

Ecological Criteria for Construction Projects / Competitions As of July 2006

1. General Objectives

(1) The planning of construction projects and a successful design sent in for a competition should follow the principle of

- preserving the environment and natural resources,
- achieving a maximum degree of social and environmental compatibility,
- realising and ensuring respectively sound living and working conditions on a sustained basis.

The principle of sustainability, i. e. of dealing with ecological, economic and social objectives with equal priority, is to be observed in developing the planning conception, selecting from a range of individual measures and choosing appropriate materials.

In line with these objectives, it is necessary to comply with ecological requirements as follows.

(2) Those taking part in a competition are expected to present an approximate ecological overall scheme, and no summation of individual ecological measures relating to a conventional design. Accordingly, it is necessary for ecological measures provided for a construction project to be conclusive with regard to their overall planning, to be practical and efficient in their ecological context as well as to be consistent with a convincing scheme of urban design and architecture.

The ecological overall scheme is meant to imply particular references to an adequate consumption of energy and water, to the laying-out of open spaces and the construction of outer surfaces of buildings, to the selection of materials as well as to the adequate way of dealing with residual and waste materials.

(3) Under aspects of sustainability, costs of routine maintenance and long-term upkeep as well as operating costs of planned installations are to be considered and assessed in the same way as investment expenditure when selecting from a range of various schemes.

(4) As to efficiency, it is important to bear in mind monetary components as well as non-monetary demands placed by the public builder on quality, design and sustainability.

2. Urban Development Location and Surrounding Area of a Building

(1) The design sent in for the competition shall take account of location factors of ecological importance as identified in the context of basic determination. In particular, it can include elements as follows:

- vegetation on the ground, biotopes, landscape elements, legal aspects of the protection of species,
- conditions of immissions,
- conditions of groundwater and surface waters, diversion of rainwater,
- conditions of light, sun and shadow respectively in consideration of the topography as well as of the housing and tree stock,
- existing or planned technical supply and drainage systems,
- construction and raw materials available on the ground, e.g. as a result of demolition and excavation,
- abandoned polluted areas.

The design presented for competition shall show that ecological location factors and objectives as defined in the Berlin programme of landscape and protection of species as well as their correlation have been duly considered.

(2) In planning the construction project and respective development, construction on the property and sealing off the land are to be limited to the smallest extent possible. The extent of sealing off shall be shown.

(3) The plan to develop the transport and traffic infrastructure shall be tailored to the needs of all of the age groups to have access to various means of public transport within walking distance. Consideration shall be given to the infrastructure in place and connections of local public transport.

(4) Design and organisation of different kinds of use of open spaces shall be aligned with:

- possibilities of permanently non-conflicting use and openness to changes in habits of use,
- possibilities of recreation and separation between quiet zones for recreation and those designed for play and movement,
- high quality of zones designed for rest and play (e.g. protected and sunny partial areas)
- manifold contiguous areas of vegetation,
- a minimum amount of maintenance,
- a low degree of sealing of paths and squares,
- as to car parks, minimum consumption of surface areas and development without affecting the quality of use of other places of stay. Car parks shall provide for plantation of trees. For a number of four parking lots each a site-dependent large tree shall be planted. Underground car parks, wherever possible, are to be located below buildings and, in exceptional cases only, aside of them. In this case, 60 cm at least must be covered.
- provision of appropriate places for separated collection of waste and potential recyclables,
- a selection of site-dependent plants,
- a selection from a range of sustainable construction materials of lasting resilience,
- appropriate measures for the protection of biotopes and species.

(5) Materials left over from excavation and demolition within the area of planning, whenever possible, should remain in this area, e.g. to shape its open spaces.

(6) According to local conditions, rainwater, whenever possible, shall be fully retained, be used within the area or should seep away through the soil layer. Discharge into the sewage water system shall be avoided.

The plan for the rainwater management shall be developed and evaluated in accordance with principles of water supply and distribution as well as with local conditions. Besides using rainwater as water for industrial use, it is necessary to look into different options of rainwater management as an environmentally sound alternative, as for instance seepage of rainwater draining from roofs and mounted surface areas as well as the greening of buildings.

(7) In particular, in residential inner-city areas of high density, it is necessary to show adequate measures of compensation such as open spaces planted with greenery, greening of facades and roofs.

3. Buildings and Organisation of Floor Plans

(1) Economical energy requirements and maximum energy-efficiency are criteria of importance to evaluate a design of a building.

Under the above aspect therefore, location and direction of the structure as well as its configuration (relation of volume and surface area) including openings and outer shell shall be planned in conjunction with the floor plan zoning and systems of energy technology.

The following aspects are to be observed in developing the energy scheme:

- observation of limits and lower limits respectively than stated in the new ordinance of energy saving,
- besides heating, warm water, ventilation and auxiliary power, energy input required for cooling, air conditioning and lighting are to be considered,
- adequate as well as sufficient heat insulation of the structure in summer,
- comprehensive use of daily and solar energy,
- priority given to natural ventilation and cooling of rooms. Systems of ambient air technology are to be provided for only at those places where they are mandatory for reasons of safety at work or particular requirements of use.

(2) In principle, the possibility of using preferably renewable energy is to be examined.

(3) Solar geometrical correlations (direction of the building) are to be observed for passive and active use of solar energy. As to passive use (e.g. windows, buffer areas, floor plan zoning), arrangements for solar and heat insulation are to be made, if possible.

In case active use of solar thermal or photovoltaic equipment is proposed, it shall be grounded in the energetic and formative design of the building and integrated into it.

(4) Roof greening is mainly to be made in the form of extensive roofs. Thickness required for efficient water retention shall be at least 10 cm.

4. Construction, Development and Technical Systems

(1) As for the construction and its execution, only those materials and components are to be used that show a high environmental and health compatibility as well as a long lifecycle with regard to production, transport, manufacture, function, removal, and disposal. In detail, prohibitions and restrictions of use relating to construction materials are applicable under the subsidy guidelines of the Senate Department for Urban Development (SenStadt) and the circular respectively of SenStadt department VI as amended.

(2) Technical systems shall be evaluated under the same requirements of environmental sustainability. Desired functions are to be achieved through a minimum of equipment and energy.

(3) On the basis of local guidelines, a possible application of central and local schemes shall be carefully considered for urban development.

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