

BEYOND GREEN: DESIGN OF THE BUILT ENVIRONMENT AND ITS IMPACT ON HEALTHY COMMUNITIES

POPULATION HEALTH COLLOQUIUM

B A L L I N G E R



SPEAKERS



ERIN COOPER, AIA, LEED AP
ASSOCIATE PRINCIPAL,
BALLINGER

 @cgdgreen



CHRISTINA GRIMES, AIA,
LEED AP BD+C, EDAC
SENIOR PROJECT HEALTHCARE
PLANNER, BALLINGER

 @grimesarchitect

 @ballingerae | #ballinger



WHO WE ARE

BALLINGER

225 ARCHITECTS, INTERIORS + ENGINEERS

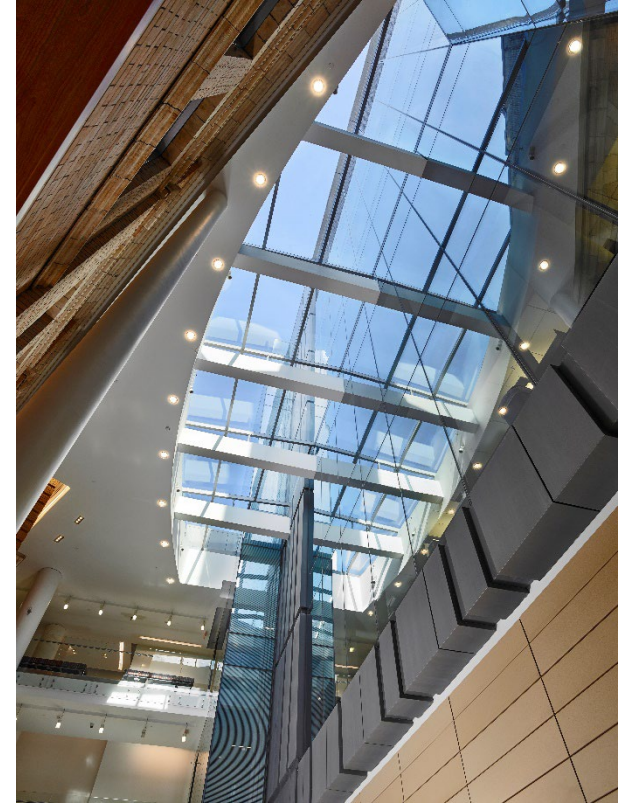
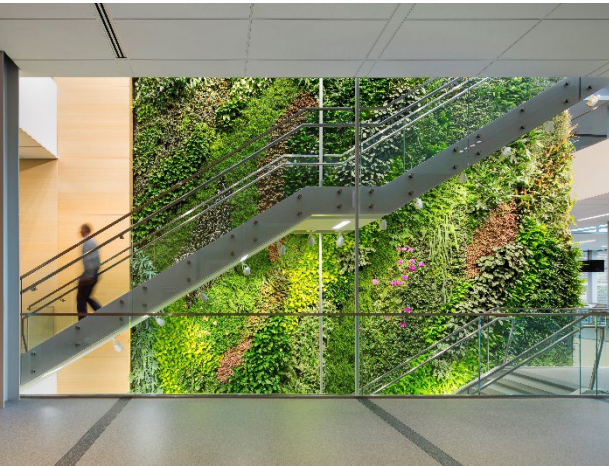
FOUNDED
1878



INTEGRATED
ARCHITECTURE
+ ENGINEERING



AWARD WINNING
DESIGN



THOUGHT LEADERSHIP

RECENT PROJECTS

BALLINGER



New York-Presbyterian



Johns Hopkins University



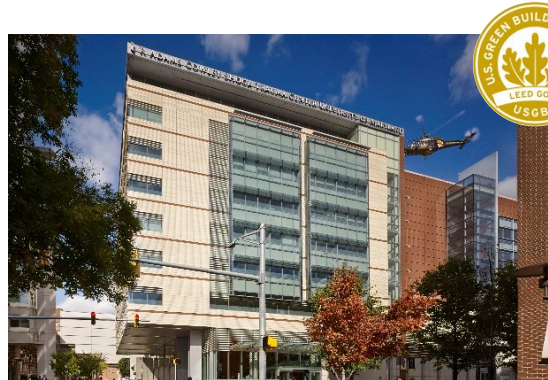
George Washington University



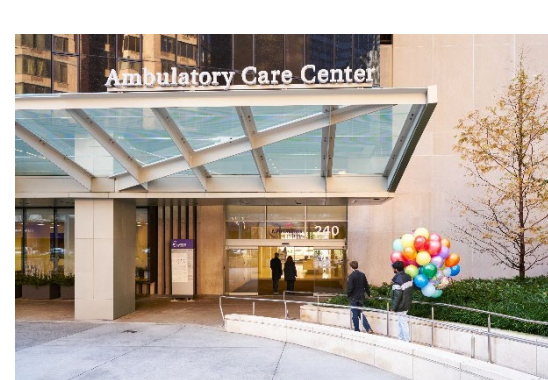
Children's Hospital of Philadelphia



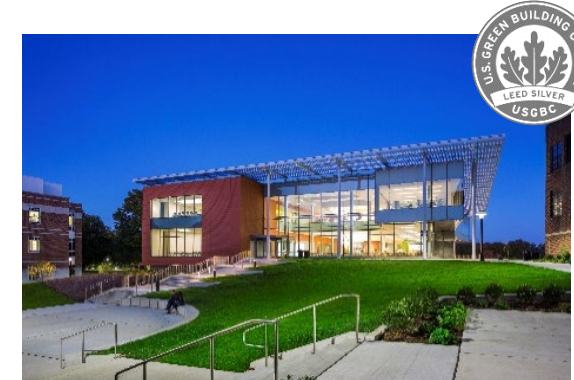
Adelphi University



University of Maryland Medical Center



NYU Langone Medical Center



Rutgers University



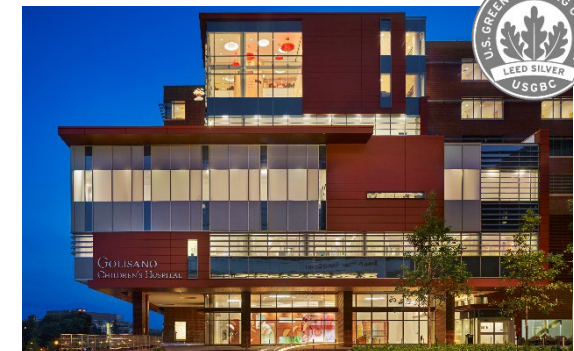
Weill Cornell Medical Center



University of Wisconsin



Wistar Institute



University of Rochester Medical Center

COMMUNITY ENGAGEMENT

BALLINGER

SUPPORTING OUR COMMUNITY, ENVIRONMENT + PROFESSION



FUTURE CITY



HABITAT FOR HUMANITY



SPARK



COMMUNITY DESIGN COLLABORATIVE



AMERICAN HEART ASSOCIATION



PUNTES DE SALUD



HOW DOES
ARCHITECTURE
IMPACT POPULATION HEALTH?

- DESCRIBE THE RELATIONSHIP BETWEEN POPULATION HEALTH AND THE IMPORTANCE OF PLACE
- EXPLAIN THE HEALTH DETERMINANTS OF POPULATION HEALTH AND HOW OUTCOMES ARE MEASURED AND AFFECTED BY THE DESIGN PROCESS
- SHOW HOW HUMANISTIC DESIGN CONTRIBUTES TO THE INSTITUTION'S IMAGE WITHIN THE COMMUNITY
- PROVIDE EXAMPLES OF A VARIETY OF SCALED PROJECTS TO CONTRIBUTE TO A HEALTHIER COMMUNITY

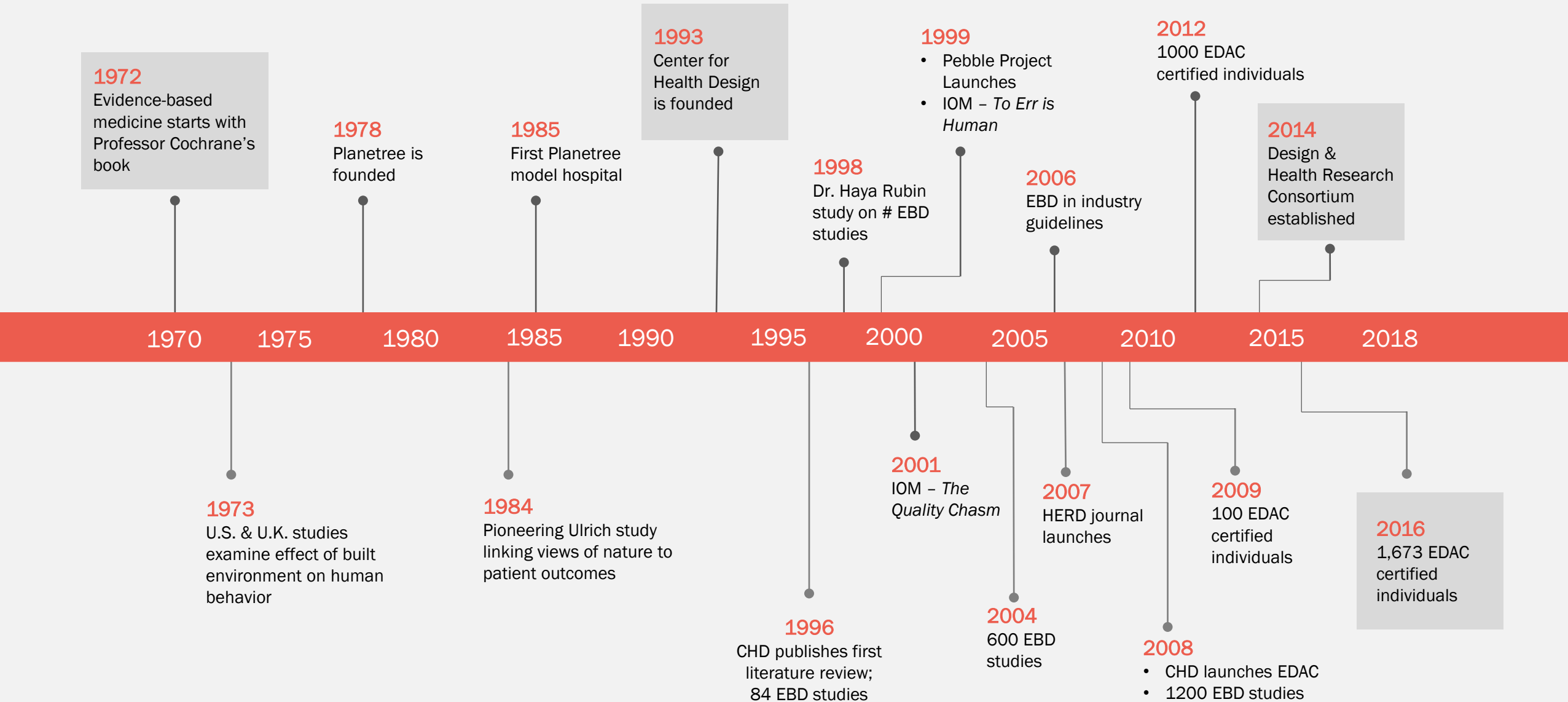


“Evidence-based design (EBD) is the process of basing decisions about the built environment on credible research to achieve the best possible outcomes.”

- The Center for Health Design, “Evidence-based Design Accreditation and Certification (EDAC),” accessed 02/16/2012, <http://www.healthdesign.org/edac/about>.

HISTORY OF EVIDENCE-BASED DESIGN

BALLINGER



2010 PDC SUMMIT TASK FORCE

BALLINGER

- American Society for Healthcare Engineering (ASHE)
- American Hospital Association (AHA)
- American Institute of Architects Academy of Architecture for Health (AIA/AAH)

“ By working as one, with a common goal, health facilities professionals and architects can provide all those who walk through the doors of the nation's health care facilities with the perfect health care physical environment, updating the oath that Hippocrates set forth—"First, do no harm"—by adding "***by providing patients with quality care as seamlessly and as quickly as possible in pleasant surroundings***". ”

REGION

CITY

NEIGHBORHOOD

SITE

CORRIDOR

ROOM

PATIENT

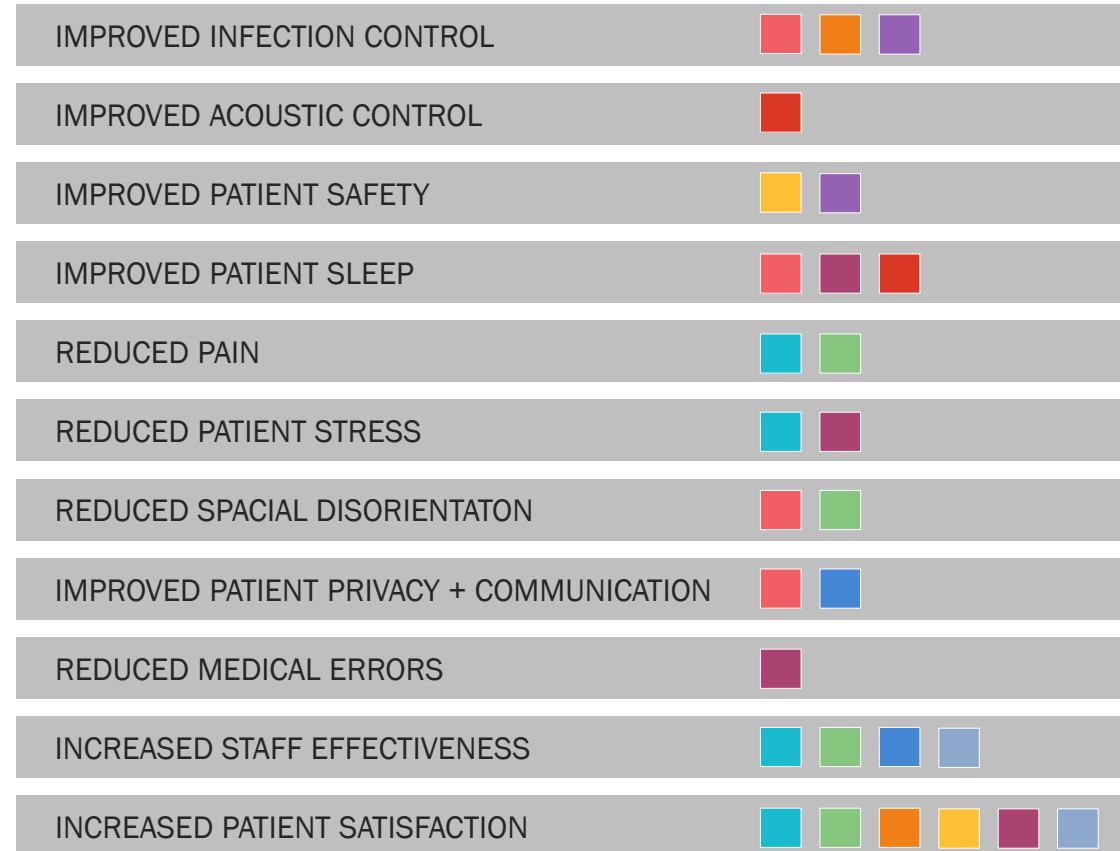


TOP 10 EVIDENCE-BASED DESIGN AND THEIR POSITIVE HEALTHCARE OUTCOMES

TOP 10 EVIDENCE-BASED DESIGN FEATURES



POSITIVE HEALTHCARE OUTCOMES



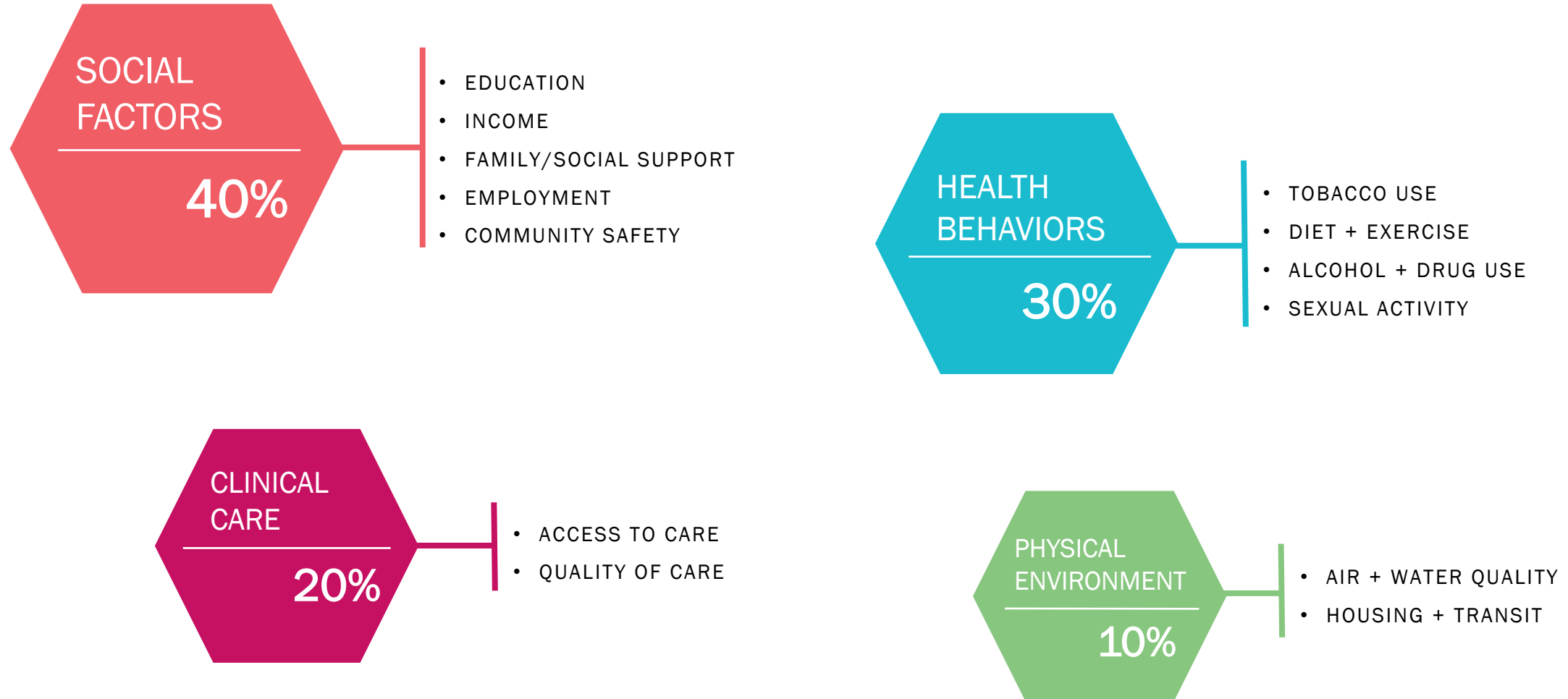
*Based on literature reviews at the Center for Health Design

Anjali Joseph, PhD, EDAC; Xiaobo Quan, PhD, EDAC; Amy Keller, March EDAC

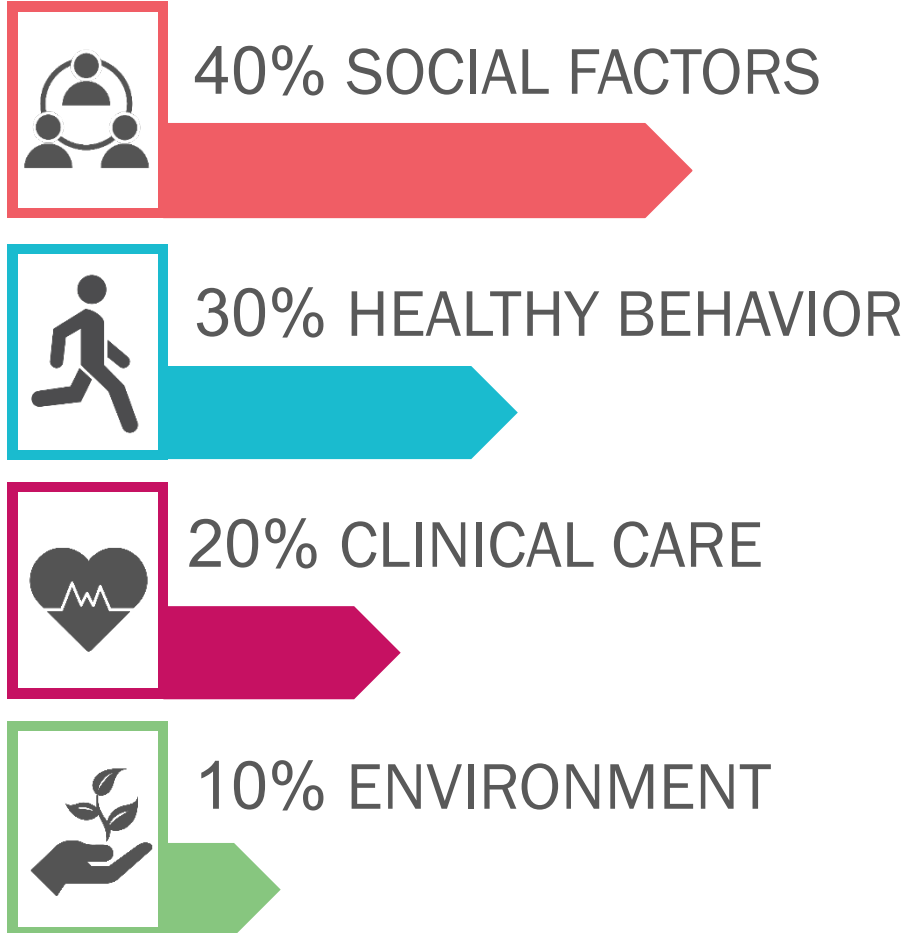
<http://www.hospitalinfrabiz.com/top-10-evidence-based-design-features-that-improve-healthcare-outcomes.html>

HEALTH DETERMINANTS VERSUS OUTCOMES

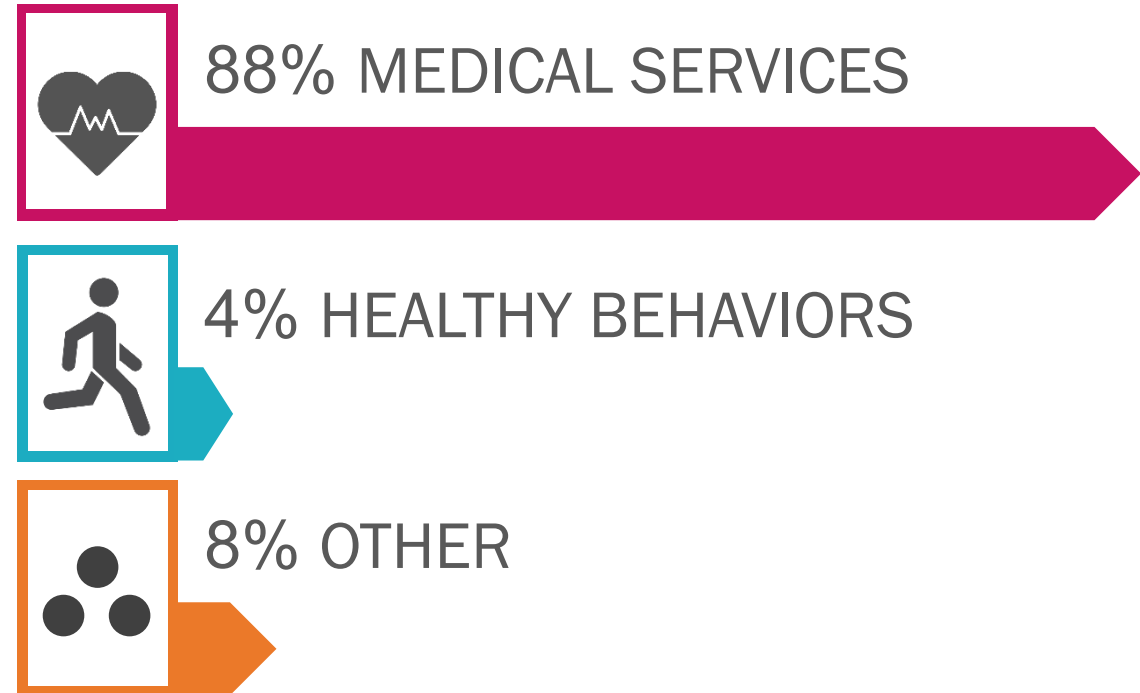
BALLINGER



WHAT DETERMINES HEALTH



WHAT WE SPEND ON HEALTHCARE



Source: Bipartisan Policy Center,
"F" as in Fat: How Obesity Threatens
America's Future (TFAH/RWJF, Aug. 2013)

A .1% change in behavior due to environment = **\$2.5B Savings**

Nicholas Webb, Futurist "Disruptions in
Healthcare Design- The Good News,"
2017 Health Care Design Conference
and Expo

KEY FACTORS CONTRIBUTING TO THE BUILT ENVIRONMENT

BALLINGER



**SOCIAL
CONNECTEDNESS**



**ACCESS TO
NATURE**



**PHYSICAL
ACTIVITY**



**WELLNESS
ENVIRONMENTS**



**ACCESS TO
HEALTHCARE**



**SOCIAL
ROI**

FEATURED PROJECTS

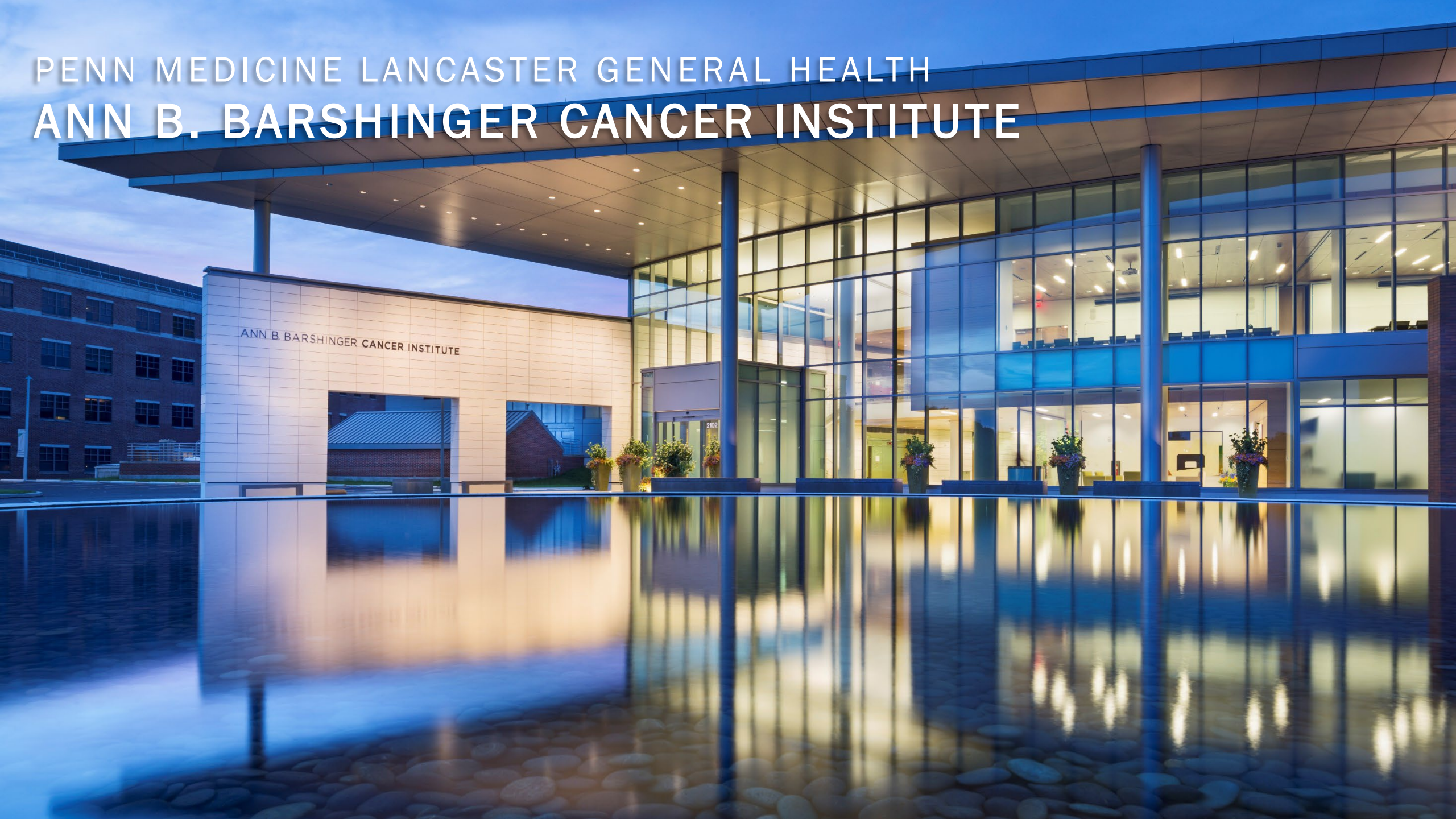
PENN MEDICINE LANCASTER GENERAL HEALTH
ANN B. BARSHINGER CANCER
INSTITUTE

READING HEALTH SYSTEM
READING HEALTHPLEX FOR
ADVANCED SURGICAL + PATIENT CARE

RUTGERS UNIVERSITY
NEW JERSEY INSTITUTE FOR FOOD,
NUTRITION + HEALTH



PENN MEDICINE LANCASTER GENERAL HEALTH ANN B. BARSHINGER CANCER INSTITUTE



ICONIC SUCCESS



97% 75%

APPRECIATE THE ABILITY FOR
PATIENTS TO CONTROL THEIR
IMMEDIATE ENVIRONMENT



ONE DISSATISFIED
PATIENT WAS IN
INFUSION



STAFF



PATIENTS





ANN B. BARSHINGER CANCER INSTITUTE

This lasting tribute honors donors who made gifts of \$3,000 or greater through March 1, 2013 to the Ann B. Barshinger Cancer Institute which was dedicated on June 27, 2013. Donor Wall Given By Walt and Franne Legenstein



MULTIDISCIPLINARY CLINIC

BALLINGER

5 NEIGHBORHOODS

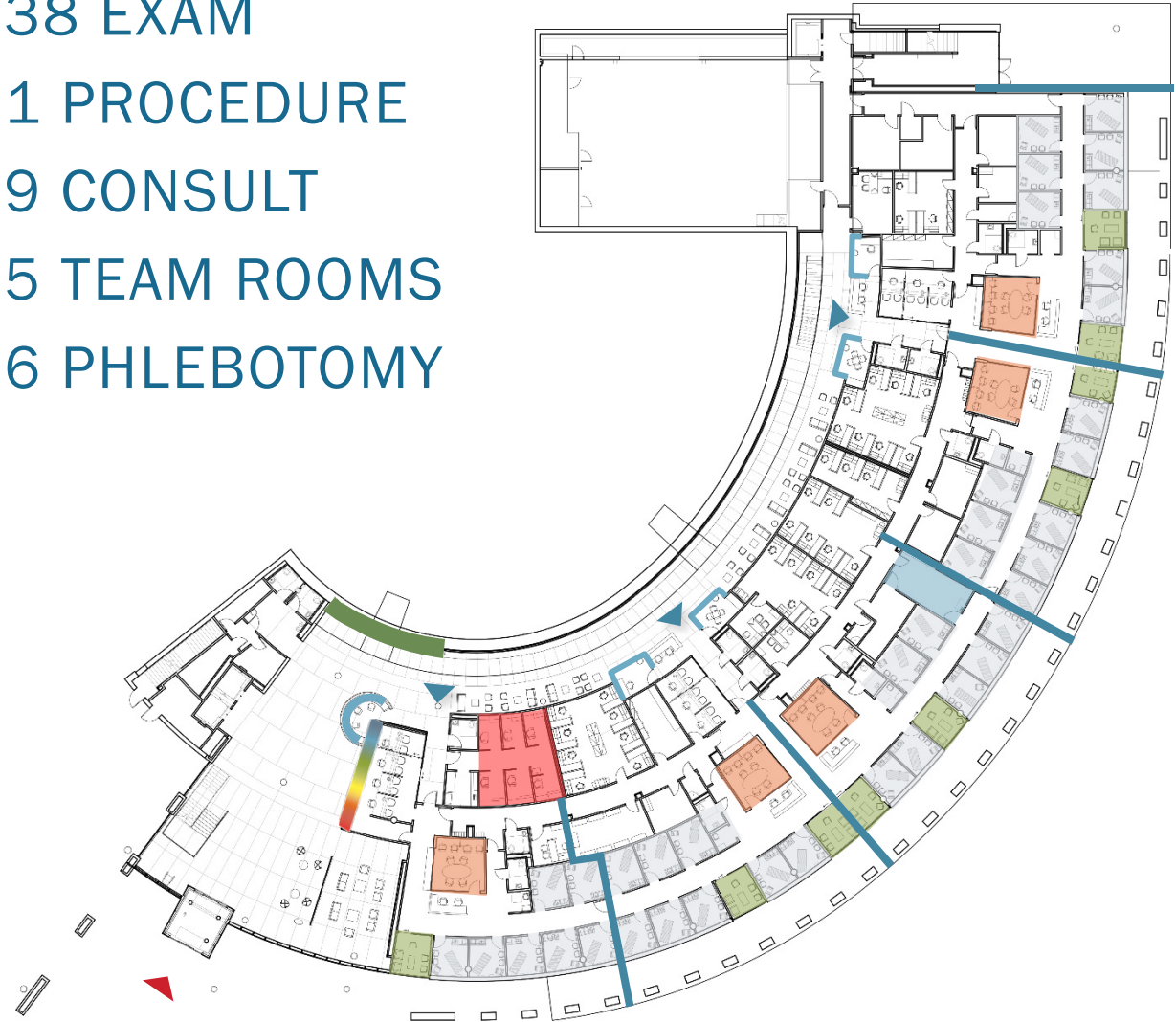
38 EXAM

1 PROCEDURE

9 CONSULT

5 TEAM ROOMS

6 PHLEBOTOMY



INFUSION THERAPY

4 NEIGHBORHOODS

24 BAYS

7 PRIVATE ROOMS

2 FAMILY LOUNGES

RADIATION ONCOLOGY

4 EXAM + 1 HOLDING AREA

6 RADIATION TREATMENT
MODALITIES INCLUDING
CYBERKNIFE

2 TEAM ROOMS



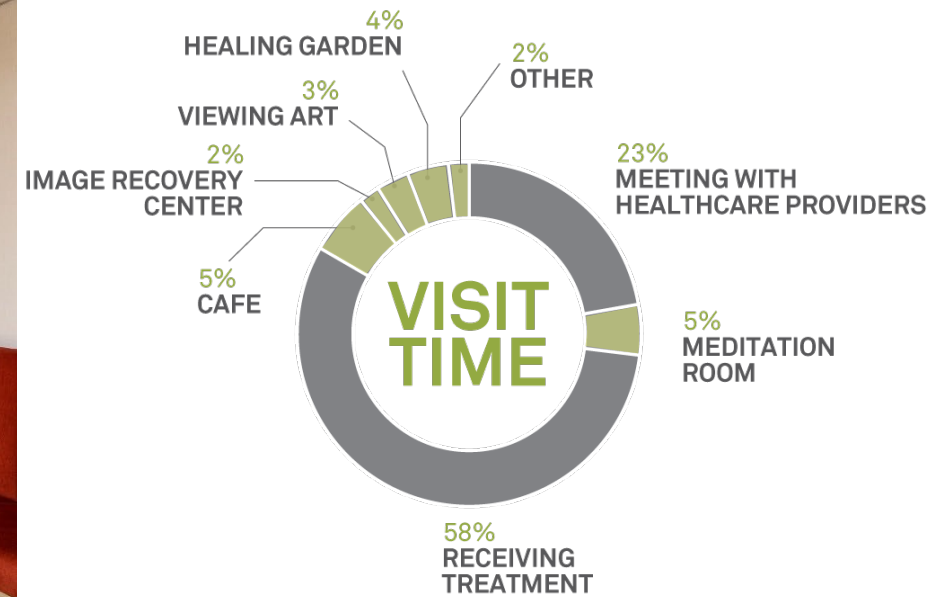


The United Auxiliaries to
Lancaster General Hospital
Healing Garden





PATIENT EXPERIENCE : BUILDING AMENITIES







66%

97%

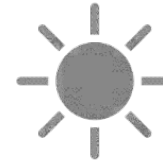
THERAPEUTIC FEEL OF ROOMS



66%

100%

VIEWS TO NATURE



100%

100%

ACCESS TO DAYLIGHT



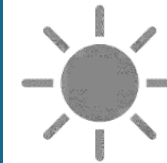
70%

100%

COLOR PALETTE



100% ARE SATISFIED
WITH THE
INTEGRATION OF NATURE IN
THE PATIENT CARE EXPERIENCE



WHILE **88%**
REPORT SATISFACTION WITH
DAYLIGHT, COMMENTATORS
STATE "SOME ROOMS GET
TOO MUCH LIGHT"



STAFF



PATIENTS



“It’s nice to have a beautiful place
to go when you are not feeling
your best”



“The interior garden, the landscaping and siting of the building to allow just the right light, create the connection between the indoors and outdoors and the desired appreciation of nature”

- Dr. Randall Oyer



ACCESS TO HEALTHCARE

CHALLENGE:

- Desire to increase access to quality healthcare

SOLUTION:

- Provide convenient location to community



ACCESS TO NATURE

CHALLENGE:

- Provide moments of respite and stress reduction

SOLUTION:

- Access to Nature for patients and staff



SOCIAL CONNECTEDNESS

CHALLENGE:

- Provide community-oriented treatment spaces that respect patient privacy and dignity

SOLUTION:

- Radial infusion treatment layout

Tower Health

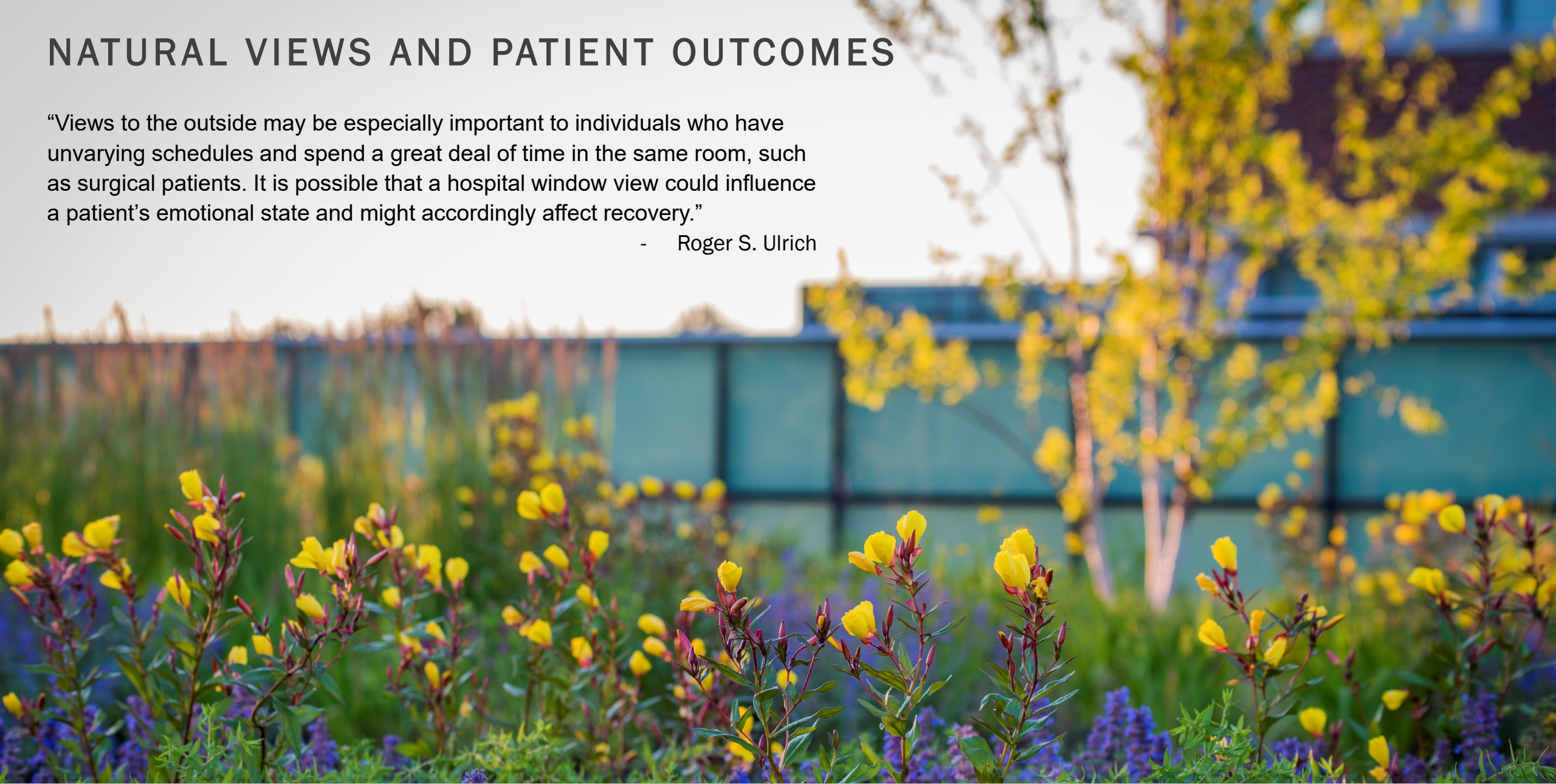
READING HEALTHPLEX FOR ADVANCED SURGICAL + PATIENT CARE



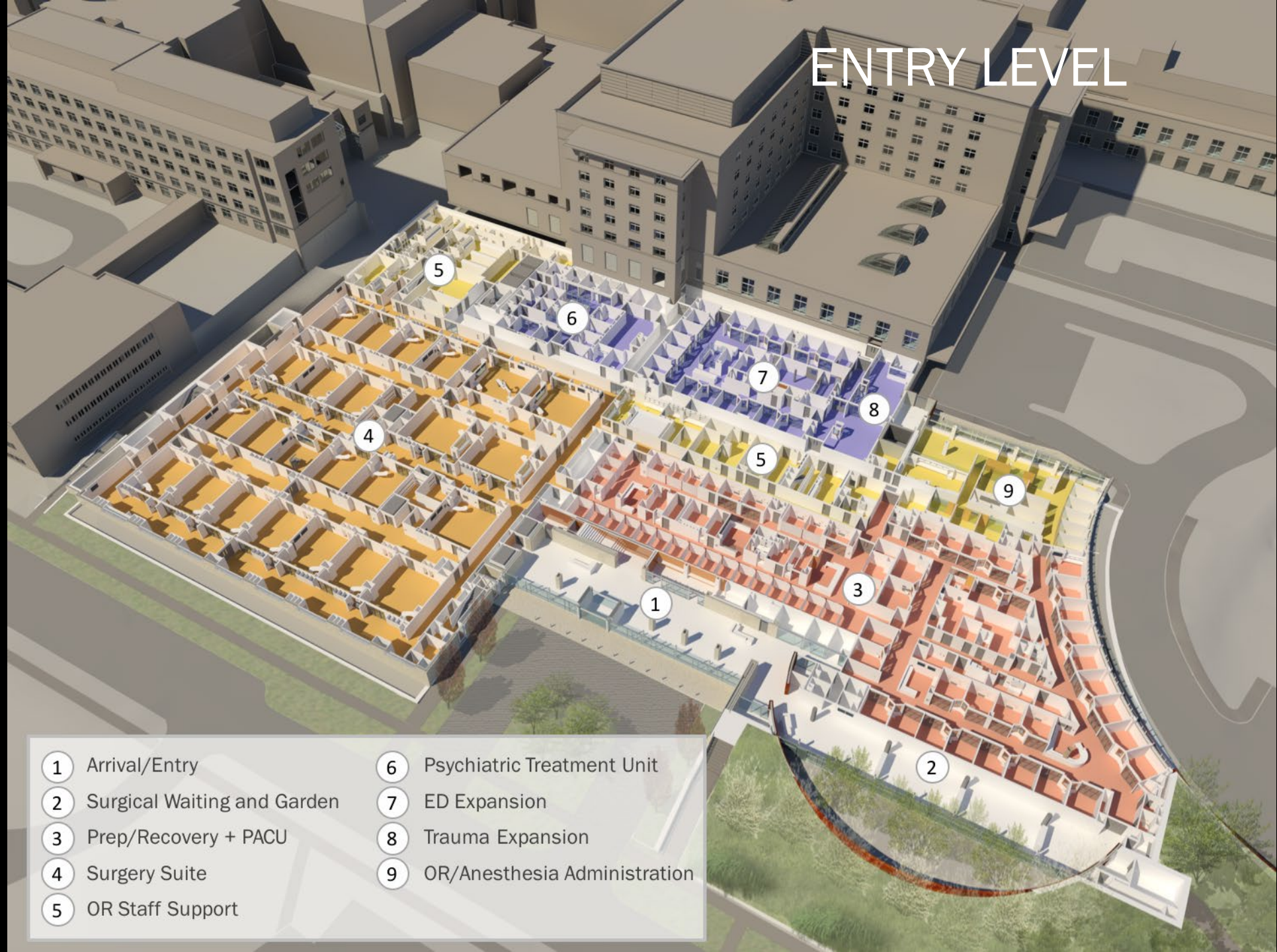
NATURAL VIEWS AND PATIENT OUTCOMES

“Views to the outside may be especially important to individuals who have unvarying schedules and spend a great deal of time in the same room, such as surgical patients. It is possible that a hospital window view could influence a patient’s emotional state and might accordingly affect recovery.”

- Roger S. Ulrich



ENTRY LEVEL



- | | |
|-------------------------------|--------------------------------|
| ① Arrival/Entry | ⑥ Psychiatric Treatment Unit |
| ② Surgical Waiting and Garden | ⑦ ED Expansion |
| ③ Prep/Recovery + PACU | ⑧ Trauma Expansion |
| ④ Surgery Suite | ⑨ OR/Anesthesia Administration |
| ⑤ OR Staff Support | |

GROUND LEVEL

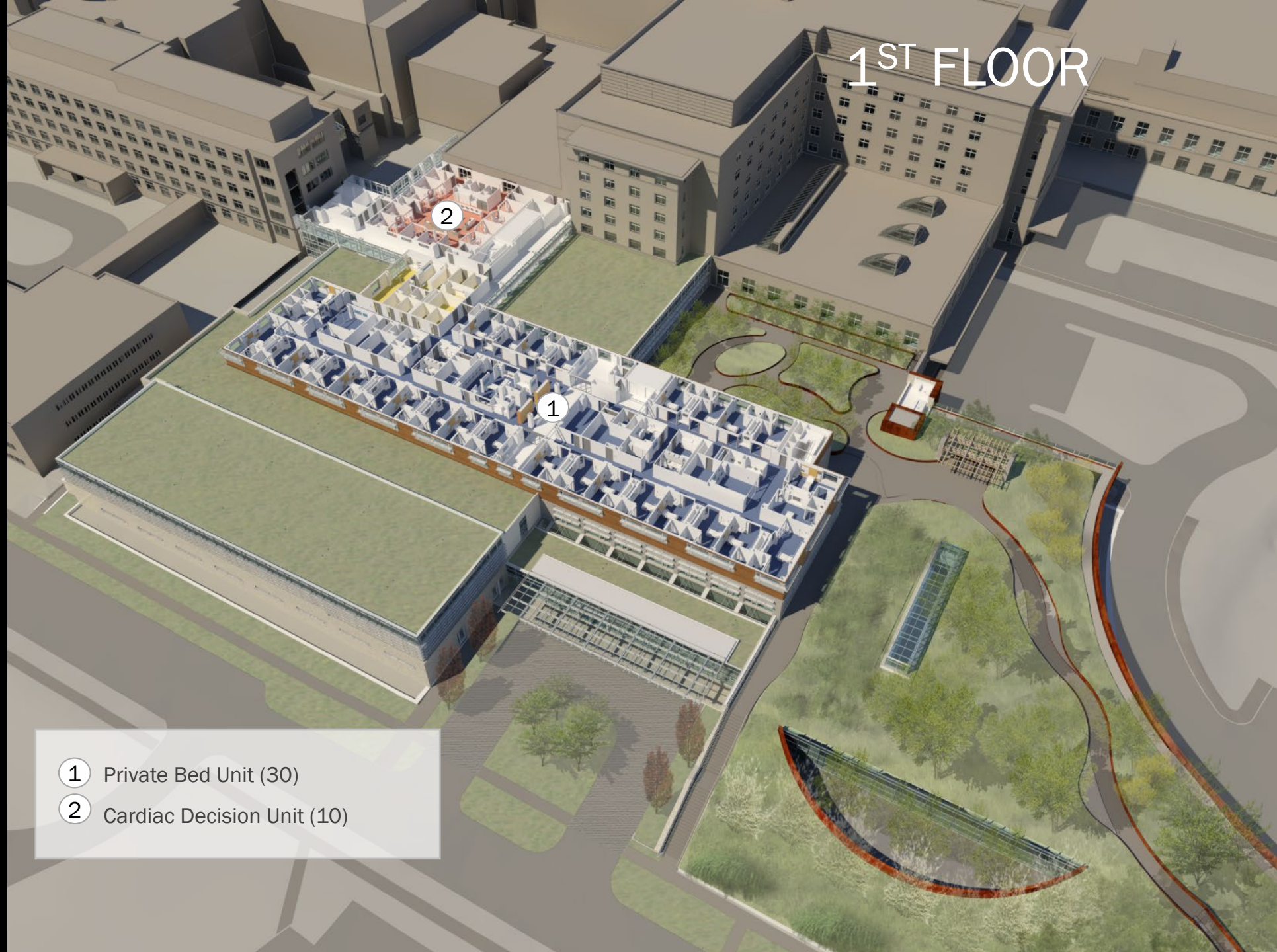


- 1 Prep/Recovery
- 2 Short Procedure Suite
- 3 ED Administration
- 4 OR Staff Support
- 5 On Call

- 6 Protocol Offices
- 7 Pre-Admissions Testing
- 8 Public Conference Room
- 9 Trauma Administration
- 10 Healing Garden/Public Park

1ST FLOOR

- ① Private Bed Unit (30)
- ② Cardiac Decision Unit (10)







LANDSCAPE PLAN





→ Entrance
→ Patient Drop Off
& Pick-Up Only
← Parking











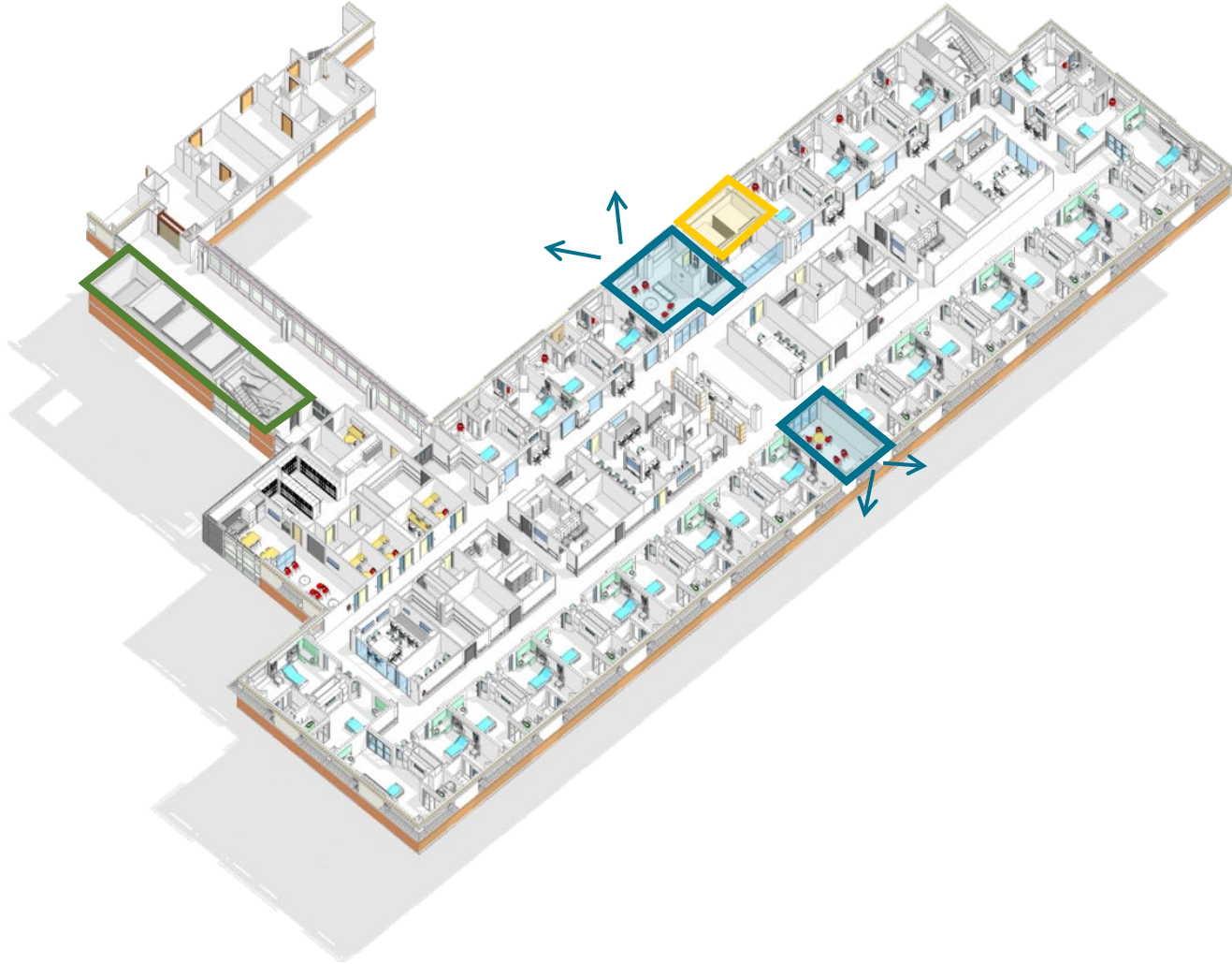




T-G

- ← Trauma Administration
- 5th Ave Lobby
- **LINK**
- Emergency Administration
- Family Waiting

TYPICAL INPATIENT UNIT



FAMILY WAITING

- Located OUTSIDE of the unit for privacy
- Access to public toilets and small nourishment area
- Expansive view of gardens below

SERVICE ELEVATORS

- Open into off stage corridor to maximize patient privacy and noise for patient on the unit

PUBLIC ELEVATORS

- Centralized to reduce travel distances and minimize patient/public conflicts

FAMILY LOUNGE / CONSULT

- Small gathering space terminus for public spine INSIDE the unit with natural light

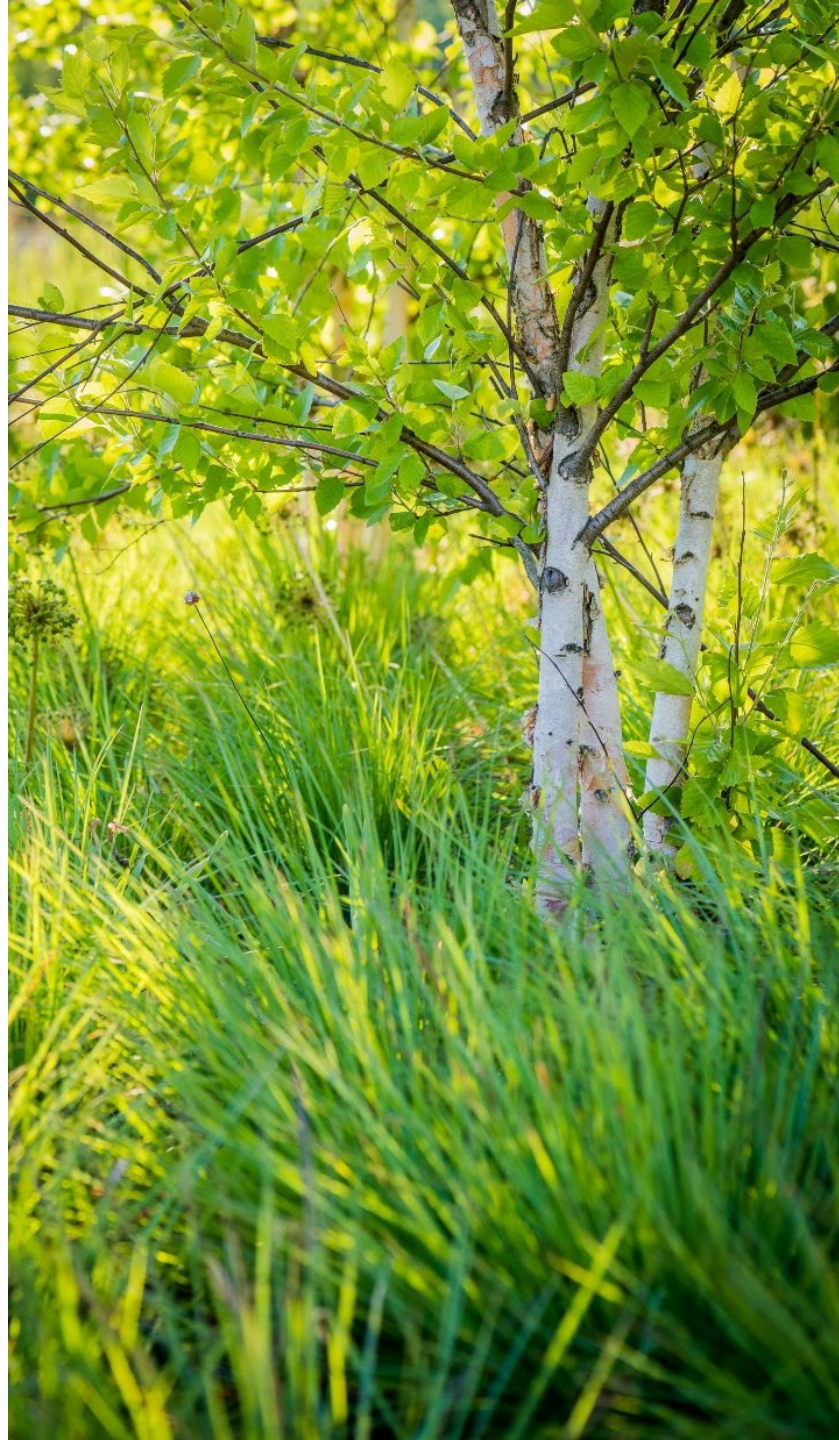






















SOCIAL ROI

CHALLENGE:

- Desire to increase access to Nature per Evidence Based Design

SOLUTION:

- Covering Operating Room Platform with a green park



PHYSICAL ACTIVITY

CHALLENGE:

- Encourage physical activity within the building

SOLUTION:

- Public stairs along East/West Corridor with public amenities



SOCIAL CONNECTEDNESS

CHALLENGE:

- Provide moments of respite and stress reduction

SOLUTION:

- Access to Nature for patients and staff

RUTGERS UNIVERSITY NEW JERSEY INSTITUTE FOR FOOD, NUTRITION + HEALTH

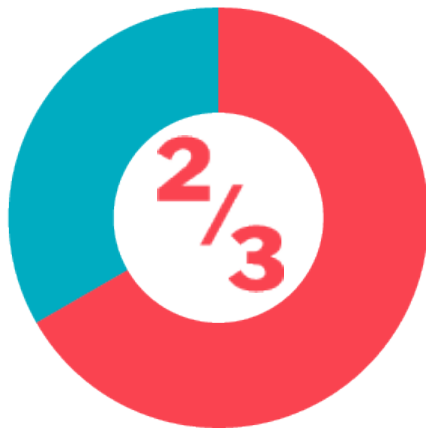




NEARLY **ONE HALF**
OF ALL AMERICANS SUFFER
FROM AT LEAST ONE
CHRONIC DISEASE

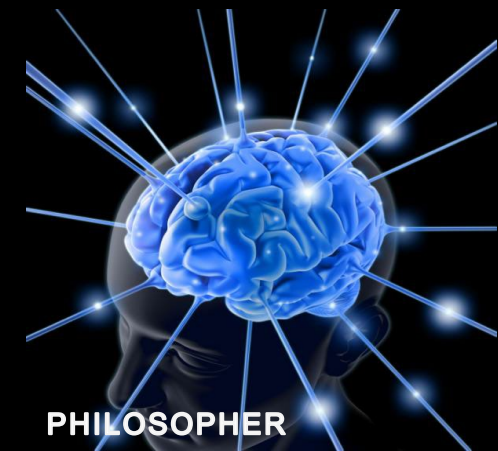
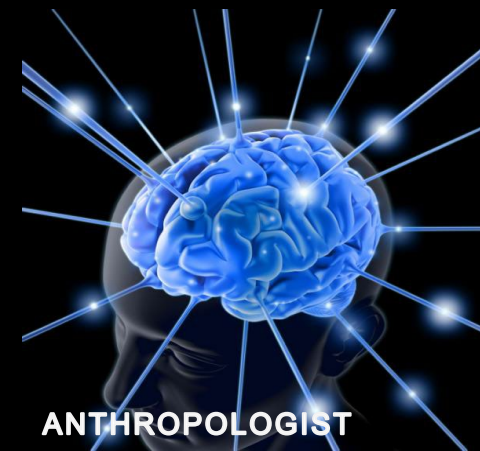
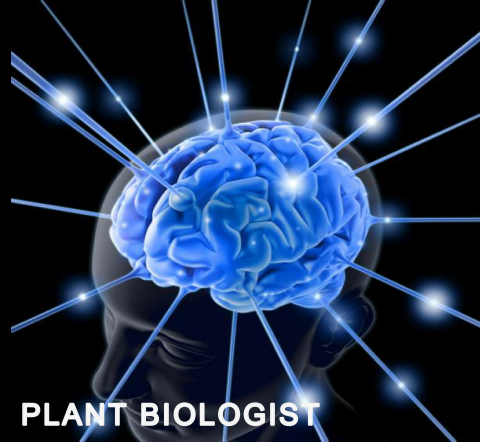
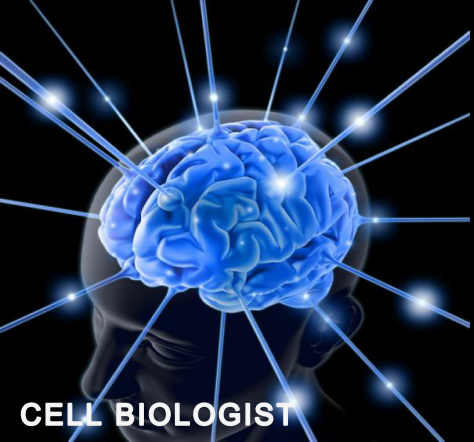
CHRONIC DISEASES

ACCOUNT FOR **\$3** OF EVERY **\$4**
SPENT ON HEALTHCARE

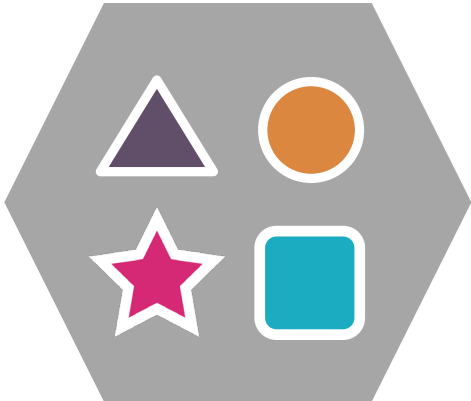
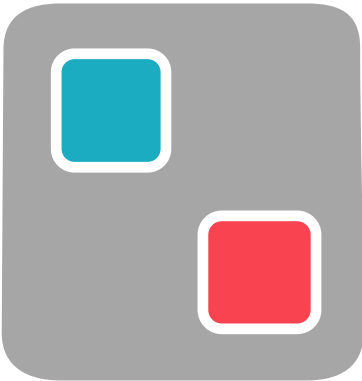


OF **ALL DEATHS** ARE
CAUSED BY ONE OR MORE OF
5 CHRONIC DISEASES

HEART DISEASE
CANCER
STROKE
CHRONIC OBSTRUCTIVE
PULMONARY DISEASE
DIABETES



EVOLUTION OF SCIENCE: TEAM + FACILITIES



Department
Basic Science Labs

Colocation
Basic Science
Labs

Interdisciplinary
Basic Science Labs
Social Space

Convergence
Broad Space Spectrum
Social Continuum

ADDITIVE



SYNERGISTIC

HUMAN
PERFORMANCE LAB

MULTIDISCIPLINARY
WORK ENVIRONMENT

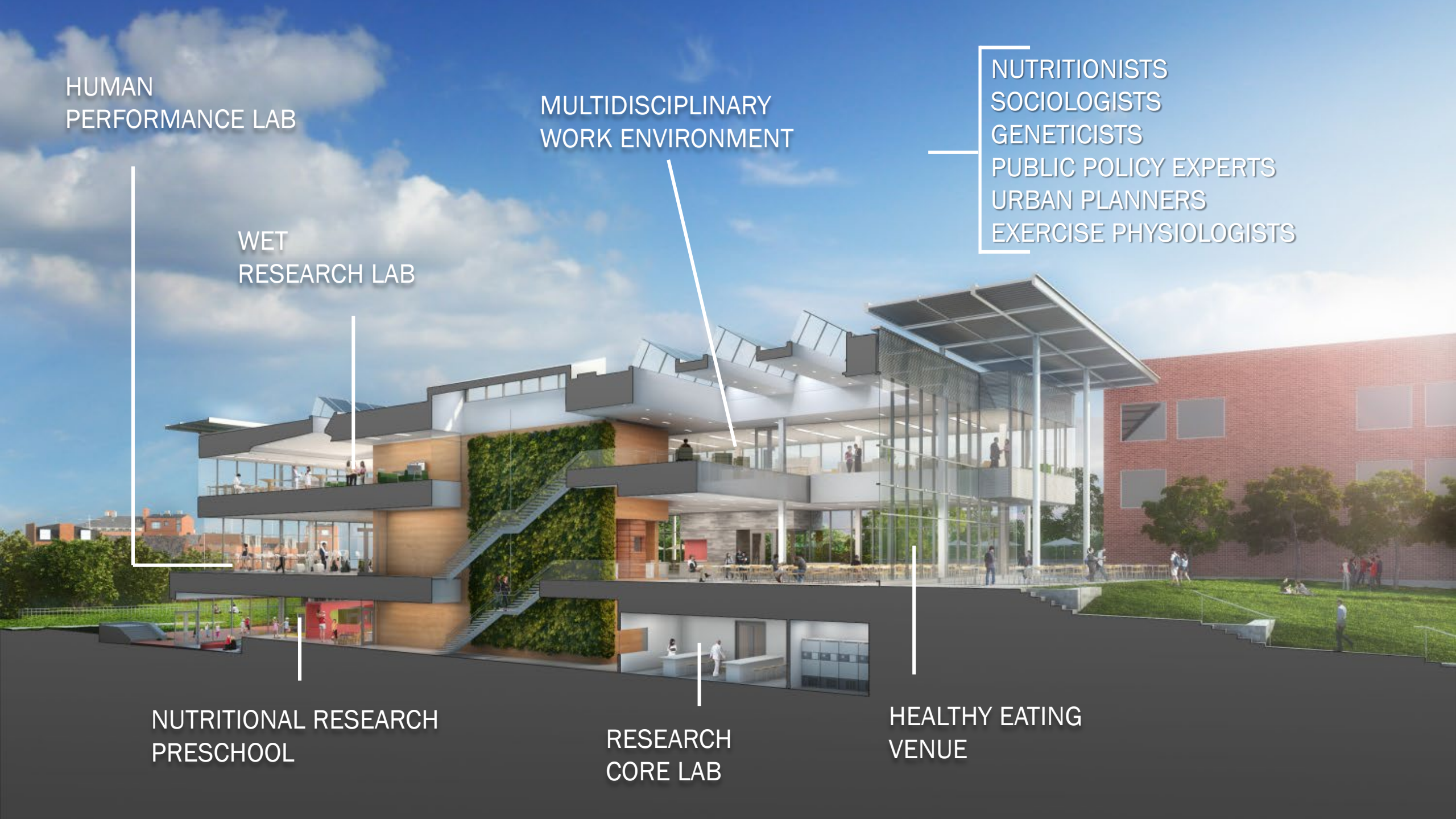
NUTRITIONISTS
SOCIOLOGISTS
GENETICISTS
PUBLIC POLICY EXPERTS
URBAN PLANNERS
EXERCISE PHYSIOLOGISTS

WET
RESEARCH LAB

NUTRITIONAL RESEARCH
PRESCHOOL

RESEARCH
CORE LAB

HEALTHY EATING
VENUE



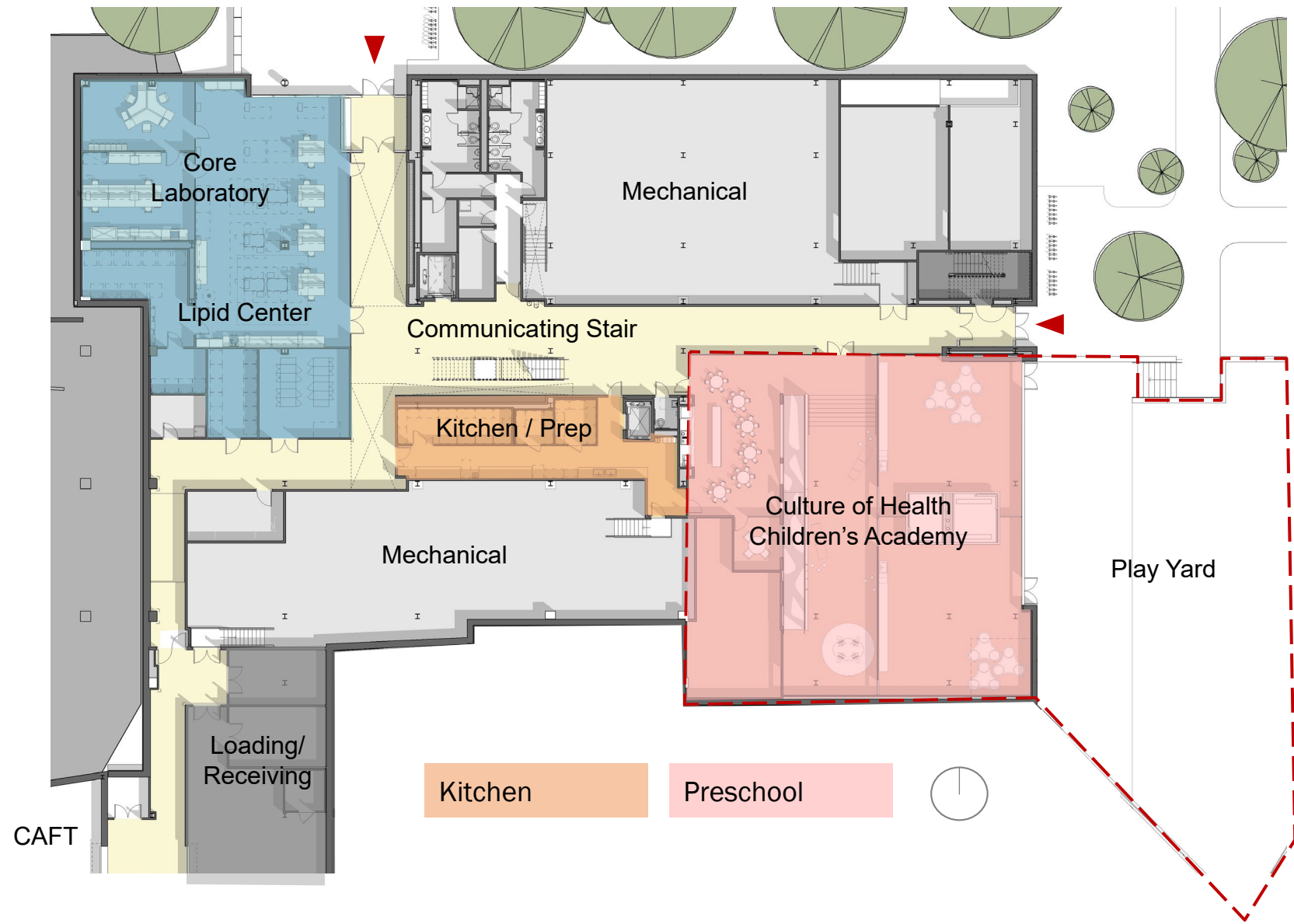
COMPONENT DIAGRAM



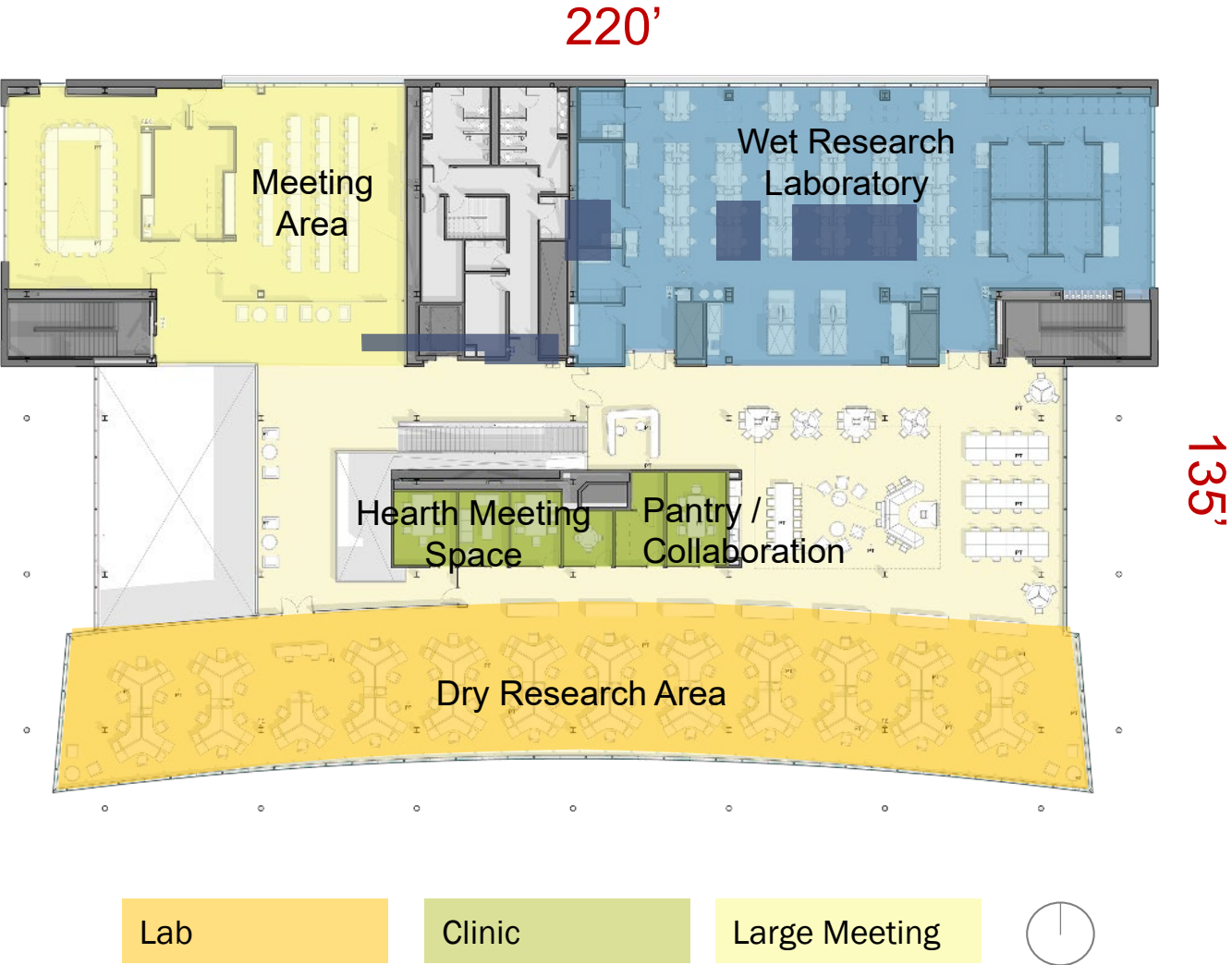
IFNH: MAIN FLOOR



IFNH: LOWER LEVEL



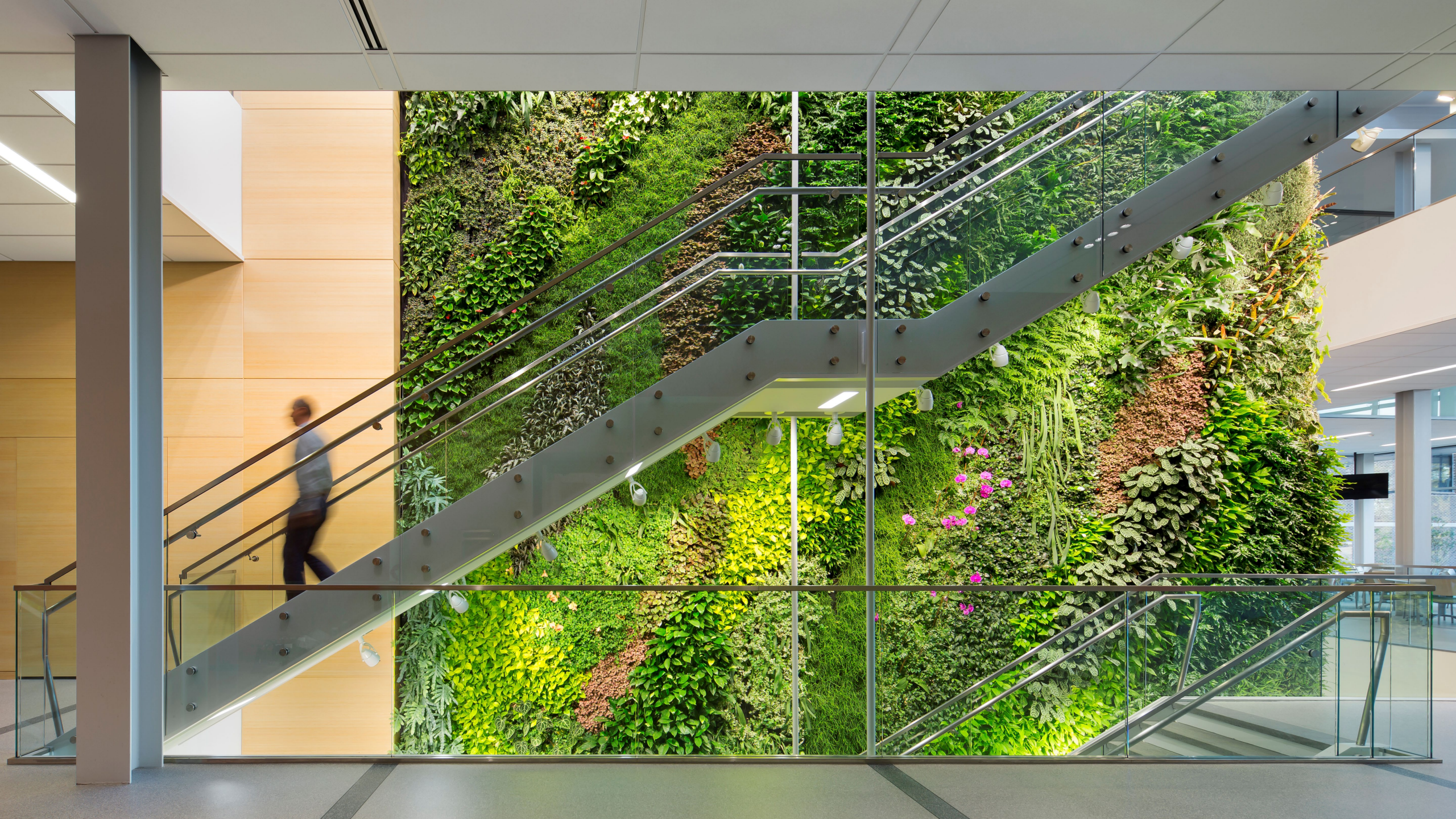
IFNH: UPPER FLOOR FLOOR





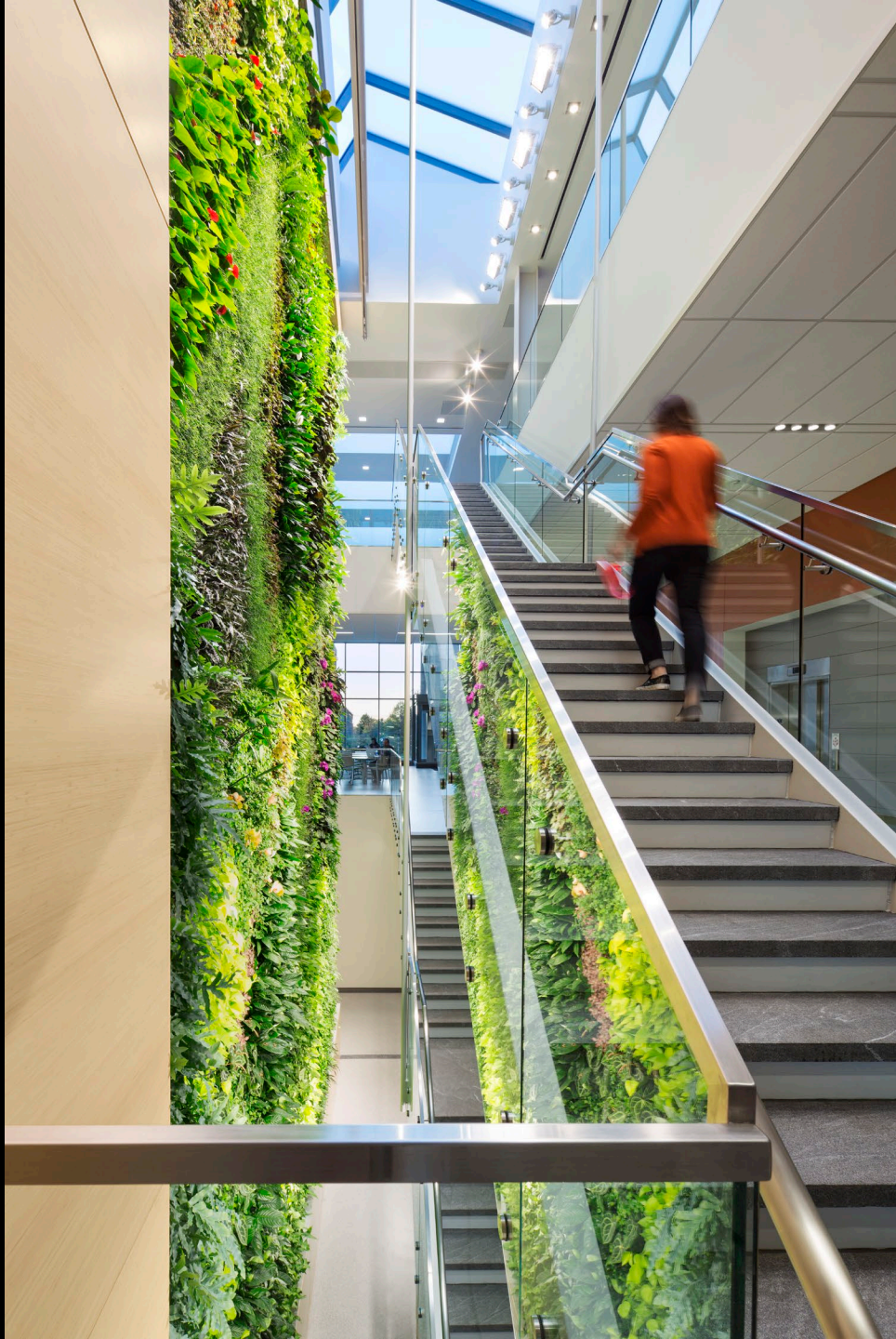


























WELLNESS

CHALLENGE:

- Increase awareness of good nutrition

SOLUTION:

- Provide educational programs to public
- Provide healthy eating alternatives



PHYSICAL ACTIVITY

CHALLENGE:

- Promote physical activity

SOLUTION:

- Encourage use of Feature stairs
- Provide active play space
- Provide Human Performance Gym



SOCIAL CONNECTEDNESS

CHALLENGE:

- Encourage inter-disciplinary approach to health & wellbeing

SOLUTION:

- Co-locate research labs and provide areas for spontaneous collaboration



ACCESS TO HEALTHCARE

CHALLENGE:

- Desire to increase access to Healthcare within University

SOLUTION:

- Provide a welcoming environment for student health services



ACCESS TO NATURE

CHALLENGE:

- Allow access to nature within the building

SOLUTION:

- Provide green wall at feature stair
- Vista design with views to the exterior throughout



SOCIAL ROI

CHALLENGE:

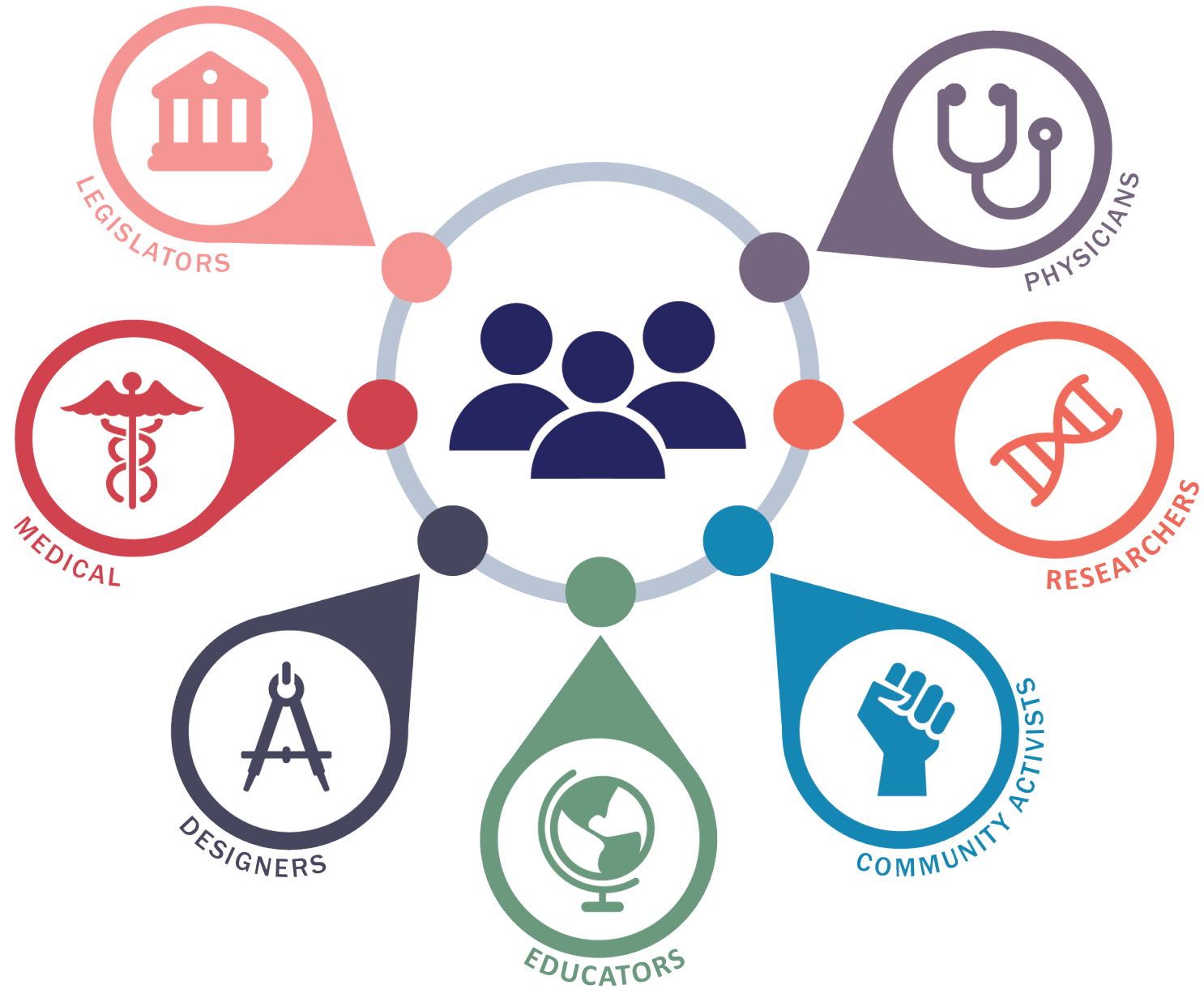
- Integrate health & wellbeing into the community and train the next generation

SOLUTION:

- Use daycare as testing ground for other community programs
- Embed student researchers within lab areas

ELEMENTS OF A COMMUNITY

BALLINGER



BEYOND GREEN:
DESIGN OF THE BUILT
ENVIRONMENT AND ITS
IMPACT ON HEALTHY
COMMUNITIES

POPULATION HEALTH COLLOQUIUM

B A L L I N G E R

