

**CONSTRUCTION AND RENOVATION
FUNDED BY THE CFI**

**EXAMPLE OF A DETAILED COST
ALLOCATION METHOD**

March 2009

Hanscomb

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1. INTRODUCTION

When the CFI funds a portion of a larger construction or renovation undertaking, the costs reported to the CFI for the CFI-funded space must reflect, as accurately as possible, the actual cost of this specific space. It is the responsibility of the institution to develop an appropriate cost allocation method for each project once the construction or renovation contract has been awarded. Costs for common areas and soft costs must be pro-rated to the CFI-funded portion of the undertaking.

This document provides an example of a detailed cost allocation method, using an elemental format. **Other methods may also be acceptable.** If the costing information included in the construction or renovation contract is not presented in an elemental format, institutions should consider developing a cost allocation method tailored to the project and cost information available.

Institutions should also refer to the *CFI Policy and Program Guide* from the CFI website (www.innovation.ca) for:

- Guidelines on eligible construction and renovation costs for the CFI;
- Expectations for financial reporting and documentation when the CFI-funded construction or renovation is part of a larger undertaking.

The following information, available in the “Finance” section of the CFI website under “Frequently Asked Questions,” may also be of interest:

- Framework for the evaluation of cost allocation methods;
- Example of a simplified cost allocation method. The CFI will allow an institution to use a simplified cost allocation method only if the average cost of the CFI-funded space is representative of, or higher than, the average cost of the overall undertaking.

Notwithstanding what is identified in the following example, it remains the responsibility of each institution to ensure they follow proper accounting and cost recognition standards.

2. DEFINITIONS

The following definitions apply to this document:

CFI-funded space

Portion of the construction/renovation funded by the CFI, as identified in the proposal, or as subsequently approved by the CFI.

Elemental format

A standard set of functional elements of which a building is composed (e.g. substructure, structure, exterior enclosure, interior finishes, fittings and fixtures, mechanical and electrical).

Gross floor area

The total floor area for the building, measured to the outside face of the building cladding.

Net floor areas

Spaces, measured within the interior walls, that can be used for people or programs, as determined by the functional program of the building (e.g. laboratories, offices, classrooms).

Common areas

Spaces within the building that are not included within the net floor areas of the building, but are usually essential for the net floor areas to function. These include building service areas, circulation areas, mechanical areas and structural areas (e.g. washrooms, mechanical and electrical rooms, janitor rooms, data/communication rooms, lobbies, elevators, spaces occupied by walls and circulation spaces). These are also sometimes called "common elements."

Adjusted gross/net area ratio

This is the ratio between the gross floor area over the sum of all net floor areas of the entire undertaking, subject to the following adjustment: common areas which are not essential for the net floor areas of the entire undertaking to function within the building (e.g. parking, lounges, vending areas, food services, health and fitness centres), or that are in excess of building codes, must be subtracted from the gross floor area. This ratio will be used to calculate the common areas associated with the CFI-funded space.

Soft costs

Soft costs are expense items that are not considered direct construction costs, but are necessary to prepare and complete the non-construction needs of the project (e.g. architecture, design, engineering, permits, inspections).

Soft cost ratio

The ratio of the total soft costs of the entire undertaking divided by the total construction costs of the entire undertaking (excluding soft costs, but including the cost of common areas).

3. REPORTING OF ELIGIBLE COSTS TO THE CFI

The total eligible costs to be reported to the CFI for the construction/renovation space funded by the CFI should be calculated as follows:

$$\left(\begin{array}{l} \text{Cost of CFI-funded} \\ \text{space (net area only)} \\ \text{[refer to section 4]} \end{array} + \begin{array}{l} \text{Allocation for cost of} \\ \text{common areas} \\ \text{[refer to section 5]} \end{array} + \begin{array}{l} \text{Allocation for soft} \\ \text{costs} \\ \text{[refer to section 6]} \end{array} \right) \times \begin{array}{l} \text{Research} \\ \text{Portion} \end{array}$$

Note: If the CFI-funded space is only partly used for research, the costs must be pro-rated to reflect the research use of the space.

(An example is included in Appendix A.)

4. COST OF CFI-FUNDED SPACE (NET AREA ONLY)

4.1 ALLOCATION METHODS

Each functional element (e.g. foundation, floor finishes, fittings and fixtures) must be analyzed to establish an appropriate method to allocate a portion of the total cost of the element to the CFI-funded space (net area only).

It is important to note that a method that may be appropriate for allocating the cost of one functional element may not be for another. The following three methods will normally be considered for the allocation within each project. (A table in the next section summarizes the most appropriate method for each functional element.)

Method 1: Proportional allocation — overall undertaking

To allocate a portion of the cost of the functional element using this method, calculate the percentage of the net area of the CFI-funded space over the gross floor area of the entire undertaking. This percentage is then multiplied by the total cost of the element less the additional cost of special conditions that may be required by the other types of spaces (not funded by the CFI) in the entire undertaking, and for which it would be inappropriate for the CFI to assume a portion of the costs. If special conditions are required for the CFI-funded space, then the entire additional associated costs should be included.

Calculation:

Total cost of the functional element	A
Less: Additional cost of special conditions that may have been required only by the other types of spaces (not funded by the CFI) in the entire undertaking, and for which it would be inappropriate for the CFI to assume a portion of the costs	B
Less: Additional costs of special conditions required by the CFI-funded space which will be added separately as item G below	C
Subtotal = A-B-C	D
Multiplied by: Ratio of total net floor areas of the CFI-funded space/gross floor area of the entire undertaking	E
Subtotal = (DxE)	F
Add: Additional cost of special conditions required by the CFI-funded space (See C, above)	G
Total portion of the cost of the functional element associated with the CFI-funded space (F+G)	H

Method 2: Proportional allocation — affected floor area

This method should only be considered if:

- the functional element is related to an affected floor area, **and**
- the CFI-funded space is located in the affected floor area.

For example, if the CFI-funded space is located on the lowest floor, then this method would be used to allocate a portion of the cost of the lowest floor construction (functional element A21).

To allocate a portion of the cost of the functional element using this method, calculate the percentage of the net area of the CFI-funded space over the gross affected floor area. For example, if the CFI-funded space is located on an upper floor, the percentage would be the net area of the CFI-funded space over the total gross upper floor area. This percentage is then multiplied by the total cost of the element less the additional cost of special conditions that may be required by the other types of spaces (not funded by the CFI) in the entire undertaking and for which it would be inappropriate for the CFI to assume a portion of the costs. If special conditions are required for the CFI-funded space, then include the entire additional associated costs.

This method is identical to Method 1, with the exception that the costs of the functional element, and therefore the cost allocation, are restricted to an affected floor area (e.g. upper floor, lower floor, basement).

Calculation:

Total cost of the functional element	A
Less: Additional cost of special conditions that may have been required only by the other types of spaces (not funded by the CFI) in the entire undertaking, and for which it would be inappropriate for the CFI to assume a portion of the costs	B
Less: Additional costs of special conditions required by the CFI-funded space which will be added separately as item G below	C
Subtotal = A-B-C	D
Multiplied by: Ratio of total net floor areas of the CFI-funded space / gross affected floor area	E
Subtotal = (DxE)	F
Add: Additional cost of special conditions required by the CFI-funded space (See C, above)	G
Total portion of the cost of the functional element associated with the CFI-funded space (F+G)	H

Method 3: Itemized costing

The entire associated cost of items included within the CFI-funded space should be calculated and included.

Note: To avoid reporting costs twice to the CFI, do not consider the cost of equipment included in the cost of the element but reported separately to the CFI under the equipment category.

4.2 SUMMARY OF FUNCTIONAL ELEMENTS AND ALLOCATION METHOD

The following summarizes the various functional elements and the appropriate allocation method for each element. Method 1 is used for elements that are equally applicable to all types of spaces within a building. Method 2 is used for functional elements related to affected floor areas (e.g. lowest floor, upper floor, basement). Method 3 is used for interiors such as partitions and doors, finishes, fittings and equipment (except for elevators) since requirements for these elements can vary significantly from one type of space to another. (A description of what is included in each functional element is included in Appendix B.)

Functional Element	Method
A Shell	
A1 Substructure	
A11 Foundation	1
A12 Basement excavation ¹	2
A13 Special conditions	1
A2 Structure	
A21 Lowest floor construction ¹	2
A22 Upper floor construction ¹	2
A23 Roof construction	1
A3 Exterior cladding	
A31 Walls below grade ¹	2
A32 Walls above grade ¹	2
A33 Windows and entrances	1
A34 Roof coverings	1
A35 Projections	1
B Interiors	
B1 Partitions and doors	
B11 Partitions	3
B12 Doors	3
B2 Finishes	
B21 Floor finishes	3
B22 Ceiling finishes	3
B23 Wall finishes	3

Functional Element	Method
B3 Fittings and equipment	
B31 Fittings and fixtures	3
B32 Equipment	3
B33 Elevators	1
C Services	
C1 Mechanical	
C11 Plumbing and drainage	1
C12 Fire Protection	1
C13 HVAC	1
C14 Controls	1
C2 Electrical	
C21 Service and distribution	1
C22 Lighting and power	1
C23 Systems and ancillaries	1
D1 Site Work	
D11 Site Development	1
D12 Mechanical site services	1
D13 Electrical site services	1
D2 Ancillary work	
D21 Demolition	1
D22 Alterations	1
Z General requirements and fee	
Z11 General requirements	1
Z12 fee	1

¹ This cost to be considered only if the CFI-funded space is located in the affected floor area.

Functional Element	Affected Floor Area (Use in calculation-Method 2)
A12 Basement excavation	Basement area
A21 Lowest floor construction	Lowest floor area
A22 Upper floor construction	Upper floor area
A31 Walls below grade	Below grade area
A32 Walls above grade	Above grade area

5. ALLOCATION FOR COSTS OF COMMON AREAS

The cost of common areas to be reported to the CFI can be determined in a two-step process:

Step 1: Calculate the amount of common area space to be reported to the CFI (in square feet or square metres);

Step 2: Multiply the amount of space in Step 1 by the average cost for common areas for the entire undertaking.

To calculate the amount of common area space to be reported to the CFI in **Step 1**, it would normally be acceptable to use the overall gross/net area ratio of the entire undertaking as long as this ratio has been adjusted to exclude non-essential areas. The total amount of common area space to be reported to the CFI could therefore be calculated as follows:

$$(\text{Adjusted Gross/Net Area Ratio}^2 - 1.0) \times \text{Total net floor areas of the CFI-funded space}$$

The average cost of common areas in **Step 2** can be calculated by dividing the total cost of the common areas of the entire undertaking over the total amount of common area space within the entire undertaking. The average cost of the common areas can also be calculated by reviewing the typical common space and assigning appropriate costs based on the overall costs. Note that the common areas which are not essential for the net floor areas of the entire undertaking to function within the building, or that are in excess of building codes, must be excluded from the calculation.

For renovations, the institution must assess whether it is appropriate to report a portion of the cost of common areas. If the common areas renovated do not benefit the CFI-funded space, then it would not be appropriate to report a portion of these costs. In addition, allocation of the cost of common areas should only be considered if funding has been requested for these elements in the proposal to the CFI.

Example: The CFI-funded space is 250 m² and the Adjusted Gross/Net Area Ratio is 1.5. All common areas in the building are essential for the net floor areas of the entire undertaking to function within the building and are within building codes. The amount of common area space to be reported to the CFI is therefore 125 m², calculated as follows: 250 m² x (1.5-1.0). Assuming the average cost for common areas within the entire undertaking is \$2,412/m², then the total cost of common areas to be reported to the CFI would be **\$301,500**, calculated as follows: 125 m² x \$2,412/m².

² Common areas which are not essential for the net floor areas of the entire undertaking to function within the building, or that are in excess of building codes, must be subtracted from the gross floor area in the Adjusted Gross/Net Area Ratio (see definition in section 2).

6. ALLOCATION FOR SOFT COSTS

The soft costs to be reported to the CFI can be determined by multiplying the percentage of the total soft costs over the total construction costs for the entire undertaking (excluding soft costs, but including the cost of common areas), by the total construction cost of the CFI-funded space (cost of CFI-funded space—net area only—plus allocation for costs of common area).

If there are specific soft costs required by the CFI-funded space, these additional soft costs should be included in their entirety. Exclude soft costs related to special conditions required only by the other types of spaces (not funded by the CFI) in the entire undertaking and for which it would be inappropriate for the CFI to assume a portion of the costs. Any CFI non-eligible costs (e.g. costs to relocate existing tenants, landscaping costs, administrative costs, art collections, land and property acquisition costs) should also be excluded.

Calculation:

Total soft costs for entire undertaking	A
Less: CFI non-eligible costs	B
Less: Additional soft costs related to special conditions that may have been required only by the other types of spaces (not funded by the CFI) in the entire undertaking and for which it would be inappropriate for the CFI to assume a portion of the costs	C
Less: Additional soft costs related to special conditions required by the CFI-funded space which will be added separately as item J below	D
Subtotal = A-B-C-D	E
Divided by: Total construction costs of entire undertaking (excluding soft costs, but including the cost of common areas)	F
Subtotal = (Total E ÷ F)	G
Multiplied by: Total construction cost of the CFI-funded space (cost of CFI-funded space—net area only—plus allocation for costs of common areas)	H
Subtotal = (G x H)	I
Add: Additional soft costs related to special conditions required by the CFI-funded space (See D, above)	J
Total soft costs to be reported to the CFI	K

Example: The cost of the CFI-funded space (net area only) is \$784,100 and the allocation for the cost of common areas is \$301,500. Therefore, the total construction cost of the CFI-funded space (excluding soft costs, but including the cost of common areas) is \$1,085,600. There are no special conditions required by the CFI-funded space or the other types of spaces (not funded by the CFI). The Soft Cost Ratio for the entire undertaking (i.e. ratio of total soft costs of the entire undertaking divided by the total construction costs of the entire undertaking—excluding soft costs, but including the cost of common areas) is 34%. Therefore, the total soft costs to be reported to the CFI are **\$369,104**, calculated as follows: \$1,085,600 x 34%.

(Examples of soft costs are included in Appendix C.)

**Appendix A
Numerical Example**

Numerical Example

Sample Data for New Construction:

Total construction costs, excluding soft costs but Including the cost of common areas (1)	\$21,200,000
Total soft costs (1)	\$7,187,000
Average cost of common areas	\$2,412/m ²
Total Gross Floor Area (1)	7,900m ²
Total Net Floor Areas (1)	5,266m ²
Total Common Areas (1,2)	2,634m ²
Adjusted Gross/Net Area Ratio (1)	1.5 [7,900m ² /5,266m ²]
Soft Cost Ratio (1)	34% [\$7,187,000/\$21,200,000]
Net floor areas of the CFI-funded space	250m ²
Function of CFI-funded space	2 – 100m ² wet labs 2 – 25m ² dry labs
Amount of common area space to be reported to the CFI	125m ² [250m ² x (1.5-1.0)]
Location of CFI-funded space	2 nd floor of the building

Note 1: For the entire undertaking.

Note 2: All common areas in the building are essential for the net floor areas of the entire undertaking to function within the building and are within building codes.

**CFI-FUNDED CONSTRUCTION AND RENOVATION
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NUMERIAL EXAMPLE SUMMARY CHART				
Functional Element	Method	CFI-Funded Space		Comments
		250m2		
		Sub-total	Total	
A SHELL	Note 1	Note 2	171,200	
A1 SUBSTRUCTURE			27,600	
A11 Foundations	1	12,400		Proportional allocation - Percentage of total cost The space is located on the 2nd floor, therefore this is not considered Proportional allocation - Percentage of total cost
A12 Basement Excavations	2	0		
A13 Special Conditions	1	15,200		
A2 STRUCTURE			68,100	
A21 Lowest Floor Construction	2	0		The space is located on the 2nd floor, therefore this is not considered Percentage of the total cost for upper floor area Proportional allocation - Percentage of total cost
A22 Upper Floor Construction	2	58,500		
A23 Roof Construction	1	9,600		
A3 EXTERIOR CLADDING			75,500	
A31 Walls Below Grade	2	0		The space is located on the 2nd floor, therefore this is not considered Percentage of the total cost for the walls above grade Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost
A32 Walls Above Grade	2	27,800		
A33 Windows and Entrances	1	25,200		
A34 Roof Coverings	1	6,600		
A35 Projections	1	15,900		
B INTERIORS			272,300	
B1 PARTITIONS & DOORS			23,400	
B11 Partitions	3	11,700		Cost of partitions within and surrounding CFI space Cost of doors within and into the CFI space
B12 Doors	3	11,700		
B2 FINISHES			31,900	
B21 Floor Finishes	3	19,300		Cost of epoxy flooring to labs and sheet flooring to dry labs Cost of acoustic lay-in ceiling Cost of paint to walls
B22 Ceiling Finishes	3	9,500		
B23 Wall finishes	3	3,100		
B3 FITTINGS & EQUIPMENT			217,000	
B31 Fittings & Fixtures	3	110,000		Lab benches and millwork Allow for two fume hood per lab Proportional allocation - Percentage of total cost
B32 Equipment	3	100,000		
B33 Elevators	1	7,000		
C SERVICES			257,100	
C1 MECHANICAL			189,000	
C11 Plumbing & Drainage	1	57,200		Allow for acid resistant piping within the CFI funded space Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost
C12 Fire Protection	1	9,500		
C13 HVAC	1	101,600		
C14 Controls	1	20,700		
C2 ELECTRICAL			68,100	
C21 Service & Distribution	1	39,600		Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost
C22 Lighting & Power	1	20,000		
C23 Systems & Ancillaries	1	8,500		
NET BUILDING COST - EXCLUDING SITE			\$ 700,600	
D1 SITE WORK			12,000	
D11 Site Development	1	9,000		Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost
D12 Mechanical Site Services	1	1,700		
D13 Electrical Site Services	1	1,300		
D2 ANCILLARY WORK			0	
D21 Demolition	1	0		No demolition required, clear site No work to an existing building
D22 Alterations	1	0		
NET BUILDING COST - INCLUDING SITE			\$ 712,600	
Z1 GENERAL REQUIREMENTS & FEE			71,500	
Z11 General Requirements	1	52,500		Proportional allocation - Percentage of total cost Proportional allocation - Percentage of total cost
Z12 Fee	1	19,000		
TOTAL CONSTRUCTION COST OF CFI-FUNDED SPACE			\$ 784,100	NET AREA ONLY
Allocation for costs of common areas			\$ 301,500	125m2 x \$2412/m2
Allocation for soft costs			\$ 369,104	(\$784,100 + \$301,500) * 34%
Research Portion			100%	
TOTAL			\$ 1,454,704	(\$784,100+\$301,500+\$369,104)*100%

Note 1: Refer to section 4 for description of the various methods.

Note 2: Institutions are expected to keep detailed calculations and documentation for amounts reported.

Appendix B

Functional Elements Description

Functional Element	Description
A Shell	
A1 Substructure	
A11 Foundation	Includes excavation and backfill to footings, concrete frost walls, concrete foundation walls to crawl spaces; concrete footings to columns and foundation walls; concrete pile caps, concrete grade beams, rebar, formwork, perimeter insulation and drainage, concrete elevator pits and concrete sump pits.
A12 Basement excavation	Includes bulk excavation for basement areas, rock excavation and backfill to the foundation walls.
A13 Special conditions	Includes steel or concrete piles and concrete caissons; ground and rock anchors; dewatering of foundations; shoring; sheet piling to excavations
A2 Structure	
A21 Lowest floor construction	Typically includes (for the entire lowest floor of the building) a slab on grade complete with the concrete, reinforcing, granular base, concrete finishing, control and or expansion joints, under slab drainage systems, steps at changes in elevation of the slab; suspended slabs over crawl spaces, under slab insulation, waterproof membranes, structural toppings.
A22 Upper floor construction	Allows for the construction of all floors above the lowest including columns, beams, shear walls and suspended floors. Includes structural steel, metal decking, concrete, rebar, formwork, control joints, concrete finishing, stairs, fireproofing, firestopping, structural toppings, suspended ramps, and special floor construction.
A23 Roof construction	Allows for the construction of the roof including columns, beams, shear walls and suspended floors. Includes structural steel, metal decking, concrete, rebar, formwork, control joints, concrete finishing, and fireproofing.
A3 Exterior cladding	
A31 Walls below grade	The exterior wall assembly basement area. Includes concrete, rebar, formwork, concrete block, waterproofing, insulation, any interior furring or framing, and drywall. The finish to the interior face of the wall would not be included (see section B23 Wall Finishes).
A32 Walls above grade	Entire wall assembly from the exterior finish of the wall through to the interior face of the assembly. Includes curtain wall assemblies for areas above grade. Typical assemblies could include the following: face brick, precast panel, stone, metal siding, vinyl siding, concrete block, insulation, air barrier, steel studs, gypsum board. Items that would not be included are the interior finish, paint, ceramic tile, wall coverings and any columns, beams, brace framing, and shear walls required to support the upper floors and roof.
A33 Windows and entrances	All windows and doors that are located within the exterior envelope of the building. Includes aluminum windows or curtain walls, vinyl windows, aluminum entrance doors, insulated metal doors, frames, hardware, louvers, window exterior sills, interior stools, caulking and flashing. Window blinds would not be included (see B31 Fittings and Fixtures).

Functional Element	Description
A34 Roof coverings	Includes everything above the roof structure: vapour barrier, insulation, roof membrane, any ballast material required, metal roof, control joints, skylights, gutters and downspouts for sloped roofs, roof hatches, roof anchors for window cleaning and fall protection.
A35 Projections	Includes parapets and overhangs at the roof; suspended balconies; canopies and porches; areaway gratings and walls; metal siding, insulation, vapour barrier, structural support to soffits, chimneys; sun control items, spires, and similar items that would project from the building.
B Interiors	
B1 Partitions and doors	
B11 Partitions	All non-structural (non-load-bearing) interior walls, either fixed or movable, interior glazed partitions, folding and demountable partitions complete with any required structural support. Includes gypsum board, steel studs, acoustical insulation, concrete block, movable partition and structural steel. Paint, tile and similar applied finishes would not be included (see section B23 Wall Finishes).
B12 Doors	All interior doors, frames hardware, including access doors. Includes aluminum entrance doors, automatic door openers, wood doors, metal doors, wood frames, and metal frames. Special doors to vaults and package type walk-in coolers and freezers would not be included (see section B32 Equipment).
B2 Finishes	
B21 Floor finishes	All applied finishes to the floor construction assemblies. Includes non-structural toppings, hardeners to concrete, access pedestal flooring, carpeting, tile, sheet flooring, stone, and rubber, wood or ceramic tile base, finishes to stairs and landings.
B22 Ceiling finishes	All applied finishes to the ceilings. Includes suspended gypsum board ceiling complete with support structure and paint finish, gypsum board bulkheads, acoustic lay-in ceiling tile, cornices; stair and landing soffits, and special finishes to exposed concrete.
B23 Wall finishes	All applied finishes to the inside face of exterior walls and partitions. Includes paint, ceramic tile, stone, prefinished wall coverings, and special finishes to exposed concrete.
B3 Fittings and equipment	
B31 Fittings and fixtures	All fittings and fixtures required under the construction contract. Includes (but not limited to): chalk, tack and white boards; washroom fittings i.e., toilet partitions, soap dispensers, etc., cabinets, lab benches, shelving, other millwork; corner guards, wall bumpers and handrails; railings to interior balconies and light wells; fixed ladders, interior signage, interior bollards, shutters and grilles, projection screens, lockers, fixed storage cabinets, blinds, shades and drapes.

Functional Element	Description
B32 Equipment	Equipment required for the funded space. Includes (but not limited to): fume hoods, environmental chambers, doors to vaults, package type walk-in coolers or freezers, loading dock bumpers, dock levelers, vehicle lifts; athletic and recreational equipment; theatre and lecture room fixed seating, lectern, projectors and special mounts. These must be eligible costs as per the CFI Policy and Program Guide. If equipment costs are significant, they should be reported to the CFI under the equipment category and not under the construction/renovation category.
B33 Elevators	Elevators for passengers, freight or dumbwaiters; hoists and cranes; pneumatic tube systems; linen and trash chutes.
C Services	
C1 Mechanical	
C11 Plumbing and drainage	All plumbing that would be required for the building. Includes: water meters, sewage pumps, injectors, sump pumps, filtration equipment, back flow preventor; water piping, sewer piping, storm piping, acid resistant drains, pipe insulation, natural gas and special gas piping, process steam, vacuum, sanitary fixtures, laboratory fixtures, kitchen fixtures, emergency showers and eye wash stations. Piping outside the building would not be included (see section D12 Mechanical Site Services).
C12 Fire Protection	Fire protection to the building. Includes: sprinkler systems, flow control equipment, fire pumps, hoses and cabinets, specialized suppression systems, fire department connections and valves.
C13 HVAC	All heating, ventilation and air conditioning systems required for the building. Includes: equipment; fans; pumps; fuel oil systems, ductwork, steam and condensate piping, generator exhaust systems; chimneys; fume hood exhausts; testing, balancing and commissioning of the HVAC system.
C14 Controls	All controls required for the HVAC system. Includes: software, thermostats, control valves and monitoring equipment.
C2 Electrical	
C21 Service and distribution	All electrical service and distribution required by the building. Includes (but not limited to): high voltage switchgear, substations, primary transformer, low voltage switchgear, building management system, emergency generator, transfer switches, UPS systems, duct banks, bus ducts, cable trays, panels, distribution transformers, grounding, motor control centers, starters, and motor wiring.
C22 Lighting and power	All electrical lighting, devices and heating required by the building. Includes (but not limited to): lighting fixtures, lamps, switches, dimming systems, emergency lighting, low voltage controls, theatre performance lighting, associated conduit and wiring, receptacles, connections, electric heating and heat tracing.
C23 Systems and ancillaries	All electrical systems and ancillaries required by the building. Includes (but not limited to): fire alarm control panels, annunciator panel, fire alarm devices, telephone system, data communication system, security system, public address system, clock system, lightning protection, cable trays, audio-visual system and associated conduit and wiring.
D1 Site Work	

Functional Element	Description
D11 Site Development	All work to the outside of the enclosing walls of the building. Includes (but not limited to): clearing and grubbing, tree removal, grading, excavation and filling (other than foundation work), soil stabilization and treatment, paving, sod, planting, curbs, walkways, ramps, stairs and railings, underground irrigation systems, fences, and retaining walls.
D12 Mechanical site services	Building connections and site services for, including: gas, sewer, water, storm, and other institutional services (steam, communication, etc.), basically all non-electrical services coming to or leaving the building. Other items to be included are: storm drainage (including catch basins and manholes); fire hydrants; septic fields, storage tanks.
D13 Electrical site services	All electrical services coming to or leaving the building. Includes (but not limited to): electrical service, telephone service, other communications services, high voltage switchgear and primary transformers; site lighting and security; electrical and communication manholes and pulpits; snow melting systems.
D2 Ancillary work	
D21 Demolition	All demolition of existing elements required for new construction and/or renovations. Includes for complete building removal; selective demolition within a building, removal of exterior and/or site components, removal and/or encapsulation of hazardous materials and contaminated soil removal. These costs would be eligible for CFI funding provided that the institution can demonstrate that it is the optimal location for the infrastructure and the research envisioned, and it is the most cost effective way to proceed.
D22 Alterations	For a combination project that would be an addition as well as an alteration of an existing building, includes all the alteration work to the existing building. This section is generally reserved for work within an existing structure, and would include many of the other elements listed throughout Appendix B.
Z General requirements and fee	
Z11 General requirements	General contractor's and/or external construction manager's overhead and direct costs incurred during the project. Includes: supervision; site accommodation; hoisting equipment (cranes and temporary elevators); winter heating; clean-up; inspections and testing; bonds; insurance; building permits. The sub-contractors overhead would be included within the individual elements.
Z12 fee	General contractor's and/or external construction manager's fee for the project.

Appendix C
Examples of Soft Costs

Soft costs may include, but not limited to, the following items:

Architect fees Structural, mechanical, and electrical engineer fees Interior designer fees Other special consultant fees Commissioning Full cost control Roof Inspection Snow/wind studies Geotechnical investigation (soils report) Pipe inspection testing External envelope studies Other required studies Lighting consultant Acoustic consultant Environmental assessment Traffic control consultant Welding inspection Building Permits Development charges Ministry of Environment application	Insurance of the proposed building during construction phase Temporary graphics and signage Drapes and blinds (could be included within the hard construction costs) Telephone and data cabling Telephone system Alarms and security systems Air balancing verification Time spent by individuals from the institution's Physical Plant department on admissible activities ³ Soil and concrete testing Project management fees Construction and soft cost contingencies (not to exceed 10% at application) Change orders GST and other taxes (net of credits received)
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³ Refer to the CFI Policy and Program Guide for acceptable methods for reporting personnel costs and required supporting documentation.