

Plan C

A Floor Plan Proposal for i3Detroit

Revision 5

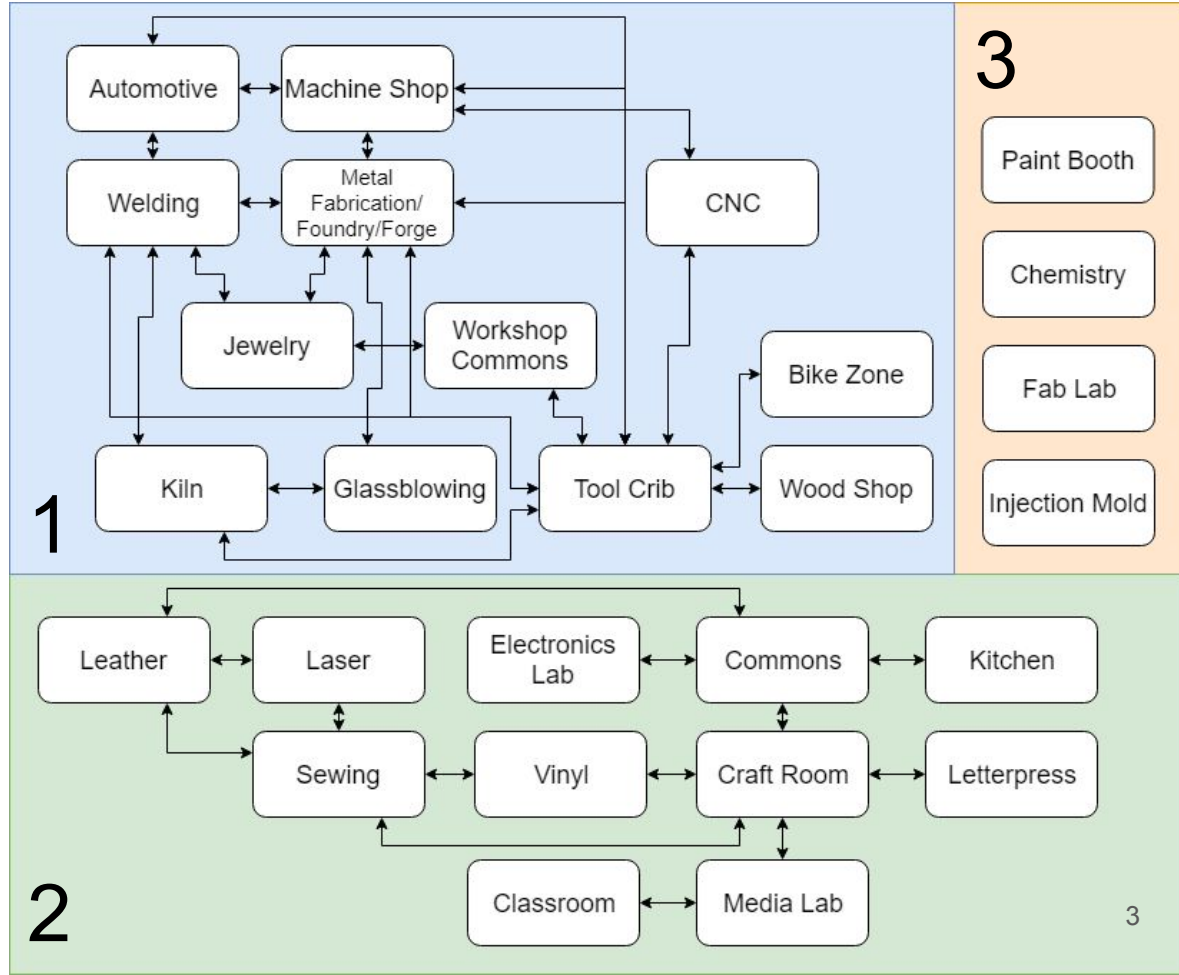
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The Fundamental Interconnectedness of All Things

Most zone coordinators have requested that their zone be near or adjacent to at least one other zone. Here is that mapping, with the Commons area having been split into two separate spaces.

- The zones fall fairly neatly into two distinct groups.
- The third clump is zones that did not request to be adjacent to any other zone.

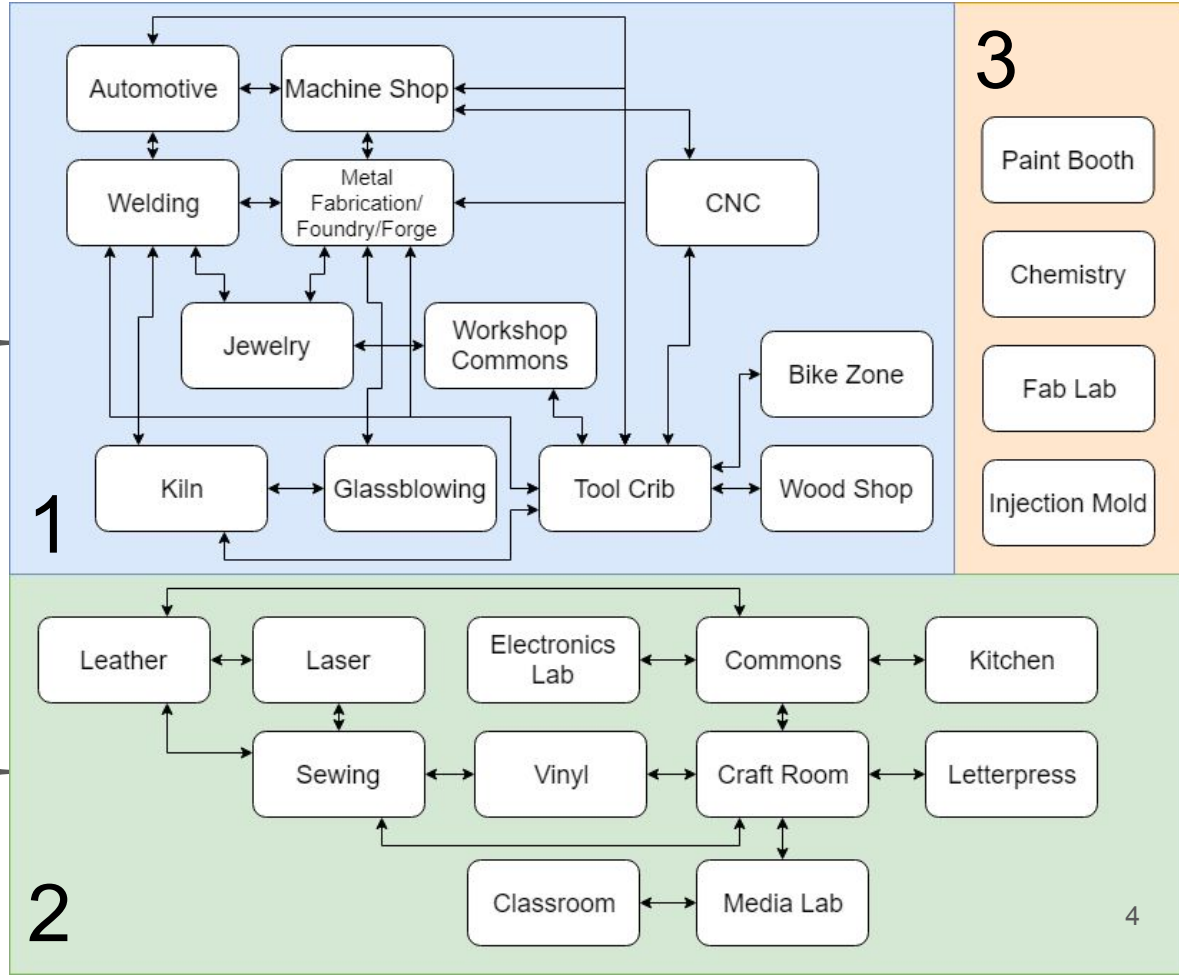


The Fundamental Interconnectedness of All Things

Some generalizations can be made about each group of zones, though all points may not specifically apply to every zone:

- Frequent use of power tools
- Use of large, loud shop equipment
- Tools such as saws, grinders, and sanders which produce airborne particulate dust
- Hazards such as sharp blades, high-temperature and/or high-speed machinery
- PPE Required

- Use of generally quieter tools and equipment, computers
- Sensitivity to dust and dirt
- Activities produce small to moderately sized, non-airborne mess in a limited area
- Hazards are minimal and/or contained
- PPE not usually required



Zone Groupings

Group 1

- Tool Crib
- Wood Shop
- Bike Zone
- Welding
- Automotive
- Machine Shop
- CNC
- Jewelry
- Kiln
- Glassblowing

Group 2

- Electronics Lab
- Laser
- Classroom
- Media Lab
- Kitchen
- Sewing
- Craft Room
- Leather
- Vinyl

Group 3

- Paint Booth, Finishing,
Powder Coating
- Chemistry
- Fab Lab
- Injection Mold

What Goes Where?

Each zone has different needs and wants. Some are very generic and only need resources which are plentiful throughout the space. Other zones require very specific resources, which greatly limits where they can be located in the building. Considering those resources makes for a good starting point when evaluating where each zone will fit best in the space.

- A-Side

- 5800 ft² of warehouse space - heated
- 950 ft² of office space - heated & air conditioned
- 10 ft wide garage bay door
- Plumbing & drains in and immediately adjacent to office area northwestern walls.

- B-Side

- 5500 ft² of warehouse space - heated
- 130 ft² of office space - air conditioned
- 12 ft wide garage bay door
- Plumbing and drains in and surrounding the loft
- Floor drains to sewer throughout the warehouse
- Gantry crane runs from garage bay to back wall

What Goes Where?

- Zones in Group 1 have little use for the existing office space on the A-side, but that space would be useful for a number of zones in Group 2.
- Kitchen requires hot/cold water and a drain, limiting it to a few locations:
 - A-side on the north wall of the office rooms.
 - B-Side around and under the loft (However there is no hot water installed here.).
- Automotive Zone should be near a garage door, and it would benefit from the larger garage bay on the B-side.
- Zones in Group 1 could make use of the gantry crane on B-Side for unloading and moving large equipment.

What Goes Where? - Undecided Zones

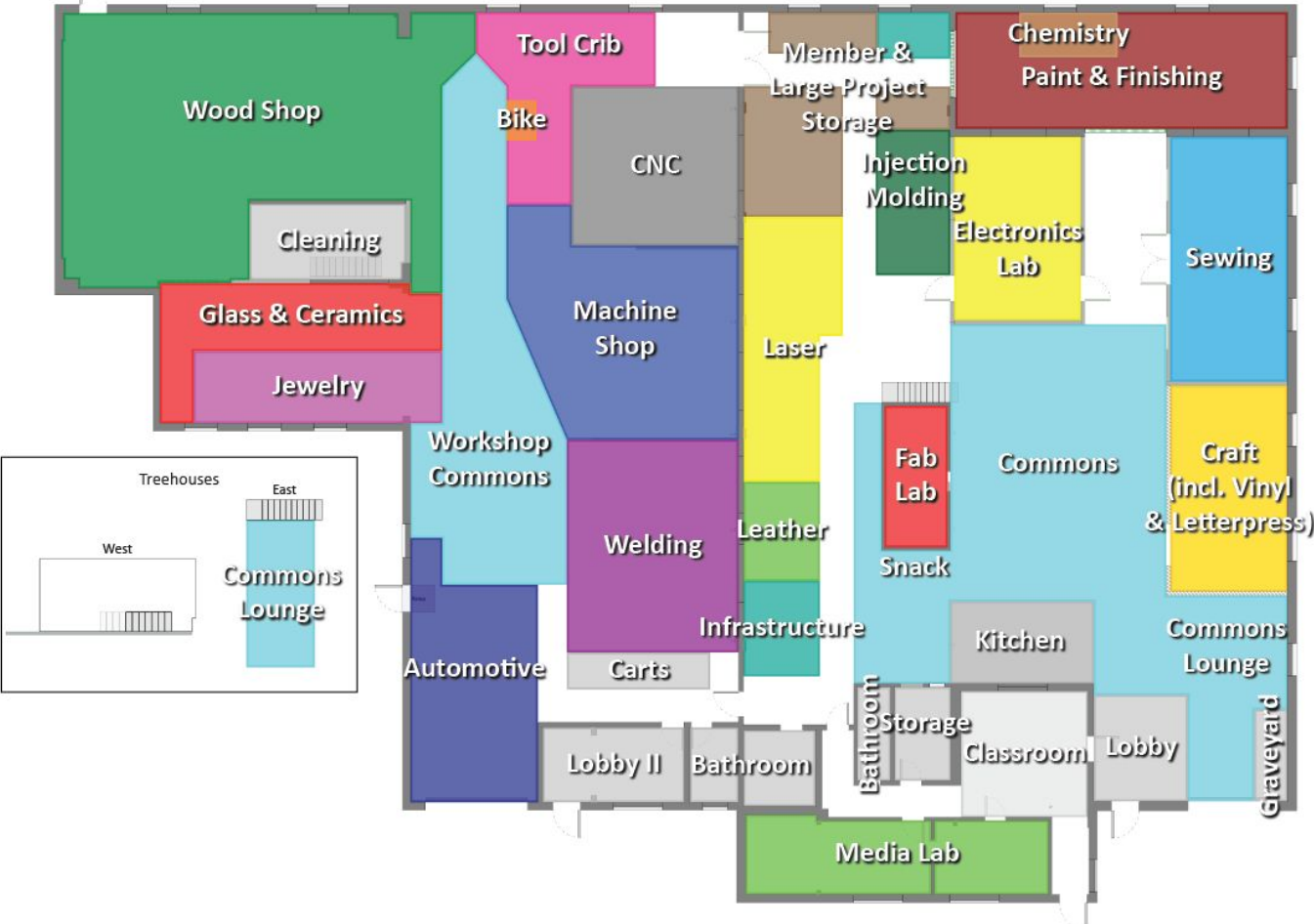
- **Spray Booth and Finishing - Group 2**
 - Spraying can be messy but a proper spray booth mitigates this. The current DIY booth is a good example of this.
 - Projects that have been finished need a low-dust space to sit and cure.
- **Chemistry - Group 2**
 - Requires ventilation and a low-dust environment. Like a spray booth, the ventilation mitigates unpleasant fumes.
- **Injection Molding - Still undecided**
 - Produces some noise, but otherwise is generally inoffensive to other zones.
- **Fab Lab - Group 1**
 - Very happy where it is in its custom-built room.
 - Takes in air from outside in the shop and prefers this to be low-dust.

Proposed Floor Plan

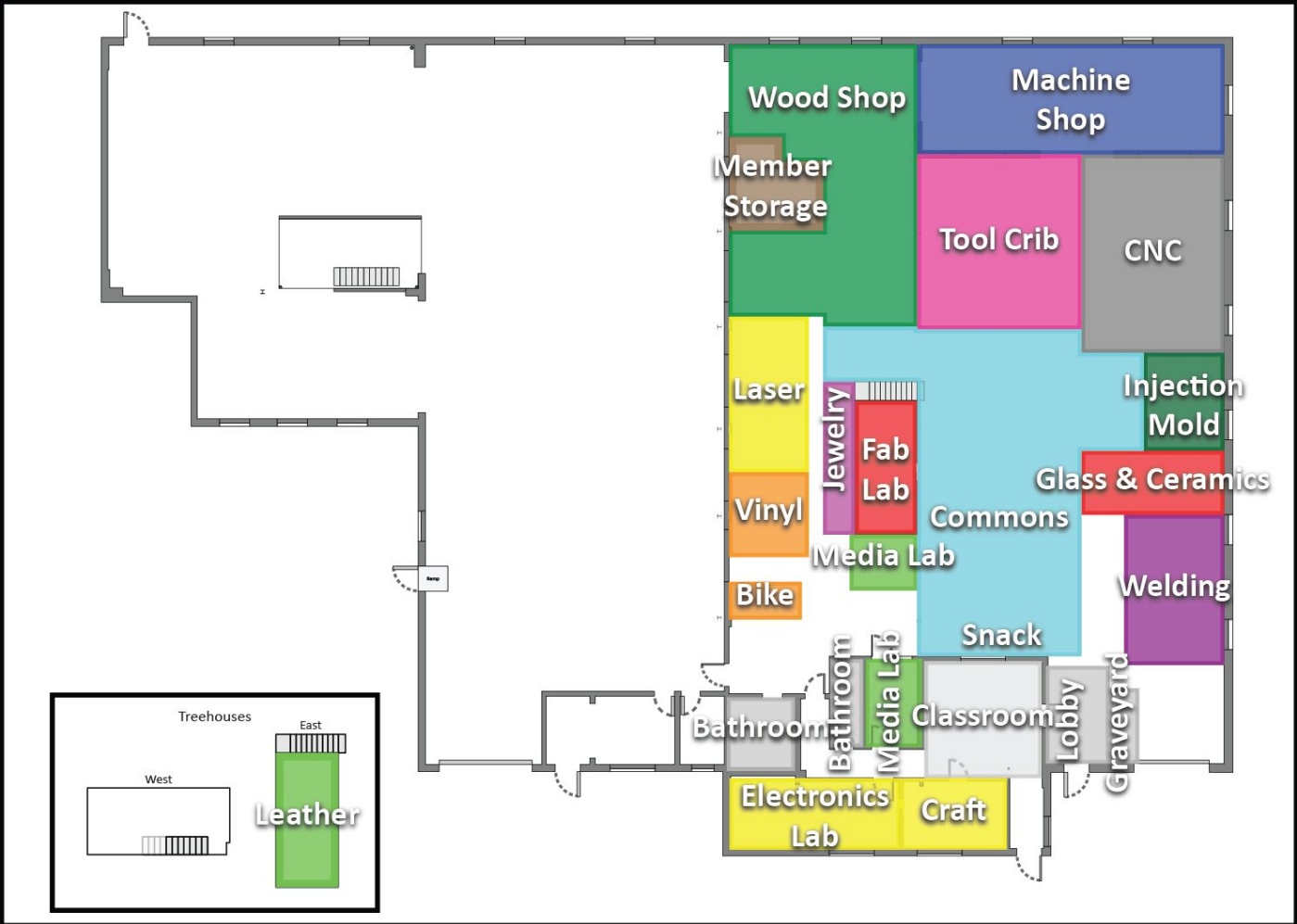
After considering which zones fit best together, where all zones as a whole can make the best use of our building's resources, and what amount of space is available, this is the proposed grouping of zones:

- A-Side: Group 2 and the four undecided zones
Electronics Lab, Laser, Classroom, Media Lab, Kitchen, Sewing, Craft Room, Leather, Vinyl, Paint Booth/Finishing/Powder Coating, Chemistry, Fab Lab, Injection Mold
- B-Side: Group 1
Tool Crib, Wood Shop, Bike Zone, Welding, Automotive, Machine Shop, CNC, Jewelry, Kiln, Glassblowing

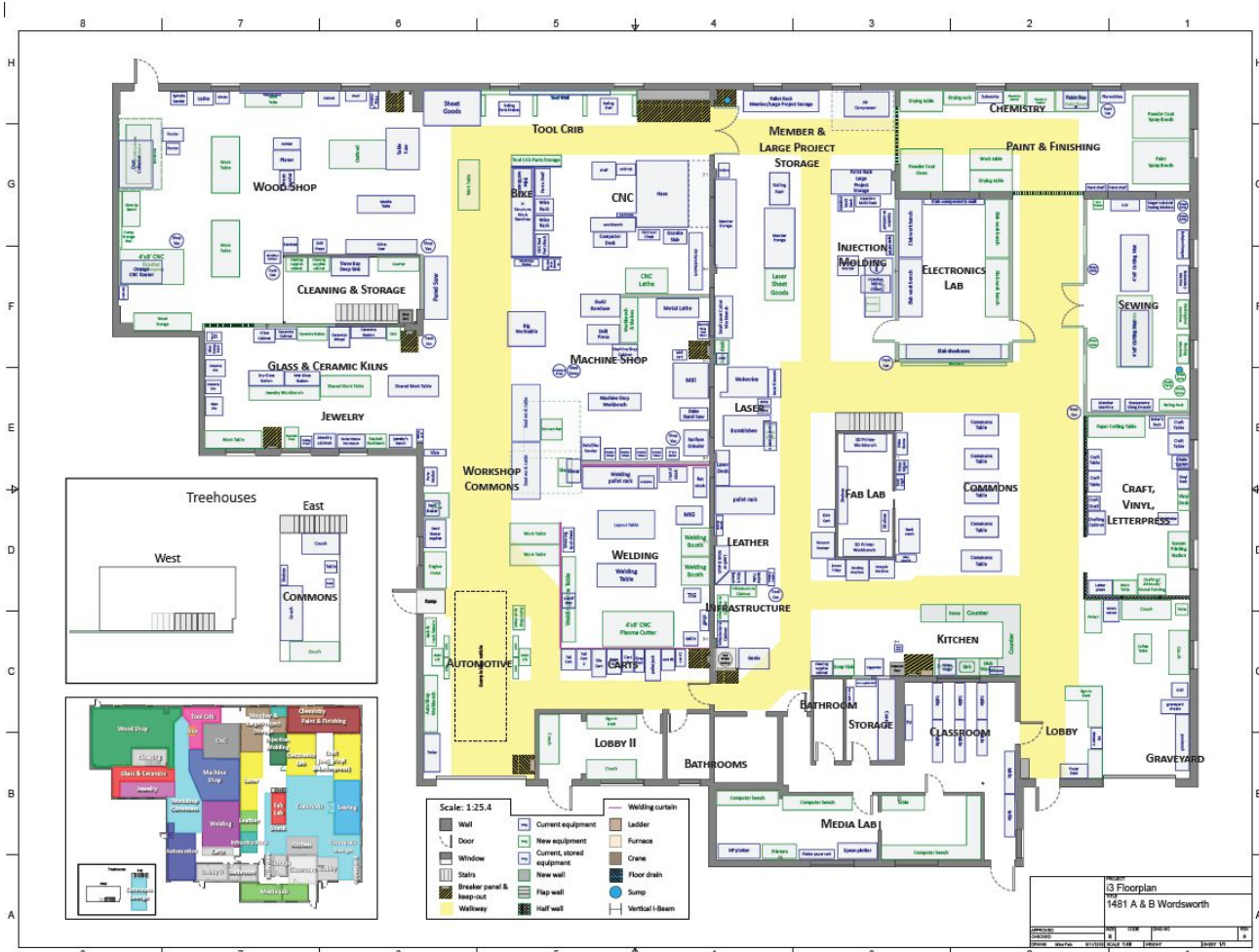
Proposed Floor Plan - [PDF of plan](#)



Current Floor Plan For Comparison



Proposed Floor Plan - [PDF of plan](#)



Floor Plan Features

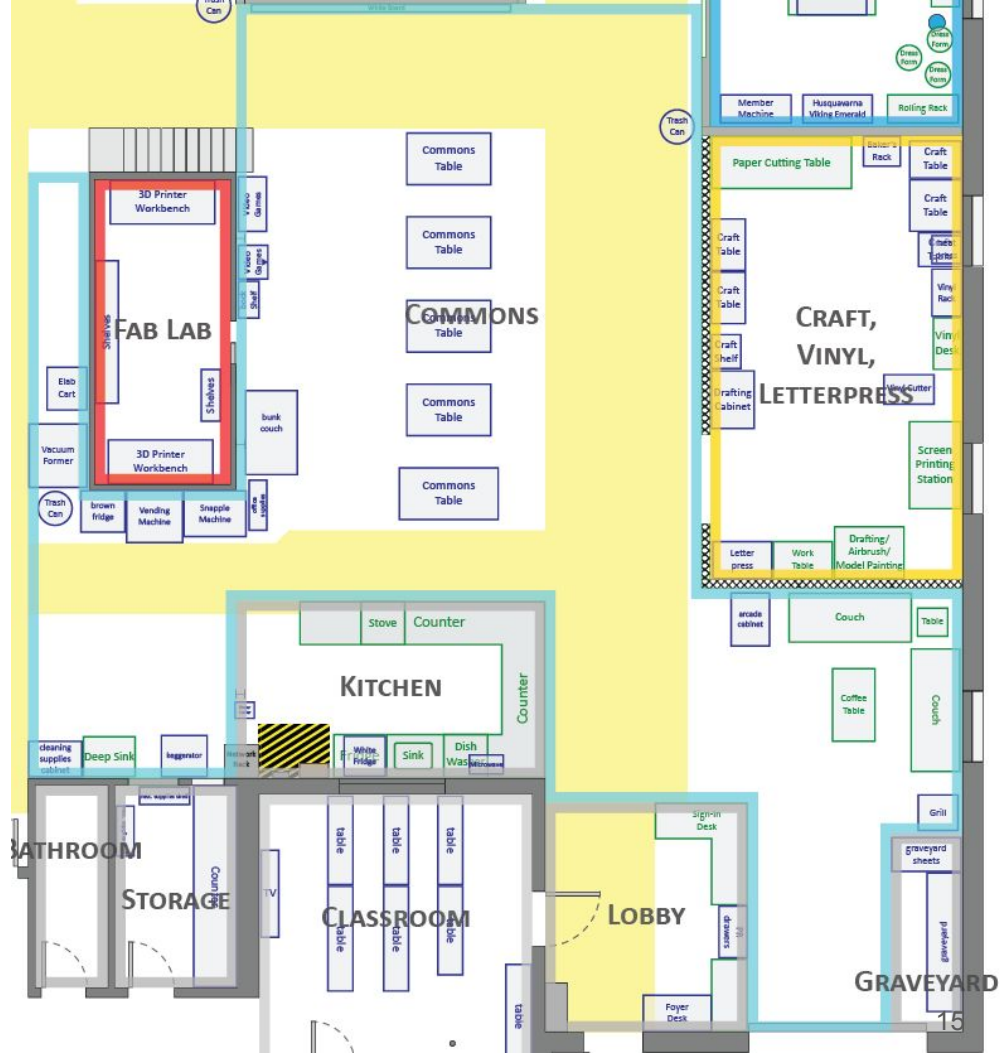
- Lobby areas inside both front doors on each side.
- Central north-south through-ways (8+ ft wide) on both sides, with secondary (4+ ft wide) paths, so all zones are easily accessible. Paths are long and straight with few corners to ease moving carts and large projects.
- Large Commons areas on both sides for general use and zone overflow.
- Space left on both sides could be used for future new zones or equipment:
 - New lounge areas on A-side could be repurposed for new zones as we have done before.
 - Large project storage has been expanded, but could shrink back down.
 - Space between laser cutters and member storage.
 - Common area on B-side between Welding, Machine Shop, Tool Crib, Jewelry, and Kilns could be made more specific.

A-Side Features

- Large, central Commons Area stays generally where it is.
- Electronics Lab, Craft Room, and Sewing move out of the front rooms into their own, new rooms.
- Kitchen north of Classroom with peninsula adjacent to Commons is convenient for hosting cooking classes and serving food to groups.
- Paint & Finishing and Chemistry share the northeast area currently occupied by the Machine Shop because of already-built-in ventilation access.
- Media Lab and Printers take over the front two rooms.
- Expanded Member Storage and Large Project Storage in northwest corner.
- Expanded lobby area near the main entrance so the door isn't so crowded, along with an adjacent, welcoming lounge area.
- Laser Zone takes on the small lasers and gets its own sheet goods storage
- Fab Lab and Classroom stay put.

Commons

- Current Commons area stays roughly where it is, similar in size.
- Kitchen counter peninsula along southern edge
- New lounge area between new Sewing room and garage bay.
- Additional out-of-the-way lounge area in the treehouse.
- Whiteboard on south wall of new Electronics Lab, projector screen could be hung here as well.

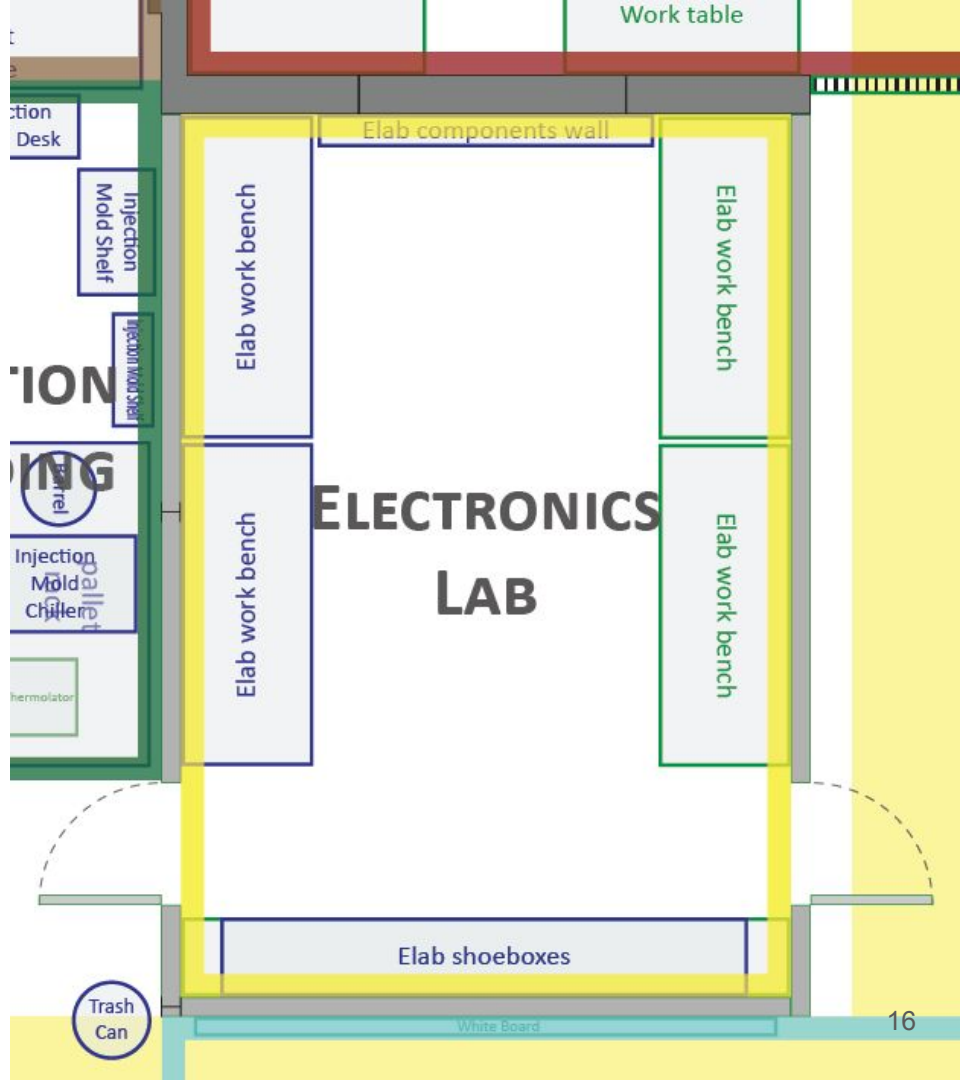


Electronics Lab

- New, larger room constructed in the where tool crib currently sits.
 - Walls use existing vertical I-Beams as a foundation.
- Room for two additional workbenches
- Much more wall space for equipment shelves, parts drawers, shoeboxes, overflow storage.
- Two doors with optional windows to make access easier when crowded.
- ESD tile floor.

Floor space change (ft²)

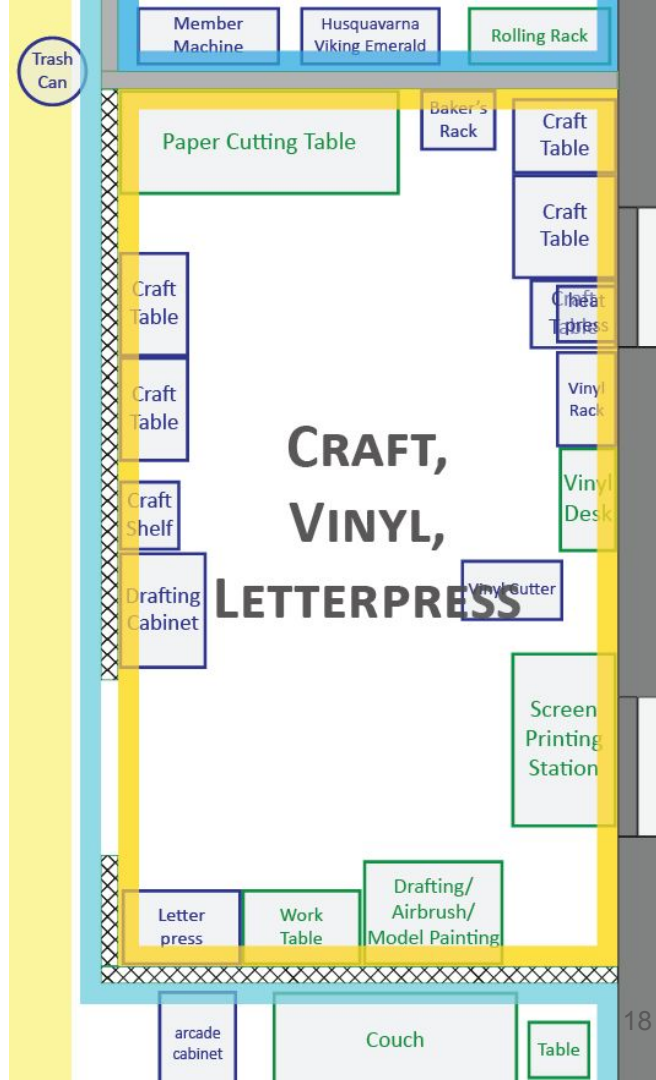
New	Old
345	210



Craft Room, Vinyl, Letterpress

- In a new space along the exterior east wall, south of sewing.
- Half walls to enclose the space but still keep it open to the Commons.
- Two windows in exterior wall for natural light.
- Space for large paper cutting workspace.
- Dedicated Letterpress workstation.
- Screen printing station.
- Vinyl cutter and supplies move in.
- Space for additional optional work areas (drafting, airbrush, model painting, etc.)

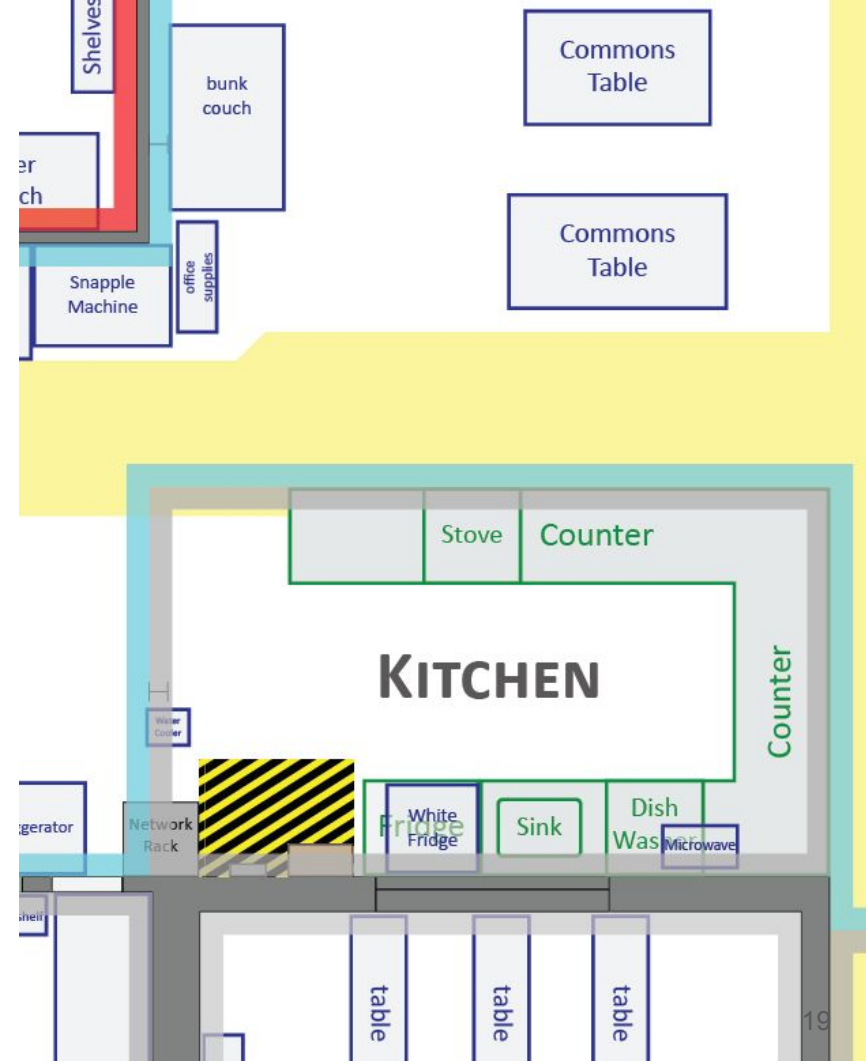
Floor space change (ft ²)	
New	Old
360	125 + 95



Floor space change (ft ²)	
New	Old
175	N/A

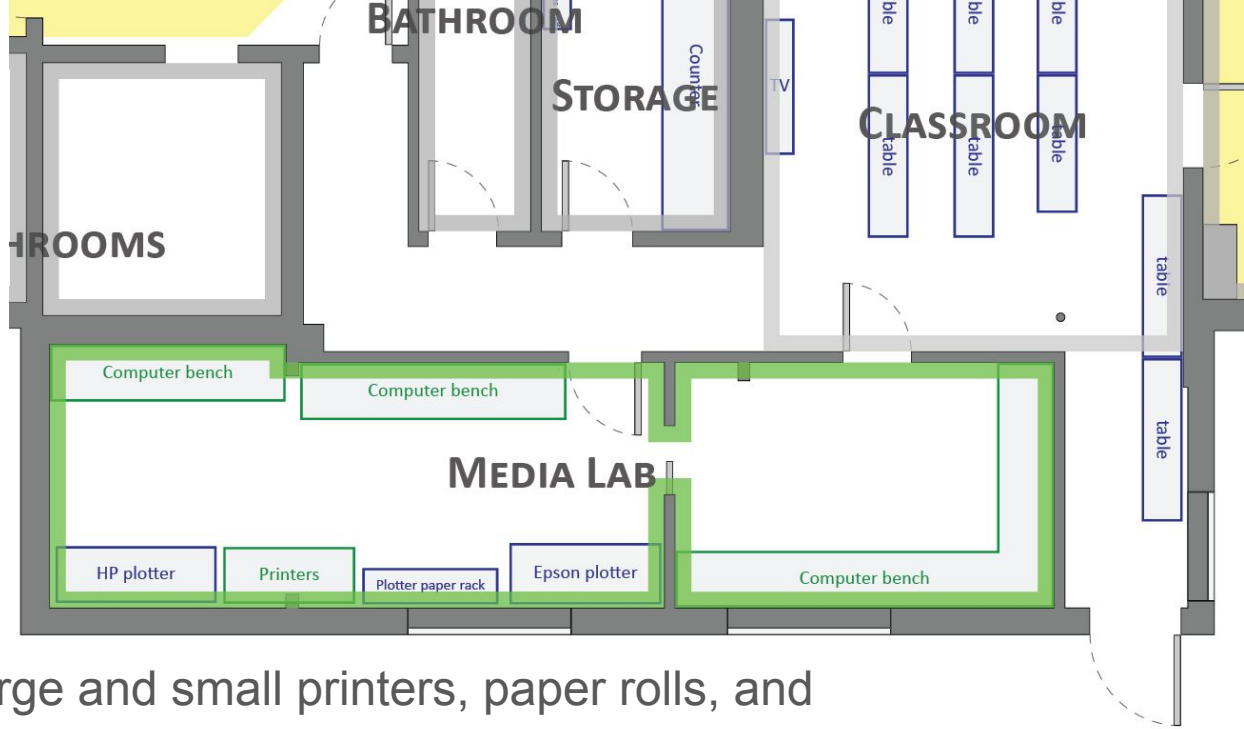
Kitchen

- Large U-shaped counter north of the classroom, adjacent to commons area.
- Cupboards, cabinets, and drawers for equipment storage.
- Stove, oven, refrigerator, dishwasher
- Sink built into counter. Plumbing is run east from the deep sink to the counter. This requires what is currently the media lab's north door be sealed permanently.
- Countertop adjacent to commons is especially useful for cooking demos, serving food, acting as a bar at parties.



Media Lab

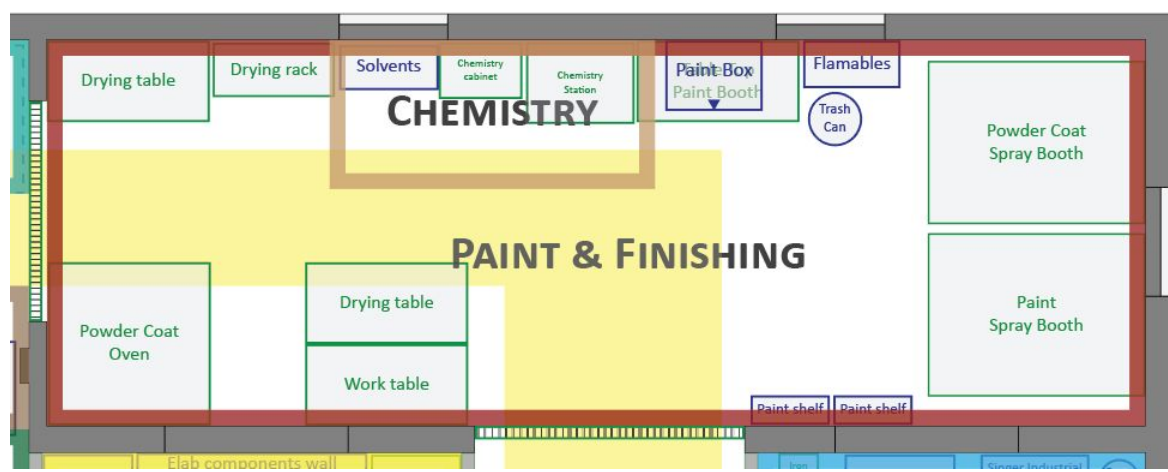
- Takes over current E-Lab and Craft Room.
- Room for several benches of computers, space for laptop users. 8-10 user capacity.
- Dedicated homes for large and small printers, paper rolls, and printer supplies.



Floor space change (ft ²)	
New	Old
335	80

Paint Booth, Finishing, Powder Coating

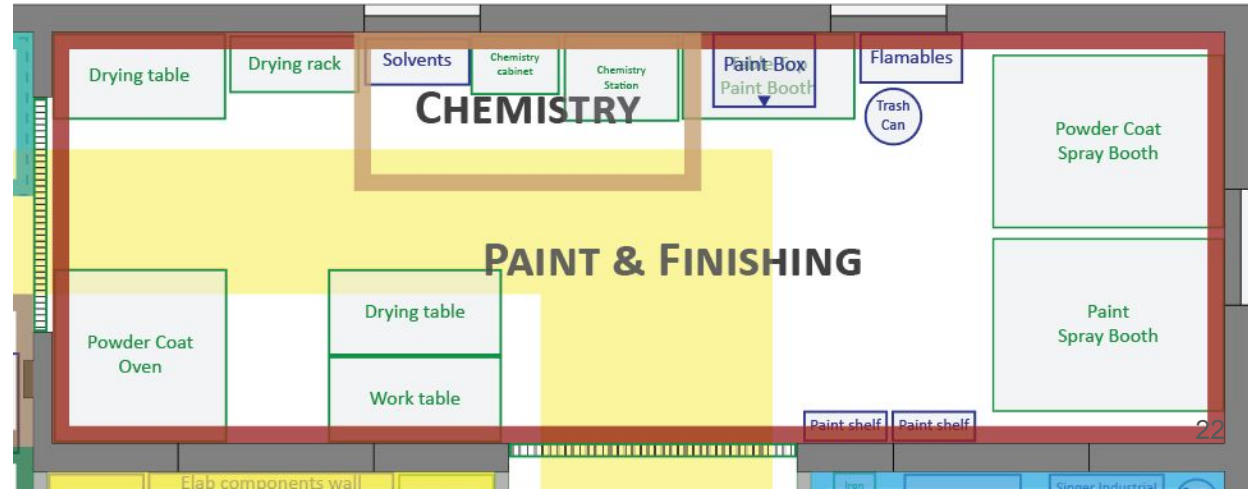
- Takes over the space that is currently the Machine Shop.
- Existing Exhaust ports in north and east walls can be used for spray booth ventilation.
- Space for at one large (8'-10' wide) or two smaller (6'-7' wide) by 6' deep spray booths.
- Provides clean workspace for prep and letting finishes cure, as well as a ventilated space for working with other fume-producing materials (i.e. fiberglass resin).
- Straight, wide paths leading into the zone from the Wood Shop and Large Project Storage to the west and the Commons and entryway to the south.
- Flap-wall over doorways and existing walls keep the zone self-contained.
- Tabletop spray booth station, potential powder coat oven.



Floor space change (ft ²)	
New	Old
575	N/A

Chemistry

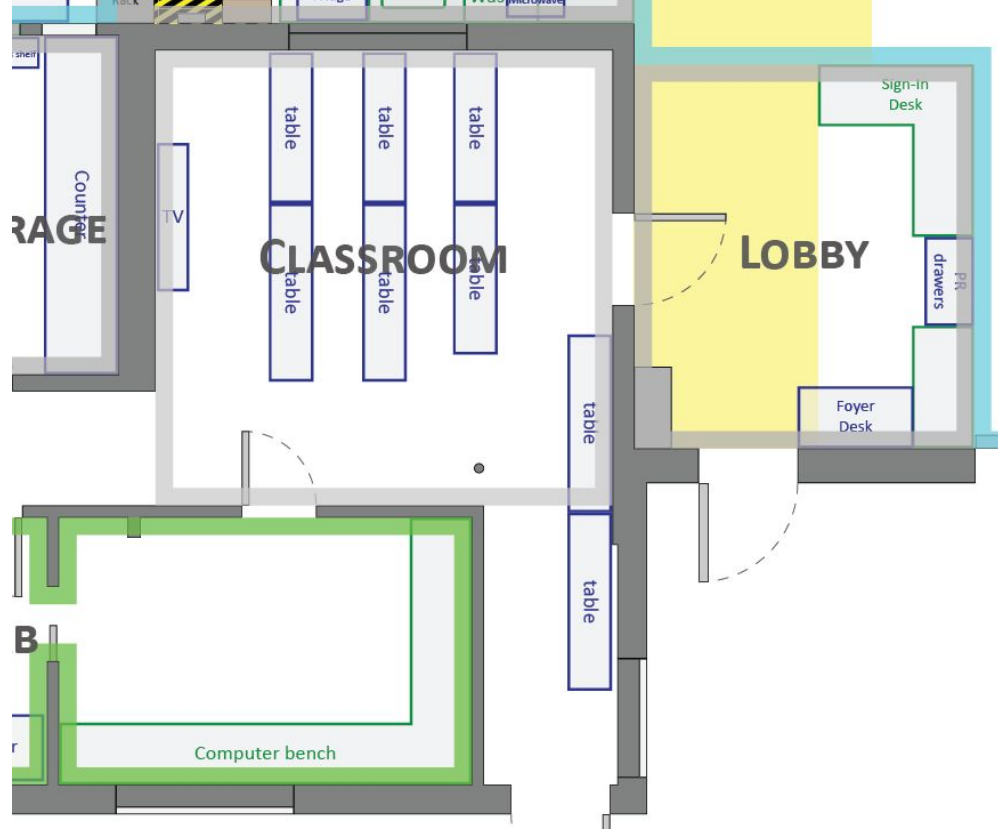
- Shares the footprint of the Paint & Finishing Zone because of shared ventilation needs.
- Dedicated fume hood-ventilated workspace for working with chemicals.
- Safe storage for commonly used chemicals (Flammables & Solvents cabinets).
- Storage for supplies and equipment.



Floor space change (ft ²)	
New	Old
65	N/A

Classroom

- No change to its layout.
- Should see less foot traffic now that it only shares the front rooms with the Media Lab instead of four other zones.

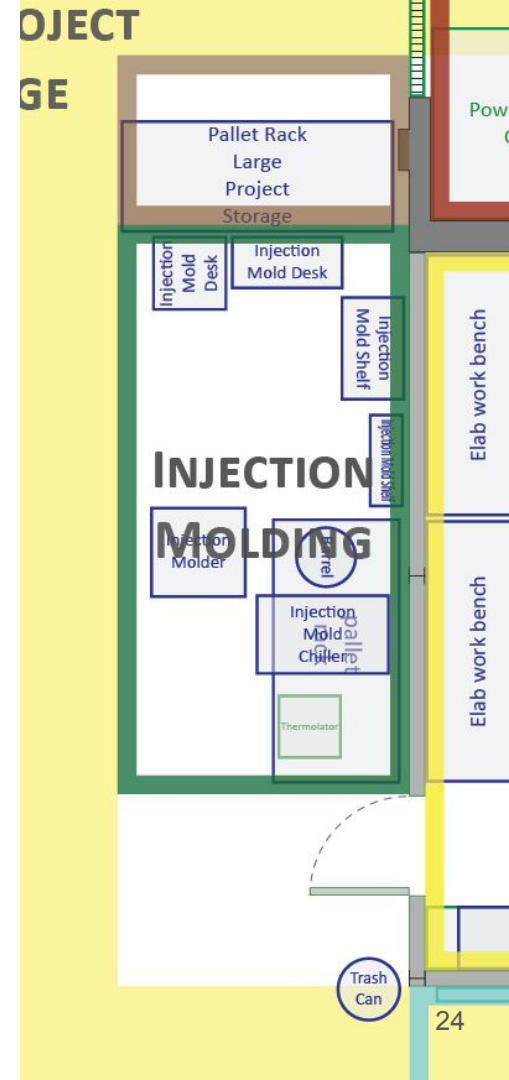


Floor space change (ft ²)	
New	Old
235	235

Injection Molding

- The zone retains approximately the same footprint as it currently has.
- Large injection mold machine swapped out for Thermolator.
- The zone is no longer buried behind and encroached on by mobile equipment storage.

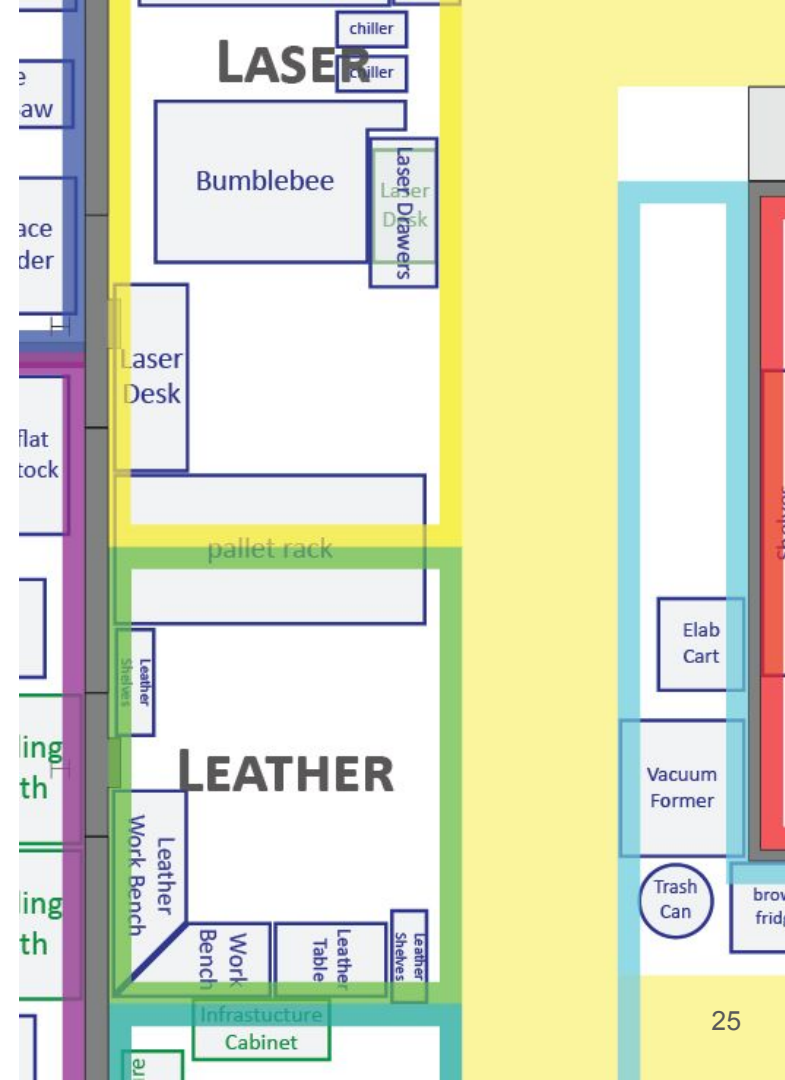
Floor space change (ft ²)	
New	Old
160	125



Leatherworking

- No longer upstairs in the treehouse to keep the zone more accessible.
- Space for at least current work benches and storage.
- Shares workspace on pallet rack with Laser Zone.

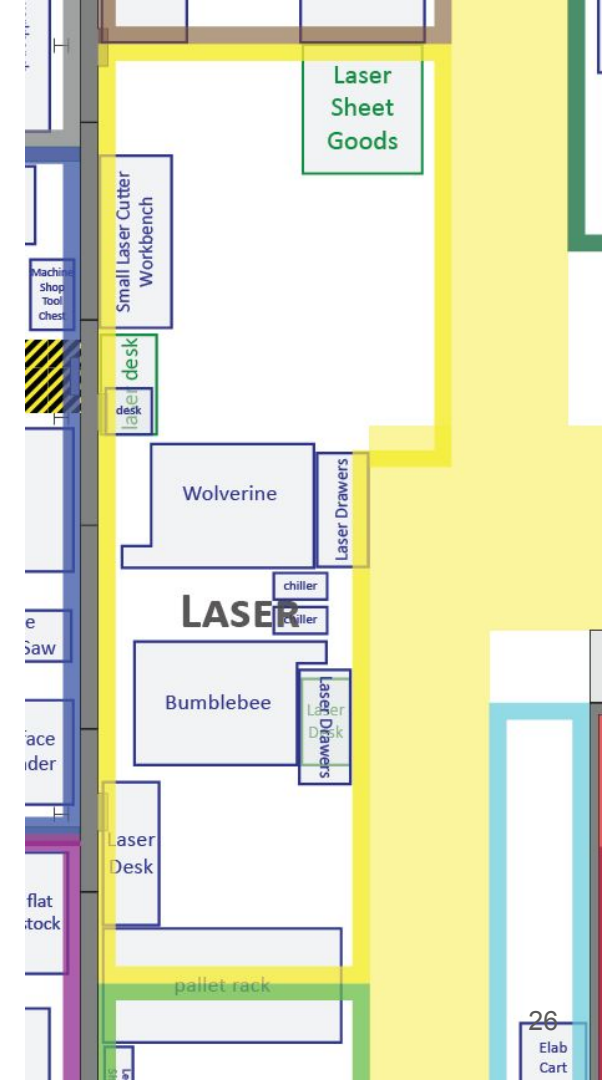
Floor space change (ft ²)	
New	Old
110	75



Laser Zone

- Stays in current location to keep existing ventilation.
- Dedicated sheet goods storage still adjacent to the zone, since Wood Shop has moved farther away
- Space for the small laser cutters to move to the Laser Zone from the Fab Lab.

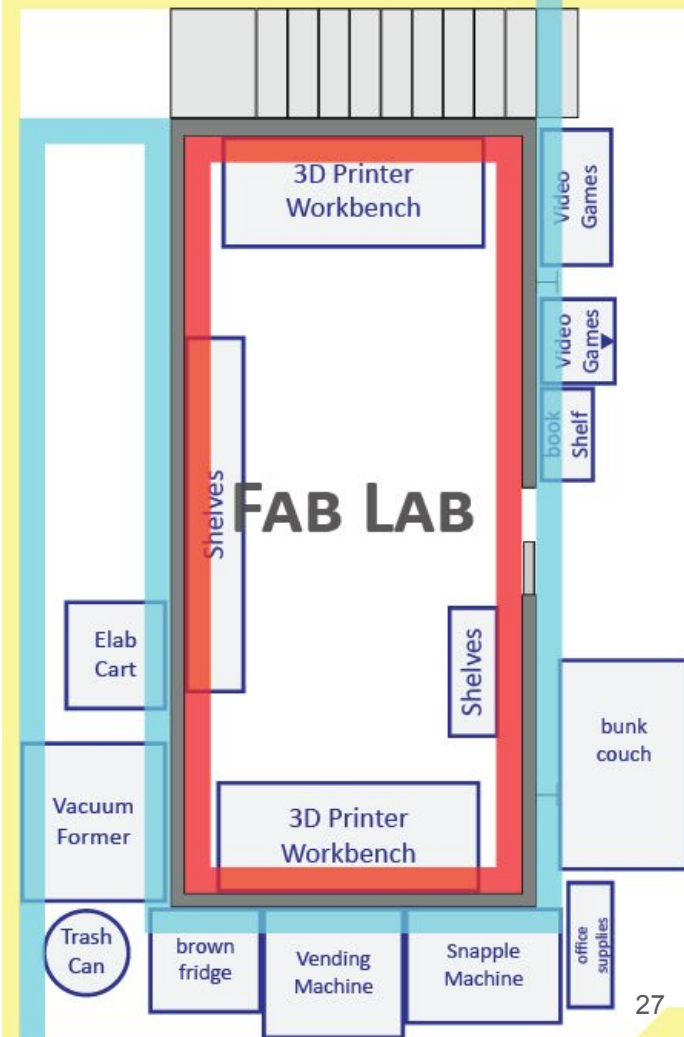
Floor space change (ft ²)	
New	Old
340	185



Fab Lab

- Small laser cutters move out of the Fab Lab to make room for more 3D printers.
- Wood Shop is no longer right next to the zone's air intake vent, so that shouldn't get clogged with dust as often.

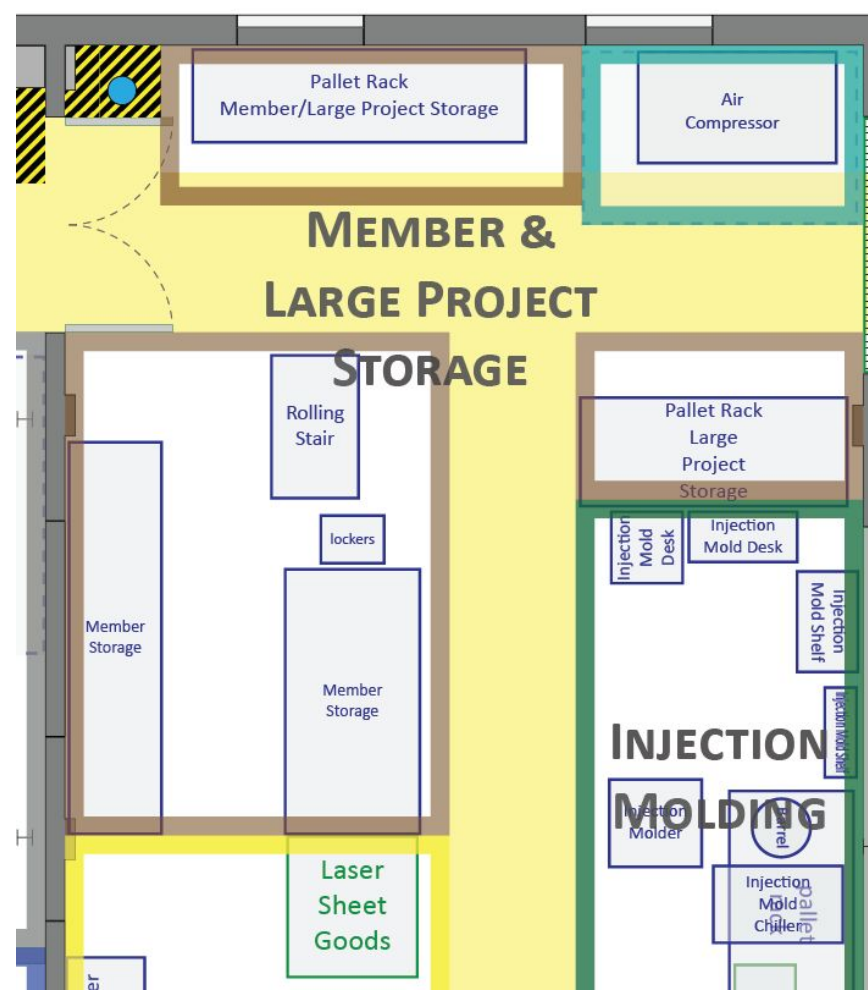
Floor space change (ft ²)	
New	Old
130	130



Member & Large Project Storage

- Member storage is no longer adjacent to a huge source of dust.
- Centrally located between A-side and B-Side.
- Wide, clear path from the north end of B-Side to large project storage.
- Large project storage approximately doubles in size.

Floor space change (ft ²)	
New	Old
340	180



B-Side Features

- Central Tool Crib & H-structure between Wood Shop and Machine Shop
- Workshop Commons in the center of the space which melds into adjacent zones--Welding, Machine Shop, Jewelry, Glass, and Ceramics.
- Wood Shop moves into the northwest corner with much more floor and wall space, and a new, powerful dust collector in a sound-insulated enclosure.
- Automotive Zone inside the garage bay with two-post auto lift.
- Larger Welding area in southeast corner, between Machine Shop and Automotive Zone.
- Machine Shop adjacent to Welding Zone with space for shared metal fabrication tools.
- CNC Zone in the northeast corner between Machine Shop and Tool Crib.
- Jewelry Zone, Glass, & Ceramics located south of the loft, each with its own dedicated workspace and a large shared workspace in between.

Other B-Side Features

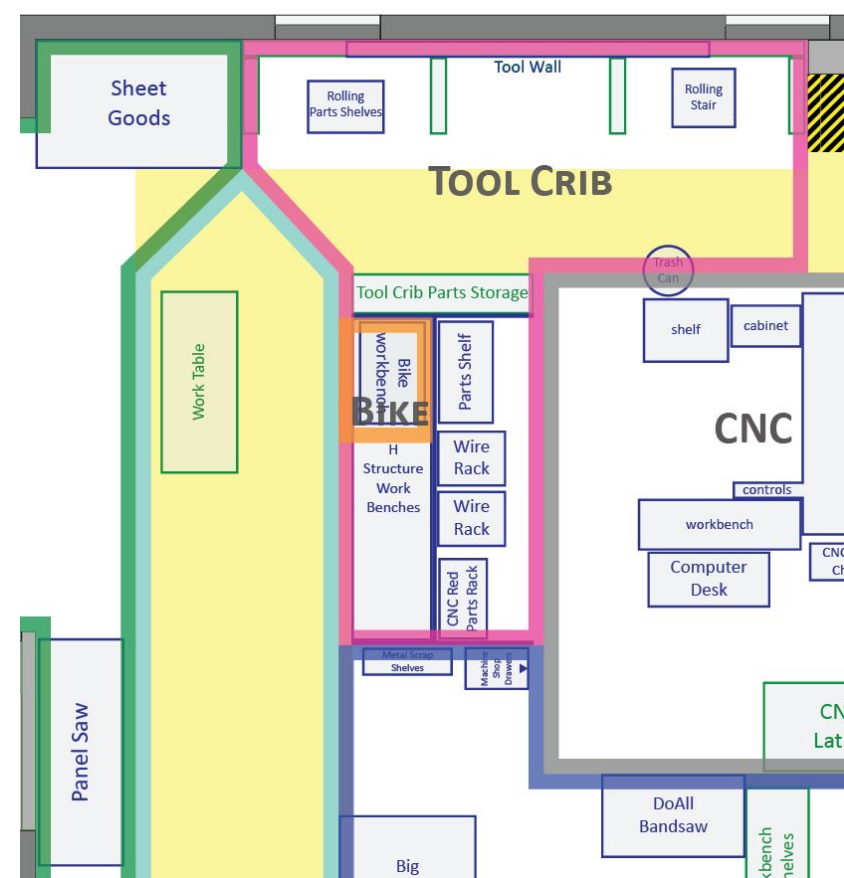
- Front office serves as another sign-in lobby, as well as an air conditioned space to relax
- Space underneath loft serves as a cleanup area: sink, storage for cleaning supplies, and mop sink is already installed there.
- Large open walkway from garage door to back wall can also serve as general purpose workspace with tables and chairs that can be moved out of the way when large things need to be moved through.
- Space along the west courtyard wall for other equipment like the sandblaster.
- Large cart storage area south of welding zone near door to A-side.

Tool Crib

- Centrally located at the end of the main walkway, between Wood & Machine Shops
- Expanded tool wall with perpendicular divider walls creates more than double the current surface area.
- Adjacent to common workspace.
- Dedicated bike work area in the H structure
- Easy access from A-side through north doorway.

Floor space change (ft²)

New	Old
370	275



Wood Shop

- Two major tool clusters:

- Panel Saw, Mitre Saw, Table Saw: Easy access from central aisle-way & adjacent to sheet goods storage.
- Jointer, Planer, Drum Sander: Arranged to share the same in/outfeed space with the table saw.



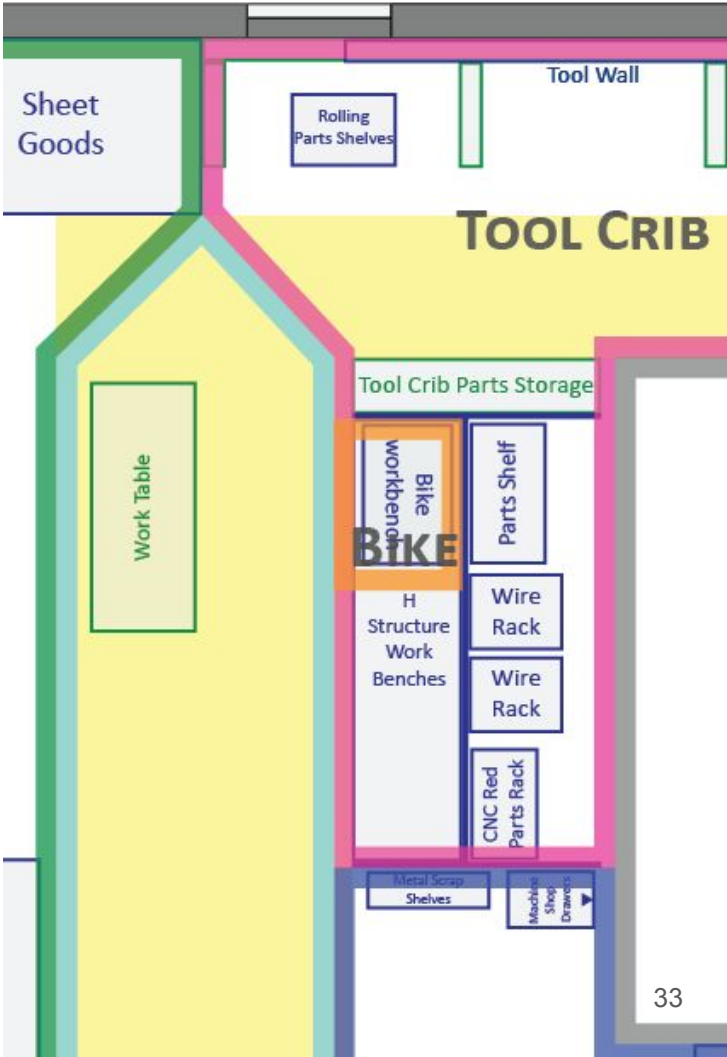
- Room for the orange CNC router, and space to potentially expand with a larger one.
- New, more powerful dust collection system with improved small particle filtration is housed in a sound-insulated enclosure.
- Glue-up table and wall space for hanging clamps, tools.
- Room for several new, large work tables

Floor space change (ft ²)	
New	Old
1360	755

Bike Zone

- Dedicated workbench in the H-structure for storage of bike-specific tools and equipment.
- Adjacent to the Tool Crib and common work area.

Floor space change (ft ²)	
New	Old
35	35

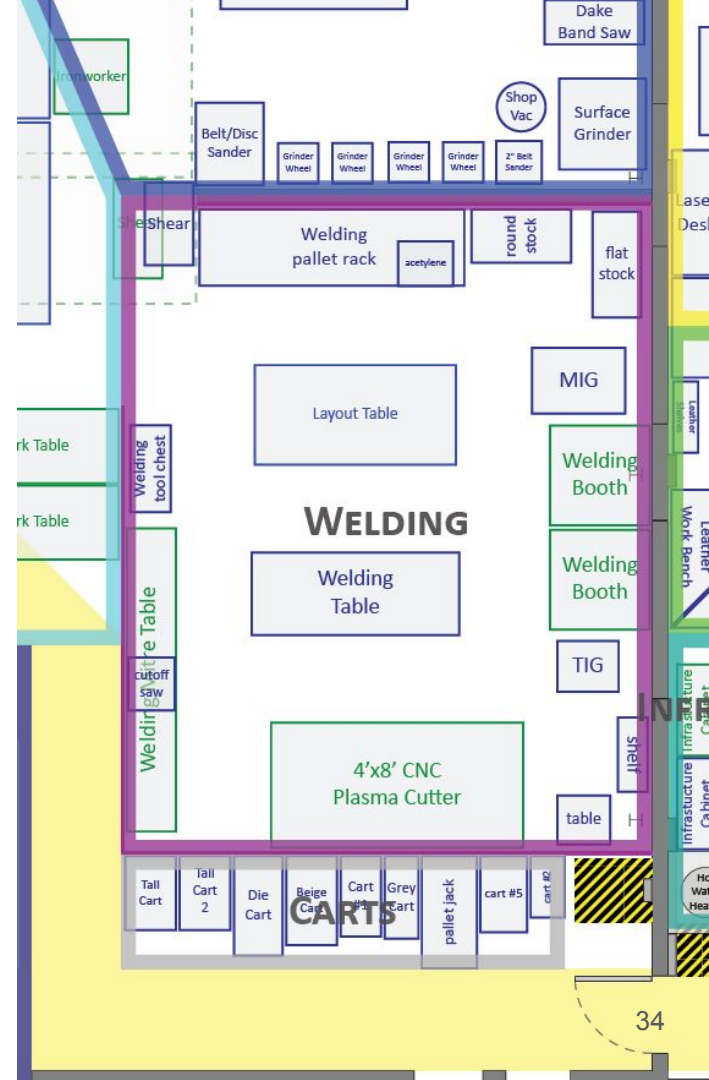


Welding

- Larger work area surrounded on most sides by weld curtain.
- Space for potential new equipment like:
 - 4'x8' CNC plasma cutter table.
 - Layout table, welding booths.
 - Mitre saw bench.
- Adjacent to machine shop, with grinders and sanders just around the corner.
- Flexible space between Welding and Machine shop for 'metal fabrication' with iron worker, press, shear.

Floor space change (ft²)

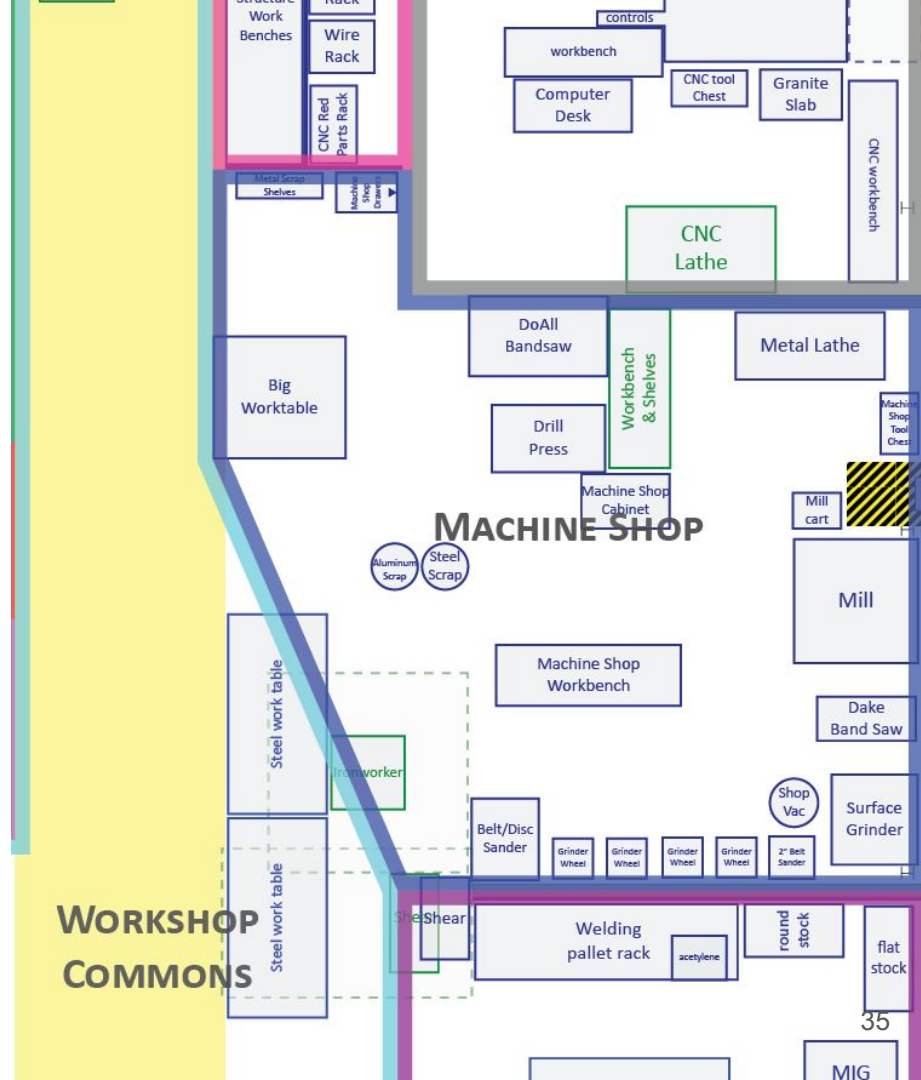
New	Old
540	230



Machine Shop

- Now located directly between Welding, CNC, Tool Crib, and Commons area.
- Space between Machine Shop and Welding for 'metal fabrication' area with potential new ironworker, shear, etc.

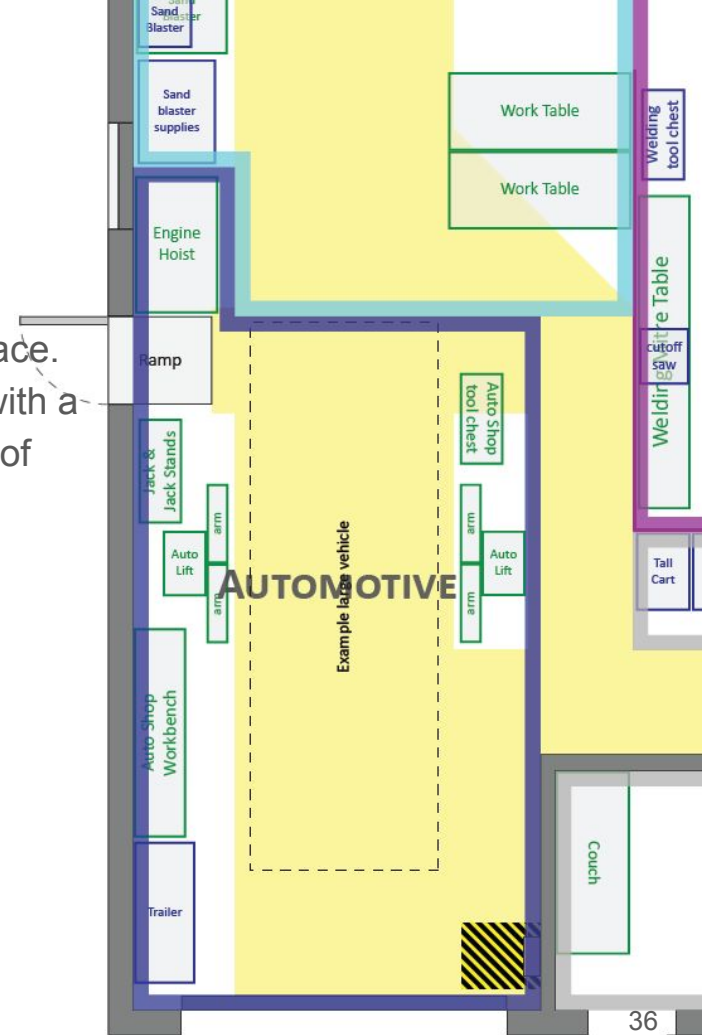
Floor space change (ft ²)	
New	Old
645	540



Automotive Zone

- Two-post auto lift installed in B-Side garage bay.
 - When not in use, lift posts take up a small amount of floor space.
 - Lift is spaced far enough from the garage door so that even with a very large vehicle inside, there is still room to load in and out of the bay.
- Workbench and tool storage along the west wall in garage bay.
- Adjacent to Welding and Machine Shop.

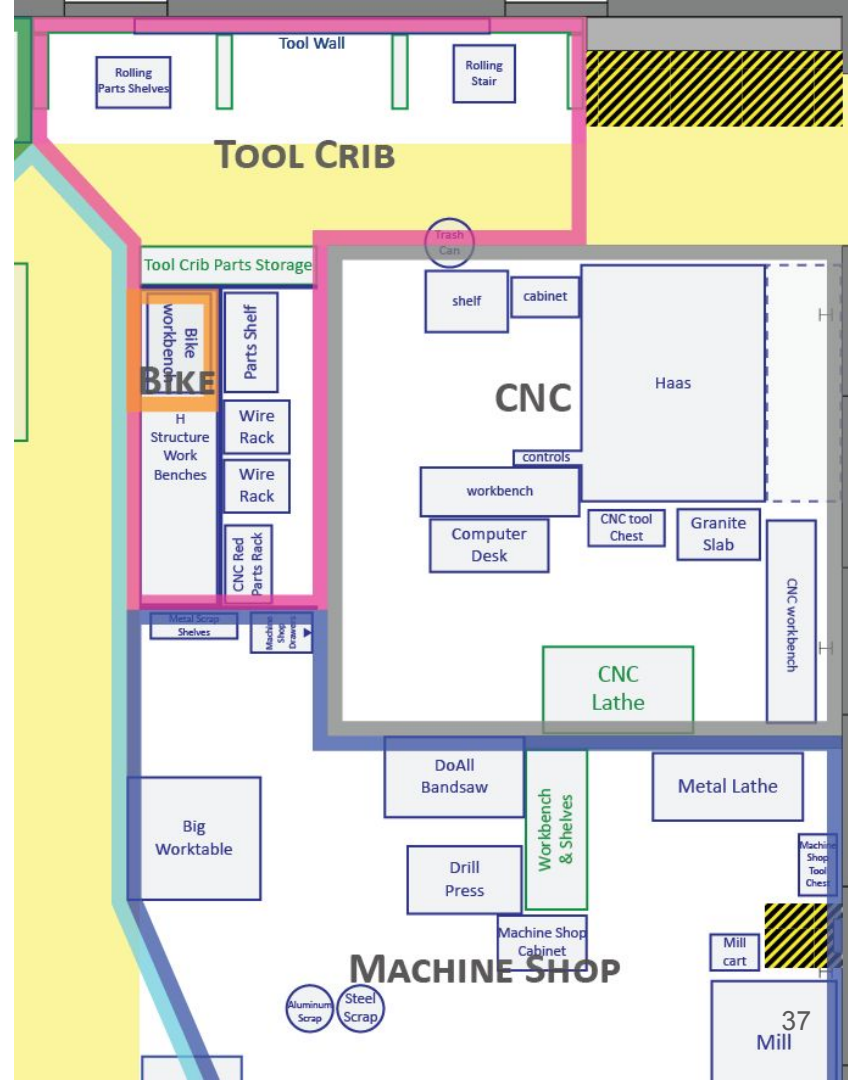
Floor space change (ft ²)	
New	Old
435	N/A



CNC

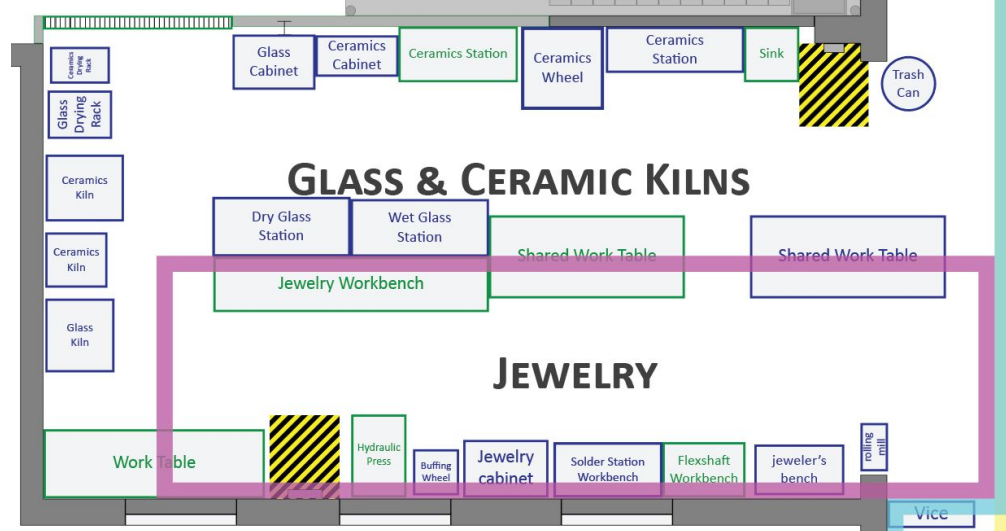
- Haas VF3 moves to be near the new Machine Shop and Tool Crib.
- CNC wood router moves away to Wood Shop, freeing up space...
- ...for a potential new CNC machine, such as a lathe.

Floor space change (ft ²)	
New	Old
395	395



Jewelry

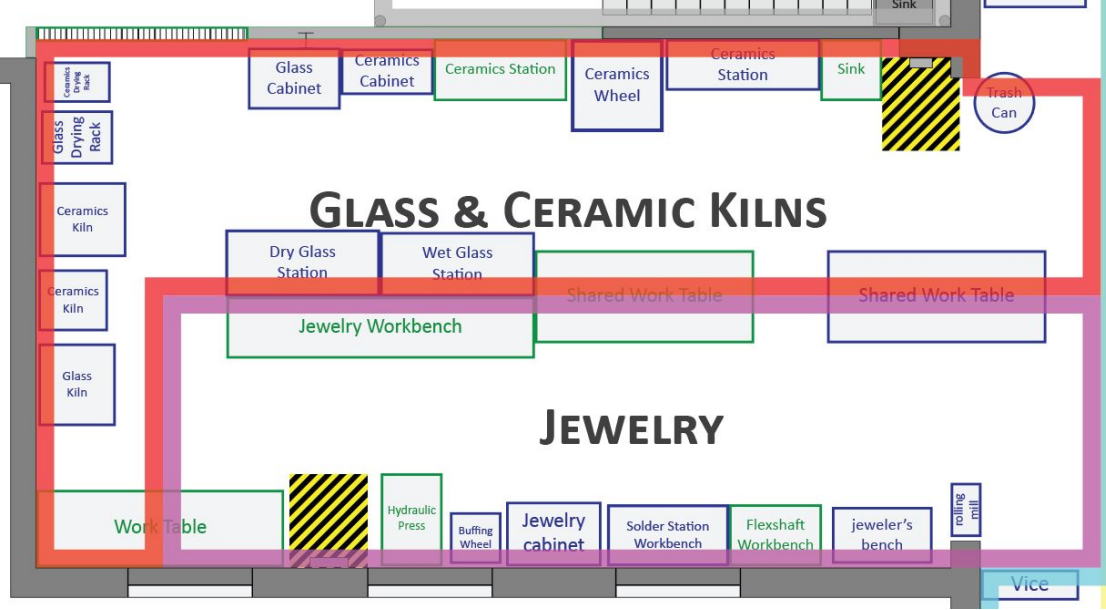
- Located south of the loft, with three exterior windows for natural light.
- Large, central workbenches which can be shared with Kiln Zone, useful if either zone is hosting classes.
- Located next to the machine shop and common work area, and near welding.
- Space for multiple new specialized workbenches for soldering and Flexshaft.
- Flap-wall to Wood Shop to keep dust out.
- Sink is very close by next to Ceramics.



Floor space change (ft ²)	
New	Old
265	70

Glass & Ceramics Kilns

- Located south of the loft, with three windows for natural light.
- Large, central workbenches which can be shared with Kiln Zone, useful if either zone is hosting classes.
- Space for all existing workstations, and some room to expand as needed (i.e. lamp working station).
- Sink located right in the zone.
- Flap-wall to Wood Shop to keep dust out.



Floor space change (ft ²)	
New	Old
315	155

Projected Transition Order

A rough, simplified order to transition into this floor plan is suggested as follows:

1. Welding and Wood Shop move to B-Side. Large Project Storage moves to the old Wood Shop.
2. Kiln and Jewelry move to B-Side, Injection Molding moves to old Wood Shop.
3. CNC, Tool Crib, and Bike move to B-Side.
4. Machine Shop moves to B-Side. Paint booth can move in any time now.
5. Construction of E-Lab and Sewing rooms.
6. E-Lab, Craft, Vinyl, and Sewing move to new rooms.
7. Media Lab to front rooms, Leather to old Vinyl area. Construction of Kitchen.

Barriers to Implementing

- Effort required to move and set up existing equipment in new locations.
- Estimated cost to move the Haas is \$900-\$1200.
- Downtime for zones during the moving process.
- Cost and effort to build and finish new rooms.
- Two A-Side rear furnaces must be moved out of the way of the E-Lab.
- Newly constructed rooms will need some kind of HVAC system.
- Floor between proposed E-Lab, Sewing, and Paint & Finishing is uneven and must be built around.
- Dividing wall between A- and B- sides must be modified to be a fire wall, as per https://www.i3detroit.org/wiki/Category:Infrastructure#Fire_code_stuff