

Site Analysis Summary



Location and Topography:

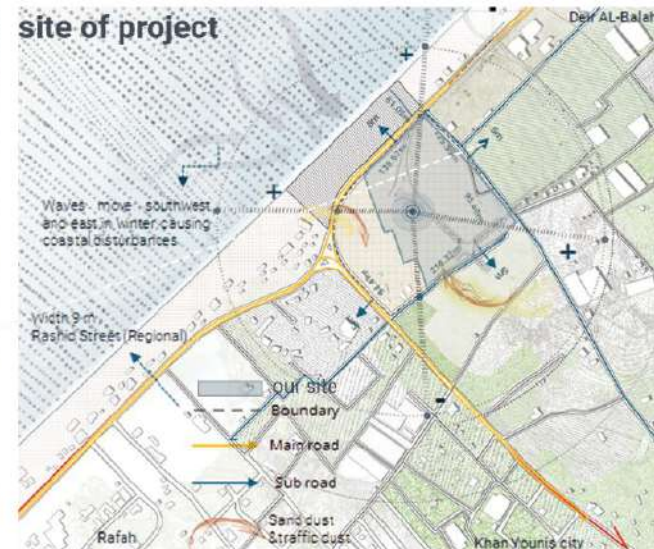
The project site is situated in the Mawasi area of Khan Yunis along the coast, separated from the shoreline by a main road, Al-Rashid Street. The terrain is predominantly flat, featuring a gentle slope of approximately %1.5. Elevation rises from the shore to the highest point on the site by about 5 meters.

Surrounding Environment:

The site is bordered by low-density development including small buildings such as cafeterias and restaurants. The surrounding land is primarily agricultural, comprising greenhouses and modest residential structures built with local materials. The area benefits from a relatively low population density, offering a tranquil and spacious setting. Moreover, the site is conveniently located near key facilities including schools, universities, and hospitals, ensuring accessible educational and healthcare services.

Climate:

The region experiences a Mediterranean climate, characterized by hot summers and mild winters, which influences both the design approach and environmental considerations for the project.



Brief description of the project

In Gaza, where childhood is reduced to memories of war, the phenomenon of the "sole survivor" was born: a child emerging from under the rubble after losing their entire family, left without roots or support. No longer just an orphan, but a living witness to genocide, carrying deep trauma and an absolute loss of belonging. These children need more than shelter; they need a healing environment that can rebuild their spirit and grant them a chance at life again.

From this need, the Orphans Rehabilitation Centre on the coast of Khan Yunis was conceived—not as a mere building, but as a therapeutic-architectural journey. Inspired by SOS villages yet reimagined for Gaza's reality, the project moves beyond providing alternative housing to creating a future-oriented model that restores a child's sense of belonging and growth.

Brief description of the project

The design rests on three key pillars:

- **Healing Architecture:** spaces are organized as a path of recovery—beginning with isolation in private therapy rooms, moving into connection within small family-like units, and finally integration through workshops, playgrounds, and gardens.
- **Blue Spaces Theory:** the seafront site acts as a therapeutic element, planting serenity and openness, turning the sea into an alternative embrace.
- **Trauma Therapies:** the architecture incorporates CBT, art and play therapy, and exposure therapy, transforming educational, artistic, and residential spaces into tools for healing.

A unique layer of the project is the role of substitute mothers—women who themselves lost children and families in war. They become caregivers for orphans, creating mutual healing: the child gains warmth and safety, while the mother rediscovers motherhood and meaning after loss.

The center uses a modular design that allows for future expansion as needs grow, making it a flexible model for care and rebuilding childhood in post-war Gaza.

Here, survival is redefined—not as mere existence, but as an opportunity for healing, belonging, and planting new childhoods amid the ruins.

Transforming Survival into Recovery through Therapeutic Architecture

Environmental and architectural strategies respect the site's context and identity. Building masses are oriented to maximize daylight and natural ventilation, while locally available, eco-friendly materials reflect Gaza's resource-conscious reality. The modular design allows future expansion or replication in other Palestinian cities as part of reconstruction efforts, ensuring long-term sustainability and flexibility. Socially, the center encourages community engagement through shared outdoor spaces and integration programs, helping children rebuild trust and a sense of belonging. Ultimately, the project is more than a building; it is a comprehensive therapeutic journey that transforms survival into recovery, giving traumatized orphans a real opportunity to heal, grow, and build a better future. Ultimately, the project should not be perceived as merely a building. It is a comprehensive therapeutic journey, transforming survival into recovery. By combining architecture, psychology, and community engagement, the center aspires to give traumatized orphans more than a second chance—it seeks to restore hope, identity, and a tangible path toward a better future.



Rehabilitation Center for Orphans with PTSD

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Site of project

WHY GAZA?... WHY THE COAST?

1) Urgent Need:
The rising number of orphans in Gaza underscores the critical need for centers that provide care and emotional support.

2) Healing Environment:
Establishing a center on the coast offers a soothing natural setting that promotes children's mental health and recovery.

3) Safety:
The relative security of the coastal area ensures a stable and sustainable foundation for the project.



Key Issue: PTSD Among Gaza's War Orphans and Sole Survivors

"This situation is classified as a critical humanitarian and social issue."

43% of Gaza's population are children

According to UNICEF's *State of the World's Children 2019* (13 July 2019)

40,000 ORPHAN

According to UNICEF's *State of the World's Children 2019* (13 July 2019)

Orphan Crisis in Gaza

- Loss of safety from constant danger and lack of shelter
- Disrupting fear from violence and loss of loved ones
- Adverse disruption due to destruction and displacement
- Physical and mental health issues from injuries, malnutrition, or poor care

The Sole Survivor

is a newly emerging term in Gaza referring to a child who has lost their entire family not just parents or siblings – as a result of the ongoing conflict.

Post-traumatic stress disorder (PTSD) children

due to war is a psychological disorder caused by exposure to traumatic experiences such as violence, destruction, and loss of safety. Symptoms include nightmares, flashbacks, constant anxiety, irritability, and difficulty concentrating.

Symptoms of "PTSD":

- Avoid Thinking
- Avoid Talking
- Early Startling
- Negative Mood
- Negative Thinking
- Always on Guard

91% of Gaza children suffer from post-traumatic stress disorder "PTSD" after Israeli attacks

(PTSD) in Gaza children

- 35% had moderate levels
- 11% had mild or questionable levels
- 54% of children had severe levels of the disorder.

WAR

How do WAR contribute to the development (PTSD)?

- Sensory information "blood, killing, bombing"
- Intense emotional stress response
- Secretion of cortisol
- Social withdrawal and isolation

Impact

- Emotional episodic memory "VAM"**
Unretrieved memories and their involuntary retrieval
- Spatial memory "SD"**
Reducing the ability to perceive the environment

The Core Insight
"A secure and stable environment conducive to healing, which helps reduce cortisol levels and promotes overall well-being."

Concept

Healing Architecture

The design focuses on creating a safe and stable environment to support recovery, addressing the psychological and physical needs of war-orphaned children with PTSD through the following

- 1 PTSD & Architecture strategies:
- 2 Blue Spaces Theory

Healing Architecture: A Brief Overview

Healing Architecture is a design approach that aims to foster psychological and physical recovery through the built environment. It goes beyond mere functionality, focusing on how architectural spaces can positively influence human health, comfort, and overall well-being.

Healing Architecture Applications within the Project

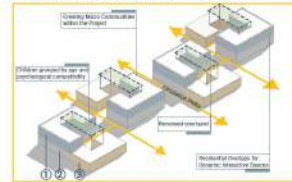
1 PTSD & Architecture

A- Form and Spatial Organization



- Circulation:**
- Clear Reference Axis connecting main functions
 - Defined Pathways to support effective Wayfinding
 - Proximity to Services for all housing
- Missing:**
- Even Distribution of houses across the site
 - Avoidance of Overcrowded Clusters
 - Order: Repetition, Grid for organized massing.

B- Family-Like Environment



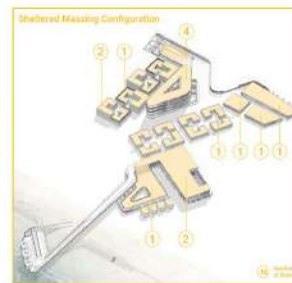
- Adopting the **SOS Children's Villages** approach
- The sole surviving Mother & Children

C- Psychosocial Therapy Integration in Outdoor Design'



- Dedicated Spaces for Various Types of Therapy**
- Sensory Therapy
 - Emotional Therapy
 - Group Therapy
 - Physical/Community/Outdoor
 - Art Therapy
- Controlled Natural Exposure:**
- All strategies within the concept were designed with a focus on their impact on therapy & the enhancement of orphans' psychological and social well-being.

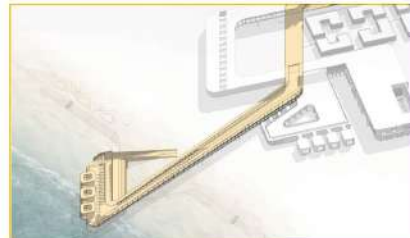
D- Human scale design



2 Blue Spaces Theory

"Pathway elevated by one level to maximize visual extension, preserve open sightlines, and establish a direct connection between

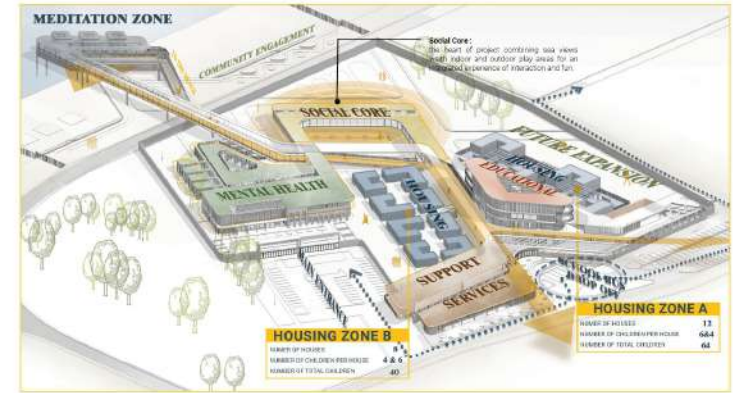
- The Role of Blue Spaces in Recovery:**
- Reducing Fight or Flight
 - Positive Experience Association
 - Exotherapy
 - Soothing Natural Sounds



ZONING

Core Project Components:

- 1 **Residential Units**
Designed as family-like housing clusters that provide a sense of belonging, safety, and normalcy for children, distancing them from their institutional character.
- 2 **Educational Facilities**
Comprising kindergarten and vocational workshops, this zone supports both early childhood education and skill development for older children, promoting independence and future integration into society.
- 3 **Mental Health Services**
Incorporating therapy rooms, counseling spaces, and administrative offices, this zone ensures professional mental health support in a calm and nature-integrated setting.



Program for Child Admission, Assessment, and Placement

7-10 years old → The program prioritizes girls to promote gender equality, protect them from risks like early marriage and exploitation, and address cultural barriers limiting their opportunities.

7-18 years old

Upon admission, each child undergoes an assessment to determine their condition level, followed by placement in a designated home based on specific criteria.

Mental Health Status → Children are distributed in houses, with 4 to 6 children from the same age group per house.

Age group

- (10-7 years) Children
- (11-14 years) Pre-adolescents
- (15-18 years) Adolescents

Day-Sized Rotation for Assessments and Therapy Visits

Each age group is assigned specific days of the week. **example:**

- (10-7 years) Monday & Tuesday
- (11-14 years) Wednesday & Thursday
- (15-18 years) Friday

NOTE: These administrative measures aim to maximize benefits for children, ensuring sensitive and tailored care for their unique needs as special cases requiring intensive support.

Rehabilitation Center for Orphans with PTSD

After the war of October 7, a unique humanitarian phenomenon emerged in Gaza known as "the Sole Survivor": a child pulled from beneath the rubble after losing all family members. These children require not only physical shelter but also a comprehensive therapeutic environment that addresses their psychological trauma and the loss of family and security. Studies indicate that over 91% of Gaza's children suffer from Post-Traumatic Stress Disorder (PTSD), making them the most vulnerable group in society. Their daily lives are marked by nightmares, constant stress, and an inability to trust others. This urgent reality led to the establishment of the Orphan Rehabilitation Center for children with PTSD on the Khan Younis coast, designed as a therapeutic-educational-social space that restores the child's right to a normal life. The project translates therapeutic and psychological theories into clear architectural language:

- **Exposure Therapy:** Bright courtyards and transitional gardens serve as safe spaces, allowing children to gradually confront trauma without losing their sense of security.
- **Cognitive Behavioral Therapy (CBT):** Educational and vocational workshops are integrated into the program, enabling children to acquire practical skills, build confidence, and break the cycle of helplessness.
- **Art & Play Therapy:** Open play areas and activity workshops provide children with ways to express emotions and regain psychological balance.

- **Blue Spaces Theory:** The center's location by the sea, along with the bridge and contemplative spaces, symbolizes a therapeutic journey from inner confinement toward openness and serenity. The functional program is structured around three main pillars:
 1. **Residential Units:** Small family-like homes offer warmth and a sense of belonging, avoiding institutional atmospheres and promoting stability.
 2. **Therapeutic Spaces:** Clinics and counseling rooms provide privacy while maintaining visual connections to greenery and the sea. Natural light and ventilation serve as healing elements.
 3. **Educational Facilities:** A kindergarten and vocational workshops equip children with life and academic skills, preparing them for greater independence and resilience.



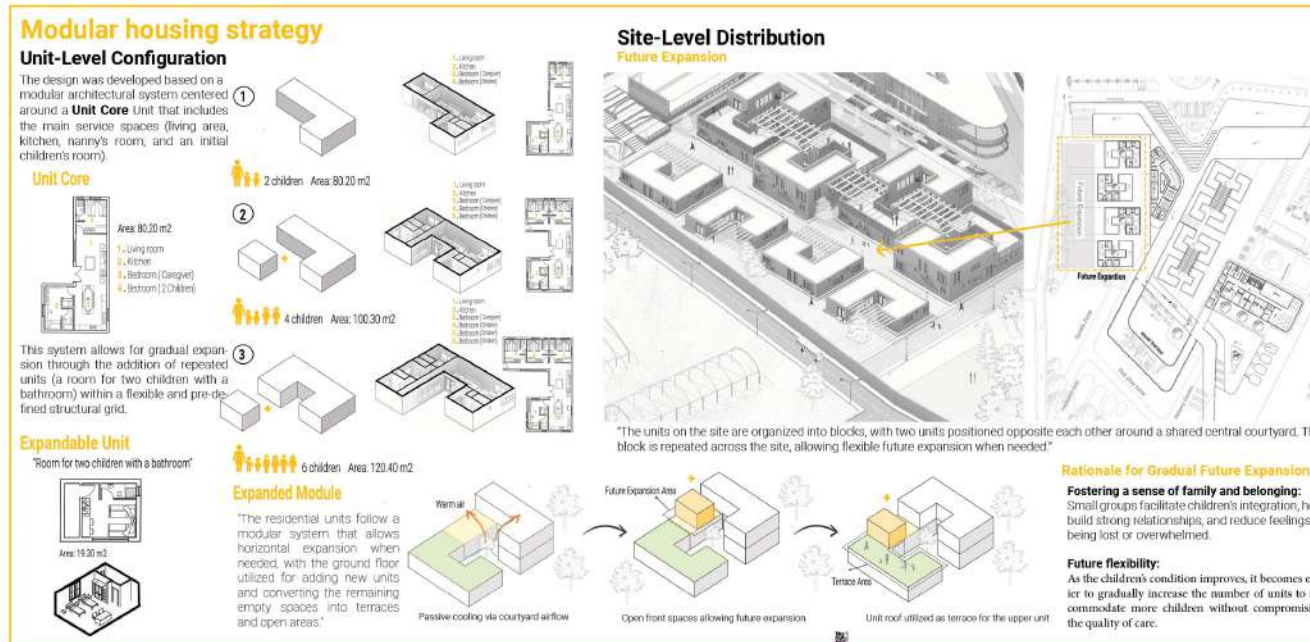
1. Bird Eye View



2. Exterior Shots , Residential Units



3. Site Plan



4. Modular System



5. Exterior Shots , Residential Units

Modular housing strategy

Unit-Level Configuration

The design was developed based on a modular architectural system centered around a **Unit Core** Unit that includes the main service spaces (living area, kitchen, nanny's room, and an initial children's room).

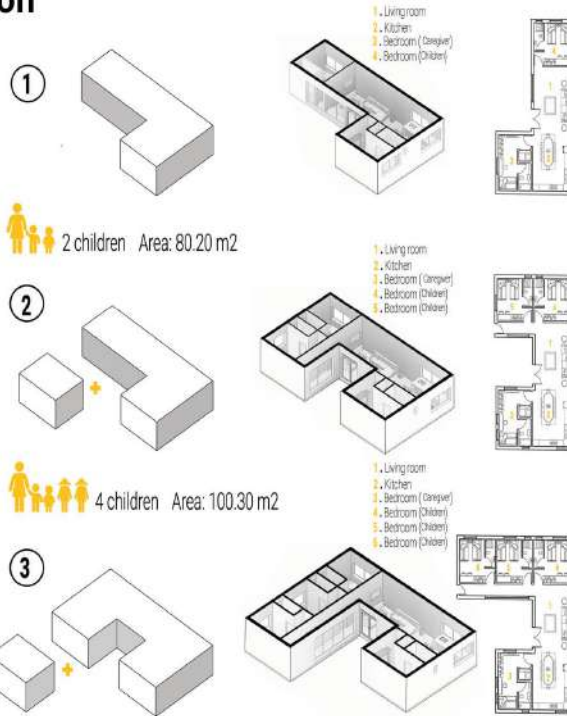
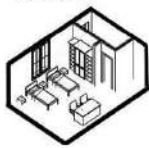
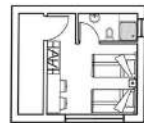
Unit Core



This system allows for gradual expansion through the addition of repeated units (a room for two children with a bathroom) within a flexible and pre-defined structural grid.

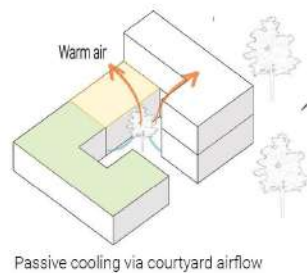
Expandable Unit

"Room for two children with a bathroom"



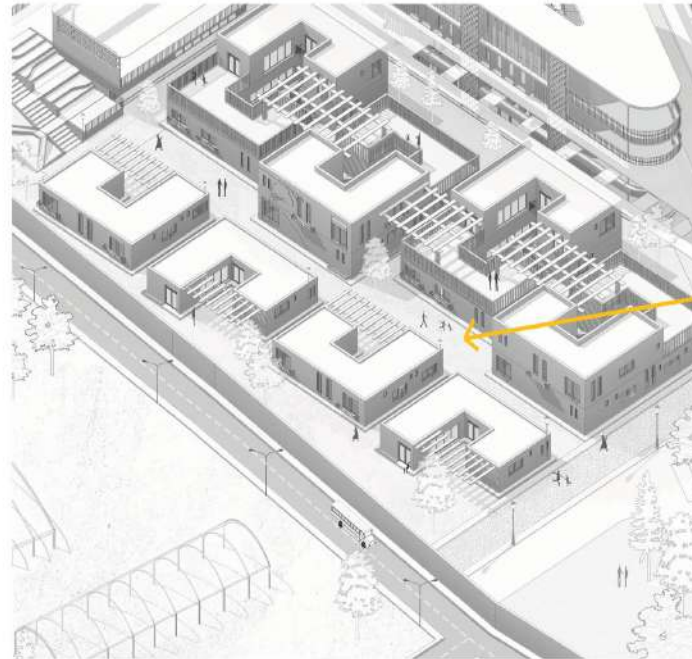
Expanded Module

"The residential units follow a modular system that allows horizontal expansion when needed, with the ground floor utilized for adding new units and converting the remaining empty spaces into terraces and open areas."



Site-Level Distribution

Future Expansion

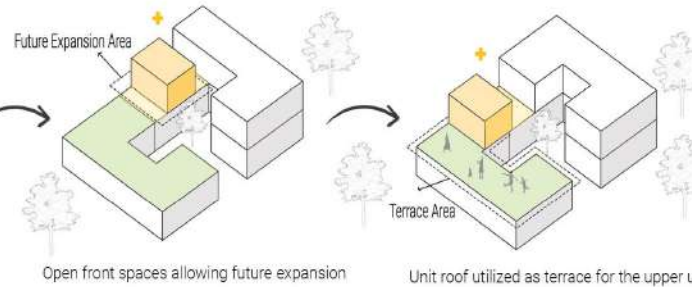


"The units on the site are organized into blocks, with two units positioned opposite each other around a shared central courtyard. This block is repeated across the site, allowing flexible future expansion when needed."

Rationale for Gradual Future Expansion :

Fostering a sense of family and belonging: Small groups facilitate children's integration, help build strong relationships, and reduce feelings of being lost or overwhelmed.

Future flexibility: As the children's condition improves, it becomes easier to gradually increase the number of units to accommodate more children without compromising the quality of care.







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1. Floor Plans

Sustainable Design Strategies

Sustainable Design Strategies for the Mental Health Building

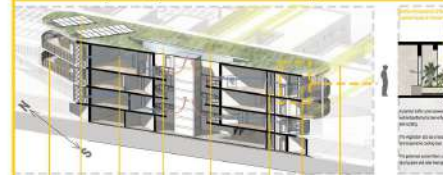
Passive Design Strategies



Complementary Sustainability Strategies



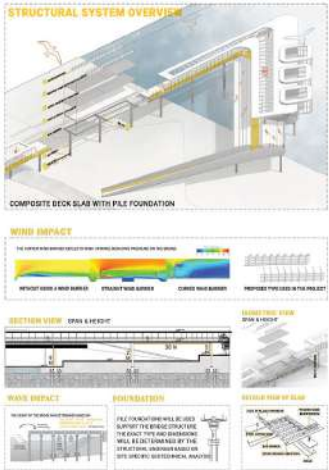
Sustainable Design Strategies for the Educational Building



Sustainable Design Strategies for the Residential Building



2. Sustainable Design Strategies



3. Structural System



4. Southwest Elevation "Scale 1:450"



5. Section A-A" Scale 1:500"

Sustainable Design Strategies

Sustainable Design Strategies for the Mental Health Building

Passive Design Strategies

High-Performance Thermal Insulation

Reduces heat transfer through walls and roofs.

Cool Roofs

Reflect solar radiation to reduce heat absorption.

Stack Effect & Courtyard Ventilation

Use vertical airflow and central courtyard to enhance passive cooling.

Cross Ventilation

Facilitates air movement through openings on opposite sides.

Double-Glazed Windows

Improve thermal and acoustic insulation.

Shading Devices

Control direct sunlight and reduce solar gain.

Natural Daylighting

Maximize use of sunlight to reduce reliance on artificial lighting.

Patterned Facade

Decorative perforated screens that filter light and heat, inspired by traditional designs.

Integrated Vegetation for Passive Cooling & Thermal Comfort



Mechanism of Benefit from Vegetation

- Reduced interior temperature.
- Enhanced indoor air quality.
- Lower energy demand for mechanical cooling.
- Increased human comfort through biophilic design.



Complementary Sustainability Strategies

Use of Local Materials

Reduces transportation emissions and supports local economy.

Graywater Recycling

Reuse water from sinks and showers for irrigation or flushing.

Green Roofs

Insulate the building and reduce urban heat island effect.

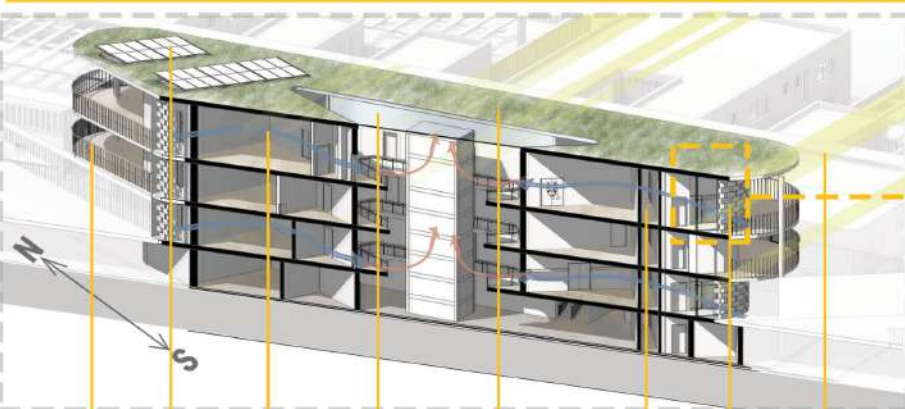
Solar Panels

Provide on-site renewable energy generation.

Vegetation

Vegetation on façades improves insulation and air quality.

Sustainable Design Strategies for the Educational Building



Modern Interpretation of Massive Layered Facade for Climate Control

A planted buffer zone between the solid wall and patterned screen enhances passive cooling.

The vegetation acts as a natural air filter and evaporative cooling layer.

The patterned screen filters sunlight, reducing glare and solar heat gain.

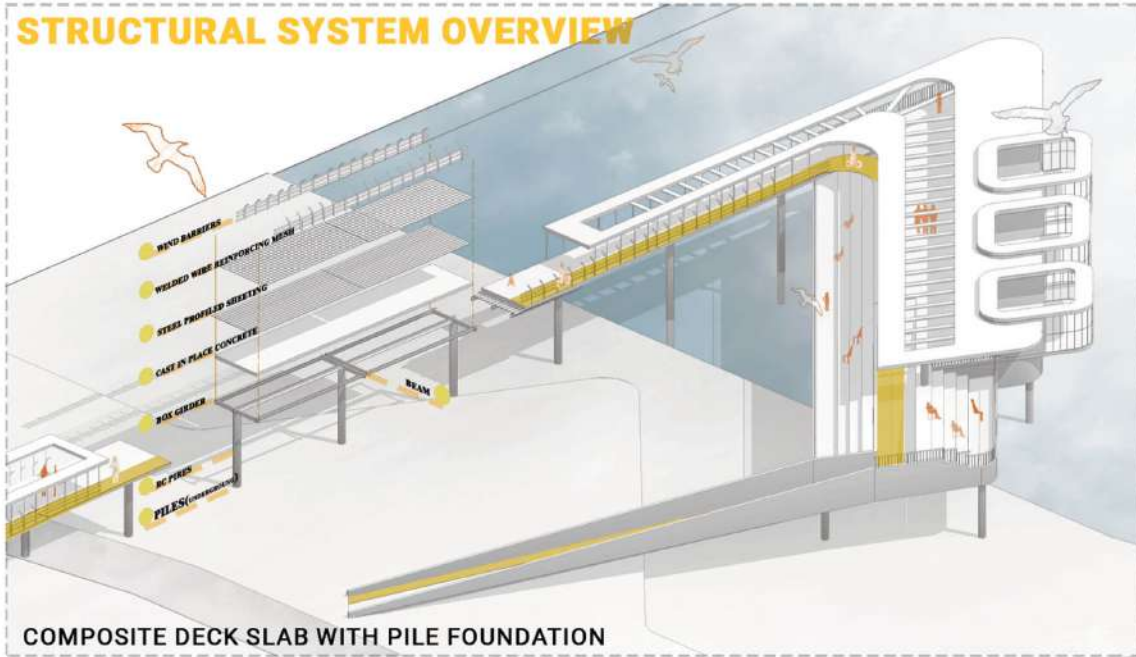
- Use of Local Materials
- Solar Panels
- cross ventilation
- Sky Light
- Green Roof
- Double-Glazed Windows
- Patterned Facade
- Natural Daylighting

Sustainable Design Strategies for the Residential Building



- Use of Local Materials
- Percolation Tank System
- Patterned Facade
- Solar Panels
- Double-Glazed Windows
- Cool Roofs
- Stack Effect Courtyard Ventilation
- cross ventilation
- Natural Daylighting

STRUCTURAL SYSTEM OVERVIEW

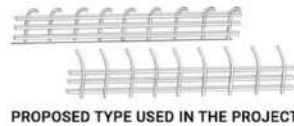
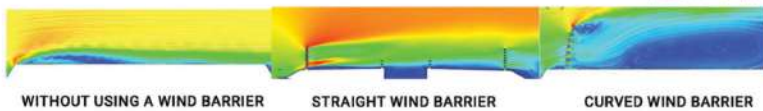


COMPOSITE DECK SLAB WITH PILE FOUNDATION



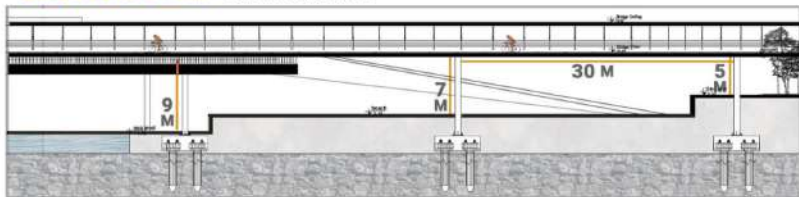
WIND IMPACT

THE CURVED WIND BARRIER DEFLECTS WIND UPWARD, REDUCING PRESSURE ON THE BRIDGE

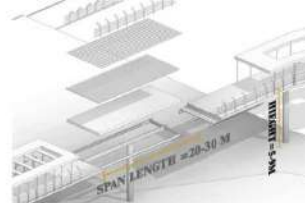


PROPOSED TYPE USED IN THE PROJECT

SECTION VIEW SPAN & HEIGHT



ISOMETRIC VIEW SPAN & HEIGHT



WAVE IMPACT

THE HEIGHT OF THE BRIDGE WAS DETERMINED BASED ON



FOUNDATION

PILE FOUNDATIONS WILL BE USED TO SUPPORT THE BRIDGE STRUCTURE. THE EXACT TYPE AND DIMENSIONS WILL BE DETERMINED BY THE STRUCTURAL ENGINEER BASED ON SITE SPECIFIC GEOTECHNICAL ANALYSIS



DETAILD VIEW OF SLAB

