

# A Progress Report on the Pattern Language

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This paper is a progress report on the development of a pattern language, a design method proposed by Alexander and his associates based upon generic solutions to isolable environmental problems. The paper is concerned especially with overall schemes of order, with the relative influence of patterns on the total design, and with variability caused by local conditions. Patterns are defined and an attempt is made to point out some fundamental assumptions. Comparisons are made to other design methods. An unbiased assessment is attempted of some theoretical and practical problems. After a discussion of what seems to be most promising about the approach, some suggestions are made for further development. To give the reader an idea of problems in using the method, two sets of examples by the authors are illustrated.

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In a field of such new and rapid development as design methodology, it is not surprising that confusion is caused both by new developments and by unstable terminologies. Moreover, there is always a grave risk that new ideas be confused with old. Alexander's work has been beset by such misunderstandings. This paper is an attempt by two relative outsiders to explain simply what is meant by "patterns" and "pattern language."<sup>1</sup> But more than that, it is an assessment of the promise and utility of the "pattern" and "pattern language" ideas.

Buildings are so full of detail that it is difficult to believe that they consist of anything that is not entirely dependent on local and accidental circumstances. On further study similarities are detected. An example is the almost universal system of connections between entry, receptionist, and waiting area in offices. It seems that this is a type of solution that turns up again and again but each time with slightly different variations.

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1. The basic theoretical statement plus two examples of relations and patterns are presented in Christopher Alexander and Barry Poyner, "The Atoms of Environmental Structure" in Part 9 of this volume. For later work, see Alexander, Sara Ishikawa, and Murray Silverstein, *A Pattern Language Which Generates Multi-Service Centers*.

Many who are interested in design methodology are happy to ignore the fact that typologies of solutions exist. They prefer to believe that the best results will come from a completely fresh approach to each local problem in each local situation. Each solution will then be derived uniquely from the analysis. Only then will the fit between the analysis and solution be exact.

The idea of a pattern is an attempt to combine a high level of functional analysis with the advantages of the typological approach. A pattern may be defined as a typical arrangement in space of physical objects (or parts) which allow behavioral tendencies or forces to coexist in a context without conflict. To find what is critical in human activities it is necessary to introduce the ideas of "tendencies" and "conflict." *Tendencies* are observable human drives towards satisfying needs, and need according to Malinowski is a "system of conditions in the human organism, in the cultural setting, and in the relation of both to the natural environment, which are sufficient and necessary for the survival of group and organism."<sup>2</sup> Similar to tendencies, and sometimes acting counter to them, are nonhuman forces, such as the natural forces of wind and rain, the structural forces of tension and compression, and the economic forces of supply and demand, i.e., reflections in the financial system of the tendencies of groups. *Conflicts* occur when tendencies or forces come into apparent opposition. Conflict and the resolution of conflict are central to the idea of patterns. However some situations are better expressed than others in these terms. Where there is no conflict, a "standard" is more appropriate than a pattern. The context is whatever environment is necessary for tendencies to come into conflict, and parts are the named components of context and pattern.

Underlying the definition of pattern is the ideal of human freedom. At present the environment is fragmented. Since all tendencies are assumed ultimately to be good, and since there is no reason to suspect that the resources of nature are inadequate, this fragmentation is suspected to be the sole cause of all conflicts. That tendencies and forces come into conflict is the effect and not the cause of the inadequacies of our physical environment. So our goal should be to rearrange the environment until all tendencies, all forces can coexist without coming into conflict. Human life will not be entirely free until the physical environment permits it to be so. Only then will the physical environment be seen to have a healthy organic unfragmented unity. This is the basic philosophy of patterns.

## The Idea of a Pattern Language

But patterns alone are not enough. However sharp they may be as individual tools, however precisely they delineate solutions to each local conflict, they will remain disparate reference material unless a means can be found of coordinating them into unified designs. Coordination implies: (1) Combining appropriate patterns in a design to solve a local set of problems, not only adequately but with the greatest possible elegance and economy; (2) Collecting all newly discovered or newly invented patterns; (3) Retrieving from this store patterns appropriate to the problem in hand, or if not obviously appropriate, patterns which are analogous; and (4) Communicating patterns to others.

Natural languages perform similar tasks admirably for words. A language collects words that express simple ideas, retrieves them when appropriate, combines them with other words into sentences to express more complex ideas, and shares these words with others. The pattern language does not share the powerful and complex phenomenon of the meaning of the words themselves. It is as if we had a language of bricklaying: the bricks (or patterns) have no particular significance beyond their existence; yet there is an analogy in that there is a grammar of rules for combining bricks into walls.

The pattern language is claimed to be a set of rules for combining patterns. Moreover it is claimed that lesser rules can deal with the problems of col-

2. Bronislaw Malinowski, *A Scientific Theory of Culture*, p. 90.

lection, retrieval, and communication of patterns.<sup>3</sup> Patterns may have no significance beyond themselves, but they must be capable of being exchanged and understood.

What progress has been made toward developing these rules? A considerable amount of time has been spent discussing retrieval and combination, but unfortunately no final set of rules has yet been worked out. However, before we take stock of the situation in detail, we should consider the pattern language in comparison to the achievements and promise of other design methodologies.

## The Pattern Language in Relation to Other Design Methods

The idea of a pattern language seems to be parallel to some recent ideas on design methods and in opposition to others; however some opposition is more apparent than real.

1. *The "black-box" approach.* Black box is a term to describe work which is concerned with manipulating the inputs and outputs of the design process rather than with the process itself. The Building Research Station study of decision-making in the planning process is of this nature, and so are techniques such as synectics or brainstorming.<sup>4</sup> Since patterns claim to be an aid to the design process rather than a substitute, and since the method of combining patterns is still unclear, any knowledge gained in this area is likely to be of direct use in developing the language.

2. *Analytical procedures.* A real quarrel seems inevitable with proponents, such as Archer, of extremely analytical design procedures.<sup>5</sup> The basis of this and other similar methods is to break problems down to their constituent parts. Only then may design begin. The pattern language depends upon a far closer and, it may be argued, more realistic relation between the components of the analysis and design solutions than any overall analytical procedure permits.

3. *Goals, criteria, values.* Design methods based on "operations research" incorporate the idea of weighting. Goals are set, criteria formulated, and relative values or weights given to each criterion. Criteria are used not only to find the best way to reach a goal but also to evaluate solutions after they have been completed. There is no doubt of the practical application of such methods. Ehrenkrantz's work is an excellent example: first he establishes user requirements, then studies technologies that seem appropriate, examines possible tradeoffs, and finally, on the basis of the user requirements, prepares performance specifications.<sup>6</sup> Alternative solutions can then be evaluated on the relatively simple basis of cost. The differences to the pattern language should be noted. First performance specifications are more abstract and less spatial than patterns. Secondly any approach based on the idea of the compromise of values or tradeoffs is antithetical to the pattern language which attempts in each situation to achieve the best of all possible worlds by resolving all conflicts.

4. *Alternatives.* More sophisticated adherents of the "goals, criteria, values" method are becoming increasingly interested in a dialectical process of deciding the relative importance of values. Churchman argues for a variation on advocacy planning, "counterplanning," a technique of confronting any plan of action with an alternative which deliberately adheres to the same overall goals and constraints but which is informed by a different value

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3. Alexander, Ishikawa, and Silverstein. *A Pattern Language*.

4. See the work in progress by the Urban Planning Division, Building Research Station, Garston, Herts, England: "Decision Making in Urban Design" under P. H. Levin, early reports of which include Levin, "Design Process in Planning," and "Decision-Making in Urban Design."

5. See L. Bruce Archer, "An Overview to the Structure of the Design Process," in Part 9 of this volume.

6. For a general introduction to Ehrenkrantz' method and a review of his major project to date, see James Benet et al., SCSD: The Project and the Schools.

system or *Weltanschauung*.<sup>7</sup> A third and better plan is likely to be developed superior to either of the original plans because it incorporates a fuller value system. Such a process is based upon the assumption not only that local values are necessarily incomplete but that they may be broadened and reconciled.

The pattern language differs in that it does not proceed in a gradualistic way and in that it is based on the assumption that arguments about values are unnecessary. However, in the long view it might be said that there are some striking similarities between patterns and counterplanning. Both are monistic; both are based on a desire to provide man with the greatest possible freedom to permit all possible behaviors. In the short view, counterplanners are content to let limited value systems broaden and reconcile themselves in the field in a piecemeal fashion, while pattern adherents work, as it were, in the laboratory, basing their work on the most thorough empirical research and attempting to resolve each local conflict without resort to compromise before the pattern is given to the world. Patterns are the approach of the isolated scholar; counterplanning of the politically committed team. Both approaches aim to set people free to design for themselves what they really want.

### Problems of the Pattern Language

1. *The Problem of Stability.* We live in a world of incomplete and biased sets of values. No data from the social sciences can possibly determine norms because contradiction is always possible and change is certain. Pattern-makers are, therefore, faced with severe problems when deciding how far patterns should be stretched—whether they should be tailored precisely for a local situation or generalized to cope with all possible uses. The danger is not so much that either approach is impossible but that the patterns are likely to be unstable, hovering somewhere between the two extremes. An example is the relation of bank officers and public. In all banks there are officers who should be accessible to the public. This relationship is a pattern. In California banks the officers are extremely accessible, separated only by a change in floor surface from the public; the officers in British banks are less accessible and are often to be found in private rooms on upper floors. The reason is probably that less loan and mortgage business is conducted in British banks. Nevertheless the moral is clear: how generalized can a pattern of accessibility to bank officers be while preserving some precision for specific situations?

2. *The problem of variability.* The other side of the problem of stability is the problem of variability. It has been suggested that patterns may cope with varied situations by incorporating variables within themselves. To solve one conflict in several contexts may necessitate a whole range of variations on one basic pattern. Contexts themselves may be classified into categories; this may make pattern variation an easier task. Nevertheless sufficient difficulties remain to recall the problem of the rag trade: given a style of dress, a particular material, and all the shapes and sizes of all possible women, how does one decide to make only a limited range of sizes? How does one decide how many variations should be incorporated in a pattern range?

3. *The problem of values.* Although patterns within themselves avoid the problem of compromise, it can be argued that, willy nilly, each pattern will have built into it the consequences of a value system. It is impossible to be entirely objective, to cut oneself free from past experiences and tradition. Not only is each pattern culture-based so that it is difficult to transmit patterns from one culture to another, but it is difficult even to hand over a pattern to one's closest collaborator because any pattern is liable to be viewed differently. The question is to discover exactly how much the applicability of patterns is affected in practice by the real and important value differences between societies and between individuals. This is a serious responsibility.

4. *The problem of cost and resources.* The example of three different architects' offices in the Appendix brings up the problem of what effect different

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7. C. West Churchman, *Challenge to Reason*.

costs and resources have upon the use of patterns. Some architects' offices can afford more than a minimum amenity while others cannot. Not only is it clear that the same basic patterns can be expressed in a variety of different ways but also that a considerable part of the design process is taken up with juggling designs to fit the constraints imposed by local resources and cost conditions.

5. *Problems of combining patterns.* Individual patterns must be brought together, somehow or other, into design for buildings. Clearly, combinations are always theoretically possible, but it is difficult to understand the practical mechanism of the combinatorial process. Once understood, the use of patterns would be open to those who would not ordinarily claim to be designers, and perhaps even to machines. But we do not understand the process, and we are not even able to present in a convincing visual manner the effects of combinations. Three potential solutions to the combinatorial problem are proposed:

*Linkages.* Patterns are elemental relations of built form which solve conflicts. Each independent pattern has its own context. When patterns are brought together (for example, the patterns for tellers and officers in a bank), contexts are combined and further patterns are conceived which are appropriate to the enlarged context, e.g., circulation for customers between tellers and officers. Alexander, Ishikawa, and Silverstein represent this phenomenon visually by symbols of linkages which join independent patterns together and suggest others.<sup>8</sup> But these linkages seem to be derived after-the-fact and are not likely to be a reliable guide for other problems. It is indicative of the intractable nature of this problem that earlier attempts at mechanically recording such linkages had to be abandoned. The major practical difficulty is the labor of anticipating for any one pattern all likely combinations and linkages.

*Orders of magnitude.* Patterns may be classified by the effect they are likely to have on a total design problem. Alexander uses the image of a box, i.e., the solution space, with patterns represented as colored clouds floating within it. The point is that some patterns influence the whole solution, while others influence only a corner. Some patterns interrelate with others; some do not. Unfortunately, to make this image do some work requires detailed study of the effect of each pattern in all the various building types and local situations in which it may be used.

*Formal and geometrical schemes.* In contrast to these organic approaches, a counter argument has stressed the significance of form in design, the designers often rely upon remembered formal schemes or upon geometry. Such schemes are modified by the demands of local contexts and may be assumed to be modified similarly by patterns. Nevertheless from the start an overall skeleton is provided which makes testing of alternatives and the development of detail possible. The obvious danger is that such schemes impose unworkable and irrelevant rigidities on design at too early a stage.

In regard to the last point, it is difficult to find historical precedent for a completely formal point of view. Even medieval or renaissance churches, which are often mistakenly discussed as purely formal devices, were shaped to some extent by "patterns" which concerned down-to-earth requirements of liturgy and participation. But not everything about a church is down-to-earth; we cannot talk of an exact "fit" between form and function. Indeed there seems to be a considerable area of "slack" or absence of "fit." The nature of this "slack" is intensely interesting and extremely relevant to our enquiry. We may explain it in cultural terms, if we choose to abandon Alexander's strictly functional point of view. Lévi-Strauss insists that man imposes intellectual structures upon reality in order to control reality.<sup>9</sup> He uses

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8. Alexander, Ishikawa, and Silverstein, *A Pattern Language*.

9. Claude Lévi-Strauss, *Tristes Tropiques*, Chapter 17, and *Structural Anthropology*, Chapter 8.

the beautiful examples of native body-painting and, even better, of village plans to demonstrate deliberate encoding of cultural messages in the formal elements of a way of life. Could it be that even our modern buildings have the task of reinforcing our conceptions of ourselves as well as fulfilling our simpler needs?

This kind of speculation does not invalidate Alexander's empiricism but suggests a higher level of intellectual imagery than he is presently willing to accept. In much the same way, Lévi-Strauss's structuralism was developed on the solid empirical foundations laid by such functional anthropologists as Malinowski.<sup>10</sup>

The use of patterns in the two banks in the Appendix is a small attempt to demonstrate that overall schemes do have a role in design, if only to provide a developing framework which permits the testing of alternative combinations of patterns until the framework and the patterns become united. Clearly, this inquiry must be taken much further to substantiate the argument we have begun to develop here.

6. *Problems of integrating nonpattern material.* Unless it is assumed that designers will eventually use only patterns, the problem of incorporating nonpattern material into both the language and individual designs will be perennial. How badly will such material disrupt a design method based entirely upon patterns? On the other hand, if patterns can never be used in their entirety and must always be diluted with other material, why is it necessary to be precise in their formulation?

## Points for Patterns

Despite these serious problems, the pattern language, even at this early stage of development, may give to the designer advantages that we believe no other methodology can promise.

1. *Fact and image.* Patterns are founded upon the analysis of real forces but simultaneously transmit notions of possible solutions. No other design method has hit upon such a way of capturing the essential dimensions of design solutions and tying them down so precisely to the forces that generate them. Perhaps the pattern language approximates the way the designer's mind itself stores ideas for solving problems. Certainly patterns do not contradict but, in fact complement the best skills of the traditional designer. The usually loose relationship between building form and human behavior lends support to any methodology based upon generic types. Any attempt to argue that each local building problem is unique and needs an entirely original solution is bound to lead to unnecessary and repetitive design work, because building problems are generally not unique, nor are building solutions. Both problems and solutions can be classified usefully into types. Patterns, however, lack the disadvantages of coarser typologies because individually they are small enough units, because they are based on single problems, and because together they can be combined to solve any scale of design programs.

2. *New solutions.* Each pattern is based on analysis, and in the present muddled state of design this, in itself, is a sufficient guarantee of original solutions to small problems. But the real promise of originality lies in the fact that patterns are made to be added to one another to form whole designs which will contradict the simplistic building forms that are common today.

3. *No compromise.* The approach of manipulating physical form to permit tendencies to interact without compromise encourages a more thorough search of the range of possibilities. The argument that patterns are based on a behaviorist assumption that tendencies are mechanical and that the pattern language is a form of totalitarian straitjacket is misconceived. Of course, patterns are based on probabilities but they are not deterministic;

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10. Malinowski, *A Scientific Theory of Culture.*

they are open to contradiction and they are capable of being developed. To accuse those who use observed regularities in behavior as a basis for design of manipulation or social engineering is absurd.

4. *Interdisciplinary format for the social sciences.* Patterns cannot exist without data, and data unrelated to design problems are difficult to use. The designer uses data and ideas about physical solutions simultaneously and does not want them to be presented to him separately. Patterns serve his needs. The pattern language is a format for material from a wide range of fields, sociology, psychology, anthropology, and many others. The designer is certain to begin to take an active interest in the contributions of these fields to design. There is some hope that as design grows more rational the special role of the professional designer will be eroded and more ordinary men and women will feel free to design for themselves.

5. *Refutability.* Patterns are like hypotheses; they are based upon empirical evidence and may be tested and refuted. Deciding whether a pattern is suitable is a rational process rather than a matter of sales talk or mystique. The pattern language contains a principle of growth, for as contexts and forces change, old patterns will become vulnerable and new patterns will have to replace them.

6. *Design time.* One of the most important social arguments for patterns is that they save the designer the wasteful labor of working out each new design solution from the beginning. Patterns provide everyone with the accumulated experience of all designers.

Much work has still to be done before the pattern language can become an indispensable tool to designers. The purpose of these concluding notes is to point out some urgent lines of enquiry which promise improvement.

1. *Combination.* It has still not been shown that there corresponds to any problem only one solution. The bank examples are intended to make this point. It seems very difficult to eliminate entirely the possibility that many design decisions, even using patterns, will be based to some extent on a less than complete understanding of all that is involved. The pattern language might guard against and profit from these inadequacies by using Churchman's dialectical method of counterplanning to seek a better course of action and to avoid as far as possible decisions made on the basis of incomplete knowledge and values. Combination brings up the problem of using patterns with the greatest economy, in a way which eliminates superfluity. Much study is needed here.

2. *Collection.* Local conditions determine the exact form a pattern will take. But the pattern may still be integral in different conditions, if a way is found of building in ranges of variability and yet preserving its essential nature. The consequence of this idea for pattern collection is that it is not sufficient to identify a pattern in one local condition of conflict; the real problem is to try to generalize that pattern to cope with as many local conditions as it can before it breaks down or turns into something else.

3. *Retrieval.* The matter of retrieving patterns from storage has already received considerable attention. One way of looking at the problem is to consider the dialogue between the Center for Environmental Structure and the user. This perspective, at least, brings into focus what the Center does and does not control: It has control over the patterns issued and the order in which they are issued. But it has no control over the designer's stimuli, local conditions, the designer's skill, the number of patterns the designer chooses to use, what new ideas or patterns the designer chooses to use, or at what stage in the design process the designer asks for help. The example of three different architects' offices shows the important effect of local conditions; the bank examples are intended to show the consequences of different stimuli. Empirical studies are needed to throw light upon this fundamental

problem. At present it seems clear that the designer generally makes use of a broad stream of thought which may be modified but is nevertheless more or less continuous from beginning to end of design. Interweaving in and out of this broad stream are many other lines of inquiry, for example, into local conditions and into patterns. Some of these inquiries are made once, others recur. Through this process the design is slowly built. If only a model could be made of this mental process, the three main preoccupations of this paper—overall schemes of order, the relative influence of patterns on the total design, and variability caused by local conditions—might fall into place and instead of being separate notions might interweave and complement each other.

4. *Communication.* It is not true that the problem of communicating patterns to users and critics has been solved. All attempts so far have floundered on the rock of precision, being either too general or too limited. It is tempting to hope that a method of diagramming patterns can be invented which will be accurate but quick, combinable yet clearly distinct, descriptive yet liberating. On the other hand, this vision may turn out to be a chimera. More down to earth, mixed methods may serve the purpose equally well. Work is urgently needed here.

This report reveals considerable areas of doubt in the pattern language as well as considerable promise. Far-reaching claims are made, but serious gaps are apparent in the framework of ideas. We learn, for example, that a pattern is based on a precise idea of conflict, but we lack any overall model of the kinds of conflict that may occur. We become persuaded of the importance of adjusting the physical environment to permit tendencies free play but remain uncomfortably aware that other sorts of adjustments—legislative, regulatory, even fiscal—might have the same effect. What edge is there to the effect of physical measures?

Until more solid foundations are constructed it would be wiser to be more humble in public claims but more ambitious in private attempts to construct what promises to be a most hopeful and all-embracing design methodology, a pattern language.

To demonstrate the way in which patterns are generated, how the same set of patterns are combined, and how individual patterns vary when they are applied in different circumstances, two case studies in the use of the pattern language are illustrated.

From the September 1966 *Progressive Architecture* special issue on architects' offices, three offices were chosen for their immense range in size and circumstances. Although dimensions and program, especially the maximum number of staff, were fully respected, no limit was set to rearrangement within the structural shells.

Office A, the smallest office, is to contain 6 architectural staff in an area of 675 sq ft, i.e., about 113 sq ft per person. The shell, which is the third floor loft of a 4-story building, is long and narrow, the critical dimension being 15 ft. Office B is 2 stories with street frontage in a converted tailor's shop. Critical dimension is the 19 ft width. It is to contain a maximum of 12 architectural staff in an area of 1634 sq ft, i.e., 136 sq ft per person. The third office, C, is much bigger, being 6392 sq ft, i.e., 213 sq ft per person since the maximum staff is said to be 30. There is sufficient space in this third story loft of a converted warehouse that no dimension is really critical.

Eight problems, conflicting tendencies, and typical patterns from the complete study of twenty are summarized below. Notice that the verbal statement of the pattern has two parts: an "if" clause states the context, and one or more "then" clauses state the physical pattern.

These examples of pattern combination are intended to show that while patterns are often designed as isolated elements, they are nonetheless con-

## **Appendix Case Studies in the Use of the Pattern Language**

### Patterns for Architects' Offices



sidered as clumps of patterns or whole series of patterns coming together in the design process. Patterns combine in an additive manner, first one pattern or set of patterns and then that set in combination with another set. It is difficult, and perhaps unnecessary, to show patterns combining in ideal situations. While individual patterns can be represented diagrammatically as having a certain form and geometry, real situations indicate the ranges of variability for individual patterns and relationships between them. The successful combination of patterns, even after they have been fully differentiated and articulated is seen to remain the greatest and most difficult part of the design process.<sup>11</sup>

It must be emphasized that these examples merely summarize the patterns and do not attempt to present them in full detail together with all the behavior evidence which is essential to the design process as it actually occurs and essential to full pattern presentation.<sup>12</sup>

## Patterns for Banks

After the problem of combining patterns in different circumstances had been investigated in the case study just presented, an attempt was made to discover if patterns could be combined in the same circumstance in different ways. It was thought that such an experiment might reveal that overall formal schemes play an important part in the combination of patterns.

As a second case study, two alternative designs for the same bank on the same site were prepared to explore this point. One was deliberately designed on the principle of a centralized public forum, the other on the idea of a forum which wraps around the two street frontages of the corner site. At the beginning of the experiment there seemed to be no reason to choose either alternative over the other except for formal, nonpattern reasons.

Both banks occupy a corner site 104 ft by 99 ft. A 12-foot column grid, based on similar existing bank buildings, was assumed. The western street was assumed to be busier than the southern; the other two sides of the square are built up. Six officers and their four assistants have to be accommodated as well as seven tellers, three specialist tellers, and eleven clerks. Based upon the existing bank the following space standards were adopted:

Entrance and forum space	2230 sq ft	34%
Officers' area	1230 sq ft	19%
Tellers' area	580 sq ft	9%
Clerical area	1150 sq ft	18%
Vault and access	430 sq ft	6%
Staff lounge and storage	900 sq ft	14%


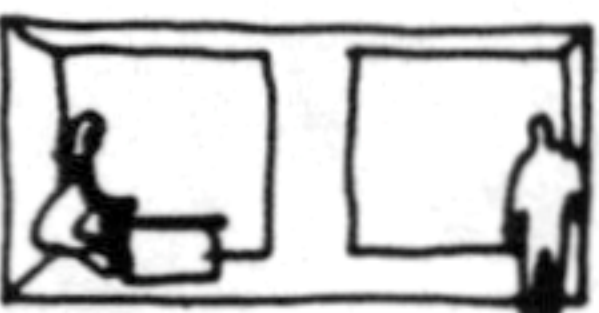

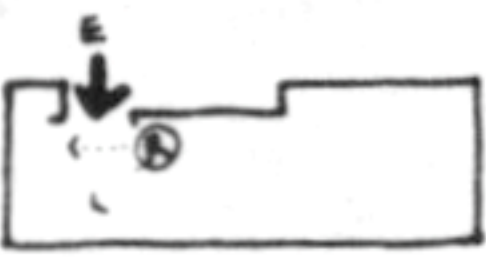

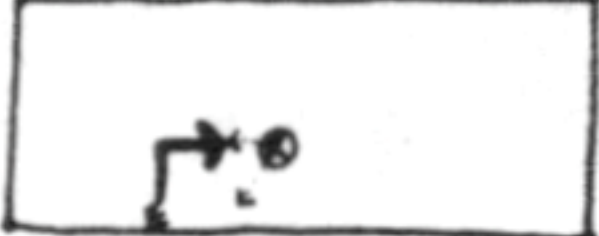

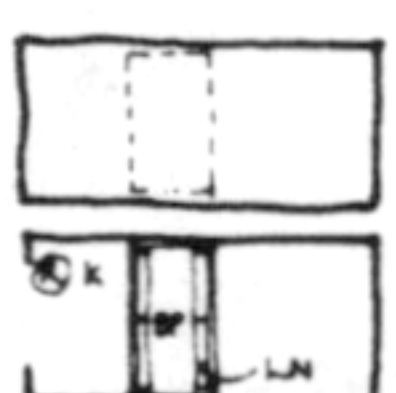

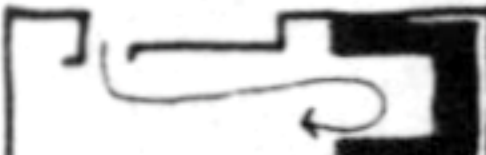



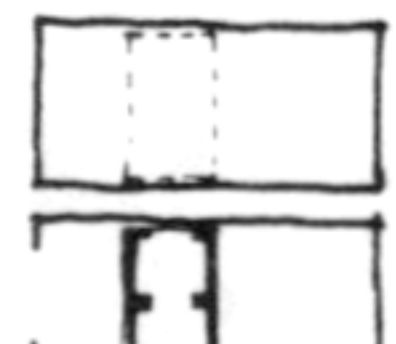



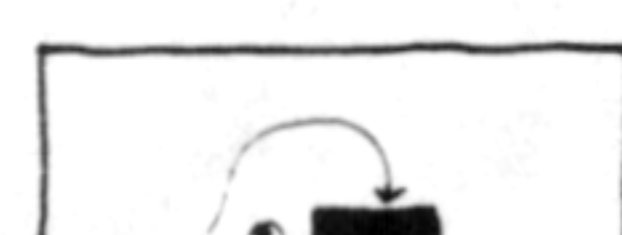
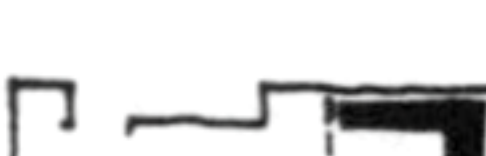



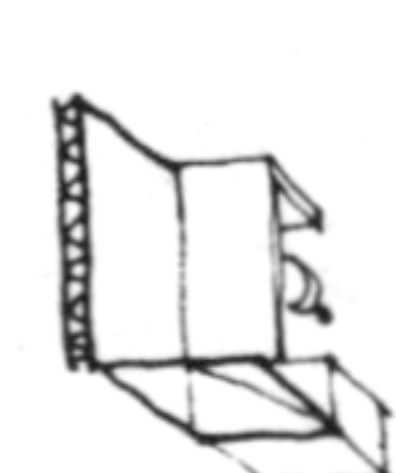
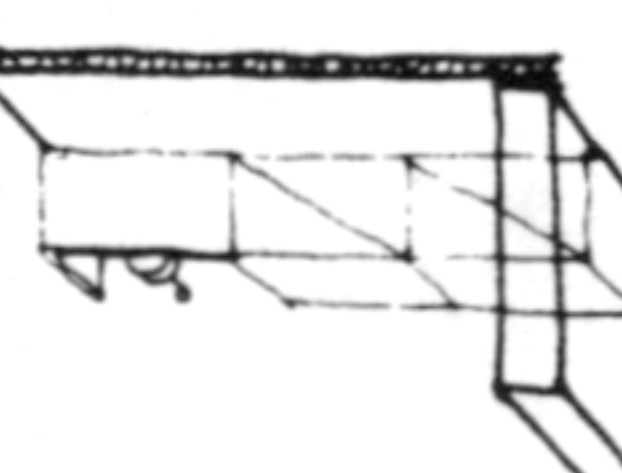
The length of the tellers' counter was set at 75 ft or 7½ ft per person. Public writing shelf provided was said to be about 30 ft.

Figures 4 and 5 show how the same patterns are used and approximately the same standards met in two different situations. Again, this example merely summarizes patterns and does not present fully supported statements. Also, the exercise is somewhat inconclusive. It is clear that both overall bank configurations are workable alternatives, and since there is nothing in the pattern language to suggest that each problem has only one unique solution, it may be argued that both solution ideas were nothing but intuitive leaps to workable but alternative combinations of patterns. Such an argument by-passes but does not disprove the possibility that overall formal schemes may help coordinate shapeless pattern material.

11. Other completed examples of patterns include: H. Field et al., *Problems of Pediatric Hospital Design*; Sim Van der Ryn and Murray Silverstein, *Dorms at Berkeley: An Environmental Analysis*; Ronald Walkey, "A Transportation Network for Cities"; Theodore Goldberg, "Design for a Teenage Center," and "The Automobile"; and Anthony Ward, *the Organisation of Prison Workshops*.

12. For the form of complete patterns, see Alexander and Poyner, *The Atoms of Environmental Structure*, Appendix A, the example of patterns for a house entrance.

Numbers	Topic	Problem	Tendencies conflicting
1	Entrance to architect's office—transparent	Visitors feel that they are not welcome when they approach the office.	<ol style="list-style-type: none"> <li>1. Visitor feels uncomfortable about entering an alien professional world.</li> <li>2. "Architects" fear complete exposure to public realm.</li> </ol>
3	Entrance—position of reception desk in relation to entrance	Office has to control entrance of visitors.	<ol style="list-style-type: none"> <li>1. Visitors want a route.</li> <li>2. Some visitors want to come into office unobserved.</li> <li>3. Visitors want to prepare "face."</li> <li>4. Receptionist wants to observe visitor as soon as he enters and be unobserved.</li> <li>5. Receptionist wants another direction to face.</li> </ol>
5	Staff and path to drawing office	In many offices there is nowhere for the staff to get together. There is nowhere to go (except at the work table), nowhere to sit, nowhere to prepare coffee, snacks, etc.	<ol style="list-style-type: none"> <li>1. Staff tend not to meet each other except when they are actually collaborating on a problem.</li> <li>2. Staff tend to learn more from each other if they meet informally away from workplace.</li> <li>3. Staff tend to get jaded, need breaks, light relief.</li> </ol>
6	Partners and contact with staff	Partners must keep in contact with staff yet want a place of their own in the office.	<ol style="list-style-type: none"> <li>1. Partners tend to make special "places" for themselves in the office.</li> <li>2. Staff tend to lose contact with partners.</li> </ol>
	Two workplaces	People want to work in groups as well as work as separate individuals	<ol style="list-style-type: none"> <li>1. People tend to want relief from a single task.</li> <li>2. People tend to want to work in groups—realize that it's more efficient for certain kinds of arch. problems.</li> </ol>
9	Conference room	Not all meetings can be held in the drawing office.	<ol style="list-style-type: none"> <li>1. Need for meetings with limited outside contact.</li> <li>2. Need for staff and partners to keep in touch (see pattern 6).</li> </ol>
12	Group proximity	Group work is impossible without proximity.	<ol style="list-style-type: none"> <li>1. Tendency for groups that are geographically separate to act separately.</li> <li>2. Tendency for proximity interchange to increase sentiments of solidarity.</li> </ol>
13	Privacy and access with the group	Solitary work is often necessary within a working group—the problem of interruptions becomes critical.	<ol style="list-style-type: none"> <li>1. Tendency to want solitude.</li> <li>2. Tendency to want contact within group.</li> </ol>

	A	B	C
<p>If: Entrance to any architect's office. Then: Entrance facade has transparent surfaces on either side of door and/or door can be transparent also.</p>			
<p>If: Entrance to any architect's office that maintains a reception desk. Then: Visitor faces wall as he enters, then turns right angle. Receptionist nearest to entrance has clear view of entry; can turn in 2 directions faces visitor, no way into office except by R desk.</p>			
<p>If: Any architect's office. Then: Kitchen near receptionist, breakplace in center of office where all circulation joins &amp; BETW. All workplaces and entrance, library niche can be used as breakplace but should be opposite BP if have both, breakplace near R &amp; K.</p>			
<p>If: Office where partners and staff are in danger of being separated. Then: Common circulation for each and staff and partners work together in teams in drawing office.</p>			
<p>If: Any architect's office. Then: Library is equipped with carrels for individual study &amp; is large enough to store books and materials. Open on one side of main circulation route. Space large enough for 1/3 maximum office staff at any time.</p>			
<p>If: Any architect's office. Then: Conference room just off main circulation route, entrance not through workplace, receptionist can give easy directions to it, distractions controllable to and from workplace.</p>			
<p>If: Any architect's office. Then: Cluster workplace tables in work groups for any size job. Semi transparent screens drop from ceiling grid enable any group to totally enclose itself.</p>			
<p>If: Any architect's office. Then: Option for closure on at least 2 sides of each workplace. Use existing walls or screens.</p>			

2. Combination of patterns

Local condition—

Example A: Small office

Local condition—

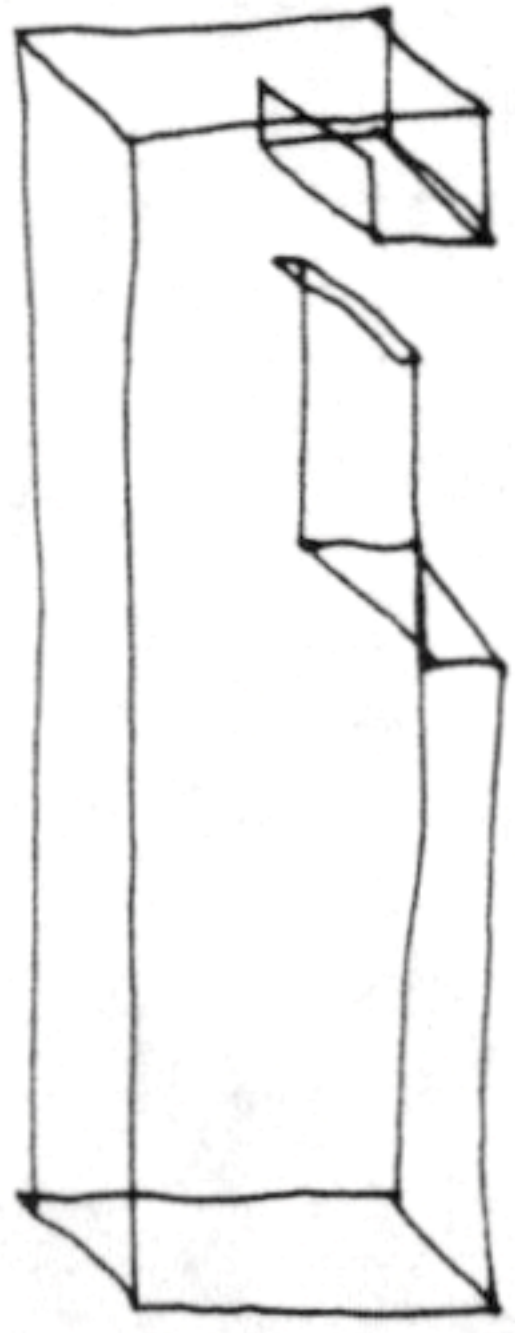
Example B: Medium office

The Architects' offices examples show that local conditions (three existing structural shells in this case) affect the order in which patterns are used and that individual patterns vary where applied in different circumstances.

1. Entrance facade has transparent surfaces on either side of door and/or door can be transparent also.

2. A part of the display area in waiting space explains architect's design approach.

3. Visitor faces wall as he enters. Then turns right angle. Receptionist nearest to entrance has clear view of entry; can turn in 2 directions faces visitor, no way into office except by R desk.



A

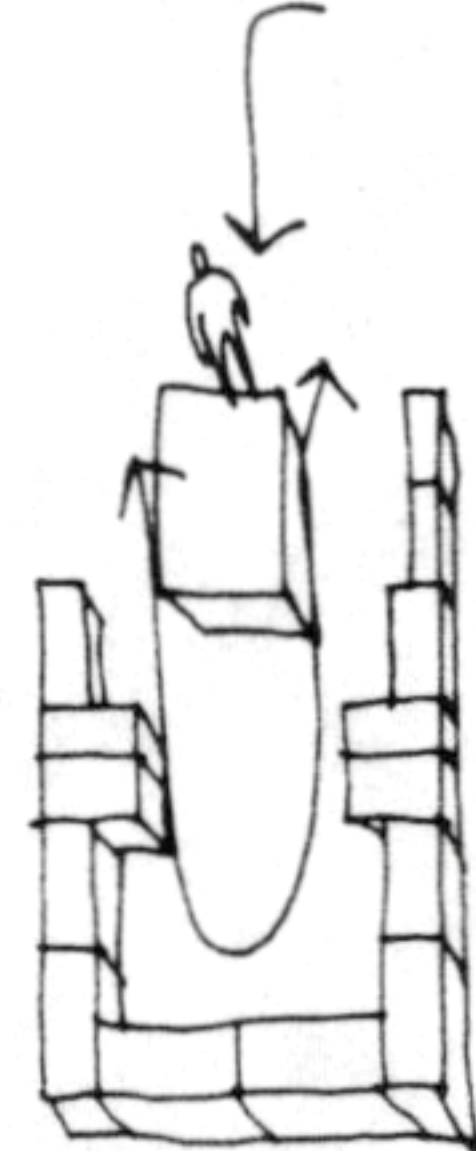
1,3



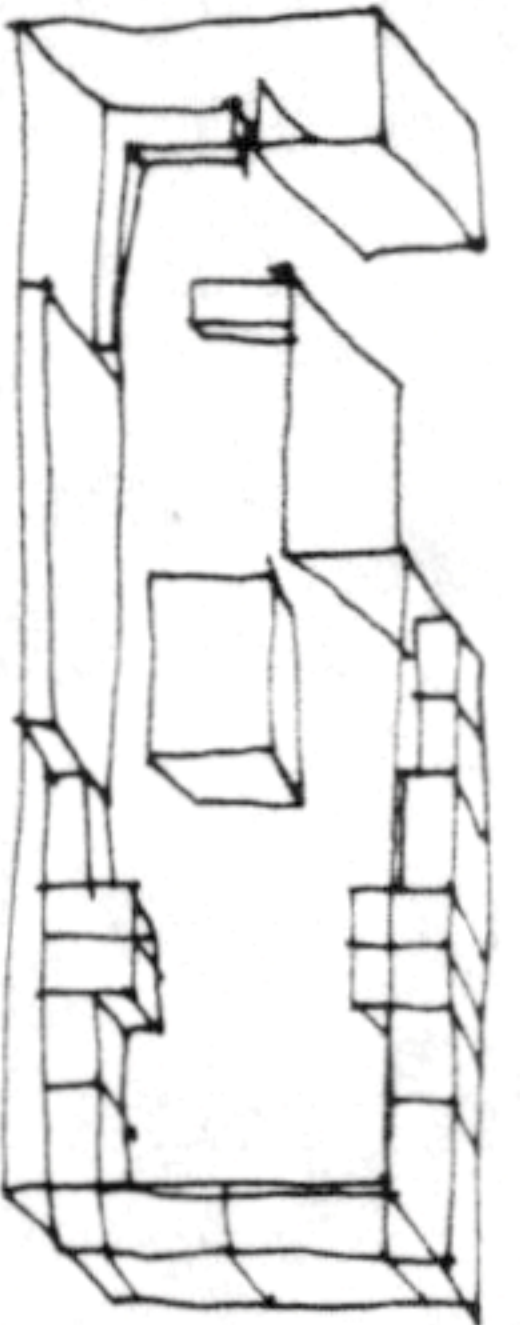
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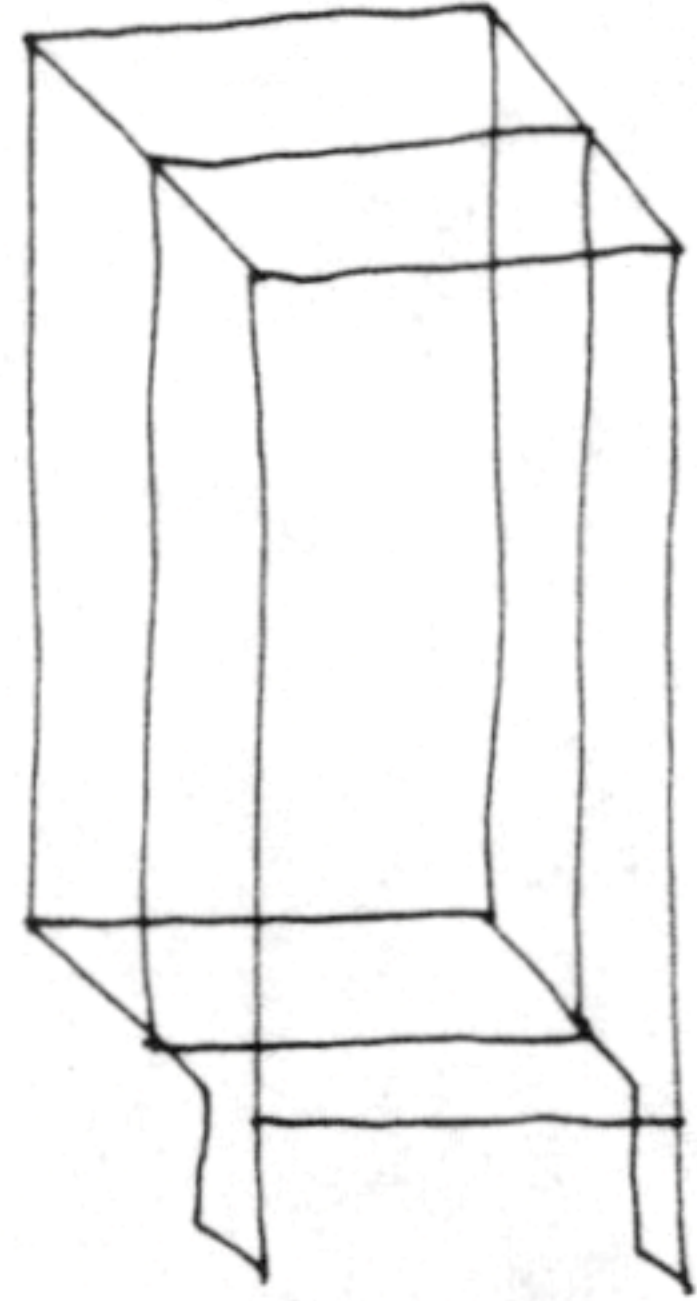
1,3,8,6



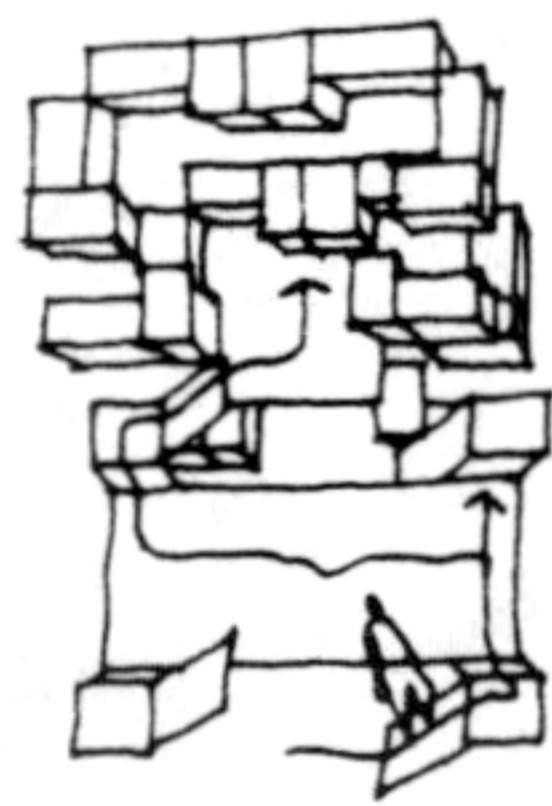
1,3,8,6,9



1,3,8,6,9+



B



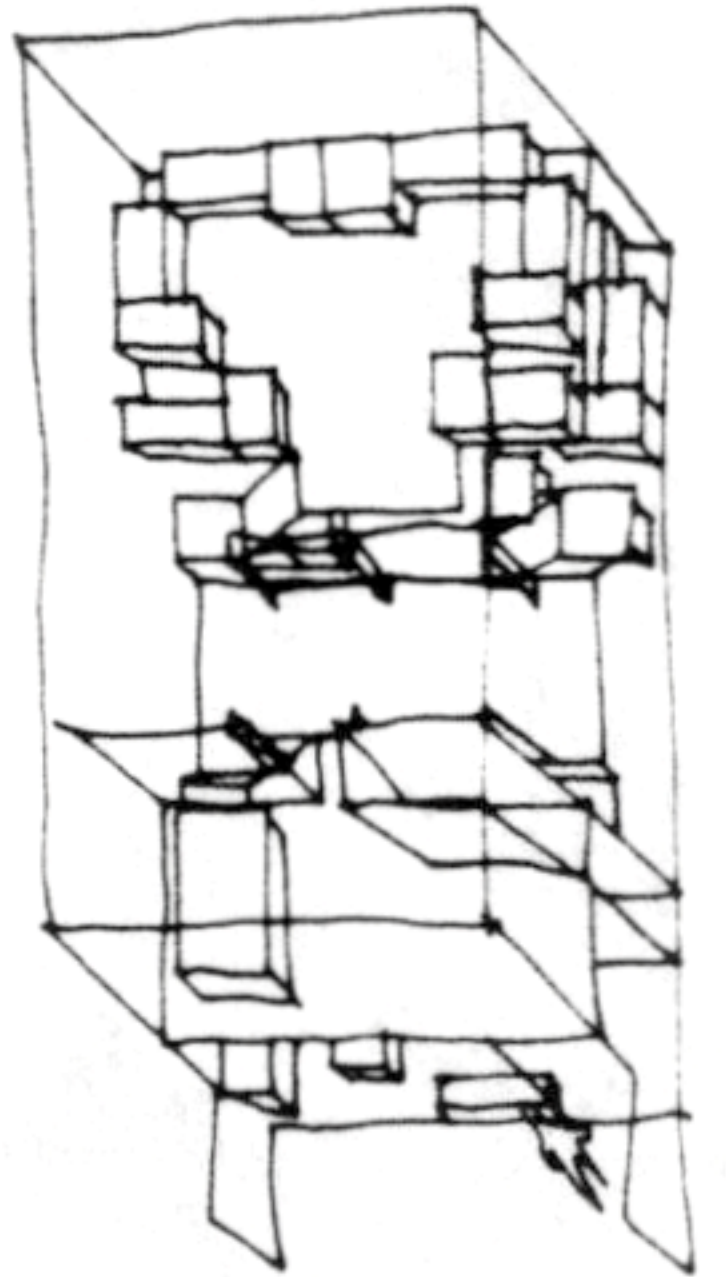
6,13



6,13,9



6,13,9,8



6,13,9,8+

4. Route from waiting area to conference room includes whole view of office.

5. Kitchen near receptionist, breakplace in center of office where all circulation joins and between all workplaces and entrance, library niche can be used as breakplace but should be opposite BP if have both, breakplace near R & K.

6. Common circulation for each and staff and partners work together in teams in drawing office.

7. Central location for library shelves on main circulation route.

8. Library is equipped with carrels for individual study and is large enough to store books and materials. Open on one side of main circulation route. Space large enough for 1/3 maximum office staff at any time.

9. Conference room just off main circulation route, entrance not through workplace, receptionist can give easy directions to it, distractions controllable to and from workplace.

10. Destroy all non-current drawings; use microfilm and store in library provision for scanning in ind. study space in library.

11. Common circulation for partners and staff; partners and staff work together in teams in office (see pattern 6).

12. Cluster workplace tables in work groups, for any size job. Semi transparent screens drop from ceiling grid enable any group to totally enclose itself.

13. Option for closure on at least 2 sides of each workplace. Use existing walls or screens.

14. Provide two surfaces as shown.

15. Provide for slide out surface as shown.

16. Provide for quick reference (technical) books as shown.

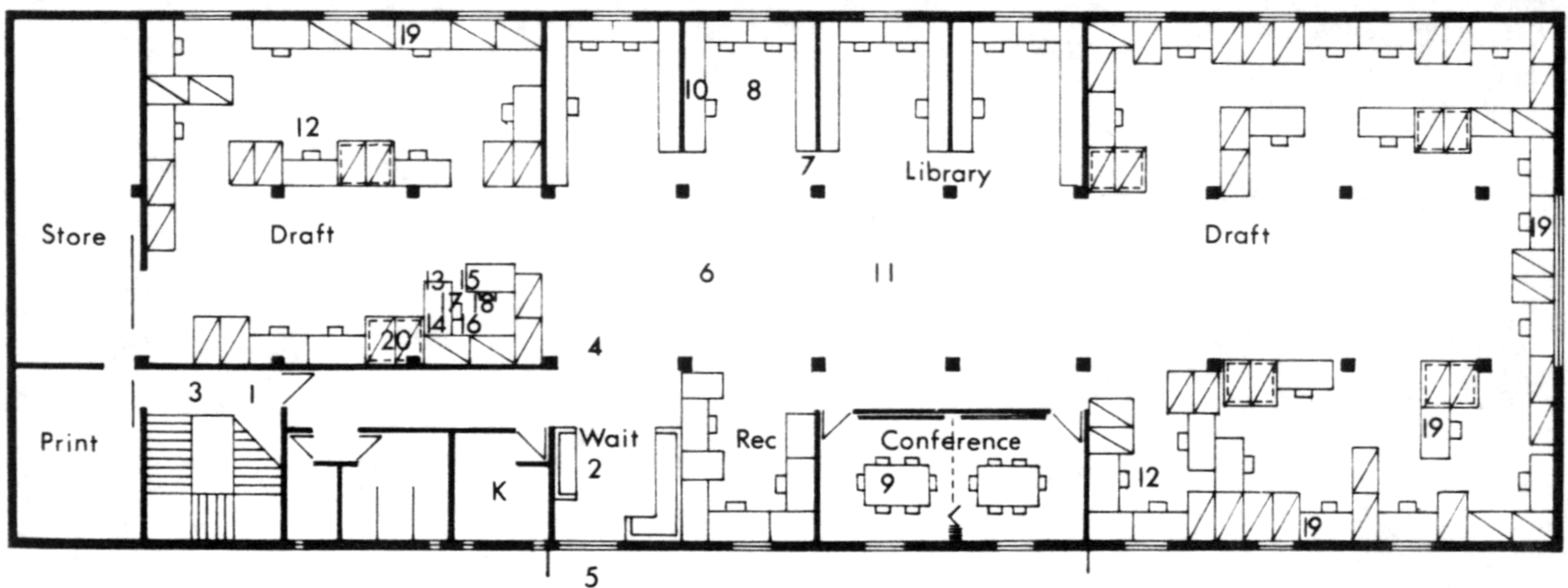
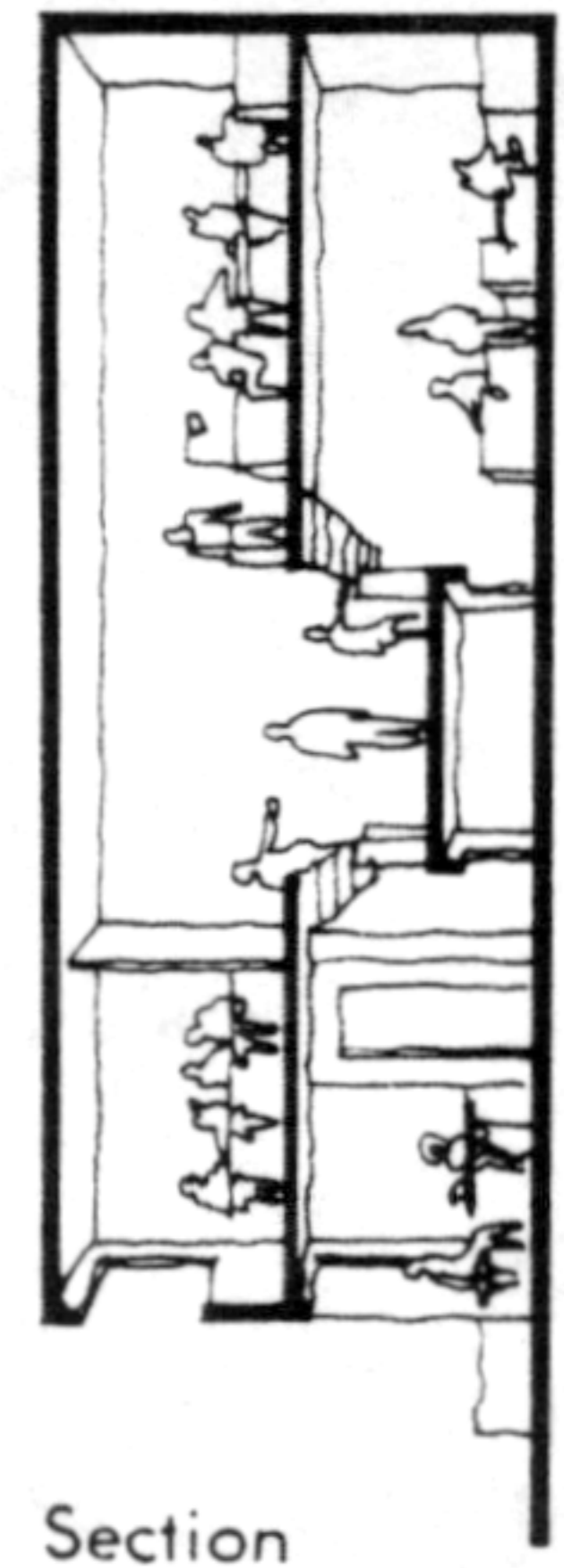
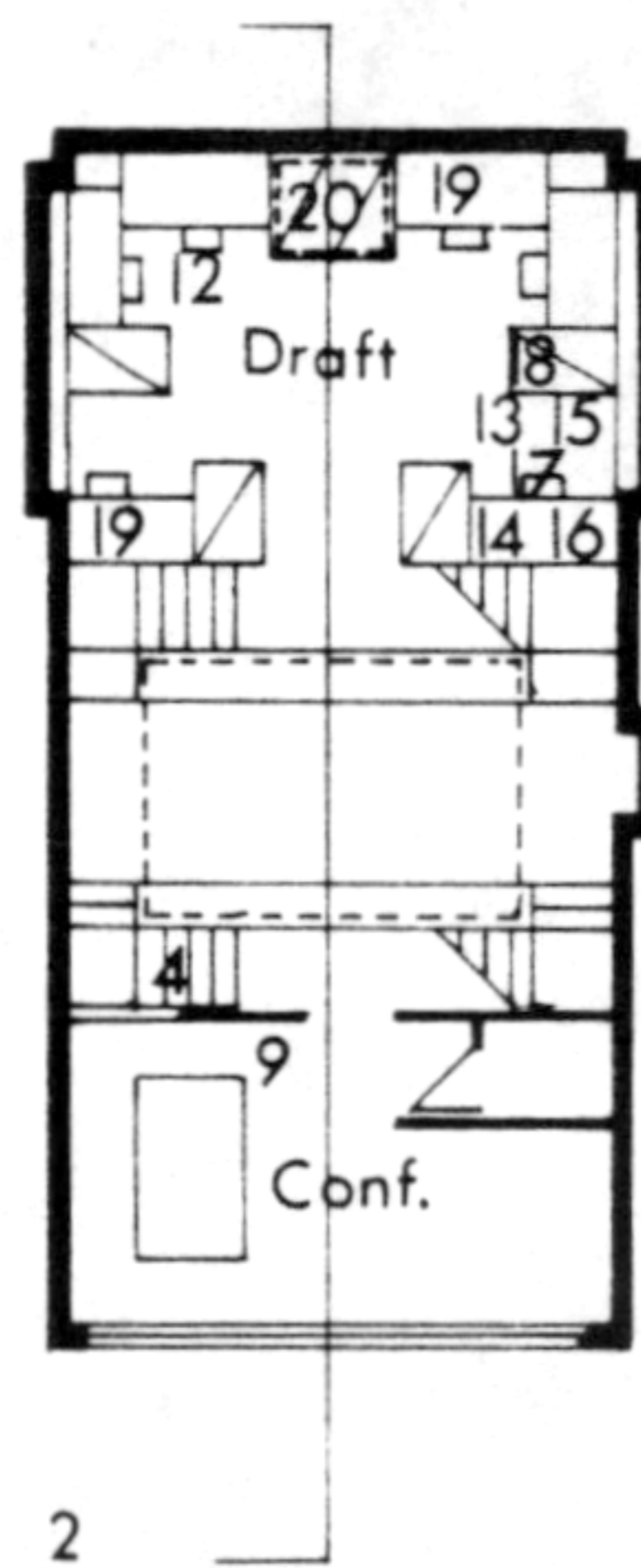
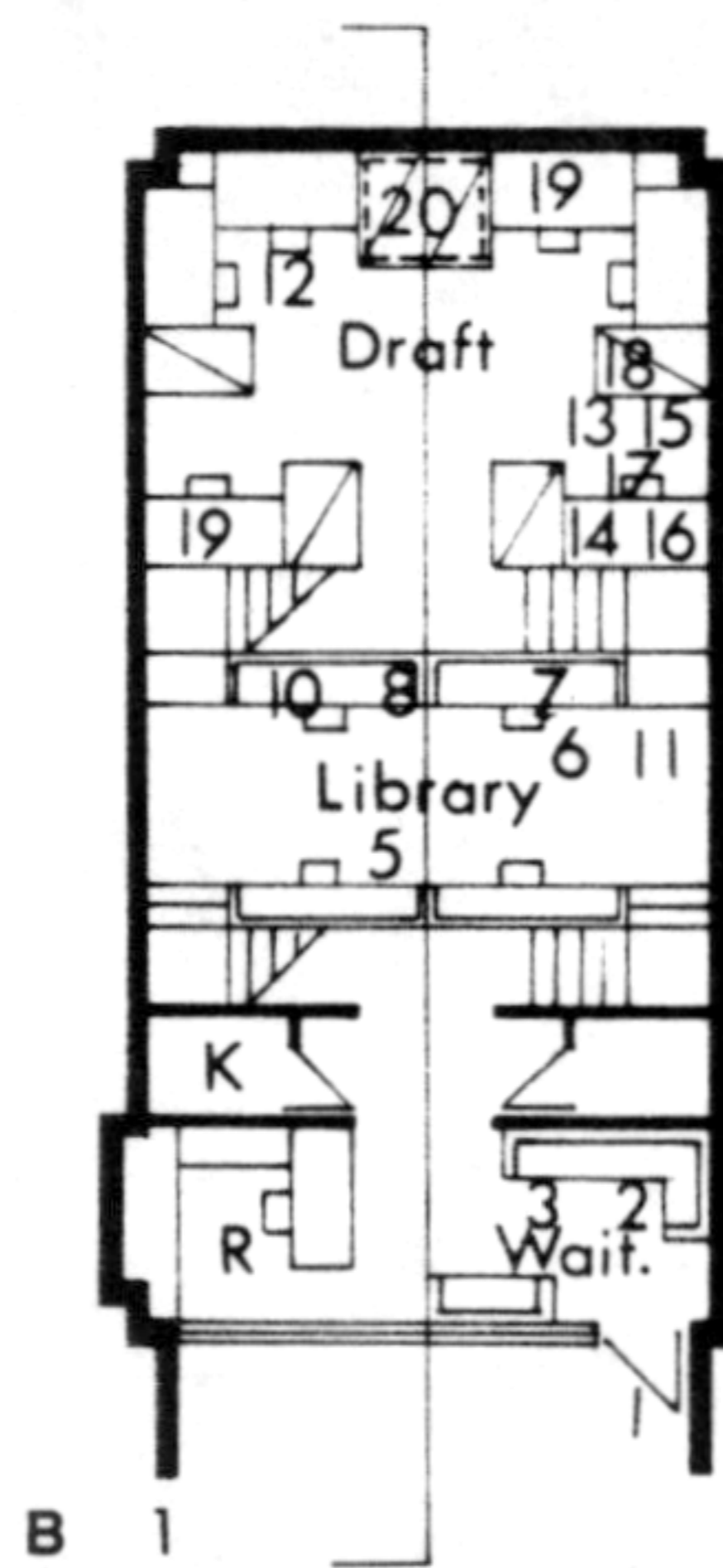
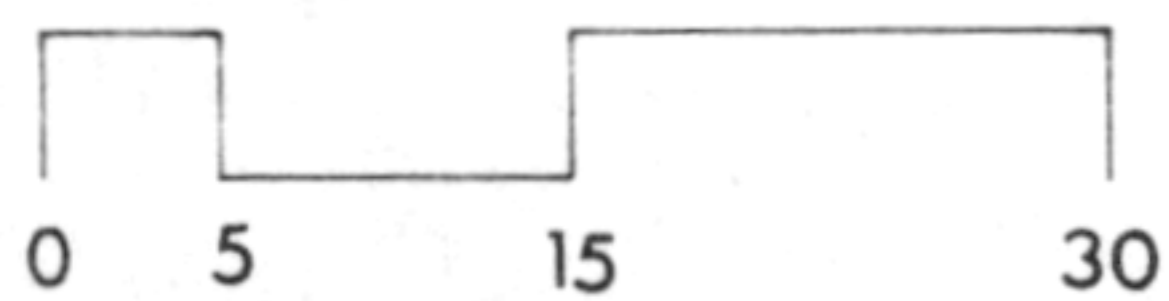
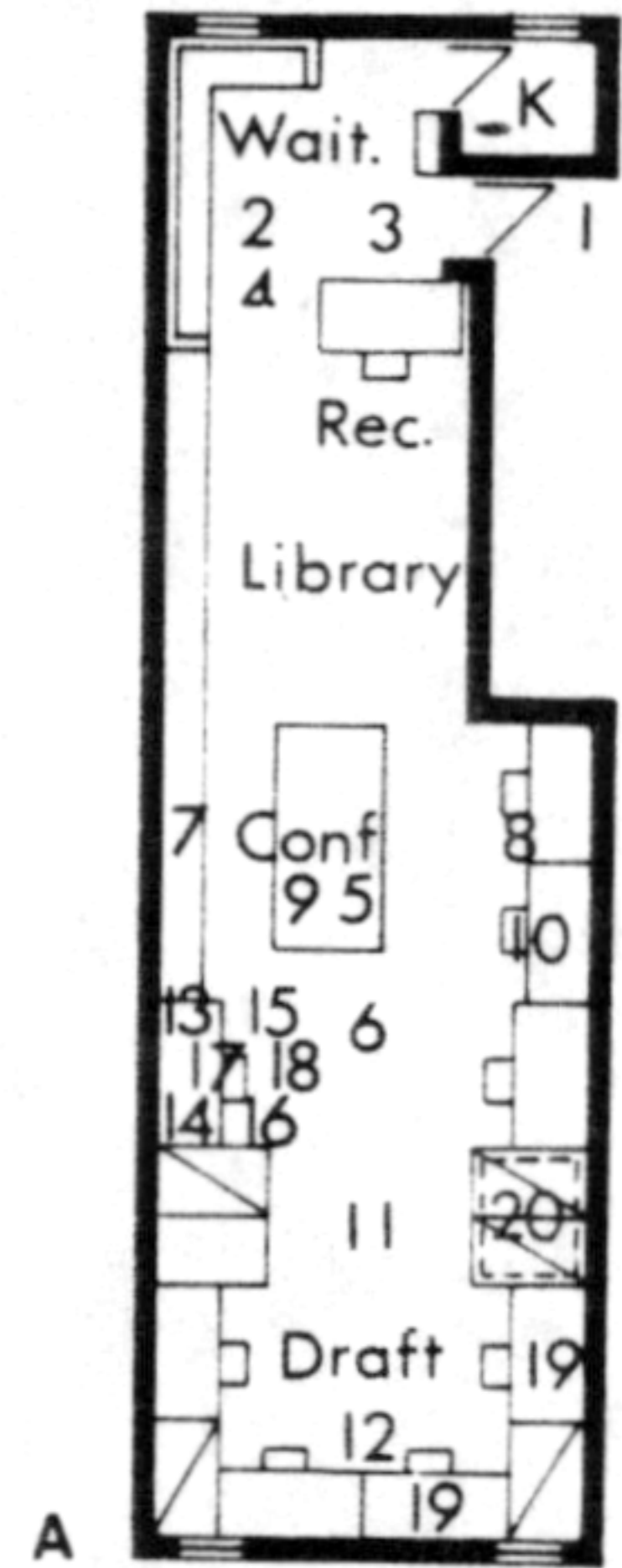
17. Provide adjustable drawing surface as shown.

18. Provide for a 4' minimum back up space as shown.

19. Provide for range of acceptable workplace layouts—workplaces rearrangeable.

20. Provide flat file (4' x 5' x 4') under layout surfaces whenever 2 layout tables come together. One layout table must belong to partner.

3. Final configurations—architects' offices



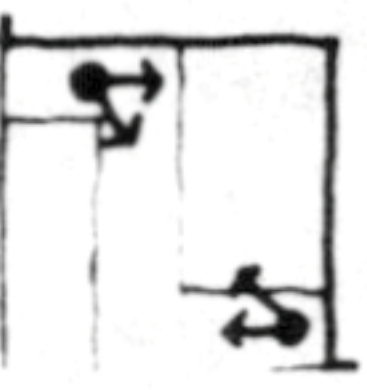









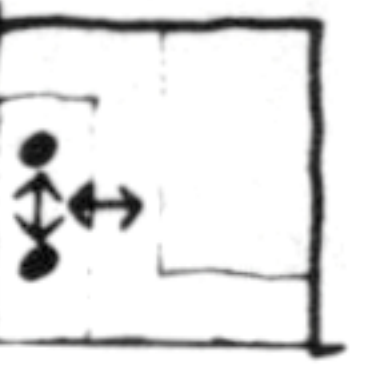





Numbers	Topic	Problem	Tendencies conflicting
3	Entrances to banks	Banks are anxious that people should feel at ease when coming off the street.	<ol style="list-style-type: none"> <li>1. Banks want people to feel free to stand around without interception by receptionists or other checking devices.</li> <li>2. People want to locate quickly the part of the bank they are looking for.</li> </ol>
4	Bank forums	Banks want to guide but not propel people towards their services.	<ol style="list-style-type: none"> <li>1. Banks want people to feel free to enter.</li> <li>2. People demonstrate the desire to hesitate a little before launching into their business.</li> </ol>
6	Writing out and calculations by customers	Banks want to permit people to write out checks etc. but don't want blocked circulation.	<ol style="list-style-type: none"> <li>1. People write out checks etc. after they have entered the bank.</li> <li>2. Banks don't want such people blocking free circulation.</li> </ol>
8	Internal circulation	Banks permit the public to enter freely but want to limit their access to certain sections of the bank.	<ol style="list-style-type: none"> <li>1. Public circulates freely unless checked.</li> <li>2. Bank staff wish to go about their business without distraction from unauthorised public.</li> </ol>
9	Bank officers and the public	Banks want to attract the public to their officers but control access.	<ol style="list-style-type: none"> <li>1. Banks want public to feel free to talk to its officers.</li> <li>2. Public may either miss altogether or inundate officers.</li> </ol>
10	Tellers and the public	Banks want to attract the public to their tellers and yet ensure security.	<ol style="list-style-type: none"> <li>1. Banks want public to feel easy and friendly when dealing with tellers.</li> <li>2. Banks want to protect their tellers and cash.</li> </ol>
13	Contact between officers	Bank officers need to be separate from each other and yet keep in contact.	<ol style="list-style-type: none"> <li>1. Bank officers deal with limited ranges of decisions and may wish to pass a problem to a colleague quickly and without fuss.</li> <li>2. Public wants privacy in dealings with bank officers.</li> </ol>
14	Tellers and administration	Tellers need to be in contact with both the public and bank administration.	<ol style="list-style-type: none"> <li>1. Tellers deal with public.</li> <li>2. Tellers seek records, statements, etc. from administration constantly.</li> <li>3. Administration supervises tellers.</li> </ol>

4. Patterns and transformations for banks

Pattern

Transformations

	A	B
<p>1. Public enters the bank without check.                  2. Entrance point permits an overview of all bank services.                  3. All bank services are clearly marked and distinct from one another.</p>		
<p>1. Public enters bank without check.                  2. Waiting or hesitating space is provided both immediately outside and inside the bank.                  3. Exhibits may be used to mask hesitation.</p>		
<p>1. Writing space is provided near the entrance but in a position out of the main flow of circulation and which does not impede vision.</p>		
<p>1. Clearly defined circulation for public.                  2. Entirely separate circulation for staff.</p>		
<p>1. Clear visual link between public and officers.                  2. Distinct separation between officers area and public forum.                  3. Guides stationed on border to sanction access to officers.</p>		
<p>1. 4' 6" high continuous bench 2' wide separates public and tellers.                  2. Tellers can control moveable and lockable cash boxes.</p>		
<p>1. Bank officers are open to each other as well as to the public.                  2. Sufficient separation between officers to ensure private individual dealings.</p>		
<p>1. Tellers are sandwiched between public and administration.</p>		

5. Combination of patterns

Example A: Formal scheme

Example B: Formal scheme

The Bank examples show that the same patterns combine in the same circumstances (1 structural shell) in different ways. Two different formal schemes (two variations of pattern 8) influence the way in which shapeless pattern material can be organized in the design process.

1. Banks on corners or on other conspicuous sites (at a certain frequency). Sidewalk and entrance to bank is designed to permit loitering.

2. Public may glimpse bank activities from outside but are not permitted to register any great detail. Certain bank activities are screened from the public eye.

3. Public enters the bank without check. Entrance point permits an overview of all bank services. All bank services are clearly marked and distinct from one another.

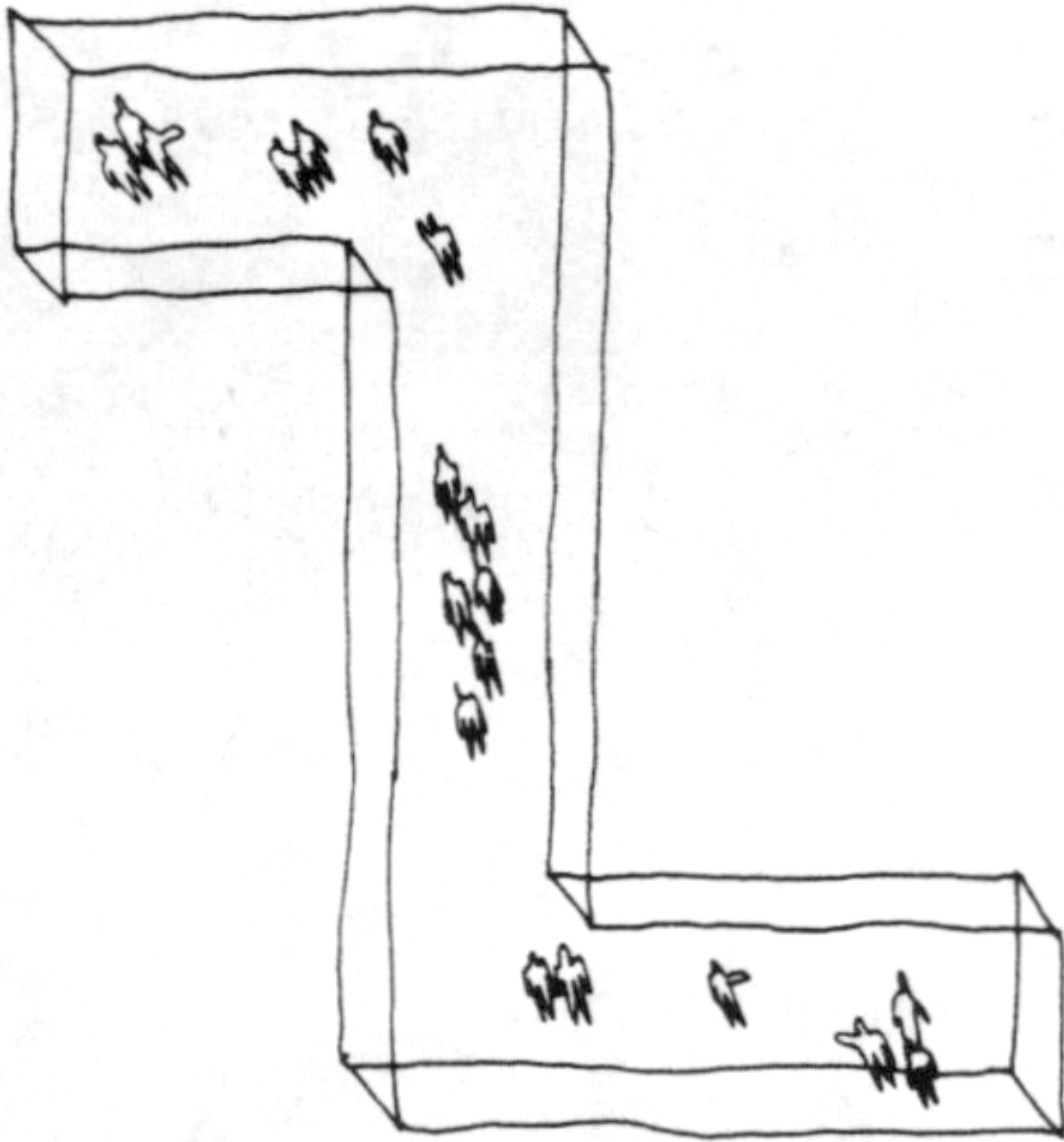
4. Public enters bank without check. Waiting or hesitating space is provided both immediately outside and inside the bank. Exhibits may be used to mask hesitation.

5. Counter design permits variation in number of tellers. Space provided for lines of 6 but no more. Customer at entrance point can survey all lines equally easily and select the shortest.

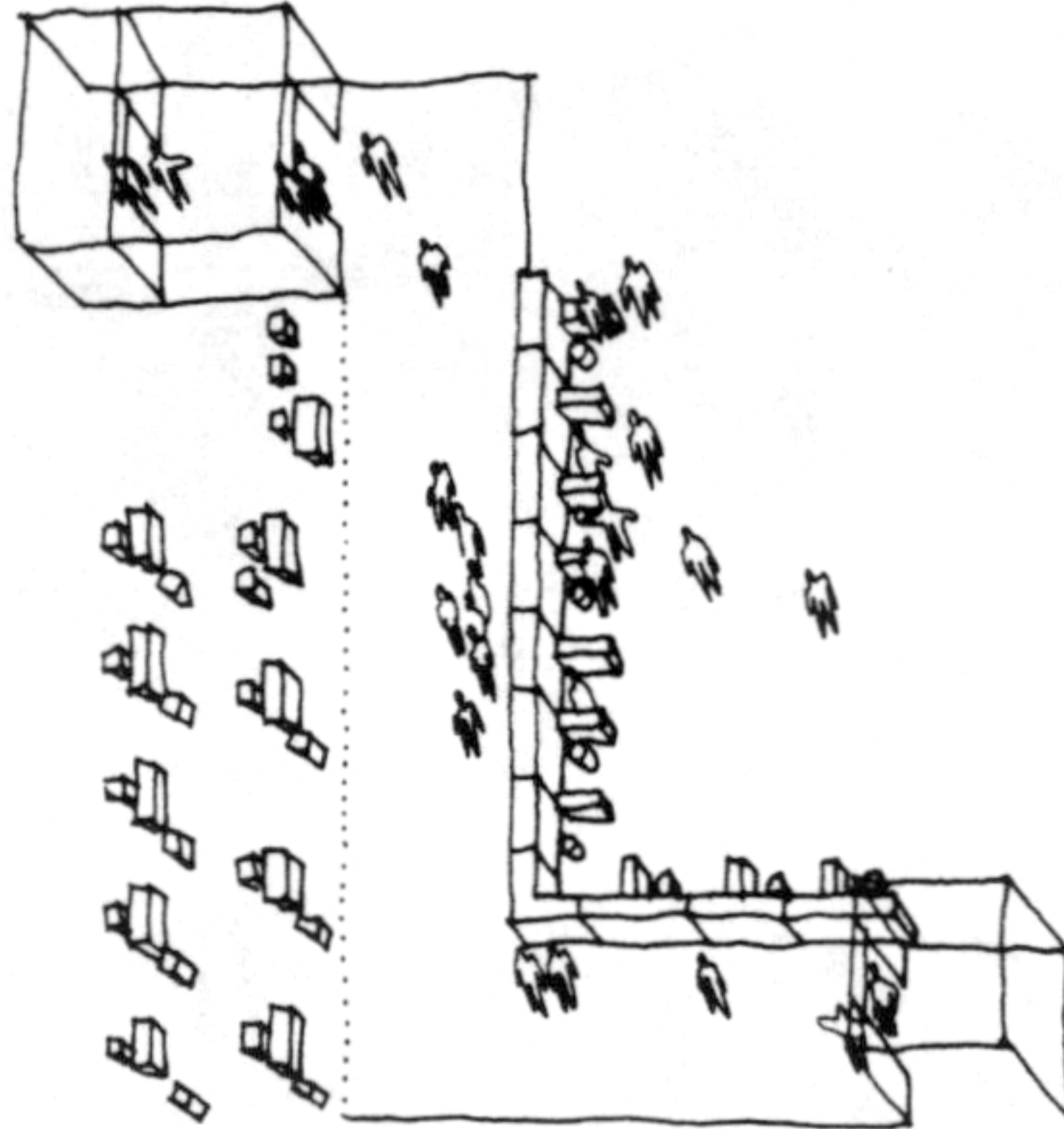
6. Writing space is provided near the entrance but in a position out of the main flow of circulation and which does not impede vision.

7. More than enough space and height is provided in the public part of the bank. Materials are chosen which connote richness. A limit is set to both space extravagance and richness in accordance with public notation of what is fitting.

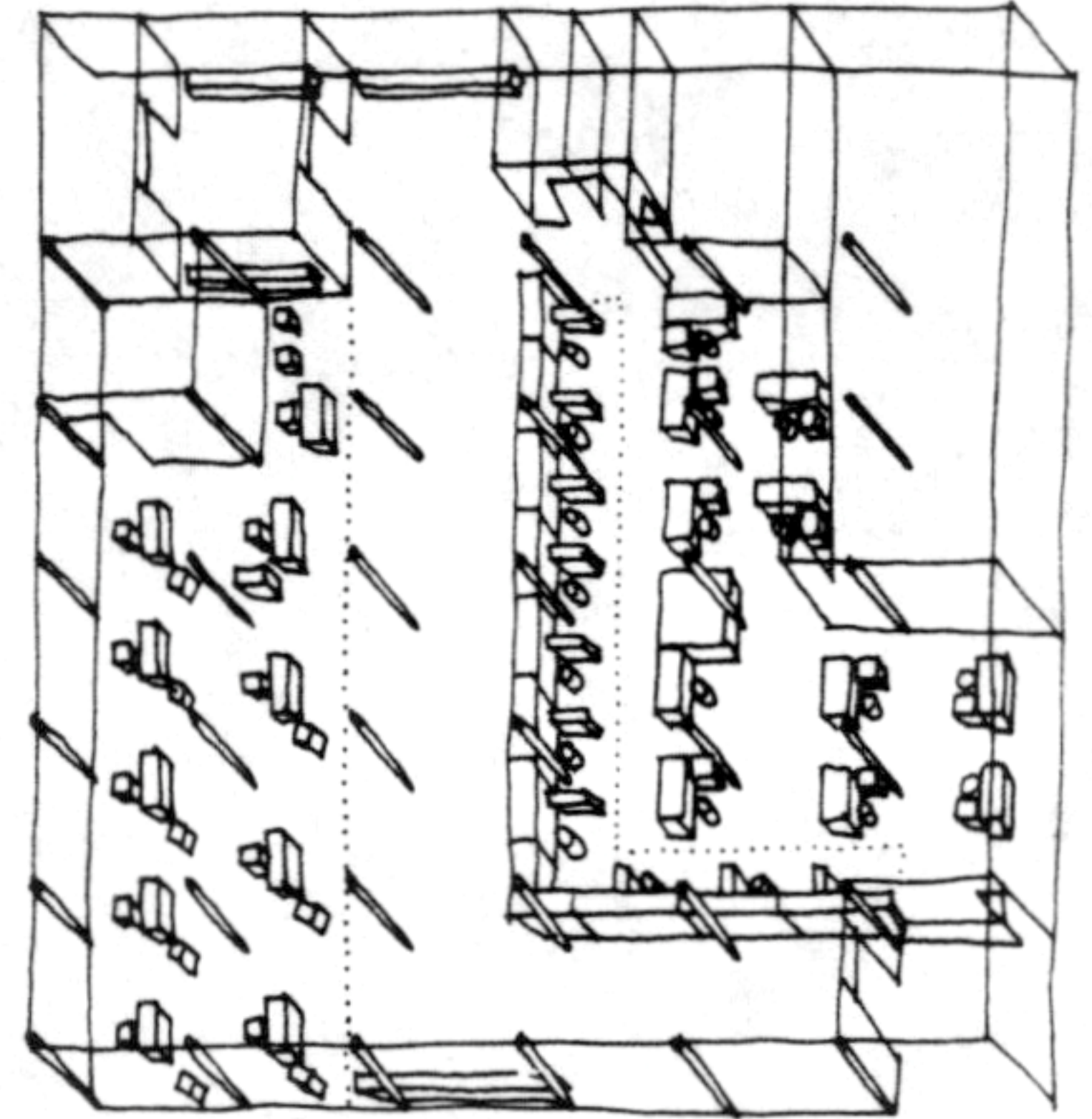
8. Clearly defined circulation for public. Entirely separate circulation for staff.



A



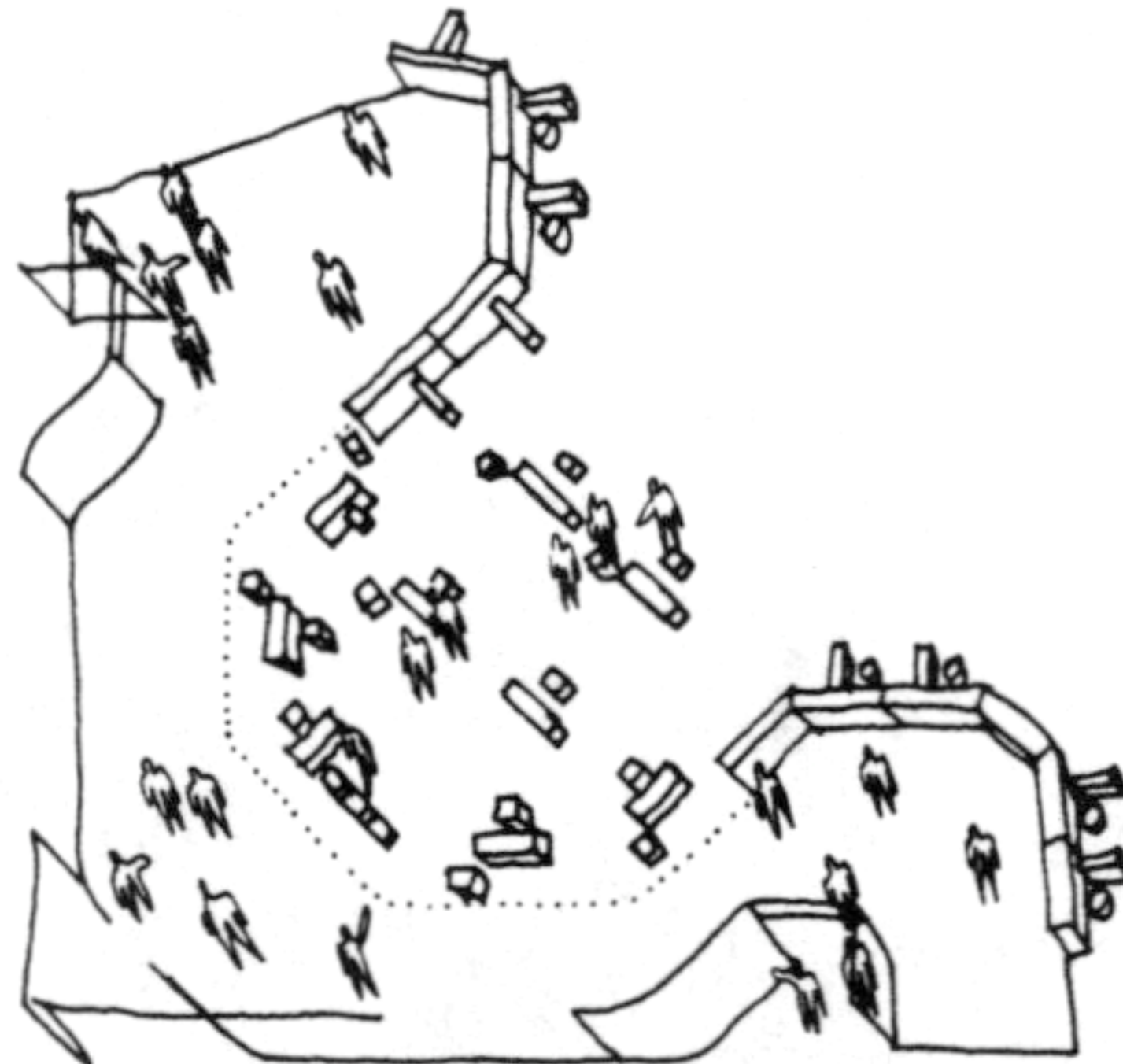
8,3,4,9,10,13,14



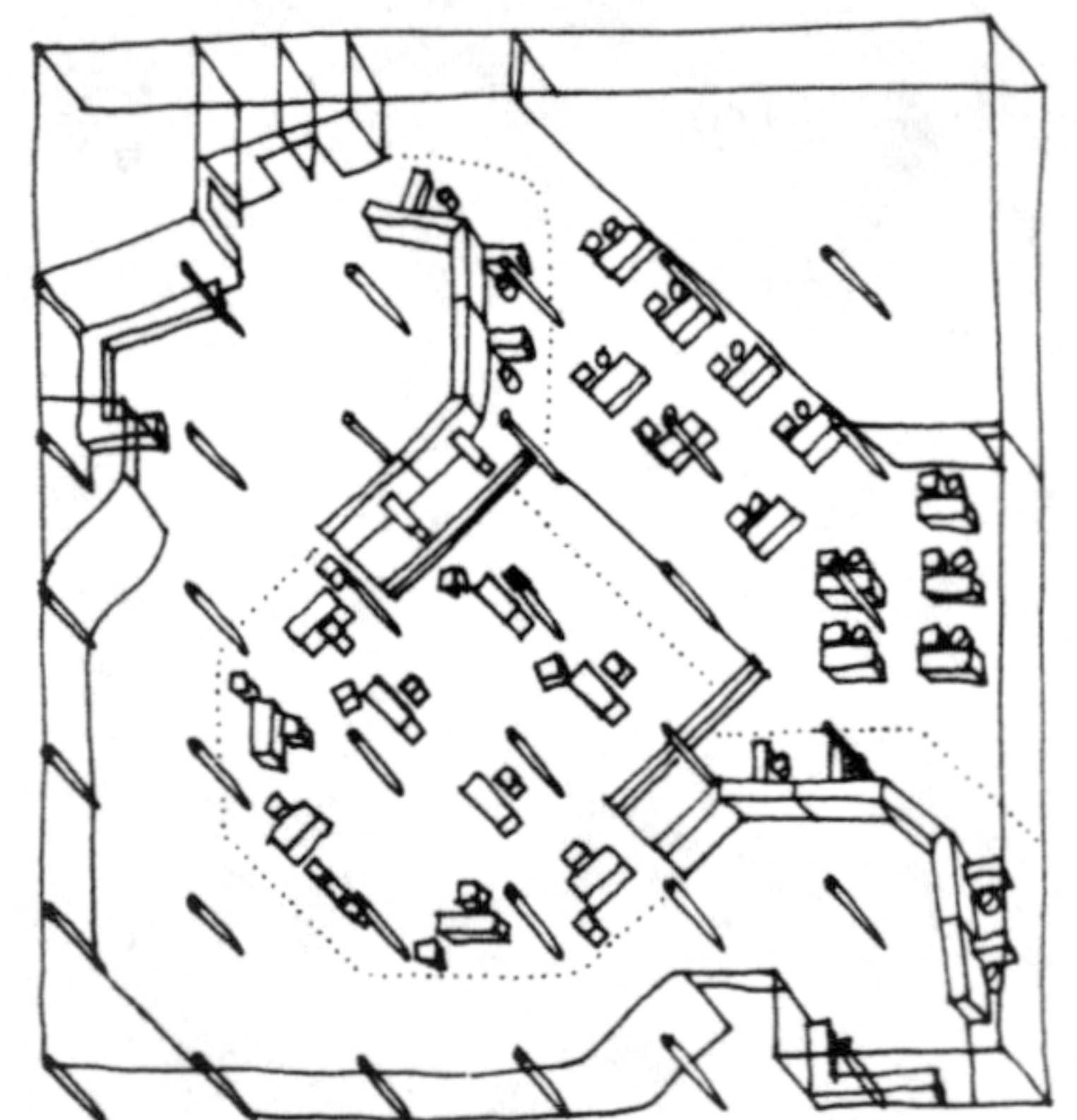
8,3,4,9,10,13,14+



B



8,3,4,9,10,13,14



8,3,4,9,10,13,14+



9. Clear visual link between public and officers.  
 Distinct separation between officers area and public forum.  
 Guides stationed on border to sanction access to officers.

10. 4'6" high continuous bench 2' wide separates public and tellers.  
 Tellers can control moveable and lockable cash boxes.

11. Security is achieved by appropriate low barriers and also by overall openness and visibility.

12. Vault is near entrance. Vault is easily visible at night from outside the bank for police checks.

13. Bank officers are open to each other as well as to the public.  
 Sufficient separation between officers to ensure private individual dealings.

14. Tellers are sandwiched between public and administration.

15. Officers may be separated from administration but no request for a piece of information whether requested by telephone or secretary should be the cause of delay.

16. Officers are arranged in rank order. Space and equipment is sufficient to indicate that officers are of managerial status.

17. A hidden rest area is provided where staff can go occasionally to relax or eat lunch or exchange informal conversation.

6. Final configurations—banks

