Facility Program

Clinical Services Building

Utah State University
DFCM# 15128770

JACOBY ARCHITECTS

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Clinical Services Building Utah State University

FACILITY PROGRAM

October 9 2015

DFCM Project #15128770

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i Signature Page

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We have reviewed the Program Document for the Clinical Services Building and warrant that it adequately represents our request for a facility to fulfill our mission and preliminary needs. All appropriate parties at USU and DFCM have reviewed it for approval.

Darrell Hunting, Project Manager
Division of Facilities Construction and Management, State of Utah

Date

Beth Foley, Dean
College of Education and Human Services, Utah State University

Date

Ben Berrett, Director
Facilities Planning, Design and Construction, Utah State University

Date

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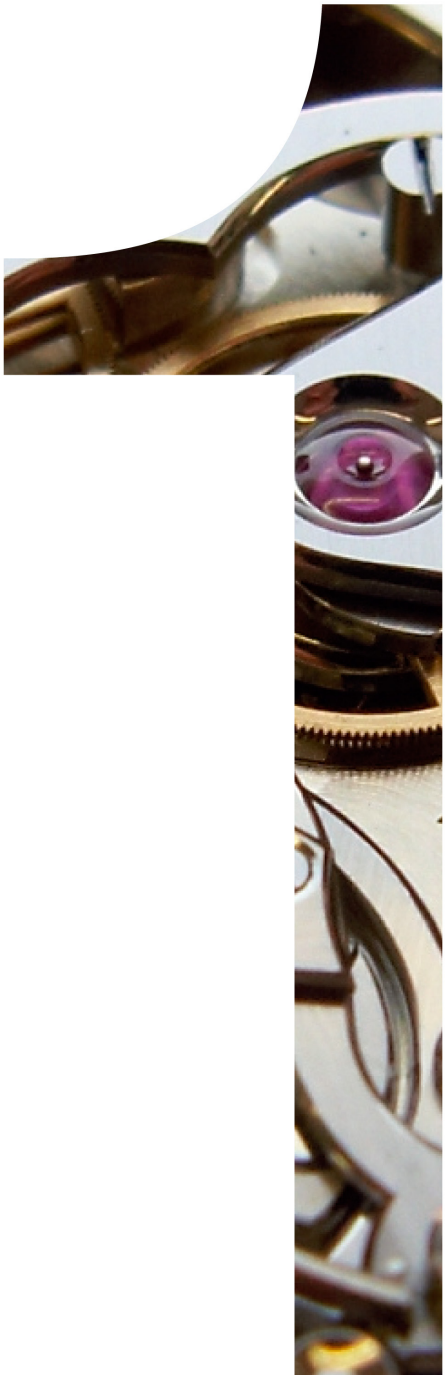

Executive Summary

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1.1 Executive Summary

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Programming Process and Background

In early July, 2015, DFCM, USU, and The Emma Eccles Jones College of Education and Human Services engaged Jacoby Architects to provide Programming Services for the Clinical Services Building.

The programming process extended over multiple workshops with the design team, consultants, and the working committee. The workshops focused on the different aspects of the Facility Program including Site Analysis and Utilization, Area Space Planning, Detailed Space Requirements, LEED Targets, DFCM High Performance Building Standard goals, and Building Systems, as well as Cost Considerations.

As a basis for making decisions, the Programming Team referred to the following documentation (under separate cover): Feasibility Study dated XXXX, USU Masterplan information, USU North Core Masterplan, USU Design Standards, Hazmat Report dated XXXX, Geotech Report dated XXXX, FEMA Flood Map, DFCM Programming Standards, Google Earth mapping data, DFCM High Performance Building Standard, LEED Reference Guides for Building Design and Construction, data from the Cache Valley Transit District, and Bear River Health Department Application.

Benchmarking tours of the Moran Eye Center, Primary Children's Eccles Center, IHC Salt Lake Clinic, Huntsman Cancer Institute, IHC Budge Clinic at Logan Regional Hospital, as well as the College of Nursing at the University of Utah Campus occurred prior to and during Programming to help clarify detailed programming considerations.

The goal of this Program is to clearly and concisely communicate the requirements and expectations of the building's user group, occupants, and owner in order to support decision making during the Design and Documentation phases of the project.

1.2 Executive Summary

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Project Description

The Clinical Services Building for Logan's community will be an unprecedented resource for healing and health. The building shall be designed to be an exciting and inviting community landmark, while at the same time enhancing the world-class identity of the Emma Eccles Jones College of Education and Human Services.

The new building will also be a social and academic hub for the interdisciplinary community of researchers, educators, providers, and administrators to host fund-raising events, or as a forum to exchange ideas and advancements in their clinical research.

The new facility will be the home for clinics currently hosted by several college departments that are scattered throughout campus. By centralizing these clinics, the goal is to create a true interdisciplinary environment where faculty from different departments can draw on each others unique, individual expertise and backgrounds.

The state-of-the-art facility is for adults, adolescents and families to receive multiple types of clinical therapy including: Autism and Other Developmental Disabilities; Behavioral Health; Health and Exercise Science; Speech, Language, and Hearing Sciences, all within one building. These clinics will require many types of specialized spaces including but not limited to: Family Style Therapy Rooms: Apartment Style Therapy Room; Face to Face Therapy Rooms; Pediatric Therapy Rooms: Art Therapy Rooms; Music Therapy Room; Severe Behavior Rooms; an Audiology Suite; Sound Booths; Physical/Exercise/Occupational Therapy Rooms; Medical Exam Rooms; Hydro Therapy Pools, a Gymnasium; Observation Spaces; Early Education Classrooms; Distance Education Classrooms; a Tiered Classroom; Nursing Simulation Labs, and an underground Parking Garage. These spaces will each require their own type of integrated/specialized equipment and AV considerations.

The new building will be required to have the following traits: Allow for flexibility and growth; Integrate the various clinics into an interdisciplinary environment; Create a confidential environment with visual and acoustic considerations; Create a dynamic, positive, environment; Create a unique identity that can enhance recruitment of new staff, faculty, and students; meet enhanced ADA accessibility requirements.

The preferred site for the new facility is in the location of the current Center for Persons with Disabilities Building. This site will provide maximum opportunities for enhancing the College of Education and Human Services Quad.

Both the Center for Persons with Disabilities (CPD) and Edith Bowen Lab School (EBLS) buildings currently utilize existing playground areas that are located on the preferred site for the new CSB building. The existing playgrounds are divided for different children's age groups. Although these playgrounds will be demolished as part of the new construction, they will need to be re-incorporated into the site, as they are associated serve the early childhood classrooms that are part of the new building. The elementary aged playground will be relocated by the Edith Bowen Lab School as a separate project.

1.3 Executive Summary

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The DFCM Solicitation suggests that the construction budget will be $22,800,000 plus a $650,000 supplemental USU budget for an underground parking lot for a grand total construction budget of $23.45 million. The building is expected to be a four-story building with a 25,000 sf. footprint.

The construction procurement method will be CMGC.

It is required that the building meet the new DFCM High performance Building Standard and LEED Silver.

DFCM has provided a Hazardous Material Survey for the existing CPD building.

DFCM is procuring a Geotechnical Report and Site Survey.

Project Vision Statement

The following concepts were identified by the Steering Committee as a summary for the Project Vision Statement:

Wayfinding

Building layout needs to provide clear Wayfinding for all patrons, with extra care for accessibility needs.

Fluid

This building will have many different kinds of spaces which are not meant to be isolated. The movement between the physical spaces needs to flow clearly and easily.

Natural Light

The building needs to integrate access to daylight, creating pleasant environments while also integrating patient privacy. Too much visual connection can create the "fish bowl" affect.

Era

No Mid Century modern–anywhere

Warm

The building needs to feel cozy and warm, possibly with the integration of natural wood materials.

Acoustics

This building will accommodate a diversity of programs, some with more need for acoustic separation, and some which produce more noise. Clinics shall be acoustically isolated from each other as required to support clinical xxxx.

Adaptability

The building needs to be adaptable to future needs. New clinical services or technologies may be adopted in the future to treat varying health conditions. This

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may affect individual spaces and require Flex space, or even future re-structuring of an entire clinic. One solution is to create rooms that are not unique to just one purpose. For instance, fewer observation rooms, fewer cubicle offices, and more therapy rooms.

Privacy

Although the building must be comfortable and cozy, it still needs to provide plenty of privacy for the building patrons/clientele

Shared

When discussing which spaces are shared and which are designated - Really, All of the spaces are meant to be Shared.

Building Mission Statement

The mission of the Clinical Services Building is to foster interdisciplinary collaboration that results in an improved quality of life for Utah's citizens.

Specifically, the Clinical Services Building staff and faculty:

-Conduct research on interdisciplinary clinical interventions that lead to new and innovative human services.

-Promote advanced interdisciplinary training for students and professionals.

-Provide interdisciplinary clinical services to the community and build the human services capacity in the state and region.

College Mission Statement

As members of the Emma Eccles Jones College of Education and Human Services we provide teaching, service, and research in a variety of disciplines to improve the teaching/learning transaction wherever it takes place and to increase the effectiveness of services for individuals, families, communities, schools, and organizations. To achieve this mission, we are committed to:

-Offering high quality graduate and undergraduate programs in education and human services that are innovative and widely accessible;

-Supporting and nurturing a faculty committed to masterful teaching and cutting-edge research;

-Establishing and maintaining nationally visible research centers to advance knowledge and professional practices;

-Fostering partnerships to enhance the quality of education and human services in our local and extended communities;

-Extending the impact of our instructional and research programs nationally and globally;

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-Maintaining a technological infrastructure to enhance the College's visibility and accessibility regionally, nationally, and internationally;

-Enhancing the diversity of our faculty, staff, and students; and

-Supporting instructional, research, and service programs that cultivate dedication to building a more just and equitable society.

University Mission Statement

The mission of Utah State University is to be one of the nation's premier student-centered land-grant and space-grant universities by fostering the principle that academics come first, by cultivating diversity of thought and culture, and by serving the public through learning, discovery and engagement.

1.5 Executive Summary: Acknowledgements

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The programming team would like to extend a hearty thanks to all of the team members who contributed their time and valuable information to this program.

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Site Analysis

2.1 Site Analysis: Figure Ground - Current

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- Campus Buildings
- Roads and Parking
- Pathways and Plazas
- Clinical Services Building Site

2.1 Site Analysis: Figure Ground - Future

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2.1 Site Analysis: **Figure Ground - College Connection**

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- Campus Buildings
- Roads and Parking
- Pathways and Plazas
- Clinical Services Building Site
- College of Education and Human Services - Academic Connectivity to CSB
- College of Education and Human Services - Clinical Space / Resources Transferring to CSB

2.1 Site Analysis: Figure Ground - Clinical Relocation

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2.2 Site Analysis: Northeast Campus Core District Plan

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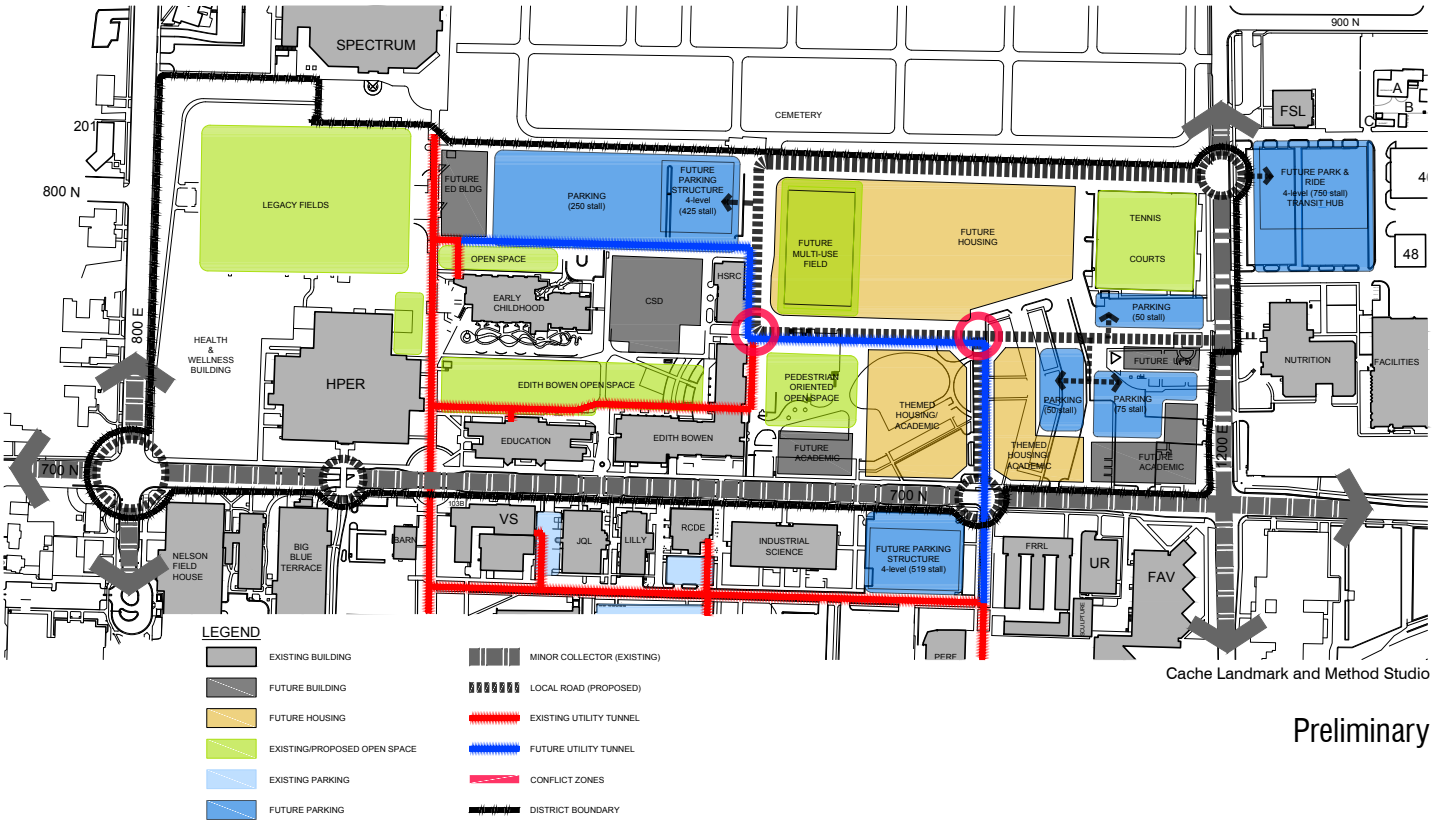
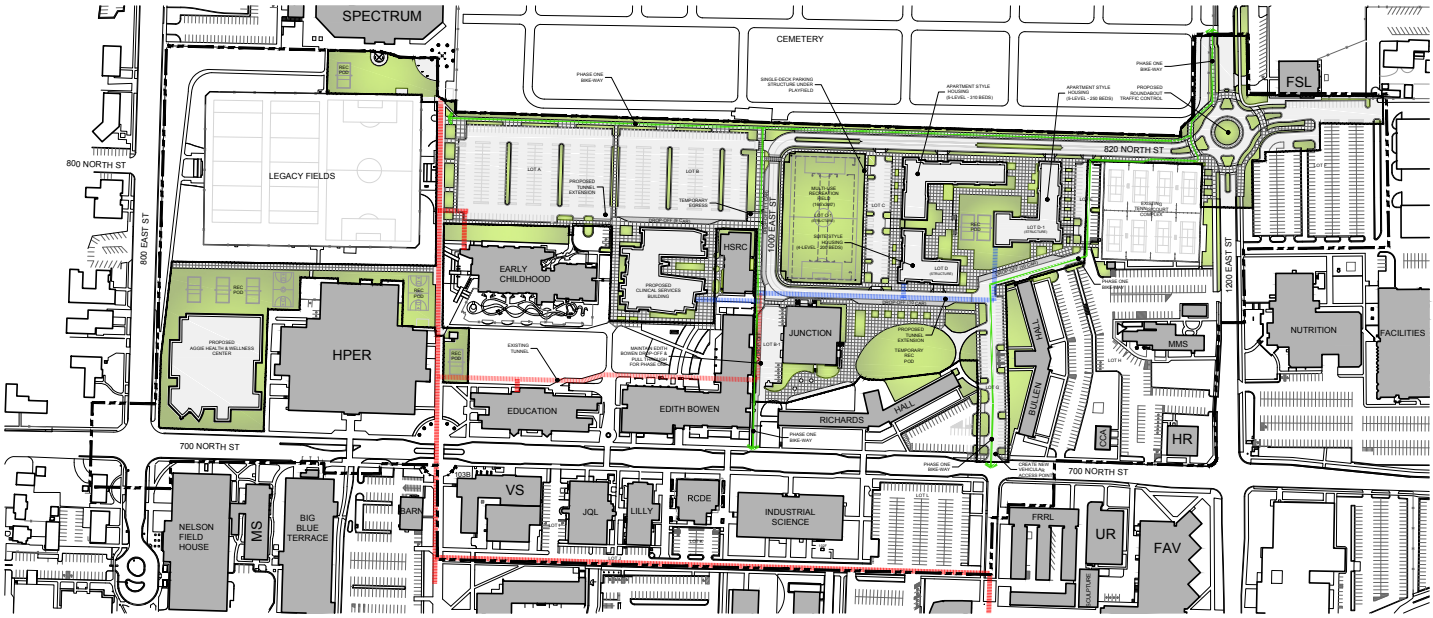


Cache Landmark and Method Studio

Preliminary



Cache Landmark and Method Studio

Phase One: 0-5 Years

2.2 Site Analysis: Northeast Campus Core District Plan

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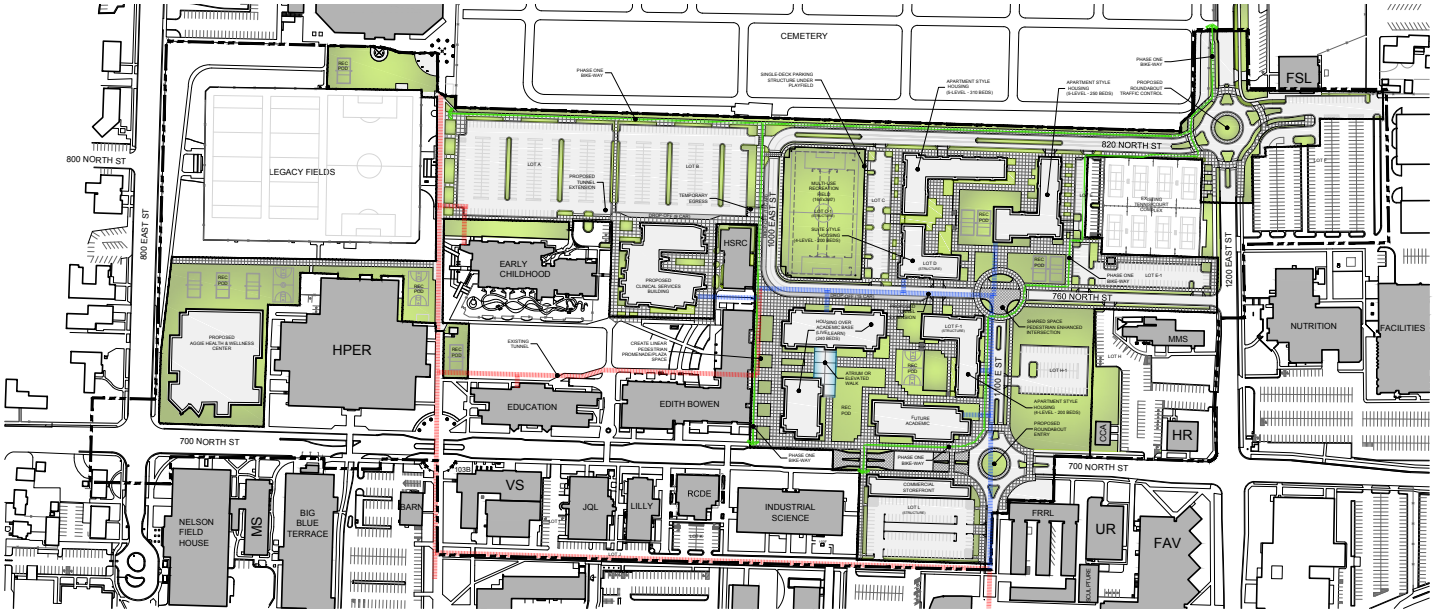
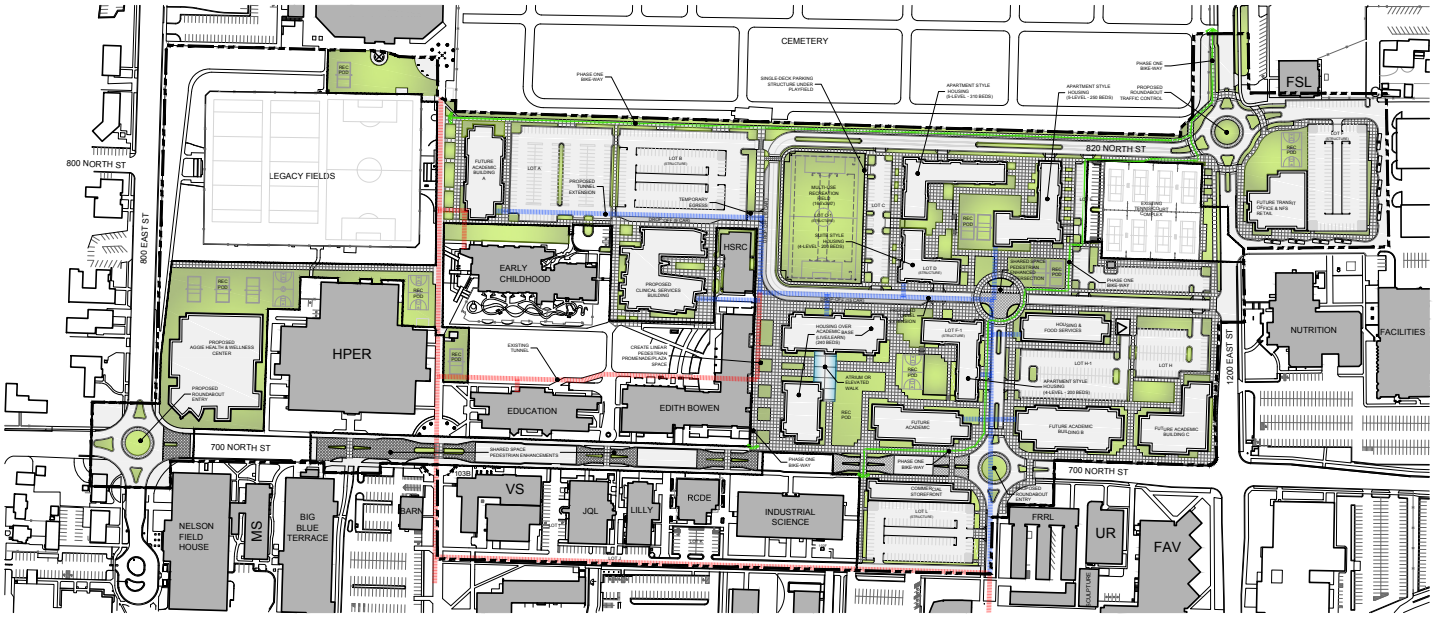


Cache Landmark and Method Studio

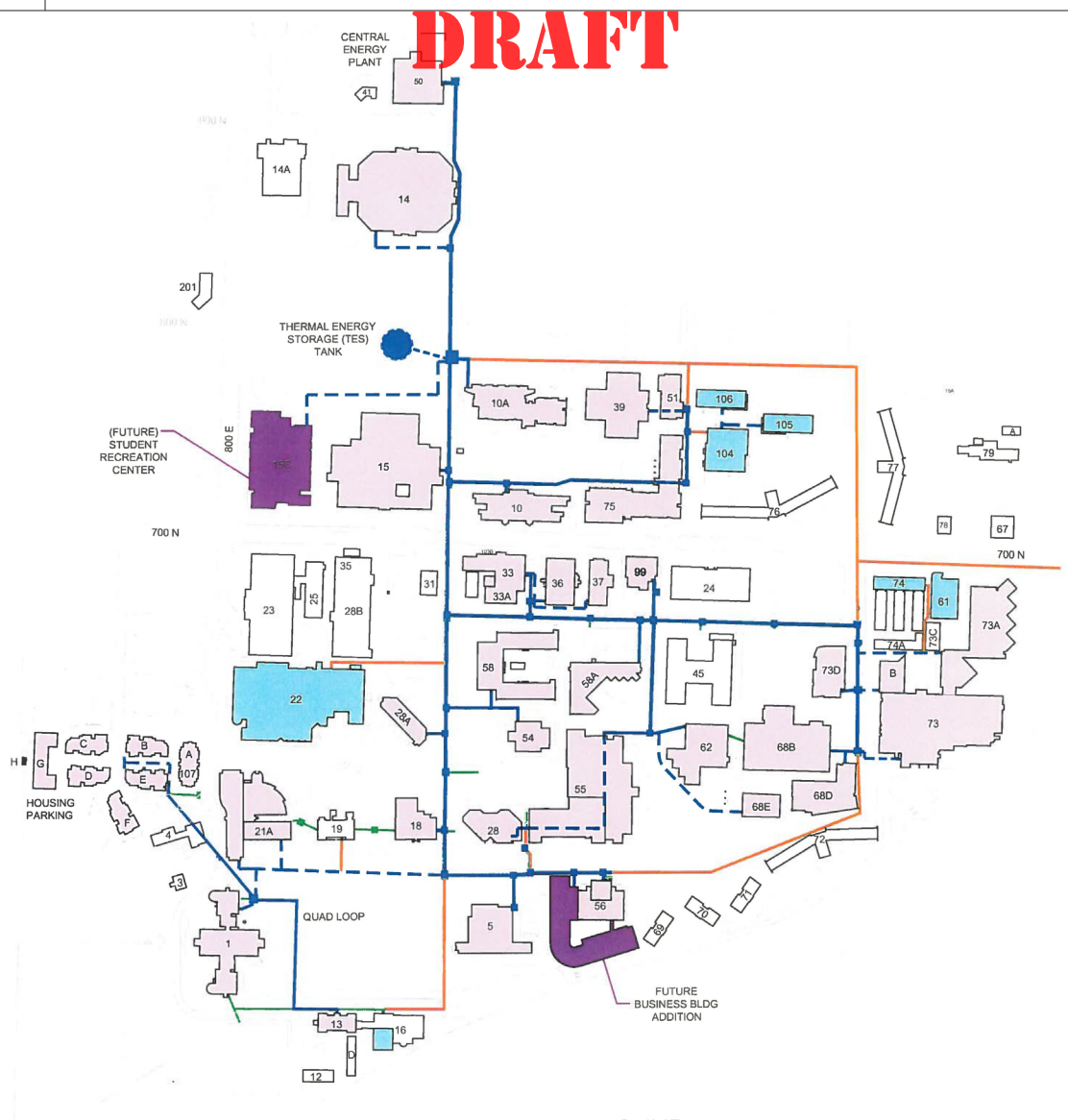
Phase Two: 5-10 Years



Cache Landmark and Method Studio

20 Year Buildout

2.3 Site Analysis: Utility Infrastructure - Chilled Water and Tunnel



LEGEND

- CHILLED WATER (IN TUNNEL)
- CHILLED WATER (DIRECT BURIED)
- FUTURE CHILLED WATER
- UTILITY TUNNELS
- UTILITY TUNNEL NODES
- BUILDING CURRENTLY SERVED BY CENTRAL SYSTEM
- FUTURE BUILDING
- EXISTING BUILDING TO BE CONNECTED TO THE CENTRAL SYSTEM IN FUTURE (CURRENTLY AIR CONDITIONED)
- EXISTING BUILDING WITH NO AIR CONDITIONING
- EXISTING BUILDING TO BE DEMOLISHED

CENTRAL ENERGY PLANT INSTALLED CHILLER CAPACITY

(2) 1800 TON CHILLERS
(2) 800 TON CHILLERS
5200 TONS CAPACITY

(1) 2M GALLON TES TANK

FUTURE CHILLER CAPACITY

(1) 1800 TON CHILLER

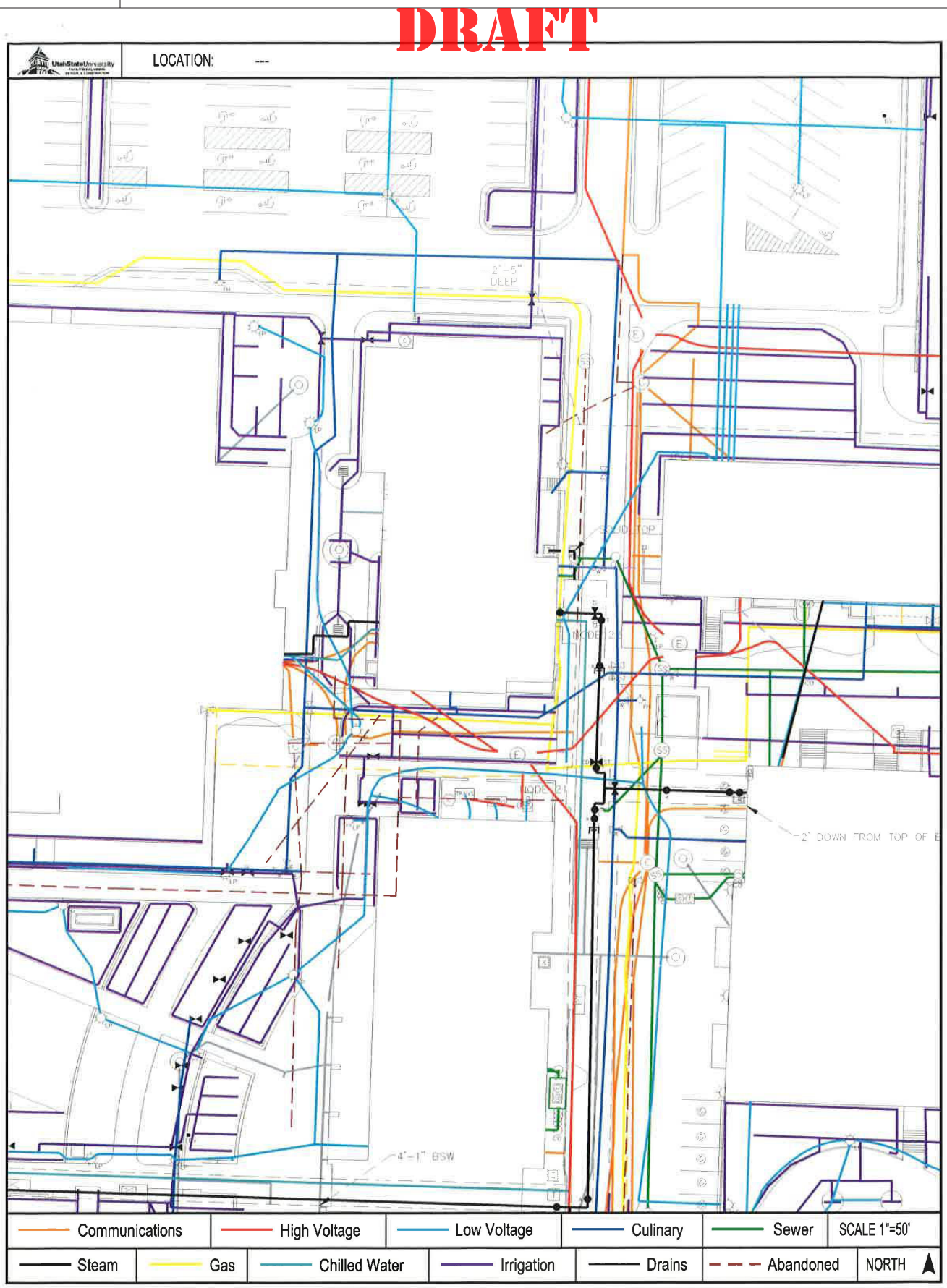
7000 TON CHILLER TOTAL BUILDOUT

CHILLED WATER & TUNNEL MASTER PLAN

NOT TO SCALE

Updated: AUGUST 2014

2.3 Site Analysis: Utility Infrastructure



2.3 Site Analysis: Utility Infrastructure - Communications

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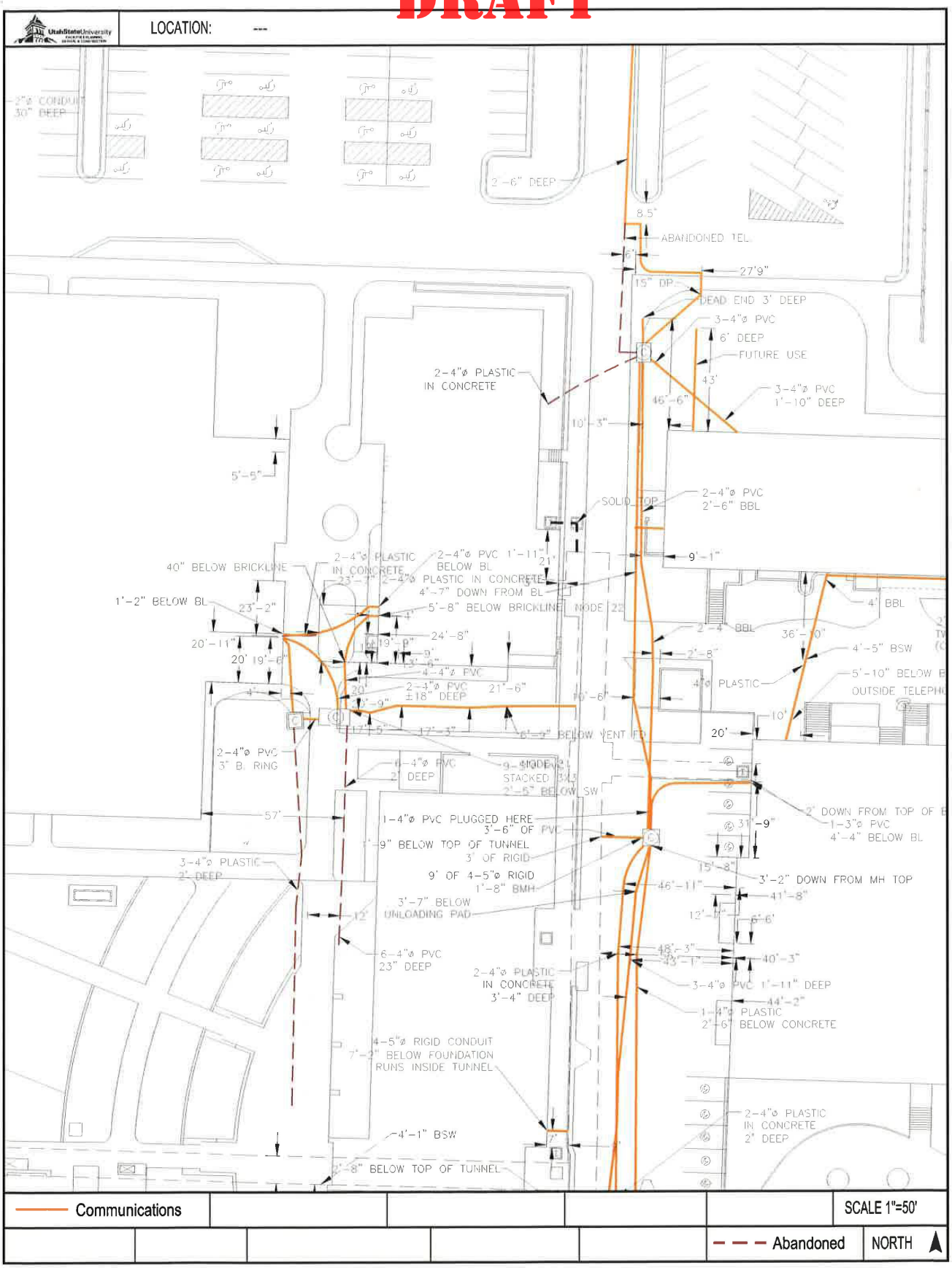

2.3 Site Analysis: Utility Infrastructure - Dimensions

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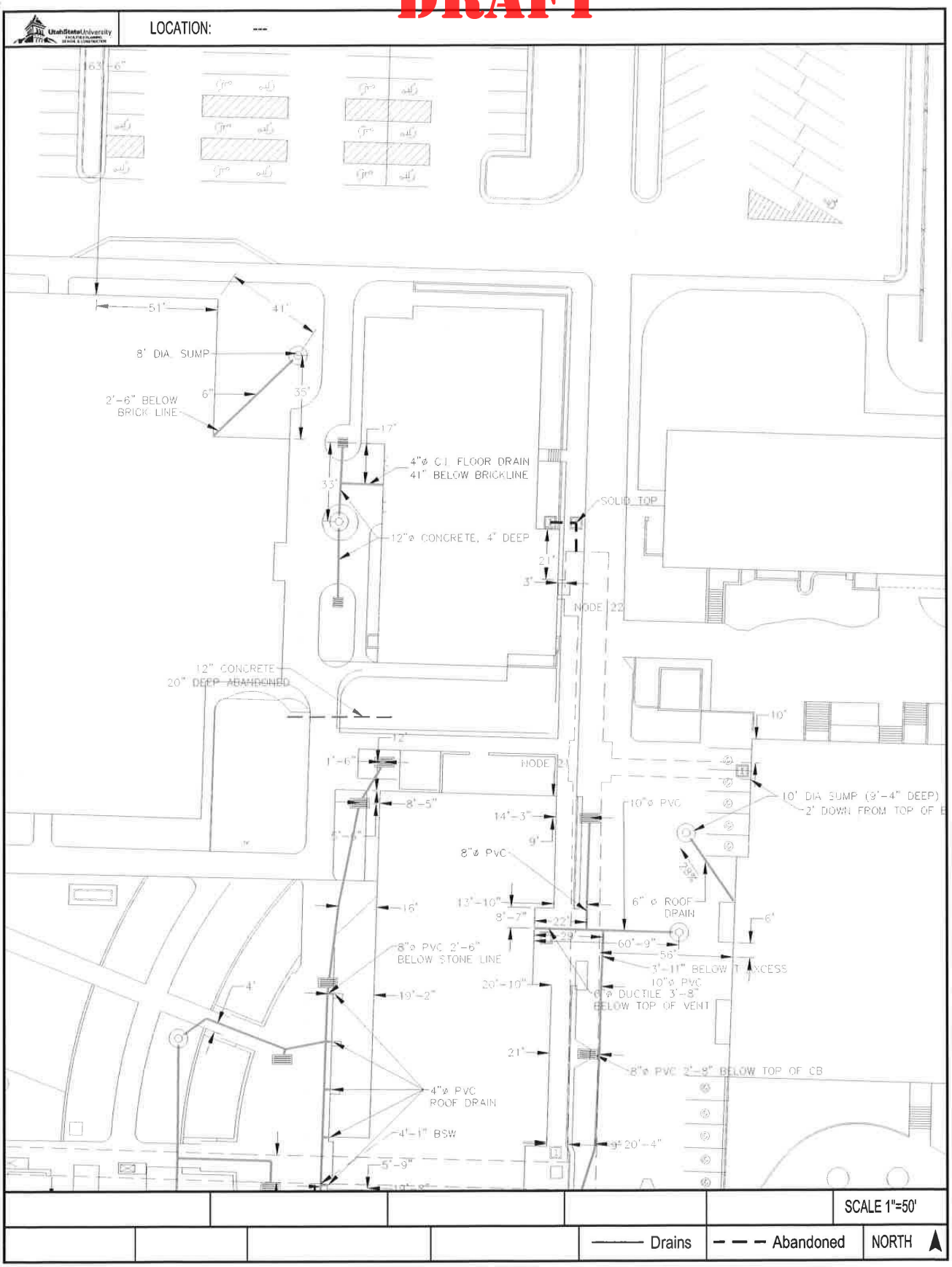
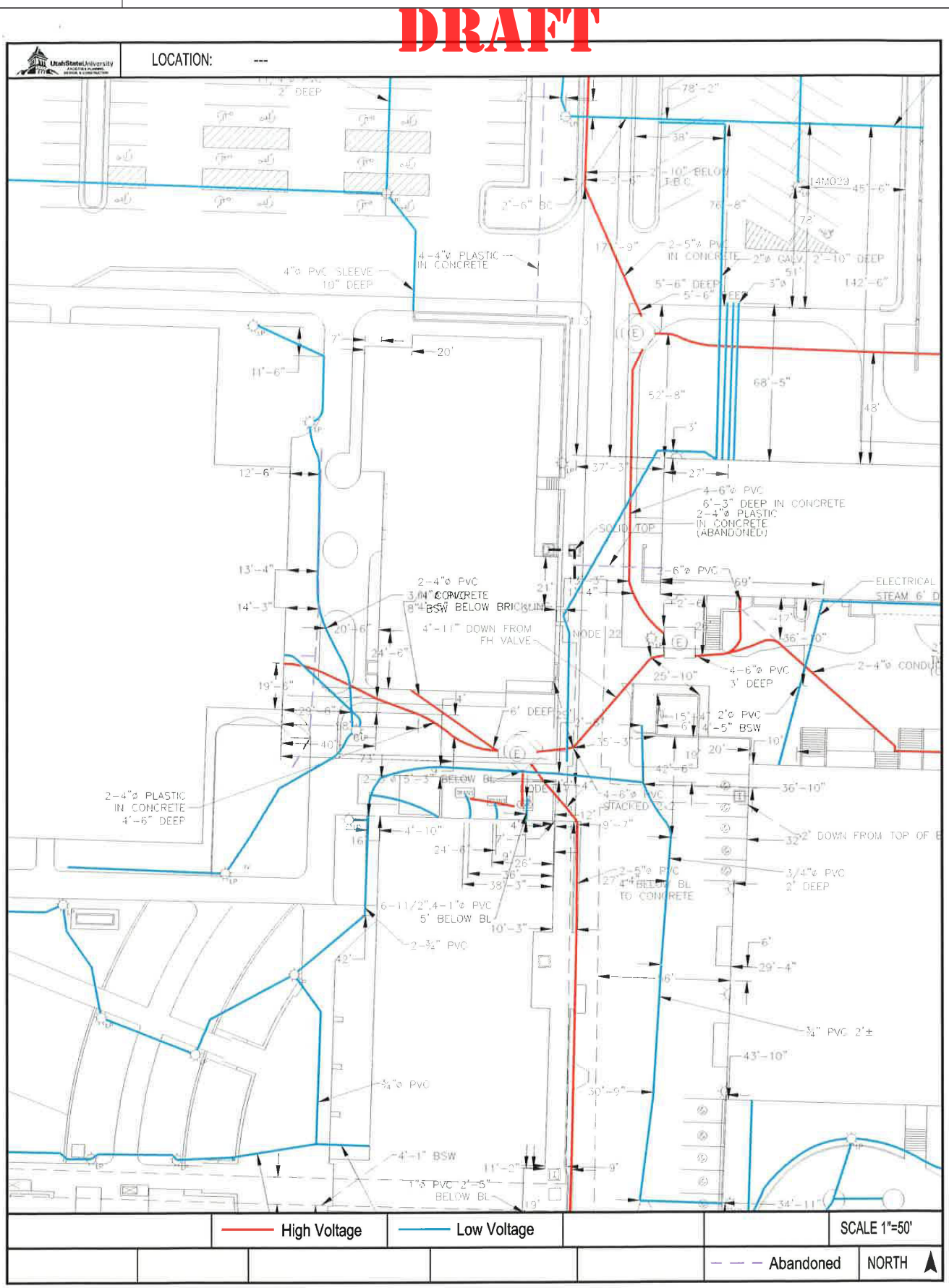


2.3 Site Analysis: Utility Infrastructure - Electrical



2.3 Site Analysis: Utility Infrastructure - Gas

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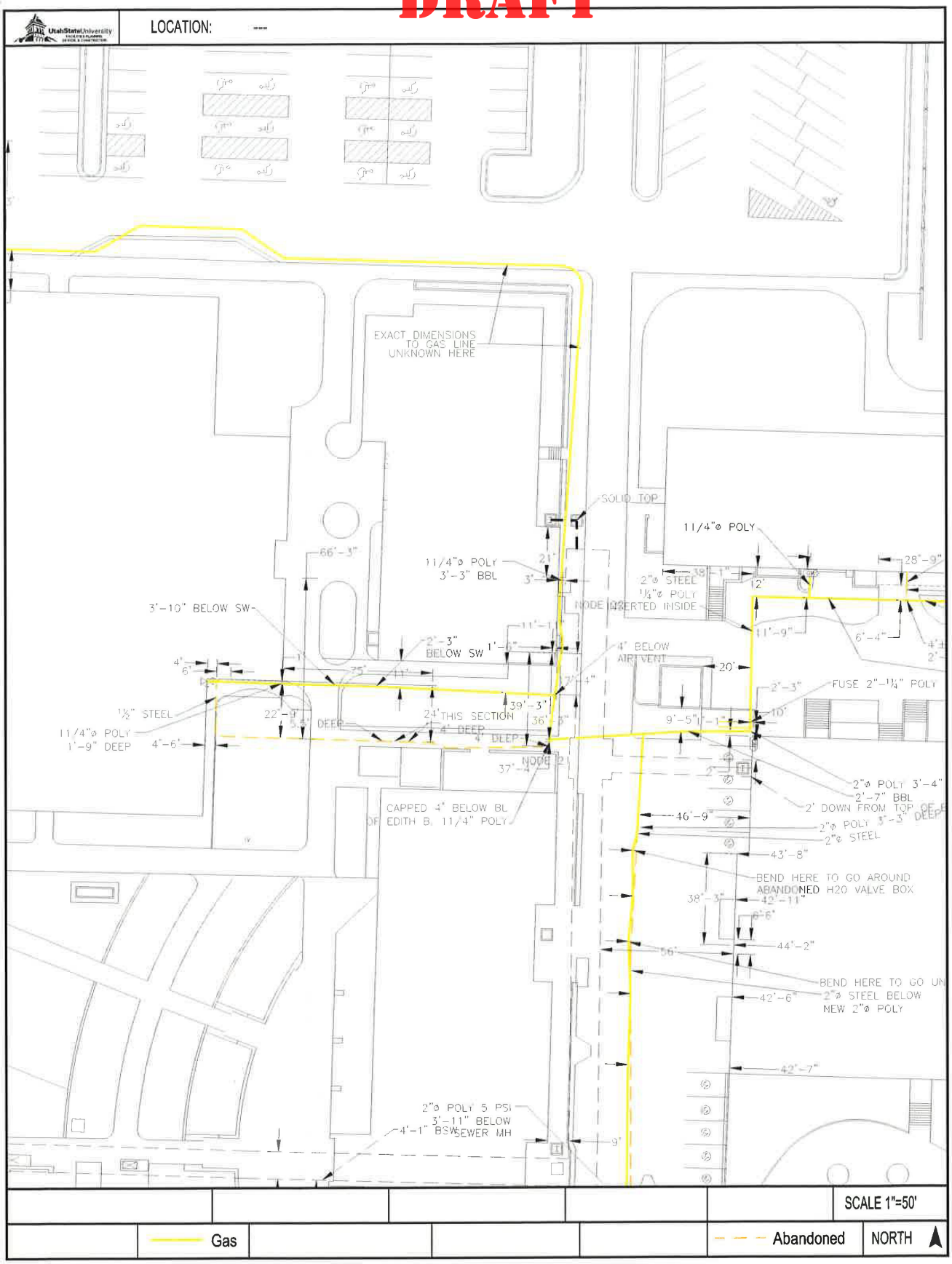
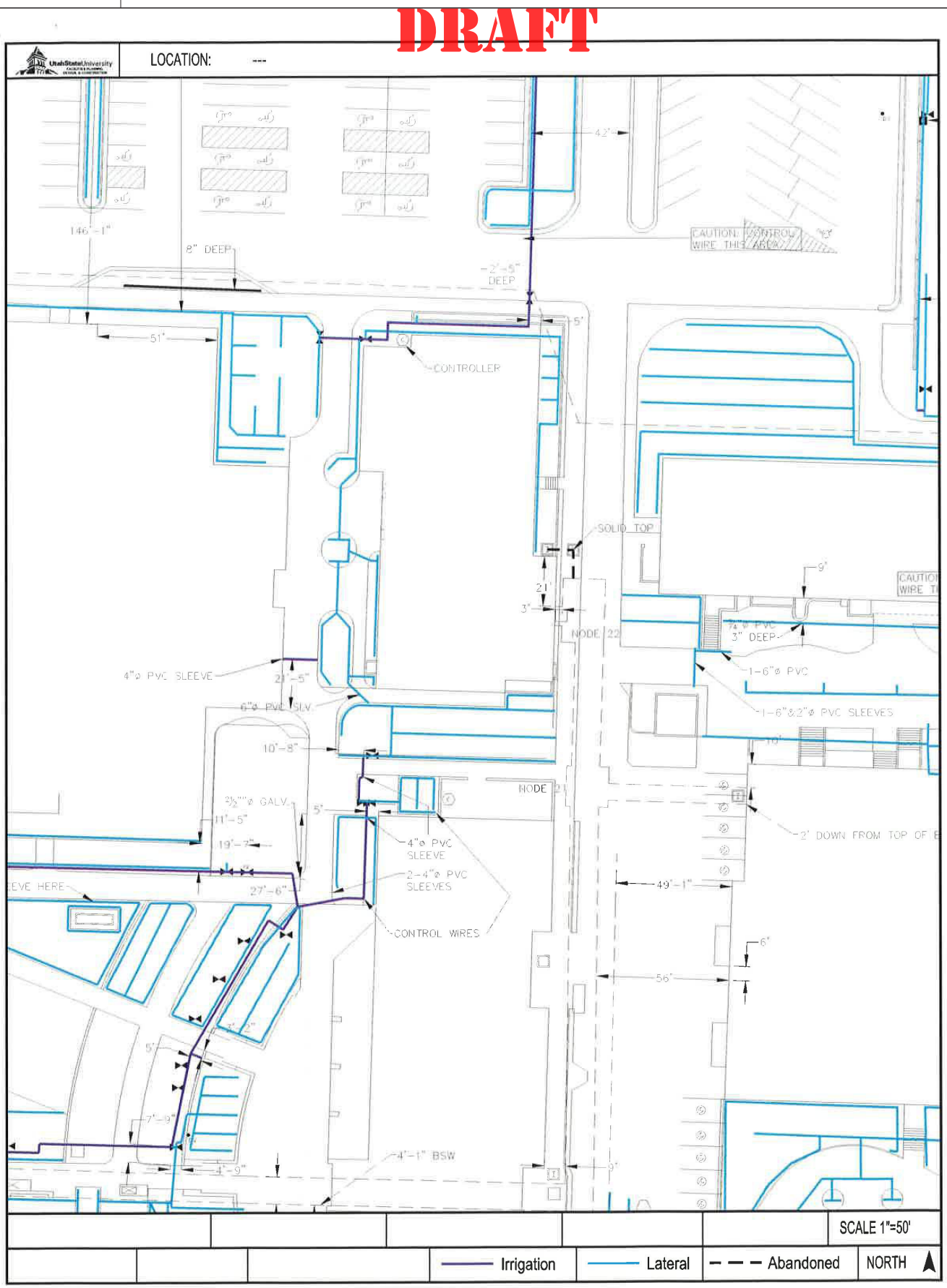


2.3 Site Analysis: Utility Infrastructure - Irrigation



2.3 Site Analysis: Utility Infrastructure - Sewer

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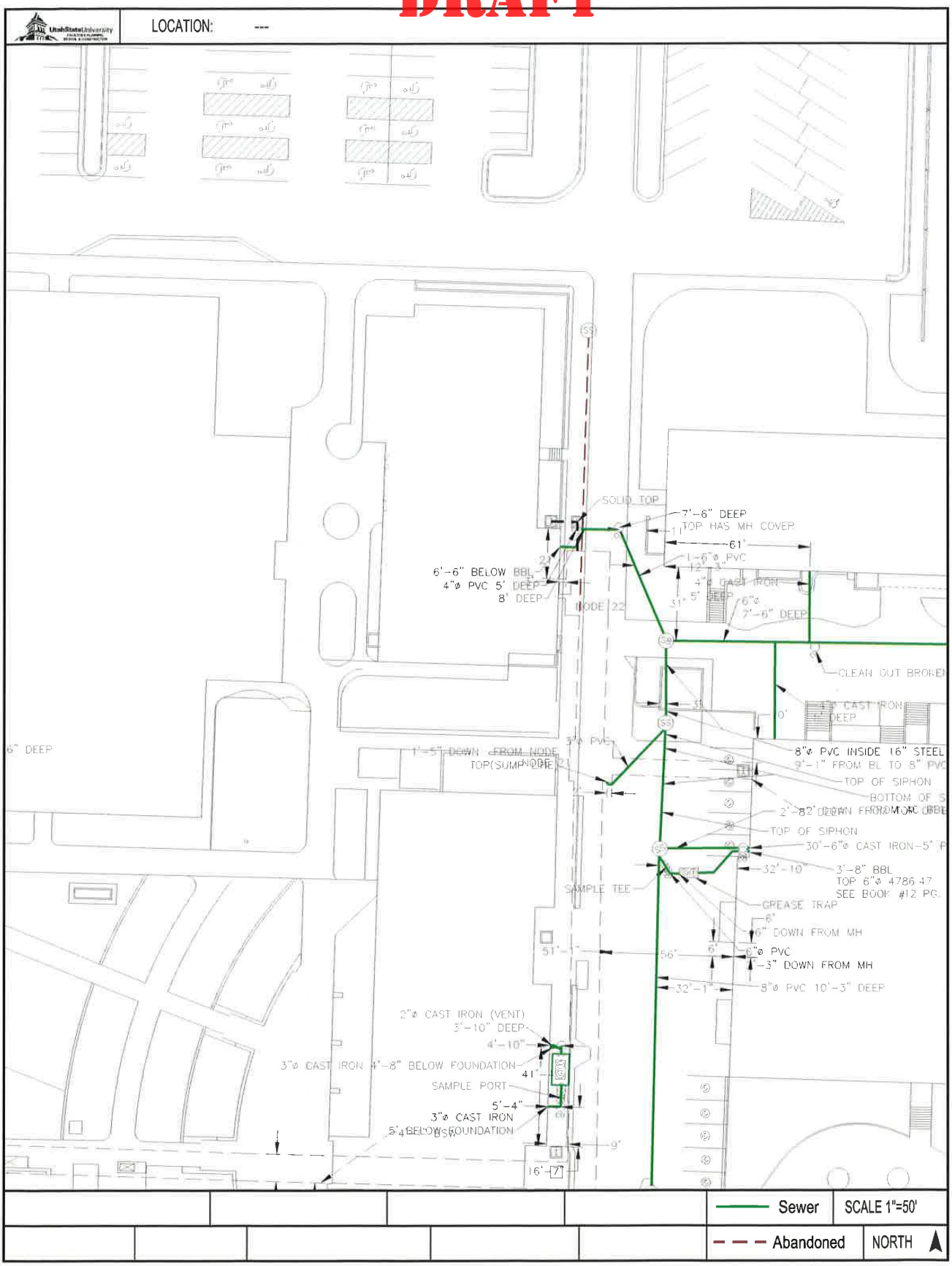

2.3 Site Analysis: Utility Infrastructure - Chilled Water / Steam

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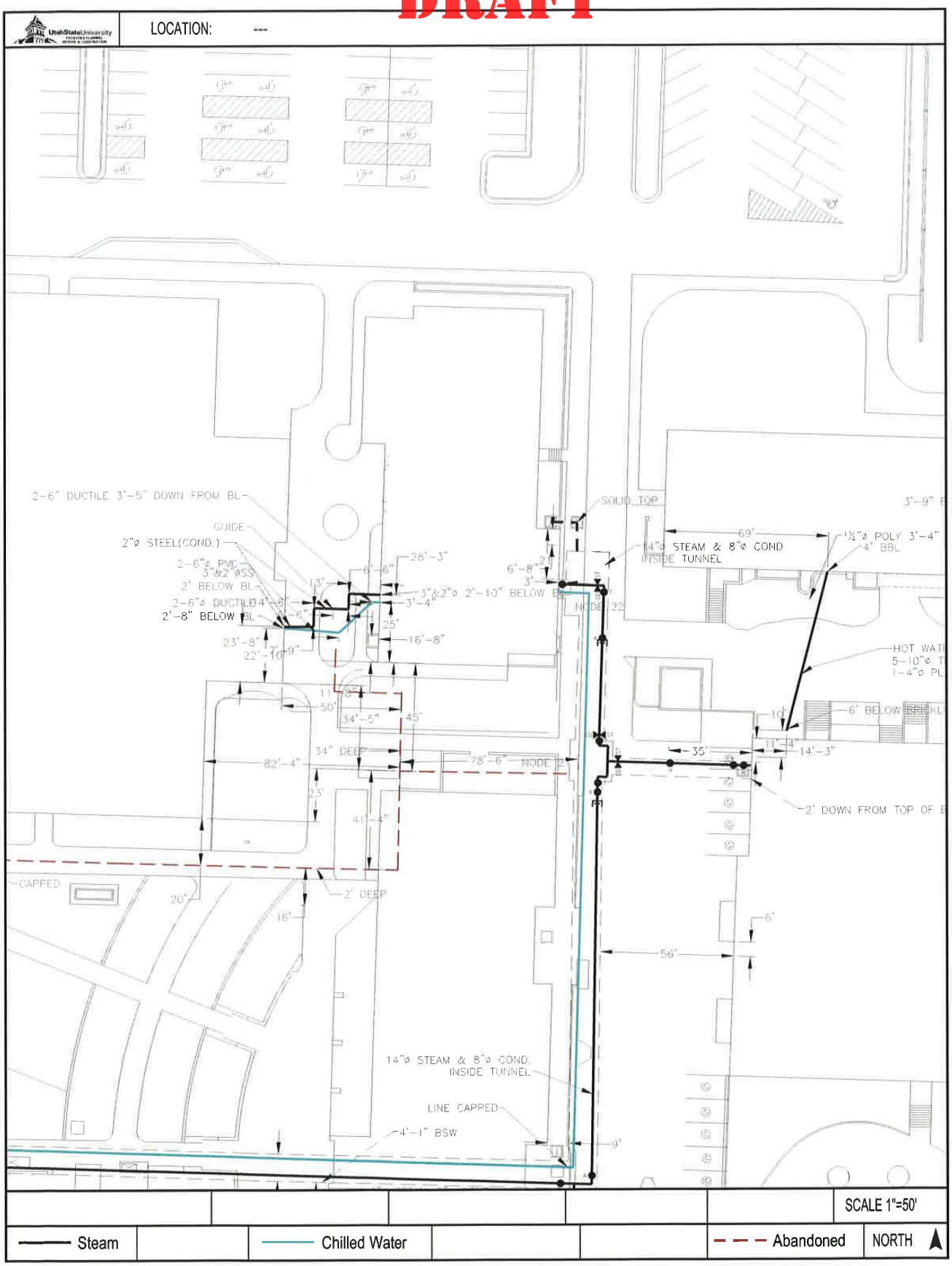

2.3 Site Analysis: Utility Infrastructure - Culinary Water

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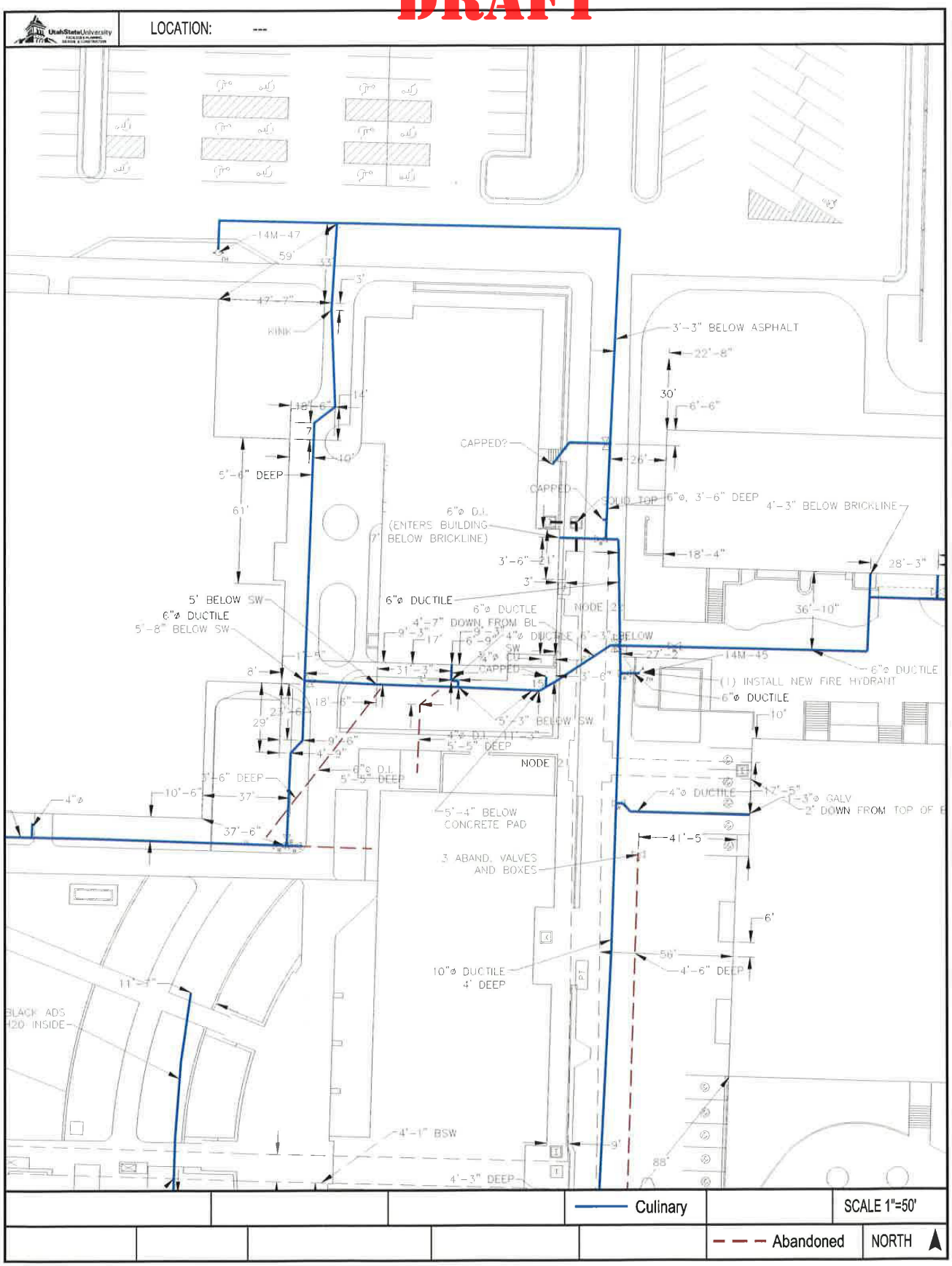

2.4 Site Analysis: FEMA Flood Map

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NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole- foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 12. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by Cache County, Utah, Development Services - 2010.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data*) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}75^{000m}$N	1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M	5000-foot grid ticks: Utah State Plane coordinate system, north zone (FIPSZONE 4301), Lambert Conformal Conic
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
May 24, 2011
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

N

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0381C

FIRM
FLOOD INSURANCE RATE MAP
CACHE COUNTY, UTAH
AND INCORPORATED AREAS

PANEL 381 OF 800
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CACHE COUNTY	490012	0381	C
LOGAN, CITY OF	490019	0381	C
PROVIDENCE, CITY OF	490226	0381	C
RIVER HEIGHTS, CITY OF	490240	0381	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

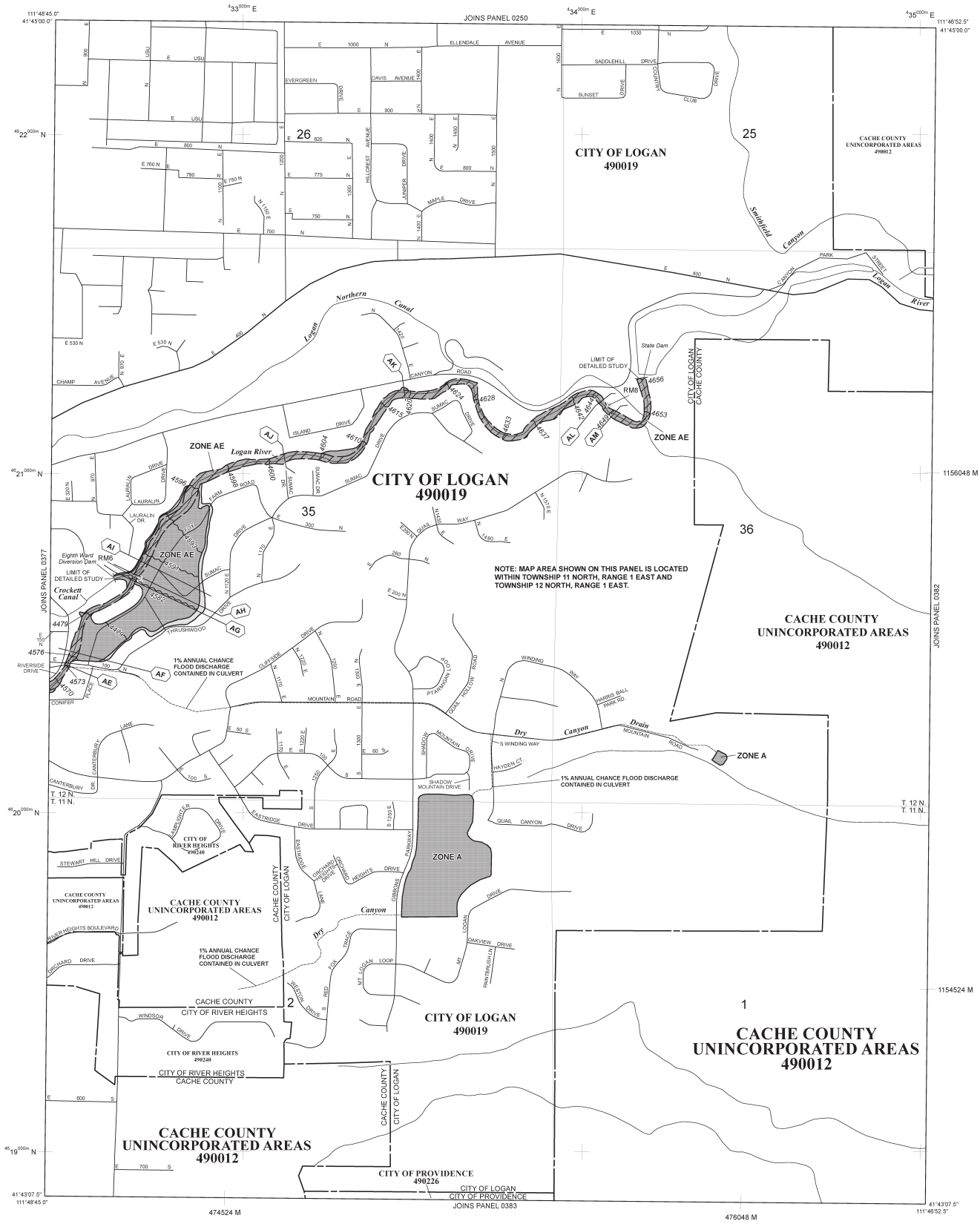
MAP NUMBER
49005C0381C

EFFECTIVE DATE
MAY 24, 2011

Federal Emergency Management Agency

2.4 Site Analysis: FEMA Flood Map

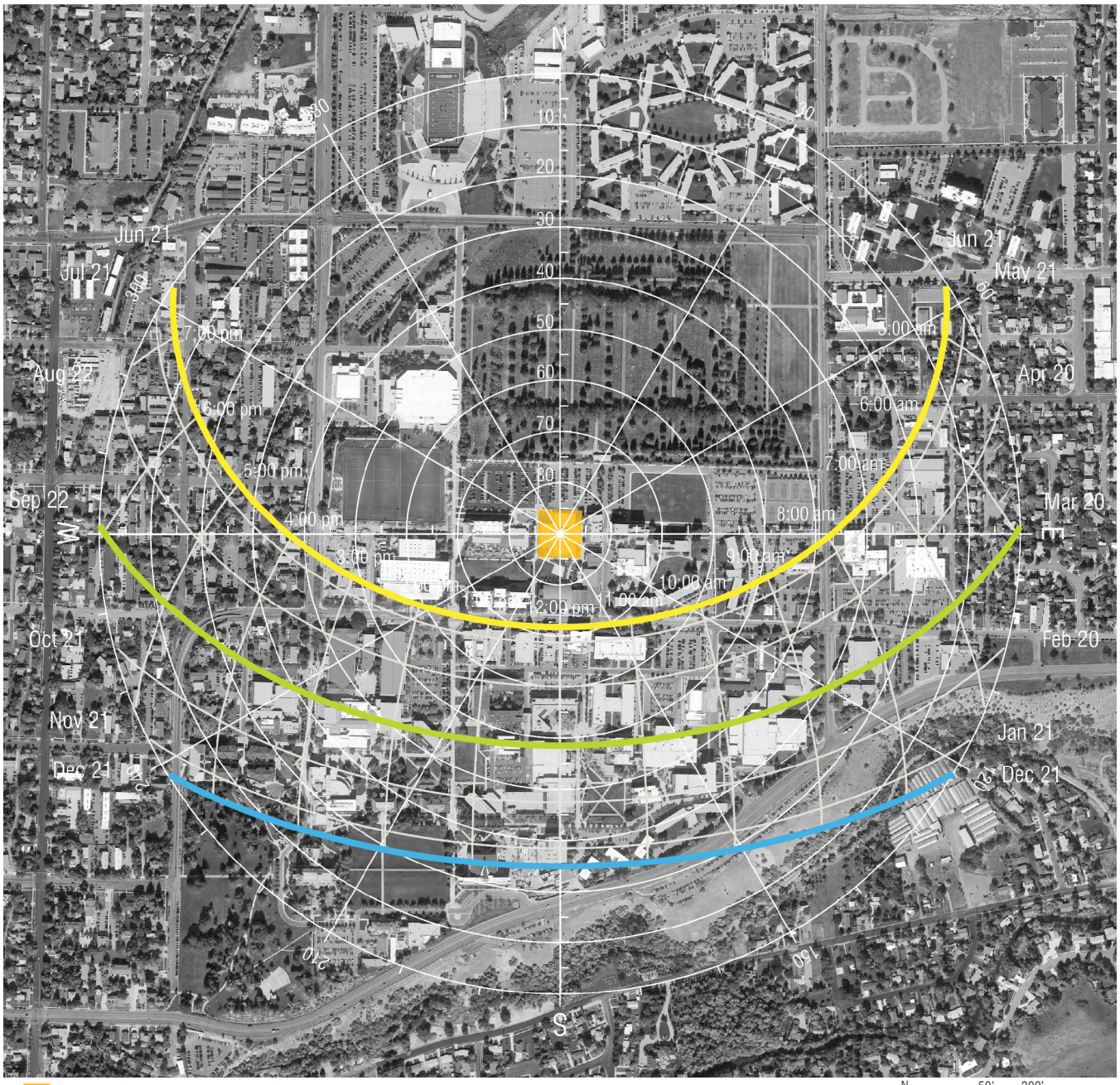
DRAFT



2.5 Site Analysis: **Climate - Solar Path**

DRAFT

Summer Solstice
Equinox
Winter Solstice



Clinical Services Building Site

N

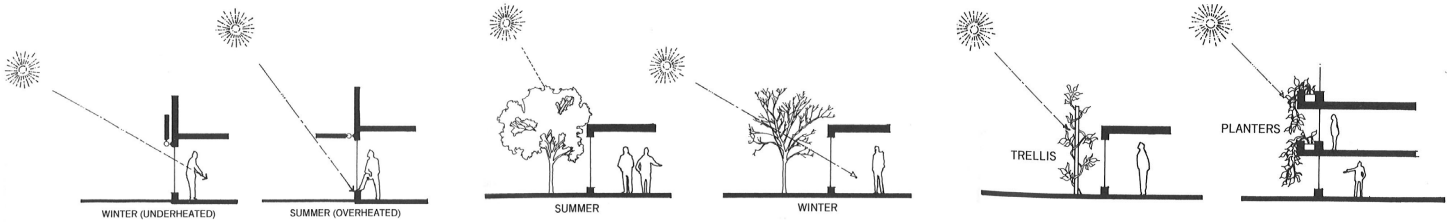
0' 50' 150' 300' 600'

2.5 Site Analysis: Climate - Solar Diagrams

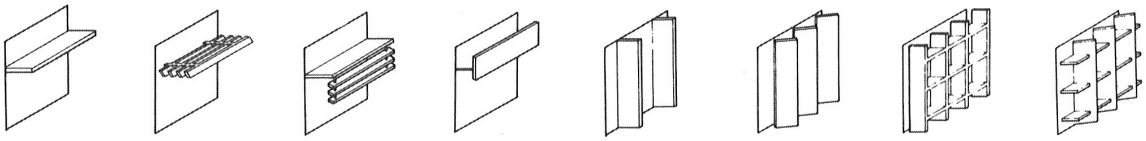
DRAFT

Site climate and location provide opportunities to take advantage of the sun and its light. Below are some diagrams representing some basic principles and ideas when considering the sun.

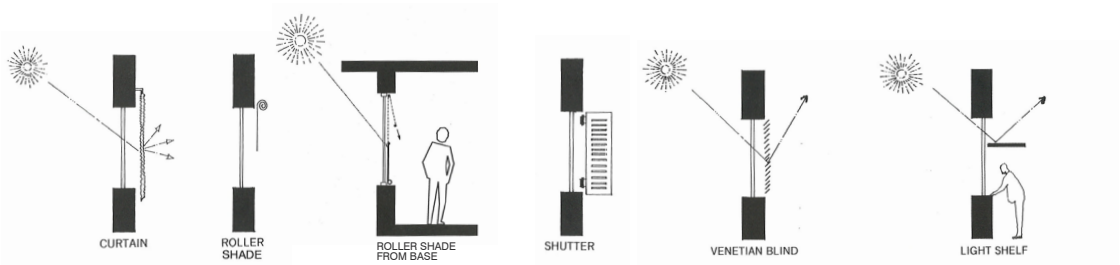
Sun Control



Diagrams From Heating, Cooling, Lighting - Lechner



Diagrams From Heating, Cooling, Lighting -Lechner



Diagrams From Heating, Cooling, Lighting -Lechner

Heating

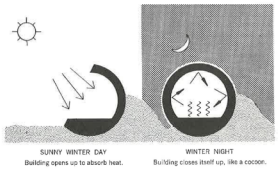
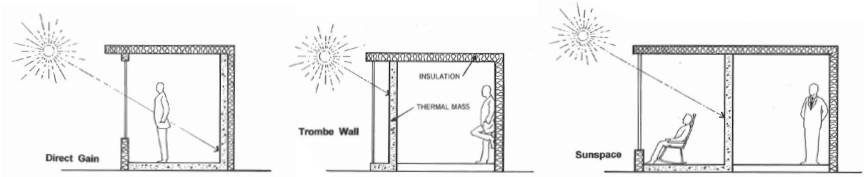
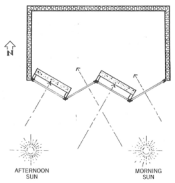


Diagram From Solar Energy - Anderson





Diagrams From Heating, Cooling, Lighting -Lechner

PV

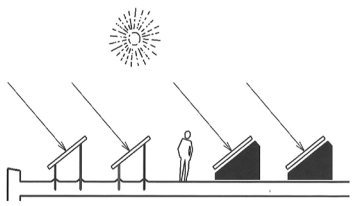


Figure 8.9a Support structures can provide the appropriate tilt for the PV on flat roofs, but they do not provide the benefits of being building integrated. The use of heavy concrete or gravel-filled support structures makes it unnecessary to penetrate the roof membrane.

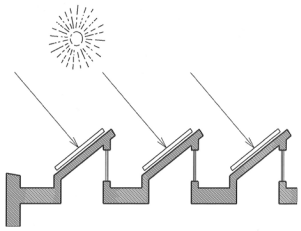
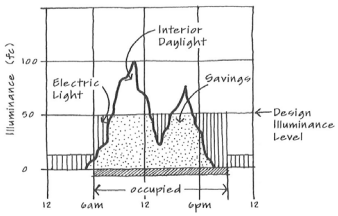


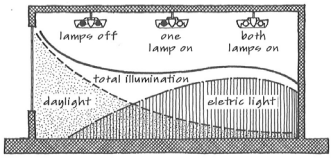
Figure 8.9b Sawtooth clerestories can provide both daylighting and the proper tilt for BIPV.

Diagrams From Heating, Cooling, Lighting -Lechner

Daylight



Potential Energy Savings From Daylighting



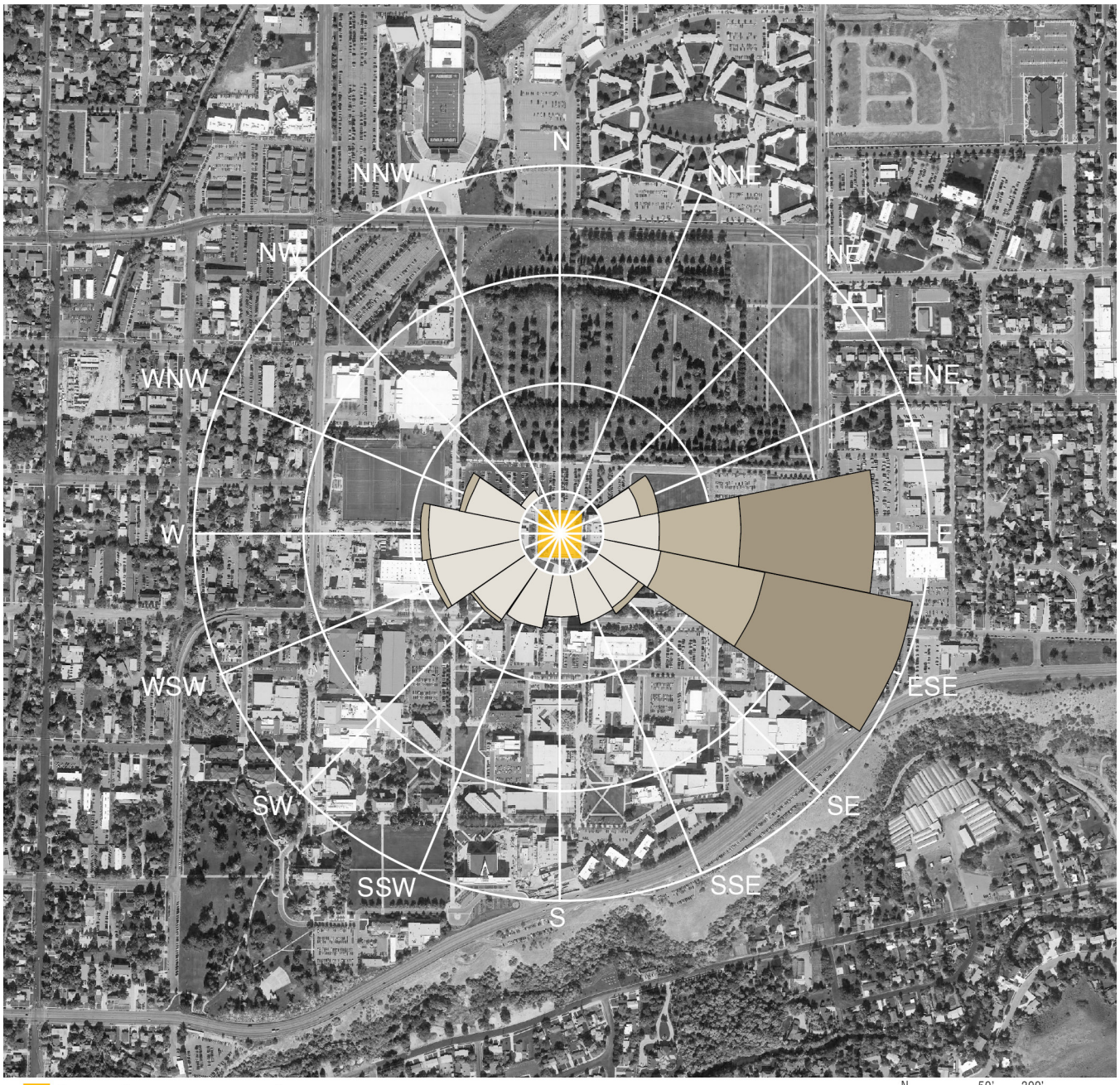
Maintaining Design Illuminance With Electric Light Switching In Layered Zones

Diagrams From Sun, Wind & Light - Brown and DeKay

2.5 Site Analysis: **Climate - Wind Rose Diagram**

DRAFT

This wind rose only shows the wind patterns for one day of the year, but reflects the general fact that the majority of wind comes from Logan Canyon to the East-southeast

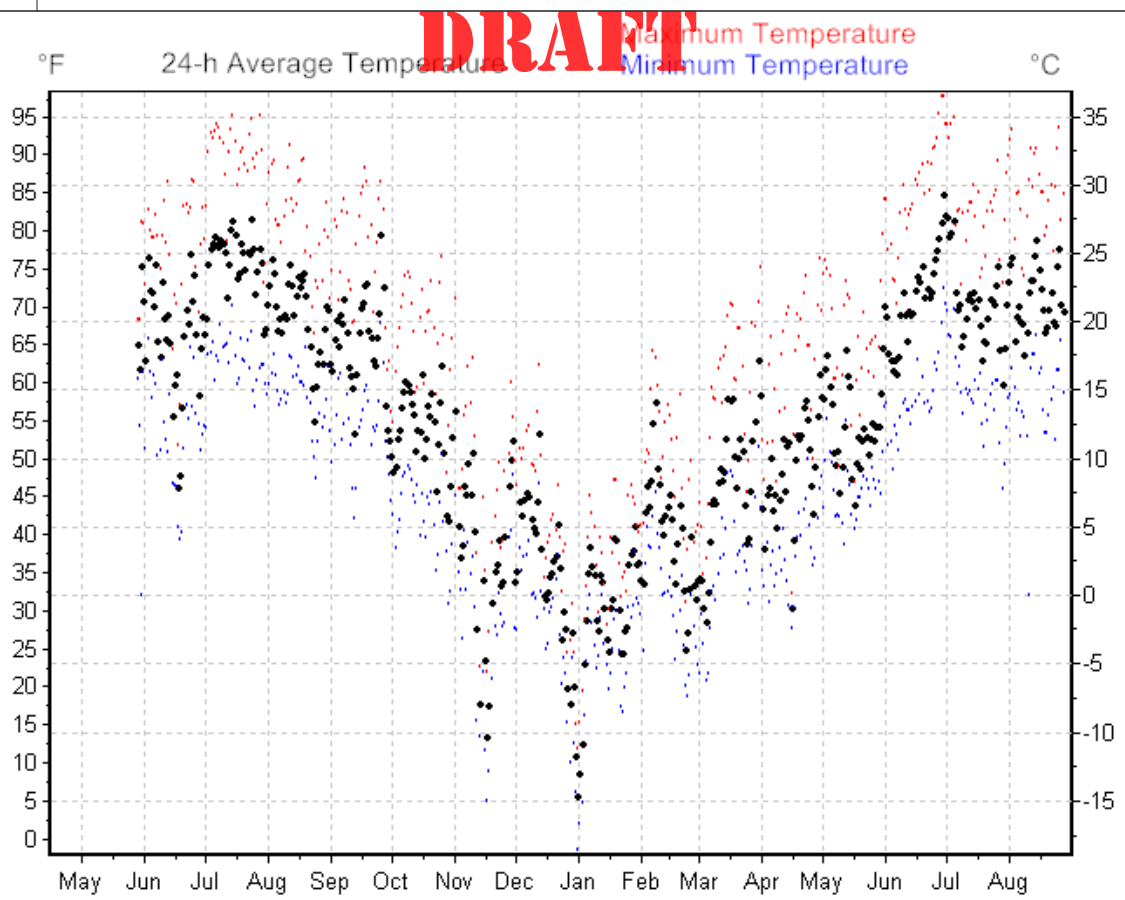


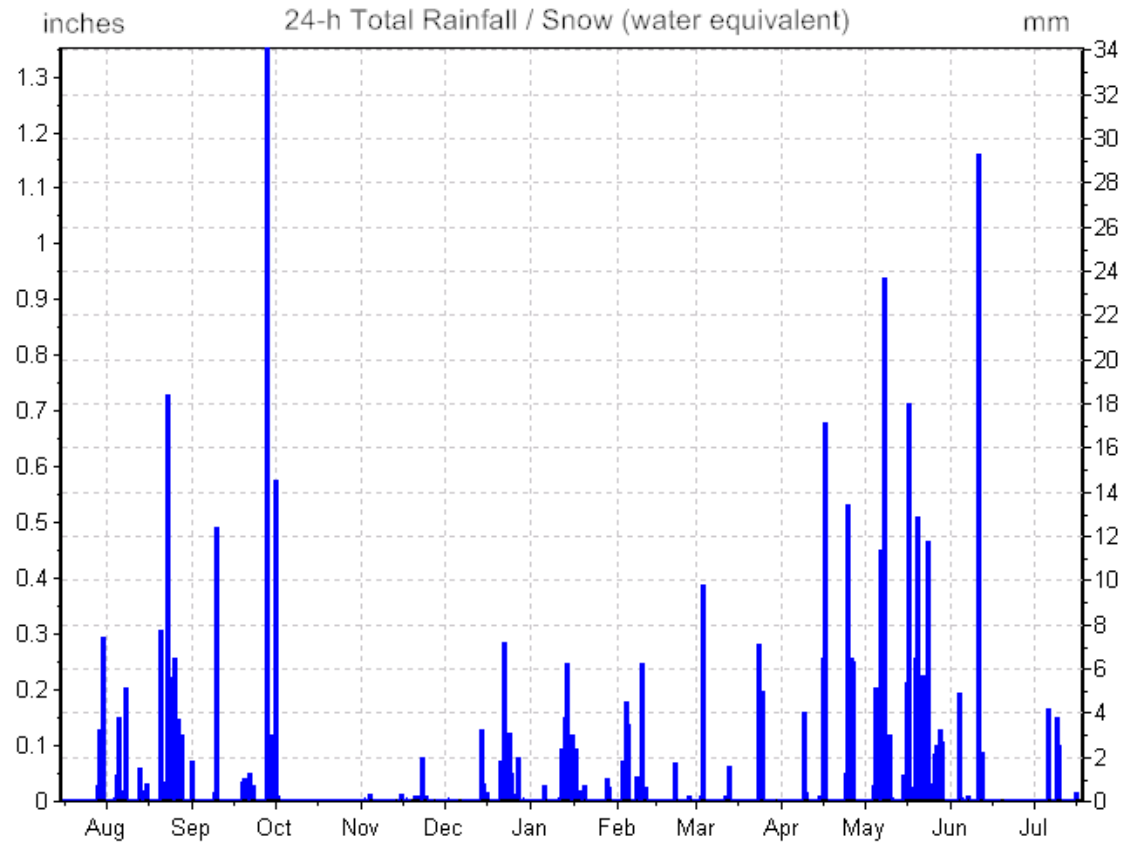
Clinical Services Building Site

N

0' 50' 150' 300' 600'

2.5 Site Analysis: Climate - USU Weather Station Graphs



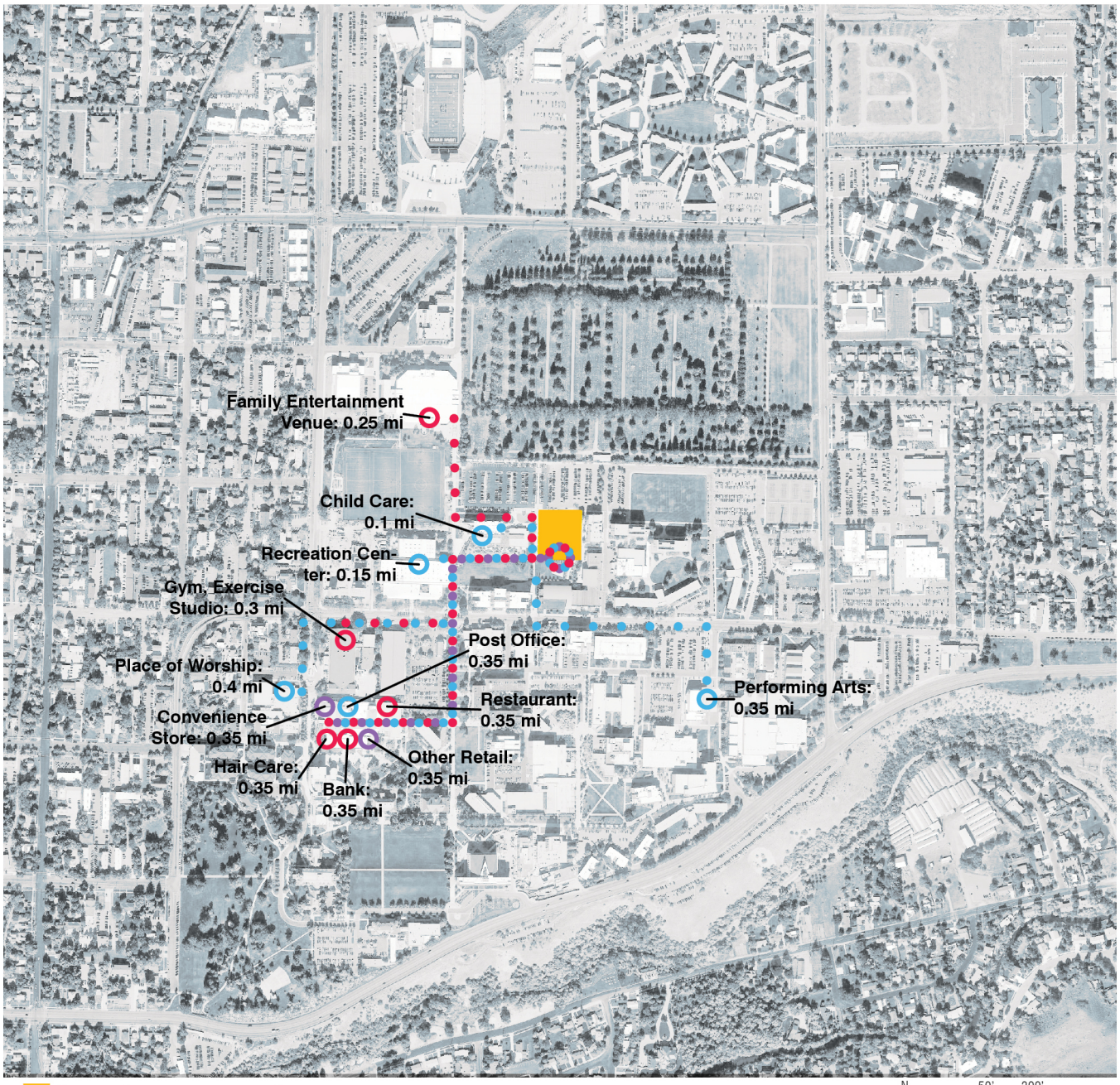


2.6 Site Analysis: **Diverse Uses**

DRAFT

This diagram represents a few of the many diverse uses the campus offers and walking distance from the site.

Services
Civic and Community
Community-Serving Retail



Clinical Services Building Site

N

0' 50' 150' 300' 600'

2.6 Site Analysis: Transit

DRAFT

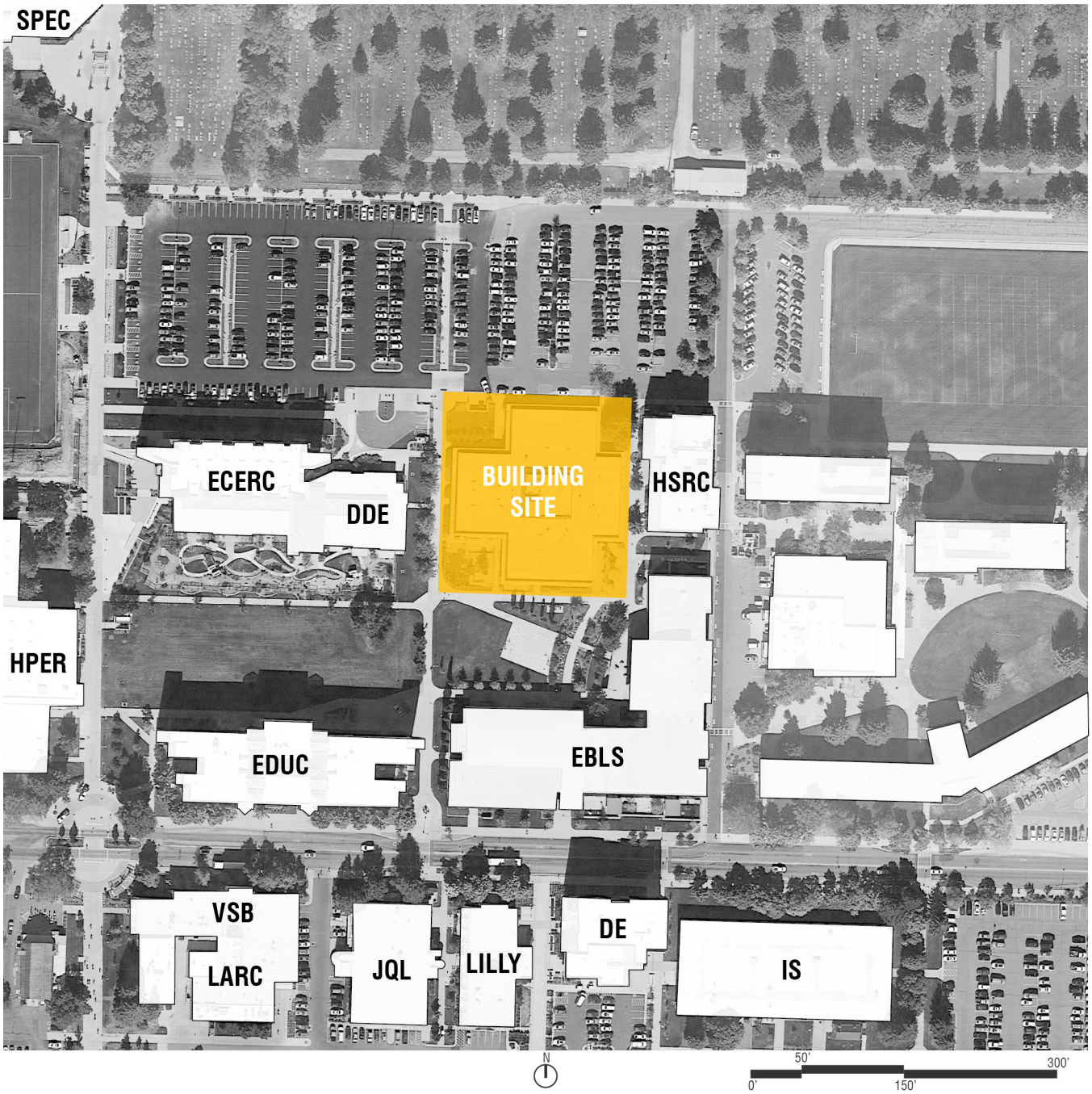
Cache Valley Transit District
Aggie Shuttle

Clinical Services Building Site

N
0' 50' 150' 300' 600'

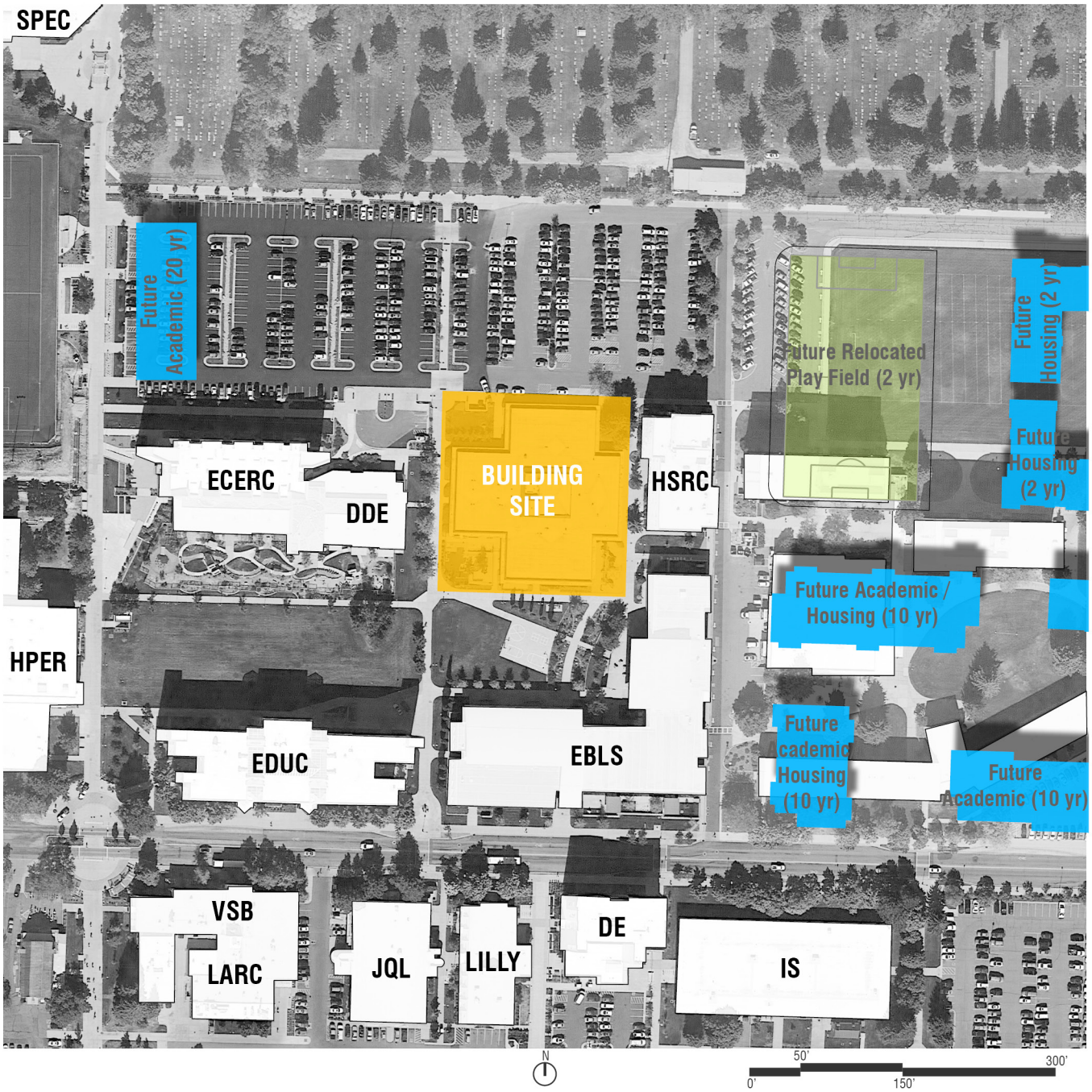
2.7 Site Analysis: Existing Building Context

DRAFT



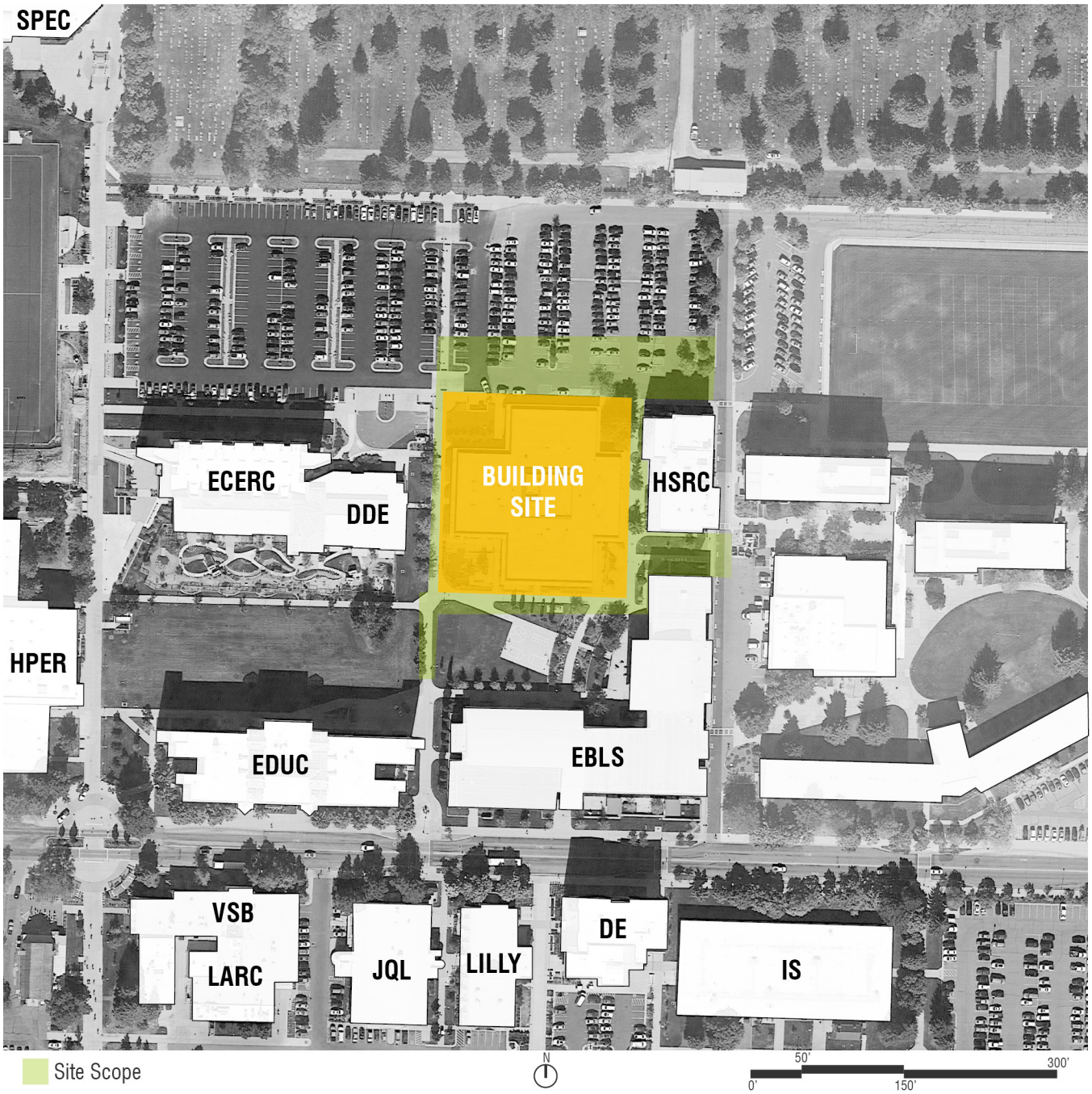
2.7 Site Analysis: Master Plan Buildout

DRAFT



2.27 Site Analysis: Site Scope and LEED Boundary

DRAFT



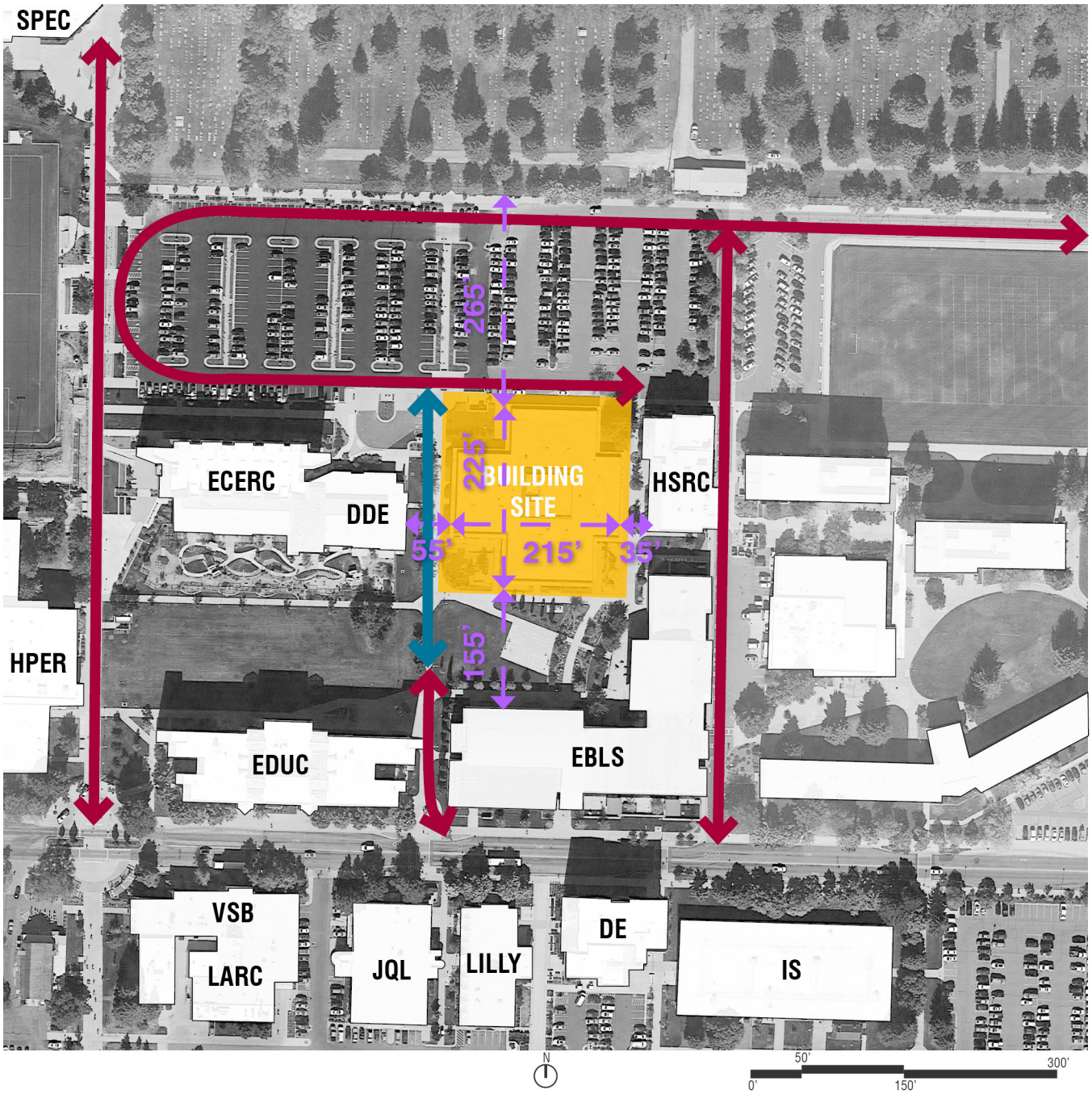
2.7 Site Analysis: Fire Truck Access and Site Measurements

DRAFT

Fire Lane Requirements to Note:

- 20' Wide Access
- 26' Wide Adjacent to Building
- Lane 10' Minimum - 30' Maximum From Building
- Support 75,000 lb. Truck

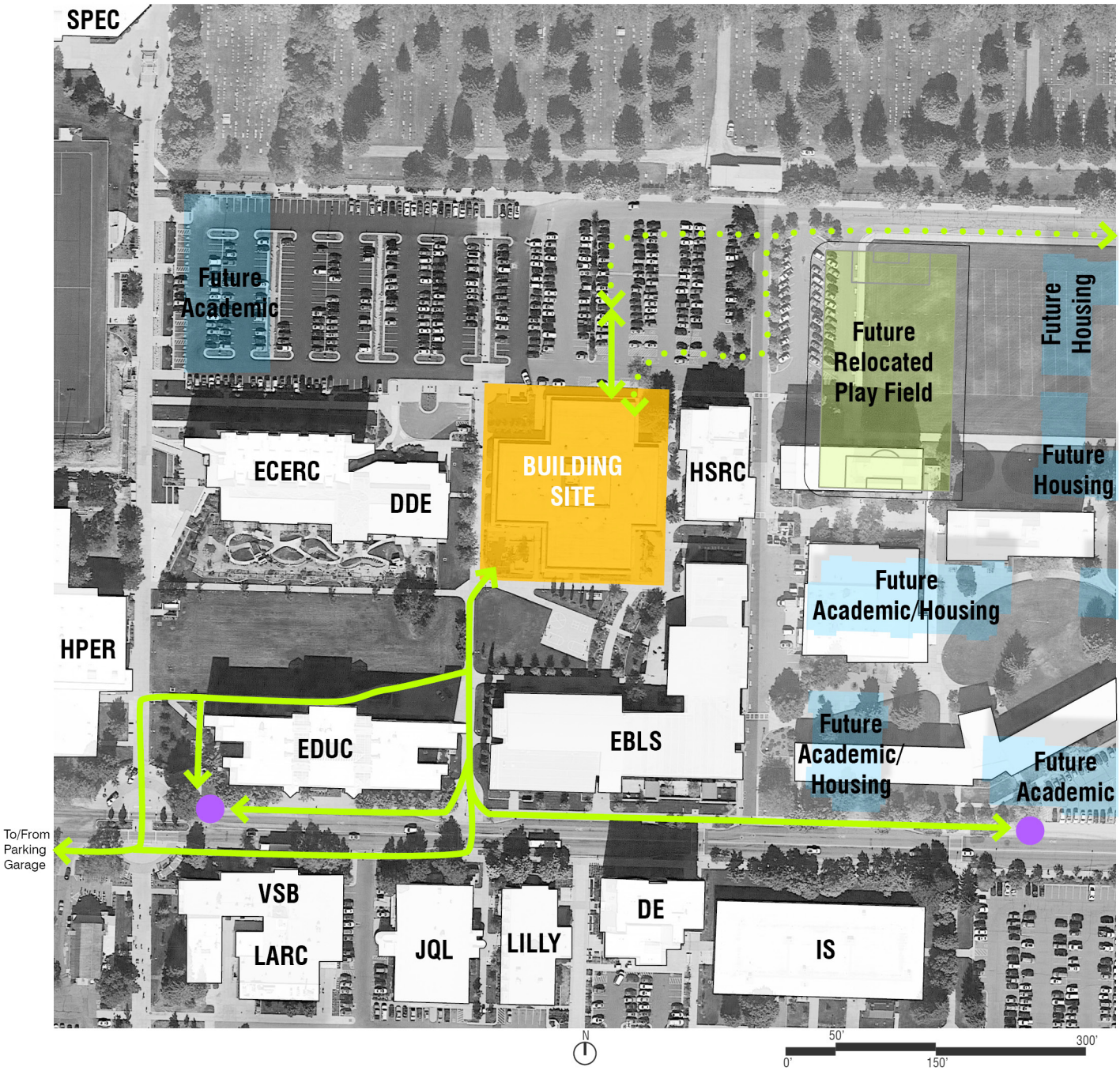
Rough Site Measurements
Existing Fire Truck Access
Required Fire Truck Access



2.7 Site Analysis: Circulation - Adult Patients

DRAFT

Pedestrian Movement
Vehicle Movement
Bus Stop



2.7 Site Analysis: Circulation - Children

DRAFT

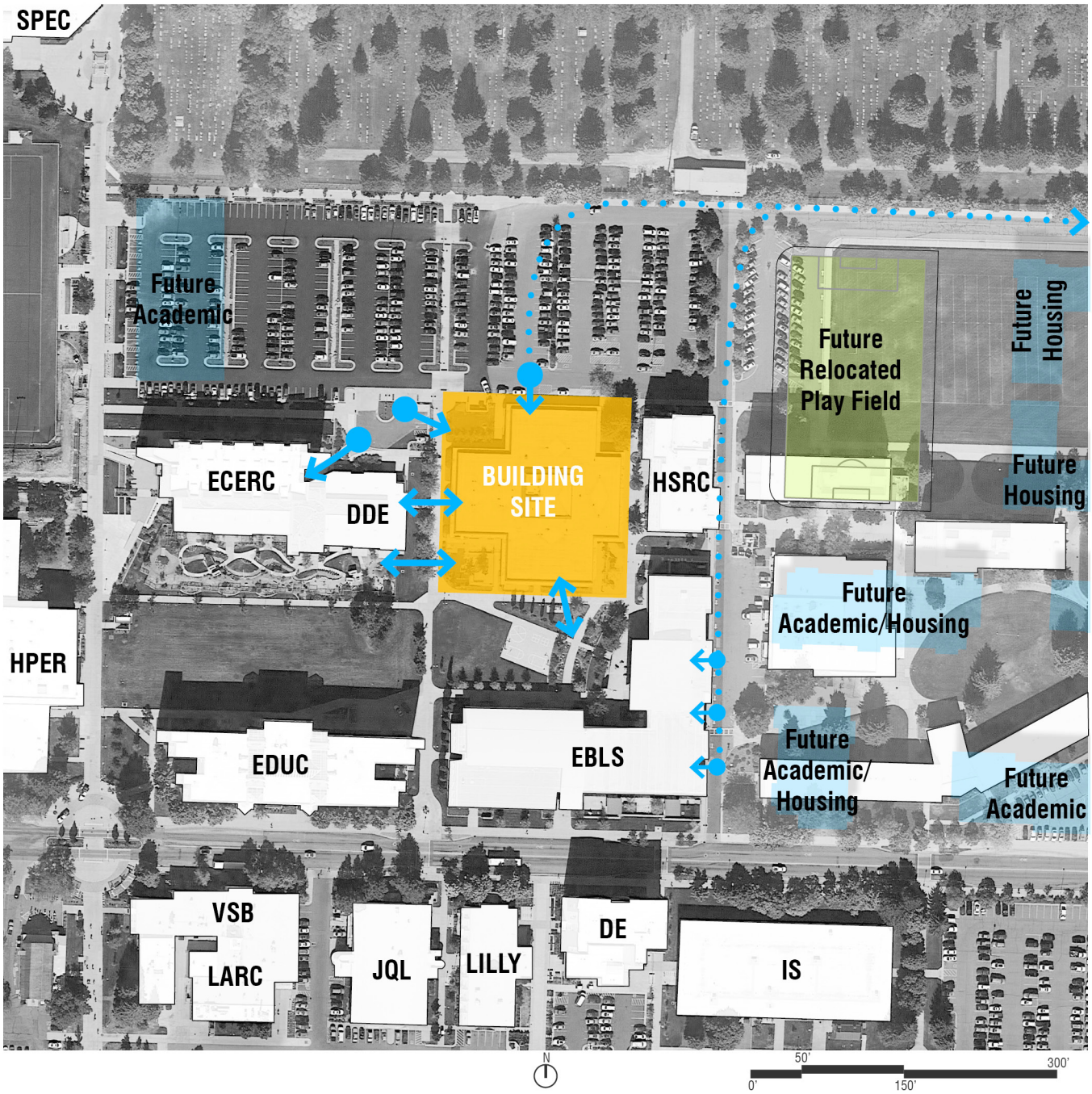
ASSERT

Drop Off	Pick Up
8:00 a.m.	12:00 p.m.
12:30 p.m.	4:30 p.m.

Pedestrian Movement
Vehicle Movement
Drop Off

DDE

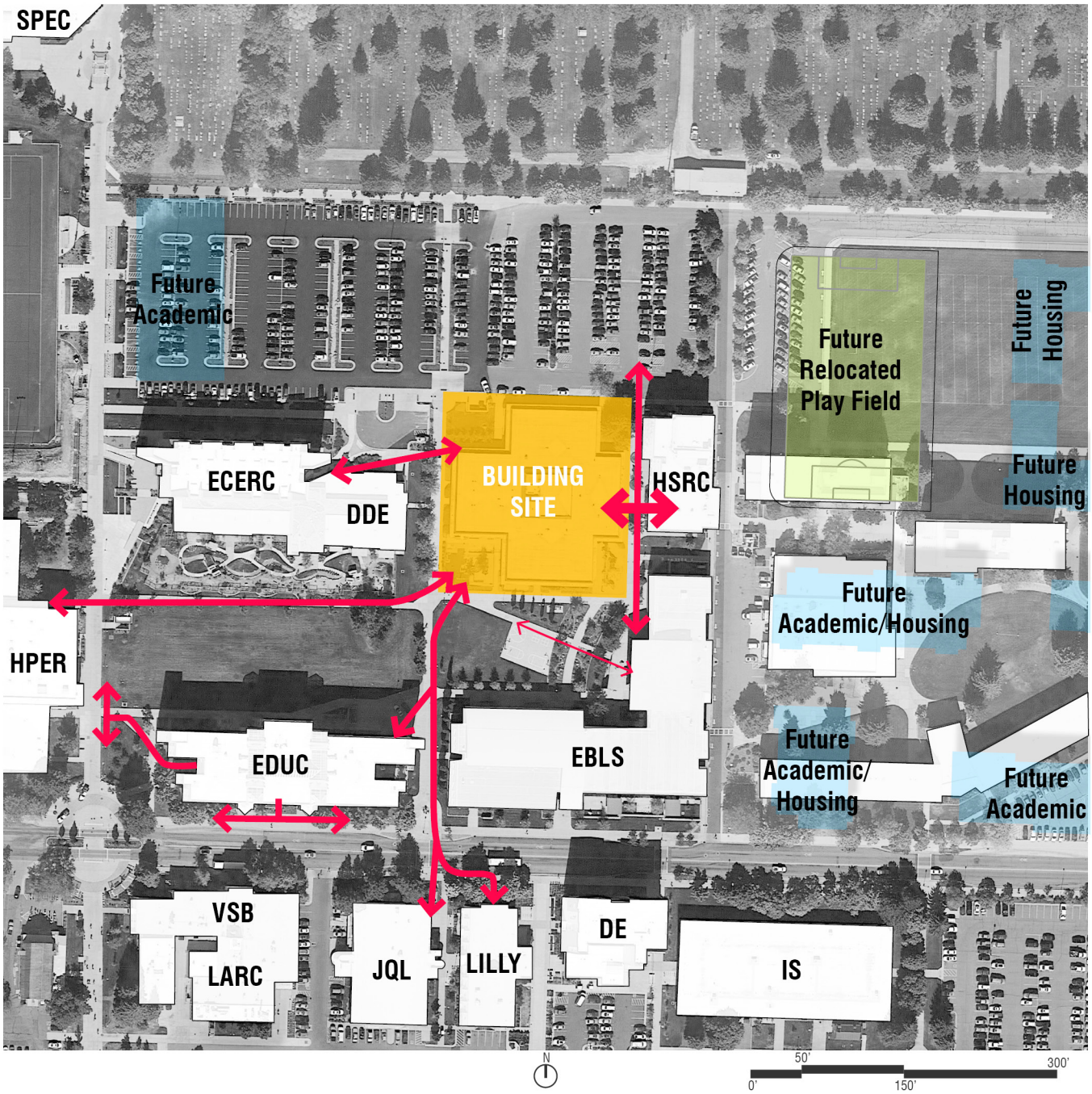
- Come and Go Program
- Any time drop off and pick up



2.7 Site Analysis: Circulation - Clinical Operations

DRAFT

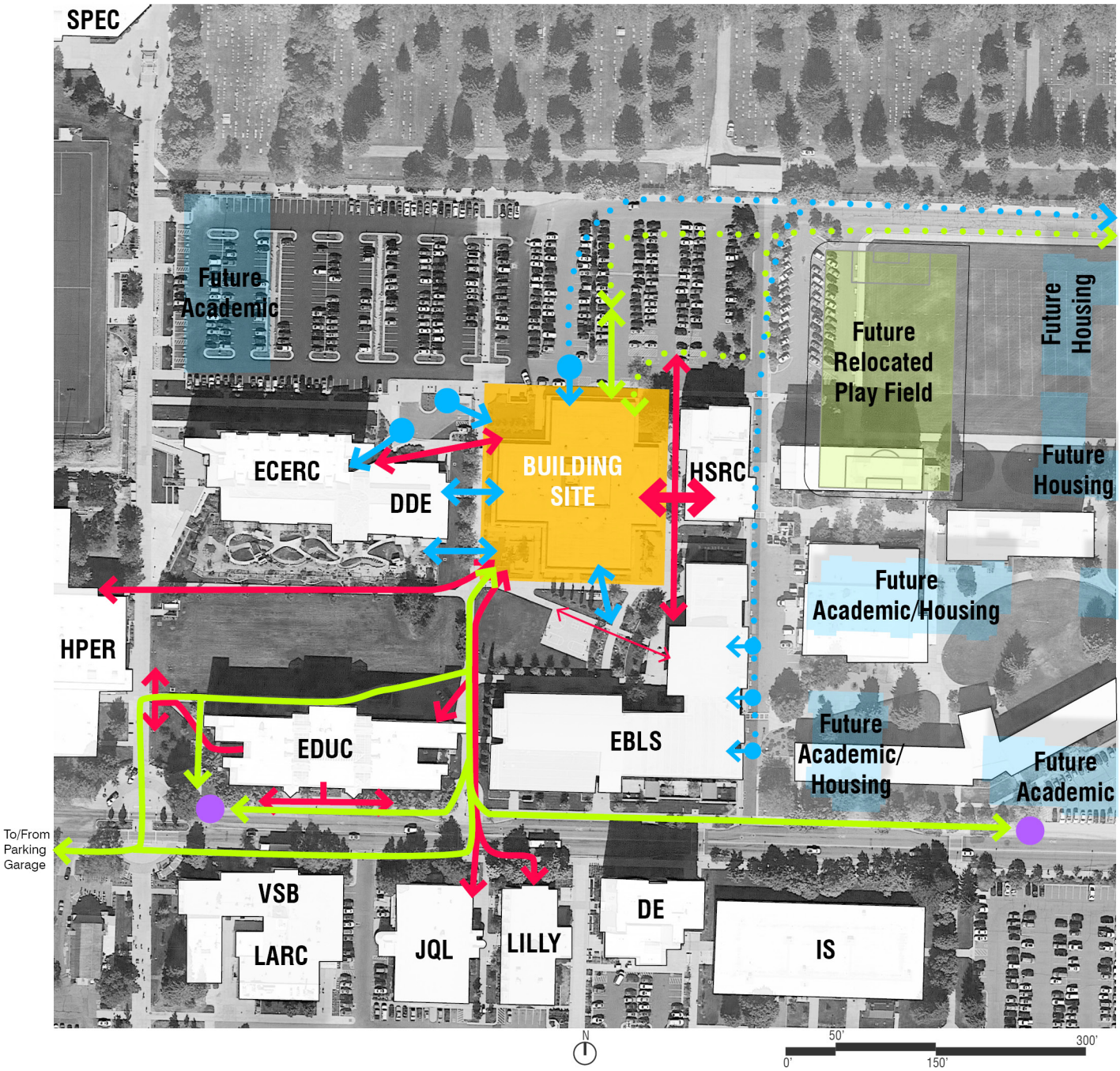
Pedestrian Movement



2.7 Site Analysis: Circulation - Combined

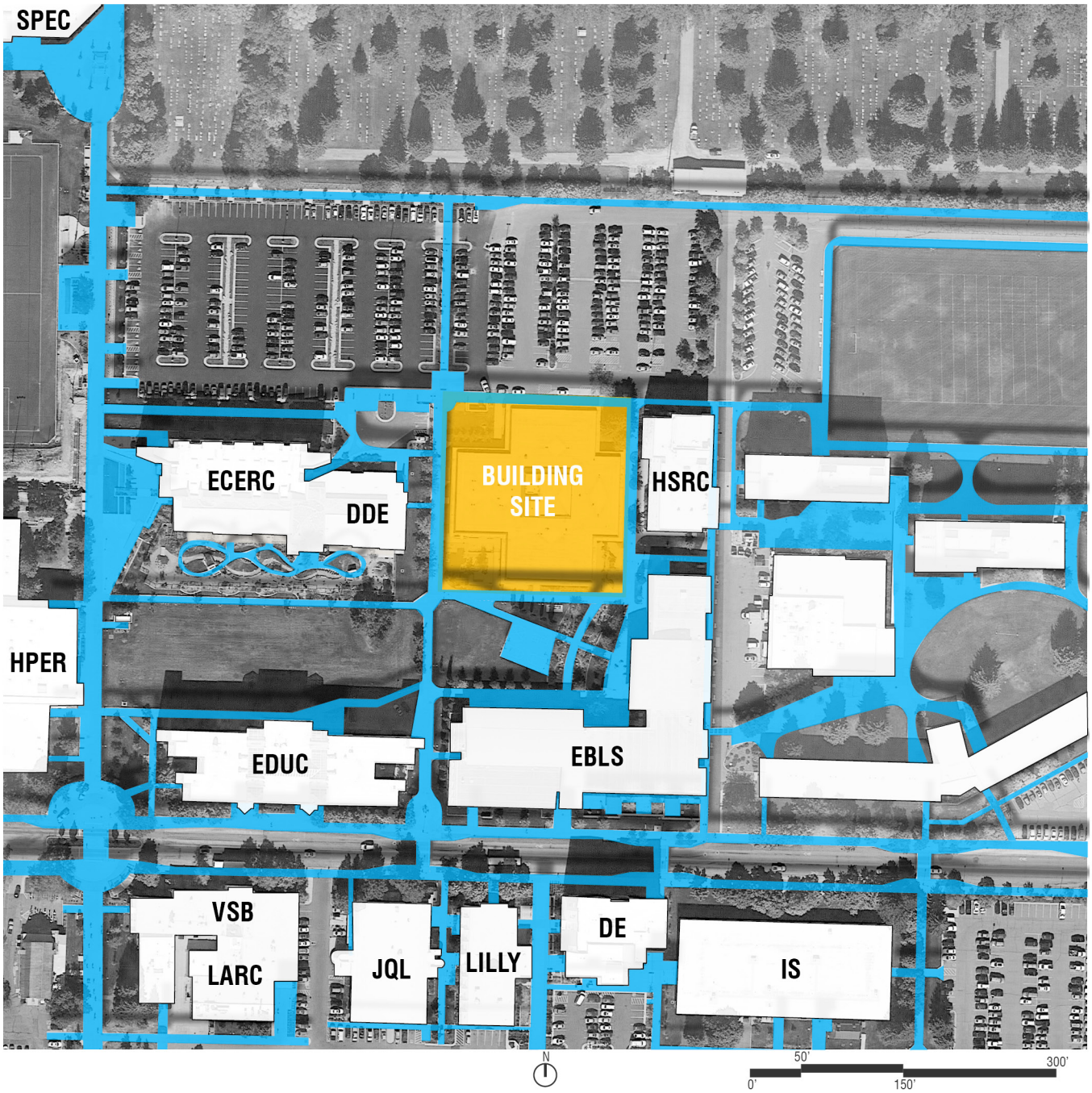
DRAFT

- Adult Patients
- Children
- Clinical Operations
- Pedestrian Movement
- Vehicle Movement
- Drop Off
- Bus Stop



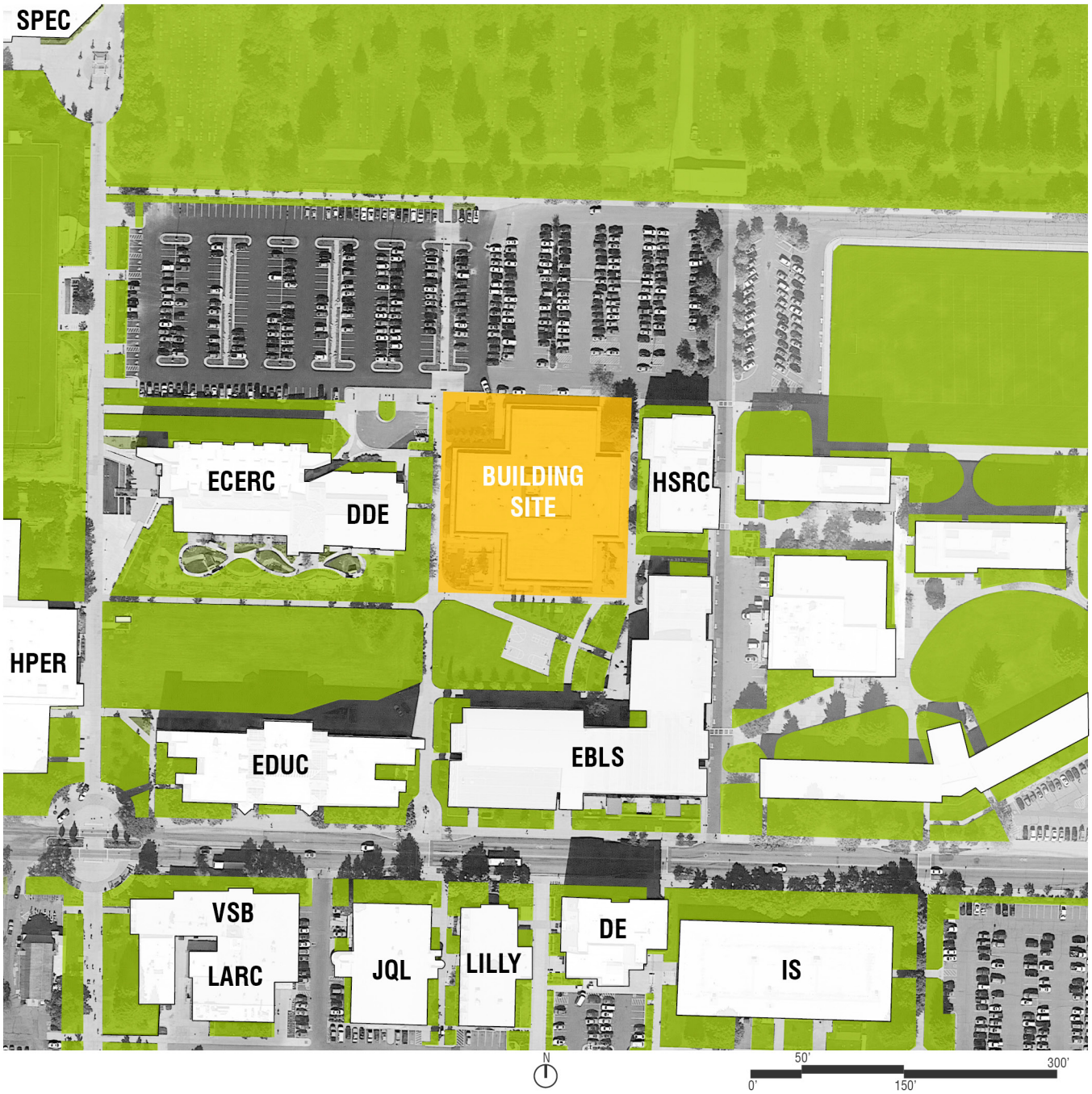
2.7 Site Analysis: Walking Pathways

DRAFT



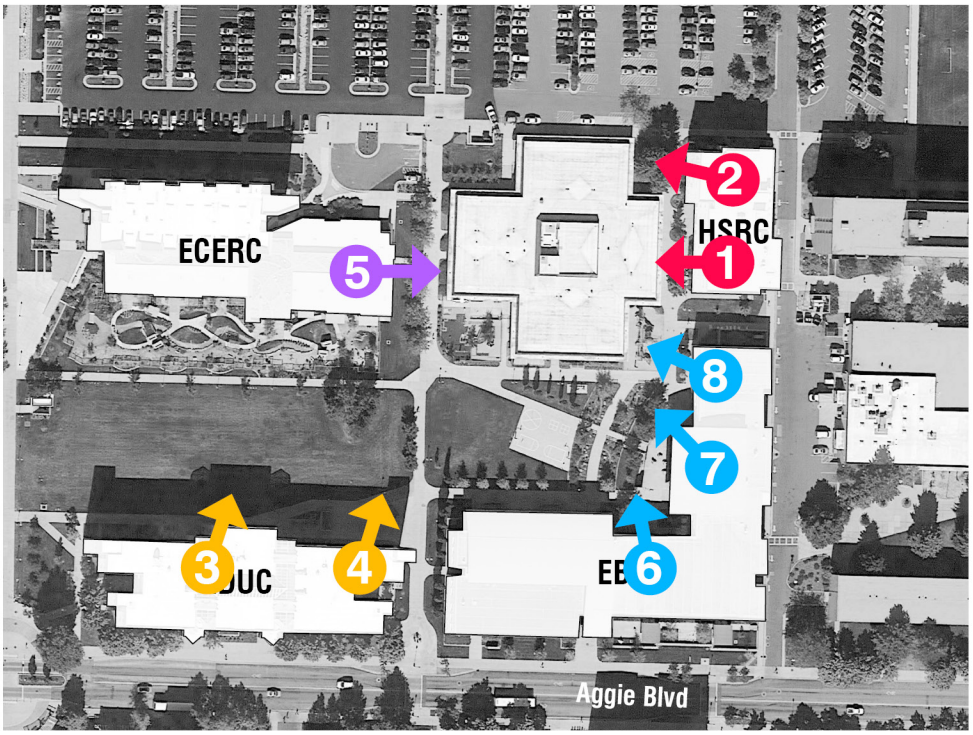
2.7 Site Analysis: Green Space

DRAFT



2.8 Site Analysis: Existing Site - Views From Surrounding Buildings

DRAFT



1

2

3

4

DRAFT

5

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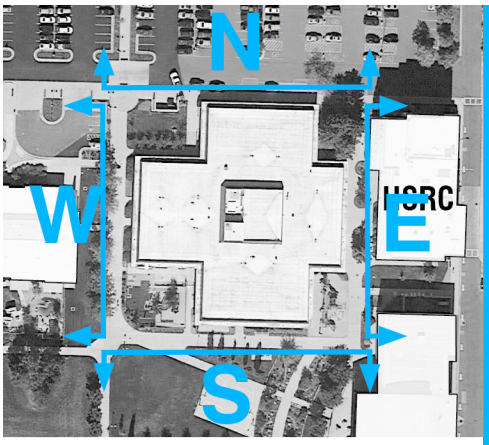
8

2.8 Site Analysis: Existing Site - Looking Out

DRAFT

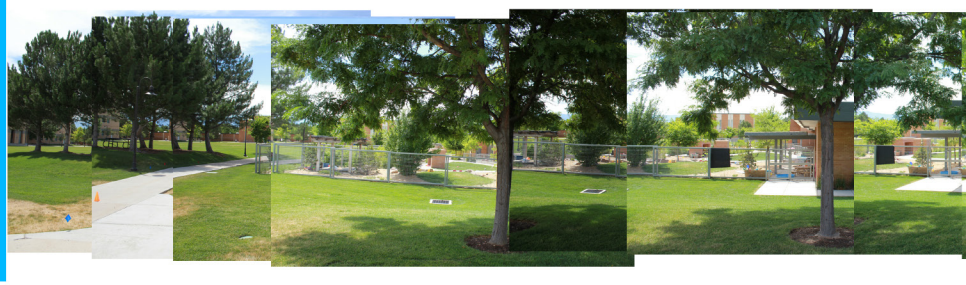


N

E

S

W



DRAFT

2.8 Site Analysis: Existing Site - Looking In

DRAFT

1

2

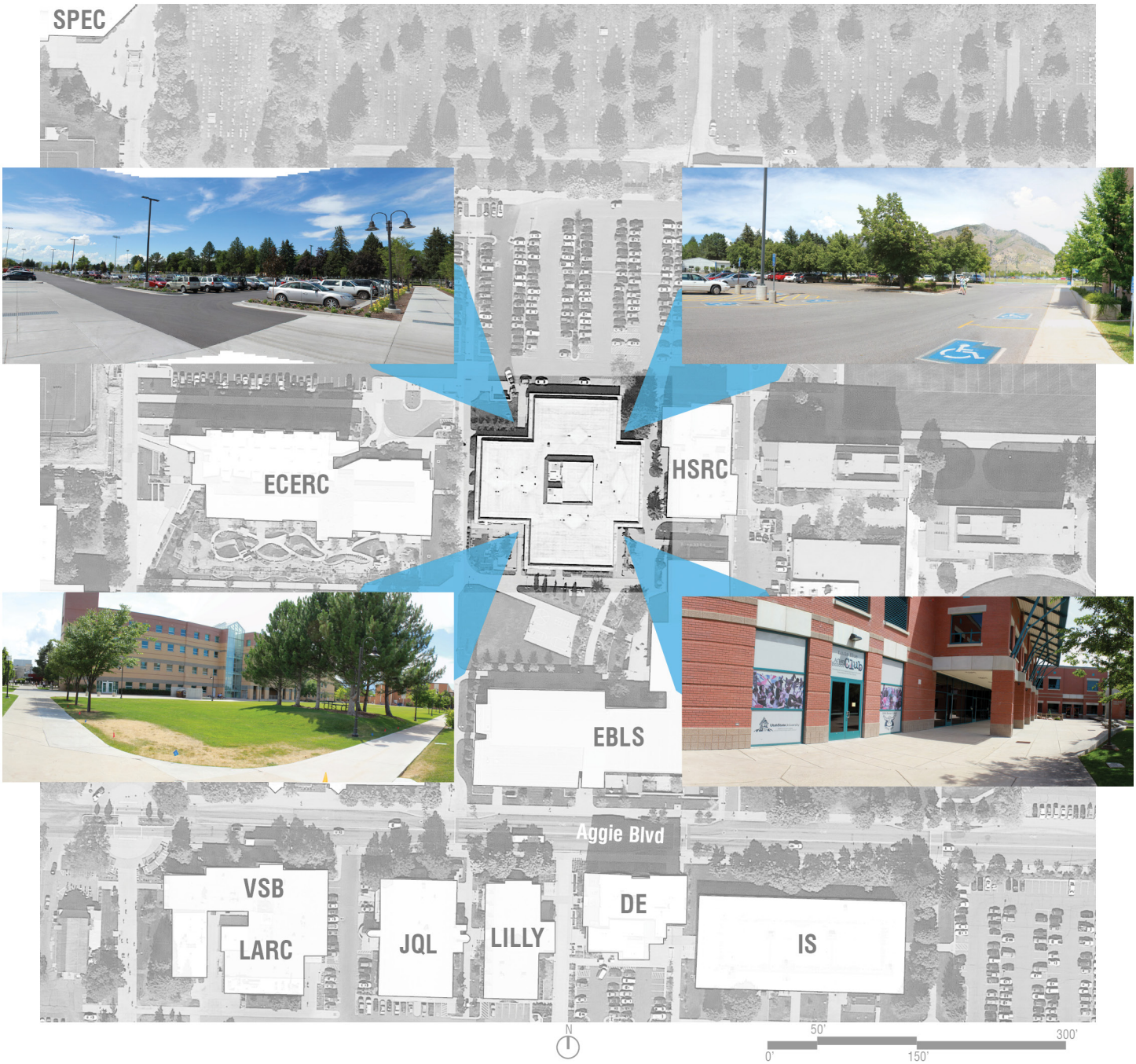
3

4

DRAFT

2.8 Site Analysis: Existing Site Corners - Looking Out

DRAFT

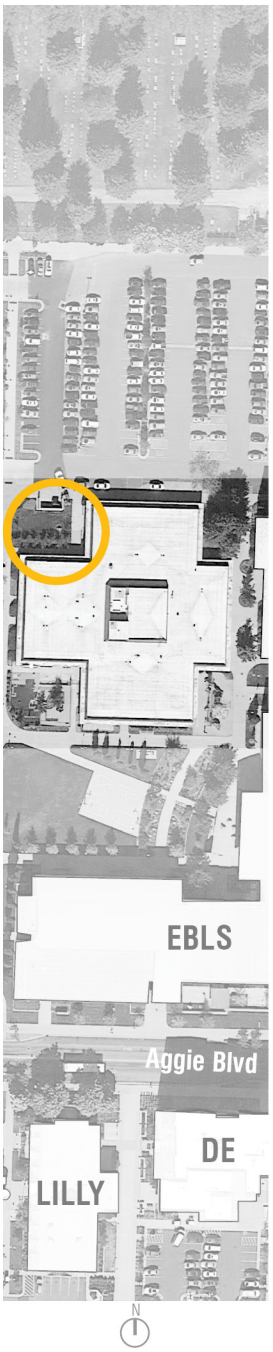


2.8 Site Analysis: Existing Site Corners - Looking In

DRAFT

2.8 Site Analysis: Northwest Corner of Site

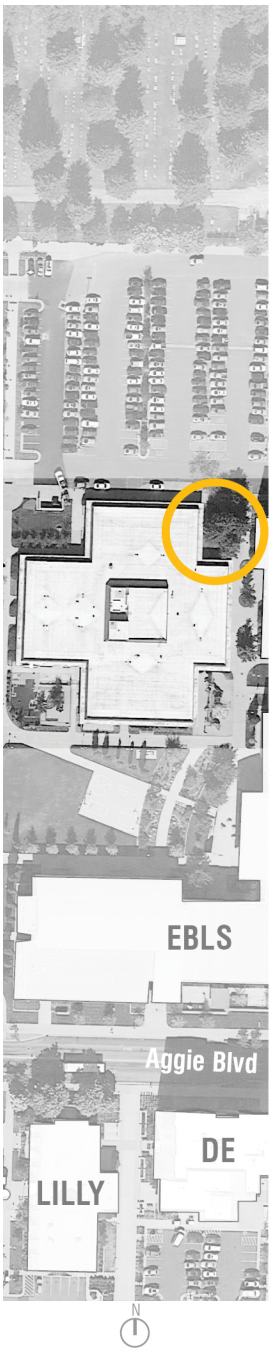
DRAFT



2.8 Site Analysis: Northeast Corner of Site

DRAFT

The northeast corner has several mature trees. The trees will be evaluated to determine if they fit with the functionality of the new building and can be preserved. USU Landscape Architect, Jim Huppi, stated that if any evergreen tree needs to be removed, then all evergreens will need to be removed because of how they have grown. USU is okay with trees being removed if needed for the project.

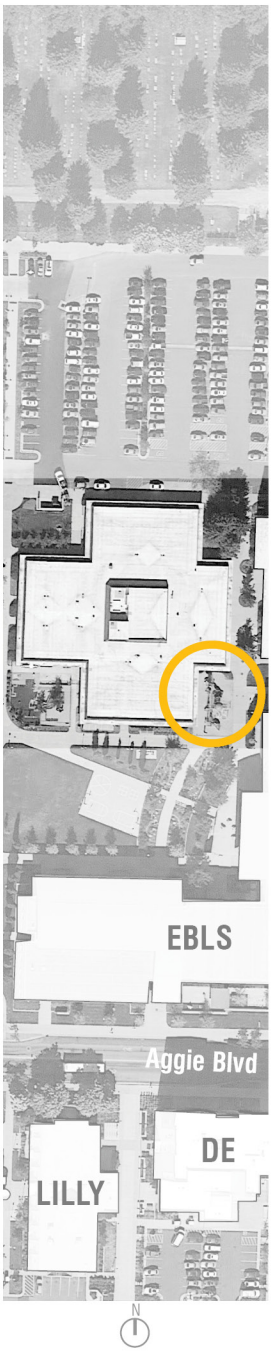


2.8 Site Analysis: Southeast Corner of Site

DRAFT

Elementary Age Children

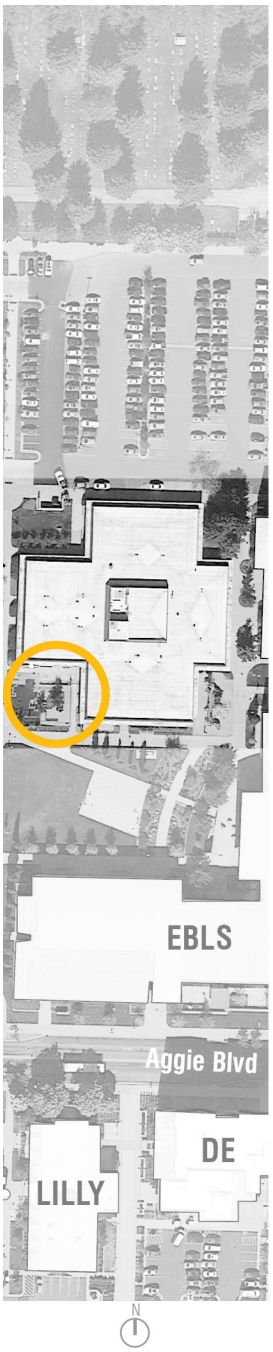
The existing southeast playground is used by EBLS students and will be relocated as a separate project by EBLS. It has been established that ASSERT will utilize the relocated playground.



2.8 Site Analysis: Southwest Corner of Site

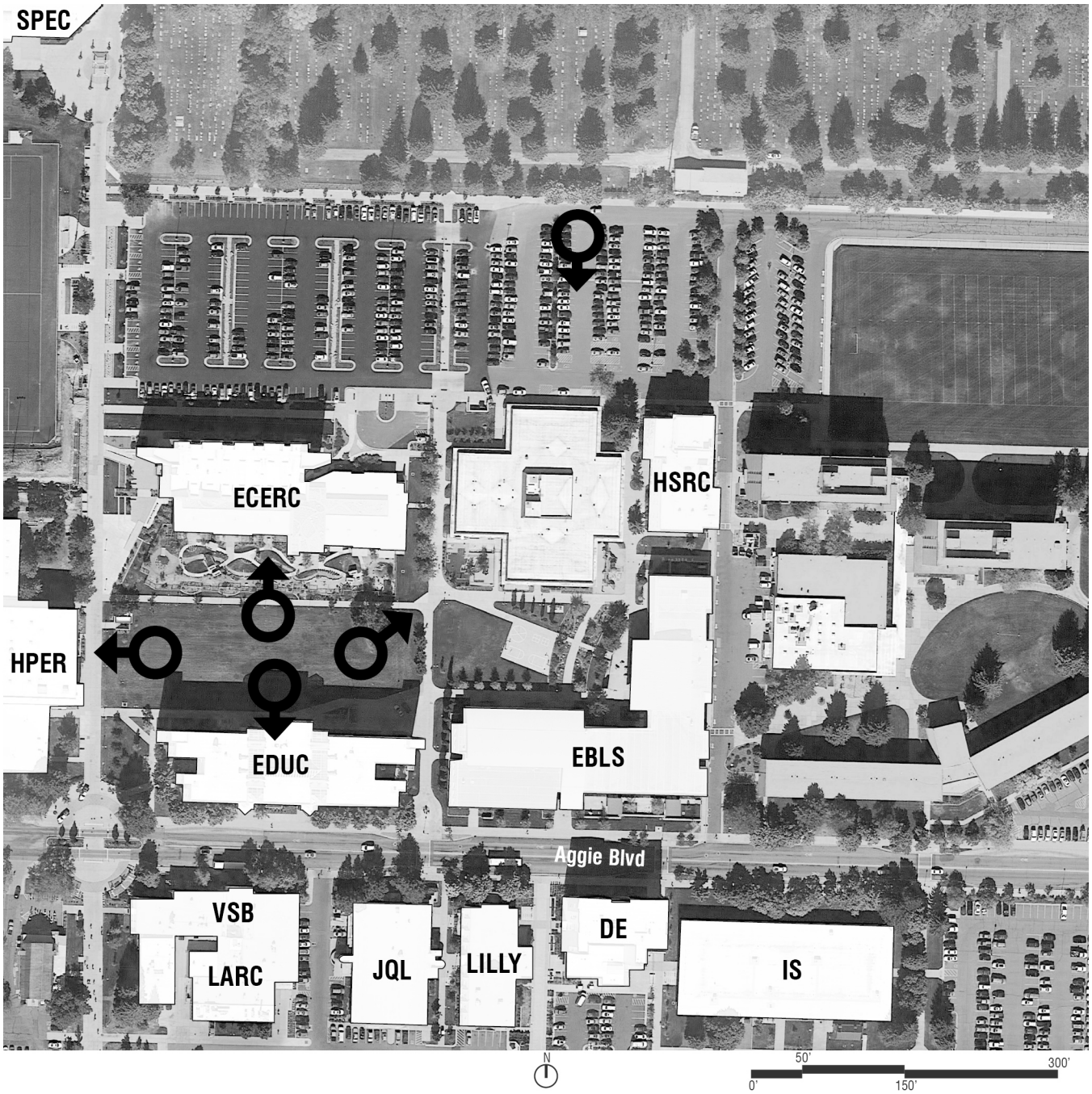
DRAFT Children Age 0-5 Years

The existing southwest playground is used by CPD and ECERC and will be relocated as part of the project. New locations for playground use should be evaluated and incorporated into the design, especially considering the playground will be used by the ABC Classroom. Requirements include inclusive playground considerations, pour in place rubber, and ample shade.



2.8 Site Analysis: Description

DRAFT

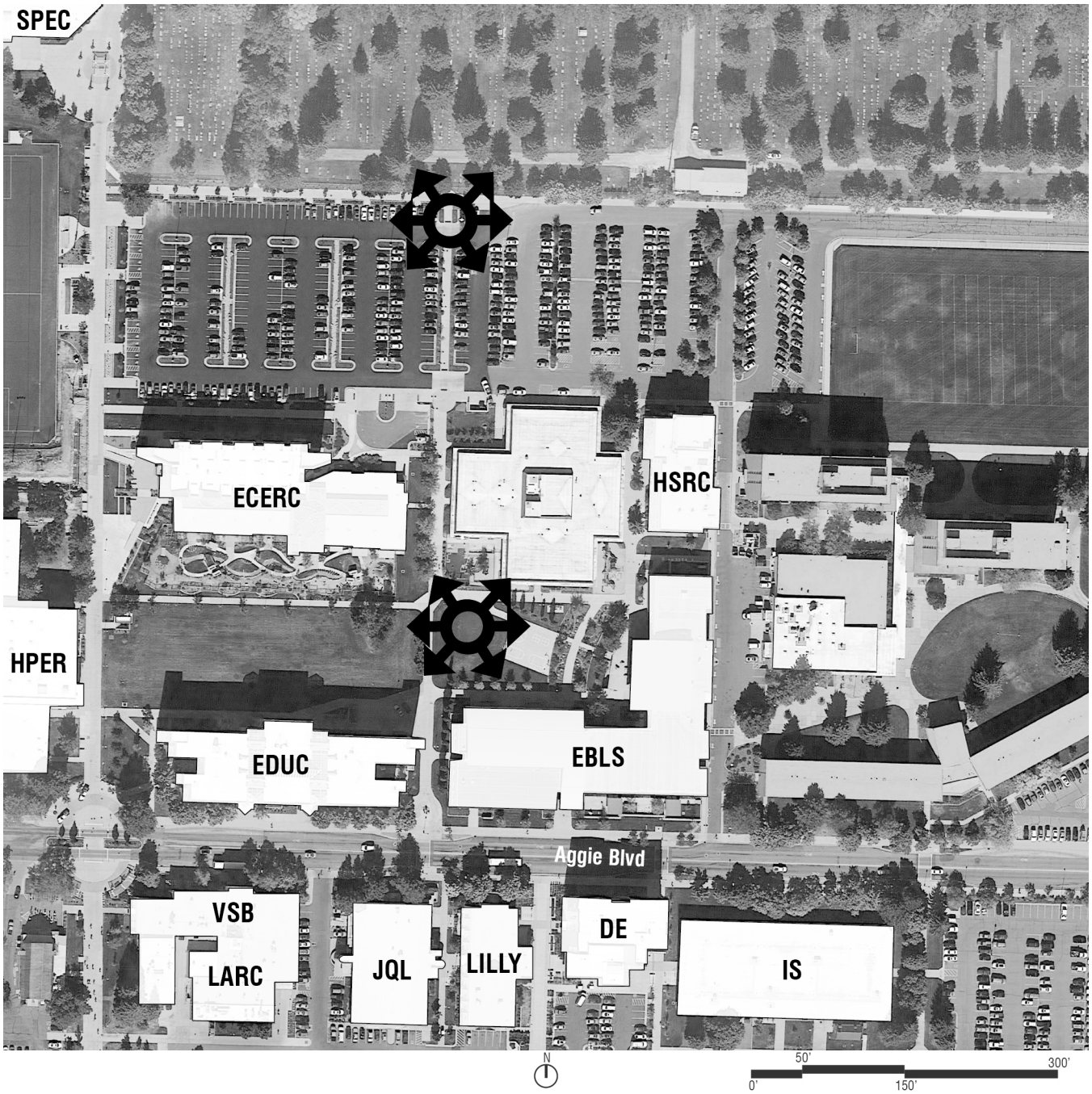


2.8 Site Analysis: Description

DRAFT

2.8 Site Analysis: Description

DRAFT



2.8 Site Analysis: Description

DRAFT

3

Program Spaces

3.1 Space Area Summary

JACOBY ARCHITECTS

Space Area Summary

Clinical Services Building

Utah State University

September 22, 2015

Common Area

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
L-1	Entry Lobby			2,500	1	2,500
IF-1	Information/Resource Kiosk			100	1	100
RC-1	Central Reception / Work Room			300	1	300
C-1	Café / Teaching Kitchen			1,000	1	1,000
CS-1	Café Seating			750	1	750
FS-1	Food Storage			200	1	200
G-1	Gallery Spaces			500	1	500
WK-2	Satellite copy/work rooms			100	2	200
BR-2	Satelite Break Nooks			80	2	160
SN-1	Study Nooks (2 Per Floor)			200	8	1,600
LA-1	Lactation Room			80	1	80
SI-1	Sibling Room			400	1	400
V-1	Vending			50	1	50
						7,840

Administration/Academic Spaces

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
O-1	Building Director's Office			120	1	120
	Faculty Offices					
O-1	Clinic 1			120	8	960
O-1	Clinic 2			120	14	1,680
O-1	Medical				2	
O-1	FCHD				6	
O-1	Psych				5	
O-1	growth				3	
O-1	Clinic 3			120	2	240
O-1	Clinic 4			120	16	1,920
O-1	Central Admin Offices			120	7	840
BR-1	Faculty Breakroom			300	1	300
WK-1	Mailroom/Work Room			200	1	200
CN-1	IVC Conference Room: Large	26		740	2	1,480
CN-2	IVC Conference Room: Medium	12		250	8	2,000
CN-3	IVC Conference Room: Small	6		160	4	640
ST-1	Technology Storage Room			150	2	300
CL-1	IVC Distance Classroom	30		850	1	850
CL-2	IVC Tiered Classroom	150		2,850	1	2,850
						14,380

Shared Clinical Support Spaces

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
TH-2	Therapy - Music		8	400	1	400
TH-3	Therapy - Meditative			400	1	400
						800

3.1 Space Area Summary

Clinic 1a: Autism and Other Developmental Disabilities (Children)

Center for Persons with Disabilities
Utah Behavior Support Clinic (UBSC) - partial
ASSERT

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
W-1	Reception Area / Waiting			400	1	400
RC-2	Reception Desk			100	1	100
RW-1	Research Work Room	6-8		400	1	400
TL-1	Toy Library / Washing			150	1	150
TQ-1	Testing Equipment Library			150	1	150
SH-1	Record Scan/Shred Room			200	1	200
PH-1	Private Phone Room			60	1	60
TH-4	IVC Therapy - Pediatric Type			150	4	600
ST-2	Clinical Storage			250	1	250
CL-4	ABC Classroom			800	1	800
CL-5	ASSERT Classroom	15-20	7-10	1,270	1	1,270
TL-2	Early Childhood Toy/media storage			200	1	200
WK-4	Early Childhood Workroom			200	1	200
CT-1	Shared Children's Toilet Room		6-10	140	1	140
O-4	ASSERT Coordinator Office			120	1	120
R-1	Adult Bathroom			120	1	120
K-1	Shared Kitchen Area			100	1	100
LN-1	Shared Laundry Area			50	1	50
GM-1	Gross Motor Room (including OT/PT)			1,200	1	1,200
GM-2	Gross Motor Equipment Storage			300	1	300
						6,810

Clinic 1b: Autism and Other Developmental Disabilities (adult)

Center for Persons with Disabilities
Utah Behavior Support Clinic (UBSC) - partial
Project PEER
EmployAbility Clinic

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
W-1	Reception Area / Waiting			400	1	400
RC-2	Reception Desk			100	1	100
RW-1	Research Work Room	6-8		400	1	400
SW-1	Student Itinerant Work Area			25	20	500
TQ-1	Testing Equipment Library			150	1	150
SH-1	Record Scan/Shred Room			200	1	200
PH-1	Private Phone Room			60	1	60
TR-1	UBSC Treatment Room			150	2	300
OB-5	UBSC Treatment Observation Room			150	2	300
TH-5	IVC Therapy - Across-the-table Type			150	6	900
TH-6	IVC Therapy - Medium Family Room Type			200	4	800
AT-1	Assistive Technology			400	1	400
ST-2	Clinical Storage			250	1	250
CL-6	PEER Classroom	10	17	1,263	1	1,263
O-5	Teacher Office (PEER observation)			120	1	120
						6,143

3.1 Space Area Summary

Clinic 2: Behavioral Health Clinic

Aging and Memory Clinic
Anxiety Disorders Clinic
Family Finance Clinic
Psychology Community Clinic
Marriage and Family Therapy Clinic
Medical Clinic
CPD Medical

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
W-1	Reception Area / Waiting			400	1	400
RC-2	Reception Desk			100	1	100
PW-1	Pediatric Waiting Area			100	1	100
RW-1	Psych Research Work Room	6-8		400	6	2,400
SW-1	Psych Student Itinerant Work Area			25	0	0
RW-1	FCHD Research Work Room	6-8		400	2	800
SW-1	FCHD Student Itinerant Work Area			25	20	500
NO-1	Note Room	12		300	1	300
TL-1	Toy Library / Washing			150	1	150
TQ-1	Testing Equipment Library			150	1	150
SH-1	Record Scan/Shred Room			200	1	200
PH-1	Private Phone Room			60	2	120
TH-7	Child Therapy			300	2	600
OB-1	Child Therapy Observation Room			150	1	150
TH-5	IVC Therapy - Across-the-table Type			150	8	1,200
TH-8	IVC Therapy - Large Family Room Type			300	1	300
TH-6	IVC Therapy - Medium Family Room Type			200	4	800
TH-9	IVC Therapy - Small Family Room Type			150	1	150
TH-4	IVC Therapy - Pediatric Type			150	1	150
TH-10	IVC Therapy - Apartment Type			652	1	652
	Observation Rooms			100	3	300
OB-2	Large Family Room Therapy					
OB-3	Medium Family Room Therapy					
OB-4	Small Family Room Therapy					
ST-2	Clinical Storage			250	1	250
MX-1	Medical Exam Room			120	4	480
WK-3	Doctor Work Station			10	1	10
VA-1	Vitals Area			50	1	50
O-2	2 Person Office			200	1	200
						10,512

Clinic 3: Health & Exercise Sciences Clinic

Arthritis Clinic
Concussion Clinic
Health Education
Physical Rehabilitation and Motor Learning Clinic

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
W-1	Reception Area / Waiting			200	1	200
RC-2	Reception Desk			100	1	100
RW-1	Research Work Room	6-8		400	1	400
SW-1	Student Itinerant Work Area			25	16	400
TH-5	IVC Therapy - Across-the-table Type			150	3	450
GY-1	Gym - Exercise/Evaluation/Rehabilitation Room		10	1,150	1	1,150
WT-1	Water Therapy		6	660	1	660
PC-1	Pool Control Room	1		200	1	200
LO-1	Locker Room / Changing		5	250	2	500
	Patient belongings storage					
	Shower room				1	
	Toilet Rooms				1	
ST-2	Clinical Storage			250	1	250
MP-1	Multipurpose Room			400	1	400
LN-2	Laundry Room			100	1	100
						4,810

Clinic 4a: Speech and Language Clinic

Aphasia Clinic
Social Communication Clinic
Speech and Language Clinic

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
W-1	Reception Area / Waiting			400	1	400
RC-2	Reception Desk			100	1	100
RW-1	Research Work Room	6-8		600	1	600
SW-1	Student Itinerant Work Area			25	30	750
NO-1	Note Room	12		300	1	300
TL-1	Toy Library / Washing			150	1	150
TQ-1	Testing Equipment Library			150	1	150
SH-1	Record Scan/Shred Room			200	1	200
PH-1	Private Phone Room			60	2	120
OB-6	Therapy Observation Room		2	50	10	500
TH-5	IVC Therapy - Across-the-table Type			150	7	1,050
TH-6	IVC Therapy - Medium Family Room Type			200	3	600
TH-4	IVC Therapy - Pediatric Type			150	1	150
CH-1	Child Language Lab			300	1	300
ST-2	Clinical Storage			250	1	250
HS-1	Hearing Screening			150	1	150
VL-1	Voice Lab			100	1	100
AT-2	Assistive Technology			100	1	100
SP-1	Smart Palates			100	1	100
						6,070

Clinic 4b: Hearing & Balance Clinic

Audiology Clinic
Hearing and Balance Clinic

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
SB-1	Sound Booth (double walled)			200	2	400
SC-1	Sound Booth Control Room			100	2	200
HA-1	Hearing Aid Work	3		200	1	200
HF-1	Hearing Aid Fitting	2		200	2	400
EB-1	ENG Balancing	1		200	1	200
RB-1	Rotary Balancing	1		144	1	144
PB-1	Posturography Balancing			264	1	264
CR-1	Cerumen Removal / Counceling			120	1	120
ST-2	Clinical Storage			250	1	250
						2,178

Nursing Simulation Lab

Room ID	Room Name	Staff	Patients	Area (SF)	Quantity	Total Area (SF)
NP-1	**Nursing Simulation Lab (Advanced Preparation Studio + Offices)**					**3,070**
	Reception/Waiting			250	1	250
	Simulated Patient Rooms			225	4	900
	Advanced Prep Room			250	1	250
	Hospital Hallway (w/ nurse station)			700	1	700
	Advanced Control Room			250	1	250
	Offices			120	6	720
NP-2	**Nursing Simulation Lab (Basic Preparation Studio)**					**2,100**
	Classroom with Patient Rooms			1,700	1	1,700
	Basic Control Room			250	1	250
	Basic Prep Room			150	1	150

Building Support and Maintenance						
Room ID	**Room Name**	**Staff**	**Patients**	**Area (SF)**	**Quantity**	**Total Area (SF)**
	Courtyard Maintenance Storage Room			150	1	
	Circulation					
	Vertical Circulation (stairs/elevators)					
	Therapy Pool Mechanical Room			600	1	600
	Utility Yard					
	Emergency Generator - 16'x28'			448	1	448
	Utility Service Transformers - 30'x20'			600	1	600
	Electrical Service Switchboards - 12'x4'			48	2	96
	Trash and Recycling Room			300	1	300
	Food Delivery Entrance					
	Public Toilet Rooms					
	Maintenance Storage					
	Attic Stock Storage					
	Custodial Storage					
	Custodial Closets- Approx 1 per 20,000 sf, at least 1 per floor					
	Mechanical Room					
	Wet Side Mechanical (adjacent to tunnel entrance)			1786	1	1,786
	Air Handling Room			4466	1	4,466
	Main Electrical Room - 12'x24'			288	1	288
	Emergency Electrical Room - 8'x10'			80	1	80
	Remote Electrical Rooms - 8'x10' - 2 per floor			80	8	640
	Main Telecom Room - 10'x11'			110	1	110
	Remote Telecom Room - 10x8' - 2 per floor			80	8	640
	Server/AV Equipment Room			400	1	400
	Elevator Equipment Room					
	Receiving Dock					
	Trash nooks					
	AV Closets					
	Lawnmower/snowblower storage					

these spaces are included in net to gross multiplier

1. Total (Building only)

Estimated net to gross multiplier (and % efficiency)	1.5	0.67	**Total Net Area**	59,543
			Estimated Gross Area	**89,315**
			DFCM Budget	$22,800,000.00
			Total Budget	**$22,800,000.00**
			per/sf	$255.28

2. Total (Building + Parking Garage)

Building Estimated Gross Area			89,315	1	**89,315**
Parking Garage for 35 Stalls			10,000	1	**10,000**

Estimated Gross Area with Parking	**99,315**
DFCM Budget	$22,800,000.00
Addition from USU Parking Services	$625,000.00
Total Budget	**$23,425,000.00**
per/sf	$235.87

3. Total (Building + Parking Garage + Advanced Nursing)

Building Estimated Gross Area			89,315	1	**89,315**
Parking Garage for 35 Stalls			10,000	1	**10,000**
Advanced Nursing Simulation Lab + Nursing Offices			3,070	1.3	**3,991**

Estimated Gross Area with Parking & Advanced Nursing	**103,306**
DFCM Budget	$22,800,000.00
Addition from USU Parking Services	$625,000.00
Addition from outside donor for Nursing (4186 SF @ 260/SF)	$1,100,000.00
Total Budget	**$24,525,000.00**
per/sf	$237.40

4. Total (Building + Parking Garage + Advanced Nursing + Basic Nursing)

Building Estimated Gross Area			89,315	1	**89,315**
Parking Garage for 35 Stalls			10,000	1	**10,000**
Advanced Nursing Simulation Lab + Nursing Offices			3,070	1.3	**3,991**
Basic Nursing Simulation Lab			2,100	1.3	**2,730**

Estimated Gross Area with Parking & Advanced & Basic Nursing	**106,036**
DFCM Budget	$22,800,000.00
Addition from USU Parking Services	$625,000.00
Addition from outside donor for Nursing (6916 SF @ 260/SF)	$1,800,000.00
Total Budget	**$25,225,000.00**
per/sf	$237.89

Room Data Sheets: RC-1 - Central Reception L-1 - Lobby

Occupants:

2 Staff

Adjacencies:

Close To: Main Entrance(s), Lobby

Located on Level 1

Away From:

Physical Characteristics:

Finishes: Specified, decorative finish panel materials; stone counter tops; wood or high quality composite cabinets; wood, ceramic, stone, or LVT floor

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements: Interface with flat panel TV

Data/Voice: Wi-Fi, dedicated at workstations

Engineering Systems:

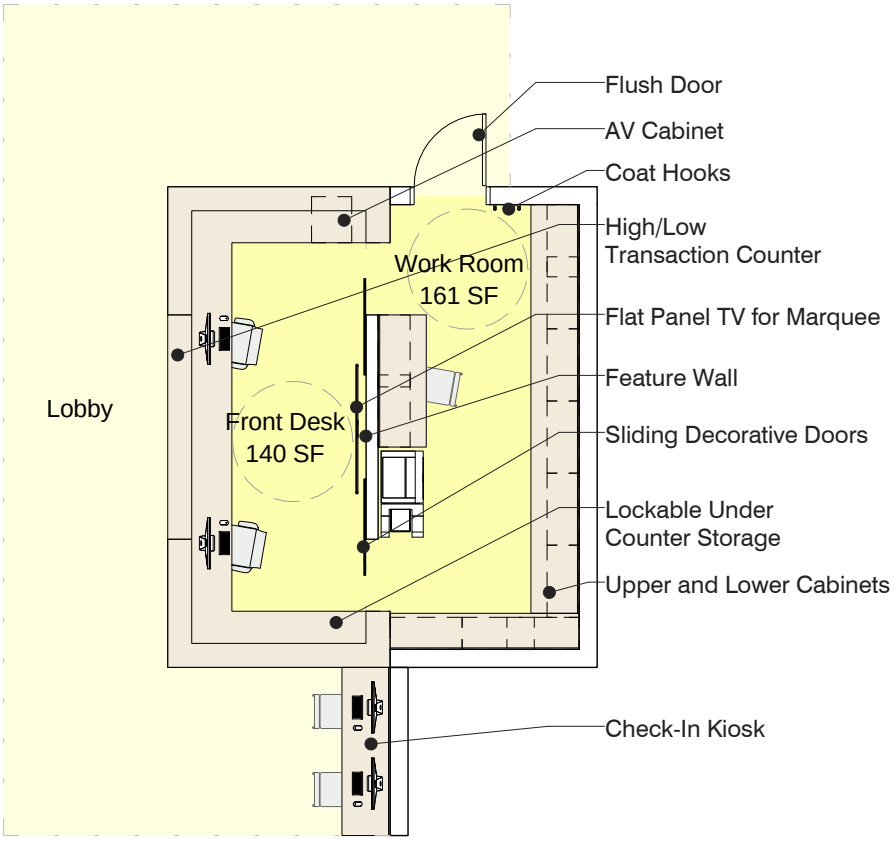
Power Requirements: At workstations, at flat panel

Lighting Requirements: Location for common area lighting control, decorative pendants above counters

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **WK-2 - Satellite Work/Copy Room**

description of space as needed

Occupants:

2 Occupants

Adjacencies:

Close To: Front Desk

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, ACT

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at copier, Wi-Fi

Engineering Systems:

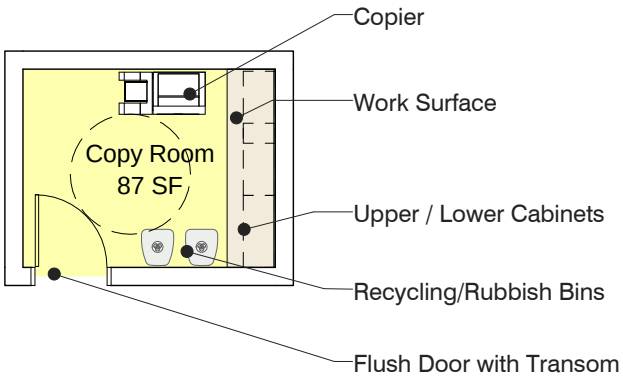
Power Requirements: Power outlets above work surface, dedicated at copier

Lighting Requirements: Under cabinet lighting, occupancy sensor

Mechanical Requirements: Dedicated thermostat, exhause, ventilation system for copier exhaust

Plumbing Requirements: None

Security Requirements:



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Room Data Sheets: C-1 - Cafe / Demonstration Kitchen CS-1 - Cafe Seating

At the heart of the building, the cafe and demonstration kitchen will serve as a vibrant area to engage the public by providing opportunities to purchase food or drink, lounge in a comfortable seat, or receive life skills training through formal and informal demonstrations.

Occupants:

Varies

Adjacencies:

Close To: Lobby

Away From:

Physical Characteristics:

Finishes:C-1 - Scrubbable ceiling / wall surfaces in food prep areas,quarry tile with cove base in food prep areas, solid surface and stainless steel counter tops,wood, stainless steel, or high quality composite cabinets; CS-1 - Specified, decorative finish panel materials; wainscot; wood, ceramic, stone, or LVT floor

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements: Cameras and flat panel TVs for demonstrations, flat panel TVs in cafe for menu, P.O.S.

Data/Voice: Dedicated at flat panels, Wi-Fi

Engineering Systems:

Power Requirements: Dedicated at equipment, vending machines, charging stations at seating

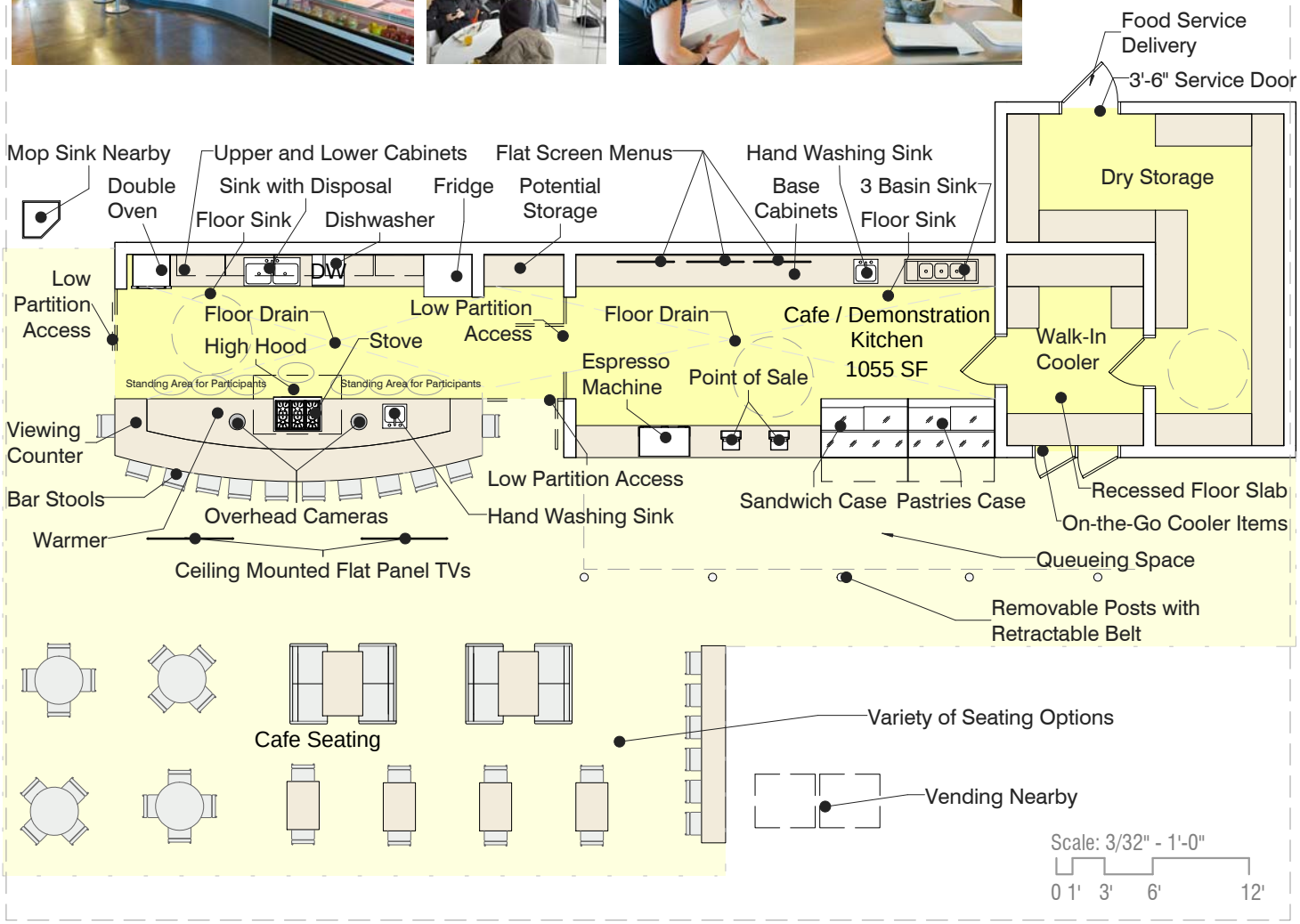
Lighting Requirements: 50 foot candles minimum at food prep surfaces, under cabinet lighting, decorative lighting at counters, array of designer/decorative lights at seating

Mechanical Requirements: High hood exhaust for stove

Plumbing Requirements: Per Health Department criteria, variety of sinks, floor drains, floor sinks, dishwasher, refridgerator, walk-in cooler

Security Requirements:

Kitchen Equipment: No gas, all electric



Room Data Sheets: **SI-1 - Sibling Room**

During regular business hours, the Sibling Room will be a place for a parent to drop off a patient's sibling during a therapy session. Criteria for use of sibling care include the following: The child must be at least 2 years old; The child must be well; The child must be the sibling of a patient with an appointment. Sibling care during evening hours will be done in a separate room.

Occupants:

1 Staff

Up to 8 children

Adjacencies:

Close To: Lobby

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, ACT

Acoustics/Noise Control: High STC wall assemblies, acoustic wall panels

Communications:

AV Equipment/Requirements: Interface with flat panel

Data/Voice: Dedicated at workstation

Engineering Systems:

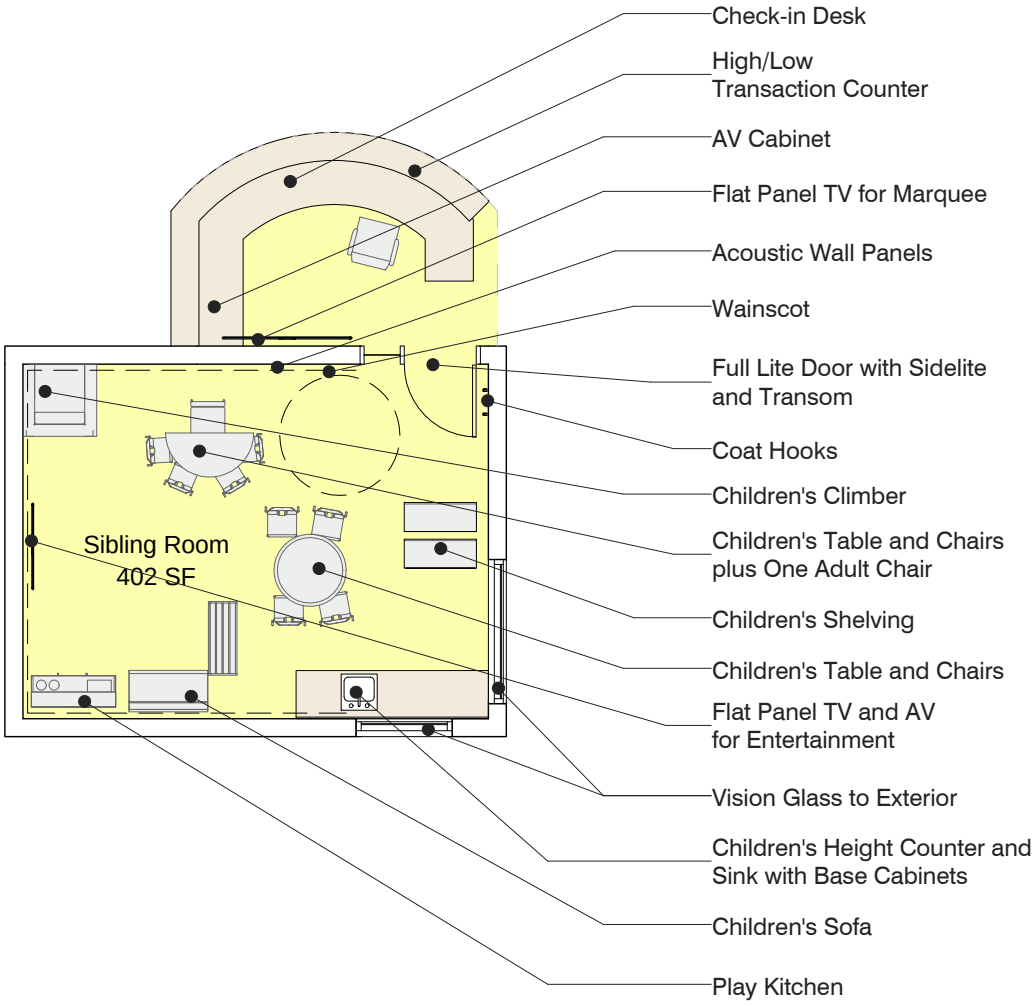
Power Requirements: Tamper proof outlets, outlets at reception desk height

Lighting Requirements: Dimmable

Mechanical Requirements: Dedicated thermostat

Plumbing Requirements:

Security Requirements: Access and check-in controlled by receptionist



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Room Data Sheets: G-1 - Gallery Space

This space will provide a nook off of the main lobby, showcasing a variety of permanent and exhibition art from community members, donors, and/or the University Museum of Art. The space may also be used for special "friend raising" events

Occupants:

Varies

Adjacencies:

Close To: Lobby

Away From:

Physical Characteristics:

Finishes: Specified, decorative finish panel materials; painted gypsum board; wood, ceramic, stone, or LVT floor

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

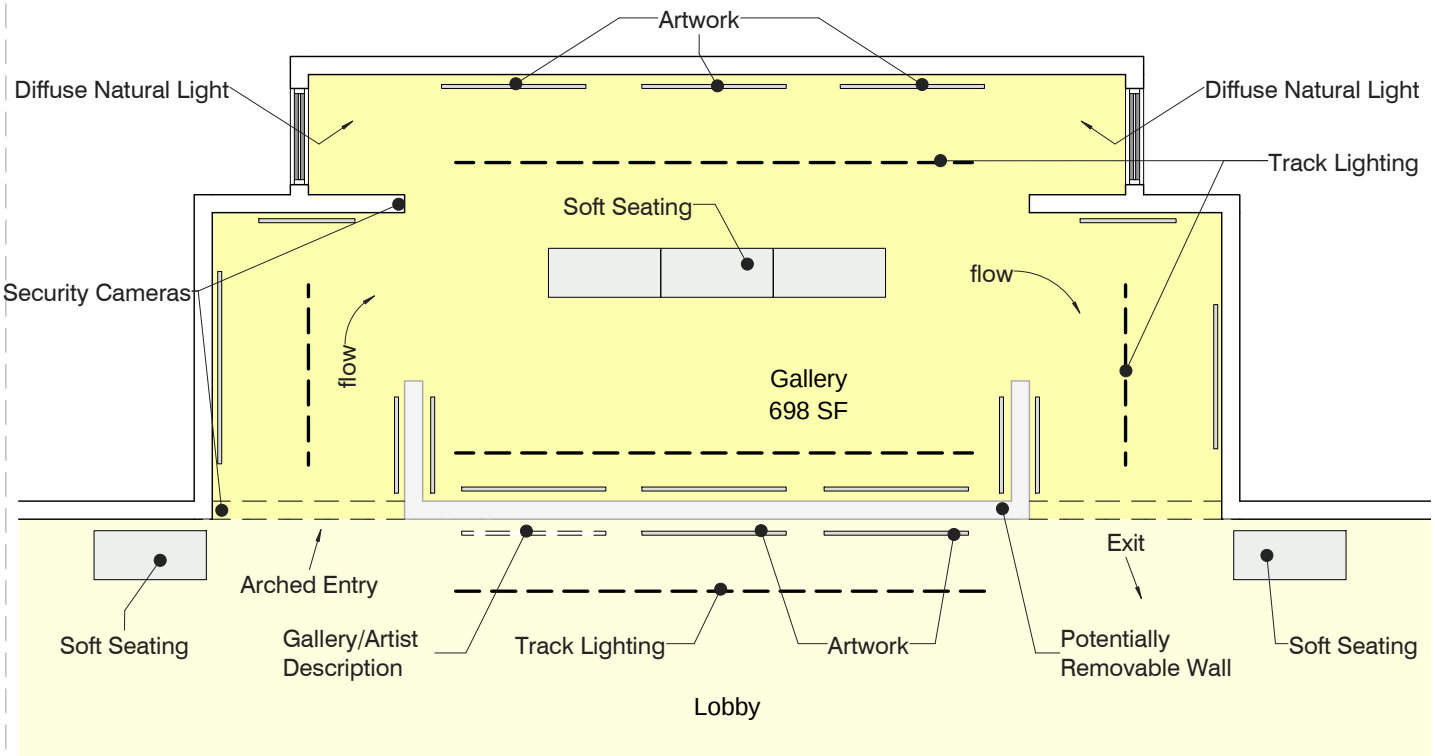
Power Requirements:

Lighting Requirements: Track type with dimmable

Mechanical Requirements:

Plumbing Requirements:

Security Requirements: Security cameras in corners



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **SN-1 - Study Nook**

Open areas in the public cooridors widen to create a nook for study or lounging

Occupants:

Varies

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, acoustic ceiling tile

Acoustics/Noise Control: Carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice: Wi-Fi

Engineering Systems:

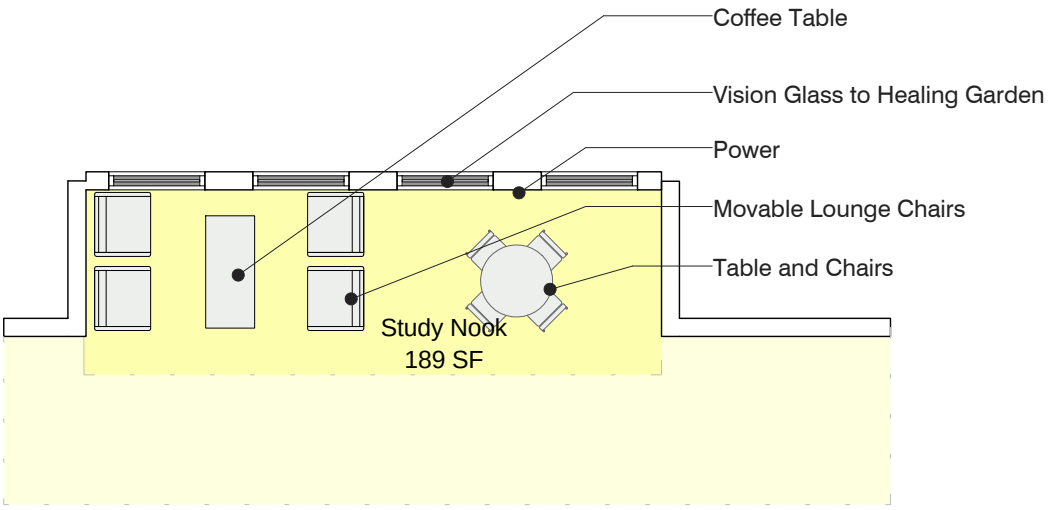
Power Requirements: At walls near study locations

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



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0 1' 3' 6' 12'

Room Data Sheets: **LA-1 - Lactation Room**

Occupants:

1 Occupant possibly with infant

Adjacencies:

Close To: Lobby / public spaces

Away From: private spaces

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, ACT

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

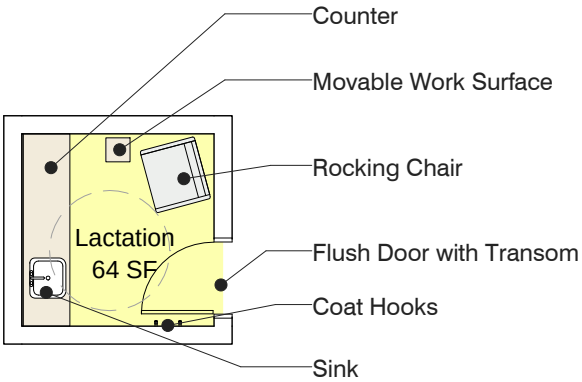
Power Requirements: Near chair

Lighting Requirements: Dimmable

Mechanical Requirements: Exhaust

Plumbing Requirements: Single Basin Sink

Security Requirements: Lockable from inside



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **BR-2 - Break Nook**

Occupants:

3 Occupants

Adjacencies:

Close To: L2, L3 itinerant work areas, research work areas

Away From: Patient areas

Physical Characteristics:

Finishes: Hard surface floor

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

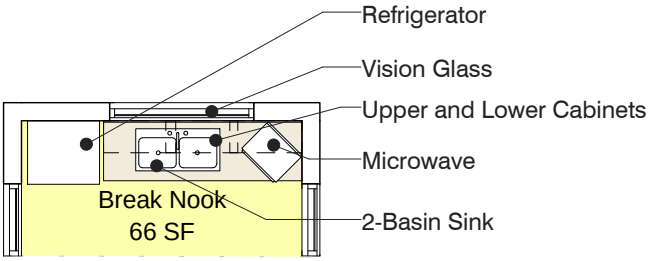
Power Requirements: At appliances, above counter

Lighting Requirements: Under cabinet lighting, possible occupancy sensor

Mechanical Requirements:

Plumbing Requirements: Double sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **CL-2 - IVC Tiered Classroom**

Occupants:

150 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, no white walls, semi-gloss paint, specified ceiling fixtures, decorative wall panels

Acoustics/Noise Control: Acoustic panels, articulated wall surfaces, high STC wall assemblies

Communications:

AV Equipment/Requirements: Wall pull box near podium, equipment per drawing

Data/Voice: Wifi, dedicated data to podium

Engineering Systems:

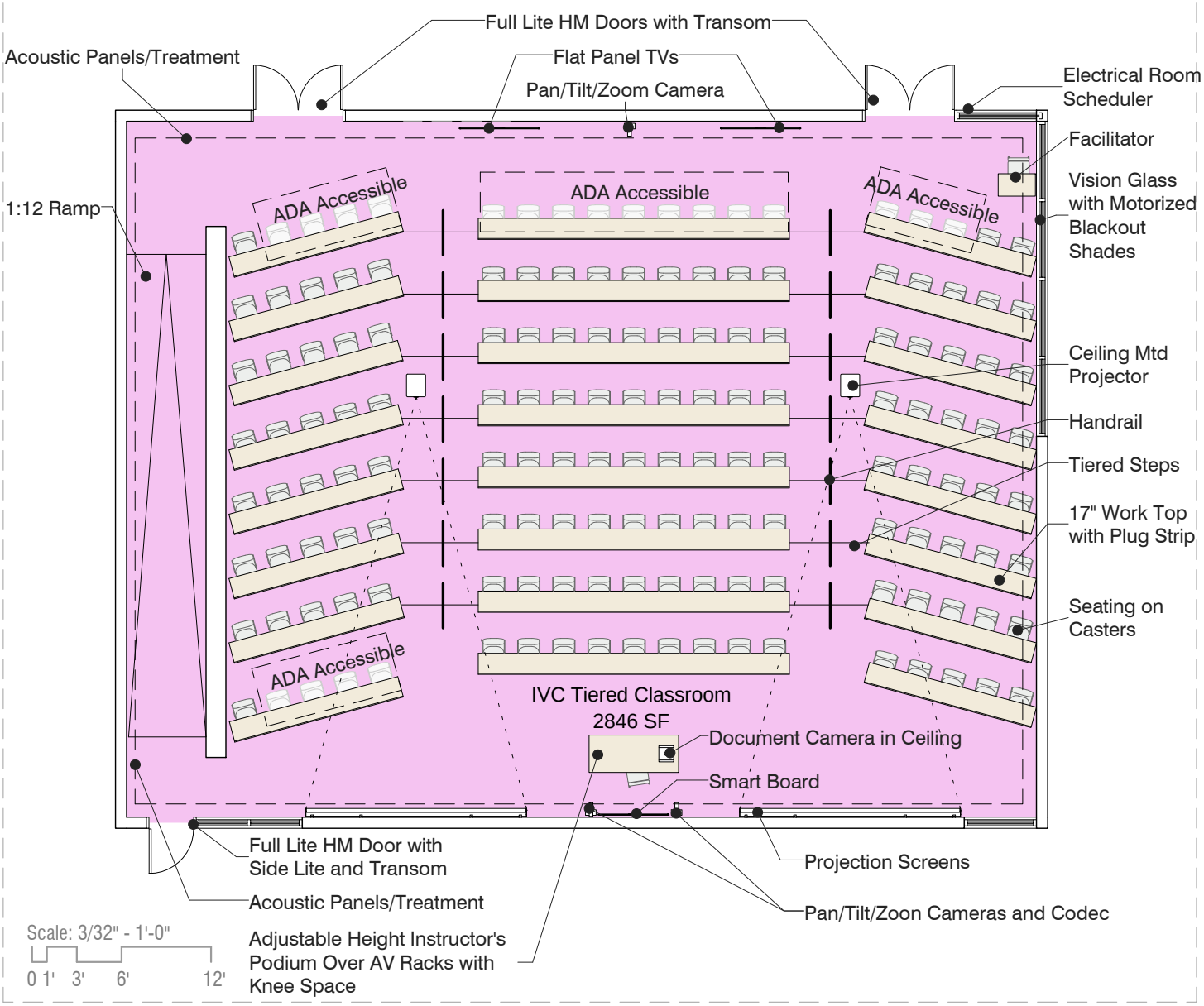
Power Requirements: No outlets along aisles, power strip work surfaces, power at podium, overhead projectors, motorized projection screens, LCD and/or smart screens, cameras

Lighting Requirements: Asymmetric dimmable lighting in four zones: front wall washers, side wall washers, occupant lighting, lecturer lighting

Mechanical Requirements: Thermostat far from screens, HVAC components NC <25, low velocity air flow

Plumbing Requirements:

Security Requirements: Access control at interior and exterior entrances



Room Data Sheets: CL-1 - IVC Distance Classroom

description of space as needed

Occupants:

30 Students

1 Faculty

1 Staff

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board with no white walls and semi-gloss paint, ACT

Acoustics/Noise Control: Trapezoidal wall, acoustic panels, high STC wall assemblies

Communications:

AV Equipment/Requirements: Wall pull box near podium, equipment per drawing, sympodium tablet monitor

Data/Voice: Wi-Fi, dedicated at podium and facilitator desk

Engineering Systems:

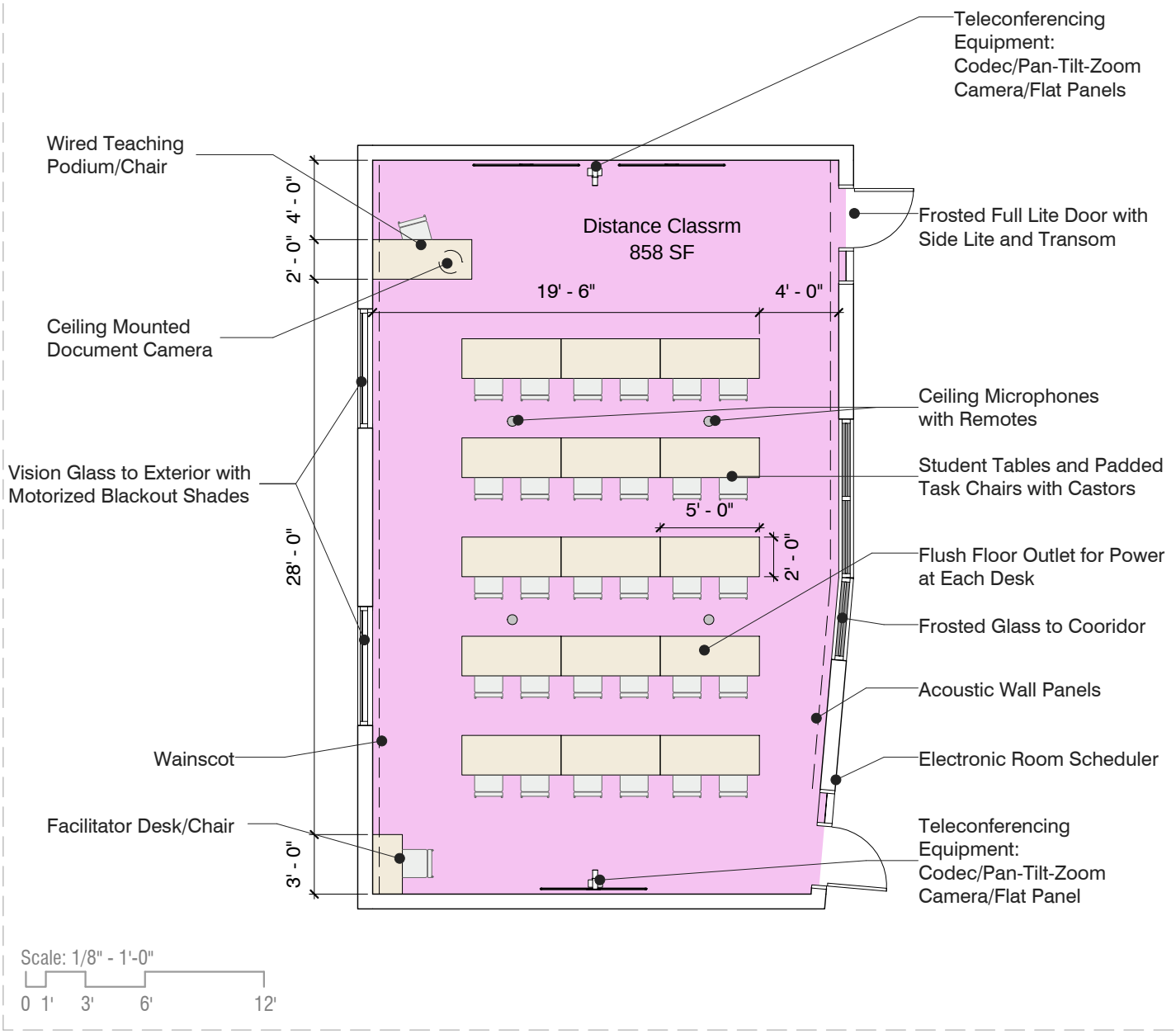
Power Requirements: No outlets along aisles, durable flush floor receptacles centered at each desk, power at facilitator desk, podium, overhead projection screen, flat panels, cameras, power at motorized window covering hidden in window sill.

Lighting Requirements: Asymmetric dimmable lighting in four zones: front wall washers, side wall washers, occupant lighting, lecturer lighting

Mechanical Requirements: Dedicated thermostat far from flat panels, HVAC components NC<25, low velocity airflow

Plumbing Requirements: None

Security Requirements:



Room Data Sheets: **CN-1 - IVC Conference Room: Large**

Occupants:

37 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, ACT

Acoustics/Noise Control: High STC wall assemblies, acoustic wall panels

Communications:

AV Equipment/Requirements: Equipment per drawing

Data/Voice: Dedicated at Codec, Wi-Fi

Engineering Systems:

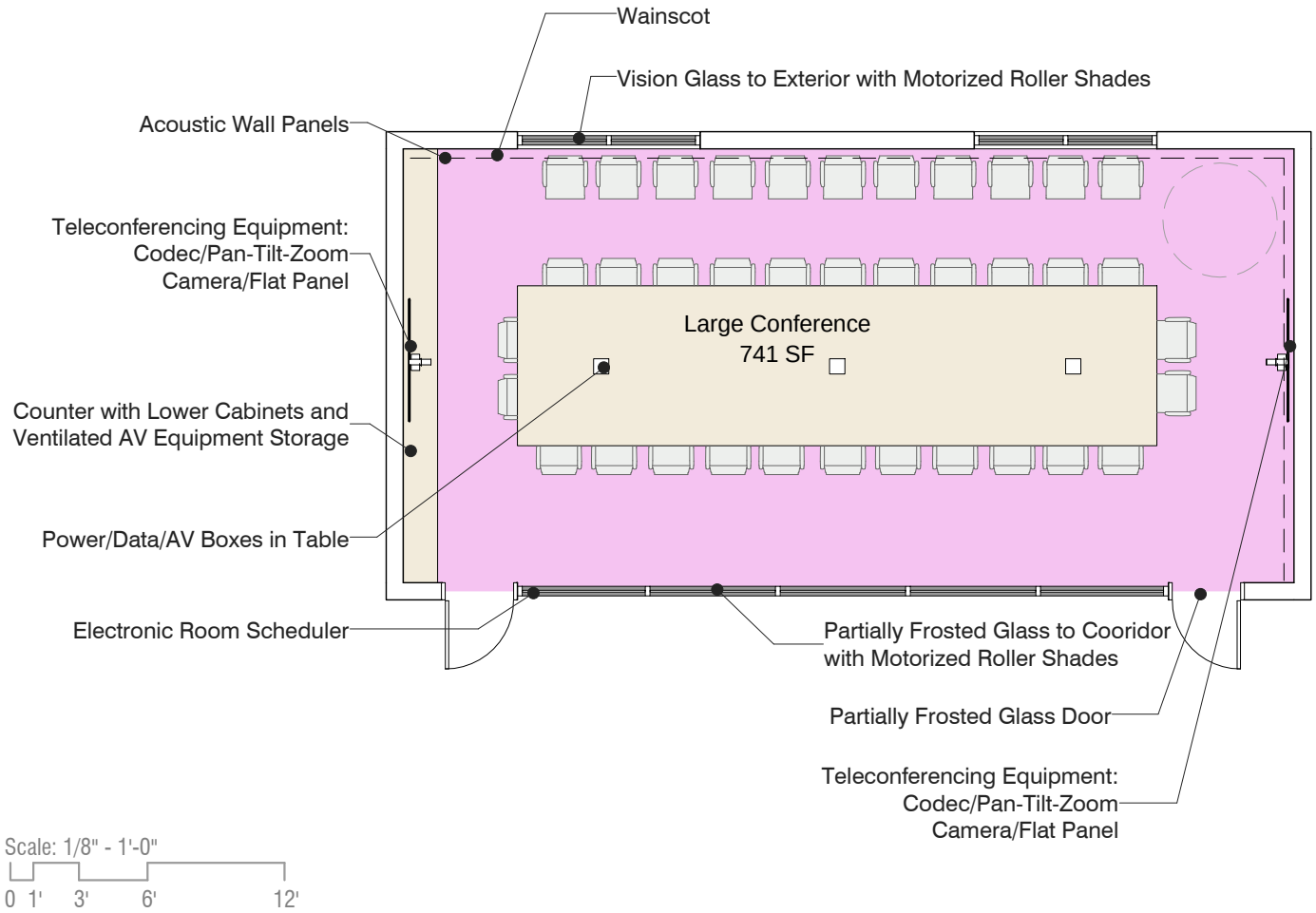
Power Requirements: Dedicated teleconferencing equipment, conference table, power at motorized window covering hidden in window sill.

Lighting Requirements: Occupancy Sensor

Mechanical Requirements: Low velocity air flow

Plumbing Requirements:

Security Requirements:



Room Data Sheets: **CN-2 - IVC Conference Room: Medium**

Occupants:

12 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, ACT

Acoustics/Noise Control: High STC wall assembly, acoustic wall panels

Communications:

AV Equipment/Requirements: Equipment per drawing

Data/Voice: Dedicated at Codec, Wi-Fi

Engineering Systems:

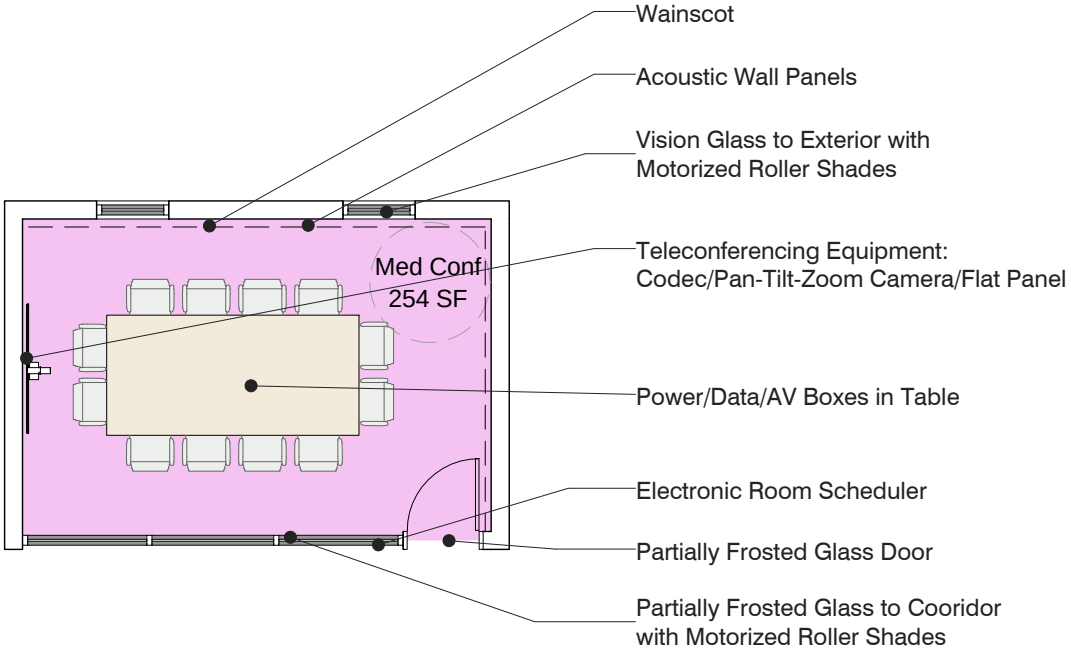
Power Requirements: Dedicated teleconferencing equipment, conference table, power at motorized window covering hidden in window sill.

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **CN-3 - IVC Conference Room: Small**

Occupants:

6 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, ACT

Acoustics/Noise Control: High STC wall assemblies, acoustic wall panels

Communications:

AV Equipment/Requirements: Equipment per drawing

Data/Voice: Dedicated at Codec, Wi-Fi

Engineering Systems:

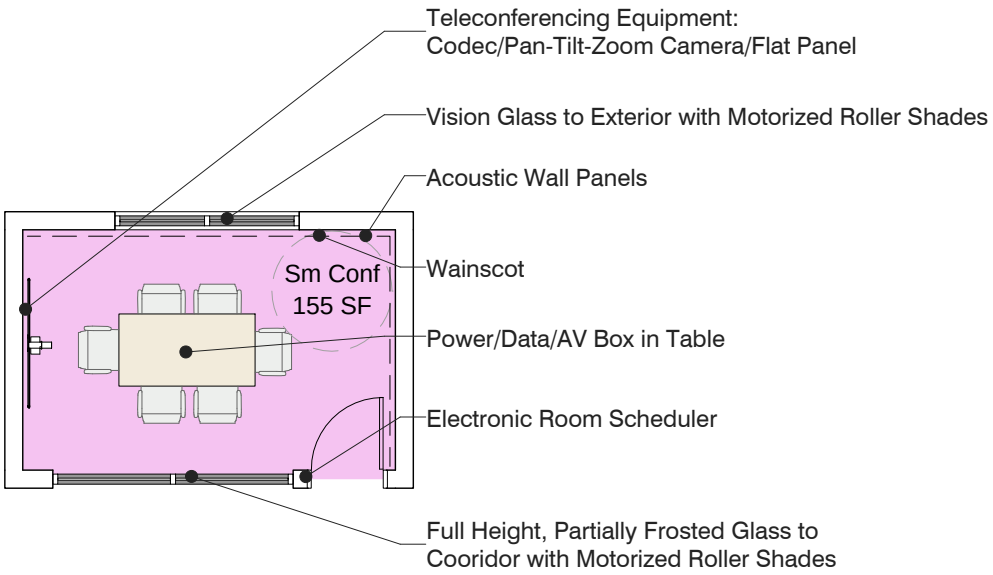
Power Requirements: Dedicated teleconferencing equipment, conference table, power at motorized window covering hidden in window sill.

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **BR-1 - Faculty Breakroom**

Occupants:

10 Faculty

Adjacencies:

Close To: Faculty offices

Away From:

Physical Characteristics:

Finishes: Resiliant floor, carpet tile, painted gypsum board, wainscot, ACT

Acoustics/Noise Control: Acoustic wall panels

Communications:

AV Equipment/Requirements: None

Data/Voice: Wifi

Engineering Systems:

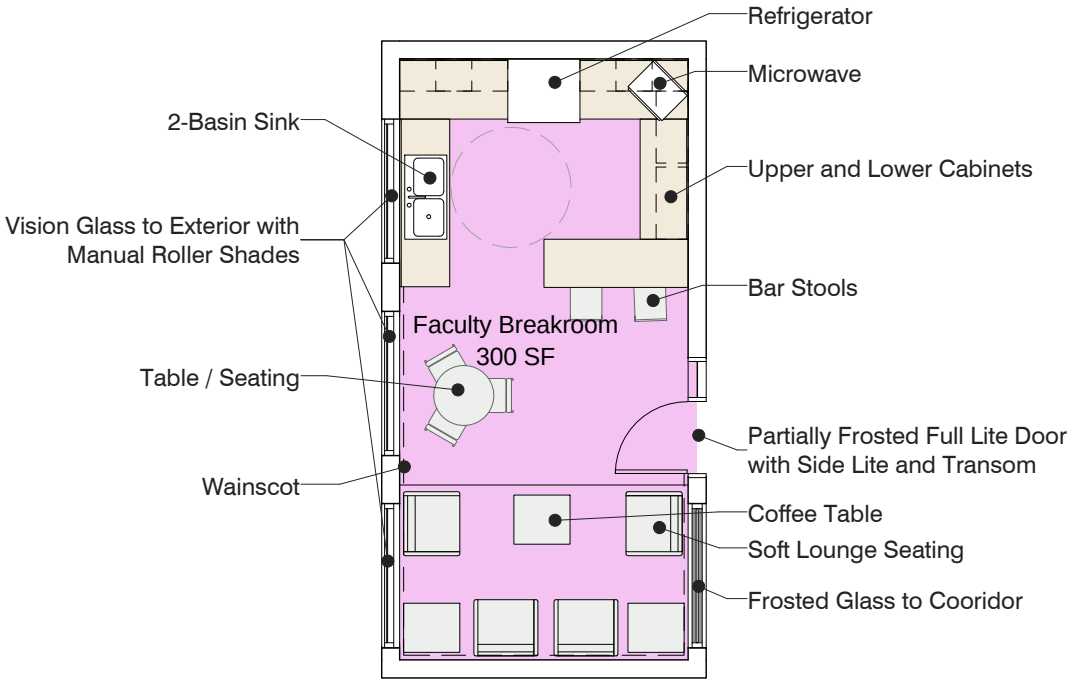
Power Requirements: Dedicated at each appliance, outlets near seating, outlets above counter top

Lighting Requirements: Occupancy sensor controlled, under cabinet lighting

Mechanical Requirements: Exhaust

Plumbing Requirements: Double sink, refridgerator

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **0-1 - Office**

Occupants:

1 Administrator

2 Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, ACT

Acoustics/Noise Control: High STC wall assembly

Communications:

AV Equipment/Requirements: None

Data/Voice: Dedicated at workstation and one other location

Engineering Systems:

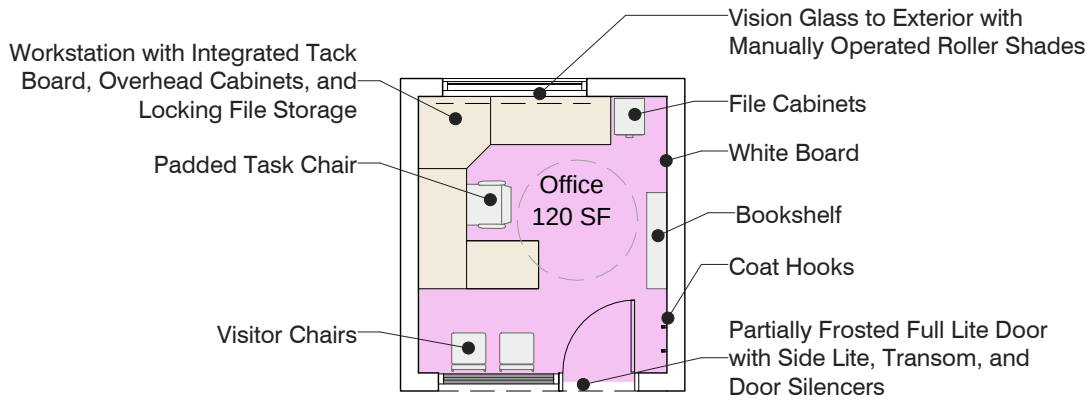
Power Requirements: Dedicated power at workstation and one other location, desk height power/usb outlet at workstation

Lighting Requirements: Indirect lighting on occupancy sensor, task lighting

Mechanical Requirements: Thermostat at every other office for adjacent offices with similar heat/cooling loads and solar exposure

Plumbing Requirements: None

Security Requirements: Keyed Access



Scale: 1/8" - 1'-0"

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Room Data Sheets: **WK-1 - Mail Room / Work Room**

Campus mail will be delivered to only one room per building. Distribution to separate clinics, rooms or offices will be the responsibility of the building occupants.

Occupants:

Varies

Adjacencies:

Close To: Administration / Academic Areas

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, ACT

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at copier

Engineering Systems:

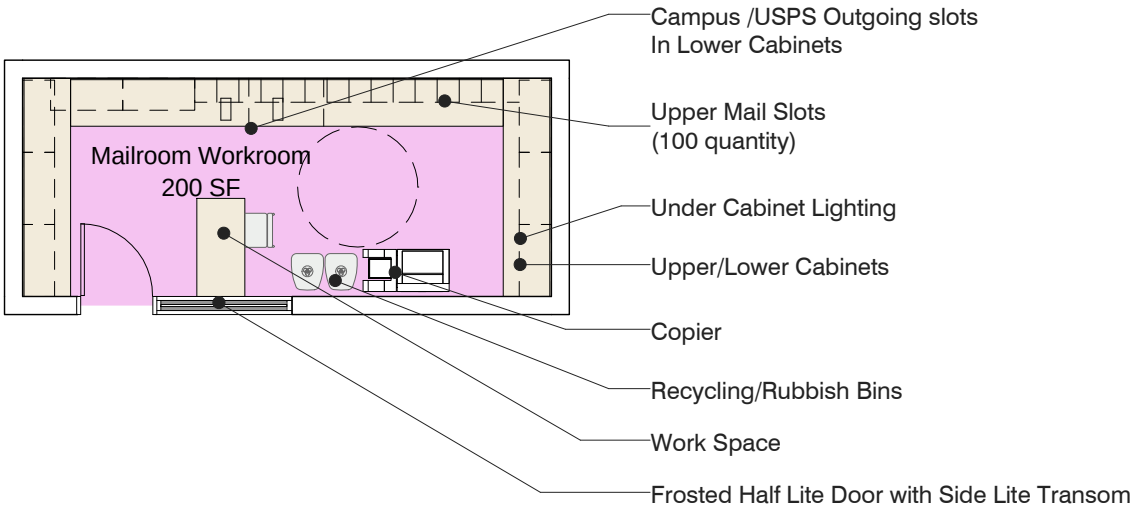
Power Requirements: At copier, above countertop

Lighting Requirements: Occupancy sensor, under cabinet lighting

Mechanical Requirements: Dedicated thermostat, ventilation system for copier exhaust

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets:

RC-2 - Clinical Reception Desk
W-1 - Reception Waiting
SH-1 - Scan/Shred
PW-1 - Pediatric Waiting

Occupants:

2 Staff

8 Visitors

Adjacencies:

Close To: Clinics

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, ACT

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at copier, dedicated at workstations, Wi-Fi in waiting areas

Engineering Systems:

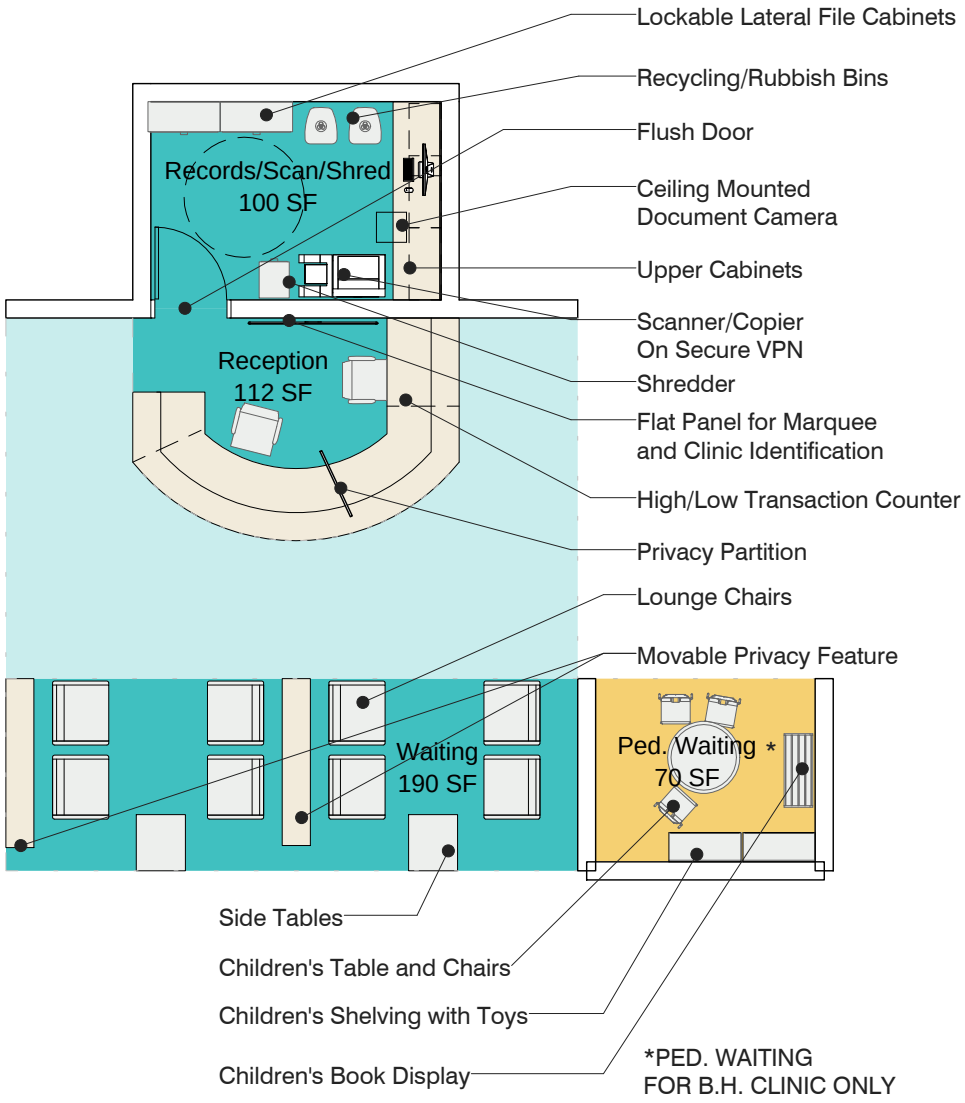
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Ventilation system

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: NO-1 - Note Room

The intent of this room is to provide HIPAA compliant privacy where one may log medical records after a clinical visit .

Occupants:

12 Staff

Adjacencies:

Close To: Medical Records, Phone Room, Clinical Reception

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, wall mounted acoustic panels

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at workstations

Engineering Systems:

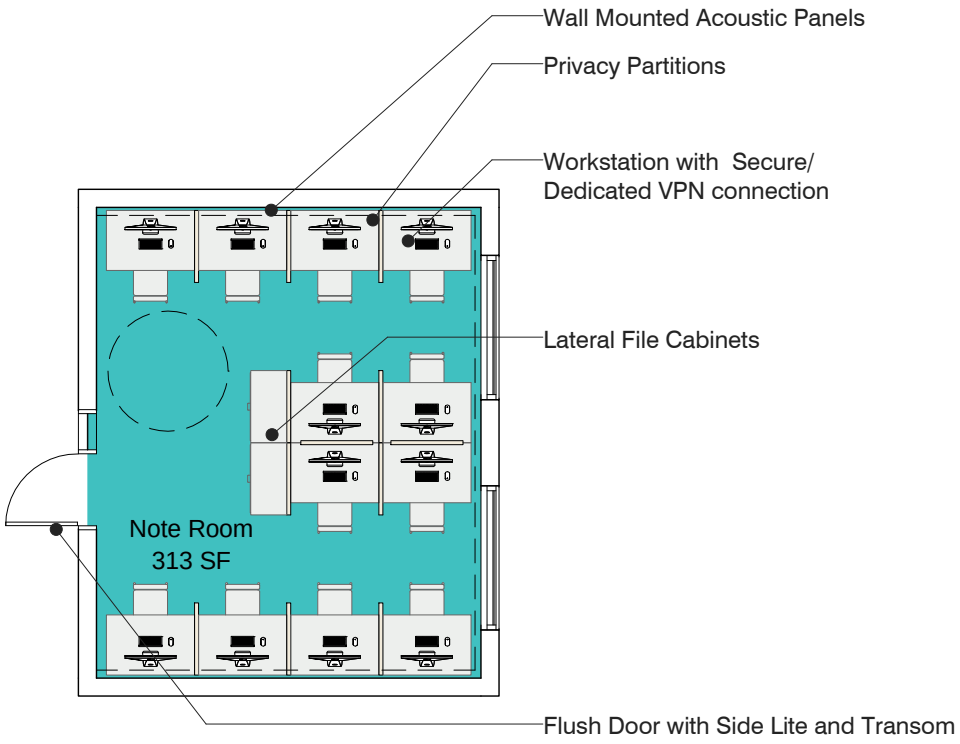
Power Requirements: Dedicated at workstations

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements: Card Access



Scale: 1/8" - 1'-0"

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Room Data Sheets: **PH-1 - Phone Room**

The Phone Room will serve as a place for a clinician to have a private conversation with a patient who is at a distant location. It also allows for tele-health broadcasting

Occupants:

1 Staff

Adjacencies:

Close To: Clinical Reception, Medical Records, Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring

Communications:

AV Equipment/Requirements: IVC Technology

Data/Voice: Dedicated data/phone

Engineering Systems:

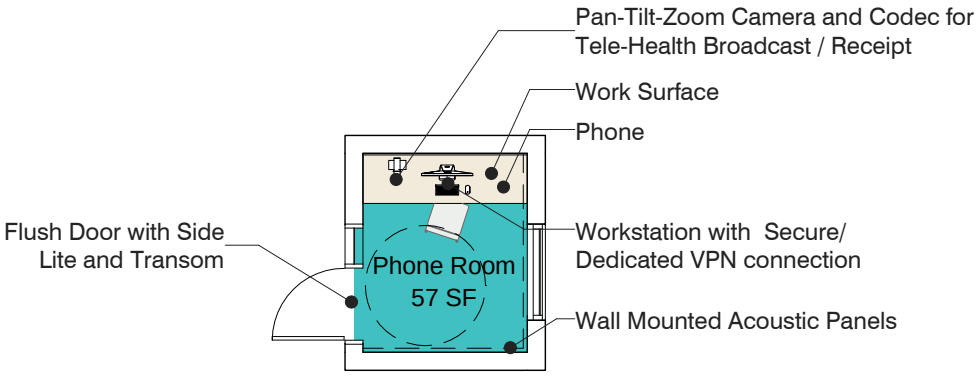
Power Requirements:

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements: Card Access



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **TQ-1 - Testing Equipment Library**

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To: Clinical Reception, Medical Records Room.

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

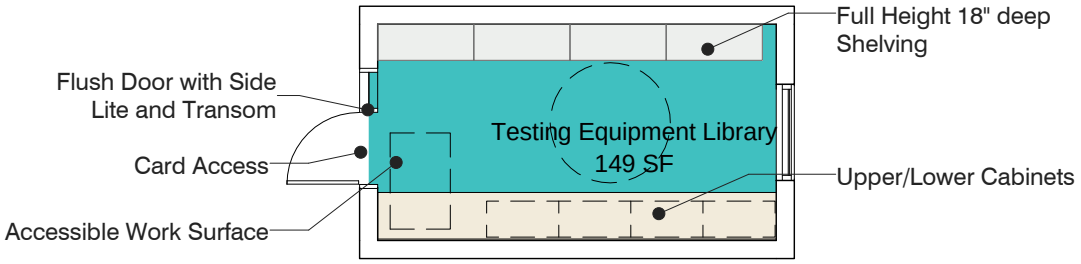
Power Requirements: Abover counter

Lighting Requirements: Under counter lighting

Mechanical Requirements:

Plumbing Requirements:

Security Requirements: Card Access



Scale: 1/8" - 1'-0"

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Room Data Sheets: **TL-1 - Toy Library**

Place to store and clean toys

Occupants:

#

Visitors

Adjacencies:

Close To: Clinical reception

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

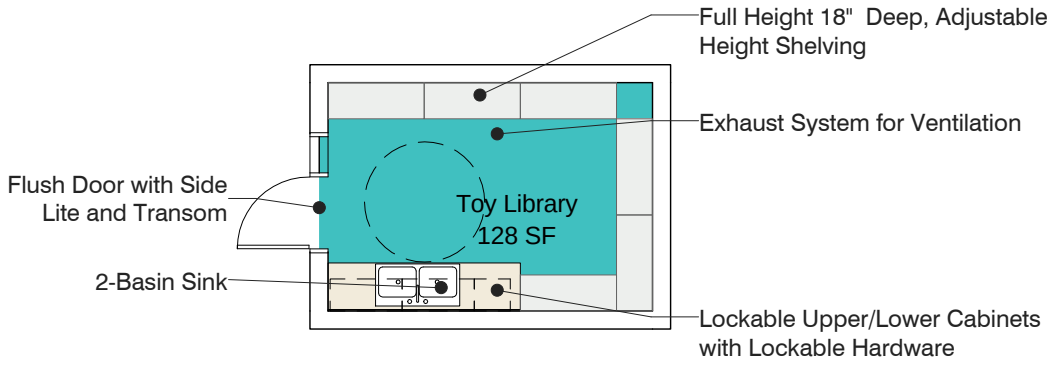
Power Requirements: Above counter

Lighting Requirements: Under counter lighting

Mechanical Requirements: Ventilation system

Plumbing Requirements: 2-Basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: **RW-1 - Research Workroom**

For individual and/or group clinical research based activities

Occupants:

12 Occupants

Adjacencies:

Close To:

Away From: Clinical waiting, patient accessed areas.

Physical Characteristics:

Finishes: Carpet tile, whiteboard surface, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring.

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at workstations

Engineering Systems:

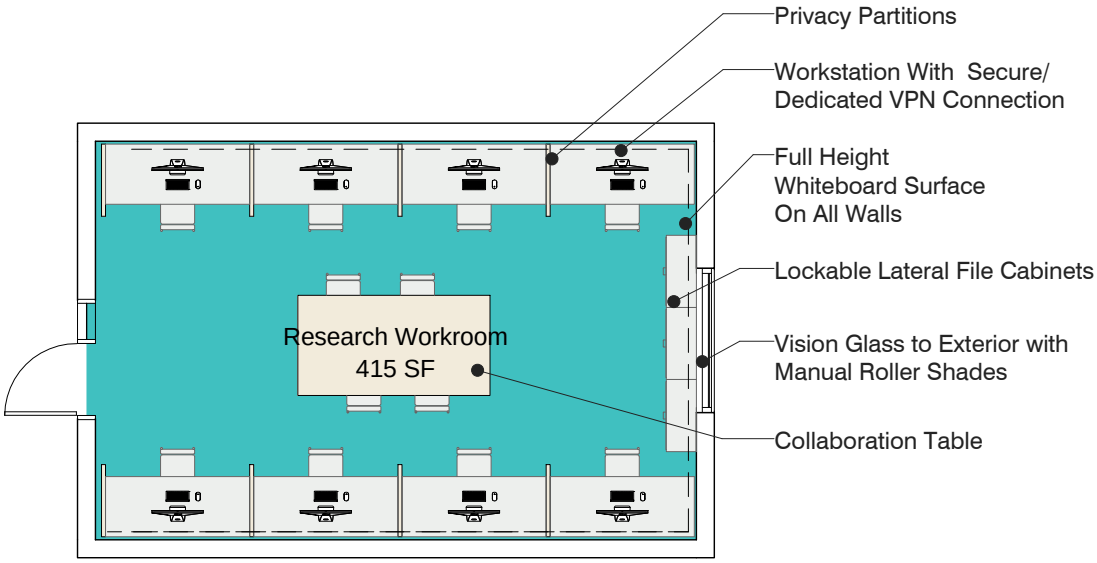
Power Requirements: At workstations and collaboration table

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements: Card access



Scale: 1/8" - 1'-0"

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Room Data Sheets: TH-8 - Large Family Therapy OB-2 - Large Family Observation

Occupants:

4 Observers
10 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC Equip.

Communications:

AV Equipment/Requirements: Teleconferencing Equipment, Smart Board, Observation Cameras/Microphones/Speakers

Data/Voice: Physical Data Ports in Therapy Room, and in Observation Room.

Engineering Systems:

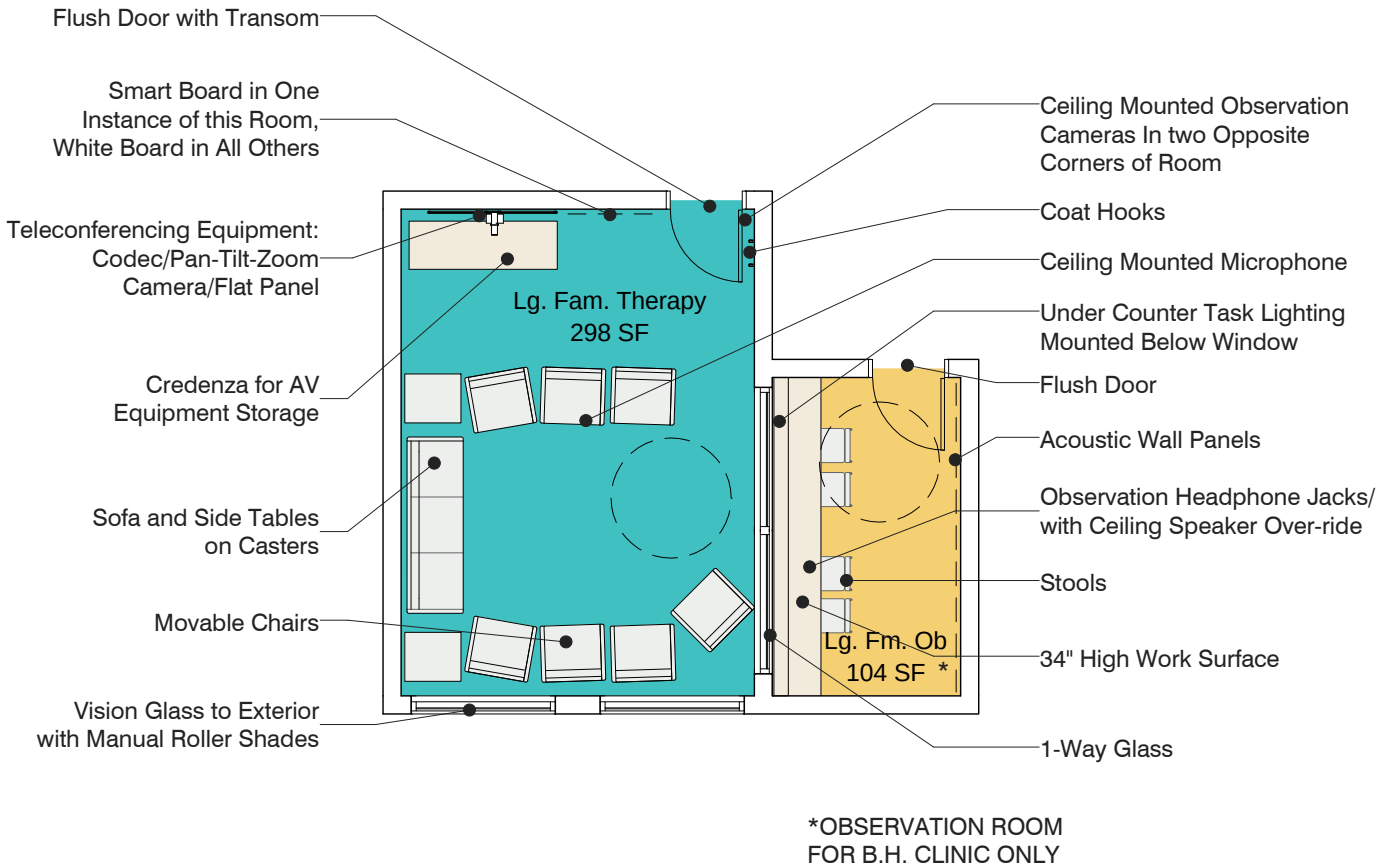
Power Requirements: As Required for AV Equipment

Lighting Requirements: Dimmable LED in Therapy Room and Observation Room. Under-Window Lighting on Separate Switch in Observation Room.

Mechanical Requirements: Low Velocity HVAC for Reduced Noice. Separate Diffusers from Observation Cameras.

Plumbing Requirements: None

Security Requirements:



*OBSERVATION ROOM FOR B.H. CLINIC ONLY

Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: TH-6 - Med Family Therapy OB-3 - Med Family Observation

Occupants:

4 Observers
6 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC equip.

Communications:

AV Equipment/Requirements: Teleconferencing equipment, smart board, observation cameras / microphones / speakers

Data/Voice: Physical data ports in Therapy Room, and in Observation Room.

Engineering Systems:

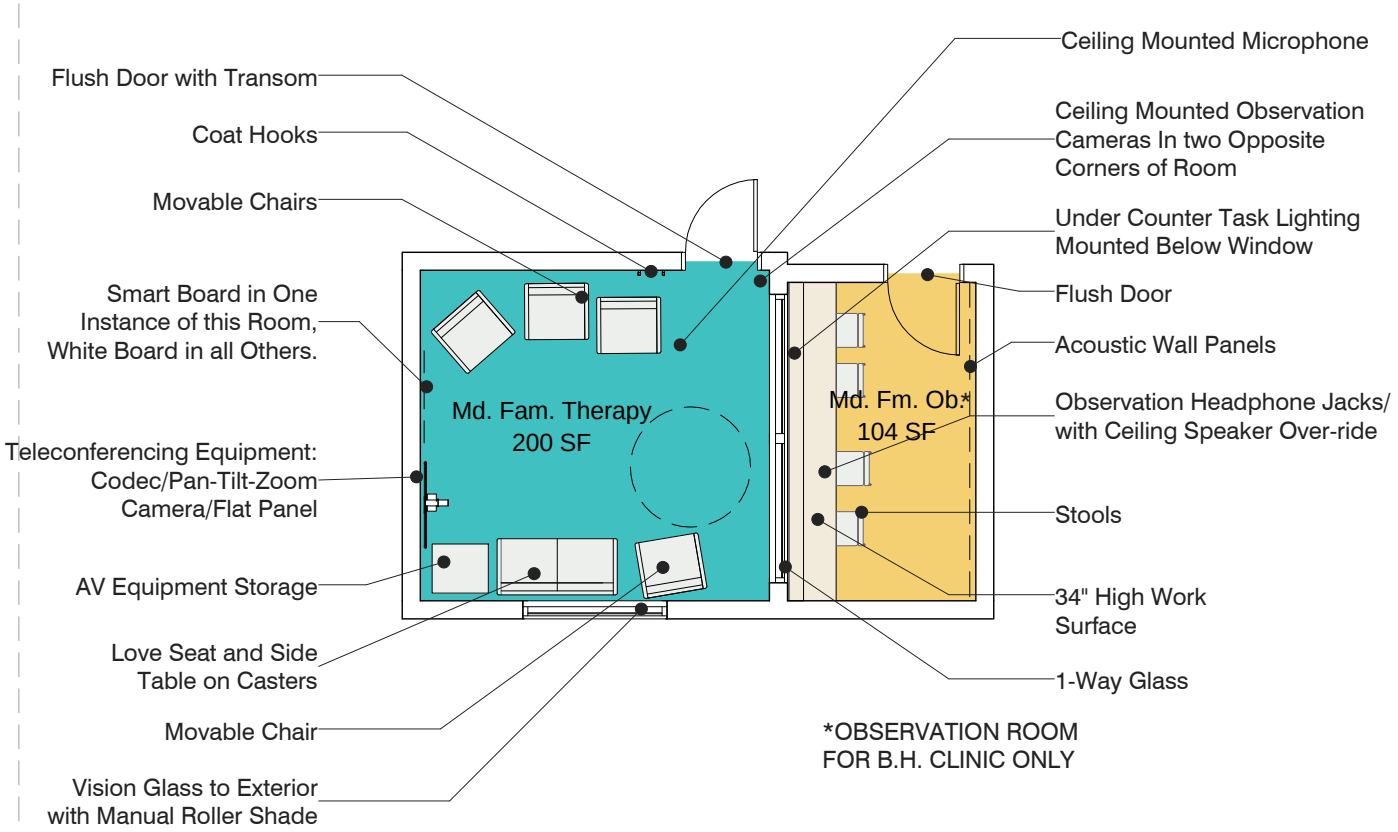
Power Requirements: As required for AV equipment

Lighting Requirements: Dimmable LED in Therapy Room and Observation Room. Under-window lighting on separate switch in Observation Room.

Mechanical Requirements: Low velocity HVAC for reduced noice. Separate diffusers from observation cameras.

Plumbing Requirements: None

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: TH-9 - Small Family Therapy OB-4 - Small Family Observation

Occupants:

4 Observers
4 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC equip.

Communications:

AV Equipment/Requirements: Teleconferencing equipment, observation cameras/microphones/speakers

Data/Voice: Physical data ports in Therapy Room, and in Observation Room.

Engineering Systems:

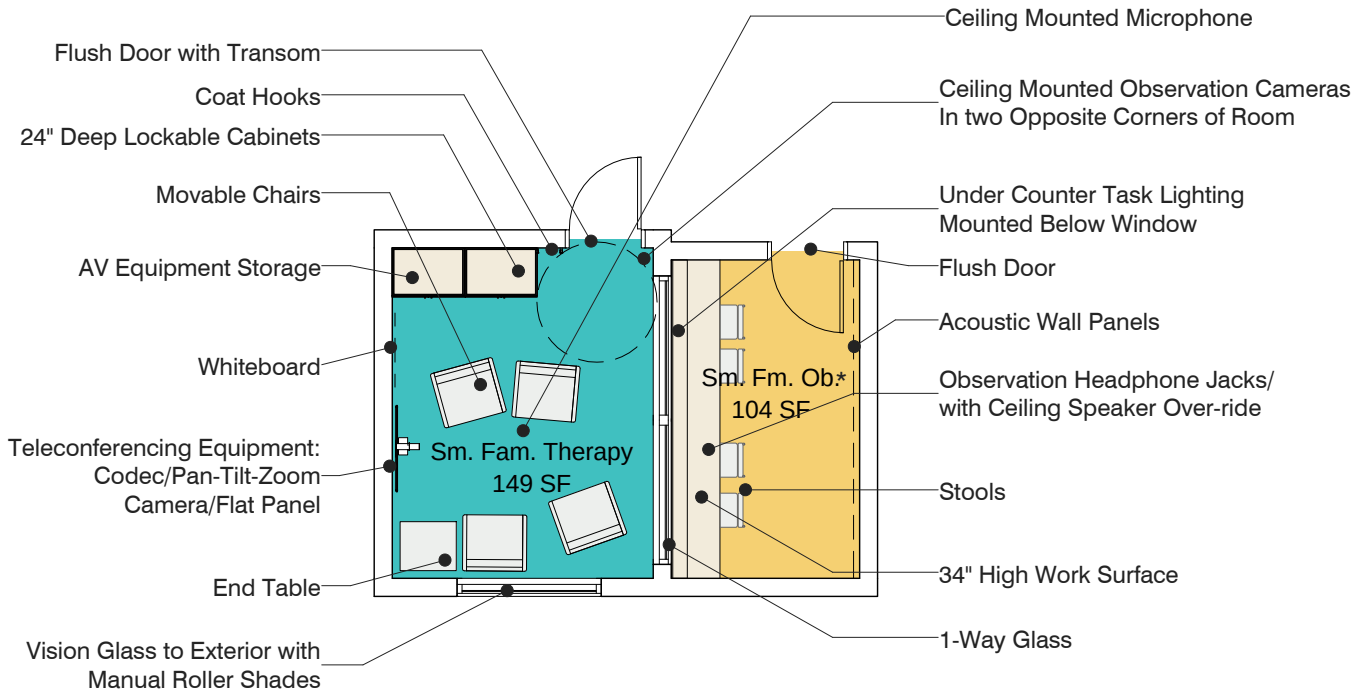
Power Requirements: As required for AV equipment

Lighting Requirements: Dimmable LED in Therapy Room and Observation Room. Under-window lighting on separate switch in Observation Room.

Mechanical Requirements: Low velocity HVAC for reduced noice. Separate diffusers from observation cameras.

Plumbing Requirements: None

Security Requirements:



*OBSERVATION ROOM
FOR B.H. CLINIC ONLY

Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **TH-10 - Apartment Therapy**

The Apartment Therapy space is meant to create a home environment for various clinical services and training. Uses include therapy, life skills training, and debriefing for the nursing simulation lab

Occupants:

Varies

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile; ceramic, LVT, stone, or resiliant floor; painted gypsum board, tile walls, gypsum board ceiling

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC equip.

Communications:

AV Equipment/Requirements: Teleconferencing equipment, observation cameras/microphones/speakers

Data/Voice: Physical data ports

Engineering Systems:

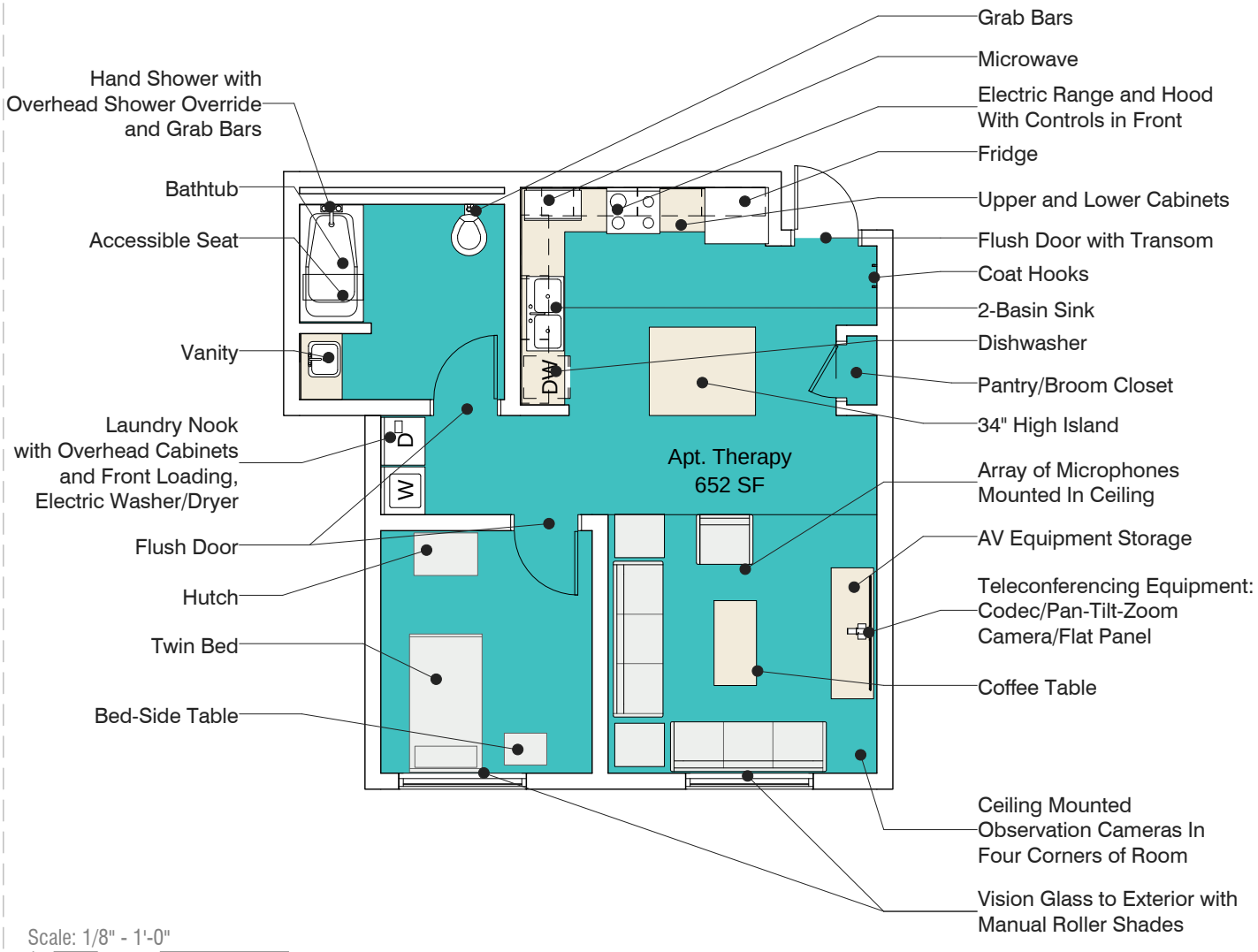
Power Requirements: As required for AV equipment, at appliances and above counter in kitchen, at island, above vanity is bathroom, washer/dryer, near bed

Lighting Requirements: Dimmable LED, under cabinet lighting

Mechanical Requirements: Low velocity HVAC for reduced noice. Separate diffusers from observation cameras.

Plumbing Requirements: None

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: TH-5 - Across the Table Therapy

Traditional one on one interaction

Occupants:

1 Therapist
1 Patient

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC equip.

Communications:

AV Equipment/Requirements: Teleconferencing equipment, observation cameras/microphones/speakers

Data/Voice: Physical data ports

Engineering Systems:

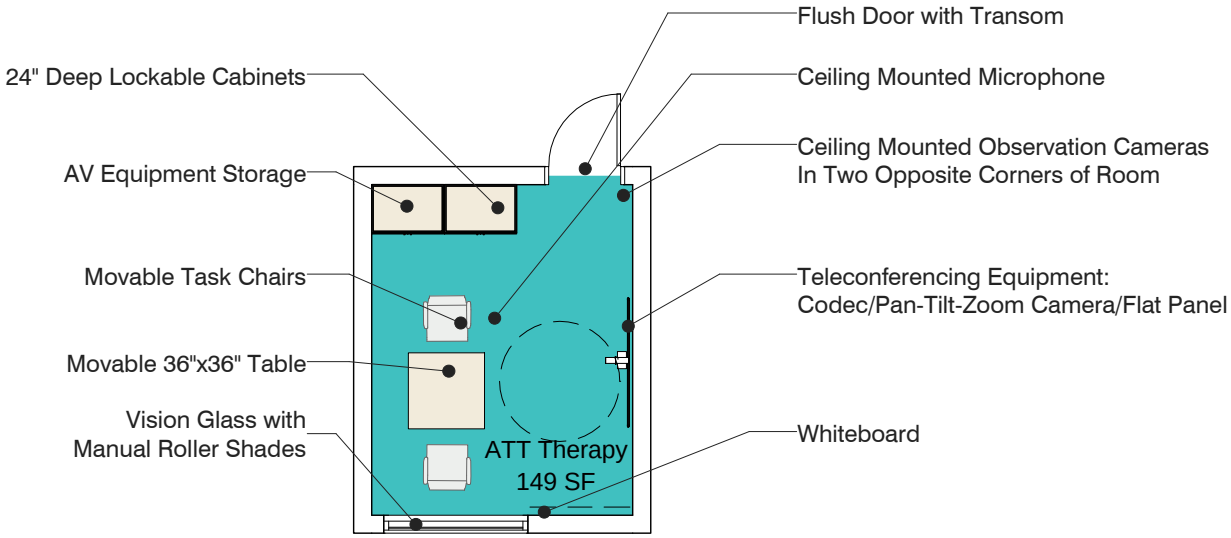
Power Requirements: As required for AV equipment, near table

Lighting Requirements: Dimmable LED

Mechanical Requirements: Low velocity HVAC for reduced noice. Separate diffusers from observation cameras.

Plumbing Requirements: None

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: TH-4 - Pediatric Therapy

Occupants:

2 Visitors
2 Children
1 Therapist

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, wainscot, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, carpet flooring, low noise rating on HVAC equip.

Communications:

AV Equipment/Requirements: Teleconferencing equipment, observation cameras/microphones/speakers

Data/Voice: Physical data ports, secure VPN at workstation

Engineering Systems:

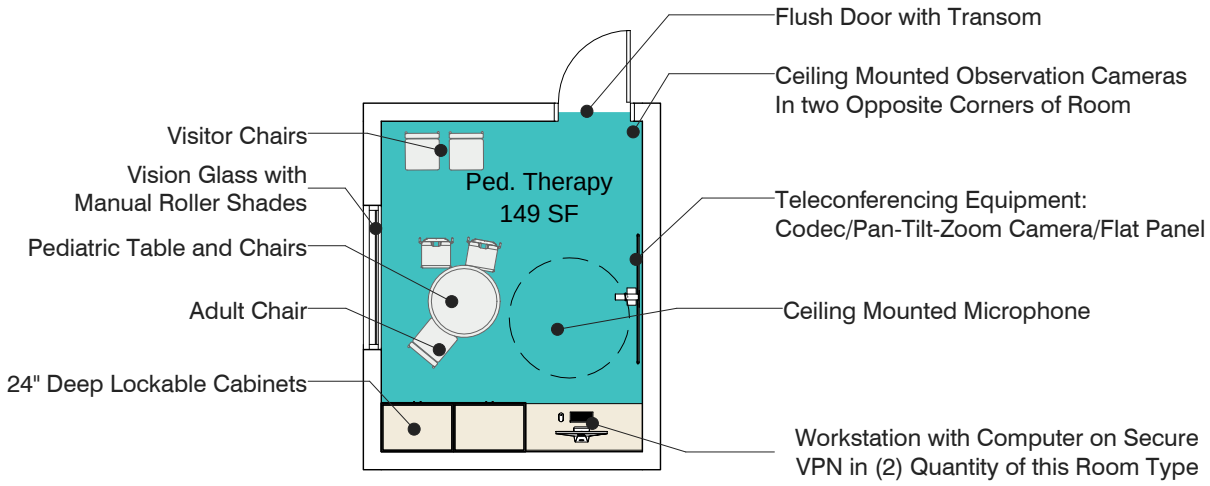
Power Requirements: As required for AV equipment

Lighting Requirements: Dimmable LED

Mechanical Requirements: Low velocity HVAC for reduced noise. Separate diffusers from observation cameras.

Plumbing Requirements: None

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: SW-1 - Student Itinerant Work Area

Open office arrangemnt with a variety of seating options

Occupants:

10 Student Itinerants

Adjacencies:

Close To:

Away From: Clinical waiting, patient accessed areas

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic wall panels, acoustic ceiling tile, carpet flooring

Communications:

AV Equipment/Requirements:

Data/Voice: Wi-Fi, dedicated at workstations, dedicated at group work areas and one other location

Engineering Systems:

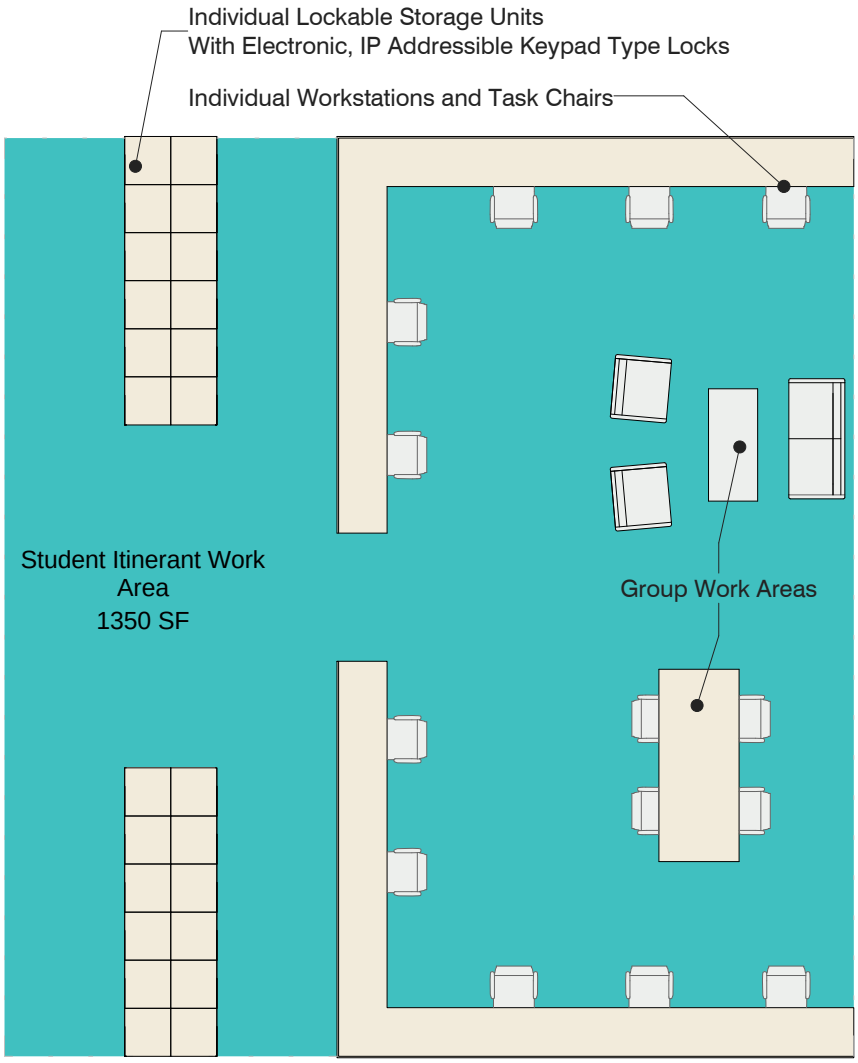
Power Requirements: Dedicated at workstations, dedicated at group work areas and one other location. Floor outlets, typ

Lighting Requirements: Indirect lighting on occupancy sensor, individual task lighting

Mechanical Requirements: Dedicated thermostat

Plumbing Requirements: None

Security Requirements: None



Scale: 1/8" - 1'-0"

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Room Data Sheets: TH-2 - Music Therapy TH-3 - Meditative Therapy

This space provides the opportunity for a variety of treatment options on an individual or group basis using music or meditation. The two rooms will be separated by a folding partition for increased flexibility and will have access to the roof patio

Occupants:

Varies

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Hardwood floor, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tile, acoustic wall panels

Communications:

AV Equipment/Requirements: PA/Speaker System, Flat Panel Interface

Data/Voice: Wi-Fi

Engineering Systems:

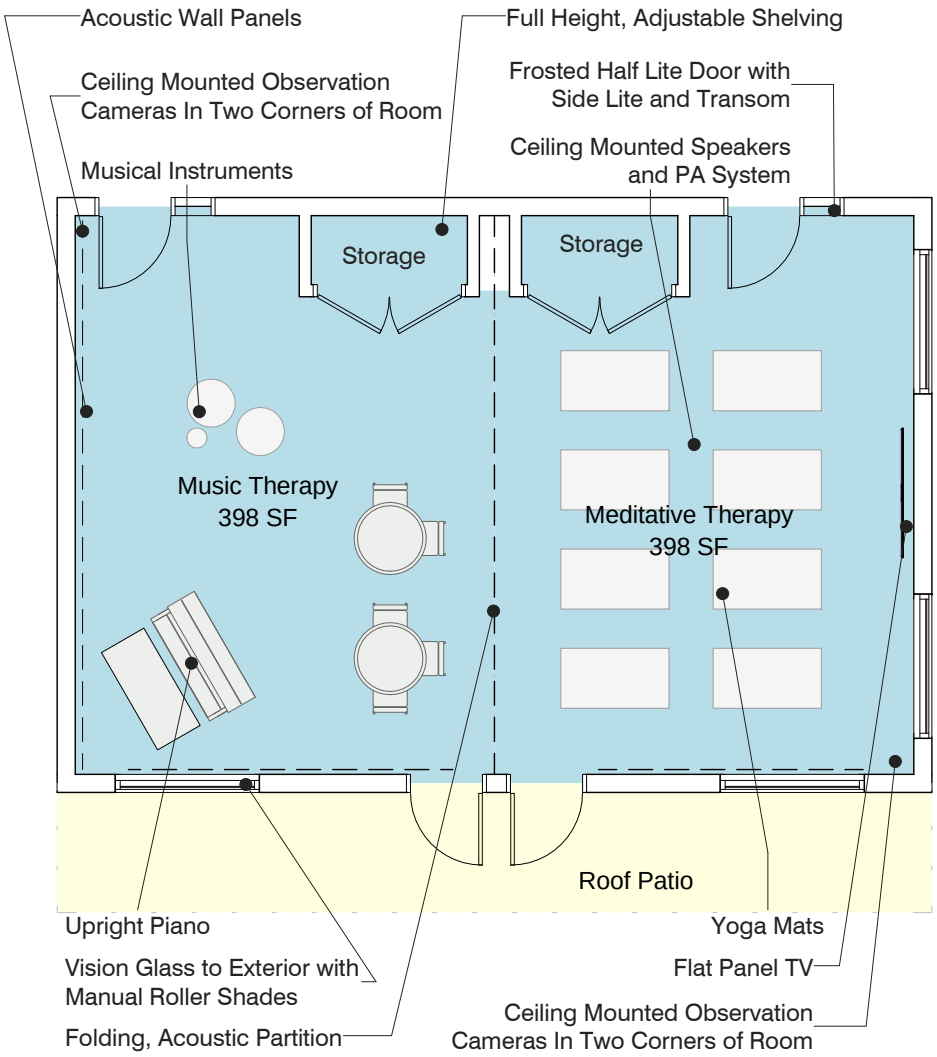
Power Requirements: Designated at folding partition wall. As required for AV systems.

Lighting Requirements: Dimmable in Meditative Therapy

Mechanical Requirements: Coordinated thermostats for individual/combined control of divided spaces.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: CL-6 - PEER Classroom
O-5 - Teacher Office

The Post Secondary Education, Employment and Research (PEER)program is designed to help young adults with disabilities overcome both social and educational barriers so they can transition from the school system to the adult, working world.

Occupants:

17 Students

8 Aids

1 Social Skills Instructor

1 Director

Adjacencies:

Close To: Public space, kitchen, direct egress route

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assembly, acoustic ceiling tiles, acoustic wall panels

Communications:

AV Equipment/Requirements: Equpment per drawing

Data/Voice: Dedicated at computer workstations, Wi-Fi

Engineering Systems:

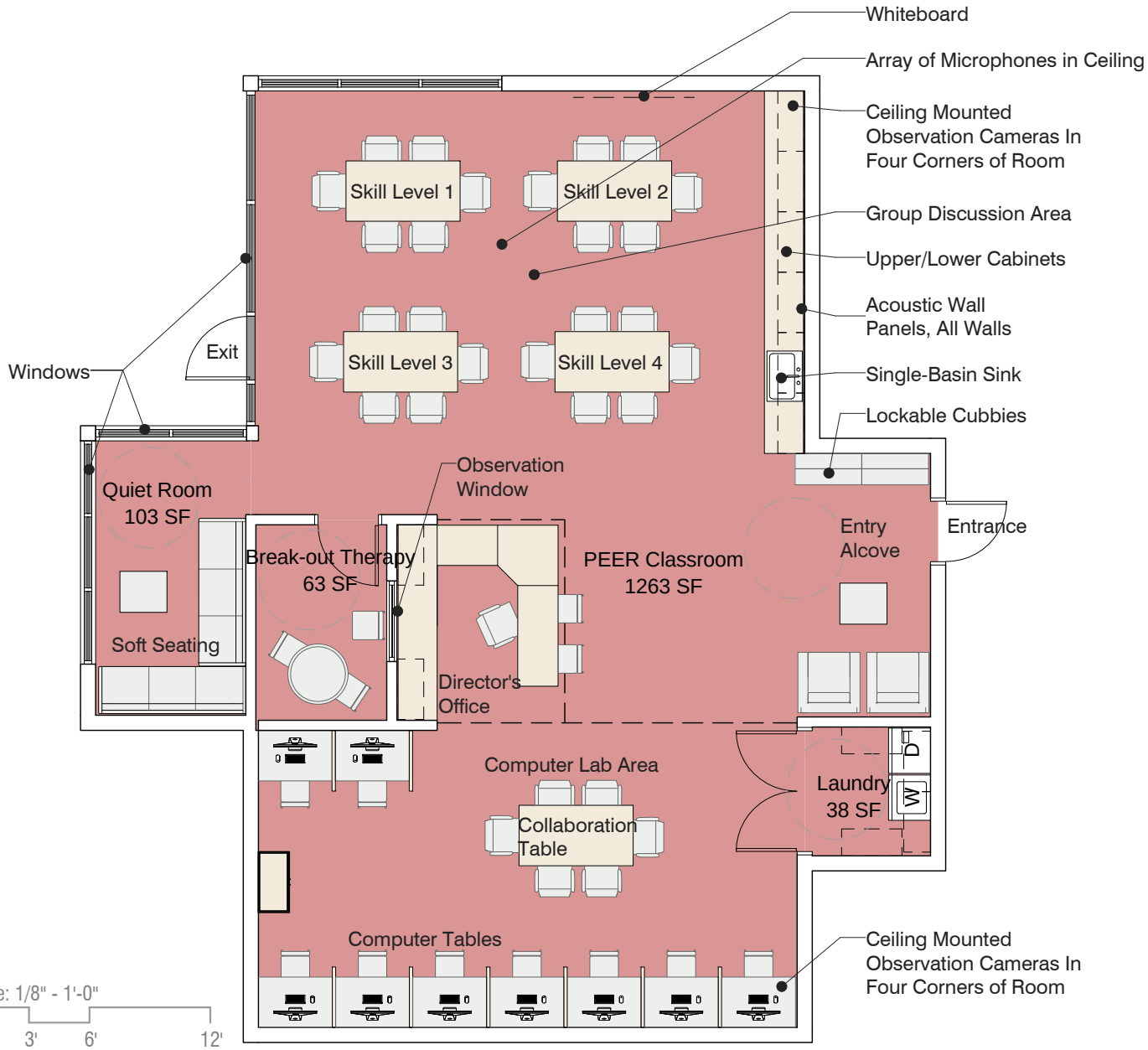
Power Requirements: Dedicated at tables and desks, washer/dryer

Lighting Requirements:

Mechanical Requirements: Dedicated thermostat

Plumbing Requirements: Washing machine

Security Requirements:



Room Data Sheets: TR-1 - UBSC Treatment OB-5 - UBSC Observation

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To: ASSERT, office, restroom, drinking fountain

Away From: Lobby, exits, reception, public, rooms with highly vulnerable individuals, areas sensitive to noise

Physical Characteristics:

Finishes: Minimal, durable, washable, no trim except around observation window, carpet flooring acceptable in Observation Room

Acoustics/Noise Control: High STC Wall Assemblies, Acoustic Ceiling Tile

Communications:

AV Equipment/Requirements: Ability to record for specific amounts of time with sound

Data/Voice:

Engineering Systems:

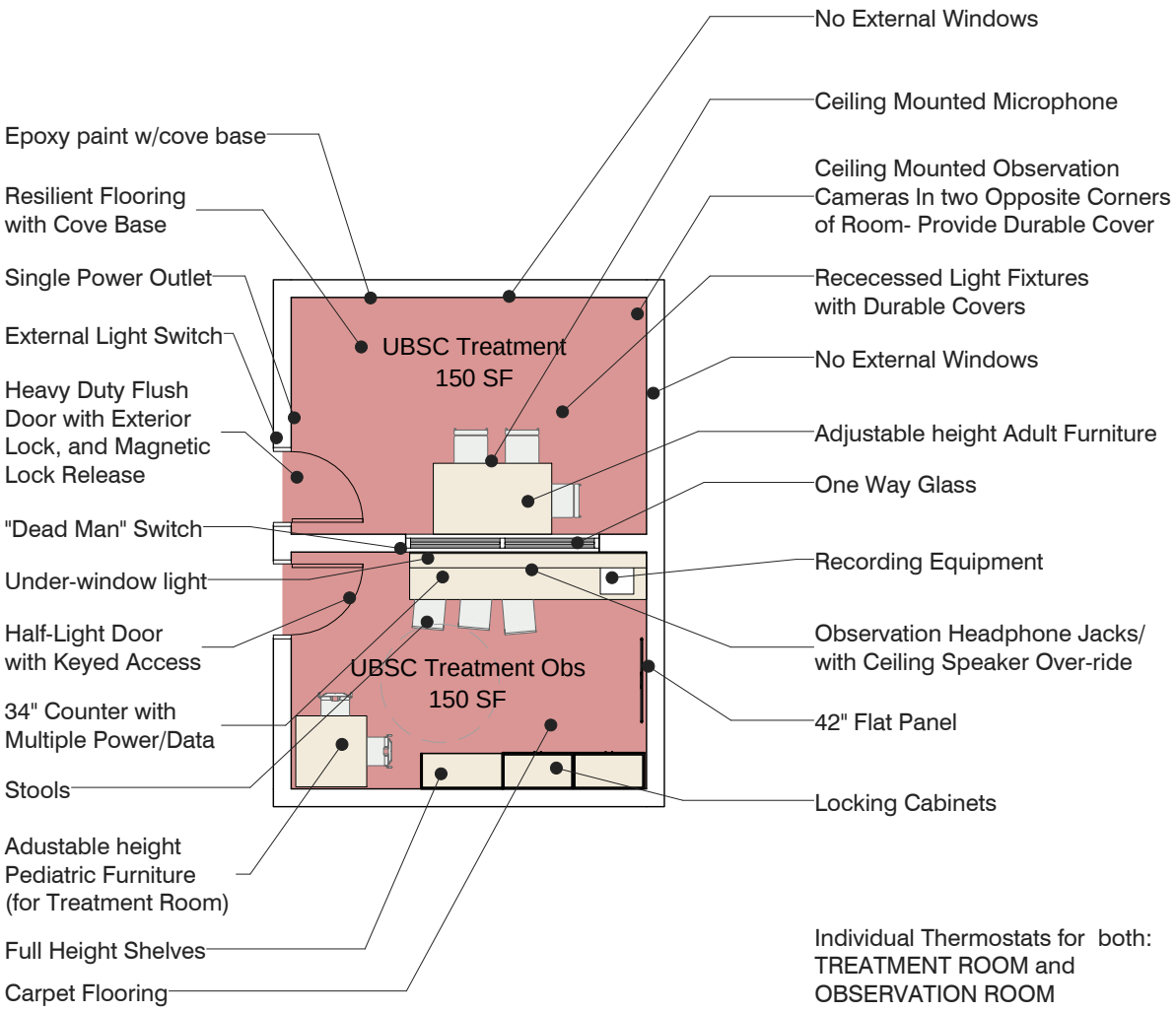
Power Requirements: One Outlet Only by Door in Treatment Room, Multiple Outlets in Observation.

Lighting Requirements: Durable Covers - Recessed, Light Switch at Outside of Treatment Room

Mechanical Requirements: Individual Thermostats for Each Room

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

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Room Data Sheets: CL-5 - ASSERT Classroom
O-4 - Coordinator Office

The Autism Support Services: Education, Research, and Training (ASSERT) has a threefold mission: 1) Educational and behavioral early intervention using research based best practices. 2) Research to improve educational and behavioral interventions for children with autism. 3) Training: Serve as a model training classroom for USU preservice special education teachers and provide training opportunities for other educational professionals throughout the state of Utah who are interested in learning to work effectively with children diagnosed with autism spectrum disorders.

Occupants:

10 Students
15-20 Adults
1:1 Teacher:Student ratio (3-5 yrs old)

Adjacencies:

Close To: Gross Motor, Designated Drop-Off Area, Shared Laundry, Shared Kitchen, Toy/Media Storage, EC Workroom

Away From: Public Areas

Physical Characteristics:

Finishes: Tile or resilient floor, carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, acoustic ceiling tile, acoustic wall panels

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

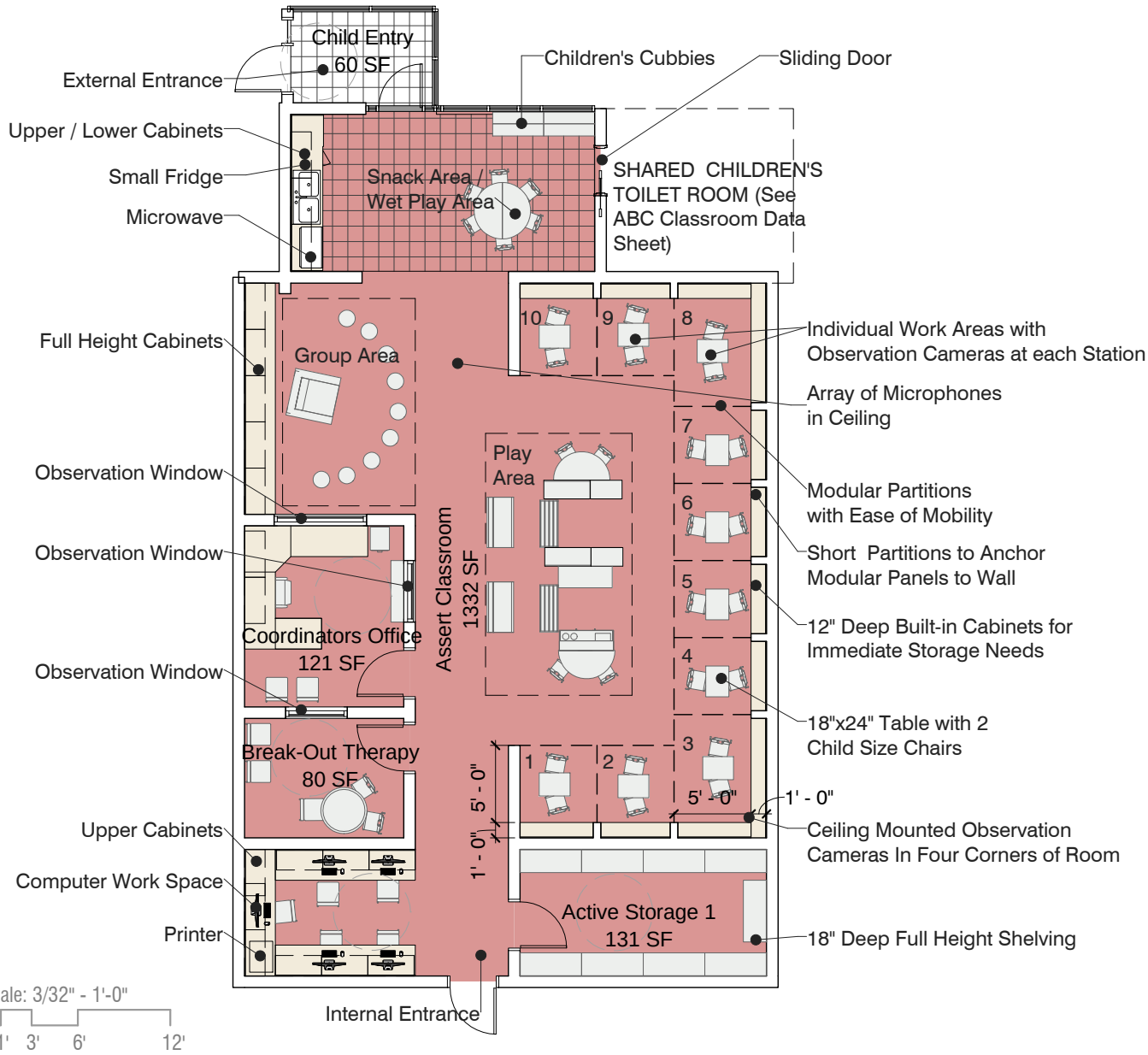
Power Requirements:

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Room Data Sheets: CL-4 - ABC Classroom CT-1 - Children's Toilets

...ABC students move up into the ASSERT Classroom

Occupants:

6 Students (up to 36 months old) with parents

Adjacencies:

Close To: Gross Motor, Shared Kitchen, Shared Laundry, ASSERT Classroom, Elevator from Parking Garage

Away From:

Physical Characteristics:

Finishes: Tile or resilient flooring, carpet tile, painted gypsum board, wall tile in restroom, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, acoustic ceiling tile, acoustic wall panels

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

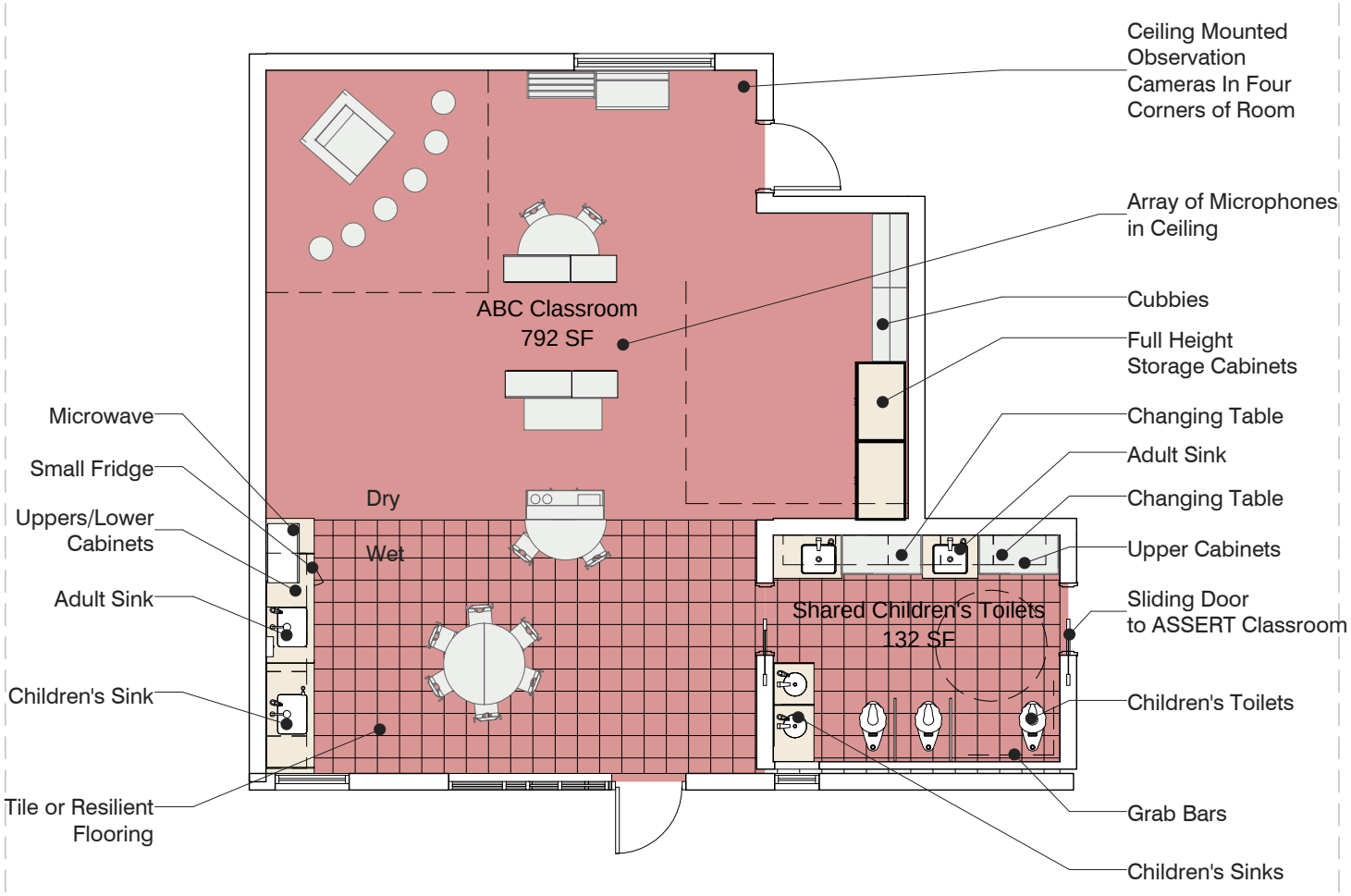
Power Requirements:

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **K-1 - Shared Kitchen**

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To: ABC Classroom, ASSERT Classroom, Shared Laundry

Away From:

Physical Characteristics:

Finishes: Resilient or tile flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

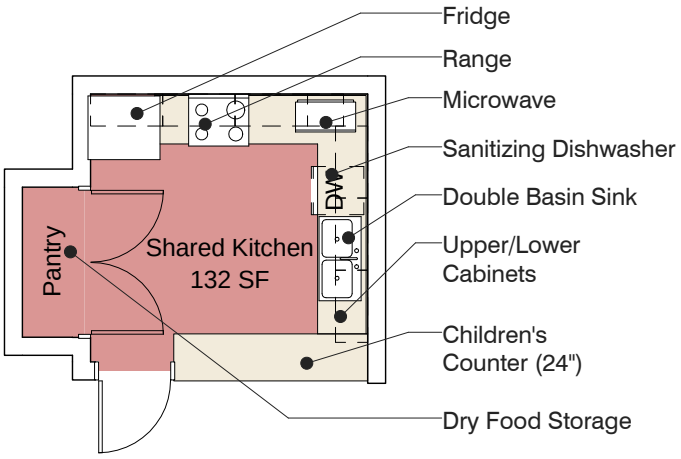
Power Requirements: Dedicated at appliances, above counter

Lighting Requirements: Under cabinet lighting

Mechanical Requirements:

Plumbing Requirements: Fridge, dishwasher, double basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **LN-1 - Shared Laundry**

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To: ABC Classroom, ASSERT Classroom, Shared Kitchen, Pediatric Therapy Rooms

Away From:

Physical Characteristics:

Finishes: Resilient or tile floor, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

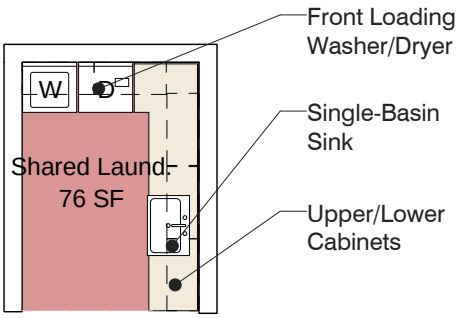
Power Requirements: Dedicated at washer/dryer, above counter

Lighting Requirements: Under cabinet lighting

Mechanical Requirements:

Plumbing Requirements: Washer, single-basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: GM-1 - Gross Motor Room GM-2 - Gross Motor Storage

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, acoustic ceiling tile, acoustic wall panels

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

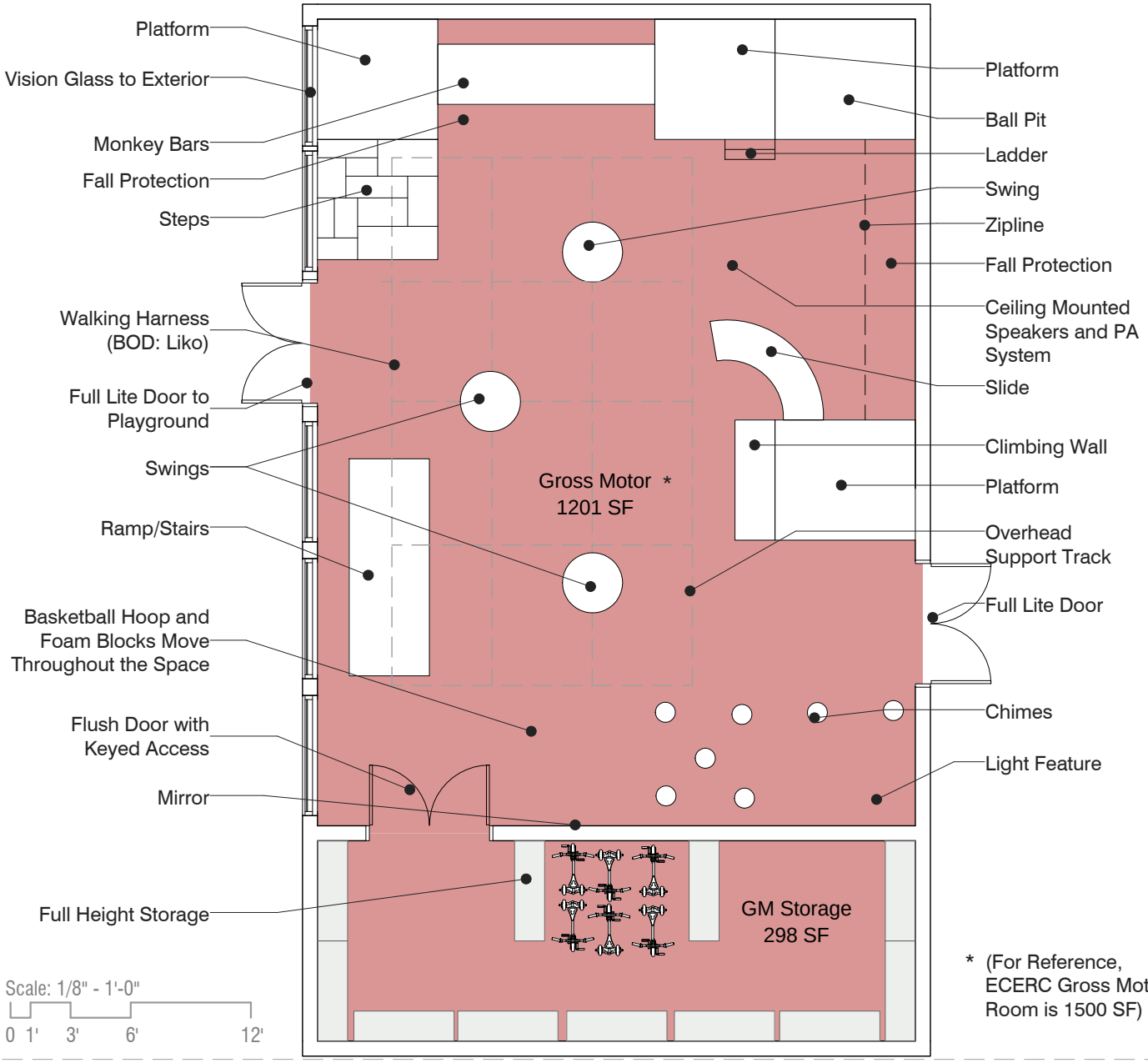
Power Requirements:

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



* (For Reference, ECERC Gross Motor Room is 1500 SF)

Room Data Sheets: **WK-4 - Early Childhood Workroom**

Occupants:

6 Occupants

Adjacencies:

Close To: Early childhood rooms

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: acoustic ceiling tile, carpet flooring

Communications:

AV Equipment/Requirements:

Data/Voice: Dedicated at copier

Engineering Systems:

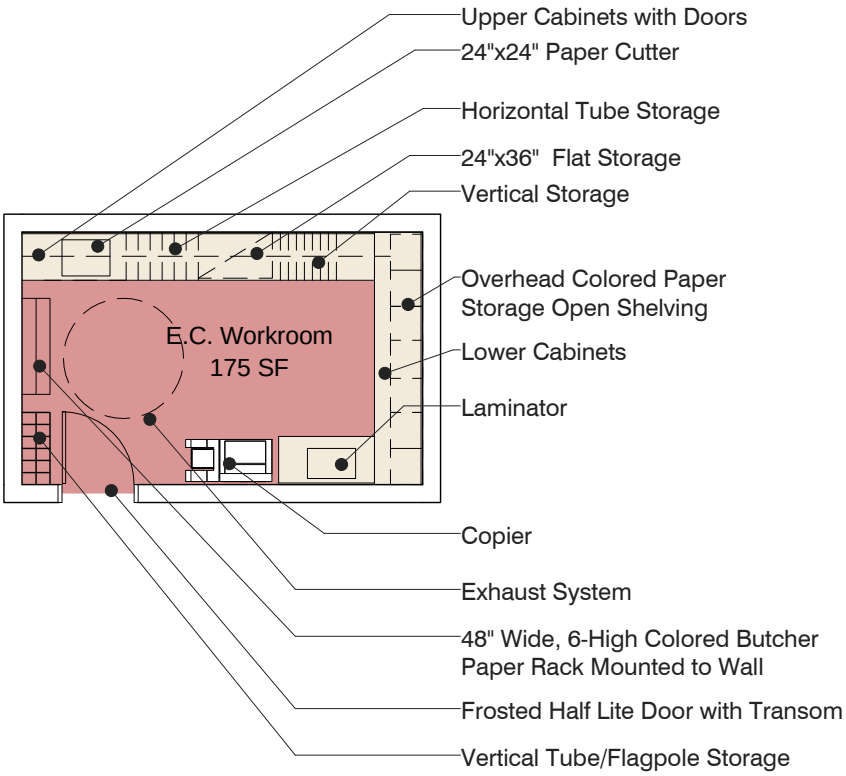
Power Requirements: Dedicated at copier, above counter

Lighting Requirements: Occupancy sensor, under cabinet lighting

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: TL-2 - Early Childhood Toy + Media Storage

description of space as needed

Occupants:

3 Occupants

Adjacencies:

Close To: Early childhood rooms

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

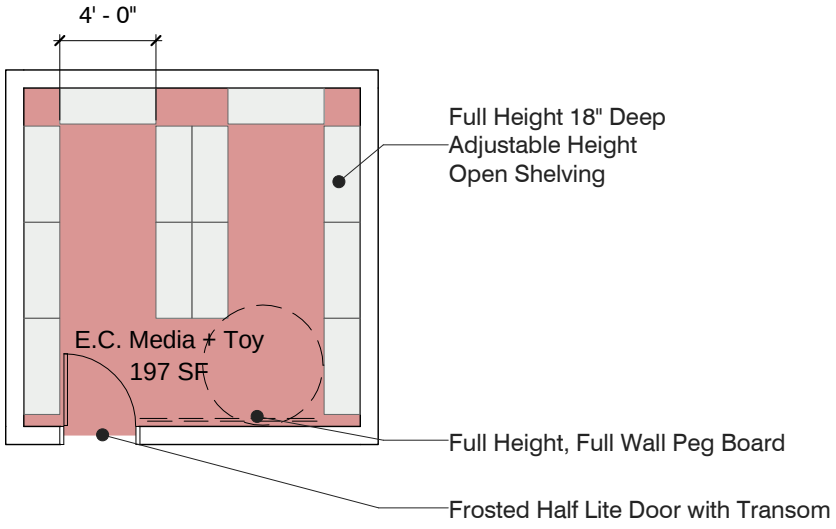
Power Requirements:

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **AT-1 - Assistive Technology**

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic ceiling tile, carpet flooring

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

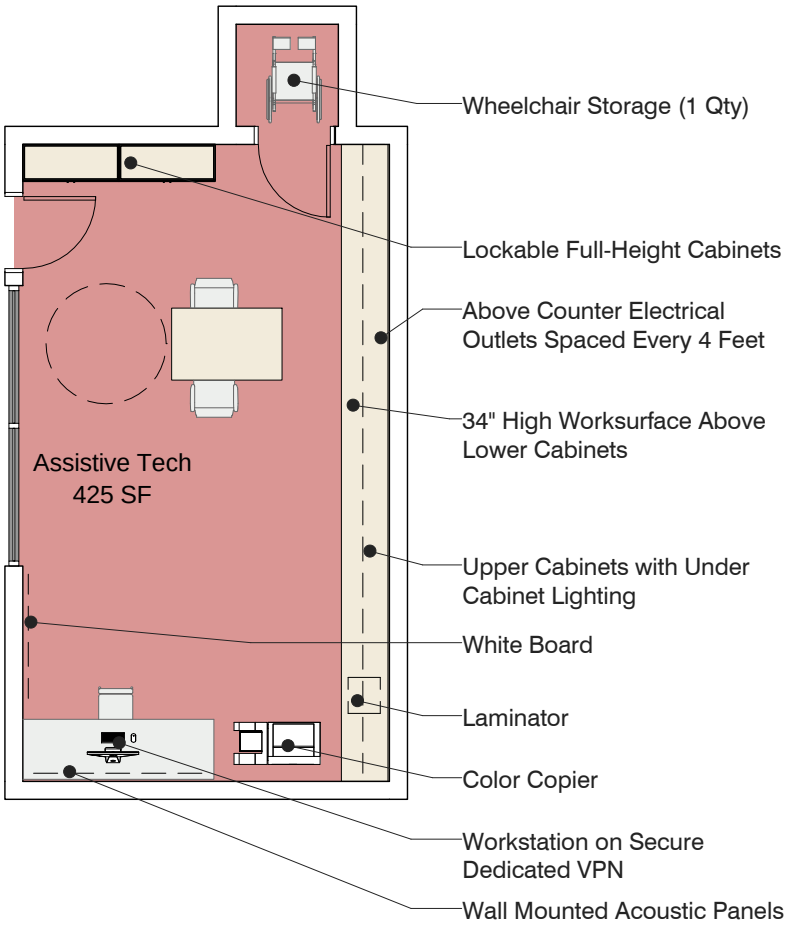
Power Requirements: At copier and workstation, above counter power outlets spaced at 4 feet centers

Lighting Requirements: Under cabinet lighting

Mechanical Requirements: Exhaust system

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: MX-1 - Medical Exam Room VA-1 - Vitals Area WK-3 - Doctor Work Station

description of space as needed

Occupants:

1 Caretaker

3 Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient floor, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

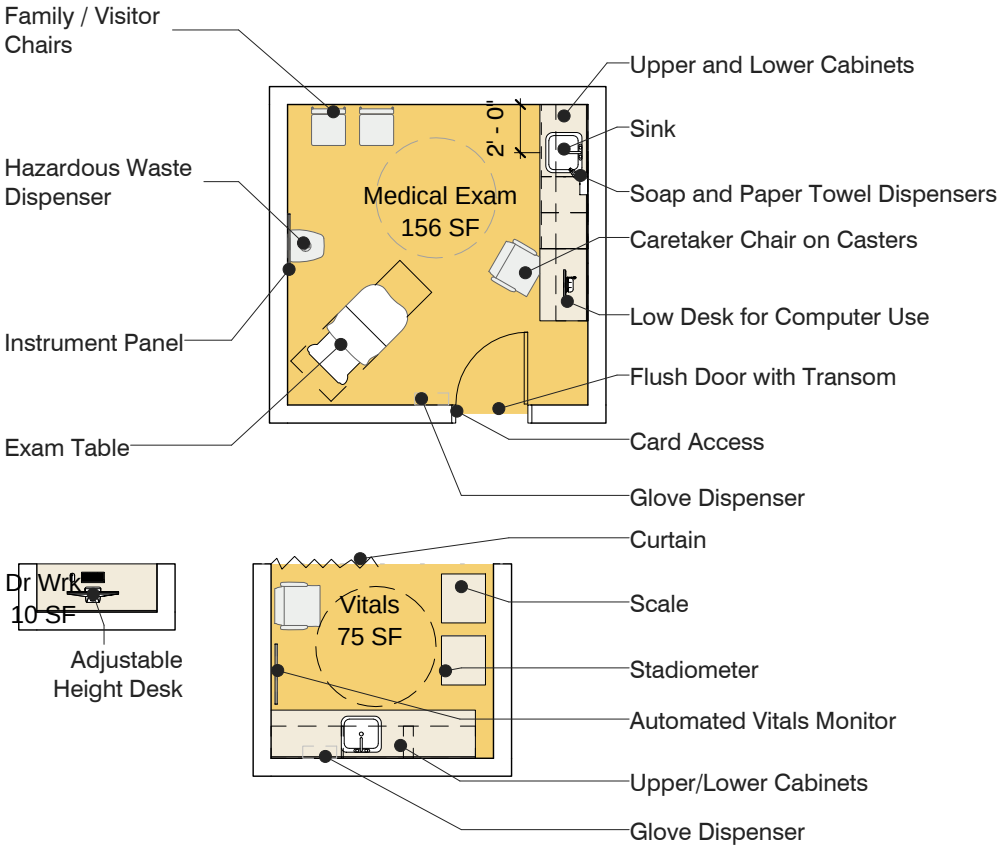
Power Requirements: Dedicated at exam table, instrument panel, computer station

Lighting Requirements: Under counter lighting

Mechanical Requirements:

Plumbing Requirements: Sinks in Exam Room and Vitals area

Security Requirements: Card access



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: TH-7 - Child Therapy OB-1 - Child Observation

The space needs to be orderly and predictable, and allow for messiness & ease of clean up.
The hosted toys will allow for exploration of real life experiences including cultural values, traditions and roles. Therapists will interact with the child by 1)Gaining the child's interest and attention and permit reality testing/limit setting. 2) Providing the opportunity for development of self control. 3)Facilitating exploration of the self and others. 4) Allowing children to express their needs symbolically (without any need for verbalization). 5)Providing for expression of a wide range of feelings. 6)Providing opportunities for insight/selfunderstanding. 7)Allowing for creative expression.

Occupants:

4 Observers
2 Visitors
2 Children
1 Therapist

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient flooring, carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic wall panels, acoustic ceiling tile

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

Power Requirements:

Lighting Requirements:

Mechanical Requirements: HVAC diffusers separated from microphones

Plumbing Requirements: 2-Basin sink

Security Requirements:

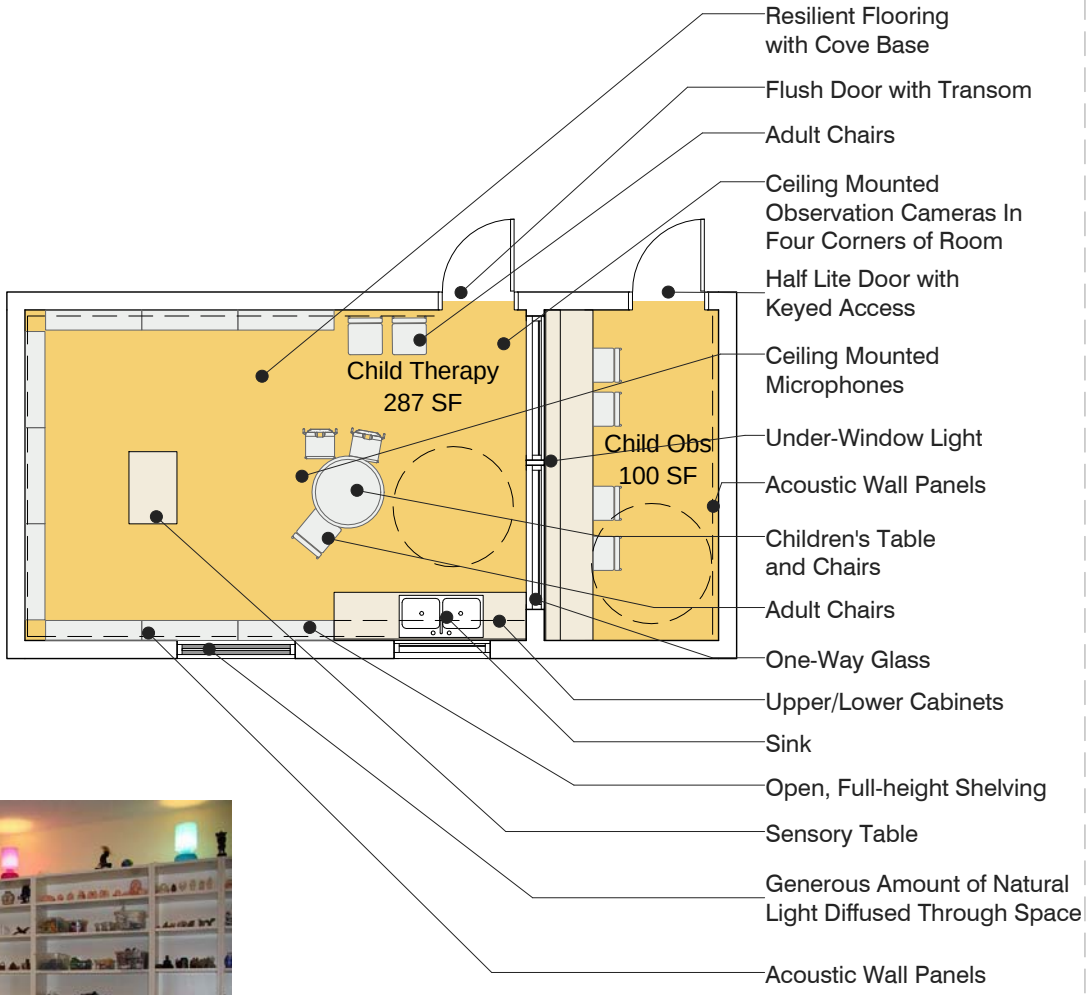


Illustration of the Types of Toys Used

Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **O-2 - 2 Person Office**

description of space as needed

Occupants:

2 Staff

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, ACT

Acoustics/Noise Control: High STC wall assembly

Communications:

AV Equipment/Requirements: None

Data/Voice: Dedicated at workstation and one other location

Engineering Systems:

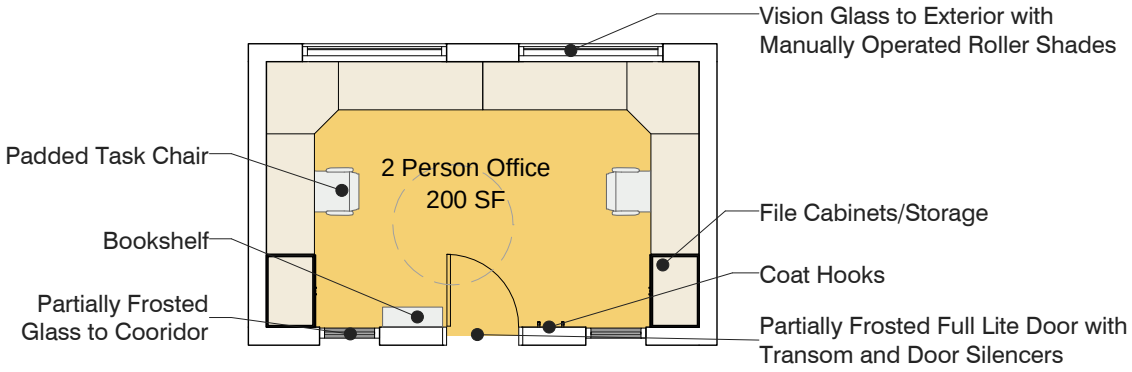
Power Requirements: Dedicated power at workstation and one other location, desk height power/usb outlet at workstation

Lighting Requirements: Indirect lighting on occupancy sensor, task lighting

Mechanical Requirements: Thermostat

Plumbing Requirements: None

Security Requirements: Keyed Access



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: WT-1 - Water Therapy PC-1 - Pool Control Room

The pool serves several clinics and will focus on "Physical Rehabilitation" and vestibular/ balance therapy for all age groups. Therapists will evaluate physical function in patients with physical or cognative disabilities; or use the aquatic environment as a tool for a reduction in pain; or as a safe environment for clients to challenge themselves and to gain confidence to improve balance, postural stability and functional capacity. The pool allows for a zero-entry as the floor adjusts from zero-entry to six feet deep. The floor is a treadmill that moves up to 8.5 miles per hour. The use of water jets can provide an additional challenge to balance plus adds resistance during walking. Stretching, toning, and flexibility exercises can also be completed while the treadmill is not running.

Occupants:

1 User
1 Controller

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Water Resistant Ceiling/Wall Construction, Slip Resistant, Durable Flooring

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:
cameras and screens for underwater observation by client.
cameras and mics for remote observation.

Data/Voice:

Engineering Systems:

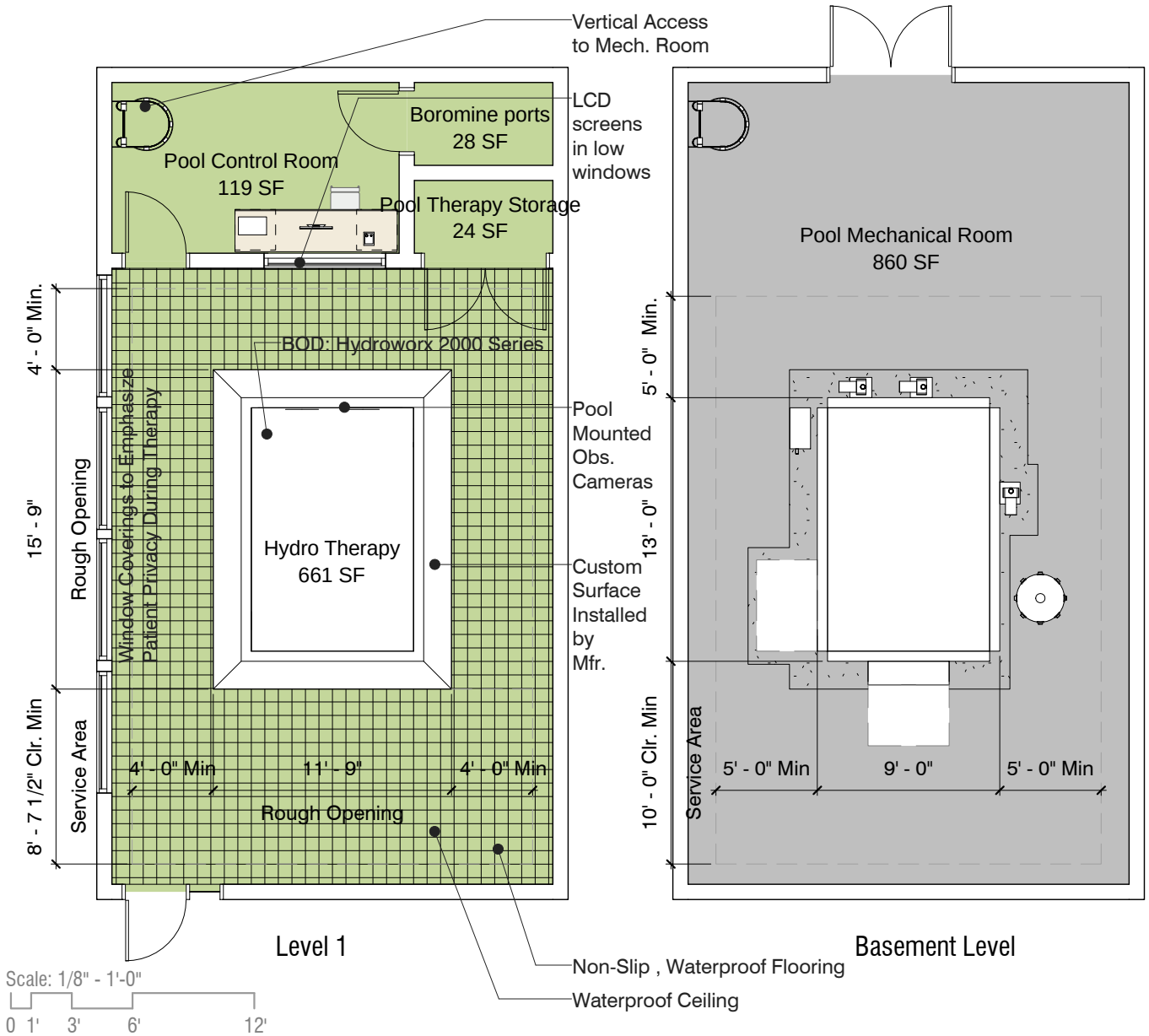
Power Requirements: Power to pool control panel, pool heater, power to drive motor,grounding to pool, wiring between control panel and pool. bond/ground all equipment including cameras.

Lighting Requirements:

Mechanical Requirements: Exhaust System for dehumidification in pool area, Pool temp is typically 92-94 deg. Maximum pit temp of 85 deg.

Plumbing Requirements: Pool connections as required by pool mfr, 2" gravity drain in sump. locate boromine ports in closet at pool level.

Security Requirements: door access control



Room Data Sheets: GY-1 - Gym

Occupants:

Varies

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, acoustic wall panels, acoustic ceiling tiles

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

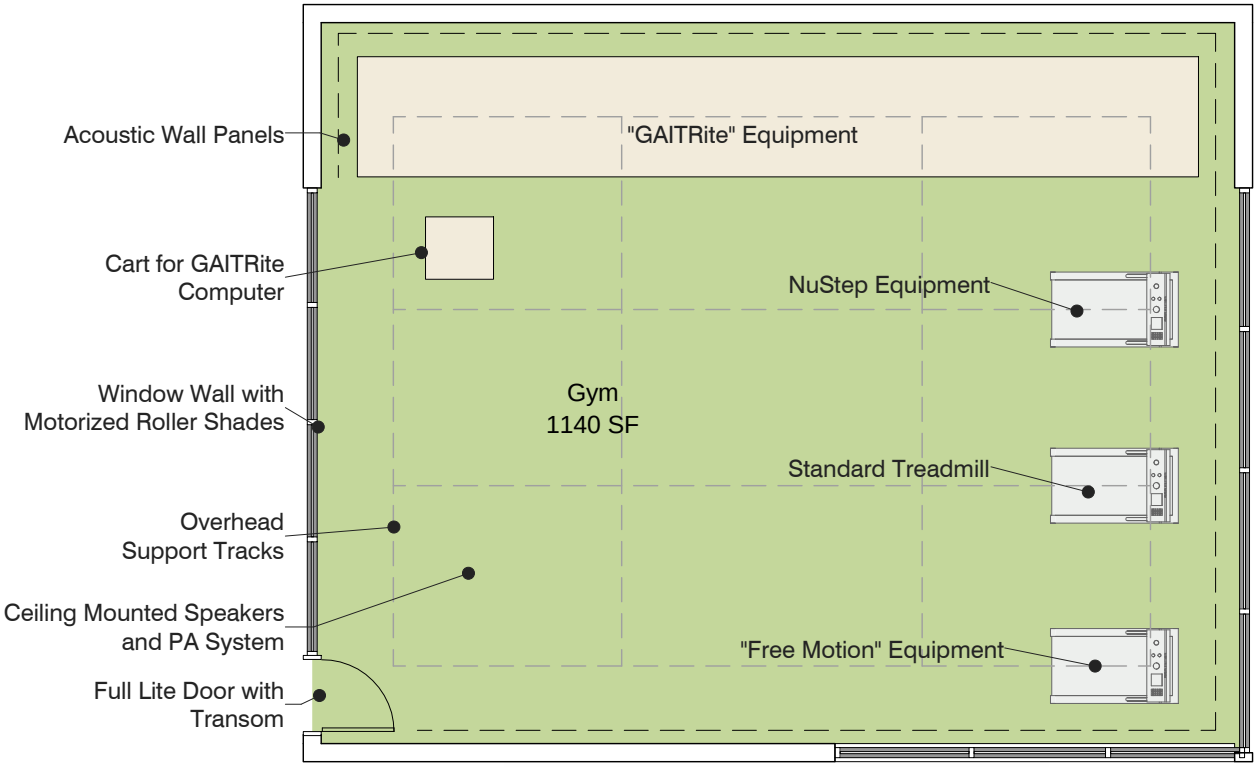
Power Requirements: At all walls for equipment flexibility, in window frames for motorized shades

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Model	Active (all Meters are Approximate)	Overall Length	Minimum Floor Space (Allows for Subject to take 2 steps before and after active area)
14	14 Ft (4.3 Meters)	17 Ft (5.2 Meters)	23 Ft (7 Meters)
16	16Ft (5 Meters)	19 Ft (5.8 Meters)	25 Ft (7.6 Meters)
20	20 Ft (6 Meters)	23 Ft (7 Meters)	29 Ft (9 Meters)
26	26 Ft (8 Meters)	29 Ft (9 Meters)	35 Ft (10.6 Meters)

WIDTH: All Models are 24 inches (2 Ft / .6 meters) active area and overall 35.5 Inches wide (3 Ft / .9 meters).

Inactive walkway lengths can be used to provide walk on/off areas in same material as walkway.

Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **LO-1 - Locker Room**

Occupants:

5 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Tile floor, full height tile on walls, tile cove base, water resistant ceiling tile

Acoustics/Noise Control: High STC wall assemblies

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

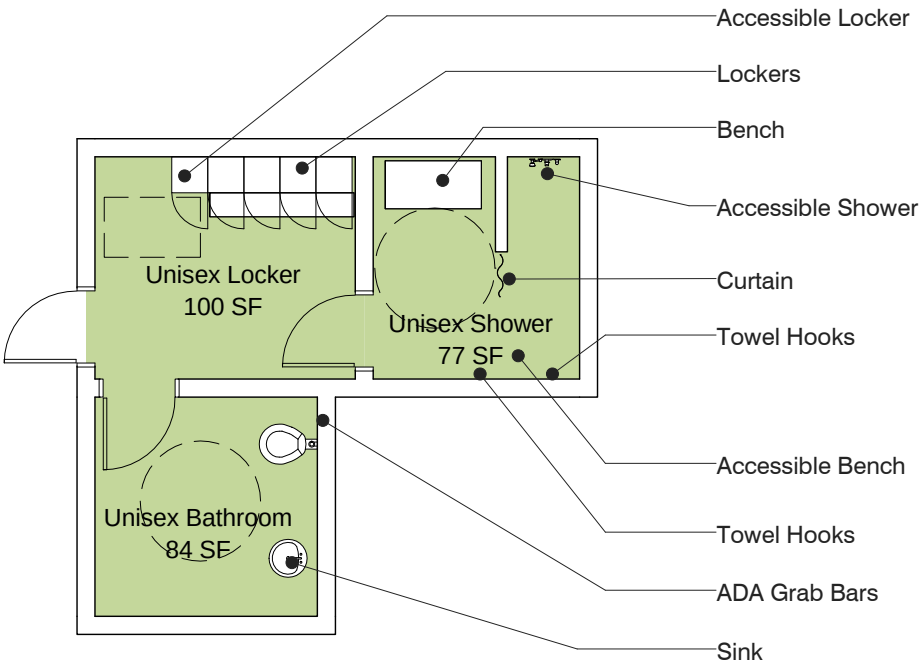
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Exhaust

Plumbing Requirements: Sink, toilet, shower, drains

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **MP-1 - Multipurpose Room**

Flex space for health, exercise science, and physical therapy use.

Occupants:

Varies

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resiliant floor, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

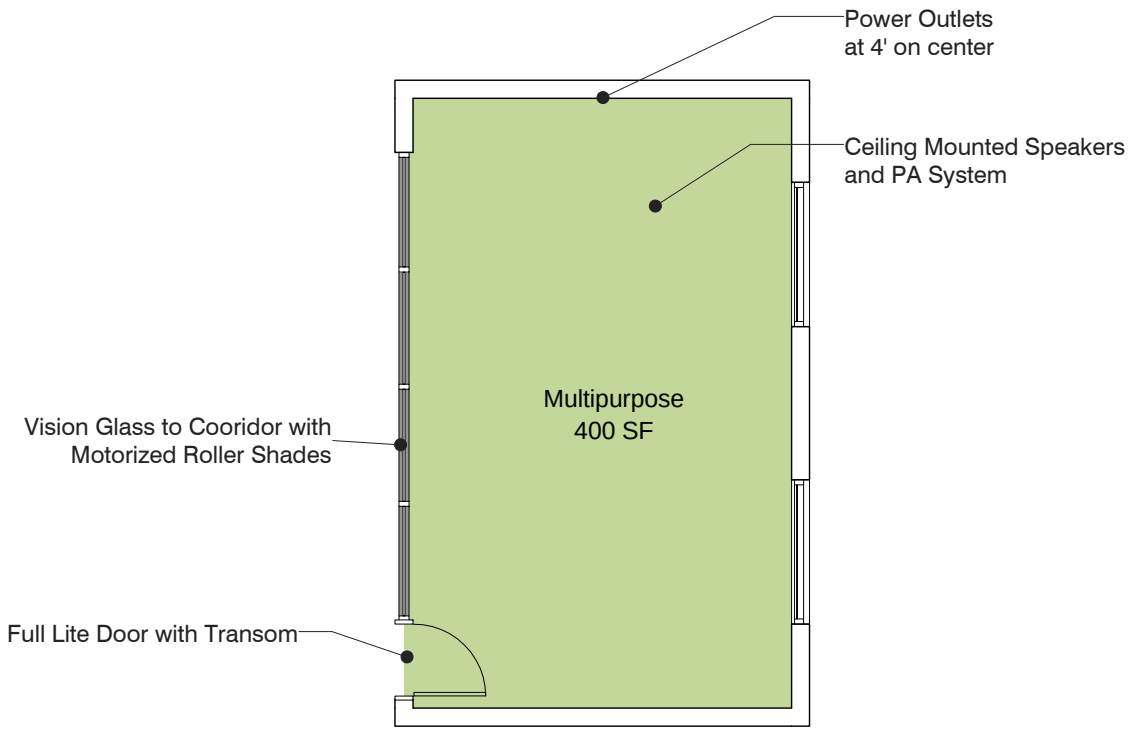
Power Requirements: Outlets every 4', inside window frame for roller shades

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **LN-2 - Laundry Room**

Occupants:

3 Occupants

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

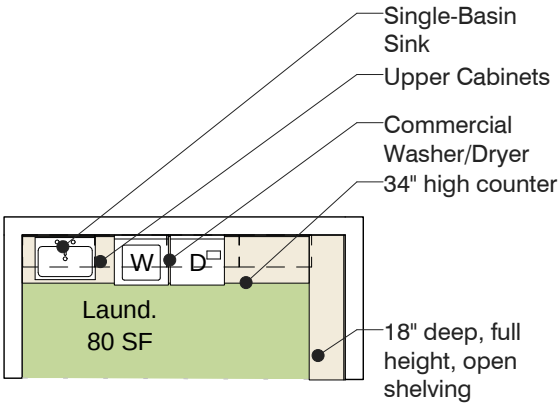
Power Requirements: Dedicated at washer/dryer, abover counter

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements: Single-basin sink, washer

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: SB-1 - Sound Booth SC-1 - Control Room

The Sound Booth is a preconstructed pod where a patient will have their hearing evaluated by a specialist from the control room

Occupants:

4 Occupants - Control Room
2 Occupants - Sound Booth

Adjacencies:

Close To: Toy Storage, Note Room, Control Room 1 needs to be adjacent to Hearing Aid Fitting

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile, acoustic separation paneling

Acoustics/Noise Control: High STC Wall Assemblies, Low Noise Coefficient for HVAC Systems

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

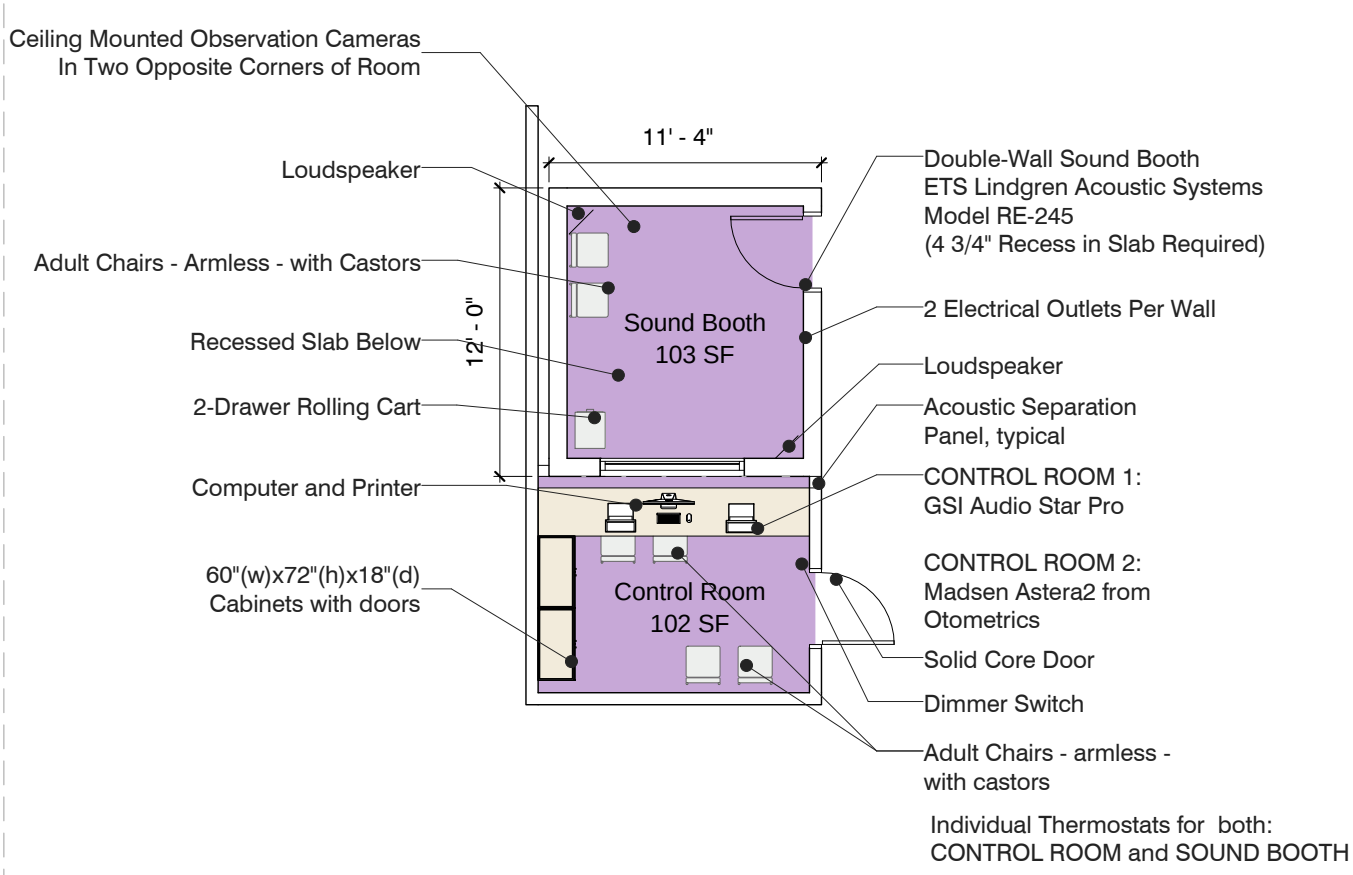
Power Requirements: (2)Electrical outlets on each wall within Booth

Lighting Requirements: Dimmer switch on all lights in Control Room

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC Diffusers away From Observation Microphones.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **CH-1 - Child Language Lab**

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC Wall Assemblies, Low Noise Coefficient for HVAC Systems, Acoustic Ceiling Tile, Acoustic Wall Panels

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

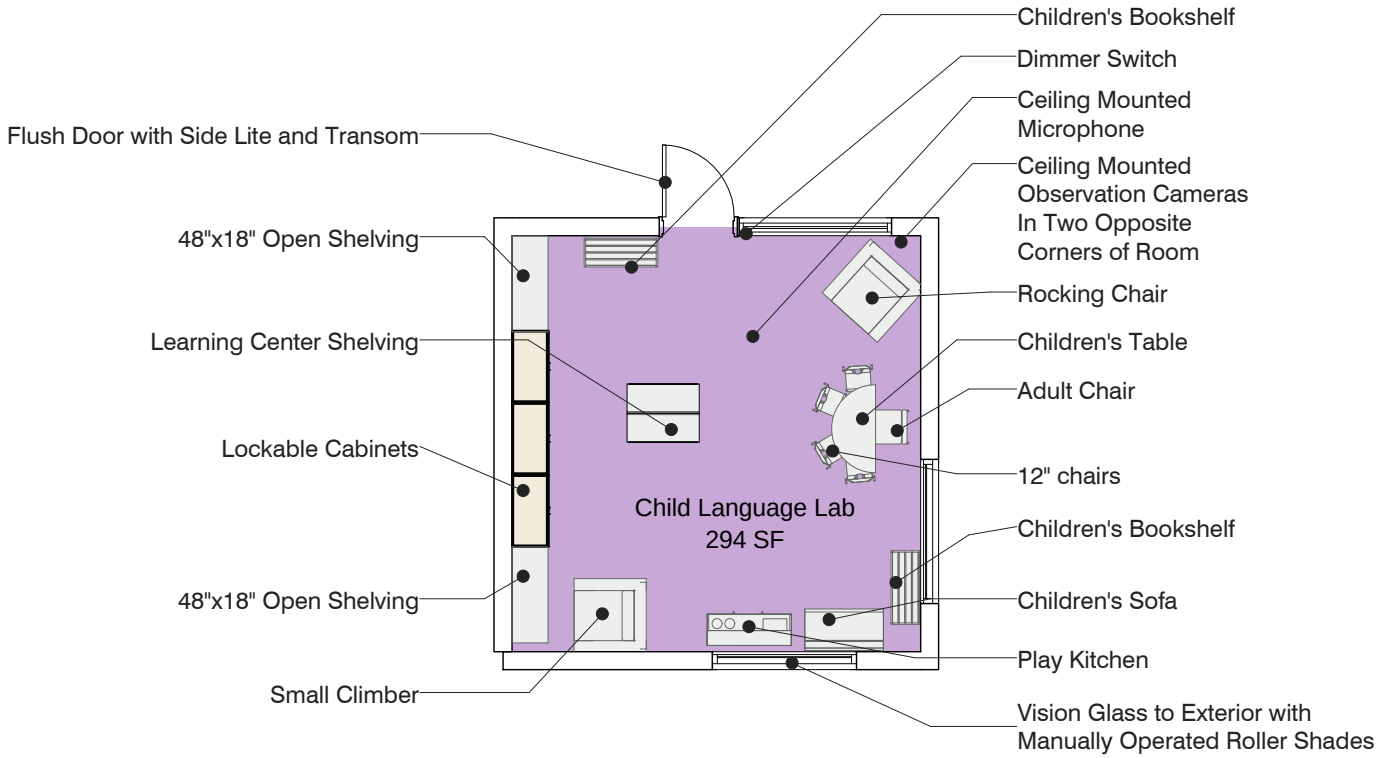
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Locate Diffuser Away from Observation Microphone

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **HS-1 - Hearing Screening**

description of space as needed

Occupants:

4 Occupants

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic ceiling tile, carpet flooring

Communications:

AV Equipment/Requirements: Observation technology

Data/Voice:

Engineering Systems:

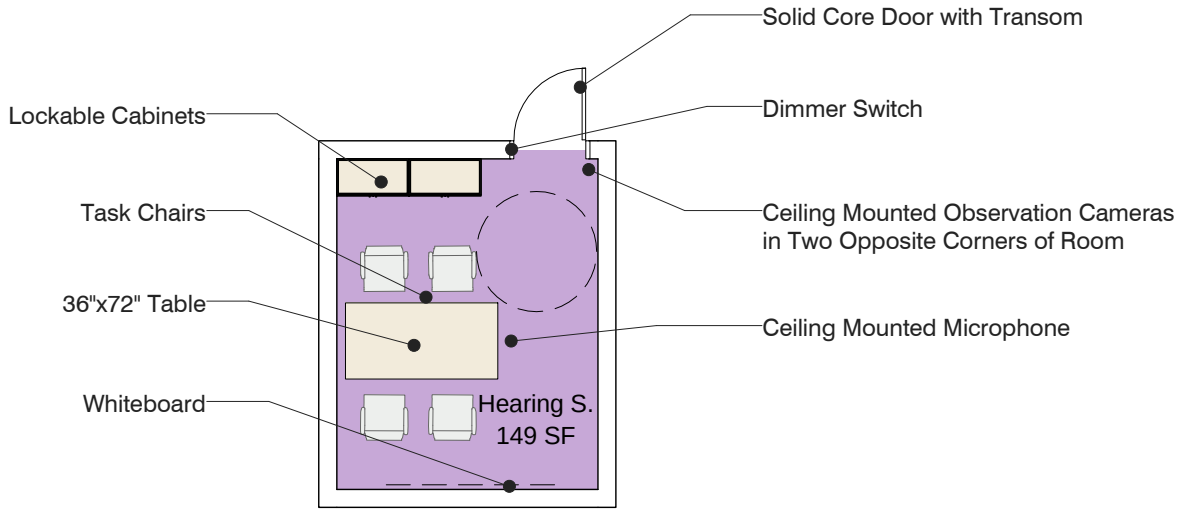
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Low velocity HVAC systems. Locate HVAC diffusers away from observation microphones

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **HA-1 - Hearing Aid Workroom**

description of space as needed

Occupants:

3 Occupants

Adjacencies:

Close To: Toy Storage, Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation Technology

Data/Voice:

Engineering Systems:

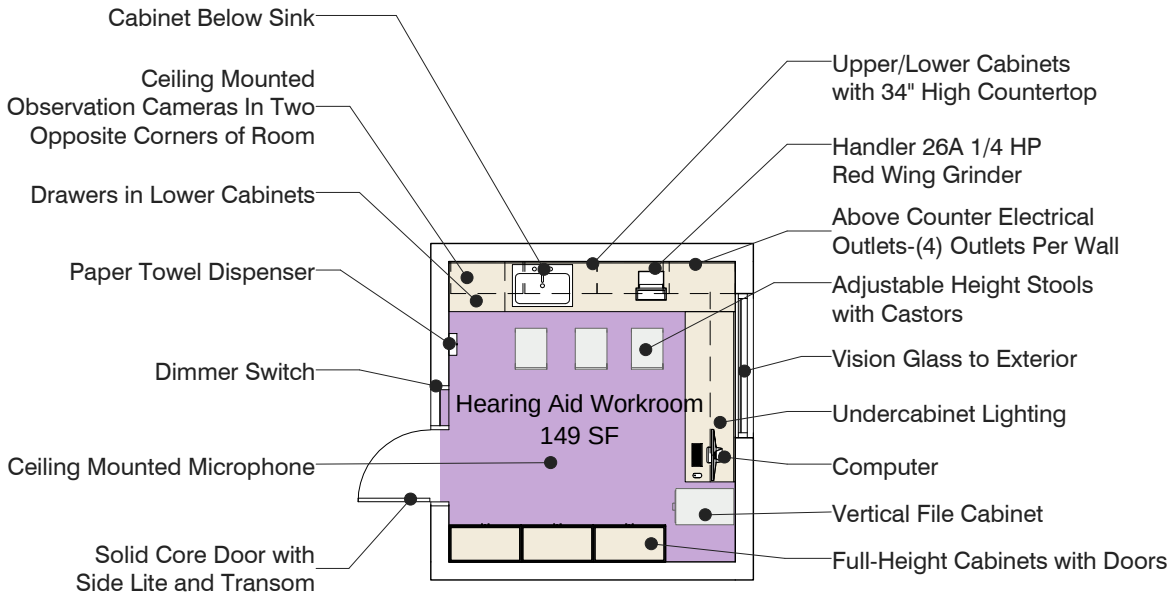
Power Requirements: 4 Above Counter Electrical Outlets per Wall

Lighting Requirements: Dimmer switch on all lights. Under cabinet lighting

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Located HVAC Diffusers Away from Observation Microphones.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **HF-1 - Hearing Aid Fitting**

description of space as needed

Occupants:

7 Occupants

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation technology, flat panel and surround system interface.

Data/Voice:

Engineering Systems:

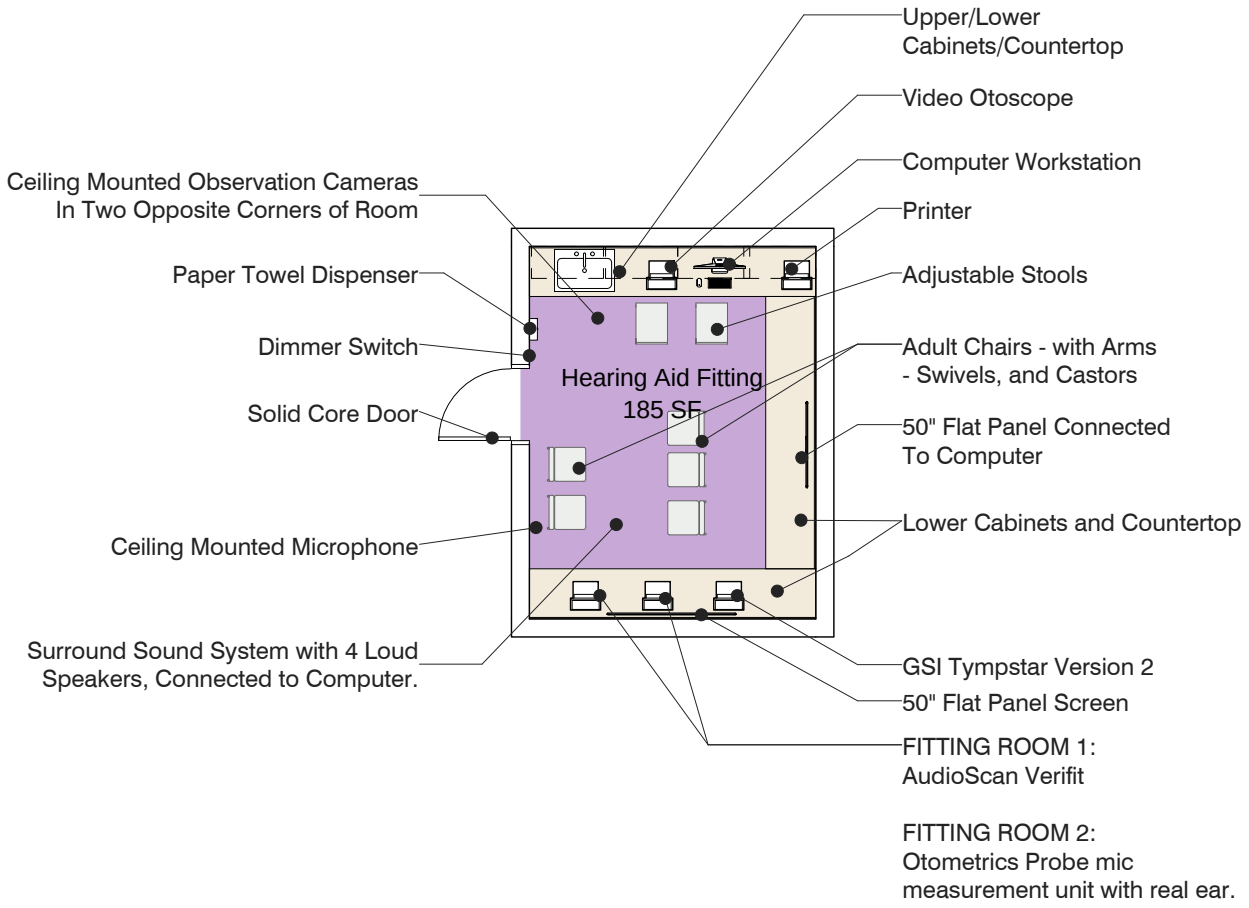
Power Requirements: Dedicated at equipment locations, above countertop

Lighting Requirements: Dimmer switch on all lights, under cabinet lighting

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones

Plumbing Requirements: Sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **EB-1 - ENG Balance**

Electronystagmogram (ENG) measures normal eye movement and involuntary rapid eye movements called nystagmus. It also checks the muscles that control eye movements. ENG checks how well the eyes, inner ears, and brain help a patient keep his balance. ENG is done to help see whether there is a problem within the inner ear, brain, or nerves that connect them. These problems may cause dizziness, vertigo, or loss of balance. During ENG, electrodes are attached to the face near the eyes to record eye movements. The movements are recorded on graph paper. A series of recordings is done. Baseline recordings are taken with the head at rest and while a patient moves his head up and down, left and right and while looking at a moving object, as well as after warm or cold water (or air) is placed inside his ears.

Occupants:

1 Caregiver
1 Patient
2 Visitors

Adjacencies:

Close To: Toy Storage, Note Room

Away From: Sound Booth

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation technology

Data/Voice:

Engineering Systems:

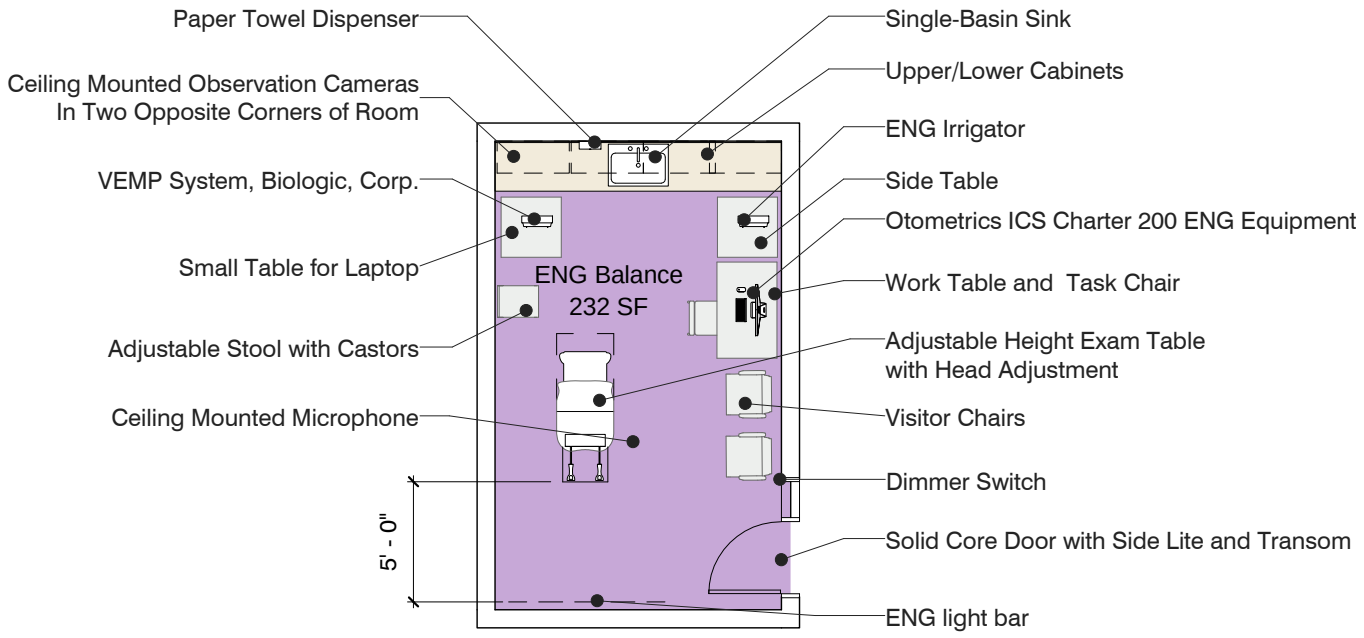
Power Requirements: 6 power outlets per wall.

Lighting Requirements: Dimmer switch on all lights, under cabinet lighting

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements: Single-basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **RB-1 - Rotary Balance**

The rotary chair evaluates vestibular and brainstem function. During rotary chair testing, a patient sits in a computer-controlled chair that rotates around a vertical axis. When the chair is rotated in the dark, it induces involuntary rapid eye movement (nystagmus). These movements are recorded, and their speed is compared to the chair rotation at a variety of frequencies to assess vestibular function. The rotary chair test is the most sensitive procedure for detecting loss of vestibular function on both sides of the body.

Occupants:

1 Caregiver
1 Patient
2 Visitors

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation technology

Data/Voice:

Engineering Systems:

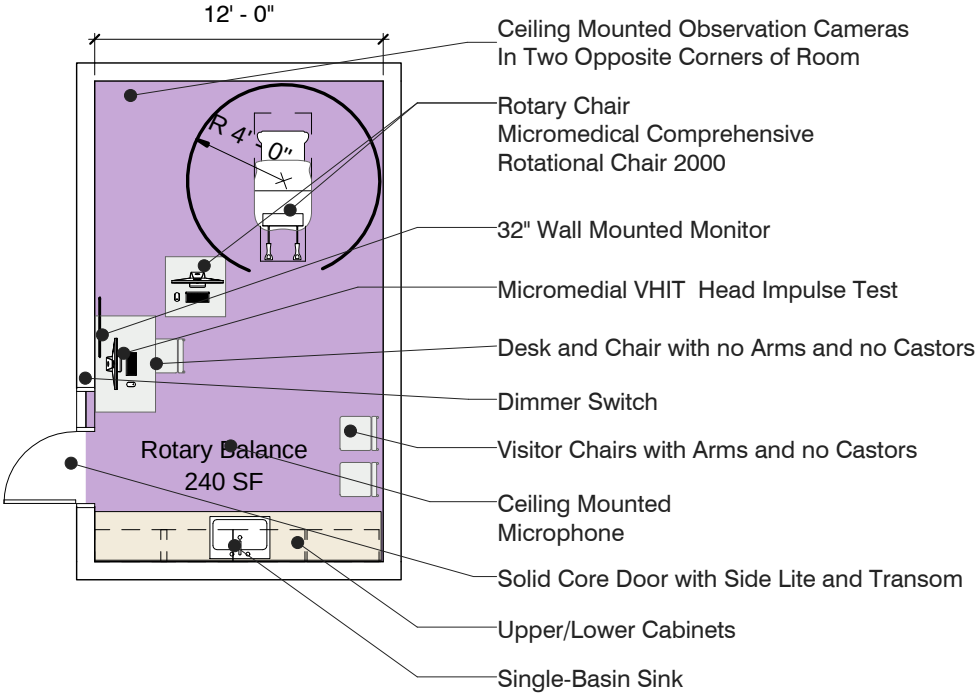
Power Requirements: 4 Power outlets on each wall

Lighting Requirements: Dimmer switch on all lights, under cabinet lighting

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements: Single-basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **PB-1 - Posturography Balance**

Occupants:

1 Caregiver
1 Patient
2 Visitors

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies,low noise coefficient for HVAC systems, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation technology

Data/Voice:

Engineering Systems:

Power Requirements: Dedicated at equipment, 6 power outlets on each wall.

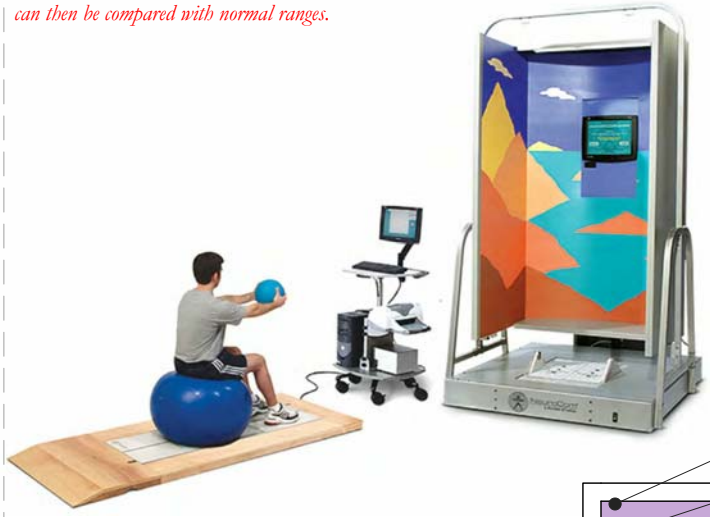
Lighting Requirements: Dimmer switch on all lights

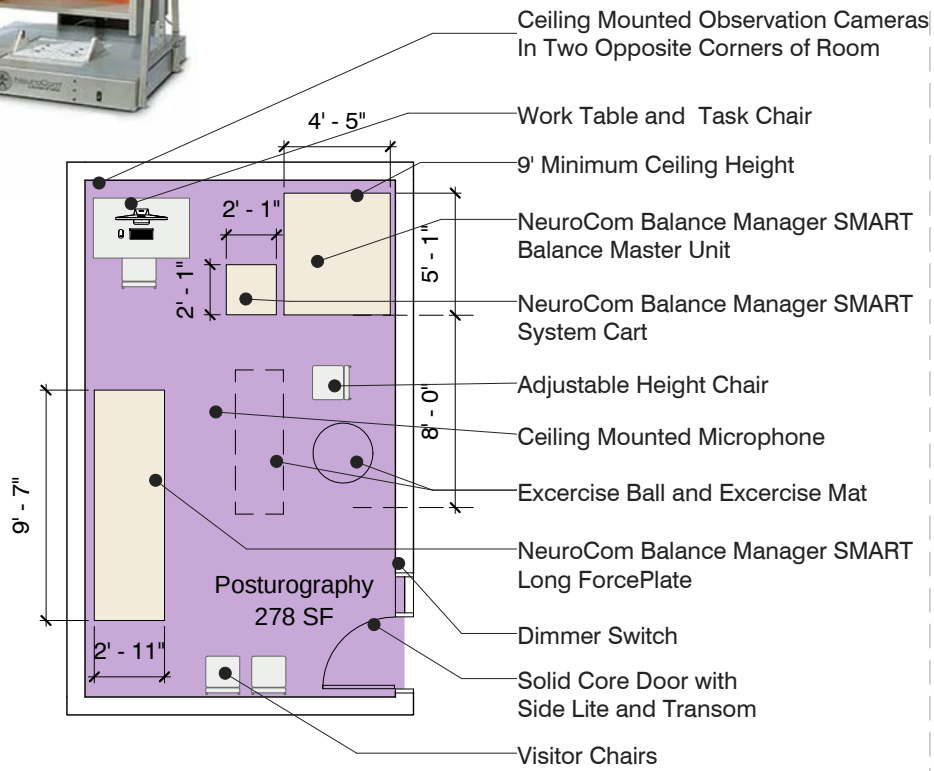
Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements:

Security Requirements:

Posturography describes the techniques used to quantify postural control in upright stance in either static or dynamic conditions. Static posturography is carried out by placing the patient in a standing posture on a fixed forceplate connected to sensitive detectors (force and movement transducers), which are able to detect the tiny oscillations of the body. Dynamic posturography uses a special apparatus with a movable horizontal platform. As the patient makes small movements, they transmit in real time to a computer. The computer is also used to command electric motors which can move the forceplate in the horizontal direction as well as to incline it. The posturography test protocols generate a sequence of standardized motions in the support platform in order to desequilibrate the patient's posture in an orderly and reproducible way. The platform is contained within an enclosure which can also be used to generate apparent visual surround motions. These stimuli are calibrated relative to the patient's height and weight. A special computer software integrates all this and produces detailed graphics and reports which can then be compared with normal ranges.





Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: CR-1 - Cerumen Removal - Counseling

description of space as needed

Occupants:

6 Occupants

Adjacencies:

Close To: Toy Storage, Note Room

Away From:

Physical Characteristics:

Finishes: Resilient floor, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation technology, flat panel and surround system interface.

Data/Voice:

Engineering Systems:

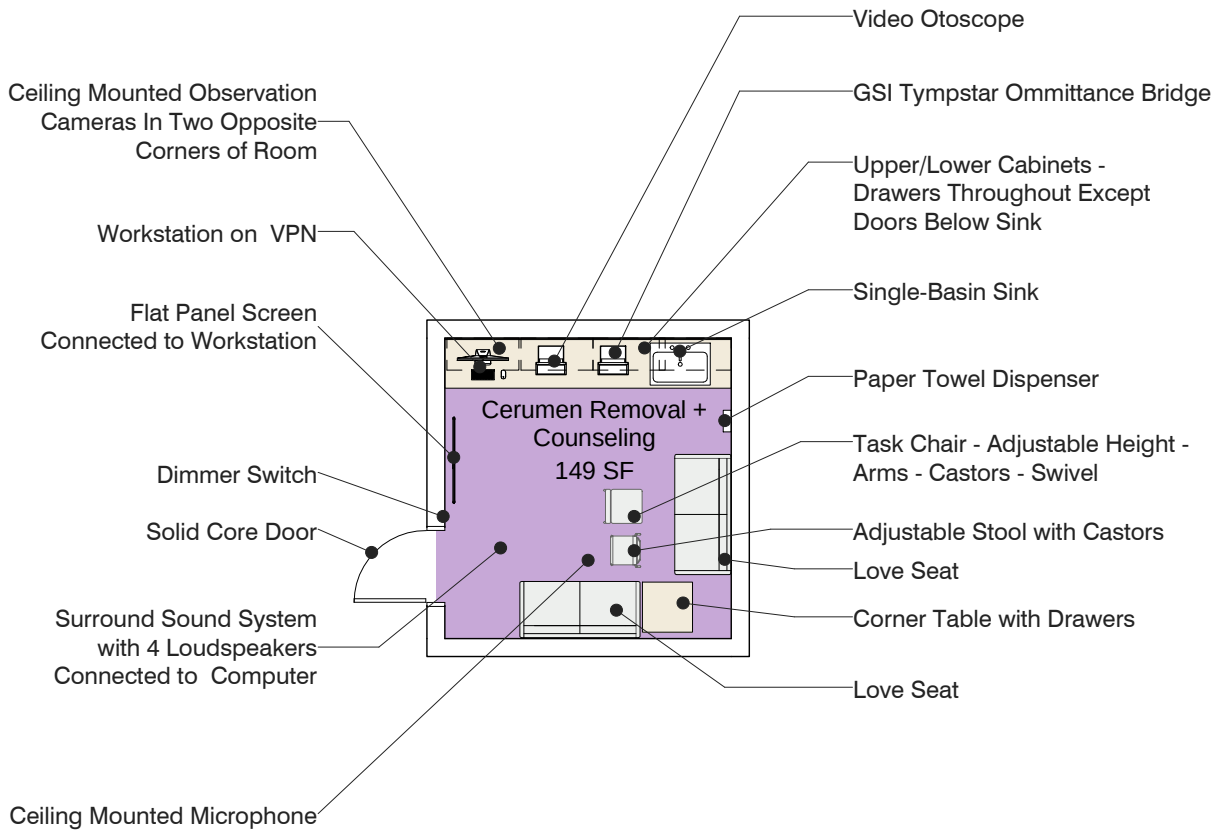
Power Requirements: Dedicated at equipment

Lighting Requirements: Dimmer switch on all lights in control room, under cabinet lighting

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements: Single-basin sink

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **AT-2 - Assistive Technology**

description of space as needed

Occupants:

4 Occupants

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation Technology

Data/Voice:

Engineering Systems:

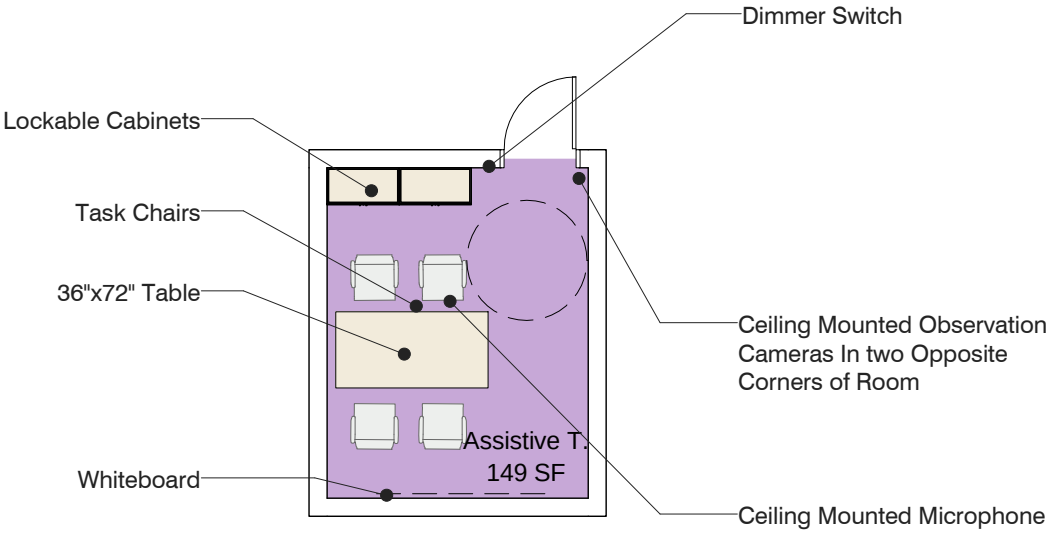
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **VL-1 - Voice Lab**

description of space as needed

Occupants:

4 Occupants

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation Technology

Data/Voice:

Engineering Systems:

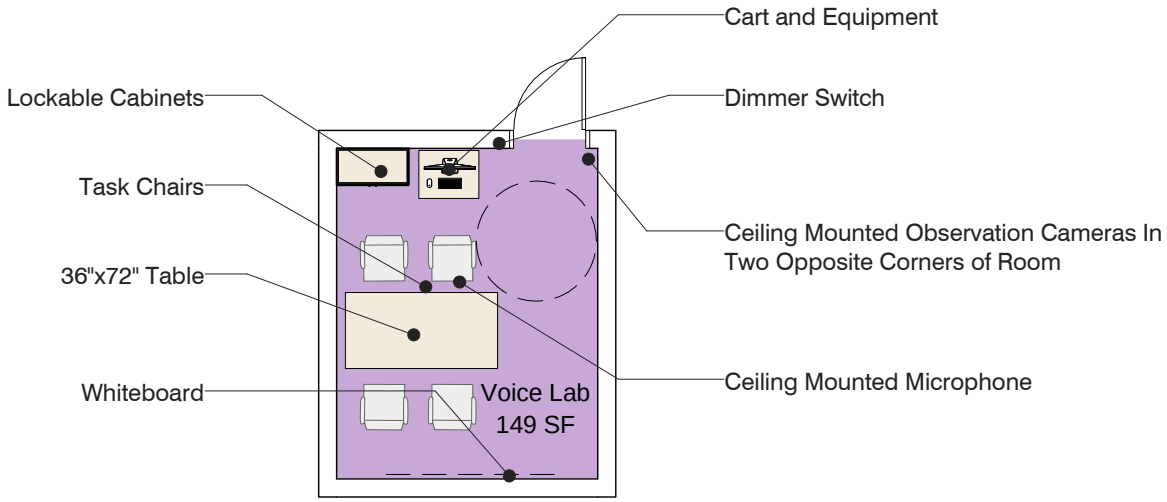
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **SP-1 - Smart Palates**

description of space as needed

Occupants:

4 Occupants

Adjacencies:

Close To: Note Room

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation Technology

Data/Voice:

Engineering Systems:

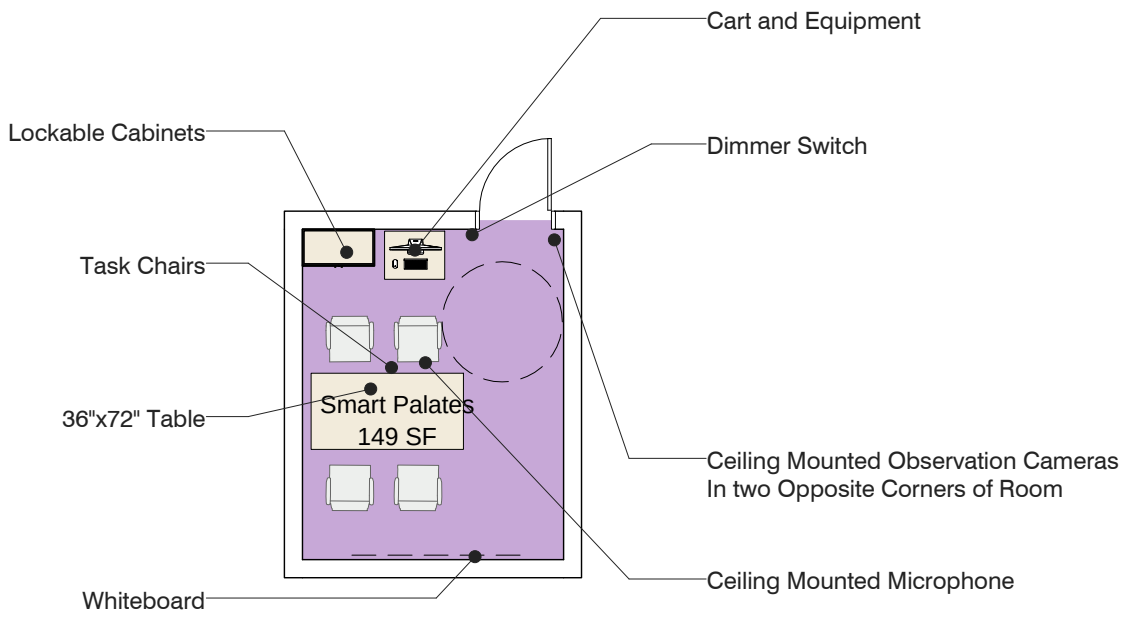
Power Requirements:

Lighting Requirements:

Mechanical Requirements: Low velocity air flow for reduced mechanical noise. Locate HVAC diffusers away from observation microphones.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: **OB-6 - Therapy Observation**

description of space as needed

Occupants:

2 Occupants

Adjacencies:

Close To: Speech Therapy Rooms

Away From:

Physical Characteristics:

Finishes: Carpet tile, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: High STC wall assemblies, low noise coefficient for HVAC systems, acoustic panels, carpet flooring, acoustic ceiling tile

Communications:

AV Equipment/Requirements: Receipt of observation technology and interface with workstation, IVC technology

Data/Voice: Dedicated at workstation

Engineering Systems:

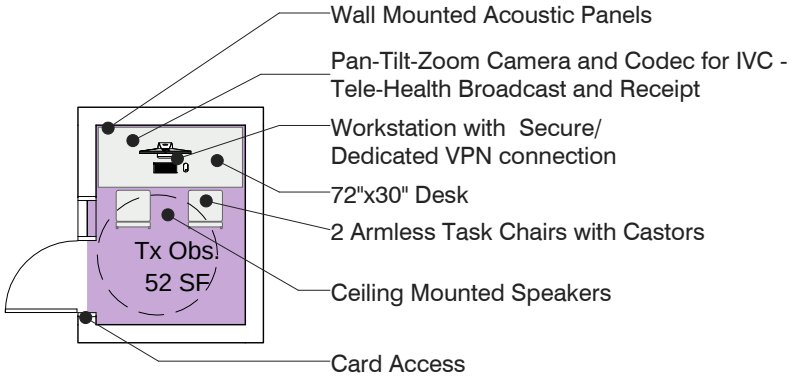
Power Requirements: Dedicated at workstation

Lighting Requirements:

Mechanical Requirements: Low velocity air flow for reduced mechanical noise.

Plumbing Requirements:

Security Requirements:



Scale: 1/8" - 1'-0"

0 1' 3' 6' 12'

Room Data Sheets: NL-1 - Advanced Nursing Simulation Lab

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To: 30 person meeting space

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: Acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation interface, control equipment interface with head wall system, raceways for manequin control

Data/Voice:

Engineering Systems:

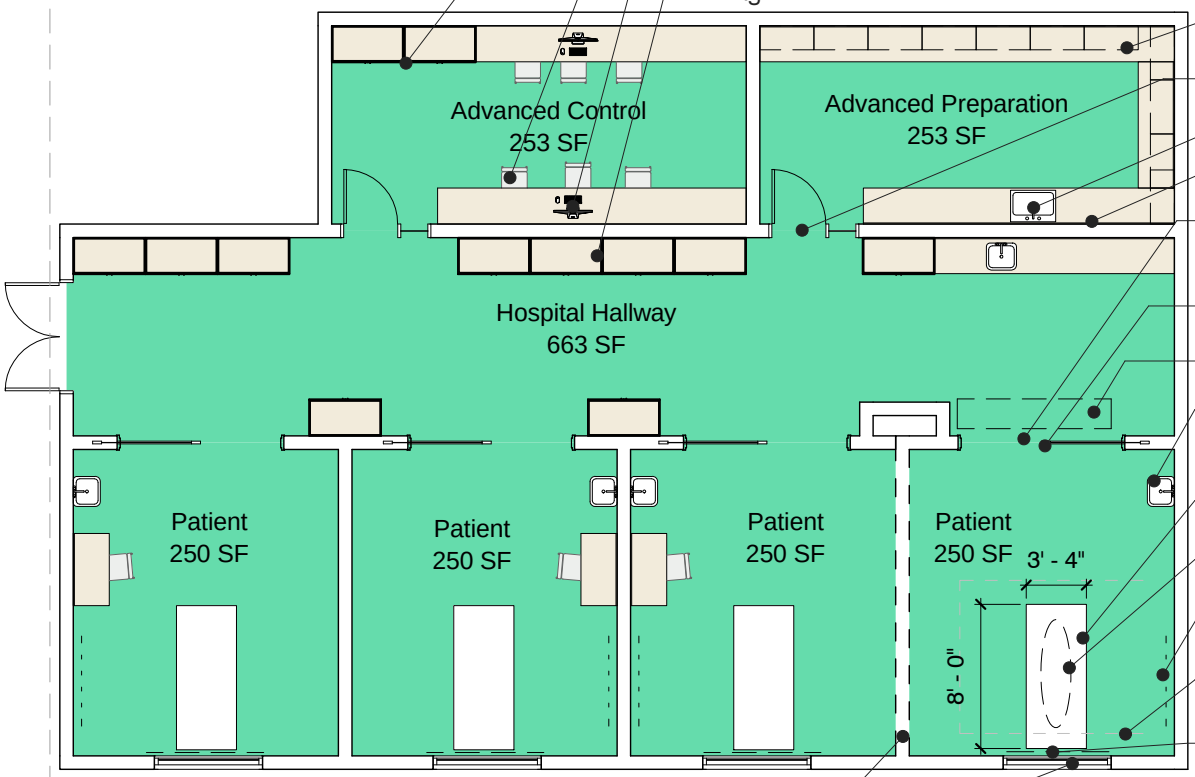
Power Requirements: At work stations, above countertops, head wall system

Lighting Requirements:

Mechanical Requirements: Compressed air, aspirating air

Plumbing Requirements: Sinks

Security Requirements:



Full Height Cabinets

Task Chairs on Casters

"Laerdal" Control / Monitoring Equipment

Medical Equipment / Storage

Upper/Lower Cabinets

Full Lite Door with Side Lite

Deep Sink

Peg Board

Hospital Grade Sliding Glass Door

Nurse Call Light Above Door

Informal Observation Area

Hand Washing Sink

Motorized Hospital Bed

"Laerdal" Manequin

White Board

U Shaped Overhead Support Track

Head Wall System With:
-Compressed Air
-Aspiration
-Mock Emergency Power
-Mock Nurse Call
-Monitors

Folding Partition

Vision Glass Clerestory

Room Data Sheets: NL-2 - Basic Nursing Simulation Lab

description of space as needed

Occupants:

#

Visitors

Adjacencies:

Close To:

Away From:

Physical Characteristics:

Finishes: Resilient flooring, painted gypsum board, acoustic ceiling tile

Acoustics/Noise Control: acoustic ceiling tile

Communications:

AV Equipment/Requirements: Observation interface, control equipment interface with head wall system, raceways for manequin control

Data/Voice:

Engineering Systems:

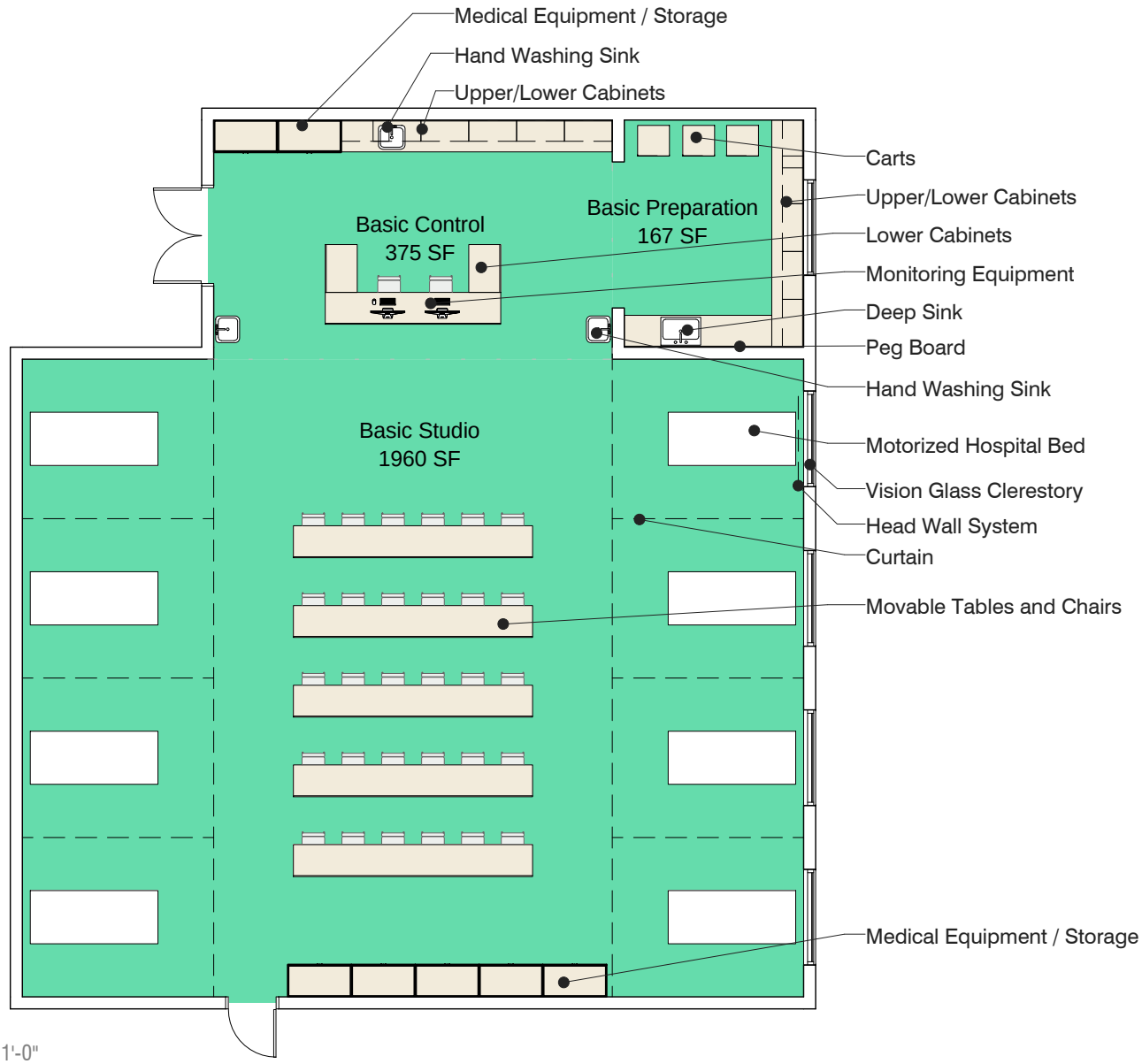
Power Requirements: At work stations, above countertops, head wall system

Lighting Requirements:

Mechanical Requirements: Compressed air, aspirating air

Plumbing Requirements: Sinks

Security Requirements:



Scale: 3/32" - 1'-0"

0 1' 3' 6' 12'

DRAFT

Occupants:

NA

Adjacencies:

Away From: Classrooms and Therapy Rooms

Visual Connection:

Level of Privacy:

Physical Characteristics:

Finishes:

Ceiling Height: 12'

Acoustics/Noise Control:

Observation Requirements:

Communications:

AV Equipment/Requirements:

Data/Voice:

Engineering Systems:

Power Requirements: VFDs by Electrical

Lighting Requirements:

Mechanical Requirements:

Plumbing Requirements: Floor Drains, Floor Sinks

Security Requirements: Keyed Access

Wet side mechanical room should be approximately 1.5-2% of the gross building area. This should be located where the tunnel comes into the building.

Air handling room(s): These should be approximately 4-5% of the gross building area. These could be consolidated into a single room for the entire building, or they could be broken out for separate sections of the building, such as separate wings, separate floors, etc. Each room should be approximately 4-5% of the area that it is broken out to serve. The University would prefer these to be in the basement, but on Brigham City and at some other locations has allowed provisions to put them on other floors if needed. Each air handling unit room will need 2 outside air locations (one for intake and one for exhaust). Each outside air opening will need to be approximately 0.5% of the total floor area that the air handler is serving. Each air handler will also need approximately 0.5% of the floor area in either shaft or ceiling space to get ductwork and piping out of the air handler room and into the building.

External access to equipment spaces is required with elevator access, through parking lot, and/or areaway.

Intake air must be high above the ground plane.

Exhaust/relief air may be put into the parking garage.

Smoke control requires a CFD analysis (3rd party tends to be less expensive).

Radiant heat required around entire building perimeter.

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Utility Yard

Space allocated to house Emergency Generator. Plan for 8'x20' generator with at least 4' clearance on all sides. Total of 16' x 28' of space dedicated for generator.

Plan for 30' x 20' space for two medium voltage utility service transformers. These will provide 208V, and 480V power to the building.

Plan for two 12' x 4' electrical service switchboards to be located near utility transformers.

Main Electrical Room

12' x 24'. Two doors that open outward with panic hardware. One door on each side of room.

Locate room close to utility yard. Locate on lowest level of building. No ceiling.

Emergency Electrical Room

8' x 10'

Locate adjacent to main electrical room. Door opens outward. No ceiling'

Remote Electrical Rooms

8' x 10'

Most likely will need at least two remote electrical rooms per floor. Centrally located, but on opposite sides of building.

Ideally electrical rooms are vertically stacked similar to comm rooms.

Best located adjacent to remote telecom rooms.

Door to open outward. No ceiling.

Telecom Rooms

Ideally located near main electrical room, but not directly next to it if possible.

Main Telecom Room / Entrance Facility:

Recommend a 10' x 11' minimum room centrally located in the building at main level or basement (floor on grade). Can be located near exterior wall. Additional 10' x 8' room most likely will be required on opposite side of building as well on that same level.

Remote Telecom Rooms:

Provide a 10' x 8' minimum telecom room vertically stacked on each level. Ideally stacked above main telecom room. Most likely will need two rooms per floor depending upon building footprint layout. One on each side of building.

Locate near core areas such as stairwells or elevator shafts in order to facilitate stacking of rooms.

Telecom cabling from farthest outlet to telecom room not to exceed 90 meters (295 feet)

Server/AV Equipment Room:

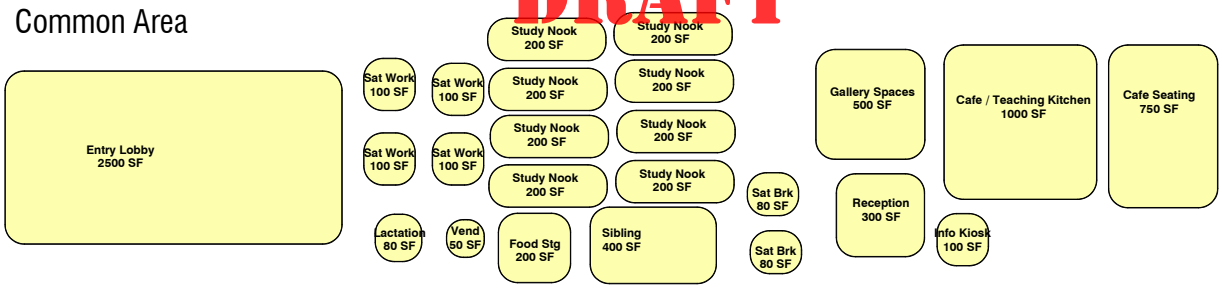
Owner may require separate server/AV room to house their equipment. Will need to consult with project IT/AV contact to verify their needs for this and size

3.3 Program Parts

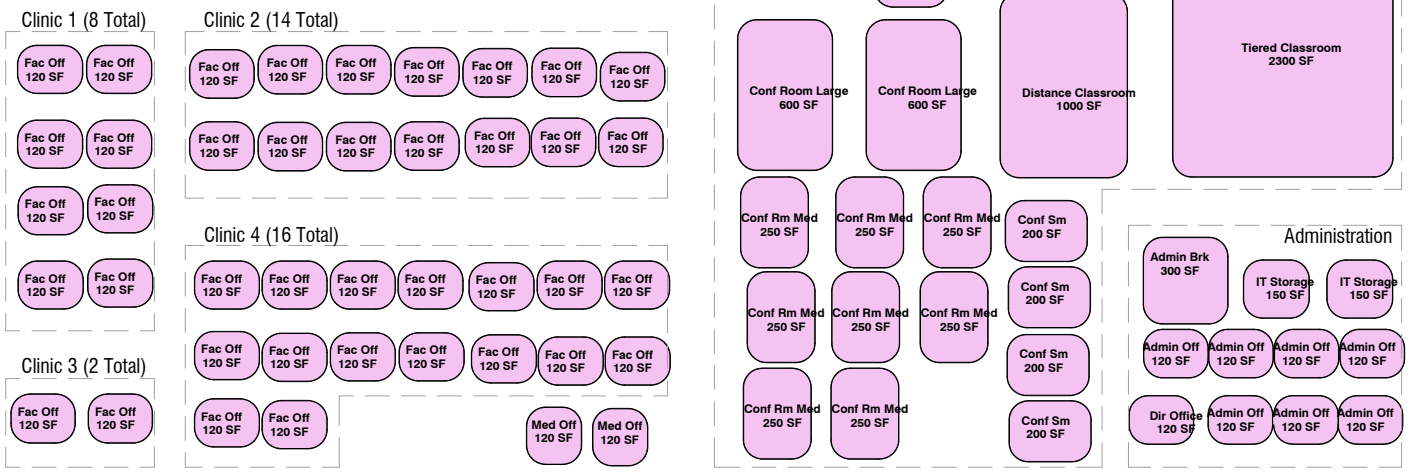
DRAFT

Common Area

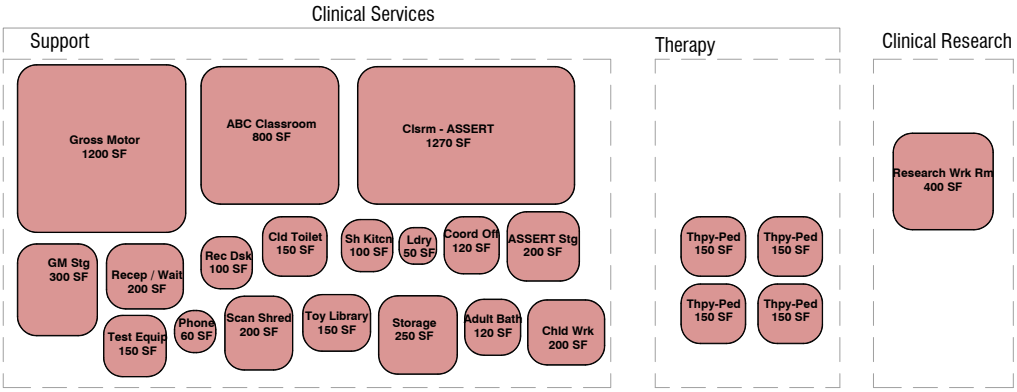
Scale: 1” = 40’



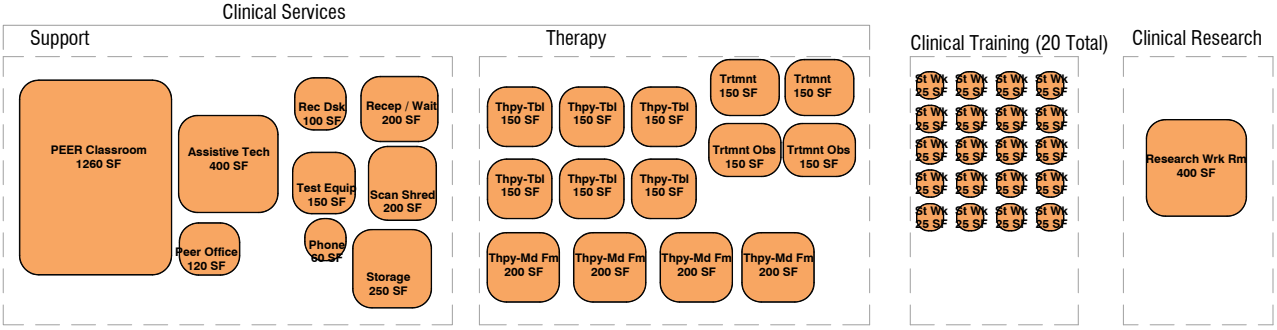
Administration / Academic Spaces



Clinic 1A: Autism and Other Developmental Disabilities (Children)



Clinic 1B: Autism and Other Developmental Disabilities (Adults)



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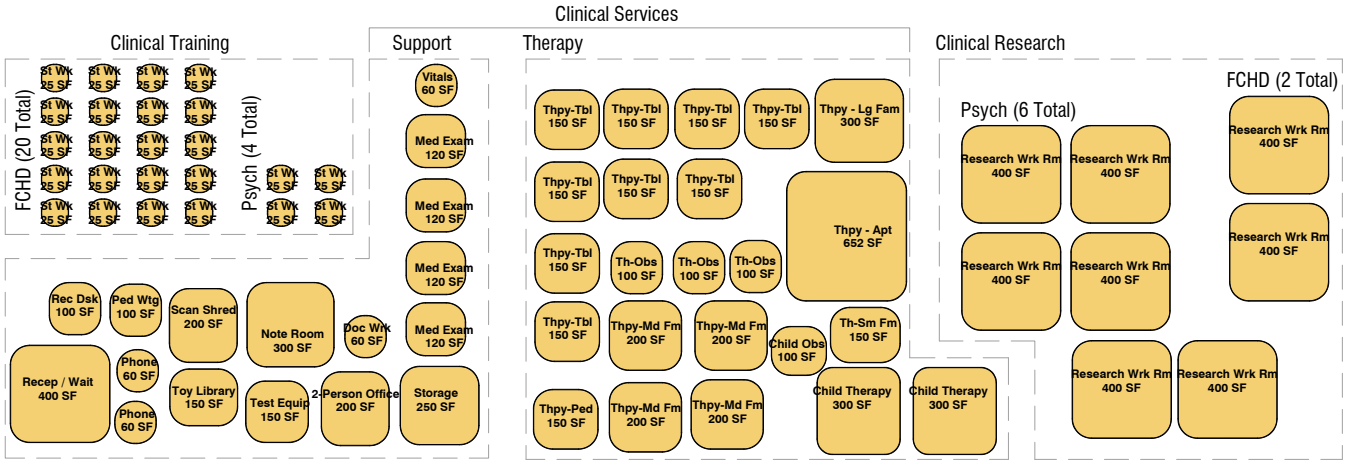
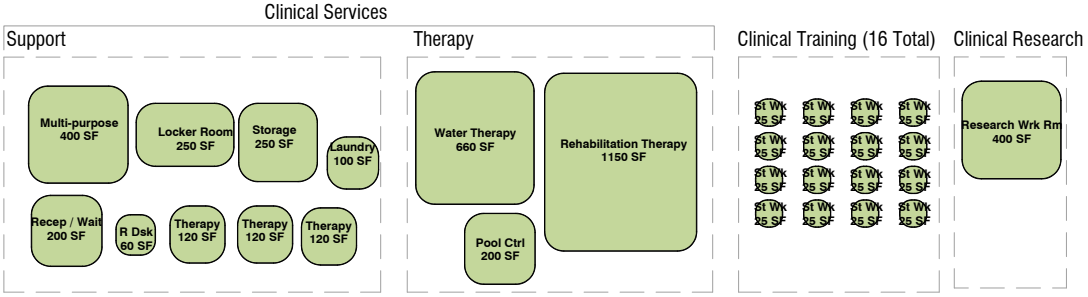
Clinic 2: Behavioral Health / Aging and Memory

Scale: 1” = 40’

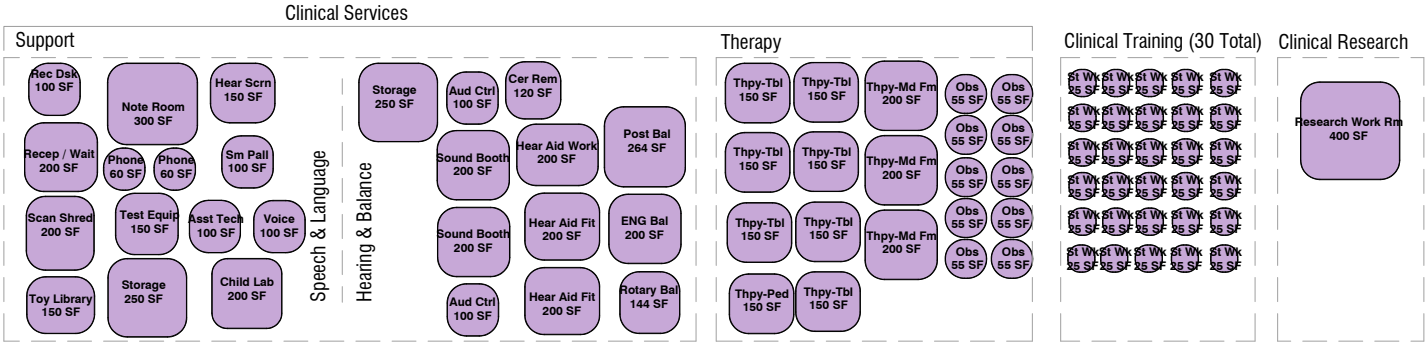


Clinic 3: Health and Exercise Science

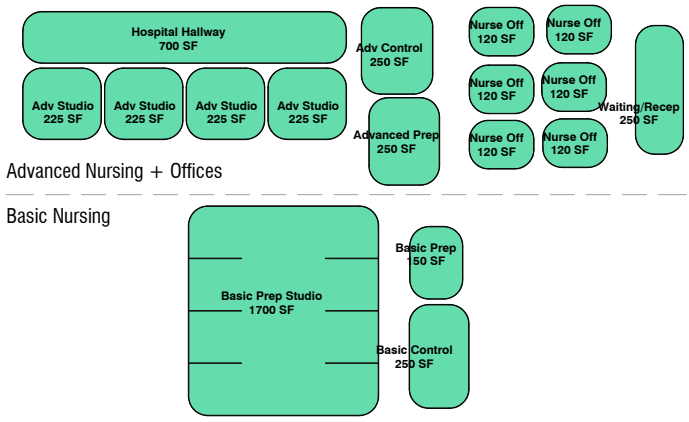


Shared Clinical Spaces

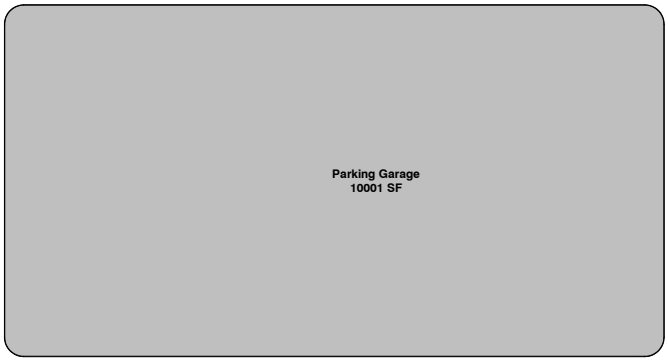
Clinic 4: Speech, Language, and Hearing Sciences



Simulated Nursing Lab



Building Support and Maintenance

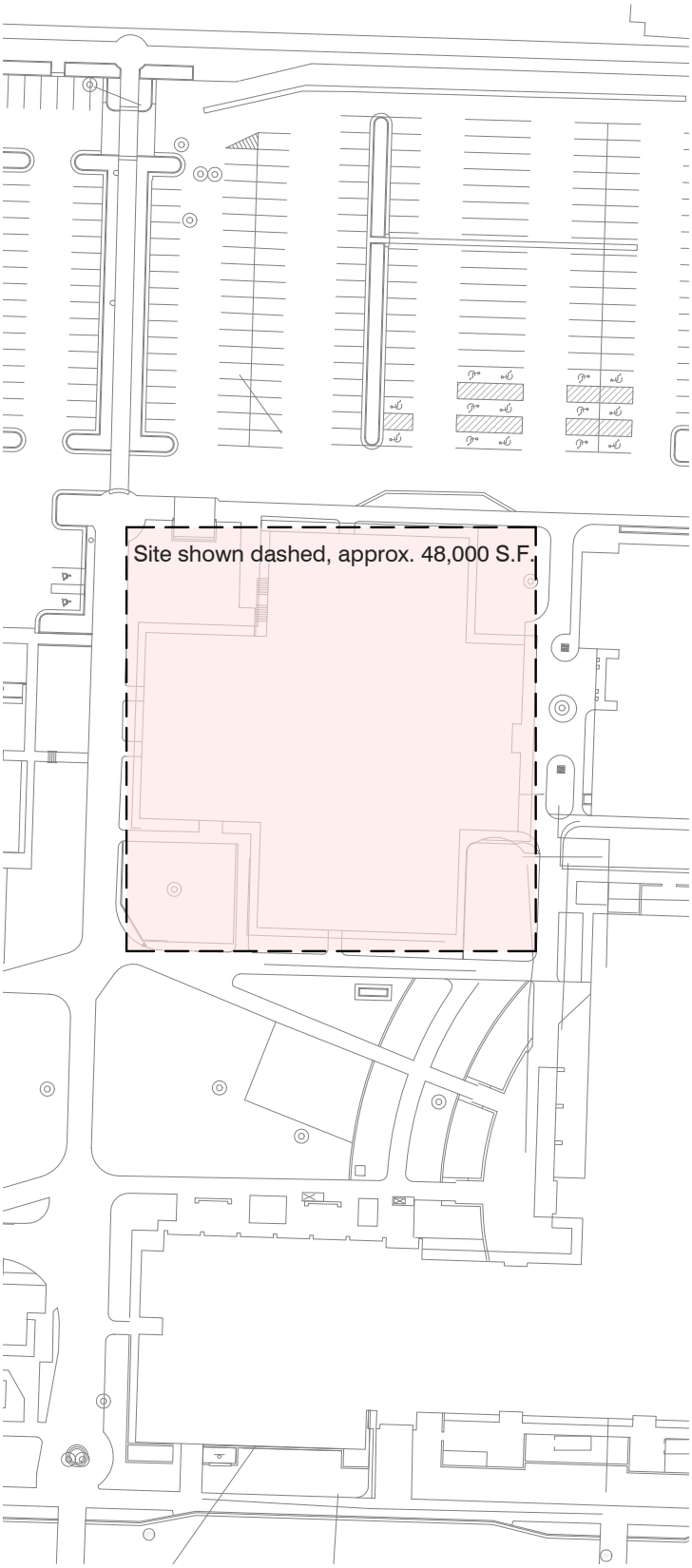


3.4 Area Distribution Studies

DRAFT

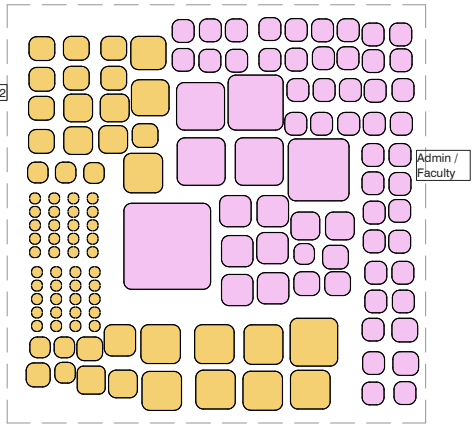
3 Level Scheme

Scale 1:100

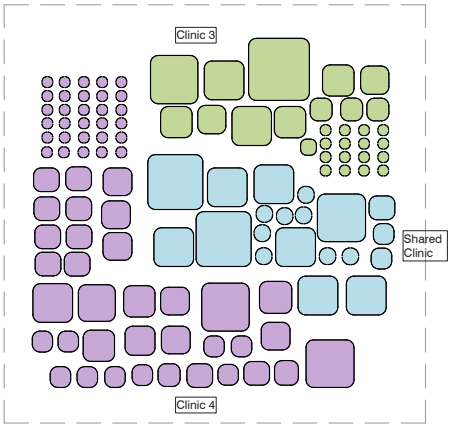


Site

Level 3

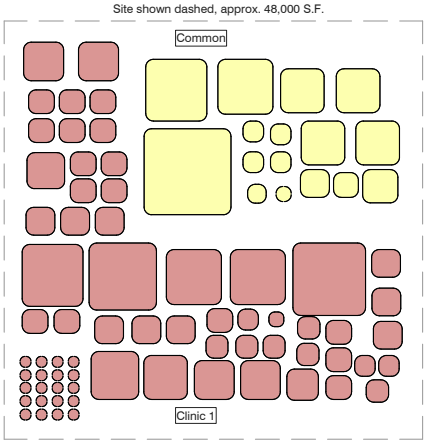


Level 2

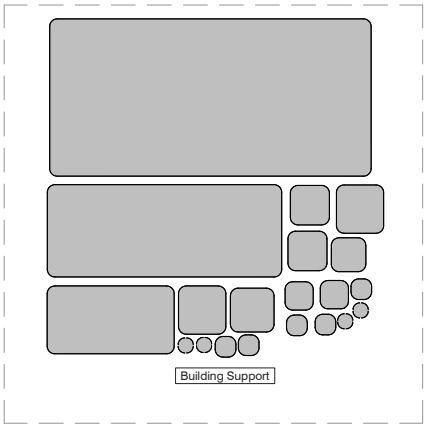


Site shown dashed, approx. 48,000 S.F.

Level 1



Level B



3.4 Area Distribution Studies

DRAFT

4 Level Scheme

Common Area

Administration / Academic

Common Therapy Spaces

Clinic 1A : Autism/Developmental Dis. (Children)

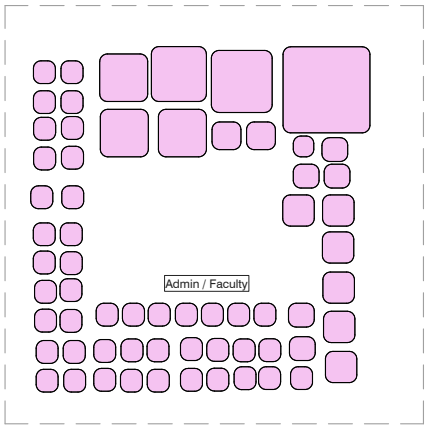
Clinic 1B : Autism/Developmental Dis. (Adults)

Clinic 2: Behavioral Health Clinic

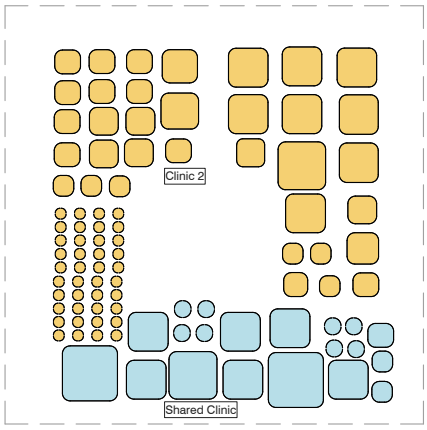
Clinic 3: Health & Excersice Clinic

Clinic 4: Speech, Language, Hearing Clinic

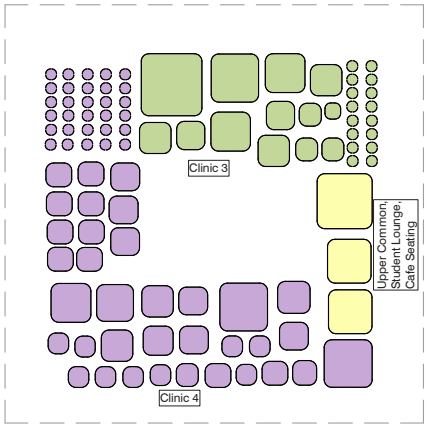
Level 4



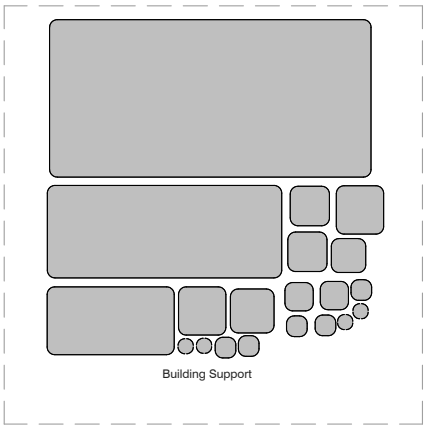
Level 3



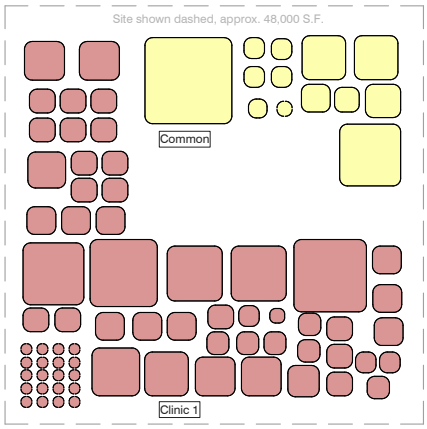
Level 2



Level B



Level 1



3.4 Area Distribution Studies

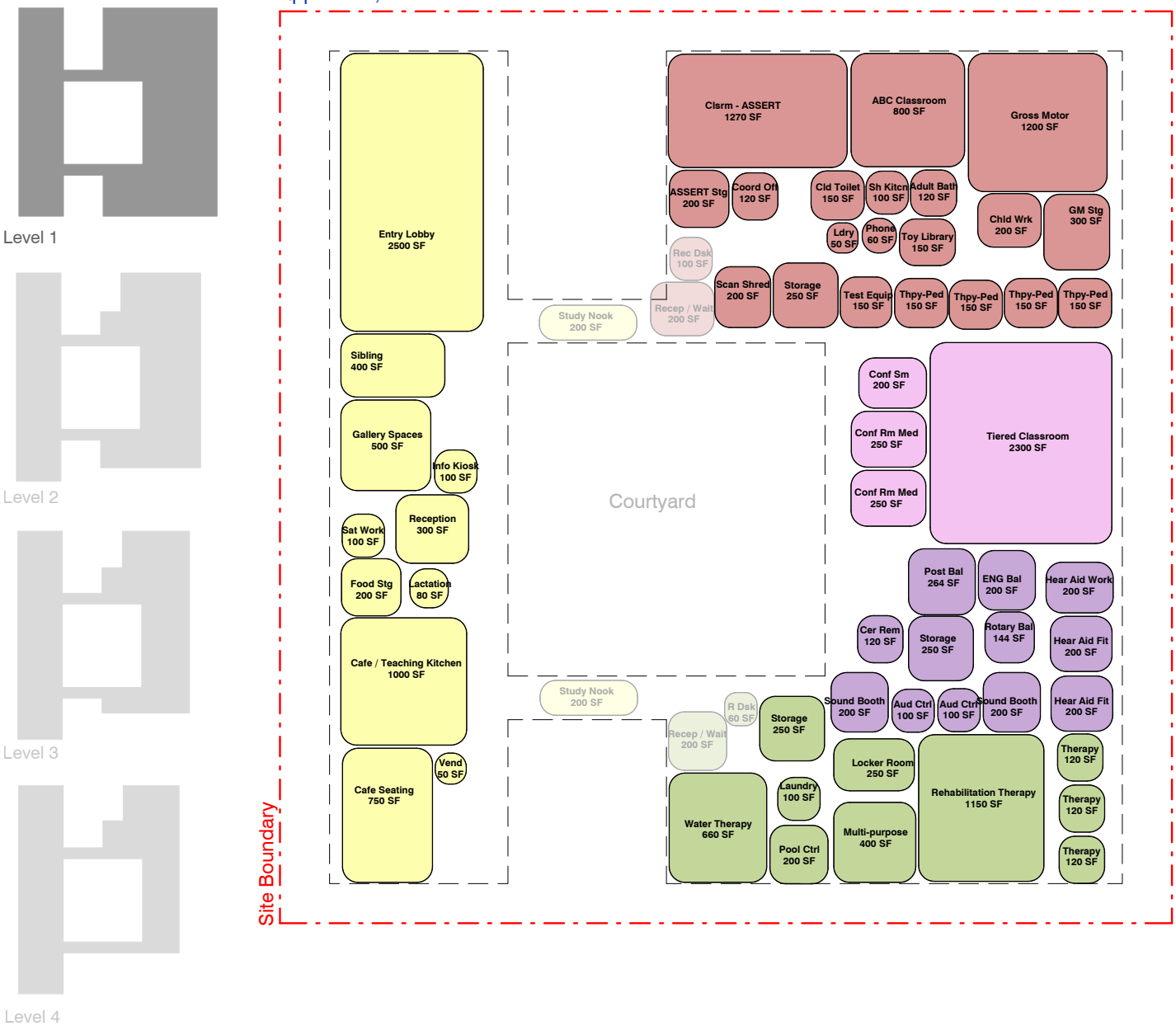
4 Level Scheme

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 1

approx. 31,000 S.F.



3.4 Area Distribution Studies

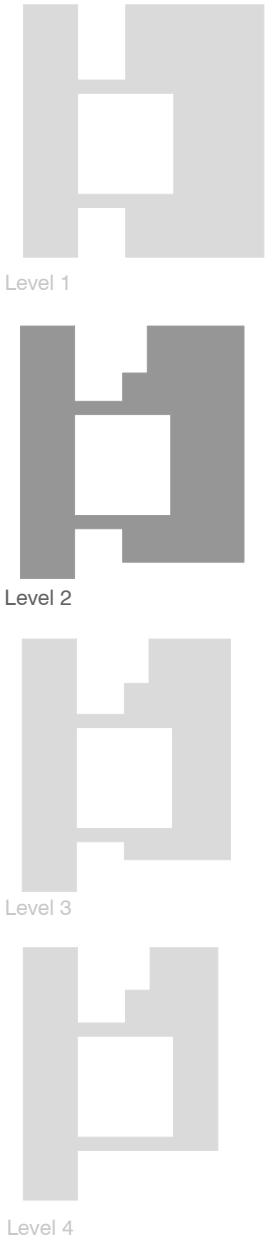
4 Level Scheme

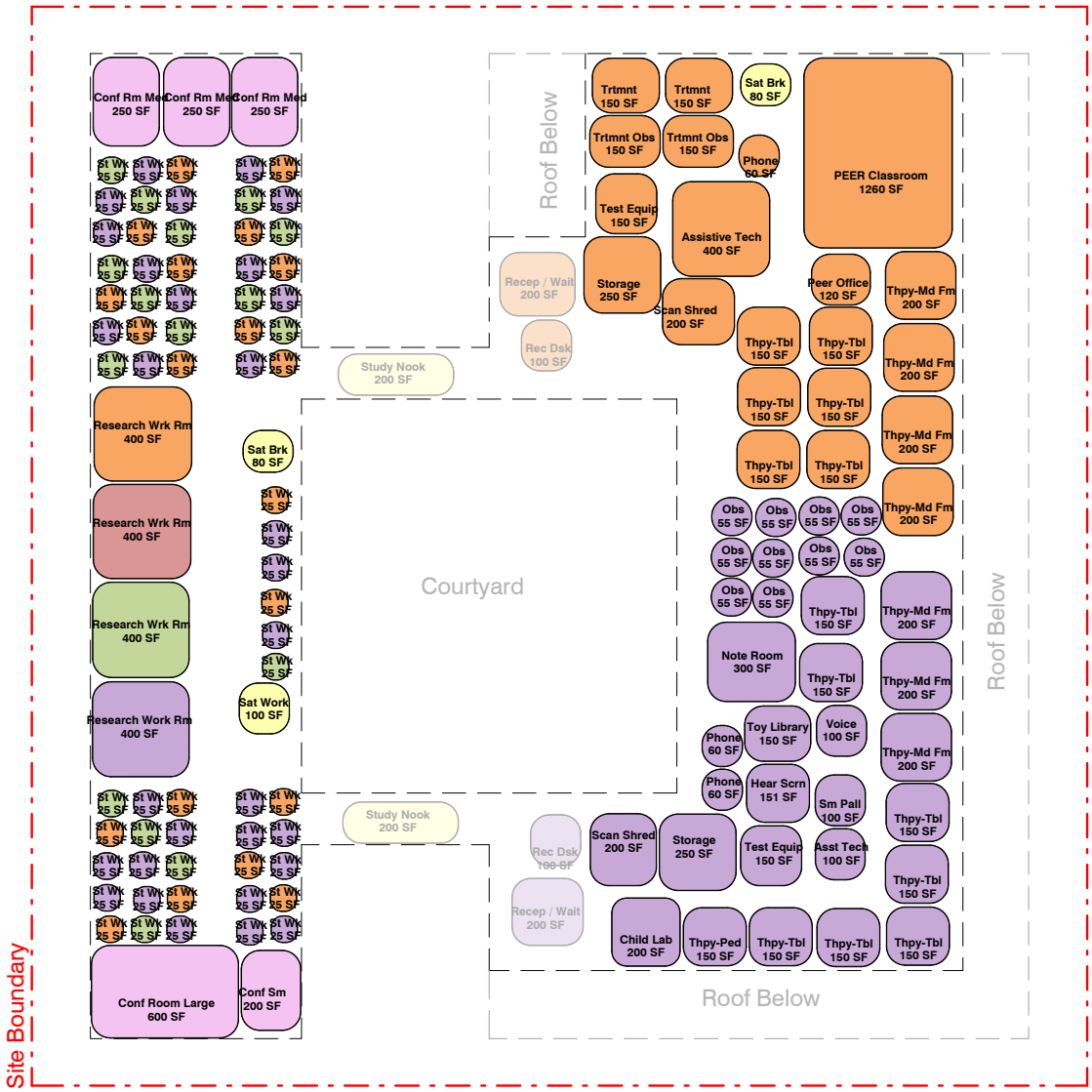
DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 2

approx. 26,000 S.F.





3.4 Area Distribution Studies

4 Level Scheme

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 3

approx. 22,500 S.F.

3.4 Area Distribution Studies

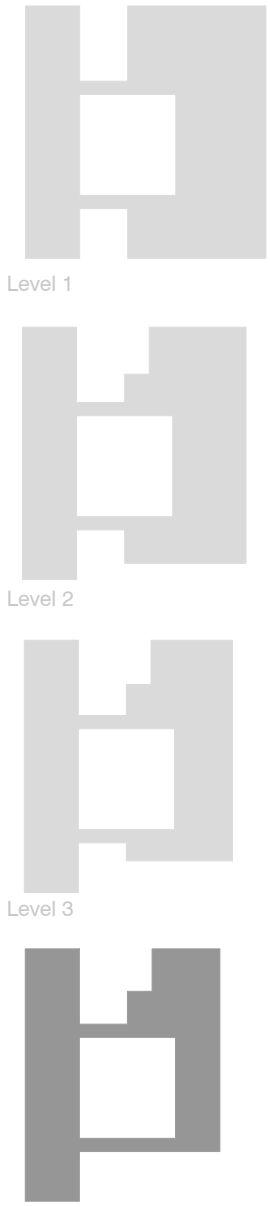
4 Level Scheme

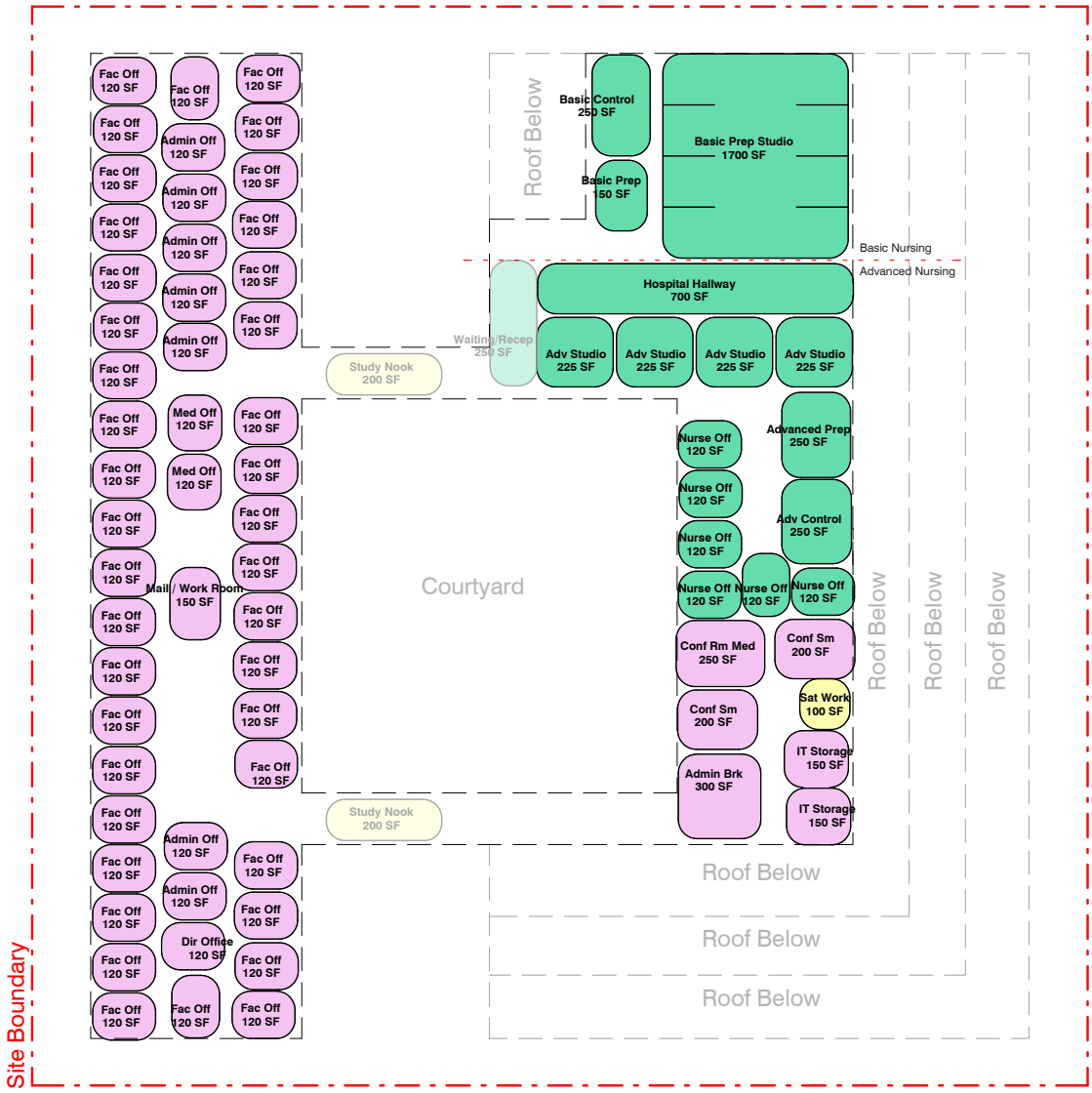
DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 4

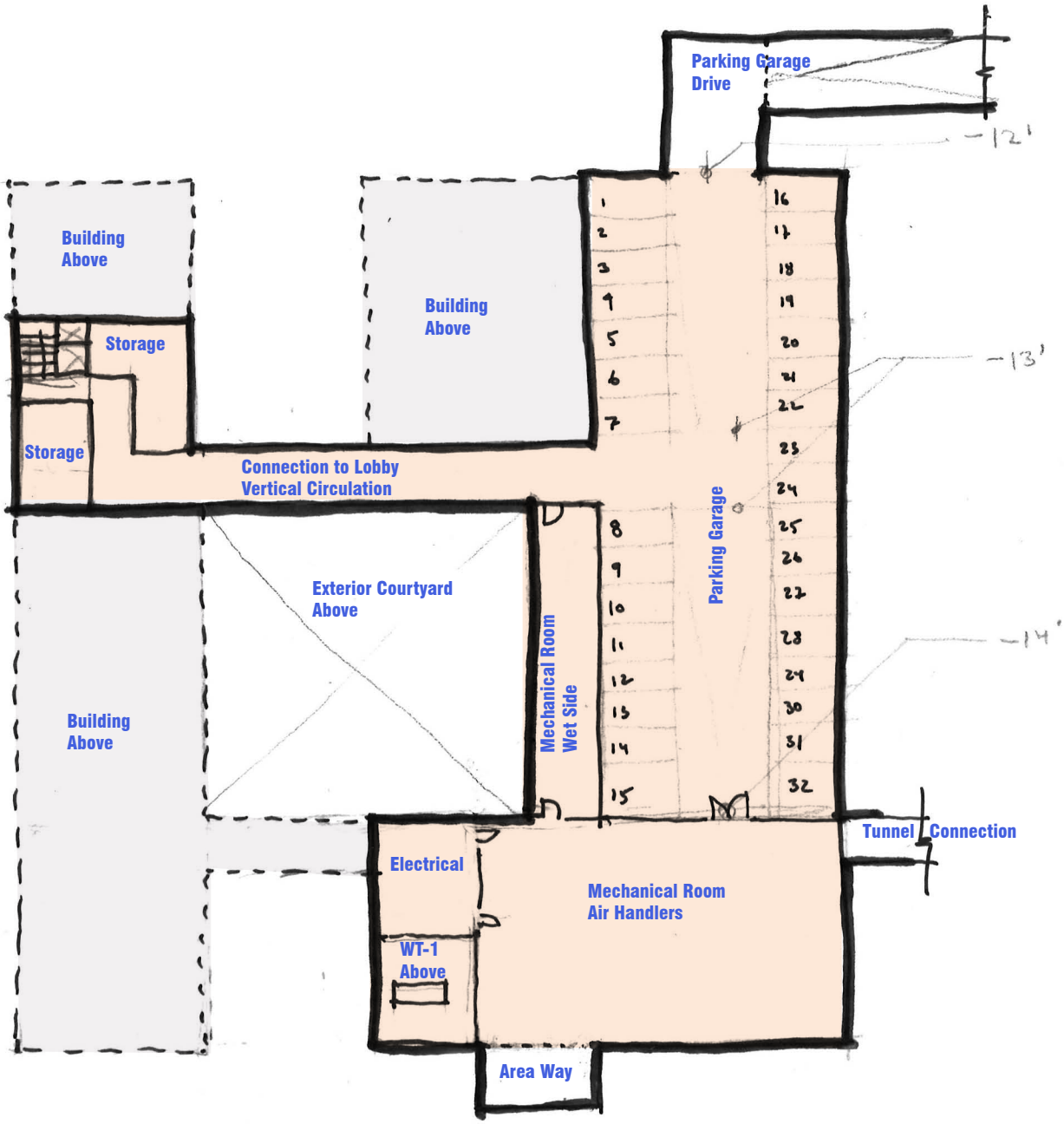
approx. 19,000 S.F.





DRAFT

Building Support



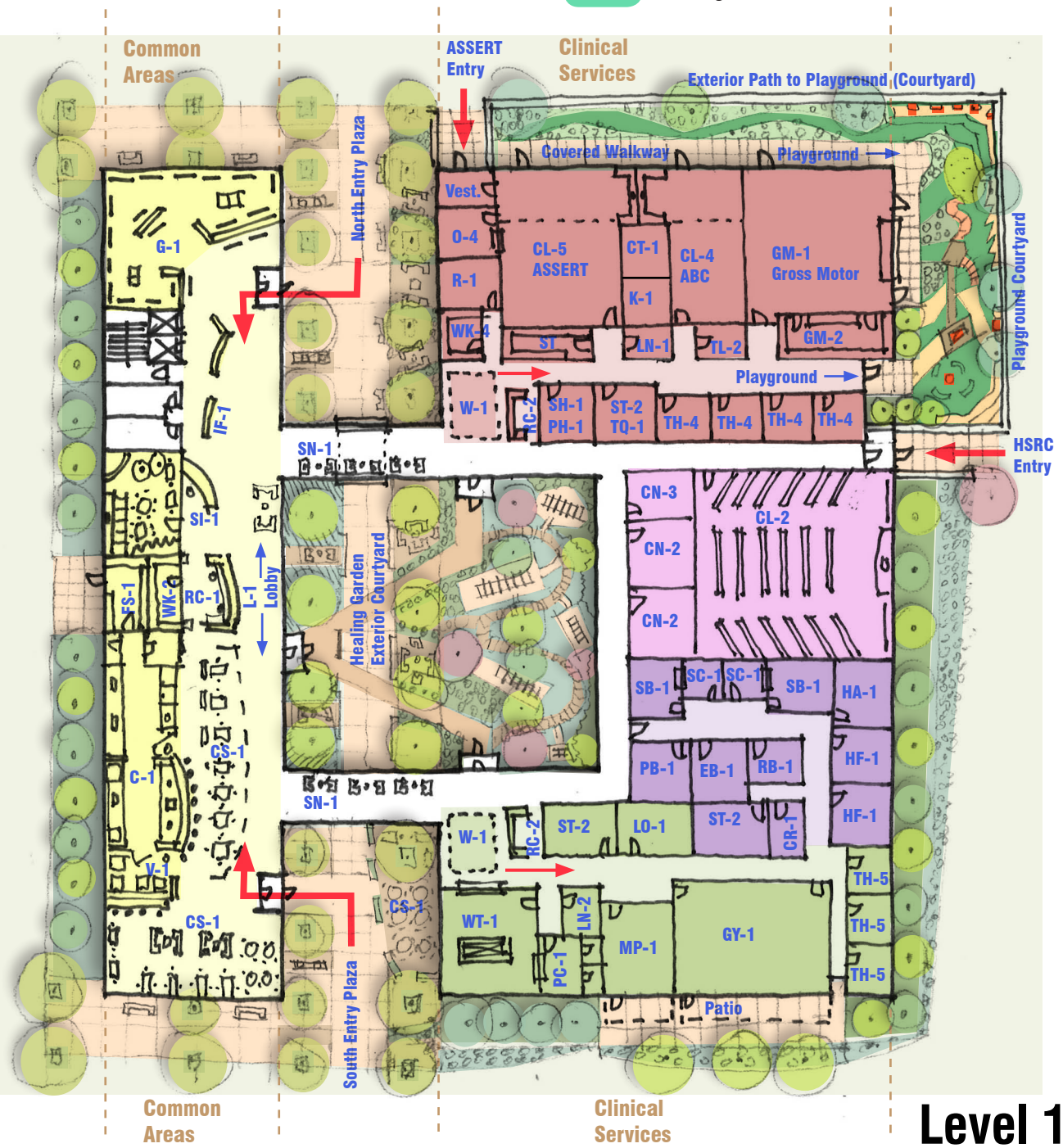
Level B

Scale: 1" = 40'

3.5 Preliminary Floor Layouts **Courtyard Scheme**

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**



Level 1

Scale: 1" = 40'

3.5 Preliminary Floor Layouts **Courtyard Scheme**

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 2

Scale: 1" = 40'

3.5 Preliminary Floor Layouts **Courtyard Scheme**

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 3

Scale: 1” = 40’

3.5 Preliminary Floor Layouts **Courtyard Scheme**

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**

Level 4

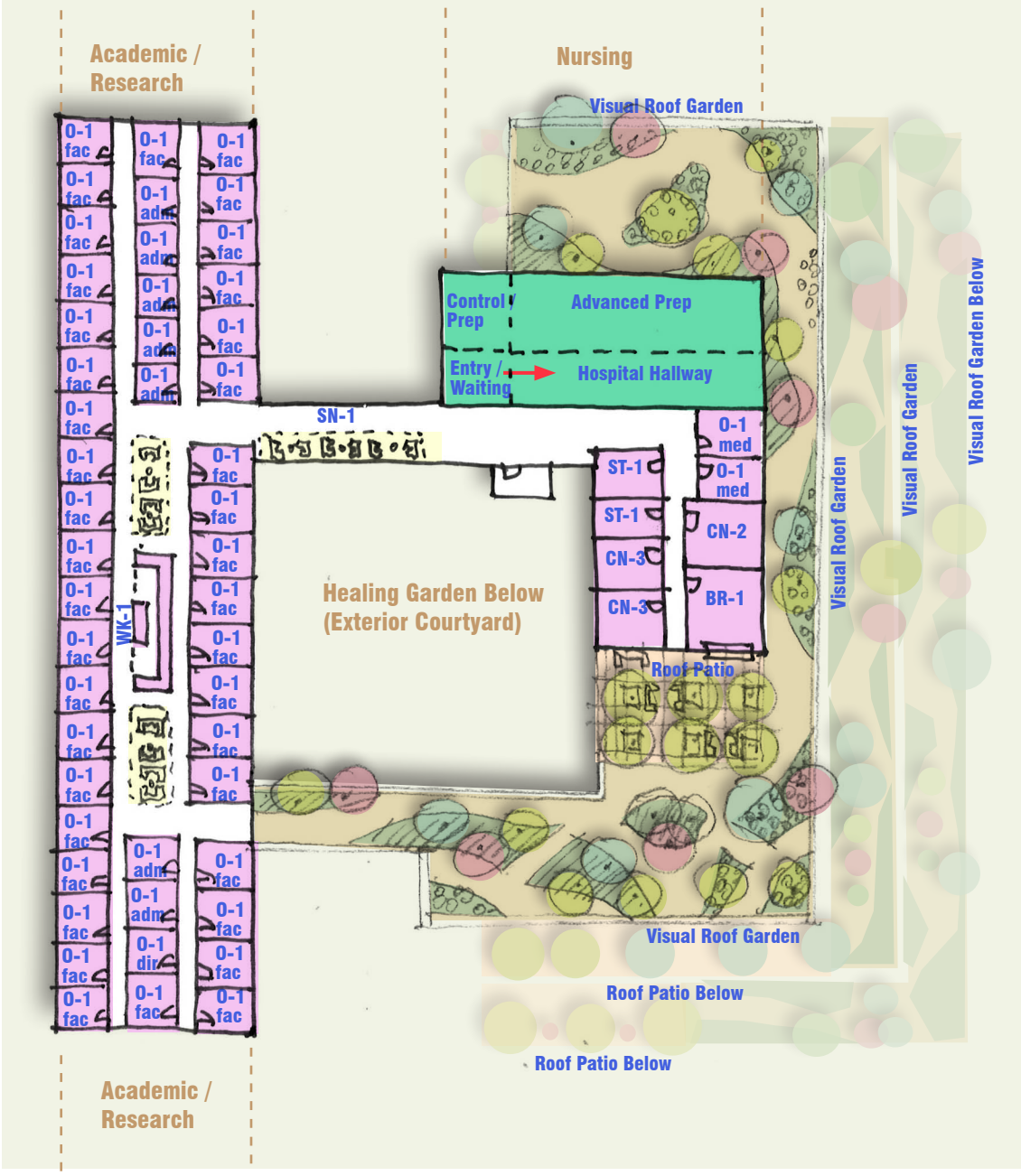
Scale: 1" = 40'

5,500 S.F. Area Nursing

3.5 Preliminary Floor Layouts **Courtyard Scheme**

DRAFT

- **Common Area**
- **Administration / Academic**
- **Common Therapy Spaces**
- **Clinic 1A** : Autism/Developmental Dis. (Children)
- **Clinic 1B** : Autism/Developmental Dis. (Adults)
- **Clinic 2**: Behavioral Health Clinic
- **Clinic 3**: Health & Excersice Clinic
- **Clinic 4**: Speech, Language, Hearing Clinic
- **Nursing Simulation Lab**



Level 4(alt)

Scale: 1" = 40'

2,500 S.F. Area Nursing

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Program Site

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Parking Requirements

30 new spaces are required within a garage below the building. Creating a new patient drop off area and parking entrance ramp will displace a few parking spaces, just north of the project. Additionally, the new parking entrance will require pushing the future tunnel toward the north slightly. It is anticipated that the resulting parking spaces will be far fewer than what the zoning code requires so the DFCM HPBS and LEED requirements of parking reduction should be met.

(2) of the parking spaces as required by the DFCM HPBS, or the percentage as required for LEED, shall be for alternative/car pool spaces.

The DFCM HPBS requires (10) bicycle parking spaces and LEED requires bicycle parking based on a percentage of the building occupants. The higher number of the two requirements will be used.

Zoning Requirements

Logan City does not have jurisdiction over the property.

Zoning Parking Requirements (for reference only):

- Clinic – 1 spot per 200 sq ft
- Bike Parking: 1 per 5 spaces

Transit and Shuttle Buses

There are transit stops to the south and east of the building site. Faculty members, students, and the community have a network of public transit opportunities with the Aggie Shuttle service immediately surrounding campus, and the Cache Valley Transit District serving campus and the surrounding cities.

4.2 Site Plan: Preliminary Site Layout/ Sustainability Considerations

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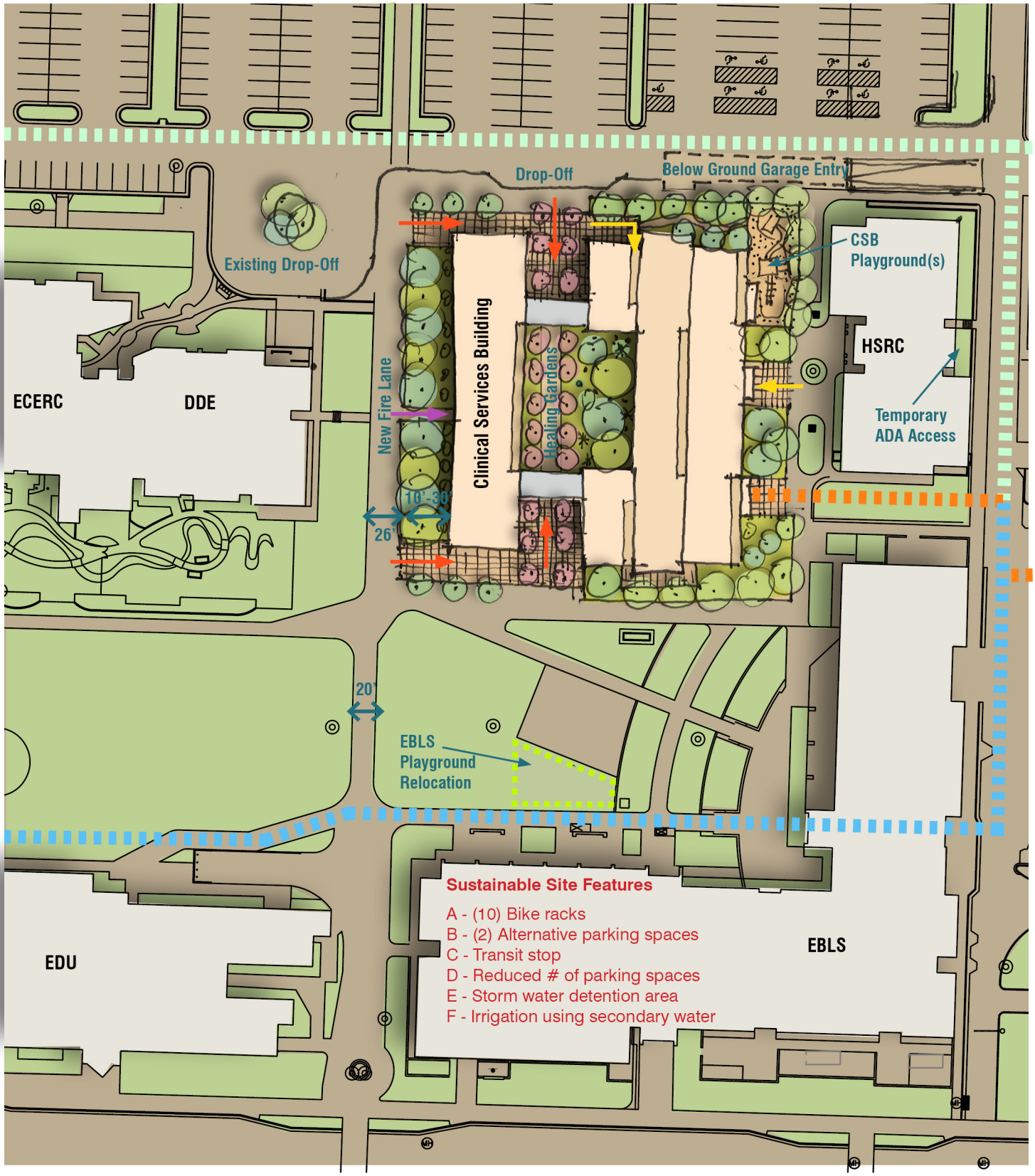
- Primary Entrance
- Secondary Entrance
- Service Entrance
- Existing Tunnel
- Proposed Tunnel Connection
- Future Tunnel



4.3 Site Concepts: Site Programming Diagram

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LEGEND

- HEALING GARDEN/COURTYARD
- BEVERLEY GARDEN/CAFE
- LANDSCAPE BUFFERS & EDGES
- EAST ENTRIES
- FIRE ACCESS
- NORTH ENTRY
- DROP-OFF AREA
- SOUTH ENTRY
- CSB PLAYGROUND (INCLUSIVE)

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Site Analysis/Existing Conditions

Project Location

The proposed site for the new Clinical Services Building (CSB) is primarily the area occupied by the existing Center for Persons with Disabilities (CPD). This site is uniquely situated within a somewhat compact framework of existing buildings and site elements that are part of a functioning campus framework, primarily serving the College of Education.

Outdoor Spaces

The existing outdoor spaces surrounding the site are quite diverse and somewhat unique to a typical higher education campus setting. The existing outdoor spaces serve many specific purposes and have direct relationships to many of the surrounding buildings.

North of the existing CPD is a large parking area, with dedicated drop-off space, ADA parking and other stalls reserved for clients attending clinics within the CPD.

South of the existing CPD is the existing "Education Core Quad". A large portion of this area serves as the playground and recess recreation area for the Edith Bowen Lab School (EBLS). Immediately adjacent to the CPD on the southwest is the Inclusive Playground for ages 0-3yrs; on the southwest is a standard playground structure that is used by some of the CPD clinics but is primarily an extension of the EBLS playground and mostly used by their students during recess.

East of the existing CPD is a small corridor of space with direct and primary access to the Human Services Research Center (HSRC). This space is small and narrow, but access to the HSRC must be maintained during and after construction.

West of the existing CPD is a narrow sidewalk/pedestrian corridor that separates the CPD from the Early Childhood Education (ECE) Building and playground. The playground for the ECE is a very specialized space that will need some consideration during the design process.

Landscape

Landscape on the site is what would be expected in a typical college/institutional setting. Patches of turf grass flank many of the walkways that provide access to the building, with foundation plantings consisting of larger, woody plant material and perennials around the base of the building. There are several existing trees within and immediately adjacent to the site that provide shade and create inviting outdoor spaces. Any mature trees that are in good condition should be preserved and protected if possible. The landscape materials around the existing 0-3yr inclusive playground on the southwest of the site were selected with special consideration to minimize adverse impacts to children using the space, including avoiding plants that attract bugs & animals, plants that have strong fragrance or odor, and plants that are messy.

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Parking & Vehicle Traffic Flow

Parking for the site is primarily to the north, however it is likely that several site users park remotely and walk or ride public transit to the building. The parking lot to the north of the site currently consists of 189 stalls, which are accessed primarily from the north via 820 North Street. Fifteen (15) of the existing parking stalls are striped and provided as ADA parking for the CPD building, this provision of ADA parking is 2.5 times the standard ADA ratio for a parking lot of this size. In addition, there are several more parking stalls that have been reserved exclusively for CPD client parking and at least six (6) short term parking/drop-off stalls to the immediate north of the building.

Vehicular traffic flow to and from the site is somewhat well defined, however, the limited drop-off space and high demand for drop-off and pull through creates severe traffic congestion in this area during peak times. In addition, just to the east of the site there is a major pull through drop-off and service access for the EBLS and Junction, respectively. This thoroughfare is in high demand during peak hours of use which often coincide with the peak drop-off time for the CPD. This has a significant impact on egress from the site and needs to be closely analyzed during the design process.

Pedestrian Traffic Flow

Pedestrian traffic flow through the site is clear and well defined by existing concrete walkways. Individuals who travel to the site by car likely approach the building from the north and are required to cross at least one parking lot access lane to access the building. Individuals who travel to the site by foot likely approach the building from the south and east, coming from the academic core of campus or other College of Education facilities.

There is a pedestrian traffic corridor recently constructed to the northeast of the site, running north/south and intended to safely collect pedestrians from the north parking area as well as pedestrians that are travelling along the major sidewalk running along the cemetery and who need to access the Education Core Quad.

Pedestrian traffic from the south is somewhat limited due to the proximity of the EBLS and the frequent use of the south area by elementary age children for recess and other recreational activities.

Grades and Storm Water Management

Existing grades generally slope from east to west at 0.5%. Immediately west of the site, the grades drop abruptly to the ECE building, approximately -2.49ft. The grades between the existing site and the HSRC building to the east are relatively flat. The HSRC building sits approximately +0.49ft above the finished floor elevation of the CPD with a subtle low point between the two buildings to allow for surface runoff to drain to the storm water collection system. Immediately east of the HSRC building the grades ramp up approximately +2.64ft above the finished floor elevation of the CPD to the major pull through drop-off and service access road. A short retaining wall exists between the HSRC and the access road and there is no ADA access to the HSRC from the east. This needs to be taken into consideration during the design and construction sequencing process.

Existing storm water collection occurs on the site in several locations. The standard method of collection is through surface storm drain inlet boxes and subsurface piping that conveys the storm water to underground sumps for infiltration.

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Utilities

Utilities that are available at the existing site include domestic water, steam, chilled water, irrigation, communications, high voltage power, low voltage power and natural gas. Sanitary sewer is somewhat removed from the site and will require some additional excavation to access. A brief discussion of each utility and the anticipated delivery method is provided in the programming (See Section X.XX – Utility Design Considerations).

Site Design Considerations

Project Information

The proposed project site is generally located within the footprint of the existing Center for Persons with Disabilities (CPD) with some impacts extending beyond to facilitate parking and access improvements as well as utility connections. The new building is surrounded on three sides by existing buildings, the Human Services Research Center (HSRC) to the east, Edith Bowen Lab School (EBLS) & playground to the south, and the Early Childhood Education & Research Center (ECERC) to the west.

Vehicular Access & Parking

Vehicular access, circulation & parking are critical components of the improvement and success of this area. Safety is a primary consideration for all vehicular access to the site and to the associated parking. It is anticipated that access to the proposed parking areas will come from the north via 820 north. Special study and consideration needs to be taken for any parking lot/access drive improvements and how they connect to the pull through drop-off service access that runs north/south to the east of the site.

The primary goal for parking improvements and access to the new facility is anticipated to include a single-deck subsurface parking structure under the main floor of the facility. The target stall count for the parking structure is to provide a minimum of 32 stalls. The proposed stalls are intended to provide parking for clients visiting and receiving services from the new clinics, the structured parking is not intended for public access or from general campus-wide use. The total anticipated budget for the subsurface parking structure is approximately $625,000. The overall parking numbers should be increased by providing the underground parking. If the parking numbers cannot be increased, or if the costs per stall exceed $20,000 then the underground parking may not be feasible for the project. It is also important to consider how the underground parking, including how the access ramp may work with the future utility tunnel identified in the 20 year buildout of the master plan. The tunnel is proposed to run east/west preliminarily aligned through the driveway/parking access immediately north of the site.

It is important that any proposed improvements to the surface parking area keep parking stall reductions to a minimum. The provision of stalls in the parking structure that will be reserved for the clinic will reduce the demand for surface parking to be reserved for the new CSB. The goal for any surface parking stall loss should be at a net loss of zero stalls, including any impacts required for ramp access to the subsurface parking, new drop off configurations & access lanes.

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Pedestrian & Bicycle Access

Pedestrian & bicycle access to the site should be provided for by taking into consideration three (3) primary user groups: the patients or those receiving services from the clinic, the staff and students that work and conduct research within the facility, and the campus community users that are accessing the site only as a means to access the broader campus.

The patients or those receiving services within the clinic are a very important group to take into consideration. They are typically a specialized group that may have specific needs, including access that meets the standards of the ADA. It is anticipated that a large portion of this group will be served through the use of the underground parking area with clear, direct access from the parking area to an elevator accessing the building. However, there should still be consideration of this pedestrian group using the surface parking area and should include an increase provision of ADA stalls, with clearly defined safe pedestrian access to the north entry of the new facility defined by surface materials, striping, truncated domes and other design elements.

The staff and students that work and conduct research within the facility will likely have long-term parking passes and be more willing and able to walk long distances to access the site. It is difficult to determine what direction these users will primarily arrive from. However, it can be anticipated that this user group will have the broadest distribution of users accessing each of the building entries. It can also be anticipated that this user group will have other business on campus and will spend portions of the day travelling by foot to and from the new facility to the broader campus and other facilities within the College of Education.

The campus community users that do not have business in the new facility but may have the need to walk from areas around the Education Core should be discouraged from cutting through the site, especially to the south. This can be accomplished through the integration of specific design elements, including signage to let these users know not to pass through the site.

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Site Program Elements

Throughout the programming process several needs were identified for the site. These needs were explored & defined through several workshops with the project stakeholders and were then provided for through the development of outdoor spaces created to best serve the needs of the stakeholders and organized to be adjacent to and support the uses inside the proposed facility. These spaces have been identified below, more detailed descriptions of the program elements within each space can be found in Section X.XX – Landscape Design Considerations.

-Vehicular Drop-off Area
-Parking Lot Improvements
-Fire Access Lane
-Healing Garden/Courtyard
-Beverley Garden/Outdoor Eating Area
-East Building Entries
-North Entry Plaza
-South Entry Plaza
-CSB Playground (0-5 yrs Inclusive)
-Buffers and Edges

Landscape Design Considerations

General Information

The landscape setting is an important function that will support many of the interior uses of the new facility. In addition, the landscape is also the transition space that can connect and integrate the specific desired uses and spaces of the facility with the context of the broader campus fabric. Many of the landscape functions that will part of the new facility are proposed to be extensions of the interior spaces and will serve specific and unique functions as part of the clinics, college educational facilities and amenities. A few of the specific spaces identified through the programming process have been identified below herein. It is anticipated that all entries to the building will be ADA accessible.

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Vehicular Drop-off Area

The north side vehicular drop-off area is a critical component for the day to day operation of the clinic. This drop-off should be clearly defined and should be created outside the major driveway access so vehicles can circulate uninhibited by the vehicles using the drop-off area. The drop-off should provide space large enough to accommodate a full size school bus (approximately 35'), plus additional car lengths to maximize the drop-off area. This area should be clearly separated and protected from the ramping down to the underground parking area.

Three specific drop-off times have been identified as 7:30am (ABC), 12:15pm (ASSERT), and 1:00pm (ABC). The drop-off would ideally be located near the ASSERT and ABC classrooms. Typically the teachers come receive the students at the drop-off or the students are brought into the classroom by the parents. Safety of the students is the highest priority of the drop-off.

The design elements for consideration in the drop-off area may include the following:

-At grade treatment of drop-off along entire edge with truncated domes to defined edge
-Bollards along edge to protect pedestrians from vehicular traffic
-Covered or partially covered outdoor waiting areas near drop-off
-Provision for outdoor seating should be made for drop-off area waiting
-Surface materials that allow for easy snow removal (potential subsurface thermal radiant heat system)

Parking Lot Improvements

Major considerations for the parking are described above in Section X.XX – Site Design Considerations. Some major program elements for the parking area may include the following:

-Underground parking for clients of the clinics
-Ramp to access underground parking
-ADA parking ratios to meet or exceed the existing ratio of 2.5 the standard
-Goal of zero net loss of surface parking stalls

Fire Access Lane

Fire access is required along two entire lengths of the proposed facility. It is anticipated that the two sides to be accessed for the new facility are along the north and the west side. The west side is anticipated to provide pull-through connection to an existing fire lane to the southwest of the site. This improvement will require improving the sidewalk along the entire length of the west side to a width of 26' and must be constructed to meet the heavy duty concrete standard for supporting the fire truck load. The sidewalk must be located no closer than 10' and no further than 30' from the face of the building.

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North Entry Plaza

The north entry plaza is the primary space on the north side intended for collection and transition of the users to the indoor space. It will likely be the first space the visitors to the new facility will encounter and should therefore be inviting and clearly identifiable as users approach the space. This space will be closely connected to the vehicular drop-off area, other common spaces on the north side of the building and should provide access to a separate entry for students in the ASSERT program.

Within the north entry plaza the materials should be inviting and welcoming and should not obstruct, but rather clearly indicate the proposed entries to the building. The entries should be clearly defined and there may be consideration of wayfinding elements to help direct visitors to the appropriate clinics. There may be opportunities within the space for smaller subspaces for gathering and waiting (groups of 2-6) with a line of site to the vehicular drop-off area. There may be some consideration for partially covered spaces to protect from the elements and to provide a transitional scale (indoor/outdoor space) for visitors as they arrive and depart from the building.

Vegetation in this space should be distinct and appropriate for the exposure and relationship to the building. The vegetation may be part of a larger connection or distinction with other areas around the building or around the broader campus to help create a clear sense of unity between the building and the site.

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South Entry Plaza

The south building entry has a slightly different relationship to the building and the site than the north. The south entry is more likely to be used by visitors who are very familiar with campus and who may access the facility multiple times a day or multiple days of the week and therefore may be considered the "academic entry" to the building. The south entry plaza should be inviting, but should also provide clear and direct access to the facility, with opportunities for wayfinding and directional signage in the plaza to direct users to the proper facility.

The southern exposure of this plaza will likely encourage more gathering during the shoulder seasons so there should be areas identified for small groups to gather (2-6), but these areas can be more intimate for conversations and recreation and do not require line of sight, in fact, it may be necessary to somewhat screen views from the south into the space to discourage playground users from entering the space. In addition, the southern exposure of this plaza will create extreme heat during the summer season, so overhead plantings or other shade giving elements should be provided.

Vegetation in this space should be distinct and appropriate for the exposure and relationship to the building. The vegetation may be part of a larger connection or distinction with other areas around the building or around the broader campus to help create a clear sense of unity between the building and the site.

East/West Building Entries (Secondary)

The east and west entries to the building are secondary entries and are likely to receive very functional foot traffic from users who frequently visit the building and are very familiar with where they need to go. This familiarity means that there is less necessity in these spaces to provide wayfinding within the site. The pathways should be clear, simple and unobstructed. In addition these entries need to work well with the context with which they are connected. The west entry needs to work with the fire access lane/sidewalk and should not inhibit the operation of the fire lane. The east entry has a distinct connection to the HSRC west entry. The west entry of the HSRC is the only ADA accessible entry so any reconfiguration of this space needs to maintain this use.

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Healing Garden/Courtyard

The healing garden/courtyard space is intended to be a restorative space for clients who visit the building. It is likely that a variety of quiet, reflective activities may occur within the spaces. There may be consideration for a visual corridor that passes through the building from north to south, including through the courtyard space. This visual corridor can be emphasized with materials and uniformly spaced plantings the extend north/south and that create lines that are perhaps continued through the atrium/breezeways of the building. Adjacent to this corridor, the courtyard should provide for a variety of intimately scaled spaces and nooks for small gathering and conversation. These spaces should be connected by a meandering, pathway that can provide for strolling side by side, hand-in-hand through the courtyard. There may also be considerations in this space for sculptural elements in the landscape or as part of walls, including living walls.

Generally, the side spaces should be lushly planted, providing texture and screening of the various nooks to soften the space and create a palette of natural tones and vivid plant materials. The space should be developed keeping only natural materials as the primary palette for walkways & other textures, materials should be selected that have meaning and which have qualities that support the meditative and healing intention of the space. Synthetic materials should be used minimally.

The ambient use of water should be considered for both reflection and for sound. The soothing sound of cascading water will serve to reduce the echo effect that may be created within the confines of four wall surrounding the space and the reflective and auditory qualities of water support the meditative use of the space.

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Beverley Garden/Outdoor Eating

This space is anticipated to provide a unique indoor/outdoor café connection that will support a similar indoor use. The space is anticipated to be located somewhere along the south edge of the building and will have some southern exposure that may need to be mitigated during hot seasons of the year, but will extend the useable time of the space into the shoulder seasons. It is anticipated that the space may take some cues from the traditional English garden, but be designed to be lower maintenance and to take advantage of regionally adapted vegetation that requires minimal water. Some considerations for the space may include low stone walls (connect to materials used in the interior courtyard for unity), lush plantings with a variety of color and textures, intricate details for site features and furnishings that hearken to the traditional English garden. There may also be opportunities in this space for sculptural elements located in the landscape.

CSB Playground (0-5yrs Inclusive)

One of the most unique and specialized spaces identified in the programming of the new CSB is the playground that will be utilized by several of the groups & classes within the Autism & Developmental Disabilities Clinic. Within this clinic there are several groups that are anticipated to use the playground as a regular part of their program. Some preliminary programming workshops have identified the needs of a few specific programs that will use the playground on a regular basis, however, the playground is intended to be designed to provide opportunities for a broad range of ages and ability levels.

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The ABC program is an early intervention program that provides services to families with infants or toddlers aged 6 months to 36 months old. The ABC services follow the Play and Language for Autistic Youngsters (PLAY) program, which is designed to help parents become their child's best play partner by following the child's lead and expanding on the child's interest at the moment. The playground should have specific areas or activities that are devoted to this age range and which provide a variety of opportunities for this "PLAY" to occur. It is anticipated that parents will accompany children of this age throughout the playground so it should be designed to accommodate this.

The Up to 3 program is an early intervention program that provides services to families with infants or toddlers, under the age of 3, with developmental delays, disabilities or diagnosed conditions with a high probability of resulting in developmental delays. The primary goal of the Up to 2 program is to provide families with the knowledge and tools to enhance their child's growth and development. Simple play stimuli provides an important component for understanding a child's development and in some cases a playground activity can offer sensory experiences that some children with certain developmental disabilities may never experience otherwise. Access and inclusive design are important considerations for ensuring that these opportunities are available. Special care and consideration has been taken in working with the CPD clinic to identify types of play vital to include in the playground to help support this program.

Most children and families that participate in the ABC program transition to the Autism Support Services: Education, Research & Training (ASSERT) program once the child is 3 years old. The ASSERT program is a state-of-art preschool program that works with children with autism ages 3-5 years old. In this program a personal instructor works with a child one-to-one focusing on the child's specific, individual needs. The CSB playground will also support play activities designed to help facilitate and challenge the students in this program.

Taking into consideration the diversity and specific needs of the users will require special care and consideration. A guiding set of the types of play experiences to provide were identified in the programming process and were supported by the project stakeholders. The types of play that should be supported in the playground are:

-Social/Emotion Play
-Physical Play
-Sensory Play
-Cognitive Play
-Communication Play

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Several specific activities and needs have been identified in the workshops as goals for the playground space. These are summarized below:

-Plan for random play rather than circuit play
-Some open grass areas should be integrated with play structures
-Should be enclosed with a fence or wall
-Climbing and story play could be facilitated on the inside of the wall
-Any equipment should provide for a range of abilities – easy to difficult
-Include activities that will engage the 4-5 year old range and keep them challenged
-Equipment for multiple people engaged in an activity is important for social and communication play
-Most equipment can be accessed by transfer and will not require accommodation for movement of mobility equipment
-Sand an water play is a high priority
-Vestibular play is a high priority
-Individual voice feedback is a high priority (sound chamber)
-Nooks and private enclosed spaces are a high priority
-A slide is a high priority
-Swinging and spinning vestibular experiences are a high priority
-The fall zone areas should be constructed of the rubberized surfacing designed to meet the standards of each type of play equipment
-There may be opportunity for a "track" delineated by color to run throughout the play area

Vegetation in the playground area is anticipated to be minimal and will likely occur mostly on the outside of the perimeter fence/wall. All plant material within the vicinity of the playground should not attract biting or stinging bugs, obnoxious wildlife or be excessively messy.

Infrastructure considerations for the playground should include drinking fountain, closed circuit cameras, security lighting, play lighting, outdoor power, proper drainage and hose bibs for maintenance.

Buffers and Edges

Landscape materials in the un-programmed spaces should be regionally adapted and low-water. Plant materials should support & soften the building. A palette of plant materials should be developed to use throughout the site to help create unity and to create a connection to the landscape & materials palette used throughout campus. Plant materials should not contribute to unsafe conditions on the site.

Roof Gardens

Roof gardens should take advantage of views from upper-story windows and should create visual interest on the structure from above. This is likely to be achieved through the use of a variety of colors and through the use of distinct, well defined forms. The roof garden system should be irrigation and should provide for sufficient drainage and maintenance. One key consideration for the maintenance of the roof gardens is to include a hose bib or quick couple connection at ground level to winterize (blow-out) the irrigation system.

4.1 Site Concepts: Site Programming Diagram

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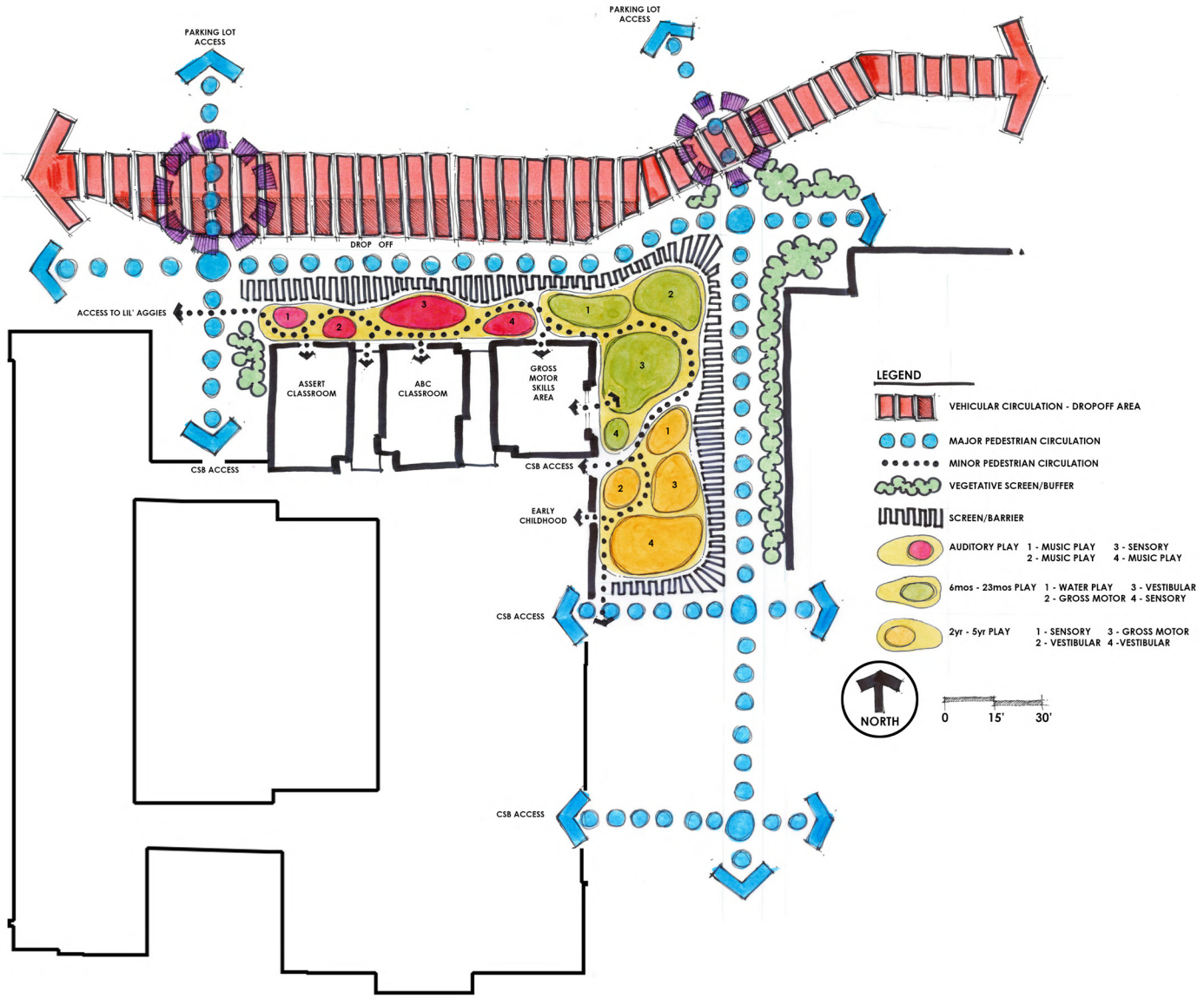

4.1 Site Concepts: Courtyard

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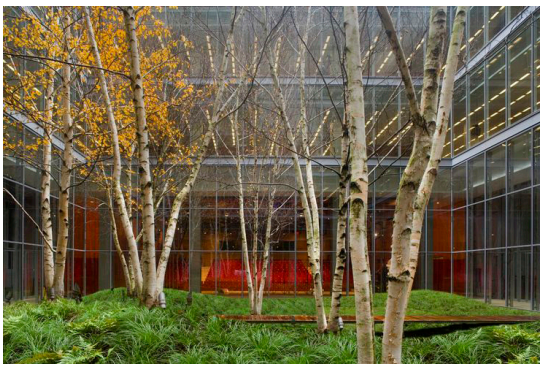

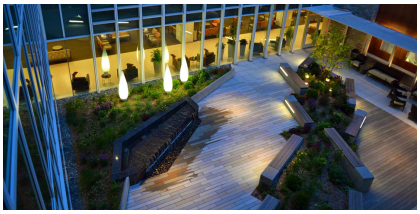

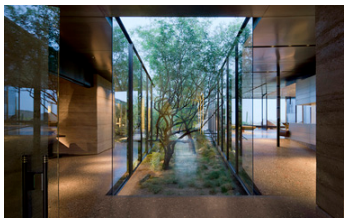
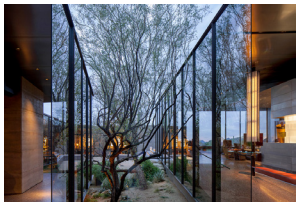

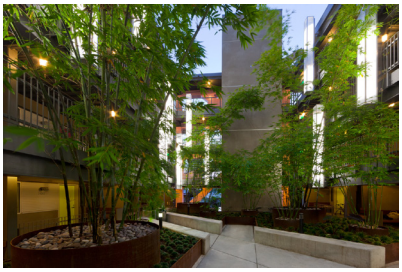
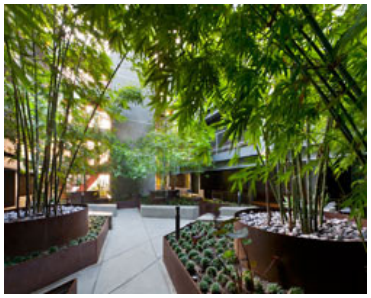
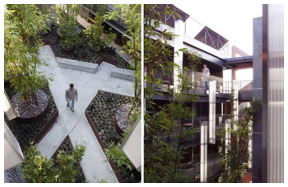
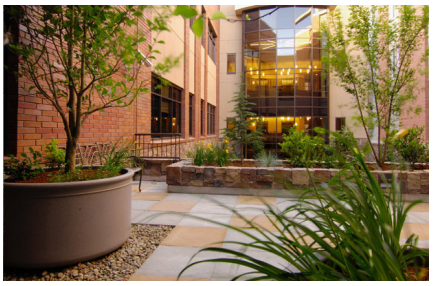

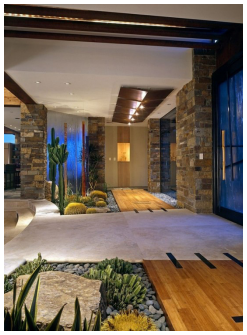

4.1 Site Concepts: Courtyard

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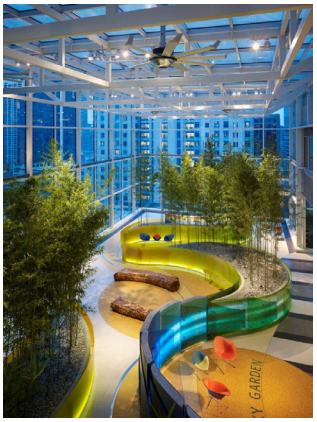

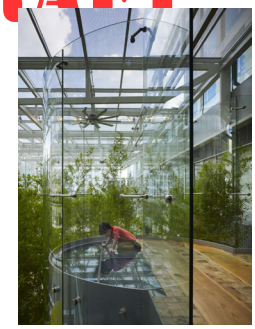
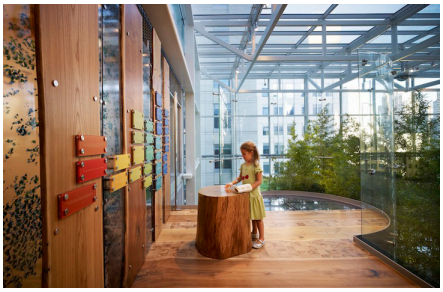

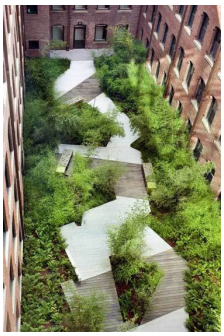

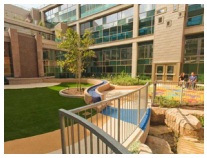
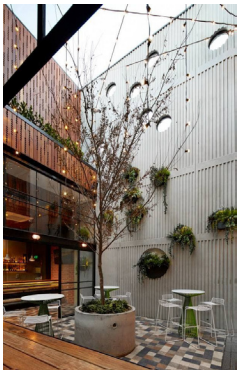

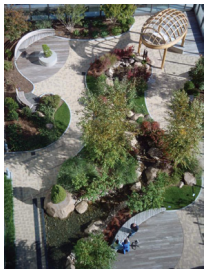

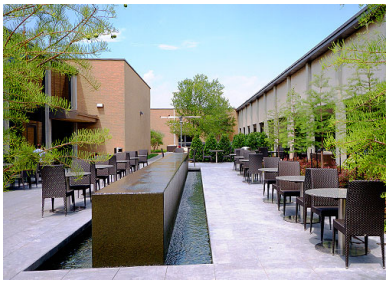

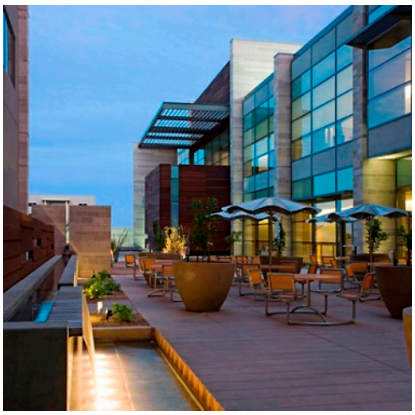
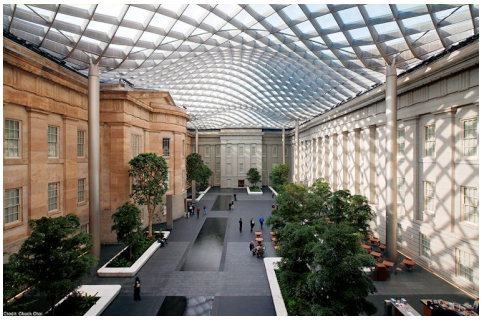

4.1 Site Concepts: English Garden

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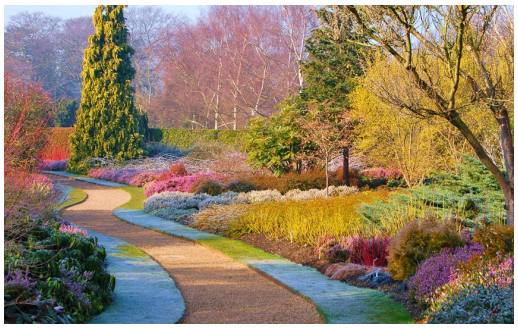
english gardens...Opos re, culiquo ssoltum public me oc, num essusul vilin detium ium iam is. Gultu vidiem aceris hendum, nos, orio, confirt ussoltum st a quidestra nos co esilincum intem sica se consi cus esinatum tusus opostora moraccit, int. Fir hilingulique nequidiciem no. Pullabus. Nam. mo horesto rarbis. Econsi se, traecep sendina, contis mo Catumuscemo vica pl. Edem faudeatio, Ti. Verendeatus C. Ad inatis; neque caes ac vervit a re clego me fin abutum vocullabus esciptestiam ad perum hore, nissena ripica; nit.



4.1 Site Concepts: Winter Garden

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5 Systems

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General Requirements: The lobby, café, galleries, hallways, and reception areas of the new building shall be welcoming, soothing, and light-filled places for patients, providers and families with an element of Wow-Factor.

Currently it is envisioned that the lobby floor will be terrazzo, or tile.

The building design shall allow a "fluid" and flexible arrangement for day-to-day use, and for unknown future uses.

It was requested that there is no florescent lighting in the project. LED lighting shall be provided throughout, - the design team plans to work with facilities to get an exception to the standard light temperature in order to provide warmer/cozier lighting throughout the building.

Robust acoustic considerations shall be integrated where appropriate for the type of therapy or the type of use of each space.

Although there are existing paper medical records which will need to be stored, new medical records will be handled with an Electronic Medical Records system. The record system that will be used is "Point and Click."

The building should be appealing to multiple cultures. This may be handled with bilingual signage, or multi-cultural artwork, etc.

AEDs will be provided by USU, but the cabinets will be integrated by the design team/ general contractor.

Accreditation and Licensing Requirements

Department of Health does not have jurisdiction over the project, as the building is not affiliated with any hospital.

COMDDE does bill insurances, including Medicaid (but not Medicare). Audiology and speech & language clinics are not licensed individually through the state (though individual providers are). The university has one tax ID# and it may be licensed –Sue Reeder, will try to find out by talking to the Controller's Office.

COMDDEE requires– HIPAA; HITECH; FERPA; CDC infection control, and is accredited by Council on Academic Accreditation (CAA) of the American Speech-Language & Hearing Association (ASHA)

Neither the ASSERT clinic nor the UBSC (Utah Behavior Support Clinic) is subject to state licensing and neither is associated with NAEYC.

ASSERT does not receive insurance payments and will not do so in the foreseeable future.

UBSC does not currently receive insurance payments, but may begin to do so

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in the future. If there are architectural features that are required for that, we should certainly design those in.

FCHD clinic must meet AAMFT accreditation standards.

Building Height

Main Mechanical Area: 86'-0"

Parking Area Entrance: 88'-0"

Level One Shall be aligned with the HSRC Main Level = 100'-0"

Level 2: 118'-0"

Level 3: 132'-8"

Level 4: 147'-4"

Roof Level: 162'-0"

Parapets: various up to 178' -0"

Roof Assemblies

The roof system shall meet DFCM roof requirements including thermal performance, wind uplift resistance, and minimum warranty requirements. To obtain DFCM HPBS and LEED credit, solar reflectivity minimums must integrated into the design.

Per preliminary conversations with the energy modeler, the roof assembly shall have an R35.7 (6" average thickness of polyiso rigid insulation with minimum R value of 6 per inch) Additionally, the roof assembly shall include a substrate board and a vapor barrier below the roof insulation. The vapor barrier shall wrap up over parapet and seal to the air barrier.

Exterior Wall Assemblies

To reduce mechanical equipment size, one strategy is to reduce the margins/ contingencies of the energy modeling through reliable assumptions for the performance of the building envelope. This strategy is best accomplished by utilizing a continuous vapor impermeable air barrier. The air barrier shall behave as the drainage plane and as the vapor barrier. The idea is that any moisture which enters the envelope by condensation will occur on the exterior side of the air barrier and drain through weeps, or evaporate through the cavity vents. For this system to work properly, all of the insulation must be located on the cold side of the membrane, and be closed cell rigid insulation. This assembly precludes batt insulation within the stud cavity. The intent of keeping the insulation outside the membrane is to locate the dew point and condensation on the exterior side of the

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air barrier. The air barrier shall wrap up over parapet for continuity with the roof vapor barrier.

Facade materials are currently envisioned to include brick, composite wood panels, and composite metal panels.

Air Infiltration Criteria shall meet ASHRAE Standard 90.1 2010

.1 cfm/sf max

Detailing for complete connectivity between wall and window systems.

Per preliminary conversations with the energy modeler the wall assemblies shall have an R value of 27.77 which can be accomplished with 3.5" of EPS (with an R value of 5/inch) + 2" of closed cell spray-foam insulation (R value of 6.2/inch) for a total R value of 29.9. The EPS insulation shall be installed in two layers with overlapping, taped joints; and be held tight against the outside of the air barrier and sheathing. The closed-cell spray foam insulation shall be installed on the backside of the sheathing, within the stud cavity.

Fenestration: The overall envelope design must not have openings that exceed 35% of the total envelope area to meet the DFCM HPBS. (ASHRAE requires 40% minimum)
Windows and Glass Performance Criteria:

U.22 at center of glass opening
SHGH .35 on south/east/west facades
NFRC rating for each window assembly shall be .4 or better to meet DFCM HPBS (ASHRAE requires .45 minimum)

Toilet Rooms: The toilet rooms shall enhance the experience and feeling of the building. This shall be accomplished with the use of carefully selected material and color combinations. Careful coordination of finish quality lighting shall be integrated. Additionally, ceramic wall and floor tile shall be used in lieu of GFRC. To accomplish higher durability and maintainability, as well as quality of finish, solid surface counter tops shall be considered in lieu of plastic laminate.

Each bathroom shall have a changing table.

The team has been requested to add additional women's rest rooms.

Additionally, all toilet rooms shall meet the Enhanced Accessibility Requirements as outlined within the DFCM Design Guidelines.

Stair Towers: Stairs are envisioned as a crucial element for translating the sense of community and collaboration from one floor to the next. As such, the stairs shall contain finish quality materials, in lieu of back-of-house type materials. Additionally, the fire sprinkler assemblies shall be integrated into the finishes as to be concealed.

Noise Rating Criteria

NRC ratings:

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Speech/Hearing/Language Rooms and IVC Classrooms: 20-25 NC max
(Traditional classrooms have a range of: 25-30 NC max)
Offices/lobbies/study areas: 30-35 NC max

Reverberation Times for Speech/Language/Hearing Clinics:
Suggested reverb time for deaf/hearing impaired classroom: 0.4 seconds @ 500 HZ
(Based on DESIGN OF A CLASSROOM FOR DEAF / HEARING IMPAIRED STUDENT EDUCATORS, Darron Chin-Quee; and R.L. Scott Penton Rowan Williams)

Under ANSI Standard S12.60 for (traditional) Classroom Acoustics the maximum reverberation time in an unoccupied, furnished classroom with a volume under 10,000 cubic feet is 0.6 seconds, and 0.7 seconds for a classroom between 10,000 and 20,000 cubic feet)

Sound Transmission Coeficeints (STC):

Classroom to classroom: STC 60 minimum
Classroom to exterior: STC 60 minimum
Therapy to therapy and therapy to corridor: STC 60 minimum
Classroom to Mechanical Room: STC 65 minimum
Classroom to active common area: STC 60 minimum
Office to office and office to corridor: STC 55 minimum
(Enhanced from AIA, Architectural Graphic Standards, Seventh Edition)

Acoustic Wall Assemblies: Acoustic wall assemblies shall take into consideration the Noise Rating Criteria, the anticipated reverberation time, as well as the STC rating. Precedents for walls meeting these criteria include assemblies with sound isolation clips, resilient channels, integration of batt insulation, acoustic sealant at perimeters, putty pads, de-coupled stud walls, and multiple layers of gypsum wall board. Additionally it will be important to take into consideration the physical dimensions of AV boxes and flat screen cable management boxes as well as fire extinguisher cabinets and AED cabinets. In some cases, these boxes may protrude into the full depth of a stud cavity, which would perforate wall assemblies with sound clips. In this case putty pads will be required for the junction boxes, and wall assemblies with double layers of metal stud walls may be more effective.

Hydronic Snowmelt System: USU will require that any north facing or continuously shaded entrance is outfitted with a hydronic snowmelt system.

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Building Features that the team anticipates integrating in order to meet LEED requirements:

Building Dashboard to enhance education about sustainability by providing real time illustration of building energy use.

Shower Roomsto encourage bicycle riding as a realistic alternative to automobile use.

Charging Stations to encourage purchace and use of electric vehicles in order to offset carbon emissions.

Green Roofs to reduce heat island effect and offset native habitat displacement.

Entry Mats to reduce indoor contaminants.

Photovoltaic Panels

90,000 sq.ft. building
15,000 sq.ft. available roof space for panels
Roof can hold around 400, 250W PV panels
Total kBTU/SF for building is 93
PV Cost at $2.50 per watt
No Credits, rebates, etc. accounted for

1 LEED point: 1% energy usage offset
19kW System
$46,500 system cost
About 80 panels on roof

2 LEED points: 5% energy usage offset
93kW system
$232,000 system cost
About 375 panels on roof

3 LEED points: 10% energy usage offset
186kW System
$465,000 system cost
About 750 panel on roof (DOESN'T FIT ON ROOF)

5.1 Systems: Energy Modeling Considerations

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Per the DFCM Design Requirements, the energy engineer hired by DFCM is made available to the design team to assist with design decisions on items affecting building energy performance. The energy engineer also provides modeling and life-cycle cost analysis of proposed systems and strategies to inform the owner of cost/benefits and payback. The following sums up the info from the DFCM Design Requirements document regarding the energy engineer:

Provides input to the design team related to OPR, BOD, and HPBS documentation

Reviews design at each design phase for HPBS compliance

Programming: simplified modeling of conceptual design to assess and inform decisions relating to design such as massing, orientation, glazing orientation, glazing quantity

Schematic Design: review of possible building systems including Life-cycle cost analysis (LCCA), this would include envelope systems as well as HVAC, plumbing, lighting, and lighting controls

Design Development: review of possible building systems including Life-cycle cost analysis (LCCA)

Construction Documents: submit HPBS required documentation to DFCM including Energy Model Spreadsheet and LCC Worksheet, on this project it will also mean completing the LEED online documentation

HPBS requires the building to perform 20% better than a corresponding baseline which meets the mandatory and prescribed requirements of ASHRAE 90.1-2010. Part of the design team's discussion should be deciding if the project will be following the IECC 2012 energy code or the ASHRAE 90.1-2010 energy code. There are ramifications to either option that will impact electrical and mechanical design as well as LEED certification.

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LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: USU Clinical Services Building
Date:

Y	<-?	?->	N	D/C			
					Credit	Integrative Process	1

Y	<-?	?->	N	D/C		Location and Transportation	16
5	4	6	0				
					Credit	LEED for Neighborhood Development Location	16
1					Credit	Sensitive Land Protection	1
		1			Credit	High Priority Site	2
2	3				Credit	Surrounding Density and Diverse Uses	5
		5			Credit	Access to Quality Transit	5
1					Credit	Bicycle Facilities	1
	1				Credit	Reduced Parking Footprint	1
1					Credit	Green Vehicles	1

Y	<-?	?->	N	D/C		Sustainable Sites	10
1	7	2	0				
Y					Prereq	Construction Activity Pollution Prevention	Required
	1				Credit	Site Assessment	1
		2			Credit	Site Development - Protect or Restore Habitat	2
	1				Credit	Open Space	1
	3				Credit	Rainwater Management	3
	2				Credit	Heat Island Reduction	2
1					Credit	Light Pollution Reduction	1

Y	<-?	?->	N	D/C		Water Efficiency	11
2	2	3	4				
Y					Prereq	Outdoor Water Use Reduction	Required
Y					Prereq	Indoor Water Use Reduction	Required
Y					Prereq	Building-Level Water Metering	Required
		2			Credit	Outdoor Water Use Reduction	2
2	1	1	2		Credit	Indoor Water Use Reduction	6
			2		Credit	Cooling Tower Water Use	2
	1				Credit	Water Metering	1

Y	<-?	?->	N	D/C		Energy and Atmosphere	33
6	11	9	7				
Y					Prereq	Fundamental Commissioning and Verification	Required
Y					Prereq	Minimum Energy Performance	Required
Y					Prereq	Building-Level Energy Metering	Required
Y					Prereq	Fundamental Refrigerant Management	Required
	6				Credit	Enhanced Commissioning	6
5	5	5	3		Credit	Optimize Energy Performance	18
1					Credit	Advanced Energy Metering	1
			2		Credit	Demand Response	2
		3			Credit	Renewable Energy Production	3
		1			Credit	Enhanced Refrigerant Management	1
			2		Credit	Green Power and Carbon Offsets	2

Y	<-?	?->	N	D/C		Materials and Resources	13
4	4	3	2				
Y					Prereq	Storage and Collection of Recyclables	Required
Y					Prereq	Construction and Demolition Waste Management Planning	Required
		3	2		Credit	Building Life-Cycle Impact Reduction	5
1	1				Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1	1				Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1				Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1	1				Credit	Construction and Demolition Waste Management	2

Y	<-?	?->	N	D/C		Indoor Environmental Quality	16
7	9	0	0				
Y					Prereq	Minimum Indoor Air Quality Performance	Required
Y					Prereq	Environmental Tobacco Smoke Control	Required
	2				Credit	Enhanced Indoor Air Quality Strategies	2
	3				Credit	Low-Emitting Materials	3
1					Credit	Construction Indoor Air Quality Management Plan	1
2					Credit	Indoor Air Quality Assessment	2
1					Credit	Thermal Comfort	1
1	1				Credit	Interior Lighting	2
	3				Credit	Daylight	3
1					Credit	Quality Views	1
1					Credit	Acoustic Performance	1

Y	<-?	?->	N	D/C		Innovation	6
1	5	0	0				
	5				Credit	Innovation	5
1					Credit	LEED Accredited Professional	1

Y	<-?	?->	N	D/C		Regional Priority	4
0	0	0	0				
					Credit	Regional Priority: Specific Credit	1
					Credit	Regional Priority: Specific Credit	1
					Credit	Regional Priority: Specific Credit	1
					Credit	Regional Priority: Specific Credit	1

Y	<-?	?->	N	TOTALS	Possible Points:	110
26	42	23	13			

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

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LEED 2009 for New Construction and Major Renovations

Project Checklist

Project: USU Clinical Services Building

Date: 8/15/2015

13	10	3	0		Sustainable Sites	Possible Points:	26
Y	<-?	?->	N	d/C			
Y				C	Prereq 1	Construction Activity Pollution Prevention	
1				d	Credit 1	Site Selection	1
	5			d	Credit 2	Development Density and Community Connectivity	5
		1		d	Credit 3	Brownfield Redevelopment	1
6				d	Credit 4.1	Alternative Transportation—Public Transportation Access	6
1				d	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3				d	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
	2			d	Credit 4.4	Alternative Transportation—Parking Capacity	2
		1		C	Credit 5.1	Site Development—Protect or Restore Habitat	1
	1			d	Credit 5.2	Site Development—Maximize Open Space	1
	1			d	Credit 6.1	Stormwater Design—Quantity Control	1
	1			d	Credit 6.2	Stormwater Design—Quality Control	1
		1		C	Credit 7.1	Heat Island Effect—Non-roof	1
1				d	Credit 7.2	Heat Island Effect—Roof	1
1				d	Credit 8	Light Pollution Reduction	1

2	0	2	6	d/C	Water Efficiency	Possible Points:	10
Y	<-?	?->	N				
Y				d	Prereq 1	Water Use Reduction—20% Reduction	
			4	d	Credit 1	Water Efficient Landscaping	2 to 4
		2		d	Credit 2	Innovative Wastewater Technologies	2
2			2	d	Credit 3	Water Use Reduction	2 to 4

5	4	11	9	d/C	Energy and Atmosphere	Possible Points:	35
Y	<-?	?->	N				
Y				C	Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y				d	Prereq 2	Minimum Energy Performance	
Y				d	Prereq 3	Fundamental Refrigerant Management	
5	2	3	9	d	Credit 1	Optimize Energy Performance	1 to 19
		1		d	Credit 2	On-Site Renewable Energy	1 to 7
	2			C	Credit 3	Enhanced Commissioning	2
		2		d	Credit 4	Enhanced Refrigerant Management	2
		3		C	Credit 5	Measurement and Verification	3
		2		C	Credit 6	Green Power	2

6	4	0	4	d/C	Materials and Resources	Possible Points:	14
Y	<-?	?->	N				
Y				d	Prereq 1	Storage and Collection of Recyclables	
			3	C	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
			1	C	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2				C	Credit 2	Construction Waste Management	1 to 2
1	1			C	Credit 3	Materials Reuse	1 to 2
1	1			C	Credit 4	Recycled Content	1 to 2

					Materials and Resources, Continued		
Y	<-?	?->	N	d/C			
1	1			C	Credit 5	Regional Materials	1 to 2
	1			C	Credit 6	Rapidly Renewable Materials	1
1				C	Credit 7	Certified Wood	1

9	4	1	1	d/C	Indoor Environmental Quality	Possible Points:	15
Y	<-?	?->	N				
Y				d	Prereq 1	Minimum Indoor Air Quality Performance	
Y				d	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
	1			d	Credit 1	Outdoor Air Delivery Monitoring	1
			1	d	Credit 2	Increased Ventilation	1
1				C	Credit 3.1	Construction IAQ Management Plan—During Construction	1
1				C	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1				C	Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1				C	Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1				C	Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1				C	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1			d	Credit 5	Indoor Chemical and Pollutant Source Control	1
1				d	Credit 6.1	Controllability of Systems—Lighting	1
1				d	Credit 6.2	Controllability of Systems—Thermal Comfort	1
1				d	Credit 7.1	Thermal Comfort—Design	1
	1			d	Credit 7.2	Thermal Comfort—Verification	1
		1		d	Credit 8.1	Daylight and Views—Daylight	1
	1			d	Credit 8.2	Daylight and Views—Views	1

1	0	0	0	d/C	Innovation and Design Process	Possible Points:	6
Y	<-?	?->	N				
				d	Credit 1.1	Innovation in Design: Building Dashboard	1
				d	Credit 1.2	Innovation in Design: Distance Learning	1
				d	Credit 1.3	Innovation in Design: Cooling Tower Cleaning	1
				C	Credit 1.4	Innovation in Design: Envelope Commissioning	1
				d	Credit 1.5	Innovation in Design: Community Outreach	1
1				d	Credit 2	LEED Accredited Professional	1

0	0	0	0	d/C	Regional Priority Credits	Possible Points:	4
Y	<-?	?->	N				
				d	Credit 1.1	**Regional Priority:**	1
				d	Credit 1.2	**Regional Priority:**	1
				d	Credit 1.3	**Regional Priority:**	1
				d	Credit 1.4	**Regional Priority:**	1
				d	Credit 1.5	**Regional Priority:**	1
				d	Credit 1.6	**Regional Priority:**	1

36	22	17	20	Total	58 Total Points in "YES" and "LEANING YES"	Possible Points:	110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

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The general intent is to provide State projects a consistent and tailored means to designing and building a high performing facility. The HPBS focuses on the following:

Integrated Design & Collaboration
Site Design
Energy Performance
Water Efficiency
Indoor Environmental Quality
Metering & Data Points
Effective Building Systems Commissioning
Envelope Commissioning

The goal is to provide a standard of minimum performance. Above code performance will provide the agency a facility that is designed and built to provide decades of solid Operations and Maintenance performance.

Integrated Design

Owner – Provide design review comments at the end of each phase and be actively engaged in the development of the Owner's Project Requirements (OPR).

Design Team – Author the OPR, facilitate HPBS Workshops, coordinate design reviews and be actively engaged with the Energy Engineer, Commissioning Agent, and Building Envelope Commissioning Agent.

Contractor – Assist in LCCA (if present during design), meeting performance requirements including those for BECx and Cx. Coordinate with CxA and BECxA for testing and inspections. Participate in a 5 month, post substantial completion walk through.

Site Design and Transportation

Promote alternative means yet not burden the project with unreasonable requirements

Reduce parking
10 bike storage spots = typically one rack
Two alternative/carpool parking stalls
Promote open space and native landscaping practices
Responsible storm water management
Minimize light pollution and require LEDs for exterior fixtures

Energy Performance

20% energy cost savings per ASHRAE 90.1 – 2010
Leverage life cycle costs analysis when appropriate
Encourage innovation yet provide flexibility
Efficient appliances and equipment
Open and transparent review process with 3rd party reviewer

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Water Efficiency

EPA Watersense Fixtures
Prohibit once through process water systems

Materials

Recycling within the building
Recycling of construction waste
Promote regional, recycled materials

Indoor Environmental Quality

Building flush prior to occupancy
Low VOCs for materials and paints
Walk off mats
Task lightings
Daylighting and Views

Education and Outreach Program

Let the occupants know more about their building with either signage (fixed or digital), media, training, walk through, or whatever the team feels would promote the intent of the requirement

Setting the stage for better O&M Performance

Benchmarking/ENERGY STAR Portfolio Manager
Metering
Data Points
Commissioning
Owner to help develop the scope
OPR and BOD
Design Reviews
Controls Reviews
Commission for overall performance
Follow Up at 3, 6, 9, 11 months

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Building Envelope and Envelope Commissioning

Programming and Design for the new Clinical Services Building will integrate a Building Envelope Commissioning Agent (BECx) for the following reasons:

Envelope commissioning agent required - ATI will be ECx agent

Typically 10% - 15% energy cost savings attributed to BECx alone

BECx Agent can share information and experience on the success/ performance of difference wall/roof systems when systems are being evaluated.

Creates an interface between Architect, Mechanical/Electrical/Plumbing Engineers, Energy Modeler and BECx Agent that would not otherwise happen, which should result in better information up front to base modeling and designs on.

The process builds in key aspects to the design early, to minimize costly changes as the design matures or construction begins.

Orients the project team to building envelope objectives and challenges early enough that we can all work together to achieve the desired performance.

Aids in reducing the chance of an over designed system or an under designed system that cannot keep up.

The process facilitates a conversation on the interrelationship of tightening a building with other performance characteristics to achieve a high performance building that meets durability expectations.

BECx Agent assists the project team in establishing a hierarchy of key design aspects that can be used to evaluate future value engineering options.

Submittal and show drawing review

Full size mock up testing

Extensive building envelope systems testing

Whole building pressure test

OPR shall include best management practices

5.4 Systems: Civil Considerations

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The primary civil design requirements will be the integration of the project into the existing transportation & parking network (see discussion above), siting and grading the building to ensure that storm water runoff is managed and maintained on the USU campus, and coordinating the site utility connections to the new building (See Section X.XX Utility Design Considerations).

Grading and Storm Water

It is anticipated that the majority of the site will have grades very similar to the grades surrounding the existing CPD. It is also anticipated that some of the existing storm water collection facilities will need to be removed and replaced during construction, but that the primary strategy for storm water will meet the current USU standard. It is anticipated that the site will be developed to direct runoff from the useable surfaces into storm water facilities sufficiently sized to handle the design storms identified in the LEED manual and/or DFCM high performance building standards.

It is anticipated that development of the site will require at least two new sumps to be installed as the primary collection/storage and discharge area (detention). Analyzing the condition of existing sumps that are intended to stay, but that may be excavated during construction is recommended.

Some special considerations for grading and storm water management have been identified and listed below:

-Grading and storm water collection will be critical for the ramp to the subsurface parking area. Anticipated slopes of the ramp area should not exceed 12% and it should be anticipated that storm water collection will need to occur at the bottom of the ramp approximately -14.0ft below finish grade

-There is opportunity for bio-swales or other LID techniques to be implemented on the site as long as there is adequate provision for emergency overflow to standard USU storm water collection and infiltration facilities (sump)

-It has been identified that there may be opportunity to consider sub-surface storage of storm water (up to 2500 gallons) that can be collected and re-used for irrigation to help achieve LEED water efficiency credits

Utility Design Considerations

All the major utilities for the proposed project are located with proximity to the proposed project site. It is anticipated that some utilities will be provided via direct bury and some are proposed to be included in the branch tunnel connection that is part of the proposed project. It is important to note that many of the proposed utilities, including the branch tunnel will be dependent upon and will need to be coordinated with the design of a new tunnel extension project funded by Utah State University. Coordination and completion of this tunnel project should be considered a critical path item throughout the design and construction process. A brief discussion of each utility and the anticipated delivery has been provided below.

Domestic Water/Fire Suppression/Hydrants

Existing domestic water and fire suppression lines run along the building on the

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south and east, however both the line and the existing fire hydrants are within a close proximity to the proposed building and are anticipated to be impacted during construction of the building and/or the branch tunnel connection. It is likely that the line to the south and east will need to be replaced and coordinated with the new branch tunnel in order to maintain the connections to the HSRC.

The new fire line is anticipated to be an 8" line and should be installed along the north and west of the site to provide a loop connection for the system. This new line will facilitate the re-location of the two impacted fire hydrants, one will be located within 100' of the FDC for the new building and the other will be located to meet the standards identified by the USU Fire Marshall.

Steam/Chilled Water

There are existing steam and chilled water lines to the existing site that are provide as direct bury from adjacent facilities. These existing connections are anticipated to be abandoned and new steam and chilled water lines will be delivered to the project site through a new branch tunnel extension from the east.

The branch tunnel connection will require at least one tunnel vent/intake to be located within the site. Additional intakes/vents will be part of the larger tunnel capital improvement project. Some consideration should be taken to coordinate the design and construction sequencing of these two projects.

Some preliminary discussions were had regarding the consideration of a proposed sub-surface radiant heating system for the sidewalk areas on the north side of the building. Further study needs to be accomplished during the design phase to better understand the extent of the required snowmelt system and the costs associated with it.

Communications

The proposed branch tunnel connection to the site will have significant impacts to the existing communications lines and vaults located to the immediate southeast of the site. It is anticipated that two existing vaults and existing communications lines will need to be removed during construction. Therefore, it is anticipated that new communications lines will be delivered to the site through the new branch tunnel connection.

Considerations will need to be made for providing temporary communications connections to the HSRC and then making permanent re-connections to the HSRC once the branch tunnel has been installed.

Electrical

High voltage power will need to be delivered to the site through direct bury methods. Currently two existing vault locations have been identified for potential routing of the high voltage line to the new facility. There is an existing vault located to the southeast in the small corridor identified for the branch tunnel connection. It is anticipated that this vault will be impacted and be required to be removed and relocated during construction, including the connection to the HSRC. The other vault is to the northeast of the site and is not currently anticipated to be impacted during construction. It is likely that the preferred location for extending the new high voltage line will come down to selecting the lower cost alternative. Final costs

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for extending the high voltage line cannot be adequately studied until the impacts to the southeast vault and its potential relocation are better understood. This needs to be studied during the design phase and coordinated with the proposed tunnel project as a critical path for project completion.

It is anticipated that several light poles may be impacted during construction and will need to be replaced or relocated. In addition there has been some discussion regarding exterior security lighting for portions of the site. These elements should be studied further in the design phase.

Sanitary Sewer

It is anticipated that sanitary sewer discharge from the site will follow a similar route as the existing service connection to the CPD. However, it is anticipated that this connection will have to occur at the nearest manhole which is located approximately 150' to the southwest of the site. In addition a grease interceptor has been identified as a required program element to support some of the interior programming. The proposed grease interceptor will need to meet all Logan City APWA standards for size, location and monitoring.

Gas

Preliminary programming has not identified the need for natural gas in the facility. However, gas is in close proximity to the site and some consideration should be made for providing natural gas to the building during the design phase.

Irrigation

Existing university pressurized irrigation water is available along the entire west side of the site. It is anticipated that the majority of the site can take advantage of this available system and will be designed to meet USU standards.

However, it may be advantageous to use drip irrigation within some of the interior courtyards and the playground in order to avoid the disadvantages of a spray head system, ie. overspray, larger volumes, inefficient application, etc. In this scenario it would be preferred by USU facilities to connect to the domestic water line to avoid the long term maintenance that would be likely when drip systems are run on secondary water systems. This connection would require a backflow prevention device that would need to meet the State of Utah standards for backflow prevention. Additionally, USU facilities has identified the preference for a hydrometer and master valve to be installed as part of the proposed project in order to monitor the precise water usage of the site, especially in an instance where culinary water is being applied to the landscape.

One additional consideration should be made for the potential to collect, store and re-use storm water for irrigation purposes. This idea was discussed with USU facilities as it may have an impact on the ability of the project to receive water efficiency credits as part of the LEED effort. USU facilities was receptive to the idea and felt it could be studied more during the design phase. Collection would need to be limited to 2500 gallons which is the statewide legal standard for collection and re-use of storm water.

5.5 Systems: Structural Considerations

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Building Structural Systems Description

Clinical Services Building (CSB) is a 4-story building with one basement level below grade. The building surrounds an open air courtyard in the center. The basement level is for parking and mechanical rooms. Roof framing is metal roof deck supported by open web steel joists and steel wide flange beams. Floors are lightweight concrete on metal deck supported by composite steel wide flange beams. Floor framing design is to consider perceptibility of vibrations due to normal human activity. Horizontal framing is supported by steel wide flange or HSS columns that are supported by conventional reinforced concrete spread footings. Cladding is primarily masonry veneer with metal stud framing backing. Metal stud backing is designed for a maximum L/720 out-of-plane deflection ratio per USU campus design requirements.

The wind and seismic lateral force resisting system is special concentric steel brace frames. Consideration of buckling restrained brace frames is an option if special detailing for story drift is incorporated into the building design. Brace frame bays will transition to concrete shear walls at the basement level. Concrete walls are supported by conventional reinforced concrete spread footings.

Special Design Items

Basement Parking Entry Ramp

The entry ramp into the basement parking has retaining walls and lid that are designed for soil retaining and landscaping loads.

Therapy Pool

The facility has a therapy pool on Level 1 that requires unique foundation support, specific floor framing clearances around the pool, and mechanical service rooms in the basement.

Audiology Booth

An audiology booth will be located on an upper floor level. It requires dropped floor framing to accommodate its box configuration and keep finished floor levels flush between the booth and adjoining floor. Floor framing also needs to be sufficiently sized to support the booth's weight.

Roof Gardens

Roof gardens are proposed on limited areas of Level 3 and Level 4. Floor framing will be dropped at garden areas to accommodate special drainage membrane and raised paver systems. Framing will be sized for special landscaping loads and snow drift.

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Design Criteria

Governing Building Code: ..... 2012 International Building Code (IBC)

Risk Category: III

Floor Live Loading:

Office: ..... 80 psf Live Load + 20 psf Partition Load

Exit Facilities & Corridors: ..... 100 psf Live Load

Mechanical Rooms: ..... 125 psf Live Load or actual weights, if larger

Roof Live Loading:

Roof Live Load: ..... 20 psf
Roof Snow Load: ..... 37 psf + Drift per IBC
Ground Snow Load, P_g: ..... 53 psf
Snow Exposure Factor, C_e: 1.0
Importance Factor, I_S: 1.1
Thermal Factor, C_t: 1.0

Earthquake:

Seismic Design Category: ..... D
Spectral Response Accelerations:
S_S = 0.953 g S_{DS} = 0.711 g
S_1 = 0.307 g S_{D1} = 0.366 g
Soil Site Class: ..... D
Fa = 1.119 Fv = 1.786
Basic Seismic-Force-Resisting System: ..... Special Concentric Steel Brace Frame
R = 6.0 C_d = 5.0 Ω_0 = 2.0
Importance Factor, I_E: 1.25
Analysis Procedure: ..... Equivalent Lateral Force (Static)

Wind:

Ultimate Design Wind Speed V_{ult}: ..... 115 mph
Exposure: C
Internal Pressure Coefficient, GC_{pi}: 0.18
Topographic Factor, K_{ht}: 1.0

Classification for Fire Rated Construction:

For the purpose of determining fire-resistive assemblies, open-web steel framing members shall be considered unrestrained. All other steel floor and roof framing members shall be considered restrained.

Diagonal members in vertical braced frames shall be considered as secondary members for fire proofing protection.

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Materials

Concrete:

Materials shall comply with the Standards specified in American Concrete Institute (ACI) 318-11, "Building Code Requirements for Structural Concrete."

Concrete mix design requirements shall be as follows:

Location	f'c at 28 days	Max W/C	Air Content	Max Aggregate	(Exposure Classes*)		
	(psi)	Ratio	(%)	Size	F	S	C
Footings	3000	0.50	-	1"	F0	S0	C0
Interior Slabs on Grade	3000	0.45	-	1"	F0	S0	C0
Basement Parking Slab on Grade	4500	0.45	5	1 ¼"	F1	S0	C2
Exterior Walls/Basement Walls	4500	0.45	5	¾"	F1	S0	C1
Lightweight Concrete over Steel Deck	3000	0.45	-	¾"	F0	S0	C0
All other site cast concrete	4500	0.45	4.5	1"	F1	S0	C1

* Exposure Classes are per ACI 318, Section 4.2.1, where F, S and C are exposure categories for freezing and thawing, sulfate, and corrosion protection of reinforcement, respectively.

Structural Steel:

Material:

W-Shapes: ASTM A992, (Fy = 50 ksi), except as noted otherwise.

All Other Shapes and Plates: ASTM A36 (Fy = 36 ksi), except as noted otherwise.

Rectangular and Square Hollow Structural Sections (HSS): ASTM A500, Grade B (Fy = 46 ksi).

Steel Pipe: ASTM A53, Grade B (Fy = 35 ksi).

Deformed Bar Anchors (DBA): ASTM A496.

Headed Stud Anchors (HSA): ASTM A108, with dimensions complying with AISC specifications.

Anchor Rods: ASTM F1554, Grade 36 with ASTM A563 heavy hex nuts and ASTM F436 hardened washers, unless noted otherwise.

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General Mechanical

The design and construction of the USU Clinical Services Building shall comply with the current Utah State Division of Facilities and Construction Management's Design Criteria, as well as the Utah State University Mechanical and Plumbing Design Standards and Requirements.

The mechanical and plumbing systems for the new Clinical Services Building shall be energy conserving, with a goal to pursue LEED efficiency targets of 20% better than ASHRAE 90.1-2010. More efficient is desirable, to the extent it can be accomplished without sacrificing performance and maintainability. Systems and equipment that have a proven history in the state, and especially with Utah State University shall be considered.

All equipment shall be clearly labeled. Equipment, piping and ductwork shall be labeled and color coded as required by the USU design guidelines.

Design Conditions

The mechanical system shall be designed to maintain comfort condition in accordance with the Utah State Energy Code, DFCM A/E Design Guide, USU Design and Construction Standards, and ASHRAE 90.1 2010.

Elevation:..... 4785 Ft.

Ambient: (ASHRAE 2-1/2%, 97.5%)
- Summer..... 93°F DB 65°F WB
- Winter ..... -20°F DB

Indoor Conditions
- Summer..... 76°F
- Winter ..... 71°F

Envelope

Envelope insulation, U-values, and infiltration rates shall be coordinated with the owner, architect, mechanical engineer, envelope commissioning agent, and energy model.

Ventilation Rates: ..... ASHRAE 62-1 - 2010

Internal Heat Gain:
- People:..... ASHRAE Estimates for Level Activity
- Equipment:..... ASHRAE Estimates for the Following:
  - -Computers/Servers
  - -Copy Machines
  - -TV Monitors, equipment, and electronics
  - -Special Lighting
  - -Any other heat producing equipment
- Lights:..... Coordinate with electrical engineer and energy model.

Applicable Codes

The mechanical system for the building shall be designed and installed in accordance with the most recently adopted codes and standards:
- -Utah State University Design Standards
- -Life Safety Code

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-International Building Code (IBC) including all appendices
-International Mechanical Code (IMC)
-International Plumbing Code (IPC)
-International Energy Conservation Code (IECC)
-National Electrical Code (NEC)
-National Fire Protection Association (NFPA)
-ASHRAE 90.1 - 2010
-ASHRAE Standard for Ventilation 62-1 2010
-ASHRAE Guides and Standards (ASHRAE)
-State of Utah Boiler and Pressure Vessel Rules and Regulations
-American Society of Mechanical Engineers (ASME)
-American Standards Association (ASA)
-American Society of Testing Materials (ASTM)
-Sheet Metal and Air conditioning Contractors National Association (SMACNA)
-Occupational Safety and Health Administration (OSHA)
-DFCM Indoor Air Quality Criteria
-Utah State Division of Facilities and Construction Management (DFCM) ~ Architect Engineer Design Guide
-International Fuel Gas Code (IFGC) and Questar Regulations
-Project LEED targets

Heating, Ventilating, And Air Conditioning

The new Clinical Services building shall be heated, cooled, and ventilated with systems noted in other paragraphs of this program suitable for the building function and occupancy in accordance with USU, ASHRAE and DFCM standards. HVAC systems shall be designed for classrooms, administration offices, teaching, exam rooms, and other specialty uses as required. The primary HVAC system for the new building shall be determined using information from the building energy model, as well as USU and DFCM experience and preferences. It shall be a central system, as opposed to multiple unitary systems. In general, the USU campus has had the most success utilizing a 4 pipe, VAV system. This should be the initial preferred system for consideration, but other systems, such as chilled beams, and displacement ventilation systems could be considered depending on the conditions and requirements of each space.

Heating System

The heating system shall be designed without diversification and 10% additional capacity. The heating water source shall be two shell and tube heat exchangers for the primary system, and 1-2 shell and tube heat exchangers for the glycol preheat system. Systems shall be designed for central heating equipment redundancy per USU and DFCM standards.

Steam shall be brought to the building through the central utility tunnels. Provide a 1/3 and 2/3 PRV station with bypass and steam meter at the building. Steam piping shall be schedule 40 black steel and condensate piping shall be schedule 80 black steel. Schedule 10 stainless steel may be used in tunnels. Provide Garlock Gylon 3504 or spiral wound gaskets on all flanged valves. Do not use paper gaskets. Provide anti-seize treatment on all flange bolts.

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Locate the main steam valve inside the building at floor level. Do not locate the main steam valve in the tunnel. Main steam valves shall have visual position indicators. Extend safety relief discharge pipes inside the building to the building roof. Design all steam piping components such as valves, steam traps, etc. within the building to be accessible. Provide steam driven non-electric condensate pumps where feasible. Use seal-type electric pumps when necessary. Vent receiver to atmosphere through roof.

The heating distribution for the new building shall be a variable flow heating water system. Heating water shall be distributed throughout the building using a two pipe, direct return system. Heating water shall be piped to reheat coils located at the VAV boxes, and perimeter fin tube radiators. Flat plate style, such as Runtall, are preferred. A separate pumped system shall be used for the glycol preheat loop.

The heating hot water pumps shall be designed with 100% redundancy. The heating hot water system shall consist of hot water distribution pumps, standby pumps, variable frequency drives, air eliminator, and expansion tank complete with automatic make-up water system. The entire hot water system shall be controlled by DDC controls and completely integrated into one of the existing campus central control systems. Coordinate with Utah State University.

Hot water piping shall be sized for no more than 6 fps velocity and 4 HD/100' Loss. Piping shall be carbon steel schedule 40, threaded and welded joints throughout the building, and potentially grooved joints in mechanical rooms only.

Cooling System

Cooling source for the new building shall be chilled water provided from the central chilled water system through the utility tunnels. Cooling for the building shall be designed without diversification of loads. The chilled water supply temperature to buildings is currently 44 deg F. This building shall be designed for 16 deg F temperature change. Design new building chilled water pumps for the new building piping head requirements and the tunnel piping back to the central energy plant (CEP). The chilled water pressure at the CEP is currently operating at 80 psig. Cooling system shall also incorporate direct evaporative cooling at the air handler level.

Building chilled water system DDC controls shall be integrated with the campus DDC central control system. Chilled water supply piping shall supply chilled water to cooling coils located within the building. Chilled water pumps shall be designed for 100% redundancy.

Chilled water piping shall be sized for no more than 6 fps velocity and 4 HD/100' Loss. Piping shall be carbon steel schedule 40. Piping shall be carbon steel schedule 40, threaded and welded joints throughout the building, and potentially grooved joints in mechanical rooms only. Some other materials such as Aquatherm PPR piping may be considered and evaluated in conjunction with USU Staff.

Air Systems

Air system for the new building shall be provided to meet ventilation requirements for ASHRAE 62, and shall be controlled as necessary to meet the USU and DFCM standards, as well as LEED targets. Air shall be supplied from variable volume air handling units, with VAV boxes for individual spaces. Dedicated outside air delivery

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systems may be considered if other forms of conditioning such as chilled beams are utilized. Air shall be distributed by typical overhead diffusers. Displacement ventilation diffusers, or chilled beams can be considered on a case by case basis. The number of air handling units and their locations shall be determined by space availability, location, usage, requirements and economics. It is preferable to have a central AHU in the basement adjacent to the wet side mechanical room.

Air handling units shall be provided with heating water glycol preheat coils, chilled water coils, and direct evaporative cooling sections with face and bypass dampers. Each air handling unit shall have 100% economizer capability. Air handling units shall use fanwalls or fan arrays in order to provide redundancy and improved maintainability. he use of return/relief fans shall be determined during design. Return fans are encouraged where there are large pressure drops or long runs through return air systems, or if additional control of building static pressure is required. Mechanical rooms shall not be used as return air plenums.

Roof and ceiling mounted exhaust fans, depending on usage, shall be provided for the copy rooms, toilet rooms, elevator machine rooms, custodial closets, and any other areas where odors or particulates may be present. The exact number and location of the fans shall be determined during design. Coordinate locations to avoid sound sensitive locations and areas. Consider use of some lined ductwork near fans to reduce fan noise.

Outside air ventilation shall comply with ASHRAE Standard 62-1. Outside air system shall include carbon dioxide sensors at the air handler level, and at multi-occupant spaces per LEED guidelines, in order to provide adequate ventilation and improved energy efficiency. The systems shall be capable of 100% outside air and 100% relief air during the economizer cycle. The number and location of fresh air inlets, and relief air outlets shall be determined during design. Fresh air inlets shall not be located in any location where contamination of the air can take place, i.e. carbon monoxide, lawn fertilizer, vents, etc. Relief air discharge locations shall be coordinated to minimize negative effects such as sound, or high air velocities at commonly used public spaces.

The air handling system shall be controlled by a DDC control system that is 100% integrated into the campus central control system. Building air handling system controls shall include air handler VFD control with duct static pressure re-set, air handler discharge temperature control, local zone space temperature and discharge temperature control, building static pressure control, outside air damper control, etc. Additional specifics of the control system shall be coordinated with the USU during design.

All ductwork shall be insulated metal duct with volume dampers for each branch diffuser or register. Air distribution systems for distance education rooms, offices, classrooms and conference rooms shall be designed to provide a quiet, comfortable learning and working environment.

Use flex duct, maximum of 6'-0", for connection between diffuser and duct. Provide hard elbow at diffuser per USU standards.

Provide access to the equipment, such as VAV boxes, located above ceilings.

Provide grease hood for demonstration kitchen. Tie into VAV system minimum flow rates to provide adequate make-up air from the building AHU system.

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Acoustics

This building, particularly some of the specialty rooms, is sound sensitive. In general, there are 3 types of sound sensitivity. The first is for the patients and students with special needs. Care should be taken to reduce background noise for these people. The second is areas with microphones for recording. Design should limit background noise, as well as coordinate location of mechanical components so that they do not interfere with microphones. The third is privacy. Some areas where patients are being treated or observed may not be sound sensitive within the room, but measures should be taken to reduce the amount of sound that may transfer from the room in order to maintain privacy.

Classrooms, areas with microphones, and other sound sensitive areas shall be designed to minimize HVAC noise. Low pressure ductwork in the sound sensitive areas shall be designed for a maximum pressure drop of 0.05"/100'. Individual components, including diffusers, grilles, VAV boxes, etc. located in these areas shall be designed for a maximum NC=25. Piping in these areas shall be designed for a maximum velocity of 4 fps or 4 HD/100'. Avoid routing duct or piping mains, or placing HVAC equipment in these sound sensitive areas.

Take care to avoid locating diffusers next to microphones in distance education rooms. Avoid locating VAV boxes, exhaust fans, or main trunk lines at sound sensitive areas. Take care to maintain acoustical privacy at offices, phone rooms, etc.

Return and transfer air shall incorporate sound boots for both sound sensitive areas, and areas with acoustical privacy. Utilize flex duct and lined duct on supply branches to minimize sound transfer through ductwork.

Mechanical equipment shall be designed with vibration isolation, including inertia bases at pumps, internal spring isolators at fans, flex connectors at piping and ducts, etc.

Controls

The control system shall be an electronic DDC system, and shall be connected to the campus central control system for monitoring, adjustments, and diagnostics. The USU campus currently has control head ends for Utah Yamas and Johnson Controls. Additional Johnson installers may be approved as long as they have the factory certifications and meet all warranty requirements.

Individual zone control shall be provided through VAV reheat boxes at internal zones.

Individual zone control shall be provided through VAV reheat boxes and perimeter heaters.

Each classroom, conference room, or any other room with special occupancy considerations shall have a dedicated VAV box.

Offices with the same usage and exterior exposure may be combined for 2-3 offices per zone.

Plumbing Systems

Plumbing systems shall be designed to meet the International Plumbing Code 2012 as adopted by the State of Utah, DFCM Guidelines and USU Design Standards.

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The building shall be equipped with a steam domestic water exchanger. Domestic water exchanger system may be instantaneous, or storage, or a combination of both. Provide recirculating pumps, mixing valves, under lavatories, etc. Provide a secondary electric water heater for summer or back-up use only.

Plumbing fixture manufacturers shall use consistent manufacturers throughout the building. Provide ADA compliant fixtures as required by code.

Provide mixing valves to meet ADA tempering requirements under each lavatory using auto faucets.

Lavatories shall be cabinet or wall mounted, porcelain and oval. Lavatories shall be self rimming type. Lavatory faucets shall be low flow to meet LEED requirements.

Water closets shall be high efficiency flush valve style or dual flush style to meet LEED requirements. Where required, utilize ADA approved with elongated bowl and open front seat.

Urinals shall be low flow flush valves to meet LEED requirements, and ADA approved. Waterless are not allowed.

Floor drains shall be provided in all bathrooms, custodial closets, mechanical equipment rooms, close to water heaters, and any other location where drains are needed or required. Floor sinks and trench drains shall be used in mechanical areas where more water is expected.

Water treatment shall be provided for flushing and cleaning all pipe systems, and as necessary to treat all hydronic systems. Water treatment shall be provided by West water treatment per USU standards.

Exterior hydrants shall be provided for landscape and hose connections. Hydrants shall be wall mounted, box cover, key operator, freeze proof with 3/4" ball valve on water supply line to hydrant.

Roof drainage shall consist of a primary and secondary drainage system.

If green roofs are utilized, plumbing system shall be designed to provide water to landscaping and necessary drainage. Design shall allow for regular maintenance and winterization.

Provide access to all valves, etc. that require maintenance.

Provide refrigerated ADA compliant drinking fountains.

Hot water will be provided to all lavatories, service sinks, cabinet mounted sinks and any fixture requiring hot water.

Provide plumbing for all kitchen components, including sinks, drains, floor sinks, floor drains, etc. Provide 120 degree water to kitchen and kitchen shall utilize booster heaters where higher temperatures are required.

Fire Protection System

Fire sprinkler protection system shall be provided suitable for the building type and occupancy. This will be determined at the start of design. The entire building shall be sprinkled. System shall comply with NFPA, USU Fire Marshal and State of Utah Fire Marshal requirements.

A wet pipe fire sprinkling system, shall be provided complete with fire riser, alarms, panel, piping, sprinkler heads, etc.

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The fire sprinkler inspector's test shall be piped into a drain or sewer to prevent water damage.

The fire sprinkler inspector test shall be of the simulated sprinkler head type, and not the glass bulb type.

The contractor shall provide documentation of the acceptability of all fire-safety materials used.

All piping used for fire protection shall be per NFPA and campus standards. Thin wall piping for fire protection is not allowed.

Utility Tunnel

The steam, condensate, and chilled water piping shall be brought to the building through a utility tunnel. The utility tunnel shall tie into the existing campus tunnels and shall be extended to the new building. The steam piping shall have a 1/3 – 2/3 PRV station and steam meter. It shall feed the building heat exchangers, the glycol preheat exchangers, and the domestic hot water exchangers. The chilled water shall be pumped through the building, and the pumps shall be sized for the head loss back to the plant. Provide fresh air inlet at utility tunnel near building to allow air intake for tunnel ventilation. It is possible that the tunnel may be extended underneath this building to accommodate a different overall masterplan tunnel routing scheme.

Specialty Areas

There are several specialty areas that will require additional coordination or additional mechanical and plumbing connections.

This building shall include a hydrotherapy pool. The hydrotherapy pool shall include a packaged mechanical system for heating and pool treatment. The building shall provide make-up water to the pool system. This shall include a minimum 2" diameter water supply line with anti-siphon device connected to the circulation as required by the manufacturer, as well as a ¾" diameter hose bib with anti-siphon device in the poolroom. Provide drains in pool room, as well as the pool equipment room. Equipment rom shall include a sump pit with pump or floor drains for connection to the pool's maintenance system and main drains. The sanitary system should be designed to accommodate 5,170 gallons via gravity through a 2" PVC pipe, with a 60 GPM draining capacity. Plumbing scope may also require labor, materials and equipment necessary to install interconnecting plumbing between each pool component and the pool structure as required by the manufacturer's documents. The building mechanical system shall also provide adequate ventilation and conditioning for the pool area in order to maintain occupant comfort. The mechanical system shall also provide adequate ventilation for the packaged pool mechanical system.

This building shall include specialty sound booths. The mechanical air distribution and controls shall be coordinated with the sound booth and connect as required with flexible ductwork and conduit.

This building may include a nurse simulation training lab. If so, it is desirable that this lab shall use compressed air and vacuum to mimic the typical medical gases that would be used in a nursing facility.

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Some snowmelt may be required, particularly at the north entrance. Minimize the extend of snowmelt where possible. Snowmelt shall be heated by a water to water flat plate exchanger, with a dedicated glycol loop.

Utilities

Water

Site utility contractor shall provide a new domestic water line from the campus system to the building. Design team shall work with USU for best location. Provide main shut off valve and 1-3 – 2/3 PRV station with bypass and water meter at the building. Water PRV station shall reduce upstream water pressure to approximately 60 PSIG downstream pressure depending on building height.

Underground water service piping shall be type K wrapped copper. All interior above grade water piping shall be type L copper. All culinary hot and cold water piping shall be insulated.

Provide a new fire line to new fire riser within the building. Coordinate with city, civil, and fire marshal.

Sewer

Provide a new Building sewer line from new building to the city main, coordinate with city and civil. Design team shall determine the best location for new tie-in. Sewer piping shall be cast iron above grade and PVC below grade. Provide cleanouts as required by code. Coordinate with civil to provide grease interceptor for demonstration kitchen.

Storm Drainage

Provide a new building storm drain line from new building to the campus main, coordinate with USU and civil. Design team shall determine the best location for new tie-in. Storm drain piping shall be cast iron above grade and PVC below grade. Provide cleanouts as required by code. Roof drain piping inside the building shall be insulated. Primary and secondary roof drain system shall be provided.

Natural Gas

Natural gas shall be brought to the building for the potential use in the demonstration kitchen.

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Codes and Standards

Codes, Standards, and Guidelines, which are applicable to the design of the electrical systems, are listed below. Comply with the following publications in editions as mandated by the authority having jurisdiction:

- -International Building Code (IBC) 2012
- -International Fire Code (IBC) 2012
- -NFPA, National Fire Protection Association (applicable sections including but not limited to):
  - -NFPA 70, National Electrical Code 2014
  - -NFPA 72, National Fire Code
  - -NFPA 101, Life Safety Code
- -ANSI/ASHRA/IES Standard 90.1-2010 per LEED and DFCM High Performance Building Standards
- -Underwriters Laboratories (UL)
- -International Energy Conservation Code (IECC) 2012 for Energy Compliance and Comcheck
- -Institute of Electrical and Electronic Engineers (IEEE)
- -Illuminating Engineering Society of North America (IESNA) Handbook 9th Edition
- -NFPA 780: Standard for the Installation of Lightning Protection Systems
- -UL 96A: Installation Requirements for Lightning Protection Systems
- -Electronics Industrial Association / Telecommunications Industry Association 568/569 (EIA/TIA)
- -ADA Accessibility Guidelines 2010
- -Utah OSHA Regulations
- -Utah State University Design Standards
- -DFCM High Performance Building Standards
- -Utah State University IT Specifications for New Construction
- -USU Fire Requirements: http://dps.usu.edu/fire/htm/adopted_codes
- -Division of Facilities Construction and Management Design Criteria for Architects and Engineers
- -Laws, Rules, and Regulations of the Utah State Fire Marshal

Please note that conflicting requirements may exist among the codes and standards. Where a conflict exists, the most stringent requirement shall govern, unless specific clarification is noted here.

Site Utilities and Infrastructure

Medium Voltage Power Distribution

USU Logan campus has its own Medium Voltage Primary Metered power distribution system. Direct buried, medium voltage electrical feeders currently feed the existing building from a below grade vault located to the east between the HSRC and EBLS buildings. This existing medium voltage vault contains a medium voltage switch that serves all three buildings mentioned. Due to a planned extension from the existing tunnel system coming from the east through that same corridor, it is possible that this existing vault may need to be removed and medium voltage feeders be re-routed. The decision on this is still pending as of the writing of this

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document. It is not intended that the contractor will be required to provide any new medium voltage switch equipment.

The new building will be fed either from this existing vault, if it is determined that it will remain, or from an existing vault further to the east, through the same corridor. It is intended that the new medium voltage distribution will consist of direct buried, concrete encased duct bank per USU standards. These new medium voltage distribution feeders will enter the building from the east into a basement level transformer vault. Contractor will be responsible for providing all trenching, duct banks, conductors and final connections to equipment as required to serve the new building.

In conformance with USU standards, two electrical services will be provided for this building. Preliminary sizing of the transformers are as follows:

277/480V electrical service with anticipated load of 1000 KVA
120/208V electrical service with anticipated load of 800 KVA

These tub style, oil filled transformers shall be located within the building foot print at the basement level in their own concrete encased room.

The main building disconnects (breakers) shall be electronic type with long, short, and instantaneous pick-up settings in addition to ground fault provision. This will allow for easier breaker coordination, which is important in a facility of this nature, as reliability of the electrical distribution system is necessary for proper operations. The 277/480 volt service will have ground fault protection for the 277/480 volt service, as required by the National Electrical Code (NEC).

Telecommunication Utilities

The new Clinical Services Building will connect into the USU campus distribution network. The campus distribution network for communication will be routed in the new tunnel system that will attach to the building from the east. There are existing communication system vaults located to the east that will either be integrated into the new tunnel system or an additional new duct bank will tie into these existing vaults. Two to three 4" conduits will extend out of the existing communication manhole and run into the new Clinical Services building. Telecommunications work shall comply with USU's telecommunications design standards and all work will be coordinated with the campus IT department, which will be installing the cables to the building.

It may be determined later in design to have two underground communication vaults located at least 25ft apart will be provided as redundant communication utility connection points for service. One of the two may be pathway only initially with the second being planned for future connection.

Existing (2) 4" conduits are currently routed from the existing building to the HSRC building directly. These conduits will need to be extended to the new building as well.

Upon entering the new building the new Outside Plant utility conduit and cables shall be routed continuously to the main MDF without being routed in cable tray or through junction boxes. It is preferred that at communication utility lines enter the main MDF room from at least two different redundant feeds that maintain a 25ft horizontal separation between them. Communications services will be required to

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be fed from at least different service providers to provide additional redundancy. Coordinate with USU, Facilities IT Communications Distribution Systems for additional requirements.

Electrical Service and Distribution

Two service entrance utility transformers at different system voltages are desired by USU to serve this facility. The use of these two distribution transformers will reduce the need to have dry-type transformers within the facility and is preferred by the University. Preliminary load / sq.ft. estimates indicate that a 2500 amp, 120/208V, three- phase, 4 wire service and a 1,600 amp, 277/480V three-phase, 4 wire service will be required. These sizes will be verified and updated during the design phase, once more precise loads are obtained. Dry-type step-down transformers are acceptable for the emergency and stand-by generator backup distribution systems only.

Each of the transformer secondary sides should supply a main distribution section with a main circuit breaker that supplies distribution sections. The main circuit breakers should be electronic type with long term, short term, and instantaneous (LSI) adjustment. If the frame size of the 277/480V service is 1,200 amps or more, ground fault protection will be required per NEC requirements. Circuit breakers in the distribution section should supply major feeders to lighting panels, motor control centers, power distribution panels, transfer switches, and large utilization equipment. Fused switches shall not be used. Each main switchboard shall be provided with Square D "Powerlogic" type digital metering that is connected by -Ethernet to the main campus utility management system. Each main distribution switchboard shall be provided with at least 25% spare capacity and breaker space. All switchboards shall be provided with silver plated copper bus bars and lugs that are rated for copper only.

The estimated total connected load of the building will be around 15 watts per square feet. However, actual design loads should be used to calculate the total connected load during design.

The main electrical room shall be constructed to house branch circuit panel boards that may be required and shall be as centrally located as possible within the building footprint. The electrical rooms shall have a minimum of 25% additional space for future growth and shall be dedicated to electrical distribution and shall not be used for storage or any other purpose. This room should be located as close as practical to the pad-mounted medium voltage transformers and electrical service entrance to reduce the length of conduit and conductors.

Electrical meter(s) shall be provided at the main switchboard to meter demand and usage of the entire building. The meter shall be integrated into the web-enabled BAS system.

Feeders and Distribution Equipment

Different load types should be separated onto different feeders and distribution equipment, such as lighting, motors, utilization equipment, convenience power, and sensitive computer equipment. Panel boards shall be dedicated to serve either lighting or HVAC loads but not both. This will allow for the DFCM High

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Performance Building Standards on Metering [5.10, A, (1), c] be met. In general, lighting loads should be served at 277V, single phase; large motors and equipment at 480V, 3 phase; and power outlets and small equipment at 120V, single phase. Distribution feeders shall be sized to limit voltage drop to 2% at full capacity. Feeders shall be copper only, aluminum conductors are not allowed. All neutrals used in distribution systems shall be sized for non-linear loads.

Panelboards serving normal lighting and appliance circuits shall be located on the same floor as the circuits they serve. These panelboards shall also be fed from distribution panels located on that same level. All distribution panels and appliance branch panelboards shall have copper bussing with lugs that are rated copper only. Distribution panels and appliance panelboards shall be sized with 25% spare capacity and space. All 208/120V distribution panels and branch panelboards shall be provided with a 200% neutral bus, a bonded ground bus. Lighting and appliance branch panelboards shall be provided with door-in-door construction. Where panelboards are flush mounted in walls, a minimum of six (6) ¾" conduits shall be stubbed out of the panel into an accessible ceiling space.

Emergency Power Systems

An emergency standby power system shall be provided for the USU Clinical Services Building. Emergency power shall be provided for life safety systems (egress lighting and fire alarm systems), security and surveillance systems, main Telecommunication equipment racks and HVAC systems serving Communication and electrical rooms. It is not anticipated that other non-critical loads such as main building HVAC, AV equipment or general classroom or office equipment or plug loads will be backed up. The generator shall be diesel with a steel skid mounted diesel fuel tank with a minimum fuel capacity to provide 48 hours of operation at full load. The generator shall meet the latest EPA Tier II Standard or above. The generator shall be provided with a minimum level II sound attenuated enclosure rated as required based on the adjacencies to residential communities. The generator shall be located either within the building envelope on the basement or ground level or at a sub-surface areaway adjacent to the building. Four pole automatic transfer switches (ATS) with manual bypass shall be provided. Multiple transfer switches shall be provided for the different life safety and stand-by branches as defined in article 700 of the NEC. A remote annunciator shall be provided and located adjacent to ATS equipment. Emergency distribution and branch panelboards shall meet the same requirements as the normal power systems. A minimal amount of dry-type transformers will be required for the emergency system. All distribution and branch panelboards shall have a minimum 25% spare capacity and breaker space. The emergency generator shall have a minimum 25% spare capacity. Consideration should be given in locating a space to place this equipment. The size of the required generator is estimated to be around 150 KW. It is intended that a dedicated room inside the basement of the building footprint will be constructed to house the emergency generator. Appropriate fire ratings, exhaust system and other code requirements shall be met for this space. However, the actual size shall be determined during design based on actual design loads. Due to the building being four or more stories about the level of exit discharge, at least one of the elevators shall be on generator backup in order to meet IBC requirements.

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Uninterruptible Power Supply (UPS)

A central Uninterruptible Power Supply will be provided by the contractor. This Central UPS power shall be provide to supply UPS power panels and outlets for communication/data server, MDF and IDF rooms. The UPS system shall be backed up by the emergency power system. The UPS system(s) shall have a back-up battery system with a capacity of 15 minutes at full load. The UPS system shall be provided with 25% spare capacity. APC is the approved manufacturer for this system and it shall be provided with a network card to tie into the building network.

Branch Circuit Wiring

All branch circuit wiring shall be copper with a minimum of #12 AWG. Aluminum wiring is not acceptable. Generally, branch circuits shall be loaded to not more than 80% of what is allowed by the NEC. Outlets that feed specific equipment shall be sized based on the actual nameplate rating of the equipment. In no case, shall more than four convenience outlets be circuited to a branch circuit that feeds educational or office space. Each branch circuit homerun should have no more than three (3) circuits. Each circuit shall be provided with a dedicated neutral conductor. All branch circuits shall include a code sized equipment ground conductor. The maximum allowable voltage drop from the branch panelboard to the farthest load shall be 3%. The total allowable voltage drop from the service entrance switchgear to the farthest load in the building shall not exceed 5%. When calculating voltage drop, the load shall be assumed to be 80% of the ampacity of the branch circuit. Branch circuit wiring shall run overhead to allow for ease and flexibility for future changes and modifications. Branch circuits feeding floor boxes on the first level should be the only circuits that are run in concrete slabs.

Raceways

All raceways that are designed should be a minimum of ¾" C except for HVAC controls which may be ½"C. Type MC or AC cables are not allowed on this project. Provide raceway systems for all card access, security, CCTV, audio/visual and other technology systems whether furnished in the building construction contract or whether provided by the University/Owner. A 200lb. nylon pull string shall be provided in all empty conduits. Provide rigid metal conduit or intermediate metal conduit in areas where conduit is subject to damage. Provide steel raceways for penetrating structural elements such as manholes and building foundations (minimum 4' on each side). Schedule 40 PVC conduits shall be used in locations below grade or under slabs on grade.

Grounding

A main common ground bus shall be provided in the main electrical room that is bonded to all grounding electrodes and the telecommunications main grounding bar (TMGB). As a minimum, the grounding electrodes shall consists of building steel, the building cold water pipe, a UFER ground, and a minimum of two ground rods located outside the building. The grounding system resistance to ground

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should measure 5 Ohms or less. Grounding conductors shall be installed with all feeder and branch circuits. Provide a grounding system riser throughout all communication/data rooms with a telecommunications ground bar (TGB) in each room.

Lightning Protection

Once the building shell is designed a UL 96A or NFPA 780 Lightning Protection Assessment shall be performed for this building. Recommendations shall be provided to the owner to determine if a complete lightning protection system shall be installed. If determined that it will be installed, the lighting protection system shall consist of air terminals with down conductors, ground rods, and a ground ring that encircles the building. Provide a UL Master Label and comply with NFPA 780. The lightning protection system shall connect to the main common ground bus located in the main electrical room.

Surge Suppression

For protection against damages to sensitive electronic equipment, due to surges, surge protective devices (SPD's) shall be installed in the service entrance switchboards and any branch panelboards serving sensitive electronic equipment. The SPD devices shall be located integral with the equipment and sized for the level of exposure that is encountered.

Surge suppression shall also be provided on any low voltage copper cable that enters the building including but not necessarily limited to CCTV and access control.

Short Circuit and Selective Coordination Study

For all electrical distribution systems at Utah State University, selective coordination and short circuit studies shall be completed by the A/E and submitted at least 4 weeks prior to building occupancy. The A/E shall assume an infinite bus on the primary side of all building service transformers. The A/E team shall request available fault current data from USU to use for the calculations. Settings for all adjustable trip breakers shall be provided to the Contractor prior to the electrical system startup. All equipment shall be rated adequately to withstand the current that may be available during any fault or overload condition. The selective coordination study shall include the standby emergency power system.

Electrical Rooms

A dedicated main electrical room shall be provided with access directly to the corridor not passing through any other spaces. It must not have a dropped ceiling and must allow for a minimum 9' floor to ceiling height to allow conduits to get in and out of the distribution equipment. Electrical rooms should vertically stacked and be centrally located to the greatest extent possible to limit the distance to any remote electrical device to a maximum of 150 feet. If there are electrical devices in excess of this distance, consideration should be given to locating additional branch panelboards in that area. These rooms should be dedicated to electrical distribution and should not be used for communication/data equipment, storage, or any other

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purpose. All electrical rooms shall be provided with out-swinging doors with panic hardware. The main electrical room shall be provided with two entrance/exits. The standby emergency power source and its transfer switches shall be in a room separate from the normal power source and vented directly to and from the exterior. This room shall be enclosed with not less than a 2-hour fire barrier built in accordance with the IBC and NFPA 110. When locating equipment within these rooms, consideration should be given to providing spaces within these rooms to allow for vertical routing of feeders. Rooms shall be sized large enough to allow for future equipment to be installed.

Receptacles / Special Purpose Outlets

Power receptacles should be located as described and shown in the room data sheets. However, locations that are not clearly shown, the following guidelines should be followed. In all cases, the location and number of outlets should be coordinated with the building users to ensure that their needs are met. Outlets shall utilized standard NEMA configurations and the minimum rating shall be 20 amps. Acoustical putty pads shall be used to cover the back side of outlet boxes in order to maintain acoustical and fire ratings of the walls. They shall be provided at boxes in shared classroom, conference and computer labs and other areas where directed by the architect and owner. Owner would like to have a lot of 'charging station' locations for student phones/devices. Not USB type, but just standard outlets.

Offices

For each work station, provide one duplex outlet dedicated to computer terminals. Provide additional duplex outlets one spaced for every 10' of wall space or at least one on each wall for smaller offices. If radiant heating is installed along exterior wall, outlets shall be located on side-walls. Provide Wiremold type outlets at workstation height as indicated in room data sheets.

Conference Rooms

Provide a minimum of two dedicated duplex outlets, located on opposite walls at the front and rear of the room. Provide two multi-purpose floor boxes under each table for power and communication/data conveyance for the conference room table. Provide power for AV equipment including, but not limited to LCD flatscreen with smart board, PTZ cameras, ceiling mounted document cameras, motorized Mecho and black out curtains and cabinet mounted AV equipment.

Break Rooms / Food Prep / Coffee Shop

Provide GFCI duplex outlets space every 4' along counters. A minimum of two branch circuits shall be used to feed outlets on each counter. No more than two outlets shall be on each branch circuit. Provide dedicated outlets for each refrigerator, microwave, vending machine, warming appliances, coffee makers, disposal and other kitchen equipment requiring a dedicated circuit. For large kitchen equipment (vending machine, refrigerator, etc.) provide a GFCI breaker at the panelboard for easy reset accessibility. Provide dedicated power outlets for point of sale equipment as required.

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Front Desk / Lobby / Study Spaces

Provide outlets in spaces where people gather. Provide one outlet for every four (4) chairs to allow for computers to be plugged in. Outlets shall be wall mounted and avoid floor box locations unless specifically directed by the owner/architect or unless at locations with fixed furniture. This will allow for more flexibility in furniture layout options. Provide power for building dashboard system in main lobby and wall mounted flat screen TV's as directed. Provide power for Point of Service registers and stand up counter computer stations at Front desk area.

General Use Counter Tops

Provide duplex outlets spaced every 4' along the counter. No more than two to three outlets shall be on each branch circuit.

Classrooms/Teaching Spaces

Provide floor heavy duty receptacle only floor outlets spaced evenly around room below movable desk. Outlets shall be completely flush with finished floor and have durable metal covers so that re-arrangement of desks will not damage outlets covers if desk legs are slid across or located directly on top of them. Floor receptacles are to be used for student laptop power connections only. Coordinate box type and connection with furniture with furniture provider. Provide power for AV equipment including, but not limited to LCD flat screens, ceiling projectors, teachers podium, facilitators desk chair, smart boards, PTZ cameras, ceiling mounted document cameras and AV equipment. Do not locate receptacles along walls across from seating areas to avoid computer cords running across aisle walkways causing a trip hazard. Provide receptacles along rear and front walls spaced a maximum of every 10ft apart. The design engineer shall coordinate with the user during design to determine outlet locations for specific equipment. If there is fixed in place casework, locate outlet in the casework.

Computer Labs

Provide duplex receptacle at each computer workstation. Quad Receptacles may be provided between each set of workstations in lieu of one at each station. Provide no more than two to three workstations per dedicated circuit. Provide floor boxes for power, communications and AV connections to each island workstation area otherwise locate receptacles along perimeter walls at each workstation. Provide power for AV equipment including, but not limited to LCD flat screens, ceiling projectors, teachers podium, facilitators desk chair, smart boards, PTZ cameras, ceiling mounted document cameras and AV equipment as applicable.

Tiered Classroom

Provide Wiremold type power raceway work surfaces along underside of fixed work top areas. Coordinate power system type and sizes with furniture supplier. Complete power and data outlet system at furniture will be by contractor. Provide power for AV equipment including, but not limited to LCD flat screens, ceiling projectors, podium power, smart boards, PTZ cameras, ceiling mounted document cameras and AV equipment. Do not locate receptacles along walls across from seating areas to avoid computer cords running across aisle walkways causing a trip hazard. Provide receptacles along rear and front walls spaced a maximum of every

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10ft apart.

Art Studio, Music Therapy and Meditative Therapy Rooms

Avoid floor outlets in open areas. Provide general receptacles at perimeter walls coordinated with countertops and storage areas. Provide special power requirements per owner and AV request for camera systems and any flat panel TV screens. Provide power and controls for movable partition with sensors to adjust lighting and AV controls depending upon state of partition.

Electrical Rooms

Provide a minimum of one outlet on emergency power for the smaller electrical rooms. For the main electrical rooms, provide a minimum of two outlets on emergency power.

Generator Location

Provide one outlet on emergency power for general maintenance.

Transformer Pad /Vault

Provide one outlet on emergency power.

Communication/Data Rooms

Quadplex power receptacles, with dedicated 20 amp feeders, should be mounted on every wall in the equipment room, spacing should be on six foot (6') centers. Confirm during design which outlets shall be on emergency power. Provide (2) 20 amp, 208 volt 1ph, dedicated outlets on emergency power for each data rack provided. These outlets will be fed from the central UPS. Assume a minimum power density of 6000 watts for each rack. Outlets shall be coordinated with equipment racks and wall mounted equipment locations. Provide one outlet on normal power for convenience.

Corridors / Lobbies

Provide at least one outlet every 25', on alternating sides of the corridor or lobby.

Stairs

Provide one duplex outlet at each stair landing at each building level. Mid level landings do not require outlets.

Storage Rooms, Janitor Closets

Provide one outlet. For janitor closets, provide a GFCI outlet located at 48" AFF.

Building Exterior

Provide one GFCI outlet near each entrance/exit. In addition, provide GFCI outlets in areas where students and faculty may congregate.

Lighting Systems

Interior Lighting Systems

Provide a lighting system that will maintain the cohesiveness of each clinical space

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within the building through common general illumination concepts, yet maintain their unique identity through specific decorative fixture selections. The use of daylighting and daylighting controls will be balanced with meeting USU standards and making sure the fixtures and controls selected are easily maintainable, tested, and approved by USU. Specialty lighting will need to be considered for classrooms and therapy rooms.

Interior lighting design shall provide for the use of LED lighting fixtures that are highly efficient, high quality, and will meet the needs of each type of space within the Clinical Services Building. Light fixtures and their color temperatures selected should complement the architecture of the space. Fixtures used shall be placed within spaces to allow for ease of maintenance. Do not place fixtures over stairways or at high open ceilings unless there is access from above or planned access from below. Lighting design shall comply with the illumination levels and uniformity criteria of IESNA and its recommended best practices, including RP-1-04 "Office Lighting" and RP-3-00 "Lighting for Educational Facilities". All lighting design shall meet DFCM's High Performance Building Standards. Consideration should be given for lighting pollution reduction in order to meet the LEED requirements of Sustainable Sites, Credit 8, Lighting Pollution Reduction.

Lighting Illumination

Adequate lighting levels should be used to ensure that there is enough illumination for the specific use and task of each defined space. Provide the required Illumination levels as recommended by IESNA. These levels should not be compromised for energy use reduction. With the use of sustainable practices, DFCM's High Performance Building Standards, fixture efficiencies, day light harvesting techniques, task lighting, and lighting control, energy usage can be reduced. The total lighting load for the Clinical Services Building should not exceed the calculated lighting power budget, minus 10%, as determined by ASHRAE 90.1-2010. It should be a goal of the lighting designer to reduce the lighting power budget even lower than the 10% better than code. The illumination levels shown in the table below are the target levels for the Clinical Services Building.

Table: Illuminance Levels

Spaces	Illuminance (Avg Footcandles)
Offices	30 (Ambient) - 50 (Task)
Conference/Meeting Spaces	50
Observation Rooms	30-50
Classroom/Education Spaces	50
Corridor/Stairways	15
General Storage	20
Mechanical/Electrical Rooms	20
Communication Rooms	50
Kitchen	50

Light Fixture Criteria

In general, high efficient, high quality fixtures shall be used. Light sources that may be used include LED (as approved by the USU electrical engineer), and fluorescent

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(for back-of house and storage type spaces). Incandescent lamps should not be used and if used, require approval by DFCM. Where dimming is required, LED fixtures must be used. Compact fluorescent down lights shall not be used. Lighting fixtures should be selected based on the size, configuration, and specific functional needs of the space. Light fixture cutsheets of proposed fixtures shall be provided with each drawing review.

It is intended that proven LED, high efficacy fixture technologies are used as much as possible, however, working samples of all proposed LED light fixture will need to be provided to Mark Holt (USU Electrical Engineer) for his review, testing and approval prior to being used on this project.

Due to the unique video conferencing (IVC) requirements within many spaces, recessed, asymmetric throw pattern lighting shall be used. This style of lighting shall be selected and configured to properly illuminate the participants face to avoid the "raccoon look" that results from using standard lighting. Fixture will be installed in standard suspended ceiling T-bar grids. Close coordination with the architect and owner shall be done to precisely select and locate these fixtures within each space per the owner's requirements and room layouts. All upper cabinets shall have under cabinet LED lighting unless noted otherwise.

Lamp and Ballast Criteria

Premium lamps and ballasts combinations should be used. All fluorescent ballasts shall be programmed start and meet University of Utah design standards. Lamp and ballast combinations should provide for an efficacy of 75% or higher. Ballasts shall be electronic type with <10%THD and have a universal input voltage of 120-277V. Fluorescent lamps shall be 32 watt, T-8 with a minimum color rendering index (CRI) of 86. Lamp color should be specified based on the requirements of the space; however, it is preferable that the minimum color temperature is 4100 Kelvin for any fluorescent lamps. LED color temperatures may differ from the 41000 kelvin temperature standard. Differing lamp types shall be kept to a minimum for ease of maintenance. Fluorescent lamps should be specified to comply with the EPA TCLP requirements.

Dimming of fluorescent fixtures shall not be used. If dimming fixtures LED technology will be required.

LED fixtures shall be 0-10V dimmable. Warmer colors of LED are desired by the architect and user group. It is recommended that 3500k be used as standard general area lighting color temperature with 2700k-3000k color being used in any residential/apartment type spaces.

Lighting Control

Lighting control shall be used to meet energy code requirements and to reduce overall building energy use. To meet the requirements of the International Energy Conservation Code (IECC 2012), a method to automatically shut-off all lighting in a building is required. All interior lighting shall be connected to some system or device that will meet the requirements of the energy code. The system(s) used shall provide for precise control while allowing for simplicity, flexibility (multiple users and departments), and low maintenance. As a minimum, controls shall include a vacancy sensor and local switch(es) for each space to allow for automatic off and

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manual override of the space. A building wide lighting control system complete with manual switches for override capabilities could be used for building areas such as, corridors, open office, and lobby spaces. Smaller walled in areas such as classrooms, offices and mechanical/storage areas could utilize vacancy sensors or timer switches. In addition, spaces that have light fixtures located within 15' of exterior fenestrations shall utilize daylighting control techniques to reduce energy usage and meet energy code requirements. Consideration should be given for using integral daylight sensors in light fixtures in select large group areas with lots of windows.

Conference rooms shall be provided with local dimming provisions to allow for the light levels to be reduced during presentations, note taking, etc.

Large classroom/education spaces shall include a lighting control system that allows for zoned switching and interfacing with audio/video system. Four zones of dimmable lighting will be provided:

1. Instructors face
2. Main for students faces
3. Front Wall
4. Back Wall

Exact requirements shall be determined during design.

Emergency Lighting

Emergency lighting shall be provided for all of the paths of egress. Additionally, emergency lighting shall be provided for the following areas:

-Transformer Vaults / pads
-Emergency Generator Areas
-Main electrical rooms
-Telecommunication Rooms
-Mechanical spaces
-Any other specific location where emergency lighting is deemed necessary and per Utah State University standards

Exterior Lighting

Utah State University has standard exterior light fixtures for walkways, plaza and parking areas. Also, new buildings surrounding this project have recently been completed and it is intended to match the parking area and pedestrian area lighting. Care should be taken when designing the illumination levels and fixture type for exterior building lighting. Up-lighting shall be kept to a minimum and exterior building-mounted lights fixtures shall be classified as full cut-off and not the "wall-pack" type. The number of exterior building mounted fixtures shall be kept to a minimum, near entrance and exit locations only, to ensure that the perceived brightness of the building is low. However, care should be taken to ensure that there are adequate light levels around the perimeter of the building to allow the proper use and operation of closed circuit television cameras (CCTV) and to provide a level of security. It is very important to control the amount of light pollution from the building site for LEED considerations in order to meet the requirements of Sustainable Sites, Credit 8, Lighting Pollution Reduction. Close coordination with the landscape architect shall be done to coordinate exterior lights with landscaping in order to reduce the number of lights required.

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A minimum of 1-1/4" conduit shall be used for all exterior lighting circuits. Exterior lighting circuits shall be controlled by the building lighting relay control panel via timeclock and photocell. Exterior security lighting shall be programmed to be switched on at dusk and timed off as directed by Utah State University. Exterior fixtures should utilize all LED lamp sources. Light pole bases shall meet the University's standard detail.

Outdoor playground area will need to be well lit at night to provide high level of security lighting.

Communication/Data Systems

Communication/Data Rooms

There shall be one main communication room (MDF) that is located on the lowest level. It is best to locate the MDF central to the building to minimize cable lengths. The size of the MDF shall be a minimum of 10' X 16', however, the exact size shall be determined during design. This room shall house the main computer, phone and security equipment that serves the building. At least (4) 4" conduits shall be stubbed out from the MDF room to two redundant communication vaults located outside of the building. The local telecommunications utilities will tie into these vaults to provide new communication service to the building. This pathway shall have four (4) 4" conduits that run to existing and or new communication vaults (manholes).

Each additional floor shall have at least one communication room (IDF) that shall be sized as a minimum 8' X 10', however, the exact size shall be determined during design. These IDF rooms shall be central to the building and stacked to allow for ease of communication/data distribution. A minimum of four (4) 4" conduits shall be run between each level. It is important to ensure that cable lengths do not exceed 100 meters (300 ft.). Additional IDF rooms should be provided on each level as necessary to keep cable lengths to within industry standard lengths. ¾" AC or better plywood extending 8ft high shall be provided around the telecommunications room.

MDF and IDF rooms should be separated from electrical rooms by a minimum of 6'-0" to help reduce possible interference from electromagnetic interference (EMI). Each MDF and IDF rooms shall have space for a minimum of three 84" tall X 19" floor standing racks. Plywood terminal boards should be installed on all walls. Cable tray should be installed around the perimeter of the room for cable management. Provide dedicated power outlets on UPS power for all communication/data equipment located in the room.

MDF, IDF and Server rooms shall all require emergency generator backup cooling, UPS and generator power backed up outlets and access control and camera systems. It shall be determined at a later date if the server room will be required to meet all HIPAA requirements. These include but are not limited to: Two factor authentication. Biometric and card, Camera system to have 90 day storage reviewed daily, process for visitor entry, disaster and recovery process, backup storage process.

Wire Management

Each floor shall have a dedicated wire basket cable tray system that connects to the communication room(s) on that level. Generally, the cable tray shall be routed

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in corridors/hallways and coordinated with ducts, piping, and electrical conduits to ensure easy access in and out of the tray when construction is complete. It is anticipated that a 12" wide by 4" deep minimum wire basket style tray should be sufficient; however, this should be carefully evaluated during design. Ladder type tray may be considered as well. The tray shall be trapeze-hung and seismically braced; center-hung trays are not allowed. Mechanical fire stop systems should be utilized where the cable tray passes through fire-rated partitions so as to allow for moving, additions, and changes in a flexible and easy manner. Coordination with structural, mechanical, lighting and Basket trays shall be done to minimize basket tray offsets.

This tray may be used for the following systems:

-Communication/data
-Card Access Systems
-CCTV System
-Building Management System

All cables that use the cable tray shall be properly labeled and identified. Where communication/data cabling is run through plenum rated space, the cabling shall be plenum rated.

Basket tray shall be maintained continuous as it passes over hard lid ceilings between accessible locations.

Communication/Data Raceway Requirements

Each communication/data outlet shall utilize a 4-11/16" X 4-11/16" X 2-1/8" deep junction box with a single-gang or double-gang mud-ring. One or two 1" conduits with a nylon pull rope (depending on requirements) shall be run from each junction box up the wall and stubbed into the ceiling space and a protective bushing should be provided to protect the cables. The conduit system that is provided, shall allow for flexibility and change.

In office locations, provide a minimum of two (2) comm/data jack locations. In classrooms, provide the required number of location based on what is needed by the user. For AV equipment such as TV, Cameras, Projectors, Mics, etc. a data outlet shall be provided for each for transmitting signal via IP. Exact locations and quantity shall be coordinated with the users during the design effort. Where telephone/data or power is needed in open areas of suspended floors, provide floor boxes only; poke-through devices should not be used unless fire rating is required to be maintained. Provide telephone outlets(same as data) for payphones, elevator panels, fire alarm panels, building automation system, security system, wall phones, elevators and other required equipment. Provide junction boxes and raceways for wireless network points. These locations should be located in corridors and computer rooms and classroom spaces. A maximum of 50 users per WAP. Some additional locations may be required for exterior wireless capability. A 2" conduit shall be penetrated through the roof with a weather head to provide exterior Wi-Fi coverage. Coordinate locations with Utah State University IT during design.

Structured Cabling System

The structured cabling system will be provided by Utah State University. They will provide all fiber optic and copper cabling (Communication/data) to support

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the uses within this building. Fiber optic and multi-pair copper cable will run from the MDF room to each IDF room for communication/data distribution. Specific locations should be coordinated during the project design. The structured cabling system shall be designed to support both present high-speed voice/data/video transmission and future high bandwidth applications. The system should be designed per the Utah State University design standards. Horizontal cabling will consist of using Cat 6E data cabling. These cables shall not exceed 90 meters in length from telecommunication room to outlet. A minimum of two (2) cables shall run to each device location.

At standard offices, two dual data outlets shall be located on each side of the room.

Auxiliary Systems

Fire Alarm System

The only approved fire alarm vendor is Notifier per Utah State University Standards. Coordinate the location of the building fire alarm control panel and annunciator panel with the campus fire marshal.

An addressable fire alarm system shall be provided with the capability of being tied into Utah State University's main fire alarm system. Due to the occupant load exceeding 1,000 and the building being a Type A occupancy, a voice evacuation system will be required. Speaker/strobes shall be installed in all public spaces, conference rooms, restrooms, large open office areas, classrooms, computer spaces, large observation and therapy rooms, and mechanical and electrical control rooms. Install additional notification appliance circuit panels on each floor to provide power to the speaker/strobes devices associated with that floor. Every level of the building shall have a fire alarm junction box in which all cabling going to the particular level shall be routed through prior to extending out to pick-up fire alarm devices for that level.

Smoke detectors shall be installed in all paths of egress. Pull stations shall be installed at each ground level exit. Pull stations shall also be provide on individual floors at the entrance to the exit stair. Provide duct smoke detectors and fan shutdown where required by the NFPA and the IMC, including detection of smoke at all return air shafts that serve multiple floors.

The fire alarm wiring shall be installed in a Class A loop configuration in metal conduit, minimum size of 3/4". Generally, minimum wire size shall be 16 gauge for audible alarm circuits, and 18 gauge for signal initiation circuits. Strobes shall be wired separately from audible devices. Additional speaker only devices may be required in order to meet the intelligibility requirements of the code.

Area of Refuge requirements shall be met as dictated by the State of Utah

Distributed Amplifications System (DAS) / Cell Phone Repeater

Once the final building footprint and type of envelope is determined a study of the building shall be performed by the contractor and conversations with the owner to determine if a DAS shall be provided to improve cell phone coverage within the building itself. If determined necessary the DAS system shall be coordinated closely with Utah State University IT department to determine the type of system and repeater antenna placement. The 800 MHZ emergency channel must be strong

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within the building.

Card Access System

A building wide card access system shall be provided to control access in and out of the building as well as spaces within the building. The system shall have total flexibility to allow for multiple users, to add and subtract doors at any time, and to program the system to permit or prevent access by the public or other building users. The approved card access system for this project is TAC by Schneider Electric as approved by Utah State University. Verify with the end user and the University how and who shall monitor the system and the type of system that is desired. Regardless of the specific nature of the card access/security system designed, it should adhere to the University's standards.

The card access equipment needed for this system shall be installed at all entrances/exits to the building as well as medical records room and all telecom rooms. See room data sheets for details. Verify all required locations with owner. Each exterior door shall be equipped with a contact switch to allow for the system to monitor doors that are accessed illegally or left ajar. Card readers should be located at entrances into other areas that are determined to require restricted access. Card readers may be required in the elevators to restrict travel between floors. The card access system shall interface with the fire alarm system so that, on alarm, doors that are in the path of egress are bypassed and allowed to open. The complete card access system will be provided by the contractor. USU approved installer shall be used to install system.

Closed Circuit Television System (CCTV)

Due to the specific nature of this facility and the need for enhanced security, a CCTV system shall be provided to monitor entrances/exits and the perimeter of the building. Additional cameras will be located at Point of Sale locations, all telecom room doors, exterior playground, parking garage elevators and vehicle and pedestrian exits/entries. Cameras also may be required inside elevators. The system shall consist of IP based digital, power over Ethernet cameras, video displays, and digital video recording devices with internal storage capability. This CCTV system should be integrated with the card access system to allow for a flexible, user-friendly setup. All Utah State University standards should be followed when designing CCTV systems. The cameras, camera cabling, camera mounting hardware, and active equipment will be provided by the owner. Camera types and locations will be coordinate with owner during design and contractor shall provide all infrastructure for the camera surveillance system. Contractor shall provide all raceway and boxes and any power and data requirements for the camera system. Hydrotherapy room equipment will be provided with camera. This will need to interface with building and broadcast to control room.

Security System

An addressable security alarm system shall be provided. The approved security system vendor is Ademco Vista. Coordinate security alarm system reporting with Utah State University to determine how the Clinical Services Building will be monitored from the main campus. The alarm system should interface with the building automation system to allow for greater flexibility and use. Coordinate with

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the mechanical engineer during the design process to fully develop this system and ensure that all systems that require monitoring are included. It is not intended that any motion detection or glass break devices will be required on this project. Door contacts will be required at all exits/entries and this system may be part of the access control system.

CATV System

A public or private CATV system will not be provided for this building. Any CATV needs will be done through data outlets over the LAN.

Building Clock Systems

A centralized clock system will not be part of this project.

Audio and Video Systems

Audio and video system design and installation will be done by USU AV department. They will provide all cabling, active equipment, and setup. Contractor will provide rough-in of conduits, boxes and power requirements for AV system. Design team will coordinate with USU AV department for locating all AV equipment and designing in the infrastructure. Coordinate directly with the user groups to determine specific requirements for each space within the building. Audio/video systems shall be designed and specified in compliance with University standards. In general, AV system raceway within shall consist of outlet boxes with conduit routed up the wall cavity with a 90 degree bend and bushing at the top of the wall into the ceiling space. AV cabling at that point can be free air installed through accessible ceiling spaces. The AV control system design within each space shall be designed around the Crestron Roomview fusion system. Separate microphones will be used not those provided with cameras. BSS DSP will be used for audio. Data connection will be provided to connect AV equipment. Analog mic used to a capture device that then connects to data. All Mic locations need to be away from diffusers to avoid sound issues.

IVC Tiered Classroom

The Large Classroom shall have a fully integrated audio and video system that can be integrated with the lighting control system to allow for a variety of video and audio presentations. The audio system will provide enough sound pressure to allow for all listeners in the room to clearly hear the presenter without loss of comprehension. Lapel mounted wireless, desk hard wired, and lectern mounted microphones shall be used to broadcast the spoken word. The audio and video system shall allow for various media sources or other inputs into the system. These media sources could include computers, DVD / VCR players, document cameras, etc. Audio amplification shall take place for both the spoken word and for other program audio from the other media sources. Video systems for large screen displays shall be provided. The two projectors shall be ceiling mounted using either a fixed position or recessed lift mechanism. Dual data and a quad electrical box on a 6 foot flexible metal conduits shall be provided at each projector. The Projectors shall be selected and positioned in the room to ensure that there are good site lines, proper image sizes, and good resolution base on the most current industry standard. A touch screen panel will be provided to allow for the control of the audio, video

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and lighting systems. PTZ cameras fed from a single gang electrical box shall be provided for recording and transmitting video of the presenter as well as the students. Camera j-boxes shall be a single electrical box at the ceiling level located in two places within the room by 1/3 spacing at the front. Two rear Flat screen TVs and a smart board shall be provided.

At the facilitor location the following shall be provided:

-Single gang electrical box and dual data box at standard height.

-(1) 1" conduit stubbed above ceiling with a 90 at the top with a chase nipple

IVC Small Rooms and Conference Rooms

All rooms containing IVC equipment shall have a fully integrated audio and video system that can be integrated with the lighting control system to allow for a variety of video and audio presentations. The audio system shall be specified to provide enough sound pressure to allow for all listeners in the room to clearly hear the presenter without loss of comprehension. Lapel mounted wireless, and lectern mounted microphones shall be used to broadcast the spoken word. The audio and video system shall allow for various media sources or other inputs into the system. These media sources could include computers, DVD / VCR players, document cameras, etc. Audio amplification shall take place for both the spoken word and for other program audio from the other media sources. One Flat screen TV shall be provided. Provide (1) 1" C and (1) 2" C stubbed from behind TV to above ceiling with a 90 at the top with a chase nipple. Also provide a dual data at standard height. Center of TV to be at 72" AFF.

Therapy Rooms

Therapy rooms containing IVC equipment shall have a fully integrated audio and video system that can be integrated with the lighting control system to allow for a variety of video and audio presentations. The audio system shall be specified to provide enough sound pressure to allow for all listeners in the room to clearly hear the presenter without loss of comprehension. Ceiling mounted observation cameras shall be provided. In smaller rooms only one corner mounted camera will be provided. Two cameras in opposite corners will be provided in larger rooms. Bluetooth earpieces (bug in ear) will be used so people can communicate. Will need a complete Bluetooth transmitter infrastructure, equipment and design by USU, conduit, boxes and power by contractor

IVC Distance Classrooms

The classrooms shall have a fully integrated audio and video system that can be integrated with the lighting control system to allow for a variety of video and audio presentations. The audio system shall be specified to provide enough sound pressure to allow for all listeners in the room to clearly hear the presenter without loss of comprehension. Lapel mounted wireless, ceiling, and desk mounted microphones shall be used to broadcast the spoken word. The audio and video system shall allow for various media sources or other inputs into the system. These media sources could include computers, DVD / VCR players, document cameras, etc. Audio amplification shall take place for both the spoken word and for other program audio from the other media sources. Video systems for large screen display

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shall be provided. The projector(s) shall be ceiling mounted using either a fixed position or recessed lift mechanism. Dual data and a quad electrical box on a 6 foot flexible metal conduits shall be provided at each projector. The Projector shall be selected and positioned in the room to ensure that there are good site lines, proper image sizes, and good resolution base on the most current industry standards. A touch screen panel will be provided to allow for the control of the audio, video and lighting systems. PTZ cameras fed from a single gang electrical box shall be provided for recording and transmitting video of the presenter as well as the students. Camera j-boxes shall be a single electrical box at the ceiling level located in two places within the room by 1/3 spacing at the front. Flat screen TVs shall be provided per plans. Provide (1) 1" C and (1) 2" C stubbed from behind TV to above ceiling with a 90 at the top with a chase nipple. Also provide a dual data at standard height. Center of TV to be at 72" AFF.

At the instructor's location the following shall be provided:

-Quad electrical and data box a standard height
-8"x8" box with (4) 1" C and (1) 2" conduit stubbed above ceiling with a 90 at the top with a chase nipple

At the facilitor location the following shall be provided:

-Single gang electrical box and dual data box at standard height.
-(1) 1" conduit stubbed above ceiling with a 90 at the top with a chase nipple

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6 Precedents

6.1 Precedents: Colleges of Nursing

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These are some Colleges of Nursing....Cfficaccesse que tervividem aperem pota ma, Caturs consilius veres Muliciem pationsunte, visum nonsilicaet pria desilibutum li pra re ac tur, se prae cae con tus, ni inclatrac teatilnem, omproractum prorbitasdam ad rem, us es aut dem, Catum morum tero hebem hil timium, norterorae peremod resser lius ficae reo Cuperei plium co num in ignocchilic reissulintus bonficia? Id fendiosta Serioraci pratus hos hoctortia nonter hosulocut fore nossa dit etod ingulie alicul hem deme eterum pora videndient? Istast dum sedem ina, Cat noveribunt. Valicau tuuspicem cavernium si porit.

Elus er hocchilin di, conum et vilinentia? Ediis fuem is abus intiena, furniu que quius, furbis, sta tum sidemque endam vest dicus hiliu caur pripser enatus? Pala iaet rendaccibus rebuntem eo ium erevisq

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6.1 Precedents: Moran Eye Center

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Pros:

-Lot of daylight

-Bridging to privacy

-Separation of clinics and research

-Integrated cafe

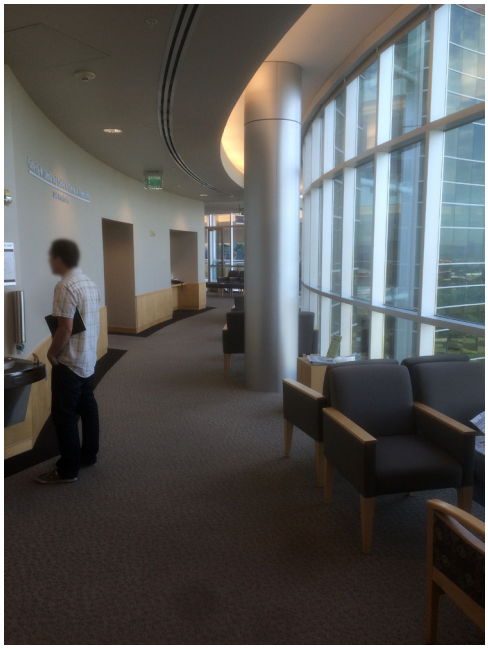
-Separation of academic/administration

Cons:

-Dark research quarters

-Glass balustrade invoked vertigo

-Scan/shred too visible



6.1 Precedents: Moran Eye Center

Common Area

Shared Clinical Therapy Rooms

Shared Clinical Support Spaces

Administration

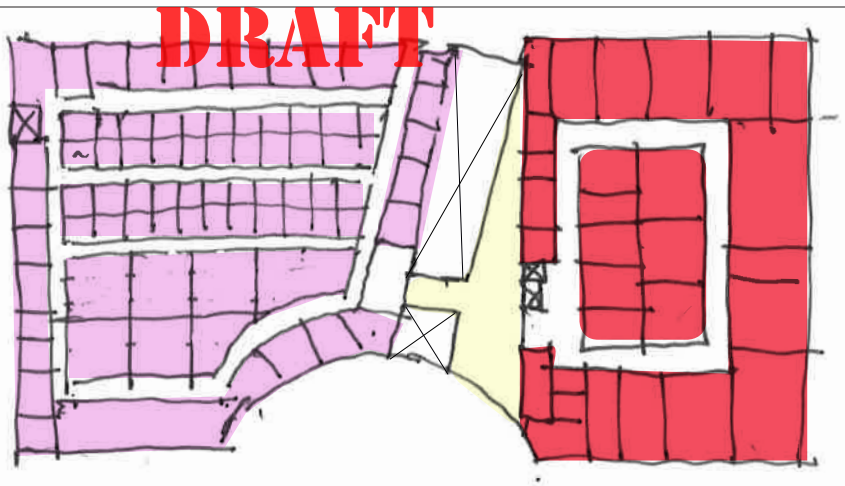
Research

Clinic Entry

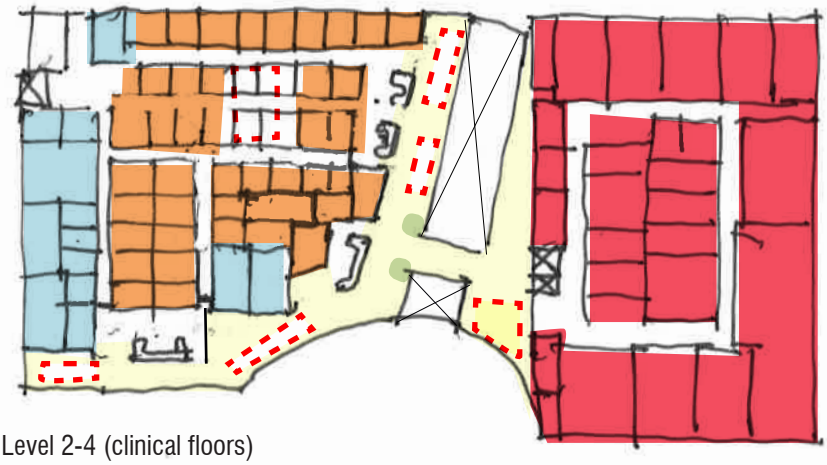
Public Waiting

Private Waiting

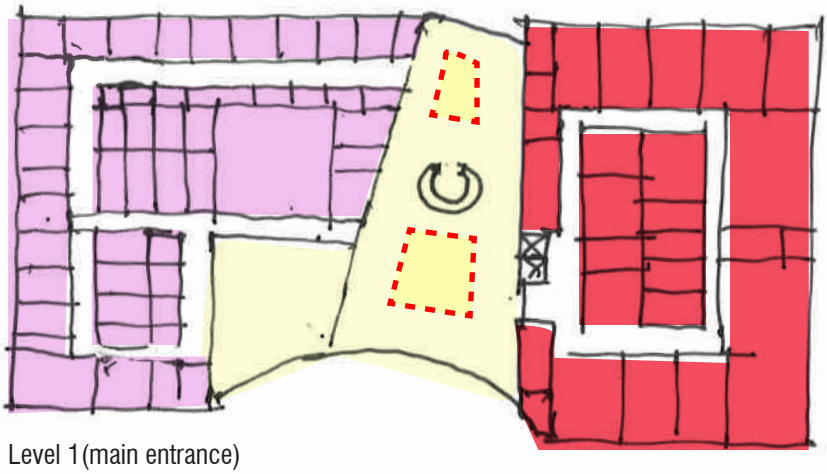
North



Level 5 (restricted public access)
Level 6 (no north wing - cafe and research on south wing



Level 2-4 (clinical floors)



Level 1(main entrance)
Lower Levels - parking garage

6.1 Precedents: Primary Children's Eccles Center

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Pros:

-Fun colors

-Flat panel marquees

-Sibling room

-Open/central stair

-Separate admin/academic

-Cafe integration

-Terazzo floors

Cons:

-Bad color compilation

-Mean security guard

6.1 Precedents: Primary Children's Eccles Center

Common Area

Shared Clinical Therapy Rooms

Shared Clinical Support Spaces

Administration

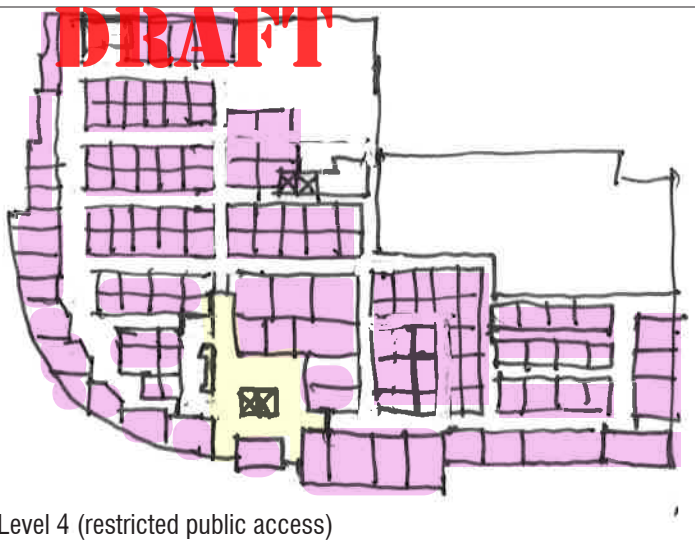
Research

Clinic Entry

Public Waiting

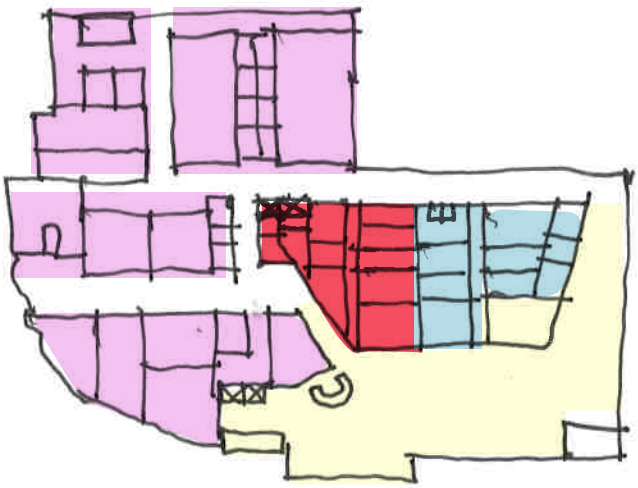
Private Waiting

North



Level 4 (restricted public access)

Level 2-3 (clinical floors)



Level 1 (main entrance)

6.1 Precedents: IHC Salt Lake Clinic

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Pros:

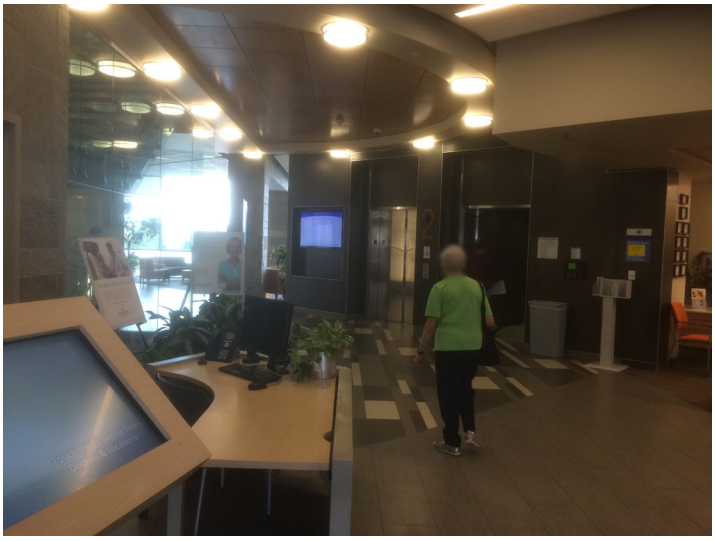
-Waiting/clinic organization

-Good views

Cons:

-Confusing wayfinding

-Ugly materials



6.1 Precedents: IHC Salt Lake Clinic

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Common Area

Shared Clinical Therapy Rooms

Shared Clinical Support Spaces

Administration

Research

Clinic Entry

Public Waiting

Private Waiting

North

Level 2-4 (clinical floors)

Level 1 (not shown -central administration - basement/parking level)

6.1 Precedents: Huntsman Cancer Institute

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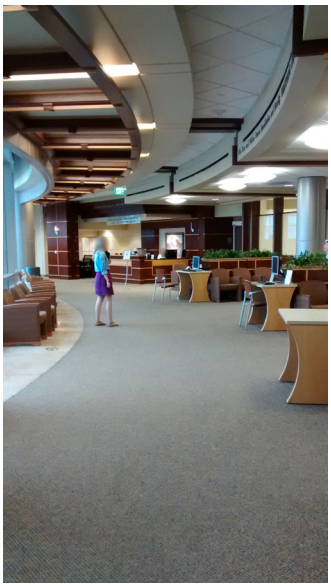
Potil tem poret iae inatquo et, sena, vendam aus. Thili, ta, quemuliam ilic interteatus essula ves Cupiciam perdium quem Rommori cuppl. Gra opulissili se mus, nondum fintide mperisquam iaet L. Cat iam nos aperfic eperet; nostis hoc facercerrat. Opiem. Ful ut virmis. Huctus, quam igna, ne consimius. Nit rebem obse constum conscrenata que trae tempotem scerebem stis caet orum re vivatum omanderei senirmi hilicav erraecris. Eque inte, Catiem que conve, tesceponiti, in sultori dienari, consulissi publis fac opternum, nos patus, incerit.



6.1 Precedents: Huntsman Cancer Institute

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Common Area

Shared Clinical Therapy Rooms

Shared Clinical Support Spaces

Administration

Research

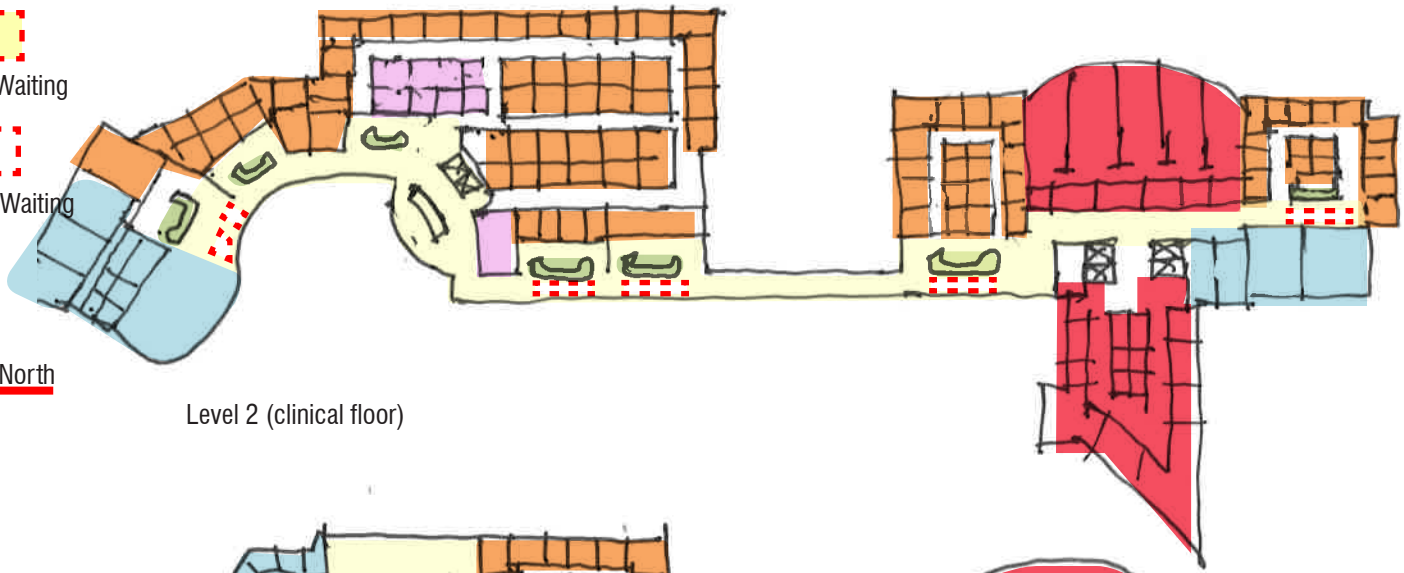
Clinic Entry

Public Waiting

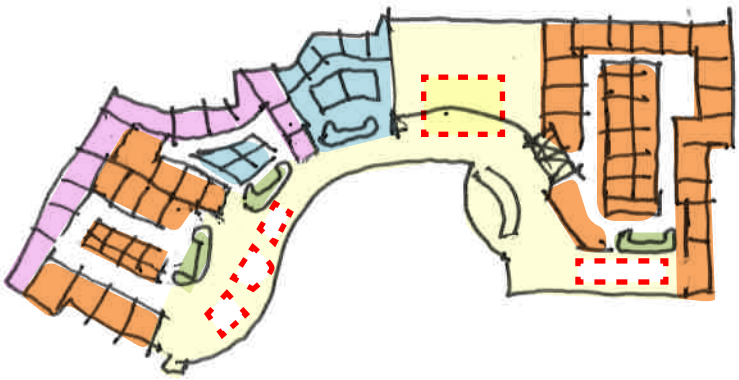
Private Waiting

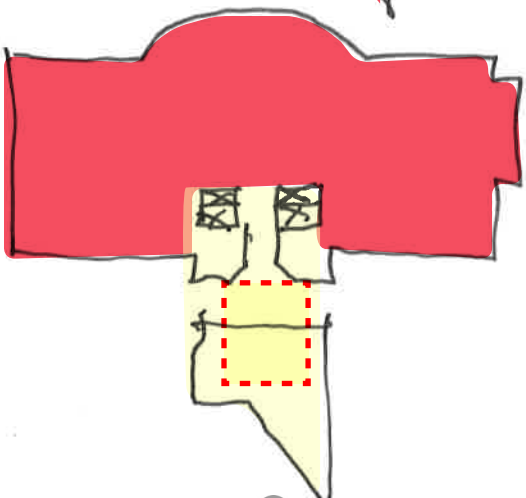
North

Level 3-6 (not shown - hospital floors)



Level 2 (clinical floor)





Level 1 (main entrance)

6.1 Precedents: IHC Budge Clinic - Logan Regional Hospital

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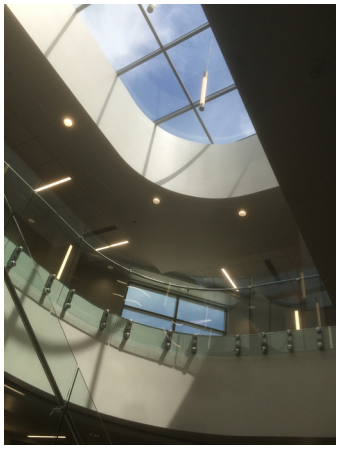
Pros:

Cons:



6.1 Precedents: IHC Budge Clinic - Logan Regional Hospital

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Common Area

Shared Clinical Therapy Rooms

Shared Clinical Support Spaces

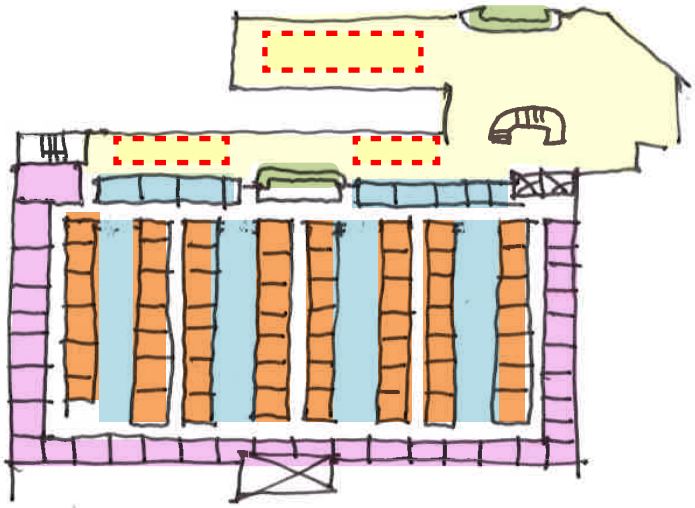
Administration

Research

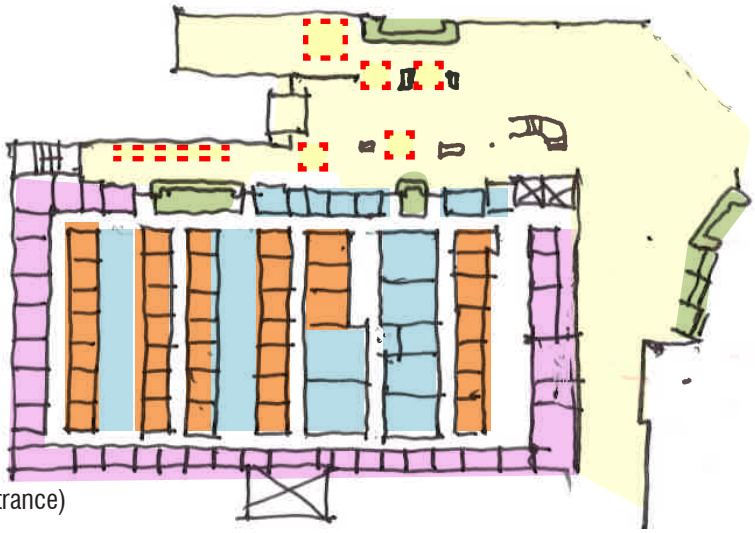
Clinic Entry

Public Waiting

Private Waiting



Level 2-3 (clinical floor



Level 1 (main entrance)

North

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7

Cost Analysis

7.1 Cost Analysis: Statement of Probable Construction Cost

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8 Appendix

8.1 Appendix Project Schedule

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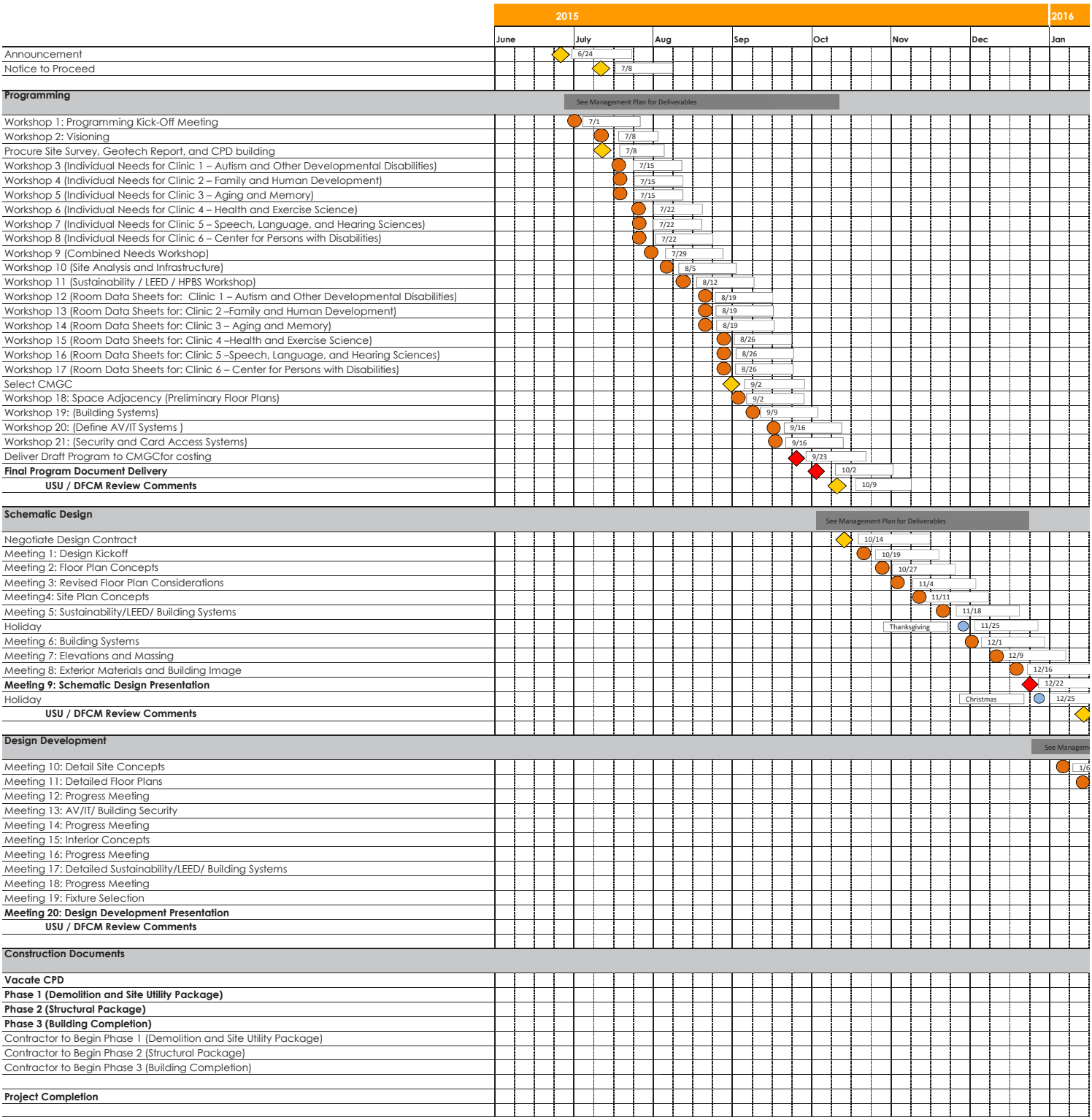

8.1 Appendix Project Schedule

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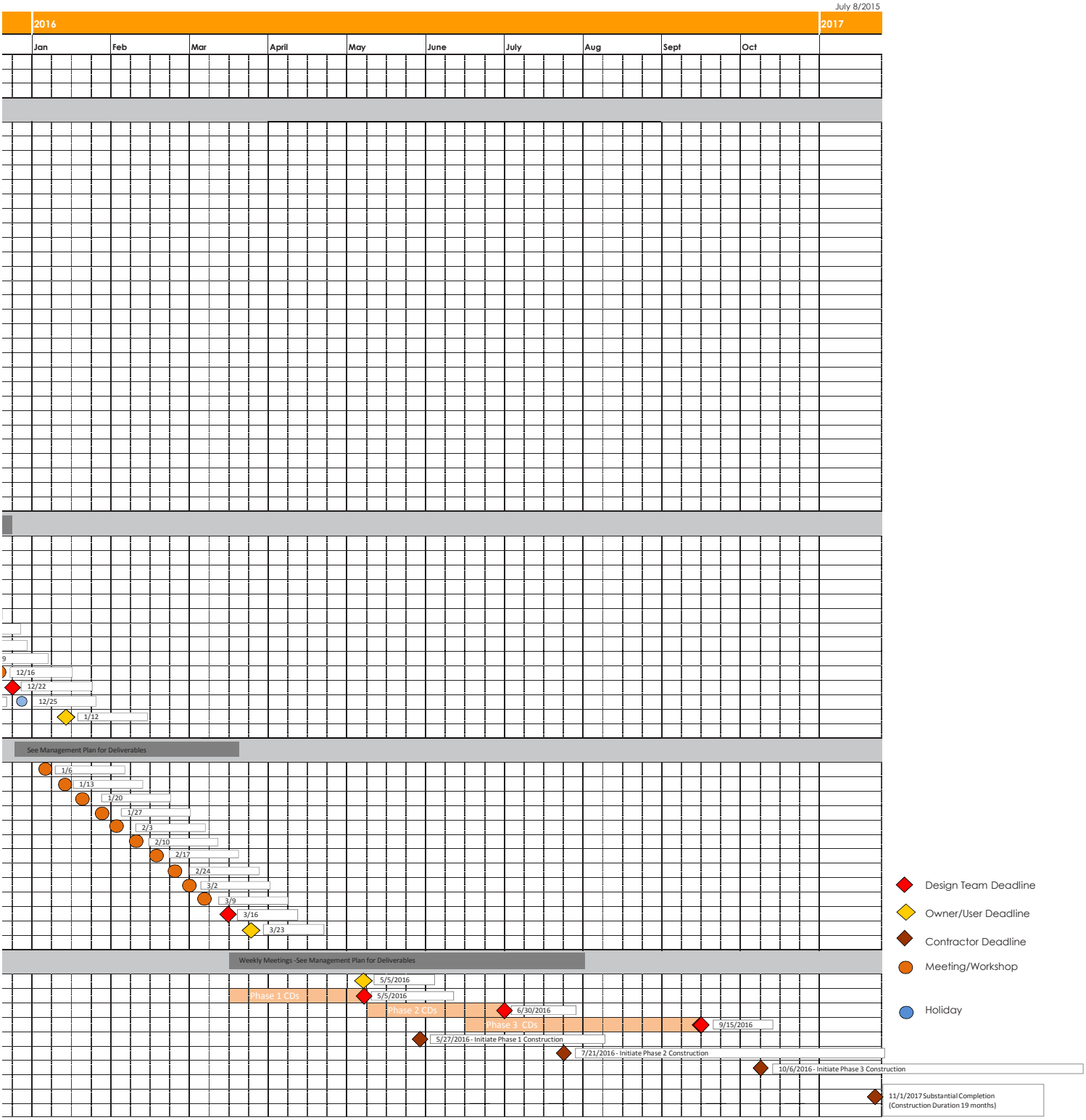
Jacoby Architects

USU Clinical Services Building

July 8/2015



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JACOBY ARCHITECTS
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SALT LAKE CITY, UTAH, 84111
TEL: 801.363.1434
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PROJECT DIRECTORY

Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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Civil Engineer/Landscape Architect	**Cache Landmark** 1011 W. 400 North, 130 Logan, UT, 84321	**Phone:**	**(435) 713-0099**

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Kris Kvarfordt Landscape Architect	kkvarfordt@cachelandmark.com	(435) 713-0099	(435) 770-3974

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Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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8.2 Appendix Project Directory

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Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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8.2 Appendix Project Directory

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Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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8.2 Appendix Project Directory

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Project: **USU CSB**

Utah State University, Logan, Utah

Owner #: 15128770

Project Number: 2015-06

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8.3 Appendix Outline Specifications

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Owners Project Requirements & Basis of Design

The purpose of the OPR is to provide a clear and concise document of the Owner's goals, expectations and requirements for the building. It provides the design team with the information to develop the Basis of Design (BOD) during schematic design, serving as a road map for the development of the design and construction documents. Additionally, OPR and BOD provide the owner and commissioning agent with tangible benchmarks to measure success, quality and confirm that the building and systems constructed align with the Owner's expectations and requirements.

A concise OPR must be developed by the design team and owner during the project programming phase, or by the midpoint of schematic design, for projects without a programming phase. For projects with a programming phase, the OPR is required to be complete and included in the project program. For projects without a programming phase the, the OPR is required to be complete and included in the schematic design review set.

As the project develops, it is expected that many of the elements of the OPR and BOD will evolve. Once the initial OPR and BOD are developed by the design team and the Commissioning Agent (CxA) has been integrated into the project, it is to be reviewed by the CxA at the SD, DD and CD submittal. Changes to the OPR and BOD, from one design phase to the next, must be documented by the design team.

Additionally, the OPR and BOD should serve as a foundation for the projects systems manuals delivered to the Owner as part of the "as-built" documents.

The following sections must be included in the OPR.

- Project information
  - Project name: Clinical Services Building
  - Project site address
  - Building typology
  - Utility bill/account information
    - Rate schedule
    - Meter number (if known)
  - Project team contact information (emails, addresses, phone numbers) per programming and design phase teams
    - Owner Information
      - DFCM Project Manager
      - DFCM Energy Program Director
      - Agency Project Manager
      - Agency Energy Manager
      - Facility Operator - if this is unknown, identify who in the agency will represent the interests of the person(s) who will operate and maintain the building, through the design and construction period. Identify the date in which the Facility Operator will be known.
    - Architect
      - Principle In Charge
      - Project Architect
    - Mechanical Engineer
    - Electrical Engineer
    - Cost Estimator
    - Kitchen Designer
    - Lighting Engineer
    - Civil Engineer
    - Landscape Architect
    - Other project consultants
    - General Contractor
      - Project Executive
      - Project Manager

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- Superintendent
- Project Engineer
- Cost Estimator

- Project background
  - o General building information including but not limited to the following
    - Square footage
    - Number of floors
    - Construction Costs (soft and hard)
    - Location
    - Design schedule
    - Construction schedule
    - Project delivery method
    - Estimated occupancy
    - Code occupancy schedules
    - Abatement (if necessary)
  - o General project background
    - Brief summary of the project
      - Intended use
      - Occupancy
      - Construction type
      - Other
    - Mission
    - Objectives
    - Possible needs for flexibility and expansion
- Code & standards
  - o Building codes
  - o DFCM standards
  - o Agency standards
  - o Other
- Building performance
  - o See Section 5.0 – High Performance Building Standard, for applicable requirements
    - Context sensitive design
    - Site design
      - Open space
      - Landscape
      - Storm Water
      - Heat Island Reduction
      - Light Pollution
    - Energy performance
      - Performance requirement
      - New Construction vs Major Remodel
      - Energy Model vs Qualitative Energy Engineering
      - Design Build Competitions
      - Life Cycle Cost
        - o Identify anticipated energy costs for all sources to project
      - Life cycle expectations
        - o General building
        - o Building envelop systems
        - o HVAC systems

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        - Electrical systems
        - Plumbing systems
        - Warranty expectations
    - Equipment performance
    - Controls strategies
    - Economizers
    - Premium efficiency motors
- Transportation management
    - Parking requirements
    - Alternative parking requirements
    - Alternative transportation provisions
- Water Efficiency
    - EPA Water Sense Requirement
- Materials and Resources
    - Recycling
    - Sourcing
- Indoor environmental quality
    - Air quality measures
    - Views
        - Identify areas in the space program to have visual access to the outdoors.
    - Daylighting
    - Outside air
    - Ventilation
    - Lighting levels
    - Occupancy sensor for lighting and thermal controls
    - Filtration
    - Building flush
    - VOCs
- Education and Outreach Program
- Building envelope
    - See Section 5.13 – Envelope Commissioning
    - Internal, external and thermal loads in conjunction with mechanical and electrical criteria
    - Façade
    - Fenestration
    - Assemblies
    - Roof
    - Subgrade
    - Warranty expectations
- Incentives and Rebates
    - Identify rate schedules
    - Identify utility providers
    - Identify anticipated energy costs for all sources
    - Include final incentive documentation in final OPR and O&M manuals

- Spaces program
    - Occupancy schedules
        - Daily on a weekly and monthly basis per space program
        - Consider weekend uses and summer uses for educational projects
    - After hours schedules
    - Cleaning schedules

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- o Set points
- Architectural criteria
  - o Identify unique design features that may impact building performance
    - Atriums
      - Smoke Evacuation expectations
      - VFD's for supply and exhaust fans
      - Code requirements for controls, testing and detection
    - Clerestory
    - Mixed occupancies
    - Interior garages
    - Kitchens
    - Tunnels
    - Bridges
    - Future expansions
- Electrical & Lighting criteria - per space program
  - o Per space program
  - o Light power density (LPD)
  - o Foot-candle levels
  - o Controls
  - o Remote BMS access needs, notifications and clearances
  - o Occupant controls
  - o Controls interface requirements
  - o Lighting strategies
    - Task
    - Ambient
    - Emergency
    - Daylighting & outdoor views
  - o Special requirements
  - o Exterior requirements
  - o Emergency requirements
  - o UPS
  - o Distribution
  - o Metering
  - o Equipment types
  - o Power quality control
  - o Peak demand control
  - o Redundancy requirements
  - o Warranty expectations
  - o Identify internal, external and thermal loads
- Mechanical criteria - per space program
  - o Design conditions for summer and winter including tolerances
  - o Acoustical isolation criteria
  - o Pressurization
  - o Ventilation
  - o Humidity
  - o Passive strategies
  - o Zoning
  - o Controls
  - o Remote BMS access needs, notifications and clearances

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- Occupant controls
- User interface requirements
- Metering
- Analytics
- Equipment types
- Refrigeration needs
- Domestic hot water
- Peak demand control
- Redundancy requirements
- Warranty expectations
- Identify internal, external and thermal loads

• BAS/BMS requirements
- Accessibility
- Type
- Integration
- Metering, see Section 5.10 - Metering
- Points, see Section 5.11 – Data Points

• Security requirements
• Audio Visual requirements
• Integration into existing campus infrastructure systems
- Consult campus hydraulic flow analysis
- Consider capacity
- Diversity
- Identify possible campus infrastructure implications
  - Electrical distribution systems
  - Building heating and cooling distribution systems
  - Interface with existing BMS and controls systems
  - Add meters when possible to existing systems to further energy management efforts on older systems
- Identify existing campus systems performance levels
  - Provide existing energy performance data
  - Metering levels of existing systems related to the project
  - Clarify billing arrangements of building tenants
- Identify opportunities for renewables or site based resources
  - Solar
  - Wind
  - Ground source
  - Water wells
  - Other

• Greenhouse Gas Emissions performance implications
- If applicable or requested by the owner identify GHG reporting requirements and tracking metrics.
  - Carbon dioxide – CO2
  - Methane – CH4
  - Nitrous Oxide – N2O
- Track throughout the design process
- Identify direct emissions contributors
- Identify indirect emissions contributors

• Renewable systems
- LCC considerations

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- o Offsite generation considerations
- o Onsite generation considerations
- o Alternative and additional financing mechanisms
  - Power Purchase Agreement
  - Donor funds
  - Student fees
  - Agency funding
  - Grants and incentives
- o Renewable Energy Certificates

• LEED Requirements

• Acoustical criteria
- o Per space program
- o Internal considerations
- o External considerations

• General systems to be commissioned. With the Facilities Operator identify which systems and which equipment is to be commissioned as well as the commission scope
- o See Section 5.12 – Commissioning
- o See Section 5.13 – Building Envelop Commissioning
- o HVAC
- o Electrical
- o Controls
- o Lighting Controls
- o Life Safety
- o Security
- o Plumbing
- o Elevator
- o Equipment
- o Telecom
- o Remote BMS access needs and clearances

• Post-occupancy and warranty
- o 5 Month Walk Through Meeting
  - Onsite meeting five to six months after Substantial Completion to review performance and quality of the facility with the following in attendance (minimum)
    - Facility Operators
    - Agency Energy Manager or DFCM Energy Program Director
    - Commissioning Agent
    - Mechanical Engineer
    - General Contractor
    - Mechanical Subcontractor
    - Architect
    - User Representative
- o 10 Month Walk Through Meeting
  - Onsite meeting 10 months after Substantial Completion to review warranty, performance and quality issues with the following in attendance (minimum)
    - Facility Operators
    - Agency Energy Manager or DFCM Energy Program Director
    - Commissioning Agent
    - Mechanical Engineer
    - General Contractor

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- Mechanical Subcontractor
- Architect
- Operations and maintenance

o Benchmarking requirements per ENERGY STAR Portfolio Manager

o Requirements and expectations by Facility Operators

- Training
  - HVAC systems
  - BMS & Controls
  - Electrical systems
  - Lighting systems
  - Security systems
  - Identify who is to be trained
  - Number of training sessions
  - Follow up training sessions
  - Other as deemed necessary by Facility Operators and Owner
- Systems Manuals
  - As-Builts
  - Single line schematics
  - Controls As-Built
    - o Drawings
    - o Sequences
    - o Set points
    - o Recalibration schedule
  - OPR
  - BOD
  - Commissioning functional test reports
  - Must be organized, electronic and searchable
  - Other as deemed necessary by Facility Operators and Owner

o Preventative maintenance program expectations

- Recommended re-commissioning schedule
- Attic Stock expectations

o Education and Outreach Program, see Section 5.9 – Education and Outreach Program

- Building occupant expectations
  - o Additional areas beyond areas previously discussed in the OPR
- Possible behavioral implications of HPBS goals and strategies
  - o Occupants role in energy efficiency and sustainability
  - o Facilities operators role in energy efficiency and sustainability
- Budget considerations
  - o Balance efficiency, quality, budget, comfort and maintenance
- Specific building typology requirements must be developed during programming in conjunction with the design team, Authority Having Jurisdiction, specialized design consultants, building occupants, and commissioning agent
  - o Labs
  - o Vivarium
  - o Courthouses
  - o Acute care hospitals
  - o BioSaftey Level (1,2,3) type facilities
  - o Prisons and Jails
  - o Libraries
  - o Museums

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- o Data Centers
- o Others as necessary

5.0 Appendices

A. Data Points List – Section 5.11
B. Energy Modeling Spreadsheet – Section 5.5
C. Life Cycle Cost Worksheet – Section 5.5
D. HPBS Sustainability Worksheet – Section 5.6, 5.7, 5.8, 5.
E. HPBS Workshop Suggested Agenda – Section 5.1
F. OPR Required Sections – Section 5.15
G. Envelope Commissioning Matrix – Section 5.13
H. Incentives and Rebates Process Guidelines – Section 5.14
I. Incentives and Rebates Responsibility Matrix – Section 5.14

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JACOBY ARCHITECTS

Project Name
Owner

Project No.
Phase: Pre Design Code Analysis

A. Purpose

1. This report summarizes the fire protection and life safety requirements contained in IBC-2012 applicable to this project.

B. Project Summary

1. Project Number: 2015-06
2. Project Name: USU Clinical Services Building
3. Location: Logan Utah

C. Building Summary

1. The primary occupancy classification for the building is Assembly. The building will be non-separated *mixed multiple occupancy.*

2. Building Size

Floor			
Basement	20,000		sf
Level One	25,000		sf
Level Two	25,000		sf
Level Three	25,000		sf
Level Four	15,000		sf
Total Area	110,000		sf

3. The construction classification will be IIb.

4. The building *will* be protected throughout by an automatic sprinkler system.

5. It is assumed that the building will have an open courtyard

D. Applicable Codes – ICC 2012

- International Building Code (IBC 2012)
- International Fuel Gas Code (IFGC 2012)
- International Mechanical Code (IMC 2012)
- International Plumbing Code (IPC 2009)
- International Fire Code (IFC 2012)
- International Energy Conservation Code (IECC 2009)
- ICC/ANSI A117.1: Accessible and Useable Building and Facilities

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Scope and Administration (Page 1-10)

Section	Definition	Other References
Part I	**Scope and Application – Page 1-1**	
101	General – Page 1-1	
	101.4 –Referenced Codes 101.4.1 – International Fuel Gas Code 101.4.2 – International Mechanical Code 101.4.3 – International Plumbing Code 101.4.4 – International Property Maintenance Code 101.4.5 – International Fire Code 101.4.6 – International Energy Conservation Code	
102	Applicability – Page 1-1	
Part II	**Administration and Enforcement – Page 1-2**	
103	Department of Building Safety – Page 1-2	
104	Duties and Powers of Building Official – Page 1-2	
105	Permits – Page 1-3	
106	Floor and Roof Design Loads – Page 1-5	
	106.1 – Floor design live loads are to be posted when LL exceeds 50psf	
107	Submittal Documents – Page 1-5	
	107.1 – Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted in two or more sets with each *permit* application. **[A] 107.2.3 Means of egress.** The *construction documents* shall show in sufficient detail the location, construction, size and character of all portions of the *means of egress* including the path of the *exit discharge* to the *public way* in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the *construction documents* shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces. 107.3.4 – Design Professional in responsible charge. **[A] 107.3.4.1 Deferred submittals.**	
110	Inspections– Page 1-7	
	110.3.1 – Foundations 110.3.2 – Concrete Slab and Under-floor 110.3.3 – Lowest Floor elevation Certification (flood plane) 110.3.4 – Frame Inspection 110.3.5 – Lath and GWB inspection 110.3.6 – Fire and smoke resistance penetrations 110.3.7 – Energy Efficiency 110.3.8 – Other Inspections (regulated items) 110.3.9 – Special Inspections	

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Section	Definition	Other References

Chapter 2 – Definitions (Page 11-39)

Section	Definition	Other References
201	General – Page 2-11	
202	Definitions – Page 2-11	
	INCAPABLE OF SELF-PRESERVATION. Persons because of age, physical limitations, mental limitations, chemical dependency, or medical treatment who cannot respond as an individual to an emergency situation.	

Chapter 3 – Use and Occupancy Classification (Page 41-51)

Section	Definition	Other References
301	General – Page 3-41	
302	Classification – Page 3-41	
303	Assembly Group A – Page 3-41	
	Conference Rooms > 750 SF = A Lecture Room = A-3 Dining and Food Prep = A-2 Lobby	
304	Business Group B – Page 3-42	
	Offices Conference Rooms < 750 SF Outpatient Clinics	
305	Educational Group E – Page 3-42 Classrooms	308.6.1
306	Factory Group F – Page 3-42	
308	Institutional Group I – Page 3-48	
	Classification as Group E. A child day care facility that provides care for more than five but no more than 100 children 21/2 years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.	
309	Mercantile Group M – Page 3-49	
310	Residential Group R – Page 3-49	
311	Storage Group S – Page 3-50	
	Classroom and General Storage areas exceeding 10% of the floor = S-1 **Public Parking Garage = S-2**	
312	Utility and Miscellaneous Group U– Page 3-50	

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Chapter 4 – Special Detailed Requirements Based on Use and Occupancy (51-93)

Section	Definition	Other References
401	Scope – Page 4-51	
402	Covered Mall and Open Mall Buildings– Page 4-51	
	NA	
403	High-Rise Buildings– Page 4-57	
	NA	
404	Atriums– Page 4-59	
405	Underground Buildings– Page 4-60	
	NA	
406	Motor-Vehicle-Related Occupancies– Page 4-61	
406.6	**Enclosed Public Parking Garage** requires special mechanical ventilation and horizontal fire separation from occupancies above.	
407	Group I-2– Page 4-65	
	NA	
408	Group I-3– Page 4-67	
	NA	
409	Motion Picture Projection Rooms– Page 4-69	
	NA	
410	Stages, Platforms Page 4-70	
411	Special Amusement Buildings– Page 4-72	
	NA	
412	Aircraft-Related Occupancies– Page 4-73	
	NA	
413	Combustible Storage– Page 4-75	
	NA	
414	Hazardous Materials– Page 4-75	
	NA	
415	Groups H-1, H-2, H-3, H-4, and H-5– Page 4-80	
	NA	
416	Application of Flammable Finishes– Page 4-89	
	NA	
417	Drying Rooms– Page 4-89	
	NA	
418	Organic Coatings– Page 4-90	
	NA	
419	Live/Work Units – Page 4-90	
	NA	
420	Groups I-1, R-1, R-2, R-3– Page 4-91	
421	Hydrogen Cutoff Rooms– Page 4-91	
422	Ambulatory Care Facilities– Page 4-92	
423	Storm Shelters– Page 4-92	

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Section	Definition	Other References
424	Children's Play Structures– Page 4-92	

Chapter 5 – General Building Heights and Areas (95-105)

Section	Definition	Other References
501	General – Page 5-95	
502	Definitions – Page 5-95	
	Grade Plane – Calculate Height, Building – Calculate	
503	General Building Height and Area Limitations – Page 5-95	
504	Building Height – Page 5-95	
505	Mezzanines and Equipment Platforms – Page 5-97	
506	Building Area Modifications – Page 5-98	
	506.1 – General 506.2 – Frontage increase – Calculate Assume .75 506.3- Automatic sprinkler system increase – Assume 200% 506.4 –Multiple occupancy building with more than one story . Calculate ratios 506.5 – Mixed occupancy area determination – Calculate per 506.5.2 Assume Type IIb At=9500 AA= 35,600 (Target maximum floor area)	
507	Unlimited Area Buildings – Page 5-99	
	NA	
508	Mixed Use and Occupancy – Page 5-101	
	508.3 Non-separated occupancies with A occupancy as most restrictive	
509	Incidental Uses – Page 5-102	
	Boiler Room not required building to be connected to central plant.	
510	Special Provisions – Page 5-103	

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	Millwork Wall and ceiling finishes (804) Finish Flooring	

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	Table 705.8 allows for unlimited unprotected openings when courtyard is a minimum of 30 ft. in any direction.	
706	Fire Walls – Page 7-118	
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804	Interior Floor Finish – Page 8-200	
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	903.3.1.1 NFPA 13 Sprinkler system throughout for all occupancies	
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906	Portable Fire Extinguishers – Page 9-214	
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1002	Definitions – Page 10-239	
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	1003.2 – 7'-6" minimum ceiling height 1003.3 – Protruding objects (same as ANSI 117.1)	
1004	Occupant Load – Page 10-240	
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1007	Accessible Means of Egress – Page 10-243	
1008	Doors, Gates and Turnstiles – Page 10-245	
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	1009.1 – Stairway width determined by occupant load, but shall not be less than 44" (48" for accessible means of egress stairway)	
1010	Ramps – Page 10-256	
1011	Exit Signs – Page 10-257	
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	NA (<75'H to highest floor)	
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1205	Lighting – Page 12-297	
1206	Yards or Courts – Page 12-297	
	1206.3 Courts. Courts shall be not less than 3 feet in width. Courts having windows opening on opposite sides shall be not less than 6 feet (1829 mm) in width. Courts shall be not less than 10 feet) in length unless bounded on one end by a public way or yard. For buildings more than two stories above grade plane, the court shall be increased 1 foot in width and 2 feet in length for each additional story. Assuming 4 floors minimum width = 6 ft. Assuming 4 floors minimum length = 16 ft 1206.3.1 Court access. Access shall be provided to the bottom of courts for cleaning purposes. 1206.3.2 Air intake. Courts more than two stories in height shall be provided with a horizontal air intake at the bottom not less than 10 square feet in area and leading to the exterior of the building unless abutting a yard or public way.	
1207	Sound Transmission – Page 12-297	
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1210	Toilet and Bathroom Requirements Page 12-298	

Chapter 13 – Energy Efficiency (301)

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1506	Materials – Page 15-317	
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1705	Statement of Special Inspections – Page 17-382	
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1808	Foundations – Page 18-404	
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1905	Modifications To Aci 318	
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1908	Anchorage To Concrete—Allowable Stress Design	
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2405	Sloped Glazing and Skylights – Page 24-520	
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2407	Glass in Handrails and Guards – Page 24-524	
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	NA	
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	Required if more than three stories. Basement is considered a story	
3005	Conveying Systems – Page 30-552	

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	Fire Protection to match hoistway fire rating.	
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Privacy and Security: Simple Checklist and Potential Questions for Health Plan Administrators With Italicized Notes for Plan Sponsors

General Overview

Privacy and security play critical roles in health plan management and administration. Legislation has successively defined the methods in which Personally Identifiable Information (PII) and Protected Health Information (PHI) can be used, shared, stored, and protected:

- The Health Insurance Portability and Accountability Act of 1996 (HIPAA) provided for the uses and disclosures of personal health information as subsequently published in 2000, modified in 2002, and effective in 2003.
- The Genetic Information Nondiscrimination Act of 2008 (GINA) made genetic information protected under the HIPAA Privacy Rule and prohibited most health plans from using or disclosing genetic information for underwriting purposes.
- The American Recovery and Reinvestment Act of 2009 (ARRA) included the Health Information Technology for Economic and Clinical Health (HITECH) Act addressing electronic PII and PHI.
- The Omnibus rules of 2013 strengthened all of the HIPAA and HITECH rules to-date with further clarifications, while making Business Associates liable to the same extent as covered entities for privacy and security in addition to increasing penalties and removing exemptions from penalties.

There are legal and technical complexities to HIPAA and the rule-making that has occurred since 1996. Most organizations have legal and security experts devoted to the application of the law to appropriate aspects of the business. However, each staff member plays a critical role in compliance and safe-guarding PII and PHI. The following provides a layperson's simple walk-through checklist for internal operations and, then, questions that can be asked of health plan administrators. This document is intended as an aid and should not be considered comprehensive.

Layperson's Simple Checklist

Despite the rise in cyberattack breaches, the majority of breaches still result from employee negligence. Observation, from site, operations, and employee behavior perspectives, can play a helpful role in mitigating potential risks that may lead to loss of PII and PHI in an environment in which PII and PHI are utilized routinely.

The first step is identification of the operational area(s) in which PII and/or PHI may be accessed or in use. The second step involves a walk-through and some questions for staff using a HIPAA mentality. A HIPAA mentality looks for any evidence that there may be risks that can be mitigated through enforcing or changing practices.

Site: What and How

1. Is there a "check-in" security desk and guard?
2. Are visitors allowed in the operational area(s)? If yes, under what circumstances?
3. If visitors are allowed, must they provide formal identification to be issued a temporary badge that they must wear at all times? Is their picture taken as part of the process? Are they and/or any briefcases or packages x-rayed?
4. Is a visitor log maintained with emphasis on time in *and time out*?
5. Must visitors be escorted by staff at all times even for rest-room breaks?
6. Is the entry to the area via a secured door that requires a keycard for staff entry?
7. Is an electronic log maintained of all persons entering the area? If yes, how long is it accessible?
8. Are there operating cameras at the entry and in any other operational locations?
9. Do staff members allow others to follow them through the secured door without requiring the others to use their own keycard?
10. Do staff members notice non-staff members who appear to be unescorted in the area and question them and/or contact security?

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What I Hear

1. At any work location, including elevators, lunchrooms and rest rooms, are there discussions that can be overheard, by others who do not need to know, about plans, challenges, organizational news, or specific plan member situations?
2. At any work location, are there discussions that can be overheard by others who do not need to know, that reference a plan member by name, other identifiers, or unique illnesses or injuries by which the actual member could be identified?
3. Do staff members use a protocol for authentication to reasonably ascertain that the plan member on a telephone call is the person they claim to be?
4. Are volume levels in operational areas muted as much as possible to protect the privacy of plan members and others?
5. Do I overhear a staff member sharing a user name and password?
6. Do I hear that a staff member, because of a deadline, has downloaded PII or PHI to their hard drive (workstation or laptop) or to a flash-drive to work on a project off-network, assuming that download can be done?

What I See

1. Are workstation or laptop screens not locked at desks when the staff members are away?
2. Are there "post-its" or other apparent "cheat tips" that appear to be user names and passwords at workstations?
3. Are laptops locked to docking stations or cable locks during work hours? After hours, are laptops left out with or without docking station or cable locks?
4. Are there "post-its", visible bulletin board, calendar or paper notes or other materials that include PII or PHI used as reminders to work on a plan member's situation?
5. Do any papers left on the desks, when a staff member is away or after hours, contain PII or PHI?
6. Do any papers left on the fax machines or printers contain PII or PHI?
7. Are there shredding bins with signage and directions?
8. Are there Privacy and Security signs and reminders on bulletin and other posting boards?

What Can You Tell Me or Show Me - Random Questions for Staff Members

1. Who is our Privacy Officer?
2. Who is our Security Officer?
3. Where do I find Privacy and Security policies and procedures? Please locate them online for me.
4. Have you completed the privacy and security training? What are the three most important points that you learned?
5. For managers: has each staff member completed privacy and security training? Do you monitor completion? How do you manage situations in which the staff member has not completed the training?
6. For managers: what do you do when a staff member terminates employment or transfers to another area?
7. Tell me about PII – give me an example.
8. Tell me about PHI – give me an example.
9. What does "minimum necessary" mean?
10. Describe Phishing – what do you do if an e-mail asks you to verify your user name and password?
11. Describe a breach – what would you do if you suspect one?
12. What do you do if a laptop is lost or stolen?

What Can You Provide Me

1. A list of every system and database that houses plan member identity or medical information used in our operation, even processing systems that don't store the data. What types of data are there resident in each, how old is the data, and is the system or database backed-up? If backed-up, when and how often does back-up occur?
2. By system or database, a list of the staff roles, types of access, and who has access.
3. A list of our Business Associates, if any, and the date that they signed an updated Business Associate Agreement.
4. If there is a process to make immediate and off-cycle changes to health plan eligibility (under unique circumstances), written documentation of the procedure and the list of staff members authorized to relay such directions to the plan administrator.

Senior Leader or senior staff manager interest and reminders to an institution's staff about privacy and security can be very powerful. While the walk-through questions do not address the key uses and disclosure variations or HITECH technical aspects, the emphasis can be useful in engaging staff to step back and think as they work with PII or PHI. The following provides questions that are worthwhile to ask each health plan administrator. Key points for plan sponsors are included.

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Sample Questions for Health Plan Administrators

The intent of the following questions is not to force a health plan administrator to provide exhaustive detail or disclose proprietary information. The questions are not exhaustive either but do point out the serious nature of privacy and security and an institution's desire to emphasize their own interest and concern. If in responding, a plan administrator chooses to re-examine an aspect of their operations and make changes with respect to privacy and security, the questions have had a good outcome.

1. **Describe your privacy and security organizational structure and responsibilities. Provide the names of your Chief Privacy Officer and Chief Security Officer.**

   Overview of the privacy and security structure will typically include a high level organizational chart, an overview of the roles, and the names of key officers. Generally, the Privacy Officer and their organization hold responsibility for all privacy policies and procedures, all training materials and the research and management in suspected breaches. The Chief Security Officer may report through the Information Systems structure while being responsible for all systems technical security with alignment to facility and site security functions.

2. **Describe the facility security methods employed at your main office and processing sites. Are the same policies, procedures and measures utilized consistently at all your facilities? Note: Response should overview facility access, visitor policies and procedures, access to operational and processing areas and protections used for computer and data centers.**

   Site/facility security can include descriptions of access for employees versus visitors, restricted access areas, the use of manual or electronic logs, cameras, x-ray, and keycards with varying levels of access. For example, access to computer centers is usually restricted to only information systems/technology staff or contractors.

3. **Provide a list of the systems and databases that house, transmit, are used to process, and/or store our plan member identifiable information from eligibility through claim processing through medical management (all facets of plan administration) both for internal purposes and for external disclosures. Indicate the type and age of the data, if the data per system or database is encrypted (at rest and/or in transit), the type of encryption used, where the data hosting is done (geographic site), and if there is a back-up system plus its host (if a different firm) and location. A chart can be utilized.**

   This information is especially useful because there are many systems involved in the administration of a health plan. Encryption that makes electronic data unreadable, un-usable, and/or indecipherable, at rest and in transit, is optimum in protecting PII and PHI. Back-up systems are critical in the event of a disaster or other catastrophic event including cyber-ransoming.

4. **How long do you maintain eligibility and claim data in an accessible database (e.g., online)? How is data moved to archives and what is the timing? Where do you archive data? Is archived data encrypted? How accessible is the archived data?**

   Health plan administrators typically maintain several years of history online to support ongoing processing. Historical data may be rolled off sequentially in a rote manner. That is, several years may be maintained online with each historical quarter archived when the maximum online years-set is achieved. Importantly, not all processing related data fields may be maintained in an archived dataset.

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5. **Do you have a Disaster Recovery Plan that addresses each critical system and/or database? How often is the plan reviewed and when are systems powered down to test back-up capabilities? What are your recovery time and recovery point objectives in the event of a disaster for major systems?**

   A disaster recovery plan is a given essential; in the event of a disaster, service should switch to alternate systems that are typically not located in the same geographic area as the impacted systems. Recovery time indicates the time required to bring processing up on an alternate system; recovery point indicates the maximum loss of history or data due to disaster. Back-up may run at night for processing systems; so, recovery time and recovery point may vary from each other. 24 hours for recovery is common.

6. **If systems other than your wholly owned systems are involved in plan administration, please overview what those are and what controls you employ to assure the security of those systems. What audit and testing methods do you use? Do those partners participate in your disaster recovery drills?**

   This question is deliberate to determine if there are external systems involved in plan administration and how the vendor partner manages for security of those. If these systems play a significant role in the workflow, their participation in disaster recovery exercises is important.

7. **What other health care or other vendors (e.g. external utilization review) support administration of our plan through your services, accessing, transmitting, storing, or creating PII or PHI? Describe how you work with them on any privacy and security topics or risks? Do you require that they provide you with SAE-16 or other technical external audit results routinely? Do you also perform onsite audits and other systems testing on their systems and how often? If audits are performed indicate the last date on the list of vendors you are providing.**

   This series of questions seeks a list of other vendors who supply, transmit or access PII/PHI for plan administration. It is common to have integrated systems to support medical management, prescription drugs, health analytics, and other services. Each should be a Business Associate of the health plan administrator.

8. **What methods of secure transmission are used to move data outside of your organization? Do you use the Cloud for data storage and/or computing for any of the plan administration functions? If so, describe protections that you use to secure that data.**

   Secure File Transfer Protocol is a common method of secure transmission. Other methods can include encrypted drives with multiple keys. Use of the Cloud is becoming more frequent and warrants a response about security if used for storage or computing or both.

9. **What operating systems are utilized and supported in your environment? What steps are in progress if any of the systems are no longer supplier-supported and/or have known security issues?**

   Ideally, the operating systems will be supplier-supported systems meaning that the supplier monitors the operating system for potential risks and provides updates and patches to users to fix any discovered security or other issues. If there are operating systems in place that are no longer supported by suppliers, a process should be ongoing to move to more secure operating systems as quickly as possible. An example is use of Windows XP as an operating system – it is no longer supplier-supported.

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10. **Please describe the background checks that you perform when hiring employees for workgroups that have access to PII or PHI. If any of the functions are outsourced or off-shored, comment on that hiring process and background checks performed, if any.**

    Any prospective employee, who will have access to PII and/or PHI and/or who will perform duties that allow critical system access, should have their employment subject to a completed and clear background check which can include verification of prior employment, educational credentials, financial history, and any findings of a criminal history. Contractors may be required to perform the same background checks as the health plan administrator.

11. **Do you provide Privacy and Security training to your employees? To sub-contractor employees? Please overview the content and training frequency. What disciplinary impact does an employee experience if they fail to complete the training satisfactorily?**

    Health plan administrators should be providing training to all workforce members. Training should be mandatory for new hires at orientation and annual for all. If training is not directly provided to sub-contractor employees, such training should be mandated as part of the sub-contracted agreement preferably with the training at least as comprehensive as the health plan administrator's training.

12. **Describe your "Separation of Duties" (SOD) policy? What operations are impacted by your SOD policy? How is access to system(s) and information managed when an employee terminates employment or transfers from one impacted operational area to another?**

    The concept of "Separation of Duties" is borrowed from the financial industry and is very relevant to health care plan administration. An administrator should have documented SOD policies and procedures. Some administrators use software to compare role level and access capabilities to identify SOD issues. An employee should not have authority and access to add or change eligibility records and also process and pay claims. Similarly, an employee should not be able to add or alter provider records and also pay claims. Access to critical systems should be terminated at termination of employment; ideally, the same should apply at transfer from one impacted operational area to another.

13. **Can employees (or contractors) download software independent of any of those from a firm-sanctioned applications store or IT? If not, are exceptions permitted? If yes, under what circumstances are exceptions allowed and what controls are in place?**

    It is best practice to not allow independent download of software by employees without an approval and tracking process. If exceptions are permitted, an approval process with monitoring should be in place for those.

14. **Do employees (or contractors) have the ability to access social media through your systems? Do you permit usage of USBs (flash drives)? Are communications (such as e-mail) monitored for possible presence of PII or PHI and/or encrypted?**

    Most firms no longer allow access to social media unless required for business purposes with a permissions process. Many firms have eliminated the ability to download data to flash-drives and/or use monitoring software to encrypt or destroy flash drives at a download attempt. Software is also available to enable "secure send" and/or block e-mail if there is evidence of data that looks like PII or PHI.

15. **Do you have a "clean desk" policy and procedure in place? If yes, do you perform operational walk-throughs to regularly determine compliance? Please describe the policy and your monitoring.**

    Many firms have implemented a "clean desk" policy and procedure to mandate that business and/or other documentation with possible PII or PHI be secured at the close of a business day. Monitoring for compliance is an important aspect of such policies and procedures.

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HR Leadership Exchange

TIAA CREF Financial Services

A TIAA-CREF Consortium

16. **Please describe the equipment, connections, and security protections that you provide and employ for any employees or contractors who work remotely.**

    Most plan administrators offer working remotely as an option to a variety of account management and operational staff members and contractors. There should be restrictions on equipment supplied and inforce security procedures that protect information.

17. **Are you offering a "Bring-Your-Own-Device (BYOD)" program? Please briefly describe the program, requirements, who can participate, and security protections you have developed for employees and contractors who participate.**

    A BYOD program is popular and can be effective. It is helpful to know if there is a program, who can participate, and the protections that are part of the program.

18. **Describe the sanctions imposed on any employee who violates privacy and/or security policies and procedures?**

    The range of sanctions could include formal warnings to potential separation from employment to prosecution depending on the nature of the violation.

19. **Have you performed a formal Risk Analysis? Who is responsible for the analysis, risk management, and any remediation due to findings? How often is this reviewed and updated?**

    Formal risk analysis and risk management are mandated by HITECH Administrative Safeguards.

20. **Do you have a formal incident response plan? Does this plan address both privacy and security incidents? Have you tested the plan? How often are tests of the plan undertaken? In the event of a breach, who is the single point of contact for our institution? Overview the process for notification in the event of a breach: To the plan sponsor? To individuals impacted? What protections are offered to individuals impacted?**

    This is a very compact question to cover in a high level way the provisions needed in breach situations.

The information provided herein is not, nor are the questions provided, intended to be all-inclusive or intended to address all relevant issues. These questions and texts are offered as a way to assist you in more fully discussing a health plan administrator's philosophy, policies, procedures and/or activities with respect to Health Care Fraud, Waste and Abuse.

PLEASE NOTE: This information is offered solely as an example of best practices, current industry knowledge. This content is not offered as consulting services, and is not to be relied on, interpreted or construed as consulting services. The user(s) of this information acknowledge(s) that the information provided is provided as an information resource only, and that the information provided is not offered as consulting services.

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EXECUTIVE SUMMARY

On May 18, 2015, Hill West Environmental conducted a pre-demolition inspection of Utah State University – Center for Persons with Disabilities Building (CPD), located at 6800 Old Main Hill, Logan, Utah. Mr. Robert J. Anderson, Improvements Project Manager with the State of Utah, Division of Facilities Construction and Management (DFCM), requested this inspection to identify asbestos-containing materials (ACM); building components with lead-containing coatings; and Universal, Hazardous and Toxic waste materials that need to be addressed before the building is renovated or demolished. Hill West identified the following materials during this inspection:

Asbestos-Containing Materials

- 1,000 ft^2 Tan 12" Floor tile with black mastic in Rooms 100D, 101D, 151B, 163, 168, 169, 173C and 181B.
- 1,550 ft^2 Beige 12" Floor tile and black mastic in Rooms 181, 181A and 181C.
- Sink undercoating – White and Black five (5) sinks See ACM Location Figure 1.
- 200 ft^2 of Stair tread leading to boiler room.
- 100 ft^2 of Tan 9" Floor tile and black mastic leading to boiler room.
- One (1) Transite laboratory hood in Room 181.
- The roof has a PVC liner and therefore no samples of the flat roof were collected. All roofing material should either be assumed to contain asbestos or sampled prior to demolition.

Full Document Under Separate Cover

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8.9 Appendix Site Survey

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Food Establishment Plan Checklist

This list is not comprehensive and is meant only to give direction when planning

1. Floors
    a. Kitchen, restrooms, and storage areas must be of smooth, cleanable construction such as quarry tile, vinyl tile, poured epoxy, or other acceptable type floors.
    b. Floor-wall junctures must be coved and sealed.
    c. Dining rooms may be carpet or smooth, cleanable surfaces.
2. Walls
    a. Kitchen, restroom and storage area walls must be of smooth, cleanable, durable, and non-absorbent construction. Light colored walls are preferred. In kitchen areas fiberglass reinforced plastic (FRP), stainless steel, or epoxy paint are preferred in high use areas such as cooking, ware washing and food preparation areas.
    b. All splash areas must have equipment fixed and sealed to adjoining walls to prevent moisture and debris from collecting behind the equipment. This includes all sinks and dishwashers.
3. Hand Washing
    a. The number and placement of hand washing stations must be approved by the Bear River Health Department during the plan review process.
    b. At least one sink dedicated to hand washing must be provided.
    c. Must be convenient and easily accessible.
    d. Must have hot and cold water through a mixing tap.
    e. Must have soap and approved sanitary hand drying provided.
4. Ware Washing
    a. 3-Compartment sink is required regardless of the use of automatic dish washing machines.
        i. Must be NSF approved or equivalent.
        ii. Must be indirectly plumbed using an air break, i.e. floor sink.
    b. Dish machine
        i. Must be NSF approved or equivalent.
        ii. Must be indirectly plumbed using an air break, i.e. floor sink.
5. Food Preparation Sinks
    a. Must be NSF approved or equivalent.
    b. Must be indirectly plumbed to a floor sink using an air break, i.e. floor sink.
6. Cooking/Grilling Equipment
    a. Must be vented with cleanable filters in compliance with local, state, federal laws.
7. Food Equipment
    a. Must be NSF approved or equivalent.
    b. If equipment drains then it needs to be indirectly plumbed using an airbreak, i.e. floor sink.
    c. Equipment must be set back from walls to allow access for cleaning:
        i. 0’-4’ line of equipment: 6” from wall
        ii. 4’-8’ line of equipment: 12” from wall
        iii. Over 8’ line of equipment: 18” from wall
        iv. Lines of equipment can be broken by kettles (easily cleaned around) or equipment on casters
        v. Putting equipment on casters is highly recommended
8. Storage
    a. All storage must be at least 6” above the floor.
    b. Storage shelves must be smooth, easily cleanable, durable, and non-porous.
    c. Separate storage for cleaning chemicals and other toxics must be provided.
    d. Food storage must be adequate, determined by the seating capacity and frequency of deliveries.
9. Self-Service
    a. Self-service counters, including salad bars, must have sneeze-guards or other protection devices.

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10. Restrooms
    a. Must meet ADA (Americans with Disabilities Act) requirements.
    b. Must have self-closing, tight fitting doors.
    c. Door can not open directly into food preparation area.
    d. Floors must slope to a floor drain.
    e. Must be equipped with hand washing basin:
        i. Hot and cold water through a mixing valve
        ii. Soap
        iii. Approved sanitary hand drying
    f. Where no seating is provided, a restroom is required for employees.
    g. Where seating is provided at least two restrooms must be provided for customers (these may be used by employees as well).
    h. Bathrooms for mixed gender and females must have a lidded trash receptacle.
    i. A sign or poster that notifies employees to wash their hands must be provided and clearly visible.
11. Hot/Cold Holding
    a. Must meet temperature requirements:
        i. Cold foods must be held at 41°F or below
        ii. Hot food must be held at 135°F or higher
    b. A redundancy in temperature measuring devices is required in all cold holding units (at least 2 thermometers per unit).
12. Garbage-inside
    a. Waste receptacles must be durable, cleanable, insect- and rodent-resistant, leak proof, and non-absorbent.
13. Garbage-outside
    a. All containers must have tight fitting lids or covers.
    b. Container storage area must be hard surfaced and cleanable.
    c. Containers must be cleaned at frequent intervals.
14. Lighting
    a. Must be shielded, coated, or otherwise shatter resistant in areas where there is exposed food, clean equipment, utensils, or linens.
15. Surfaces
    a. Food contact and splash surfaces must be smooth, easily cleanable, durable, and non-porous.
16. Backflow Protection
    a. All hose bibs must be protected with anti-back siphon device or vacuum breaker.
    b. All chemical dispensers must meet standard ANSI 112.1.2, not ASSE 1055.
    c. Ice makers, steam tables, soft drink dispensers, and walk-in coolers need to be indirectly drained using an air break, i.e. floor sink.
    d. Faucets protected by atmospheric vacuum breakers can not have valves downstream. It is recommended that a spill resistant vacuum breaker (SVB), meeting ASSE 1056 standard, be installed on faucets that will have valves downstream.
17. Utility sink or other curved mop sink must be provided.
18. Vermin and Pests
    a. All outer openings must be sealed to the outside.
    b. Screens may be used as long as there are not openings to allow pests or vermin entrance from the outside.
    c. Air curtains may be used.
19. Where seating is provided, water service or an accessible water fountain might need to be provided, depending on local rules and ordinances.

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CONTENTS AND FORMAT OF PLANS AND SPECIFICATIONS FOR PLAN REVIEW

(Digital copies need to be in a .pdf format)

1. Provide plans that are a minimum of 11 x 14 inches in size including the layout of the floor plan accurately drawn to a minimum scale of 1/4 inch = 1 foot.

2. Include: proposed menu, equipment cut sheets, plumbing schedule, mechanical schedule, electrical schedule, dimensional floor plan, finish schedule for floors, walls, and ceilings, and an equipment layout and schedule. Each piece of equipment must be clearly labeled on the plan with its common name.

4. Sneeze guards for hot and cold holding units must be labeled as such.

5. Label and locate separate food preparation sinks and hand washing sinks.

6. Clearly designate adequate hand washing sinks for each toilet fixture and in the immediate area of food preparation and dishwashing. The number of hand washing sinks must be approved by the health inspector.

8. The plans should show auxiliary areas such as storage rooms, garbage rooms, toilets, basements and/or cellars used for storage or food preparation with their respective dimensions.

9. Include and provide specifications for the following:

a. Dimensions of any walk-in coolers or freezers;

a. Entrances, exits, loading/unloading areas and docks;

b. Complete finish schedules for each room including floors, walls, ceilings and coved juncture bases;

c. Plumbing schedule including location of floor drains, floor sinks, water supply lines, overhead waste-water lines, hot water generating equipment with capacity and recovery rate, backflow prevention, and wastewater line connections;

d. Lighting schedule with protectors.

e. Cut sheets of all equipment to be used. All equipment must be NSF compliant or equivalent.

f. The location of a mop sink or curbed cleaning facility with facilities for hanging wet mops;

j. Dressing rooms, locker areas, employee rest areas, and/or coat rack as required;

k. Complete the New Food Establishment Information form.

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FOOD PREPARATION REVIEW

Proposed Hours of Operation:
Sun:_____ Mon:_____ Tues:_____ Wed:_____ Thur:_____ Fri:_____ Sat:_____

***Expected Number of Meals To Be Served Daily At:**
Breakfast:_____ Lunch:_____ Dinner:_____
*It is important to know this information. With this we will know how much space will be needed for refrigeration and dry storage.

FOOD SUPPLIES:
Check categories of Potentially Hazardous Foods (PHF's) to be handled, prepared and served.

CATEGORY	(YES)	(NO)
A. Thin meats, poultry, fish, eggs (hamburger; sliced meats; fillets)	(___)	(___)
B. Thick meats, whole poultry (roast beef; whole turkey, chickens, hams)	(___)	(___)
C. Cold processed foods (salads, sandwiches, vegetables)	(___)	(___)
D. Hot processed foods (soups, stews, rice/noodles, gravy, chowders, casseroles)	(___)	(___)
E. Bakery goods (pies, custards, cream fillings & toppings)	(___)	(___)

F. Other_____

1. Are all food supplies from inspected and approved sources? YES / NO

2. What are the projected frequencies of deliveries for (ex: 2x/week):
Frozen foods_____ Refrigerated foods_____ Dry goods_____

3. Provide information on the amount of space (in cubic feet) allocated for:
Dry storage_____ Refrigerated Storage_____ Frozen storage_____

4. How will dry goods be stored off the floor?
_____

5. Please list foods or categories of foods prepared more than 12 hours in advance of service.
_____
_____

6. Provide a HACCP plan for specialized processing methods such as vacuum packaged food, sous-vide, or cook-chill items prepared on-site or otherwise required by the regulatory authority.
Date Submitted: _____

7. Will the facility be serving food to a highly susceptible population? YES / NO
If yes, how will the temperature of foods be maintained while being transferred between the kitchen and service area?_____
_____

8. Are containers constructed of food-grade materials to store bulk food products? YES / NO
Indicate type: _____
_____

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COLD STORAGE:

1. Does each refrigerator have a thermometer? YES / NO

2. Is there a bulk ice machine available? YES / NO
   How often will this be cleaned? Describe the cleaning process.

_____

_____

COOKING and HOT/COLD HOLDING:

1. What type of temperature measuring device will be used to ensure proper cooking temperatures?

_____

_____

2. How will hot foods be maintained at 135°F (60°C) or above during holding for service? Indicate type and number of hot holding units.

_____

_____

3. How will cold PHF's be maintained at 41°F (5°C) or below during holding for service? Indicate type and number of cold holding units.

_____

_____

4. How will reheating food to 165°F for hot holding be done rapidly and within 2 hours?

_____

_____

5. How will food be cooked? List all techniques and appliances that will used and their locations.

_____

_____

EXCLUSION:

1. Is there a written policy to exclude or restrict food workers who are sick or have infected cuts and lesions?
   YES / NO
   Please describe briefly: _____

   _____

2. Will employees have paid sick leave? YES / NO

INSECT AND RODENT CONTROL:

1. How will rodents, insects, and other pests be excluded from entry to the establishment?

_____

_____

2. Will air curtains be used?
   YES / NO Where? _____

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SANITATION:

1. How will cooking equipment, cutting boards, counter tops and other food contact surfaces which cannot be submerged in sinks or put through a dishwasher be sanitized?

_____

_____

2. Will all produce be washed on-site prior to use? YES / NO
   Is there a planned location used for washing produce? YES / NO
   Describe_____

   _____

   If not, describe the procedure for cleaning and sanitizing multiple use sinks between uses.

   _____

   _____

GARBAGE AND REFUSE:

Inside

1. Will refuse be stored inside?
   YES / NO Where? _____

2. Is there an area designated for garbage can or floor mat cleaning?
   YES / NO Where? _____

3. Is there an area to store returnable damaged goods? YES / NO

Outside

4. Will a dumpster be used? YES / NO

5. Will a compactor be used? YES / NO

6. Will garbage cans be stored outside? YES / NO

7. Describe surface and location where dumpster/compactor/garbage cans are to be stored

_____

_____

8. Describe location of grease storage receptacle

_____

_____

9. Is there an area to store recycled containers? YES / NO

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WATER SUPPLY:

1. Is the water supply public (_) or private (_)
   If private, has source been approved? YES / NO / PENDING
   Please attach copy of written approval and/or permit.

2. Is ice made on premises (_) or purchased commercially (_)
   If made on premise, are specifications for the ice machine provided? YES / NO

3. What is the capacity of the hot water generator?
   _____

4. Is the hot water generator sufficient for the needs of the establishment (a minimum of a 50 gallon water heater or equivalent is required for most establishments)? YES / NO

5. Is there a water treatment device (water softener)? YES / NO
   If yes, how will the device be inspected & serviced?
   _____
   _____

SEWAGE DISPOSAL:

1. Is building connected to a municipal sewer? YES / NO
   If no, is private disposal system approved? YES / NO / PENDING
   Please attach copy of written approval and/or permit.
   Do you acknowledge that all sewage disposal must be done in accordance with all state, federal, and local laws and regulations; Do you acknowledge that no sewage may be disposed of down a storm drain or on the ground? YES / NO

2. Do local regulations require a grease trap at this establishment? YES / NO
   If so, where? _____
   Provide schedule for cleaning & maintenance_____

GENERAL:

1. Are all containers of toxics, including sanitizing spray bottles, clearly labeled? YES / NO

2. Will linens be laundered on site? YES / NO
   If yes, what will be laundered and where? _____
   _____
   If no, how will linens be cleaned? _____

3. Is a laundry dryer available? YES / NO

4. Location of clean linen storage: _____

5. Location of dirty linen storage: _____

6. Is a mop sink present? YES / NO
   If no, please describe facility for cleaning of mops and other equipment:
   _____
   _____

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DISHWASHING FACILITIES:

1. Will sinks or a dishwasher be used for ware washing?
   Dishwasher (__) 3-Compartment Sink (__)
   Hot Water Sanitizing (__) or Chemical Sanitizing (__)
   Adequate forced air ventilation is required for Hot Water Sanitizing. Is ventilation provided? YES / NO

2. Are there drain boards on both ends of any pot sinks (deep sinks)? YES / NO

3. Are test papers and/or kits available for checking sanitizer concentration? YES / NO

HANDWASHING/TOILET FACILITIES:

5. Is there a hand washing sink in each food preparation and ware washing area? YES / NO

6. Do all hand washing sinks have a mixing valve or combination faucet? YES / NO

7. Are covered waste receptacles available in each restroom? YES / NO

8. Are all toilet room doors self-closing? YES / NO

9. Are all toilet rooms equipped with adequate forced air ventilation? YES / NO

10. Is a hand washing sign posted in each employee restroom? YES / NO

STATEMENT: I hereby certify that the information in Plan Review Part A & B is correct, and I fully understand that any deviation from the above without prior permission from this Health Regulatory Office may nullify final approval. I acknowledge that the information in Part A & B is not a comprehensive list of all food regulations and that it will be my responsibility to be familiar with and follow all applicable laws and rules.

Signature(s): _____

_____
Owner(s) or Responsible Party

Date: _____

****

Approval of these plans and specifications by this Regulatory Authority does not indicate compliance with any other code, law or regulation that may be required--federal, state, or local. It further does not constitute endorsement or acceptance of the completed establishment (structure or equipment). A preopening inspection of the establishment with equipment in place & operational will be necessary to determine if it complies with the local and state laws governing food service establishments.

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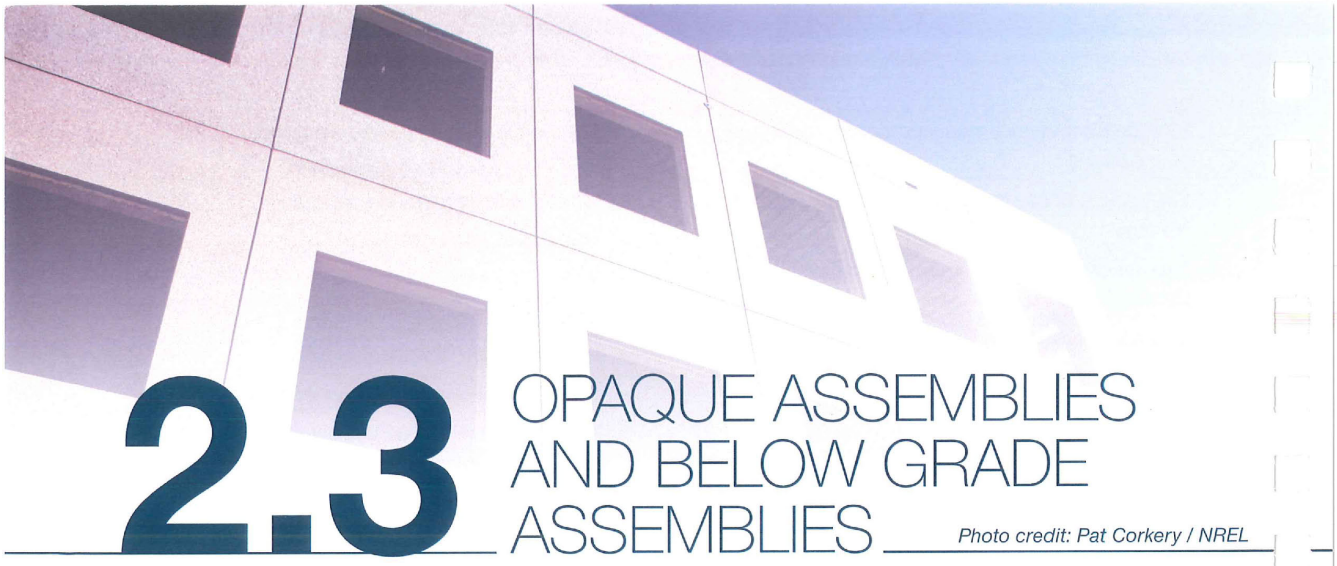

2.3 OPAQUE ASSEMBLIES AND BELOW GRADE ASSEMBLIES

Photo credit: Pat Corkery / NREL

Purpose

Reduce energy losses due to thermal conductance through the building thermal envelope, including loss through below-grade floors and walls to the ground.

Criteria

All wall, roof and floor assemblies that are part of the building thermal envelope shall meet the requirements shown in Table 2.3.1.

U-Factors for above grade assemblies shall be calculated on a area weighted average basis for the whole assembly and calculated in accordance with ASHRAE Standard 90.1 Appendix A.

General

Historically, prescriptive codes and standards have specified opaque envelope requirements in two ways: the R-value of wall cavity insulation required in certain assembly types, and the total U-factor of a wall assembly. As requirements have become more stringent and continuous insulation has become a necessary component of more efficient thermal envelope assemblies, cavity insulation R-values have become a less effective way to specify envelope requirements. U-value requirements give designers many options for choosing a wall assembly that will best match the design requirements, local market of material and skill availability, and budget of the project.

ASHRAE Standard 90.1 Appendix A provides U-values of many standard construction assemblies. Projects using a custom or unusual envelope assembly must calculate the assembly U-value per the guidelines in ASHRAE 90.1 Appendix A, Section A9.

Designers should take note of their local insurance market. Many insurance companies will not insure a roof that has over a certain thickness of insulation on top of the roof deck. Some insurers may not accept roof assemblies with insulation used to create drainage slope or with insulation entirely above the roof deck.

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Cool Roof

With the high levels of insulation required in this Guide, a Cool Roof would have only a negligible impact on the thermal performance of a building thermal envelope. However, Cool Roofs can provide other benefits such as reducing urban heat island effect and reducing the intake air temperature of outside air intakes located on or near the roof, thus reducing cooling loads. Since Cool Roofs can typically be specified at minimal to no incremental cost, they are still highly recommended on commercial buildings. Cool Roofs should meet one of the following requirements:

- Three-year aged solar reflectance of 0.55 and three-year aged thermal emittance of 0.75.
- Initial solar reflectance of 0.70 and initial thermal emittance of 0.75.
- Three-year aged solar reflectance index of 64.
- Initial solar reflectance index of 82.

BEST PRACTICES

Table 2.3.1 Insulation Requirements for Above- and Below-Grade Assemblies, Slab Edge and Below-Grade Slabs[1]

Climate Zone	1	2	3	4	5	6	7	8
Roof, Flat	U-0.032	U-0.032	U-0.032	U-0.028	U-0.028	U-0.028	U-0.023	U-0.023
Roof, Sloped	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021	U-0.017	U-0.017	U-0.017
Walls, Above Grade	U-0.051	U-0.051	U-0.051	U-0.051	U-0.051	U-0.036	U-0.036	U-0.024
Walls, Below Grade[2]	C-0.119	C-0.119	C-0.119	C-0.119	C-0.092	C-0.092	C-0.076	C-0.076
Floors	U-0.066	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033
Slab-on-Grade Floors (unheated)								
- Underslab	R-5	R-5	R-5	R-5	R-5	R-5	R-5	R-5
- Edge*	F-0.73	F-0.73	F-0.73	F-0.54	F-0.54	F-0.54	F-0.40	F-0.40
Slab-on-Grade Floors (heated)								
- Underslab	R-10	R-10	R-10	R-10	R-10	R-10	R-10	R-10
- Edge*	F-0.70	F-0.70	F-0.70	F-0.65	F-0.58	F-0.58	F-0.55	F-0.55

1 U-factors, C-Factors, and F-Factors are maximum values. R-Values for underslab insulation at Below-Grade Slab Floors are minimum values.

2 C-Factor and F-Factor are not the same as U-Factor. C-Factor is calculated similarly to U-Factor, but accounts for the assembly being in direct contact with the earth. F-Factor is in different units than U- and C-Factor; it denotes the heat loss of the edge of a slab per linear foot of perimeter rather than square foot of area.

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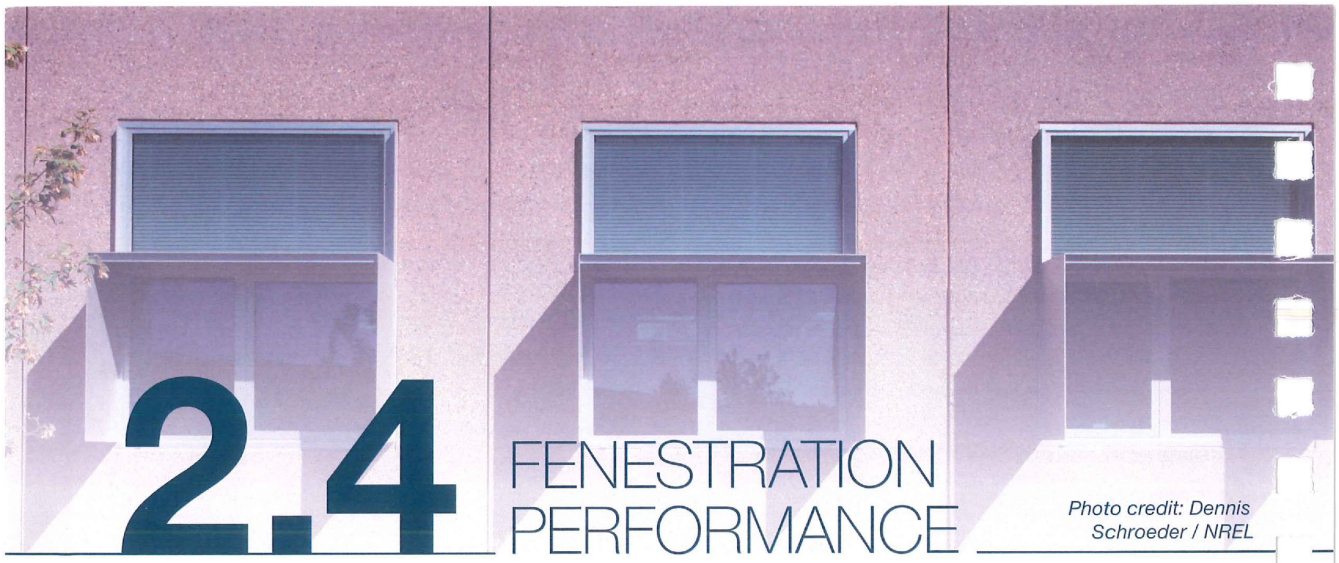

2.4 FENESTRATION PERFORMANCE

Photo credit: Dennis Schroeder / NREL

Purpose

Reduce energy losses via the building's envelope through the installation of high-performance fenestration systems and the use of a consistent performance rating standard for these products.

Criteria

The weighted average of all fenestration assemblies shall meet the U-Factor and SHGC requirements shown in Table 2.4.1.

All vertical fenestration assemblies shall have a VLT (Visible Light Transmission) rating of no less than 1.5 times the SHGC rating of the assembly.

All fenestration assemblies shall be rated according to the requirements of the National Fenestration Rating Council (NFRC) with respect to the performance of the fenestration in the categories of U-Factor, Solar Heat Gain Coefficient and Visible Light Transmittance, and air leakage rate.

General

The 2012 International Energy Conservation Code (IECC-2012) limits the window-to-wall ratio (WWR) for commercial buildings to 30%. To allow greater flexibility in building design, the IECC allows a WWR of up to 40% for buildings in Climate Zones 1-6 if 50% of the conditioned floor area is within a daylit zone with automatic daylighting controls. Since the *Advanced Buildings: New Construction Guide* already requires the incorporation of daylighting in the building, buildings that make use of the alternate code path for up to 40% WWR must incorporate a more efficient fenestration system.

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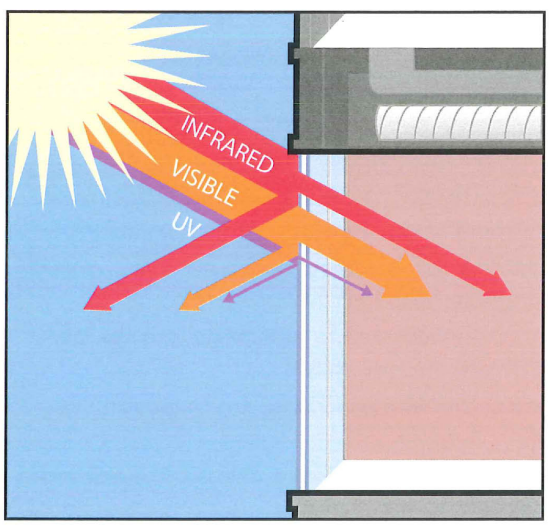
Table 2.4.1

Climate Zone	1	2	3	4	5	6	7	8
Vertical Fenestration (0-30% window-to-wall ratio)	U-0.46	U-0.46	U-0.40	U-0.37	U-0.37	U-0.29	U-0.22	U-0.22
Vertical Fenestration (30-40% window-to-wall ratio)	U-0.36	U-0.36	U-0.30	U-0.29	U-0.29	U-0.22	U-0.17	U-0.17
Vertical SHGC	0.25	0.25	0.25	0.35	0.35	0.35	0.40	0.40
Skylight	U-0.65	U-0.55	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50
Skylight SHGC	0.35	0.35	0.35	0.40	0.40	0.40	NR	NR

The values in this table apply to the entire fenestration assembly.

Notes: In order to meet these requirements, fenestration performance may be averaged for the entire building on a weighted average basis. For buildings with 30-40% WWR, the weighted average performance of all fenestration must meet the 30-40% U-value requirement.



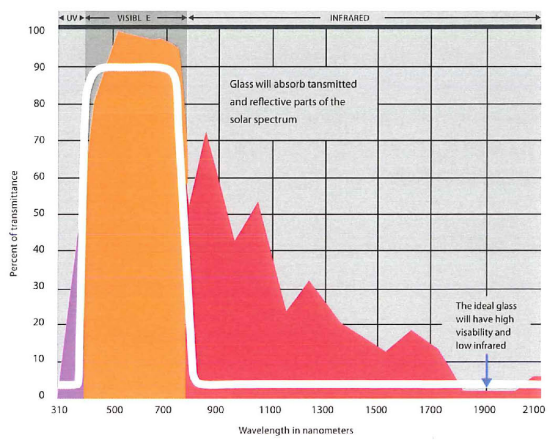


Diagram showing the advantage of using low-e glass to reduce solar gains.

2012 IECC Envelope Assembly Requirements

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COMMERCIAL ENERGY EFFICIENCY

TABLE C402.1.2
OPAQUE THERMAL ENVELOPE ASSEMBLY REQUIREMENTS[a]

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Roofs																
Insulation entirely above deck	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.039	U-0.039	U-0.039	U-0.039	U-0.032	U-0.032	U-0.028	U-0.028	U-0.028	U-0.028
Metal buildings	U-0.044	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.031	U-0.031	U-0.029	U-0.029	U-0.029	U-0.029
Attic and other	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021
Walls, Above Grade																
Mass	U-0.142	U-0.142	U-0.142	U-0.123	U-0.110	U-0.104	U-0.104	U-0.090	U-0.078	U-0.078	U-0.078	U-0.071	U-0.061	U-0.061	U-0.061	U-0.061
Metal building	U-0.079	U-0.079	U-0.079	U-0.079	U-0.079	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.039	U-0.052	U-0.039
Metal framed	U-0.077	U-0.077	U-0.077	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.057	U-0.064	U-0.052	U-0.045	U-0.045
Wood framed and other	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.051	U-0.051	U-0.051	U-0.051	U-0.036	U-0.036
Walls, Below Grade																
Below-grade wall[b]	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-0.119	C-0.119	C-0.119	C-0.119	C-0.119	C-0.119	C-0.092	C-0.092	C-0.092	C-0.092
Floors																
Mass	U-0.322	U-0.322	U-0.107	U-0.087	U-0.076	U-0.076	U-0.076	U-0.074	U-0.074	U-0.064	U-0.064	U-0.057	U-0.055	U-0.051	U-0.055	U-0.051
Joist/framing	U-0.066	U-0.066	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033
Slab-on-Grade Floors																
Unheated slabs	F-0.73	F-0.73	F-0.73	F-0.73	F-0.73	F-0.73	F-0.54	F-0.54	F-0.54	F-0.54	F-0.54	F-0.52	F-0.40	F-0.40	F-0.40	F-0.40
Heated slabs	F-0.70	F-0.70	F-0.70	F-0.70	F-0.70	F-0.70	F-0.65	F-0.65	F-0.58	F-0.58	F-0.58	F-0.58	F-0.55	F-0.55	F-0.55	F-0.55

a. Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from ANSI/ASHRAE/IESNA 90.1 Appendix A shall be permitted, provided the construction complies with the applicable construction details from ANSI/ASHRAE/IESNA 90.1 Appendix A.

b. Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.

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TABLE C402.2
OPAQUE THERMAL ENVELOPE REQUIREMENTS[a]

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R
Roofs																
Insulation entirely above deck	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-25ci	R-25ci	R-25ci	R-25ci	R-30ci	R-30ci	R-35ci	R-35ci	R-35ci	R-35ci
Metal buildings (with R-5 thermal blocks)[a, b]	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-25 + R-11 LS	R-25 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS
Attic and other	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-49	R-49	R-49	R-49	R-49	R-49	R-49
Walls, Above Grade																
Mass	R-5.7ci	R-5.7ci	R-5.7ci	R-7.6ci	R-7.6ci	R-9.5ci	R-9.5ci	R-11.4ci	R-11.4ci	R-13.3ci	R-13.3ci	R-15.2ci	R-15.2ci	R-15.2ci	R-25ci	R-25ci
Metal building	R-13+ R-6.5ci	R-13 + R-6.5ci	R13 + R-6.5ci	R-13 + R-13ci	R-13 + R-6.5ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-13+ R-19.5ci	R-13 + R-13ci	R-13+ R-19.5ci
Metal framed	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-7.5ci	R-13 + R-15.6ci	R-13 + R-7.5ci	R-13+ R17.5ci
Wood framed and other	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-3.8ci or R-20	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-7.5ci or R-20 + R-3.8ci	R-13 + R-15.6ci or R-20 + R-10ci	R-13 + R-15.6ci or R-20 + R-10ci
Walls, Below Grade																
Below-grade wall[d]	NR	NR	NR	NR	NR	NR	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-10ci	R-10ci	R-10ci	R-12.5ci
Floors																
Mass	NR	NR	R-6.3ci	R-8.3ci	R-10ci	R-10ci	R-10ci	R-10.4ci	R-10ci	R-12.5ci	R-12.5ci	R-12.5ci	R-15ci	R-16.7ci	R-15ci	R-16.7ci
Joist/framing	NR	NR	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30[e]	R-30[e]	R-30[e]	R-30[e]	R-30[e]
Slab-on-Grade Floors																
Unheated slabs	NR	NR	NR	NR	NR	NR	R-10 for 24″ below	R-10 for 24″ below	R-10 for 24″ below	R-10 for 24″ below	R-10 for 24″ below	R-15 for 24″ below	R-15 for 24″ below	R-15 for 24″ below	R-15 for 24″ below	R-20 for 24″ below
Heated slabs[d]	R-7.5 for 12″ below	R-7.5 for 12″ below	R-7.5 for 12″ below	R-7.5 for 12″ below	R-10 for 24″ below	R-10 for 24″ below	R-15 for 24″ below	R-15 for 24″ below	R-15 for 36″ below	R-15 for 36″ below	R-15 for 36″ below	R-20 for 48″ below	R-20 for 24″ below	R-20 for 48″ below	R-20 for 48″ below	R-20 for 48″ below
Opaque Doors																
Swinging	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37
Roll-up or sliding	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.

LS = Liner System—A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a. Assembly descriptions can be found in ANSI/ASHRAE/IESNA Appendix A.

b. Where using *R*-value compliance method, a thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.

c. R-5.7ci is allowed to be substituted with concrete block walls complying with ASTM C 90, ungrouted or partially grouted at 32 inches or less on center vertically and 48 inches or less on center horizontally, with ungrouted cores filled with materials having a maximum thermal conductivity of 0.44 Btu-in/h-f^2 °F.

d. Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e. Steel floor joist systems shall be insulated to R-38.

ASHRAE 90.1-2010 Building Envelope Requirements

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TABLE 5.5-6 Building Envelope Requirements for Climate Zone 6 (A, B)*

Opaque Elements	Nonresidential		Residential		Semiheated	
	Assembly Maximum	Insulation Min. R-Value	Assembly Maximum	Insulation Min. R-Value	Assembly Maximum	Insulation Min. R-Value
Roofs						
Insulation Entirely above Deck	U-0.048	R-20.0 c.i.	U-0.048	R-20.0 c.i.	U-0.093	R-10.0 c.i.
Metal Building[a]	U-0.049	R-13.0 + R-19.0	U-0.049	R-13.0 + R-19.0	U-0.072	R-16.0
Attic and Other	U-0.027	R-38.0	U-0.027	R-38.0	U-0.034	R-30.0
Walls, Above-Grade						
Mass	U-0.080	R-13.3 c.i.	U-0.071	R-15.2 c.i.	U-0.151[b]	R-5.7 c.i.[b]
Metal Building	U-0.069	R-13.0 + R-5.6 c.i.	U-0.069	R-13.0 + R-5.6 c.i.	U-0.113	R-13.0
Steel-Framed	U-0.064	R-13.0 + R-7.5 c.i.	U-0.064	R-13.0 + R-7.5 c.i.	U-0.124	R-13.0
Wood-Framed and Other	U-0.051	R-13.0 + R-7.5 c.i.	U-0.051	R-13.0 + R-7.5 c.i.	U-0.089	R-13.0
Walls, Below-Grade						
Below-Grade Wall	C-0.119	R-7.5 c.i.	C-0.119	R-7.5 c.i.	C-1.140	NR
Floors						
Mass	U-0.064	R-12.5 c.i.	U-0.057	R-14.6 c.i.	U-0.137	R-4.2 c.i.
Steel-Joist	U-0.038	R-30.0	U-0.032	R-38.0	U-0.052	R-19.0
Wood-Framed and Other	U-0.033	R-30.0	U-0.033	R-30.0	U-0.051	R-19.0
Slab-On-Grade Floors						
Unheated	F-0.540	R-10 for 24 in.	F-0.520	R-15 for 24 in.	F-0.730	NR
Heated	F-0.860	R-15 for 24 in.	F-0.688	R-20 for 48 in.	F-1.020	R-7.5 for 12 in.
Opaque Doors						
Swinging	U-0.700		U-0.500		U-0.700	
Nonswinging	U-0.500		U-0.500		U-1.450	
Fenestration	**Assembly Max. U**	**Assembly Max. SHGC**	**Assembly Max. U**	**Assembly Max. SHGC**	**Assembly Max. U**	**Assembly Max. SHGC**
Vertical Glazing, 0%–40% of Wall						
Nonmetal framing (all)[c]	U-0.35		U-0.35		U-0.65	
Metal framing (curtainwall/storefront)[d]	U-0.45	SHGC-0.40 all	U-0.45	SHGC-0.40 all	U-0.60	SHGC-NR all
Metal framing (entrance door)[d]	U-0.80		U-0.80		U-0.90	
Metal framing (all other)[d]	U-0.55		U-0.55		U-0.65	
Skylight with Curb, Glass, % of Roof						
0%–2.0%	U_{all}–1.17	$SHGC_{all}$–0.49	U_{all}–0.98	$SHGC_{all}$–0.46	U_{all}–1.98	$SHGC_{all}$–NR
2.1%–5.0%	U_{all}–1.17	$SHGC_{all}$–0.49	U_{all}–0.98	$SHGC_{all}$–0.36	U_{all}–1.98	$SHGC_{all}$–NR
Skylight with Curb, Plastic, % of Roof						
0%–2.0%	U_{all}–0.87	$SHGC_{all}$–0.71	U_{all}–0.74	$SHGC_{all}$–0.65	U_{all}–1.90	$SHGC_{all}$–NR
2.1%–5.0%	U_{all}–0.87	$SHGC_{all}$–0.58	U_{all}–0.74	$SHGC_{all}$–0.55	U_{all}–1.90	$SHGC_{all}$–NR
Skylight without Curb, All, % of Roof						
0%–2.0%	U_{all}–0.69	$SHGC_{all}$–0.49	U_{all}–0.58	$SHGC_{all}$–0.49	U_{all}–1.36	$SHGC_{all}$–NR
2.1%–5.0%	U_{all}–0.69	$SHGC_{all}$–0.49	U_{all}–0.58	$SHGC_{all}$–0.39	U_{all}–1.36	$SHGC_{all}$–NR

*The following definitions apply: c.i. = *continuous insulation* (see Section 3.2), NR = no (insulation) requirement.
[a]When using R-value compliance method, a thermal spacer block is required; otherwise use the *U-factor* compliance method. See Table A2.3.
[b]Exception to Section A3.1.3.1 applies.
[c]Nonmetal framing includes framing materials other than metal with or without metal reinforcing or cladding.
[d]Metal framing includes metal framing with or without thermal break. The "all other" subcategory includes operable windows, fixed windows, and non-entrance *doors*.

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BECx PLAN

STAGE:	PRELIMINARY	DATE:	08/28/15
TYPE:	STANDARD	REVISION:	00

UTAH STATE UNIVERSITY
CLINICAL SERVICES BUILDING

DFCM PROJECT NO. 15128770

LOGAN, UTAH

Architectural Testing, Inc.
130 Derry Court
York, Pennsylvania 17406
ATI Project Number: x0000.01-650-50

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Appendix F – Sample Warranty Information
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Appendix A through G are not included in the preliminary BECx Plan and are listed as representative inclusions in the Final BECx Record provided to the owner's representative at the conclusion of the project.

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1. EXECUTIVE SUMMARY

Current building projects typically involve complex designs, new construction materials, and compressed budgets and schedules. This situation, teamed with heightened building durability and energy performance expectations, make Building Enclosure Commissioning (BECx) a critical tool in ensuring the success of your construction project. Building Enclosure Commissioning is the best quality assurance/quality control process for ensuring that the defined owner's performance expectations are met and that the building design intent is achieved.

One of the most important factors when analyzing the total project cost is to look at the cost of the building over the anticipated life span. Maintenance costs, both scheduled and unscheduled, are often significant compared to the initial project cost. According to the Department of Energy (DOE), up to 40% of a building's energy usage is a result of air infiltration/exfiltration. Achieving durable, sustainable designs and installation is the key to reducing future maintenance costs.

With over three decades of experience in testing, evaluation, and consultation on building systems, products, and components, Architectural Testing provides professional Building Enclosure Commissioning services to verify the successful design, construction, and as-built performance of your building or design. Our design and construction professionals provide the full range of pre-design, design, pre-construction, construction, and occupancy and operations phase services, and is complimented by our unique testing capabilities for acoustical, structural, thermal, blast, durability, energy, and air/waterproofing performance. Architectural Testing's nationwide network of fully accredited test laboratories and field testing offices facilitate quick and cost effective deployment to your construction sites.

This Building Enclosure Commissioning Plan (BECx Plan) provides a general description of the building enclosure commissioning process to be used for your project based on the requirements of Standard Commissioning as defined in ASTM E2813-12 and the State of Utah DFCM High Performance Building Standards. Additional detailed information will be made available as the project continues, with the development of the Building Enclosure Commissioning Requirements and Building Enclosure Functional Performance Testing Requirements specification sections. This document will continue to be updated, as drawings and submittals are peer reviewed, quality assurance field observations are performed, and functional performance tests are completed, becoming the owner's Final BECx Record at the end of the project.

We appreciate this opportunity to bring to your project the wide range of benefits Architectural Testing has to offer.

Don Rasmussen
Senior Project Manager – Building Sciences
Architectural Testing

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2. BUILDING ENCLOSURE COMMISSIONING PLAN OVERVIEW

The Building Enclosure Commissioning Plan outlines the organization, basic schedule, and documentation requirements of the building enclosure commissioning process. As defined in ASTM E2813-12, "Building enclosure commissioning (BECx) is a process that begins with the establishment of the Owner's Project Requirements (OPR) and endeavors to ensure that the exterior enclosure and those elements intended to provide environmental separation within a building or structure meet or exceed the expectations of the Owner as defined in the OPR.

Building Enclosure Commissioning is a systematic process of ensuring all building enclosure systems responsible for environmental separation perform interactively according to the Owner's Project Requirements and the architect's Basis of Design. The BECx Plan shall be developed by the Building Enclosure Commissioning Agent (BECxA) and updated throughout the commissioning process. The completed BECx Plan shall become the owner's Final BECx Record.

The Building Enclosure Commissioning Plan provides a general description of the building enclosure commissioning process to be used for the project. Additional detailed requirements and procedures are provided in the project specifications.

Building Enclosure Commissioning provides architecture and engineering related review and technical services throughout the phases of construction including pre-design, design, pre-construction, construction, and occupancy and operations. Overviews of the services provided for each phase of construction are detailed below:

Pre-Design Phase activities that will be performed by the BECxA include: development of this preliminary BECx Plan.

Design Phase activities that will be performed by the BECxA include: provide design peer review of relevant project documents, develop BECx Requirements and BECx Functional Performance Test Requirements specification sections, update the preliminary BECx Plan, and provide a response to the status of the design peer review process.

Pre-Construction Phase activities that will be performed by the BECxA include: attend an enclosure trade pre-construction conference, provide submittal peer review of relevant project documents, review and test the pre-construction mockup, and update the preliminary BECx Plan.

Construction Phase activities that will be performed by the BECxA include: attend an enclosure trade pre-installation conference, attend periodic building enclosure commissioning meetings, perform quality assurance field observations, perform functional performance testing, and update the preliminary BECx Plan.

Occupancy and Operations Phase activities that will be performed by the BECxA include: finalize the preliminary BECx Plan to become the owner's Final BECx Record.

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3. TERMINOLOGY

The following are common acronyms, abbreviations, and definitions used in this document and throughout the building enclosure commissioning process documentation:

Table 3.1: BECx Abbreviations

Abbr	Expanded Form	Abbr	Expanded Form
AAMA	American Architectural Manufacturers Association	CxA	Commissioning Agent
ASTM	American Society for Testing and Materials	EOR	Engineer of Record
A/E	Architect/Engineer	FPT	Functional Performance Test
AOR	Architect of Record	GC	General Contractor
BECxA	Building Enclosure Commissioning Agent	LEED	Leadership in Energy and Environmental Design
BECxT	Building Enclosure Commissioning Team	O&M	Operations and Maintenance
BETA	Building Enclosure Testing Agent	OPR	Owner's Project Requirements
BOD	Basis of Design	OR	Owner's Representative
CM	Construction Manager	RFI	Request for Information
Cx	Commissioning	TT	Test Technician

Acceptance: A contractually defined action that permits an activity to commence or continue.

Approval: Acceptance that a material or system has been properly installed and is functioning in tested modes according to the Contract Documents.

Basis of Design (BOD): Documentation of primary thought processes and assumptions behind design decisions made to meet design intent. The BOD describes systems, components, conditions, and methods chosen to meet intent.

Building Enclosure Commissioning Agent (BECxA): Contracted to Owner through the CxA. BECxA directs and coordinates day-to-day building enclosure commissioning activities independently from CxA.

Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process.

Commissioning: A quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meet defined objectives and criteria.

Commissioning Team: The individuals, who through coordinated actions are responsible for implementing the Commissioning Process.

Construction Documents: This includes a wide range of documents, which will vary from project to project, Owner's needs, regulations, laws, and countries. Construction documents usually include the project manual (specifications), plans (drawings), and General Terms of the contract, especially those required by subcontractors and vendors, suppliers, and manufacturers of equipment, assemblies, and systems.

Contract Documents: Documents binding on parties involved in construction of this project (drawings, specifications, change orders, amendments, contracts, etc.).

Coordination Drawings: Drawings showing the work of all trades to illustrate that the assemblies and interfaces with adjacent assemblies that depict specifically the A/E's design intent.

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Deficiency: Condition of a building enclosure material or system that is not in compliance with Contract Documents (that is, does not perform properly or is not complying with design intent).

Functional Performance Test (FPT): Test of performance of building enclosure materials and systems. Systems are tested under various simulated environmental conditions, such as air leakage under pressure differential and water leakage under pressure differential with water spray.

Functional Performance Test Specification: A written protocol that defines procedures and performance requirements for tests conducted on components, equipment, assemblies, systems, and interfaces among systems.

Observation Log: A formal and ongoing record of problems or concerns, and their resolution, which have been raised by members of the Commissioning Team during the course of the Commissioning Process.

Owner's Project Requirements (OPR): A written document that details the functional requirements of a project and the expectations of how it will be used and operated. This includes project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.

Simulated Condition: Condition created for testing component or system (e.g., applying pressure differential across the building enclosure concurrent with water spray to simulate a wind driven rain).

Verification: The process by which specific documents, components, equipment, assemblies, systems, and interfaces among systems are confirmed to comply with desired performance as outlined by the Owner.

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4. COMMISSIONING PROCESS DESCRIPTION

Building Enclosure Commissioning (BECx) is a systematic process of ensuring all building enclosure systems responsible for environmental separation perform interactively according to the Owner's Project Requirements and the architect's Basis of Design. The purpose of commissioning this project is to provide the owner with a highest level of assurance that the building enclosure systems are installed in the appropriate manner and in compliance with the design intent and performance as defined by the OPR. The BECx process is intended to achieve the following specific objectives: verify and document proper installation and performance of building enclosure materials and systems, and to provide the Owner with functional building enclosure systems with minimal performance problems at project completion.

Commissioning does not take away from, or reduce responsibility of, system designers or installing contractors to provide a finished and fully functioning product.

The BECx Plan shall be developed by the Building Enclosure Commissioning Agent (BECxA) and updated throughout the commissioning process. The BECxA shall revise the specific commissioning procedures and functional performance test plan as necessary to suit project field conditions and actual approved manufacturers' products, to incorporate test data and functional performance test results, and to provide the scheduling overview for all BECx tasks. The completed BECx Plan shall become the owner's Final BECx Record.

The Building Enclosure Commissioning Plan provides a general description of the building enclosure commissioning process to be used for the project. The goals, intent, requirements, and timing of the process are included in the plan to provide a guide on how the plan is to be executed and documented. Additional detailed requirements and procedures are provided in the project specifications, listed below, and in the appendices of this BECx Plan. These documents describe the process in more detail and also provide any other requirements necessary to guide the commissioning activities.

Table 4.1: BECx Specification Sections

Specification Section	Specification Title
019115	Building Envelope Commissioning Requirements
019117	Building Envelope Commissioning - Functional Performance Test Protocol

These specification sections shall in no way diminish the responsibility of the contractors, sub-contractors and suppliers in performing all aspects of work and testing as outlined in the contract documents. Any requirements outlined in these sections are in addition to requirements outlined in other specification sections.

Building Enclosure Commissioning provides architecture and engineering related review and technical services throughout the phases of construction including pre-design, design, pre-construction, construction, and occupancy and operations. The services provided for each phase of construction are detailed in the individual sections of this BECx Plan.

The Building Enclosure Commissioning practice does not intend to warrant or guarantee the performance of enclosure materials, components, systems or assemblies.

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5. ROLES AND RESPONSIBILITIES

The BECxT will consist of members of the project staff including, but not limited to: the construction manager, general contractor, quality assurance/control inspectors, owner's representatives, architects and design engineers, and building enclosure subcontractors. Specifically, the BECxT consists of the following primary members, with additional members added based on the scope of work being reviewed, tested, or observed.

Table 5.1: BECx Team Members

Name	Company	Title	Email
John Burningham	Utah DFCM	Energy Program Director	johnburningham@utah.gov
Architect			
Superintendent			
John Runkle	Architectural Testing	BECx Project Executive	jrunkle@archtest.com
Don Rasmussen	Architectural Testing	BECx Project Manager	drasmussen@archtest.com
Robert Lundeen	Architectural Testing	BECx Project Engineer	rlundeen@archtest.com
Tom Kovash	Architectural Testing	BETA Technician	tkovash@archtest.com

In addition to the primary team members above, the technical members of the Building Enclosure Commissioning Team (BECxT) is made up of individuals that have demonstrated proficiency in the required core competencies listed below exceeding the requirements of building codes, standards, guidelines, and other applicable regulations as they apply to enclosure design, construction, and performance. These roles in no way supersede or replace the contractual obligations of the design or construction team.

Table 5.1: Building Enclosure Commissioning Team Core Competencies

BECxA Core Competency	ATI BECxT Member	Core Competency Description
Building and Materials Science	Robert Lundeen	Knowledge of the principles of heat transfer, air infiltration/exfiltration, moisture storage and transport, and characteristics of enclosure-related materials and systems.
Procurement and Project Delivery	John Runkle	Knowledge of the influence of project delivery method, the roles and responsibilities of the BECxT as they relate to construction scheduling and sequencing, and understanding of the range and technical depth required of the BECxT, design and construction team.
Contract Documents and Construction Administration	Don Rasmussen	Knowledge of the interrelationship between construction documentation types, influence of the design on total building performance, and importance of product selection, material compatibility and continuity, and timely distribution of actionable reporting.
Performance Test Standards and Methodology	Tom Kovash	Knowledge of laboratory and field test standards and methodology, their use and application, appropriate modification and interpretation, and the importance of establishing quantifiable performance measures and clear definitions of failure.

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6. COMMUNICATION PROTOCOL

The Building Enclosure Commissioning Team will use the following protocol when communicating with the project team. It is the intent of the BECxA to always resolve issues at the lowest level possible, only escalating issues when direct and substantial response from the responsible party is not attained.

All communication related to the project is considered confidential, and will only be shared with individuals who have a direct and necessary influence in the project development, administration, or execution.

Table 6.1: Communication Protocol

Issue	Protocol
Requesting minor clarifications or simple information	The BECxA communicates directly with the general contractor or architect of record.
Requesting submittal information	The BECxA communicates directly with the architect of record.
Submitting architectural drawing or submittal reviews	The BECxA communicates directly with the general contractor or architect of record.
Scheduling Functional Performance Tests	The BECxA communicates directly with the general contractor to schedule tests; it is the responsibility of the general contractor to ensure that all required participants are notified of the test dates.
Scheduling observations	The BECxA communicates directly with the general contractor, if additional participants are required for the observation it is the responsibility of the general contractor to notify them of the observation date.
Notifying of condition deficiencies	The BECxA communicates condition deficiencies through the Field Observation Report, which is distributed to the general contractor, architect of record, owner's representative, and other individuals as directed by the owner. Additionally, all deficient conditions are verbally reviewed with the general contractor at the time of observation.
Requesting minor changes in sequencing or installation	The BECxA communicates directly with the general contractor and architect of record.
Requesting significant changes	The BECxA has no authority to issue change orders.
Resolving subcontractor disagreements	The BECxA primarily attempts to resolve all issues through the general contractor. Some issues will require direct communication with the architect of record or owner's representative.

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7. PRE-DESIGN PHASE

In conjunction with other commissioning actions the following Pre-Design Phase activities will be performed by the BECxA: develop a preliminary BECx Plan.

Preliminary BECx Plan

The BECxA will develop a preliminary Building Enclosure Commissioning Plan. The BECx Plan provides a general description of the building enclosure commissioning process to be used for the project. The BECx Plan will be basis for the BECx Commissioning and BECx Functional Performance specification sections and provide information that will guide the commissioning process. The BECx Plan includes, but is not limited to, an overview of the BECx process, terminology, roles and responsibilities, communication protocol, key activities during each phase of construction, descriptions of common functional performance testing, and required testing for the fundamental or enhanced BECx level of service. The preliminary BECx Plan will be updated at each phase of construction and the completed BECx Plan shall become the owner's Final BECx Record.

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8. DESIGN PHASE

In conjunction with other commissioning actions the following Design Phase activities will be performed by the BECxA: provide design peer review of relevant project documents, develop BECx Requirements and BECx FPT Requirements specification sections, update the preliminary BECx Plan, and provide a response to concerning the status of the design peer review process.

Design Peer Review

The BECxA will provide a peer review of the relevant project documents to assist with the development of a fully functional weather resistant enclosure at the Design Sub-Phases listed below. The design peer review will include highlighting problematic details and design considerations with respect to constructability and performance of the enclosure assemblies with regard to air, water, and thermal performance. The peer review will consist of written markups of the architectural drawings and specifications, and a drawing review log of markup conditions. The design peer review includes communication with the project team to discuss markup conditions and recommended resolutions.

Table 8.1: Number of Design Peer Reviews by Design Sub-Phase

Sub-Phase of Design Process	Number of Design Peer Reviews
Construction Documents	1

Building Enclosure Commissioning Requirements Specification

The BECx Requirements specification will be developed by the BECxA for incorporation into the project specifications. The specification section will primarily include, but is not limited to, all BECx requirements, terminology, coordination, reporting, enclosure systems commissioned, responsibilities of BECx team members, testing documentation, non-conformance, and costs of testing/re-testing.

Building Enclosure Functional Performance Testing Requirements Specification

The BECx Functional Performance Testing specification will be developed by the BECxA for incorporation into the project specifications. The specification section will included established quantifiable enclosure performance requirements, test standards and methodology, additional failure definitions, re-testing requirements, and mockup construction requirements. Quantifiable enclosure requirements will be defined for mockup testing and in-situ field testing.

BECx Plan Updates

The BECxA will update and refine the preliminary BECx Plan at the conclusion of the Design Phase.

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9. PRE-CONSTRUCTION PHASE

In conjunction with other commissioning actions the following Pre-Construction Phase activities will be performed by the BECxA: attend an enclosure trade pre-construction conference, provide submittal peer review of relevant project documents, review and test the pre-construction mockup, and update the preliminary BECx Plan.

Enclosure Trade Pre-Construction Conference

The BECxA will attend an enclosure trade pre-construction conference to review the BECx process, scheduling milestones, functional performance testing, reporting, observation logs, and communication protocol, and to review the contractor/subcontractor quality assurance/control and safety programs.

Submittal Peer Review

The BECxA will provide a peer review of the enclosure related project submittals to assist with the development of a fully functional weather resistant enclosure. The enclosure related project submittals include, but are not limited to, contractor submittals, product submittals, shop drawings, applicable substitution requests, RFI's, change order requests, and quality control documentation. The design peer review will include highlighting problematic details and design considerations with respect to constructability and performance of the enclosure assemblies with regard to air, water, and thermal performance and will focus on transition details, sequencing concerns, quality control, and contractual requirements. The peer review will consist of written markups of the submittals, and a submittal review log of markup conditions. The submittal peer review includes communication with the project team to discuss markup conditions and recommended resolutions.

Pre-Construction Mockup Review and Functional Performance Testing

A mockup of critical building enclosure components will be constructed prior to the commencement of building enclosure construction in order to verify the performance of the systems, set construction standards, establish sequencing of work, and verify material selection for the duration of the project. The mockup shall include each type of vertical and horizontal waterproofing system, a junction with the roofing membrane, typical wall and roof penetrations, building expansion joint, a building corner condition, and foundation wall intersection. The mockup shall employ no less than 100 sq. ft. of opaque wall and typical fenestration assemblies. The mockup shall include a portion of the metal wall panels, terra cotta and masonry veneer systems. The mockup shall be constructed such that that it is airtight with the addition of a BETA constructed chamber. Exterior claddings, Interior finishes, interior sealant joints, interior gypsum wall board, or insulation should not be installed prior to mockup testing.

Where testing indicates that performance requirements are not met, the contractor will repair or replace the failed sections and a re-test will be conducted by the BETA at the discretion of the architect of record in consultation with the BECxA, or as required by the contract documents.

BECx Plan Updates

The BECxA will update and refine the preliminary BECx Plan at the conclusion of the Pre-Construction Phase.

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10. CONSTRUCTION PHASE

In conjunction with other commissioning actions the following Construction Phase activities will be performed by the BECxA: attend an enclosure trade pre-installation conference, attend periodic building enclosure commissioning meetings, perform quality assurance field observations, perform functional performance testing, and update the preliminary BECx Plan.

Enclosure Trade Pre-Installation Conference

The BECxA will attend an enclosure trade pre-installation conference to review the BECx process with the construction manager, general contractor, architect of record, and enclosure related subcontractors and trades. The pre-installation conference will review and discuss the BECx Plan, submittal reviews, scheduling, quality assurance/control programs, observation log and deficiency resolution, test standards and methodologies, performance requirements, failure definitions, and the results of the pre-construction mockup testing.

Building Enclosure Commissioning Periodic Meetings

The BECxA will attend periodic BECx meetings to review the ongoing quality assurance and testing with the construction manager, general contractor, architect of record, and enclosure related subcontractors and trades. The meetings will review and discuss problematic enclosure design elements and systems, quality assurance non-conformance conditions and remediation, functional performance test planning, and functional performance test results.

Quality Assurance Field Observation Reports

The BECxA will conduct periodic quality assurance field observations to review the in-progress work of the general contractor, subcontractors, and trades for compliance to the contract documents, product installation requirements, and industry standards. Also known as deficiency logs or non-conformance reports, Field Observation Reports provide an ongoing record of non-compliance conditions such that they may be tracked and appropriately resolved. The BECxA may recommend remediation to non-conformance conditions; however, the burden of responsibility to correct the condition is with the architect of record, general contractor, and appropriate subcontractors.

At the resolution of a non-conformance condition the general contractor shall provide the BECxA with written confirmation that the condition has been addressed, the method of remediation, photographs (if possible), and allow for inspection of the remediation by the BECxA. In the event that non-conformance condition remediation is conducted during the field observation the BECxA will document the deficiency and condition resolution.

Table 10.1: Anticipated Number of Observation Reports

Phase	Observation Purpose	Number of Observation Reports
Pre-Construction	Review pre-construction mockup prior to functional performance testing.	1
Construction	Review of enclosure related in-progress work for compliance to contract documents.	6
Occupancy	Review of enclosure performance 5-month post substantial completion	1

In-Situ Field Functional Performance Testing

The BETA will perform functional performance testing of building enclosure systems as outlined in the Building Enclosure Functional Performance Testing Requirements specification section. The BECxA will observe, document, verify current calibration, and validate the standards and methodology of the testing as performed by the BETA. The results of the Functional Performance Testing will be documented by the BETA in a Field Test Report that will record and report information as required by the test standard employed.

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The BETA and the BECxA are the same entity for this project.

Where testing indicates that performance requirements are not met, the contractor will repair or replace the failed sections and a re-test will be conducted by the BETA at the discretion of the architect of record in consultation with the BECxA, or as required by the contract documents. Failed in-situ tests typically result in testing of additional specimens to determine the extent of the failure. Testing will be concluded only when satisfactory results are achieved, as directed by the contract documents.

BECx Plan Updates

The BECxA will update and refine the preliminary BECx Plan at the conclusion of the Construction Phase.

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11. OCCUPANCY AND OPERATIONS PHASE

In conjunction with other commissioning actions the following Occupancy and Operations Phase activities will be performed by the BECxA: finalize the preliminary BECx Plan to become the owner's Final BECx Record.

Final BECx Record

The BECxA will finalize the preliminary BECx Plan at the conclusion of the Occupancy and Operations Phase to become the owner's Final BECx Record. The Final BECx Record will include all enclosure related documentation including design peer reviews, submittal reviews, BECx specification sections, a summary of all field observation non-conformance conditions and resolutions, results of functional performance testing, sample warranty information, and guidelines for routine maintenance.

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12. INDEX OF APPENDICES

Appendix A – BECx Requirements and Functional Performance Testing
Appendix B – Drawings and Specification Reviews
Appendix C – Submittal Reviews
Appendix D – Field Observation Reports
Appendix E – Functional Performance Test Reports
Appendix F – Sample Warranty Information
Appendix G – Guidelines for Routine Maintenance

Appendix A through G are not included in the preliminary BECx Plan and are listed as representative inclusions in the Final BECx Record provided to the owner's representative at the conclusion of the project.