*Please submit this completed application and any relevant supporting documentation by the deadline listed on the SSC website to* *Sustainability-Committee@Illinois.edu**.The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the SSC at* *Sustainability-Committee@Illinois.edu**.*

# General Information

**Project Name:** Bio-Brick insulation

**Total Amount Requested from SSC:** $15,000

**Project Topic Area(s):** [x] Energy [x] Education [x] Food & Waste

 [x] Land [ ] Water [ ] Transportation

# Contact Information

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**Project Team**

|  |  |  |
| --- | --- | --- |
| **Name** | **Department** | **Email** |
| Austin Johnson | Architecture | amjohns7@illinois.edu |
| Name | Department/Organization |   |
|   |   |   |
|   |   |   |

# Project Information

Please provide a brief background of the project, the goals, and the desired outcomes:

The goal of this project is to explore the insulation properties of sawdust paired with other natural resins to produce an efficient insulation alternative to chemically developed foam insulation, which has negative consequences to our environment. By producing brick insulation, not only may the waste product be less harmful, there would be little to no waste product remaining. Bio-Bricks will be based on standard stud widths, and standardized heights so that when stacked, any remaining portion above the wall height may be cut down and placed as the start for the next stud gap. This is advantageous as sheet insulation can at times be wasted due to inexact cutting dimensions based on standardized sheet dimensions.

Please provide a brief summary of how students will be involved in the project:

Students will be involved by researching various natural resin recipes, saw dust collection, and brick development processes. The Bio-Bricks will be used for insulation purposes on future design projects developed by students, faculty and staff.

Please provide a brief summary of the project timeline:

BioBricks could be an extremely efficient resource quickly. These units can be developed in mass quantities in as little as a year. By developing quick mixed natural resins and harvesting saw dust, there will be a steady manufacturing of the Bio-Brick objects.

Additional comments

We currently have the ability to create fillable molds in order to make the bio bricks into a stackable object, similar in fashion to how legos would stack. By using this very stable product as insulation, we hope to increase the ability of Root to Roof to utilize the whole tree and not just specific part, thereby increasing our efficiency. We would be using fire retardant resins in their construction which would increase their durability and possibly inhibit the spread of fire in a structure. Mycelium bricks are saw dust bricks which allows the growth of fungus (mushrooms) and while the mushrooms grow, the density of the brick increases until the mushroom dies, the mushroom then solidifies and doesn’t easily decay. This process creates a final brick that has a better strength to weight ratio than concrete. With the advancement of mycelium bricks, a lesser volume of saw dust would be required per brick, allowing for more construction materials to be produced for use.