



PAM

PERTUBUHAN AKITEK MALAYSIA
MALAYSIAN INSTITUTE OF ARCHITECTS



Ar. ADRIANTA AZIZ
Immediate Past President, PAM





Incorporating Architectural & Interior Design to Enable Sustainable Facility Management

Theme:
Sustainable Design Elements
to Deliver End User Requirements



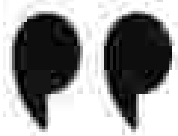






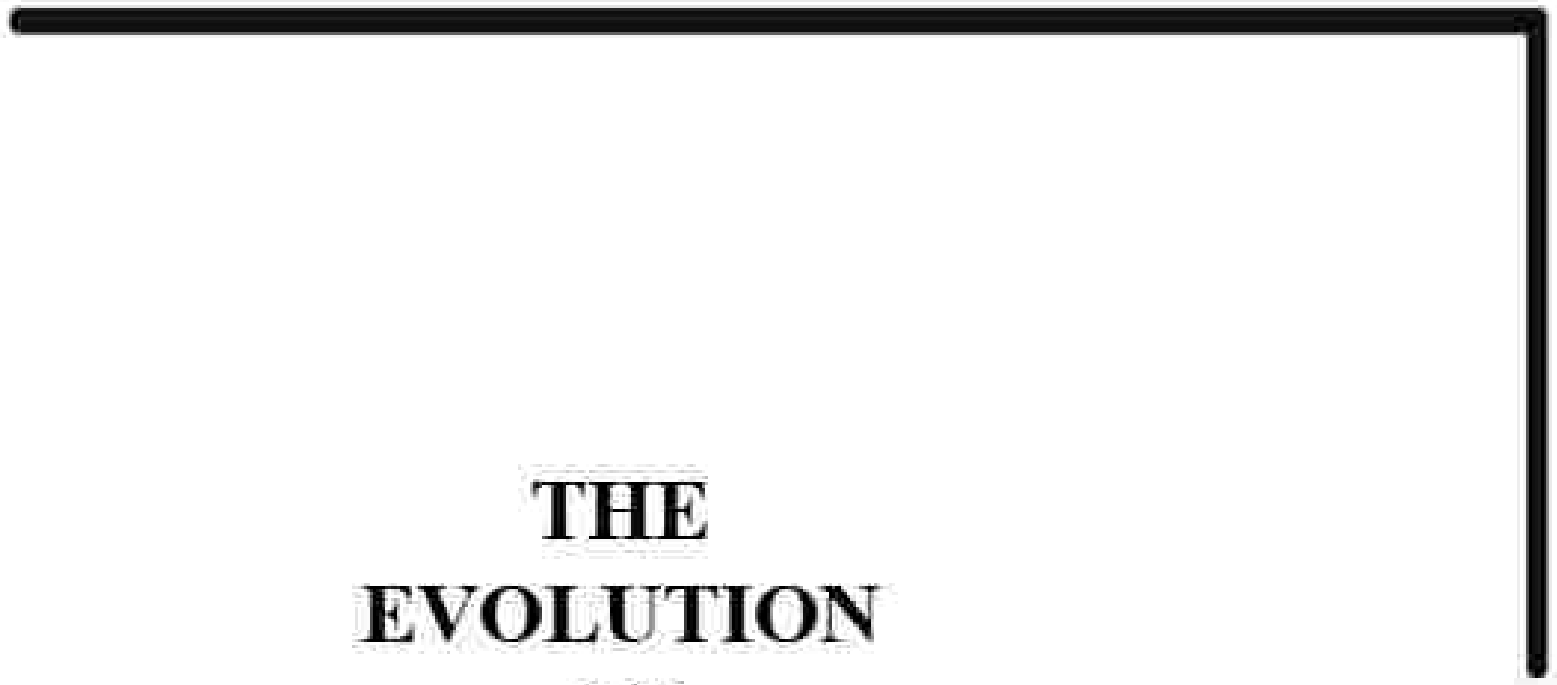




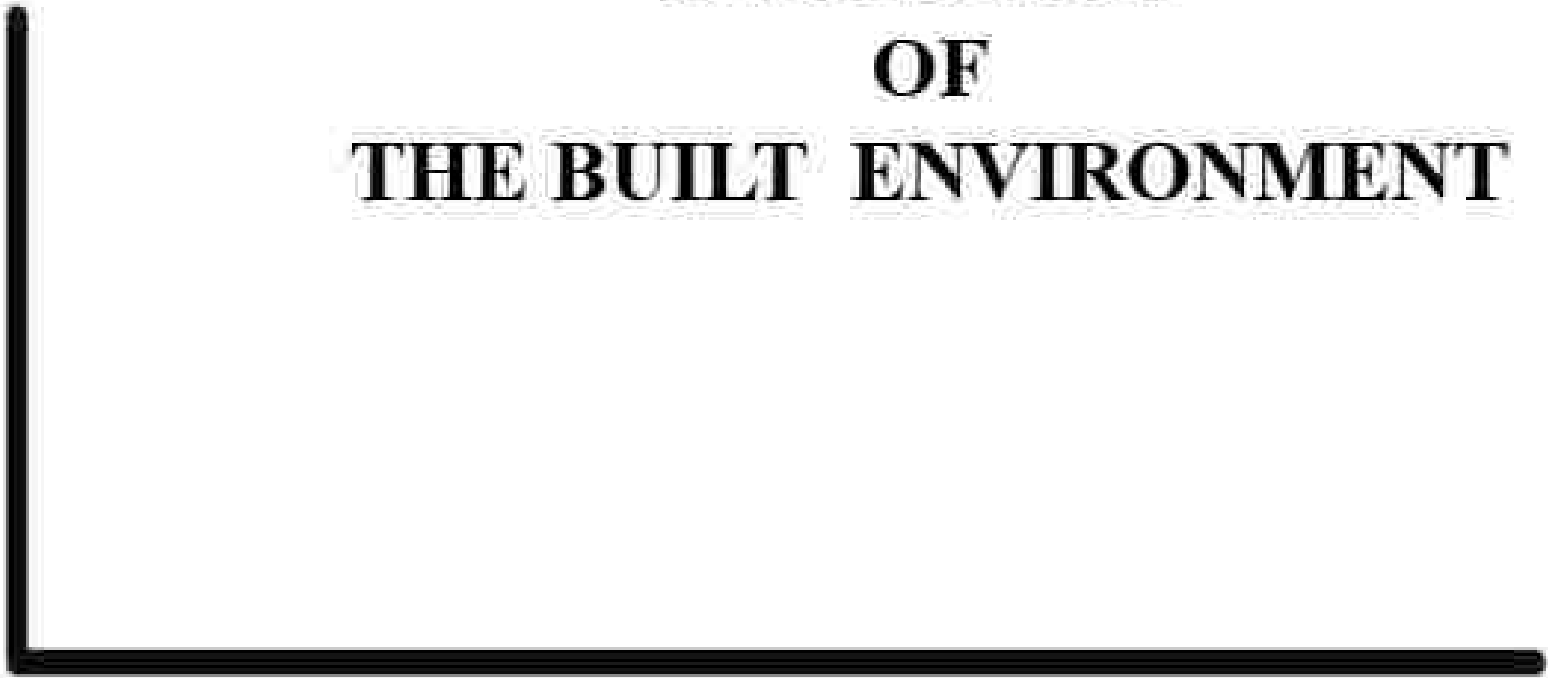


“Design is no longer
what we build,
but how it performs
through time.”



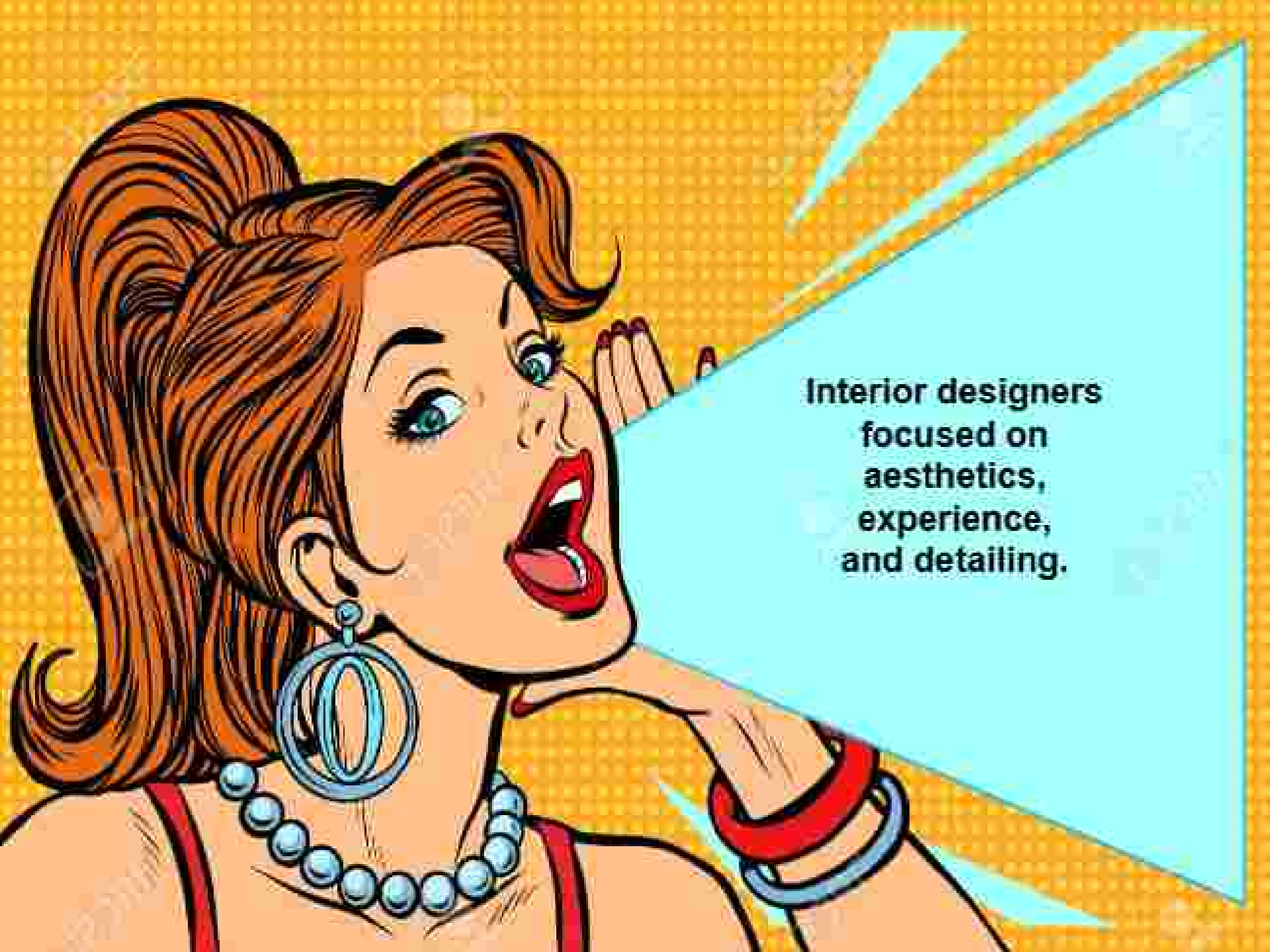


**THE
EVOLUTION
OF
THE BUILT ENVIRONMENT**





Architects focused
on form,
space, and concept.



Interior designers
focused on
aesthetics,
experience,
and detailing.

Facility managers













THE GLOBAL CHALLENGES



Emerging Topics in Sustainable Built Environment



Climate Change
Adaptation

Building
Sustainability
and Resilience

Urban Heat Island

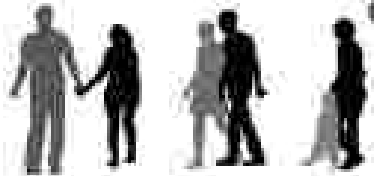


Building
Performance
Evaluation

Energy Security



Data Collection and
Data Management



Outdoor
Comfort

Thermal Comfort



Building Indoor Comfort



Green
Building





- Climate change
- Energy consumption
- Rising maintenance costs
- User expectations
- Digital transformation



World issues

icon set



poverty and
homelessness



hunger



health and
well-being



inequality



unemployment



education



water supply



terrorism
and war



crime and
security



industry and
infrastructure



economic
issues



infectious
diseases



electricity
supply



environment
and climate

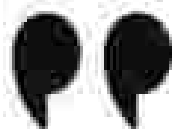


corruption



drug abuse

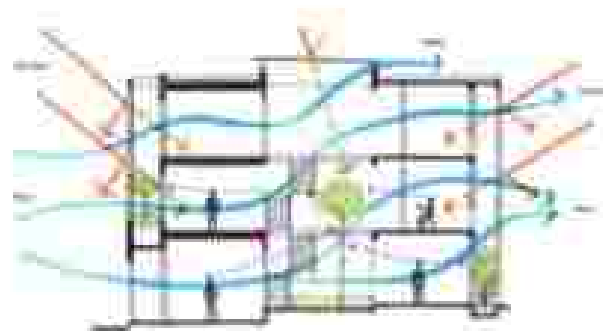




- Climate change and the urgent need for carbon reduction
- Increasing energy consumption in urban environments
- Rising operational and maintenance costs
- Aging infrastructure in many cities
- Increasing expectations from users for comfort, flexibility, and digital integration

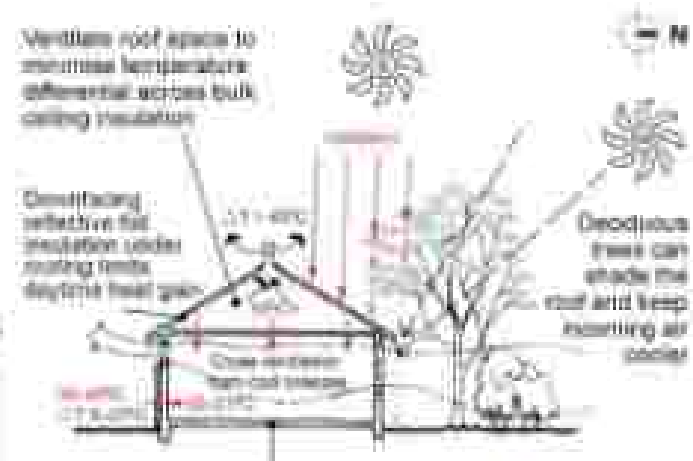


PASSIVE DESIGN

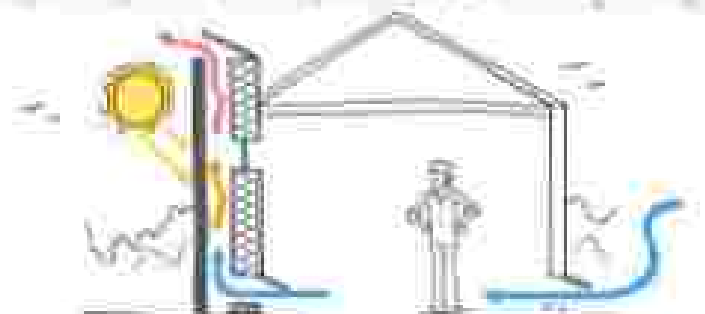


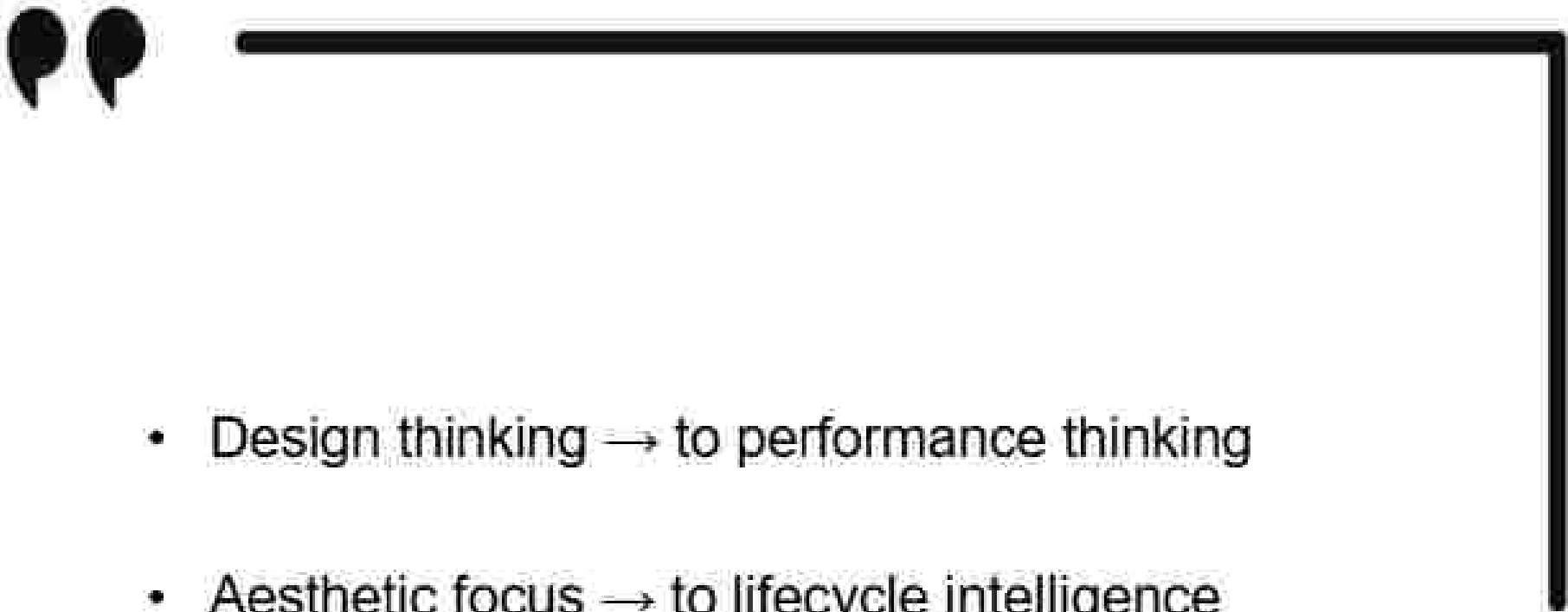
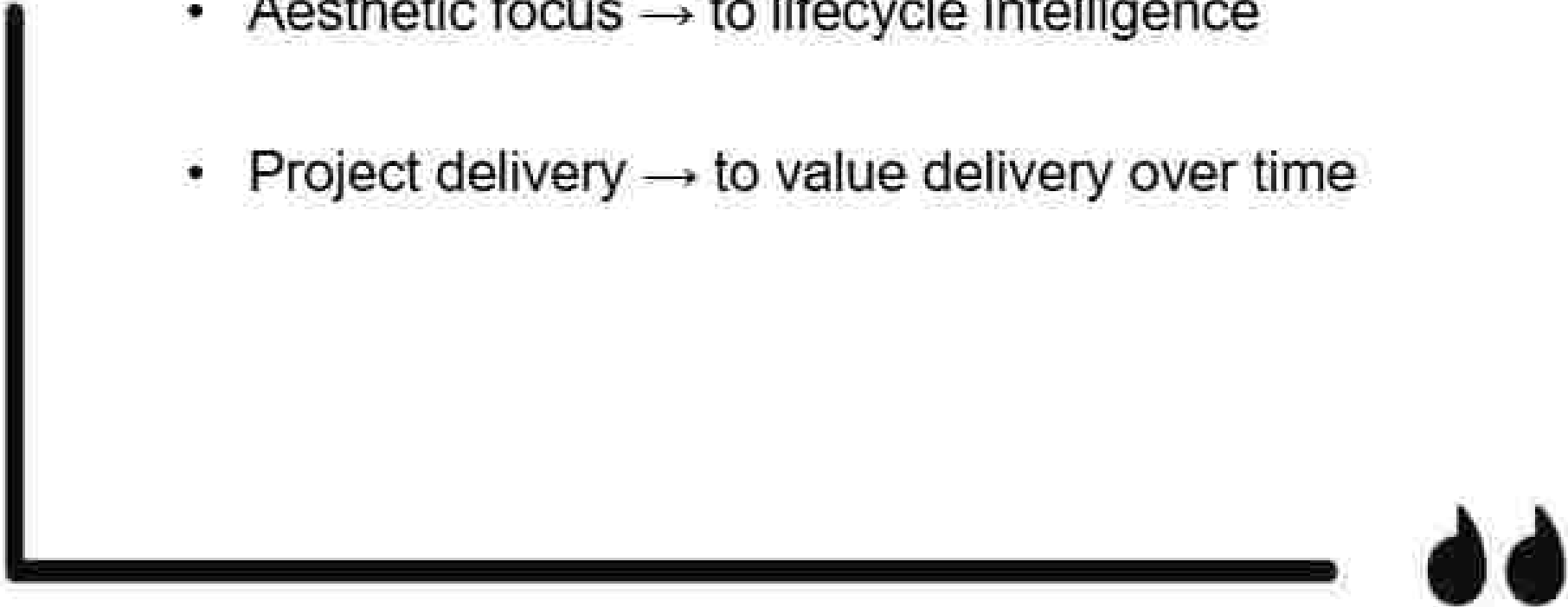
Ventilate roof space to minimise temperature differential across bulk ceiling insulation

Overhanging reflective flat insulation under roofing limits daytime heat gain



Deciduous trees can shade the roof and keep incoming air cooler

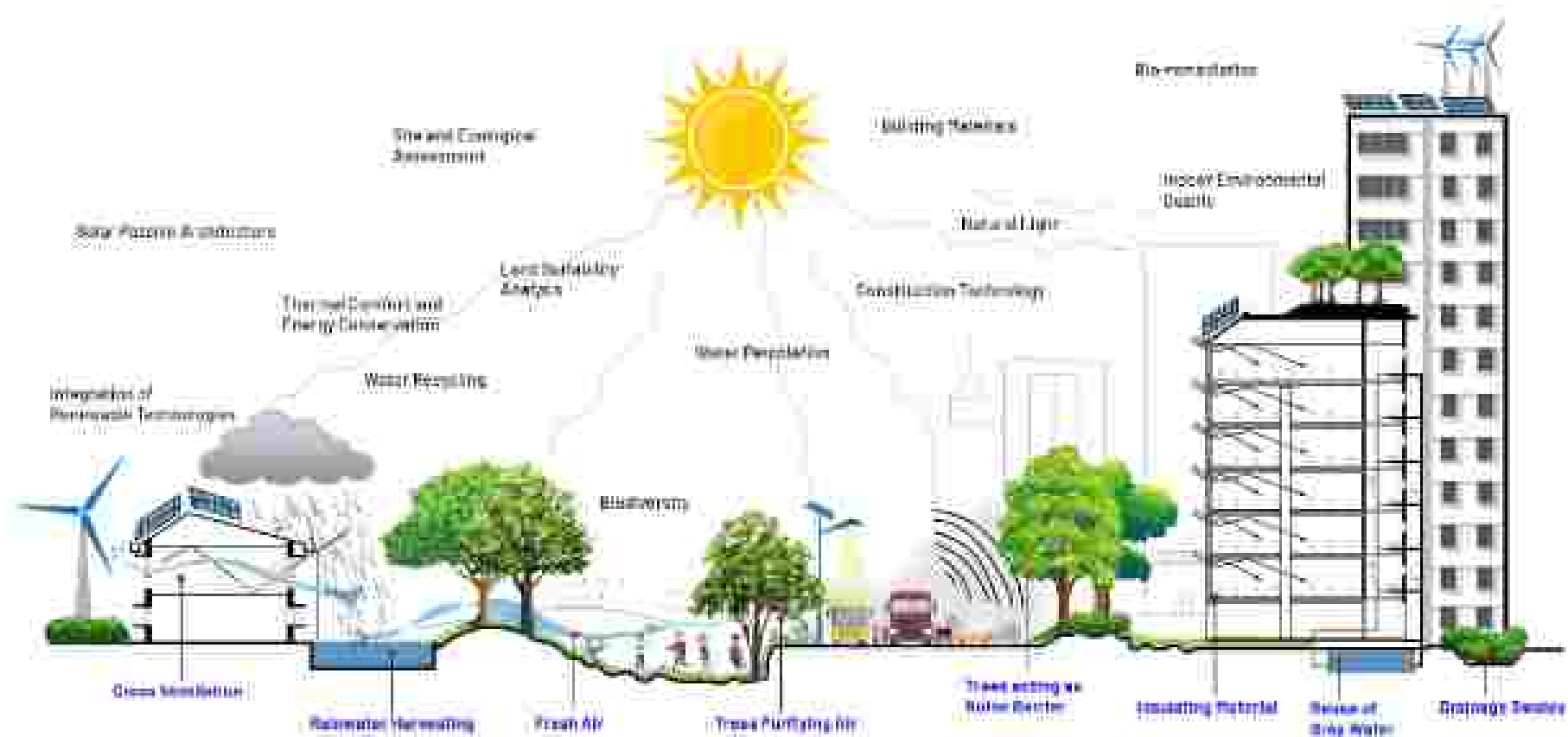


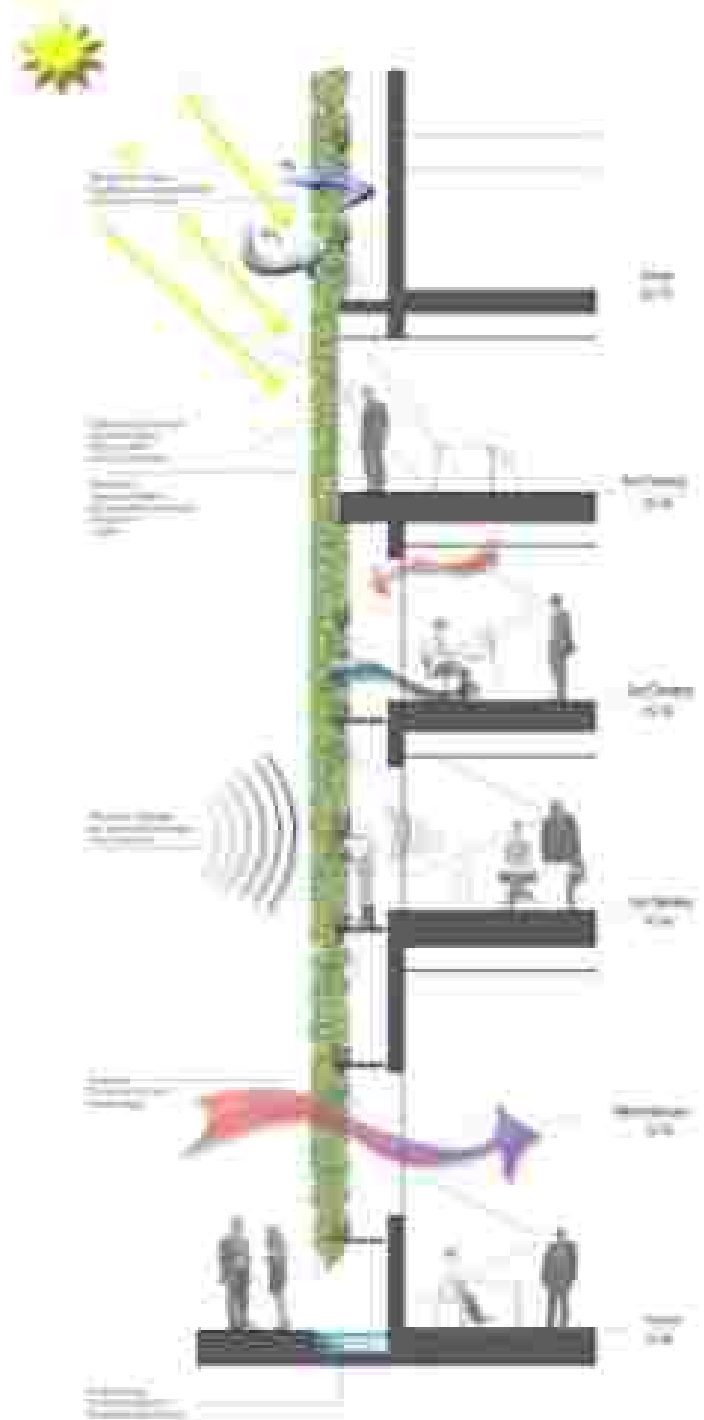
- 
- Design thinking → to performance thinking
 - Aesthetic focus → to lifecycle intelligence
 - Project delivery → to value delivery over time
- 



**ARCHITECTURE
AS A STRATEGIC TOOL
FOR SUSTAINABILITY**



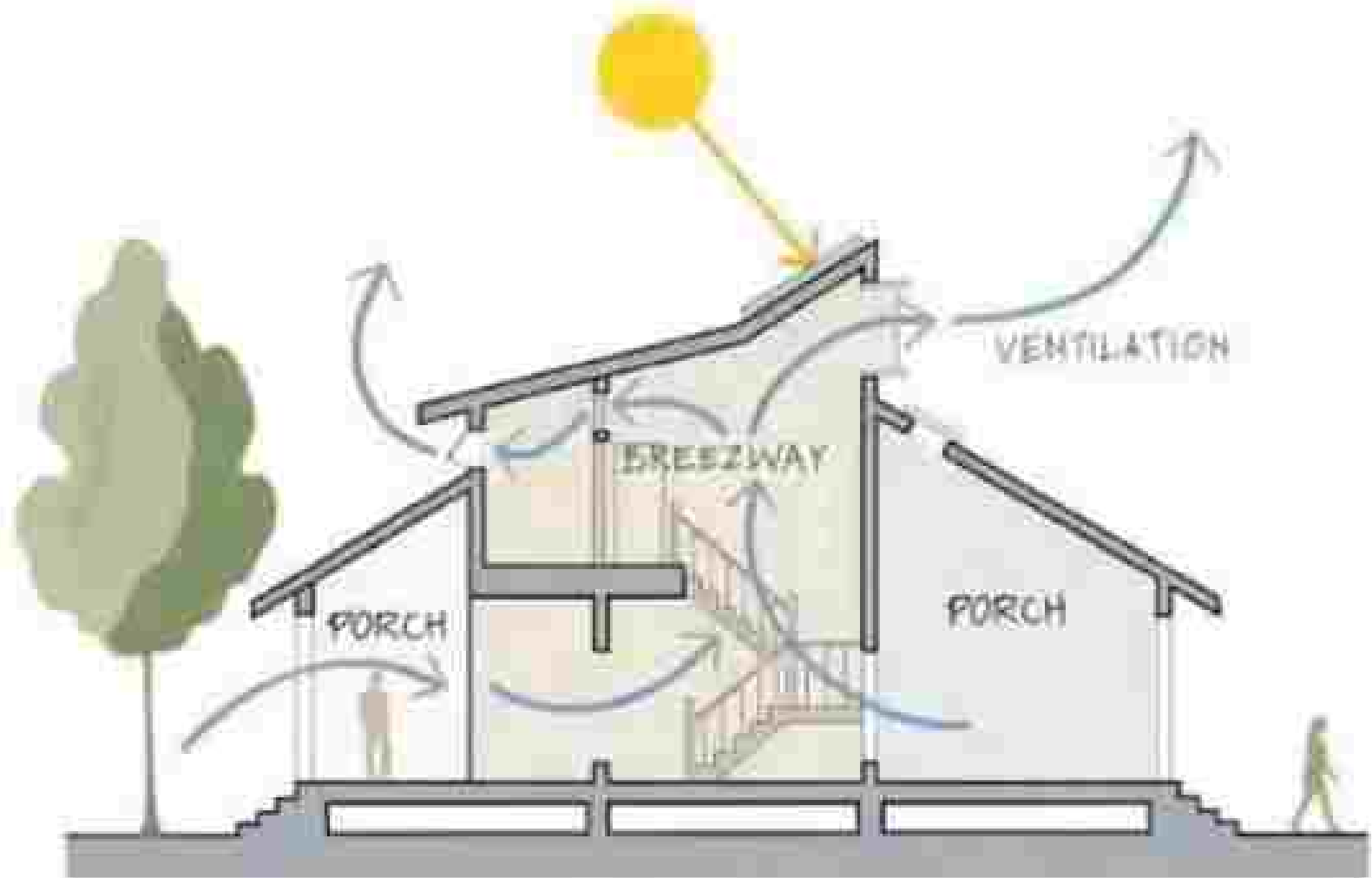


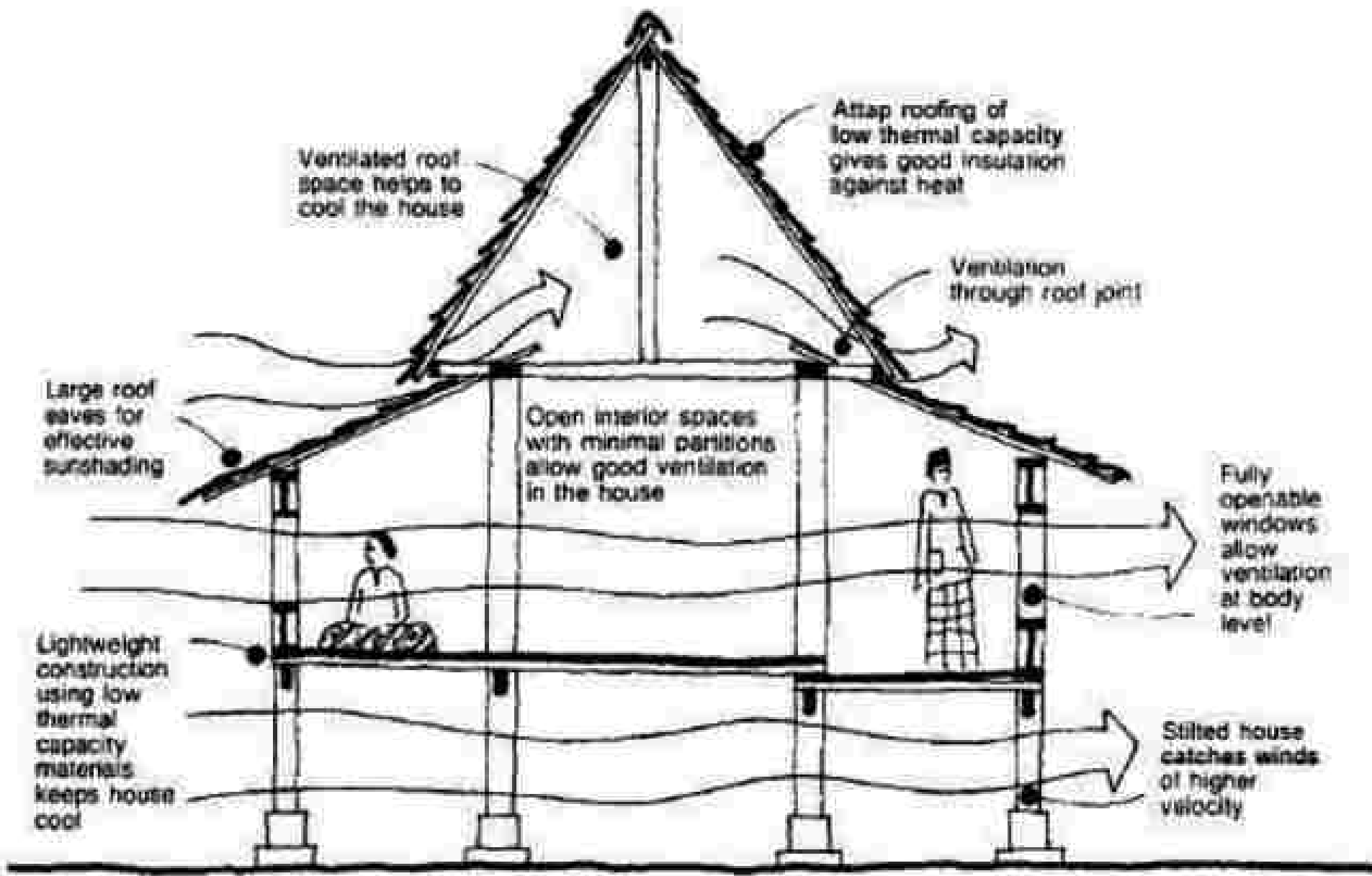


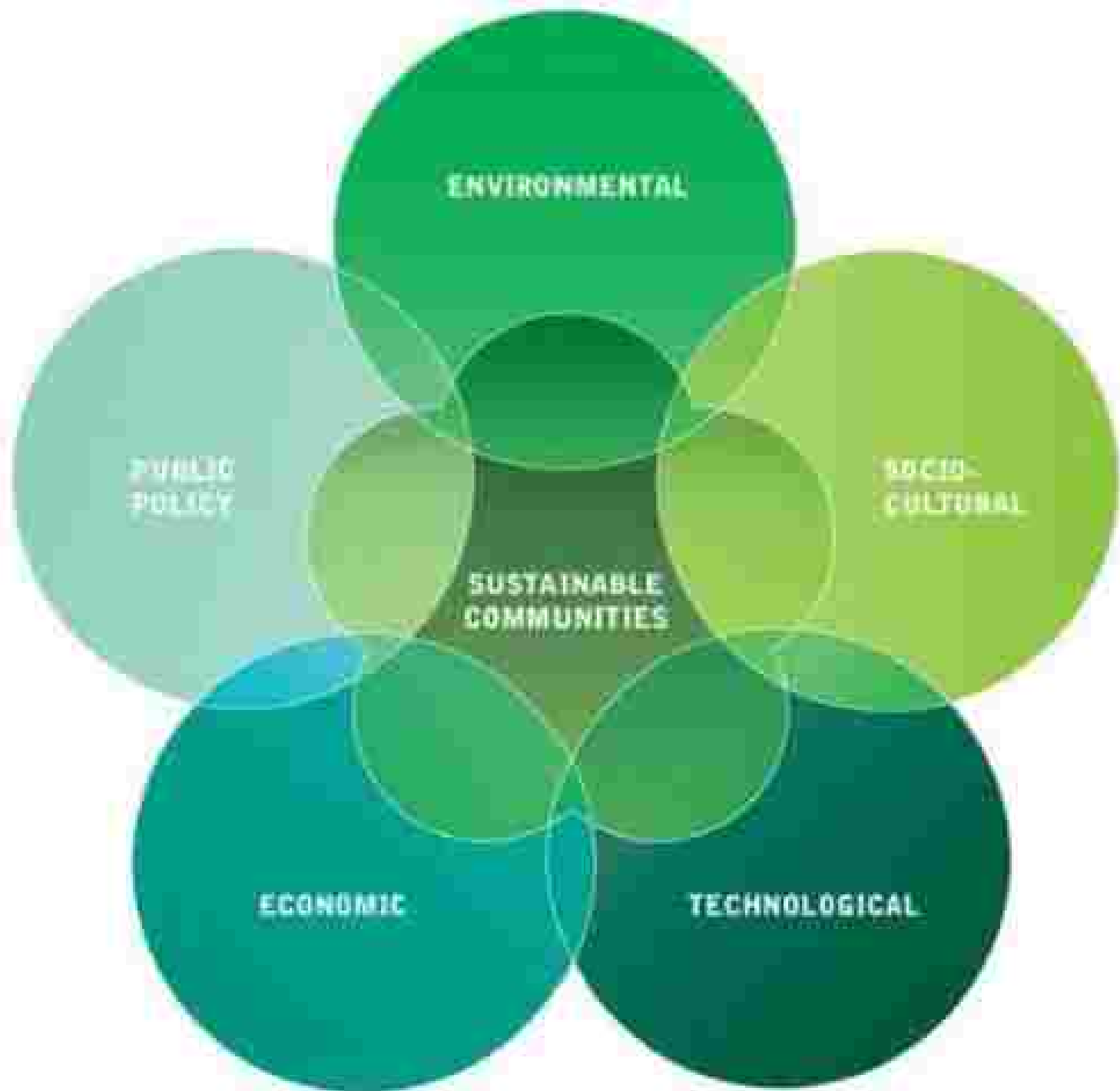


PASSIVE DESIGN

@_larchitect

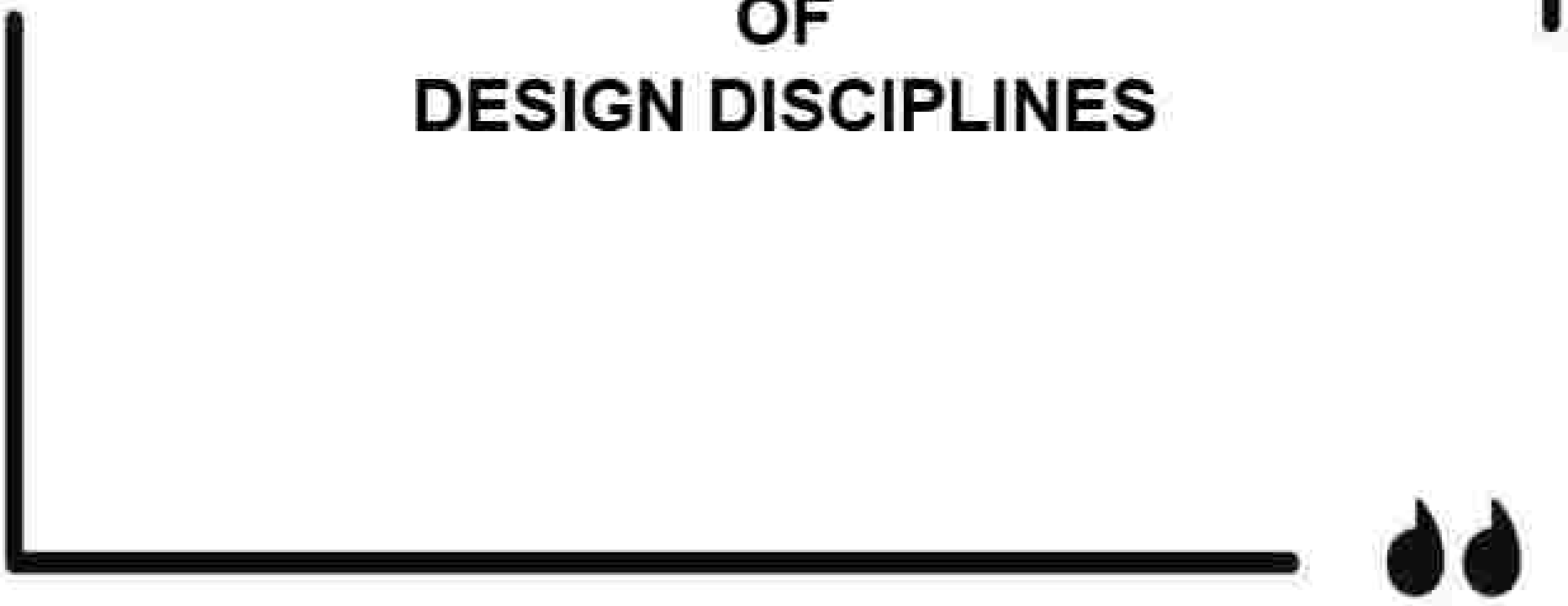








THE EVOLUTION OF DESIGN DISCIPLINES



A Venn diagram consisting of two overlapping circles. The top circle is light green and labeled 'ARCHITECTURE'. The bottom circle is light blue and labeled 'INTERIOR DESIGN'. The intersection of the two circles is shaded a darker blue and contains a list of tasks shared by both disciplines.

*SITE PLANS
BUILDING SECTIONS
EXTERIOR MATERIALS
WATERPROOFING DETAILS
ENERGY CALCULATIONS
WINDOW & DOOR SCHEDULE
EXTERIOR ELEVATIONS*

ARCHITECTURE

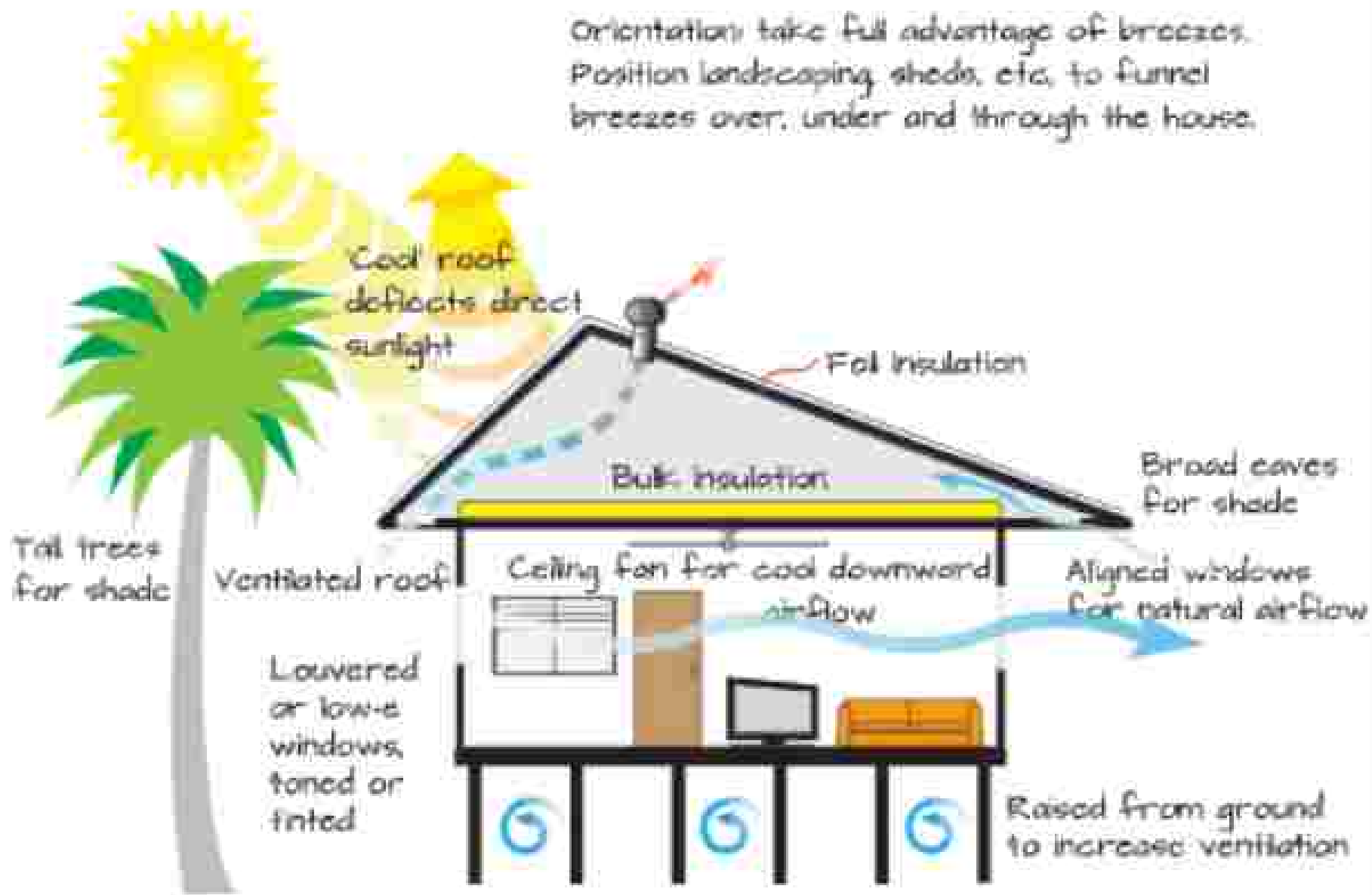
*FLOOR PLANS
INTERIOR ELEVATIONS
TILE AND WOOD SELECTIONS
INTERIOR DETAILS
PAINT SELECTIONS
DOOR HARDWARE*

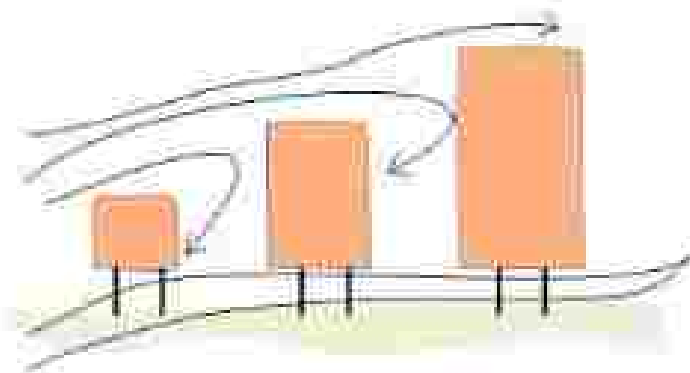
INTERIOR DESIGN

*FURNITURE SELECTIONS
SOFT GOOD SELECTIONS
DRAPERY & WINDOW COVERINGS
WALLCOVERINGS*

**Architecture
as a sustainability
framework**

Orientation: take full advantage of breezes.
Position landscaping, sheds, etc. to funnel
breezes over, under and through the house.





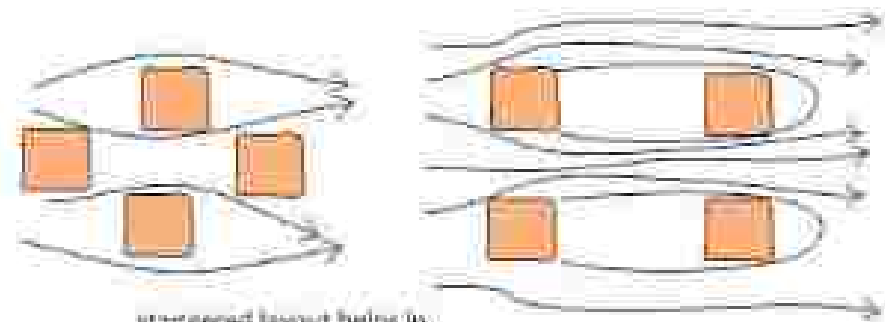
If a site has multiple buildings, they should be arranged in ascending order of their heights and be built on mounds to allow ventilation.



Place buildings at a 30 or 45 degree angle to the direction of wind for enhanced ventilation. Form can be staggered in the wind facing direction also to achieve the same result.



Taller forms in the wind direction of prevailing wind can alter the wind movement pattern for low-lying buildings behind them.



staggered layout helps in accentuating wind movement.

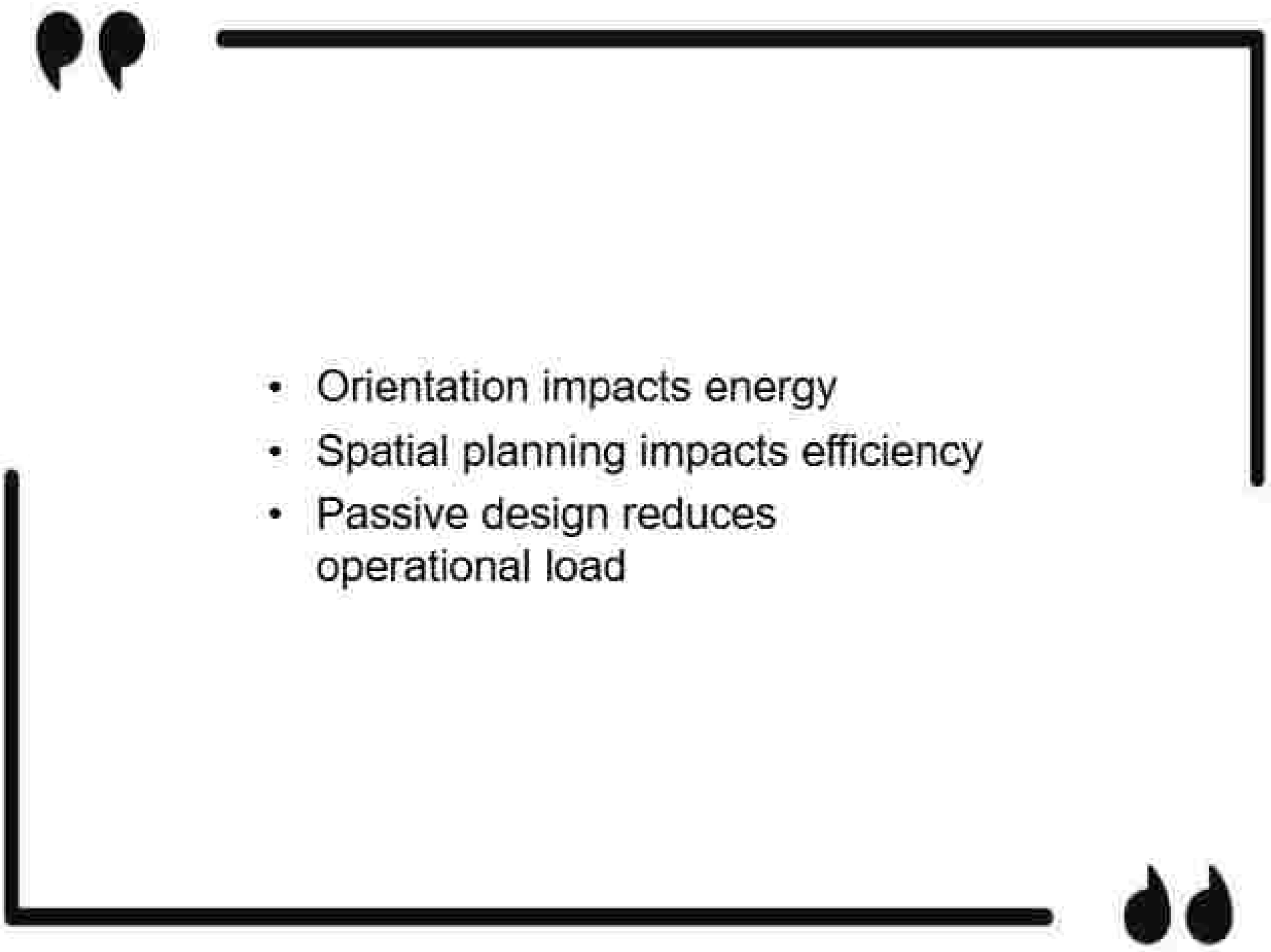


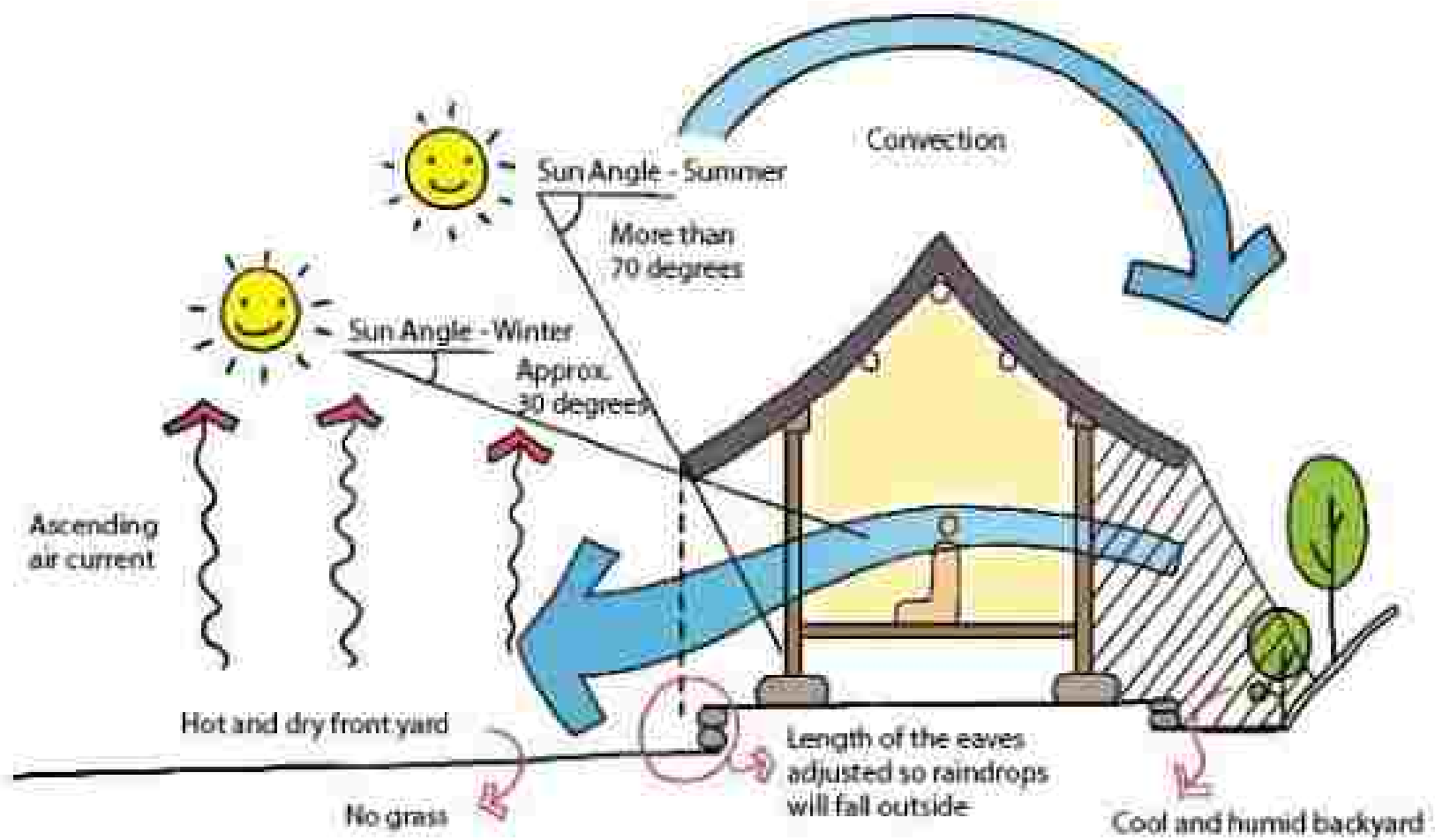
Blue = Fresh water
 Grey-blue = Greywater
 Brown = Compost / nutrients
 Green = Food production
 Yellow/Orange = Solar energy

LIVING SYSTEMS — WATER, ENERGY, NUTRIENTS

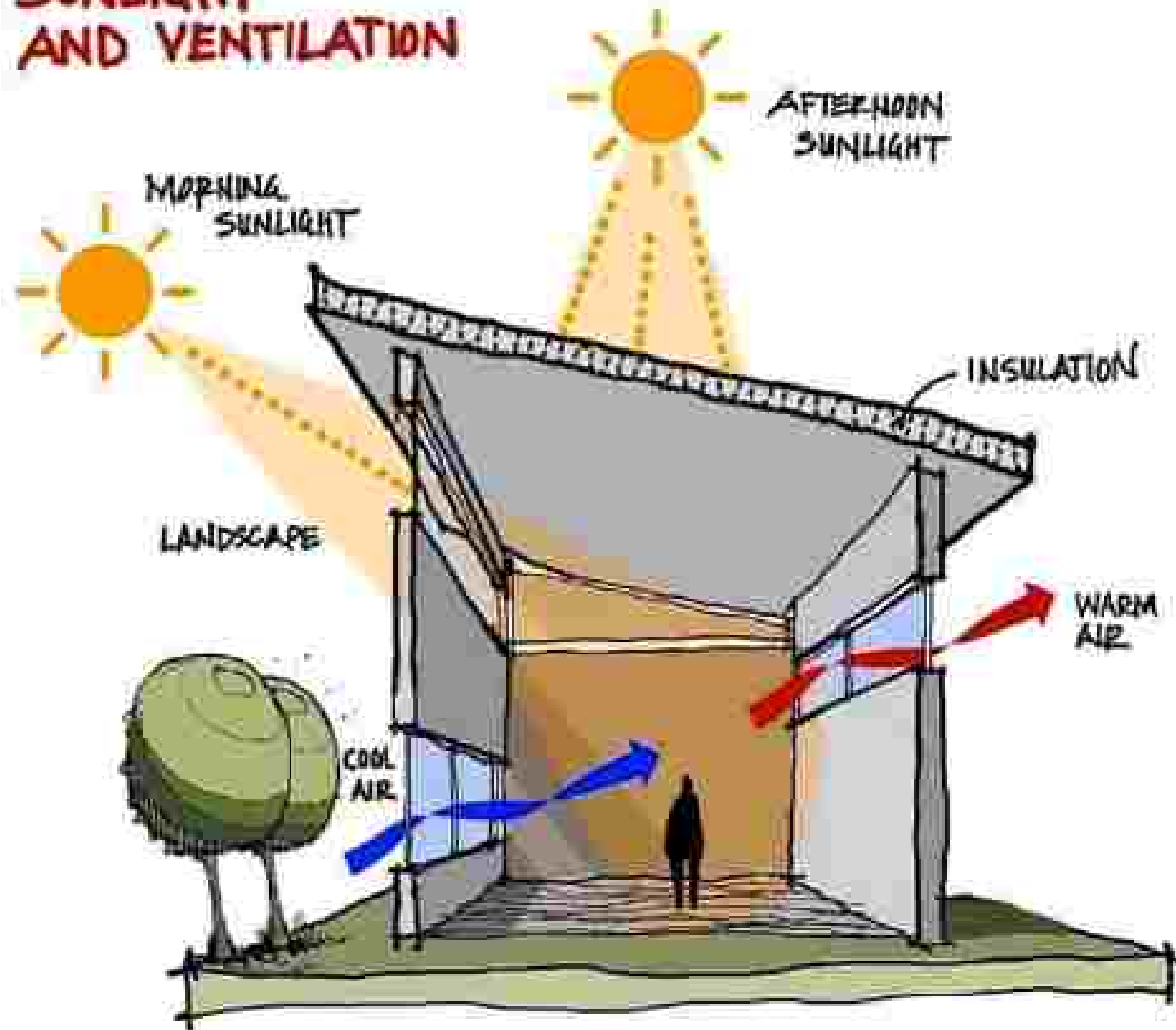
Your home as a productive part of the landscape.

THOMAS PEROLD — Tropical Water Design, Gambia

- 
- Orientation impacts energy
 - Spatial planning impacts efficiency
 - Passive design reduces operational load



SUNLIGHT AND VENTILATION



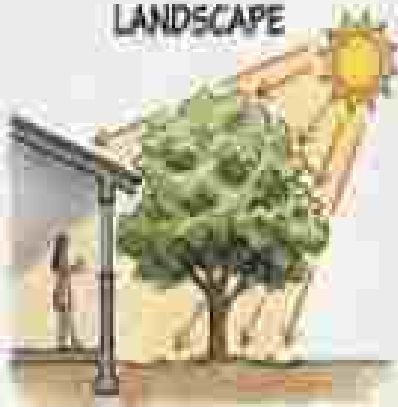
CONTROLLING SOLAR RADIATION

@mbarchi

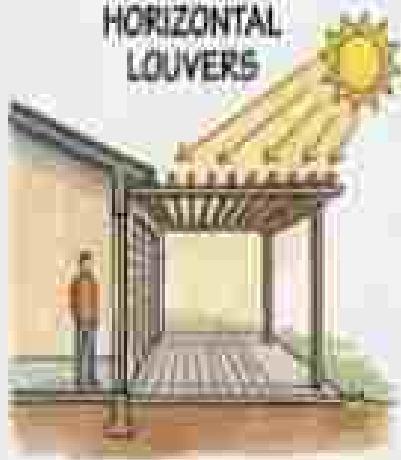
OVERHANG



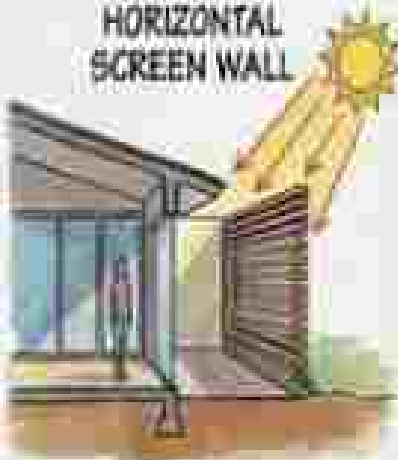
LANDSCAPE



HORIZONTAL LOUVERS



HORIZONTAL SCREEN WALL

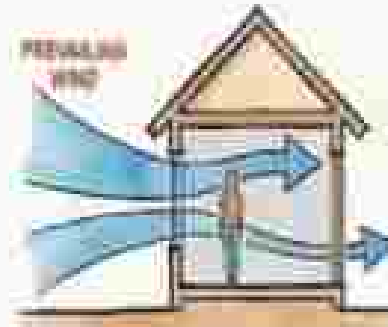


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WIND EFFECTS & LANDSCAPE DESIGN

@mbarchi

UNWANTED WIND PRESSURE
(NO LANDSCAPING)



✗ NO OBSTRUCTIONS = STRONG, DISRUPTIVE WINDS.

IMPROVED AIRFLOW
(STRATEGIC TREE PLACEMENT)



✓ TREES CHANNEL BREEZES FOR NATURAL VENTILATION & COOLING.

WIND SHELTER
(SHRUBS & LOW WALLS)



✓ LOW BARRIERS CREATE SHELTERED MICROCLIMATES & REDUCE PRESSURE.

WIND DEFLECTION
(DENSE WINDBREAK)



✓ EFFECTIVE WINDBREAKS PROTECT STRUCTURES FROM HARSH WINDS & HEAT LOSS.

mbarchi.com

**Interior Design
as human-centred
sustainability**









Designing Spaces. Building Healthier Communities.

Thoughtful interior design that
prioritizes sustainability, wellness,
and community needs.



SUSTAINABLE
DESIGN



ENHANCED
WELLNESS



STRONGER
COMMUNITIES





An aerial photograph of a house with a cutaway section revealing its interior. The house is surrounded by construction debris, including a yellow excavator, a blue truck, and various building materials. The cutaway shows a living room with a blue sofa, a dining area with a table and chairs, and a kitchen with a stove and sink. A red banner is overlaid on the cutaway section.

INDOOR AIR-QUALITY Building Material



**Integration between
Architecture
and
Interior Design**



- Architecture, ID, FM historically separated
- Result: inefficiency and poor lifecycle outcomes
- Need for early collaboration





Control the ventilation system



Control the lighting system



Control the heating system



Control the air conditioning system



Control the temperature of the room

Control the humidity of the room



Control the air conditioning system



Control the lighting system



Control the heating system



Control the air conditioning system



Control the power of the system



Control the temperature of the room

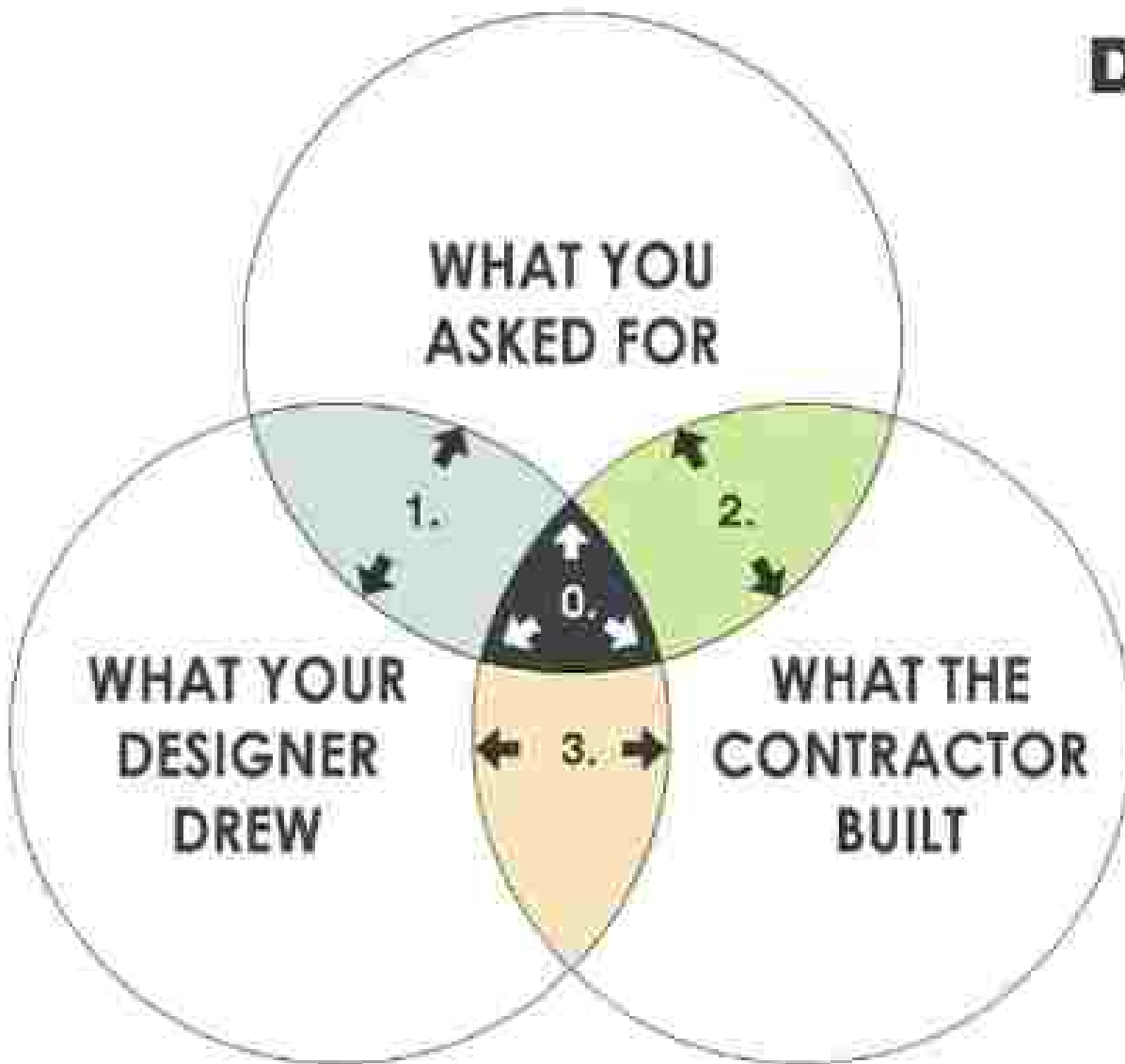
**INTERIOR DESIGN
AS
HUMAN SUSTAINABILITY**



- User wellbeing and comfort
- Material health & durability
- Flexibility and adaptability

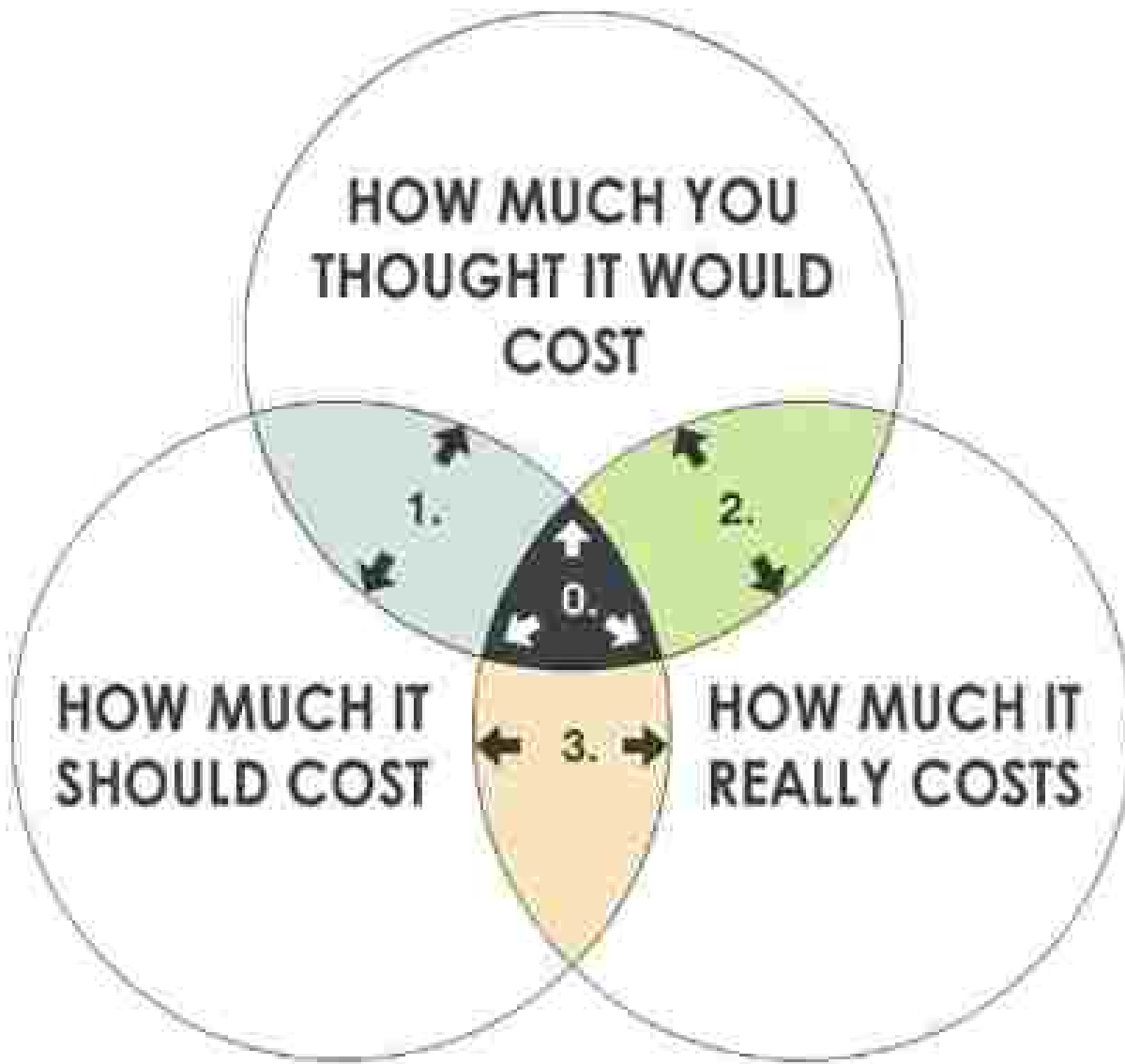


DESIGN PROCESS



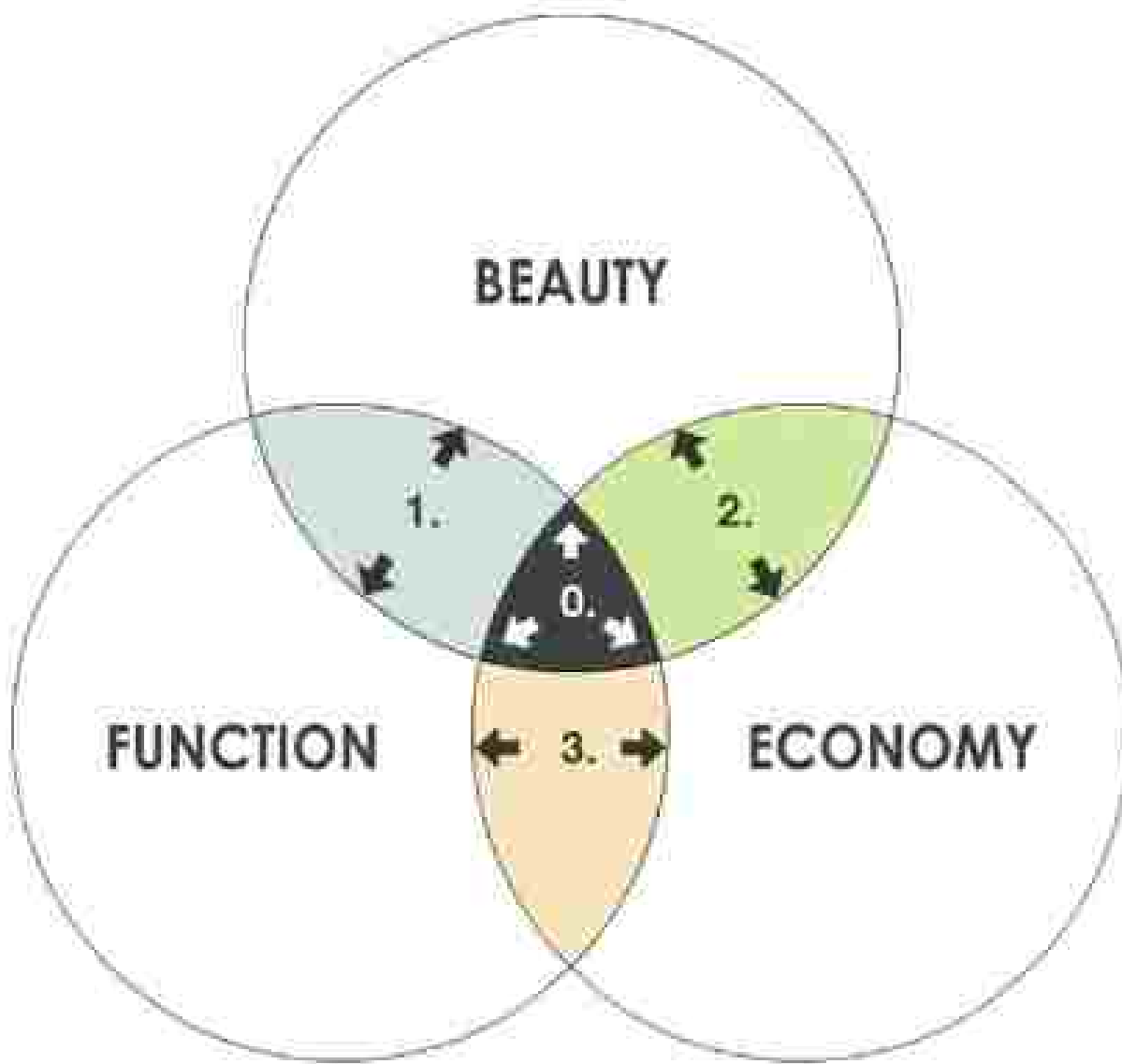
- 1. Concept
- 2. Harsh reality
- 3. Happy coincidence
- 0. Unicorns

YOUR BUDGET



- 1. Guess
- 2. Good guess
- 3. Well planned
- 0. Miracle

GOOD DESIGN



-  **1.** Idealistic
-  **2.** Disposable
-  **3.** Boring
-  **0.** Well designed



BUILDING AUTOMATION SYSTEM

HVAC Maintenance Services

Lighting Control

Environmental Control

Fire Detection & Alarm

Security & Access Control

On-site Technical Services

Energy Information Management

Water Management

Mechanical Maintenance

Enterprise Systems Integration

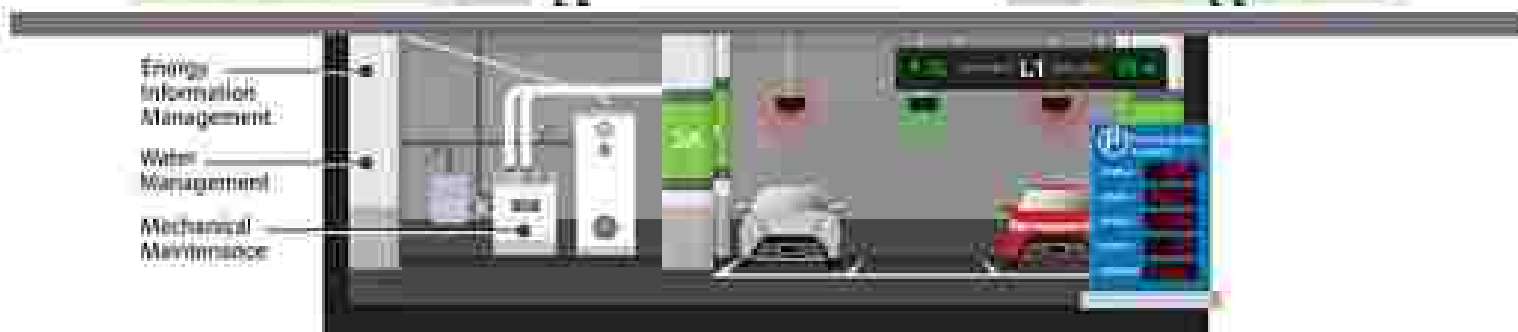
Asset Locator

Smoke Detection

Indoor Air Quality Service

Digital Video Surveillance

Intrusion Detection











”

“Sustainable interior design
blends beauty with
responsibility for a healthier
home and planet.”

ARIPRA SINGH (DESIGNER)

**INTEGRATED DESIGN
OUTCOME**



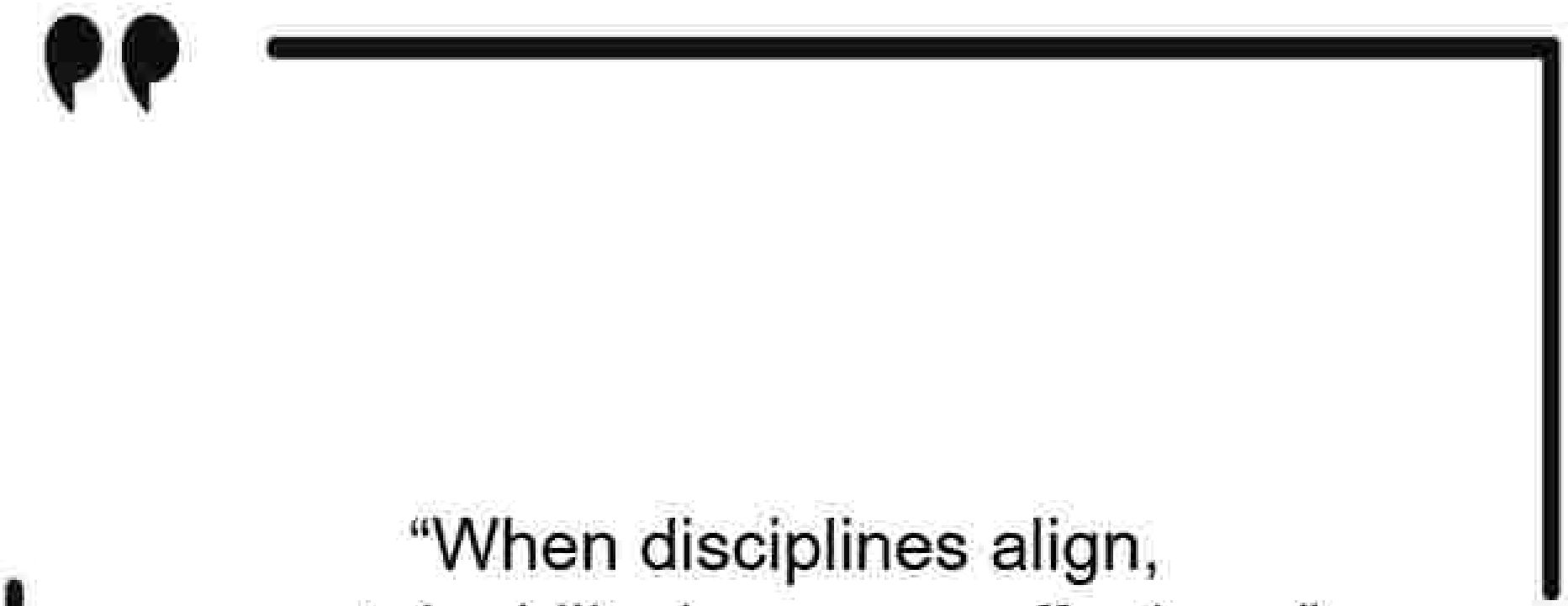
- Architecture + ID synergy
- Reduced waste & cost
- Better lifecycle performance



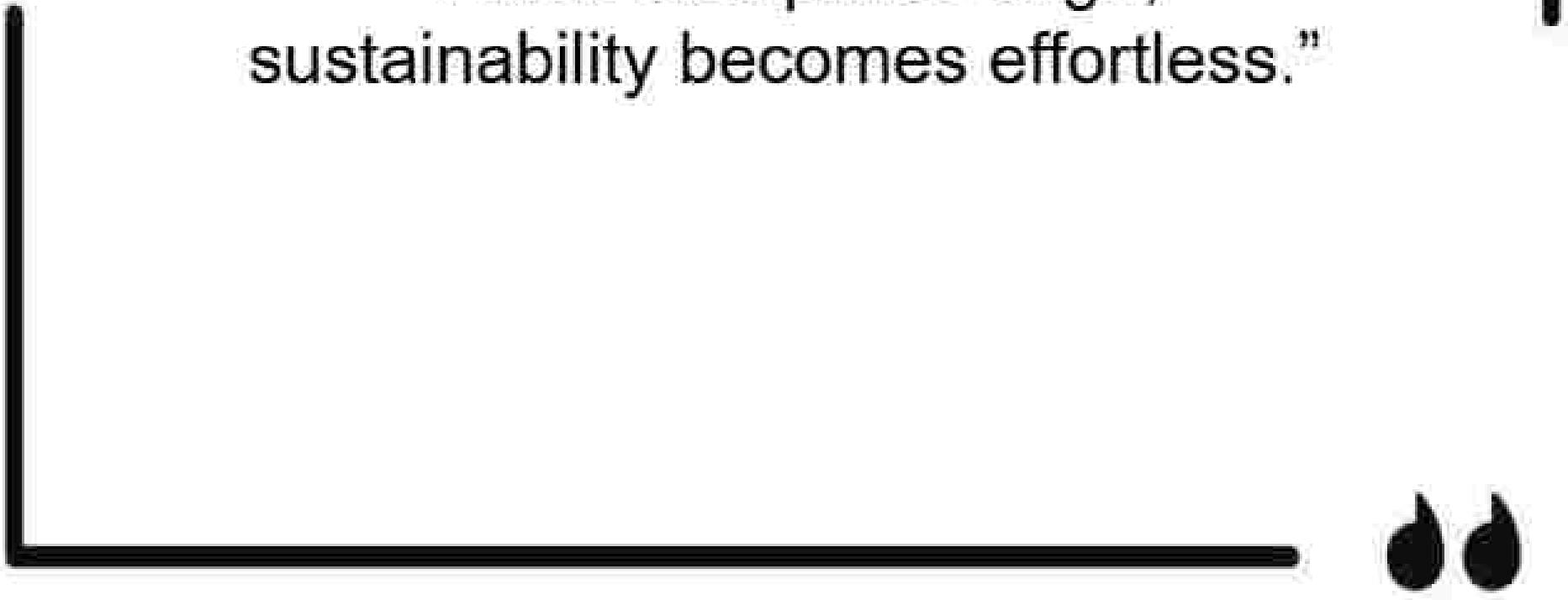








“When disciplines align,
sustainability becomes effortless.”



NATURAL LIGHT

is not a luxury,
It's a necessity.

Why Natural Light Matters in Your Office



Boosts Mood
& Well-being



Enhances Productivity
& Focus



Reduces Eye Strain
& Fatigue



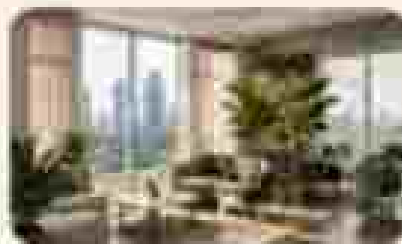
Lowest Energy Use
& Costs



Creates a Positive
& Healthy Environment



Good design brings in **light**.
Great design brings out **potential**.



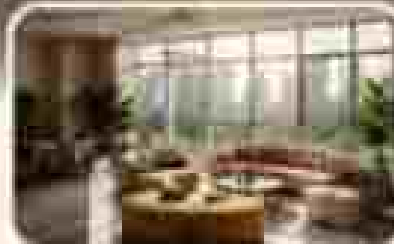
Brighter Spaces
Happier Minds



Natural Light
Better Performance



Daylight Today,
Productivity Tomorrow



Designing Workspaces
That Inspire

Design with
light.
Design with
purpose.



Natural light enhances
how people experience
a space.

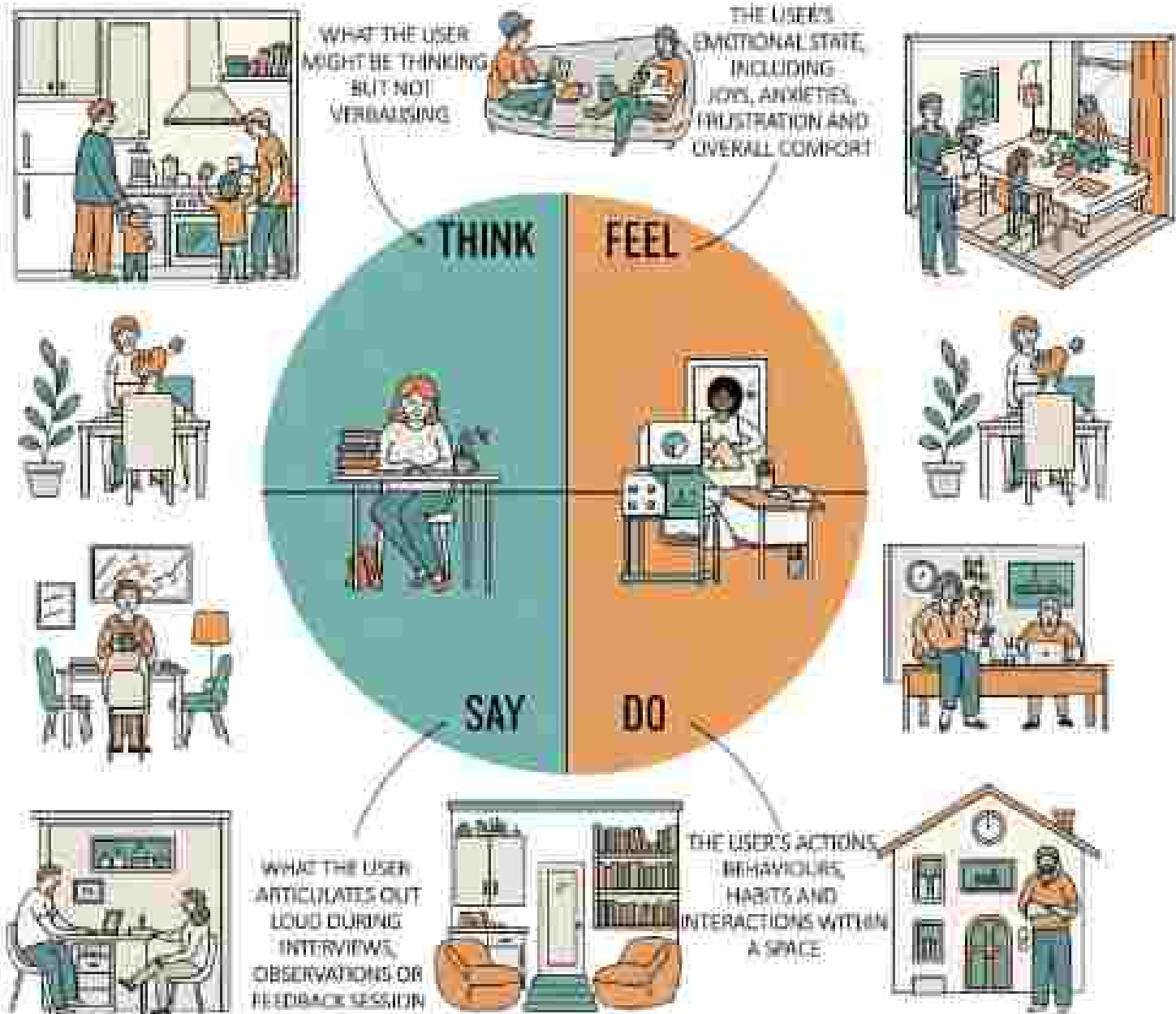


HOW DOES
NATURAL LIGHTING
ENHANCE YOUR HOME?





EMPATHY MAPPING IN ARCHITECTURE & INTERIOR DESIGN





SUSTAINABLE FACILITY MANAGEMENT

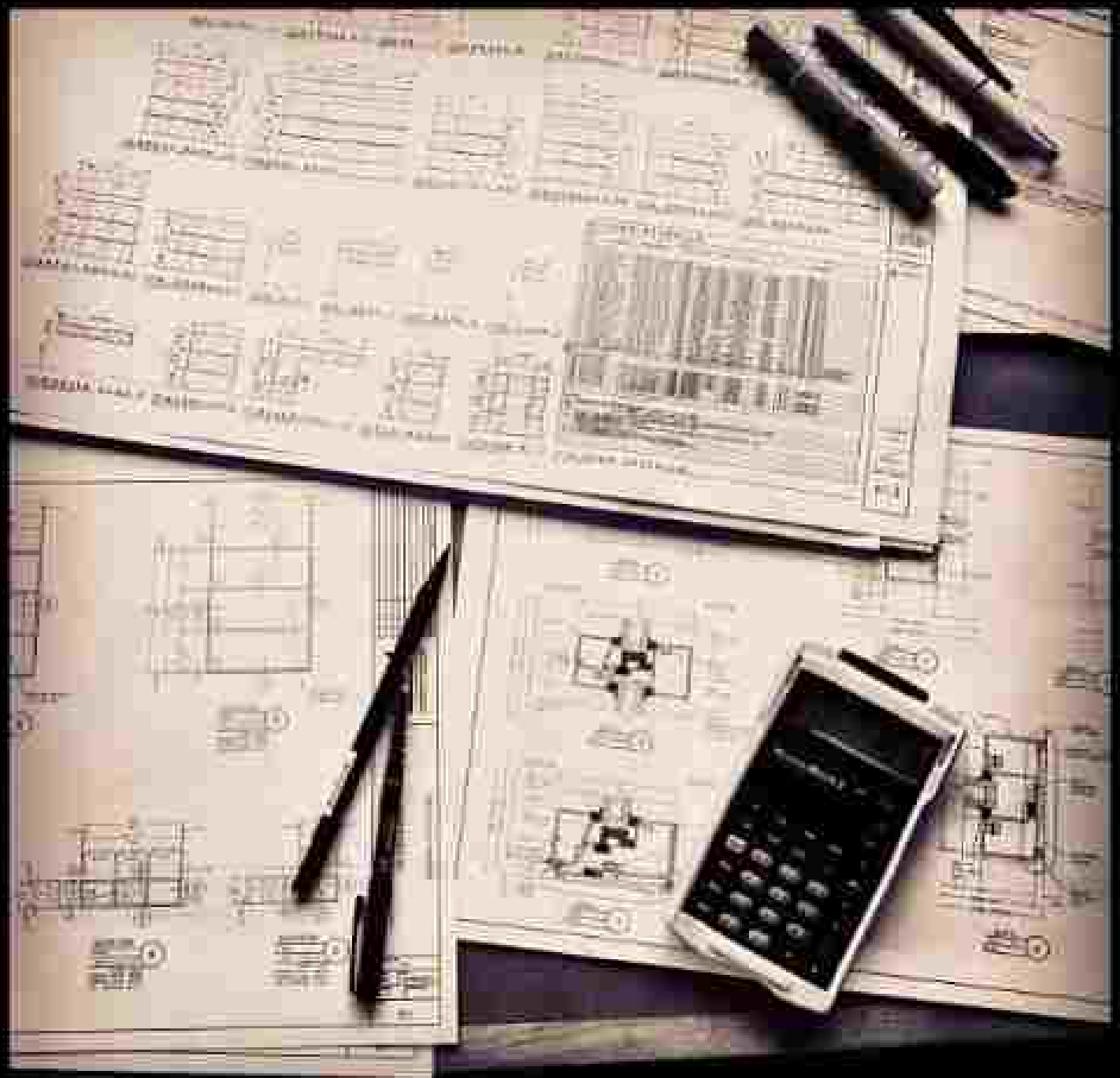


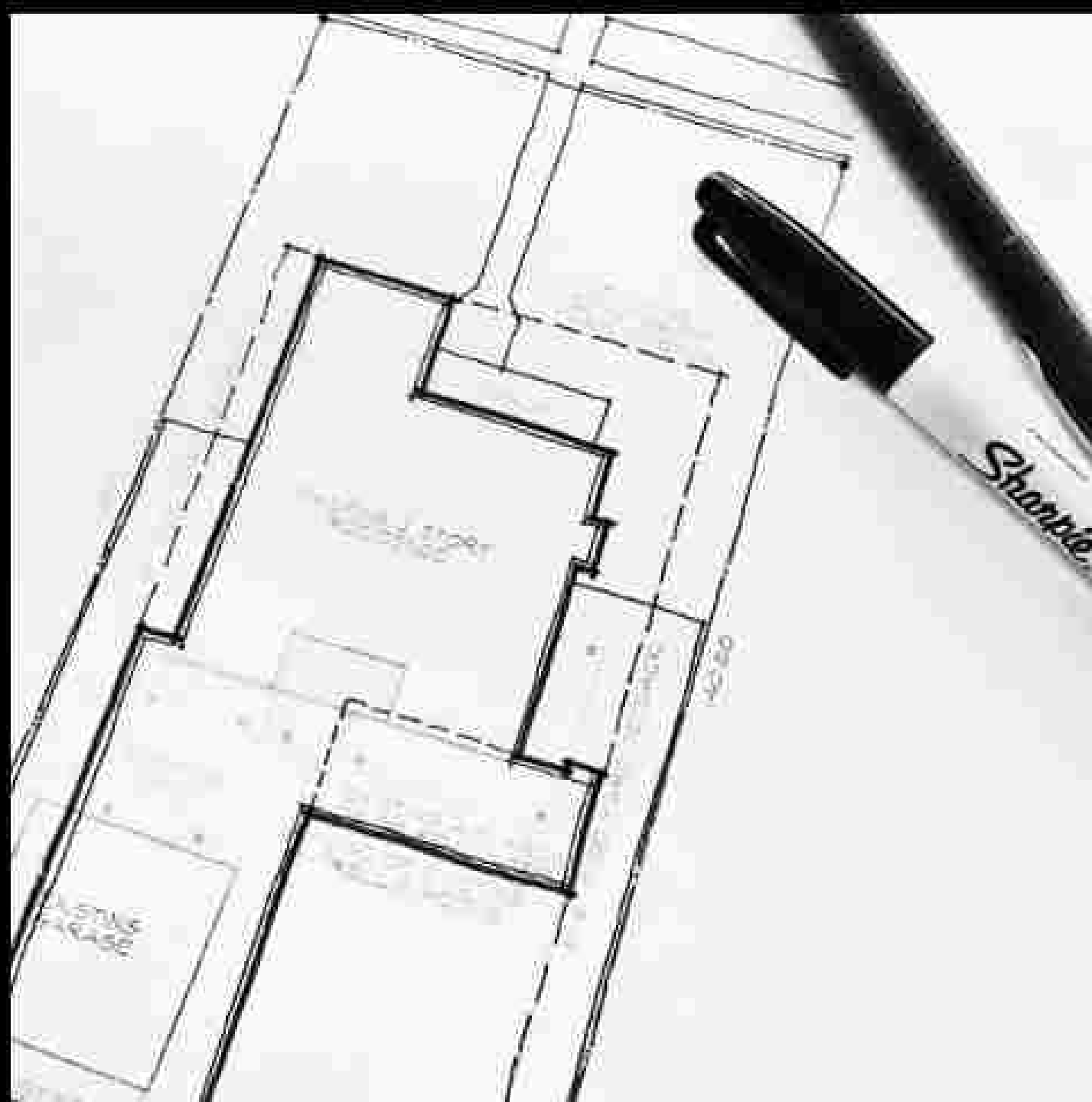
FACILITY MANAGEMENT



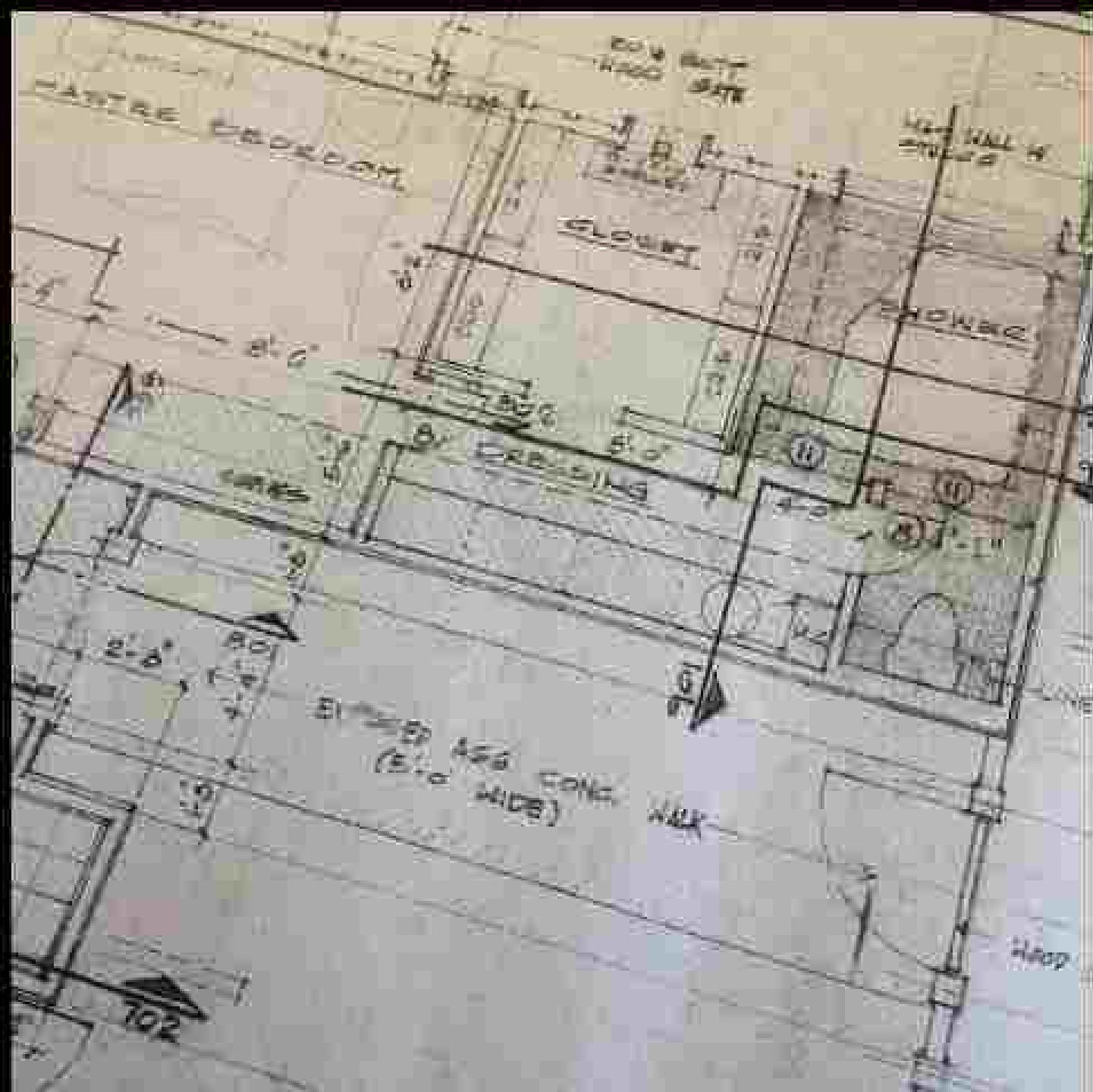




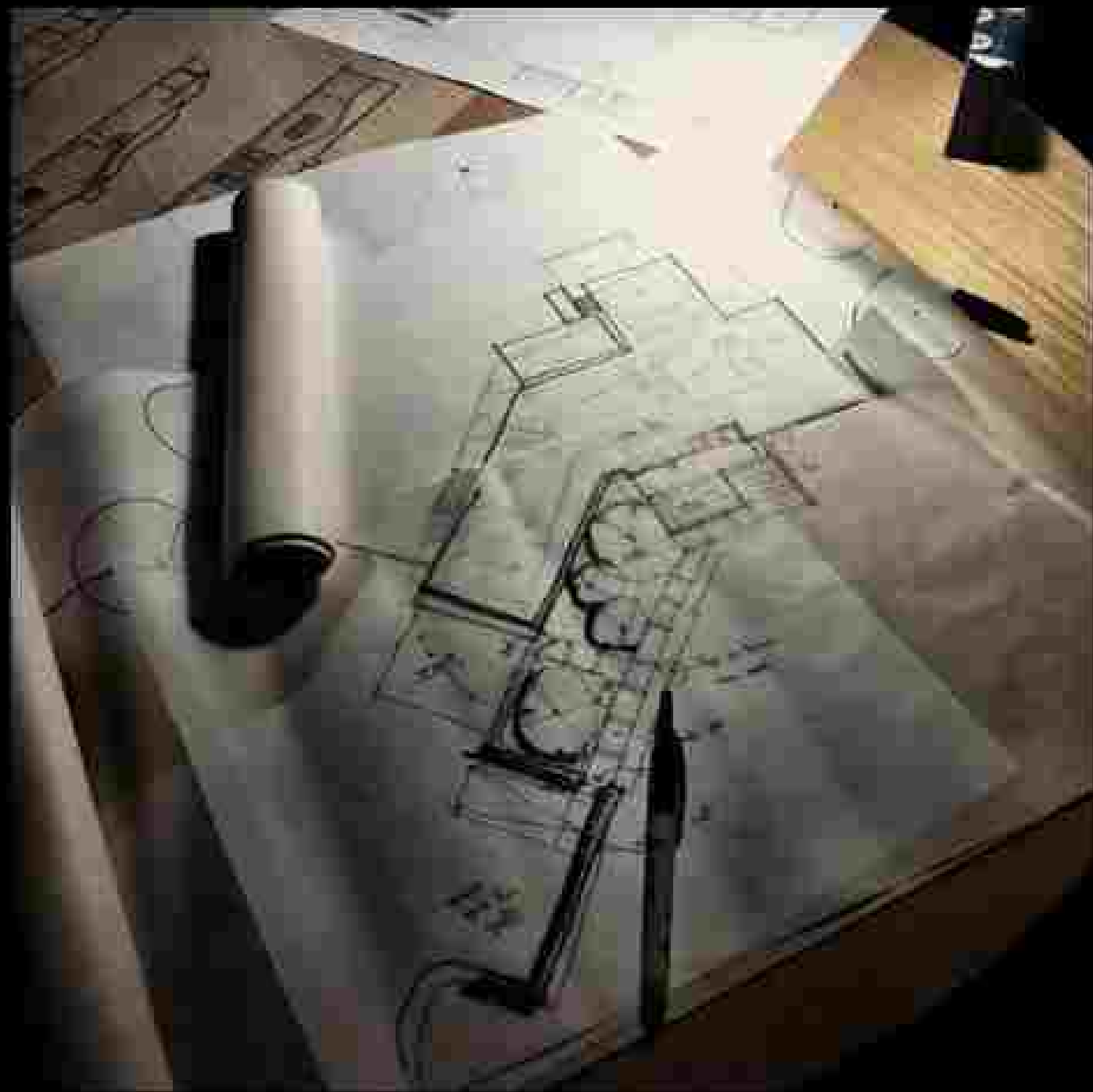








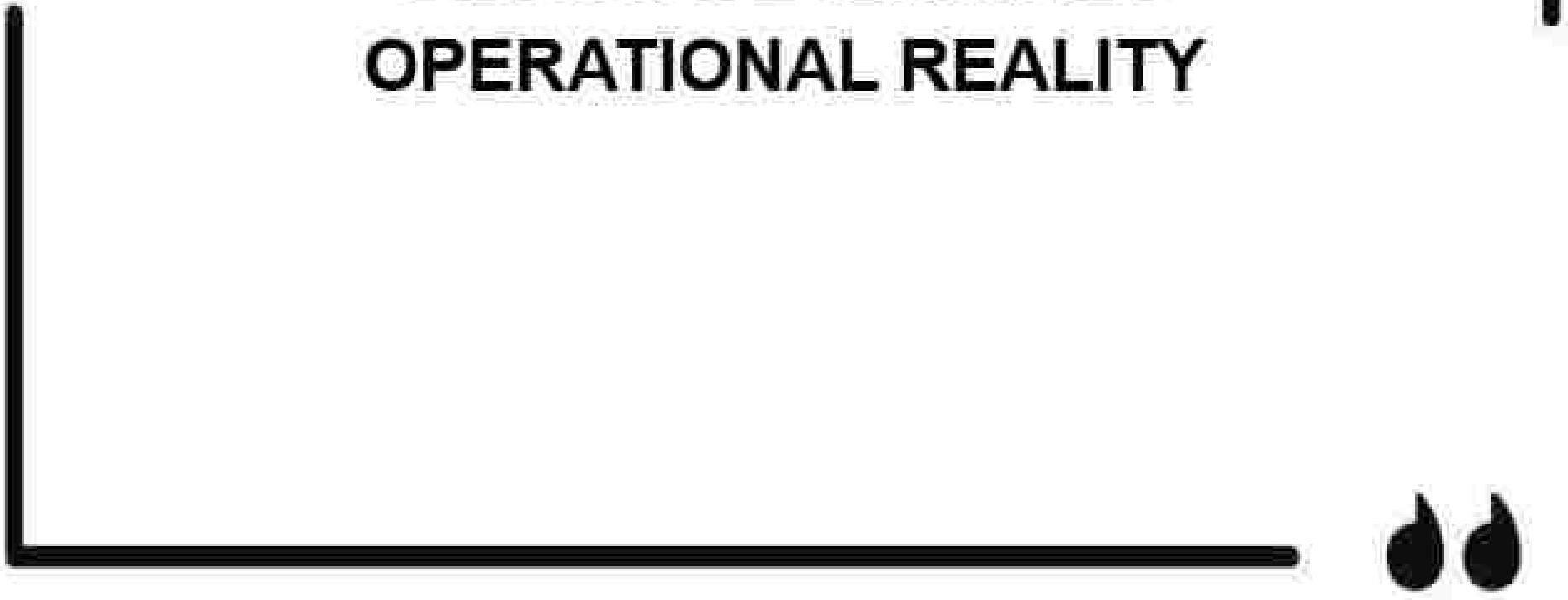




SUSTAINABLE FACILITIES MANAGEMENT



**DESIGN DETERMINES
OPERATIONAL REALITY**



- 
- 
- FM starts at design stage
 - Design determines 70–80% lifecycle cost
 - Maintenance efficiency must be designed in



**DESIGN
FOR
MAINTAINABILITY**

A word cloud centered around the terms 'FACILITY' and 'MANAGEMENT'. The words are arranged in a circular pattern around these two central terms. The words are in various sizes, colors (black, orange, red, and grey), and orientations (horizontal, vertical, and diagonal). The words include: BUSINESS, MAINTENANCE, SECURITY, SAFETY, STANDARD, INFRASTRUCTURE, FINANCE, ADMINISTRATION, COMMUNICATION, PROPERTY, FACILITY, MANAGER, MANAGEMENT, PROCESS, CLEANING, SPACE, COORDINATION, DEVELOPMENT, ORGANIZATION, OPERATIONAL, and PEOPLE.

FACILITY

MANAGEMENT

MANAGER

SPACE

ORGANIZATION

COORDINATION

DEVELOPMENT

OPERATIONAL

CLEANING

PROCESS

ADMINISTRATION

FINANCE

PROPERTY

COMMUNICATION

STANDARD

INFRASTRUCTURE

MAINTENANCE

BUSINESS

SECURITY

SAFETY

PEOPLE







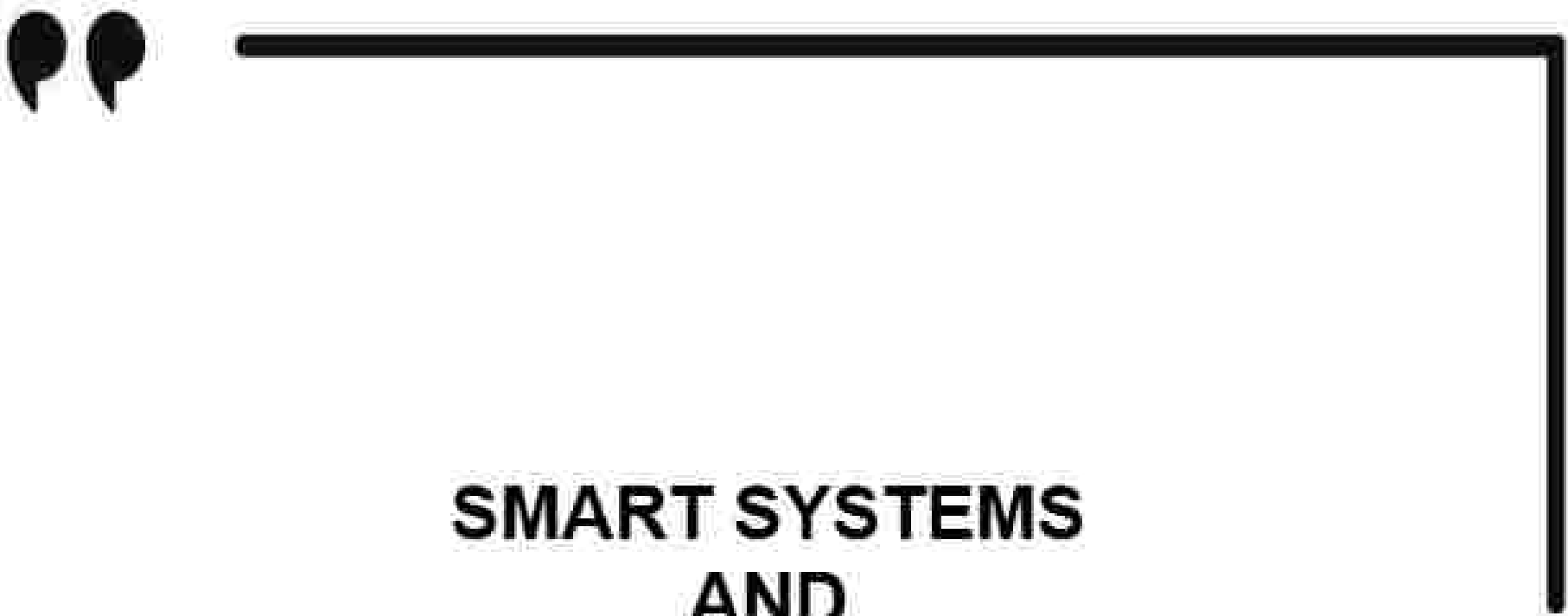






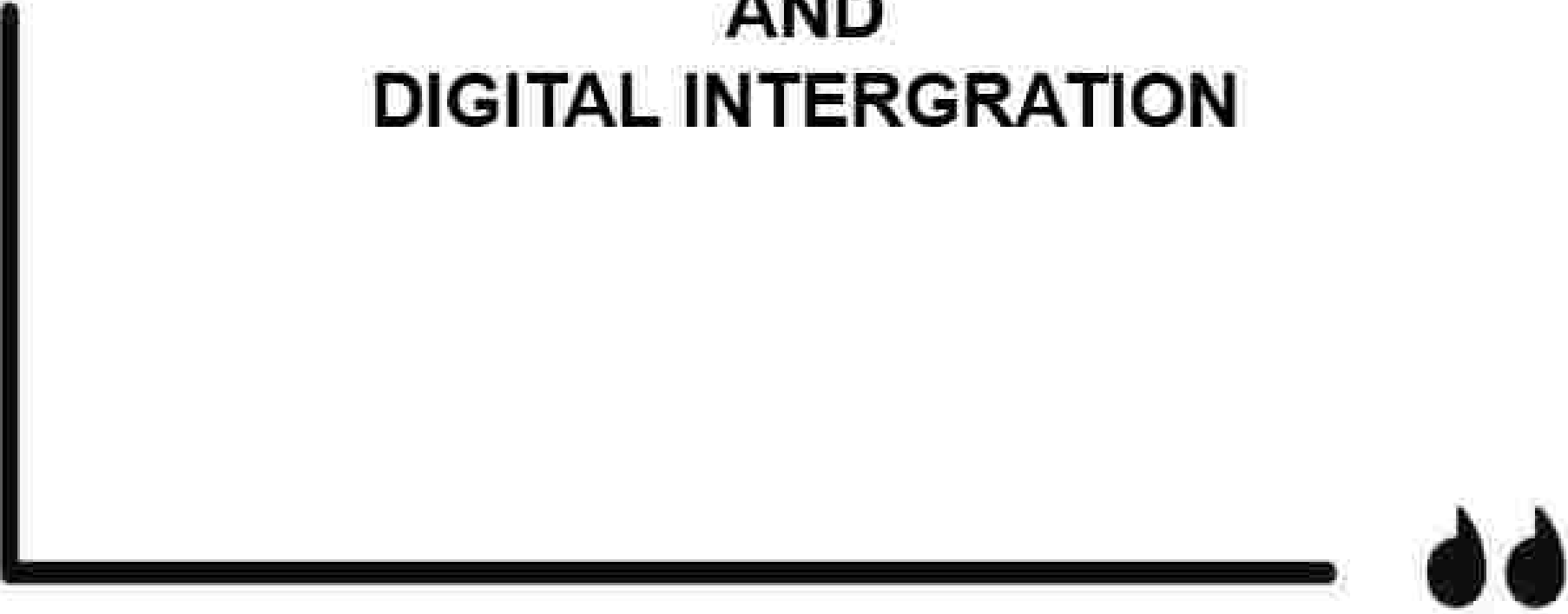
- Easy access systems
- Modular components
- Replaceable materials
- Long-term durability





SMART SYSTEMS AND

DIGITAL INTEGRATION





BMS EXPLAINED

SMARTER BUILDINGS, BETTER FUTURE

BUILDING MANAGEMENT SYSTEM



HVAC



LIGHTING



ENERGY

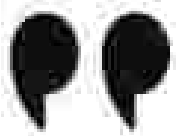


SECURITY



FIRE SAFETY





- BIM integration
- Digital twins
- Predictive maintenance
- Smart building systems





Controlling Operations

AHU

Chillers

FCU

Boilers

Pumps

VFDs



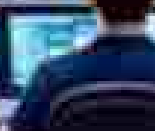
Server



Workstation



Client



Management Operations

FAS

EMS

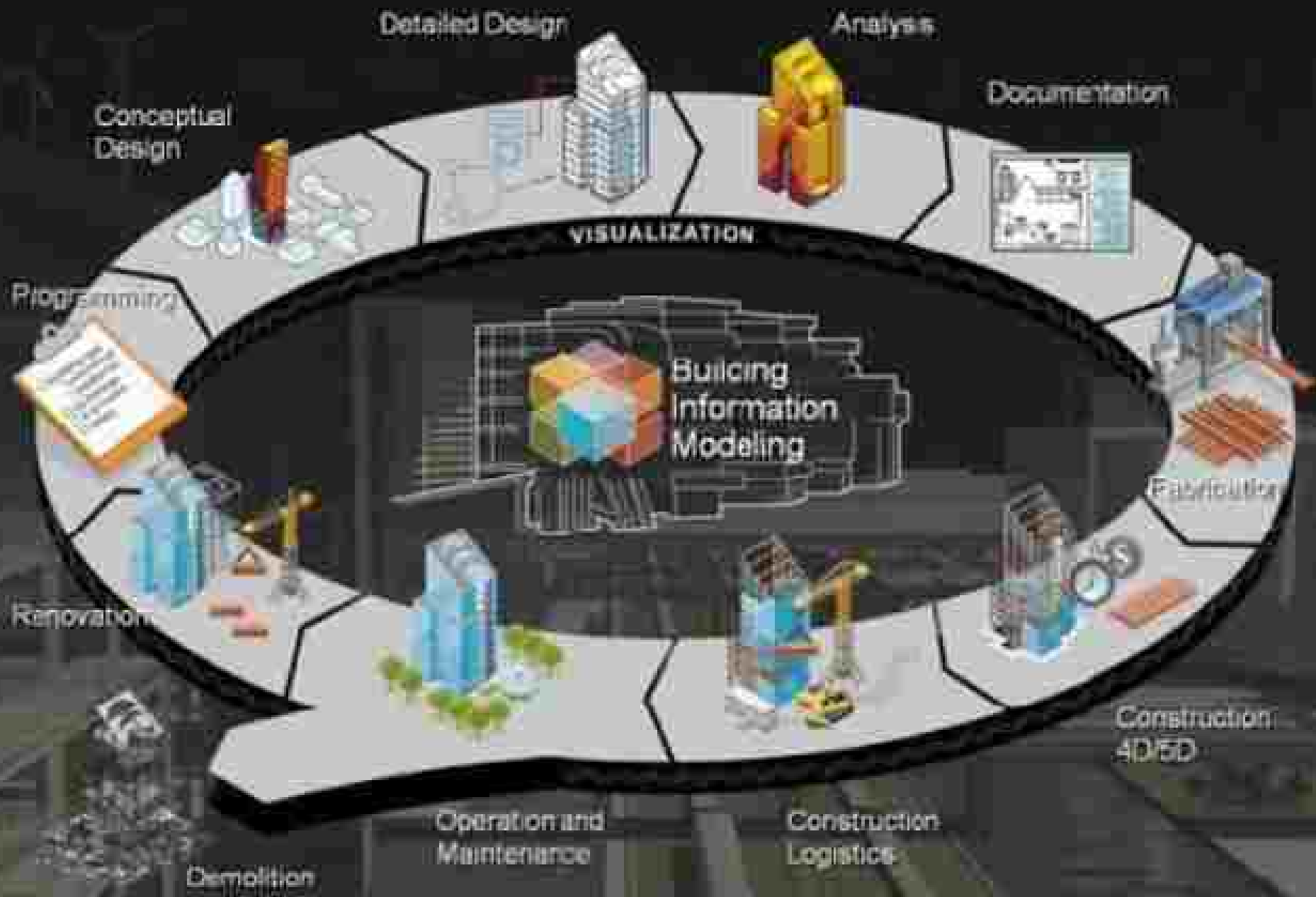
Elevators

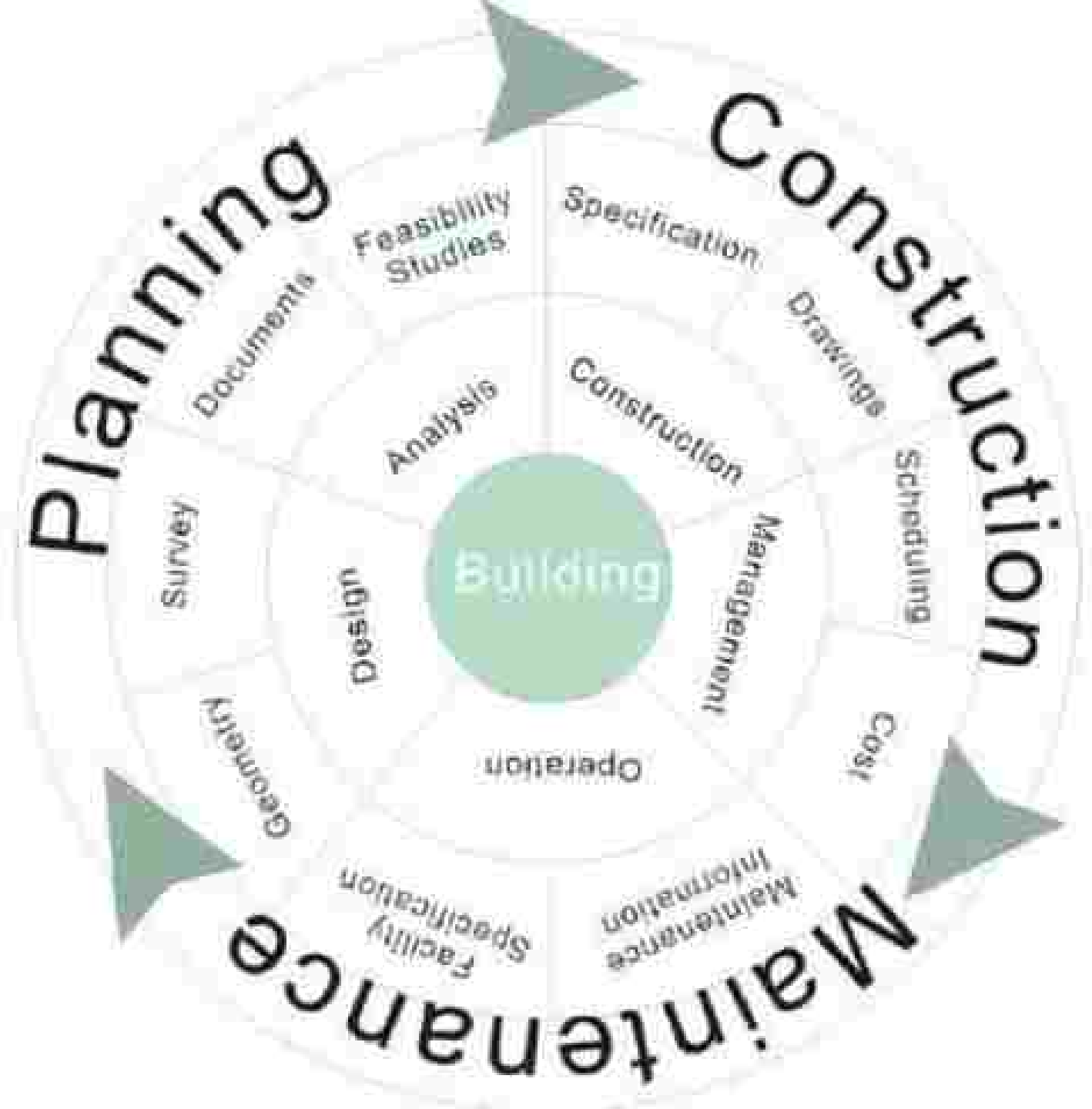
Energy Meters

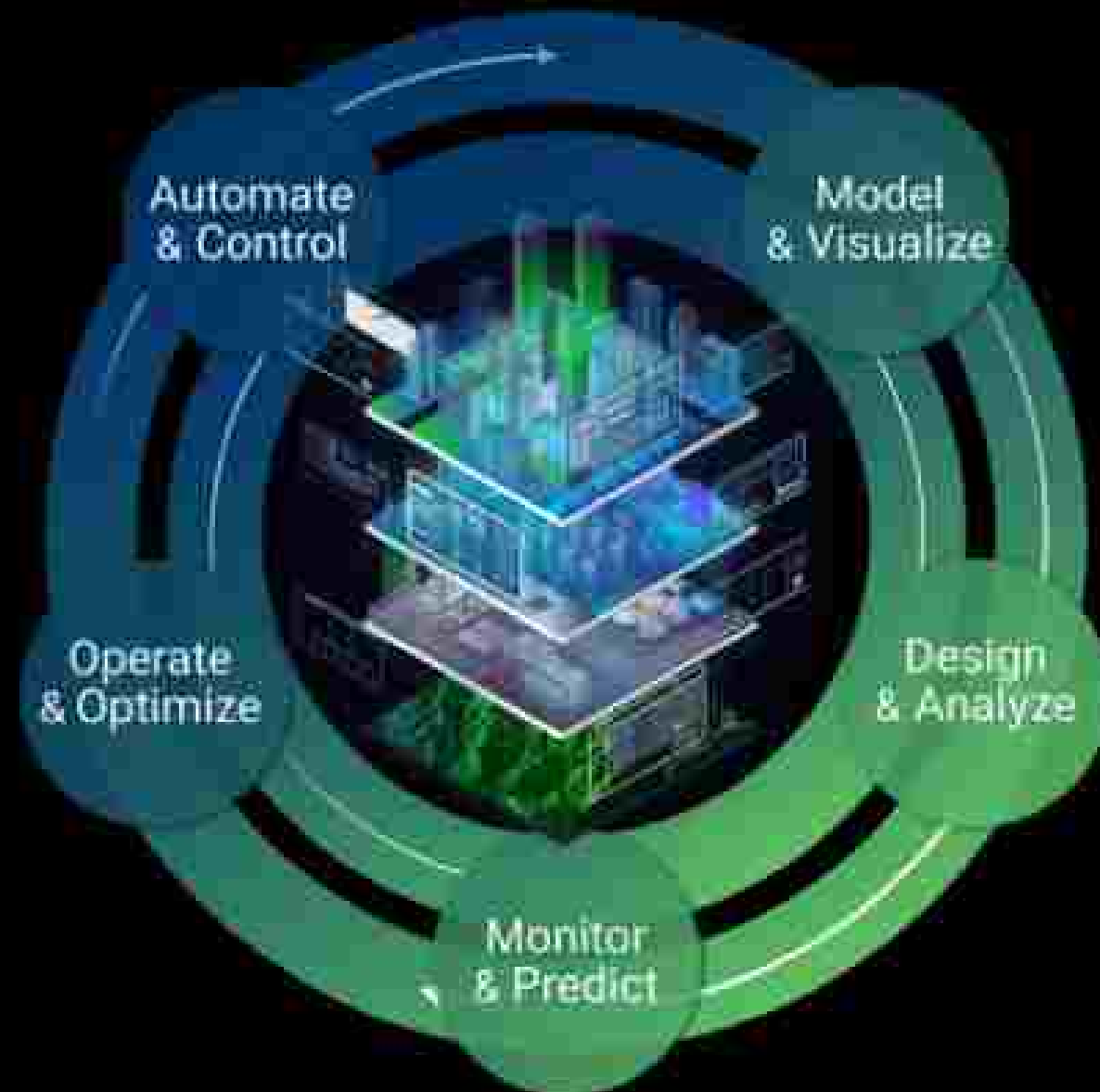
Water Meters

CCTV









BIM+ASSET INFORMATION MODELING

- Computer Aided Design
- Building Information Modeling
- 3D Models
- Data Management
- Collaboration

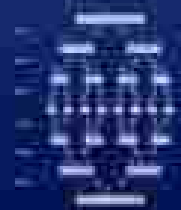


DIGITAL
MODELING

Define
& Visualize

IoT+CMR INTEGRATION

- Internet of Things
- Cloud Computing
- Data Analytics



DIGITAL
THREAD

Connect
& Monitor



COGNITIVE
SENSING

Command
& Control

CMMS/CAFM CLIENT BASED



INTELLIGENT
EXPERIENCE

Maintain
& Operate





THE FUTURE OF BIM

Intelligent, Connected Ecosystems

AI & GENERATIVE DESIGN



SKILLS FOR THE FUTURE



DIGITAL TWINS & SMART CITIES

Live, Data-Connected Models



CONSTRUCTION TECHNOLOGY INTEGRATION

Design to Execution Bridge



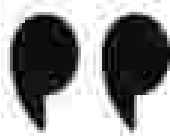
CLOUD-BASED COLLABORATION

Real-time, Multi-user Environment

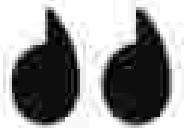


LIFECYCLE MANAGEMENT



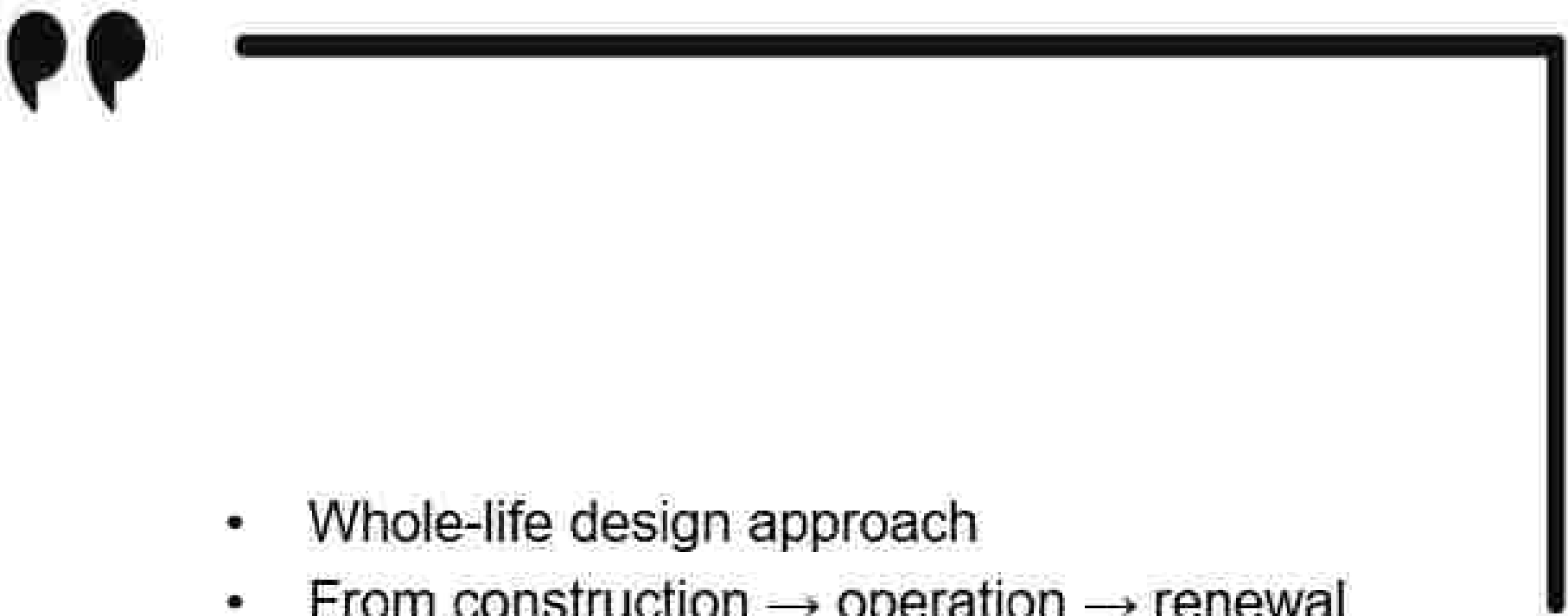
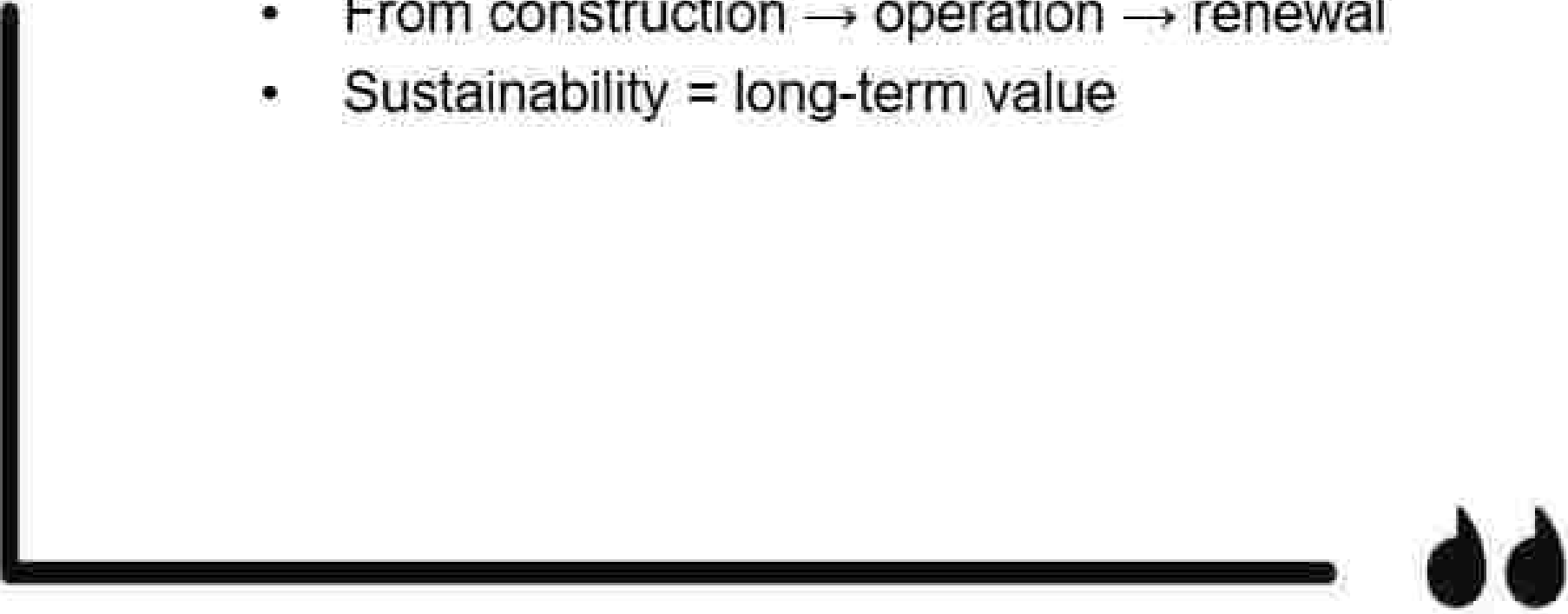


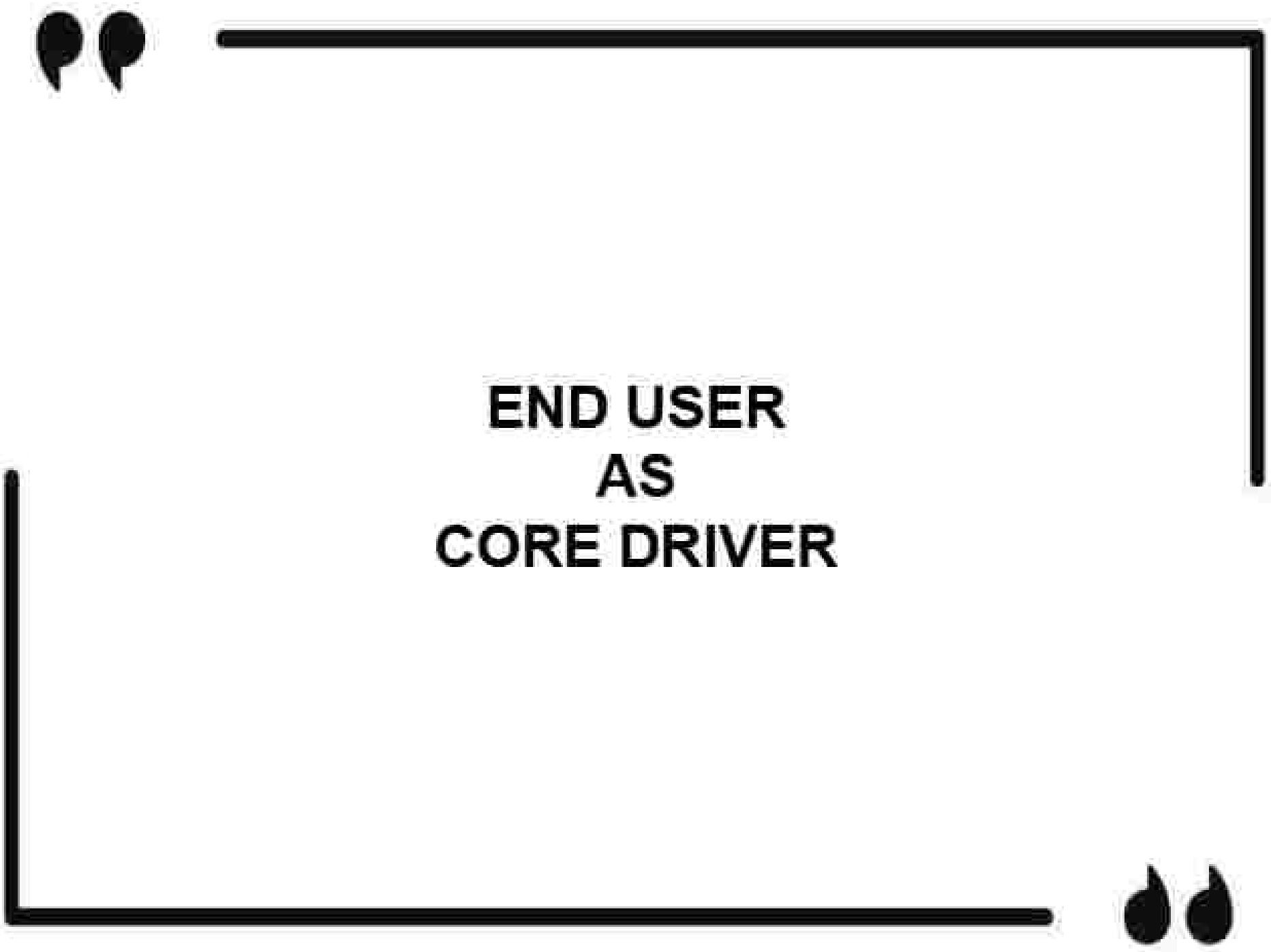
LIFECYCLE THINKING



BUILDING LIFECYCLE



- 
- Whole-life design approach
 - From construction → operation → renewal
 - Sustainability = long-term value
- 



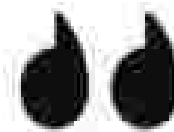
**END USER
AS
CORE DRIVER**





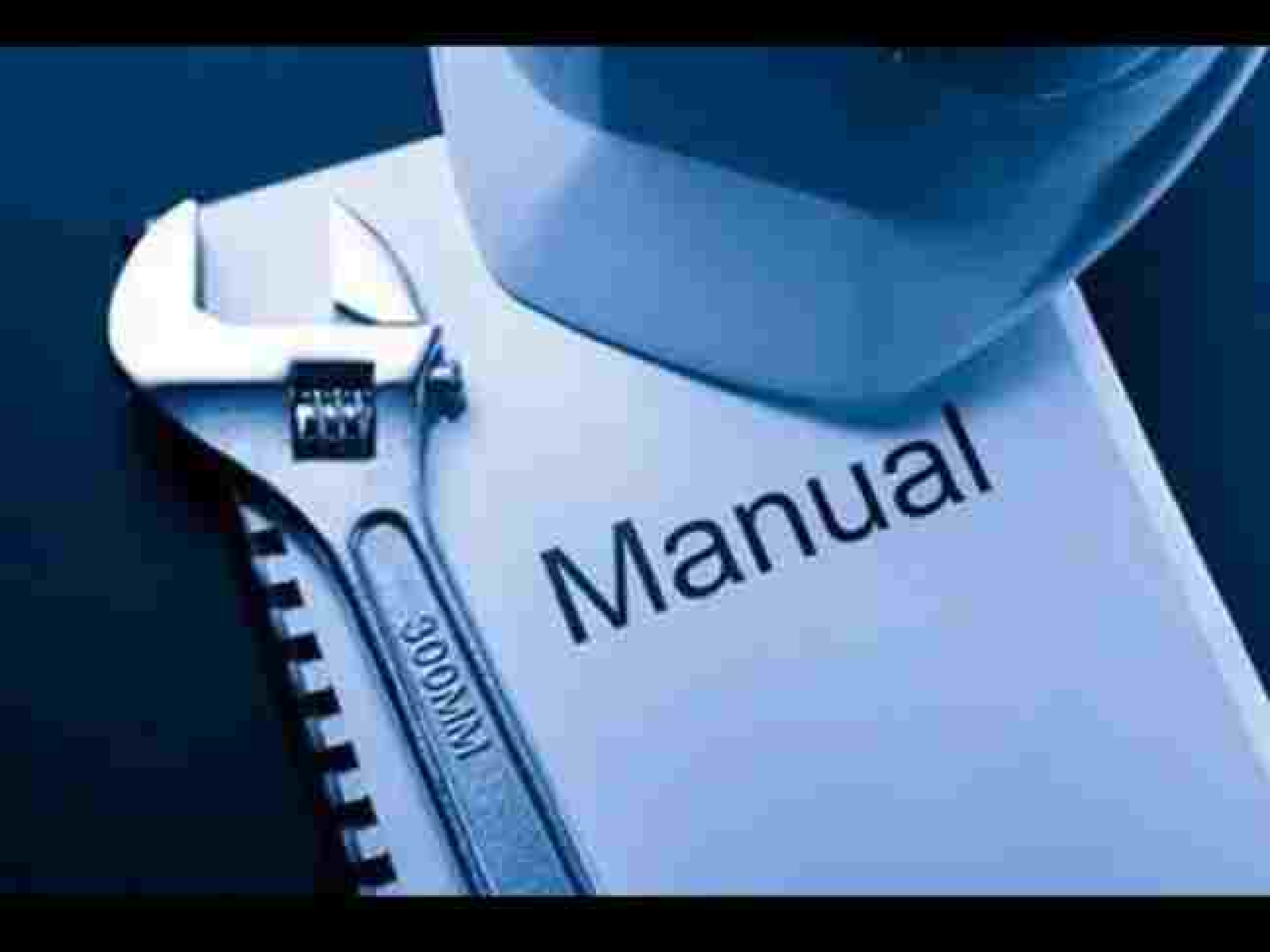


- Comfort
- Safety
- Inclusivity
- Productivity
- Emotional experience









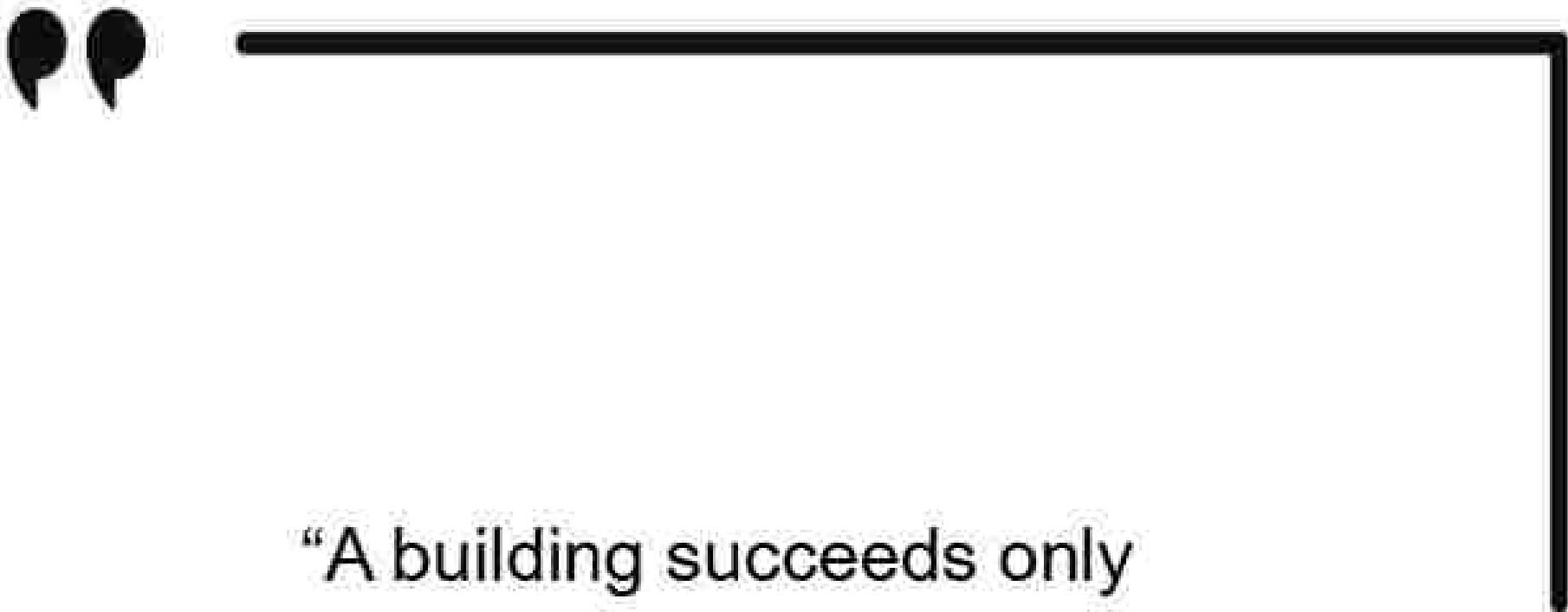
Manual

MANUAL

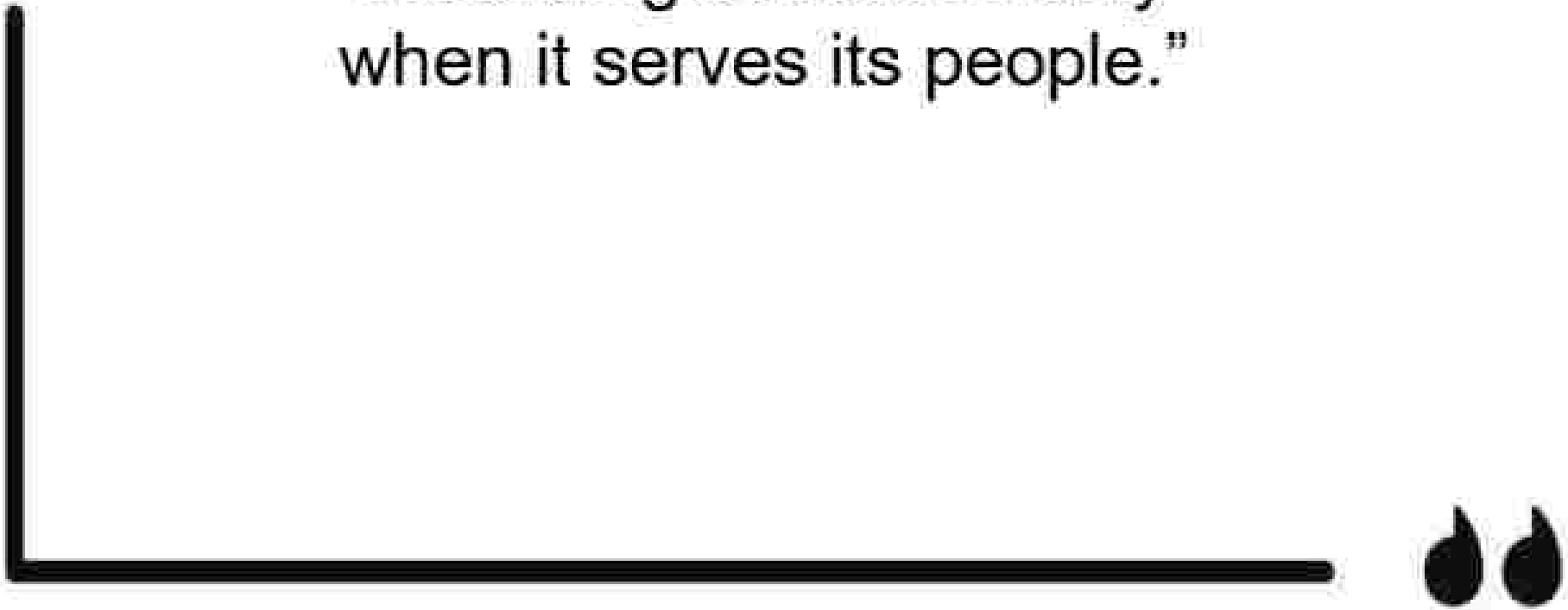








“A building succeeds only
when it serves its people.”









PAM PROFESSIONAL ROLE



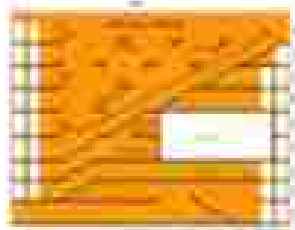
- PAM as professional leader
- Promoting interdisciplinary collaboration
- Sustainability education & advocacy
- Policy and industry alignment





THE NEW PAM CENTRE

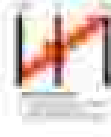
3



FLOOR 0 - GROUND FLOOR



FLOOR 1 - FIRST FLOOR



LEGEND - COLOR CODED



THE NEW PAM CENTRE

5



SECTION 101/102

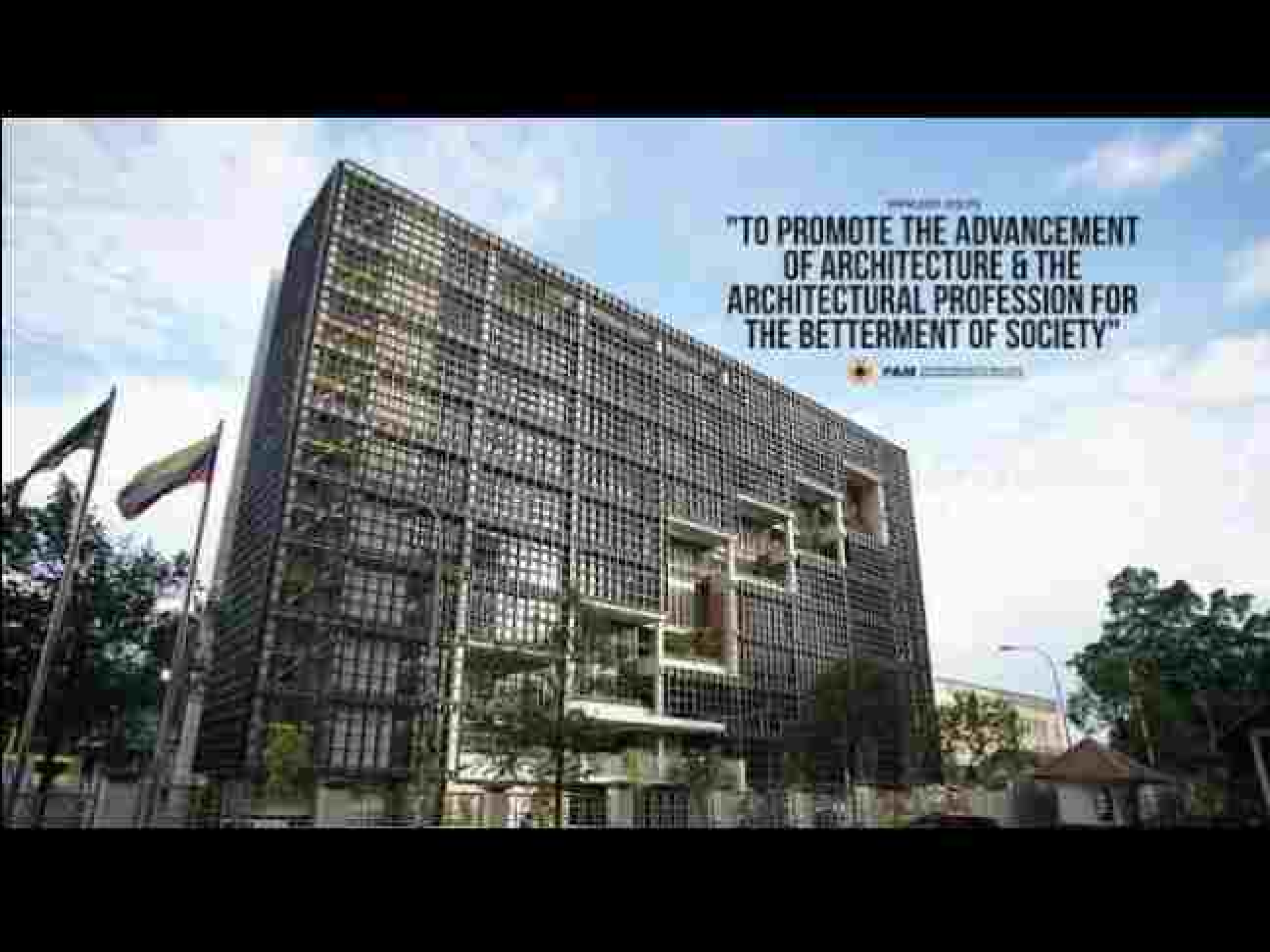












PROPOSED OBJECT
**"TO PROMOTE THE ADVANCEMENT
OF ARCHITECTURE & THE
ARCHITECTURAL PROFESSION FOR
THE BETTERMENT OF SOCIETY"**



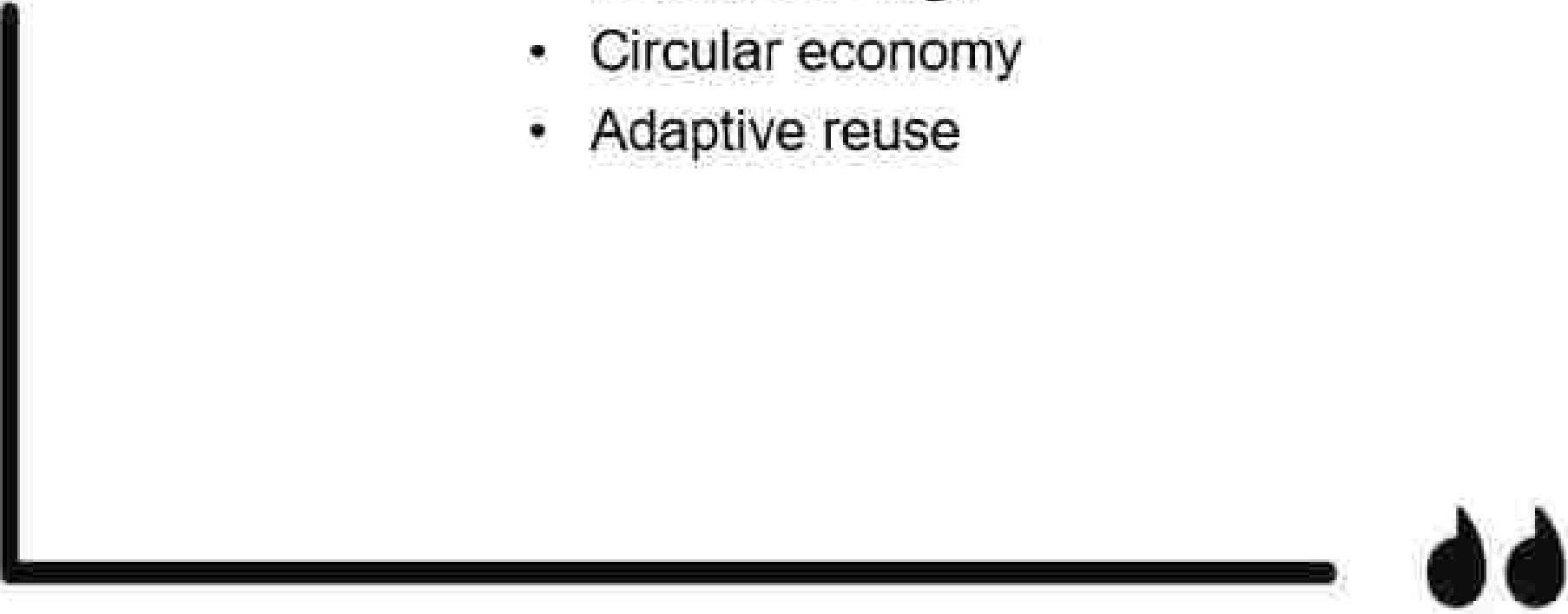


THE FUTURE OF BUILT ENVIRONMENT





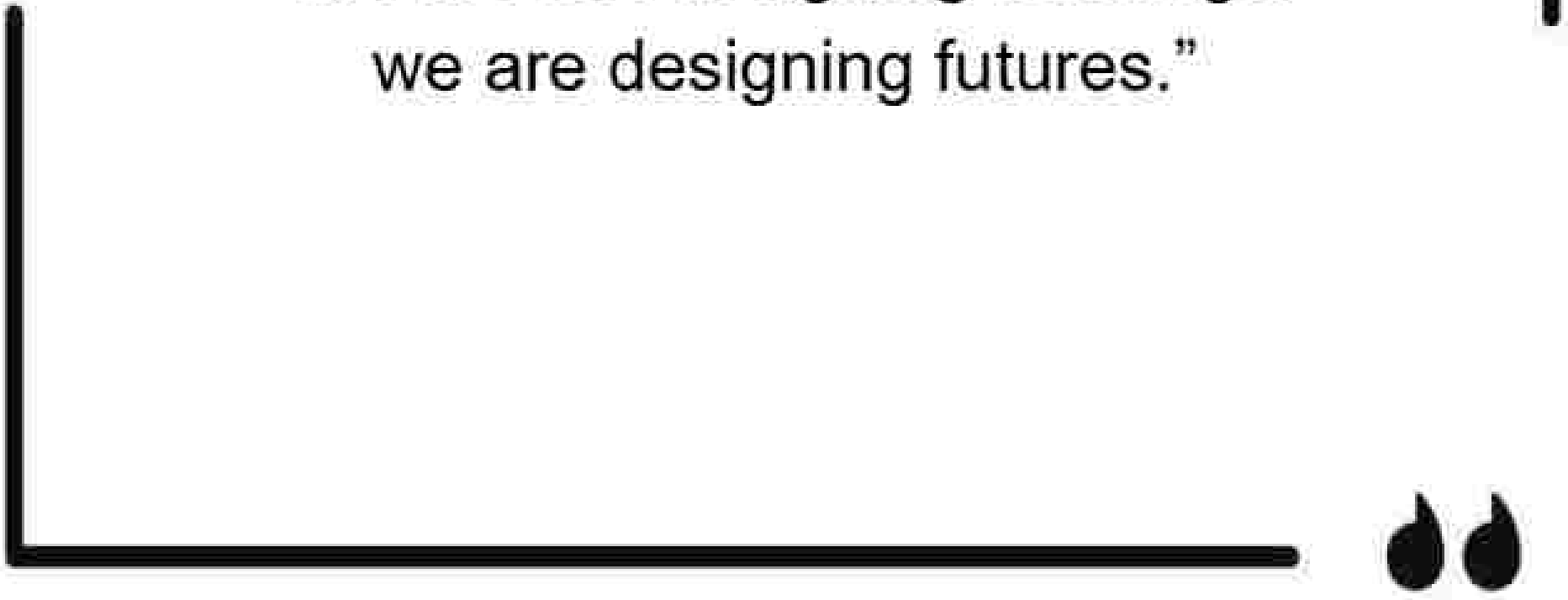


- 
- Smart buildings
 - Net-zero design
 - Circular economy
 - Adaptive reuse
- 





“We are not designing buildings;
we are designing futures.”





SUSTAINABLE
GREEN BUILDING

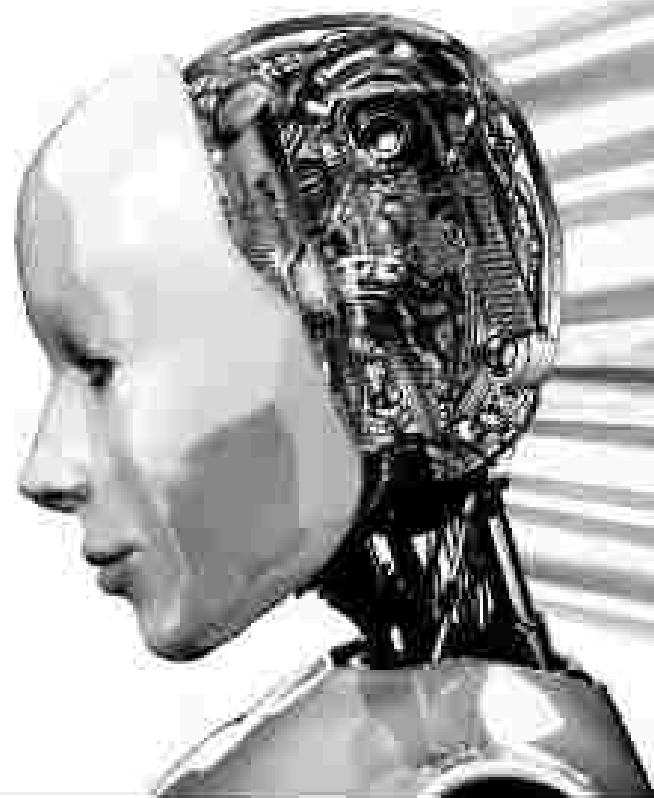
Green Building Features





**“What kind of world do I want
to design into existence?”**

Ar. Adrianta Aziz





“Great design does not end at completion,
it begins its true journey there.”





YOU
ARE THE CREATOR OF YOUR OWN DESTINY.

“As your visions
evolve within,
architecture shapes
a new world around.”

Ar. Adrianta Aziz





