



**BUILDING**  
INNOVATION 2018

National Institute of  
BUILDING SCIENCES  
CONFERENCE & EXPO

# National Institute of Building Sciences

*Provider Number: G168*

## POE in Action: Integrated Application to Support Quality, Affordability, and Access at Sutter Health

Speakers:

Shahrokh Sayadi, Senior Principal Architect, Sutter Health

Jill Bergman, Project Principal, HDR

Jeri Brittin, PhD, Director of Research, HDR

Terri Zborowsky, PhD, Design Researcher, HGA Architects and Engineers

*Course Number: TH3B*

*January 11th, 2018*





**BUILDING  
INNOVATION** 2018

National Institute of  
BUILDING SCIENCES  
CONFERENCE & EXPO

Credit(s) earned on completion of this course will be reported to **AIA CES** for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with **AIA CES** for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

---

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.





**BUILDING  
INNOVATION** 2018

National Institute of  
BUILDING SCIENCES

CONFERENCE & EXPO

## Course Description

---

Post-occupancy evaluation (POE) is frequently used to determine the success of healthcare architecture projects. Yet, definition and application of healthcare facility POEs has been very inconsistent across the industry, with varied content, such as technical and mechanical assessments, sustainability measures and/or evaluation of occupant satisfaction with an environment. Sutter Health, a leading health system based in Northern California, has engaged two architecture firms, HDR and HGA, to define and leverage facility POE purposefully and proactively to drive ongoing improvement in its Expedited Project Delivery (EPD) program. The objective of the EPD program is to validate and deliver clinics twice as fast, for 20% less, with a 20% reduction in post-project non-clinical operational costs, and an increase in occupant satisfaction. Achievement of this objective supports Sutter Health's agility in an evolving healthcare market, while ensuring fidelity to its paramount goals of quality, affordability and access. The presentation will consist of three parts: (1) Sutter Health's vision and goals, and why and how facility evaluation is essential to success; (2) the multi-disciplinary process of developing an evaluation framework, validated measures and an ongoing implementation and feedback plan; and (3) results from the first 1½ years of the EPD program.





**BUILDING** 2018  
INNOVATION

National Institute of  
BUILDING SCIENCES  
CONFERENCE & EXPO

# Learning Objectives

---

At the end of the this course, participants will be able to:

1. Describe the range of definitions of “POE,” and how to prioritize focus areas based on organization goals.
2. Delineate a cross-disciplinary process to develop and validate facility performance measures.
3. Understand how to operationalize “occupant experience” to support quality improvement.
4. Articulate inter-relationships of facility design, occupant experience, cost, and quality.



**Shahrokh Sayadi,  
Senior Principal Architect,  
Sutter Health**



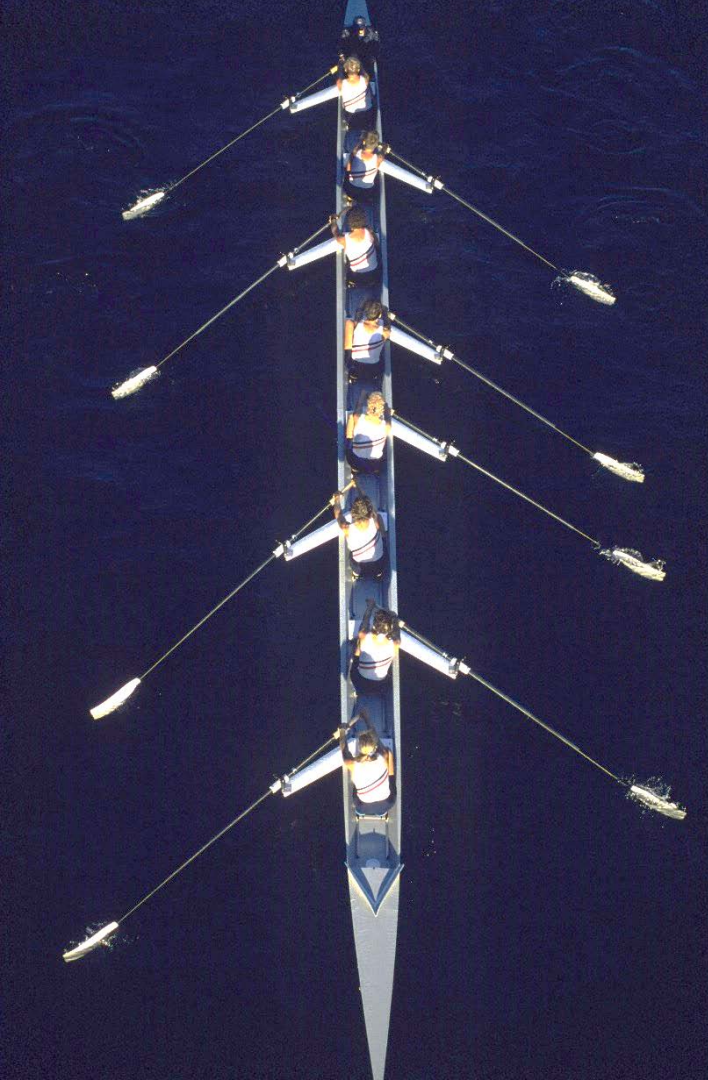
**Jill Bergman,  
Project Principal,  
HDR**



**Terri Zborowsky,  
Design Researcher,  
HGA**



**Jeri Brittin,  
Director of Research,  
HDR**



01

About Sutter Health and the EPD Program

02

Beyond "POE": Envisioning an Ongoing Facility Performance Framework

03

Collaborative Approach and Tool Development

04

Evaluation Implementation and Learning





**01**

# About Sutter Health and the EPD Program



- Not-for-profit
- 50,000 employees
- 5,000 doctors
- 30 hospitals
- 5,000 beds
- 30,000 births per year
- 50 ER / Urgent care centers
- 60 testing labs
- 60 cancer / surgery centers
- \$500M per year on new assets and renovations





### **Broad Reach**

Largest contiguous not-for-profit health system in the US



### **Diverse Patients**

100+ languages

Serving some of the richest and poorest areas in the nation



### **National Health Impact**

1 in 100 Americans receives care at Sutter



### **Economic Contributor**

Among the largest US employers



### **Community impact**

\$3M of charity care provided every week

# SUTTER HEALTH SYSTEM GOALS





## Expedited Project Delivery (EPD) Charter

### Project Objective/Value Proposition

*The main objective of the EPD program is to Validate and deliver clinics faster cheaper, better, with a reduction in the post-project non-clinical operational costs, and an increase in staff satisfaction with the space. This will allow us to be agile and fast-moving in response to an ever changing healthcare market.*



# SUTTER HEALTH CHARTER

## EPD Command Center Charter Goals

### Project Occupant Experience Survey Tool

*Create & develop an effective pre- post- survey tool that is meaningful, useful, and is driving to improved bases of design (BoDs).*

### Occupant Experience

*How satisfied occupants are with their project space, per Occupant Experience Evaluations. (E.g., privacy, thermal comfort, cleanliness, wayfinding, parking, access to nature, etc.)*

**Intention to create a framework that can grow and adapt across projects.**

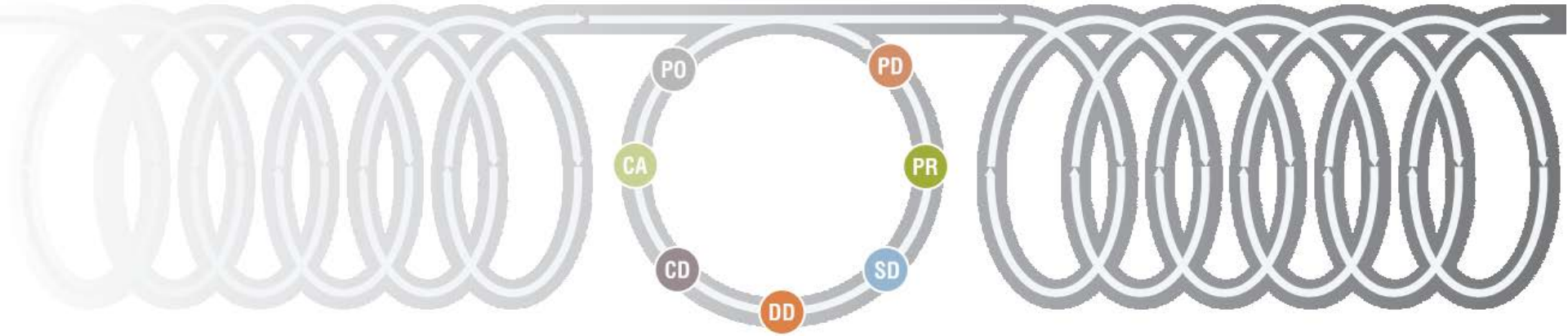
## Benefits of Measuring Occupant Experience (OE)

- Comparison of facilities across the system to identify needs and priorities
- Improved facility planning decision-making
- Continual OE improvement in EPD program facilities



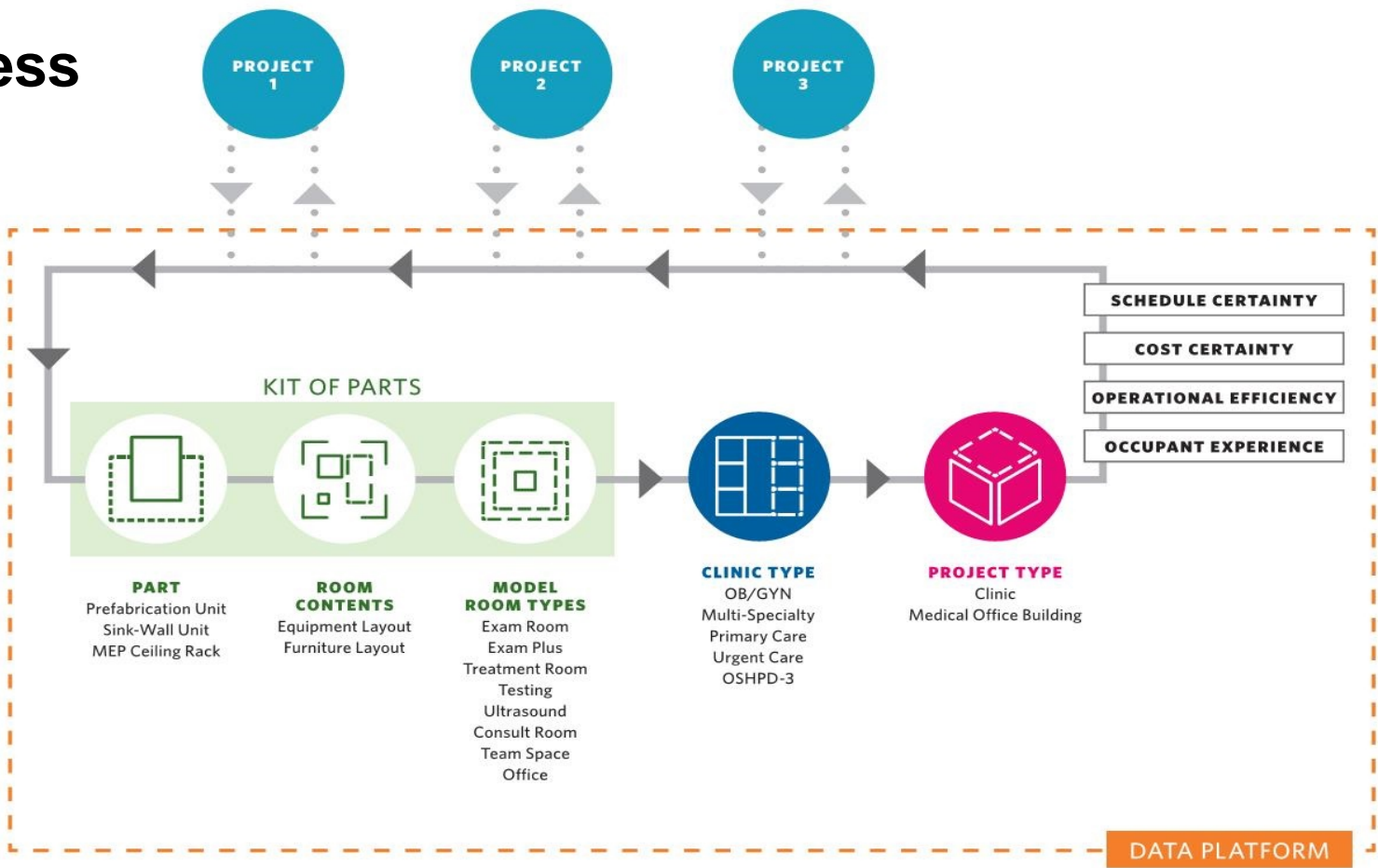
# PATH

- Conceive integration of evaluation with project delivery
- Develop measurement framework





# EPD Process





# **02** Beyond “POE”: Envisioning an Ongoing Facility Performance Framework

# BEYOND “POE”: EVALUATION HAS VALUE ACROSS THE LIFECYCLE

## Related to a Specific Project

New, Renovated, or Replacement Facility

- Existing facility prior to project
- Mock-up's and/or first built phases
- New facility after full occupancy

## System Assessment

Across the Facility Lifecycle

- Compare the effectiveness of current facilities based on key performance criteria
- Compile learning from previous individual facility evaluations

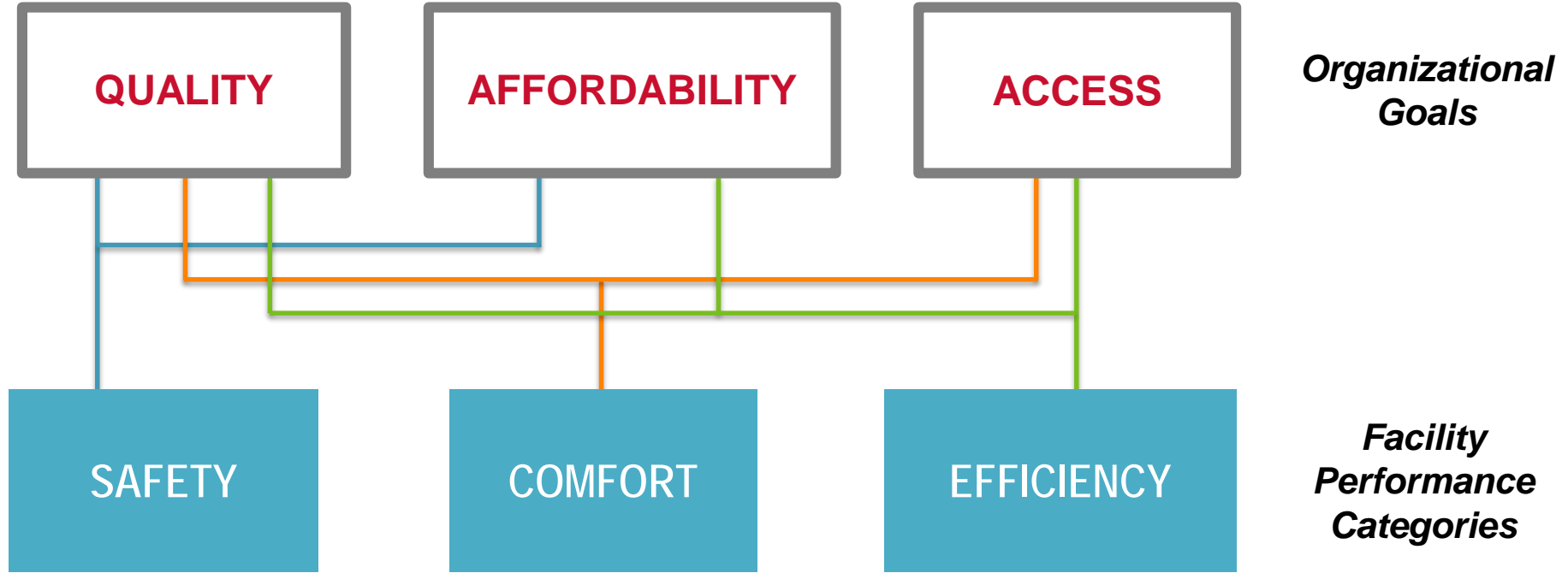
INFORM / OPTIMIZE  
DESIGN

MEASURE  
“SUCCESS”

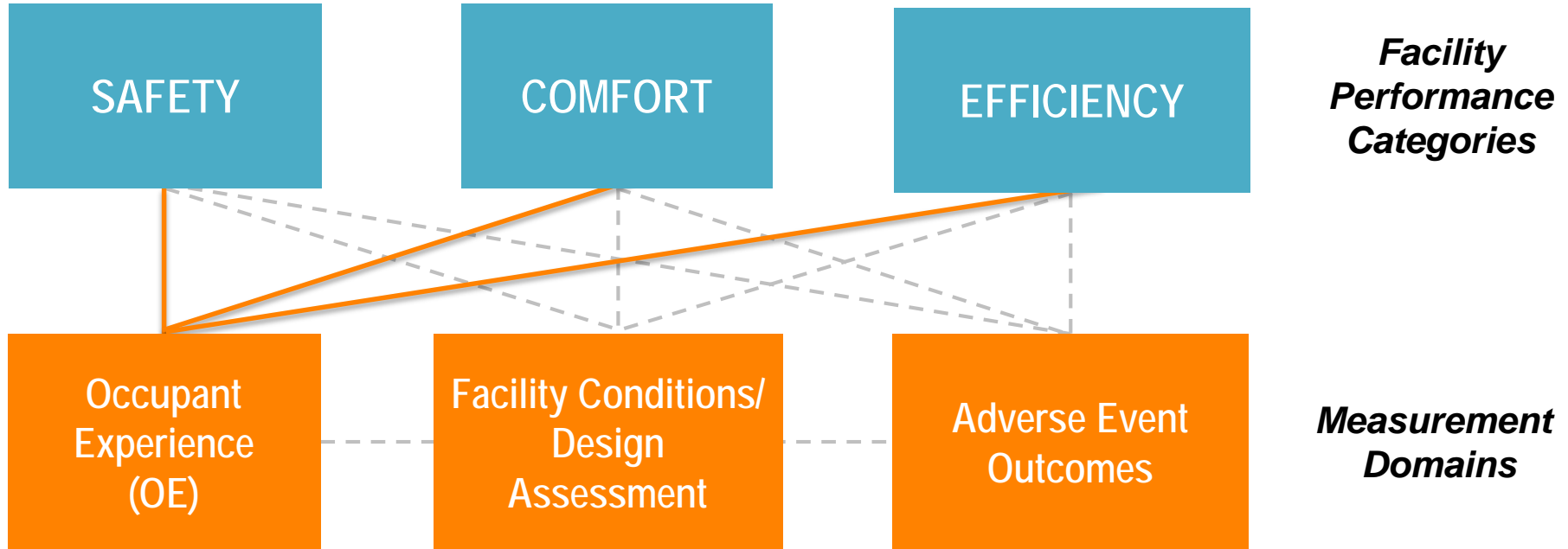
INFORM BASES OF DESIGN  
FOR FUTURE TEAMS



# SYSTEM GOALS AND FACILITY PERFORMANCE CATEGORIES



# PERFORMANCE CATEGORIES AND MEASUREMENT DOMAINS



# PRIORITY OCCUPANT EXPERIENCE CONSTRUCTS

“Relevant, Useful and Simple”



Privacy (*Visual, Acoustical*)



Acoustical Comfort



Thermal Comfort



Physical Comfort / Ergonomics



Lighting



Safety



Convenience (*Access, Amenities, Parking*)



Aesthetics (*Attractiveness, Cultural Appropriateness*)



Cleanliness



Work Space Adequacy



Collaboration/Communication



Wayfinding

# 03 Collaborative Approach and Tool Development



# DEFINING A SURVEY INSTRUMENT

- Developed OE measurement framework and specific definitions for priority constructs
- Consolidated items/scales previously developed and tested by HDR and HGA—intensive collaborative work sessions



# SCALE EXAMPLE: WAYFINDING

*“Wayfinding” refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space.*

## Wayfinding and Signage

Please indicate the extent to which you agree or disagree with each of the following statements regarding the signage and graphic directions in the clinic.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Signage and graphic directions from the exterior of the building to the clinic entrance are easy to follow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am interrupted frequently by patients or visitors needing to find their way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The entrance to the clinic is easily identifiable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Signage and graphic directions within the clinic are easy to follow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The layout and arrangement of areas within the clinic seem logical.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is appropriate signage for non-English speaking patients and families.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# SCALE EXAMPLE: COLLABORATION

*“Collaboration” in health care is defined as health care professionals assuming complementary roles and cooperatively working together, sharing responsibility for problem-solving and making decisions to formulate and carry out plans for patient care.*

O'Daniel M, Rosenstein AH. Professional Communication and Team Collaboration. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 33. Collaboration Scale validation: Hua et al. 2012.

## Collaboration

Aspects of your physical work space can affect the quality of collaboration with your colleagues. Please indicate the extent to which you agree or disagree with each of the following statements according to your experience with your colleagues in the clinic.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We work together in a well-coordinated fashion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have very few misunderstandings about what we do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We accomplish tasks smoothly and efficiently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is much confusion in the way we accomplish tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

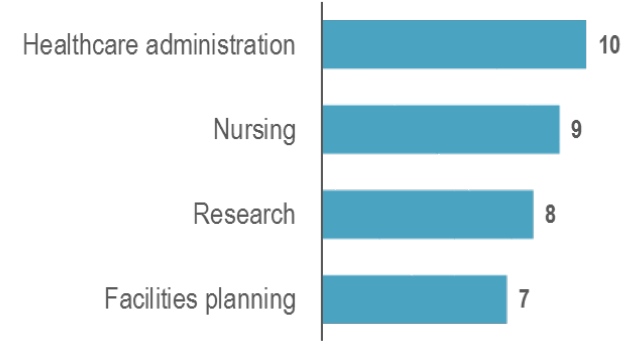
# CONTENT VALIDITY TEST PANEL

- 15 respondents from



- Scored items based on relevance, clarity, and completeness for each scale
- Considered qualitative feedback for improvement
- Refined items accordingly where needed

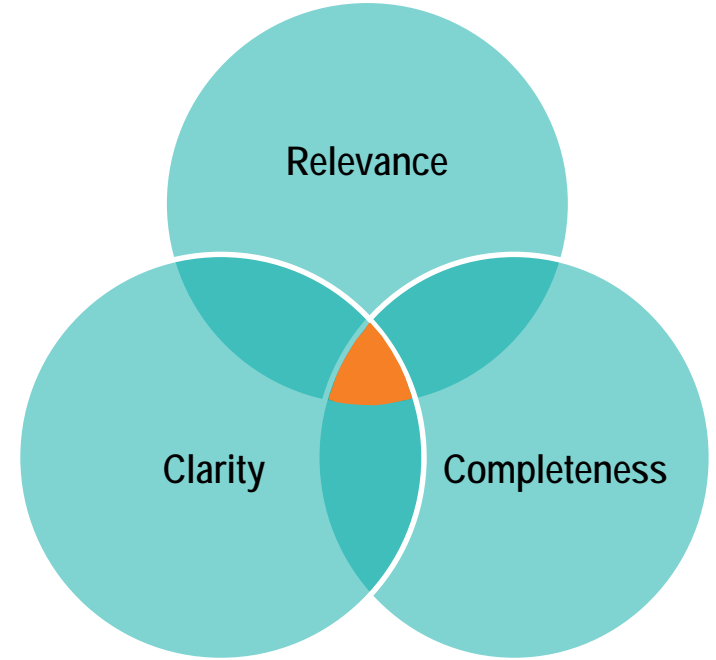
**Number of Respondents  
by Areas of Experience**



# CONTENT VALIDITY TESTING

A panel of experts was asked to evaluate survey questions and items in terms of:

- **Relevance**: How well are the question items related to the construct of interest?
- **Clarity**: How understandable are the question items to survey participants?
- **Completeness**: Are all important aspects of the construct included in the question?





# ETHICS REVIEW

- Protocol *"Evaluation of Sutter Health Ambulatory Facilities"* submitted to an Institutional Review Board (IRB), an independent committee established to assess ethical implications of research protocols involving human subjects
- Determination of Exempt status



April 18, 2017

Jeri Brittin, PhD  
HDR  
8404 Indian Hills Dr.  
Omaha, Nebraska 68114

Dear Dr. Brittin:

SUBJECT: REGULATORY OPINION—IRB EXEMPTION  
Protocol Title: Evaluation of Sutter Health Ambulatory Facilities  
Investigator: Jeri Brittin, PhD

This letter is in response to your request to Western Institutional Review Board (WIRB) for an exemption determination for the above-referenced research project. WIRB's IRB Affairs Department reviewed the exemption criteria under 45 CFR §46.101(b)(2):

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
  - (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

We believe that the research fits the above exemption criteria. The data will be collected in a way so that the subjects can be identified, directly or through identifiers linked to the participants. However, any disclosure of the human subjects' responses outside the research will not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

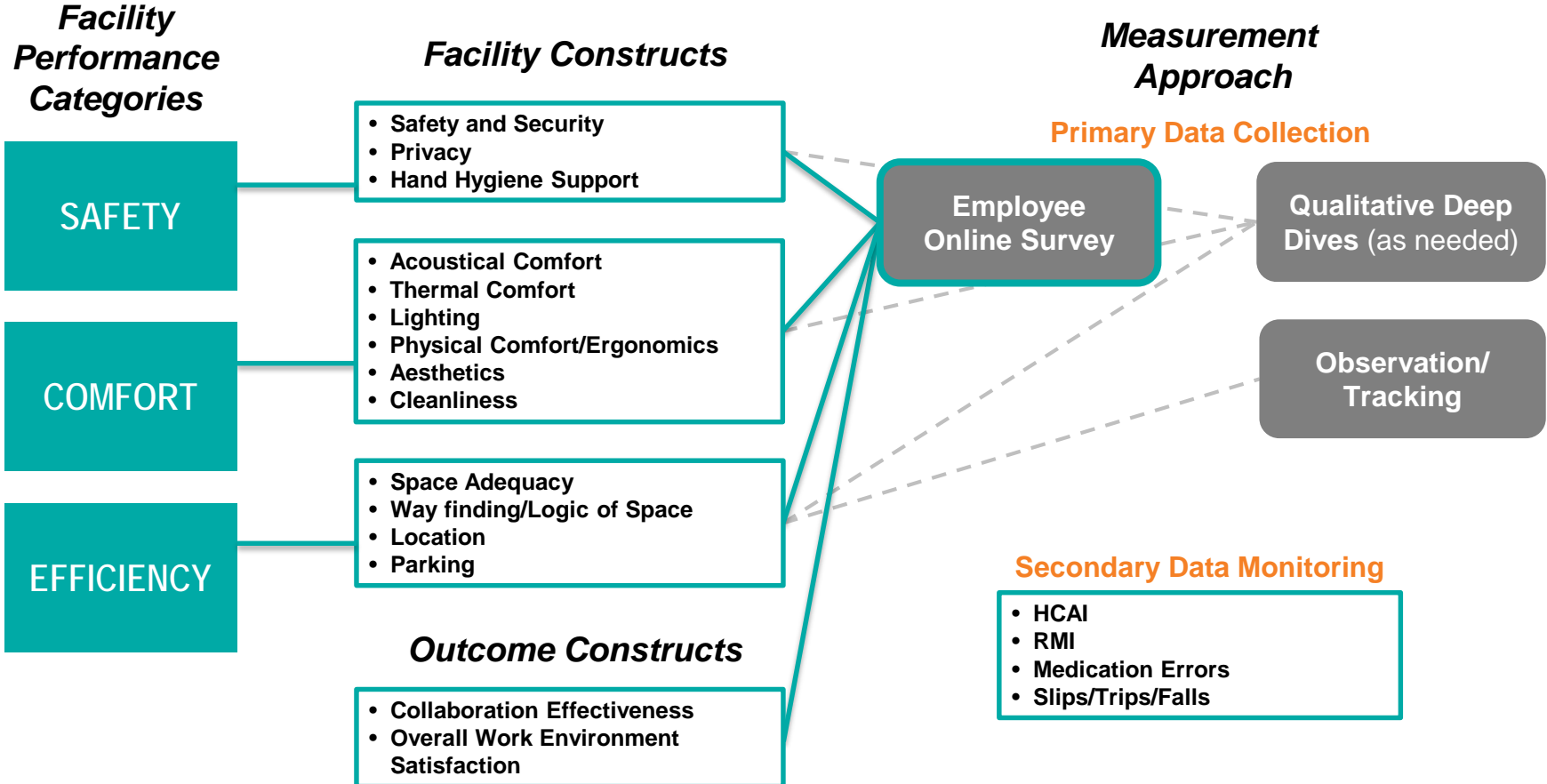
This exemption determination can apply to multiple sites, but it does not apply to any institution that has an institutional policy of requiring an entity other than WIRB (such as an internal IRB) to make exemption determinations. WIRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions. You are responsible for ensuring that each site to which this exemption applies can and will accept WIRB's exemption decision.

Please note that any future changes to the project may affect its exempt status, and you may want to contact WIRB about the effect these changes may have on the exemption status before implementing them. WIRB does not impose an expiration date on its IRB exemption determinations.

## Western Institutional Review Board®

1019 39th Avenue SE Suite 120 | Puyallup, WA 98374-2115  
Office: (360) 252-2500 | Fax: (360) 252-2498 | [www.wirb.com](http://www.wirb.com)

# OE MEASUREMENT FRAMEWORK



# EPD FACILITY PERFORMANCE EVALUATION PROCESS

## *Initial Input/Benchmarking*



## *Ongoing Process*



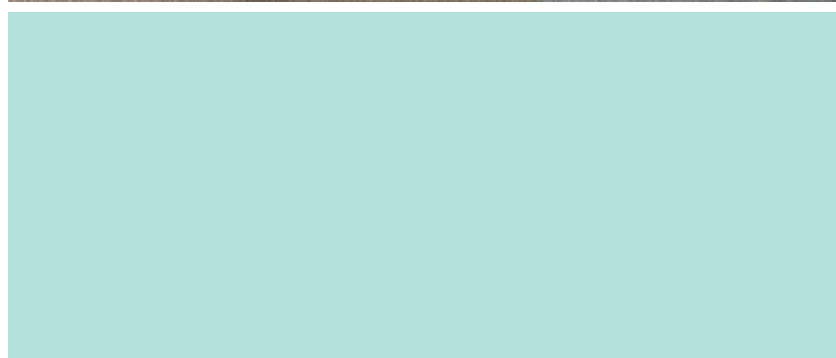
The background is a solid teal color. Overlaid on this are numerous vertical bars of varying heights and widths, some in a lighter shade of teal. Additionally, there are faint, semi-transparent binary digits (0s and 1s) scattered across the background, giving it a digital or data-centric aesthetic.

04

# Evaluation Implementation and Learning

# EVALUATION LAUNCH

7 Sutter Health ambulatory sites  
(May-November 2017)





# BENCHMARKING METHODS

**Approach:** Web-based OE survey

**Sampling:** Census targeting of employees at each of the sites

**Recruitment:** Email invitation and reminders with live link sent by the local leader at each site

**Data Collection:** Qualtrics survey platform; secured storage

**Data Analysis:** Cross-sectional site comparisons at performance category, clinic zone, and construct levels; associations of outcomes with facility perception measures  
(software: SAS v.9.4)



## SUTTER HEALTH | FACILITY PERFORMANCE EVALUATION SURVEY

### Welcome to the Sutter Health Facility Performance Evaluation Survey

#### PURPOSE:

The purpose of this survey is to gather feedback about your experience of the workplace environment at a Sutter Health ambulatory care facility. Results of the survey will help Sutter Health leaders, planners, architects, and designers make more informed planning and design decisions, and may provide insights that affect clinic functionality and ultimately improve the quality of care.

#### PARTICIPATION:

You are being asked to participate in this survey because of your first-hand knowledge as an employee of Sutter Health. The survey takes approximately 15 minutes. The red bar at the top of the page will display your progress as you move through the survey. Your willingness to share your perspective is vital to this effort.

#### CONFIDENTIALITY:

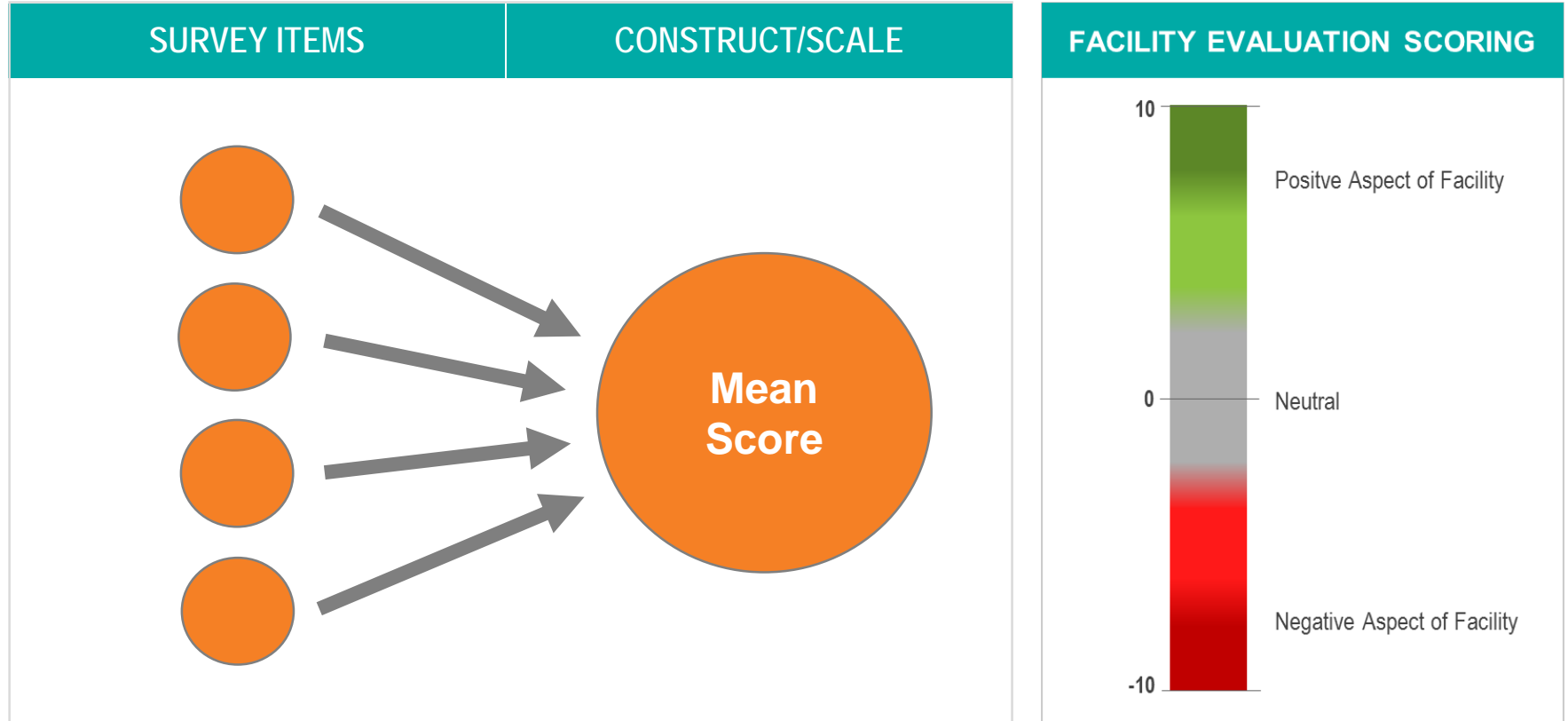
Your survey responses are confidential. All results will be aggregated before reporting. Individual respondents will not be identified, and individual responses will not be reported.

Thank you for taking the time to complete this survey. Your opinions are very important to the Sutter Health Facilities Planning Team!

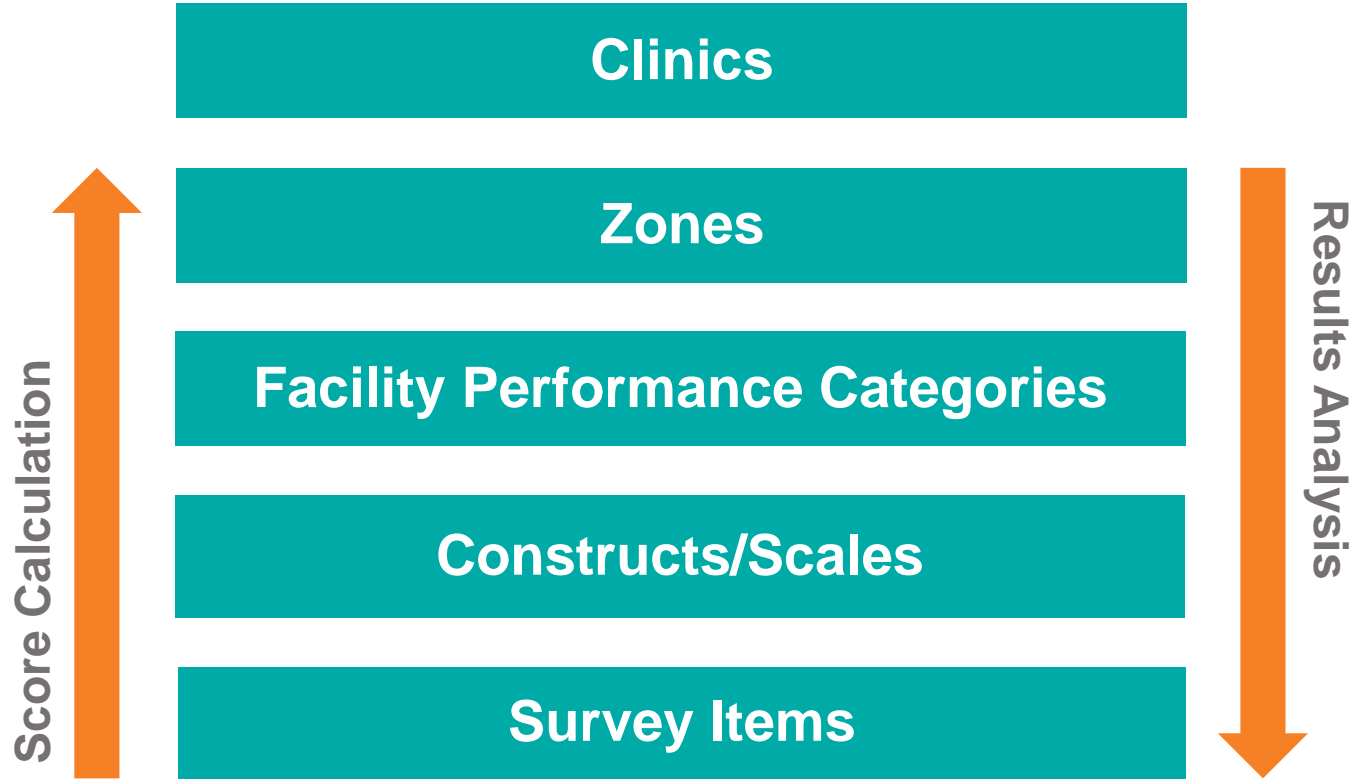
Please click the button below to begin the survey.

BEGIN SURVEY

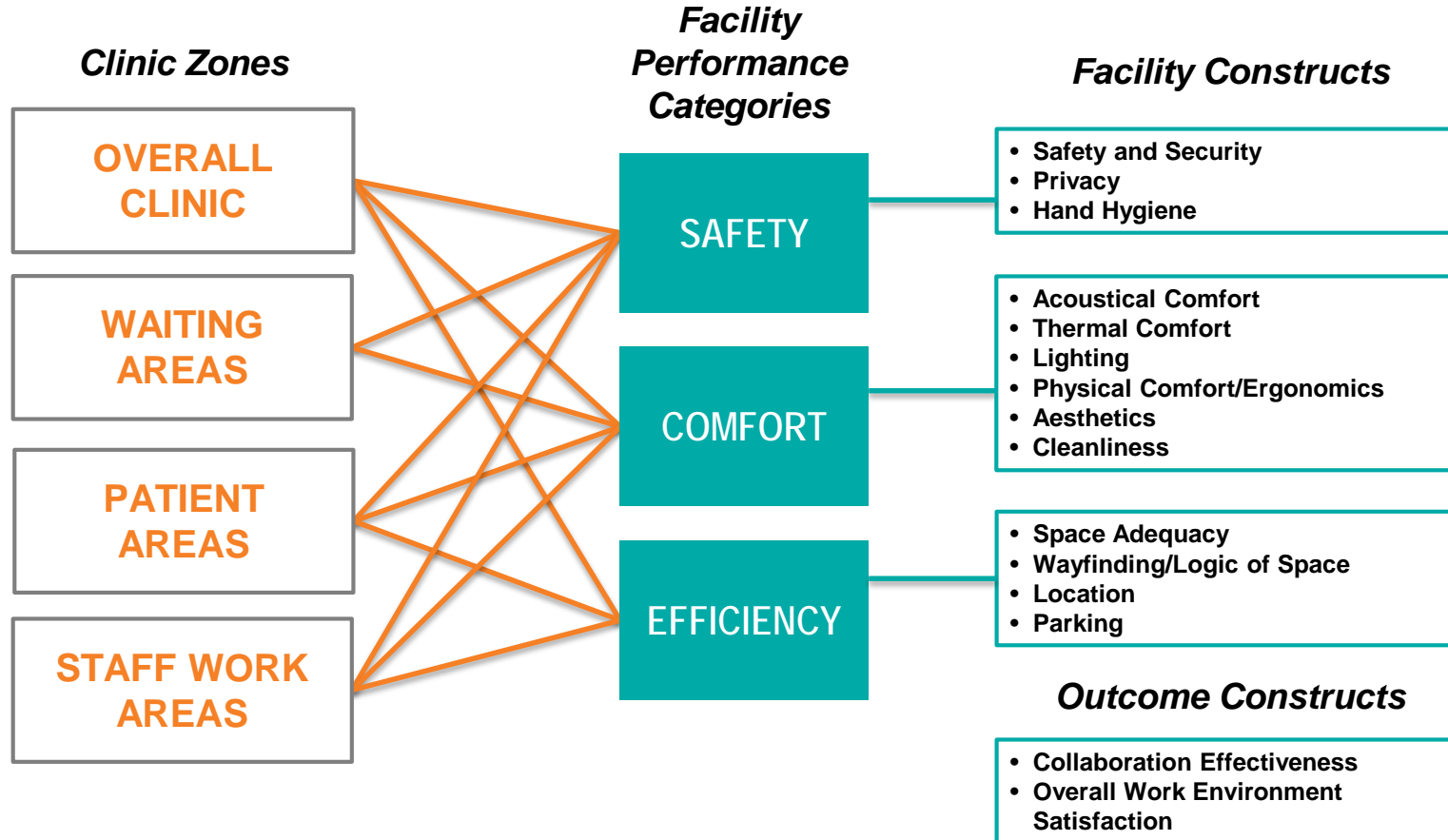
# SCORING METHOD



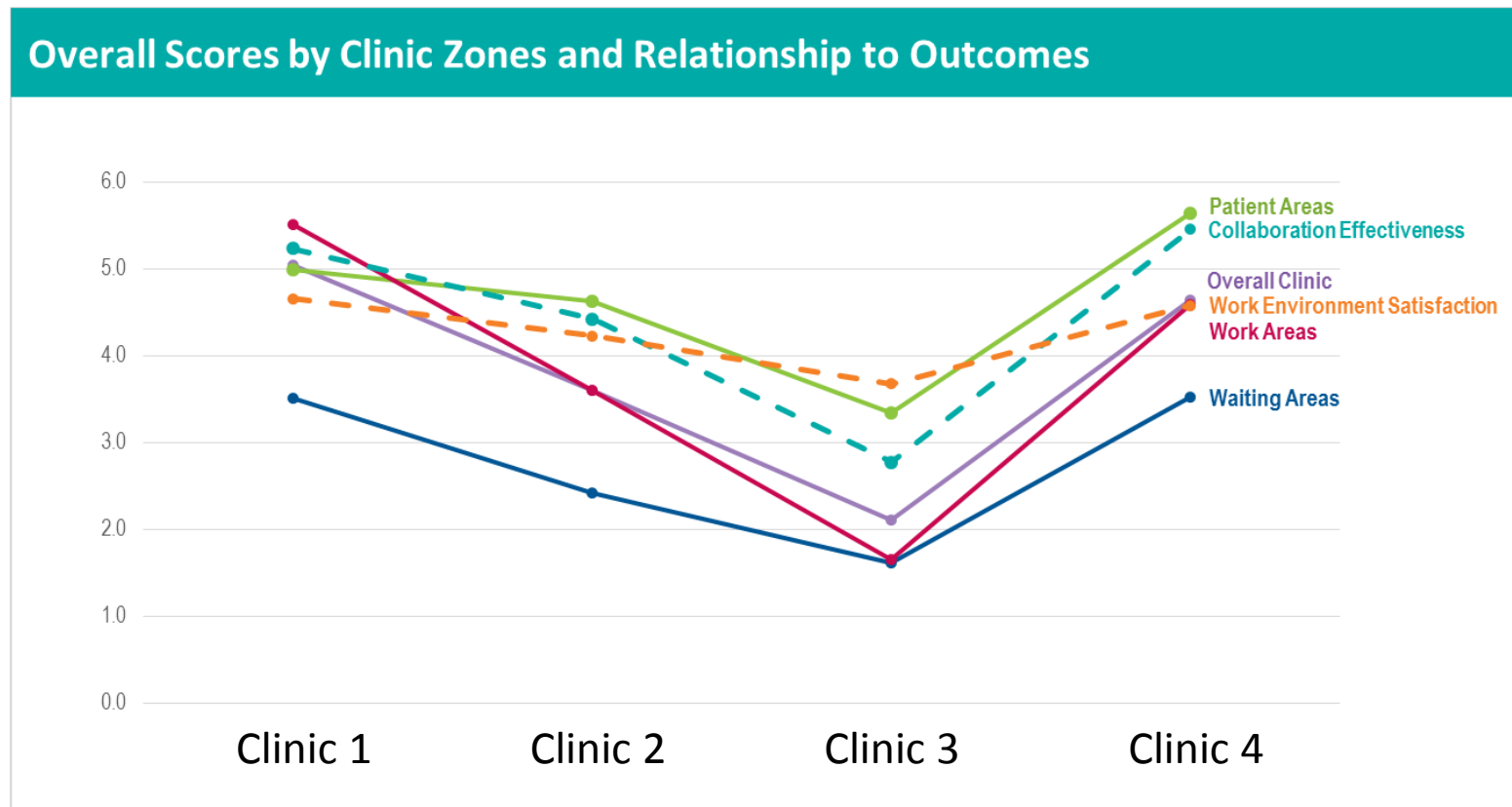
# SCORING AND RESULTS HIERARCHY



# OE MEASUREMENT DOMAIN

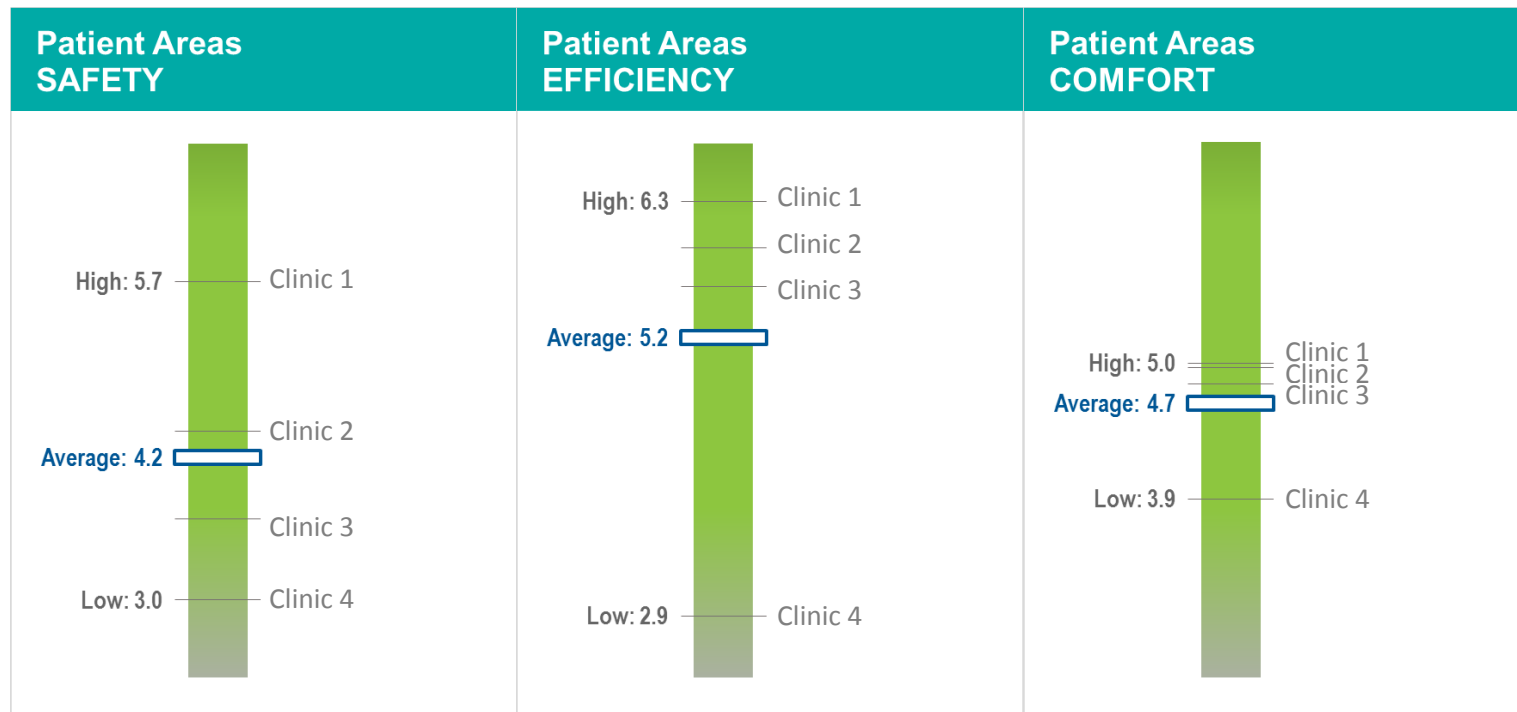


# ZONE-LEVEL RESULTS





# CATEGORY-LEVEL RESULTS



- Safety & Security
- Privacy

- Space Adequacy

- Acoustical Environment
- Lighting
- Physical Comfort

# CATEGORY-LEVEL RESULTS

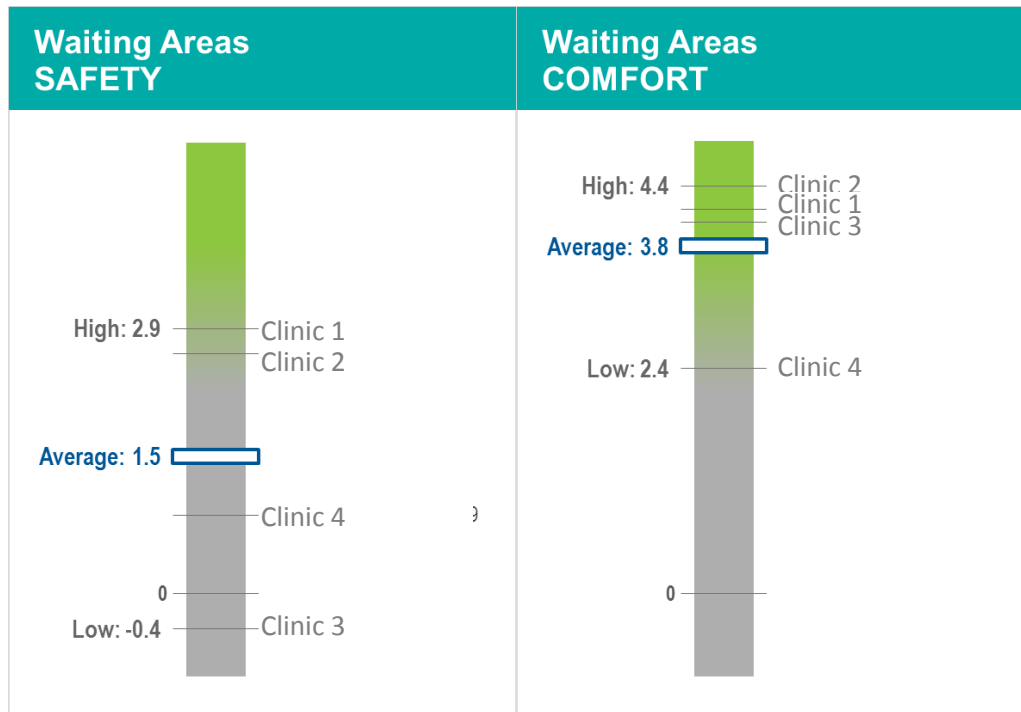


- Safety & Security
- Privacy

- Space Adequacy

- Acoustical Environment
- Lighting
- Physical Comfort

# CATEGORY-LEVEL RESULTS

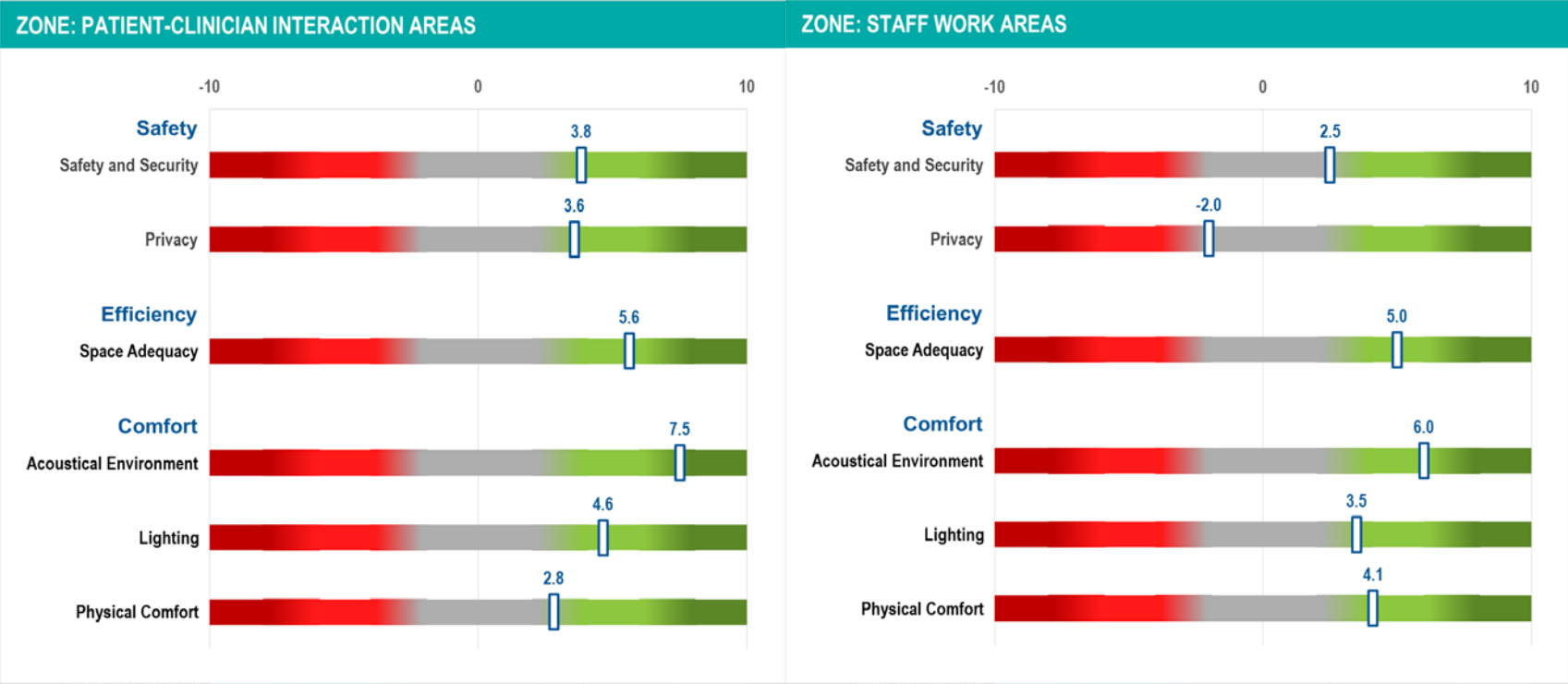


- Privacy

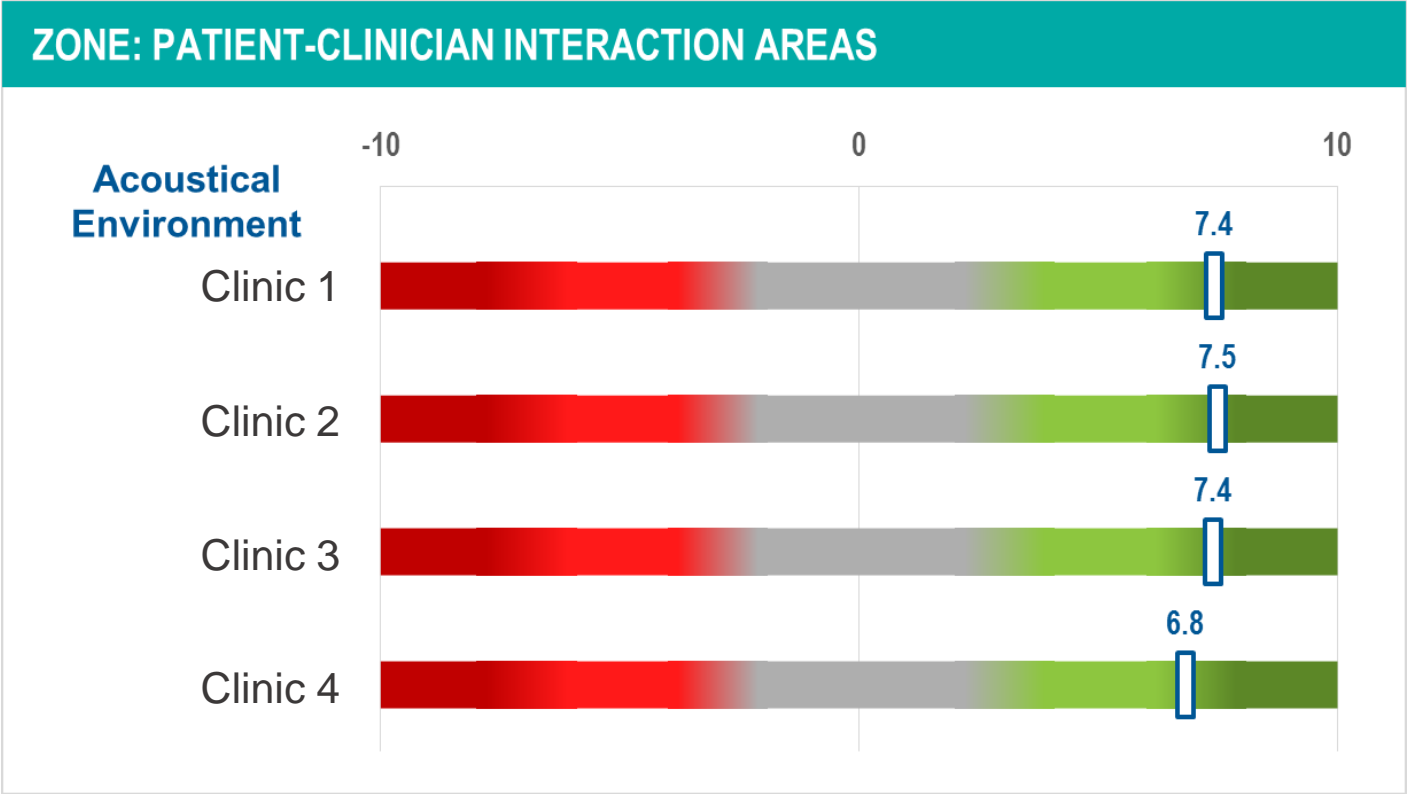
- Acoustical Environment
- Physical Comfort

# CLINIC SCORECARD EXAMPLE

## Clinic 3



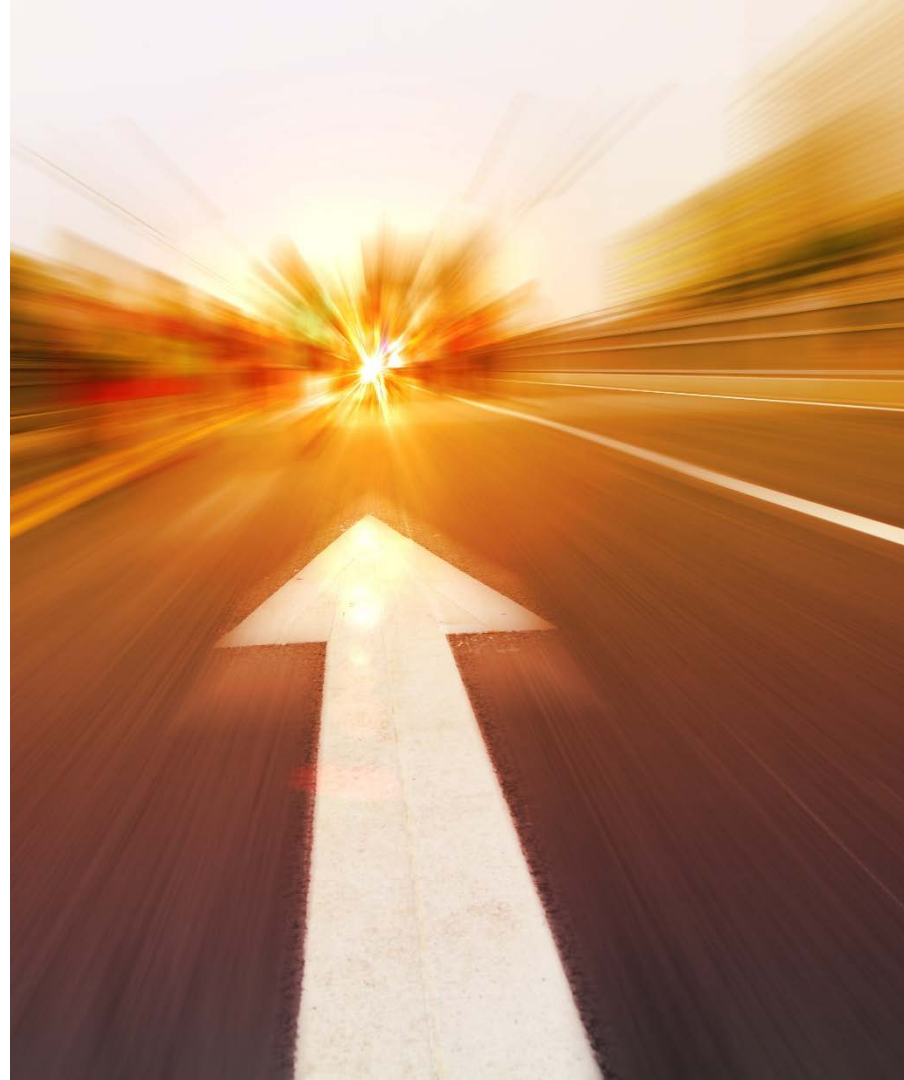
# CONSTRUCT-LEVEL RESULTS



# MOVING FORWARD

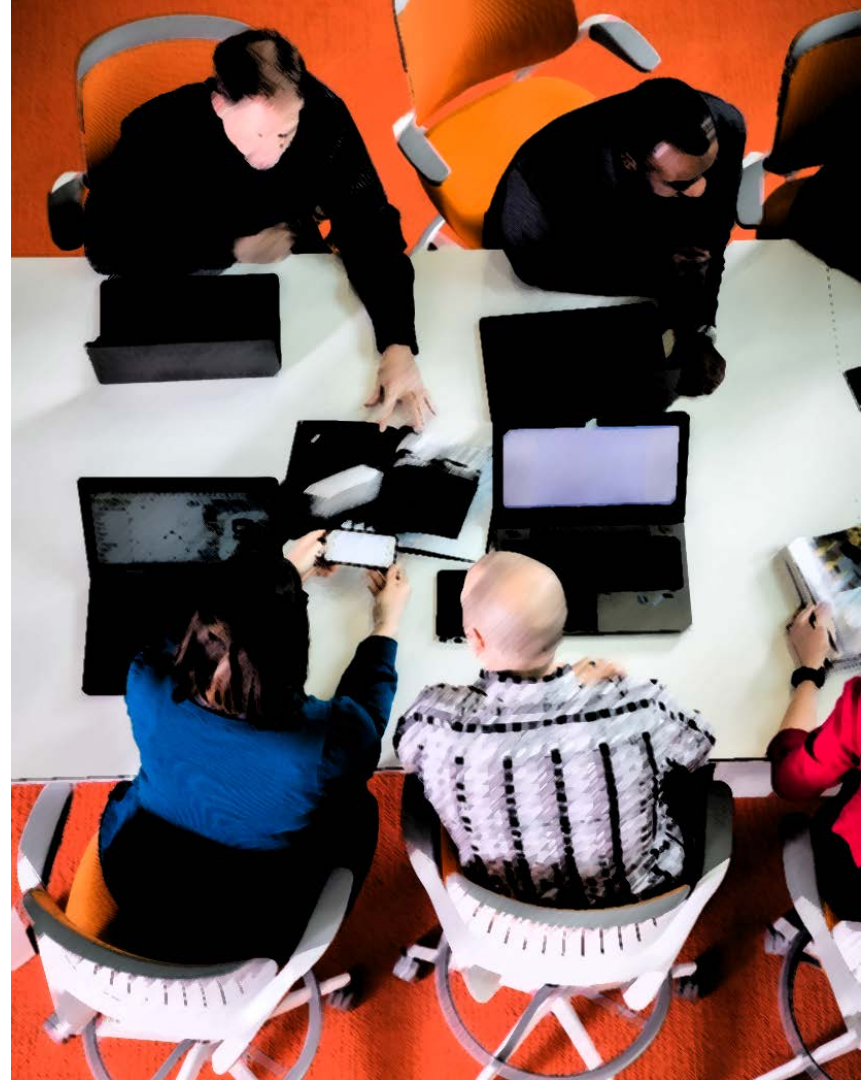
## Occupant Experience Evaluation

- Flexible to be deployed any time
- Valid occupant feedback informs optimal decision-making
- Pre- measures on new EPD projects
- Option for mid-project measures as needed (e.g., mock-up's, phases)
- Post- measures several months after move-in to each new project
- Evolving/improving OE benchmarks with each project's results



# VALUE OF COLLABORATION

- Consistent measures across projects and firms
- Scientific transparency that is mandatory in other evaluation research fields
- Better quality evidence
- Truly outcomes-oriented design
- Continual improvement as the evidence base evolves







**BUILDING**  
INNOVATION 2018

National Institute of  
BUILDING SCIENCES

CONFERENCE & EXPO

## This concludes The American Institute of Architects Continuing Education Systems Course

---



Shahrokh Sayadi, AIA  
[sayadis@sutterhealth.org](mailto:sayadis@sutterhealth.org)



Jill Berman, AIA, ACHA  
[jill.bergman@hdrinc.com](mailto:jill.bergman@hdrinc.com)



Jeri Brittin, PhD  
[jeri.brittin@hdrinc.com](mailto:jeri.brittin@hdrinc.com)

Terri Zborowsky, PhD  
[tzborowsky@hga.com](mailto:tzborowsky@hga.com)

