

# Workspace Enclosure

*People can't work if their workspace is too enclosed or too exposed.*

In many offices, people are either completely enclosed and feel too isolated, or they are in a completely open area as in the office landscape, and feel too exposed. It is hard for a person to work well at either of these two extremes. People usually want some amount of both enclosure and exposure—the problem is to find the right balance between the two.

To find the proper balance, we conducted a simple experiment. We first defined thirteen variables, which we thought might influence a person's sense of enclosure, in his workspace.

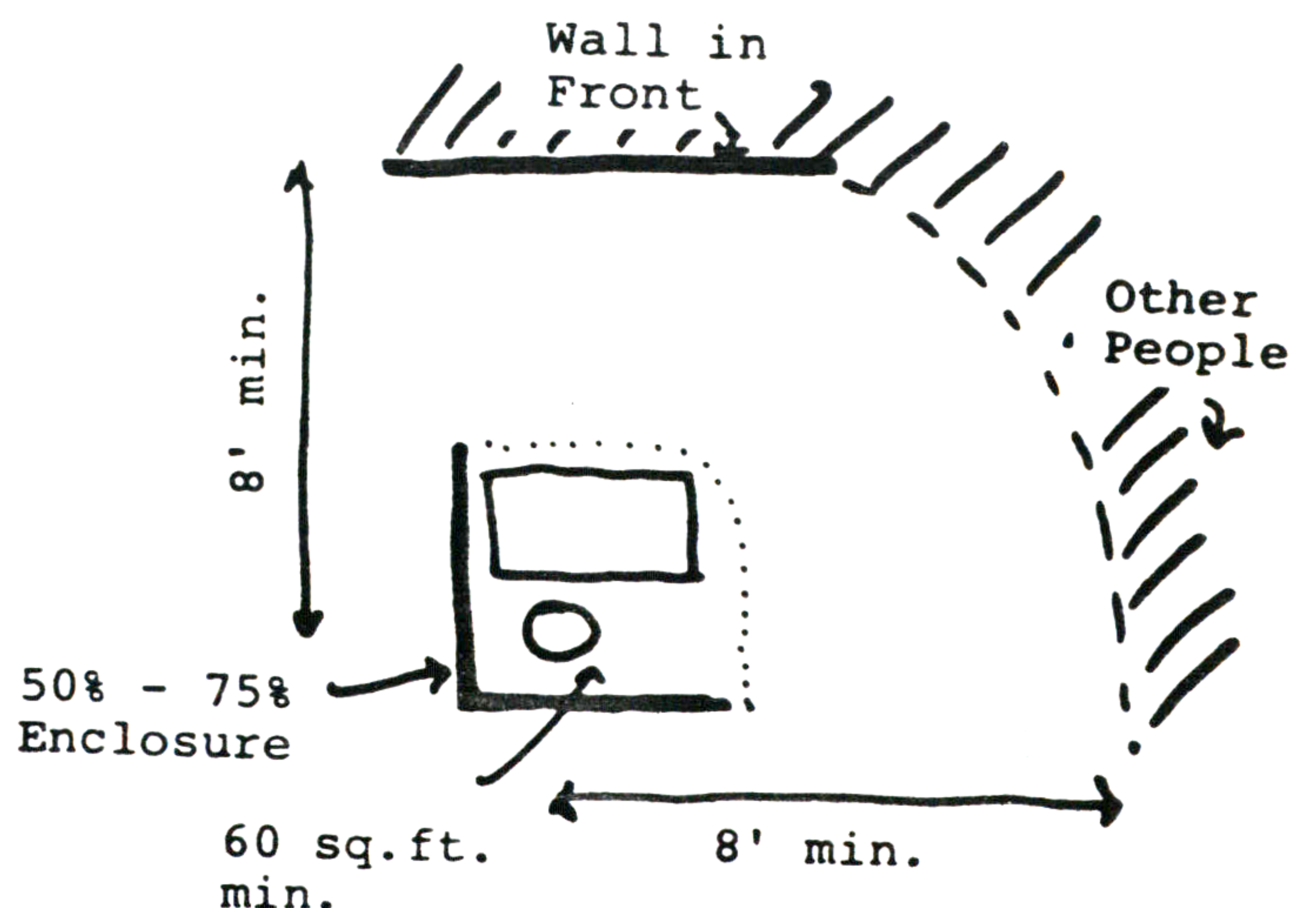
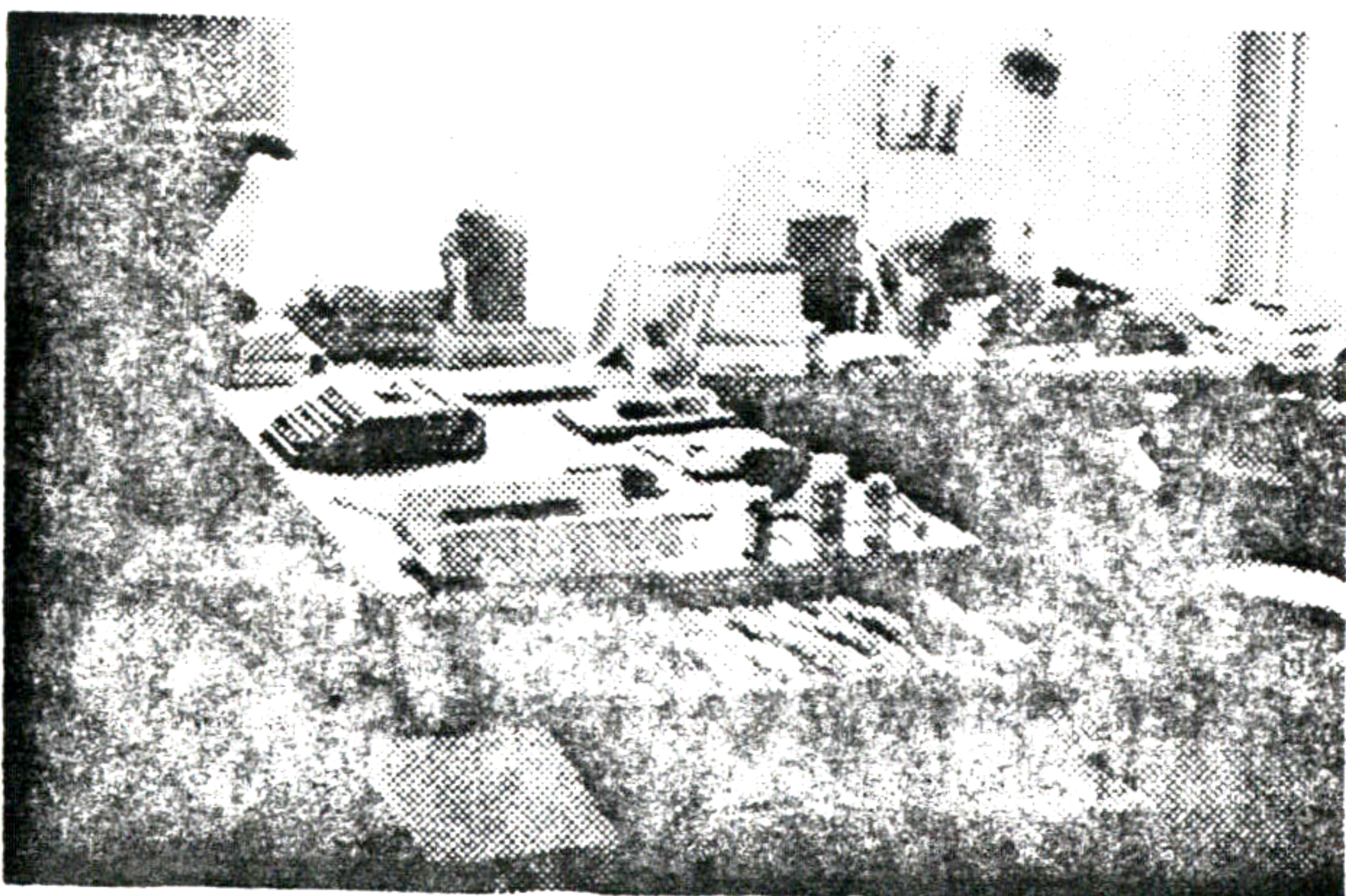
These thirteen variables are:

1. Presence or absence of a wall immediately behind you.
2. Presence or absence of a wall immediately beside you.

3. Amount of open space in front of you.
4. Area of the workspace.
5. Total amount of enclosure around the immediate workspace.
6. View to the outside.
7. Distance of nearest person.
8. Number of people you are aware of from your workplace.
9. Noise (level and type).
10. Presence or absence of person facing you directly.
11. Number of different positions you can sit in.
12. Number of people you can see from your workspace.
13. The number of people you can talk to without raising your voice.

For the workspaces to have the right amount of enclosure the hypotheses which were supported by the data, should be used. (continued over)

*Therefore: Put a wall behind and to one side of every workspace. If there is a wall in front, make sure it is at least 8 feet away. Make each workspace between 50% and 75% enclosed. Give each worker a personal workspace of at least 60 square feet, and put no-one closer than 8 feet. Make sure that from the workspace a person is aware of at least 2 other people but not more than 8. Partition the area so that noises originating outside the space are blocked out.*



# Workspace Enclosure

## Problem (continued)

We interviewed seventeen men and women, who had all worked in several different offices. In the interview, we first asked the person to think of the very best workspace he (she) had ever worked in, and the very worst. Then we asked him to sketch these two workspaces, in plan. Then we asked him questions to identify the value of each of these thirteen variables, in the "best" and "worst" workspaces. Thus, for instance, we might point to the sketch he had drawn, and say "How far away was that wall" to establish the value of the third variable. The values of the variables, for the seventeen best and worst workspaces are given in the following table.

Looking at this table, we then formulated a best hypothesis for each variable.

The thirteen hypotheses are presented below, with their significant levels under the chi-squared test.

*It is important to note that these hypotheses were constructed from the data. This means that even those which seem to be significant, may not be significant when tested again, on an independent set of data. It is therefore essential that this experiment be repeated, to test these hypotheses properly.*

1. *You feel more comfortable in a workspace if there is a wall behind you.*

If your back is exposed you feel vulnerable—you can never tell if someone is looking at you, or if someone is coming toward you from behind.

The data support this hypothesis at the 1% level of significance.

2. *You feel more comfortable in a workspace if there is a wall to one side.*

If your workspace is open in front and on both sides, you feel too exposed. This is probably due to the fact that though it is possible to be vaguely aware of everything that goes on 180° around you, it is too wide of an angle to feel in real control of, without moving your head all the time. If you had a wall on one side, you would only have to manage an angle of 90° which is much easier and comfortable to handle and you thus feel more secure.

The data support this hypothesis at the 5% level of significance.

3. *There should be no blank wall closer than 8 feet in front of you.*

As you work you want to occasionally look up and rest your eyes by focusing them on something further away than the desk. If there is a blank wall closer than 8' your eyes will not change focus, and they get no relief. In this case you feel too enclosed.

The data support this hypothesis at the 5% level of significance.

4. *Workspaces where you spend most of the day should be at least 60 sq.ft. (See also Workspace Assignments.)*

If your workspace is any smaller than 60 sq.ft., you feel cramped and claustrophobic.

The data support this hypothesis at the 5% level of significance.

5. *Each workspace should be 50% to 75% enclosed by walls, or windows.*

Intuitively, it seems that a workspace has the right amount of enclosure if it is 50% to 75% enclosed by walls. We guess that enclosure by windows creates about half the feeling of enclosure that solid walls have, so that a workspace which is surrounded by half wall and half window is considered to have 75% enclosure, while a workspace completely surrounded by only a half wall and is otherwise open, is considered to have 50% enclosure.

We have no basis for this hypothesis beyond intuition. The data support this hypothesis at the 1% level of significance.

6. *Every workspace should have a view to the outside. (See Windows Overlooking Life.)*

If you do not have a view to the outside, you feel too enclosed and oppressed by the building, even if you are working in a large open office.

The data support this hypothesis at the 0.1% level of significance.

7. *No other person should work closer than 8 feet to your workspace.*

You should be able to hold conversations either on the phone or in person with someone, without feeling as though someone else can hear every word you are saying. The noise level in an average office is 45 db (Kinzey and Sharp, *Environmental Technologies in Architecture*, Prentice Hall, Engle-

wood, New Jersey, 1951, p. 321). From the *Handbook of Noise Measurement* by Peterson and Gross (General Radio Company, Sixth Edition, West Concord, Mass., 1967) people closer than 8' will be forced to overhear your conversation.

The data support this hypothesis at the 5% level of significance.

8. *It is uncomfortable if you are not aware of at least two other persons while you work. On the other hand, you do not want to be aware of more than eight people.*

If you are aware of more than 8 people, you lose a sense of where you are in the whole organization. You feel like a cog in a huge machine. You are exposed to too many people. On the other hand, if you are not aware of anyone else around you, you feel isolated and as though no one cares about you or your work. In this case, you are too enclosed.

The data support this hypothesis at the 5% level of significance.

9. *You should not be able to hear noises of a different kind than you make, from your workplace.*

Your workplace should be sufficiently enclosed to cut out noises which are different from the ones you make. There is some evidence that one can concentrate on a task better if people around him are doing the same thing rather than something else. (See Francis Duffy, *Social Tendencies in the Office Environment: Job, Worker, Building.*)

The data support this hypothesis at the 5% level of significance.

Four of the hypotheses tested are not supported to a statistically significant extent by the data.

10. *No one should be sitting directly opposite you, and facing you.*

It is very uncomfortable to have to face someone so directly that every time you look up you cannot help but catch his eye. It makes it embarrassing for you and for him, and forces you into a more involved interaction than either of you want—most of the time you simply want to glance away from your work for a moment. This is likely to happen unless the other person is outside of a 60° angle from your desk. (60° is given as the normal cone of vision by Henry Dreyfuss in *The Measure of Man*, Whitney

*Library of Design*, New York, 1959.)

This hypothesis is not supported by the data.

11. *Workspaces should allow you to face in different directions.*

It is very difficult and unpleasant to have to sit in one position all day long—looking in the same direction and seeing the same thing. You feel constrained and trapped. It is like feeling too enclosed.

This hypothesis is not supported by the data.

12. *From your workspace, you should be able to see at least two other persons; but no more than four.*

You are uncomfortable if you are in view of too many people in the office—you don't want a lot of people noticing when you leave your desk, or seeing every move you make. On the other hand, if no one notices you, when you do something, you feel isolated, and lonely.

This hypothesis is not supported by the data.

13. *There should be at least one other person close enough to talk to.*

It is pleasant to chat with at least one or two other people, without having to get up from your desk. Edward T. Hall gives the distance for full voice conversations with slight overloudness at 5½ to 8'. If there are more than two people within this distance, the possibility for informal chats becomes more difficult—too many people become involved.

This hypothesis is not supported by the data.

## References

Data supporting our hypotheses are in *The Office: A Facility Based on Change*, Robert Propet: The Business Press International Inc., Elmhurst, Illinois, 1968.

By: Max Jacobson and Barbara Schreiner.

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*This pattern is tentative. If you have any evidence to support or refute its current formulation, please send it to the Center for Environmental Structure, P.O. Box 5156, Berkeley, California 94705; we will add your comments to the next edition.*