

11. Physical Infrastructure

The Faculty of Applied Science and Engineering's commitment to excellence in pedagogy and research is critically dependent upon a superbly built environment and the physical infrastructure that accompanies it. In this respect, the Faculty has relied on a long tradition of world-class facilities – even as we pursue funding opportunities with the government and our generous benefactors for deferred maintenance and new construction. Our success in these endeavours has seen a transformation in the Engineering Precinct with ambitious plans for the future.

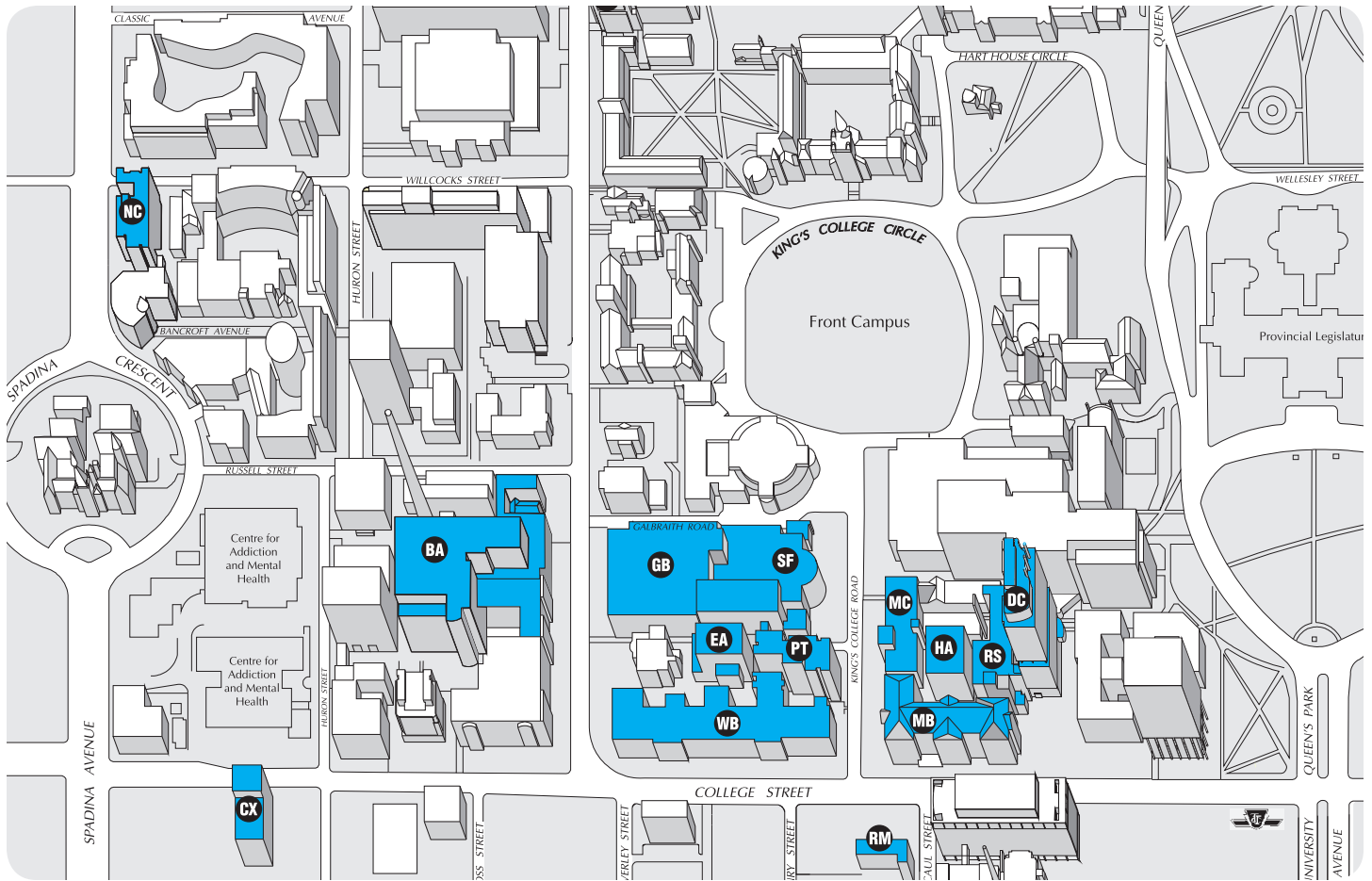
Nevertheless, a comprehensive Divisional Space Review undertaken for the Faculty in 2008–2009, determined that our current physical space no longer meets our needs as a world leader in engineering education and research.

Of the 16 buildings occupied by the Faculty on the St. George campus and in Downsview, less than a third of the total net assignable square metres of space within these buildings was deemed adequate. This difficult state is the product of many factors, but chief among them are the age of our buildings – many were built between 1906 and 1960 – and the fact that most have not seen major upgrades in decades.

Rectifying the situation is an urgent priority for the Faculty. Accordingly, we appointed a Director of Planning and Infrastructure, and several projects are underway or have already been completed to better meet the needs of the students, faculty, and staff at Canada's premier Engineering Faculty – and this subject remains a critical area for philanthropic fundraising and Faculty advocacy, both within the University and beyond.

Figure 11.1
Engineering Precinct of the U of T St. George Campus

Below is a map of the buildings on the St. George Campus that form the Engineering Precinct. The majority of the Engineering Precinct resides on the southern-most part of the St. George Campus. Along with UTIAS in Downsview (not pictured below), these 16 buildings house our student, faculty, staff, research and teaching spaces.



- | | | | |
|-----------|--|-----------|---------------------------------|
| BA | Bahen Centre for Information Technology | RS | Rosebrugh Building |
| GB | Galbraith Building | MB | Mining Building |
| WB | Wallberg Building | MC | Mechanical Engineering Building |
| EA | Engineering Annex / Electro-Metallurgy Lab Building (South Side) | NC | New College |
| PT | D.L. Pratt Building | CX | 245 College Street |
| SF | Sandford Fleming Building | RM | 256 McCaul Street |
| HA | Haultain Building | — | Aerospace (Downsview)* |
| DC | Donnelly Centre for Cellular and Biomolecular Research (CCBR) | | |

Note: *The U of T Institute for Aerospace Studies is located at 4925 Dufferin Street, Toronto, not shown above.

Figure 11.2
Summary of the Location of Space for all Units within 16 Buildings used by Engineering
2008–2009

The following table summarizes the location of Engineering units within buildings, the amount of space assigned to each unit in each building, and the amount of space in each building not assigned to Engineering. Most units have developed a shared presence in several buildings, notably the Bahen Centre and Sandford Fleming are shared with other Divisions (Arts and Science, Office of Space Management). The gross-to-net ratio is an indication of the spaciousness of a building, with the current standard for new construction aiming for a ratio of approximately 2.0. The vast majority of our buildings are below the desired mark.

Code	Building	Non Assigned	Other Assigned Non Engineering	Rented	Other Assigned Engineering	Dean's Office	EngSci	UTIAS	ChemE	CIVE	ECE	IBBME	MIE	MSE	NASM Assigned To Engineering	Gross Square Metres	Total NASM	Gross/Net Ratio
–	Aerospace	987						4,477							4,477	5,962	4,477	1.33
EA	Annex	413				324					954				1,278	1,940	1,278	1.52
BA	Bahen Centre	24,553	10,030		644	845	456				5,640		1,431		9,016	37,261	19,046	1.96
EA	Electrometal	4												149	149	176	149	1.18
GB	Galbraith	4,558	1,315		5	1,595				5,002	4,195				10,796	19,661	12,111	1.62
HA	Haultain	741	534			12			181	98			638	720	1,649	3,466	2,183	1.59
MC	Mechanical	2,296	546			63							5,497		5,560	9,722	6,105	1.59
MB	Mining	4,203	250							602		1,304	1,926	800	4,632	11,063	4,882	2.27
RM	256 McCaul	170				458									458	628	458	1.37
PT	Pratt	1,979	1,106								1,341			1,525	2,866	6,833	3,972	1.72
RS	Rosebrugh	1,404	198									810	2,198		3,008	5,629	3,206	1.76
SF	Sandford Fleming	4,776	5,018		187	839		698		1,596	3,580				6,900	21,834	11,919	1.83
WB	Wallberg	5,215	847			326			8,057		114			1,298	9,795	17,200	10,642	1.62
DC	CCBR								457		174	824			1,455	21,314	9,899	2.15
NC	New College	367	376	294		294									294	1,037	670	1.55
CX	245 College																	
	Total Area	51,666	20,220	294	835	4,756	456	5,175	8,695	7,298	15,998	2,937	11,691	4,492	62,333	163,726	90,997	1.80
									62,333									

Figure 11.3
Summary of Space Quality Assessment for Engineering Precinct Buildings
2008–2009

Results from the Divisional Space Review indicate that 28.7% of all space assigned to units is “adequate.” The buildings assessed as “adequate” are the Bahen Centre and CCBR. Further, 67.4% of all space assigned to units is considered to “need attention,” while 3.9% of all space is considered to be “poor.”

Code	Building	Total Assessed NASM	Space Quality Assessment					
			Adequate		Needs Attention		Poor	
			NASM	Total	NASM	Total	NASM	Total
—	Aerospace	4,477.2	344.8	7.7%	3,930.0	87.8%	202.4	4.5%
EA	Engineering Annex	1,278.0	0.0	0.0%	1,278.0	100.0%	0.0	0.0%
BA	Bahen Centre	8,407.4	8,407.4	100.0%	0.0	0.0%	0.0	0.0%
EA	Electrometallurgy	149.0	0.0	0.0%	0.0	0.0%	149.0	100.0%
GB	Galbraith	10,801.3	1,941.0	18.0%	8,820.0	81.7%	40.3	0.4%
HA	Haultain	1,649.6	130.8	7.9%	1,409.0	85.4%	109.8	6.7%
MC	Mechanical	5,564.5	842.9	15.1%	4,201.0	75.5%	520.6	9.4%
MB	Mining	4,669.2	1,124.0	24.1%	3,533.0	75.7%	12.2	0.3%
RM	256 McCaul	458.3	0.0	0.0%	458.3	100.0%	0.0	0.0%
PT	Pratt	2,719.5	1,206.0	44.3%	1,490.0	54.8%	23.5	0.9%
RS	Rosebrugh	2,881.8	43.8	1.5%	2,831.0	98.2%	7.0	0.2%
SF	Sandford Fleming	6,863.2	599.5	8.7%	6,071.0	88.5%	192.7	2.8%
WB	Wallberg	9,795.0	1,449.0	14.8%	7,223.0	73.7%	1,123.0	11.5%
DC	CCBR	1,455.0	1,455.0	100.0%	0.0	0.0%	0.0	0.0%
	Total	61,169.0	17,544.2	28.7%	41,244.3	67.4%	2,380.5	3.9%

Note: There is a slight discrepancy in the total NASMs assigned to Engineering between this and the previous table due to New College (a rented space) not being assessed for quality, and due to the reassignment of space captured during the space quality audit, but not yet transferred to the central University space inventory data bank on which the previous table is based.

Infrastructure Upgrades Recently Completed or In Progress 2008–2009

- ECE Undergraduate Computer Labs Project
- Rock Fracture Dynamics Facility
- UTIAS Various Lab Renovations
- Engineering Library Improvements
- MIE Design Labs – Undergraduate Design Facilities (UDF)
- MIE Fuel Cell Materials and Manufacturing Lab
- MIE Microfluidic Transport Phenomena and Bio-chips Lab
- CivE Structural Lab
- CivE Graduate Student Offices
- ChemE BioZone Phase I
- ECE Graduate Student Office Improvements
- ECF Computer Lab Relocation
- Emerging Communications Technology Institute E-beam
- PEY & ECC Relocation
- Student Club Space
- BA Atrium “Celebrating Engineering Educators” Recognition Wall
- Mechanical Engineering Building LCD Directory
- ECE Improvements to Office Entrances
- SF TrackOne Common Room
- SF MEng Study Space
- BA Engineering Science Student and Administrative Space
- SF Atrium Ceiling and Seating Replacement
- ECE Photovoltaics Research Lab
- Faculty Administrative and Decanal Offices
- MIE & MSE Fumehood Stack Extension
- Mining Attic Renovation and Exterior Building Restoration

Note: For details, please visit: www.eneews.engineering.utoronto.ca/eneews31.html