

# The Pluses of Superior Indoor Environmental Quality

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You've probably seen the flashy images of sustainable buildings presented in the media — photovoltaic panels producing power for the building, a Leadership in Energy and Environmental Design® (LEED) plaque somewhere on a wall, or a lush green roof capturing and filtering rain water.

These things are often an indication of a better designed and constructed building, but one of the most important, and often overlooked, ways to improve the structure in which we live, work, learn and play is to concentrate on the portion of the building inside the four walls and under the roof — the indoor environment.

We, as individuals, spend close to 90 percent our lives inside buildings. We should feel morally responsible for the quality of that environment for our children, our employees and ourselves. But current studies suggest that there may be a financial incentive as well — superior indoor environmental quality (IEQ) is strongly correlated with higher employee satisfaction and productivity.

There are many factors that contribute to a healthy workplace and can positively or negatively impact IEQ. These can be broken into two main categories: occupant comfort and pollutants.

### Occupant Comfort

Work environments that provide natural daylight and access to views of the surrounding landscape are more pleasant to occupy, and consequently have been shown to significantly increase employee satisfaction with their working conditions.

Temperature control is also a strong contributor to satisfaction and productivity with 71 degrees proving the optimum temperature according to research compiled by

the Lawrence Berkley National Laboratory. Giving employees individualized control of both their lighting and workspace temperature has also been shown to increase employee satisfaction. Finally, proper space ventilation, above the minimum required by the building code, also reduces air contaminants, increases vigilance and concentration, and reduces employee absences.

A simple way to gage the quality of your space is to perform an occupant survey. Let your employees tell you what they think — is the space too cold or too warm; drafty, stuffy, or smelly; is it well lit and inviting? Then take those responses and consult with your building operation and maintenance staff or architect to see if there are ways to improve on what your existing space. Simple things such as increasing the ventilation rate, balancing and re-commissioning the mechanical systems, and making sure thermostats are well-located and working properly can have major impacts, with minimal costs.

### Pollutants

There are several sources of pollutants: the building materials installed during construction, contaminants brought into the building by the occupants, and toxins created through mold growth.

Building materials have been known by architects to be a source of pollutants for some time, but it was only recently that low or no off-gassing materials were readily available and affordable in the consumer market. When remodeling or building new, look for low or no Volatile Organic Compound (VOC) paints, coatings, adhesives and sealants. Select formaldehyde-free insulation, no added-formaldehyde wood products and Green Label Plus certified carpets.

Some older buildings still have the potential to contain asbestos and lead-based paint. During any remodel, a trained inspector should test the building materials that will be disturbed by construction to ensure they do not contain these harmful products, or recommend the proper procedures for their removal.

No matter how well the building is built initially, it's also possible to introduce contaminants from foot traffic, building cleaning and items stored in the building. Every building entrance should employ walk-off grilles or mats to scrape as much dirt and moisture from peoples' shoes. Many cleaning companies offer green cleaning products and practices as an optional services. Areas where chemicals or other potentially hazardous products are stored should be sealed from the rest of the building and properly ventilated.

Finally, mold growth has become a significant contributor to poor indoor air quality in recent years and great care should be taken to avoid the problems that lead to mold growth. Correct building detailing by your architect and quality construction, a complete and consistent building maintenance program, and proper operation of the building can all reduce the risk of mold growth.



Natural daylight not only decreases the need for electric lighting bills, it improves employee satisfaction.

In Central Oregon, we love the outdoors for its splendid beauty and fresh air. We can and should expect the same for the places we live, work, learn and play.

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