

SUSTAINABILITY CRITERIA ASSOCIATED WITH URBANIZATION REGULATIONS

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Abstract

The recent formalization in the country a National Urban Policy and Housing attempts urgent attention to the problems associated with a sector whose development in recent decades has been marked by continued dissociation between urban growth and population growth way, based on models disproportionate, irrational and unsustainable territorial expansion, with high costs in economic, social and environmental issues.

Urban segregation, deteriorating environmental conditions of the physical built environment, vulnerability to natural disasters, depletion of land reserves in several metropolitan areas and social exclusion and inequality in terms of the supply of infrastructure, services or equipment are some of the most serious consequences of the effective realization of such models in Mexican cities, especially for areas with little population confined to living on the peripheries of urban sprawl income.

Combining this with the guidance of environmental policies at the international level to the reduction of greenhouse gases in all sectors of society and with the explicit intention of the municipality of Zapopan to promote sustainability criteria associated with urbanization within of its territory, it is that the framework that motivates the development of this standard Sustainable Construction is set.

The rule here is issued aims to establish linked, in this case, the regulation of planning urban renewal actions and / or promoting new municipality under the requirements of sustainability criteria and indicators for the implementation of urban planning instruments ; all embedded in a management framework and an evaluation process according the urban regulations.

Introduction

A sustainable urban energy system will need low carbon technologies on the supply side, and efficient distribution infrastructure as well as lowered consumption on the end-user side. Cities therefore need to shift from the current unsustainable fossil fuel energy generation towards using renewable energy sources, not only because of looming resource depletion but also to curb the negative externalities such as pollution and greenhouse gas emissions. At the same time, energy consumption must be reduced by changing consumption patterns and adopting energy saving techniques. Lastly, because energy is paramount to revenue generation, its distribution needs to become more inclusive and fair to foster universal development, especially for the urban poor.

Cities need to establish strong policies and standards to develop sustainable urban energy systems and to reduce the use of unsustainable technologies and practices. Governments must not only institute legislation to regulate energy use and consumption, but must also set up incentive measures that promote research, innovation, and, most importantly, the adoption of greener and more efficient technologies.

Sound collaboration and mutual understanding between the private sector — which runs most of the world's energy systems — and overseeing authorities is therefore paramount for short-term commercial interests not to overshadow long-term environmental concerns and sustainable development opportunities. Governments should also pursue collaboration between local and international partners in order to enable local companies to strengthen their knowledge, expertise, and market reach. Governments of developing countries should consider private-public partnerships to develop their energy systems, as current costs cannot be carried by a country alone.

For each city to be able to adapt to its own local particularities, authorities need to design decentralized energy systems and infrastructure, and also be permitted to have specific legislation and tax systems to either promote the use of sustainable energy, or to curb and dissuade the use of polluting, inefficient technologies and consumption habits.

Objective

The objectives of this standard are formulated on basis in chapters XX and XXI of the third tenth title of the regulation of urban development, construction and land use planning for the municipality of Zapopan, Jalisco; being the following:

I set up a framework for managing regulatory planning of urban actions of urban renewal or new development in the municipality applying requirements and sustainability indicators, which will be in a process of evaluation in accordance with the logic of scalable performance from three levels of efficiency or performance improvement: Basic, efficient and excellent, which shall be subject to compliance with the criteria of evaluation, criteria for certification and delivery of the required documentation provisions and technical annexes that apply to each case, as well as the own for certification conformity assessment procedures for these purposes under the relevant heading.

II. establish, on the basis of the above, the technical and administrative process for issuing and delivery to the definitive urban development projects that request, the certificate of sustainable urbanization by the Municipal of building certification and sustainable development of the municipality, in any of the three levels of efficiency or performance with corresponding.

III. provide the Municipal of building certification and sustainable development of the municipality of an instrument of management regulatory and administrative for the analysis and evaluation of conformity for the issuance of certifications of sustainable urbanization to urbanization projects that so request it, establishing the bases for obtaining by them of incentives of tax incentives and/or access to credit actions of the official sector or banking institutions.

Location

This standard may be applicable to all areas of the municipality of Zapopan, Jalisco; provided that application note compliance with regulations and rules and established procedures.

Selection of site and urban development

The physical characteristics of the place where is located the new urban developments, must observe a healthy and comfortable environment. Site selection involves the need to consider the impacts generated by urbanization, as well as mitigation or minimization of changes caused by the building of new settlements.

For the appropriate site selection, required consider the regulations of the uses of the soil of the city, in order to prevent the invasion of ecologically sensitive areas, as well as preserve and restore the functions of natural environmental systems.

Localization and integration of the urban action

Urban actions of urban renewal and to more specifically of the new promotion, will monitor the degree of integration with the urban or urbanized, ground based on their location in urban reserve areas or in areas which ensure the correct morphological contiguity with the existing consolidated tissues, by way of promoting the optimal functionality of the urban system within permissible ranges, for its location , social cohesion, efficiency in the consumption of soil, reduction of urban sprawl or interstitial voids product of scarce intra-urban connection; as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

When planning actions are not located in Areas of the urban reserve, Areas of urban renewal, Areas with potential for recycling or in any of the subdivisions of the urbanized Areas, where to apply actions of recovery, conservation, renovation or recycling that ensure an optimal integration with the urban land strengthened, according to the provisions for these purposes in urban development plans or in the technical standards of the municipality for zoning , Areas of environmental urban recovery and promotion of urban actions of sustainable Social object; such actions be regarded as minimum criteria, that at least 25% of its total perimeter effective is in

contact with soil urban or urbanized, for the specific purpose of compliance with this standard and without prejudice to the provisions of the regulations that apply to the case.

Connectivity for non-motorized urban action

The planning of urban renewal and new promotion actions, considered the ranges of connectivity and accessibility with the urban land adjacent to weighting criteria of mobility pedestrian and non-motorized bicycle, under the evaluation of the potential for continuity, proximity and permeability of the pedestrian networks or those that allow non-motorized at the territorial level mobility and whose performance is not subject to reduction or isolation due to anthropogenic or natural elements that they escape as barrier effect; all in order to enhance and consolidate the morphological and functional connection of the new or existing urban fabric as envisioned for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Urban actions, regardless of their location in areas of the urban reserve, areas of urban renewal, areas with potential for recycling or in any of the subdivisions of the urbanized areas, where to apply actions of recovery, conservation, renewal, recycling or new development, observed that the percentage of pedestrian and non-motorized bicycle with the consolidated urban fabric connectivity retain at least a value equal or greater than 50% based on the linear meters of contact of their effective ground urban or urbanized perimeter and without computing the sections included by controlled access roads and their respective subdivisions, rail networks, pipelines, canals and slopes with slope longitudinal greater than 8%, which will be considered as elements with barrier effect; all of the above for the specific purposes of compliance with this standard and in accordance with provisions in existing urban development plans and programs or the technical standards of the municipality for zoning and sustainable mobility that may apply to the case.

Proximity to public transport in the urban action stops

Urban actions of urban renewal, and in more specific way, the of new development, also will encourage the ranges of connectivity and accessibility with the urban land adjacent to weighting criteria of mobility in public transport in correspondence with its surface or its immediate area of influence, whereas the previous presence of access to the facilities of this type in ranges appropriate within the scope of , is a comparative advantage over other possible sites in the area of optimization of initial costs of investment and environmental impact, reduction of travel in private motor vehicle and management coverage of connectivity territorial of diverse character and potential backbone of homogeneous urban fabric; This in order to promote rational and sustainable forms of mobility as planned for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Urban renewal and actions, mode specific, the new promotion, regardless of their location in Areas of urban reserve, will have to consider that the provision of stops of public transport to

other modes such as metro or light rail or buses, has a minimum value of 2 units of equipment for surface you less than or equal to 16 hectares , and above 2 units for areas greater than 16 hectares, watching, as the preferred criterion, such allocation to the inside of the area of performance computed from the edge the same perimeter, or failing that, whereas on the basis of the sum of the area of performance more an area of influence with a range of distance between 300 and 500 meters maximum measured outward from the edge perimeter; the above for the specific purposes of compliance with this standard and in compliance with the planned programs and current urban development plans or in the technical standards of the municipality for zoning and sustainable mobility that may apply to the case.

Ecological impact

Establish the areas affected in planning new settlements from a close communication between the different actors involved in the process; open to new alternative technologies and production systems of building focused to an appreciation of the medium; in order to reduce the impacts on the environment; on the basis of the provisions laid down by the standards and instruments of regulation and ecological regulation applicable at the national, State and Municipal level.

An analysis of the pre-existing environmental conditions to the housing project; to identify contaminants atmospheric, soil, water and other aspects of negative impact for the housing project. The secretariat request an environmental impact assessment, so once issued the relevant resolutions, addressing the resulting guidelines governing the future actions of the project to develop. Present preventive environmental impact report, the environmental impact statement and/or the study of risk, based on the guidelines provided by the Ministry of environment.

Occupation of land

Density of projected housing

Actions planning of urban renewal or new development, both their specific transformation modalities associated with the recovery, conservation, renewal, recycling or new development, as of any of the types of area of land where is complacent, regardless will monitor compliance with criteria and coverage of housing by territorial unit density suitable, in order to reduce urban sprawl and this territory hence consequential impacts arising from the promotion of consumption efficient soil, the typological diversity of housing, efficiency in urban accessibility and connectivity and increasing social cohesion in virtue of the maximization of the critical mass of inhabitants by surface; as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Urban actions of urban renewal or new promotion drive, as criterion and territorial coverage minimums, the proportion between the number of homes planned regarding the unity of urban surface expressed in hectares resulting, register values greater than 80 housing units per hectare and 75% of the total area of urban land, residential, respectively; This is the specific

effects of compliance with this standard and in compliance with the planned programs and current urban development plans or in the technical standards of the municipality for zoning, green building, Areas of environmental urban recovery and promotion of urban actions of sustainable Social object that apply to the case.

Use to the maximum the available terrain, through the increase in the intensity of land use. Through an architectural development that includes mixed types of single-family, duplex or two family and multifamily. For maximum utilization of the infrastructure installed, the reduction in the cost of urban services (lighting, public safety, clean) provided by the municipal government and achieve an optimal level of production of the companies located in the Centre of preset equipment.

Planning of the construction process

The development of the sustainable building, implies respect for and commitment to the environment; a process of selection of systems and technologies of low-energy used by buildings; a study of environmental impact caused by the implementation of certain building materials; a process of selection of the materials used in construction; In addition to saving water and waste recycling.

The sustainable planning of the project, in order to reduce impacts on the environment, the use of sustainable building materials, saving energy, water and decrease of organic solid waste and finally the decrease of the consumption of building materials.

Reduction of environmental impacts caused by the processes of construction, use and demolition of buildings and the urbanized environment. Develop global balances, whereas all the environmental impacts that occur at different stages of materials that are incorporated into the construction of a building: the production of materials, transport and works, life in the building, its deinstallation and final management of the waste generated.

Design of the project

The project of building sustainable, environmentally modifies the natural and urban environment where implemented, is necessary to improve the site, by adapting to the topography and its geographical environment; considering the weather and lighting factors according to the spatial characteristics of the set; In addition to the aesthetic factors of the landscape for the conservation of the landscape and environmental quality.

Adapt the layout of the buildings to the conditions of relief, topography, orography and exposure to solar radiation of the Earth's surface. Because these factors are closely related to the behavior inside the buildings, constituting a key element in the design and refurbishment due to their influence on the climatic conditions. Since the form of the relief will determine the incidence of the winds, the solar radiation received and the percentage of reflection of its surfaces, depending on the materials that make up the soil, as well as the type of vegetation and the moisture of the place.

Sustainable mobility

Connectivity and mobility

Optimal connectivity and mobility is manifested through a good service of public transport, traffic routes and service stations, such as transport, public parking areas nearby stops to such systems; to connect people to their jobs, health services and public, spaces of leisure and recreation, schools and universities as well as the commercial areas. Also provides facilities for cyclists and pedestrians in places of easy access and safe. In addition to the above, it is necessary to have access to virtual networks.

The urban project should be located in areas with access to flowing roads and an efficient public transport, that facilitate the transfer of the inhabitants of the area to centers of work, education, shopping and other services. So the project can get a better grade, it is necessary to facilitate the use of alternative mobility, which consists of open paths, footpaths and recovery of open spaces and green areas, which promote the appropriation of users through walks and rides.

Overall sustainable mobility strategies

Urban actions of urban renewal or new promotion, much of its specific forms of transformation associated with the recovery, conservation, renewal, recycling or new development, as of any of the types of area of land where is complacent, regardless will encourage strategies that contribute models of sustainable mobility in the pursuit of the improvement of the efficiency, habitability, accessibility, health and safety of the urban system, with basis available to clearly defined media that show it for: the proper assurance of universal accessibility of the inhabitants to the public spaces and facilities of public transport and/or non-motorized alternative means, the substantial increase in the energy efficiency of the urban system and the reduction of environmental pollution with alternatives of transport with lower energy consumption per capita; the decrease in use and coverage of private transport motorized; the internalization of social and environmental costs; the reduction of levels of risk by accident from the protection of social vulnerable groups such as pedestrians, cyclists and people with reduced mobility; as well as to the increase of population with disabilities and alternative non-motorized mobility, urban infrastructure and equipment all of the above, as envisioned for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Surface roads for pedestrian traffic

Based on the provisions of the preceding provision, urban renewal or new promotion actions considered, in general, the implementation of actions for recovery, optimization and development of the use of the public space of transit oriented pedestrian mobility, restricting access to traffic motorized in-office of the urban quality; in suitable ranges and to specifically observe that the proportion percentage of the surface of roads for pedestrians with restricted access to the step motor vehicle has, at a minimum, an amount equal to 50% compared to the total surface area of roads foreseen within the action planning, excluding from such roads to all those who are not covered as pedestrian roads, sidewalks, or pavements with one width of not

less than 1 m and if any, slow roads; This is the specific effects of compliance with this standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality for sustainable mobility that may apply to the case.

Parking for bicycles

Urban renewal or new promotion actions should also watch, in general, the implementation of actions that favor enabling infrastructure and equipment oriented modalities of alternative mobility, more energy efficient, healthy and to promote types of displacements more integrators in relation to the diversity of land uses and their activities or turns; to specifically be considered minimum provision of parking spaces for bicycles, with dimensions not less than 0.7 meters wide and 1.90 meters in length, according to the classification in use, destination or appropriate, providing for the housing 1 square per object or per 100 m² for the commercial and services cover 1 square per 100 m² of deck for the urban facilities of 2 to 5 seats/per 100 m² of housing and the recreation and rest 1/per 100 m² of floor space; This is the specific effects of compliance with this standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality for sustainable mobility that may apply to the case.

Compact, urban livability and metabolism

Urban compactness

Planning of urban renewal and new promotion actions will encourage compact models of occupation of the territory, under the supervision of criteria and coverage of building volumetric concentration per unit of urban surface enabling the efficient consumption of the soil, the decrease in pressure on the urban support by exploitation or impact systems, optimizing the Organization of mobility networks as well as the increase in the standards of energy efficiency in the management of resources, the urban complexity and social cohesion; as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Based on provisions of the previous provision, in new promotion and, if applicable, also in the urban renewal urban actions, is recommended that the ratio between the built volume of homes in cubic meters on the surface in square meters unit is equal to or greater than 5 reason, maintaining this value with one territorial coverage of not less than 50% of the surface of urban land intended for residential use; This is the specific effects of compliance with this standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality for Areas of urban environmental recovery, promotion of urban actions of sustainable Social objective, sustainable mobility and zoning that may apply to the case.

Corrected compactness

Within urban renewal and new promotion, urban actions in addition to promoting compact city models, will be appropriate and, if possible, the optimum balance between the coverage of building volumetric concentration per unit of urban surface and the proportional relationship of them both with the surface urban public space of stay, the interrelationship and urban green as an offset in varying degrees and in efficient proportions volumetric pressure exerted by the densifier effect of the building on the territory; the foregoing pursuant to these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Based on the provisions of the preceding provision, in urban actions of new promotion and, if applicable, also in the urban renewal, it will be considered, as a minimum, the proportion of total built homes in cubic meters regarding the unity of urban public space designed in square meters surface, is in a range of value that oscillate between 10 meters as minimum value up to 15 meters as maximum value keeping the result within one territorial coverage of not less than 50% of the projected urban public space floor surface; This is the specific effects of compliance with this standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality for Areas of urban environmental recovery, promotion of urban actions of sustainable Social objective, sustainable mobility and zoning that may apply to the case.

Urban livability

Planning of urban renewal and new promotion actions will drive through actions and means clearly defined, the optimization of urban livability indicators, supporting the improvement both thermal, acoustic comfort, the quality of the air and the physical aspects, as variables associated with the degree of psychological satisfaction and perceptual of users with the environmental quality of urban space in terms of urban image and provision of green spaces; all of the above as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Spatial perception of urban green

On the basis stipulated in the previous provision, planning of new development and, if applicable, actions also on urban renewal, will have to consider an endowment of trees on the road network such that the perception of the volume green of trees in a segment within a field of view of an average user, and buy values of 10% with respect to the entire surface of the roads and more than 75% of the total area of the Highway Administration urban, being such values, respectively, the criteria and the coverage minimal; This is the specific effects of compliance with this standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality for Areas of urban environmental recovery, promotion of urban actions of sustainable Social objective, sustainable mobility and zoning that may apply to the case.

Accessibility of roads

Planning of urban renewal and new promotion actions promote the universal user access to facilities and services existing or projected within the urban space, regardless of physical or cognitive abilities of them; Thus, promoting for the specific regulatory effects of this regulation, proper planning and layout of the road network on the basis of technical criteria and territorial coverage rates that provide adequate, efficient and non-restrictive solutions to displacement and mobility pedestrian at the urban level; all of the above as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

According to the previous provision, planning of new development and urban renewal actions, is estimated as a minimum value, one higher coverage to 90% of sections of roads with slope less than 5% and at least 1 sidewalk with one width greater than 0.9 m; with respect to the total length in linear feet of existing or planned roads; Standard and in compliance with provisions in the current urban development plans and programs and/or the technical standards of the municipality to sustainable mobility or other, that apply to the case.

Urban metabolism

Urban water management

In planning of urban renewal and new promotion actions is monitored by the link between urban development and the water cycle in its regionalized, resulting in the use of strategies and media clearly established for the sustainable management of the resource within the urban system metabolism; the above, in accordance with existing regulations and for the precise purpose of this regulation, shall be to ensure the efficiency of water consumption by optimizing the demand for commercial, public and domestic water based on the effective implementation of cost-saving measures, while promoting substitution gradually on the part of the regular demand for non-potable water from urban areas at three levels : atmosphere, surface and subsurface, which implies the use of rainwater, wastewater, groundwater and other possible sources of the resource linked to the urban environment, in such a way that objectively credited the increase of the local water supply through the urban action; all of the above as expected for these effects in this standard, as well as in programs and urban development plans and regulations technical of the municipality that remedies for these purposes.

Efficiency of the urban system in the projected water consumption. It is recommended that the percentage of efficiency of the total water consumption projected for an urban system of new development or urban renewal, in relation to a medium optimized consumption established as a referential, register one not less than 65% minimum value; this to the specific effects of compliance with this standard and in compliance with provisions in current urban development plans and programs and/or in the technical standards to the municipality for Areas of urban environmental recovery, urban environmental fragility and hydrological value recovery Areas, promoting urban development actions of sustainable Social object, zoning and sustainable construction applicable to the case. Within urban actions of urban renewal or new development management practices (best management practices) of water sensitive urban design, will be

promoted in order to assist restoration processes, rehabilitation, reuse or upwelling of aquatic ecosystems linked territorially through the urban watersheds of the municipality system to urban development action; this to the specific effects of compliance with this standard and in compliance with provisions in current urban development plans and programs and/or in the technical standards to the municipality for Areas of urban environmental recovery, urban environmental fragility and hydrological value recovery Areas, promoting urban development actions of sustainable Social object, zoning and sustainable construction applicable to the case.

Waste management

Within the urban renewal actions urban or new promotion planning and urban development project will provide for the incorporation of mechanisms and infrastructure needed in building, in the basement or in the public space, enabling management of waste reduction, reuse and recycling of the same, based on models of management of high impact on the metabolic efficiency of the urban system-based , and who is to be accompanied by necessary technical, organizational, regulatory, economic, and educational tools for the achievement of the objectives of management, all of the above as provided for these purposes in this standard in the General Law for the prevention and Integral management of wastes, in the law of management Integral of the waste of the State of Jalisco Programs and existing plans of urban development, the technical standards of the municipality that are incumbent upon, as well as the requirements for these purposes they can request municipal directions in matters of environmental impact studies.

On the basis stipulated in the previous provision, urban actions new development or urban renewal will estimate the inclusion of a program of management of construction and demolition waste (RCD), which includes both prevention and minimization of waste in the execution of work and origin of the waste separation and use of materials with longer service life and to encourage reuse and / recycling , reducing packaging and separation of hazardous waste in the RCD; this as expected for these effects both in this standard, the General Law for the prevention and Integral management of wastes, in the law of management Integral of the waste of the State of Jalisco, in programs and urban development plans and/or the technical standards of the municipality for Areas of urban environmental recovery, Areas of urban environmental recovery with fragility and hydrological value Promoting urban development actions of sustainable Social object, zoning and sustainable building that apply, as well as requirements that, for these purposes, can apply for municipal directions in matters of environmental impact studies.

New development or urban renewal urban development actions will also be considered, as a minimum, that the estimated total in tons of waste RCD to recycle during the execution of work will be 40% of the total waste metric tons estimated to generate during and/or at the end of the works of the project; This for the purpose of compliance with this standard and following the same normative criteria for the previous provision.

Benefits

The benefits in the short, medium or long term to derived from the application of normative action as the herein, have as its primary objective: the substantial improvement and optimization of comprehensive efficiency of public and private resources with the consequent contribution to the reduction of the greenhouse gas to protect the environment and safeguard the health and integrity of the community in general; everything under the development planning of urban renewal or new promotional action subject to regulatory here planned arrangements; promotion and strengthening of ecosystems of innovation at urban level and a technology market efficient, applicable to the estate in the municipality of application processes.

Similarly it is necessary to strengthen and diversification of productive chains associated with sustainable in the municipality building and urbanization processes, either through obtaining fiscal, economic or financial incentives arising from the resource savings from the implementation of the sustainability criteria, or pursuant to the access to subsidies generated by the alignment of planning actions subject to the rule with the national urban development policy housing and climate change.

And finally, the strengthening of the vocations, resources and infrastructure of the municipality in the field of sustainable urban development; in principle, through the consolidation of a regulatory framework and technical and administrative that supports the operational capability of the Municipal Institute of certification of construction and sustainable urbanization; Second, under the consolidation of diagrams of bonding between the public, private and social sectors associated with the urban planning that would derived; and third, by the subsequent development of the formation of human resources in the municipal area, in this case associated with accreditation Directors responsible for sustainable urbanization processes.

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