

# Halton – Indoorium Services

Buildings for people



Care for Indoor Air

**Halton**  
CARE FOR INDOOR AIR

# Everyone has a right to healthy indoor air

“Indoor air quality is an important determinant of population health and wellbeing. Exposure to the hazardous airborne agents present in many indoor spaces causes adverse effects such as respiratory disease, allergy and irritation of the respiratory tract.”

World Health Organisation Report: The Right to Healthy Indoor Air  
Bilthoven, The Netherlands, May 2000



# Buildings for people

**People in modern societies spend most of their time indoors;** at home or work, in school and in transit. In average, we spend 90% of our time indoors. Consequently, it is easy to appreciate the quality of indoor environment - the environment where we mostly spend our time. Improving the quality of indoor environment enhances both our well-being and our performance.

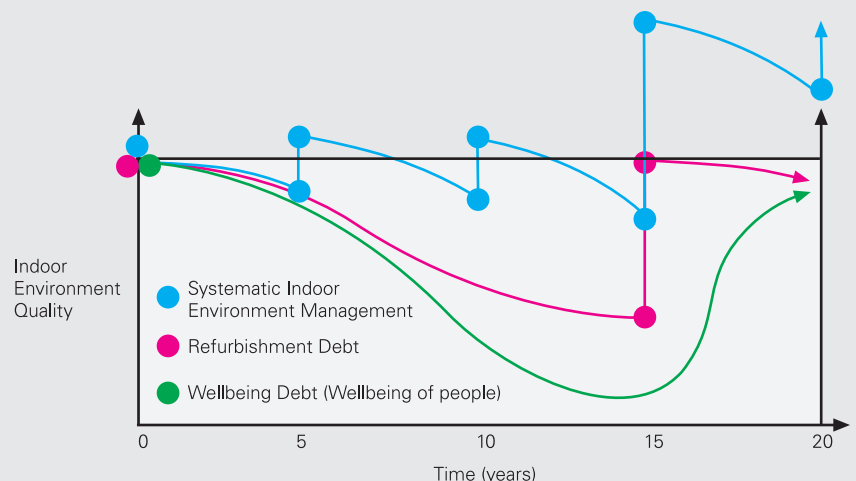
## What are the factors that affect our perception of the indoor environment?

- The amount of outdoor air. Every one of us needs 12 cubic meters of clean air to breath per day.
- Thermal balance with our surroundings. Thermal balance is a result of various environmental conditions, all of which can be affected by indoor climate systems.
- Acceptable indoor air quality. In general terms, the indoor air quality is acceptable when it doesn't contain contaminants in harmful concentrations and the majority of people feel satisfied.
- Lights and sounds. Light is the most important factor influencing our daily rhythm. Lights too bright as well as disturbing discussions and other sounds cause irritation and increase the negative stress hormone level.
- Personal factors and preferences. The comfort sensation depends partly on the individual: the metabolism, the activity level of body and the clothing resistance.

## Poor environment creates wellbeing debt.

If the requirements of good indoor air are not met, the consequences are visible – and fast. Insufficient, unpleasant indoor environment forces to take more breaks, disturbs concentration and creates a feeling of fatigue. Systematic maintenance and development of the indoor environment reduces the periods when people are exposed to inappropriate, unproductive conditions. This in turn minimizes the wellbeing debt that can lead to temporary or even permanent health effects; headache, eye and nose irritation, allergy or asthma. Needless to say how this affects the team spirit, total working hours, or productivity of work. And unfortunately the symptoms often take time to disappear, even if the indoor environment was improved and the refurbishment debt was diminished.

**We come back to the basics.** People are the most important resource for every company. With healthy, satisfied and well-motivated personnel the company can innovate, develop and grow.





Indoor environment has significance for the company's productivity, and therefore it is of monumental importance. Consequently, the only truly meaningful measure of the quality of built environments is the occupant satisfaction and the support it provides to the business.

## Business case for better indoor environment quality

**Care for your people, care for your business.** Productivity of work is the major factor influencing business profitability. Improvements in work satisfaction and working environment have a positive impact on work performance. It's so easy: sick leaves diminish and the risk of accidents and early retirements are better managed.

If the indoor environment hasn't been addressed before, enhanced indoor environment improves performance quicker than changes in working habits or skills. In a typical company operating in the office environment, 90% of costs consist of salaries. The rest comprises of workplace investments and

running costs. This explains why investments in better indoor environment pay back very quickly: just a minor 1% or 5 minutes per day increase in effective working time off-sets the total annual cost of building ventilation!

In commercial kitchens where working conditions are especially demanding, labor shortage and high turnover rate are a top challenge. Uncomfortable thermal conditions, impurities, odors, grease and moisture decrease working comfort and result in increase in the accident rate. In health care, the control of infections is the major indoor environment related concern. Good indoor environment increases comfort and accelerates healing while supporting the staff's work performance.

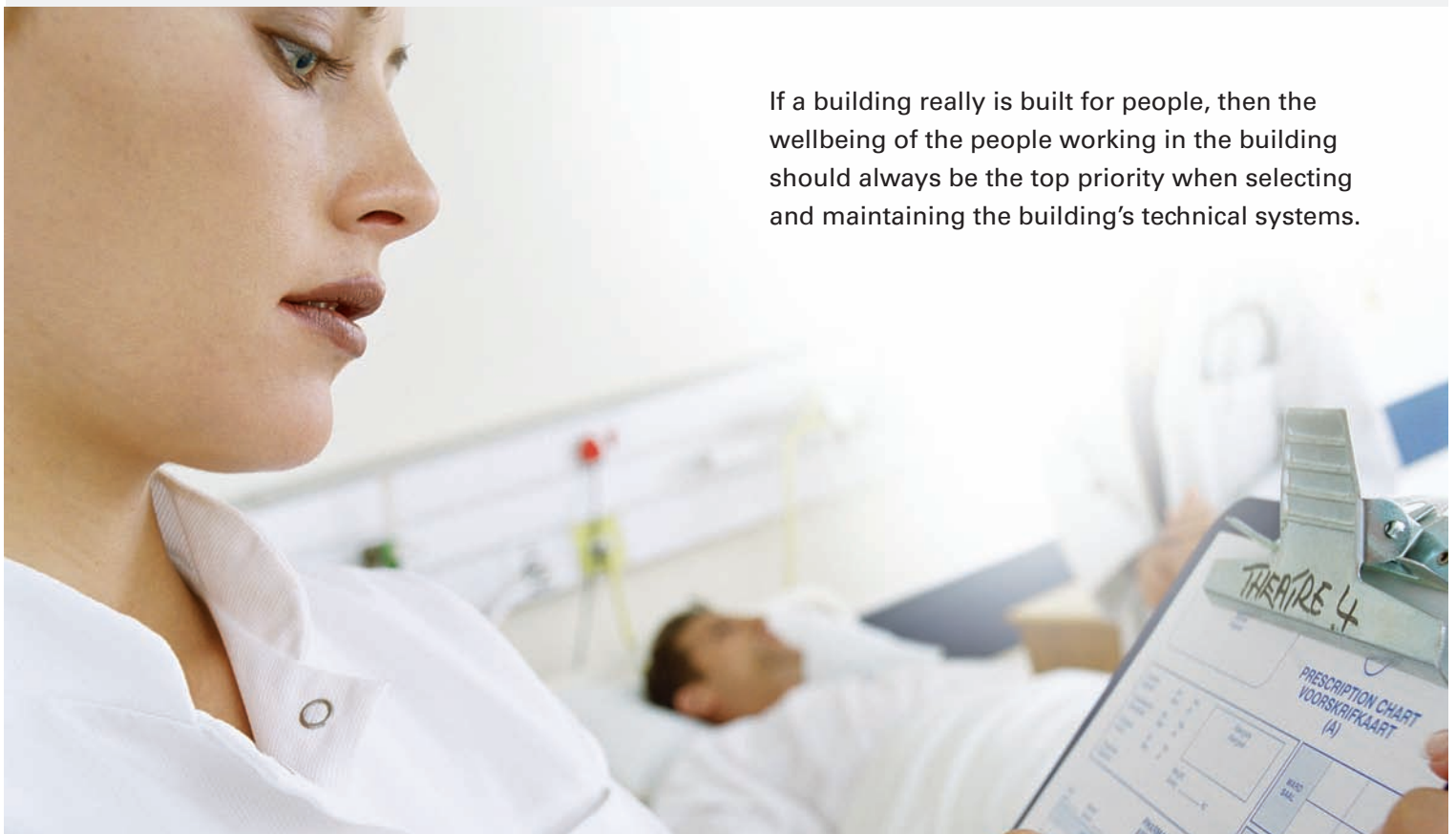
### **Improve customer satisfaction and investment profitability**

Value of a real estate is based on the cash flow it generates. The cash flow is affected by vacancy rates, length of lease contracts, rental levels and property running costs. All these factors are greatly affected by the indoor environment quality and the technical systems' features and condition. Good indoor environment improves customer satisfaction

and loyalty. Satisfied clients stay longer and commit to stay in the facility for longer periods.

Good indoor climate is appreciated by building users. This is verified in the study of office workers' preferences by BOMA (Building Owners and Managers Association) and Urban Land Institute. Respondents ranked comfortable temperature (95%), indoor air quality (94%), maintenance quality (93%), and facility manager's willingness to serve (93%) as the most important factors affecting user satisfaction.

Managing facility related risks requires regular auditing of the building indoor environment and the quality of technical systems. Indoor environment management program supports the building quality system and makes it easy to evaluate the effectiveness of improvements in both human well-being and building energy efficiency.



If a building really is built for people, then the wellbeing of the people working in the building should always be the top priority when selecting and maintaining the building's technical systems.



# Halton Indoorium

## – Services for indoor environment management

Halton Indoorium services provide concepts for user-focused indoor environment management and development. Services help facility owners to create workplace strategies and implement them successfully. As a result, the service concepts improve tenant satisfaction and productivity by removing problems in indoor environment.

With Halton's systematic methods, user feedback can be collected and utilized to ensure that resources are allocated precisely to those areas that generate the best improvements in customer satisfaction - and rental income.

Comprehensive services integrating quality of indoor environment and human experience provide practical solutions for improving tenant satisfaction and technical system quality. Advanced tools and indoor environment expertise minimize facility related risks while optimizing workplace and indoor environment quality. Halton Indoorium services are also perfectly applicable to projects, where the property developer commits to building life cycle management.

Halton Indoorium services are used to improve user's wellbeing and indoor environment in various working environments from offices to schools, from commercial kitchens to health care.

## How to select the right solution:

### Retain tenants

- Secures longer contracts with tenants and continuous rent income
- Ensures satisfied users, who participate in indoor environment development

### Manage risks

- Prevents refurbishment debt and optimises the use of resources in buildings
- Generates information about the tenant satisfaction and the quality of building before purchasing the property

### Solve indoor environment problems

- Reveals reasons for continuous complaints concerning poor indoor environment
- Solves specific indoor environment problems, such as drought and acoustics

### Improve work performance and wellbeing

- Prevents wellbeing debt and improves work satisfaction by means of better indoor environment
- Generates information about the indoor environment quality and user satisfaction

### Audit indoor environment

- Clarifies the current indoor environment and user satisfaction
- Generates information about the quality and technical systems of the building

### Verify indoor environment

- Guarantees the quality of indoor environment in a new building
- Generates information about the tenant satisfaction and the quality of building before selling or letting the property

	Solutions					
	Owner			User		Builder
	Retain Tenants	Manage Risks	Solve Indoor Environment Problems	Improve Work Performance and Wellbeing	Audit Indoor Environment	Verify Indoor Environment
Survey™	•	•	•	•	•	•
Perception Map™	•	•	•	•	•	•
Productivity™	•			•		
Diagnose™	•	•	•			•
Mock-Up™	•		•			
Correct™	•		•			•
Involve™	•			•		
Act™	•	•		•		
Evaluation™						•

## We evaluate thousands of workplaces. Every year.

Evaluation starts with the Indoorium Survey™, scanning the occupant satisfaction of all building users. Questions focus on personal experiences of the indoor environment. Based on the feedback, an Indoorium Perception Map™ is collected to identify and locate problems. The map clearly pinpoints areas with excessive number of dissatisfied users, but it also defines the problem sources in the indoor environment.

Regularly repeated surveys enable following the development in the indoor environment quality. When the whole building portfolio is evaluated, this is a highly useful tool for prioritizing improvement actions and making decisions concerning the future development of building portfolio.

If the Indoorium Perception Map™ reveals areas where over 30% of respondents are dissatisfied, a team of indoor environment experts analyzes the site according to the Indoorium Diagnose™ and produces a proposal for improvements. If need be, we can test various solutions on site or build a full-scale mock-up to find the required technical solution (Indoorium Mock-up™). Implementing the solution takes place in the Indoorium Correct™ stage. Halton excels in thermal environment, air diffusion and indoor air quality.

As previously illustrated, preventing the wellbeing-debt requires systematic maintenance of the indoor environment (Indoorium Act™). Indoorium Involve™ supports the foundation of company's own indoor environment group to see for continuous development of the indoor environment quality.

### **The nature and reason of problems**

Why should indoor environments suffer from problems? Are they possible in brand new offices? Halton has created a database of office buildings ranging from small with 30 to huge with over 1000 occupants to clarify these questions. It shows us that features generating most complaints are thermal comfort, air quality and acoustics.

Typical problem sources are ductwork and pipe work balancing, lack of ventilation, terminal unit adjustment or insufficient operation range in ventilation and air conditioning systems, and lack of acoustics planning. Mechanical features that can be wrong from the beginning. And not only that: often the office layout change means just relocating people, walls or team rooms, without regard to the technical systems of the environment. This can easily lead to unexpected draughts or other uncomfortable phenomena that never existed before the change. And that's where Halton Indoorium services come to your help.

# Benefits of the Indoorium services and tools

## **for facility owners:**

- Provide systematic information about user satisfaction in the indoor environment
- Find potential problem areas in the indoor environment and give solutions to correct them
- Help prioritizing and planning improvement actions
- Contribute personnel to manage the change situation
- Enable developing quality of services using new tools
- Offer benchmark data of the indoor environment quality

## **for building users:**

- Guarantee healthy, comfortable and safe indoor environment
- Indicate areas where indoor environment is currently a problem
- Help the users to understand better their own indoor environment and how to develop it

## **for employer management:**

- Improve quality of work life
- Promote employee productivity and performance
- Enhance occupational health by identifying workplace related symptoms and illnesses
- Support recruitment and prevent early retirements
- Give personnel opportunity to influence the conditions of their indoor environment

[www.halton.com](http://www.halton.com)