

Final Submission

Team Number: 39

First Names of Team Members: Azim, Connor, Emma, Loxley, Jessica

Task #1: Discovery (maximum 100 words)

We were tasked with designing the sustainable future of engineering studios fit for McMaster, constrained by a 40'x24'x8' space. Considering personnel and budget constraints, our design innovates the space given to serve a sustainable and aesthetically pleasing workspace, built with storage and added features to reduce potential waste. Developed for the great minds of electrical and computer engineers, we redesigned how our roof is looked at, with walls and interior designs engineered to solve major problems set by a portable design studio. We believe ideas are influenced by their surroundings, and through the ideal space, innovation and productivity will transpire.

Task #2: Innovation (maximum 100 words)

Innovation and sustainability are key cores of our prototype. Designed to be ergonomic with open space for productivity, going for a modular unfixed design with seating arrangements including wheels on desks allows us to use the space for all purposes with railed pulley ceiling outlets highly accessible. Natural lighting is truly the best lighting, which is why we decided to go with photovoltaic glass skylights that let light in while generating around 839,520 watts/year. Ideas come at the moment, and electrochromic glass will be used to allow windows to double as whiteboards and projector screens to display concepts.



Task #3: Sustainability (maximum 100 words)

With a cleaner future in mind, steps were taken to improve the sustainability of the studio. With an angled green roof/wall that reduces carbon emissions and insulates, convectional ventilation, and aerogel insulation being in the walls, steps were taken to reduce the need to regulate the temperature and reduce power intake. Maximizing the surroundings, we used solar power to generate electricity and store it for later use with the *Tesla Powerwall*. Furthermore, water collected from the rain to water the roof and reuse for the washroom. Designing requires prototypes hence, recycling 3D printer supports and filaments helps achieve sustainability.