

PATTERN LANGUAGE
FOR
A NEW GENERATION OF OFFICE FURNITURE

In-house sketch
Not for distribution

Center for Environmental Structure
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The patterns in the following language, are, so far, very sketchy and tentative. In some cases we feel that the patterns are based on genuine and reliable insights. In other cases, they are no more than hints which give us something to think about.

The patterns fall into two groups. The first group contains patterns which deal with the overall character and layout of the office. The second group contains patterns which deal with the actual physical character and substance of the furniture itself. To some extent the two groups overlap.

Group 1 is approaching completion. Although the patterns are so far often extremely sketchy, we do feel that in their scope and range, we have identified something approaching a complete system of the large scale ideas, which must control the design of the new furniture system. A few of the patterns raise extremely thorny questions about philosophy and manufacturing, which will have to be resolved.

The patterns in group 2 are definitely NOT complete. They are more like a first staking out of territory. They give us some idea of the kind of matters which must be addressed, but in this case we are fairly sure that we do not yet have anything approaching a complete system.

On the next three pages we have given a list of the patterns so far identified. On the following pages 8-33, we have given some indication of the content of some of the patterns so far identified.

Patterns 1 and 38 (the first in each of the two groups) give a kind of general framework which sets the stage for the group.

GROUP ONE
THE CHARACTER AND LAYOUT OF OFFICES

1. ENJOYMENT OF WORK IS THE MAIN CRITERION.
PRODUCTIVITY IS DIRECTLY LINKED TO IT
2. SMALL WORKING GROUPS
3. PERSONAL CHARACTER OF WORKPLACES
- 3a. GROUP CHARACTER
4. SOLID AND PERMANENT ENCLOSURES
5. FRAGMENTATION AND CONTINUITY
6. CUSTOM MADE FURNITURE
7. EVERY PIECE OF FURNITURE IS A CENTER
8. ENHANCEMENT OF DETAIL
9. INFORMAL ARRANGEMENT VS. FORMAL
10. HIERARCHY OF ENCLOSURES
11. WORKSPACE ENCLOSURE
12. THE INDIVIDUAL WORKPLACE IS STRUCTURED
AROUND THE COMPUTER, THE PHONE AND A GOOD
SIZE TABLE, AS ITS MAJOR CENTERS
13. HUMAN VITALITY
14. COMFORTABLE DISTANCE BETWEEN PEOPLE
15. ACCESS TO VIEW NOT DAYLIGHT
16. EXACTLY COMFORTABLE LEVEL OF NOISE
17. GOOD MATERIALS
18. FURNITURE WITH EASY AND LOW MAINTAINANCE
BUT LONG LIFE
19. LIFE OF ENCLOSURES LONGER THAN FURNITURES
20. RIOT OF COLORS
21. TYPES OF CHAIRS
22. TYPES OF TABLES AND DESKS
23. CONVENIENT FILING CABINETS FOR PERSONAL
AND GROUP USE
24. INTENSIFICATION IN THE USE OF SPACE
25. CLOSED-OFF, PRIVATE OFFICES ARE RARE
26. POSITIVE USE OF PASSAGES
27. EVENLY SCATTERED SMALL MEETING ROOMS WITH
ROUND TABLES AND VIEW TO OUTDOORS
28. LIMITED NUMBER OF LARGE CONFERENCE ROOMS
29. INTENSITY NODES, WITH HOME-LIKE CHARACTER
30. THICK BOUNDARY ZONES FOR STORAGE TO ALLOW
FREE SHAPE OF INDIVIDUAL AREAS
31. COMMON FACILITIES --OFFICE EQUIPMENT,
BATHROOMS, COFFEE, DRINKING FOUNTAINS--
ARE SHARED BY SEVERAL SMALL GROUPS
32. ACCOMODATION OF CABLES
33. QUALITY OF ARTIFICIAL LIGHT

In addition, the following four general patterns do not describe spatial characteristics of the furniture. However, they do describe important general philosophical problems or conditions, which will greatly affect our approach.

- 34. INACCURATE JUDGEMENT OF FACILITY MANAGERS
- 35. START WITH A SMALL MARKET
- 36. WORKERS CONTROL OVER INDIVIDUAL AND GROUP WORK SPACES.
- 37. THE MYTH OF THE FLEXIBLE OFFICE

GROUP TWO

PHYSICAL SHAPE AND SUBSTANCE OF THE FURNITURE

- 38. INTENSELY POWERFUL PERFORMANCE
- 39. HIERARCHICAL DISTRIBUTION OF MATERIALS
- 40. PIECES OF FURNITURE WHICH ARE MOVED OFTEN, LIKE TABLES AND DESKS, ARE FREE-STANDING
- 41. CONTINUUM OF SUBSTANCE VS. SEPARATE PIECES
- 42. DIFFERENTIATION OF SUBSTANCE TO CREATE A FIELD OF CENTERS
- 43. POSSIBLE MATERIALS
 - PORCELAIN COATING ON STEEL
 - MARBLE TOPS WITH WOODEN BASE FOR SMALL TABLES
 - GRAFITE OR SPUN CARBON STEEL FOR THE STRUCTURE OF REGULAR CHAIRS
 - WOOD
 - FIBER GLASS
 - REPLACABLE CUSHIONS WITH LONG LASTING FABRIC FOR THE SEAT AND BACK OF CHAIRS
 - LEATHER AS FINISHING MATERIAL FOR COMPUTER CHAIRS
 - PAINTED CAST STEEL FOR FILING CABINETS
 - BRASS IN SMALL QUANTITIES, FOR KNOBS...
 - HEAVY MAT BOARDS, LINOLEUM, VINYL, SOFT WOODS FOR WRITING SURFACES
 - GOOD QUALITY PLASTIC FOR THE FRAME OF COMPUTER CHAIRS

44. MATERIALS FOR PARTITION WALLS
45. GOOD GEOMETRICAL QUALITIES AS IMPORTANT AS FUNCTIONAL QUALITIES
46. THE FURNITURE HAS A FEELING OF ELEGANCE AND LIGHTNESS; IT IS MORE LIKE THE FEELING OF FRESH AIR THAN OF A SOMBER DAY
47. VERTICALITY OF ELEMENTS; NOT PRESENT HORIZONTAL EMPHASIS
48. ACCURACY OF DIMENSIONS AND WEIGHT
49. COMPACTNESS AND DENSITY
50. PHYSICAL WEIGHT
51. SHAPE OF PARTITION WALLS
52. PARTITION WALLS TIED TO BUILDING THROUGH POSTS OR OTHER ELEMENTS, SPANNING FROM FLOOR TO CEILING
53. MONOCOQUE CONSTRUCTION FOR PARTITION WALLS
54. A BANK OF PRECISELY MADE DRAWERS AND CUPBOARDS
55. FOOT STOOLS, --AN EXAMPLE OF MORE HIGHLY DIFFERENTIATED FUNCTIONS
56. THE FORM OF EVERY PIECE OF FURNITURE IS SIMPLE; SO SIMPLE, THAT COULD BE SEEN AS A CLEAR VOLUME OR RELATIONSHIPS BETWEEN VOLUMES
57. BOUNDARIES
58. CORNERS ARE SQUARE; NOT ROUNDED
59. CRISP AND CLEAN EDGES; SQUARE AND SLIGHTLY CHAMFERED
60. THERE IS A PARTICULAR TREATMENT IN THE PART OF THE FURNITURE THAT TOUCHES THE FLOOR
61. DURABLE INTERNAL JOINTS --WHICH OFTEN GENERATE SHAPE
62. TOPS OF TABLES AND DESKS ARE MADE OF SOLID MATERIAL
63. THE TOP OF A TABLE EXTENDS BEYOND ITS FRAME
64. DRAWER HANDLES ARE NOT CUT-OUTS; THEY ARE KNOBS OR HANDLES

In the following paragraphs we have tried to summarise, often in a paragraph or two, the key insights that underlie the patterns.

As said before, in some cases the insights are still weak. In other cases there is no insight yet, just a vague hunch that there is something there, and that sufficient talking and research will uncover it.

GROUP ONE
THE CHARACTER AND LAYOUT OF OFFICES

1. ENJOYMENT OF WORK IS THE MAIN CRITERION.
PRODUCTIVITY IS DIRECTLY LINKED TO IT

During the early and mid-twentieth century, furniture and appliances have been dominated by a desire for "efficiency".

In the case of office furniture this was symbolised most clearly, perhaps, by Robert Propst's "action office". So far all 20th century studies of office layout, management, furniture, and equipment, have put their emphasis on time and money, efficiency, and productivity.

However, at this stage in the last quarter of the 20th century, many serious doubts have entered into the picture. Unions have slowed down in their search for high wages, and have instead begun seeking involvement for workers, and greater levels of satisfaction in work.

The crude type of mechanical efficiency pioneered by Taylor in the 19th century, has now given way to deeper levels of understanding in which it has become clear that the worker's welfare as a person, his ultimate satisfaction, and the wholeness of his experience, are the keys to a new type of management, and to a new conception of the workplace.

All of this can be summed up in a single idea: The productivity of a company will be highest, when the level of human satisfaction in the work is high.

In order to invent a new type of office furniture, capable of providing the environment in which this new level of human understanding and this new approach to management can succeed, we have decided to take a single criterion as the fundamental criterion for the success of the furniture.

We shall try, quite simply, to make an environment in which work is enjoyable. We assume that if we can succeed deeply, in this task, high levels of productivity will then follow automatically.

This attitude means that conceptions of the workplace based on narrower ideas of efficiency, will almost certainly have to go. Almost all our ideas about furniture, will have to be scrutinised, and replaced by new ideas, in which the enjoyment of the worker, and the enjoyable character of the work experience, is given first priority.

All the following patterns should be understood and tested from the point of view of their ability to satisfy this demand.

2. SMALL WORKING GROUPS

In general, we should assume that people work in a place where an easy community can exist. This means, a place where four or five people feel comfortable together, separate enough, and individual enough, but where there is a real, and comfortable community of a family size.

Except in rare cases, people prefer to work in SMALL GROUPS. If people are forced to work in isolation they feel detached, or if they are forced to work in a huge mass of people, they feel oppressed.

Therefore, the size of the group is critical for a good working atmosphere; empirical evidence indicates that in no case a group should be larger than about 12 people.

The space of the small working group has to be clearly and strongly defined; it should not be open to a huge undifferentiated space.

3. PERSONAL CHARACTER OF WORKPLACES

Each person's own workspace must be a place where he or she feels PERSONAL AND UNIQUE and where the person feels free to arrange things the way that suits their own needs and ways of working. This requires absolute destruction of the "institutional" environment.

However, personalization of space involves something more than simply bringing in personal things; it involves A QUALITY THAT IS EMBEDDED IN SPACE, rather than added to it afterwards.

This quality is built up over TIME; it is only with time that one realizes what works and what does not, what is needed and what is not, and therefore modifies, adjusts, adds.

We believe we can define this concept precisely.

3a. GROUP CHARACTER

It is also true that each work group must be able to establish the character of their own environment, once again, unhampered by the institution in which the group exists. This is a communal version of the unique and personal character of individual workspace.

4. SOLID AND PERMANENT ENCLOSURES

Real enclosures, which can take the place of old fashioned rooms, are fundamental. The low, flimsy enclosures produced by office landscape completely fail to meet the bill. So do the modular partitions often used in office buildings. Regardless of their thickness and height they create space that feels temporary. Somehow, a range of enclosures, which are solid, but easily changed, must be produced.

We have considered various possible solutions to this problem, which would then totally change the internal character of the office environment in a large building.

This is one of the most important issues. We believe it must be dealt with at a fundamental level.

5. FRAGMENTATION AND CONTINUITY

The present modular character of office furniture causes an intense fragmentation of the world, and makes it impossible for any worker, or group, to create unity in the world around them.

The effect is devastating in terms of emotional exhaustion.

In order to beat it, office furniture and components must be capable of cementing a unified world, which is a continuous unbroken whole. This may require a much greater range of sizes, or, in the extreme case, custom making of individual pieces, to fit different situations.

6. CUSTOM MADE FURNITURE

The modularity and standardization in office furniture and enclosures is directly related with its mass production process.

There is no doubt that one can try to improve the quality of office furniture and office space, within the existing production system. But, one won't be able to make furniture which unifies space, which responds to the needs of a particular office space unless the current system of production changes; unless the character of mass production is alleviated.

The only way to cure this problem is by custom made furniture. Considering this, our proposal to Haworth is the following: Haworth establishes a chain of franchised furniture makers, all of them making "Haworth" furniture. Each furniture builder will be responsible for producing the furniture for a small company, or for a department of a larger company, made primarily for the particular company and for the particular needs of space what the company occupies.

7. EVERY PIECE OF FURNITURE IS A CENTER

The development of systems furniture fails to appreciate the character and uniqueness of each individual piece of office furniture; office furniture pieces have ceased to exist as distinct and identifiable entities; they have become components of assemblage.

It is worth noticing that in today's office furniture manufacturing the word "desk" does not exist; it has been substituted by the word "working surface". The first has the potential of becoming a beautiful piece; the second is just a component.

Every piece of furniture, even if mass produced, must be a beautiful piece by itself. It should have its own character, uniqueness, substance and personality.

8. ENHANCEMENT OF DETAIL

Details are crucial in making; they attribute to the thing to be made its character, levels of scale, coherence; its beauty, in one word.

Actually, in today's office furniture there are no details. There is a tendency to hide the joints where different materials and components meet; and joints is the place where detailing should normally occur.

In today's manufacturing, joints are being designed and resolved in a mechanistic way, instead of being worked out into beautiful details, which enrich the piece of furniture.

9. INFORMAL ARRANGEMENT VS. FORMAL

It is clear, that the workspaces which people make for themselves have a character we might simply call "informal". They have a loose order of grouping, quite dissimilar to the regimented arrays which occur in large corporations.

There are some reasons for thinking that this is perceived by managers as hostile or threatening. It is also clear that some managers think that it will lower productivity, and shrink from it. It is also possible that it is seen as damaging to the corporate image.

However, empirical research leaves no doubt that this kind of arrangement is objectively better for the worker, and for productivity, even though facility managers would tend to think exactly the opposite.

10. HIERARCHY OF ENCLOSURES

Each person is an entity. He is also part of an immediate group, and part of a larger group. The membranes around him, and around the smaller group, must be of a character which allows him the right balance between privacy and contact, and also allows the right balance between privacy and contact, for the group he is a part of, with respect to the larger group in which that group is embedded.

In order for these three entities to maintain their identity, while at the same time they create a coherent whole, a hierarchy of boundaries is necessary.

The boundary which defines the small group has to be distinct in character and weight compared with the individual enclosure, so that the right balance between privacy and contact can exist.

Furthermore, the boundaries around the smaller group should, at the same time, create the right balance between privacy and contact with regard to the larger group, in which the smaller group is embedded.

11. WORKSPACE ENCLOSURE

In many offices, people are either completely enclosed and feel too isolated, or they are in a completely open area, as in office landscape and feel too exposed. It is hard for a person to work in either of these two extreme situations --the problem is to find the right balance between the two.

12. THE INDIVIDUAL WORKPLACE IS STRUCTURED AROUND THE COMPUTER, THE PHONE AND A GOOD SIZE TABLE AS ITS MAJOR CENTERS.

The primary activities that people repeat again and again in their everyday work in an office are: working on the computer, talking on the phone for business matters, doing research and preparation for a project and collaborating with one or two other people.

The particular requirements, in terms of space and furniture, for a proper and enjoyable conduct of these activities are the following:

A. Working on the computer for long hours is an activity that may affect the health of the individual in a bad way. Medical data exists which indicates that the main areas of the human body which are mostly affected are the eyes, the neck and the back. Therefore, the primary requirements connected with health considerations are:

- indirect, dim and concentrated light
- a comfortable chair that can support properly the back and the neck
- longer distance from the screen than the one people are used to today

What is really needed for working on a computer is a comfortable lounge-type chair, placed at a distance of about three feet from the screen, with the keyboard supported on the chair or on the person's knees, and a small table next to it to keep a cup of coffee or the manuals and disks in use.

B. Talking on the phone for business matters requires a comfortable chair, easy access to filing cabinets, a small writing surface that does not allow the paper to slip, a reduced level of noise and extended horizon of view.

C. Individual research and preparation for a project, or collaboration with one or two other people are activities which require a good size table, with good light, regular up-right chairs, and easy access to books and other necessary materials.

13. HUMAN VITALITY

Surprisingly, some workspaces have real human vitality -- a kind of spontaneous joy -- and others -- the majority -- do not. Those which do are obviously more enjoyable to work in. Empirically, they also have higher levels of productivity.

This is a surprising characteristic to think about. One does not normally think of workplaces this way. There are specific physical conditions which create this atmosphere.

14. COMFORTABLE DISTANCE BETWEEN PEOPLE

Distance alone -- just distance -- between people, is by itself one of the crucial variables which affects working comfort. If too large, no good. If too low, no good. There is a critical range, which is just right, and which then makes for enormous comfort.

(The striking difference in the quality of the working atmosphere between the A.P. and Financial Departments in Computerland was primarily due to the distance kept between workers. People in the second case were situated so close to each other that the situation felt congested, cramped and unpleasant.)

15. ACCESS TO VIEW, NOT DAYLIGHT

People think that the critical parameter that makes office environments pleasant is daylight; but actually what really matters is VIEW TO THE OUTDOORS.

It is , therefore, essential for every person to be in the position to get a glimpse of the outdoors.

What implication for furniture.

16. EXACTLY COMFORTABLE LEVEL OF NOISE

The predominant attitude towards noise in corporate offices is that the lower the level of noise in a place, where a number of people work, the more comfortable and productive the working situation becomes. Consequently a lot of effort and money is being spent in trying to reduce its level to the lowest possible.

However, there is a deception in this approach towards noise. When the level of noise is too low, the workplace takes on a very uncomfortable quality. The people start talking in hushed tones, because everything that is said is magnified and heard by everybody in the room.

On the other hand, if the level of noise in a working place is too high, workers will feel distracted from their work; they won't be able to concentrate, formulate their thoughts, hold a talk on a normal level of voice.

Therefore, we have to specify precisely the level of noise that has to be sustained in an office, so that it allows concentration in the work and at the same time induces a vital working atmosphere.

Most probably, this will have some serious repercussions on the extent of the use of the acoustical panels, and on the range and quality of noise barriers. At the moment, acoustical panels are being used, more and more, in the enclosure of EVERY SINGLE INDIVIDUAL WORKPLACE. However, when used so extensively, they tend to create a rather low and homogeneous level of noise, which is highly undesirable.

17. GOOD MATERIALS

A paradox characterizes the use of materials in office furniture manufacturing; quite often high quality materials are being used -- ie. Haworth uses wool for their most expensive panels; however, the overall feeling is that of cheap quality.

The cause for this paradox is that the high quality materials are used only as finishings. The impression that is created is that they are covering up a structure made of cheap materials with no substance.

This inconsistency is really disturbing; it is impossible to touch a desk made this way, and like it.

The reason is probably high cost of materials; however, a better approach, taking cost into consideration, would be to put the money into building a solid and substantial structure for the piece of furniture and reduce the high level of gloss. For example, high-density linoleum, not expensive, makes a writing surface that is superior to almost any other.

In addition, the materials which people like are wood, cloth, etc. What office furniture usually gives them is plastic, steel, glass. This is a fundamental problem. Of course, long life, and easy to clean, are important. However, the basic change of materials cannot be ignored as a serious issue in office furniture.

For example, Xerox research, where they consider the pleasant environment is part of the salary, has wooden planter boxes. A crude touch. But the message is clear. Also, although crude again, plastic wood finish veneer is clearly preferred, when compared with monochrome plastic. HORRIBLE. But the desire for real wood is fundamental somehow.

At the same time, wood cannot be used as the main material. We are sure that a pseudo victorian pseudo 1960's solution will not work either.

This is a very complicated problem.

18. FURNITURE WITH EASY AND LOW MAINTENANCE BUT LONG LIFE

1. Classical design which doesn't have to be changed every few years to stay in fashion.
 2. Good joints
 3. Substantial structure that is well thought out, simple and elegant and sensible.
 4. Examples; solid wood, not veneer, ceramics,
- ***** JUNK: No real implications yet.

19. LIFE OF ENCLOSURES LONGER THAN FURNITURE'S

1. The enclosures should not be thought of as just another piece of furniture, but must be a substantial and long lasting element in the office environment.
2. The intention of this pattern is to give a level of scale to what is more and less permanent.
3. Furniture is changed quite often, the enclosures are not.

20. RIOT OF COLORS

The color scheme in modern day offices looks as though it was designed by corpses for corpses. If there is ever to be a sense of life brought into the office scene, there will have to be a radical shift away from the cold, monotonous and drab colors that presently dominate.

The crux of it is that the colors cannot be controlled by the (or any) designers.

The colors need to come spontaneously, as they do in a market.

21. TYPES OF CHAIRS

1. Specialized computer chair that supports the neck and back of the person
2. Arm chairs
3. Regular up-right chairs (relatively cheap)
4. Couches

22. TYPES OF TABLES AND DESKS

1. Small round tables for small groups
2. Small personal table replacing the current notion of "the desk" or "working surface" that 2 or 3 people can sit around to collaborate.
3. Very small table that can hold a writing tablet for answering the phone, may also be used next to the chair when working on the computer.
4. Large layout tables
5. Conference tables
6. A table of some size, yet to be determined, that supports the computer
- 7 Low tables near couches and chairs, like coffee tables.

23. CONVENIENT FILING CABINETS FOR PERSONAL AND GROUP USE

The current design of office filing cabinets has three major problems:

1. The filing cabinets are usually deep and narrow and require a lot of space in front of them for using them, and they become unstable when the drawer is pulled all the way out;
2. The bottom filing drawers are rarely used because they are very inconvenient to get at; and 3. the design of the drawer is such that it is difficult to get a quick overview of what is in the drawer.

Wide, shallow drawers, with a sloping bottom that slopes up as it moves toward the rear of the drawer would be an improvement on the current system. In addition, for filing cabinets that are used while the person is sitting, the lowest drawer should be at least one foot above the floor.

24. INTENSIFICATION IN THE USE OF SPACE

25. CLOSED-OFF, PRIVATE OFFICES ARE RARE

26. POSITIVE USE OF PASSAGES

The predominant character and use of passages connecting individual and group workplaces within corporate offices tends to be NEGATIVE.

Passages have no character and feeling of their own, since they are always defined by the back side of the panels which enclose workplaces.

Passages are negative as spaces; they lack distinct and good shape. The definition of the boundary between workplace and passage is so harsh and, at the same time, lacks any substance, that passages become long and narrow strips of space.

Passages feel dead and deserted. The unnecessary high ratio between passage areas and work areas, which in quite a lot of cases tends to be 1:1, lowers immensely the intensity in the use of passages.

Passages have to be looked at as positive spaces, both in terms of use and shape. Short passages, with good shape and clear destination point could become the common ground for a working group.

27. EVENLY SCATTERED SMALL MEETING ROOMS WITH ROUND TABLES AND VIEW TO OUTDOORS

28. LIMITED NUMBER OF LARGE CONFERENCE ROOMS

29. INTENSITY NODES WITH HOME-LIKE CHARACTER

In places that people love, where there is excitement, vitality, and enjoyment of work, there will always be areas of relative calm, and areas of intensity, where people meet in the course of their work and chat and joke while accomplishing more menial tasks.

In present day offices this quality is totally lacking. The reasons are two: first of all, the individual worker isolated in his individual workplace, feels almost self-sufficient with all his strickly personal amenities, and very rarely has any reason to move; and second, because the places which could serve such a purpose --where there are copy and coffee machines-- tend to be located in the most ugly, out-of-the way places; they are left-overs of space.

30. THICK BOUNDARY ZONES FOR STORAGE TO ALLOW FREE SHAPE OF INDIVIDUAL AREAS

31. COMMON FACILITIES --OFFICE EQUIPMENT, BATH ROOMS, COFFEE, DRINKING FOUNTAINS-- ARE SHARED BY SEVERAL SMALL GROUPS.

32. ACCOMODATION OF CABLES

There is something almost approaching a mania about cables. Studies now mention it frequently. Facilities managers, who have been programmed by the studies, also mention it frequently. But it is totally unreal. The cables between computers, printers, etc, are very easy to handle, and there is no special reason why they should be invisible.

The office needs a kind of naturalness, comparable to the naturalness of a house in which hi-fi components are connected as they need to be, by freely running wirers.

Proposing a uniform system of cable management is comparable to a nationwide movement which would try to replace all existing hi-fi components in peoples houses, with old style victrolas where the wires are internal and hidden.

This belongs in the victorian era, not the 20th century.

It is essential to reduce the leverage of these considerations; because the goal is to INTEGRATE computers into the office environment and not to let them dominate its order and structure.

NOTE: The fact that computers are allowed to take over and determine office layouts and funiture design to such an extreme extent indicates that there is no solid and deep order in the structure of office space. If there was, computers would be integrated quite naturally. (probably the lack of solid and deep order in office space should be expressed as a pattern by itself)

33. QUALITY OF ARTIFICIAL LIGHT

Uniform illumination destroys the social character of space, and makes people feel disoriented and unbounded.

People must be able to create their own pools of light so that their environment, defined by light, is personal, contained and pleasant. Movable and adjustable light fixtures which direct light on the particular place of work are neccessary.

34. INACCURATE JUDGEMENT OF FACILITY MANAGERS

There is a discrepancy between what the facility managers tend to identify as good quality of working environment and what the experienced reality is.

In all of our visits in the corporations, whenever we saw a place that looked vital, where people enjoyed their work, where they made a small step to personalize their space, the reaction of the facility managers was always really negative. And the workplaces that the facility managers were really proud of, the ones they wanted to show, because they considered them the best, were places of an extremely formal character, where the personality of the worker was completely wiped out.

We have the impression that often, what mainly concerns the facility manager is not to provide for a working environment where work is enjoyable, but to create an image which will give the impression of an effective corporate world.

The facility managers, in today's corporate offices, are thus often destroying potential vitality. They are choking the very life out of the place, both with concerns about trivial matters, and with their very narrow perception of what is really desirable and good for the people working there, and what is not.

How can this problem be solved. Since Haworth mainly sells through the facility managers. This is a crucial, and very difficult problem.

35. START WITH A SMALL MARKET

It is our belief that the kind of furniture, that all of us envision, cannot immediately appeal to a large market, since prejudices are so deep. We also believe that Haworth should not compromise on the character and quality of the product because of this problem.

We recommend, that Haworth builds the most extreme solution possible, which REALLY solves the problem for the user,...and that they should then plan for a slow start, with a long build up over some 8-10 years, as the superiority of the product becomes obvious and accepted.

For this reason it may be helpful to give some thought to small companies. Even though they are a small percentage of the market, it may be just through the smaller companies, with less to lose, that the new product may find acceptance, and ultimately reach the larger companies.

Remember the SONY story.

36. WORKERS CONTROL OVER INDIVIDUAL AND GROUP WORK SPACES

37. THE MYTH OF THE FLEXIBLE OFFICE

Many office systems are supposed to be flexible. However, in reality people experience an enormous amount of difficulty making ordinary changes-- even moving a desk, or files, or rearranging their space.

The furnishing must be of such a kind that people can easily make these day to day changes, and in such a way that they feel the furniture is actually helping them to do it.

In addition, our present conception of "Flexibility" is an invented concept, not a natural one. It is not clear what it means, and to make any headway with it, it needs a great deal of precision in its formulation.

A flexible office should be adaptable to changing needs, all the way from the very small, day to day, changes --such as re-arranging a desk -- to the very large scale changes -- such as accomodating more or less people.

The panel system, though invented for this very purpose, fails to accomodate this need. Neither the workers, nor the facility managers are happy with it. The workers experience an enormous amount of difficulty making ordinary changes. And the facility managers rarely move the panels, because of the high costs incurred.

The degree of changeability of each element in an office is the critical variable for a flexible office.

One has to be able to define the right degree of changeability for each distinct entity. Each entity has to have its own degree of changeability, based on empirical observations.

38. INTENSELY POWERFUL PERFORMANCE

Now we come to the pattern which starts group two: the group of patterns which describe the actual physical substance, style, shape and manufacturing of the furniture.

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Present day office furniture has an uncomfortable feeling of slickness and cheapness. Sometimes the slickness dominates. Sometimes the cheapness dominates.

In order to create a new line of office furniture in which peoples FEELINGS and well being are the central focus, we must change the character of the furniture - its actual physical character -- COMPLETELY.

The key to its character must lie in quality. Genuine quality, the kind which can be perceived by everyone, the kind which cannot be faked.

In order to develop this idea, lets give a few examples, from areas of manufacturing which lie outside the field of office furniture.

In the field of small machine tools, every craftsman or construction woerker, knows the difference between well made tools, and cheap tools. A Milwaukee drill is an example of a high performance, heavy duty well made tool. Everyone who has experience using tools, knows that this tool is ultimately reliable, solid, gives good performance, will outlast by three or four or even ten times a cheaper tool like a Black & Decker or a Skilsaw drill.

In the field of kitchen equipment there is a similar kind of difference.

Heavy duty restaurant cups and plates are the best. Saucepans, frying pans, stoves, ovens -- sinks made of carefully edged stainless steel wrapped over weood -- all these things not only perform better, and outlast the others by a large factor -- they are also enormously more enjoyable to use. They are so much better made, that they induce an entirely different mental state in the user.

In the home, minor economies sometimes make people who know no better, to buy a cheaper thing, without realising that the cheapness is in the end ALWAYS MORE EXPENSIVE.

But in the field of office furniture, prices are already high -- so money is not the main issue. Also, the users are -- by definition -- professionals. It is therefore perfectly reasonable, and natural, that the main element of the furniture should be a fanatical attention to detail, perfection in the choice of materials.

At the most basic level, the furniture must be designed not by slickness of line, not by image, but by the quality of working, performing far far better than any others.

But this takes very careful study.

The original black body Leica made in the 1930's -- perhaps the best camera ever made from the point of view of handling -- was developed by experiments which took three years, just to establish the shape, weight and material of the body. No one has ever equalled its design. It simply took enormous care and patience, and attention to detail, and real attention to the actual comfort in use.

What is interesting and remarkable, is that this careful attention to detail, the careful design of true reliability, true comfort -- always produces things which have a unique physical shape and character -- but at a level of emotional weight which can never be duplicated by design for image.

The traditional classic line of french kitchen equipment for example. It was not designed by designers. It was designed by people who tried to make it as perfect, as durable, as workable as possible.

We propose that the new line of furniture will be of an excellent quality and high performance, so that it becomes for the furniture world what Milwaukee is for hand tools, what Leica was for cameras. The common characteristic of these things is that they are made to be extremely durable and to perform well.

This will then inevitably lead to a unique form.

39. HIERARCHICAL DISTRIBUTION OF MATERIALS

Places with great character and quality, which create a powerful image, always have a very definite, logical and discernable distribution of materials. Their actual distribution approximately follows a logarithmic curve.

There is a material that predominates, which is the structural building block of the space, and gives to the place its identity. And there are other materials, used in smaller and smaller quantities, which support and strengthen the more predominant material, and which intensify and embellish particular centers in the structure of space.

Therefore, it is essential that the new line of furniture be designed with very specific ratios in the distribution of materials, which have yet to be determined.

40. PIECES OF FURNITURE WHICH ARE MOVED AROUND OFTEN, LIKE TABLES AND DESKS, ARE FREE-STANDING

41. CONTINUUM OF SUBSTANCE VS. SEPARATE ELEMENTS

The geometry, as well as the connections and relationships among the individual elements within a piece of furniture are characterized by NOT-SEPARATENESS.

Good shape, positive-negative, deep interlock, echoes ... are geometric properties which have the capacity to generate continuum of substance.

42. DIFFERENTIATION OF SUBSTANCE TO CREATE A FIELD OF CENTERS

Continuum of substance does NOT imply an undifferentiated and homogeneous piece of furniture; on the contrary, it needs differentiation of structure, with regard to the particular position and function of every part in the piece of furniture. The continuum of substance will ultimately work only when the right amount of differences and similarities among the parts of a whole is introduced.

Within a piece of furniture every part of it contributes on the whole on its own particular way; with regard to its position, its function, its relationship with the whole piece. This type of distinctness and individuality in the piece has to be manifested in its ...

43. POSSIBLE MATERIALS

Possible materials for furniture:

- graphite or spun carbon
- wood
- linoleum, vinyl, heavy mat boards, soft woods for writing surfaces
- painted cast steel
- replacable cushions with long lasting fabric for the seats and backs of chairs
- marble tops on wooden base, for small tables
- good quality plastic
- porcelain coating on steel
- fiber glass
- leather as finishing material for the computer chairs
- brass in small quantities
- painted surfaces

44. MATERIALS FOR PARTITION WALLS

Possible materials for partition walls in office spaces are:

- plaster
- light screens with delicate fabric
- wood, in limited quantities
- heavy screens made of wood and stretched fabric
- sliding doors or opening folding doors

45. GOOD GEOMETRICAL QUALITIES AS IMPORTANT AS FUNCTIONAL QUALITIES

The role of a piece of furniture is not limited to its proper function. It has to be a beautiful thing in itself, with good shape, right proportions; it should contribute to the enhancement of unity and coherence in office space.

46. THE FURNITURE HAS A FEELING OF ELEGANCE AND LIGHTNESS; IT IS MORE LIKE THE FEELING OF FRESH AIR THAN THAT OF A SOMBER DAY

Kill the institutional character of office furniture!!!!!!!!!!!!!!!!!!!!

47. VERTICALITY OF ELEMENTS; NOT PRESENT HORIZONTAL EMPHASIS

The feeling of verticality should be enhanced in office furniture, and office space as a whole. Space should be grabbed in all its dimensions, so that a continuous and tightly connected fabric of space comes through.

This by no means implies, that the furniture pieces have to be tall and narrow, but that their elements have to be structured and connected in a fashion that enhances the feeling of verticality.

Shaker furniture is a good example.

48. ACCURACY OF DIMENSIONS AND WEIGHT

A tool that performs really well, whether a drill or a camera, or a frying pan, has always been designed with emphasis on accuracy of dimensions, weight, balance, details. Exactness of dimension and shape in every curve, corner, edge,is the primary variable for a thing that functions well and has a good form.

49. COMPACTNESS AND DENSITY

Existing office spaces have an uncomfortable homogeneity -- an emotional greyness - which is generated by sameness of scale among all the elements. Gradation of scale is needed, with an emphasis towards the small end.

A series of observations have led us to believe that there is a number of things that get better when they become smaller, and a few things that get better when they become larger, resulting to an overall more connected structure of space. It is important to approach office furniture and space from this point of view, and identify which entities will get better when smaller, and which better when larger, and therefore create a more compact, connected and dense environment.

50. PHYSICAL WEIGHT

A settled and permanent place has a particular distribution of heavy and light objects; the heavy objects, the ones that are not moved very often, tend to be more numerous than the light objects, which are moved frequently.

Coupled with this is the observation that a lot of things get better when they have substantial physical weight, and a few things get better when they get lighter. The design of office furniture has to consider this variable rather seriously.

The best example that we have to explain this pattern is the plastic beer mug that is often used in restaurants and cafe's today. Although they are extememly practical, cheap to buy, easy to clean, hard to break, the fact is that they cannot compare in feeling to the heavy glass mugs. Anyone who has experienced both types of mugs will readily agree.

51. SHAPE OF PARTITION WALLS

Walls are always straight, never rounded. Because, they do not only generate positive space in the place they enclose, but also in the spaces adjacent to it.

52. PARTITION WALLS TIED TO BUILDING THROUGH POSTS OR OTHER ELEMENTS, SPANNING FROM FLOOR TO CEILING

Partition walls are not free-standing; they are connected with the existing structure of the building in order to encaptulate space in all its dimensions, in order to create a real enclosure.

53. MONOCOQUE CONSTRUCTION FOR PARTITION WALLS

In this scheme, the walls would be fabricated from internal ribs with membranes on both sides. The ribs should be very wide (2-3 feet) so that benches, book shelves, and counters could be built right in.

54. A BANK OF PRECISELY MADE DRAWERS AND
CUPBOARDS

A wall of precisely made drawers and cupboards of wood and formica, is an effective way of enclosure and storage at the same time

55. FOOT STOOLS --AN EXAMPLE OF MORE HIGHLY
DIFFERENTIATED FUNCTIONS.

56. THE FORM OF EVERY PIECE OF FURNITURE IS
SIMPLE; SO SIMPLE THAT COULD BE SEEN AS A
SIMPLE VOLUME OR RELATIONSHIPS BETWEEN
VOLUMES

Simplicity, not simple-mindedness. Every piece of furniture, regardless of how complicate is, has a clear and distinct form, simple in its overall configuration.

However, locally is not simplistic; the complicateness of its structure is expressed in its detailed articulation than in its overall form.

57. BOUNDARIES

58. CORNERS ARE SQUARE, NOT ROUNDED

59. CRISP AND CLEAN EDGES; SQUARE, AND
SLIGHTLY CHAMFERED

60. THERE IS A PARTICULAR TREATMENT IN THE
PART OF THE FURNITURE THAT TOUCHES THE
FLOOR

There should always be a particular treatment in the part of the furniture that touches the floor; obviously for practical reasons, somebody would respond --it will stand better on the floor.

But actually the main reason for articulating the part of the furniture that meets the floor on a particular way is that it will become a more connected and integrated part of space.

61. DURABLE INTERNAL JOINTS -- WHICH OFTEN GENERATE SHAPE

Joints which allow one piece of material to rest on another without extra fancy connectors

62. TOPS OF TABLES AND DESKS MADE OF SOLID MATERIAL

63. THE TOP OF A TABLE EXTENDS BEYOND ITS FRAME

Only then interlocks and is deeply connected into one with the space around it.

64. DRAWER HANDLES ARE NOT CUT-OUTS, THEY ARE KNOBS, OR HANDLES