



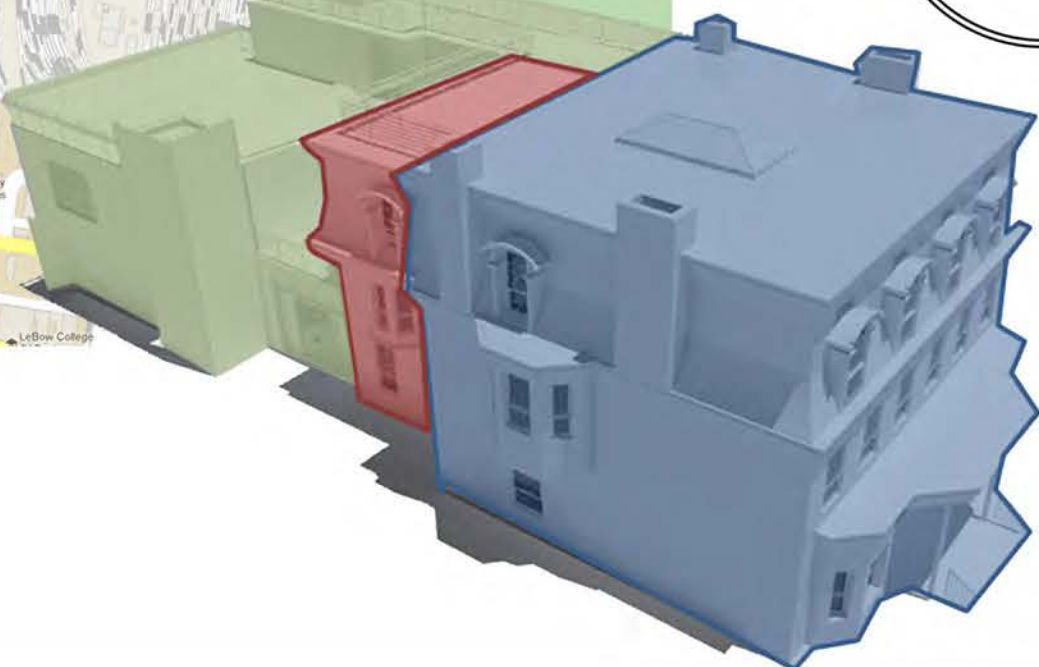
Existing building

History

Located in the Powelton Village neighborhood in Philadelphia, Drexel Smart House (DSH) is a multidisciplinary student design project. The existing urban home will be transformed into a sustainable living laboratory which will benefit students and community. The DSH will consist of a community resource center, where community members can learn about sustainable materials, student housing and classrooms.

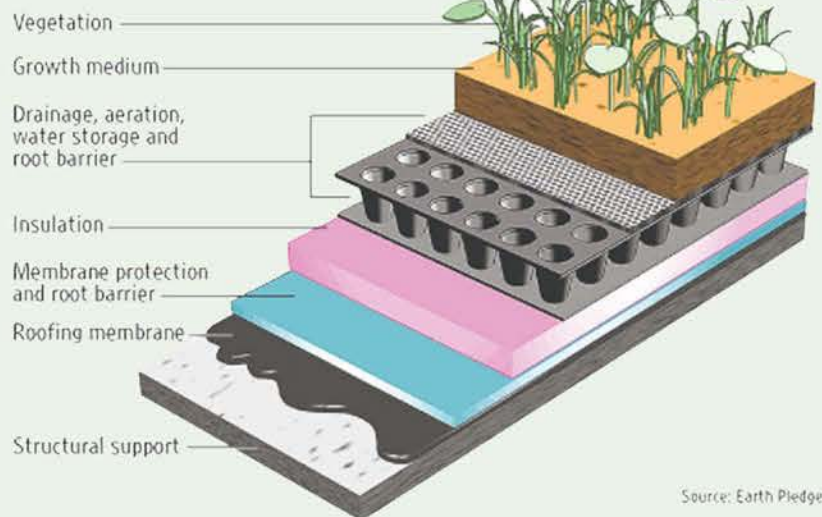
Project Goals

The DSH interiors team was brought into the project once a general footprint for construction was established and the overall goal of the organization had been developed. We collaborated to formulate an identity and programmatic function for the interior spaces. Our goal for the DSH interior was to express the innovative systems employed by mechanical, engineering, architecture and structural engineering students.



EXISTING STONE PORTION
 EXISTING BRICK PORTION
 NEW CONSTRUCTION





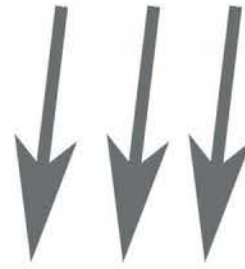
Source: Earth Pledge

Green Roof Detail

Inspired by a proposed green roof system on the second floor, the stepped ceiling feature celebrates the layers involved in a green roof system

Rain Water Re-Use

Collected rain water is re-used to hydrate flowerboxes in the main lobby.



Re-purposed Junk Light
Warren Muller



Re-Purposed PVC Piping
Pretty Vases Collection, Domeau & Peres

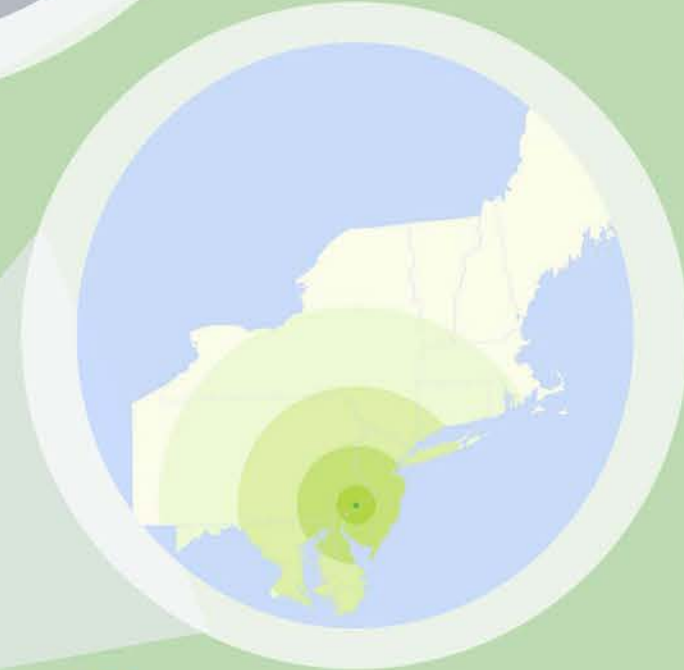
Recycled Tube Lighting

Produced by Castor Canadensis, re-purposed fluorescent tube light are artfully constructed into a new modern piece.



Varia Ecoresin

Manufactured by 3-form, made from 40% pre-consumer recycled resin



Celebrate Local Materials

A magnatized map graphic allows visitors to discover the location of locally salvaged and excavated material



BORIS BALLY
Boris Bally



Recycled Streetsign Furniture
Boris Bally



FLOOR Recycled Carpet Tile
Shaw Carpet



Locally Harvested
Slate Flooring



Reclaimed Wood Table
Urban Hardwoods



Tuxedo Loveseat & Sofa
Haworth



Locally Harvested Maple Cabinetry
Tedd Wood; Thompsontown, Pa



Sustainable Light Fixtures

Selecting a sustainable light fixture really illuminates the complexities of sustainability. Energy consumption, lamp type, color temperature, and the fabrication of the fixture itself all need to be taken into consideration.

Direct/indirect fluorescent with integral LED downlights for classroom tasks



Recycled plastic chandelier by Stuart Haygarth



The LED pendant fixture by Winona consumes less energy than incandescents



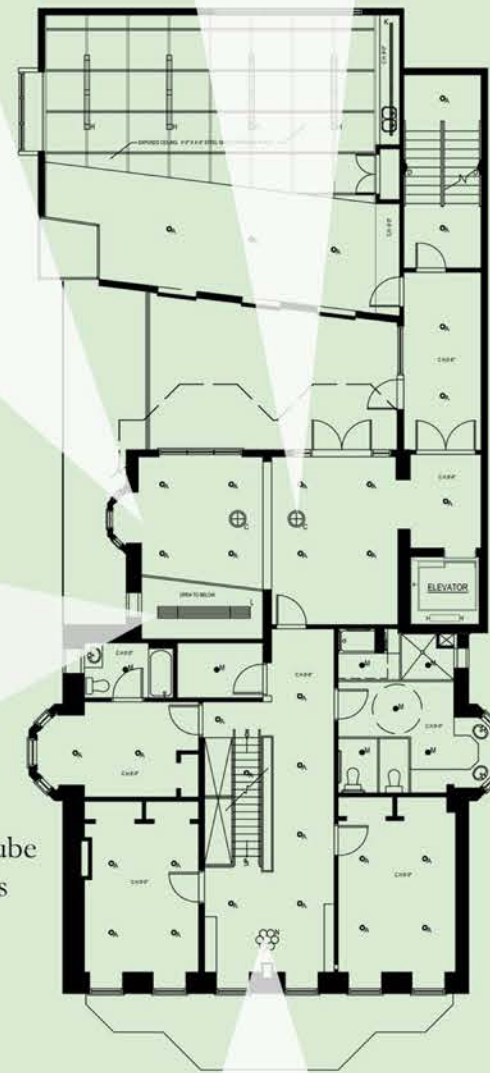
A sun tube and the Lovegroove fixture by Velux bring natural light into the kitchen



Re-purposed fluorescent tube lights by Castor Canadensis



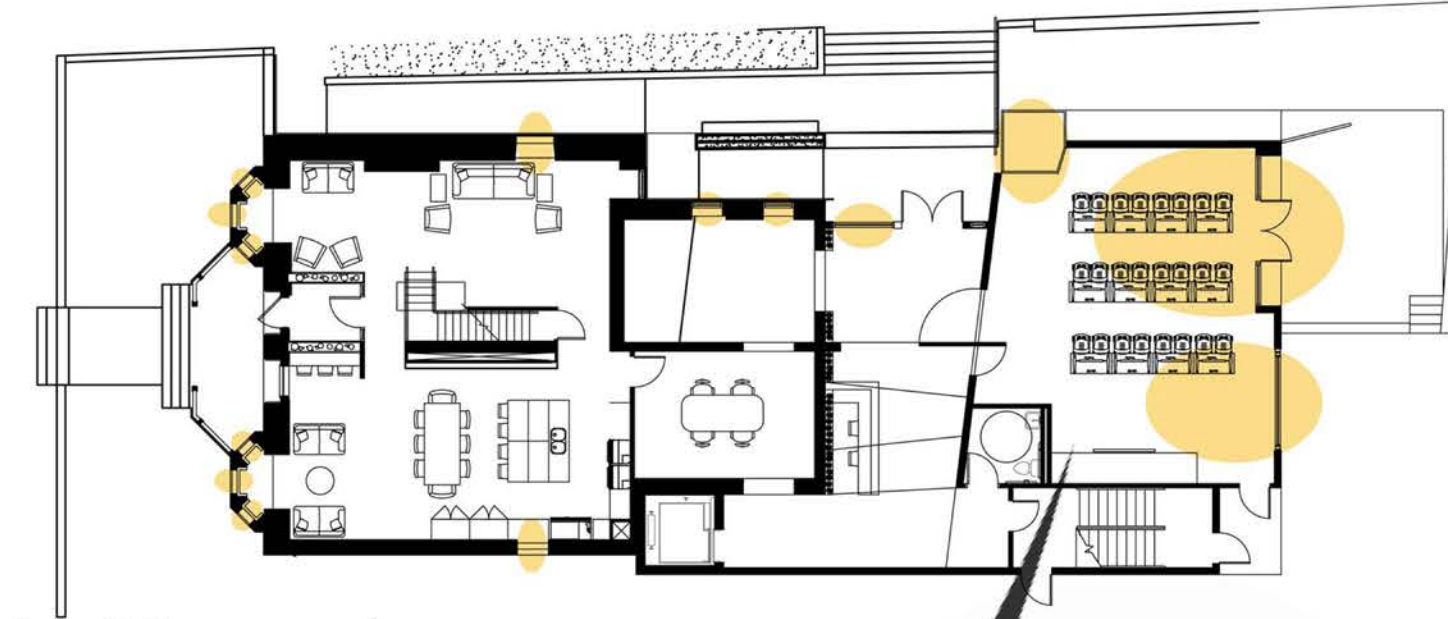
An acrylic wall backlit with LED nodes are tied into the building's BMS to indicate energy consumption of the Drexel Smart House



Re-purposed book chandelier by Lulu Dot

Lighting Controls

Lighting controls, are an important component to a sustainable lighting system. Photosensors can be used to automatically turn off artificial lighting if daylight is sufficient. Or motion sensors can be installed to ensure lights are only consuming energy as needed. However, controls themselves use energy, so it's important to use them only where it's appropriate.



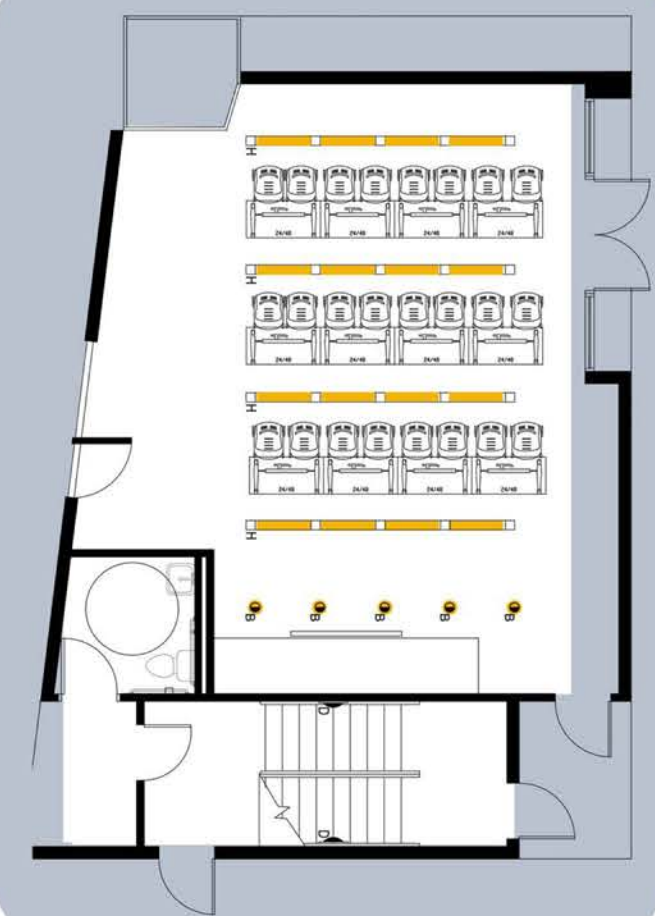
Daylight Harvesting

Much of the older structure has thick exterior walls and smaller windows, so daylight harvesting isn't appropriate. However, the classroom and workroom in the new structure will likely be able to be lit solely by daylight for much of the day. Thus, photon sensors will be installed in these spaces, which will turn off the artificial lighting when daylight is sensed to be sufficient.

Where it is Appropriate



Daytime: Photosensors Turn Lights Off



Night: Photosensors Turn Lights On

The Sustainable Furniture Source Book: A resource for smart house; A resource for the community

Educating the Community

Drexel Smart House aims to reach out to the local Philadelphia community and encourage sustainable practices. So, the DSH Interiors Team created a Sustainable Furniture Source Book, which can be utilized both for procurement in DSH, and for community members purchasing furniture for home or work. Shown are two sample pages from the lengthy resource.



Greenwashing

Sustainability is a complex term, and greenwashing has become prevalent. So, in addition to identifying high quality, responsible sources, the book also stresses key certifications and characteristics for consumers to keep in mind. A product simply described as “green” should stir doubt. Even within the book’s highlighted sources, community members are encouraged to check for trusted certifications and standards like Greenguard, MBDC Cradle to Cradle, and FSC.

Adaptability

Sustainability isn’t simply about material and product selections. Sustainable design also requires a strategic mindset that seeks to achieve longevity. The sourcebook encourages community members to select flexible products, like moveable partitions, and collapsing tables, which can adjust to an interior environment if needs change.

Local & Regional

The Sustainable Furniture Sourcebook also educates community members on the importance of utilizing local and regional materials and products for their homes and work.

Old Versus New

The sourcebook simplifies the complexities of “sustainability” by dividing furniture into two categories: Sustainably New, and Salvaged. It is important that community members recognize that reusing furniture can be as beneficial as selecting responsibly manufactured new products. Repurposing furniture cuts out energy consuming material extraction, and reusing furniture in place cuts out transport to a fabrication facility, and the fabrication itself.