AGENCY NAME
UNIVERSITY OF WASHINGTON

AGENCY CODE
360

PROJECT IDENTIFIER
91000016

PROJECT TITLE
CENTER FOR ADVANCED MATERIALS AND CLEAN ENERGY TECHNOLOGY

PREDESIGN DOCUMENT

UNIVERSITY OF WASHINGTON
CENTER FOR ADVANCED MATERIALS AND CLEAN ENERGY TECHNOLOGY

PREPARED FOR:
Washington State Office of Financial Management

PREPARED BY:
UW Capital Planning & Development

IN COOPERATION WITH:
CannonDesign

JULY 1, 2016

ACKNOWLEDGEMENTS

UNIVERSITY OF WASHINGTON

Dan Schwartz, *(Chair/CEI)*
Rebecca Barnes, *(OUA)*
Mike McCormick, *(CPD)*
Jon Lebo, *(CPD)*
Eric McArthur, *(CPD)*
David Ginger, *(CEI)*
Dawn Lehman, *(CEI)*
Steve Majeski, *(A&S)*
Pedro Arduino, *(CoE)*
Steve Kennard, *Real Estate Office*
Phil Reid, *Classroom Services*
Elizabeth Powers, *Sustainability*

MAGNUSSON AND KLEMENCIC ASSOCIATES

Mike C. Jewsbury, P.E., S.E., *Principal*
James P. Mahoney, P.E., LEED AP, *Project Manager*

LPG ENGINEERING, PLLC

Laurie J. Pfarr, P.E., LEED AP, CESCL, *Principal/Owner*
Laura Preftes

CANNONDESIGN

Charles Smith, *Principal in Charge*
Mark Whiteley, *Science & Technology Practice Leader*
Mehrdad Yazdani, *Design Principal*
Craig Booth, *Principal*
Jill Kurth, *Strategist*
Deepa Balgi, *Project Manager*

INTEGRITY ENERGY SERVICES, CO.

Mike Dean, *President*
Brian Hanson, *Vice President of Engineering*
Mark Foster, *Vice President of Business Development*

SWIFT COMPANY LLC

Barbara Swift, FASLA
Anna O'Connell

JMB CONSULTING GROUP LLC

Jon Bayles, *Principal*

EXECUTIVE SUMMARY

Proposed Phase 1 of the UW Innovation District, location + site analysis

LEGEND

- UW Campus
- UW Innovation District, Phase 1
- Sound Transit Stop
- Pedestrian Path
- UW Campus Expansion
- Burke Gilbert Trail
- Major Pedestrian Connections
- Major Pedestrian Connections

The UW Innovation District

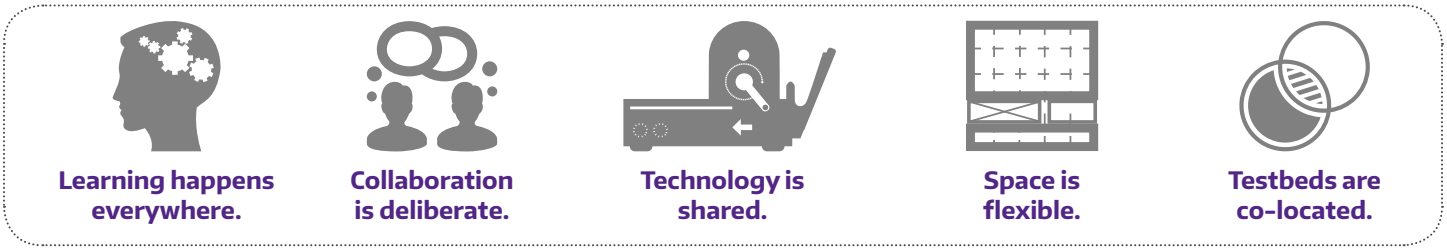
The University of Washington is embarking on a bold new plan that will dramatically accelerate the way it translates knowledge discovery into solutions for the greatest needs of society. Founded on the premise that direct and deliberate integration of UW research with industry, civic and non-profit partners will catalyze solutions and amplify global impact, UW will develop the West Campus as an Innovation District that brings together partners across a wide spectrum of influence.

West of 15th Avenue Northeast and bounded by Northeast Campus Parkway to the South, the first phase of the UW Innovation District will be a group of three buildings comprising up to one million square feed of new mixed use development.

The UW Innovation District presents an unprecedented opportunity for the university to redefine its role in the

"I have launched tech start-ups in Silicon Valley and Cambridge UK, and there is really no other place where students, faculty, industry, and start-ups have such potential for friction-free interactions. ***CAMCET will be an amazing global asset for taking research from lab to market.***"

-Devin MacKenzie
Associate Professor and Serial Entrepreneur



UW Innovation District & CAMCET program drivers.

city and build a dynamic hub of innovation, leveraging an already vibrant neighborhood. With The Center for Advanced Materials and Clean Energy Technology (CAMCET) as a cofounding anchor, the UW Innovation District concept will mix partnerships with industry, government and education in a live, work, learn environment to create a hot bed of ideas, productivity, entrepreneurship and impact.

Delivery Approach

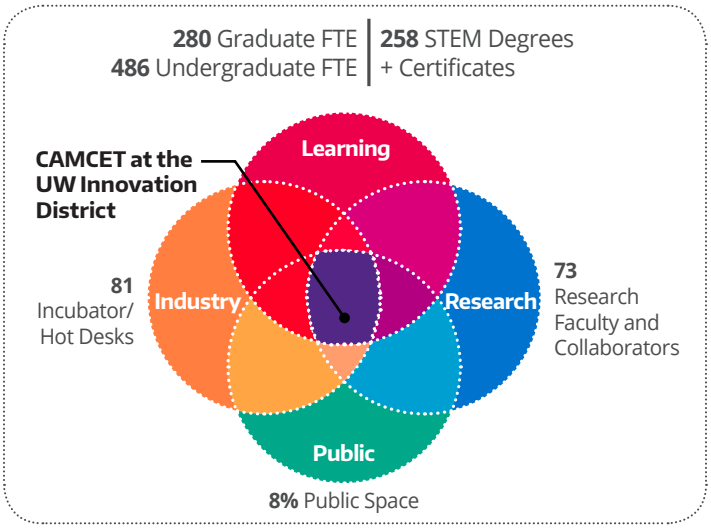
The critical mass of new development in the UW Innovation District provides a unique opportunity to leverage public - private partnerships. UW's academic priorities will define the business model, management and operations strategy for growth in the UW Innovation District. We will then identify a high caliber developer or developers with the capabilities to implement the plan. Our plans for delivering CAMCET enable the university to redefine its building procurement process, with the goal to procure buildings faster and more cost effectively for the university and state. It also provides the opportunity to potentially outsource operations and maintenance and concentrate on its core business of learning and innovation.

Culture of Innovation

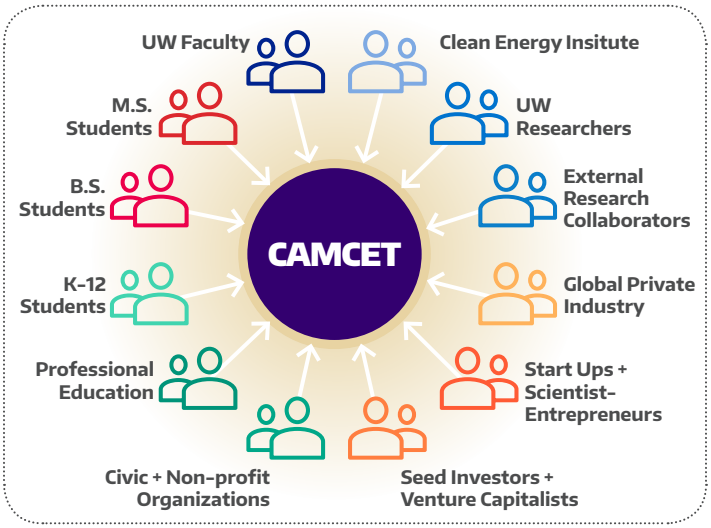
Five assumptions provide the foundation for a new culture at the UW Innovation District, and have guided the creation of the CAMCET Mission, Goals and Program. These five assumptions are specifically designed for university research, learning, and technology activities to collaborate with industry and government and create impact. (See diagram above.)

Mission

CAMCET will be an innovation hub that connects Washington to the world by catalyzing the key partnerships needed to accelerate solutions for a healthy planet.

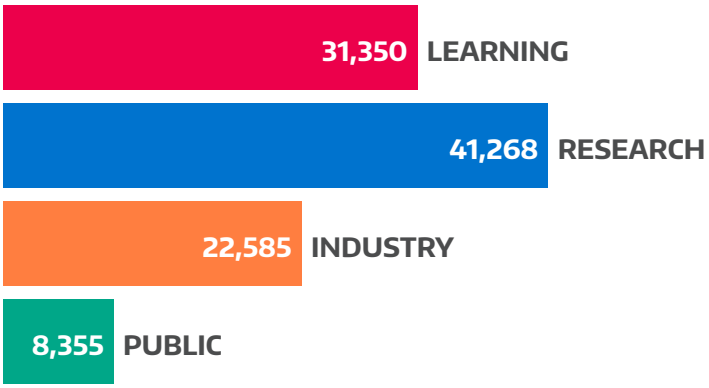


Program concept diagram.



CAMCET building user groups.

CAMCET Program Summary
Total 172,596 Gross Square Feet



* Areas are in Assignable Square Feet

Master Plan

Podium Height	42Ft / 3 Floors
Tower Height	140 Ft / 10 Floors
Max Sf	283,649 Sf
Ground Floor	36,363 Sf
Demolished Sf	32,497 Sf (S. Of Terry Lander)

Goals

CAMCET will foster collaborative research that accelerates solutions for a healthy planet.

CAMCET will increase STEM degree production and provide students with innovative STEM learning environments.

CAMCET will catalyze partnerships.

CAMCET will convene the clean tech community, and incubate start-up companies that succeed in the marketplace.

CAMCET will accommodate FTE growth and relieve some critical campus classroom needs.

CAMCET will kickstart the UW Innovation District.

Exterior view of CAMCET within the UW Innovation District

Program

We are proposing 172,596 GSF of new, mixed use program. CAMCET will create impact in these four priority areas: Learning, Research, Industry, and Public. In one place, we will have students, faculty, industry partners, tech scouts, and start-ups working in the world's premier cleantech innovation building.

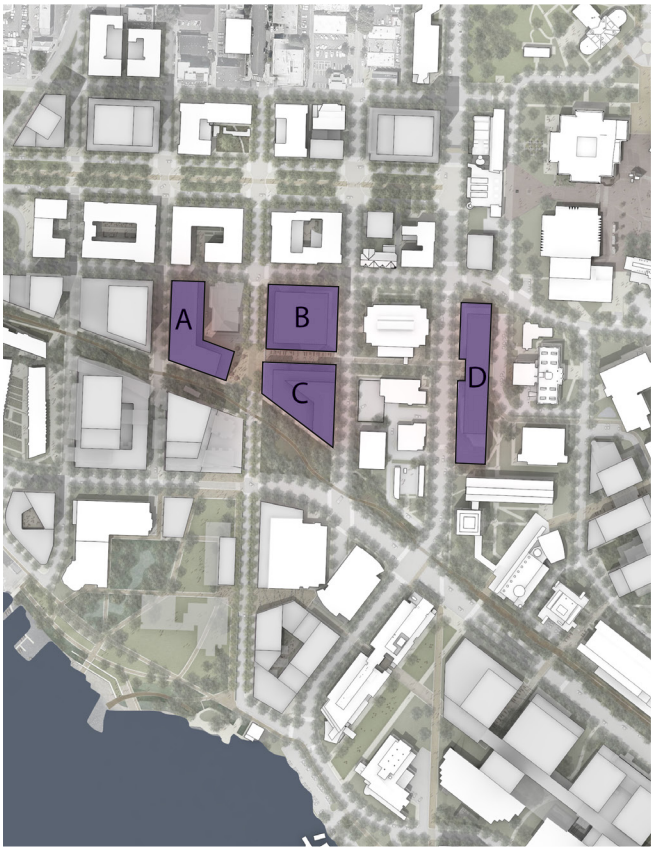
Learning space is dedicated to active learning spaces, STEM project teaching labs and collaborative social learning spaces. Research space includes wet, dry, and computational research lab modules, and significant space for shared instrumentation and equipment. Industry space includes Testbeds, the scale up facilities that allow prototype technologies to be manufactured and tested, as well as start up lab modules and hot desks. Lastly, Public space includes venues for events, conferences, and K-12 and public outreach.

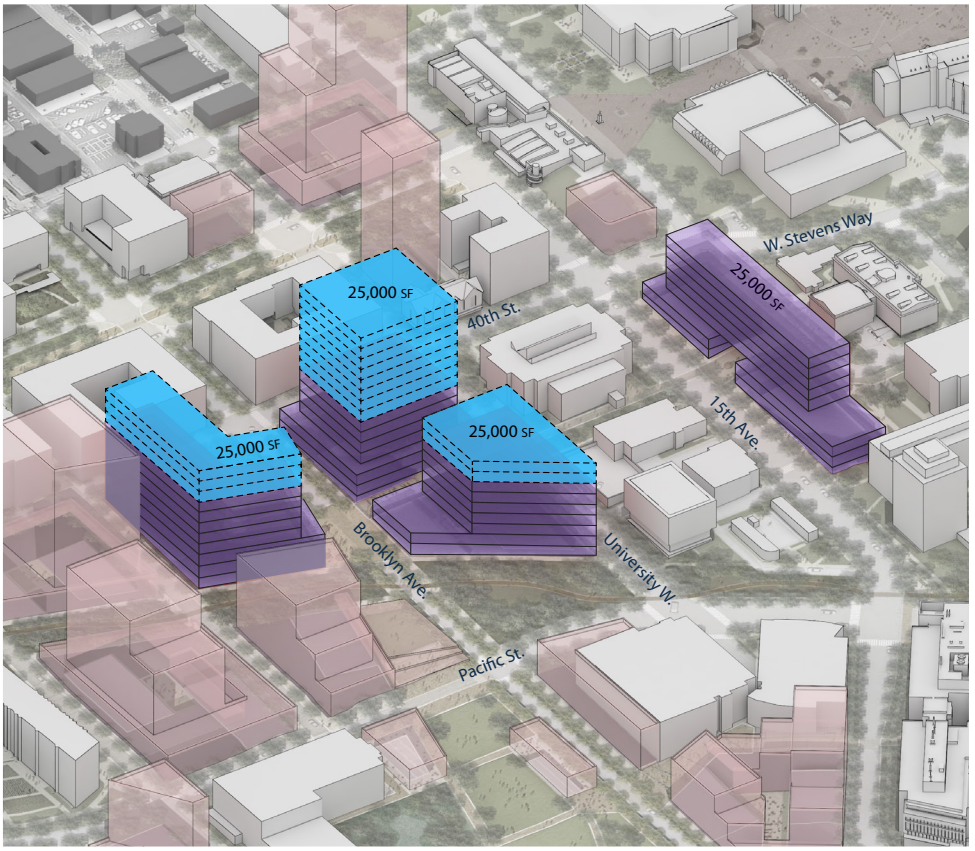
Site Analysis

Four sites were identified within the West Campus precinct for further consideration. The sites range in location from direct adjacency to the western edge of Campus to the center of the UW Innovation District two blocks further West. Massing studies were developed for all four sites to test each site's physical parameters. Critical parameters include: the ability for each site's floor plate size to be large enough to create a collaborative scientific environment and the ability to optimize each site's development potential with the total CAMCET program area.

Site C Test Fit

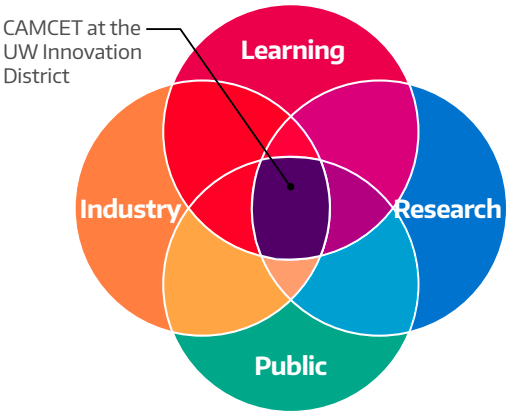
In this process Site C was selected as a desirable test fit for the purpose of illustrating the program concept and flexibility of design. Site C enables a large floor plate that creates a highly collaborative scientific research and





Considered site locations within the proposed UW Innovation District. Site C was chosen for the sake of this report.

CORE PROGRAM AREAS



LEGEND

- Meeting + Administration
- Exhibition + Conference
- Collaboration
- Classrooms
- Lab Offices + Research Admin.
- Research Labs & Equipment
- Shared Instrumentation
- Administration
- Test Beds
- Hot Desks
- Incubation Labs
- Back of House
- Cafe
- Building Entry
- Core/Mechanical/Unassignable

learning environment. As outlined in the draft Campus Master Plan, Site C also provides the greatest alignment of development potential with CAMCET program. Additionally, Site C is adjacent to the West Campus Receiving Station, which is the UW energy hub that links us to Seattle City Light. Adjacency to key campus energy infrastructure helps integrate practical energy issues into the education and research happening in CAMCET.

Cutting Edge Program Integration

Students want to be integrated into a solutions producing context that exposes them to real world clean technology challenges, and alongside the researchers and industry professionals who are actively working to address them. To create CAMCET as an innovation hub, collaborations between those that discover knowledge and those that translate knowledge into solutions must be deliberate and purpose-driven. This means that the translation of the CAMCET program must create an environment that deliberately integrates people and functions, where students, researchers, and industry partners can interact continuously, with the ability to seamlessly move from lab, to technical instruments to meeting and social spaces.

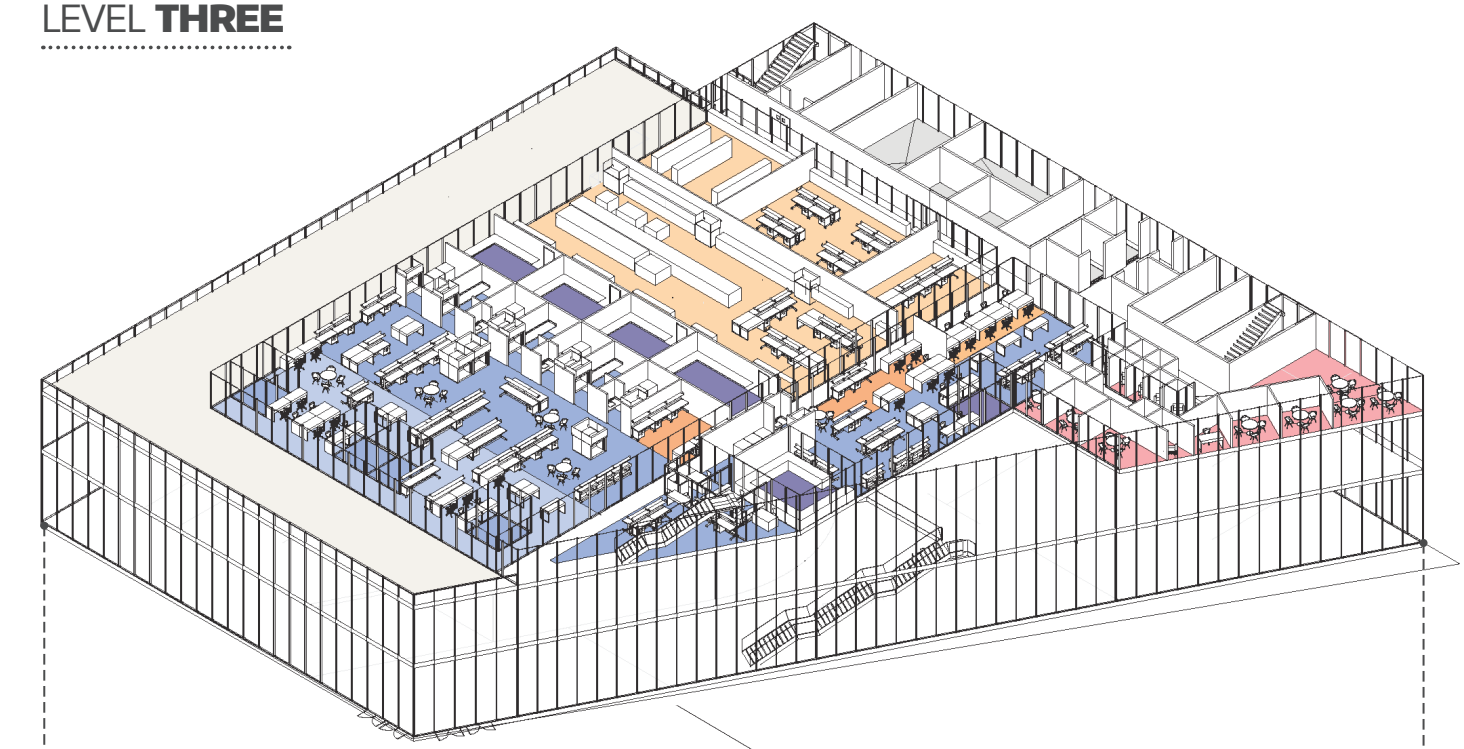
Exemplary of this strategy is the connectivity and layout of the first and third floors. On the first floor, the lobby, building café and active classroom are immediately adjacent to a start up research lab and dry research lab. The Public and Learning spaces can host large scale events like conferences, public events, interdisciplinary student competitions, and K-12 field trip visits, with cleantech research immediately adjacent on display.

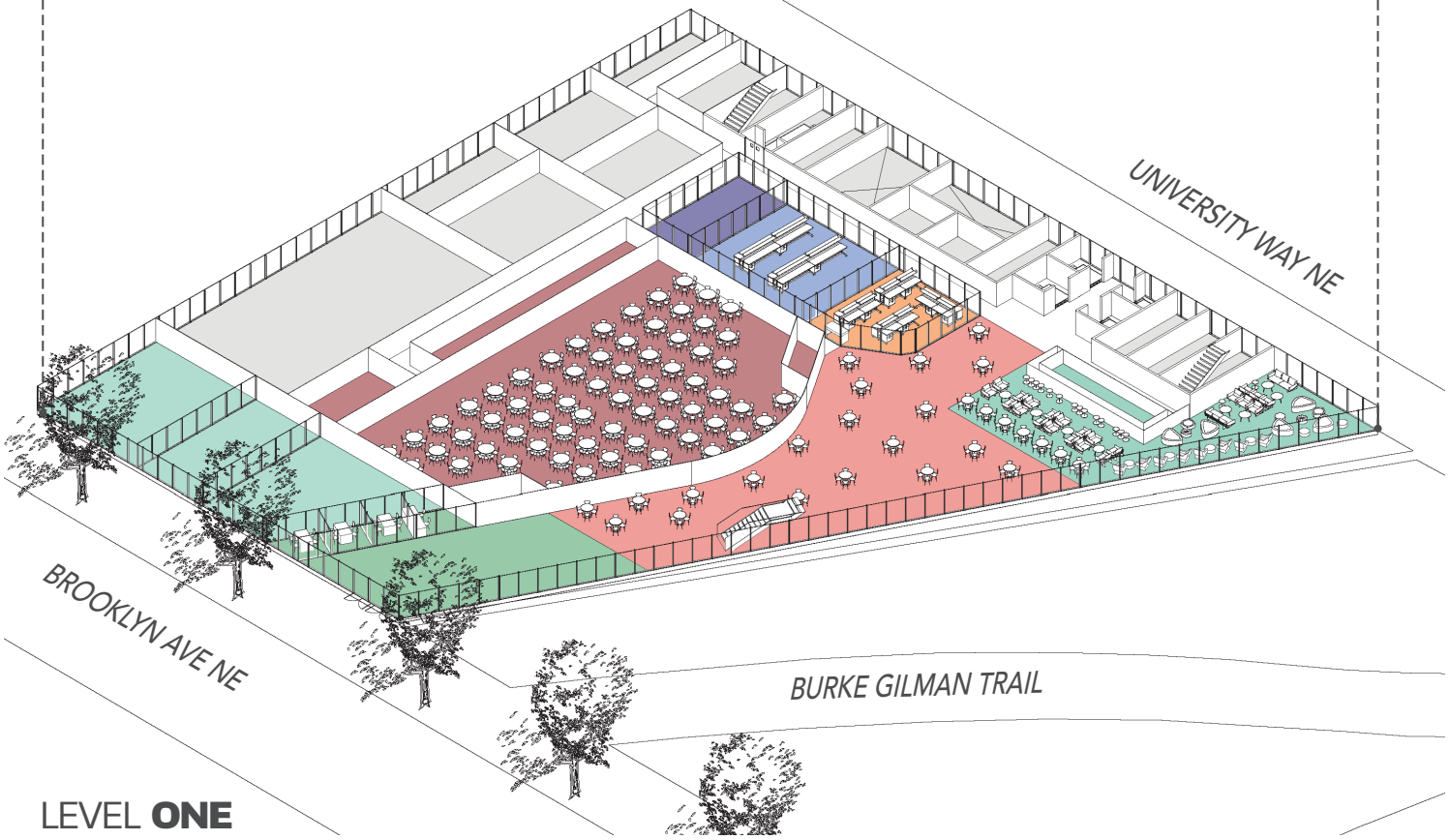
An open atrium to the third floor provides visual connectivity so a visitor understands the intensive cleantech research and technology activities on the floors above. Stairs provide direct physical connection and access. Once on the third floor, we find Learning, Research and Industry spaces where a diversity of activities will occur. Here, UW Researchers, Research Collaborators, Students, Start Up teams and Industry Partners can move seamlessly between their labs, areas of shared instrumentation, Testbed equipment, hot desks, and break out spaces for meetings, group study, private conversation and solo study.

"Daily interactions with company professionals would transform my university experience by providing me with invaluable skills and perspectives to tackle engineering problems."

-Elena Pandres
UW Graduate Student, Chemical Engineering

LEVEL **THREE**





LEVEL **ONE**

Axonometric views of Level One and Level Three showing programmatic adjacencies.

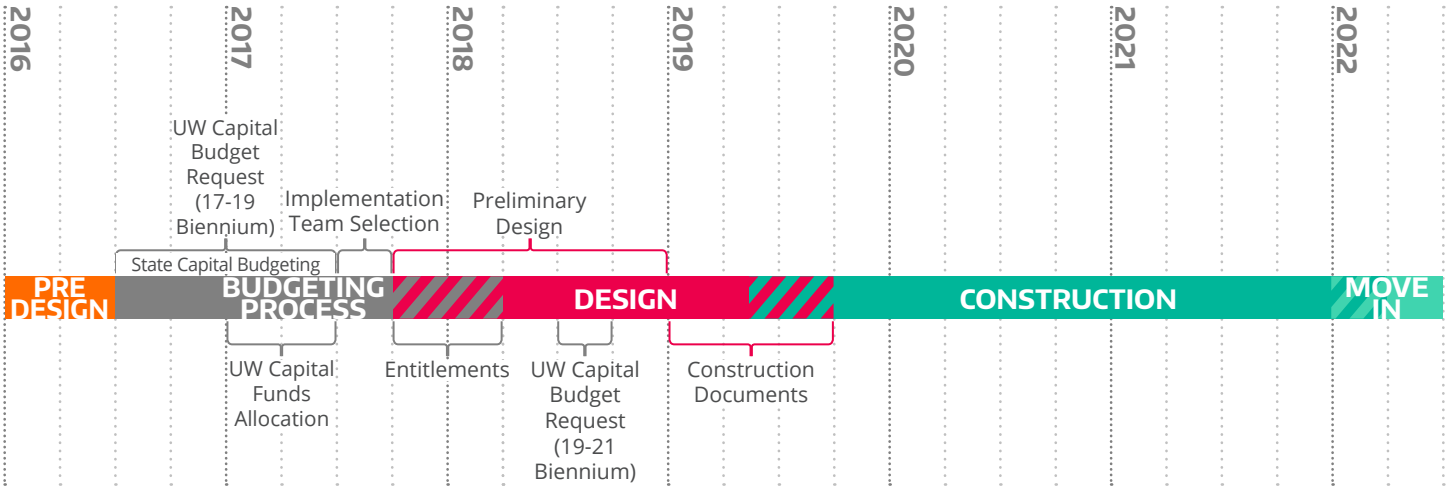
Interior view of the CAMCET facility.

Cleantech on Display

The core of the CAMCET experience is an environment that puts cleantech on display. To attract the best talent and cutting edge scientist entrepreneurs, CAMCET must provide a technology-rich environment that not only is unique to the cleantech sector but enables scientists to test and scale up discoveries into viable solutions. The culture of students, researchers and industry partners sharing these facilities in the common goal of turning ideas into solutions and impact is the hallmark of CAMCET. In doing so, CAMCET will be a dynamic place and a hub of activity; it will inspire the next generation of Washington learners to be cleantech scientist entrepreneurs.

Flexibility

Pulling students, researchers, and industry partners together in one place requires that space is flexible to meet a diverse set of operational needs. Recognizing that over time, as new knowledge is discovered, businesses and partnerships formed and solutions created, the CAMCET environment must be agile enough to respond to dynamic needs while avoiding future renovation. Modular program and vertical zoning are strategies that optimize space, anticipate changing needs, but also balance cost effective capital investment.



Anticipated project schedule, from pre-design through move-in.

Schedule and Cost

The UW CAMCET Project Schedule includes the Predesign Phase through the Construction and Occupancy Phase. As of June 2016, approximately one year will be used to secure appropriate university and State of Washington legislative support. The formal design/build process is planned to begin in the third quarter of 2017. Construction activities are planned to begin in early 2019, conclude in the second quarter of 2021 and beneficial occupancy in the third quarter of 2021.

The following cost model was developed in collaboration with the entire project team and establishes the total project cost based on historical cost data for similar programmatic spaces, and institutions of a similar size and function with escalating costs to today's dollars.

Consultant Services	$21,407,000
Construction Contracts	$115,760,000
Equipment & FFE	$14,450,000
Art Work	$462,000
Other Costs	$2,279,000
Project Management	$4,675,000
Total Project Costs	**$159,033,000**

** Costs are rounded to nearest $1,000

*"Once built, **[CAMCET] will provide much needed infrastructure that is sorely lacking in Seattle and the surrounding area**. It will have everything I need for my next cleantech company including: research ideas, a network of ambitious people, testbed facilities and connections to facilitate success for creating market-ready technologies and services..."*

-John Plaza
Cleantech Entrepreneur