

Weldon Renovated Space Assessment Report

May 2022

Background

The main branch of Western Libraries is undergoing a major renovation as part of a larger project to help realize the principles of Western Library's [Space Master Plan](#). This space assessment project seeks to assess the success of the renovation by gathering data about how newly renovated spaces are being used by students. The results of this assessment will be used to identify necessary modifications to the newly renovated spaces; baseline data about our users' space use gathered in this assessment will also be used to guide future renovations and furniture purchases in libraries across the system.

Methods

To assess the use of the renovated spaces in Weldon, we performed periodic sweeps of the space in which we counted users in each area and made observations about noise level and interesting usage patterns. To respect the privacy of our users, we did not attempt to identify whether students were working collaboratively or whether they were using spaces for work or for leisure.

To help better understand patterns between different spaces, we classified space in a number of different ways. This classification scheme was originally based on the scheme developed by the architects; however, we made significant modifications to better represent the actual furniture and design decisions that were implemented over the course of the Weldon renovation.

Floor: Which floor of Weldon the renovated space was on.

Furniture Type: When counting users, we grouped the furniture based on furnishing types. Groups of furniture in the same general area with the same characteristics were counted as a single "zone". These characteristics are based on the following two sets of qualities:

- **Focused [F] vs. Casual [C]:** More comfortable and relaxed furniture, such as banquette seats and lounge chairs, were classified as casual seating, while more rigid, upright seating was classified as focused.
- **Social [S] vs. Non-social [N]:** Furniture in which chairs were configured in an arrangement facing other chairs were classified as social, while spaces where users were not seated facing other users were classified as non-social.

We also categorized **Drop-in [D]** and **Study Room [R]** separately, as they had distinct identities and anticipated patterns of use.

Based on this, we divided the spaces under consideration into the following types:



Drop-in [D]: Comfortable seating without tables placed in high-traffic areas.



Casual non-social [CN]: Soft lounge furnishing positioned in a non-social configuration (not facing other seating)



Casual social [CS]: Soft lounge furniture or café seating positioned facing other similar seating across a table.



Focused non-social [FN]: Upright hard furnishing positioned at a table, but positioned so it's not facing seating across the table.



Focused social [FS]: Upright hard furnishing positioned at a table facing other similar seating (also includes combination upright/banquette seating areas)



Enclosed study room [R]: An enclosed room with a table and chairs

Presence of electricity: We were aware from previous user surveys that access to electricity was an important quality users tended to look for in the spaces they chose to spend time in in the library, so we categorized each of our furniture zones as having either **adequate access to electricity [E]**, or **non-adequate access to electricity [N]**.

Capacity: For each zone, we counted the number of chairs that were intended to be in each space so that we could calculate how full each space was at a given time as a rough percentage of seats occupied.

For a full list of all of the zones and their descriptions, see Appendix A. For maps of the zones, see Appendix B.

Results

Data was collected during the exam period of Spring 2022. We performed a total of 34 data sweeps, discarding 1 because it took place much later at night than any of our other sweeps.

Based on the remaining 33 sweeps, we gathered the following information:

Average Noise by Time of Day (higher numbers equal more noise)

Zone	Floor	Type	Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg Noise (all times)
1	5	FS	1.00	1.17	1.22	1.82	1.30
2	5	FS	1.00	1.33	1.44	2.11	1.47
3	5	FS	1.14	1.17	1.11	1.82	1.31
4	5	CS	1.00	1.00	1.44	2.22	1.42
5	5	FS	1.00	1.33	1.56	2.20	1.52
6	M	CS	0.29	1.33	1.56	0.91	1.02
7	M	D	0.29	0.50	1.00	1.09	0.72
8	M	FN	1.14	1.17	2.33	2.36	1.75
9	M	FS	1.86	2.33	2.44	2.55	2.30
10	M	CS	1.00	2.17	2.44	2.91	2.13
11	M	R	1.29	2.17	2.11	2.55	2.03
12	M	CN	0.86	1.00	1.56	1.27	1.17
13	M	FS	1.14	1.83	2.11	2.36	1.86
14	M	CS	1.43	1.17	1.56	1.00	1.29
15	1	FN	0.29	0.50	0.33	0.55	0.42
16	1	D	0.29	0.50	0.44	0.64	0.47
17	1	CS	1.00	1.17	1.56	1.55	1.32
18	1	FS	1.00	1.50	1.67	2.27	1.61
19	1	CN	1.00	1.00	0.89	1.18	1.02
20	1	FS	0.71	1.33	1.44	1.18	1.17
21	1	FN	0.29	0.67	0.78	0.45	0.55
22	1	CS	0.43	1.00	1.56	1.36	1.09
23	1	FN	1.00	1.33	1.56	2.27	1.54
Average:			0.89	1.25	1.48	1.68	1.32

Grouped by Floor	Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg Noise (all times)
5	1.03	1.20	1.36	2.03	1.40
M	1.03	1.52	1.90	1.89	1.59
1	0.67	1.00	1.14	1.27	1.02

Grouped by type	Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg Noise (all times)
D	0.29	0.50	0.72	0.86	0.59
FS	1.11	1.50	1.63	2.04	1.57

	CS	0.86	1.31	1.69	1.66	1.38
	FN	0.68	0.92	1.25	1.41	1.06
	CN	0.93	1.00	1.22	1.23	1.09
	R	1.29	2.17	2.11	2.55	2.03
Grp by social config		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg Noise (all times)
	Social (FS, CS)	0.98	1.40	1.66	1.85	1.47
	Non-social (FN, CN)	0.80	0.96	1.24	1.32	1.08

Percentage usage by time of day (avg seats / total seats)

Zone	Floor	Type	Outlets?	Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)
1	5	FS	Y	22%	37%	34%	35%	32%
2	5	FS	Y	3%	30%	29%	25%	22%
3	5	FS	Y	19%	42%	36%	27%	31%
4	5	CS	Y	17%	61%	39%	41%	39%
5	5	FS	N	5%	29%	36%	28%	25%
6	M	CS	Y	4%	42%	42%	32%	30%
7	M	D	N	0%	3%	6%	4%	3%
8	M	FN	Y	8%	50%	57%	47%	40%
9	M	FS	Y	28%	46%	53%	43%	42%
10	M	CS	Y	7%	37%	38%	29%	28%
11	M	R	Y	12%	43%	44%	42%	35%
12	M	CN	Y	18%	46%	44%	43%	38%
13	M	FS	Y	30%	51%	49%	45%	44%
14	M	CS	Y	32%	42%	50%	34%	39%
15	1	FN	Y	0%	17%	17%	25%	15%
16	1	D	N	0%	3%	2%	5%	2%
17	1	CS	N	9%	59%	47%	34%	37%
18	1	FS	Y	12%	46%	41%	28%	32%
19	1	CN	Y	24%	86%	70%	71%	63%
20	1	FS	N	4%	26%	26%	15%	18%
21	1	FN	N	0%	28%	37%	30%	24%
22	1	CS	N	1%	14%	18%	14%	12%
23	1	FN	Y	5%	52%	52%	37%	37%
Average:				11%	39%	38%	32%	30%

Grouped by floor		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)
5		13%	40%	35%	31%	30%

M		16%	40%	42%	35%	33%	
1		6%	37%	34%	29%	27%	
Grouped by type		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
	D	0%	3%	4%	4%	3%	
	FS	15%	38%	38%	31%	31%	
	CS	12%	42%	39%	31%	31%	
	FN	3%	36%	41%	35%	29%	
	CN	21%	66%	57%	57%	50%	
	R	12%	43%	44%	42%	35%	
Grouped by social configuration		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
	Social (FS, CS)	13%	40%	38%	31%	31%	
	Non-social (FN, CN)	12%	51%	49%	46%	40%	
Grouped by seat type		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
	Focused (FS, FN)	9%	37%	39%	33%	30%	
	Casual (CS, CN)	16%	54%	48%	44%	41%	
Grouped by outlets		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
	Y	15%	45%	43%	38%	35%	
	N	3%	23%	24%	19%	17%	
Grouped by floor and outlets		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
5	Y	15%	42%	34%	32%	31%	
5	N	5%	29%	36%	28%	25%	
M	Y	17%	44%	47%	39%	37%	
M	N	0%	3%	6%	4%	3%	
1	Y	10%	50%	45%	40%	36%	
1	N	3%	26%	26%	20%	19%	
Grouped by zone and outlets*		Morning (8-10)	Midday (11-1)	Afternoon (2-4)	Evening (5-7)	Avg usage (all times)	
	FS	Y	19%	42%	40%	34%	34%
	FS	N	4%	28%	31%	22%	21%
	CS	Y	15%	45%	42%	34%	34%
	CS	N	5%	37%	32%	24%	24%
	FN	Y	5%	39%	42%	36%	31%
	FN	N	0%	28%	37%	30%	24%

*doesn't include zones where all instances of this zone have the same level of outlet access

Findings and Recommendations

Based on the data we gathered, we noticed the following trends:

Noise levels:

- All observed spaces tended to get louder as the day progressed.
- The mezzanine is consistently the loudest new space, while the first floor is consistently the quietest. The 5th floor is generally a quiet space but becomes very loud in the evenings.
- Study rooms and social space configurations, unsurprisingly, are louder than other space configurations.
- Focused seating areas tend to be louder than casual seating areas.

Based on these observations, it's clear the mezzanine is the primary social space among the newly renovated spaces, while less socializing is happening on the 1st floor than would be anticipated in alignment with the principle of having high-intensity spaces near the entrance (page 60 of the [Space Master Plan](#)). This could be due to the nature of the first floor, as a large open space with tall ceilings, or due to the furniture configuration in the space. This data was also collected prior to the return of the service desk to the first floor, which may have impacted the ambient noise levels.

Space usage:

- The usage of space generally is lower in the morning, and peaks in the early afternoon
- The mezzanine is the most popular new space at every time of day
- While most seating arrangements have a similar level of usage, casual non-social seating is significantly more popular, and drop-in seating is significantly less popular than other seating types. It's worth noting that, as the service desk on the 1st floor and the community partner spaces on the mezzanine aren't yet open, drop-in seating may not yet be serving its intended purpose.
- Casual seating areas were generally more popular than focused seating areas, which is interesting when considering that focused seating tended to be noisier.
- Seating areas with adequate access to electrical outlets were generally more popular than seating areas without electrical access.

Qualitative findings:

Furniture movement:

- Café tables and chairs from Zone 6 have been combined with couches from Zone 7 and moved to be in front of electrical outlet, or generally shifted up and down the hallway.
- Standing desks from Zone 15 have been moved to the couches from Zone 16, along with chairs taken from Zone 23 to create seating arrangements nearly identical to those in Zone 18.
- Furniture was consistently being almost completely redistributed from Zone 12 to other zones on the Mezzanine, leaving the original space empty.
- Users moved tables from various other zones into Zone 22. Users predominantly only sat at seats that were in front of one of the moved tables.

Noted furniture preferences:

- In Zone 22, users prefer the wingback chairs to other chairs.
- Users seem to like lounge chairs, and frequently move them to be in other zones, leaving Zones 12 and 17 looking strangely empty. Lounge chairs weren't typically moved from Zone 19, but this zone was also rarely not full.
- Whiteboards are popular for independent use, group use, and as privacy screens. They get moved around frequently in the spaces they're in.

Observation on social use of spaces

- Users often rearrange the chairs they like into social configurations for groups, even if other pre-configured social space is available
- Social spaces are often be occupied by only one person per table

User behaviours

- Users very frequently leave bags and laptops unattended at desks
- Users sometimes lay down sideways in lounge chairs, or put their feet up on other chairs
- Users sleep in the library in a variety of spaces (Zone 20 was especially popular for this)
- Users do use standing desks occasionally, and will also sometimes use the radiators on the mezzanine as though they were standing desks.
- Users frequently rotate seats to be able to see out of windows

Access to outlets

- Users frequently moved furniture to gain access to outlets
- Users occasionally notice outlets built into furniture, but more often used wall outlets instead
- Users will create tripping hazards when outlets are across an aisle from the seat they're using
- Users occasionally leave devices unattended at outlets that aren't near tables to charge them

Recommendations:

For continued iteration of the new Weldon spaces:

- 1. Try rearranging more of the casual seating featuring large lounge chairs into non-social configurations in all spaces,** as there seems to be a higher preference for this than for the social configurations using the lounge chairs.
- 2. Zone 2 on the 5th floor is very high capacity, but is not preferred to Zones 1 and 3, which are in alcoves or closer to natural light. When the space does become full, Zone 2 may be limited in how busy it gets by users not wanting to join people they don't know at tables that seat 6. Consider arranging the tables in Zone 2 of the 5th floor into long rows of 3 tables, rather than staggering them, to better convey the idea that this is public study space, and unaffiliated users should sit next to each other. Alternatively, moving some of the focused non-social**

seating from the 1st floor and mezzanine into this space could also be a good option (see recommendations 3 and 4).

3. Given that the Mezzanine is becoming the busy, high-energy space of the library, **consider moving some of the non-social furniture from the Mezzanine to the 1st or 5th floor, and replacing it with social furniture configurations that better fit the more social nature of the space.** For instance, the lounge chairs from Zone 12 on the Mezzanine can be placed on the first floor in a configuration similar to Zone 19 in exchange for more banquette seating, while the Zone 8 tables could be swapped with some of the tables from Zone 2 on the 5th floor.
4. If making the 1st floor a more social space is desirable, it may be better to **convert more of the seating on the 1st floor into focused social seating**, as this tends to be the most social seating arrangement. As with the mezzanine, focused non-social seating could be switched with focused social seating from the 5th floor.
5. Consider **rearranging the social lounge chairs in Zone 17 on the first floor to a non-social configuration more similar to Zone 19** against walls to increase its usage, and **put more focused social seating in its place.**
6. Users show a general preference for spaces with electricity and will move furniture in order to gain electrical access. While we recognize that not every place in the library can have electricity, it's useful to remember that users will attempt to move tables without outlets to be closer to visible outlets that are not in seating areas or stretch power cords across aisles to reach the outlets. Therefore, it's a good idea to **remove or hide outlets that are visible from seating areas that don't have access to electricity or provide electrical access to those spaces.**

For future renovations:

- Consider desired noise level when selecting furniture. As illustrated in the table below, non-social furniture configurations tend to be correlated with lower ranges of average noise. Having the right mix of social and non-social furniture may help promote the desired intensity gradient for a given space.

Table: Range of observed average noise by study space type

Study space type	Avg. noise (higher numbers are louder)
Drop-in [D]	0.29 to 0.86
Focused Social [FS]	1.11 to 2.04
Casual Social [CS]	0.86 to 1.69
Focused Non-social [FN]	0.68 to 1.41
Casual Non-social [CN]	0.93 to 1.23
Study Rooms [R]	1.29 to 2.55

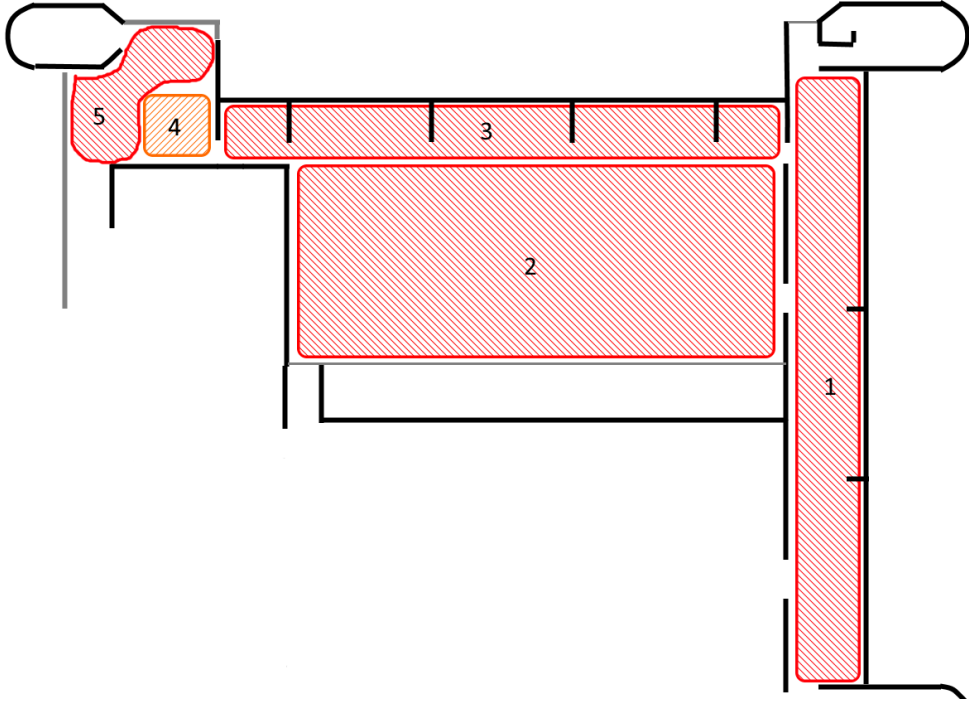
- Note: while drop-in seating has a demonstrably lower average noise level, this was because of the low use of this seating type. It is not recommended to expand the amount of drop-in seating.
- Zone 22 on the 1st floor has fairly low use, and the use we've seen has tended to be only at tables that users have taken from other zones and brought into Zone 22 to use. We may want to avoid installing more of this type of seating in future renovations, except for the wingback chairs.

- The casual non-social seats on the 1st floor were extremely popular. Having more similarly-arranged seating could be valuable in other new spaces.
- Whiteboards appeared to be a popular tool for both studying and creating temporary privacy screens on the mezzanine, judging from how frequently they were observed in use. Consider providing additional whiteboards to other renovated spaces.
- Users frequently moved tables into seating areas that lack them. Consider providing more café tables in casual seating areas to reduce furniture migration.

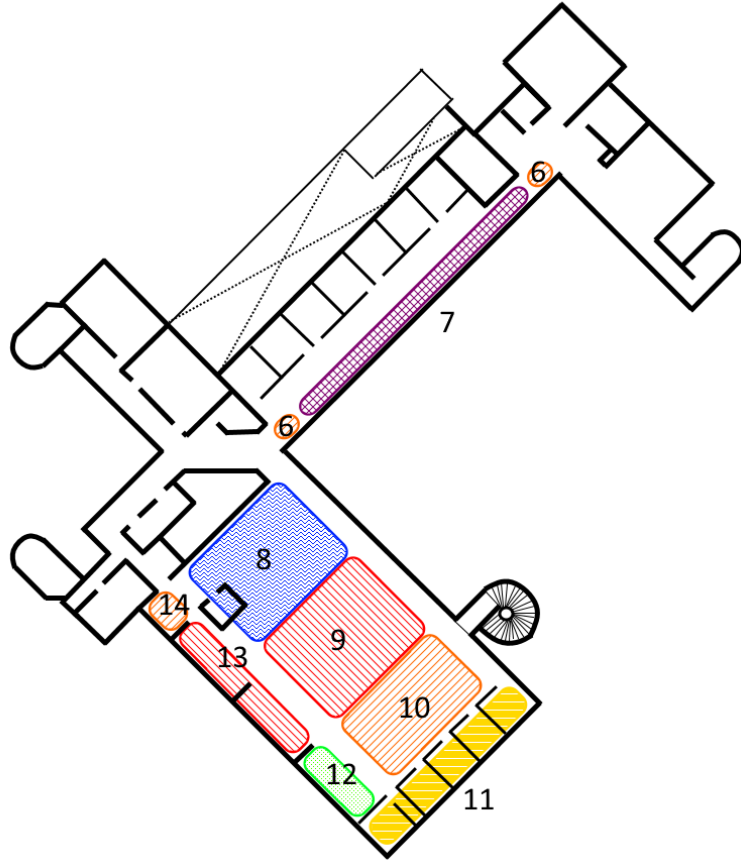
Appendix A – List of Zones

Zone #	Floor	Type	Electricity?	Description
1	5	FS	E	Tables and chairs in side hallway
2	5	FS	E	Tables and chairs in centre of main room
3	5	FS	E	Alcove tables and chairs in main room
4	5	CS	E	Comfortable chairs in entryway
5	5	FS	N	Tables and chairs in entryway
6	M	CS	E	Café seating on either side of the drop-in seating in front of consultation rooms
7	M	D	N	Drop-in seating in front of consultation rooms
8	M	FN	E	Tables with centre screens
9	M	FS	E	Tables and chairs in centre of room
10	M	CS	E	Casual seating area
11	M	R	E	Study rooms
12	M	CN	E	Lounge chairs facing window
13	M	FS	E	Tables and chairs in window alcoves
14	M	CS	E	Banquette seating in corner alcove near washrooms
15	1	FN	E	Standing desks near entrance
16	1	D	N	Airport-style lounge chairs near entrance
17	1	CS	N	Lounge chairs and tables near staircase
18	1	FS	E	Combination chairs and banquette seating
19	1	CN	E	Lounge chairs near Archives entrance
20	1	FS	N	Study tables near Archives entrance
21	1	FN	N	Study tables against back wall
22	1	CS	N	Couches and arm chairs next to basement stairwell
23	1	FN	E	Tables with centre dividers behind reference desk

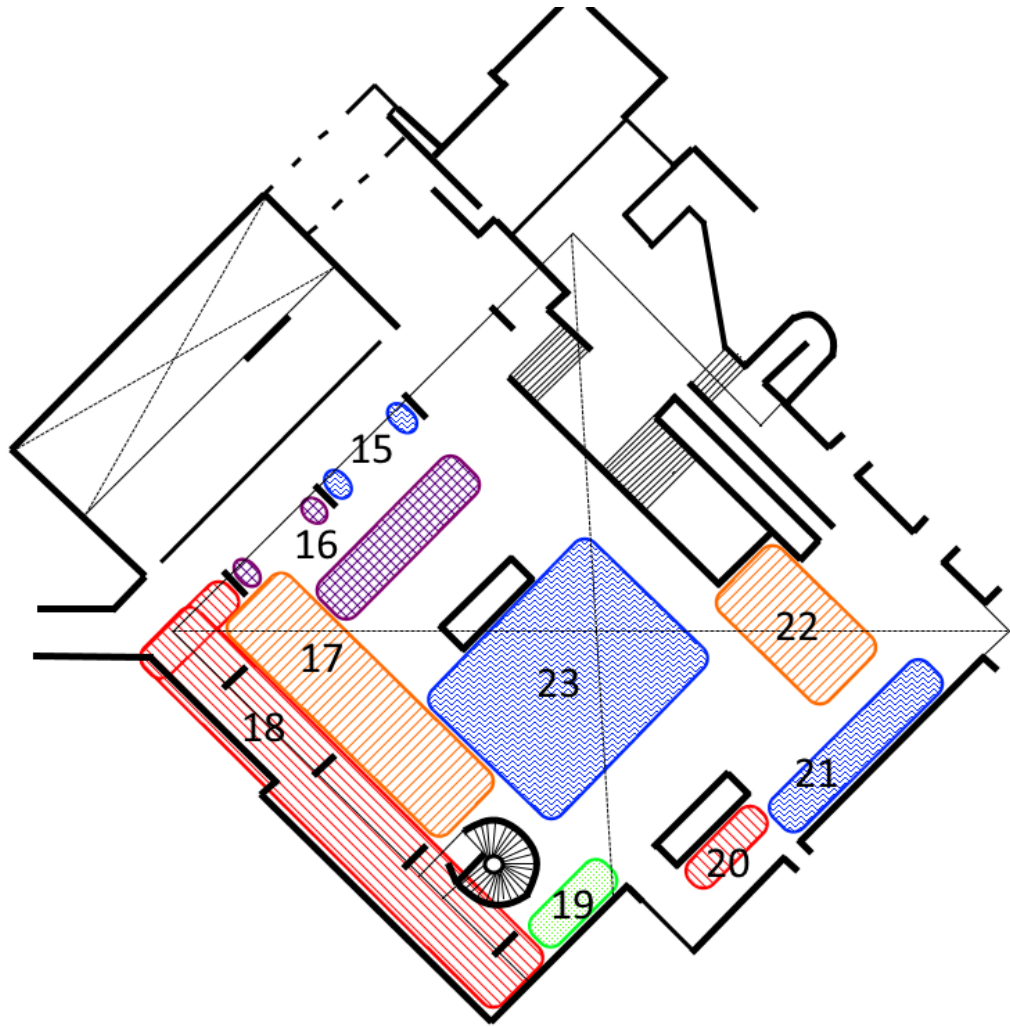
Appendix B – Zone Maps



5th Floor



Mezzanine



First Floor