

# Art-Clusters as a New Type of Buildings: the Specificity of the Spatial Solution and the Features of Restoration during the Redevelopment Process (The Experience of Poland)

## Abstract

The article is devoted to the specific character of the formation of art-clusters as a new type of buildings. Today, the theme of redevelopment of unprofitable industrial enterprises for art objects is extremely relevant for Ukraine and Poland (where a powerful experience of such complexes is accumulated). A feature of such modern establishments is that this is a space of a fundamentally new type, based on fundamentally new principles, where the preserved in its original form, facade and the modern functional content are combined. Since such industrial buildings are often architectural monuments, a complex of the restoration and renovation measures becomes important.

Keywords: art-cluster, new modern space, revitalization, gentrification, restoration, preservation.

## 1. Introduction

The theme of modern redevelopment of unprofitable industrial facilities is extremely relevant for the conditions of Ukraine. Today, in large, medium and small cities of Ukraine, most industrial enterprises do not work, but these enterprises occupy large areas, often in the central parts of cities where the cost of land is high. As foreign experience has shown, there is a way of modernizing of unprofitable industrial facilities, including for elite housing, hotels, shopping galleries and art-clusters.

Gentrification (sometimes referred to as urban recycling) is the reconstruction and renovation of buildings in unrepresentative quarters or in accordance with the planned urban rehabilitation program, or as a result of decisions taken by professionals and owners. As a result of gentrification, the average level of incomes of the population of the district increases. The term of gentrification was introduced by Ruth Glass in 1964. She used it to determine the displacement of the working class from separate districts of London by the middle class in her work "London. Aspects of Change". The same processes took place in separate areas of US cities in the Gulf of San Francisco, Boston, Chicago, Seattle, Portland, Atlanta, Washington, Denver.

To revitalize means to give a new life to something. There is development and redevelopment – this is construction, new construction and renovation. Revitalization is a broader

concept. From the industrial production zone, the revitalizer makes a "third place" where you can comfortably spend time – and see the exhibition, and buy clothes, and meet friends, and work on a project.

The issue of revitalization of unprofitable industrial facilities is very relevant for the entire post-Soviet space and for the large cities of Ukraine, where as a result of changes of the economic conditions and the political situation since the 1990s, a significant part of the industrial facilities located in the city has proved to be unprofitable. Taking into account the fact that these establishments occupy large areas in the central districts of cities, and the fundamental structures of the former workshops and technical facilities remained intact, the question of granting these territories a "second life" in accordance with the present realities, arises. "An art cluster – cultural and business association located on the territory of an industrial zone, uniting exhibition space, a showroom, a theater or cinema site, an audience for seminars, food courts and other similar elements," the scientific association SibAC notes.

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## 2. The causes of occurrence of an art-cluster as a fundamentally new type of multifunctional space

In the cities of Ukraine and Poland, there are many former industrial zones that occupy large areas and are not used at all. Today there are several options for using these territories: one of them, the most radical one, is the complete cleaning of the site from buildings and new construction, the second – the redevelopment of former enterprises for new functions. More circumspect variant in restrained urban conditions is the variant of redevelopment of former industrial zones into modern art clusters in order to modernize the areas. Truly speaking, it is possible primarily in large cities, taking into account the need for investment, in the expectation of a significant constant number of visitors, permanent events and the like.

The development of industry in the nineteenth and twentieth centuries fundamentally changed the appearance of cities in states in different parts of the world, and it was then that a great number of pipes and industrial buildings became an integral feature of the landscape of industrial cities. However, over time, intellectual production replaced industrial production, which became particularly tangible on the threshold of the 21st century, and this gave rise to the issue: how to use old plants and factories, which in present conditions were unnecessary?

At the end of the 20th and beginning of the 21st century, a type of space called “art-cluster” became popular. Although art clusters began to appear relatively recently, but the idea of providing a “second life” to unprofitable industrial enterprises, called “loft”, appeared much earlier, back in the 1940s in Manhattan. However, in those years this term envisaged the redevelopment of industrial enterprises for housing and artists’ studios, taking into consideration the sharp increase in land prices in the central districts of the city. This led to the removal of industrial enterprises on the outskirts of the city, and former industrial areas, where the cost of renting premises was low and the premises themselves could be used for any function, with the possibility of changing them, were occupied by artists of different directions..

So, it was in Manhattan that an art-cluster-loft space was born, a space with a simultaneous combination of artistic and business functions, where exhibition spaces, theater zones, audiences for seminars and business trainings, showrooms, etc. were combined and at the same time the cluster functions as a whole establishment, where each component works for a common idea and is a part of one structural organization [1]. Another feature of modern art-clusters is the presence of transformed spaces for the organization of various events. Catering establishments of various levels and hotels, designed for various events visitors from other cities, have emerged within the framework of art-clusters.

The theoretical concept of an art-cluster as an intellectual space of the 20th -21st century was first described by one of its ideologists Michael Porter in the scientific work “Competition”. In the perception of Porter, an art cluster is a “group of geographically neighboring interconnected companies and related organizations operating in a certain sphere and com-

plementing each other” [4, p.258]. While art-clusters (or clusters) can take different form and structure, which are determined by the complexity of the functional and volumetric organization, direction and theme.

Advantages of the art-cluster as a modern multi-functional intellectual space are the following [1, 2,3,5,6]:

- the total effect of interaction of elements-components, which is several times higher than effect of their separate activities from each other;
- a positive impact on the social and cultural atmosphere of the city as a result of the emergence of a new public space, the conditions for the creative development of all interested, and then the development of the internal cultural potential of the city
- the emergence of a new communicative space, especially for artists of different directions, new forms of their creative self-expression;
- the emergence of an updated dynamic space that is capable of mobility, development and transformation in accordance with changing needs;
- a successful fit in the established urban environment, the urban environment modernization.

## 3. Art clusters as a means of modern gentrification of urban space

Today there can be observed a domination of urban processes, that is, an increase in the population of large cities at the expense of medium and small towns, and villages. The modern urban environment consists of a set of buildings of diverse functions, and the quality (more precisely, the functionality and comfort of the urban environment) depends on the quality meeting the requirements of the inhabitants of the city; and modern living conditions put on the uppermost level, cultural and communicative needs, including. Today, traditional establishments such as cinemas, theaters, cultural centres, art houses, palaces of schoolchildren are often perceived as obsolete, which not to the fullest extent meet all contemporary needs for creative and cultural development, whereas a modern man, especially a young one, above all seeks favorable conditions for self-expression, development of their inner world by means that everyone has the opportunity to choose independently. This is how the need arises for the urban cultural environment individuality in which the visitors play

an active role themselves; another form of the cultural and art institution of our time is an art-cluster (or loft), one of the forms of “creative commercial development”, “creative space”, most often redeveloped from unprofitable industrial territories of large cities [1,5,6].

Transformation (or revitalization) of industrial areas under the creative space is one of the innovative ways of modernizing the urban environment, taking into account the changing needs of city residents. As a rule, during the process of revitalization, it occurs a complete change in the function of the territory [2].

Art-clusters as urban spaces of the 21st century appear as centres for the association of various cultural and business processes, and those processes that form art-clusters subsequently begin to spread to the city as a whole, that is, to the development of the city’s infrastructure, the emergence of new jobs, the realization of creative activity in commercial projects, modernizing the urban environment with new means of aesthetic expression and, as a result, raising the level of the cultural potential of city residents [1]. Gradually, art-clusters become an integral part of the comfortable cultural environment of the city [5,6].

First of all, in the creation of art-clusters it should be applied an environmental approach, and not only an object orientation to design, as art-clusters actively make impact on the redevelopment of urban space. So, the initial task of the process of creating an art-cluster is the organization of space and forecasting the impact of its territory on the space of a district or city. The two main types of environment for perception are the plane (continuous building line along the street) and the courdoner (buildings in the form of a square with a courtyard), the spaces are open and closed. There are two main ways of interacting the object and the surrounding space – fit into space and vice versa to destroy it with certain aesthetic means (supergraphic, volume completion, etc.) If the building is a bearer of aesthetic qualities, it is desirable to preserve its appearance and not destroy the object-environment ratio. On the contrary, a non-aesthetic building can obtain expressiveness through intentionally destroying spaces by supergraphic means. When creating modern art-clusters, it should be borne in mind that industrial objects can be in the register of monuments of immovable heritage and their facades can be objects of protection, so in this case it is worth keeping them in their original form. But in connection with the change in the function of the object you need to change the space around it, including the means of super-graphics, and also make adjustments to the organization of the yard and interior spaces.

Types of means of expressiveness of the art cluster are determined by the conditions of visual perception and depend on the type of space (plane or courdoner). An important role in redevelopment of an unprofitable industrial facility under an art cluster is given a coloristic solution. In the event that the main facade is the subject of protection and can not be radically changed, it is possible to introduce coloristic accents at the entrance level or modern installations and advertising installed in front of or on either side of it. Visual perception is affected by color, scale or detailing.

## 4. Analysis of the existing experience of the art-clusters creation

Today, the world has accumulated significant experience in the redevelopment of industrial facilities for art-clusters, museums and art galleries. A great experience in creating art clusters accumulated in Poland, in what of the authors was convinced personally. The experience of adapting industrial objects to art-clusters was analyzed in more detail by the example of such objects:

1. Fabryka Trzciny (the city of Warsaw)
2. Galeria OFF, city of Lodz, Piotrkowska 138/140
3. Art-Inkubator / Fabryka Sztuki, city of Lodz, Księdza Biskupa Wincentego Tymienieckiego 3
4. Malopolski ogrod sztuki, city of Krakow, Raj-ska, 12

Each of these objects has developed its own approaches to the transformation of the industrial complex into a modern art space.

Fabryka Trzciny (city of Warsaw)

The art-object was created in the territory of the former factory for the production of marmalade and canned food, which was functioning since 1916. Then there was a private project to turn a former obsolete building into a modern art-platform for music festivals, concerts and exhibition events. The project Fabryka Trzciny took two years. The peculiarity was the preservation of the “industrial” color in the interiors in the form of nets of cables on the walls and production equipment in the premises.

Galeria OFF, city of Lodz, Piotrkowska 138/140  
Galeria OFF is an all-Polish cultural project, aimed at assembling creative artists – fashion designers, designers, architects, music studios and clubs, inexpensive restaurants, acting studios, showrooms, art cafes in one territory [7]. (III.1) Nowadays, this is the most modern fashionable institution of Lodz for informal communication, located in the heart of the city. Galeria OFF originated from the former Frantsishk Ramish factory of cotton fabrics, which worked since 1889. Reconstruction took place in 2011. The main goal was to create a space, the purpose and image of which was determined by the non-formalists and artists themselves according to their own needs. This project was organized by the direct owners of the territory and objects – the real estate company OPG Orange Property Group. The territory of the former factory for the production of cotton fabrics has become the territory of art and creative business projects.





III. 1. The internal space of the Gallery OFF. Photos by O. Ivashko, 2016

Art-Inkubator / Fabryka Sztuki, the city of Lodz, Księża Biskupa Wincentego Tymienieckiego 3

Art-Inkubator is the artistic territory at Księżym Młynie in Lodz, in the former industrial buildings (III. 2). It was created on the initiative of Fundacji Łódź Art Center, Stowarzyszenia Teatralnego Chorea and Urzędu Miasta Łodzi in 2007. The activities of Fabryki Sztuki are concentrated around cultural and artistic education, theater, visual and musical arts [8].

Fabryka is engaged in the implementation of author's educational and artistic projects, it organizes lectures and meetings with artists and experts in the field of culture and art, seminars, performances, concerts. One of the most important sectors of activity is the professionalism of the cultural sector and the creative field within the framework of Art\_Inkubatora. Fabryka Sztuki is a member of the two international cultural cooperation projects Trans Europe Halles and Culture Action

Europe and participates in many international cultural projects, co-organizes artistic events of the Łódź Art Center (Fotofestiwal, Łódź Design Festival) and theatre festivals – the Stowarzyszenie Teatralne Chorea (festiwal teatralny RETRO / PER / SPEKTYWY).

Małopolski Ogród Sztuki, Krakow, Rajska, 12 Małopolski Ogród Sztuki (literally – Malopolsky Garden of Arts) is a regional cultural centre, administratively and territorially belonging to the Juliusz Słowacki Theatre in Krakow and is located in a three-story house in Krakow in the Old Miast, near the streets of Rajska 12 and Szujskiego [9]. Reconstruction of the building began in February 2010 and was completed

III. 2. Interior space of Art-Inkubator / Fabryka Sztuki territory. Photo by O.Ivashko, 2016



at the end of 2012. Inside there are more than 7,000 sq.m of the area, now more than 4,000 sq.m are used. The project was developed by K3 Architekci (Krakow), the general contractor was Przedsiębiorstwo Budownictwa Ogólnego Skobud. This institution is based on the idea of synthesis of various arts in one facility, the institution is designed for different age categories – children, youth, adults, the elderly, as well as for professional artists and neformals. The centre's activities are focused on the development of art, culture and education within the city and the region as a whole. To solve this activity, two main tasks are set: education through art and therapy through art. There is a media library focused on the collection of the theatre and visual arts (music, theatre, cinema, multimedia), a music hall for 290 visitors, a gesture theatre for 98 seats and a courtyard for outdoor events and exhibitions(9)

### 5. Restoration activities in the redevelopment of industrial facilities for art-clusters

In many instances, art objects are located in historic industrial buildings, so it becomes urgent to carry out a complex of repair and restoration measures, since the main feature of the art-cluster is the complete preservation of the facade, and sometimes – partially – of the interiors. Since the majority of industrial enterprises of the 19th-20th centuries, which might be redesigned for art-clusters, were built of bricks, often with the use of metal elements and structures, it is necessary to focus on those activities that deal with the liquidation of an emergency condition or damage of the walls brickwork and metal structures .

The walls could be made up of ocher, red, pink, yellow bricks of different sizes on the lime-stone, lime-stone and sand, cement – lime, cement-sand, cement– lime-sand and cement mortar.

The purpose of conservation and restoration of the surfaces of brickwork is the maximum approach to the authentic outside of the building. Under the influence of the aggressive external factors it happens peeling of bricks and loss of its separate pieces; cracks and salt efflorescence on the outer surface of the brick appears .

The lack of waterproofing, raising the level of groundwater (especially if it is aggressive water, entering into a chemical reaction with mortar solution and leading to its destruction), cycles of freezing – thawing of the wall, leaking roof are the causes of damp walls.

The dampness of walls occurs in the point of drainpipes and gutters damages. Some types of damage are determined visually: in particular, a noticeable slope of roofs or stairs indicates the presence of destructive elements and structures that require replacement. Due to subsidence of the foundation, cracks or visual disturbance of the straight brickwork lines appear in the walls, there may be cases of brick spalling.

The main causes of the walls and old masonry destruction are: a violation of the static nature of the basis-foundation-structure system, changes in hydrogeological conditions, an increase in the level of groundwater with an aggressive environment in which lime mortar can not be applied,

unorganized wastewater or the emergency condition of the roof, aging of masonry mortar , a decrease in the strength and load-bearing properties of stone, brick, plinth, increasing the load on the wall as a result of the re-building or building of additional storeys, changes in the functional purpose of the building and therefore the placement of equipment in the building, which creates a vibration.

Problems of emergency condition of walls are associated with the occurrence of the through cracks, the destruction of masonry mortar, damage and impurity of bricks and rows of masonry with detachment of plaster and moisturizing, biofouling. The main cause of the emergency condition of the building is the uneven subsidence of basis and foundations, which leads to deformations of walls and structural elements, therefore restoration measures are directed to eliminate deformation of foundations.

The methods of reinforcing brick walls with their severe accidents can be reduced to the following. The historical “skeletons” of the emergency walls are dressed in corsets made of metal ties, in addition, the walls are additionally reinforced with a metal mesh, on top of which a concrete “shirt” is put.

The general strengthening of the walls and the reinforcement of the brickwork in many cases make it possible to eliminate the emergency condition of buildings, however these works should, as a rule, be carried out together with measures to strengthen the basis and foundations, which in many cases are the primary causes of the walls deformation of. In some cases, you should first reinforce and strengthen the walls (above-ground part of the building), and then move on to strengthening the basis and foundations (underground part of the building).

The methods of brickwork strengthening are as follows:

- 1) the rebuilding of the brick walls (if the loss of brick exceeds 1/3 of the thickness of the fragments of the masonry, with the removal of destructive parts and the insertion of new brick fragments, is carried out by highly skilled masonry specialists). In the presence of stone facing, the existing condition is fixed by appropriate engineering and chemical-technological measures (collection of stone blocks with metal bandages, prosthetics, filling, thorough injection and the like;
- 2) Arrangement of the outer casing of the “corset” with bandage metal ties, which prevents horizontal sprawl of the masonry,



its stratification, and post-center crimp. The disadvantages of this method of strengthening the walls of architectural monuments include the presence on the facades or in the interior of metal strings, the possibility of corrosion and weakening of bandages, screeds, the concentration of loads on brick walls leads to crushing in the attachment area of the bandage;

3) replacement of load-bearing elements of walls and separation walls of masonry on concrete or metal frame (the old masonry at the same time fulfills the function of cladding)

4) injection of brick or rubble masonry with solutions (cavities and joints (seams) in the masonry are filled, between the stone or brick are consolidated, the destroyed mortar is reconstructed, the permissible effort on the structure is increased;

5) reinforcement of brickwork with cementation (the Italian method “cemented mesh”, “Raticolo cementato”) is carried out to increase the strength and stability of the structure, counteract tensile forces by inserting steel reinforcement through the drilled holes into the wall, which are filled with masonry mortar. At the same time, permissible efforts on the construction are increased, the structural integrity of the masonry is restored. The steel bars of the armature are firmly connected with the masonry in which they are cemented. The bulk integrity of the reinforcement mesh is ensured by the fact that the reinforcement that enters the masonry overlaps each other. The more damaged the wall, the easier it is to strengthen it with this method;

6) replacement of destructive and significantly saline brick. Capillary moisture and moistening of stone more than 5% with the saturation of stone with salts leads to destruction, humic acids in capillary water and salts of chloride of sodium sulfate, calcium and magnesium are crystallized into salt efflorescence;

7) reinforcement of brittle brick with putty on outer surface of caverns and filling of joints are performed, if the cavity sizes are less than 5 cm.

The nature and extent of the damage determine the way of restoring the brickwork: sometimes the bricks are replaced by similar new ones, sometimes the fragments of losses are supplemented with special solutions. Before that, the surface of the brickwork is cleaned of dirt, remove the salt efflorescence and old paint layers, then proceed to putting chips, caverns in the surface layer of the brick and filling with solutions close to authentic, masonry seams.

Loose brittle brick is fixed with strengthening solutions based on polymeric materials, the surface of the brick is covered with hydrophobic substances.

Restoration of the masonry walls provides for mechanical and chemical cleaning of the wall surface from contamination, injection of cracks in the masonry, conservation and restoration of the surface of brickwork, restoration of plaster, use of weatherproof façade paints.

Restoration of entrances and vehicular entrances includes fastening of masonry around entrance and vehicular entrance parts, reinforcement of entry and vehicular entry structures, restoration of gate architectural metal, forged and cast

art grilles of black metal, preservation of damaged wood doors, wood antiseptic, insecticide treatment, modern paint and decorative coatings for wooden surfaces and restoration of metal door elements.

Metal (namely, iron and cast iron) elements of the entrances (lattice, gates) are considered by their form and purpose as the products of architectural and enclosing elements; stands for hanging gates, lattices, doors – as structural elements. Ferrous metals have an increased sensitivity to corrosion, which can be linear, stress, breaking, fretting-corrosion, crevice, electrochemical, gas, atmospheric, chemical. By the nature of the process, corrosion of iron can be superficial, ulcerative, uneven, selective, spots, points, intergranular, internally crystalline and subsurface.

Restoration of forged and cast art lattice of black metal involves visual observation, cleaning of the lattice surfaces from corrosion products and old paint layers with the help of sand-shot blasting, hydrobrospl, mechanical, thermal and chemical cleaning. The recovered fragments of the lattice from cast iron are fixed by pins or soldering and welding methods, aluminum – by pins with insulation of various metals. For the purpose of protection from corrosion and creating the decorative appearance of the lattice, it is painted in such a sequence: filling of the defective metal parts with the red lead oxide rubbed in oil varnish, degreasing of surfaces with white spirit, coloring.

As the experience of practical restoration shows, the walls of most architectural monuments contain water-soluble salts, the content of which is determined by the age of the site and the conditions of its existence. Most of the salting is observed at the level of the socle sections of the walls to a height of up to two meters from the ground. The walls salting leads to a sharp increase in the sorption properties of the walls, the formation on the surface of the highlands, which lead to the gradual destruction of the surface layer. The process of demineralization of a thicker masonry precedes the restoration of monuments.

## 6. General Conclusions

1) The concept of “ an art– cluster” has long ceased to be a neologism, although it is still rarely found in the dictionary. From a social point of view, an art-cluster is an association of people with the same interests in the same space. According to Dmytro Borysov, the

development director of the GC “Oventhal”, the mechanism for creating an art-cluster is in the high interest of the representatives of creative professions in being together and some kind of estrangement from the usual way of tenants. The latter is caused by a number of reasons – this is an informal dress code, and noisy activities, and an unregulated work schedule.

2) From a urban-planning point of view, art-clusters are a real breakthrough in the rethinking of urban fabric, its gentrification. It happened so that most art-clusters in the world are located namely in old buildings, which had storage or industrial purpose. Over time, the cities are growing more and industrial areas that were on the outskirts, now, though not in the center, but in the middle belt. As a result, similar areas were beginning to be populated by representatives of different subcultures and persons without a specific place of residence. Representatives of countercultures quite often intersect with people of different creative trends and professions, which led to the growing popularity of these spaces among artists, art managers, musicians and the like. Prices for real estate began to grow for a large demand, which gave the cities new attractive areas with quite an interesting direction.

3) As the foreign and national experience shows, approaches in redevelopment of the unprofitable industrial facilities or fortification structures for art objects differ in accordance with the tasks set. The options for solving the facades are reduced to three main ones:

- full preservation of historical facades of architectural monuments;
- partial preservation of historical facades and construction of new volumes;
- complete modernization of facades in accordance with new requirements.

The solutions for interior spaces are as follows:

- maximum preservation of the original interiors and tactful inclusion of new furniture and equipment;
- fragmentary preservation of accent fragments of primitive interiors and industrial equipment incorporating them into a new concept of solutions in the interior;
- complete modernization of interior spaces without reference to the original interiors.

In objects transformed under art-clusters, such a set of premises is possible:

- museum halls, exhibitions, amateur theaters, lecture rooms, media folders, exhibition halls;
- artists’ workshops, shops, galleries, showrooms, art cafes, restaurants;
- small theaters, galleries, art spaces, premises for celebrations, workshops;
- workshops, showrooms, coworking, cafes, small hotels, exhibitions, shops;

– offices and workshops of artists and media, design studios, creative courses, children’s club, showrooms, shops, event venues, theatrical spaces, coworking, craft workshops;

– oworking, open space space, pop-up directions.

4) Since art-clusters are often located in old industrial buildings (an illustrative example is Lodz, where most architectural monuments are objects of industrial architecture erected from high-quality baked brick), it is necessary to preserve the facades and, in some cases, interiors, which are also objects under protection (it is worth mentioning the hotel “Andel’s” in the largest historic industrial complex “Manufacture” in the city of Lodz, where not only the facades of the unique building are preserved, but also partially the interiors; moreover, modern elements and fragments of the industrial equipment are combined in the public room and in the entrance lobby, creating the unique historical atmosphere). Consequently, an important element is the performance of professional restoration activities. Since most of the old industrial enterprises both in the cities of Poland and in Ukraine were built of bricks, the measures related to the restoration of brickwork as well as metal structures and elements are relevant.

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