DESERT POWER
Retooling the American West
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INTRODUCTION

The subject of this studio is the American desert as a source of power both in terms of energy and cultural development. Between Tucson, Arizona and Las Vegas, Nevada is a swatch of desert that epitomizes the American west in its natural splendor, settlement history and technological promise. Within this swatch national monuments like the Grand Canyon, Montezuma Castle, infrastructural feats like the Hoover Dam, utopian experiments like the Biosphere and Arcosanti, new forms of power generation like solar arrays and wind farms, and commercialized development like The Vegas Strip all highlight the persistent hold the desert has on American ingenuity.

The site of the studio is an urban 50-acre plot in downtown Las Vegas slated for development called Cashman. Many in Las Vegas are describing this site as the greatest urban development opportunity in the city's history. While the scale and proximity to downtown alone make it unprecedented, it is the location along Las Vegas Boulevard that give the site its epic civic value, continuing a linear sequence of connected walkable spaces from The Strip and through historic Downtown. The city right now is asking for development proposals for a complex that includes but is not limited to new Museums, Research Facilities, Retail Development, Academic Campus, and Film Studios. The programmatic brief is intentionally open as the government understands that this site is not just another development, it is a chance for the city to define its priorities and project its new identity into the future. To inspire this site's future our studio will use the desert itself.

The desert has long been the site of architectural imagination. The dry air, clear skies, and geological formations taking place over thousands of years inform and inspire the way humans inhabit it. From ancient cliff dwellings to utopian structures and movie sets, architectural experiment within the desert comes in many forms and varying degrees of permanence. In some cases, these experiments have proven to fail like gold rush ghost towns and late twentieth century utopian experiments. In other cases the natural conditions have created military and infrastructure projects of epic proportions. The cloudless skies have made the aviation industry and observatories a permanent fixture around Tucson and the Hoover Dam still stands as an engineering triumph. The Studio will study and visit these sites and more on its way to downtown Las Vegas, exploring how the desert can be captured as not only a site for new architecture, but as a process that defines it.

METHODOLOGY

The course methodology follows a series of exercises that progress from research, sketching with generative models, site preparation and travel, towards the final production of an architectural proposal. Students will be challenged to engage at every point in two dominant and simultaneous modes of research. The first is topical research built through documentation and observation. The second is sketching research built through a critical use of design tools. These two modes are rarely sequential or convenient in the way that they inspire each other. There exists a non-linear but binding relationship between these forms of architectural production and it is precisely within this feedback that a productive engine exists to generate critical and substantial architectural proposals. *This feedback is what we call Tooling*. Research modes are engaged in three parts through the semester:

- Part 1 - Parallel Process: Phenomena/Procedure
- Part 2 - Travel & Provisional Guide
- Part 3 - Architectural Development through iteration

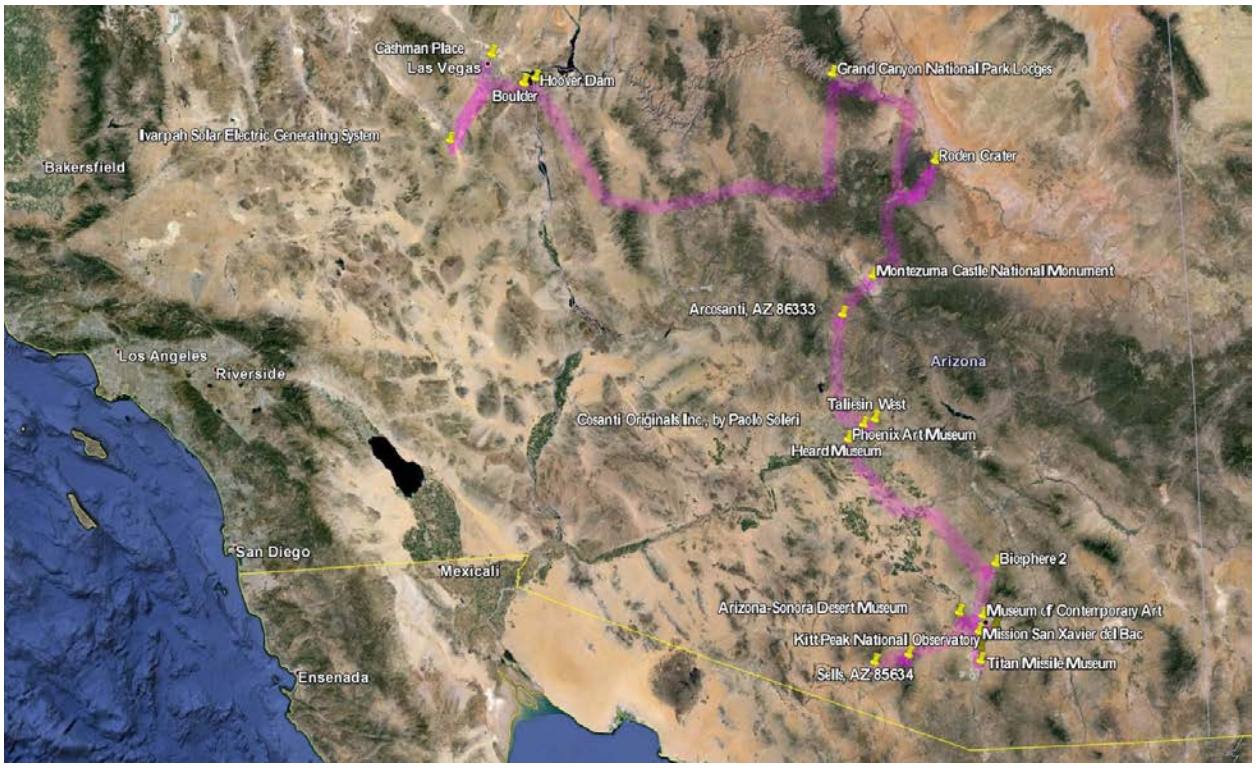
Methodology Part 1
Parallel Process: *Phenomenon/Procedure*

The studio begins with a tooling process that evolves into an architectural prototype which is informed and tested through travel. The first step in the process is to engage topical observation and documentation with scaleless generative and procedural studies in the first weeks, a *Parallel Process* that relates site investigation to the architectural sketch. Students pick an aspect of Desert Power to study and document in relation to a place listed below and explore how to develop this phenomena into a *tooling* study.The *procedures* listed below are only examples, and students may invent their own. All places must be covered since they will be visited on the trip, but more than one student may study the same place.

- Water / *movement, erosion, landscape generation*
    - Hoover Dam
    - Grand Canyon
    - Colorado River Basin
    - Biosphere 2
- Energy / *solar array orientation, vector mapping, energy simulation with form*
    - Hoover Dam
    - Ivanpah Solar Electric Generating System
- Geology / *sedimentation, granulation, aggregation, erosion*
    - Asarco Mineral Discovery Center
    - Grand Canyon
    - Roden crater
- Archaeology / *planning, excavation, aggregation, ruination*
    - Montezuma Castle
- Utopian experiments / *planning, excavation, aggregation, ruination*
    - Taliesin West

    - Arcosanti
    - Biosphere 2
    - Roden Crater
- Native American Arts / *weaving, pattern-making*
    - Sells, AZ
    - Heard Museum
- Aerospace Developments / *drone movement & coordination, swarming*
    - Pima Air and Space Museum
    - Titan Missile Museum
    - Aircraft Boneyard

Methodology Part 2
Travel & Provisional Guide



At the core of this studio is a journey through the American desert that culminates in the city of Las Vegas. The desert in this particular part of the country is a filled with spectacular and moving scenery, our culture's story is written in it and students are challenged to take it all in. In many ways, the actual travel to the site will dismantle some assumptions and buttress others made through the semester. The best thing to do is *partly* prepare for the trip which we will do with *A Provisional Guide to the Desert.*

- **Itinerary**
  Students will take a week-long road trip that explores and analyzes key moments in the landscape between Tucson, AZ and Las Vegas, NV. These key moments exhibit the range of desert phenomena/*procedures* that will prompt architectural development within the studio. The stops include:

Pima Air & Space Museum & Aircraft Boneyard	Tucson, AZ
Asarco Mineral Discovery Center	Tucson, AZ
Titan Missile Museum	Tucson, AZ
Kitt Peak National Observatory	Tucson, AZ
Tohono O'odham Nation	Sells, AZ
Biosphere 2	Oracle, AZ
Heard Museum	Phoenix, AZ
Taliesin West	Scottsdale, AZ
Arcosanti	Arcosanti, AZ
Montezuma Castle National Monument	Camp Verde, AZ
Roden Crater	Flagstaff, AZ
Grand Canyon	AZ
Hoover Dam & Boulder City	Boulder City, NV
Ivanpah Solar Electric Generating System	Ivanpah, CA
Cashman Place (site)	Las Vegas, NV

- ***A Provisional Guide to the Desert***
  Before embarking on the trip, students develop *A Provisional Guide to the Desert*, a book to be used as a reference for the trip and the rest of the semester. *A Provisional Guide to the Desert* doubles as a focused travel guide and a tooling manual, pairing Places/Phenomena with generative Procedures. At each stop in the journey, a student(s) will briefly present the chapter that they developed. After the trip, the students will have an opportunity to update the *Desert Guide* with new information that was gathered from the trip. Each chapter of the guide (8.5 x 11, landscape) will be structured in the following way:
    - Documentation of Place in relation to Phenomena: background, challenges, and potential applications of Phenomenon in the desert (4-6 pages)
      - Map to scale
      - Diagram of phenomenon suggesting a procedure
      - Supporting text, photos, drawings, references
    - Documentation of Procedure as derived from Place/Phenomenon
      - Description of procedure
      - Iterative studies of procedure through drawings
      - Photos of physical prototype
      - Reference to source material (URL or folder location)

Methodology Part 3
Architectural Development through iteration & modelling
The semester culminates with an independent architectural proposal. Development will happen through a four-part method, in which students explore an iterative, back-and-forth process between site, procedure, and proposal. Throughout this process questions of top-down vs bottom-up, parts to whole, and the Desert as a specific, generative tool will be central to the investigation.

- **Programming**
  Teams gather detailed site data and its plans for development. The current brief for the site suggests a specific program but students are encouraged to question the brief and propose their own intervention based on their research. The programming of the site must conceptually address the initial RFP and may be inspired by the current and known RFP competition entries.
  Requirements:
    - Program Concept describing specific program, areas, relevance to Desert
    - Program Diagram describing attitudes toward circulation, views, relationships between program, etc.
- **Iterative Planning vs Procedural/Generative planning**
  Teams develop a Planning Strategy that situates their program on the site. The Desert Guide is available as source material and inspiration. Students reveal the issues and potentials presented in the Program Concept and Desert Guide and converge them through iteration and generative techniques, a Site Procedure. This encourages idea-based approaches to the site rather than just problem solving, exploring the issues of top-down vs. bottom-up.
  Requirements:
    - Site Procedures specific to scale of site and program
    - Site Diagrams cataloguing the relationships explored within the procedure
    - Three Planning Scenarios situating program on the site, analysis of each
- **Site Modeling as Architectural Prototype**
  Students choose a Planning Scenario to transform into a Site Model that further investigates the convergence of Programming and Procedure. The Site Model must be fully three-dimensional and also serves to explore an Architectural Prototype. This is an exploration of multiple scales—the scale of the site vs the scale of the Architectural Prototype, the relationship of the part to its whole.
  Requirements:
    - 3D Site Model of procedure working at the scale of the site
    - Site Plan at 1/16” = 1’ with identification of focus area
    - Physical model of Architectural Prototype
- **Architectural Proposal**
    - Students develop their prototypes into fully developed architectural proposals. Students explore how the Site Model might inform interior experiences within the building, and similarly, how the development of the building may in turn affect the Site Model.

- Minimum requirements:
  - Final Program Diagram
  - Final Site Procedure Diagrams (at scale of site and scale of focus area)
  - Final Site Plan at 1/16” = 1’
  - All floor and roof plans at ⅛” = 1’
  - 2 Sections at ⅛” = 1’
  - Key Elevations at ⅛” = 1’
  - 3 Exterior Views
  - 3 Interior Views
  - Physical Model of focus area and buildings

SITE

The Cashman Site is a 50 acre site just north of downtown Las Vegas currently containing the Cashman Center, a complex that includes a baseball stadium, theater. exhibit hall and outdoor parking. The City of Las Vegas recently released an request for proposals to solicit ideas for an “adaptive reuse” of the site. Student teams gather detailed information about the site and its plans for development based on publicly available sources as well as instructor-procured developer plans. The current brief for the site suggests possibilities for specific programs but students are encouraged to question the brief and propose their own intervention based on the research they've conducted throughout the semester. The following is an excerpt of the RFP:

> *The intent of this Request for Proposal (RFP) is to identify qualified development Offerors with an interest in a potential contract for the adaptive reuse or redevelopment of the Site. Offerors’ proposed concepts should highlight the highest and best use of the Site which may include but not be limited to: A professional sports stadium and corresponding facilities; A film studio; An urban or academic medical center; Retail development; A mixed-use urban village including market rate residential units; Cultural facilities (museums, art galleries, etc.); An educational or university campus; Mixed use development consisting of a combination of above or other uses. Proposals may contemplate full redevelopment of the site without the existing baseball stadium and convention center; or keeping one or more of the facilities.*

The scale of the site is that of a complex or network of buildings within a landscape that together create a transformative public project for Las Vegas. Students will consider the site's relationship to the Cultural Corridor, continuation of Las Vegas Blvd, I-15 and I-515, and close proximity to The Strip and Downtown Las Vegas. Public Space in Las Vegas has evolved from the The Strip extravagance that defined the city's image ("What happens here, stays here") to increasingly walkable and sustainably minded neighborhoods with historic character. The inclusion of diverse programs and mixed zoning have created job opportunities and liveable spaces in a revitalized downtown. The Cashman Site is timed perfectly to build these recent efforts that include the Downtown Project, Zappos, Container Park, The Cultural Corridor, The Life is Beautiful Festival, First Friday among others. Remarkably one blind spot in Las Vegas' evolution is the presence of art institutions and buildings that reflect the city's historic and continued support of the arts. While the city does not lack an art scene, it is considered one of the most vibrant and fertile environments for the arts in the country, it does lack an iconic architecture that supports this identity. Students are encouraged to question the brief and propose their own intervention based on their research. Programs may address the desert as museum, education campus, park, retail center, aerospace testing ground, energy site, etc. Programmatic Opportunities include but are not limited to:

- Expansion of Adjacent Amenities:
    - LV Main Library
    - Natural History Museum
    - Heritage Park
    - Neon Sign Museum
    - Old Mormon Fort State Park.
- New Structures:
    - Atomic Testing Museum
    - Reed Whipple Cultural Facility
    - Living Arts Community & Retail Center
    - Energy Site
    - Drone & Robotics Research Center
    - Space And Science Museum
    - The Modern, Las Vegas Contemporary Arts Museum

SCHEDULE

- **Week 1: January 21 Introduction**
  - Wed: Studio Lottery
  - Fri: Kick-Off Presentation
- **Week 2: January 26 Parallel Process: Phenomena/Procedure**
  - M/W: Desk crits
- **Week 3: February 2 Parallel Process: Phenomena/Procedure**
  - Monday: Desk crits
  - Wednesday: Pin-Up #1, *Desert Guide*
- **Week 4: February 9 Site & Programming**
  - Monday: Desk Crits
  - Wednesday: Desk crits, Site & Program Diagrams and Research
  - Friday: Conversation #1, Matthew Ritchie
- **Week 5: February 16 Site Design**
  - Monday: Desk crits
  - Wednesday: Pin-Up #2, Pre mid-review
- **Week 6: February 23 Architectural Prototype**
  - Monday/Wednesday: Desk Crits
- **Week 7: March 2 Mid Review: Site Strategy & Architectural Prototype**
  - Monday: Desk crits
  - Wednesday: Mid-term review
  - Friday: Conversation #2, Matt Scullin
- **Week 8: March 9 Desert Power Trip**
- Week 9: March 16 Spring Break
- **Week 10: March 23 Desert Guide & Zoom-in**
  - M/W: Desk crits
- **Week 11: March 30 Development of schemes**
  - M/W: Desk crits
- **Week 12: April 6 Development of schemes**
  - Monday: Desk crits
  - Wednesday: Pin-Up #3, Pre Final
- **Week 13: April 13 Development of schemes**
  - M/W: Desk crits
- **Week 14: April 20 Development of schemes**
  - M/W: Desk crits
- **Week 15: April 27 Final Review**