

## EXECUTIVE SUMMARY: MANY QUESTIONS — AND A FEW ANSWERS

The physical nature of a workplace — from efficient floor plans to the proper position of computer keyboards, from ensuring clean indoor air to capturing the right aesthetic "feel" — is a critical factor in any business process. The current research literature on workplaces, whether from an organizational, architectural, social or public health and safety standpoint, is in general agreement that the state of the American workplace is changing rapidly, and that those changes will have fundamental impacts on the competitiveness of businesses, on the health and satisfaction of their workers, and on the communities in which they operate.

A great number of people in many professions and disciplines are investigating the current problems of the workplace — repetitive stress injuries, indoor air quality, waste disposal and recycling, worker comfort and safety, data quality and security, space planning and flexibility, energy inefficiency, zoning and workplace-neighborhood relations, and hundreds of other specific problem areas. The information grows exponentially, and in fact often serves to hinder the larger goal of integrating our efforts into the creation of good workplaces.

What we need is a positive model of what the workplace should be, a set of goals and criteria that can guide the innumerable decisions which go into the creation or remodeling of workplaces. We need a strong image of what we are striving toward in order to make sense of all of the information we have which warns us of what to avoid.

Workplaces, like all buildings, are created by people and organizations, and are subsequently experienced by other people and organizations. The creation and use of the workplace also exist within a framework of cultural values as well as individual and organizational values. We must examine the creation and the experience of workplaces though the overarching criteria of *environmental quality*, in an attempt to discover ways to improve the creation of workplaces and, ultimately, to enhance the productivity and satisfaction of everyone who experiences them.

The examination of environmental quality in this position paper is framed as a series of questions about workplace use and workplace creation:

- First and most basic, we need to ask what a workplace is, and look at the ways in which the settings for work have historically and presently responded to human, organizational and cultural needs. This requires an examination of the ways that a workplace serves to convert some resources into others.
- We then look at who uses workplaces, and why. Who are the participants in the work setting? What do they want?
- From that we are able to ask our third question: what does it mean to say that a workplace works well? What are the criteria that will allow us to evaluate the environmental quality of the workplace?
- At this point, our focus shifts from the use of workplaces to their creation, and we ask our fourth question: who are the players in the processes of workplace creation? Who are the people engaged in trying to achieve environmental quality, what processes do they engage in, and what aspects of the environment do they have control over?
- This brings us to our fifth question, which encapsulates much of the research done to date on workplace problems: at what point in the creation process do problems and mistakes enter the picture? Do different kinds of problems arise at different points in the process? If so, how must the processes of creating workplaces be changed so that the resulting places meet the criteria that individual and organizational users set for it, and at the same time satisfy our larger cultural goals and ideals as well?

The answer to these questions will require a significant restructuring of the way we think about building, about development, about the design and construction professions. We argue, though, that addressing them with care and creativity is the only way that our workplaces can become the fully healthy and productive environments they must be.

## INTRODUCTION: WHERE DOES THE IDEA OF ENVIRONMENTAL QUALITY COME FROM?

*I know there are people out there studying building security, and people studying indoor air quality, and people studying acoustical design, and other people studying a thousand other things. And I'm here studying human thermal comfort and building energy conservation, and I know those other things fit in with what I'm doing, somehow. . .but I can't take time to read all of that work. I know it all fits, though. -- a building science researcher discussing the state of architectural research.*

When Johnson Controls, Inc., and the Johnson Foundation jointly agreed to sponsor the creation of this Institute, the term "environmental quality in architecture" was really only a pleasantry, like apple pie and the flag. *Of course* we were interested in environmental quality -- what were the options? To be *opposed* to it?

We quickly realized that each participant had unique and separate agendas for environments, sometimes complimentary and sometimes divergent, that underlay our interest in the Institute. Thermal comfort, user satisfaction, energy efficiency, occupant health and safety, a broader sense of sustainability and "green development," cost-effective facility development and management, and increased attention to previously unheard constituent groups were just some of the issues that we brought to the table in the early months of Institute development. It was clear that we needed a way to be able to frame a great number of concerns into similar language and toward similar goals, both in terms of our success as an entity and in terms of advancing the building industry and the field of building research.

Existing models of what were called "environmental quality" (for example, Craik & Zube, 1976) attempted to be holistic and inclusive in their definition, but were skewed toward a certain set of environments rather than all environments (places of leisure and recreation were examined closely, while places of production were not prominent), and offered little in the way of active directions for change. The state of the art in post-occupancy evaluation was likewise limited, because solid criteria for building success had never been established (for example, Presier, Rabinowitz & White, 1988). We decided that these were flaws that needed to be corrected.

The question of environmental quality is inherently one that disallows a single disciplinary approach. We must respond to many facets of buildings, organizations, occupants, laws and codes, cultural standards and economics in any exploration of such a diverse question. Our backgrounds -- primarily in architecture and urban planning, but also in psychology, anthropology, sociology, cultural geography, mechanical engineering,

education, facility management and real estate development -- gave us a lot of concepts to bring to bear on this problem and a large number of prior models to work from. This wide academic and practical storehouse offered the tools we needed in order to take a creative approach to redefining environmental quality, not only as an intellectual and evaluative concept but also as a powerful design method in the hands of practitioners in the planning, design, and facility management professions. We have applied this model to issues of office productivity (Childress, Witzling & Lackney, 1994), to an examination of public school facilities (Lackney, 1994), to an investigation of the responsiveness and adaptability of the last 40 years of office buildings (Rabinowitz & Lackney, 1994), to an experiment on the effectiveness of personal control over the thermal and acoustical environment (Utzinger & Childress, 1994), to an exploration of the effects of regional growth management (Witzling & Park, 1994) and to questions of teenagers' use of public places (Childress, 1994), among others. In each case, not only does the model make sense as an analytical tool, it also requires us to be more thorough in our questioning, it gives us a common language to discuss our diverse work, and it allows us to develop a database of environmental quality assessments which all use those common concerns and questions so that we will ultimately be able to generalize our findings over a great number and type of environments.

This is why our environmental quality framework was created, to bring together an enormous amount of research into the pursuit of a coherent and consistent goal: the creation of better places for all of us. And the model is not yet complete; small modifications are being made to it as we apply it to new problems, new environments, new user groups. But the basic questions seem to hold and the process has proven useful for all of our work. We hope it will be useful in your work as well.