Daylight Hour
One hour when we ask you to turn it off.

June 21, 2019
Lower the lights for one hour.
Raise Awareness.
Transform the conversation.

www.daylighthour.org
Daylight Hour
2019 progress to date

77 M sf
(68 M sf this time last year)

7 city partners
(7 city partners this time last year)

424 offices
(418 offices this time last year)

Participants include Arup, FirstService Residential, Thornton Tomasetti, Jonathan Rose Companies, The Metropolitan Museum of Art, MSKCC
WHY THE OCCUPANT EXPERIENCE MATTERS:
The Quantified Financial Benefits of Healthy, High Performance Buildings

Jacob Arlein, stok
Audi Banny, IMT
AGENDA

Welcome!
The Evolution of High Performing Buildings
Why Health and Wellness Matters
The Financial Case
What is the Institute for Market Transformation?

- **IMT’s Mission:** Catalyze demand for high-performing buildings.

- **IMT’s Vision:** A world where efficient buildings dramatically lower greenhouse gas emissions and positively transform our physical, social, and economic well-being.

Photo by Bruce Damonte, courtesy Leddy Maytum Stacey Architects
Why would I want to manage a high-performing building?

Why would I want to lease a high-performing building?
STOK IS PURPOSE-DRIVEN

World’s First Impact Rated, Fossil Free, Gun Free 401(k) HQ in San Francisco’s First NZE Building

Designed the way nature intended

Certified

Just.

World’s First Impact Rated, Fossil Free, Gun Free

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SUSTAINABLE DESIGN
Technical design and certification consulting to elevate project success and ensure goals are met.

PROJECT MANAGEMENT
Expert guidance from concept to construction, with an integrated approach.

ENGINEERING & COMMISSIONING
Seamless management of all phases of the building lifecycle to assure optimal building performance.
WHAT MAKES A HIGH PERFORMANCE BUILDING?

- Enhanced occupant experience
- Optimized resource efficiency
- Minimized environmental impacts
- Embedded resiliency
- Improved financial performance
WHY DOES IT MATTER?

40% energy consumed by U.S. buildings

28.8% higher NOI in green buildings

17.6% reduction in operating expenses per sq./ft compared to non-green properties

https://energy.gov/sites/prod/files/2017/05/f34/bto_PilotResearchStudy-DOEFinancialDataInitiative_5-8-17.pdf
DO OWNERS AND TENANTS CARE?

Do third party certifications contribute to higher rents and sale prices?

Impact how a landlord markets a building?

Does it matter to tenants?
WHERE’S THE VALUE?

Developer

Why would I want to build this high-performing building?

Landlord

Why would I want to own this high-performing building?

Property Manager

Tenant

Why would I want to lease this high-performing building?
U.S. MACRO-ECONOMIC SHIFT – S&P 500 VALUE

1975: 83% Intellectual Capital, 17% Tangible Assets
1985: 68% Intellectual Capital, 32% Tangible Assets
1995: 32% Intellectual Capital, 68% Tangible Assets
2005: 20% Intellectual Capital, 80% Tangible Assets
2015: 13% Intellectual Capital, 87% Tangible Assets

PRIORITIES MERGE

OWNER
- Higher sale value
- Rent premiums
- Competitive Advantage
- Faster leasing & sale velocity
- Report to investors

TENANT
- Increase employee retention
- Enhanced employee productivity
- Low O&M costs
- Voluntarily report to third party rating systems

PROPERTY MANAGER
- Low vacancy rates
- Competitive advantage (Health & Wellness, LEED)
- Report to Owner
- Low O&M costs

Energy Efficiency Improves
- Reporting
- Satisfaction Improves
49% building owners are willing to pay more for buildings demonstrated a positive impact on health.

87% of employers focused on health in the office.

73% of these employers offer a wellness program.
WELLNESS AS A BUSINESS STRATEGY

75% of job seekers care that their potential employer supports and values their health and wellness.

57% of job seekers are more likely to stay with the company longer if their employer supports and values their health and wellness.

91% of employers report offering employee health and wellness programs for reasons beyond medical health savings.

73% of employers believe their responsibility to ensure the health and wellness of their employees will increase in the next 3-5 years (2017).
HOW DO RATING SYSTEMS INFLUENCE THE MARKET?
Easier to market the building and stand out from competitors

More tenants are seeking buildings that align with their health and wellness goals

Certification helps the resale value of buildings
INDUSTRY RESPONSE

1990
- Indoor Air Facts No. 4: Sick Building Syndrome Published by the EPA in 1994

1990
- Living Building Challenge & Material Red List Launched by International Living Future Institute in 2006

2010
- U.S. Green Building Council Releases LEED pilot credit intended to reduce quantity of harmful indoor air contaminants
- U.S. Green Building Council Declares “The Future is Health” WELL Building Standard 1.0 Released by International WELL Building Institute

2010
- Harvard School of Health Releases CogFx Study
- Environmental Health Perspectives Releases report that associates cognitive function of office workers with CO₂, ventilation, and volatile organic compound exposure

2015
- World Green Building Council Publishes Better Places for People, about buildings that support healthier lives for occupants

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2017
- Fitwel A unique, cost-effective, high-impact building certification fully launches in 2017
2006 Living Building Challenge

2014 WELL

2016 fitwel

and breathe

2,652 PROJECTS WORLDWIDE
DOCTORS WEIGH IN

“Poses a danger to the health of every American now and in the future”

American Association for the Advancement of Science (the largest scientist organization in the US)
THE IMBALANCE OF SPENDING VS ACTUAL IMPACT

Access to Health Treatment: 85%

Other: 8%

Healthy Behavior: 4%

U.S. Health Expenditure $
THE IMBALANCE OF SPENDING VS ACTUAL IMPACT

U.S. Health Expenditure $

Actual Influence on Health

Access to Health Treatment

Healthy Behavior

Human Environment & Behavior make up 70% of what actually influences human health yet only ~10% of U.S. health spending is associated with improved human environment & behavior. For buildings operated and utilized by the same organization, positively impacting building occupants’ health can lead to decreased business expenses and improved profitability.
HEALTH IN THE BUILT ENVIRONMENT
# OPPORTUNITY AREAS FOR IMPACT

<table>
<thead>
<tr>
<th>THERMAL COMFORT</th>
<th>VENTILATION</th>
<th>AIR QUALITY</th>
<th>BIOPHILIA</th>
<th>MOVEMENT</th>
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</thead>
<tbody>
<tr>
<td>Temperature set-points</td>
<td>Source of ventilation</td>
<td>Particulates</td>
<td>Natural light</td>
<td>% access to activity space</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>Ventilation rates</td>
<td>Filtration levels</td>
<td>Daylight sensors</td>
<td>% time spent sitting</td>
</tr>
<tr>
<td>Occupant control</td>
<td></td>
<td>Carbon dioxide</td>
<td>% desks with views outside</td>
<td>Highlight stairways</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carbon monoxide</td>
<td>% site landscaped</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Volatile organic compounds</td>
<td>Plant mass / floor ratio</td>
<td>Active design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nitrogen oxides</td>
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</tbody>
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THE FINANCIAL CASE FOR HIGH PERFORMANCE BUILDINGS
RESEARCH CORRELATING KEY DESIGN ELEMENTS AFFECTING OCCUPANTS

In all forms of cognitive function Green+ Environments scored higher than Conventional. Green+ included: low levels of CO2, VOCs and other toxins, thermally comfortable space, fresh ventilation and good lighting.
Current academic and industry research on the effects buildings have on employees are best narrowed down to productivity, absenteeism, and retention. Emerging studies are beginning to quantify how Healthy Buildings can impact occupants and improve the financial bottom line.
METHODOLOGY

• Discounted cash flow methodology
• Analysis of 60+ robust research studies
• Industry average-based hypothetical building and company

150,000 SF
183 SF per Person
820 Employees

$540,000
Average Revenue per Employee

$100,000
Average Fully-Burdened Employee Salary

265
Workdays per Year
10%
Profit Margin
RESEARCH OUTLINE: PRODUCTIVITY + RETENTION + HEALTH

PRODUCTIVITY  RETENTION  HEALTH
ENHANCED PRODUCTIVITY BENEFIT – PER EMPLOYEE

$540,000 → $16,200 → $1,620

Average Annual Revenue per Employee × 3% Productivity Enhancement (due to High Performance Building design)

Average Revenue Gain per Employee × 10% Profit Margin

Profit per Employee × 820 Employees per Company
ENHANCED PRODUCTIVITY BENEFIT — PER COMPANY

$1.33M or 3.0%

Annual Profit
Due to Productivity Enhancement of 3%
in High Performance Buildings
COST OF SEPARATION

RETENTION: Effort by a business to maintain a working environment that supports current staff in remaining with the company

SEPARATION: Workforce employees who voluntarily leave their position

90% of employee’s salary
INCREASED RETENTION BENEFIT – PER EMPLOYEE

$100,000 \rightarrow \$30,600 \rightarrow \$1,530

Average Employee Salary \times
90\% \text{ Estimated Cost of Separation} \& \ 34\% \text{ Average Separation Rate}

Average Retention Cost per Employee \times
5\% \text{ Reduction in Separation Rate (due to High Performance Building design)}

Cost Savings per Employee \times
820 \text{ Employees per Company}
INCREASED RETENTION BENEFIT – PER COMPANY

$1.25M or 2.83%

Annual Profit
Due to Increased Retention of 5% in High Performance Buildings
IMPROVED HEALTH BENEFIT – PER EMPLOYEE

$2,038 → $2,446 → $245

Average Revenue per Employee per Day

×

30% Annual Reduction in Average 4 Sick Days
(due to High Performance Building Design)

Average Revenue Gain per Employee

×

10% Profit Margin

Profit per Employee

×

820 Employees per Company
IMPROVED HEALTH BENEFIT – PER COMPANY

$201k or 0.45%

Annual Profit
Due to Absenteeism Reduction of 30% in High Performance Buildings
HOW DOES IMPACT ON PRODUCTIVITY, RETENTION, & HEALTH ALL ADD UP?
TOTAL BENEFIT OF HIGH PERFORMANCE BUILDINGS – PER EMPLOYEE

$1.33M → $1.25M → $201K

Annual Profit Due to Enhanced Productivity
Annual Profit Due to Increased Retention
Annual Profit Due to Reduced Absenteeism
TOTAL BENEFIT OF HIGH PERFORMANCE BUILDINGS – PER COMPANY

$2.78M or 6.29%

Annual Profit
Due to Investment in High Performance Buildings
OCCUPIER SUMMARY

Total Net Present Value (over 10 years)
- Enhanced Employee Productivity: $23,584/Employee
- Increased Employee Retention: $936.69/Employee

Total Net Present Value (over 10 years)
- Enhanced Employee Productivity: $129/SF
- Increased Employee Retention: $52.89/SF

Other components include:
- Maintenance Savings: $7.58/Employee
- Utilities Savings: $1,693/Employee
- Enhanced Employee Wellness: $1,537/Employee
- Enhanced Employee Productivity: $6.47/SF
CHANGE ‘FIRST-COST THINKING’ TO ‘OPPORTUNITY COST THINKING’
### The Problem with Our Design Process

<table>
<thead>
<tr>
<th>Employees</th>
<th>Operations</th>
<th>Construction</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000</td>
<td>$100</td>
<td>$10</td>
<td>$1</td>
</tr>
</tbody>
</table>

- 80% Remaining OpEx
- 20% Energy, water & waste
WHAT IS NEEDED FOR WIDESPREAD ADOPTION?
FINDINGS: WHAT ARE THE BARRIERS

Landlords state demand is low

Tenants not in the business of operating buildings

Knowledge gap

Lack departmental integration of goals

Lease negotiations do not incorporate high-performing priorities

Smaller companies do not have resources to focus on building operations
NECESSARY STEPS TO EFFECTIVELY DESIGN HIGH-PERFORMING BUILDINGS

Market demand for healthier and more efficient buildings grows

Local city policies implemented

Landlords deploy efficient design operating standards

Deal makers recognize value of high-performing buildings and market to clients
CASE STUDIES
NRDC
San Francisco, CA
Alignment with mission: “From our largest cities to our last wild sanctuaries, we develop and promote solutions that protect the health and well-being of people, communities, and nature.”

DPR
San Francisco, CA
Alignment with corporate culture and brand, plus living lab: “The core value of being ‘ever forward’ is fulfilled through environmentally responsible spaces that benefit DPR employees and their communities.”

MILLENIA
Chula Vista, CA
Understanding the financial case through occupant benefits and talent attraction: “A challenge to create the world’s most productive space for talent – an innovative space for innovators.”
LANDLORDS LEADING THE WAY

Kilroy Real Estate Portfolio
- Fitwel, WELL, LEED and Energy Star Green Lease Leaders Certifications
- Educate Brokers

Delos Tenant Headquarters
- WELL Platinum Certified
- Petal Certified through LBC
- LEED v4 Platinum Certified (pending)

Tower Real Estate Portfolio
- LEED, Energy Star, Fitwel, Climate Registry & Green Lease Leader certifications
- Educate Brokers
LOOKING BACK & MOVING FORWARD

What are your key takeaways?

• Acknowledge the state of the market
• Communicate value to the market
• Erect and maintain more high-performing buildings
• Correct misalignment within corporate structures

How will you use them to take action?
QUESTIONS?
jacob@stok.com
audi.banny@imt.org

Report download:
https://stok.com/research/financial-case-for-high-performance-buildings