

Conceptions of Urbanistic Architects for Requalification of Urban Infrastructure for Better City Functionality

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ABSTRACT

Brazil contemplates different problems aimed at an urban infrastructure, consequences of the lack of planning, directed to the isolated investments applied in the cities. What becomes in turn an unsustainable city for lack of qualified public equipment, reflecting on a quality of life of the population. The general objective of the research is to analyze how different perceptions of urbanistic architects for requalifications applied to the urban infrastructure for better functionality of the Brazilian cities, thus realizing proposals of urban intervention without stretch of the ERS-135 with access to AV: Padre Antônio Vieira, e a BR-285 in the São José neighborhood in the city of Passo Fundo/RS-Brazil. Methodologically, it was used the theoretical ports provided with scientific articles, dissertations and theses. Subsequently, semi-structured interviews were carried out, with Urbanistic Architects, categorized based on the Declared Demand Method (MDD), the training is considered through the degree of specialization and visual perspective of the professional in relation to studies aimed at urban requalification. Thus, it was used or scenario of current projection so that the Urbanistic Architects, who were interviewed, attribution of improvements and applications not object of study, in angles containing as proposed improvements. The results are welcome, as different perceptions contemplated a construction of scenarios capable of being applied in a design way, being able, thus, after advanced applications improvements for the users residing in the surroundings.

Keywords - Urban requalification. Technical approaches. Revitalization of the built environment.

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I. INTRODUCTION

The world population is close to 3.5 billion people living in urban centers [1]. It is known that in Brazil there are 160 million inhabitants, so it is necessary to incorporate urban requalification procedures, to improve the quality of life of the population [2].

In this way, it is necessary to design the built environment, aiming the attendance of the users' needs [3]. However, a new strategy can be traced around underutilized sites, when dealing with

requalification, which conceives by conceptual purpose, allocate the space as functional and attractive for the users.

II. For this reason [4], calls for the need to think of urban systems in an integrated way, thus enabling improvements in the city, such as: preservation and recovery of green areas and urban parks, maintenance of infrastructure networks, places of attractiveness and coexistence, integrated communication systems with users and public power. As a result, the urban regeneration can improve the quality of the environment by modifying it in a positive way, with factors such as:

the housing, the culture, the social cohesion and the mobility [5].

The revitalization of these spaces, should take into consideration the following items: a) developing collective and humanized spaces; b) take into account its historical, symbolic and existing elements and value them; c) develop and increase their use for leisure; d) development of housing of social interest; e) ecological development of spaces; f) the participation of the community in the process of development and requalification of these spaces [6]. Therefore [6], it can be attributed that the quality of the public and private spaces depend on requalifications that will guarantee the maintenance of the urban systems.

The word revitalization is conceptualized by characterizing a set of actions in a given place, improving the space, so it is attributed economic and social value. Consequently, the revitalization of a degraded area allows to provide improvements in the urban space. In this way, the use of the same by the inhabitants is the determining point for this readaptation, aiming not only the historical and cultural elements within the urban fabric [7].

The urban expansion has been promoting the regeneration of symbolic, historical and cultural elements for the cities, it is called urban requalification. Being, the urban space, after this requalification, became more attractive, without being de-characterized [2].

Revitalizing a space is a consequence of the valorization of the space by the population, and also

of the regional development. In the same way, revitalization can influence new uses and a new economic and housing development locally.

The social vitality is extinguished in places in need of a revitalization, proposing these improvements, many benefits when presenting themselves, as environmental quality of the landscape, of the mobility and economic [8]. In order for this transformation process to take place, the first aspect to be analyzed and applied is the ecological development.

The general objective of the research is to analyze the different perceptions of urbanistic architects for requalifications applied to urban infrastructure for better functionality in Brazilian cities, thus making proposals for urban intervention in the stretch of ERS-135 with access to Av. Padre Antônio Vieira, and to BR-285 in the São José neighborhood in the city of Passo Fundo / RS-Brazil (Figure 1).

In this sense, for the accomplishment of this research, the following specific objectives were met: a) to allocate the theoretical ports according to the proposed theme; b) conduct semi-structured interviews with Urbanistic Architects, demonstrating their different technical and scientific perceptions about the process of urban requalification, thus attributing improvements in the object of study; c) and build 3D scenarios, with the requalification suggested by the interviewees.



Fig. 1: location chosen for the simulation of implementation of urban equipments.

The São José Operaria neighborhood is located at the eastern entrance of the city and is considered one of the oldest peripheral districts of Passo Fundo. This way, the choice for the place, was due to these aspects, and also to have a main avenue that is inserted in a very degraded place, the Ave. Padre Antônio Vieira.

Ave. Padre Antônio Vieira, has a high flow of several mobility modalities, consequently, there is a variation of uses, besides residences, there are trade, schools, temples, etc. In addition, it is an access route to ERS - 135, with connection to the Leonardo Ilha neighborhood, and BR - 285, located in the Farroupilha neighborhood.

However, the consumption of resources offered in the urban space, being developed and revitalized previously, causes a social integration in high levels, annexation between the built environment and the natural, influencing in the conservation of the environment, therefore, there is the function of offers quality of life for the population [9].

III. METHODOLOGICAL PROCEDURES

The city of Passo Fundo is located in the northern region of the state of Rio Grande do Sul, Brazil, with a territorial area of 783,421 km². With a population residing in the city of Passo Fundo of 198,799 inhabitants.

Due to the fact that the city of Passo Fundo is in expansion the studies of requalification are of paramount importance for the quality of life of its citizens. In order to determine some urban planning guidelines to optimize the existing urban structure, semi-structured interviews with Urban Planning Architects were conducted. The choice of the interviewed technicians considered first the training, and the professional performance of each participant in relation to studies aimed at the urban requalification.

After the selection of the five technicians was applied Frequency Perception Method (FPM) [10]. It allows that spontaneous associations be analyzed, a set of words or expressions that emerged during the interview are identified, and from the highlights, the action plan is defined, taking into account in this case, the need of the study area.

Subsequently, the definition of the way of approaching the needs of the space, the Urbanist

Architects interviewed commented and systematized on different scientific technical perceptions in the place of study. These perceptions were put together, allowing the elaboration of the process of urban requalification, offering a series of suggestions for improvements for the object of study.

The improvements will have their 3D representation, and were elaborated based on the method [11], have been made field visits, and images available in Google Earth. These acquired data were manipulated in the Geographic Information System - GIS, generating representations of improvements in 3D scenarios, using the softwares: SketchUp and Lumion.

In the SketcUp software, the site and its existing infrastructure, according to the date of visit, were modeled in 3D, after the modeling of the same scenario, the suggestions of the Urbanistic Architects of the improvements and requalifications of the built environment were applied. Later with the aid of the Lumion, it was rendered, and applied the vegetation so that the project became more real possible, in order that it is possible to characterize the place for a better interpretation.

IV. RESULTS AND DISCUSSIONS

The site of implementation of the urban intervention project is in the stretch comprising the ERS-135 and the BR-285 São José neighborhood in the city of Passo Fundo / RS-Brazil. It is a central flowerbed, in Ave. Padre Antônio Vieira, with 500m linear (Figure 2). The existence of trade and a large housing densification, justifies the implementation of the requalification project.

After the on-site visit, a group composed of six Urbanist Architects, proposed to draw urban strategies around an unused land in the middle of a consolidated urban network, made up of buildings in height and few living spaces for the surrounding population. The proposal seeks to create a qualified space that integrates and embraces the local population..

The first step for the requalification of the built environment is to analyze the problems that are inserted in the place of study. Faced with this, the group of urbanistic architects went to the area and raised a series of problems encountered.

Tabela 01: table of problems found at the study site.

Problematic	Author/Year	Conceptualization of the problem
Inadequate vegetation	CABRAL, 2013	More relevant than having trees in a city is that they are studied and planned for planting, taking into account the type of soil, species and impacts to the site, whether or not they will be efficient after their full growth.
Lack of accessibility and signaling for CSN	QUEIROZ, 2006	The obstacles and architectural barriers make it impossible for CSN to access public places and for

(Carrier of Special Needs)		common use, accessibility is clearly required, as it implies the right of all citizens to come and go.
Lack of cycle lanes, urban equipment and living spaces.	MENSCH, 2015	In order to reach the level of environmental sustainability and social rights for all, providing equality and prioritizing pedestrians and cyclists, a reorganization of urban space is needed, giving back spaces to people and not only directed towards the flow of vehicles.
Inefficiency of rainwater drainage system and waterproofing	MONTES and LEITE, 2008	The precariousness of urban planning linked to urban drainage, together with the modifications that the environment suffers as a consequence of improper use of the soil as the implantation of buildings and pavements that increase the waterproofing of the surface generates an expressive increase in the demand of the superficial flow, often not overcoming and causing diverse problems and costly costs for the population and its government.

After surveying the degraded area, the 3D modeling was used to simulate the projected environment, in order to experience the group's design intentions, as well as to promote the sustainable development guidelines of the area. Therefore, the terrain was presented to the urban planners of the study group (Figure 2), later, in the immediate surroundings it was exposed, the designers should draw strategies of requalification of the space.

As a next step the participants of the study drew a total of 10 improvements to the site, that after presented were systematized, and the 5 options that appeared the most, were transformed into a project (Fig. 3).

Faced with these aspects can be idealized the improvements in the place. Initially it was thought to

guarantee the quality in the accesses and public walks that are constructed of according to the characteristics of each type of way collaborate of a significant form for the accessibility and urban mobility. Accessibility in the urban environment provides strategies that consider the main characteristics of easy access to urban mobility.

The next step is the implementation of adequate drainage for the site. The technique used proposes the execution of a pluvial bed, that is, they would be installed in the middle of the sidewalk, directing the rainwater to boxes, or biovallets with their own vegetation to help in the correct drainage of rainwater. The purpose of drainage is to direct and to conduct stormwater from rainfall in cities.

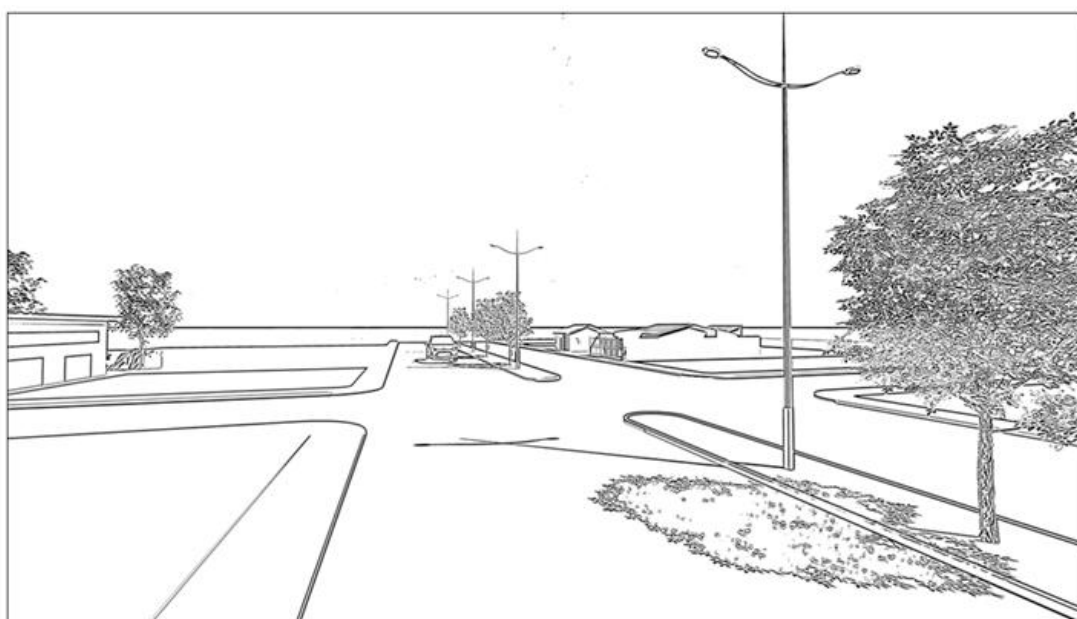


Fig. 2: site that was chosen for the simulation of the implementation of urban equipment.

Urban drainage is one of the basic sanitation services provided for in Law n. 11,445, dated January 5, 2007¹, which established its national guidelines. In this contest he realized the importance of projects designed to solve bottlenecks / floods as a way to prevent flooding and damage to existing urban infrastructure. The strategies of construction of beds, ducts and impermeable pavements are the most common among the proposals to solve the problem of drainage in the cities. Driving rainwater to sites that allow it to infiltrate prevents data from the built environment and does not provide sanitation problems in cities [12].

Another alternative pointed out by urbanistic architects is the placement of efficient vegetation and afforestation. There are some benefits of tree planting in urban environments: direct sun reduction, increased thermal comfort, increased of the relative humidity, sound attenuation, early rain protection, and even aid in drainage as mentioned above. The species to be planted are in accordance with norms of exact location of planting, respecting the size of the seedlings as well as the size of the planting cradles and the correct way of preparation and the shape of the definitive bed.

Urban afforestation is directly linked to the quality of life of people and the ecosystem of cities. It is a great challenge for architects and town planners to plan the urban vegetation, since only planting trees is not enough, because there are numerous problems resulting from poor planning or inadequate conservation of these vegetations.

In order for there to be adequate afforestation a good schedule of periodic maintenance is necessary so that the vegetation does not damage the urban infrastructures, which can cause large urban areas besides providing danger to the resident population near the forested sites. It is necessary for the technicians to have previous knowledge about the species planted so that in the future there will be no problems with the roots damaging pavements, half wires and walls or even offering risks for the people.

Urban vegetation is also associated with improvements in the quality of life of the population, in addition to bringing some benefits to the built

environment, such as: filters the air; act as an obstacle against the wind; helps to balance the moisture content of the air; retains some of the dust; reduces sound intensity; protects river sources and springs; is an element of visual, ornamental valorization; characterize and signal spaces, among others [13].

¹ Art. 3rd, inc I, of Law No. 11.445/07, defines basic sanitation as the "set of infrastructure services and operational facilities", among others, for drainage and urban storm water management, which in turn consist of " activities, infrastructure and operational facilities for urban drainage of rainwater, transportation, holding or retention for damping of flood flows, treatment and disposal of drainage rainwater in urban areas".

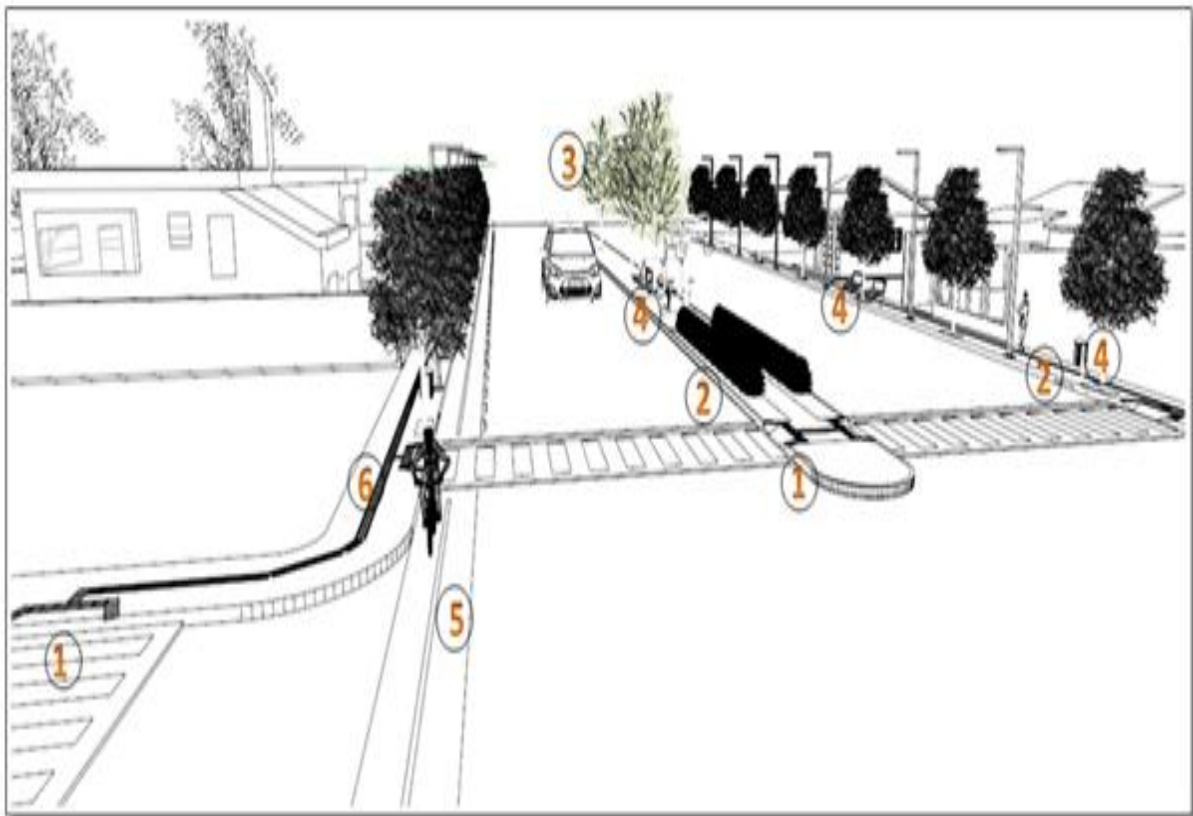


Fig.3: simulation of urban equipment implementation. 1. accessibility; 2. drainage and waterproofing; 3. efficient vegetation and afforestation; 4. urban equipment and living spaces; 5. bicycle path; 6 pedestrian mobility.

On the other hand, vegetation has another role, such as creating spaces for coexistence and urban environments connections. These places of integration have the principle of interrelating social subjects with the needs of social interaction in public spaces, which integrate and organize the urban networks that allow urban mobility as well as their spatial dynamics for the interchange between spatial dynamics and leisure associated with social practices in a spatial context to the process of collective inclusion [13].

According [13], “the urban planning was devoted to the development of a rational and simplified scenario for the activities “really necessary”: walking, cycling and meeting other people in ordinary urban spaces were not activities that impacted urban development around the world”.

In addition to the coexistence spaces, specific structures can be built for an agent follow-up, in this case the bike path promotes a specific space for the cyclist, there are still characterized as a space specifically designed for the circulation of people using bicycles has the function of increasing safety of the cyclist in the urban environment, provides greater integration of the population with

the neighborhood and stimulating the use of sustainable transport.

The development of an infrastructure that is geared towards pedestrians and cyclists, influences the strategic use, as it reduces the space for cars and paved airplanes and parking lots, thus leaving more areas to be used in the development of spaces for the people and for the cyclists [14].

But the issue of the bike path goes beyond generating safety for users, they can become a problem, as well as poorly structured sidewalks and streets. The issue is that they often hamper the lack of planning implies the difficulty of urban mobility of pedestrians, to develop better rides and its integration with accessibility is essential for the development of urban mobility [15].

To implement improvements in urban mobility, the public authorities and the society need to prioritize the development of better sidewalks, streets and accessibility and better uses in urban circulation spaces, giving a broader access to goods and services, impacting on the improvement of quality of life of pedestrians [15].

In this sense [15], streets and sidewalks are the most vital organs of the city. Because it establishes the ways of accessing the city.

The proposals then interconnected, and culminate to the last point raised by the technicians: flows and pedestrian mobility. The on-site improvement will try to generate traffic and travel on foot, so the implementation of high crossing lanes is indispensable for the requalification of the environment.

V. CONCLUSION

The spaces were designed as a regularizer of the built environment as well as external climate, focusing the following questions raised by the experts: drainage and waterproofing; urban facilities and living spaces; vegetation and efficient afforestation; cycle paths; and quality in accesses and public walks, flows and pedestrian mobility.

The requalification of the built environment has some benefits, such as: improvement in the quality of life of local residents, correct drainage of water waste, advances in the mobility of the environment. In addition to raising financial issues such as dollarization of land in the surroundings, as well as economic development for the region.

This question proves the need for integrated urban planning as well as the applicability of a set of sustainable techniques in order to achieve the requalification of the built space.

The process of requalification of degraded areas has the obvious objective of promoting reuse, or the better utilization of existing urban infrastructure and equipment. In addition it promotes improvement of the quality of life in the city, environmental sustainability, and increase social cohesion. The degree of complexity of these interventions may vary, and integrated planning should be considered so that different uses are guaranteed, such as: housing, leisure, movement, among others.

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REFERENCES

- [1]. SILVA, G. J. A. da; ROMERO, M. A. B. *Cidades sustentáveis: uma nova condição urbana a partir de estudos aplicados a Cuiabá, capital do estado de Mato Grosso, Brasil*. Ambiente Construído, Porto Alegre, v. 13, n. 3, p. 253-266, jul./sep. 2013. (in Portuguese)
- [2]. KLEIN, Louis; BIESENTHAL, Christopher; DEHLIN, Erlend. Improvisation in project management: A praxeology. International Journal of Project Management, v. 33, n. 2, p. 267-277, feb. 2015.
- [3]. SILVA, Ana Maria Ribeiro. *Requalificação Urbana*. Faculdade De Letras Universidade De Coimbra. Coimbra, Portugal 2011. (in Portuguese)
- [4]. BRANDLI, L. L., PRIETTO, P. D. M., & NECKEL, A. (2014). Estimating the Willingness to Pay for Improvement of an Urban Park in Southern Brazil Using the Contingent Valuation Method. Journal of Urban Planning and Development, v. 141 n. 4, p. 1-10, dec. 2015.
- [5]. ARAÚJO, S. A.; *O Planejamento Urbano e Ambiental na Construção de Cidades Sustentáveis: As Hortas Urbanas Comunitárias em Porto, Portugal, e Belo Horizonte, Brasil*. Urbana: Rev. Eletrônica Cent. Interdisciplinar, Campinas (SP), v.8, n.2, may/aug (2016). (in Portuguese)
- [6]. SCHEPERS, P.; FISHMAN, E.; FYHRI, A.; JANSEN, A. The Dutch road to a high level of cycling safety. Safety Science, v. 92, p. 264-273, feb. 2017.
- [7]. CHAVES, C. R. C.; BEZERRA, A. M. M. Revitalização Urbana: *Entendendo o processo de requalificação da paisagem*. Periódico do Centro de Estudos em Desenvolvimento Sustentável da UNDB N. 1, dezembro 2014. (in Portuguese)
- [8]. GROSSO, K. S. de S. *Intervenções urbanísticas como estratégia para o desenvolvimento local e revalorização da imagem da cidade: análise da revitalização no município de Niterói (RJ)*. 1º SIMPGEIO/SP, Rio Claro, 2008. (in Portuguese)
- [9]. MARTINS, R. C. C. K., ROMÉRO, M. A., *Integração de condicionantes de morfologia urbana no desenvolvimento de metodologia para planejamento energético urbano*. Departamento de Engenharia de Construção Civil, Escola Politécnica Universidade de São Paulo, Associação Nacional de Tecnologia do Ambiente Construído, Ambiente Construído, Porto Alegre, v. 12, n. 4, p. 117-137, oct./dec. 2012. (in Portuguese)
- [10]. BARDIN, L. *Análise de Conteúdo* / Laurence Bardin; tradução Luis Antero Reto, Augusto Pinheiro. São Paulo: edição 70, 3ª edição 2016. (in Portuguese)
- [11]. XU, Zhao; COORS, Volker. *Combining system dynamics model, GIS and 3D visualization in sustainability assessment of urban residential development*. Building and Environment, v. 47, p.272-287, jan. 2012.
- [12]. GRANZIERA, M. L. M. *Plano de drenagem urbana e perspectivas para a proteção das áreas de preservação permanente*. Revista de Direitos Econômicos e Socioambiental,

- Curitiba, v. 3, n. 1, p. 43 - 78, jan. / jun. 2012.
(in Portuguese)
- [13]. CABRAL, I. D. *Arborização Urbana: Problemas e Benefícios*. ISSN 2179-5568 – Revista Especialize On-line IPOG - Goiânia - 6ª Edição nº 006 Vol.01. 2013, dez. 2013. (in Portuguese)
- [14]. MENEZES, T. C. de.; MACHADO, D. C. *Mobilidade urbana e alternativas sustentáveis: um estudo sobre o projeto de ciclovias de Niterói*. Trabalho de conclusão do curso de Economia, Proac UFF, Rio de Janeiro, 2016. (in Portuguese)
- [15]. PEREIRA, T. F. *Mobilidade e Acessibilidade Urbana: um olhar para a sustentabilidade e qualidade ambiental*: Mestranda do Programa de Pós-Graduação em Geografia da Universidade Federal de Santa Maria. 2016. (in Portuguese)

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