



### 6:30 P M

- John arrives home exhausted
- Skips gym
- Turns on television
- Responds to a few more work emails
- TV show ends and he decides one more can't hurt...

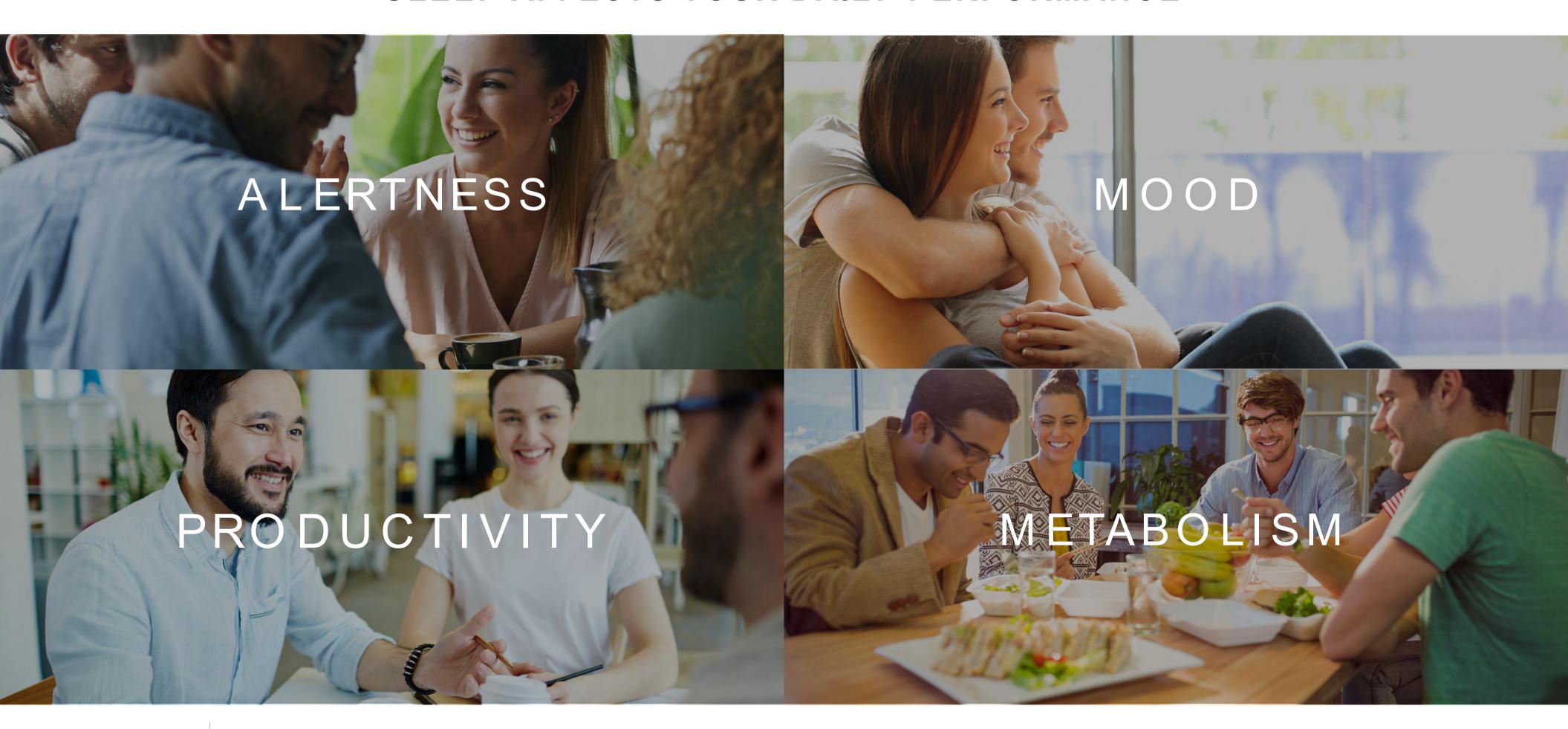
### 4:00AM

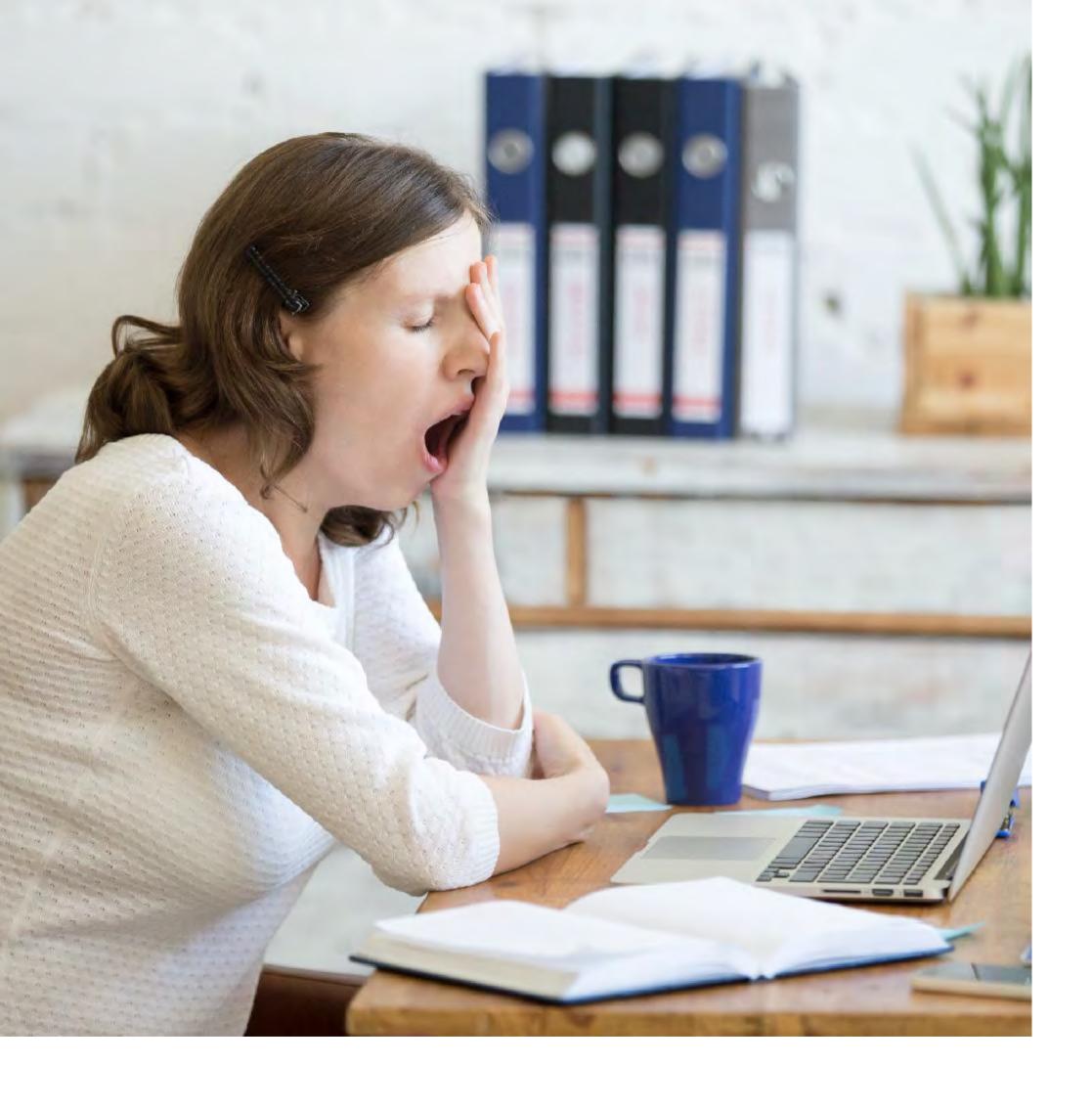
- Wakes up on the couch
- Goes to bedroom

### 6:00AM

- Phone alarm blares and John opens his eyes to a dark, cold room
- Hits the snooze
- ...and then hits it again— and then again
- Gets out of bed 15 minutes before he has to leave
- Rushes to get ready and out the door

### SLEEP AFFECTS YOUR DAILY PERFORMANCE



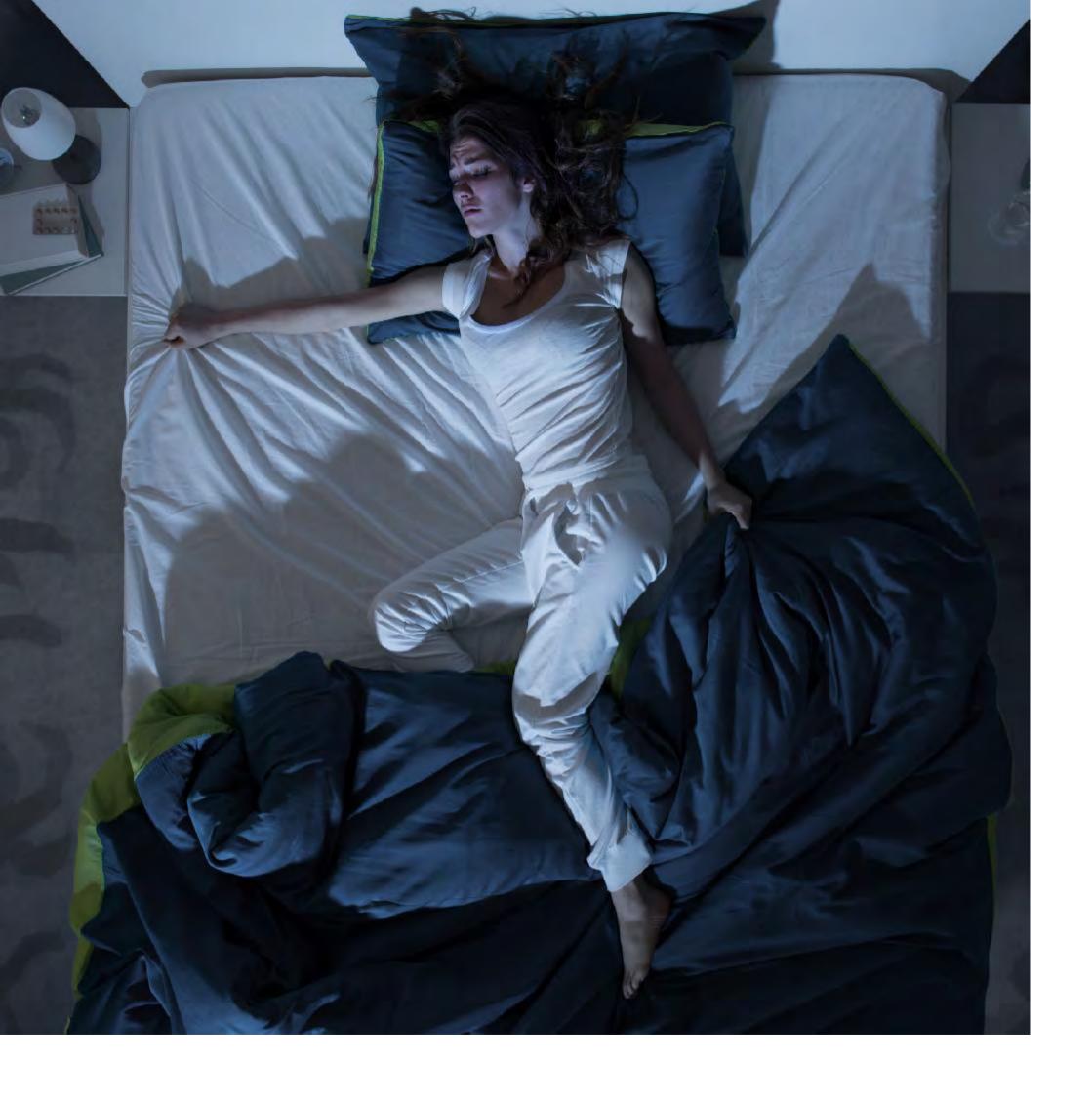


## Inadequate Sleep is a growing problem

- More than a third of American adults do not get enough sleep.1
- It's estimated that insufficient sleep may cost U.S. businesses up to \$411 billion per year.<sup>2</sup>

<sup>1.</sup>Centers for Disease Control and Prevention. 2016. "1 in 3 Adults Don't Get Enough Sleep." https://www.cdc.gov/media/releases/2016/p0215-enough-sleep.html.

<sup>2.</sup>Hafner, Marco, Martin Stepanek, Jirka Taylor, Wendy Troxel, and Christian Stolk. 2016. Why Sleep Matters -- the Economic Costs of Insufficient Sleep: A Cross-Country Comparative Analysis. RAND Corporation. doi:10.7249/RR1791.



### Quantifying Risk of Bad Sleep

20x

More likely to develop anxiety disorder when suffering from chronic insomnia<sup>1</sup>

5 x

More likely to develop depression when suffering from chronic insomnia<sup>1</sup>

30%

Greater risk of coronary heart disease<sup>2</sup>

1,Neckelmann D, Mykletun A, Dahl AA. Chronic insomnia as a risk factor for developing anxiety and depression. Sleep. 2007;30(7):873-880.

2. Lao XQ, Liu X, Deng HB, Chan TC, Ho KF, Wang F, Vermeulen R, Tam T, Wong MC, Tse LA, Chang LY, Yeoh EK. Sleep quality, sleep duration, and the risk of coronary heart disease: a prospective cohort study with 60,586 adults. J Clin Sleep Med.2018;14(1):109–117.

<sup>\*</sup>Sleep quality criteria variably defined by quality and duration across studies



## What tools are individuals currently using to address sleep problems?

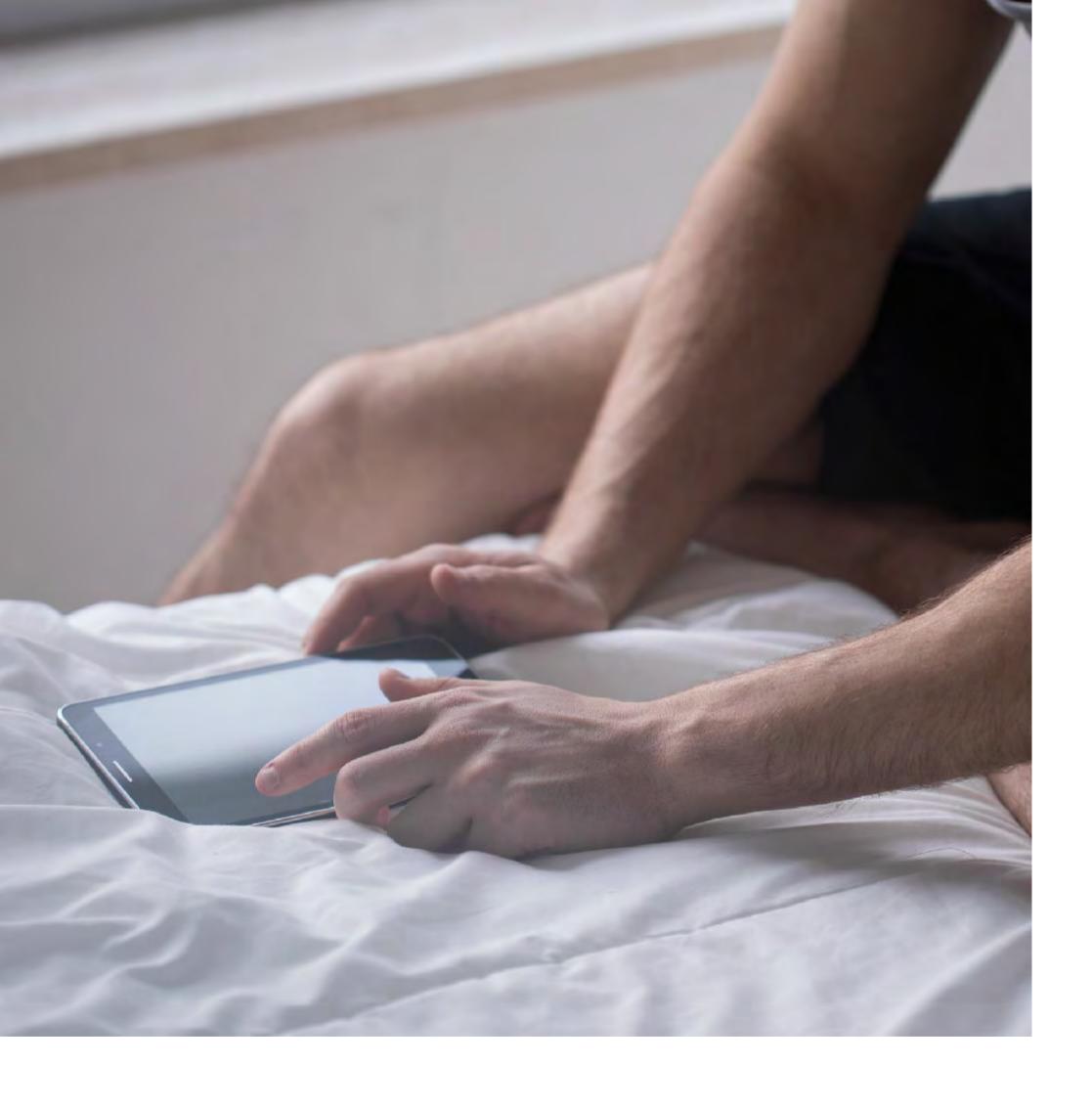
"Americans have spent an estimated \$41 billion on sleeping aids and remedies - a number that is expected to jump to \$52 billion by 2020."











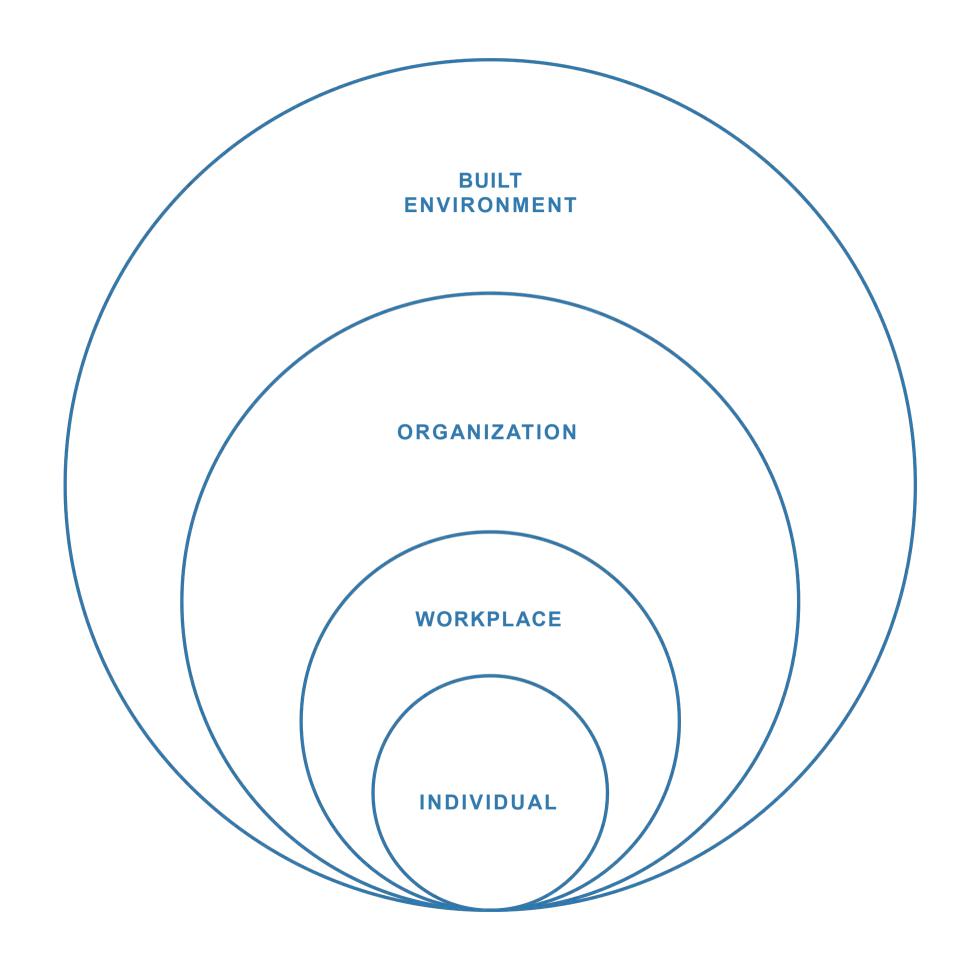
## Typical Advice: Change your behavior

- Go to bed earlier
- Schedule less
- Prioritize more

While this is logical, it doesn't always work. Humans notoriously struggle with behavior change.<sup>1</sup>

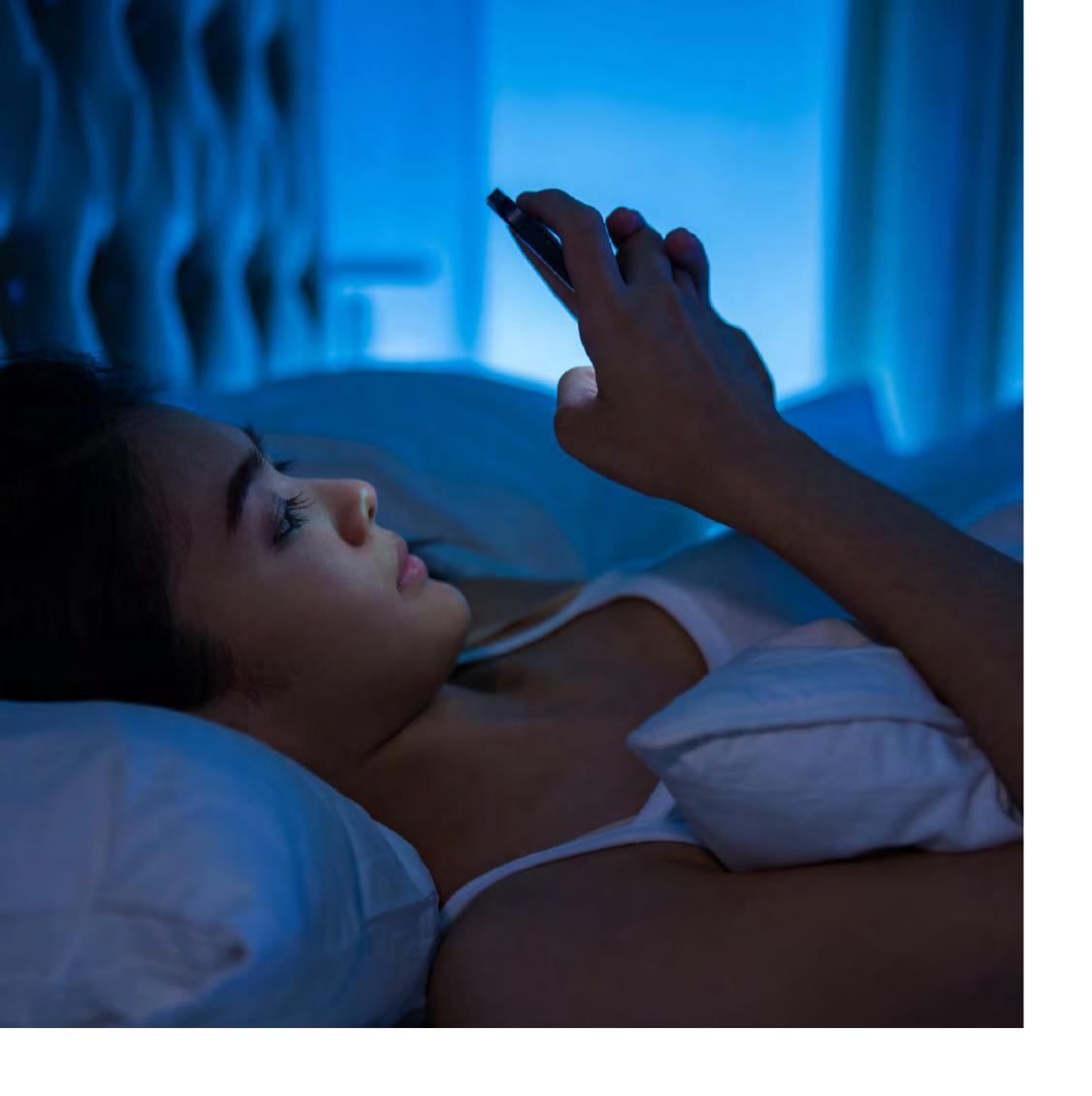
What passive interventions can be used to help nudge us toward more/better sleep?

1.Bouton ME. Why behavior change is difficult to sustain. Prev Med (Baltim). 2014;68:29-36. doi:10.1016/J.YPMED.2014.06.010.



### A Range of Factors Can Influence Your Sleep

Behavior change often only looks at the individual, but when it comes to health you have to consider several levels of influence, including the environment.



## Is our environment working against us?

- Our sleep-wake cycle is largely regulated by light.
  - Bright, blue-rich light promotes activity and alertness.
  - Dim, warm light signals that the body should decrease energy and prepare for rest.
- Devices we use regularly at night (e.g., televisions, mobile phones, computer screens, indoor lighting) emit blue light and disrupt this sleep-wake cycle.<sup>1</sup>

1.Gooley JJ. Light-induced Resetting of Circadian Rhythms in Humans. J Sci Technol Light. 2018;41(0):69-76. doi:10.2150/jstl.IEIJ160000594.



# How can your environment limit your ability to get good sleep?

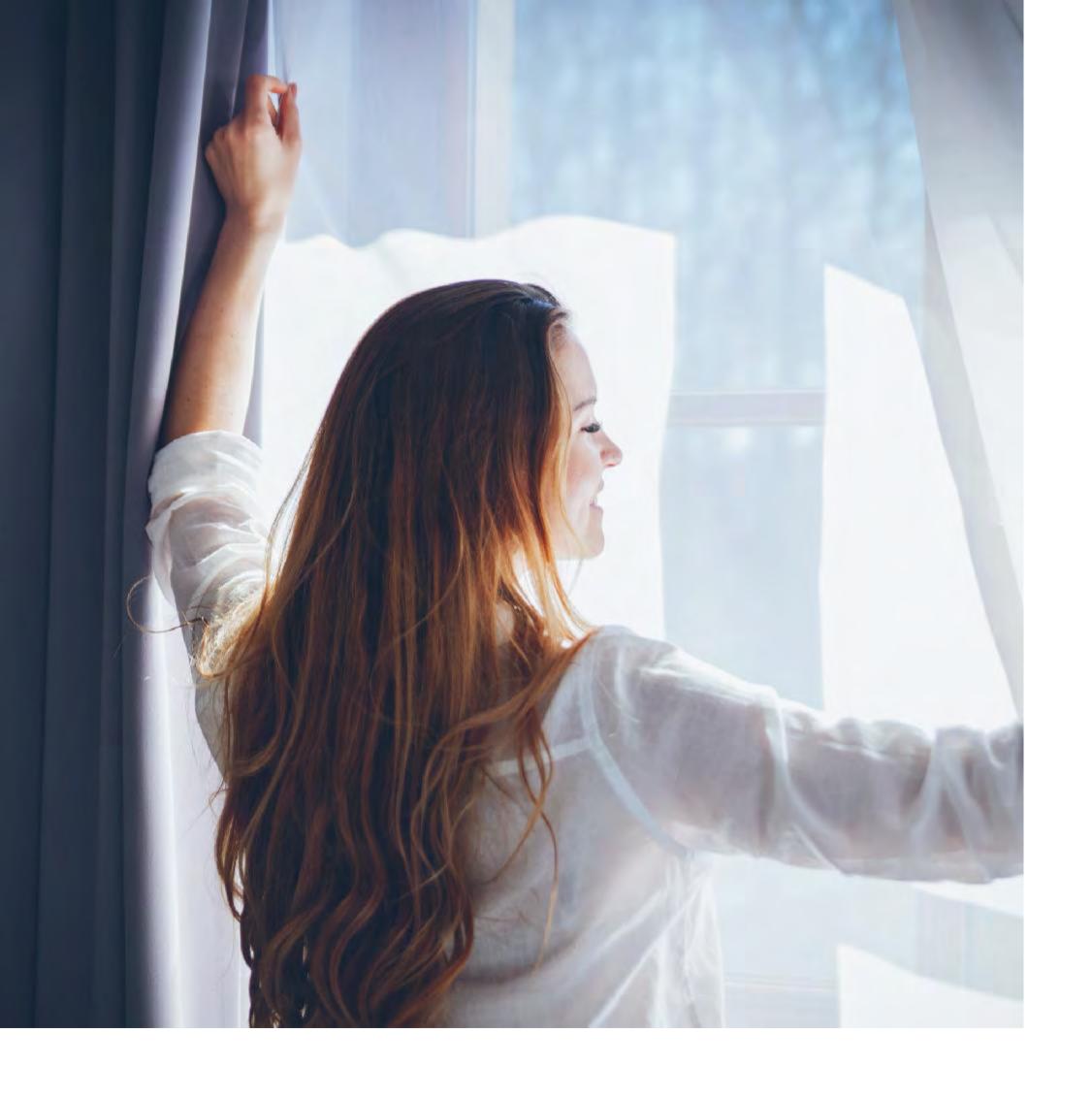
- Inadequate lighting (bright blue light from devices at night)
- Noise
- Uncomfortable thermal conditions
- Poor air quality

Dawson D, Encel N, Lushington K. Improving adaptation to simulated night shift: timed exposure to bright light versus daytime melatonin administration. Sleep. 1995;18(1):11-21.

Hume, K. I., Brink, M., & Basner, M. (2012). Effects of environmental noise on sleep. Noise Health, 14(61), 297–302. https://doi.org/10.4103/1463-1741.104897

Lan, L., Pan, L., Lian, Z., Huang, H., & Lin, Y. (2014). Experimental study on thermal comfort of sleeping people at different air temperatures. Building and Environment, 73, 24–31. https://doi.org/10.1016/j.buildenv.2013.11.024

Wargocki, P., Lan, L., Lian, Z., & Wyon, D. P. (2018). Thermal environment, IAQ and sleep. ASHRAE Journal, 60(4), 60-63.

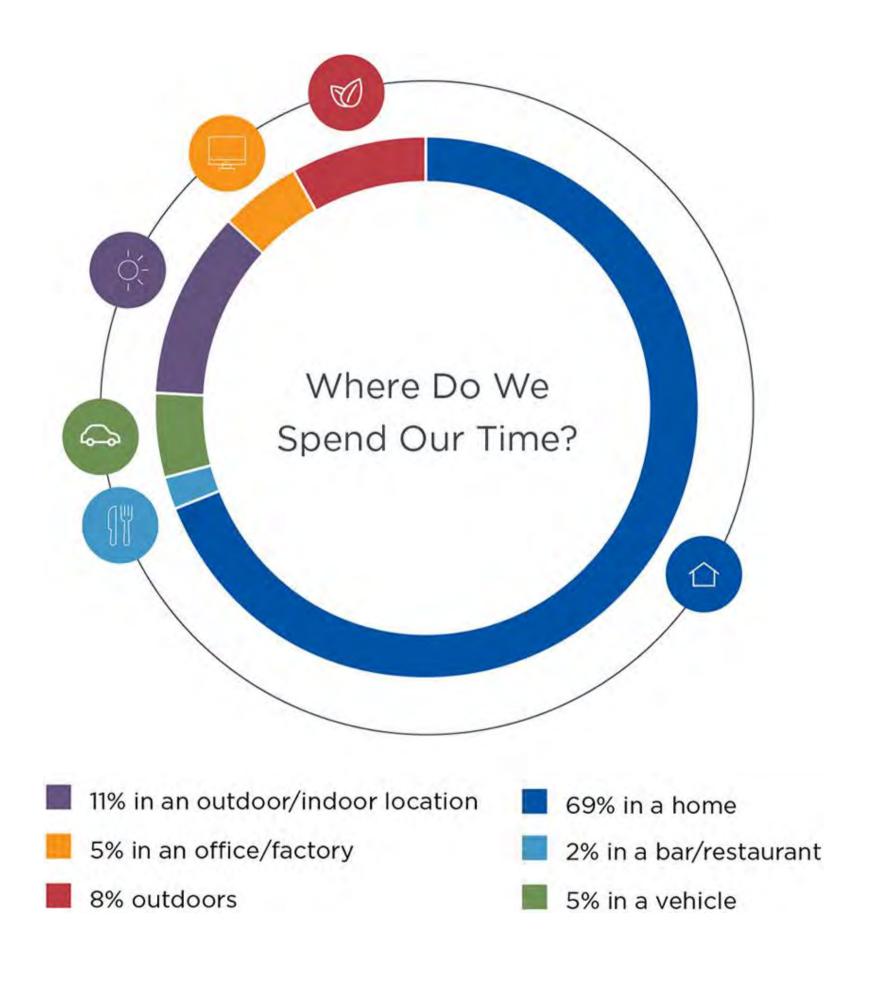


### Change your environment first?

It might be strategic to change environments first:

- Create a home environment that automatically transitions lighting, temperature, and sound into optimal ranges depending on day and time.<sup>1</sup>
- Invest in home technologies that minimize or automate mundane tasks to extend your free time.

1.Caddick ZA, Gregory K, Arsintescu L, Flynn-Evans EE. A review of the environmental parameters necessary for an optimal sleep environment. Build Environ. 2018;132:11-20. doi:10.1016/J.BUILDENV.2018.01.020.

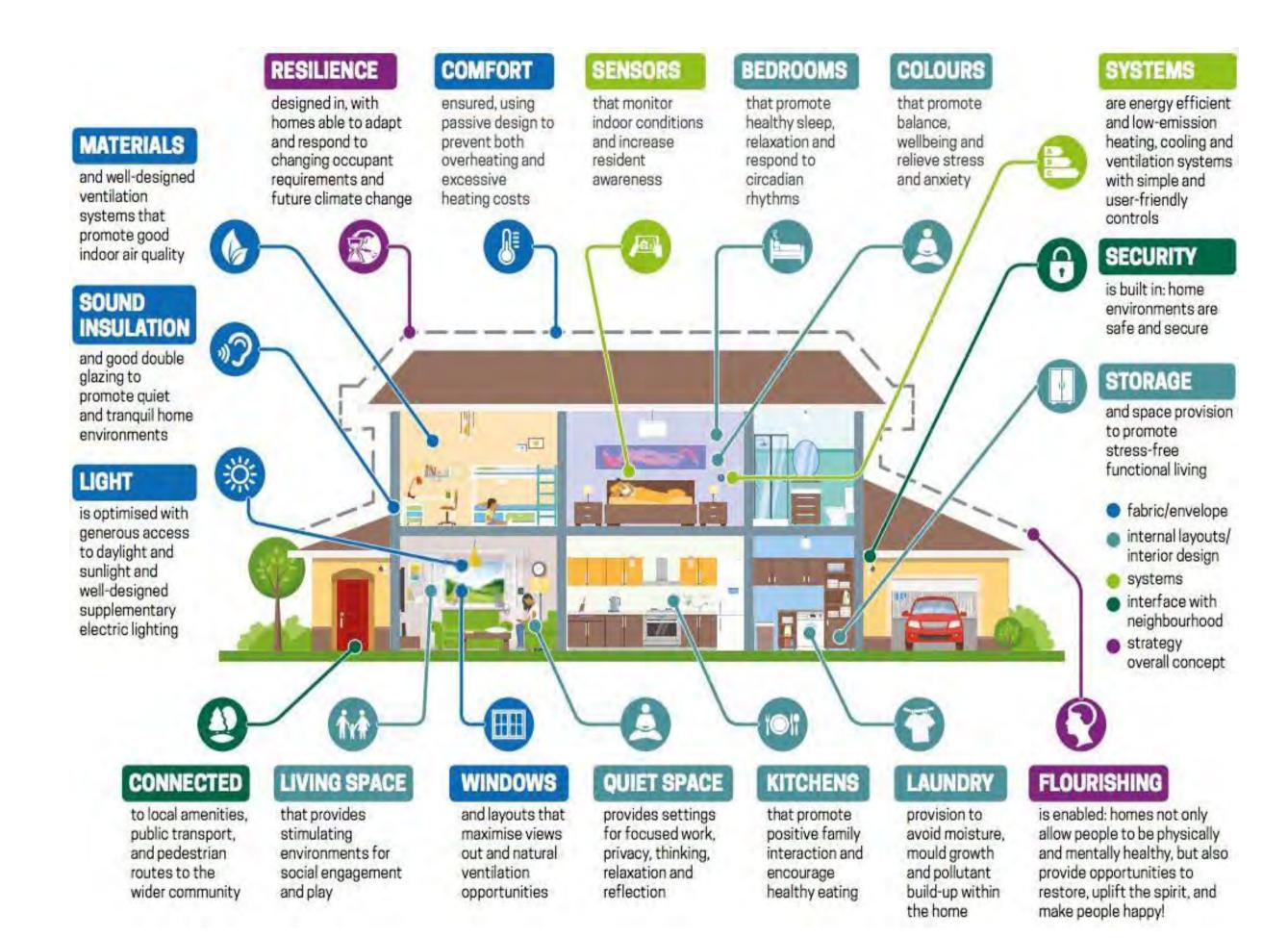


# Focusing on wellness environments is critical because we spend so much time at home

People in the United States spend approximately 70% of their time at home.

(n=9,196 US residents of all ages)

Source: Federal Healthy Homes Work Group. Advancing Healthy Housing A Strategy for Action.; 2013. https://www.hud.gov/sites/documents/STRATEGY\_FOR\_ACTION.PDF. Accessed October 16, 2017 citing 1.KLEPEIS NE, NELSON WC, OTT WR, et al. The National Human Activity Pattern Survey (NHAPS): a resource for assessing exposure to environmental pollutants. J Expo Anal Environ Epidemiol. 2001;11(3):231-252. doi:10.1038/sj.jea.7500165.



Bringing Nature "Inside the Box" to create homes that promote wellness

BUILDING PRP Infographic developed for UK-GBC by PRP

Source: UK Green Building Council, World Green Building Council. Health and Well-Being in Homes.; 2016.



## The Result? An optimal sleep environment

### 6:30 P M

- John arrives home
- As the sun lowers, his lights dim and warm
- Automatic black-out shades lower
- Television shuts off automatically at 10pm

### 10:00PM

- Temperature drops
- John hops into his comfortable bed

### 6:00AM

- Automatic shades slowly rise and soft lights that simulate the sunrise slowly glow in place of an alarm clock
- The heater kicks on, and the sounds of soft birds chirping indicates it's time to get out of bed
- John walks to a fresh pot of coffee that just automatically brewed five minutes before.





# THE DARWIN PLATFORM IS BUILT ON FOUNDATIONS FROM THE NATURAL WORLD



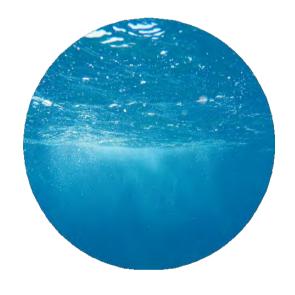
**AIR** 

The DARWIN Air Purification System helps to improve air quality by removing allergens, toxins, pathogens, pollen and other pollutants from the air.



LIGHT

By mimicking natural light, the DARWIN Circadian Lighting System can help to regulate hormonal balance, appetite, sleep, productivity and energy levels.



**WATER** 

The DARWIN Water Filtration
System uses best-in-classfiltration
technologies to improve water quality
in your home.



### THE DARWIN<sup>TM</sup> PLATFORM

### FEATURES



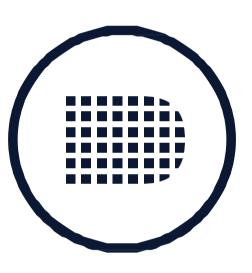








SLEEP ENVIRONMENTS



DARWIN COMMISSIONING AND MOBILE APP



## INTRODUCING THE WORLD'S FIRST HOME WELLNESS PLATFORM

DARWIN™ gives you status and control of wellness in yourhome

#### CONTROL

- DARWIN™ Experiences
- Individual Devices

#### **WELLNESS MESSAGING**

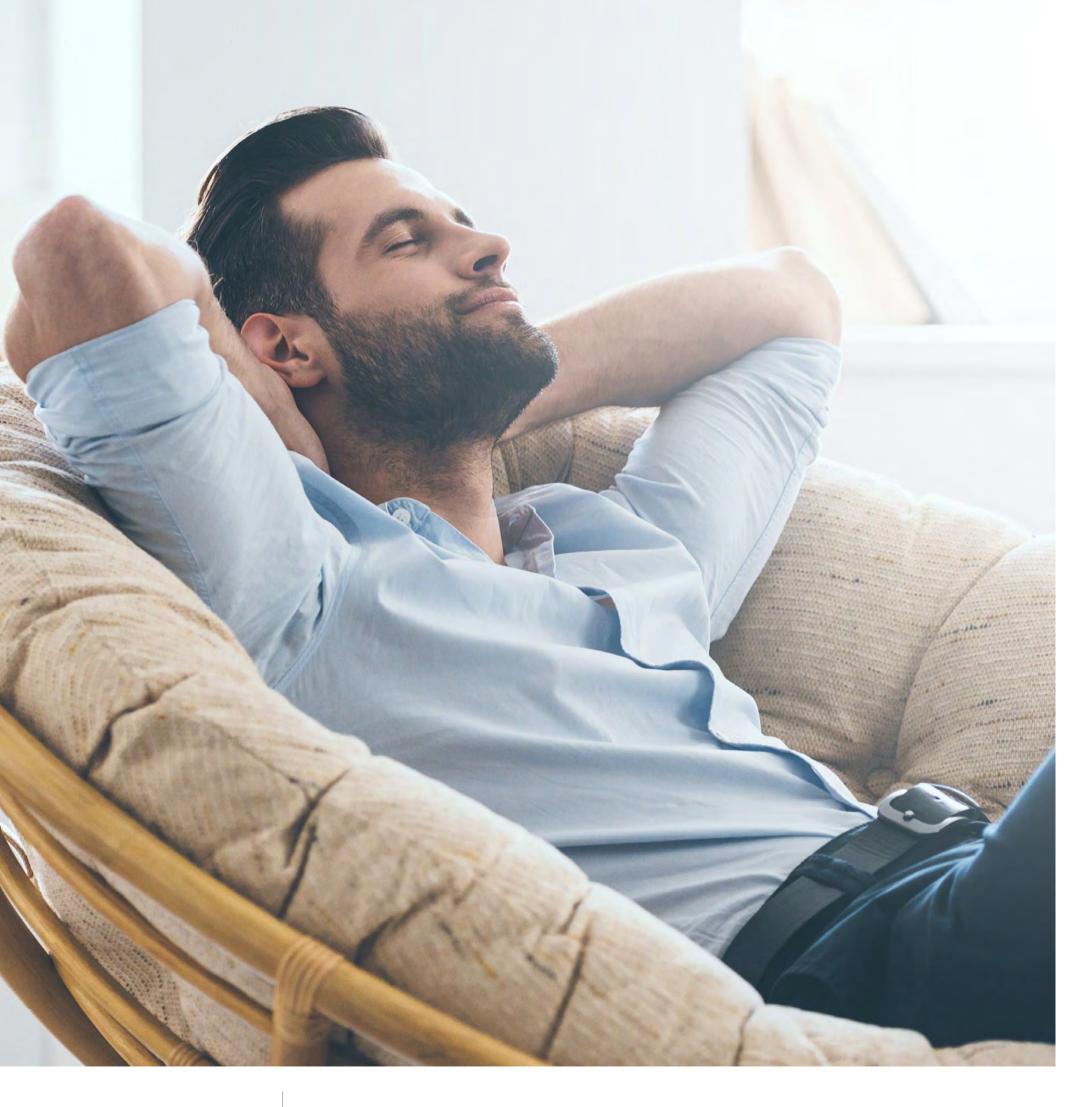
- Outdoor Air Quality
- Indoor Air Quality
- Outdoor Weather
- Current Wellness Active Elements









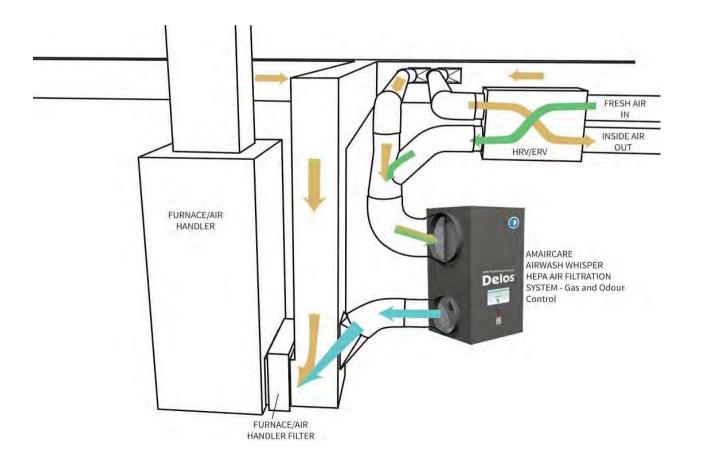




The DARWIN™ Air Purification System is designed to improve your home's air quality by helping remove contaminants from the air

### This system includes:

- Air Quality Monitoring
- Air Filtration System
- Responsive Purification

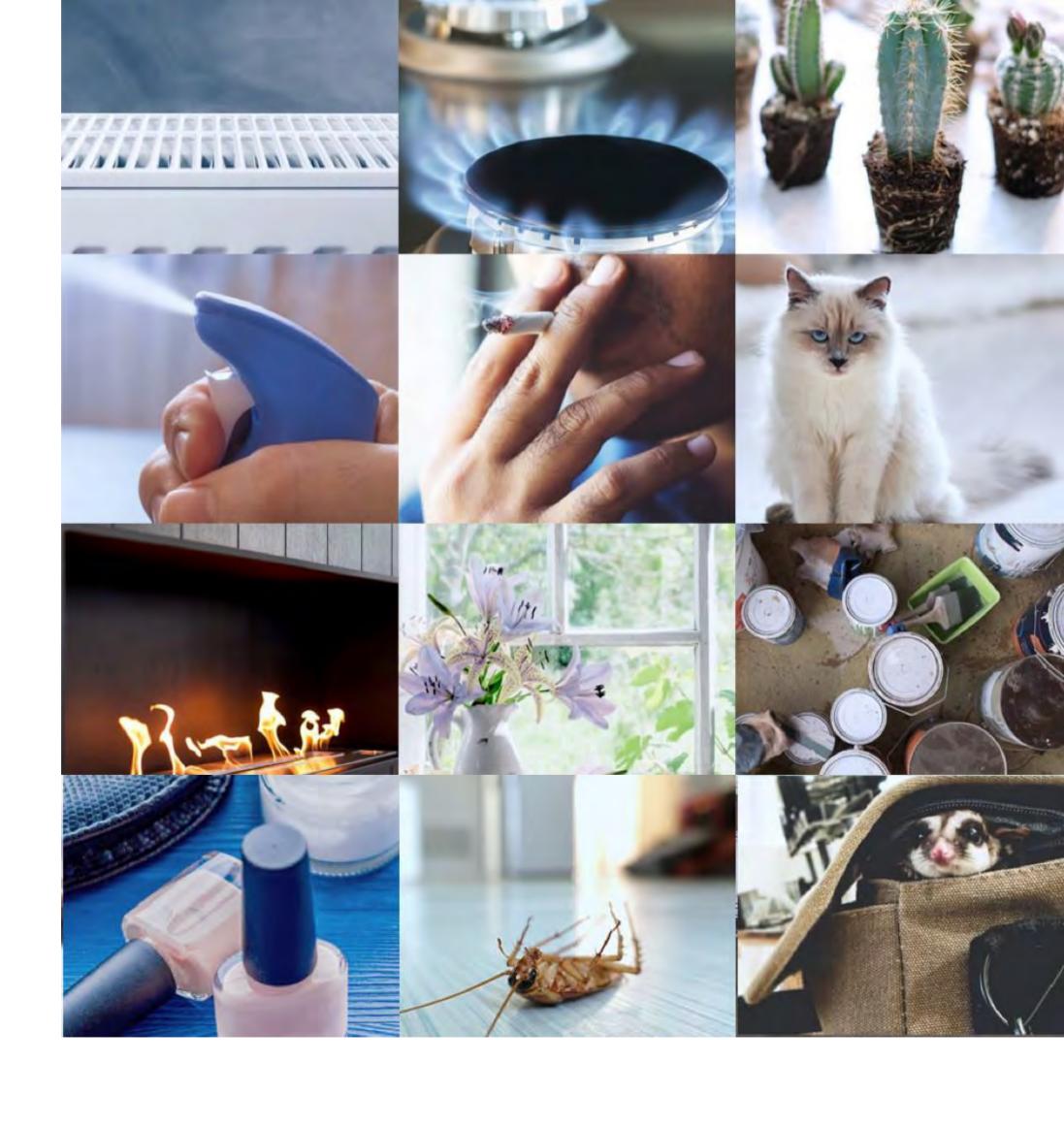




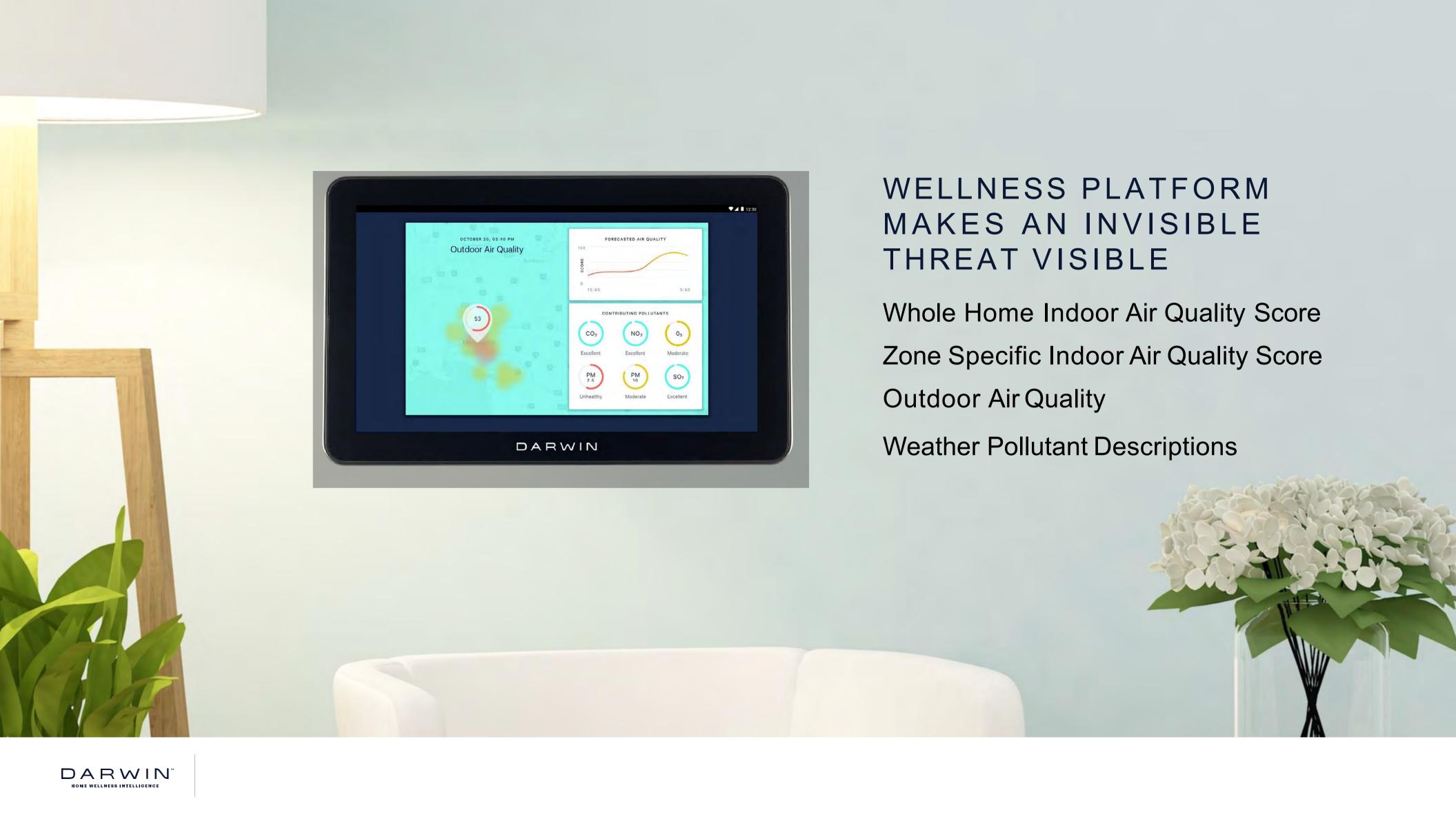
### RESPONSIVE PURIFICATION

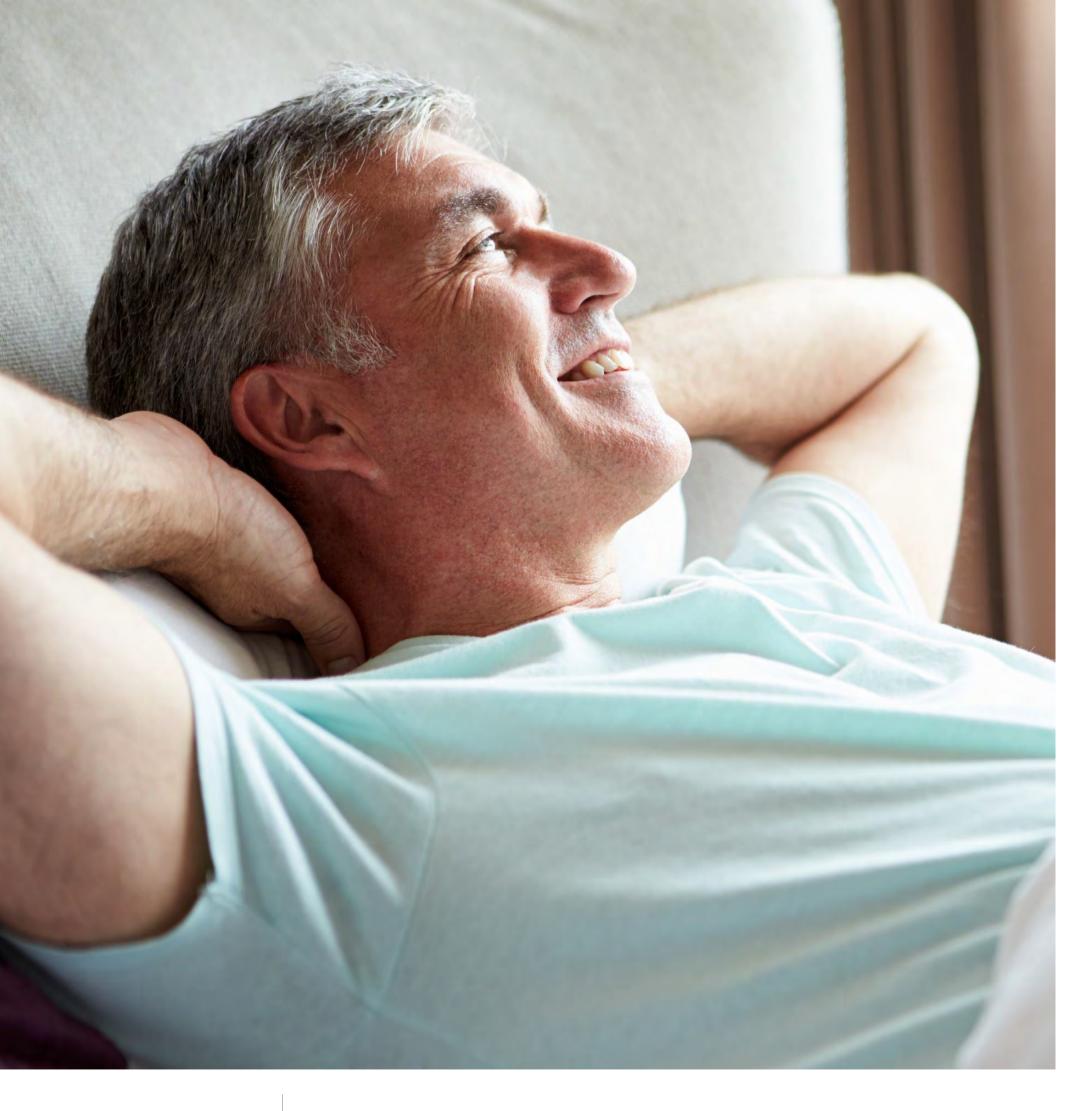
Works with the Bonaire HVAC System (Australian launch) to reduce household pollutants as they occur, helping improve the air quality exactly when you needit













The DARWIN™ Circadian Lighting System is engineered to simulate the properties of natural light, helping regulate hormone balance, appetite, sleep, energy, and productivity.

### This system includes:

- Circadian Downlights
- DARWIN™ Experiences
- Energizing Mirrors



The DARWIN™ Circadian Lighting System Dynamically Adjusts To Mimic **Natural Sun Patterns** 

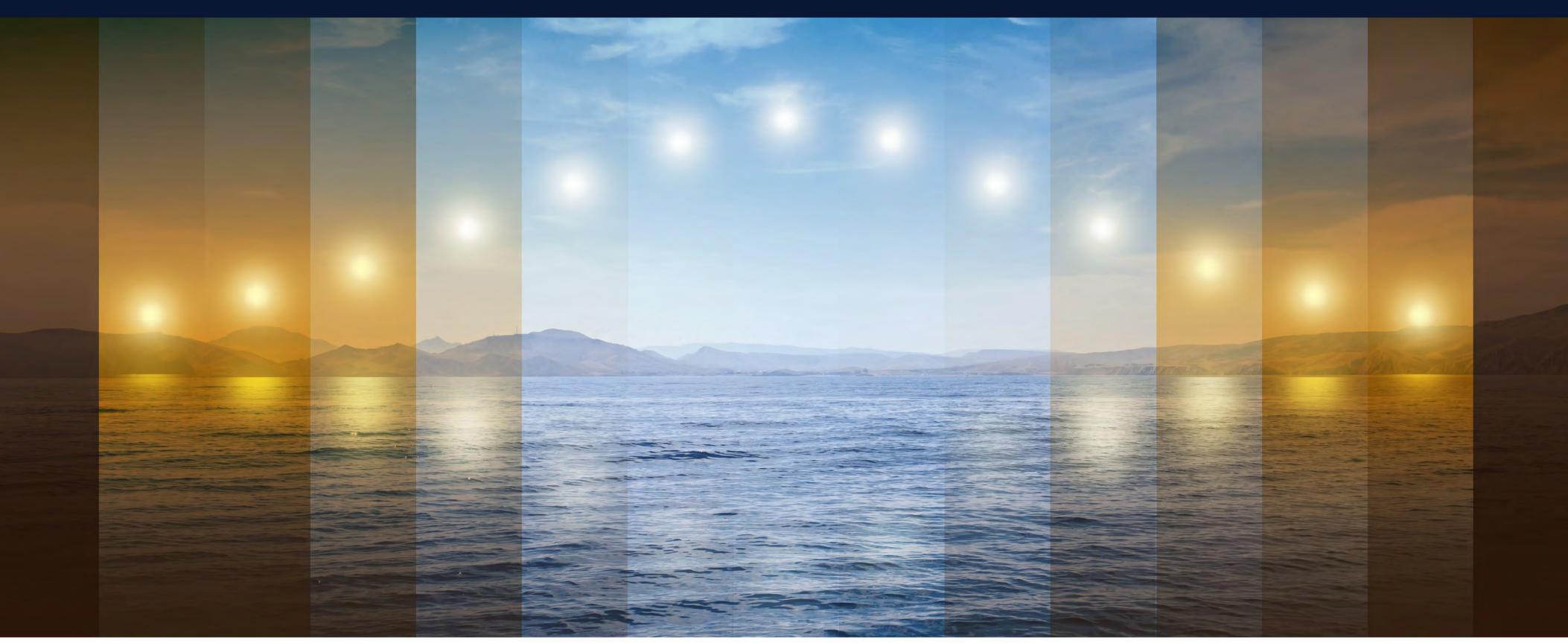






### DARWIN TM COMFORT

### DYNAMIC LIGHTING ENVIRONMENT THAT MIMICS NATURAL SUN PATTERNS



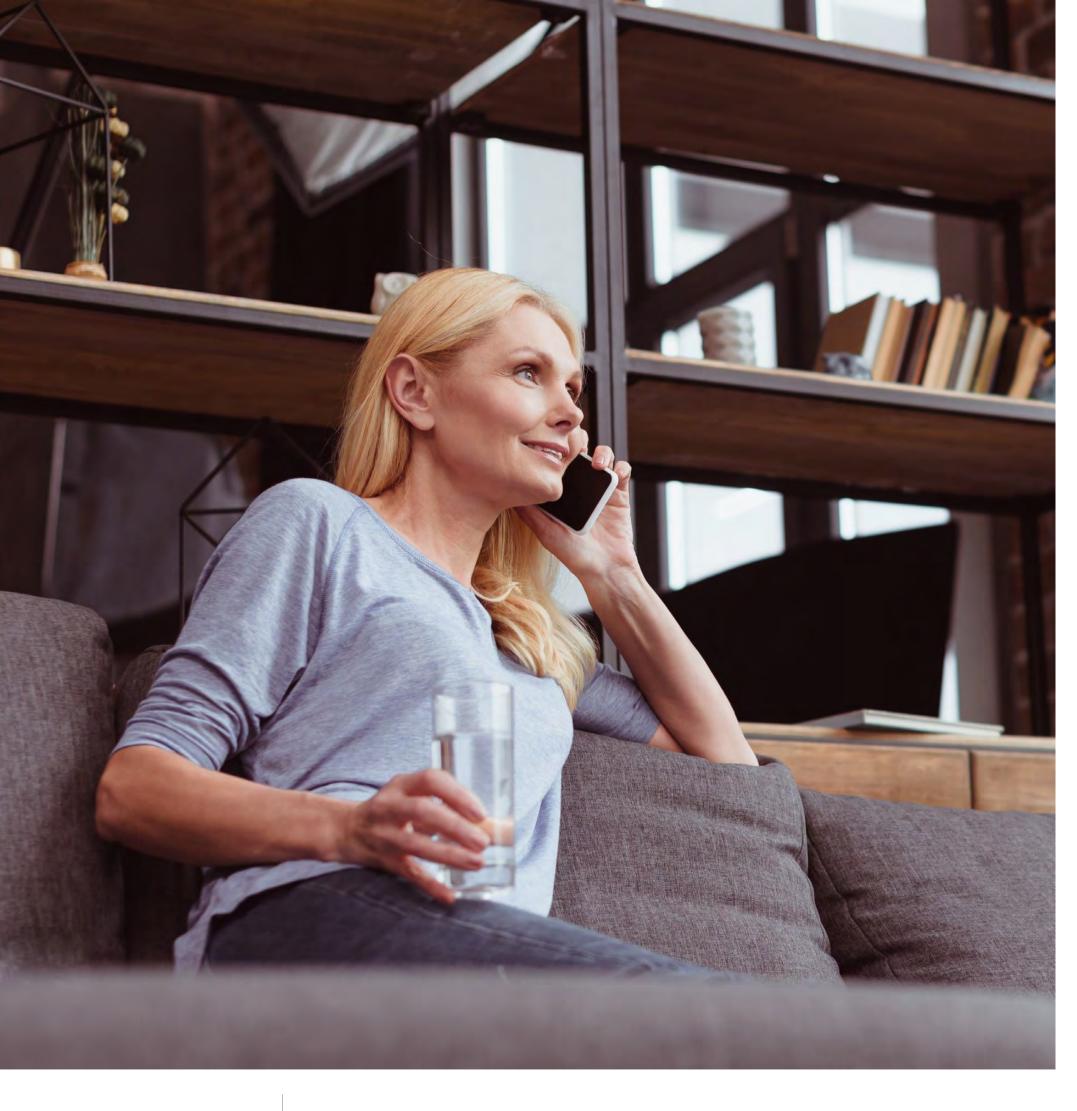




DARWIN™ experiences are pre-programmed into the home and create specific conditions to meet your needs







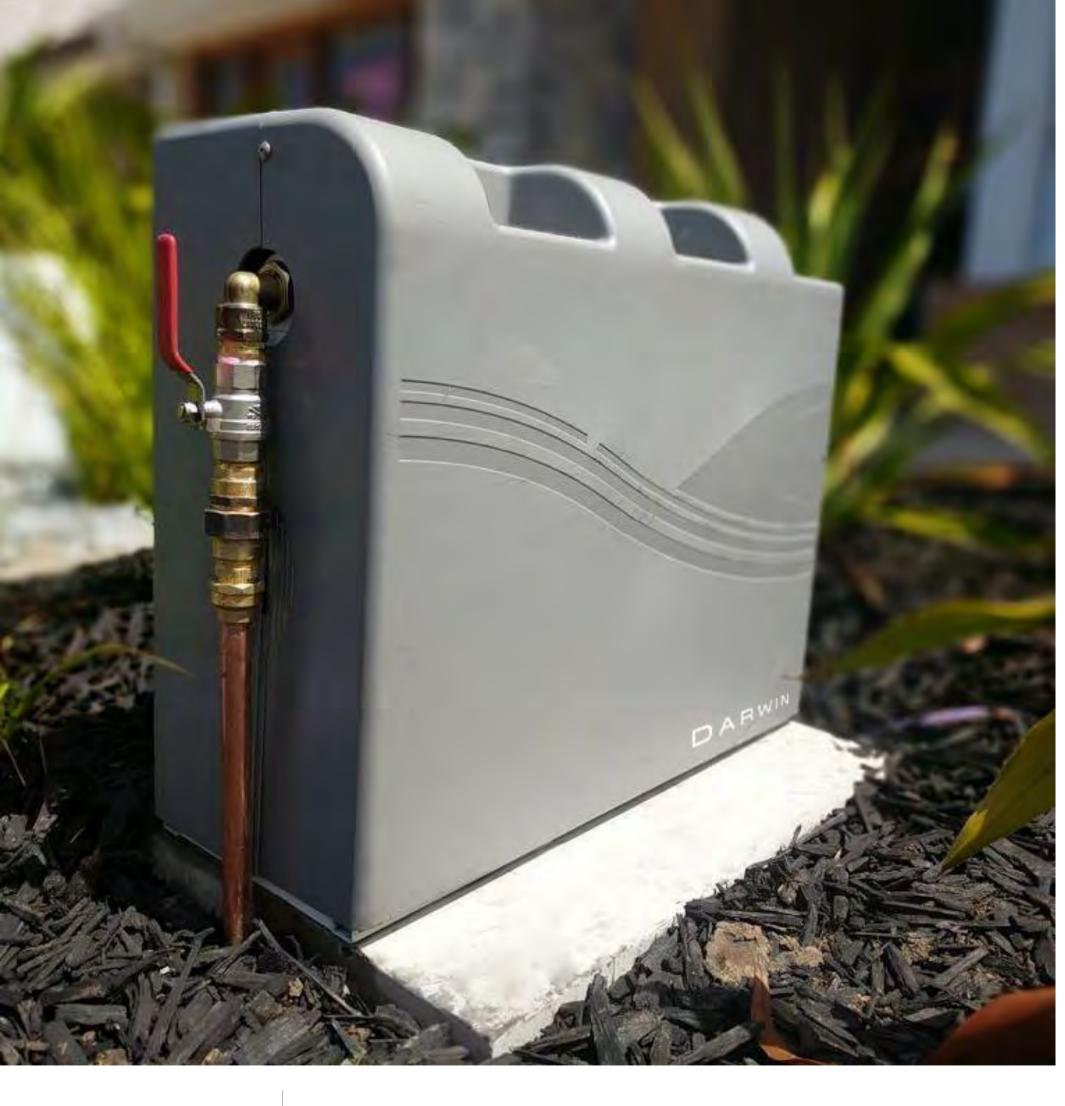


The DARWIN™ Water Filtration System improves water quality throughout the entire home through best-in-class water filtration.

This System Provides:

- Great tasting water
- Help softening skin and hair
- Savings for you and the planet



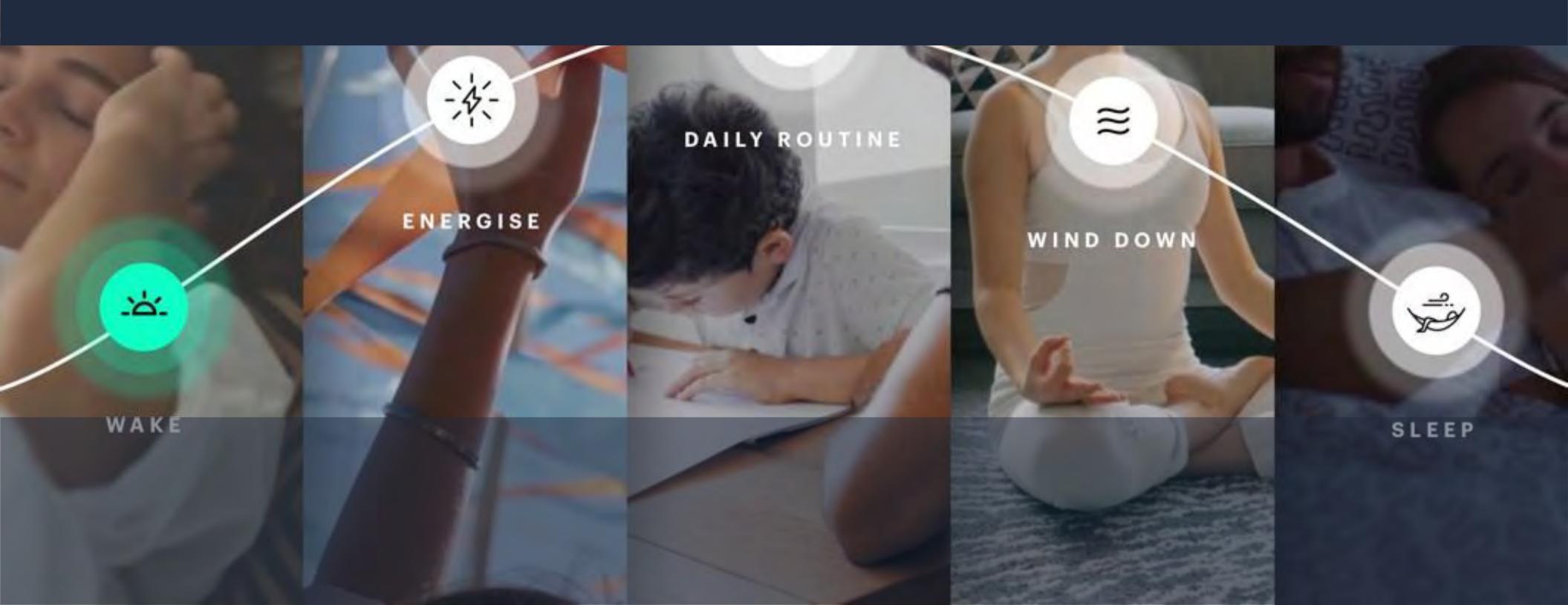


## PURE WATER FROM EVERY TAP

Every drop of water that enters the home is filtered through a whole-home system that helps remove sediment and chlorine to provide great tasting water throughout the entire home



### THE DARWIN<sup>TM</sup> EXPERIENCE







The DARWIN™ Sleep Environment recognises that sleep is vital to health and wellbeing, and helps residents gain restorative sleep like never before.

### This Environment Includes:

- Circadian Downlights
- Blackout Blinds
- Sonos Speakers

### Experiences Include:

- Dawn Simulation Experience
- Go-to-sleep Experience
- Wake-Up Experience



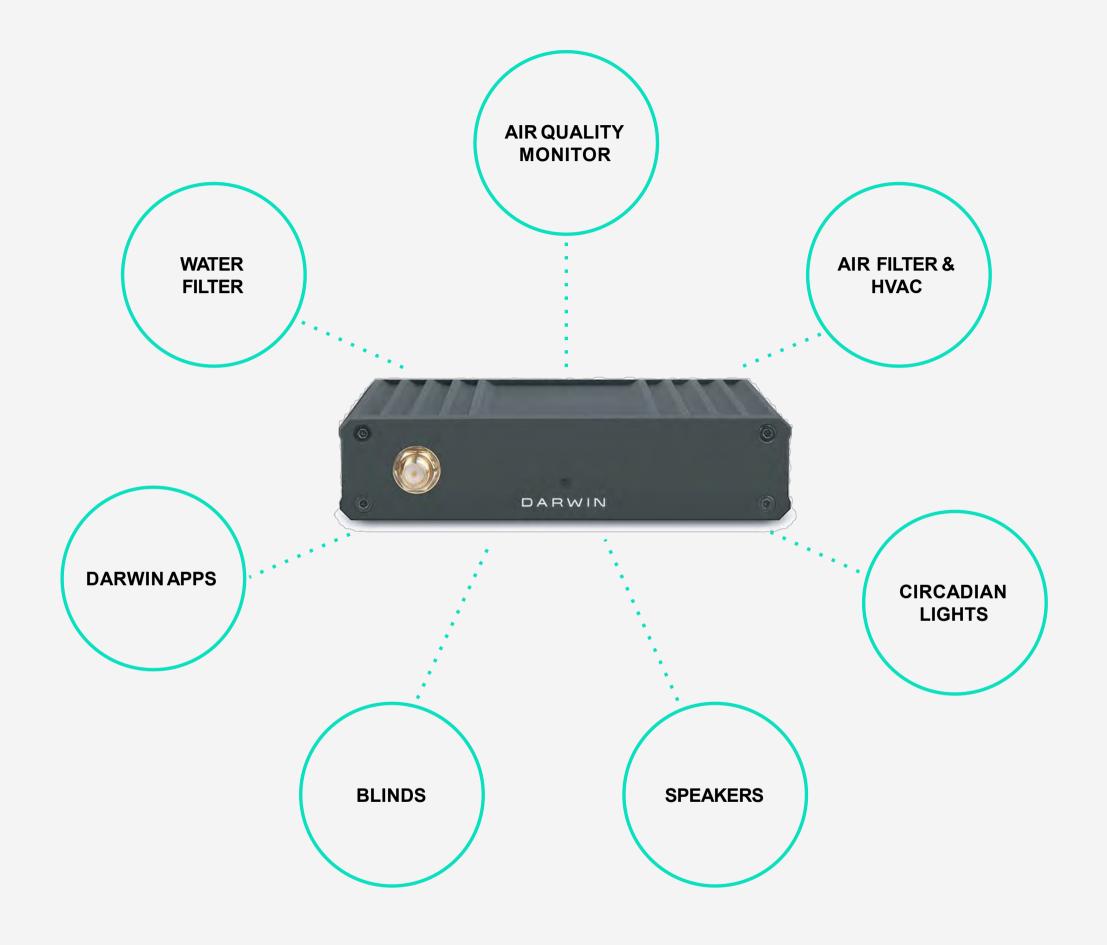


# THE BRAIN AND HEART OF YOUR WELLNESS HOME

The master controller and intelligence backbone of the DARWIN™ Ecosystem, the DARWIN Hub communicates to the DARWIN elements in the home to create conditions supportive of human health and wellness.



THEGLUE
THAT
BRINGS THE
WELLNESS
ECOSYSTEM
TOGETHER





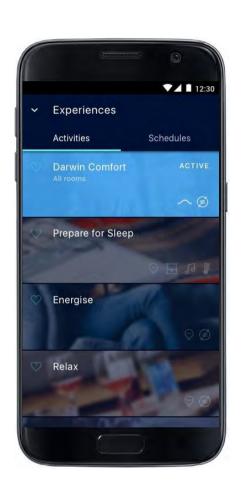
## DARWINTMIN THE PALMOF YOUR HAND



Indoor Air Quality Data



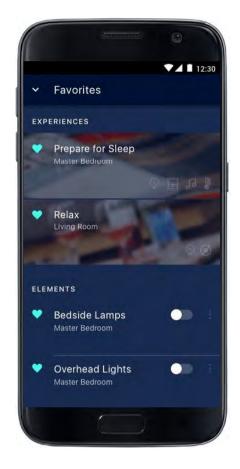
Outdoor Air Quality & Weather Data



Wellness Experiences



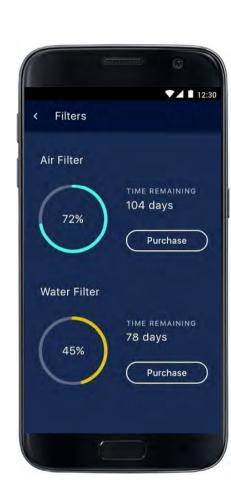
Sleep Schedules



Favorites

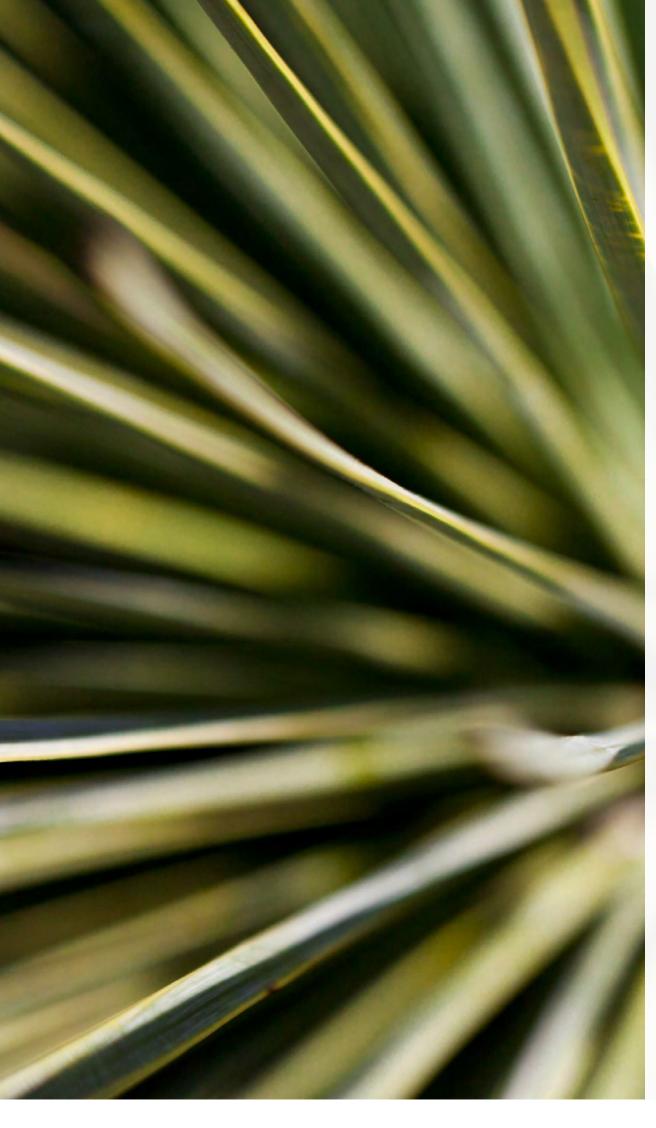


**Element Control** 



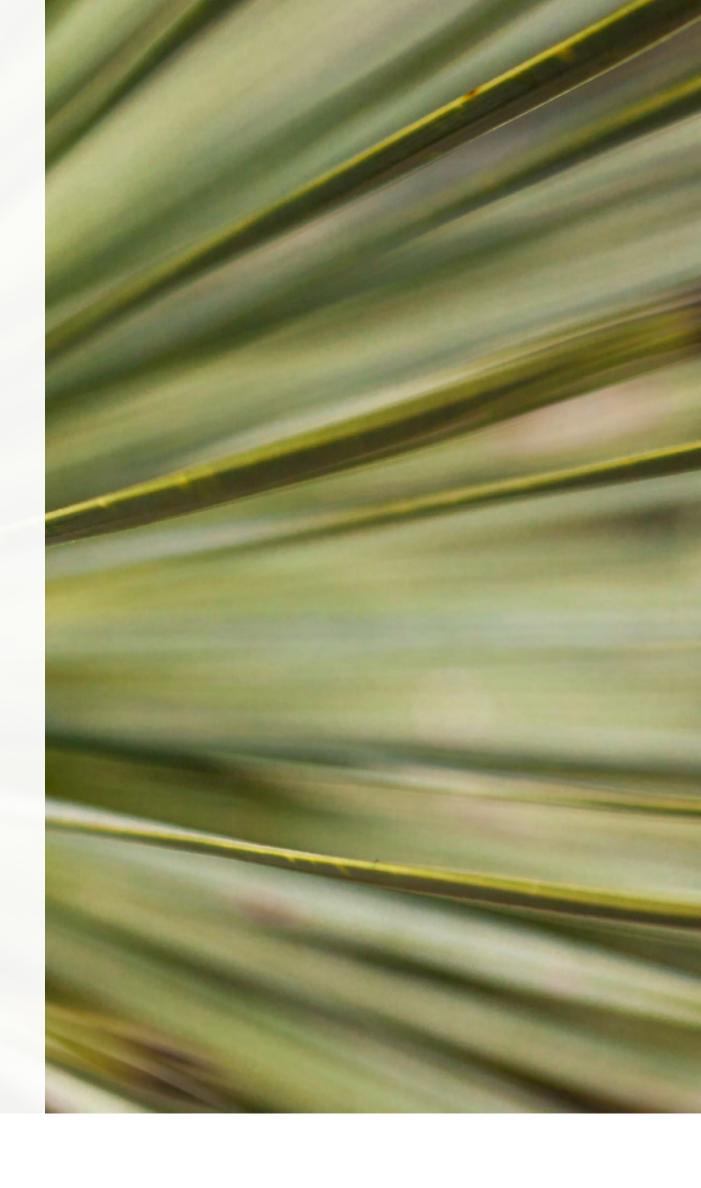
Filter Monitoring



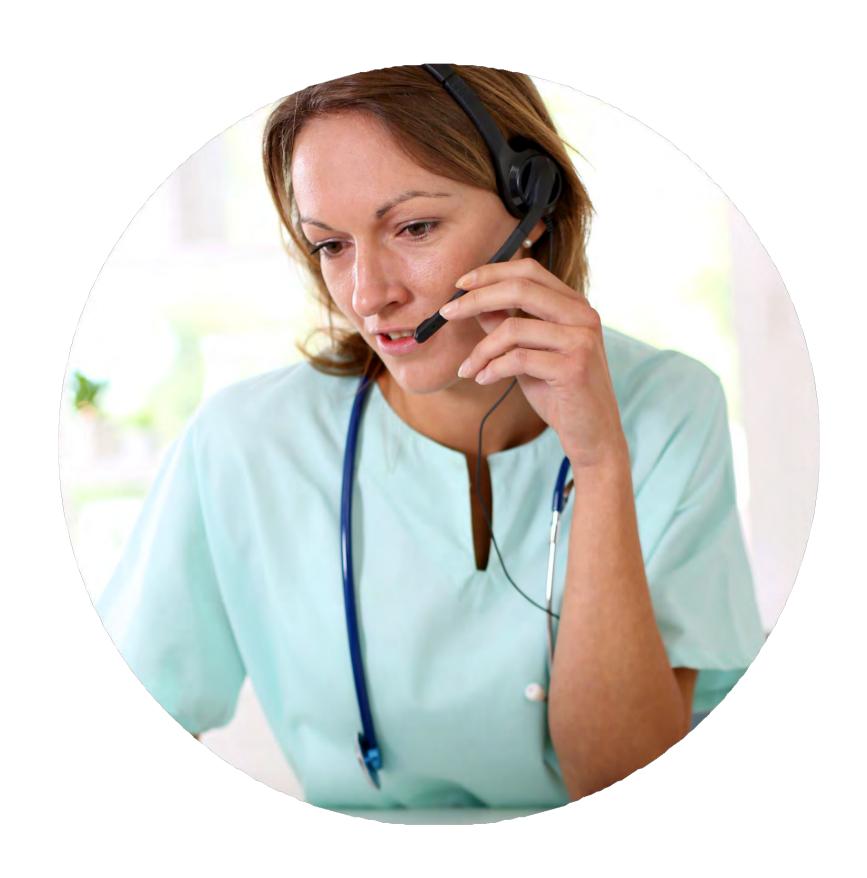


WELLNESS PROGRAMMING

### Mayo Clinic Preferred Response Program (a component of Darwin Premier)



### MAYO CLINIC PREFERRED RESPONSE PROGRAM



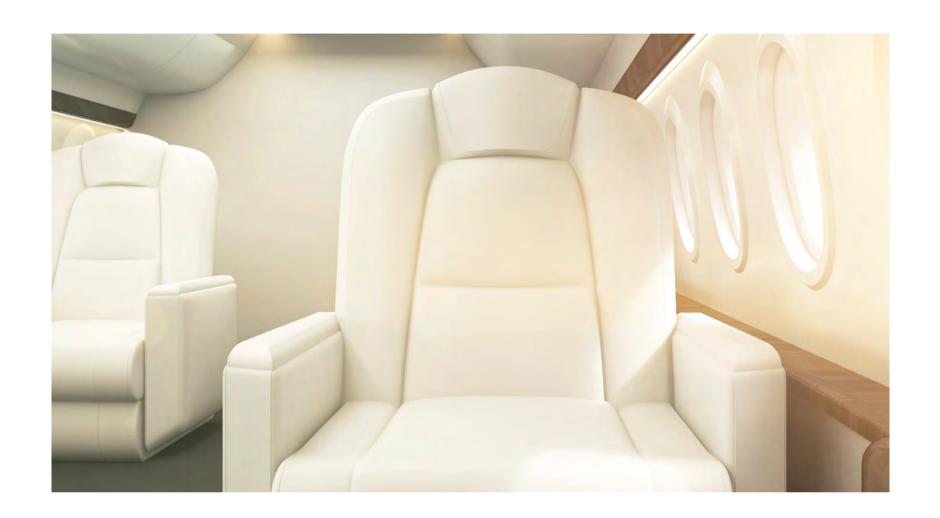
### ASK MAYO CLINIC (24/ 7 NURSE LINE)

- Highly trained and experienced Mayo nurses direct patients to care when they need it, avoiding unnecessary care; support public health outbreaks like H1N1 & Ebola and transitions in care
- Symptom assessment
- Referrals
- Care point call summary delivery

### **ASK MAYO CLINIC ONLINE**

- Electronic self-entry triage tool built from Mayo
   Clinic expert knowledge. Same tool used by
   Mayo Clinic nurses as part of the call service.
- Symptom assessment
- Care point call summary delivery

## MAYO CLINIC PREFERRED RESPONSE PROGRAM



### PREFERRED RESPONSE

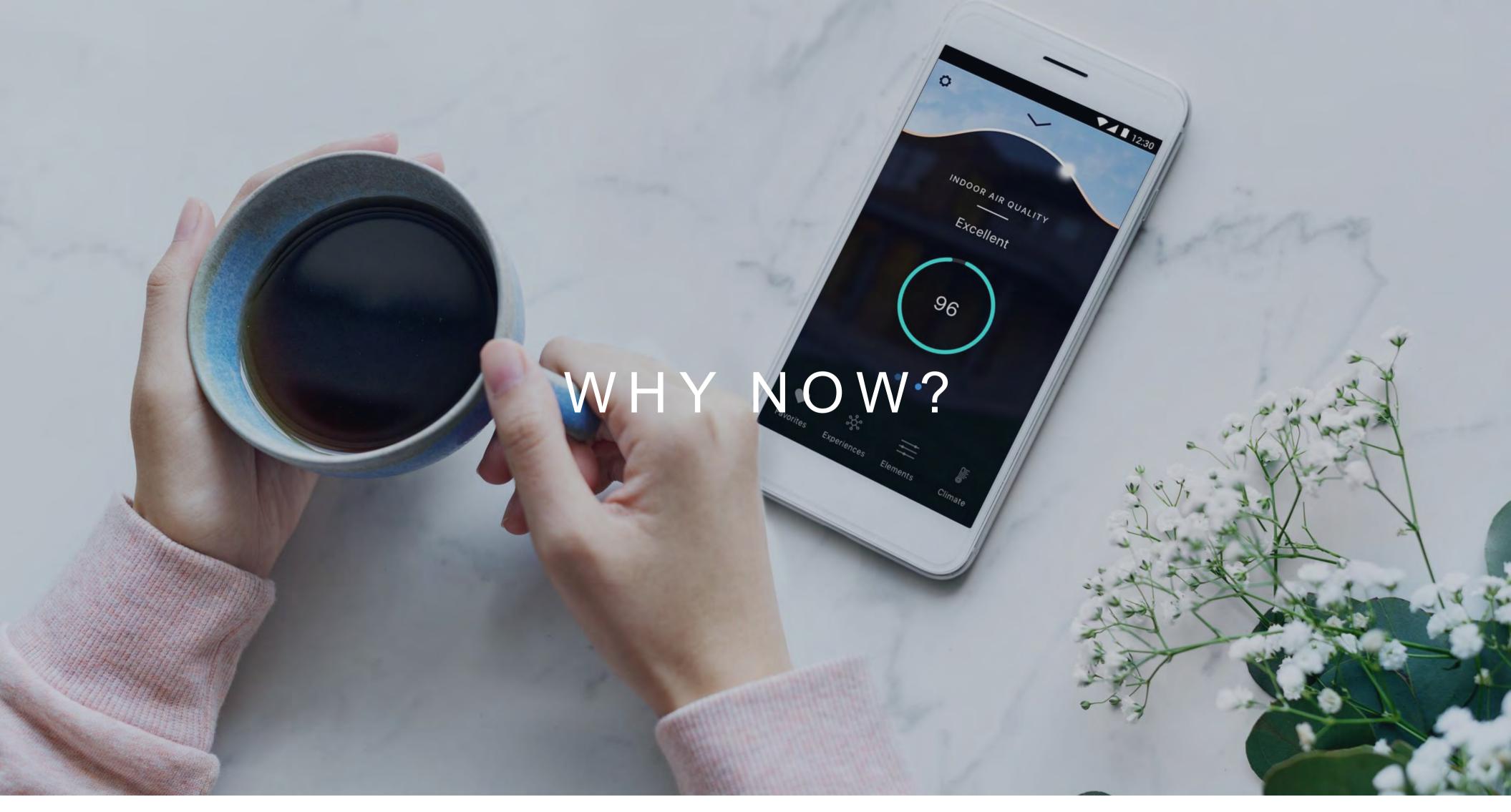
- Includes 24/7 access to Mayo Clinic professionals

   (i.e. Ask Mayo Clinic Nurse Line, physician oncall team)
- Mayo Clinic appointment assistance
- Coordination of local medical care
- Access to Mayo Clinic physicians and alumni
- Pre-trip planning
- Medical evacuation



#### IN HOME MEDICAL KITS

- Medical kits designed by Mayo staff to provide onsite medical supplies and equipment most likely needed to support emergent situations until the individual can be transported for medical care
- Created for home, aircraft and yachts (2 different kits)
- Telephonic access to Mayo Clinic physicians for emergency
- Training for staff and crew
- Option to include Automatic External Defibrillator (AEDs)



#### THE BUSINESS CASE

## Wellness Homes

Significant sales premiums and increased absorption rates

#### **DEVELOPERS ANTICIPATE PREMIUMS FOR WELLNESS**

A panel of wellness real estate developers shared preliminary numbers that indicate that wellness drives impressive returns. Developers also reported that "well-homes" sell far faster than their traditional equivalents. The results:

Wellness-Branded, Single-Family Homes Wellness Rentals Wellness-Branded Hotels

5-35%
PREMIUM
7-10%
PREMIUM
15-30%
PREMIUM

(average daily rate)

"Offer healthy builds before your competition does"

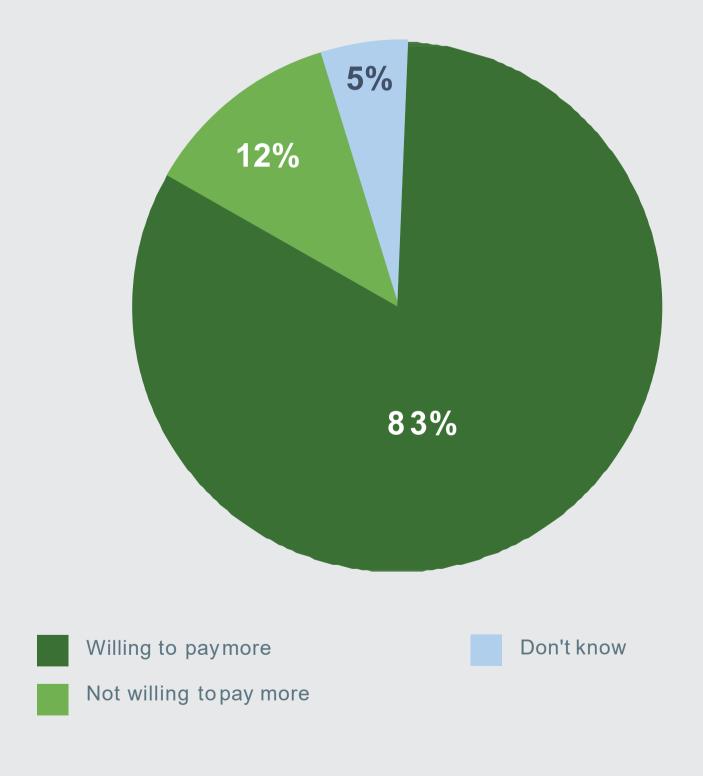
**MULTIFAMILY HOUSING NETWORK** 



<sup>\*</sup> Global Wellness Summit Identities Top 10 Future Shifts in Wellness (short report). (n.d.). <a href="http://www.globalwellnesssummit.com/">http://www.globalwellnesssummit.com/</a> globalwellness- summit-identifies-top-10-future-shifts-in-wellness/

#### ACCORDING TO HOME BUILDERS AND REMODELERS

DODGE DATA & ANALYTICS, 2018



# Are Home Buyers Willing to Pay More for Healthy Homes?

The vast majority of home builders and remodelers are recognizing that buyers are willing to pay more for healthier homes.

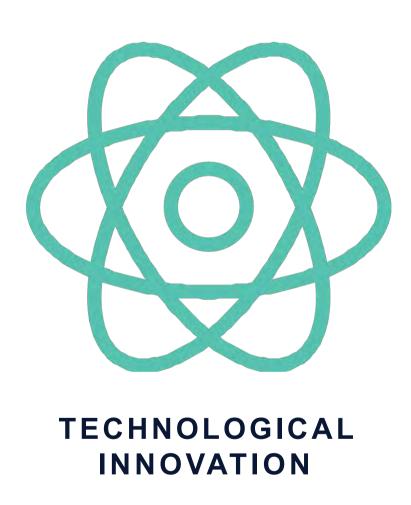
(n=232 home builders and remodelers in the US)

Source: Dodge Data & Analytics. Green and Healthier Homes.; 2015. https://www.nahb.org/~/media/Sites/NAHB/Research/Priorities/green-building-remodeling-development/Green-and-Healthier-Homes 2015.ashx.

## OUR VISION

Our vision is to be the world's greatest catalyst for improving the physical, mental and societal health and wellbeing of people around the world by creating healthy environments where they live and work.





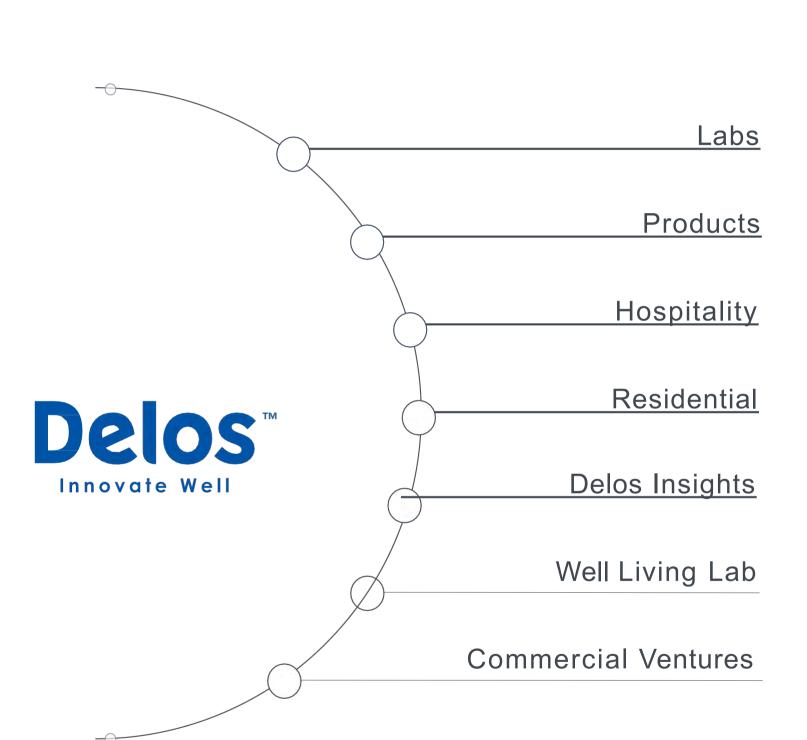


## THE EVOLUTION OF DELOS





#### **DELOS WELLNESS REAL ESTATE**



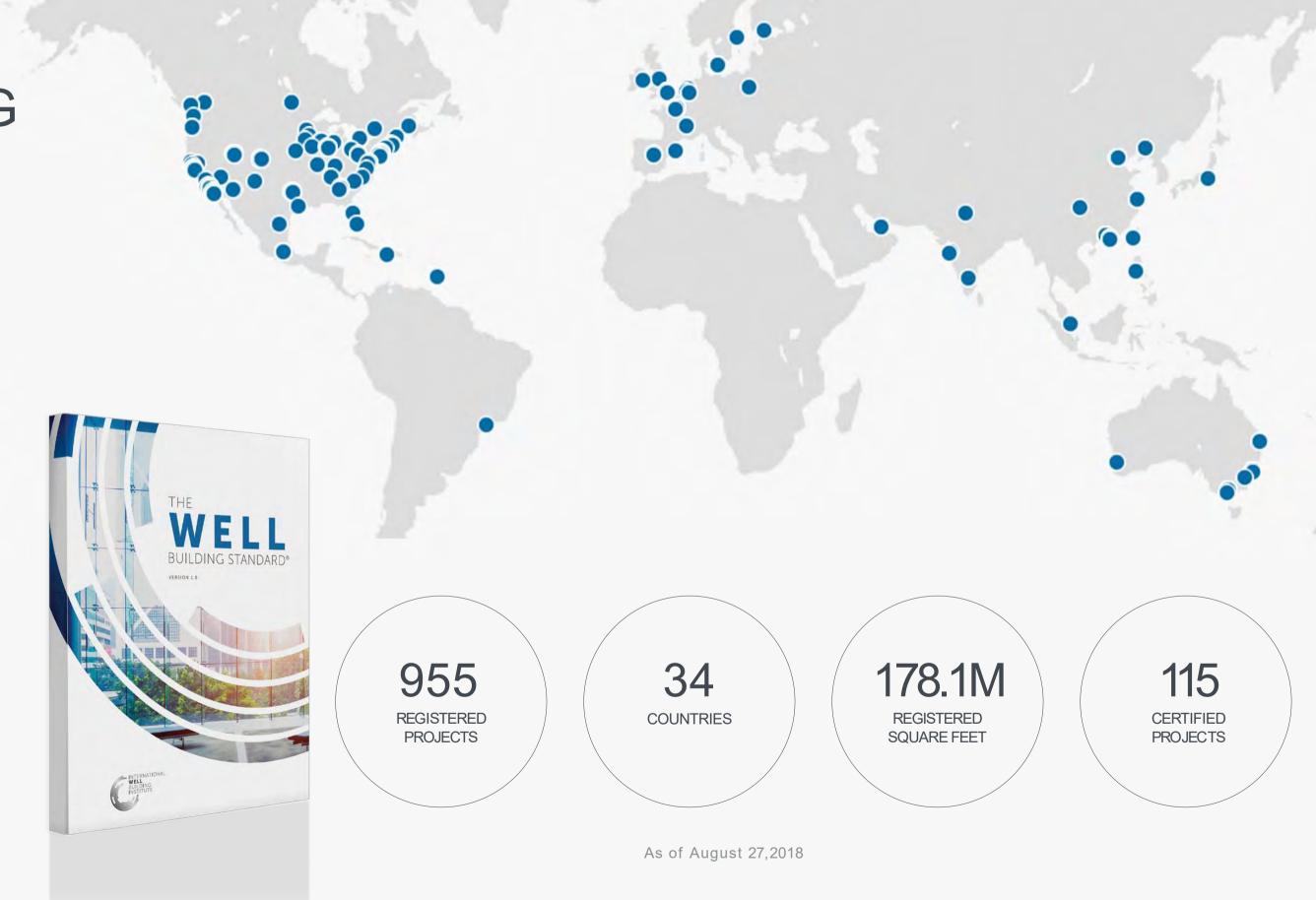
Delos prides itself in engaging with the most talented minds in the industry. Our team is comprised of individuals with expertise across the fields of real estate, technology, building and behavioral sciences, and the health and wellness industries.

#### WELL BUILDING STANDARD™: MARKET PENETRATION

## THE WELL BUILDING STANDARD TM

The WELL Building Standard was pioneered by Delos™ and is administered by the International WELL Building Institute™.

- Is about creating healthier, more productive spaces 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 publichealth.
- Measures, certifies, and monitors building features that impact health and well-being.







STAY WELL ROOMS



## CLEMSON / CORNELL STUDY (2017)

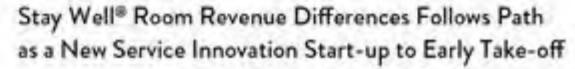


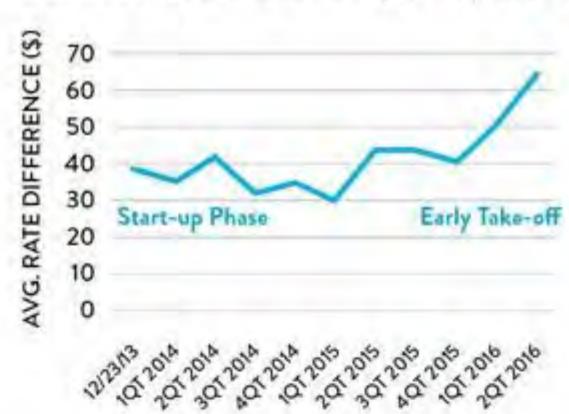
The Financial and Market Impacts of Wellness Inspired Guest Rooms on Hotel Performance AN EXPLORATORY ANALYSIS OF A NEW SERVICE INNOVATION

Professor Aleda Roth, Clemson University | Ms. Min Kyung Lee, Clemson University | Professor Rohit Verma, Cornell University

Empirical Findings: Average Rate Differences for Stay Well® Rooms on the Rise









A DELOS AND MAYO CLINIC COLLABORATION

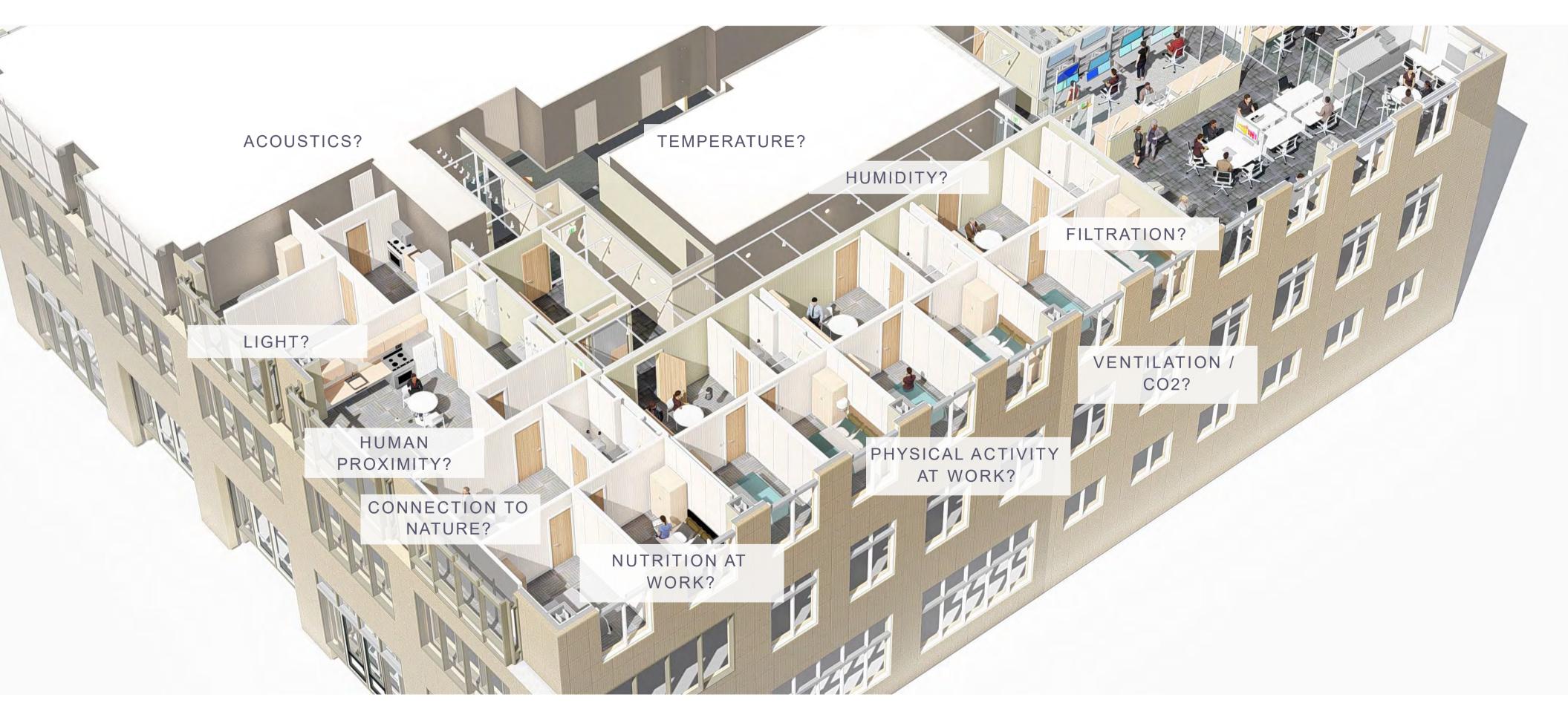
The first lab exclusively committed to researching the real-world impact of the indoor environment on human health and wellness.





## Well Living Laboratory

Evaluating Relative Impacts on People in Office and Residential Environments





"I go to nature to be soothed and healed, and to have my senses put in order."

John Burroughs



"Sleep is the best meditation."

Dalai Lama



"I love sleep. My life has a tendency to fall apart when I'm awake, you know?"

**Ernest Hemingway** 

