



People enjoy the patio and fresh air at DPR's Sacramento office.
Photo courtesy of Chad Davies

Creating Healthy Spaces

People are the most important asset in a building.
Buildings should support their well-being.

Introduction

We've all walked into a room and been overly distracted by smells, lighting, temperature, noise or other environmental factors. We all know the resulting feeling of a headache coming on and the desire to move to a different space where we can focus. The places where we work should be designed and built to encourage our ability to do the things we're best at, rather than distract from them. How much productivity is lost when whole groups are working in less than ideal environments?

Humans spend more than 90% of their lives indoors, according to the [U.S. Environmental Protection Agency](#). If our environment is largely indoors, and if the majority of waking hours in an indoor environment is spent at work, it seems obvious that our workplaces have a significant ability to influence our overall health—for better or for worse.

There is compelling evidence healthy workspaces benefit employee health and the bottom line. From work in its own offices and for customers, DPR is collaborating with project partners to pursue rating systems that deliver healthy spaces—through the [WELL Building Standard™](#) and fitwel®—that quickly pencil out financially and deliver

benefits that last long into the facility's lifespan. Since many of the design and construction strategies that can support these certifications seamlessly blend with green building standards, customers can get significant value for their investment.

Many facility owners were reaping benefits of green construction—including [net-zero energy facilities](#). Now, that thinking has expanded to recognize that the most important asset inside their buildings is their employees. The COVID-19 pandemic has only increased people's awareness that the spaces they occupy affect their health; when it is safe to fully return to offices, it is likely employees will want spaces that actively support their well-being even more.

"The global pandemic made clear that now, more than ever, we need to deploy our buildings as vehicles for public health. The people who build, own and operate our buildings are the frontline caregivers," said Rachel Gutter, President of the International WELL Building Institute. "As we recover, we need to recognize which changes will be critical for our safety now and those that will be critical for increasing our resilience in the future."

The Case for Healthy Spaces

While savings from energy and water efficiency seem like easy calculations, a common question DPR hears is: can an indoor environment really drive benefits for employee health and the bottom line? A growing body of evidence says yes.

Consider:

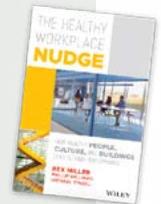


Indoor air plants and natural light at DPR's Austin office.
Photo courtesy of Peter Molick



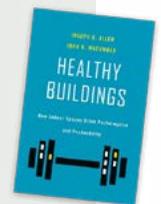
In the United States, where employers generally provide access to health insurance, companies pay an average of more than \$20,000 per employee annually for family health insurance, [according to the Kaiser Family Foundation](#). That figure has been increasing significantly, more than 54% over the past decade. For a company of 1,000 employees, that is a \$20 million item on the balance sheet and increasing every year. Anything that can support employee health and lower premiums stands to be a significant savings.

Companies spend an average of \$693 annually per employee on some form of wellness program, according to research cited by Rex Miller in [The Healthy Workplace Nudge](#). That's nearly \$700,000 annually for a 1,000-employee company. Miller notes that, despite this investment, rates of chronic disease and healthcare insurance premiums continue to rise and that the National Institutes of Health conducted research that found “no significant effects of wellness programs” on the employee health outcomes it tracks. Behavior changes did occur in workplaces designed to nudge people to healthier decisions, however.



[The Well Living Lab](#)—A collaboration of Delos and The Mayo Clinic—continues to produce research that shows how the design and construction of spaces has a significant effect on employees' [cognitive performance](#), [productivity](#) and more.

Harvard professors Dr. Joseph Allen and John D. Macomber examined the bottom line effects of simply increasing natural ventilation in workspaces. In a series of exercises in their book, [Healthy Buildings](#), they show that even with a modest increase in operating expenses to increase ventilation coupled with a 2% increase in employee productivity, a 40-employee company could potentially see a 7.1% increase in net income.



The pandemic raises even more questions: could buildings with better ventilation and other features be brought back online faster than traditional workspaces, potentially saving building occupants from paying rent and utilities on assets they're not using? Researchers will certainly be examining whether or not there is more resilience built into healthy workplaces.

Additionally, DPR is finding that WELL Certified spaces can be created in new builds as well as renovations. Much like achieving a higher level of energy performance, though, realizing the full return on investment requires more collaborative delivery methods, such as design-build or integrated project delivery.

DPR Offices as Living Labs

Similar to DPR's commitment to net-zero energy performance in its new office spaces, in 2018, DPR decided to also seek WELL Certification when a new space came online.

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—Mike Humphrey, DPR Management Committee member

“Of course, we wanted to practice what we preached and show customers that buildings could be designed to support occupant health at market rates,” said Mike Humphrey, a DPR Management Committee member. “Ultimately, though, the motivation is our employees. From the inception of DPR, we've known that if we take care of our people, good work will follow. Taking care of our people has to start with the spaces we ask them to occupy for work every day.”

DPR'S RESTON OFFICE

For [DPR's office in Reston, VA](#),—[a renovation of an existing office park space](#)—the thinking involved shifting from a cost-per-square-foot approach and focusing on investment-per-person.

“One big thing was selecting a ventilation system that allowed for 100% outside air in the space,” says DPR's Chris Gorthy who helped lead the Reston project. “That meant taking a setback to net-zero energy goals that we had to compensate for. We consciously chose people over energy and increased our photovoltaic array to offset it.”

In total, DPR estimates there was a \$67,000 cost premium to creating a WELL Certified space in Reston. However, assuming even a modest 1% increase in productivity from employees in the new space, that cost can be accounted for in less than 14 months—a fraction of the 10-year lease period. The math only gets better if productivity increases more.

Lessons from Reston have informed DPR office spaces in Nashville, Austin and Sacramento.

DPR'S RESTON OFFICE



Glass garage door walls allow natural light and air into the Reston kitchen space.



Office interior with solatube lighting in the ceiling, large windows and lunch tables in Reston.



Partitioned meeting rooms with bright accent walls at the Reston office.



The Reston office roof lined with solar panels and the top of solatubes.

DPR'S AUSTIN OFFICE

“Before we moved into [our new space](#), we had a group of employees that were going to have much longer commutes to the new space and were even asking about working remotely,” said Bryan Kent, DPR’s Austin business unit leader. “Once people saw the space and the setup, it was never an issue. People wanted to come and work in this office and that’s even been true during the pandemic.”

The Austin office features a variety of features pointed toward WELL Certification including a large north- and west-facing common area that can be opened fully to create something of an outdoor space inside the facility. Green walls, nutritious snack options and more have changed the way people use the office.

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THE FOUNDRY, DPR'S AUSTIN OFFICE



Ample sound baffles, carefully chosen lighting and an air plant wall create a cozy space in Austin.



In Austin, open spaces and mixed seating near large walls of windows that bathe the space in natural light.



The reception area boasts air plants, a unique concrete desk and mural spray painted with a variant of a local slogan.



Open kitchen space with a long wood bar and a wall of windows for natural light at the Austin office.

Photos courtesy of Peter Molick

DPR'S SACRAMENTO OFFICE

In [Sacramento](#), much attention was given to air quality, including enhanced ventilation, filtration and monitoring. Also included were elements to support circadian lighting, thermal comfort and more. Similar to Reston, there was a conscious effort to plan empty space. DPR's architectural partner on the project, SmithGroup, dug into how DPR was using space and found that although desks are allotted significant square footage, staff occupy them only 30 percent of the time.

"Instead, under normal circumstances, we're on job sites, conducting interviews, or all gathered in a single meeting room. That was an eye opener," says DPR's Marshall Andrews. "So we worked as a team and created flexible spaces with agile workstations that employees can choose based on how they'll work best on a given day or hour."

Additionally, while green walls and connection to nature is a big part of healthy design, they can be costly: upwards of \$18,000 in annual maintenance. Together, the team—with a local landscaper and artist—instead installed a low-maintenance seed wall. DPR harvests the seeds for reforestation, new ones replace them, and the process repeats at significantly lower cost.

In each case, there has been an adjustment period, but post-occupancy surveying six months after opening shows higher levels of employee satisfaction.

"It's been a lifestyle shift," Kent says, "but it's also made all of us think about how we actually use the space. And we've had more customers come to see our office and ask more questions than we've ever had."

In Nashville, occupants are similarly pleased with the results. "When we started the process of designing our space, we wanted it to reflect both who we are culturally and who we wanted to be as a team—a healthy, energetic, diverse group that enjoyed being with one another at work," said DPR's John Vardaman, who serves as Nashville business unit leader. "I think our ideas and the implementation of them by the design team nailed it; we love our space and believe the health-centric features really contribute to the overall function and feel of the space as much as the more traditional design elements."

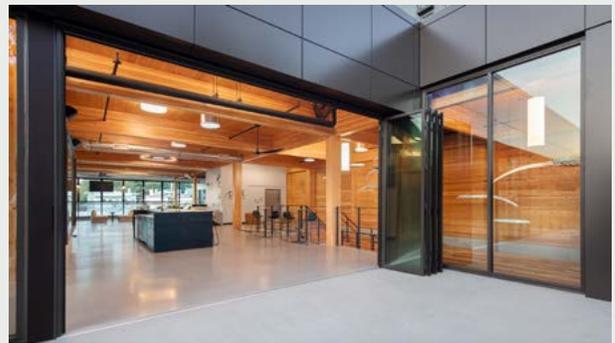
DPR'S SACRAMENTO OFFICE



The Sacramento office interior boasts wood walls and ceilings, solatubes and large windows for lots of natural light.



Unique interior accents create a comfortable and inviting space near desks and windows in Sacramento.



A wall of glass doors is opened completely in Sacramento, allowing fresh air into the office.



Open windows allow fresh air and natural light into the Sacramento space.

Applying Lessons on Customer Projects

Like DPR, Charlotte, NC-based architect, Little, wanted to align its space with the features it was advocating for their clients. That meant aiming for and ultimately achieving WELL Certification.

“It’s important for us to walk the talk,” said Vickie Breemes, Little’s National Director of Advanced Building Technologies. “Ultimately, though, this was about the health and well-being of our employees.”

DPR worked to convert an existing space in Uptown Charlotte for Little. Upfitting an existing space may have added a 4-6% cost premium by Little’s estimates. However, they believe they are already seeing returns on this investment through their people. One factor that jumped out was ventilation and air filtration. In support of achieving WELL Certification, Little was already focused on materials with little to no emissions of volatile organic compounds and optimal indoor air quality with carbon and MERV filters. Then, the COVID-19 pandemic hit and working remotely was mandated.

“Early in 2020, folks were a bit more comfortable in our new space knowing about the filtration and cleaning regimens we had in place,” Breemes said. “We even heard people say, ‘I’m glad we’re here’ instead of the old location.”

With additional spaces for people to work more comfortably when stressed or ailing from a headache instead of leaving for home, there is tangible potential for productivity gains.

“In post-occupancy surveying, we had a number of people also note their daily step counts have gone up dramatically, that they’re making healthier choices and even drinking more water,” Breemes said. “We also had several employees discuss how much they simply enjoy watching sunsets from our new space. You can see how the space is changing people.”

Those benefits are echoed from a major national developer that is a longtime DPR customer. One of its leaders reported that attention to details like ventilation, air filtration and overall air quality meant that not a single one of their facilities shut down during the pandemic. Similarly, the developer noted that its tenants are starting to expect these features, indicating an increased consciousness in the market of how occupants are prioritizing healthy features and how businesses see features contributing to occupant well-being as a contributor to resiliency.

LITTLE HEADQUARTERS IN CHARLOTTE, NC



*Little Headquarters in Charlotte, NC.
Courtesy of Tim Buchman*



*Collaboration space at Little Headquarters.
Courtesy of Tim Buchman*



*Cafeteria with a view at Little Headquarters.
Courtesy of Tim Buchman*



*Employees enjoy the open kitchen space at Little.
Courtesy of Tim Buchman*



*DPR's Reston Office.
Photo courtesy of Hoachlander Davis Photography*

The Road Ahead

Healthy design and construction was gaining momentum before the world had to face the COVID-19 pandemic. Now, as businesses everywhere look to safely bring employees back—and have those employees feel good about doing so—it's likely that a healthy workplace will be the expectation. Still, to truly reap the benefits, facility owners should take certain steps to maximize their return.

“Like green construction, building healthy shouldn't be a chase for points,” says DPR's Ryan Poole who leads DPR's global sustainability group. “It's about investment in people—the most important resource in a building—and it takes collaborative planning to not only achieve the health goals but to do so most affordably. Our successes—from qualitative employee feedback to estimated payback in dollars—is all rooted in a collaborative, integrated delivery approach.”

Once buildings are occupied, the work continues.

“Onboarding is important,” says Breemes. “There needs to be continual education that reminds people why things are designed a certain way and what's in it for them.”

Beyond that, it's likely further evolution of design and even building codes will come. The developer, for instance, wonders if buildings will need to incorporate variable ventilation systems that can be operated to better filter aerosol germs at the flip of a switch. Whether existing building codes can accommodate mechanical systems of that type, however, will likely need to be examined.

It seems the future of designing and constructing healthy buildings will be bright and facility owners that act sooner stand to reap benefits sooner. ■

Images throughout this piece were taken prior to the COVID-19 pandemic. Contributing photographers included Hoachlander Davis photography, Chad Davies and Peter Molick.