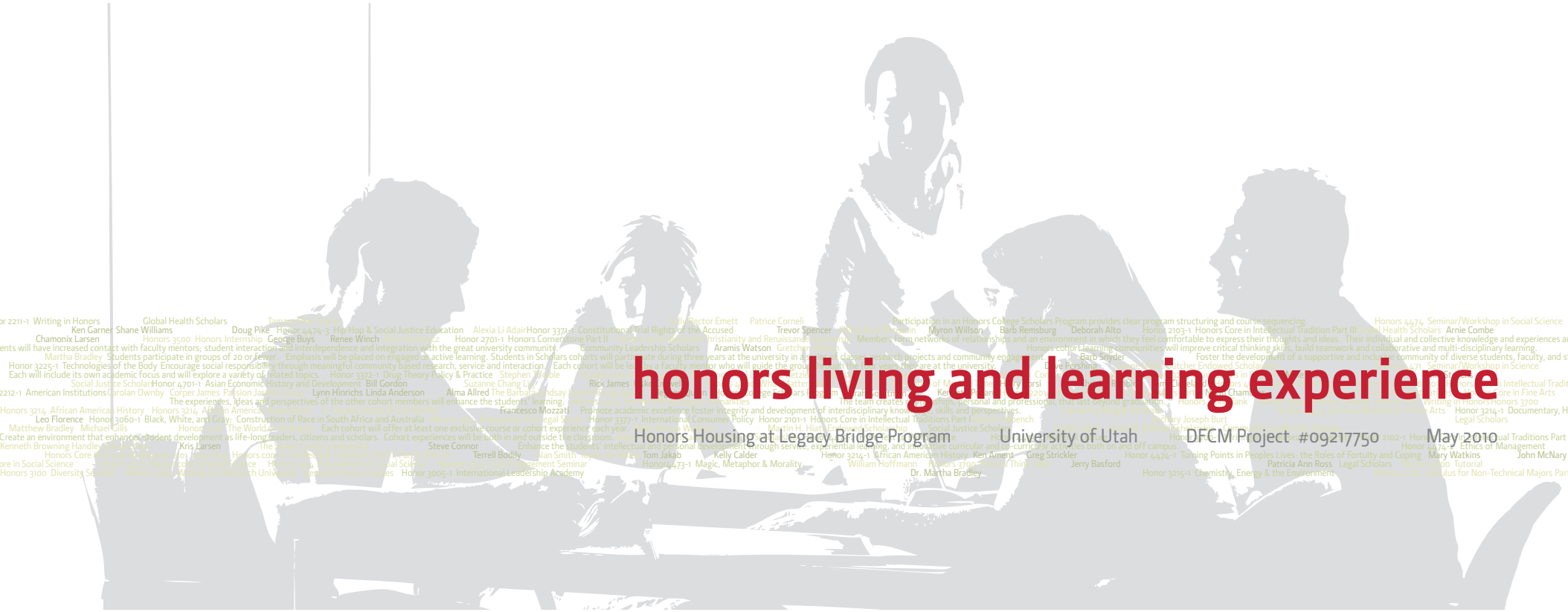

honors living and learning experience

Honors Housing at Legacy Bridge Program | University of Utah | DFCM Project #09217750 | May 2010

pollard architects
SASAKI

HONORS HOUSING AT LEGACY BRIDGE

PROGRAM

University of Utah May 2010

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University of Utah Review Signatures

We have reviewed the Program Design for Honors Housing at Legacy Bridge and warrant that it adequately represents our request for a facility to fulfill our mission and programmatic needs. All appropriate parties representing the University have reviewed it for approval.

Arnold Combe, Vice President, Administrative Services	5/6/10 Date
Barbara Snyder, Vice President, Student Affairs	5/7/10 Date
Cory Higgins, Director, Plant Operations	5/3/10 Date
David Pershing, Senior Vice President, Academic Affairs	5/7/10 Date
Harry Corsi, Project Manager, Campus Design & Construction	5/3/2010 Date
John McNary, Director, Campus Design & Construction	5/4/10 Date
Michael Perez, Associate Vice President, Facilities Management	5/6/10 Date
Tami Cleveland, Planner / Staff Architect, Facilities Planning	5.4.10 Date

Division of Facilities Construction & Management, State of Utah

I have reviewed the Program Design for Honors Housing at Legacy Bridge, jointly prepared with the University for approval.

Rick James, DFCM Project Manager	5-6-2010 Date

Acknowledgements

Appreciation is extended to all who participated in the development of the Honors Housing at Legacy Bridge Program.

All images in the book were provided courtesy of: the University of Utah, Pollard Architects and Sasaki Associates.

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Doug Pike, Project Manager

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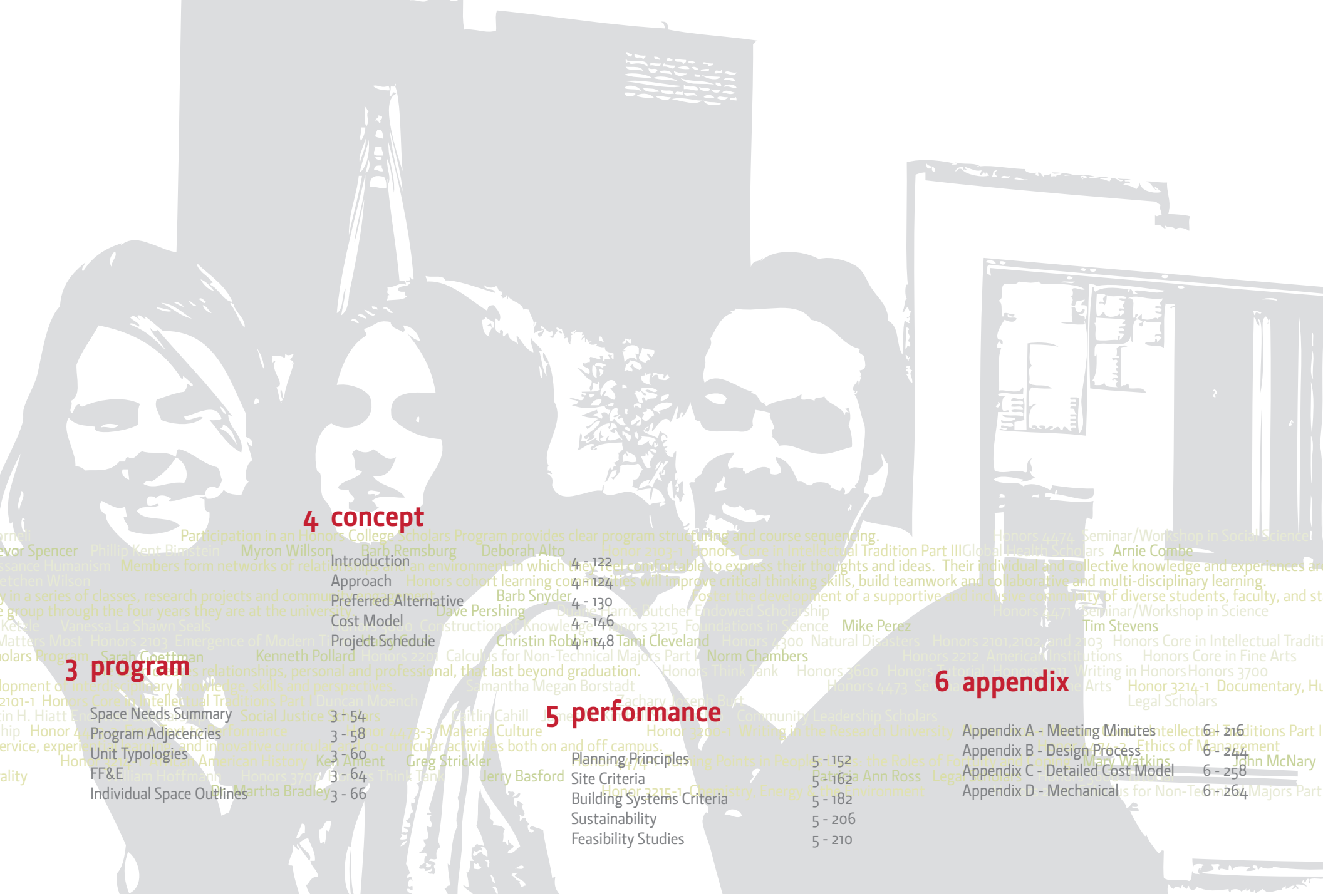

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Chamonix Larsen Honors 3500 Honors Internship George Buys Renee Winch Brian Kubarycz Honor 2701-1 Honors Cornerstone Part II Honors 2102 Medieval Christianity and Renais
ents will have increased contact with faculty mentors; student interaction and interdependence and integration with the great university community. Community Leadership Scholars Aramis Watson Gr
Martha Bradley Students participate in groups of 20 or fewer. Emphasis will be placed on engaged or active learning. Students in Scholars cohorts will participate during three years at the university
Honor 3225-1 Technologies of the Body Encourage social responsibility through meaningful community based research, service and interaction. Each cohort will be lead by a faculty mentor who will guide the
Each will include its own academic focus and will explore a variety of related topics. Honor 3372-1 Drug Theory Policy & Practice Stephen Trimble Honors core in Physical and Life Science Paul Laurence
Social Justice Scholars Honor 4701-1 Asian Economic History and Development Bill Gordon Suzanne Chang Liu Rick James Fiske Crowell Honors 4800 What M
2212-1 American Institutions Carolan Ownby Corper James Passion Jasmin Garcia Lynn Hinrichs Linda Anderson Alma Allred The Barbara Lindsay Honors Essay Award Meghen Quinn Honors College Sch
The experiences, ideas and perspectives of the other cohort members will enhance the students' learning. Honors 4472 Seminar/Workshop in Humanities
Honors 3214 African American History Honors 3214 African American Experiences C. Charles Hetzel III Scholarship Francesco Mozzati Promote academic excellence foster integrity and devel
Leo Florence Honor 3060-1 Black, White, and Gray: Construction of Race in South Africa and Australia Honors 3374 Preparation for Legal Study Honor 3377-1 International Consumer Policy Honor
Matthew Bradley Michael Gills Honors 2101 The World of Antiquity Each cohort will offer at least one exclusive course or cohort experience each year. Mary Norma Watkins Mart
Create an environment that enhances student development as life-long leaders, citizens and scholars. Cohort experiences will be both in and outside the classroom. Alberta Henry Education Foundation Scholars
Kenneth Browning Handley Scholarship Kris Larsen The Sweet Candy Scholarship Steve Connor Enhance the students' intellectual and personal development through s
Honors Core in Humanities Honors 2101, 2102,2103 Honors core in Intellectual Traditions, Part I, Part II, Part III Terrell Bodily Alan Smith Tayler Jae Wiles Tom Jakab Kelly Calder
ore in Social Science Honors 3377 Honors core in Social Science Honors 3214 Foundations in Social Science Honors 3354 Civic Engagement Seminar Honor4473-1 Magic, Metaphor & Mor
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introduction

In November of 2009, the University of Utah and the State of Utah embarked on the creation of a new housing quadrant on the main campus, located near the Legacy Bridge and east of the Huntsman Center. Pollard Architects with Sasaki Associates were engaged to develop a Program for Phase One of the South Campus Housing precinct called Honors Housing at Legacy Bridge, along with a Master Plan of the entire precinct. The Program Team's task was twofold: first was to provide for an initial phase of 314 beds consisting of living and learning spaces, specifically for the Honors College. The second was to analyze the impact on the precinct if up to 1,500 more beds were added, in addition to parking.

The proposed new living and learning Honors Housing will serve as a foundation for the University of Utah's commitment to excellence in higher education and to provide an environment that enriches the Honors College community. This project will become the heart and center of the Honors College and is designed to generate activities, collaboration, interaction, and provide a superior learning environment for the Honors students at the University of Utah. The Honors Housing project will also be a visible icon that stands as a commitment to what the University upholds in teaching, research, learning and living.

Through a series of open and collaborative workshops with faculty, Housing staff, Honors College students, state officials and University of Utah administrators, a prescriptive program and preferred concept for the new facility was developed. The program is based on information gathered from the major stake holders at the University of Utah from late 2009 to early 2010. Thorough study was done to determine various alternatives and site locations. While determining the specific location of the Honors Housing and understanding its programmatic activities, the Program Team created various master plan scenarios for future development that will be incorporated in a companion Master Plan document to this Program.

View of the University of Utah Campus from the Northwest

In order to understand the full impact of the Honors College on the University of Utah and to clarify the living and learning component of this study, it is important to grasp the importance Honors Colleges across the country are having. Extensive study and research went into understanding the Honors Colleges and Programs, including its national counterpart, the National Collegiate Honors Council (NCHC). The following is an excerpt by the Council:

> *"Tell all the Truth but tell it slant," Emily Dickinson says in one of her dazzling poems, a reminder that sometimes we cannot describe, define, or delimit certain essential, ineffable ideas. We cannot stare directly at the sun; we see it better when we view it from the corners of our vision, when we take the "slant" view. The insight applies to trying to capture the amazingly diverse and dynamic aspects of Honors. Indeed, there is no "philosophy," no single statement that emerges from common hegemonic assumptions about Honors education, but instead Honors grows out of a rich, alert, ever changing dedication to deep, creative, active learning - the kind of learning that happens within and outside Honors classrooms, the kind of pedagogies that pay attention to how "slant" approaches to teaching and learning result in truly engaged, exemplary, transformative education.*

In the Program we aim to achieve goals that express the importance of these objectives. The preferred alternative and the Program help reinforce and justify the inclusion of the Honors Housing on the University of Utah campus. At the same time, the importance of sustainability was emphasized which included visual indicators throughout the building and the site. The following Program study reinforces the critical need for an appropriate solution based on validity, reason, clarity and most of all, inspiration.

Certain words come to mind readily as we survey the Honors landscape for core philosophical values, for what we believe about Honors, for its "philosophies":

Academic excellence
Challenge
Rigor
Risk
Creativity
Innovation
Interdisciplinary
Community
Leadership
Reflection
Motivation
Curiosity
Integrity
Service

- NCHC

programming purpose and process

introduction

WHY

On behalf of the University of Utah, the Division of Facilities Construction and Management (DFCM) requested architectural programming services for the future construction of the Honors Housing at Legacy Bridge. The original request for proposal called for a housing project to include living accommodations for up to 310 students in the Honors College and community spaces which foster interaction between students and visitors and enhance student living and learning.

Part of the programming scope was to analyze the site and costs for development that included new and replacement parking stalls. In addition, surveys of existing conditions, programming of all required mechanical, electrical, and communication systems, including all of the programming requirements of DFCM and the University of Utah, were to be performed.

WHO

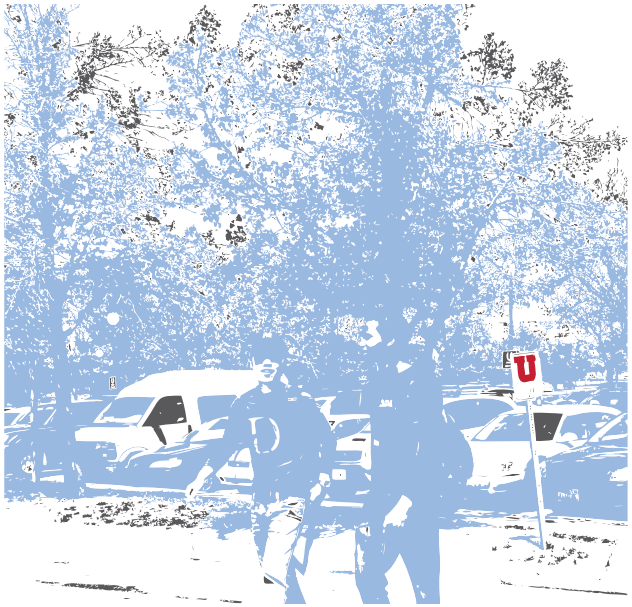
The Design Team of Pollard Architects with Sasaki Associates was contracted by DFCM to work with the following University of Utah committees as part of the entire Program Team:

- **Steering Committee**: This was the major and final decision-making committee who was engaged at major milestones on matters such as financial feasibility, parking mix, University policy applications and the project's impact to adjacent University operations. Many in this committee were also part of the Project Committee.

- **Project (Working) Committee**: This committee was led by two co-chair persons from the University, Barb Remsburg and Jerry Basford, and was composed of the project's users, consisting of staff, faculty and students.

Group of Students Studying

Up Close of a Historic Fort Douglas Building Façade



This group drove the programmatic features of the project and possessed operational and program knowledge of the project's major features.

- **Stakeholder Committee**: representatives of outside departments, other than those directly involved with the project who may be affected by it, were invited to engage in discussions about the project and whose purpose was to understand existing and future operations of adjacent facilities so that the project develops as contributing value to the precinct

WHAT

During this process, the Program Team developed a prescriptive program for Phase One Honors Housing and studied master plan options for the entire South Campus Housing precinct. The intent was to study how this project responds to and affects the proposed Campus Master Plan's vision for the site, and the Campus in general.

WHERE

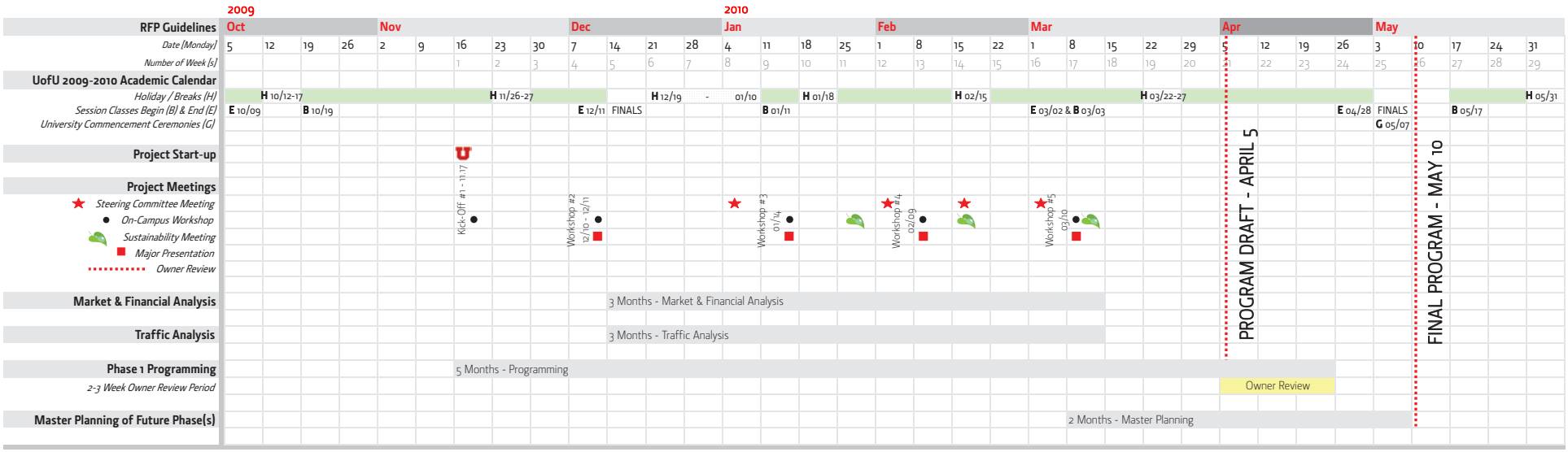
A majority of the meetings and workshops took place on the University of Utah campus, primarily in the Chase N. Peterson Heritage Center and V. Randall Turpin University Services Building. There were also some that took place in various other locations around Salt Lake City.

WHEN

The process began in November 2009 and concluded in May 2010.

HOW

The Program was realized through a series of on-campus workshops and numerous meetings held monthly and weekly, involving the Steering and Project Committees, Design Team, outside stakeholders and consultants.



KICK-OFF MEETING #1

- The purpose of this meeting was to introduce the Program Team's members and participants, to understand the communications structure, decision-making and programming and planning process, to figure out the status of information, data collected to date and work to be done, and to define the University's objectives.
- The schedule and budget for the project and the general scope of work were also part of the discussion.
- It was concluded that market, financial, and traffic analyses would be needed but would be performed in parallel to the programming and master planning efforts.

WORKSHOP #2

- This workshop was the Design Team's first opportunity to discuss and gather in-depth information from all of the major stakeholders. During the first session of the two-day workshop, the Program Team covered the project's general vision and goals, then later, broke out into sessions to talk to each of the three main stakeholders individually: Honors College, Housing and Parking/Transportation. The second day concluded in meetings with outside stakeholders and students to gather their thoughts and concerns regarding the project.
- Highlights from the workshop included the overall vision of Honors College, the definition of the desired program and of the site boundaries, the project schedule, and the ever present need to accommodate parking, as well as broader planning policies in the Campus Master Plan.

WORKSHOP #3

- In this all-day workshop, the Program Team took a first stab at the program summary, options for unit typologies and the various arrangements of the units in ideal floor plan organizations, and narrowed these down to the preferred options.
- A summary of parking options, site analysis and possible site accommodations and densities for the South Campus Housing precinct master plan were also reviewed.

WORKSHOP #4

- Refinement of the program, unit typologies, and site accommodations and densities was the purpose of this workshop. After introducing and reviewing the proposed options, an informal Open Forum session was held where the users got an opportunity to review the design concepts more closely, similar to an architectural critique and charrette.

- Multiple alternatives were studied from the big picture to the small picture, determining what worked and what didn't work for the users. The Project Committee narrowed the proposed alternatives to two preferred options to be presented to the Steering Committee with associated costs.

WORKSHOP #5

- This workshop was the culmination of the entire process with the users. The preferred unit typologies, preferred building concept and final program summary were reviewed to make sure they were in alignment with what should be going into the Program.

- Master planning issues were reiterated, such as the high density that will be going on the site relative to the existing housing and surrounding context.

- A sustainability charrette was held to allow for a more in-depth discussion on sustainability issues particular to the project.

program summary

The Honors Housing project is a 314-bed apartment community and is the first phase of a proposed 1,800-bed, three-phase master plan that is part of what the 2008 Campus Master Plan refers to as South Campus Housing. The 314 beds are composed of the following:

304 Student Beds - revenue-generating
6 Resident Advisor Beds - revenue-generating
4 Live-In Staff/Faculty Beds - non-revenue-generating

In addition to the residential, community and support spaces, three notable components make up the program:

- **Honors College** *A unique place where teachers and students have more opportunities to interact and learn, in spaces such as seminar classrooms, a community "Think Tank/Innovation" center, a library/media room and faculty offices.*

- **Café/C-store** *This commercial space is intentionally planned to serve a 1,000-bed community, including this and future phases.*

- **Parking** *The desired parking-to-housing ratio is 0.5 stall per bed (ideally 155 stalls in Phase One). But, as costs and efficiencies were considered, the number of stalls accommodated in a one-level podium parking structure under the housing is what was determined sufficient (approximately 85 stalls).*

The project's total assignable area is 104,045 ASF and, utilizing a net-to-gross efficiency factor of 70%, its total gross area is 148,784 GSF.

		No.	Size (ASF)	Total ASF	Beds	Percent of Total ASF	Comments
Residential Living Units							
APT-4	4S Student Apartment	39	1,120	43,680	156		
APT-RA	RA Suite/2S Apartment	4	1,120	4,480	12		
APT-2S1D	2S/1D Student Apartment	12	1,100	13,200	48		
APT-8	4S/2D Student Apartment	10	2,140	21,400	80		
APT-RAS	RA Suite/2S/2D Apartment	2	2,140	4,280	14		
APT-REC	REC Apartment	1	1,100	1,100	2		
APT-REC	Faculty-in-Residence Apartment	1	1,100	1,100	2		
	Subtotal	**69**		**89,240**	**314**	85.8%	
Residential Administration							
FD-1	Front Desk	1	200	200			
FD-2	Front Desk Support	1	200	200			
PO-1	Front Desk Staff Office	1	150	150			
PO-1	Res. Ed. Offices	2	150	300			REC/AREC
WR-1	Student Workroom	1	325	325			Office/Breakroom/Resource...all shared
MR-1	Mail / Receiving	1	325	325			
	Subtotal			**1,500**		1.4%	
Laundry							
L-1	Laundry Room	1	1,200	1,200			Consolidated
	Subtotal			**1,200**		1.2%	
Community							
EL-1	Entry Lobby / Main Lounge	1	750	750			1 per Building
MP-1	Multi-Purpose	1	500	500			
SL-1	Study Lounge	6	250	1,500			1 per 50 Students
M-1	Music Room	1	150	150			
	Subtotal			**2,900**		2.8%	
Café / C-Store							
CF-1	Dining	1		1,000			Includes Beverage Counter

CF-2	C-Store	1		850		Includes Beverage Counter
CF-3	Grill / Server Counter	1		500		
CF-4	Cold Preparation	1		350		Includes Ware Washing
CF-5	Walk-in / Reach-in Refrigerator	1		400		
CF-6	Dry Storage	1		250		
CF-7	Cashier + Storage	1		150		Storage is Secure
PO-3	Office	1		120		
ST-1	Janitor Closet	1		45		
	Subtotal			**3,665**	3.5%	
Honors College						
IC-1	Innovation Center	1	500	500		20 Stations @ 25 SF each
SM-1	Seminar Room	2	500	1000		50 Stations @ 20 SF each, Dividable
PO-2	Faculty Offices	5	150	750		
ST-2	Storage	1	100	100		
LB-1	Library / Media Room	1	350	350		
	Subtotal			**2,700**	2.6%	
Support & Maintenance						
ST-3	Bike / Gear Storage	1	600	600		
TR-1	Trash / Recycling	6	120	720		
ST-4	Maintenance Storage	1	250	250		
WR-2	Custodial Break Room / Office	1	350	350		
ST-5	Custodial Storage	1	200	200		
ST-6	Custodial Closets	6	120	720		
	Subtotal			**2,840**	2.7%	
	Total ASF			**104,045**		
	Total GSF at 70% Efficiency			**148,784**		
One-Level Podium Parking	**(Approx. 85 stalls, at 380GSF per stall)**			**32,300**		

**Note:*

"Assignable Area" (asf) is the sum of the areas in all rooms that can be used by the building occupants to conduct their responsibilities. They are those spaces which pertain specifically to this project and housing in general.

"Non-assignable Area" is the sum of the circulation, custodial, mechanical and structural areas or the difference between gross and assignable area. It includes atria, corridors, stairwells, elevators, electrical and mechanical equipment, custodial storage, restrooms, and similar uses.

"Gross Area" (gsf) is the sum of all floor areas of a building based on exterior dimensions.

- Utah System of Higher Education

preferred alternative

OVERVIEW

The preferred alternative reflects and fulfills the desired organization, form, locations and adjacencies of the program, and most importantly, the users. The following describes important aspects of the project to be incorporated into the final design.

PHASE ONE LOCATION

In considering the master plan of the entire South Campus Housing site, the most suitable location for Phase One is at the northeast corner by Legacy Bridge; hence the designation, Honors Housing at Legacy Bridge.

The Phase One location is physically limited on the overall site because the existing Annex Building takes up a large portion of the south side of the site and will remain at least until Phase Two, which leaves Phase One with two options: adjacent to the Legacy Bridge or to the Huntsman Center. The persuasive influences in determining the selection of the preferred option next to the Legacy Bridge were the desired connection and identity associated with the Bridge and public exposure along Mario Capecchi Drive. At this location, there will be many opportunities to connect Honors College to the entire Campus and resolve elements such as:

- An under-utilized Fort Douglas TRAX station
- An improved resolution of the Bridge to lower campus
- A stronger connection between the upper and lower campuses
- An activity generator for the west side of the Bridge and future Student Life Center

View from the Southwest

View from the North

BUILDING ORGANIZATION AND MASSING

The preferred building layout is a five to six story three-wing building over one-level of podium parking that contains all of the program, with the exception of the Café/C-store. The Café/C-Store is a separate two-story structure to the southwest corner of the site that will serve future phases, expand if necessary, and be serviceable from Mario Capecchi Drive.

The three-wing concept was chosen because: first, by increasing the building footprint, the scale of the building is broken down; second, each wing becomes a smaller community within the overall housing community; and third, much of the program is able to surround the parking structure along with landscape elements. By wrapping the corner of the multi-purpose field to the northwest, more apartments can also take advantage of the opportunity to overlook it and watch events that take place on it throughout the year.

HONORS COLLEGE LOCATION

The Honors College is to be located at the ground level of the north wing, adjacent to the Legacy Bridge. At this location, it is accessible from upper campus and is identified with the Bridge.

PODIUM PARKING

A one-level parking structure below the housing is incorporated for student residents. Because of the grade change across the site, the eastern edge will be below grade while the western edge will be at grade. Where exposed, program and landscape elements are designed to hide the parking.

SUSTAINABILITY

In addition to the State of Utah's requirement that all new state buildings obtain a minimum rating of LEED Silver, this project calls for a standard of excellence in sustainability. The Honors College promotes a living and learning experience, and

View from the Northwest

what better way to learn about sustainability, than to live it, to be surrounded by it, and to be engaged by it. In doing so, the Program incorporates high performance criteria in regards to this topic, such as additional metering for different floors and wings so that students may compete with one another in an effort to heighten awareness of energy efficiency and water usage, a programmable green roof, plaza planters where produce may be grown for use by the students or by the Café/C-store, bio-landscaping and solar hot water heating.

Through exemplary responsiveness to the Honors Housing community, this project aspires to set an example and a standard for future development around the site, around campus and around the state.

View from the West Looking Towards the Grand Staircase

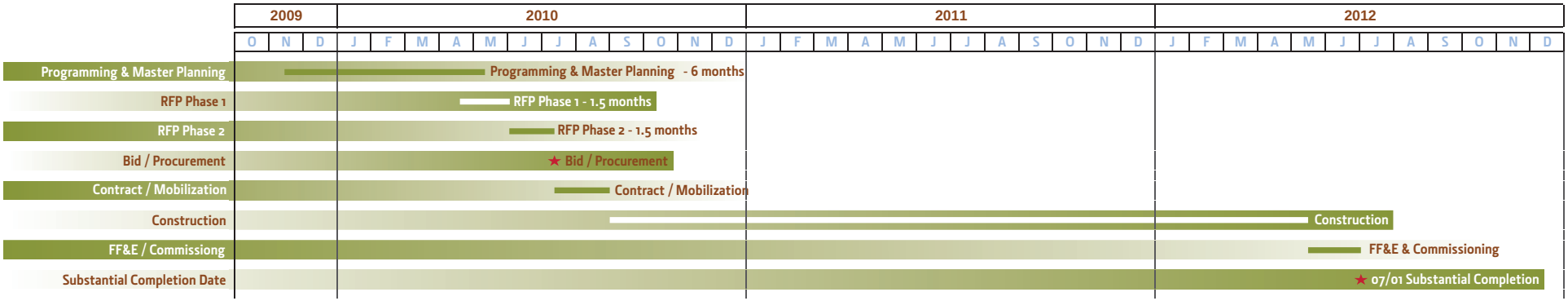
cost model

CSI #	Description	Building	Sitework	Parking	Total
02	Sitework & Demolition	$ 408,199	$ 2,372,823	$ 101,094	$ **2,882,116**
03	Concrete	$ 1,162,411		$ 1,311,847	$ **2,474,258**
04	Masonry	$ 1,887,502		$ 49,590	$ **1,937,092**
05	Metals	$ 2,276,729		$ 59,852	$ **2,336,581**
06	Woods & Plastics	$ 46,124		$ -	$ **46,124**
07	Thermal & Moisture Protection	$ 1,658,060		$ 126,170	$ **1,784,230**
08	Doors & Windows	$ 1,851,401		$ 18,500	$ **1,869,901**
09	Finishes	$ 4,009,183		$ 15,635	$ **4,024,818**
10	Specialties	$ 245,494		$ 10,000	$ **255,494**
11	Equipment	$ 418,275		$ 25,000	$ **443,275**
12	Furnishings	$ 137,633		$ -	$ **137,633**
14	Conveying Systems	$ 330,000		$ 30,000	$ **360,000**
15	Mechanical	$ 4,504,383		$ 147,861	$ **4,652,244**
16	Electrical	$ 2,752,504		$ 195,054	$ **2,947,558**
	Subtotal	**$ 21,687,898**	**$ 2,372,823**	**$ 2,090,603**	**$ 26,151,324**
	General Condition	$ 1,084,395	$ 118,641	$ 104,530	$ **1,307,566**
	Overhead & Profit	$ 867,516	$ 94,913	$ 83,624	$ **1,046,053**
	Design Contingency	$ 2,168,790	$ 237,282	$ 209,060	$ **2,615,132**
	TOTAL CONSTRUCTION COST	**$ 25,808,599**	**$ 2,823,659**	**$ 2,487,817**	**$ 31,120,076**

project schedule

Phase 1 Honors Housing at Legacy Bridge - Proposed Project Schedule

2012 Occupancy



COST

A cost model in unescalated Spring 2010 construction costs has been estimated based on the programmed square footages, anticipated finish materials and infrastructural systems proposed for the project.

The source of funds for the project is anticipated to be primarily student residents' rent payments. Additional sources of funding will most likely be necessary to pay for the total project cost. The University of Utah is looking into various possible options.

For detailed cost information, please refer to Chapter 4 Concept and Appendix C.

or 2211-1 Writing in Honors Global Health Scholars Tamara Ellen Taylor Sally Rector Emett Patrice Co
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1 inspiration

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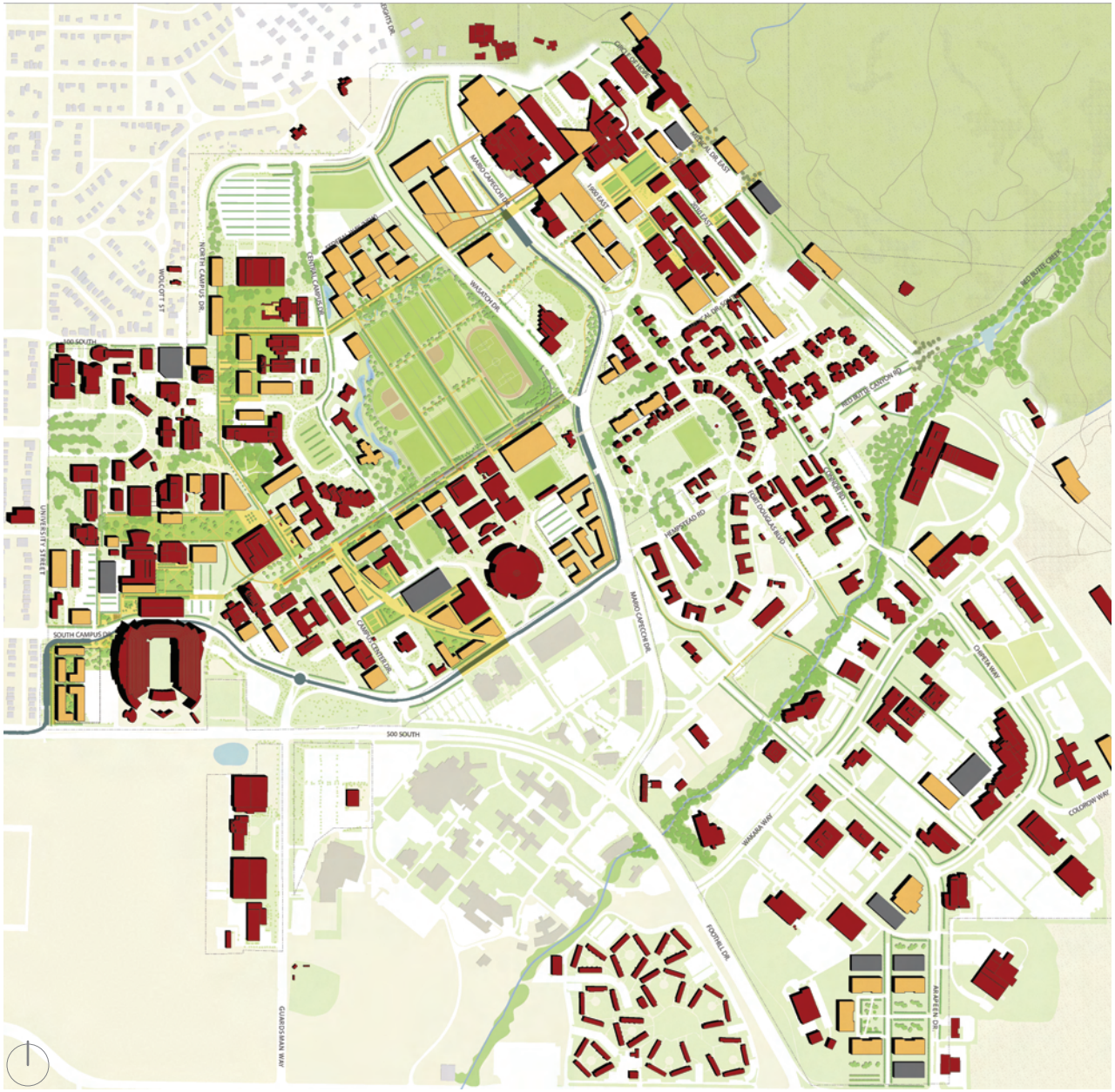
campus master plan



Not To Scale

Campus Vision Plan

The 2008 Campus Master Plan proposed a number of projects to the University of Utah campus that would guide development of the campus for the next 20 years, in alignment with the University's mission and vision. The Master Plan refers to these fourteen capital development projects as "transformative projects," each of which is guided by the following campus planning principles and strategies and is highlighted in orange in the plan to the left.

campus planning principles

- A lively campus; a magnet for student, faculty, staff and public life
- State of the art facilities to support the University's mission for teaching, research and public life
- A setting to foster interdisciplinary collaboration and interaction
- Campus as a destination for the public
- Functional and sustainable transportation systems
- Capitalize on the natural landscape setting
- Leaders in environmental stewardship

campus planning strategies

- Establish a compact academic campus
- Concentrate development around TRAX nodes
- Create a network of enhanced connections
- Open Space: a center, connect, preserve
- Build facilities to support student engagement
- Locate new student housing on campus
- Enhance transit services and circulation
- Establish sustainable campus utility infrastructure

UNIVERSITY OF UTAH MISSION

The mission of the University of Utah is to serve the people of Utah and the world through the discovery, creation and application of knowledge; through the dissemination of knowledge by teaching, publication, artistic presentation and technology transfer; and through community engagement. As a preeminent research and teaching university with national and global reach, the University cultivates an academic environment in which the highest standards of intellectual integrity and scholarship are practiced. Students at the University learn from and collaborate with faculty who are at the forefront of their disciplines. The University faculty and staff are committed to helping students excel. We zealously preserve academic freedom, promote diversity and equal opportunity, and respect individual beliefs. We advance rigorous interdisciplinary inquiry, international involvement, and social responsibility.

south campus housing

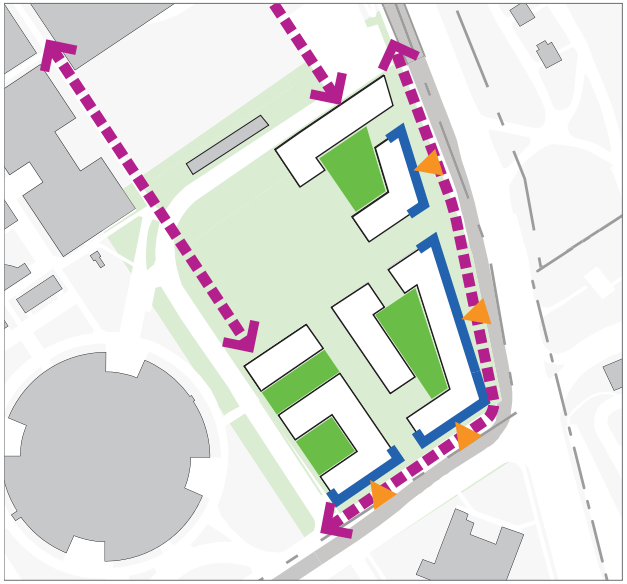
Since the master planning principles and strategies have been put into place, a number of transformative projects have been or are in the process of being developed. One of these is South Campus Housing, which is the master planning aspect of the Program Team's scope and whose first phase is the subject of this programming study.

The Campus Master Plan envisioned the development of a village of single student housing at the current Annex site, consisting of residential buildings of stacked apartments above structured parking. To reinforce the importance of South Campus Drive and Mario Capecchi Drive as a major campus gateway, the building was to positively address the adjacent streets and provide a distinctly urban character that is appropriate at this location. It envisioned buildings organized around garden courtyards internal to the site that were to serve as "outdoor rooms."

Proximity to the Fort Douglas TRAX station was thought to be a major benefit to students who work downtown or at other locations away from campus. Direct connections via pedestrian and bicycle pathways should be provided to connect housing to the TRAX station.

One of the goals of the master plan is to establish a compact campus and this project meets this objective by adding density and student life to this precinct of campus. As a result of the Student Housing Market Analysis done by Ira Fink and Associates in 2008, the Campus Master Plan proposed that a total of 1,800 beds be built on the current Annex site by 2025.

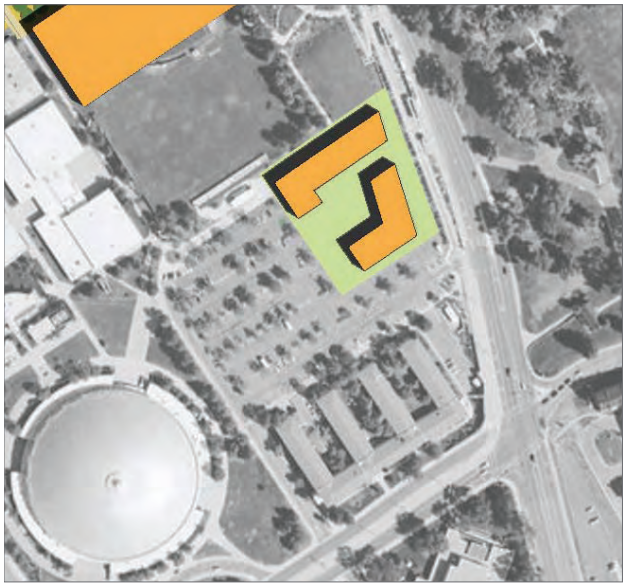
Opposite: South Campus Housing per Campus Master Plan



Master Plan Guideline

Existing Site

- Infill Building
- Primary Building Facade
- Primary Building Entry
- Primary Pedestrian Route
- Secondary Pedestrian Route
- New/Enhanced Open Space



Phase One

All Phases

1 Fort Douglas TRAX Station
2 Parking Lot 22
3 South Campus Housing

honors college

HONORS COLLEGE MISSION

The Honors College promotes an enriched academic environment for talented and highly motivated students. We foster values of social responsibility, inclusiveness and academic quality - in short, a community of excellence.

The Honors College, led by its current dean, Dr. Martha Bradley, is the primary focus and heart of Phase One of South Campus Housing.

The Honors College's mission is to create a community of excellence and provides an alternate way for students to satisfy their general education requirements in classes that are smaller, taught by distinguished and engaging professors, and that often use innovative teaching methods. Students who join the College enjoy the advantages of an intimate learning community within a large research university and are members of a group of students, faculty and community members who share a love of learning, the desire for excellence, and an engagement in the world of ideas. The Honors College tries to create an environment that nurtures the whole person academically, socially, emotionally, and intellectually.

The Honors College's innovative program, defined by its "Engaged Learning Initiative", intends to create a place for progressive learning and living by taking students out of traditional classroom settings and immersing them in a collaborative research or mentoring experience. This Initiative is what makes this College distinct. It is designed to nurture a new generation of community leaders with a commitment to research, community involvement, collaboration and leadership development.

The Initiative is composed of three main programs:

1– **Honors Think Tanks** *Described as a "civically engaged scholarship," this program brings together students, faculty and community partners and represents the best in interdisciplinary education and outreach. Every school year, three Think Tanks are held in parallel, each of which are nine-month long initiatives with real-life applications.*

2– **Honors Forum** *Designed to support the University's mission to foster social responsibility through its unique pedagogical and community focus and intensive engaged learning structure, each forum brings together students, scholars and community members for an intense three-day encounter on a designated topic, with focuses on critical thinking, collaborative research, and on the importance of perspectives and experiences of diverse community members. These forums also provide topics for the Think Tanks.*

3– **Scholars** *Creates collaborative, interested based learning communities, in groups of 20 or fewer, for students with a strong sense of their academic or life paths and distinctive special interests. The students in these cohorts are guided by a faculty mentor through all four years they are at the University.*

In addition, less than five years ago, Honors College started the Living and Learning Program, where Honors students' learning

View of University Bookstore from the North

was enhanced by living together. It started with approximately 50 students on a Living and Learning Floor, which then expanded to include a second year floor, and since then, exploded. Currently, Honors offers several housing options for students from the Sage Point residence hall - Honors Floor, First-Year Floor and Living and Learning Floor - to three historic homes at Officers Circle - Poulson House, S.J. Quinney Law House and Second-Year House.

Now that it is established, Honors is expecting a slow but steady growth of the College in the future and will need to relocate and expand its housing and programmatic space needs, which is why this project, Honors Housing at Legacy Bridge, is needed. This project will be used in recruitment for the Honors College and the University and will provide Honors Housing with a clearer identity.

It will change the way the Honors College functions for the better. All of the Honors College's activities occur in the outgrown existing Honors Center in the Fort Douglas area. Also, for the most part, the Honors College hires faculty from other departments to teach Honors courses; only five Honors faculty members teach solely Honors-only classes. Currently, all of these faculty members share a single office, so adding faculty offices on this site, for them, is necessary.

Although the Honors College has great classes and professors, it is only as good as the students make it, and in the words of Dr. Bradley at the College's first World Cafe, "only as good as the students that we recruit." That's why this project is such an important step towards its continued success.

In order to join the Honors College, students have to apply and are only eligible if they meet the following requirements:

***Entering Freshmen**: Admissions Index of 120 or greater and a cumulative high school GPA of 3.5 or greater*

***Transfer Students**: Cumulative transfer GPA of 3.5 or greater*

housing & residential education

HRE MISSION

Housing & Residential Education, a team of dedicated student leaders and staff, serves the University community by encouraging, facilitating, and supporting the learning and development of all residents while creating an inclusive and safe living environment.

HRE HOUSING PRIORITIES

- *Tier 1 - Single Undergraduates*
- *Tier 2 - Single Graduates*
- *Tier 3 - Married with Families*

Chase N. Peterson Heritage Center

According to the 2008 Student Housing Market Analysis report, although enrollments are basically flat or slightly declining, housing occupancy is up. This change is based in part on President Young's "globalization" initiative, in which the University is working to increase both its out-of-state and international student enrollment, as well as providing for more scholarship students to live on-campus. After a period of decline, rents in the local community are also starting to increase, which is having the effect of increasing demand for university housing.

The primary student housing market issue facing the University of Utah is that demand is slowly approaching the supply of University residence halls and University apartment housing, resulting in nearly full occupancy. As a result, the 2008 Campus Master Plan proposes that the potential for up to 2,400 student beds be developed, over a number of years. The Master Plan proposed 300 apartments located west of the Rice-Eccles Stadium in a development called the Universe Project (though this project has now been put on hold for various reasons), 300 apartments located at the eastern end of the Legacy Bridge in the Heritage Commons area, and the bulk of the housing to be located on the master planning precinct of this project called South Campus Housing, which is to consist of 1,800 beds by 2025; 310 of which will be completed by 2012 during Phase One of this project.

Housing at the University of Utah is allocated on a first-come, first-serve basis and Housing & Residential Education (HRE) prefers mixed student residences in regards to income and types of bedrooms (i.e. single bedrooms versus double bedrooms) within the residential units, though a majority of the beds will be singles due to student market preference. As this will be the only on-campus housing in the lower part of campus and will have a much more easily accessible route to the academic core as well as other parts of campus, the position of housing on this site is unique and will require some additional services, such as residential administrative spaces and a Café/C-store.

Despite what the name "Honors Housing at Legacy Bridge" may suggest, this will not be Honors-only housing, at least not initially. Therefore, it is even more important that the vision and goals of the Honors College and HRE harmonize. Above and beyond the standard programmatic requirements for Phase One, both groups were open to new concepts for campus housing. In-line with the living and learning program of Honors, ideas surrounding sustainable living, alternate lifestyle choices and environments for creativity were desired from the HRE users. In addition, both users desired that this housing "feel" like that of the historic homes at Officers Circle, which has a strong sense of community. This new mixed-use facility will transform the traditional perception of campus living.

Houses at Officers Circle

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2 discovery

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introduction

This chapter is a result of the exploration of the project site and reveals what was discovered. It shows what the existing conditions were in which the analysis was done and examines what was considered in the design process. Ultimately, these conditions are what the future designer and builder will have to consider in their approach to this project.

The site presents an equal amount of challenges as well as opportunities to integrate the campus plan and landscape with the new Honors Housing. The site setting, context, physical characteristics and development issues were analyzed and used to develop and refine the preferred design concept of Phase One and the planning of future Phases Two and Three.

View of the University of Utah Campus from the Northwest

site setting

The approximate address of the site (currently the address for the Annex Building) is:

1901 E South Campus Drive
Salt Lake City, UT 84112

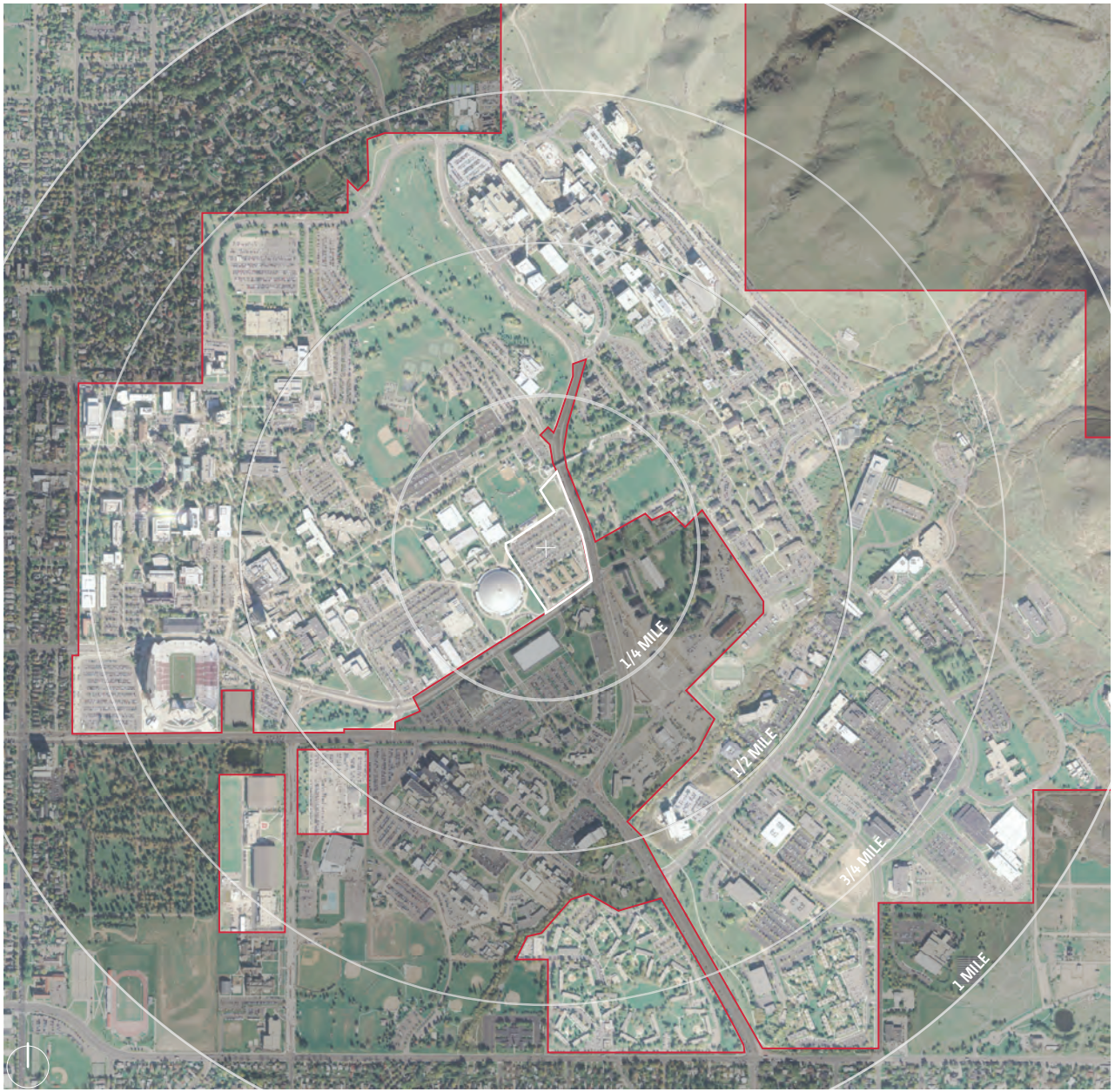
All north arrows indicated in the plans and diagrams reference "True North" (also considered "Plan North").

overview

The University of Utah campus is located at the base of the western foothills of the expansive Wasatch mountain range in Salt Lake City, Utah. The center of the entire campus is where the 2008 Campus Master Plan calls for the South Campus Housing precinct to be built, in the area currently being occupied by the Annex General Office Building and Parking Lot 22, directly east of the Huntsman Center. It is sited on the corner of two large and busy streets: Mario Capecchi Drive and South Campus Drive. The site is approximately 9.8 acres and is located on lower campus, along the dividing line between upper campus and lower campus. In this location, it has great views of the mountains to the east as well as the campus academic core to the west.

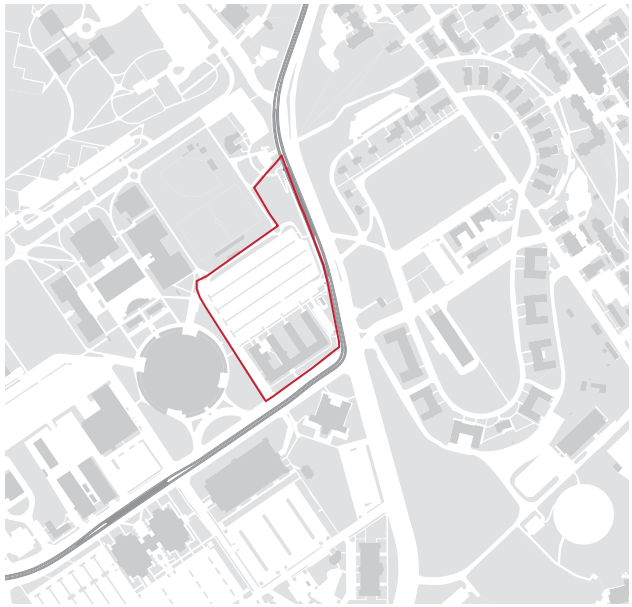
Although the entire housing site covers approximately 9.8 acres in a general north-to-south direction, the buildable area ends up being less than that because of setbacks and right-of-ways. The Phase One site is reduced to even less because the Annex Building takes up a large portion of the southern end and will remain at least until Phase Two. Because Honors Housing's programmatic area doesn't require the site's entire buildable area, Honors Housing may be located in a portion either adjacent to the Bridge or to the Huntsman Center.

For the purposes of this chapter, since the Program Team was asked to study both the programming for Phase One and the master planning for future phases, and because the South Campus Housing site encompasses Phase One's site, when referring to "the site," that is in reference to the entire South Campus Housing site.



Not To Scale

Aerial Vicinity Map



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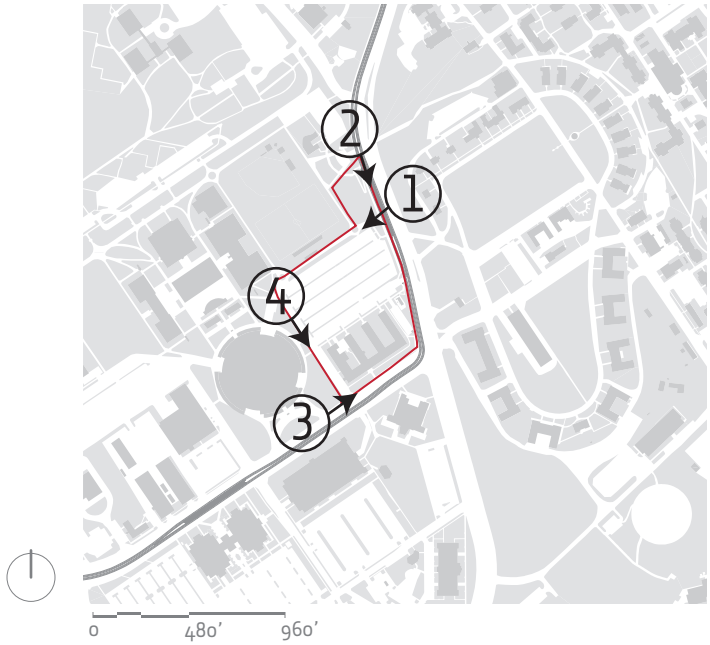
South Campus Housing Site

0 240' 480'

Phase 1 Buildable Area



site boundaries

GENERAL

The site is located in a unique position within the campus, at a crucial point of intersection among various stake holders. In addition to the site's physical boundaries and limitations, there are other divisions of property and land surrounding the site.

PHYSICAL BOUNDARIES

In the 2008 Campus Master Plan, the site boundaries did not include the area in the northeast corner of the site, next to the Legacy Bridge. Early in the programming process, it became clear that the project would benefit from every square foot possible due to the Master Plan's proposed high density for the site.

While formal local University zoning and planning boundaries don't exist, there is a general area defined. The boundaries for the site are:

To the North: the existing sidewalk south of the multi-purpose field and concessions building, the sidewalk east of the same field, and the Legacy Bridge

To the East: the TRAX line that runs right along the edge of the site, Mario Capecchi Drive, and the Fort Douglas area beyond

To the South: South Campus Drive

To the West: the sidewalk between the existing access drive and the Huntsman Center

LAND OWNERSHIP

There are five different land owners surrounding the site, including the University of Utah. The other four border just two

North Boundary

East Boundary

South Boundary

West Boundary

Legacy Bridge Panorama

sides of the site - the east and the south:

Directly adjacent and parallel to the east of the site is the Fort Douglas TRAX station and line governed by the Utah Transit Authority (UTA). The line runs parallel to the site right along the east side and then turns the corner towards a southwest direction running along the center of South Campus Drive.

There are two large and heavily traveled streets that border these two sides, Mario Capecchi Drive to the east and South Campus Drive to the south, both governed by the Utah Department of Transportation (UDOT).

To the southeast is a portion of a historic area of Salt Lake City known as Fort Douglas that currently operates as a U.S. Army Reserve and, therefore, is federally owned land.

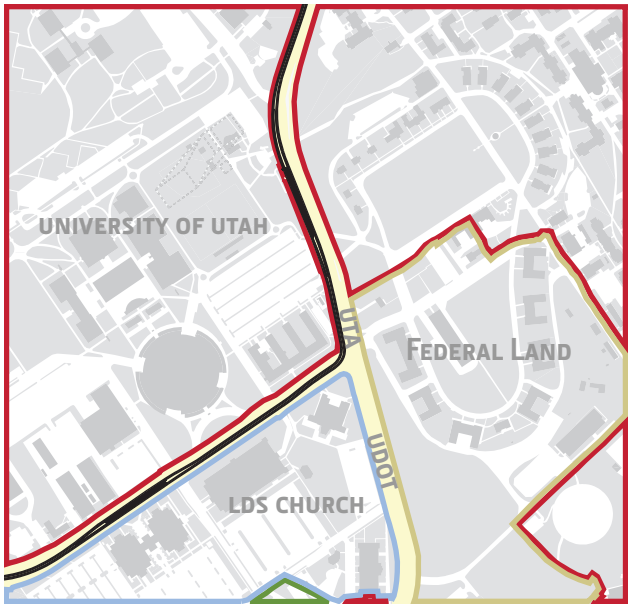
To the south and south west are buildings and lands owned privately by the Church of Jesus Christ of Latter-Day Saints (LDS). A large percentage of University of Utah students is LDS and use these facilities during the school day, as well as on evenings and weekends.

CAMPUS PRECINCTS

Within the campus boundaries are twelve designated campus precincts. The site is located in the precinct called South Campus, which extends west nearly all the way to the Rice-Eccles Stadium. To the north-northwest of this precinct is the Central Campus precinct and to the northeast is the Historic Fort Douglas/Heritage Commons precinct. Further to the southeast is Research Park.

LAND USE

Per the 2008 Campus Master Plan, which designates campus land use, the site is located in the most western portion of the Residential zone, closest to the Academic Core, and is designated



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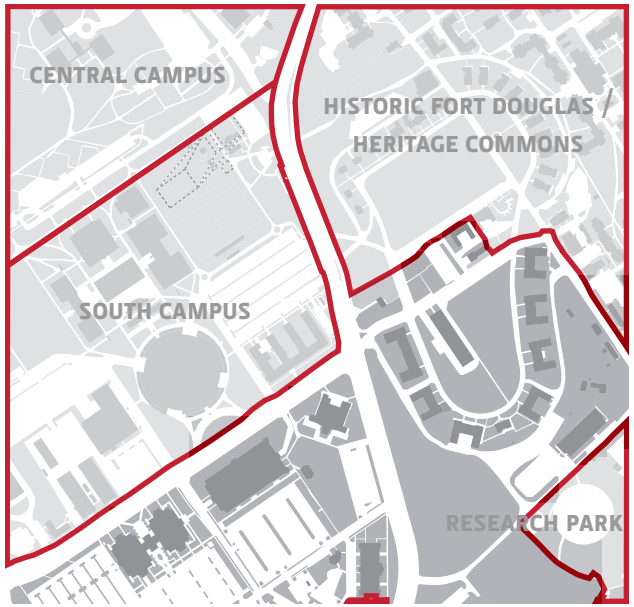
Land Ownership



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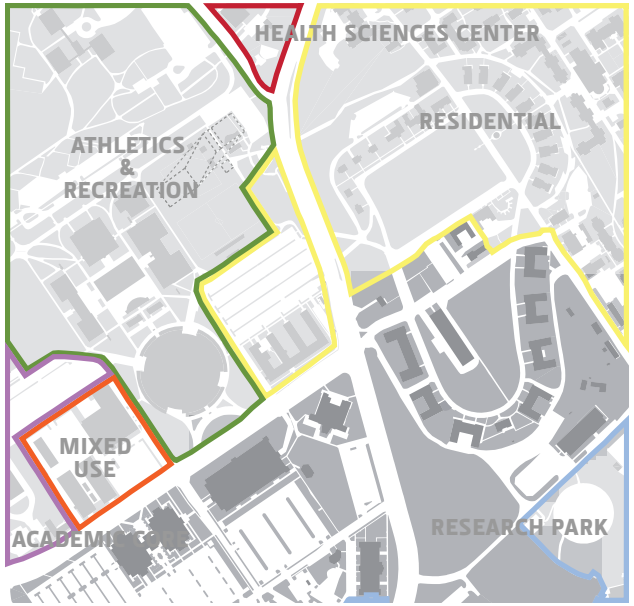
Campus Precincts

as the only on-campus housing on lower campus. This location makes it much more convenient for those students living on-campus to get to their classes. Furthermore, the Athletics and Recreation zone surrounds the site to the north and the west, additionally making this site an attractive location for student housing.



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Land Use

site framework

Fort Douglas 1864 [1]

Fort Douglas 1891

Fort Douglas 1915

Historic Fort Douglas Aerial

overview

In order to better understand the site context, the framework of its past, present and future were studied. The significant buildings and places within and surrounding the site are:

1. Historic Fort Douglas
2. Jon M. Huntsman Center
3. George S. Eccles Legacy Bridge
4. HPER Mall & Complex
5. Student Life Center

HISTORIC FORT DOUGLAS [2]

The relationship between Fort Douglas and the University of Utah began soon after the University was established. Founded in 1850, the University of Utah is the oldest state university west of the Mississippi River. Shortly thereafter, in 1862, President Abraham Lincoln established Fort Douglas just east of the University.

The same 2,000 acres that were originally set aside by the State of Utah for the development of a state university were adapted as a federal military encampment taking advantage of the excellent vantage point for surveying the entire valley and the convenient proximity to the growing Salt Lake City settlement. Over time, the federal government has periodically transferred land back to the University's jurisdiction, the most recent being the historic Officers Circle and the parade ground. Given the historic nature of this property and the associated structures, the University invested a substantial amount of capital restoring the Officers Circle homes as residences for various colleges and programs, including the Honors College.

Currently, the University is in the process of acquiring some portion or all of the remaining Fort Douglas property. By doing so, campus planning strategies will be impacted. Potential program re-use options for Fort Douglas include student housing and university support services, although re-use of the buildings as general office space is also being explored because

Fort Douglas 1936

Fort Douglas 1945

Fort Douglas 1991

Present-Day Fort Douglas

the University is in need of extra space in which to relocate the occupants of various existing buildings on campus which have been identified for upgrading or replacement. One relevant example is the Annex General Office Building that is located on the project site.

The Annex Building was built by the Army in 90 days as an administration building in 1942 and was acquired by the University in 1948 to handle the increase of students after World War II. Today, it serves a range of services and departments from Continuing Education and Commuter Services to Aerospace Studies and Parks, Recreation and Tourism.

JON M. HUNTSMAN CENTER [3]

The Jon M. Huntsman Center, named after the chemicals entrepreneur and billionaire philanthropist, Jon M. Huntsman, father of Utah's former governor Jon Huntsman, Jr., has been regarded as one of the top college arenas in the nation since opening its doors in 1969.

Architecturally, the Huntsman Center maintains a strong presence and form, and is visible from many points throughout the campus and beyond, including from the project site directly to the east.

Today the 15,000-seat arena is home to the University of Utah's

Huntsman Center Looking Southeast

1 - All drawings by Jody R. Stock, Mary Troutman, U.S. Army Engineers, H.E.N.V.

2 - Historic Fort Douglas information found at: University of Utah Campus Master Plan and website

3 - Jon M. Huntsman Center information found on: University of Utah website and Wikipedia

"Runnin' Utes" basketball teams (men's and women's) and "Red Rocks" women's gymnastics team. It also hosts concerts among these and many other events.

GEORGE S. ECCLES 2002 LEGACY BRIDGE [4]

Completed in December 2001, the George S. Eccles 2002 Legacy Bridge was finished just in time for the 2002 Winter Olympic Games in Utah. It is an asymmetrical single-pylon cable-stayed bridge that spans 300 feet across four lanes of vehicular traffic on Mario Capecchi Drive and is located just north of this project's site.

Funding for the $5 million bridge came from University institutional funds and donations, including a $2 million gift from the George S. and Dolores Doré Eccles Foundation. In recognition of this support, and the philanthropy of the late George Eccles at the University of Utah for decades, the bridge was named the George S. Eccles 2002 Legacy Bridge.

The bridge is one of only a few of its kind in the western United States, and is designed to accommodate pedestrian and bicycle traffic. It connects the University's main campus with the Health Sciences Center and student residential living areas at Fort Douglas Heritage Commons.

To accommodate a 30-foot drop in elevation, the bridge incorporates a grand staircase on its west plaza which connects to the central east-west axis of the main campus, the HPER Mall. Campus planners hoped that the bridge would foster an increase in the use of alternative modes of transportation in the area, especially because of its proximity to the Fort Douglas TRAX station.

The bridge also serves as a safe pedestrian pathway between the upper and lower campuses and as a campus landmark.

Legacy Bridge Looking East

HPER MALL & COMPLEX [5]

HPER (Health, Physical Education and Recreation) Mall is an existing pedestrian connection between upper campus and lower campus. Currently, it is undergoing a large renovation from being a wide pedestrian boulevard into a new "multimodal" connector with separated circulation routes for pedestrians and cyclists, as well as a new shuttle-only route. The Campus Master Plan proposes a significant new utility tunnel below the surface of the Mall and bioswales planted with grasses and woody vegetation that is integrated along the length of the Mall to collect rooftop runoff from new adjacent buildings and irrigation runoff from the fields.

Some of the major buildings to which the Mall will connect include the HPER Complex, home to gymnasiums for basketball, badminton, and volleyball, racquetball courts and the natatorium. The HPER Complex offers members of the University campus community the opportunity to participate in recreational sports activities on an informal, self-directed basis and is available to all current University of Utah students, faculty and staff with Campus Recreation Services memberships, and the general public with daily guest fee. These numerous activities, along with the planned Central Playing Fields, will spur a great deal of activity along the HPER Mall, which is located just a few hundred feet north of the housing site.

STUDENT LIFE CENTER [6]

The future Student Life Center, which stemmed from Campus Recreation's desire to combine its several facilities on campus into one, will also be located to the north of this site. The Student Life Center is envisioned as a large-scale, multi-purpose recreation facility which will feature over 150,000 square feet of indoor exercise equipment with cardio machines, circuit and free weight areas, a climbing wall, natatorium with lap pool, leisure pool, running track, sport courts for basketball, soccer, volleyball, lacrosse, multi-purpose room/dance studio, wellness clinic, racquetball courts, locker rooms, classroom and meeting rooms, administrative offices, and a student lounge zone.

Existing HPER Mall Looking East

The site for the Student Life Center is currently occupied by the women's softball field and Virginia Tanner Dance building located at the eastern end of HPER Mall, adjacent to the Legacy Bridge. In this location, an opportunity exists for the building to serve as an extension of the Legacy Bridge by providing a continuous pedestrian connection between upper and lower campus. However, the Student Life Center Program states that if the added expense would reduce other program elements in the building, the users feel the extension of the bridge should be excluded.

The Student Life Center will unite campus recreation and, like the Honors Housing project, will be a key element in the recruitment and retention of future students to the University of Utah.

4 - George S. Eccles Legacy Bridge information found on: University of Utah website

5 - HPER Mall & Complex information found at: University of Utah Campus Master Plan and website

6 - Student Life Center information found at: University of Utah Campus Master Plan and Student Life Center Program

site context

Huntsman Center Looking West

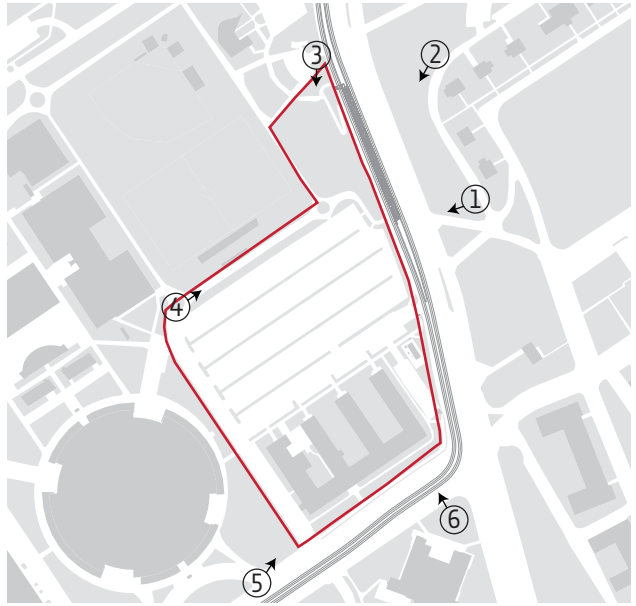
site views

The Honors Housing site is situated to capture breathtaking views to the west, looking over the campus, and to the east towards the mountains. On a clear day, at a height of approximately 50 feet from the site, one can see across the campus to the Oquirrh Mountains and almost over the treetops of the Fort Douglas area to the Wasatch Mountains. At this level, the peak of the Huntsman Center aligns with the peaks of the Oquirrh Mountains.

Because Honors Housing is located at the southern base of the Legacy Bridge staircase, Honors Housing has the potential to connect visually with the Bridge in various ways.

The site is highly visible and each view will be significantly different depending on the direction and means of travel. For instance, much of the general public will be driving along Mario Capecchi and South Campus Drives getting relatively quick glimpses of the site at grade level, whereas, for those students coming across the Legacy Bridge from Fort Douglas/Heritage Commons, the view will be considerably different as they will be walking more slowly at a higher elevation. High visibility equates to the potential for another gateway into the campus and association as an icon for student recruitment.

Panoramic Views from Site Looking Out



Views to the Site

View from the Northeast

View from the East

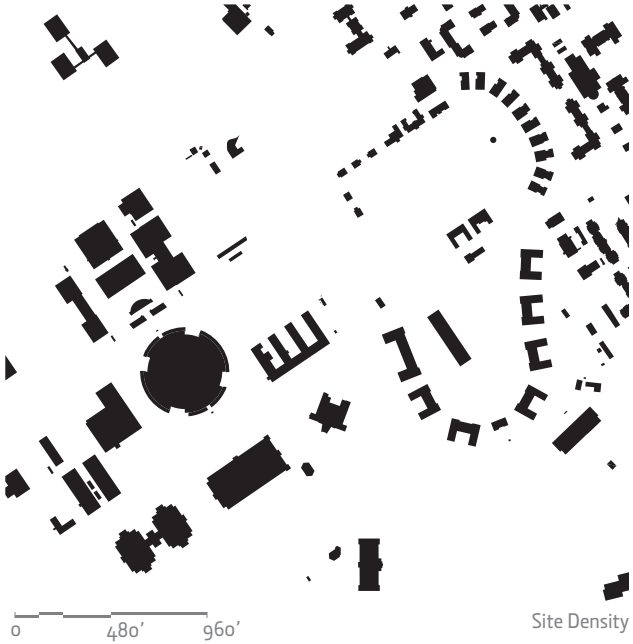
View from Atop the Legacy Bridge

View from the Southwest

View from the West

View from the Southeast

Axis of Presidents Circle and the Legacy Bridge Beyond



Site Density

spatial relationships

SITE DENSITY

In studying the figure-ground of buildings versus open space, there is a clear demarcation between upper (east side) and lower (west side) campuses. Generally, in this area, upper campus is composed of smaller building footprints and a higher density in comparison to lower campus.

There is a lot of open space between buildings on both sides and opportunities to expand or add new buildings to densify the area. The University should continue to study and incorporate where the densification and open space occurs.

AXIAL RELATIONSHIPS

The campus structure is primarily organized around two different grids: one running north-to-south and east-to-west (at West Campus) and the other running northeast-to-southwest and

0 480' 960'

Axial Relationships

0 480' 960'

Campus Buildings

Primary Axis
Secondary Axis

College of Education
Federal Land
School of Medicine
Church
Research Park
Future Campus Recreation Building
Administration / Student Affairs
Museum / Performance Hall
LDS Institute
College of Health
Intramural / Athletics
Existing Housing

northwest-to-southeast. This site is located along the latter axes.

In addition to the axes shown above, there is potential for a future axial relationship to be created between this site and the future Student Life Center.

CAMPUS BUILDINGS

There are many different types of campus buildings around the site but the types of activities that adjacent facilities will generate will mainly be athletics- and recreation-related.

Although there are the LDS Church buildings in close proximity, which many of the students use, the scale of South Campus Drive is a major deterrent in the establishment of a direct relationship between the two, in addition to the fact that the Church is a private religious institution which is legally required to be separated from a public state institution. Mario Capecchi Drive and the TRAX line are equally physical barriers between the site and the Fort Douglas housing area.

Therefore, much of the physical activities and adjacencies will occur to the north and west of this site, especially when the Student Life Center comes on-line.

BASIC SERVICES AND AMENITIES

Although a number of students in the market study performed concurrently to this program desired fitness and recreational rooms in new campus housing, the Program Team acknowledged that the students living at Honors Housing will have access to the

1 Bank
2 Place of Worship
3 Convenience Grocery
4 Day Care Center
5 Computer Lab
6 Fire Station
7 Laundry
8 Library
9 Medical or Dental Office
10 Senior Care Facility
11 Park / Green Space
12 Pharmacy
13 Post Office
14 Restaurant
15 Theater
16 Community Center
17 Fitness Center
18 Museum
19 Athletics
20 Book Store

1"= 1200'
0 600' 1200' 2400'

Basic Services and Amenities

Future Student Life Center
Places to Eat
Activities, Recreation and Entertainment
Health-Related and Emergency Services
Community Services
Educational Services

University Bookstore

Student Life Center in the near future. Because the students will be able to use this facility for recreational purposes, duplicating these services was deemed inappropriate.

Other amenities and basic services, from computer labs to post offices, are readily available to the students in a relatively close proximity.

circulation

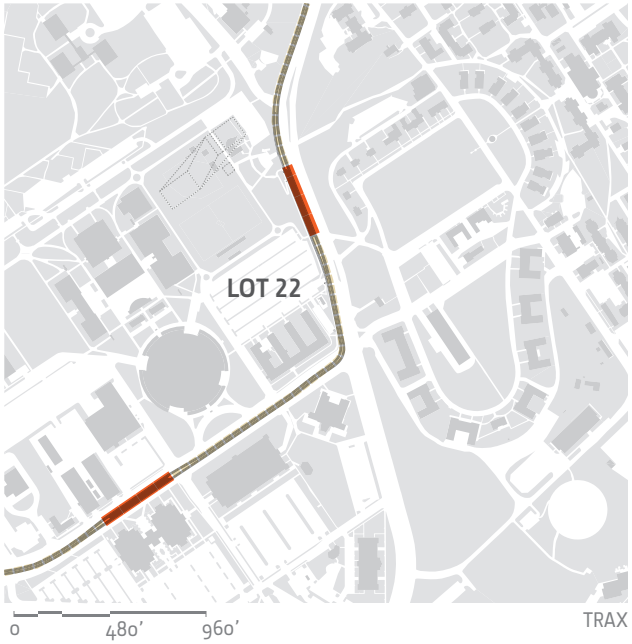
OVERVIEW

Site circulation can be classified as:

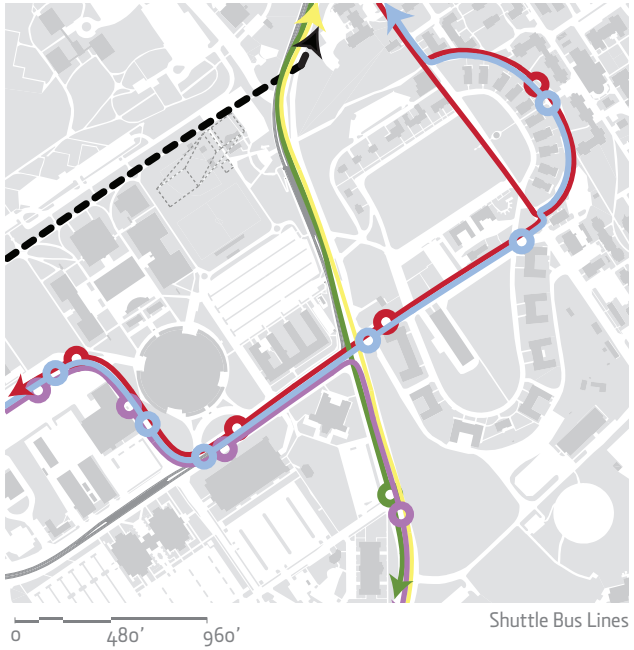
- Pedestrian
- Cycling
- Vehicular
- Transit

All types of circulation occur on and around the site and each mode, while presenting its own challenges, can enhance and be incorporated into the design and master plan of the site. One unique aspect of the students on this campus is that many ride skateboards. This inevitably means that architectural and landscape design elements, such as concrete curbs and stairs, are prone to be used as part of their path of travel and should be considered accordingly.

Parking and Transportation



TRAX



Shuttle Bus Lines

TRAX Line
TRAX Station

Shuttle Stop
Proposed Central Route
Yellow Shuttle Route
Red Shuttle Route
Purple Shuttle Route
Green Shuttle Route
Blue Shuttle Route

TRAX

The Utah Transit Authority works together with University Commuter Services to reduce traffic congestion by encouraging transit use, and both contribute to the 2008 Campus Master Plan's vision of turning the University of Utah into a more sustainable campus.

Currently, UTA operates a TRAX light rail line that runs along the site. The Fort Douglas TRAX station is situated immediately to the east of the site and has six trains arriving every hour in each direction. The plan is that they will come more frequently in the next year or two.

Many Rice-Eccles Stadium attendees park in Lot 22 and ride TRAX to and from the Stadium. With some exception, such as during events, this station is under-utilized. It is expected that once this project and the Student Life Center are built, there will be more people using this stop and riding TRAX in general.

SHUTTLE BUS LINES

University Commuter Services currently operates five shuttle bus routes that travel along the periphery of the site and connect to other parts of campus, coming every ten to thirty minutes, depending on the route and time of day. The shuttles that go from the main campus to the existing housing are frequently full. It is intended that the site will have a bus stop even though it is on the main campus because student residents will want to travel across the campus. There is a proposed shuttle stop to be located close to the future Student Life Center.

It is also worthy to note that the Campus Master Plan proposes a new shuttle route that will connect the Main Campus and Health Sciences Education Building (HSEB) via HPER Mall and Medical South Drive.

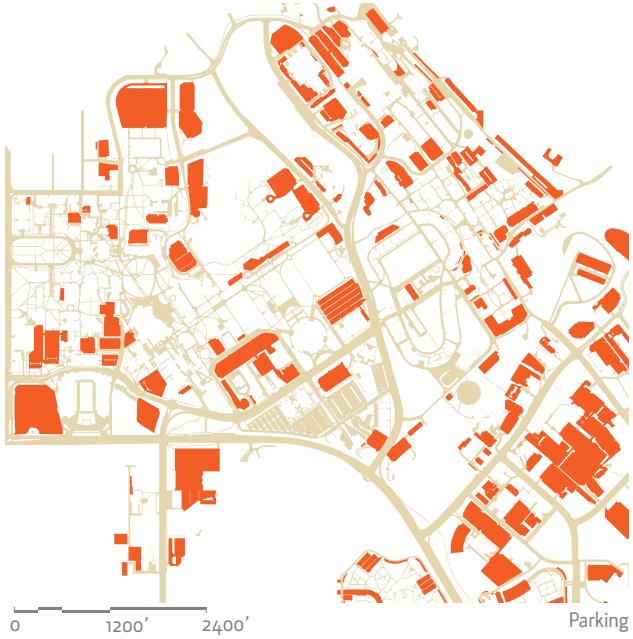
VEHICULAR CIRCULATION

The site is located at the northwest corner of one of the busiest

Primary Vehicular Circulation
Secondary Vehicular Circulation

Campus Parking
Circulation Paths

Vehicular Circulation



Parking

intersections around campus. Both Mario Capecchi and South Campus Drives consist of two travel lanes in each direction with a median in some locations near the site. One of these medians on Mario Capecchi Drive allows north bound vehicles to turn left into the site. Excluding this left turn, there are only right turns into and out of the site.

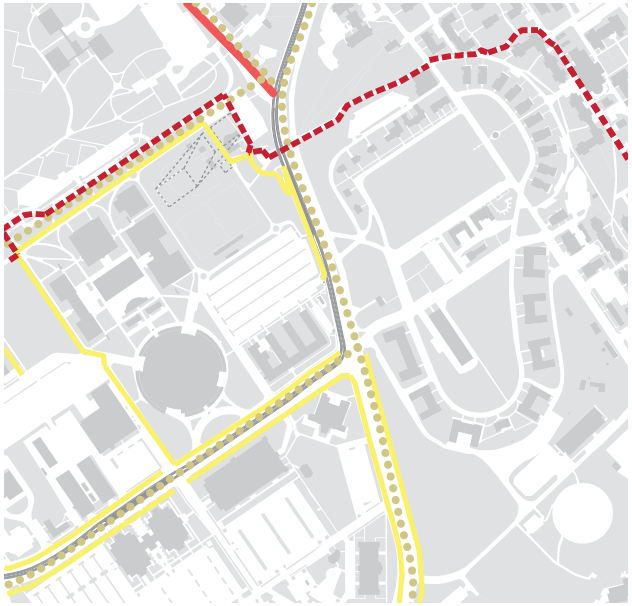
It is important that both existing site access points remain and be connected for practical, service and emergency reasons.

PARKING

There never seems to be enough parking at the University. According to data collected by the University during the first full week of classes in Fall 2006, Parking Lot 22 was nearly 100 percent utilized on an average daily basis. Though parking is in high demand, there are a handful of lots that are underutilized, such as the University-leased LDS Institute parking structure across the street from the site. Another example is Chapel Glen's parking lot, which is reported as often full, while Sage Point's parking lot is often empty. Careful planning of where new parking should go and what type is needed is critical to the development of the campus as new buildings are built, parking stalls are displaced, and more sustainable means of travel are promoted.

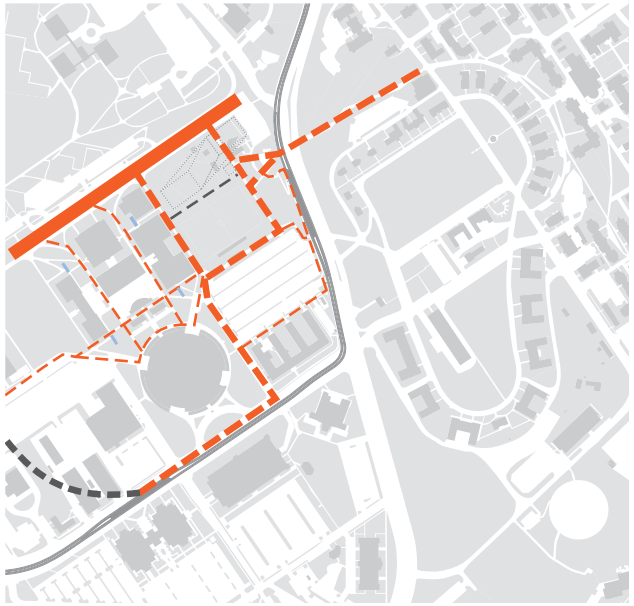
BICYCLISTS

Transitioning from the city to the campus at this location is a challenge because bicyclists face crossing heavy traffic along Mario Capecchi and South Campus Drives. One city bike lane ends abruptly at the junction of Wasatch and Mario Capecchi Drives and so a different bike route would have to be chosen. The existing dedicated bike pathway between upper and lower campuses is not much better because bicyclists confront the grand staircase at the Legacy Bridge. Often, students will bike down the steps and, though it may be faster, it is a potential safety hazard.



0 480' 960'

Bicyclists



0 480' 960'

Pedestrian Circulation

U of U Marked Bike Lane
Selected Sidewalks
City Bike Lane
Proposed Bicycle Route

Primary Circulation
Secondary Circulation
Tertiary Circulation
Vertical Circulation
Future Circulation (Per 2008 Campus Master Plan)

Fortunately, the University has plans to become a more bicycle friendly campus, which includes new bike routes along the two major streets surrounding the site. As part of this plan, the Project Committee requests that any new bike storage be convenient, visible and easily accessible to the students, staff and faculty.

PEDESTRIAN CIRCULATION

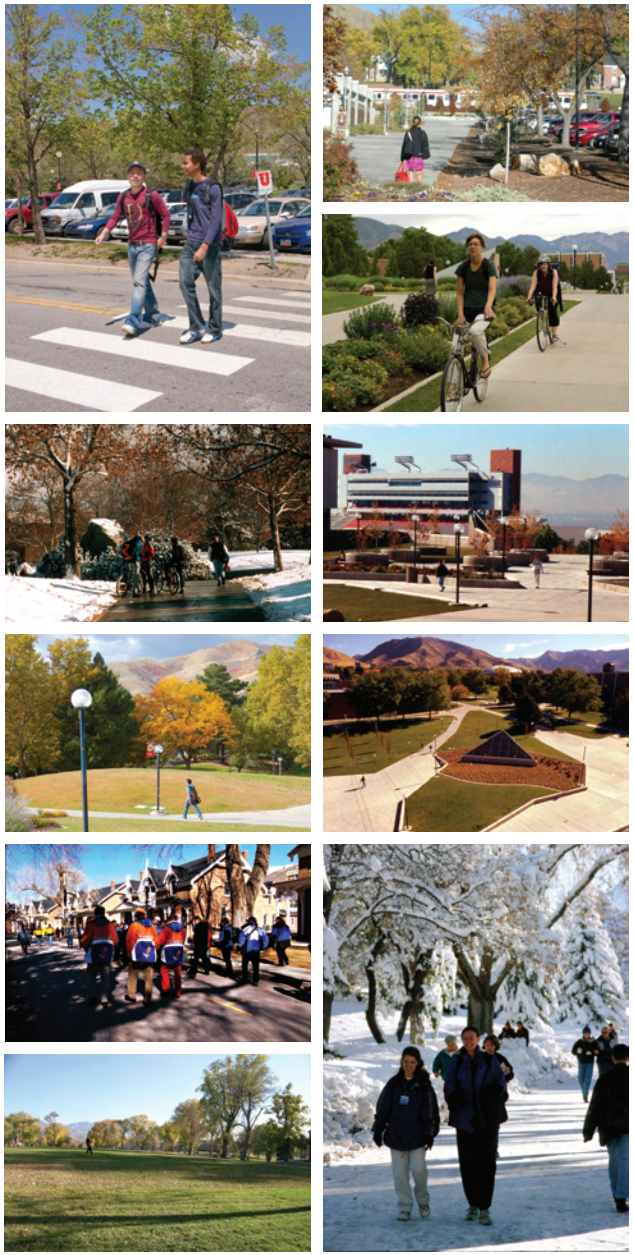
Pedestrians use the most direct path of travel and will often make their own by short cutting through grassy lawns and parking lots. On this site, the Project Committee would like to maintain a pathway that links the Fort Douglas TRAX station to the Huntsman Center.

There are a lot of pedestrian activities that occur around the HPER complex to the northwest of the site and, due to a lack of necessity, there is very little pedestrian activity on the southeast corner of the site. A steep retaining wall and a busy intersection

0 240' 480'

Building Access Points

Primary Building Access
Secondary Building Access
Vertical Building Access
Future Building Access



Pedestrians and Bicyclists

also deters pedestrians from crossing the street to the other corners.

The vast majority of pedestrians use the Legacy Bridge and then heads west toward the campus core, and vice versa.

BUILDING ACCESS POINTS

Understanding the points of ingress and egress to and from the buildings surrounding the site provides insight into the direction and flow of traffic around the site.

For example, the intended "back" side of the HPER buildings is the east side because there aren't any means of access to the building along this edge. The Annex Building is entered mainly from the north side, while the Huntsman Center can be entered and exited from all sides.

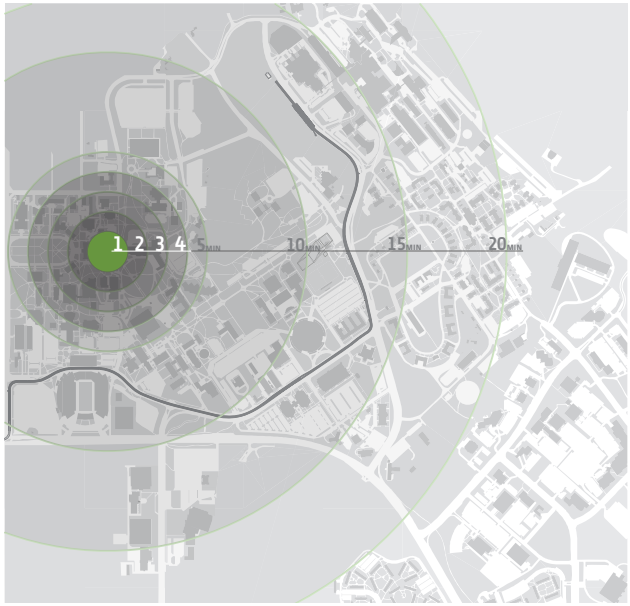
The Student Life Center Program shows the Student Life Center being accessed from both the north and the south sides toward the Legacy Bridge. This will bring more pedestrian activity in and out of the building in that general area.

WALKING DISTANCES

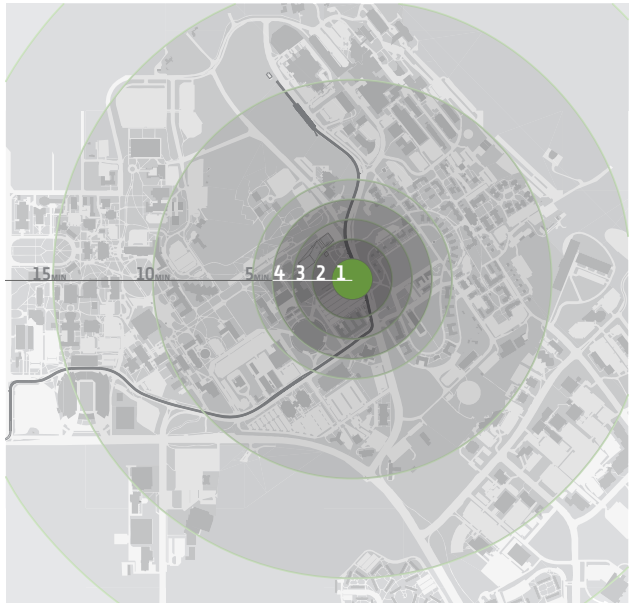
Proximity is very important to the users on the site because there will be a variety of students living here, travelling to all parts of campus. What is attractive about the site is that it is within a 5 to 15 minute walking radius that covers almost all of campus.

While the distance traveled is an issue, the perception of being part of campus is equally important. The site addresses both the issue of time and is a more central part of campus, being on the west side of Mario Capecchi Drive, a physical and psychological disconnect of campus.

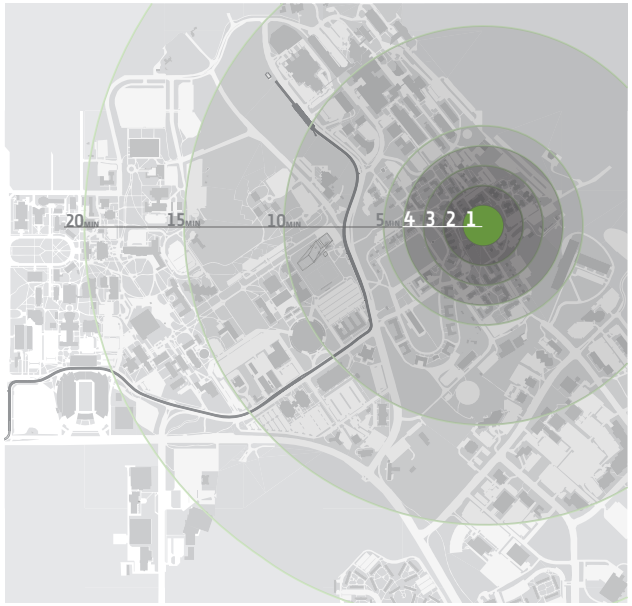
Opposite: Walking Distances from Various Points Around Campus



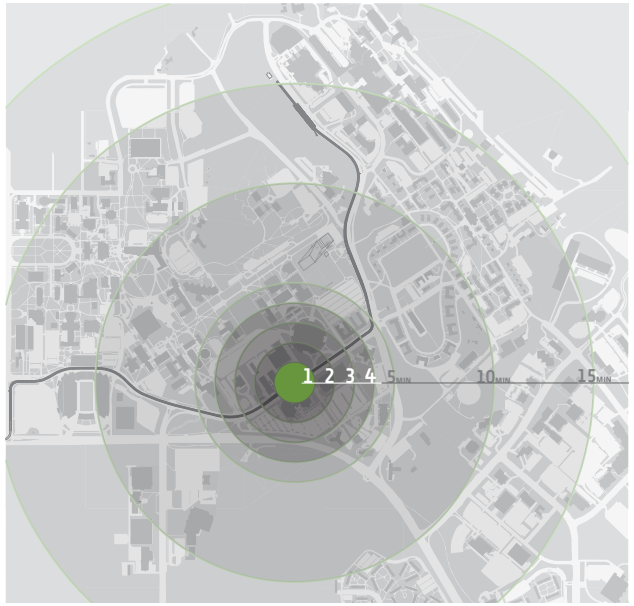
0 1200' 2400' Center: Student Center



0 1200' 2400' Center: Phase One Site



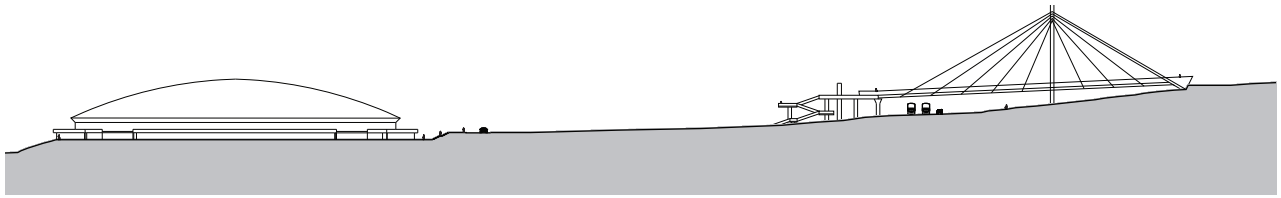
0 1200' 2400' Center: HRE Offices



0 1200' 2400' Center: South Campus TRAX Station

Walking time is based on an average walking speed of 250 feet per minute (approximately 3 miles per hour) on a level surface. Walking downhill or uphill will vary from this speed.

site physical characteristics

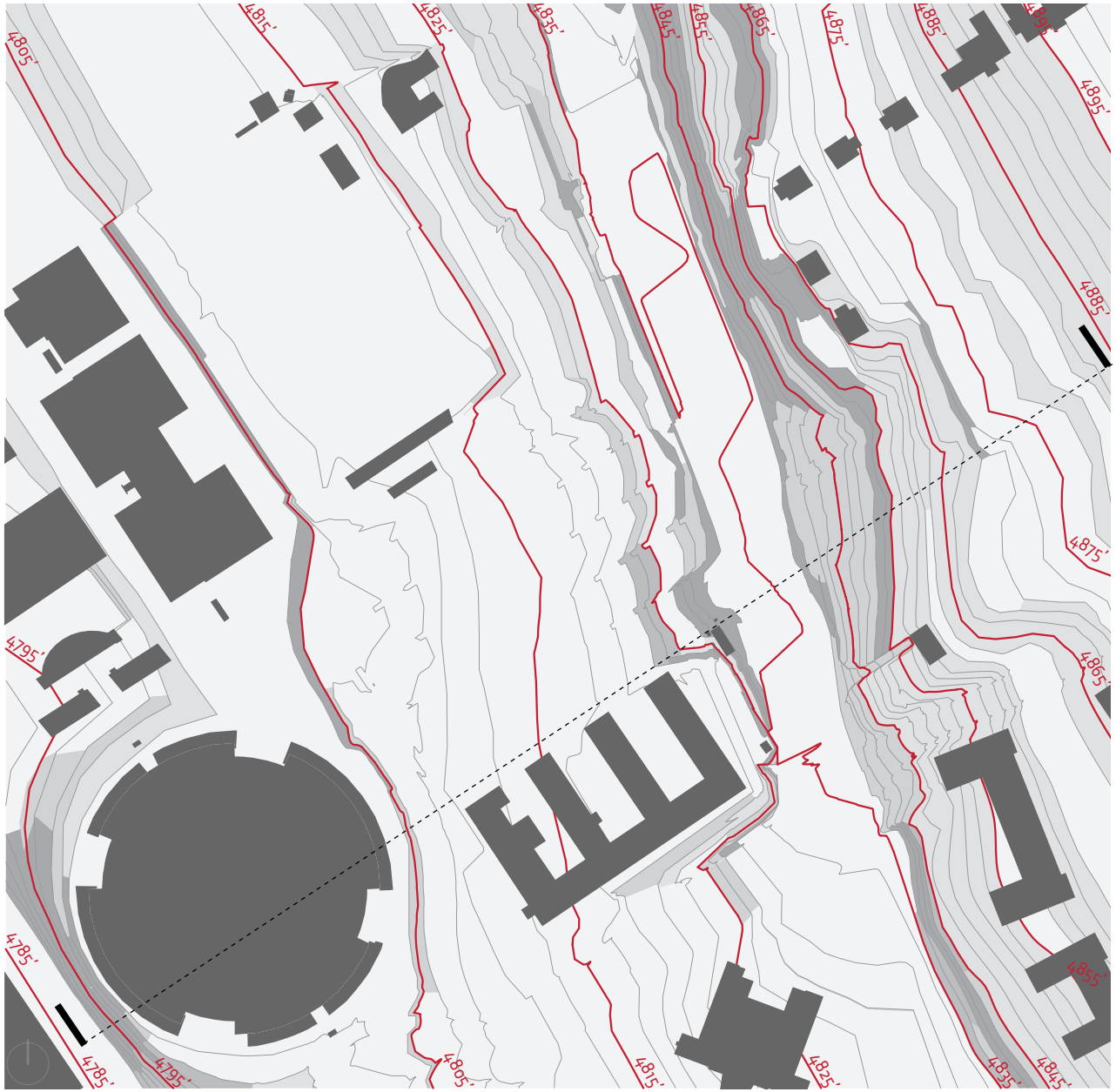


Section Thru the Site

topography

The site is located on a Wasatch Bench overlooking the Salt Lake Valley and the University of Utah Campus. It has spectacular views of the mountains to the north, across the face of the Wasatch front, down to the south, and beyond to the east to the Oquirrh Mountains. There is a dramatic grade change from the east down to the site, which reduces to a gentle slope across the site, and then becomes steeper again continuing west towards the heart of campus. The grade drops 200 feet to the site over a distance of 2,500 feet as it approaches from the eastern most edge of campus by the parking lots east of the Shoreline Ridge Apartments. Once past the western edge of the site, it drops at a shallower slope of five-percent, at another 200 feet over a distance of 3,800 feet to the western edge of campus by University Street. This change in elevation presents many challenges and opportunities from building and planning to circulation.

The elevation change on the site also varies significantly at different points but on a smaller scale. The entire South Campus Housing site has a 30-foot drop from the east side to the west side over an average distance of close to 600 feet, and, across the Phase One site alone, the grade drops 20 feet. The steepest part occurs along the east edge landscaped retaining wall by TRAX. Careful site planning is necessary to navigate around this height difference and accessible design should be studied at four levels: TRAX, Legacy Bridge staircase landing, new building ground floor, and Parking Lot 22.



1" = 240'

0 120' 240' 480'

Site Topography

- >20%
- 16%-20%
- 11%-15%
- 6%-10%
- ≤5%

landscape and vegetation

One of the main reasons people visit Utah is because its landscape is so unique and varied. The campus landscape is no exception. The University has developed a vision of balancing landscape with architecture; one that has open green spaces, trees and walkways meandering across the campus and between buildings on sloping grounds and terraces. The University has over 9,000 trees covering 1,500 acres that the Utah State Legislature designated as part of the State Arboretum of Utah in 1961. The 2008 Campus Master Plan designates the Fort Douglas/Heritage Commons area to the east of the site as a historic and significant landscape that should be preserved. To the west, by the Huntsman Center, are also some large, mature trees that the site's development should be sensitive to and take into consideration.

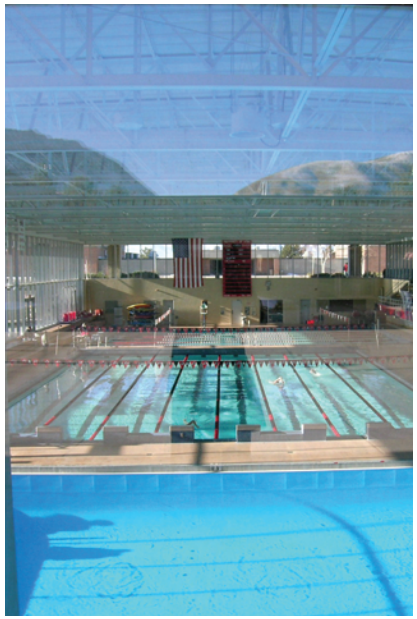
There are some great existing, outdoor green spaces close to the site where students like to gather and have activities, one of which is the large, grassy parade ground at Officers Circle. There is a heavily used multi-purpose field north of the site, where the women's soccer team plays and other outdoor events are held, but it is not openly available for general student use. A lot of investment has been put into this adjacent field and therefore, the Project Committee requests that the designer not encroach onto it, but may incorporate it from a distance, such as part of views from the building. In general, the Project Committee prefers outdoor green spaces that support activities such as barbecues, frisbee and volleyball, among others. The Committee prefers new green spaces that are open and flexible as multi-surface recreational areas. Due to the proposed density of South Campus Housing, the types of green spaces at the site will be smaller in scale and more urban, but will still promote student gathering and socialization.

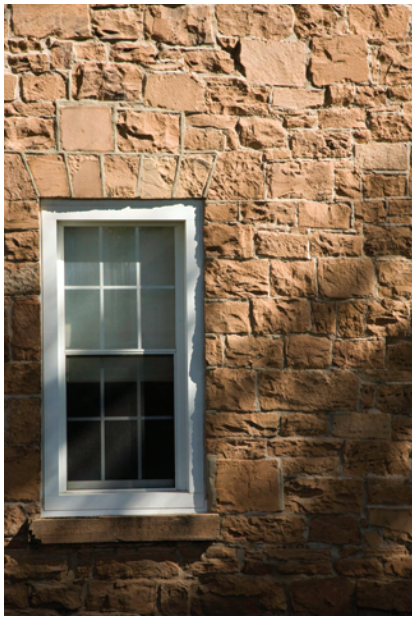
1" = 480'

0 240' 480' 960'

Existing Trees
Green Space

Landscape and Vegetation





edges, materials and finishes

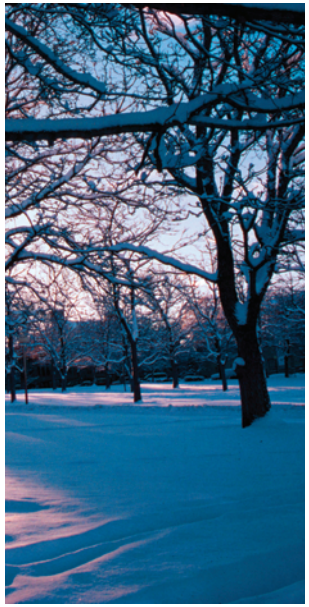
Due to the significant change in elevation on campus many edges are designed with retaining earth and walls, often using exposed architectural concrete terraces in the landscape, such as along the east edge of the site. Other edge treatments are accomplished with concrete stairs, which are scattered across the entire campus.

The materials used on campus are as varied as the landscape. While most buildings display varied concrete finishes and forms and red brick, there are several buildings and retaining walls covered with red sandstone, indigenous to the local landscape. This exterior finish is exemplified in the historic Fort Douglas area. The existing student resident halls are finished in clap board and exterior insulation finishing system (EIFS). Though these buildings use EIFS, the University of Utah's Design Standards clearly states:

> *"The application of EIFS systems is not allowed on Campus, nor will the University consider upgrades to traditional EIFS systems. Portland Cement Stucco may be considered if a recommendation for its use is submitted to the University early in the design of a building. The use of stucco on Campus buildings is generally discouraged..."* (Section 2.2.5).

Other materials and finishes found on campus in lesser quantities are those such as metal and glass, though these are gaining in popularity in new campus construction for various reasons, including that they provide additional visibility, transparency and connection between buildings.

Edges, Materials and Finishes Around Campus



Seasons

climate

OVERVIEW

There is a saying in Utah: "If you don't like the weather, wait five minutes." The weather is as varied as the landscape. There are mountains in this region that receive 500 inches of snow every winter. Summer time brings temperatures in the 100's. Spring and fall are usually pleasant, but can be rainy one day, snowy another, and sunny the next.

While not as vulnerable to the extremes that the Utah climate has to offer, the site does have its own unique weather, with its own set of advantages and challenges. In the summer the average highs reach into the low 90's and the average lows into the low 60's, with an average rainfall of 0 inches. Winter time brings lows in the 20's and highs in the upper 30's, and while the valley averages 10 to 13 inches of rainfall per month, the Wasatch Bench usually receives double those amounts.

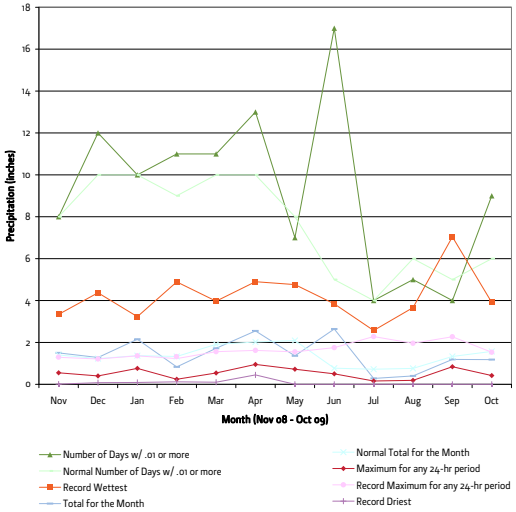
SUN

Sunrises and especially sunsets, in Utah, are truly beautiful things to behold. Utah's mountains tend to skew sunrise and sunset times that areas without mountains don't experience. In fact, Utah's sunrise is 4 minutes later than that of the official winter solstice.

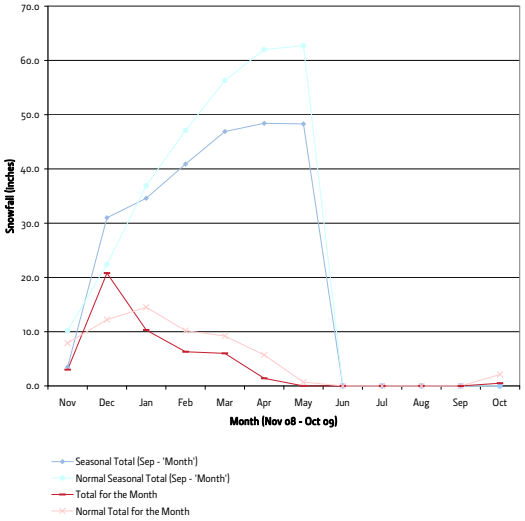
The proposed site is unique to this data as well because it sits on the east bench of the Wasatch mountains and so the actual exposure to direct sunlight in the morning is delayed and the sun's effects are prolonged in the evening as compared to the valley below.

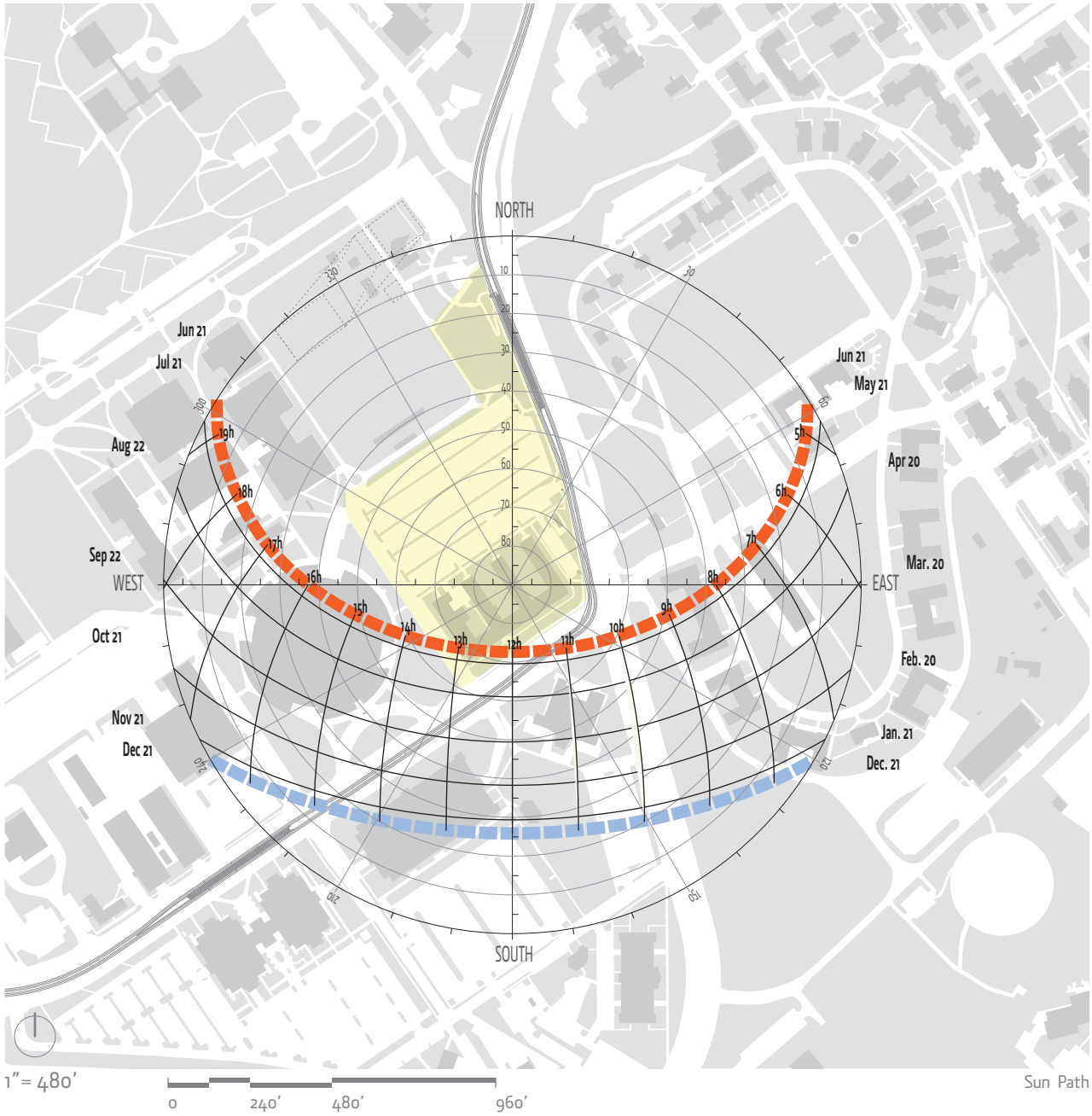
The period between the first week in December and the first week in January can be called the 'dark days' for the mid-northern latitudes. At latitude 40 degrees north (Salt Lake City

Campus in the Fall



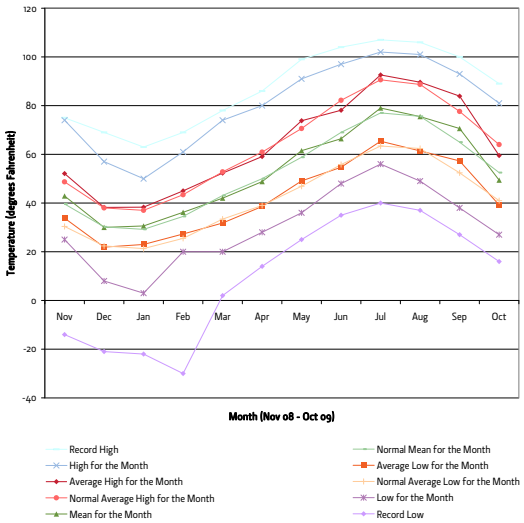
Campus in the Winter

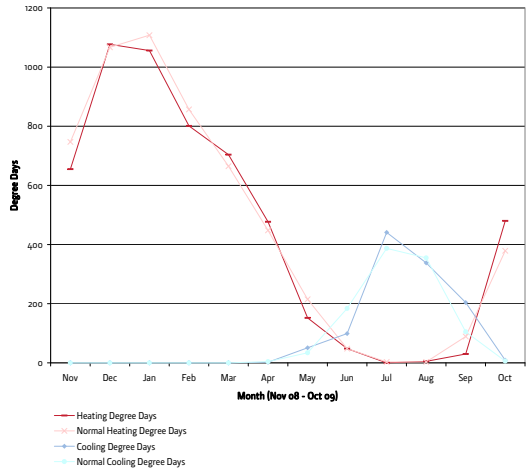


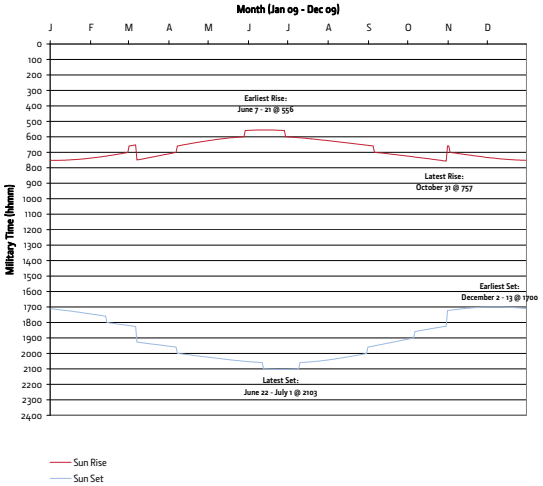


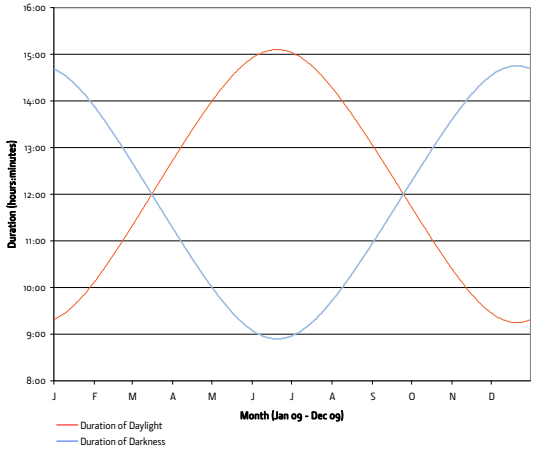
Summer
Winter

Sun Path









Sun path data obtained from the University of Oregon's Solar Radiation Monitoring Laboratory.

Sun rise and set and daylight data obtained from the U.S. Naval Observatory's Astronomical Applications Department.

All other climate data obtained from the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service.

The geographic coordinates for the site are approximately:

Latitude: 40.76N
Longitude: 111.84W

Wind data obtained in 2007 from the University of Utah Weather Station (WBB) in Salt Lake City, located on top of the William Browning Building at an elevation of 4,806 ft above mean sea level.

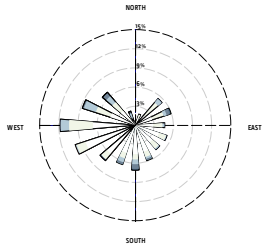
is at latitude 40.8 degrees north), latest sunrise occurs around January 5th and earliest sunset occurs around December 8th. Salt Lake City's longest day is typically June 21st, with daylight lasting slightly more than 15 hours, while its shortest day occurs six months later on December 21st.

WIND

On an annual basis at the University of Utah, although winds are distributed around most of the wind compass, northerly winds are virtually non-existent.

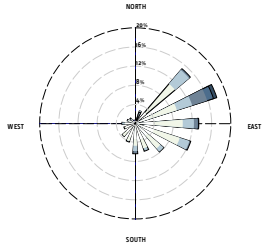
During the winter months westerly winds are most significant. The summer and early fall months bring moderate to strong east to northeast winds. Also unique to the campus in general are the diurnal winds generated by the constant exchange of valley and mountain winds, which is a blessing in the summer but a curse in the winter.

NOV 1 THRU MAR 31



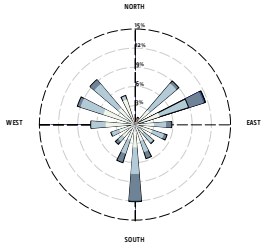
Calms: 5.13%

MAY THRU SEP (midnight-8am)



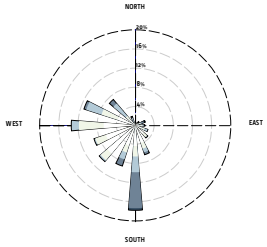
Calms: 0.87%

MAY THRU SEP (4pm-midnight)



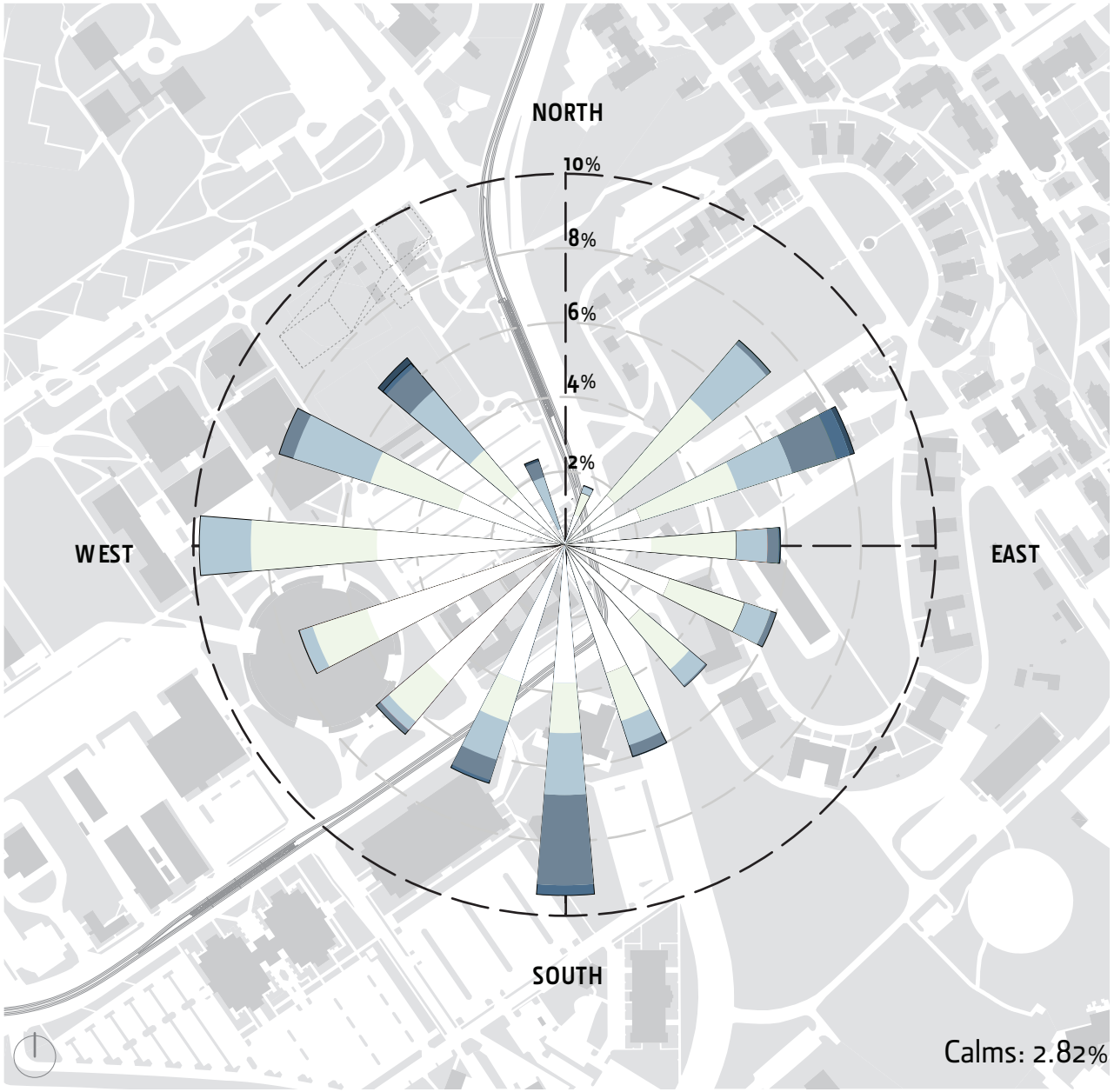
Calms: 0.25%

MAY THRU SEP (8am-4pm)



Calms: 1.82%

Wind Rose at Different Times of the Year



>= 22	Knots
17-21	Knots
11-17	Knots
7-11	Knots
4-7	Knots
1-4	Knots

1" = 480'

0 240' 480' 960'

Annual Wind Rose

site development issues

East Entrance into the Site

TRAX Line at East Entrance into the Site

parking, access and circulation

The long-term goal for parking on the site is to serve housing, meaning that when all phases are completed, the parking on the site will serve only housing residents. The short-term goal is to retain existing surface parking as long as possible because Parking Lot 22 currently serves a number of departments on a daily basis throughout the year. The site development must not only address parking for the student residents and administrative staff who will live here, but also take into consideration that a majority of the parking lot is currently being used by the Athletics Department, event patrons, University administrators, faculty and staff, and general student body.

The Athletics Department relies heavily upon parking, particularly at this location because it is right next to the Huntsman Center and the HPER Complex. Athletics utilizes the lot during events, training, recruiting and on a daily basis. Normally, exiting from the site works well but not after an event. At times like these, maintaining control of exiting is critical. The site will be affected by this because, throughout the whole process as the site is being developed, the remaining surface parking spaces will continue to be used by the Athletics Department.

There are two existing access points into and out of the site, one each off of Mario Capecchi and South Campus Drives. The problem is that only right turns are permitted out of these two points so you are only allowed to exit going either south or west. Traffic control at these two junctions during events is necessary to ease the inevitable congestion.

Maintaining both access points is crucial, not only for events but also for emergency egress. There is a potential safety issue exiting off to Mario Capecchi Drive because some vehicles pull

South Entrance into the Site

Parking Lot 22

up all the way to the street in order to see the oncoming traffic. Because the TRAX line is right next to the site, the vehicles are sitting on the TRAX line. If an accident were to occur at this intersection, this access point is closed. Having the second access point available for vehicles to exit is beneficial in this regard.

The Program Team has discussed that when the site is taken entirely over by housing, possible options for the existing Lot 22 users to park is in the University-leased LDS Institute parking garage across the street from the site or in the 2008 Campus Master Plan's proposed parking structure west of the Huntsman Center, yet to be developed. It is important, though, that the University develop and execute new parking guidelines and policies as it affects the planning of the site and the entire campus.

site density and phasing

Phasing is another critical element in this project. Analyzing how the land will be used in terms of phasing and density will greatly impact the look and function of all new housing. Furthermore, the concurrent market analysis being done will provide some helpful and needed insight into the feasibility of the 2008 Campus Master Plan's proposed 1,800 total number of beds on the site. More information on the overall site density and phases will be covered in the South Campus Housing Master Plan companion document.

The staging and phasing of construction within Phase One will also need to be considered because they will affect Lot 22 and the nearby facilities. Because there are so many users of the lot at different times of the year, minimizing the negative effects it has on them is important.

or 2211-1 Writing in Honors Global Health Scholars Tamara Ellen Taylor Sally Rector Emett Patrice Co
Ken Garner Shane Williams Doug Pike Honor 4474-3 Hip Hop & Social Justice Education Alexia Li Adair Honor 3371-1 Constitutional Trial Rights of the Accused Tre
Chamonix Larsen Honors 3500 Honors Internship George Buys Renee Winch Brian Kubarycz Honor 2701-1 Honors Cornerstone Part II Honors 2102 Medieval Christianity and Renais
ents will have increased contact with faculty mentors; student interaction and interdependence and integration with the great university community. Community Leadership Scholars Aramis Watson Gr
Martha Bradley Students participate in groups of 20 or fewer. Emphasis will be placed on engaged or active learning. Students in Scholars cohorts will participate during three years at the university
Honor 3225-1 Technologies of the Body Encourage social responsibility through meaningful community based research, service and interaction. Each cohort will be lead by a faculty mentor who will guide the
Each will include its own academic focus and will explore a variety of related topics. Honor 3372-1 Drug Theory Policy & Practice Stephen Trimble Honors core in Physical and Life Science Paul Laurence
Social Justice Scholars Honor 4701-1 Asian Economic History and Development Bill Gordon Suzanne Chang Liu Rick James Fiske Crowell Honors 4800 What M
2212-1 American Institutions Carolan Ownby Corper James Passion Jasmin Garcia Lynn Hinrichs Linda Anderson Alma Allred The Barbara Lindsay Honors Essay Award Meghen Quinn Honors College Sch
The experiences, ideas and perspectives of the other cohort members will enhance the students' learning. Honors 4472 Seminar/Workshop in Humanities
Honors 3214 African American History Honors 3214 African American Experiences C. Charles Hetzel III Scholarship Francesco Mozzati Promote academic excellence foster integrity and devel
Leo Florence Honor 3060-1 Black, White, and Gray: Construction of Race in South Africa and Australia Honors 3374 Preparation for Legal Study Honor 3377-1 International Consumer Policy Honor
Matthew Bradley Michael Gills Honors 2101 The World of Antiquity Each cohort will offer at least one exclusive course or cohort experience each year. Mary Norma Watkins Mart
Create an environment that enhances student development as life-long leaders, citizens and scholars. Cohort experiences will be both in and outside the classroom. Alberta Henry Education Foundation Scholars
Kenneth Browning Handley Scholarship Kris Larsen The Sweet Candy Scholarship Steve Connor Enhance the students' intellectual and personal development through s
Honors Core in Humanities Honors 2101, 2102,2103 Honors core in Intellectual Traditions, Part I, Part II, Part III Terrell Bodily Alan Smith Tayler Jae Wiles Tom Jakab Kelly Calder
ore in Social Science Honors 3377 Honors core in Social Science Honors 3214 Foundations in Social Science Honors 3354 Civic Engagement Seminar Honor4473-1 Magic, Metaphor & Mor
Honors 3100 Diversity Seminar Honors 3200 Writing in a Research University General Honors Courses Honor 3005-1 International Leadership Academy

3 program

Space Needs Summary 3 - 54
Program Adjacencies 3 - 58
Unit Typologies 3 - 60
FF&E 3 - 64
Individual Space Outlines 3 - 66

space needs summary

The Honors Housing at Legacy Bridge program has been categorized to reflect the diversity of uses, identify revenue-generating spaces, as well as to highlight the potential for architectural distinction and organization. The Space Needs Summary reflects the assignable square footage requirements (ASF) developed during the programming and planning workshop process.

Of the total project's 104,045 ASF, over 90% is considered revenue-generating - the Residential Living Units, Laundry and Café/Convenience Store. The Honors College (2.6% of the ASF) is assigned to academic use. The balance of the program (7%) is attributed to Residential Administration, Community, and Support services.

The total project efficiency has been projected to a gross square footage (GSF) utilizing a factor of 70%, resulting in 148,784 GSF. This projection has been confirmed with the conceptual design layout of the preferred alternative.

Vehicular parking is desired at a ratio of one space for every two revenue-generating beds, resulting in 155 spaces. Due to the high density planned for the South Campus Housing site, vehicular parking is expected to be provided via structured solutions – in podium levels or stand-alone garages. The preferred parking option for Phase One is a one-level podium parking structure under the housing. Due to budget considerations, the desired 155 spaces was not achieved, rather, approximately 85 spaces. The GSF for accommodating parking has not been accounted for in the project total, but has been included in the preferred alternative and cost estimate associated with this study.

		No.	Size (ASF)	Total ASF	Beds	Percent of Total ASF	Comments
Residential Living Units							
APT-4	4S Student Apartment	39	1,120	43,680	156		
APT-RA	RA Suite/2S Apartment	4	1,120	4,480	12		
APT-2S1D	2S/1D Student Apartment	12	1,100	13,200	48		
APT-8	4S/2D Student Apartment	10	2,140	21,400	80		
APT-RAS	RA Suite/2S/2D Apartment	2	2,140	4,280	14		
APT-REC	REC Apartment	1	1,100	1,100	2		
APT-REC	Faculty-in-Residence Apartment	1	1,100	1,100	2		
	Subtotal	**69**		**89,240**	**314**	85.8%	
Residential Administration							
FD-1	Front Desk	1	200	200			
FD-2	Front Desk Support	1	200	200			
PO-1	Front Desk Staff Office	1	150	150			
PO-1	Res. Ed. Offices	2	150	300			REC/AREC
WR-1	Student Workroom	1	325	325			Office/Breakroom/Resource...all shared
MR-1	Mail / Receiving	1	325	325			
	Subtotal			**1,500**		1.4%	
Laundry							
L-1	Laundry Room	1	1,200	1,200			Consolidated
	Subtotal			**1,200**		1.2%	
Community							
EL-1	Entry Lobby / Main Lounge	1	750	750			1 per Building
MP-1	Multi-Purpose	1	500	500			
SL-1	Study Lounge	6	250	1,500			1 per 50 Students
M-1	Music Room	1	150	150			
	Subtotal			**2,900**		2.8%	
Café / C-Store							
CF-1	Dining	1		1,000			Includes Beverage Counter

CF-2	C-Store	1		850		Includes Beverage Counter
CF-3	Grill / Server Counter	1		500		
CF-4	Cold Preparation	1		350		Includes Ware Washing
CF-5	Walk-in / Reach-in Refrigerator	1		400		
CF-6	Dry Storage	1		250		
CF-7	Cashier + Storage	1		150		Storage is Secure
PO-3	Office	1		120		
ST-1	Janitor Closet	1		45		
	Subtotal			**3,665**	3.5%	
Honors College						
IC-1	Innovation Center	1	500	500		20 Stations @ 25 SF each
SM-1	Seminar Room	2	500	1000		50 Stations @ 20 SF each, Dividable
PO-2	Faculty Offices	5	150	750		
ST-2	Storage	1	100	100		
LB-1	Library / Media Room	1	350	350		
	Subtotal			**2,700**	2.6%	
Support & Maintenance						
ST-3	Bike / Gear Storage	1	600	600		
TR-1	Trash / Recycling	6	120	720		
ST-4	Maintenance Storage	1	250	250		
WR-2	Custodial Break Room / Office	1	350	350		
ST-5	Custodial Storage	1	200	200		
ST-6	Custodial Closets	6	120	720		
	Subtotal			**2,840**	2.7%	
	Total ASF			**104,045**		
	Total GSF at 70% Efficiency			**148,784**		
One-Level Podium Parking	**(Approx. 85 stalls, at 380GSF per stall)**			**32,300**		

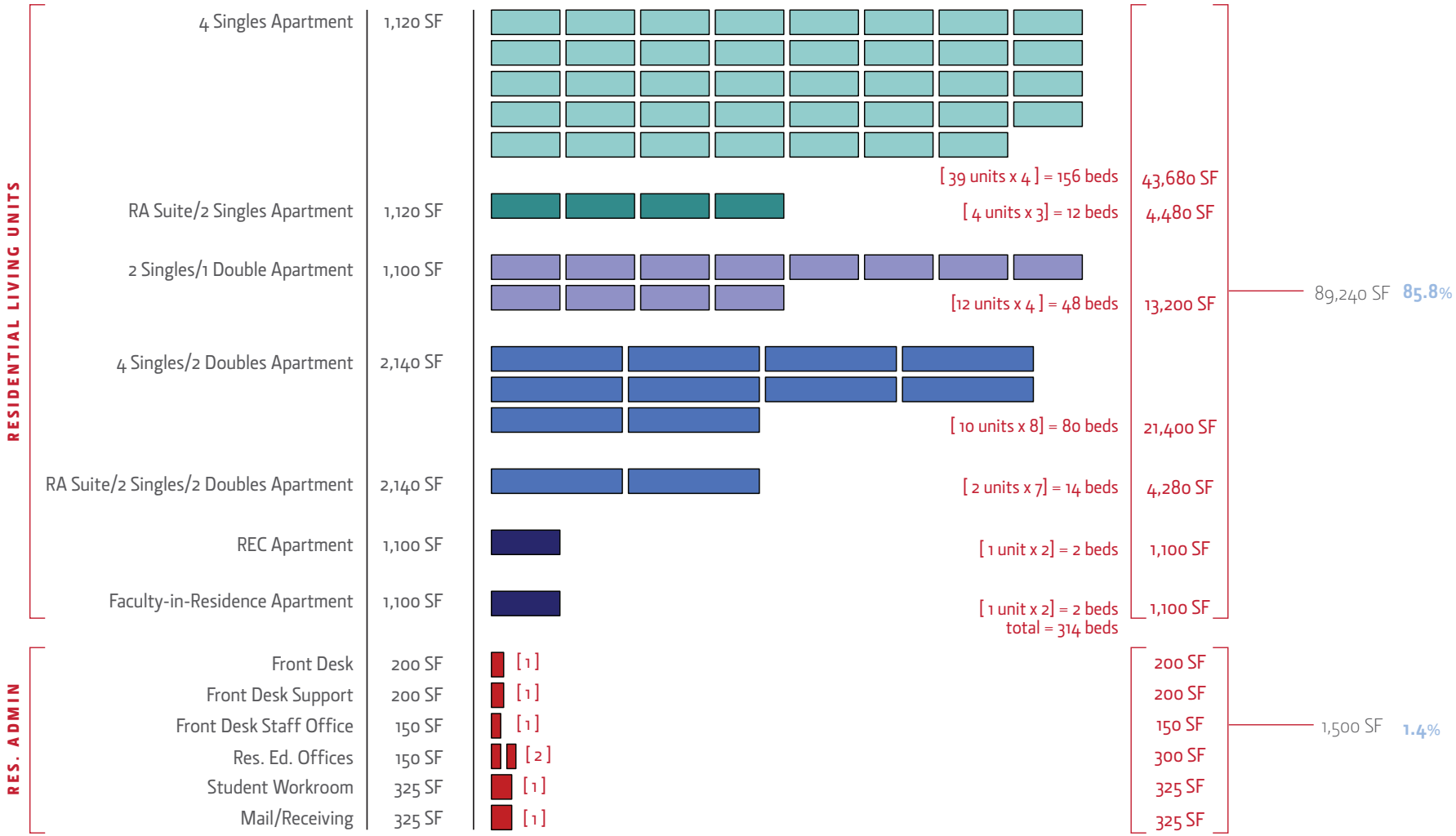
**Note:*

"Assignable Area" (asf) is the sum of the areas in all rooms that can be used by the building occupants to conduct their responsibilities. They are those spaces which pertain specifically to this project and housing in general.

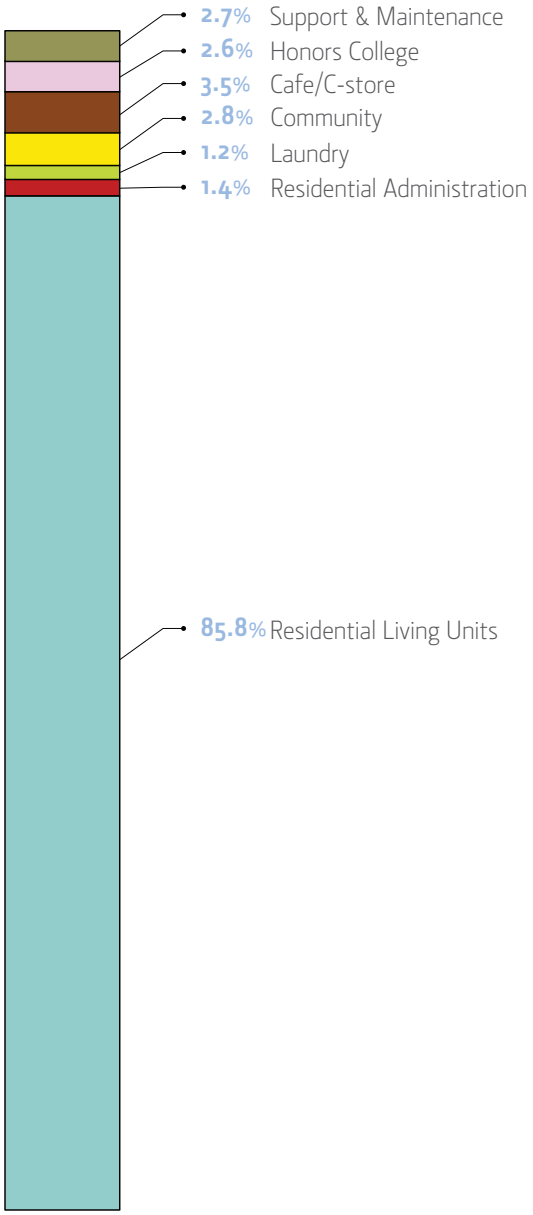
"Non-assignable Area" is the sum of the circulation, custodial, mechanical and structural areas or the difference between gross and assignable area. It includes atria, corridors, stairwells, elevators, electrical and mechanical equipment, custodial storage, restrooms, and similar uses.

"Gross Area" (gsf) is the sum of all floor areas of a building based on exterior dimensions.

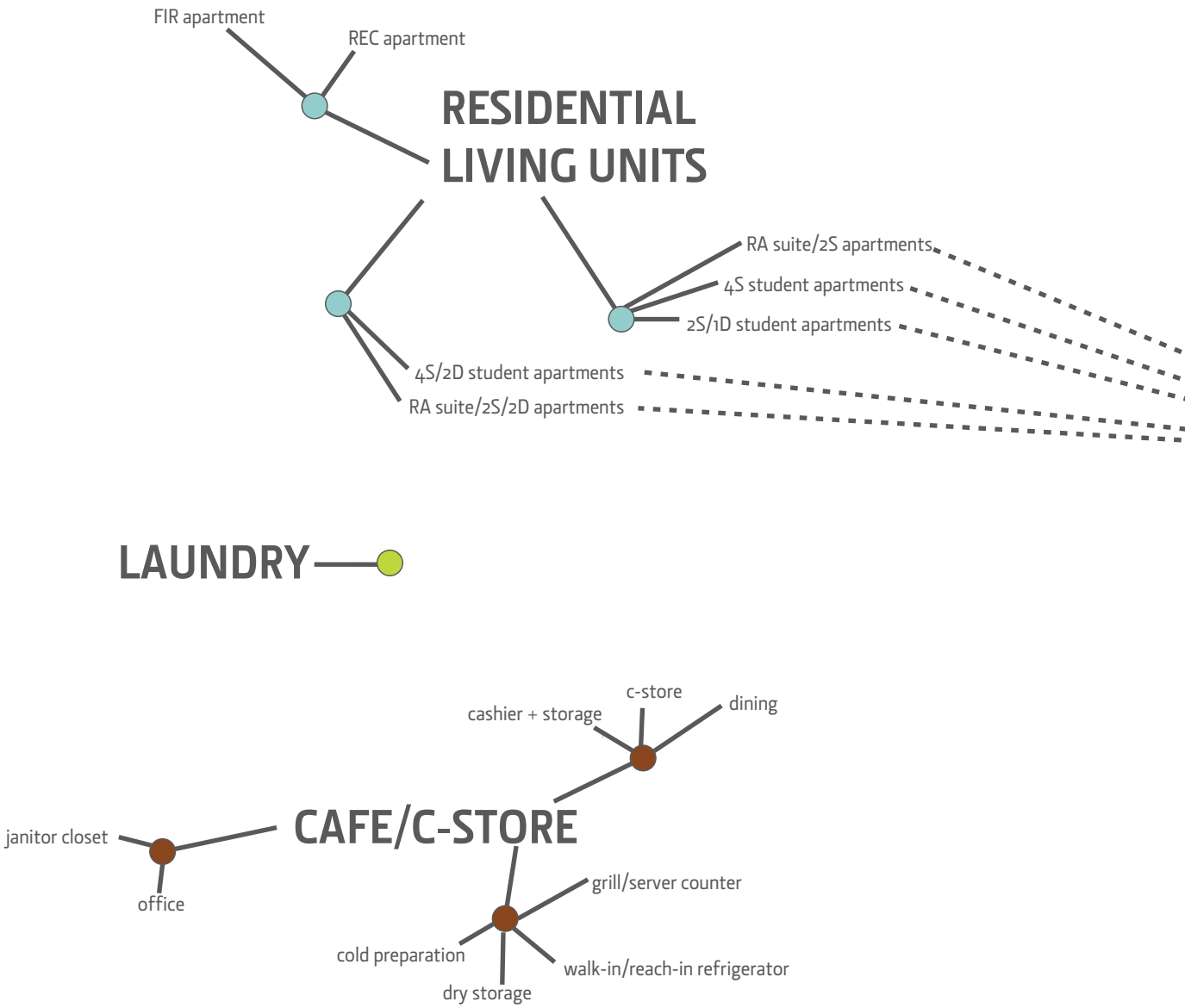
- Utah System of Higher Education

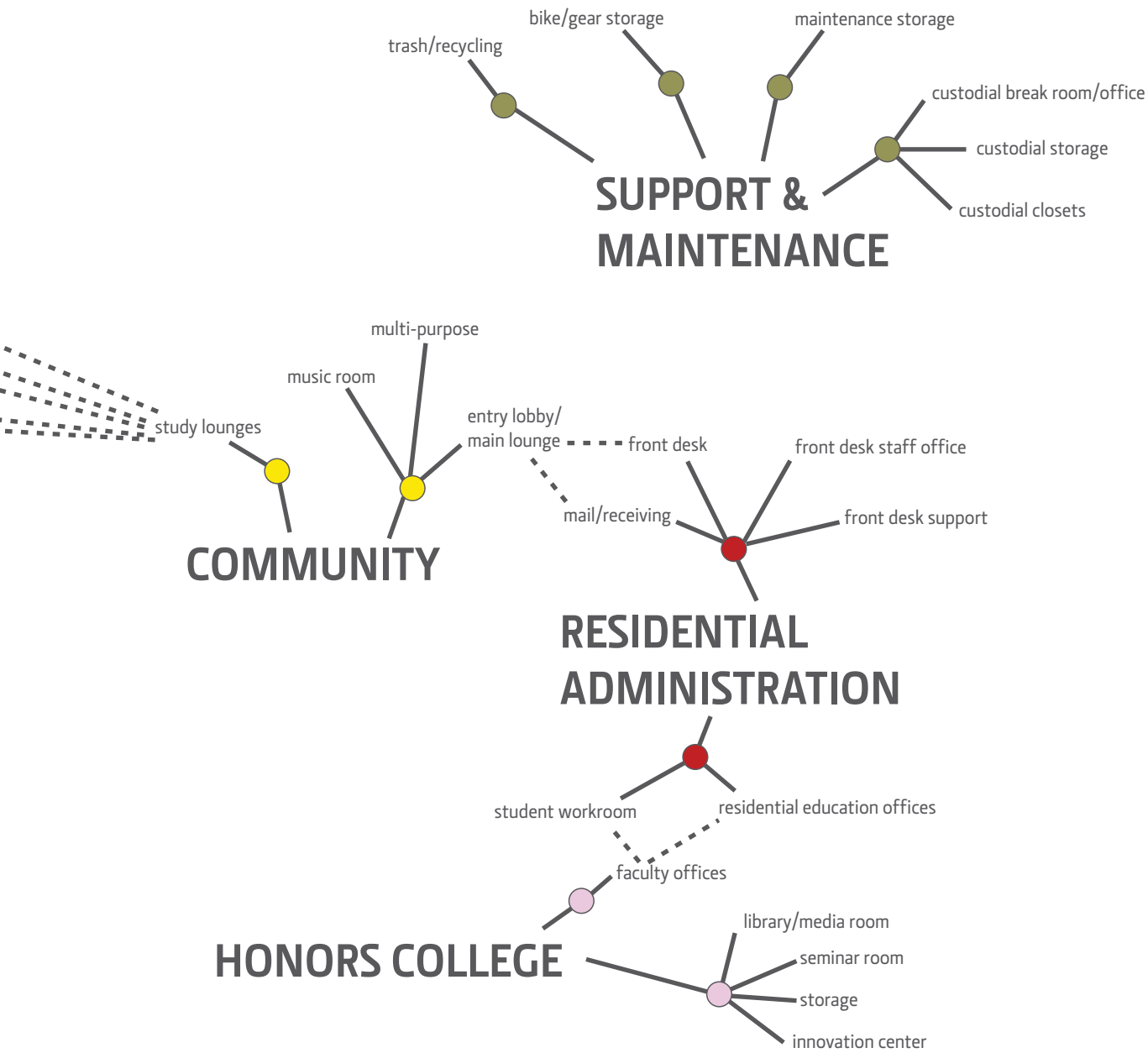

RESIDENTIAL LIVING UNITS
4 Singles Apartment
1,120 SF
[39 units x 4] = 156 beds
43,680 SF
RA Suite/2 Singles Apartment
1,120 SF
[4 units x 3] = 12 beds
4,480 SF
2 Singles/1 Double Apartment
1,100 SF
[12 units x 4] = 48 beds
13,200 SF
4 Singles/2 Doubles Apartment
2,140 SF
[10 units x 8] = 80 beds
21,400 SF
RA Suite/2 Singles/2 Doubles Apartment
2,140 SF
[2 units x 7] = 14 beds
4,280 SF
REC Apartment
1,100 SF
[1 unit x 2] = 2 beds
1,100 SF
Faculty-in-Residence Apartment
1,100 SF
[1 unit x 2] = 2 beds
total = 314 beds
1,100 SF
89,240 SF 85.8%
RES. ADMIN
Front Desk
200 SF
[1]
200 SF
Front Desk Support
200 SF
[1]
200 SF
Front Desk Staff Office
150 SF
[1]
150 SF
Res. Ed. Offices
150 SF
[2]
300 SF
Student Workroom
325 SF
[1]
325 SF
Mail/Receiving
325 SF
[1]
325 SF
1,500 SF 1.4%

LAUDNRY	Laundry Room	1,200 SF	[1]	1,200 SF	1,200 SF 1.2%
COMMUNITY	Entry Lobby/Main Lounge	750 SF	[1]	750 SF	2,900 SF 2.8%
	Multi-Purpose Room	500 SF	[1]	500 SF	
	Study Lounge	250 SF	[6]	1,500 SF	
	Music Room	150 SF	[1]	150 SF	
CAFE/C-STORE	Dining	1,000 SF	[1]	1,000 SF	3,665 SF 3.5%
	C-Store	850 SF	[1]	850 SF	
	Grill/Server Counter	500 SF	[1]	500 SF	
	Cold Preparation	350 SF	[1]	350 SF	
	Walk-in/Reach-in Refrigerator	400 SF	[1]	400 SF	
	Dry Storage	250 SF	[1]	250 SF	
	Cashier + Storage	150 SF	[1]	150 SF	
	Office	120 SF	[1]	120 SF	
	Janitor Closet	45 SF	[1]	45 SF	
HONORS	Innovation Center	500 SF	[1]	500 SF	2,700 SF 2.6%
	Seminar Room	500 SF	[2]	1,000 SF	
	Faculty Offices	150 SF	[5]	750 SF	
	Storage	100 SF	[1]	100 SF	
	Library/Media Room	350 SF	[1]	350 SF	
SUPPORT	Bike/Gear Storage	600 SF	[1]	50 SF	2,840 SF 2.7%
	Trash/Recycling	120 SF	[6]	50 SF	
	Maintenance Storage	250 SF	[1]	160 SF	
	Custodial Break Room/Office	350 SF	[1]	750 SF	
	Custodial Storage	200 SF	[1]	120 SF	
	Custodial Closets	120 SF	[6]	120 SF	



program adjacencies




trash/recycling
bike/gear storage
maintenance storage
custodial break room/office
custodial storage
custodial closets
SUPPORT & MAINTENANCE
multi-purpose
music room
study lounges
entry lobby/ main lounge
front desk
front desk staff office
mail/receiving
front desk support
COMMUNITY
RESIDENTIAL ADMINISTRATION
student workroom
residential education offices
faculty offices
library/media room
seminar room
storage
innovation center
HONORS COLLEGE

unit typologies

The basic modular unit is composed of four single bedrooms sharing two bathrooms, using a bedroom-to-bathroom ratio of 2 to 1. Because a module is used, there is flexibility in combining two single bedrooms into one double bedroom or turning one double bedroom into two single bedrooms, particularly in the four-bed apartment units. A two-story version of this module, housing eight students and featuring an internal stair and double-height living room, was developed specifically for Honors College Freshmen. The Resident Advisor (RA), Residential Education Coordinator (REC), and Faculty-in-Residence (FIR) apartments are all derived from the basic four-bedroom / two-bath module, thus allowing for flexibility in stacking and locating of different types of units within the building.

typical units

4 PERSON STUDENT APARTMENT

4 Singles

4 PERSON STUDENT APARTMENT

2 Singles, 1 Double

RA SUITE AND 2 PERSON STUDENT APARTMENT

RA Unit, 2 Singles

duplex units

8 PERSON STUDENT APARTMENT & RA SUITE AND 6 STUDENT APARTMENT

8 PERSON STUDENT APARTMENT

4 Singles, 2 Doubles

RA SUITE AND 6 STUDENT APARTMENT

RA Unit, 2 Singles, 2 Doubles

REC / FIR unit

RESIDENTIAL EDUCATION COORDINATOR / FACULTY-IN-RESIDENCE APARTMENT

2 Doubles

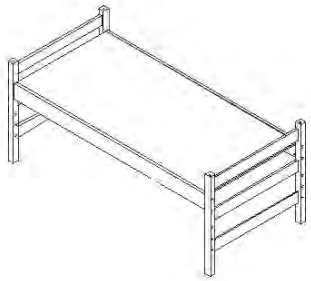
FF&E

furniture, fixtures & equipment

The existing bedroom furniture that the University currently uses, which are shown on these pages, should be used in the proposed residential units. Flexibility in the bedroom and living room furniture arrangements is desired, with the exception of the wardrobe closets, which are to be built-in as part of the units.

FF&E is not part of the total construction cost in the contract sum. It consists of movable furniture, fixtures or other equipment that have no permanent connection to the structure of the building or utilities, such as desks, chairs, tables and beds. All other equipment, such as laundry washers and dryers, dishwashers, refrigerators and C-store/Café equipment, are to be included as part of the contract.

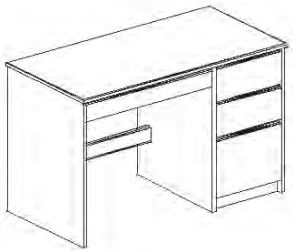
QUICK LOCK BED FRAME
40 x 86 x 36



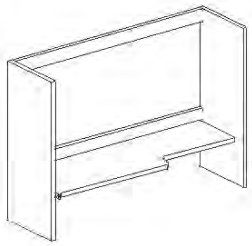
DESK CHAIR
20 x 23 x 33

3 DRAWER CHEST
30 x 24 x 30

PEDESTAL DESK
48 x 24 x 30

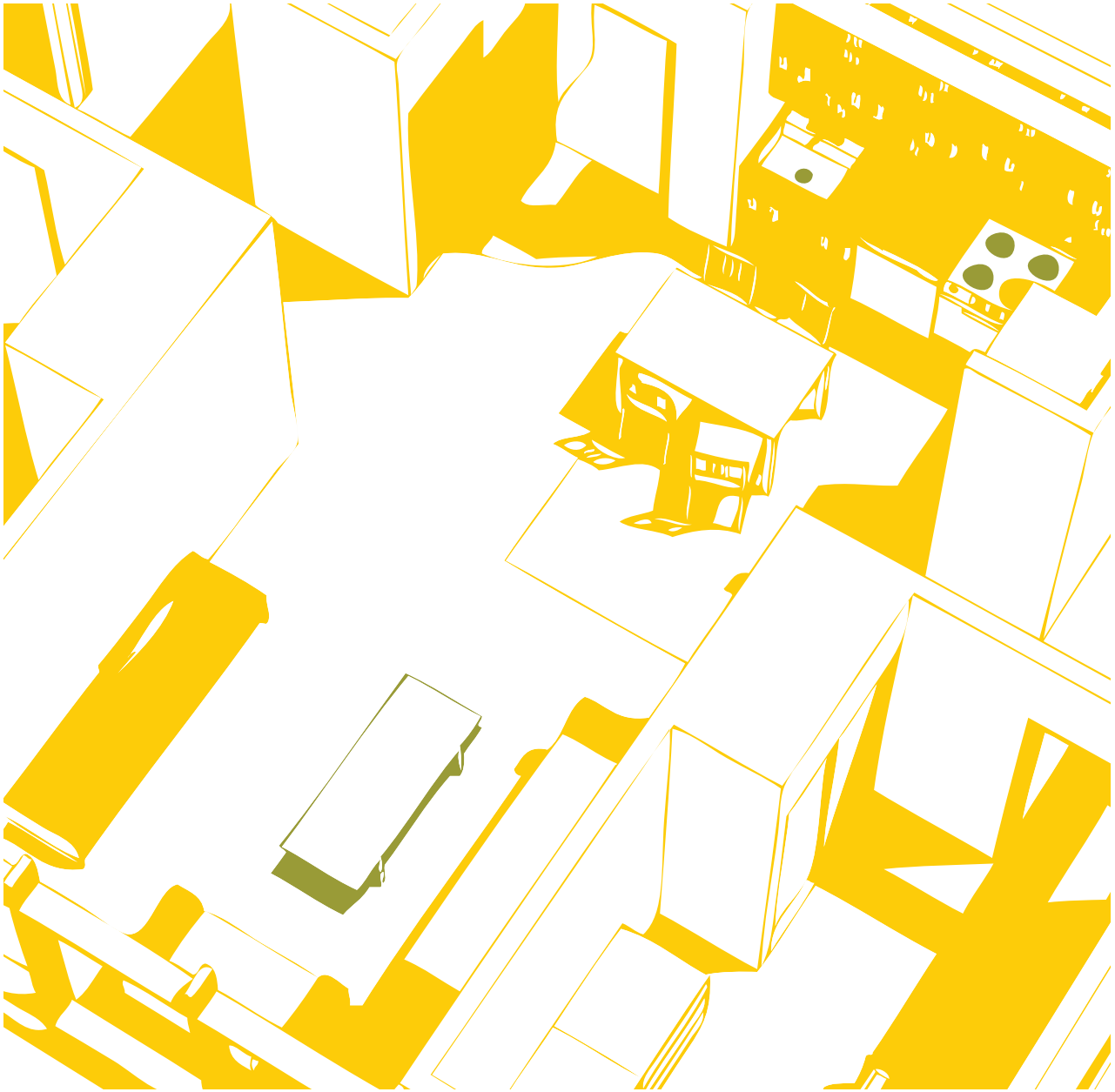


ONE SHELF STUDY CARREL
47 x 10 x 14



Existing Bedroom Furniture Layout

individual space outlines



residential living units

The Residential Living Units offer a mix of unit types designed to appeal to incoming Honors College freshmen (the eight-bed apartments) and continuing and transfer students (the four-bed apartments), as well as Resident Advisor (RA), Residential Education Coordinator (REC) and Faculty-in-Residence (FIR) apartments to support the community.

Of the 314 total beds, 310 are considered revenue-generating. Due to the apartment-style configuration of the units, this community is not expected to be dependent on the University's meal plan. RA's are programmed at a ratio of 1:50 and are intended to be associated with every floor, which in turn modulates the building wing sizes. REC's and FIR's should be segregated from the larger student community, if possible.

APT-4

4 PERSON STUDENT APARTMENT
4 SINGLES

DESCRIPTION	Student Residences
TOTAL ASF	1,120
NO. OF OCCUPANTS	4
ADJACENCIES	Off of main corridors
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"; 7'-8" at bathroom and hallway
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB/Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms and living room; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

BUILT-IN	Closets with sliding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner
OTHER	36" refrigerator, microwave with range hood filter, oven range, dishwasher (all Energy Star rated)

ENGINEERING SYSTEMS

ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	2 floor-mounted dual flush toilets, flow control aerator at 2 under-counter lavatories, 2 showers (1.8 gallons per minute flowrate), single compartment kitchen sink with garbage disposal, dishwasher hook up
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector/ fire alarm mini-horn at sleeping area

TECHNOLOGY

VOICE/DATA	1 data per bed; wireless throughout
MEDIA	1 cable TV at living room and each bedroom

48'-0"
9'-0"
9'-0"
12'-0"
9'-0"
9'-0"
4'-9"
13'-0"
24'-9"
7'-0"
Bedroom
Bedroom
Living Room
Bedroom
Bedroom
Bathroom
Vanity
Kitchen
Storage
Vanity
Bathroom
0
2'
4'
8'

APT-RA

RA SUITE
2 PERSON STUDENT APARTMENT

DESCRIPTION	Student Residences, RA Unit
TOTAL ASF	1,120
NO. OF OCCUPANTS	3
ADJACENCIES	Off of main corridors
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"; 7'-8" at bathroom and hallway
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB/Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms and living room; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

BUILT-IN	Closets with sliding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner
OTHER	36" refrigerator, microwave with range hood filter, oven range, dishwasher(all Energy Star rated)

ENGINEERING SYSTEMS

ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	2 floor-mounted dual flush toilets, flow control aerator at 2 under-counter lavatories, 2 showers (1.8 gallons per minute flowrate), single compartment kitchen sink with garbage disposal, dishwasher hook up
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector fire alarm mini-horn at sleeping area

TECHNOLOGY

VOICE/DATA	1 data per bed; 1 phone at RA suite; wireless throughout
MEDIA	1 cable TV at living room, each bedroom and RA suite

48'-0"
9'-0"
9'-0"
12'-0"
9'-0"
9'-0"
4'-9"
13'-0"
7'-0"
24'-9"
Bedroom
Bedroom
Living Room
Living Room
Bedroom
Bathroom
Vanity
Kitchen
Bathroom
0
2'
4'
8'

APT-2S1D

4 PERSON STUDENT APARTMENT
2 SINGLES, 1 DOUBLE

DESCRIPTION	Student Residences
TOTAL ASF	1,100
NO. OF OCCUPANTS	4
ADJACENCIES	Off of main corridors
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"; 7'-8" at bathroom and hallway
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB / Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms and living room; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

BUILT-IN	Closets with sliding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner.
OTHER	36" Refrigerator, microwave with range hood filter, oven range, dishwasher (all Energy Star rated)

ENGINEERING SYSTEMS

ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	2 floor-mounted dual flush toilets, flow control aerator at 2 under-counter lavatories, 2 showers (1.8 gallons per minute flowrate), single compartment kitchen sink with garbage disposal, dishwasher hook up
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector fire alarm mini-horn at sleeping area

TECHNOLOGY

VOICE/DATA	1 data per bed; wireless throughout
MEDIA	Cable TV at living room and each bedroom

48'-0"
18'-0"
12'-0"
9'-0"
9'-0"
2'-6"
15'-3"
24'-9"
7'-0"
Bedroom
Living Room
Bedroom
Bedroom
Bathroom
Vanity
Kitchen
Storage
Vanity
Bathroom
0
2'
4'
8'

APT-8

8 PERSON STUDENT APARTMENT
4 SINGLES, 2 DOUBLES

DESCRIPTION	Student Residences
TOTAL ASF	2,140
NO. OF OCCUPANTS	8
ADJACENCIES	Off of main corridors
VIEWS	To outside
MIN. CEILING HEIGHT	Double height volume at living room; 7'-8" at bathroom and hallway; 9'-0" at all other areas
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB/Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms and living room; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

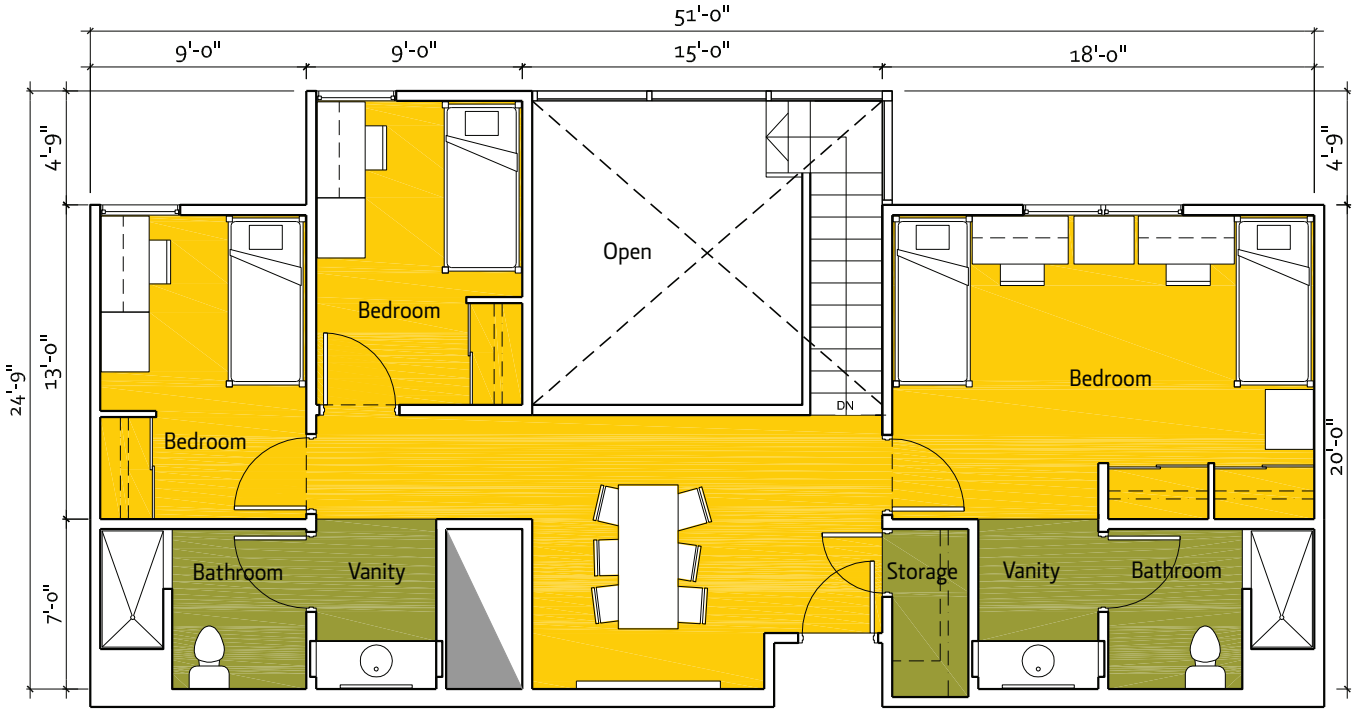
BUILT-IN	Closets with sliding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets, kitchen island
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner.
OTHER	(2) 36" Refrigerators, microwave with range hood filter, oven range, dishwasher (all Energy Star rated)

ENGINEERING SYSTEMS

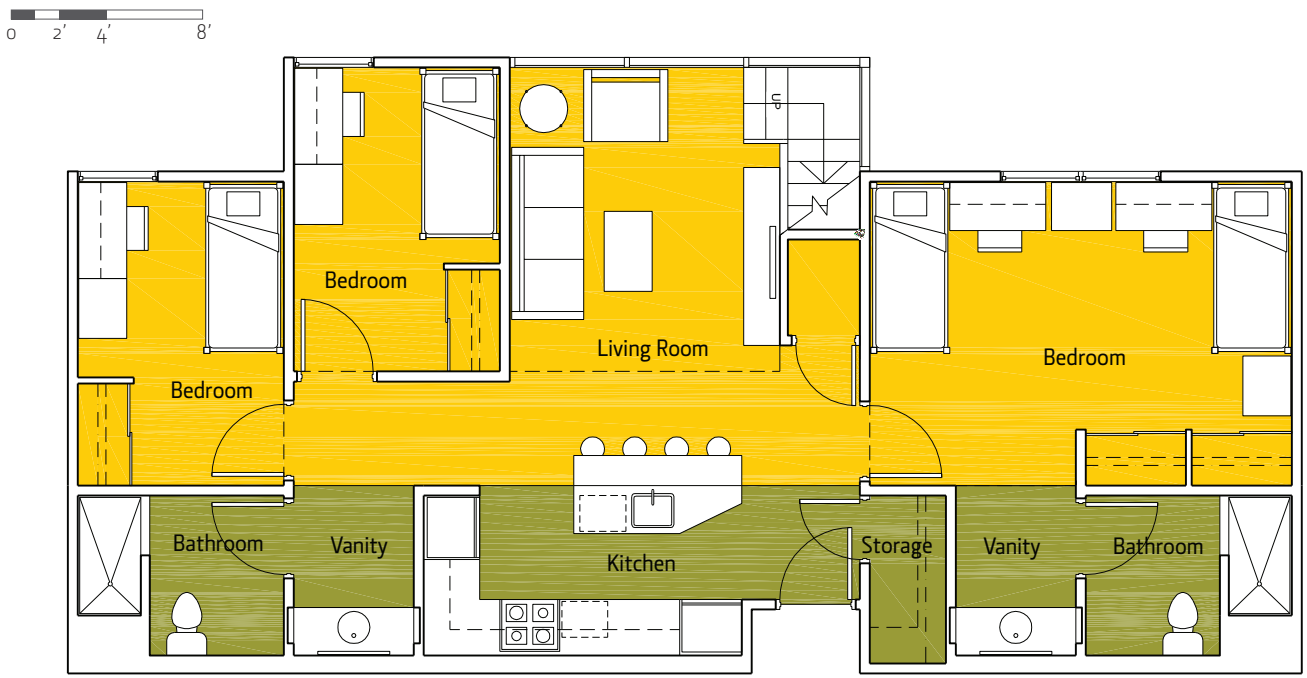
ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	4 floor-mounted dual flush toilets, flow control aerator at 4 under-counter lavatories, 4 showers (1.8 gallons per minute flowrate), single compartment kitchen sink with garbage disposal, dishwasher hook up
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector fire alarm mini-horn at sleeping area

TECHNOLOGY

VOICE/DATA	1 data per bed; wireless throughout
MEDIA	1 cable TV at living room and each bedroom



Upper Level



Lower Level

APT-RAS

RA SUITE
2 SINGLES, 2 DOUBLES

DESCRIPTION	Student Residences and RA unit
TOTAL ASF	2,140
NO. OF OCCUPANTS	7
ADJACENCIES	Off of main corridors
VIEWS	To outside
MIN. CEILING HEIGHT	Double height volume at living room; 7'-8" at bathroom and hallway; 9'-0" at all other areas
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB/Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms, living room, and stairs; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

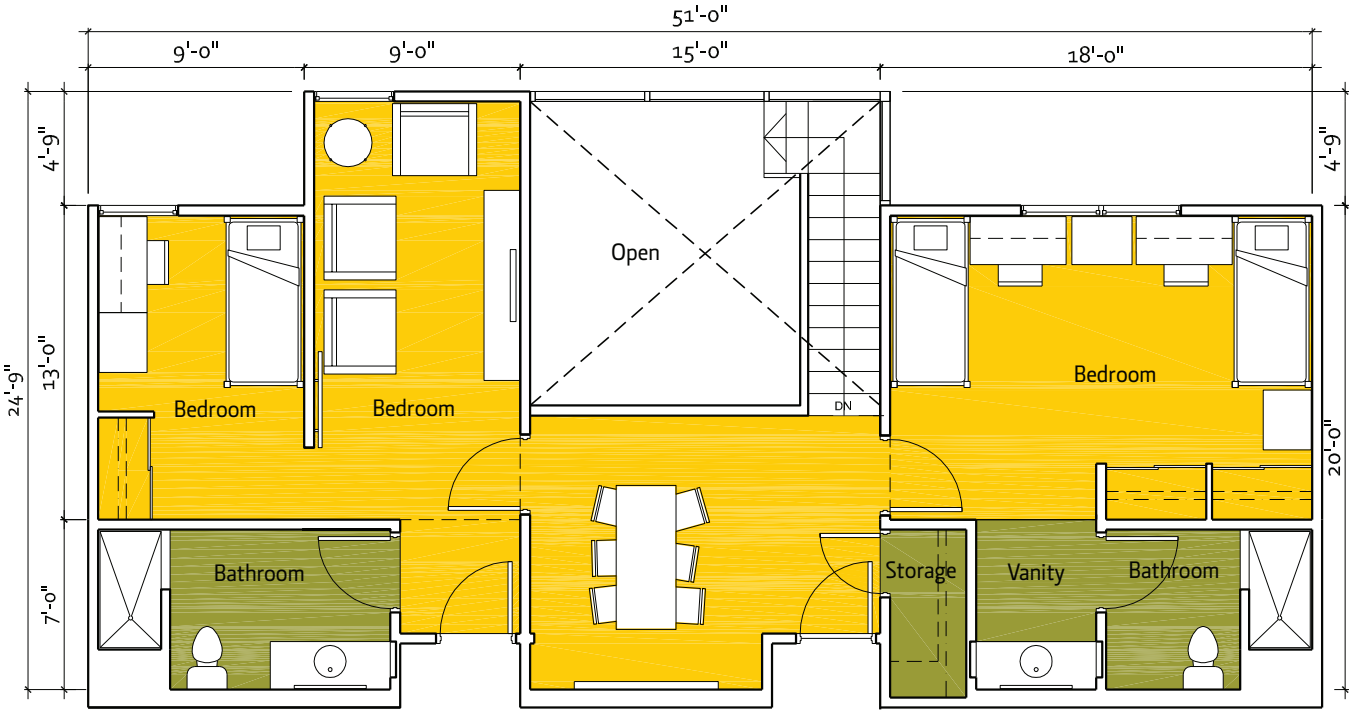
BUILT-IN	Closets with sliding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets, kitchen island
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner.
OTHER	(2) 36" Refrigerators, microwave with range hood filter, oven range, dishwasher (all Energy Star rated)

ENGINEERING SYSTEMS

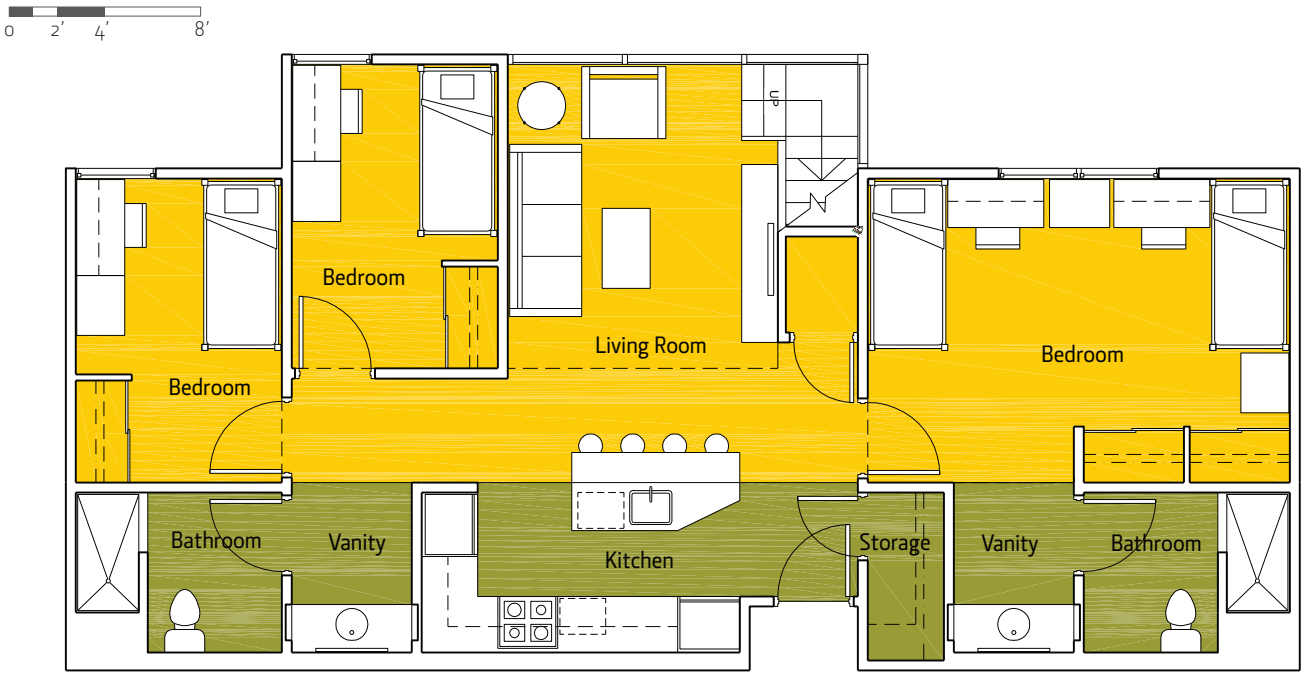
ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	4 floor-mounted dual flush toilets, flow control aerator at 4 under-counter lavatories, 4 showers (1.8 gallons per minute flowrate), single compartment kitchen sink with garbage disposal, dishwasher hook up
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector/ fire alarm mini-horn at sleeping area

TECHNOLOGY

VOICE/DATA	1 data per bed, 1 phone at RA suite; wireless throughout
MEDIA	1 cable TV at living room, each bedroom and RA Suite



Upper Level



Lower Level

APT-REC

FACULTY-IN RESIDENCE APARTMENT

DESCRIPTION	Residences for REC, AREC, Faculty-In-Residence and families
TOTAL ASF	1,100
NO. OF OCCUPANTS	2
ADJACENCIES	Off of corridor and from outside directly (patio)
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"; 7'-8" at bathroom and hallway
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or structure
WALLS/BASE	Low VOC painted GWB/Resilient at bedrooms and living room; ceramic tile at bathrooms
FLOORS	Green Label Plus carpet at bedrooms and living room; ceramic tile at bathrooms and kitchen
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood doors
DOOR FRAMES	Hollow metal painted
DAYLIGHTING	Daylight at living room and bedrooms, exterior sun shading where applicable

FURNITURE & EQUIPMENT

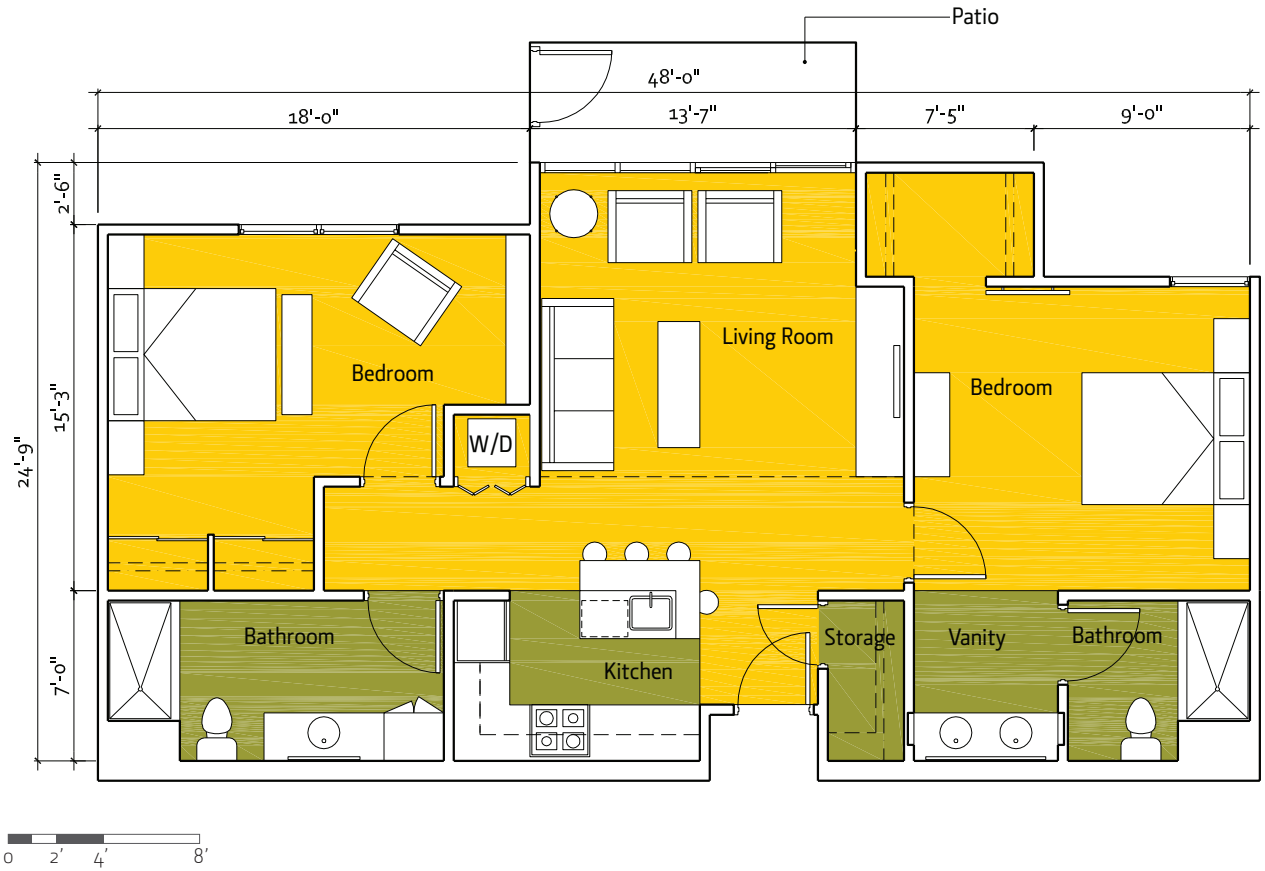
BUILT-IN	Closets with sliding doors, washer/dryer closet with bi-folding doors, kitchen and bathroom casework (plastic laminate finish with solid surface countertops), medicine cabinets, kitchen island
FIXED	Window blinds
MOVABLE	All bedroom and living room furniture is specified and provided by owner.
OTHER	36" Refrigerator, microwave with range hood filter, oven range, dishwasher (all Energy Star rated), clothes washer and dryer

ENGINEERING SYSTEMS

ELECTRICAL	AFCI receptacles in bedroom, GFCI receptacles in bathroom, clothes dryer, doorbell
LIGHTING	10-15 fc direct/indirect general lighting, 40-50 fc task lights (kitchen/bathroom)
MECHANICAL	Individual controls per unit, bathroom exhaust, dryer vent
ACOUSTICS	STC 50 minimum between bathroom and bedrooms, between units, and between bedrooms and corridors
PLUMBING	2 floor-mounted dual flush toilets, flow control aerator at 3 under-counter lavatories, 2 showers (1.8 gallons per minute flowrate), tub in master bedroom suite, dual compartment kitchen sink with garbage disposal, dishwasher hook up, clothes washer
SECURITY	Electronic card key access to unit and each bedroom, window sash locks, security screens on ground floor
FIRE PROTECTION	Sprinkler, 120V hard wired smoke detector/ fire alarm mini-horn at sleeping areas

TECHNOLOGY

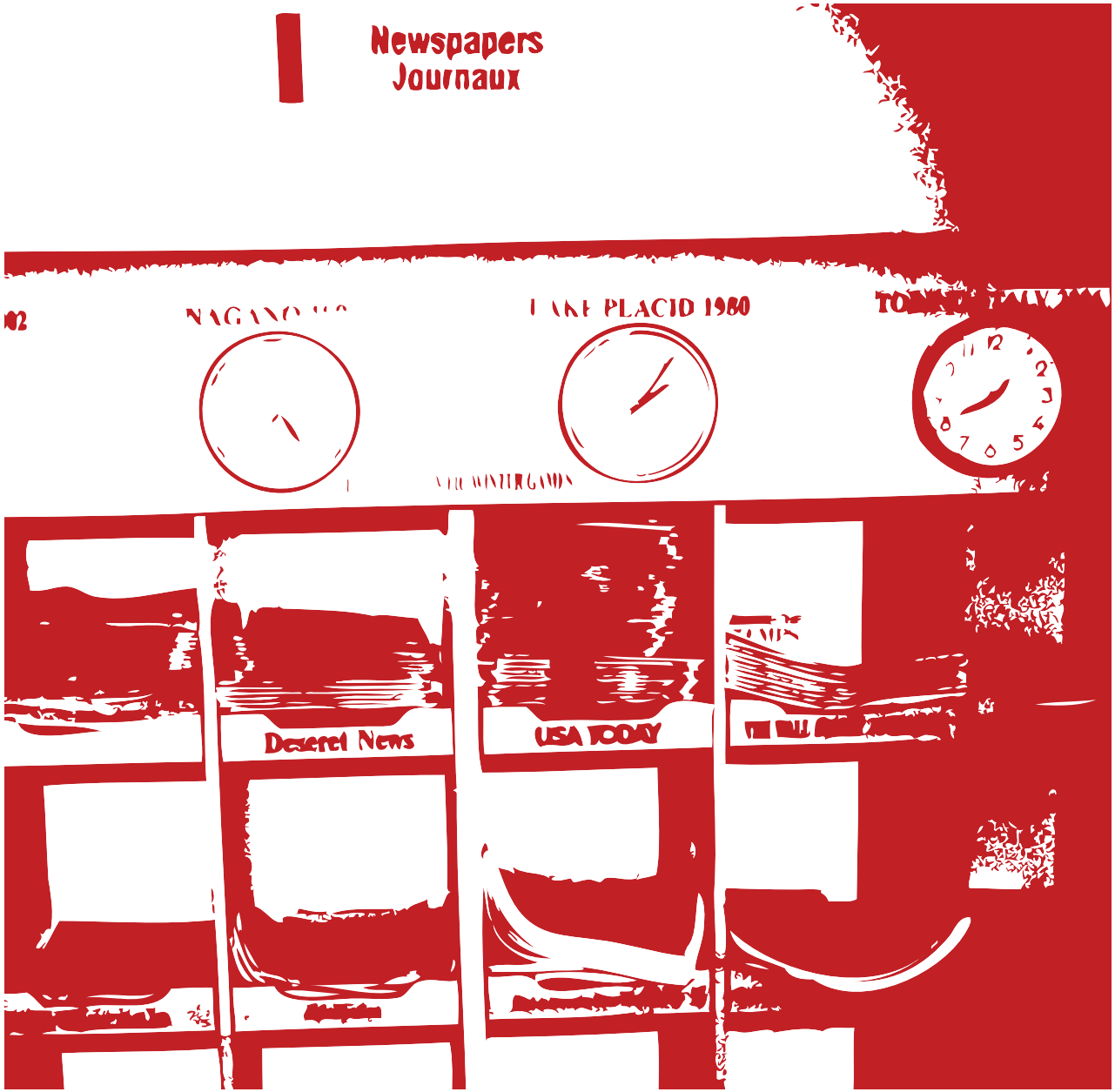
VOICE/DATA	Data at living room and bedrooms
MEDIA	1 cable TV at living room and each bedroom

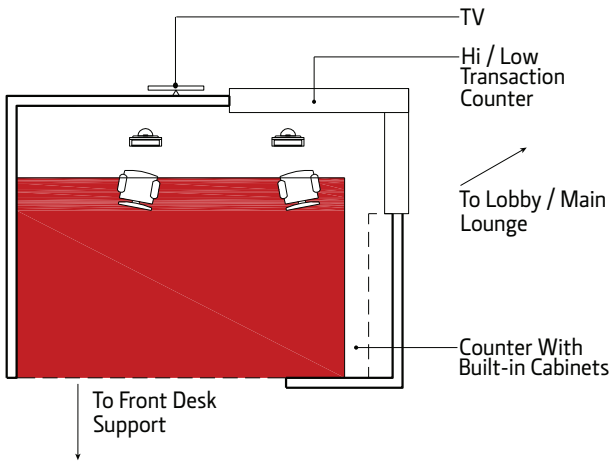

Patio
48'-0"
18'-0"
13'-7"
7'-5"
9'-0"
2'-6"
15'-3"
24'-9"
7'-0"
Bedroom
W/D
Living Room
Bedroom
Bathroom
Kitchen
Storage
Vanity
Bathroom
0 2' 4' 8'

residential administration

Two key items are acknowledged in the administrative spaces assigned to Honors Housing: the spaces are programmed to fit only this community (i.e., future phases will be administered separately) and the Honors College shall be dependently adjacent to these administrative spaces, which results in shared efficiency of office support services.

Because the housing staff at this site will be separated from the other housing staff at Fort Douglas/Heritage Commons, some aspects will be decentralized and more stand-alone here - which are those listed in this program - yet will still be tied to the existing central housing hub at the HRE offices in Benchmark Plaza 822.





FD-1

FRONT DESK

DESCRIPTION	Adjacent to waiting area and entry lobby
TOTAL ASF	200
NO. OF OCCUPANTS	2
ADJACENCIES	Front Desk Support, Front Desk Staff Office, Mail/ Receiving
VIEWS	To Entry Lobby, Main Lounge
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	None
DOORS	None
DOOR FRAMES	None
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	Reception desk/counter/shelving
FIXED	None
MOVABLE	2 task chairs, 2 workstation units with power and data, lateral files
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets at work surface height
LIGHTING	Indirect/direct artificial lighting 15-25 Fc, 40-50 Fc task lights
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Roll-down screen/grille
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

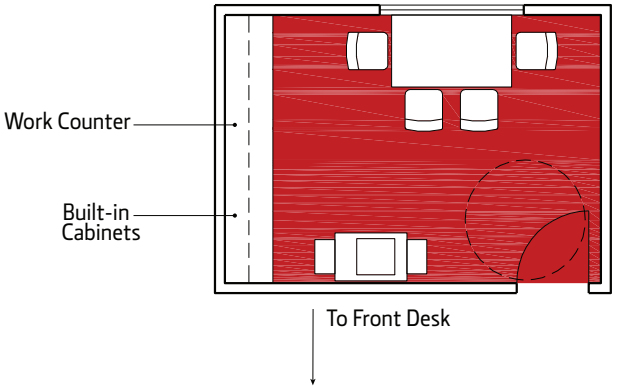
VOICE/DATA	2 phone/4 data; provide data outlets at work surface height; wireless
MEDIA	Flat screen TV (wall-mount for visual paging)

FD-2

FRONT DESK SUPPORT

DESCRIPTION	Storage and workroom to support Front Desk
TOTAL ASF	200
NO. OF OCCUPANTS	-
ADJACENCIES	Front Desk, Front Desk Staff Office
VIEWS	None
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Aluminum, thermally broken (if provided)
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal
DAYLIGHTING	Desired

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets at countertop
LIGHTING	Ambient artificial light; Indirect/direct 20-30 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

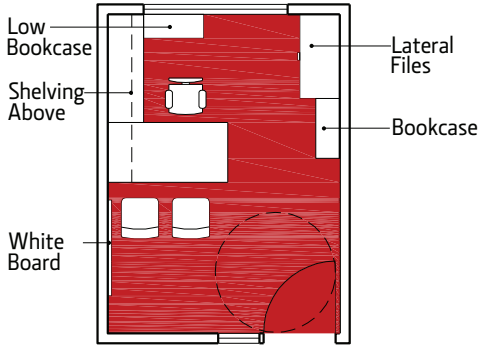
BUILT-IN	Counter with lockable cabinets above and below
FIXED	None
MOVABLE	4 task chairs, 1 table, lateral files, 1 photocopier, 1 microwave
OTHER	None

TECHNOLOGY

VOICE/DATA	1 phone at work counter / 1 data at each wall and as required for copier; wireless
MEDIA	None

PO-1

STAFF OFFICE



DESCRIPTION	Office for Front Desk staff and Res Ed
TOTAL ASF	150
NO. OF OCCUPANTS	1
ADJACENCIES	Front Desk, Front Desk Support
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Aluminum with side lite
DAYLIGHTING	Required

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	Window blinds, white board
MOVABLE	Desk with overhead storage, 3 task chairs, 1 lateral file,
OTHER	2 bookcases, task lamp (not shown)

TECHNOLOGY

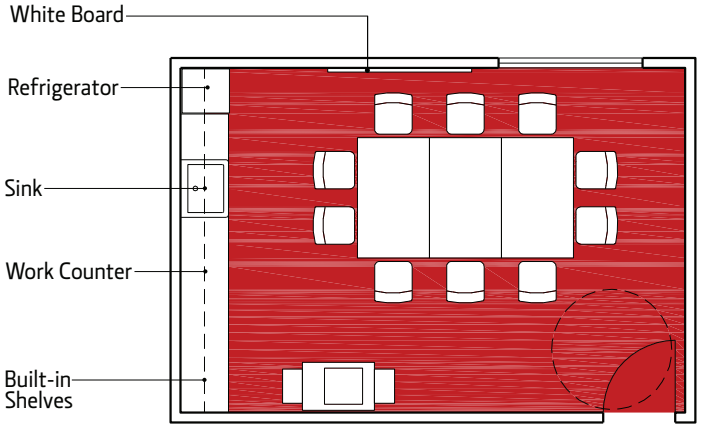
VOICE/DATA	1 phone/2 data; wireless
MEDIA	None

WR-1

STUDENT WORKROOM

DESCRIPTION	Food preparation, break room, and storage space for staff and students
TOTAL ASF	325
NO. OF OCCUPANTS	-
ADJACENCIES	Centrally located in Residential Administration
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Carpet or resilient
WINDOWS	Double glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal
DAYLIGHTING	Required

ENGINEERING SYSTEMS

ELECTRICAL	GFI outlets at countertop
LIGHTING	Ambient artificial light; Indirect/direct 20-30 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Single compartment sink with garbage disposal
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

FURNITURE & EQUIPMENT

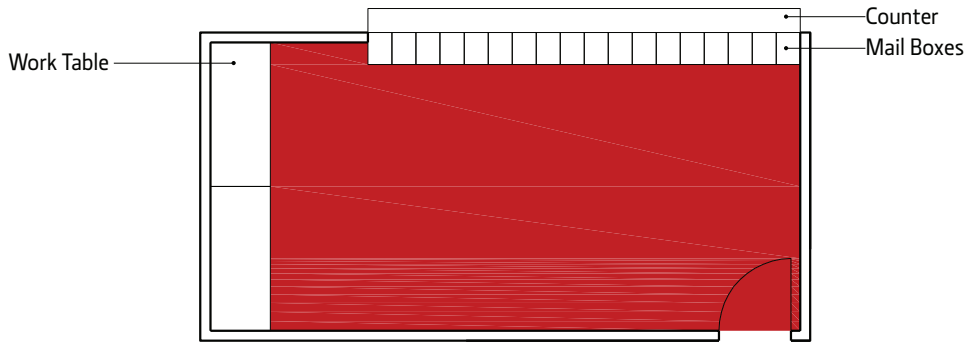
BUILT-IN	Counters with lockable cabinets above and below
FIXED	White board
MOVABLE	10 task chairs, 3 tables, 1 photocopier
OTHER	None

TECHNOLOGY

VOICE/DATA	1 phone at counter / 1 data per wall; wireless
MEDIA	None

MR-1

MAIL / RECEIVING



DESCRIPTION	Mailroom
TOTAL ASF	325
NO. OF OCCUPANTS	-
ADJACENCIES	Lobby, Front Desk
VIEWS	None
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

ENGINEERING SYSTEMS

ELECTRICAL	General duplex receptacles
LIGHTING	Direct artificial lighting 30-40 Fc
MECHANICAL	No special requirements
ACOUSTICS	N/A
PLUMBING	No special requirements
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	Mailboxes (3-1/4" H x 12" W x 16" D), counter
FIXED	None
MOVABLE	2 work tables
OTHER	None

TECHNOLOGY

VOICE/DATA	1 phone/2 data; provide data outlets at work surface height
MEDIA	None

laundry room

The laundry room is anticipated as an activator of outdoor space. The preference is for a single, consolidated venue rather than smaller, distributed laundry rooms.

L-1

LAUNDRY ROOM

DESCRIPTION	Laundry room for students
TOTAL ASF	1,200
NO. OF OCCUPANTS	-
ADJACENCIES	Centrally located
VIEWS	To outside
MIN. CEILING HEIGHT	10'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient
WINDOWS	Double glazed aluminum, thermally broken
DOORS	Aluminum
DOOR FRAMES	Aluminum
DAYLIGHTING	Required

FURNITURE & EQUIPMENT

BUILT-IN	Folding counters, TV
FIXED	24 washers, 24 dryers
MOVABLE	Chairs, trash and recycling containers (not shown)
OTHER	Detergent vending machine, general vending machine

ENGINEERING SYSTEMS

ELECTRICAL	Housekeeping general duplex receptacles, power as required for washers and dryers
LIGHTING	Direct artificial lighting 20-30 Fc
MECHANICAL	HVAC exhaust air, make-up air and dryer vent (24 dryers)
ACOUSTICS	Provide sound attenuation as required
PLUMBING	24 washers, floor drains, laundry sink
SECURITY	Card key access, security camera
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

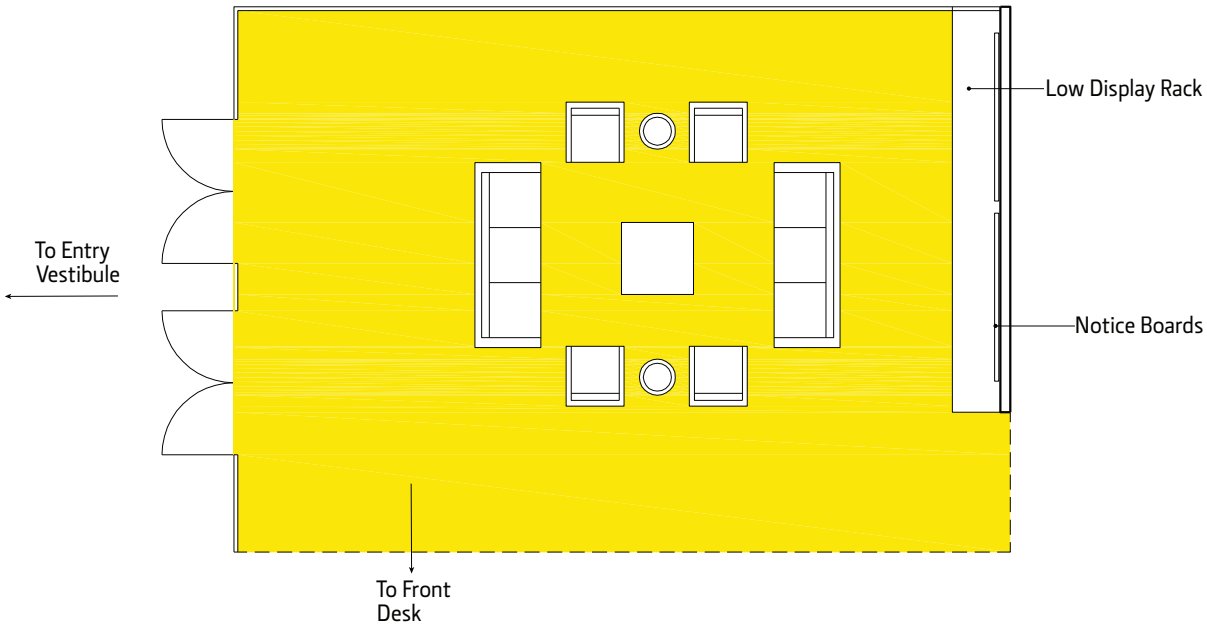
TECHNOLOGY

VOICE/DATA	1 phone / 1 data and as required for laundry and vending systems; wireless
MEDIA	Flat screen TV mount/backing
OTHER	Card system for laundry vending machine, washers/dryers connected to system, wireless

Vending Machines
Folding Counter
Folding Tables
W
D
0 2' 4' 8'

community

Community spaces are assigned to support two scales of the student residential community, that of the individual floor and that of the whole population. The Study Lounges are intended to serve each floor in a central public location and are smaller in scale; providing flexible space for collaboration, studying and meeting. The other rooms are intended to be associated with the community's "front door," together creating active space to see and be seen. One of these spaces is the Entry Lobby/Main Lounge and it is preferred that this space have a single point of grand entrance rather than multiple smaller door entrances.



EL-1

ENTRY LOBBY / MAIN LOUNGE

DESCRIPTION	Main entry and lounge to residential complex
TOTAL ASF	750
NO. OF OCCUPANTS	-
ADJACENCIES	Front Desk, Multi-Purpose Room
VIEWS	To outside
MIN. CEILING HEIGHT	Double height space desired
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Tile or stone tile
WINDOWS	Storefront/Curtain Wall
DOORS	Aluminum
DOOR FRAMES	Aluminum
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

ELECTRICAL	Power receptacles at floors and walls (in seating areas)
LIGHTING	General lighting 30-40 Fc
MECHANICAL	Dedicated Zone HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Card key access, security camera
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	Storage cabinets
FIXED	Roller shades at windows, display racks, notice boards
MOVABLE	Couches, lounge chairs, side tables, low tables
OTHER	None

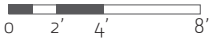
TECHNOLOGY

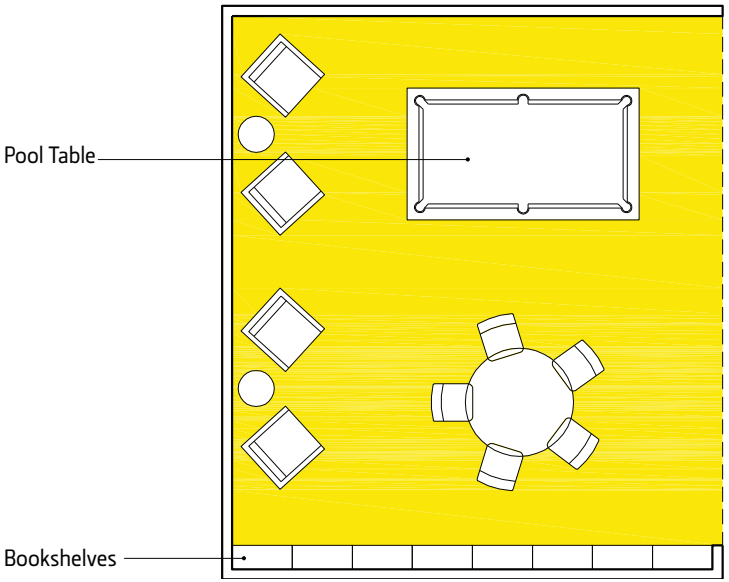
VOICE/DATA	1 data near entrance; wireless throughout
MEDIA	None

MP-1

MULTI-PURPOSE ROOM

DESCRIPTION	Multi-Purpose Room for studying, informal gatherings
TOTAL ASF	500
NO. OF OCCUPANTS	-
ADJACENCIES	Entry Lobby / Lounge, Storage
VIEWS	To outside
MIN. CEILING HEIGHT	10'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"





FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	Not required
DOOR FRAMES	None
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

ELECTRICAL	Power receptacles at floors and walls
LIGHTING	General lighting 30-40 Fc, dimmable
MECHANICAL	Dedicated zone HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Card key access, security camera
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

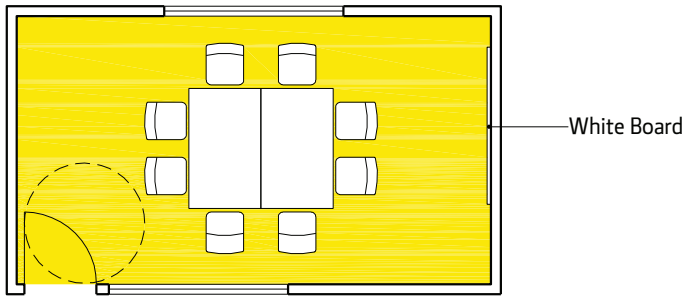
BUILT-IN	None
FIXED	Roller shades at windows
MOVABLE	Bookshelves, lounge chairs, side tables, work tables, task chairs, pool table
OTHER	None

TECHNOLOGY

VOICE/DATA	1 data at each wall; wireless throughout
MEDIA	Flat screen TV mount/backing w/cable jack; ceiling-mounted video projector

SL-1

STUDY LOUNGE



DESCRIPTION	Social gathering area and informal study area at every residential floor
TOTAL ASF	250
NO. OF OCCUPANTS	-
ADJACENCIES	Off of main corridors, elevator
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal, painted with side lite
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

ELECTRICAL	General duplex receptacles
LIGHTING	15-20 Fc general lighting
MECHANICAL	HVAC zone
ACOUSTICS	Provide sound attenuation as required
PLUMBING	None
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	White board
MOVABLE	8 task chairs, 2 tables
OTHER	None

TECHNOLOGY

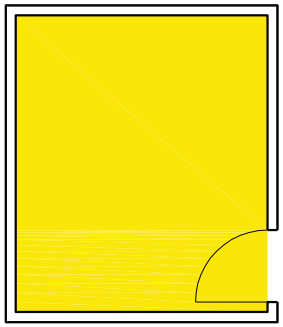
VOICE/DATA	2 data; wireless
MEDIA	None

M-1

MUSIC ROOM

DESCRIPTION	Room for students to practice music
TOTAL ASF	150
NO. OF OCCUPANTS	-
ADJACENCIES	Multi-Purpose Room
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Aluminum, thermally broken (if provided)
DOORS	FSC certified solid-core wood door with vision lite
DOOR FRAMES	Hollow metal, painted
DAYLIGHTING	Not required

ENGINEERING SYSTEMS

ELECTRICAL	General duplex receptacles
LIGHTING	15-20 Fc general lighting
MECHANICAL	No special requirements
ACOUSTICS	Minimum of STC 60 and acoustic gaskets at door
PLUMBING	None
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	None
MOVABLE	None
OTHER	None

TECHNOLOGY

VOICE/DATA	1 Data; wireless
MEDIA	None

café / c-store

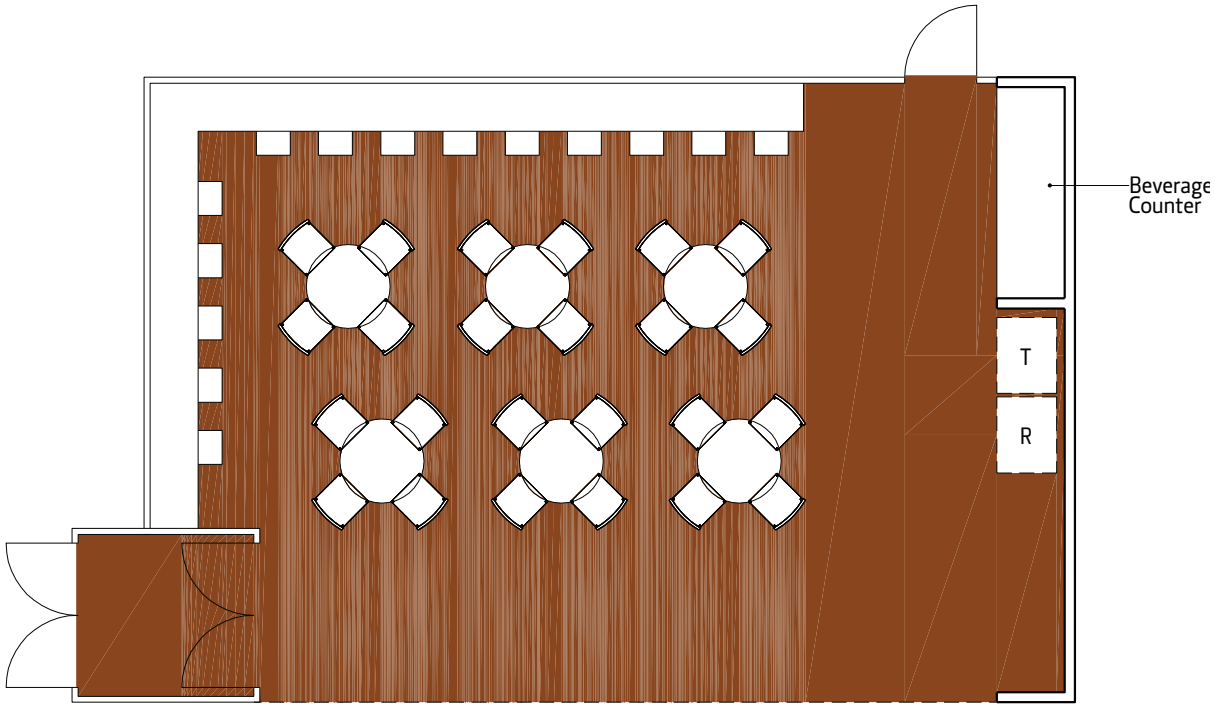
Although associated with the initial phase of development, the Café and Convenience Store (C-store) has been programmed to serve an eventual community of 1,000 student residents. The facility anticipates a single point-of-sale style organization with both refrigerated and dry goods storage and merchandising, a self-service beverage counter, and a made to order grill café. Dining areas are included both indoors and outdoors. This Café/C-store will not be required to serve a meal plan nor will a meal plan be required of the students living here. Vehicular service and delivery is an important consideration in locating the facility on site, as is connection to future student housing communities.

CF-1

DINING

DESCRIPTION	Seating area for Café
TOTAL ASF	1,000
NO. OF OCCUPANTS	65
ADJACENCIES	Grill/Server counter
VIEWS	To outside
MIN. CEILING HEIGHT	Double height space desirable
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT or decorative finish
WALLS/BASE	Glazing, ceramic tile or other decorative finish suitable to Food Service Applications/Ceramic tile
FLOORS	Non-slip decorative floor tile or stone tile
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	Glazed aluminum
DOOR FRAMES	Aluminum
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

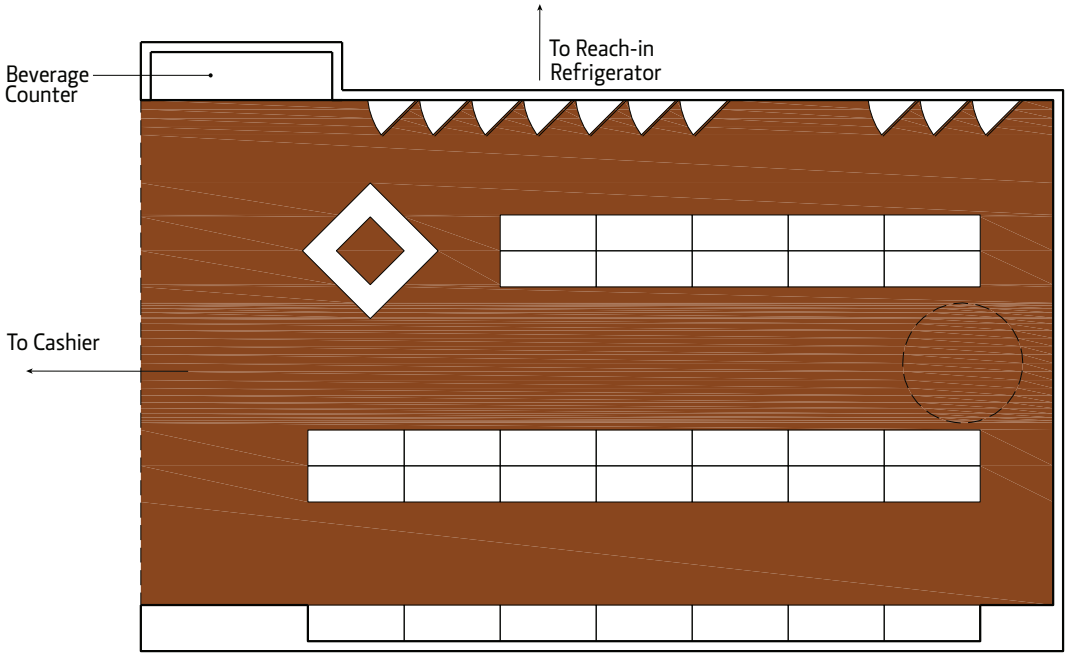
ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc, task lighting and decorative lighting in seating areas and beverage counter
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Floor sink at beverage counter
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	Beverage counter, Seating counter
FIXED	None
MOVABLE	Chairs, tables, bar stools, trash & recycling
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

TECHNOLOGY

VOICE/DATA	Wireless
MEDIA	None



CF-2

C-STORE

DESCRIPTION	Convenience Store
TOTAL ASF	850
NO. OF OCCUPANTS	-
ADJACENCIES	Walk-in Refrigerator/Freezer and Cashier
VIEWS	To outside
MIN. CEILING HEIGHT	10'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Ceramic tile or other decorative finish suitable to Food Service Applications/Ceramic tile
FLOORS	Non-slip decorative floor tile or stone
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	None
DOOR FRAMES	None
DAYLIGHTING	Desired

FURNITURE & EQUIPMENT

BUILT-IN	Beverage counter
FIXED	None
MOVABLE	Food display cases, display shelving
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall / floor as required
LIGHTING	General lighting 35-40 Fc, task lighting and decorative lighting in display areas and beverage counter
MECHANICAL	HVAC, separate zone
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Cold water, hot water, indirect waste, direct waste, floor drains (floor sink at beverage counter)
SECURITY	Cameras
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

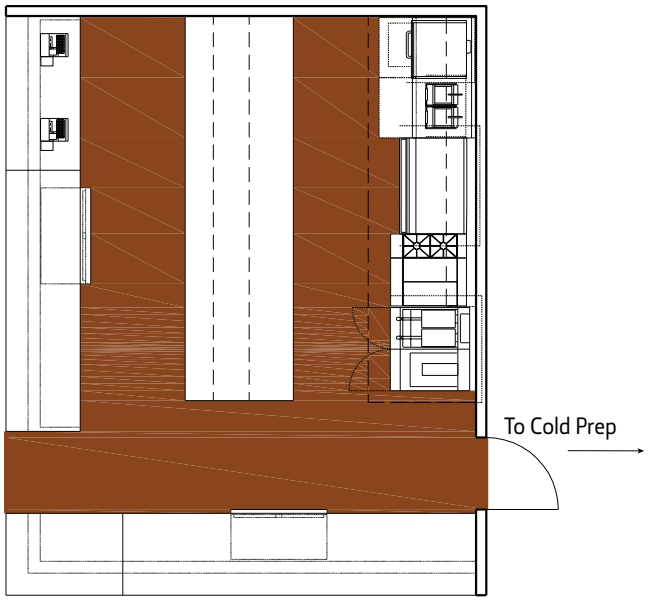
VOICE/DATA	2 phone/2 data for point of sale systems; wireless
MEDIA	Flat screen TV

CF-3

GRILL / SERVER COUNTER

DESCRIPTION	Grill and server counter, hot food production
TOTAL ASF	500
NO. OF OCCUPANTS	-
ADJACENCIES	Cold Prep, Dining
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Epoxy enamel painted GWB
WALLS/BASE	Ceramic tile, stainless steel wall flashing in hot production areas/Integrally coved base
FLOORS	Quarry tile or seamless flooring suitable to Food Service applications
WINDOWS	None
DOORS	Hollow metal – dual spring hinge
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

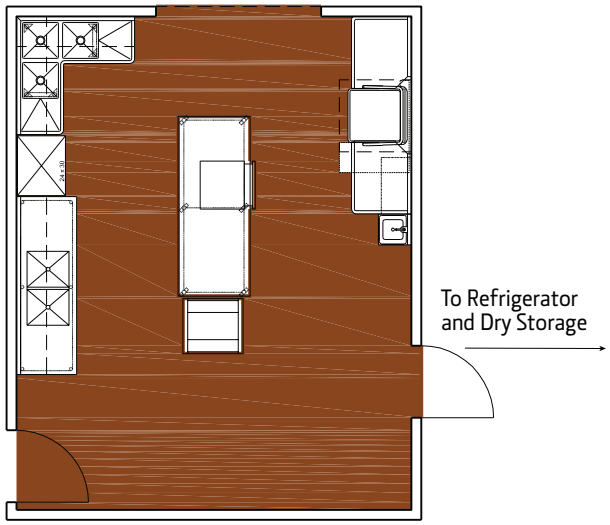
BUILT-IN	None
FIXED	Variety of stainless steel tables, counters, and food preparation/production equipment
MOVABLE	None
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall, dedicated circuits for all food service equipment
LIGHTING	General lighting 35-40 Fc, decorative lighting in serving counter
MECHANICAL	HVAC and exhaust hoods with fire suppressions systems as required over hot food production equipment, make-up air units
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Cold water, hot water, indirect waste, direct waste, floor drains, floor sinks, natural gas
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	Point of sale data/phone
MEDIA	LCD screens for menus



CF-4

COLD PREPARATION

DESCRIPTION	Serving counter, cold food production
TOTAL ASF	350
NO. OF OCCUPANTS	-
ADJACENCIES	Grill/server, kitchen storage areas
VIEWS	Desirable
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Mylar-coated ACT
WALLS/BASE	Ceramic tile/Integrally coved quarry tile base
FLOORS	Quarry tile or seamless flooring suitable to Food Service applications
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	Variety of stainless steel tables, counters, and food preparation/production equipment
MOVABLE	None
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall and at counter height, dedicated circuits for food service equipment
LIGHTING	General lighting 35-40 Fc
MECHANICAL	HVAC, vapor hood over dishwashing station
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Cold water, hot water, indirect waste, direct waste, floor drains, floor sinks
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

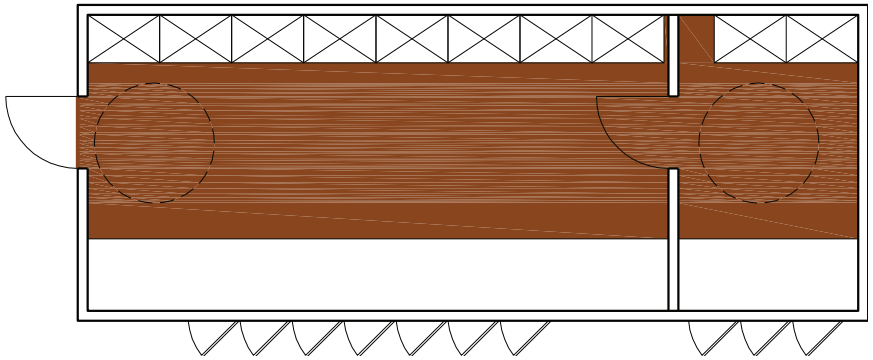
VOICE/DATA	None
MEDIA	None

CF-5

WALK-IN REFRIGERATOR / FREEZER

DESCRIPTION	Walk-in / reach-in refrigerator/freezer serving C-store and Café kitchen
TOTAL ASF	400
NO. OF OCCUPANTS	-
ADJACENCIES	C-store
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Stainless steel
WALLS/BASE	Stainless steel/Integrally coved base
FLOORS	Quarry tile or seamless flooring suitable to Food Service applications; slab depression at freezer for insulation
WINDOWS	None
DOORS	Insulated
DOOR FRAMES	Insulated
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	Refrigeration units
MOVABLE	Storage racks
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

ENGINEERING SYSTEMS

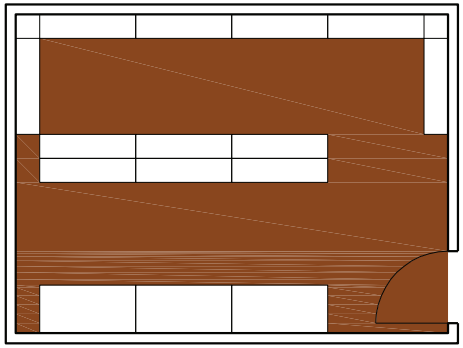
ELECTRICAL	Power for refrigerator coils
LIGHTING	General lighting 35-40 Fc
MECHANICAL	Packaged
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Floor sink directly outside walk-in refrigerator/freezer
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

CF-6

DRY STORAGE



DESCRIPTION	Storage of dry food and equipment
TOTAL ASF	250
NO. OF OCCUPANTS	-
ADJACENCIES	Cold Prep
VIEWS	None
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Mylar-coated ACT
WALLS/BASE	Fiberglass/Integrally coved base
FLOORS	Quarry tile or seamless flooring suitable to Food Service applications
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	None
MOVABLE	Storage units
OTHER	*The above is not a detailed equipment list. Final equipment layout, design, and selection to be determined as part of design project.*

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc
MECHANICAL	HVAC
ACOUSTICS	No special requirements
PLUMBING	Floor drains
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

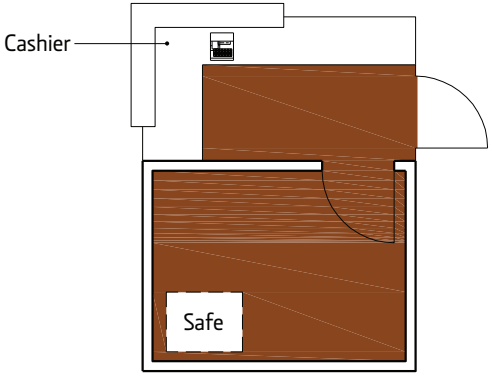
VOICE/DATA	1 data (inventory)
MEDIA	None

CF-7

CASHIER + STORAGE

DESCRIPTION	Cashier for both café and convenience store
TOTAL ASF	150
NO. OF OCCUPANTS	-
ADJACENCIES	Within Café, adjacent to dining area and C-store
VIEWS	To outside
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Low VOC painted GWB
WALLS/BASE	Low VOC painted GWB in storage room; ceramic tile or other decorative finish in cashier area/Ceramic tile
FLOORS	Non-slip decorative floor tile or stone
WINDOWS	None
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal
DAYLIGHTING	Desirable

FURNITURE & EQUIPMENT

BUILT-IN	Cashier counter with integral slat wall display
FIXED	Safe
MOVABLE	None
OTHER	None

ENGINEERING SYSTEMS

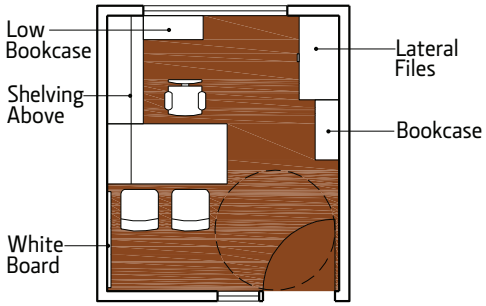
ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc, task lighting
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Key lock, camera
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	1 phone/2 data for point of sale system; wireless
MEDIA	Flat screen TV

PO-3

OFFICE



DESCRIPTION	Office for Café staff
TOTAL ASF	120
NO. OF OCCUPANTS	1
ADJACENCIES	Cold Prep/Receiving
VIEWS	To Receiving/loading area
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Quarry tile or seamless flooring suitable to Food Service applications
WINDOWS	Aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal with side lite
DAYLIGHTING	Exterior sun shading where applicable

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	Window blinds, white board
MOVABLE	Desk with overhead storage, 3 task chairs, 1 lateral file, 2 bookcases, task lamp (not shown)
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

TECHNOLOGY

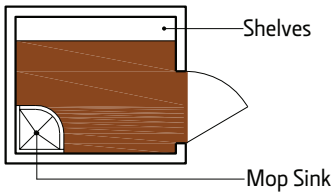
VOICE/DATA	1 phone/2 data; wireless
MEDIA	None

ST-1

JANITOR CLOSET

DESCRIPTION	Janitor Closet in Café
TOTAL ASF	45
NO. OF OCCUPANTS	-
ADJACENCIES	Kitchen/Cold Prep
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Mylar-coated ACT
WALLS/BASE	Stainless steel / Resilient
FLOORS	Resilient
WINDOWS	None
DOORS	Hollow metal/Stainless steel kickplates
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

ENGINEERING SYSTEMS

ELECTRICAL	No special requirements
LIGHTING	Direct artificial lighting 20-30 Fc
MECHANICAL	No special requirements
ACOUSTICS	N/A
PLUMBING	Floor sink (mop sink)
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	None
MOVABLE	Shelving
OTHER	None

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

honors college

The Honors College Living and Learning Program's goal is to more fully engage Honors students by fostering the development of a supportive and inclusive community of diverse students, faculty and staff; creating an environment that enhances student development as life-long leaders, community members and scholars; encouraging social responsibility through meaningful community-based research or research that has a real world application through service and interaction; inspiring a holistic engagement of academia itself; and preparing students for graduate school and other educational opportunities after graduation.

The Honors Housing at Legacy Bridge project is an important manifestation of this goal. The high visibility associated with the Legacy Bridge and the outreach opportunities promoted by the adjacency to the Fort Douglas TRAX Station were key determinants in the proposed site selection and preferred alternative configuration. The adjacency previously noted with Residential Administration promotes efficiency as well as living and learning opportunities.

The heart of the Honors College will be the Big Ideas/Innovation Center. It is a 'smart' classroom that strives to foster creativity and increase interaction with the community, partners and students, and may also serve as a conference room.

The Seminar Room is intended to serve as classrooms by day and program space by night. Seminar student class size is capped at 35 students but the average is approximately 17 students. An easily accessible storage with upper and lower cabinets and a countertop is desired to be flush along the exterior hallway walls of the Seminar Room.

IC-1

INNOVATION CENTER

DESCRIPTION	Classroom for Honors College
TOTAL ASF	500
NO. OF OCCUPANTS	Up to 20
ADJACENCIES	General Storage
VIEWS	To outside
MIN. CEILING HEIGHT	10'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB and/or ACT
WALLS/BASE	Low VOC painted GWB/Wood wainscot and chair rail
FLOORS	Green Label Plus carpet
WINDOWS	Double glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal with side lites
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

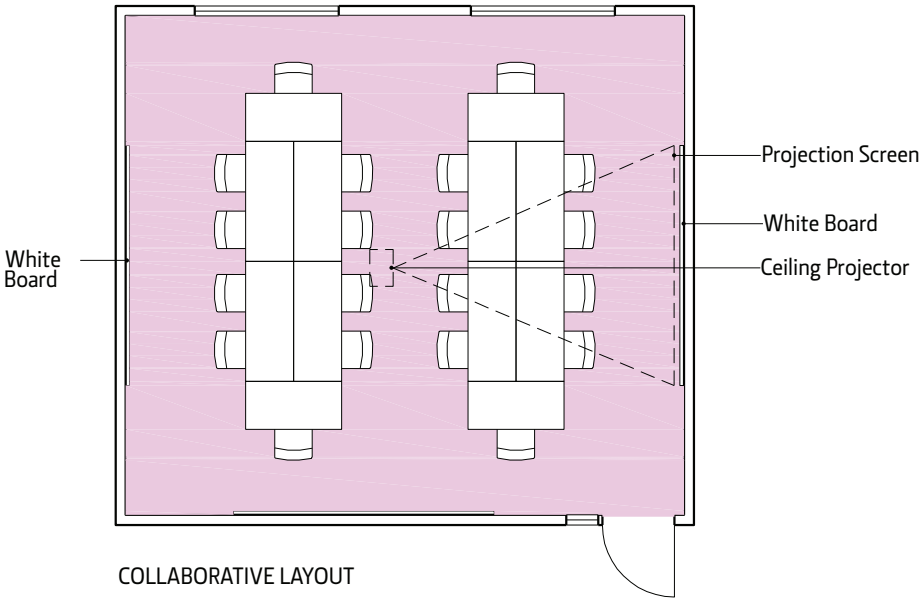
ELECTRICAL	Power receptacles at floors and walls
LIGHTING	General lighting 30-40 Fc, dimmable program
MECHANICAL	Dedicated zone
ACOUSTICS	Provide sound attenuation as required
PLUMBING	None
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

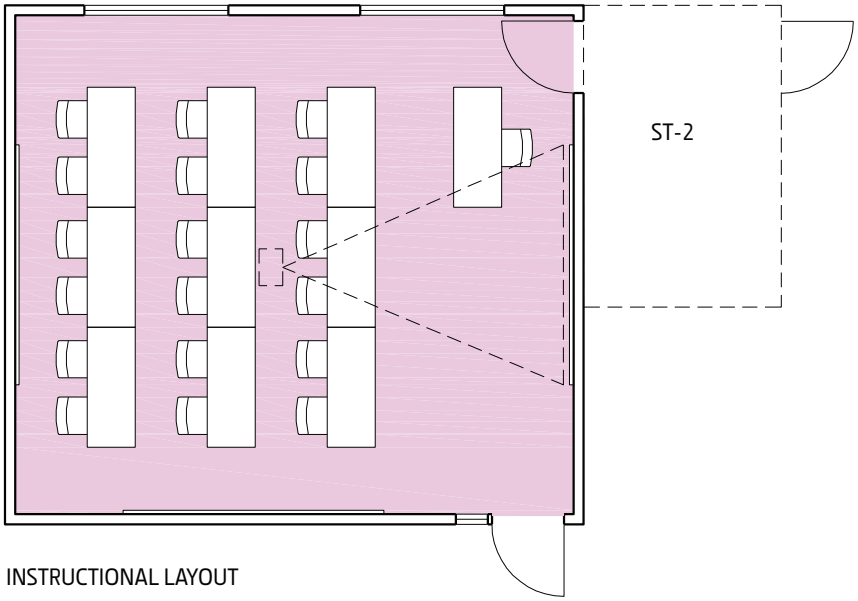
BUILT-IN	None
FIXED	Window blinds with blackout capability, white boards
MOVABLE	20 task chairs, tables per layout
OTHER	None

TECHNOLOGY

VOICE/DATA	Data at walls; wireless
MEDIA	Ceiling-mounted digital projector and speakers, motorized roll-down projection screen



COLLABORATIVE LAYOUT



INSTRUCTIONAL LAYOUT

0 2' 4' 8'

SM-1

SEMINAR ROOM

DESCRIPTION	Seminar room for Honors College, dividable into 2
TOTAL ASF	1,000
NO. OF OCCUPANTS	-
ADJACENCIES	Within Honors College
VIEWS	To outside
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

FINISHES / TREATMENT

CEILING	Low VOC painted GWB and/or ACT
WALLS/BASE	Low VOC painted GWB/Wood wainscot and chair rail
FLOORS	Green Label Plus carpet
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal with side lites
DAYLIGHTING	Exterior sun shading where applicable

FURNITURE & EQUIPMENT

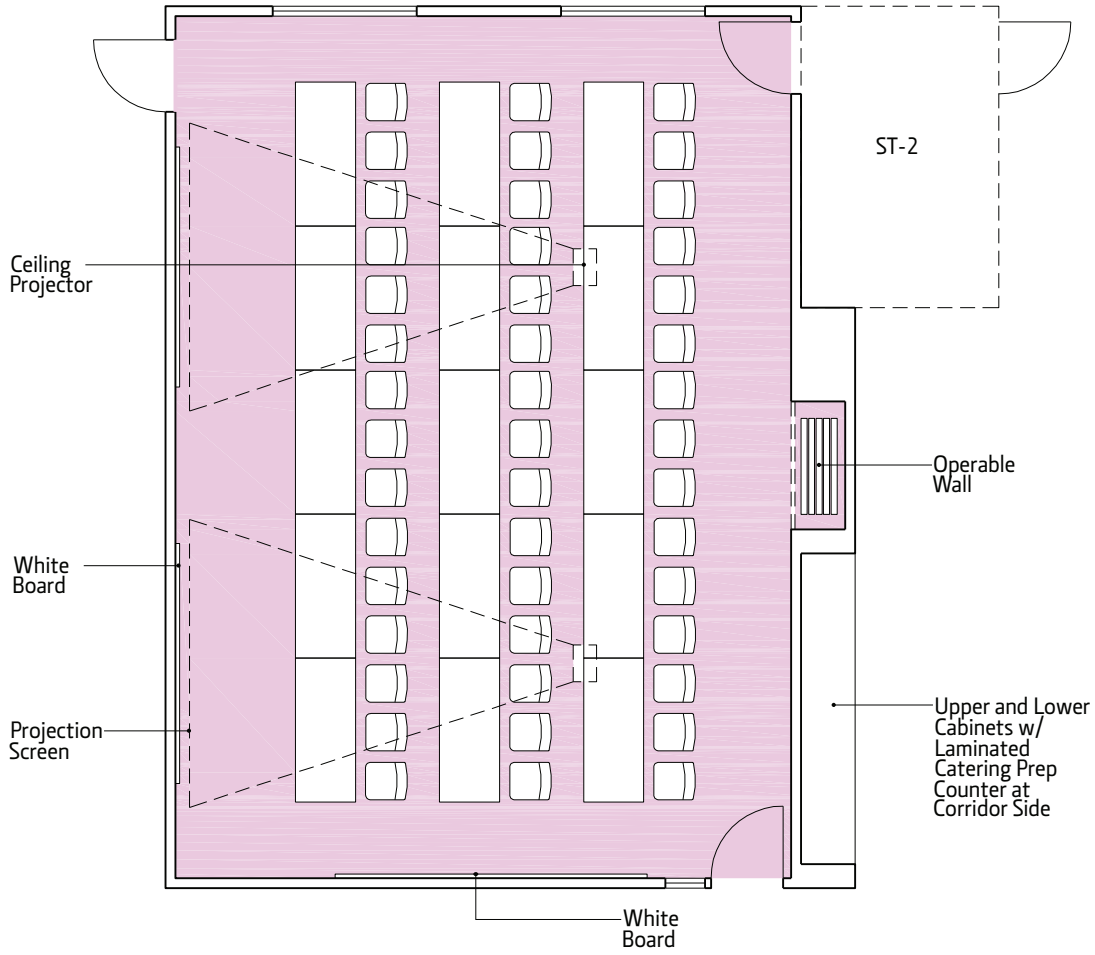
BUILT-IN	Operable wall divider, upper and lower cabinet storage with laminated catering prep counter at corridor
FIXED	Window blinds with blackout capability, white boards
MOVABLE	Chairs and tables per layout
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	Power receptacles at floors and walls and at catering prep counter at corridor side
LIGHTING	General lighting 30-40 Fc, dimmable program
MECHANICAL	Dedicated zone
ACOUSTICS	Provide sound attenuation as required
PLUMBING	None
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	1 phone/2 data ports in floor and walls for flexibility, projection in ceiling; wireless
MEDIA	Motorized roll-down projection screens, ceiling mounted digital projectors and speakers


ST-2
Ceiling Projector
Operable Wall
White Board
Projection Screen
Upper and Lower Cabinets w/ Laminated Catering Prep Counter at Corridor Side
White Board

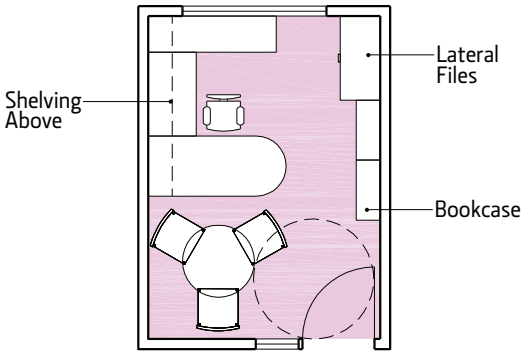
0 2' 4' 8'

PO-2

FACULTY OFFICES

DESCRIPTION	Faculty Office for Honors College
TOTAL ASF	150
NO. OF OCCUPANTS	1
ADJACENCIES	Within Honors College
VIEWS	To outside
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Green Label Plus carpet
WINDOWS	Double-glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Aluminum with side lite
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

ELECTRICAL	Power outlets on wall
LIGHTING	General lighting 35-40 Fc
MECHANICAL	No special requirements
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Key lock
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

FURNITURE & EQUIPMENT

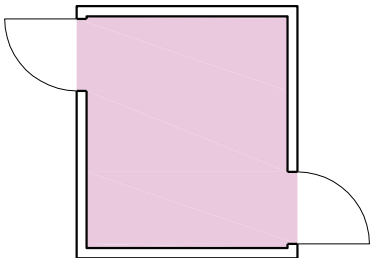
BUILT-IN	None
FIXED	Window blinds, white board
MOVABLE	Desk with overhead storage, 3-4 task chairs, lateral files, bookcases, round table, task lamp (not shown)
OTHER	None

TECHNOLOGY

VOICE/DATA	1 phone/1 data; wireless
MEDIA	None

ST-2

STORAGE



DESCRIPTION	Storage of tables and chairs for Honors College
TOTAL ASF	100
NO. OF OCCUPANTS	-
ADJACENCIES	Between Innovation Center and Seminar Room
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted GWB or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient
WINDOWS	None
DOORS	Hollow metal or FSC-certified wood with stainless steel kickplates
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	None
MOVABLE	None
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	No special requirements
LIGHTING	Direct artificial lighting 20-30 Fc
MECHANICAL	No special requirements
ACOUSTICS	N/A
PLUMBING	No special requirements
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

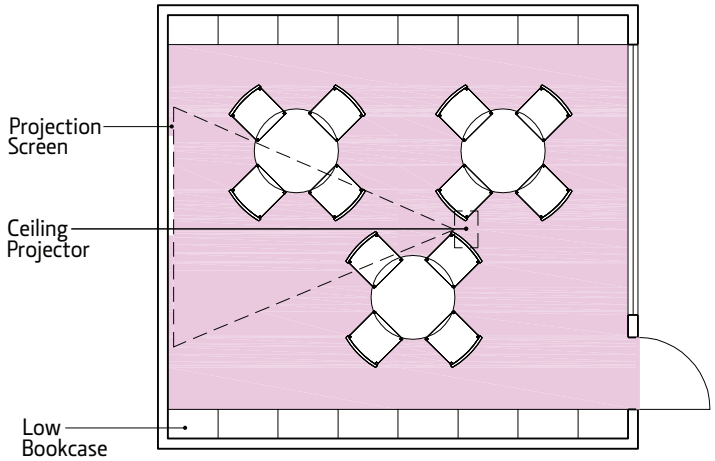
VOICE/DATA	None
MEDIA	None

LB-1

LIBRARY / MEDIA ROOM

DESCRIPTION	Library and study room for Honors College
TOTAL ASF	350
NO. OF OCCUPANTS	-
ADJACENCIES	Within Honors College
VIEWS	To outside
MIN. CEILING HEIGHT	9'-6"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Wood wainscot
FLOORS	Green Label Plus carpet
WINDOWS	Double glazed aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Aluminum with side lites
DAYLIGHTING	Exterior sun shading where applicable

ENGINEERING SYSTEMS

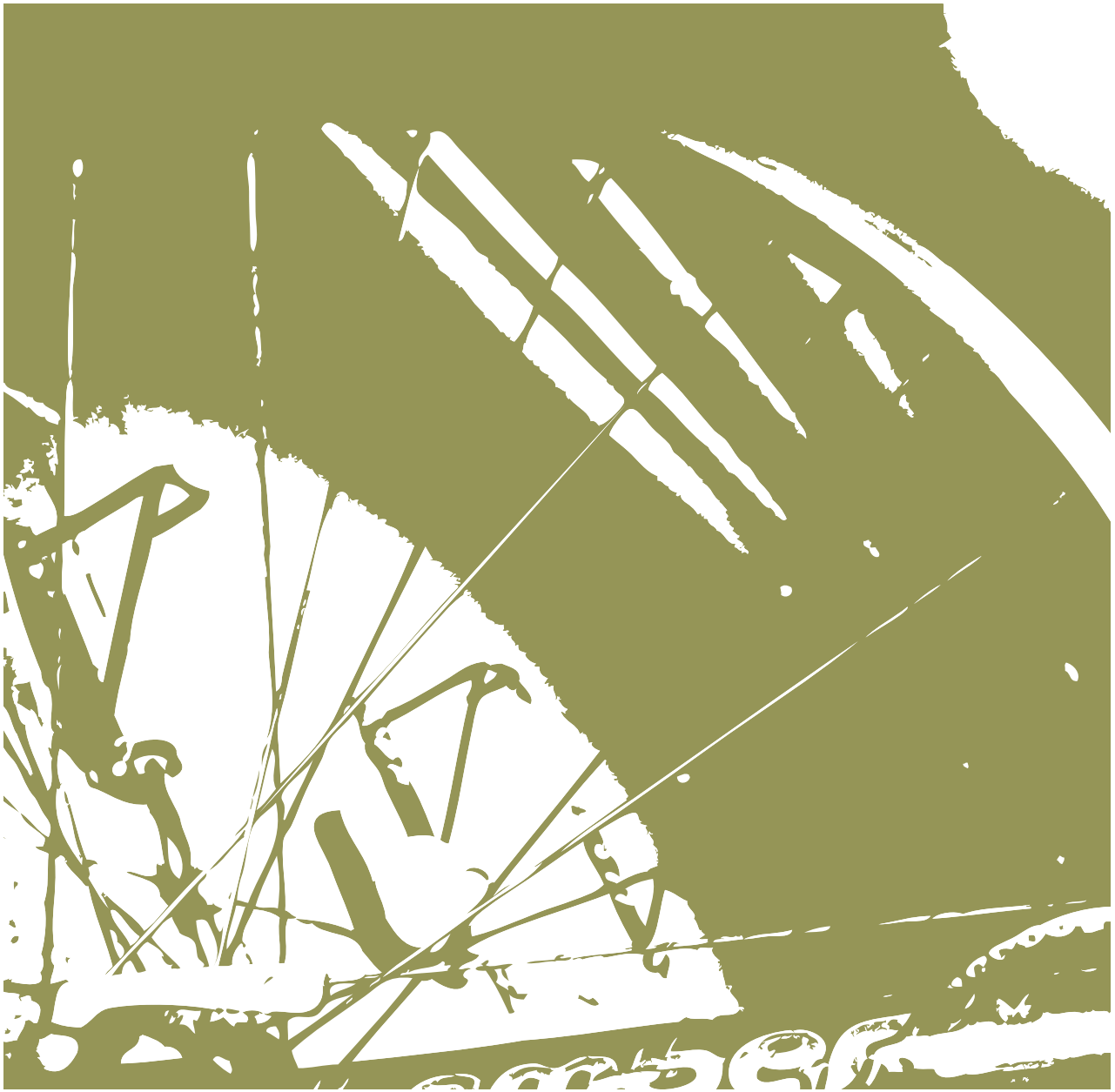
ELECTRICAL	Power receptacles at floors and walls
LIGHTING	General lighting 30-40 Fc, dimmable program
MECHANICAL	Dedicated zone
ACOUSTICS	Provide sound attenuation as required
PLUMBING	No special requirements
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

BUILT-IN	Bookshelves/base cabinet
FIXED	Blinds at windows
MOVABLE	3 work tables, 12 task chairs
OTHER	None

TECHNOLOGY

VOICE/DATA	2 data; wireless
MEDIA	Ceiling-mounted digital projector and speakers, motorized roll-down projection screen



support and maintenance

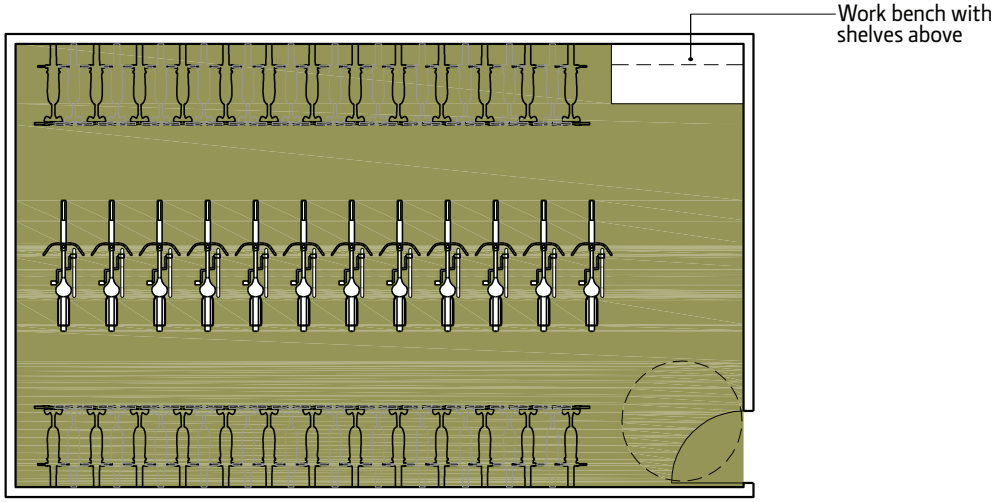
Service spaces included in the assignable square footage reflect support and maintenance accommodations related specifically to housing operations. General building services – mechanical, electrical, data, grounds maintenance – are accounted for in the gross square footage (i.e. building efficiency factor).

ST-3

BIKE & GEAR STORAGE

DESCRIPTION	Bicycle storage
TOTAL ASF	600
NO. OF OCCUPANTS	-
ADJACENCIES	Garage
VIEWS	None
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	Low VOC painted structure or ACT
WALLS/BASE	Low VOC painted plywood at wall-mounted bike racks/ Resilient
FLOORS	Concrete or resilient
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	Not required

FURNITURE & EQUIPMENT

BUILT-IN	Shelving
FIXED	50 wall-mounted bike racks, high-low mounting; 12 floor-mounted bike racks
MOVABLE	Work bench/Repair station
OTHER	None

ENGINEERING SYSTEMS

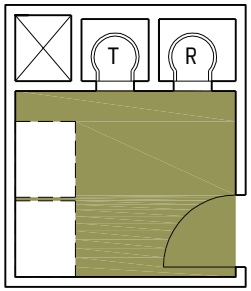
ELECTRICAL	General duplex receptacles
LIGHTING	Direct artificial lighting 10-20 Fc
MECHANICAL	Ventilation
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Hose bibb, floor drain
SECURITY	Card key access, security camera
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

TR-1

TRASH & RECYCLING ROOM



DESCRIPTION	Trash and recycling bins on each residential floor
TOTAL ASF	120
NO. OF OCCUPANTS	-
ADJACENCIES	Off of main corridor
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted structure or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient
WINDOWS	None
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

ENGINEERING SYSTEMS

ELECTRICAL	General duplex receptacles
LIGHTING	Direct artificial lighting 10-20 Fc
MECHANICAL	Exhaust air
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Hose bibb, floor drain at ground floor room only
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	Trash and recycling chute
MOVABLE	Recycling bins
OTHER	None

TECHNOLOGY

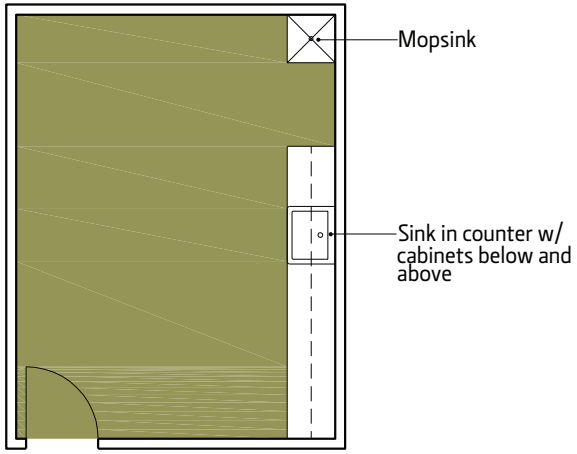
VOICE/DATA	None
MEDIA	None

ST-4

MAINTENANCE / STORAGE

DESCRIPTION	Facility maintenance
TOTAL ASF	250
NO. OF OCCUPANTS	-
ADJACENCIES	Storage for maintenance
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient or sealed concrete
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	Counters with cabinets above and below
FIXED	None
MOVABLE	None
OTHER	None

ENGINEERING SYSTEMS

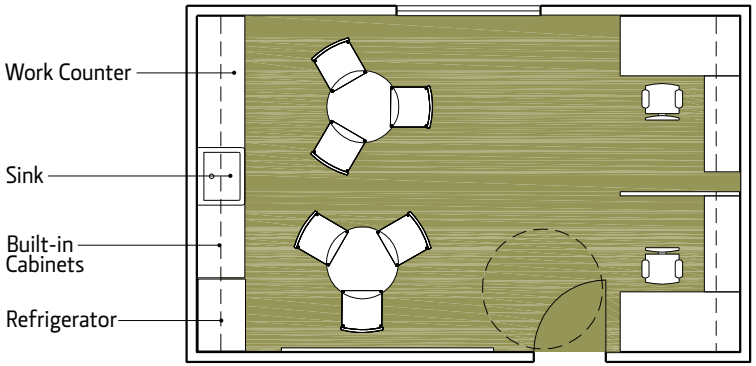
ELECTRICAL	GFCI receptacles at countertop, power outlets at walls
LIGHTING	General lighting 30-40 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Floor-mounted mop sink, single basin stainless steel sink, floor drain
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

WR-2

CUSTODIAL BREAK ROOM



DESCRIPTION	Food preparation, break room, office, and storage space for maintenance staff
TOTAL ASF	350
NO. OF OCCUPANTS	-
ADJACENCIES	Maintenance Storage
VIEWS	Views desirable if possible
MIN. CEILING HEIGHT	9'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient or carpet
WINDOWS	Aluminum, thermally broken
DOORS	FSC certified solid-core wood door
DOOR FRAMES	Hollow metal and side lite
DAYLIGHTING	Desired

FURNITURE & EQUIPMENT

BUILT-IN	Counters with lockable cabinets above and below
FIXED	White board, microwave
MOVABLE	9 task chairs, 2 tables, 2 workstations
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	GFCI outlets at countertop
LIGHTING	Ambient artificial light; Indirect/direct 20-30 Fc
MECHANICAL	HVAC
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Single compartment stainless steel sink with garbage disposal
SECURITY	Card key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm strobe

TECHNOLOGY

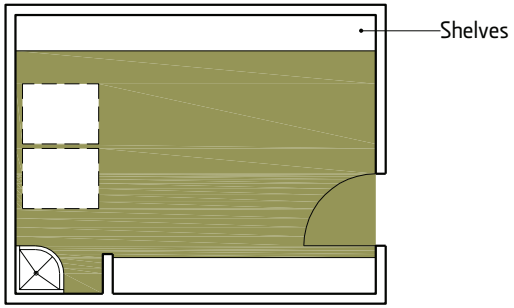
VOICE/DATA	2 phone/2 data; wireless
MEDIA	None

ST-5

CUSTODIAL STORAGE

DESCRIPTION	Storage for custodial maintenance
TOTAL ASF	200
NO. OF OCCUPANTS	-
ADJACENCIES	Storage for custodial maintenance
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'



FINISHES / TREATMENT

CEILING	ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient
WINDOWS	None
DOORS	Hollow metal
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

ENGINEERING SYSTEMS

ELECTRICAL	No special requirements
LIGHTING	Direct artificial lighting 20-30 Fc
MECHANICAL	No special requirements
ACOUSTICS	Provide sound attenuation as required
PLUMBING	Floor-mounted mop sink, floor drain
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

FURNITURE & EQUIPMENT

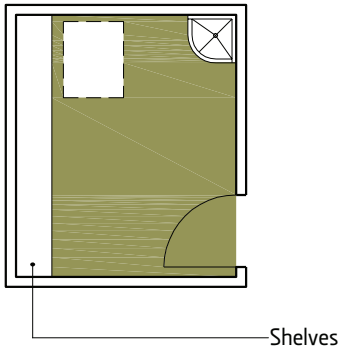
BUILT-IN	None
FIXED	None
MOVABLE	Shelving units, carts
OTHER	None

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

ST-6

CUSTODIAL CLOSETS



DESCRIPTION	Custodial closets on residential floors
TOTAL ASF	120
NO. OF OCCUPANTS	-
ADJACENCIES	Off of main corridor
VIEWS	None
MIN. CEILING HEIGHT	8'-0"
ACCESSIBILITY	Per code
SCALE	1/8"=1'-0"

0 2' 4' 8'

FINISHES / TREATMENT

CEILING	Low VOC painted structure or ACT
WALLS/BASE	Low VOC painted GWB/Resilient
FLOORS	Resilient
WINDOWS	None
DOORS	FSC certified solid-core wood door or hollow metal/ Stainless steel kickplate
DOOR FRAMES	Hollow metal
DAYLIGHTING	None

FURNITURE & EQUIPMENT

BUILT-IN	None
FIXED	None
MOVABLE	Shelves, cart
OTHER	None

ENGINEERING SYSTEMS

ELECTRICAL	Convenience outlets
LIGHTING	Direct artificial lighting 20-30 Fc
MECHANICAL	HVAC
ACOUSTICS	N/A
PLUMBING	Janitorial mop sink, floor drain
SECURITY	Key access
FIRE PROTECTION	Sprinkler, smoke detector, fire alarm horn & strobe

TECHNOLOGY

VOICE/DATA	None
MEDIA	None

or 2211-1 Writing in Honors Global Health Scholars Tamara Ellen Taylor Sally Rector Emett Patrice Co
Ken Garner Shane Williams Doug Pike Honor 4474-3 Hip Hop & Social Justice Education Alexia Li Adair Honor 3371-1 Constitutional Trial Rights of the Accused Tre
Chamonix Larsen Honors 3500 Honors Internship George Buys Renee Winch Brian Kubarycz Honor 2701-1 Honors Cornerstone Part II Honors 2102 Medieval Christianity and Renais
ents will have increased contact with faculty mentors; student interaction and interdependence and integration with the great university community. Community Leadership Scholars Aramis Watson Gr
Martha Bradley Students participate in groups of 20 or fewer. Emphasis will be placed on engaged or active learning. Students in Scholars cohorts will participate during three years at the universit
Honor 3225-1 Technologies of the Body Encourage social responsibility through meaningful community based research, service and interaction. Each cohort will be lead by a faculty mentor who will guide the
Each will include its own academic focus and will explore a variety of related topics. Honor 3372-1 Drug Theory Policy & Practice Stephen Trimble Honors core in Physical and Life Science Paul Laurence
Social Justice Scholars Honor 4701-1 Asian Economic History and Development Bill Gordon Suzanne Chang Liu Rick James Fiske Crowell Honors 4800 What M
2212-1 American Institutions Carolan Ownby Corper James Passion Jasmin Garcia Lynn Hinrichs Linda Anderson Alma Allred The Barbara Lindsay Honors Essay Award Meghen Quinn Honors College Sch
The experiences, ideas and perspectives of the other cohort members will enhance the students' learning. Honors 4472 Seminar/Workshop in Humanities
Honors 3214 African American History Honors 3214 African American Experiences C. Charles Hetzel III Scholarship Francesco Mozzati Promote academic excellence foster integrity and devel
Leo Florence Honor 3060-1 Black, White, and Gray: Construction of Race in South Africa and Australia Honors 3374 Preparation for Legal Study Honor 3377-1 International Consumer Policy Honor
Matthew Bradley Michael Gills Honors 2101 The World of Antiquity Each cohort will offer at least one exclusive course or cohort experience each year. Mary Norma Watkins Mart
Create an environment that enhances student development as life-long leaders, citizens and scholars. Cohort experiences will be both in and outside the classroom. Alberta Henry Education Foundation Scholars
Kenneth Browning Handley Scholarship Kris Larsen The Sweet Candy Scholarship Steve Connor Enhance the students' intellectual and personal development through s
Honors Core in Humanities Honors 2101, 2102,2103 Honors core in Intellectual Traditions, Part I, Part II, Part III Terrell Bodily Alan Smith Tayler Jae Wiles Tom Jakab Kelly Calder
ore in Social Science Honors 3377 Honors core in Social Science Honors 3214 Foundations in Social Science Honors 3354 Civic Engagement Seminar Honor4473-1 Magic, Metaphor & Mor
Honors 3100 Diversity Seminar Honors 3200 Writing in a Research University General Honors Courses Honor 3005-1 International Leadership Academy

4 concept

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introduction

The preferred concept for Honors Housing at Legacy Bridge is the result of a consensus-based workshop process. Alternatives were developed from the micro-scale of the bedroom module to the macro-scale of the South Campus Housing Master Plan, discussed with the Project Committee, and refined accordingly through a series of iterations. Program elements were purposely composed to test a wide variety of adjacencies, ratio-dependent communities, and densities. Vehicular access and parking, key influences in the planning of both the initial phase and the future phases of the South Campus Housing Master Plan, were evaluated in terms of quantity (bed-to-parking space ratios), typology (surface parking, podium parking structure and independent, stand-alone parking structure), and value. Most importantly, the preferred concept is fully integrated into the University of Utah and Legacy Bridge context – it is unique in its response to the program, site, mission and vision.

View from the North

approach

Axonometric of Basic Modular Unit

the living unit

The living unit modules represent over 85 percent of the project's assignable space – as well as the most reliable source of revenue generation. The existing inventory of on-campus housing was evaluated with the intention that the Honors Housing represents a distinct, but complementary, alternative. Sleeping quarters were designed around the dimensional criteria of University-provided furnishings, assuring efficiency while accommodating flexibility.

Apartment configurations were presented in multiple configurations that housed four, eight, twelve and twenty-four students. The preferred bedroom-to-bathroom ratio is 2 to 1. The maximum student to Resident Advisor ratio is 50 to 1. Because it is preferred that Resident Advisors live on the same floor as the students that they advise, floor and building wing community sizes were tested and evaluated based on each unit type. The resulting basic modular unit is composed of four single bedrooms sharing two bathrooms. A two-story version of this module, housing eight students and featuring an internal stair and double-height living room, was developed specifically for Honors College Freshmen. The Resident Advisor (RA), Residential Education Coordinator (REC), and Faculty-in-Residence (FIR) apartments are all derived from the basic four-bedroom / two-bath module, thus allowing for flexibility in stacking and locating of different types of units within the building.

south campus housing master plan

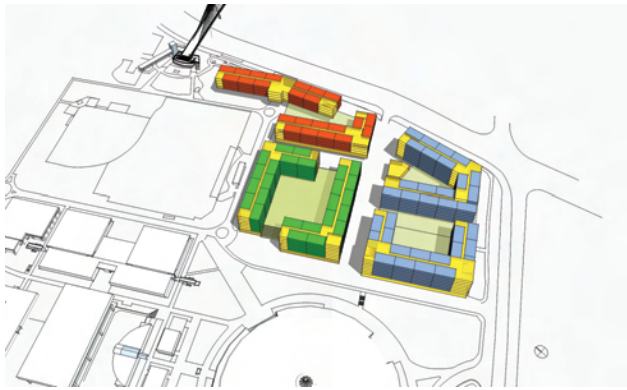
The 2008 Campus Master Plan identified South Campus Housing as a Transformative Project envisioned to enhance student life, improve transit nodes, create campus gateways, clarify circulation and strengthen the Campus' sense of place. Located prominently at the corner of Mario Capecchi and South Campus Drives, 1,800 beds of single student apartments were envisioned to be developed by 2025.

The Honors Housing at Legacy Bridge project – at 300 beds - was identified as the initial phase of the South Campus Housing development and a new analysis was presented. The South Campus Housing precinct's programming goal remained at 1,800 apartment-style beds, with on-site parking provided based upon a two-to-one bed-to-parking space ratio (900 spaces). Development was anticipated in three phases, in roughly 300, 600, and 900 bed increments.

A key extension of the site's original study area – the northern leg of the site, adjacent to the Legacy Bridge - was granted, increasing the residential precinct to 9.8 acres. Massing and density analysis revealed a number of opportunities and constraints:

- 1,800 beds, planned at uniform density, will result in an urban-scale community of "pedestrian streets and squares" of predominantly six-story buildings.
- The preferred location for Phase One is by the Legacy Bridge.
- Accommodation for parking – podium versus a stand-alone structure – will affect phasing, budget, density and program goals.
- Vehicular access to the site will remain at current locations, due to the TRAX adjacency.
- Surface parking, currently shared by a number of stakeholders, primarily Athletics, will be necessarily reduced as a result of Phase One development.
- The Annex Building will remain until at least Phase Two development.
- Phase One shall be fairly dense and compact in order to maintain South Campus Housing's development potential.

Site Plan of a Master Plan Option



Perspective of a Master Plan Option

honors housing alternatives

Once the program, the unit types and the preferred site were identified, a series of conceptual site accommodation alternatives were developed that reflected different approaches to parking, building organization, open space and density.

Alternatives A.1 and A.2 presume that the structured parking program will be deferred to future phases, and thus consolidate the Honors Housing program in the most efficient means possible – into single building scenarios. Alternative A.1 is uniformly massed (six stories of housing over ground level community and academic program), while A.2 features stepped massing to break down the scale of the building.

Alternatives B.1 and B.2 are planned around podium parking garages, consolidating residential program while seeking to unbundle the Café and Honors College components. The residential program is configured in multiple wings, shaping outdoor courtyard space over the podium structure. The integrated parking program necessitates the utilization of more site area when compared to the A-series of alternatives, however, either approach directly (albeit differently) affects the planning for future phases.

Alternative C also includes a parking podium structure, but presents the Honors Housing program in two mixed-use buildings. While splitting the program results in shorter buildings, desired adjacencies are judged to be compromised in this scheme.

The review of the different alternatives reveals several essential preferences:

- Honors College should be located at the north end of the site, adjacent to the Legacy Bridge.
- The Café/C-store should be unbundled from the residential

Alternative A.1

Alternative A.2

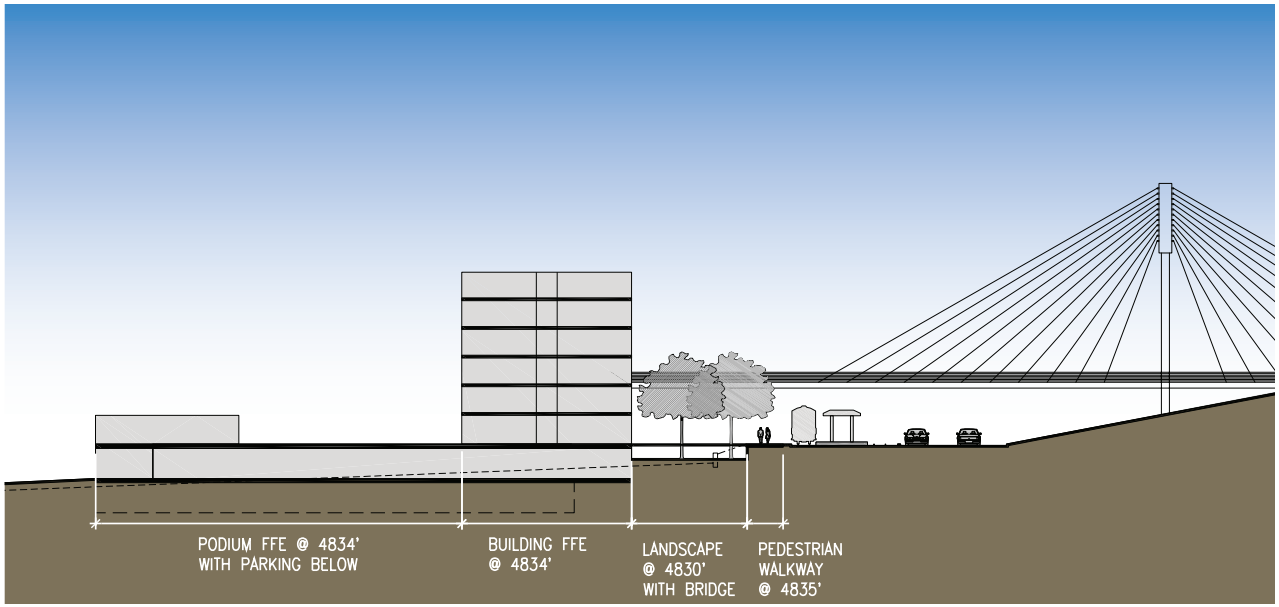
Alternative B.1

Alternative C

Alternative B.2

program, and located at the southwest corner of the site for both ease of service and to serve as a link to future residential development.

- Stepped building massing and multiple wings are desired to break down the overall scale of the project, although a singular entry lobby is desired for housing.
- Residential Administration and Honors College share resources and, therefore, should be adjacent to one another.
- A single-level parking podium structure is to be provided with a minimum of 50 spaces.
- The housing program unit mix is specified, with the desire for Freshman Honors students to be segregated from the upper division student communities.



Study Section

site opportunities & constraints

TOPOGRAPHY

For the most part, the Honors Housing site slopes gently east to west at an average slope of 5%. However, the edge along Mario Capecchi Drive is steep, with a 25% change in grade including a small retaining wall. The grade change from the Fort Douglas TRAX station to the multi-purpose field west of the Legacy Bridge results in a 10% slope. These topographic conditions necessitate that site accessibility be fully integrated into the design approach.

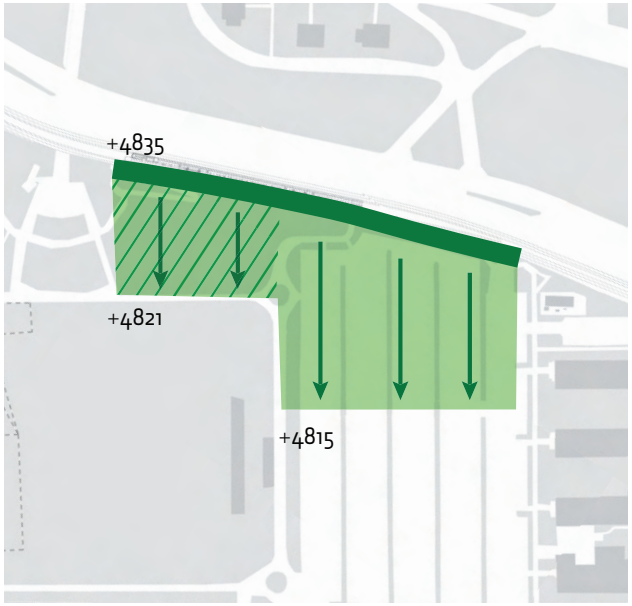
POINTS OF CONNECTION

Both the northern and southern access points associated with the Fort Douglas TRAX Station along the eastern perimeter of the site must be maintained as accessible entries into the Campus. To the north, the site connects with the base of the Legacy Bridge as well as a primary pedestrian walkway that leads to the HPER Mall, a major campus spine. On the western side of the site, a pedestrian walkway connects the site to the Huntsman Center and HPER Complex.

TOPOGRAPHIC INTERSECTIONS

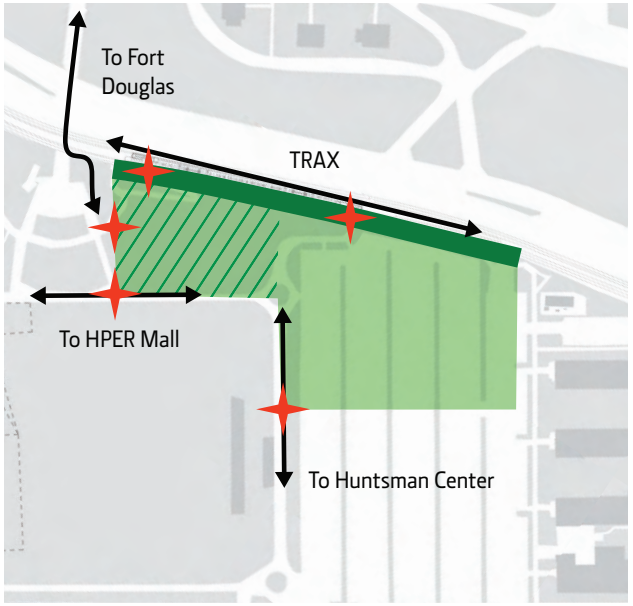
Four of the five points of connection coincide with significant elevation changes on the site. Any pathway that has a slope greater than 5% requires a ramp and no pathway is permitted to exceed an 8.3% slope (which corresponds to a 1:12 slope). To negotiate the site's grades and provide access from the Fort Douglas TRAX station, Legacy Bridge and the HPER Mall to the Honors Housing project, a combination of sloped walks, ramps, bridges and stairs are warranted.

The diagrammatic study section above illustrates how the grade



0 150' 300'

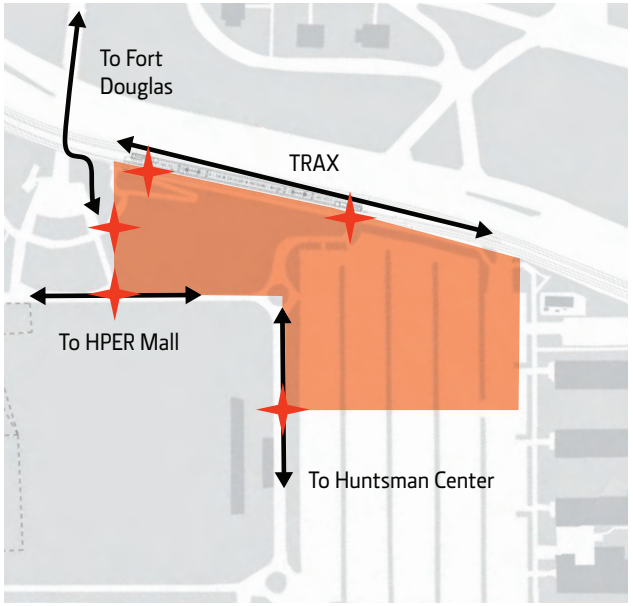
Topography



0 150' 300'

Topographic Intersections

change at the Fort Douglas TRAX station can be accommodated via a bridge to the first level of Honors Housing and to the plaza over the podium parking structure.



0 150' 300'

Points of Connection

Points of Arrival

Honors Housing Site

preferred alternative

honors housing concept

OVERVIEW

The preferred design concept incorporates all of the desired features of the prior building alternatives, and at the same time, successfully and uniquely addresses the character of the Honors Housing site and the University of Utah environment.

THE CONTEXT

Both existing and master planned pedestrian circulation routes are reinforced by the building's geometry and massing. The Legacy Bridge's iconic presence – as the major connection between the Campus' academic core and Fort Douglas' residential communities – is further supported by the location of the Honors College. The entire Honors College wing of the building reaches out towards the Bridge, creating a strong visual link. The eccentric geometry of Mario Capecchi Drive, relative to the orthogonal campus circulation network, is echoed by the Honors College wing, which addresses the campus edge while enhancing programmatic distinctions. The balance of the residential program sits atop the podium parking structure, aligned with the HPER Mall and its associated pedestrian paths. Their intersection marks the Fort Douglas TRAX Station gateway to the campus, which is further accentuated by a dramatic grand stairway and the main entry lobby.

THE BUILDINGS

Layout and Organization

The student apartments, which represent 85 percent of the program, are expressed in three wings served by a centralized building vertical circulation and service core. Unit type distribution among the five-story wings distinguishes the Honors College's uniqueness by placing the College in its own

View from the Southwest

View from the West Looking Towards the Grand Staircase

View from the Northwest

wing, the wing which houses the double-height eight-bed apartment community. The remaining L-shaped wings embrace a residential courtyard, which is open to the southwest so as to maximize solar exposure. The Café and C-store are segregated from the main building complex in a two-story volume located at the southwest corner of the site.

Garage Level

The Garage Level, which roughly equates to the existing Parking Lot 22 elevation, is composed of approximately 85 residential parking spaces, mechanical and electrical services, custodial and maintenance operations, bike storage and laundry. The laundry occupies the northwest corner of the garage, which daylights at grade and helps activate the lower plaza associated with the Café and C-store. A secure elevator access connects the garage with the residential lobby above. The intent of the Laundry and Café placement, combined with the thoughtfully designed landscaping, is to buffer the presence of the garage on the pedestrian oriented outdoor spaces.

Podium Level

The Podium Level is located slightly below the elevation of the TRAX Station, which helps to mitigate the site's grade change along Mario Capecchi Drive. While the program organized over the parking podium is discretely residential in nature, the Honors College wing of the building houses all of the academic and administrative portions of the program, as well as the main residential entry lobby. These spaces are expressed in a double-height volume and are flanked by grand loggias. The REC and FIR apartment units – purposely segregated - address the north side of the residential courtyard, which is activated on the west by a small dining mezzanine level associated with the Café.

Levels 2 - 6

Levels 2 through 6 are exclusively residential, with shared general study lounges on each floor. The study lounges are stacked per

garage level

ELEVATION +4821

podium level

ELEVATION +4834

- Café / C-Store
- Community (Double Height)
- Honors College (Double Height)
- Laundry
- Support & Maintenance
- Residential Administration (Double Height)
- Mechanical

Residential:

- 4 Singles
- RA Suite, 2 Singles
- 2 Singles, 1 Double
- 4 Singles, 2 Doubles
- RA Suite, 2 Singles, 2 Doubles
- REC / FIR

level 2

ELEVATION +4844

levels 3 to 5

ELEVATION +4854, +4864, +4874

- Café / C-Store
- Community (Double Height)
- Honors College (Double Height)
- Laundry
- Support & Maintenance
- Residential Administration (Double Height)
- Mechanical

Residential:

- 4 Singles
- RA Suite, 2 Singles
- 2 Singles, 1 Double
- 4 Singles, 2 Doubles
- RA Suite, 2 Singles, 2 Doubles
- REC / FIR

level 6

ELEVATION +4884

roof level

- Café / C-Store
- Community (Double Height)
- Honors College (Double Height)
- Laundry
- Support & Maintenance
- Residential Administration (Double Height)
- Mechanical

Residential:

- 4 Singles
- RA Suite, 2 Singles
- 2 Singles, 1 Double
- 4 Singles, 2 Doubles
- RA Suite, 2 Singles, 2 Doubles
- REC / FIR

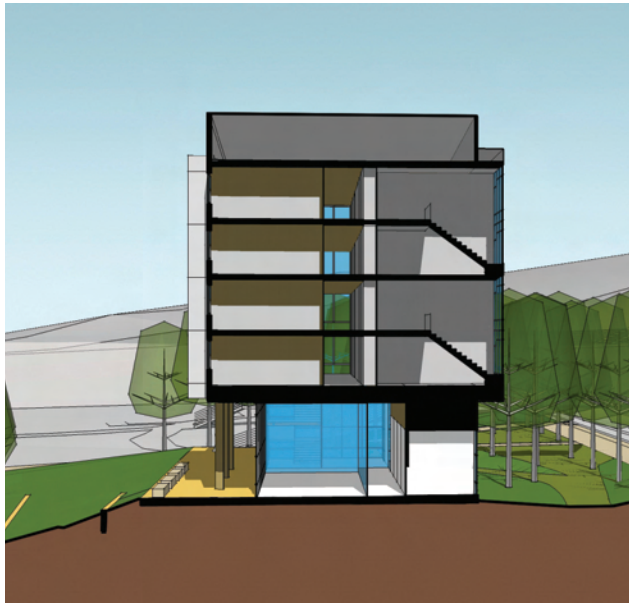
Section through Podium Parking

floor and located adjacent to the central circulation core. They offer dramatic, sweeping views of the Campus and valley to the west. Sustainable design opportunities for a green roof (whose occupancy would be strictly managed), solar hot water, and mitigation of the heat island effect should be pursued.

THE LANDSCAPE

Overview

The landscape is organized into a series of spaces and gestures that respond to the adjacent building programs. The Honors College wing is set on a plinth atop a sloping terrain to the west and a native landscape to the east. An opening in the landscape, at the corner of the plinth, provides a vista to the Honors College from campus, lending to its prominence. An outdoor loggia and plaza next to the academic spaces offers opportunities for engagement outside the classroom. The loggia leads to the gateway entry plaza at the heart of the project where the geometries of the housing wings converge overhead.



Section through North Wing

1" = 100'

0 50' 100' 200'

Illustrative Site Plan

Stepped Planters
Podium Planters + Small Trees
Bio-Landscape / Buffer
Trees + Turf
Grassy Slope

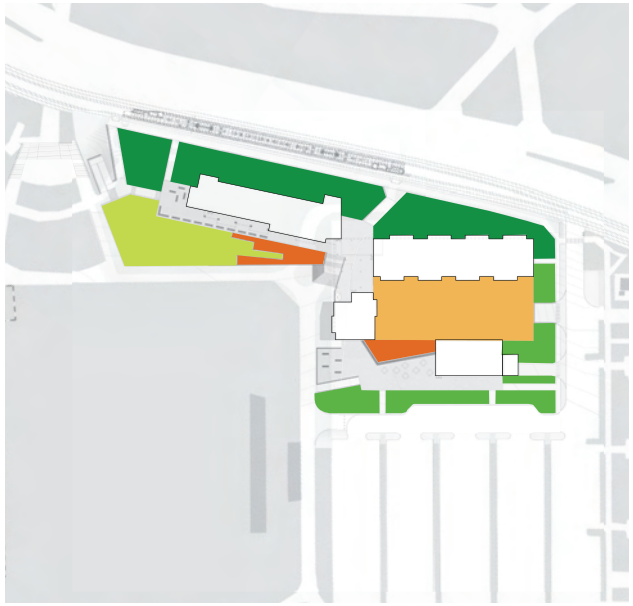
This compressed space then opens onto the residential courtyard set on top of the podium structure. A series of raised planters offer integrated seating along their edges and contain a varied palette of ornamental planting. Moving west towards the Café/C-store, stepped planters cascade from the courtyard to a plaza below. A smaller plaza outside the Laundry offers additional seating under shade tree canopy. These public outdoor spaces offer many possibilities for socializing and studying.

Planting Concept

Along the east side of the project is a swath of landscape that buffers the building between the TRAX line and Mario Capecchi Drive. This area features a native planting palette and, while intended to be a passive landscape in terms of occupation by people, it will function actively as stormwater mitigation. This bio-landscape is lower than the first level of the building program with an undulating terrain of planted earthen mounds that offer a cross-section of eco-zones and a varied plant palette. On the west side of the Honors College wing is a sloped plane of ornamental grasses that graduates into stepped planters where the grades become more steep toward the Grand Stair. A second stepped planter sits between the Café/C-store and Laundry, fronting the face of the podium structure. On the podium courtyard, a series of raised, geometric planters of multiple sizes offer a variety of planting opportunities, including small trees, and fruit and vegetables grown as organic produce for the Café. The remaining interstitial spaces within the landscape planting are low-maintenance areas of trees and lawn or grasses.

Landscape / Hardscape Program

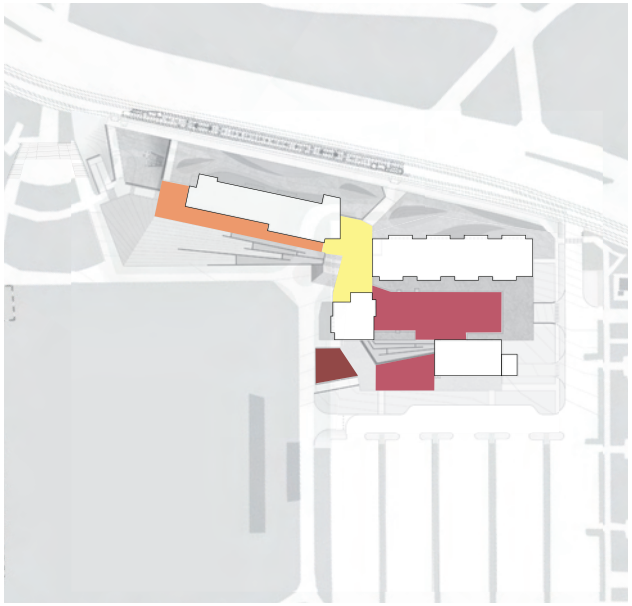
At the nexus of the three building wings is a gateway entry plaza which sits at the first floor elevation of the project. To the north is a loggia that runs along the academic core of the Honors College program space. The loggia leads to a plaza at the north end of the project that offers the opportunity for outdoor gathering and classroom space. This plaza is also the point of arrival from the Legacy Bridge and northern TRAX stop. To the south of the gateway plaza is a residential courtyard garden perched on top the parking podium structure. Outdoor gathering and seating spaces are provided for Café dining. On the lower level of the project another plaza with outdoor dining space sits adjacent to the Café/C-Store and Laundry.



Planting Concept

Stormwater Mitigation

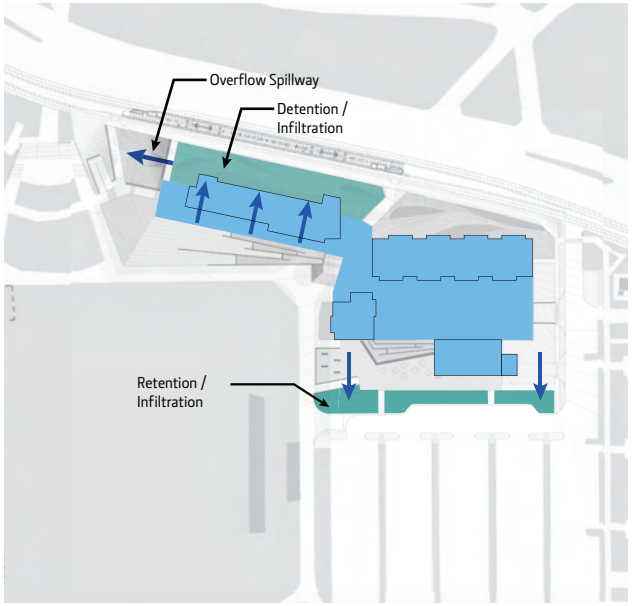
To meet the University's stormwater management guidelines, as outlined in the Civil Design Criteria section of the Program, two landscape areas are designated to provide stormwater retention/detention and infiltration. Water collected from the building roofs and the podium level plaza will be conveyed to the northern portion of the Bio-Landscape, where it will be detained for infiltration. An overflow spillway adjacent to the northern pedestrian bridge expresses the rainwater as it is released from the retention area. On the western edge of the project site is a detention and infiltration zone. This area will collect surface runoff from the lower plaza and provide site-wide detention for a 100 year / 24 hour storm.



0 125' 250'

Hardscape Program

- Plaza + Laundry Seating
- Plaza + Café Seating
- Honors College Loggia + Plaza
- Gateway / Entry



0 125' 250'

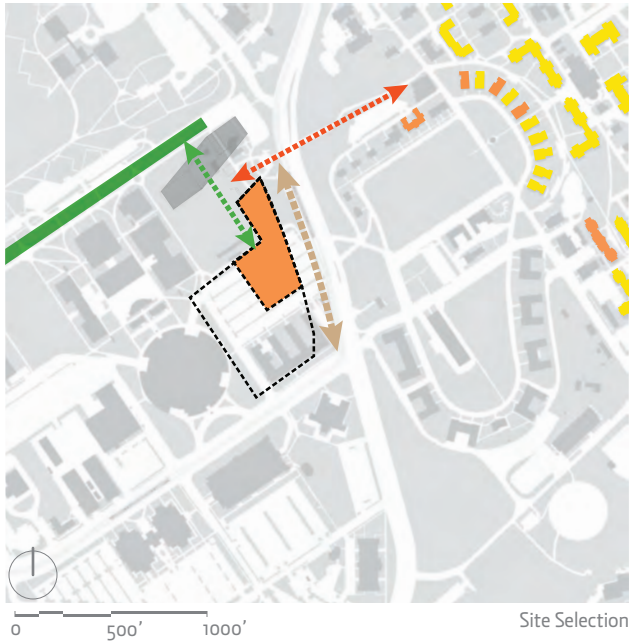
Stormwater Mitigation

- Stormwater Runoff
- Stormwater Mitigation Area
- Building + Podium Surface Area

site considerations

SITE SELECTION

As the first new housing project to be built as part of the 2008 Campus Master Plan, and with the embedded Honors College program, it is important for the project to have a visible and prominent location on the site. The location for the project was selected based upon its proximity to the iconic structure of the Legacy Bridge and the existing Honors College facilities to the east, across Mario Capecchi Drive. Connectivity to the city and world beyond the campus is an important objective of the Honors' collegiate program. Both access points for the Fort Douglas TRAX Station are within the project site, thus fostering a transit-oriented relationship between students and their greater environment. Additionally, the project site is located along a primary pedestrian route to the future Student Life Center and HPER Mall.



Site Selection

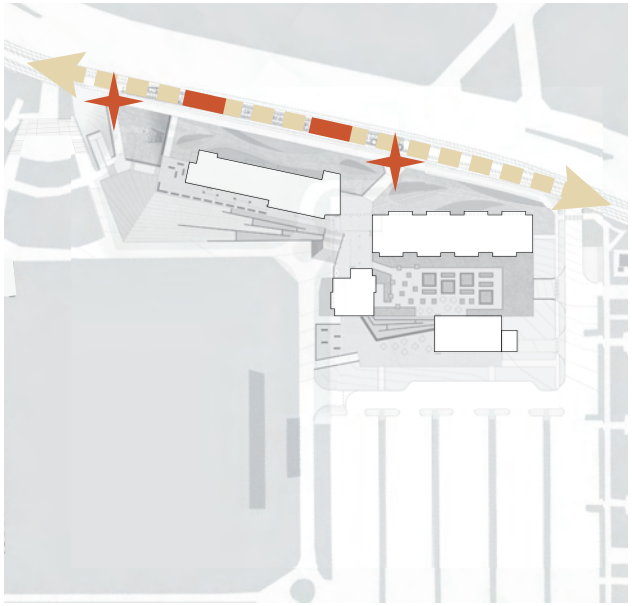
- South Campus Housing Master Plan Study Area
- Legacy Bridge
- TRAX
- HPER Mall
- Future Student Life Center
- New Honors College + South Campus Housing Site
- Existing Honors College + Honors Housing
- Existing University Housing

SITE CIRCULATION

The points of arrival from the Fort Douglas TRAX station initiate several paths of travel. A ramp at the northern TRAX stop provides an accessible route from TRAX to an existing walkway at the base of the Legacy Bridge. From here, students and visitors can access the HPER Mall. A stair is also provided at this location as an alternate route between the base of Legacy Bridge, the Honors College plaza, and the northern TRAX stop. To provide direct and accessible access to the Honors College project and plaza from this northern TRAX stop, a bridge over the sloped landscape connects the two locations which are roughly at the same elevation. A second bridge at the southern TRAX stop serves the same purpose. On the west side of the project at the gateway entry, a grand stairway negotiates the elevation change between the existing walkway and the first level of the Honors project. An adjacent exterior elevator provides for accessibility at this location.

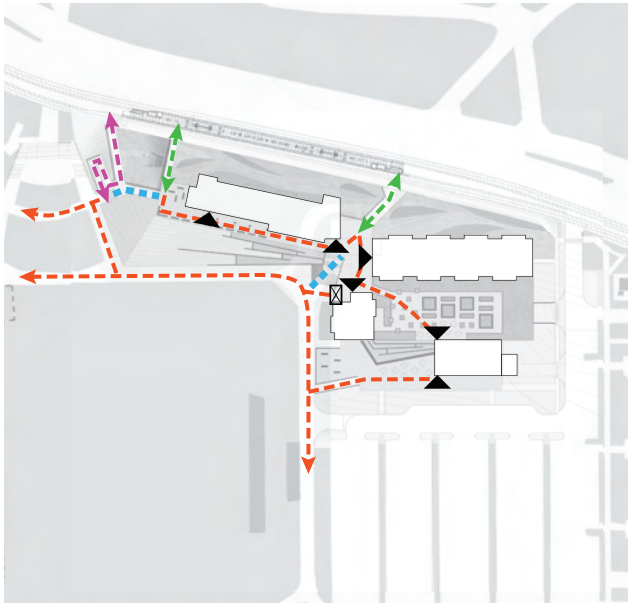
PARKING

The majority of the South Campus Housing site is an existing surface parking lot with approximately 625 spaces. When Phase One is built, it will displace approximately 275 spaces. The Honors Housing project will create approximately 85 podium parking spaces to serve its residents. An additional 70 surface parking spaces may be allotted to the housing project to meet the University parking ratio standard of 0.5 spaces per bed. The remaining 280 surface parking spaces will be available for Athletics and general use.



0 125' 250'

TRAX

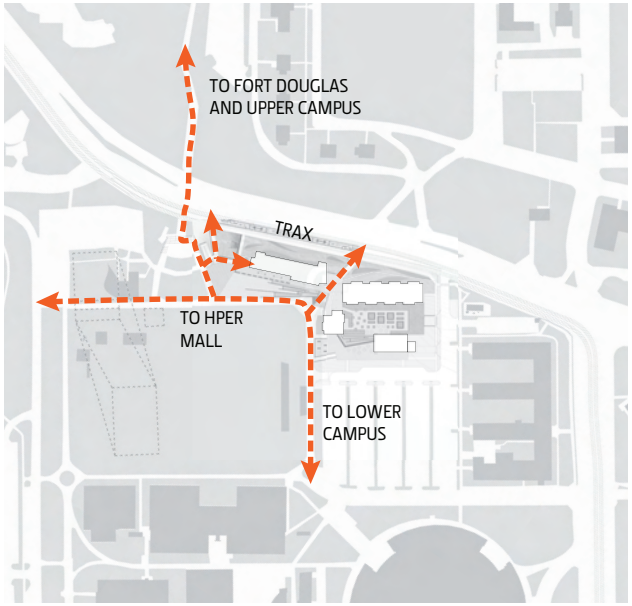


0 125' 250'

Site Circulation

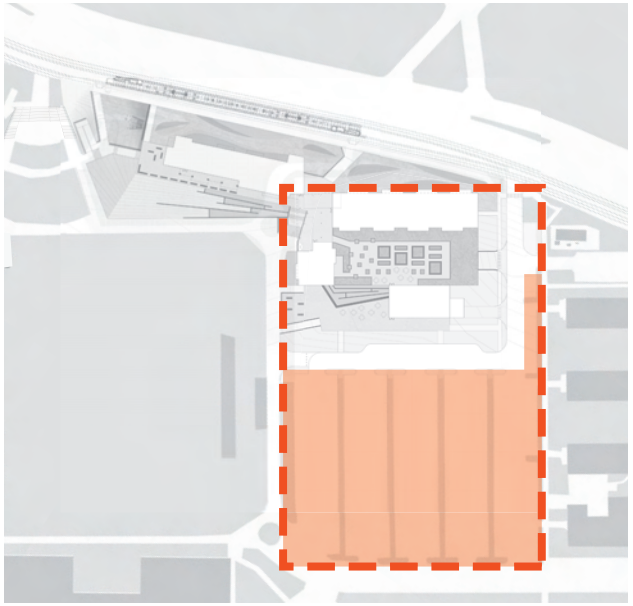
TRAX Points of Arrival
TRAX Shelters
TRAX Rail Line

Accessible Path of Travel
Accessible Ramp
Accessible Bridge
Alternate Stairs
Building Entry
Exterior Elevator



0 250' 500'

Connections



0 125' 250'

Parking

Existing Surface Parking Area
350 Surface Parking Spaces to Remain

cost model

summary of project construction cost

CSI #	Description	Building	Sitework	Parking	Total
02	Sitework & Demolition	$ 408,199	$ 2,372,823	$ 101,094	$ **2,882,116**
03	Concrete	$ 1,162,411		$ 1,311,847	$ **2,474,258**
04	Masonry	$ 1,887,502		$ 49,590	$ **1,937,092**
05	Metals	$ 2,276,729		$ 59,852	$ **2,336,581**
06	Woods & Plastics	$ 46,124		$ -	$ **46,124**
07	Thermal & Moisture Protection	$ 1,658,060		$ 126,170	$ **1,784,230**
08	Doors & Windows	$ 1,851,401		$ 18,500	$ **1,869,901**
09	Finishes	$ 4,009,183		$ 15,635	$ **4,024,818**
10	Specialties	$ 245,494		$ 10,000	$ **255,494**
11	Equipment	$ 418,275		$ 25,000	$ **443,275**
12	Furnishings	$ 137,633		$ -	$ **137,633**
14	Conveying Systems	$ 330,000		$ 30,000	$ **360,000**
15	Mechanical	$ 4,504,383		$ 147,861	$ **4,652,244**
16	Electrical	$ 2,752,504		$ 195,054	$ **2,947,558**
	Subtotal	**$ 21,687,898**	**$ 2,372,823**	**$ 2,090,603**	**$ 26,151,324**
	General Condition	$ 1,084,395	$ 118,641	$ 104,530	$ **1,307,566**
	Overhead & Profit	$ 867,516	$ 94,913	$ 83,624	$ **1,046,053**
	Design Contingency	$ 2,168,790	$ 237,282	$ 209,060	$ **2,615,132**
	Totals	**$ 25,808,599**	**$ 2,823,659**	**$ 2,487,817**	**$ 31,120,076**

See Appendix C for detailed cost model.

summary of building

CSI #	Description		Unit Cost	Total
02	Sitework & Demolition		$ 2.74	$ 408,199
03	Concrete		$ 7.81	$ 1,162,411
04	Masonry		$ 12.69	$ 1,887,502
05	Metals		$ 15.30	$ 2,276,729
06	Woods & Plastics		$ 0.31	$ 46,124
07	Thermal & Moisture Protection		$ 11.14	$ 1,658,060
08	Doors & Windows		$ 12.44	$ 1,851,401
09	Finishes		$ 26.95	$ 4,009,183
10	Specialties		$ 1.65	$ 245,494
11	Equipment		$ 2.81	$ 418,275
12	Furnishings		$ 0.93	$ 137,633
14	Conveying Systems		$ 2.22	$ 330,000
15	Mechanical		$ 30.27	$ 4,504,383
16	Electrical		$ 18.50	$ 2,752,504
	Subtotal		**$ 145.77**	**$ 21,687,898**
	General Condition	5%	$ 7.29	$ 1,084,395
	Overhead & Profit	4%	$ 5.83	$ 867,516
	Design Contingency	10%	$ 14.85	$ 2,168,790
	Totals		**$ 173.46**	**$ 25,808,599**

summary of sitework

CSI #	Description		Unit Cost	Total
02	Demolition - Not Included			
02	Earthwork			$ 257,303
02	Site Utilities			$ 1,009,429
02	Site Concrete			$ 335,481
02	Site Lighting			$ 148,572
02	Asphalt Paving			$ 47,705
02	Site Specialties			$ 148,572
02	Landscaping			$ 426,034
	Subtotal		**$ 15.97**	**$ 2,372,823**
	General Condition	5%	$ 0.80	$ 118,641
	Overhead & Profit	4%	$ 0.64	$ 94,913
	Design Contingency	10%	$ 1.60	$ 237,282
	Totals		**$ 19.01**	**$ 2,823,659**

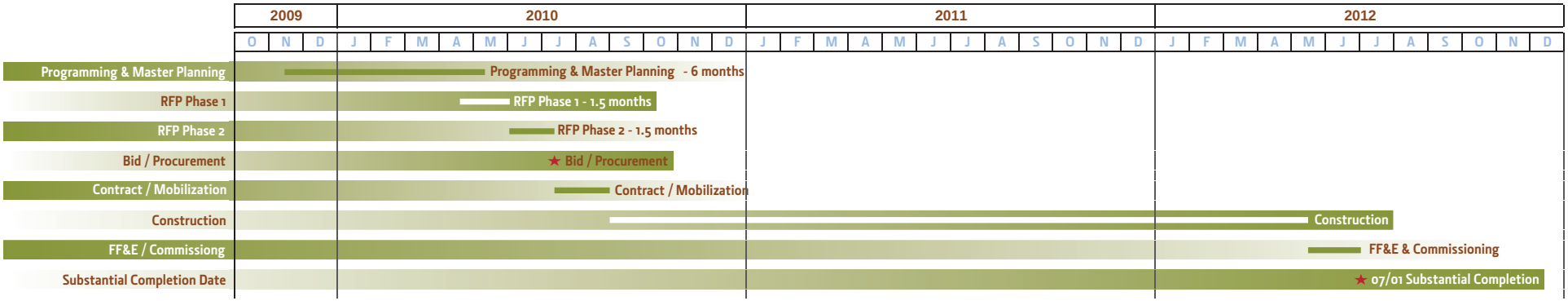
summary of parking

CSI #	Description		Unit Cost	Total
02	Sitework & Demolition		$ 3.06	$ 101,904
03	Concrete		$ 39.68	$ 1,311,847
04	Masonry		$ 1.50	$ 49,590
05	Metals		$ 1.81	$ 59,852
06	Woods & Plastics		$ -	$ -
07	Thermal & Moisture Protection		$ 3.82	$ 126,170
08	Doors & Windows		$ 0.56	$ 18,500
09	Finishes		$ 0.47	$ 15,635
10	Specialties		$ 0.30	$ 10,000
11	Equipment		$ 0.76	$ 25,000
12	Furnishings		$ -	$ -
14	Conveying Systems		$ 0.91	$ 30,000
15	Mechanical		$ 4.47	$ 147,861
16	Electrical		$ 5.90	$ 195,054
	Subtotal		**$ 63.24**	**$ 2,090,603**
	General Condition	5%	$ 3.16	$ 104,530
	Overhead & Profit	4%	$ 2.53	$ 83,624
	Design Contingency	10%	$ 6.32	$ 209,060
	Totals		**$ 75.25**	**$ 2,823,659**

project schedule

Phase 1 Honors Housing at Legacy Bridge - Proposed Project Schedule

2012 Occupancy



UT

or 2211-1 Writing in Honors Global Health Scholars Tamara Ellen Taylor Sally Rector Emett Patrice Co
Ken Garner Shane Williams Doug Pike Honor 4474-3 Hip Hop & Social Justice Education Alexia Li Adair Honor 3371-1 Constitutional Trial Rights of the Accused Tre
Chamonix Larsen Honors 3500 Honors Internship George Buys Renee Winch Brian Kubarycz Honor 2701-1 Honors Cornerstone Part II Honors 2102 Medieval Christianity and Renais
ents will have increased contact with faculty mentors; student interaction and interdependence and integration with the great university community. Community Leadership Scholars Aramis Watson Gr
Martha Bradley Students participate in groups of 20 or fewer. Emphasis will be placed on engaged or active learning. Students in Scholars cohorts will participate during three years at the university
Honor 3225-1 Technologies of the Body Encourage social responsibility through meaningful community based research, service and interaction. Each cohort will be lead by a faculty mentor who will guide the
Each will include its own academic focus and will explore a variety of related topics. Honor 3372-1 Drug Theory Policy & Practice Stephen Trimble Honors core in Physical and Life Science Paul Laurence
Social Justice Scholars Honor 4701-1 Asian Economic History and Development Bill Gordon Suzanne Chang Liu Rick James Fiske Crowell Honors 4800 What M
2212-1 American Institutions Carolan Ownby Corper James Passion Jasmin Garcia Lynn Hinrichs Linda Anderson Alma Allred The Barbara Lindsay Honors Essay Award Meghen Quinn Honors College Sch
The experiences, ideas and perspectives of the other cohort members will enhance the students' learning. Honors 4472 Seminar/Workshop in Humanities
Honors 3214 African American History Honors 3214 African American Experiences C. Charles Hetzel III Scholarship Francesco Mozzati Promote academic excellence foster integrity and devel
Leo Florence Honor 3060-1 Black, White, and Gray: Construction of Race in South Africa and Australia Honors 3374 Preparation for Legal Study Honor 3377-1 International Consumer Policy Honor
Matthew Bradley Michael Gills Honors 2101 The World of Antiquity Each cohort will offer at least one exclusive course or cohort experience each year. Mary Norma Watkins Mart
Create an environment that enhances student development as life-long leaders, citizens and scholars. Cohort experiences will be both in and outside the classroom. Alberta Henry Education Foundation Scholars
Kenneth Browning Handley Scholarship Kris Larsen The Sweet Candy Scholarship Steve Connor Enhance the students' intellectual and personal development through s
Honors Core in Humanities Honors 2101, 2102,2103 Honors core in Intellectual Traditions, Part I, Part II, Part III Terrell Bodily Alan Smith Tayler Jae Wiles Tom Jakab Kelly Calder
ore in Social Science Honors 3377 Honors core in Social Science Honors 3214 Foundations in Social Science Honors 3354 Civic Engagement Seminar Honor4473-1 Magic, Metaphor & Mor
Honors 3100 Diversity Seminar Honors 3200 Writing in a Research University General Honors Courses Honor 3005-1 International Leadership Academy

5 performance

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Site Criteria 5 - 162
Building Systems Criteria 5 - 182
Sustainability 5 - 206
Feasibility Studies 5 - 210

planning principles

site guidelines

GENERAL

The guidelines outlined in this section assisted the Design Team in siting the preferred alternative. The future designer will need to address all site criteria relative to existing right-of-ways, public transportation routes, fire access, and telecommunication pathways.

RIGHT-OF-WAYS

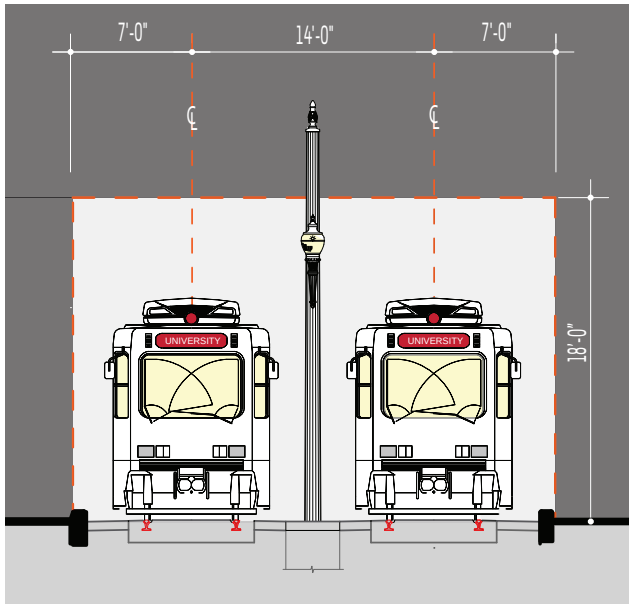
Conversations between UTA, UDOT, and the University revealed that there are right-of-ways in place at the site, but their legal descriptions are outdated in relation to existing roads and public transportation routes adjacent to the site. When the TRAX light rail line was built, an inter-local agreement was executed between UTA, UDOT, and the University which allows UTA to operate in the UDOT right-of-way. The UDOT right-of-way begins at the top back of curb along roads adjacent the site. In this project, the close proximity of the TRAX presents a unique condition for building along its edge.

PUBLIC TRANSPORTATION ROUTES

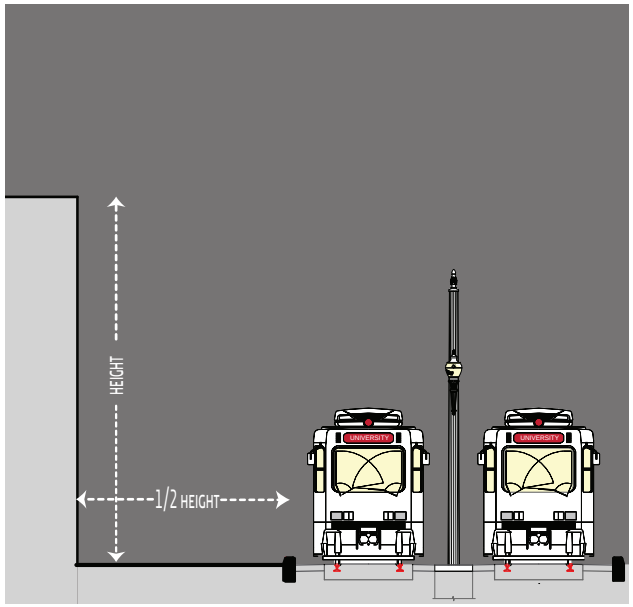
TRAX Setback & Height Clearance

For a light-rail corridor that runs along the side of a street rather than in the center (like that at the Fort Douglas Station), a seven foot minimum clearance from the center of tracks (on both sides if there are two trains) to the outside edge of the ballast curb is required. The ballast curb separates the track guideway from adjacent traffic lanes or sidewalks (as in this location). With the assistance of the University of Utah Fire Marshall and Fire Prevention Specialist, another clearance has been defined specifically for this site. Any new building shall be setback a distance of one-half the height of the building. The diagrams on this page illustrate this new setback guideline. For example, if a building is 60 feet tall, the building edge must be set back 30 feet from the TRAX ballast curb.

Currently, an existing access drive from Mario Capecchi Drive



UTA - TRAX Clearances



Building Setback Requirement from TRAX

into the site crosses under the TRAX cables. The minimum clearance required for an emergency vehicle is 18 feet. UTA as-built drawings show that existing cable height at this location is greater than 18 feet, so the minimum clearance requirement is met.

TRAX Noise and Vibration

TRAX light rail line produces relatively very little noise and vibration in comparison to other types of rail systems. An official impact study was not conducted at this site; however, a noise and vibration study conducted for the Draper Transit Corridor Project, using a similar UTA TRAX light rail line, shows noise levels in the range of 48 to 56 dBA. These noise levels are lower than typical rail transit levels. Feedback taken from this study did not record any complaints from residents except for the occasional nighttime freight horns.

TRAX Electromagnetic Field (EMF)

There is an electromagnetic field (EMF) coming from the overhead cables of TRAX. Some international studies suggest that exposure to a high EMF field over a 24 hour basis is not desirable. Most of these studies were conducted on lines of very high field strength above 100 milligauss with high exposure over time. The TRAX cable line is a 5000 volt DC line, and unlike power lines that have more constant power flow, actual current flow of the cables vary as trains approach. Most times when trains are not running the electric field would be stagnant, with magnetic fields rising as the current flow rises. Any EMF field will quickly fall off with distance, so although the exact current flow is unknown, one could estimate at a distance of approximately 30 to 40 feet or more away from the lines, field strength would likely be well under 10 mG, which is the lowest level proposed standard internationally (Based on the Swiss Bunderstat NCRP Draft Report for Human Exposure.). The exact distance where it falls below 10 mG could be field measured with a Gauss Meter by a qualified testing agency to get an accurate background EMF.

FIRE ACCESS

Fire Suppression Services

Salt Lake City Fire Department services the University. In an emergency, response vehicles will most likely come from Research Park, but there is the potential for vehicles to come from all directions along South Campus Drive and Mario Capecchi Drive. Although the SLC Fire Department services the University in terms of fire suppression, the SLC Fire Department has no jurisdiction over the University. Nevertheless, the University often coordinates with the City on projects of this size and scope.

It is the responsibility of the future designer to determine adequate fire protection provisions consistent with all code requirements. The University of Utah Fire Marshall, who has jurisdiction over the State Fire Marshall, adheres to the International Fire Code for all fire-related codes regarding site and building design. In addition, the Salt Lake City Fire Department reviews new construction for Salt Lake City and the University often consults withe SLC fire on all local code provisions. Two local specifications to be used for this project are listed below:

Salt Lake City Fire Department		
Specification		
Turning Radii	Outside Radius	45'
	Inside Radius	20'
Fire Apparatus Weighting	HS-20 Based on an axle load of 32 kips This load is divided into two tires.	

Design Considerations

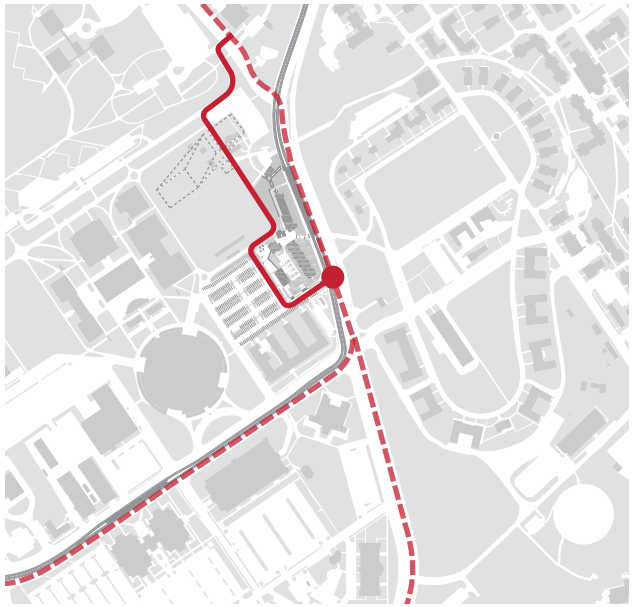
The University Fire Prevention Specialist, analyzed the preferred alternative and developed the following approach to fire suppression:

The southern entrance of the south portion of the building

F1 Continuation of fire apparatus access through to Mario Capecchi Drive.
F2 Lock box for SLC Fire Department access.
F3 Secondary SLC Fire Department access. Utilized in the event of a confirmed fire and staging point for combating a fire.
F4 SLC Fire Department connection for sprinkler system.
F5 SLC Fire Department access. Primary access for situational assessment. Remote annunciator within entrance area.

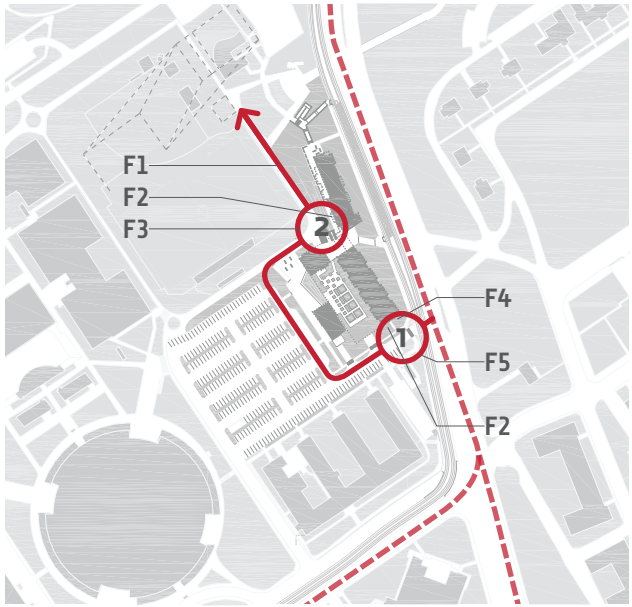
Access Point from Street
Existing Fire Truck Access Route
New Fire Truck Access Route

Communication Pathway



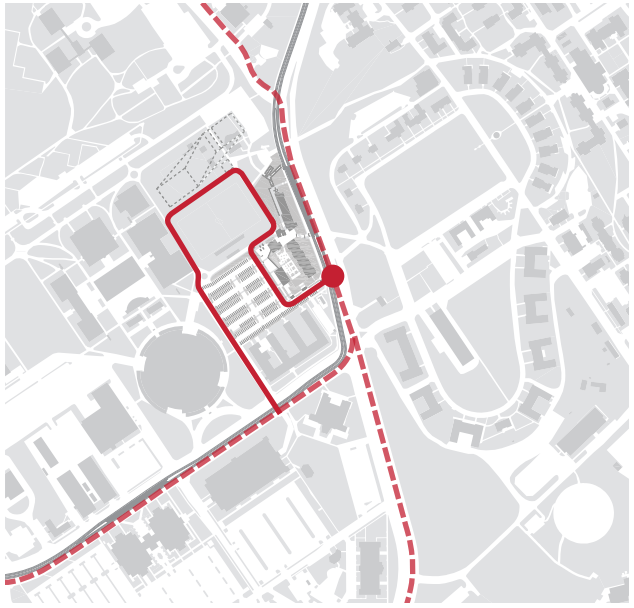
0 480' 960'

Fire Apparatus Access - *Before Student Life*



0 240' 480'

Fire Apparatus Access



0 480' 960'

Fire Apparatus Access - *After Student Life*

0 1200' 2400'

Lake Mountain Communications Pathway

(#1 on the Fire Apparatus Access Diagram) is expected to be the primary fire apparatus access point. This will be the first response point to a fire alarm to evaluate whether a false alarm or other type of emergency has occurred. A remote annunciator will be required at this entrance. A lock box for access shall also be available at this entrance. The fire department connection is suggested to be located here such that the truck pumping into the fire department connection is not causing a blockage of traffic due to the narrow access road at this sidewalk.

The western entrance of the north portion of the building (#2 on the Fire Apparatus Access Diagram) is expected to be a secondary fire apparatus access point, and likely to be the staging area in the event of a confirmed fire as the SLC Fire Department begin the assault on the building. A lock box and main fire panel, or remote annunciator for the fire alarms, are to be accessible in the lobby area.

Continuation of the fire apparatus access through to either turn-a-rounds or other parking areas, allowing fire trucks to return to the road, shall be addressed in the development of the project. Currently, existing sidewalks and Campus drives may be utilized to allow the fire apparatus to return back to the road. The future designer shall verify that the proposed route can accommodate the weight of the apparatus being used by the SLC Fire Department. When the Student Life Center is built, it will be necessary to alter current grades and existing sidewalks adjacent to the HPER Buildings and the Huntsman Center to allow trucks to return to the road.

TELECOMMUNICATION PATHWAYS

University of Utah Eccles Broadcast Center

As described in the 2008 Campus Master Plan, the Eccles Broadcast Center, located due north of the Honors Housing site at the intersection of Wasatch Drive and Mario Capecchi Drive provides important transmission and reception antennae for a number of broadcast facilities across the Salt Lake Valley. In conjunction with the Campus Master Plan, the Microwave Dish Relocation Feasibility Study was conducted to identify any proposed buildings in the Master Plan that may interrupt service along the line-of-sight of the various broadcast pathways. The Feasibility Study did not identify the Honors Housing site as a potential obstruction. The nearest line-of-site broadcast path adjacent to the site is directed toward Lake Mountain Communications. This pathway is in-line with the Jon M. Huntsman Center, away from the Honors Housing site. For master planning purposes, this pathway will not interfere with any future student housing planned for this section of Campus; the pathway clears parking lot 22 and is approximately 80 feet above grade at the multi-purpose field.

NOTE:

Refer to the site and building systems criteria sections in this chapter for additional code information regarding civil, geotechnical, landscape, structural, mechanical, and electrical systems.

code analysis

APPLICABLE CODES

According to the University of Utah Design Standards, the design and construction of University projects must comply with the latest adopted laws, rules, regulations, codes, and ordinances of the State of Utah and its jurisdictions. The following list represents the minimum codes and ordinances for which projects must comply (conflicts must follow the most stringent).

1994	Americans with Disabilities Act
2001	Building Board Policy Regarding Enhanced Accessibility to State Facilities
2010	Boiler and Pressure Vessel Regulations, State of Utah
1990	Federal manufactured Housing construction and Safety Standards Act (HUD)
2009	International Building Code (IBC)
2009	International Energy Conservation Code (IECC)
2009	International Fire Code (IFC)
2009	International Fuel Gas Code (IFGC)
2009	International Mechanical Code (IMC)
2009	International Plumbing Code (IPC)
2009	International Residential Code (IRC)
2009	Life Safety Code (LSC)
2008	National Electrical Code (NEC)
2005	National Fire Protection Code (NFPA)
2010	Pipeline Safety Regulations
1978	Planning & Design to Prevent Architectural Barriers for the Aged and Physically Handicapped
2010	Standard for Energy Efficiency in new State Buildings
2006	University of Utah Design Standards
2010	Utah Occupational Safety and Health Rules & Regulations (UOSH)
2010	Utah State Building Board
2010	Utah State Fire Marshal Requirements
2010	Utah State Department of Health Requirements
2010	All applicable rules of the Utah Administrative Code

USE AND OCCUPANCY CLASSIFICATION

This five story building with one level of podium parking will be composed of student "apartment" style dormitories, classrooms, administrative offices, dining, and retail, along with mechanical, support, and maintenance spaces. The following occupancy classifications will define all uses throughout the facility:

Classification	
Group	**Use**
A-2 Assembly	Restaurants
B Business	Educational occupancies for students above the 12th grade
M Mercantile	Retail stores
R-2 Residential	Dormitories
S-2 Storage	Parking garages, enclosed

SPECIAL USE AND OCCUPANCY

The one level parking structure will be classified as enclosed and shall meet the appropriate criteria in Section 406.4. This parking structure must provide a mechanical ventilation system in accordance with the International Mechanical Code.

SEISMIC DESIGN CATEGORY E

DESIGN WIND SPEED 90 mph *(3 second gust)*

GENERAL BUILDING HEIGHTS, AREAS, AND TYPES OF CONSTRUCTION

Actual Height of Preferred Alternative: 5 stories or 62'

Actual Area of Preferred Alternative: See table on next page.

Allowable Height and Building Areas: See table on next page.

Actual Areas per Floor of Preferred Alternative

Level	A-2	B	M	R-2 N.Wing	R-2 S.&W. Wing	S-2	Total GSF per floor
P	2,733	5,693	1,184	-	-	30,090	39,740
1	1,203	8,917	-	-	14,074	-	24,194
2	-	*	-	-	18,899	-	18,899
3	-	-	-	10,438	17,884	-	28,322
4	-	-	-	10,438	17,884	-	28,322
5	-	-	-	10,438	17,884	-	28,322
6*	-	-	-	10,438	-	-	10,438
Total GSF							**178,237**

** The first level "Honors College" or the north wing is a double height space. Although the table suggests 6 levels, the actual height of the north wing is 5 stories or 62'. The south and west wings are also 5 stories or 52'.*

Table 503 Allowable Height and Building Areas

Group	Type of Construction	Allowable Height	Allowable Area
A-2	IIA	3 stories or 65'	15,500
B	IIA	5 stories or 65'	37,500
M	IIA	4 stories or 65'	21,500
R-2	IIA	4 stories or 65'	24,000
S-2	IA	UL	UL

BUILDING AREA MODIFICATIONS

Automatic fire sprinkler system
Required: Yes
Provided: Yes

Automatic sprinkler system increase

Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet and the maximum number of stories is increased by one.

Frontage Increase If = [795'/1,325'-0.25] 30/30
If = .35

Fire Sprinkler Increase 200%

Allowable Area (after increases) per story

Group A-2
Aa = {15,500 + [15,500 x .35] + [15,500 x 2]}
Aa = 51,925 sf.

Group B
Aa = {37,500 + [37,500 x .35] + [37,500 x 2]}
Aa = 125,625 sf.

Group M
Aa = {21,500 + [21,500 x .35] + [21,500 x 2]}
Aa = 72,025 sf.

Group R-2
Aa = {24000 + [24000 x .35] + [24000 x 2]}
Aa = 80,400 sf.

Group S-2 (Unlimited)

Sum of the Ratio Calculation for Mixed Occupancies

Level	A-2	B	M	R-2 N.Wing	R-2 S.&W. Wing	S-2	Sum
P	2,733/51,925	5,693/125,625	1,184/72,025	-	-	UL	.12
1	1,203/51,925	8,917/125,625	-	-	14,074/80,400	-	.27
2	-	-	-	-	18,899/80,400	-	.24
3	-	-	-	10,438/80,400	17,884/80,400	-	.35
4	-	-	-	10,438/80,400	17,884/80,400	-	.35
5	-	-	-	10,438/80,400	17,884/80,400	-	.35
6	-	-	-	10,438/80,400	-	-	.12
Sum of Ratio - Entire Building							**1.8**

Note: Sum of the Ratio Calculation = Actual Area / Allowable Area ≤ 1

Sum of the Ratio

As stated in Section 506.5 Mixed occupancy area determination: For buildings with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 3. The sum of ratios for this building is 1.8 which is under the required sum of 3.

Mixed Use and Occupancy

Group M will be an accessory occupancy to the main occupancies of Group A-2, B, R-2, & S-2 because Group M does not occupy more than 10 percent of the area of the story in which it is located. Group A-2 is more than 750 sf. and Group B, which is the Honors College component of the program, occupies 36% of the floor area at its level.

FIRE RESISTANCE RATING REQUIREMENTS

Incidental Use Areas	
Room or Area	**Separation &/or Protection**
Rooms w/Boilers	1 hour or provide automatic fire-extinguishing system
Laundry Rooms >100 sf.	1 hour or provide automatic fire-extinguishing system
Rooms containing fire pumps in non-high-rise buildings	2 hour or 1 hour and provide automatic fire-extinguishing system

Required Separation of Occupancies	
Group	**Separation &/or Protection**
R from B	1 hour w/ sprinkler system
S-2 from B	1 hour w/ sprinkler system

Special Provisions

According to 509.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction where all of the following conditions are met:

1. The buildings are separated with a horizontal assembly having a minimum 3-hour fire-resistance rating.
2. The building below the horizontal assembly is no more than on story above grade plane.
3. The building below the horizontal assembly is of Type IA construction.
4. Shaft, stairway, ramp and escalator enclosures through the horizontal assembly shall have not less than a 2-hour fire-resistance rating with opening protectives in accordance with Section 715.4. See Exception.
5. The building or buildings above the horizontal assembly shall be permitted to have multiple Group A occupancy uses, each with an occupant load of less than 300, or Group B, M, R or S occupancies.
6. The building below the horizontal assembly shall be protected throughout by an approved automatic sprinkler system in accordance with Section 903.3.1.1, and shall be permitted to be any of the following occupancies: *Group s-2 and R are permitted.*
7. The maximum building height in feet shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the grade plane.

Fire-resistance rating requirements for building elements			
Building Element		**Type IA**	**Type IIA**
Structural Frame		3	1
Bearing Walls	Exterior	3	1
	Interior	3	1
Nonbearing Walls	Exterior	Table 602	Table 602
	Interior	0	0
Floor Construction		2	1
Roof Construction		1 1/2	1

Occupant Load per Floor

Level	Group	Function of Space & Floor Area per Occupant		# of Occupants	
Parking	A-2	Kitchen, commercial	200 gross	1761/200	9
		Assembly w/o fixed seats Unconcentrated (tables&chairs)	15 net	1012/15	67
	B	Business	100 gross	1655/100	17
		Accessory storage areas, mechanical equip. room	300 gross	4038/300	13
	M	Mercantile Basement and grade floor areas	30 gross	1184/30	39
	S-2	Parking garages	200 gross	30090/200	150
					Total per floor = 295
Level 1	A-2	Assembly w/o fixed seats Unconcentrated (tables&chairs)	15 net	1203/15	80
	B	Business	100 gross	7067/100	71
	R-2*	Dormitories	50 gross	14074/50	281
					Total per floor = 514
Level 2	R-2*	Dormitories	50 gross	18899/50	378
					Total per floor = 378
Level 3	R-2*	Dormitories	50 gross	28322/50	566
					Total per floor = 566
Level 4	R-2*	Dormitories	50 gross	28322/50	566
					Total per floor = 566
Level 5	R-2*	Dormitories	50 gross	28322/50	566
					Total per floor = 566
Level 6**	R-2*	Dormitories	50 gross	10438/50	209
					Total per floor = 209

** Design team may consult with the State Code Official on substituting an actual occupant load (314 total beds) for the Dormitory tabular areas stated in Section 1004 Occupant Load.*

***5th floor of North wing*

EXIT WIDTHS

According to Section 1005.1 Minimum required egress width, the total width of means of egress in inches shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches per occupant for stairways and by 0.2 inches per occupant for other egress components. The largest occupant load is found on either level 3, 4, and 5, each having a tabular occupant load of 566.

Required

.3 inches x 566 = 169.8 inches or 14.15 feet per floor

Provided

There are four stairways serving each floor, each with a width of 72 inches.

72 x 4 = 288 inches or 24 feet per floor

Emergency Escape and Rescue

Sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening. Openings shall have a minimum net clear opening of 5.7 square feet, a minimum net clear opening height of 24 inches, a minimum clear opening width of 20-inches, and the maximum height from the floor shall have the bottom of the clear opening not greater than 44-inches measured from the floor. Refer to Section 1029 for more detail.

ACCESSIBILITY

For state and local government facilities, the future designer may choose between the DOJ's ADA Standards or UFAS. The DOJ's title II regulation (28 CFR Part 35) allows use of the original ADA standards with some exceptions or the Uniform Federal Accessibility Standards. It is outside the scope of this program to determine which standard is more applicable and should be determined after the project has been awarded. Consult with the State Code Official and the University of Utah code administrator to determine which guideline is more applicable.

In addition, the future designer is responsible for complying with all current applicable laws created by the following agencies: HUD's Fair Housing Act, IBC 2009 (Chapter 11 Accessibility), ICC A117.1 published by the American National Standards Institute, and the Utah's Building Board Policy Regarding Enhance Accessibility to State Facilities.

The Utah State Building Board states that for all state owned buildings the following enhancements must be made: (1) powered door openers for the primary entrance designated for use by people with disabilities, and (2) powered door openers for one unisex restroom or for one male and one female restroom in the building unless restrooms with a door-less entry are provided.

Dwelling Units and Sleeping Units

Group R-2 requires both Type A and Type B units. Occupancies containing more than 20 dwelling units or sleeping units, at least two-percent but not less than one of the units shall be a Type A unit. Where there are four or more dwelling units or sleeping units every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit. Refer to Chapter 10 of the ICC/ANSI A117.1 for all requirements related to Type A and Type B units.

Total number of units:	69
Total number of beds:	314

Total number of Type A:	2
Total number of Type B:	69

INTERIOR ENVIRONMENT - SOUND TRANSMISSION

All common interior walls, partitions and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public areas shall have a sound transmission class (STC) of not less than 50 (45 if field tested) for air-borne noise when tested in accordance with ASTM E90. Refer to section 1207 Sound Transmission for more information.

site criteria

Fire Hydrant
6" Water Main
8" Water Main

Manhole
8" Sanitary Sewer Main
12" Sanitary Sewer Main
15" Sanitary Sewer Main

civil

EXISTING UTILITY SYSTEMS

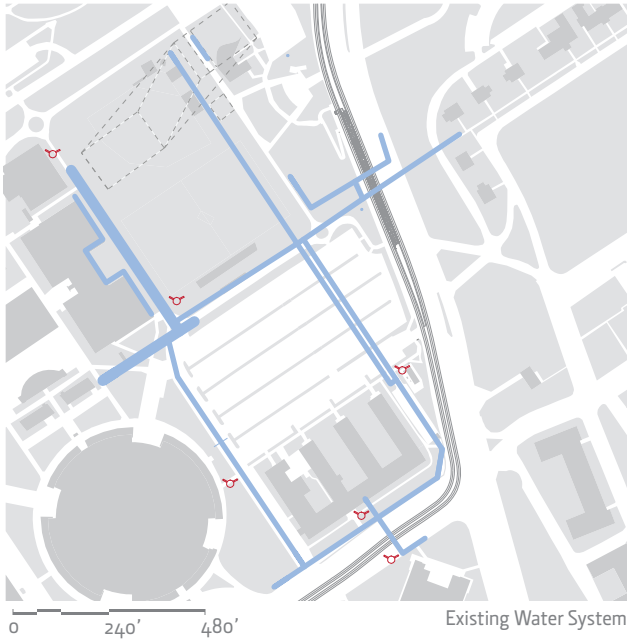
Water System

The South Campus Housing site is served by several water mains which traverse through the site or run along the perimeter. An existing six-inch diameter water main runs along the north side of South Campus Drive to a point near the intersection of Mario Capecchi Drive, then turns northwest and traverses through the east side of the site. An existing eight-inch diameter water main runs along the east side of the HPER complex (between HPER complex and the multi-purpose field) and connects to an existing six-inch diameter line which runs along the south side of the multi-purpose field east through Mario Capecchi Drive. An existing six-inch diameter water main also runs along the west side of the site in the access drive between South Campus Drive and the HPER complex (tying into the existing eight-inch line previously identified).

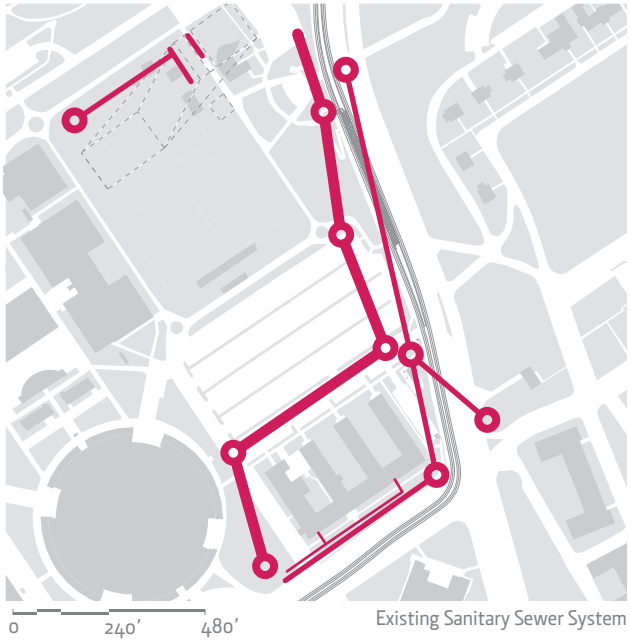
Sanitary Sewer System

Existing sanitary sewer mains traverse through the site serving the existing structure located along South Campus Drive, and serving properties located north and east of the South Campus Housing site. An existing twelve-inch diameter sanitary sewer main enters the site near the northwest corner along the west side of Mario Capecchi Drive and travels south to a point along the north side of South Campus Drive and continues west along the south side of the site. This sanitary sewer main carries flow from areas located east of Mario Capecchi Drive.

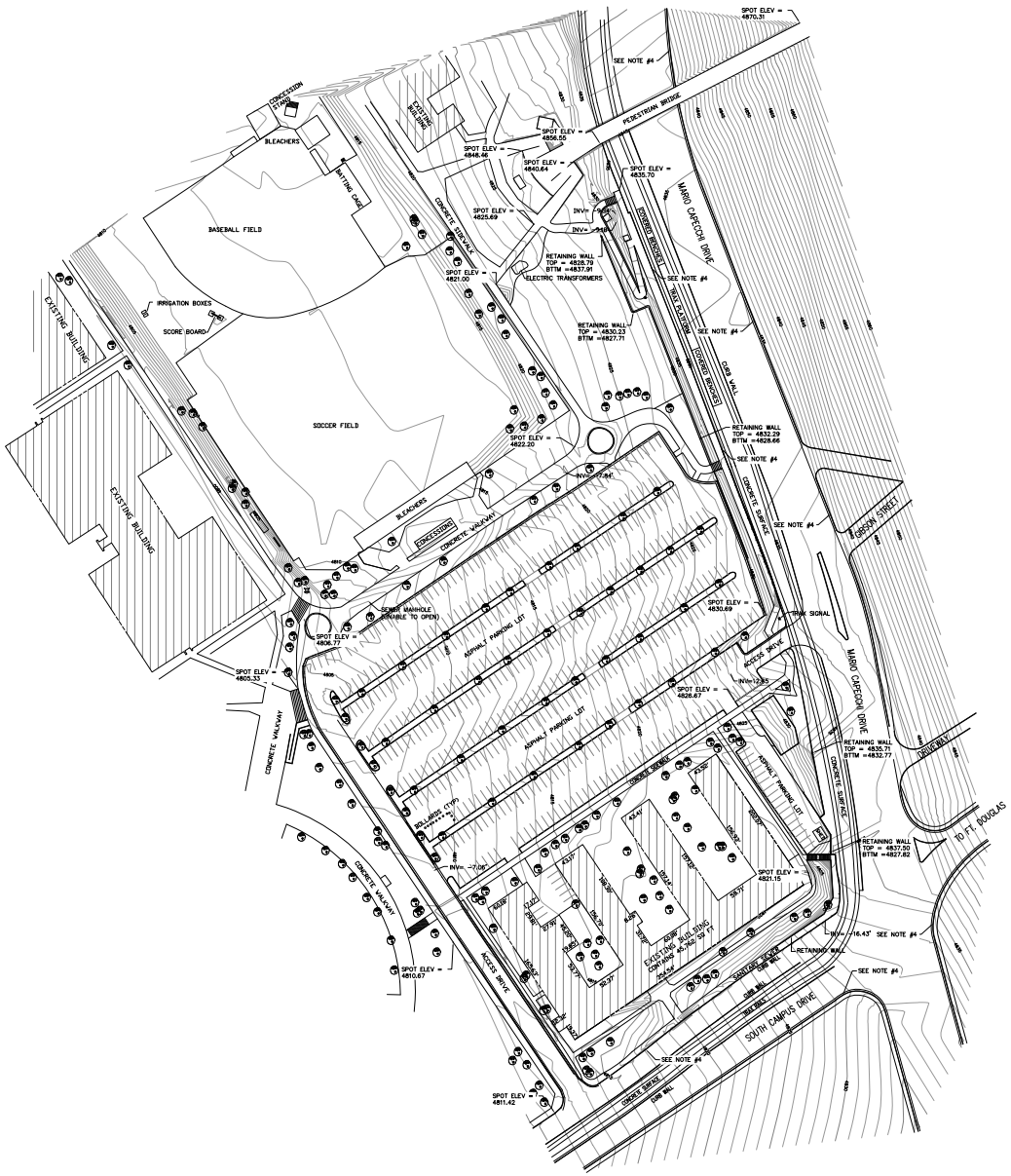
Existing six-and eight-inch diameter mains also run along the north side of South Campus Drive, which provide service to the existing offices currently located along the south side of the South Campus Housing site. An existing fifteen-inch diameter sanitary sewer main runs from the existing TRAX station south to a point north of the existing structure, then west through the existing parking lot and south to South Campus Drive.



Existing Water System



Existing Sanitary Sewer System



1" = 240'

0 120' 240' 480'

Topographic Survey

Storm Drain System

The existing storm drain system located within the South Campus Housing site consists of site drainage for lot 22 and a twenty four-inch diameter conduit which runs along the north side of lot 22 and picks up drainage from Mario Capecchi Drive and additional area east of the site. The twenty four-inch conduit continues west along the north side of the Huntsman Center.

PROPOSED HONORS HOUSING

The proposed Honors Housing will increase the water consumption and fire flow requirements. The following table identifies the proposed fixtures to be installed:

Water Consumption			
Fixture	**Number**	**Weight** Fixture Units	**Total** Fixture Units
Water Closets	170	6	1020
Lavatories	247	1	247
Baths/Showers	162	2	324
Drinking Fountains	5	1	16
Service Sinks	8	2	16
Clothes Washing Machines (Public)	25	4	200
Total			**1712**
Culinary Water Demand			**295** gal/min

Minimum Required Fire Flow and Flow Duration		
Type of Construction	**Fire-Flow (gal./min.)**	**Flow Duration(hours)**
IA	2250 or 1500*	2
IIA	5250 or 2750*	4

*Exception: A reduction in required fire-flow of up to 75%, as approved, is allowed when the building is provided with an approved automatic sprinkler system. Refer to IFC Section B105.2

PROPOSED UTILITY SYSTEMS

Water Systems

The existing six-inch diameter water lines which traverse beneath the proposed Honors Housing will be rerouted around the new structure. All water mains shall be a minimum of eight-inch diameter as is required by the Utah State Division of Drinking Water. The new eight-inch diameter water line loop will begin near the main entry (Grand Stair) of the Honors Housing where it will connect to both six-inch diameter water mains which run along the north side of lot 22. The new eight-inch diameter water main will run north along the west side, then east along the north side, and then south along the east side of the Honors Housing. The eight-inch water main will connect into both six-inch diameter water mains which run east into Mario Capecchi Drive. The new eight-inch diameter water line will continue south along the east side, then west along the south side of the Honors Housing and connect to both existing six-inch water mains which then run south along the east side of the existing Annex Building.

Sanitary Sewer System

Two sanitary sewer mains traverse beneath the proposed footprint of Honors Housing. Each will need to be routed.

The first main is fifteen-inches in diameter and runs from the northeast portion of the Honors Housing site, approximately 80 feet west of Mario Capecchi Drive to a manhole located within lot 22 north of the Annex Building. From there, it runs west to a manhole located in the access road from South Campus Drive; and then drains to the southwest across South Campus Drive. The proposed routing of this main will run along the north side of Honors Housing, then west along the north side of lot 22 to a point in-line with the access road, then south along the parking area access road to the existing manhole.

The second sanitary sewer main impacted by Honors Housing runs through the southeast corner. The existing main will need to be rerouted around the structure which will require the

installation of three manholes and approximately 70 lineal feet of twelve-inch diameter sanitary sewer main.

Storm Drain System

An existing twenty four-inch diameter storm drain line traverses from east to west through the footprint of Honors Housing. The storm drain conduit carries storm water from portions of Mario Capecchi Drive and to an area east of the roadway. The storm drain will need to be rerouted around the proposed new structure. The proposed route will pick up the existing twenty four-inch conduit on the east side of the structure and run north approximately 210 lineal feet to a point north of the proposed structure, then west approximately 100 lineal feet, then south approximately 230 lineal feet to the existing twenty four-inch storm drain conduit.

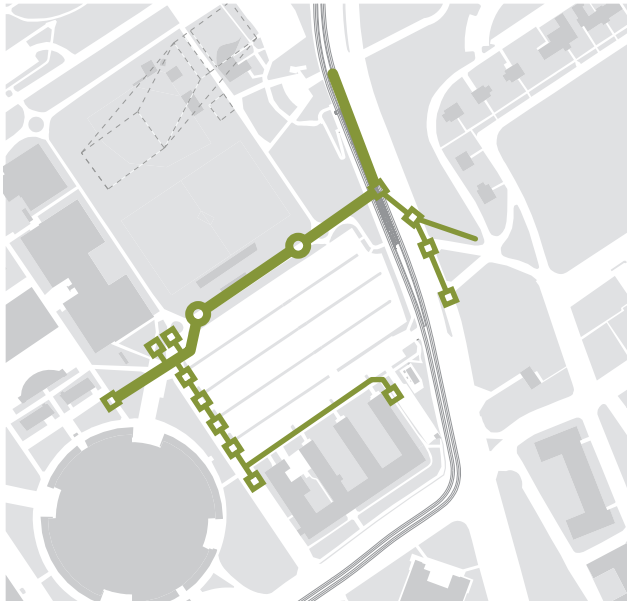
Storm water runoff resulting from a 10 year frequency, 24 hour storm occurrence will be retained on the Honors Housing site. Additionally, after the 10 year frequency storm water retention, the volume resulting from a 100 year frequency, 24 hour storm shall be detained to an equivalent outfall rate of 0.25 cubic feet per second per acre. The 10 year frequency, 24 hour storm rainfall is 2.23-inches. Rainfall data for the 100 year frequency storm occurrence was obtained from the NOAA Atlas 4, Point Precipitation Frequency Estimates.

The drainage area consists of a total of 102,750 square feet (2.35 acres). The total roof area is 51,299 square feet (1.17 acres); impervious area is 13021 square feet (0.3 acres); and the remainder is landscape area 38430 square feet (0.88 acres).

Using the Rational Method, the adjusted rainfall coefficient is:

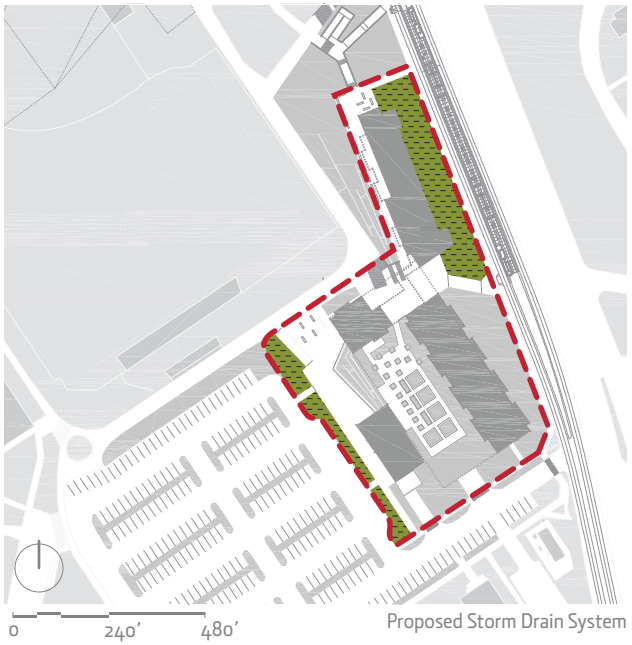
$$C = [(51299)(0.8)+(13021)(0.9)+(38430)(0.10)]/102750 = 0.55$$

The required retention volume for a 10 year frequency storm is therefore:



Existing Storm Drain System

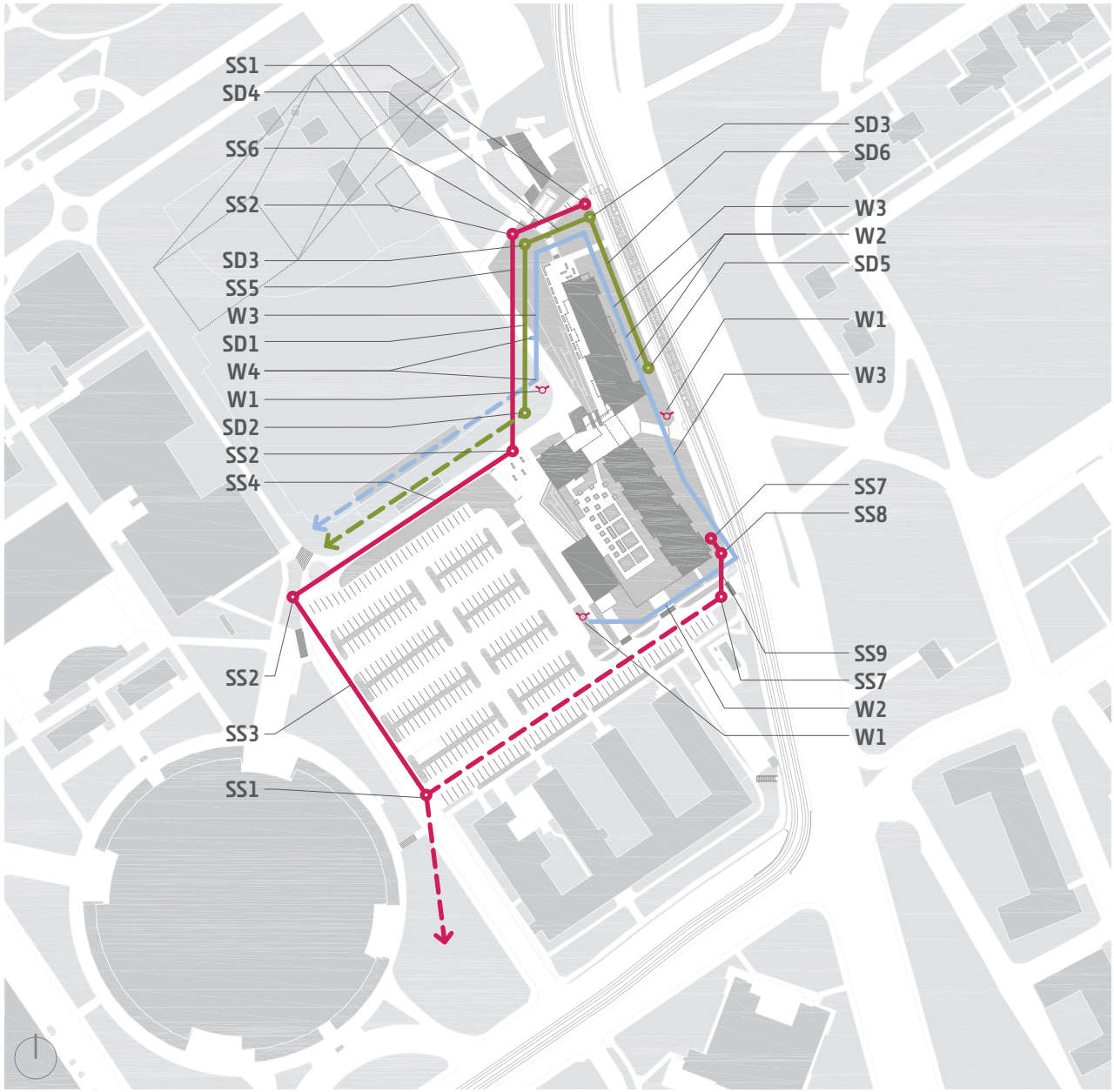
Catch Basin
Manhole
12" Storm Drain
24" Storm Drain



Proposed Storm Drain System

Drainage Area Boundary 2.35 acres
Storm Water Retention Area
Total Volume = 10,502 cubic ft.

W1	Fire hydrant w/ auxiliary valve.
W2	Connect existing 6" dia. water main to new 8" dia. water main, install 8"x6" tee.
W3	Install 8" dia. water main.
W4	Connect existing 6" dia. water main to new 8" dia. water main.
SD1	Install 260 lf. 24" dia. storm drain conduit.
SD2	Connect new 24" dia. storm drain conduit.
SD3	Install storm drain cleanout box.
SD4	Install 100 lf. 24" dia. storm drain conduit.
SD5	Install storm drain cleanout box on existing 24" dia. storm drain conduit.
SD6	Install 210 lf. 24" storm drain conduit.
SS1	Connect new san. sewer conduit to existing san. sewer manhole.
SS2	Install san. sewer manhole.
SS3	Install 310 lf. 15" dia. san. sewer conduit.
SS4	Install 395 lf. 15" dia. san. sewer conduit.
SS5	Install 300 lf. 15" dia. san. sewer conduit.
SS6	Install 115 lf. 15" dia. san. sewer conduit.
SS7	Install san. sewer manhole on existing 12" dia san. sewer conduit.
SS8	Install 26 lf. 12" dia. san. sewer conduit.
SS9	Install 50 lf. 12" dia. san. sewer conduit.



New Water Main
Existing Water Main
Sanitary Sewer Manhole
New Sanitary Sewer
Existing Sanitary Sewer
Storm Drain Manhole
New Storm Drain
Existing Storm Drain

1" = 240'

0 120' 240' 480'

Proposed Utility Systems

(102750 sf)(2.23 inches)(1 ft./12 inches)(0.55) = 10,502 cubic feet.

During a 100 year frequency 24 hour storm, the retention volume of 10,502 cubic feet will be filled in approximately six hours. After the retention volume has been filled, the overflow will be directed to a restricted outfall of 0.59 cubic feet per second (0.25 cfs/acre for 2.35 total acres).

At the six hour time interval in a 100 year frequency storm, the outfall rate of 0.25 cubic feet per second per acre exceeds the rainfall intensity for a 100 year frequency storm resulting in no additional storage volume being required.

Fire Flow Tests

Two fire hydrants were tested on site. Both hydrants did not perform; the flow and dynamic pressure are incredibly low. Their poor performance was a result of the water mains to the north in the HPER Mall being cut and capped due to the current and ongoing construction of the new utility tunnel underneath the Mall. The two lines will not be reconnected until the backfill of the new tunnel is near completion, which is anticipated to be around August 1, 2010. Therefore, the fire flow tests will need to be conducted again to confirm the performance of the water system.

Storm Water Runoff to Detain a 100 Year, 24 Hour Storm

Time	Rainfall (inches)	Intensity (in./hr)	Area (acres)	C' Value	Runoff Volume (cf)	Outfall (cf)	Detention Volume (cf)
5	0.56	6.72	2.35	0.55	2,627.39	-	2,627.39
10	0.85	5.10	2.35	0.55	3,988.01	-	3,988.01
15	1.06	4.24	2.35	0.55	4,973.28	-	4,973.28
30	1.43	2.86	2.35	0.55	6,709.24	-	6,709.24
60	1.77	1.77	2.35	0.55	8,304.44	-	8,304.44
120	1.99	1.00	2.35	0.55	9,336.63	-	9,336.63
180	2.04	0.68	2.35	0.55	9,571.22	-	9,571.22
360	2.21	0.37	2.35	0.55	10,368.82	-	10,368.82
540	2.47	0.27	2.35	0.55	11,588.68	6,345.00	5,243.68
720	2.71	0.23	2.35	0.55	12,714.71	12,690.00	24.71
1440	3.17	0.13	2.35	0.55	14,872.93	38,070.00	(23,197.07)

geotechnical

SITE CONDITIONS

Surface

The irregular, but roughly trapezoidal-shaped parcel is located at the northwest corner of Hempstead Road and Mario Capecchi Drive. TRAX rails run in the center of Hempstead Road and along the western portion of Mario Capecchi Drive.

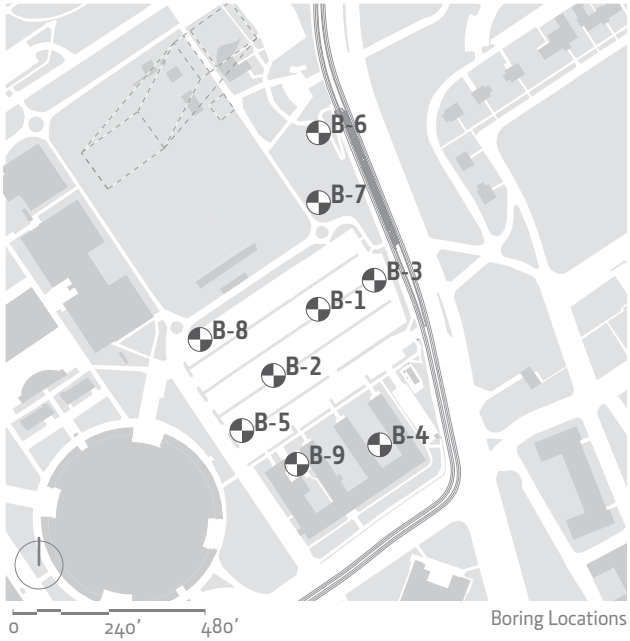
Approximately 60 percent of the site is occupied by an at-grade asphalt/concrete paved parking lot, which has a number of northwest-to-southeast running islands. The remaining southern portion of the site is occupied by four, two to three level, older wood-frame structures with the lower level established slab-on-grade. Between these buildings and adjacent to northwest, north, and east sides of the parking area are landscaped areas with grasses and some deciduous trees.

Overall slope of the site is from the northeast-to-west/southwest with maximum relief from the highest northeast corner to the lowest southwest corner being on the order of 28 feet. Bounding the site further to the north are baseball and soccer fields and to the southwest by Huntsman Center.

Subsurface Soil and Groundwater

At the locations of Borings B-1, B-2, B-3, B-5, B-8 and B-9, an asphalt/concrete pavement section, consisting of one and one-half to four inches of asphalt concrete generally over five to eight inches of aggregate base, was encountered at the surface. At the locations of Borings B-4 and B-6, one and one-half to two feet of fills were encountered. Generally, the upper two to three inches of the fills contain major roots and have been classified as topsoil. At the remaining Boring B-7, natural granular soils were encountered. In Borings B-3, B-7, and B-8, natural silty clays with trace to some sands and fine gravels were encountered to depths ranging from five and one-half to eight feet. These soils are generally brown to dark brown in color, stiff, and moist. These soils will exhibit moderate strength and relatively low compressibility characteristics below the preconsolidation pressure, which is moderate.

Beneath the pavements, fills, and fine-grained soils as discussed above and generally encountered to the maximum depths penetrated, apparently clean silty, clayey, and silty and clayey granular soils were encountered. The majority of the soils are mixtures of fine to coarse sands and fine and coarse gravels; some of the coarser deposits containing occasional cobbles. In zones, gravel content was lower and the soils were classified as silty and/or clayey fine to coarse sands with trace to some gravel. Interdispersed within these granular soils, occasional zones containing one to four inch layers of silty clays with some sands at depths of 17 and 21 feet in Borings B-5 and B-7, a one to two foot layer of possibly stiff silty clay and/or fine sand was



Boring Locations

encountered.

The granular soils will exhibit high strength and low compressibility characteristics. Granular sequences containing the numerous thin layers of silty clays will exhibit moderately high strength and relatively low compressibility characteristics.

As previously stated, refusal was encountered at depths ranging from 23.5 to 33.5 feet in the nine exploration borings. The refusal materials are projected to be very dense mixtures of sands and gravels with occasional cobbles, which could be partially cemented. In other portions of the campus further to the west at the approximate depth of refusal, a sequence of very coarse gravels and cobbles, even including boulders, in the matrix of silty sands has been encountered.

PROPOSED CONSTRUCTION

General

Discussions regarding the Honors Housing are divided into two sections: the north wing structure and the primary podium structure.

North Wing Structure

The north wing structure is roughly rectangular in shape, with maximum plan dimensions on the order of 40 feet by 180 feet, with the long dimension running essentially northwest-southeast. The structure will be of steel-frame construction utilizing a concrete-topped steel floor system having fairly large spans. The first floor level (at-grade) of the structure will be established approximately five to nine feet above existing grade. Site development will, therefore, require placement of significant amounts of granular structural fill.

Structural loads will be transmitted down through bearing walls and columns to the supporting foundations. Mr. Kelly Calder, the Design Team's structural engineer, indicates that the maximum anticipated column loads for this building will be on the order of 450 to 550 kips. In addition, there may be some bearing wall loads possibly in the range of 6 to 8 kips per lineal foot. At-grade, floor slab loads will be typical; on the order of 150 to 200 pounds per square foot.

At the far southern end of this wing will be a below-grade mechanical area, which will connect to the lower level of the primary-podium structure to the south.

In addition to the five to nine feet of structural fill beneath the footprint of the structure, some low-height berms to the east and terraced landscaped areas sloping downward to the west are proposed.

Primary Podium Structure

The primary podium structure will be roughly rectangular in shape with maximum plan dimensions on the order of 140 feet by 260 feet. The south end of the stand-alone north wing structure will be attached to the northeast corner of the primary podium structure. The lowest level of the podium structure will be for parking and will extend as much as eight to nine feet below existing grade at the southeast corner and three feet above grade at the northwest corner. The below-grade level will be of reinforced concrete construction. The top of the parking level will be a plaza level except along the eastern limit and northwest corner where five levels of residential structure will extend above the plaza. The residential structure will also be of steel frame construction with a concrete-topped steel-frame floor system. Loads associated with the five-level structure will be transmitted through the top slab of the parking level and to columns within the parking level. The plaza level will be loaded with landscaping features. These loads will also be transmitted through the top of the parking-plaza level, down to supporting

foundations. Available data indicates that in the areas to be occupied by the five levels of housing over the parking level maximum column load will be on the order of 550 to 650 kips. Bearing wall loads of 8 to 10 kips per lineal foot may also be applied.

Extending out from the west side of the podium plaza area will be a Café/C-store, one to two levels, with the main level at approximately the plaza podium elevation. The lowest level slab will be established one foot above the parking level to the east. Cuts and fills on the order of two to three feet will be required in the café/C-store footprint to obtained desired at-grade slab elevations.

Similar to the housing structure to the north, landscaping berms, and landscaping terraces sloping downward to the west will be part of site development.

DISCUSSIONS AND RECOMMENDATIONS

Summary of Findings

The results of our analysis indicate the proposed structures can be supported upon conventional spread and continuous wall foundations established upon suitable natural granular soils and/or granular structural fill extending to suitable natural soils. To control total and differential settlements, the footings supporting the structure must be underlain by varying thicknesses of natural granular soils or granular structural fill. The surface conditions in the primary-podium structure area are defined by Borings B-1, B-2, and B-3 and consist predominantly of mixtures of sands, gravels, and varying amounts of silts and/or clays. The exception is in Boring B-3, which is east of the footprint of the primary-podium structure. In this boring, the surface soils, excluding the surface pavement and extending to eight feet, consist of silty clays. In conjunction with this supplemental study, additional borings are being drilled in the southern portion of the primary-podium structure footprint to better define the near-surface conditions. The silty clay in the upper eight feet of Boring B-3 are not suitable for direct support of the proposed foundations and/or for utilization as select granular structural fill beneath the footprint of the proposed on-site structures. These clays, however, are suitable to support at-grade floor slabs and pavements and can be utilized as general structural site grading fills beneath outside flatwork, floor slabs, and pavements.

In the north wing structure area, Borings B-6 and B-7, silty clays were encountered to depths of four and one-half to six feet. These clays should be removed from beneath the footings associated with the proposed north wing structure.

In the following sections, detailed discussions and recommendations pertaining to conventional spread and continuous wall foundations, lateral pressure and resistance, at-grade floor slabs, subdrains, earthwork, and geoseismic discussions and recommendations are presented. Many of these recommendations were previously presented in our January 29, 2010 report.

SPREAD AND CONTINUOUS WALL FOUNDATIONS

Design Data

Both structures may be supported upon conventional spread and continuous wall foundations. In order to allow for the utilization of high bearing pressures, the design of the footings and in order to control total and differential settlements, it is essential that these footings be underlain by varying thicknesses of natural granular soils and/or granular structural fill. For this subsurface sequence, refer to the Design Data Table.

The term "net bearing pressure" refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

Design Data

Recommended Spread & Continuous Wall Footings	
Minimum depth of embedment for frost protection	30 inches
Minimum depth of embedment for non-frost conditions	15 inches
Minimum width of continuous wall footings	18 inches
Minimum width for isolated spread footings	24 inches
Net bearing pressure for real load conditions	
Footings w/ minimum footing width	3000 pounds per sf.*
Footings w/ minimum footing width of 4 feet or greater	6,500 pounds per sf.*
Bearing Pressure Increase for Seismic Loading	50%

** For intermediate-sized footings, the appropriate bearing pressure may be interpolated on a straight line basis from these values.*

Installation

Under no circumstances should the footings, as discussed above, be established directly upon natural silty clay soils, loose or disturbed soils, sod, rubbish, construction debris, frozen soil, or other deleterious materials. At the USTAR – Sorenson Molecular Biotech Building site, a significant and unexpected amount of fine-grained soils were encountered in the predominantly dense granular sequence. Where the clays were encountered at footing elevation, they were over-excavated at least two feet and replaced with granular structural fill. This condition does not appear as severe at this site.

In the north wing structure footprint area, it is our recommendation that the surface silty clay be removed from an area extending out two feet beyond the limits of the footings and then backfilled with granular structural fill before the granular structural site grading fill is placed to achieve floor slab grade. If the unsuitable soils are encountered, they must be removed and replaced with compacted granular fill. If the granular soils become loose or disturbed, they must be appropriately recompacted. The width of replacement fill should be equal to the width of the footing plus one foot for each foot of fill thickness.

Settlements

Settlements of foundations designed and installed in accordance with the above recommendations and supporting the projected maximum loads should not exceed approximately five-eighths of an inch. Settlements will occur rapidly with approximately 50 to 60 percent of the quoted settlements occurring during construction.

LATERAL RESISTANCE

Lateral loads imposed upon foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining frictional resistance, a coefficient of 0.45 should be utilized. Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 300 pounds per cubic foot. Below the water table, this granular soil should be considered equivalent to a fluid with a density of 150 pounds per cubic foot.

A combination of passive earth resistance and friction may be utilized provided that the friction component of the total is divided by 1.5.

LATERAL PRESSURES

The lateral pressure parameters, as presented within this section, assume that the backfill extending out at least five feet from the subgrade wall will consist of a drained granular soil placed and compacted in accordance with the recommendations presented herein. The lateral pressures imposed upon subgrade facilities will, therefore, be basically dependent upon the relative rigidity and movement of the backfilled structure. For active walls, such as retaining walls which can move outward (away from the

backfill), granular backfill may be considered equivalent to a fluid with a density of 35 pounds per cubic foot in computing lateral pressures. For more rigid subgrade walls, granular backfill may be considered equivalent to a fluid with a density of 45 pounds per cubic foot. Backfill within four feet of the wall should be compacted with hand-operated equipment.

For seismic loading, an average uniform pressure of 90, 180, and 270 pounds per square foot should be used for 5-, 10-, and 15-foot high subgrade walls.

AT-GRADE SLABS

In conjunction with this study, groundwater was not encountered to at least 34 feet; therefore, an under-slab dewatering system is not required. However, it is recommended that as a leveling course and as a capillary break, a minimum four inches of three-quarter- to one-inch minus clean gap-graded crushed gravel be placed beneath the slab. As an alternate, an aggregate base material may be utilized; however, the aggregate base must be underlain by an appropriate impermeable vapor barrier.

In order to provide uniformity of subgrade support of the at-grade slabs, it is recommended that they be established upon suitable natural granular soils or granular structural fill extending to suitable natural soils. For this subsurface sequence, a modulus of subgrade reaction "k" of 250 pounds per cubic inch may be utilized for design of the floor slabs.

Settlements of the at-grade slabs supporting average uniform loads of about 250 pounds per square foot should be negligible.

SUBDRAINS

Portions of the University of Utah campus are notorious for seasonal laterally and horizontally variable "perched" groundwater conditions. Although groundwater was not encountered in the borings drilled in conjunction with this study, we strongly recommend that a perimeter/foundation chimney subdrain be installed against all below-grade walls. The perimeter footing subdrain can consist of a four-inch diameter slotted or perforated PVC or other durable material established at least 18 inches below the top of the lowest adjacent slab. The subdrain should slope at a minimum of 0.25 percent to a suitable exterior or interior sump. The pipe should be encased in a one-half- to three-quarter-inch clean gap-graded gravel extending two inches below laterally and at least six inches above the top of the lowest adjacent slab. The gravel must be separated from other backfill materials or natural soils with a geotextile fabric, such as Mirafi 140N or equivalent. Extending upon from the top of the perimeter subdrain to within two feet of final grade should be a chimney subdrain consisting of a minimum of six-inch width of continuous "free-draining" granular materials and/or synthetic drain board. The gravel chimney must be separated from other backfill soils with the same geotextile fabric.

There are some synthetic drain board systems which now include a base section which will satisfy the requirement for the four-inch perforated or slotted PVC pipe. It is, however, essential that the invert of this section be established 18 inches below the top of the lowest adjacent slab.

Prior to the placement of this chimney subdrain, the subgrade walls as a minimum must be dampproofed. In critical areas, a waterproofing system is recommended.

EARTHWORK

Site Preparation

Preparation of the site will include the demolition of existing structures, within or immediately adjacent to the footprint of the proposed structure, followed by stripping the existing pavements, outside flatwork, topsoil, and non-engineered fills from an area extending out at least three feet from the perimeter of the proposed construction. Prior to these activities, all utilities entering this site must be located, abandoned, and/or relocated.

In conjunction with the stripping operations, foundations, floor slabs, and curbs and gutters, associated building and pavements, etc., must be totally removed from the footprint of the proposed structures. Beneath an area extending out three feet from the proposed structures and proposed pavement areas, footings, curbs and gutters, existing pavements, and floor slabs may remain if at least 12 inches below the base of the ultimate pavement section.

Vegetation, construction debris, and other deleterious material should be removed from the site. If cleaner granular soils are encountered in conjunction with these operations, they should be stockpiled on site for subsequent re-utilization as structural fill.

Excavations

For the present design concept, the maximum mass excavation cuts will be on the order of 10 feet at the southeast corner of the proposed primary-podium structure. It is anticipated that either stiff silty clays or mixtures of sands and gravels with varying amounts of silt and clay will be encountered. Groundwater is projected to be at much deeper depth and should not impact the proposed excavations. Excavations not exceeding four feet in depth sideslopes can be constructed near-vertical. Deeper excavations up to eight feet in these soils can be constructed with sideslopes no steeper than one-half horizontal to one vertical. Deep excavations up to 12 feet should be constructed with sideslopes no steeper than three-quarters horizontal to one vertical.

If "perched" groundwater conditions are encountered through granular soils, sideslopes may need to be somewhat flattened.

All excavations must be inspected periodically by qualified personnel. If any signs of instability are noted, immediate remedial action must be initiated.

Structural Fills

Structural fill is defined as fill which will ultimately be subjected to structural loadings, such as imposed by footings, floor slabs, pavements, etc. All structural fills must be free of sod, rubbish, construction debris, frozen soils, and other deleterious materials. For structural site grading fill, the maximum particle size should generally not exceed four inches; although, occasional particles up to six to eight inches may be incorporated provided that they do not result in "honeycombing" or preclude the obtainment of the desired degree of compaction. Structural site grading fill is defined as fill placed over fairly large open areas to raise the overall site grade. In confined areas, the maximum particle size should not exceed two and one-half inches.

It is recommended that all structural fill beneath the footprint of the building; that is, beneath the proposed footings and/or at-grade slabs, consist of granular soils. To facilitate placement, compaction, and to obtain the engineering characteristics upon which our engineering analysis are based, it is imperative that these granular fills consist of well-graded mixtures of sands and gravels containing no more than 22 percent fines; that is, material passing the No. 200 sieve. In addition, no more than 25 percent of the mixture should be retained on the three-quarter-inch sieve. This will allow for the utilization of standard nuclear gauge testing during placement and compaction operations.

In order to control lateral pressures imposed by the backfills on subgrade walls, it is imperative that the structural backfill extending out at least five feet from the perimeter of the primary subgrade walls contain no more than 20 percent fines. Further out from the subgrade walls, the sand and gravel with as much as 35 percent fines may be utilized.

As discussed previously, available data indicates that the soils to depths of as much as approximately seven feet in the eastern portion of the primary-podium structure mass excavation will be silty clays, which will not be suitable as the select granular structural fill. The clays can be used as structural fills beneath

pavements and floor slabs but will be difficult to compact. Additional shallow borings are being drilled in these areas to further define the suitability of the proposed excavated soils for granular structural fill. If granular soils are not present, cost estimates should then be based upon importing the select granular materials.

Fill Placement and Compaction

All structural fill should be placed in lifts not exceeding eight inches in loose thickness. Granular structural fills placed beneath an area extending out at least 3 feet from the perimeter of the proposed structures, no more than five feet thick and supporting the proposed footings, must be compacted to at least 97 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) compaction criteria. If the thickness of these fills is greater than five feet, the degree of compaction should be increased to 98 percent. In proposed floor slab areas where the fills are no more than 5 feet thick, 92 percent compaction is recommended. Fills greater than five feet thick under floor slabs should be compacted to at least 95 percent again in accordance the above-defined compaction criteria.

The structural site grading fill placed beneath proposed pavements, at-grade slabs, etc., and generally not exceeding 5 feet in thickness must be compacted to 90 percent of the above defined criteria. For greater thicknesses, up to 10 feet, the compaction should be increased to 92 percent.

Around the perimeter of certain portions of the structures, there will be relatively deep backfills. We strongly recommend that these backfills, even though in landscaping areas, still consist predominantly of granular soils. Under all circumstances, the fills extending out at least 10 feet from the perimeter of the deep subgrade walls must be granular. These fills in landscaped areas should be compacted to at least 85 percent of the above-defined criteria. If under stairways, entrance ways, patios, and at-grade slabs, the degree of compaction should be increased to 95 percent.

Even with proper compaction of suitable materials, there will be moderate settlement of the deep fill wedges between the subgrade walls and the interface with the natural soils. We strongly recommend that all at-grade slabs, stairways, and entrance ways over this zone be reinforced and designed to bridge the fill wedge. One end of the at-grade slabs can be structurally supported by the subgrade walls of the structure and the other on natural soils, extending at least five feet from the interface of the fill wedge and the natural soils.

The deep backfills should not be placed and compacted until at least the first structural levels of the facilities are in place.

GEOSEISMIC SETTING

General

Utah municipalities adopted the International Building Code (IBC) 2006 on January 1, 2007.The IBC 2006 code determines the seismic hazard for a site based upon 2002 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points). The structures must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2006 edition.

Soil Class

For dynamic structural analysis, the Site Class D - Stiff Soil Profile as defined in Table 1613.5.2, Site Class Definitions, of the IBC 2006 can be utilized.

Liquefaction

Data available to date indicates that the water table is in excess of 34 feet below grade. The soils above the water table are not susceptible to liquefaction, even during major seismic event. All indications are that the potential for liquefaction at the site will

be minimal.

Faulting

Review of available literature indicates that no active faulting pass through or immediately adjacent to the site.

Ground Motions

The IBC 2006 code is based on 2002 USGS mapping, which provides values of short and long period accelerations for the Site Class B-C boundary for the Maximum Considered Earthquake (MCE). This Site Class B-C boundary represents a hypothetical bedrock surface and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for a MCE event and incorporates a soil amplification factor for a Site Class D soil profile in the second column. Based on the site latitude and longitude (40.7630 degrees north and 111.8371 degrees west, respectively), the values for this site are tabulated below:

Ground Motion		
Spectral Acceleration Value T Seconds	**Site Class B-C Boundary** (mapped values, %g)	**Site Class D** (adjusted for site class effects, %g)
Peak Ground Acceleration	0.622	0.622
0.2 Seconds, (Short Period Acceleration)	Ss = 1.555	Sms = 1.555
1.0 Seconds. (Long Period Acceleration)	S1 = 0.613	Sm1 = 0.920

The IBC 2006 code design accelerations (SDS and SD1) are based on multiplying the above accelerations (adjusted for site class effects) for the MCE event by two-thirds (2/3).

landscape

DESIGN CRITERIA GOALS

Well designed landscape spaces are an important component of the university experience. The campus housing landscape provides opportunities for learning, community gathering, social interaction, respite, and events, to name just a few. The University of Utah Design Guidelines for Honors Housing have been developed to assist the project team in planning and design.

In general, four overarching themes should be used in the design and construction of Honors Housing landscape spaces: program and activities, access and linkage, comfort and image, and sociability.

Program and Activities

- Spaces should be designed for the human scale so that users feel comfortable.
- Spaces should acknowledge the context in which they are placed, such as adjacent academic programs, architectural features, view corridors, and landscape features.
- Spaces should create a sense of place, defined by surrounding buildings, trees or other vegetation, views, and protection from the elements.
- Focal points and/or garden spaces should be created within larger spaces to provide diversity within the landscape.

Access and linkage

- Spaces should be easy to see in and out of and be easy to find.
- A visual connection between spaces is important as it provides a sense of connectedness.
- Provide nodes for respite and interaction along primary pedestrian paths of travel.
- Transition areas between pedestrian and vehicular spaces should be created to provide a safe and seamless integration between the pedestrian and vehicular environment.
- Accessibility for of all ages and abilities should be provided for at all spaces.
- Use landmarks, lighting, signage, art, and paving materials to enhance spaces.
- Traffic calming strategies should be used where vehicular and pedestrian spaces converge.

Comfort and Image

- Provided seating in all major spaces and along pedestrian walkways at key locations.
- Use landscape to bring life to a space by providing shade and nature.
- Provide shelter from sun and rain, and provide wind breaks where necessary.
- Provide appropriate lighting to create a safe and usable campus.

Sociability

- Spaces should be designed so that there is a sense of attraction to the space, for example, shade or sun, seating opportunities, or Wi-Fi hot spots.
- Provide opportunities for conversation and gathering.

LANDSCAPE CRITERIA

The University of Utah has produced comprehensive design standards for campus projects. Refer to Chapter 3, Landscape Architecture for University standards pertaining to irrigation, planting, and site furnishings. The following design criteria are intended to be in addition to the campus standards and pertain directly to the Honors Housing project.

These design guidelines have an overarching goal that aims to balance smart campus development and growth and environmental sustainability by:

- Supporting appropriate design for the local climate.
- Addressing sustainable materials and construction strategies.
- Reducing urban heat island effect.
- Maximizing water conservation.
- Managing storm water as an opportunity.
- Implementing best management practices (BMP's)

PAVING

Consistent use of paving types and materials enriches the pedestrian environment and improves its functional and aesthetic qualities. Paving shall be compatible with the desired intent and function of the space in which they are used.

- Pavements should be made of high quality, durable materials suitable for an urban campus environment.
- Pavements should incorporate recycled and local materials when possible, such a fly ash, rice hull ash, crushed aggregates, recycled fibers, or crushed glass aggregate.
- Pavements shall be porous, to the extent possible given the site-specific soil conditions and long-term maintenance program, to promote on-site stormwater infiltration.
- Pavements should have a minimum 0.30 Albedo Factor to reduce heat-island gain.
- All surfaces and products shall comply with the Federal American with Disabilities Act (ADA) codes and State of Utah codes and regulations.

Plaza and Walkways

- Plazas should be paved with unit pavers to differentiate these spaces from walkways and provide a higher quality aesthetic.
- Walkways, sidewalks, and pathways should be appropriately sized based on the intended use of the corridor and circulation volumes.

PARKING AND CIRCULATION

Parking

- All parking areas shall comply with local and University codes and regulations, ratio requirements, general parking dimensions, and any other applicable policies regarding parking.
- Provide safe and convenient access, in compliance with the Americans with Disability Act (ADA).

Crosswalks

Crosswalks and curb ramps should be located at the corners of intersections and at driveways to provide safe, accessible crossing of vehicular traffic. Crosswalks and curb ramps should conform to the State of Utah, Salt Lake City, University of Utah, and Federal American with Disabilities Act (ADA) codes and standards.

Bollards

- Removable bollards should be used where service or emergency access is required.
- Where provided to add separation and protection from vehicles, bollards should be metal or concrete, highly durable, and should match the street furniture family of finishes and colors.

SITE FURNITURE

The relationship of landscape furnishings to buildings, walkways, pathways, and plaza areas is important in both defining and reinforcing the design character of the University of Utah campus and the Honors Housing project. The combination of elements reinforces the design, provides identity, and contributes to creating a sense of place. Consistent use of similar or a family of site furnishings should be applied, when applicable.

- Furnishings should be made of high quality, durable materials suitable for the Salt Lake City climate and

a campus environment. Furnishings as well as other hardscape elements should deter skateboarders from skateboarding on the premises.
- Furnishings shall comply with all applicable codes and standards.

Tree Grates

Where trees are planted in areas subject to high foot traffic, (such as plazas, courtyards, or in walkways), tree grates are recommended. Tree Grates shall:

- Be cast iron or aluminum, with a painted or natural finish.
- Must be pedestrian proof with openings smaller than 1/4".
- Allow adequate growth for trunk maturity and/or have removable rings.

Benches

Benches and seat walls offer places to study, gather, relax, and socialize. Careful consideration should be paid to the materials used in relation to solar and wind exposure and adjacent buildings and furnishings.

- Seating elements shall be placed so as to not interfere with pedestrian movement.
- Benches should be placed in both sunny and shaded locations to offer a diversity of seating opportunities, depending on the weather.
- The quantities of benches and size shall be based upon relative need for a particular location.
- Optimum seat wall height is 18 inches.
- When integrating seating into raised planter walls, a wood topping surface should be considered for added comfort.

Tables

Tables provide places for studying, respite, gathering, and eating and shall be provided where appropriate.

- Tables shall be made of metal suitable to provide a low maintenance and comfortable surface.
- Tables shall be permanently mounted to paving surfaces unless moveable seating is desired.
- Tables may be placed individually or in groups to provide diverse seating opportunities.
- Tables shall comply with the Federal American with Disability Act (ADA).

Receptacles

Receptacles for trash, recycling, and cigarette butts provide an important component for the control of litter and trash, as well as play a key role in maintaining a positive image of a place.

- Recycling receptacles should be used where appropriate.
- Receptacles shall not be placed within pedestrian circulation routes, but rather adjacent to or within visual proximity of circulation routes, gathering spaces, and/or sitting areas.

Environmental graphics

A coordinated environmental graphics strategy will simplify pedestrian and vehicular navigation, create a cohesive sign family, and enhance the physical environment of the University.

- Typography, arrows and graphic rules shall be used consistently throughout the sign system.
- Sign text should facilitate rapid orientation and add interest to the campus environment.
- A setback shall be used for all signs to avoid damage by public transportation systems, cars, bicyclists, or pedestrians.

LIGHTING

All lighting shall meet the design requirements of the AASHTO standard specifications for luminaires, shall conform to I.E.S. (Illuminating Engineering Society of North America) standards, and meet all pertinent requirements of the International Dark-Sky Association (IDA). Lighting studies, including design drawings and photometric calculations are required for implementing a

lighting design.

The primary goals for lighting on the Honor's Housing project are to create an attractive daytime and nighttime environment and to allow for a safe, active nighttime experience:

Vision

- Provide sufficient, uniform light for designated tasks.
- Utilize sources of good color rendering.
- Minimize light pollution, trespass, and glare.
- Respect hierarchies of activity.

Safety

- Increase pedestrian and vehicular safety.
- Support current and future security requirements.

Identity

- Maintain and elevate the character of the U of U.
- Respect overall architectural integrity of University buildings.
- Utilize accent and novelty lighting to celebrate arrival and unique icons.

PLANTING

The selection of planting materials should be carefully considered during the design process in order to create a palette that enhances the character and image of the campus and surrounding streets. Plant material should be appropriate to the varying functions, context, location, and climatic constraints of the University. Section 3.8 of the University of Utah Landscape Standards provides a plant list for the University.

- Plants should be selected that help reduce water demands. Plants that require moderate to heavy water use should be used sparingly and only in special locations.
- Regionally native species should be used whenever possible.
- Plants should be selected that can be maintained in their natural forms to reduce maintenance, pruning, green waste, and energy use.
- Shrubs and groundcover should be selected that can serve as wildlife habitat, encouraging the presence of migratory birds, butterflies, and other species.
- Continuous planting areas and/or permeable surfaces should be provided between trees where possible, to increase air and water infiltration into root zones.
- Plant materials should conform to all local and regional codes and regulations.

TREES

Trees are essential for place-making as well as climate mitigation. Trees of an appropriate number, size and species are encouraged throughout the project.

Tree Layout & Spacing

- Trees planted in continuous paving areas, such as plazas or walkways, should be supplied with tree grates or a zone of pervious material should be used around the trunk to protect the root zone from pedestrian impacts and allow for water infiltration.
- Conflicts with light standards and utility lines should be avoided.
- A minimum of 6 foot by 6 foot planting area shall be provided for each tree planted in a tree well or raised planter.

OTHER PLANT MATERIAL

Shrubs, Groundcovers, Vines, & Grasses

Shrubs, groundcover, vines, and grasses play an important role in stitching together the fabric of the university campus. Additionally, they add color and texture to the landscape and provide wildlife habitat. They also aid in stormwater mitigation and erosion control during rain events.

- Shrubs should be used to screen parking, service, utility, and loading areas from public view.

- When adjacent to walkways, plant materials shall be appropriately scaled to minimize hiding areas or pockets.
- Select placement and uses of vines can help insulate the building envelope, shade pedestrian zones, and enhance the aesthetic experience.
- Vines should be considered on parking structure facades.
- Vines should be located as to not block signage, interfere with building entries or overhead utilities, or impact pedestrian safety.
- Turf grasses should only be used in areas intended for recreation, gatherings, or respite. Low-growing ground covers or pervious materials appropriate for the climate should be used in all other areas to reduce maintenance and watering demands.

SERVICE AREAS & UTILITIES

Service areas and utilities are inevitably needed for any project. Locate all utilities below paving surfaces, where feasible.

- Integrate enclosures for service areas with adjacent buildings and use finishes similar to the construction materials of adjacent buildings.
- Accommodate large utilities and trash containers within parking garages or buildings were feasible. Where not possible, cluster components and screen them from entries and primary pedestrian and vehicular circulation routes.
- Integrate external enclosures into the surrounding environment with appropriate lighting, materials, and finishes. Conceal enclosures by using trees, shrubs, and vines, where appropriate.
- Consolidate new underground utilities under roads, walkways, and plazas to minimize impacts on the landscape.
- Consolidate above ground utilities with adjacent facilities were feasible.
- Locate surface hatches, utility covers, and ventilation and access elements within paved areas. If planted areas are the only option or where paving areas are limited, coordinate with tree locations and integrate into shrub and ground cover plantings to conceal their appearance.
- Minimize visible utilities in view corridors and other undesirable locations.

IRRIGATION

Highly efficient irrigation equipment shall be used for all planting areas. Irrigation systems shall follow guidelines set forth in Secton 3.2 of University Landscape Standards.

- All irrigation systems and methods should comply with local and regional water quality and control codes and regulations.

U of U Landscape

building systems criteria

structural

GENERAL

The structural design for Honors Housing must integrate the program requirements into a structural system that accommodates the space and functional requirements of the facility while also satisfying the established budgetary constraints. The structural systems and construction materials used in the design should provide the required structural performance and incorporate consideration of noise transmission, vibration, fire rating requirements, and sustainability.

The site restrictions and program space requirements demand that different functional spaces with their unique floor layout are overlaid vertically, one over the other. For example, parts of the housing structure have been configured to overlay the parking garage. This demands close coordination between the design team members in the selection of structural systems and the layout of final structural grids that effectively adapt to the complexity of the vertical overlay. In the design process, maintaining the continuity of gravity load paths for both gravity loads and lateral loads is paramount to an efficient structural system.

STRUCTURAL SYSTEM OVERVIEW

For the purposes of this program, structural systems have been chosen and outlined here to define construction parameters consistent with the programming requirements and establishing building costs. Alternate structural systems that satisfy the specific program requirements may be proposed.

Residential Structures

The housing facilities are arranged in three wings and are five to six stories in height. The main structural system that has been selected for this part of the project is a steel frame. The frame system features wide flange beams at the building perimeter as well as each side of the corridor. The beams are supported on steel columns. The floor deck is normal weight concrete over long-span metal deck with an overall depth of 10 inches. The deck spans from the corridor to the outside walls and will require one row of shoring during construction. A shallower deck system is contemplated at the corridor span to accommodate mechanical and electrical systems. Where the housing structure occurs over the parking garage, lightweight concrete will be utilized to reduce the loading superimposed on the parking garage structure.

The lateral bracing for the structure features braced frames located at the corridor walls and at select common walls between the housing units. Locations for the braced frames should be selected such that the frames stack continuously to the foundation. This will require close coordination with the space layout requirements for the non-residential functional spaces in the lower levels of the structures.

Café /C-Store

The main structural system will again be steel frame. The mezzanine floor deck will be normal weight concrete over composite metal deck supported on composite steel beams. The lateral load resisting system will be braced frames at exterior walls.

Parking Garage

The program provides for a one level parking garage on the southeast corner of the site. The parking structure supports two wings of the housing structure. The roof of the parking structure will provide a plaza level with walkways and landscaped areas. The roof slab of the parking garage will be a post-tensioned concrete slab over concrete columns and perimeter bearing walls. The layout of the structural grid must balance the demands of achieving an efficient parking layout, while at the same time supporting the housing structure for both gravity and lateral loads. Ideally, the column loads superimposed on the parking slab from the housing structure should align vertically with the structural grid of the parking garage. The degree to which this can be achieved is of critical importance to the efficiency of the

structural design.

The lateral load resisting system shall be concrete shear walls located at the perimeter of the parking structure and strategically located inside the parking areas. Concrete shear walls in the parking garage should be placed below the braced frames of the supported housing structure. Braced frame columns of the housing structure should bear on parking garage columns.

A metal stud bearing wall system could be utilized as an alternative to the steel frame system for the housing units over the parking garage. This option provides some favorable advantages in that the loads from the housing structures would be distributed more uniformly over the parking slab. Utilizing partition walls as bearing walls, minimizing deck spans, and providing a relatively shallow deck of lightweight concrete on composite metal deck would minimize the loads delivered to the parking garage slab. Partition walls could be utilized as shear walls. The location of these shear wall elements must align with the column lines of the parking garage to provide continuity in the transfer of overturning loads through the structure.

FOUNDATIONS AND GEOTECHNICAL REQUIREMENTS

A geotechnical report for this phase of the Honors Housing has been prepared by GSH Geotechnical Consultants, dated January 29, 2010. The results of the geotechnical report are based upon 9 borings taken at the site. Refer to the geotechnical design criteria in this chapter.

STRUCTURAL CODES AND DESIGN CRITERIA

The design standards to be used for this project shall be the 2009 version of the International Building Code (IBC), the current editions of the referenced standards, and the Minimum Design Loads for Buildings ASCE 7-05. The project shall also conform to the State of Utah Amendments to the IBC and to the most current edition of the DFCM and University of Utah Design Standards.

The structural design criteria to be used shall conform to the above referenced standards. The following design criteria have been established as minimum requirements based upon the programmed facility:

Design Criteria Occupancy Category III

Floor live loads	
Residential areas	40psf
Offices and Administration	80 psf + 20 psf (partitions) = 100psf
Classrooms	50 psf
Parking Garage	40 psf
Plaza areas over Parking Garage	100 psf + landscaping
Roof live loads	
Snow Exposure Category	C
Snow Ground Load	48 psf (based on elevation =4825)
Importance Factor	1.1
Wind Loads	
Exposure Category	C
Basic Wind Velocity	90 mph (3 second gust)
Importance Factor	1.15
Seismic Loads	
Importance Factor	1.25
Soil Site Class	D
Short Period Mapped Acceleration	Ss = 1.548
Long Period Mapped Acceleration	S1 = 0.915
Long Period Site Coefficient	Fv = 1.5
Spectral Response Acceleration	SDS =1.032
Spectral Response Acceleration	SD1 = 0.610
Seismic Design Category	E

Note: Coefficients for Response Modification and Seismic Response, and factors for system over-strength and deflection amplification shall be determined based upon the type of lateral force resisting system utilized in the design.

mechanical

APPLICABLE CODES AND STANDARDS

Conform to the latest edition of the following codes and standards, or the requirements defined in this program, whichever is more restrictive:

2009 IBC
2009 IMC
2009 IPC
2009 IFC
2009 IECC
U of U Design Standards, December 2009
DFCM Design Criteria, June 2009

AVAILABLE UTILITIES

High Temperature Water

High temperature water from the central campus system is available from the HPER Mall. Reference University of Utah Design Standards, Chapter 8, for specific requirements for connections to or modifications of the University's High Temperature Water system. The estimated peak load for 314 beds is 2,325 mbh, or 15.6 Btu/ft2

Chilled Water

Chilled water is available from the HPER Chiller Plant, which consists of two 564 Ton chillers (installed in 1997) that run at 50% capacity during peak cooling demand. Run time information from the chillers shows that they have about 29,000 hours on them. Full load efficiency of these chillers is .613 Kw/ton, with a 0.556 kW/ton IPLV. The initial demand for 314 beds is approximately 250 tons, or 600 ft2/ton.

While the excess capacity of these chillers has previously been allocated for the Student Life Center, Plant Operations has approved the option of using the excess capacity for Honors Housing.

Natural Gas

Natural gas is available on the site. The line size and delivery rate will be a function of the chosen mechanical system.

GENERAL REQUIREMENTS

Temperature

Reference University of Utah Design Standards, 6.2.6.1.

Design Temperatures	
Outdoor	**Value**
Winter	0 °F
Summer	97 DB / 62 WB
Cooling Tower	70 WB °F
Indoor	
Reference room data sheets	

Humidity

Humidity control is not required.

Project Documentation

Provide a design narrative that includes the following:

- Basis of design, including all information required to prepare the design.
- Sequence of operation of all systems, as well as their interaction with other systems.
- System description, including operating parameters and assumptions.
- Acceptance testing requirements, in tabular form, for use by the installing contractor and verification by the design engineer. This may be incorporated into the commissioning documentation.
- A description of the methods used by the design team to achieve sustainability, including the integrated design

process; and a description of the results, i.e. a description of the sustainable elements included in the design. Include in this section how the requirements of this program were met.

- Results of the energy simulation, with a design energy performance standard for the building.

Energy Efficiency

DFCM will engage a separate Energy Specialist to perform an energy analysis of the project, according ASHRAE Standard 90.1-2007; Appendix G. The analysis will consider reducing energy consumption in each of the following categories: lighting, space cooling, space heating, pumps, heat rejection, ventilation fans, internal loads and external loads.

The future designer will be required to attend a Design and Technology Charrette, to evaluate the building design and consider technologies, including but not limited to, daylighting, natural ventilation, demand-controlled ventilation, green roof, spectrally selective glazing, low-flow plumbing fixtures, and on-site renewable system(s).

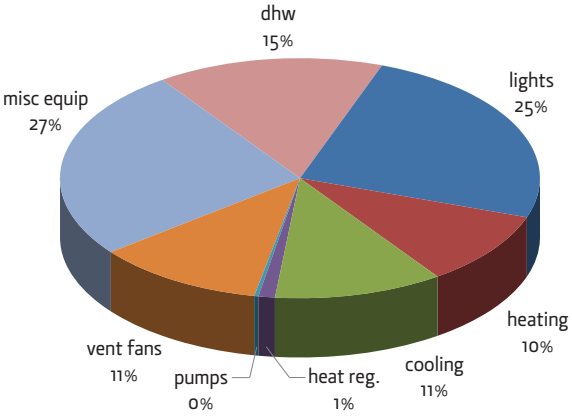
The future designer will also identify and evaluate the suitability of any potential incentives, policies or rebates for energy efficiency and renewables, offered by federal, state, or local authorities, as well as those offered by private entities and utility companies. Of particular note is the Rocky Mountain Power FinAnswer incentive program. The future designer and the University of Utah's Campus Design and Construction will evaluate the effectiveness of the program's alternative paths and pursue the incentive, accordingly.

The energy analysis will be used, wholly or in part, for the basis of evaluating several energy related project requirements, referenced throughout the program document. These include demonstrating compliance with the Utah State Building Energy Efficiency Program's High Performance Building Standard – 2009 (as part of the DFCM Design Requirements), the University of Utah's Office of Sustainability's energy efficiency requirements, estimating U.S. Department of Energy's (DOE) ENERGY STAR rating and estimating potential project incentives, as referenced above.

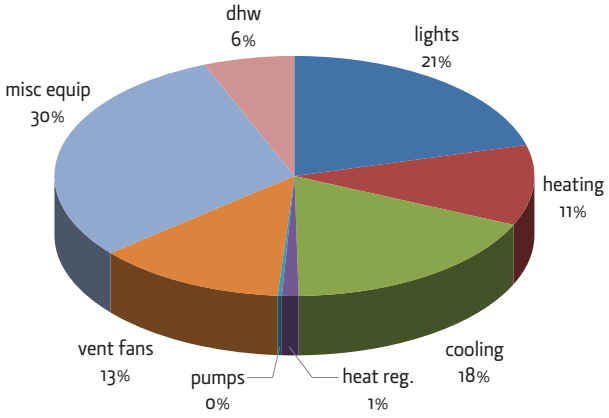
At this time, the most stringent of energy efficiency requirements applied to the project are related to the University of Utah's Office of Sustainability prerequisites. These prerequisites include a requirement to achieve fifteen (15) points under Energy and Atmosphere Credit 1- Optimize Energy Performance (EAc1) of LEED-NC v3.0, which equates to a forty percent (40%) reduction of energy cost(s). Due to the inherent impediments associated with applying EEM's to Dormitory projects, which will be discussed further below, the University of Utah's Office of Sustainability has expressed the possibility of accepting an energy efficiency criteria of ENERGY STAR achievement, for the project. However, the future designer will be required to demonstrate the issues related to reaching each energy efficiency goal and benchmark the feasibility of each goal, for consideration by the appropriate performance rating authority, in the event that the project cannot meet the energy efficiency goals, within the project scope and budget.

Energy Modeling

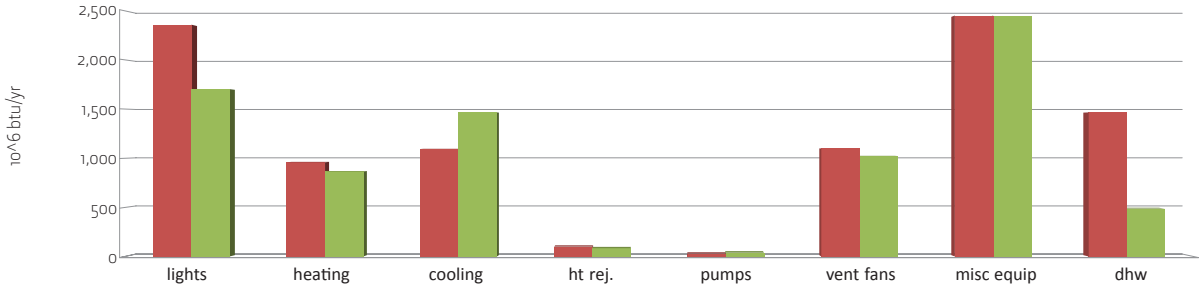
In order to evaluate the project's potential to meet the ENERGY STAR requirement and to establish a credible Baseline and Proposed Energy Use Index (EUI – kbtu/ft2/yr), a preliminary energy analysis has been performed in accordance with LEED Reference Guide for Green Building Design and Construction – 2009 Edition: EAc1. Results of the analysis are summarized below and comprehensive documentation, including a narrative that contains discussion of energy efficiency measures applied



LEED v3.0 Baseline Energy Consumption 64.1 kbtu/sqft/yr



LEED v3.0 Proposed Energy Consumption 54.5 kbtu/sqft/yr



	lights	heating	cooling	ht rej.	pumps	vent fans	misc equip	dhw
LEEDv3.0 Baseline	2,357	959	1,098	101	30	1,099	2,452	1,466
LEED Proposed	1,702	864	1,466	85	40	1,023	2,452	489

LEED v3.0 Estimated Annual Energy Consumption per End-Use

to the preliminary analysis, a Performance Rating Method Compliance Report, a preliminary ENERGY STAR Target Energy Performance Results summary, and simulation output reports, is in Appendix D. It is also important to note that the preliminary energy analysis does not include any assessment of simple payback or life-cycle cost analysis. The future designer may be required to demonstrate life-cycle cost effectiveness, in the event that the energy efficiency measures applied to the project interfere with the project budget and how it relates to the energy efficiency requirements, for the project.

The baseline mechanical system, per ASHRAE 90.-2007 for this building is PTAC, with hydronic heat. Envelope and fenestration performance is code minimum, as is lighting.

In the proposed model, the following changes were made:

Envelope

- Improved Wall Insulation (add 1" CI)
- Improve windows from SolarBronze to Solarban 60
- Improved Fenestration Assembly U-factor
- Improved Fenestration Assembly SHGC

Electrical Systems & Process Loads

- Reduced Lighting Power Densities (from 1.1 w/ft2 to 0.7 w/ft2)
- Lighting Occupant Sensor Controls
- Daylighting Controls in Public Areas

HVAC & Plumbing Systems

- Changed system to four pipe fan coil, with air cooled chiller and condensing boiler.
- Improved Supply Air Fan Efficiency (ECM motors)
- Improved Hydronic Pump Efficiency
- Improved Boiler Efficiency
- Solar Domestic Hot Water Heating for 66% of total demand.

Some observations of the modeling results:

- Lighting consumption dropped significantly because of the lower lighting power density, occupancy sensor in common areas, and daylighting
- Heating only dropped slightly because the boiler efficiency only improved slightly. Improved envelope reduced the heating load, but reduced lighting increased the load.
- Cooling increased because air cooled chillers with fan coils are less efficient than PTAC. However, PTAC is not acceptable for this project.
- Ventilation fans improved slightly due to higher efficiency fans in the fan coils, which offset the increased fan static due to ducted supply air delivery
- Miscellaneous equipment remained constant because the design team cannot realistically affect that load, which is driven by students and the computers, game consoles and televisions that they bring to the rooms
- Domestic hot water was reduced with solar hot water, sized to produced 66% of the annual demand.

Because the energy analysis was performed at such an early stage of the project, some of the assumptions and definitions used for the preliminary energy analysis may require revision during the design process. Therefore, it should be noted that the analysis was used to demonstrate the potential feasibility of reaching the energy efficiency goals of the project, particularly ENERGY STAR, and to develop a preliminary group of energy efficiency measures that may be appropriate for the project. The analysis is not intended to constrain the design team to any prescriptive EEM criteria.

Because of the aggressive energy efficiency goals/requirements of the project and the inherent difficulties in demonstrating energy efficiency for dormitories under the Performance Rating Method, additional evaluation of EEM effectiveness is recommended through life cycle cost analysis (LCCA). A general description of EEMs applied to the Proposed Design model are summarized below. More details regarding the actual

parameters and definitions used in the analysis are offered as part of the Performance Rating Method Compliance Report.

Additional EEMs that were not applied to the preliminary analysis, but may be considered by the future designer include, but are not limited to the following:

- Building and/or Fenestration Shading
- Dedicated Outdoor Air System (DOAS)
- Demand Control Ventilation (DCV)
- Elevator Motor Efficiency
- On-Site Renewable Energy other than Solar Hot Water

As indicated above, for the preliminary energy analysis, the following items are provided in Appendix D as additional documentation:

- Performance Rating Method (PRM) Compliance Report
- Baseline and Proposed System Checksums Reports
- Baseline and Proposed Monthly Energy Consumption Reports
- Baseline and Proposed Monthly Utility Costs Report
- Proposed Design Target Energy Performance Results: ENERGY STAR
- Proposed Design Solar Hot Water Calculation Output Report

Inspection of the System Checksums Reports (SCR) provides information that will be useful to the future designer, beyond what is offered in terms of energy analysis reports. For example, the proposed alternative SCR offers preliminary calculations of peak heating and cooling loads, design air flow rates/capacities, and several other points of reference data relating to HVAC building and system design parameters that can be utilized for the schematic design phase.

Because the energy modeling was performed early in the programming process, the building geometry/layout used for the models constructed for the preliminary energy analysis is based on one similar to Alternative A.1, as shown in Appendix B.10, not the preferred alternative. Four-bedroom units, as shown in Appendix B.03, are used to define the residential spaces, where each unit (apartment) is modeled as a single thermal zone. Significant modifications made to the building, during the design phase, or use of another alternative building layout, can significantly impact the results of the preliminary energy analysis.

As referenced in the PRM Compliance Report, the preliminary analysis relied on the assumptions that the building will utilize its own HVAC plant equipment, i.e. boiler(s) and chiller(s). However, campus central plant high-temperature hot water & chilled water are the preferred options and may be attractive options toward gaining LEED points under EAc1, when considering the protocol referenced by the USGBC's "Required Treatment of District Thermal Energy in LEED NC version 2.2 and LEED for Schools – v1.0" dated, May 2008. The future designer will be required to show initial, as well as life-cycle, cost effectiveness for this approach.

Because of the building use type (Dormitory), several energy efficiency measures that may be applied to other types of commercial building projects are not necessarily appropriate or may not be given credit under the modeling protocol found in ASHRAE 90.1 Appendix G, and add to the challenge of meeting the various energy efficiency goals. For example, a classroom building project might reasonably apply a central variable volume HVAC system which utilizes indirect/direct evaporative cooling. However, this type of HVAC system, which would potentially show significant energy reduction when compared to packaged terminal air conditioners (PTAC's), is not appropriate for residential projects, due to HVAC thermal zoning, space temperature control, utility billing, etc.

Following are additional miscellaneous comments regarding the preliminary energy analysis:

- University of Utah Housing has indicated that the facility will operate at full capacity for the entire year and the occupancy schedules for the analysis have been created to reflect this condition.
- 30 percent increased ventilation rates have been applied to the analysis, consistent with LEED EQc2.
- No exterior lighting has been included in the analysis.
- Cooking equipment and case refrigeration that may be included in the design of the C-Store have been modeled directly as part of the process load definition(s).
- Building use category "4. Conf./Mtg/Multipurpose" of the PRM Compliance Report is intended to represent public spaces that may subsequently be defined as classrooms, lounges, or study areas, as indicated in the program document.
- The ENERGY STAR Target Energy Performance Results includes an input for the "number of rooms" equal to 384. While ENERGY STAR does not make any clear definition of "room" (i.e. thermal zone vs. actual partitioned space) the assumption has been made to increase the number of room by approximately 18% (384) to account for the observation that each suite of four beds has five rooms, counting the common living room.

Building Envelope

Reference IECC 2009, Climate Zone 5 for minimum envelope requirements.

Internal Loads

Use the following loads if more specific design information is not available:

Loads	
Types	**Values**
People	250 Btuh, sensible
	200 Btuh, latent
Lights	0.7 watts/sq.ft., overhead, residence
	1.25 watts/sq.ft.,overhead, common
Equipment	0.88 watt/sq.ft. in residence (Based on ASHRAE 2009 F 17.11 Eq 30, doubled to account for anticipated computer / game/ television density)
	0.75 watts/sq.ft. elsewhere

Modify internal load calculations as required when more specific design information becomes available, in order to maintain indoor design temperatures.

Commissioning

Reference University of Utah Design Standards, Chapter 6, Section 6.2.18, and DFCM Design Requirements for commissioning. Coordinate with commissioning agent retained for the project and comply with requirements for building commissioning detailed in DFCM Solicitation for Commissioning Services.

Measurement and Verification

Install continuous metering equipment for the following uses:

- Heating Water, regardless of source
- Chilled Water, regardless of source
- Domestic cold water

The University of Utah requires an ultrasonic flow meter, with clamp-on (out of flow) transducers . The preferred vendor is Panametrics, Model DF868. This does not achieve the LEED Measurement and Verification credit.

SYSTEMS

General Overview

There are two heating and cooling systems that are acceptable to University Plant Operations: (1) four-pipe fan coil and (2) VRF - variable refrigerant flow. The four-pipe fan coil system is the University's preferred system because of lower maintenance costs and familiarity, while the VRF system is acceptable but not desirable. There are five possible options that result from either tying these two systems into the University's existing High Temperature Water (HTW) system and chilled water plant or locally generating hot and cold water on-site:

Option 1
Four-pipe fan coil with hot water from HTW system; chilled water from the HPER plant.

Out of the five options, Option 1 is the preferred and baseline option.

Option 2
Four-pipe fan coil with hot water from HTW system; chilled water from local air-cooled chillers.

Option 3
Four-pipe fan coil with hot water from local boilers; chilled water from the HPER plant.

Option 4
Four-pipe fan coil with hot water from local boilers; chilled water from local air-cooled chillers.

Option 5
VRF fan coils with roof-mounted condensing units.

Four-Pipe Fan Coil (Options 1 - 4)

Chilled water can be generated locally or delivered from the HPER plant, and the hot water can be generated locally or delivered from the HTW system from the HPER Mall. Based on preliminary load calculations and energy modeling, the initial peak cooling load is 250 tons and the peak heating load is 2,325 mbh.

The lowest operating cost four-pipe option, as determined by preliminary energy modeling, is Option 4. Regardless of prime source, all hydronic pumping systems are variable flow with ventilation in the rooms from operable windows. Common areas, including corridors, classrooms lounges, and all areas not specifically sleeping rooms/apartments will be served by four pipe fan coils or air handlers, with ASHRAE 62.1 ventilation rates. Common toilet exhaust should be routed through heat recovery ventilator to provide makeup to corridors.

Heating Water Transport Energy Consumption		
Load	**Maximum Water Transport Energy**	
	bhp/1,000,000 Btuh	W/gpm
Full Load	2.50	23.3
50% Load	1.15	10.7

Heating Water, HTW System:

- Serve building from campus high temperature water system in HPER Mall, with shut off valve and vents and drains as detailed in Chapter 8 of the University of Utah Design Standards.
- Size mains for eventual build-out (1,800 beds).
- Locate building service, isolation valves and heat exchanger in basement mechanical room, inside ventilated reinforced concrete vault. Install all pumps and drives outside the vault.
- Generate building heating hot water through a shell and tube heat exchanger. Maximum allowable pressure drop on each side of the heat exchanger is 10 ft w.c.

Heating Water, Local Boilers:

- Serve buildings from condensing boilers, with outside air

reset control.
- Provide variable volume, primary only pumping with provisions to maintain boiler minimum flow, condensate neutralization system, and N + 1 redundancy.

Chilled Water Transport Energy Consumption		
Load	**Maximum Water Transport Energy**	
	bhp/1,000,000 Btuh	W/gpm
Full Load	0.05	10.9
50% Load	0.04	8.7

Chilled Water, HPER Plant:
- Chilled water will be provided from the campus chilled water system.
- Size line from HPER plant to building site for eventual build-out (1,800 beds).
- Isolate the campus system from the building system with a flat plate heat exchanger, and assume campus supply temperature = 45˚F.
- Design the building side chilled water for 15˚F temperature rise, using variable volume primary-only pumping and two-way valves.

Chilled Water, Local Air-Cooled Chillers:
- Provide two air cooled chillers, minimum efficiency = 2.8 COP, per ASHRAE 90.1-2007.
- Design chilled water system for 15˚F temperature rise, using variable volume primary-only pumping and two-way valves.

VRF (Option 5)
- Zone east and west exposures on same condensing unit to achieve load sharing.
- Provide electric backup in room units, controlled to stay off until condensing unit is no longer able to provide adequate heat.
- Installing contractor must be trained and certified in the installation of the specific brand of VRF.

Common Requirements for All Options
- Ventilation in residential rooms through operable windows.
- Ventilation in common areas through ducted outside air ducts with differential CO_2 control.
- Provide 100% outside air to corridors, through heat recovery ventilators.
- Provide HOA switches on all pumps and fans.

Air Distribution (Non-Residential Rooms)
- Document fan sizing calculations with zone by zone load calculations.
- Document critical path supply duct pressure loss and show process used to review fittings and duct sizing in order to minimize fan pressure requirements.
- Use automatic dampers on exhaust fans in lieu of barometric dampers.
- Document that transport energy consumption meets the following criteria:

Air Transport Energy Consumption	
Load	**Maximum Air Transport Energy**
	bhp/1,000 cfm
Full Load	1.0
50% Load	0.30

- Require pressure testing of all duct systems in accordance with 2009 IMC.
- Reference University of Utah Design Standards, 6.2.6.13 – Provide each space with individual room temperature control. Provide zoning plan during schematic design review that indicates proposed zoning plan for review and approval by University planning staff.

Plumbing

Reference University of Utah Design Standards, Chapter 6 for plumbing requirements.

- No automatic lavatory or flush valves are allowed.
- Provide water softener for domestic hot water. If softener is located in an inaccessible location, provide remote filling option for salt brine.

Domestic hot water load calculations (Reference ASHRAE Applications 2007, Chapter 49):

- Student + RA/Faculty count: 314.
- Assume 50/50 male/female split.
- Size to minimize recovery (maximize storage, because that is beneficial to solar water heating efficiency).
- From Figure 16, minimum recovery rate is 1 gph/student, which requires 11 gallons of usable storage capacity/student.
- Recovery = 314 gph.
- Storage = (314 students)(11 gal/student)/70% net usable storage =5,000 gallons.
- Daily consumption = 12.7 gpd/student * 314 students = 4,000 gpd.

Solar Water Heating System:

- Reference analysis of solar hot water heating system in Appendix D.09, to provide 66% of annual hot water from on site renewable.
- Reference schematic for solar water heating system diagram on the next page.

Fire Protection

- Provide fire sprinkler protection throughout building, including an automated calling system. System to comply with NFPA, campus fire marshal and State of Utah Fire Marshal requirements.
- A fire pump is not anticipated, because the flow and pressure requirements can likely be met from the campus system. Conduct a fire flow analysis per DFCM criteria during the design phase to confirm this assumption.
- Provide individual floor control assembly, including zone check assembly, at each floor.
- Provide concealed heads throughout residential occupancy.
- Use quick response heads in sleeping areas.
- Sprinkler Occupancy Hazard Classifications are as follows:

Sprinkler Occupancy Hazard Classifications	
Type	**Classification**
Sleeping Areas	Light Hazard
Office and Public Areas	Light Hazard
Service Areas	Ordinary Hazard, Group 1
Mechanical Equipment Rooms	Ordinary Hazard, Group 1
Building Service Areas	Ordinary Hazard, Group 1
Electrical Equipment Rooms	Ordinary Hazard, Group 1
General Storage Areas	Ordinary Hazard, Group 1

- Minimum density for automatic-sprinkler piping design as follows (reduce design areas with quick response heads when applicable and increase design area as required for pitched ceilings):

Minimum Density for Automatic-Sprinkler Piping Design	
Type	**Value**
Light-Hazard Occupancy	0.10 gpm over 1500 sq.ft. area
Ordinary-Hazard Group 1 Occupancy	0.15 gpm over 1500 sq.ft. area
Ordinary-Hazard Group 2 Occupancy	0.20 gpm over 1500 sq.ft. area
Special Occupancy	As determined by authorities having jurisdiction.

- Maximum protection area per sprinkler as follows (except as modified by authorities having jurisdiction):

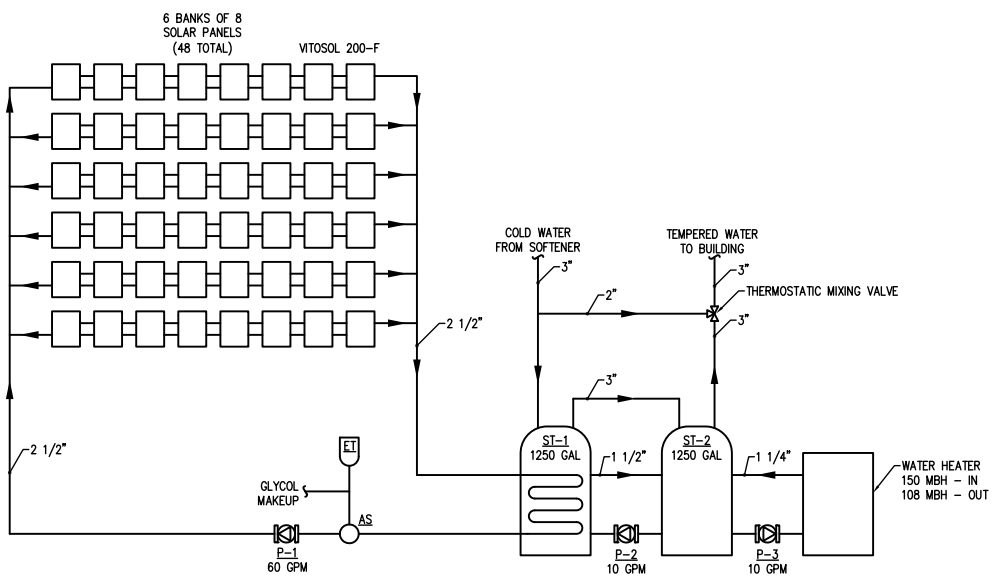
Maximum Protection Area per Sprinkler	
Type	**Value**
Sleeping Areas	150 sq.ft.
Office Space	225/400 sq.ft.
Storage Areas	130/400 sq.ft.
Mechanical Equipment Rooms	130 sq.ft.
Electrical Equipment Rooms	130 sq.ft.
Other Areas	According to NFPA 13 recommendations, unless otherwise indicated.

Components and Installation:

- Capable of producing piping systems with 175-psig minimum working-pressure rating, unless otherwise indicated. All piping and components are Schedule 40 minimum, and of domestic manufacture.
- Class I, standpipe system design shall be designed assuming 150 psi available at fire department connection. Pressure and required flow shall be provided by fire pumper truck.

Controls

- Provide Direct Digital Control (DDC) system. Reference University of Utah Design Standards, Chapter 6 for general DDC requirements
- Provide written sequence of operation on drawings for all systems controlled by the DDC system.
- Provide temperature sensors at airside inlet and outlet of all terminal units.



Solar Water Heating System

electrical

BUILDING ELECTRICAL

Standards Requirements

The additional standards that apply to the electrical systems are the latest versions of the following:

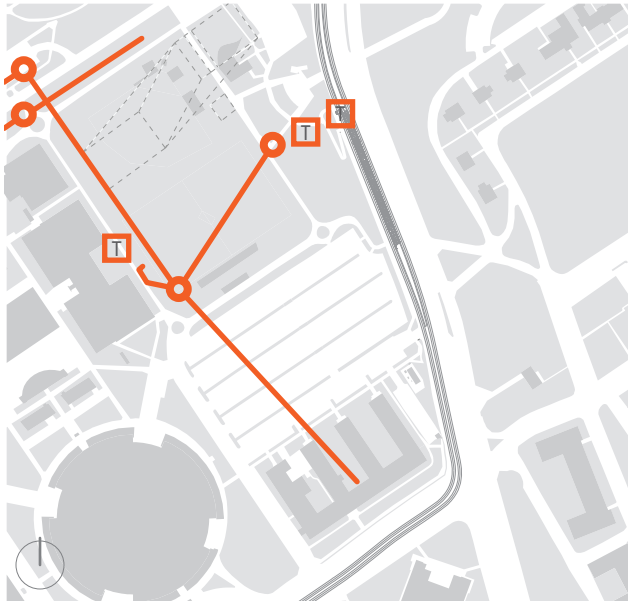
ANSI standards as applicable
NEMA standards as applicable
IEEE standards as applicable
EIA/TIA standards as applicable to Information Technology
BICSI standards as applicable to Information Technology
DFCM Design Criteria – latest version
U of U Design Standards – latest version

Special Fire Alarm Requirements

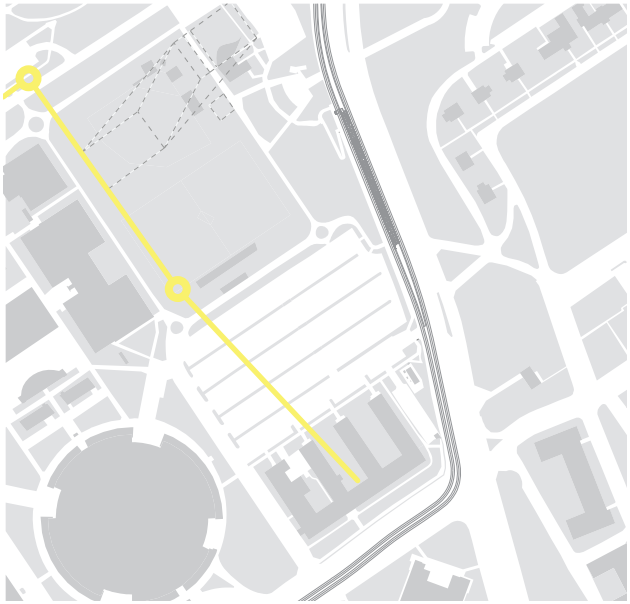
The building complex will likely be a mix of "R" Residential and "B" business occupancies. The International Fire Code, for "R" occupancies, requires smoke detectors in sleeping areas. The Code recognizes nuisance alarms in residential, and as such any detector inside the residential units that goes off does not need to evacuate the entire building and can be local alarm only. However, it is preferred to keep smoke detectors on the central system for trouble monitoring and to avoid small 9 volt batteries. For "B" occupancies, the IFC requires a manual fire alarm system for 500 or more. There is an exception that allows no manual fire alarm if the building is sprinkled with notification appliances that notify occupants during sprinkler flow. However, in the University environment, and because smoke detectors are required by the State Fire Marshall for State owned buildings, the cost of adding manual fire alarm boxes is minimal, and is normally done at the University in these types of occupancies.

Manhole
Transformer
Electrical Service

Manhole
Telecom Service



Existing Electrical Service



Existing Telecom Service

The State Fire Marshall requires smoke detectors in all corridors, and in paths of egress.

The IMC requires smoke detection on fan systems, and fan shutdown.

Power Service to New Facility

The National Electrical Code requires one disconnect unless grouped, unless the buildings are considered separate structures.

The new facilities shall be designed for a maximum of 15 watts per square foot minimum. The University design guidelines require a minimum of 50% space and capacity, included in the 15 watts per square foot.

Loads		
Type	**Connected Load**	**Design Watts/sf** w/50% spare
Lights	1.0 (or less)	1.5
Receptacles	1.5	2.25
HVAC	5	7.5
Elevators	1	1.5
Misc.	1	1.5
Total	**9.5 w/sf**	**14.25 w/sf**

277/480 volt service is desired for the Café area and to avoid large voltage drops across the large building. Dual transformers for 120/208 volt and 277/480 volt service may be considered as an energy saving option and to avoid stepdown transformers inside the building.

The service can originate from the existing HPER Mall area. There is a new manhole located north of the Tanner Dance facility. Since Honors Housing will likely be installed prior to the Student Life Center, the new ductbanks should avoid the possible footprint of the Student Life Center. The preferred route is to route to the east of the Tanner Dance facility. This extends the HPER ductbank east to allow for a future tunnel bore under TRAX and Mario Capecchi Drive, which will allow for another feeder to be extended from Red Butte substation. In addition, it avoids the use of the old 1960's era ductbank located near HPER, which is needed for future upgrade projects and will be relocated by the Student Life project. By routing east, any outages associated with building the Student Life Center will not affect the Honors Housing complex, with the exception of chilled water outage at HPER. Refer to electrical site utility plan, for further details for power service.

A new vault mounted vacuum fault interrupter (VFI) switch, with solid dielectric medium, is preferred over a fused or oil switch. The switch shall be installed outdoors in a pad area, adjacent to transformer(s), and near the main electrical room. SF6 gas switches are not acceptable.

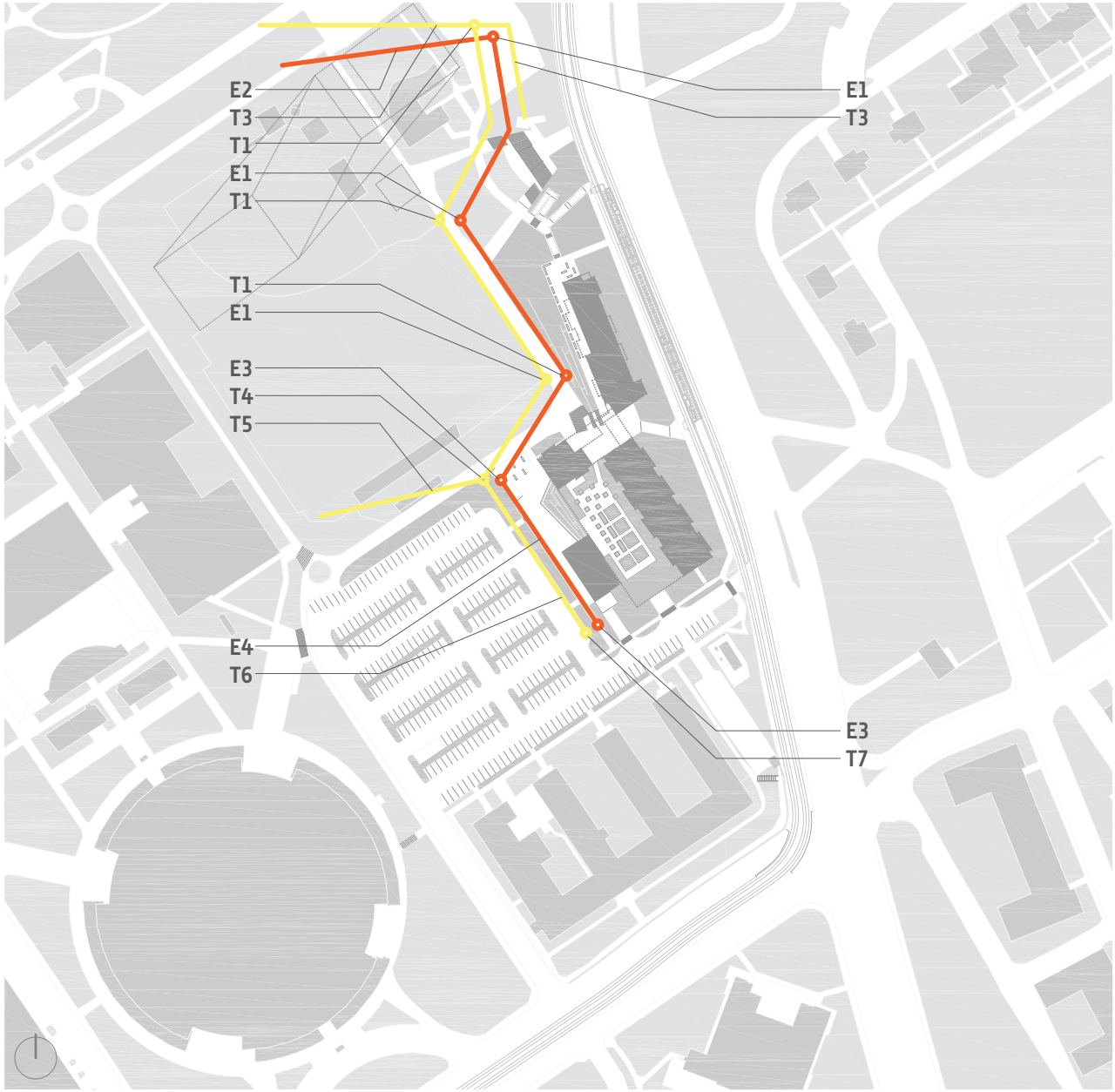
A new transformer(s), should be installed to serve the facility. The transformers must be screened from the public view. If located near the generator, a concrete or masonry "blast wall" shall screen the generator from any possible arc flash of the transformer.

The future designer shall include a selective coordination study for the medium voltage service, to determine the overcurrent protection settings at the vacuum fault interrupter. The future contractor shall adjust the overcurrent protection settings as part of the commissioning process.

Conduits running from the manholes to the building switch, and

T1 New telecom manhole (Alt #1).
T2 New telecom ductbank to elevator.
T3 Telecom ductbank.
T4 New telecom manhole.
T5 Alt #2 telecom ductbank.
T6 Future telecom ductbank.
T7 New telecom ductbank (future).

E1 New electrical manhole.
E2 Electrical ductbank.
E3 New electrical manhole (future).
E4 Electrical ductbank (future).



1" = 240'

0 120' 240' 480'

Electrical Site Utility Plan

Electrical Service
Telecom Service

from the switch to the transformer shall be 5 inch PVC, with 10 feet of PVC wrapped rigid conduit where entering the manhole, penetrating building foundation wall, or exiting from underslab to transformer. Where medium voltage is installed inside the building, conduit shall be rigid, 5 inch size conduit, painted red and labeled according to the NEC. Provide at least one spare conduit in all new runs.

Power Service Accessories

Digital Metering equipment shall be provided at main service switchboard per campus standards.

Phase failure protection shall be provided for motor circuits.

Transient Voltage Surge suppression shall be provided at the main switchboard and the emergency switchboard, and at other selected locations through the facility as determined by the future design engineer.

Power Distribution

Electrical rooms shall be stacked where possible to facilitate future changes and minimize the initial cost of feeder runs. Closets shall be centrally located to minimize branch circuit distances. No point in the building shall exceed 150 feet to the nearest electrical panel, preferably most circuits shall be less than 120 feet to the nearest panel. Electrical closets shall have unused wall space for future growth, minimum of 25% free wall space.

All power distribution feeders shall be in conduit, with copper conductors, full size neutrals, with isolated ground and equipment ground conductors per University Design Guidelines. Power panels shall be located within electrical closets, not within hallways. Electrical service shall be located as near as possible to the largest mechanical loads, for efficiency and cost savings.
All outlet circuits shall have dedicated neutrals with single pole breakers. Shared neutrals with two and three pole breaker handles are not allowed.

All circuits shall be designed so there is no more than 5% maximum voltage drop from the main service entrance to the outlet or device. It is preferred that the feeder have no more than 2% voltage drop, and the branch circuit no more than 3% voltage drop, at maximum connected load. This may be accomplished by increasing wire size, or minimizing distance of the feeders and branch circuits, as appropriate.

Power panels for receptacle power shall be separate from panels feeding mechanical and lighting loads to allow for easy, separate metering as required by the IECC and/or USGBC LEED M&V points (if selected). Separation will also reduce harmonic transfer between building mechanical loads and receptacle power.

Variable Frequency Drives

The future electrical designer, not the future -mechanical designer shall specify the Variable Frequency Drives at the University. Exceptions may be allowed with prior approval from the University for certain packaged units, however, specifications of the mechanical and electrical designers shall match as to harmonic control and accessories.

Emergency Power

Batteries are not allowed on new facilities at the University. A new, diesel generator will be required as part of the project. The generator will run egress lighting, fume hood exhaust fans, lab freezers and all information technology equipment inside the MDF/IDF rooms including HVAC inside the telecommunication rooms. If necessary and required by code, the generator shall run one elevator.

The generator may be located in the transformer yard area, screened from public view. Consideration shall be taken to control noise to at least 15 dB.

The tank shall have a minimum of 24 hours of backup fuel at 100% rated load.

A minimum of two ATS switches is required, one for life safety egress lighting, and the other for auxiliary equipment such as the telecommunications closets.

UPS Systems

It is expected that small, centrally located UPS system will be provided to feed power to the MDF and IDF rooms as part of construction package to backup telephone and data systems for the building. Unlike past projects, this UPS will not be purchased later by the department, rather, it shall be a permanent part of the building electrical systems and installed by the future contractor. The UPS system will be backed up by the building diesel engine generator.

Outlets

The number and location of outlets shall be coordinated with each space with users and comply with their needs and requirements.

For instructional spaces, including fixed seating auditoriums and lecture halls, outlets of sufficient quantity for laptops shall be provided. Where access is provided, a total of 25% of the students within the room shall be served. For student spaces, outlets shall be provided at all study spaces for laptop connections.

GFI outlets shall be provided for all vending machines and for break rooms, restrooms, roof outlets, and other locations within six feet of a sink.

Provide dedicated outlets for all copy machines, laser printers, vending outlets, microwaves, and other high-use equipment.

Provide at least one outlet in each storage and mechanical closet.

For residential units, follow the NEC code for allowed spacing and location of all outlets in the kitchenette, in bedrooms, and in living room spaces.

Lighting

Wherever possible, the future designer shall utilize long life, energy efficient lighting solutions. Four foot T8 or T5 fluorescent lamps, with electronic ballasts, are preferred. T8 lamps shall be premium, greater than 3100 lumens. T8 ballasts shall be premium, high efficiency, with ballast factor less than 0.8.

For smaller fixtures, biaxial fluorescent, or compact triple tube fluorescent lamps are preferred. Incandescent lamp sources shall be minimized and avoided if possible. Where specified, long life low voltage halogen sources, or dimming systems that extend life of the lamps and save energy are preferred. LED solid state systems may be considered, but must be approved by the campus prior to specification. LED solutions with replaceable lamp and ballast modules are preferred to throw-away LED fixtures.

Lighting solutions shall incorporate automated controls per the latest version of the energy code. This can be timeclock switching systems in public areas, and/or occupancy based switching systems in public and private areas. If occupancy sensors are used, an override switch mounted on the wall will allow the user to turn off the lights for appropriate presentations. In addition, if an occupancy sensors fail, the University can have the immediate option of bypassing the sensor and using the switch only for control purposes. Dual technology occupancy sensors are preferred to help prevent false off and false on operation of the lights. The future design engineer shall include commissioning specifications in the design to commission all lighting control systems, and provide required owner training. Do not use occupancy sensors in private resident bedrooms.

Daylighting controls may be considered in selected areas of the facility.

In the seminar room, preset dimming and lighting controls,

integrated with audio/visual touchscreen, shall be provided. If windows are included, they shall also have motorized operators tied to the touchscreen. The future electrical designer shall carefully coordinate with a technology designer to ensure smooth, problem free, operation.

In the seminar room, zone control shall be provided to allow lights at the front near the projection image to be dim or off, while adjacent white boards can be partially or fully illuminated to provide dual function teaching. This method requires at least 3 lighting control zones, and preferably 4 lighting control zones as follows:

- General classroom illumination (away from projection screen).
- Lighting on whiteboard.
- Lighting on projection area for whiteboard use (when projection is off).
- Other zones as suggested by the future lighting designer, for example, perimeter walls, aisles and pathways, etc.

Dimming should use fluorescent sources rather than incandescent for maximum life and energy savings.

Provide egress illumination and illuminated exit signs complying with all required codes. As a minimum, 1 footcandle shall be provided for all egress pathways. In addition, provide some illumination on backup generator power in public restrooms, mechanical rooms, electrical rooms, and communications closets.

Illumination levels shall follow the published guidelines of the Illumination Engineering Society, North America (IESNA), and its recommended practices. Specifically, refer to RP1-93 "Office Lighting", RP3-00 "Lighting for Educational Facilities", and RP33-99 "Lighting for Exterior Environments."

Fire Alarm Systems

The fire alarm system will consist of manual pullstations, smoke detectors down corridors and paths of egress, and smoke detection on the fan systems exceeding 2000 CFM. Notification devices will be provided per code guidelines. The automatic sprinkler system will be monitored for flow and tamper. The elevator shall be recalled according to ANSI guidelines.

Grounding

Provide grounding equipment conductors in all feeder and branch circuits. Conduit ground is not acceptable. Provide an additional isolated ground conductor in all 120/208 branch power panelboard feeders complete with isolated ground bus.

Provide grounding riser system for all telecommunications closets, complete with grounding bus bars.

Lightning Protection Systems

The future designer shall provide a full lightning protection analysis per NFPA guidelines. It is anticipated that with the importance of the facility, a prominent location, and the overall square footage of the facility, the analysis may suggest a lightning protection system be added to the project. The final cost of such a system depends heavily on the construction materials used on the facility. The future designer shall consult with the owner to determine if the system is desirable based on the budget.

Clocks

Provide battery operated, radio frequency, self correcting clocks in all public areas.

Designer shall ensure that repeaters are located within the building (or integral to clocks) so that signal reaches each specified clock location.

Sustainable Principals and LEED

It is desired that where economically feasible, sustainable

practices and design shall be employed. The state will require this to be LEED Silver - at a minimum. Many of the above system descriptions already use energy efficient design practices. The designer shall meet with the DFCM energy coordinator and meet all requirements of the DFCM energy standard.

Electrical designer shall include all commissioning requirements in the electrical specifications required for measurement and verification.

The lighting design is targeting 20-25% better than code for lighting energy density. As stated previously, there may be daylighting controls within some of the spaces adjacent to exterior windows and clerestories to take advantage of free and efficient daylight when available; although, it is unlikely that sufficient daylighting controls will be provided to earn the LEED credit for daylighting. The lighting layouts and fixture selections will aid in reducing light pollution from interior light sources as well as aid in reducing sky glow from exterior sources.

INFORMATION TECHNOLOGY

Designer shall refer to the University Design Standards, all requirements shall apply.

Designer shall coordinate with U of U Information Technology Office, including David Kosanke, 801-581-3900, and other appropriate staff. Campus IT staff will approve all designs prior to bidding.

Telecommunications Service to New Facility

The data fiber optic service to the new building shall be obtained from either the HPER mall with a ductbank parallel to the power ductbank, or if viable, from the existing ductbank near the HPER complex immediately west of the site. Shared trenching with the power is allowed, as long as a 12 inch separation is maintained from the power ducts to the telecomm ducts. Voice is also available in both locations.

Telecommunications Trunklines within New Facility

It is proposed that a new MDF be located either on the ground floor or a basement floor. A cable/tray and conduit link shall be connected through the facility for complete homerun of all cables. J-hook method of support is not allowed. Care shall be taken to provide full access to the tray system at all bends and all locations where conduit enters the tray.

Each new Intermediate Distribution Frame (IDF) room shall be connected to the new MDF via cable tray/conduits.

Telecommunication MDF and IDF room requirements

The new IDF rooms shall be stacked with the new MDF to minimize cable distance and provide flexible future growth. Rooms shall be centrally located, to ensure no workstation cable is longer than 280 feet to any point within the facility. Where required, provide additional IDF closets to ensure that cable length is minimized and meets the standard. At a minimum, provide one MDF/IDF room per floor.

MDF and IDF rooms shall be directly accessible from the hallway, access through teaching spaces or offices is not acceptable.

Size of all telecommunications rooms shall follow campus minimum size standards or written approval shall be obtained to deviate. MDF minimum size shall be 300 square feet suitable for a maximum of 10 floor racks. IDF minimum size shall be 120 square feet, suitable for a maximum of 3 floor racks plus appropriate wall space.

A dedicated HVAC cooling system shall be provided in each MDF and IDF rooms that can run 24 hours per day, 365 days per year.

Each new telecommunication MDF and IDF shall be on emergency generator and UPS backup, including all outlets. HVAC shall be on generator backup only.

All walls of MDF and IDF rooms in the new building must be covered with 3/4 inch by 8 foot high plywood, painted with fire retardant paint. The plywood shall be used to mount copper voice cables, fire alarm, and security CCTV systems.

All MDF and IDF rooms shall have appropriate grounding, and grounding bus, tied back to the power service ground. Provide grounding jumpers to all metal raceways entering the closet. Provide spare holes on grounding bus for campus IT services to ground their equipment.

Each MDF and IDF shall have card access, and be monitored with a CCTV camera system, as per standards.

Horizontal Workstation Cabling Requirements

Cable tray or conduit homeruns shall distribute horizontal cabling throughout the facility. Open plenum wiring and j-hooks will not be allowed. Minimum size conduit shall be one inch.

Wireless access outlets shall be provided so there is reliable wireless access points in all student study areas and teaching areas.

SECURITY

A highly visible perimeter should be maintained around the building, accomplished with proper lighting and landscape design that creates a secure environment. Due to exposure and access of the site to TRAX and the Huntsman Center, transient traffic creates a concern for tailgating through secure doorways. Access doors shall be located outside of the immediate transient traffic to help avoid tailgating.

Interior and exterior lighting in public areas shall be vandal and tamper resistant. Lighting levels shall be enough to deter crime, but yet avoid annoying occupants.

Door latches are preferred to be electric latch rather than electric strike.

Emergency code blue phones have some security concerns, since they tether a potential victim to a fixed location. They should be located in a central, highly visible area, or in areas with poor wireless reception such as parking garages.

Card Access and Security Systems

Card Access systems will be specified on select doors, including telecommunications MDF and IDF rooms.

CCTV cameras shall be provided inside near exterior exits, near telecommunications MDF/IDF closets, and public gathering spaces and elevator lobbies. In addition, CCTV cameras will be provided on the exterior, in weather housings, to view major site lines of the exterior.

Blackboard shall be the University preferred vendor card, C-Cure is the security access and alarm systems, and they shall be procured through the FF&E package. Contractor shall provide raceways with complete homeruns, j-hook method of wiring is not acceptable.

CCTV Exterior housings shall have power for weather accessories, defoggers and/or heaters to ensure a clear vision path.

BUILDING TECHNOLOGY AND A/V

The future designer shall coordinate all specifications and design with Informational Media Services.

All new construction on Campus will include the necessary infrastructure necessary for the installation of technology whether or not the equipment itself will be purchased through the contractor or as part of the FF&E package.

All instructional areas, including labs, will contain appropriate facilities for technology and A/V, as detailed below.

Additional Standards Requirements

The additional standards that apply to technology, in addition

to codes and standards required for electrical systems are the latest versions of the following:

EIA/TIA 607 standards as applicable to A/V and Information Technology
BICSI standards as applicable to A/V and Information Technology
IEEE 208 standards as applicable

"Standard Broadcast wiring and Installation Practices", as excerpted from "Recommended Wiring Practices", Sound System Engineering, 2nd Edition, D. Davis

"The Basics of Audio and Visual Systems Design", Revised Edition, Ray Wadsworth/International Communications Industries Association, INC

Note that the A/V and Media Integrator/Programmer must be CAIP Certified, and have a minimum of 5 years experience installing media equipment in an educational environment.

Basic Systems

Basic Systems are normally specified in small conference rooms, smaller spaces needing A/V, and in areas where budget is a concern.

The Basic System consists of a fixed credenza, usually tied to a wall near the front of the room. The system would include laptop connections for an overhead projector, a DVD and/or Blu-Ray media player, and an amplifier with speakers either wall mount or overhead (overhead preferred). The control would be a simple nine button panel, with volume control, and on-off of all sources. A wireless remote is also used for control.

Lighting control is NOT integrated in basic systems, and there is no touch screen panel. However, it is recommended that manual dimming controls be provided in these small spaces.

Standard Systems

Standard Systems are to be specified in the seminar space.

Standard Systems have all of the features of Basic Systems, but instead of a credenza the A/V equipment is built into a fixed lecturn/podium or teaching station. The minimum size of the lecturn/podium is 24 inches deep, with the ability to house a 19 inch wide equipment rack. Heat relief by forced ventilation is required.

Location of the lecturn/podium and controls must not block the view of the projection area, nor shall the screen drop into or near the podium. The fixed podium shall be capable of allowing the instructor to walk all the way around without impact to the visual image.

A minimum of four data drops is required for the podium. It is recommended that spare conduits be provided to the fixed podium as follows:

(1) 2 inch conduit for A/V
(1) 3/4 inch conduit for dedicated power branch circuit
(1) 1 inch conduit for 4 data cables
(1) 1 inch spare conduit

All conduits to have insulated bushings at both ends and contain no more than two 90 degree bends between pullboxes.

A/V must be installed separate from power and data cables. There is the addition of a tabletop or ceiling mounted document camera and a computer within the lecturn.

Speakers are preferred to be distributed overhead in Standard systems. The control is a touchscreen (usually by Crestron, although other vendors may be considered).

Lighting is integrated into the A/V controls in the Standard System. Lighting control, volume, and menus all are reflected

in the touchscreen.

Annotation is not required on the touchscreen.

Digital Signage

The building will incorporate digital display monitors/signage and emergency operation notification in the main lobby entry, elevator lobbies and other major entries into the facility using a minimum size 46 inch flat LED or LCD screen. This may occur at more than one location as the building abuts the main circulation mall and at secondary entrances or lounge spaces. This digital billboard will be used for campus events, science events, and for campus emergencies.

A second type of signage is for entertainment. It is located in sitting spaces, student study areas, relaxation areas. This type of sign would be in landscape format, and have campus events, advertisements, source cable TV, and other types of media.

A third type of signage is for interactive (touchscreen) activities. This is usually in one location in the facility, near the main entrance. This sign should be floor or wall mounted, and located near the student main path of entry. Maps and wayfinding information may be used on this interactive display.

Backing will be required for all digital signage locations. Homerun all cabling from digital signage to a conditioned MDF/IDF closet, do not rely on a "behind the sign" computer for source media. All signs will homerun to the same IDF closet, with a minimum of two cables for media distribution plus a standard workstation data outlet homerun to the nearest closet. In addition, provide a cable TV outlet at each sign. Total cables at each sign shall be four, two for media, one for data, and one for cable TV. Provide small LED and/or LCD screens for room scheduling in lecture hall and auditorium multi-scheduled spaces.

Cable TV

A cable TV broadband RF system is anticipated throughout the facility, including to all instructional labs, classrooms, conferences, and private offices. Provide appropriate coaxial cable, amplifiers, taps, and other equipment specified in the IT Infrastructure and cabling specifications attached in the appendix. The department may use satellite service, or University Television UTV through the campus fiber optic system; provisions to obtain both services shall be provided.

security

GENERAL

In regards to security and crime prevention issues specific to campus housing, the University of Utah Public Safety Department suggest the following recommendations and procedures.

SITE DESIGN

Due to the high degree of public exposure in which the site is located, there will be a lot of transient traffic moving across the site and through the public exterior pathways of the building. Tailgating is of a major concern; locating entries away from transient movement is recommended to reduce tailgating. In addition, a highly visible perimeter should be maintained around the building. This may be accomplished through the proper use of lighting and landscape design. Landscaping should be kept low and away from the building because tall and large amounts of shrubbery create places for potential perpetrators to hide.

Valuable strategies in which the designer may refer to and the University of Utah's Public Safety Department abides by is in a multi-disciplinary approach to deterring criminal behavior called Crime Prevention Through Environmental Design (CPTED).

BUILDING DESIGN

Balancing the levels of comfort, design, and security is important while considering the following building security points:

- Abrupt turns and dead ends, such as those that may occur in hallways, that would require a u-turn should be avoided.
- Wide, open spaces are safer than long, narrow spaces where visibility is limited.
- Maintain clear notifications of how and where to exit.
- Operable windows at grade are to be avoided but if they are included, an acceptable sill height should be maintained for all windows. Sliding doors at grade are not preferred and should be avoided.
- Lighting levels should be intense enough to deter crime, yet not become an annoyance to the occupants living in the facility.
- Interior and exterior lighting should be vandal proof, including pellet- and tamper-resistant.
- Doors with automatic closers are preferred and magnetic door latches are preferred over the traditional latching mechanism. If doors close and lock automatically, this would be a great way to reduce crime at the exterior of the building as well as internally in the apartment units.
- Student ID access cards work well. All points of exterior access into the building should be swipe card or key access. Designing vestibules at each of these points creates more secure spaces for occupants who are coming and going.
- The parking structure should be well lit and have clear distinctive pathways for exiting. Having an access gate when entering or exiting may deter theft.

OTHER SECURITY SYSTEMS

Video Cameras

The general perception is that security video cameras deter crime. Housing and Residential Education currently owns and operates security cameras but these cameras only record and do not prevent crime in real-time because no one currently monitors them live. While cameras are a good resource for proving crime, they do not necessarily deter crimes from occurring. Nevertheless, people do feel safer when there are security cameras. If cameras are used, what is most important is that the cameras are well placed in locations of maximum benefit when laying out the camera security system. The Public Safety Department is a useful resource to call upon in this regard.

Emergency phones

The Public Safety Department questions whether emergency phones (E-phones) are as beneficial as they used to be in assisting a potential victim because most people carry their own portable cell phones nowadays - whereas an E-phone tethers a potential victim to a location and does not allow them to run. Wireless enabled environments can be superior to E-phones and wireless capability is recommended to be installed in all areas of housing and parking. Special effort should be taken in the proposed podium parking scenario because below grade parking structures are problem areas due to low cell phone reception.

Legacy Bridge at Night

sustainability

Sustainability is balancing the relationships between environmental stewardship, economic development, and social responsibility while meeting the needs of the present without compromising the ability of future generations of people and ecosystems to meet their own needs.

- U of U, Office of Sustainability

criteria

INTRODUCTION

The vision of the University of Utah is to work towards a more sustainable future by establishing the University as a leader and innovator in the field of sustainability.

As a result of the University of Utah Campus Climate Action Plan, greater emphasis is placed on sustainability in this project because its tangibility is important in helping to educate the students who will live here. Throughout the programming process, the users reiterated that sustainability should be made visible in this project and may also become a unique element to the Honors College.

RATING SYSTEMS AND STANDARDS

There is a range of options in the approach of how desired credits and energy goals may be met, but what is important is that the standards are met. The two standards to be used in this project are: LEED and Energy Star. There is value in using both rating systems. For LEED, the State of Utah requires that all state projects achieve a minimum LEED Silver certification. For Energy Star, the target rating is a minimum of 75.

In addition, the latest version of the following sustainability standards apply and are to be adhered to for this project:

- University of Utah Campus Master Plan's Sustainability Section *(p. 5-102 to 5-107)*
- LEED for New Construction and Major Renovation
- State of Utah's Building Energy Efficiency Program (SBEEP)
- State of Utah's High Performance Building Rating System (HPBRS)

As the Program Team discussed the standards above in relation to this project, the following two exceptions were granted:

- *Greywater, rooftop runoff, and stormwater runoff will not be piped to retention basins and cisterns along HPER Mall as per the Campus Master Plan because HPER Mall is designed to be able to serve only those buildings and sites directly adjacent to it. Instead, these sustainable water systems should be implemented and contained on-site. Stormwater capture and re-use is still one focus of sustainable design on this project. Sustainable hardscape elements may be selected as appropriate, such as permeable paving.*
- *Residential typologies, including this project, aren't required by the University of Utah to comply with DFCM's State standard to be built to a 50-year lifecycle.*

DESIGN ISSUES AND SOLUTIONS

Student Behavior

Student behavior is a big factor in energy reduction. Often times, students do not understand where their power is coming from or care to because they aren't necessarily directly affected monetarily through monthly bills or don't understand how one individual's actions affects the whole. More education is needed to bring more awareness to daily energy consumption.

Plug Load and Lighting

Plug load and lighting must be assessed in an effort to achieve higher efficiencies because they consume the largest percentage of energy in this project. Referring to the LEED v3.0 Proposed Energy Consumption Diagram in the Mechanical section of this chapter, plug load (misc. equip) and lighting amount to 51% of total energy consumption. Because of code requirements, it is difficult to reduce the number of receptacles in the units, but alternative solutions may be explored such as the use of smart strips. However, smart strips are still in a testing stage and it will be months down the road before they can be used.

Meter Competitions

To encourage awareness of sustainability, additional meters should be added so that students may compete with one another in meter competitions held between wings and/or floors or groups of communities. Additional meters should measure (1) plug loading (2) lighting (3) cooling (4) heating and (5) hot water consumption.

Also, it would be beneficial for the students and administrative staff to be able to see this data by running it through a computer and display monitors (also referred to as "dashboards") and placing the monitors in public locations, such as the lobby, so that everyone can see them. Dashboards can be web-based so this data can be accessed on a student's personal computer, by the RAs, or as the University sees fit.

Sustainability Orientation

Another way to teach students about sustainability is during student orientations at the beginning of the school year. It is recommended that the University should incorporate a brief session on sustainability that covers topics such as the ones previously discussed. It would be advantageous for the University, via HRE, to also prepare and present a list that describes what certain types of appliances or items are limited and banned from on-campus housing.

LEED

Currently, the LEED Rating System that will apply to this project and that has been studied is LEED 2009 for New Construction and Major Renovations. One potential rating system to consider using is called LEED for Homes Mid-rise because it is more applicable to this project. However, it is still in the pilot testing phase and will probably not be ready in time for this project according to how the project's schedule is intended to proceed. Nevertheless, should the project's schedule be delayed, LEED for Homes Mid-rise should be considered.

The State of Utah requires this project be a minimum LEED Silver certified but there is potential for the project to achieve higher than Silver. The table in this section only shows those credits which are proposed by the users and required by the State. It leaves some opportunity and flexibility for the future designer to propose alternate strategies to exceed the minimum standard.

During the sustainability charrette in Workshop #5, the proposed and required LEED points in the table on the next page identifies which points were chosen.

Per the State of Utah's HPBRS requirements, a total of 7 points are achieved from the following LEED credits:

- Water Efficiency Credit 1: Water Efficient Landscaping
- Energy and Atmosphere Credit 3: Enhanced Commissioning
- Indoor Environmental Quality Credit 3.1: Construction IAQ Management Plan - During Construction
- Indoor Environmental Quality Credit 4.1: Low-Emitting Materials – Adhesives and Sealants
- Indoor Environmental Quality Credit 4.2: Low-Emitting Materials – Paints and Coatings

The Program Team, on behalf of the University, selected 28 additional points from among 16 different credits to be part of this project. The last 15 points of the project would automatically qualify due to the given location of the site, to having a LEED Accredited Professional as part of the Design Team, and to Regional Priority Credits.

In addition to EA Credit 3 Enhanced Commissioning, DFCM is proposing doing commissioning for building envelopes, not just building systems, and this project has been recommended to be a part of that study, and, as such, has the potential to earn an extra point in the LEED Innovation and Design category.

There are also a few credits this project cannot achieve, mostly

LEED 2009 FOR NEW CONSTRUCTION AND MAJOR RENOVATION

Project Checklist

18	2	6	Sustainable Sites	Possible Points: 26	
Y	N	?			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and 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 and Changing Rooms (15%)	1
		3	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	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

6	0	2	Water Efficiency	Possible Points: 10	
Y			Prereq 1	Water Use Reduction—20% Reduction	
2			Credit 1	Water Efficient Landscaping (50% Reduction)	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
4			Credit 3	Water Use Reduction (40% Reduction)	2 to 4

14	2	3	Energy and Atmosphere	Possible Points: 35	
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
5			Credit 1	Optimize Energy Performance (40% Improvement)	1 to 19
5			Credit 2	On-Site Renewable Energy (9% Renewable Energy)	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
		3	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

2	4	6	Materials and Resources	Possible Points: 14	
Y			Prereq 1	Storage and Collection of Recyclables	
	3		Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
	1		Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2	Construction Waste Management (50% Recycled or Salvaged)	1 to 2
		2	Credit 3	Materials Reuse	1 to 2
1			Credit 4	Recycled Content (10%)	1 to 2
		2	Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
		1	Credit 7	Certified Wood	1

4	0	11	Indoor Environmental Quality	Possible Points: 15	
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		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 and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
		1	Credit 4.3	Low-Emitting Materials—Flooring Systems	1
		1	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
		1	Credit 5	Indoor Chemical and 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	1
		1	Credit 8.2	Daylight and Views—Views	1

4	0	2		Possible Points: 6	
1			Credit 1.1	Innovation in Design: Meter Competitions	1
1			Credit 1.2	Innovation in Design: Student Sustainability Orientation	1

1			Credit 1.3	Innovation in Design: Building Envelope Commissioning	1
		1	Credit 1.4	Innovation in Design: Specific Title	1
		1	Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1
2	0	0		**Possible Points:**	**4**
1			Credit 1.1	Regional Priority: Specific Credit (SS Cr 8)	1
1			Credit 1.2	Regional Priority: Specific Credit (WE Cr 3 - 40%)	1
			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1
50	8	30	**Total**	**Possible Points:**	**110**

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110 points

Required by DFCM

Requested by University of Utah

Automatically Qualify / Disqualify

due to the inherent nature of its location and the fact that it will be all new construction. One credit that the University does not want to pursue is EA Credit 6 Green Power. Even though this is often an easy credit to obtain, the University does not want to purchase green power; rather, they want to encourage the future designer to look for other credits and creative means that will benefit the project in the long run.

ENERGY STAR [1]

In addition to the LEED Rating System, this project shall also comply with the national ENERGY STAR performance rating because it is an external benchmark that helps assess how efficiently the building will use energy, relative to similar buildings nationwide. The rating system's 1-100 scale allows designers to quickly understand how a building is performing. A rating of 50 indicates average energy performance, while a rating of 75 or better indicates top performance. The goal of this project is to hit a target of 75 or better.

In addition to achieving a rating of 75, the building is eligible to also earn the ENERGY STAR label, similar to kitchen appliances. An ENERGY STAR qualified facility means that it meets strict energy performance standards set by EPA and uses less energy, is less expensive to operate, and causes fewer greenhouse gas emissions than its peers. The project benefits by having the ENERGY STAR label in three ways: First, it's contributing to fight global warming by using less energy. Second, its bottom line benefits from increased energy savings. Third, it is a reflection of what the University values and shows the world that the University of Utah is making a commitment to reduce its impact on the environment and, therefore, establishes itself as a leader in doing what's right for the planet and for future generations.

OTHER ENERGY STANDARDS

The University of Utah, led by its Office of Sustainability, is currently putting into place an energy performance standard for use on future projects. Though not completed, the standard is based on selecting certain points from LEED and, proposes to include 15 points from LEED's Energy and Atmosphere's Credit 1 ("Optimize Energy Performance"). The standard is not prescriptive in that it doesn't dictate how these credits should be obtained, but rather, states the levels of performance the building should achieve and leaves it up to the design team to come up with specific solutions.

As an incentive, in LEED, Regional Priority Credits (RPC) awards designs that achieve LEED points that are most applicable to their region and address the specific environmental issues of that region. RPC selects a total of six credits from all of the LEED credits for a project's specific site location and, if the project were to achieve one of those six credits, they automatically qualify for an additional point. The project may be awarded up to four extra RPC points (one point per credit).

1 - Energy Star information found at: www.energystar.gov

feasibility studies

DFCM contracted Project Engineering Consultants (PEC) and Anderson Strickler, LLC to conduct a traffic impact analysis and a market analysis for the Honors Housing project, respectively. Report documents, separate from this booklet, will be made available to the future designer.

traffic analysis

GENERAL

The forecasted traffic conditions and this analysis demonstrate that development of the proposed residential facilities is feasible. The proposed development is not expected to have significant impacts on study intersections.

The study would recommend the following considerations within the study area according to this analysis:

- A transition from the current mixed uses to the residential uses after the second phase of construction.
- A recognition that traffic needs before and after special events uses of the intersections call for temporary adjustments to the traffic patterns and/or special control measures.
- The third phase completion will replace the mixed use analysis with 100% residentially generated traffic which generally matches the mixed use conditions.

SITE IMPACT OVERVIEW

Residential Impact

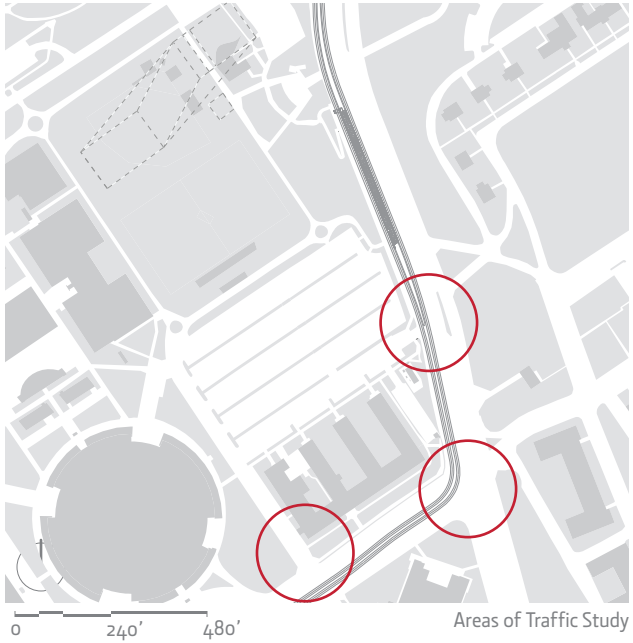
The proposed project of residential housing to replace mixed use that currently occupies the site will increase delays slightly at the three study intersections. The intersections have good levels of service under background conditions and the addition of the residential facility at the proposed site.

Special Events

The consideration of combining additional parking spaces on site for a continuation of some of the existing multiple uses and thereby having spaces available for event parking must recognize the failure level congestion mode of traffic operations that will exist. Combined with the light rail tracks bordering, and potential blockage, of both egress locations for the site, the maintenance of emergency access ways for the contemplated high level of residential use must be reviewed. Special traffic control efforts are recommended to both maintain emergency access and to speed dispersal of congestion during these events.

Pedestrian / Bikeway Analysis

It is anticipated that bicycle and pedestrian trips to this site will be primarily from the main campus and from the Fort Douglas TRAX station. Going west from the site a continuous network of sidewalks by which pedestrians can travel to the proposed site. No specific system deficiencies were identified and improvements are not recommended.



Areas of Traffic Study

Honors Housing Characteristics

Description	Phase I
No. Beds	314
No. of off-residence employees	12
Trip Assumptions	
No. of trips / beds / day	4
No. of trips / off-res. Empl. / day	2.5
% of trips occuring during AM Peak Hour	10%
% of trips occurring during PM Peak Hour	10%
Raw Total No. Daily Trips	**1286**
Total AM Peak Hour Trips	**129**
Total PM Peak Hour Trips	**103**

Mode Split

Mode	% Total	# AM Peak Hour Trips	# of PM Peak Hour Trips
Vehicle	45%	58	46
Pedestrian	35%	45	36
Transit	20%	26	21

market analysis

OVERVIEW

This analysis is based on a 300-bed Honors Housing complex near Legacy Bridge with longer-term plans for an additional 1,500 beds on the same site. The study included focus groups with students, an off-campus market analysis, a survey of current students, and a demand analysis. The rents tested in the survey were based on what the University and the consulting team believed to be the high end of the range for what students would be willing to pay. These rents are lower than the rents that would be required to make the housing financially self-supporting, thus overstating demand unless the financial gap can be closed. At the conclusion of Pollard's and Anderson Strickler's study and planning efforts, ASL was also tasked with developing an operating pro forma for the Honors Housing complex to explore options for closing the gap.

Based on the results of the survey, using fall 2009 enrollment figures for full-time students under the age of 24, ASL analyzed student housing demand and determined that there is sufficient demand at the tested rent levels from both Honors and non-Honors students for the proposed project. However, unless the University can close the financial gap, proceeding with the projects will require identifying a subsidy to create a financially balanced program.

SUMMARY OF RESULTS

Off- and on-campus residents are equally and generally satisfied with their current housing situation. On-campus housing achieved an occupancy rate of 97%. Off-campus residents can take advantage of a rental market with increasing vacancies, decreasing rents, and rental concessions. Based on survey respondents, students tend to rent housing at below the median levels in the general market. It is therefore not surprising that the second most cited reason for moving off campus is the cost of housing; the cost of the meal plan is the most cited reason.

Affordable rent is the number one decision factor for off-campus students in deciding where to live; all other factors have significantly less impact. Location relative to campus is the number one decision factor for on-campus students followed closely by affordable rent and ability to meet other students. The top three unit features or housing policies that students would like to see in new housing are high-speed internet, a full kitchen, and temperature control. The top two community features selected by students are convenient parking at a reasonable price and mail services.

The student survey tested four apartment-style unit plans at estimated market-based rents. These units were selected after gathering input from students, the University, and the consulting team. Student survey respondents ranked each option as "preferred," "acceptable," or "would not live there." The rents assume that all units are furnished, that rent includes utilities, basic cable television, and Internet. Rents for apartments are based on a 9-month lease. Of these, single bedrooms within the tested units were the most popular, with singles in the 4-single bedroom being the most popular, followed by singles in the 8-person unit, and then the 2-single bedroom unit.

If the options presented in the survey had been available to survey respondents for the 2009 – 2010 academic year when they were choosing their housing, 30% of all respondents indicated they would have definitely lived there (40% of on-campus respondents and 17% of off-campus respondents) and 46% indicated they might have lived there (46% of on-campus respondents and 45% of off-campus respondents).

Total demand from full-time students under the age of 24 is 2,820 beds which represents the midpoint of a demand range. This figure includes incremental demand from off-campus students as well as demand from existing on-campus residents that would prefer the proposed housing. The table in this section shows the results of the demand analysis using the methodology described in the market analysis. Again, these demand figures rely on market-based rents and not financially feasible rents.

Demand Summary

Mode	Fall 2009 Enrollment	Definitely Interested	Might Be Interested	Potential Demand
Off-Campus Honors	1,475	131	159	290
On-Campus Honors	515	195	90	285
Off-Campus Non-Honors	7,331	537	826	1,364
On-Campus Non-Honors	1,480	627	254	881

Demand by Unit Preference - Honors Students

	Off Campus		On Campus	
Unit Type	Interested Student Preference (FT, < age 24)	Potential Incremental Demand	Interested Student Preference (FT, < age 24)	Potential Incremental Demand
8-Person Apt, SGL BR	26%	76	23%	67
8-Person Apt, DBL BR	16%	46	14%	39
4-Person Apt, SGL BR	3%	7	11%	32
4-Person Apt, DBL BR	2%	5	3%	9
4-SGL-BR Apt	34%	100	30%	87
2-SGL-BR Apt	19%	56	18%	51
Total	**100%**	**290**	**100%**	**285**

Demand by Unit Preference - Non-Honors Students

	Off Campus		On Campus	
Unit Type	Interested Student Preference (FT, < age 24)	Potential Incremental Demand	Interested Student Preference (FT, < age 24)	Potential Incremental Demand
8-Person Apt, SGL BR	24%	323	27%	237
8-Person Apt, DBL BR	12%	167	12%	104
4-Person Apt, SGL BR	14%	191	9%	81
4-Person Apt, DBL BR	4%	60	2%	17
4-SGL-BR Apt	25%	335	29%	257
2-SGL-BR Apt	21%	287	21%	185
Total	**100%**	**1,364**	**100%**	**881**

or 2211-1 Writing in Honors Global Health Scholars Tamara Ellen Taylor Sally Rector Emett Patrice Co
Ken Garner Shane Williams Doug Pike Honor 4474-3 Hip Hop & Social Justice Education Alexia Li Adair Honor 3371-1 Constitutional Trial Rights of the Accused Tre
Chamonix Larsen Honors 3500 Honors Internship George Buys Renee Winch Brian Kubarycz Honor 2701-1 Honors Cornerstone Part II Honors 2102 Medieval Christianity and Renais
ents will have increased contact with faculty mentors; student interaction and interdependence and integration with the great university community. Community Leadership Scholars Aramis Watson Gr
Martha Bradley Students participate in groups of 20 or fewer. Emphasis will be placed on engaged or active learning. Students in Scholars cohorts will participate during three years at the university
Honor 3225-1 Technologies of the Body Encourage social responsibility through meaningful community based research, service and interaction. Each cohort will be lead by a faculty mentor who will guide the
Each will include its own academic focus and will explore a variety of related topics. Honor 3372-1 Drug Theory Policy & Practice Stephen Trimble Honors core in Physical and Life Science Paul Laurence
Social Justice Scholars Honor 4701-1 Asian Economic History and Development Bill Gordon Suzanne Chang Liu Rick James Fiske Crowell Honors 4800 What M
2212-1 American Institutions Carolan Ownby Corper James Passion Jasmin Garcia Lynn Hinrichs Linda Anderson Alma Allred The Barbara Lindsay Honors Essay Award Meghen Quinn Honors College Sch
The experiences, ideas and perspectives of the other cohort members will enhance the students' learning. Honors 4472 Seminar/Workshop in Humanities
Honors 3214 African American History Honors 3214 African American Experiences C. Charles Hetzel III Scholarship Francesco Mozzati Promote academic excellence foster integrity and devel
Leo Florence Honor 3060-1 Black, White, and Gray: Construction of Race in South Africa and Australia Honors 3374 Preparation for Legal Study Honor 3377-1 International Consumer Policy Honor
Matthew Bradley Michael Gills Honors 2101 The World of Antiquity Each cohort will offer at least one exclusive course or cohort experience each year. Mary Norma Watkins Mart
Create an environment that enhances student development as life-long leaders, citizens and scholars. Cohort experiences will be both in and outside the classroom. Alberta Henry Education Foundation Scholars
Kenneth Browning Handley Scholarship Kris Larsen The Sweet Candy Scholarship Steve Connor Enhance the students' intellectual and personal development through s
Honors Core in Humanities Honors 2101, 2102,2103 Honors core in Intellectual Traditions, Part I, Part II, Part III Terrell Bodily Alan Smith Tayler Jae Wiles Tom Jakab Kelly Calder
ore in Social Science Honors 3377 Honors core in Social Science Honors 3214 Foundations in Social Science Honors 3354 Civic Engagement Seminar Honor4473-1 Magic, Metaphor & Mor
Honors 3100 Diversity Seminar Honors 3200 Writing in a Research University General Honors Courses Honor 3005-1 International Leadership Academy

6 appendix

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Appendix B - Design Process 6 - 244
Appendix C - Detailed Cost Model 6 - 258
Appendix D - Mechanical 6 - 264

appendix a
meeting minutes

a.01 WORKSHOP #1

Meeting Agenda

INTRODUCTION
1. Team Members and Participants
2. Communications Structure
3. Decision Making
4. Programming / Planning Process
5. Status of Information / Data Collected to date / Work to be done
6. University Design Objectives

A. PROGRAM
1. Background and Current Status
2. Goals and Objectives
3. Program Approach / Honors College
4. Market Analysis

B. PLANNING
1. Traffic Analysis
2. Sustainability
3. Scope of Site Considerations

C. SCHEDULE & BUDGET
1. Project Budget Considerations
2. Construction Cost Models
3. Schedule Review / Project Phasing
4. Schedule Review / Programming & Planning Effort

Additional Meeting Notes

- Phase 1 = $48 million
  - Fee: 1.5% x Construction Cost = $600k
- A&S: What does university need on a business side? Self-funded? Financer? Subsidized?
- Market Analysis: $30-35k
- Financial Pro Forma: $5k

Introductions

- Communications Structure:
  - Deborah Alto & Christin Robbins key w/ Rick James (DFCM)
    - CC Christin Robbins on everything! (Deborah Alto)
  - Primary issues: email to all
  - Small issues: contact directly (notify or cc PM)
- Decision-making:
  - Contract agreement is with DFCM (however, the university will review it)

- A working committee is needed with a chairperson from the university
  - Barb Remsburg & Jerry Basford agreed to co-chair
- University Design Objectives:
  - Honors College - Recruitment Factor
    - 166 Honors College students currently
    - Expecting a slow growth of Honors College
    - Will need the relocation & expansion of the existing (to include 150 students in Bldg 810 Sage Point)

Program

- PHASE 1 PROJECT COST = $48m
  - Parking estimated to be $12m and the rest towards Housing/Academic
- This housing project will not be Honors-only housing
  - Living/Learning & themes
  - Transition is important in the building complex
    - Student-varied housing depending on year, etc.: pods, doubles, apts.
    - Apartments: different amenities geared towards different level students
  - VP Dave Pershing has an idea of the look & feel of new housing already
  - Academic classrooms and office spaces envisioned
  - English program mentioned
  - Broader view of campus housing
- Honors College Statistics:
  - 550-600 new incoming Freshman join Honors College at orientation
  - 3 houses at Officer's Circle + 1 Honors Residence Hall
  - Admittance: 120 Index Score + 3.5 GPA, SATs
- Housing:
  - Tier 1: Single undergrads
  - Tier 2: Single grads
  - Tier 3: Married w/ families
  - Possible mixed student residences
  - Will be four-year housing accommodations

Planning

- Funds source: students' payments for rent
  - To cover 310 beds & parking structure (some revenue?)
  - Pro forma now requires donors also & bonds
  - Housing & parking relate to the same bond $
- Leo Flores (PEC): Currently doing traffic Analysis
  - Currently, there are 627 spaces on site
    - Normally, works okay but not after a game, event, etc.
    - Serves 3 groups:
      1. Day-to-day
      2. Student Residents
      3. Special Events
  - Alternative locations
  - University leases 406 stalls in LDS Institute's parking garage: Serves mostly as overflow parking
    Used for basketball games
    Not usually filled
- Arena holds 15,000 (most popular: men's basketball, football, gymnastics)
- Parking demands:
  - Annex Bldg
    - Parking factor: AOCE, Comp Services, Purch, Health transition out will be important

    - Athletic dept.? Can't lose
    - Phasing is critical
  - Huntsman
  - Housing
  - Faculty / Staff

- Possible campus housing precedents to look at:
  - University of Denver
  - Colorado State
  - University of Oregon

- Ken Ament: cost estimation (has CM/GC experience) – Ken Pollard

a.02 WORKSHOP #2

Meeting Agenda

Day 1 Morning Sessions

8:30 – 10:00

A. Introduction
Ken Pollard, Pollard Architects
Fiske Crowell and Tim Stevens, Sasaki Associates

- Review Agenda

B. Vision, Goals and Program Definition
Ken Pollard, Pollard Architects
Fiske Crowell and Tim Stevens, Sasaki Associates

- Define project vision & goals
- Scope Inclusions / Exclusions
- Review schedule and budget
- Understand the project context
- Define physical opportunities and constraints

- Defining the Goals for Your New Facility
  - Efficiency Goals (net/gross area)

  - How big, how many, how often, how much?
  - Qualitative: image, character
- Campus planning considerations (Phases 1, 2 & 3)
- Site planning influences – utilities, access, open space, campus and community relationships, phasing
  - Possibilities offered by proposed location of the new project in relation to the evolving campus environment
  - Relationships of new project to the existing student housing options
  - Transition of relocation of students/faculty/administrators to this site

10:15 – 12:00

C. Break-Out Session: Honors College
Fiske Crowell, Sasaki Associates

- Define the mission of the Honors College and its goals in relationship to this project
- Understand the relationship of housing to the academic & residential program
  - What types of spaces will be needed? How many? How big?
  - Types of suites/apartments in relation to school year
- Possible opportunities for program offerings
- Recruitment factor
- Living learning aspect and themes

12:00 – 1:00 **Lunch**

Day 1 Afternoon Sessions

1:15 – 3:00

D. Break-Out Session: Housing
Tim Stevens, Sasaki Associates

- Review Strategic Plan for Housing Principles, Housing Mission Statement, etc.
- Market & Financial Analysis w/ Linda Anderson: to understand needs/scope
- Define population to be served
- What is the relationship between user groups?
- What other campus groups are involved?
- Living environments and space, space descriptions and functional relationships, building organization concepts & alternatives
- Understand the current existing housing accommodations:
  - What currently works and what doesn't?
  - Lessons Learned
  - Precedents – evaluation of comparable facilities at other campuses

3:15 – 5:00

E. Break-Out Session: Parking, Traffic & Transportation
Ken Pollard, Pollard Architects

- Review parking mission & goals
- Relationship of this parking to entire campus
- How many stalls: Existing? Currently needed? Desired? Will be needed in the future?
- Private, semi-private, public
- Access points
- Phasing

F. Housing w/ Linda Anderson (concurrently)

Day 2 Morning Sessions

8:30 – 10:00

G. Outside Stakeholders

- Campus Representatives for Athletics, Continuing Ed, HPER, Campus Security, Dining Services, Grounds/Landscape, Others that will be involved, Sustainable Design
- Student Representatives

10:15 – 12:00

H. Wrap-Up Session w/ Steering Committee

- Summary of this workshop
- Next Steps…
- Schedule
  - Milestones
  - Decide next workshop date, time and location

Meeting Notes

Day 1 Morning Sessions

8:30 – 10:00
A. Introduction
B. Vision, Goals and Program Definition

Attendees: 24
DFCM: Rick James, Chamonix Larsen
DFCM Consultants: Doug Pike, Linda Anderson
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Fiske Crowell, Tim Stevens
Pollard/Sasaki Consultants: Ken Ament, Ken Garner, Steve Connor
University of Utah:
Academic Affairs: Jerry Basford, Barb Snyder
Auxiliary Services: Alma Allred, Norm Chambers
Facilities Management: Christin Robbins, Myron Wilson, Tami Cleveland
Honors College: Dr. Martha Bradley, Mary Watkins
Housing & Residential Education: Barb Remsburg, Aramis Watson,
Students: Madeleine Oritt

Overview
Workshop #2 is our first opportunity to discuss and gather in-depth information from all the major stakeholders. During this first session, we discussed general project information, housing, parking and transportation to kick off the various scheduled sessions with University departments. Highlights from this morning session include the pressing schedule, the overall vision of Honors College, and the ever present need to accommodate parking and transportation on this site as well as broader planning policies for the University's long range development plan.

General Project Information

- What are the site boundaries? What is open for the programming team to look at, such as the adjacent properties to the north?
  - The property in the corner to the NE of the site has some potential to link to the Student Life Center and housing and as an option for surface parking.
  - The team should look at the exiting of the Student Life Center program and maintain its fire and service access circulation.
- $48million is the maximum budget for the entire Phase 1 project cost, however, Linda Anderson's market analysis will drive this amount (it may even increase depending on the results from the analysis).
  - Of this amount, $40million is allocated to construction.
- Schedule:
  - August 2011 – move in (including walk thru, FF&E)
    - The programming team should prepare a presentation for President Young and the Steering Committee on this move-in date with a list of decisions needed to be made now and until then in order to make this deadline.
    - There are about 18 months left until August 2011 with a minimum of 12 months of construction.
    - To go the Design/Build route, construction should be ready to go in April 2010.
  - The market analysis and data survey will be ready by the end of February.
  - A student survey will be performed the first week of school after the holiday break.
  - The programming will go at least into February. The deadline to finish the draft program is: March 15, 2010.
  - Because this is an accelerated process, we should meet every two weeks during programming.
    - The general consensus of the best day and time for future meetings is: Thursdays, 10:00am – 1:00pm
  - The next workshop is scheduled for the week of January 11th.
    - A program draft will be ready for this next session
- Pollard/Sasaki should meet with separate groups individually to get information rather than meeting altogether.

Housing
- There will be 1800 beds total on this site.
  - Phase 1 will include:
    - Housing for 310 beds
    - Of the 310 beds, Honors College will occupy 100 beds during its first year in use and then 50 more the year after, so about half of this phase in total.
    - In the long term, all of the 310 beds will be Honors housing.
- This building will be used as a recruiting device for the University. It, therefore, should provide Honors housing with a clear identity.
- The types of spaces to incorporate into this housing are: apartments, mixed-use, community spaces, and living/learning spaces.
- The Heritage Center's first floor area was used as a basis for the public community/non-residential spaces in the given "Capital Development Project Request" outline. This document allocated about 25,000sf to support spaces such as lounges, café/C-store, etc.
  - Should these spaces be in a stand-alone volume? This option will allow these community spaces to be freer and more open because there wouldn't be housing above.

Parking / Transportation
- Parking below housing will be difficult and not desirable because it will cost $25,000 - $30,000 per stall (Christin Robbins). An alternative to this is a parking terrace.
- The long-term goal for parking on this site is: to serve housing
  The short-term goal is: to retain existing surface parking as long as possible during construction

- Does the program include off-site parking? This is a decision for the University to make.

    - Institute parking is an option.
- The University would like 1100-1200 parking stalls added as part of this project, however, they don't all have to be on this site (Norm Chambers) because it would probably cause traffic gridlocks (Alma Allred). Also, this site is adjacent to a TRAX station that some may use.
- If we use the ratio 0.8 parking stalls / 1 bed, that would come to approximately 1440 stalls for the 1800 beds on this site.
    - The current University housing ratio is: 1 parking stall / 1 bed
- 400 of 627 existing spaces on this site are used consistently *(*Note, according to University Commuter Services in a 2007 study, the average daily parking utilization of the existing 633 stalls on this lot is 96%)*
    - 0.8 stalls/bed for Phase 1 (310 beds) equals 248 stalls (rounds to 250)
    - 627 + 250 = 877 – is this the ideal # to meet?
    - 400 + 250 = 650 – this is acceptable
- Exiting is critical on this site.
- The cost of parking varies according to the type of parking. (Ken Ament) In today's market, one can expect:
    - One level parking under housing = $15,000 - $20,000 per stall.
    - Stand-alone parking garage = $15,000 per stall
    - Surface parking = $4000 - $5000 per stall
- Does parking have to pay for itself? Ideally, yes. The University is currently looking at options for funding the $12million parking structure.
    - Housing does not deal with parking fees. Currently, students pay $120/year for a parking permit.
    - What is this budget based on? (e.g. 250 underground parking spaces for residents based on $20,000/stall is $5million)
- The site capacity, utilization and circulation need to all be analyzed. For example, what is the 'x' number of spaces that will fit from a traffic management standpoint (the maximum capacity of the site)?
- To promote sustainability, the University could offer programs such as car share and incentives to not to drive.
    - Concurrently, the University is doing a Climate Action Plan with a goal of discouraging the use of cars on campus.
- The traffic analysis team can produce a basic survey relatively quickly.
    - Three components to the parking/traffic surveys are: peak flow, events, and residents.
- This housing project should accommodate parking for housing.

10:15 – 12:00
C. Break-Out Session: Honors College

Attendees: 16 *(2 persons not accounted for below)*
DFCM: Rick James
DFCM Consultants: Linda Anderson
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Fiske Crowell, Tim Stevens
Pollard/Sasaki Consultants: Ken Garner
University of Utah:
Academic Affairs: Jerry Basford
Honors College: Dr. Martha Bradley, Mary Watkins
Housing & Residential Education: Barb Remsburg
Students: Madeleine Oritt, Brin McNerny

Overview
The burgeoning Honors College program is the primary focus of Phase I of the University of Utah's Master Plan's South Campus Housing project. Their innovative program, defined by the "Engaged Learning Initiative", intends to create a place for progressive learning and living. In this session, we explored the beginnings of Honors College, how they have grown to date, future forecasts for the program, and how this site may aid in its recruiting efforts.

Honors College Background
- Four years ago, Honors College started the Living/Learning program with approximately 50 students and it has exploded to what it is now.
    - The first year floor expanded to include a second year and etc.
- The Honors College is currently raising money so it can recruit more Honors students (possibly 300)
- Honors students are more engaged in and committed to the University and the community.
- The "Engaged Learning Initiative" in Honors College is what makes this college distinct:
    - Honors students take general education classes in small groups.
    - This initiative includes three main programs:
        1) Honors Think Tank
            - Every school year, there are 3 think tanks, each of which are 9-month long initiatives with real-life applications that call for community participation
        2) Forum
        3) Scholars

General Information
- The first groups of Honors students to occupy this housing will be Honors Business and Honors Engineering.
- 20% of students use the bike program, which is $10/semester

Honors College Program Needs
- The space needed to serve the three Honors programs is what the Honors College calls the "Big Ideas Center" suite:
    - There is currently a $250,000 donor for this community space.
    - This learning suite will be headquartered at this site and should incorporate:
        - A conference table seating up to 20 persons to serve the community, partners, and students during these initiatives
        - A place that fosters creativity
        - Distance learning will not be needed
        - Be a smart classroom (high-tech)
        - An example to look at is CSU, Colorado Springs.
- Currently, Honors classes are held in the Honors office.
- 2 seminar spaces that each hold up to 35 students and may be combined into one larger space
- 2 Honors faculty offices
- Shared kitchens between groups of students
- Flexible communal spaces
    - Most students socialize/communalize in the lounge/common living spaces
- A roof deck could distinguish Honors College architecturally
- The full-time staff should have outside access apts.
- The desired RA ratio is: 1 RA per 50 students (typically translates to 1 RA per floor)
- 1 live-in staff member per 150 students (1 REC and 1 AREC for every 150 students)
    - Each staff member should get 1 bed and bath

- Ratios of types of rooms to use are:
  - 75% students: doubles and apts
    25% students: single apts (upperclassmen)
    200 beds (of 310): doubles
    100 beds (of 310): singles
  - The mix of doubles and singles together or separate doesn't matter. However, there should be a mix of income within a suite.

- Separate the vanity from the toilet and shower
  - In the existing housing currently, there is a 1:2 ratio of bathrooms to bedrooms
- The ratio of kitchen/dining area to students is 1 kitchen for every 12 students (maximum)
- Administration thinks students should mostly use the future Student Life Center for recreational purposes; still, this site could use the following as well:
  - ping pong & pool tables
  - a media/recreation room
  - a practice room (piano, violin, etc.)
  - stationary bikes and other communal spaces in or near the laundry facilities
- Smaller group study rooms (preferably 2-3 persons but definitely under 6 persons)
- An education display area / gallery
- A Café/deli that serves possibly coffee/smoothies/sandwiches
- The type of furniture and feel of Officers Circle is preferred here also.

Day 1 Afternoon Sessions

1:15 – 3:00
D. Break-Out Session: Housing

Attendees: 17 *(1 person not accounted for below)*
DFCM: Rick James, Chamonix Larsen
DFCM Consultants: Linda Anderson
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Tim Stevens
Pollard/Sasaki Consultants: Ken Ament, Ken Garner, Steve Connor
University of Utah:
Academic Affairs: Jerry Basford
Facilities management: Christin Robbins
Housing & Residential Education: Barb Remsburg, Aramis Watson, Angie Shewan, Lindy Nielson

Overview
Above and beyond the standard programmatic requirements outlined during this session, all participants were open to new concepts for campus housing. In-line with the living/learning program of Honors, ideas surrounding sustainable living, alternate lifestyle choices, and environments for creativity were highlights of the meeting. The potential to build housing which generated its own power and students being a part of that experience was well received. This new facility will be a mixed-use conglomerate of services that will transform the traditional perception of campus living.

- The housing staff is separated from the other housing staff on this site.
- The ratios needed for RA's/REC's/AREC's from the previous Honors discussion are the same for Housing.
- Housing would like to decentralize some aspects so that this project is more stand-alone on this site, but still interrelated to the existing central housing hub.

- The elements needed here at this site (because of the distance to the main housing office) are:
  - 1a/1b hub: lots of activities for students.
  - Front desk w/ student staff
  - Mail Room (where the mailboxes are arranged in a "triangular-shape" plan so that mail may be inserted from the back, but majority of the time, will be inserted from the front)
  - 2 Residential Education Offices (1–REC + 1–AREC)
  - Combined maintenance / custodial room
  - Office Break Room
  - Student Leader Workroom (will also be used for storage)
  - Resource Room (will also be used for storage)
  - Lounge/Lobby (to be open and welcoming)
- Student staff at the front desk will welcome guests/residents from 6pm - midnight
- The café (C-store) should be bigger than the existing one at Heritage Center (800-1000 beds)
- In about 5 years, the medical towers will be taken down (the residents there will shift to Shoreline apts)
- The Ira Fink study says that 1800 beds will be needed on this site by 2025.
- Pedestrian traffic will be affected by the Student Life Center.
- Lounges:
  - Should be big enough to accommodate the size of each floor (possibly 50 persons)
  - The 1st floor lounge should have a corner kitchen
  - Housing would like the "feel" of Officer's Circle in this new housing = a sense of "community"
- Maintenance/Custodial:
  - For the initial 310-bed phase, there will be no major changes needed (probably just add a few staff)
  - Maintenance storage w/ custodial
  - Every floor will need a housekeeping closet w/ a mop sink
  - Trash chutes (there are some currently in apts.; for this site, possibly none will be needed and students can just walk out their trash – a possible sustainability measure)
  - Communications closet
- Infrastructure:
  - Both wireless and hardwire cable should be provided
  - 1 - 150sf room per floor is estimated to be needed
  - Network would terminate in these rooms (and cable in another)
- Mechanical:
  - Chillers and boilers – lower campus
  - Hot water heaters – upper campus
  - Current housing has standard A/C: split A/C system
  - This site could tie into the existing campus chilled and hot water systems
  - Solar hot water showers and radiant floor heating are other possibilities (for sustainability); solar hot water showers may be a $10-$12/sf up front cost but will pay for itself over the life of the building.
- Electrical:
  - An option is to put in automatic occupancy sensors (because of the LEED Silver goal). These make sense in common spaces (like lounges, etc.) but not necessarily hallways because of safety/security issues. Although halls, for example, can be set back at certain times like 10pm.
  - There are no existing exterior stairs (probably because of the winter weather).
  - Hydraulic elevators may be a possible option for elevators. What about overhead traction? And also dual elevators (when the building is past a certain height)? In the medical towers currently, the elevators are single shaft; when they don't work, residents have to use the stairs.
- The University should exceed ADA requirements because it's the flagship institution (Tami Cleveland).
  - For example, 5% of the total number of units should be accessible units (i.e. Of Phase 1's 310 beds, 15 beds should be accessible; this is about 4 units if one-unit has four beds). This percentage seems high.
- Students will use stairs if stairs are centralized and/or easily accessible.

- Students will want *interior* bike storage because of the winters here (especially the population on this site because they're on-campus)
- Students aren't allowed to keep their bikes in the halls, but may in their rooms.
- Chapel Glen's parking lot is always full. Sage Point's, on the other hand, is often empty. Gateway residents park in both Chapel Glen's and Sage Point's parking lots.
- The University wants to be more bicycle friendly as a campus. So bike storage should be convenient and visible.
- Students live on-campus for a reason. In regards to having a car, what year they are doesn't matter as much as where they are coming from and what type of community they live in.
- Outdoor spaces:
    - The University currently has great existing green grass spaces (e.g. the students like to gather around the existing gazebo)
    - Ideas of activities that new outdoor green spaces may support are: BBQs, frisbee, volleyball court, multi-surface recreational area
    - These spaces should be flexible.
    - C-store/café can use this opportunity to open up to the outdoors and dine outside.
    - As a side note, if there are slopes to any of these open areas, skateboarding will occur there.
    - Small niches for socializing/studying would be nice.
    - Wireless internet throughout campus would be desired.
- This site will still have a bus stop even though it is right on-campus because student residents here will want to go to other ends of the campus. There is a proposed shuttle stop by the Student Life Center.
- Lessons learned:
    - No more cheap elevators
    - Better energy efficiencies
    - Lounge spaces (get the right sizes)
    - Better outdoor lighting
    - Laundry (can be situated adjacent to a common space where students can go socialize while waiting for laundry to finish)
    - Halls
    - Better & hardier materials (more durable)
- Barb Remsburg: Get a list of standard furnishings

3:15 – 5:00
E. Break-Out Session: Parking, Traffic & Transportation

Attendees: 12
DFCM Consultants: Doug Pike, Linda Anderson
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Tim Stevens
University of Utah:
Academic Affairs: Jerry Basford
Auxiliary Services: Alma Allred, Norm Chambers
Facilities Management: Christin Robbins, Tami Cleveland
Housing & Residential Education: Barb Remsburg

Overview
As anticipated, parking will take a high level of importance in the planning of this project. The existing parking on this site currently serves a number of departments on a daily basis, throughout the year. The building program must not only address parking for the new student housing, but must also replace the majority of space currently used by the Athletics Department, Events, University Administration/Staff, and student body. With this project, there is an opportunity to develop and execute new parking guidelines and policy as it affects this site as well as the entire campus.

- Both existing exit points on site are right-turn only.
- Currently, there are 6 TRAX trains that come an hour in each direction (3-4 cars) at this site; however, next year, there will be a train coming in every 10 minutes in each direction.
- There needs to be public parking for resident visitors.
- The short-term effects for parking on this site will be displacing the existing parking but adding demand for housing.
  The long-term goal is to have 1200 stalls.
- The Crimson Club will always want parking here. The Athletics Department controls parking for them.
- The development of the proposed parking structure to the west of the Huntsman Center depends on funding.
- Pollard and Sasaki are to do various parking studies and options to include:
  1. Building parking under housing
  2. Building a parking structure separate from housing
- (Tim Stevens) Typical construction types for housing in relation to number of stories are:
  Wood: up to 4 stories
  Steel: 5+ stories
  Concrete: 6+ stories.
- PEC (Doug Pike) should test the site in terms of its capacity (e.g. currently, it takes people 40 minutes to exit the current parking lot after an event).
- A possible option is to transition the site into a single-access site IF parking and housing are separate structures.
- "Don't design for the max; you accommodate the max."
- An independent parking structure provides flexibility (in terms of site planning and long-term users).
- BYU Canyons is an example of a tower demolition.
- 40% of parking fees pay for the University's alternative transportation that includes: UTA and parking shuttle buses.
- Currently, the University does not charge for Event Parking.
- The idea of another pedestrian bridge was brought up as a way of connecting this site to the existing housing to the east; however, the University is struggling to pay for 2 proposed bridges at the Medical Complex as it is already.
- The shuttles that go from the campus to existing housing are always full.
- A precedent to look at is Berkeley's parking structure by Sasaki.
- Tami Cleveland will get the information from the Microwave Transmission Path for the Eccles Center to the Design team that poses a potential height limitation(?) on this site.
- Bill Gordon hasn't found the seismic fault yet but is doing the study now.
- Barb Remsburg has student parking and traffic surveys that were done previously (e.g. Chapel Glen has parking problems).

F. Housing w/ Linda Anderson (concurrently)

Day 2 Morning Sessions

8:30 – 10:00
G. Outside Stakeholders (Athletics, Continuing Ed, HPER)

Attendees: 14
DFCM: Rick James, Chamonix Larsen
Pollard Architects: Kenneth Pollard, Sarah Goettman
University of Utah:
Academic Affairs: Jerry Basford
Athletics Department: Steve Pyne, Pete Oliszczak, Mary Bowman
Auxiliary Services: Alma Allred
Continuing Education: Sandi Parkes

Facilities Management: Christin Robbins, Myron Wilson
Food Services: Reggie Conerly
Housing & Residential Education: Barb Remsburg

Overview
This discussion brought in several outside stakeholders whose departments will be affected by this housing project. The Athletics Department being one of those; it heavily relies upon parking, particularly at this site location, for events, training, recruiting, and day-to-day academic affairs of their student population. On and off season, this parking serves University needs as well as public functions year-round and is typically scheduled one year in advance. In addition, some parking for staff who currently work in the Annex building most likely will be displaced. To add an additional layer of complexity to this project is the University's campus vision of sustainability and encouragement of alternative modes of transportation. The new Honors Housing project will affect various departments in many ways and their role and participation in this planning process is one key to its success.

Christin Robbins is to schedule an initial meeting (of two) with Mike Perez and other members of the Steering Committee for the Design Team. Ken Pollard will generate an agenda for this first 'emergency meeting'.

We summarized the workshop thus far to this group that included an introduction and background to the project. The various groups who currently use this parking lot and should be considered are:

1. Residents
2. Resident guests
3. Event attendees
4. University staff (including housing staff)
5. Athletic students (those who use HPER)
6. Summer Camps
7. General student body

- Staging of construction phases will need to be thought of for parking for staff in the Annex building.
- The design team's scope includes: Phase 1 programming and Phases 2 & 3 Master Planning.
- The University currently leases 416 stalls at the Institute's parking structure; 200 of which get filled every day. This structure is a potential parking option for the Annex staff during Phase 1.
- In the original pro forma for this project, there was a parking structure included.
- For an event, the whole existing parking lot is used (627 spaces).
- 70-80 stalls are reserved for high-end donors (Crimson Club).
- It is definitely fully used for football, basketball, gymnastics, soccer and volleyball.
- Some students who may park here are HPER and Business students.
- The Student Life Center will not have parking (maybe just a few stalls). There is a road access north of it currently (Barb Remsburg).
- The numbers of beds per phase are:
  - Phase 1: 310
  - Phase 2: 1500
  - Phase 3: Remaining beds (500-600?)
- Dining Options:
  - C-store approach (like Sam's Club)
  - Grill line that is 500sf bigger than HRE's existing one
  - Be able to accommodate food for 1000 persons
  - Make it compact so that there is not wasted space (1-2 person staff)
  - Have it be a public facility with regulated hours
  - Will need a loading/delivery dock and recycle bins
  - Athletics would want a controlled access room:
    - Like at Rice Stadium (levels 4 or 5)
    - A place they may utilize as a banquet hall at night (multi-use)

    - This space can be revenue-generating.
    - To serve 200-250 persons (the current one they have only serves up to 80 persons)
    - The idea of a catered, bigger kitchen was suggested but everyone agreed not to have that or a food prep area; a staging area would be all that's needed.
    - Potentially, the seminar rooms suggested for Honors could be opened up to make a larger room to serve this purpose.
    - Still, the number one priority is the student athlete. If they need a community/public space for something, they have top priority over other groups.
- There should be a pathway from Fort Douglas TRAX station to the Huntsman Center. Currently, there is no way to go north out of the parking lot when exiting it. There is a safety issue going across Mario Capecchi (e.g. to be able to see oncoming traffic right and left, you have to park on the TRAX line).
- Athletics will lose parking for events starting in May 2010, probably after the University's graduation ceremonies.
- Nine high schools also use this parking lot for their graduations the first 2 weeks of June.
- An August 2011 occupancy may be reconsidered by the University within the next 4 weeks; they'll be studying it hard (University w/ DFCM).
- The design team should get numbers from the University for campus parking and the stalls actually being utilized.
- 200-400 cars come for Summer Camps, although, most of them are only dropping off.
- When all three phases are completed, the site on the parking will serve only student residents and event parking.
- Communal spaces should feel like a 'community' and not 'urban' (Barb Remsburg).
- A lot of event attendees park at Rice Eccles stadium and ride TRAX over rather than park at this site.
- Sustainability:
  The two main goals are:
  1. Energy goal: be 40% below code
     - E.g. The USTAR building is 40% below and the Business Building is 30% below.
     - Energy Use Index (EUI): be 50% better than the average in the region\
     - This is measured in the thousands of BTU's.
     - For residence halls, this is the energy per square foot per year (similar to the EPA standard for cars). Typically, it is 80,000, however, for this project, we're aiming for 40,000-50,000.
  2. Measurement & Verification in LEED
     - This monitors the building over its life span.
     - Make sustainability visible in this project to educate students.
     - This can also be unique to the Honors College to give it even more of an identity.
     - A precedent to look at is Emery University.
- The design for this project will be selected through a Design/Build competition. It is important to set the goals/criteria/standards in Programming. The future Design Team can then follow these and make the design work within the budget. What is realistic for this building?
- Chamonix, Steve and Ken Pollard are to coordinate the energy building modeling study.
  - A general building block can be used to model because there is no design at this point (Chamonix).
  - Myron agrees on using solar hot water for this project. He doesn't think the orientation will matter as much on this project because the students' behavior can't be controlled. However, the type of windows, etc., that are put in can be controlled.
  - A project to refer to is Weber State (Chamonix).
- Many students use cars to go to work. Some have to because they work late and bus lines don't run that late.

Student Representatives

Attendees: 10
DFCM Consultants: Linda Anderson
Pollard Architects: Tom Jakab
Sasaki Associates: Tim Stevens
University of Utah:
Students: Janice Kennedy, Trevor Myrick, Xiaoxia Dong, Michelle Glaittli, Nandi Magadla, Seth Wright, Mitch Christensen.

Overview
The overall impression taken from our meeting with student representatives was their uncanny understanding of campus goals and objectives. The majority of the students' comments during this session were in-line with issues raised in earlier sessions of this workshop and reflected a clear delivery of housing policies and objectives from the Campus Housing Administration. This may be due to the fact that most students were employees: RA's or RHA's (only one honors student was present). Although the students' comments were helpful and productive, the population selected did not truly represent the student population. The following is an outline of the topics discussed during this session:

Transportation / parking concerns
- The amount of pressure the new housing will create for traffic on campus.
- The availability of parking in proximity to living. Some were agreeable to remote parking if necessary if it allowed students to have their vehicle on campus.
- Most were agreeable with proposed policies to discourage driving and increase foot and bicycle traffic on campus.
- Current ratio of parking stalls to beds is 0.8, but this policy will change in the near future.

Housing
- Honors students will share one or multiple floors.
- There were comments and concerns that the new housing may create segregation between the student population and honors students.
- Expressed desire to have Café in close proximity to housing. Students preferred café idea over large dining hall.
- Public toilets: students felt that having a public toilet on each floor would help alleviate demands for simultaneous use by roommates or guests.
- The following are highlights for amenities within the housing units:
  - Common space for gathering. It's difficult to get people together on each floor.
  - Kitchen Units: 12 students max to share kitchen, 8 ideal
  - Lack of common rooms. Common rooms for studying need to be smaller in scale. Large common spaces are underutilized except for floor meetings that accommodate up to fifty students. Must be centrally located along paths of circulation.
  - Bicycle storage needs to be cheep, centrally located and secure.
  - Deluxe Pod
    - Common kitchen within in pod of 12 beds was a popular idea…so cool
    - If shared kitchen servers more than 12, the level of control diminishes.
    - Pods should accommodate guests for cooking and hanging out.
    - Kitchen amenities desired were more counter space, 2 refrigerators – possibly 1 full refrigerator and 1 full freezer to serve 12. Now students often supplement food storage with mini-fridge.
    - One large dining table vs. bar seating was more popular. Can eat or study at table, bar is more restrictive.
    - More individual food storage per student

    - Bathrooms: 2 to 1 ratio to share bath was good, 4 to 1 too much. Students preferred separate vanities from toilet, shower rooms. This was explained as a compartmentalization concept. Showers were preferred over tubs, even though some would take baths if available.
- Mixing of genders in housing: currently the general mix 50/50 male female, but the University has provided single gender floors in some special cases. Studies have show that mixed occupancy works and helps with discipline.
- Security concerns: Lighting at night was an issue – have lighting for security but at the same time reducing the amount of lighting based on the hour of the evening.

Two directed questions were posed:
- Question #1
  The most important feature to student housing would be _____?

  1. Location/ Accessibility to core campus.
  2. Strong sense of community.
  3. Use of new technology, i.e. sustainable technology, energy/water management.
     i. Note: the majority of students were unaware of LEED certification. But liked the idea of the housing as a living / learning environment.
- Question #2
  If housing did not offer _____, I would not live here.

  1. Price point, too costly
  2. Good design. Students expressed a distaste for institutional looking, long blank corridors, and poorly designed interior spaces.

10:15 – 12:00
H. Wrap-Up Session w/ Steering Committee

Attendees: 23 *(1 person not accounted for below)*
DFCM: Rick James, Chamonix Larsen
DFCM Consultants: Linda Anderson
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Tim Stevens
Pollard/Sasaki Consultants: Ken Ament, Ken Garner, Steve Connor
University of Utah:
Academic Affairs: Jerry Basford, Patricia Ross
Auxiliary Services: Alma Allred, Norm Chambers
Facilities Management: Christin Robbins, Myron Wilson, Tami Cleveland, Mike Perez, Deborah Alto,
Honors College: Dr. Martha Bradley, Mary Watkins
Housing & Residential Education: Barb Remsburg

Overview
During this last session of the day, we briefly summarized the discussions over the last two days and tried to clarify program, scope, budget and schedule. Lastly, we went over tasks that Pollard/Sasaki, DFCM, all the consultants, and the University had to do or to provide information between now and the next workshop, which was set for the week of January 11th.

We summarized the workshop, which included:

- The number of beds to use for now until the marketing analysis is finished is 1800 beds total, of which 310 are to be in Phase 1. Of the 310 beds, initially, 2/3 will be freshmen, half will be Honors students and the other half will be regular students.

- The proper ratio to use for parking is 0.8 spaces / bed. This means that +/-250 parking stalls should be supplied initially.
- There are 627 existing parking stalls on the site.
- The budget limit for construction is $40 million and the total project maximum budget is $48 million. These numbers may be too high? The University wants to build up to what they can afford and what fits and makes sense on the site.
- Fall 2011 occupancy is still a question to be answered by the University.
- The next workshop is scheduled to be held during the week of January 11th. Pollard will coordinate the Steering and Project Committees with Christin and Tami. In addition, Pollard should meet with the Steering Committee every 2 weeks after the holidays (Ken Pollard).
- The student group - of which several were RA's - in the student break-out session had opinions that were very much aligned with the Administration's.
- Safety and security were not big issues.
- Proximity was very important (e.g. a 5-minute walk radius from this site covered a large portion of campus versus one form the existing housing).
- The tangibility of sustainability is important to educate the students. An example is the Green Dorm/Lab at Stanford
- Tami will look into the NE corner of the site to see if it is a possible space to be used for this project.
- The design team needs to gather more information on how this housing project may be used as a recruiting method.
- Generally, typical parking stall costs for different types of parking are (Ken Ament):
    - 1 level parking under housing: $20k/stall
    - Multi-level parking under housing: $25k/stall
    - Stand-alone garage: $15k/stall
    - Surface parking: $5k/stall
- For Honors College:
    - A seminar room that is dividable into two that can hold up to 35 students each.
    - A 'tech classroom'
    - 2 faculty offices
- For Housing
    - The ratios discussed previously (between RA's/REC's/AREC's and students, etc.)
    - Bigger kitchen/dining areas that support up to 12 students (this will save more money than smaller units).
    - A C-store to serve 1000 persons (that can accommodate Phases 1 & 2).
    - A lounge that is welcoming
    - Pollard/Sasaki to come up with parking and housing diagrams that show several options to DFCM / University.
    - The parking options to study are
        - 0.8 stalls/bed
        - 0.5 stalls/bed
        - Other options? (100 underground parking stalls – Patti Ross)
- Approval to do the soils, survey, market and traffic analyses are critical in the initial programming process (Ken Pollard). For example, the parking option studies will have to run parallel to the traffic analysis.
- There will probably be at least three phases for the total 1800 bed housing project (Tim Stevens).
- Rick James would like enough information to present to President Young and show him options with their corresponding risks. One risk to the University, for instance, is building yet another temporary Annex building.
    - Other risks Tim Stevens suggest are missing the schedule mark of August 2011 and getting the number of beds incorrect because of the compressed time schedule for programming. There is no topography survey done or program outlined yet.
    - Christin Robbins comments on another risk that the fast-paced schedule might not allow for the full development of the site to its potential.

- The advantages in Design/Build are in time and innovation (Rick James). However, in order to do this, we can't leave the program (such as the number of parking stalls and mix of options) to D/B.
- We need the answers to the broad campus vision questions (Mike Perez), such as:
    - What size of parking will fit this site?
    - What are the challenges?
- The programming draft is to be completed by March 15, 2009 with a 2-3 review period after by the Steering Committee.

a.03 WORKSHOP #3

Meeting Agenda

Morning Session

8:30 – 8:45

Introduction
- Review Agenda

8:45 – 9:30

Program Summary

9:30 – 10:30

Unit Typologies
- Ideal Floor Plan Organizations

10:30 – 11:30

Parking Summary

11:30 – 12:30 Lunch

Afternoon Session

12:45 – 1:15

Site Analysis

1:15 – 4:00

Site Accommodation and Density
- Phasing
- Housing and Parking Layouts
- Preferred Options

4:00 – 5:00

Wrap-Up
- Conclusions
- Next Steps
- Next Workshop #4 – Dates

Meeting Notes

Morning Session

8:30 – 11:30

Attendees: 24
DFCM: Rick James
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Meghen Quinn, Tim Stevens
University of Utah:
- **Academic Affairs:** Jerry Basford
- **Auxiliary Services:** Alma Allred, Norm Chambers
- **Facilities Management:** Christin Robbins, Harry Corsi
- **Honors College:** Martha Bradley, Mary Watkins
- **Food Services:** Reggie Conerly
- **Housing & Residential Education:** Angie Shewan, Aramis Watson, Barb Remsburg, Duane Padilla, Frank Sitton, Kacie Pecor, Lindy Nielsen, Meredith Larrabee, Michael Walker, Ralph Chittams

Program Summary

Residential units in a housing project drive the project cost more than any other programmed space because they take up most of the building area. In the proposed program, eighty five percent (85%) of the project is dedicated to residential living units. For this project, we are looking at a series of flexible, modular units composed of single and double bed floor plans that will greatly affect the planning and design of this new facility. A program outline was presented at the beginning of this workshop as a working document for discussion and comment and was received to be as follows:

	No.	Size	SF	Beds	% of ASF	Comments
Residential Living Units						
Single Deluxe Bed (*)	160	290	46,400	160		154 + 6 RA's
Double Deluxe Bed (*)	150	290	43,500	150		
Faculty-in-Residence	?					
REC Apartment	1	720	720	2		1:750 Ratio
AREC Apartment	1	720	720	2		1:300 Ratio
		Subtotal	**91,340**	**314**	87.5%	
Residential Administration						
Front Desk		200	200			Waiting associated w/Lobby
Front Desk Support		200	200			
Front Desk Staff Office		120	120			
Res. Ed. Offices	2	120	240			REC/AREC Office/Break room/Resource
Student Workroom		325	325			…included or separate?
Mail/Receiving		325	325			
		Subtotal	**1,410**		1.4%	

Laundry						
Laundry Room	1	1200	**1,200**		1.1%	Consolidated vs. Distributed
Community						
Entry Lobby/Main Lounge	1	750	750			1 per Building
Multi-Purpose	1	500	500			
Study Lounge	6	250	1,500			1:50 Students
Music Room	1	150	150			
Café'/C-Store	1	3750	3,750			Sized for 1,000 Bed Community
		Subtotal	**6,650**		6.4%	
Honors College						
Innovation Center		500	500			20 Stations @ 25 SF each
Seminar Room		1800	1800			70 Stations @ 25 SF each, Dividable
Faculty Offices	2	120	240			
Library/Media Room	?					
Counseling Room	?					
		Subtotal	**2,540**		2.4%	
Support & Maintenance						
Bike/Gear Storage	1	600	600			
Trash/Recycling	6	120	720			Since specific to Housing, in ASF
Public Restroom	2	250	500			
Custodial Break Room/Office	1	350	350			
Custodial Storage	1	200	200			
Custodial Closets	6	120	720			Since specific to Housing, in ASF
		Subtotal	**1,270**		1.2%	
	Total ASF		**104,410**			
	Total GSF	70% Efficient	**149,306**	**9.6%**	*Per Capital Project Request for 136,254 GSF*	
		75% Efficient	**138,865**	**1.9%**	*Per Capital Project Request for 136,254 GSF*	
Parking						
Student Bed Ratio @	0.5	310	**155**			
Existing to Maintain (?)			**400**			

Comments on Program Summary

Residential Living Units

Single occupancy vs. double
- 50/50 split (Barb). First year students will be placed in double rooms.
  - 150 spaces for first year students *(approx. 95% freshman in doubles)*.
  - 160 spaces for upper class.
- Possibly a higher percentage of singles for the living / learning students who are taking classes together.
- RA's in single room.
  - Larger unit for RA's to accommodate extra seating: assign space equivalent of a double room to an RA with a single bed.
- Look at Linda's survey results to determine amount of single vs. double occupancy rooms.

Faculty in residence
- Honors Colleges throughout United States have faculty in residences. Although good idea, Honors College is undecided on whether or not it will house a faculty member.
- The idea of scholar in residence was also proposed as an option for the Honors program.

REC and AREC
- If phase 1 is in two buildings, split staff members into both buildings.
- If only one building, possibility put only REC in that building and save AREC for Phase 2.

Residential Administration

Front Desk and Residential Education Offices
- Current list and square footage appears correct.

Student Workroom
- This space includes the Office/Breakroom/Resource and all spaces should be open & shared.

Laundry

Consolidated vs. Distributed
- Tim advocated laundry to be consolidated for purposes of cost efficiency, communal gathering and engaging other spaces within or adjacent to outdoor spaces.
- Should the laundry be located on one floor or several?
  - Will see when developing plans further.

Community

Multi-Purpose
- Connect Multi-Purpose to C-Store, Lobby.

Study Lounge
- Design study rooms to be engaging…each floor have a study room

Café/ C-Store
- Distinguish design of café at Honors College from other spaces on campus.
- Should it be sized for 1000 beds?
  - Pay price up front to accommodate larger community in the future.

- What are the service needs for phase 1?
  - When you add another delivery person, costs go up. Need to have loading area so local distributers can deliver directly to site – not necessarily a loading dock.
  - Deliveries / Distribution of services will be a challenge – suppliers continue to package goods on large palettes and in mostly large trucks. Loading dock may be substituted for drive up area w/o turn around. It is difficult to turn trucks in congested area.

Honors College

General Comments
- This new program should change the way Honors College functions.
- There is a concern for having too many programmed spaces which may lead to underutilization of some spaces.

Innovation Center
- More like a conference room "think tank."
- This space strives to increase interaction with the community and engage the outside world – University as well as public.

Seminar Room
- Seminar Room will be used for larger gatherings / dividable, flexible program space
  - "Classrooms by day, program space by night"
- Proposed 1800 sf. is too big.
  - Seminar student class size is capped at 35 students, but the average is approximately 17 students; classroom space needs to feel more intimate.
  - Reduce seminar room size to 1,000 sf.; dividable into two classrooms (2 @ 500each).
- In the next go-around, Sasaki will test the floor plans with different furniture layouts.

Faculty Offices
- Martha – We borrow faculty from other departments: 5 only teach Honors strictly. Currently, they share 1 office only; they need more space. The next best thing to faculty housing is faculty offices at the Honors College.
- Increase to 5 offices (allows an advisor to have an office in addition to faculty).
- Counseling Room: not needed.

Reading / Library
- Yes – make it a Library / Reading room….intimate, warm, traditional reading room.
- A "Getaway"
- Could designate this room to a specific donor for fund raising purposes.

Support & Maintenance

Trash / Recycling
- Trash chutes: 1 per floor
- Centralized location at base level; more sf. because receiving trash @ bottom. (Not ASF)

Public Restrooms
- 1 public restroom per level

Maintenance Storage
- Add maintenance storage program space: total of 450 sf.

Unit Typologies

Unit Types General comments:

- Anything higher than 8 people – too many students to manage per unit
- RA's shouldn't share units with students. Separating RA into a more private room with its own direct entrance to a hallway would be preferred.
- Students use ID card to open/close unit entry door.
- What's the balance between communal space within a unit and communal space outside the unit? If too much, may not use public community spaces.

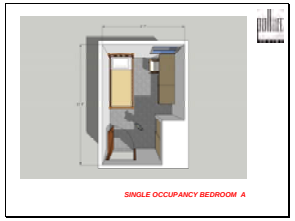
Furniture

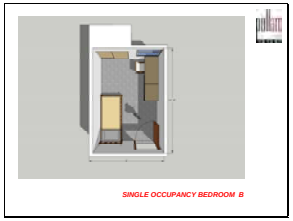
Current bedroom furniture currently works with the proposed unit designs.
- Design team will test furniture in various unit designs to verify space efficiency.
- Consider beds that work w/ chests – existing do work together (Barb).

Unit Module

- 9' modules; singles can stack directly on doubles and vice versa
- Typically, party walls between units are doubled up w/ inch of air space for acoustic insulation

Slides 4 & 5



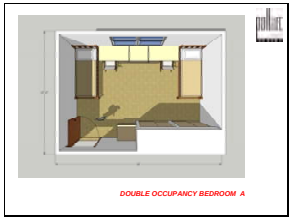


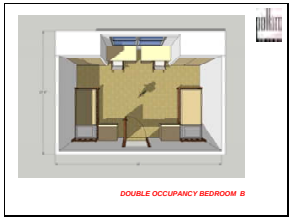
Single Occupancy Bedroom A & B

Closet Doors
- Swing door is best from a maintenance standpoint, but highest cost. Current closet doors are swing.
- Prefer closets to have doors.
- By-pass doors are best overall. There will be issues of the longevity of the track.
- Bi-fold doors were considered, but not preferred.
- Final decision on closet door type undecided.

Bedroom B
- Closet location affects building footprint, which may increase construction costs. But nice option for bedroom layout because less space is taken up in the room. The form of the closets on the exterior may also potentially serve as a sun-shading device

Slides 7 & 8



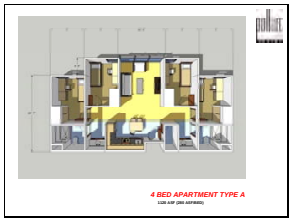


Double Occupancy Bedroom A & B

Bedroom A
- This option is similar to the current housing configuration.
- Another option is to move the door to the center and split the closets to either side so the closets frame the entry.

Bedroom B
- Door in center aligned with window would be preferable because you're not opening door onto a bed.

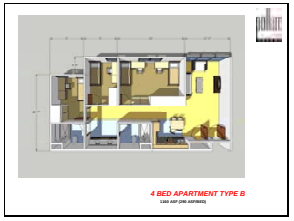
Slides 11 & 12



4 Bed Apartment Type A / A.1

- Layout provides a sense of privacy and ownership of spaces.
- Feels more spacious / open.

Slides 15 & 16



4 Bed Apartment Type B / B.1

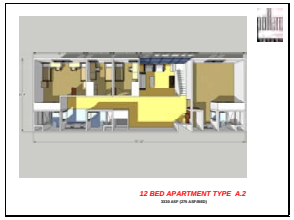
- Layout does not feel as spacious.
- Long corridor. Single bedrooms too far from entry.
- RA's can't hear when people knock on door (if bed too far from door).

Slides 21 & 22

8 Bed Apartment Type A.1 / A.2

- The 8-bedroom apartment may be difficult for RA to build community. However, as stated previously, this unit could distinguish Honors Housing.
- RA control is a concern: may not be good for first year students from conduct standpoint; upstairs bedrooms are cut off from public hallways and may create problems with management.
- Safety concerns: upstairs bedrooms far from exits.
- Has merit for a smaller subset of the student community: one wing or one floor.
- Could be a unique feature within Honors housing as a recruitment device.
- An Honor's mentor could live within this community type to help mentor / monitor students.
- An entry door on second level would be beneficial: RA rounds, traffic, and safety / emergency egress.
- Kitchen is too small to serve 8 occupants: needs more pantry/storage/bigger refrigerator or more refrigerators. Could add storage under stairway or add island to kitchen layout to expand kitchen amenities.
- Could design upper floor as a bridge w/ double story kitchen – larger spatial feel. However, the bridge option would reduce the community space which is at a premium for 8 students.

Slides
27 & 28



12 Bed Apartment Type A.1 / A.2

- Secondary door better for RA checks and safety / emergency
- Not a top choice.

Slide
33 & 38

12 Bed Apartment Type B

- Requires two exits on same level.
- Too many students, too big.

25 Bed Super Suite

- More like a traditional dorm; quasi dorm / suite
- Could be a "wing" (more than a suite).
- Everything has to be locked.
- Not preferred

Parking Summary

0.5 Parking stalls/Bed

- Phase 1: 155 stalls / 310 beds
- Total Phase(s): 900 stalls / 1800 beds
- See parking summary in power point for cost assumptions of various parking types and amounts.

- One example: 1 level of podium parking for 155 stalls @ $25,000 per stall is approx. $3,875,000.
- In reference to cost analysis chart, we will not use $10.7 million for parking.

Afternoon Session

12:45 – 3:00
D. Break-Out Session: Housing

Attendees: 26
DFCM: Rick James
Pollard Architects: Kenneth Pollard, Sarah Goettman, Tom Jakab
Sasaki Associates: Meghen Quinn, Tim Stevens
University of Utah:
Academic Affairs: Jerry Basford, Patricia Ross
Auxiliary Services: Alma Allred, Norm Chambers
Facilities Management: Christin Robbins, Harry Corsi, John McNary, Myron Willson, Tami Cleveland
Honors College: Martha Bradley, Mary Watkins
Food Services: Reggie Conerly
Housing & Residential Education: Angie Shewan, Aramis Watson, Barb Remsburg, Duane Padilla, Frank Sitton, Kacie Pecor, Lindy Nielsen, Meredith Larrabee, Michael Walker, Ralph Chittams

Site Analysis

This site presents an equal amount of challenges as well as opportunities to integrate the current campus plan and landscape with the new Honors Housing. In particular, there are three primary site related issues that need to be addressed: site circulation, topography, land use/density. Site circulation involves looking at pedestrian, light rail, and vehicular patterns. Each type of circulation presents its own challenge which can be enhanced and incorporated into the design and master planning. The topography will be studied from a macro to micro scale taking into consideration the surrounding open/green spaces of Fort Douglas, the Girl's Soccer Field, and the Huntsman Center, as well as the change in slope from the eastern edge of the property to the gradual slope of the Annex parking lot. Lastly, due to the programmatic requirements of 1800 beds, analyzing how the land will be used in terms of phasing and density will greatly impact the look and function of all new housing on this site.

The diagrams given during the presentation are a first look at site related issues. We diagrammed figure/ground and axial relationships, landscape and vegetation, pedestrian, light rail and vehicular circulation, grade changes, and the effects of the sun and wind. This analysis will be used to inform how we develop and refine the 3 planning options for Phase 1 as well as the Master Planning of Phases 2 and 3.

Comments on the Site Analysis

TRAX setback

- The building setback from the TRAX line must be determined by TRAX, U of U Fire Marshal, University Campus Planning and Design, and the Program team. For now we are assuming a 30'-0" setback from the outer curb of the TRAX line to the nearest building edge. This setback is needed for fire lane accommodation and a drivable surface in needed for trucks to access the building edge for fire suppression and rescue.

Land use assumptions

- Although there is approximately 9.0 acres for the entire site, with setbacks, it will most likely end up being less area that the entire housing project will be built on.
- The Annex Building is not going anywhere soon, so that area is not available for Phase 1.
- Phase 1, 310 beds will not take up the entire site to the North of the Annex Building; only a portion.
- Since the design for the Student Life Center is not complete, we should not assume its footprint as existing in the site diagrams.

Land Use & Phasing

Phasing

- Phase 1 – 310 beds (Annex to remain)
- Phase 2 – 600 beds (assumption)
- Phase 3 – 900 beds (assumption)

Land Use Diagrams A-F

- Looking at accommodating all three phases for varying densities.
- Honors Housing will work well in two locations, adjacent to Legacy Bridge and TRAX station or in the northwestern corner adjacent to the Huntsman Center.
- Options D, E, and F propose a parking structure, each located at the periphery of the site.

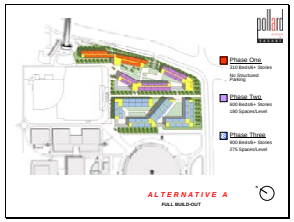
Design Considerations / Feedback

- Everyone liked connecting Phase 1 with the bridge; bridge was originally meant to be about connection and identity.
- The corner at Legacy Bridge has always been earmarked for Phase 1 / Honors Housing.
- Liked idea of having Phase 1 building along TRAX for housing program, although we must consider the security concerns that are present due to its proximity to various public amenities.

Site Accommodation & Density

The following images are from the PowerPoint Presentation given during the workshop. On the right-hand column are comments made during the presentation.

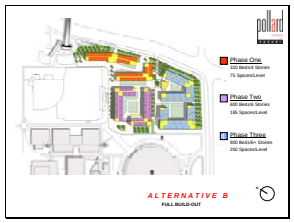
Slide 69



Alternative A

- Each phase is 6 to 7 stories.
- No structured parking in Phase 1.
- Phase 1 displaces the least amount of parking stalls (saves the most).
- "Imageablity" opportunity for high exposure.

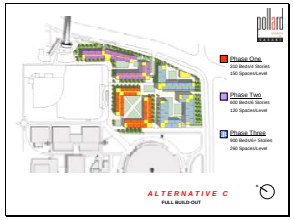
Slide 75



Alternative B

- Phase 1: two buildings with courtyard in-between.
- First phase 4 stories, following phases 6 to 7 stories. (Density pressure on Phases 2 & 3).
- Allows for podium parking – all phases
- Again, location has good "Imageablity"

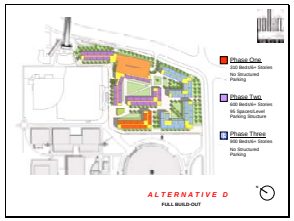
Slide 81



Alternative C

- Honors location; too isolated, insular, yet a more quiet location.
- Phase 1 is closest to campus.
- Central quad between all phases
- All podium parking

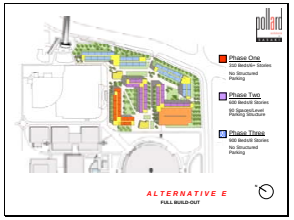
Slide 87



Alternative D

- No structured parking in Phase 1; rather, a separate parking structure during Phase 2 located at periphery.
- Separate public amenities (Café/C-store) from Honors Housing.
- Phase 1 is 6 to 7 stories
- A stand-alone parking structure is the most efficient way to do parking, but it also takes land area away from housing.

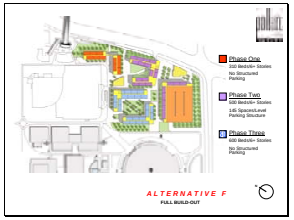
Slide 93



Alternative E

- No structured parking in Phase 1.
- Phase 1 @ 6 to 7 stories, Phase 2 & 3 @ 8 stories.
- Structured parking takes land away from housing, thus taller housing structures.
- Separate public amenities (Café/C-store) from Honors Housing.

Slide 99



Alternative F

- This scheme looks at a more efficient parking structure that has 3 bays per floor instead of 2. This structure would take up more land area than the other options.
- No structured parking in Phase 1.
- Again, Honors location has good "Imageablity"
- Separate public amenities (Café/C-store) from Honors Housing.
- Build structured parking during Phase 2 that holds all the parking for the site (90 stalls / level, 6 visible, 3 underground).
- All three phases 6 + stories.
- If Phase 3 doesn't occur for the next 10-15 years, the area it's planned for could be a very nice interim open space.

Additional comments

- Alternative C: Honors location; too isolated, insular, yet a more quiet location.
- What about a drop off area, especially for students who park away from housing and must walk or take TRAX?
- Look at a 5-minute walk from various places on site as a diagram.

Scale Comparison

UC Berkley

- 1800 beds, 2.7 acre site
- Approx 1/3 of U of U site
- Podium parking: raised beds.
- More urban, high rise development
- Potential benefit: warmer surface from parking below

San Francisco State University

- 762 beds, 3.6 acre site
- A little over 1/3 of U of U site
- Small courtyards may not work in winter climates

UCSF Mission Bay Housing

- 750 beds, 2.8 acre site
- Approx 1/3 of U of U site
- High-rise "tower" development w/ low rise surrounding.

Northeastern University

- 1050 beds, 10.96 acres
- Larger site than U of U
- Mid-rise development.

Comments on Comparisons

- Desire for flexible green space similar to Northeastern University that had a large green turf open space.
- Desire for programmable green space; not so much raised planters.
- Landscape: more pressure to create intimate spaces with landscaping to balance between housing densities.
- Conflict with density and parking podiums which are at variance with these goals.

Wrap-up

Conclusions

- The goal is to "densify" the campus according the Campus Master plan. This project is in-line with this objective.
- Preferred Design Alternative to this point:
  - Phase 1 location near Legacy Bridge.
    - This location will create opportunities to connect Honors to the entire Campus and resolve many disconnected elements in the surrounding site.
      - Underutilized TRAX station.
      - Improve resolution of bridge to lower campus.
      - Create stronger connection between upper and lower campus.
      - Location is excellent for "Imageablity" of Honor College.
- This site should not provide parking for other services on campus. Only serve housing.
- The site can handle 1800 beds, but parking skews feasibility in terms of cost, not necessarily feasibility. May recommend less housing in Phase 2 & 3.
- Unit options:
  - 4 Bedroom, Type A works well and was accepted as a typical unit.

a.04 WORKSHOP #4

- 8 Bedroom has merit, but based on the comments, design team should explore ways, such as adding an entry at the second level, to improve the unit from a management point of view.
- Parking is 0.5 stalls / bed until costs determine otherwise.
- More than likely, Phase 1's Honors Housing will be one building. However, we will also look at options w/ more than one building.

Next Steps

- Focus studies with Phase 1 adjacent to bridge; with embedded program and with common program segregated. Need from University: common program that can be segregated from Honors Housing.
- Next Workshop: engage Ken Ament w/ cost model comparisons.
  - Look @ inflation rates (5 yrs., 10 yrs. 15yrs.)
- Parking scenarios:
  - Podium in Phase 1; one level parking under housing.
    - How many stalls and cost?
  - Pushing parking issue to Phase 2 as stand alone structure.
  - Podium parking for Phases 2 + 3
  - Build a parking structure now because cost of construction is lower.
- Compare cost of parking with Linda's online survey
  - Students currently pay $60 per year.

- Next workshops:
  - Steering Committee Meeting Feb. 3
  - Workshop #4 February 9th?
    - Send out meeting invite by early next week
  - Workshop #5 week of March 1

Meeting Agenda

Morning Sessions

8:30 – 8:45
Introduction

8:45 – 9:15
Preferred Unit Typologies

9:15 – 10:00
Program Summary

10:00 – 12:00
Preferred Site Accommodation and Density

12:00 – 1:00 **Lunch**

Afternoon Sessions

1:15 – 3:00
Open Forum

Meeting Notes

B. Preferred Unit Typologies

- Basic module designed around basic 4-bedroom apartment (**4 S Bedroom Apt**):
  - Use this module to develop all other units; it's the basic building block
  - Therefore, we can plug and play various unit types and change ratios of them; kit of parts; façade play
  - Core module stays the same
- **2 S/1 Bedroom Apt:**
  - Mix students of different incomes in one unit
- **2 D Bedroom Apt: (double unit)**
  - Flexibility in furniture arrangement
- **2 S/1 RA Bedroom Apt:**
  - Sitting room w/ private bedroom and private bath
  - Private direct access from hallway
  - A little bit of a square footage penalty; but there are only 6 RA units throughout entire project
  - We can place these units anywhere in the building; close to stairs, lobbies, etc.; flexibility
  - HRE likes this unit
  - It's okay that RAs share kitchen with other students in the unit
  - No coat closet at entry in this unit except in the RA area; maybe RAs don't need a coat closet but it can be a supply closet instead (potential space for a hardwired landline telephone)
  - RAs have the option to select the individuals that they will live with
- **REC/AREC/Faculty-in-Residence Apt:**
  - Bought some space in the living room w/ the master bedroom suite
  - Washer/dryer off corridor
  - The public bathroom should have a tub (for children, etc.)
  - Not in the core of a building (for example: not near the front desk)
  - Own exterior entrance or ability to enter easily from front gate
  - What about inset bookshelves? Other finishing details so it feels more like a "home"
  - A study/office is not necessary; turn it into a larger second bedroom
  - Larger master bedroom closet
  - More storage
  - Create more of an island or U-shaped kitchen bar
  - Have a hardwired landline telephone
- **8 Bed Apt Type A.1**:
  - Added a second entry from the hallway on the upper level
  - Fits the basic unit module like all other units
  - If we plugged in these units, it can be separated from other units to create a different kind of community if wanted
  - 8-units similar to this that were shown in the student focus groups scored high, especially with the first-year students
  - The double volume in the living room allows for a grand double height façade presence and façade play

C. Program Summary

- **Residential Living Units:**
  - Double bed unit is slightly smaller and knocked down the residential living units subtotal a little bit
  - Total beds is now divisible by 4 (but same rentable bed counts of 310)
  - For now, still keep the 50/50 single/double bed mix unless the market study says otherwise
  - AREC and Faculty-in-Residence apartments are one-in-the-same; so there are only two total live-in staff apartments

- **Café/C-Store:**
  - Essentially a commercial kitchen (note to the consultants to incorporate into their various systems)
  - There will be no meal plan that this Café/C-store will have to serve nor will it be required of the students living here.
  - From a sustainability point of view, what type of dishes/ware to be used (china, plastic, disposable paper, etc.)?
    - Current program is not big enough for chinaware (currently using cornware)
    - There should be some to-go items for students to bring back to their rooms
    - University would like reusable ware
    - Add line item to separate Cold Preparation from Line Washing
    - Look into composting methods/options? (Such as the nation's capitol's)
      - How much space will it take? What should the university/students do with them?
  - What is the seating capacity of this space?
- The program is starting to get back into alignment with the original Capital Project Request, even under IF we are 75% efficient.
  - This is a reflection of a refinement to the units.

D. Preferred Site Accommodation and Density

- **Previous Site Layouts:**
  - We identified the Phase 1 location to be at the northeast corner by Legacy Bridge
    - Best location for the master planning of future phases
  - If we did build a stand-alone parking garage, we would displace some housing and lower the total bed count because the University would prefer not to build high-rise housing buildings.
  - We need to decide which direction we want to go, at least in Phase 1: podium vs stand-alone parking structure
    - If we didn't build podium in Phase 1, that doesn't mean that we couldn't build podium in the future phases
    - If we had a parking structure on the corner by the Huntsman Center, it would be another gateway to the campus so we should be sensitive to its façade and massing
  - A student pick-up and drop-off location is desired.

- **Site Opportunities & Constraints:**
  - Major grade change to navigate
  - Consider accessible access throughout the site
  - The only disabled access at the Fort Douglas TRAX Station is at the north end, not the south end
    - Send email out to Tami so she can confirm with others
  - Bio-landscape is meant more as a visual landscape buffer between the road/TRAX and housing, not a place for people to occupy and use
  - Can handle stormwater on site internally (not direct to HPER mall), such as with a water feature at the north end by the bridge (not necessarily a water fountain)
  - Express sustainability value in the landscape
  - Heavily used women's soccer field (a lot of investment in the infrastructure there); however, other groups use that field also – it is a multipurpose rec field

- **Site Sections:**
  - Podium parking is the most expensive parking; that is a given
  - Podium or not needs to be decided during Programming
  - From the last Steering Committee meeting, the stake in the ground (per VP Dave Pershing) is 50 spots podium; site accommodation is about 75-80 podium spaces
    - For recruitment: some students would pay the higher cost
    - Financial viability of the whole project?

        - Will have cost data within a few days of this workshop
    - However many existing parking stalls are displaced should be replaced (Norm Chambers)

- **Phase 1 Alternatives:**
    - The alternatives are purposefully trying to put the various programmatic spaces in different places to provoke what works and what doesn't; what is feasible?
    - Alternative A: one building; mixed use; future parking
      Alternative B: multiple buildings; segregated uses (stand-alone uses); podium parking
      Alternative C: multiple buildings; mixed uses; podium parking
    - Graphic Program:
        - Non-assignable: corridors, hallways, stairs, elevators, IT rooms, trash rooms…

    - **Alternative A.1:**
        - Base model (to compare with other schemes)
        - Separation in middle of building to create a controlled gateway
        - Locate café adjacent to gateway: encourage activity along that route; encourage TRAX use
        - Locate Honors College adjacent to Legacy Bridge: quickest link to upper campus via the bridge and to HPER Mall
        - Loggia situation as a pedestrian link across the public elements of the project
        - Locate laundry between Honors and Administration spaces
        - Near the café is a good idea especially if they share outdoor space
        - Limited in locating café somewhat because of the need of service access to it; it will always be served by the East access road
        - Accommodate an indoor maintenance space (because maintenance keep asking for Tuff sheds around campus)
            - Tami will let us know how much space we'll need
        - Public arrival space at the bridge
        - Much more public space facing the parking lot than the Mario Cappecchi side
        - Proposing reconfiguration of the parking lot for drop-off, loading, etc.
            - But haven't calculated how many spots will be displaced yet
        - Fire access handled on west side of project
        - Ground level public program is in a grand story – 15 to 16 foot ceilings; above this will turn into a residential module
        - 6 stories of residential over public level; 56 beds/floor; 14 units per floor; elevator core is in the middle w/a stair; stairs at each end of the building; purposefully grounded the end stairs with public plaza spaces at grade to encourage students to use the stairs
        - Core has a lot of glass to act as a "beacon" for the building in the center
        - Shaping space with landscape, grade changes
        - Honors College asserts itself from the "confines" of the building
        - Bio-landscape is used as a buffer between the street and the building
        - Draws a line between public and private
        - Café plaza is slightly elevated above pedestrian walkway

    - **Alternative A.2:**
        - Segregate Honors College: owns its own wing of the building next to the Legacy Bridge
            - No internal connection between Honors and Café/C-store
        - Assertively engaged the TRAX station w/ a large arrival plaza
            - Most aggressive of transit development
            - Seems less inviting when considering future phases; the previous Alternative A.1 seems more inviting because it's facing to the campus
            - Perceived safety: too inviting to TRAX transient; too open

            - C-store should serve students and it's not so much in this scheme (it's serving the public)
        - Engaging retaining wall into the building at north end
            - This wing is where the 8-bed units could possibly be located
                - Skip-stop (split level) condition in section
            - Very dynamic configuration
        - Residential accommodation is split at the "gateway"
        - Split the massing of the project: Honors College wing is taller
            - 6 stories over public: north wing
            - 4 stories over public: south wing
            - A unique Honors wing is a nice element
                - A stronger representation of Honors is desired.
        - Potential green roof over the south wing
        - Shadow studies prove that exterior plazas are better on the west side than the east side

    - **Alternative B.1:**
        - Entry to podium will always be at the low end of the site by the East access drive
        - A double-loaded aisle parking lot as shown is more efficient than a single-loaded
        - Aligned retaining wall of parking podium with the geometry of the street
        - Located Honors College associated with the lynchpin of future phases
            - Also at this level is laundry
            - Split Honors into two levels:
                - Seminar rooms and offices at lower
                - Innovative center at upper
            - Center axis is aligned with Fort Douglas' large green field
            - Martha Bradley's principal reservation: idea was to embed the Honors program into the residential living units
            - If it is a stand-alone building, an administration presence would be needed
        - Café is aligned on axis to HPER mall
            - It is bring framed through the "gateway"
        - Residential Administration is located right at axis to the TRAX station
            - Some degree of oversight of who's coming and going
        - General study lounges have view to the mountains and to the campus
        - Pushed larger massing to the north
        - Raised plaza at Legacy Bridge
        - Street presence is very different with the smaller café massing at the SE corner
        - Podium creates an upper tier public space
            - Create meaningful landscape that's activated; encourage gathering
            - Patios on the west get really hot sometimes so this plaza takes that into consideration
                - This plaza is its own "snow-melt" system because sun still gets to it
            - Landscape square footage cost goes up on a podium
        - Emergency vehicular access handled along the west side again

    - **Alternative B.2:**
        - This alternative breaks down the scale of the communities into 3 wings (similar to the existing Sage Point)
        - Rectilinearized parking to the campus grid (not the street like the previous alternative)
        - Parking is not as efficient because of ramping (this has about 120 spaces; it's not doubled per floor)
        - Café, laundry and administration at the lower level fronting the parking
        - Again, created a somewhat segregated community at the north end (could be where the live-in staff members live, etc.)

- Café is on two floors again
  - Allows sunlight to penetrate podium plaza year-round (probably the sunniest podium option)
  - Central location promotes link to future phases
- Honors College is at the center of this phase
  - It is the terminus to the gateway of the TRAX station
  - It is along the big grand stair to the HPER mall
  - It has a high degree of visibility from various points.
- Centralized circulation within three wings
  - Low-scale wing with green roof in the middle
- Very controlled entry gateway
- Raised planters on podium plaza
  - Creates a sense of a quad
  - Herb gardens in the planters?
- Programmed occupyable green roof is okay but it should be managed
  - It has great views to the campus

- **Alternative C.1:**
  - Two building option
  - Café is a great link to future phases
    - Great activator of space and specifically of the lower plaza
  - Laundry also occupies this lower plaza
  - Honors is associated with Legacy Bridge and at nearly the same level as the TRAX station
    - Legacy Bridge is pulled into the arcade of the Honors College
  - Bridge to TRAX station
  - Benefit of two buildings is shorter buildings
  - South building's central space acknowledges axis back to Fort Douglas
  - Again, a limited type of landscape palette because of the podium
  - Seems like a private entry from TRAX to housing…what about the public? How do we draw them from this stop to the rest of campus?
    - Most people who use this station are mostly coming for Athletic events
    - More of the campus are expected to be using this stop; it won't just be a student stop

- **General Comments:**
  - Place public spaces along the public routes
  - The north end of this TRAX stop will be used more (especially once the Student Life Center is built) than the south end
  - Residential units shouldn't be touching the ground by the Legacy Bridge
  - Barb doesn't see the administration being the eyes and ears of the public
    - There needs to be a buffer to the administration (the lobby space can be thus); locate lobby and admin adjacent to one another
    - Prefers a single point of grand entrance (not multiple smaller door entrances)
  - Locate Honors at the north end and café at the southwest end

F. Open Forum

- Truck access problem; blocks vehicular traffic?
- Continuing Ed was planned to move to the proposed Universe Project but since the Universe Project isn't happening any longer, there's no place for it to go
  - Find a place for Continuing Ed to park
    - They have about 50/50 day and night classes

- Unbundle program or not?
  - If bundled, no issues
- In Alternative A.1, it's difficult to draw the line between Honors and non-Honors
  - Looks too traditional for this project; HRE wants to be a bit more forward-looking ('hip')
  - Like the bottom level of public spaces but not the upper residential unit massing
  - Individuals in 8-bedroom apartments may most likely be first-year students
  - Between non-podium options A.1 and A.2, A.2 is preferred
- Podium or not?
  - Rick James: no because concerned about budget
  - Steering Committee has said that we have to include 50 podium parking stalls
  - After this workshop, get cost models of a podium and a non-podium options to Jerry Basford and he will get decisions from the decision-makers (Dave, Mike, Arnie, Paul) by early next week
- Honors should be at the north end by the bridge
- Benefit of having a stand-alone café is that it can grow larger within its location
  - Not just for Honors but for everybody
  - Possible 'disadvantage': taking away public space from the ground level so there will be some residential units that are on grade
    - Also, having service access at public ways may not be as attractive because most likely trash will be taken in and of there
- If the program is spread apart, it may be problematic in that it's not really everyone coming together as a community; everyone's segregated; a communication issue?
  - Public adjacency preference: A.1 alternative minus the laundry space (so: Honors-Administration-Community)
- Honors: 25% of all Honors students per year are Freshmen; Freshmen also come in at a higher age
  - 8-bed apartments for first-year students: 35% of 310 beds (about 100 = Living/Learning floor)
  - Upper classmen: split between doubles (10% -about 20) and singles (90% - about 180) – mix units with double/single/single arrangement
- A plaza by the Honors end is desirable
- An outdoor eating area by the café at ground level is wanted
- C-store is really going to be more of a 'grocery store'; having it on two levels allows the 'restaurant'-type space to be different from the 'grocery'-type space
- Make sure to have some verbage in the program on the outdoor plaza spaces about deterring skateboarders from skateboarding on the hardscape/landscape elements
- Among the 3 podium options shown, preference is for the B.2 alternative
- **For next Steering Committee meeting – Harry will set up the meeting:**
  - To be next Tuesday, the 16th
  - List of decisions needed to be made
  - Cost models w/ two options (one podium; one non-podium)
  - Decision-makers are: Dave, Mike, Arnie, Paul

a.05 WORKSHOP #5

Meeting Agenda

Morning Sessions

8:30 – 8:45
Introduction

8:45 – 9:00
Program Summary

9:00 – 9:30
Preferred Unit Typologies

9:30 – 10:30
Preferred Site Alternative

10:30 – 11:30
Master Plan Issues

11:30 – 12:00
Wrap-Up

12:00 – 1:00 **Lunch**

Afternoon Session

1:00 – 4:00
Sustainability Charrette

Meeting Notes

A. Program Summary

- *Residential Living Units:*
  - Previously, the residential living units section in the program summary defined the units by the *number of beds*; what the current summary shows is the *number of types of units/apartments* – the only thing that significantly changed was the language/nomenclature in describing the living units
  - The 2 D Apartments were removed because, according to the market survey, singles are much more preferred than doubles
  - 4 S/2 D (8-bedroom) Apartments:
    - Geared towards Freshmen
    - Organized into its own wing and community
    - Has two RAs
    - Early on, it was stated that it was somewhat of a challenge to get these 8-person apartments built and there is a little concern regarding later on down the line in possibly having to explain why these particular units were chosen. Some potential arguments in choosing these units are:
      - The Honors College and RAs, on this campus, preferred the 8-bed apartment communities to the other options
      - Perhaps this 8-bed apartment is specific to the University of Utah because of its unique cultural and community vision and goals
      - This unit is most similar to the existing Officers' Circle houses, which are highly desired
      - Other schools may not have chosen this unit because they are trying to replicate the existing market with 2-, 3-, 4-bed apartments and super-suites because they're comfortable with those and they have been proven to work
      - The vertical layout of this 8-bed apartment probably won't be as big of an issue as, and differs from, an 8-bed apartment on one level because this is essentially two stacked 4-bed apartments
  - It will be more difficult to change the ratios of 4-bed and 8-bed apartments later because of how the program is currently organized on the site; these ratios helped generate the proposed building form and organization
- *Residential Administration:*
  - The sizes of the Front Desk Staff Office and Residential Education Offices should be increased from 120sf to 150sf each to match the Honors College Offices
- *Laundry:*
  - The preferred alternative shows a consolidated laundry room rather than separate smaller rooms.
  - The proposed 1,200sf fits approximately 25 front-loading washers and stacked dryers with room for folding, tables, etc. This does seem to match what the University currently has now.

- *Community:*
  - The preferred alternative shows the entry lobby and multi-purpose spaces as one large 1,250sf community room, but, if desired, they may be divided into two rooms.
- *Honors College:*
  - Added a small storage room with 100asf
    - The University would prefer an easily accessible hallway-type of storage (with cabinets above and below and, potentially, a countertop that turns into a buffet for social gatherings)
      - i.e.: when coming out of the seminar rooms, or during break-out sessions, this space can be used as part of the hallway and flush against the wall
      - The desired length was compared to the width of 4-6 of the large panels in this meeting room (about 12' long)
- *Parking:*
  - The preferred alternative doesn't fit 155 parking spaces but was able to efficiently fit about 87 spaces (on one level)
    - What happens to the other 60+ spaces?
      - The D/B teams should be clearly directed on how to approach this in the RFP. Should they get bonus points for figuring it out? Perhaps they should all do a design with just the minimum stalls (87) so you can compare apples-to-apples and, then, afterwards, should get incentives for going above-and-beyond to solve the 155 stalls
      - If a D/B Team proposes extra stalls, they should have to illustrate and explain in a diagram how they are accomplishing it
      - Another idea: the leftover stalls could be accounted for in the existing surface parking lot
- *General Comments:*
  - When the University receives the program draft, they should look carefully at the Individual Space Outlines so they can better understand the individual spaces and see how the furniture may possibly be arranged and how much will fit
  - All non-assignable spaces (such as restrooms, corridors, stairs/elevators, utility rooms, etc.) are there and accounted for in the gross square factor but not listed out in the program spaces
    - Once you list non-assignable spaces in the program, there's not really a boundary between what should be listed and what's not, so all non-assignable spaces are left out
    - The Program Team should contact Bruce Gillars, Director of Office of Space Planning & Management – (801) 581-5391 – about the approach to take in the program summary (send him the program summary to review)
  - When the building floor plans were drawn out, the total gsf came out to approximately 147,000sf, so it's similar to what was estimated in the program summary (+/- 140,000gsf - 148,000gsf); its net-to-gross efficiency was closer to 70% than 75%
  - Are all of these spaces and square footage amounts the *desired* or the *minimum*?
    - In general, these are the minimum except for the number of residential living units

B. Preferred Unit Typologies

- *4 S Bedroom Apartment*: constitutes about half of all the living units

- There is the capability to easily swap the ratios of singles and doubles in the 4-bedroom unit types if desired
- *2 S/1 RA Bedroom Apartment*: one possible drawback is that the entry "closet space" is in the RA suite, though this space may serve functions other than this
- *REC/FIR Apartment*: feels more inviting than the previous rendition and not as much like a student's apartment
  - The master suite comes with a walk-in closet
  - The kitchen is "enhanced" compared to the students' apts; it has a kitchen island instead of a bar
  - These two apartments are segregated from the rest of the community with their own corridor
- *4 S/2 D Bedroom Apartment*: increased the size of the appliances (especially the refrigerator) from the previous version
  - These 8-bed units are arranged similarly to the houses at Officers' Circle
- *2 S/2 D/1 RA Bedroom Apartment*:
  - Since the 8-bed apartments take up their own wing with 92 beds, they need two RAs, so two RA suites are incorporated into two of the 8-bed units
  - The RA suite is located on the upper level of each of these units
- No wardrobe as furniture; too many problems

C. Site Analysis

- The significant grade change across the site from east to west gives us opportunity to do the podium parking, connect to TRAX, and connect to the Legacy Bridge
- The finish floor elevation of the Honors College-podium level is 1' below the TRAX level and the area between TRAX and the building steps down even further to allow for some play in the landscape and to create a buffer between the street and housing

D. Preferred Alternative

- *Conclusions from the last workshop*:
  - Honors College to be at the north end of the site and adjacent to Legacy Bridge
  - Café/C-store is to be unbundled from the rest of the program as its own separate building
    - Its location is to be in the SW corner of the site so as to serve future phases as well
  - A building with stepped massing is preferred rather than one large volume so as to break down the scale of the program
  - Podium parking: to have a minimum of 50 spaces
  - Honors College and Administrative spaces to be adjacent to one another
- *Garage Level*:
  - Parking Podium:
    - Entrance is from Mario Capecchi Drive
    - 87 stalls

        - A simple and efficient layout
        - The garage is fully underground at the eastern side and above ground at the western side; the western side will be hidden in large part by the Café/C-store
        - The garage will have to be mechanically vented

    - Café/C-store:
        - A large truck should be able to drive to the SW corner of the café where the loading area is located
        - There is a main single point of entry on the west side
        - Lower level: kitchen, servery, C-store
        - Upper level: a mezzanine-type of space within a double-height volume where most dining occurs
        - Outdoor space to the north of Café: creation of a lower plaza
            - This space serves to hide a large portion of the garage with a series of planter terraces, at the same time, creates a nice, landscape sitting area
        - The future phases' pedestrian access to the C-store: main access is on the west side with seating on the north side

    - Laundry:
        - Located at the NW corner
        - Is adjacent to a 2-stop 'public' elevator that serves the community areas
        - In this location, it is encouraged to be more of a public space and is adjacent to a public plaza
        - Two entrances: one from the garage and one from the outdoor plaza

    - 2-stop 'public' elevator:
        - Separate from the residential elevator
        - Stops at the garage and the podium levels

    - Custodial and maintenance spaces

    - Bike Storage:
        - Close to residential elevator and stair

- *Podium Level:*

    - Café:
        - May eat inside on the mezzanine level or outside on the plaza
        - Should it have some sort of revenue-generating program on the upper level as well to generate activity on both levels, in anticipation of future phases and potential activities?
            - OR, should it maximize the public activities on the lower level and minimize activity on the upper level?
            - Currently, as conceptually designed, the seating upstairs is pictured to be more of a social study kind of area; a community stage
        - Should there be an elevator that connects the mezzanine and lower levels? Not necessarily needed?

    - North Wing (Honors College & Residential Admin):
        - Located at the northern end of the north wing
        - Is the heart of the public
        - Main entry is off of the loggia space to the west and also opens to a plaza at the north end, next to the bridge
        - The Innovation Center/"Big Ideas Center" is placed at the NE corner with the Media/Library immediately to its west
        - Faculty and Res Ed Offices are along the east side

        - Public spaces are along the west side right off of the plaza/loggia spaces and oriented to the core of campus
        - The Lobby and Multi-purpose spaces are right in the center
        - The dark blue spaces are restrooms: the larger one is by Honors and the smaller one is by Lobby
        - Could place a door between Honors and Res Ed Admin if desired
            - Don't really see a need for the door but some sort of a sound buffer between the two programs is preferred (Barb)
        - Pull the front desk up front to the lobby area for security reasons to be able to monitor potential tailgators who may be going up in the elevators (there are no check-in guest policies)

    - West Wing: 2 REC/FIR apartments by themselves, with their own interior corridor

    - South Wing: 7-4 S, 1-RA/2 S
        - This creates an intentional residential feel to the courtyard plaza so as to make it feel more 'private'

- *Level 2:*

    - Purposefully compressed the path to the SW to emphasize that this plaza is more private for the residents and opened up to the NW to direct the public path-of-travel towards campus

    - Light Blue: only singles
      Dark Blue/Purple: singles with doubles
      Teal Green: RA units
      Gray: non-assignable spaces

- *Levels 3-5:*

    - North Wing: all 8-bed apartments (mostly Freshmen)
        - Associated with Honors College

    - South Wing: upperclassmen

    - Center of All Wings: general study space with a view towards campus

- *Level 6:*

    - West Wing: a green roof that is adjacent to the vertical core

    - North Wing: 1 story taller than the other wings
        - Overlooks the green roof

- *Sections & Site:*

    - Finish floor elevation (FFE) of Honors College-Podium Level: 1' below TRAX level

    - Bio-Landscape Area:
        - A gentle dip with landscape berms
        - Provides a pleasant view but discourages the public away from the housing
        - Promote native landscaping

    - Plaza: has a non-occupiable planting around housing to provide a buffer between the units at grade and those using the courtyard

- All accessible paths have a 5% slope with the exception of the north ramp, which is steeper and would require guard rails

E. Precinct Planning & Density

- *Previous Alternative B Considerations*:
  - Location of Café/C-store works with this option
  - Will probably need 2 levels of parking podium in Phase 2
- *Previous Alternative F Considerations*:
  - A parking structure means displacement of housing and lowering the total number of bed counts across the site
- *Preferred Alternative:*
  - ***Phase One: 314 beds; 87 podium parking stalls; 3.27 acres***
    - 96 beds per acre
      26.6 stalls per acre
    - 625 stalls existing
      275 stalls displaced
      350 stalls remaining
      70 housing stalls deficit [(desired 155 stalls) – (proposed 87 stalls)]
      280 total stalls remaining for general use (if housing uses 70 surface stalls)
  - ***Future Phases*** *(based upon Phase One's density)****: 632 beds; 175 stalls; 6.59 acres***
  - ***All Phases: 946 beds; 262 stalls; 9.86 acres***
  - As the above data indicates, 1800 beds/900 stalls will not be achieved without higher densities in future phases.
- It was suggested that the Steering Committee and Design Team should participate in some additional discussions to better evaluate a range of master planning considerations that may ultimately vary from the initial project guidelines. This process may involve an additional meeting not currently scheduled and possible adjusted directions to the design team for the completion of the master planning portion of this study. Key considerations were noted as follows:
  - Parking user decisions will affect podium vs stand-alone parking
    - Is podium parking sustainable as a model (for future housing)?
  - Parking on this site will be housing parking only
  - Other types of housing (unlike this Honors Housing phase) will probably lessen the need for podium parking; other phases will probably be more driven by economics. Still, the demand for parking will probably not go away and will need to be addressed by the University.
    - Will probably necessitate a stand-alone parking structure off-site? In this case, however, off-site won't be ideal for marketing the housing.
  - The Program Team to study the master plan with the following parking options:
    1. Continuing podium parking across the entire site
    2. A stand-alone parking structure on-site
    3. Other parking options off-site? (Needs more direction…)
    - Are 1800 beds desired in any and/or all of the above schemes?
  - Perhaps the market analysis study will inform the above.

F. Wrap-Up / Questions & Comments

- The Program Team is to contact Commuter Services (Alma Allred) regarding the bike storage method used at the existing HSEB – Health Sciences Education Building, as a model for bike storage to be replicated at this site
- DFCM's RFP Ideas and Suggestions:
  - DFCM/Client to set boundaries and constraints so that D/B teams don't interpret them
    - For example: the parking issue could create sprawl and affect future phases
  - Expandability of Café/C-store in the future?
  - Anticipate that as an alternative, one of the first things the D/B teams will offer is to remove podium parking
  - (Rick) Decisions to be made before project gets to D/B:
    - The types of apartment units & organization
    - Master Planning of Phases 2 & 3
    - Number of parking stalls
    - What about other ones? DFCM/UofU should set high expectations of the quality and value
  - Possible option: shortlist to the 3 D/B teams with this design and budget and then, after selection of one team, go through the process of cost reduction proposals, but not before then
  - Rick to discuss the project's RFP process and schedule with Pollard/Sasaki (at a later time)
    - March 31 – RFP for Statement of Qualifications goes out
    - May 10 – Final Program Due
    - May 11 – Final Program will be made available to the three D/B shortlisted teams
    - Ken Pollard to arrange conference call with Linda Anderson and Rick James
- In terms of the master plan, don't need more detail than what has been shown thus far.
  - But should make Steering Committee aware of the density
  - Don't necessarily need to quantify how many beds; just locations of housing and parking
    - However, a determination of the precinct's capacity is valuable since capacity is unlikely to change significantly even though the locations and forms may
  - Create a separate document for master plan as a companion piece instead of incorporating it into this program

G. Sustainability Charrette

- *Infrastructural Systems:*
  - Mechanical Options
    1. VRF system and boilers on site
       - VRF (Variable Refrigerant Control) will most likely be the most inexpensive system.
    2. 4-pipe fan coil system, tie into central chiller w/ Heat Exchanger, and boilers on site.
       - This is the University baseline and what is preferred by Plant Operations (not VRF with boilers). Similar systems are used in higher end hotels.
    3. VRF system and tie into HTW from Central Plant w/ heat exchanger
    4. Self-generate chilled water and boilers on site
    - According to Colvin's baseline energy usage by category, domestic hot water is the biggest piece of the pie chart that we can affect. Two thirds (2/3) of the domestic hot water will be generated by solar water heaters.
    - Current EUI: 92; current Energy Star rating: 36
      - These numbers don't seem right (the data may be off); Colvin will refine the energy model study and redo the numbers.

- Electrical Options
  1. Take north path from the end of the HPER Mall Tunnel - BASELINE
  2. Take west path from existing west fee. Does not replace existing feed.

- Structural Options
  1. Steel frame with epic deck system – BASELINE; this option is the preferred
  2. Hollow core planks
  3. Load bearing steel studs – has an advantage in timing and schedule; option of using panel modules

- The baseline chosen in each of the above three categories should be the only system proposed and narrated in the Program.

- *LEED 2009 for New Construction and Major Renovation – Project Checklist*

  - In the LEED checklist shown, the blue credits are required by DFCM, the pinks were requested by the University of Utah in a previous sustainability meeting, and the oranges are those the project automatically qualifies or disqualifies for.

  - In the previous sustainability meeting, Myron Willson identified four credits for this project on behalf of the University:
    - *Sustainable Sites, Credit 4.2, Alternative Transportation – Bicycle Storage and Changing Rooms*
      - In order to achieve this credit, for a residential project, the building would require "covered storage facilities for securing bicycles for 15% or more of building occupants", which is amply provided for in the current proposed bike/gear storage room
    - *Water Efficiency, Credit 3, Water Use Reduction*
      - Changed from a previous 30% to a 40% reduction in this meeting, which means that the project gets an automatic extra point in the Regional Priority Credits section
    - *Energy and Atmosphere, Credit 1, Optimize Energy Performance*
      - 15 credits (= 40% energy performance improvement over the baseline) - Not yet a University requirement but hoping D/B team will be able to meet
      - Is 40% attainable in this building? At this moment, no options get us close to 40% (Steve Connor).
      - Depending on Colvin's energy modeling study and if it indicates that this project will not be able to hit the 40% target, then the absolute minimum is 20%
      - We must address the President's climate initiative.
    - *Innovation and Design Process, Credit 1.1, Innovation in Design*
      - Meter Competitions

  - LEED for Homes Midrise is probably more applicable to this project but it is still in pilot phase and will probably not be ready in time for this project.

  - There will be a range of options on how to meet these credits, but the importance is that they meet these goals somehow. The question is: what do we hold them to?

    - Give the performance level and make the Design Build team meet the standard. We must be specific about which categories we will absolutely require and what areas we want to achieve. *See tabular graphic at the end of notes for all desired and required points to achieve a minimum of LEED Silver.*

    - *Sustainable Sites*
      - Can meet both stormwater design credits.

      - Heat Island Effect – Non-roof: can be achieved through selection of paver system.
      - Heat Island Effect – Roof: depends on what we put up there – the materials reflectance ratings.
      - Light Pollution Reduction: can easily be achieved with performance standards.

    Water Efficiency
      - 40% water use reduction is reasonable, not too aggressive.
      - A 1.75 gpm shower head is about a 30% reduction.
      - Dual flush toilets.

    Energy and Atmosphere
      - Add On-Site Renewable Energy (9% renewable energy) – solar panels for hot water
      - In addition to this Enhanced Commissioning credit, DFCM is proposing doing commissioning for building envelopes, not just building systems, and this project has potential to do this (could be an extra credit in Innovation and Design)
      - Add Enhanced Refrigerant Management
      - Green Power credit: Absolutely not – include this as a narrative in the Program

    Materials and Resources
      - Add Construction Waste Management: 50% is reasonable; much of the proposed steel waste is recyclable/salvageable
      - Materials Reuse: No, because this credit pertains mostly to renovations/adaptive reuse and we are new construction
      - Add Recycled Content: 10%, steel in building works to meet goals. No wood.
      - Regional Materials: Tough time getting local materials.

    Indoor Environmental Quality
      - Add Construction IAQ Management Plan-Before Occupancy: Building Flush
      - Low-Emitting materials – Adhesives and Sealants, yes.
      - Low-Emitting materials – Paints and Coatings, yes.

    Innovation and Design Process
      - Gray water collection?
      - A sustainability session during student orientation can fulfill one of these credits; should include HRE's standard "bring/don't bring" list.

- What kind of solutions can get us closer to the desired energy efficiency?
  - 1" insulation at exterior curtain wall
  - Solar ban glazing
  - Difficult to address receptacles - which is the second largest energy usage in the building. Using smart strips is a solution, but still in testing stage and months down the road. It will be critical to determine when the rooms will be occupied in order to study how to reduce plug usage. Unfortunately, because this is a housing project, there are no long periods of down time.
  - Student behavior is the big factor in energy reduction; students do not understand where their power is coming from. More education is needed to make a change.

- We have to show how to achieve our goal in the program. Currently, we do not have an answer. We must look harder at plug load and lighting to achieve higher efficiencies.

  - What can be a strategy in limiting plug load?
    - Ken Garner: We have gone down that road, but code specifically outlines amount of receptacles.
    - Outlet may not be the solution.
    - What about metering competitions? Metering will work if you charge student for over use.

        - Limit or ban certain types of appliances. HRE to create policy for usage for people living in new housing. List what you can and cannot bring to campus.
            - Currently, students may bring their own mini-refrigerators. In an 8 person unit, 2 refrigerators should be supplied to reduce need for students to bring in their own.
        - Need more overhead lighting to reduce task lighting.
        - Kitchens appliances are all energy star compliant.

    - Mock up unit could be used as a tool for fine tuning the unit design in terms of energy usage and efficiency. Typically, one unit is finished out very quickly so user group and designers can test its performance.
        - Can work with a commissioning agent. Cost of commissioning can be paid for by the State.

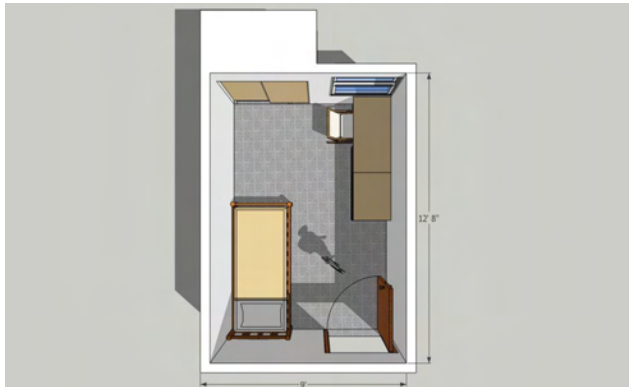
- We should include both LEED and Energy Star (target of 75 rating) in the Program. There is value in using both rating systems.

appendix b
design process
unit typology studies

b.01 SINGLE OCCUPANCY BEDROOMS

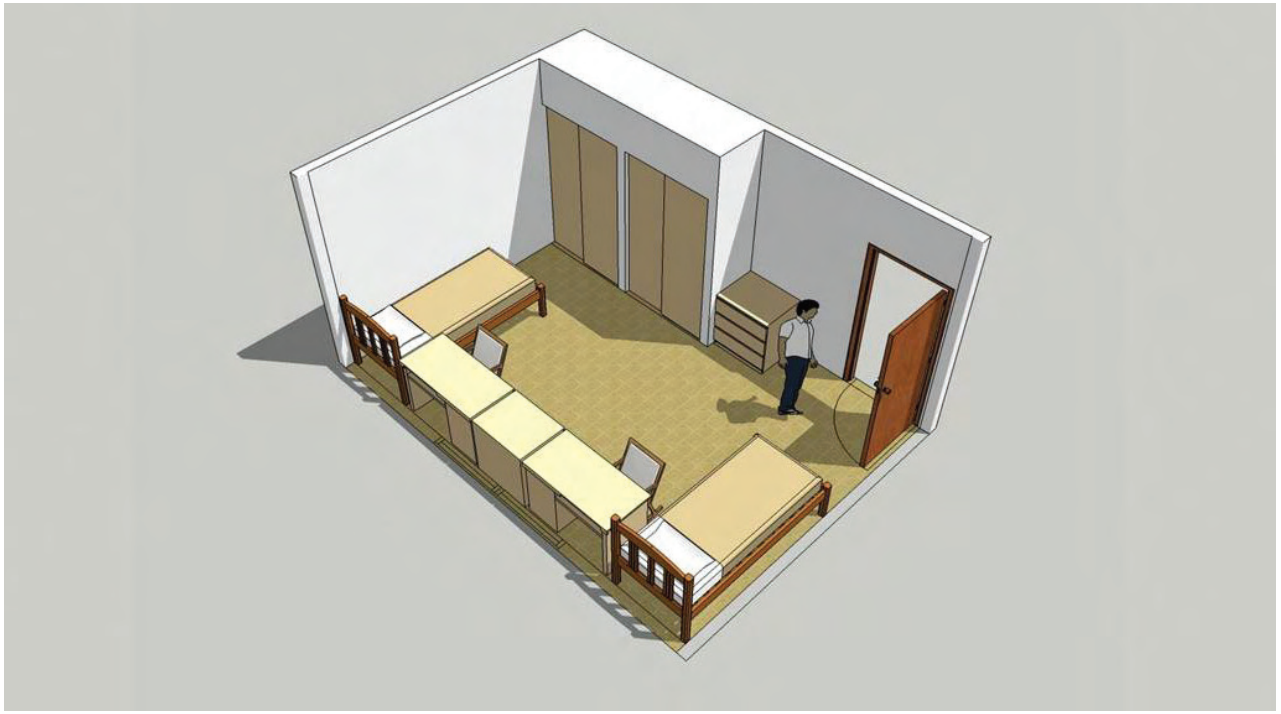
Single Occupancy Bedrooms

Single Occupancy Bedroom A

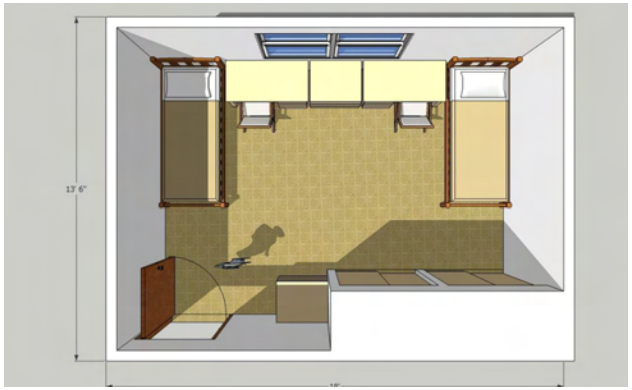


Single Occupancy Bedroom B

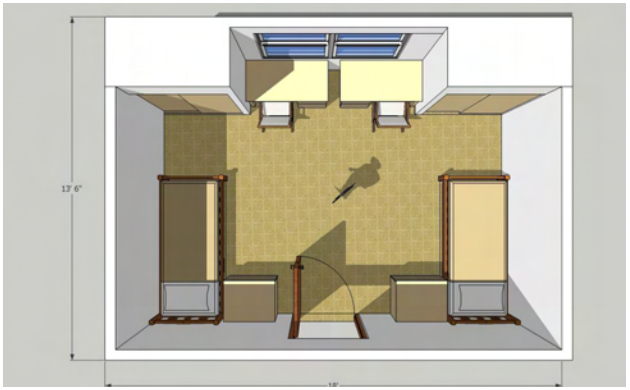
b.02 DOUBLE OCCUPANCY BEDROOMS



Double Occupancy Bedrooms

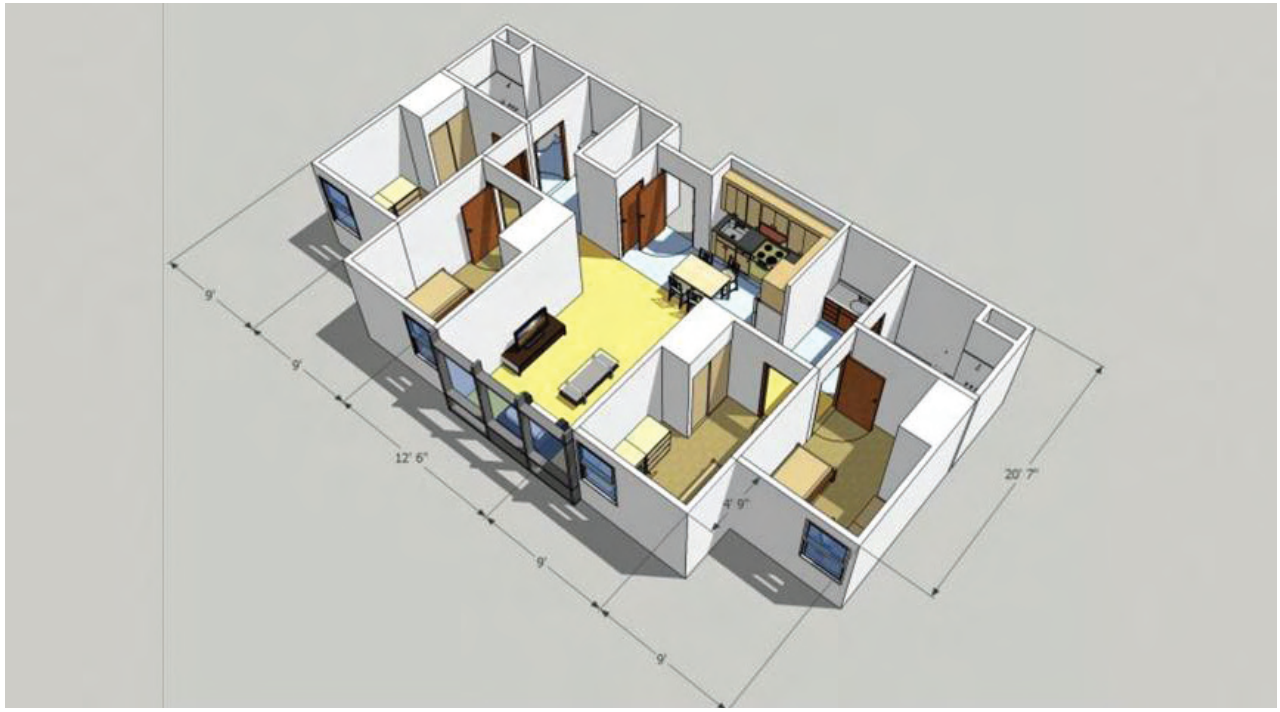


Double Occupancy Bedroom A

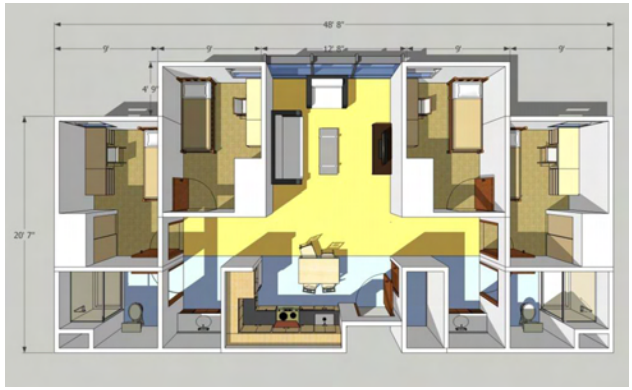


Double Occupancy Bedroom B

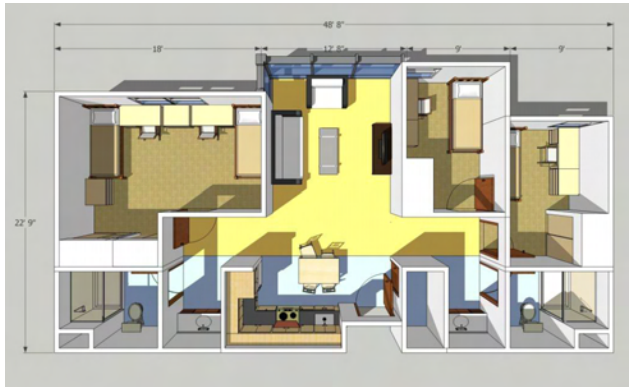
b.03 4 BED APARTMENT TYPE A



4 Bed Apartment Type A



4 Bed Apartment Type A - 4 Singles



4 Bed Apartment Type A.1 - 2 Singles, 1 Double

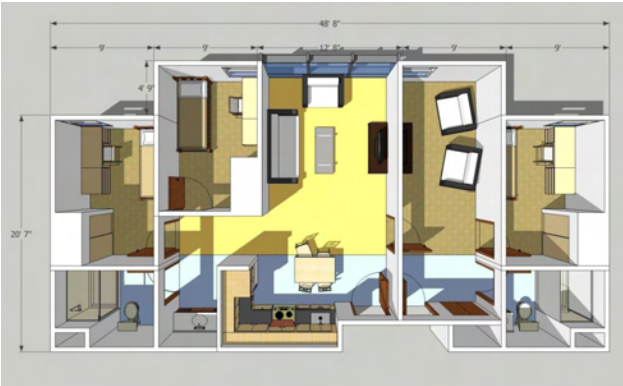
b.04 4 BED APARTMENT TYPE B

4 Bed Apartment Type B

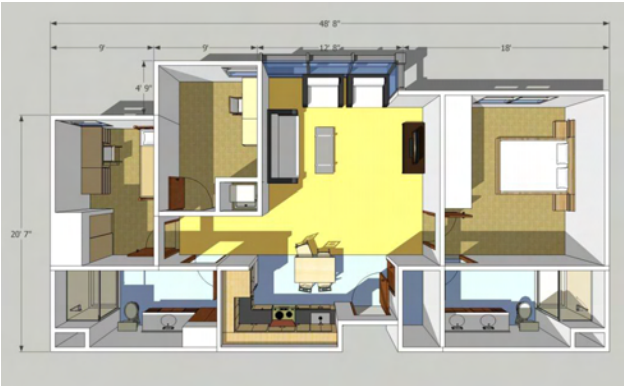
4 Bed Apartment Type B

4 Bed Apartment Type B.1

b.05 4 BED W/ RA SUITE APARTMENT & REC / FIR APARTMENT



4 Bed Apartment- 2 Singles, RA Suite



4 Bed REC / FIR Apartment

b.06 8 BED APARTMENT TYPE A

8 Bed Apartment Type A

8 Bed Apartment Type A - Level 1

8 Bed Apartment Type A - Level 2

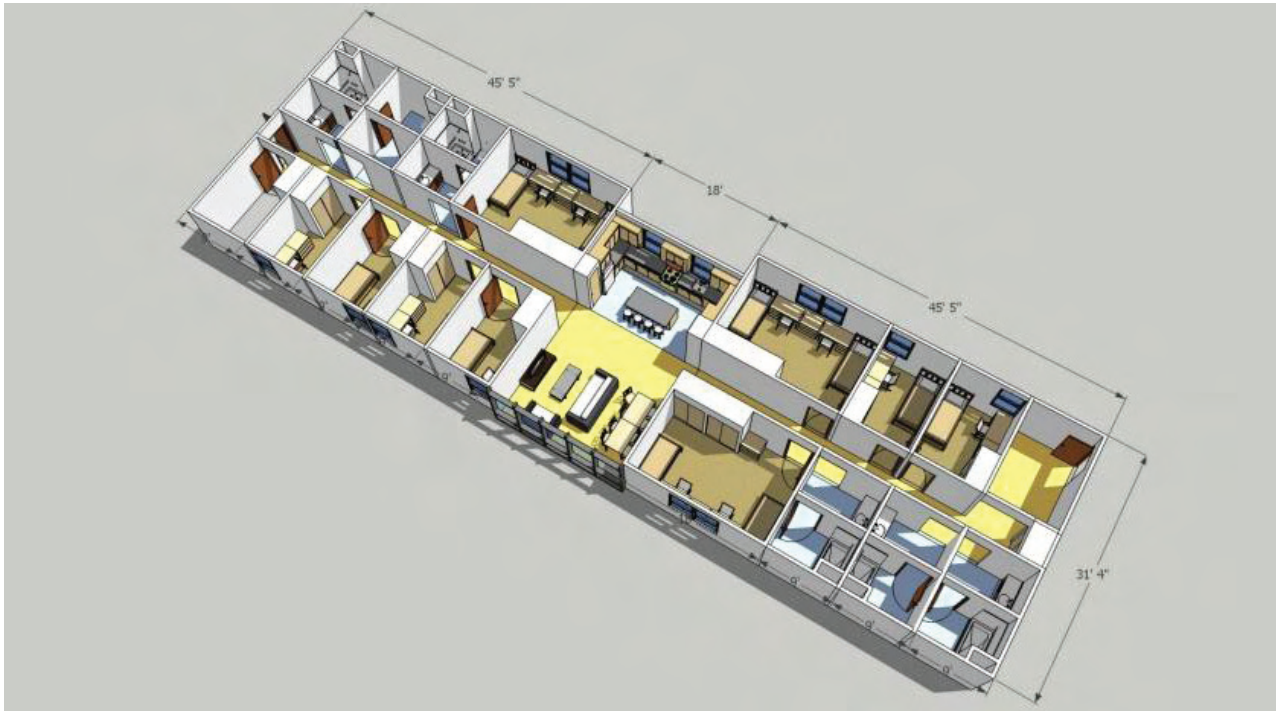
b.07 12 BED APARTMENT TYPE A

12 Bed Apartment Type A

12 Bed Apartment Type A - Level 1

12 Bed Apartment Type A - Level 2

b.08 12 BED APARTMENT TYPE B



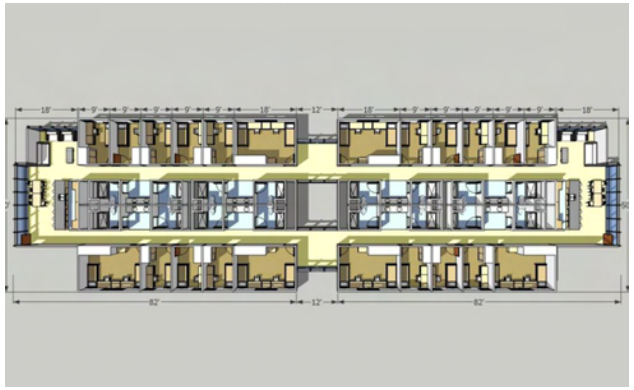
12 Bed Apartment Type B

12 Bed Apartment Type B - Level 1

12 Bed Apartment Type B - Opposite View

b.09 25 BED SUPER SUITE

25 Bed Super Suite



25 Bed Super Suite

25 Bed Super Suite

b.10 ALTERNATIVE A.1

No Structured Parking

building alternatives

Aerial Perspective

Plaza Level

Residential Units

Site Section

b.11 ALTERNATIVE A.2

No Structured Parking

Aerial Perspective

Plaza Level

Residential Units

Site Section

b.12 ALTERNATIVE B.1

Podium Parking Structure

Aerial Perspective

Podium Level

Plaza Level & Residential Units

Site Section

b.13 ALTERNATIVE B.2

Podium Parking Structure

Aerial Perspective

Podium Level

Plaza Level & Residential Units

Site Section

b.14 ALTERNATIVE C

Podium Parking Structure

Aerial Perspective

Podium Level

Plaza Level & Residential Units

Site Section

appendix c
detailed cost model

c.01 SUMMARY OF TOTAL CONSTRUCTION COST

by Construction Control Corporation

PROJECT ESTIMATE **CONSTRUCTION CONTROL CORPORATION** **3/19/2010**

PROJECT NAME……..HONORS HOUSING PROJECT
LOCATION……..SALT LAKE CITY, UTAH
ARCHITECT……..POLLARD/SASAKI
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	BUILDING	SITEWORK	PARKING	TOTAL
	BUILDING A COST SUMMARY				$ -
02	SITEWORK & DEMOLITION	$ 408,199	$ 2,372,823	$ 101,094	$ 2,882,116
03	CONCRETE	$ 1,162,411		$ 1,311,847	$ 2,474,258
04	MASONRY	$ 1,887,502		$ 49,590	$ 1,937,092
05	METALS	$ 2,276,729		$ 59,852	$ 2,336,581
06	WOODS & PLASTICS	$ 46,124		$ -	$ 46,124
07	THERMAL & MOISTURE PROTECTION	$ 1,658,060		$ 126,170	$ 1,784,230
08	DOORS & WINDOWS	$ 1,851,401		$ 18,500	$ 1,869,901
09	FINISHES	$ 4,009,183		$ 15,635	$ 4,024,818
10	SPECIALTIES	$ 245,494		$ 10,000	$ 255,494
11	EQUIPMENT	$ 418,275		$ 25,000	$ 443,275
12	FURNISHINGS	$ 137,633			$ 137,633
14	CONVEYING SYSTEMS	$ 330,000		$ 30,000	$ 360,000
15	MECHANICAL	$ 4,504,383		$ 147,861	$ 4,652,244
16	ELECTRICAL	$ 2,752,504		$ 195,054	$ 2,947,558
	SUBTOTAL	$ 21,687,898	$ 2,372,823	$ 2,090,603	$ 26,151,324
	GENERAL CONDITIONS	$ 1,084,395	$ 118,641	$ 104,530	$ 1,307,566
	OVERHEAD & PROFIT	$ 867,516	$ 94,913	$ 83,624	$ 1,046,053
	DESIGN CONTINGENCY	$ 2,168,790	$ 237,282	$ 209,060	$ 2,615,132
	TOTALS	$ 25,808,599	$ 2,823,659	$ 2,487,817	$ 31,120,076

C.02 BUILDING COSTS

by Construction Control Corporation

PROJECT ESTIMATE CONSTRUCTION CONTROL CORPORATION 3/19/2010

PROJECT NAME……..HONORS HOUSING PROJECT
LOCATION……..SALT LAKE CITY, UTAH
ARCHITECT……POLLARD/SASAKI Project Size 148,784 SF
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
	BUILDING A COST SUMMARY			
02	**SITEWORK & DEMOLITION**		$ 2.74	$ 408,199
03	**CONCRETE**		$ 7.81	$ 1,162,411
04	**MASONRY**		$ 12.69	$ 1,887,502
05	**METALS**		$ 15.30	$ 2,276,729
06	**WOODS & PLASTICS**		$ 0.31	$ 46,124
07	**THERMAL & MOISTURE PROTECTION**		$ 11.14	$ 1,658,060
08	**DOORS & WINDOWS**		$ 12.44	$ 1,851,401
09	**FINISHES**		$ 26.95	$ 4,009,183
10	**SPECIALTIES**		$ 1.65	$ 245,494
11	**EQUIPMENT**		$ 2.81	$ 418,275
12	**FURNISHINGS**		$ 0.93	$ 137,633
14	**CONVEYING SYSTEMS**		$ 2.22	$ 330,000
15	**MECHANICAL**		$ 30.27	$ 4,504,383
16	**ELECTRICAL**		$ 18.50	$ 2,752,504
	SUBTOTAL		$ 145.77	21,687,898
	GENERAL CONDITIONS	5%	$ 7.29	1,084,395
	OVERHEAD & PROFIT	4%	$ 5.83	867,516
	DESIGN CONTINGENCY	10%	$ 14.58	2,168,790
	TOTALS		$ 173.46	$ 25,808,599

PROJECT ESTIMATE CONSTRUCTION CONTROL CORPORATION 3/19/2010

PROJECT NAME……..HONORS HOUSING PROJECT
LOCATION……..SALT LAKE CITY, UTAH
ARCHITECT……POLLARD/SASAKI Project Size 148,784 SF
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
02	**SITEWORK & DEMOLITION**			
	Earthwork			
	Site Clearing	20459 SF	$ 0.59	$ 12,071
	Building Excavation	6062 CY	$5.00	$ 30,310
	Backfill & Compaction	3031 CY	$9.65	$ 29,249
	Building Grading	20459 SF	$ 0.39	$ 7,979
	Building Gravel	400 TNS	$ 20.65	$ 8,262
	Remove Excess Soil	3031 CY	$ 7.00	$ 21,217
	Subtotal for Earthwork			**$ 109,087**
	Site Utilities- In Sitework			
	Site Concrete- In Sitework			
	Asphalt Paving- In Sitework			
	Landscaping- In Sitework			
	Plaza Landscaping	13596 SF	$ 22.00	**$ 299,112**
	TOTAL SITEWORK & DEMOLITION			**$ 408,199**
03	**CONCRETE**			
	Continuous Footings	160 CY	$ 275.00	$ 43,960
	Spot Footings	160 EA	$ 285.00	$ 45,558
	Foundation Wall 12"	15320 SF	$ 17.68	$ 270,858
	Slab on Grade	20459 SF	$ 3.45	$ 70,584
	Topping Slab- 10" Overall	128325 SF	$ 5.70	$ 731,453
	TOTAL CONCRETE			**$ 1,162,411**
04	**MASONRY**			
	CMU at Stair Enclosure	6720 SF	$ 15.28	$ 102,682
	Brick Veneer at exterior	111551 SF	$ 16.00	$ 1,784,821
	TOTAL MASONRY			**$ 1,887,502**
05	**METALS**			
	Miscellaneous Steel	148784 SF	$ 0.38	$ 56,538
	6" epic deck w/ shoring	128325 SF	$ 6.35	$ 814,864
	Metal Roof Deck	24593 SF	$ 1.95	$ 47,956
	Floor Structure 4#/SF	513300 LB	$ 1.55	$ 795,615
	Roof Structure- 5#/SF	122965 LB	$ 1.55	$ 190,596
	Concrete Filled Stair Pans	4320 SF	$ 59.00	$ 254,880
	Free Standing Railing	612 LF	$ 125.00	$ 76,500
	Wall Mounted Handrail	612 LF	$ 65.00	$ 39,780
	TOTAL METALS			**$ 2,276,729**
06	**WOOD & PLASTICS**			
	Carpentry:			
	Wood Plates & Blocking	148784 SF	$0.31	$ 46,124
	Subtotal for Carpentry			**$ 46,124**
	Millwork:			
	Unit Vanity w/Plam top	840 LF	$185.00	$ 155,400
	Kitchen Base Cabinet	1008 LF	$195.00	$ 196,560
	Kitchen Wall Hung	1224 LF	$155.00	$ 189,720
	Other Millwork	148784 SF	$0.90	$ 133,906
	Subtotal for Millwork			**$ 675,586**

PROJECT ESTIMATE — CONSTRUCTION CONTROL CORPORATION — 3/19/2010

PROJECT NAME……..HONORS HOUSING PROJECT
LOCATION……..SALT LAKE CITY, UTAH
ARCHITECT……POLLARD/SASAKI — Project Size 148,784 SF
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
	TOTAL WOOD & PLASTICS			**$ 721,710**
07	**THERMAL & MOISTURE PROTECTION**			
	R-19 Insulation at Exterior Walls	120596 SF	$0.72	$ 86,830
	3" Rigid at Building Exterior	120596 SF	$2.95	$ 355,758
	R-19 Insulation at Floor Structure	128325 SF	$0.72	$ 92,394
	Rigid Roof Insulation	24593 SF	$2.55	$ 62,712
	Sound Batt	394539 SF	$0.48	$ 189,379
	Wall Sheathing	111551 SF	$1.65	$ 184,060
	Vapor Barrier	111551 SF	$1.25	$ 139,439
	Roof Garden	3000 SF	$15.00	$ 45,000
	Single Ply membrane	24593 SF	$2.65	$ 65,171
	Soffit	4134 SF	$30.00	$ 124,020
	Metal Wall Cap	1278 LF	$7.65	$ 9,777
	Building Fireproofing	148784 SF	$1.65	$ 245,494
	Fire Stopping/ Caulking	148784 SF	$0.18	$ 26,781
	Caulking & Sealants	148784 SF	$0.21	$ 31,245
	TOTAL THERMAL & MOISTURE PROTECTION			**$ 1,658,060**
08	**DOORS & WINDOWS**			
	Unit Entry Doors	87 EA	$900.00	$ 78,300
	Unit Interior Doors	523 EA	$700.00	$ 366,100
	Sliding Doors at Closet	316 EA	$465.00	$ 146,940
	Other Doors	80 EA	$900.00	$ 72,000
	Exterior Glazing (30% of Exterior)	36179 SF	$32.50	$ 1,175,811
	Interior Glazing	500 SF	$24.50	$ 12,250
	TOTAL DOORS & WINDOWS			**$ 1,851,401**
09	**FINISHES**			
	Exterior Metal Stud Framing	120596 SF	$3.20	$ 385,907
	Interior Metal Stud Partitions	394539 SF	$2.25	$ 887,712
	Gyp Board Walls	909674 SF	$1.30	$ 1,182,576
	Suspended Gyp Ceiling	113504 SF	$3.60	$ 408,614
	Ceramic Wall Tile	8250 SF	$5.00	$ 41,250
	Ceramic Tile Base	2646 LF	$3.00	$ 7,938
	Kitchen/ Restroom Flooring	24480 SF	$5.00	$ 122,400
	Carpet	13077 SY	$22.00	$ 287,696
	Café Area Flooring	3710 SF	$10.65	$ 39,512
	Community Area Flooring	2900 SF	$3.33	$ 9,657
	Rubber Base	52395 LF	$1.35	$ 70,733
	Interior Window Sill	900 LF	$12.50	$ 11,250
	Paint/ Stain Doors & Frames	926 EA	$65.00	$ 60,190
	Paint Interior Gyp	909674 SF	$0.46	$ 418,450
	Paint Interior Concrete Deck Ceiling	35280 SF	$0.59	$ 20,815
	Paint Interior Ceiling	113504 SF	$0.48	$ 54,482
	TOTAL FINISHES			**$ 4,009,183**
10	**SPECIALTIES**			
	Specialties	148784 SF	$1.65	$ 245,494
	TOTAL SPECIALTIES			**$ 245,494**
11	**EQUIPMENT**			
	Microwave Hood	69 EA	$375.00	$ 25,875
	Dishwasher	69 EA	$500.00	$ 34,500
	Refridgerator	69 EA	$950.00	$ 65,550
	Oven / Range	69 EA	$650.00	$ 44,850

PROJECT ESTIMATE — CONSTRUCTION CONTROL CORPORATION — 3/19/2010

PROJECT NAME……..HONORS HOUSING PROJECT
LOCATION……..SALT LAKE CITY, UTAH
ARCHITECT……POLLARD/SASAKI — Project Size 148,784 SF
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
	Commercial Kitchen Equipment	1500 SF	$165.00	$ 247,500
	TOTAL EQUIPMENT			**$ 418,275**
12	**FURNISHINGS**			
	Walk-Off Mats	400 SF	$13.95	$ 5,580
	Blinds	36179 SF	$3.65	$ 132,053
	TOTAL EQUIPMENT			**$ 137,633**
14	**CONVEYING SYSTEMS**			
	Passenger Elevator- 6 Stop	2 EA	$165,000.00	$ 330,000
	TOTAL CONVEYING SYSTEMS			**$ 330,000**
15	**MECHANICAL**			
	HVAC			
	4 Pipe Fan Coil System	148784 SF	$ 17.00	$ 2,529,328
	Chilled Water Piping	1000 LF	$ 200.00	$ 200,000
	Heat Exchanger	2 EA	$ 25,000.00	$ 50,000
	Hot Water Piping	1000 LF	$ 498.00	$ 498,000
	Subtotal for HVAC			**$ 3,277,328**
	Fire Protection:	148784 SF	$2.45	**$ 364,521**
	Plumbing			
	Toilets	170 EA	$580.00	$ 98,600
	Counter Lavs	178 EA	$395.00	$ 70,310
	Shower	162 EA	$565.00	$ 91,530
	Two Compartment Sink w/ Disposal	69 EA	$600.00	$ 41,400
	Floor Drains	80 EA	$95.00	$ 7,600
	Roof Drains	28 EA	$155.00	$ 4,340
	Roof Drain Piping	1680 LF	$14.65	$ 24,612
	Domestic Boiler & Pumps	1 LS	$80,000.00	$ 80,000
	Solar Hot Water Panels	112 EA	$1,375.00	$ 154,000
	Storage Tanks	1 EA	$5,600.00	$ 5,600
	Pumps	3 EA	$2,650.00	$ 7,950
	Heat Exchanger	1 EA	$7,500.00	$ 7,500
	Supply Piping	10544 LF	$8.65	$ 91,206
	Waste/Vent Piping	7064 LF	$14.65	$ 103,495
	Other Plumbing	148784 SF	$0.50	$ 74,392
	Subtotal for Plumbing			**$ 862,534**
	TOTAL MECHANICAL			**$ 4,504,383**
16	**ELECTRICAL**			
	Service & Distribution:	148784 SF	$3.95	$ 587,697
	Power:	148784 SF	$1.95	$ 290,129
	Lighting:	148784 SF	$5.65	$ 840,630
	Telecommunication System:	148784 SF	$1.35	$ 200,858
	Fire/Smoke System:	148784 SF	$1.35	$ 200,858
	Special Systems:	148784 SF	$4.25	$ 632,332
	TOTAL ELECTRICAL			**$ 2,752,504**

C.03 SITEWORK COSTS

by Construction Control Corporation

PROJECT ESTIMATE CONSTRUCTION CONTROL CORPORATION 3/19/2010

PROJECT NAME……..…..HONORS HOUSING PROJECT **SITEWORK**
LOCATION……..……..SALT LAKE CITY, UTAH
ARCHITECT…….……..…POLLARD/SASAKI SITE AREA 148,572 SF
STAGE OF DESIGN……PROGRAMMING

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
	Demolition			
	Building Demolition- Not Included			
	Subtotal for Demolition			
	Earthwork			
	Site Clearing	148572 SF	$ 0.59	$ 87,657
	Site Grading	148572 SF	$ 0.39	$ 57,943
	Mass Site Excavation	148572 SF	$ 0.75	$ 111,429
	Subtotal for Earthwork			**$ 257,030**
	Site Utilities			
	Storm Drainage	148572 LS	$ 0.75	$ 111,429
	Electrical Ductbank	1000 LF	$ 398.00	$ 398,000
	Utilities- Allowance	1 LS	$ 500,000.00	$ 500,000
	Subtotal for Site Utilities			**$ 1,009,429**
	Site Concrete			
	Sidewalk	41517 SF	$ 3.55	$ 147,385
	Retaining Walls	1 Allow	$ 100,000.00	$ 100,000
	Curb & Gutter	2200 LF	$ 17.68	$ 38,896
	Stairs	2500 SF	$ 19.68	$ 49,200
	Subtotal for Site Concrete			**$ 335,481**
	Site Lighting	148572 SF	$ 1.00	**$ 148,572**
	Asphalt Paving			
	Asphalt Paving	30193 SF	$ 1.55	$ 46,799
	Striping	30193 SF	$ 0.03	$ 906
	Subtotal for Asphalt Paving			**$ 47,705**
	Site Specialties	148572 LS	$ 1.00	**$ 148,572**
	Landscaping	60862 SF	$ 7.00	**$ 426,034**
	SUBTOTAL		**$ 15.97**	**2,372,823**
	GENERAL CONDITIONS	**5%**	**$ 0.80**	**118,641**
	OVERHEAD & PROFIT	**4%**	**$ 0.64**	**94,913**
	DESIGN CONTINGENCY	**10%**	**$ 1.60**	**237,282**
	TOTALS		**$ 19.01**	**$ 2,823,659**

C.04 PARKING PODIUM COSTS

by Construction Control Corporation

PROJECT ESTIMATE CONSTRUCTION CONTROL CORPORATION 3/19/2010

PROJECT NAME……..…..HONORS HOUSING PROJECT **PARKING PODIUM SINGLE LEVEL**
LOCATION……..……..SALT LAKE CITY, UTAH Stalls 87
ARCHITECT…….……..…POLLARD/SASAKI SF 33060
STAGE OF DESIGN……PROGRAMMING Stalls/SF 380
Levels 1

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
	BUILDING COST SUMMARY			
02	**SITEWORK & DEMOLITION**		**$ 3.06**	**$ 101,094**
03	**CONCRETE**		**$ 39.68**	**$ 1,311,847**
04	**MASONRY**		**$ 1.50**	**$ 49,590**
05	**METALS**		**$ 1.81**	**$ 59,852**
06	**WOODS & PLASTICS**		**$ -**	**$ -**
07	**THERMAL & MOISTURE PROTECTION**		**$ 3.82**	**$ 126,170**
08	**DOORS & WINDOWS**		**$ 0.56**	**$ 18,500**
09	**FINISHES**		**$ 0.47**	**$ 15,635**
10	**SPECIALTIES**		**$ 0.30**	**$ 10,000**
11	**EQUIPMENT**		**$ 0.76**	**$ 25,000**
14	**CONVEYING EQUIPMENT**		**$ 0.91**	**$ 30,000**
15	**MECHANICAL**		**$ 4.47**	**$ 147,861**
16	**ELECTRICAL**		**$ 5.90**	**$ 195,054**
	SUBTOTAL		**$ 63.24**	**2,090,603**
	GENERAL CONDITIONS- 3 phases	**5%**	**$ 3.16**	**104,530**
	OVERHEAD & PROFIT	**4%**	**$ 2.53**	**83,624**
	DESIGN CONTINGENCY	**10%**	**$ 6.32**	**209,060**
	TOTALS	**Cost/SF**	**$ 75.25**	**$ 2,487,817**
		Cost/Stall	**$ 28,595.60**	

PROJECT ESTIMATE — CONSTRUCTION CONTROL CORPORATION — 3/19/2010

PROJECT NAME……..…..HONORS HOUSING PROJECT **PARKING PODIUM SINGLE LEVEL**
LOCATION……..……..SALT LAKE CITY, UTAH — Stalls 87
ARCHITECT……..……POLLARD/SASAKI — SF 33060
STAGE OF DESIGN……PROGRAMMING — Stalls/SF 380
Levels 1

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
02	**SITEWORK & DEMOLITION**			
	Earthwork			
	Site Clearing	33060 SF	$ 0.29	$ 9,587
	Building Excavation	4898 CY	$5.00	$ 24,489
	Backfill & Compaction	2449 CY	$9.65	$ 23,632
	Building Grading	33060 SF	$ 0.39	$ 12,893
	Building Gravel	647 TNS	$ 20.65	$ 13,350
	Remove Excess Soil	2449 CY	$ 7.00	$ 17,142
	Subtotal for Earthwork			**$ 101,094**
	TOTAL SITEWORK & DEMOLITION			**$ 101,094**
03	**CONCRETE**			
	Continuous Footings/ Grade Beam	116 CY	$ 275.00	$ 31,778
	Spot Footings	116 EA	$ 285.00	$ 32,933
	Columns	169 CY	$ 460.00	$ 77,559
	Foundation Wall 12"	9360 SF	$ 19.68	$ 184,205
	Slab on Grade at Parking	33060 SF	$ 4.25	$ 140,505
	PT Slab and beams	1837 CY	$ 460.00	$ 844,867
	TOTAL CONCRETE			**$ 1,311,847**
04	**MASONRY**			
	8" CMU	3306 SF	$ 15.00	$ 49,590
	TOTAL MASONRY			**$ 49,590**
05	**METALS**			
	Metal Stair Pan	480 SF	$ 59.00	$ 28,320
	Wall Mounted Railings-	68 LF	$ 65.00	$ 4,420
	Free Standing Railings-	68 LF	$ 125.00	$ 8,500
	Metal Grating at Garage Openings	80 SF	$ 32.65	$ 2,612
	Miscellaneous Metals	5000 LB	$ 3.20	$ 16,000
	TOTAL METALS			**$ 59,852**
06	**WOOD & PLASTICS**			
	TOTAL WOOD & PLASTICS			**$ -**
07	**THERMAL & MOISTURE PROTECTION**			
	Foundation Waterproofing	4680 SF	$ 2.65	$ 12,402
	Waterproofing at Plaza	13596 SF	$ 8.00	$ 108,768
	Caulking & Sealants	1 LS	$ 5,000.00	$ 5,000
	TOTAL THERMAL & MOISTURE PROTECTION			**$ 126,170**
08	**DOORS & WINDOWS**			
	Interior Doors	10 EA	$ 1,190.00	$ 11,900
	Double Hollow Metal Doors	4 EA	$ 1,650.00	$ 6,600
	TOTAL DOORS & WINDOWS			**$ 18,500**
09	**FINISHES**			
	Sealed Concrete at Parking	33060 SF	$ 0.39	$ 12,893
	Paint/ Stain New Doors/ Frames	14 SF	$ 125.00	$ 1,750
	Parking Area Striping	33060 SF	$ 0.03	$ 992
	TOTAL FINISHES			**$ 15,635**

PROJECT ESTIMATE — CONSTRUCTION CONTROL CORPORATION — 3/19/2010

PROJECT NAME……..…..HONORS HOUSING PROJECT **PARKING PODIUM SINGLE LEVEL**
LOCATION……..……..SALT LAKE CITY, UTAH — Stalls 87
ARCHITECT……..……POLLARD/SASAKI — SF 33060
STAGE OF DESIGN……PROGRAMMING — Stalls/SF 380
Levels 1

CSI #	DESCRIPTION	UNIT QTY	UNIT COST	
10	**SPECIALTIES**			
	Signage	1 LS	$ 10,000.00	$ 10,000
	TOTAL SPECIALTIES			**$ 10,000**
11	**EQUIPMENT**			
	Parking Garage Equipment	1 Allow	$ 25,000.00	$ 25,000
	TOTAL EQUIPMENT			**$ 25,000**
14	**CONVEYING EQUIPMENT**			
	Passenger Elevator- Additional Stop	2 EA	$ 15,000.00	**$ 30,000**
	TOTAL CONVEYING EQUIPMENT			**$ 30,000**
15	**MECHANICAL**			
	HVAC			
	Parking Area Ventilation	22150 SF	$ 1.75	$ 38,763
	Subtotal for HVAC			**$ 38,763**
	Fire Protection	33060 SF	$ 2.95	**$ 97,527**
	Plumbing	33060 SF	$ 0.35	**$ 11,571**
	TOTAL MECHANICAL			**$ 147,861**
16	**ELECTRICAL**			
	Service & Distribution	33060 SF	$ 2.65	**$ 87,609**
	Power	33060 SF	$ 0.65	**$ 21,489**
	Lighting	33060 SF	$ 1.65	**$ 54,549**
	Special Systems	33060 SF	$ 0.95	**$ 31,407**
	TOTAL ELECTRICAL			**$ 195,054**

appendix d mechanical

d.01 COMPLIANCE REPORT

By Colvin Engineering

Performance Rating Method Compliance Report (LEED NCv3.0)		
Project Name:	Honors Housing @ Legacy Bridge (Univ. of Utah)	
Project Address:	Univ of Utah Campus	Date: March 24, 2010
Designer of Record:	Pollard Architects	Telephone: (801) 531-1133
City, State:	Salt Lake City, UT	
Principal Heating Source:	Fossil Fuel	
Weather Data:	UT_SLC_Intl_A_UTAH.TM3	
Climate Zone	5B	

Space Summary			
Building Use	**Conditioned Area (sf)**	**Unconditioned Area (sf)**	**Total (sf)**
1. Dormatory - Living Quarters	108,628	0	108,628
2. Corridor/Transition	12,656	0	12,656
3. Lobby	4,977	0	4,977
4. Conf./Mtg/Multipurpose	12,083	0	12,083
5. Electrical/Mechanical	8,580	0	8,580
6. Retail (Sales Area)	2,150	0	2,150
Building Total	149,074	0	149,074
Advisory Messages			
	Proposed Building Design	Baseline Building	Difference
Unmet Heating Hours	0	1	-1
Unmet Cooling Hours	17	157	-140
Number of Warnings	0	0	0
Number of Errors	0	0	0
Number of Defaults Overridden	0	0	0
Description of differences between the Proposed and Baseline Buildings is attached			

Additional Building Information	
Number of Floors	6
Simulation Program	Trane Trace 700 v6.2.5
Utility Rate: Electricity	Rocky Mountain Power Schedule 6
Utility Rate: Natural Gas	Questar Gas GS-1
Utility Rate: High-Temp Hot Water	N/A
Utility Rate: Chilled Water	N/A
Utility Rate: Other	N/A

Performance Rating Method Compliance Report		
Comparison of Proposed Design vs. Baseline Design energy Model Inputs		
Building Element	**Proposed Design Input**	**Baseline Design Input**
Envelope		
Above Grade Wall Construction	Mass Construction, Cement Exterior, 2" Rigid c.i., 4" Furred Stud-24" o.c. with R-13.0 Batt Insulation, 5/8" Gyp. Board; Assembly U-Factor = 0.054	Steel-Framed, Stucco Exterior, R-13.0 Batt Insulation + R-7.5 c.i., 6" Stud-16" o.c., 5/8" Gyp. Board; Assembly U-Factor = 0.064
Below Grade Wall Construction	N/A	N/A
Roof Construction	Steel Truss Roof. R-20 c.i. entirely above deck. EDPM surface, reflectivity = 0.3.	Steel Truss Roof. R-20 c.i. entirely above deck. EDPM surface, reflectivity = 0.3.
Exterior Floor construction	N/A	N/A
Slab-on-Grade Construction	6" Unheated concrete with R-10, vertical perimeter insulation, from top of grade down, to top of footing.	Same as Proposed Design.
Window-to-Gross Wall Ratio	35.10%	Same as Proposed Design.
Fenestration Type(s)	Double-pane, metal frame, tinted, Low-E glass with thermal breaks.	Double-pane, metal frame, tinted, Low-E glass with thermal breaks.
Fenestration Assembly U-factor	0.46	0.55
Fenestration Assembly SHGC	0.37	0.40
Fenestration Visible Light Trans.	0.58	0.44
Fixed Shading Devices	None	N/A
Automated Moveable Shades	None	N/A
Electrical Systems & Process Loads		
Ambient Lighting Power Density & Lighting Design Description	See attached table for Proposed and Baseline Design's Lighting Power Density and Receptacle Equipment Loads.	See attached table for Proposed and Baseline Design's Lighting Power Density and Receptacle Equipment Loads.
Process Lighting	None	Same as Proposed Design.
Lighting Occupant Sensor Controls	Each thermal zone for regularly occupied rooms is modeled with lighting occupant sensors => 10% LPD credit, per Table G3.2	N/A
Daylighting Controls	Photosensors continuously controlling 100% lighting fixtures to 50fc for building use categories Lobby and Conf./Mtg/Multipurpose.	N/A
Exterior Lighting Power (Tradable)	None	Same as Proposed Design.
Exterior Lighting Power (Non-Tradable)	None	Same as Proposed Design.
Receptacle Equipment	See attached table for Proposed and Baseline Design's Lighting Power Density and Receptacle Equipment Loads.	See attached table for Proposed and Baseline Design's Lighting Power Density and Receptacle Equipment Loads.
Elevators (Escalators)	Included with "Other Process Loads"	Same as Proposed Design.
Refrigeration Equipment	None	Same as Proposed Design.
Other Process Loads	None	Same as Proposed Design.

Building Element	Proposed Design Input	Baseline Design Input
Mechanical & Plumbing Systems		
HVAC System Types	Single-zone four-pipe fan coils. Hydronic heating and cooling loops.	Table G3.1.1A System #1 - PTAC. Packaged terminal air conditioners - DX cooling and hot water coil heating.
Design Supply Air Δ Temp	20˚F	20˚F
Supply Fan Control	Supply: Constant Volume Exhaust: Constant Volume	Supply: Constant Volume Exhaust: Constant Volume
Fan Power	Supply = 0.000267 kw/cfm Exhaust = 0.000294 kw/cfm	Per G3.1.2.9 Supply = 0.000291 kw/cfm Exhaust = 0.000316 kw/cfm
Economizer Control	None	Per G3.1.2.6, OSA economizers shall not be included in Baseline HVAC Systems 1 & 2.
Demand Control Ventilation	None	Same as Proposed Design.
Unitary Equip. Efficiency (CLG)	N/A	Per Table 6.8.1D PTAC EER = 10.62
Unitary Equip. Efficiency (HTG)	N/A	N/A
Chiller Type, Efficiency & Capacity	Two 125-ton, air cooled chillers @ 1.134 kw/ton.	N/A
Cooling Tower	N/A	N/A
Boiler Efficiency	Two 1,200 Mbh forced draft, condensing boilers @ 93% Efficiency.	Per G3.1.3.2 & Table 6.8.1F. Two equally sized natural draft boilers @ 80% Efficiency.
CHW Loop & Pump Parameters	Primary pumping with VSD pump control @ 12.4 W/gpm, full load. Maximum 10˚F loop reset based on return water temperature.	N/A
CDW Loop & Pump Parameters	N/A	N/A
HTW Loop & Pump Parameters	Primary pumping with VFD pump control. Pump power is defined @ 18.3 W/gpm.	Per G3.1.3.3-4-5. 130degF entering & 180degF leaving water temperature with reset based on outdoor dry bulb temperature. Pumping modeled as primary loop only with continuous variable flow @ 19 W/gpm.
Domestic Hot Water System(s)*	Stand-alone natural gas hot water heater @ 74 gph maximum hourly demand. No recirculation.	Stand-alone natural gas hot water heater @ 223 gph maximum hourly demand. No recirculation.
* To represent the expected savings due to the energy efficiency measure of solar hot water heating, the domestic hot water demand was reduced by an appropriate percentage (66%). Rating authorities will require an exceptional calculation for solar hot water heating.		

d.02 SYSTEM CHECKSUMS

By Colvin Engineering

PTAC — **Packaged Terminal Air Conditioner**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 89 / 59 / 38

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	32,540	32,540	1
Glass Solar	1,934,665	0	1,934,665	53
Glass/Door Cond	121,407	0	121,407	3
Wall Cond	94,652	50,890	145,542	4
Partition/Door	0		0	0
Floor	335		335	0
Adjacent Floor	0	0	0	0
Infiltration	123,284		123,284	3
Sub Total ==>	2,274,343	83,429	2,357,773	64
Internal Loads				
Lights	343,957	89,512	433,469	12
People	209,857	0	209,857	6
Misc	448,684	0	448,684	12
Sub Total ==>	1,002,497	89,512	1,092,010	30
Ceiling Load	30,949	-30,949	0	0
Ventilation Load	0	0	90,318	2
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	30,814		30,814	1
Exhaust Heat		-14,295	-14,295	0
Sup. Fan Heat			100,298	3
Ret. Fan Heat		1	1	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	3,338,604	127,699	3,656,919	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,954,463	60
Glass/Door Cond	97,691	3
Wall Cond	82,485	3
Partition/Door	0	0
Floor	403	0
Adjacent Floor	0	0
Infiltration	93,133	3
Sub Total ==>	2,228,175	68
Internal Loads		
Lights	363,481	11
People	145,872	4
Misc	473,597	14
Sub Total ==>	982,950	30
Ceiling Load	31,284	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	30,814	1
Grand Total ==>	3,273,223	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 13

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-71,653	2.85
Glass Solar	0	0	0.00
Glass/Door Cond	-985,598	-985,598	39.21
Wall Cond	-138,843	-211,276	8.41
Partition/Door	0	0	0.00
Floor	-28,933	-28,933	1.15
Adjacent Floor	0	0	0
Infiltration	-824,544	-824,544	32.81
Sub Total ==>	-1,977,917	-2,122,002	84.43
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	36,603	36,603	-1.46
Sub Total ==>	36,603	36,603	-1.46
Ceiling Load	-30,208	0	0.00
Ventilation Load	0	-442,147	17.59
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		14,162	-0.56
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,971,521	-2,513,384	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	82.1
Ra Plenum	75.7	69.4
Return	75.7	69.4
Ret/OA	76.3	66.7
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.4	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	169,250	169,250
Terminal	169,250	169,250
Main Fan	169,250	169,250
Sec Fan	0	0
Nom Vent	7,994	7,994
AHU Vent	7,994	7,994
Infil	14,907	14,907
MinStop/Rh	0	0
Return	183,888	184,158
Exhaust	22,631	22,901
Rm Exh	270	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	4.7	4.7
cfm/ft²	1.14	1.14
cfm/ton	555.39	
ft²/ton	489.18	
Btu/hr·ft²	24.53	-16.89
No. People	738	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	gr/lb	Leave DB/WB/HR °F	°F	gr/lb
Main Clg	304.7	3,656.9	3,575.3	169,250	76.8	53.7	34.1	55.0	44.4	32.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	304.7	3,656.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	149,074		
Part	0		
Int Door	0		
ExFlr	1,676		
Roof	26,405	0	0
Wall	89,929	31,406	35
Ext Door	288	288	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2,518.5	169,250	66.7	82.1
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2,518.5			

4-pipe fan coils North — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 89 / 59 / 38

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	16,410	16,410	1
Glass Solar	459,336	0	459,336	38
Glass/Door Cond	62,495	0	62,495	5
Wall Cond	22,000	9,872	31,872	3
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	127,970		127,970	11
Sub Total ==>	671,800	26,282	698,082	58
Internal Loads				
Lights	91,389	22,810	114,199	10
People	75,569	0	75,569	6
Misc	219,341	0	219,341	18
Sub Total ==>	386,299	22,810	409,109	34
Ceiling Load	11,483	-11,483	0	0
Ventilation Load	0	0	56,433	5
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-5,212	-5,212	0
Sup. Fan Heat			35,605	3
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,069,582	32,398	1,194,018	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	697,316	60
Glass/Door Cond	21,674	2
Wall Cond	14,641	1
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	37,075	3
Sub Total ==>	770,705	66
Internal Loads		
Lights	108,961	9
People	60,607	5
Misc	210,852	18
Sub Total ==>	380,419	33
Ceiling Load	10,835	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	1,161,960	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 13

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-29,715	3.08
Glass Solar	0	0	0.00
Glass/Door Cond	-313,891	-313,891	32.57
Wall Cond	-57,342	-83,592	8.67
Partition/Door	0	0	0.00
Floor	-20,767	-20,767	2.15
Adjacent Floor	0	0	0
Infiltration	-353,699	-353,699	36.70
Sub Total ==>	-745,698	-801,664	83.18
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	10,686	10,686	-1.11
Sub Total ==>	10,686	10,686	-1.11
Ceiling Load	-13,413	0	0.00
Ventilation Load	0	-178,903	18.56
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		6,164	-0.64
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-748,426	-963,717	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	83.0
Ra Plenum	75.6	69.3
Return	75.6	69.3
Ret/OA	76.3	66.3
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.4	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	60,082	60,082
Terminal	60,082	60,082
Main Fan	60,082	60,082
Sec Fan	0	0
Nom Vent	3,234	3,234
AHU Vent	3,234	3,234
Infil	6,395	6,395
MinStop/Rh	0	0
Return	66,357	66,477
Exhaust	9,509	9,629
Rm Exh	120	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	5.4	5.4
cfm/ft²	0.94	0.94
cfm/ton	603.83	
ft²/ton	642.68	
Btu/hr·ft²	18.67	-15.16
No. People	300	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	99.5	1,194.0	1,115.6	60,082	76.9	52.1	27.4	55.0	42.8	27.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	99.5	1,194.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	63,947		
Part	0		
Int Door	0		
ExFlr	499		
Roof	10,962	0	0
Wall	39,326	11,879	30
Ext Door	144	144	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-969.2	60,082	66.3	83.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-969.2			

4-pipe fan coils South — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 18
Outside Air: OADB/WB/HR: 89 / 59 / 38

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	23,053	23,053	1
Glass Solar	800,823	0	800,823	45
Glass/Door Cond	101,987	0	101,987	6
Wall Cond	23,690	13,290	36,980	2
Partition/Door	0		0	0
Floor	347		347	0
Adjacent Floor	0	0	0	0
Infiltration	157,550		157,550	9
Sub Total ==>	1,084,397	36,342	1,120,739	62
Internal Loads				
Lights	135,577	38,433	174,010	10
People	105,860	0	105,860	6
Misc	279,746	0	279,746	16
Sub Total ==>	521,182	38,433	559,616	31
Ceiling Load	16,086	-16,086	0	0
Ventilation Load	0	0	69,651	4
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-7,565	-7,565	0
Sup. Fan Heat			54,702	3
Ret. Fan Heat		1	1	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,621,666	51,125	1,797,143	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,134,557	64
Glass/Door Cond	56,240	3
Wall Cond	15,036	1
Partition/Door	0	0
Floor	411	0
Adjacent Floor	0	0
Infiltration	53,326	3
Sub Total ==>	1,259,570	71
Internal Loads		
Lights	155,558	9
People	86,741	5
Misc	269,204	15
Sub Total ==>	511,503	29
Ceiling Load	14,121	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,785,194	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 13

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-41,891	3.08
Glass Solar	0	0	0.00
Glass/Door Cond	-513,171	-513,171	37.78
Wall Cond	-59,831	-94,722	6.97
Partition/Door	0	0	0.00
Floor	-8,146	-8,146	0.60
Adjacent Floor	0	0	0
Infiltration	-470,845	-470,845	34.67
Sub Total ==>	-1,051,993	-1,128,775	83.11
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	25,918	25,918	-1.91
Sub Total ==>	25,918	25,918	-1.91
Ceiling Load	-16,639	0	0.00
Ventilation Load	0	-263,244	19.38
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		7,917	-0.58
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,042,715	-1,358,184	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	81.7
Ra Plenum	75.6	69.4
Return	75.6	69.4
Ret/OA	76.3	66.5
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.4	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	92,308	92,308
Terminal	92,308	92,308
Main Fan	92,308	92,308
Sec Fan	0	0
Nom Vent	4,759	4,759
AHU Vent	4,759	4,759
Infil	8,513	8,513
MinStop/Rh	0	0
Return	100,666	100,821
Exhaust	13,117	13,272
Rm Exh	155	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	5.2	5.2
cfm/ft²	1.08	1.08
cfm/ton	616.37	
ft²/ton	568.41	
Btu/hr·ft²	21.11	-15.95
No. People	438	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	gr/lb	Leave DB/WB/HR °F	°F	gr/lb
Main Clg	149.8	1,797.1	1,714.1	92,308	76.9	52.7	29.7	55.0	43.4	29.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	149.8	1,797.1								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	85,127		
Part	0		
Int Door	0		
ExFlr	1,177		
Roof	15,443	0	0
Wall	50,602	19,527	39
Ext Door	144	144	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-1,358.2	92,308	66.5	81.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-1,358.2			

d.03 MONTHLY ENERGY CONSUMPTION - ASHRAE BASELINE

By Colvin Engineering

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 1	**ASHRAE 90_1-2007 Baseline**												
Electric													
On-Pk Cons. (kWh)	150,808	139,453	159,567	164,195	181,667	198,576	222,452	215,954	188,599	170,938	150,311	150,513	2,093,034
On-Pk Demand (kW)	410	412	415	445	469	505	543	533	498	418	412	410	543
Gas													
On-Pk Cons. (therms)	3,728	2,689	2,046	1,610	1,353	1,224	1,246	1,248	1,276	1,564	2,482	3,724	24,189
On-Pk Demand (therms/hr)	21	20	15	10	7	4	2	4	7	8	16	19	21
Water													
Cons. (1000gal)	12	9	7	5	1	0	0	0	1	3	9	12	59

Energy Consumption		
Building	64,145	Btu/(ft2-year)
Source	160,852	Btu/(ft2-year)
Floor Area	149,074	ft2

Environmental Impact Analysis	
CO2	5,942,049 lbm/year
SO2	5,377 gm/year
NOX	10,717 gm/year

d.04 MONTHLY ENERGY CONSUMPTION - PROPOSED LOCAL COOL / HEAT

By Colvin Engineering

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 3	**Proposed Local Cool / Heat**												
Electric													
On-Pk Cons. (kWh)	132,674	124,863	146,394	155,602	177,599	197,992	223,506	216,203	184,095	160,880	134,578	132,438	1,986,824
On-Pk Demand (kW)	339	437	366	474	519	557	589	580	540	414	357	339	589
Gas													
On-Pk Cons. (therms)	2,583	1,703	1,161	811	523	425	415	417	468	745	1,540	2,589	13,383
On-Pk Demand (therms/hr)	16	14	8	7	4	3	1	2	5	7	11	14	16
Water													
Cons. (1000gal)	9	7	7	5	2	0	0	0	1	4	7	9	52

Energy Consumption		
Building	54,465	Btu/(ft2-year)
Source	145,926	Btu/(ft2-year)
Floor Area	149,074	ft2

Environmental Impact Analysis	
CO2	5,045,316 lbm/year
SO2	4,565 gm/year
NOX	9,099 gm/year

d.05 MONTHLY UTILITY COSTS - ASHRAE BASELINE - ROTATION: 0˚, 90˚

By Colvin Engineering

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative 1 - 0° Rotation													
Electric													
On-Pk Cons. ($)	4,401	4,072	4,655	4,790	5,740	6,271	7,022	6,818	5,958	4,985	4,387	4,393	63,492
On-Pk Demand ($)	4,912	4,934	4,971	5,332	7,000	7,548	8,106	7,961	7,443	5,014	4,937	4,912	73,072
Total ($):	9,313	9,006	9,627	10,122	12,740	13,819	15,129	14,779	13,401	9,999	9,324	9,305	136,564
Gas													
On-Pk Cons. ($)	2,500	1,825	1,408	984	838	765	778	779	795	958	1,691	2,497	15,820
Monthly Total ($):	11,813	10,832	11,035	11,105	13,578	14,585	15,907	15,558	14,196	10,957	11,016	11,802	152,384

Building Area = 149,074 ft²

Utility Cost Per Area = 1.02 $/ft²

Alternative 1 - 90° Rotation													
Electric													
On-Pk Cons. ($)	4,401	4,072	4,655	4,790	5,740	6,271	7,022	6,818	5,958	4,985	4,387	4,393	63,492
On-Pk Demand ($)	4,912	4,934	4,971	5,332	7,000	7,548	8,106	7,961	7,443	5,014	4,937	4,912	73,072
Total ($):	9,313	9,006	9,627	10,122	12,740	13,819	15,129	14,779	13,401	9,999	9,324	9,305	136,564
Gas													
On-Pk Cons. ($)	2,500	1,825	1,408	984	838	765	778	779	795	958	1,691	2,497	15,820
Monthly Total ($):	11,813	10,832	11,035	11,105	13,578	14,585	15,907	15,558	14,196	10,957	11,016	11,802	152,384

Building Area = 149,074 ft²

Utility Cost Per Area = 1.02 $/ft²

d.06 MONTHLY UTILITY COSTS - ASHRAE BASELINE - ROTATION: 180˚, 270˚

By Colvin Engineering

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative 1 - 180° Rotation													
Electric													
On-Pk Cons. ($)	4,401	4,072	4,655	4,790	5,740	6,271	7,022	6,818	5,958	4,985	4,387	4,393	63,492
On-Pk Demand ($)	4,912	4,934	4,971	5,332	7,000	7,548	8,106	7,961	7,443	5,014	4,937	4,912	73,072
Total ($):	9,313	9,006	9,627	10,122	12,740	13,819	15,129	14,779	13,401	9,999	9,324	9,305	136,564
Gas													
On-Pk Cons. ($)	2,500	1,825	1,408	984	838	765	778	779	795	958	1,691	2,497	15,820
Monthly Total ($):	11,813	10,832	11,035	11,105	13,578	14,585	15,907	15,558	14,196	10,957	11,016	11,802	152,384

Building Area = 149,074 ft²

Utility Cost Per Area = 1.02 $/ft²

Alternative 1 - 270° Rotation													
Electric													
On-Pk Cons. ($)	4,401	4,072	4,655	4,790	5,740	6,271	7,022	6,818	5,958	4,985	4,387	4,393	63,492
On-Pk Demand ($)	4,912	4,934	4,971	5,332	7,000	7,548	8,106	7,961	7,443	5,014	4,937	4,912	73,072
Total ($):	9,313	9,006	9,627	10,122	12,740	13,819	15,129	14,779	13,401	9,999	9,324	9,305	136,564
Gas													
On-Pk Cons. ($)	2,500	1,825	1,408	984	838	765	778	779	795	958	1,691	2,497	15,820
Monthly Total ($):	11,813	10,832	11,035	11,105	13,578	14,585	15,907	15,558	14,196	10,957	11,016	11,802	152,384

Building Area = 149,074 ft²

Utility Cost Per Area = 1.02 $/ft²

d.07 MONTHLY UTILITY COSTS - PROPOSED LOCAL COOL / HEAT

By Colvin Engineering

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative 3													
Electric													
On-Pk Cons. ($)	3,875	3,649	4,273	4,540	5,612	6,253	7,055	6,826	5,816	4,693	3,931	3,868	60,392
On-Pk Demand ($)	4,069	5,241	4,390	5,682	7,758	8,327	8,792	8,667	8,069	4,958	4,277	4,068	74,298
Total ($):	7,944	8,890	8,664	10,222	13,369	14,580	15,848	15,493	13,885	9,651	8,207	7,937	134,690
Gas													
On-Pk Cons. ($)	1,757	1,186	834	533	370	312	305	306	339	496	1,080	1,760	9,279
Monthly Total ($):	9,701	10,076	9,498	10,755	13,740	14,891	16,153	15,799	14,224	10,147	9,288	9,697	143,969

Building Area = 149,074 ft²

Utility Cost Per Area = 0.97 $/ft²

d.08 TARGET ENERGY PERFORMANCE RESULTS

By Colvin Engineering

The design achieved a rating of 75 or higher

Energy	Design	Target	Average Building
Energy Performance Rating (1-100)	75	75	50
Energy Reduction (%)	29	27	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	161	163	226
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	54	55	76
Total Annual Source Energy (kBtu)	24,049,740	24,286,261	33,683,268
Total Annual Site Energy (kBtu)	8,119,300	8,199,150	11,371,622
Total Annual Energy Cost ($)	$ 143,968	$ 145,384	$ 201,637
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	889	898	1,245
CO2-eq Emissions Reduction (%)	29%	28%	0%

Facility Information Edit

Honors Housing @ Legacy Bridge
Salt Lake City, UT 84112
United States

Facility Characteristics	Edit
Space Type	**Gross Floor Area (Sq. Ft.)**
Residence Hall/Dormitory	149,074
Total Gross Floor Area	149,074

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Estimated Design Energy			Edit
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity - Grid Purchase	MBtu	6,781	$ 19.863/MBtu
Natural Gas	MBtu	1,338	$ 6.933/MBtu

Source: Data adapted from DOE-EIA. See EPA Technical Description.

Values are 84% electricity - Grid purchase and 16% Natural Gas. The target & Average Building energy use for this facility are calculated based on fuel mix of input estimated energy use.

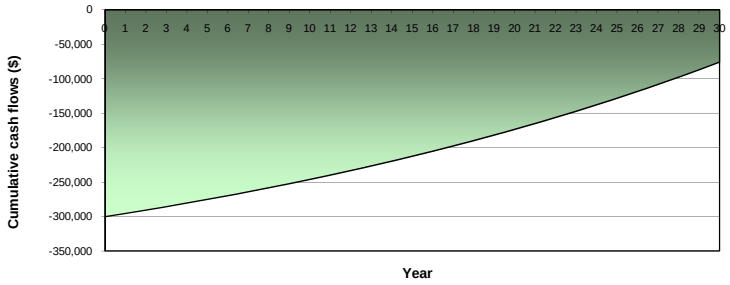
d.09 SOLAR ANALYSIS

By Colvin Engineering

Heating project

Technology		Solar water heater			
Load characteristics					
Application		Swimming pool			
		Hot water			
	Unit	**Base case**	**Proposed case**		
Load type		Apartment			
Number of units	Unit	65			
Occupancy rate	%	100%			
Daily hot water use - estimated	gal/d	2,910			
Daily hot water use	gal/d	4,000	4,000		
Temperature	°F	140	140		
Operating days per week	d	7	7		
Percent of month used					
Supply temperature method		Formula			
Water temperature - minimum	°F	43.5			
Water temperature - maximum	°F	61.1			
	Unit	**Base case**	**Proposed case**	**Energy saved**	**Incremental initial costs**
Heating	million Btu	1,076.8	1,076.8	0%	
Resource assessment					
Solar tracking mode		Fixed			
Slope	°	40.0			
Azimuth	°	0.0			
Show data					
Solar water heater					
Type		Glazed		$ 300,000	*See technical note*
Manufacturer		Viessmann			*See product database*
Model		Vitosol 200-F SV2			
Gross area per solar collector	ft²	27.16			
Aperture area per solar collector	ft²	25.12			
Fr (tau alpha) coefficient		0.72			
Fr UL coefficient	(Btu/h)/ft²/°F	0.62			
Temperature coefficient for Fr UL	(Btu/h)/ft²/°F²	0.000			
Number of collectors		120	79		
Solar collector area	ft²	3258.88			
Capacity	kW	196.06			
Miscellaneous losses	%	5.0%			
Balance of system & miscellaneous					
Storage		Yes			
Storage capacity / solar collector area	gal/ft²	2			
Storage capacity	gal	5,000.0			
Heat exchanger	yes/no	Yes			
Heat exchanger efficiency	%	80.0%			
Miscellaneous losses	%	5.0%			
Pump power / solar collector area	W/ft²	1.00			
Electricity rate	$/kWh	0.030			
Summary					
Electricity - pump	MWh	6.6			
Heating delivered	million Btu	722.2			
Solar fraction	%	67%			
Heating system					
Project verification		**Base case**	**Proposed case**		
Fuel type		Natural gas - mmBtu	Natural gas - mmBtu		
Seasonal efficiency		75%	75%		
Fuel consumption - annual	mmBtu	1,435.8	472.8	mmBtu	
Fuel rate	$/mmBtu	6.000	6.000	$/mmBtu	
Fuel cost	$	8,615	2,837		

Financial Analysis

Financial parameters			
Inflation rate	%	3.0%	
Project life	yr	30	
Debt ratio	%		
Initial costs			
Heating system	$	300,000	100.0%
Other	$		0.0%
Total initial costs	$	300,000	100.0%
Incentives and grants	$		0.0%
Annual costs and debt payments			
O&M (savings) costs	$	1,000	
Fuel cost - proposed case	$	3,036	
Other	$		
Total annual costs	$	4,036	
Annual savings and income			
Fuel cost - base case	$	8,615	
Other	$		
Total annual savings and income	$	8,615	
Financial viability			
Pre-tax IRR - assets	%	-1.6%	
Simple payback	yr	65.5	
Equity payback	yr	> project	

Cumulative cash flows graph