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Terminal City concept rendering; a ring of iconic corporate terminals on a circumferential boulevard surrounding a landscaped core.

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NEW YORK “IDLEWILD” INTERNATIONAL AIRPORT, c.1957
Massive growth in passenger volume accompanied by increased aircraft size led to the development of more elaborate and accommodating terminals. The Terminal City concept is developed, and SOM’s International Arrivals Building is the first new terminal.

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Pan Am Worldport (Terminal 3), 1961

Pan Am’s amazingly dramatic cantilevered roof was not the only dramatic thing about the airline. It was the unofficial flag carrier of the country, the most venerable, reliable, deluxe and glamorous of all. Helicopter shuttle service from the rooftop of its 70-story Manhattan headquarters; its logo appeared on the “space clipper” in the movie 2001: A Space Odyssey. But Pan Am’s empire did not endure beyond the 1980s.

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Air travel in the 1960s and 70s was glamorous and elegant. Pilots were usually former Air Force officers and retained their military bearing and sense of command. Stewardesses were required to be young, beautiful and slim. Chic uniforms by major fashion designers were in high style.

John F & Jacqueline Kennedy, the young first couple embodied the hopes and aspirations of the generation. The widely emulated first lady was the epitome of fashion, style & sophistication. The airport was renamed to honor the president after his 1963 assassination.

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3rd Generation; Passenger-Based System
Bring the Plane to the People; Saarinen’s TWA Paradigm
Optimize Passenger Sequence & Transport the Aircraft

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The first true concourse; a paradigm that will survive the decades, unlike other aspects of the terminal
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3rd Generation; Passenger-Based System
Bring the Plane to the People; Saarinen’s TWA Paradigm
Optimize Passenger Sequence & Transport the Aircraft

Umbilicus from Headhouse to Concourse

Carnegie Mellon University
School of Architecture
Sustainable Design, 48-400/500 Fall13
Hal Hayes, Studio Professor
Concrete Phoenix
Up-Cycling Saarinen’s Flightless Bird
Customized
• Strong Brand Identity
• High Quality
• Contemporary

Concrete Phoenix
Up-Cycling Saarinen’s Flightless Bird

TWA Terminal
Airline Terminal as Corporate Icon
• Customized
• Strong Brand Identity
• High Quality
• Contemporary

TWA Terminal
Airline Terminal as Corporate Icon

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The Municipal Art Society of New York

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VIEW THE II FOR 2011

The TWA Terminal Saga Continues!

December 16th, 2002, 9:58 am

Background: For over a year, The Municipal Art Society has been pressing for a better plan for Eero Saarinen’s TWA Flight Center (1956-62), now Terminal A, a New York City landmark and icon of modern design. As part of the expansion of JFK Airport, the Port Authority wants to demolish portions of the landmark and construct a huge new U-shaped terminal around its “airside,” blocking the view of the tarmac that was Saarinen’s greatest inspiration and achievement.

Hundreds of architects, design professionals, and enthusiasts of modern design have joined civic organizations in protesting these plans.

During the summer of 2001 the Society hosted a press conference featuring notable architects Philip Johnson, Robert A.M. Stern, and Peter Samton, all of whom emphatically and enthusiastically support the full preservation of this very unique and significant Modernist

Conceivable that the Port Authority won’t

Development Advisory

The Urban Art Society of New York

Up-Cycling Saarinen’s Flightless Bird
Port Authority Expansion Master Plan
One large terminal on T5 & T6 sites.

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Port Authority/RAC Compromise
Relocate the “Trumpet”, as recorded by the History Channel’s “Modern Marvels”. All for naught.

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TWA Terminal

Resolution; Bait & Switch. The Trumpet was sacrificed, perhaps needlessly, so that the headhouse’s main public spaces could be pristinely restored.

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JFK TERMINAL 5 – JET BLUE 2008
To utilize the deep apron area of the TWA Terminal site, the flight wings of the landmark terminal were demolished, a new two-level roadway was built behind it, and the new Jet Blue terminal was constructed. It’s expansion for international arrivals is currently under construction.

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TWA Terminal
Vacant, Isolated and Lost Amid Recent Construction. Or; a diamond in the rough? It is up to you.

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**TERMINAL 5 EXPANSION**
International Expansion of six gates to the JetBlue terminal onto the Terminal 6 site.

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Adaptive Re-Use Proposal
Redevelopment as a hotel.

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Seeking proposals that include the following:

- Must be an existing site already occupied by a built structure
- Must be in urban context; reducing sprawl and focusing development and efficiencies in the urban environment
- Must be a public building that adds urban vitality, and brings relevance and meaning to the community and people
- No restrictions on the type of site or size. Examples include, but are not limited to, disused factories, power plants, schools, apartment blocks, etc.
- Must show physical location/address and image(s) of current structure
- Building must be 10 years or older
- Take into consideration the advances in technology, the exploration of sustainable systems, and the alignment between proposed new use and characteristics of the existing building
- Demonstrates original architecture and design concepts
- Includes an innovative vision for the site

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Introduction
This studio project will parallel the Port Authority’s RFP for redevelopment of the TWA Terminal at JFK as a boutique hotel, a project I’ve been working on for over 10 years. It will also optionally be tailored as a submission to Fentress Architects Global Challenge competition, the first prize of which is an internship for up to three students (the maximum number on a team). Alternatives here could be any feasible use other than a hotel, which works well with the competition, and the Port would be interested in too. Program will also include multi-modal transport-related functions within the historic landmark emphasizing innovative, high-quality passenger processing serving all of JFK’s terminals.

Studio Structure & Sequence
Although all students have studied aspects of sustainable design in previous studios and required courses, this is the first Sustainable Design (SD) track studio. All students will therefore technically be at an introductory level; however fifth-year students that have already completed a systems integration studio may be up to more advanced study. Given that starting point, here are a few key parameters;

• This course will be both a stand-alone and an introduction to a multi-semester SD sequence.
• It will support the mixing of three distinct student cohorts;
  1. Fourth year students, who may elect only this one SD studio or may take two, three or four additional in the spring 2014 semester or 2014/15 academic year.
  2. Fifth year students doing a ninth studio who may elect only this one SD studio or may take one more in the spring 2014 semester.
  3. Fifth year students doing the first half of a one-year thesis.

Curricular Transition
The Sustainable Design studio focus is an evolution and expansion of the former Systems Integration studio (48:405); it will also incorporate design and analysis components of Advanced Building Systems (48:415). SD studios will also expand foundation learning and facilitate specialization and advanced design and research in the following “legacy” curricular areas;

• Systems Integration
• Advanced Building Systems
• Site Design
• Holistic Design
Studio Requirements & Pedagogy
Basic requirements in terms of content and pedagogy of both this first studio and the four-semester sequence include the following:

- All students have completed a required comprehensive studio; therefore all SD studios will be considered advanced comprehensive studios.
- All SD studios will require basic competency in the following NAAB-required and traditional Carnegie Mellon SoArch learning areas by the end of the first semester;
  - Pre-Design (programming and planning)
  - Tectonics
  - Simulation and Visualization
  - Conceptual Design
  - Design Development
  - Site Design fundamentals
  - LEED

Sequential studios in the SD track will provide the opportunity for faculty and students to develop and pursue year-long projects, particularly in the upper two semesters as a self-focused capstone studio and/or thesis.

Project Typology
This studio will address the core typologies of Airport Hotel, Green Hotel & Multi-Modal Terminal. Additional typologies that are related include Food & Beverage Service, Conference and Spa/Resort. Your individual project may prioritize different combinations of these key areas.

Future SD studios in sequential semesters will be coordinated and offer students increasing depth in the focus area and both repetition and variety. At current student preference polling rates, there will likely be one or more SD studios per semester, so there is an opportunity to structure the sequence with overlapping, redundant and sequential projects. Particular types and uses should include:

- High-density, constrained urban sites (contextual relationships, scalable district interventions, district-based systems, object/formal design, mitigating new development impacts, Ecotect/VE analysis)
- Medium-density greenfield developments (object/formal design, mitigating new development impacts)
- Brownfield redevelopment at all densities (site remediation, transitional uses, district impacts)
- Small net-zero building (design detailing, materials quantification, cradle-to-cradle and/or Ecotect analysis)
- Large buildings with complex/multiple use types (biophilia, bio-mimicry, evidenced based design, resilient design)

Concrete Phoenix
Up-Cycling Saarinen’s Flightless Bird
## Curriculum & Pedagogy

Key studio issues including students, project aspects, site conditions, design skills and sustainable systems.

### Concrete Phoenix

Up-Cycling Saarinen's Flightless Bird

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### Students
- Development: Brownfield, Infill, Adaptive Reuse, Greenfield
- Density: Urban, Suburban, Ex-Urban, Rural
- Climate: Temperate, Mediterranean, Sub-Tropical, Tropical, Arid - Mild, Arid - Hot
- Geography: Wetland, Coastal, Plain, Foothill, Mountain

### Projects
- Scale: Small, Medium, Large
- Proportion: Articulated, Compact, Horizontal, Vertical
- Complexity: Contextual, Programmatic, Sociological, Systemic

### Sites
- District/Neighborhood, Eco-Cities, Megastructure

### Design Skills
- Tasks: Quantification, Analysis & Simulation, Cradle-to-Cradle Analysis, Systems Integration, Integrated Practice
- Tools: Revit, Ecotect, IES Virtual Environment, BIM
- Methodologies: Biophilia, Bio-Mimicry, Evidence Based Design, Integrated Practice, Interdisciplinary Team, Resilient Design

### Systems
- Standards & Regulations: Net-Zero, LEED, Off-the-Grid, Living Building Challenge, Carbon-neutral design, Energy-neutral design, Passivhaus

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Carnegie Mellon University
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Hal Hayes, Studio Professor
Hybrid Studio Opportunities

Many core SD issues are well suited to study in combination with other studio focus areas. Particularly, fifth year thesis students may consider multi-focus projects emphasizing hybrid relations with other studio tracks and disciplines to support their individual theses. These options include, but are not limited to

- **SD/Urban Design** (eco-districts, large-scale systems and infrastructure planning, megastructures)
- **SD/Critical Practice** (design development, detailing, construction documentation, systems research and specification)
- **SD/Speculative** (future systems, marginal/hostile environments, utopian/ecotopian visions)
- **SD/Computational Design** (form & massing/performative optimization, robotic fabrication/construction of complex systems)

Grading

Studio grading is based on several factors;

1. **Performance & Products**
   
   Your performance in the studio and the products that you submit and present are the most important factor in my evaluation of your work. There are 10 assignments during the semester that I will grade individually; each contribute to the quantitative component of your semester grade as follows;
   
   - A-1; Sketch Problem 5%
   - A-2; Precedents 10%
   - A-3; Site Analysis 10%
   - A-4; Programming & Planning 10%
   - A-5; Parti 10%
   - A-5; Concept Design 25%
   - A-6; Design Development 20%
   - A-7; Final Presentation 10%

2. **Leadership & Collaboration**
   
   During this studio and your entire future career, you will be working in teams in which your ability to collaborate, share information and maintain a collegial and cooperative manner will be essential to the success of all. Also you will each individually be assigned as the project manager or facilitator of an important part of the studio, and your ability to lead and effectively marshal the human and physical resources at hand is equally critical to the success of the project.

3. **Learning**
   
   What you learn in the studio is usually but not always readily apparent in your work. Different students and student cohorts (e.g. 4th year, 5th year, thesis) also have varying experience. How much you learn and improve in this studio given your individual abilities will also be a factor in your semester grade.

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Up-Cycling Saarinen’s Flightless Bird
Semester Schedule
The semester work effort will be divided into four sections, as follows.

1. Project Definition
   The first three weeks will be spent defining the parameters of the design.
   • Sketch Problem, Assignment 1
   • Precedents, Assignment 2
   • Site Analysis, Assignment 3

2. Pre-Design
   The next three weeks will be spent exploring the options of the site and building.
   • Programming & Planning, Assignment 4
   • Parti – Tectonics & Systems, Assignment 5

3. Concept Design
   The next four weeks will be spent refining your individual or team design. Mid-
   semester review will occur partway through this phase of work.
   • Concept Design, Assignment 6

4. Design Development
   The last five weeks will be spent developing, detailing and presenting your design.
   • Design Development, Assignment 7
   • Final Presentation
Participation
Participation in lectures, discussions and reviews is essential to your learning and performance. Our studio has a somewhat more flexible schedule than others you’ve had, and this should facilitate your participation.

Late Submissions/Missed Presentations
Late submissions without prior consultation and agreement will result in a reduction of one grade level per day late. Missing a presentation is a more serious issue that will be reviewed with SoArch administration for further actions including academic warning.

University Policy on Attendance
This course adheres stringently to Carnegie Mellon’s University policy on attendance. Attendance in all studio review, lecture and presentations is required. Three unexcused absences will result in a failing grade.

University Policy on Cheating and Plagiarism
This course adheres stringently to Carnegie Mellon’s University policy on cheating & plagiarism. During your academic and professional life it is critical that you acknowledge the contributions of others and that you properly credit all sources that contribute to your work.

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Imagining a Future/Honoring the Past
Assignment 1 – Sketch Problem

Learning Goals
This introductory assignment is intended to test and expand each student’s imagination, natural abilities and learned skills in several areas and ways that will be key to your efforts and our dialog throughout this Sustainable Design studio;

- **Explore conceptually** the complex site and historic building with minimal constraints and maximum intuition.
- **Evaluate strategically** the basic tectonic, systemic and programmatic possibilities and opportunities of redevelopment and expansion.
- **Extrapolate holistically** a simple but compelling concept from a minimum amount of information.

Program
The program for this assignment is completely at your discretion, however it must answer the following question;

**What use(s) do the physical form of the historic landmark building, constraints and opportunities of the site, and needs and desires of potential occupants lend themselves to?**

Site
The site includes the TWA Terminal and the entire Yellow Quadrant landside area.

Statement
Clearly and succinctly state your concept and defend your decision in a one- to two-page text statement. Include a project name that encapsulates its seminal identity.

Media
The presentation type for this assignment is completely at your discretion, and should be best suited to convey your concept in a compelling and convincing way. Consider using a combination of concept sketches, diagrams, models, perspectives, animations, plans, sections, materials, etc.

Schedule
8/28 Wed Assignment Issued
8/30 Fri Submit & Review

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