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Garfield House: The New Sustainably-Themed Dormitory...or Perhaps Simply the Newest LEED Certified Gold Building

Introduction

As a high school senior touring colleges, I consistently asked whether each institution had a sustainable co-op or some form of green dorm. Having spent the spring semester of my junior year at the Mountain School, a small environmentally-oriented program with a student-run organic farm that produced much of our food, the idea of living in a communitarian setting with diverse yet like-minded group of people appealed greatly to me, and the sustainable housing options offered by Carleton and Oberlin Colleges impressed me. While Williams ended up capturing my commitment, in part due to the coupling of its own commitment to sustainability and environmental education with its beautiful rural setting, the college disappointingly has no such similar housing option.

As we worry about Williams’ emissions levels and that environmental issues may drift out of students’ lives, even if they arise in the classroom on a consistent basis, buildings are an important place to start given that the College has so many (195 to be exact) and associated people spend so much time dwelling within them; they are the medium through which we create much of our environmental impact and, as any architect will insist, they have the capacity to influence our behavior for better or for worse. Dormitories consume the second biggest amount of total energy on campus, only behind science buildings, and use 27% of campus heating related energy, the highest on campus (Boyd).

Clearly, students need not only to modify their behavior to reduce the negative impact of their lifestyles on the environment but also superior building options through which to channel positive conduct. Progress towards reduced emissions and an environmentally enlightened student body can be made through the establishment of a sustainable dorm. Regardless of prefix or adjective (“eco-,” “sustainable,” or “green”) ultimately placed prior to the dormitory’s title, it can be generally considered a living space that would allow environmentally concerned students to practice a more sustainable lifestyle than that which normal dorms facilitate. For the purposes of this paper, it will hereby be referred to as the “sustainable dormitory” or “sustainable dorm”. Garfield House (Fig. 1), the next dormitory due for renovation, represents an opportunity not only for the implementation of sustainable systems in student living quarters but for the institutionalization of a dormitory for students who wish to live sustainably while on campus.
Figure 1 Garfield House
http://facilities.williams.edu/files/2010/04/garfield-300x224.jpg

Setting
James A. Garfield House sits on the west side of South Street on the very periphery of campus. The building was built in 1888 although it was renovated in 1978 for interior concerns and in 1999 for exterior concerns (Williams College Facilities » James A. Garfield House). The Tudor style of the exterior gives the building an antiquated look that hardly speaks to its potential future as a modern, sustainable dormitory. Above a stone and concrete foundation sits a wooden-framed stucco façade over cement walls in which perch 75 double-hung, lead-pane English windows. The first floor interior (Fig. 2) has three living rooms and a library while the basement level includes a poolroom, kitchen, and laundry room with two washing machines and two dryers. Each of the upper three floors (Fig. 3 and 4) has a bathroom with two showers, two toilet stalls, and five sinks (Millert 3). The building hosts forty-one beds in twenty-seven singles and seven doubles. A spacious and grassy lawn spreads down a slope and to the south of the building.

Figure 2 Garfield House 1st Floor
http://campus-life.williams.edu/files/2010/08/garfield_1.jpg

Figure 3 Garfield House 2nd Floor
http://campus-life.williams.edu/files/2010/08/garfield_2.jpg

Figure 4 Garfield House 3rd Floor
http://campus-life.williams.edu/files/2010/08/garfield_3.jpg
Method
Given the previous work of Lindsay Millert toward green renovations for Garfield House in GEOS 206 in 2008 and of Thursday Night Grassroots toward influencing the committee in charge of Garfield renovation to consider particular sustainable ideas, I have chosen, at the recommendation of Professor Dethier, to take on a more persuasive approach and focus primarily on the justification of a sustainable dorm's existence, emphasizing its importance and reconciling the idea of a sustainable dormitory with opposing campus policies. The process of planning the renovation of Garfield is well underway, and the institutionalization of a sustainable dormitory should follow structural environmental change. In the following pages, I will review campus policy regarding building projects, sustainability, and themed housing, investigate similar projects at peer institutions of higher learning, and ultimately frame an argument for the institutionalization of a sustainable dormitory. While I still do not wish to borrow too much from the pioneering work of others and create a redundant piece of work, I feel that such an argument cannot go completely unaccompanied by evaluation of the schemes put forward by CBT Architects and their consultants and proposals for the actual practices of a sustainable dormitory. As the possibilities for green lifestyle choices are essentially limitless and the exact plans for renovation are at this point unclear, I will do my best to keep such proposals broad.

Information

Sustainability-Themed Living At Other Colleges and Universities
Sustainable housing has manifested itself in various ways around the nation in terms of scale and philosophy but typically features a combination
environmental technologies and efficiency strategies to provide an educational living space in often LEED-certified buildings (Macko 1).

Figure 2 Carleton Residential Hall Green Features
[Link](https://apps.carleton.edu/campus/green_building/case_study/sustainable/)

Carleton College boasts the two new sustainable residential halls- Cassat and Memorial (Fig. 2) whose architects went beyond LEED Gold Certification to pursue even more opportunities to increase the buildings’ environmental friendliness (Green Building at Carleton: LEED Gold Certification). The campus also supports two sustainable living houses: Farm and Parr, which foster awareness and appreciation of sustainable agriculture and living. Residents offer sustainable living educational programs, host community dinners, and plant and tend to an organic garden of substantial enough size to sell food to Bon Appetit, the distributor for Carleton dining halls (Housing: Shared Interest Living Communities).

SEED (Student Experiment in Ecological Design) House, Oberlin College’s sustainable living theme house, came to fruition after its proposal to the college administration in Fall 2006 by students of David Orr’s Ecological Design course. The college-funded house, “designed to spread the advantages of sustainable living into the local community,” accommodates eight students who maintain a sustainability blog with up-to-the-minute resource-use monitoring (Oberlin College Buildings and Grounds). The application process “took diversity and creativity into account” and required the proposal of environmental projects.
“Not wanting it to become a place of isolated innovation,” residents have put effort into community outreach, leading workshops and hosting environmental group meetings (Ollstein). Middlebury’s Weybridge House members chose to “live and eat in an environment which allows them the freedom and the responsibility to explore and practice ideas of living and integration with the cycles of their natural surroundings” (About Weybridge House). The house hosts communal vegetarian dinners open to the general student body on weeknights and consumed entirely local food for the year of 2009 (Warren).

**Williams College Neighborhood System**

The idea of a sustainable dormitory runs contrary to the Williams Neighborhood policies that ban themed housing and were created with the precise intention of preventing people living together for shared interests. The Neighborhood System divides upperclassmen into four Neighborhoods (Wood, Spencer, Dodd, and Currier) oriented around clusters of dormitories. In doing so, it mixes up the student body and discourages natural tendencies for athletic teams, majors, ethnic groups, and international students to live together. The prevalence of such tribalism defeats the purpose of having a diverse campus as students of different backgrounds fail to come into natural contact with one another and learn from one another. The Committee of Undergraduate Life created the system in order to counter the observed “fragmentation and separation of various types of groups within the residential system” and to foster a new sense of community that involved relationships with students unlike themselves (Fragmentation: the plight of housing). The Neighborhoods “enhance the close-knit community at Williams, [and] foster opportunities for students, faculty and staff to get to know one another” (Campus Life >> The Neighborhoods). The system also appears greatly concerned with creating a range of programming dictated by elected student boards allocated yearly budget for each neighborhood (Neighborhood System Constitution).

**Williams College Building Policies**

The Williams Sustainability Principles assert the College’s commitment to “constructing only the facilities we need” and “building, renovating, maintaining and operating [buildings] to use energy efficiently throughout their life”. Williams buildings provide “safe, comfortable, and healthy environments” that use daylighting, ventilation, and connections with the natural environment.

The LEED Certification Policy, composed by the Committee on Priorities and Resources in 2004 embraces high performance environmental design for future construction projects. The policy outlines the goal to achieve LEED certification when appropriate for all new buildings, determining appropriateness on the consideration of the Building Committees, credible cost effectiveness, the weight of green design against competing College priorities, and assurance of adequate expertise.

Before outlining principles for construction, the CEAC Building Policy Proposal strongly suggests the avoidance of construction when possible and
primary consideration of whether changes in behavior and efficiency improvement can negate the need for construction (1, 2). When construction becomes necessary, the proposed policy serves as a guiding tool for an efficient and sustainable campus and establishes a framework to accommodate to changes in technology and situation over time (2). Necessary construction must meet the following criteria:

- The building program reduces or does not increase the College’s energy-related emissions. In the case of renovation, planning and design include change in energy use estimates and goals.
- Projects monitor and minimize one-time energy and emissions associated with demolition and construction.
- The resulting structure ideally conforms to LEED Platinum standard (2). Standards are pro-actively set before projects, and “Renovations should, to the maximum extent that is feasible, lead to reductions in energy use” (2, 3).
- A comprehensive energy and environmental assessment must assess construction projects for these requirements before final approval.

The College creates or empowers a group or groups to determine methods of energy assessment, embodied energy model, sustainability standards, and any other standards. A new building undergoes commissioning and performance verification to ensure conformance with goals and stable results. This policy will undergo review every five years (3).

**Garfield Feasibility Study**

In February 2011, CBT architects, consulting engineers, and Williams representatives gathered to study the feasibility of renovations and/or additions to Garfield in order to enhance the student environment, update its systems, and increase its energy efficiency (Hill 5). On May 17, the architects presented eight possible schemes to meet the intended goals.

The one clear conclusion drawn from the Garfield feasibility study lies in the agreement that Garfield should undergo renovation rather than be demolished for a completely new structure. There exists no evidence that the removal of the building would yield more economic or energy efficient results. Such an action would waste embodied energy, increase landfill waste, and run counter to historical preservation and sentimental value. This agreement is consistent with the component of the energy reduction plan that involves the minimization of new building construction; “Generally speaking, the best, most sustainable way to handle construction is not to do it, but instead to change behavior and improve efficiency so that it’s not needed” (Klass, Boyd et al. 1, 2). Those proposals that do not include the demolition of Garfield appear to be the most environmentally and economically efficient.

Energy use per bed for each scheme hovers around a 74 KBTU average ($628 cost) while the goal was originally 50-75 KBTU. Better can be done but currently Garfield rests at a high 117 KBTU. These proposals do not approach
LEED Gold in terms of energy values and worries about efficiency remain, particularly because such baseline numbers are likely architect underestimates.

Discussion

Lessons from other Colleges Attempts

The Williams administration should learn from peer institutions that have enthusiastically adapted to create sustainable dormitories and become aware of the growing importance of sustainability in ranking systems and student selection of which school to attend. The successes of competing and similar schools demonstrate the feasibility of sustainable housing for Williams College.

Justification for the Institutionalization of a Sustainability-Themed Dormitory

Despite the College’s reluctance to institutionalize a sustainable dormitory, support for this action on an educational basis appears in the Williams College philosophy itself. The very opening line of the Williams Mission Statement makes it clear that “Williams seeks to provide the finest possible liberal arts education by nurturing in students the academic and civic virtues” (my emphasis added), associating educational value closely with commitment to the public good of which the health of the environment obviously constitutes a significant part. Students should regard a Williams education as “a privilege that creates opportunities to serve society at large, and imposes the responsibility to do so”. The statement later adds that the College places “great emphasis on the learning that takes place in the creation of a functioning community”, “life in the residence halls” being the first of the components listed in this community. The College’s sustainability policies too assign great educational value to environmental practices on campus. The Committee on Priorities and Resources recognizes in its LEED Certification Policy “the educational value of exposing students to principles of environmental design” in addition to its intrinsic environmental benefits (Just et al. 1). Similarly, the Williams College Sustainability Principles acknowledge that “The College’s greatest contribution is through educating our students, who will go on to become environmental stewards through their many roles...We do this through our teaching, research, and co-curricular offerings, and by demonstrating and embracing sustainable practices in the development and operations of our campus”. Beyond simply meeting sustainability initiatives, the indoctrination of environmental practices through sustainability-themed housing represents a way for environmental education to saturate students’ collegiate lives, a transition from the theoretical and sometimes sterile application in the academic setting to practical applications in residential life. With the new program, environmentalism would hopefully cease to be something discussed and agreed upon in class before a return to earth-damaging lives. The College unfortunately only offers two experiential learning courses in the environmental realm: Renewable Energy and the Sustainable College Campus and Environmental Planning. A sustainable residential situation would help fill this lacking area and promote “intellectual
engagement with the ways in which our daily lives impact our environment and ways in which to lower that impact” (Macko 1).

A sustainable dormitory would also serve as a model for sustainable practices elsewhere on campus, testing environmental proposals that may not see immediate college-wide implementation for whatever reason and inspiring the rest of the student body to assume comparable ecological practices. Should a green initiative face student reluctance, skepticism, or any other form of uncertainty, one place will have a group of students who will willingly participate and provide feedback to ensure the refinement of sustainable practices. Of course the College must strive for the eventual attainment of campus-wide sustainability, not simply in a single dorm, but before the larger movement to achieve this goal, it must start with a smaller scope so as not to stumble over itself trying to accomplish too much too fast.

The Williams administration must remember that sustainability is as much of a goal as diversity is and that these two objectives are not mutually exclusive. Students participating in a sustainable dormitory would indeed distinguish themselves from the rest of the school, but not on the grounds of common race, religion, gender, or sexual orientation, not even on the basis of a shared activity or academic interest; sustainability is more of a lifestyle, perhaps as broad a criterion as any student would self-select. The label is general enough to attract people for a multitude of different reasons and from a great variety of backgrounds; there exists no archetype of an environmentalist. Within this wide area of agreement, members would still be exposed to diversity. Whereas the sustainable dorm would lend them cohesion and voice, the current environmentally-minded portion of the student body is relatively marginalized without it, under obligation to occupy energy inefficient dormitories to which they object and in less control of the sources of their food. The current use of Hardy House, now utilized by campus LGBTQ, women, Latino/a, international, and multi-cultural student groups, sets precedent for the specific allocation of intellectual resources and meeting space for other underrepresented groups. The new dormitory would preserve the entry system, perhaps better suited than the current system of upperclassmen housing to foster interaction between diverse social groups due to the administratively crafted composition of entries. Junior and senior housing plans that would affect the sustainable dorm should garner less attention than this early exposure to diversity in entries that plays a determinant role in pick groups for sophomore housing over which students have much more choice.

**Sustainable Practices**

**Construction**

For the renovation of Garfield, I would strongly advocate adherence to the LEED Certification policy put forward by the CPR and the CEAC proposal as the Williams Sustainability Principles include more vague and moderate measures to ensure sustainable construction. The CEAC Proposal articulates ways in which
these broader principles can be fully realized in the realm of construction and maintenance.

**In-house Practices and Replacements**

As stated earlier, the practices associated with sustainable living are quite numerous and to specifically define the practices of the dorm, a task much likely better taken up by those who inhabit the dorm when the time comes, seems much less important than to forge those students’ rights to practice general sustainable living in a setting intended for their use. The sustainable dorm would implement many or any of the sustainable proposals that innovators on this campus have put forward and continue to take on new techniques as they emerge.

The Thursday Night Grassroots proposal recommends complete carbon-neutrality though the combination of efficiency measures, alternative energy sources, and carbon offsets in addition to the following:

- Covered outside bike racks
- Motion sensor lights in all spaces but student bedrooms
- In-house energy monitor visible to students
- In-house composting
- Recycling system with better separation methods
- Shower timers
- Sustainable living library in a common room
- Meeting space for student organizations (with large whiteboard on one wall)
- Low flush toilets and low flow faucets
- Large kitchen space for students (perhaps stocked with pots/pans/local cookbooks)
- Clothesline outside or available drying racks for all students
- No paper towel dispensers, dish towels supplied for kitchen
- Low energy appliances
- Good insulation to lower heating needs
- Green roof and/or house garden (Macko 1)

Given the emergent interest in food on campus, an increased emphasis on food production through the creation of a garden on the south lawn complemented by in-house composting, greywater recycling, and a large kitchen would promote not only sustainable growing and food awareness but a sense of community and inclusiveness.

According to Lindsay Millert, the most basic plans for renovation already in place that present opportunities for sustainable innovation include...

1-transitioning Garfield heat from its own hot water boiler system to the campus-wide steam system via the line that already connects to the Center for Developmental Economics
While this plan will purportedly increase heat efficiency, the possibility of photovoltaic panels or shingles to power the boiler has remained relatively unconsidered (16).

2-upgrading from finned-tube baseboard radiators to flat hot-water panels that can be mounted at a higher level

The current radiators are fairly efficient already but their location along the floor in a baseboard system inefficiently heats high-ceilinged rooms while their alternative location in a wood encasement below windows allows the immediate escape of heat (15). Millert proposes an alternative neutral positioning at breast height and away from doors and windows (16).

The existing poor window-package and insulation causes most of Garfield’s heat loss and the College resists the removal of the historic panes (13). In light of this problem and accompanying obstacle, Millert wisely suggests new sealants between glass and frame, caulking around the external wood frame, new glazings, the closing of curtains and fireplace dampers on cool nights, and the replacement of insulation with modern Icynene (13, 14).

3-renovating all bathrooms and their fixtures (Millert 6)

This area of wholesale renovation offers tremendous opportunity for water conservation. The Garfield toilets have not been changed since the last interior renovation in 1978 and not only use more gallons per flush but have come to leak wastefully (8, 9). Millert suggests the installation of dual-flush toilets for economic and sustainability reasons; such toilets cost only $15 more than a standard Kohler toilet and allow the user to choose how many gallons of water with which to flush (8). Millert notes that the current showerheads draw more than five and a half gallons of water per minute while current Massachusetts mandated showerheads have a maximum of 2.5 gallons per minute and can achieve as low as one and a half gallons per minute (10, 11). In a coupling of this technological solution with behavioral changes to which enthusiastic dorm residents would remain open, shower timers would promote shorter showers and thus even more reduced water use. Additionally, cheap sink faucet aerators have fewer leakage issues and simply add air to the water stream and reduce flow from 2.75 gallons per minute to one and a half gallons per minute (11).

4-laying new carpet, re-painting, and installing new fixtures and appliances (Millert 6)

The replacement of dormitory items of course means the potential for recycled, re-used, and resource-efficient replacements. Replacement dormitory carpeting and furniture can come from recycled materials and responsibly harvested wood when appropriate. Compact fluorescent bulbs, slightly expensive but long lasting and energy efficient, can obviously replace the current Garfield combination of incandescent and fluorescent bulbs after renovations (16).
Installment of motion sensors attached to these lights would eliminate the energy effects of carelessness (although one would hope that the responsible residents of the sustainable dorm would remember to turn their lights off).

Despite their high energy use, the Garfield washers and dryers will likely not be replaced during the renovation given their recent installation and relatively low water use (13). As Millert notes, if they are not replaced with more efficient appliances, the level of water and energy usage associated with laundry rests on student behavior; cold water wash cycles and dry racks could likely become part of sustainable dorm practice.

A number of these changes, for example the replacement of bathroom fixtures, would have a positive effect on the resource use of the building, regardless of whether or not a sustainable dorm is institutionalized. Such proposals should be promoted even if the communal co-op aspect cannot be enforced; the greening of the building itself can occur before the establishment of traditions around it.

**Social Aspect**

The addition of major common spaces such as a meeting room, large kitchen and dining space, and/or environmental library to the renovated Garfield hold major significance in countering the perception that the sustainable dormitory members would isolate themselves from the rest of the campus community. While the College has demonstrated concern about the potential for the sustainable dormitory’s exclusivity, the dorm can oppose this force by having a full calendar of inclusive activities such as garden harvests, dinners, and speakers to get more students excited about and involved in environmental issues, bringing together those who live elsewhere, and putting on display model environmental behavior. The Williams Sustainable Growers have set a terrific example of such activities with their garden “parties” each week that cast sustainability not as a chore but as an embracing, socially appealing reason for gathering. The sustainable dorm can orient itself toward diverse programming in the same way that the Neighborhood System does. As discussed in previous meetings, the particular architectural schemes that include large common spaces require frequent utilization for economic justification; the activity possibilities of the sustainable dorm can offer robust environmentally themed programming itself to fill these spaces and make those who live in Garfield feel less isolated.

**Membership**

Membership to the sustainable dormitory would entail some sort of selective process, to be determined upon establishment, due to limited living space and the need to ensure willingness and ability to fulfill the responsibilities that living sustainably requires. Membership should not be granted without the assurance of commitment to making the project work. Reassurance of commitment may necessitate the signing of a contract or some other form of agreement to house rules. Responsibilities around the dormitory such as cooking
and the removal of compost, some of them replacing the work otherwise done by Facilities, embodies the idea that one cannot achieve sustainability passively.

Rather than the traditional co-op format of exclusively seniors, I would recommend including all non-freshmen or at least, juniors in addition to seniors as to prevent the illusion of exclusivity and create a sense of continuity between years. The instruction and refinement of sustainable practices at the site could only take place through the input of students with overlapping membership between years.

The TNG proposal recommends the following with regards to student-life:
- The house be open to anyone (no neighborhood affiliation)
- House residents help in upkeep of building (recycling, composting, garden maintenance, kitchen cleaning, etc.) in the form of a student job
- Students should sign a commitment to adhere to the rules of the house (as determined by students) such as not having a mini-fridge, making sure to turn off lights, etc.
- Surveys should be given to residents before and after living in the eco-dorm to gauge knowledge gained about sustainability issues and assessment of space as good living arrangement (Macko 2)

Text References and Works Cited


"Personal Interview with Sasha Macko." Personal interview. 11 May 2011.

"Personal Interview with Stephanie Boyd." Personal interview. 11 May 2011.


