A Regional Meteorological Center and Field Station

ASCA Student Design Competition 1998-1999

"This year's competition addresses the issue of weather. How can weather affect a building's performance? How can weather affect the formation of its structure? How can it affect its ability to serve as an educational tool for the community? To chose ends, the competition challenges students to design a regional meteorological center and field station in Hill Devil Hill, NC.

As the location of the first controlled, powered, heavier-than-air flight, the site is laden with symbolism, both in terms of its intrinsic qualities of wood, its lightness and flexible strength, were key elements in the design of the Wright Brothers' aircraft. Spruce and ash were used as integral structural components in the Brothers' plane. The launching students are asked to design a facility that will enhance the overall understanding of how weather affects both the topography and structures in coastal communities.

Issues and objectives

The central aim of the Meteorological Center and Field Station will be two fold: to collect and corresponding inability to adequately accommodate the volume of tourists who visit the site each day. By 2003, in fact the National Park Service's general management plan for the memorial grounds calls for the center to be removed, with the area grubbed and revegetated. Therefore, for the purposes of this competition, students may make one of three assumptions when formulating a site scheme:

1) the visitor center remains intact where it is currently intact where it is situated;
2) the visitor center has been demolished and rebuilt in a different location on the site;
3) the visitor center remains in its present location and is incorporated into the Meteorological Center and Field station.

...to provide an educational center for the study of the long- and short term effects of weather upon both the structures and topography along the North Carolina coastline. The given site's proximity to the Atlantic Coast, and by extension its susceptibility to inclement weather during the summer hurricane season, promoted a close investigation into the type of wood structures that could sustain weather..."
encompassing weather and history

WEATHER PIER

kill devil hill

Wili and Orville Wright's achievement of the first successful airplane flight on Dec. 17, 1903

The Wright Brother's workshop, 1903

Wright Brother Memorial at Kill Devil Hill, North Carolina, 1999

Encountering the weather by different layers

Cyclical flood

The site's closeness to the Atlantic Ocean

Main structure in wood

The meteorological center and museum

siteplan scale appr. 1:500

Student Design Competition, May 1999
from the outside to the inside

weather pier  kill devil hill

entrance, protecting wall, concrete elements

part of the site-plan and the section  scale appr. 1/100
walking through the space

WEATHER PIER    kill devil hill

views from the reception hall and exhibition space layer
In this page I offer some reflections after the work on the competition was finished. There are three considerations: the poetic attitude, the main space, and the issue of weather. The first consideration is the idea to involve poetics into the design process. While designing I was fascinated with the idea to enhance the building due to the extreme weather conditions. I tried to transform the poetics of the wind into the project and failed. Some interesting questions arose:

- Is it possible to transform poetics into the field of architecture?
- What does it mean to interpret a poetic phrase?
- How far can one experience architecture as poetic?

The second consideration is the main spaces. In the competition I designed a repetition of main spaces which are held together by surrounding paths. These paths frame each main space, and through repetition a complex building was formed. Some questions arose:

- What are the consequences to add main spaces to a complex entity?
- How can one design many main spaces in which each space is still identified separately?
- Does not each main space seek for its own identity?
- How does the character of each space alter if connected together?
- Are not the paths the main elements of the design?

The last consideration deals with the extreme weather condition of the North Carolina beach. In the competition the program asked, “How can weather affect a building’s performance?” My initial concept of the buildings for the competition are air-conditioned main spaces which are encompassed by a glass construction. These volumes protect the inside from temperature and wind. In order to protect these fragile main glass boxes from rain, sand and flying objects, a secondary enclosure encompasses it.

Between the secondary enclosure of wood studs and the inner enclosure of glass, there is the space for the path. The outer enclosure is perceived as a protecting wall.

A question could be:

- How can one design a protection for the building that the inside of the building is still perceived from the outside?
- How far can one design a building that protects the building from the negative weather aspects but also have ability to use the positive weather aspects?
The Development of a Plan
Side Lines: a short Investigation of Geometry in Islamic Architecture

geometry:

In my opinion, the research in the world of Islamic architecture offers a treasure of ideas. In the investigation of Islamic architecture it is crucial to understand principles in the use and application of basic geometry in architecture. The basic operations of geometry are the roots for the development of both Western architecture and Islamic architecture. The Western world approaches the geometry in an additive way of succession, in which the geometric operations are made after the previous one is completed. The Islamic architect operates geometry simultaneously like the simultaneously projection of different sides onto one wall.

basic geometric operations of repetition:

1) TRANSLATE

2) ROTATION

3) REFLECTION

A) approach of the Western world: SUCCESSION

B) approach of the Islamic world: SIMULTANENITY
ALHAMBRA
LAYERS
BETWEEN
SPACES

GINAN-HAGHISOFIA
LAYERS OF
FILTER
ENCLOSURE

PLATE 11. Palacio de Comares and Alhóndiga del Trigo. Central ground plan and section of their palace. (See Chapter 15)

SEHZADE: THE FIRST SULAYMANI MOSQUE, SINAN

SEP/89
Layert Generate Movement

Approaching architecture
I gave myself an assignment: to draw a picture of myself. To begin I want to say that architecture is not my life, but I love it and I believe in the joy of making a room or of discovering a detail. Louis Kahn described joy as the force of creativity. There is no architecture without vision and to borrow the words of Le Corbusier that there is no art without passion.

Visions are to become true. In the hopes of our dreams, we find the will to move to the future; the fulfillment of our dreams renders us with satisfaction, joy, and the sweetness of life.

I asked myself where I want to start after graduation with my Master's degree. My goal is to work on a project from the very beginning to its final completion. I enjoy finding ideas and transforming these to more technical and detailed solutions.

In order to achieve my dream and to become a good architect, I find it important to believe in visions and to put all energy and passion in the various stages of creation. Therefore, it is important to experience all kinds of work that architects need to do. These include close contact with the client and the supervising of the construction site, as well as the implementation of ideas and concepts through designing, constructing, detailing and managing.

Life encompasses many things including the ties to my parents within my German and Italian heritage. Cooking with friends, love, faith and becoming aware the richness and opportunity are always present.

Roberto Gardoni
Dec 1999

Contact: Roberto Gardoni,
USA-Address: 307 Pheasant Run Court, Blacksburg, VA, 24060, USA, Phone: 540-5524014, email: roberto_gardoni@hotmail.com
German-Address: Illerstrasse 19, Wiggensbach, Germany, 87487
Bibliography

approaching architecture

Universale di Architettura, Lino Bo Bardi
by Laura Motto e Savina Nicolini, 1998

Thirteen Ways, Theoretical Investigations in
Architecture, MIT, by Robert Harbison, 1997

Formal Structure in Islamic Architecture of
Iran and Turkistan, Klaus Heneg, 1990

An Engineer Imagines, by Peter Rice, 1993

The Architecture of the City, by Aldo Rossi,
1986

Architecture without Architects, by Bernard
Ruddifsky, 1964

Alvar Aalto, the Museum of Finish Architecture,
1978

Form and Space in Japanese Architecture, by
Norman F. Carver Jr., 1993

Philosophy of Structure, by Torroja, 1967

Alhambra, by Antonio Fernandes Puertas

Grundlagen der Architektur im Zeitalter des
Humanismus, Rudolf Wittkower 1969

Islamisches Indien, Architektur der Welt by
Henni Staelin

Louis I. Kahn - Light and Space, Urs
Buettiker, 1994

The Yale Center for British Art, Yale University
Press, 1997

Renzo Piano, Foundation Beyeler, A Home
for Art by Birkhaeuser 1998

Longman Dictionary of Contemporary
English, 1989
Vitae

Roberto Gardoni

June 18, 1967

1998 - 2000
Virginia Polytechnic Institute and State University
Master in Architecture

1998 - 1999
Fulbright Grant for USA to study at Virginia Tech

1991 - 1997
Fachhochschule Augsburg, Germany
Diplom - Engineer Architect

1990 - 1991
Università per Stranieri a Perugia, Italy
Italian history and language

1986 - 1989
Berufsoberschule Kempten
Technical College

1982 - 1986
Carpentry

The book is dedicated to my parents, my sister, my brother and my godfather without their love and support it would have never been written.
Thank you for believing in me.