



Canada Green Building Council
Every Building Greener

DODGE DATA &
ANALYTICS

Healthier Buildings in Canada 2016:

Transforming Building Design and Construction





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Every Building Greener

47 Clarence Street, Suite 202
Ottawa, ON K1N 9K1
Tel: +1 613-241-1184
Fax: +1 613-241-4782
Toll-Free: +1 866-941-1184
www.cagbc.org

Contact:
Sarah Burns,
VP Communications & Marketing
+1 613-288-8097
sburns@cagbc.org



34 Crosby Dr.
Bedford, MA 01730
Tel: +1 781-430-2010
Fax: +1 781-430-2324
Toll-Free: +1 800-591-4462
www.construction.com

Contact:
Donna Laquidara-Carr, PhD.,
LEED AP Industry Insights Research Director
donna.laquidara@construction.com



Project Sponsor

The Canada Green Building Council (CaGBC®) is a not-for-profit, national organization that has been working since 2002 to advance green building and sustainable community development practices in Canada. Through its leading programs that include the Leadership in Energy and Environmental Design (LEED®) and in collaboration for its membership of over 1,200 industry organizations involved in designing, building and operating buildings, homes, and communities, CaGBC has made excellent inroads towards achieving its mission of reducing the environmental impact of the built environment in Canada.



About the Researcher

Dodge Data & Analytics is a technology-driven construction project data, analytics and insight provider. Dodge provides trusted market intelligence that helps construction professionals grow in their business, and is redefining and recreating the business tools and processes on which the industry relies. Dodge is creating an integrated platform that unifies and simplifies the design, bid and build process, bringing data on people, projects and products into a single hub for the entire industry, from building product manufacturers to contractors and specialty trades to architects and engineers. The company's products include Dodge Global Network, Dodge SpecShare®, Dodge BuildShare®, Dodge MarketShare™, and the ConstructionPoints and Sweets family of products.

DODGE DATA & ANALYTICS EDITORIAL TEAM



Stephen A. Jones
Senior Director
Industry Insights
Research

Stephen A. Jones leads DD&A's Industry Insights Research division. He is active in numerous industry organizations and frequently speaks at industry events around the world. Before DD&A, Jones was a vice president with Primavera Systems (now part of Oracle). Prior to that, he was principal and a Board of Directors member with Burt Hill, a major A/E firm (now Stantec). He holds a BA from Johns Hopkins and an MBA from Wharton.

steve.jones@construction.com



Donna Laquidara-Carr
Ph.D., LEED AP
Research Director
Industry Insights

Donna Laquidara-Carr is the primary author of this report and currently provides editorial direction, analysis and content to DD&A's SmartMarket Reports. Prior to this position, she worked for nearly 20 years with DD&A's Dodge editorial team, where she gained detailed insight into the construction industry. She holds a Ph.D. from Tulane University, an MA from Boston University and a BA from Middlebury College.

donna.laquidara@construction.com

Notes About the Data

This report is based on data from two online studies conducted in the first quarter of 2016.

Design and Construction Industry Study

Owner, design firm and contractor respondents came primarily from Canada and the U.S., including 185 responses from Canada and 671 responses from the U.S.

The analysis in this report is primarily based on the Canadian responses. At times, references are made to interesting differences between the responses from Canada and those from the U.S. These two sample groups are representative of the true population of construction professionals (design firms, contractors, and developers/REITs/owners) in each country. It is standard research practice to compare two independent groups—in this case US versus Canada—to determine whether there are statistically significant differences between them. The comments made in this report represent these differences.

Out of the 185 Canadian responses, there were 53 respondents from owners/developers/building operators/REITs (referred to simply as owners in the report), 114 respondents from design firms and 18 respondents from contractors. All findings analyzed in total throughout the report include responses from all three groups. However, comparisons between company types are confined to owners and design firms, due to the size of the respondent pool.

For more information on the definition of health used in the study and the definition of green used to determine the level of green involvement discussed in the analysis, see the methodology on page 47.

Public Health Professional Study

The public health professional study was conducted in Canada and the U.S., with 122 respondents, including 30 public health professionals from Canada, and 62 public health professionals and 30 social workers from the United States. The analysis in this report is primarily based on the Canadian responses, with comparisons drawn based on interesting, statistically significant differences with the responses from the U.S. public health professionals.

For more information on both studies, see the methodology on page 47.

Introduction

Since the introduction of the Leadership in Energy and Environmental Design (LEED®) program in Canada, green building proponents have considered how buildings impact the health and well-being of their occupants. The case for healthy green buildings has become clear as we have learned about the positive impacts on occupant health and wellbeing such as reduced employee turnover, lowered absenteeism and improved productivity. Yet, the reasons for mixed adoption of these practices and features are not always apparent.

To create *The Drive Toward Healthier Buildings 2016: Tactical Intelligence to Transform Building Design and Construction SmartMarket Report*, Dodge Data & Analytics undertook an extensive market survey that reached out to 975 building construction professionals, including owners, architects, interior designers and contractors from around the world. In addition to building professionals surveyed, 122 public health workers were asked to contribute their perspectives on occupant health and buildings.

As a subset to that larger report, the Canada Green Building Council commissioned *Healthier Buildings in Canada 2016: Transforming Building Design and Construction*, to provide insight on the Canada-specific findings. This resulting report represents 20 percent of total survey participants and examines the factors influencing Canadian building owners, architects, interior designers, contractors and public health professionals in their decisions for adopting healthier building practices and features.

This study sheds light on the perspectives on building design in relation to health and wellbeing, and lays the groundwork for widespread adoption of opportunities related to the fundamental principles of healthier green buildings for all players in the industry. It uncovers that building owners in Canada are frequently influenced by occupant health and well-being in their design and construction decisions. For example, we learn that Canadian owners see a positive impact on the value of buildings with healthier practices than those without and they are much more aware of the impact of healthy

building design features on their ability to lease properties faster than those in the U.S.

This report reveals that the number one priority reported by owners in their goals for healthy building is to ensure happier and healthier employees and occupants. Yet the top three benefits cited by healthy building owners include increasing building value, the ability to lease space more quickly and increased rent.

Notwithstanding their motivations for healthier buildings, Canadian owners selected seven other factors driving investment decisions, suggesting that health continues to be a lower priority consideration during the design and construction process. At least three of those other seven factors, though—including tenant demand (79%), market performance and value (77%), and return on investment (72%)—could be leveraged to increase consideration of health, if more data were available tying healthier buildings to positive influences on each.

Greater occupant demand and public awareness of the health impacts of green buildings rank first among owners and designers, respectively, as the highest driver to encouraging greater focus on health and well-being impacts of buildings, with government incentives ranked second. With LEED being the top green healthy building certification used by most architects, contractors and owners seeking recognition in Canada, helping owners see the business case around tenant experience may be just as persuasive in the long run, and much easier to provide data on, than demonstrating specific percentage improvements in productivity from these investments.

In all, the findings suggest that the industry is just beginning to embrace the creation of buildings that enhance health as part of its approach to making the built environment more sustainable. With growing interest and strong business benefits being articulated, the prognosis is good for increased investment for health and well-being as an integral part of green building design and construction in the years to come.

It is not surprising that the benefits for healthy green buildings extend far beyond improvements to health. Nearly half of Canadian building owners report they are able to lease space more quickly in buildings with healthy features, and over one third see an increase of 7% or more of their building value.

Executive Summary

Data on benefits other than productivity—including leasing data and occupant satisfaction—can help drive greater investments in healthier buildings in Canada.

Productivity data may be only one piece of the puzzle for creating a stronger healthier building market. Owners are also interested in health as a tenant/employee amenity, so greater public awareness and data on the business benefits of employing healthier building products and practices are equally as essential and may be more readily available over time. Creating more tenant and building occupant interest in the impact of buildings on health is still essential, even if it is through some of its softer benefits like employee satisfaction and engagement.

Influence of Occupant Health and Well-Being on Design and Construction Decisions

72% of owners in Canada versus 67% in the US report that occupant health and well-being influences their design and construction decisions. Yet seven factors are selected by more than 72% of owners as influential.

- Three of these factors—operating cost savings, design and construction cost savings, and building energy performance—may be in direct conflict with healthy building improvements, suggesting the need for prioritizing health higher among owners.
- Three others—tenant demand, market performance and value, and return on investment—could eventually encourage wider investment in health if data can demonstrate that making buildings healthier has a positive impact on these factors.
- Aesthetics can be part of healthier building investments, including the use of art, addition of light and biophilic features, but emphasis on aesthetics can also cause prioritization of building features and materials that do not have a positive impact on health.

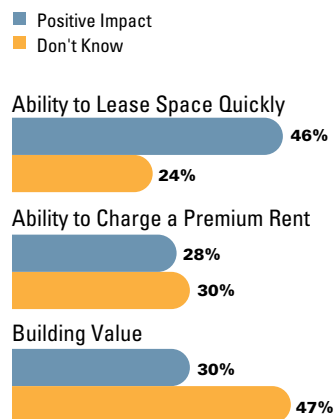
Business Benefits Rank High in Owner Goals for Healthier Buildings

Business benefits are also driving investments in healthier buildings. **More owners invest in healthier buildings with the expectation of achieving business benefits like tenant/employee satisfaction and improving their brand—benefits that result from health being considered a building amenity—than are making these investments to improve productivity or to stay in compliance with corporate social responsibility (CSR) goals.** Even the second highest factor—happier and healthier building occupants—speaks as much to the tenant/occupant experience as it does to any specific concerns about health and productivity.

Nearly half of owners (46%) report that they are able to lease space more quickly in buildings with healthier building practices. This demonstrates that, even at this early stage in the healthier building movement, tenant interest is already evident.

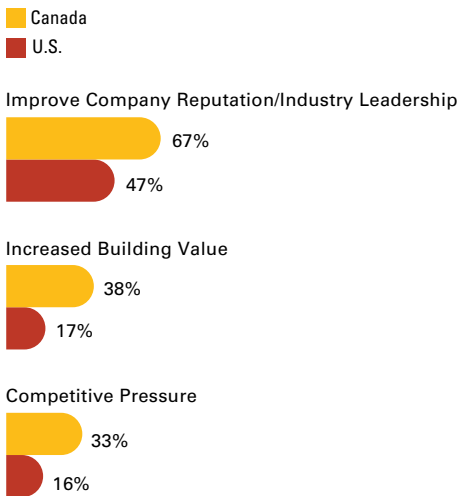
Approximately one third (30%) of owners report that they see a positive impact on the value of buildings with healthier practices compared with those without, with over one third (38%) of them reporting an increase of 7% or more of their building value. However, nearly half (47%) of the owners do not know the impact of healthier building investments on building value, no doubt due to the fact that consideration of building impacts on occupant health as a separate factor is still relatively new.

Impacts of Healthier Building Practices (Reported by Owners)



Owners see the highest potential return on investment for business benefits. When asked to rank several potential benefits of making healthier building investments in terms of which would deliver the best return, occupant productivity gains following business benefits at a distant fourth, selected by less than one third. This demonstrates that productivity can be a compelling argument for why investing in healthier buildings makes good business sense, but it is not the sole argument. While more data on hard benefits would have a strong positive impact on wider investments in health, many companies are also finding success with softer arguments that encourage tenant interest and thus help deliver these three key benefits. Although many owners report not seeing strong tenant demand as a dominant driver of healthy buildings, they believe this will be a critical driver in the future.

Reasons Owners Measure Health Impacts of Their Buildings (Significant Differences between Canada and US)



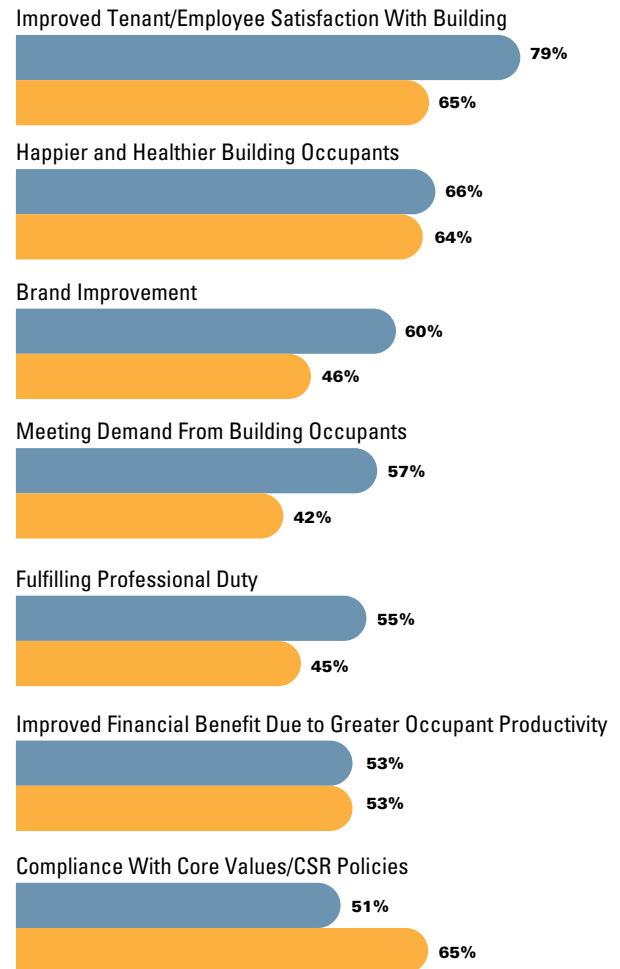
When asked why they measure health impacts, significant differences were found between Canadian and U.S. building owners in that Canadian building owners are more likely to measure the health impacts of their building in order to seek brand improvement/value from their investments, increase the building value, and gain a competitive position in the marketplace.

Aligning Owner and Project Team Perceptions of Healthier Buildings

A higher percentage of designers (78%) consider health and well-being influential than the 72% of owners, and health ranks third in designers' overall priorities, second only to design and construction cost savings (86%), and building energy performance (82%). However, this study discovers that owners are more interested in health than many in the design community believe, often underestimating the influence of tenant relations and branding which drives owner investments, and owner interest in features like improved daylighting, enhanced access to natural features, site selection promoting community integration and layouts that encourage physical activity.

Owner Goals for Healthier Buildings

■ Owner Goals for Healthier Buildings (According to Owners)
 ■ Percentage of Architects, Interior Designers & Contractors Who Believe their Clients Want to Achieve these Goals

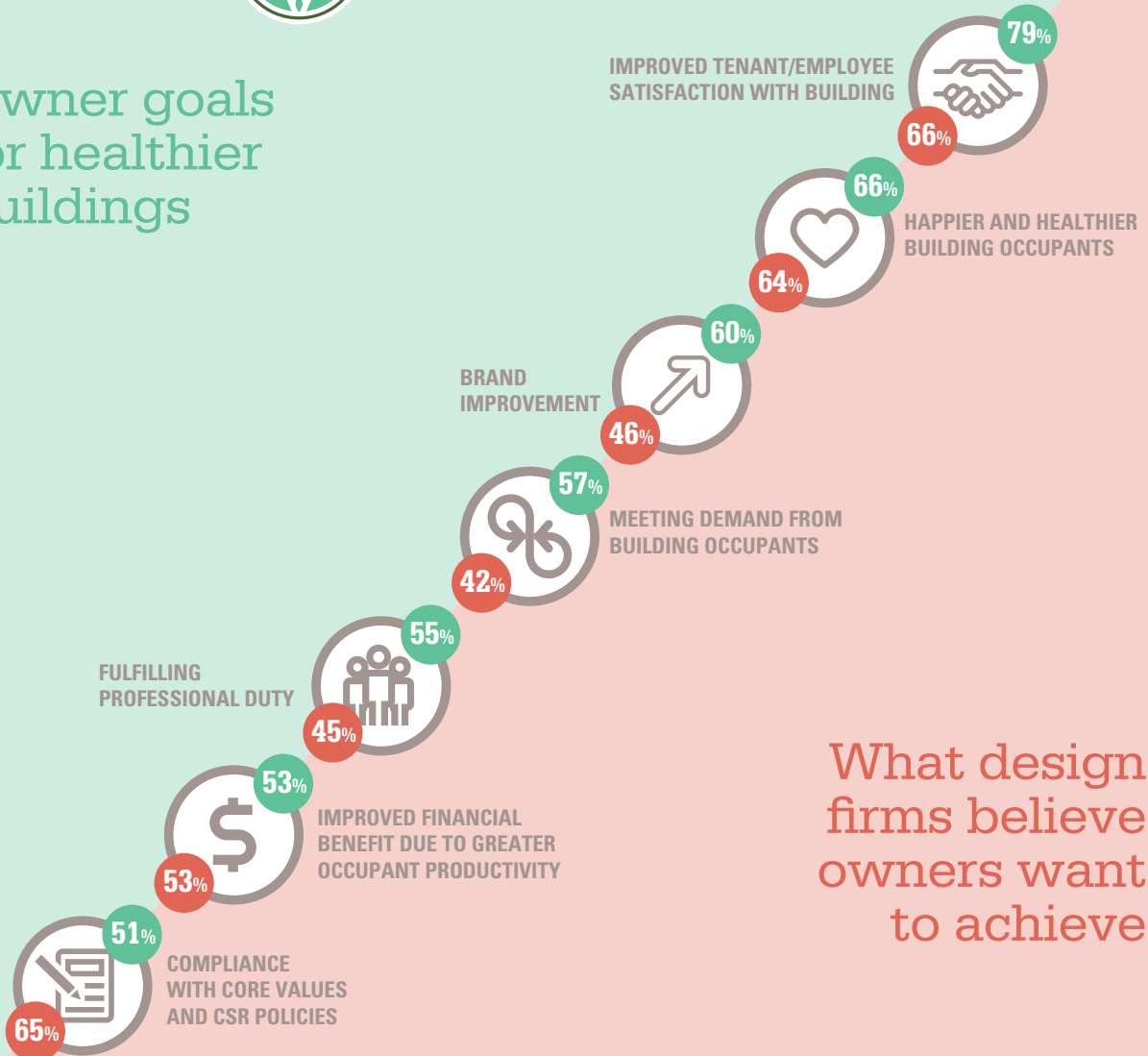


Goals HEALTHY BUILDINGS



Owner Goals

Owner goals
for healthier
buildings



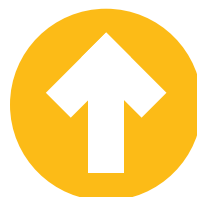
What design firms believe owners want to achieve



Design Firms

UNDER ESTIMATED

owner interest in brand improvements



OVER ESTIMATED

owner needs to comply with CSR policies

While designers on average do recognize the importance to owners of improving tenant/employee satisfaction, they considerably underestimate the influence of brand improvement and overestimate the influence of CSR compliance for their clients. Therefore, designers and contractors seeking to influence owners to invest more in healthier buildings need to position these benefits as critical, valued amenities.

Challenges to Greater Investments in Health

Across all segments, budget concerns and limitations are named as a major obstacle to including health in the design and construction process. About three quarters of owners and designers agree that budget concerns rank high among the challenges to increasing investment in healthier building products and practices. However, a strong business case based on a better documentation of the benefits of making these investments would counterbalance those concerns since, as this study suggests, the initial costs for healthy green buildings can be subsequently recouped.

Nearly half of design firms rank lack of client interest high, while roughly the same share of owners consider an unclear business case and other competing priorities to be impediments. These concerns about an unclear business case were strongly echoed in a series of in-depth interviews conducted as part of this project with leading owners across industry in making healthier building investments, underscored by a strong call for more actionable data.

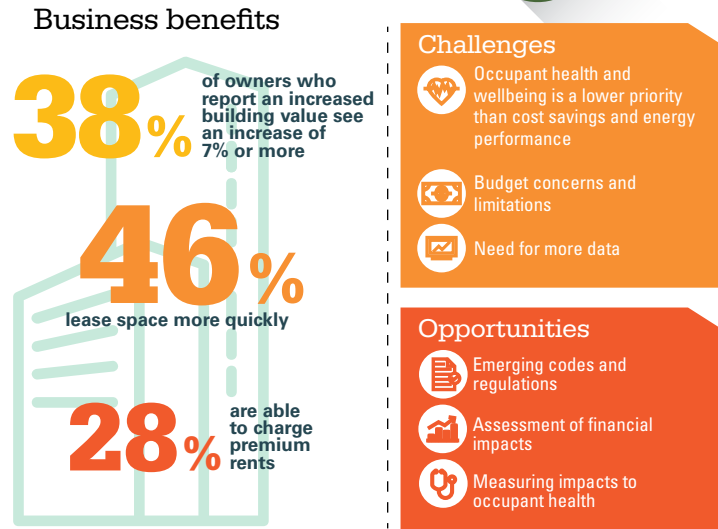
U.S. owners are more data driven than their Canadian counterparts, with 40% of U.S. owners ranking data on productivity impacts among the top three drivers for encouraging greater focus on healthier buildings, compared with Canadians surveyed (21%), and are more likely to rank data on product impacts on health (26%) as a top driver over Canadian owners.

Green Building Is Driving Use of Top Healthier Building Practices and Products

The most common healthier building products and practices—such as daylighting, low VOC products and mechanical ventilation strategies to improve air quality—are notably those that green building certification systems require. This demonstrates how green building programs have driven awareness and use of healthier building products and practices.

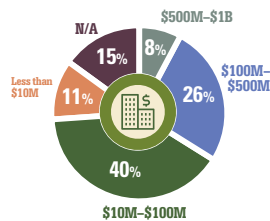
In addition, significantly more owners in Canada report using CO₂ sensors (70%) and natural ventilation (47%) than those in the U.S. (51% and 28% respectively). However, a much higher percentage of government policies that encourage occupant health, wellbeing and safety including avoidance of hazardous materials, VOCs, and red list chemicals are reported to exist in the U.S. (65%) than in Canada (40%). Project sector also plays an important role in the level of use of healthier building products and practices.

Profile HEALTHY BUILDING OWNERS

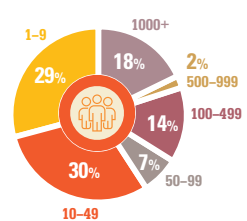


Canadian building owners surveyed in this study represent

Annual Project Values



Number of Employees



Strategies HEALTHY BUILDINGS



Canada U.S.

Category	Strategy	Canada	U.S.
Healthcare	Low VOC products	84%	71%
	Mechanical ventilation strategies	84%	64%
	Daylighting	82%	50%
	Occupant controls	64%	56%
Offices	Low VOC products	78%	76%
	Daylighting	71%	62%
	Occupant controls	71%	59%
Education	Low VOC products	86%	72%
	Mechanical ventilation strategies	79%	67%
	Daylighting	79%	64%

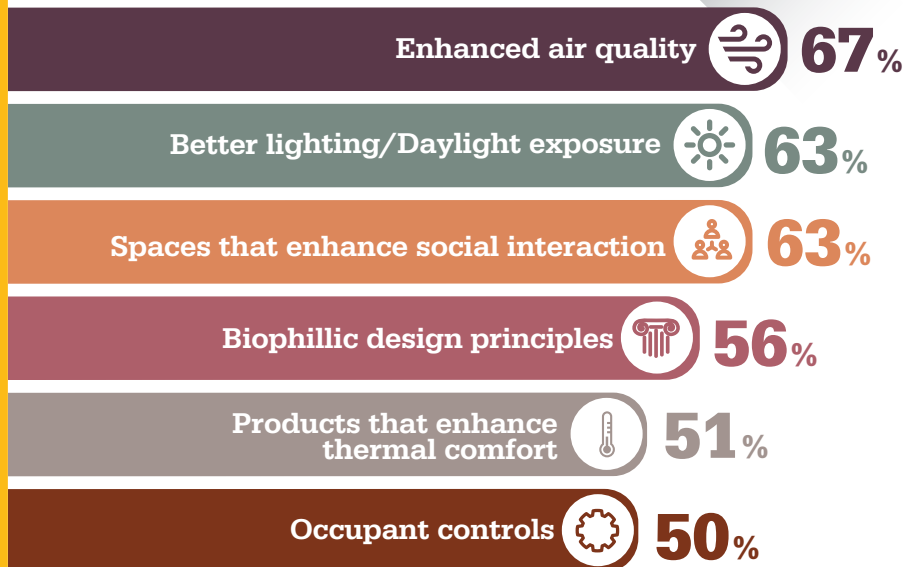
Additionally, schools demonstrate greater interest in

Canada	Accessibility to outdoor views	71%
	Natural ventilation strategies	60%
	Access to natural features	59%
U.S.	CO2 sensors	54%
	Sidewalks and bike trails	42%
	Natural ventilation strategies	34%

Trends for HEALTHY BUILDINGS



Healthier building features to be used more in the next 5 years



Firms with +60% green projects are interested in improved thermal comfort (75%) and enhanced ventilation (70%)

Public Health Professionals Can Be Allies in Promoting Healthier Building Research and Policies

A separate study of public health professionals in Canada reveals several key findings:

- More than half of health professionals surveyed recognize a wide range of building features and practices that influence the health of building occupants. This suggests that they may be effective partners in efforts to promote greater public awareness of these connections.
- Third-party certification systems are much more widely used by U.S. public health professionals for buildings (23%) than those in Canada (10%).
- With the exception of the prevalence of policies pertaining to healthy foods, the most common government policies for improving building occupant health and well-being in Canada focus on air quality, including codes regulating air quality, regulations requiring air quality measurements, and wider expected use in the future of incentives for increased ventilation/fresh-air intake.
- Public health professionals in Canada largely get their information about building impacts from the government, but they seek more information on how to measure health impacts of buildings, health benefits and chemicals of concern. More industry-run training and workshop opportunities for this sector could be important.
- U.S. public health workers report interest in building strategies that promote physical activity (56%) and greater transparency about building materials (52%), than their Canadian counterparts (27% and 27%, respectively).
- By far the highest percentage (47%) rank lower healthcare costs among the top three outcomes they expect from greater consideration of occupant health and well-being during design and construction.

Study Implications

Throughout the study, the need for additional data is clear. As interest in healthier buildings has increased, many have thought that demonstrating productivity benefits and healthcare cost savings, despite the challenge of gathering this data and linking it to specific building practices, is the best way to move the market. Yet data on increased building value, speed of leasing and rent averages for healthier buildings may be easier to gather than trying to link productivity and healthcare cost improvements to healthier building investments.

Although lack of data appears as a common reason for why design decisions are not as influenced by health and wellbeing impacts as they could be, greater effort needs to be made to communicate the findings that have emerged from research studies examining this relationship to industry stakeholders. Industry perception surveys are thereby able to provide the pulse for what is important to its stakeholders.

Even as the green building industry continues to grapple with the challenges of sufficient transparency about the impacts of building materials, a new paradigm is emerging for the consideration of building impacts on health and well-being. The key shift is in acknowledging that buildings must do more than simply avoid adverse impacts on health, indeed they can and should actively optimize the health and wellbeing of their occupants.