PROJECT D

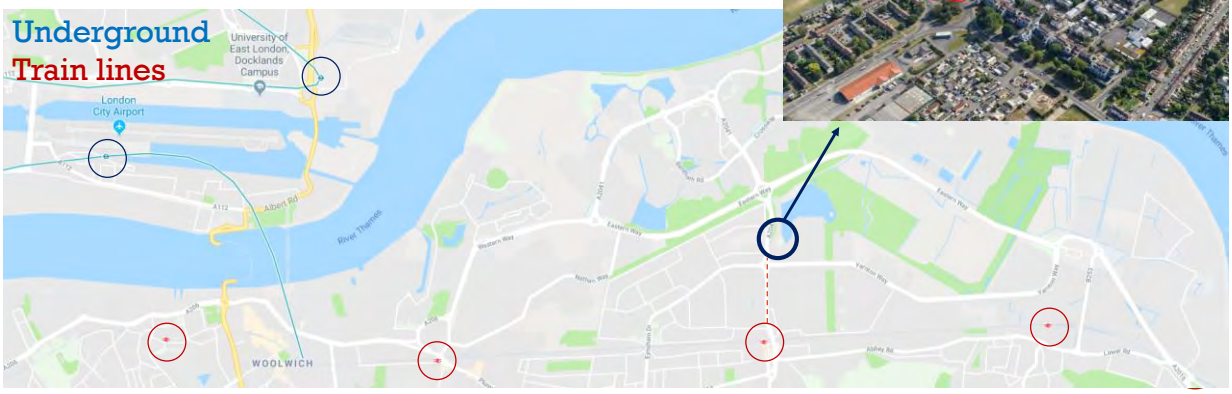
Location: Thamesmead, London
Project competition: Southmere Village Library

Presented by: Nicole Collie & Becca Behrens

PROJECT D

LOCATION: THAMESMEAD, LONDON

- Suburb SE of London in London Boroughs of Greenwich and Bexley
- Built at the end of the 1960s
- Original design intent was to be futuristic
- A place focused around walking



THEME

- *"Heart of Southmere"*

They have created spaces which are:

- interactive
- flexible
- transparent rooms
- part of a community

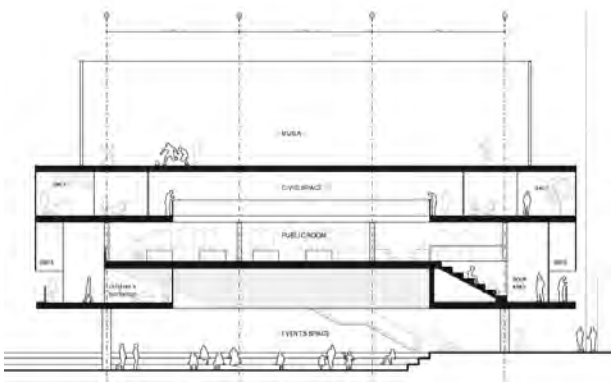
- ✓ Location with high foot hills
- ✓ Location by retail (preferred)
- ✓ Circa 500m² floor area over a single floor
- ✓ Open plan, flexible floor area, with good floor to ceiling heights and few columns as possible
- ❑ ***Low Maintenance***
- ❑ ***Prominent and Legible Signage***
- ❑ Desired provision for:
  - ✓ Separate IT suite (glazed partitions)
  - ✓ Meeting rooms (flexible layout)
  - ✓ Large area for children's books
    - ✓ Reading area away from door
  - ✓ Single public access point:
    - ✓ Glazed, shop style frontage for passers-by can see into library
    - ❑ ***Preventing graffiti***
  - ✓ Storage space
  - ✓ Communication / IT plant room
  - ✓ Cleaners cupboard with ceramic sink
  - ✓ Staff car parking space
  - ✓ Disabled parking nearby

PROGRAM

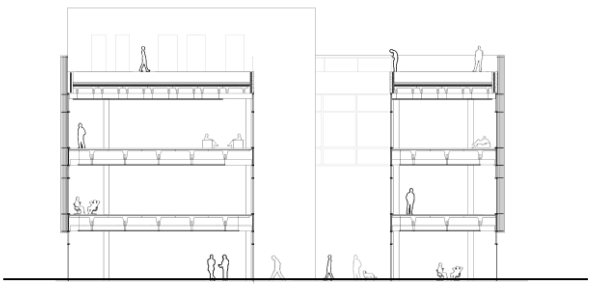
There were only 3 main points the original architect missed.

SECTIONS

- Dropped building down to grade to avoid graffiti
- Unified central space into an atrium space in the middle of the building
- Raised ceiling heights to open the space up
- Repurposed roof from caged ball court to a green roof



Before



After

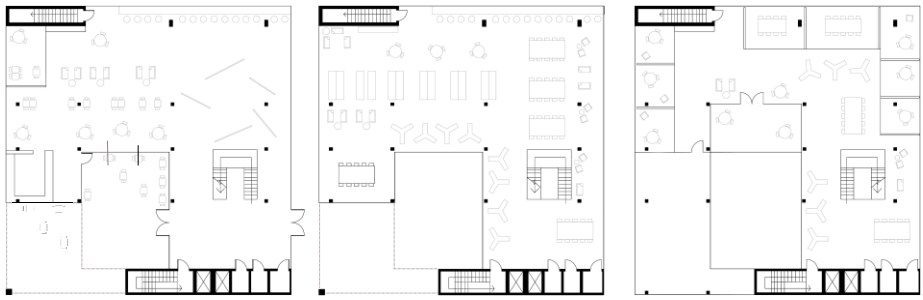
FLOORPLANS

Before

Old Floorplan
- Irregular shape
- Poor circulation
- No defined grid

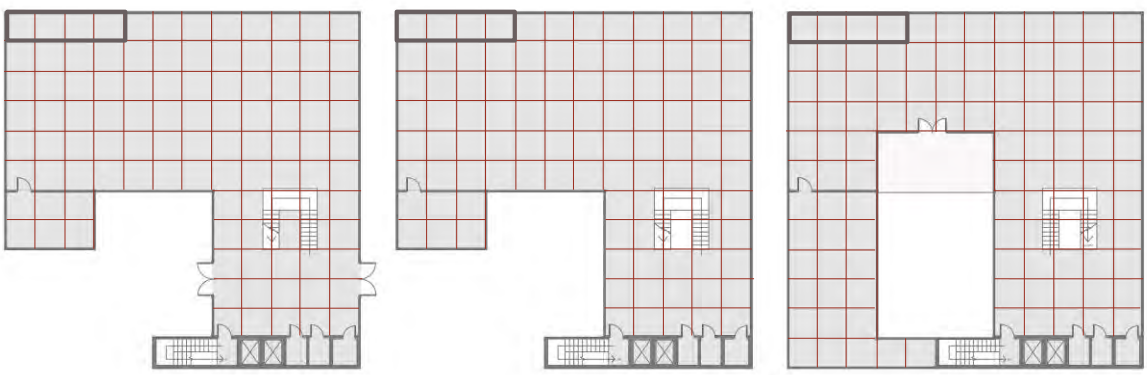
After

New floorplan:
- Squared everything off
- Main staircase inside
- Open/flexible floorplan

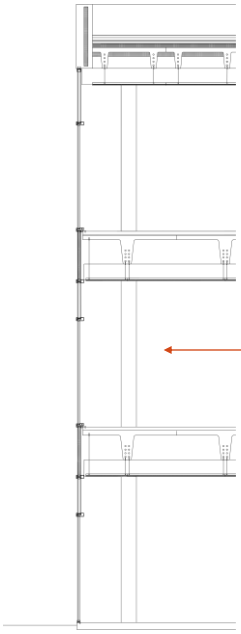


THE GRID SYSTEM

- Created a grid system that our structural system, enclosure system, and other electrical and mechanical systems will be based off of.



STRUCTURE



Pre-cast double tee beam

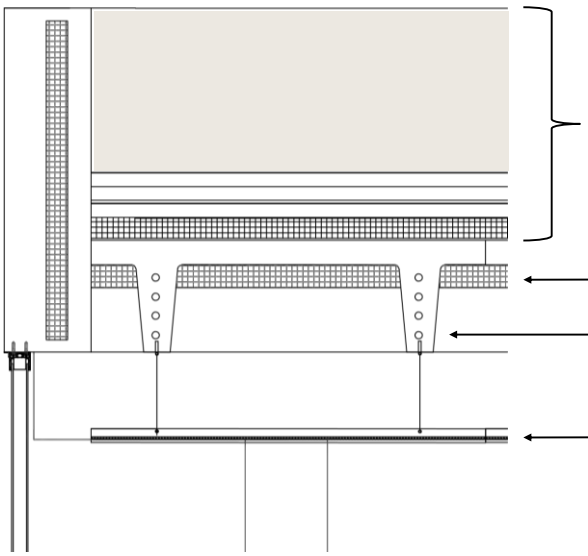
Pre-cast post and beam system

MATERIALITY

Pre-cast Reinforced Concrete

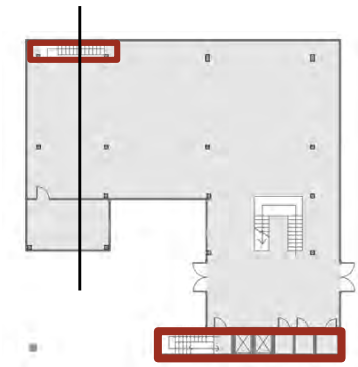
- post-tensioned concrete tee beams
  - Double & Single
- Columns & Beams
- Mechanical Core & Shear wall

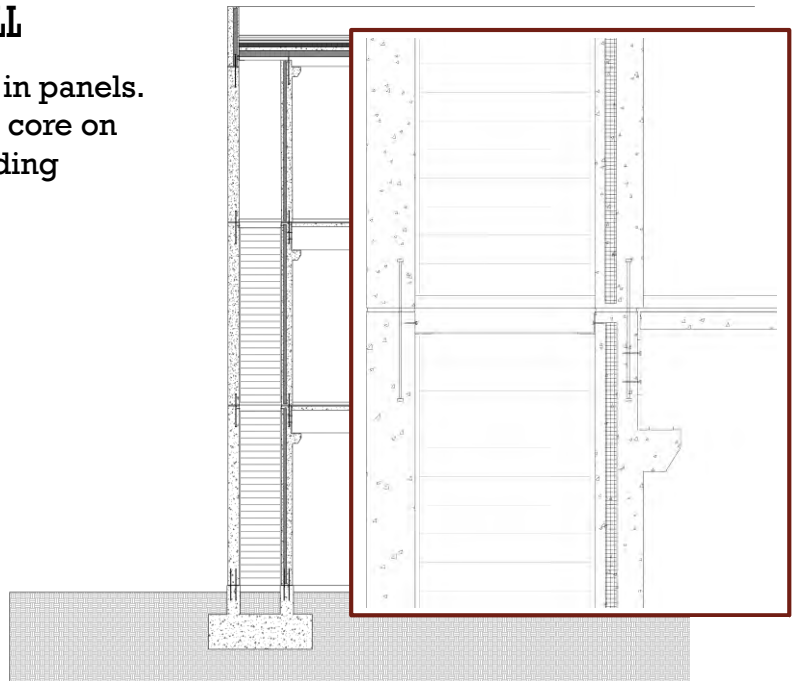
ROOF SPECS: GREEN ROOF

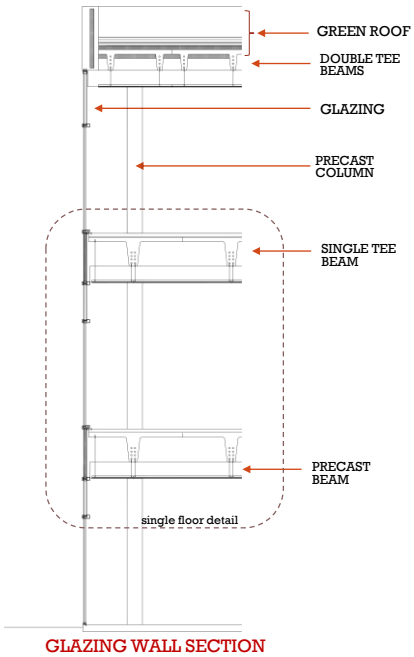


WALL SPECS: SHEAR WALL

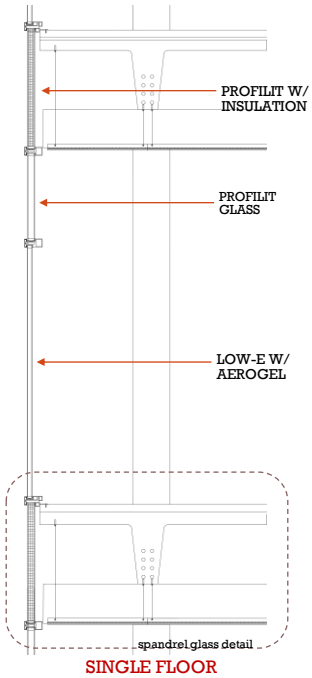
- Pre-casted and assembled in panels.
- Shear wall and mechanical core on opposites sides of the building
- Adds second egress
- Helps with rigidity





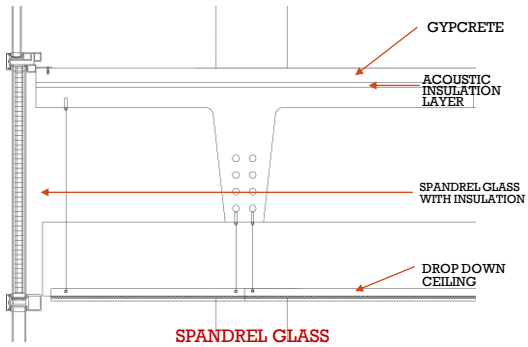


GLAZING WALL SECTION



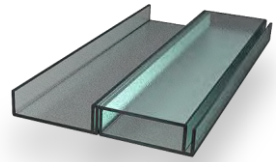
SINGLE FLOOR

CURTAIN WALL DETAILS



SPANDREL GLASS

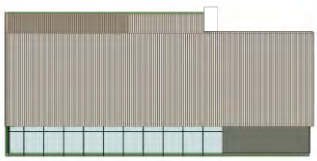
WINDOW SPECS:



Profilit glass

- Top 1/3 is U-shaped profilit glass (Greenish-blue translucent)
- Bottom 2/3 is Low-e glass with aerogel insulation (clear)
- Electro-chromatic glass for more private area (thermal – blue tint, privacy glass – white translucent)
- Mullions connecters custom made to fit the two different types of glass together

NORTH

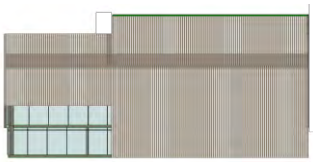


25% translucent
25% wall
50% glass

EAST

33% translucent
66% glass

SOUTH

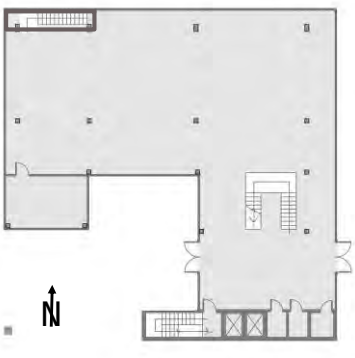


23% electro-chromatic
22% translucent
55% concrete wall

WEST

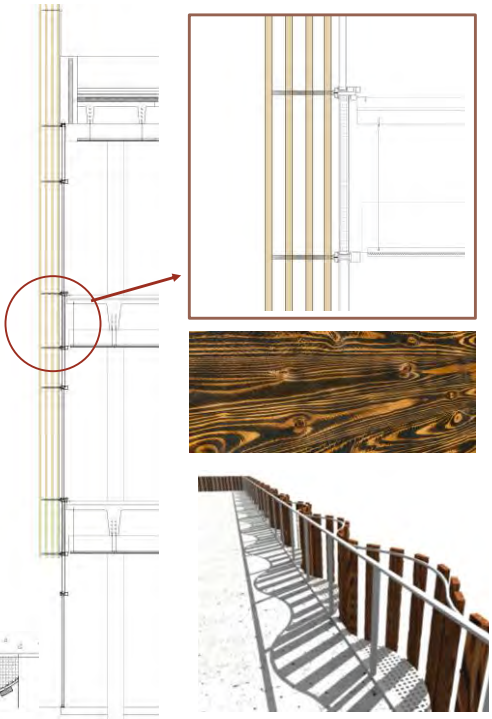
7% electro-chromatic
48% translucent
43% glass

GLAZING

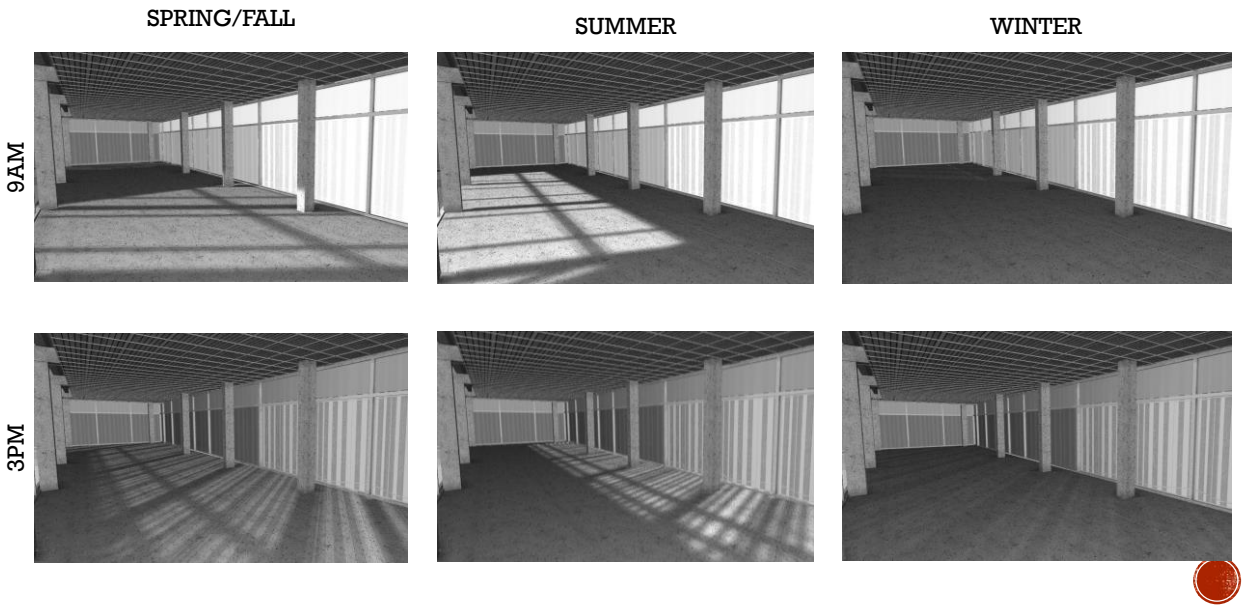


SPECS: SHADING DEVICE

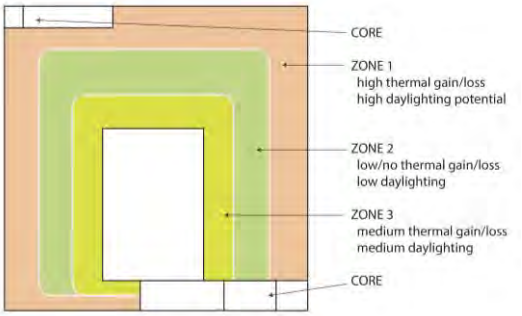
- Sinusoidal metal frame connected to each floor
- *Shou sugi ban* technique: charred cypress



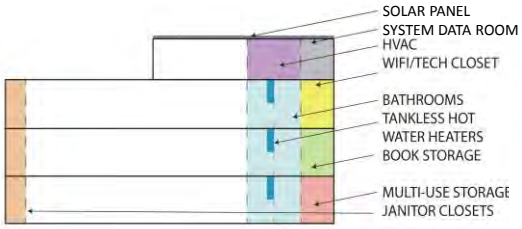
SHADING: LIGHT & SHADOW

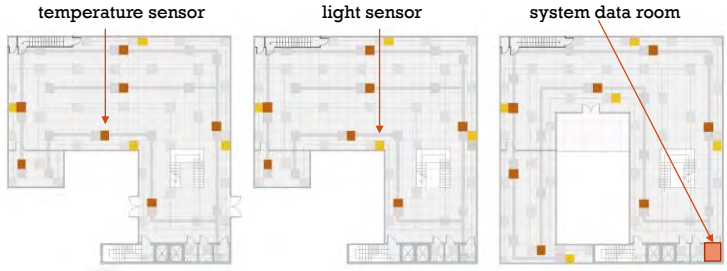


ZONES + SENSORS:



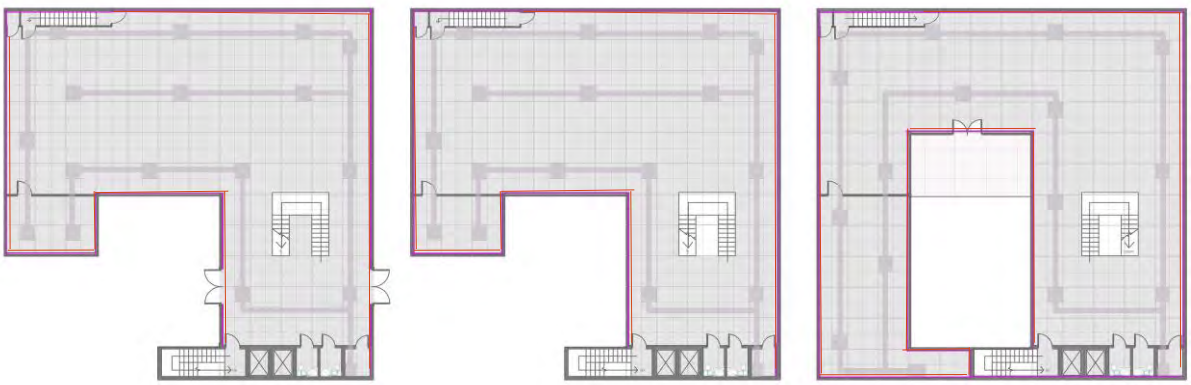
- The sensors are a crucial contributor to the success of the HVAC and lighting systems.
- Placed according to the thermal zones (HVAC) as well as at each side of the building (lighting)
- Programmed when the systems are installed
- Sensor data and building over-ride systems will be stored on the third floor





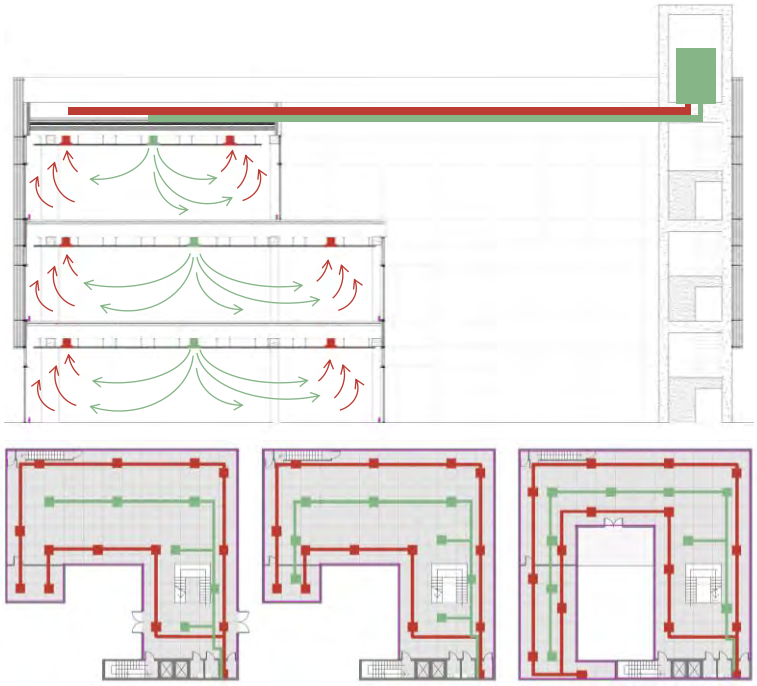
HVAC: RADIATOR LAYOUT

Radiators will run along the ground next to the windows and will supply heat to the building.



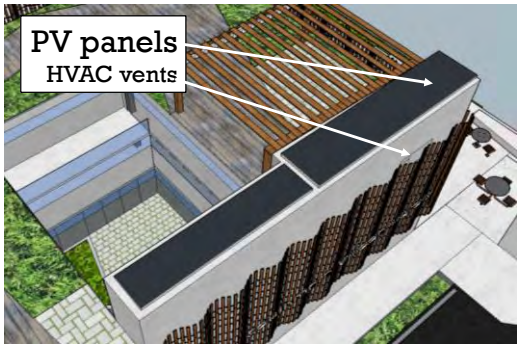
HVAC SPECS

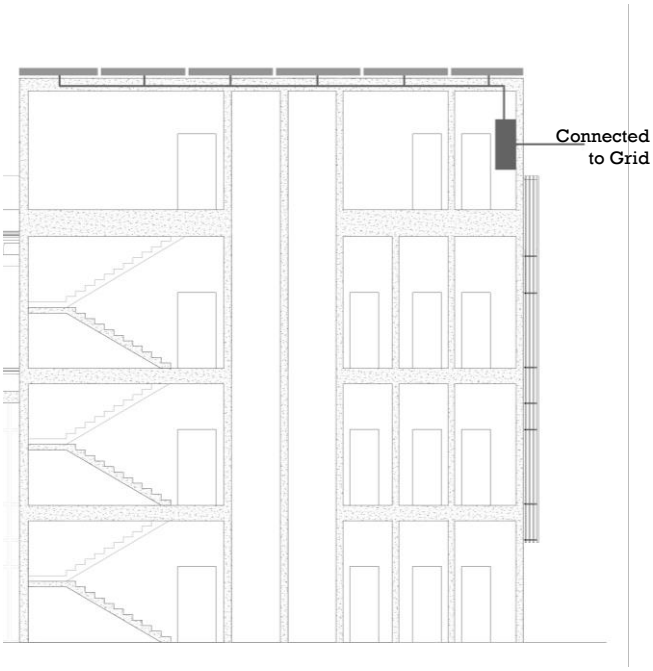
- A return air system is combined with fresh air through a heat exchange system.
- The outdoor component of the system is stored inside in the penthouse section of the building.



P.V. PANELS

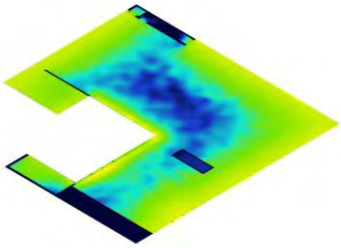
- PV panels produce between 3,300-3,800kwh/yr which will help offset the average 18 kBTU/ft²/yr used by the building.
- Installed over 'penthouse'



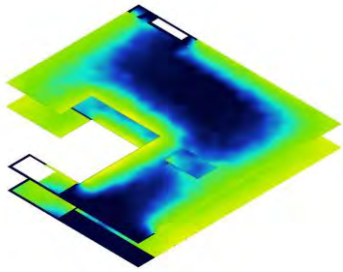


LIGHTING ANALYSIS

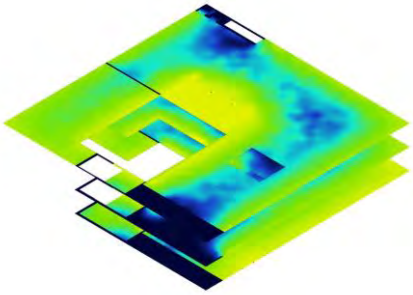
The lighting of each floor matches its function. The first floor is a multi-purpose space with a café. The second floor is the library. The third floor have spaces to work and for kids to play.



1st floor – Mixed use



2nd floor - Library



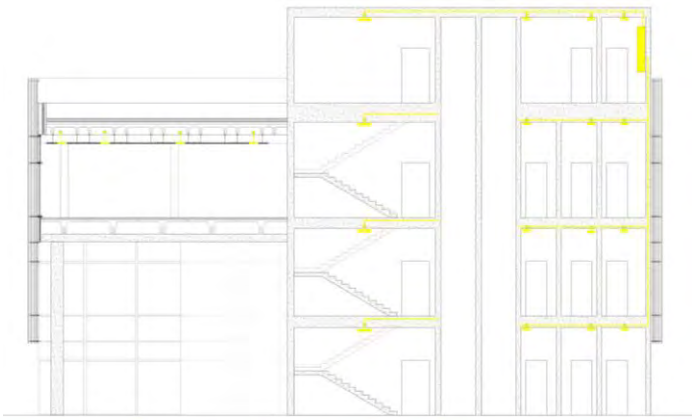
3rd floor – Private/Mixed use

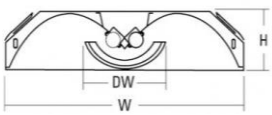
LIGHTING SPECS

Indirect/direct lighting which will fit into the grid of ceiling panels

This lighting scheme was chosen because it will best mimic the natural lighting.

It will create a consistently lit space, regardless of how many lights are on.





LIGHTING:

Lighting is consistent throughout the day, regardless of the conditions outside


CLOUDY DAY

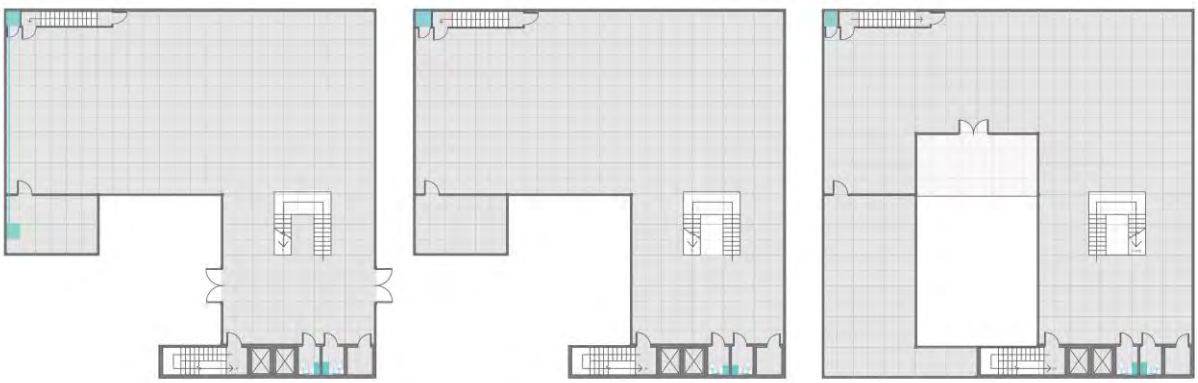

NIGHT


SUNNY DAY

WATER

Tankless water heaters on each floor.

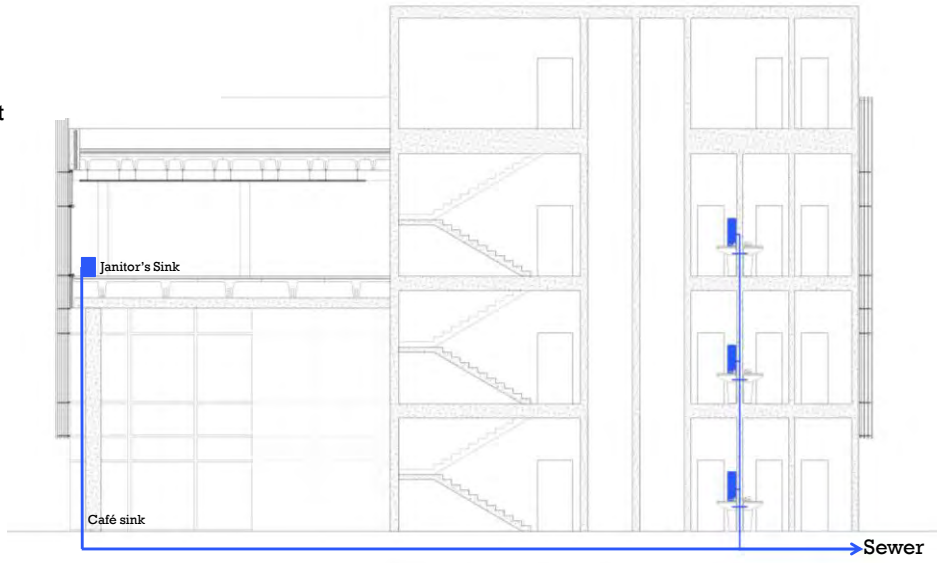
Sink was will be reused in low flow toilets



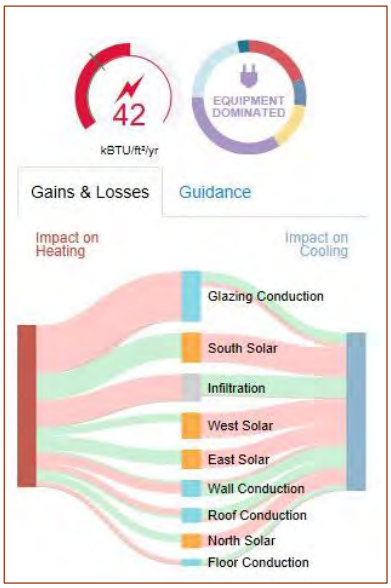
WATER

All water will go to the sewer system.

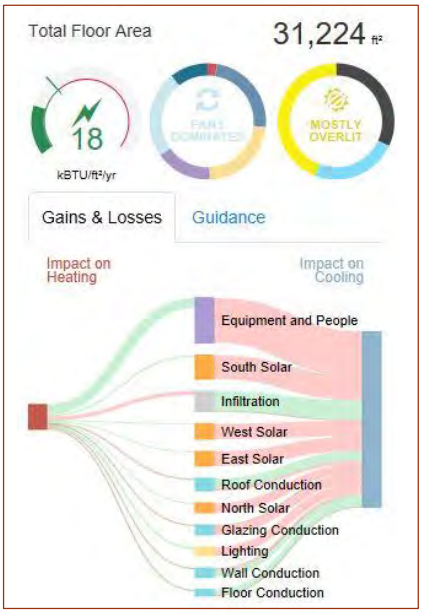
This is because the lower use in a building of this type will likely not support the cost and upkeep of a system meant to deal with black water.



HVAC ANALYSIS AND PERFORMANCE

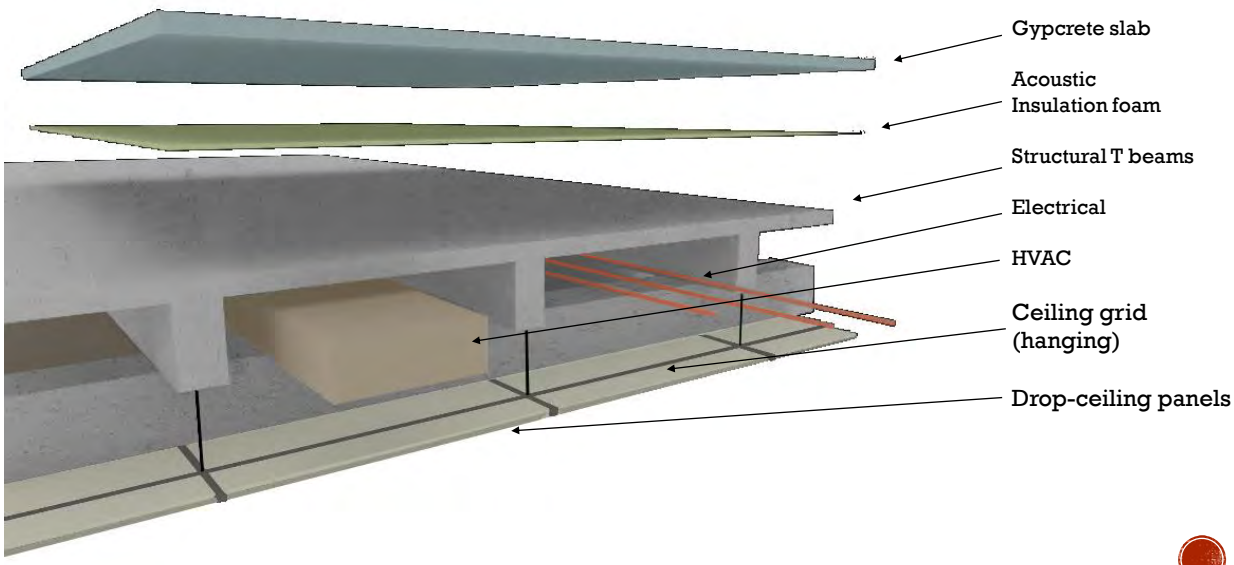


Before

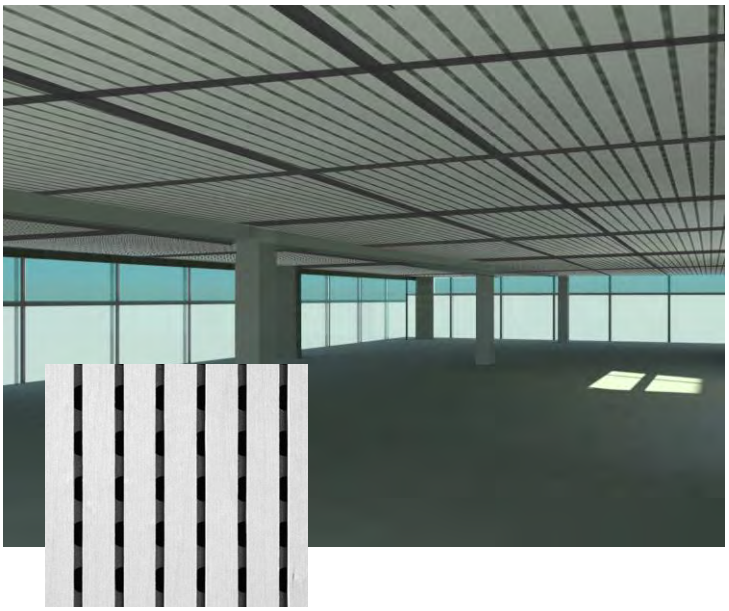


After

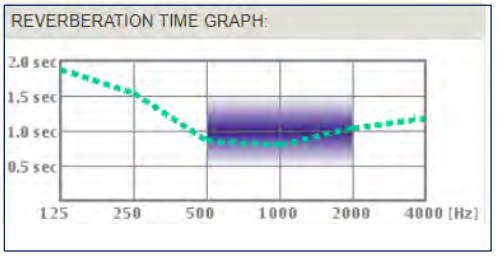
SYSTEMS BREAKDOWN



CEILING SPECS: DROP-DOWN CEILING



- Class A fire performance
- 100% bio-based, quaifying towards LEED
- NRC of .80 (which will absorb 80% of sound)
- Easily maintained or replaced
- System works with other services

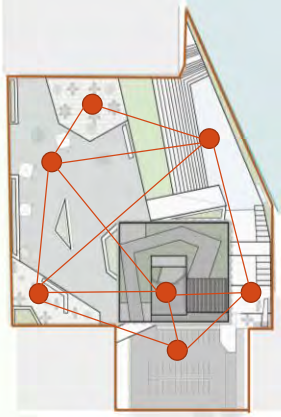


INTERIOR: FIRST FLOOR

INTERIOR: SECOND FLOOR

INTERIOR: GROUND FLOOR

SITE



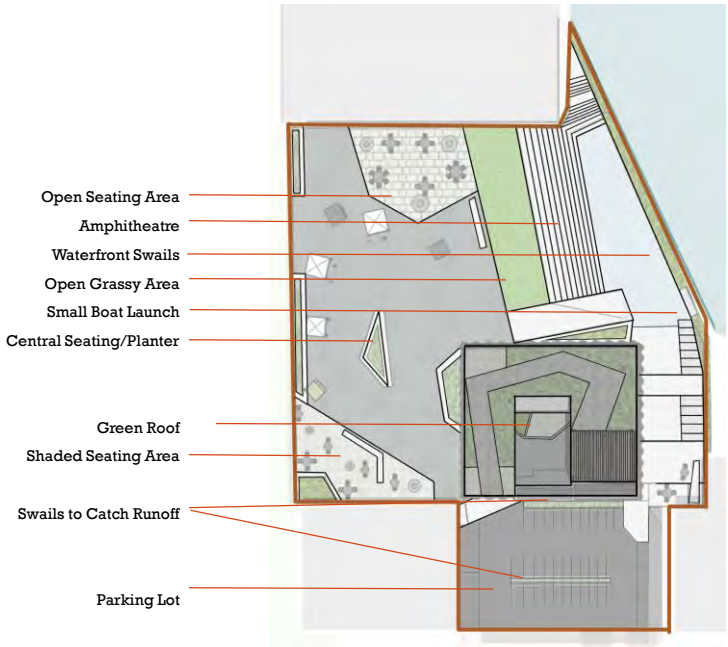
There are several "nodes" within the site, all interconnected. Each offers a different program, use, or micro-climate.

SITE PLAN:

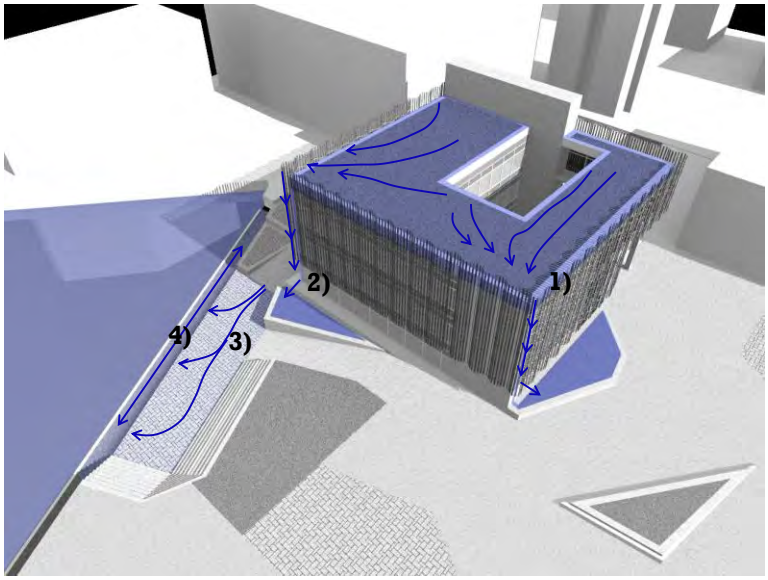
PARKING
- Handicapped Spots- 6
- Bus Spots- 3

SEATING
- Moveable Chairs- 36+
- Permanant Benches- 10

SPACES
- Planters/Green Roof
- Open Grass Areas
- Amphitheatre
- Kayak Launch

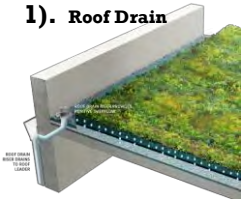


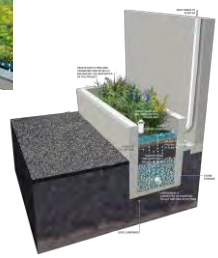
SITE DIAGRAMS



The green roof will hold a majority of the water on building, and excess will drain down into planter boxes on the NE and NW corners. It will then drain down through concrete pavers and to the main swale.

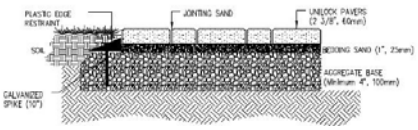
1). Roof Drain



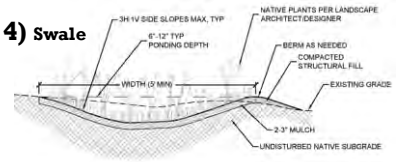


2) Planter box

3) Concrete Pavers



4) Swale



SITE

SITE

SITE

SITE