Design Policy for Realizing Sustainable Building

Offering the optimum environmental proposal to clients by taking advantage of the characteristics of multi-disciplinary contractors
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For building at a sustainable society, here we propose design guidelines feasible in design-build activities after sharing the concept of BUILT ENVIRONMENT and exemplifying design considerations.

Sharing concepts of the BUILT ENVIRONMENT for building

For building, which not only involves private property but also social property, pluralistic and comprehensive environmental considerations are required both at a global macro level and a human/biological micro level. Based on these understandings, it should be commonly recognized that approaches required for building emerge from the following three viewpoints.

Three viewpoints of environmental response classified by scale

1. Global
2. Regional
3. Human activities

Exemplification of environmental design considerations

1. Environmental design considerations from a global viewpoint

Realize sustainable construction from a global viewpoint by reducing CO2 and other greenhouse gases on the basis of the principles of sustainable development and the principles and mechanisms set forth in two international conventions: the Framework Convention on Climate Change (including reduction of CO2) and the Convention on Biological Diversity.

Environmental design considerations (exemplification)

1. Energy saving: design and operation in a way that minimizes fossil energy consumption
2. Renewable energy: design that promotes the use of on-site renewable energy
3. Long life building: design and operation of buildings that are long lasting and can be used for a long time
4. Eco-materials: promoting the use of recycled materials and other eco-materials that emit less CO2
5. Off-site CO2: use of off-site emissions trading system where on-site reduction of emissions is impossible
6. Life cycle management: development and use of a system that enables consistent life cycle management throughout the processes of design, construction, operation, renovation, and disposal

2. Environmental design considerations from a regional viewpoint

Realize sustainable building from a regional viewpoint by mitigating of heat island phenomenon, consideration of biodiversity, and assessment-based consideration of environmental impact for surrounding areas.

Environmental design considerations (exemplification)

1. Mitigation of heat island phenomenon: greening of exteriors, roofs, and walls, water-retaining pavements, sprinkling and watering, etc.
2. Consideration of biodiversity: consideration of diversity of plants, animals, and the entire ecosystem
3. Contact between human beings and nature: consideration of landscape, history, and local communities
4. Consideration of regional impact: assessment-based consideration of pollution of soil, air and water, and traffic volume
5. Consideration of neighborhood: consideration of sun shade, noise, vibration, odor, waste, and other nuisances
6. Regional prevention from weather disaster: heavy rain, blast, tornado, lightning strike, heavy snowfall, etc.

3. Environmental design considerations from human activities viewpoint

Realize sustainable construction from a life viewpoint through approaches to improve safety, health, convenience, and comfort of living environment.

Environmental design considerations (exemplification)

1. Safety: prevention from disaster, crime and daily accidents, safety for the vulnerable, etc.
2. Health: countermeasures against chemical pollutants, odor, poor cleanliness, infection, etc.
4. Comfort: creative productivity: thermal environment, light environment, sound environment, etc.
5. Space design: feeling environment: view, dimensions, color texture, community, greening, amenity, etc.
6. Modifiability: flexibility: changeability, expandability, redundancy, ease of movement, storage capacity, etc.

Design policy for realizing sustainable building

To realize future-focused sustainable building, adequate design considerations are necessary in the light of future environmental performance throughout the entire life cycle consisting of design, construction, operation, renovation, and disposal. Multi-disciplinary contractors covering all stages of the life cycle in their business are the first to assume accountability for environmental performance throughout the life cycle beginning from design.

Four items of accountability related to the life cycle

1. Design policy for Building Life Cycle
2. Design policy for Friendliness to Human Beings
3. Design policy considering Business Feasibility
4. Design policy for Method of Construction and Renovation