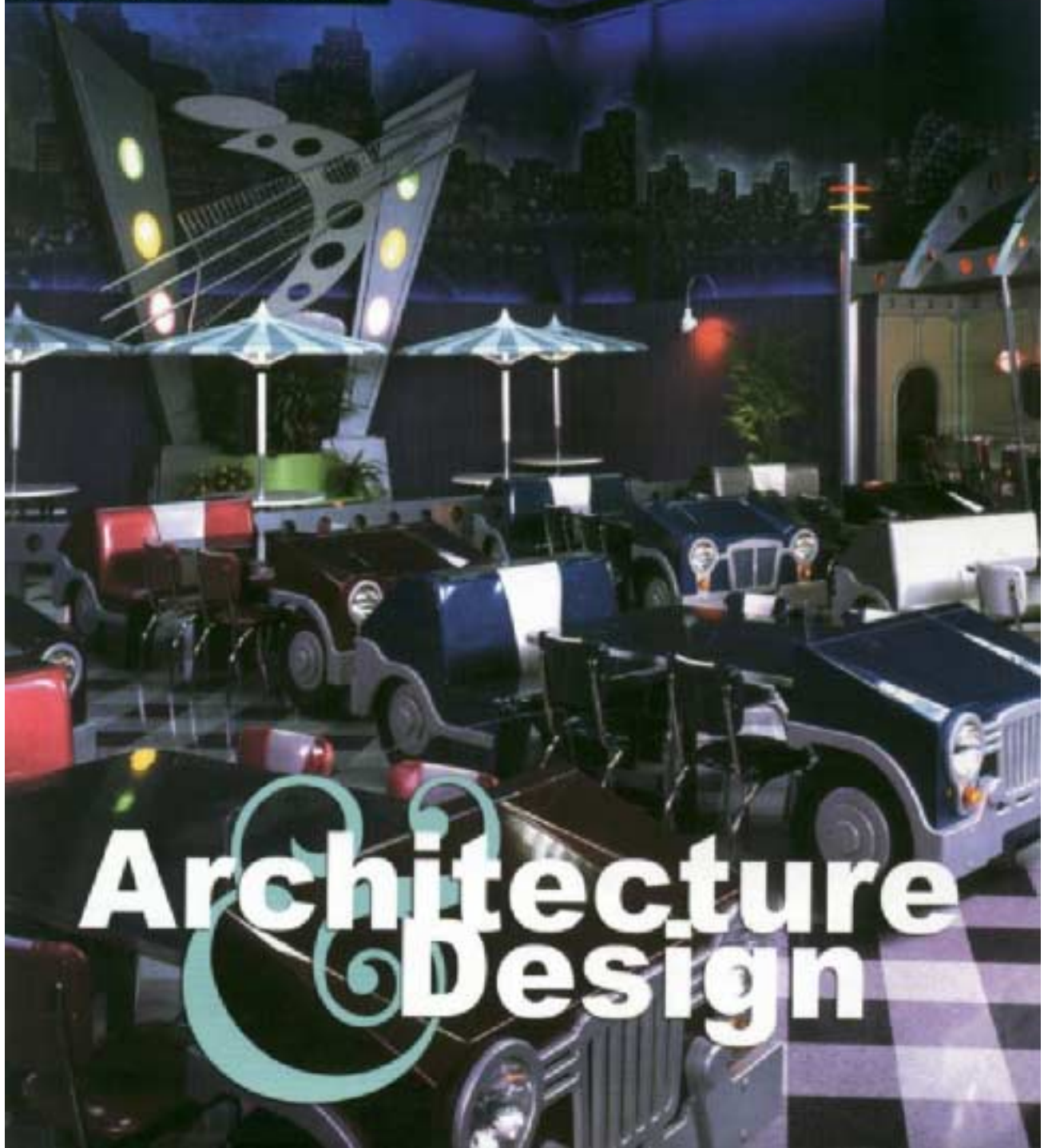


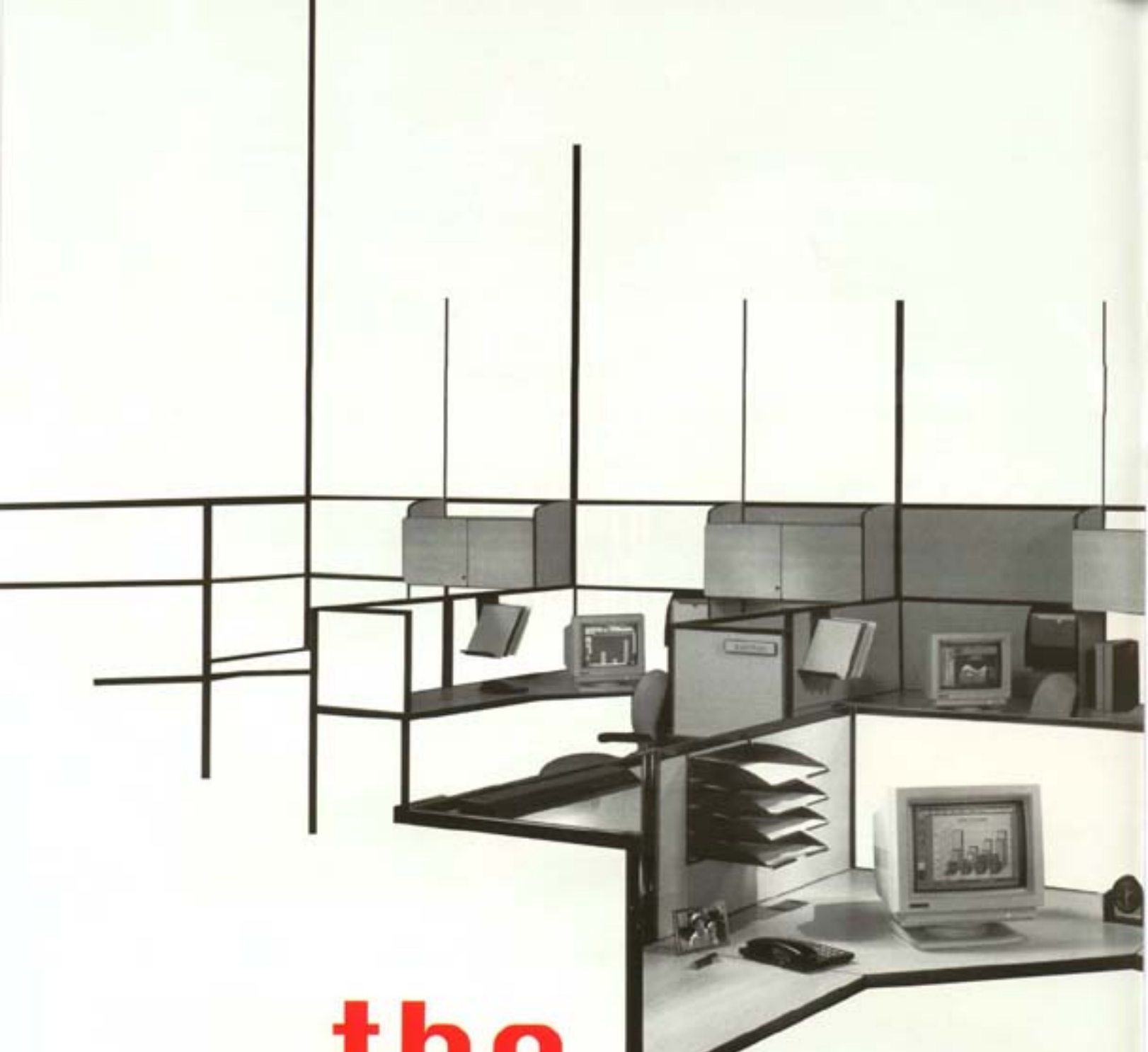
# FMJ

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# Architecture & Design



**the**  
**open**

The open plan office, originally known as the landscaped office, is now enjoying its fourth decade of use in the United States. It has encompassed many philosophies in its travels, from its inception as a method of organizing the office based on work and communications flow to its role in organizing for better floor space and storage efficiency and on through many stylistic phases. It has now arrived back at its point of origin in discussions of productivity and resultant economics.

# plan office

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Steve Orfield

At the beginning of the open plan movement, interior design was often considered the poor stepchild of architecture in the execution of office projects

The open plan office arrived in Canada from Europe in the '70s and found its way into the United States shortly thereafter. Early proponents of the open plan embraced its pure play in architecture, not yet burdened by the metaphors of technology. Try to imagine or recall the world that existed then: no personal computers, no PDAs, no digital calculators, no fax machines, no e-mail, no voice mail, no cellular phones, Information traveled by phone, by voice or by written hard copy. In contrast to the obscure rationalizations for today's so-called "universal standards" approach, the initial open plan concept was not based on complex behavioral or organizational theory, but on basic physical efficiency. The early explanations of the open plan office-from the Quick-borner Team, who introduced the "burolandschaft" (office landscape) concept or from Bob Probst, the reluctant father of the cubicle-cloaked the sound of efficiency with the trappings of social commentary on the future egalitarianism of the office. The optimism of this concept in the '60s and early '70s gave it the further mantle of architectural science. Many of us who were there at the beginning shared in the revolution of knocking down executive row, returning natural light to the workers and reducing the hierarchical formality of the office. From its beginnings in 120-square-foot-plus spaces-acoustically screened, carefully lit, well-engineered asymmetric environments-we have regressed all the way to

today's 48-square-foot cubicles arranged in monotonous double-spline rows constituting environments of regiment and uniformity.

### Architecture, interior design and FM

At the beginning of the open plan movement, interior design was often considered the poor stepchild of architecture in the execution of office projects. There had been for many years an underlying tension and distrust between architects and interior designers. Architects generally characterized their work as substantive and essential and that of interior designers as stylistic. In many firms, the underlying comparison was the "master builder" versus the "rag picker," Most architects did not have interior design departments; some tolerated relationships with outside designers. There was another point of friction between the consulting architectural engineer, especially the electrical engineer, and the architect and interior designer-most often over the constraints on space layout alternatives imposed by the power grid. The office design process had, up to this time, been a serial process, with the architect designing the building schematic and developing the design and then handing it off to the engineers and designers to add their design "layers." The engineer responded with system designs intended to function under any conceivable office use and the interior designer was generally expected to fill in the "details." The smoldering potential of "facility management"-at this time, not yet a formal job title in most firms-provided an analogous "rags-to-riches" story of the emerging shift in the balance of power in corporate office design. With the dawn of the open plan office, the person dealing with the facility management functions was often the purchasing agent, the facility engineer or a reluctant member of the management team. In its first generation, the open plan office brought about major revolutions in the relative importance of these office-design constituencies.

Major architects developed interiors departments, often headed by architecturally trained designers. The engineering departments became more oriented to engineering for a "task environment" and the facility manager came of age as the gatekeeper to represent the interests of the corporation as opposed to those of the design firms that they employed.

### Architectural technology

During the first decade of the open plan office, much research was undertaken on the performance of these environments using terms and methods that now comprise building performance. Many concepts and approaches emerged from these projects in a series of principally perceptual disciplines, including:

- o Acoustics and speech privacy,
- o Visual privacy and visual comfort;
- o Thermal comfort; and
- o Lighting concepts such as task and ambient illumination, veiling reflections and glare.

While these concepts often had their origin in other disciplines, they began to cloak the open plan office with the air of science. As the field began to work with building performance issues, it also began to spin off specialized products to deal with these problems, including

- o Acoustic dividers of known performance;
- o Dividers with and without glass for optional visual privacy;
- o Electronic sound masking systems,
- o Low-glare ambient lighting; and
- o Varying quality task lighting.

As with much of modern architecture, the furnishings and equipment manufacturers, with great fanfare, began to fill the pipeline with scientific and pseudo-scientific products which could be used either to solve perceived problems or to establish these so-called problems as fact by the very existence of the new product range. Architects and designers could be heard in technical discussions completely outside the range of their experience, and on the other side of the dialogue, furniture salesmen were found masquerading as technical and organizational gurus, albeit often unintentionally,

The temptations within architecture to explain and solve problems diagrammatically found a whole new range of expression in the new office genre with the “bubble diagram” organizational chart, the acoustical or lighting “arrow” diagram, presumably showing sound or light movement, or the “daylighting cross-section.” The aesthetics of engineering, not yet called visualization, took an internally rewarding leap forward, comforting both sides of the explanatory graphic transaction. Neither side as yet knew that these sciences were not so easily characterized, and neither would find out for some time that the robustness of these diagrammatic explanations was often underpinned by the insignificance of many of the so-called problems.

The problem of the open plan office was, as always, one of definition rather than solution. Since definition was not to enter the office field for some time, solutions were not to be considered against these future benchmarks, but rather were evaluated intuitively as they had been in the past. The principal benchmark in the ongoing saga of the office was similar to the old benchmark in architecture; i.e., if there are no complaints, it must be working fine

### **The new millennium**

Fast forward through the '80s, '90s and into the new millennium and we have the continued saga of the open plan office, which has

now been layered atop its ever-increasing technology base. Communication has changed dramatically; the social office setting has reverted, in many cases, to the old hierarchical office of the '50s and '60s. There is no longer much talk of the office as a communications metaphor, and office design is being driven strongly by the economics of space. Whether the office will continue whether the office will continue The big question now is whether the office will continue to exist, and it is a question somewhat similar to that of retail vs. e-commerce. Is there any essential or essentially positive experiential base for the “cubicle” office?

Productivity has come into its own as a seminar topic among facility and design professionals, even though it has no defined meaning in most office settings. There has been a conversion from the open plan insider's jargon of its early history to the economic jargon of its current times. Expectations for technical or building performance have long since faded from most projects, and technical experts are no longer involved in most open plan offices. Interior designers are now often independently responsible for the design, and for its application of daylighting, lighting, acoustical and thermal performance: with the assistance of the architect and engineer. There are no definitions, as there used to be, of measurable performance, and few really believe that open plan offices “work” in any substantive way. The office cube system is now the tinker toy.

# ORFIELD LABORATORIES

## and the Open Plan Working Group

Orfield Laboratories (OL) in Minneapolis, Minn. is a consulting lab that has been in practice since the early '70s. It began as an acoustical and lighting practice dealing primarily with the new office landscape concept of that time, and its beginnings were traceable to the early technical failures of the open office.

For its first 10 years, the firm worked in architectural consulting and provided office design, research and testing in its open plan office lab and field research and testing for many areas of architectural acoustics, lighting and audio-visuals. During this time, the lab designed and patented masking systems, was involved with office system design and executed open plan office technical design consulting across the country.

In 1980, at the height of the building recession of the early '80s, OL entered the corporate research field and began to offer product testing and development consulting, principally to the Fortune 500 firms and the consumer-oriented market. In 1990, the firm bought the former Sound 80 Studios complex, the world's first digital recording studio and set up its most intensive design, research and testing capabilities in product development and architecture.

As part of that research effort, the firm developed the concept of Perceptual Market Research (PMR), a process of quantitative measurement of consumers which was then correlated with analytical measurement in the acoustic and visual fields. The firm was central to the development of sound quality research and trained and consulted to many industries, including the automotive, appliance, aircraft, consumer products and architectural products fields.

OL worked with such household names as Harley Davidson, Black and Decker, Whirlpool, Maytag, General Electric, Kohler, and Briggs and Stratton in helping them to understand the relationship between their engineering effort and behaviorally based perceptual research. With this brief reference to history, and with its experience in the objective-subjective research field, OL decided in 1998 to organize a new effort to look at the open plan office and called this effort the Open Plan Working Group. The intent of the group, sponsored by major manufacturers in the field such as Haworth, Armstrong, Soundolier, Hunter Douglas and Philips Lighting, was to pursue these missions:

1. Reintroduce the knowledge base of findings from open plan research efforts;
2. Perform occupant PMR research to understand what the occupant is responding to, positively and negatively, in the office;
3. Develop a number of projects to demonstrate

- the application of science and occupancy science to the open plan office;
4. Study new office metaphors; and
5. Include academic and other experts in joint seminars and research.

Now in its second year of operation, this group has added Corporate Consortium meetings with specific themes to its efforts. The first of these meetings centered on future office design and the second on call center design. The methods applied to researching the consumer's reactions to product design are now being used to characterize open plan offices, and early pilot work has measured design and facilities professionals as well as the public regarding the design of open-plan offices.

With methods based on a visual PMR jury, we have measured three separate groups. These groups have been at design conferences—the first at DesignNYC. Ron Raetzman, an architectural lecturer of international reputation, was asked to put together a presentation for last year's conference, and he asked the OPWG to get involved. Jay Brand and I gave a joint presentation on office design in the next millennium, and as part of this presentation, we used a PMR jury to test the occupants on their response to visual changes in an otherwise identical office.

After testing about 70 participants, many in the group noted that there were no significant differences in the visual stimuli, suggesting that they would all be ranked the same. Actually the results, borne out in two additional PMR juries, suggest quite the opposite. While the respondents assumed that visually similar images of office cubicles would elicit little useful information, the rankings suggest that the feelings driving their rankings were not consciously known to them.

These initial findings imply, perhaps troublingly, that since current programming techniques rely almost exclusively on the conscious reports of occupants, subtle yet potentially important design features may be routinely overlooked. Is it possible to measure these aspects of "good design" and perhaps even demonstrate their economic value?

In first laboratory research under controlled conditions and later applied to actual project installations, the OPWG wants to design open plan office environments as solutions to problems defined in terms of the performance of the spaces for their occupants. Since their people cost organizations roughly 10 times what buildings and facilities do, approaching the open plan office from their perspective would seem to represent a step in the right direction.

set of interior architecture, and occupants have come to understand that it provides little more than visual separation from closely spaced work-mates whom they can hear clearly all day long.

We have finally accepted the open plan office as a way to save money and space at the cost of occupancy quality, but we really don't know what that transaction implies. Just as we didn't conduct sufficient research before, we are still doing little substantive work toward demonstrably superior solutions for future open plan office environments. More often than not, the success of new office installations is measured by space-savings or other cost effectiveness measures, rather than in terms of the ongoing performance of the space for its end-users.

About the author: Steven J. Orfield, the founder of Orfield Laboratories Inc. in Minneapolis, Minn., has been involved in the consulting field for three decades. From his beginning acoustical and lighting research in the open plan office area, he has moved into product research and has developed acoustic, sound quality and lighting and visual quality testing and evaluation methodologies architecture and product research. He has taken a human factors approach to architectural technologies which he believes is crucial for high-quality facility performance. Orfield has authored and been mentioned in more than 100 national articles on acoustics, audio, video, lighting and facility system design and integration and is the recent founder of the Open Plan Working Group. He can be reached by e-mail at [steve@orfieldlabs.com](mailto:steve@orfieldlabs.com).

