**Draft Research Brief - Copp Redevelopment Living Lab Concept**

April 20, 2015

UBC Is planning to redevelop the site currently occupied by the Copp Building, to accommodate faculty and staff rental housing (transferred from the Wesbrook Neighbourhood), and commercial space (see Appendix A for a preliminary description of the project). The goal is to have campus as living lab as a key driver of this project, exemplifying UBC’s goal of integrating the academic mandate of the university with other university uses. The purpose of this briefing note is to describe some preliminary ideas about the living lab component.

The Campus as Living Lab (CLL) program at UBC has been running since 2010 under the direction of a Steering Committee, composed of staff, faculty and student representatives, which provides overall direction. There is also a CLL Working Group responsible for project development and evaluation. Both groups meet regularly.

The goal of the CLL program is to develop joint operational/research projects that:

* 1. Integrate the core learning and research mission of UBC with campus operations
	2. Involve sound financial use of UBC infrastructure for demonstration of and research on leading edge solutions (technical and social)
	3. Engage researchers, students, faculty instructors, operations staff and external partners
	4. Have potential for knowledge transfer within and beyond UBC, and
	5. Where possible, Involve partnerships between UBC and public, private and NGO organizations

What is particularly exciting about the Copp redevelopment project from a living lab point of view is that it offers the opportunity to address these five goals by building interdisciplinary research in from the pre-design stage, when choices are nearly all still to come, instead of simply coming to a project that is already built, or late in the design process. This means it is possible to build research capability and infrastructure into the project at a deep level. For example, this gives time to apply for academic funding to add monitoring and controls technologies to the building program that would enable research on environmental performance and human wellbeing that is impossible to undertake in a conventional building context, or to create and implement behavioral surveys and obtain useful baseline data for social science experiments.

In addition, UBC can consider designing components of the building and surrounding landscape in ways that embody the best current understanding of performance and wellbeing. This will allow researchers to explore and study how people interact with the building and surrounding landscape, and to feed those data back into the literature. The CLL component can study the process of planning, designing, constructing, commissioning, operating, and inhabiting the building and landscape from the outset, exploring and learning from the building lifecycle in ways that will be of interest for other UBC buildings, and beyond. And it will be possible to continue studying the project once it is built and in operation, with the prospect of ongoing research into building operations, and the comfort, health, well-being, satisfaction, and engagement of occupants. These remarkable academic opportunities will be integrated into a process of continuous optimization and publication over the project’s lifetime.

Some possible research projects that could be undertaken:

* Incorporating environmentally, socially, and financially sustainable building design and research into the design process
* Growing Regenerative Neighborhoods and fulfilling the promise of sustainable and innovative buildings and communities of the future
* The role of building and landscape design and operations in fostering human health, productivity, safety, and happiness
* The implications of the use of sustainable building materials, including wood
* The absolute and relative values of a building’s private and public spaces to its inhabitants
* Moving from an integrated design process (IDP) to integrated project delivery (IPD) over the building lifecycle
* New approaches to monitoring environmental performance and human wellbeing
* The contribution of controls technology to improving the behavioural interface
* Optimal integration of design modeling, quantitative environmental performance and building operations systems monitoring, and quantitative and qualitative assessments of the effect of the building on its inhabitants and the neighbourhood
* The absolute and relative contribution~~s~~ of behaviour and technology to sustainability performance (e.g. automated controls relative to human operations)
* The development, testing, and refinement of metrics to evaluate the human performance of the building and landscape, such as those related to health, comfort, and subjective wellbeing
* The interaction between project design, infrastructure, community engagement, and social capital

This list is preliminary and will be refined and amplified based on discussions with collaborating researchers, partners, and the project design team.

**Process and Governance**

It is proposed that the existing CLL Steering Committee would serve as the overall decision-making body for this project. However, a Copp Redevelopment CLL Working Group would be formed, reporting to the CLL Steering Committee, with representatives from that Steering Committee, UBC-PT, C&CP, Infrastructure Development, Energy and Water Services, Faculty Staff Housing & Relocation Services, and faculty representatives (see Appendix C for an initial list of already-interested researchers), in order to start the process of considering how CLL objectives can be built into the project design and implementation process. An initial step will be to ask CIRS (Alberto Cayuela and Ray Cole) to lead a process of holding a design brief charrette, to brainstorm CLL design goals for the project.

The Copp Redevelopment Working Group (CRWG) will discuss how best to involve researchers throughout the project, led by a sub committee of researchers – the Research Management Group. One possibility is to specify a set of general research goals and solicit proposals. Another is to actively recruit researchers who could contribute to accomplishing those goals. A key objective of the Working Group will be to identify possible academic funding sources, and potential external partners, recognizing the lead times involved in obtaining such funding and partnerships.

All research done as part of the Copp Redevelopment Living Lab will have to obtain ethics approval from the [Behavioural Research Ethics Board](http://ethics.research.ubc.ca/ethics/behavioural-research-ethics-board) at UBC. This means that all research will have to obtain informed consent from any residents before the research can be undertaken, with full opt-out provisions built into the agreement.

**Appendix A. Draft Copp Redevelopment (Site E) Summary**

Project Objective: Redevelop the site as a Living Lab project that accommodates faculty and staff housing and commercial space.

* The overall project will explore and pursue innovation and excellence in improving both environmental and human well-being (Regenerative Sustainability). It will uniquely enable the study of the process of planning, designing, constructing, commissioning, operating, and inhabiting the building and landscape from the outset, exploring and learning from the building lifecycle in ways that will be of interest for other UBC buildings, and beyond.
* The residential component will allow more UBC faculty and staff to live close to their work.
* The commercial component will contribute to animating the University Boulevard area while providing the UBC community and others with more shops and services.
* The Campus as a Living Lab (CLL) component will contribute to UBC’s initiative to integrate the academic mandate with other university uses.

Location:

* This site is located on the south side of University Boulevard west of Wesbrook Mall.
* The Strangway building (commercial & institutional) is located to the east and the Wesbrook Building (institutional) is located to the west. Pedestrian and service corridors separate these buildings from the Copp site.
* Across University Boulevard, to the north, will be two new developments (sites B & D) which will be mixed use buildings with commercial on the ground floor and residential rental housing for University Users on the upper floors.
* There are trolley bus stops on the south side of University Boulevard along the frontage of this site.
* The Medical Science Block C and Friedman building are located to the south. These are both institutional buildings.

Redevelopment Description:

* Six storey mixed-use commercial and faculty/staff (non-market) rental building with one level of underground parking. The ground floor will likely be concrete construction and the upper floors will likely be wood frame construction.
* The new project will include a Living Lab component. Environmental sustainability will be measured through UBC’s REAP (Residential Environmental Assessment Program), with a minimum target of REAP Gold and aspirational target of REAP Platinum. Social and financial sustainability will be measured through metrics TBD by CLL researchers.
* The building will be developed by UBC Properties Trust (UBCPT) and managed by Village Gate Homes (property management division of UBCPT).

Building Program (areas approximate):

Total Building Size: 174,000 – 230,000 square feet (final area to be confirmed)

* Underground Level
	+ Residential, commercial and bike parking along with service and storage areas.
* Ground Floor (Level 1)
	+ Commercial Area (concrete construction): 15,000 square feet; 5-7 commercial tenants/units; fronting University Boulevard (north). Commercial tenants will be a mix of food and beverage establishments, retail services and shops.
	+ Residential Area (concrete construction): 19,000 square feet; 15-20 suites; facing the south courtyard and pedestrian pathways to the east and west.
* Upper Floors (Levels 2-6)
* Residential and Common Areas (wood frame construction): >=140,000 square feet; 130 – >156 suites, likely 2 common areas per floor.
* Top floor to be considered for split residential/common and commercial food and beverage establishment.
* Landscape
* The surrounding site and landscape area is being verified.
* The landscape and site program should positively contribute to enhance the overall building program and project goals (health and wellbeing, liveability, productive and learning landscapes, ecological services, regenerative design)

Funding

* Construction & Long Term Financing
	+ Both the construction and long term financing of this project will be through a third party commercial lender (major financial institution).
	+ UBCPT, the developer, will need to meet all covenant, income, debt service and legal requirements of this/these lender(s).
	+ This project is funded as a typical mixed use development project.  It is anticipated that some research features could be incorporated at no net increase to the typical budget through innovative design and future operating efficiencies, but others may require additional funding and would need to be addressed through research grants and in-kind contributions from faculty partners.
	+ Total project costs will need to be consistent with UBCPT’s other faculty and staff projects to meet lender requirements.

Planning & Approval

* This project is located in the Academic core of campus and therefore will go through the UBC Board of Governors major capital project approval process.
* Apply the new “Sustainability Process for Major Capital Projects” to help guide the integration and synergies of sustainable design from pre-design development through construction and operation.
* Project development will be overseen by a Steering Committee comprised of senior University stakeholders. This Steering Committee will be officially formed at the Board 1 approval stage and will evolve from the Copp Redevelopment CLL Working Group, which is responsible for project planning. UBC Properties will manage the design and construction of the project with input and guidance from a Working Committee chaired by UBCPT and comprised of the project architect, facility users, CLL researchers, and planning/operational units (i.e. C&CP, Infrastructure Development).

Preliminary Schedule

Project Planning Feb – Dec 2015

Executive 1 + 2 Approval Jun 2015

Design Brief Workshop Sep 2015

Executive 3 Approval Jan 2016

Architect Shortlisting Process Feb – Mar 2016

Board 1 Approval (Project in Principle) Apr 2016

Final Architect and Design Team Selection Apr – May 2016

Schematic Design Jun 2016 – May 2017

Board 2 Approval (Issue Development Permit) Jun 2017

Design Development, Working Drawing and Tender Documents Jun 2017 – May 2018

Board 3 Approval (Award Construction Contracts) Jun 2018

Construction Start Jun 2018

Completion & Occupancy Aug 2020

Site Plan



**Appendix B:** **Purposes served by this building for UBC**

The following are the emerging goals for the project which will help guide research opportunities:

(1) Better-reflecting UBC’s commitment to faculty and staff by creating additional and different types of affordable and attractive housing for them and their families.

(2) Providing a stronger reflection in UBC’s residential options of our commitment to environmental, social, and financial sustainability.

(3) Having the living lab include experiments from more UBC disciplines, and across disciplines.

(4) Integrating the academic and residential spheres of campus by having scholars and residents collaborating in a deep and permanent way.

(5) Producing residential mixed-use options on campus that are vibrant and attractive to the community and achieve an architectural standard that matches the best of what we have done on the academic campus.

 (6) Modelling a desirable way to develop midrise apartment buildings on campus which help achieve UBC’s 50% work:live occupancy mandate.

(7) Providing justifiable comfort to UNA residents concerned that UBC is indifferent to the erosion of social sustainability that will come with the continuing densification of campus.

(8) Being an exemplary University community, in recognition of our commitment to >50% work-live.

(9) Creating a significant legacy, a shining star for Campus as a Living Lab, as >half the world's population is living in urban environments and they are losing their connection to place, community, and self, with terrible personal and societal effects -- figuring out how to reverse this uprootedness is one of the most critical issues of our lifetime, for academicians, planners, and builders.

(10) Demonstrating cost effective sustainable design that can be replicated in other UBC developments and beyond.

**Appendix C. Expressions of Interest from UBC faculty**

Center for Interactive Research on Sustainability = Alberto Cayuela (Director of Operations and Business Development), Ray Cole (Academic Director), John Robinson (Associate Provost, Sustainability)

Electrical and Computer Engineering = Panos Nasiopoulos (Director, Institute for Computing, Information and Cognitive Systems)

Medicine = Bob Woollard (Professor, Family Practice)

Psychology = Alan Kingstone (Professor, Psychology)

Public Health = Erica Frank (Canada Research Chair in Preventive Medicine and Population Health)

Architecture and Landscape Architecture = Leslie van Duser (Director, SALA) and Cornelia Oberlander

Art = Shelley Rosenblum (Curator of Academic Programs, Belkin Gallery)