

## I.2.3 Physical Resources

### General Description

The School of Architecture has occupied Cheever Hall since its completion in 1975. Cheever Hall is a part of a complex of buildings called the Creative Arts Complex. Other buildings in the Creative Arts Complex house the School of Art and the Department of Music. From Fall 1998 through Spring 2000, the School also occupied the second floor of the Quad E complex on the east edge of the campus. Fourth and fifth year studios were housed in the Quad E complex during that two year span. Beginning Fall 1999, the School has utilized two classrooms in the Plant Growth Center for the Architectural Graphics sequence—ARCH 261, 262, and 363. Beginning Fall 2000, the School housed the first year design studio, ARCH 151RA and ARCH 152, in the lower floor of Romney Gym. At a later date our Community Design Center studio and our Integrated Design Lab were also moved to the second floor of Romney Gym. In our last accreditation visit in 2008, the use of Romney Gym was identified as a deficiency as this structure is not ADA accessible. The School began discussions with the College and University about strategies for addressing the issue of ADA compliance and at the same time, Romney Gym was beginning to be identified as one of the top building priorities on campus. However, the renovations plans for Romney Gym were focusing on the use of the building as a Center for Student Success, which prompted the School to look at other alternatives for relocating our Romney Studio Spaces.

At the same time, the MSU Libraries made the decision in 2010 that the resources and collections in the Creative Arts Library (CAL) would be relocated to the main Renne Library building. Additional information on this decision and process can be found Part One(I) Section 2.5 Information Resources. As a result of this decision, the space formerly occupied by CAL was reassigned to the School of Architecture. The CAL space was then utilized as our graduate design studio space which freed up space within other parts of Cheever Hall allowing us to move our first year design studios from Romney Gym back to Cheever Hall. At the same time, the Department of Technology Education, which had offices and classrooms in Cheever Hall since the building opened, relocated to a new building on campus, and their spaces in Cheever Hall were also reassigned to the School of Architecture. Two of their classroom spaces were converted for use by the Community Design Center—allowing us to move those studios out of Romney Gym—while a third classroom was converted to our digital fabrication lab housing our laser cutters and 3D printers. Additional faculty offices were reassigned to the School of Architecture as well as a small seminar room all of which are used by the School of Architecture.

Over the last two years, the School of Architecture with the support of the Office of the Provost, the Dean of the Library, the Dean of the College of Arts and Architecture and the School of Art, transformed a former lobby space that had been used as a design studio for a number of years into a student collaboration/lounge/study space. Losing the Creative Arts Library space impacted the college since one of its main uses by students was as a place to meet and gather around large library tables to study and work. This former lobby space, which has come to be known as the Fishbowl because of the storefront window on one side, was refinished with new lighting, an exhibition wall, study tables and chairs as well as some high quality lounge seating. In addition, journal racks were placed in this space and art, architecture, film and photo journals were placed in the racks by faculty so that there would be an opportunity for students to still browse through the various publications. This space was open to all students in the college and across campus. Many students attend classes in the registrar controlled rooms on the second floor so the Fishbowl became a common student area for study and collaboration.

As the School continues to keep current with emerging technologies the expansion into the west wing of Cheever Hall allowed us to expand the number of laser cutting and CNC machines to two each and we will be adding a second 3D printer, the Makerbot Replicator 2, this fall. This move allowed the previous laser cutting room to be returned to its original function as a storage room.

### *Seismic Retrofit Construction*

After conducting a study of all of the buildings on campus, MSU identified the Creative Arts Complex—which includes Cheever Hall—as the buildings at greatest risk of collapse in the event of an earthquake. This complex houses the School of Architecture, School of Music and School of Art. MSU applied for and received a FEMA grant to undertake this seismic retrofit project. Cheever Hall (School of Architecture) and Howard Hall (School of Music) have had construction done in Summer 2013. Haynes Hall (School of Art) will have construction done in Summer 2014. The School of Architecture moved all of its offices over to a temporary space in Haynes Hall this

summer and offered a reduced load of design studios and electives. These design studios were held in Haynes Hall and Romney Gym for this summer only. As part of the seismic retrofit a large number of steel brace frames and reinforced shear walls have been added throughout the building. The University provided funding to add windows into some of the design studios, classrooms and common spaces. Some of these windows on the second floor have operable panes which we hope will allow for some additional cross ventilation within the building. The limited daylight in the original building has always been a concern and as such the introduction of these new windows and the daylight they provide are seen as a positive outcome of the seismic retrofit. In addition, there are a number of common spaces and conference rooms that are receiving upgraded finishes—most notable will be the polished concrete floor in the Cheever Gallery space. As a part of the construction, MSU's Information Technology Center (ITC) has provided new networking in the graduate design studio—which prior to the construction had only 14 hardwire network connections and thus relied upon wireless networking for access. There are now over 60 new hardwired network connections in the graduate design studio. Older category 5 wiring in the lower level of Cheever Hall has been replaced in one studio area and throughout the Community Design Center studio space. In addition, 70 wireless access points have been installed in Cheever Hall which should provide for better wireless access throughout our building. The upgraded networking within the building is also a positive outcome of this past summer's construction.

### *Cheever Hall*

The total area in Cheever Hall that is occupied solely by the School of Architecture is approximately 27,961 square feet that is dedicated to Architecture. Technology spaces include the printer room, digital fabrication (laser cutter/3D printer) room, craft shop, spray booth room and digital darkroom. Of this total square footage approximately 19,972 square feet is dedicated to design studio space and the remaining spaces are seminar rooms, gallery and jury spaces, staff and faculty offices, a shop, computer room, printing room, paint spray room and a photo lab. Also located in Cheever Hall are two 45-seat classrooms, one 75-seat classroom, and one 125-seat lecture hall. These classrooms are utilized for the majority of the required architecture courses but are also utilized—when available—by other departments on campus. The large lecture hall in Cheever 215 is scheduled to be renovated in Summer 2014. Spaces are shown on the floorplans included later in this section.

### *Accessibility*

In addition to the above changes resulting from this summer's construction, there is a new elevator being installed in Cheever Hall that will provide ADA accessibility to both levels of the building. Because of the split level design of Cheever Hall, the elevator will be a two-story four-stop elevator with doors on both sides of the elevator cab. Because of the tight summer construction schedule, the elevator will not be installed until November or December of 2013. In the meantime, ADA access to the two levels will continue to be maintained by the common elevator and bridge connecting Cheever and Haynes Hall (Art). Once the new elevator is in place, a major issue of accessibility should be addressed within our building. The second floor restrooms were remodeled to meet ADA requirements prior to the last accreditation visit in 2008. The first floor restrooms are scheduled to be remodeled to meet ADA requirements but no specific timetable has been communicated to the department on this construction.

The last remaining space in Romney Gym utilized by the School of Architecture is the Integrated Design Lab (IDL) [www.idlbozeman.com](http://www.idlbozeman.com). The IDL, a research lab, funded by the Northwest Energy Efficiency Alliance, provides energy and lighting analysis for Montana architects and engineers. This lab is staffed by two students and Tom Wood for limited hours each weekday. During the last two years, renovation and making Romney Gym ADA accessible has been the top building project priority by the university and was included in the recent list of university projects submitted to the legislature. It was the top priority for Montana State University. Although this project remained on the list throughout the majority of the legislative session, ultimately it did not receive any funding from the State. If this funding had been approved the Integrated Design Lab would have been part of the project funding for relocation of existing spaces. The School has been looking at other alternative locations for this lab and the Dean of the College submitted its relocation to the Office of the Provost as a top priority for the College. The School will continue to look at alternatives to relocate this last component from Romney Gym.

The university established a 'Notice Requirement', that requires certain language on any flyers, poster, etc. for any events held on campus. The language includes contact information for anyone who needs to request a disability accommodation, or inform the University of special dietary or other needs.

A list of each space and the total square footage allocated to each function is shown below.

**Spaces occupied solely by the School of Architecture**

<i>Design Studios.</i>	<i>Square Footage</i>	<i>Conference Rooms</i>	
Cheever Hall		Cheever Hall	
Level 1	8100	Level 2	340
Level 2	6750	Subtotal	3340
CDC Studio*	1440		
Seminar room reassigned*	127	<i>Archives and Storage</i>	
Graduate Studio (formerly CAL)*	3555	Cheever Hall	980
Subtotal	19,972	Subtotal	1170
<i>Gallery/Review Spaces</i>		<i>Technology and Miscellaneous</i>	
Cheever Hall		Laser Cut, Rapid Prototype Room*	594
Level 1	900	Digital Dark Room	110
Level 2	760	Print Room	320
Subtotal	1660	Paint Spray Booth	110
<i>Faculty Offices</i>		Subtotal	774
Cheever Hall		<b>Total of Spaces Occupied by Arch</b>	<b>27,961</b>
Level 1	1450	* indicates spaces added since the last accreditation visit	
Conversion of faculty office to advising office*	(250)		
New office space*	485	<b>Spaces shared with other Departments</b>	
Level 2	900	Classrooms	<i>Square Footage</i>
Subtotal	2585	Cheever Hall	
<i>Administration/Staff Offices</i>		Level 2	5600
Cheever Hall		Plant Growth Center	3100
Level 1	1210	Subtotal	8700
Conversion of faculty office to advising office*	250	Craft Shop (scheduling controlled by Arch)	
Shop supervisor office*	100	Cheever Hall	6000
Subtotal	1460	Subtotal	6000
		<b>Total of Spaces Shared with other Departments</b>	<b>14,700</b>

**Space Descriptions**

**Studio Spaces**

*Pre-Environmental Design Studios*

The Pre-Environmental Design Studios—ARCH 151RA and ARCH 152—are once again located in Cheever Hall on the east side of the building. Because of the large enrollment in these courses and space limitations, first year students are not assigned a permanent space but rather share studio space in this area. Lockers are placed in this new studio area for each first student to store their equipment. Pin-up and storage space is also provided in this studio space. Twenty-four hour a day access is provided to all of our students in Cheever Hall through the use of a swipe access door using students' CAT Card (student ID card) which limits after hours access to majors only. This space received new windows on the east side which should improve the overall quality of the space. It will allow our students to have views toward the main part of campus and allow those walking on campus with a better sense of what is going on inside of our studios.

*Environmental Design Studios*

All Second, Third and Fourth Year studios are located in Cheever Hall. Some of the second floor studios are also receiving new windows as part of the seismic retrofit. Each of these studios has been fully networked with overhead or wall mounted network connections. In addition, each studio area is provided with large format color laser printers that are connected to a PHAROS print management system. These printers are available to the student twenty-four hours a

day. Each studio space also has a shared refrigerator and microwave counter to provide students with a common area for any food they may bring to the studio. This was also done to reduce the number of small refrigerators and microwaves that students were bringing to the studio space.

#### *Graduate Studios*

The graduate studios are located on the second floor of Cheever Hall in the space formerly occupied by the Creative Arts Library. This space has a very nice bank of south facing windows and is considered a desirable space by our students and faculty. The new overhead network connections and increased wireless access points will address what had been an ongoing issue of limited network access in this space. These studios also have a large format laserjet printer that is available to students twenty-four hours a day.

#### *Light Tables and Cutting Tables*

Light tables are located throughout the various studio spaces and are available to all students twenty-four hours a day. The School has also installed a vertical cutter tool and a portable cutting table.

#### *Gallery and Review Space*

The main floor gallery space on the first floor of Cheever Hall continues to serve as the primary exhibition space within the School for both internal and external exhibitions. The second floor gallery continues to serve primarily as an in-house review space. Dedicated review spaces that can accommodate an entire design studio were established along the south perimeter of the first floor design studios in Cheever Hall and in the northeast corner of the second floor. In addition, mini-crit spaces that accommodate reviews of 12-15 students have been developed along the edges of the second floor. The existing dividers for the first floor review spaces are in need of replacement and the School is looking at requesting funding for this in the next Equipment Fee Allocation Request.

#### *Craft shops*

In Fall 1999, the School of Architecture gained access to the wood shop located at the west end of Cheever Hall. Starting in 2003 the wood shop has been steadily upgraded, and now contains two Saw Stop safety table saws, two sliding miter saws, two surface planers, an 8" jointer, a lathe, three band saws, two drill presses, a jig saw, three stationary sanders, a mortising machine and a wide assortment of small stationary, portable electric and hand tools. In addition there are a number of worktables and spaces for students to work on their assignments. In 2013 the School upgraded the existing CNC machine, purchasing 2 Computer Numerically Controlled milling machines, one 24"x36"x6" format and one 60"x96" with a special 16" Z axis, allowing students to mill a much wider variety of materials and sizes. Major users of the shop are students in ARCH 543 Applied Design and Construction while students in other design studios can take advantage of the shop to build models and studio projects. In addition to regularly scheduled classes the shop is open to all students second year through graduate years that have completed a mandatory four hour safety course. Open shop times have been increased to 35-40 hours per week since the last accreditation visit. We are trying to maintain a high number of open shop hours despite the reduced budget and will need to assess our progress on this during the coming year. Safety equipment such as goggles and earplugs are located in the wood shop for use by the students.

The School of Architecture shares the metal shop located near the woodshop with Technology Education. The School of Architecture is now the predominant user, and has improved and organized this work space. SOA has added a glass kiln, two wire feed welders, an oxy/acetylene torch, an abrasive cut off saw, a large horizontal band saw, a stationary disk/belt sander, a hand held plasma cutter and numerous electric and hand tools. SOA shares, and maintains, a CNC plasma cutter purchased Technology Education.

#### *Laser Cutting, Rapid Prototyping, Digitizing Room*

In 2010 the School moved its 3D/Laser room to a space adjacent to the wood shop. This expanded space now contains some of the newest technology the School has purchased—two 18 x 32 inch laser cutters, a Rapid Prototyping Machine (8" x 10" x 8" build box), an ABS plastic 3D printers and a 3D Digitizer. This room is externally exhausted to accommodate the needs of the laser cutting machines. This room is staffed by students and is typically open from 8am to 5 pm Monday through Friday. Students are charged per minute of usage for the laser cutting machine and per cubic inch of volume for the rapid prototyping machine but again these costs are well below market rates and are used to cover material and staffing needs of this room. Both this room and the Print Room have experienced a rapid increase in student usage over the last two years.

Montana University's Space Management Committee is in the process of establishing a centralized management system that will first establish an accurate inventory of space and usage, and make the assignment, utilization and scheduling of all campus space more equitable and efficient. Prioritizing department needs and taking advantage of adjacencies will allow SOA to make the case for expansion into much needed space in Cheever Hall currently controlled, but little used, by other departments.

## **Computer Laboratories**

### *Global Labs*

Computer laboratories exist within the University for student use. Our students have access to 12 Global Student Labs with a total of over 379 computers located throughout campus with the main labs located in both 306 Reid Hall and Roberts Hall 110. Both labs have Adobe Suite, Autodesk Suite and SketchUp software installed on all computers.

### *Digital Dark Room*

The School converted an old darkroom into a digital darkroom that contains three computer workstations, and three 11 x 17-inch scanners. Our students have access to this space 24 hours a day.

### *Print Room*

Over the last 15 years, this space has been modified from a wood shop to a specialized computer media room to its current function as the School of Architecture Print Room. This room contains three 42-inch large format Hewlett Packard DesignJet T7100 Plotters and one 42 inch large format Hewlett Packard DesignJet Z6100 Plotter. It also contains one PC workstation for student staff use and one PC workstation used as a Pharos release station for independent student printing 24 hours a day. Student staff has been available for assistance from 8 am to 9 pm Monday through Friday and, 12 pm to 6 pm Saturday and Sunday but with some of the budget reductions the school will be experiencing this coming year these hours may need to be reduced. Beyond posted hours, the print room remains open for student use. This is done through a student ID swipe system, Pharos, which allows the students to charge their printing through their university cash account. Students are charged for printing services in this room but rates are kept well below market rates and are used to support the student staff and replace ink and paper supplies.

## **Servers**

The School of Architecture has three dedicated computer servers located within the basement of Cheever Hall. The servers consist of one Web server, which hosts the School of Architecture website, one Print server, supporting all studio printers within the school and one storage/file sharing server for all students to store and collaborate files within the school.

### *Universal Lab Initiative*

The School of Architecture's integration of digital media and technology began in 1998 with the development of the Universal Lab Initiative. This initiative was designed to encourage faculty and students to utilize digital applications in an appropriate manner and at an appropriate time. This initiative will be included in materials in the Team Room.

Following is a list of the computer equipment in the School of Architecture that is used by Faculty, Staff and students:

**Faculty:**

26 Workstations

**Staff:**

10 Workstations

**Student Lab Computers:**

3 Digital Darkroom Workstations

**Loaner Computers:**

1 Notebook – Faculty

**Other Computers:**

1 Plotter Workstation

1 Plotter Release Station

1 Laser Cutter Workstation

1 3D Printer Workstation

2 CNC Workstations

1 Barcode Scanner Notebook

1 Plasma Screen Workstation

4 Plasma cart Workstations

**Servers:**

1 Print Server

1 Web Server

1 Storage Server

**Scanners:**

4 11x17 Flatbed Scanners

**Printers:**

8 Studio Color Laser Printers (6 11x17 and 2 8 ½ x 11)

1 Color Laser Printer (for Faculty & Staff)

4 Plotters for Students all 42 inch)

4 Staff Printers

5 Faculty Printers (letter size)

1 Color Copier/Printer for faculty and staff  
(Bizhub C554)

**Copy/Scan/Fax Machines:**

1 All-In-One Fax Machine (Bizhub C554)

**Displays:**

3 digital projector (1<sup>st</sup> year studio, Gallery, 1 for student/faculty checkout)

8 - 42" Plasma Screens (6 on mobile carts and 2 mounted on walls)

1 SMARTBOARD (located in CDC)

**Software Provided to Students:**

Autodesk Revit – all students

3ds MaxDesign– all students

Bentley Microstation and Generative Components (10)

CATIA (10 licenses)

Creative Suite 5 – 3 Lab Computers

McAfee Virus Scan – All student computers

### **Paint Spray Room and Photo Room**

The paint spray booth provides a place for the use of canned spray paint and spray fixatives. The school has a dedicated photo room with a model stand, black curtain and photographic lights where the students photograph their models.

### **Equipment Room**

Chris Deshazo's office also functions as the Equipment Checkout Room for our students and faculty. Small digital cameras, a SLR Camera (Canon Digital Rebel) and digital projectors are available for students and faculty to check out for use. Generally, students and faculty can check out equipment from 8 am to 5 pm Monday through Friday.

### **Staff Offices**

Each staff member has their own office or workstation. Rachael Ortego, Director of Students Services, has a private office which was remodeled from two faculty offices—one of these faculty offices was quite small and had no window. Having a private office is necessary given the many advising sessions that she conducts. Jean Koelzer, Assistant to the Director, also has a private office given the confidential nature of some of the documents in her position. Chris Deshazo, ITT Support specialist, has a private office which is shared with his student workers and as mentioned earlier as the location of the equipment checkout. Sharon Matney and Anne Barnaby each have their own workstation within the main office. Bill Clinton, Shop Supervisor and instructor has a private office near the Craft Shop and his assistant Bob Clements has a separate office within the Craft Shop area. This separate office has glazing on three sides allowing him a clear visual connection with the spaces within the wood working space of the Craft Shop. Work study students share a small work station in the main office. Each full-time member of the staff has their own computer and access to the network.

### **Faculty Offices**

As mentioned previously in this section, all full-time faculty will have their own office space. One adjunct faculty space with shared workstations did receive a window as part of the seismic retrofit work which will be a positive addition to that space. We have two offices that are used for the adjunct faculty with 2-3 faculty able to occupy each space.

## Floor Plans

The Floor plans for the spaces used by the School of Architecture are included on the following pages.

### Cheever Hall First Floor Layout School of Architecture AY 2013-14 updated 8-26-13



Craft Shop	Digital Fabrication
Print Room	Photo Room
Design Studios	Review Space
Seminar Classroom	Gallery
Faculty Offices	Staff/Admin Offices
Student Lounge	Storage
<b>P</b> Laser Printer Locations	

**Color Key for Spaces**



Cheever Hall Second Floor Layout  
 School of Architecture  
 AY 2013-14 updated 8-26-13



- |   |   |
|---|---|
| <span style="background-color: #0070C0; color: white; padding: 2px;">Craft Shop</span>        | <span style="background-color: #A6C9EC; color: black; padding: 2px;">Digital Fabrication</span> |
| <span style="background-color: #00AEEF; color: white; padding: 2px;">Spray Booth</span>       |   |
| <span style="background-color: #FFD700; color: black; padding: 2px;">Design Studios</span>    | <span style="background-color: #A9A9A9; color: black; padding: 2px;">Review Space</span>        |
| <span style="background-color: #FFA500; color: black; padding: 2px;">Seminar Classroom</span> | <span style="background-color: #8B4513; color: black; padding: 2px;">Conference Room</span>     |
| <span style="background-color: #90EE90; color: black; padding: 2px;">Faculty Offices</span>   | <span style="background-color: #3CB371; color: black; padding: 2px;">Staff/Admin Offices</span> |
| <span style="background-color: #FF69B4; color: black; padding: 2px;">Student Lounge</span>    | <span style="background-color: #FFFF00; color: black; padding: 2px;">Storage</span>             |
| <b>P</b> Laser Printer Locations  |   |

**Color Key for Spaces**

