



# Designing for Productivity: Key Factors in Building the Ideal Office Environment

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### Introduction

Every practical workplace strives to maximize productivity. Whole libraries of business books are devoted to the subject, but relatively few volumes deal with how productivity can be made – or destroyed – by interior design.

This is a glaring omission, as interior design is arguably a powerful tool for productivity in the right professional's hands. The American Society of Interior Designers defines its vocation as “a multi-faceted profession in which creative and technical solutions are applied within a structure to achieve a built interior environment.”<sup>1</sup>

On the surface, it seems that interior design concerns itself completely with aesthetics – the debate between natural and artificial lighting, the type of colors that would suit a particular kind of business, and the design distinction between a corner office and a hallway cubicle.

But the purpose to which interior design is dedicated – to “enhance the quality of life and culture of the occupants”, as ASID puts it, with functional and aesthetically attractive solutions – calls for the use of the discipline to ends greater than simple good looks. A good interior designer manipulates the components of interior design –the lighting, the color scheme, and trimmings like furniture and carpeting – not simply to create an aesthetically attractive space, but one that creates a comfortable environment for productive work.

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### Despite the Evidence, Missed Opportunities

Science provides evidence of how interior design can affect employees in the workplace. “Recently, scientists have begun to focus on how architecture and design can influence our moods, thoughts and health,” writes science correspondent Jonah Lehrer in the *Wall Street Journal*. “They've discovered that everything—from the quality of a view to the height of a ceiling, from the wall color to the furniture—shapes how we think.”<sup>2</sup>

Lehrer cites a 2009 University of British Columbia study that showed how certain background colors affected performance in several key mental tasks.

“Test-takers in the red environments were much better at skills that required accuracy and attention to detail, such as catching spelling mistakes or keeping random numbers in short-term memory,” writes Lehrer. “Though people in the blue group performed worse on short-term memory tasks, they did far better on tasks requiring some imagination.”

In another study, the University of Minnesota's Joan Meyers-Levy found that high ceilings helped individuals better find connections between subjects,<sup>3</sup> while lower ceiling heights aided subjects' attention to detail.<sup>4</sup>

Even as data shows how interior design delivers tangible benefits to productivity, companies have been slow to capitalize on these findings. Architectural and design firm Gensler conducted a U.S. Workplace Survey in 2006, and reported that employees surveyed estimated they would be about 21 percent more productive, given a better working environment, to the point of volunteering an extra hour per day if such a workplace was possible.

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Yet 46 percent of workers surveyed believed creating a productive workplace was not a priority at their office, with 40 percent admitting that minimized costs served as the main reason for their current workplace design. Overall, the survey found that poor workplace design may cost U.S. businesses an estimated \$330 billion in lost productivity per year.<sup>5</sup>

### Design Factors

A survey of consultants, researchers, executives and interiors experts commissioned by ASID found that increased productivity resulted when interior design focused on delivering four key benefits to their clients:

**Improved accessibility.** Heightened productivity seems to be linked to more collaboration and less individual focused work. Thus companies report dividends when they create environments that invite collaboration – by providing space for people to interact.<sup>6</sup> In general, designs that improved accessibility to resources (including information and equipment) *and* people also improved productivity.

Office designs that improved accessibility created two key benefits for the companies implementing them. First, teams with more open workspaces are able to make decisions faster, as the ability to make crucial decisions are devolved to the ranks. Second, open-access workspaces support team building efforts, accelerating group cohesion and improving team effectiveness.

As managers see how productivity is improved with greater collaboration and access in the office, interior design begins to gravitate towards office environments with less physical barriers and structures that help team members cooperate on shared goals. The open office design is most suited to an open-access, collaborative environment – out with the drywall and doors, in with low cubicles (or none at all).

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Other changes that improve accessibility and collaboration include redesigning the office layout to improve access to crucial people, information, and resources; and grouping team members together in shared workspaces, where they can collaborate better.<sup>7</sup>

**Increased employee comfort.** About 42 percent of ASID survey respondents report that changing office designs with employee comfort in mind - creating a more aesthetically pleasing, comforting and inviting work area - has paid dividends.

Discomfort takes a toll on the workplace – headaches, carpal tunnel syndrome, and back pains undeniably cost businesses plenty in terms of person-hours lost and liability costs. Adjustments to employee comfort can be made in three general areas – ergonomics, lighting, and air quality.

Better ergonomics provides employees with control over their environment, by allowing them to adjust equipment to match their own particular body dimensions. The evidence is in on the positive effects of ergonomics on productivity – a study by the U.S. Army Corps of Engineers reports a 20.6 percent improvement in employee productivity a year after ergonomic furniture was installed.<sup>8</sup>

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Comprehensive lighting programs can determine the proper amount of illumination needed by the workplace. Most offices are overlit, wasting energy and producing glare that interferes with work. The glare produced by computer screens can also create discomfort, causing eye strain and fatigue. Experts suggest the use of more natural light, lower overall illumination levels, and the use of adjustable, individual task lighting.

A close watch on outgassing from carpeting, veneer, and paint can forestall “sick building syndrome” that so often stems from poor indoor air quality. The U.S. Environmental Protection Agency (EPA) estimates that businesses lose up to 60 million work days annually due to indoor air quality problems.<sup>9</sup>

**Limiting noise and distractions.** Lessening distracting noise helps create a comfortable office environment and sets the stage for employee productivity. About 28 percent of ASID’s survey respondents implemented a number of interior design changes to reduce noise, including controlling acoustics to minimize conversational noise and designing spaces to create the right levels of privacy for different tasks.

On the surface, this brings up privacy and sharing issues, particularly given the evolution towards a more open office. Reducing noise and prioritizing privacy calls for design solutions that may run counter to the need for improved accessibility to both workers and resources. The answer may be more nuanced than first looks suggest: different professions require different levels of privacy, and the perfect balance may arise from examining each worker’s need for privacy vis-à-vis his/her work requirements and output. Telemarketers, for instance, don’t need as much privacy as, say, advertising account executives.

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Taking such a balancing act into account, expect a significant boost in productivity when creating an office design that minimizes noise and distractions – as the Building Owners and Managers Association (BOMA) and the University of Maryland in College Park found, a productivity gain of up to 26 percent can be had simply by reducing office ambient noise.

**Flexibility and customization.** Companies that resort to flexibility improvements in their interior design – such as providing flexible office layouts and flexible privacy options – have reported upswings in productivity. In its most basic sense, allowing customization in their environment can provide employees with a feeling of being valued, giving them more leeway to be more productive. These offices implement interior design options that favor flexibility – such as offices with reconfigurable spaces for both individuals and teams.

## Putting It All Together

Cisco Systems’ Collaborative Connected Workplace Environment is an excellent example of how all the above factors come together to spur productivity in the workplace.<sup>10</sup>

The traditional office space wasn’t working for Cisco; assigned cubicles were empty 65 percent of the time, while meeting rooms almost always taken. The culprit was the changing nature of the job: the global customer base and shifting business models meant that employees were always collaborating with colleagues, both within the office and across the world, and working nontraditional hours to keep up.

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In response, the Cisco Workplace Resources department conceptualized a “Connected Workspace”, a comprehensive interior design plan designed like a university campus, with open spaces called “quads” for informal meetings and enclosed offices called “colleges” for more private, concentrated work. Previously installed opaque cubicle walls were removed to admit more natural light into the office. Wireless LAN and IP Telephony was set up to free employees from the tyranny of an assigned desk.

Each of the four design factors were addressed as follows:

- **Accessibility:** The Connected Workspace floor plan is optimized for collaboration, with spaces for both planned and spontaneous meetings, and for small and large groups. Formal meeting spaces have closed doors for privacy, with tables, speakerphones, and IP videoconferencing stations. Informal spaces have soft seating, mobile tables, and portable privacy screens, allowing employees to spontaneously create a meeting space on the fly.  
Collaboration over long distances is enabled with technology, such as Cisco VT Advantage for video telephony, Cisco Meeting Place for teleconferencing, interactive white boards, and instant messaging.
- **Comfort:** The Connected Workspace was intended to respond to different individuals’ needs with a wide choice of workspaces and technology tools. Recognizing that assigned cubicles represented a waste of real estate (given Cisco employees’ increasing mobility), the new plan freed employees to pursue their work in custom-built spaces across the office; workers could choose any workspace that suited their needs, whether they used it for less than an hour or all day.  
“Employees would have the freedom to choose their environment based on the requirements of their current task,” says Dolly Woo, Cisco workplace strategist. The lack of cubicle walls also pays off in a different way: more natural light enters the workspace, creating a more open and spacious atmosphere.
- **Privacy:** Not only are meeting spaces configured for different levels of privacy, employees are also provided with “libraries” for quiet, distraction-free work. Personal lockers and filing cabinets are also provided for personal effects and paper records.
- **Customization:** The Connected Workspace was designed to deal with four separate work categories: engineering, sales, call center, and general administration. Each category made radically different use of common space, services, and technology.  
Whatever their work category, employees can choose a space that suits their personal work style. The Connected Workspace distributes a wide variety of individual workspaces across the campus space, and some workstations even have customizable heights for employees who wish to work standing. Whether they’re working alone or in collaboration with large groups, Cisco employees are guaranteed the right space to do their job in. Employee Rich Gore says of his new office, “The workplace is open and comfortable, and I’ve grown to appreciate my ability to select my workplace rather than being required to work in the same cubicle every day.”

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The new, optimized workplace was found to boost employee productivity and satisfaction, with the added benefit of significantly reducing real estate costs. “Common feedback is that most employees like the choice of work environments, cutting-edge technologies, light, openness, and the opportunity for interorganizational

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collaboration,” reports Christine Ross, manager in the Workplace Effectiveness Team for Cisco Workplace Resources.

The cost savings enabled by the Connected Workspace are significant: IT expenditures have been reduced by 40 percent, office furniture expenses by 50 percent; real estate costs by 37 percent, and workplace services by 37 percent.

### Getting a Professional

While the link between interior design and productivity may be obvious, facility managers may be reluctant to bring in professional interior designers to implement the changes their offices need. As Limor Gutnick explains, “top management will still require a cost/benefit analysis to justify any investment in office design. Consequently, the designers’ role would be twofold: to base the design on sound principles and established research and to present quantitative returns on the investment. This approach would assist designers in convincing business leaders of the value in these types of investments.”<sup>11</sup>

“Interior designers belong to two worlds,” Cubicles.com’s Aron Groner tells us. “They straddle both business and art.” Groner explains that interior designers command both a knowledge of the client’s business objectives and an awareness of the designs and products their clients need to achieve their goals – “Interior designers, then, are in a unique position to propose a strategic, design-based approach towards increasing productivity.”

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So what benefits can interior designers provide, given their unique perspective?

They can shape the process: facilitating a participatory design process through soliciting feedback from the affected employees, planning workshops, and creating focus groups to study proposed floor plans, including drawings and models as references.

Interior design consultants also can help companies by facilitating a more interactive design approach. Rather than simply asking users what they want, a strategic, interactive design process empowers employees to participate in design decision making and makes managers more aware of the interaction between space and human behavior. ASID proposes that interior designers can take the back seat to the employees involved: “In some cases, interior designers or facility managers may serve only as a resource or consultant, empowering employees to decide for themselves what type of environment will make them more productive.”<sup>12</sup>

Finally, interior designers can help manage costs, by selecting the right suppliers at the best possible value. They can help facility managers derive the most value from their redesign by selecting furniture, fittings, and contractors that immediately meet the goals set by management.

For his part, Aron Groner favors the continued use of office cubicles in efficiency-optimized office designs. “Cubicles per se aren’t on their way out, but the open office favors cubicles comprised of lower height panels, along with glass tiles that permit natural light, and increase user comfort,” Groner explains. “The current generation of office cubicles have low VOC (volatile organic compound) outgassing and can have adjustable components that increase their ergonomic value.”

### Conclusion

In the old days, improving productivity followed a simple formula: hire the best quality workers, keep employee satisfaction flying high, and efficiency will follow. Today, much of the evidence shows that environment plays a large role in making this productivity formula work: bad office environments may compel good employees to leave relatively well-paying jobs, and managers see that comfortable, collaborative, and attractive workplaces are crucial to maintaining valuable team members.

While the design factors named above do a great deal in rationalizing the interior design process for many workplaces, finding the ideal workplace design isn't a one-off thing. Maintaining productivity remains a moving target, and will require facility managers to continually review their interior design to match evolving company objectives. Management may need to align office design with current business practices. In the long run, interior design experts need to help manage this process, integrating their design goals with the objectives set by management.

It's a far remove from interior design's former concern with pure aesthetics – but for the forward-thinking facility manager, harnessing interior design for productivity's sake (even if it's only the beginning of a continuing, never-ending process) is a step long overdue.



## Endnotes

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<sup>9</sup>Ibid., p. 14.

<sup>10</sup>Cisco Systems, Inc. (n.d.) How Cisco Designed the Collaborative Connected Workplace Environment, Cisco.com. Retrieved from [http://www.cisco.com/web/about/ciscoatwork/downloads/ciscoatwork/pdf/Cisco\\_IT\\_Case\\_Study\\_Connected\\_Workplace\\_POC.pdf](http://www.cisco.com/web/about/ciscoatwork/downloads/ciscoatwork/pdf/Cisco_IT_Case_Study_Connected_Workplace_POC.pdf)

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