DESIGN PROJECTIONS FOR A SMALL NON-RESIDENTIAL BUILDING:
TOWARDS A THEORY OF "ASSOCIATIVE-USE" SPACES

by

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SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARCHITECTURE
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
May, 1974

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Accepted by Chairman, Departmental Committee on Graduate Students
ABSTRACT

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It is the purpose of this thesis to propose a methodology that will be an aid in the design, generation, juxtaposition, and integration of rational, three-dimensional form into associative-use spaces and to then test that methodology by projecting it into a written program for a New England Telephone Company branch office building located at Dudley Station, Roxbury, Massachusetts.

Thesis Supervisor: Maurice K. Smith, Professor of Architecture
This thesis is dedicated to:

a rhinoceros.

a tree.

all of the poor black people that live in this country and whose ability to hope is matched only by their efforts to maintain.

you.

me.
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INTRODUCTION

It has been observed that architects, as professionals, continually engage in two inter-related processes that can be identified as constants in the translation of a written program into three dimensional form:

I. The "minimal" process that can be employed in developing a "solution" to a "problem."

II. The design, generation, juxtaposition, and integration of rational three-dimensional form into "associative-use" spaces.

It is apparent that the second process can always be used to satisfy the first process, but that this situation is not necessarily reversible. It is also apparent to me that the second process is more often than not sacrificed to insure that the first condition is met. Given this situation, it seems reasonable for me to try to establish a methodology that when used with the first process will always approach the second process, and when used with the second process will always insure that both processes are utilized to their fullest potential.

This design methodology more simply stated is an attitude or a way of thinking about built forms that generates three-dimensional form as "associative-use" spaces.
It has two basic components: one is the parallel organization of the physical/permanent building, and the other is the organization of public to private use space.

In order to get to some application of this methodology I chose the program for the New England Telephone Company branch office building on Warren Avenue in Roxbury, Massachusetts. For my project I designed two separate buildings using the same relationship of public to private space. The first design attempts to satisfy the New England Telephone program; the second design attempts to accommodate the functions of the existing office facility on the site—the Circle Complex, and organization composed of Circle Associates, the Venture Capital Fund, the Small Business Association, and the Resource Center—along with the N.E.T. program by allowing the building to be built in two stages. The primary purpose of the Circle group is to promote black ownership of business in the black community of Boston. It was the Circle Complex that, in fact, proposed the initial development of this site and was successful in winning New England Telephone as a tenant.

Two programs follow. The first is a standard N.E.T. branch office program used for buildings of the size proposed at Warren Avenue. The second is a program for the Circle group which I developed after analyzing their existing office structure. An adjacency diagram for the N.E.T. program is inserted between these two programs.
New England Telephone Company Branch Office Program

Requirements:

A. General Offices

Public Lobby Area
Cash counter 14' x 23' plus work
Quick counter 12' x 3'
General Office area (7 stations)
(desk plus seating for 1, possibly 2 or 3)
Manager's office with visual control
Training and conference room
Lunch and lounge areas
Kitchen
Coat rooms
Women's toilets, 4 w.c.'s
Men's toilets, 2 w.c.'s
Cash room

B. Employment Office

Waiting area + 2 people and 1 secretary
Testing + 6' x 8'
Interview + 8' x 10'
C. General Administration

5 groups of 8
plus 3 or 4 miscellaneous spaces

Service order room 500
Supply room (general) 400
Toilets/coats
Training/conference 300
ADJACENCY ACTIVITY DIAGRAM for N.E.T. Program

A. General Public Area
Bill paying and questions plus new accounts
conference training Display
General Office
Cash room Cash counter
Waiting Quick counter

B. Employment Office
Interview Interview (Private entry-tie into rest of building)
Testing Testing
Entry Waiting

C. General Administration
Supply Service Orders
Typing Pool Training Conference Room

and: Lounge/Dining/Kitchen
Toilets: N.B., fewer men than women
Telephone Room, 10' x 12' and Electrical/Mechanical Room
Circle Complex Program

Venture Capital Fund:
  6 offices
  Reception area (2 secretaries)

Small Business Association:
  7 offices
  2 typists

Resource Center
  Black History Museum
  3 classrooms
  Film room
  3 offices

Circle Associates
  2 executive office
  1 bookkeeper
  1 accountant
  1 secretary
The general site conditions suggested to me a lineal organization that I will refer to as parallel organization of the structure. This simply means that the major structure runs parallel to the distribution. I have found that this organization generates the desired relationship between public and private spaces because it facilitates more ways of generating a physical continuity between the distribution and individual spaces. And more important, parallel organization establishes a relationship between the distribution and the private spaces to the given directional reference and remains closely associated with that reference because it does not change direction abruptly.

I have used a 24' x 20' bay system as my basic structure. But to get to a theory of "associative-use" spaces, I have attempted to push this bay beyond its normal use. This has lead me to a number of interesting facts that I will try to relate in a consecutive manner.

1. A simple 24' beam span can cantilever 1/3 of its original length at each end. Assuming that I cantilever 6' at both ends, I generate a new spanning length of for a total of 36'. See Diagram A.
2. When this bay generates itself in a lineal direction we establish a new set of dimensions: 24', 12', 24', 12', 24', etc. See Plate 2.1.

It should be noted that the 12' dimension is the zone of the cantilever and this zone has a great deal of inherent possibilities:

a. We have the opportunity to cantilever or not.
b. We have the possibility of putting a floor on top of the beams in this space or not.
c. In section, if we give a 12' floor to floor height to one bay and an 18' floor to floor height to another, we have the possibility of allowing light to come through the space by not building—we have the opportunity of generating a continuous surface by placing stairs in this opening, or we have the possibility of defining smaller use spaces in both directions by creating a non-continuous surface. See Diagram B.

3. Vanes (rectilinear columns) serve at least two functions. 1) When used in the same plane as the exterior closure of the building they allow
for masonry units to be butted next to them without any unnecessary breaking and fitting; and, 2) when used in the interior spaces as a free standing column, vanes help establish and reinforce the existing lineal direction being employed in the building.

4. Walls that are load-bearing play a significant part in the definition of "associative-use" spaces. There are two important factors to be continually considered in the use of bearing walls:

1. Their placement (interior or exterior)
2. Their articulation (their run, change of direction, height, and returns)

Besides supporting its own weight as an exterior enclosure, a bearing wall is obviously capable of supporting the structure of the building as well as being erected as solid masonry walls in the interior spaces of the building. The association we make with large, load-bearing, solid, external masonry walls is usually that of an "edge" or "end" of the physical building and the other side of the wall is considered "outside." However, when we have interior bearing walls, we can still make that same association
with the "edge" or "outside" condition happening on the other side of the wall, but what we have actually done is created a case for "inside"/"outside" spaces within the building.

It is obvious that bearing walls can be used to replace columns; but more importantly, a bearing wall can allow the next column in that particular row, to move further away from its original placement. Take for example a row of columns placed 20' c. to c. At any one of these columns a bearing wall replaces it and runs for a distance of 8 feet. Now the implications of this act are that the next column in the row can move up to 8 feet away from the original 20' c. to c. bay system. This movement can initiate a new bay system or become a special place within the existing system. See Diagram C.

The articulation of a bearing wall defines spaces and connects parts of the building through a continuous surface definition. By lowering a wall, turning it perpendicular to the structure, allowing breaks in it, and allowing it to end altogether in some places, we are able to create, define, partially build, interior as well as exterior spaces that still indicate the original structural organization. It is my
opinion that this articulation of the wall allows us to associate with the spaces generated by the wall, as a reference to the structural organization. I believe that this particular structural organization encourages and creates a more desireable and more perceptible relationship between the distribution and private and public spaces.
The difference between public and private functions and the consequent distinction between public and private spaces is the other major ordering device I used to design my project. I have tried to design the use spaces of the two buildings to reflect a public-to-private progression.

It becomes fairly obvious, very quickly, that most public space in any building is in the entry/lobby area, and that some of the most private spaces are given over to offices and specific function rooms, e.g., rooms for special equipment, communications rooms, rooms for handling currency, etc. To make perceptible to the user the progression from very public (lobby) spaces and functions to very private (offices), the remaining work categories which fall within the public to private continuum must be progressively ordered from public to private. Then these functions are used to design spaces which reflect this progression.

Functionally there are two separate buildings described in the N.E.T. program: an Employment Office and a Business office (which combines the General and Administrative Offices named in the program).

Section B of the program is the Employment Office which gives company tests and interviews to applicants for jobs with the telephone company. The program calls
an entry/reception/waiting area, two small testing
rooms and two offices for interviewing the applicants
which I have ordered (following the public to private
progression) like this:

public → entry → reception → waiting → interviewing → testing

I have combined sections A (General Offices) and
C (Administrative Offices) under the heading Business
Offices because these two parts of N.E.T. function together
at almost every level of the job hierarchy. The General
Office includes the Quick Counter, Cash Counter, a
number of service stations and the Manager's office.
The Quick Counter directs incoming customers to the
appropriate service desk for bill paying, requesting
telephone service, and/or complaining. The Cash Counter
takes bill payments. Each station in the General Office
is staffed by one telephone company employee. The
Manager's office needs visual control over the service
area. He handles particular cases of customer service.

The General Administration office includes more
than 40 work stations with five of those assigned to
supervisors. The Service Order Room houses the computer
which must be adjacent to the supply room. The training-
conference room provides space for meetings and for
training new personnel. The diagram below shows the
public to private progression as I have organized it
for the Business Office.
The connection between these two buildings is made through a door which opens from the employment office into the lunch/lounge area. This area is primarily for the employees of the building. However, I have made it accessible to the public through the service area so that customers can have a cup of coffee while they are waiting to discuss their telephone service. The diagram below combines the two foregoing diagrams and shows the lunch/lounge connection.

This diagram, combined with the parallel organization of the structure gave me the basic design organization
that I have used in both designs for the telephone company layouts.

SUMMARY

It is clear to me that these two organizational principles can be applied to the inter-related processes that are the basic tools of architects. It is hoped that the consequence of this application will enable us to associate with our built environment in a manner that is commensurate with our ability to live in harmony and understanding with our natural environment.
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