

Is your workplace green *and* productive?

You can measure it – really



Green + Productive
Workplace™

Want productivity? Then go Green. ~~Simple~~

by Donna Kelly

4 December 2012 — A whopping 92 per cent of workers said their productivity was down thanks to the workplace itself, with workplaces contributing to headaches, fatigue, eyestrain and general adverse health effects, a survey has found.

The survey, [Sustainability in the Workplace](#), of 1051 Australians, mostly office workers, was done to help organisations gain an understanding of workplace attitudes to sustainability and how to promote positive behavioural change.



There are many factors that contribute – or detract from productivity!

A study* of 32,000 employees worldwide found that almost half admitted to performing “below par” and not being as fully engaged as they could be. Two reasons were given.



<http://www.towerswatson.com/assets/pdf/2012-Towers-Watson-Global-Workforce-Study.pdf>

1 – Leadership style (internal support, resources and tools)

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"I liked the motivational ones better."

2. Workplace environment (one that is not energizing and that does nothing to promote physical, emotional and social well-being)



What problem does G+P solve?

Companies want to improve employee productivity.

Companies also want to be seen as green.



Top 10 Trends Impacting the Future of Facility Management for 2014 *

*“Facility managers today are expected to **understand their company’s core business and contribute to the bottom line** — not only by reducing facility costs, but also by **improving the productivity and image of their organizations.**”*

* <http://www.ifma.org/news/what's-new-at-ifma/what's-new-at-ifma-details/2011/05/03/top-10-fm-trends>

What problem does G+P solve?

Companies want to improve employee productivity.

Companies also want to be seen as green.

- Field studies linking “green” and “productive”

Green	Productivity
Improved acoustics	+ 6%
Improved lighting, daylighting and views	+ 5.5%
Improved thermal comfort and ventilation	+ 5%
Reduced stress from commuting	+ 11.5% working days/FTE
Improved ergonomics and privacy	+ 6%
Green workplaces vs. non-green	+ 16%
Green bank branches vs. non-green	+ 460K revenue/FTE

Towers Watson Global Workforce Study

Engagement at Risk, Driving Strong Performance in a Volatile Environment 2012



<http://www.cgma.org/magazine/news/pages/20149559.aspx>

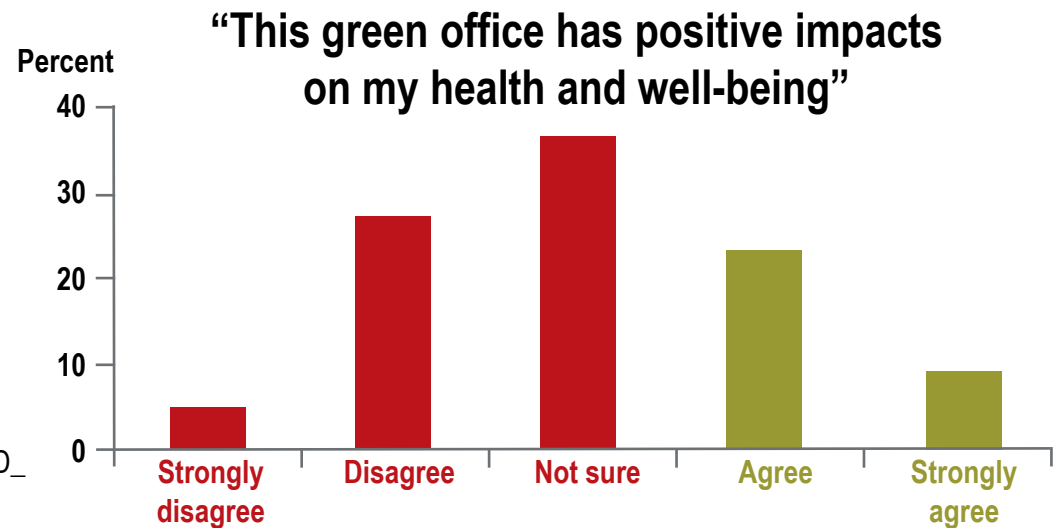
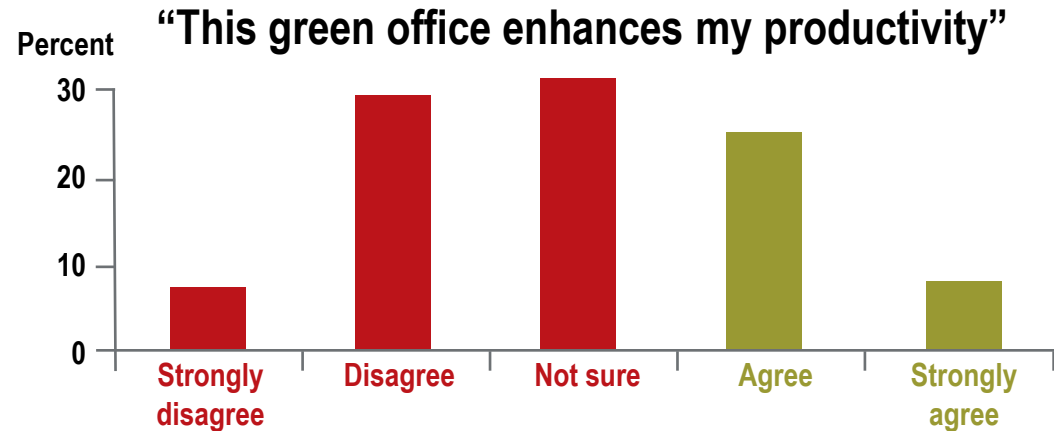
G+P's working definition of “green”

- Energy/carbon
- Water
- Pollution (air, land, water)
- Resources
- Waste



A user perception survey of occupants in green buildings found that while a green workplace is a great place to be, there is often a discrepancy between the views of management who see greater benefits of the green workplace than their employees.*

- Energy/carbon
- Water
- Pollution (air, land, water)
- Resources
- Waste



*http://www.gbca.org.au/uploads/PERFORMANCE_AND_PERCEPTIONS_OF_GREEN_BUILDINGS.pdf

For example, where saving energy means cramming more people into a space without regard for acoustic privacy....

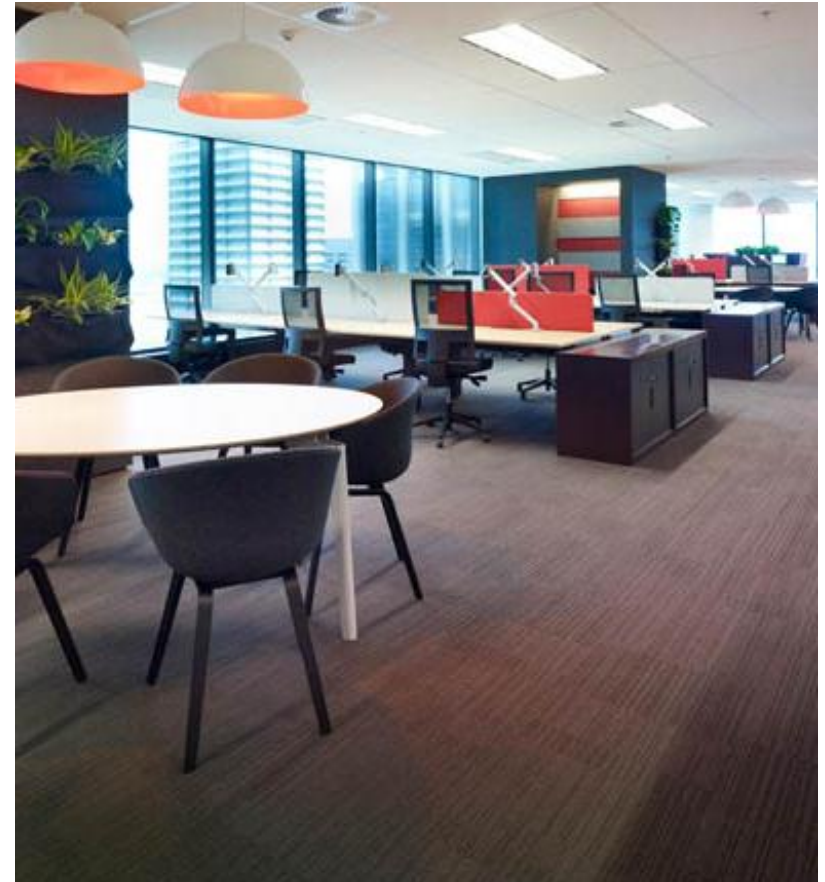


... or reducing heating, cooling or ventilation



Green and productive

- **Aim of G+P**
 - Achieve a **measureable balance** between an office that is energy efficient and sustainable and where employees are healthy, comfortable and can do their best work
 - **Develop a business case** for making improvements
- **Approach**
 - Baselines the **green qualities** and **productivity factors**
 - Calculates conservative estimates for **energy savings and productivity gains**



Baselines...



Some of the aspects that characterize a productive office environment include great location with a high walkability score (www.walkscore.com)



www.walkscore.com

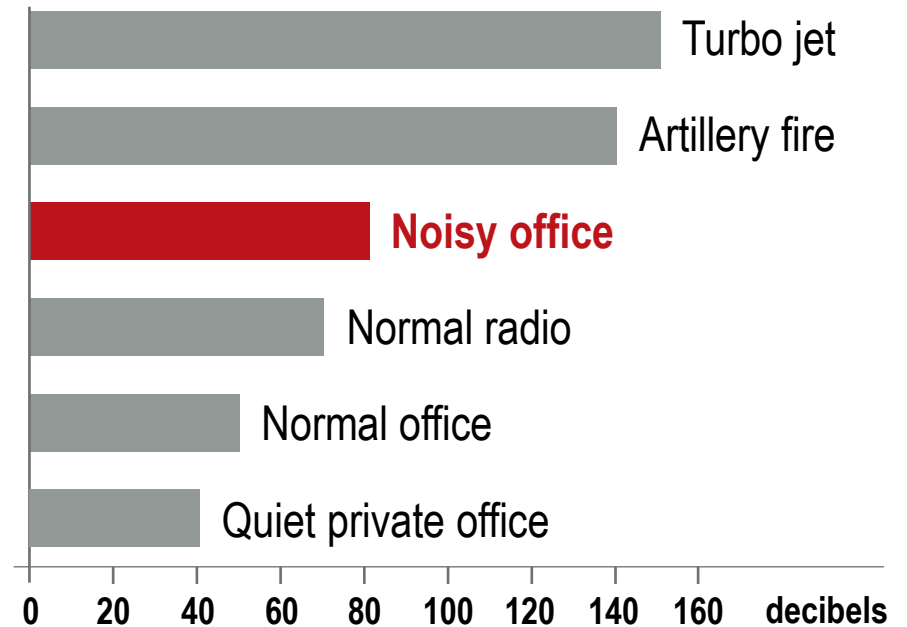
An attractive layout



Acoustic comfort



- Decibel levels in office space

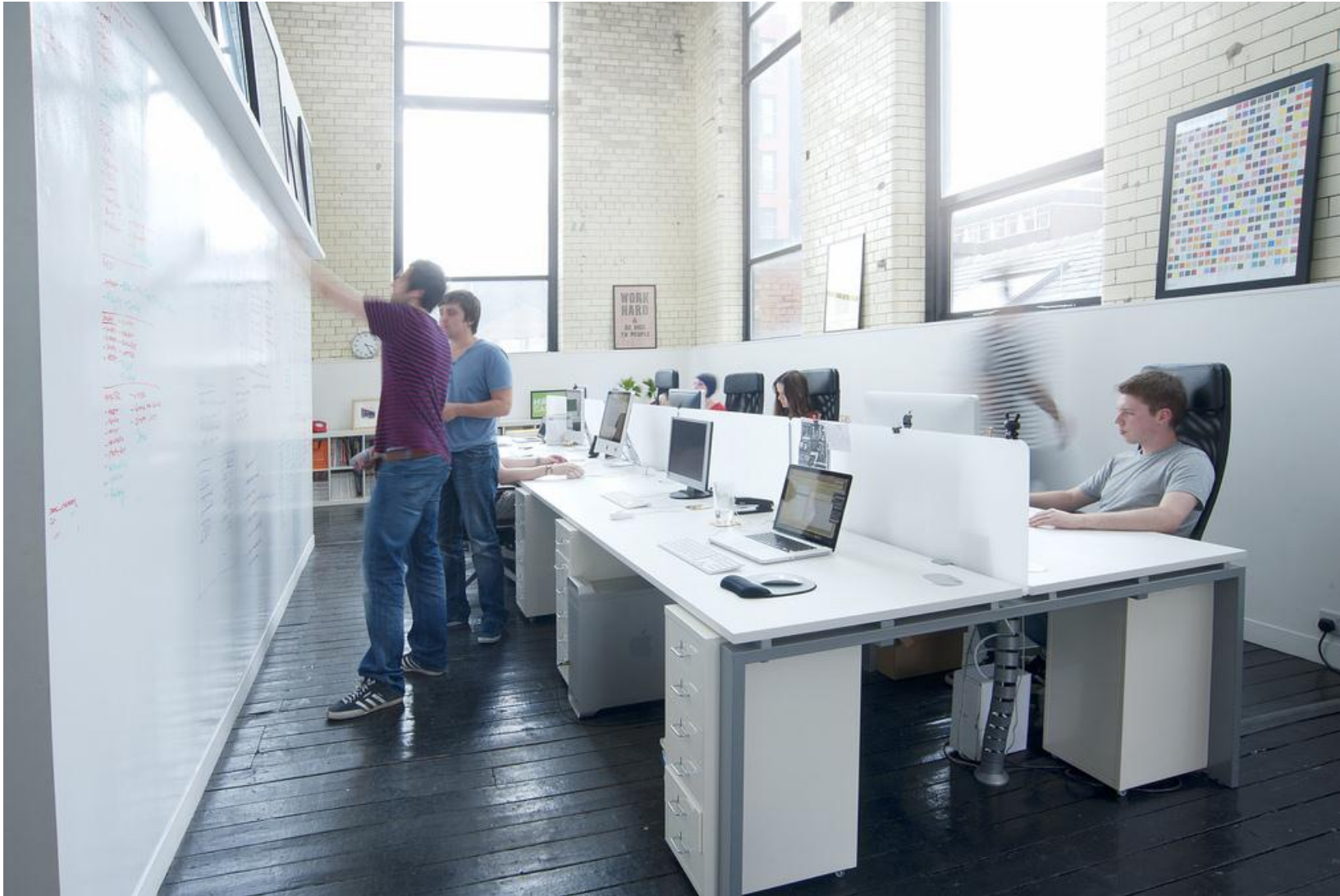


Acoustic neighborhoods for concentration, collaboration, connection





Collaboration areas including whiteboards, presentation walls etc.



Daylighting; Areas for informal cohesive networking (Note multi-purpose use of space)



Areas for “recharging”



Thermal comfort and good air quality



Ergonomic furniture and training on proper adjustment



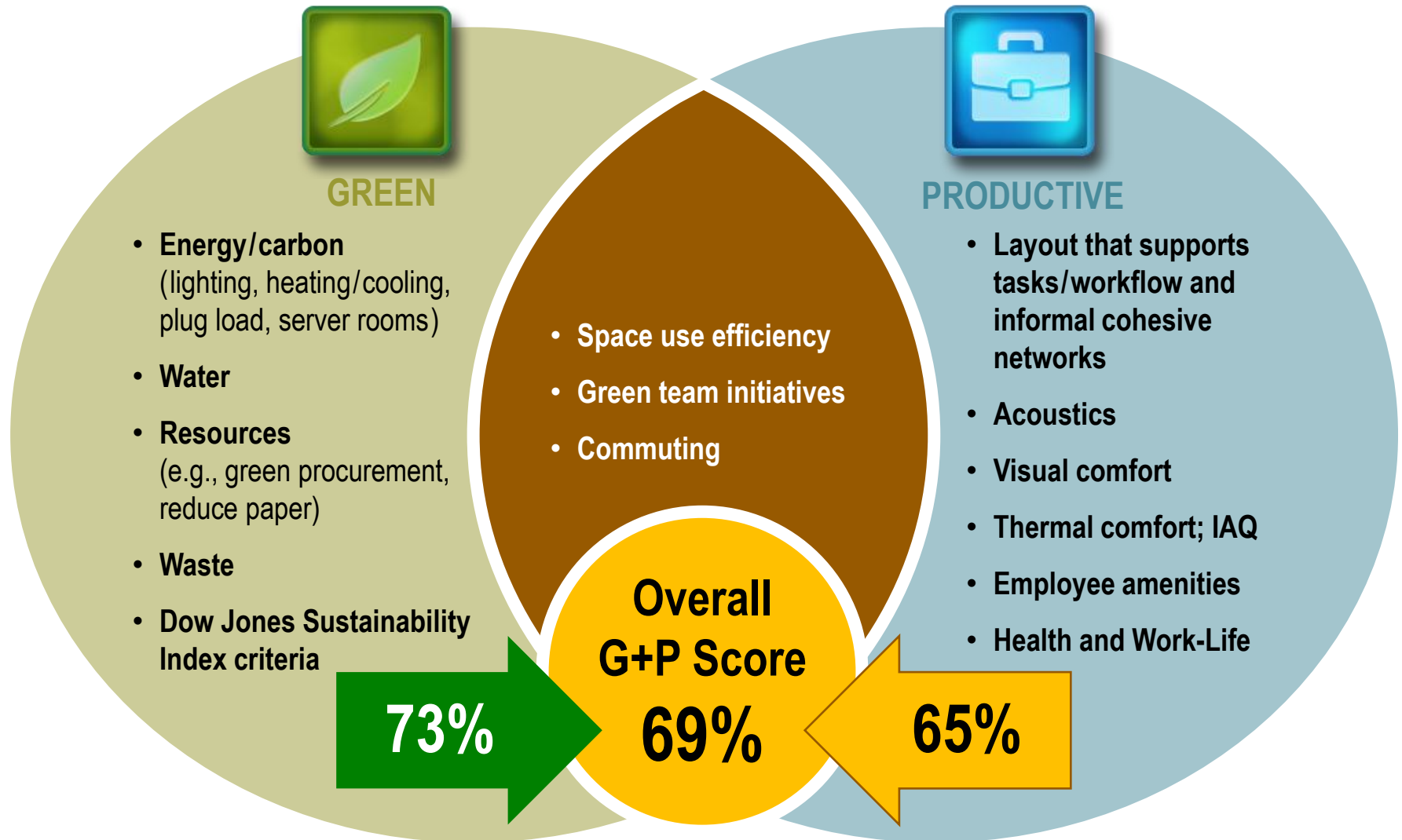
Points of visual interest, biofilya (bringing nature cues into the building)



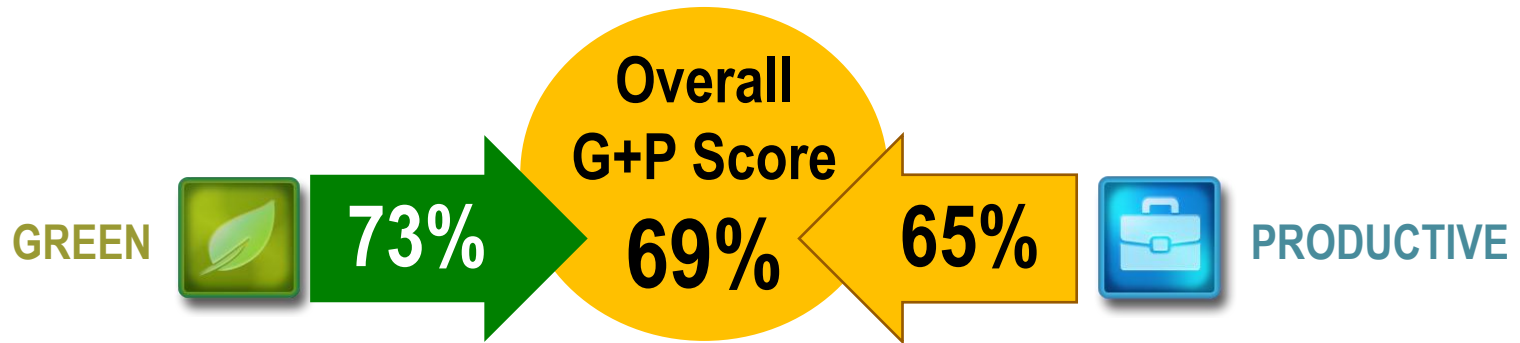
Approach

- **Baselines** the *green qualities* and *productivity factors*
- **Calculates** conservative estimates for energy savings and productivity gains

Baselines...



Baselines...phone interviews



Firm's corporate policies

20 minutes
(Environmental coordinator)



Dow Jones Sustainability Index



Each site:

- Features and layout
- Employee habits at the site

40 minutes
(Facility manager)

Approach

- **Baselines** the *green qualities* and *productivity factors*
- **Calculates** conservative estimates for energy savings and productivity gains

Calculates potential energy savings and productivity gains

Energy savings



75,000 SF

How could this be improved?

Savings

Reduce hours of lighting and HVAC in the office (*no cost*)

\$4,500

Lighting controls (*2–4 yr. payback*)

\$2,800

Server room features and management (*low- to no cost*)

\$3,300

Total

\$10,600*

** 8.8% saving for electricity*

Productivity gain



25,000 SF
100 employees
Payroll: \$7.5M

- **How could this be improved?**
 - Set aside a quiet zone
 - Partition 4 meeting spaces (approx. \$18K)
 - Install sound masking (approx. \$1/sf)
- **How much improved productivity could be expected?**
 - Studies say **6% improved productivity is possible**. Using an ultra-conservative estimate of just 1% of enhanced work performance, this equates to **\$75,000**

Reducing conversational noise and distraction

	Improvement
Accuracy	67%
Call worker satisfaction	300%
Sales productivity	20%
Ability to focus	48%
Memory tasks	10%
Stress (blood pressure and heart rate)	27%

Reducing conversational noise and distraction

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	OVERALL	GREEN	PRODUCTIVE	TENANT SPACE	TENANT ENGAGE
EMEA	70%	73%	67%	64%	71%
Gothenburg	70	72	71	67	66
Munich	60	67	52	51	63
Moscow	67	68	67	61	66
Paris	75	77	73	70	70
Farnborough	76	78	76	70	70
Neuchatel	70				
APAC	72%				
Seoul	64				
Singapore (Solaris)	88				
Singapore (Symbiosis)	81				
Kilsyth	68				
Shanghai 12 (Shan Rd.)	70				
Shanghai 7 (Pudian Rd.)	56				
Beijing	83				
Tokyo	67				
AMER	77%				
Montreal	75				
Waltham	85				
Manchester	69				
San Rafael (111 McInnis)	75				
Toronto	86				
San Rafael (1 McInnis)	81				
San Rafael (4040 Civic)	73				
Ithaca	68				
San Francisco	74				
Lake Oswego	86				
San Rafael (3900 Civic)	85				
Novi	67				

Singapore (Solaris)
Lake Oswego
Toronto
San Rafael (3900 Civic)
Waltham

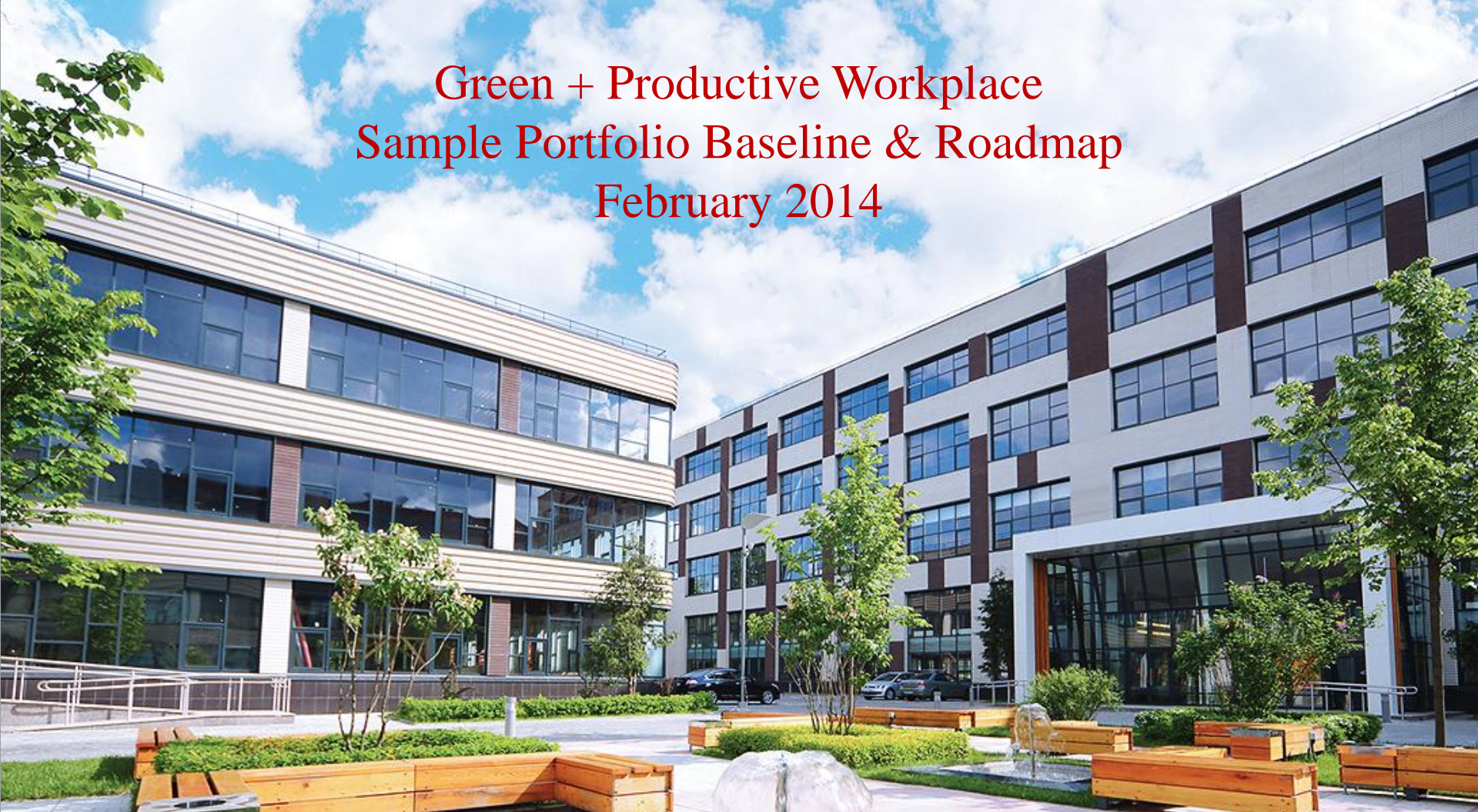
	Energy	Water	Waste	Commuting	Occupancy	Workplace environment	Governance
EMEA (average)	67	73	80	81	69	65	65
Gothenburg	71	50	75	76	72	69	54
Munich	54	100	78	85	72	51	60
Moscow	54	45	89	82	52	65	61
Paris	75	100	81	90	56	71	76
Farnborough	77	83	74	81	72	74	65
Neuchatel	72	60	84	71	88	61	65
APAC (average)	72	78	72	81	68	71	62
Seoul	73	50	56	72	48	93	60
Singapore (Solaris)	73	92	87	88	64	84	51
Singapore (Symbiosis)	85	92	75	85	44	71	53
Kilsyth	80	91	66	74	81	70	43
Shanghai 12 (Shan Rd.)	66	57	68	76	72	83	64
Shanghai 7 (Pudian Rd.)	70	43	71	80	80	63	70
Beijing	59	100	70	95	92	76	75
Tokyo	84	100	79	76	56	91	67
AMER (average)	77	68	82	75	72	71	67
Montreal	61	100	82	95	68	84	75
Waltham	72	42	87	53	68	61	78
Manchester	89	100	82	82	76	76	75
San Rafael (111 McInnis)	72	21	74	45	76	89	64
Toronto	75	64	90	100	76	74	55
San Rafael (1 McInnis)	81	53	92	91	76	68	72
San Rafael (4040 Civic)	82	66	81	41	64	70	75
Ithaca	79	100	82	90	84	85	78
San Francisco	56	59	77	100	68	83	53
Lake Oswego	66	100	88	85	72	70	
San Rafael (3900 Civic)	90	100	84	93	68		
Novi	89	66	66	27			

ENERGY

	GLOBAL	EMEA	APAC	AMER
92%	83%	88%	100%	
88%	83%	85%	87%	
93%	83%	100%	88%	
78%	83%	25%	100%	
83%	93%	58%	84%	
100%	100%	100%	100%	
100%	100%	86%	100%	
2%	48%	91%	71%	
5%	67%	75%	75%	
9%	80%	66%	94%	
9%	100%	100%	100%	
9%	100%	100%	92%	
100%	88%	92%		
100%	50%	67%		
50%	75%	83%		
100%	88%	100%		
100%	100%	100%		
100%	63%	89%		
83%	38%	92%		
83%	63%	80%		
100%	88%	100%		
1%	92%	100%		
00%	50%	100%		
0%	40%	100%		
9%	38%	92%		
9%	67%	100%		
63%	88%			
100%	100%	100%		
81%	83%	50%	91%	

80 100

Green + Productive Workplace Sample Portfolio Baseline & Roadmap February 2014



Energy & Sustainability Solutions



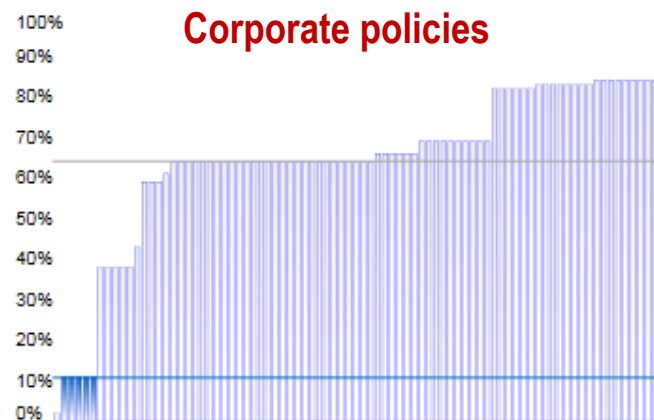
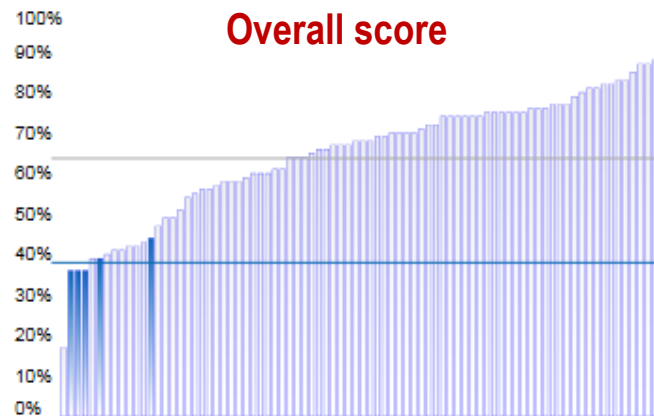
Green + Productive
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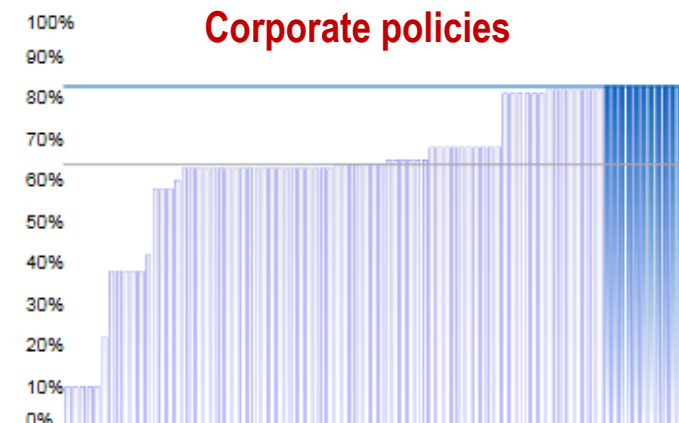
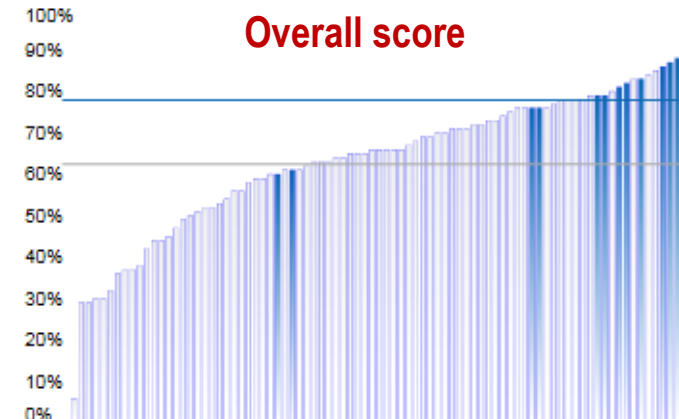
- **Introduction – the big picture**
- **Overview of the data**
 - Corporate policies and Dow Jones Sustainability Index criteria
 - Portfolio scores
 - Individual facility green + productive workplace overall scores
 - Individual facility scores for each dimension (“green”, “productive”, “space”, “employee engagement”)
 - Individual facility scores for each element (energy, water, waste, etc.)
- **Strengths and opportunities to improve ➡**
 - Corporate policies
 - Tenant space
 - Tenant engagement
- **Where “Green + Productive” meet the bottom line ➡**
 - Overview of energy savings and productivity gains
 - Detailed energy savings
 - Detailed productivity gains ➡
- **Corporate social responsibility — planet and people**
- **Road map — next steps**
 - Operations, capital improvements
 - Suggested corporate policies for line managers, facility managers, green teams and employees
 - Suggested recognition program

Industry comparison

Portfolio A



Portfolio B



Where green + productive meets the bottom line (overview)

Energy savings

	Energy management	Heating & cooling	Lighting	Plug load	Server room	Total
DFW Office	\$2,000	\$2,000	\$200	\$9,000	\$6,000	\$19,200
Dayton Data Center	\$5,000	\$1,500	\$4,100	\$2,900	\$500	\$14,000
Peachtree City	\$3,000	\$7,500	\$10,400	\$13,400	\$9,000	\$43,300
Alpharetta Brookside	\$6,200	\$7,800	\$13,200	\$14,200	\$9,400	\$50,800
Duluth	\$15,000	\$7,500	\$41,300	\$33,800	\$15,000	\$112,600
	\$29,200	\$26,300	\$69,200	\$73,300	\$39,900	\$237,900

There is potential to achieve energy savings totaling \$237,900 or 14% of estimated energy costs*.

The savings would result from conservation measures related to heating and cooling, lighting, plug load and server rooms. Although some of the measures would require some capital investments, many are of an operational nature and are low-cost. (ref slides 23 and 24). The savings may seem like “small change” relative to energy costs in the order of \$1.7 million*, however, given that electricity prices have increased at a 2.5 percent annual rate since 2000, these measures would be a step in the right direction.

* Estimated energy cost is based on approximately \$3/SF and a total area of 559,018 SF for the 5 facilities.

Where green + productive meets the bottom line (overview)

Productivity gains

	Acoustics	IAQ thermal comfort	Visual comfort	Layout, comfort and social cohesion	Total
DFW Office	\$200,600	No savings	\$100,300	\$351,000	\$651,900
Dayton Data Center	\$26,200	\$52,400	\$52,500	\$91,800	\$222,900
Peachtree City	No savings	No savings	\$37,500	\$131,200	\$168,700
Alpharetta Brookside	\$159,900	\$239,900	\$159,900	\$399,800	\$959,500
Duluth	\$660,000	\$495,000	\$660,000	\$1,155,000	\$2,970,000
	\$1,046,700	\$787,300	\$1,010,200	\$2,128,800	\$4,973,000

There is potential to achieve productivity gains totaling \$4,973,000 or 3.8% of current estimated payroll costs.**

The gains would result from improved acoustics, thermal comfort and indoor air quality, visual comfort and layout, comfort and features that promote informal social cohesion. Many of the measures would require some capital investment (ref. slides 23 and 24), but this would rapidly pay for itself in productivity gains.

*** Estimated payroll cost \$130,803,900 is based on the smaller of \$300/SF or \$75K per employee*

Potential productivity gains (details)

Acoustic comfort, space layout and employee comfort and amenities

	Acoustic features ¹	Flexibility, hoteling, ergonomics ²	Space layout ³	Employee comfort and amenities ⁴
DFW Office	● \$200,600	● \$100,300	● \$100,300	● \$150,400
Dayton Data Ctr.	● \$26,200	● No savings	● \$52,500	● \$39,300
Peachtree City	● No savings	● No savings	● \$75,000	● \$56,200
Alpharetta Brookside	● \$159,900	● \$159,900	● No savings	● \$239,900
Duluth	● \$660,000	● No savings	● \$660,000	● \$495,000



¹ No outstanding acoustic problems with the base building. Office has 'quiet work zones'. Enclosed meeting rooms enable team discussions and teleconference calls. Sound masking. Occupant survey shows good results for acoustics.

² Flexibility for employees to select their workstation that reflects task and personal preference. Good system to reserve hoteling workstation. Ergonomic advice.

³ Supports individual/collaborative tasks, well-being and social cohesion.

⁴ Features and aesthetic qualities that increase comfort, reduce fatigue and support creativity.

Green + Productive Workplace

- **Target market**
 - **Large, global portfolios of leased space** who need a portfolio-wide strategy and a work plan for each individual facility
- **Fully supported**
 - Prepare the initial **proposal to the client**
 - Help **gather the data**
 - **Find the story** in the data
- **Revenue model**
 - Revenue per facility: **\$1,500 initial** per facility; **\$500 annual re-assessment** per facility
 - Typical size of portfolio: **15 facilities**

Green + Productive Workplace

- Turnkey and **ready to go**
- **Tested in the marketplace** with 130 facilities already assessed



White Paper



Brochure

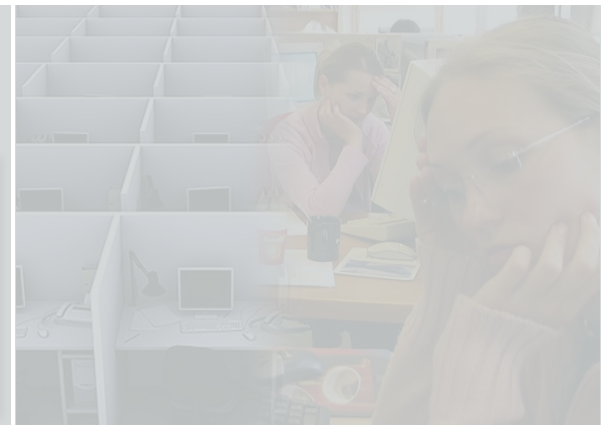
JLL Perspectives on Workplace Sustainability

Is your portfolio green *and* productive?
You can measure it – really.



In a recent survey of JLL's global, multi-office portfolio, 90% of respondents agreed that green buildings are more productive. The survey also found that 85% of respondents agreed that green buildings are more cost-effective. The survey was conducted by JLL's Global Sustainability team, in partnership with the Green Building Institute (GBI). The survey results are being used to inform JLL's global sustainability strategy, which includes a commitment to achieving net-zero carbon emissions by 2030.

The survey also found that 80% of respondents agreed that green buildings are more comfortable. The survey results are being used to inform JLL's global sustainability strategy, which includes a commitment to achieving net-zero carbon emissions by 2030.



ROAD MAP — NEXT STEPS

WHERE GREEN + PRODUCTIVE MEET THE BOTTOM LINE

THE FIFTH STATE **V** OUR PLANET OUR REAL ESTATE

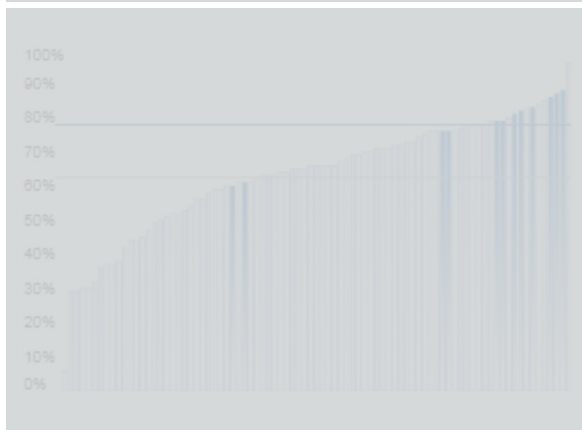
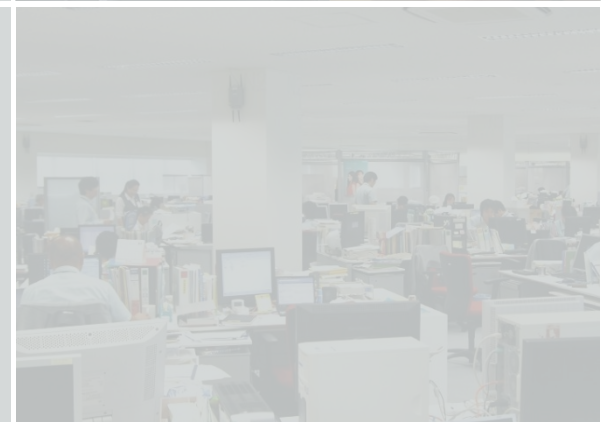
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The survey, *Sustainability in the Workplace*, of 1001 Australians, mostly office workers, was done to help organisations gain an understanding of workplace attitudes to sustainability and how to promote positive behavioural change.



Login

JLL Green + Productive Workplace™

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Password:

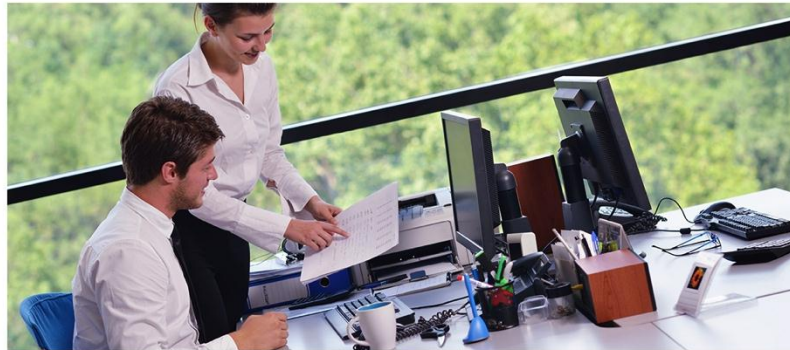
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Perspectives on Workplace Sustainability

Is your portfolio green *and* productive? You can measure it – really.



In a recent productivity study of 32,000 employees, almost half of them admitted to performing “below par” and not being as fully engaged as they could be. The study found that employee engagement is affected by 1) corporate culture, leadership and the relationship between employees and managers; and 2) *the physical work environment*. Other field studies show that a workplace environment that features natural light, thermal comfort and good indoor air quality can dramatically improve employee productivity. Some studies claim productivity gains of 20% and more from greening the workplace.

The take-away is that corporate real estate executives (CRE), as stewards of an organization’s work spaces, can be major facilitators in improving employee productivity—which leads to organizational success. The question—particularly among skeptics—is how can a workplace’s green contributions to productivity be measured in a meaningful way, and how do current conditions add to or detract from work output? Unlike energy reductions that translate directly to dollars saved, productive employee output from sustainable measures is harder to quantify.

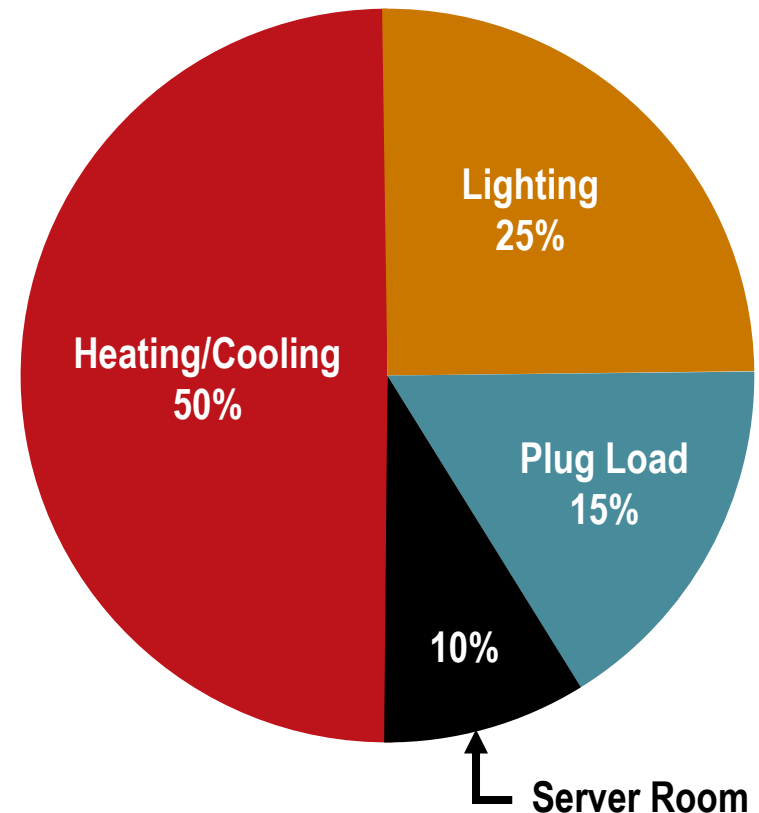
Even skeptics will generally acknowledge that very likely *some* gains in productivity can be expected from upgrading a workplace environment. Clearly, productivity suffers when employees are too hot or cold, sleepy from lack of oxygen, distracted and irritated by the noise around them, headachy from glare, exhausted from a tiresome commute, feeling isolated in the workplace and depressed by their drab surroundings. These employees will assuredly be less concentrated on their work than those who enjoy a healthy, comfortable, dynamic and engaging environment.

The real issue is, how much productivity improvement can an organization *realistically* expect from modifying the workplace environment—and can these changes also be sustainable? JLL has developed a realistic, measured approach to help organizations green their workplaces, focusing on the potential return on investment from improved energy efficiency, space utilization and employee productivity.

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Algorithms are based on the following industry-held assumptions

- A typical **energy cost** (e.g., \$3.00/ft²) and **payroll cost** (e.g., \$300/ft² or \$75K per employee)
- A **typical breakdown of energy** (e.g., 50% used for heating & cooling; 25% for lighting; 15% for plug load, and 10% for server room)
- **Ultra conservative estimates of savings** associated with energy conservation measures as per industry and engineering reports
- **Ultra conservative estimates of productivity gains** associated with workplace measures as per academic and field study reports (e.g., UCLA, Berkeley, British Journal of Psychology, American Journal of Respiratory and Critical Care Medicine, Bond University, Green Building Council, etc.)



For more information:

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>>> Or, click here for additional resources.

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