



6 / WHAT IS REALLY HAPPENING IN SUCH A CASE

It is my experience that this “successful” structure can be *generated*, with fair certainty, by people who know what they are doing, if they follow an orderly differentiating process to do this “brutal” thing.

It is after all also true that nearly all great traditional buildings contain such successful structure, making us believe that this differentiating process must have been a predictable and reliable process. It is also true, of course, that such middle-range order appears, without fail, in biological structures of all sorts, again making it virtually certain that there must be a predictable process which can create such order, and which does create it reliably in biological cases.

What is the essence of this process for buildings? How is it related to the “brutal” aspects of process I have been describing? How is it related to the repetition of the fundamental process that is required by all living processes?

I see the following key points.

First, the volume is already fixed. Let us hope that it is a good volume, a majestic exterior volume, which is simple. That is a major statement. Even a gigantic building must still be made of a relatively simple series of exterior volumes which form a single largest center (for further explanation of this process see chapter 4 of Book 3).

Second, we have a rough idea of the way space is to be disposed inside this volume. In broad terms, we have divided the thing up into areas and positions, possibly including exterior areas or spaces (for further explanation of this process see chapters 6, 7, 13 and 14 of Book 3).

Then comes the crucial step when orderly geometry of structure is introduced. We apply, to this configuration of roughly conceived spaces, a special kind of sharpening process: we use it to construct the simplest aperiodic grid consistent with the harmony and variety of the building plan. The aperiodic grid is a grid of parallel lines,

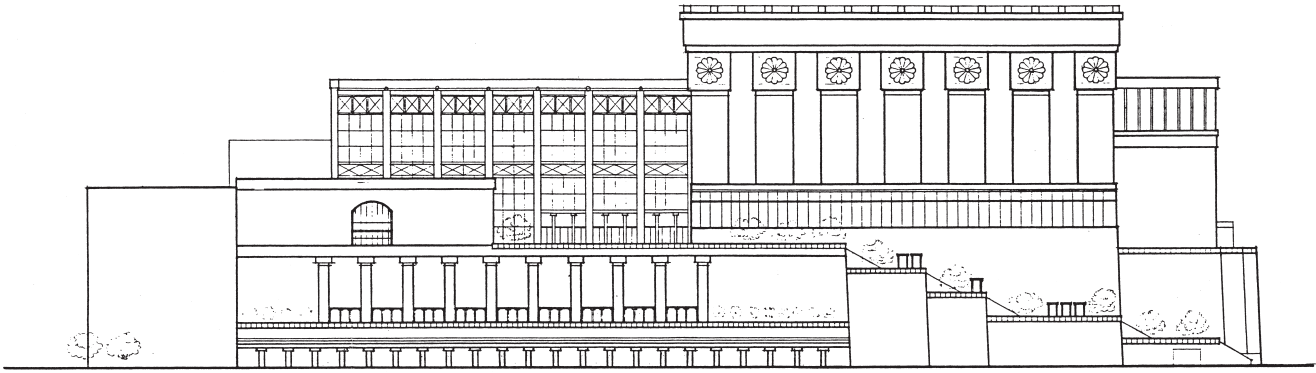
not necessarily equally spaced, but parallel as far as possible, chosen so that all the main spaces or groups of spaces fit inside the grid. It is natural that this aperiodic grid contains both thick grid bands and thin grid bands, distributed in a harmonious way so as to form boundaries and levels of scale in a natural fashion.

If the grid has to be adjusted to make up for non-rectilinear aspects of the building volume (curves, or non-90-degree angles) imposed by exterior conditions, the grid is tweaked to adjust to these configurations by juxtaposition of slipped grid lines.

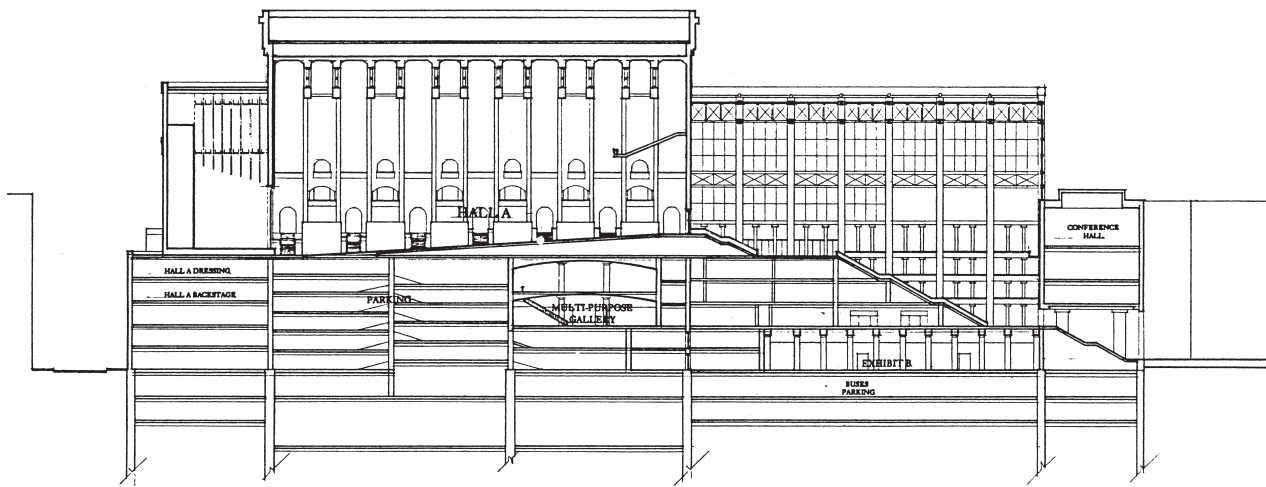
Consider, then, the following process.

- *It starts with the creation of a building volume in the land (application of ROUGHNESS, POSITIVE-SPACE, GOOD-SHAPE transformations).*³
- *That is followed by another process in which rough “cells” or internal volumes are made to fill this exterior volume — so far only roughly, but so that proportions, relative areas, and position are about right (application of LEVELS-OF-SCALE, LOCAL-SYMMETRIES transformations).*⁴
- *And that then is followed by a process of making a syncopated grid, which makes the disposition of volumes regular (but irregular), and which, at the same time creates boundaries, levels of scale, and alternating repetition, through creation of massive elements which are themselves felt and seen as living centers (application of ROUGHNESS, POSITIVE-SPACE, LEVELS-OF-SCALE, BOUNDARIES, ALTERNATING-REPETITION transformations).*

Virtually the same process can be applied to the largest buildings. On the next pages I show our unbuilt design for the huge Tokyo Forum, whose largest hall is the size of a football field. Here the structural elements are mainly massive walls, not columns. And there, just because the project is so massive, the overall order is made of two or three



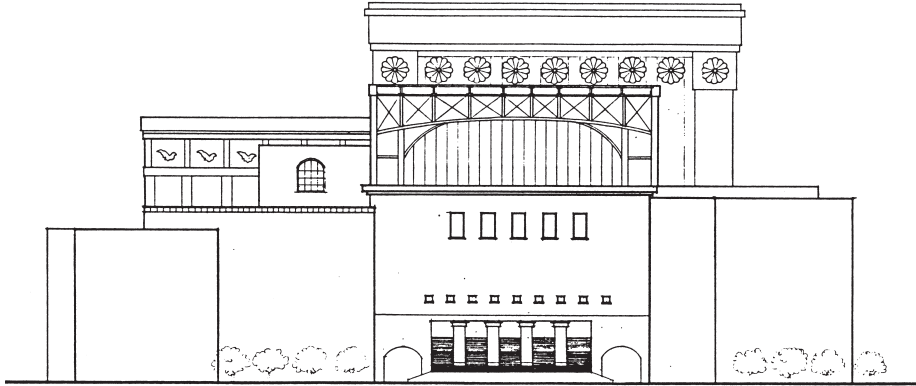
The massive Tokyo Forum, west elevation



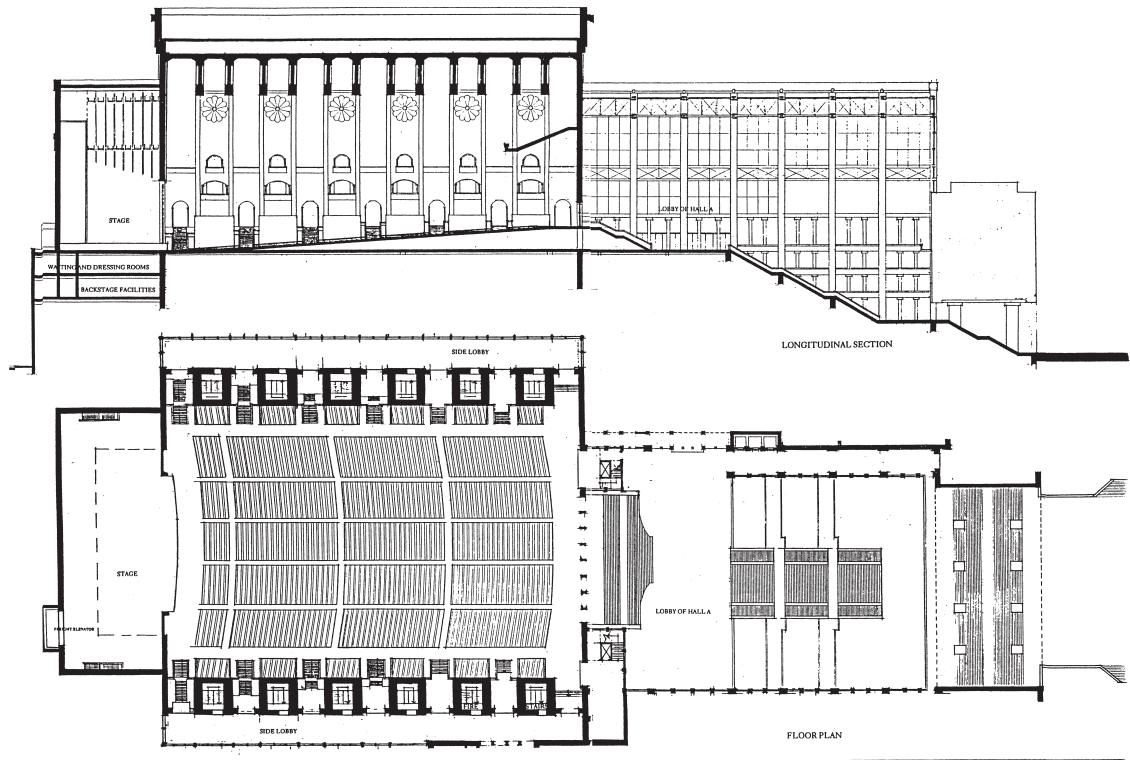
LONGITUDINAL SECTION THROUGH HALL A AND GRAND LOBBY,
FACING WEST

The massive Tokyo Forum, longitudinal section, from the east

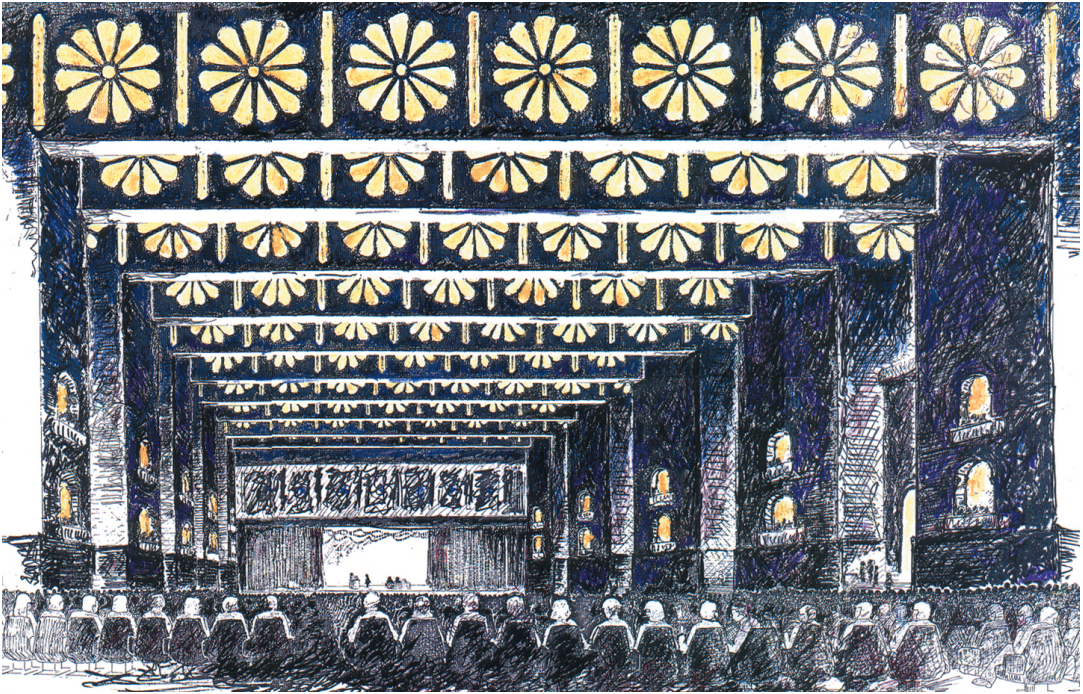
EMERGENCE OF FORMAL GEOMETRY



The massive Tokyo Forum, north elevation showing main entrance



The massive Tokyo Forum, \$750,000,000, designed for the heart of downtown Tokyo, Christopher Alexander with Artemis Aninou, Annie der Bedrossian, and others, 1993. Plan and principal section.



The massive, geometric order of the Tokyo Forum auditorium: 100 meters long and 50 meters wide, and 20 meters high

major rectangles falling together, the outside form is not quite so simple. But in essence the main idea is the same, and the use of the syncopated grid as a generating process for the geometric order, nearly identical.

It is very striking to see how, because the building is so enormous, there is an opportunity for a huge range of scales, which become visible in their hierarchy on the side view of the building especially. It is hard to grasp that this building is fourteen stories high, and the arcades and stairs at human scale are almost tiny as they appear on the side of the building. But the brutal order which comes from the geometry, comes

from the wonderful and dramatic range of scales — several more jumps in scale than are typical on other buildings.

Once the geometric order is established, walls are made to follow the syncopated grid; and the most subtle order, in which large, smaller and very small alternate, follows nicely. In this case the main columns of the biggest hall are so huge that they contain whole rooms within their own dimension.

But the toughness, the possibility of real feeling in these spaces and their access and cooperation — the ground plan for all that has been established.