Health is a state of complete physical, mental, and social wellbeing, and not merely the absence of disease or infirmity.

- The World Health Organization
OUR ENVIRONMENT IS CHANGING HOW WE LIVE.
CHANGING WORK AND CULTURE.
CHANGING FOOD PRODUCTION AND SOURCES.
CHANGING HOW WE GET AROUND.
What determines the state of your health?

Your Social and Physical environment is the largest determiner of your health.

Prevalence of Chronic Diseases

“As of 2012, about half of all adults—117 million people—had one or more chronic health conditions. One of four adults had two or more chronic health conditions.”¹

“Four of the 10 most expensive health conditions for US employers—high blood pressure, heart attack, diabetes, and chest pain—are related to heart disease and stroke.”²


WE SPEND 90% OF OUR TIME INDOORS.
WHAT IS YOUR REACTION TO A WORK ENVIRONMENT LIKE THIS?
WELL IS FOR PEOPLE.
DEVELOPMENT OF THE WELL BUILDING STANDARD.
WELL is an internationally recognized mark of excellence for buildings, communities, and professionals that are transforming the building industry.

Its mission is to improve human health and well-being through the built environment by administering the WELL Building Standard.

Pioneers the model of altruistic capitalism and, as a public benefit corporation, the IWBI donates 51% of profits into health and wellness projects, either within highly impacted/stressed communities, or reinvested within the communities where WELL projects are built.
WELL is about creating healthier, more productive places for people.

Provides a performance-based framework to measure and evaluate buildings on their impact on the people within.

Positions design and building operations as an agent of public health.

Measures, certifies, and monitors building features that impact health and wellbeing.
ALTRUISTIC CAPITALISM

51% give back
IWBI undertook a comprehensive expert peer review process, which included three phases—a scientific, practitioner and medical review—and culminated in the release of the WELL Building Standard v1.0.
IWBI took a holistic approach for developing the WELL Building Standard.
Body Systems Applied to WELL Features

A simple way to address the built environment’s impact on the human body
OVER 70 MILLION SQ. FEET OF REGISTERED WELL PROJECTS
PILOT PROGRAMS

RETAIL

EDUCATION

RESTAURANT

MULTIFAMILY
RESIDENTIAL

COMMERCIAL
KITCHEN
The IWBI awards certification at three levels – Silver, Gold, or Platinum.

100% OF PRECONDITIONS

40%+ OF OPTIMIZATIONS

80%+ OF OPTIMIZATIONS
WELL CERTIFICATION PROCESS

1. REGISTRATION
2. DOCUMENTATION
3. PERFORMANCE VERIFICATION
4. CERTIFICATION
5. RECERTIFICATION
WELL Feature Verification

1. DOCUMENTATION.
2. PERFORMANCE VERIFICATION
Performance Verification entails a site visit during which the following environmental parameters are evaluated:

### Example of Parameters

<table>
<thead>
<tr>
<th>Category</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>organic and inorganic gases, particulates</td>
</tr>
<tr>
<td>Water Quality</td>
<td>dissolved chemicals and suspended solids</td>
</tr>
<tr>
<td>Light Attributes</td>
<td>color temperature, intensity and spectral power distribution</td>
</tr>
<tr>
<td>Thermal Considerations</td>
<td>radiant temperature and air speed</td>
</tr>
<tr>
<td>Acoustic Elements</td>
<td>decibel levels and reverberation</td>
</tr>
</tbody>
</table>
ACCREDITED WELL ASSESSOR

Performs and/or oversees performance tests to verify that all requirements are met.

May be onsite for several days evaluating the WELL feature application in your space.
Seven Concepts

- air
- water
- nourishment
- light
- fitness
- comfort
- mind
Create optimal indoor air quality to support the health and well-being of building occupants.
water

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

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

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

Require design, technology and treatment strategies to provide a physical environment that optimizes cognitive and emotional health.
WELL PROJECTS
1KFulton

CHICAGO, ILLINOIS
UNITED STATES
WELL PROJECTS

425 PARK AVENUE
NEW YORK, NEW YORK
UNITED STATES
THE CENTER FOR SUSTAINABLE LANDSCAPES

PHIPPS CONSERVATORY AND BOTANTICAL GARDENS
PITTSBURGH, PENNSYLVANIA
WELL PROJECTS

HAWORTH SHANGHAI HEAD OFFICE

SHANGHAI

CHINA
COST IMPACTS SUMMARY

CBRE GLOBAL HEADQUARTERS

4,459 RENTABLE M²
(48,000 RENTABLE FT²)

invested in estimated 38.75 per square meter [3.60 per ft²] in construction cost

Which was about 1.73% PREMIUM on the overall construction budget to implement WELL
CBRE GLOBAL HEADQUARTERS

WELL CERTIFIED OFFICE EMPLOYEE SURVEY

Feel more productive

Said the new space has created a positive effect on their health and well-being

Said that the new space has a positive impact on their business performance

Said that they are able to more easily collaborate with others
Healthy Design, Healthy Spaces
Healthy Spaces, Happier and Healthier People

- Occupant Feedback + Sensors
- Lab Research
- WELL Certified Environments
- Industry Research
- Business Metrics
Delos Applied Research Program

WELL Survey

Pre and Post-Occupancy Evaluation

Longitudinal

Onsite Performance Verification

Focus on perceptions of workplace well-being and mental and physical health

Psychometrically valid
WELL Gold Certification v1

TD23 Pilot Project at TD Centre

Toronto, ON

Source: Martha MacInnis, TD Bank, Greenbuild Presentation
Why pursue WELL?

Commitment to Build an Extraordinary Workplace

Vested interest in the health & wellbeing of each Employee

Benefits of improved productivity and reduced healthcare costs

Bottom Line
This is the right thing to do!

EXTRAORDINARY WORKPLACE!
Comprehensive health & wellbeing strategy

Source: Martha MacInnis, TD Bank, Greenbuild Presentation
Pursuing WELL for New & Existing Interiors

**PROCESS**

- **Kickoff Charrette!**
- Precondition Gap Analysis
- Optimization Gap Analysis
- On-site Audit of Existing Floor
- Refine WELL scope/feasibility
- Estimation of WELL costs
- TD WELL Project Approval
- Project Registration with IWBI
- Preparation documentation for IWBI
- Prepare WELL Communications
- WELL Performance Verification & Report

- **Winter '15**
- **Spring '15**
- **Fall '15**
- **Spring '16**

**TD, JCI, Cadillac Fairview, Delos, JLL, HOK, HH Angus, Marant**

**Canada's first WELL TI project to be registered!**

Source: Martha MacInnis, TD Bank, Greenbuild Presentation
Integrated Team
Architects, Designers, Brokers, Owners Reps, Project Managers
# TD23 Pilot Project - 62 WELL Features

<table>
<thead>
<tr>
<th>AIR</th>
<th>LIGHT</th>
<th>WATER &amp; NOURISHMENT</th>
<th>MIND</th>
<th>COMFORT &amp; FITNESS</th>
</tr>
</thead>
</table>
| • **Increased air supply** in the large boardroom and large café  
  • **Enhanced cleaning protocols**  
  • UV lamps on cooling coils within the HVAC will **reduce the risk of mold and microbes** within the ventilation system.  
  • **Low/No-VOC materials** which reduce/eliminate odor and off-gassing of Volatile Organic Compounds | • **Ability to control lighting at the desk with individual task lights**  
  • Open workspace with **access to daylight and views**  
  • Ambient light levels that support the body’s natural **circadian rhythm**  
  • Ambient lighting and shading systems which **reduce solar glare** and allow for occupant control | • **Water quality testing** to ensure thresholds for contaminants, additives and pollutants are met  
  • Enhanced water **sediment filtration** at the sink in the large and small cafés  
  • Nourishment program that encourages **healthy eating choices** such as enhanced vending and catering  
  • Regular **provision of fruits & vegetables** for occupants | • Tranquility Lounge where you can take a break and rejuvenate your mind  
  • Additional seating in the café to encourage eating away from your desk  
  • **Quiet zone/library** for focused work  
  • **Biophilic art collection** that makes a connection to nature  
  • A physical and virtual **library of health and wellness materials** and a TD23 WELL guide highlighting TD’s health & wellness resources | • **Standing height touchdown workstations** along the perimeter window  
  • **Height adjustable desks** throughout the floor  
  • A new **WELLness signage** program to inform you about health and wellness features implemented on the floor and provide general information about the WELL Building Standard |

Source: Martha MacInnis, TD Bank, Greenbuild Presentation
The Well Living Lab connects building science and health science to discover ways to improve human health in the indoor environment.
Well Living Laboratory
Evaluating Relative Impacts on People in Office and Residential Environments

Temperature ?
Humidity ?
Ventilation / CO2 ?
Filtration ?
Ventilation / CO2 ?
Physical activity at work?
A good nights Sleep ?
Nutrition at work?
Connection to Nature ?
Human proximity ?
Light ?
Acoustics ?
THE OFFICE EXPERIMENT
CAN SCIENCE BUILD THE PERFECT WORKSPACE?

BY EMILY ANTHES
Building Owner Goals for Healthy Buildings

Most building professionals underestimate owner interest in healthy building features

<table>
<thead>
<tr>
<th>GOALS SELECTED BY MORE THAN 50% OF OWNERS</th>
<th>PERCENTAGE THAT BELIEVE THEIR CLIENTS WANT TO ACHIEVE THESE GOALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OWNERS</td>
</tr>
<tr>
<td>Improved Tenant/Employee Satisfaction with Building</td>
<td>75%</td>
</tr>
<tr>
<td>Happier and Healthier Building Occupants</td>
<td>75%</td>
</tr>
<tr>
<td>Improved Financial Benefit Due to Greater Occupant Productivity</td>
<td>64%</td>
</tr>
<tr>
<td>Fulfilling Professional Duty</td>
<td>51%</td>
</tr>
</tbody>
</table>

(n=671)

Top Benefits of Healthy Building Investments

According to owners, improving employee satisfaction is the largest benefit of healthy buildings, followed by improved ROI.

- **79%**: Improved Employee Satisfaction and Engagement (at Medium Level or Better)
- **73%**: Positive Impact on Buildings’ Ability to Lease Quickly
- **62%**: Positive Impact on Building Value

## Use of healthy building metrics are expected to grow over the next 3 years, with largest growth in employee engagement / satisfaction surveys

<table>
<thead>
<tr>
<th>Metrics</th>
<th>2015</th>
<th>2018 (expected use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupant Feedback / Complaints</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Employee Engagement / Satisfaction Surveys</td>
<td>47%</td>
<td>62%</td>
</tr>
<tr>
<td>Environmental Measures (CO₂)</td>
<td>40%</td>
<td>47%</td>
</tr>
<tr>
<td>Employee Recruitment and Retention</td>
<td>26%</td>
<td>31%</td>
</tr>
<tr>
<td>Productivity</td>
<td>16%</td>
<td>27%</td>
</tr>
<tr>
<td>Absenteeism Due to Illness</td>
<td>15%</td>
<td>27%</td>
</tr>
<tr>
<td>Healthcare Insurance Costs</td>
<td>11%</td>
<td>22%</td>
</tr>
<tr>
<td>Biosensors (e.g., Fitbit)</td>
<td>3%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Building Owner Goals for Healthy Buildings

Building owners want to increase tenant satisfaction with healthy building features

Which goals do you want to achieve when using healthier building practices and products?

- Improved Tenant/Employee Satisfaction with Building: 77%
- Happier and Healthier Building Occupants: 73%
- Improved Financial Benefit Due to Greater Employee/Occupant Productivity: 59%
- Professional Duty/Responsibility: 53%
- Brand Improvement/Value: 49%
- Demand from Building Occupants/Tenants: 49%
- Compliance with Owner Core Values/Corporate Social Responsibility Policies: 48%
- Owners Anticipating Expected Rules/Regulations: 34%
- Lower Healthcare Costs: 34%

Percent of Owners (n=150)

6 Design Decisions your Clients Will Thank You For

**WORKPLACE STRESSOR #1: Light**
1. Architects can reduce the effects of glare—stress-inducing excessive brightness—through strategic window sizing, operable controls, and electrochromic glass that reduce disruption without an overreliance on window shading.
2. Architects can use light models and other technologies to ensure adequate levels of equivalent melanic light—the parameter that indicates the impact of light on circadian rhythms—at workstations throughout the day, ensuring better rest at night.

**WORKPLACE STRESSOR #2: Acoustics**
3. Architects can provide their clients with a variety of “quiet” and “loud” zones to enable speech privacy—a leading concern among office workers—without impairing collaboration. An important first step is identifying and reducing noise emanating from mechanical systems and office equipment.
4. Architects can incorporate absorptive surfaces in order to reduce unwanted noise reverberation. Examples of sound-reducing treatments include wall panels, ceiling baffles, and other surface enhancements.

**WORKPLACE STRESSOR #3: Temperature**
5. Whether designing mechanically or naturally ventilated spaces, architects can work with engineers to balance workers’ personal comfort and the building’s energy efficiency, improving clients’ bottom lines.
6. Architects can provide areas with thermal gradients and personal controls to ensure that workers can find a space that meets their preferences.

WE ARE WELL