



East Campus Residence Hall

FINAL Schematic Design Report
March 31, 2010
ZGF Architects LLP

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Executive Summary

The development of the East Campus Residence Hall (ECRH) is intended to assist the university in meeting a broad housing agenda. A number of goals originally identified in the ECRH Project Description are fundamental to the success of the project. These include helping to meet the long-term University plans to significantly expand the overall student housing capacity, to meet increases in freshman enrollment and to contribute to University goals to house up to 25% of undergraduates in diverse housing types that offer residence sequenced independence and motivate them to live on campus for several years. The East Campus Residence Hall will provide a greater variety of student living spaces than most existing residence halls at the University of Oregon. It will still retain the current in-residence staffing model, e.g., traditional double-occupancy rooms arranged with group showers and common areas, as well as other configurations such as single rooms, semi-suite, consisting of three double rooms with private toilet and shower, and Jack & Jill, consisting of two double or two single rooms with private bathroom. The project will house common areas and public spaces purposefully organized and designed to promote community for a wide spectrum of students, enhance the quality of the student living experience and contribute to the residential nature of the campus as a whole. In keeping with the university's sustainable development practices, it will incorporate sustainable design to provide future energy savings for students through the creation of an energy-efficient facility. As practical, the building will create opportunities for residents to engage in sustainability initiatives with the building acting as a living/learning laboratory. Students will be able to learn about the sustainable features of the building, sustainable living, and the connection to the sustainability efforts of the University at large. Academic linkages and out-of-the-classroom learning spaces will be provided within the residence hall. Significantly, the East Campus Residence Hall will include a Learning Commons, the first in a residence hall, a suite of individual and group study spaces, augmented by technology and supported by a full time librarian to ensure student access to, and support with, available information technology. Whenever possible there will be flexibility in design and construction to allow for building use and space changes over time and to ensure the long-term success of the residence hall as a university investment. Finally, the East Campus Residence Hall will continue the University's commitment to notable campus architecture within the context of its needs. This entails the creation of buildings and spaces that improve the campus in durable, effective and affordable ways that fit seamlessly into the fabric of the campus.

The proposed East Campus Residence Hall will be located on the University of Oregon campus. The site is in an existing asphalt parking lot on the corner of E. 15th Avenue, to the north, and Moss Street, to the east.

The main entrance to the complex is located on the north side, along E. 15th Avenue. Secondary entrances for the ground floor multipurpose room, dining facility and residence towers are located on the west side to connect to an open space corridor. Other secondary entrances/exits from the courtyards are located along Moss Street.

The design consists of three residence towers that sit on a large ground floor base where common spaces are located. These components have been designed to achieve the following goals:

- Develop the east side of campus establishing connectivity to the existing and future buildings.
- Provide a minimum of 450 beds (440 beds plus 10 beds for the resident assistants).

- Include group learning spaces (learning commons, classrooms), a multipurpose room and a dining facility.
- Provide a physical environment that would promote interaction among students and facilitate the exchange of ideas.

The three bars of the residence towers have been oriented with the rooms facing north and south in order to take advantage of the solar orientation and reduce the cost for energy consumption. They are connected at the ground floor which contains common spaces such as the learning commons multipurpose room, dining facility, classrooms, study rooms, residence living room, offices, mail room and other shared spaces.

The layout creates two courtyards. The north courtyard is a combination of landscaped and paved areas. This courtyard includes covered bike parking and a covered recycling area for students. The south courtyard is similar, but with more bicycles and a recycling area for the food service program.

The following is a general description of the floor plan layout:

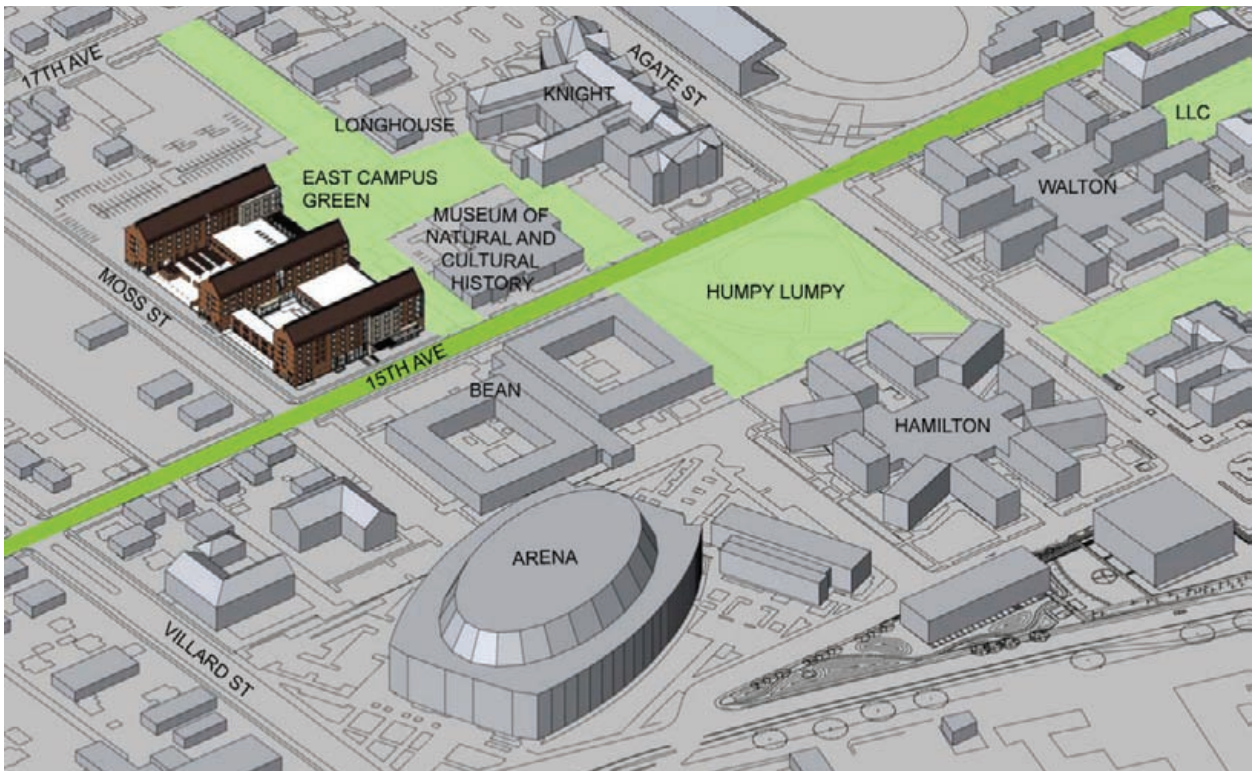
- The basement consists of mechanical, plumbing and electrical space, support spaces for building service and residential storage as indicated in the drawings. The floor elevation is at -15'-0" below grade first level.
- The ground floor includes the entry lobby, a nerve center (area desk and mail service, study spaces, residence living room, offices), group learning spaces (classrooms and learning commons), a multipurpose room with support space, a dining/seating area and a servery/kitchen area. There are also semi-suites, a director's apartment and a resident scholar's apartment.
- The mezzanine consists of a lounge/common kitchen, music rooms, and study rooms.
- The towers consist of residence rooms. They include traditional single and double rooms with shared bathrooms and showers, semi suite (three double rooms with shared bathroom and shower) and Jack & Jill rooms (two single or double rooms with shared bathroom and shower). Each tower also includes a study room, hearth spaces and laundry rooms. All towers have three stories and an attic above the ground floor.
- Floor heights: assume 20' at the ground level north end with floor ramps rising 3' to the south for a first floor height of 17' at the south end of the building. Residence room floor to floor height is 10'-0".

The gross square footage is 192,750 sf.

The total number of beds provided is 450.



East Campus Residence Hall – North View – Main Entrance along E. 15th Avenue



East Campus Residence Hall – Northeast Aerial

SCHEMATIC DESIGN

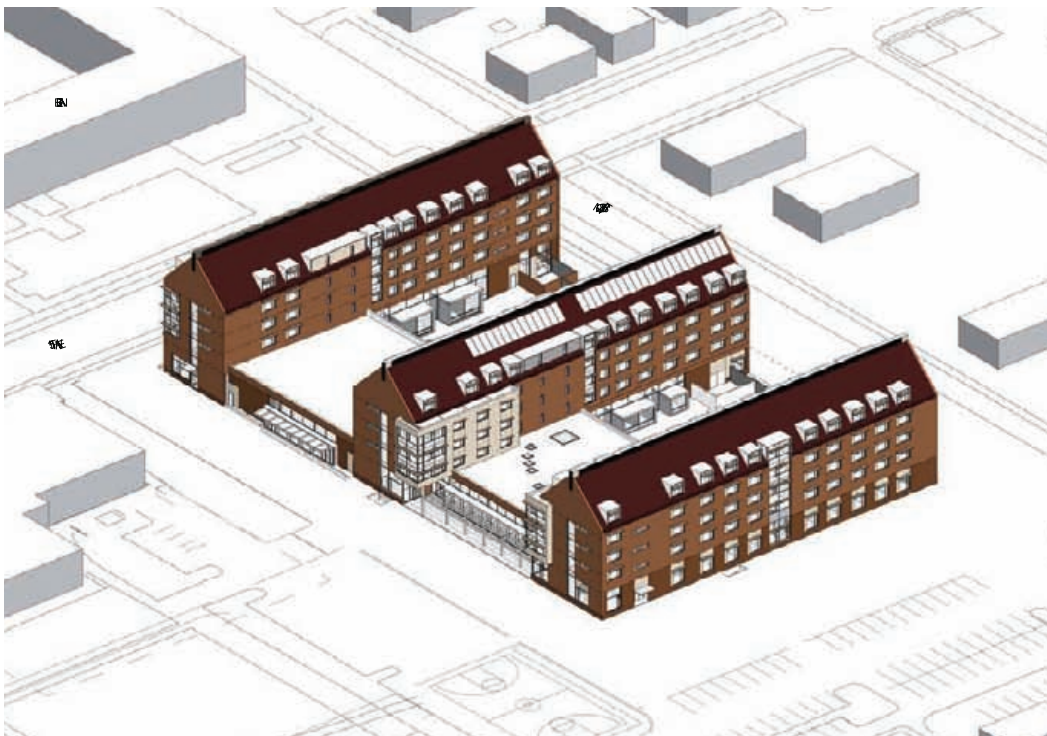
East Campus Residence Hall
University of Oregon, Eugene



East Campus Residence Hall – West View along Moss Street



East Campus Residence Hall – Northwest View



East Campus Residence Hall – Southwest View

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Design Process

The Programming and Conceptual Design Phase of the East Campus Residence Hall built directly upon the Project Description, dated March 3, 2009, a document developed by the project User Group. Key goals include expanding the overall student housing capacity, providing a dining facility, living spaces, common areas and public spaces, and supporting academic linkages and out-of-the-classroom learning.

The initial program area required is 170,000 GSF. An additional 16-20,000 GSF for a potential shell space for the Commissary and Catering kitchens was also studied during this phase.

The User Group is the primary client representative in the design process. For issues relating to the East Campus Open Space Framework, the User Group was assisted by the Open Space Framework Advisory Group. The design team met regularly with the User Group and with the Open Space Framework Advisory Group throughout the Programming, Conceptual Design and Schematic Design phases of the project.

The project goals identified in the Project Description are fundamental to the success of the project. They consisted of helping to meet the long-term University plans to significantly expand the overall student housing capacity and to meet increases in freshman enrollment, contributing to University goals to house up to 25% of undergraduates in diverse housing types. They also included the need to provide dining facility space, a variety of student living spaces for a diverse population of students, common areas and public spaces, enhancing the quality of the student living experience, incorporating sustainable design and operation, and engaging the residents in sustainability initiatives as a living/learning laboratory. Other project goals consisted of creating academic linkages and out-of-the-classroom learning within the residence hall, and developing future energy cost savings, all the while continuing the University's commitment to notable campus architecture within the context of its needs.

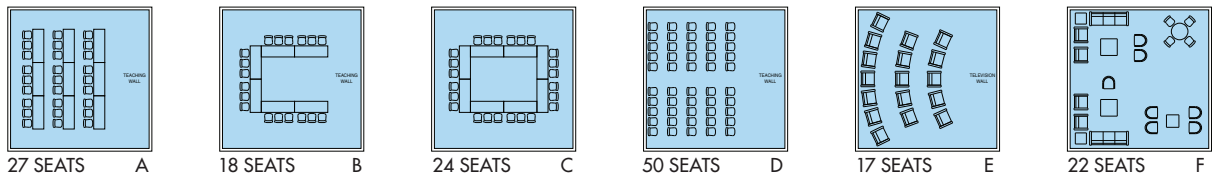
The East Campus Residence Hall site is the area to the east of the Museum of Natural and Cultural History, bordered on the north and south by East 15th and 17th Avenues, respectively, and to the east by Moss Street and to the west by Columbia Street.



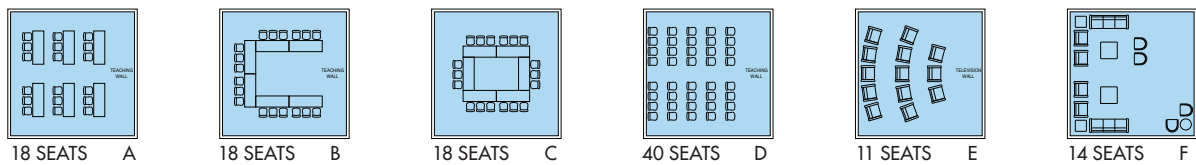
PROGRAM DEVELOPMENT

The first phase of the project was to develop a program of spaces with the ECRH User Group through a series of meetings. The program consists of 450 minimum residence rooms of a variety of types including traditional double, single, semi-suite. It also includes the Nerve Center (including the main entry, residence living room, study spaces, offices, area desk and mail services) which oversees the management of the building and provides key services to the occupants, a Multipurpose space, several Group Learning spaces which vary in size from 10-15 person spaces to 60 person classrooms, Director and Resident Scholar apartments, a Dining Facility with food service, building service and storage, and residence groups and hearths. Diagrams were created to assist with programming some of these key program components.

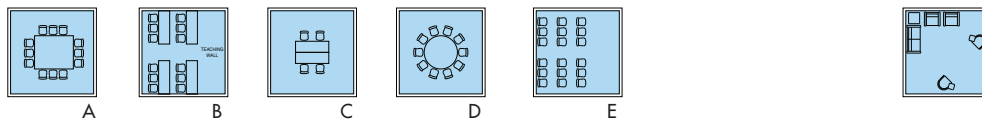
LARGE - 650 SF



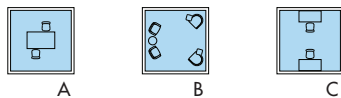
LARGE - 500 SF



MEDIUM - 225 SF



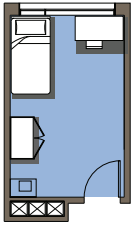
SMALL STUDY SPACES - 120 SF



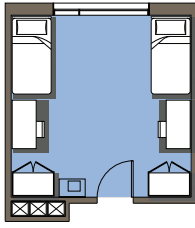
Group Learning Spaces

A variety of Group Learning Spaces were identified by the User Group, ranging from small group spaces for 2 to 4 students to larger spaces that could hold up to 50-60 students. Each room type must accommodate a variety of furniture configurations

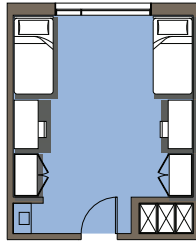
SCHEMATIC DESIGN



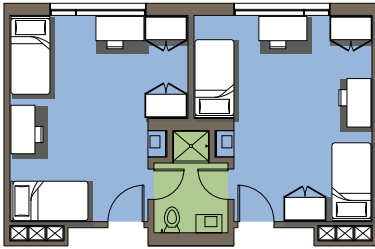
15 X 9.5
142 SF
SINGLE



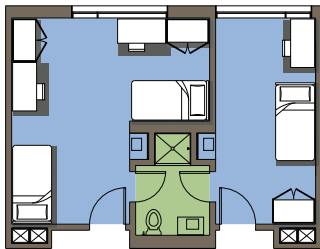
15 X 15
225 SF
DOUBLE



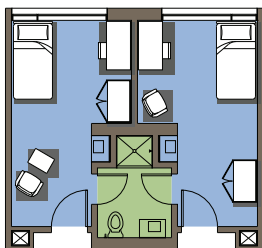
15 X 18
253 SF
DOUBLE



DOUBLE
225 SF DOUBLE
225 SF
SEMI SUITE A - 4 PERSON
17 X 15
518 SF



DOUBLE
225 SF SINGLE
142 SF
SEMI SUITE B - 3 PERSON
17 X 15
17 X 9.5
436 SF



SINGLE
142 SF SINGLE
142 SF
SEMI SUITE C - 2 PERSON
17 X 9.5
354 SF

Residence Room Types

A variety of room types and configurations were developed during the Programming/Conceptual Design Phase.

Traditional single or double rooms with common toilets and showers. Double and single rooms are to have a sink in the room. All double and single rooms are accessible.

Semi-suites are single or double rooms with private toilets.

ROOM MIX:

- Traditional (50%)
 - 15% singles
 - 35% doubles

Semi-suites (50%)

ROOM SIZE:

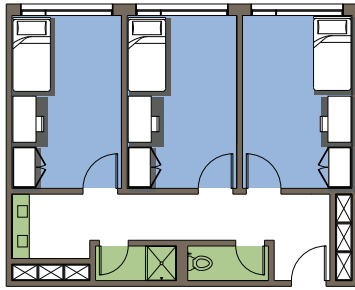
For both traditional and semi-suite rooms:

The double rooms are 225 sf to match those in the Living Learning Center.

Single rooms are 140 sf.

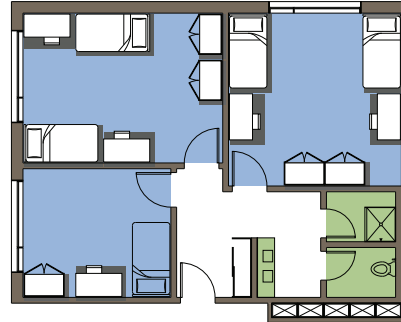
SCHEMATIC DESIGN

Semi-suite Room Types



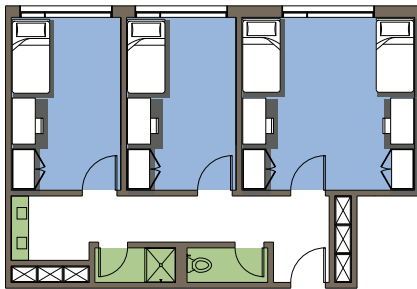
SINGLE 142 SF SINGLE 142 SF SINGLE 142 SF

SEMI SUITE D - 3 PERSON
15 X 9.5
648 SF



SINGLE 142 SF DOUBLE 225 SF DOUBLE 225 SF

SEMI SUITE G - 5 PERSON CORNER
15 X 15
17.5 X 13
13 X 11
810 SF



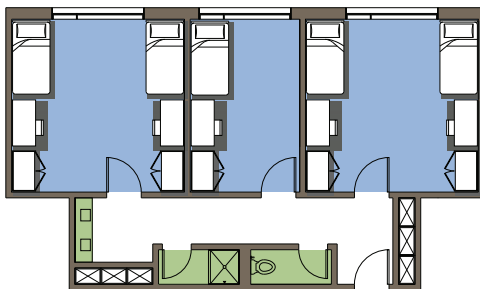
SINGLE 142 SF SINGLE 142 SF DOUBLE 225 SF

SEMI SUITE E - 4 PERSON
15 X 9.5
15 X 15
730 SF



DOUBLE 225 SF DOUBLE 225 SF DOUBLE 225 SF

SEMI SUITE H - 6 PERSON CORNER
15 X 15
17.5 X 13
893 SF



DOUBLE 225 SF SINGLE 142 SF DOUBLE 225 SF

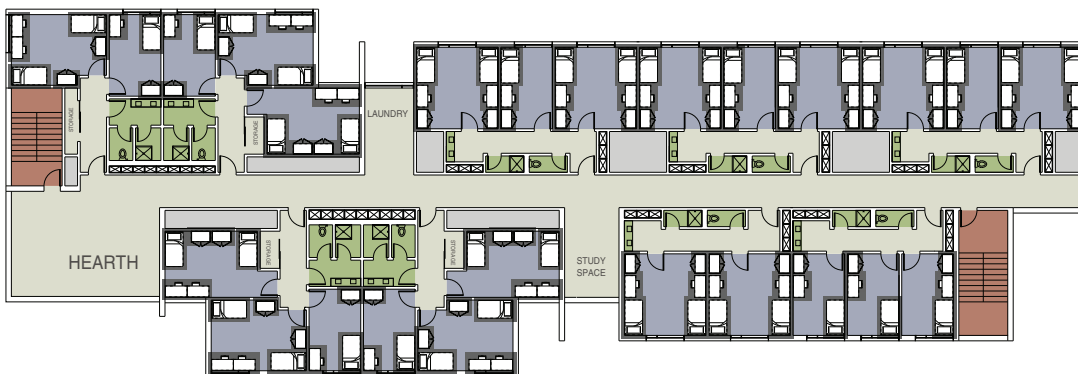
SEMI SUITE F - 5 PERSON
15 X 9.5
15 X 15
813 SF

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Hearth Configurations

Multiple Residence Group Hearths were developed by the User Group. Three models were chosen to develop during the Schematic Design Phase. The first two are different mixes of traditional double and single rooms and semi-suites. The third is all semi-suites. In all three models the number of beds in the semi-suites will vary.



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Programming and Concepts

The following program includes a list of spaces included in the East Campus Residence Hall. Associated with the space list are two columns showing the square footage for the current building program and the square footage currently shown in the drawings.

Space List	East Campus Residence Hall										University of Oregon
	Current Building Program Areas						Current Plan Areas 01/29/10		Reductions	Notes	
1/29/2010 Zimmer Gunsul Frasca Architects LLP	No.	Capacity/ Room	Capacity Total	SF/ Room	Total net SF	SF/ Category	Plans SF	Total SF			
Nerve Center											
Entry Lobby				2000	2000		419	4306		UG-No reductions	
Areas Desk and Mail services	1	1	0	1500	1500		1489				
Study Space	9	5	40	120	960		1345			Practice Presentation Room added per owner request	
Residence Living Room	1	25	25	500	500		397			One in LLC, South Bldg	
Sustainability Center	0	0	0	0	0		0			UG -To be incorporated into overall circulation	
Director Office	1	1	1	150	150		121				
UH Meeting Room	1	15	15	225	225		245				
Librarian Office	1	1	1	140	140		145				
Resident Scholar Office	1	1	1	140	140		145				
Multipurpose Space						6,900		5857		LLC program 4400 SF	
Performance	1	280	280	4500	4500		3983				
Stage	1	0	0	1000	1000		774			UG No reductions	
Control Room	1	0	0	300	300		60				
Green Room	1	0	0	100	100		169				
Furniture Storage Room	1			1000	1000		871				
Group Learning Space						5,140		5614			
XL-60+	1	60	60	1200	1200		1166				
Large- 30+	1	35	35	700	700		756			Increased to accommodate number of seating.	
Large- 30+	1	35	35	700	700		760			Increased to accommodate number of seating.	
Large- 30+	1	35	35	700	700		737			1 in dining. Added per owner request	
Medium-10-15	3	14	42	280	840		802			Added per owner request. 1 Added after 10/30/09.	
Learning Commons	1			1000	1000		1393				
Furniture/Other Storage	1			0	0		0				
Director's Apartment	1	0	0	950	950	950	1409	1,409		UH-request to make larger if possible	
Resident Scholar Apt	1	0	0	1500	1500	1,500	1375	1,375		Excluding RS office. Increased per owner request	
Communal Kitchen											
Communal Kitchen	2	0	0	400	800	800	526	526		UG- 2 at 300 2@ 400	
Recreational Services							840	796			
Music practice rooms	1	0	0	120	120		111				
Music practice rooms	1	0	0	120	120		112				
Lounge (Billiard)	1	0	0	300	300		314			To be added per owner request.	
Lounge (Ping pong)	1	0	0	300	300		259			Basement?	
Dining and Food Service Complex							7,670	9,929			
Dining/Seating	1	150	150	2700	2700		2767				
Loading/Recycling/Trash	1	0	0	0	0		713				
Staging	1	0	0	350	350		1006				
Food Service Kitchen	1	0	0	650	650		2166			In Progress	
Dry Storage	1	0	0	500	500		403			Les Jones updating plan 01-29-10	
Bev. Cooler	1	0	0	140	140		127			Les Jones updating plan 01-29-10	
Beverage Cooler Storage	1	0	0	180	180		0			Les Jones updating plan 01-29-10	
Cooler/Freezer	1	0	0	80	80		247			Les Jones updating plan 01-29-10	
Servery	1	0	0	2000	2000		1930			Les Jones updating plan 01-29-10	
Ice Machine	1	0	0	100	100		0			Les Jones updating plan 01-29-10	
Warewashing	1	0	0	450	450		345			Les Jones updating plan 01-29-10	
Office	1	1	1	120	120		73			Les Jones updating plan 01-29-10	
Janitor	1	0	0	100	100		0			Les Jones updating plan 01-29-10	
Recycle/Trash	1	0	0	0	0		0			Les Jones updating plan 01-29-10	
Employees Restroom	1	0	0	200	200		52			Lockers moved to Staging as requested by owner.	
Soda/Storage Basement-Under espresso	1	0	0	100	100		100				
Shell space for catering/comm. - Ground Floor	1	0	0	0	0		0			Removed with Comm/Catering Kitchen	
Shell space for catering/comm. - Basement	1	0	0	0	0		0			Removed with Comm/Catering Kitchen	
Employee Area - Basement	1	0	0	0	0		0			Removed with Comm/Catering Kitchen	
Staging - Basement	1	0	0	0	0		0			Removed with Comm/Catering Kitchen	
Common Grounds	1	0	0	0	0		0			Removed with Comm/Catering Kitchen	
Building service							13,025	10,767			
Staff room (incl. custodial laundry, stor.)	1	0	0	1000	1000		644			yes	
Maintenance shop	1	0	0	1200	1200		1086			yes	
Custodial Storage	1	0	0	1200	1200		1093			UH request	
Custodial Equipment Charging	1	0	0	200	200		200			UH request	
Auxiliary closet	1	0	0	0	0		0			Not a current UH request	
Housing Storage	1	0	0	8000	8000		7371			UH request	
Construction Overstock	1	0	0	1125	1125		0			Deleted per owner request.	
Student affairs server room	1	0	0	300	300		373			yes	
General Building Ops Storage	1	0	0	0	0		0			yes	
Residential Storage							2,700	2,594			
Student storage/Trunk room	1	0	0	1800	1800		1707			UH-student accessible	
Linen Storage	1	0	0	900	900		887			yes	
General Storage	1	0	1	0	0		0			yes	
Secure bike storage	0	0	0	0	0		0			Outside	
Oversize storage	1									yes	
Subtotal							44,860	43,173			

Space List		East Campus Residence Hall										University of Oregon	
		Current Building Program Areas					Current Plan Areas 01/29/10						
1/29/2010 Zimmer Gunsul Frasca Architects LLP		No.	Capacity/ Room	Capacity Total	SF/ Room	Total net SF	SF/ Category	Plans SF	Total SF	Reductions	Notes		
Residence Groups													
Residence Group A - 3 floors - Total SF Per Building (North Tower)													
Resident entry lobby	1	0	0	100	100		18,912	102	17,643				
Study	1	0	0	300	300			268			Single height.		
Resident hearth	1	0	0	300	300			362			Double height between level 2 and 3 only.		
Study	0	0	0	150	0			0					
Double resident room	15	2	30	225	3375			3402			doubles - beds 90		
Single resident room-incl RA	1	1	1	145	145			143			singles - beds 3		
RA room w/o bath	0	0	0	0	0			0			RA in singles 0		
Semi-Suites w/shared bath	0	6	0	700	0			0			suites - beds 0		
Jack & Jill w/shared bath	2	4	8	450	900			904			Jack and Jill 18		
Shared floor bathrooms	2	0	0	500	1000			498					
Janitor	1	0	0	64	64			49			Total Beds Level 2, 3 and 4		
Laundry	1	0	0	120	120			153			111		
Ancillary storage	0	0	0	120	0			87					
Subtotal per floor			39		6304			5881					
Residence Group A - Attic													
Resident hearth	1	0	0	300	300		4,524	293	4,492				
Double resident room	9	2	18	225	2025			2426			Attic rooms added after 10/30/09		
Single resident room-incl RA	7	1	7	145	1015			1152			doubles - beds 18		
Shared floor bathrooms	2	0	0	500	1000			407			singles - beds 7		
Janitor	1	0	0	64	64			87			Total Beds Attic 25		
Laundry	1	0	0	120	120			127			Total Beds Tower A		
Subtotal			25		4524			4492			136		
Jack and Jill Semi-Suites Group B - Ground Floor and Mezzanine - Total SF Per Building													
Resident entry lobby	1	0	0	0	0		7,000	0	0		Deleted after 10/30/09		
Study	1	0	0	0	0			0					
Resident hearth	1	0	0	0	0			0					
Double resident room	0	0	0	0	0			0			Doubles - beds 0		
Single resident room	0	0	0	0	0			0			Singles - beds 0		
Jack and Jill Semi-Suites w/shared bath	10	2	20	350	3500			0			Suites (average sf) - beds 0		
Shared floor bathrooms	0	0	0	0	0			0			Total beds 0		
Janitor	0	0	0	64	0			0					
Laundry	0	0	0	120	0			0					
Ancillary storage	0	0	0	60	0			0					
Subtotal per floor			20		3500			0					
Residence Group B - 3 floors - Total SF Per Building (Middle Tower)													
Resident entry lobby	1	0	0	100	100		19,302	334	19,830		It has been called Tower B after 10/30/09.		
Study	1	0	0	300	300			415			Single height		
Resident hearth	1	0	0	300	300			354			Double height between level 2 and 3 only.		
Study	0	0	0	150	0			0					
Double resident room	14	2	28	225	3150			3170			Double (average sf) - beds 84		
Single resident room	5	1	5	150	750			744			Singles (average sf) - beds 15		
Shared floor bathroom	2	0	0	500	1000			498					
Semi-Suites w/shared bath	1	6	6	650	650			897			Suites - beds 18		
RA room w/o bath	0	0	0	0	0			0			RA in Singles 0		
Janitor	1	0	0	64	64			50			Total beds Level 2, 3 and 4		
Laundry	1	0	0	120	120			148			117		
Ancillary storage	0	0	0	120	0			0					
Subtotal per floor			39		6434			6610					
Residence Group B - Attic													
Resident hearth	1	0	0	300	300		4,524	280	4,305		Attic rooms added after 10/30/09		
Double resident room	9	2	18	225	2025			2387			doubles - beds 18		
Single resident room-incl RA	7	1	7	145	1015			1015			singles - beds 7		
Shared floor bathrooms	2	0	0	500	1000			443			Total Beds Attic 25		
Janitor	1	0	0	64	64			58					
Laundry	1	0	0	120	120			122			Total Beds Tower B 142		
Subtotal			25		4524			4305					
Residence Group C - 3 floors - Total SF Per Building (South Tower)													
Resident entry lobby	1	0	0	100	100		21,402	321	20,082		It has been called Tower C after 10/30/09.		
Resident hearth/Study	1	0	0	300	300			421			Single height		
Resident hearth	1	0	0	300	300			359			Double height between level 2 and 3 only.		
Jack & Jill w/shared bath	7	4	28	450	3150			3267			Jack and Jill - beds 84		
Semi-Suite w/shared bath	1	6	6	700	700			911			Semi-Suite - beds 18		
Jack and Jill w/shared bath	1	3	3	400	400			429			Jack and Jill - beds 9		
Jack and Jill Semi-Suites w/shared bath	4	2	8	350	1400			0			Jack and Jill (- beds 24		
Double w/shared bath	2	2	4	225	450			545			Double w/bath 12		
Single w/bath	1	1	1	150	150			213			single w/bath 3		
RA w/ bath	0	0	0	0	0			0			RA in single 0		
Shared floor bathrooms	0	0	0	0	0			0			Total beds Level 2, 3 and 4 150		
Janitor	1	0	0	64	64			87					
Laundry	1	0	0	120	120			141					
Ancillary storage	0	0	0	120	0			0					
Subtotal per floor			50		7134			6694					
Residence Group C - Attic													
Resident hearth	1	0	0	300	300		4,229	325	4,302		Attic rooms added after 10/30/09		
Jack & Jill resident room	8	2	16	350	2800			2578			Jack & Jill - beds 16		
Jack & Jill resident room	2	3	6	400	800			994			Jack & Jill - beds 6		
Single w/bath	1	1	1	145	145			208			Singles - beds 1		
Janitor	1	0	0	64	64			80			Total Beds Attic 23		
Laundry	1	0	0	120	120			117					
Subtotal			23		4229			4302					
Residence Group C Ground floor (South tower)													
Jack and Jill w/ shared Bath	4	4	16	450	1800		2,235	2029	2,594		Jack and Jill-beds 16		
Jack and Jill w/ shared bath	0	3	12	400	0			0					
Jack and Jill w/ shared bath	0	2	2	300	0			0					
Single w/bath	1	1	1	145	145			231			singles - beds 1		
Hearth	1	0	0	220	220			216			Total Beds ground floor 17		
Laundry	1	0	0	70	70			118					
Subtotal			18								Total Beds Tower C 190		
Subtotal													
							126,988	116,421					
Total Beds/Group											222		
											37		
											36		
											153		
											450		
											Subtotal		
Total NSF							126,988	116,421					
Actual Building Area							170,000	193,973	total beds 450				
Dedicated areas included in N-G factor													
Building Mechanical Room-Basement					7600		7913						
Building Main Electrical Room- Basement					400		400						
Transformer Room					225		347						
TSER/TER Telco Room					1125		300						
Custodial rooms for Public Restrooms					64		63						
Floor Electrical Rooms					84/64		965						
Floor IT rooms					84/64		838						
Elevator Machine Room-North					100		100						
Elevator Machine Room-Middle					100		121						
Elevator Machine Rooms-South					100		190						
Recycle Rooms for Student Residents													
Subtotal							11237						
Total NSF							127,658						
Actual Building Area							170,000	193,973					

ALTERNATIVE DESIGN STUDIES

Site concepts and requirements consist of extending the living, learning, dining, and social programmatic functions of the residence hall out to the adjacent exterior spaces; developing programmed exterior spaces to create flexible communal areas that act as social gathering spaces, and recreational areas and quiet places to study or visit with friends; and concentrating the residence hall functions along E. 15th Avenue and Moss Street, near to existing residential facilities so functions can be shared by all student residents. Other requirements consist of locating the project on a university street or promenade with strong connections between the building's public functions, the pedestrian thoroughfare and the neighboring buildings; providing pedestrian pathways that connect to the campus and making the area a part of the campus by using land wisely to ensure accommodation of future development.

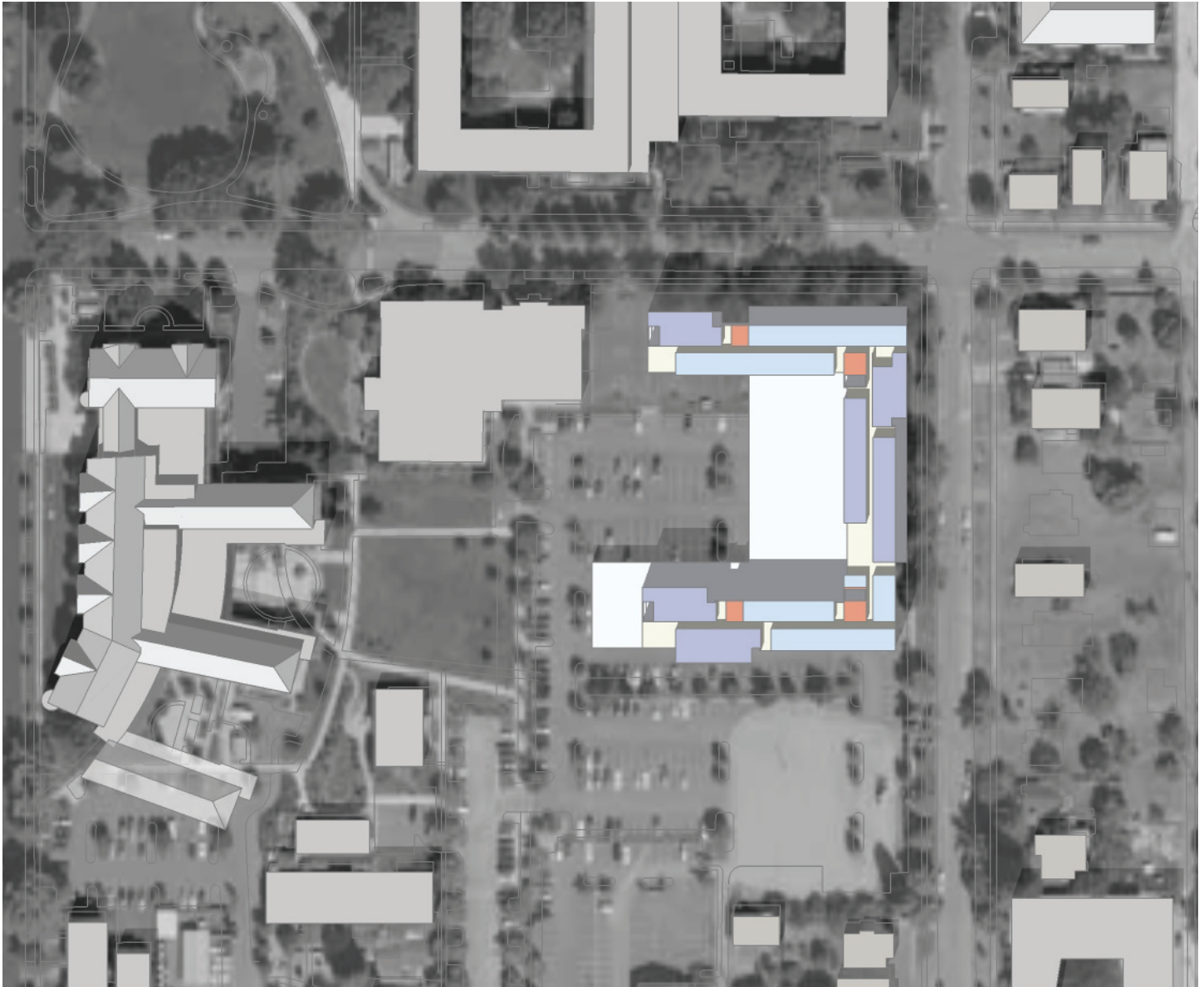
Site challenges and contextual issues consist of the location of the main entrance, the integration of the building rear service functions into existing conditions and ensuring that the residence hall respects and responds to the variety of buildings adjacent to the site.

Multiple factors contributed to determine the layout of the spaces. On the ground floor it is very important that the group learning areas, the food service, the multipurpose room and residence living room would be visible from the area desk which would also supervise the main building entrance. Additionally, the size and the location of the loading dock have also been evaluated. It was noted that removing the commissary program from the project would allow to develop a smaller loading dock area. The design team explored several options for locating the loading dock.

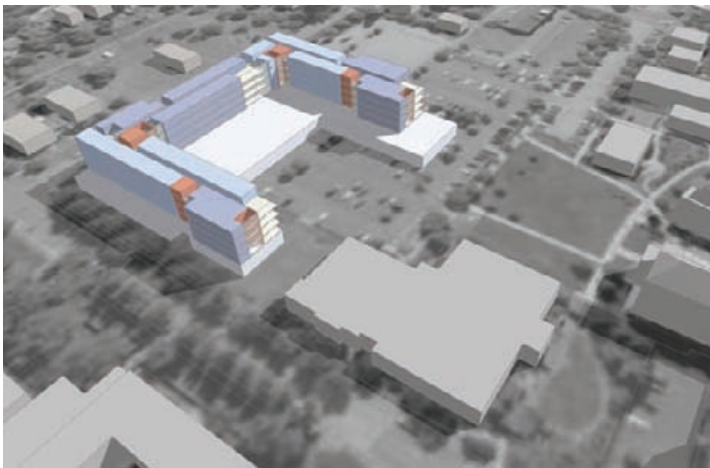
The committee provided the following feedback on various aspects of the ground floor studies. Their suggestions consisted of locating the Performance Room space near the Nerve Center, facing the study rooms to the courtyard for privacy and light, providing the Resident Scholar and the Director's Apartment with its own entrance off Moss Street and a private yard and providing a variety of outdoor spaces both social and private.

There was some interest in exploring ground floor residence rooms. The ground floor units are very popular at the LLC – not only preferred by those with disabilities, but also popular with rental occupants in the summer. Isolation is not considered a problem for those units.

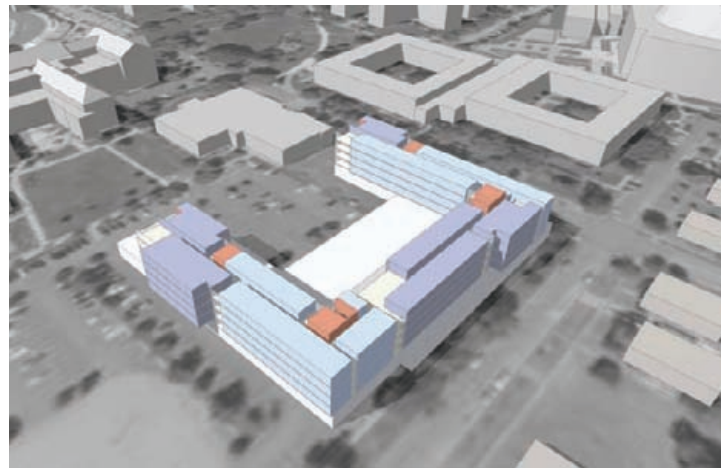
CONCEPT_a



PLAN VIEW



VIEW FROM NW



VIEW FROM SE

ALTERNATE A

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

CONCEPT_a



a 1

19 traditional single beds
 44 traditional double beds
 12 semi suite single beds
 50 semi suite double beds

[x4 fl = 76 beds]
 [x4 fl = 176 beds]
 [x4 fl = 48 beds]
 [x4 fl = 200 beds]

hearth 1 [44 total beds]
 4 traditional single beds [x4 fl = 16 beds]
 32 traditional double beds [x4 fl = 128 beds]
 2 semi suite single beds [x4 fl = 8 beds]
 6 semi suite double beds [x4 fl = 24 beds]

hearth 2 [36 total beds]
 0 traditional single beds [x4 fl = 0 beds]
 0 traditional double beds [x4 fl = 0 beds]
 6 semi suite single beds [x4 fl = 48 beds]
 30 semi suite double beds [x4 fl = 120 beds]

hearth 3 [45 total beds]
 15 traditional single beds [x4 fl = 60 beds]
 12 traditional double beds [x4 fl = 48 beds]
 4 semi suite single beds [x4 fl = 16 beds]
 14 semi suite double beds [x4 fl = 56 beds]

ALTERNATE A

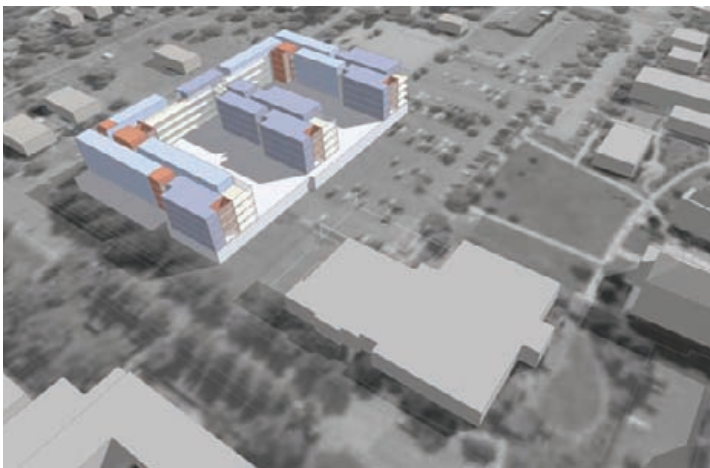
SCHEMATIC DESIGN

East Campus Residence Hall
 University of Oregon, Eugene

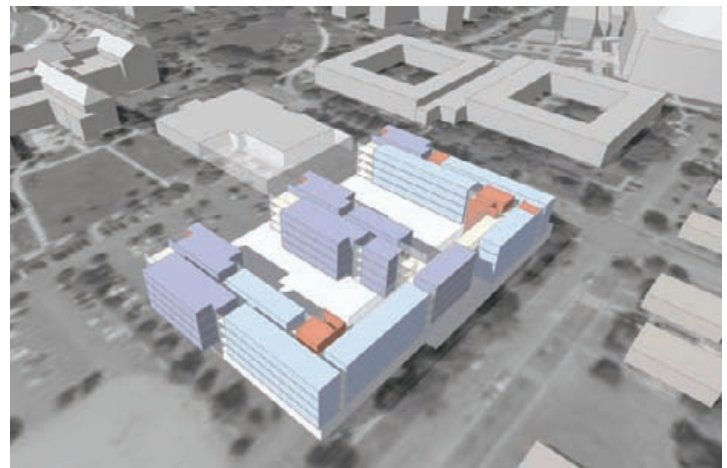
CONCEPT_b1



PLAN VIEW



VIEW FROM NW



VIEW FROM SE

ALTERNATE B

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

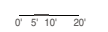
CONCEPT_b1



<p>b₁</p> <p>19 traditional single beds 44 traditional double beds 12 semi suite single beds 50 semi suite double beds</p>	<p>[x4 fl = 76 beds] [x4 fl = 176 beds] [x4 fl = 48 beds] [x4 fl = 200 beds]</p>	<p>hearth 1 [44 total beds]</p> <p>4 traditional single beds [x4 fl = 16 beds] 32 traditional double beds [x4 fl = 128 beds] 2 semi suite single beds [x4 fl = 8 beds] 6 semi suite double beds [x4 fl = 24 beds]</p>	<p>hearth 2 [36 total beds]</p> <p>0 traditional single beds [x4 fl = 0 beds] 0 traditional double beds [x4 fl = 0 beds] 6 semi suite single beds [x4 fl = 48 beds] 30 semi suite double beds [x4 fl = 120 beds]</p>	<p>hearth 3 [45 total beds]</p> <p>15 traditional single beds [x4 fl = 60 beds] 12 traditional double beds [x4 fl = 48 beds] 4 semi suite single beds [x4 fl = 16 beds] 14 semi suite double beds [x4 fl = 56 beds]</p>
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ALTERNATE B

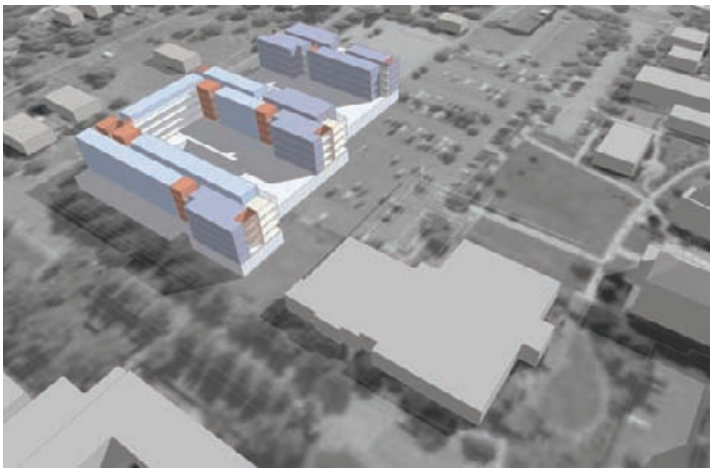
SCHEMATIC DESIGN
East Campus Residence Hall
University of Oregon, Eugene



CONCEPT_c



PLAN VIEW



VIEW FROM NW



VIEW FROM SE

ALTERNATE C

SCHEMATIC DESIGN
East Campus Residence Hall
University of Oregon, Eugene

CONCEPT_c



C

19 traditional single beds
 44 traditional double beds
 12 semi suite single beds
 50 semi suite double beds

[x4 fl = 76 beds]
 [x4 fl = 176 beds]
 [x4 fl = 48 beds]
 [x4 fl = 200 beds]

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hearth 2 [36 total beds]

0 traditional single beds [x4 fl = 0 beds]
 0 traditional double beds [x4 fl = 0 beds]
 6 semi suite single beds [x4 fl = 48 beds]
 30 semi suite double beds [x4 fl = 120 beds]

hearth 3 [45 total beds]

15 traditional single beds [x4 fl = 60 beds]
 12 traditional double beds [x4 fl = 48 beds]
 4 semi suite single beds [x4 fl = 16 beds]
 14 semi suite double beds [x4 fl = 56 beds]

ALTERNATE C

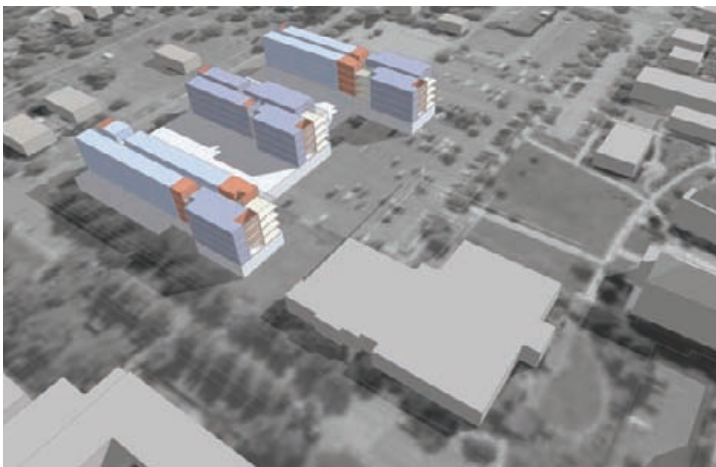
SCHEMATIC DESIGN
 East Campus Residence Hall
 University of Oregon, Eugene

0' 5' 10' 20'

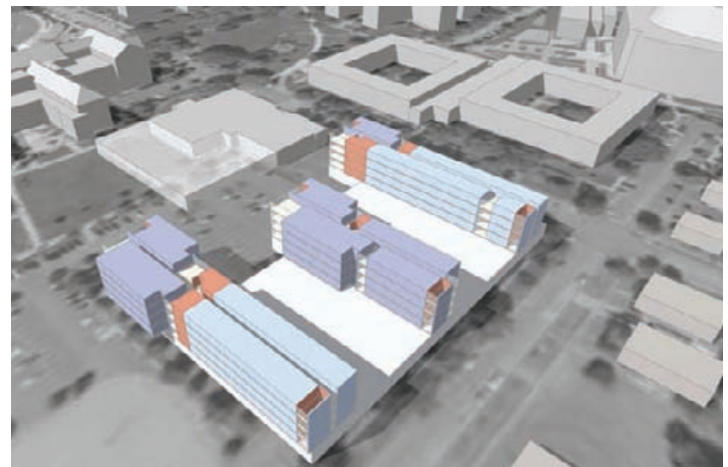
CONCEPT_d



PLAN VIEW



VIEW FROM NW



VIEW FROM SE

ALTERNATE D

SCHEMATIC DESIGN
East Campus Residence Hall
University of Oregon, Eugene

CONCEPT_d



d

19 traditional single beds
 44 traditional double beds
 12 semi suite single beds
 50 semi suite double beds

[x4 fl = 76 beds]
 [x4 fl = 176 beds]
 [x4 fl = 48 beds]
 [x4 fl = 200 beds]

hearth 1 [44 total beds]
 4 traditional single beds [x4 fl = 16 beds]
 32 traditional double beds [x4 fl = 128 beds]
 2 semi suite single beds [x4 fl = 8 beds]
 6 semi suite double beds [x4 fl = 24 beds]

hearth 2 [36 total beds]
 0 traditional single beds [x4 fl = 0 beds]
 0 traditional double beds [x4 fl = 0 beds]
 6 semi suite single beds [x4 fl = 48 beds]
 30 semi suite double beds [x4 fl = 120 beds]

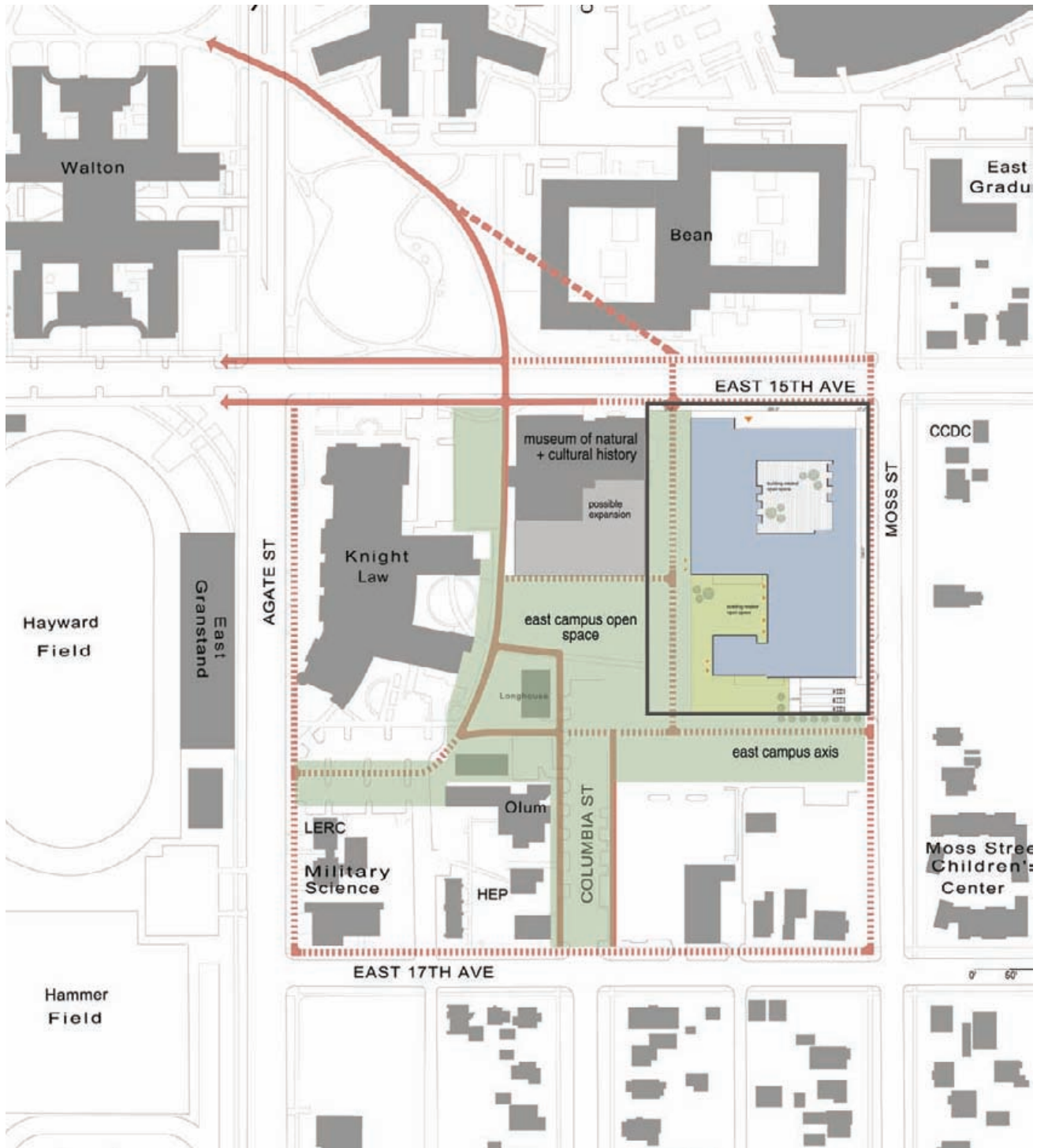
hearth 3 [45 total beds]
 15 traditional single beds [x4 fl = 60 beds]
 12 traditional double beds [x4 fl = 48 beds]
 4 semi suite single beds [x4 fl = 16 beds]
 14 semi suite double beds [x4 fl = 56 beds]

ALTERNATE D

SCHEMATIC DESIGN

East Campus Residence Hall
 University of Oregon, Eugene

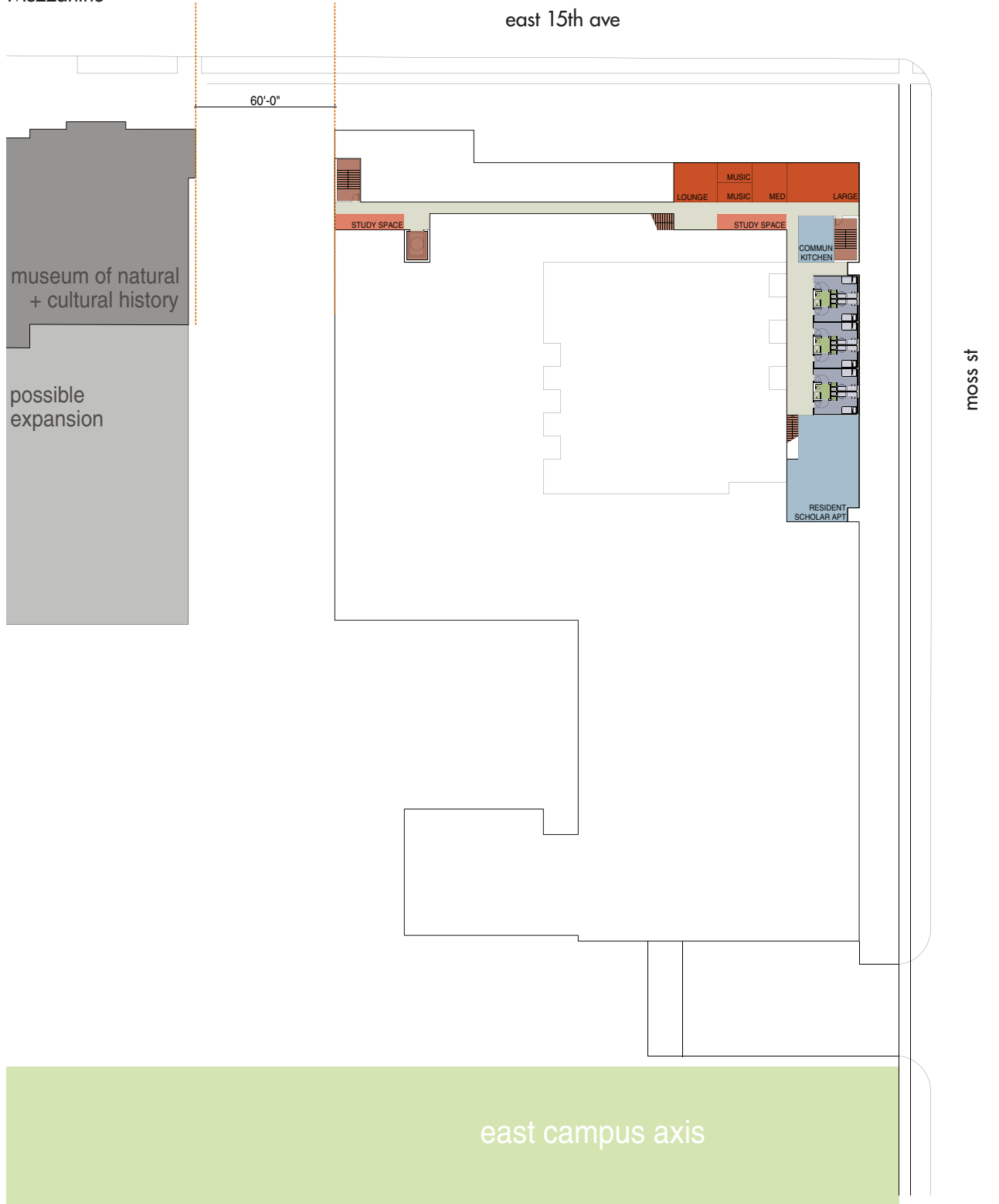
PREFERRED CONCEPT
Site Plan



PREFERRED CONCEPT
Ground Floor



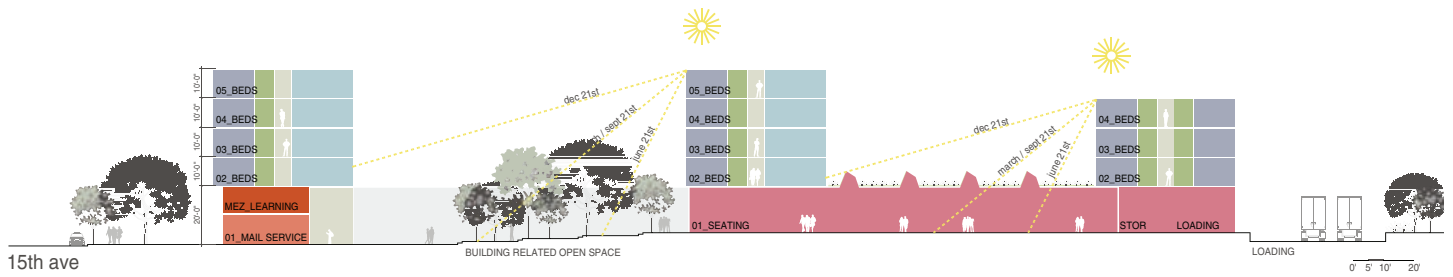
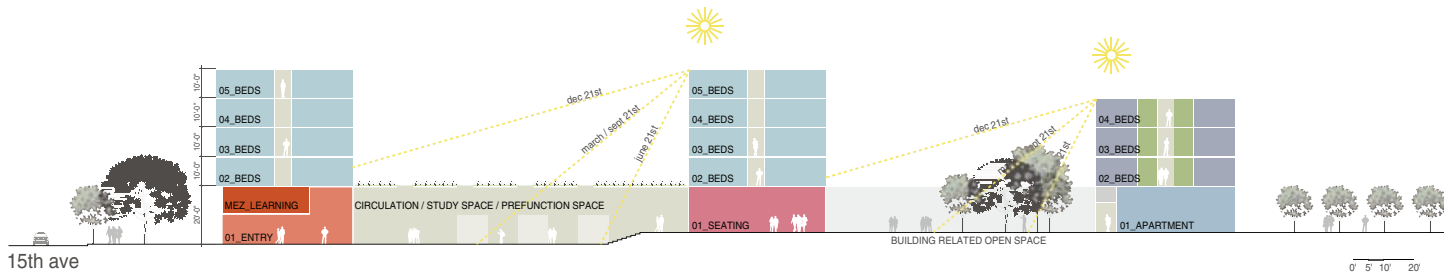
PREFERRED CONCEPT
Mezzanine



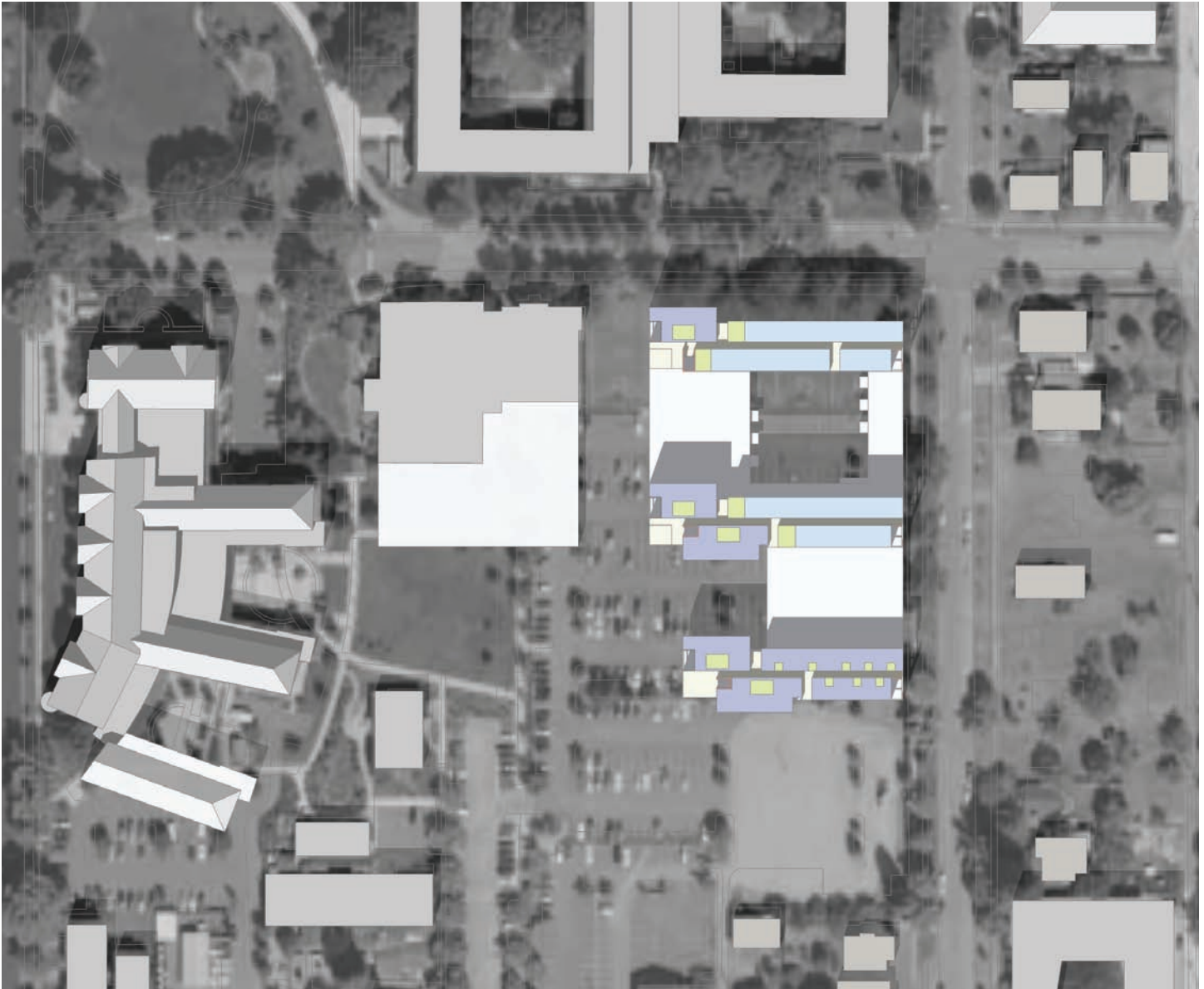
PREFERRED CONCEPT
Typical Floor



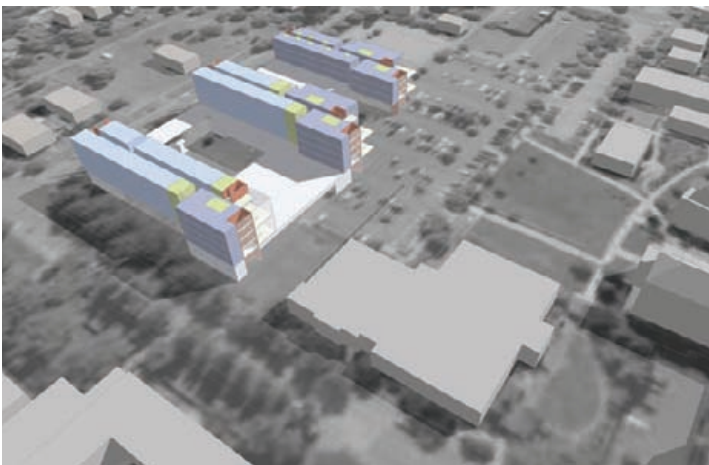
PREFERRED CONCEPT Sections



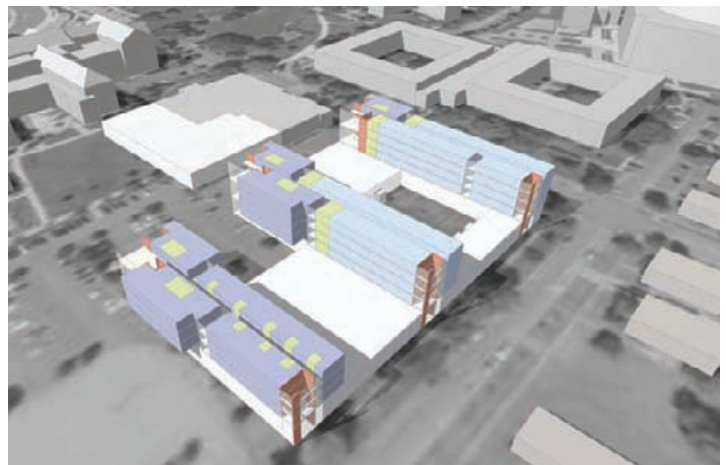
PREFERRED CONCEPT



PLAN VIEW



VIEW FROM NW



VIEW FROM SE

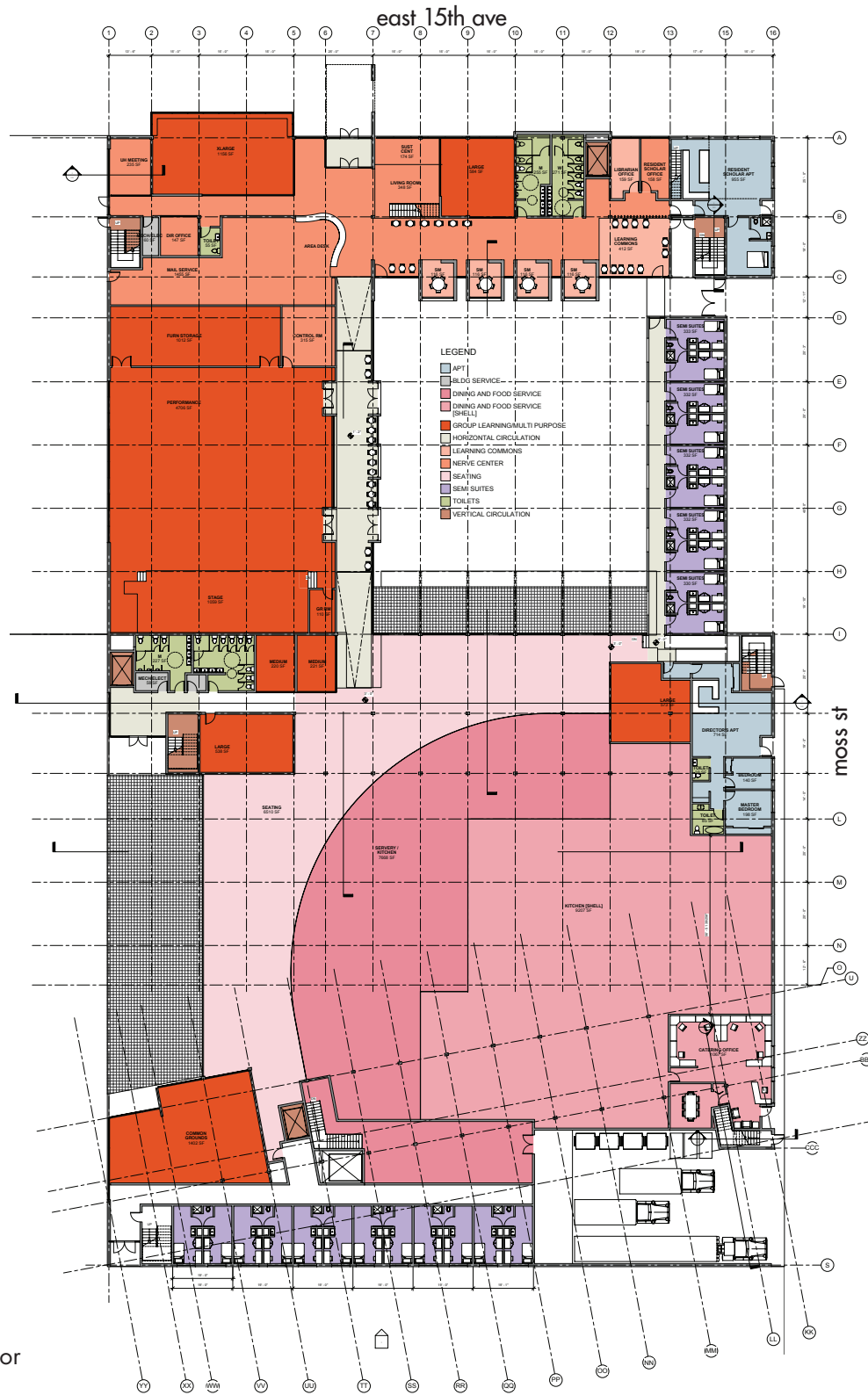
SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

During the beginning of the Schematic Design Phase, the design team developed the preferred concept as illustrated in the following diagrams. Several options for the ground floor were also studied.

The scheme kept evolving and two schemes were developed for the 50% cost estimate. Both schemes consisted of basement mechanical space, support space for other utilities and support space for the kitchen. The towers consisted of residences. Each tower also included a double height hearth space, a study room and a laundry room. The difference between the two schemes was in the ground floor main service kitchen. In the first scheme the ground floor included the lobby/seating/servery area, a small kitchen, a shelled space for a future commissary kitchen, a performance space with support space, a learning commons area, a common grounds consisting of a late night cafe' with casual seating and semi suites as shown in the following drawings. The second scheme included the build out of the commissary and catering kitchens. The 50% cost estimate helped the User Group determine that building out these spaces could not be done within the project budget.

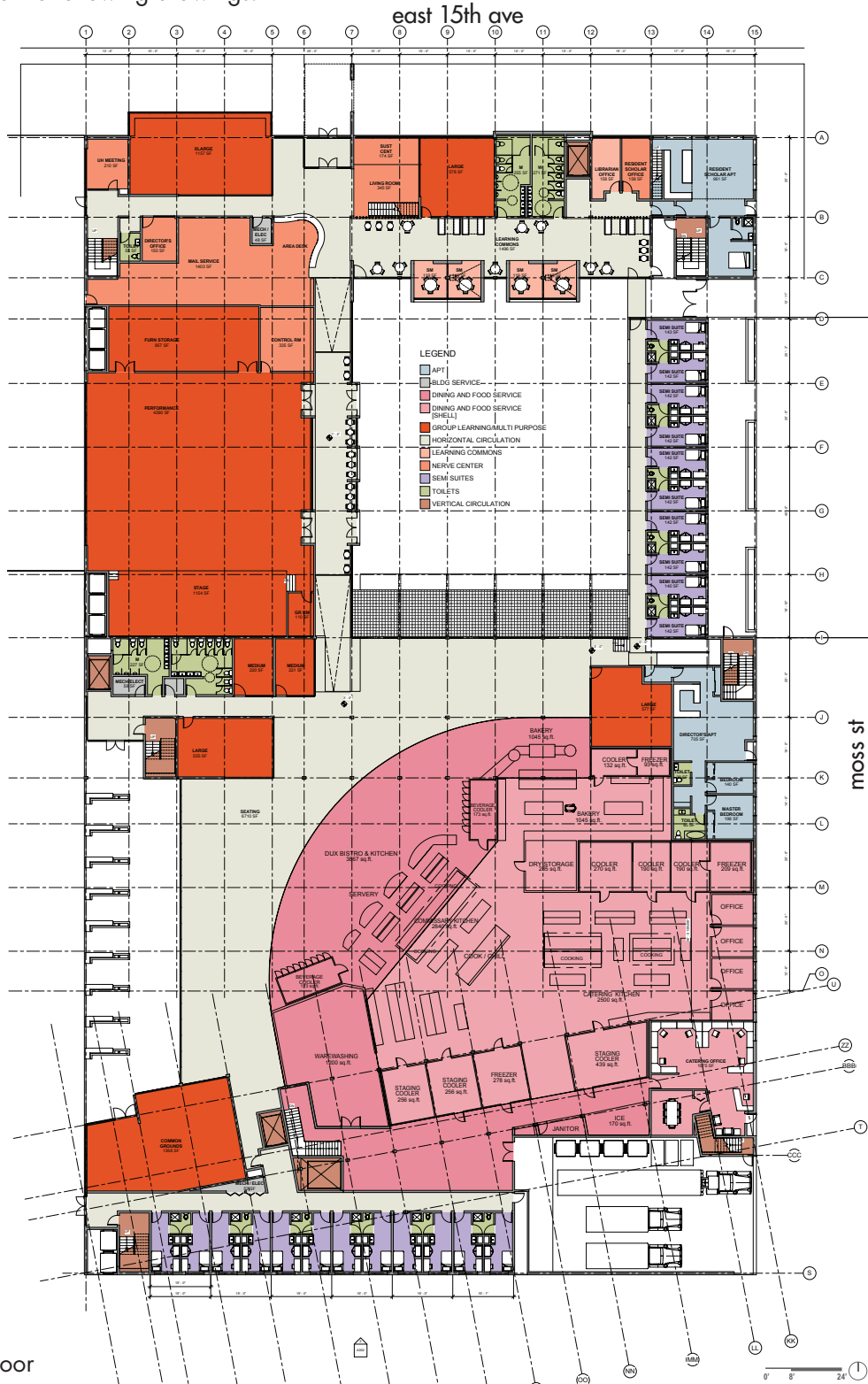
PREFERRED CONCEPT
Scheme 1



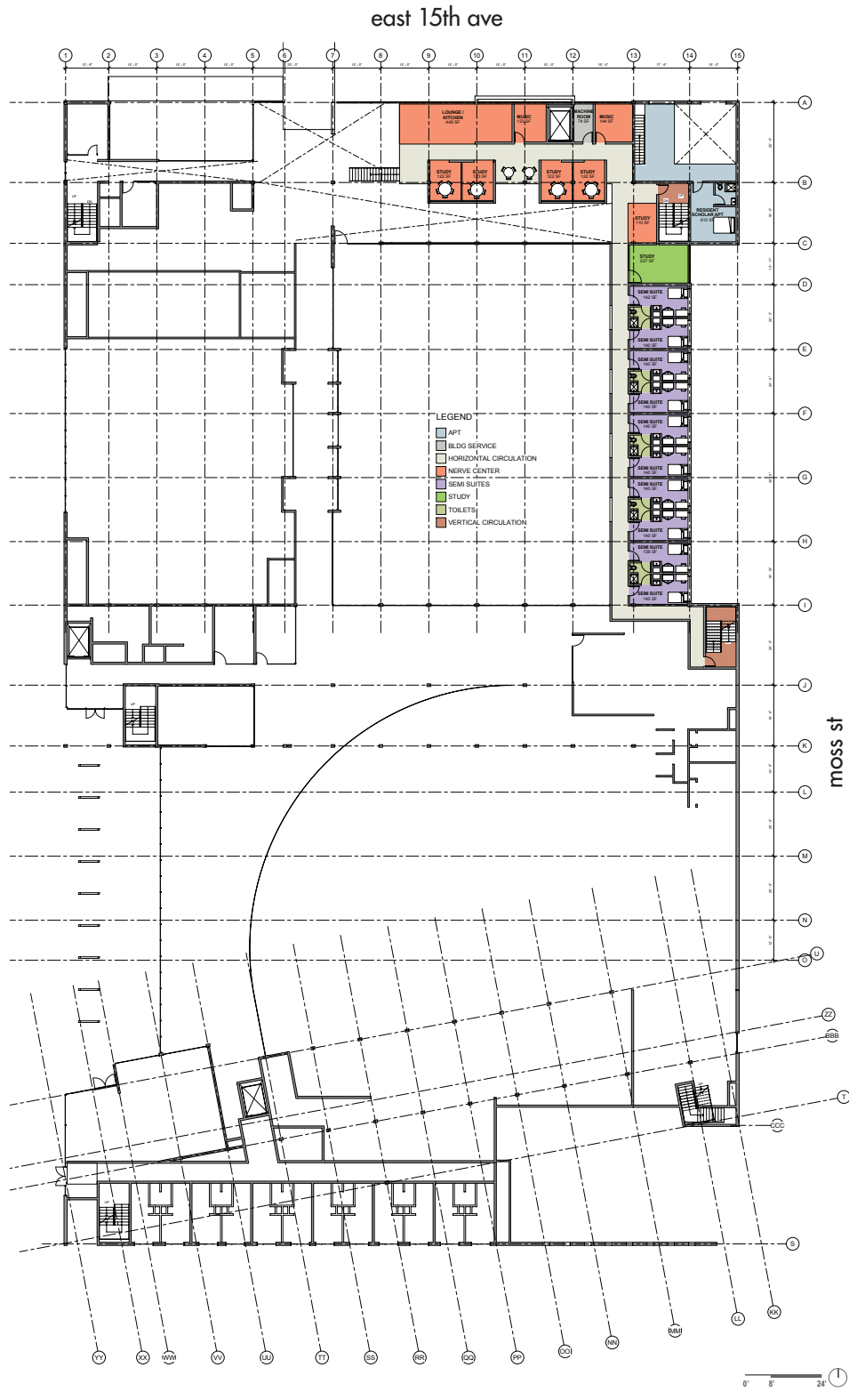
PREFERRED CONCEPT

Scheme 2

In the other scheme, at the ground floor a commissary and catering kitchen are located in lieu of the shelled space. See the following drawings.

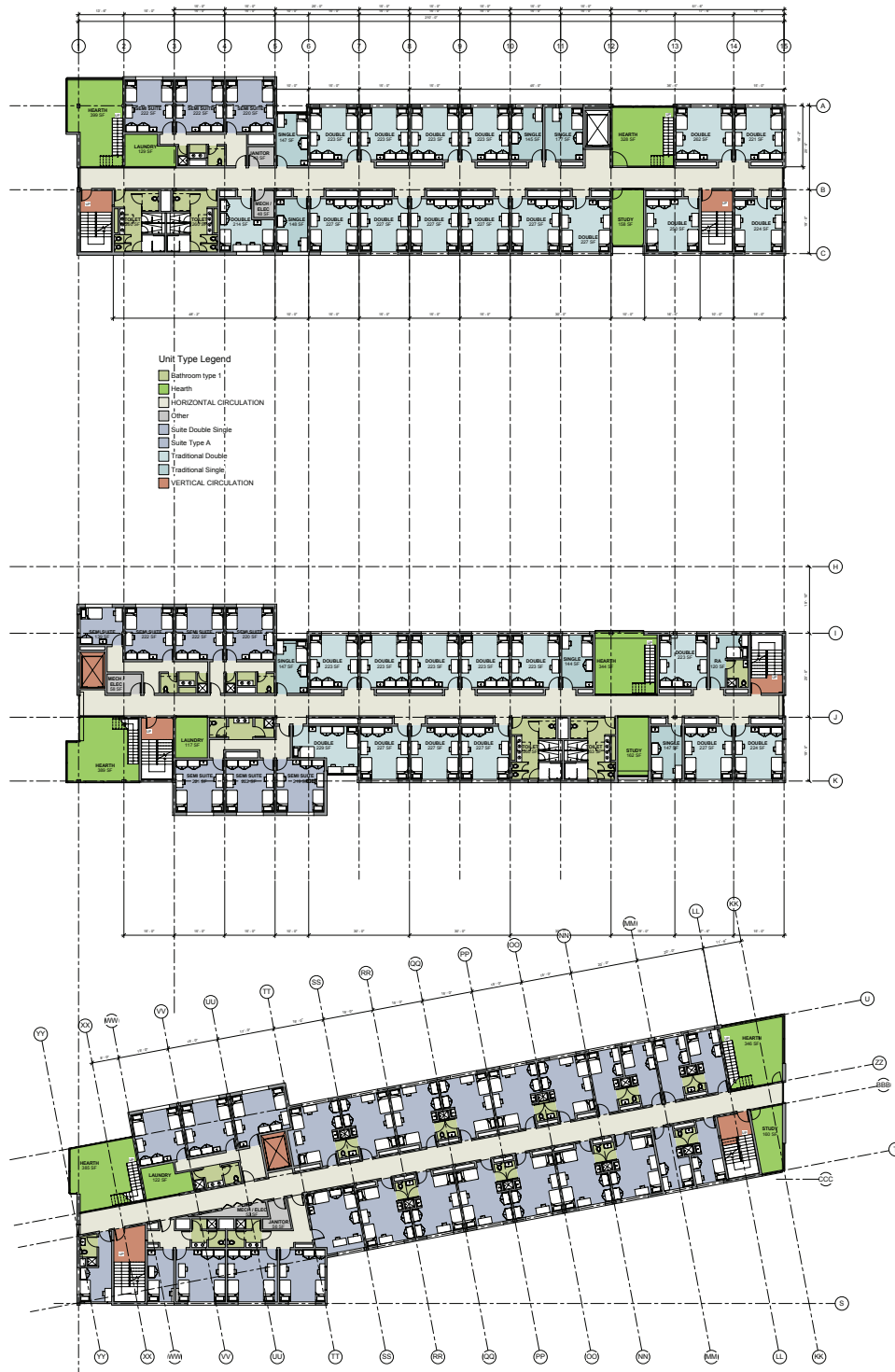


PREFERRED CONCEPT

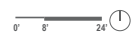


Mezzanine

PREFERRED CONCEPT



Typical Residence Tower Floor

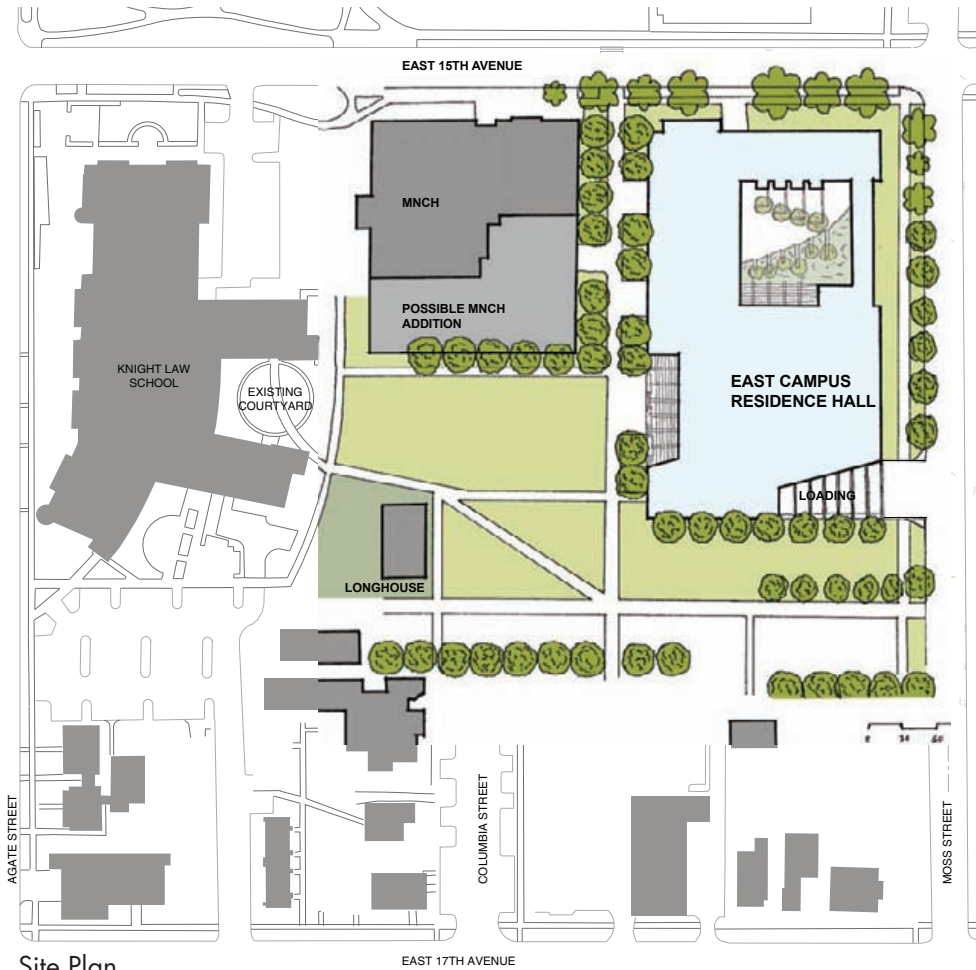


PREFERRED CONCEPT



Basement

PREFERRED CONCEPT



Site Plan



View from South West

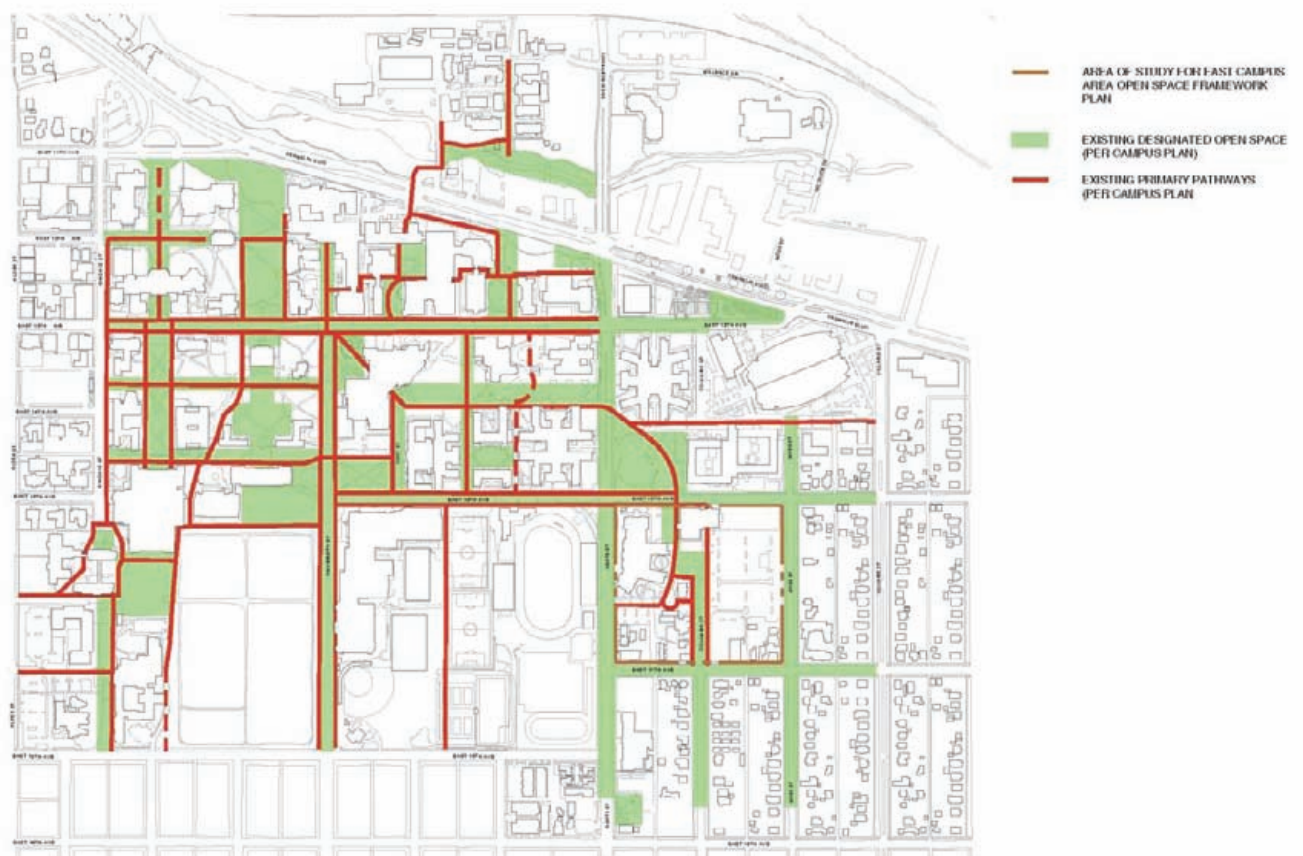


View from South East

Open-space Framework Plan

The University of Oregon campus is organized as a set of inter-related open spaces. These vary in scale and dimension and take the form of quadrangles, axes, promenades and greens. The Open Space Framework Policy calls for the preservation, completion and extension of these spaces through the development of dedicated campus landscape spaces upon which building construction is prohibited. University policy requires that the construction of new buildings larger than 15,000 GSF, in an area of the campus without an approved Open Space Framework Plan, shall make provision for the preparation of an Open Space Framework Plan before proceeding with the development of a building site and design.

The site identified for the East Campus Residence Hall is in the University's East Campus, an area of campus without a complete Open Space Framework. The East Campus Residence Hall program calls for a 170,000 GSF building. The project clearly required the preparation of an Open Space Framework Plan. Consequently, the design team, with the East Campus Open Space Framework Advisory Group has developed an Open Space Framework Plan for East Campus for adoption as part of the Campus Plan.



University Of Oregon – Existing Campus Designated Open Space and Primary Pathways

SCHEMATIC DESIGN

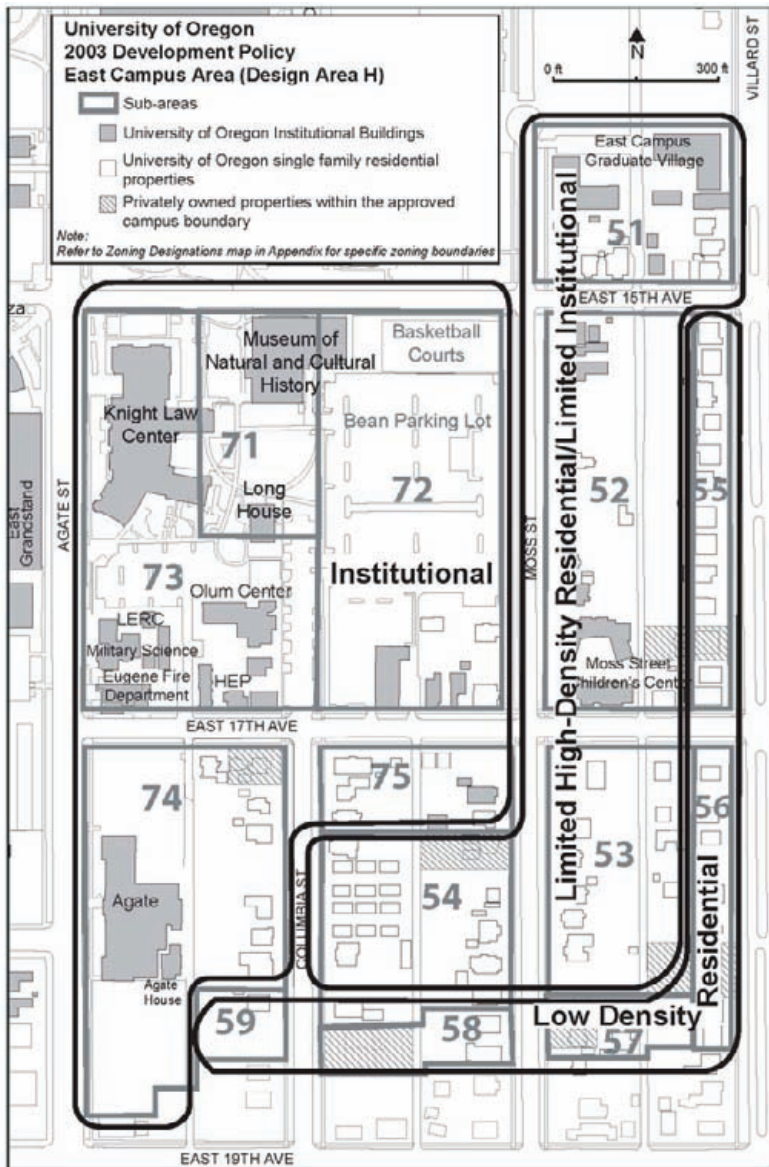
East Campus Residence Hall
University of Oregon, Eugene

The campus is divided into Design Areas to assist in addressing localized issues. The East Campus is identified as Design Area H and is comprised of multiple sub-areas.

The advisory group has responsibility for creating an Open Space Framework Plan focused on the East Campus “superblock”, the campus area bounded by Agate and Moss Streets, to the west and east, and East 15th and 17th Avenues, to the north and south.

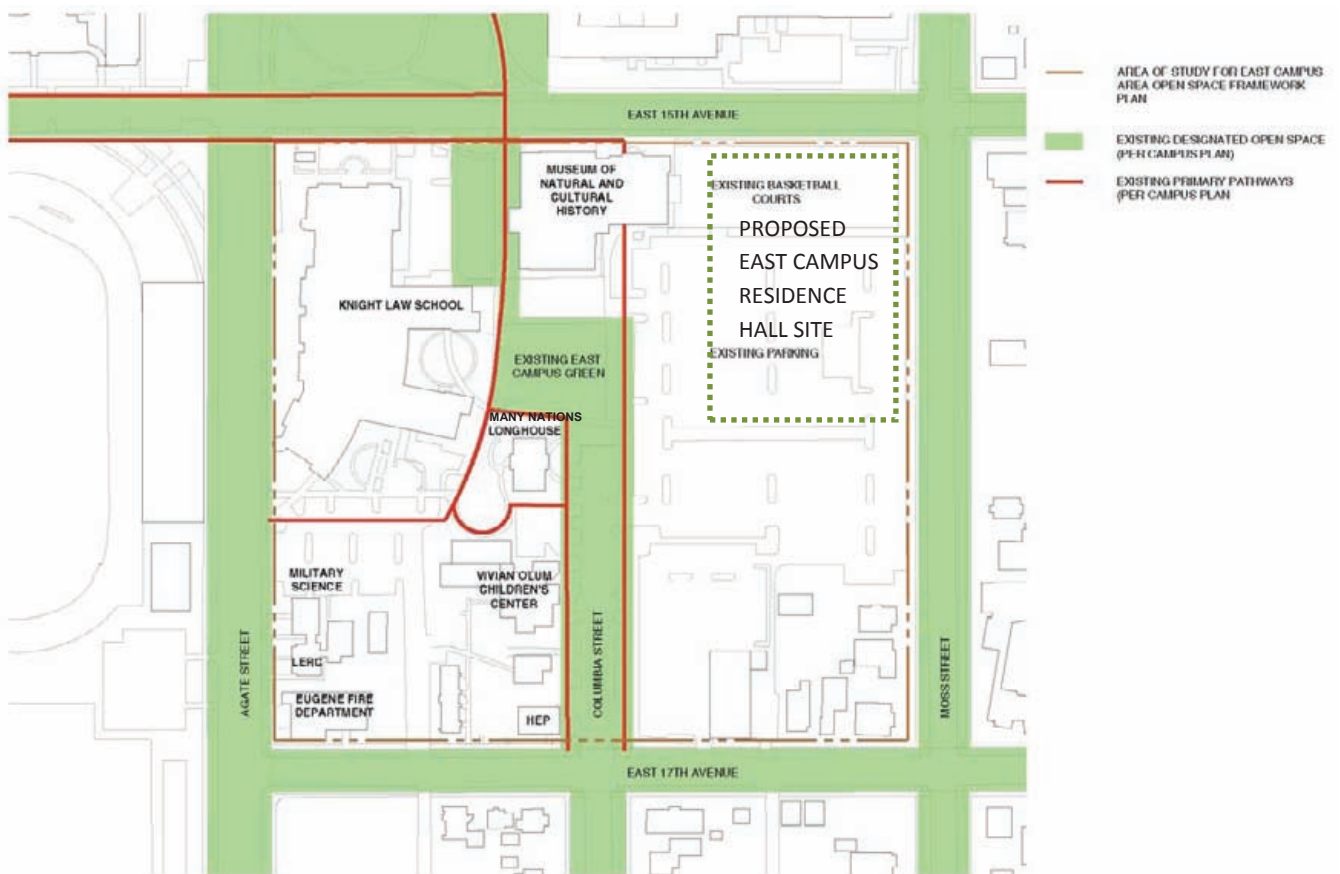
As a general rule, an open space framework plan shall identify at least 25% of available uncovered land in each Design Area as Designated Open Space.

For the East Campus area of study the site area is 565,732 GSF, the combined area of Sub-Areas 71, 72 and 73. Therefore the Designated Open Space requirement for the area is a minimum of 141,443 GSF.



Furthermore, buildings over 100,000 GSF are required to construct open space area equal to a minimum of 16% of GSF. The East Campus Residence Hall is required to build 29,600 SF of designated open space, based on a Schematic Design Area of 185,000 GSF. The landscape development plan for the East Campus Residence Hall must account for this open space development requirement.

The Open Space Framework Plan is expected to establish boundaries of the designated open spaces adjacent to the new residence hall, provide direction for the siting of the East Campus Residence Hall, guidance for siting future buildings in the “superblock” - both new construction and expansion of existing buildings, define major pedestrian pathway locations within the “superblock”, and identify possible solutions for replacement of existing facilities, including parking and basketball courts. Furthermore, new building projects within the East Campus Area must contribute to building out the East Campus Open Space based on their size.



East Campus – Existing Designated Open Space and Primary Pathways

The Design Team met regularly with the East Campus Open Space Framework Advisory Group to develop a designated open space framework and pathway plan that is responsive to the East Campus Residence Hall project goals.

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

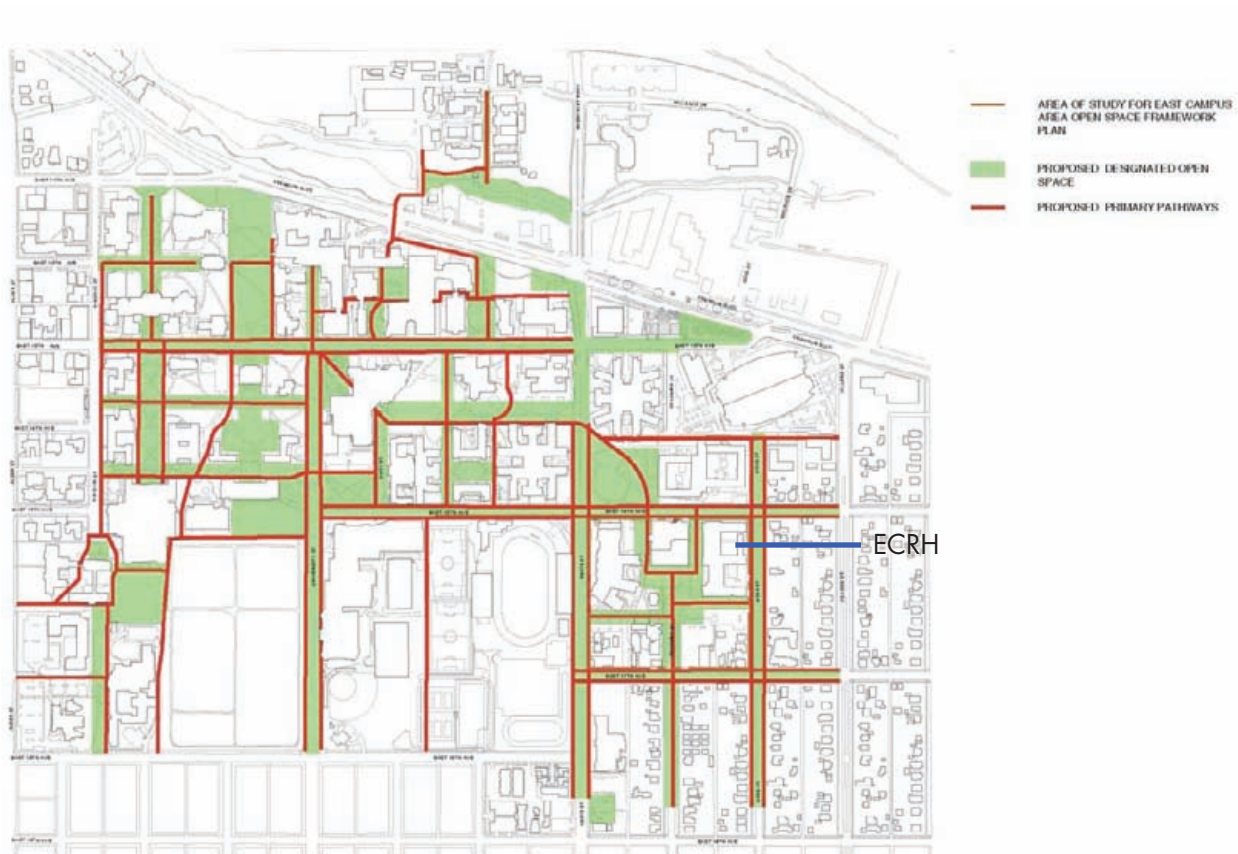
The initial plan was reviewed by the Campus Planning Committee in June, 2009. The intent was to build on and extend the existing Campus Open Space Framework and Pathway Plan, provide a central open space for the “Superblock”, connect to existing pathways, and accommodate additional pathways to the rest of the East Campus. The committee had the following recommendations:

- Make new development part of the campus
- Connect central green to Agate Street
- Consider adjacent uses
- Accommodate Museum of Natural and Cultural History service access and parking
- Thoughtful development - limited large sites remain
- Consider options for future adjacent development



Proposed East Campus Open Space Framework and Pathway Plan – June 2009

The revised Designated Open Space Framework and Pathways extends both the existing open space network and the major pedestrian pathways from the main campus to the east campus and builds upon the existing open space and pathways in the “superblock”. Pedestrian pathways will extend from the Humpy Lumpy across East 15th Avenue to the East Campus Green in the center of the “Superblock, will provide access across the block, both north to south and east to west, and provide views into the central open space from the surrounding streets. The existing street grid in the East Campus will remain functional and, while continuing to serve automobile traffic, will also support pedestrian and bicycle traffic. The revised plan identifies the smaller scale interconnected open spaces that constitute the framework plan for the superblock.

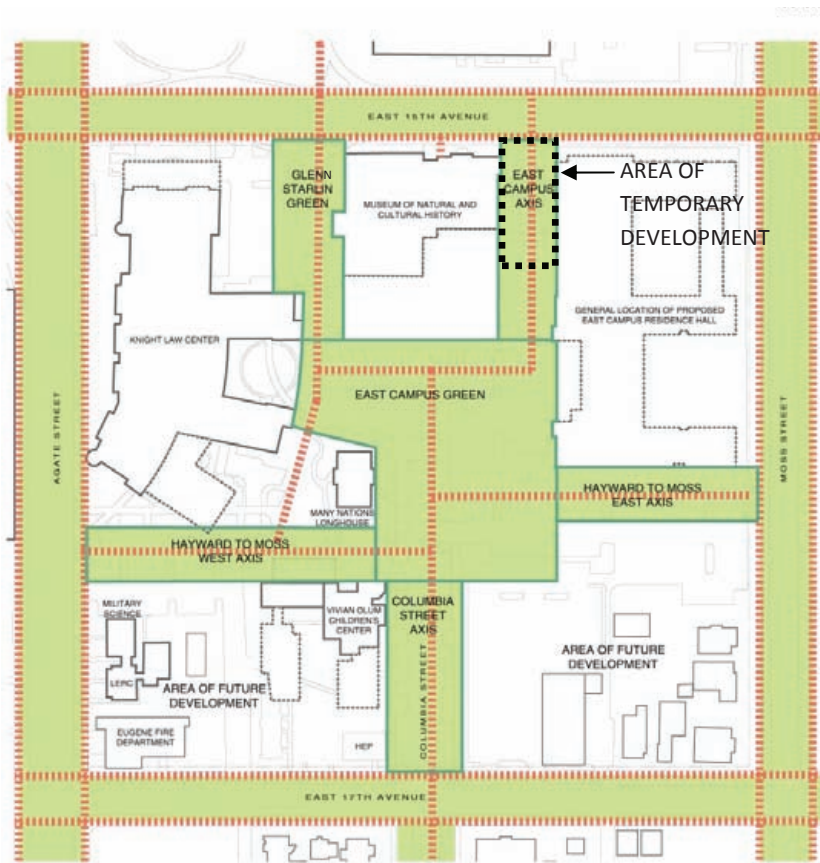


University Of Oregon – Proposed Campus Designated Open Space and Pathways – November 2009

SCHEMATIC DESIGN

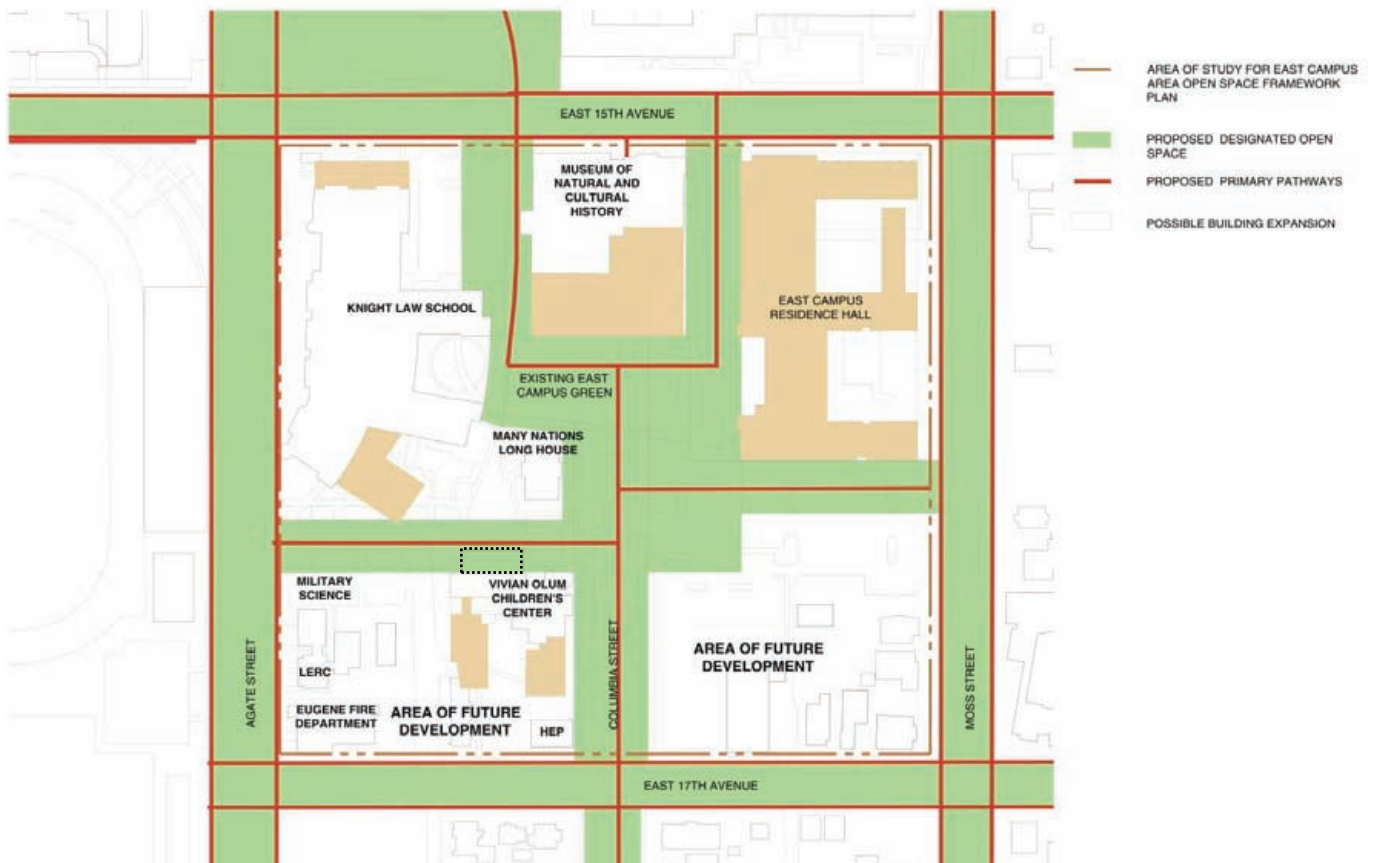
East Campus Residence Hall
University of Oregon, Eugene

In response to the suggestion from the Campus Planning Committee, care has been taken to consider the service needs of the Museum of Natural and Cultural History. The north end of the East Campus Axis is identified as an area of temporary development to allow access to the existing service and loading areas of the museum and to accommodate changes required by the next addition to the museum. In response, the landscape plan of the East Campus Residence Hall will make simple improvements in this area, improvements that meet campus standards for open space, but not involve extensive plantings, special paving or landscape structures.



Revised Open-space Framework and Pathway Plan – November 2009

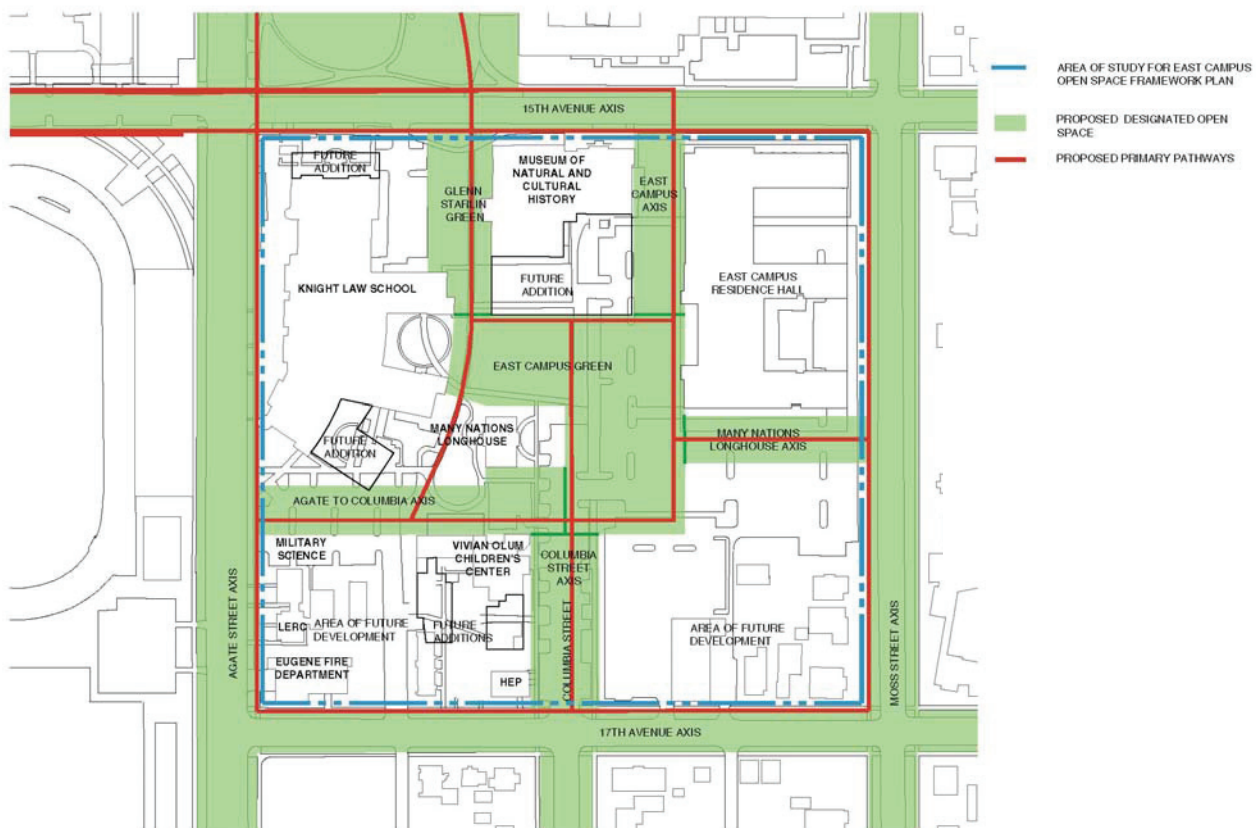
With the intent to maximize the university’s planning flexibility, the revised Open Space Framework Plan identifies large parcels for additional development, making it easier to respond to a range of future university needs. The plan also identifies areas of possible expansion of existing buildings.



Areas of Possible Expansion of Existing Buildings

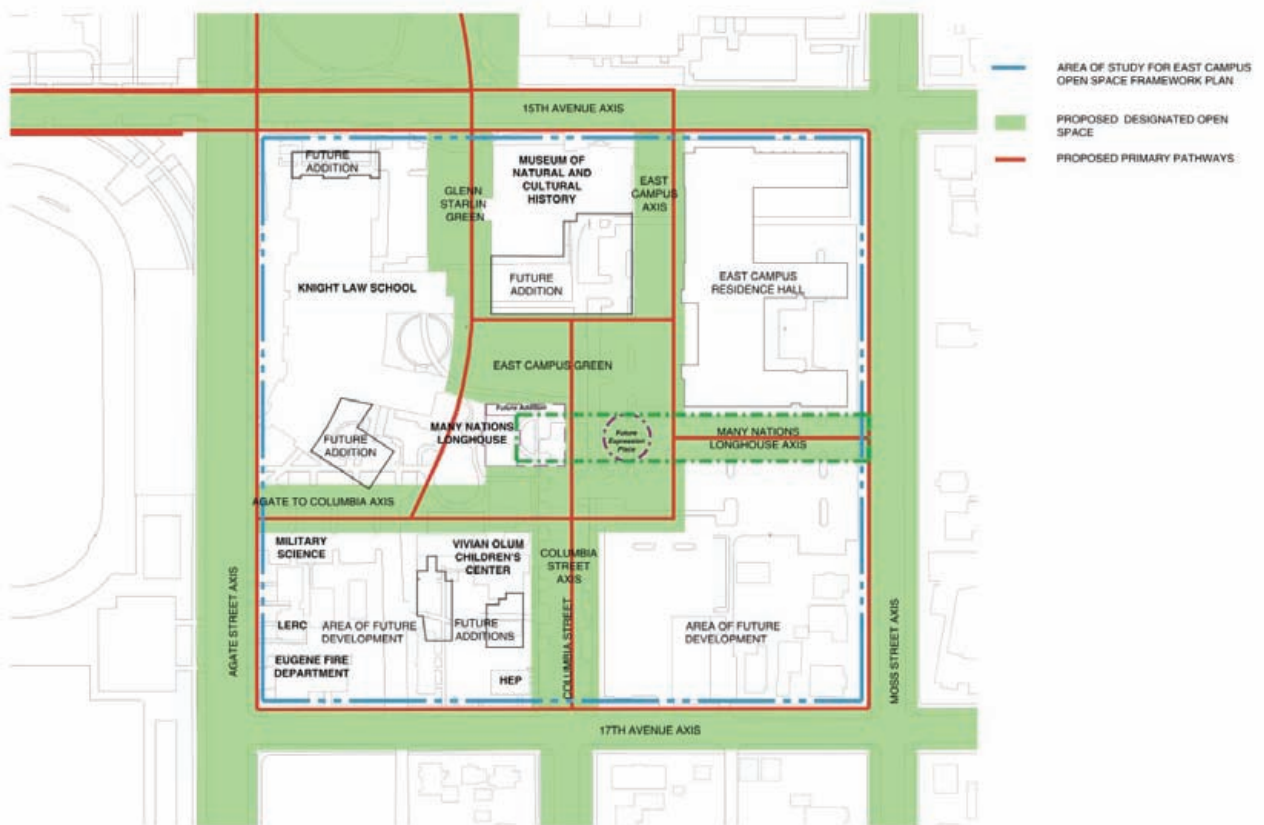
The revised plan was presented at the November 2009 Campus Planning Committee meeting. Before a full review of the plan could be completed the representative from the Many Nations Long House expressed his concern that the proposed East Campus Residence Hall blocks the ceremonially important view of sunrise on the summer solstice. The Campus Planning Committee moved to table consideration of the East Campus Designated Open Space Framework and Pathway Plan until a satisfactory resolution to the issue could be found.

In response the Many Nations Longhouse Axis has been established. It is 60' wide and centered on the east door of the Long House. Additionally, the north to south dimension of the East Campus Residence Hall has been reduced by 28 feet. This moves the building out of the view corridor established by the Many Nations Longhouse Axis.



Revised Open-space Framework and Pathway Plan – February 2010

The revised Open Space Framework and Pathway Plan defines a large open space just east of the Many Nations Longhouse within which an Expression Place has been identified for development. Furthermore, the boundaries of the proposed Designated Open Space have been adjusted to allow for planned future expansion of the Many Nations Longhouse.



Revised Open-space Framework and Pathway Plan with Expression Place – February 2010

Final Schematic Design

NARRATIVE

Architectural Design Narrative

The East Campus Residence Hall consists of three residence towers that rest on a larger ground floor. The ground floor contains common spaces such as the multipurpose room, dining facility, classrooms, group study rooms, Nerve Center (mail room, area desk), Learning Commons and other shared spaces.

The main entrance is located on the north side, along E. 15th Avenue, since it is anticipated that most of the students will come from the main campus. Secondary entrances/exits are also anticipated along the west side to access the ground floor multipurpose room, dining facility and residence towers. Secondary entrances are also provided from the courtyards.

The design of the building creates two courtyards. Both courtyards are enclosed by the building on three sides. They are open to the east but enclosed by a brick wall that provides security for bike parking within. Both courtyards also have covered recycling areas. The north courtyard has seating areas adjacent to the Learning Commons on the north and outside the Multi Purpose room to the east. The courtyard to the south has a terrace outside the group study and dining areas. Provision is made for landscape maintenance access. The design anticipates the use of a lift for access to windows for cleaning, maintenance and repair.

A basement level is provided and will house the mechanical, plumbing and electrical spaces, support spaces for building service and residential storage. The floor elevation is at -15'-0" below grade first level.

The total number of beds provided is 450 divided as follows: 37 single, 222 double, 36 semi-suite and 155 Jack & Jill. All traditional single and double rooms are ADA accessible. Additionally, there are also designated ADA accessible semi-suite and Jack & Jill rooms per floor as indicated at the drawings. The ADA accessible rooms consist of 61% of the total rooms.

The exterior design of the building consists of traditional brick veneer with accent areas of stucco. The roof is proposed to be a painted standing seam metal roofing system. The typical windows will be painted aluminum with metal clad wood windows at residence rooms. They will be interior glazed. The operable windows will have screens to the inside and will open of a maximum of 4" for security reasons. The exterior walls will be non bearing 8" structural metal studs with R-19 exterior wall insulation. The roof will have R-30 roof insulation. The exterior materials and systems will be further developed in the Design Development Phase.

The overall exterior glazing area as a percentage of total wall area is approximately 25 % of wall area.

The interior finishes for the project will be defined in more detail during the Design Development Phase however a preliminary finish schedule is included in the Schematic Design Documents for review.

Residence rooms will have sealed concrete floors, gypsum board walls (acoustically designed) and exposed concrete ceilings, similar to the Living Learning Center rooms. Residence room corridors will be carpeted. Bathrooms and toilet rooms will have tile floors and walls.

The common areas on the ground floor will have a variety of finishes. Porcelain tile floors for the main circulation and dining areas, carpet in classroom and study areas are proposed. Ceiling finishes and lighting will be addressed in more detail during the Design Development Phase. We also anticipate the use of interior wood doors, trim and selected areas of wood paneling.

SCHEMATIC DESIGN

Alternate Features or Systems

The Schematic Design Documents will include the following alternates for pricing:

- Aluminum windows in residence rooms.
- Option for elevator types (both traction and hydraulic elevators are being priced).
- Full temperature control heating/cooling system for residence rooms. An energy model is being developed in order to determine the room temperature.
- Building integrated photovoltaic (BIPV) standing seam roofing at the south facing residence towers roofs. The possibility of having it financed by a third party will need to be investigated.
- Perforated aluminum sunscreens at the south facing windows in lieu of the photovoltaic panels.

Sustainability

The following are sustainability features included in the Schematic Design Documents:

- Solar thermal panels to be located at the roof of each residence tower for pre-heating Domestic Hot Water.
- Natural ventilation stacks for each room. They are being modeled to determine their effectiveness.
- Heat provided via perimeter hydronic radiator panels at residence room.
- Operable windows with high insulation values in glazing and frames.
- Sunscreens along the south elevations, with integrated solar photovoltaics.
- Storm water and condensate filtration, capture, and reuse for toilet flushing throughout (with a tank to be placed in the south courtyard).
- Dual-flush toilets throughout and pint-flush urinals wherever urinals are specified.
- Native vegetation and climate-sensitive irrigation controls.
- Green roof at the second floor level, 50% of roof area.
- Vegetated flow-through planters for stormwater treatment of rooftop and pedestrian hardscape surfaces.
- Aggressive recycled content for high volume materials: Concrete (25% Class C flyash or blast-furnace slag minimum, and 50% where appropriate structurally), Gypsum (80% flue-gas gypsum minimum), and Steel (80% recovered steel minimum).
- Local/Regionally sourced material where possible to reduce transportation impacts – sources to be confirmed.
- FSC certified wood as specified in the outline specification.
- Designated areas for recycling.
- Secure, locked bike storage.
- Above code minimum thermal insulation at the exterior walls.

Site Design

The site for the ECRH building is an existing University parking lot located on the corner of E. 15th Avenue and Moss Street. The Museum of Natural and Cultural History is adjacent to the west edge of the parking area. The new East Campus Residence Hall and site development will displace 311 parking spaces. The temporary loss of parking spaces for construction staging will be 54. The University is in process of identifying locations on campus to accommodate the displaced parking.

As part of the building design the ECRH project is required to provide designated open space improvements. The minimum designated open space required to be developed is 16% of the gross square footage of the building. The design team has been working with the East Campus Area Open Space Framework Advisory Group to identify open space needs for the entire block (area surrounded by E. 15th Avenue to the north, 17th Avenue to the south, Moss Street to the east and Agate to the west). The ECRH project helps define the adjacent open spaces. The open space identified in the ECRH Schematic Design Documents includes a 60' wide area between the ECRH and the Museum of Natural and Cultural History, the East Campus Axis, and an area west of the building. Additionally, a 60 foot Many Nations Longhouse Axis is centered on the east door of the Longhouse. These areas exceed the 16% requirement and will fit into a larger open space context for the entire block.

The site design will be integrated with the larger open space areas. See the section on the Open Space Framework for a diagram of the proposed East Campus Open Space and Primary Pathway Plan.

The 60' East Campus Axis between the existing Museum of Natural and Cultural History and the ECRH will include a combination pedestrian path and fire lane consisting of a 15' width of concrete pavement (6" depth), 4' turfblock pavers, and a 1' wide concrete edge strip. The set backs along Moss Street and E. 15th Avenue are 15 feet. The sidewalks along these streets will be replaced and widened.

All the proposed and replaced walkways consist of a minimum of 4" concrete, with 6" reinforced concrete at areas that have vehicle traffic.

Where possible the existing trees along E. 15th Avenue and Moss Street will be protected and saved.

The majority of new plantings for the ECRH building are proposed to be native/adaptive landscape plantings. Plant selection will occur in the Design Development Phase. Stormwater infiltration plants and bio-swale plant mixes will also be used. A minimum of 12" imported topsoil is required for turf planting and 18" topsoil for all other planting beds.

Site features include concrete walks, stairs, planters, possible seat walls and concrete curbs. The north and south courtyards consist of concrete terraces, concrete paving and assorted plantings. Both courtyards also include a secured, covered long term bike parking area for a minimum of 225 bicycles and an underground rainwater/stormwater tank to be used for toilet flushing.

Non covered bike parking will also be located at the building entrances.

Since the residence rooms will look directly down on portions of the 1st floor roof, the schematic design proposes green roof areas over the performance hall and dining/kitchen facilities. The green roof is approximately 50% of this roof area. A tray type planter system is proposed. Access stairs to both roofs are provided.

Structure

The foundation system consists of spread footings that have approximately 4' of over-excavation and improved fill to limit differential settlements. The slab on grade is typically 5". The basement walls are 10" thick. The floors of the typical housing units will be constructed of two-way conventionally reinforced concrete flat plate slabs. The floors will be designed to avoid drop panels at the column slab interface. The columns will be spaced at regular intervals to economize on re-use of concrete formwork. In the dining and multipurpose areas, the roof structure will be constructed using composite concrete – steel deck supported by structural steel beams and open web joists. The roof structure of the residence halls will be framed using light wood framing. Seismic loads will be resisted by reinforced concrete shear walls placed throughout the building plan at the concrete levels, and plywood sheathed metal stud shear walls at the uppermost levels of the residence units. Building loads will be transferred to the supporting earth with spread footings that will be over-excavated to minimize building differential settlements.

Mechanical

Heating, Ventilating, and Air Conditioning (HVAC) systems proposed for the facility are being selected to provide reliable and efficient operation while maximizing sustainability, minimizing equipment maintenance, and providing long equipment life. The HVAC systems include a mix of system types to maximize energy efficiency and sustainability. The HVAC elements and configurations include hydronic heating and cooling systems, constant and variable air volume (VAV) central air systems, natural ventilation systems, radiant heating systems, constant volume exhaust systems, and heat-recovery exhaust/makeup air systems. Waste energy from electrical power distribution and kitchen coolers and freezers is also expected to be made available for re-use. Possible Energy Conservation Measures (ECMs) currently being studied include radiant cooling, decoupled ventilation, underfloor air distribution systems, and displacement ventilation systems. Central air handling equipment is located inside basement mechanical rooms as available. Ductwork and piping will be concealed as much as possible within chases, plenums, and other dedicated mechanical spaces. HVAC systems use central campus energy sources including piped steam and chilled water.

For the heating, campus steam is supplied to a heat exchanger to provide heating water, which will be pumped to centralized and distributed heating coils.

For the cooling system, campus chilled water is centrally pumped to air handling units and distributed cooling coils to provide space cooling and ventilation air cooling.

The application of HVAC equipment to individual spaces: At the basement, a central variable air volume (VAV) air handling unit is provided with filtered ventilation, heating, and cooling. Distribution ductwork overhead in the ceiling space transports HVAC air to variable volume air terminal units with hydronic heating coils in individual temperature control zones. The air handling units' outside air dampers and the terminal units are controlled as Demand Control Ventilation (DCV) systems. At the ground floor, the food service kitchen is served by constant volume exhaust fans mounted in the ceiling space. Makeup air is provided by constant volume air handling units located in the basement. The commons spaces, assembly and performance spaces, offices, meeting rooms, storage rooms, and corridors, are served by variable volume air handling units located in the basement. At the residence towers, residence room ventilation is provided by natural ventilation. Natural ventilation "stack effect" airways are provided using manually operated windows, building chases, and insulated automatic dampers. The natural ventilation openings are

interlocked with window switches and finned tube radiation to minimize energy usage. An energy model is being developed to identify the effectiveness of the ventilation stacks. Heating is provided by hydronic heating coils (radiators). At the toilet rooms and janitor's closets the ventilation, exhaust, and makeup air are provided by energy recovery ventilators. Hydronic heating coils and chilled water cooling coils are provided for final conditioning of makeup air. The makeup air passes through the opposite side of the heat recovery module while being kept separate from the exhaust air stream. The system is sized to provide 10 air changes per hour in the toilet rooms and janitor's closets, and is balanced to maintain a slight negative pressure in these spaces relative to the rest of the building for odor control. Stairs at the residence towers are provided with hydronic heat and ventilation. At the electric rooms and telephone rooms the base cooling system for these rooms uses chilled water fan-coil units. An ECM is being studied to replace the fan coils with high-efficiency Variable Refrigerant Volume (VRV) split system air conditioners with multiple ductless indoor units piped to fewer (ganged) outdoor condensing units.

Electrical

The building is connected to the University's 12KV distribution system that ties to the central plant. The feeder is intended to extend from the new Arena and run down Moss Street. The feeder is installed in a utility tunnel along with other systems. This feeder is extended to a 12KV / 480V 1,500KVA oil filled transformer. The transformer is located in the basement. The transformer room is provided with personnel access doors. A below grade areaway, with a grated opening to the outside, is provided to allow for removal of the transformer. We anticipate the main switchboard for the new building to be a 480/277 volt, 2,000-amps. The switchboard is located in the main electrical room in the basement. We anticipate one electrical room for each residential floor. Each electrical room for the residential floors has one 480 volt panel, and three or four 208 volt panels. Dry type transformers are located on every other floor. A metering system for each residence floor is provided for measurement and verification of energy use and savings. The metering system must be compatible with the Alerton DDD system for HVAC controls.

Electrical receptacles, in the residence rooms, shall be provided per NEC 210.60 and NEC 210.52(A) through 210.52(D). The typical single resident room has two duplex and two double duplex electrical receptacles fed from two circuits. The typical double resident room has four duplex and two double duplex electrical receptacles fed from three circuits.

Double duplex receptacles are provided for all carpeted areas for maintenance purposes. These receptacles shall be fed from two circuits. Receptacles shall be spaced to accommodate carpet cleaning equipment. Regarding the Emergency/Standby Power Systems, the building is tied to the University's 12KV Standby system.

The use of solar water heating panels and photovoltaic arrays will be used for this project. The solar panels are located at the south facing roof of the Residence Tower C (middle tower). PV panels occur as sunshades at the south facing residence room windows.

The interior lighting approach addresses the functional and aesthetic requirements of the individual space types. Surface mounted, durable fixtures are used throughout in the resident rooms and hallways. Higher quality light fixtures, to address the functional and aesthetic requirements of the individual spaces, are used on the ground floor. Additional emphasis will be placed on owner acceptance, system maintainability, and initial and long term operating costs. High performance linear fluorescent lamps in conjunction with program start electronic ballasts are the predominant electric light source/ballast technology used throughout the

facility. Additional light source types are utilized as required. Supplemental lighting and task lighting augment the base systems where appropriate. Lighting controls shall be simple while allowing the owner the greatest flexibility for all of the varied spaces. Occupancy sensors are used throughout in classrooms, offices, support spaces and other similar rooms. Variable level illumination schemes will be reviewed with the owner to ensure that the system(s) addresses their needs.

Communications

Voice and Data systems are provided per the UO Voice & Data Campus Infrastructure Standards. Fiber optic and copper backbone cable is brought into the building from the utility vault adjacent to the Museum of Natural Cultural and History to the main telecommunications service equipment room located in the basement. The ground floor has three telecommunication rooms. There will be one communications room for each residential floor. An open cable tray is provided on the ground floor, above an accessible ceiling, and run the length of the building. In the residence corridors a cable tray is provided for routing of all communication cables. The typical single resident room has one communication outlet with two cat5e cables and one RG6 TV cable. The typical double resident room has two communication outlets with two cat5e cables and one RG6 TV cable in each outlet. Conduits are provided from each outlet to a cable tray. In addition to hard wired access the University is considering wireless access throughout the building. Wireless access points are located throughout the building at strategic locations. Provisions will be provided to enhance the cell-phone signal throughout the building.

Plumbing

Plumbing systems proposed for the various facilities were selected to provide reliable and efficient operation and with consideration for sustainability. Domestic water piping are Type L copper, a six inch riser with backflow prevention located in the north east corner of the basement. Reclaimed water is identified with purple pipe wrap. Storm, vent, and sanitary waste piping are cast iron no-hub. Waste piping exits west from the building toward the main which is relocated from inside the building footprint as part of this project. A duplex grinder sump pump is required to lift waste water from the basement floor level to a central waste main. Storm water from most roof areas is collected for re-use. The rest will be sent to treatment swales located in areas adjacent to the building. Natural gas in black steel pipe is fed from the south, primarily to serve the kitchen. Piping systems and accessories will be designed with emphasis on access and ease of maintenance.

High quality low flow / low flush plumbing fixtures have been selected for reliable and efficient operation, sustainability, long life, and low maintenance. Water closets and urinals are wall mounted. Counter mounted sinks for hand washing are vitreous china with 0.5 GPM manual or hard-wired sensor controlled faucets. Showers are traditional tile with thermostatic- and pressure-balancing mixing valves and 1.6 GPM shower heads. Janitor's sinks will be floor mounted terrazzo with piping for chemical mixing stations. Handicapped accessibility will be provided for throughout in accordance with the requirements of the Americans with Disabilities Act.

Primary water heating will use semi-instantaneous steam-to-water "converters" (heat exchangers) with hot water storage and solar preheat. Thirty six solar panels, each 40 square feet in area are expected to be mounted on the central tower with a sixty gallon drain-back tank on the top floor (to minimize pumping energy) and two 2,500 gallon storage tanks in the basement. Preheated water to be used for space

heating is brought to final temperature by a single generator, while potable hot water is generated by three separate units. High temperature hot water for the kitchen is produced by a dedicated booster heater (probably electric), specified by the Kitchen Designer. The top floor of the north tower requires its own separate electric water heater supplied by the domestic booster pump serving that area.

Kitchen services are piped up from the basement to fixture groups and distributed horizontally as practical and appropriate overhead along the walls. Approximately 350,000 Btu/h low pressure natural gas service are located in the courtyard and piped directly to kitchen equipment with local shut-offs. An independent greasy waste collection system flows to the interceptor in the courtyard to the east and then returns to join the regular sanitary waste and exit to the west.

Rainwater from roof areas will be stored underground in a 30,000 gallon tank located below the south courtyard, and processed for use in flush fixtures.

As a consequence of the Eugene Water and Electric Board's recent interpretation of the Oregon Administrative Rules regulations regarding backflow prevention and its application to reclaimed and rainwater harvesting systems, a reduced pressure principle backflow assembly (RPBP or RP) is required. This is located in the basement and requires a high flow sump pump below it (650 GPM at 25 feet of head) and a 6" pumped sanitary waste pipe to carry water to the sanitary waste pipe west of the building should a significant backflow event ever occur. In addition, a duplex domestic water pump system with pressure tank is required to serve the top floor of the north bar to offset the added pressure drop associated with the more restrictive backflow device.

Site Utilities

The existing water system consists of a 16-inch public water main along the north side of E. 15th Avenue and an 8-inch public water main on the west side of Moss Street. Two public fire hydrants exist along E. 15th Avenue, one at the corner of Moss Street and E. 15th Avenue and the other roughly 430 feet west. The proposed fire protection system includes a new tap to the existing 8-inch public water main in Moss Street. A Double Check Detector Backflow Preventer (BFP) is installed just downstream from the connection to the public water main. From the BFP the fire protection line continues to connect to the building sprinkler system near the northeast corner of the building. A fire department connection (FDC) is also required on the fire protection line. One additional fire hydrant needs to be installed along the south side of the site on Moss Street in order to comply with Oregon Fire Code. The proposed domestic water system consists of a new tap to the existing 8-inch public water main in Moss Street. Downstream from the tap a new EWEB water meter needs to be installed along with a domestic reduced pressure BFP. The reduced pressure BFP is to be located in the building's basement. All trash enclosures have sanitary drains with trap primers. Water service for trap primers will be provided.

The existing sanitary sewage system is a 10-inch private sanitary sewer line that runs south to north through the middle of the site, providing service to the existing buildings located south of the site. Regarding the proposed sanitary sewer system, the existing 10-inch sanitary sewer system needs to be rerouted around

the west side of the proposed building in order to provide the shortest reroute and to avoid conflicts with the Moss Street right-of-way and proposed storm drain features on the east side of the site. All sanitary building connections are collected and routed to the rerouted private sanitary line. Therefore, all sanitary sewer building connections are located either on the south or west sides of the building. In addition, all trash enclosures have sanitary drains draining to the rerouted sanitary sewer system. Sanitary manholes and cleanouts are provided as required to meet building code.

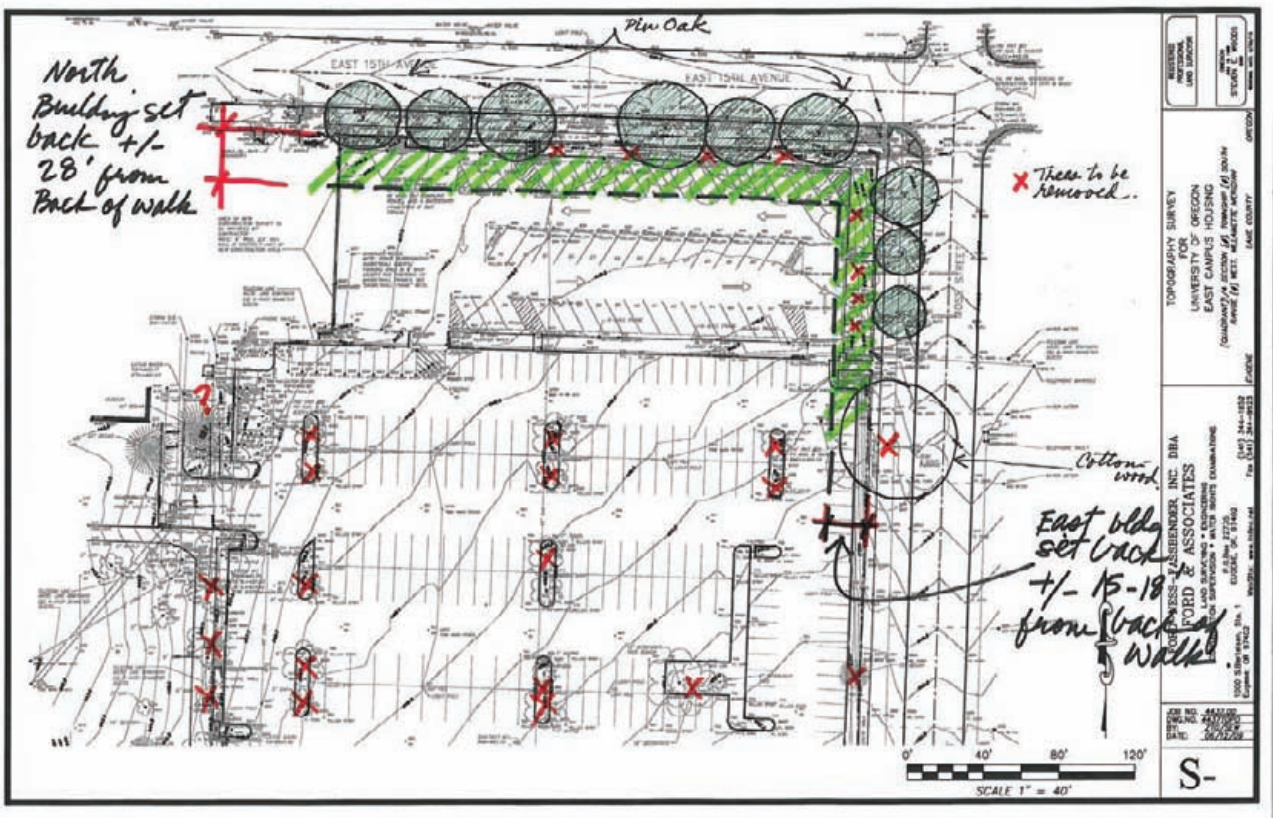
An existing 12-inch public storm drain exists along the south side of E. 15th Avenue, while a 10-inch private storm drain exists along the west side of the site. Stormwater from both the 10 and 12-inch storm drains flow west to Agate Street where the stormwater is then routed north to discharge to the Millrace Channel. The proposed drainage system maintains the current drainage pattern by draining approximately one third of the site to the 12-inch public storm drain in E. 15th Avenue and draining the remainder of the site to the private storm drain system along the west side of the site. If the current drainage pattern is maintained then detention of stormwater should not be required since the site is currently fully developed with impervious surfaces. However, some stormwater storage is desired in order to provide reuse for toilet flushing. Any stormwater storage is provided via an underground storage tank. Civil provides storm drain piping to and from the stormwater tank. However, the design of the storage tank and pump system is provided by the Mechanical Engineer. Catch basins are used to collect runoff from vehicular areas, while area drains will be used to collect runoff from landscaped areas and deck drains for collecting runoff from pedestrian hardscaped areas. Trench drains may also be used for collecting runoff from both vehicular and pedestrian hardscaped areas. It is anticipated that the inlets are connected to two new private storm systems to convey stormwater to the 12-inch public and 10-inch private storm drains. Storm drain manholes and cleanouts are provided as required to meet building code. Regarding the treatment, the City of Eugene requires all new or replaced impervious surfaces to be treated. The City also allows mitigation offsets for new impervious surfaces by providing treatment for existing impervious surfaces, and for new impervious surfaces adjacent to new or existing large trees. Therefore, if an isolated area cannot be treated then the treatment requirement for that area may be offset by an onsite tree credit or by treating an area of existing impervious surface equal in size. At a minimum, the City of Eugene treatment requirements must be met. Although this project is currently not pursuing LEED certification, it may later be pursued as the project progresses. Both LEED and the City of Eugene allow stormwater treatment via vegetated or manufactured means. The preferred option for stormwater treatment is via vegetated methods including filtration planters, swales, and ecoroofs for treating roof runoff and swales and/or vegetated filter strips for treating runoff from vehicular and pedestrian pavements. However, grading constraints and limited open space often force the use of manufactured treatment units.

The existing natural gas system consists of a 2-inch natural gas main on the south side of E. 15th Avenue and a 1-inch natural gas main on the east side of Moss Street. The proposed natural gas system is to enter the ECRH near the southeast corner of the building. Therefore, natural gas needs to be extended from the natural gas main in Moss Street to the ECRH. Northwest Natural is responsible for installing the gas meter and constructing the new gas service from the main in Moss Street to the new gas meter.

Existing Trees

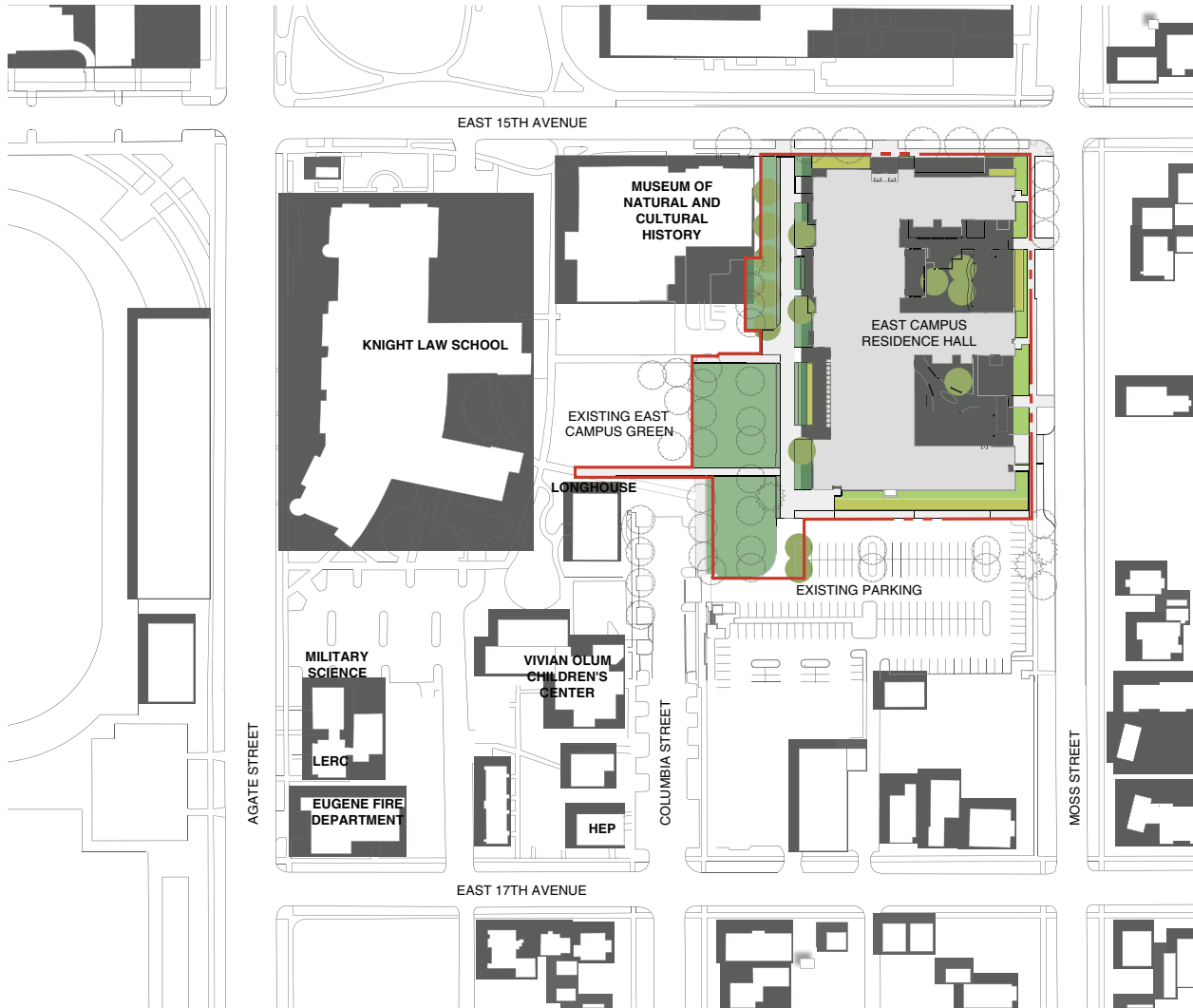
There are six Pin Oaks along the East 15th Avenue right-of-way at the north edge of the building property, these trees will be protected and retained for the project. These trees, even though on the University campus, are under the City of Eugene’s jurisdiction because East 15th Avenue is a local city street. Moss Street has several different types of street trees along its western edge at the project site right-of-way. Some of these trees have been identified to be removed due to the project design, health and value as a street tree. These trees will be under the University’s care and will not require permitting for tree removal and replacement. The new project will plant several new street trees along Moss Street as a mitigation measure and for the benefit of the campus.

Trees within the existing project site boundaries have been identified for removal due to the new building footprint and the associated construction activities. The trees along the western border of the site have been identified to possibly be retained. As the project progresses and the design of the new eastern portion East Campus Green is developed these trees will be evaluated.

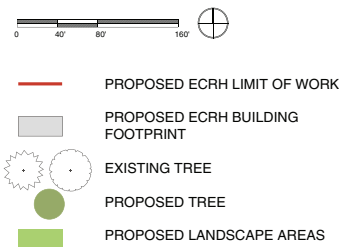


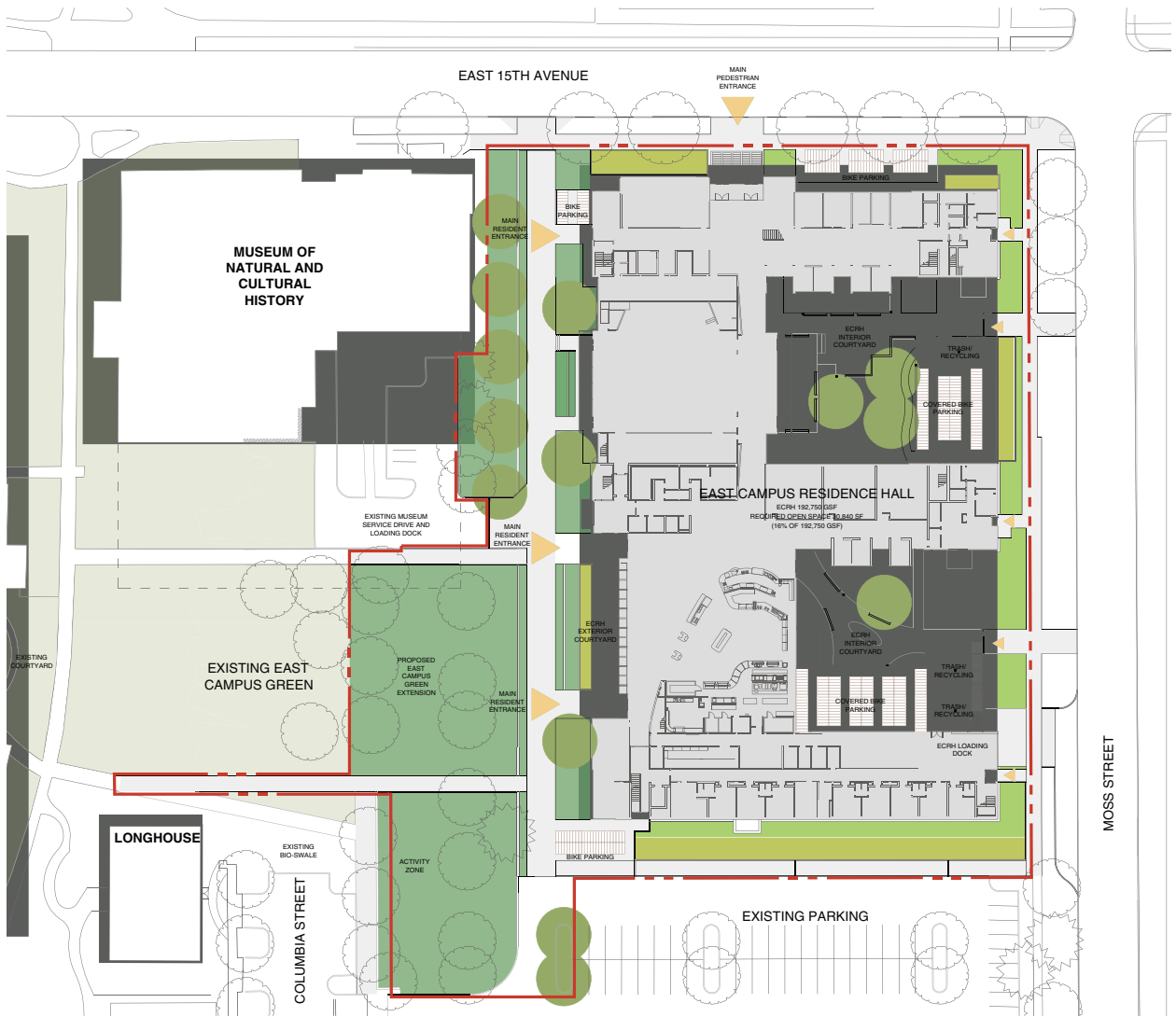
East Campus Residence Hall Site Area– Existing Tree Assessment

DRAWINGS



East Campus Residence Hall – Overall Site Plan

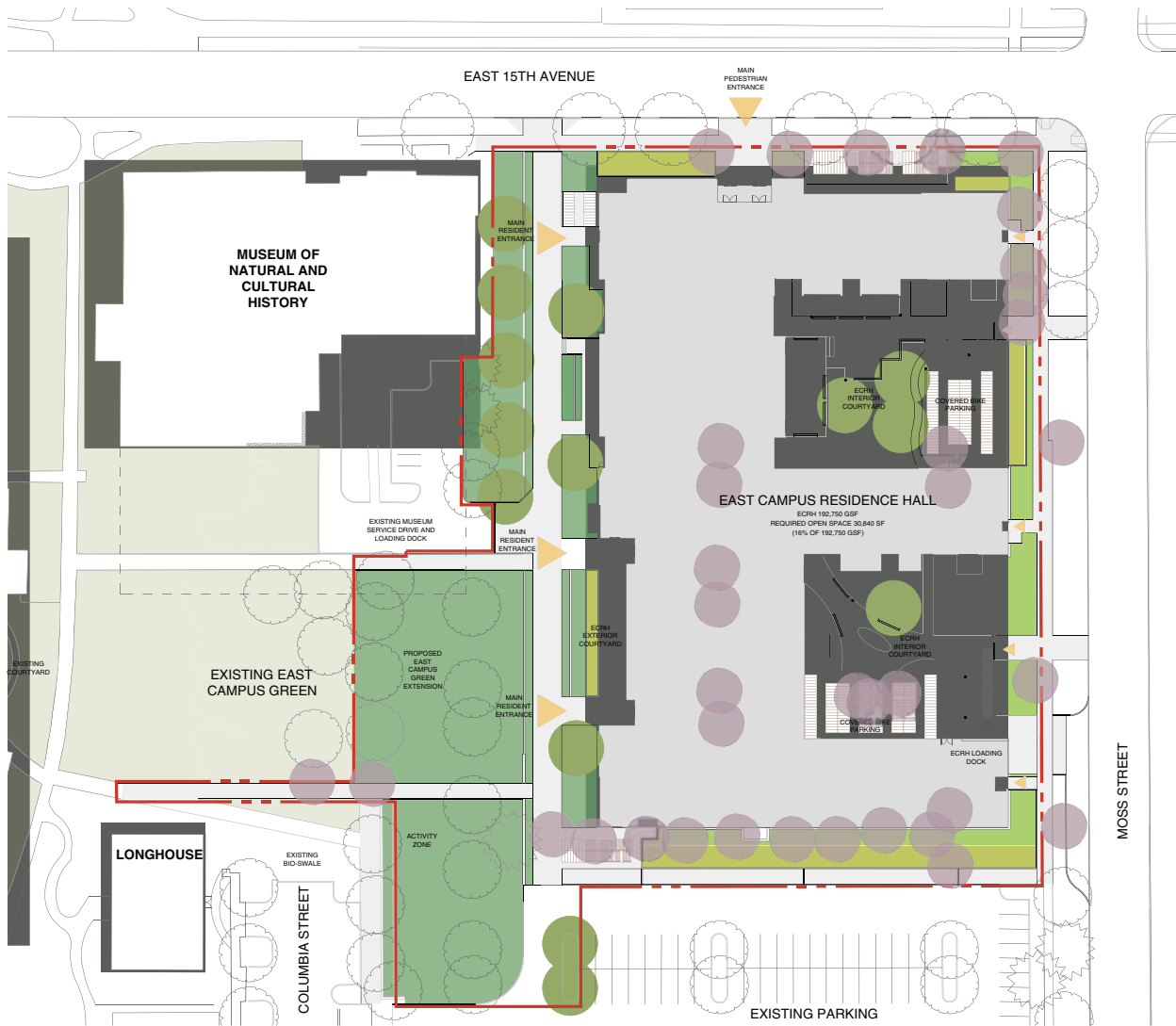




East Campus Residence Hall – Site Plan



- PROPOSED ECRH LIMIT OF WORK
- PROPOSED ECRH BUILDING FOOTPRINT
- EXISTING TREE
- PROPOSED TREE
- EXISTING LANDSCAPE AREAS
- PROPOSED ECRH LANDSCAPE AREAS
- PROPOSED ECRH DESIGNATED OPEN SPACE AREAS - LANDSCAPE AND TURF GRASS
- PROPOSED ECRH STORMWATER PLANTING AREAS



East Campus Residence Hall – Existing Trees to be removed Site Plan



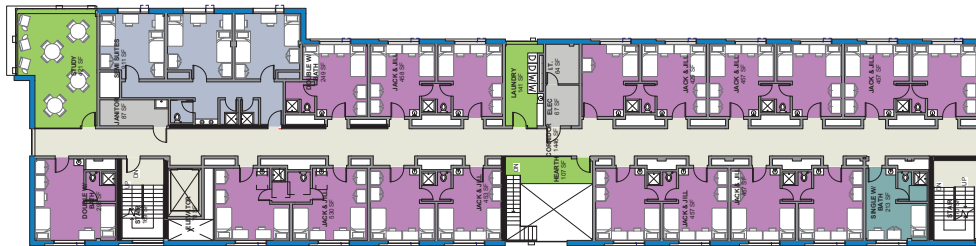
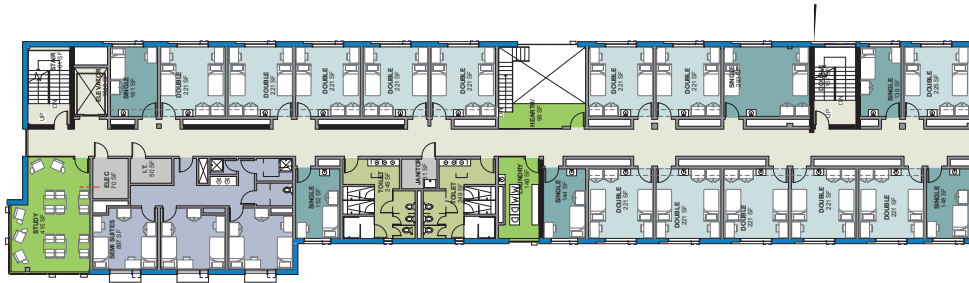
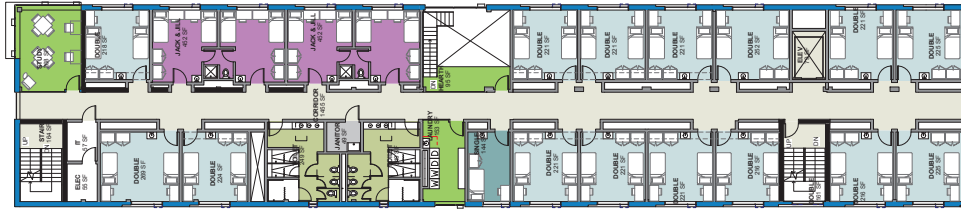
- PROPOSED ECRH LIMIT OF WORK
- PROPOSED ECRH BUILDING FOOTPRINT
- EXISTING TREE
- PROPOSED TREE
- EXISTING LANDSCAPE AREAS
- PROPOSED ECRH LANDSCAPE AREAS
- PROPOSED ECRH DESIGNATED OPEN SPACE AREAS - LANDSCAPE AND TURF GRASS
- PROPOSED ECRH STORMWATER PLANTING AREAS
- EXISTING TREES REMOVED



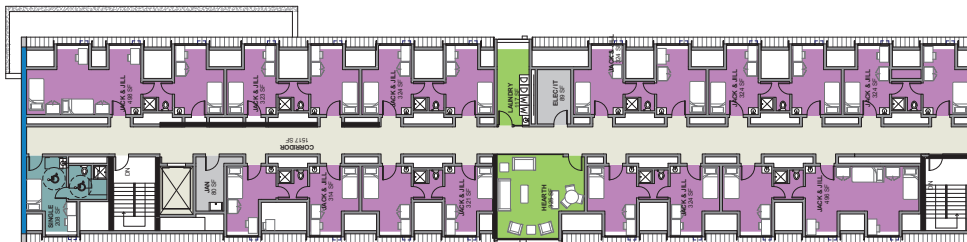
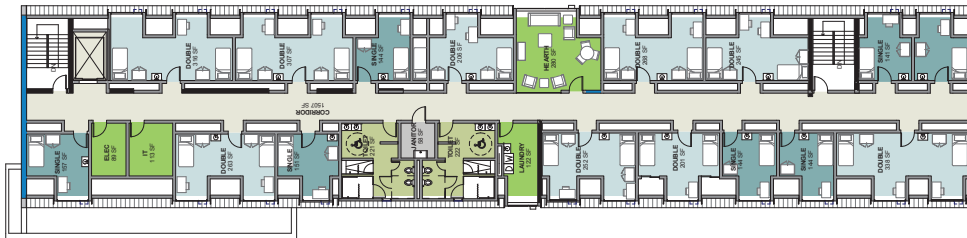
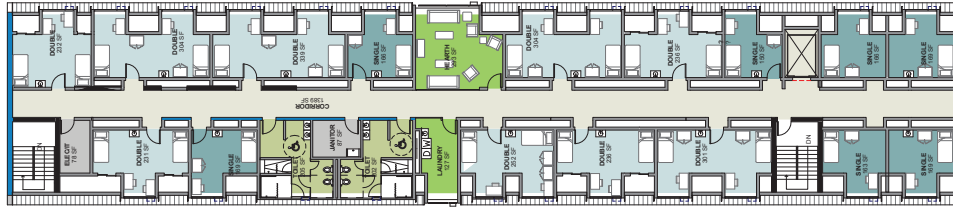
East Campus Residence Hall – Ground Floor Plan



East Campus Residence Hall – Second & Fourth Floor Plan



East Campus Residence Hall – Third Floor Plan



East Campus Residence Hall – Fifth Floor Plan



East Campus Residence Hall – North Elevation



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene



East Campus Residence Hall – East Elevation





East Campus Residence Hall – South Elevation



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene



East Campus Residence Hall – West Elevation





East Campus Residence Hall – South Elevation @ Building–A



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene



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East Campus Residence Hall – Longitudinal Section





East Campus Residence Hall – East Elevation/Section
@ Performance and Dining Space





East Campus Residence Hall – South Elevation/Section @ Building-B





East Campus Residence Hall – North Elevation/Section @ Building-B



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene



East Campus Residence Hall – North Elevation/Section @ Building-C





East Campus Residence Hall – Northwest View

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene



East Campus Residence Hall – Southwest View

Campus Plan and Project Specific Patterns

The East Campus Residence Hall process has considered both Campus-Wide and Project Specific patterns developed by the University of Oregon. They are statements about the built environment that describe and analyze design issues and suggest possible ways to resolve them. They suggest ways of looking at major design issues and are intended to guide the design process. They may also elicit further input from the user group or stimulate thinking by the design team. Articulating long-lasting, shared traditions and understandings that adapt well to development needs, patterns enable user groups to respond quickly to opportunities for facilities improvements as they emerge and, at the same time, emphasize long-range planning and continuity of development decisions over times.

The development of the East Campus Residence Hall triggers the requirement to extend the Campus Plan Open Space Framework and supporting major pathways to the East Campus, with a focus on the area between 15th and 17th Avenues and Agate and Moss Streets. Therefore, the consideration of development patterns is inclusive as the combined projects- the East Campus Open Space Framework and the East Campus Residence Hall- cover a broad range of scales, campus activities and landscapes, all adjacent to a variety of existing buildings, some with identified development potential.

Some university development patterns, such as Sustainable Development, are broad policy initiatives supported by a range of specific patterns. The East Campus Residence Hall project is pursuing a range of sustainable development strategies. These are guided by the SEED program and include additional concepts developed during a Sustainability Workshop early in the Schematic Design. These strategies are included in this report, in the section titled Outline of Sustainability Plan.

The Campus-Wide, Large Scale Campus, patterns, are addressed by the East Campus Open Space Framework as they address how the campus is formed at the greatest scale and puts the East Campus Development in the context of the entire campus plan. These patterns are identified in both the Campus Plan and the 2003 Development Policy for the East Campus Area. The diagrams of the East Campus Open Space Framework are shown at the Section for the Open Space Framework Plan.

Just as there are large scale campus patterns there are site arrangement and building design specific patterns. There are also broad development patterns, specific to building design, that reinforce the quality, visual continuity and image of the campus as a whole.

The following is a description of some of the patterns developed by this project:

LARGE-SCALE CAMPUS

Universal Access:

The ECRH building and site will be an inclusive environment for all users considering age, sight, mobility and other impairments. The new building and site is fully accessible. There are no steep ramps and any area requiring stairs has an associated route that is not an inconvenience to the user.

Sustainable Development*:

Different strategies are being investigated which include solar orientation, natural ventilation, rainwater catchment for reuse, stormwater treatment, natural lighting and native/adaptive landscape plantings among many others sustainable building and construction practices. See the section titled Sustainability Plan.

Open-Space Framework:

The new building will provide an eastern edge to the existing East Campus Green, which will create a new quadrangle for the East Campus area. There will also be pathways surrounding the East Campus Green to help users circulate around the space to provide active edges to the space and a primary pathway connecting to the Humpy Lumpy open space.

University Shape and Diameter*:

There will be classrooms in the new facility, the building should be accessible from the heart of the campus within the required 7 minute walk. Scheduling of these classrooms will be critical for student and faculty convenience.

Open University*:

The site improvements will include widened right-of-way sidewalks, concrete walkways that connect to existing pathways and a large pedestrian promenade/service drive that will provide an eastern edge to the East Campus Green open space.

Student Housing*:

This housing project will have a large dining area that will be available throughout the day and night. Also included will be a mix of housing room types within each wing to provide the mix of students needed for successful university residential living. Large classrooms will also be part of the building to ensure that other students utilize the new facility.

Connected, Smaller Scaled Designated Open Spaces*:

The proposed Open Space Framework Plan describes a series of linked open spaces, both greens and axes of a variety of sizes. See the section titled Open Space Framework Plan.

Planning Process Participation*:

The project has had consistent specific planning meetings and presentations outlaying the new primary pedestrian circulation routes and designated open spaces. This participation has been crucial to how the building integrates with the existing open space, existing facilities, and potential future open spaces and developments.

TRANSPORTATION

Local Transport Area*:

Existing pathways are being extended into the new project area. This will provide convenient means to travel to and from the project area into the main campus. The existing local streets East 15th Avenue and Moss Street are desirable bicycle routes to the main campus from the project site.

Bike Paths, Racks and Lockers:

The project will provide at least 100 short stay outdoor bicycle racks and 250 secure and covered long term bicycle racks. The short term racks will be located at the North Tower main entrance, west entrance and at the South Tower west entrance. There will be covered long term bike storage areas located in both the North and South courtyards. Bicycles will be encouraged to travel using the local streets of East 15th Avenue and Moss Street.

Pedestrian Pathways*:

New pathways will be created traveling along the west and south edges of the project site. The pathways will provide connections to other major pedestrian circulation routes into the main campus area. The sidewalks along East 15th Avenue and Moss Street will be improved and widened.

Street Grid*:

The street grid will be maintained as circulation routes for pedestrians, bicyclists and local vehicle traffic via Moss Street, East 15th Avenue and Columbia Street.

Incentives for Alternate Modes*:

Alternative modes of transportation should be encouraged for the residents and staff of the new building. This would include utilization of local transit, ride share programs and alternative transportation methods other than single occupancy vehicles.

Balanced Parking*:

This project is providing limited service parking.

Displaced Parking*:

The parking loss from the project footprint will be addressed by the university staff.

Collaborative Parking Solutions*:

Currently the university is working with the City of Eugene to provide parking options. This will provide for the parking lost at the project site.

Landscape Buffering*:

The project site will have an array of landscape features utilizing native and adaptive plantings to soften the edges of the project site for visibility and enhancement. The project site has many “micro-climates” to be addressed for the success of the landscape. Buffering will be important for the residents of the building for privacy from the public pathways.

SITE ARRANGEMENT

Site Repair:

The existing site is an asphalt surface parking lot with planting islands containing trees and groundcovers. The new building and its associated site design will need to protect and blend into the existing open space to the west and protect the existing trees that are feasible to retain.

Use What We Have Wisely*:

No natural resources will be damaged due to the new building and site development. The project will retain as many existing trees as possible and provide stormwater mitigation features for the existing parking lot to the south.

Existing Uses/Replacement*:

The displaced outdoor basketball courts and vehicle parking are currently being planned for other areas near the project location. Moss Street will be used for head-in parking, like the example of Columbia Street north of East 17th Avenue.

Positive Outdoor Space:

The building has two outdoor courtyards within the footprint of the building, each courtyard has several entrances/exits for the residents and staff. The west face of the dining area provides an edge to the East Campus Green with a terrace and trellis.

South Facing Outdoors:

The south edge of the building is adjacent to the existing parking lot and requires landscape buffering. The exterior terrace on the west side of the building will provide the outdoor sunny areas for the residents and staff.

Wings of Light:

The building shape has three “wings” that are oriented to the east and west. These allow for vast light penetrations from the south. Each wing is less than 50'-0” in width.

Building Height Limit:

Building Complex:

Quiet Backs:

The wings of the building provide the necessary quiet areas that are needed for the office areas and study rooms. The courtyards will have access from the office and study rooms. Pathways will be provided so individuals can travel along the East Campus Green when desired.

Local Sports*:

The East Campus Green provides an open field for passive or active recreation. A possible hard surface court may be provided for the residents.

Tree Places:

Trees will be planted along the west edge of the northern service drive to define the main pathway and provide shade in the warmer months. Other trees will be planted where deemed to be beneficial to the landscape, open spaces, and building.

BUILDING DESIGN**Architectural Style*:**

Make the design of new buildings compatible and harmonious with the design of adjacent buildings, though they do not mimic them.

The East Campus Residence Hall responds to this pattern first, by using brick as the primary building material, consistent with the historic core of the campus and many subsequent buildings, second by using stucco as a secondary material and, third, by using a simple, clear gabled building form found in many variations on the existing campus.

Scales of Community:

It's hard to get to know 500 people at once, but it is essential that new students get involved in the larger community they live in.

The ECRH provides spaces for different scales of community. The common spaces at the ground floor, dining and the multi-purpose room, support a large scale community that extends beyond the building. Each tower establishes its own community and each floor also breaks down the size of community to the scale of the hearth, study space, laundry rooms and residence rooms.

Staged Independence:

The social and housing needs of first year students differ from second year students, which differ from third, fourth, and so on. As their collegiate experience develops, students thrive on greater autonomy and independence.

Supports the emotional, intellectual and social development of students at the University of Oregon by providing a range of living accommodations for those living away from home for the first time and returning, older students. The traditional double and single rooms, with a shared bath down the hall, encourage new students to meet others and get involved in Residence Life activities. Semi-suites with single or double rooms and a bath support returning students who like the social environment of the residence halls but need additional privacy and independence.

Sense of Publicness/Levels of Privacy (based on Degrees of Publicness):

The residential experience should occur in a variety of spaces with a range of levels of publicness and privacy that include living, learning, social and private spaces.

The ECRH is intentionally stratified, with public spaces for both programmed and spontaneous activities easily accessible on the ground floor. The upper floors are accessible only to residents and they become moderately more private with each additional floor. Floors 2 and 3 have interconnected 2-story hearths. The 4th floor is independent and has fewer beds and the attic and dormer windows provide unique architectural features.

Preview Social Spaces:

Social spaces that require full engagement just to see who is there discourage casual uses and social interaction. People may or may not want to enter without knowing who is already there, triggering the "friend-or-foe" syndrome.

The building entries and public/common spaces are all provided with large expanses of glass to make the building activities transparent and inviting. This is true for both the formal programmed spaces, such as the multi-purpose room, and informal social spaces like dining. The range of academic support spaces, group study rooms of various sizes, can be seen into from outside the building and are easily accessible from the major building circulation. On the residence floors above the hearths, study and laundry room are all identified by large windows.

Accommodate Change:

The use of this building will change over time in unpredicted ways: day-to-day, week-to-week, year-to-year, and decade-to-decade. Classrooms will be used for social events. Lounge spaces will be used for conferences. Initially this building will primarily serve first year students, allowing the UO to replace or renovate other existing residence halls, but it will ultimately serve the full spectrum of students. By the same token, the use and character of food service areas will change over time (see Dining Conversion pattern).

The ECRH has been designed to accommodate a range of activities with a wide variety of student oriented spaces that can be used in a variety of ways during any given day or week. It is expected that the activities will change over the years as the composition of the residents change. The intent is to design utility support services for all spaces in a manner that allows incremental change to be easily made as change occurs. Furthermore, while the primary building structure is concrete, it is a conventionally reinforced flat slab that allows future penetrations. All interior partitions (except shear walls) are metal studs which allow for future reconfiguration should it be necessary.

Back of House Services:

It is important that the operational needs of the front and back of the house are incorporated in a way in which it works for the different staffs that will be working within this building. If the “back” of a building complex, the areas that support the operational needs, isn’t planned carefully, expensive operational inefficiencies will result with garbage stored under people’s windows and truck deliveries waking people up early in the morning.

The main support spaces are located in the basement for mechanical, electrical, plumbing, housing storage, custodial storage and maintenance. The kitchen and its support spaces are adjacent to the dining and seating area. The recycling enclosures for both the food service and the residence towers are located at the courtyards. Each tower floor has a janitor room, electrical room and an IT room. Support spaces have been located logically with respect to the spaces they serve. Major support spaces, the basement and food service loading, staging and storage, can be accessed independently of the program areas they serve.

Themed Areas:

Themed areas, halls, floors, or building zones organized around a particular subject or issue provide a commonality for students that creates communities.

The configuration of the ECRH allows for multiple themed areas of various sizes. Two theme areas have been identified: languages (one or more) and Honors College. The layout of the residence room floors supports multiple group sizes. In the North and Middle bar, the second and third floors are joined by an interconnecting stair at the hearth. This creates a community of +/- 80 students. The fourth floors are independent and house +/- 40 students. The attics have +/- 22 students. In the South bar all the units are semi-suites supporting small groups of 2-4 students on floors with a total of 40. On the ground floor, the group study spaces could be dedicated, possibly at scheduled times, for specific theme activities.

The following diagrams illustrate the project response to issues raised by some of the other patterns:

Main Building Entrance:

A majority of students approaching the building will be coming from campus along East 15th Avenue or through the Humpy Lumpy and crossing East 15th Street. Therefore, the main entrance has been located facing this street, visible from the major approach routes. The entrance is elevated slightly above the sidewalk for additional prominence and is a major design element on the building façade, protected by a large projecting glass canopy.

Public Outdoor Room:

At the campus scale, the East Campus Residence Hall helps to define the East Campus Green, a major open space. The food service and dining terrace were located to benefit from proximity to this open space and to provide all day activity along the eastern edge of the space. The complex also includes two courtyards that can be considered semi-public public outdoor rooms. They can be accessed from inside the building so they are available to residents and visitors to the building.

Family of Entrances:

the building main entrance is on the north, facing East 15th Avenue, and there are additional entrances serving each residence tower along the west side of the building, accessed from the East Campus Axis. Additionally, there are courtyard entrances on the east side of the building accessed from Moss Street.



First Floor Plan

Nerve Center:

the ground floor includes the Nerve Center, the operational center of the residence hall. Key to the nerve center is the area desk which is located to have unrestricted views of the building lobby and main entrance, the residence living room, the extra large group study room and the stairs to the mezzanine. Views also extend into the learning commons, a suite of spaces including a variety study spaces, librarian office and resident scholar office. Mezzanine study spaces overlook the learning commons. Adjacent to the Area Desk area mail services, director office and UH meeting room.



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

One Room – Many Uses:

The building was programmed with the intent that many spaces will have multiple uses. Small group study spaces can be used for individual study, small group study or scheduled meetings. Large group study spaces can be scheduled as classrooms during the day, yet serve as language based lounges, supported by food service, after hours. Seating in a variety of configurations, provided for dining, also will be used by students for studying, either as individuals or small groups. The building also includes the Multipurpose Room, a large flat floor space with a stage that can be used for performances, classes, large lecture style events and programmed dinner events. Furniture storage is designed to be flexible, with access to additional storage in the basement, and support this wide range of expected activities.

Participate in Sustainability Living:

the project is designed to make participation in sustainable living simple and convenient- from gestures as simple as opening a shaded window to adequate recycling containers that are easily accessible. The building design makes the storm water collection and treatment visible to building occupants. Additionally, a sustainability display (yet to be designed), located near the nerve center and main building lobby, will identify sustainable building systems incorporated in the residence hall.

South Facing Outdoor Spacing:

the project includes a number of south facing ground level public spaces on courtyards; the learning commons faces the north courtyard and the wide corridor/seating area outside the large group study areas faces the south courtyard. Both courtyards have seating areas for student as indicated at the drawings.

Dining and Conversation:

Discussions about dining in the East Campus Residence Hall have, since the beginning of the planning process, been expansive. Given the expected fluctuations of service requirements as other residence halls on campus are renovated or replaced seating areas throughout the ground floor, whether designated for dining or study or lounge seating, have been considered as viable dining areas. Student habits, including the popular grab and go activity, suggest that a range of seating beyond the “dining” area will be used for eating, study and conversation. This approach helps to break down the boundaries between traditionally segregated activities.



First Floor Plan

Visible Laundry:

each residence floor includes a small laundry room so that students can do their laundry while studying or socializing on the floor. Like the hearth space, the laundry is visible from the corridor.

Resident Social Hearth:

each floor of the residence towers includes one hearth space where students can meet their friends in a comfortable environment. The hearths are centrally located on each floor, near the laundry areas and shared baths. They can be seen through glass from the corridor. In some locations the hearth space is two stories, connecting two residence hall floors for a larger student community.

Group Study Alcove:

The East Campus residence Hall includes a variety of group study spaces. They are located throughout the building and accommodate individuals, small and large groups. In the learning commons the study areas are supported by both the Resident Scholar and a Librarian. There are additional study rooms and alcoves on the mezzanine and a study room on each of the residence hall floors in the towers.



SCHEMATIC DESIGN

East Campus Residence Hall
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Visible Laundry, Resident Social Hearths, and Group Study Alcoves



- Visible Laundry
- Resident Social Hearths
- Group Study Alcove



Third Floor Plan

0 5 10 25

Visible Laundry, Resident Social Hearths, and Group Study Alcoves



- Visible Laundry
- Resident Social Hearths
- Group Study Alcove



Fourth Floor Plan



Visible Laundry, Resident Social Hearths, and Group Study Alcoves



- Visible Laundry
- Resident Social Hearths
- Group Study Alcove

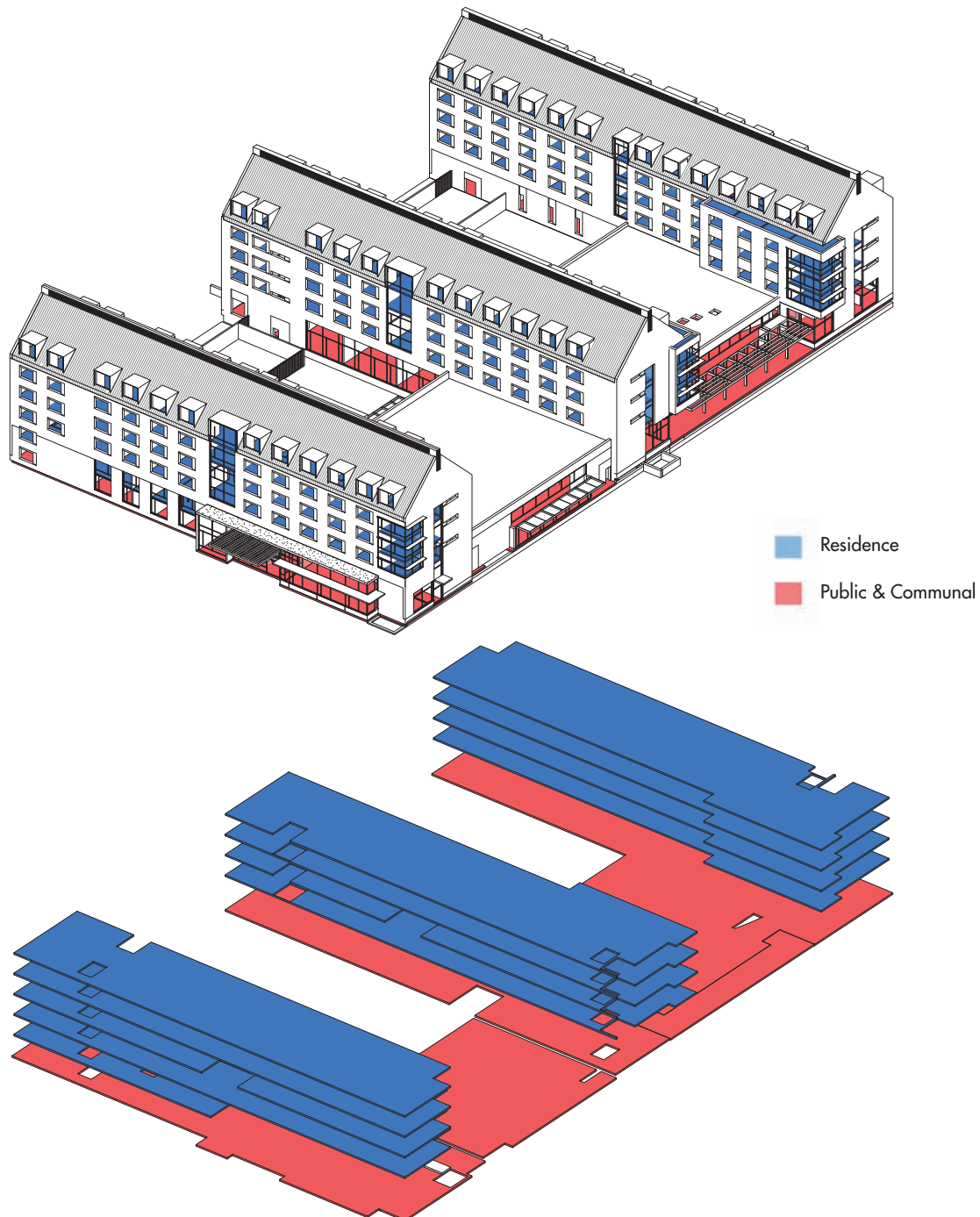


Fifth Floor Plan



Organizational Clarity:

the East Campus Residence Hall plan is organized to be easily understood. The public spaces are on the ground floor, easily accessed through the main building entrance on 15th Avenue or the other entrances along the west side of the building. The spaces that accommodate the greatest number of users, dining and the multi-purpose room – have their own exterior entrances as well as access from the building circulation. The basement spaces house building mechanical rooms and University Housing shop, custodial and storage rooms, spaces that are reserved for building maintenance and operations staff. Above the ground floor the residence rooms are grouped in three separate towers, each with their own entry. All four floors for the three towers have residence rooms.



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Transparency and Approachability:

The East Campus Residence Hall will be a major student activity hub in the east campus. Building users need to feel comfortable on approach and have the opportunity to preview the activity inside the building before entering. Therefore, major building approaches are transparent. At the main entry, the dining area, multi-purpose room and courtyard entrances to the main corridor and dining, the doors are set within larger areas of window walls. Major entries have canopies to provide weather protection and bring down the scale of the building.

Operable Windows:

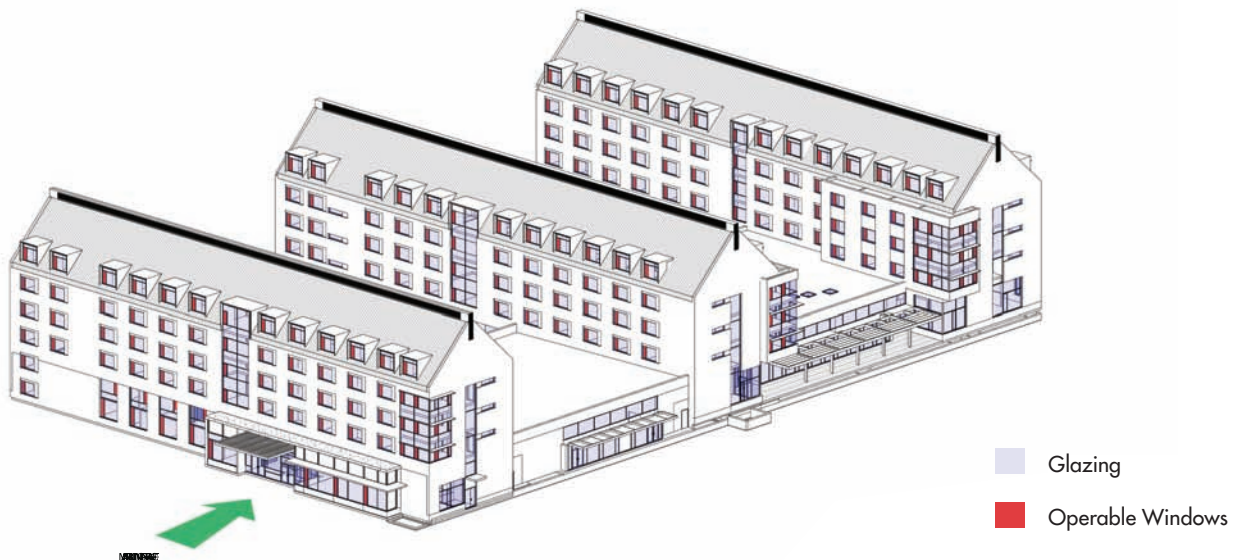
Building users feel more comfortable and “at home” in a building where they can open the windows. The project includes operable windows in all of the residence rooms and many of the public spaces on the ground floor.

Many Building Entrances:

The East Campus Residence Hall has a rich and complex program that will attract many users. In response, the building includes a variety of entrances as discussed under “Family of Entrances” and “Organizational clarity”.

Wings of Light:

The massing of the East campus Residence Hall, three parallel bars running in an east/west direction, was developed to allow all of the residence rooms to have either a north or south facing window. Each of the three towers has significant glazing, with windows at residence rooms and curtain walls at laundry rooms and hearths.



SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Connected Building:

More than two thirds of the programmed space in the East Campus Residence Hall is devoted to residence rooms and their immediate support spaces such as hearths, laundry, study rooms and shared baths. To create a smaller scale environment, and ensure adequate day lighting, the residence rooms were separated into three parallel buildings. These three residence towers are connected through the ground floor public spaces that unify the complex.



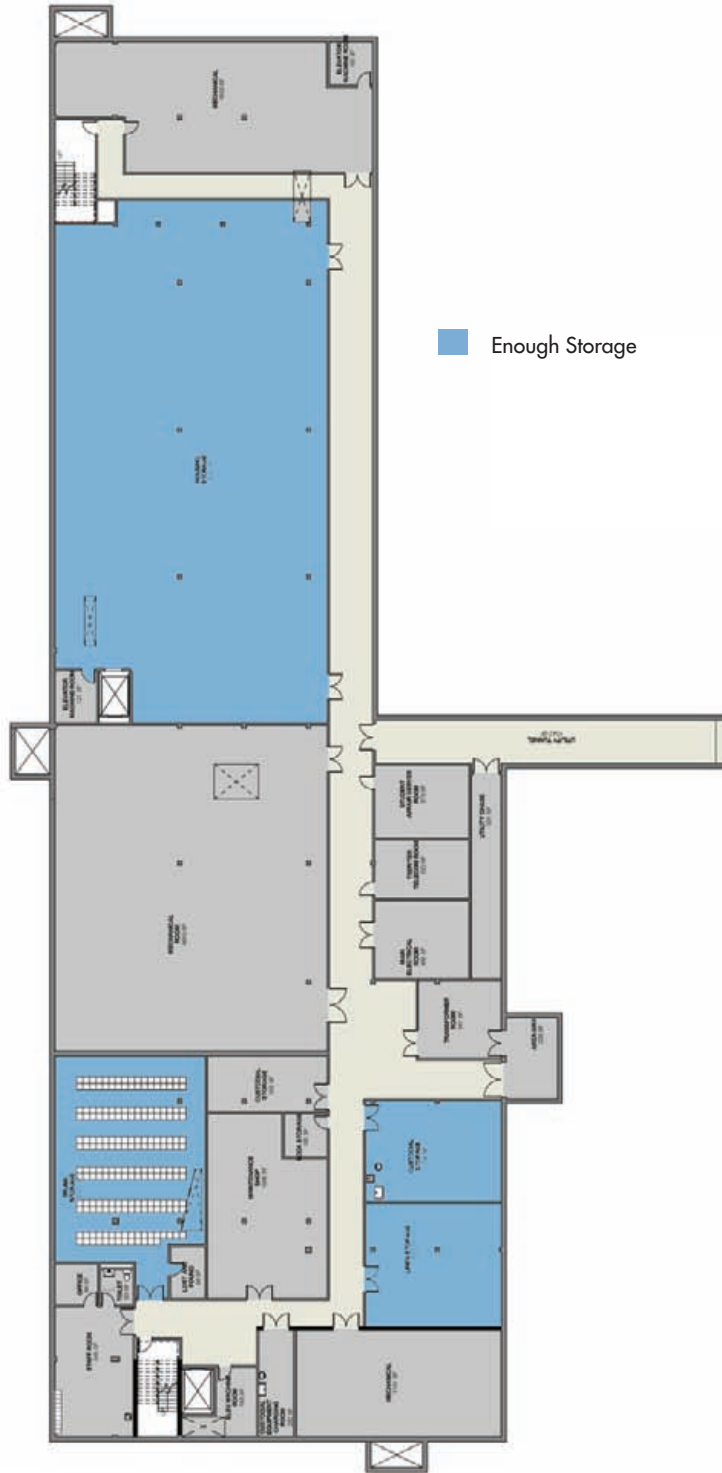
- Residence
- Public & Communal
- Building Support

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Enough Storage:

the building program includes a variety of storage space: housing storage, linen storage, student trunk room, furniture storage and custodial storage.



Basement Floor Plan



Building Code Analysis

The major codes applicable to this project are as follows: International Building Code (IBC) 2009 Edition, Oregon Structural Specialty Code 2010 Edition, Oregon State Elevator Code, Oregon Mechanical Specialty Code 2007 Edition (2006 IMC with Oregon amendments), Oregon Plumbing Specialty Code 2008 Edition (2006 UPC with Oregon amendments), National Electrical Code (NEC) 2008 Edition, Oregon Electrical Specialty Code, Oregon Fire Code 2007 Edition, NFPA 72, National Fire Alarm Code 2007 Edition, IESNA Lighting Handbook 9th Edition, IESNA Applicable Recommended Practice, and Americans With Disabilities Act Accessibilities Guidelines.

The occupancy group classification is a mixed use occupancy composed of the following: Group R-2 Dormitory, A Assembly, B Business & Classrooms, F-1 Factory, Incidental Use, and S-1 Storage.

Regarding the occupancy separation requirements, we are considering the ground floor occupancy separation as unlimited area (IBC Table 302.3.2 Automatic Sprinkler Exception).

The fire suppression system consists of the automatic sprinkler system per NFPA 13.

The type of construction classification is intended to be Type I-A, Basement, Ground Floor, Mezzanine, and Type V-A, Level 2 to 5.

The allowable height is five stories, 70' from the grade plane to roof mid point. The actual building height of all Residence Towers is five stories . The distance from grade to the roof mid point is 63' at Tower A and 60' at Tower B and C.

The fire Resistive Requirements (per IBC Table 601) are: 3-hour at floor construction between the first and second floors; 2-hour at exit enclosures connecting more than four stories and shaft enclosures connecting more than four stories; 1-hour at structural frame, exterior bearing walls, exterior nonbearing walls, interior bearing walls, roof construction, level 5 ceiling, demising walls between sleeping rooms, 1/2 hour at corridors.

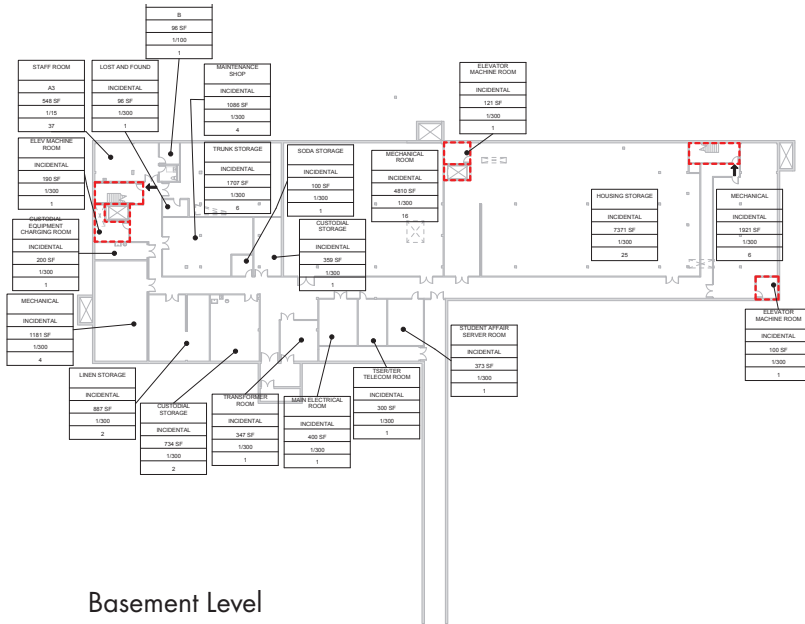
Fire separation between corridor and at typical glass wall areas, hearth, study, laundry and stair vestibule at the residence tower will be achieved by water curtain sprinkler system for 2 hour fire rating.

The exit access travel distance is at 250' at A and R occupancy and 300' at B occupancy.

For the fire door and fire shutter fire protection ratings, the project includes 1-1/2 hour fire doors at shaft and exit enclosures that have 2-hour fire barrier assemblies, and 1/3 hour fire door at 1/2 hour fire partition.

The fixture count is provided according to occupancy and complies with Code. The one provided for A-2 and A-3 consists of five WC and four urinals for men, ten WC for women, eight lavatories for men, eight lavatories for women, three unisex bathrooms located at ground floor, one unisex bathroom located at the basement, and one unisex bathroom located at the mezzanine. The fixture count provided for R-2 at each typical Residence Tower floor includes three WC for men, three WC for women, three lavatories for men, three lavatories for women, three showers for men, three showers for women. At each Jack & Jill unit and each semi-suite unit with less than six beds there are one WC, one shower and two lavatories. Each semi-suite with six beds includes one WC, two showers and two lavatories. Each residence room has one lavatory. There are also hydration station at the ground floor that would have sanitary hands-free method for filling water bottles. They will be further developed in design development phase.

Life Safety Plan



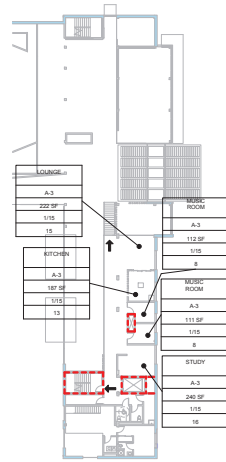
FLS LEGEND:

Room Name	ROOM NAME
Occ. Class	ROOM TYPE
150 SF	GROSS SQUARE FOOTAGE
1:100	OCCUPANT LOAD
1.5	TOTAL OCCUPANCY

- 3 HOUR HORIZONTAL FIRE RATING
- 2 HOUR FIRE PARTITION
- 1 HOUR FIRE PARTITION
- 30 MINUTE FIRE PARTITION
- ➔ BUILDING EXIT
- 30 MINUTE FIRE-RATED CORRIDOR

GENERAL NOTES:
 -NO DUAL OCCUPANCY CONSIDERED AT DINING / SEATING AND SERVERY.
 -NO DUAL OCCUPANCY CONSIDERED AT TYPICAL RESIDENCE TOWER FLOOR PLAN.





Mezzanine Level

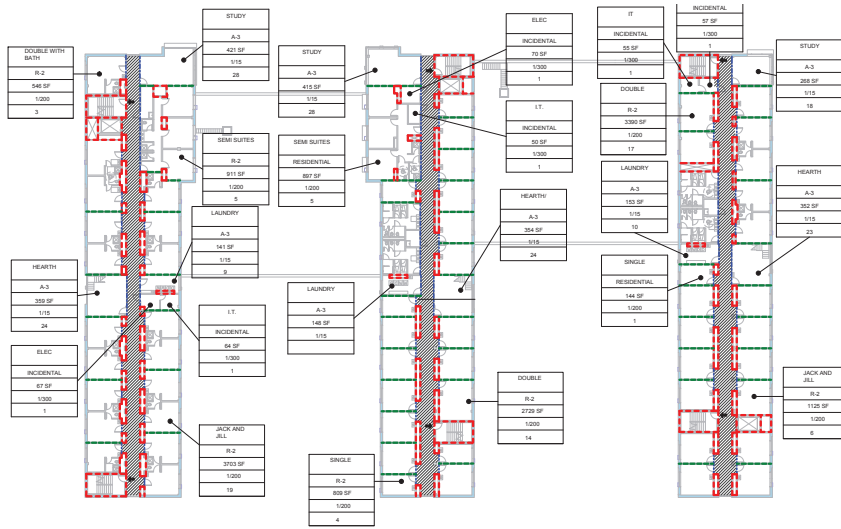
FLS LEGEND:

Room Name	ROOM NAME
Occ. Class	ROOM TYPE
150 SF	GROSS SQUARE FOOTAGE
1:100	OCCUPANT LOAD
1.5	TOTAL OCCUPANCY
	3 HOUR HORIZONTAL FIRE RATING
	2 HOUR FIRE PARTITION
	1 HOUR FIRE PARTITION
	30 MINUTE FIRE PARTITION
	BUILDING EXIT
	30 MINUTE FIRE-RATED CORRIDOR

GENERAL NOTES:

- NO DUAL OCCUPANCY CONSIDERED AT DINING / SEATING AND SERVERY.
- NO DUAL OCCUPANCY CONSIDERED AT TYPICAL RESIDENCE TOWER FLOOR PLAN.

Life Safety Plan



Second & Forth Level



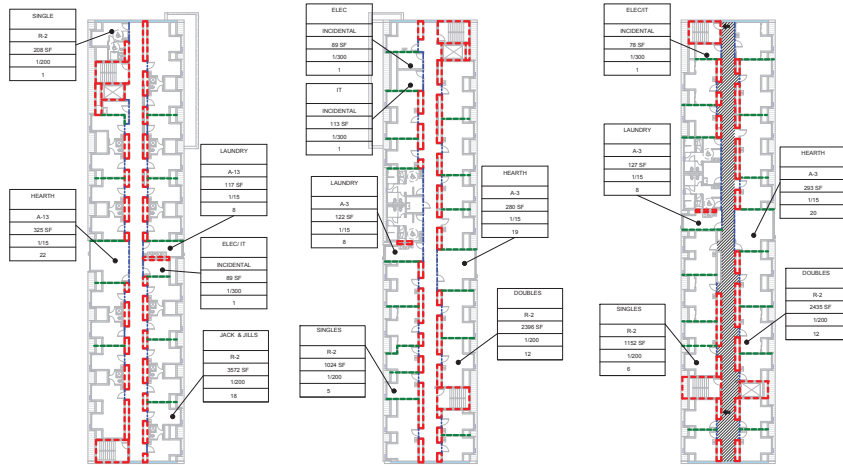
FLS LEGEND:

Room Name	ROOM NAME
Occ. Class	ROOM TYPE
150 SF	GROSS SQUARE FOOTAGE
1:100	OCCUPANT LOAD
1.5	TOTAL OCCUPANCY

— — — — —	3 HOUR HORIZONTAL FIRE RATING
- - - - -	2 HOUR FIRE PARTITION
- · - · -	1 HOUR FIRE PARTITION
- · · · -	30 MINUTE FIRE PARTITION
➔	BUILDING EXIT
▨	30 MINUTE FIRE-RATED CORRIDOR

GENERAL NOTES:
 -NO DUAL OCCUPANCY CONSIDERED AT DINING / SEATING AND SERVERY.
 -NO DUAL OCCUPANCY CONSIDERED AT TYPICAL RESIDENCE TOWER FLOOR PLAN.

Third Level



Fifth Level

FLS LEGEND:

Room Name	ROOM NAME
Occ. Class	ROOM TYPE
150 SF	GROSS SQUARE FOOTAGE
1:100	OCCUPANT LOAD
1.5	TOTAL OCCUPANCY
	3 HOUR HORIZONTAL FIRE RATING
	2 HOUR FIRE PARTITION
	1 HOUR FIRE PARTITION
	30 MINUTE FIRE PARTITION
	BUILDING EXIT
	30 MINUTE FIRE-RATED CORRIDOR

GENERAL NOTES:
 -NO DUAL OCCUPANCY CONSIDERED AT DINING / SEATING AND SERVRY.
 -NO DUAL OCCUPANCY CONSIDERED AT TYPICAL RESIDENCE TOWER FLOOR PLAN.

Project Schedule



Cost Estimate

Division	Division Name	HOFFMAN (A)	RLB (B)	Delta (C=A-B)
2	Existing Conditions	\$89,559	\$154,753	\$(65,194)
3	Concrete	\$7,941,228	\$8,055,921	\$(114,693)
4	Masonry	\$1,774,815	\$1,642,099	\$132,716
5	Metal	\$1,902,278	\$1,967,132	\$(64,854)
6	Wood and Plastics	\$1,945,801	\$1,591,002	\$354,799
7	Thermal and Moisture Protection	\$3,615,882	\$3,522,640	\$93,242
8	Doors and Windows	\$3,680,926	\$3,491,958	\$188,968
9	Finishes	\$7,062,221	\$6,639,553	\$422,668
10	Specialties	\$283,196	\$372,185	\$(88,989)
11	Equipment	\$1,246,140	\$1,118,696	\$127,444
12	Furnishing	\$212,995	\$165,723	\$47,272
13	Special Construction	—	—	—
14	Conveying Systems	\$808,500	\$748,125	\$60,375
15	Mechanical	\$8,755,214	\$8,597,665	\$157,549
16	Electrical	\$6,197,404	\$6,376,733	\$(179,329)
31	Earthwork	\$1,123,218	\$1,422,327	\$(299,109)
32	Site Development	\$1,279,586	\$1,098,632	\$180,954
33	Utilities	\$547,712	\$399,000	\$148,712
SUB-TOTAL		\$48,466,675	\$47,364,144	\$1,102,531
	Design Contingency (incl. above)	—	—	—
	Solar (excl.)	—	—	—
	General Conditions (Staffing, HCC Div. 01)	\$1,515,678	\$1,460,000	\$55,678
	General Conditions (COW)	\$1,370,793	\$1,240,000	\$130,793
	Hoisting	\$1,560,532	\$1,500,000	\$60,532
	Sub Bonds/Sub Guards	\$502,261	\$505,328	\$(3,067)
	Builders Risk	\$113,600	\$90,000	\$23,600
	Insurance Liability	—	—	—
	Bonds	\$302,500	\$286,877	\$15,623
	Fee	\$1,430,000	\$1,363,605	\$66,395
	Escalation (HCC excluded)	—	—	—
GRAND-TOTAL		\$55,262,038	\$53,809,960	\$1,452,085

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

Alternates (incl. markups)	HOFFMAN (A)	RLB (B)	Delta (C=A-B)
1. Add floor to middle housing bar	N/A	N/A	N/A
2. Alum. windows in residence rms	\$(133,000)	\$(136,753)	\$3,753
3. Hydraulic elevators in towers	N/A	N/A	N/A
4. Full temp control htg/clg at residence rms	\$1,881,000	\$1,867,263	\$13,737
5. BIPV roof on south face of S&N towers (16' wide)	\$390,000	\$254,167	\$135,833
6. Perf. alum. sunscreens in lieu of PV panels	\$(98,000)	\$(348,730)	\$250,730
7. Passive chilled beams	\$165,000	\$205,656	\$(40,656)
8. Alt. 7 including additional cooling	\$284,000	\$245,385	\$38,615
9. Alt. 8 plus radiant cooling	\$1,784,000	\$1,992,293	\$(208,293)
10. Infrastructure for future cooling	\$522,000	\$824,961	\$(302,961)

Separate Pricing (incl. markups)	HOFFMAN (A)	RLB (B)	Delta (C=A-B)
a. Remove walkable gutter and change trusses	N/A	N/A	N/A
b. Delete passive ventilation at residence towers	\$(1,100,000)	\$1,739,256	\$(2,839,256)
c. Relocate housing storage in basement to tower D	N/A	N/A	N/A
d. Removal of photovoltaic system	—	\$141,450	\$(141,450)
e. Open space development & Bball court	TBD	\$237,412	
f. Reclaimed water system	\$(219,000)	\$(192,803)	\$(26,197)
g. Campus Utility Tunnel Connections (MEP only)	\$87,147	TBD	

Approval/Signature

Project User Group

Virginia Cartwright
Tom Driscoll
A.J. Eaton
Jon Erlandson
Allen Gidley
Sean Landry
Susan Lesyk
Gregg Lobisser, Chair
Sandra Schoonover
Aly Stanton
Ryan Wagner

Staff

Cathy Soutar
George Bleekman
Martina Bill

East Campus Open Space Framework Advisory Group

Virginia Cartwright
Don Corner
Carole Daly
Christine Thompson
Allen Gidley
Gregg Lobisser, Chair

Staff

Cathy Soutar
George Bleekman
Martina Bill

Approval/Signature

Robin Holmes
Vice President for Student Affairs; Project Sponsor

_____ name _____ date

Gregg Lobisser
Assistant to the VPSA for Capital Construction Planning
and Director of Student Activities; Project Chair

_____ name _____ date

Sustainability Plan

SUMMARY OF ECO-CHARETTE

Policy Summary

The University of Oregon's long-standing commitment to sustainable development and campus planning has created a significant body of policy in support of sustainable design principles, woven throughout the breadth of departments.

In addition, there are State mandated procedures that also influence project process and performance. Both of these sources of foundational aspirations - both institutional and regulatory - for this project have been outlined below.

Broad Policies and Commitments:

- Comprehensive Environmental Policy Statement (1997)
- UO Campus Plan (2005)
- UO Sustainable Development Plan (2005)
- Sustainability Assessment Indicators
- ECRH Project Description
- American College and University Presidents Climate Commitment (ACUPCC)
- Eugene and Oregon Code
- OR Governor's Executive Order

Focused Issue Policies:

- Recycled Paper Policy
- Wood Products Purchasing Policy
- Bike Plan
- Campus Tree Plan
- Campus Transportation Plan
- Integrated Pest Management

The various policies related to sustainable development impact issues that fall within the following categories, further detailed in the following pages:

- Academics and Culture
- Development – Planning and Design
- Planning and Design Process
- Patterns
- Materials – Resource and Waste Management
- Greenhouse Gas Emissions
- Energy
- Land Use/Transportation
- Water
- Site/Landscape

SUMMARY OF ECO-CHARETTE - continued

Academics and Culture

Research focus on sustainability
Sustainability-related curriculum
ASUO-funded student sustainability programs
Student publications dedicated to sustainability
Sustainability service and outreach

Development Planning and Design

“The physical environment of the university - its landscape and buildings - must also support and enhance the excellence of our academic programs. Therefore: develop, redevelop, and remodel in ways that incorporate sustainable design principles.” - UO Sustainable Development Plan (2005)

Planning and Design Process

Project Management and Integration
Performance Standards – SEED and LEED
Living Design – encourage sustainable behavior
Connection to the Environment – connect occupants with university’s cultural and environmental features

Patterns

Wings of Light
South Facing Outdoors
Pedestrian Pathways
Sustainable Form
Academic Linkages
Accommodate Change
One Room, Many Uses
Participate in Sustainable Living

Greenhouse Gas Emissions

Commitment to reduce emissions immediately
Commitment to action plan to achieve climate neutrality as soon as possible
3% minimum green power purchase - Energy Manager, Jeff Madsen
Measure, track, and report all greenhouse gas emissions - Energy manager, Jeff Madsen

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

SUMMARY OF ECO-CHARETTE - continued

Energy

"Top Priority" to save energy

Maximize use of passive systems and synergistic strategies

Commitment to increase onsite production of renewable power

Design to meet occupancy patterns and provide for operability for indoor environmental quality

Materials – Resource and Waste Management

Environmentally Preferable Purchasing

Life Cycle Impacts – maximize longevity, reduce material use, reuse, and recycle

Facilitate recycling by occupants through the design of convenient recycling facilities

Purchasing and waste guidelines to minimize of toxic and hazardous materials

Reuse or compost food waste

Land Use/Transportation

Use wisely what we have - maintain existing building stock and open space where feasible

Bike storage convenience and quantity

Provision of free bus passes for entire university population

Water

Water to be protected - as one of OR's most precious resources

Augmentation of natural drainage and treatment of stormwater runoff onsite

City of Eugene requirement to connect to sewer if within 300 feet

Trend – UO summer water use significantly higher due to irrigation

Site/Landscape

Stormwater management policy

Need to collect and pipe stormwater to public storm system

Must provide stormwater treatment for all new and replaced impervious surfaces

Site and orient new construction for synergy with

environmental and campus context

Protect existing ecosystems

Native/adaptive vegetation

Integrated Pest Management program

Minimize noise and light pollution

Continue to enhance the campus forest

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

SUMMARY OF ECO-CHARETTE - continued

Workshop Process

Opportunities and challenges

This process enables the EcoCharrette participants to discuss and understand the factors that will shape the project’s success.

By understanding influences that contribute towards or complicate various sustainable strategies, we can focus our efforts strategically towards designing and constructing a building that lives up to the highest standards of sustainability at the University. Finally, combining strengths with threats suggests that we may need contingency planning (and possibly some diversification of goals) for the project if some of the threats materialize.

Opportunities	Challenges
<p>Strong commitments/policies – regulatory context</p> <p>Opportunity to reach, shape values</p> <p>Good examples to review - +/-</p> <p>Residents “own” their space – responsibility</p> <p>Heating, cooling, lighting are lasting needs and building issues - always an opportunity</p> <p>Sustainable features may help neighbor perception</p> <ul style="list-style-type: none"> – envelope, landscape, water <p>Make public through marketing the commitment and investment for this facility and campus</p> <ul style="list-style-type: none"> – transparent design process is educational <p>Student culture of green – haven’t studied cultural acceptance of active participation – this is potential pilot project</p> <p>ECRH – opportunity to test systems as pilot for other buildings</p>	<p>Budget limitation</p> <p>ACUPCC performance bar is set high – challenge to reach</p> <p>Changing nature of leading edge</p> <ul style="list-style-type: none"> – How to stay relevant as a teaching tool – stay exciting? – Need for great flexibility and durability <p>Complacency – pushing limits of our achievements, culture, and behavior</p> <p>Balance of maintenance issues with sustainability measures</p> <p>Need to be aware of occupancy pattern, and need to find synergies with other buildings</p> <p>Lack of thermal comfort in summer drives away conference users</p> <p>Minimizing programmatic impacts to site: recreation, parking</p> <p>Size of building will impact neighbors to east – represent campus visibly</p> <p>Need to provide active, recreational spaces</p> <ul style="list-style-type: none"> – lawn is predominant approach to that, which drives large water use – Redefining recreational space or – Meeting that need in a new/creative way

SUMMARY OF ECO-CHARETTE - continued

Vision for the East Campus Residence Hall

Energy Star labels

Recycling and composting fully integrated

Dining not separate from rest of ground floor

24/7 life cycle encompassed here and blurred/integrated spaces breakdown compartmentalization

Welcoming - Magnet to East Campus – Active

Serves more than just the students

Waste cooking oil = \$ for equipment and chemistry faculty lined up to manage converting to fuel

Allow variety of options of engagement (prospect and refuge) – variable commitment spaces

Doors serve new role of entry into spaces

No longer the edge of campus – has it's own center

Outdoors would integrate water demonstrably – story of water

Polished concrete surfaces for simple material palette

Open, light, airy

Flow from inside to outside

Solar energy captured

Technology – interactive displays very prominent

Immediate impact of energy performance

- Intuitive, tangible display and actions
- Make the abstract understandable

Building as new example of energy efficiency – model for others beyond the UO

Web interface for each room to monitor performance and guide behavior

- Dashboard
- Residence Hall
- Floor/hearth
- Room
- Website as part of University Dashboard

Select a few actions to guide to operate spaces – without requiring seeking it out: light-indicators, thermostats, small LCDs

Farmer's Market – bring in neighbors

Eliminate disposables

Noise from occupants, not building systems

SUMMARY OF ECO-CHARETTE - continued

Targets for Envisioned Performance

Energy

Minimum 30% better than OR code
(BTUs/SF, OCC/SF, BTUs/OCC)

Target space heating for efficiency energy and GHG problem

Capture waste heat – exhaust air – 50-75%; refrigeration later on – 50-75%

Thermal storage – net positive/peak zone; 29% opening

Balance heat loss/gain

2000 Watt Society living as experiment

Education

Central - to educate visitors and guests with broader, general information about the building that can remain static

Dispersed - to inform residents as to how to be comfortable, and how to contribute

Immediate and personal impact

Real-time data

Interpretive – Styrofoam cup example “never decomposes”

Staff fully informed and educated, capable of guiding residents

Water

Express stormwater management

Sustainable Living + Waste Management

Farmers Market

Bike storage, recycling/compost, education

Recycling and composting easy and integrated

Make disposables compostable – reusable plates (baskets)

Biofuel creation – waste cooking oil

Recycling is easy and incorporated

Indoor Environment

Fresh air

Fresh, light, airy, open to outdoors

SUMMARY OF ECO-CHARETTE - continued

Notes from Three Focused Discussions – Defining Design Parameters

1 – Building Systems

Public Spaces will require some degree of automation to make work (controls and relays to ensure efficient)

Need to define ownership of systems that require operation

Student rooms are a great space to rely on occupant action

Competition between dorms led to 15% savings through behavior

Students want their doors open when they're home. Need to design for that.

Certain rooms/room types could be passive, others active – students select

In shoulder seasons when heating is needed at north exposures and cooling at south exposures, can use heat pumps to trade thermal energy.

Occupancy patterns – need detail

Intensive use through August 1st

August has lowest occupancy

- Maintenance prior to the year

- Lull in academic activity at end of summer: August 1 through Labor Day

- For this period of partial occupancy, the team discussed utilizing north-facing rooms only in hottest two weeks, which results in possible revenue loss by reducing available rooms.

When groups come through – large group up to 300 people for two weeks; larger groups only 4-5 days; varying down to as small as 30 people

Usually no longer than 15 days

Introduction – 1 or 2 day stays – not likely to learn complex operations during that short stay

August 1-15 worst weather - 5, 6, 7 especially

Energy Use (from highest to lowest proportion of annual energy use)

1. Heat
2. Light
3. Hot water
4. Fans, pumps
5. Plug loads
6. Cooling

Conductivity of glazing systems

- Aluminum conductivity, lessened somewhat when specified with thermal breaks

- Wood windows insulative

Air quality and noise pollution from kitchen and loading dock

- Relocating exhaust fans from kitchens

- Covering loading dock and ensuring exhaust vented well

- Grease exhaust duct – expense of moving air to tower roof?

- Alternate is ducted air to residence rooms or venting exhaust out side wall

Next Steps

1. Commence Energy Analysis to establish baseline for SEED and LEED models.
2. Hold a meeting to determine Energy Conservation Measures (ECMs) for modeling.
3. Complete preliminary model of ECMs and initial life cycle costing for SEED.
4. Define zones for automation versus interactivity, level of responsibility.
5. Outline metering and relay systems necessary to meet needs.

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

SUMMARY OF ECO-CHARETTE - continued

2 – Teaching Opportunities

The teaching opportunities discussed tended to fall into three categories: teaching about the building, teaching sustainable living, and connecting to the sustainability efforts of the University at large.

Teaching about the building:

Sustainability Center – place to educate guests/visitors

3-Dimensional model (or physical) showing sustainability elements plus signage throughout

Distributed signage throughout the building – calling out features

Let the building speak for itself

“Green Features” element of Campus Dashboard

Needs to be reinforced with static signage “commemorating” effort re: sustainable design

Teaching Sustainable Living:

Educational programs will need ongoing staff or organizational support. Put out call to campus community – who wants to dedicate to this?

Programs supporting student and intention

Training with incentives

Growth in Environmental responsibility in rooms and private zones – at fingertips

Provide real-time feedback - “my actions cause this reaction”

Demonstrate how to live communally in a way that contributes globally and is meaningful individually

Connecting to Campus Sustainability - Scholarship and Action

Displaying scholarship – Learning Commons could show student work relating to sustainability

Place to communicate research results relative to sustainability

Dynamic education – requires dedicated ownership

Changing displays

Programs to influence residents’ behavior

Staff

Student organizations

Academic department

Home for sustainable efforts across all residence halls

Gateway for residents to access sustainable programs on campus – introduce existing opportunities such as Survival Center, ESBL, CASL, campus green buildings

Next Steps

1. University Dashboard integration meeting: Identify points of input, data format and streams, review possible website configuration for ECRH.
2. Meet with Student representatives to brainstorm best means of interfacing with residents. What format and where signs, indicators, screens should be located.
3. Seek partners within the campus community interested in dedicating staff and programs to the teaching effort around sustainable living.

SUMMARY OF ECO-CHARETTE - continued

3 – Site And Water Cycle

Factors to be considered: Maintenance requirements, water demands, energy impacts

Maintenance preferences

Less finicky landscapes – natives better

Stormwater planters relatively low-maintenance – removing silts and sediments is about all that is required

Treat parking/street runoff separately

Celebrating stormwater as an artistic display

Storage – one large, one small to show/demonstrate –or view to the larger

Sculptural element that moves with runoff

Exposing runoff in open channels

Run on chains, runnels, walls

Approximate end uses:

1.8 mil gallon flushing; 500k -750K gal irrigation

Green roofs – some failures on campus

Some resulting skepticism

Irrigation required – provides cooling

Need a diversity of plants – climate responsive – 4 zone

If columns there supporting concrete roof structure, could put larger planters to support trees* (code restrictions)

Ensure occupants can't get out to roof through operable windows

Kitchen roof will need some area dedicated for equipment – may require screening

Green walls

Trays or trellises

Great loading dock screening

PK Park will have them

Language immersion – label plants in various languages

Approximately 1800 SF of infiltration planter would be needed for runoff - this needs to be studied in further detail for filtration versus infiltration, as well as planting types.

Next Steps

1. Quantify stormwater rate and flow reduction and filtration requirements.
2. Size vegetated flow-through planters and swales to meet LEED and Eugene requirements.
3. Identify direction of flow from all site and roof areas to filtration, storage, and storm drains.
4. Identify best location, size, and type of water storage cisterns and pump equipment
5. Discuss fixture selection with maintenance to identify solutions meet conservation and functional performance expectations.

LEED-NC Version 2.2 Project Checklist

University of Oregon East Campus Residence Hall
 Preliminary LEED Assessment

YES ? NO

9					5	1	Sustainable Sites	14 Points
Y			Prereq 1	Construction Activity Pollution Prevention			Required	
1			Credit 1	Site Selection			1	
1			Credit 2	Development Density & Community Connectivity			1	
	1	1	Credit 3	Brownfield Redevelopment			1	
1			Credit 4.1	Alternative Transportation, Public Transportation Access			1	
1			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms			1	
	1		Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles			1	
1			Credit 4.4	Alternative Transportation, Parking Capacity			1	
	1		Credit 5.1	Site Development, Protect or Restore Habitat			1	
	1		Credit 5.2	Site Development, Maximize Open Space			1	
1			Credit 6.1	Stormwater Design, Quantity Control			1	
1			Credit 6.2	Stormwater Design, Quality Control			1	
1			Credit 7.1	Heat Island Effect, Non-Roof			1	
1			Credit 7.2	Heat Island Effect, Roof			1	
	1		Credit 8	Light Pollution Reduction			1	

YES ? NO

4					1	0	Water Efficiency	5 Points
1			Credit 1.1	Water Efficient Landscaping, Reduce by 50%			1	
	1		Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation			1	
1			Credit 2	Innovative Wastewater Technologies			1	
1			Credit 3.1	Water Use Reduction, 20% Reduction			1	
1			Credit 3.2	Water Use Reduction, 30% Reduction			1	

YES ? NO

5					7	5	Energy & Atmosphere	17 Points
Y			Prereq 1	Fundamental Commissioning of the Building Energy Systems			Required	
Y			Prereq 2	Minimum Energy Performance			Required	
Y			Prereq 3	Fundamental Refrigerant Management			Required	
10			Credit 1	Optimize Energy Performance			1 to 10	
1	2		Credit 2.1	On-Site Renewable Energy			1 to 3	
1			Credit 3	Enhanced Commissioning			1	
1			Credit 4	Enhanced Refrigerant Management			1	
1			Credit 5	Measurement & Verification			1	
	1		Credit 6	Green Power			1	

YES ? NO

6					2	5	Materials & Resources	13 Points
Y			Prereq 1	Storage & Collection of Recyclables			Required	
		1	Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof			1	
		1	Credit 1.2	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof			1	
		1	Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements			1	

SCHEMATIC DESIGN

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1			Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
1			Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
		1	Credit 3.1	Materials Reuse, 5%	1
		1	Credit 3.2	Materials Reuse, 10%	1
1			Credit 4.1	Recycled Content, 10% (post-consumer + ½ pre-consumer)	1
1			Credit 4.2	Recycled Content, 20% (post-consumer + ½ pre-consumer)	1
1			Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1
	1		Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1
	1		Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

YES ? NO

15	0	0	Indoor Environmental Quality		15 Points
Y			Prereq 1	Minimum IAQ Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan, During Construction	1
1			Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
1			Credit 4.2	Low-Emitting Materials, Paints & Coatings	1
1			Credit 4.3	Low-Emitting Materials, Carpet Systems	1
1			Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	1
1			Credit 5	Indoor Chemical & Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems, Lighting	1
1			Credit 6.2	Controllability of Systems, Thermal Comfort	1
1			Credit 7.1	Thermal Comfort, Design	1
1			Credit 7.2	Thermal Comfort, Verification	1
1			Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
1			Credit 8.2	Daylight & Views, Views for 90% of Spaces	1

YES ? NO

2	3	0	Innovation & Design Process		5 Points
1			Credit 1.1	Innovation in Design: Education	1
	1		Credit 1.2	Innovation in Design: Provide Specific Title	1
	1		Credit 1.3	Innovation in Design: Provide Specific Title	1
	1		Credit 1.4	Innovation in Design: Provide Specific Title	1
1			Credit 2	LEED® Accredited Professional	1

YES ? NO

28	31	10	Project Totals (pre-certification estimates)		69 Points
			Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points		

SCHEMATIC DESIGN

East Campus Residence Hall
University of Oregon, Eugene

LEED 2009 BD+C (v3.0) Project Checklist

University of Oregon East Campus Residence Hall
 Preliminary LEED Assessment

74	29	7	PROJECT TOTALS (PRE-CERTIFICATION ESTIMATES)	108
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CERTIFIED 40-49 POINTS, SILVER 50-59 POINTS, GOLD 60-79 POINTS, PLATINUM +80 POINTS

Y	?	N	SUSTAINABLE SITES	
Y			PREREQ 1	CONSTRUCTION ACTIVITY POLLUTION PREVENTION REQUIRED
1			CREDIT 1	SITE SELECTION 1
5			CREDIT 2	DEVELOPMENT DENSITY & COMMUNITY CONNECTIVITY 5
		1	CREDIT 3	BROWNFIELD REDEVELOPMENT 1
6			CREDIT 4.1	ALTERNATIVE TRANSPORTATION: PUBLIC TRANSPORTATION ACCESS 6
1			CREDIT 4.2	ALTERNATIVE TRANSPORTATION: BICYCLE STORAGE & CHANGING 1
	3		CREDIT 4.3	ALTERNATIVE TRANSPORTATION: LOW-EMITTING AND FUEL-E FFICIENT 3
2			CREDIT 4.4	ALTERNATIVE TRANSPORTATION: PARKING CAPACITY 2
	1		CREDIT 5.1	SITE DEVELOPMENT: PROTECT OR RESTORE HABITAT 1
	1		CREDIT 5.2	SITE DEVELOPMENT: MAXIMIZE OPEN SPACE 1
1			CREDIT 6.1	STORMWATER DESIGN: QUANTITY CONTROL 1
1			CREDIT 6.2	STORMWATER DESIGN: QUALITY CONTROL 1
1			CREDIT 7.1	HEAT ISLAND EFFECT: NON-ROOF 1
1			CREDIT 7.2	HEAT ISLAND EFFECT: ROOF 1
	1		CREDIT 8	LIGHT POLLUTION REDUCTION 1
19	6	1	POSSIBLE POINTS 26	

			WATER EFFICIENCY REQUIRED	
Y			PREREQ 1	WATER USE REDUCTION, 20% REDUCTION
2			CREDIT 1.1	WATER EFFICIENT LANDSCAPING: REDUCE BY 50% 2
	2		CREDIT 1.2	WATER EFFICIENT LANDSCAPING: NO POTABLE WATER USE OR NO 2
2			CREDIT 2	INNOVATIVE WASTEWATER TECHNOLOGY 2
3	1		CREDIT 3	WATER USE REDUCTION: 30, 35, OR 40% REDUCTION 4
7	3	0	POSSIBLE POINTS 10	

			ENERGY & ATMOSPHERE	
Y			PREREQ 1	FUNDAMENTAL COMMISSIONING OF THE BUILDING ENERGY SYSTEMS REQUIRED
Y			PREREQ 2	MINIMUM ENERGY PERFORMANCE REQUIRED
Y			PREREQ 3	FUNDAMENTAL REFRIGERANT MANAGEMENT REQUIRED
12	7		CREDIT 1	OPTIMIZE ENERGY PERFORMANCE 1 TO 19
3	4		CREDIT 2	ON-SITE RENEWABLE ENERGY 1 TO 7
2			CREDIT 3	ENHANCED COMMISSIONING 2
2			CREDIT 4	ENHANCED REFRIGERANT MANAGEMENT 2
3			CREDIT 5	MEASUREMENT & VERIFICATION 3
	2		CREDIT 6	GREEN POWER 2
22	13	0	POSSIBLE POINTS 35	

SCHEMATIC DESIGN

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 University of Oregon, Eugene

Y	?	N	MATERIALS & RESOURCES		
Y			PREREQ 1	STORAGE AND COLLECTION OF RECYCLABLES	
		2	CREDIT 1.1	BUILDING REUSE: MAINTAIN 75% OF EXISTING WALLS, FLOORS, & ROOF	2
		1	CREDIT 1.2	BUILDING REUSE: MAINTAIN 95% OF EXISTING WALLS, FLOORS, & ROOF	1
		1	CREDIT 1.3	BUILDING REUSE: MAINTAIN 50% OF INTERIOR NON-STRUCTURAL	1
1			CREDIT 2.1	CONSTRUCTION WASTE MANAGEMENT: DIVERT 50% FROM DISPOSAL	1
1			CREDIT 2.2	CONSTRUCTION WASTE MANAGEMENT: DIVERT 75% FROM DISPOSAL	1
		1	CREDIT 3.1	MATERIAL REUSE: 5%	1
		1	CREDIT 3.2	MATERIAL REUSE: 10%	1
1			CREDIT 4.1	RECYCLED CONTENT: 10% (POST-CONSUMER + 1/2 PRE-CONSUMER)	1
1			CREDIT 4.2	RECYCLED CONTENT: 20% (POST-CONSUMER + 1/2 PRE-CONSUMER)	1
1			CREDIT 5.1	REGIONAL MATERIALS: 10% EXTRACTED, PROCESSED, AND	1
	1		CREDIT 5.2	REGIONAL MATERIALS: 20% EXTRACTED, PROCESSED, AND	1
	1		CREDIT 6	RAPIDLY RENEWABLE MATERIALS	1
1			CREDIT 7	CERTIFIED WOOD	1
6	2	6	POSSIBLE POINTS		14

			INDOOR ENVIRONMENTAL QUALITY		
Y			PREREQ 1	MINIMUM IAQ PERFORMANCE	REQUIRED
Y			PREREQ 1	ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL	REQUIRED
1			CREDIT 1	OUTDOOR AIR DELIVERY MONITORING	1
1			CREDIT 2	INCREASED VENTILATION	1
1			CREDIT 3.1	CONSTRUCTION IAQ MANAGEMENT PLAN: DURING CONSTRUCTION	1
1			CREDIT 3.2	CONSTRUCTION IAQ MANAGEMENT PLAN: BEFORE OCCUPANCY	1
1			CREDIT 4.1	LOW-EMITTING MATERIALS: ADHESIVES & SEALANTS	1
1			CREDIT 4.2	LOW-EMITTING MATERIALS: PAINTS & COATINGS	1
1			CREDIT 4.3	LOW-EMITTING MATERIALS: CARPET SYSTEMS	1
1			CREDIT 4.4	LOW-EMITTING MATERIALS: COMPOSITE WOOD & AGRIFIBER	1
1			CREDIT 5	INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL	1
1			CREDIT 6.1	CONTROLLABILITY OF SYSTEMS: LIGHTING	1
1			CREDIT 6.2	CONTROLLABILITY OF SYSTEMS: THERMAL COMFORT	1
1			CREDIT 7.1	THERMAL COMFORT: DESIGN	1
1			CREDIT 7.2	THERMAL COMFORT: VERIFICATION	1
1			CREDIT 8.1	DAYLIGHT AND VIEWS: DAYLIGHT 75% OF SPACES	1
1			CREDIT 8.2	DAYLIGHT AND VIEWS: VIEWS FOR 90% OF SPACES	1
15	0	0	POSSIBLE POINTS		15

SCHEMATIC DESIGN

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Y	?	N	INNOVATION IN DESIGN		
1			CREDIT 1.1	INNOVATION IN DESIGN: GREEN BUILDING EDUCATION	1
1			CREDIT 1.2	INNOVATION IN DESIGN: OPERATIONAL PRACTICES	1
	1		CREDIT 1.3	INNOVATION IN DESIGN: PROVIDE SPECIFIC TITLE	1
	1		CREDIT 1.4	INNOVATION IN DESIGN: PROVIDE SPECIFIC TITLE	1
	1		CREDIT 1.5	INNOVATION IN DESIGN: PROVIDE SPECIFIC TITLE	1
1			CREDIT 1	LEED ACCREDITED PROFESSIONAL	1
3	3	0	POSSIBLE POINTS		6

			REGIONAL PRIORITY CREDITS		
	1		CREDIT 1.1	REGIONAL PRIORITY CREDIT: SSC5.1	1
1			CREDIT 1.2	REGIONAL PRIORITY CREDIT: WEC2	1
1			CREDIT 1.3	REGIONAL PRIORITY CREDIT: MRC1.1	1
	1		CREDIT 1.4	REGIONAL PRIORITY CREDIT: MRC7	1
2	2	0	POSSIBLE POINTS		4

SUMMARY OF ENERGY CONSERVATION MEASURES

Energy Conservation Measures for Analysis

The University's Energy Analyst will produce an energy model, testing Energy Conservation Measures against the baseline building. For SEED, the baseline is the design as proposed; whereas for code and ASHRAE compliance, the baseline is code minimum performance. The outline below lists Baseline design attributes and ECM's to be modeled. The Energy Analyst contracted to the University will provide a narrative and energy model report, included in the Appendix for reference.

I. HVAC:

a. Baseline:

- i. The baseline model will assume no cooling provided to resident rooms, with cooling modeled as an alternate. Heat is to be delivered through a hydronic radiant system. The stated maximum indoor room temperature is requested to be under 80 degrees F in the resident rooms.

b. Energy Conservation Measures:

- i. Several means of heating and cooling delivery were discussed:
- ii. Radiant – floors, wall-mounted radiators, ceiling panels, and capillary mats
- iii. 4-pipe perimeter system
- iv. Night ventilation of mass through corridors – requires upsizing of the systems servicing the corridors, plus some dampers/terminal devices to control air flow

c. Proposed natural ventilation approach effectiveness to be studied using CFD for estimated resulting thermal comfort factors in various zones of the building.

d. Zones will be modeled to understand the impact of controls allowing optimized/independent control

II. ENVELOPE:

a. Windows

i. Baseline:

1. Aluminum clad wood is the assumed baseline for residence room windows
2. North glazing – optimized for U-value and high light transmission (.5-.3 SHGC)
3. South glazing – optimized for balance between heat gain and daylight, considering the impact of shading devices with integrated photovoltaics.
4. West glazing – Solarban 80 or equivalent (.15-.12 SHGC)
5. East glazing – Solarban 80 or equivalent (.15-.12 SHGC)

ii. Energy Conservation Measures:

1. Test fiberglass frames and thermally-broken aluminum frames

b. Exterior Shading:

i. Baseline:

1. Horizontal shading at 109 south-facing windows, with Photovoltaics incorporated (20KW system total)
2. Some vertical shading accomplished through the recession of the windows

ii. Energy Conservation Measures:

1. Self-shading from wall thickness increases if insulation value is increased due to insulation ECM in II.c.ii below.

c. Wall Insulation:

i. Baseline:

1. R-19 walls

ii. Energy Conservation Measures:

1. Rigid board insulation outside the studs, with rainscreen envelope.
2. Test doubling up board insulation and batt insulation with precautions against moisture in wall
3. Other means for increasing insulation value significantly

d. Roof insulation:

i. Baseline:

1. R-30 roof, R-11 roof below grade

ii. Energy Conservation Measures:

1. Test the relative energy impact of locating roof insulation at the attic roof or at ceiling between top floor and attic space

e. Skylights:

i. Baseline:

1. Skylights for 4% maximum podium roof area. The SHGC will need to be around .1 to reduce heat gain in summer months.

ii. Energy Conservation Measures:

1. Test impact of skylights on the balance of thermal and lighting energy consumption. The results will be used in conjunction with the qualitative value of daylight to the podium areas.

III. DOMESTIC HOT WATER

a. Baseline

- i. 36, solar thermal panels (40sf apiece) at rooftop, with two 2500 gallon storage tanks in the basement.

b. Energy Conservation Measures:

- i. Expand solar thermal system to store waste heat, including a heat pump.
 - Kitchen refrigeration units including a heat exchanger with coolant on one side and water on the other – with two refrigerant loops: One loop for the freezer and the other for the case goods and the coolers.

IV. STAIRWELLS

a. Baseline

- i. The egress stairs are currently designed to be unventilated, heated with electric heat to eliminate risk of freezing (semi-conditioned).

b. Energy Conservation Measures:

- i. Glass with greater visible transmittance coupled with daylight sensors to reduce lighting load resulting from egress lighting energy consumption.
- ii. Leave the space unconditioned, allowing the top and bottom to be open to allow for stack ventilation, including the resulting freeze-proof hose bibs.
- iii. Model the fire-rated stairwell interior wall as the exterior wall.

Appendix