

# Introduction

Cristina Banks

## **WHY THIS BOOK?**

One might wonder how this book came about. This book is the product of the Interdisciplinary Center for Healthy Workplaces' (ICHW) inaugural "Science to Practice" Conference series that looks at workplace problems. It was a different kind of conference, in which experts from different disciplines presented a "deep dive" on the same topic. The genesis of this approach, and indeed this topic, came from an observation.

Over the last five years, I noticed that new buildings were going up around the university campus as well as other campuses. They were all beautiful on the outside. But, I wondered who decided what these new buildings looked like and, in particular, how their internal spaces were designed. These seemed to be pretty important decisions, because the physical space created by the building and internal features contained therein act to channel occupant behavior and shape experience. Because I didn't know how the process worked, I asked my colleagues in architecture, engineering, and building sciences to explain all that goes into making a new building, and I investigated

how this process translates to the university setting. I learned that pre-design consultation with future occupants did not occur as a matter of course. When these consultations did occur, they were often conducted with a small group of concerned occupants, and discussion centered around occupant preferences about chairs, colors, sit-stand desks, amenities, and so on. In short, I saw how such consultations too often neglected discussion about how work-area arrangements might facilitate user performance and satisfaction with the space, and especially how arrangements might affect occupant health and well-being. I was surprised because I thought consultation of this latter type was the point—to design a physical environment that best supports occupants’ achievement of work outcomes and their health and well-being. I wondered how we could end up creating something that *did not entirely work for occupants*.

Soon after, I had observed this process firsthand. A new university building was being planned on campus—a multistory building to house faculty, staff, and students. The proposed building was to consume a very large area on campus with multiple departments and programs occupying the building. Most important, occupants would be performing a wide variety of activities such as teaching classes, counseling students, servicing the public as part of student training, conducting research, developing programs, writing manuscripts, collaborating within teams, studying, socializing, eating, and so on. Like most modern building construction projects, moving into a new building meant reducing the overall square footage for these departments and programs. To make this plan work, each department and program had to condense the space allotted to a single occupant: doors and walls had to disappear, many staff offices were turned into clusters of cubicles or workbenches with multiple occupants per bench, kitchens had to forego seating areas, faculty offices were reduced in

size with almost no storage for papers and files (thus prompting a de facto push toward going paperless), and social gathering spaces were reduced and tucked into corners or along corridors. In essence, the interior functions of the building were downsized, rendered almost wholly wall-less or compartmentalized into open-plan sections, and packed tightly.

As with many design projects, capital projects were not set up to bring the occupants into the equation from the beginning—when they were brought in, almost all of the decisions had already been made and there was no money left to make substantive changes that could have made a material difference in workplace health and productivity. In essence, the future occupants were given the initial design schematics for reaction and given very limited choices (in this case, to choose from three workspace partition heights and on which side of the desk to have their storage cabinet) rather than being brought in proactively to share needs. Upon seeing the finished plans and schematics, they were very concerned. In particular, occupants were grappling with the open workspaces and lack of offices (a challenge for university settings)—and lack of solutions to their anticipated problems.

To my knowledge, there was no plan for a post-occupancy evaluation (POE) of the space, so we won't have a robust data set to know how well the building supports user needs—or not—beyond hearsay and anecdotal evidence. Indeed, already we can hear initial chatter about the new space. Two months into the occupancy, problems unforeseen by the design team and decision-makers have surfaced—one problem with acoustic pollution (excessive noise from an open-office configuration) is particularly disruptive. Occupants are trying to learn how to deal with this physical environment so they can accomplish their work, but “newness” of workspace aside, occupants

are experiencing new impediments that cause stress and may already be affecting their job satisfaction, work motivation, and ultimately job performance. This situation is not new, nor is it unique to university settings. This is simply the time-honored approach to capital projects. Yet this approach begs the question: *why don't we design workplaces that maximize people's ability to do their best work, boost their job satisfaction and work motivation, and promote their health and well-being?*

This was the genesis of our conference titled, "How to Build the Best Workplaces for Health and Well-Being." In this conference, we brought together experts from different disciplines and from both research and practice to attempt to address the gaps in knowledge. Here, in this book, each author gives you a piece of their knowledge on the issue of building for health and well-being—each piece a building block for a successful design process.

### **Why does the physical environment matter?**

The simple answer is that the physical environment is key to organizational success. The physical environment always impacts human behavior, whether we design it that way or not, and the results of this interaction can either be positive, leading to more productive behavior and satisfying experience, or negative, leading to increased stress, lower productivity, and a less satisfying experience. Human response to this interaction is both physical and psychological. On the physical side, scientists from various fields have examined how the physical environment affects our bodies—for example, through body posture, sedentary behaviors, exposure to toxic substances, and harmful noise. Indeed, the field of ergonomics and human factors explicitly investigates how humans interact with the physical world

in order to create person-environment systems that not only produce efficient and effective outcomes but also create physical work processes that lower physical and psychological stress, reduce the risk of injury and death, and match the physical and cognitive abilities of persons performing that work (Karwowski, 2012). Regulations arising from the Occupational Safety and Health Administration (OSHA) recognizing potential harm from multiple factors in the physical environment set limits and put safety measures in place to reduce and, whenever possible, eliminate harm associated with physical working conditions. Yet there is much progress to be made in this area. For example, not all chemicals are regulated, so off-gassing furniture and building materials is still an area of concern; current recommendations about sedentary behavior are unclear or conflicting; and access to natural light is not guaranteed for all workers in the U.S.

On the psychological side, scientists have also recognized factors from the physical environment that affect work motivation and job satisfaction, both of which are psychological constructs that are generally recognized to underlie both productivity and psychological well-being. Several theories in psychology posit a relationship between work environment characteristics and workers' physical and psychological responses at work. For example, the field of occupational health psychology introduced the concept of "goodness of fit" between the individual, the work environment, and the work-family interface (Quick & Tetrick, 2011). Importantly, the lack of "goodness of fit" across these three aspects of the work environment creates the mechanism through which workplace factors lead to employee distress and ill health. To address the problems caused by poor fit, design and public health professions alike seek to promote well-being by creating healthy work environments. Healthy work environments are characterized by high productivity, high employee

satisfaction, good safety records, low frequencies of disability claims and union grievance, low absenteeism, low turnover, and absence of violence (Quick, 1999). This book is focused on the following question: what physical attributes of the work environment might be key here? The answer lies in our understanding of what workers need psychologically and physically in order to be highly effective in their work and achieve a state of well-being.

### What enables people to put forth their best efforts?

We must underscore the importance of making worker health and well-being a central feature of any organization—a driving force within the organizational culture that ensures work can be accomplished without unreasonable sacrifice of health, well-being, and work-family balance. This means that a truly effective approach to improving the health, well-being, and productivity of workers must necessarily be a holistic approach, touching all parts of an organization (see figure 1.1). There needs to be coordinated action across

*“Decision-making within functional groups could be directed by a common set of goals, ones that are generated from an understanding of how the organization can best manifest the drivers of need satisfaction in each part of the organization.”*



**Figure 1.1** An integrated approach (courtesy of ICHW).

functional areas or divisions within an organization, coordinated to support worker needs down to their most fundamental level. Decision-making within functional groups could be directed by a common set of goals, ones that are generated from an understanding of how the organization can best manifest the drivers of need satisfaction in each part of the organization. Sources of poor fit between the work environment and workers' needs can happen in any area of the business. This is why we advocate coordinating action that supports worker health and well-being. Figure 1.1 illustrates this approach. The arrows emanate from the workers in the center who are the central concern in the organization. Worker health and well-being, the propellant for action throughout the organization, influences decision-making in each functional group, and having a common central concern, decision-makers within each functional group make internally consistent and interrelated decisions that serve the needs of the workers. Because worker health and well-being is the pathway to performance and productivity, what is in the best interests of the worker becomes the best interests of the organization. It's a win-win.

Architects and interior designers, corporate real estate executives and facilities managers, ergonomists and human factors professionals, occupational health psychologists, social and organizational psychologists, environmental psychologists, and human resource professionals all have a role to play in designing workplaces that enable people to put forth their best efforts. They each bring a body of knowledge that can inform directly how the workplace should look, feel, operate, and facilitate action in order to create a physical work environment that works best for people so that people can do their best work—in other words to create a workplace that produces healthy employees and high performers. How, then, should we begin to think about redesigning workplaces? We first must understand the performance equation.