Paint It, Green:
Studio Art and Sustainability

Introduction

Amidst growing societal concern for sustainability, the arts are particularly fertile ground for the development and dissemination of sustainable thinking. Sustainability itself is an inherently aesthetic concept: in asserting a moral responsibility to meet “the needs of the present without compromising the ability of future generations to meet their own needs,”¹ it both stresses “things perceptible by the senses, things material,” and implies its own “appreciation or criticism of the beautiful,” to quote the Oxford English Dictionary definitions of aesthetics.² A small but growing artistic movement has accordingly arisen to promote sustainability by “putting into practice the principles of ecology, grassroots democracy, social justice and non-violence,”³ and scattered voices in the academic artistic community have begun to suggest ways in which an education in the arts might better advocate and embody sustainable ideals. Given Williams’s commitment to “protecting and enhancing the natural and built environment in which we learn, work, and live, and to supporting the global effort to advance environmental sustainability,” and its inclusion of the arts as a major field in which it hopes its students will “go on to become environmental stewards,”⁴ it is pertinent to examine how the art program at Williams contributes to these goals. Considering that neither the historical nor the studio branch of the Williams art department offer classes specifically concerned with sustainability, making a curricular approach
difficult,\textsuperscript{5} an analysis of the most pressing energy and material issues associated with studio art practice at Williams seems an appropriate place to begin.

![The Spencer Studio Art Building, main entrance.](image)

\textbf{The Spencer Studio Art Building: Overall Design}

The main structure currently associated with the Williams studio art program is the Spencer Studio Art Building, located at the southeast corner of campus on a site formerly occupied by the Williamstown Opera House\textsuperscript{6} and the Taconic Lumber Company (Fig. 1).\textsuperscript{7} Built in 1996 at an initial cost of $5,606,660 and subsequently upgraded with additional equipment and lighting
costing $105,307, the building contains studio spaces for drawing, painting, printmaking, sculpture, architecture, photography, and video, as well as classrooms, a gallery space, lounge areas, and offices for the program’s sixteen faculty and staff members. Spencer is something of an architectural anomaly both in its date of construction (the Jewish Religious Center is the only other major campus structure built in the 1990s) and in its overall dimensions. High ceilings in its three above-ground stories and a layout organized around perpendicular main hallways make Spencer appear considerably larger from the outside than its official square footage (listed as 36,000 square feet, 37,000 square feet, or 41,000 square feet in different documents) would suggest, while any of the listed square footage figures would be unusual for a Williams building. Of all freestanding buildings owned by the College, only the Greylock Dining Hall; the Elm Tree House at Mount Hope Farm; and the Currier, Dodd, Prospect, Sage, and Williams residence halls have official square footages that would suggest similar actual volumes (the Towne Field House and the Lansing Chapman Rink also have similar listed square footages, but their listed cubic footages are three to seven times larger than those for the other structures, and they are not based on the other buildings’ characteristic block-like shapes).

The designer of Spencer, Rice University professor Carlos Jiménez, has made a career specializing in educational art buildings. In a retrospective survey of Jiménez’s projects that features a photograph of Spencer on the front cover, the designer begins the chapter devoted to the building as follows:

The 37,000 square foot building consolidates various studio spaces scattered throughout the college into a single structure. Although situated on a peripheral site at the farthest southeast section of the campus, the new art building enjoys astonishing views of the surrounding Berkshire Mountains. The design aims to maximize these views and to integrate them as a vital component of the life of the...

* His name is repeatedly misspelled in the online Williams property book.
art studios […] The main purpose of the design is to establish an active place for making art, one that is cognizant of its private and public realms and that allows students to discover their individual pursuits within spaces that include the majesty of the nearby mountains.\textsuperscript{15}

Subsequent photographs of Spencer make it seem as though the building sits almost alone in a vast unspoiled forest, surrounded by brooding hills. Such emphasis on the building’s natural surroundings suggests a genuine but limited concern for the harmonious relations between the structure and its environment: the design acknowledges the environment only for its visual aesthetics. Jiménez makes no mention in the Spencer chapter of design features aimed at efficiency, recycling, or conservation, and this appears to be typical of his professional approach. A list of the designer’s publications available at the Rice University website, and apparently updated until the late 1990s, gives no evidence of interest in green or sustainable architecture.\textsuperscript{16}

Utilities

Jiménez’s design has resulted in a structure that is substantially more intensive to operate, in terms of utilities, than the average Williams building, but that does compare favorably with other major campus structures. In 2008, Spencer used 442,560 kWh of electricity\textsuperscript{17} at a cost of $53,107, and also incurred water utility costs totaling $5,262.61.\textsuperscript{18} Summer hot water heating and shop usage consumed 70,200 cubic feet of natural gas, at a further cost of $1,274.80.\textsuperscript{19} It thus cost a total of $59,644.41 in utilities to operate Spencer for the year, excluding heating, which has yet to be metered for individual buildings connected to the steam plant. Spencer’s electrical consumption ranks 16\textsuperscript{th} highest among Williams buildings in terms of absolute use and 20\textsuperscript{th} highest in terms of use per square foot, suggesting a certain efficiency in its use of space. The building’s closest neighbors in absolute consumption are Chapin Hall and the Lasell
Gymnasium, while its closest neighbors in consumption per square foot are the St. Johns Rectory co-op and the Cole Field House. As shown in Fig. 2, monthly electrical consumption in Spencer decreases substantially over the summer, and has behaved somewhat erratically over the course of the last several academic years. The campus-wide energy savings campaign from December 24 to January 5 this past winter had a dramatic impact on electrical use in Spencer, steadily reducing power consumption from as high as 83 kW at one point on the morning of December 12 to as low as 16 kW on the night of January 4.

![Fig. 2: Electrical consumption at Spencer from April 2004 to April 2009.](image-url)
HVAC

Heating, ventilation, and cooling in Spencer are driven by two main concerns: the desire to maintain a comfortable interior temperature throughout the building at all times of year, despite its rather porous envelope and vast expanses of glass; and the need to exhaust the toxic fumes and dust produced by the inhabitants’ work with solvents, photographic chemicals, and woodcutting machinery. The complex mechanical systems involved in these processes in Spencer are a far cry from the equivalent systems in the “various studio spaces scattered throughout the college” that the new structure replaced – the repurposed chapel of Goodrich Hall, for example, was once one of the foremost studio art facilities on campus, while sculpture students formerly worked in the room now used as the Facilities pipe-cutting workshop, and for ventilation needs contented themselves with opening the garage door.

Fig. 3: The steam convertor.  Fig. 4: The heat exchanger.

For heating, Spencer relies on a line from the main steam plant and a basement convertor (Fig. 3) that transfers heat from the steam line to a water loop that circulates along wall-mounted
radiators throughout the building. In the winter, this system maintains the interior building temperature at 70°F. In order to reduce the heating load, an air-to-air heat exchanger at a main air intake and exhaust vent in the basement uses a rotating drum to transfer heat from the air exiting the exhaust duct to the air entering the intake duct from the outside (Fig. 4). When the exchanger is operating with an external air temperature of –5°F, the minimum for which it is designed, exiting exhaust air that has previously been heated to 70°F for room ventilation passes through the revolving drum and heats incoming air to 53.5°F, so that the steam convertor must then account only for the remaining 16.5°F of heating to bring the interior temperature back to 70°F. The exhaust air, meanwhile, leaves the building at 11.6°F, meaning that the amount of heat lost in the exchanger is approximately 3/5 the amount of heat the convertor uses to fully heat the pre-heated air. Altogether, given that the exchanger handles 13,075 cubic feet of air per minute, the device saves almost 700,000 BTUs per hour at its minimum exterior air temperature, and about 60 MMBTUs, or 17,600 kWh, per year. In providing these figures, Utilities Program Manager Donald Clark described the exchanger as “efficient,” but considering that the building used a total of 442,560 kWh of electricity in 2008 without any of that energy going toward heating, the savings from the heat exchanger do not seem quite as impressive in proportional terms as the absolute figures might suggest.

A second feature of the HVAC system intended to reduce energy consumption is the pair of variable speed drives recently installed on the two 20-horsepower basement intake and exhaust fans, which are among Spencer’s foremost energy consumers (Fig. 5). These should result in sizeable energy savings – and potentially in rebates from the national grid – once the sensors that will control the speed of the fans have been brought on line. At present, however, with the sensors yet to be connected, the fans have been set to run steadily at 49% speed; in previous
years, the fans have been kept running at full speed for about twelve hours a day. When the
new system is fully in place, Facilities plans to let the fans slowly increase in speed over the
course of the day to keep pace with increasing building occupancy and contaminant levels,
starting from about 30% speed in the morning. Given that the new sensors will ultimately
control the speed of the drive based on their measurements of the concentration of hazardous
volatile organic compounds (VOCs) in the exhaust air, it is both reassuring that Facilities has yet
to receive any complaints about reductions in air quality while the fans run at 49% speed, and
slightly worrisome that they have tacitly chosen to bridge the period leading up to the full
operability of the drives and sensors in this fashion.30

Fig. 5: Controls for the variable speed drives.    Fig. 6: Exterior air conditioning units.

For cooling, Spencer uses a split air conditioning system (Fig. 6).31 In each of several
independent units, which service separate areas of the building,32 refrigerant passes through the
heating coils of a compressor, which is separate from the cold condenser coils that form the other
half of the refrigeration cycle.33 During the heat wave this spring, the failure of one unit’s
compressor34 due to a leak35 led to uncomfortably high temperatures in areas of the second floor,
partially ameliorated by the opening of windows.

One of the more striking features of Spencer’s energy consumption profile on many days of the year is a pattern of short-duration spikes in the power curve (Fig. 7), which occur because of the building’s elevator ventilation system. Massachusetts state code requires elevator shafts to be ventilated to the outside air, but the hydraulic oil in the elevator system, however, has to be kept warm in order for the elevator to function. This requires the use of a dedicated heating pump throughout much of the year, and it is the sudden activation of the pump, rather than actual raising or lowering of the elevator, that results in the energy consumption spikes.36
Fig. 7: Representative power curve for Spencer over a 24-hour period in early May, showing spikes due to the elevator heating pump.³⁷
Lighting

Along with HVAC, lighting is another major area of energy consumption in Spencer. Given the primacy of sight in the studio art environment, the faculty consider the ability to manipulate light in a variety of ways to be “crucial” to student work, leading to a profusion of artificial lighting sources and abundant windows. What is more, the highly specialized, time-consuming, and messy nature of much studio work in Spencer means that several large spaces in the building may be occupied by only a few students each, as different people come and go, virtually around the clock, so that the building as a whole is rarely vacant for long during the academic year.

No one is specifically assigned responsibility for turning off unused lights in Spencer, and the building culture does not particularly encourage inhabitants to take the initiative individually. As almost every space in Spencer is equipped to be brightly lit if need be, this results in much of the building being brilliantly, artificially lit at all hours of the day, even if the spaces are not being used or if less lighting would be adequate (Fig. 8). The main hallway ceilings are set with bright fluorescent lights at roughly three-meter intervals to allow for art to be clearly viewed along the walls, and these lights are usually left on continually, though the switches that control them are readily located. While it is possible to locate switches for almost all the lights in Spencer without much inconvenience, it likely would not occur to many students to look for the hallway switches and turn off the lights. At night, the building turns rather cavernous and grim if the lights are turned off, and the clutter that often fills the studios and hallways can become a hazard for the careless. Still, the hallways are fitted with light switches at both ends, and it would be perfectly feasible for a student walking down a hallway at night to turn the lights on at one end and off at the other.
As well as artificial lighting, most spaces in Spencer feature large windows, few of which are fitted with blinds or curtains. As a result, much of the artificial light in the building is likely lost – the windows of the Spencer 223 Tutorials room, in particular, fairly glow when viewed from the street at night. It may be that Spencer’s distinctive stark white interior paint scheme may go some way to compensate for the lost light by helping to reflect and diffuse light throughout the rooms, but the installation of light-colored curtains or blinds in more of the windows might go even further toward reducing the building’s lighting needs at night (Fig. 9).

Fig. 8: Empty tutorials room at night.                Fig. 9: White blinds drawn at 3 am.

Hazardous Materials

After the energy issues associated with HVAC and lighting, the next largest concern regarding Spencer’s environmental impact is the range of toxic chemicals associated with painting, printmaking, and photography. Every space in Spencer that contains hazardous chemicals also contains a prominently displayed yellow binder containing documentation in the form of materials safety sheets, and while these tend to be treated with a certain perfunctory lack of interest by the majority of building inhabitants, there is considerable respect among faculty,
students, and staff for the conscientious handling of studio materials. There is also a strong institutional memory of a period several years ago when, according to rumors circulating through studio art departments around the country, the EPA had identified college art programs as potential “low hanging fruit” in terms of punitive fines for environmentally dangerous behavior. Thus, while the seeming disorder and untidiness of certain studios in Spencer, or the persistent chemical smell that haunts the photography lab, might suggest a certain cavalier attitude toward harmful substances, the opposite seems more accurate.40

The department pays particular attention to the handling and disposal of the solvents used for cleaning in painting and printmaking. Painting students are individually supplied with jars of solvent, which they use until paint pigment has thoroughly clouded the contents; they then let the pigment settle, pour off the solvent into a second jar, and continue in this fashion until no useable solvent remains to be recycled, and the final jar is clogged with an amalgamation of pigment and solvent. Students then discard the contents of the jar into an airtight solvent sediment drum, which is eventually brought to the Morley Science Lab’s basement hazardous materials facility under the supervision of Anne Skinner, the Williams College Safety Officer. Potentially more problematic is the procedure for solvent-soaked rags: used rags in the tutorial studio go into an unsealed container from which they are taken for reuse once they have dried, but given that the rags dry through the evaporation of the solvent into the room, the practice could stand some improvement.41
Students use and dispose of solvents differently in the printmaking studio. For small-scale solvent applications, sealed dispensers with airtight plungers prevent fumes from evaporating into the air (Fig. 10). For other cleaning tasks requiring a steady stream of solvent, the studio includes one of the college’s six Heritage-Crystal Clean parts washers, each of which circulates mineral spirits through a recycling drum that is removed and replaced on an eight-week maintenance cycle (Fig. 11). Heritage-Crystal Clean advertises the service as a way to “remove the used solvent as a product—not a waste—to be used as an ingredient in a manufacturing process,” and claims that “More than 30 state environmental agencies have agreed in writing that the HCC Reuse Program is a correct and environmentally sound method of managing used solvent.” While this description of the solvent’s final destination seems unnecessarily vague, and while “eliminating manifests…and other regulatory reporting requirements” is not the most idealistic of reasons to recycle, the company is certainly trying hard to promote an environmentally-friendly image, down to the luxuriant green and blue color scheme of its web page. They would probably be less than pleased to learn that Anne Skinner attributes the college’s parts washer service to the Texas-based company Safety-Kleen, one of
Heritage–Crystal Clean’s competitors in the eastern half of the country.48

Fig. 12: Morley hazardous waste storage.

At the Morley Science Lab’s hazardous materials facility, Acting Safety Officer Gisela Demant transfers waste solvent arriving from Spencer to a 55-gallon storage drum,49 which in turn is removed semiannually by a company whose waste disposal services range from recycling to transportation, and from water treatment to emergency response.50 EQ (“The Environmental Quality Company”) has more than 50 years of experience with “innovative technologies and services that minimize waste volumes, reduce costs and protect the environment,” promoting its services as “the industry standard for customer service, associate satisfaction and financial stability.”51 While EQ does operate a sizeable chemical recycling business, including solvent distillation,52 it also seems possible that a final destination for Williams solvent is the landfill
subsidiary to EQ’s headquarters in Wayne, Michigan. Fortunately, this site is distinctive among landfills for its environmental track record: Wayne Disposal, Inc., was “the first [company] in the nation to secure environmental liability insurance for a hazardous waste landfill facility,” and has also been operating a methane-fueled electrical generator for more than 20 years.53

Sustainable Art in Practice: Alternatives

Driving Spencer’s energy consumption and use of hazardous materials is an overarching traditional conception of art that some proponents of sustainable art reject entirely. Among the most prolific of these radical figures are Maja and Reuben Fowkes, who argue for the power of “the dematerialized practice of conceptual art to offer sustainable alternatives for art and life.”54 By emphasizing non-material, conceptual art – often more akin to what would traditionally be called performance – they advocate for art that “questions the sacrosanct status of the art object and problematises the belief that artworks are created, and should be preserved, for eternity,” either by ignoring materials altogether or by recycling objects and artworks already available.55

The current strong association of sustainable art with conceptual or contemporary art (contemporary with a tacitly capital C) means that works promoted or conceived of as sustainable often inhabit a similar, intentionally provocative gray zone on the borders of the recognizably artistic. Sustainability and Contemporary Art, a website associated with the Fowkes that ran from 2002 to 2008, affords some examples of sustainable art on the brink of credibility, such as a project in which Danish artist Jon Micke assembled ten collection of trash in the streets of Budapest and then photographed them, using a cell phone camera, while drunk.56 The Fowkeses’ last postings describes the presentation of American artist James Acord at a 2008 “symposium on Art and Radioactivity at the Royal Society of Arts;” the subject of the
presentation was Acord’s quest to gain a license for handling radioactive materials – a license whose number he subsequently had tattooed onto his neck – and his subsequent failed application to use a nuclear reactor in London to turn radioactive materials into platinum. The Fowkeses praise Acord’s “thoroughly conceptual understanding of artistic practice” as “appealing,” but it is equally possible to find “the creative misuse of a smoke alarm and some orange uranium-coated dishes” in an attempt to “bring about the transformation of a small but registerable quantity of plutonium into a non-radioactive metal” considerably less compelling.57 Even when sustainability-influenced works do readily appeal to a more traditional aesthetic perspective, as in the minimalist circles made by English artist Richard Long (Fig. 13),58 the sustainability of the project can be questionable – Long does much of his work simply by walking, but what was the carbon footprint of his journey to Mongolia?

![Fig. 13: Works by Richard Long. From left to right: “Asia Circle Stone Mongolia,” 1996; “Madrid Circle,” 1986; and “Walking a Circle in Mists, Scotland,” 1986.59](image)

Sustainable Art in Academia

Sustainability is also taking its first steps in the world of academic art. Christopher McNulty, a professor at Auburn University in Atlanta, is attempting to reduce the use of hazardous materials in art, and pressuring his students “both to develop novel approaches to art making as
well as to question and re-imagine their personal and professional relationships to the environment.” 60 McNulty divides the challenges he faces into two broad categories: operational issues such as the design and use of studio facilities, and curricular issues such as “research into the environmental and personal dangers of many traditional sculpture materials” and “the promotion of alternative, safer, and eco-friendly materials and processes.” He particularly recommends investigation into wood composites, paints, and finishing products as areas for improvement.61

The proportion of materials on the website of the Association for the Advancement of Sustainability in Higher Education (AASHE) that involve art, unfortunately, is regrettably small. One AASHE abstract that indicates the continuing disparity from an outside perspective comes from Margaret Brooks, the chair of the economics department at Bridgewater State College in Massachusetts.62 Brooks describes her recent “overview of how sustainability principles are taught in a variety of academic disciplines at the college level,” and notes a growing concern for sustainability in the fields of history, linguistics, archeology, literature, philosophy, religion, architecture, engineering, science, medicine, math, geography, political studies, law, sociology, psychology, economics, business, and education – but not art, despite the fact that Bridgewater State college has substantial art program itself. Given Brooks’s particular interest in the interdisciplinary spread of sustainability in academic thought and practice, and her avowed hope to inspire further communication and education on sustainable topics, the omission of art from her list – art, as interdisciplinary and communicational as any other area of college study – is all the more distressing.63

One bright beacon in campus arts sustainability is the new, LEED-Platinum Yale Sculpture Building and Gallery (Fig. 14). The 62,000 square foot facility, completed in 2007, stands on a
former brownfield site and contains a cornucopia of green design elements, including extensive daylighting and water conservation features and high-performance, low-maintenance building materials.\textsuperscript{64}

![Image of The Yale Sculpture Building and Gallery](image)

**Fig. 14:** The Yale Sculpture Building and Gallery.

**Conclusion**

As the Fowkes point out, “A perpetual dualism of form and content comes to the fore in a new way here. Arguably, sustainability of form takes priority over content, it is perfectly possible for a work to be sustainable without having a direct political or environmental message.
To paraphrase deep ecology, sustainable form is about making do with enough— an artist should be as conscious of the waste and consumption of his or her work as the operators of a coal-fired power plant or shopping mall should be of theirs. While at present there may be “a thin line between artists genuinely engaged in sustainability and those who employ the same models and deal with the same issues for the sake of spectacle,” as the ideals of sustainability find every greater purchase in the academic and artistic spheres, the range of art beneath the banner of sustainability should grow.

The Spencer Studio Art Building was constructed a decade too early to coincide with the new interest in sustainable campus architecture at Williams, but what steps can be taken to improve its operations, and to introduce a stronger element of sustainability into the art curriculum, should be taken. The 2009 winter shutdown demonstrated that substantial energy savings are possible in the building even without changes to its structure or equipment, so long as greater care is taken with the building’s use. The variable speed drive on the ventilator system is promising, and a more conscientious approach to lighting could reduce electrical consumption still further. Such developments and concerns should be seen not as onerous mechanical or logistical obligations, but as part in parcel of a move to make the world of art at Williams more sustainable, and more thoroughly aesthetic.
Notes

7 Henry Art, interview by author, email, Williamstown, MA, 19 May 2009.
8 Stephanie Boyd, interview by author, email, Williamstown, MA, 6 May 2009.
13 Ibid.
15 Jiménez and Hester, Carlos Jimenez, 100.
18 Don Clark, interview by author, email, Williamstown, MA, 18 May 2009.


Don Clark, interview by author, Williamstown, MA, 1 May 2009.

Amy Podmore, interview by author, Williamstown, MA, 1 May 2009.

Don Clark, interview by author, Williamstown, MA, 4 May 2009.

Ibid.

Don Clark, interview, 1 May 2009.

Ibid.

Don Clark, interview, 4 May 2009.


Kenneth Jensen, interview.


Don Clark, interview, 1 May 2009.


Edward Epping, interview by author, email, Williamstown, MA, 12 April 2009.


Ibid.

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Heather Main, interview by author, email, Williamstown, MA, 13 May 2009.


Anne Skinner, interview by author, email, Williamstown, MA, 6 May 2009.


Anne Skinner, interview.

Heather Main, interview.


Ibid.


Ibid.


Ibid., 105.