

In Response to Context: Considering the Phoenix Canals

CATHERINE SPELLMAN
Arizona State University

INTRODUCTION

No new architecture can arise without modifying what already exists, but the interest surrounding the notion of modification in recent years is not based on such an obvious consideration, at least if we view modification as recognizing the importance of what exists as structural material, rather than mere background, during the design process.

– Vittorio Gregotti, 1996

“In Response to Context” defines an architectural design process that is able to reconcile the differences between the new situation and the existing situation, accepting that the two can and should develop the other. Response, an answer or movement produced by stimulus or others actions, refers to the act of making architecture. Context, the particular circumstances in which an event occurs, suggests the physical and ideological situation around a project. An architecture which is responsive to context begins with the premise that it is engaged with the various realities of the situation to suggest or criticize form. It accepts that physically, spatially and perceptually, these realities can inform and alter our interactions with the environment. As architects, we are constantly responding to some sort of existing situation, be it the program, the economic restraints, the topography, the formal or aesthetic desires of the designer. Often architects separate these various situations in order to give the building process some clarity, and certainly there are benefits of doing so. However, contextually responsive design intentionally brings these complexities together, uniting (rather than separating) the object of architecture to the existing environment.

The architectural project conceived as response to context supports the process of modification described above by Gregotti. To modify suggests that the existing situation is re-interpreted, with an understanding of what was there before, and in such a way that creates possibilities for the future. This form of architecture allows information to be exchanged in two directions. First, information about the existing context informs the project. The context will limit possibilities (through its zoning, topography, cultural and historical precedents, environment, etc.), and simultaneously the context will suggest probabilities to the designer. Consider the Kaufmann House by Frank Lloyd Wright; the Rancho San Cristobal by Louis Barragán; or Alvar Aalto’s City Center in Seinäjoki. All these projects take directives from the physical form of the site, the history and traditions of place, program, and the environment. As well, the designer’s intentions regarding a given program or building will condition the way we understand and perceive the existing context. Think of the Villa Savoie by LeCorbusier; or the Barcelona Pavilion by Mies van der Rohe. In both instances, the architect has re-interpreted the site in terms of his formal and ideological concerns. The existing situation is made new through the architect’s

collaboration with and interpretation of the context.

What is different in these two sets of examples is how the context is defined. At the Kaufmann House, the specific piece of land (its mythology, topography, event, scale, texture and materiality) is the primary operative from which the house is drawn and to which the house is returned. At the Barcelona Pavilion, the specific parcel of land, while having some impact on the location of the project, clearly is less of a form-giving factor than certain other concerns of the architect. The pavilion, designed in accord with certain form-giving rules, is brought to the actual site to provide an alternative means of interpreting the city, the site and the international political position of Germany during the 1929 World’s Fair. What the examples imply is that contextual design can be, and is, approached from many points of view. The common result however, is the unquestionable link to the existing situation.

CONTEXT AND CANALS

The paper is written with reference to the work of a graduate-level architectural design studio that used the infrastructural water system of Phoenix, Arizona, to study issues of context and response. Water systems in desert cities such as Phoenix offer an unique way to understand the development and growth of the place and provide a necessary focus to the studio investigation. Without this extensive system of dams, reservoirs and canals which move water from rivers across the state, life in the dry Phoenix valley would not be possible. However, one of the most disconcerting qualities of present-day Phoenix is the lack of visible connection to the history and structure of its water system. At one time, not so long ago, the water system provided Phoenix residents a relief from the dry and oppressive heat. Neighborhood parks and private backyards opened onto the tree-lined canals making a shaded place to gather, a sense of the meaning and vitality of water in the desert, and a physical connection to the history of this place. However, in its recent rapid growth, Phoenix has mostly separated itself from the qualities of its water system. Modern technology and the desire for a more economical water system have in part allowed them to do this. With these developments however, the city has erased many signs and traces of what life in a desert is about.

Additionally, public awareness of the water system offers desert cities such as Phoenix an essential link to the original acts of settlement. Most great civilizations have risen out of the manipulation of water. Mesopotamia, Greece, Syria and Rome grew to powerful metropolises because of their water irrigation systems. Water allowed each of these civilizations to take hold and prosper in barren and unproductive lands. The manipulation of water required these civilizations to develop a tremendous collective will, systems of organization, and economic security. In ancient cities each citizen

was essentially aware of and an active participant in the upkeep of the water. Its physical presence focused and centered the development of the city. When the system overgrew the means of the population to maintain it, the civilization vanished. Now, in desert cities it is no longer essential that the presence of the canal system be understood by its inhabitants. However, by making present this most critical infrastructure we can re-consider the symbolic act of making contact with the earth, the physical environment, the idea of nature as the totality of all existing things.

Within ancient cultures, the act of settlement is based in the ability to know how to read a place. Reading the qualities of a particular place meant determining the potential development of the place. Acknowledging the quality of a particular site was first written about by Vitruvius. "Our ancestors, when about to build a town or an army post, sacrificed some of the cattle that were wont to feed on the site proposed and examined their livers. If the livers of the first victims were dark-colored or abnormal, they sacrificed others, to see whether the fault was due to disease or their food. They never began to build works in a place until after they satisfied themselves that good water and food had made the liver sound and firm." (Vitruvius, *Ten Books on Architecture*, 1960) Early civilizations lived in a type of co-dependence that fostered a unification of the natural and the artificial. Survival depended on their ability to be amongst the forces of their surroundings. Social harmony depended on their ability to unite the pragmatic and cultural dimensions of their lives. This ability to understand the layers of a place and build in a manner that was responsive to these layers, allowed early civilizations to be integrally connected to their context.

Within Central Arizona, the first known settlers were the Hohokam Indians, who flourished in this region from approximately 100 BC to AD 1450. During this time, they established a productive agriculturally based society with the construction of an elaborate irrigation water system. Their canals spread the water of the Salt River some 300 miles across the Phoenix Valley. Following the slope of the land, south and west, the Hohokams constructed over 900 miles of major and arterial canals, connecting and uniting many villages with a common physical and social infrastructure. Such an extensive system was not known to exist anywhere else in North America.

The modern history of Phoenix begins in the late 1860's when prospectors envisioned agricultural use of the valley once again. In 1868, the privately funded Irrigation Canal Company was formed and the initial modern canal system was constructed using the remnants of the Hohokam canals. By 1902, the Salt River Valley was transformed from the barren landscape the Indians abandoned centuries before into a garden whose abundance seemed limited only by the amount of available water. These earliest canals were built mainly by people of limited financial standing. By pooling their labor to dig and maintain the canals, they were able to create a relatively prosperous farmland. The water flow of the Salt River, however, varied greatly. Sometimes it brought overwhelming floods and at other times it was dry for long stretches. In 1902, the National Reclamation Act and additional support from the federal government made the construction of the Roosevelt Dam possible. It was completed in 1911 and assured a permanent water supply throughout the Phoenix valley. With the constant and inexpensive flow of water created by the dam, the city grew rapidly. By 1920, Phoenix had almost 30,000 residents. During the 1950's, the post-war boom raised the population to over 105,000. The shift from agriculture to industry in the 1960's raised the population to almost 500,000. Today the regional population is just over 2.2 million, making Phoenix the tenth largest city in the United States.

Initially the modern canal system ensured the irrigation of the land and offered a sense of identity to the city. Before the canal embankments were surfaced with concrete in the late 1970's, they were lined with cottonwood trees and open to surrounding neighborhoods. In this state, the canals provided a place for the community to gather. In both a social and physical sense, the canals at this time, were

significantly integrated into the built and natural landscape. However, in the present situation the canals have lost their connection to the numerous neighborhoods and commercial districts that surround them and have become vast areas of leftover space. The formal order of the north-south grid has not been able to incorporate or respond to the canal system, which follows the line of the topography and the flow of gravity. The rapid growth of the city has not been sensitive to prehistoric traces of the original Hohokam canals or to the potential that the canals offer to the character and life of Phoenix. Today, the water system is mostly unseen in the city. Its significance and importance are covered over by the empty space that surrounds them, cut off by the edge conditions that they create.

RESPONSE AND CONTEXT

The studio attempted to reconcile these problems by broadly considering the possibilities for developing and integrating the water system back into the texture of the city. The designer's response to the various and varying aspects of the context are, to a great extent, determined by the methods of interpretation and recording information that the designer uses, therefore, parallel to the discussion on context, the studio focused on methods of recording, interpreting and translating into design material the issues of context that they were defining. They began by collecting information about the system from a variety of sources; first informational and historical research, (library, map, data sources); followed by experiential/observational gathering, (spending time in the place and collecting the experiences that occur through and with the passage of time) and technical recording, measuring and summarizing of the specific segments of the system. This material was translated in three phases over the course of the semester. Each phase involved a different scale of consideration which is described below:

WANDERING AND WONDERING

This phase begins with an intensive involvement and occupation of the context of the canal system. This has meant becoming an inhabitant in the site, developing an understanding of the complexities and layers of the city as an active organism. Students are asked to wander through, in and around the canal system, and wonder about how the city incorporates and separates itself from this system. Here, students are determining what is essential to the growth of the project through an abstract program of observing and experiencing in which they focus on methods of recording, interpreting, and defining observations of this urban setting and infrastructure. After they have combed the city recording its relationship to the canal system, the students look more closely at one 38-mile segment of the system (the Arizona Canal). This canal was selected for its representative cut across the city. It begins at the Gila Bend diversion dam water source and stretches east across the width of the city. This particular segment of the system crosses through the most diverse and varied samples of Phoenix context. It starts in the Pima Indian reservation, crosses through the influential township of Scottsdale, intersects the Indian Bend wash, moves through the North Phoenix residential neighborhoods and financial district, feeds the farmlands and orchards of West Phoenix and ends in the newest subdivision of Glendale. In their recording of the Arizona Canal, students make material that puts their readings of it into physical form.

This is followed with a closer look at a shorter segment of the canal, one that they can walk the distance of in an afternoon. Time is spent "in context" both physically on the site and linearly through map studies, historical readings and class discussion. Generally students define the conditions of this place in terms of its physical properties, specifically they consider concepts such as edge, boundary, and leftover space. Exercises include a series of sketches and drawings that are made as they move through their sites, photographic montages that redefine specific issues (such as open versus closed space, centrally versus linearly organized space) and draw-

ings that record precise information about the site (such as width and depth of the canal, access to neighborhoods, dimensions of embankments, width of access roads, city easement requirements). The drawings edit and record what is thought to be the most important information about the canal and urban form. From these drawings, students formulate an individual reading of the context and establish a conceptual attitude to develop in their design interventions.

MARKING AND MEASURING

The second phase asks the student to delineate the leftover strips of land that could potentially integrate the surrounding urban context to the water system. The class divided the length of the Arizona Canal into fourteen segments, one for each class member. Within each segment, students marked out a specific area to measure. They were looking for a way to occupy the leftover space in and around their chosen site and re-define the edge condition so that it accepts the surrounding neighborhoods. In doing this, the students are developing the possibilities of externalizing the hidden water system into a set of public spaces, activities and monuments. The project at this point becomes program specific in that the student is asked to describe the patterns of movement, historical traces and the problems and potentials of the site they have chosen. Through their design material they are to explain the function and condition of the proposed project in terms of its components, hierarchy and connection to the existing situation. Their projects at this point are intended to describe the physical characteristics of the programs they expect to design and they are asked to criticize the presence of these programs before they realize their form. The only restriction in this phase is that the student think of the program in terms of public space that is somehow connected to specific circumstances of their site.

INTERLACE AND INTERVENTION

Here, students were asked to intervene in their chosen site and transform its density and use. At this scale the projects became interventions into the isolated pockets of uniform housing and commercial space that make up the dispersed fabric of Phoenix. The projects stress the importance of mitigating the gaps within the city and re-introducing the canal infrastructure into the urban fabric.

The task is to develop a detailed building program. In developing this, the students were asked to remember where they started the

investigation and take note of what the project is already about. After doing this, they were to think of the program as everything that they can imagine people doing in this place; how do people park, where do they walk, what do they see, how do they act, what will they do at 6 a.m. versus 6 p.m. Here the problem becomes one of considering how much space is needed to accomplish these activities and how much space is needed to include their design ideas and desires. In a manner of speaking, this phase becomes a type of restoration, where they are restoring the broken pieces of the urban fabric with their responses to the existing conditions of the context. Program becomes a way of adding to the existing form in a manner that stitches the existing fragments together, bonding the old to the new in a manner that gives a heightened awareness to the presence and relevance of the Phoenix water system.

The space of the canals—in that it makes a connection to a historical trace of the city, is inextricably linked to the topography, offers a strong relief to the pervasive city grid and is related directly to the public domain—provided a particularly strong site for this studio exploration. By focusing on segments of the canal system, each student was able to develop a proposal that is specifically responsive to the surrounding neighborhood needs. Both in form and program, the student projects attempted to create public amenities that connected the water system to the homogenous sprawl that currently exists in the city.

REFERENCES

- Burns, Carol. "On Site: Architectural Preoccupations" in *Drawing/Building/Text, Essays in Architectural Theory*, edited by Andrea Kahn. New York: Princeton Architectural Press, 1991.
- Fifield, Michael. *Metropolitan Canals: A Regional Design Framework*. Tempe, Arizona: Arizona State University, 1992.
- Gregotti, Vittorio. *Inside Architecture*. Cambridge, MA: MIT Press, 1996.
- Holl, Steven. *Edge City: Pamphlet Architecture 13*. New York: Princeton Architectural Press, 1991.
- Jackson, J.B. "Learning From Landscapes," in *The Necessity for Ruins and Other Topics*. University of Massachusetts Press, 1979.
- Kraus, Rosalind. "Sculpture in the Expanded Field," in *The Anti-Aesthetic: Essays on Postmodern Culture*, edited by Hal Foster. Seattle: Bay Press, 1983.
- Reisner, Marc. *Cadillac Desert: the American West and its Disappearing Water*. New York: Penguin Books, 1993.
- Zarbin, Carl. *Two Sides of the River: Salt River Valley Canals, 1867-1902*. Phoenix: Salt River Project, 1997.