

Goals and Objectives

The Spring 2009 Site Planning Studio is a continuation of the Advanced Japan Design Workshop of Fall 2008. While the 2008 Workshop established the general parameters and frameworks for sustainable communities, the goal of the Site Planning Studio was to create a manual for Ecologic Oriented Development and infrastructure design that derives from the study area's typologies.

The Study Area:

During Japan's post-war economic miracle, a rapid influx of population into Tokyo led land prices to skyrocket, causing many to settle on the more affordable outskirts of the city, leading to a random, rapid urban sprawl. Tama New Town was planned in 1965 to attempt to ease this pressure by providing hundreds of thousands of housing in a master planned, pleasant suburban environment. Located just 20km outside Tokyo, Tama New Town became one of the largest housing developments in Japan. Four decades later, with significant changes in demographics, transportation, energy consumption, land use & infrastructure, life-styles and housing demand, Tama New Town faces acute challenges of continuity and transformation. Much of Japan's current housing, environmental and infrastructure problems are amplified and exemplified in Tama and in need of major shifts toward sustainable re-design and longer-range planning. Although a specific area in Tama is examined and used as a prototype, the project as a whole does not aim to explicitly develop a design and development solution for it.

Intentions:

Rather than providing a single plan, the purpose of the manual is to create a flexible set of codes/typologies that account for site variability. It allows users to determine intervention points through condition resolution. This manual illustrates how stated explicit infrastructure objectives (example: the use of ecology and natural systems for sewage treatment) can be translated into design interventions in a variety of conditions, and multiple and scales. In addition to outlining techniques and intervention points, the manual also includes few permutations of how these techniques could be synthesized and employed at the neighborhood scale.

Studio Process:

- Japan visit, site investigation and design charrette
- Analysis of Landscape Units, Mapping and Site Physiography.
Purpose: To establish typical landscape units and sections, as a basis for site and housing design

- **Abstraction of Site Characteristics, Natural systems, Infrastructure, Transects**
Purpose: To generate common conditions and evaluate constraints and opportunities for site infrastructure and building development.
- **Formation of Future Scenarios**
Purpose: To address what is unknowable and define and assume future scenarios as a basis for design decisions.
- **Development of Alternatives Approaches to Site and Infrastructure Technologies**
Purpose: To gain expertise of 'site scale' details and techniques that are crucial to the creation of ecologic development. These technologies included water management, climate mitigation, energy production, information technology, mobility, and agriculture.
- **Creation of Technology Driven Schematic Site Plan Investigations**
Purpose: To create exemplary and ideal site typologies for each alternative technology
- **Assemblies and Synthesis of Neighborhood Site Plans**
Purpose: To utilize the developed typologies on a specific site and showcase possible permutations.

10 Guiding Principles For Ecologic Oriented Development (EOD)

As part of our overall approach to the project, the studio developed the following principles to guide design, planning, and development.

COMPLETE the WASTE and WATER CYCLE: Treat 100% of water and waste (sewer, gray water, storm water) on-site and at all scales. Viewing the cycle from pool to planet, these principles infiltrate buildings, eco-machines, and natural systems.

INTEGRATE INFRASTRUCTURE SYSTEMS: From embedded ubiquitous digital technologies to EcoEngineering, infrastructure systems and buildings should enhance system flows and combine delivery methods.

DESIGN for EFFICIENT ENERGY: Utilize on-site renewable energy technologies in conjunction with site orientation and planning to maximize benefits of passive and climatic power conservation.

MAXIMIZE ON-SITE FOOD PRODUCTION: Increase self-reliance and local food production especially of fruits and vegetables.

ENHANCE MOBILITY & CIRCULATION: Use new modes of transportation that reduce energy consumption from local to regional, from personal to shared. Reshape and organize the circulation patterns to correspond to new travel modes and behavior.

RESTORE STREAMS & RIVERS: Enhance and rehabilitate existing waterways. Restore and protect the watershed integrity and enhance it by using technology.

RE-ESTABLISH HABITAT & WILDLIFE: Retain, construct and restore ecological matrices to support animal species, vegetation and topographical features. Conserve and protect existing features during construction. Connect local level networks to regional systems.

INCORPORATE INNOVATIVE MATERIALS: use building materials and site products (pavers, walls, etc) that reduce energy consumption (local materials) and have the potential to adapt to changes.

PRESERVE CULTURE & HERITAGE: Integrate local values through preservation, protection and integration into new building and landscape design.

VALUE EQUITY, HEALTH & HAPPINESS: improve living and working environments for all demographic and age groups.

Typologies of Alternatives Approaches to Site and Infrastructure Planning

Our design and planning approach avoids standardized solutions. It strives for experimentation, innovation, and above all site responsiveness. This approach provides choices that are ecological applicable to a range of conditions, accompanied by straightforward design details to address the possibilities of the site.

In order to expand the knowledge of 'site scale' details and techniques that are at the heart of a project's success or failure, we investigated particular areas of relevance to ecological oriented development. These included:

- Waste Water Systems
- Storm Water Systems
- Stream Restoration
- Energy Supply
- Food Production
- Climate Mitigation
- Mobility
- Information Technologies

Each topic was investigated in terms of its implication and possible adoption to the site. To test each element for possible development scenarios we developed conceptual site plan typologies based on singular technology criteria.

Synthesis - Neighborhood Site Plan Assemblies

The studio developed three permutations of how the various typological approaches and techniques could be synthesized and employed at the neighborhood scale. Each team developed their own programmatic elements, selected the specific site to be developed, and the type of housing to be used. Some teams used current Sekisui House housing prototypes, others used a combination of buildings developed by the Japan Housing Architecture Studio that was conducted concurrently.

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