

# Ecological Architecture

The Department of Architecture offers a certificate program in Ecological Architecture that provides an opportunity for students enrolled in the Masters of Architecture or other degree programs to gain expertise in ecological design. The Certificate program also offers practicing professionals the opportunity to pursue specialized training.

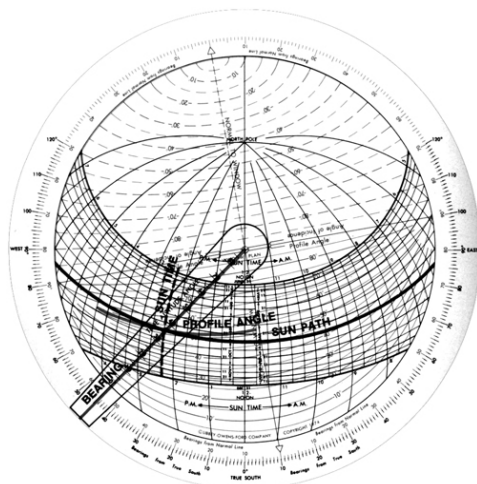
The basic goal of the certificate in ecological architecture is to help students develop an understanding of the dynamic interaction between the natural and built environments, and to introduce performance based techniques for operating in that interaction. Ecological design can involve many different kinds and scales of practice, from landscapes to products, and draws on many fields of expertise. In its broadest form it is open, contingent, historical (non-reversible), and organic to its environments.

The term ecology was first coined in the late 19<sup>th</sup> century to describe the complex role of the environment in the evolution of species, and has grown to become the branch of biology concerned with the organization and dynamics of the entire bio-geosphere. Since the 1930s, the reach of ecological thinking has been extended dramatically by two developments, increased awareness of the environmental effect of human actions and the refinement of general systems theory. It is in that double sense that architecture be called ecological: mitigating the environmental impacts of designing and using buildings and understanding the systemic interconnection of buildings at many different scales.

The certificate in ecological architecture introduce students to the range of approaches in two required courses, and then allows them to pursue different emphases through a selection of elective courses. It is an extension of the basic offerings in environmental concepts and systems required for the masters of architecture, with the addition of different ecological offerings from other departments and schools.

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Director: William W. Braham PhD FAIA  
brahamw@design.upenn.edu



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2008-2009

The certificate in Ecological Architecture requires the completion of 2.0 course units of required courses and 3.0 course units of elective courses. Students must take at least one elective course outside of their home department, (that requirement does not apply to dual degree students).

Elective course offerings in most departments change from year to year, and the correct electives and numbers are listed below for this spring.

Dept	Cours #	Title		Sem	CU
<b>Required [2 cus]</b>					
ARCH	713-001	Ecological, Technology, and Design	Pratt	F	1
ARCH	734-001	Ecological Architecture: Contemporary Practices	Martin	S	1
<b>Elective [3 cus]</b>					
ARCH	638-002	Building Skins	Cavallero	S	0.5
ARCH	638-003	Building Systems	Mardeusz	S	0.5
ARCH	638-004	Daylighting	An	S	0.5
ARCH	638-005	Lighting	Bernacker	S	0.5
LARP	612-M2	Manufactured Sites	Berrizbeittia	S	0.5
ARCH	632-002	Simulation and Design	Malkawi	S	1
ARCH	632-005	Building Envelopes	Hoang	S	1
ARCH	632-006	Component Design: High Performance Systems	Igou	S	1
ARCH	732-001	Building Systems Integration	Malkawi	F	1
HSPV	551-401	Building Pathology	Henry	F	1
ARCH	711-401	Cultural Ecology: Roots of Green Building	Leatherbarrow	F	1
LARP	760	Topics in Ecological Design: Restoration Ecology	Robertson	F/S	1
EAS	501	Energy & its Impacts	Lior	F	1
EAS	502	Renewable Energy & its Impacts	Lior	S	1
CPLN	671	Sustainable Development	Landis	S	1
CPLN	676	Introduction to Environmental Planning & Policy	Daniels	F	1
ENVS	632-660	Energy & Environment in the US	Huemmler	F	1
ENVS	494-660	Toward Env. Sustainability On Penn's Campus	Giegegack	F	1

1. ARCH 632, 638, & 732 courses have ARCH 533 & 534 (or equivalent) as a pre-requisite. See Director or instructor for exemptions based on equivalent studies.

2. LARP workshop 612 M2 has limited enrollment for non-LARP majors

3. ARCH 632, 638, & LARP 760 can involve a variety of courses, offered on a rotating and occasional basis. The director will identify suitable electives for each school year.

4. Courses required for a student's main degree may not be counted toward the certificate.

## Admissions Requirements (School of Design)

Personal Statement, of no more than one page explaining interest in ecological architecture.

Work plan showing schedule of study for completion of the certificate. For non-architecture majors indicate pre-requisites (or equivalent) as required.

Application Form (see Office of Admissions)

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Applicants from other schools or universities should inquire at the Office of Admissions in the School of Design for additional application materials and requirements.