Green Station Designing Principles

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Sustainable Environment

Benefits of Indoor and Outdoor Environment

Adverse Conditions Resulting from Construction
Discussion Framework

• Establishing the fundamentals of different aspects of subject
• Make connections
• Extract the Principles
• Discuss the results
Sustainability and Sustainable Design Principle

- Context Recognition
- Climate Adjustment
- Communication with Nature
- Recognition of Natural Processes
- Recognition of Environmental Impacts
- Energy conservation
- Reduce the Use of New Resources
- Getting Know of Users
- Respect Users
- Holism

The Basics of Being GREEN

- Strength
- Beauty
- Productivity

Meeting Users’ Needs
Effective Use of Materials
Reliance on nature

Effective Use of Materials
Meeting Users’ Needs
Reliance on nature
Railway Station Designing

Passengers as Customers

Safety and Speed + Providing Demands

Creative Stations

Station as a Small Scale Society

Building Elements

Transportation System

Human Population

Station as a Small Scale Society
Railway Station Designing

Minimum Station Parameters Requirements

01 Spatial planning
02 Service performance
03 Materials performance

Service level ↔ Station typology

Station Character Elements

- Different organizing patterns
- Different Space Areas (open and closed spaces)
- Public spaces
- Routes
- Open arenas
Station Design

- Spatial planning
- Service performance
- Materials performance

Sustainable Design

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Holism
Side Aim

Educational Aspect

- Significant time lapse before train departure
- Bringing the importance of resources to the station
- Develop a culture of resources exposure
- People in different ranges
- Guiding public taste
- The beauty of the climatic designs is similar to the current decorations

West Kowloon Station in Hong Kong

Hague’s central station
Educational Aspect

The function of the station in visual training by:

- Indicating Green Design Elements
- Giving Information
- Achievements
  - Mental and Objective
  - Social Stability
- Function
  - Travel Port
- Providing
  - Substantial Station Needs

Different dimensions of people's presence at the station
Green Station

Goals

• Maximize environmental comfort
• Effective planning
• Simple and modular design
• Minimize current costs
• Maximize usable spaces
• Reduce installation costs
• Reduce the cost of building maintenance
• Preservation and improvement of natural values

Energy consuming reduction in stations

Materials
Eco-Friendly materials

Energy
Energy efficient building

Electricity
Use of solar panels for electricity

Waste Management
Consider the station a drop off center

Water Management
Rain water harvesting and recycle gray water
Different aspects of Sustainability in 4 general axes

**Green Station**

### BUILDING
- Optimizing energy consumption and minimizing usable energy
- Strategic planning and design methods based on passive practices
- The amount and type of materials
- Durability and structural adaptability

### ENERGY
- Supply of station needs from photovoltaic panels
- Piezoelectric materials

### WATER
- Rainwater collection (from parking spaces and pavements/ roofs)
- Wastewater treatments

### WASTE
- Consists of 4 steps (Collection- Separation- Disposal- Recycling)
## Final connectivity diagram

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<tr>
<th>Sustainability</th>
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- **Spatial planning**
- **Service performance**
- **Materials performance**

- **Building**
- **Energy**
- **Water**
- **Waste**
Conclusion

1) Understanding and examining the context of the plan
2) Organized spaces with similar functions
3) Suitable arrangement of spaces by taking a set of environmental conditions
4) Minimal use of mechanical installations
5) Consider the individual features of the users
6) Providing a suitable context for establishing the context of sustainability education through visual communication
7) Maximum use of natural light
8) Enable the station to interact with nature
9) Use of native materials
Thank you
for your kind attention