Health and Wellbeing for Our Future
WELLNESS IS THE NEXT TRILLION DOLLAR INDUSTRY
We spend 90% of our time indoors.
It will literally change the way we live and work

FORMER PRESIDENT BILL CLINTON
ON THE WELL BUILDING STANDARD
Companies with high performing health program for employees outperformed the Standard & Poor’s Index by as much as 16% a year.

- Journal of Occupational and Environmental Medicine
Design for Healthy Behaviors is ranked #1 as both most transformative + fastest-moving sub-trend of the Health and Well-Being macro-trend.

- ASID Industry Outlook, 2015
90% of employees admitted that their attitude about work is adversely affected by the quality of their workplace environment.

92% said the new space has created a positive effect on their health and well-being.

94% said that the new space has a positive impact on their business performance.

83% feel more productive.

100% said that clients are interested in their new way of working.

93% said that they are able to more easily collaborate with others.

CBRE Headquarters
Los Angeles, CA | USA
SMART BUSINESS

Energy | 1% Annual Cost

Rent | Operations: 9% Annual Cost

Salary | Benefits: 90% Annual Cost

1Knoll Workplace Research “What’s Good for People, Moving from Wellness to Well-Being”, Kate Lister 2014
2Studies include those conducted by organizations including Harvard Business Review, World Economic Forum and the American Journal of Health Promotion
Image courtesy of World Green Building Counsel Report “Health, Wellbeing & Productivity in Offices”
SMART CHANGES AHEAD

50% of U.S. employers with 50 or more employees, or 3/4 of the workforce, offer wellness promotion initiatives.¹

99% of employers plan to offer health improvement and wellness programs in the next 3-5 years.²

WELL Certified City District

Project Location: Tampa City, FL into a 40-acre WELL City

Preliminary numbers indicate very healthy investment returns:

- 5-35% premium on wellness-branded, single-family homes
- 7-10% premium for wellness rentals
- 15-30% average daily rate premium for wellness-branded hotels.

- Examiner.com
Our Environments are Causing Unhealthy Lifestyles and Low Productivity
WELL is like a NUTRITION LABEL for your building, providing transparency on the quality of our built environment.
• Provides a model for design and construction to integrate human health features in the built environment

• Is a performance-based system to measure impact of built environment on human health
LEED vs WELL Growth Comparison

- LEED Registration Cumulative
- WELL Registration Cumulative

Months After Standard Launch

Cumulative SQ FT

0 1000000 2000000 3000000 4000000 5000000 6000000 7000000 8000000 9000000 10000000 11000000 12000000 13000000 14000000 15000000 16000000 17000000 18000000 19000000 20000000 21000000 22000000 23000000 24000000 25000000 26000000

0 1 2 3 4 5 6 7 8 9 10 11 12
“Era Of The City” - Rapid Urbanization

Estimates predict an increase in the urban population

3.6 billion
2011

6.3 billion
2050
OCCUPANT TRANSPARENCY
Indoor health begins here
Access to Mayo Clinic researchers and expert infrastructure

- Access to clinical research units, investigators and research staff from Mayo Clinic
- Consumer visibility: 50 million unique visitors per month to Mayo website
- Exclusively human-centered research approach
- Multidisciplinary, multi-institutional collaboration taps the best minds from science, medicine, technology, industry and research
What is the Well Living Lab?

The first research center designed to:

- Validate the real-world impact of indoor environments on human health and well-being
- Generate evidence-based information that can be used in practical ways to create healthier indoor spaces
Why the Mayo Clinic Modeled Its New Lab on a Stuffy Office

This looks like a normal office building. But it's actually filled with hidden sensors.
Drug spending—both for generic and specialty drugs—will be a driving factor. Prevention and healthy lifestyles will be key to bending the cost curve.

86% of health care costs are due to chronic conditions.

$2.9 trillion current U.S. health care economy

$225.8 billion estimated cost of productivity loss from personal and family health problems

In 2012, the United States spent billions to treat chronic diseases:
- $243 billion circulatory
- $188 billion musculoskeletal
- $158 billion respiratory
- $139 billion endocrine

Why individuals and organizations care

- $2 trillion
- 60%
Buildings (and everything in them) can affect our health

- Biophelia
- HVAC
- Surfaces
- Lighting
- Furniture

- Nervous System
- Cardiovascular System
- Immune System
- Endocrine System
- Muscular System

- Stress
- Early Childhood Development
- Infectious Disease
- Sleep
- Fitness
### State-of-the-art sensors

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Wearables</th>
<th>Embedded</th>
<th>Imaging</th>
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<tr>
<td>Air Quality</td>
<td>Heart rate</td>
<td>Sleep monitoring</td>
<td>HD video</td>
</tr>
<tr>
<td>- Particulate matter</td>
<td>Heart rate variability</td>
<td>Chair and seating embedded sensors</td>
<td>Facial recognition</td>
</tr>
<tr>
<td>- Gases (e.g. CO, NO_x, VOCs)</td>
<td>Galvanic skin response</td>
<td>Desk elevation &amp; standing desk usage sensors</td>
<td>Emotional state detection</td>
</tr>
<tr>
<td>Temperature (radiant and ambient)</td>
<td>Motion</td>
<td>Pressure sensors</td>
<td>Thermal imaging</td>
</tr>
<tr>
<td>Humidity</td>
<td>Skin temperature</td>
<td>Fabric-based sensors</td>
<td></td>
</tr>
<tr>
<td>Light, incl. spectral power density</td>
<td>Near-body temperature</td>
<td>Electronics and appliance-embedded sensors</td>
<td></td>
</tr>
<tr>
<td>Sound</td>
<td>Respiration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial, reference grade, and experimental sensors</td>
<td>Posture sensors</td>
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</tbody>
</table>
Control and monitor what’s happening in the onsite Lab space—as well as off-site in real-world environments.

Sophisticated data collection and analytics platform.
...is only the start of something much bigger
Well Living Lab

A Delos and Mayo Clinic Collaboration
Why the Mayo Clinic Modeled Its New Lab on a Stuffy Office

This looks like a normal office building. But it’s actually filled with hidden sensors. 🌱 WELL LIVING LAB
Seven Concepts

- air
- water
- nourishment
- light
- fitness
- comfort
- mind
Body Systems Applied to WELL Features

A simple way to express the built environment's complex impact on the human body
Create optimal indoor air quality to support the health and well-being of building occupants.
Productivity improvements of 8-11% are not uncommon as a result of better air quality.

- World Green Building Council, 2015¹

Concentrations of some pollutant indicators can be 2 to 5 times higher indoors compared to outdoors.

- Environmental Protection Agency, 2012²
WELL Projects Demonstrate Quality

We care about every breath you take

Showroom

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidity</td>
<td>73 %</td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>0.13 mg/m³</td>
<td>Good</td>
</tr>
<tr>
<td>CO₂</td>
<td>516 ppmv</td>
<td></td>
</tr>
</tbody>
</table>

Shanghai Outdoor

Shanghai U.S. Consulate

PM 2.5 (µg/m³)

Good

PM 2.5 (µg/m³)

Moderate

43 minutes ago
water

Promote safe and clean water through proper filtration and other methods, and require the appropriate quality of water for various uses.

performance testing · treatment · maintenance & operations · hydration promotion
nourishment

Require the availability of fresh, wholesome foods, limit unhealthy ingredients and encourage better eating habits and food culture.

healthy portions · mindful eating · food production
access to healthy foods · food preparation
allergies & alternatives · transparency
environmental cues & influencers
THE FOOD RADIUS
The average individual buys or eats more than 80% of all their food within FIVE MILES of where they live.
If the Candy Dish is 6 Feet Away, you Eat ½ as Much
Habits Are Triggered by Environmental Cues

CUE
A cue (a trigger) that tells your brain to go into automatic mode

ROUTINE
A routine can be physical, mental or emotional

REWARD
A reward helps your brain figure out if this particular loop is worth remembering

CRAVING
The average size of an American dinner plate has increased almost 23% since 1900.¹

By using smaller plates, forks and spoons, we can eat HUNDREDS FEWER CALORIES at meals.²
Eating unhealthily is linked with a 66% increased risk of loss of productivity.¹

Adults with the greatest knowledge of nutrition are 25% more likely to eat a healthy diet.²

Greater fruit and vegetable intake is associated with a 27% lower odds of depression.³

³ The association between fruit and vegetable consumption and mental health disorders; evidence from five waves of a national survey of Canadians. McMartin, SE, FN, Jacka and Colman, I. J-4, s.l.: Preventive Medicine, 2011, Vol. 56.
light

Provide illumination guidelines to minimize disruption to the body’s circadian system, enhance productivity and provide appropriate visual acuity. Require specialized lighting systems designed to increase alertness, enhance occupant experience and promote sleep.

circadian design · daylighting · glare control · color quality · activity-based lighting levels · visual acuity
Circadian Lighting Emulates the Natural Environment

- Peak alertness at midday
- Peak cortisol at waking

12 AM  6 AM  12 PM  6 PM  12 AM  6 AM  12 PM  6 PM  12 AM
fitness

Allow for the seamless integration of exercise and fitness into everyday life by providing the physical features and components to support an active and healthy lifestyle.

exterior active design · interior active design · activity-based working · physical activity spaces · awareness and habits · physical activity programs
Our environment is changing how we live.

Physical inactivity is the 4th leading risk factor for mortality.

- World Health Organization
What happens to your body when you sit for a prolonged period of time?

- Calorie burning drops to less than 1 per minute.¹
- Cardiovascular, endocrine, digestive, reproductive, respiratory, muscular, skeletal and nervous systems are negatively affected.²
- Prolonged sitting disturbs mood, energy levels and productivity.³

comfort

Establish requirements to create a distraction-free, productive and comfortable indoor environment.

ergonomic · acoustics · thermal olfactory · accessibility
mind

Require design, technology and treatment strategies to provide a physical environment that optimizes cognitive and emotional health.

stakeholder engagement · transparency · wellness awareness & protocols · connection to nature · adaptable spaces · altruism
BIOPHILIA

After 40-second microbreak, subjects who see green roofs, instead of concrete roofs, demonstrate higher concentration levels.

6% increase in concentration levels for those who saw the green roof.

8% drop in concentration levels for those who saw the concrete roof.

Adaptable spaces give individuals control over their environments, reducing stress and positively impacting job satisfaction and group cohesion.¹

After just four weeks of using sit-stand desks, subjects report feeling more comfortable, energized, healthier, happier, less stressed and more focused and productive.²

Both private and open areas should be available and comfortable. Private spaces accommodate confidentiality, while open areas facilitate collaboration.³
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Los Angeles, CA | USA
The Bloc.
Los Angeles, USA
A 1.8 million square foot mixed-use property
At the 2015 Clinton Global Initiative (CGI) Annual Meeting, Delos, the pioneer of Wellness Real Estate™, and Strategic Property Partners announced a partnership to create the world’s first WELL Certified™ city district in Tampa, Florida.
WELL CERTIFICATION PROCESS

1. Registration
2. Documentation Requirements
3. Performance Verification
4. Certification
5. Recertification
Working together to optimize building performance for **human health** and our **environment**.
The WELL Differentiator
Data Driven Environmental Assessments Through Onsite Performance Verification
Ensuring that certification for WELL and LEED works seamlessly.
Project Typologies for WELL v1.0

The current WELL v1.0 is optimized for commercial and institutional office buildings. For WELL v1.0, there are three project typologies:

1) New and Existing Buildings

2) New and Existing Interiors

3) Core and Shell
Pilot Programs

IWBI has developed pilot versions of the standard to test and refine how WELL can be applied to new building sectors. IWBI currently offers pilot programs for:

- Retail
- Multifamily
- Residential
- Education
- Restaurant
- Commercial kitchen
- Neighborhood
THE WELL DIFFERENTIATOR
Data Driven Environmental Assessments Through Onsite

PERFORMANCE VERIFICATION
BRINGING WELL TO PRACTICE
industry experts on healthy environments

WELL ACCREDITED PROFESSIONAL (WELL AP)
WELL ACCREDITED PROFESSIONAL (WELL AP)
Health and Wellbeing for Our Future

WELL