

Architectural Design Principles

Architectural Design Principles – Study Notes

1. Overview

Architectural design principles are timeless guidelines that help architects create buildings and spaces that are functional, aesthetically pleasing, sustainable, and responsive to their context. They operate at three scales:

Scale	Focus	Typical Questions
Site/Context	Relationship to surroundings, climate, culture	<i>How does the building fit into its neighborhood?</i>
Building	Spatial organization, structure, envelope	<i>How are spaces arranged and connected?</i>
Detail	Materials, construction, user experience	<i>What finishes and joints enhance performance?</i>

2. Core Principles

Principle	Definition	Key Implications
1. Functionality (Programmatic Adequacy)	The design must satisfy the intended uses and performance criteria.	Clear zoning, circulation paths, ergonomic dimensions, adaptability.
2. Contextual Integration	Respect for the physical, cultural, and historical environment.	Site analysis, scale/massing harmony, local materials, vernacular references.
3. Structural Logic	The building's structural system should arise naturally from its geometry and loads.	Efficient load paths, honest expression of structure, minimal material waste.
4. Spatial Hierarchy & Flow	Organization of spaces from public to private, and the way users move through them.	Clear wayfinding, gradation of intimacy, visual and physical connectivity.

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5. Light & Ventilation	Harness natural daylight and airflow for comfort and energy efficiency.	Window placement, atria, shading devices, passive stack ventilation.
6. Sustainability (Environmental Performance)	Minimize ecological impact across the building lifecycle.	Passive design, renewable energy, low?embodied?carbon materials, water reuse.
7. Aesthetic Coherence	Unity of form, proportion, texture, and color.	Golden ratio, modular grids, rhythm, contrast, material palette.
8. Human?Centred Design	Prioritise comfort, health, and well?being of occupants.	Accessibility, acoustics, indoor?air quality, biophilic elements.
9. Flexibility & Adaptability	Allow spaces to evolve with changing needs.	Open?plan layouts, movable partitions, structural grids that support future additions.
10. Economy & Constructability	Balance design ambition with budget, schedule, and constructability.	Prefabrication, standardised components, clear detailing, risk mitigation.

3. Design Process Aligned with Principles

1. Pre?Design / Research

- Site analysis ? Contextual Integration
- Program development ? Functionality, Flexibility

2. Concept Development

- Sketches & massing models ? Spatial Hierarchy, Aesthetic Coherence
- Diagrammatic studies of light, wind ? Light & Ventilation, Sustainability

3. Schematic Design

- Refined plans & sections ? Structural Logic, Human?Centred Design
- Preliminary material palette ? Economy & Constructability

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4. Design Development

- Detailed structural layout ? Structural Logic
- Energy modelling ? Sustainability

5. Construction Documentation

- Full drawings & specifications ? Economy, Constructability, Detail

6. Construction & Post?Occupancy

- Site monitoring ? Quality of Execution
- Post?occupancy evaluation ? Human?Centred performance, adaptability

4. Tools & Techniques

Tool	Use	Principle Supported
GIS & Site Mapping	Analyze topography, climate,	