

# **Green Building: A comparative look at the progress of other institutions and St. John's University**



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## **Abstract**

Green building has become a major trend throughout the world, particularly on college campuses. These buildings provide excellent visual teaching aids for students and faculty in monitoring energy use and waste. St. John's is currently designing a community center to be placed in Flynntown. The design and construction of this new facility provides the university with an excellent chance to express its commitment to environmental stewardship by building it according to LEED standards. Through examining other institutions who have built green, I have realized that St. John's has room for improvement. Particularly, the university needs to devote more time into the research and design of its new buildings.

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## **I. Introduction**

Green building is a trend that is spreading across the world. There is more and more talk of green buildings standards and of those being constructed. One such trend is the construction of green buildings on college campuses. Colleges and universities are constructing these buildings not only because of the environmental benefits, but also because they provide excellent real-life learning opportunities for students and faculty outside of the classroom. The first step towards constructing a green building is to have a green building plan in place, which the college or university is committed to. Many colleges and universities have spent a lot of time and research developing detailed green building plans. Here at St. John's University students are taught about sustainability and the environment in the classroom. However, this has not transferred over from the classroom to school action. St. John's University has only half heartedly committed to a green building plan and as a result is in need of greater dedication from school officials and administration in sticking with the plan. The school is currently designing a community center to be placed in Flyntown and is seeking LEED silver status for the new building. This is a step in the right

direction but there is room for improvement in the way the university goes about their green building plan. I will show how St. John's University has fallen short of a fully committed green building plan by comparing it to other campuses who have dedicated themselves to sustainability through constructing green buildings.

## **II. Green Building Standards**

As green building has become more popular, there has been an increasing demand for a set of standards of which to follow and to use as an evaluation. As a result of the increased demand, organizations have been developed and have responded by creating green building guidelines. Green building guidelines and certification provides a way in which to compare buildings. There are green building organizations located worldwide. One such organization is the Green Building Council of Australia. The non-profit organization was formed in 2002. The goal of this organization is to integrate sustainable design practices into the mainstream design and construction of buildings. The organization also helps clients promote their buildings upon successful completion of a certified green building according to the organizations standards (Green Building Council of Australia).

Another green building organization is the Green Building Initiative (GBI). The organization rates buildings using a point system and then awards certification to projects based on the total number of points. The GBI system is used throughout the U.S. and Canada. Assessments are

done by third parties during the building and design process to ensure that certain criteria are being met (The Green Building Initiative).

There are many more organizations that offer a set of green building standards, but there is one in particular that stands out; the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program. LEED is recognized internationally and is one of the most popular programs used in evaluating green buildings. As of March 2008 there were over 10,000 LEED registered projects (U.S. Green Building Council). Since the LEED program is being used by St. John's and is one of the more popular standards, I will focus mainly on this green building standard throughout my paper.

The LEED program was developed by the USGBC in 1998. It is a system used as a guide in constructing and rating green buildings. The LEED standards were developed by a number of committees consisting of professionals from a variety of fields (U.S. Green Building Council). As technology and green building methods continue to improve, LEED standards must be revised to reflect these changes. The USGBC LEED committees meet regularly to discuss improvements in green building methods and possible revisions for standards. The LEED program is based on a point system for meeting certain criteria and then certification levels are based on the total number of points a project earns (See Appendix A) (U.S. Green Building Council) .

## **Strengths of Building Green.**

Why are so many people beginning to build green? With all of the organizations and money put into research, there must be some good reason behind it all. In fact there are many reasons why green building has become so popular. Green buildings provide a wide range of benefits such as economic, environmental and health benefits. People are finally realizing that it can be economical as well as beneficial to build green.

Most of the economic benefits are realized through reductions in energy costs. There are several different ways in which the amount of energy used by a building can be reduced. One of the ways is through increased insulation. Having more insulation in walls and roofing blocks out the cold air in the winter and hot air in summer resulting in a lower demand on the heating and cooling system of the building. Energy is also conserved through the type of windows used. Depending on the location and climate of the buildings, windows can either block out sunlight to reduce cooling costs or they can allow more light to enter to help reduce heating costs. This is directly related to daylighting, which consists of using natural light to aid or replace the use of artificial lighting (Gissen 183). Finally, energy can be reduced through efficient heating and cooling systems (Weidt Group). When the energy savings from all these different areas are added up, the total is fairly significant. LEED built school facilities have shown an average savings of 20 to 40 percent (“Did you Know”).

Many states and cities are adopting LEED standards into their own building codes and standards. In Seattle Washington, new city owned buildings are required to be certified LEED Silver (Bowen 4). City requirements aren't the only thing driving LEED buildings across the country. Some states are offering tax breaks and other LEED incentives due to the lower energy demands of these buildings (Bowen 3). It will be interesting to see in coming years if more tax breaks and incentives are offered for LEED or any type of green building standards.

The goal of constructing green buildings is to reduce the ecological footprint of the structure. "The Ecological Footprint is a resource management tool that measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology" ("Ecological Footprint"). A reduced footprint means there are numerous environmental benefits. One way in which green buildings can limit its footprint is through using certified lumber. Certified lumber comes from companies who practice sustainable harvesting of wood through good management and restoration strategies (Chiras 25). Through the use of certified lumber a builder knows that the trees cut down to produce the lumber is being replaced through forest restoration. Recycled or reused materials can be drawn on to limit the amount of virgin material needed for construction. Through the reuse of resources, the amount of materials that are sent to landfills is also reduced. Part of the LEED "Materials and Resources"

section offers points for the use of recycled and reused materials (U.S. Green Building Council). Careful planning also goes into what types of materials are used so that they can be recycled when the building reaches the end of its useful life.

Green buildings are also constructed with the existing ecosystem in mind. Designers try to incorporate the building into the ecosystem so that it will be preserved rather than destroyed. Through the replanting of native species, an ecosystem is able to restore faster and also support local wildlife. Native species are better adapted to local conditions so they can withstand the elements better and also require less water (Chiras 25).

Finally, green buildings have shown health benefits for those using the buildings. Occupants typically miss fewer days of work/class due to illness. People are more productive when working in green buildings and retain more of what is being taught (“Did you know”). The reason why occupants are more productive in green buildings is due to the improved air quality. Many green buildings eliminate the use of solvents containing Volatile Organic Compounds (VOC’s). Products containing VOC’s are generally paint, stain, and finishes. In traditional buildings the use of these products results in chemical outgassing, meaning that over time the chemicals within the solvents leak into the air within the building. Another major source of chemical air pollution in traditional buildings is carpeting. There are many types of glues and other products

used in carpeting that can be a source of chemical outgassing. Through the use of hardwood and ceramic tile, green buildings are able to greatly reduce the amount of chemical outgassing. Finally, green buildings utilize efficient ventilation systems so that fresh outside air is continually being blown into the building while old air is sucked out (Chiras 59-68).

### **Weaknesses of Building Green.**

Although there are many advantages of the LEED system, there are also some disadvantages. One of the major concerns for any organization is cost. Green buildings constructed under the LEED system generally cost an average of 2-4 percent more to build than a traditional building (Jahnigen). The majority of the added costs come from "...energy modeling, commissioning, and other requirements of certification..." these added costs aren't cheap either, "...these can run into the tens of thousands of dollars..." (Bowen 2). For organizations where the building budget is tight, the initial higher price for a LEED building could force them to build traditionally because of a lack of funds. In other cases, the money spent on trying to seek LEED certification could be spent on other green aspects of the building, "In some cases it's a question of photovoltaics or LEED" (Bowen 2).

There has also been criticism of the LEED point and certification system. Critics believe that buildings are able to earn the minimum amount of points, yet are hardly better than building code and efficiency standards (Bowen 2). LEED requires a few prerequisites in the different

sections of its point system but most are fairly simple to accomplish. One area that has been heavily criticized is the energy efficiency section. Most people feel that energy efficiency should be one of the main components of a green building. However, it is possible for a building to earn certification by only earning a few or even no energy efficiency points (Bowen 2).

Energy efficiency is not the only LEED section that has been criticized. Some believe that site selection under LEED is too lenient. One such person is Seth Kaplan who is the director of the Conservation Law Foundation's Clean Energy & Climate Change Program; he believes it is unfair for a high performance green building constructed in an undeveloped location to be rated the same as a traditional building located in an urban center (Bowen 2). It would make more sense to utilize an existing building located close to other buildings rather than taking up undeveloped land to build an ultra efficient green building in the middle of nowhere.

### **III. Case Studies**

There are numerous case studies of other colleges and universities who have built LEED buildings and have shown a commitment to sustainability. These institutions are of all different sizes, some smaller, bigger and also very similar to St. John's. By looking at the steps taken by these institutions, St. John's could learn a lot about implementing their own green building plan.

## **Carleton College.**

Carleton is a small liberal arts college located in Northfield, Minnesota that is very similar to St. John's. Carleton is part of the same conference (MIAC) as St. John's, and so has a close tie to the school. Rather than just constructing a few green buildings, Carleton has taken on a campus wide approach to sustainability. In a recent report released by the Sustainable Endowments Institute, Carleton was ranked at the top of their College Sustainability Report Card, receiving an overall grade of A- (45). One of their most notable green features is a wind turbine located off campus. The turbine was constructed in 2004 and annually produces about 5-6 million kilowatts of electricity (SEI 45).

In terms of buildings on campus, Carleton has adopted a green building plan that is fitting with its campus wide approach to sustainability. Currently, the campus uses its own set of guidelines for green buildings, which is based off of the Minnesota Sustainable Design Guidelines. However, Carleton is in the process of switching over to the LEED guidelines for all of its new buildings. The college is in the process of designing two new dorms that will house approximately 200 students. The school is seeking LEED Gold status for the two new buildings (Lampa).

Another of Carleton's many green buildings is its Warehouse. The Warehouse is constructed entirely out of straw bales. The bales provide better insulation resulting in reduced heating and cooling costs. Also,

straw is a renewable resource that is much easier and less demanding to produce than wood. An added benefit of choosing to use straw bales is that the school supported the local farmers who produced the bales (“Green Carleton”).

Touches of green building techniques can be seen throughout various locations on the Carleton campus. Many buildings have incorporated sustainable linoleum or recycled carpeting. The college has utilized recycled paint in order to cut down on the amount that is sent to landfills. During renovations to Severance Hall, the college was able to



recycle building materials and eliminate some of the waste sent to landfills as well as reduce the amount of virgin materials used in the building. The school updated to a very efficient T8 lighting system in all of its buildings. Another of Carleton’s buildings has a partial green roof. The roof acts as insulation and helps reduce heating

and cooling costs (“Green Carleton”)

### **Oberlin College.**

Oberlin is a small liberal arts school which is also similar to St. John’s. The school is located in Oberlin, Ohio. In 2000 the school completed construction of the Adam J. Lewis Center (AJLC); a state-of-the-art environmental studies building that contains many green features. The “living machine” is one of these many features found

within the building. The system is a combination of a conventional waste water and wetland system. The purpose is to recycle water within the building to be reused in toilets and for irrigation (Oberlin College). The system also provides clean oxygen for the building because of the many plants.



Throughout the building there are over 150 sensors that continually monitor energy and the cycling of matter (Oberlin College). These sensors allow the school to assess the performance of different systems and of different areas of the building. Through separating the performance of different areas the school can make adjustments where needed. The sensors also provide a valuable learning tool for students as they are able to do some of the monitoring and see how the building operates.

The design process of the building is one of its most important elements. Oberlin spent 5 years, from 1993 to 1998, working on the final design for the AJLC. During that time there were many different things happening. A group of students led by the Environmental Studies Department Chair, David Orr, researched design and technology alternatives. The group eventually produced the first proposal for the building. Later on, students designed projects to determine what specific systems and products would be best for the building. The school sought

input from a number of different sources during the design phase. Oberlin turned to students, faculty and the community to seek any design advice they had to offer. Finally, the design team was made up of a diverse group of experts within their respective fields. Design team members were from the fields of education, design, renewable energy, and new technology (Oberlin College). Through a combined group effort and many years of design, Oberlin College was able to produce a successful, cutting edge, green building.

### **University of Washington.**

The University of Washington was forced to construct a new building to house its Center for Urban Horticulture when a fire destroyed the previous building, Merrill Hall. Building designers thought it would be fitting to construct a new building that was fitting with the center's value of sustainability. By 2005, the new LEED Silver Merrill Hall was complete (Gould).

Merrill Hall was actually very close to receiving LEED GOLD certification, needing only one more point to increase the total from 38 to the 39 needed. Although the University of Washington is much bigger than St. John's getting the money to make the building green wasn't easy. When the faculty from the Center for Urban Horticulture approached the University, they were given the okay for a green building, however there was one catch; they would have to raise the additional

money needed to make the building green (Gould). Luckily the faculty was determined and was eventually able to raise the money needed.

Merrill Hall is home to a library, herbarium, green house, offices



Source: [www.greensource.com](http://www.greensource.com)

and labs. The goal of the building was to be a transition from a rural to an urban setting (Gould). The designers were able to accomplish this through an open courtyard/entrance area located off the main building. This area is actually the green house, allowing occupants to feel connected to the outside. Designers were

also able to make large cuts in energy use, 28% to be exact. The energy cuts were accomplished through the use of passive solar and ventilation via open offices. Also, there are high windows in the office area that are opened during warm days (Gould).

### **Northland College.**

In 1998 Northland College completed construction of a new green dormitory. The College is located in Ashland Wisconsin and is smaller than St. John's. During the construction of the



Source: [www.northland.edu](http://www.northland.edu)

dormitory, the LEED standards were still being developed and as a result the building has not officially received any certification. However, in the Wisconsin Energy Center's report on the building it was stated that the

building would have likely received LEED Bronze certification (iv). Since the time of the report, LEED Bronze has switched to the classification of LEED Certified. Although the building doesn't rank at the top of the LEED categories, there are important things to be learned from it.

At the time when Northland constructed its new student dormitory, there were no dominant green building guidelines to follow. Also, there was a limited market for green building resources. Taking a step as one of the early college campuses to build green shows a commitment to sustainability. Many of the steps taken by Northland follow the guide outlined by LEED.

LEED greatly stresses energy efficiency. Northland's dormitory features photovoltaic panels, solar water heating, a wind generator, well insulated walls, and highly efficient T-8 lighting. All of these combined result in an annual energy savings of \$18,900 when compared to Wisconsin energy code. Also, the designers of the building took into consideration the health of its occupants by using low emitting VOC paints and carpeting. Organic linoleum can also be found within the dorm. Finally, the furniture is made out of recycled plastic from milk jugs and recycled steel (Bensch 2).

### **University of Oregon.**

The campus at the University of Oregon in Eugene, OR constructed a LEED Silver business building in 2003. The Lillix Business Complex was built as a connection between 3 existing buildings. The building

features a large atrium at the center as well as classrooms and offices. Prior to being built, faculty and students determined that they wanted to go green. They felt that sustainability was a key business strategy for the future and that constructing a LEED building would reflect this view. A professor from the architecture department developed the green goals for the building. In fact, he actually had some students from his class develop a computerized daylight model for the building before it was constructed. The structure is elongated from East to West to provide better daylighting. The school was able to eliminate over a million dollars in building costs as well as maximize the ventilation of the building through the use of steel. Through using computer modeling, designers



determined that steel would be more beneficial for ventilation than concrete (Malin). The school also incorporated a unique system of photovoltaic panels. The walls in the atrium are lined with curtains containing photovoltaic panels. The roof is

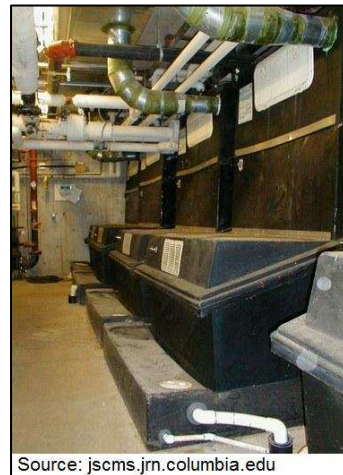
also equipped with more traditional panels. Total, the building receives about 10% of its energy demand from solar energy (Malin).

### **University of British Columbia.**

In 1996 the University of British Columbia completed construction of the C.K. Choi building. This building was the first of the University's green buildings. The design team evaluated each step of the design to

determine the short and long term environmental impacts (Laquian). This building was completed before LEED standards were developed so it has not received any type of LEED certification. However, the building has an abundance of features that would definitely earn LEED accreditation.

One of the most unique features of the C.K. Choi building is its composting toilets. The aerobic system saves 1500 gallons of water every day and has reduced waste by 90%. The toilets are so efficient that they only need to be emptied every 10 years. The by product of these toilets is a humus like material that can be used as soil.



Through the implementation of the compostable toilets, the building is not connected to the sanitary system (Laquian).

The University was also able to reuse building materials from an existing old building on campus. Heavy timbers from the Armouries building located across the street were utilized. Also, the Choi building used old bricks recycled from the streets of Vancouver. It is estimated that 50% of the materials in the building are either recycled or reused (Laquian). As an added benefit, these materials have added an aesthetically pleasing charm for the Choi building.

The windows in the building are situated to maximize daylighting and ventilation. The use of daylighting has resulted in a 50% reduction

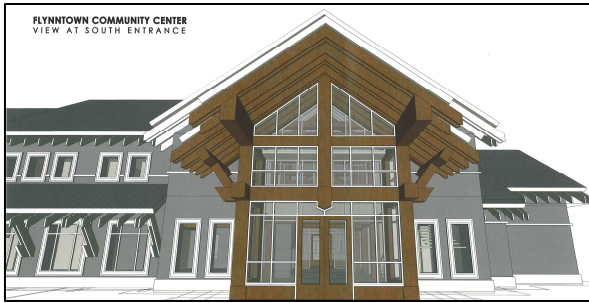
in energy for lighting. Also, the windows are operable so that users are able to open them, allowing fresh air to enter into the building. At the top of the building are vents that release the warm air (Laquian). As warm air exits through the top, it helps to draw in fresh air from open windows in the lower levels. Fresh air from the operable windows is not the only health benefit for the Choi building's occupants. The carpeting was laid without using any adhesives, the finishes are solvent-free and the mill work is all formaldehyde-free (Laquian).

#### **IV. What about Saint John's University?**

In 2001 St. John's University released an environmental statement detailing three commitments in regards to stewardship of the environment (Appendix B). The statement discusses how the campus will go about striving as a sustainable community and how the environment will be incorporated into classrooms and working environments (Lyons & Reinhart). Constructing a green building on campus would fit in very well with the environmental statement of the university. Green buildings promote sustainability through their reduced energy requirements and smaller footprint. These buildings also present valuable learning tools for professors. Rather than reading about sustainability and the environment in a textbook, students would be able to physically see how a sustainable building operates.

In fact, St. John's is in the process of designing a LEED community center to be built in Flyntown. The building will be located

between the Seton Apartments and Vincent Court. There will be two



levels with a full basement. The first floor will consist of a walk through lobby area and a dining/meeting area. The

second floor is designed to be mainly for an FR apartment with a few meeting rooms and a computer room. The basement will feature a large recreational area and a laundry room. Construction of this building is set to begin in July of 2008 with students being able to use the facility by August of 2009.

The goal is for the building to receive LEED Silver status. St. John's has set a goal of achieving 34 points, which is one above the required 33 needed for Silver status. If the school does not reach Silver status, they are using LEED Certified as a fall-back requiring only 26-32 points. The building currently has the potential for 23-34 points. The actual number of points the building receives is dependant upon a final LEED inspection (RRTL 2). After meeting with energy and daylighting specialists from the Weidt Group, St. John's set a goal of moderate to aggressive energy savings for the new building. This goal means that the school is looking at saving 45%-60% in energy use when compared to Minnesota Energy Code ("Memorandum" 1).

Upon completion of Energy and daylight modeling, the Weidt Group found that the current design for the building would fall short of

two specific LEED credits, one for daylighting and the other for views. In order for the building to earn a credit for daylighting, 75% of regularly occupied spaces must receive day light. The Weidt Group's report showed that the current design only has 62% daylighting. In order to meet this LEED credit, Weidt recommended increasing glazing by 150 square feet in the basement recreation room (5). Basically, glazing refers to the amount of light that is hitting the inside working surface of the building relative to the amount of available daylight (Baker).

The Community Center fell significantly short of the LEED credit for outside view from within the building. LEED requires that 90% of regularly occupied spaces within the building have views of outside. LEED defines view as, "a direct line of site to the outdoor environment via vision glazing between 2'6" and 7'6" above finished floor" (USGBC). Weidt's report showed that only 71% of the spaces within the building contained views. The main reason why the building fell short in this area is due to the recreation room in the basement, which has no windows to the outside. Significant changes would be needed in order to meet the requirements of this credit. At the April 1<sup>st</sup>, 2008 meeting it was generally agreed upon that it would not be cost effective to pursue achieving the LEED view credit as it would entail additional costs and design changes.

### **Still Room for Improvement.**

Although St. John's has done a lot of work teaching students about the environment and stewardship in the classroom, they still have room for improvement on the practical side of the issue. The university needs to show they are committed to the environment through more action. The construction of a LEED building on campus is definitely a start in the right direction but there is plenty more that needs to be done.

University officials in charge of the design and building of new structures on campus need to have a better understanding of the green design process. At design meetings, most were being taught what LEED was and about the components of green buildings by the architects. When constructing a green building it is important that the owner knows what exactly it is that they want. The owner should approach an architect or designer having a fairly good idea of the type of building they want (Dean). The purpose of having a design already in mind is that the owner has thought about the building and its purpose before actual designs are drawn up. The owner is able to evaluate the usage of the building and what design makes the most sense.

A greater amount of time needs to be spent on the design phase doing research and looking at long term effects of new construction. Oberlin College spent 5 years on the design phase alone for its Adam J. Lewis Center (Oberlin College). The design phase of the Flyntown

Community Center was left until less than a year before construction is scheduled to begin. The school should look closely at things such as the impact of site location, materials, function, etc. All of these considerations require research and meetings that take up a lot of time. By waiting until shortly before construction is set to begin the school is forced to rush through many of these steps and not allow time to properly consider each. The current plans would make the new building average according to LEED standards.

Carleton is a good example of a school committed to sustainability. Many of the steps they have taken are relatively simple and inexpensive ways of making their campus more sustainable. With St. John's having a similar setting as Carleton, it would be very feasible for the university to incorporate things such as recycled carpeting, sustainable linoleum, and recycled paint into their buildings.

## **V. Conclusion**

There are many examples of other colleges and universities throughout the U.S. and Canada who have demonstrated sound green building practices. Upon reviewing these practices and the process of constructing a LEED building on the St. John's University campus, I feel that there is one fundamental way in which the university can improve upon its sustainability. The most important area is that of education, not of students but of administration. There is a disconnect between what students are taught in the classroom and the education of

university administration. I believe that the education needs to begin from the top down, starting with the Board of Regents. The board has the power to determine the future of the university and where money should be allocated. It is important that they understand sustainability and the ways in which the university can go about becoming more ecofriendly through green buildings.

As those in position to make major decisions become more aware of campus sustainability, I feel that the next step is in educating building and grounds officials. These people are in charge of the operations on campus and have a large part in making the campus sustainable. In an ideal situation, it would be beneficial to hire an expert in charge of sustainability for the campus. Such a person would research ways in which the campus could improve given areas such as energy, emissions, waste, building, etc. A person in this position would also be able to educate other building and grounds and regents members on the best direction of the university in terms of sustainability. I do not mean to imply that all building and grounds and Board of Regents members are uneducated when it comes to green building. I have not personally met with each to evaluate their knowledge in the area; it is very possible that some might be quite knowledgeable. As a whole though, I don't feel that they are educated enough because it would seem that a group of people with such knowledge would make sustainability a priority.

St. John's prides itself on being a top liberal arts university, yet what kind of message are they sending by not keeping up with other institutions when it comes to sustainability? Developing state-of-the-art green buildings through a vow to construct all future buildings according to LEED or some other green standard would demonstrate to the community and other colleges that St. John's is serious about its commitment to the environment and sustainability.

## Appendix A

### LEED Rating System and Certification

1. Sustainable Site – 14 possible points
2. Water Efficiency – 5 possible points
3. Energy & Atmosphere – 17 possible points
4. Materials & Resources – 13 possible points
5. Indoor Environmental Quality – 15 possible points
6. Innovation & Design Process – 5 possible points

Project Totals – 69 possible points

- Certified 26-32 points
- Silver 33-38 points
- Gold 39-51 points
- Platinum 52-69 points

## Appendix B

### Environmental Statement of St. John's University

1. In our ongoing operations, the College of Saint Benedict and Saint John's University will strive, as sustainable communities, to:

- a. conserve natural resources and support their sustainable use
- b. conduct affairs in a manner that safeguards the environmental health and safety of students, faculty, staff and communities
- c. reduce the use of toxic substances and the generation of wastes, and promote strategies to reuse and recycle those wastes that cannot be avoided
- d. purchase renewable, reusable, recyclable and recycled materials when feasible

The Chief Financial and Administrative Officer and the Chief of Physical Plant at Saint Benedict's and the Vice President of Finance and Administrative Services and Assistant Treasurer for Plan at Saint John's, or their delegates, shall have the responsibility for these areas.

2. In pursuit of our educational missions, the College of Saint Benedict and Saint John's University will strive to:

- a. foster an understanding of and a responsibility for the natural environment
- b. assist faculty and students to become knowledgeable about the environmental and health issues that affect their discipline
- c. encourage research and scholarship which focus on the natural environment
- d. conduct research and teaching in an environmentally responsible way

- e. provide a forum for study and debate about environmental issues and their relationship to other social issues, and invite the participation of members of government units, environmental organizations, industry, and academia

The Vice President for Student Development at Saint Benedict's and the Vice President for Student Development at Saint John's and the CSB/SJU Provost, or their delegates, shall have the responsibility for these areas.

3. In our student and employee training, the College of Saint Benedict and Saint John's University will strive to:

- a. encourage students and employees to study safety and environmental issues
- b. foster an environment which welcomes suggestions for ongoing improvements in the areas of safety and the environment

The Vice President for Student Development and the Chief Financial and Administrative Officer at Saint Benedict's and the Vice President for Student Development and Vice President of Finance and Administrative Services at Saint John's Saint John's, or their delegates, shall have the responsibility for these areas.

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