

INNOVATIVE FURNITURE



*Custom built modular furniture, ergonomic workstations
Tata Telecom office, Delhi (Architect Vinod Gupta)*

From Table to Workstation

Vinod Gupta

*This is the story of a transformation
of boss into typist
of typewriter and carbon into softcopy
of cabins into landscaped spaces
of hierarchical systems into functionally organized ones
of furniture pieces into modular systems
of teak mouldings into post-formed edges
of fans into air-conditioners
of office table to workstation*

There was a time when office furniture consisted of tables, chairs and storage cabinets, one for each person. Many different pieces went into making an office. The furniture was made mostly of teakwood and custom designs were common. The hierarchical order was very clear, the higher the person, the bigger the table and more the space around it. The office table was used for different activities. For paper work, for filling out forms, for writing out registers, for reading files and writing memos, for making phone calls and for meeting people. The essentials of the office desk were:

a table top, a drawer, in and out boxes, a pen stand, a container for paper clips, pins, eraser, paper weights etc. and lots of space for files, forms and registers, and a straight backed chair.

In the early eighties when the office desktop computer appeared, things started changing. The first computers were used as typewriters and went into secretarial areas. They occupied most of the standard worktable and even required extra space for the printer and the mandatory voltage stabiliser. Since the table was not deep enough for the computer, a drawer had to be added to accommodate the keyboard. It was not until better software was available that the computer became a popular addition to the common office table. Although the paperwork was still there, the computer made life simpler for the office worker. There were two important differences, the computer occupied almost the whole table, and it also came with a lot of wires. The back of the machine was so ugly that it was best positioned against a wall. The screen or divider panel was thus born. Because of the computer, the tables of the senior persons had to be split

into two parts- one for work with the computer and the other for visitors. To use the machine it was necessary for people to type, and this changed the hierarchy in the office. Those who would not ever have touched the lowly typewriter, suddenly became proficient typists. The computer was no longer a typing machine but a status symbol. Eventually this development will lead to disappearance of typists as a class.

The second transformation took place when LAN or "local area network" appeared and computers within the office were linked together. Paper documents started disappearing and printers at individual tables became unnecessary. In highly networked offices, it became possible for people to work at any table in the office because electronic documents were accessible from all workstations. Some companies even implemented the concept of mobile workstations.

The third transformation is taking place now with the advent of the Internet, more appropriately called the World Wide Web. Not only can documents be transferred electronically within the office, it has also become possible for people to send and receive them instantly from across the world, at their own place of work. Since the mailbox is not physically located in the office, it is possible to receive and send mail from anywhere, home or office or any other place. The boss becomes his own typist, office boy and despatch clerk. The workstation becomes mobile.

Development of the office table

The original Indian worktable was used sitting cross-legged on the floor. It had a rather small sloping table top that could be lifted up to reveal the storage space below, a built-in ink stand and a bit of flat area at the top to keep the pen or pencil. Its contemporary European table was used sitting in a chair, with a larger tabletop and built-in drawers for storage. The best of these tables had a small raised portion in front, for privacy and storage.

The contemporary table on the other hand has a flat top, reference area on the side, and screens on two or three sides enclose it. It is wired for power, telephone and computer network. If there is a drawer it is mainly for a keyboard. And the chair comes with casters, height adjustable seat and many different combinations of back adjustments. And most of all now, a series of medical problems- Computer Induced Repetitive Stress Injuries (CIRSIs) such as carpal tunnel syndrome, back ache, neck ache, headaches, TMJ, computer



Traditional Indian Worktable or munshi desk



Built-in furniture and partitions
JK Industries office, Delhi (Architects Modern India Architects)

vision syndrome and so on. With all the conveniences at the worktable, it is now possible for a person to spend the whole day sitting at his computer without once getting up to take a phone call, to pick up files or to deliver papers. To deal with this problem the manufacturers have tried to make the furniture compact, comfortable and ergonomically designed.

Advertisements for furniture show happy executives reclining back in their chairs. The question is not how good the furniture is but how good the user feels after long hours of work. The provision of all facilities at the table itself allows the worker to stay at his seat all day ignoring the fact that the best thing for people is to look around after every few minutes of work, and to move around after every hour of work. The luckiest people are those who can break up their day by different kinds of work.

Development of the office chair

Office chairs in India used to be a simple wooden affair, usually with a narrow seat, until Godrej came along with its massive executive chair with castors and the modified version of the elegant Eames steel pipe chair for general staff. These spawned all manner of copies. The woven seat of the latter was ideally suited for the non-air-conditioned office, and the well-balanced design allowed people to move it around effortlessly. On the other hand, the executive chair impressed visitors with its size but left the user uncomfortably hot and with many back problems.

Featherlite introduced the new range of office chairs with castors and height adjustment, in India. These European designs were considered a premium product, but they had many problems in the Indian context. As the computer workstation came into being, the adjustable chair became a popular and indispensable part of the office environment. However, the problems remain to be solved.

Ergonomic Furniture

The minimum requirements of table and chair combination are that they should work well for people of different heights. That calls for the table and chair height to be adjustable.

Height adjustable chairs are commonly available but not tables. The chair has to be adjusted to such a height that feet rest flat on the ground - particularly for chairs on casters where the user wants to be mobile. The table has to be no more than 25 cm. higher than the chair seat. The result of the fixed table height is that users of short stature end up adjusting their chair height according to the table height and in the process, their feet are left dangling in air. When people suffer from spondylitis, doctors recommend that the table or work surface be tilted up. There is no reason why a healthy person should not benefit from such a table also.

New offices

The designer has the option of buying ready-made furniture or of getting custom designed units fabricated by a furniture maker. For want of time and expertise, interior designers seem to favour ready-made furniture increasingly.

The furniture available in the market is of two kinds, panel-based systems and independent units. The former comes as a set of ready to assemble panels for partitions, all other furniture including tabletops and storage units are suspended from the panel frames. The main advantage of these systems is the range of standard products - partition panels, tabletops and accessories available. This allows quick layouts as options and sizes are limited. The designs of some of these systems have been imported from USA and are better suited to very large office spaces that are prevalent in the USA. In smaller offices where the local conditions are important, it is not easy to apply these. The panel-based systems are designed to replace timber partitions and freestanding furniture, and carry raceways (or conduits) for power and network wiring. The high initial cost of these systems is partially offset by their high salvage value, if the office has to be moved to another location or if the layout has to be changed. The standard components can be reused easily, although the wiring is replaced. Despite the convenience of using standard components, if many designers continue to use other systems it is because offices with panel based systems tend to look the same whether they are in Manhattan or in Madras. They can't really distinguish between the director and the data entry operator either. These systems carry one advantage of mass-production, i.e. their quality is consistent.

The other system available is freestanding furniture items such as tables, storage cabinets, filing racks and in some cases entire workstations with all these items incorporated in a single piece of knockdown furniture. These can be bought ready-made or fabricated according to individual requirements. With these, the designer has the flexibility to arrange spaces, finishes and colours as required. Partitions, if needed, are made from any of the commonly available boards and framing systems. In case the office has to relocate, partitions have to be scrapped but the furniture can be easily dismantled, transported and re-used. This is usually not possible in the cheapest option where tabletops are built in to the partitions. It is also not possible where, hard-to-transport, large items of furniture are used.



*Ready-made furniture with custom built partitions.
RSCG office, Mumbai (Architect Neerja Tikku)*

Furniture costs

A major cost of in setting up an office is furniture. Traditionally office tables and storage cabinets have been made of durable materials like teakwood, block board and decorative laminates in India. The first two materials are not considered environment friendly materials because of the use of wood. European and American furniture manufacturers make their furniture almost entirely out of particle board and medium density fibreboard (MDF), materials which require more precise workmanship and new hardware. Indian manufacturers have also tried to use these materials but without investing in the specialized tools and equipment. As a result, the quality of ready-made furniture does not compare well with International standards. At the same time the cost of Indian furniture is generally higher than comparable imported furniture. This problem will be resolved only when Indian manufacturers are able to use the advantages of mass production.

As compared to this, chairs of good quality are now available in many different designs. Apart from the major national manufacturers, many small manufacturers are also in the fray.

What do we need?

The office environment has to allow people to work with as little stress as possible. Jobs must not be repetitive and boring, and if this can not be prevented, then at least there must be sufficient breaks in the tedium. People, who have control over their workday, already organize their work like this. This must be made applicable to others down the line. One of the most stressful jobs in an office is that of the receptionist cum telephone operator, who has thousands of brief but demanding encounters during the day. It would be rare to find a reception lobby that is designed from the point of view of the receptionist and not just the visitors. A lot of organizations actually put a receptionist as part of the décor.

More women are working in offices than ever before and their jobs are not restricted to secretarial work only. Many of them wear sarees, long salwar suits and dupattas to work and they are all scared of getting their flowing attire caught and destroyed in the castors of modern office chairs. Has any chair manufacturer or designer thought about what a benign chair ought to be? Chair manufacturers describe adjustable chairs as "ergonomic", because these chairs allow people to adjust them according to their needs. Yet a simple survey in any office with adjustable chairs would show that people sit in bad postures. Chair users do not know the optimum settings. Since

the effects of a bad sitting posture are felt only after a long time, people are unable to judge the correctness of chair settings and try to adjust it so that they are most "comfortable". This setting is usually not the most "ergonomic" one. What is needed is either a training programme for chair users or a simple chair with few settings.

The relationship between chair and table was mentioned earlier. The average height of women being less than that of men, they suffer more because of the wrong height of chairs and tables. Yet, height adjustable tables are not available.

Traditionally sloping work surfaces have been provided in drawing and design offices and in schools. These tables were designed for comfort and were not used for negotiation across the table. Doctors advise people with back problems, to tilt up their worktables. Computer keyboards are invariably used in a tilted up position. The tilted worktop is better for reading and writing, as the neck can be held straight. So long as the same table is used for meeting people and for working, a flat tabletop made sense but there is no reason why this should continue in the new system of private work spaces that computerisation has brought about.

The author practices architecture with a sharp eye to furniture detailing in his projects.