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Design = Design

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Abstract— The purpose of this study is to show complex problems in the field of design and design education, as well as to map out possible solutions of determining the impact of design on economic and social well-being and to offer proposals for a new design education classification model by encouraging reflection and discussion.

Keywords- design, art, education, classification, statistics

I. INTRODUCTION

Design has changed over the centuries to become multi-disciplinary through the merging of individual design fields, as well through the division of basic disciplines into several sub-disciplines that are connected to new theories, technologies and societal needs. New design fields, such as Service Design, Strategic Design and Communication Design is connected to the immaterial systems, processes, attitudes, experience and relationships. As a result, design includes the aesthetic, but also market research, functionality, safety, ergonomics, environmental sustainability, technology, logistics and consumer experience.

Design is generally associated with all branches of the economy (The Organisation for Economic Cooperation and Development) and all branches could have connections with professions associated with design, it suggests that the ability to integrate various competencies in the design process: systemic thinking, technological competence, personnel and risk management skills, strategic thinking, creativity, communication skills and the ability to cooperate.

Design, as a strategic way to ensure the well being of society in the future, is one of Europe 2020’s flagship initiatives. In order to use the full potential of design innovation and strengthen the ties between creativity, innovation, entrepreneurship and the public and private sector, the European Commission has initiated a European Design Initiative. In many countries national design policies, strategies and visions have been created to encourage excellence in design as the main factor of competitiveness.

It seems absurd in this context to prove that design is not a trend of art, however, analysis of theoretical and design literature, as well as current regulations, reveals a dichotomy between reality and the legacy of the past.

The need to find the basis of this perception is clearly indicated in the European Framework for Cultural Statistics (ESSnet- Culture and the International Standard Classification of Education (ISCED)).

The aim of this research is to pay attention to some issues related to the visible gaps in statistical systems and the place of design education in the International Classification of Education which requires to clarify the formulations of the basic terms related to art, design and design education.

II. MATERIALS AND METHODS

In order to show that design is an independent field and course of study, determine its growth, development and related problems, as well as identify possible solutions, I have used content analysis methods to analyze and interpret theoretical literature, documents and regulations relating to design and education determining the following analysis criteria:

• current design trends;
• design and art: definitions, aims, tasks, similarities and differences;
• design education;
• the impact of design on economic activity.

Data analysis included coding and grounded theory (Cropley, 2002; Glaser, 2002; Bryman and Burgess, 1994) and evaluative research methods (Ritchie and Spencer, 1994).

III. DESIGN AND ART

The term ‘design’ has many definitions and explanations. According to Hardt (2006), the definition and explanation of the term is “complex societal activity”. The actors, involved in this process, are both designers and scholars, as well as specialists in other fields. It is used both as a noun that describes the technical parameters of an object and its esthetic form in a concrete setting, and as a verb that describes the process of creating a product or service (Ralph & Wand, 2009).

Design is also defined as a strategic plan for reaching a goal that is defined by the projects parameters and processes, which, in turn, is inhibited by legal, political, social, environmental and economical boundaries (Design 2020 Vision Committee, 2011; Commission of European communities, 2009; International Council of Societies of Industrial Design; Ralph & Wand, 2009).

The concept of art has been interpreted in various ways. In ancient times it was considered any type of useful skill. Architecture, painting, sculpture, military arts, metalwork and other trades were classified as art. Today the term ‘art’
refers to human creative activity, expressiveness and skills through creation of both material and immaterial aesthetic values that can be perceived by the mind and create emotions (Schiner, 2012; Adjian, 2005; Heideger, 2002).

Although design is often interpreted as art with a reference to common features in the process of creating both visual art and design work, design is to be considered an independent branch (Irbite, 2013a,b). Design has not lost the link with art and crafts, but its borders have widened.

Both designers and artists can learn traditional art techniques: drawing, painting, modeling and 2- and 3-dimension composition, which refine their sense of color and shape and help to understand how an image or shape is formed. Sound and moving images are elements in modern project design associated with the art of cinema and music and require new competencies in these spheres, as well. If these skills are necessary for artists as a means to develop their expression, then for designers they are part and parcel of a training system that, along with acquiring professional and special subjects, build and develop professional competencies necessary for work in the field of design.

Thus art can be considered as a category of design more often than vice versa: a tool rather than the goal. Here is a significant difference in art and design processes and their tasks. Design is rational by its nature, its main objective is to satisfy the needs of an individual or the society. However surplus value of material and immaterial culture, created by humans, is the positive impact it makes on the viewer, listener or user. Sensations or the 1st impression, which D. Norman denotes as visceral impact are intrinsic, they convey the information prior to understanding and interpreting it by a human in the process of cognition.

IV. DESIGN THINKING

Today design is also defined as a strategy and as one of the key elements of innovation (Verganti, 2009; Nussbaum, 2009; Brown, 2005; Guellerin, 2001) for reaching a goal that is defined by the project’s parameters and processes; as a driver for people-centred innovation (Design Leadership Board, 2012; Commission of European communities, 2009; Myers, 2009) and as an integrated approach to complicated and poorly-formed problem solving (Rittel and Webber, 1973; Visser, 2010; Buchanan, 1992) – a way of thinking or design thinking.

In Buchanan’s (1992) opinion, design thinking is a liberal art. He considers that design thinking, with its origins in the Renaissance, has undergone a long period of development, which reached its peak in the 19th century as a vision on encyclopedic education.

The term ‘design thinking’ does not have a single, generally accepted definition. Various authors offer explanations and interpretations of the term. As Haasi and Laakslo (2011) concluded in their research which is devoted to the study of literature about design thinking, three main accounts are identified: design thinking as a cognitive style, as a general theory of design, and as a resource for organizations.

V. DESIGN AND DESIGNER

There are different opinions on what ‘third generation design’ is from perspective of systems thinking, from which it follows that stakeholders are designers (Pourdehand et al; Goetzke, 2010; Jackson, 2003).

It has become a common practice: to involve potential users developing new products and services. People are encouraged to think and act like designers. It seems simple. But in fact, consumers or stakeholders sometimes don't know how they should think and how designers are tend to act.

Hence: who is designer – anyone who tries to change something for the better or, however, a person with appropriate design education? Such a question seemed to be important for design professionals from time to time.

It follows that, on the one hand, extending the boundaries of design branch makes it necessary to expand the concept of design, but, on the other hand, it is important from time to time to formulate and explain the basic concepts and terms more precisely.

It could be important thinking about design education.

VI. DESIGN EDUCATION

Although design education has becomes more interdisciplinary “it is mature the need for a new kind of designers, one that has traditional skills and yet a much broader perspective on problem identification and solving” (Quartz+Co et al., 2011). How to achieve this goal and what is the place of design education in the common classification of education?

Analysis of the International Standard Classification of Education (UNESCO Institute for Statistics, 2013) and the Fields of Education and Training indicate that design education is classified as art education. Design includes Broad field 02 Arts and humanities; Narrow field 021 Arts and Detailed fields: 0211 Audio-visual techniques and media production; 0212 Fashion, interior and industrial design; 0213 Fine arts; 0214 Handicrafts; 0215 Music and performing arts; and 0218 Inter-disciplinary programs and qualifications involving arts. Today, design schools around the world offer interdisciplinary study programs, such as Business Design, Strategic Product, Strategic Design, Design Management and others that cannot be attributed to the visual arts. Even if design schools offer art as a part of their traditional design course, such as Industrial Design, Graphic Design and Interior Design, they are interdisciplinary, nevertheless. Professional competencies in the design field may fulfill requirements for programs that are formulated as ‘Inter-disciplinary programs and qualifications’, but design education cannot be grounded on the acquisition of visual arts courses.

It is difficult to incorporate design education in one of the Broad Fields categories by tying it to a defined branch or
economic activity. A possible solution may be to add the term ‘Design’ to ‘Arts and Humanities’. In this case, it would be possible to incorporate design specialties into the Detailed Field and to include both professional and academic education programs in the Narrow field.

Scientific Design, Design Science and the Science of Design, as classified by Cross (2001), incorporate the entire design cycle, as well as professional and academic educational programs in varying design branches in the Detailed field. I agree with Cross in that Scientific Design can be attributed to Industrial Design, but also to Social Design, Systems Design, Meta Design, Material Design and the others. The term ‘Design Science’ (Friedman, 2006; Ben-Eli, 2007; Fuller, 1992) used today, characterizes all aspects of modern design as a scientific activity and as a body of knowledge that includes knowledge of natural and artificial systems, knowledge and methods to create the artificial objects and systems and to design research. According to Friedman (1997), “the scientific approach to design does not contradict the artistic aspect of design”.

VII. HOW TO MEASURE DESIGN?

The branch of design known as the cultural and creative industry is defined as a priority in the economic development strategy Europe 2020. However, the European Statistical System Network on Culture ignores the real situation and design’s multidisciplinary nature by placing in the Visual Arts category. In the report by the Statistical System Network on Culture (Bina et al., 2012a), creativity as an activity is attributed to art and design, but frequently deconstructing the invisible boundary between the two. The document indicates that to structure the new European framework for cultural statistics, it was necessary to consider technological advances that lead to changes in society, in economy and in cultural practices, as well as improvements of statistical observation systems, such as the NACE Rev. 2 (Bina et al., 2012b).

However, the reviewed NACE Rev. 2 (Eurostat, 2008) also does not include all aspects of design. Since the NACE classification system has a long history, in many cases it does not reflect reality: emerging industries mostly are not included or professional activities in the same industry are placed in different NACE divisions and classes.

The European Design Leadership Board (2012) highlights deficiencies in these classifiers indicating also that a lack of statistics on the effect of design on economic activity and its influence on GDP in Europe and its member countries makes it difficult to substantiate design’s influence on and investment in the economy.

Data collection methods as the problem is stressed also in the document Restarting Britain, developed by the British Design Commission (2011): in terms of economic accounting through SIC and SOC codes, there is no way to identify in this system the design elements within non-design sectors.

In order to prove the influence on general economic indicators, research on data collection and its methodology becomes an important task for design-related institutions in every country.

As stated in the study, which is conducted by the researchers from the Laboratory of analytical strategic studies (Latvia), appropriate methods can be, for example, the descriptive research method, financial survey method, contingent valuation methodology, supply – demand model, contingent valuation methodology - to compile information about people's willingness to pay (Kilis et al., 2007). Institutions in each country, as well as individual companies should be interested in the analysis of, for instance, the effects of a marketing campaign on overall sales or return on design investment. As seen in research carried out by the British Design Council (Design Council, 2008), nearly two-thirds (59%) of UK businesses agree or strongly agree that there is clearly a positive link between investment in design and profitability. Design is considered the sixth most important factor driving business success – higher than R&D and marketing.

In order to improve the situation on a European scale, one of the most important factors is the partnership that includes “different international agencies (such as OECD, EUROSTAT and UNESCO), professional and national authorities for whom the resulting statistics should be relevant, timely and of high quality. Only then will we be able to measure the full impact of culture and creativity on our economies and our societies” (van der Pol, 2013).

Since the end of the 20th century, it has become topical to talk about happiness in the world and to try to measure the happiness level of the national population (Revkin, 2005; Gropper et al., 2011; Jones, 2006). Design is directly related to human and social well-being and, also, happiness. A happy person is socially and economically active. Thus, the impact of design on the economy may also be associated with personal life satisfaction and happiness levels.

VIII. CONCLUSIONS

1. Discussion among design professionals and design educators about the use of key terms would be necessary in the future.
2. The admonition that design is classified as a visual art, as reflected in EU and UNESCO documents and classification systems, is out of date.
3. It is necessary to make changes in statistical systems, such as ESSnet – culture, as well as in ISCED classification for fields of education and training, by identifying design as a separate category for three reasons:
   i. further developing of data collection methods could facilitate the ability to determine the effect of design on economy;
   ii. the changes in education classifiers could promote design education and research, as well as a more responsible attitude to curriculum development in
iii. these complex activities could contribute to qualitative growth of the design industry and design education.

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Untraditional fibreboard

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Abstract—There is too large consumption of wood for production of fiber boards, which is a reason for more and more intensive deforesting, in order to reduce it there are some options sought for partial or complete substitution of wood in the board materials with the raw materials supplied by the agricultural flora and/or by-products of their processing. Article describes a new type of fiber boards for the furniture production, developed in cooperation with ATB (Leibniz-Institute for Agricultural Engineering) by using a new method to prepare raw materials and specific production technologies of ATB. The main raw materials are aerobically aged hemp stalks. The samples are made of materials with different curing time and varying the binder. Specimens are 8 mm thick and correspond to a medium-density fiberboard, fitting standard EN622. On the experimental processing line 1.200x800x8mm and 1.200x800x16mm size board samples are developed and the tests are performed to determine such parameters as bending strength, perpendicular tensile strength, thickness swelling and thermal conductivity according to EU standard methods. The proposed material whose main component is the annual renewable resource, hemp stalks, could be used for furniture, interior design and heat isolation.

Keywords- Hemp, Fibre board, Urea Formaldehyde Resin, Phenol-formaldehyde, wet preservation.

IX. INTRODUCTION

Despite of constantly increasing number of researches and offerings of new products, including those in the field of boards, there are still many unsolved or partly solved issues created by integration of non-traditional natural materials in boards, including the necessity to provide a steady flow of raw materials with stable physical and mechanical properties throughout a year, to shorten the technological processes, providing the corresponding properties of an end product for its use, to minimize the energy consumption, to substitute the completely or partly non-renewable resources to be cultivated for a long period of time with some fast growing and productive resources.[1] Research and practice has showed that alongside with natural fibres used in textiles, they can also be used successfully as reinforcements of composites, compounds of building materials, as heat and sound insulation materials, and in many other applications [2]. Fiberboards as well as three-dimensional pressed parts can be produced for the application in construction and furniture industry [3]. Hemp fibreboard can be seen as an alternative to such boards that are made from processed wood fibres and resins. MDF (Medium Density Fibreboard) is cellulose composite that is processed comparable to the strength found in trees [4]. Therefore, it is not necessary to use over 60 year’s old trees to make houses and furniture that lasts less. Instead of wood, hemp that takes only about 100 to 150 days to grow, can ensure the same house and furniture that lasts as long [4]. At the usual harvest date in September, European weather conditions are often harmful to harvest good quality hemp straw. The harvest of hemp by chipping method followed by anaerobic storage is favorable for the farmer, because the typical weather risk can be avoided. The following actions are the same as for ensiling of fodder [5]. Fiber hemp as a raw material for production of composites and boards deals with practically all ecological issues, that threaten the future of mankind, as well as it is also a highly productive, not very demanding, and good for cultivation agricultural plant. The aesthetical and mechanical properties of prototypes can be improved by laminating, covering with textiles, for example, flax/hemp fabric of different textures. In order to obtain fully ecological material of boards, the synthetic adhesives should be substituted with the natural products, such as lignin available in the hemp fractions, starch, etc.

X. MATERIALS AND METHODS

According to ATB developed technology harvested and chopped whole hemp plants (seeds, leaves, fibres, shives) are wet preserved under anaerobic conditions [6]. Raw material that is stored for 14 days to maximum 12 months is used to manufacture the boards; Phenol formaldehyde resins (PF) – Prefere 16J536 and Urea-formaldehyde copolymer in water (UF) - Hexion LL4547 in amount 10 g/kg of mixture dry mass are used as the binders. The plant raw material processing as well as the subsequent procedures were conducted at on experimental production line with 330 kg/h capacity that is developed and tested in Leibniz-Institute for Agricultural Engineering Potsdam-Born (ATB) (Figure 1). To ensure optimal moisture the preserved material is mixed with dry hemp straw and processed with an extruder and in a second step with a disc mill. Next the material is passed to the hot air dryer (150 °C). Dry material is divided into 20 kg units that are placed in the mixer, where it is mixed with glue and passed to the three chamber dissipation machine where with airflow system on conveyor belt fleece is formed and passed to the double belt pre-press. The resulting fleece (6.5 kg/m²) is pressed in the heated press to 180 degrees with holding time 283 seconds fewer than 100 bar pressure. Pressing resulted in the board with dimensions 1.200x800x8 mm and 1.200x800x16 mm which were cut according to testing standards.

All products from a comminution process are characterized by means of the average particle size as well as the variation
of particles size. Sieving as the simplest and most widely used
methods for particle size analysis determines the separation of
fine material from coarse material.\[7\] Sieving is carried out by
stacking sieves in ascending order of aperture size and placing
the sample on the top sieve. The stack is vibrated for a fixed
time (8 min) and the residual weight on each screen is
determined for each sample. Results are usually reported in
the form of a cumulative percentage of passing sizes. Bending
strength test of board material samples (25 from each board)
were executed on universal testing device Zwick/Roel Z010
(maximum strength 100 KN) using EN310 \[8\] testing
standard. The thickness swelling and water absorption tests
after immersion in water were carried out according to EN 317
\[9\]. Pre-weighed-measured specimens (25 from each board)
were immersed in water for 24 hours at 20 °C. After 15, 30,
45, 60 min and 2, 3, 4, 5, 24 hours each soaking, the
specimens were wiped of excess of water, measured for
thickness and weighed. The thickness swelling and water
absorption was determined on the basis of initial dry
measurements. Thermal conductivity of the board samples
was determined using the thermal conductivity measuring
instrument FOX600 of the company Laser Comp according to
the standard ISO 8301\[10\].

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**XI. RESULTS**

A. **Sieving and size distribution**

A sieve analysis of the fibre material was carried out to
obtain a distribution of particle sizes according LVS EN 933-
2:1995 \[11\] standard. As can be seen in Figure 2 the finest fibre
material is got from mixing two weeks storage material with
dry hemp material (FDH) as a result getting higher amount of
large particles than small particles. In contrast mixing the
twelve months storage material with dry hemp material (PDH)
there are 17% less large particles and 60% more small
particles. Approximately 40-45% of the particles were of a size
greater than 2000μm.

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**B. Board material swelling**

The results of swelling tests (Figure 3) reflect changes of
material samples in thickness. The lowest water absorption
values in all range show samples from preserved hemp with
PF binder. That is on average 16% less than other samples
 sorption capacities. All other materials have quite similar
results; FDH-UF has on average 3% less water absorption
compared to PDH-UF. The fastest rate of thickness changes
are noticed at the first 15 minutes (Figure 3).

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**C. Bending strength**

As seen from graph in Figure 5 the lowest value of
bending strength is 7.95 N/mm² for FDH material where the
UF adhesive is used. The highest bending strength 14.66
N/mm² show PDH material with the PF adhesive. The average
bending strength of samples FDH-UF is for 7% less than for
PDH-UF. But the bending strength for FDH-PF material
(10.51N/mm²) is for 39% less than that of PDH-PF sample
(14.66 N/mm²). Bending strength average of all experimental
samples are higher than for hemp shive board, but only
PDF+PF sample show average bending strength value higher
(22 %) than wood chip board (Figure 4).
D. Thermal conductivity

Compared to the wood-fibre board, both the 16 mm experimental board with the hemp fibre – shive mix preserved for 14 days, and the board with the hemp fibre – shive mix preserved for 365 days, has lower thermal conductivity and density (Figure 5), whereas their thermal conductivity can be compared with the respective indicators of rape, flax and reed boards; at the same time the density of boards with rape and reed hemp fibre – shive mix is lower, but for the board filled with flax it is higher than the densities of the previously mentioned experimental boards of 16 mm thickness. The thermal conductivity coefficients of the 8 mm thick boards are lower than those of the wood-fibre board; however their densities do not exceed the density of the wood-fibre boards to be taken into account.

E. Application of boards made of hemp- shive mix

The types of boards developed in the thesis might have a wide application both in the interior design, and construction. Both the 8 mm and 16 mm boards can be used as raw materials in the raw material frame constructions – furniture facades (Figure 6.a.), partition walls of workplaces (Figure 6.b.). The pasted over boards can be used both in the panels of decorative walls and ceilings, as well as in the table surfaces (Figure 6.c.), if there is some thickened board placed under them. The potential of the material is extended by its good possibilities of veneering and laminating. Due to its loose structure, the 16 mm thick material of boards is a good heat and sound insulation material. It can be also used as raw material in the sandwich-type boards.

The 8PDH-PF board samples have the highest bending strength. Veneering them with 0.7 mm cut veneer of ash-tree from both sides and binding the veneering with the board with 120 g/m2 of polyvinyl acetate D3 (PVA) adhesive, the bending strength of the board increases by 52 %, reaching the average value of 30.7 MPa, which is enough to use the board as a construction material, provided that the bending strength established according to the standard EN 622 is 25 MPa in such load baring constructions as in the bodies of furniture, table surfaces, and systems of shelves.
XII. CONCLUSIONS

- The use of chopped and wet preserved hemp for the production of boards permits usage of the whole stem, including its leaves and seeds. It makes obtaining of the raw material independent of the weather conditions, the material storable in a compact way, reduces changeability of its properties, shortens the processing cycles significantly, reduces their power-intensity and simplify the technological processes, at the same time create necessity to develop new types of products, test their properties, and determines their application areas. The investigations to combine hemp fibre – shive mix types with different binders show that higher quality of board could be reached by combination of PF glue with one year preserved hemp compared to UF glue and fresh material (two weeks preserved).

- The boards of 8 mm thickness with the PF binder made of the raw materials of hemp preserved for 365 days have a higher density and higher bending strength indicators, but also have a larger thermal conductivity, approaching the average showings of wood-pulp.

- The boards of 16 mm thickness with the PF and UF binders and smaller filling of the hemp mass are significantly lighter, with a rather low thermal conductivity and can be used as sound and heat insulation materials, as the middle layers in the multilayer packets, if necessary, increasing the sound and heat insulation properties.

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Universal Design In Sports Clubs

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Abstract— Universal accessibility is a key concept that states that all environments should be accessible by everyone, regardless of ability (University of Ulster, 2003). Everybody is different and there is no ‘average’ person. Nowadays one of the most serious problems is poor health of the population and, as stated by numerous physicians, more often the reason of this situation is a sedentary lifestyle. Due to frequently changing weather conditions and busy work schedule, outdoor activities have become less frequent and therefore there is a need for an alternative activity possibility such as fitness club. The aim of the article is to look at the fitness clubs from the point of the universal design. It also stresses the idea that the positive effects of physical activities are connected not only with one’s health, but with the overall quality of life as well.

Keywords - universal design, accessibility, fitness, sports, people with disabilities

XIII. Introduction

Universal design is defined as follows:

Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. This definition is attributed to Ron Mace and has been developed by the Center for Universal Design at North Carolina State University.

Theoretical literature about universal design, documents regarding this field, as well as available information on the Internet sites were analyzed to show the worldwide tendency to include universal design principles in everyday life, as well as sports clubs.

Universal design – clarification of the definition (by The Ministry of the Environment, Norway, 2009)

- Of products and environments.

The universal design strategy is applicable to products and environments within all sectors and subject areas. The term environments refer to all the physical and technical environments that are shaped by humans. The term products here also encompass products and software in the ICT sphere as well as products used in the provision of services. Universal design requirements in the service sector are linked to the physical and technical conditions governing access to or use of the relevant service. In the educational sphere, universal design is linked to the physical and technical features of the teaching environment.

- To be usable by all people.

The phrase “usable by all people” is to be incorporated as a first starting point without exception. Environments and products are to be designed such that they may be utilized by persons of all ages with different levels of skill, ability and functionality. Factors relating to mobility, vision, hearing, comprehension and sensitivity to the environment (asthma/allergies) are important in this context.

- To the greatest extent possible.

A key feature of the universal design strategy is its focus on seeking ever-better solutions. Universal design is an innovative strategy. Technology, knowledge and awareness levels are subject to rapid-paced change. The principle of universal design is a dynamic tool that reflects the need for ongoing consideration of new means of minimizing limitations. The ability to design products and environments such that they are usable by all may be inhibited by certain limitations relating to current knowledge, technological development, access to products and solutions and practical and formal circumstances. The universal design strategy may come into conflict with other areas of statutory regulation, such as conservation and safety considerations. In such cases an effort should be made to seek solutions that satisfy universal design requirements to the greatest possible degree.

- Without the need for adaptation or specialized design.

This phrasing emphasizes that the primary solution chosen is to be usable by all. Primary solutions are presumed to give adequate consideration to use of technical aids for personal use, such as wheelchairs,
hearing aids, etc. There should not be a need for any supplementary activity or work to make a solution usable for individual groups. Separate solutions for persons with disabilities should not be established, nor should the solution in any way signify that it has been specifically designed for persons with functional impairments. Special solutions intended to compensate for general solutions that are not usable by all, such as stair lifts, should be avoided. In the event that special solutions or technical devices must be employed to render a solution universally usable, the primary solution must be designed in a manner that functions alongside or in an integral fashion with the special equipment. Current development trends indicate that roles traditionally filled by people are increasingly becoming automated. The self-service solutions that are introduced must be based on the principle of universal design, but this should not exclude the provision of personal service and assistance.

According to the Council of Europe’s European Sports Charter 1993, sport means all forms of physical activity which, through casual or organized participation aim at expressing or improving physical fitness and mental well-being forming social relationships or obtaining results in competition at all levels.

A. Sport England (committed to helping people and communities across the country create sporting habits for life) in the Accessible Sports Facilities Design Guidance Notes (2010) states following:

• “Good design needs to be based on a sound understanding of such issues as the current trends and practices within individual sports, developments in the sport and leisure industry and the lessons to be learnt from previously built schemes;”

• “Good design needs to be embraced within the earliest vision statement for a particular project and enshrined in the initial briefing stage through to the final detailed specifications and operational arrangements;”

• “Disabled people are disabled by poorly designed environments and providing add-on or special facilities creates segregation rather than inclusion. For example, the reason a wheelchair user cannot use the fitness equipment room in a sports centre is not because he or she is in a wheelchair. The design and management of the facility creates the barriers and limitations that disable. Consequently, the correct view would be that ‘a wheelchair user cannot use the fitness equipment room because the equipment is inappropriate and / or the room is located on an inaccessible floor’. Or ‘the person cannot use the fitness equipment room because the staff has not had adequate training’.”


• The message of health, wellness, and disease prevention through physical activity has become more widespread in recent years. Along with much of the population, people with disabilities and older adults are looking toward health clubs, gyms and fitness centers as a means to be more active and achieve a healthy lifestyle.

• A disability can affect walking, seeing, speaking, hearing, or thinking to varying degrees. It can be temporary or progressive, visible or invisible. The number of people who experience some kind of disability during their lifetime increases as the population ages. This creates a growing market for fitness facilities to target in order to expand their business and enhance their bottom line.

• The 1996 Surgeon General’s report, Physical Activity and Health, provided a new perspective on the benefits of physical activity for all Americans, including people with disabilities and older adults. Disability is not an indicator of poor health, requiring specialized programs for physical activity. Instead, people with disabilities look toward community facilities to meet their health and exercise needs. For many people with disabilities, “Exercise is not an option, but a necessity for management of the condition,” says Kerri O’Brien, Fitness and Retention Manager for BM Sports Clubs, and member of the Life Fitness Academy. And for many older adults, being fit allows them to choose where to live and how to spend their time.


• Part of the problem is that club owners and exercise equipment manufacturers traditionally focused on what is generally classified as ‘the 7 percent.’ Even though the demographics of health clubs are changing, and people with disabilities and the elderly are becoming a larger part of the general population, many clubs are still trying to attract the 7 percent of the population between the ages of 19 and 30, and the equipment that is usable by a
larger portion of society is slow to appear in facilities.

XIV. SPORTS FOR ALL

It is obvious that all people should have equal possibilities for active spending their leisure time, but in reality the situation is different. Nowadays nobody can complain about the lack of sports clubs, but how many of them are suitable for people with functional disabilities?

It has been proved scientifically that regular exercising is the basis for physical and mental health as well as rehabilitation component, whereas a sedentary lifestyle is seriously harmful to humans that very often turns out to be irreversible. The main obstacles that prevent a person from being physically active are costs, lack of understanding, length of distance, cultural and language barriers, difficult access to local recreation centers and safe playgrounds (The Ministry of Health of the Republic of Latvia, 2012).

Benefits of Physical Activity according to the data published in the home page of English Federation of Disability Sport (Inclusive Fitness)

A. Health Benefits

- Reduce the overall risk of cancer.
- Boost the immune system.
- In combination with a balanced diet, help to maintain a healthy weight (Nearly 7 out of 10 men and 6 in 10 women in the UK are overweight or obese according to the National Audit Office (NAO)).
- Lower high blood pressure - reducing the risk of developing heart disease.
- Promote healthy blood sugar levels to prevent or control diabetes.
- Evidence suggests that active people live a longer life-(Achieving the recommended levels of moderate intensity physical activity can reduce premature mortality by between 20-30%).
- Provides natural pain relief.

B. Social Benefits

- Boost self-confidence and help prevent depression.
- Regular exercise can even help with the treatment of depression and anxiety.
- As muscle definition is improved and body fat reduced, this can help to make you feel better about your appearance.

C. Everyday Life

- Physical activity improves co-ordination.
- Improves strength and balance and hence reduces falls and fractures.
- Improvements in quality of sleep.

- Promotes psychological well-being and reduces feelings of stress.

D. Economic Benefits

- Perform better at work as you have a greater mental and physical ability.
- Motivation improved leads to increased productively and efficiency.
- Annual costs of physical inactivity in England to be in the region of £8.2 billion; costs of obesity alone being a further £2.5 billion.
- Sickness absence costs employers a minimum of £18 billion each year, which roughly equates to 16% of salary costs.

XV. PEOPLE WITH DISABILITIES

European Commission the social exclusion defines as follows – socially excluded person is unable to access services and goods, is unable to exercise his rights and to take advantage of opportunities because there are obstacles that prevent it, such as, lack of access, public stigma, emotional and physical violence, etc... Application of the principles of Universal Design in the furnishing of a sports club promotes social inclusion of people, encourages them to be physically active despite their disability. A sports club is a place where humans are able to socialize – to maintain lively not only the body, but the spirit as well. The quality of life improves. Accessible environment should become a routine and close to a person's concept that is not associated only with the hospital and formal state institutions interiors. Mindfully designed, accessible to all, sports club removes the barriers among the different social groups, educates society about accessibility and its necessity in everyday life.

The organization “Apeirons”, a NGO where people with and without disabilities are together, stress in their materials that sports and physical activities should be recognized as one of the most important factors of integration. Therefore, it is necessary to support and expand all kinds of sports activities, to inform the society, to educate the staff, design appropriate sports centers, to cooperate with organizations,
which are dealing with it. Alongside with all this there should be organized sports events during which disabled people should participate together with people without disabilities (NGO “Apeirons”, Handbook “A Bridge To Understanding”, 2003). In order to implement such a plan sports clubs should introduce universal design principles.

The myth that people with functional disorders are passive and uninterested dispels the Latvian paralympians (Picture 1) who in spite of health problems take an active part in competitions and receive awards. According to the data of the Latvian Ministry of Welfare (2008) there are in Latvia 1400 professional sportsmen with different functional disorders. During the competitions there take part people from 6 disability groups - athletes with amputations, cerebral palsy, mental disorders, spinal cord disorders and athletes with physical disabilities who are not included in any of the above groups.

As shown by the statistics table below (The Ministry of Health of the Republic of Latvia, 2012), there is a tendency in Latvia that the number of people with disabilities is increasing from year to year. In addition, as a result of a household trauma, anyone can come in a disabled status. Doctors prescribe to patients during the rehabilitation process physical activities because they promote faster recovery.

Table I. The number of people with disabilities in Latvia. Dynamics 2008-2011.

<table>
<thead>
<tr>
<th>Year</th>
<th>People with disabilities</th>
<th>% increase</th>
<th>I group</th>
<th>II group</th>
<th>III group</th>
<th>Children with disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>148 919</td>
<td>5.1%</td>
<td>17 222</td>
<td>75 026</td>
<td>49 164</td>
<td>7 507</td>
</tr>
<tr>
<td>2010</td>
<td>141 701</td>
<td>4.2%</td>
<td>12 539</td>
<td>78 508</td>
<td>43 157</td>
<td>7 457</td>
</tr>
<tr>
<td>2009</td>
<td>136 024</td>
<td>14.4%</td>
<td>14 000</td>
<td>72 077</td>
<td>42 537</td>
<td>7 374</td>
</tr>
<tr>
<td>2008</td>
<td>118 898</td>
<td>10.1%</td>
<td>8 948</td>
<td>63 037</td>
<td>39 357</td>
<td>7 556</td>
</tr>
</tbody>
</table>

XVI. Universal Design Standards

In terms of Universal Design standards, NGO „Apeirons” and Liepaja Society of the Blind have issued useful materials in the Latvian language. The 9th booklet issued in 2002 by “Recreation, sports” has information about the parking places for disabled, tribunes, dressing rooms, swimming pools, but information about gym facilities is lacking. There are issued 10 booklets in the series “Environmental access to library”. Also “Building Code guidelines” published in 2011 by the Liepaja Society of the Blind should be in the library of every interior designer because it summarizes information of every possible.

The fact that abroad sports clubs in accessibility context have come into focus is seen from the materials available on the internet as well as from the information leaflets in English, such as. Removing Barriers to Health Clubs and Fitness Facilities (North Carolina Office on Disability and Health in collaboration & The Center for Universal Design; 2008) and Accessible Sports Facilities Design Guidance Note (Sport England, 2010). In detail, there have discussed club placement principles and there is set out the theoretical basis that provides the designer with deeper understanding about the needs of people with functional disabilities (Picture 2, 3).

![Figure 3. Accessible Ladders](image3.png)

![Figure 2. Removing Barriers to Health Clubs and Fitness Facilities](image2.png)
XVII. INSPIRING PROJECTS

A good example is The Inclusive Fitness (English Federation of Disability Sport, Inclusive Fitness, 2012) Initiative (IFI) that has been established for over 10 years and now managed within the English Federation of Disability Sport (EFDS). This is a complex solution which includes not only accessible to the environment and sports equipment, but also specialized staff training and continued development (Picture 4). Sports Society has built its visibility and quality mark that serves as a guide for choosing a sports club. There are 400 such clubs currently operating in England.

Virginia G. Piper Sports and Fitness Center (Pictures 5, 6) was opened in Phoenix, Arizona in February 2012 for people with functional disorders (area 4181 m², total construction costs – 12,5 million USA dollars). The center offers a variety of options to promote a healthy and active lifestyle for people with disabilities. The SpoFit offers a wide variety of amenities to help people achieve their health and fitness goals (Picture 7). SpoFit has a fitness center with wheelchair accessible weight machines, an aquatic area equipped with lifts and elevators, accessible locker rooms, and more (The Virginia G. Piper Sports and Fitness Center for Persons with Disabilities, 2012).

But a person in a wheelchair with limited arm mobility finds that it's very difficult to reach controls at that level.” (E. Attwood, Adaptive Recreation and Fitness Facilities Set an Example for All, 2013)

For people with disabilities, there's a difference between a facility that meets ADA (the Americans with Disabilities Act) requirements and one that is truly accessible.

“The ADA is kind of a catch-all standard, but the disability community is much more diverse,” says Ilan Baldinger, the architect behind the Virginia G. Piper Sports and Fitness Center for Persons with Disabilities (SpoFit) in Phoenix, Ariz., one of a handful of such facilities in the country. “We still had to comply with the ADA, but then we had to go beyond. For example, elevator controls are required to be at a certain level.

Sports promotion has become a global trend. An example of this is the Singapore project “Vision 2030” the motto of which is “Live better through sports”, care of the elderly people conveniences is particularly outlined (Picture 8).
XVIII. CONCLUSIONS

Including Universal Design principles in sports club is a serious challenge for both designers and architects because to create a highly functional environment in accordance with specific regulations, combined with aesthetically enjoyable presentation is not easy. However, it is a great opportunity to search and find original solutions, derive moral satisfaction from important contribution to the welfare of society and genuine concern for fellow human beings.

REFERENCES


Funkcionalisms mākslas telpās Latvijā

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Anotācija - Pētījuma mērķis ir noskaidrot, vai funkcionālisms stīlā iekārtotas izstāžu zāles ir piemērotas mākslas darbu eksponešanai. Laī to pierādītu, autore analizē funkcionālisma stīla sociālo un kultūras ietekmi uz sabiedrību, kā arī stīla izpausmes mākslas centru un galeriju interjerā.

Atsūlas vārdi – mākslas centrs, funkcionālisms, arhitektūra, interjers, māksla, sabiedrība, sinerģija

XIX. IEVADS

Mākslas centra funkcijas atšķiras no mākslas galerijās vai mākslas muzeja. Rietumos mākslas centrs ir multifunkcijāls sabiedrīks centrs, kas paredzēts, lai veicina mākslas atfīšību un nodrošinātu dažādu citu pakalpojumu sniegšanu. Mākslas centrs ir vide un Tehniskais aprīkojums izstādē, kā arī citām mākslinieku un dizaineru aktivitātēm, semināriem, izglītojošiem pasākumiem.


XX. PĒTNIECĪBAS METODES

1. Laik noskaidrotu funkcionālisma stila raksturīgākās pazīmes, tika veikta teorētiskā literatūras analīze. 2. Laik atbilsto uz pētījuma jautājumu, tika veikta mākslas centru un galeriju kontentaanalīze. 3. Pētījums tika veikts 3 posmos:
   i. interneta vieta tiejamās informācijas analīze;
   ii. interjera analīze klātnām, kārū izmantota gadījuma novērojuma metode;
   iii. lai noskaidrotu mākslas centru, galeriju darbinieku un ipašnieku viedokļus, klātnām tika veikta nekrūtēja intervija.

III. FUNKCIONĀLISMS

19. un 20. gs. mijā, attīstoties zinātnei un tehnoloģijām, intensivās urbanizācijās un celtniecībās, kā arī iedzīvotāju skaita palielināšanās dēļ, radās pārmaiņas visā Rietumeiropā, kā arī ASV un Japānā kā "internacionālais stils". Šveices arhitektūras vēsturnieks Ziegfrīds Giedionis (Siegfried Giedion) ieviesa formu, kurā funkcionālisms. Tika meklēti jauni forma- tējas kā arī specifikās, kas atbilst mākslas centru, galeriju darbinieku un ipašnieku viedokļus, klātnām tika veikta nekrūtēja intervija.

1. ZINĀTNISKĀ KONFERENCE DIZAINA SALA 2013
Savukārt svešvārdu vārdnīcā data sekojošā definīcija: "Arhitektūras virziens (racionālisms pārveids; radās 1910.-1920. gada Vācijā), kura pamatprincips ir celtnes atbilstība tajā notiekšajai darba un dzīves procesiem" (Andersone et al., 2005).

Funkcionalismu mēdž apzīmē ar trim "I" burtiem atbilstoši populārajām sauklim form follows function (forma seko funkcijai) (Ambrose, Harris, Stone, 2008).

Funkcionalisms ir pilnīga atteikšanās no rotājumiem. Tos aizstāv vienkāršas formas un sabalansētas proporcijas, arhitektūrā un interjerā tiek izmantoti tādi materiāli kā stikls, metāls un betons. Krāsu izvēle balstās uz neatrīšiem tonjiem, dominē balts, pelēks, melns, kā arī materiālu dabīgās krāsas. Funkcionalisma estētika saistojas tā laika mākslā valdoso kubisma formu izteiksmē. Funkcionalisma pamatprinājas ir attīrīto un izsmalcinātu formu kopsavilkum ar formu pakārtotanu funkcijai, ražošanas mērķiem un lietošanas ērtību.

Funkcionalisma stila arhitektūras un interjera raksturīgākās iezīmes ir:

- lēzeni jumti;
- gludus plaknes;
- lieli iestiklojumi;
- monohroma krāsu gamma;
- atteikšanās no rotājuma;
- vienkāršās geomētriskās formas;
- metāla, betona un stikla izmantošana.

Mūsdienās funkcionalisma popularitāte izskaidrojama ar cilvēka nogurumu saspringtajā dzīves Ritmā, vēlmi savu apkārtni veidot nesamākslotu, vienkāršu un funkcionāli griestos iebūvēti gaismas iespiemējumi, kas izkārtoti ritmiski vienmērīgi apgaismojot visu telpu. Lokālais apgaismojums (gaismas iespiemējumi uz skaidrām) tiek izmantots, ja laikā mākslas darbiem.

Bez izstādēm telpas tiek izmantojami neatkarīgi no koncertu, konsertvajiem pasākumiem, lekciju klausīšanai un personīgākām, arī māksliniekiem un māksla cienītājiem, kurā māksla ir RMT.

Vārdu veidošana: "Arhitektūras virziens (racionālismās) mērķis ir atklāt krājuma plašo spektru, kas prezentē gan Rīgas Mākslas telpa izstādēm, gan Rīgas Mākslas telpu dzīves procesiem. Mūksulās Mākslas salonā arī māksliniekiem tā labvēlīga un izstāžu telpu pielāgojumu izstāžu telpa radītājam īpašs." (D. Lezdiņa)

1. attēls. Lielā izstāžu zāle

Interjera izmantots divu veidu apgaismojums: vispārējais un lokālais. Vispārējo apgaismojumu veido vienkārši un funkcionāli griestos iebūvēti gaismas iespiemējumi, kas izkārtoti ritmiski vienmērīgi apgaismojot visu telpu. Lokālais apgaismojums (gaismas iespiemējumi uz skaidrām) tiek izmantots, lai laikā mākslas darbus ieplānojot.


Intervijā ar MMS vadītāju Diānu Barčevsku, autorei kļuva zināms, ka ēka tika celta aprēķinātās pirms desmit gadiem un tās arhitekts ir Uldis Luķevičs. Lai arī iztāzēau zālē palīdzēja dizainers Aivis Čimža.

Kim? atrodas vēsturiskajā Spīķeru kvartālā. Tas ir laikmetīgās mākslas centrs, kas vietējo un starptautisko auditoriju aicina uz regulāru izstāžu, lekciju, filmu un performanču programmām. Tā mērķis ir stimulēt jaunas, intelektuāli un emocionāli atvērtas auditorijas veidošanos, kas pakāpeniski tiktu ieinteresēta visdažākajās laikmetīgās kultūras izpausmēs: mākslā, mūzikā, kino, teātrī, dejā, arhitektūrā, dizainā, literatūrā un filozofijā.


Kim? piedāvā izīrēt savas telpas dažādiem pasākumiem: konferencēm, prezentācijām, radošām darbnīcām un svinībām (Kim?).

Galerijas interjers neatbilst funkcionālisma stilam: dažās telpās griestu krāsa ir sen ķīķa ar lamīnu, sienas zāles ir baltas ar pelēkām filžēm. Apgaismojums ir lokāls, prožektori stiprināti pie sliedēm. Vienā no zālēm apgaismojums ir nepietiekams tuma dēļ, kas absorbē gaismu.

Mākslas galerija “Putti”


Galerijas telpās regulāri notiek izstādes un pasākumi, kas popularizē latviešu un ārzemju laikmetīgo un konceptuālo rotu virzienu, tātad tie organizējas viemākslīnieku izstādes. Rotu unikālatību izcīņa harmoniskais interjers, kurā savu vietu atrod arī tērepi (Mākslas galerija "Putti").

Autores, sarunājoties ar galerijas īpašnieci Agitu Putāni, noskaidroja, ka telpu platība ir 270 m². Interjers tika iekārtots pašu spēkiem. Darbi tiek eksponēti uz podestiem un galdiem, kas ir veidoti no koka un stikla. Galerijas sienas ir krāsotas pelēkā krāsā, grīda klāta ar lielām, gaisām filžēm, ir arī mozaīkfilžu josla, kas pieškrī ir interjeram dinamisku ritmu. Mēbeles ir baltā un sarkanā krāsā, piešķirot telpai akcentu. Sienu nišās un letē attēloti dekoratīvie zieš melnā krāsā uz balta fona. Telpā ir daudz stikla paneļu un spogulu. Galerijā ir apsildāmas grīdas. Apgaismojums ir vispārīgāks, telpas vidū atrodas pie griestu koka, bet industriāls stilis vai gaisām filžām (Kim?).

Mākslas galerija “Alma”


Galerija atrodas Rīgas klusajā centrā, vienā no pilsētas jūgendstila arhitektūras ēkām. Apgaismojums ir lokāls, prožektori stiprināti pie sliedēm. Vienā no zālēm apgaismojums ir nepietiekams tumšo sienu dēļ, kas absorbē gaismu.
Mākslas galerija “Daugava”


Viesojoties galerijā, autore secina, ka tās interjers neatbilst funkcionālisma stilam. Interjers iekārtots balstoties uz arhitektūru, nesošās sienas ir no ķieģeļiem, ļoti biezas.

Mākslas darbi izvietoti gan pie ķieģeļu sienām, gan pie balti krāsotām riģipša sienu konstrukcijām. Galerijas kopējā platība ir ap 170 m². Telpās skan klasiskā mūzika, kas, atrodoties skaistajā Vecrīgas ēkā un baudot mākslu, skatītājus atraisa pārdomām un liek aizmirst ikdienas rūpes.

VI. PĒTIJUMU REZULTĀTU ANALIZE

Izpētots funkcionālisma stila iezīmes interjerā, var secināt, ka mūsdienā mākslas centros un mākslas galerijās telpas tiek iekārtotas funkcionālisma stilā vai ar tā iezīmēm, jo tieši šāda rakstura interjeros veidojas sinergija starp mākslas darbiem, telpu un cilvēku, kurš tajā atrodas.

Veicot pētījumu, autore saskārās ar tādu fenomenu kā vārdu nozīmes nepareizu lietošanu, piemēram, dažas galerijas sevi dēvē par mākslas telpām, muzejiem, saloniem, pildot vien un to pašu funkciju.

Autore secināja, ka Latvijā nav izveidoti tādi mākslas centri, kas atbilstu to multifunkcionālajai būtībai, tomēr arvien vairāk mākslas galeriju sāk pielāgoties mākslas centru funkcijām un darbībai.

Apmeklējot izstādes un citus pasākumus, ko piedāvā mākslas centri un galerijas, autore atkāja to interjeros nepilnības. Svarīgākās un problēmatiskākās tās:

1. Nepietiekams apgaismojums un ēnu veidoša nās uz mākslas darbiem.
2. Nepiemērota telpu temperatūra/klimats.
3. Vietas trūkums.

1. TABULA. MĀKSLAS CENTRU UN GALERIJU IDEALĪJUMS

Mākslas centru/galerija

Interjera stils Funkcionālisms?

Jā

Nē

Adaptācija

Integrācija

Mākslas centru/galerija

Ekerjera stils Funkcionālisms?

Jā

Nē

Adaptācija - pielāgošanās apstākļiem.
Integrācija - apvienošanās vai pievienošanās vienā

Māksliniece Ilze Jaunberga personālizstādē "Kritiskā temperatūra" intervijā LNT teica: "Cilvēkiem ir bail iet iekšā galerijās, jo tās ir ļoti sterilas" (Jaunberga, 2012).

Savukārt Ilze Žeivate sarunā ar darba autori min, ka mūsu zemē cilvēki nav atraisīti, atšķirībā no vāciešiem, kurai nav nekādu problēmu ienākt galerijās/izstāžu zālēs, skatīties, runāt, diskutēt, apsēsties. Latvijas iedzīvotāju mentalitātes vai kādu ēšīku iemeslu dēļ cilvēki neuzdrošinās palikt vienatnē ar mākslu, tāpēc, lai tāda sajūta nerastos, izstāžu zāles piemēro ne vien mākslas darbu izstādišanai, bet arī citiem radošiem pasākumiem.
Izvērtējot Rīgas izstāžu zāles, mākslas centrus un galerijas, autore secināja, ka funkcionālisma stilā ir iekārtots pavisam neliels skaits no tām. Galvenais faktors, kas to nosaka, ir ēkas, kurā atrodas izstāžu zāle vai mākslas centrns, arhitektoniskais veidols kas ierobežo vai padara neiespējamu telpu iekārtotā šajā stilā. Lai pārskatāmāk izprastu problēmas būtību, pētījuma autore izveidoja shēmu (1. tabula), kurā iedalija mākslas centrus un galerijas divās grupās - adaptētās un integrētās.

VII. SECINĀJUMI
1. Par funkcionālisma pamata ideju arhitektūrā kļuva funkcionālisma lozungs: "Forma seko funkcijai".
2. Mūsdienās funkcionālisma popularitāte izskaidrojama ar cilvēka nogurumu tasprītajā dzīves ritmā, vēlmi savu apkārtni veidot nesamākslotu, vienkāršu un viegli uztveramu.
3. Funkcionālisma mērķis - cilvēku dzīves kvalitātes uzlabošana ar zinātniski tehniskā progresa palīdzību.
6. Funkcionālisma stilis ir piemērots izstāžu zāles un mākslas centru interjeros.
7. Izstāžu zālēs un mākslas centros, kuru interjeri veidoji funkcionālisma stilā, veidojas sinerģija starp mākslas darbiem, telpu un cilvēku, kurā tajā atrodas.

LITERATŪRA