



2021 Canadian COST GUIDE

Your guide to better
understanding Canadian
real estate development
and infrastructure
construction costs



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Your guide to better understanding Canadian real estate development and infrastructure construction costs

The construction industry showed its resilience and performed well in 2020 (all things considered), but even with the vaccination roll-out, we aren't out of the woods yet. Construction sites being locked down or not at full capacity, the global supply chain being somewhat broken, and a recession, will undoubtedly have long-term impacts on construction costs throughout 2021 and beyond.

Having a current and accurate understanding of these costs will be imperative to help manage development risk and navigate through the uncertainty to protect your project returns.

Every year in this guide we look at construction costs in local markets across Canada and break them down by building type. These data have proven very useful, however when improperly applied, the result can be a budget and forecast that is off by hundreds of thousands, and in some cases, millions of dollars.

We will walk you through the following two ways that you can use the guide and avoid those inaccuracies:

1. **Preparing a high-level estimate** during the pre-planning stage, when you know nothing more than building floor areas.
2. **As a benchmark** in the later stages of pre-construction planning; to compare your detailed project estimate with the industry.

About the 2021 construction cost data

Construction costs are impacted by global and local economic conditions, market trends, and advances in building materials, practices, and approaches. We have considered all these factors when producing our annual guide, to provide you with a budget range of construction

hard costs across all asset classes in the Canadian marketplace.

Our proprietary database of historical projects is based on 1,300 engagements in 2020, and real projects:

Data based on real projects



Total

\$270
billion

3,930
projects

960M+
square feet



Residential

\$114
billion

1,815
projects

653M+
square feet



ICI

\$66
billion

1,765
projects

307M+
square feet



Infrastructure

\$90
billion

350
projects

This guide is designed to be an accessible tool for initial budgeting or to benchmark an estimate, however we strongly advise that you seek independent professional advice to produce a precise estimate and pro forma figures that reflect the specific conditions and details of your unique development and infrastructure undertakings.

USE CASE #1: Preparing a high-level estimate

If you are in the pre-planning stage and know nothing more than the floor areas, you can use the guide to prepare a high-level estimate. Using the Private Sector Price per Square Foot data for 2021, it's relatively simple, and we've illustrated it in this example:

40-storey office building in Toronto | 800,000 square feet above grade | 200,000 square feet below grade

Above grade 800,000 square feet x \$350/square foot = \$280 million

Below grade 200,000 square feet x \$150/square foot = \$30 million

Total \$310 million

That said, even for a high-level estimate, you should also be accounting for construction cost escalation between the date of this guide (January 2021) and your project's construction start date. When establishing your cost escalation rate, be sure to consider factors that may influence the rate of change, such as your region and your asset type. If you don't, this can lead to grossly inaccurate development budgets, and more time (and money) spent on contingency plans down the road.



It is important to consider the following when estimating construction cost escalation:

1. Each trade cost does not change at the same rate, across the board. For example, we have seen that the cost of formwork can change at a dramatically different pace than the cost of structural steel.
2. Every building / asset type requires a different set of trades and in different proportions. Think about how significant the formwork trade is in high-rise residential buildings, and conversely how insignificant this same trade is in a typical warehouse building.



Looking for more information on evaluating the viability of your development project?

Read our guide on 'Feasibility fundamentals'.



USE CASE #2: As a benchmark

If you are further into the planning phase of your project and able to obtain specific measurements of building elements, beyond just floor areas, you should be preparing a more detailed estimate and using the guide to benchmark that estimate.

This point is reached earlier in the project than you may realize, and even with preliminary concept drawings you are able to measure elemental quantities and estimate your construction costs with a lower margin of error than is possible with a simple cost per square foot estimate. The conceptual drawings provide you with critical information about the building characteristics which can have a significant impact on the cost, including the building's shape, height, footprint and characteristics of the below-grade structure.



For example, you can leverage this information to estimate façade costs, and base them on a façade quantity measured specifically for your building's shape and height.



Floor Plate Size (sf)	10,000	15,000
Floors (#)	45	30
Floor Area (sf)	450,000	450,000
Floor Perimeter (ft)	410	490
Floor Height (ft)	14	10
Façade Quantity (sf)v	258,300	147,000

Same floor area

Building A has 75% more façade than Building B



Private sector price per square foot

	Vancouver		Calgary		Edmonton		Winnipeg		GTA		Ottawa		Montreal		Halifax		St. John's		
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
RESIDENTIAL	CONDOMINIUMS/APARTMENTS																		
	Up to 6 Storeys (Hybrid Construction)	220	330	180	255	180	255	180	250	195	265	180	255	165	240	155	225	160	230
	Up to 12 Storeys	230	340	215	265	215	265	185	265	230	315	190	265	170	250	165	235	170	240
	13-39 Storeys	240	365	225	265	225	265	190	260	240	305	200	280	180	255	175	245	n/a	n/a
	40-60 Storeys	265	355	230	270	230	270	200	265	250	340	220	300	190	270	n/a	n/a	n/a	n/a
	60+ Storeys	285	360	n/a	n/a	n/a	n/a	n/a	n/a	285	380	240	330	n/a	n/a	n/a	n/a	n/a	n/a
	Premium for High Quality	up to	220	up to	205	up to	205	up to	200	up to	210	up to	180	up to	180	up to	170	up to	175
WOOD FRAMED RESIDENTIAL (DIMENSIONAL LUMBER)																			
Row Townhouse with Unfinished Basement	130	205	125	170	125	170	115	150	130	200	115	160	110	155	95	135	110	155	
Single Family Residential with Unfinished Basement	145	265	125	195	125	195	120	185	140	240	120	200	105	175	90	150	115	150	
3 storey Stacked Townhouse	170	235	145	180	145	180	140	180	160	220	150	180	125	175	115	165	140	175	
Up to 4 Storey Wood Framed Condo	190	280	160	210	160	210	155	210	185	250	160	210	125	185	125	160	130	170	
5 to 6 Storey Wood Framed Condo	210	290	160	215	160	215	160	215	195	265	170	220	145	200	125	170	130	180	
Custom Built Single Family Residential	435	1,100	405	870	405	870	405	850	420	945	440	920	385	770	255	505	290	615	
SENIORS HOUSING																			
Independent / Supportive Living Residences	215	320	165	265	165	265	175	270	240	330	185	280	165	255	155	235	170	245	
Assisted Living Residences	245	370	200	275	200	275	205	280	260	355	215	290	200	270	180	255	185	260	
Complex Care Residences	295	395	265	375	265	375	250	320	305	395	255	320	245	295	215	295	235	310	
COMMERCIAL	OFFICE BUILDINGS																		
	Under 5 Storeys (Class B)	240	305	180	250	180	250	185	255	210	305	190	245	170	235	165	215	170	220
	5 - 30 Storeys (Class B)	240	285	180	255	180	255	185	260	220	325	200	270	175	245	170	240	175	250
	5 - 30 Storeys (Class A)	270	340	215	290	215	290	220	290	250	365	230	310	190	270	185	265	190	275
	31 - 60 Storeys (Class A)	285	405	235	335	235	335	240	335	305	440	n/a	n/a	240	355	n/a	n/a	n/a	n/a
	Interior Fitout (Class B)	55	115	50	85	50	85	50	90	80	110	60	95	50	100	50	90	50	90
	Interior Fitout (Class A)	110	210	80	160	80	160	85	160	120	230	90	155	90	160	85	145	85	150
	RETAIL																		
	Strip Plaza	125	185	185	240	185	240	110	170	125	215	125	195	105	175	100	155	115	160
	Supermarket	190	240	165	190	165	190	160	215	175	240	160	220	140	200	125	190	140	185
Big Box Store	180	240	160	190	160	190	160	215	165	225	155	200	140	190	140	185	140	185	
Enclosed Mall	270	365	210	285	210	285	210	285	235	325	210	270	205	280	185	265	200	250	
HOTELS																			
Budget	190	245	155	205	155	205	160	205	180	240	160	220	155	215	175	220	155	195	
Suite Hotel	300	365	230	295	230	295	235	295	280	340	230	315	215	280	200	285	205	270	
4 Star Full Service	320	420	245	310	245	310	250	300	300	450	255	365	230	300	220	295	230	290	
Premium for Luxury	up to	180	up to	150	up to	150	up to	150	up to	250	up to	155	up to	155	up to	100	up to	105	
PARKING																			
Surface Parking	7	26	6	20	6	20	5	20	10	25	6	19	6	17	6	16	6	16	
Freestanding Parking Garages (above grade)	95	135	75	100	75	100	80	105	90	140	75	155	75	105	95	115	100	130	
Underground Parking Garages	135	180	125	170	125	170	110	150	160	200	120	190	100	145	110	150	125	155	
Underground Parking Garages (Single Level, Open Cut Excavation)	105	130	110	135	110	135	100	125	130	160	100	145	90	125	90	125	100	130	
Underground Parking Garages	up to	185	up to	120	up to	120	up to	120	up to	200	up to	180	up to	155	up to	150	up to	150	
INDUSTRIAL	INDUSTRIAL FACILITIES																		
	Warehouse	100	140	80	110	80	110	80	115	80	110	85	110	70	105	95	130	95	140
	Urban Storage Facility	100	145	80	110	80	110	80	115	85	110	90	115	n/a	n/a	n/a	n/a	n/a	n/a
	Data Centre - Tier III	625	1,025	480	935	480	935	490	950	600	1,200	550	1,010	545	950	n/a	n/a	n/a	n/a
	Pharmaceutical Lab	585	830	405	630	405	630	420	635	515	810	450	675	450	690	n/a	n/a	n/a	n/a
	Manufacturing Facility	315	415	240	330	240	330	250	345	295	395	275	355	265	355	260	340	260	335

Public sector price per square foot

	Vancouver		Calgary		Edmonton		Winnipeg		GTA		Ottawa		Montreal		Halifax		St. John's		
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
INSTITUTIONAL	EDUCATIONAL BUILDINGS																		
	Elementary School	230	305	235	295	235	295	190	255	220	260	200	240	195	235	235	285	240	300
	Secondary School	255	325	240	300	240	300	225	285	245	305	230	275	225	265	265	310	275	315
	Private School	240	415	260	335	260	335	205	320	245	365	245	310	240	315	300	355	295	355
	Universities & Colleges - Teaching and Lecture Hal	415	540	440	660	440	660	335	455	400	570	325	505	340	435	310	385	305	380
	Universities & Colleges - Laboratories (Level 1 and	530	695	485	685	485	685	500	625	560	800	480	645	480	620	430	600	430	600
	Universities & Colleges - Student Residence	230	360	195	280	195	280	210	285	230	330	190	265	190	270	185	265	185	260
CIVIC	HEALTH CARE																		
	General Hospital/Acute Care	665	895	520	710	520	710	525	720	630	850	580	750	545	795	545	760	545	730
	Medical Clinic/Treatment Centre	365	515	275	430	275	430	285	430	330	485	315	450	300	450	310	455	315	475
	TRANSPORTATION BUILDINGS																		
	Regional Airport Terminal	355	465	370	450	370	450	310	385	370	450	305	395	300	380	295	380	300	425
	International Airport Terminal	715	925	555	745	555	745	585	750	660	900	580	725	590	725	570	715	585	735
	Bus Terminal/Garage	315	405	245	305	245	305	255	305	285	370	255	345	255	315	245	325	250	330
SERVICING	GOVERNMENT BUILDINGS																		
	Fire/EMS Station	340	480	390	550	390	550	270	395	450	650	275	355	275	335	290	320	290	380
	Police Station - Local Detachment	335	390	315	375	315	375	285	340	360	410	285	385	285	350	290	340	285	375
	Police Station - Regional Headquarters	370	515	365	425	365	425	305	430	385	495	295	375	295	365	300	355	300	400
	Court House	445	610	395	515	395	515	415	540	475	630	395	495	390	495	380	455	375	475
	Facilities Maintenance Building	330	415	250	330	250	330	270	370	290	370	265	335	260	340	225	295	235	295
	Penitentiary	395	505	410	500	410	500	380	460	375	490	335	440	335	440	380	525	425	525
Municipal Office (including fit-up)	300	420	230	335	230	335	235	345	285	395	245	340	245	340	215	310	220	310	
	Library	325	480	320	450	320	450	325	415	345	580	325	480	320	475	285	455	290	465
	RECREATION/ENTERTAINMENT BUILDINGS																		
	Ice Arena	265	375	200	280	200	280	210	275	225	300	195	265	190	280	200	255	195	275
	Community Aquatic Facility	445	560	330	435	330	435	345	450	420	600	350	445	340	450	370	465	360	460
	Multi-Use Recreational Centre	290	530	230	335	230	335	240	345	335	525	260	340	225	350	215	330	210	320
	Casino Facility	410	705	370	630	370	630	380	650	490	800	470	745	440	730	380	605	n/a	n/a
	Performing Arts Building	505	735	485	725	485	725	460	675	505	790	415	700	415	700	390	515	390	500
Museum / Gallery	470	645	435	700	435	700	405	620	475	685	405	520	395	535	370	495	360	500	
	SITE SERVICING																		
	Local Roads - 8m road width (per metre)	2,900	4,000	2,600	3,500	2,600	3,500	2,800	3,700	4,000	5,500	3,200	4,200	3,100	4,000	2,900	3,700	3,300	4,100
	Arterial Roads - 9m road width (per metre)	3,100	4,400	2,800	4,300	2,800	4,300	3,000	4,400	4,300	5,800	3,300	4,700	3,300	4,800	3,100	4,100	3,400	4,400
	Arterial Roads - 12m road width (per metre)	4,000	4,700	3,600	4,700	3,600	4,700	3,700	4,800	5,000	6,500	4,300	5,300	4,200	5,200	4,000	4,800	4,200	4,700
	Private Roads - 6m road width (per metre)	2,600	3,000	2,200	3,200	2,200	3,200	2,400	3,200	2,800	3,800	2,500	3,400	2,500	3,300	2,400	3,000	2,700	3,200
	Residential Row Townhouses (per unit)	20,500	28,900	19,200	29,400	19,200	29,400	20,000	30,500	23,500	34,000	23,900	32,200	21,300	30,700	18,700	26,300	22,500	30,000
	Industrial (per acre)	136,600	236,300	118,000	223,000	118,000	223,000	120,000	220,000	156,500	239,400	144,600	224,700	137,300	212,200	121,200	191,900	150,000	215,000
Commercial (per acre)	173,300	288,900	162,300	304,200	162,300	304,200	165,000	300,000	210,000	351,800	197,700	335,000	182,000	309,900	166,700	267,700	190,000	310,000	

Public sector price per square foot (continued)

	British Columbia		Alberta		Ontario (GTA Region)		Ontario (Ottawa Region)	
	Low	High	Low	High	Low	High	Low	High
LIGHT RAIL TRANSIT								
Guideway - Underground (Tunnel) (per km)	74,600,000	177,200,000	65,700,000	156,100,000	68,800,000	163,600,000	65,100,000	154,800,000
Guideway - Underground (Cut and Cover) (per km)	34,000,000	328,400,000	29,900,000	289,200,000	31,400,000	303,000,000	29,700,000	286,700,000
Guideway - At Grade (per km)	2,200,000	28,700,000	1,900,000	25,300,000	2,000,000	26,500,000	1,900,000	25,100,000
Guideway - Elevated (per km)	2,900,000	59,600,000	2,500,000	52,500,000	2,600,000	55,000,000	2,500,000	52,100,000
Stops - At Grade (per unit)	1,150,000	5,780,000	1,010,000	5,090,000	1,060,000	5,330,000	1,000,000	5,050,000
Stations - Underground (per unit)	45,200,000	185,500,000	39,800,000	163,400,000	41,700,000	171,200,000	39,500,000	162,000,000
Stations - At Grade (per unit)	5,000,000	39,700,000	4,400,000	34,900,000	4,600,000	36,600,000	4,400,000	34,600,000
Stations - Elevated (per unit)	25,400,000	75,400,000	22,400,000	66,400,000	23,400,000	69,600,000	22,200,000	65,800,000
Operations and Maintenance Facility (per sf)	200	1,160	175	1,020	185	1,070	175	1,015
Systems (per km)	5,200,000	24,100,000	4,500,000	21,300,000	4,800,000	22,300,000	4,500,000	21,100,000
HIGHWAYS								
Multi-Lane Highways (per lane km)	1,990,000	2,800,000	1,720,000	2,510,000	1,840,000	3,550,000	1,740,000	2,670,000

Looking to more accurately assess construction cost escalation by trade – for better budgeting, forecasting and procurement decisions?

Subscribe to our Cost Escalation Report for the high-rise multi-family sector.





Frequently asked questions

Q: If I am budgeting a building that has no underground parking area, can I use just the applicable rate for the above grade without adding any underground parking cost?

A: Yes, the above grade costs include the cost of a slab on grade and associated footings.

Q: In the Parking section, when would the *Underground Parking Garages - Premium for Unusual Circumstances* apply and what would it include?

A: Underground parking garage costs can vary significantly depending on their site specifics, location, soil conditions, ground water conditions, shape, and depth. Examples where additional costs may be incurred include:

- Non-typical foundations due to poor soil stability
- Bath tubbing the underground due to groundwater or municipal regulations
- Soil conditions that increase excavation costs and/or shoring costs
- Unusually constricted site conditions (e.g. proximity to adjacent structures)
- Footprint shapes that increase the ratio of exterior wall area relative to floor area
- Non-typical floor heights and/or specifications
- Remediation of contaminated soils or groundwater

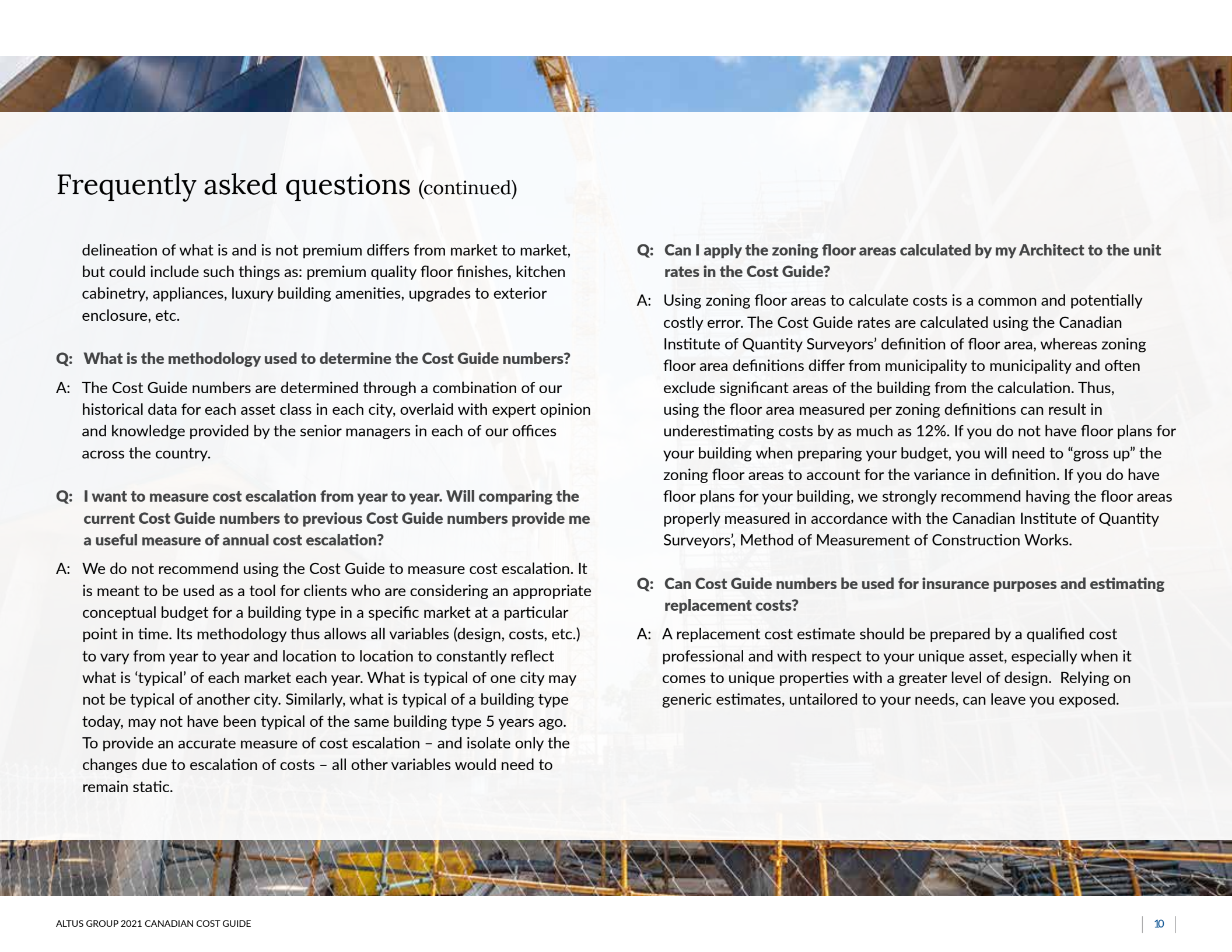
Q: Why does the cost of the same asset type differ so much between cities in some cases?

A: The Cost Guide numbers reflect the probable costs of the identified type of building as it would typically be defined in that market. Not only do the costs of labour and materials differ between markets, the standards/specification of each building type may differ as well.

For example, the specification of a mid-quality condominium in Vancouver will typically be a higher specification than what is provided for a mid-quality condominium in Halifax. In addition, there are climatic & code variances between cities. For instance, the HVAC system required in Calgary will be different than the HVAC system required in Vancouver. These differences are also reflected in the numbers. The difference in the Cost Guide numbers is a composite of both the differences in labour and material cost and the differences in design.

Q: In the Condominiums/Apartments section, what is the *Premium for High Quality item*, what does it include, and when does it apply?

A: The Cost Guide numbers are representative of the level of finishes and design that would be considered “typical” of a mid-quality condominium/apartment in that city. If aspects of your building’s design are beyond what would be considered typical, you should be adding this premium. The



Frequently asked questions (continued)

delineation of what is and is not premium differs from market to market, but could include such things as: premium quality floor finishes, kitchen cabinetry, appliances, luxury building amenities, upgrades to exterior enclosure, etc.

Q: What is the methodology used to determine the Cost Guide numbers?

A: The Cost Guide numbers are determined through a combination of our historical data for each asset class in each city, overlaid with expert opinion and knowledge provided by the senior managers in each of our offices across the country.

Q: I want to measure cost escalation from year to year. Will comparing the current Cost Guide numbers to previous Cost Guide numbers provide me a useful measure of annual cost escalation?

A: We do not recommend using the Cost Guide to measure cost escalation. It is meant to be used as a tool for clients who are considering an appropriate conceptual budget for a building type in a specific market at a particular point in time. Its methodology thus allows all variables (design, costs, etc.) to vary from year to year and location to location to constantly reflect what is 'typical' of each market each year. What is typical of one city may not be typical of another city. Similarly, what is typical of a building type today, may not have been typical of the same building type 5 years ago. To provide an accurate measure of cost escalation – and isolate only the changes due to escalation of costs – all other variables would need to remain static.

Q: Can I apply the zoning floor areas calculated by my Architect to the unit rates in the Cost Guide?

A: Using zoning floor areas to calculate costs is a common and potentially costly error. The Cost Guide rates are calculated using the Canadian Institute of Quantity Surveyors' definition of floor area, whereas zoning floor area definitions differ from municipality to municipality and often exclude significant areas of the building from the calculation. Thus, using the floor area measured per zoning definitions can result in underestimating costs by as much as 12%. If you do not have floor plans for your building when preparing your budget, you will need to "gross up" the zoning floor areas to account for the variance in definition. If you do have floor plans for your building, we strongly recommend having the floor areas properly measured in accordance with the Canadian Institute of Quantity Surveyors' Method of Measurement of Construction Works.

Q: Can Cost Guide numbers be used for insurance purposes and estimating replacement costs?

A: A replacement cost estimate should be prepared by a qualified cost professional and with respect to your unique asset, especially when it comes to unique properties with a greater level of design. Relying on generic estimates, untailored to your needs, can leave you exposed.



Notes on correct use of data

Guide Only

The construction cost data contained herein are of a general nature only and subject to confirmation with respect to specific circumstances.

The unit rates for the building types described are an average range exclusively for that particular type of building. The unit rates assume that a level, open site exists with no restrictions from adjoining properties. It is assumed that stable soil conditions prevail. Average-quality finishes (unless otherwise stated), both to the exterior and interior are also assumed.

Judgement factors must be applied within the average range to allow for:

- Quality
- Schedule
- Extent of site works
- Location
- Site restrictions
- Design method
- Type of contract
- Building shape, size and height
- Market conditions
- User requirements
- Topography and soil conditions
- Procurement advantage of developer/contractor

Correct Measurement & Use of Square Foot

In preparing a “cost per square foot” guide, we must outline how we define the area used as the denominator to calculate this value. We have adopted the Canadian Institute of Quantity Surveyors’ definition which dictates:

1. Measure each floor to the outer face of the external walls;
2. No deductions for opening at stairs, elevators or vertical ducts are made;
3. A deduction is made for a non-service vertical protrusion, e.g., atrium space;
4. Mezzanine floors are generally included;
5. Balconies are excluded; enclosed solariums in residential condominiums are included;
6. Sloping and stepped floors (auditoriums/movie theatres) are measured flat; and,
7. Exclude all external covered walkways

If the building includes underground parking areas, these costs need to be added based on the “Underground Parking Garage” rate in the guide.



Notes on correct use of data

Hard Construction Costs Only

The unit costs outlined herein cover construction costs only. In all commercial developments the project budget must also include development or “soft” costs. These would include some or all of the following:

- Land and related costs
- Legal fees
- Site services outside the property
- Tenant incentives
- Soil and environmental tests
- Contingencies
- Architectural and engineering fees
- Special design consultants
- Interest charges and lenders’ fees
- Permits and development charges
- Land surveys
- Government registered programs
- Special equipment and furnishings
- Marketing and advertising
- Purchaser upgrades
- Property taxes
- Other municipal fees
- Insurance and bond costs
- Management costs
- Levies
- Appraisals
- Broker commissions
- Developer profit
- Rezoning costs

Federal & Provincial Sales Tax

The unit costs provided exclude Value Added Taxes (GST, HST and QST), but include Provincial Sales Tax (PST) where applicable at the time of the release of this guide.



Appendix | Building type descriptions

PRIVATE SECTOR

General: All costs exclude site development and premiums associated with unique architecture.

RESIDENTIAL

Condominiums and Apartments

- Assumed cast-in-place concrete structure unless otherwise indicated.
- Hybrid construction could include any combination of alternate building structures, such as precast concrete and light-gauge steel.
- The premium for high-quality can be applied to any of the condominium/apartment categories.
- Parking is excluded from all unit rates and should be added accordingly.

Wood-Framed

- The floor area of the unfinished basement and garage should be excluded from the area used with the unit rate provided.
- Parking is excluded from all unit rates and should be added accordingly.

Seniors Housing

- Costs can fluctuate depending on the level of care, services provided to the residents, and whether the facility is for-profit or community-based.

COMMERCIAL

Office Buildings

- Assumed base building construction only, including mechanical and electrical services, washrooms, and finishing of ground floor entrance lobby.
- Tenant partitioning and finishes (with the exception of ceiling and column finishes) are excluded. The cost of finishing this space can fluctuate depending on the density of partitioning and the quality of the finishes.
- Costs assume standalone buildings and are not representative of a component within a mixed-use building.
- Parking is excluded from all unit rates and should be added accordingly.

Retail

- Assumed single-storey buildings with the exception of enclosed malls.
- The CRU space is considered shell.
- Public spaces within an enclosed mall are finished.
- Costs assume standalone buildings and are not representative of a component within a mixed-use building.





Appendix | Building type descriptions (continued)

PRIVATE SECTOR

General: All costs exclude site development and premiums associated with unique architecture.

Hotels

- FF&E allowances are excluded, as each operator has its own definition, and the costs can vary significantly.
- Budget hotel assumes no restaurant or bar facilities and minimal meeting/conference areas.
- Suite hotels assumed to include a kitchenette.
- Four-star full-service hotels include dining and conference facilities and special-use lounges. Premiums for luxury should only be applied to the four-star full-service hotel.

Parking

- On-grade parking assumes an asphalt paved surface lot, including necessary curbs, line painting, storm servicing, and pole lighting.
- Freestanding (above grade) parking assumes an open-air structure.
- Underground parking assumes that temporary support to the excavated sides of the proposed garage is required, and that there are no extraordinary conditions or unusual circumstances.
- Underground parking (single level, open cut excavation) assumes open site conditions and no requirement for shoring.
- Premium for unusual circumstances could be applied to account for issues

such as but not limited to: poor soil conditions, excessive groundwater, environmental contamination, restricted site conditions, small or non-standard footprint shape, and non-typical floor to floor heights.

- The “efficiency” of garages (parking area/stall) is also an important cost variable.
- All parking unit rates should be applied to the area of parking required and not the associated building area.

INDUSTRIAL

- Warehouse space is based on heated shell space, excluding mezzanine areas. A finished office component is included.
- Urban storage facilities are based on multi-level facilities which have site constraints.
- Data centres are based on suburban sites and include access flooring and redundant heating and cooling. Active hardware is excluded.
- Pharmaceutical laboratory costs vary depending on the level of testing and manufacturing involved. FF&E is excluded.
- Manufacturing facilities are based on open spaces with high structures to allow space for equipment. FF&E is excluded.



Appendix | Building type descriptions (continued)

PUBLIC SECTOR *General: All costs exclude site development and premiums associated with unique architecture.*

INSTITUTIONAL

- Educational buildings exclude allowances for FF&E.
- Health care buildings: With more than 40 subcategories of space types available in hospitals, the mix of costs fluctuate depending on the type of facility being constructed, the mix of beds, clinics and surgical suites, as well as the building configuration. Parking and FF&E are excluded.

CIVIC

Transportation Buildings

- Regional airport terminals are typically single-storey facilities that have smaller gate and circulation capacity for local domestic flights and minimal amenities.
- International airport terminals are multilevel facilities with extensive amenity space for restaurants, retail stores, and have larger circulation space and gate capacity. Also included are spaces for customs and immigration control. Costs for any parking, airside infrastructure, or equipment are excluded.
- Bus garages are slab-on-grade, single-storey, long-span steel structures including vehicle maintenance facilities and a small administration area. FF&E including vehicle lifts are excluded.
- All buildings are based on suburban facilities with no site constraints. Any associated site work or parking is excluded from the unit costs.
- Costs assume a design standard equivalent to LEED Silver. Premiums associated with actual certification or Gold/Platinum design are excluded.

Government Buildings

- Fire/EMS Stations exclude any costs associated with training buildings.
- Local Police Detachments include offices and facilities for police and civilian members with minimal interview rooms and holding cells.
- Regional Police Headquarters include the same scope as a Local Police Detachment, plus additional interview rooms, holding cells, training space, and administration.
- Courthouses include judicial chambers, administrative offices, holding cells, and courtrooms.
- Operations Centre costs are based on the main facility only, including maintenance, storage, and administrative areas. Any outbuildings would be an additional cost.
- The range of costs for penitentiaries vary depending on the level of security and size of the facility.
- Municipal Offices include administrative space for all municipal departments, meeting and conference rooms, council chambers, cafeteria, daycare facility, and significant atrium space.
- Library costs vary depending on size and whether the building is standalone or part of a multi-use facility.

Recreation / Entertainment Buildings

- Ice arenas include single to four-pad facilities with spectator seating; unit costs are based on steel structures.
- Community aquatic facilities include single or multiple pools, minimal spectator seating, change room facilities, and fitness areas. Unit costs are based on conventionally framed structures for most of the building.
- Multi-use recreation centres could include any combination of fitness, gymnasium, daycare, community room, and administrative space. Facilities with arena, pool, and multi-purpose areas should be based on the costs for each component combined.

Appendix | Building type descriptions (continued)

PUBLIC SECTOR

General: All costs exclude site development and premiums associated with unique architecture.

- Casino / gaming facilities are assumed to be single storey buildings containing gaming floor (slots and/or table games), restaurants, bars entertainment, and retail areas. Costs include fit-out of the gaming floor, but exclude FF&E, slot machines, tables, and security systems.
- Performing arts buildings unit costs vary depending on the size and function of the facility. Acoustical treatment, theatre lighting, stage, and seating requirements would all impact the cost.
- Museum and gallery costs vary depending on the purpose of the space; humidity and temperature control, redundant systems, and fire prevention all impact the costs.

SERVICING

Site Servicing

- The rates for residential site servicing are based on costs per centre line of road and allow for underground storm, sewer, water services, electrical services, street lighting, earthworks, curbs, asphalt roadways and sidewalks. Items such as berms, retaining walls, noise barrier fences, entrance features, storm ponds, landscaping, and external services are excluded.
- The higher end of the specified range should be used for municipalities, which require crusher run limestone in lieu of granular materials for the base road construction and/or where curb or road sub drains are required.
- Arterial road costs may be partially recoverable from the local municipality or region.
- The rates for townhouse servicing are provided on a per unit basis and include private roads within a complex subdivision.
- The rates for industrial and commercial site servicing are provided on a per acre basis.
- Costs exclude any requirement for oversizing of services for future development.


INFRASTRUCTURE

Light Rail

- Assumes average project conditions and does not account for unusual circumstances such as but not limited to: poor soil conditions, excessive groundwater or environmental contamination.
- Does not include for structures such as bridges and interchanges
- Does not include utility works
- Based on direct construction costs only
- Stops - at Grade - Assumes an average size of 5,000 sf
- Stations - Underground - Assumes an average size of 100,000 sf
- Stations - at Grade - Assumes an average size of 30,000 sf
- Stations - Elevated - Assumes an average size of 30,000 sf
- Operations and Maintenance Facility - Inclusive of storages, light maintenance facilities and heavy maintenance facilities

Highways

- Rates allow for underground storm, sewer, lighting, earthworks, curbs and asphalt roadways. Items such as berms, retaining walls, noise barrier fences, entrance features, storm ponds, landscaping, and external services are excluded.
- Assumes average project conditions and does not account for unusual circumstances such as but not limited to: poor soil conditions, excessive groundwater or environmental contamination.
- Based on direct construction costs only.
- Does not include for structures such as bridges and interchanges.
- Through-city highways are excluded.



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