

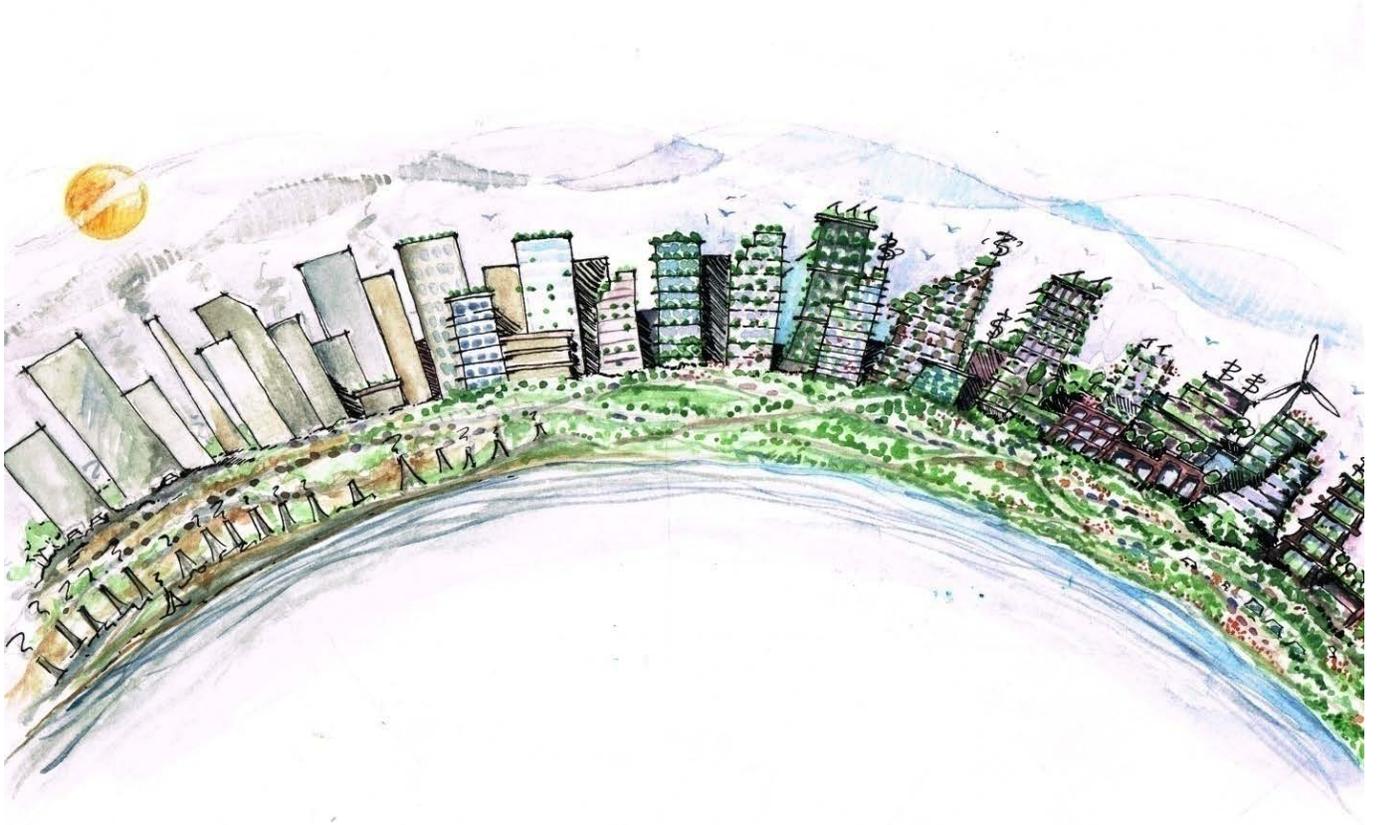
*Proposal to Establish an*

Interdisciplinary

Environmental Design Program

(Restorative and Ecological)

at the University of Vermont



Designing Sustainable Solutions  
for the 21<sup>st</sup> Century

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December 5, 2012



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# I. Overview

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UVM has established itself as an environmental university and in the past, touted John Todd's professorship as being one of the ten reasons to attend the university. There was a Graduate Certificate in Ecological Design offered from 2005 – 2012, and there was and continues to be growing momentum from students to study Ecological Design. Students realize that they need to understand the problems in our world, but they also want the skills to solve these problems. Creating an Interdisciplinary Design Program at UVM would offer students across schools and colleges the opportunity to be part of designing solutions for a more sustainable and restorative world.

The built environment continues to grow and impact the health and well-being of humanity and the natural environment. Heads of industry and top scholars agree that we must address the design of the built environment.

***“The built environment has a profound impact on our natural environment, economy, health and productivity.”*** (U.S. Green Building Council, 2007)

***“By the year 2010, an estimated 38 million more buildings will have been constructed in the US in mainly urban areas. The scale of the built environment has simply become too extensive and environmentally destructive to seek anything less than a positive impact on both natural and human systems. Restorative environmental design can help transform conventional design practice by enhancing people’s connections to nature in the built environment.”*** (Stephen Kellert, 2004)

***“Using knowledge of our affinity for nature, adapted and refined over millions of years, we can generate experiences of health and wellness through the environments we create.”*** (Judith Heerwagen, 2009)

***“Human beings are going to be partners with other life forms...what I am proposing is that ecological engineering has the potential to transform how we run our society.”*** (John Todd, 2004)

***“UVM has an unprecedented opportunity to address a major global challenge by becoming an interdisciplinary leader in sustainable design and development, research, training, and practice.”*** (Stephen Kellert, 2012)

## Problem Statement

Design methodologies promote critical thinking, integrate diverse bodies of knowledge, i.e are interdisciplinary, and encourage collaborative problem solving - all valuable skills for success in a world of complex problems that require people of diverse backgrounds to work together. The collaborative design process also plays a role in helping organize thoughts, explore methodologies, construct an argument and present findings.

Excellent design studios and supporting lecture courses already exist in various colleges and schools at UVM, but these offerings are disjointed and thus make it difficult for students to follow a sequential path.

## Proposed Solution

Through a "repackaging" of existing design courses currently offered at UVM, the University can more effectively deliver an integrated curriculum via an interdisciplinary design program. Some attributes of such a program include:

- The integration of the humanities and sciences with whole-system thinking
- An emphasis on the connections between people, nature and sustainable practices
- The delivery of a collaboration-based program that is grounded in real-world problem solving

The program could be a cross-college interdisciplinary major and minor, with the potential of a masters degree offered in the future. In terms of campus facilities, the program's design studio/labs and offices could be located in Hills and use Marsh Life Science 129 studio space.



## II. Areas of Study

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Courses are already offered in various departments at UVM in the following subject areas, and each would be appropriate for connecting via the proposed design program:

- Energy Systems, Analysis and Design (RSENR, ENVS, CDAE, CEMS)
- Landscape Design/Restoration & Sustainable Landscape Horticulture (PSS)
- Ecological Engineering and Living Technologies (CEMS, RSENR)
- The Built Environment, including Solar Design and Building Science (CDAE, RSENR)
- Study of Ecosystems and Bio/eco-mimicry (RSENR, CAS)
- Community Design and Planning (CDAE, ENVS)
- Evolutionary Biology (CAS or BIOL)
- Graphical Communication and Design (CDAE, Studio Art)

Additional courses to be added include:

- Biophilia, Health and Well-being
- Environmental Psychology (PSYC)

Related Principles:

- Cradle to Cradle
- Industrial Ecology
- Natural Capitalism and The Natural Step



### III. Organizational Structure

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The program would be organized across colleges, like the ENVS and ENSC programs. There are four key design oriented faculty members proposed for the program, Anthony McInnis, Stephanie Hurley, Donna Rizzo and Charlie Ferreira. Also, the pedagogical Aiken Building embodies many of the principles that the design program is based upon. Ideally, the program would have an endowment, allowing for a Graduate Research Center or Institute that would fulfill the research mandate of the university and enhance undergraduate curriculum.

#### Proposed Permanent Design Faculty:

RSENR - Anthony McInnis – Ecological design and Eco-mimicry

PSS - Stephanie Hurley - Landscape Design and Horticulture

CEMS - Donna Rizzo - Ecological Engineering

CDAE - Charles Ferreira - Green Building & Community Design

#### Potential Support Faculty: (we would like to continue to add to this list)

ARTS - Cami Davis and Lynda McIntyre

BIOL - Jim Vigoreaux

CEMS - Michael Rosen

CHEM - Alexander (Sandy) Wurthmann

EDSC - Alan Tinkler

PSYC - William Falls

RSENR - Gary Hawley

RSENR - Matthew Kolan

RSENR - Walt Poleman

#### Part-time Design Faculty/Lecturers/Practitioners:

Elizabeth Calabrese, AIA, LEED-AP - Holistic Design, Restorative Enviro. Design

Marc Companion - Green Buildings, Design of Living Technologies

Gary Flomenhoft, GUND - Renewable Energy, Efficiency

Diane Gayer, AIA - Ecological Design, Community Design, Elements of Architecture, Visual Presentation Skills

David Hohenschau - Community Design

Tyler Kobick - Design Build Studio

Ted Montgomery, AIA - Solar Design, Archicad, Eco-Community Design

David Raphael, ASLA - Landscape Architecture

Chuck Reiss - Green Building Certifications, Sustainability Science

Jane Sorenson - Landscape Architecture

## Major, Minor and future Masters

**Minor** - Students would gain core ecological and biophilic understanding and problem solving skills. They would also integrate their majors' knowledge and skills into the sequential design studio, creating a richer interdisciplinary learning experience for all students. Upon graduating, the students would bring the program's core principles and problem solving skills into their professions. (entrepreneurs, scientists, teachers, doctors, lawyers, developers, investors, consumers, parents, etc.)

**Major** - Students could be in the program from various colleges. Majors would have greater depth and breadth and are will focus on one of five branches/tracks.

**Master's** – A Graduate program would allow for research and further specialization.

## Design Studio/Design Lab

Four years of sequential interdisciplinary **Design Studio/Labs** allow students from across colleges and disciplines hands on skills for problem-solving by coupling human and natural systems. Students will gain the skills to create and design sustainable and restorative solutions. By increasing depth and breadth of study each year, students will gain a deeper and more technical understanding.

**1<sup>st</sup> Year Ecological Core Foundation:** The first year focuses on **ecological literacy**, introduction to the creative process, problem solving and whole-system thinking, and graphic communication in the Design Lab and through lecture courses.

**2<sup>nd</sup> Year Exploratory:** Design Labs and supporting courses introduce students to the five focus tracks - buildings; landscape and horticulture; eco-technology; energy and renewable; or community and urban design.

**3<sup>rd</sup> Year Branching:** Students begin to focus on a specific track through supporting lecture courses, while continuing to work together in the Interdisciplinary Design Lab.

**4<sup>th</sup> Year Integrated Capstone - CUPS:** Students continue to take courses based on their specific tracks while working in interdisciplinary teams for a community, regional, or global stakeholder in the Capstone Design Lab.

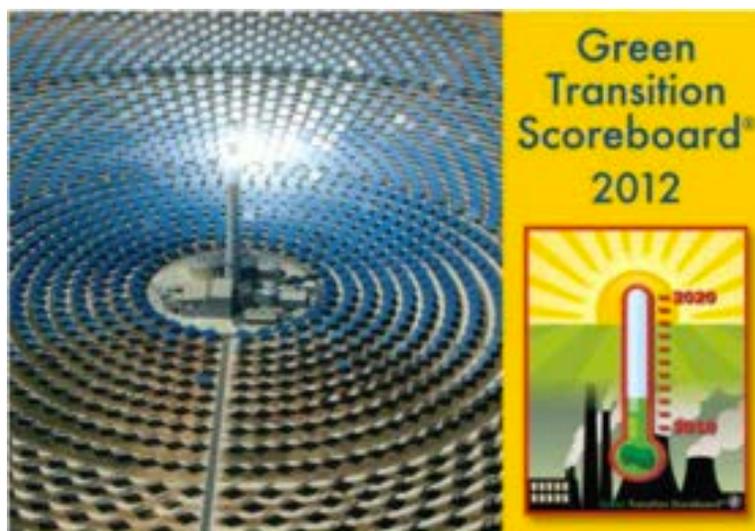
## IV. Supporting Documents

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### Exhibit A

#### International Investments in Green Economy Sector

2007 – 2012     \$3.6 Trillion



Sector	Amount (USD)
Renewable Energy	\$2,002,049,000,000
Green Construction	\$716,450,000,000
Green R&D	\$241,759,000,000
Smart Grid	\$238,493,000,000
Energy Efficiency	\$231,032,000,000
Cleantech	\$188,332,000,000
<b>TOTAL</b>	<b>\$3,618,115,000,000</b>

Source: Green Transition Scoreboard® August 2012

Prepared by Timothy Jack Nash and Ethical Markets Media Research Team.

<http://www.ethicalmarkets.com/>

## Exhibit B

### Environmental Design Programs at Other Universities in the US

University of Colorado, Boulder

Montana State University, Bozeman

North Dakota State University

University of Houston

University of Puerto Rico, Rio Piedras  
Campus

Cornell University

University of Oklahoma, Norman Campus

Rutgers, The State University of New Jersey

University at Buffalo, The State University of  
New York

Bowling Green State University, Bowling  
Green

University of Minnesota, Twin Cities

North Carolina State University at Raleigh

Auburn University, Main Campus

University of Massachusetts, Amherst

University of California, Irvine

The New School

Texas A & M University

Art Center College of Design

Otis College of Art and Design

Olivet Nazarene University

University of New Mexico, Main Campus

Boston Architectural College

Ball State University

Massachusetts College of Art and Design

New School of Architecture and Design

University of Memphis

The University of Texas at Austin

Yale University

Lawrence Technological University

Michigan State University

Lee College, Baytown

Portland Community College, Sylvania

Delaware Technical and Community College,  
Wilmington/ Stanton

Bennington College

Carnegie Mellon University

Prescott College

NHTI, Concord's Community College

Portland Community College, Cascade

The New School of Design, Parsons

Portland Community College, Rock Creek