



6 / BUILDING A FIVE-STORY BUILDING IN TOKYO TO MAKE HARMONIOUS SPACE AND VOLUME

My next — somewhat larger — example is a five-story apartment building in Tokyo. At the beginning of the project, we made a few initial calculations about the number of apartments, the number of square meters we could build. Then we were ready to fix the overall character of the building volume.

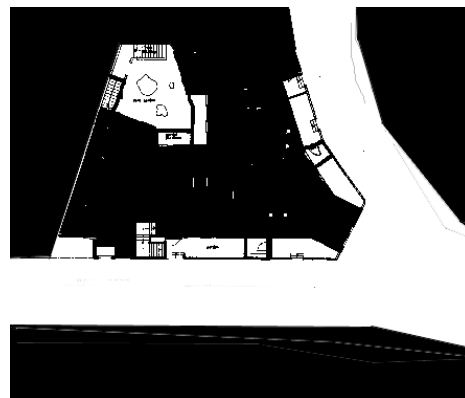
The most essential thing was the fact that the building lot was five-sided, bounded by two streets, with a sharp corner where the two streets meet. The two streets are small and lively. The most natural inclination of a normal development project, would have been to make a building built up of rectangles, in a way which fills the site approximately (left-hand drawing below). But after carefully looking at the streets and their small character, I felt that no matter how strange it seemed, the building must help the streets, help to maintain and strengthen them — and must therefore exactly follow the line of the street edges (see right-hand drawing below). When I combined this idea with the need for a south facing garden in the middle and towards the south, we got the overall volume

character of the building. It is defined, further, by the fact that it steps back gently, from the street, to conform to the zoning ordinance. Along the streets, small gardens are placed just above ground level to make apartments more private, and also to follow setback requirements (see diagram below, right).

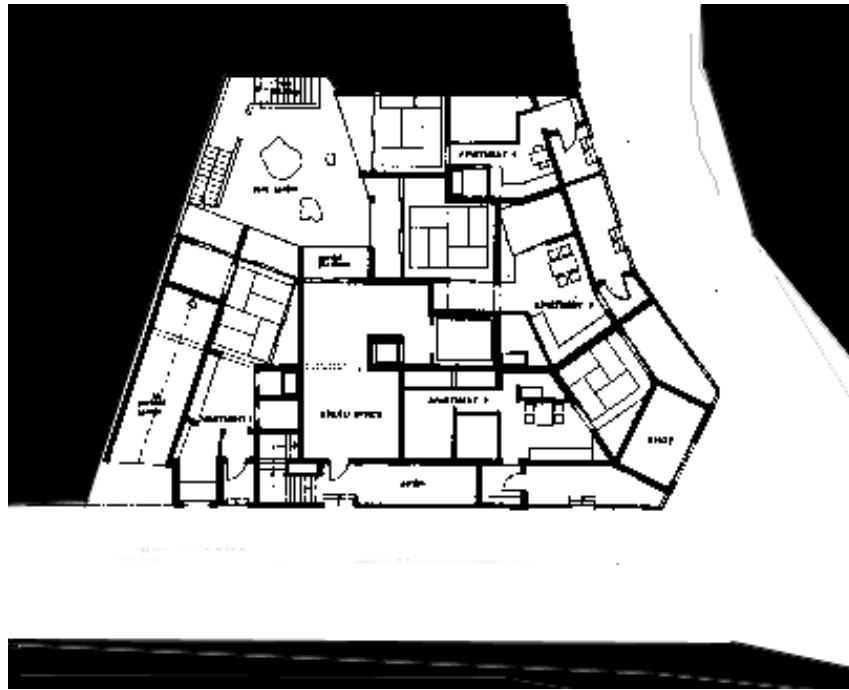
To explain the process we followed in shaping the building, I list below the steps we took, one by one.

1. Overall height and volume.

Tokyo zoning code allowed very specific areas and volumes for this building, as a function of lot size. Specifically, the building could have no more than a maximum of 1148 m² of built space, a maximum parking lot of 116 m², and a maximum lot coverage of 322 m². Preliminary calculations showed that the building would be between 4 and 6 stories high, and that the open space could be about 40% of the lot. This fundamental arithmetic created the overall size and volume for the main center (the building itself) and thus provided the context for all that followed.



Left: On the left, a first possible site plan, rather conventional in character, which is NOT structure preserving. Although this plan follow typical building and design character for a building in the 1970's or 1980's, the placing of the volumes, the badly formed exterior space, and the lack of structure-preserving impact on the two streets and on the sunshine in the south, are all negative. Right: The building site plan as we actually built it, showing the unusual building configuration caused by the fork, and two bent streets, Christopher Alexander, Hajo Neis, Ingrid King, 1987



Emoto building, ground floor plan. The plan shows the adaptation of rooms to the unusual configuration caused by the fork and two bent streets.

2. *Preservation of the streets as centers.*

The site occupies a crucial place: the angle between the streets is peculiar. Yet the idea that the centers which the streets form are “sacred” (i.e. inviolable, and may not be destroyed) is fundamental. By placing the exterior walls of the building along the streets, the volume of the streets was guaranteed and preserved.

3. *Set back given by the building department.*

The zoning ordinance requires a set back within a certain angle. Placing the building within this angle, and keeping the good shape of the streets with a reasonable vertical wall, made it necessary to keep a two-meter band between street and building. Later, in order to make this two meters into something positive, small gardens were made for the apartments on ground floor.

4. *Sunshine and south light.*

Since south is at back inside corner of building, it is very hard to orient the building to the south — but still imperative. Japanese love sunshine as much as western people, and south light

is always better even when sun is not shining. This meant the building had to contain a space open to the south light. Courtyard had a very difficult shape. Many attempts were made but, early on, a basic decision to create a south-facing corner courtyard was made. Exact decision about location and shape came gradually.

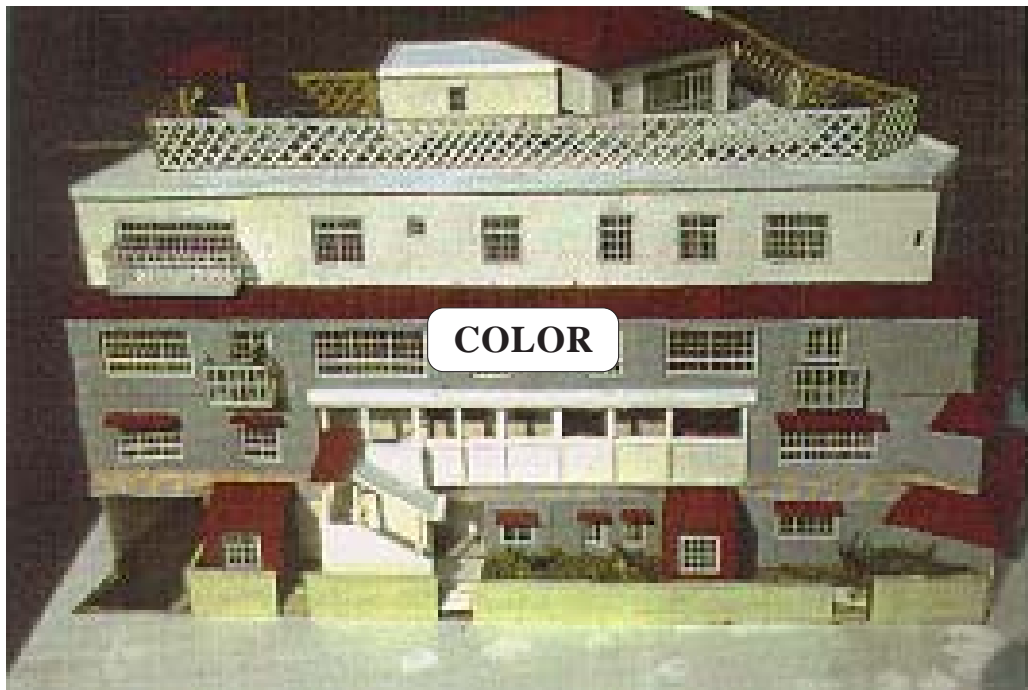
5. *Relation to nearby buildings on south side.*

Exact position of south facing courtyard partly determined by position of neighboring building volumes.

6. *Driveway to parking garage.*

We knew there would have to be parking garage underground. Driveway going down had to be in one corner or the other. Choose south west corner because easier in longer wall. Also corresponded to feng-shui desire expressed by client.

From here on, the following steps 7–50 determined the sequence of centers to be introduced and the unfolding of the design in serial order.



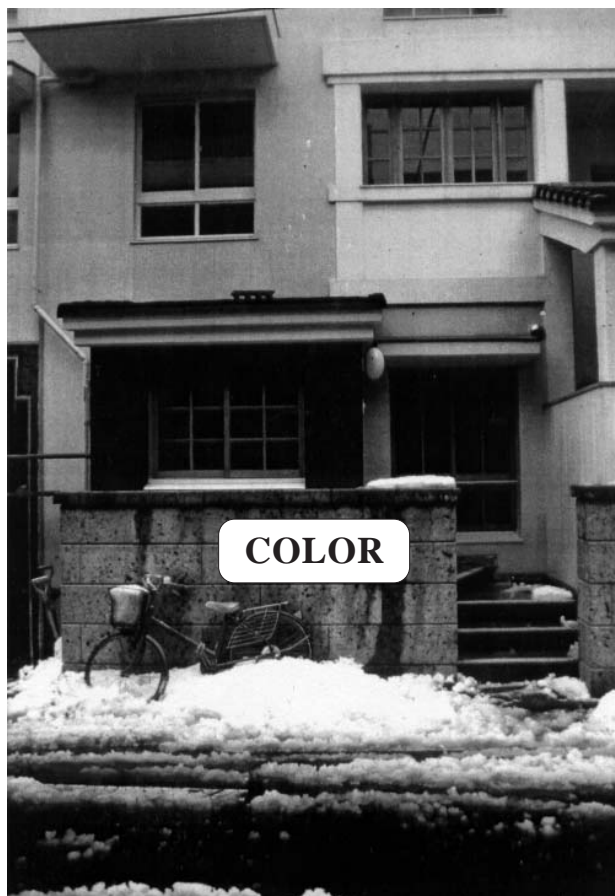
A model of the building made during design, allowed us to study the impact of the volume and site on surrounding streets, and details of its harmony with the streets

7. *The need for a communal garden.*
8. *Individual gardens at street level.*
9. *The need for sunshine in the apartments.*
10. *The character of the streets at eye-level.*
11. *The entrances of individual apartments.*
12. *Relation to main direction of approach.*
13. *The position of the main entrance.*
14. *The top of the building and need for a "hat" on the top.*
15. *A shop at the sharp corner.*
16. *Beautiful bay windows in the corner position.*
17. *Each apartment has light coming from two sides.*
18. *The possibility of one beautiful room in each apartment.*
19. *Open arcade along the north side, at second story.*
20. *Modest stairs for main entrance.*
21. *Lessen the overpowering character of the vertical walls on the exterior side.*
22. *Lessen the overpowering character of vertical walls on the courtyard side.*
23. *A carp pond in the main back garden.*
24. *A garden hedge and fence.*
25. *Ground floor platforms looking into garden.*
26. *Garden walls.*
27. *The total length of shear walls in the building.*
28. *Placing shear walls to get a torsion-free system of walls.*
29. *The parking garage.*
30. *Turning space for parking places.*
31. *At least ten parking places.*
32. *Room for machinery on the basement floor.*
33. *Fire exits from basement.*
34. *In each apartment, the main living room beautiful, full of light, and at a peaceful place in the apartment.*
35. *The main room really big in contrast with other rooms.*

By this stage, the volume and site design had been determined. The process then went on to complete the layout of the building and its structure:



Emoto building, Tokyo. The picture shows Hajo Neis making a fullsize mockup in painted paper on the building that existed previously on the site, to study the effect of the elevation design and materials on the street, so that we could make sure that the street was helped by the building



Exterior, street-level view of one apartment in the Emoto building, winter 1988.

36. *Four-foot interior galleries along the inside of the windows in every apartment.*
37. *The tokonoma in the main room.*
38. *The kitchen as a place inside the entrance.*
39. *Small gardens on the interior south-facing balconies.*
40. *Thick walls inside the apartments.*
41. *Good shape for the apartments, inside an irregular envelope.*
42. *Ornament on the exterior of the building.*
43. *Small roofs on all the windows.*
44. *Red color on the roofs and entrances.*
45. *White plaster at the top and on the gallery.*
46. *Yellow ornaments in the concrete wall.*
47. *One tatami room in each apartment.*
48. *Office for Mr. Emoto, where the elevator is.*

49. *Bedroom on the fifth floor.*
50. *Stairs to fifth floor bedroom very small and low.*

This list (written while we were working on the project) reflects the actual centers we made and shaped to get the building form and plan, *in the sequence in which we took them, one by one.*

Since this sequence of centers is natural, and fairly obvious, the reader might miss what is — after all — a rather unusual site plan, which came into being under the impact of this process. The accompanying drawings (page 167) contrast our plan with a plan that might typically have been made by a conventional architect in 1987.

In our building the building hugs the



Emoto building, Tokyo: The completed building, Christopher Alexander, Hajo Neis, Ingrid King, 1988.

streets. Because of the living process, it creates positive space in the streets and in the courtyard. This was only common sense, but it was nevertheless unusual by the standards of 1987.

Throughout the emergence of this building plan, and building form, the steps taken are visibly structure-preserving. It is not only the pro-

cess of taking one center at a time which gets results, but the larger fact that every step preserves and enhances the structure which had been reached up to the step before. To the extent that the building has life, it is for this reason. There are plenty of mistakes in the building. But it represents progress towards a new ideal.

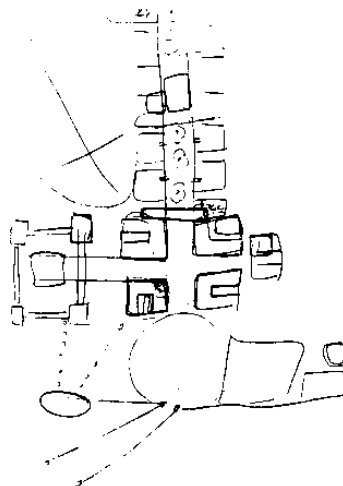


7 / LAYING OUT A VERY LARGE BUILDING COMPLEX: THE EISHIN CAMPUS

I shall now show how the creation of the site and volume plan for the Eishin Campus in Japan followed a similar but more complex sequence of structure-preserving transformations. The process had two components.

First system of centers: defined by the pattern language. The first component was a pattern language worked out by our team after extensive interviews with teachers and students, and then approved by the school as a whole in a general assembly meeting. The pattern language defined, in generic terms, which new centers ought to exist in the new campus.² Here are five very important centers defined by our pattern language:

1. **ENTRANCE** *The entrance to the inner precinct begins at the outer boundary. At a key point in the outer boundary, there is a gate. This leads to an entrance street.*
2. **YARD** *Where the entrance street meets the inner boundary, there is a second gate leading to a public yard.*
3. **UNIVERSITY CENTER** *Beyond the public yard and through a third gate is the essential center of the university.*
4. **HOMEBASE STREET** *Leading out from the university center, somewhere, was the high-school street of classrooms: the homebase street. The homebase street is a wide, lively, sunny street formed by the individual home room buildings where the high school students have their classes.*
5. **THE LAKE** *Opening through gates on another side of the university center is a lawn. This lawn,*



One teacher's diagram showing the major centers defined by the pattern language. In diagrammatic form we see ENTRANCE, YARD, UNIVERSITY CENTER, HOMEBASE STREET, AND LAKE. The diagram shows how this teacher understood the way these main centers might fit together in an imaginary site plan.

especially for the use of college students, is surrounded by the college buildings and leads directly to the lake. The lake is a peaceful place to rest.

Second system of centers: defined by the land. The second component of the process was a system of centers that existed in the land as it was before we started. This system of centers was defined by the site, *by the land itself.* In 1982, as soon as the pattern language had been approved by the faculty, we began the site plan. The site-planning work was done mainly on the site.