



foresight

MANAGEMENT

Healthy Building Audit

WHY

We are living in an era of multiple global crises. Recommending solutions to address the health concerns of building users can exacerbate the climate crisis. Design for human health and wellbeing has long been in tension with designing for energy efficiency. A comprehensive and interconnected approach to new and existing building design is more crucial than ever if we are to address both crises simultaneously. Our Healthy Building Audit is designed to do just that. Our team will emphasize recommending strategies to improve health outcomes while also considering energy usage intensity.

Additionally, industrial manufacturing facilities are often associated with poor indoor air quality, inadequate ventilation, and other environmental factors that can negatively affect the health and wellbeing of employees. Prolonged exposure to these conditions can lead to various health problems, such as respiratory issues, loss of coordination (a significant safety concern in most manufacturing environments), and impaired cognitive function.

Poor indoor environmental quality can also negatively impact productivity and increase the risk of absenteeism and staff turnover. According to the Harvard TH Chan School of Public Health, improving indoor environmental quality in the United States could potentially save up to an estimated \$150 billion per year in productivity impairments. Our Healthy Building Audits have the potential to identify strategies to improve employee health outcomes, increase productivity, enhance quality, *and* save energy.

HOW

Healthy Building Audits start with a comprehensive assessment of the indoor environment, combining several services necessary to tailor outcomes to your needs. These services include evaluating ventilation systems, air and water quality, thermal comfort, lighting systems and access to daylight, and noise levels. We also utilize our energy optimization expertise to evaluate any healthy building recommendation against energy efficiency goals.

Our team of healthy building experts conduct the audit, using these steps:

1. Kick-off + Goal Setting

Our team will first set up an introductory call with diverse building stakeholders to hear firsthand the primary concerns and identify key goals and objectives.

2. Pre-audit Assessment

Our team will conduct a preliminary assessment of the facility's architectural, electrical, and mechanical as-built drawings to develop an understanding of the indoor environment and finalize a testing plan.

3. On-site Inspection

Our team will then conduct a detailed in-person inspection of the facility's physical environment, including the building envelope, HVAC systems, lighting, and air/water testing as required, depending on the tailored scope.

HOW, CONTINUED

4. *Data Analysis*

Our team will analyze the data collected during the inspection and any lab results to identify potential health hazards, areas for improvement, and energy impacts.

5. *Reporting*

Our team will provide a detailed report including findings, recommendations, and action items necessary to implement.

BENEFITS

When evaluating the expenses of commercial and industrial buildings throughout their lifetime, initial costs represent only 2% of the total costs, while operational and maintenance costs make up 6% (three times more than first-costs). However, a significant portion of the total expenses, 92%, are due to employee salaries. This indicates that investing in productivity improvements is much more effective, as it can have fifteen times more impact than investing in energy cost savings.

With that in mind, healthy buildings can yield numerous quantifiable benefits, including:

1. Improved productivity
2. Reduced sick leave
3. Lower healthcare costs
4. Energy savings
5. Increased property value
6. Reduced employee turnover
7. Improved learning outcomes

CASE STUDIES

Office

A facility manager received complaints from his team indicating headaches after spending time in a certain room. Our team was able to deploy real-time environmental sensors within the space, including spaces that we not getting complaints to act as a control. The real-time feedback indicated no obvious contaminants that would explain the complaints. This information avoided a reactionary investment into a ventilation strategy that wouldn't address the root cause.

Learning Space

A local school was trying to save some energy after receiving a small grant to cover the costs of a simple energy audit. During the energy audit, it was discovered that no ventilation air was being provided in the classrooms. Real-time environmental sensors were deployed, and it was discovered that CO₂ levels were accumulating to extremely high levels by late morning. In talking with the teachers, it was a shared experience across multiple classrooms that keeping the kids engaged in learning was very difficult in the afternoon when CO₂ concentrations were the highest recorded (impacting cognitive function).

The solution was to open the closed ventilation louvers and add an energy recovery ventilator. The result was net energy savings, dramatically improved air quality in the classroom, and increased engagement from students.

FREQUENTLY ASKED QUESTIONS

How much does a Healthy Building Audit cost?

The cost of a Healthy Building Audit depends on several factors, including the size of the facility, complexity of the building systems, and level of detail required. That said, costs can range between a simple one-time air and water assessment starting at \$4,000 per location to a comprehensive audit including ongoing analysis and monthly reporting starting at \$18,500 per year per location for a minimum of three years. If interested, please reach out to our team! We will be happy to tailor a solution that best fits your needs.

How long does a Healthy Building Audit take?

The duration of a Healthy Building Audit varies depending on the size and complexity of the facility. Audits can take between a few months and a half a year with quarterly reports over several years.

What measures can be implemented to improve the indoor environment?

Measures for improving the indoor environment can include improving ventilation systems, upgrading lighting systems, architectural interventions (i.e. adding daylight glazing), reducing exposure to harmful chemicals, and ensuring adequate water quality.

