



THE UNIVERSITY OF BRITISH COLUMBIA

Report to the Board of Governors

SUBJECT **NORMAN B. KEEVIL INSTITUTE OF MINING
ENGINEERING FACILITIES
BOARD 4 PROJECT COMPLETION REPORT**

MEETING DATE **June 4, 2013**

Forwarded to the Board of Governors on the
Recommendation of the President

**APPROVED FOR
SUBMISSION**

Stephen J. Toone, President and Vice-Chancellor

Presented By

David Farrar, Provost and Vice-President Academic
Pierre Ouillet, Vice-President Finance, Resources & Operations
Angela Redish, Vice Provost and AVP, Enrolment & Academic Facilities
Eric Hall, Dean *pro tem*, Faculty of Applied Science
John Metras, Managing Director, Infrastructure Development
Al Poettcker, President & CEO, UBC Properties Trust

Report Date May 15, 2013

DECISION REQUESTED **For Information**

EXECUTIVE SUMMARY

The Norman B. Keevil Institute of Mining Engineering Facilities project consisted of construction of a small, building extension adjacent to the Coal and Mineral Processing Laboratory (CMPL) as well as renovation and upgrade work within the CMPL and the Frank Forward building. The new building was completed for occupancy in August 2011 at a final cost of \$4.027 million against a budget of \$4.027 million.

The client group is very pleased with the project which was designed to meet the needs of the Mining Engineering program which had been expanding significantly with no additional space. The CMPL is a valuable lab/research facility but it had no provision for workstations. To compensate, desks were crowded into equipment space but the researchers were actually located in Forward. The Keevil funds allowed the Faculty of Applied Sciences to upgrade areas in Forward and to build new “people space” adjacent to the laboratory space at CMPL, thus increasing its utilization. The functional improvement is immense. The addition has allowed the removal of desks and storage from the CMPL so it can be used for research more efficiently and with increased utilization. The elevator has improved access and safety levels are increased.

Place and Promise COMMITMENT(s) Research Excellence: Increase the quality and impact of UBC’s research and scholarship

Place and Promise ACTION(s) Enhance infrastructure to support leading edge research

Description & Rationale The Norman B. Keevil Institute of Mining Engineering, within the Faculty of Applied Science at UBC, was established in 2006 to transform the Department of Mining Engineering into one of the world’s leading mining schools. The establishment of the Institute was associated with contributions of \$15 million: \$7.5 million from Teck Cominco and partners, and \$7.5 from the Government of British Columbia.

These funds were directed to providing support for the academic programme through an endowment and through space improvements. Three space improvements were included in this project:

- (i) Renovation to Norman B. Keevil Institute spaces in the Frank Forward Building;
- (ii) Renovations and system upgrades to the Coal & Mineral Processing Laboratory (CMPL); and;
- (iii) Construction of a small, new building contiguous with the existing CMPL.

Together, these projects provided the following elements:

- Research Laboratory: Renovation of several small offices and labs into a flexible wet-bench laboratory on the third floor of the CMPL designed for research in relevant areas of chemistry, biochemistry and environmental studies.
- Graduate Student Workspace: 45 graduate student workstations, student meeting spaces and a computer lab in renovated space on the fifth floor of the Frank Forward Building and in new space in the CMPL addition.
- Office and Support Space: 8 offices to accommodate Institute faculty, researchers and visitors; meeting/conference rooms for research, teaching and student meetings; and an undergraduate student club room in renovated space in the Frank Forward Building.
- CMPL system upgrades / renovation: Upgrades to the ventilation and electrical systems in the renovated laboratory; installation of a building wide sprinkler system for building code compliance and minor renovations.
- Research Support: A freestanding storage enclosure and storage facilities adjacent to the Frank Forward Building to accommodate large-scale samples and equipment.

COSTS Completed at a final cost of \$4.027 million against a budget of \$4.027 million.

Capital & Lifecycle Operating Based on UBC standard operating and maintenance rates, the operating budget for this project for new space is:

$$543 \text{ gsm (Net New Construction + Unassignable)} \times \$90.16 = \$48,957.$$

This includes the cost for building system maintenance, custodial services, municipal services (landscaping and waste management) and utilities.

FINANCIAL Full funding for this project was secured through the contribution of \$15 million in support of the Keevil Institute.
 Funding Sources,
 Impact on Debt Ratios

SCHEDULE Revised Project Schedule

Implementation Timeline		Board 3
	Board of Governors (Board 2)	April 2010
	Board of Governors (Conditional Board 3)	June 2010
	Commence Construction*	August 2010
	Frank Forward Renovation Complete	August 2010
	Substantial Completion	June 2011
	Final Occupancy	June 2011
	Board of Governors (Board 4)	September 2012

**To accommodate the reorganization of the consultant team the project sustained some delays.*

Actual project completion was in August 2011.

RISKS Not applicable.
 Financial,
 Operational &
 Reputational

BENEFITS Meeting UBC's Sustainability Objectives

Learning, Research,
 Financial,
 Sustainability &
 Reputational

The Norman B. Keevil Institute of Mining Engineering (NBK IME) is dedicated to taking a leadership role in promoting environmentally and socially responsible mining throughout the world, and, as such, this building is LEED Gold equivalent.

The Institute is a leader in research into environmental issues associated with mining through its Centre for Environmental Research in Minerals, Mining and Materials.

The Institute's programs address in a multidisciplinary manner the economic, environmental and social issues associated with mining throughout the entire life cycle of mining projects, beginning with exploration and ending with mine closure, reclamation and long-term use.

This project will enhance the capabilities of the Coal and Mineral Processing Laboratory (CMPL) to conduct research and education into methods of mining and mineral processing. The project builds upon the existing CMPL facilities and both derives benefits from and enhances the existing facility. This synergy minimizes the footprint of providing academic space to the Institute.

CONSULTATION To obtain feedback, a project stakeholder meeting was held on October 24, 2012 to review the project, and elicit feedback on the project process and outcome. Participants were representatives of:

- Relevant Units,
 Internal & External
 Constituencies
- Facilities Planning, Infrastructure Development
 - Norman B. Keevil Institute of Mining Engineering
 - UBC Building Operations
 - UBC Properties Trust
 - Faculty of Applied Science

See Attachment 1. Post Occupancy Review

Previous Report Date April 10, 2008	Decision Board 1 Preliminary Capital Budget: \$6.75M
Previous Report Date February 5, 2009	Decision Revised Board 1 Revised Capital Budget: \$3.518M
Previous Report Date April 8, 2010	Decision Board 2 & Commencement of Renovation
Previous Report Date June 9, 2010	Decision Board 3 Capital Budget: \$4.027M

Attachments

1. Post Occupancy Review
2. Capital Accountability – Scope and Planning
3. Capital Accountability – Budget and Funding

Attachment 1 Post Occupancy Review

To obtain feedback, a project stakeholder meeting was held on Wednesday 24 October 2012, at 200-330 pm in Keevil 358 to review the project, and elicit feedback on the renovation project process. Participants were:

Suzanne Poohkay, Director, Facilities Planning, Infrastructure Development (Chair)
Bern Klein, Head, Norman B. Keevil Institute of Mining Engineering
Joel Canlas, Facilities Manager, UBC Building Operations
David English, Project Manager, UBC Properties Trust
Rob Brown Vice President, UBC Properties Trust
Michael Beza, UBC Properties Trust
Ron Loewen, Capital Projects Manager, Faculty of Applied Science
Malcolm (Mac) MacLachlan, Administrator, Norman B. Keevil Institute of Mining Engineering
Pius Lo, Technician, Coal and Mineral Processing Laboratory, Norman B. Keevil Institute of Mining Engineering
Michael Thayer, UBC Building Operations

Regrets

Orion Henderson, Sustainability Office

Discussion


The client group is very pleased with the project which was designed to meet the needs of the Mining Engineering program which was expanding significantly but had no available space. The Coal & Mineral Process Laboratory (CMPL) is a valuable lab/research facility but it had no provision for workstations. To compensate, desks were crowded into equipment space but the researchers were actually located in Forward. The Keevil funds allowed Faculty of Applied Sciences to upgrade areas in Forward and to build new “people space” adjacent to the laboratory space at CMPL, thus increasing its utilization. The functional improvement is immense. The addition has allowed the removal of desks and storage from the CMPL so it can be used for its research more efficiently and with increased utilization and safety.

The main floor lobby of the CMPL addition is used as informal undergraduate quiet study space. The new elevator allows full accessibility to all three floors of the CMPL, which was originally built without an elevator. The 2nd floor grad student study space is unassigned space and the 3rd floor grad student study space is assigned. This efficient operational combination allows them to accommodate more graduate students in a limited space.


The lower level of the CMPL addition was constructed as shell space which will be the future home of a scanning electron microscope. The lower level of the existing CMPL also contains a dedicated classroom for rock mechanics. On the west side of the CMPL addition a plaza has been constructed and is used for faculty outdoor get-togethers and other events.

This was the first building to tie into the steam to hot water conversion. In general, this was a successful project that met its objectives and was delivered on budget.

Attachment 2 Capital Accountability – Scope and Planning

	PROJECT NAME		CURRENT APPROVAL STATUS			
	Project Name:	Norman B. Keevil Institute of Mining Engineering Facilities Project		Level	Approval Date	
	Department/Unit:	Faculty of Applied Science	Executive:			
	Sponsor:	Eric Hall, Dean pro tem Applied Science	Board:	3	09-Jun-10	
PROJECT DESCRIPTION		FUNCTIONAL PROGRAM				
Development Type:	New Construction + Renovation	Space Type	Net SM	Net SF	Gross SF	
Facility Type:	Academic Building	New Construction:				
Gross Building Area:	10,315 gsf (958 gsm) 543gsm is new	Academic Offices:	200	2,148	3,775	
Capital Cost:	\$4,027,000	Research Support	110	1,179	2,071	
Location/Site:	UBC Vancouver, West Mall	Renovation				
Primary Users / Tenants:	Faculty of Applied Science Department of Mining Engineering	Research Lab (CMPL)	155	1,671	1,671	
		Academic Offices (FFB)	260	2,799	2,799	
		Total	724	7,796	10,315	
PROJECT RATIONALE & BENEFITS						
Need/Benefit Area		Description				
Academic Growth:		Supports goal to transform UBC Mining Engineering into one of the world's leading mining schools				
Research Growth:		Provides research labs and support space				
Learning & Research Environment		Provides 45 graduate student workstations, and student meeting space and a computer lab				
Student Amenity		Provides a student lounge.				
Community Amenity		Will provide small plaza areas to the west and east of the Coal & Mineral Processing Lab building.				
Other Benefits:						
SCHEDULE			SUSTAINABILITY GOALS			
		Target	Actual	Indicator	Target	Actual
Board 1		Feb 2009	Feb 2009	Certification:	LEED Gold equivalency	LEED Gold equivalency
Board 2		May 2009	Apr 2010	Energy Efficiency Level:	25% better than MNECB	
Board 3		Jun 2010	Jun 2010	Energy Use Intensity:	TRD (kWh/ft ²)	
Construction Start		Aug 2010	Aug 2010	GHG Reduction:	40% better than standard	
Substantial Completion		Jun 2011	Jun 2011	Const Waste Recycling	75% recycling rate	
Occupancy		Jun 2011	Jun 2011	Water Use Efficiency	40% better than standard	
Board 4		Sep 2012	Jun 2013	Innovative Features:	First building to connect to Academic District energy system	
DEVELOPMENT PROCESS						
Project Manager	UBC Properties Trust (David English)	Construction Manager	Ledcor Special Projects			
Architect	Johnston Davidson Architects	Infrastructure Development Rep	John Metras			
	Date	Comments				
AUDP Review	04-Feb-10	Project supported by the Panel.				
Dev. Review Committee	25-Feb-10	No significant issues raised.				
Public Open House	03-Mar-10	No significant issues raised.				
Building Permit						
CAMPUS & COMMUNITY PLANNING COMMENTS						
This building will be a positive addition to the surrounding context. Campus and Community Planning supports the project subject to further design development to the exterior elevations and landscape plan.						

Attachment 3 Capital Accountability – Budget and Funding

PROJECT NAME									
	Project Name:	Norman B. Keevil Institute of Mining Engineering Facilities Project							
	Department/Unit:	Faculty of Applied Science							
	Sponsor:	Tyseer Aboulhasr, Dean of ApSci							
CAPITAL BUDGET (\$000s)				LIFE-CYCLE OPERATING BUDGET					
Capital Development Cost		\$000s	\$/GSF	Operating Costs		Annual \$	\$ / GSF	Funding Source	
Construction		\$ 2,087		Ops & Maintenance*		\$ 35,929	\$ 6.15	ApSci	
Planning & Design		\$ 250		Utilities		\$ 13,028	\$ 2.23	ApSci	
Furniture & Equipment		\$ 100		Gross Total O&M Cost		\$ 48,957	\$ 8.38		
Completion (Moving/IT/AV/Security)		\$ 60		Less: Savings from		\$ -			
IIC, CAC, Permits, Insurance & Legal		\$ 150		Demolished Space					
Project Management		\$ 125		Net O&M Cost		\$ 48,957	\$ 8.38	ApSci	
Contingency		\$ 500		* Includes: building maintenance, custodial, municipal and security services					
Tax		\$ 55							
Subtotal		\$ 3,327		Life-Cycle Capital Costs		Annual \$	\$ / GSF	Funding Source	
Retained Risk Contingency		\$ -		Cyclical Maintenance		\$ 26,650	\$ 4.56	UBC	
Renovation Allowance		\$ 700		Modernization/Upgrade		\$ 1,300	\$ 0.22	ApSci	
Total Project Budget		\$ 4,027	\$ 390	Total Cap Renewal Cost		\$ 27,950	\$ 4.78		
Capital Budget Notes:				Operating Budget Notes: Facility to be maintained at APPA Level 2 standard					
FUNDING AGREEMENTS (\$000s)				FINANCING AGREEMENTS					
Funding Source	Liability with:	Committed	Secured*	Debt Serviced By:	Loan Amt*	Amort.	Int.	Ann. Payment	
Donor Fundraising	ApSci	\$ 4,027	\$ 4,027		\$ -			\$ -	
Faculty/Unit					\$ -			\$ -	
Central Administration					\$ -			\$ -	
Provincial Gov't					\$ -			\$ -	
Federal Gov't (CFI/WED)					\$ -			\$ -	
Grants/Other (WED)					\$ -			\$ -	
Total		\$ 4,027	\$ 4,027	Total	\$ -			\$ -	
* Funding paid or firmly committed to be paid before end of construction				* Loan amts in this case represent liabilities for unsecured funding sources					
Funding Notes: Sufficient funds remain from \$15M in contributions received for Institute				Debt Capacity Impact:		No long-term debt associated with this project			
PROJECT REQUIREMENTS CHECKLIST & SIGN-OFF									
CHECK	REQUIREMENT	NAME		SIGNATURE		DATE			
	Programmatic need and benefit	Provost's Office Vice Provost and Associate Vice President, Academic Resources		Wes Pue		05-May-10			
	Project scope and budget P3 screen Project manager assignment Swing space requirements	Infrastructure Development Managing Director		John Metras		08-Mar-10			
	Project site Development review process Sustainability measures	Campus & Community Planning Associate Vice President		Nancy Knight		08-Mar-10			
	Classroom/teaching lab review	Classroom Services Director		N/A					
	Food, housing and child care	Student Housing & Hospitality Services Managing Director		N/A					
	Funding & financing agreements	Project Sponsor Dean of Applied Science		Tyseer Aboulhasr		09-Mar-10			
	Funding & financing agreements Debt capacity	Treasury Treasurer		Peter Smailes		08-Mar-10			
	Fundraising plan	Development Office AVP, Development Services		N/A					
	Life-cycle operating costs	Building Operations Managing Director		Building Operations was involved in life-cycle cost analysis for this project.					
	Security & access control Parking	University Community Services Managing Director		Debbie Harvie		06-May-10			