNING PURPOSES ONLY.**

Capacity	Total Allowance
TYPE A2 (20-29 passenger)	\$ 67,000
TYPE C (34-48 passenger)	\$ 98,000
TPYE C (50-59 passenger)	\$103,000
TYPE C (60-76 passenger)	\$105,000
TYPE D (80+ FE)	\$123,000
TYPE D (80+ RE)	\$135,000

**AMOUNTS INCLUDED IN TOTAL ALLOWANCE:**

Base Allowance (varies by type)

- 1) Options allowance, TYPE A2 (up to 29); or
- 2) Options allowance, TYPE C (34-48); or
- 3) Options allowance, TYPE C (50-59 & 60-76); and all TYPE D

Net Tax (8.6%)

ASTSBC Administrative Fee (2%)

**OTHER AMOUNTS:**

Wheelchair Lift (where applicable)

## APPENDIX A: OVERVIEW OF THE PROTOTYPICAL COST MODEL

These outline specifications are not intended to be prescriptive, but to serve as a guide to School Districts and their design teams to indicate the types of materials, components and systems included in the prototypical cost models for elementary, middle and secondary schools. They indicate the distribution of costs between the major elements and key design ratios to aid design teams to make cost-effective or value-added decisions, while remaining within the overall budget envelope.

The gross floor areas are calculated in accordance with the current *Ministry of Education Area Standards*, i.e., gross floor areas are measured to the inside face of the exterior walls of all accessible space, plus an allowance of 150 mm multiplied by the perimeter length of all floor plates.

### Elementary School

The elementary school model is based on a single storey, combustible, loadbearing wood frame building with the following statistics and outline specifications:

- Gross floor area: 2,875 m<sup>2</sup>, footprint area: 3,010 m<sup>2</sup>.
- Average storey height: 4.35 m.
- Area of exterior walls (including area of glazing and doors): 1,600 m<sup>2</sup>.
- Roof area (measured on plan): 3,350 m<sup>2</sup>.

### Middle School

The middle school model is based on a part two storey, non-combustible building with the following statistics and outline specifications:

- Gross floor area: 6,900 m<sup>2</sup>; footprint area: 4,703 m<sup>2</sup>; upper floor: 2,197 m<sup>2</sup>.
- Area of all exterior walls (including area of glazing and doors): 4,475 m<sup>2</sup>.
- Roof area (measured on plan): 5,219 m<sup>2</sup>.

### Secondary School

The secondary school model is based on a part two storey, non-combustible building with the following statistics and outline specifications:

- Gross floor area: 12,300 m<sup>2</sup>; footprint area: 7,544 m<sup>2</sup>; upper floor(s) 4,756 m<sup>2</sup>.
- Area of all exterior walls (including area of glazing and doors): 5,975 m<sup>2</sup>.
- Roof area (measured on plan): 8,329 m<sup>2</sup>.

## 1.0 SUBSTRUCTURE

### Element Cost Ratio

Elementary	6.8%
Middle	2.9%
Secondary	3.6%



## 1.1 Standard Foundations

### Outline Specification

Spread (strip and pad) footings (concrete and formwork to meet additional volume required by current building code). The cost model assumes stable sub-surface soil conditions with adequate bearing pressure.

## 1.2 Special Foundations and 1.3 Basement Excavation

### Outline Specification

In addition to the base budget rate, premium costs of unusual sub-surface soil conditions, e.g., inadequate sub-surface bearing capacity requiring special foundations, soil stabilization or piling, and for site topography, e.g., a steeply sloping site, requiring a building configuration, such as basement or semi-basement will be considered as supplementary allowances. Special foundations (within the footprint of the building) will be categorized as Supplementary Building Cost.

## 2.0 STRUCTURE

### Element Cost Ratio

Elementary	11.8%
Middle	15.7%
Secondary	16.5%

## 2.1 Lowest Floor Construction

### Outline Specification

Excavation to formation level, granular base material. 100mm reinforced concrete slab on grade, steel trowelled finish to receive applied floor finishes, 125mm slab in high floor loading areas, such as shops.

In an elementary school Multipurpose Room, the floor is raised to form a stage area, with storage under (this space not included in the gross floor area calculation). In an elementary school the slab on grade is extended by 1.2m to provide an exterior walkway around the building.

## 2.2 Upper Floor Construction

*Middle and Secondary schools only - no upper floor construction included in the cost model for Elementary schools.*

### Outline Specification

Non-combustible construction: light steel frame, comprising standard open web steel joists (OWSJ), steel beams and columns, steel deck, 75mm concrete topping.

*Note: The cost model includes structural design to current Lower Mainland seismic code (regional variations in seismic design loads are accounted for in the location factors).*

## 2.3 Stair construction

### Outline Specification

Steel stair: concrete filled treads and steel risers

## 2.4 Roof Construction

### Outline Specification

Non-combustible construction: light steel frame, sloped roof to the classroom block(s), extending 1.2m outside of the line of the exterior wall, comprising standard open web steel joists (OWSJ), steel beams and columns, steel deck. Standard OWSJ to multi-purpose, shops and gymnasium roof, flat roof structures sloped to drain.

*In an elementary school, the roof structures are pitched, with a flat roof sloped to drain for the gymnasium and multipurpose. In a middle or secondary school, the model is based on a flat roof, sloped to drain, for gymnasium, multipurpose and other high-volume spaces, with 1.2m overhangs as necessary for weather protection to high exterior wall areas. Pitched roof over the classroom wing(s).*

*Note: The cost model includes structural design to current Lower Mainland seismic code (regional variations in seismic design loads are accounted for in the location factors).*

## 3.0 EXTERIOR ENCLOSURE

### Element Cost Ratio

Elementary	17.9%
Middle	15.1%
Secondary	16%

*Note: In addition to the base rate, the location factors include allowances for the increased cost of exterior enclosures due to climatic conditions in some areas of the Province, which are more extreme than contemplated in the Lower Mainland baseline model.*

### 3.1 Walls Below Main Floor

#### Outline Specification

*No walls below main floor included in the cost model.*

### 3.2 Walls Above Main Floor

#### Outline Specification

Rainscreen wall assembly: consisting of 150mm steel stud infill, interior gypsum board, sprayed on polyurethane exterior insulation, peel and stick membrane air barrier, 38mm sub-girts, exterior gypsum board sheathing and exterior cladding.

For example, the elementary school model is based on a single storey structure with concrete masonry veneer or other durable vandal-resistant rainscreen assembly full height, except for multipurpose and gymnasium, where the model is based on concrete tilt-up structure. The middle and secondary school models are based on concrete masonry veneer or other durable vandal-resistant rainscreen assembly up to window head height and metal cladding or other durable rainscreen wall assembly above window head height, except for multipurpose, gymnasium, industrial education and other high-volume spaces, where the model is based on concrete tilt-up structure.

### 3.3 Windows

#### Outline Specification

Double glazed, thermally broken, low-E glazing, institutional quality window units. Casement type opening windows (2 per classroom). Sunshades, window eyebrows and/or light shelves, based on local climatic conditions, to reduce interior heat gain. Exterior vandal-proof shutters to ground floor windows.

### 3.4 Doors & Glazed Screens

#### Outline Specification

Hollow metal insulated exterior doors and pressed steel frames, institutional grade hardware.

Painted steel framed storefront type glazing to main entrances, tempered safety glass to entrance doors and sidelights. One entrance to door will be handicap accessible.

### 3.5 Roof Covering

#### Outline Specification

Sloped roof (typically to the classroom block), extending 1.2m outside of the line of the exterior wall, roof covering assembly consisting of rigid insulation on top of the roof deck, standing seam metal roof with concealed fasteners.

Flat roof (typically to Gymnasium and Multipurpose Room and Shops), consisting of SBS type two-ply membrane roofing system, rigid insulation (roof structure sloped to drain).

WCB-mandated fall restraint equipment.

## 4.0 PARTITIONS AND DOORS

#### Element Cost Ratio

Elementary	7.5%
Middle	8.4%
Secondary	6.9%

### 4.1 Fixed Partitions

#### Outline Specification

Wood stud and drywall partitions in the elementary school model, steel stud and drywall partitions in middle and secondary models. Acoustic insulation between classrooms and between classroom and corridor walls.

Elementary and Middle Schools - 5% of the area of fixed partitions being glazed to promote transparency between classrooms and corridors.

Middle and Secondary Schools - Hard wall surface to corridors 8 feet high (except behind lockers) and to the rear wall of classrooms. Material, such as plywood backing to stud and gypsum board or "Fibrerock VH1" high-density fibre-reinforced gypsum core and heavy duty paper faced type X drywall. Alternatively, a hard wall surface may be applied on top – see Section 5.3.

## 4.2 Moveable Partitions

### Outline Specification

The middle and secondary school models include for an electrically operated vertical or horizontal curtain in the main gymnasium.

## 4.3 Internal Doors

### Outline Specification

Institutional quality, stain grade, hardwood veneered, solid core wood doors, pressed steel frames, institutional type hardware suitable for handicap accessibility.

Glazed sidelight to classroom doors.

## 5.0 INTERIOR FINISHES

### Element Cost Ratio

Elementary	7.5%
Middle	6.2%
Secondary	6.1%

## 5.1 Floor Finishes

### Outline Specification

Sheet flooring with rubber base to corridors, all classrooms, multi-purpose room, staff and handicap washrooms, ceramic tile to student washrooms and wet areas.

Glue down level loop carpet with rubber base to administration and library.

The elementary school model includes for cushioned vinyl flooring in the gymnasium.

The middle and secondary school models include for coloured, hardened concrete to industrial education, arts, service and custodial spaces and sprung hardwood sports floor in the gymnasium.

## 5.2 Ceiling Finishes

### Outline Specification

Lay-in, exposed grid, standard range acoustic tile suspended ceiling throughout, except suspended painted gypsum board ceilings in washrooms, change rooms, kitchens.

Acoustic roof deck finish, if steel deck is exposed, to gymnasium, drama/choral, shops and multi-purpose rooms.

## 5.3 Wall Finishes

### Outline Specification

Painted wall finishes throughout, directly applied to gypsum board, concrete or concrete masonry interior partitions.

### **Elementary Schools**

Painted MDF or stain grade hardwood veneered plywood wainscot 1.2m high to corridor walls. Tackable wall surface, such as vinyl covered gypsum board, to front, rear and corridor walls of classrooms.

Ceramic wall tiling to door head height in student washrooms, painted gypsum wall board in staff and handicap washrooms.

Painted MDF or stain grade hardwood veneered plywood paneling in gymnasium 2.4m high. Applied acoustic wall treatment 2.4 m high to gymnasium, drama/choral and multi-purpose rooms.

### **Secondary and Middle Schools**

Ceramic wall tiling to door head height in student washrooms, hard wall surface to locker rooms, painted gypsum wall board in staff and handicap washrooms.

Painted MDF or stain grade hardwood veneered plywood paneling in corridors (except behind lockers) 2.4m high.

Painted MDF or stain grade hardwood veneered plywood paneling 3.65m high and applied acoustic wall treatment above, 3.65 m high in gymnasium(s), hard wall and acoustic treatment in shops, acoustic treatment to drama/choral and multi-purpose rooms.

## **6.0 FITTINGS AND EQUIPMENT**

### **Element Cost Ratio**

Elementary	5.2%
Middle	5.6%
Secondary	5.7%

### **6.1 Fittings and Fixtures**

#### **Outline Specification**

Millwork, white boards, tack boards.

Washroom and change room accessories, toilet partitions. Interior signage.

*Note: Millwork requirements are largely dependant on curriculum and teaching requirements. .*

### **6.2 Equipment**

#### **Outline Specification**

The elementary school model is based on gymnasium equipment - 2 manually operated side swing and 4 fixed basketball backstops, floor mounted net sockets.

The middle and secondary models are based on main gymnasium equipment - 4 electrically operated ceiling mounted, 2 manual side swing and 4 fixed basketball backstops, floor mounted net sockets and manually operated bleachers. Fume hoods in labs and prep areas utilizing hazardous chemicals. Separate recirculating dust collectors for carpentry and metalwork shop(s).

#### **Funding Issues**

*Scoreboards, shot clocks, nets and games equipment, laboratory, shops, gymnasium and kitchen equipment to be funded from equipment budget.*

### 6.3 Conveying Systems

#### Outline Specification

The middle and secondary school models include for a 2,500 lb. capacity hydraulic two-stop passenger elevator.

## 7.0 MECHANICAL SYSTEMS

The design of the heating, ventilation, air conditioning, plumbing and fire protection systems to be in compliance with:

- British Columbia Building Code (Latest Edition)
- British Columbia Plumbing Code (Latest Edition)
- ASHRAE Standard 62 (Latest Edition)
- ASHRAE Standard 90.1 (Latest Edition)
- Model National Energy Code for Buildings (Latest Edition)
- NFPA 13 (Latest Edition)

#### Element Cost Ratio

Elementary	19.7%
Middle	21.8%
Secondary	22.2%

### 7.1 Plumbing and Drainage

#### Outline Specification

Floor mounted flush valve water closets in student washrooms and change rooms, flush tanks elsewhere. Single loop, 125 degree Fahrenheit, high efficiency gas fired domestic hot water (DHW) system. Limit stop faucets to sinks, lavatories, showers.

#### Water Fixture Requirements:

Tank type water closet - 6.0 L/flush

Urinals – 3.8 L/flush

Showerhead – 9.5 L/min

Sink and Lavatory Faucets - 9.5 L/min

Metering Faucets – 0.95 L/cycle

### 7.2 Fire Protection

#### Outline Specification

Fire protection will consist of sprinkler and standpipe systems in accordance with NFPA 13 latest edition. Dry sprinklers will be provided in areas subject to freezing and wet sprinkler systems will be provided in the remaining areas of the building.

## 7.3 HVAC

### Outline Specification

- The HVAC systems will provide a comfortable and healthy environment for the occupants of the school.
- All mechanical heating and cooling equipment to be high efficiency.
- 100% economizer cycle for main air handling systems.
- Based on local climatic conditions, heat recovery units to be installed for main air handling systems.
- Two speed fans or variable speed drives to reduce airflow to areas that are unoccupied.
- Carbon dioxide sensors and occupancy sensors to control outdoor air ventilation.
- HVAC equipment shall not contain CFC based refrigerants.
- Locate outdoor air intakes distant from sources of odor and outdoor pollution, including washroom exhaust, kitchen exhaust, boiler flues, etc.
- Gas fired heat generation (if the primary energy source) by high efficiency boilers or high turndown furnaces, or ground source heat pumps.

Minimum outdoor air ventilation to meet the requirements of ASHRAE Standard 62-Latest Edition (including an allowance for the efficiency with which air is distributed through the building and individual rooms).

Minimum total ventilation air supply capacity of 5 litres per second/m<sup>2</sup> for all occupied spaces, except 6.25 litres per second/m<sup>2</sup> for assembly spaces and rooms without natural ventilation openings greater than 2% of the room's floor area. 30% Dust spot filters with the capacity to provide 80% filters at a later date.

The system is arranged so that failure of any one component will not prevent the system from delivering sufficient heat to avoid freeze-up and to permit school operation.

Mechanical cooling to spaces with more than 1 computer per 5 m<sup>2</sup> and to classrooms rooms without external windows.

*Note: In addition to the base rate, the location factors include allowances for the increased cost of HV systems due to climatic conditions in those areas of the Province, which are more extreme than contemplated in the Lower Mainland baseline model.*

## 7.4 Controls

### Outline Specification

Direct digital control and monitoring of the HVAC system, with remote communication and control capability.

Separate zone control for each classroom and for other major functional areas, except single zone control for groups of adjacent spaces with similar thermal characteristics e.g. administration.

## **7.5 Building Systems Commissioning**

### **Outline Specification**

*Verify and ensure building systems and equipment are installed as per design and calibrated to operate as intended.*

## **8.0 ELECTRICAL SYSTEMS**

### **Element Cost Ratio**

Elementary	10.6%
Middle	9.2%
Secondary	10.8%

## **8.1 Service and Distribution**

### **Outline Specification**

Indoor unit substation. 600V and 120/208V secondary distribution.

Power factor correction capacitor bank.

## **8.2 Lighting, Devices and Heat**

### **Outline Specification**

Direct T8 fluorescent lighting with standard K12 lenses to all areas, except deep cell parabolic type fixtures in administration and library and areas of high concentrations of computers. Direct T5 fluorescent lighting in the gymnasium. LED exit lights and emergency lighting as required by Code.

Low voltage switching to classrooms, gymnasium, multipurpose and shops, with occupancy sensors.

Drama room lighting (receptacles, light supports, dimmer rack and rough in).

Building mounted HID exterior lighting with photocells and time clock.

Surge protection on computer room panelboards. Connections and emergency shut-downs to shop equipment. Connections to kitchen equipment.

## **8.3 Systems**

### **Outline Specification**

Addressable fire alarm system.

Data and media retrieval conduit, cabling, outlets and patch panels. Public address system, including classroom intercom. Telephone system: central panel (interfaced with PA system), wiring.

Gymnasium, music and drama room sound systems.

Passive security intruder alarm system to corridors, administration, library, shops, business education and areas of high concentrations of computers or equipment.



*Funding Issues: Additional security systems, such as CCTV may be considered for local capital funding, provided an acceptable payback analysis can be demonstrated based on the school's location.*

## **9.0 ALLOWANCES**

Inspections, material testing.

Building permit fees.

*Funding Issues: Insurance Assessment Office Report, where required may be considered for supplementary funding.*