

Buildings emerge as drivers of health and profits

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ABSTRACT

A confluence of factors has moved buildings to the forefront of efforts to promote the health and wellness of employees. This paper addresses why this has occurred, and how it will influence corporate real estate (CRE) and human resource decision-making in the future. The paper continues by describing and documenting a methodology for

assessing the financial performance of health and wellness investments that can be used to analyse property and portfolio decisions (Property Health and Wellness ROI Model [The ROI Model]). The ROI Model is then applied to a hypothetical investment in the WELL Building Standard™ for a 200,000 sq.ft office building to demonstrate the sensitivity and substantial profit potential of building level investments in health and wellness. Proper financial assessment of health and wellness investments can enable dramatic improvements in occupant health and productivity, and provide a strong financial foundation for other energy and sustainability investments.³

Keywords: *corporate real estate, health and wellness, human resource management, WELL Building Standard™, sustainability, decision-making, capital budgeting, facilities management*

INTRODUCTION

The WELL Building Standard™, and other building related health and wellness features can generate substantial physical, mental and social health benefits for building occupants, as well as substantial financial benefits to their employers.

The emergence of the healthy buildings movement and innovations in building related health science, technology, and measurement, have propelled health and wellness decisions into the C-Suite. Healthy building investment can serve as a foundation to other company health and wellness investments and be an important part of a company's overall plan to recruit and retain employees.

There is substantial actual case study evidence from around the world that healthy building investments can dramatically improve corporate performance. The World Green Building Council, working with corporations worldwide, published evidence from 13 case studies about the benefits of healthy building investment including:⁴

- Skanska UK saved \$36,000 in 2016 in absenteeism costs and reduced the green payback period of an office from 11 to eight years by achieving 3.5 times fewer building-related sick leave days alongside increased employee productivity and comfort;
- Delta Development Group in the Netherlands estimated they would achieve a €42m net present value over 20 years due to increased productivity, staff retention and reduced absenteeism from their healthy workplace investments;
- Medibank, Australia's largest health insurer, reports that 80 per cent of staff are working more collaboratively, absenteeism is down 5 per cent, and two-thirds of staff report feeling healthier in offices that embody many new healthy building initiatives.

Importantly, as this paper demonstrates, not only can healthy building investments create financial benefits, such benefits can be calculated and presented as part of a company's normal investment due diligence using traditional financial analysis techniques.

EMERGENCE OF THE HEALTHY BUILDING MOVEMENT

The healthy building movement is here to stay, and as awareness with employees and competitors grows, companies will be rewarded for implementing well thought out policies and practices. Corporate decision-making around health and wellness investment should reflect the specifics of each company, as well as an understanding of the broader trends that have driven the emergence of the healthy building movement.

The role of buildings in promoting occupant health and wellness has emerged in recent years due to a confluence of factors including: (1) growing business interest in

health and wellness, (2) growing recognition of the role of buildings in health, (3) new research and technology; and (4) enhanced building certifications and measurement.

Wellness has been called the next trillion-dollar industry by McKinsey & Company, as employers invest in healthy living programmes and customers take more responsibility for optimising their health.⁵ Over 90 per cent of companies have some form of health management/wellness programme⁶ and 49 per cent of employer's report health and productivity programmes are essential to their company strategy.⁷ Recruiting and retention has also become the number one focus of CRE executives, reinforcing the importance of health and wellness programmes.⁸

People spend approximately 90 per cent of their time in buildings, so it is not surprising that building design and operations can affect health.⁹ More surprising is that the real estate industry did not take notice until recently when the green building industry helped establish the link between buildings and health. A major 2015 study by the Mayo Clinic found that only 20 per cent of health can be attributed to healthcare, reinforcing the role of buildings.¹⁰ Major real estate professional groups like CoreNet Global, BOMA International, Urban Land Institute and the American Institute of Architects have responded by making healthy buildings a core focus of their organisations.

Recent scientific research and technology advances have both enhanced the link between building-related interventions and productivity, and enabled practical cost effective solutions. For example, cognitive performance was demonstrated to improve 61 per cent to 101 per cent in a 2016 Harvard-Syracuse study of people in spaces with improved ventilation, carbon dioxide levels and volatile organic compounds compared to traditional 'control' office as measured by performance on

standard white collar office functions.¹¹ A 2016 Texas A&M's study shows call centre workers with adjustable desks were 46 per cent more productive (based on number of calls made).¹² Technological innovations in sensors, lighting and digital controls now make it possible to act on this new research.

Finally, enhanced measurement and verification standards for health and wellness, such as the WELL Building Standard™ at the property level and the Global ESG Benchmark (GRESB) at the portfolio level, now provide companies the ability to focus on those building interventions tied by science to health and productivity benefits, and, importantly, measure results, which is key to long-term management and value assessment.

THE WELL BUILDING STANDARD™

The WELL Building Standard™ was launched in 2014, after a multi-year development effort led by Delos. The International WELL Building Institute™, a public-benefit corporation, was launched by Delos in 2013 to improve human health and well-being through the built environment by administering the WELL Building Standard™. As of October 2017, over 600 projects have been registered or certified in over 30 countries, with growth projected to intensify.

The WELL Building Standard™ is like Leadership in Energy and Environmental Design (LEED) and other green building rating systems in the levels of certifications (eg Platinum, Gold, Silver), the numerous property types covered, as well as ratings for different buildings in different stages of their life (new and existing whole buildings, new and existing interiors and existing buildings [core and shell]). Portfolio and community standards are also under development. However, the WELL Building Standard™ covers design, construction, and operations — versus just design (as is the case with, for

example, LEED) — and over 70 per cent of the interventions are verified by testing and performance, versus only approximately 20 per cent for LEED.

The WELL Building Standard™ for office includes 102 possible ‘features’ across seven categories that are independently verified by a third-party:

- (1) **Air:** addresses material selection, ventilation, filtration, moisture control and other issues;
- (2) **Water:** addresses testing, treatment, maintenance and hydration promotion;
- (3) **Nourishment:** addresses healthy portions, food production, access to healthy foods, allergies, alternatives transparency and environmental cues;
- (4) **Light:** deals with circadian design, day-lighting, glare control, color quality, activity based lighting levels and visual acuity;
- (5) **Fitness:** addresses interior and exterior active design, physical activity spaces programming and other issues;
- (6) **Comfort:** covers ergonomics, acoustics, thermal comfort and other topics;
- (7) **Mind:** addresses stakeholder engagement, transparency, wellness protocols, connection to nature, adaptable spaces and altruism.¹³

THE PROPERTY HEALTH AND WELLNESS ROI MODEL

The ROI Model compares the total cost of implementing the WELL Building Standard™ with potential company revenue benefits to enable calculation of a return on investment (ROI) and a net present value (NPV) of the investment cash flows to assist company health and wellness decision-making. The ROI Model can also be modified to evaluate other International WELL Building Institute™ certification standards beyond the New and Existing Office Building Standard, or health and wellness interventions, as well

as health and wellness interventions across a portfolio of properties.

In this paper, the ROI Model presented applies to the implementation of the WELL Building Standard™ for New and Existing Office Buildings (combines the certifications of Core and Shell and New and Existing Interiors) for those companies who own and occupy their properties. For the purposes of assessing the financial performance, our model will examine a hypothetical single 200,000 sq. ft office building occupied by a bank.

The ROI Model employs a standard discounted cashflow methodology where costs to implement the WELL Building Standard™ are offset against revenues generated from the following four ‘value elements’:

- (1) Health cost savings;
- (2) Worker productivity increases;
- (3) Recruiting and retention cost savings;
- (4) Reduced absenteeism.

There are two other elements that offer compelling arguments in support of WELL Certification: customer access and sales and enterprise risk reduction. They supplement the more detailed financial analysis of the first four value elements. While the implications of the WELL Building Standard™ on these two additional value elements can be quantified,¹⁴ they are presented in this paper qualitatively, following the detailed discussion of the ROI Model.

The ROI Model is described and the key assumptions defined and analysed in the sections below. First, the four key ‘value elements’ that generate revenues are presented, followed by a presentation of the key certification, consulting, hard, and operational costs required to implement the WELL Building Standard.

For the purposes of this ROI Model, the building improvement and other costs are all defined as ‘Investments’ required to generate the revenues that drive a company’s

ROI. Given that costs (investment) will vary significantly given property/project circumstances, the ROI Model is designed to enable sensitivity analysis around a range of potential cost estimates.

Health insurance cost savings

Employee health and wellbeing are critical to business success. Approximately 68 per cent of full-time employee's report having a chronic condition. The Centers for Disease Control and Prevention (CDC) confirms that chronic conditions are some of the most common and costly of health problems; however, they are also some of the most preventable.¹⁵

Health insurance premiums are a burden for companies and employees. Family coverage premiums have increased over 60 per cent between 2005 and 2015 to \$17,545, while employee contributions have increased 83 per cent over the same time-period to \$4,955.¹⁶ With 2016 per person health costs in the US over twice most European economies, and nearly three times the OECD average, company health costs burden business profits.¹⁷

The WELL Building Standard™ was created specifically to address health and wellbeing by providing a scientifically-based approach to the design, construction and operation of a building. Building interventions in air, water, light, nourishment, comfort, fitness and mind provide a solid foundation for potential improvements in the health and well-being of employees.

ROI MODEL DOCUMENTATION FOR HEALTH INSURANCE COST SAVINGS

- Health insurance premium per employee
- Share Covered by Employee
- Total employer healthcare spend
- Health insurance premium reduction (%)
- Total healthcare cost savings

Health insurance premium per employee: Combined spend of employee

health insurance premiums for all employees divided by number of employees. Details should be available from human resources. The 2016 average US employer health care premiums for families were \$18,142 and for singles \$6,435.¹⁸

Share covered by employee: Percentage representing the average share of health insurance premiums covered by the employee. This will vary by company, although the national average for 2016 was 29.0 per cent.¹⁹ Exact figures for your company should be available from human resources.

Total employer healthcare spend: Combined spend on health insurance premiums attributed to employer.

Health insurance premium reduction (%): This assumption is difficult to estimate due to significant variation across companies and providers, and lack of long-term historical data for WELL Certified offices. Specific guidance should be discussed with experts inside the company or with outside advisors who assist with health insurance. It is likely that any cost savings would grow over time as potential health benefits accumulate.

Health insurers might be influenced by the substantial number of International WELL Building Institute™ interventions that are preventive in nature²⁰ — including a range of fitness, mind, ergonomic and nourishment features that have the potential to positively impact employee health and wellbeing. Many of the interventions are also passive in that they do not require employee action to realise potential benefits. For the five-year model presented in this paper, we assume 0 per cent change in year one, 3 per cent reduction in years two and three, and 5 per cent reduction in years four and five.

Total healthcare cost savings: Total savings are calculated by multiplying the total employer healthcare spend by the health

insurance premium reduction percentage. This number represents total healthcare cost savings attributed to the WELL Building Standard™ in an existing or proposed space.

Worker productivity

The financial implications of lost worker productivity due to poor health and wellbeing are particularly alarming, and costly, for businesses. According to research by Gallup, approximately 70 per cent of US workers, and 87 per cent of global workers are not engaged at work. Companies in top quartile of engagement are 22 per cent more productive — indicating substantial room for most companies to improve their productivity.²¹

The WELL Building Standard™ has strong potential to improve productivity because so many of its interventions directly address key factors influencing health and productivity. However, attribution of productivity increases to the WELL Building Standard™, versus other factors, is difficult. Fortunately, the attribution analysis required is consistent with what real estate analysts do regularly in estimating rents, occupancies, tenant retention, absorption or other variables in a standard real estate financial analysis.

The process followed by real estate analysts relies on analysis of a broad cross-section of data from different sources, all of which require subjective adjustment and application by the analyst based on their assessment of its quality and applicability to their project. Estimating how much the WELL Building Standard™ increases worker productivity follows a similar approach.

ROI MODEL DOCUMENTATION FOR WORKER PRODUCTIVITY

- Total salaries and benefits
- Productivity increase (%)
- Total productivity gains

Total salaries and benefits: This number represents the total financial outlay for salaries

and benefits of the employees who work in the space that is being WELL Certified.

Productivity increase (%): The estimate of the percentage productivity increase of employees in the space that can be attributed to the implementation of the WELL Building Standard™.

Fortunately, there is substantial research about how building interventions identified in the WELL Building Standard™ affect productivity. Research on specific WELL interventions like ventilation rates, improved lighting, or ergonomics suggest potential productivity increases — per intervention — ranging from 1 to 10 per cent (or more).²² Use of a range is recommended.

Total productivity gains: Total gains are calculated by multiplying the total salaries and benefits by the productivity increase percentage. This number represents total productivity-related employee cost savings attributed to the WELL Building Standard™ in an existing or proposed space.

While the term employee cost savings is used for the savings resulting from productivity, an alternative way to think about the cost savings estimate is to interpret it as a proxy calculation for the value of increased output (eg more products, sales, revenues, etc.) that would result from workers being more productive and happier in their work environment. In this regard, any potential benefits from the WELL Building Standard™ could begin immediately after it is implemented.

Further, since companies are in the business of generating revenue at multiples of salary, one could also reasonably assume productivity benefits might exceed the approach used which relies upon employee cost savings as a proxy.

Recruiting and retention cost savings

The WELL Building Standard™ can play a significant role in fostering a great work environment, culture of caring, and enhanced

reputation which is critical to recruiting and retention.

ROI Model documentation for recruiting and retention savings

- Annual turnover rate (%)
- Average recruiting costs per employee (% of company)
- Total employee recruiting costs
- Reduction in turnover (%)
- Total recruiting cost savings (\$)

Annual turnover rate (%): This number represents the percentage of employees who voluntarily leave the organisation (voluntary turnover).

While turnover varies dramatically by organisation, voluntary turnover rates in 2014 averaged 11 per cent (15.7 per cent for all turnover) according to CompData survey data.²³

Voluntary turnover rates for banking and finance were 13.3 per cent, services at 8.6 per cent, healthcare at 13.0 per cent, and hospitality at 20.2 per cent.²⁴ Many companies in the Fortune 500 have much higher rates of turnover.

Average recruiting costs per employee (% of company): Employee salary multiplied times the average cost of recruiting (% of salary).

The average cost of recruiting per employee accounts for both the cost of hiring a new employee as well as lost productivity during the ramp-up, training, lost engagement of other employees, customer service declines and errors and other costs.

There is a wide range of estimates of the cost of turnover. A study by the Center for American Progress estimated costs of around 20 per cent of salary for jobs under \$50,000 and up to 213 per cent of salary to replace a \$100,000 CEO.²⁵ A widely cited study from the Society of Human Resources indicates cost of replacing an employee around six to nine months of replaced worker's salary.²⁶

Total employee recruiting cost: Total employees multiplied times the annual turnover rate multiplied times the average recruiting cost per employee.

Reduction in turnover (%): This number is estimated by evaluating the importance of the workplace environment and an organisation's reputation for caring about their employee's health and wellbeing generally to employee voluntary turnover.

Workers are favourably predisposed to companies that make employee health and wellbeing paramount. The WELL Building Standard™ and its health and wellness features are highly visible to building occupants, and accordingly, convey strong messaging as to an employer's priorities. Select research supporting this hypothesis is presented below:

- Property and company level sustainability reputation and leadership has been shown to be important to occupants. According to Kellert (2008), the top five criteria for occupant function in an office that, if unaddressed, can lead to dissatisfaction are:
 - Need for change (light levels, temperature, etc.);
 - Ability to act on the workplace environment and notice effects;
 - Meaningful stimuli to avoid stagnation;
 - One's own territory to indicate safety and identity;
 - View to the outside world.²⁷
- In a 2014 study conducted by Global Workplace Solutions (GWS) and CoreNet Global, 75 per cent of those surveyed said that when seeking a new position, it is important that a potential employer support health and wellbeing. Once employed, more than half (57 per cent) said they would be likely to stay longer if their employer valued health and wellbeing.²⁸
- According to a study led by Knoll and

DYG Inc., employees that are planning to leave a company routinely list their physical workplace as a desired characteristic.²⁹

Total recruiting and retention cost savings (\$): This is calculated by multiplying the reduction in annual turnover rate times the total employee recruiting costs. This number represents total recruiting costs savings attributed to the WELL Building Standard™ in an existing or proposed space.

Reduced absenteeism

The fundamental value proposition from reducing absenteeism is based on the fact that on average companies spend 112 times the amount of money on people as on energy costs in the workplace.³⁰ Building related investments that improve physical and mental health have been shown to reduce planned employee absenteeism, creating value for companies. Value from reduced absenteeism will vary based primarily on how much absenteeism is reduced and the quantum of employee salaries.

ROI MODEL DOCUMENTATION FOR REDUCED ABSENTEEISM

- Total salary and benefits of employees;
- Designated work days per year;
- Total employee's cost per day of absence;
- Absences per employee;
- Reduction in absences (%);
- Total absenteeism cost savings;

Total salary and benefits of employees: Total financial outlay for employee salaries and benefits and is typically obtained from human resources.

Designated work days per year: Total number of workdays after subtracting weekends and holidays — typically around 250 days.

Total employee's cost per day of absence:

$$= \frac{\text{Total Salary and Benefits}}{\text{Designated Work Days per Years}}$$

Absences per employee: The average number of days absent per employee per year and is typically obtained from human resources. Average absences from the Bureau of Labor Statistics, Current Population survey from 2015 was 2.9 per cent.

Reduction in absences (%): Is defined as the estimated percentage reduction in absences attributed to the WELL Building Standard's™ health and well-being impact.

There is a growing body of evidence supporting the relationship between healthier indoor environments and reduced absenteeism. Reductions of 10 per cent to 40 per cent are suggested based on a review of key research identified below:

- A Canadian study revealed that approximately one-third of employees' sick leave can be attributed to symptoms caused by poor indoor air quality.³¹
- 'William Pape, co-founder of VeriFone, reported that eighteen months after the company occupied a green building retrofit, absenteeism decreased by 40% and productivity increased 5%'.³²
- In 2007, an Australian law firm documented the amount of sick days before and after a move to a five Green Star-rated building, a high rating in Australia, and found sick days reduced by 39 per cent overall to 0.28 days per month.³³
- Gallup research shows that an individual with a chronic disease has between 12 and 42 more unhealthy days per year than someone who is healthy.³⁴ Nearly one-third of those days (four to 14 days a year) result in missing a full day of work.³⁵
- The Society for Human Resource Management (SHRM) estimates the cost of unplanned absences to be nearly 10 per cent of payroll or \$6,800 per person, per

year, based on the average US wage of \$33.87 per hour.^{36,37}

Total absenteeism cost savings: This is calculated by multiplying the total employees cost per absence times, the absences per employee multiplied by the reduction in absences percentage. This number represents total absenteeism cost savings attributed to the WELL Building Standard™ in an existing or proposed space.

WELL BUILDING STANDARD™ IMPLEMENTATION COSTS: NEW AND EXISTING BUILDINGS

The cost of implementation of the WELL Building Standard™ can vary significantly based on the size of the space being certified, as well as numerous other factors including the age of the building, the level and type of existing or planned improvements, prior green building certification, current occupant health and wellness policies and practices and other factors.

WELL Certification costs include WELL Certification fees, consulting and other professional fees, and initial one-time hard costs. Additionally, included are minimal costs for operations, policy changes and recertification.

A general range of total WELL Building Standard™ implementation costs for a 200,000 sq. ft WELL Silver New and Existing Office Building Certification would be in the range from \$1.50 to 2.20 per sq. ft.³⁸ Costs for implementing the WELL Building Standard™ for New and Existing Interiors would be lower in the range of \$1.00 to \$1.50 per sq. ft.³⁹

It is important to understand when thinking about costs, that estimates can vary if estimators cost out all potential interventions, rather just those interventions required for certification. In some cases, some of the ‘optimisations’ required to achieve gold or platinum certification

may be costly. It is also important to not compare LEED and WELL certification fees directly, because the WELL certification fees paid to The International WELL Building Institute™ include substantial performance verification, which is typically paid as a ‘commissioning’ consulting fee when implementing LEED. Additionally, in many cases implementation may include ‘Alternative Adherence Paths’ which can often overcome potentially costly interventions.

ROI MODEL WELL IMPLEMENTATION COSTS FOR NEW AND EXISTING BUILDINGS

- Certification costs;
- Recertification costs;
- Consulting costs;
- Total hard costs;
- Total initial costs;
- Operational and organisational costs.

Certification costs: Pricing for WELL Certification (registration, performance verification and certification) and Recertification is can be found on the International WELL Building Institute’s website.⁴⁰ Pricing is tightly tied to property/space size and type of certification. A pricing calculator is available to assist investors and their service providers.

For a typical 200,000 sq. ft project (New and Existing Building Certification — includes Core and Shell and Interiors), certification fees would be around \$0.51 per sq. ft.⁴¹

Recertification costs: Occurs at the end of the third year. Recertification costs on a typical 200,000 sq. ft WELL Silver New and Existing Building Certification are estimated to be about \$0.30 per sq. ft. During recertification, projects may submit additional WELL Features to improve their score or achieve a higher level of certification.

Consulting costs: Include all third-party fees, to consultants, architects, engineers, consultants or other specialists that may be involved in both the initial scoping and decision making as well as execution. These costs (sometimes referred to as ‘soft’ costs) are highly variable depending on the specific project situation — ranges of estimates are suggested in preliminary decision making. Costs can go down as people and organisations become more experienced.

Total hard costs: Includes all costs for construction, products and materials, furniture and other expenditures to implement the proposed plan. Hard costs can vary significantly, but are often relatively limited.

Total initial costs: This is the sum of certification, recertification, consulting and hard costs.

Operational and organisational costs: Incremental WELL Certification related operational costs are difficult to estimate, but an assumption of \$2,000 per month is plausible. In addition, there are a variety of policy related changes included in WELL Building Standard™ implementation. These are also highly variable and difficult to estimate, but an annual cost of \$50,000 — \$50 per employee — for a 1,000 person company is plausible.⁴²

ASSESSING THE FINANCIAL PERFORMANCE OF THE WELL BUILDING STANDARD™

Summary financial assessment

The WELL Building Standard™ can generate substantial financial benefits for corporations well beyond the cost of implementation. Assuming a conservative productivity increase of 0.5 per cent, return on investment is nearly 300 per cent with net present value of \$5.6m on an initial

WELL investment of \$427,000 in our hypothetical analysis of a 200,000 sq. ft building owned and occupied by a bank.

The results from the analysis in this paper are consistent with a related study published in 2014,⁴³ which showed substantial health and productivity related returns from implementation of Green Building Standards, but are even more substantial given the focus on a broader array of health and wellness interventions and benefits.

An alternative, and equally compelling, way to think about the financial benefits of the WELL Building Standard™ is to compare growing investment in health and wellness incentive programmes, averaging around \$700 per person per year,⁴⁴ against a one-time investment of approximately \$400 per person and an annual cost of \$50 per person to implement the WELL Building Standard™.⁴⁵ With wellness programme participation below 50 per cent at most companies, interventions in the WELL Building Standard™ that passively benefits all occupants and visitors provides a cost effective foundation for other company health and wellness initiatives.⁴⁶

Implementation of the ROI Model⁴⁷

The ROI Model has been designed to perform calculations based on assumptions and inputs provided by users. Users will have to make their own determinations about proper assumptions based on their research, specific health and wellness investments, and the circumstances and details of their project, employees, and company.

For illustrative purposes, the ROI Model has been implemented on a hypothetical 200,000 sq. ft office building occupied by a bank. The building owner has 1,000 employees in the building being compensated, on average, at \$100,000 per year. Key assumptions in the model are shown below in Table 1 and Table 2, with additional assumption support and analysis presented in the immediately preceding section.

Table 1: Base case assumptions

Total Employees	1,000
Total Square Footage	200,000
Health Insurance Premiums	\$12,288
Avg Salary and Benefits	\$100,000
Annual Turnover Rate	13.3%
Absences per Employee	2.90
Health Ins Reduction	10%
Productivity Increase	1.5%
Turnover Reduction	10%
Absence Reduction	10%
Annual Operating Costs	
Operating Costs	\$50,000
Policy Costs	\$24,000
Total Operating Costs	\$74,000
WELL Investment	
Certification	\$102,000
Consulting	\$125,000
Hard Costs / SF	\$1.00/sf
Total Hard Costs	\$200,000
Total Initial Investment	\$427,000
Recertification	\$60,000
Total Investment	\$487,000

PRODUCTIVITY SENSITIVITY ANALYSIS

Consistent with traditional real estate analysis, the use of ranges and sensitivity analyses are recommended when evaluating the financial effects of key model assumptions like productivity increase, turnover reduction, implementation cost and other assumptions.

Given the critical role of productivity increase assumptions to return on investment, we evaluated three scenarios as shown below.

- **0.5% productivity increase:**
IRR=298%; NPV= \$5.6m
- **1.5% productivity increase:**
IRR=527%; NPV= \$9.7m
- **2.5% productivity increase:**
IRR=758%; NPV= \$13.8m

Even assuming a productivity increase of just 0.5 per cent, returns were 298 per cent, rising to over 750 per cent assuming a 2.5 per cent productivity increase.

A select summary of productivity related research studies organised by the seven categories of interventions in the WELL Building Standard™ suggest a combined productivity assumption for the implementation of all WELL interventions of 2.5 per cent may be relatively conservative.

Indoor air quality

- ‘Work performance may be improved from a few percent to possibly as much as 10 per cent by providing superior indoor environmental quality. The economic benefits of the work performance improvements will often far outweigh the costs of providing better indoor environmental quality’;⁴⁸
- Fifteen studies linked improved ventilation with up to 11 per cent gains in productivity resulting from increased outside air rates, dedicated delivery of fresh air to the workstation, and reduced levels of pollutants;⁴⁹
- A meta-analysis of 24 studies six including six office studies — found that poor air quality (and elevated temperatures) consistently lowered performance by up to 10 per cent, on measures such as typing speed and units output;⁵⁰
- Cognitive performance was demonstrated to improve 61 per cent to 101 per cent in a Harvard-Syracuse study of people in spaces with improved ventilation, carbon dioxide levels and volatile organic compounds compared to traditional ‘control’ office as measured by performance on standard white collar office functions.⁵¹ This study confirmed similar results from a 2012 study by the Lawrence Berkeley National Laboratories.⁵²

Lighting

- Five daylighting studies cited by Carnegie Mellon showed average gains of 5.5 per cent;⁵³

Table 2: Key assumptions in the ROI model

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Health Insurance Premium per Employee	\$ 12,288	\$ 12,288	\$ 12,288	\$ 12,288	\$ 12,288	\$ 12,288	
Share Covered by Employee	29%	29%	29%	29%	29%	29%	
Total Employer Health Care Spend	\$ 8,724,480	\$ 8,724,480	\$ 8,724,480	\$ 8,724,480	\$ 8,724,480	\$ 8,724,480	
Health Insurance Premium Reduction (%)	0%	3%	3%	5%	5%		
Total Healthcare Cost Savings	\$ -	\$ 261,734	\$ 261,734	\$ 436,224	\$ 436,224	\$	1,395,917
Total Salaries and Benefits	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$	
Productivity Increase (%)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Total Productivity Gains	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$	2,500,000
Annual Turnover Rate (%)	13%	13%	13%	13%	13%	13%	
Avg Recruiting Cost per Employee (% of Comp)	50%	50%	50%	50%	50%	50%	
Total Employee Recruiting Costs	\$ 6,650,000	\$ 6,650,000	\$ 6,650,000	\$ 6,650,000	\$ 6,650,000	\$	
Reduction in Turnover (%)	10%	10%	10%	10%	10%	10%	
Total Recruiting Cost Savings	\$ 665,000	\$ 665,000	\$ 665,000	\$ 665,000	\$ 665,000	\$	3,325,000
Total Salary + Benefits	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$ 100,000,000	\$	
Designated Work Days per Year	250	250	250	250	250	250	
Total Employees Cost per Absence	400,000	400,000	400,000	400,000	400,000	400,000	
Absences per Employee	2.90	2.90	2.90	2.90	2.90	2.90	
Reduction in Absences (%)	10%	10%	10%	10%	10%	10%	
Total Absenteeism Cost Savings	\$ 116,000	\$ 116,000	\$ 116,000	\$ 116,000	\$ 116,000	\$	580,000
Annual WELL Operating Costs	\$ (74,000)	\$ (74,000)	\$ (74,000)	\$ (74,000)	\$ (74,000)	\$ (74,000)	
Certification & Consulting Costs	\$ (227,000)			\$ (60,000)			
Hard Costs	\$ (200,000)						
WELL Investment Net Cash Flow	\$ (427,000)	\$ 1,207,000	\$ 1,468,734	\$ 1,468,734	\$ 1,583,224	\$ 1,643,224	\$ 7,800,917
NPV	\$ (427,000)	\$ 1,128,037	\$ 1,282,850	\$ 1,198,925	\$ 1,207,834	\$ 1,171,596	\$ 5,562,242

Financial Results	
Net Cash Flow	\$ 7,800,917
IRR	298%
Discount Rate	7%
NPV	\$ 5,562,242

- Lack of natural light is the number one workplace hazard by 36 per cent of psychologists and psychiatrists.⁵⁴

Comfort

- Office workers in a 2011 study experienced a 4 per cent drop in performance at cooler temperatures, 6 per cent at warmer;⁵⁵
- A study in 1998 found that there was up to a 66 per cent drop in performance for a 'memory for prose' task when participants were exposed to different types of background noise.⁵⁶

Fitness

- Rare exercise is linked with a 50 per cent increased risk of low productivity;⁵⁷
- Texas A&M's 2016 study shows call centre workers with adjustable desks were 46 per cent more productive (based on number of calls made).⁵⁸

Water

- Being dehydrated by just 2 per cent impairs performance in tasks that require attention, psychomotor, and immediate memory skills, as well as assessment of the subjective stat.⁵⁹

Nutrition

- Well-targeted and efficiently implemented diet-related worksite health promotion interventions may improve labour productivity by 1–2 per cent. (These conclusions are subject to some uncertainty due to the relatively limited amount of literature in the field.)⁶⁰

Mind

- A 2014 study on biophilic design in the workplace reported levels of wellbeing and productivity that were 13 per cent and 8 per cent, higher, respectively, for those Europe, Middle East and Africa (EMEA) office workers in environments containing natural elements.⁶¹ Interestingly, other studies have found such natural elements do not have to be real.⁶²
- After a 40 second micro-break, subjects who viewed a rooftop garden image increased concentration levels 6 per cent, while those who viewed an image of a plain concrete roof saw concentration levels decline 8 per cent.⁶³

CUSTOMER ACCESS AND SALES

There is growing evidence that companies that focus on the health and well-being of their employees can increase customer access and sales:

- **Employee engagement:** Companies with healthier work environments and a culture of caring can expect more satisfied and engaged employees to produce better products and sell more effectively;
- **Customer access:** Healthy buildings are becoming an important part of both a company's reputation and its sustainability ratings, contributing to higher ESG scores that have become a minimum standard for many government and private organisations;
- **New products and markets:** Companies that promote health and well-being in

their culture and work environments integrate their employees at a very personal level in the trillion-dollar health and wellness market, providing a basis for product and marketing innovation.⁶⁴ This growing opportunity mirrors the 'sustainability' opportunity companies are integrating into their businesses.

Presentation of the arguments and evidence, even without explicit quantification can be very compelling to decision makers. Quantification at the property/space level is difficult, because attributing company revenues to people in a space/building can be subjective. However, quantification at a portfolio level does not have this challenge, making this 'value element' particularly powerful in making portfolio level decisions to pursue WELL Certification. A full financial assessment of customer access and sales is presented in 'How to Calculate and Present Deep Retrofit Value for Owner Occupants'.⁶⁵

ENTERPRISE RISK REDUCTION

The WELL Certification can significantly contribute to mitigating some of the most pressing business risks facing companies today, including low productivity and engagement of employees, retention of key staff, health cost escalation, access to customers, product innovation and the overall brand of the business.

While the value benefit of reduced enterprise risk can be quantified by estimating potential risk reduction and implications on price-earnings multiples, we recommend that due diligence analysts at least include analysis and commentary on potential enterprise risk reduction and value implications as part of the overall presentation of the financial results quantified in the Property Health and Wellness ROI Model. An example of how to quantify the value of enterprise risk reduction can be found in 'How to

Calculate and Present Deep Retrofit Value for Owner Occupants’.⁶⁶

Conclusion

Financial benefits accruing from the WELL Building Standard™ are shown to produce returns of near 300 per cent assuming productivity gains of only 0.5 per cent, which the evidence suggests may be conservative. Further, such returns can be achieved with limited execution or financial risk, and, in fact, overall enterprise risks related to health costs and recruiting and retaining employees can be significantly reduced.

However, as was the case with sustainability rating systems like LEED when they were introduced 15 years ago, companies and their service providers must make some initial investment to learn the new rating systems and vernacular. Fortunately, with over 1,000 certified WELL Accredited Professionals (WELL AP) and a service oriented International WELL Building Institute™ there is lots of help. Many tactical strategic decisions must also be made regarding which properties to evaluate and how to manage the healthy buildings programme implementation internally. With new individual wrist-based sensors moving rapidly to market, it will not be long until employees will let you know what needs to be done.

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