

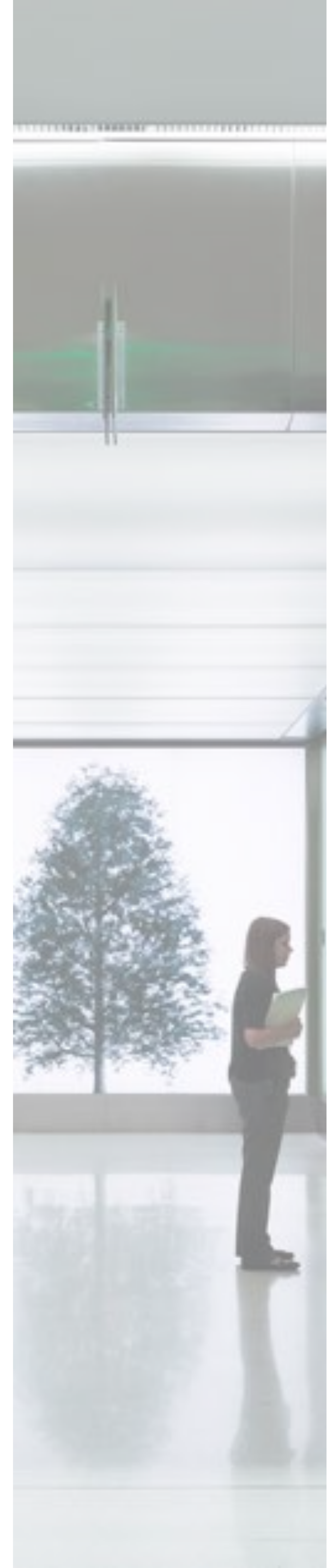
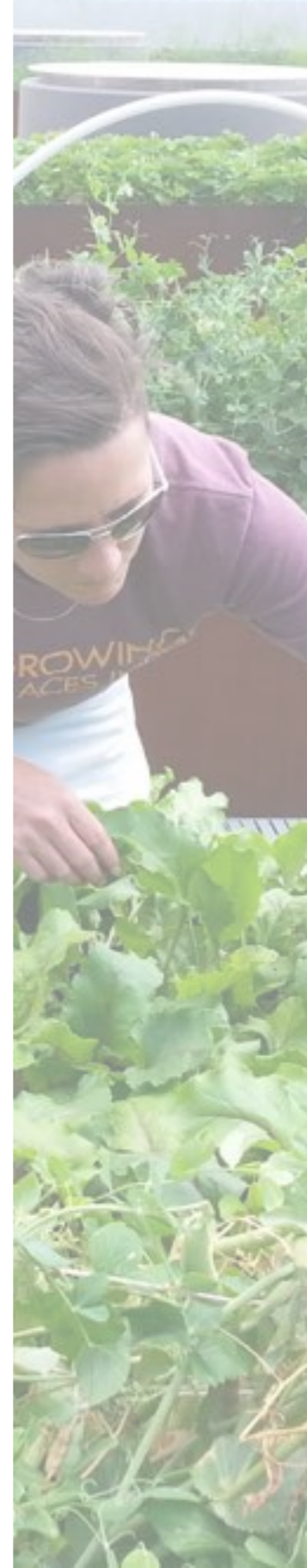
# Restorative design for healthcare workers: from research to practice

**Mara Baum**, AIA, LEED Fellow, EDAC, WELL AP,  
Sustainable Design Leader, Health + Wellness, HOK

**Whitney Austin Gray**, PhD, LEED AP, WELL AP  
Senior Vice President, Delos



European Healthcare Design 2018





**WELL** IS ABOUT CREATING HEALTHIER MORE PRODUCTIVE PLACES FOR PEOPLE.

WELL PROVIDES A PERFORMANCE-BASED FRAMEWORK TO MEASURE AND EVALUATE BUILDINGS AND THEIR **IMPACT ON THE PEOPLE.**

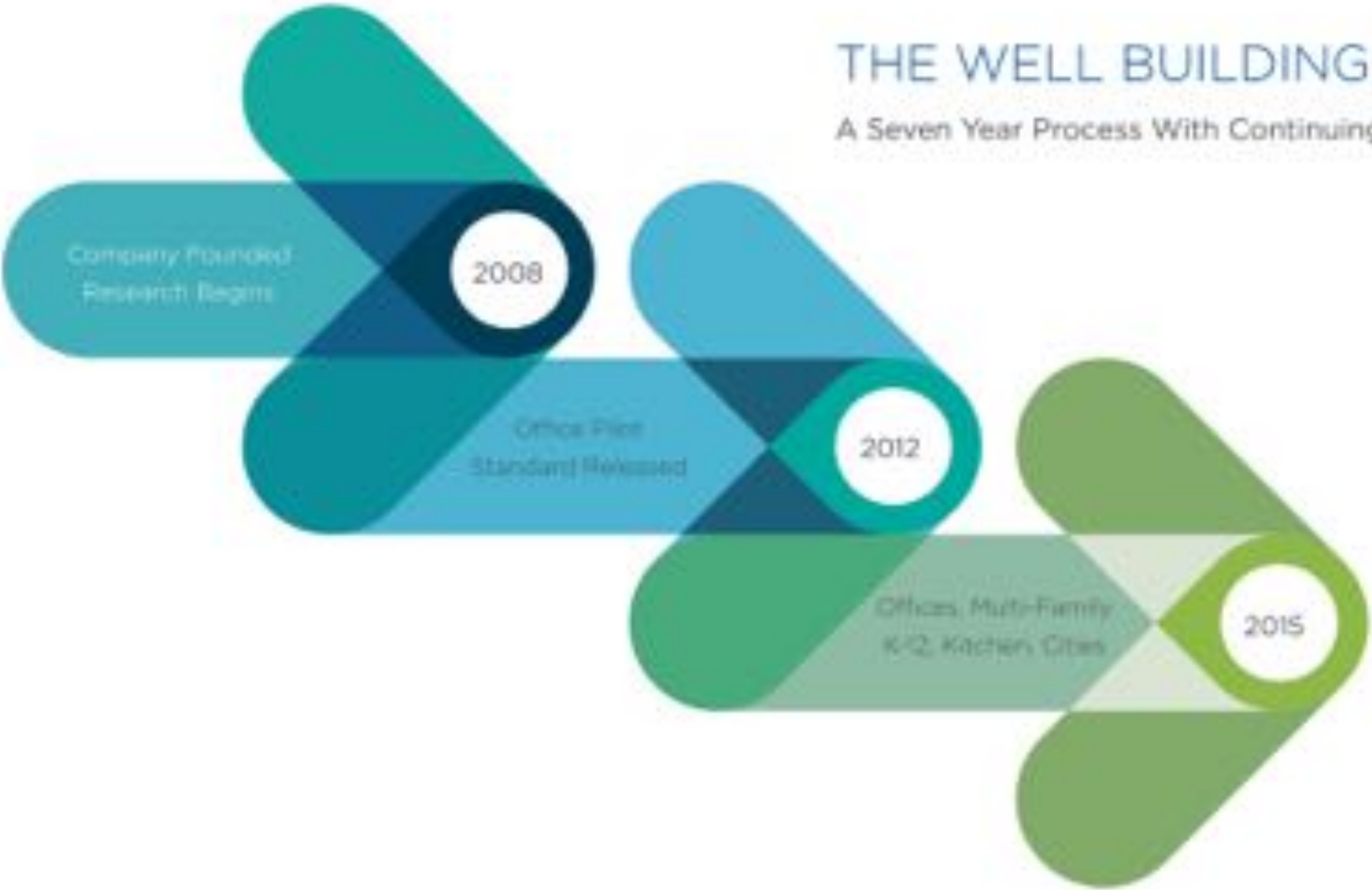
WELL POSITIONS DESIGN AND BUILDING OPERATIONS AS **AGENTS OF PUBLIC HEALTH.**

WELL MEASURES, CERTIFIES, AND MONITORS BUILDING FEATURES THAT **IMPACT HEALTH AND WELL-BEING.**



# THE WELL BUILDING STANDARD

A Seven Year Process With Continuing New Developments





# CURRENT PILOT PROGRAMS



## MULTI-FAMILY RESIDENTIAL

Partial Condo/Co-op, Student, Traditional, Senior Independent Living, Assisted



## EDUCATION

K-12, Public, Private



## RETAIL

Fast-Casual, Dining, Partnerships



## COMMUNITIES, NEIGHBORHOODS, DISTRICTS AND CITIES



# FUTURE PILOT PROGRAMS



**SPORTS-FITNESS RECREATION**

Community, Private, University, Professional, Hotel



**ALL Building Types are Eligible**



**HEALTHCARE**

Clinic, FQHC, Hospital, Adult Care, Assisted Service





786

REGISTERED PROJECTS

34

COUNTRIES

168 **m** sq ft

REGISTERED AREA

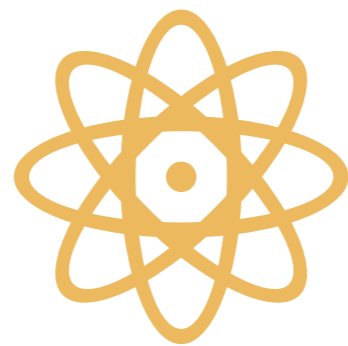
100

CERTIFIED PROJECTS

# DEVELOPMENT

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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.



SCIENTIFIC



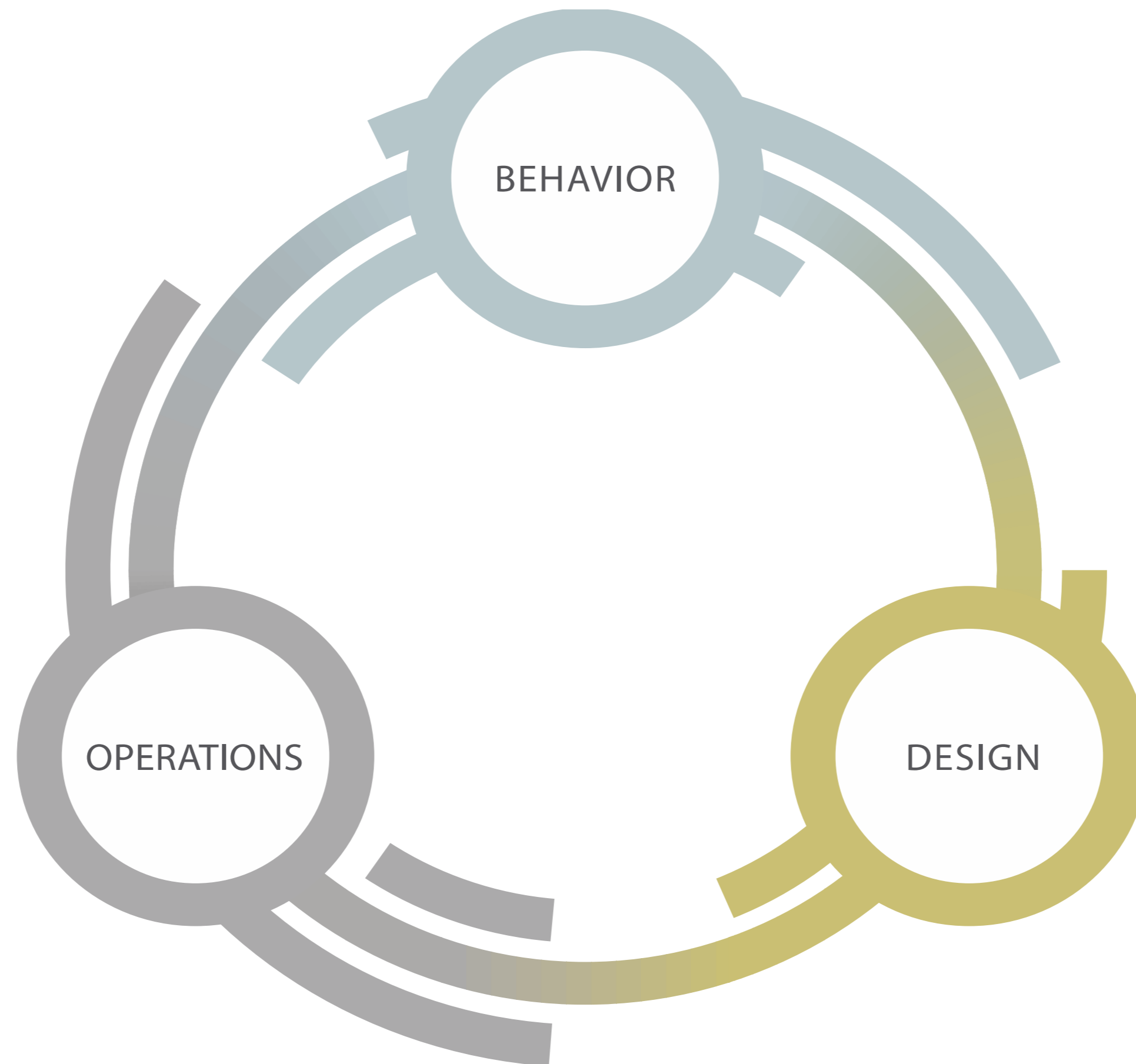
PRACTITIONER



MEDICAL

# WELL OVERVIEW PROCESS

IWBI TOOK A HOLISTIC APPROACH IN DEVELOPING THE WELL BUILDING STANDARD™





The background is a collage of various green nature photographs, including close-ups of leaves, trees, and foliage. Two large circles overlap in the center: a dark grey circle on the left and a light green circle on the right. The word 'WELL' is written in white inside the dark circle, and 'GREEN' is written in green inside the light circle.

**WELL**

**GREEN**

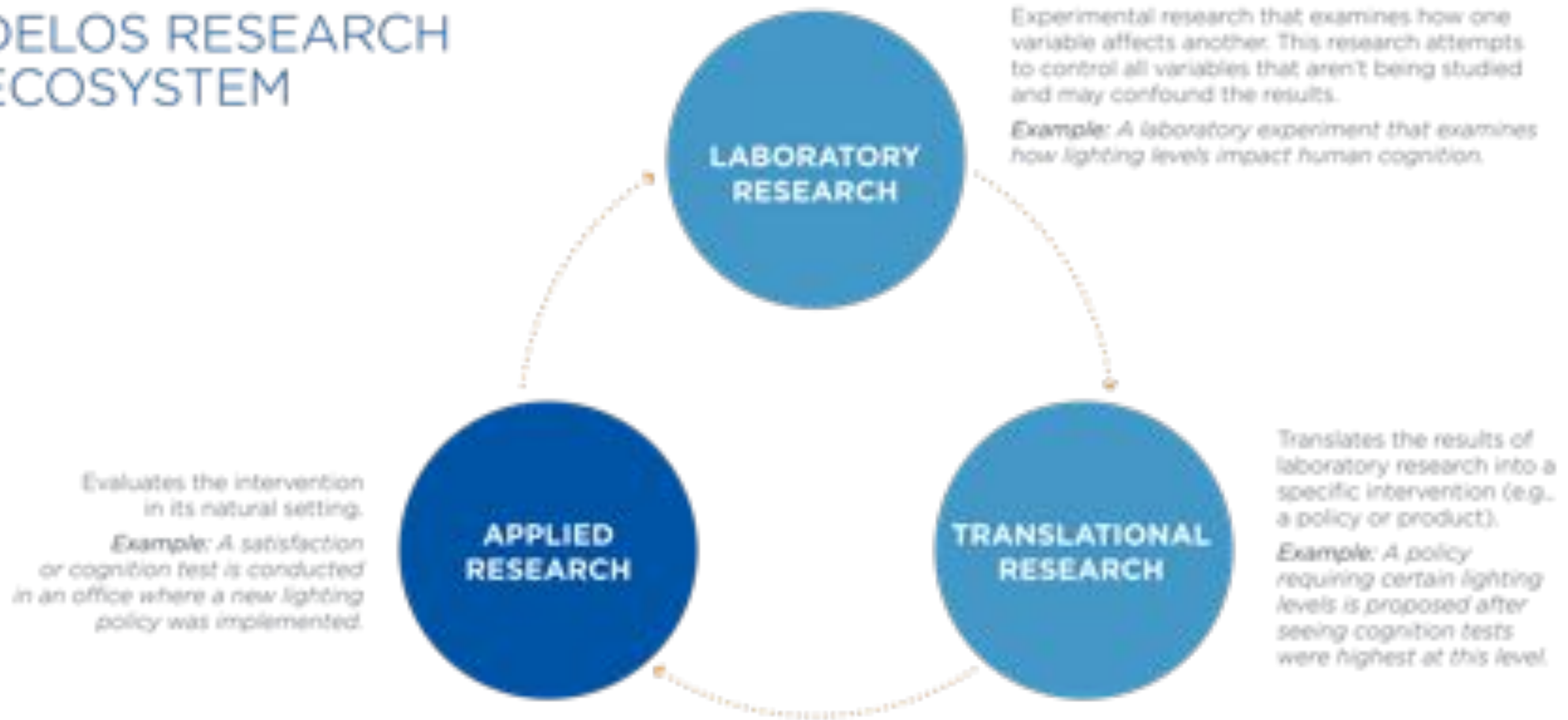


A grid of diverse people's faces in the background, including men, women, and children of various ethnicities and ages, smiling and engaged in various activities.

# ONGOING COMMITMENT TO RESEARCH.



# DELOS RESEARCH ECOSYSTEM







A DELOS AND MAYO CLINIC COLLABORATION

Actionable, human-centered research that  
creates healthier indoor environments





### Well Living Laboratory Evaluating Relative Impacts on People in Office and Residential Environments

- Acoustics
- Temperature
- Humidity
- Filtration
- Ventilation/CO2
- Physical Activity at Work
- A Good Nights Sleep
- Nutrition at Work
- Connection to Nature
- Human Proximity
- Light





Subjective Response, Irritability

Galvanic Skin Response

Change in Heart Rate

Increased Activity of  
Ulcer Formation

Changes in  
Intestinal Motility

Increased Adrenal  
Hormones

Increased Cholesterol  
& Adrenaline

Vasoconstriction

Increased Blood Pressure

Changes in Skeletal  
Muscle Tension

Biophysical Data  
and Human Subject  
Performance  
(Medical, Social and  
Behavioral Science)

Blood Chemistry;  
Wearable Sensors  
with Audio and  
Visual Recognition



# Measuring Well-being in Healthcare and the Workplace

## Healthcare

Patient Experience  
Retention/Recruitment  
Burnout  
Hospital Acquired  
Conditions  
Errors  
HCAHPP

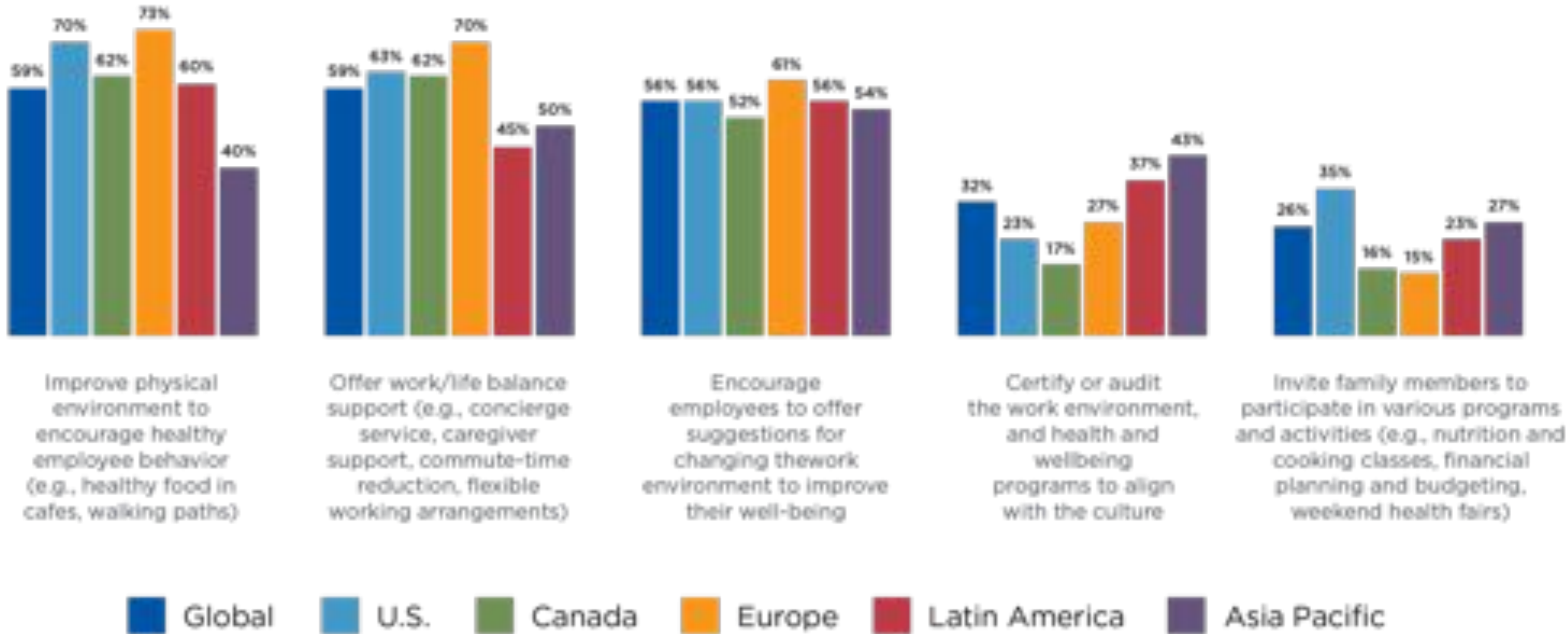
## Workplace

Productivity  
Recruitment/Retention  
Presenteeism  
Absenteeism  
Engagement  
Resiliency  
Availability  
GPTW/Gallup



# Healthy Workplace Culture and the Physical Environment

*Employers recognize changes to the physical environment as key to forming a healthy workplace culture.*



©2016 Willis Towers Watson. Used with permission.

Source: Willis Towers Watson. *Employee Health and Business Success*; 2016.

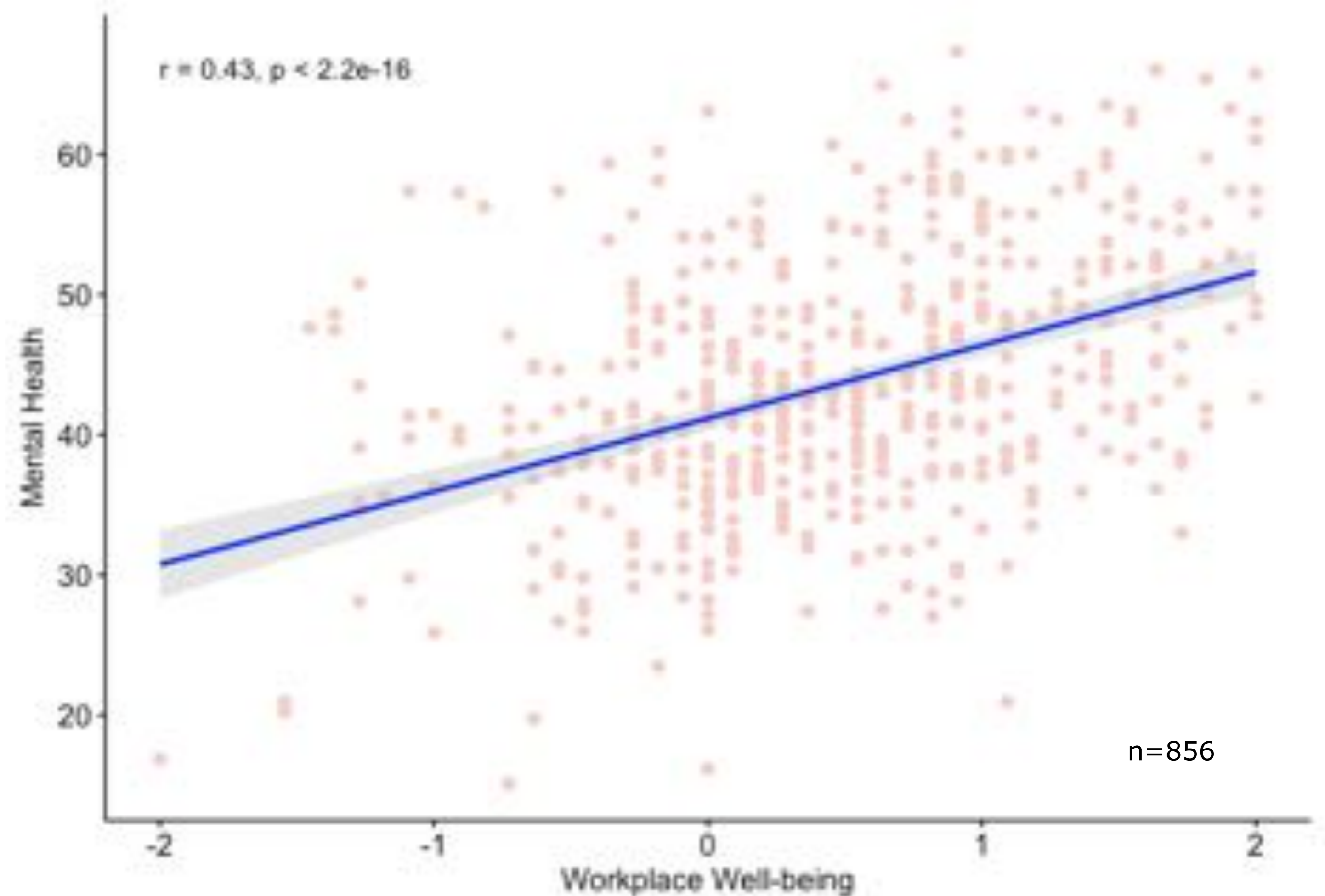
(n=1,669)



# THE MENTAL HEALTH CONNECTION

## Perceived Mental Health, Sleep and Light Quality, and Workplace Well-being

- + Perceived mental health scores improved across all projects
- + Findings indicate a significant connection between mental health, sleep satisfaction, light satisfaction, and overall organizational satisfaction

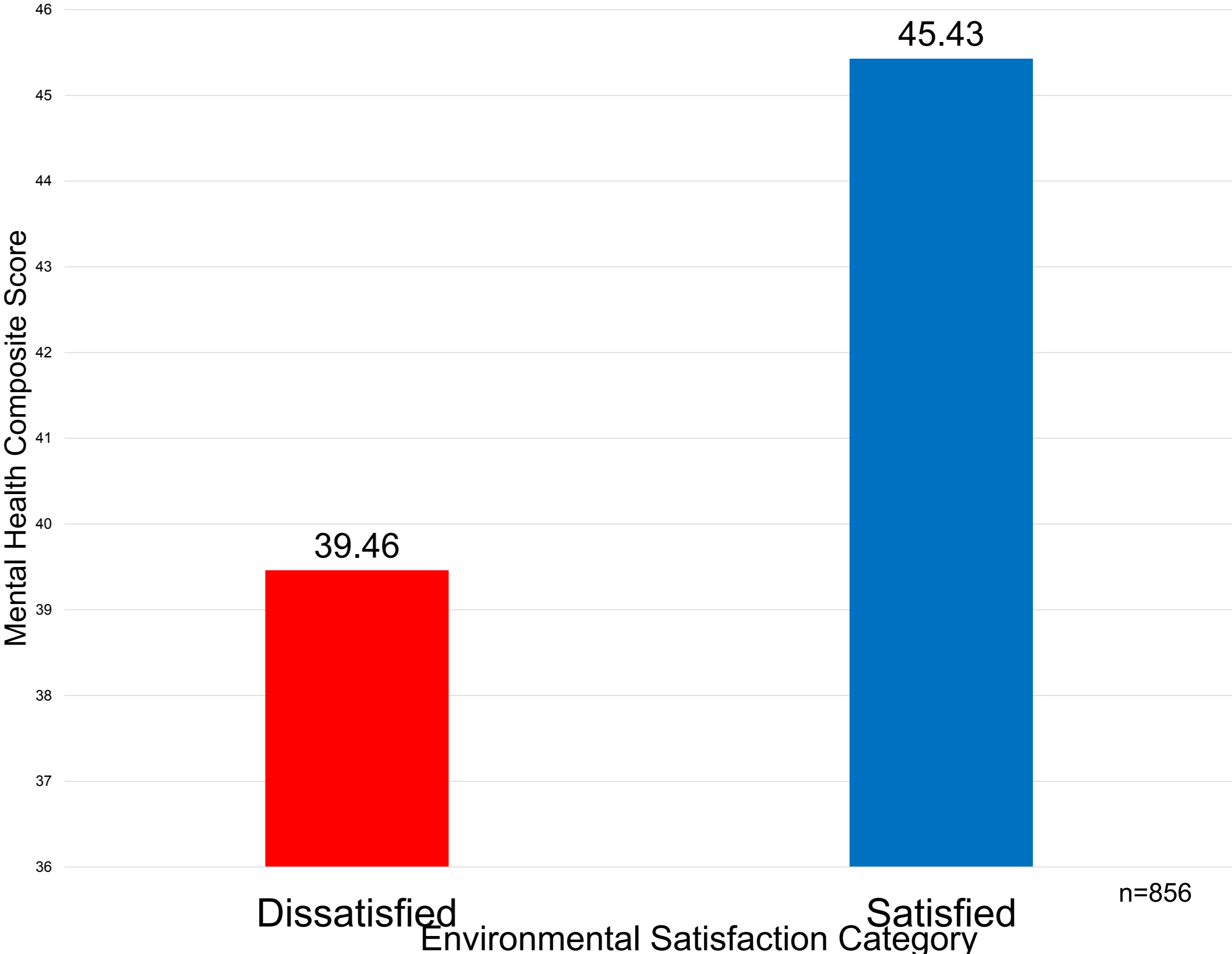




# MENTAL HEALTH AND THE ENVIRONMENT

## The Mental Health and Environmental Satisfaction Connection

Findings reveal that higher perceived mental health is associated with higher overall environmental satisfaction





A grid of diverse people's faces in the background, including men, women, and children of various ethnicities and ages, smiling and engaged in various activities.

# KEY CONCEPTS OF THE WELL BUILDING STANDARD.





Air



Water



Nourishment



Light



Fitness



Comfort



Mind



# air

Create optimal indoor air quality to support the health and well-being of building occupants.

material selection - ventilation - filtration - moisture control - maintenance & operations - source of concern protection - construction processes



# 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*





# 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



## 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





# 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*







# RESTORATIVE WORKPLACES

SPACE STRATEGIES FOR OPTMAL FUNCTION

BIOPHILIA  
LOCUS OF CONTROL  
ADAPTABLE SPACES  
STIMULI MANAGEMENT  
BEAUTY  
WAYFINDING  
CONNECTION















West Park Healthcare Centre,  
Toronto, Canada  
“WELL-Inspired”





# “WELL-inspired” in Support of Patient & Staff Wellbeing





# Support for Patient & Staff Wellbeing



Indoor air quality  
Central stairs  
Material transparency  
Chemicals of concern  
Biophilia  
Daylight and views  
Operable windows  
Acoustics  
Places of respite





Medical Office Building,  
Los Angeles, US











NG TENG FONG GENERAL HOSPITAL  
EXTERIOR





NG TENG FONG GENERAL HOSPITAL  
EXTERIOR





1

CH Vertical Planting



2

Staff Respite



3

OH-CH Bridge



4

Patient Wards



5

Link Garden



6

Staff Gardens



7

Therapeutic Garden



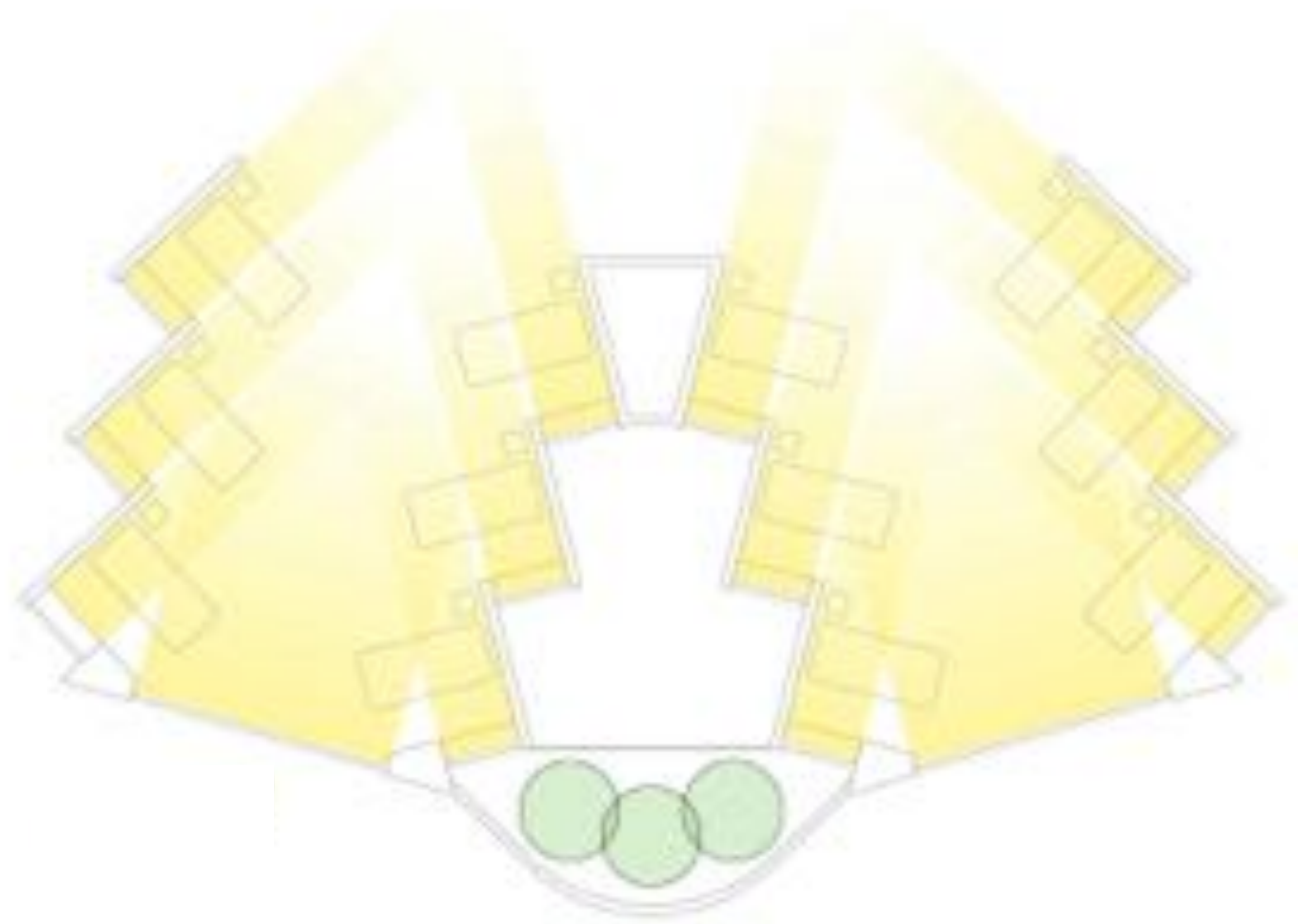
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Respite Garden





Standard Singapore Patient Ward



Ng Teng Fong Patient Ward



Eskenazi Health Main Campus,  
Indianapolis, Indiana, US







SIDNEY & LOIS ESKENAZI HOSPITAL

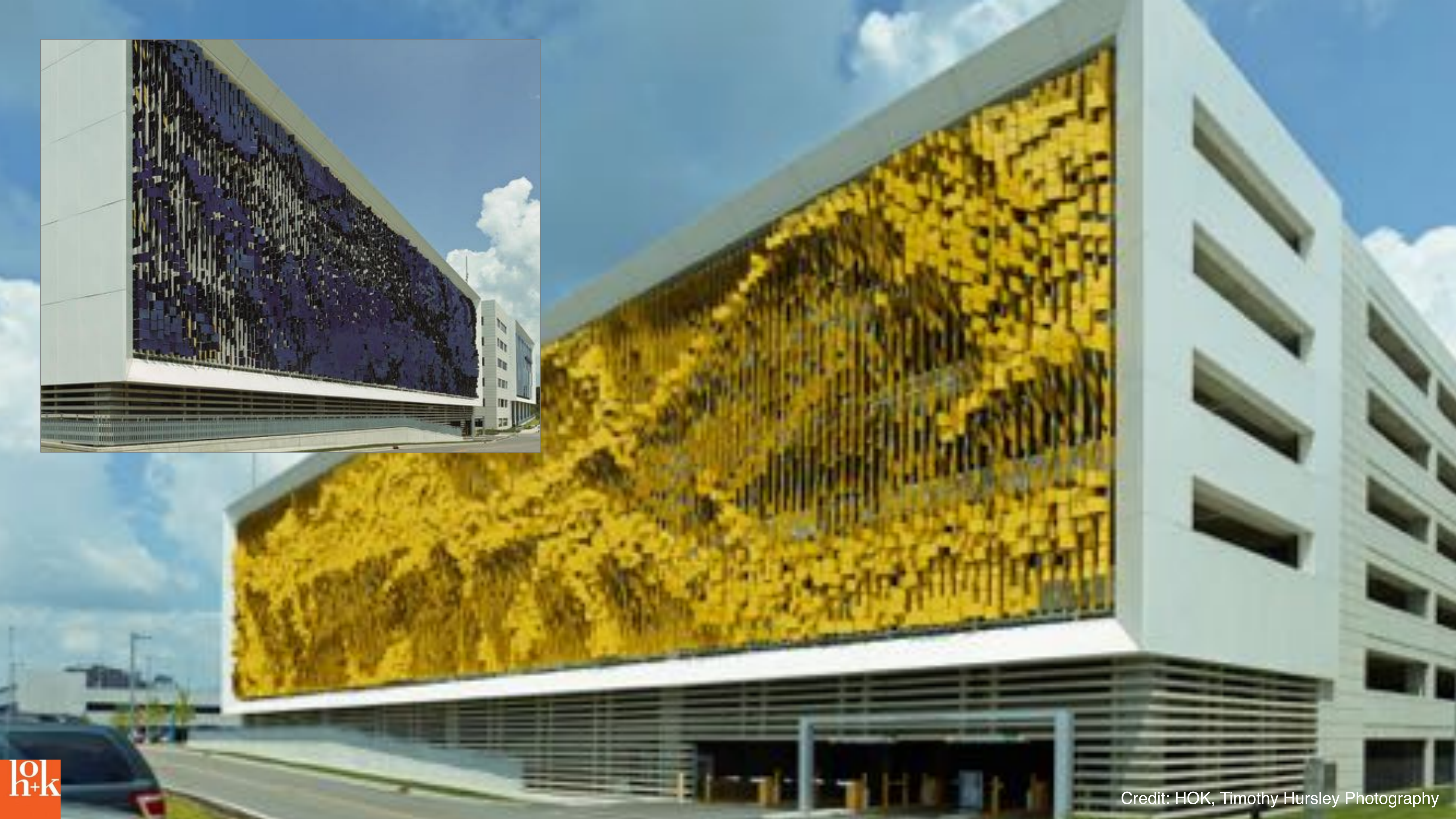


Credit: HOK, Timothy Hursley Photography











A vibrant, multi-colored spiral staircase with a central blue circular graphic containing the text "WE ARE WELL". The staircase is viewed from above, showing a variety of colors including red, orange, yellow, green, and blue. The central graphic is a semi-transparent blue circle with concentric white lines, and the text is in a bold, white, sans-serif font.

**WE ARE  
WELL**



# Thank you

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European Healthcare Design 2018

