

UNIVERSITY of NOTRE DAME
School of Architecture

DESIGN VI/ ARCH 41121 (& AME 47431)

BUCCELLATO STUDIO SPRING 2016
Environmental Stewardship through Interdisciplinary Research and Design

**PROJECT 3:
THE NOTRE DAME LINKED EXPERIMENTAL ECOSYSTEM FACILITY (ND-LEEF)
PHASE 2 ENVIRONMENTAL RESEARCH & EDUCATION CAMPUS**

A COMPREHENSIVE MASTER PLAN REVISITED

Methodology:

You will undertake Project 3 in (2) parts, involving whole studio collaboration, small group collaboration, cross-disciplinary collaboration, and individual work.

PROJECT 3 - PARTS:

1. **Understanding Context: Site Analysis and Precedent Research** (Project 3a)
2. New Campus Master Plan & Comprehensive Building Design (Project 3b)

Using your knowledge of the specific ways that climate and context – the simultaneous consideration of locality, function, resources, program, and culture – influence building design and performance along with your recent employment of these ideas and techniques in the design of a rural community school in vulnerable environs, you are well prepared to consider and thoughtfully contribute the design of a model interdisciplinary Research and Education Campus to advance environmental and global change research at the University of Notre Dame, ND-LEEF. Of course, as you know from your two recent projects for this course, building performance is not only tied to resource and energy consumption; the design of high performance, site responsive architecture involves the thoughtful – and simultaneous – consideration of *both* the physical and cultural context of a given site, the specific functional requirements, as well as regulatory and other related (i.e., budget) constraints.

Project 3a: Understanding Context -- Site Analysis & Precedent Research

In order to understand how to best achieve the goals outlined in the project brief and above, you must necessarily become familiar with the site and all of the various external forces (largely climate) upon it. In addition to the physical forces on the site, you must also establish a firm understanding of the project stakeholders (ND and Parks) goals and vision (ref. pages 3-4 of the project brief).

Over the course of the next two weeks, you will undertake a series of studies that will help you establish a Basis of Design (or critical design goals/ values) for the ND-LEEF campus master plan and Research & Education campus.

Part 1: Site Analysis: (ARCH – teams of two)

Given your recent and thorough exploration of the external forces present on any given site, you will apply your increasing survey and analysis skills to understand and *thoroughly document* both the natural and man-made physical conditions, liabilities, and opportunities present at ND-LEEF. Suggestion: studio may decide to divide the study and documentation of specific site characteristics and documentation among the teams.

Part 2: Precedent Research: (ARCH – individual)

Are there existing prototypes, models, or “campuses” of buildings situated in rural contexts that could serve as good examples – precedents – for how one might approach the design of a new

model interdisciplinary research campus that is also emblematic of the unique public-private partnership that is ND-LEEF at St. Patrick's County Park? Your exposure on Monday (2/8) to the site and the Park proper are important opportunities to begin thinking about useful precedents for this project and the ways that space can be created – or urbanism meaningfully achieved – in a rural context.

Part 3: Building Energy Codes and Performance Requirements (ENG – team of 4)

With the increasing emphasis at the University on sustainability and sustainable design, you must answer the question: How must your building(s) perform to be considered sustainable? Using existing building energy codes and performance targets including from the United States, State of Indiana, and international bodies, you must define the performance metrics that will be used to determine if your designs are 'sustainable'.

Part 4: Renewable Energy Strategy (ENG – team of 4)

In recognition of Pope Francis' encyclical "Laudato Si'", the University recently announced their intention to stop using coal as their energy source within five years (<http://news.nd.edu/news/61083-notre-dame-goal-no-coal/>). It is the expectation that this same goal is placed on the ND-LEEF facility and therefore you must answer the question: What is the proper renewable energy strategy for the ND-LEEF? Using the various tools at your disposal, you must determine the energy usage anticipated of the ND-LEEF facility (in collaboration with the team working on Part 3 above) and assess the proper renewable energy strategy or set of strategies (hydro, wind, solar, geothermal) to offset as much of this energy usage as possible, precluding the need to depend on coal.

Your successful completion and presentation of Project 3a requires the following (at minimum):

ARCH: Documentation and Analysis Drawings (ARCH individual):

- Site Analysis (including zoning and adjacency studies/ diagrams)
- Precedent Research *and* Analysis
- Bibliography

ENG: Building Energy Codes Survey and Setting of Performance Metrics (ENG team of 4, present at studio - Powerpoint). Note that this document will be used by the entire class to define the energy performance of their site and buildings, and therefore must contain sufficient information that it can be used throughout Project 3.

Renewable Energy Strategy (ENG team of 4, present at studio - Powerpoint). Note that this document will be used by the entire class to define the renewable energy strategy for ND-LEEF, and these facets must be included in both the site Master Plan and Comprehensive Building Design. Therefore, the presentation must contain sufficient information that it can be used throughout Project 3.

DEADLINE FOR ALL PROJECT 3a DELIVERABLES & REVIEW:

Wednesday, February 17 @ 2:00 pm

Presentation Schedule:

- 2:00 Site Analyses & Survey Analysis
- 2:30 Engineering Energy Code Survey and Performance Metrics
- 2:45 Renewable Energy Strategy
- 3:00 Precedent Studies