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Special Features of Using Secondary Materials in the Interior Design of Public Dining Establishments

Irina Kuznetsova¹, Olena Hapchuk¹ and Vitaly Lukinov²

¹National Aviation University National Aviation University, Kosmonavta Komarova 1, Kyiv, 03058, Ukraine

²Moscow State University of Civil Engineering, Yaroslavskoe shosse, 26, Moscow, 129337, Russia

E-mail: iakuz56@mail.ru

Abstract. This article analyses the latest publications studying the use and practical application of secondary resources as raw materials in design. This analysis is based on the list of secondary resources and their applications in interior decoration. In particular, the interiors of public catering enterprises were analysed. Restaurants with different functional purposes that were classified into several categories with specific peculiarities of interior design were identified. This article presents and describes different types of public catering enterprises based on those categories. The interior design of a public catering enterprise is regarded as a considerably complex system. Different types of secondary materials were reviewed to identify the most frequently used materials for interior space design. This article describes the main peculiarities of the use of secondary materials and presents examples of their practical application. The function of secondary materials in the interior design of public catering enterprises were detected and reviewed. On the basis of the analysis, several directions for the practical application of our results in the field of public catering enterprise design were suggested.

1. Introduction

This article analyses the latest publications studying the use and practical application of secondary resources as raw materials in design. This analysis is based on the list of secondary resources and their applications in interior decoration. In particular, the interiors of public catering enterprises were analysed.

Restaurants with different functional purposes that were classified into several categories with specific peculiarities of interior design were identified. This article presents and describes different types of public catering enterprises based on those categories.

The interior design of a public catering enterprise is regarded as a considerably complex system, one which is always developing and is based on clearly defined principles and factors. Through analysis of existing analogues of restaurant interior design, different types of secondary materials were reviewed to identify the most frequently used materials for interior space design. This article describes the main peculiarities of the use of secondary materials and presents examples of their practical application. It is necessary to emphasize three main areas of use for this type of raw material in the interior design of restaurants. During our research, the function of secondary materials in the interior design of public catering enterprises were detected and reviewed.



On the basis of our analysis, several directions for the practical application of our results in the field of public catering enterprise design could be suggested. There are definite prospects for the application this type of materials in other areas of public establishment interior design.

1.1 Formulation of the problem

The issue of identifying and determining the pattern of use for secondary materials in the interiors design of catering enterprises, with the purpose of their improvement and wider application, is both urgent and relevant.

The rate of adopting these types of materials in the interior design of catering enterprises is an important research direction that will help to save the environment from excess waste, as well as to organize a new type of product that will combine several functions at once. This sphere of research requires detailed study, since it is a relatively un-investigated and promising one.

Studies of the applications for secondary materials are underway with the purpose of creating new shapes which will diversify all design areas and carry new ergonomic and aesthetic characteristics. This article is a continuation of the scientific research presented by other individuals whose articles substantiate the use of secondary materials in object design. Through the use of secondary materials, new aesthetics and functions can be realized.

I. Kuznetsova, Y. Oksenyuk, O. Hapchuk described the experimental methods in design formation based on waste materials use. The authors investigated the recycled materials' classification, functions and methods of their use in design projects, using examples of its application in modern sculptures' creation [1].

The study of V. Kumanin contains a list of materials and features of design products, which are made of different types of materials. The author mentions the ways to influence the changes in design objects' characteristics through the use different materials [2].

R. Baraban and J. Durocher noted the ways of creating a restaurant interior design that corresponds to the type of restaurant and visitors' social class. Their study contains the main distinguishing characteristics of the restaurants and reviews the psychological aspects of customers' preferences to ensure proper service conditions. They were searching for new ways of creating various types of restaurant interiors using the appropriate furnishings and decorations [3].

The study of C. Binggeli provides a list of criteria which helps to select the proper materials for the decorating different indoor spaces. The materials listed demonstrate a wide range of functionality and have varying levels on impact on our environment. The materials which can be processed and reused in the design sphere are placed into separate subdivisions. Examples of wall decorations incorporating secondary materials were provided [4].

L. Godsey describes the basic physical and chemical characteristics of the materials used for interior decoration. The mentioned description includes methods of exploiting the characteristics of secondary materials and their interactions with external factors [6].

The publication of C. McDermott contains a list of terms associated with the sphere of interior design. This list includes an overview of recyclable materials and provides examples of their application in object and interior design planning [7].

The study of B. Ryder provides interior design examples of modern restaurants. The study describes the main characteristics of restaurants and how they correspond and cater to their visitors' preferences. It also carries out a comparative analysis of modern restaurant interiors, with interiors of public catering establishments which were created in the past centuries [8].

J. R. Walker defines and describes the types of restaurants and their main characteristics. He focuses on ways of developing different concepts and their implementation [9].

Electronic sources Homedit, Hongkiat and Novate contain examples of design objects made of secondary materials and their application in interior design. [10, 11].

The aforementioned publications became sources of basic information for this study, but did not contain the answers to the stated goal.

1.2 Goal

To identify the peculiarities of using secondary resources in the interior design of public catering enterprises.

2. Main body

The modern variety of public catering enterprises differs in its quantitative and qualitative indicators which, as a result, creates severe conditions for competition in the services field. One of the most important aspects that distinguish one establishment from another is its interior design. The purpose of interior design is to interest and attract potential customers. In this regard, there is a constant search for means and ways of creating a unique conceptional design that will have a special meaning and will allow consumers to become a part of the atmosphere.

An important aspect in public catering enterprises' design is to have a clear understanding of the actual societal desires and needs to satisfy those needs and desires. Constant changes, as well as the influence of political and economic factors on the choice of a person, determine demand and generate proposals which are volatile and very quickly substitute each other. Taking into consideration the abovementioned, it should be emphasized that the tendency to imitate modern and mainstream design trends is popular now. It expresses the actual societal preferences in the best way. Significant development is observed in interiors design styles, which are based on secondary materials usage, such as: loft, steam-punk, eco-style, shabby chic.

Secondary materials usage in the design field has four key positions:

1. Environment preservation by reducing the amount of accumulated wastes;
2. Reducing the rate of depletion of the planet's natural resources;
3. Raw materials and completed object reutilization for the creation new types of objects with modern shapes;
4. Original design object creation that forms the design of the interior space and performs a hedonic function.

The use of secondary resources in interior design provides harmonization for various human environments. It also requires a search for new object shapes and the improvement of their ergonomic characteristics. At the same time, it is aimed at reducing the number of objects polluting the environment, and saving the planet's exhaustible natural resources.

The use of secondary resources in the interior design of public catering establishments stimulates a creation of new environment types. These environments have new meanings and functions; functions which differ from the original purpose of the objects which create these new environments. The success and development of a catering establishment is based on the interaction of design, marketing and consumer psychology.

From a psychological standpoint, the interior design of such establishments is focused on the culture, subculture and social status of people in society. It is important for the creation of a comfortable homeostatic environment. Culture defines the needs and behaviour of a person. Subculture, on the other hand, refers to national and racial affiliation, as well as religion and geographical location. An individual's social position typically determines which social class they affiliate with, which in turn imposes different desires and requirements which are associated with that social class. Thus, individuals as an element of society associate themselves with a certain culture and religion, which in turn identifies them with a certain social class, where the same desires are shared and the same demands are put forward. Considering this, it was logical to create several types of public catering enterprises and differentiate them according to the following criteria: the age category of visitors, the quantity and quality of services, the level of service, the price category, the establishment's designation, the interior, the prestige, and the location of the establishment.

The use of secondary materials in the interior design of public catering enterprises can be considered as a promising marketing decision. Firstly, it promotes environmental preservation, drawing attention to the pressing problems of society and nature. Secondly, it demonstrates the ways of applying secondary resources, with the aim of improving the conditions of everyday life.

The main sources of secondary materials, widely used in design, are:

1. Manufacturing waste, i.e. the raw materials and materials that were formed during the production process and lost their original consumer qualities;
2. Consumption waste, i.e. products and materials that have lost their original consumer qualities as a result of physical deterioration.

The most common secondary materials used in the interior design of catering enterprises are glass, waste paper, rubber, stone, wood, scrap metal, cork, plastics, container glass, textile, leather and completed objects that have found another purpose or have been reused. Their physical qualities and chemical properties allow experimenting with shapes, combining different types of materials, as well as imitating plant and animal shapes to decorate interior spaces.

New types of objects with modern designs are being created; they make people's life easier, taking upon themselves a part of everyday functions to economize time and efforts. The volumetric compositions made of secondary materials or completed objects, which are used as secondary raw materials for a new product, are becoming widespread. Such compositions are created to attract the visitors' attention and to help improve enterprises' competitiveness. The examples of such compositions are design products of F. and V. Campana, E. Simpson, T. Mines, T. Dambo.

It is worth noting that interior design plays a leading role in enterprises, as it reflects all the abovementioned characteristics. Considering what has been said, nowadays there are 7 main types of public catering enterprises:

- Luxury class restaurants (de-luxe type) - establishments with high price indicators and a special type of visitors. These restaurants have a bright and extraordinary interior design with the use of expensive materials and furniture made on an individual order. Such establishments demonstrate luxury and try to attract the attention of wealthy visitors with the purpose of further advertising goods belonging to this brand. These are restaurants of famous trademarks and brands - Armani, Dior, Chanel, etc. The use of secondary materials is not observed in the restaurants of this class.

- Restaurants of the highest class are establishments with a refined and elegant interior design, aimed at attracting business-class customers and specializing in business meetings and receptions. Such restaurants are an addition to the business status of visitors, where the proper conditions of service are provided to that type of social class. Common objects made of secondary materials for such institutions are paper ceiling lamps, glass decorative vases made of used objects, wooden items for wall and ceiling decoration, as well as items made of vine, stone and bamboo. An example is a Japanese restaurant "KIMONO" in the ethnic style, in California, USA.

- Restaurants of the middle class have moderate price indicators; their customers are primarily young adults and people of mature age. The interior design is discreet; the furniture corresponds to the chosen concept. Usually catering establishments of this type are thematic and try to attract the attention of visitors using original concepts and corresponding design solutions. This is a way of keeping their popularity and remaining competitive with other restaurants.

In middle-class restaurants, the widest range of secondary resources and furniture items made of them are used. Puffs made of textiles, patchwork products, seats made of cardboard, shelves made from used wood, glassware, glass containers used as lighting objects, and chairs/countertops made of scrap metal are popular in these enterprises. An example is the restaurant "Casa Dera", in Barcelona, Spain.

Fast-food restaurants are establishments which are oriented towards self-service and are designed for a constant flow of people.

The interior design of such restaurants requires non-bulky furnishings which can be easily moved or transformed. Bright colours are used for the interior decoration to emphasize the dominant elements of the room. It is common to use a large number of printed advertisements promoting the establishment and the menu. Particular attention is paid to materials used in the interior design. Since fast food is a public catering enterprise, much attention is paid to the floor covering, which is safe for movement and avoids slips and injuries to visitors. Cleaning surfaces of furniture items which are easily cleaned are also used. Considering the aforementioned, plastic products are widely used. This includes recycled

plastics which underwent heat reformation from a previous plastic good. Metal structures are also common in fast-food establishments. An example is an establishment called "Handmade Burger Co", in Glasgow, Scotland.

- Bars are establishments of a certain thematic area, where interior design depends on the chosen concept. These establishments provide different entertainment to visitors of all ages. The important role of interior design in bars is to provide an atmospheric environment. For realizing their desired concept, there are often used voluminous compositions made of those goods which are produced and advertised by the establishment. It is popular to use cork to decorate walls, glass and glass containers to create chandeliers, plastics, wood, and rubber to create furniture. Scrap is used to create moving decorative compositions. An example is the "Coffee Bar" in Bucharest, Romania. It demonstrates the use of old doors as a wall and as ceiling decor.

-Cafés and confectioneries are mostly small area establishments with original interior styles, oriented to visitors of all age categories. The interior design of such establishment is often focused on seasonal changes and their characteristic traits to ensure the appropriate atmospheric environment and to meet visitors' needs. A characteristic of interior design is the flexibility that allows a designer to complement and change the visual perception of the environment in accordance with seasonal changes. In establishments of this type there are widely used objects made in papier-mâché technique, wood, glass, textiles, as well as using completed objects. For example, hats and umbrellas are used to create lighting items. An example is the "Origo Coffee Shop" in Bucharest, Romania.

- Canteens, snack bars, buffets – establishments where interior design plays a secondary role; their primary role is to provide catering services. The interior space is decorated in light colours, which do not attract attention and do not interfere with the primary perception of the main function of the enterprise. The use of secondary materials is observed mainly in the walls and ceiling decorations.

The interiors of public catering enterprises contain items and decorations made of secondary materials in accordance with the concept requirements of the establishment.

Peculiarities of secondary materials usage in the interior design of public catering establishments can be classified into 3 main categories:

1) Sociocultural, where the orientation and selection of secondary materials for interior design are made in accordance with the location of the establishment on the world map, as well as in accordance with the cultural characteristics of society and the people. Much attention is paid to the climatic conditions of the environment to ensure rational interaction of selected materials and external factors that may affect their physical changes.

2) Imaginative, where secondary materials are used as means of displaying the desired concept of the restaurant's interior design. Its implementation is created by using various techniques, materials and objects. The primary goal is to demonstrate the concept through the creative use of these materials.

3) Typological, where secondary materials are used in accordance with the restaurant's class, the age category of visitors, and its thematic orientation. The goal is to create an appropriate interior design that will provide the establishment an appropriate level of prestige and popularity among other establishments.

Socio-cultural category includes the following sub-paragraphs:

a) The establishment's geographical location determines the direction of search for the most common materials that can be reused. This approach ensures cost savings for the search and delivery of rare materials for the location. It also creates conditions for designing a locale, inherent precisely to the establishment's geographical location, that demonstrates belonging to a country or continent. An example is geographical areas with many green spaces and forests, where wood is widely used in public catering establishments. Access to the sea or to the ocean is characterized by the presence of stones, pebbles, shells, which allow a designer to create restaurant's interior design with marine traits based on the reuse of secondary and natural materials. In cities with developed industry, rubber, plastics, glass and scrap metal are accessible and widely used. An example of the abovementioned is a restaurant "M.B. Post Restaurant" in New York, USA. The interior design of the establishment is made entirely of the used wood, the lighting system is created by using parts of old bicycles.

b) National traits include the use of traditional objects of everyday life, ornaments, materials and objects that emphasize belonging to a certain nationality and country. It shows the atmosphere of its culture. The use of secondary materials on this basis is observed in public catering establishments specializing in cooking certain national dishes. In this way, they allow visitors to get acquainted with this culture and become a part of it. Confirmation of the abovementioned is a restaurant "Sloboda" in Kharkiv, Ukraine. The interior design of the establishment is made in the Ukrainian style with the use of old clay pots, plates, baskets, embroidered curtains and towels, wicker items. These things are used as a decorative interior supplement emphasizing authenticity, as the establishment specializes in Ukrainian cuisine.

c) Natural and climatic conditions of the location are reflected in the materials they use to account for temperature difference in various parts of the world. Changes in seasonal precipitation force establishments to make a careful selection of different secondary materials. Their use in the interior design of catering establishments depends on the physical and chemical raw materials' characteristics. Areas with a cold, warm and temperate climate require different secondary materials. In countries with a cold and temperate climate, waste paper (one of the universal secondary materials) can be used. It keeps shape well and is resistant to temperatures, so it is often used in furniture manufacturing. Climate conditions of warm countries, for example Thailand, are characterized by a dry and hot climate with rainy season and, in turn, have their own requirements. Thus, many restaurants are located on partially open terraces, providing a natural air-conditioning of the terrace. As furniture surfaces heat up quickly, preference is given to stone objects than wooden ones. The use of stones also contributes to the rainy season, as rain does not cause significant damage to this material. An example of stone usage is given in the restaurant "Green Tea Garden" in Hat Yai, Thailand. Tables and chairs there are made from re-used stones.

The imaginative category can be divided into the following sub-paragraphs:

a) Concept - demonstrates the scheme of the interior design created in accordance with the chosen idea, using objects that demonstrate it better. The concept carries a certain meaning and helps visitors understand and take part in it. Additional services, such as play areas for children, are another way to design an establishments atmosphere. An example is the "Pizzicotto Restaurant" in Los Angeles, USA. The main idea is to highlight the understanding of urbanization and urban lifestyle, where people are constantly searching for themselves and their place in the world. This establishment offers them a temporary shelter. Iron freight containers, re-used wood and large glass bottles for water are used in the interior design of the mentioned restaurant. This chosen concept symbolizes a lifestyle of constant motion and casual conversations with strangers, which represent only episodes of a long journey.

b) Modularity - the ability of objects to transform and differentiate shapes if necessary. Modularity allows different elements and objects to exist as one-on-one, and together, where their interaction contributes to the creation of diverse compositions. Modular elements can be made from various secondary materials, which, if necessary, can become a part of one large object. An example of the abovementioned is the use of glass bottles to build a partition wall, where each bottle is a modular element.

It is popular to use wine barrels, which can exist separately as an element of decoration or furnishings, but, if necessary, can form a dominant composition of the room. The use of wine bottles as modular elements was demonstrated in the restaurant "Wine Republic", in Sydney, Australia. Wine bottles were used there to create a huge chandelier.

c) Decorative techniques - is the use of different techniques with the purpose of decorating the interior and its components. A vivid example is the use of patchwork techniques (textile creation made of fabric pieces or clothes) and papier mache (use of waste paper to create voluminous compositions and furniture). The patchwork technique is used to create chairs and puffs, which are a bright addition to the interior, as they contain a large number of colours, textures and patterns. The papier mache technique is used to create decorative vases, plafond for lamps, dishes and huge free-standing compositions. These techniques are often used to create a wall decoration. An example of using the

papier mache technique is the "Papier Mashe" restaurant in Kiev, Ukraine, where chandeliers are made in this technique.

d) Metaphor - shows interior design items which have changed their original purpose and have obtained new functions or purposes. An example is a large number of lighting objects using different items for plafond's creation: headgear, kitchen accessories, plastic bottles and the like. In public catering enterprises, many lighting objects often consist of cups, plates, cardboard, and shoes. Such objects attract visitors' attention. Chairs made of automobile tires, tables made of drawers and seats' upholstery made of belts are very popular. An example of obtaining unusual functions from common objects is the restaurant "Ham on Wheels", in Barcelona, Spain. Bicycle seats and pedals are used there instead of bar stools.

The typological category marks the following:

a) Price category of the establishment - the ability of the interior design to reflect the pricing policy of the establishment to attract the attention of the targeted consumer class. An example is the use of wood, stone and textiles in high-class restaurants to maintain prestige. Whereas restaurants which are oriented towards middle-class customers, must have an interior design that will testify to the price policy and would not scare away visitors with luxury interior decoration. That is why widespread and inexpensive secondary materials are used for this type of restaurant. They meet the requirements and status of the establishment. An example of the abovementioned is a large chandelier made of several dozen coloured plastic bottles in the restaurant "Villa Augustus", in Dordrecht, The Netherlands. This object is a dominant item of the restaurant's interior and testifies to the moderation of prices and the orientation to middle-class visitors.

b) Service time of objects is the division of secondary materials into 2 groups: long and short term of use. Materials with long-term servicing characteristics include scrap metal, stone, wood, leather, textiles, rubber and plastics. Short-term materials are glass, cork and waste paper. In the interior design of public catering establishments an advantage is given to furnishings with a long service life. An example of this is "Bar Moto Garage" in Brazil, where table-tops from rubber are used. They are resistant to physical influences and they express the concept of the establishment.

c) Adaptability and flexibility of objects is the ability of items to change, transform or supplement, if necessary. An example is the creation of different types of compositions for seasonal changes and holidays. Thus, secondary materials are transformed into modular elements of volumetric compositions or complemented by decorating. An example of the abovementioned is the creation of Christmas trees from cans and paper cups. Such compositions are universal, because they can be collected and disassembled if necessary. Their presence in the interior design makes it flexible and capable of complementation and alteration.

d) Restaurant specialization is one of the main features that characterizes the scope of services and requires the restaurant to create an appropriate interior design. It is most clearly reflected in the establishment's furnishings. For example, if the enterprise specializes in wine sales, the interior decoration may be comprised largely of bottles, cork and wine barrels. In turn, confectioners often use a large number of various dishes as raw materials for creating new objects. An example is the use of paper cups in confectioneries aimed at visitors of children's age. They are used for the tables' structure and as a wall decoration.

e) The theme of the establishment is the use of secondary materials and objects to display a certain interior design style; the characteristics of the country, a historical epoch or a festive event taken as a basis for the concept. In the modern interior design of public catering enterprises, the retro style, which reflects a certain historical period of time, becomes very popular. This atmosphere helps visitors to return to past years and feel part of the historical era through the use of objects that were in use at that time. An example is a restaurant "Friends" in New York, USA, which completely reflects the interior of the famous TV series "Friends". This TV series was popular in 1994-2004. To create that special interior design of the restaurant, a large number of objects that have been widely used more than twenty years ago were placed there.

The aforementioned peculiarities of secondary material use demonstrate their diversity and wide potential. Modern social trends aimed at environmental preservation promote the active use of secondary materials in all types of design categories. Since the constant work of the industry creates a large number of products, which cannot be naturally utilized after use, the reuse issue arises. This is best observed in interior design and object design, as they are working on the creation of three-dimensional objects which interact with each other.

The interior design of public catering enterprises can be compared with mass art, since it works to satisfy the needs of the masses and performs the same functions as that art category. If we consider the use of secondary materials from the standpoint of mass art, the following functions of secondary materials can be given:

a) Aesthetic, which is ensured by the appropriate materials' selection and combination for the creation of an interior with a sense of taste and measure. In this case the design concept with special meaning is demonstrated. It is pleasant to the visitors and attracts their attention. Thus, an increase in the visitors' cultural level, from being in such an environment and becoming a part of it, is observed.

b) Hedonic, which reflects harmonious combination of shapes, textures and patterns in interior design. It also has a significant emotional impact and contributes to the emergence of a sense of pleasure in visitors from being in such an environment. The visitors must feel themselves as participants of this interior.

c) Educational, which draws people's attention to the problems of the environment and promotes its preservation. The use of raw materials in interior design contributes to raising the awareness of visitors as societal elements and helps to demonstrate ways of reusing materials.

d) Informational, which draws attention to the rational use of natural resources and demonstrates possible ways to preserve them through the objects' and materials' reuse. It promotes the search for new ways of using secondary materials and aestheticizing the habitat.

e) Compensatory, when the use of secondary resources in the interior design of public caterings is carried out in accordance with the chosen concepts. It also contributes to the creation of a peculiar atmosphere, which distracts visitors from everyday affairs. It helps the person to become calm and find harmony, which gives the individual a sense of satisfaction and enjoyment.

f) Advertising, shows the use of the secondary materials as an establishment's advertising. It helps to better distinguish that restaurant from other restaurants of this type. At the same time, most secondary materials are being advertised for spreading the idea of reusing different types of materials.

g) Communicative, refers to visitors and the interior design objects interacting to reveal ergonomic, functional and aesthetic characteristics of the objects through tactile communication.

3. Conclusions

Based on our analysis of existing studies and the images of implemented projects, the main categories for the use of secondary materials in the interior design of catering establishments were revealed: sociocultural, imaginative and typological. The components of the main categories of secondary material use were detected and analysed; they are the geographic location of the establishment and the natural and climatic conditions, national traits, concept, modularity, decorative techniques, metaphor, the price category of an establishment, restaurant's specialization, the adaptability of the facilities, and the service time. Studies have shown that secondary materials perform a number of functions in public catering enterprises: aesthetic, hedonic, educational, informational, compensatory, advertising and communicative.

The use of the secondary resources in the interior design of public catering enterprises is a promising research field. It helps to create new aesthetic environments with new design concepts and special meanings. The use of such materials in interior design has several areas of development that requires thorough research and peculiarities' identification. It is also necessary to study and identify the peculiarities of using raw materials in the interior design of stores and shopping malls.

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