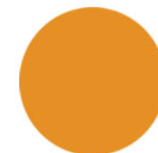# Improving Healthcare Resilience Through an Equity Focused Framework

Tiffany Broyles Yost, AIA, LEED AP D+C, Fitwel Amb.

Greg Coni, AIA, CPHC

Angela Mazzi, FAIA, FACHA, EDAC

HCD
HEALTHCARE DESIGN
CONFERENCE + EXPO

#HCDcon

GOALS

1. Understand terms, organizations and concepts around health equity

2. Define the exposome and the environmental, economic and social factors it comprises to understand its impact on health outcomes.

3. Understand how to apply our resilience framework to individual campus/building locations and easily see the strengths and gaps in your health equity strategy.

4. Name three hidden ways your budget is being impacted by your sustainability and resiliency strategy that have nothing to do with energy savings.

5. Learn how to identify community and individual challenges and how to respond to them through the built environment,

TERMINOLOGY

Social justice is justice in terms of the distribution of wealth, opportunities, and privileges within a society.

Resilience is the capacity to recover quickly from difficulties

Health equity means everyone has a fair and just opportunity to achieve optimal health. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

SOCIAL JUSTICE

RESILIENCE

HEALTH EQUITY
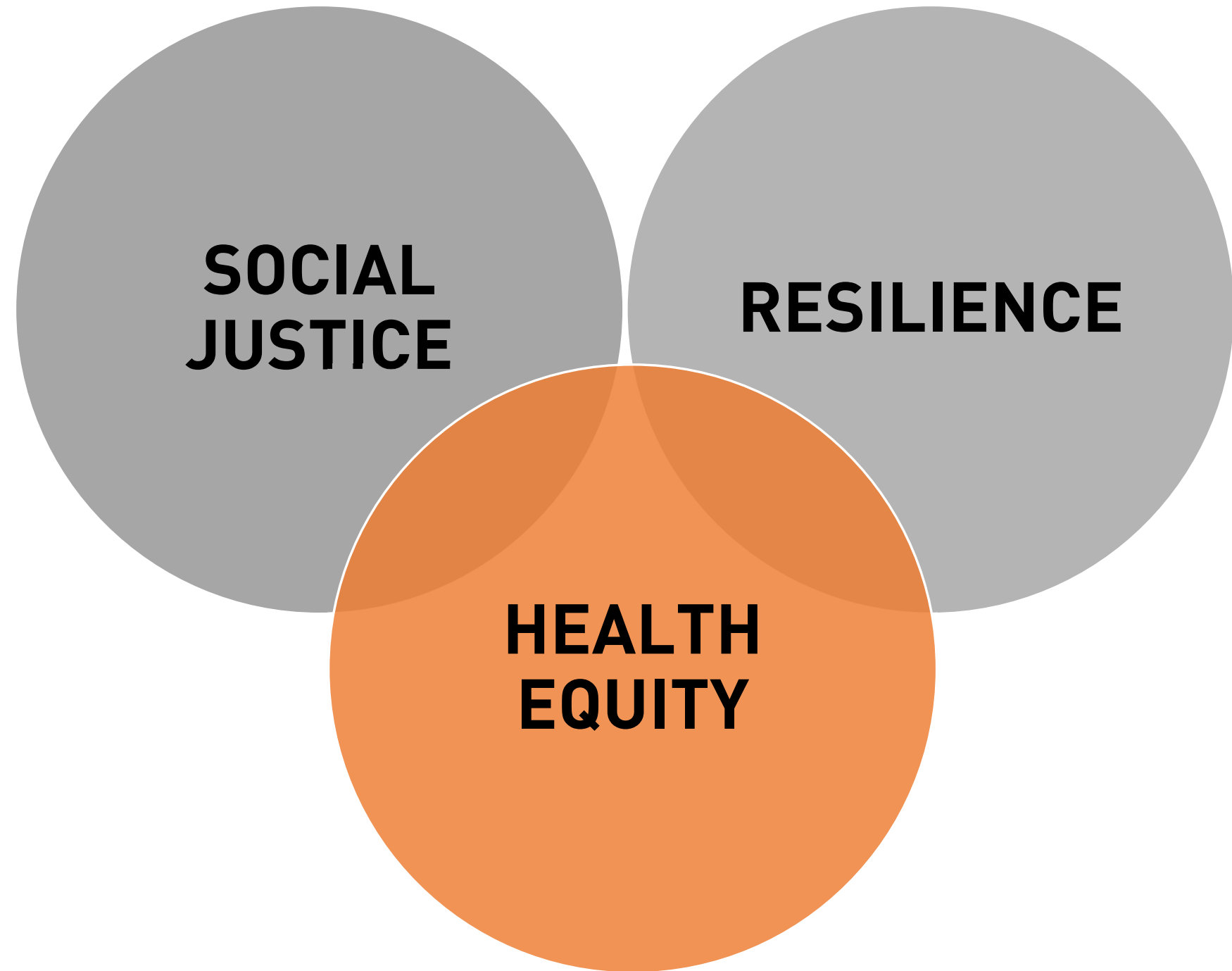
WHO CARES:

What makes a community healthy or sick?

THE RESILIENCE ORG CHART
A SPATIALIZATION OF RIGHTS

RESOURCES = RESILIENCE
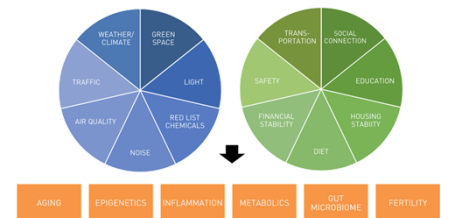
ECONOMIC

- Education level
- Economic wherewithal
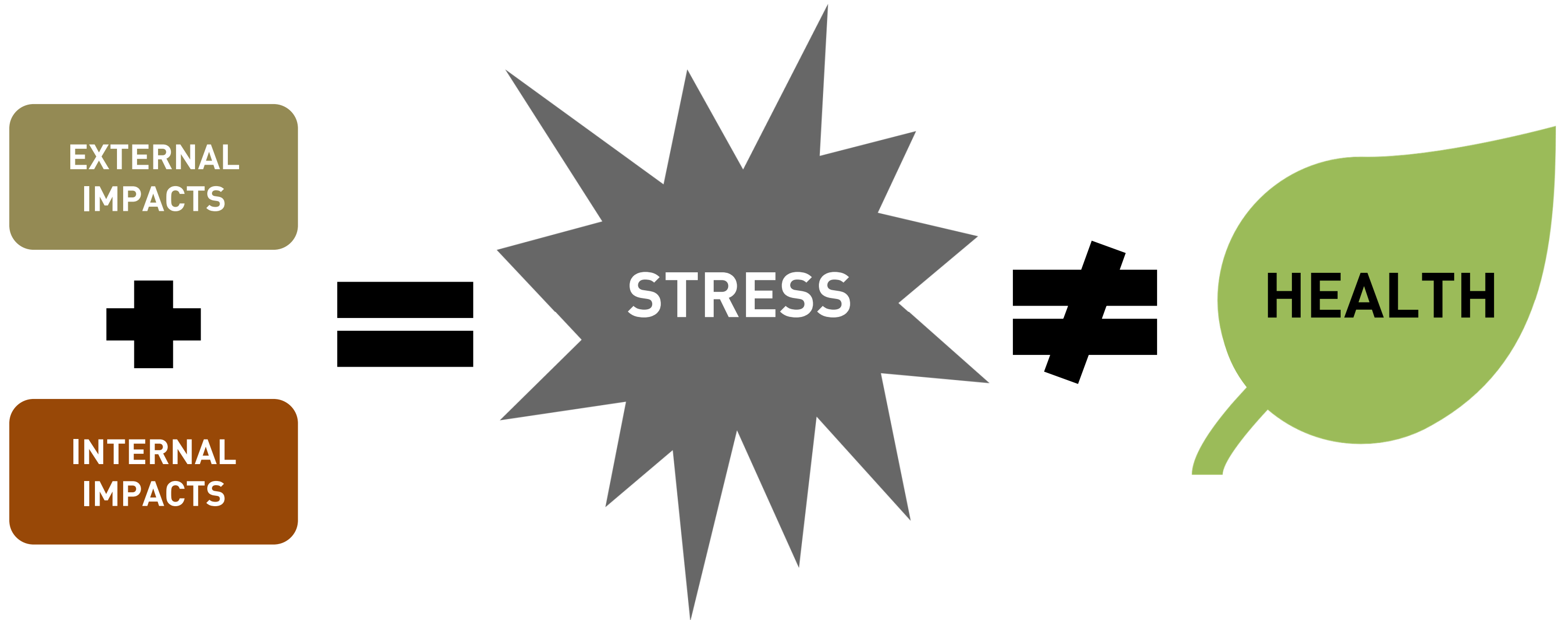- Generational wealth

ENVIRONMENTAL

- Supportive and safe
- Accessible:
  - To places/events
  - For activities
- Neutralize adverse climate events

SOCIAL

- Diverse
- Culturally competent
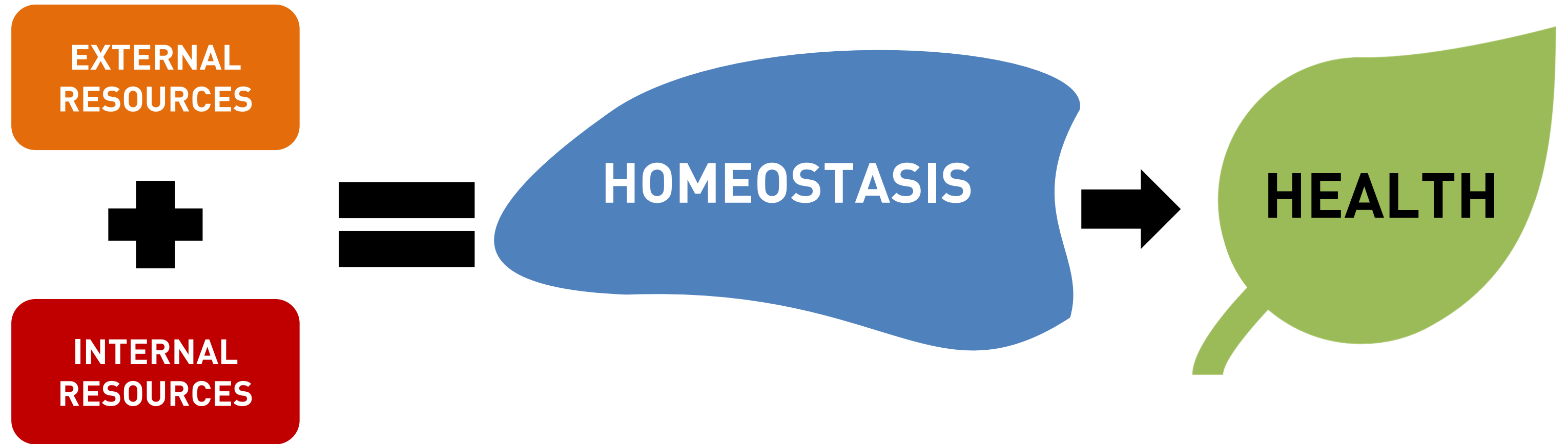- Robust networks
- Health Literate
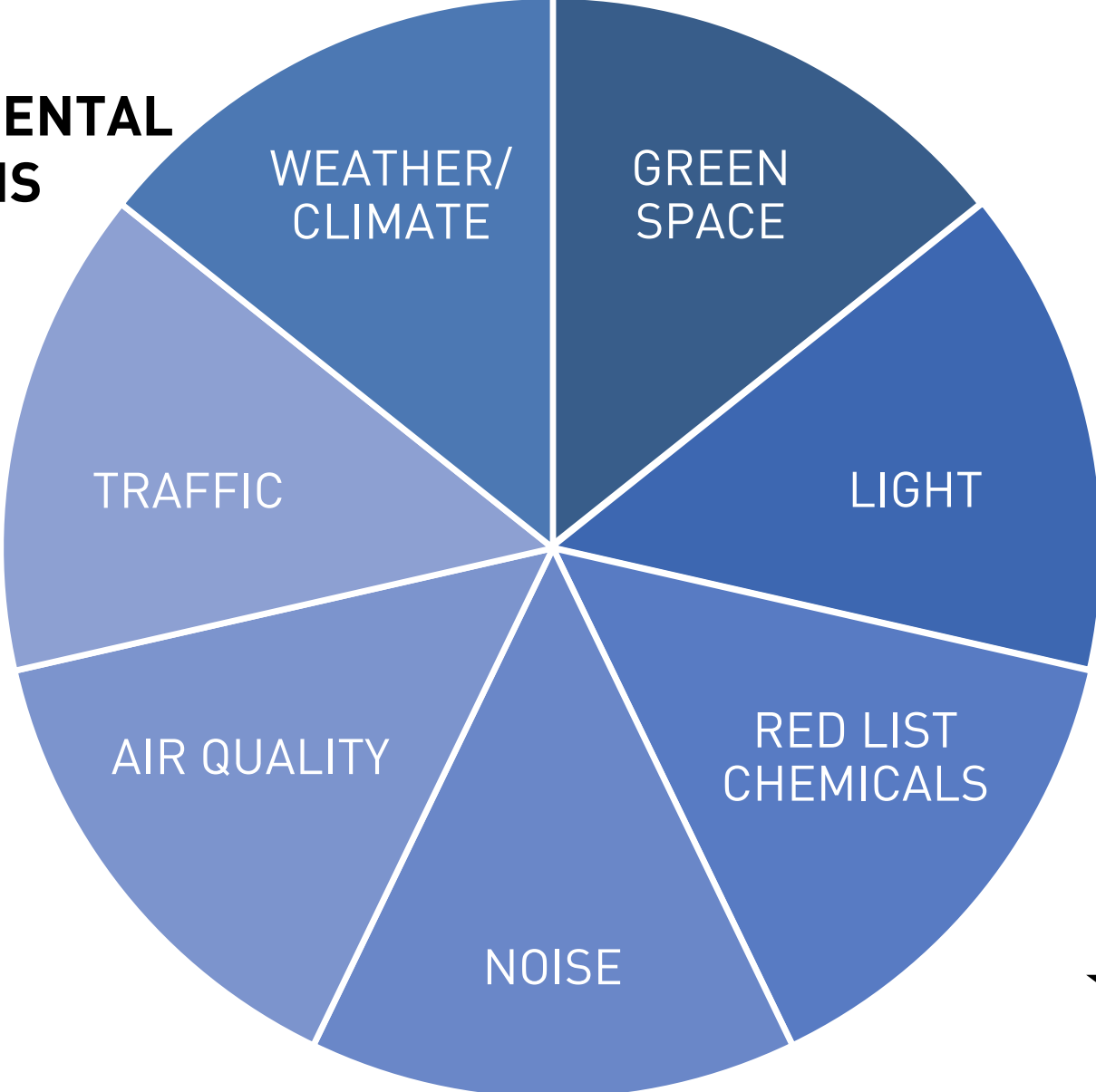- Age sensitive

DIS-EASE EQUATION

EXTERNAL IMPACTS

+

INTERNAL IMPACTS

=

STRESS

≠

HEALTH

HEALTH EQUATION

EXTERNAL RESOURCES

+

INTERNAL RESOURCES

=

HOMEOSTASIS

➤

HEALTH

HEALTH EQUITY AND THE EXPOSOME

EXTERNAL ENVIRONMENTAL CONDITIONS

- WEATHER/CLIMATE
- GREEN SPACE
- LIGHT
- RED LIST CHEMICALS
- NOISE
- AIR QUALITY
- TRAFFIC

EXTERNAL SOCIOECONOMIC CONDITIONS

- TRANSPORTATION
- SOCIAL CONNECTION
- EDUCATION
- HOUSING STABIITY
- DIET
- FINANCIAL STABILITY
- SAFETY
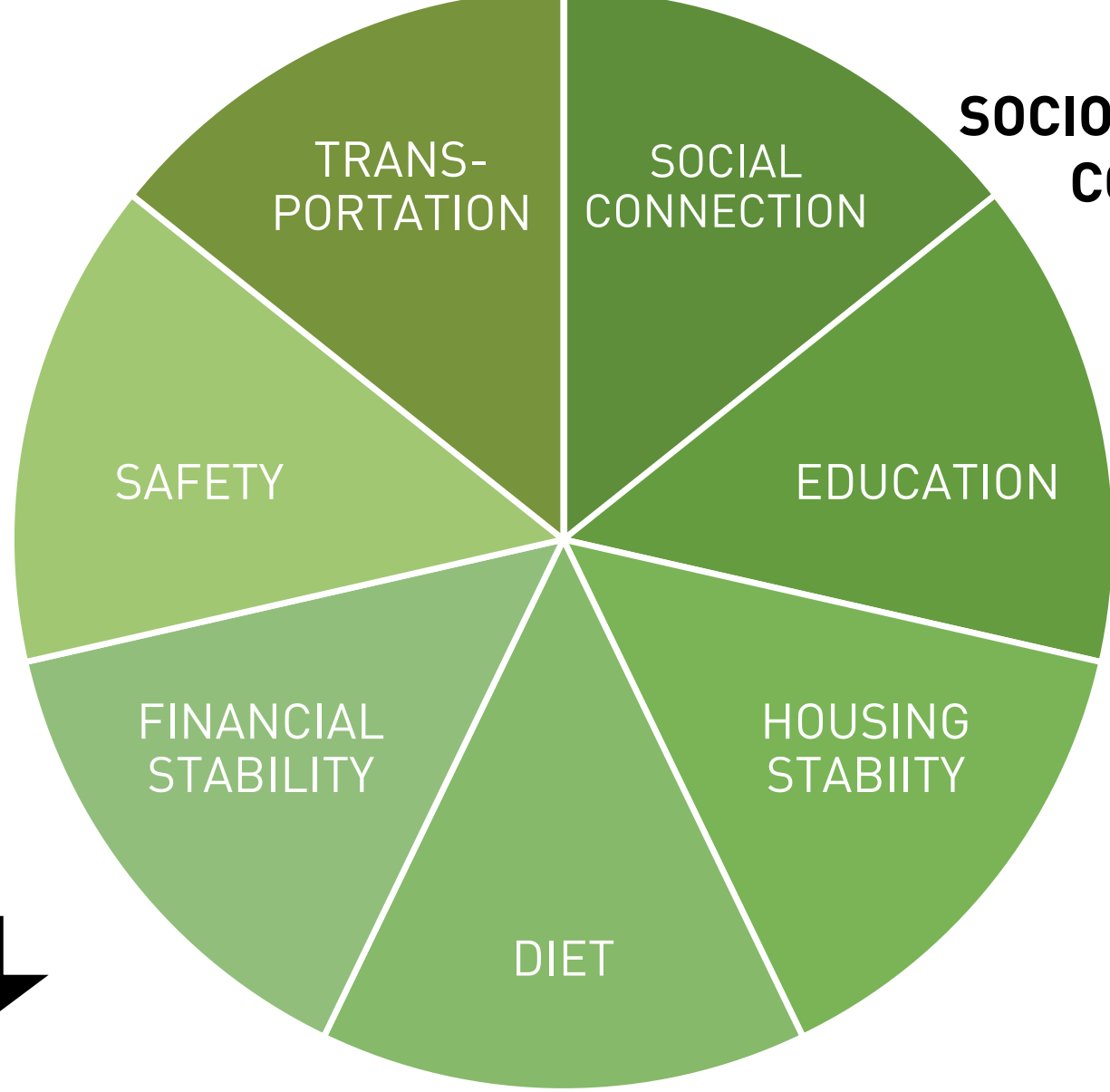
INTERNAL BODILY PROCESSES

- AGING
- EPIGENETICS
- INFLAMMATION
- METABOLICS
- GUT MICROBIOME
- FERTILITY

AUTONOMIC NERVOUS SYSTEM AND STRESS

PHYSIOLOGICAL STATE	HOMEOSTENOSIS/ CRISIS	ALLOSTASIS	HOMEOSTASIS

	STRESSOR	RESET	RESTORATIVE

	SYMPATHETIC NERVOUS SYSTEM			PARASYMPATHETIC NERVOUS SYSTEM		
IMMEDIATE	FIGHT OR FLIGHT			REST AND DIGEST		
SHORT TERM	HIGHER LEVEL THOUGHT AND MEMORY SUPPRESSED	IMMUNE SYSTEM SUPPRESSED	INFLAMMATION	CONSCOUSLY SLOW BREATHING/MEDITATION		
LONG TERM	HIGHER INCIDENCE OF MENTAL ILLNESS Anxiety, Depression, PTSD	HIGHER INCIDENCE OF DISEASE Heart disease, cancer, diabetes, obesity, autoimmune disorders GENETIC CHANGES Steroids bind to receptor proteins that bind to DNA and regulate genes. Changes in telomeres regulating cellular structure possible		CALM DELIBERATION	IMMUNE SYSTEM STRENGTHENED	HEALING AND TISSUE GROWTH

Mazzi A. Toward a Unified Language (and Application) of Salutogenic Design: An Opinion Paper. HERD: Health Environments Research & Design Journal. 2021

A SALUTOGENIC APPROACH

Focus on alleviating stress and building resilience by providing an abundance of environmental resources for patients, families and staff

Benson et al

RELAXATION RESPONSE

"I restore"

Antonovsky et al

Bandura et al

SENSE OF COHERENCE

"I understand"

GENERALIZED RESISTANCE RESOURCES

GENERAL RESOURCE DEFICITS

SELF EFFICACY

"I can"

"I shelter"

PROSPECT AND REFUGE

"I relate"

BIOPHILIA

Appleton et al

Wilson et al

Mazzi A. Toward a Unified Language (and Application) of Salutogenic Design: An Opinion Paper. HERD: Health Environments Research & Design Journal. 2021

How are resilience , sustainability, and equity related?

SUSTAINABLE, RESILIENT, & EQUITABLE

White people are exposed to approximately **17% less** air pollution than is caused by their consumption.

56% of the population living near toxic waste are people of color.

Black people are exposed to approximately **56% more** air pollution than is caused by their consumption.
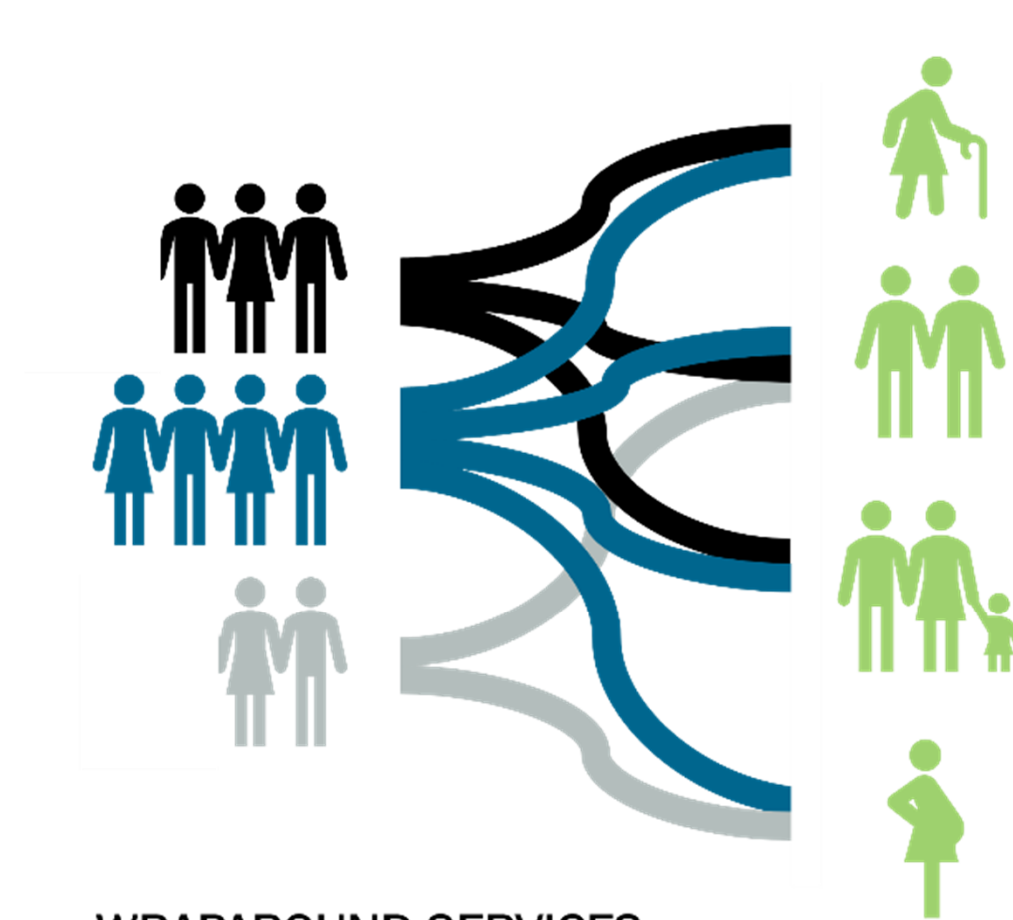
Hispanic people are exposed to approximately **63% more** air pollution than is caused by their consumption.

DESIGNING FOR EQUITY

	ELDERLY	LGBTQIA+	TRAUMA	MENTAL ILLNESS
URBAN				
RURAL				
MENTAL ILLNESS				
TRAUMA				
LGBTQIA+				
ELDERLY				

UNDERSERVED POPULATIONS
These populations are not monolithic- their needs across multiple dimensions must be considered.

WRAPAROUND SERVICES
In a single visit, patients can access expanded services that address other social determinants to health

American College of Healthcare Architects Task Force on Future of Healthcare. (2021).

How can built environments provide a wellness intervention?

SCALES OF RESILIENCE
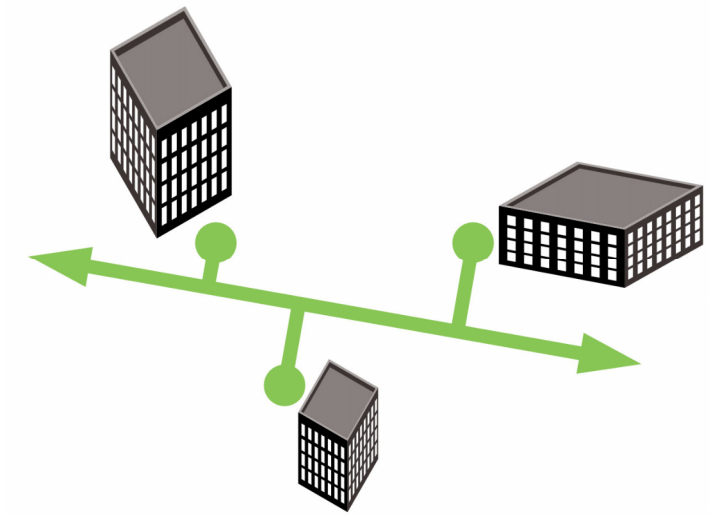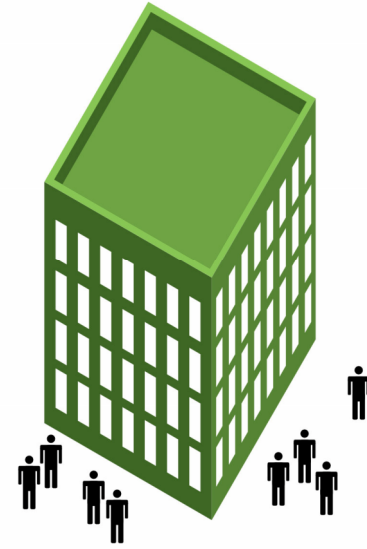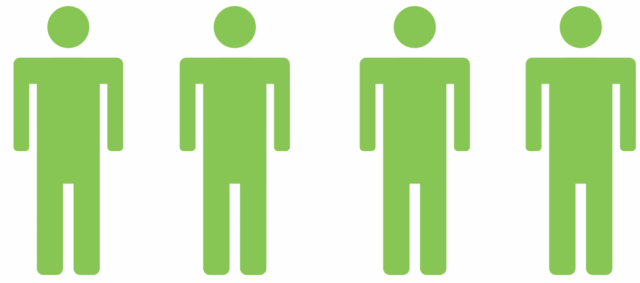
	HUMAN	BUILDING	INFRUSTRUCTURE
WHAT	Mental and physical wellbeing of the individual	Buildings and physical spaces for one individual to a community	Connecting transportation, utilities, and public commodities
HOW	Providing for respite and recovery	Flexibility to adapt to potential future stressors	Minimizing impact of future use and growth
	Equitable access to healthcare and resources	Using equitable design to increase accessibility	Providing equitable access to resources for all communities
	Optimizing for safety and security from stressors	Minimizing exposure to external stressors	Maintaining systems for optimal operation

HIGH IMPACT RESILIENCE

ZERO CARBON BUILDINGS: Design buildings that are ready for and adaptable to future uses, energy sources, and technologies.

RESILIENT: Design for adaptation and flexibility of the building and site by reviewing climate risks, determining the service life of the building, and projecting opportunities for incremental building performance over time.

COMMUNITY RESILIENCE: Design buildings to act as a community resource during disaster events, offering shelter, charging points, communication hubs, warming/cooling centers, and points of distribution.

EQUITABLE: Asses how your project can respond to current and future disaster events (natural or man-made) with designs that protect the most vulnerable members of the community and enable rapid recovery.

HEALTHY: Address the potential public health risks associated with climate change and design to improve community health.

INTERVENTIONS

SCALES OF RESILIENCY

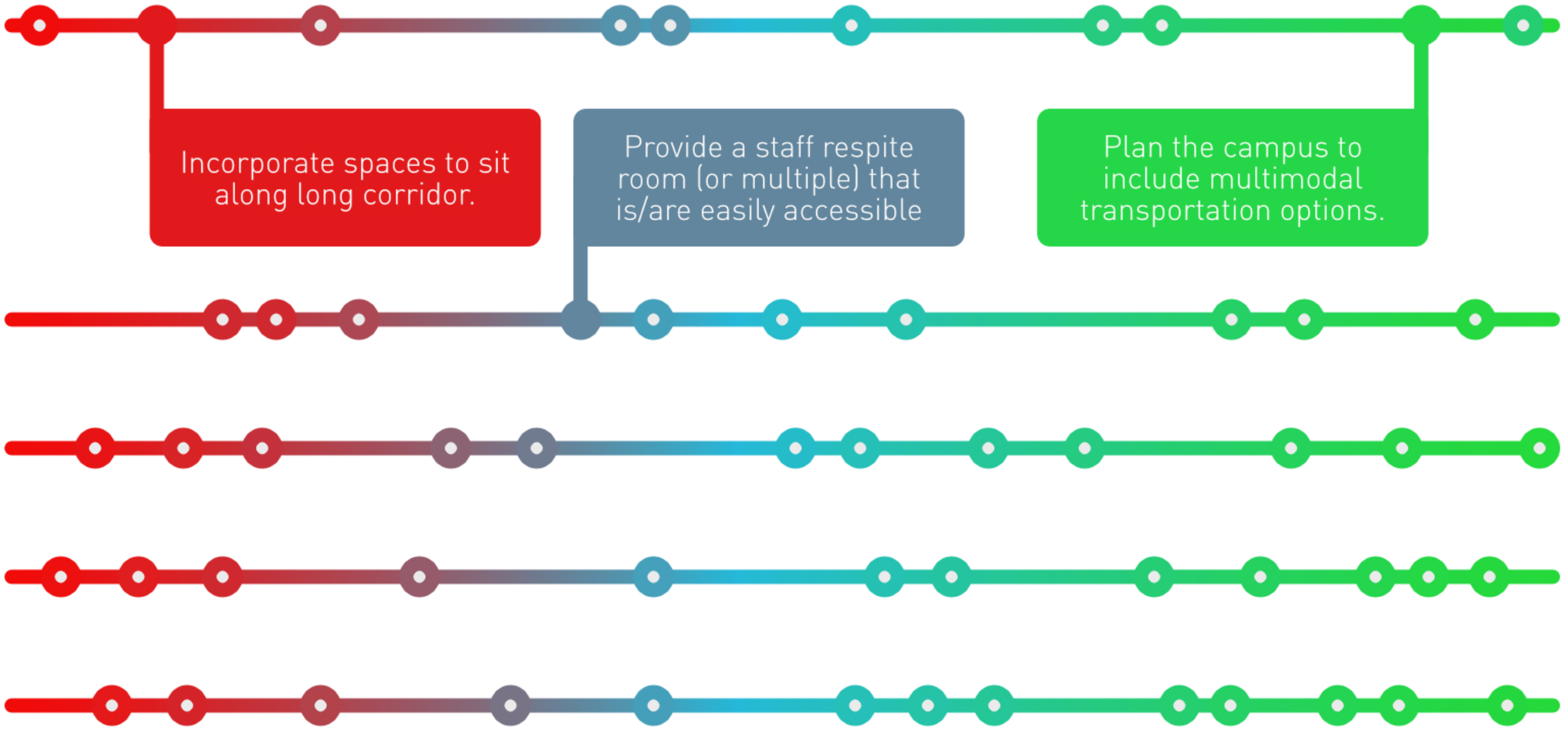**HUMAN** **BUILDING** **INFRASTRUCTURE**

RESILIENCE FACTORS

SELF EFFICACY

RELAXATION RESPONSE

SENSE OF COHERENCE

PROSPECT AND REFUGE

BIOPHILIA/ SUSTAINABILITY

INTERVENTIONS

SCALES OF RESILIENCY

HUMAN　　　　　　　　　**BUILDING**　　　　　　　　　**INFRASTRUCTURE**

RESILIENCE FACTORS

SELF EFFICACY

Incorporate spaces to sit along long corridor.

Provide a staff respite room (or multiple) that is/are easily accessible

Plan the campus to include multimodal transportation options.

RELAXATION RESPONSE

SENSE OF COHERENCE

PROSPECT AND REFUGE

BIOPHILIA/ SUSTAINABILITY

INTERVENTIONS

SCALES OF RESILIENCY

HUMAN　　　　　　　　　**BUILDING**　　　　　　　　　**INFRASTRUCTURE**

RESILIENCE FACTORS

Perioperative Floor Renovation

SELF
EFFICACY

RELAXATION
RESPONSE

SENSE OF
COHERENCE

PROSPECT
AND REFUGE

BIOPHILIA/
SUSTAINABILITY

INTERVENTIONS

SCALES OF RESILIENCY

HUMAN   **BUILDING**   **INFRASTRUCTURE**

RESILIENCE FACTORS

Campus Master Plan

SELF EFFICACY

RELAXATION RESPONSE

SENSE OF COHERENCE

PROSPECT AND REFUGE

BIOPHILIA/ SUSTAINABILITY

PUTTING IT TOGETHER

EXPOSOME
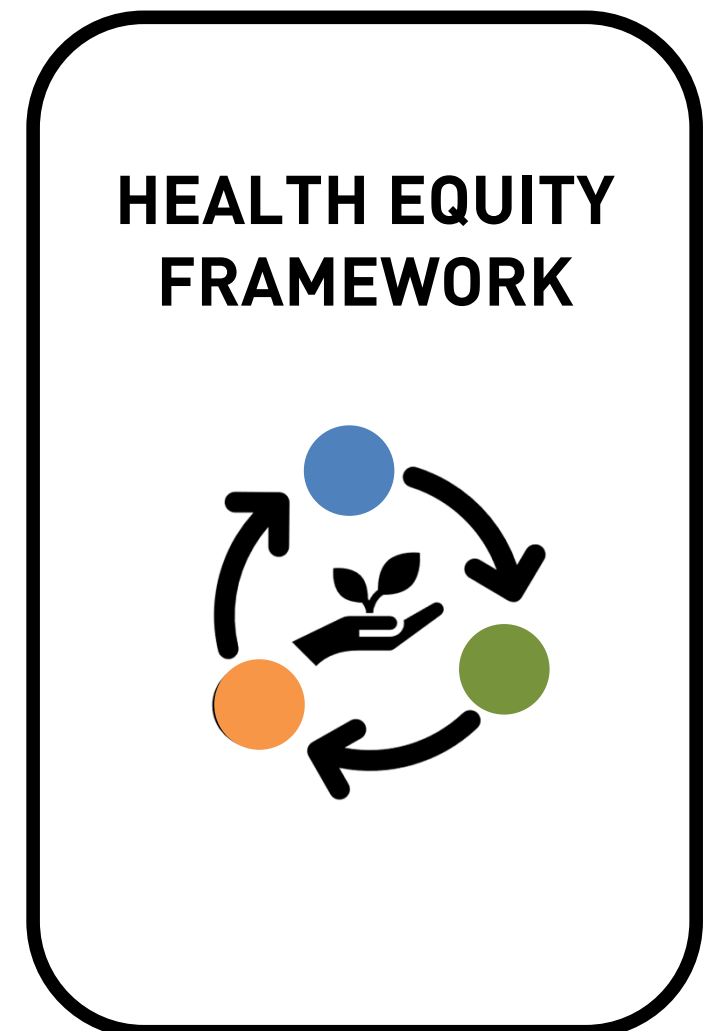
STRESS
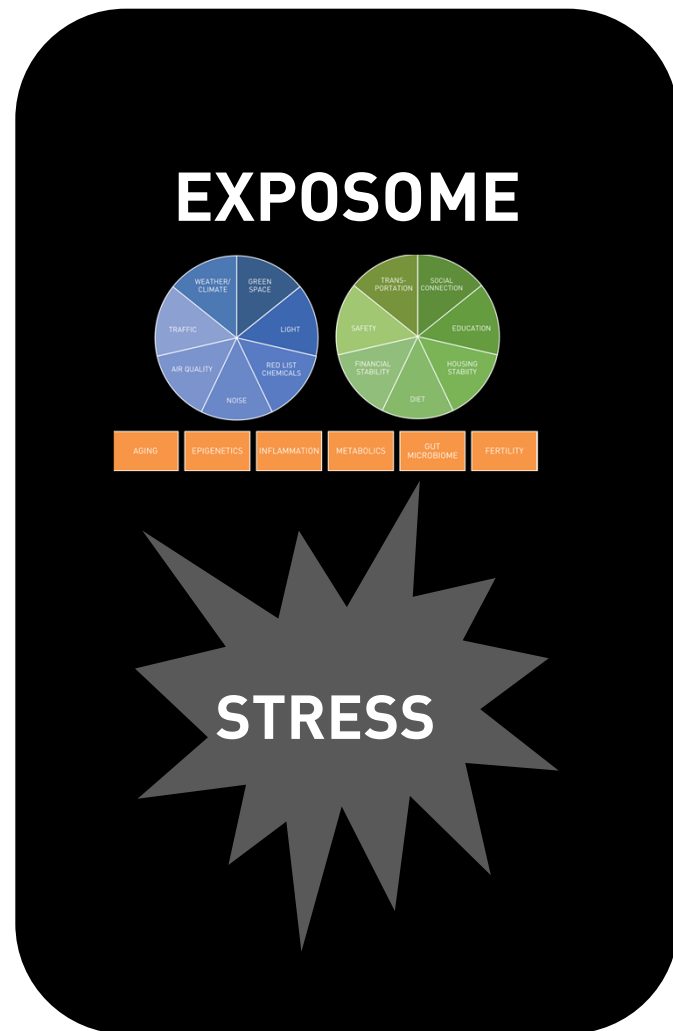
Counter negative external and internal impacts that inequitably cause dis-ease

ASPECTS OF SALUTOGENESIS
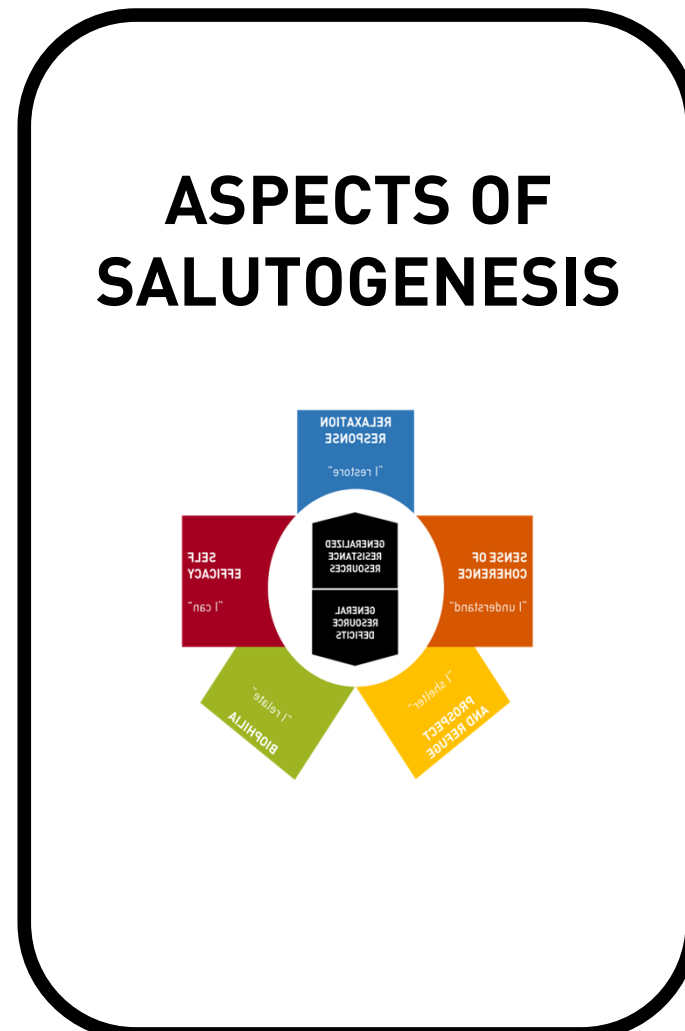
Using Salutogenic strategies

RESILIENCE SCALES

Expressed at multiple scales of impact

HEALTH EQUITY FRAMEWORK

Incorporating an equity lens

RESOURCES = RESILIENCE

ECONOMIC

- Education level
- Economic wherewithal
- Generational wealth

ENVIRONMENTAL

- Supportive and safe
- Accessible:
  - To places/events
  - For activities
- Neutralize adverse climate events

SOCIAL

- Diverse
- Culturally competent
- Robust networks
- Health Literate
- Age sensitive

HEALTH EQUITY FRAMEWORK

WELCOMING AND INCLUSIVE
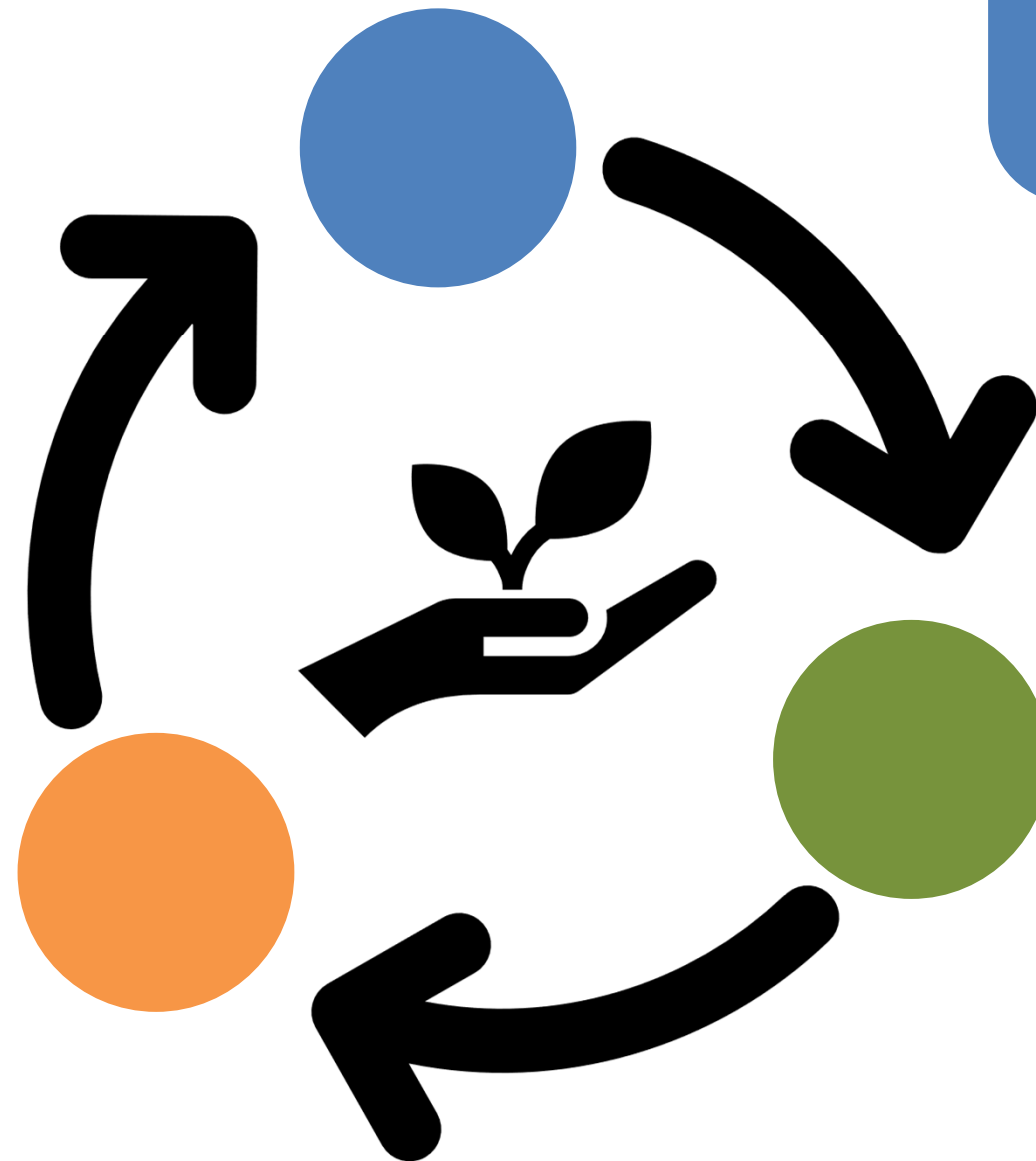
- Accessible
- Safe
- Open

HEALTH BEYOND BUILDINGS

- Push Care
- Net Positive Community Impacts
- 24 Hour Buildings

REGENERATIVE

- Energy Efficient
- Equitable Distribution of Resources
- Active Design
- Space for Seclusion and Reflection

HEALTH BEYOND BUILDINGS

- Push instead of pull to screening/preventative care
  - Wraparound services

- Community net positive impacts
  - Employment
  - Skill building
  - Career modeling
  - Local vendors
  - Strategic partnerships/Health districts

- 24 Hour Buildings
  - What else can it be?
 - Increase space utilization

WELCOMING

- Accessible
  - Bariatric
  - Accessible routes
  - Hearing and vision impaired
  - Neurodiversity

- Safe:
  - Crime prevention through environmental design (CPTED)
  - Psychological Safety
  - Non-toxic

- Open
  - Access to public transportation
  - Bike accessible

REGENERATIVE

- Energy Efficient
  - Reducing energy consumption
  - Minimize reliance on central grid
  - Building upkeep and system upgrades
  - Optimization of systems

- Equitable distribution of resources
  - Access to daylight
  - Access to nature
  - Well ventilated

- Active design
  - Access to public transportation
  - Bike accessible

- Space for seclusion and reflection
  - Respite space
  - Religious accommodations
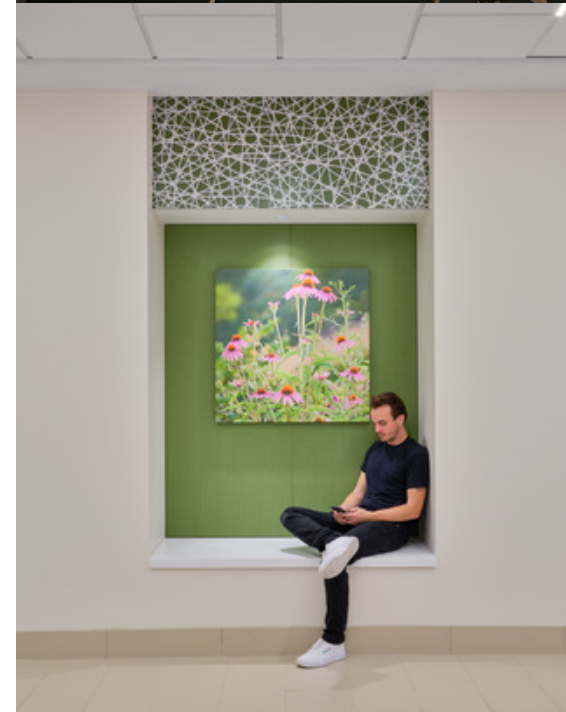
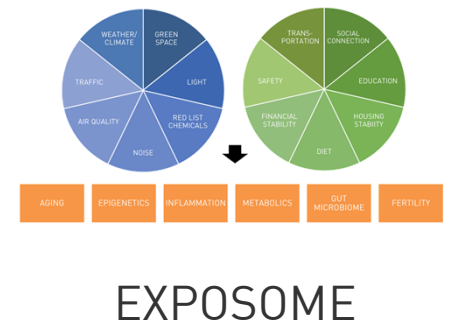# THE RESILIENCE ORG CHART
A SPATIALIZATION OF RIGHTS

THANK YOU

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