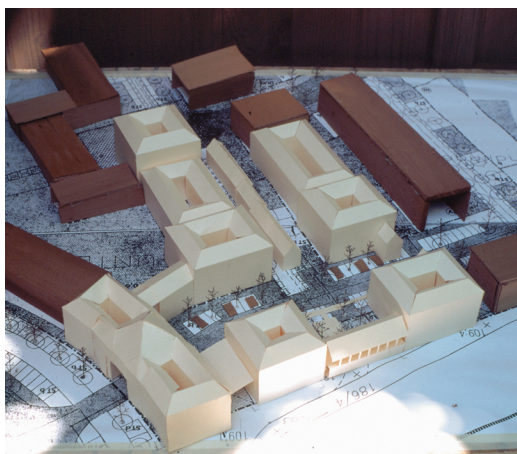
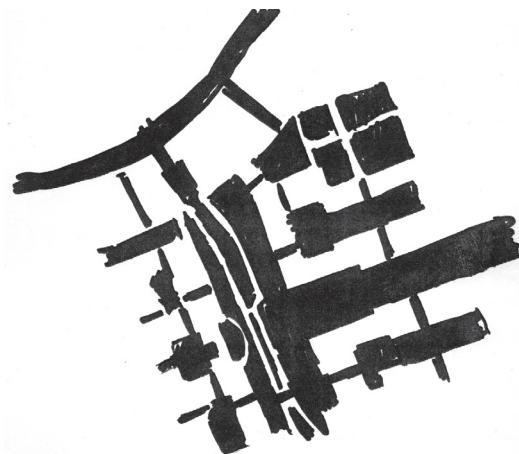




7 / SHAPING THE HULLS FOR PART OF A NEW TOWN  
IN GREATER FRANKFURT



*An early model showing the gross arrangement of streets, spaces and courtyards, for our Parkstadt new town project in the town of Hoechst.*



*Black-white reversal: The POSITIVE SPACE of the Parkstadt project, shown as if it was a building. Here we see the pedestrian hull as a solid substance.*

In 1996 I was asked to create a small quarter of a new part of the town of Hoechst, a part of greater Frankfurt. This was a new quarter destined to be worker housing for the factory workers of Hoechst Pharmaceutical, the huge chemical company. Hajo Neis joined me, in this instance, as an independent partner. The land for our part of the town of Hoechst was an area of about two city blocks: we were to lay this out in such a way as to create both the space and the buildings, for 3- and 4-story worker apartments. I will explain how we managed the initial creation of the space.

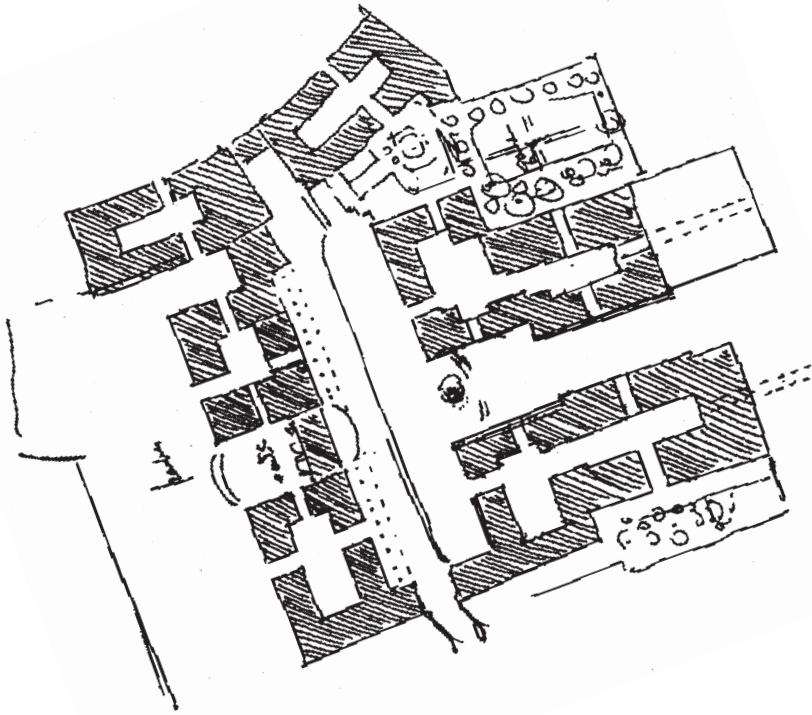
To start with, we were given two roads forming a T-junction, given by the master plan. We began by asking ourselves how these two roads could become positive space, even while carrying cars and traffic through the area. We asked our assistants and students to form a series of volumes for the buildings, and the volumes were then placed so as to make each of the two main parts of the T as strong as possible (see model above). We see how the space gets shaped: at the entrance we place an archway; at the clos-

ing end of the main space there is a narrowing, from each side, making the whole more contained, and so on.

There was one moment in the process where our concentration on the hull-like quality of the urban space reached maximum intensity. I asked our apprentices and students to make a model *in which only the space existed*. In this model there were no buildings, we used cardboard walls to enclose (hence form) space, and the cardboard represented the edges of buildings which might be capable of forming the space. But we were not tied to building shapes, at this early stage, and did not imagine any actual building volumes.

I asked the students to keep adjusting the walls, until the space — each of the individual spaces, one by one — was really good.

The way this modeling process worked, it allowed us then to react to the quality of the space *alone*. We did this by looking into the model — which was first made at 1:100, looking through it, as if we were walking through, then modifying it as we worked. I noticed that the



*The plan shows the space as positive, the buildings as negative, and thus makes the hull of pedestrian space stand out clearly. We see the major roads, the interior courtyards, and the system of small paths and gateways which connect the courtyards. Altogether, a complex structure of space which forms the hull. New town for Parkstadt-Untertliederbach, Frankfurt, Höchst; Christopher Alexander and Hajo Neis, 1995.*

smaller streets — as one experienced them — made everything far more connected.

The most interesting and important thing which emerged from this phase, was the secondary system of narrow paths, which connected courtyards, and formed a secondary grid, thus making the overall patterns of space, coherent, and truly fascinating. When one bent down (to look through the model at a pedestrian's eye level), we could see all the way through these narrow streets, going from courtyard to courtyard, making the whole thing connected, cool in summer, and beautiful. It was the elaboration and ordering of these secondary paths which finally gave the space its most essential form.

When we looked at the space of the project as a whole, and the overall three-dimensional pattern of this space, we could see that the system of secondary narrow streets connecting the courtyards, and functioning as a backup system to the main spaces of the larger streets, enor-

mously increased the life of the thing. Every bit of space became more animated.

It was really only then, once we had *that* structure in the space, that we began the detailed design of buildings. So, the hulls of space in this case — indeed, nearly all the components of this complex spatial structure — were almost fully formed before we began to design and shape the buildings.

We now began to shape the buildings with an eye to position of entrances, to be sure that the entrances reinforce the overall way in which the space worked. But even then, we worked all the time emphasizing our effort to make the shape and plan of the buildings help make the larger outdoor spaces even more powerful. For example, going back to the wider of the two main streets: it occurred to me that the sidewalk should be wide — not split equally between the two sides of the street, but all concentrated on one side, really wide, perhaps with grass on it.

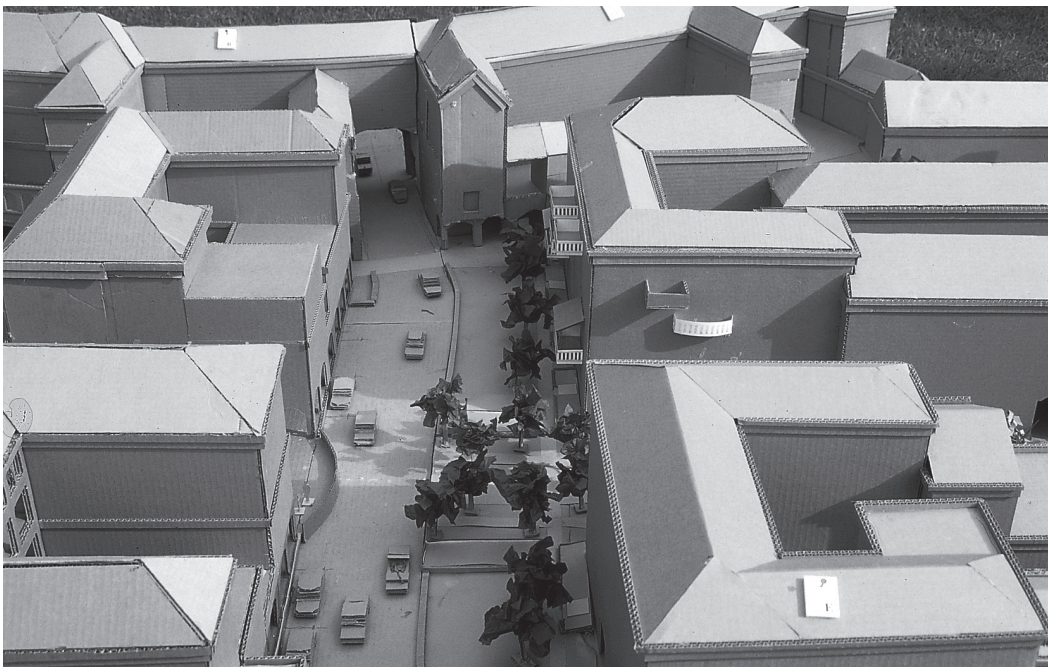
At first it seemed obvious that the wide sidewalk should be on the north of the street, where the sun would hit it most of the time. However, an experiment in Oakland, California, strongly changed our view.

We found several places in Oakland (where we were working on the project, even though thousands of miles from Germany). Luckily the light conditions were not too different, so we could still imagine the German conditions. We looked hard, to start with, for a street oriented across the light (running east-west, and with a three-story building along the north side) just like the situation in our Frankfurt plan. We set up markers so that we could visualize the length accurately. Then, by standing across the street, to the south, we could imagine how wide the street should be. One had only to step forward, step back, using one's hands, sometimes using other people to mark edges, until one formed a picture of the real thing, as it would be, and could judge the best width for it. It was quite clear that it

needed to be about 18 meters; 20 meters was too wide, 16 meters was too narrow.

Then, I noticed that the sun was too bright to look at in this configuration when one was on the north side looking south, and that one felt more comfortable on the south side looking north. It was more comfortable looking at the north building which was illuminated by south light, than looking south staring directly into the sun. That meant we put the wide sidewalk on the south side of the street.

Once the 18-meter width was fixed, we tried to find another place to help us decide the width of the smaller street in Oakland coming in from the south, to form the T. Again we looked for real places (still in Oakland) which approximated the size, height, and orientation to the sun of such a small street coming in from the south into a wider street some 18 to 20 meters wide. From this work we were able to determine that the smaller street coming in should be no more than 9 meters wide: in fact we found out, by these



*Preliminary cardboard model, in which we worked out the building volumes and the exact shape of the public space. This model includes the attitude that space is formed, volumetrically, before the buildings are designed, and the buildings are then shaped to form the space. New town for Parkstadt-Untertliederbach, Frankfurt, Hoechst; Christopher Alexander and Hajo Neis, 1995.*





*Portion of the new town of Parkstadt-Unterliederbach: Building and landscape plan.  
Frankfurt, Hoechst, Christopher Alexander and Hajo Neis, 1996.*

thought-experiments, walking about and using the real place as a kind of simulation, that the street coming in should be wider at the mouth, and then narrower further back to the south. We determined — again by experiments based on feeling, and once again with several people doing it — that this minor one should be no more than 9 meters wide inside, with a slight widening at the mouth (about 11 meters wide).

All this may be described as a process in which we tried to make these two main arms of the T as positive as possible, as living centers.

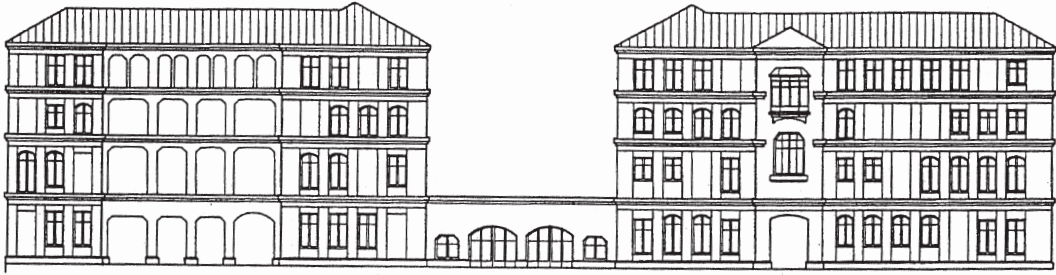
Following the fundamental process, we began to shape this T-junction in such a way as to intensify the existence of the main centers — by forming partial enclosure. To do this we undertook experiments in real city spaces that approximated the ones we were trying to define.

There were several of us making these judgments, together. That always helped to make our judgment more reliable. With some effort, we could reach agreement of feeling on any given is-

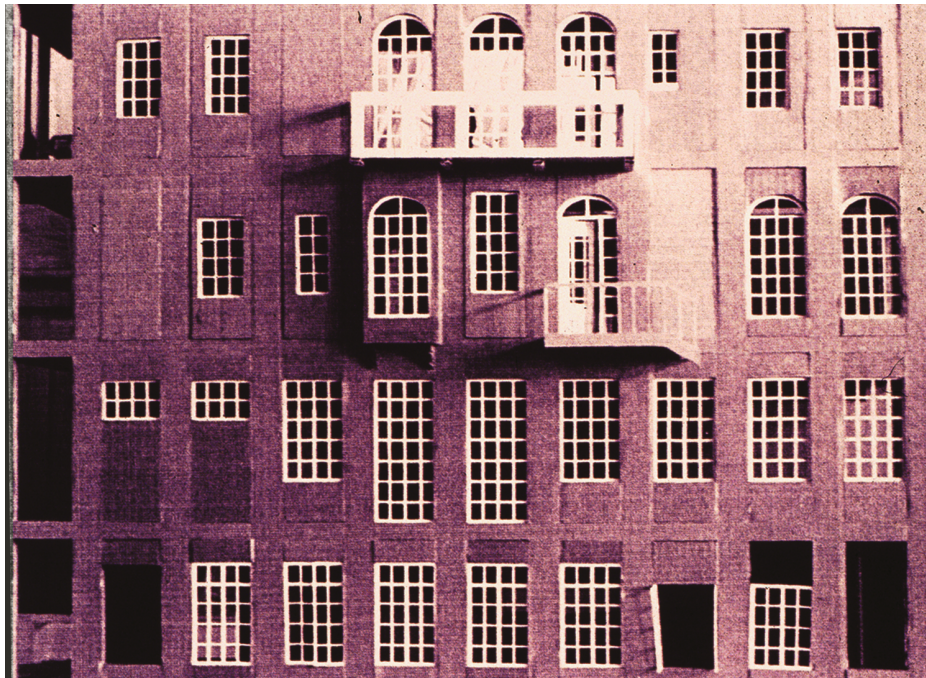
sue. But it is not so easy to do these experiments. Although having several people together helps, because one can then get confirmation, and unity of judgement, it is not something anyone can do. The reason is that it takes quite a lot of concentration to keep on thinking about the real situation (in Frankfurt, and in our evolving cardboard model) while making these judgments in Oakland. One has constantly to realize that it is an experiment about Frankfurt, and an experiment about the evolving design, which does not exist yet. That takes experience, and concentration. But it is possible, and it is tremendously useful. After doing it, one feels more certain about the design, and experience has shown often that this confidence is reliable. After such experiments, the real places which result do have — nearly always — the right feeling, a wonderful feeling. When done right, there is carry-over from the experiment to the real thing one builds.

If I had to define the process we followed as a *generalized* (and reusable) stepwise process,





*New town of Parkstadt-Untertierbach, elevation of buildings along one street.  
Frankfurt, Höchst; Christopher Alexander and Hajo Neis, 1996.*



*Study model of one wall of one of the Parkstadt buildings, in Frankfurt, showing how the uniqueness of apartments laid out inside by the families is reflected in window arrangement and window size, visible on the outside of the building. Still, the building maintains its order and its discipline. Yet it is friendly, welcoming, and true to what takes place inside.  
Christopher Alexander and Hajo Neis, 1996.*

I might suggest that we follow a sequence of steps something like this:

1. Identify the main spaces (in this case the T).
2. Reshape these main spaces to strengthen them.
3. Work out tentative buildings volumes to make these spaces stronger.
4. Introduce inner spaces (gardens and courtyards) as the focus of the buildings
5. Make a model of the space alone.
6. Add smaller passages, connecting the space and making it alive and varied.
7. Establish the best orientation of minor centers (like the wide sidewalk, and neck of the smaller street)
8. Fix the dimensions of the space (in relation to building heights which will be coming)
9. Reconfigure the buildings so as to intensify the system of spaces.
10. Grapple with building entrance positions, to support the spaces and the lines of movement. Locate further small centers (the narrow neck, the gate, the wider mouth of the small street).

THE HULLS OF PUBLIC SPACE



*New town of Parkstadt-Unterliederbach, elevation of buildings along one street.  
Frankfurt, Hoechst; Christopher Alexander and Hajo Neis, 1996.*



*Study model, at 1:50 scale, shown from the air, with all spaces and building volumes now fully worked out.*

11. *Make the interior plans of the buildings, fit the profiles and plans that have been evolved to strengthen the spaces.*
12. *Subdivide the interiors, to fit the irregular building plans.*

Each of these steps was a structure-preserving step which forms or strengthens centers. We took the steps, very deliberately, concentrating on only one center at a time. At each

step we chose, as far as possible, the one thing which did most, at this step, to preserve and deepen the structure of the whole.

Expressed in other language, we worked to try and get each one to do the most to increase the feeling of that place.

In later stages of work, we determined that the buildings were all to be courtyard buildings — necessary to get good light in the build-





*Peter Behrens, Hoechst Administration Building, Hoechst, Frankfurt, 1925.*

ings — and the buildings around the courtyards had therefore to be very narrow.

Then, each of these gardens and courtyards was shaped to give it a powerful interior shape, without in any way distorting what had been worked out in the buildings and entrances.

On the basis of many discoveries in the detailed design of the buildings, further refinements were made. The exact shape of two upstairs courtyards, the size of courtyard required by fire laws, the position of gates and walkways, were all adjusted to produce the final form. Illustrations on these pages have shown how these

hulls were formed. The work was done against the backdrop of buildings built years ago by Peter Behrens (which in another part of the Hoechst complex had begun to form other, similar hulls of space). In Behrens's building, and in our planned buildings, it is the whole of this structure of space, all the space that is shown black and solid in the diagram on page 86, which forms the hull that is to be built.

*Again and again, the definition of the buildings came afterwards, after the space has been defined.* The main job the buildings have is to form the space.