

The Farmhouse

A Model For Sustainable Living at Gettysburg College

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Introduction

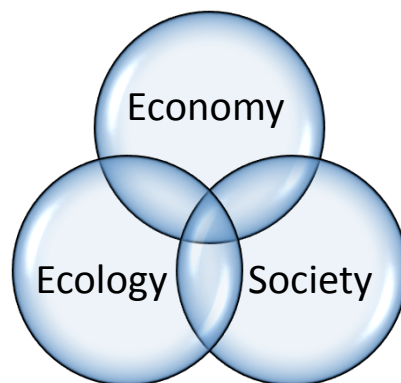
By Eric Canzano

There is a growing international concern among developed and developing nations alike about the drastic effects of carbon accumulating in our atmosphere and its potential impact on the climate. In fact, many nations, including some of the wealthiest in the world, have already developed national plans for reducing their greenhouse gas (GHG) emissions by a significant percentage over the next decade. The United States – besides being one of the only developed nations to refuse signing the Kyoto Protocol – is one of the only nations without a comprehensive national plan for emissions reduction. In the absence of a successful bill in Congress, many state governments have taken the initiative and developed long-term strategies to reduce their GHG emissions and stimulate growth around green technologies. In particular, universities and colleges around the country have been among the vanguards of the new environmental movement. Students have organized national campaigns and competitions to promote the ‘greening’ of their campuses and the many institutions, like Harvard, Yale, and Middlebury, have responded with significant investments in the restructuring of their strategic goals and campus infrastructure. The university and college climate presents a unique opportunity to pilot innovative strategies to combat climate change. You may have heard this movement coined by a single buzz-word: sustainability.

The term ‘sustainability’ invokes many reactions in students around Gettysburg campus, few of them good. It has been used in so many contexts that the meaning of the term is either hopelessly obscured or worn out. We would like to rescue and clarify the term as part of our vision. One of the most common associations with sustainability is the environment. We seek to use the limited natural resources given to us for a long period of time so that we do not find ourselves unable to function 50 years down the road.

The most commonly accepted definition of sustainability was put forth by the Brundtland Commission in 1989: sustainability is “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”¹ Sustainability, however, is a difficult term to define, and is by nature a complicated and multi-disciplinary concept. One of the most basic ways to illustrate sustainability is by highlighting the interaction between its three ‘foundations.’ Another way to refer to this is the ‘three-legged stool’ model: each leg of the stool is needed to support the entire structure. Take out one, and the whole thing collapses. The three ‘legs’ of this stool are economy, society, and ecology, as illustrated in Figure I.

Figure 1: The Three-Legged Stool of Sustainability



This highlights the importance of considering not just the environment impacts of a decision, but also how it will affect the society and economy at large.

The traditional model of sustainability has been shown in recent decades to be inadequate at addressing the impact of these types of decisions on justice and social equity. By wedding the concern for social welfare – which has usually been the work of

¹ The World Commission on Environment and Development (Brundtland Commission), 1989

social justice movements – and the environment – which has usually been the work of environmental or conservation movements – we create a more comprehensive vision of sustainability. Out of this union comes a new meaning for sustainability: *just sustainability*, which is defined as “the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, while living within the limits of supporting ecosystems.”² To illustrate, let me use a simple example – access to food. Normally, a sustainable plan in a community is to provide cheap food in an accessible location. This not only satisfies the demands of the consumers, by providing them with affordable food, but also the demands of the producers, who are able to sustain their profits by buying food from cheap sellers, most likely produced internationally. However, if we take a look at this situation through the lens of just sustainability, we see that, in fact, this is not a sustainable model of food. On the production side, in order to keep prices down, the supermarket has to purchase food that, due to the cheap price of oil, has most likely been shipped from across the country or from an international location. Bananas and coffee are two easy examples of this. Not only has the food traveled an average of 1,500 miles to reach the supermarket, in the process burning fossil fuel and wasting material for the packaging, freezing, and shipping of the material, but the labor that produced this food was most likely below living wage and below acceptable standards one would find in America. Now take a look from the consumer side: although the low price of food makes it accessible to most of the community, it does not guarantee the quality of what is purchased. Numerous health problems, including obesity and diabetes – are resulting from America’s access to cheap but unhealthy food. Those with limited wages to spend on food are restricted to buying processed goods, or

² Julian Agyeman *et. al.* 2003, 5

eating at the nearest fast food chain. You can see how, with just a simple issue, the situation proliferates into a complex web. Just sustainability demands that everyone in a community not only have access to food, but that they have the opportunity to afford healthy food. It goes beyond mere survival, to living.

Almost two years ago, Gettysburg College signed on to the President's Climate Commitment (PCC). By signing, the College committed itself to developing and executing a plan to eventually become carbon neutral. Here is part of the vision the college agrees to by signing the PCC:

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing global warming emissions and by integrating sustainability into their curriculum will better serve their students and meet their social mandate to help create a thriving, ethical and civil society. These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.³

³ President's Climate Commitment
(<http://www.presidentsclimatecommitment.org/html/commitment.php>)

We are now, by our pledge, involved in the nation-wide movement to meet this new vision of sustainability. This is not to say that the college had not already begun work on becoming sustainable before signing the PCC. There are many small initiatives, such as low-flow toilets, Recyclemania, and biodegradable coffee cups, that have taken place over the past decade. However, we are at the beginning of a long and arduous process of becoming a more sustainable campus.

This effort requires planning, coordination, and concerted effort. We must now address the most pressing needs to bring the college towards its sustainable objectives. Over the past three years, students have been cataloguing, informally, the state of the College's sustainable achievements. We sought to find what we have done, and what areas within the campus have the potential for most improvement. It turns out that the College accomplished more than we thought it had. One of the patterns that became apparent with these achievements, however, was that they were isolated, brief bursts of progress. Almost no one had any knowledge that they had been done other than those who had done them. Other colleges, such as Bucknell, have experienced this same problem. In the year 2000, Bucknell came to the conclusion that

currently there is no central focus or strategic plan to coordinate efforts, to generate initiatives and ideas, to plan, to execute, or to follow-up for greening at Bucknell University. Students and staff do not know where to get help nor do they know what programs and initiatives exist on other campuses. Often our faculty is unaware of innovations being used on other campuses to link sustainability and environmentalism to our curriculum.

Important connections among students, staff, curriculum and community are not occurring at Bucknell.⁴

If the College is to meet the lofty commitments of the PCC, we can no longer afford this kind of patchwork effort.

It is apparent, then, that in order to seriously live up to the expectations of the PCC, the college needs an “instrument for focusing attention on environmental issues, coordinating and publicizing student projects, supporting faculty research and teaching efforts, attracting scholarly and professional speakers, and developing relationships with community partners.”⁵ This is our vision for the Farmhouse. The Farmhouse simultaneously fulfills the multifaceted needs of the College. It creates a single point from which to direct all of the available energies of Gettysburg College towards achieving our sustainability goals. As a living/learning center, it aims to bring students the ability to seriously commit to a sustainable lifestyle while serving as a living laboratory for community and classroom programs. As an office, it allows a Sustainability Coordinator to manage and direct the sustainable needs of the College from a single location.

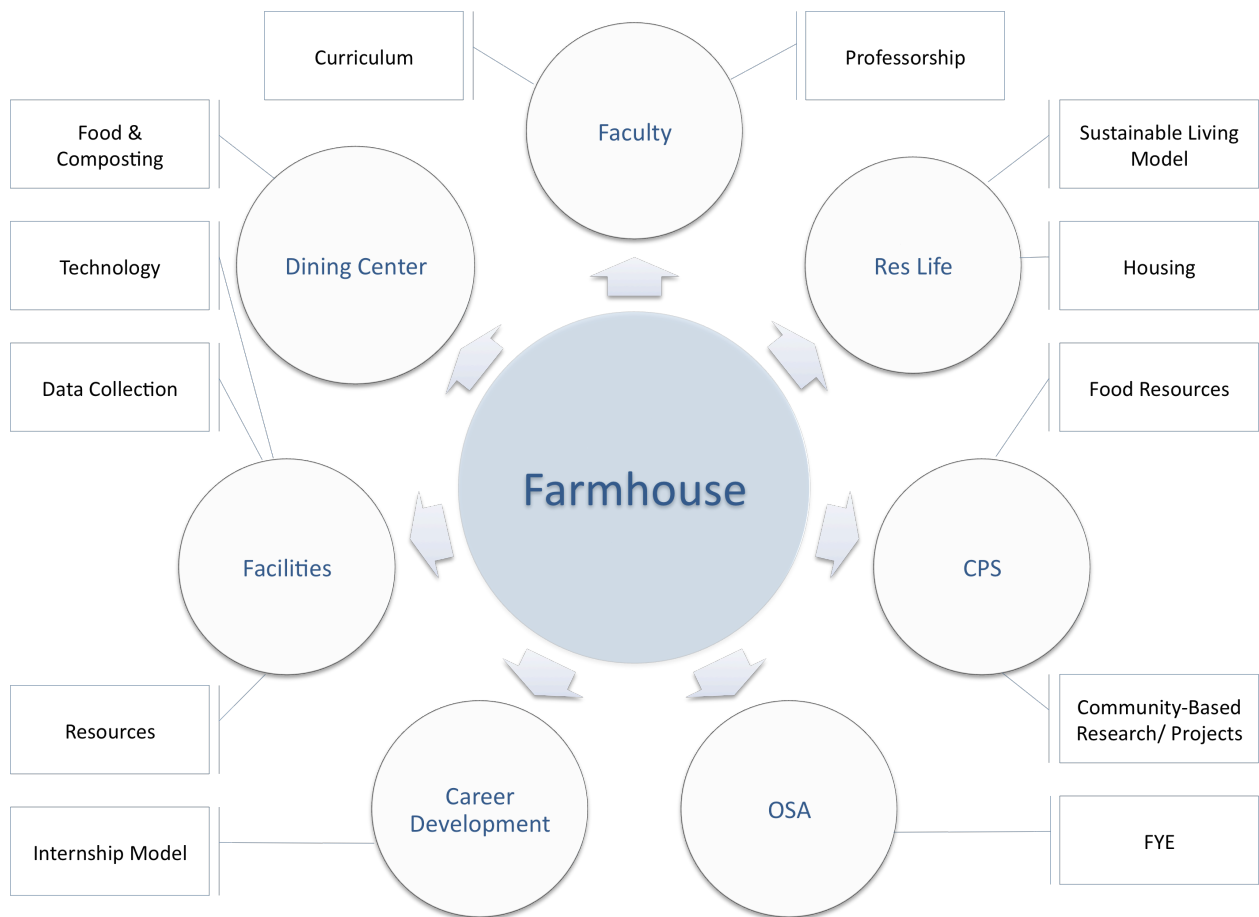
The goal of the Farmhouse is to be both a dynamic model for the Gettysburg campus and community and a point of connection between all of the dynamic aspects of our community. It is by no means an isolated building that confines the project of sustainability to a handful of students. In fact, it is only with the Farmhouse that the College can truly begin to effectively bring itself together under the initiative of

⁴ Abrahamson, 2000. *Fertile Ground for Campus Greening*.
(www.bucknell.edu/Documents/EnvironmentalCenter/GreeningReportFinal)

⁵ *Ibid*, 2000.

sustainability. Figure 2, below, shows the many areas of the campus and community that will coordinate with the Farmhouse. Students living in the Farmhouse will be coordinating with these various bodies on campus in order to carry out their responsibilities. In the process, the Farmhouse creates an entire web of communication across the college, while focusing the interactions around a single theme: sustainability.

Figure 2: Institutional and Community Outreach



By taking a holistic approach to sustainability, the Farmhouse ensures that its presence will extend throughout the College and the Gettysburg community. We have created five sections in our proposal to illustrate how we incorporate sustainability into the house itself, the lifestyle of its residents, and its impact on the surrounding community at large. Starting with the house itself, we realize that the very fabric of the building must be looked at from a sustainable perspective. Since the College will be retrofitting the sprinkler systems of certain buildings on campus over the next few years, we recognize this as an opportunity to restructure the house using sustainable technologies and systems. By using smart, sustainable infrastructural decisions, the Farmhouse will reduce its environmental impact while saving money with efficient, green technologies. In Tracking and Assessment, we discuss ways to monitor and evaluate our progress using empirical data on waste, water, energy, and recycling consumption and production. Gathering data allows the house to measure its progress and to provide information on the success of sustainable lifestyle choices and technologies to the campus at large. In Education, we discuss the necessity of Farmhouse residents using their advantage of living in a house that, by just living in it, provides them with an educational experience, to educating the campus at large. In Community Partnerships, we address the larger Gettysburg community and the need to extend the sustainability movement to encompass as many people as possible. Lastly, in Green Living, we discuss lifestyle choices that will grow out of living in the Farmhouse and how residents will spread their knowledge of sustainable living to Gettysburg students.

The Farmhouse has myriad benefits for the college. Not only does it provide a direct, educational experience to the residents of the house, but it creates a culture of

sustainability around a single area. The house itself can be seen as a progressive experiment in actualizing the commitment of the College to a more sustainable campus, in its lifestyle choices, technologies, and outreach to the larger community. It is a living laboratory of ideas, data, and initiatives. Having a centralized, visible house will show prospective students, alumni, and trustees that Gettysburg College has seriously committed to the ideals of a liberal arts education. We hope, finally, that the Farmhouse is a living representative of what the College has laid out in its own vision of the future: “Gettysburg combines academic intensity with learning by getting involved—we aim to expand opportunities for both. In short...we will seek more ways to connect think with do.”⁶ The Farmhouse bridges the gap between a sustainable ethic and living that ethic. It connects think with do.

⁶ Gettysburg College Strategic Plan, Engagement (<http://www.gettysburg.edu/plan/engagement/>)

Residency Program

By Eric Canzano

The Farmhouse will function as both a residential building and an ‘Environmental Center.’ Similar to the Eisenhower Institute, which has an affiliation with the college and hires part-time students as ‘fellows’ who live within the Institute itself, the Farmhouse will house the office of the Sustainability Coordinator and hire students to live and work within the house. The Farmhouse thus functions as both a center for sustainability and as a residential area for sustainable living. All students will be placed via an interview into the house and selected for particular responsibilities pertaining to the programming of the Farmhouse. Students interested in applying must be a Gettysburg College upper class student in good standing and show a demonstrated interest in issues of sustainability, environmental ethics, recycling, and/or student activism. Participants must be willing and able to fulfill all of the described duties, including residency in the Farmhouse and following of the house responsibilities. Applicants will be selected based on the strength of their academic record, a demonstrated commitment to environmental issues, a resonance of personal scholarly interests with Farmhouse program themes, as well as level of maturity and independence.

The two types of paid positions available for application are Community Partners and Undergraduate Fellows. In addition to these paid positions, the remaining students will be given in-house responsibilities pertaining to the separate areas of the house: gardening, composting, recycling, and tracking and assessment. While these responsibilities will be explained in tracking and assessment, generally, these students will be responsible for maintaining the garden, taking care of the composting, making sure all materials in the house are recycled when possible, and collecting data for all of these divisions.

Since the Farmhouse will act as the sustainability center on campus, each student as well as the Sustainability Coordinator will be required to have office hours. Since the students do not have offices, this will require that they are generally available in the house in the non-residential sections. Office hours encourage students who may have questions on anything related to sustainability to come in and seek information from anyone in the house. Residents should also uphold an “open door policy” so that the Farmhouse is inviting to students, faculty and staff, and members of the Gettysburg community in general.

Infrastructure

By Michael Catalano, Janelle Papay, and Allison Rague

Within the infrastructure section we will address all items pertaining to the construction and furnishing of the Farmhouse. These items include green living spaces, materials used, heating and cooling systems, water, and energy use. Within our philosophy of just sustainability, we aim to create a suitable space for residency, campus and community programming, and office space, while promoting conservation and reducing environmental impact by using green building materials and products.

Living Space

The Farmhouse will be designed not only as a residency but also to act as a community center in which programming related to environmental issues and education will occur. We will be able to establish a forum for people to collaborate on projects and other efforts to raise awareness about and support for sustainable living. The five main components of the living space will be a student residential living space, a common area, an office for a Sustainability Coordinator, research space, and garden space.

Having a Sustainability Coordinator living within the house will be a beneficial resource to students living in the house as well as the Gettysburg community as a whole. This individual will be easily accessible to students, able to coordinate the sustainability efforts of the College from a single location, and disseminate any information to the public

The research space will provide an optimal atmosphere for students, faculty and other community members to focus on conducting tests and projects specifically geared towards topics pertaining to environmental sciences and society. The advantage of

having this space in the Farmhouse is the close proximity to information, data, and specialized equipment the Farmhouse contains.

Part of the programming of the Farmhouse envisions building community partnerships and outside-the-classroom experiences related to sustainability. A common area functions as a meeting place for community and campus organizations and for classroom sessions. As such, a common area sufficient to sit an average sized class or a meeting is necessary to accommodate for the programming of the Farmhouse.

A garden space is essential in carrying out the goals of the Farmhouse in being a self-sustaining building. While the gardening program will not be as ambitious as, say, the Painted Turtle Farm, a garden is necessary for educational purposes. Students living in the Farmhouse will be responsible for eating much of the food grown in the garden, but more importantly, in conjunction with community partnerships, students will be holding programs on planting and cooking healthy, organic food. Therefore, a small garden space, sufficient to run these programs, is necessary.

Lastly, the residential aspect of the house needs to be isolated enough to allow students to maintain their own privacy and personal lives, while still upholding their responsibilities within the house. No preference is placed on the type of rooms – single, double, or otherwise, but only that it is possible for the lives of students-in-residence to be separate from the constant shuffle of programs and the work of the Sustainability Coordinator.

Materials

36 million hectares of global forested area was lost from deforestation between 2000 and 2005.¹⁰ This is partially due to the use of unsustainable building materials. We hope to accomplish resource efficiency through using green materials during the construction of the Farmhouse. Our primary focuses will be on the flooring, roofing, paint, and adaptability of the building. Though the initial purchase of the materials will cost more, the long-term costs are lower than what they would be when purchasing non-sustainable materials. It is easy to see the cost-effectiveness of investing in green/sustainable products when using the BEES (Building for Environmental and Economic Sustainability)¹ software to assess the life cycle of building materials and products. The life cycle assessment (LCA) is an evaluation of the impacts of a product through all of its life stages. The BEES software makes it possible to see both the environmental and economic performance of building products. The software was developed by the National Institute of Standards and Technology's Building and Fire Research Laboratory and can be downloaded on their website.¹

The materials used in Farmhouse should strive to meet the following criteria, which are outlined by the California Integrated Waste Management Board.²

Recycled Content: Products with identifiable recycled content, including post-industrial content with a preference for post-consumer content.

Natural, plentiful or renewable: Materials harvested from sustainably managed sources and preferably have an independent certification (e.g., certified wood) and are certified by an independent third party.

Resource efficient manufacturing process: Products manufactured with resource-efficient processes including reducing energy consumption, minimizing waste (recycled, recyclable and or source reduced product packaging), and reducing greenhouse gases.

Locally available: Building materials, components, and systems found locally or regionally that will help save energy and resources in transportation to the project site.

Salvaged, refurbished, or remanufactured: Includes saving material from disposal and renovating, repairing, restoring, or generally improving the appearance, performance, quality, functionality, or value of a product.

Reusable or recyclable: Select materials that can be easily dismantled and reused or recycled at the end of their useful life.

Recycled or recyclable product packaging: Products enclosed in recycled content or recyclable.

Durable: Materials that are longer lasting or are comparable to conventional products with long life expectancies.

Heating and cooling systems

Approximately half the energy used by a home is consumed in heating and cooling.³ Our goal is to reduce energy consumption and emissions by increasing efficiency as well as using clean energy without compromising indoor air quality and the comfort of residents. These goals can be met by a combination of resident behavior and infrastructural upgrades.⁴ Some ways in which to achieve this is by:

Insulation: Efficiently insulating the structure retains heat during cold months and maintains cool temperatures during warm months. This creates less of a demand on heating and cooling systems. The installation of double-paned windows slows the conduction of heat loss in areas where glass is necessary.

Thermostats: The installation of a programmable thermostat allows for heating needs to be met cost effectively without sacrificing comfort. A program can be established based upon the schedule of the residents of the house. During low traffic periods within the house the heat will automatically be turned down. Commonly heating in student dormitories is centralized meaning the residents cannot control the temperature. If overheated students resort to opening windows for cooling purposes. Control of the thermostat will prevent this unnecessary heat loss during winter months. Programmable thermostats can save up to \$180 per year in heating costs.³

Air-Source Heat Pumps: Air-source heat pumps use the difference in temperature between the outside air and the inside air to heat and cool the home. An Energy Star qualified heat pump can save up to \$1993 in the course of its lifetime.³

Air conditioning: Air conditioning units should be energy efficient, if installed at all. Approximately 1.3 billion pounds of greenhouse gases could be prevented with the installation of Energy Star qualified air conditioning units. That equates to the emission of 115,000 cars. Commonly, room air conditioning units are too large for the room, creating unnecessary cooling. Choose a model with a high Energy Efficient Ratio (EER) and with control dials for close regulation. A unit will cost approximately \$300 compared to a traditional unit at \$270, but will save up to approximately \$116 in its lifetime.³

Refrigerators: All refrigerators prior to 1990 should be replaced to eliminate the use of CFC-based refrigerants. When choosing a new refrigerator, multiple aspects of the model should be considered. Models with top freezers rather than side-by-side freezers use 10-25% less energy. Ice dispensers built into the door can raise the purchase price of a refrigerator \$75-250 and use 14-20% more energy. A model with automatic moisture control is preferred to ‘anti-sweat’ models due to a 5-10% energy savings. The refrigerator should not be larger than is necessary to fulfill the student’s need, as larger units use more energy. The placement within the kitchen is also important to consider. It should be placed

away from direct sunlight and other heat conducting appliances. Approximately \$46 can be saved in the lifetime of the energy efficient unit factoring in purchasing costs.³

Freezers: An additional freezer would be beneficial to increase food stores from the garden. An Energy Star freezer has the potential to save approximately \$41 in its lifetime. Three models are available including upright automatic defrost freezers, upright manual defrost freezers, and chest manual defrost systems all that use 10% less energy than a traditional freezer.³

Microclimate: Consideration of the microclimate surrounding the Farmhouse can significantly reduce the heating and cooling costs. Seasonal sun angles should be evaluated when designing specific rooms, for example the kitchen. Assessment of sun angles is crucial in the placement of solar paneling. Tree placement has the potential to act as an external insulator by providing shade during warm months. Skylights allow the sun to be used as a source of heat and create lighting without additional energy use.³

Water

About 340 billion gallons of water are used every day in the United States.⁵ We aim to reduce our individual impact on water use by decreasing consumption and contamination. Recycling water and reducing water waste by using water efficient appliances can achieve this goal. Ecological impacts to the watershed must be minimized

during development of the structure. To implement these goals the following areas should be addressed:

Grey Water Systems: These systems are used to reduce the need for potable water within and around a building by recycling grey water.⁴ Grey water is wash water, which includes all wastewater with the exception of toilet water. Toilet water is considered “black water” and is significantly different from grey water. Grey water contains a lot less nitrogen, fewer pathogens, and decomposes faster than black water, making it easier to purify. Grey water can be processed and reused from sources such as the laundry, the kitchen, and the bathroom. Before installing a grey water recycling system an evaluation of the appliance water output should be examined to determine the best treatment plan. Multiple treatment options are available including aerobic pre-treatment, anaerobic to aerobic pre-treatment, planter soilbox designs, and more. The treatment used is dependent upon the needs of the house and the topography of the location.¹¹

Rainwater Harvesting Systems: Rainwater harvesting systems have various components that allow for rainwater to be recharged and reused.⁴ Rainwater is first collected in a catchment. The catchment can be a paved area like a courtyard, an unpaved area like the lawn, or a roof made of reinforced cement concrete (RCC), galvanized iron, or corrugated sheets. Gutters collecting rainwater should be covered with coarse mesh to reduce the debris entering the water supply. Conduits or pipes carry the rainwater to the harvesting system. The water is then filtered to remove suspended pollutants, dirt, and debris. Finally the

water enters a storage tank or recharge structure. A variety of filters are available and should be chosen based upon location, available space, and needs.¹²

Hardscapes: Hardscapes should be minimized. If paving is necessary permeable paving and surface materials should be used to maximize the water absorption.⁴

Insulation: Insulating water pipes is an inexpensive way to heat water faster and avoid water waste while the water heats. Insulation can be done simply by installing pre-slit foam insulation.⁶

Leaks: Checking for leaks can save up to 20 gallons of water per day. Pipes and faucets are key areas to monitor.⁶

Appliances and Technology: Many appliances are now available to reduce water use within the house. Infrared faucet sensors, low flow showerheads, and efficient washing machines are all available to reduce water waste. New toilet technology provides the ability to save additional water. Waterless models and half flush toilets are now available.

Energy

Americans consume 26% of the world's energy, while 2 billion people worldwide are without electricity.⁹ At Gettysburg College we strive to be citizens of the world. Global citizenship must be considered in every aspect of our life, including our daily

energy consumption. Decreasing energy consumption is driven by lifestyle choices.

With the installation and use of low energy technologies, residents will be able to effectively engage in energy reducing practices. Some of the aspects of energy reduction that should be considered are:

Lighting Systems - Lighting accounts for 20% of the average American's electric bill; using green technology can lower the associated costs. To reduce energy consumption while maintaining adequate lighting characteristics, the Farmhouse should have compact fluorescent light bulbs, a motion lighting system, and a daylight sensing system. The compact fluorescent light bulbs have been proven to last years longer than incandescent light bulbs, at a fraction of the wattage. A motion lighting system will turn off lights that may be on in rooms uninhabited for the time. Finally, a daylight sensing system will take into account the varying levels of indoor lighting needed in conjunction with sunlight in the room.

Appliances and Energy - Appliances should be purchased to minimize energy expenditures. Energystar.gov has a calculator component for appliances, their efficiency, and how they compare to normal appliances.

Energy Sources - Clean energy sources should be developed to supply the house. The clean energy sources would minimize pollution and the release of greenhouse gases by reducing the use of fossil fuels. The most feasible clean energy options for the Farmhouse are mini-wind turbines and solar panels. These sources will

not only ensure that energy used in the house is clean and local, but also may produce enough energy to supply the campus grid. The price of both will depend on the wattage capability. Solar panels rated for 120-130 Watts will cost \$550 to \$650; solar panels with two times the capability will cost twice as much.⁷ For wind turbines, prices generally average \$1000 per kilowatt hour.⁸

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Tracking & Assessment

By Marissa Dakay and Kurt Hagemann

It is important for the Farmhouse to statistically assess their consumption of water and electricity and their production of waste and recyclable material. There are two reasons why tracking these four areas is important. First is so we are able to make comparisons between the technology and lifestyle choices of the Farmhouse and other houses of similar size on campus. Doing so will provide concrete evidence that the sustainable changes described in earlier and later sections are actually saving energy, resources and money. It is crucial that we have an empirical method of doing so, for without verifiable evidence we have no way of improving existing lifestyles or making that progress available to the public. Both the capacity and the size of the building should be taken into consideration when choosing houses to compare to the Farmhouse.

The students responsible for tracking resource use in the Farmhouse will need to work closely with Facilities to garner data and learn methods for tracking. Depending on the amount of data that needs to be collected, one or two residents will be assigned responsibility for data collection and comparison among similar houses. This way we can assess the potency of the lifestyle choices we make as a house compared to other lifestyles.

The second reason to track usage in these four areas – recycling, waste, energy, and water – would be so individuals within the Farmhouse are aware of the amount of resources they personally use. Without individual data it will be hard to understand what personal lifestyle choices work and what specifically needs to be improved upon. With this knowledge, they can hopefully continue to readjust their lifestyle to be as sustainable as possible and educate others about the impact of such lifestyle changes.

Energy usage for the house can be tracked either by pre-existing methods used by Facilities or by purchasing an energy monitoring device to place within the house. College measurements of electricity use are tracked in \$/KWH and \$ MMBTU. The energy detective (TED) measures electricity use in \$/KWH and sells for, at most, \$260. TED also comes with a computer program that allows the user to log their energy use and view charts of trends. Such a measuring system will allow Gettysburg College to produce its own figures on energy savings through technology and sustainable lifestyle choices.

Water usage (gallons) for the Farmhouse will also have to be tracked with the help of Facilities. Energy Star has an online program, Portfolio Manager, which can be used to track water usage for all sorts of buildings, including residence halls. The program allows you to manually enter your data for that facility, compare your usage with other buildings across the country, and provides several other features that assist with tracking and managing water use.

The Farmhouse has the unique opportunity to test methods for recycling, compost, and waste management that would not be feasible on a larger, dormitory scale. Farmhouse students will need access to recycling containers for paper, commingled, and batteries located outside the house for house residents only. There will also be a compost bin so that compostable materials can be collected and used either in the Farmhouse's own garden or the Painted Turtle Farm. A dumpster will be located outside the house to collect non-recyclable, non-compostable waste. Because of the recent Recyclemania competitions, Facilities has already developed a method for measuring recyclable material that will need to be taught to the students responsible for assessment. Hopefully,

with the opportunities presented by the Farmhouse, we can test new methods for collection that can be applied on a larger scale.

There are a few methods outside of the main tracking systems of the Farmhouse for residents to take initiative with their own lifestyle choices and spread awareness of those choices to the rest of the College. Firstly, Farmhouse residents will be in charge of monitoring their own ecological footprint using the carbon calculator. Once a month they should calculate and record their carbon footprint in order to make sure their lifestyle is achieving the smallest footprint possible. Each student will actively be working to lower their footprint month to month. While the calculator only calls for assumptions, students should try to be as accurate as possible in their measurements by keeping track of the hours their electric devices are plugged in / on, weighing the amount of waste they produce, keeping track of how often they eat local, fresh food as opposed to packaged food and recording how often they travel and what mode of transportation they take. Of course, they will be assisted by the student(s) responsible for tracking and assessment, but some of the data can only be accounted for by the individual him or herself. Eco-footprints can also be used on a wider basis to educate college students about the impacts of their lifestyle choices and to help them consider alternatives tested and proven by Farmhouse residents.

In addition, all Farmhouse residents will be required to take a Sustainability Pledge. This pledge is a simple yet powerful way to get students to commit to an earth-friendly lifestyle. The Pledge can either be modeled off of existing pledges from other colleges (consider that Penn State has a pledge for graduating seniors to consider the

environmental impact of their future careers), or it can be developed in the first years of residency to include comprehensive and ambitious goals for sustainable lifestyle choices.

Statistics generated by the house will not only be used by the Farmhouse residents themselves, but will also be made more widely available to the public via the web. Students will create an informative house website with contact information, facts about sustainability, the things that they house is doing to reduce their footprint, etc. that students can look at (also good for recruiting students). The website would also serve as a research database. A database of sustainability-related student projects (proposals, papers, etc.) would make it easy for all students on campus to see them. Sharing these numbers with the student body and with the college in general can help to publicize the accomplishments of the Farmhouse and to generate feedback on technology and lifestyle choices. They can also be used for educational purposes, and as such should be available to faculty at any time. For example, these numbers could be compared with tests run by students at a CUB table or from the Environmental Studies 196 class.

With all of these methods we hope to build a testable, empirical foundation for sustainability. This will allow our sustainability to be unique in its practice and in its progress. Data collection is a benchmark by which to evaluate the choices of the Farmhouse residents and build a concrete and effective model for sustainability. By making all of this data available in one location, the Farmhouse is able to challenge its own residents and the campus at large, paving the way for lifestyle models that can be introduced to the entire community and move the college towards improving its sustainability.

References

<http://www.theenergydetective.com/index.html>

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Education

By Natasha Gownaris and Antonia Truscott

The educational mission of the Farmhouse will be to educate Gettysburg College students on how to positively impact the campus community, local community, and environment at large. The goal of the Farmhouse will be to inspire students to care about the world, their effect on it, and the ability to positively influence it by helping them recognize the detrimental impacts they currently have and the possibilities of reducing these impacts. This task will be a challenge, but should be both intellectually stimulating and enjoyable for all residents, students, faculty and staff involved.

To fulfill this mission, a portion of Farmhouse residents will be chosen each year for the Farmhouse Undergraduate Fellows program. The positions offered will depend on the size of the house, the number of applicants, and the finances available. As a part-time paid position, the Fellows program will offer a select group of Gettysburg College students the chance to develop their leadership skills and grow in their knowledge and understanding of the environment. They will serve as leaders to the other residents of the house as well as the general campus community and engage fully in the planning and promotion of specific programs and projects, take part in environmental (social and natural) clubs on campus, act as liaisons for the Sustainability Committee, and serve as hosts for visitors to the Farmhouse. In doing so, they will stay educated about sustainability events happening on campus and the environmental concerns and interests of other students.

Farmhouse residents will engage fully in the planning and promotion of specific programs and projects. They will be responsible for selecting, developing, and promoting a sustainability theme with programming both on campus and in the community. They will work closely with other students, faculty, and staff.

A Professorship of Environmental Studies will be established. Distinguished visiting faculty may be appointed for one- to three-year terms. The Professor will serve also as an advisor of the Farmhouse - teaching, researching, and offering programs on one of the programmatic themes of the Farmhouse.

Campus residencies will be supported through the Leaders-in-Residence program. This program will sponsor extended campus visits by leaders in environmental science and sustainability. These residencies typically involve public lectures, classroom presentations, meetings with individual students, student organizations, and faculty, workshops, receptions, and other activities. Each leader-in-residence must address, in part, the environmental implications of their topic(s) or professional role.

There will be many responsibilities of non-fellowship students living in the house. These responsibilities will include both those that lead to their own environmental education and those that lead to the environmental education of others. As such, residents will be expected to complete some academic work in the Environmental Studies department. Students living in the house must take at least one course that deals with sustainability and/or environmental topics so that they are well-versed to help spread sustainability on campus. To complement this course work, all residents will have an advisor in the Environmental Studies department. Even non-environmental studies majors should select a professor in the department as an unofficial advisor and develop a working relationship with them.

In conjunction with the Environmental Studies department, the Farmhouse should work to incorporate sustainability into the curriculum, either as a core requirement or as a separate course within the Environmental Studies department. Since sustainability is

inter-disciplinary, courses might be altered slightly within other departments and listed under a sustainability core requirement. This expansion is in line with the Strategic Plan of the College, with the ambition of establishing “an environmental sustainability program for the campus, to more fully engage students, faculty, and staff with one of society’s most pressing challenges” (Strategic Plan, Engagement, Goal 6, www.gettysburg.edu/plan/engagement/goals/six.dot) The Farmhouse also provides co-curricular opportunities for research and direct experience with sustainability.

Another key component is outreach from house members to others on campus. We can benefit from the “Best Practice Exchanges” as seen at Harvard. House members will host 1-2 hour programs at the Farmhouse on various sustainability topics to promote student sustainability. At Harvard these classes are run by 20 students that are employed as “peer-based environmental educators.” These programs can range from how to cut water usage to the available local and sustainable food sources (of which there are many in the Gettysburg area).

A key component of sustainable education is the First-Year Experience (FYE) program. It would be ideal to get very involved in the FYE program and to get as many members of the house as possible to apply for the Orientation Leader (OL) position so that they are on campus to represent campus sustainability efforts to first-year students from day one. Incorporating sustainability into the FYE program, either through teaching them simple, sustainable practices or exposing them to all of the sustainable practices on campus, will have a large impact on the habits and behaviors first-year students going into the residence halls from the beginning. Because these students will be entering a new environment, they will likely not have developed a protocol for their daily lifestyle

choices as of yet. Additionally this will help students in the house bond and get the environmental discourse within the dorms started.

Campus events will be a key way to publicize efforts made by the Farmhouse and recruit potential new residents. Students living in the house will help make small events that have the possibility to spread a lot of knowledge and larger annual events that students look forward to. For example, GECO has recently begun a once-a-semester tradition of holding a Sustainable Foods Potluck Dinner (local or organic food items). With the help of the Farmhouse residents, this event could be expanded into a campus-wide anticipated and attended event. This event could serve to promote sustainability in a variety of ways. It will lead to the support of local food production and organic grocery stores (i.e. The Rose Garden) and companies and will make students realize that sustainable cooking is not impossible. Furthermore, we could host speakers at the event that will further promote environmental knowledge amongst the attendees.

Students will also be given the opportunity to attend off-campus events focusing on the environment. These events will educate the students directly and also provide them with ideas and information to bring back to the campus community. Off-campus events therefore serve to enhance their Gettysburg College's programs and events. Possible events include the PSEG GreenFest and the Students for a Sustainable Future Series. This type of event will give students the opportunity to learn about brand new technology, green living techniques, innovative education methods, and the roles that many citizens are taking to change our environmental discourse.

Community Partnership

By Eric Canzano and Sara Tower

One of the unique strengths of Gettysburg College is our involvement in the surrounding community. Organizations like the service fraternity Alpha Pi Omega and the Center for Public Service have insured that community service is an integral part of the liberal arts experience. The various community programs between the campus and community have offered students multiple ways to understand first-hand the issues social justice issues surrounding our community through traditional service.

As the nation becomes increasingly aware of its need to grow more sustainably, universities and colleges like Gettysburg College have led the movement in creating pathways to a sustainable future. Since we already have an established ethic of community service, just sustainability naturally coalesces into the vision of the college. We have here an opportunity to not only expand our programs into the community, but, within the framework of just sustainability, imbibe them with a more rigorous and egalitarian mindset that will address the multiple needs of Gettysburg. The Farmhouse adheres to the same sentiment found in the College's Strategic Plan: "The value of a lifelong commitment to service, and the role of the College in both providing an examples of public service for students and fostering a commitment to service among our young people" (Gettysburg College Strategic Plan, Core Value)

Programming

As part of the programming of the Farmhouse, each student living in the house will be assigned responsibilities based on his or her interests. Some of these positions will include coordinating community partnerships. Given that the programs will be in their

infancy, it is difficult to say the amount of Community Program Coordinator (CPC) positions that will be available in the coming year. We expect that the program will expand with the endorsement of the college and the initiative of future students. For now, we will offer three potential models that can be used by the house to coordinate CPC responsibilities.

(1) CPS model

Our first model is largely based off of the currently existing model used by the Center for Public Service. In the first years of the program, student responsibilities for community partnership will lie mostly in program development, since we will be starting with no established partnerships. The task of these students will be two-fold: to ascertain the needs of the Gettysburg community as pertaining to sustainability, and to find already-established programs addressing these needs or partners willing to develop programs around these needs. Eventually, once programs have been found or established, students will apply to work with a specific community partners. The types of programs we are seeking to create with the CPS model are traditional service programs: CPC's will orient the programs around bringing student volunteers into the community to assist with running their programs. CPC's will also be responsible for gathering students in reflection sessions, coordinating large events or activities, and recruiting new volunteers.

(2) Community Internship Model

The next model follows a more individual opportunity for students to work one-on-one with a community partner to develop a new program or run an existing program that serves a specific need in the community or on campus. An internship will provide a

unique opportunity for students to assume responsibilities that will immerse them in the operations of community development. The priority of the first student interns will be to either create new programs on-campus to help integrate community issues more closely with the college, or to seek positions within the community that can eventually become permanent internships. What separates this kind of work from the CPS and research models is the exclusive relationship between the student and his or her community organization. The program is designed for the student to become intimately involved with the organization they are working with so that by the end of the year they have acquired significant professional and personal development.

(3) Community-based Research Model (CBR)

The research model is designed to more thoroughly assess the issues relating to sustainability in the community. With a solid research foundation, the college as well as the Farmhouse can more accurately pinpoint community needs. Also, the distribution of this material to community partners and the college at large will prove invaluable for creating an informed sustainability movement, as well as exposing students to tangible issues. In forming the program, the first CBR positions will need to identify opportunities within the college for either student-faculty research, capstone work, or course credit. In addition, the first students will also need to search throughout the college for sources of funding, possibly in the form of outside grants. This will need to be done on a continual basis as the nature of the research changes and the amount of data we have available accumulates. While research could be done with faculty, ideally the research should be conducted with a community organization or have direct benefit to an organization.

Potential Partnerships and Programs

There are a plethora of opportunities for involvement with the community based on all three types of models. Here is a list of potential programs and their partners:

- 1) Farmer's markets – students can become involved with anything from the operation of a farmer's market to promotional campaigns on-campus increasing awareness about local foods, markets, and economies. The initial contact for this work would be Kathy Glahn, Director of Adams County Farmers' Markets
- 2) Local Foods Network – a coalition of community members – from backyard gardeners to local farmers – has recently formed in the past year to promote the importance of local food. There are multiple networking opportunities, as well as potential partnerships with individual organizations. Contact: Audrey Hess, Founder of Local Food Network
- 3) Food Policy Council – an initiative to analyze the food system in Adams County and develop policies around 'closing the food gap.' Council members are from all sectors of the community, from policy makers to representatives of local agencies. In the near future, the council will embark on a comprehensive community assessment to qualify and quantify the food system. There are ample CBR opportunities within the FPC. Contact: Kathy Gaskins, of Healthy Adams County.
- 4) Hundredfold Farm – from the website (www.hundredfoldfarm.org): "The Hundredfold Farm Cohousing Community is an effort of several families to create

a 14-household rural cohousing community in the Gettysburg, Pennsylvania area.” In creating ties to this community, students can learn about models for sustainable living. Contact: Louis Hammann.

- 5) Student Gardening – multiple opportunities exist for involvement within the community and programs on the Gettysburg campus. Gardening workshops could be held by local farmers to teach students the basics of home gardening and cooking. Multiple farms exist in the community with opportunities for students to become involved, either through internships, clinics, or volunteer work. Contact: Sara Tower.

Conclusion

The foundation for a more just and sustainable future already exists within the campus and community. Since the college supports a more sustainable future, we have a responsibility to be a catalyst for change within our community. We should not view this, however, as just a responsibility, but also an opportunity for the college to support its goals while achieving a more harmonious and egalitarian relationship with its surrounding community. The Farmhouse should be a center for this activity, the link between the aspirations of the college and its students and the needs of our community. The energy of this movement can be directed through the house and outward into the broader area of Adams County in the hopes that the college can be a springboard for a more sustainable future, for all.

Green Living

by Lauren Barrett, Christopher Cole, and Danielle Bates

Every student on campus will benefit from the educational opportunities that having a Farmhouse affords. Although the students living in the house will have the advantages of many energy efficient and environmentally friendly technologies, there are active lifestyle choices that these students can share with the rest of the college community to help increase overall sustainable lifestyles. There are many ways in which the lifestyle choices of the Farmhouse can be a positive influence on the entire college community in the realms of recycling, food waste, electricity, gardening and sustainable food production and water conservation.

Improving campus recycling has been an ongoing project at the college, and it was a large component of the 2008-2009 campus-wide theme of “Sustainability.” The students living in the Farmhouse will model recycling for the entire community by showing just how effective it can be. Using equations to track weekly recycling weights is one way to show the campus that in campus housing, individuals can make a difference in recycling. Also, the students in the Farmhouse could be directly involved in Recyclemania, which would help to reach and educate a wider population of students. In having the lifestyle choices of the house be public to the entire community, the sense of individual involvement is highlighted.

Composting is another direction in which having an established house and location can aid students. There have been myriad requests on campus for several years to initiate student composting. Due to animal issues and questions of location, this has not been a feasible project. With the Farmhouse, a composting pile in a designated, permanent area will be created and maintained by the students living in the house. This compost area will also be available to other students who wish to drop off compostable materials, but

have not had the opportunity to do so due to their residence locations. There are many students who are not even aware that Gettysburg College composts out of Dining Services, so opening composting up to the Farmhouse will invite another educational opportunity for students on campus.

The student garden has offered opportunity for students to be involved in sustainable gardening projects, yet the majority of students who are reached by this program are either in the ES department or closely-related. Having a Farmhouse garden will afford students outside science/environment-centered majors a chance to work in a garden, learn about food production, and give a sense of relevance and importance to the food crisis in the world today. Students living in the Farmhouse will also be able to host events around the garden for students, such as harvesting and cooking open houses which would enable students to come in, see how the garden works, and have a taste! The garden would also require a daily student commitment which would give the students living in the Farmhouse an important task that is necessary to be done every day, and can be done with a friend.

There is a great emphasis that should be placed on students having their own, individual spaces. Though the campus is full of wonderful locations for events and gatherings, there is something special about having a home and building a community out of that home. We see communities like this develop at the campus fraternities, or at stable theme houses such as Peace House. We, as a community engaged and concerned about environmental issues on campus, would like to see the same effort put into creating a space for our culture of students. We say this with the hope that, after reaching a small community of students, we can reach the greater campus community with a sense of

organization and structure, and proof that living sustainably in a community is not only possible but essential to the Gettysburg College campus. The need for this community space is crucial – it will function as a meeting place, a center for sustainable information, and most importantly, a home for students who are passionate about what they do and what they want their world to look like. This is a step for this year’s class, but its also a step for the many classes that are yet to come through Gettysburg College. It is a movement forward in the new, modern environmentally-sustainable direction, a move that Gettysburg needs to make.

In terms of water conservation, students can choose to wash clothes with the cold/cold water setting in order to reduce water heating demand. They can also set an example for the myriad ways in which individuals can employ water conservation, in terms of how long they shower and use water to brush their teeth. Setting an example for the campus community is not only a starting point, but is an example that is started by students for students. From the Farmhouse the students’ examples can move to the campus community in a variety of ways. All of these activities listed above will be required for the students living in the “Green House,” but can also be performed by the rest of the college community with the hopes of making our campus more sustainable. The lifestyle choices of the students living in the house will be considered a model for the rest of the campus to imitate their personal habits.

We hope that, in the future, this house will become a model for improvements and renovations that can be made regarding the entire campus. We also hope that this house will help educate the public and the college community that in the long term, green technologies and sustainable lifestyle choices are not only better for the environment, but

more economical and not an inconvenience. The house will help reduce Gettysburg College's carbon footprint but will also demonstrate Gettysburg College's commitment to a sense of community by giving back to those in our own community through education and awareness programs.

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