

CENTRAL CONCEPT AS A SINGLE ORGANIZING IDEA THAT WORKS ON MULTIPLE SCALES

# "OFFICE AS A MEDIUM FOR THE TRANSFERENCE OF ENERGY"

1 Energy as Knowledge/ Information the World Bank has made available



2 Energy as environmental factors such as Sunlight, Wind, Radiation.



# CONCEPTUAL DEVELOPMENT

1

Considering environmental factors to maximize indoor quality and minimize negative impacts on the natural environment through the use of renewable resources.

2

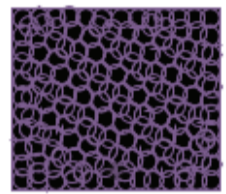
Improve the way it shares knowledge and engage with clients and the public & How to bring the operations closer to client governments and communities.

3

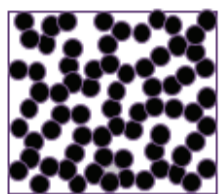
A thermodynamic system is separated from the environment by a boundary layer through which only energy and matter can pass.

## ANALOGIC INFORMATION FROM A THERMODYNAMIC APPROACH

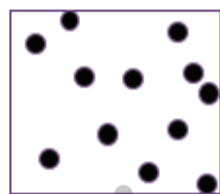
### States of Matter Solid, Liquid and Gas



Solid: Heavy Concentration, little movement, confined to office space

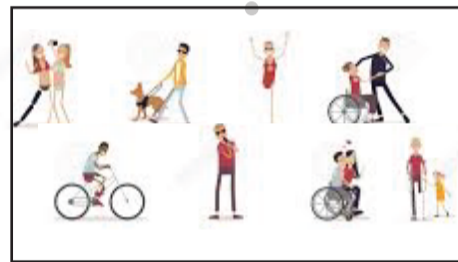
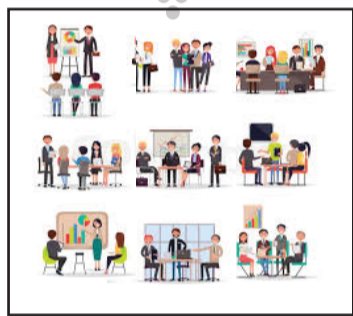


Liquid: Medium Concentration, little movement, not confined

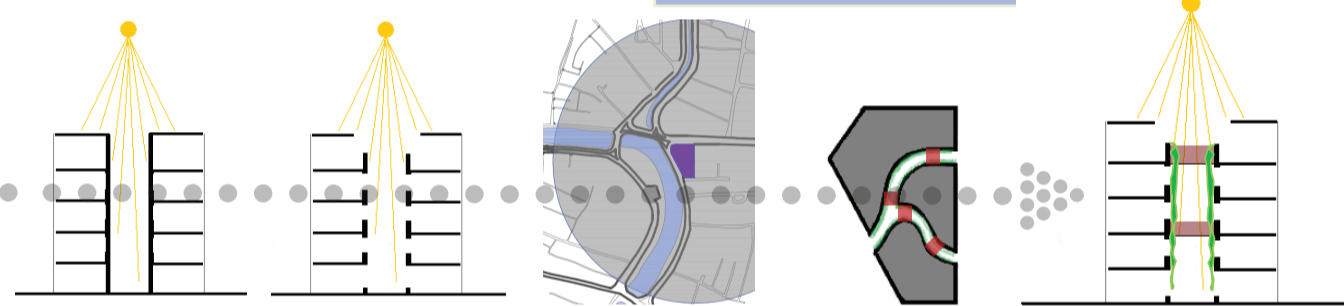


Gas: Low-No Concentration, alot of free movement

Like the states change phases, the building's hierarchal order also moves from highly concentrated at the top (offices) to low concentration (public)



### Sunlight as Pressure



Rivers of light have bridges, and vegetation as a solar shading device.

Pressure causes a material to force itself out of a confined position

Sunlight as pressure fills a section between two walls and enters the building.

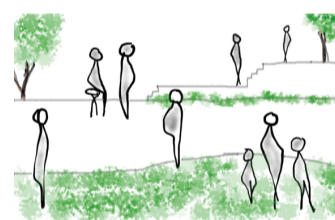
### Convection and Conduction



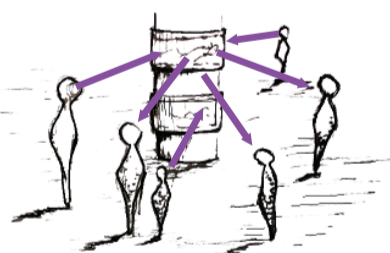
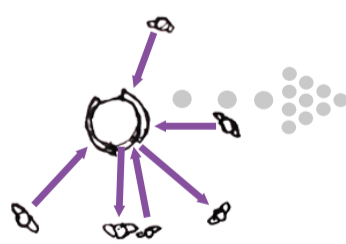
Activities that have a high flow of people between them are in "conduction" and must be placed close to each other



Activities that have a low flow of people between them are in "convection" and could be placed farther apart

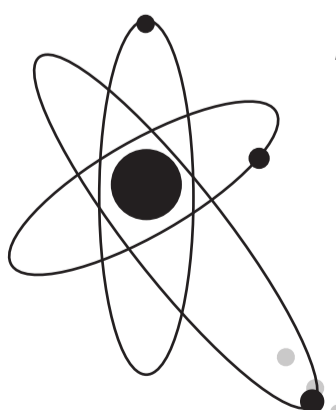


### Radiation



In raadiation, heat transfer is direct, to think of information/-knowledge as radiation so that it can be directly transferred.

LCD Screens can be placed in designated areas in the building, so users have a real time source of information concerning World Bank projects and other related information

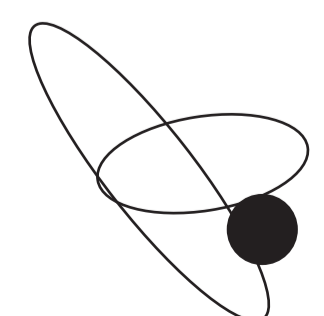
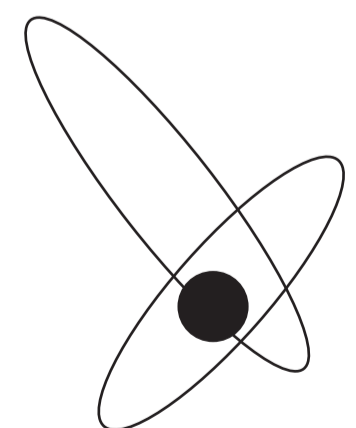
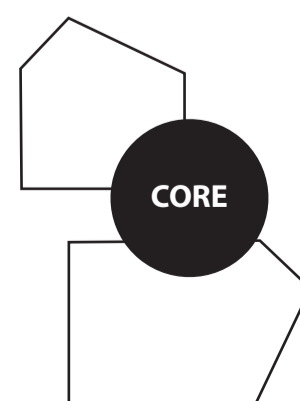
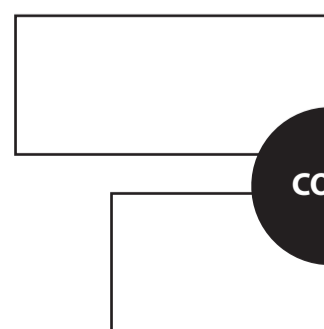
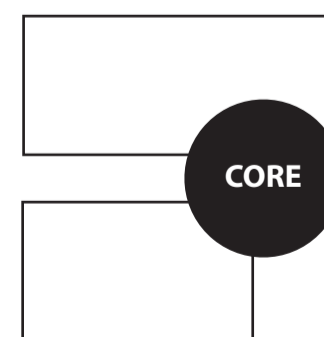
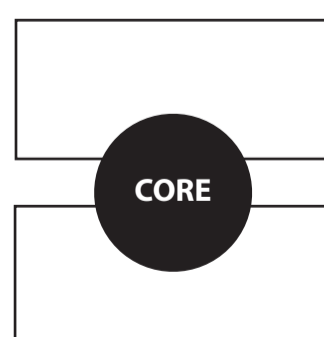


### Atom

The atom has two main parts, the inner core (protons & neutrons) and the outer electron shells. The inner core is stable and strong, it requires alot of heat energy to break it apart. Heat always affects the outermost electron shell at first. The electrons are free to be removed from the atom the farther away they are from the core.

The World Bank office building will retain this characteristics, The core of the building will be the position of the the office itself, most of the movement being on the lower levels, the highest movement being the furthest away from the office.

## EXPLORING THE FORM



# OFFICE AS

Final Energy  
Final Water

EDGE

### Low Flow Faucets

Use of Low flor faucets in all washrooms

### Rainwater Harvesting

50% of Roof area used for Rainwater Harvesting

### Sensors

Use of occupancy sensors in bathrooms, conference rooms, etc.

### Low-E Glazing

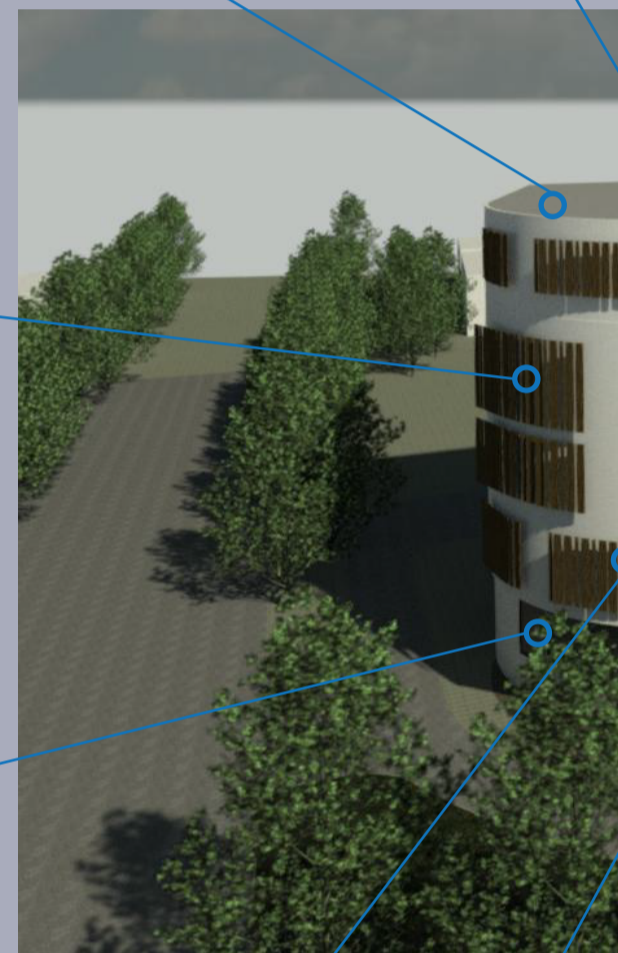
Use of Low Emissivity Glazing to windows

### External Shading Devices

Use of External Shading Devices to every facade

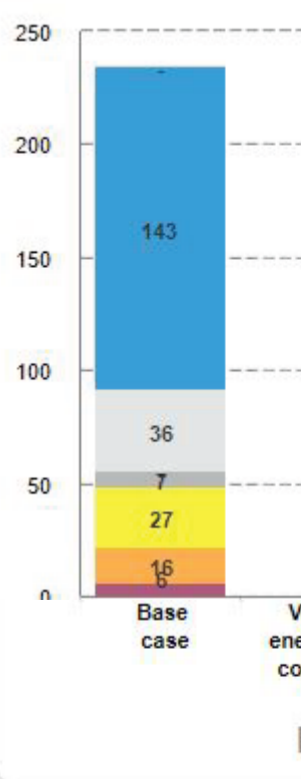
### Solar Energy

More than 50% of roof area used for solar photovoltaics



52.89%

Improved Case m  
EDGE Energy Star



# A MEDIUM

YERIANNE C. HAYWOOD  
08111850077001  
ARCHITECTURAL DESIGN 1

Use	38,495.20 kWh/Month	Operational CO <sub>2</sub> Savings	301.29 tCO <sub>2</sub> /Year
Use	452.84 m <sup>3</sup> /Month	Embodied Energy Savings	2,326.82 MJ/m <sup>2</sup>

## RESULTS

Base Case Utility Cost	127,929.07 Thousand Rp/...	Incremental Cost	285,041.39 Thous...
Utility Cost Reduction	66,577.29 Thousand Rp/...	Payback in Years	0.36 Yrs.

### Water Efficient Urinals

Use of water-efficient urinals in all male wash-rooms

### Roof Construction

Use of Concrete Filler Slab with Polystyrene

### Floor Slabs

Composite in-situ concrete and steel deck used as floors in the building

### External Walls

Compressed stabilized Earth Blocks & autoclaved aerated concrete blocks

### Internal Walls

Cement Fibre Boards on Studs and cellular light weight concrete

### Reduced WWR

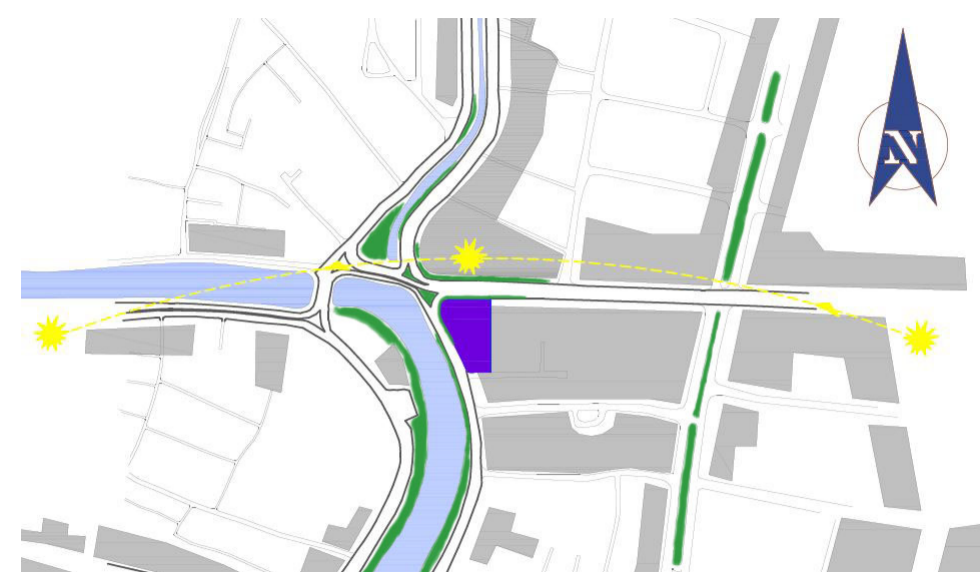
More than 50% reduced Window to Wall Ratio (WWR)

### Flooring

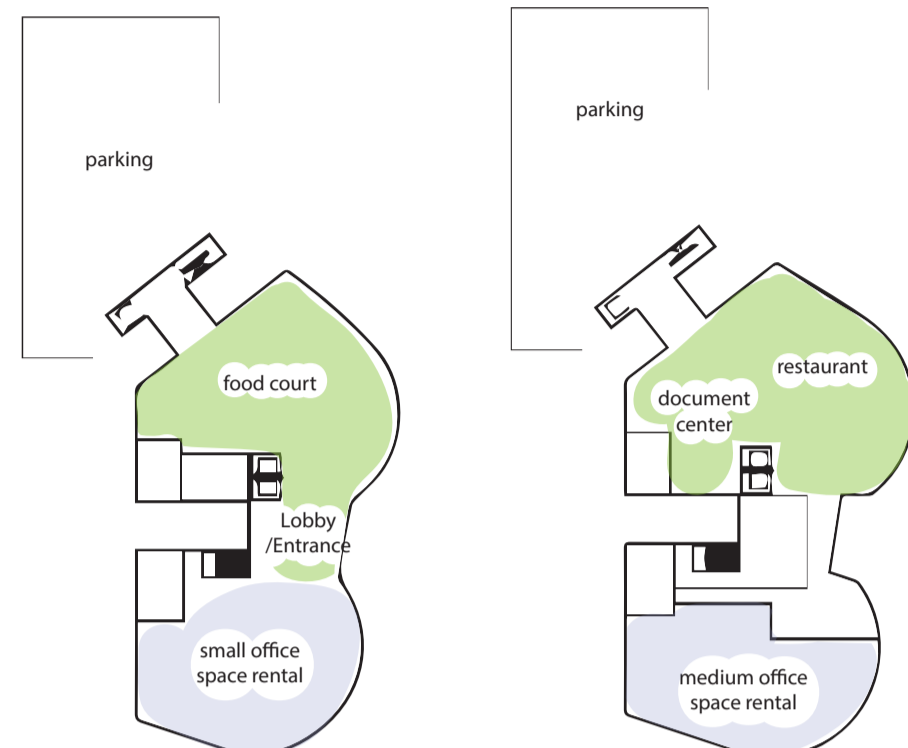
Cork tiles and Finished concrete floor

### Window Frames

Timber frames and aluminum clad timber window frames.

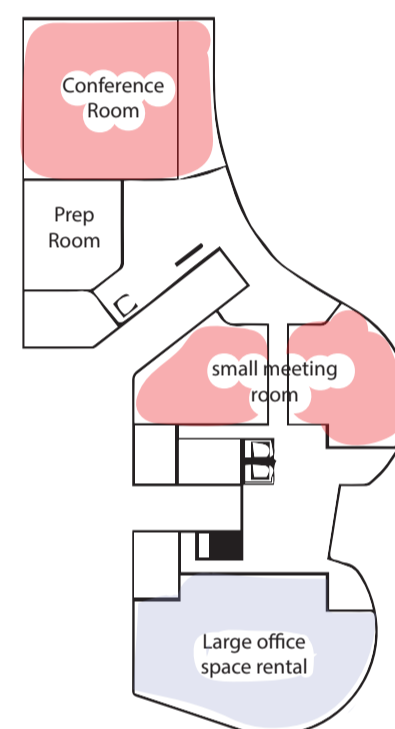


SITE LOCATION

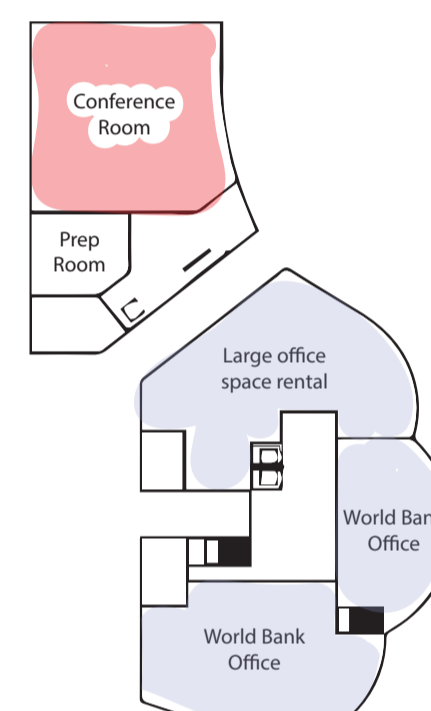


GROUND FLOOR

FIRST FLOOR

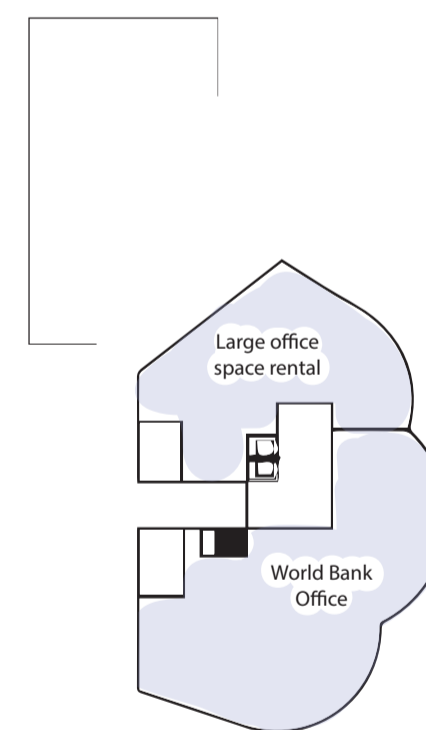


SECOND FLOOR



THIRD FLOOR

## LAYOUTS



FOURTH FLOOR

