

Proposal to Convert Kilpatrick Rooms 134 A&B into a Makerspace For Our Students

Overview

Room 134 A&B are currently storerooms, but we feel it would be ideal to remove the temporary wall between the two rooms and create one large space to house the equipment and supplies for a makerspace. This would be used in all of our undergraduate and graduate teacher preparation programs as they prepare to use similar spaces in the PreK-12 schools.

Physical Space

The proposed rooms for the makerspace would need renovation since they are currently storerooms and have not received any updating in many years. This would include removing the temporary wall between Kilpatrick rooms 134 A and 134B and refinishing any walls and ceiling structures as needed. Also the lighting is poor if we were to use it as a room for students, so we would need to replace lighting. Likewise the air conditioning/heating vents are actually located above the drop ceiling and would need to be reconfigured to make the space comfortable. The carpeting would have to be replaced with a hard surface for the equipment in the makerspace. Whiteboards and video screens would be attached to the walls and there would need to be desks for working on projects and to support equipment such as printers. Finally, we would need data drops to connect to the Internet. (cost estimate \$78,500)

Rationale for Creating a Makerspace

A makerspace is an area where students learn through hands-on experience while working on concepts. The things in the makerspace foster innovation and curiosity. Students use the available tools and equipment to make, create, and invent new things. In the makerspace, students are encouraged to problem solve, rethink and apply concepts, and inspire future investigations. This environment supports expression and conversations and encourages questions that provide connections between lessons and the real world. Activities in a makerspace are memorable and improve understanding since students have a tactile and kinesthetic experience that shows them how and why a concept works. This environment also promotes positive social interactions.

Standards

The International Society for Technology in Education (ISTE) standards include the following areas:

- Empowered Learner
- Digital Citizen
- Knowledge Constructor
- Innovative Designer
- Computational Thinker
- Creative Communicator
- Global Collaborator

Note: A makerspace supports all of these areas.

Beginning List of Equipment and Supplies

Equipment	Use	Price
Utilimaker S5 3D Printer and Supplies	Professional 3-D printer and software for high-end jobs	7000
QIDI TECHNOLOGY 3D Printer X-Pro	Easy to operate 3-D printer for everyday use	799
Dremel Laser Digilab Laser Engraver & Cutter	Cuts & engraves wood, leather, acrylic, glass, paper, cardboard, fabric, rubber and other materials	5999
LEGO MINDSTORMS EV3 31313 Robot Kit with Remote Control	Used to teach robotics and coding	350
Elegoo MEGA 2560 Starter Kit & Extra Sensors	Learn basic electronics with modules	100
STEM Maker Station	Stations to house various materials	600
DJI Phantom 4 Professional+ Quadcopter	Learn to operate a drone and take video	1500
Photography Lighting Kit	Green screen and lighting for photography and video	200
Panasonic Lumix DMC-FZ300 Digital Camera	Taking digital pictures	500
Sony HVR-Z7U HDV Professional Video Camcorder	Professional video camera for filming	6000
Numeracy with a Spin (math through DJ Activities)	Teaches math concepts through a DJ board	3000
CodeSpace	Learn Python coding through the use of text-based code and sensors	500
Dell Inspiron 27 Desktop (3)	Desktops for Internet research	9000
Canon imagePROGRAF iPF770 MFP L36 Color InkJet Printer Plotter	Large-size printing	4500
SMART Board SBID-7275	Used to collaborate on projects, create designs, and share notes	7500
Kid K'nex Group Sets	Basic building set for children	100
Sketch Up Computer Assisted Design Software and HP OMEN Computer	Design complex schematics and blueprints	6000
Vinyl Cutter and Cut Software	Making creations with vinyl	400
Janome MB-4S Commercial 4 Needle Embroidery Machine	Creating fabric designs	5000
Brother sewing machine	Sewing projects	400
General art supplies, fabric, and materials for creating things	Supplies needed to create things	2000
	Total:	61448

Current Images from the Storeroom.

Note that the lighting would need to be replaced, the HVAC is above the ceiling and would need to be brought down, one dividing wall would need to be removed, and the walls and ceiling are in need of updating.



Estimate for Kilpatrick 134 A & B Renovation

Wall Demolition	52	3,120.00	
Electrical Demolition	1 unit	1,500.00	
Data Demolition	1 unit	320.00	
Ceiling/Lighting Demolition	598	747.50	
Floor Prep / Cleanup (Demo)	598	807.30	
Remove/Move Furniture	1 unit	250.00	
Carpet Square allowance	598	3,588.00	
Paint walls, base, trim	98	2,030.00	
Electrical Allowance	1 unit	7,950.00	
Wire new electrical to wall			
Install electrical to new tables via trough			
Clean up data and existing electrical			
HVAC Modifications	1	3,600.00	
Data Drops	20	5,600.00	
Whiteboards	2	2,500.00	
Ceiling tile	598	1,644.50	
Lights - 2'x2' LED, Dimmable, Sensor	12	4,200.00	
		<u>37,857.30</u>	
Contractor OHP		9,464.33	
Contingency		<u>5,678.60</u>	
Total Construction Estimate			<u>53,000.22</u>
Furniture - Desks	10 units	20,000.00	
Furniture - Chairs	20 units	<u>5,500.00</u>	
<u>Grand Total for Project Including Furniture</u>			<u>78,500.22</u>

Renovations and Equipment: 139,948.22

Images of Makerspaces

