



Kaunas University of Technology
Faculty of Civil Engineering and Architecture

Transformation of abandoned buildings and territories by
sustainably integrating them into the infrastructural systems of the
city

Kemal Yegin
Project author

Assoc. Prof. Vytautas Baltus
Supervisor

Kaunas, 2022



Kaunas University of Technology
Faculty of Civil Engineering and Architecture

Transformation of abandoned buildings and territories by
sustainably integrating them into the infrastructural systems of the
city

Kemal Yegin

Project author

Assoc. Prof. Vytautas Baltus

Supervisor

Kaunas University of Technology Civil

Engineering and Architecture Faculty

Kemal Yegin

**Transformation of abandoned buildings and territories by sustainably
integrating them into the infrastructural systems of the city**

Declaration of Academic Integrity

I confirm that the final project of mine, Kemal Yegin, on the topic „Transformation of abandoned buildings and territories by sustainably integrating them into the infrastructural systems of the city“ is written completely by myself; all the provided data and research results are correct and have been obtained honestly. None of the parts of this thesis have been plagiarized from any printed, Internet-based, or otherwise recorded sources. All direct and indirect quotations from external resources are indicated in the list of references. No monetary funds (unless required by Law) have been paid to anyone for any contribution to this project.

I fully and completely understand that any discovery of any manifestations/case/facts of dishonesty inevitably results in me incurring a penalty according to the procedure(s) effective at Kaunas University of Technology.

KEMAL YEGIN

(name and surname filled in by hand)



(signature)

Kaunas, 2022



Topic (theme) of the Master Final Degree Project : Transformation of abandoned buildings and territories by sustainably integrating them into the infrastructural systems of the city, Case study: Abandoned Britanika Hotel in Kaunas, Lithuania

Theme of the Master Final Degree Project approved by the Dean's Order : Transformation of abandoned buildings and territories by sustainably integrating them into the infrastructural systems of the city, Case study: Abandoned Britanika Hotel in Kaunas, Lithuania

Master studies **Final Degree Project** (study module M000M100)

T A S K

Aim of the work:

To verify the concept (conceptual model) established during the previous stage of the work (empirical research) in the solutions of the experimental project, and to prepare the Master's final degree project integrating research and experimental design stages.

Tasks of the work:

To collect the necessary data for the project preparation, to prepare the architectural design of the selected object, to highlight the solutions determined by the concept formulated in the conclusions of the research project, to present the evaluation of the results of the experimental project.

Structure of the work:

Text. Title page, heading page, declaration of academic integrity, task of the final degree project (FDP) (if needed), summary, santrauka, content, list of figures (if needed), list of tables (if needed), list of abbreviations and terms (if needed). Main part: introduction (relevance and novelty of the topic, research problem and its level of investigation, object, objective, tasks, and methodology of the FDP); summarized data of theoretical research, empirical research and experimental design; conclusions of chapters, and the whole work conclusions. List of references, list of information sources (if needed), appendices, copies of graphical part (reduced in size).

The volume of the text (main part) is 3 – 4 author's sheets (1 author's sheet is 40 000 press characters with spaces), i.e. around 60 – 80 pages of computer text (recommended font Times New Roman, size 12, line spacing multiple 1,15 (Methodological Guidelines for the Preparation of Written Works)).

Graphic part.

The graphical part of the work is presented in posters (70x100 cm). It should reflect the most important results of theoretical material analysis, empirical research (*hypothetical model, conceptual model highlighting the statements implemented in the experimental project*), and experimental design (*the scheme of the situation of the designed object, the scheme of the analysis of the current condition; project idea / strategy; detailed solutions: building - site arrangement proposals, plans, facades / elevations, specific sections, fragments of interior / exterior spaces, construction details, etc. (if necessary); urban complex - communication system, building typology, public spaces, green infrastructure (natural framework), social infrastructure, proposals for the formation of cityscapes identity, master plan of a quarter / city part, etc. ; public spaces (or their systems) - functional diagram and spatial formation zones, connections between them, path system, landscaping system, water bodies, pavements, small architectural elements, lighting, etc.; general visualization of the designed object with the contextual environment, visualizations of separate visual spaces, etc.*) as well as changes of conceptual model (if needed).

The graphic part of the work should be arranged and exhibited in a way to form a visually unified whole and reflect the content of the work. It should be attractive aesthetically. When preparing the graphical part of the work, it is necessary to exclude the non-essential information, highlight the most important research results and ideas, and unify notes, graphical expression, and colours.

The volume of the graphic part is 10 – 16 posters of 70 x 100 cm size (vertically oriented) that integrate the results of research project and experimental design.

The description of the results of theoretical and empirical research must consist of **up to 1/2** of the main text, and in the graphic part they should be represented in **1 - 2 posters**.

Model or photorealistic visualisations of the planned area / object.

Printed copy of the final work text and graphical part.

Timetable of tasks performance:

1. Discussion of the task and the principles of experimental design	2022 02 03
2. Selection of the location of the designed object according to the criteria established on the basis of the conceptual model, analysis of the location based on secondary sources, creation of the design program	2022 02 10
3. Field survey, identification of the problems and potential of the designed object, development of the first alternative of the project idea	2022 02 17
4. Review and evaluation of the results of the analytical work and the conceptual sketches of the project (Alternative I)	2022 02 24
5. Search for a solution strategy / idea and evaluation of alternative options according to the established criteria	2022 03 05 – 2022 04 02
6. Review and evaluation of the solution ideas (Alternative II)	2022 03 24
7. Development of the chosen alternative: detailing of the solutions	2022 03 24 – 2022 05 05
8. Review of the detailed solutions	2022 05 05
9. Completion of the text	2022 05 12
10. Defending the final project in the commission of supervisors	2022 05 18
11. Public defence of the Final Degree Project	2022 06 02 - 2022 06 03

Consultation time with supervisor

Week day	Faculty of Civil Engineering and Architecture, Room 307, Zoom or other distance learning platform	Workplace
	Time and duration *	Time and duration *
Monday	18:00 / 2h	
Tuesday		
Wednesday	18:00 / 2h	
Thursday		
Friday	18:00 / 2h	

* - 2 hours per week

Supervisor of the final degree project _____

Vytautas Baltus

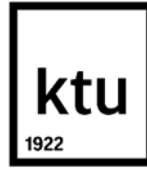
(name, surname, signature)

Student _____

Kemal Yegin

(name, surname, signature)

February 2022



Kaunas University of Technology
Faculty of Civil Engineering and Architecture

Topic of the project Transformation of abandoned buildings and territories by sustainably integrating them into the infrastructural systems of the city

Requirements and
conditions (title can be
clarified, if needed)

Research project aims to create a sustainable model for abandoned buildings and territories to connect them with the urban context and investigate the possibilities for a retransformation in order to revitalize these territories/buildings. Main aim for the research is to investigate the abandonment issue in the built environment and argue whether the cities need new development areas while the idle building stock is unused. With this research, abandonment will be investigated, compared with the examples throughout the history, and will be reflected with the outcomes into the case study areas.

Consultation time with supervisor

Week day	Faculty of Civil Engineering and Architecture, Room 307, Zoom or other distance learning platform	Workplace
	Time and duration *	Time and duration *
Monday	18:00 / 2h	
Tuesday		
Wednesday	18:00 / 2h	
Thursday		
Friday	18:00 / 2h	

* - 2 hours per week

Supervisor of the final degree project _____

Vytautas Baltus

(name, surname, signature)

Student _____

Kemal Yegin

(name, surname, signature)

February 2022

Table of contents

List of figures	10
List of abbreviations and terms.....	13
Summary	14
Santrauka	15
Introduction	16
1. Historical Context: evaluation of the terminologies in Architectural Theory and Practice	19
1.1. Architectural principles and evolution of sustainability in architectural theory	19
1.1.1. Bauhaus movement and contemporary architecture.....	21
1.1.2. Modernism to Post-Modernism, Generation 56 and CIAM, first traces of using high technology for a more sustainable architecture	22
1.1.3. From Neo-Regionalism amidst Globalization and Post Modernism to High Tech Architecture: the Impact of sustainability	25
1.1.4. Deconstructivism to CAD: most recent technological advancements towards sustainable architecture	30
1.1.5. Parametricism and futuristic Architecture.....	33
2. Sustainable cities through architecture	36
2.1.1. Sustainable architecture through new development	37
3. Abandonment in the built environment	39
3.1.1. Possible problems caused by abandoned buildings and territories	39
3.1.2. Methods and strategies of transformation for abandoned buildings and territories	40
4. Analogue projects and critical analysis of their transformation methods	42
4.1. Example 1: Prussian Navy Bunker Transformation into Trilateral Wadden Sea World Heritage Partnership Center, Dorte Mandrup Arkitekter	42
4.1.1. Historical context of the project	42
4.1.2. Goals and aims of the project	43
4.1.3. Critical analysis of the project.....	44
4.2. Example 2: Grain Silo Complex, Cape Town South Africa transformation into Zeitz Museum of Contemporary Art Africa, Heatherwick Studio, 2017	45
4.2.1. The historical context of the project.....	45
4.2.2. Goals and aims of the project	45
5. Creating a new hypothetical model for architectural transformation in abandoned buildings and territories.....	48
5.1. Principles of the new transformation model for architectural design.....	48
5.1.1. Principles for the assessment of the current building	48
5.1.2. Principles for the design of transformation projects.....	49
Conclusions	50
6. Empirical Research	51
6.1. Empirical Research Program	51
6.2. Case Study: Abandoned Hotel Britanika, Kestucio Street 26. / Kaunas – Lithuania.....	53
6.2.1. History and Context of the Abandoned Building and its` territory	54
6.2.2. Media coverage of the building and ongoing legal issues.....	55
6.2.3. Public Surveys	57
7. Contextual Spatial Analyses for the design project.....	66

7.1. Numeric Network Analysis from origin points to Britanika as destination	66
7.2. Numeric Network Analysis from various origin points to various destination points	69
7.3. Spatial Analyses	75
7.3. Empirical Research Results and Conclusions	79
8. Design Project : Superpositions	80
8.1. Context of the project idea	81
8.2. Site Analysis and Digital documentation of the building and its` surrounding	82
8.2.1. Digital survey of the Site, from 3d scanning into building information model (BIM)	82
8.2.2. Digital Survey and Documentation of Britanika	89
8.2.3. Site analysis	92
9. Final Design Project	94
9.1. Urban Design and Planning Phase	95
9.1.1. Site Approach	96
9.1.2. Green Infrastructure Design	97
9.1.3. Pedestrian Connections and Activities	100
9.2. Architectural Design.....	100
9.2.1. Ground Floor Plan	101
9.2.2. First Floor Plan	105
9.2.3. 13m height Floor Plan	107
9.3. Visualizations	Error! Bookmark not defined.
10. Conclusions	111
List of references for figures and images	112
Bibliography and references for the research.....	115

List of figures

Fig. 1 Bauhaus School Dessau, designed by W.Gropius. (<i>Das Bauhaus, Dessau, DDR May 1990, 2010</i>)	21
Fig. 2 The last CIAM meeting in Otterlo, Holland, 1959. (Het Nieuwe Instituut, 2011)	23
Fig. 3 Unité d'Habitation in Marseilles, France (archsociety.com, nd.)	25
Fig. 4 Santa Caterina Market, Barcelona, Spain., (<i>Mercado de Santa Caterina, 2006</i>)	26
Fig. 5 Detail of Pompidou Center, Paris, France (photoeverywhere.co.uk, nd.)	27
Fig. 6 Archigram`s Plug-in City Drawing. (megastructure-reloaded.org, nd.).....	27
Fig. 7 Lloyd`s Building, London, UK. (David Wright, 1989).....	29
Fig. 8 Pompidou Center, Paris, France. (Jean-Pierre Dalbéra, 2008).....	29
Fig. 9 Seattle Central Library, Rem Koolhaas, USA. (Nicola Delfino, nd.)	30
Fig. 10 General Motors Technical Center in Warren Michigan. (<i>Before Autocad, n.d.</i>).....	31
Fig. 11 Side by side comparison of Gehry`s first commission David Cabin 1957, and his Peix D`or pavilion in Barcelona 1982.....	31
Fig. 12 Walt Disney Concert Hall, Frank Gehry. (Szekely, 2011).....	32
Fig. 13 Glass Chapel, Rural Studio. (Brown, 2008).....	33
Fig. 14 Olympuc Stadium, Otto Frei (<i>2014 Olympiastadion Munich, 2014</i>)	34
Fig. 15 One thousand museum by Zha Architects. (ucumari photography, 2019)	35
Fig. 16 Circles of Sustainability: Urban Profile Process	36
Fig. 17 Diagram of a Kindergarten orientation by the author.....	37
Fig. 18 Photovoltaic Panels by Onyx Solar on Science Pyramid by BURKETTDESIGN. (http://us.archello.com , n.d.) 38	38
Fig. 19 Photovoltaic Panel installation by evergreen solar.....	38
Fig. 20 Federal Criminal Court Interior / Durisch + Nolli Architetti + Bearth & Deplazes Architekten (Aguilar, 2021) 40	40
Fig. 21 Federal Criminal Court Exterior / Durisch + Nolli Architetti + Bearth & Deplazes Architekten (Aguilar, 2021) 40	40
Fig. 22 Lukas Church Conversion into housing, Heinrich Boll Architects. (Sánchez, 2021)	41
Fig. 23 Lukas Church Conversion into housing, Heinrich Boll Architects. (Sánchez, 2021)	41
Fig. 24 Prussian Navy Bunker at Wilhelmshaven, Germany. (Block, 2021)	43
Fig. 25 Structural Diagram by Dorte Mandrup (Block, 2021)	43
Fig. 26 Heritage Center by Dorte Mondrup (Block, 2021)	44
Fig. 27 Grain Silo Complex before transformation, Capetown, South Africa. (<i>The Grain Silo in Cape Town, n.d.</i>)	45
Fig. 28 Zeitz MOCAA by Heatherwick Studio (Dobbins, 2018)	46
Fig. 29 Zeitz MOCAA by Heatherwick Studio. (Dobbins, 2018)	46
Fig. 30 Zeitz MOCAA Interior Atrium by Heatherwick Studio. (Dobbins, 2018).....	47
Fig. 31 Hypothetical Model for urban transformation, by the author.....	48
Fig. 32 Empirical Research Diagram, by the author.....	51
Fig. 33 Empirical Research Program Table, by the author.....	52
Fig. 34 Public Survey Program	53
Fig. 35 Abandoned buildings by location in Kaunas City (Sinkevičiūtė & Januškevičiūtė, n.d.)	53
Fig. 36 Abandoned Building: Hotel Britanika, photo by author.....	54
Fig. 37 Propositions for the Britanika Hotel, in order from left to right, (<i>Britanikos Viesbutis, n.d.</i>)	55
Fig. 38 Timeline of the project, by the author	55
Fig. 39 Kauno Diena news website, translated by the author.....	56
Fig. 40 Axonometric drawing of the intervention (Office de Architectura, n.d.).....	57
Fig. 41 Photos from the KaFe event (Office de Architectura, n.d.).....	57
Fig. 42 Public Surveys - Participants by age	58
Fig. 43 Public Surveys - Participants by gender.....	58
Fig. 44 Public Surveys – Do you live in Lithuania?.....	59
Fig. 45 Public Surveys – Do you live in Kaunas?	59
Fig. 46 Public Survey - Which neighborhood do you live in?.....	60
Fig. 47 Public Survey - What kind of activities do you participate in your free time ?.....	60
Fig. 48 Public Survey - What is missing in the city center?	61
Fig. 49 Public Survey - Do you know the Kestucio Street?	61
Fig. 50 Public Survey - How safe do you feel walking on Kestucio Street?	62
Fig. 51 Public Survey - Negative experiences as a pedestrian on Kestucio Street?	62
Fig. 52 Public Survey - If you were to choose, what kind of action do you think fits this building?.....	63

Fig. 53 Public Survey - Scaling of importance of the building in the public eye	63
Fig. 54 Public Survey - How would you consider the building as a part of history in Kaunas?	64
Fig. 55 Public Survey - How would you consider the building as a part of silhouette of Kaunas?.....	64
Fig. 56 Graffiti and greenery of the abandoned building.....	65
Fig. 57 Public Survey - What kind of activities would you prefer to have in this location?	65
Fig. 58 Nna - 1 - residential to Britanika, within 500m.....	66
Fig. 59 Nna - 1 - residential to Britanika, within 1500m.....	67
Fig. 60 Nna -2- hotel to Britanika, within 500m	67
Fig. 61 Nna -2- hotel to Britanika, within 1500m	68
Fig. 62 Nna -2- Public transport to Britanika, within 500m	68
Fig. 63 Nna -2- Public transport to Britanika, within 1500m	69
Fig. 64 Nna -2- Residential, hotels to parks, within 500m	69
Fig. 65 Nna -2- Residential, hotels to parks, within 1500m	70
Fig. 66 Nna -2- Residential, hotels to museums, within 500m.....	70
Fig. 67 Nna -2- Residential, hotels to museums, within 1500m.....	71
Fig. 68 Nna -2- Residential, hotels to hospitals, within 500m.....	71
Fig. 69 Nna -2- Residential, hotels to hospitals, within 1500m.....	72
Fig. 70 Nna -2- Residential, hotels to shops, within 500m.....	72
Fig. 71 Nna -2- Residential, hotels to shops, within 1500m.....	73
Fig. 72 Nna -2- Dormitories to schools, within 500m	73
Fig. 73 Nna -2- Dormitories to schools, within 1500m.....	74
Fig. 74 Social Survey - What kind of activities would you prefer to have instead of Britanika ?.....	74
Fig. 75 Spatial Analysis - Sun dome created for Kaunas	75
Fig. 76 Spatial Analysis - Wind Rose and Sun path diagram created for Kaunas.....	76
Fig. 77 Spatial Analysis – Sunlight Hours Analysis.....	76
Fig. 78 Spatial Analysis - View Analysis from the roof of the building	77
Fig. 79 photos of the building around the city center, by the author	77
Fig. 80 Spatial Analysis - View Analysis from city towards the building.....	78
Fig. 81 photos of the building around the city center, by G.Bitvinsko, and Office De Architectura.....	78
Fig. 82 Sketch, by the author.....	81
Fig. 83 Site Location, by the author	82
Fig. 84 Scanned Site scanned by Smart city centre, image by the author	83
Fig. 84 Site Survey in BIM by the author.....	83
Fig. 85 Urban Pattern footprint	84
Fig. 86 Urban Mapping	84
Fig. 87 Isometric view of the 3d Model, by the author	85
Fig. 88 Isometric view of the 3d Model, by the author	85
Fig. 89 Elevations of the site, by the author	86
Fig. 90 Documentation of the surrounding building, by the author.....	86
Fig. 91 Documentation of the surrounding building, by the author.....	87
Fig. 92 Documentation of the surrounding building, by the author.....	88
Fig. 93 BIM Model of the Britanika, by the author.....	89
Fig. 94 Structural Model of the Britanika, by the author.....	90
Fig. 95 Building Transformation Strategy, by the author.....	91
Fig. 95 Building masses of the Britanika, by the author.....	91
Fig. 96 Plot Surveys	92
Fig. 97 Sunlight Radiation Anaysis, by the author	93
Fig. 98 Britanika Radiation Analysis, by the author.....	93
Fig. 99 Britanika Transformation Strategy Building Scale, by the author	94
Fig. 105 Urban Connection Strategy, by the author	95
Fig. 106 Site Plan , by the author	97
Fig. 107 Green Spaces, by the author	98
Fig. 108 Green Roof water purification system, zinco-gmbh.....	99
Fig. 108 Green Roofs, by the author	99
Fig. 109 Pedestrian/Bike Connections, by the author.....	100

Fig. 110 Ground Floor Plan, by the author	101
Fig. 111 Community Centre/ Museum Extension, by the author	102
Fig. 112 Elastic program of the halls, by the author.....	102
Fig. 113 Community Centre Program, by the author	103
Fig. 114 Commercial Plaza Close Up, by the author.....	103
Fig. 115 Co-working Plaza Program, by the author	104
Fig. 116 Rotating the masses to receive more afternoon sun from the west, by the author.....	104
Fig. 117. 9m Elevation Floor Plan, by the author.....	105
Fig. 118. 9m Elevation Floor Plan, by the author.....	106
Fig. 119. 13m Elevation Floor Plan, by the author.....	107
Fig. 120. 13m Elevation Program Plan, by the author.....	108
Fig. 122. Isometric View from south entrance, by the author	Error! Bookmark not defined.
Fig. 121. Isometric View, by the author	Error! Bookmark not defined.

List of abbreviations and terms

Abbreviations:

CIAM : The Congrès internationaux d'architecture moderne (CIAM), or International Congresses of Modern Architecture

Vitruvius : Marcus Vitruvius Pollio

CAD : Computer Aided Design

GenX : Generation X

TeamX : Team 10, group of architects who founded CIAM

Fig. : Figure, Image

Team4 : British Architecture Firm est. 1963

AA : Architectural Association, a institution in London, UK.

WW : World War

Le Corbusier : Nickname of the French Architect Charles-Édouard Jeanneret

NNA : Numeric Network Analysis

Britanika : Abandoned Hotel Building, Britanika, located on Kestucio Street 26/Kaunas-Lithuania

Unitized facade systems : Prefabricated exterior walls, claddings and various façade parts of the building that get assembled either on site or in a factory, which rapidly increases efficiency of the construction.

Summary

This paper aims to tackle the issue of abandonment in general. Later on aims to investigate the deeper issues, possibilities and emergent problems that has been rising during the research. For the analysis and application of the research data, an abandoned hotel in Kaunas/Lithuania was chosen as a case study project area. Paper consists of three main chapters, first chapter aims to dig deeper into the history of architecture, sociology and construction technologies and extracts the good examples in order to critique them properly. This extraction creates a product of theoretical knowledge and expertise, hence by using this extracted conclusion second chapter aims to have a better look at the site, the city, the context of the case study area to reflect the theoretical conclusions by testing them in real life scenarios.

Britanika, an abandoned “ghost” of the city of Kaunas since the 70’s, has had a inconclusive journey within the “new town” part of the city. New town consists of many modern buildings with poor taste as well as some buildings from the interwar era, also a neo Byzantium military church which was made during the Russian rule of the city. Even though it represents a painful time in history, currently it keeps its` place in the skyline as a landmark. Britanika however, still remains abandoned.

In this chapter, several social surveys and spatial analyses were made to conclude three requirements to affect the next chapter which is the actual design project, first is the form, new form and transformation strategy should be decided by using environmental data, this includes sunlight, wind, liquid exposure and visibility/view. Second important requirement is the program of the building, in order to decide, several statistical papers such as immigration, tourism were analysed, moreover several surveys were made in Lithuania. Third and last important requirement is the building technologies with urban integration.

As a conclusion, third part brings out the design ideas, an experimental journey towards the ideal was aimed at every aspect of the design rather than sticking with the orthodox design techniques. Design aims to follow the public need while keeping the focus on the upcoming refugee flow that has been expected by the authorities because of the various conflicts, climate change and socioeconomic conjuncture of the global situation. Project with its` program aims to house 200 refugees and students alike, as it was concluded in the surveys, also various coworking spaces and commercial areas were planned to create a direct flow from Laisves Avenue towards Kestucio Street. Addition to that program shifts towards the south border of the plot to include a community centre, with a flexible program and an auditorium for 400 people. The multipurpose hall also aims to transfer various museums in war zones and their inventory to Kaunas, hence creating a safe space for art refuge, especially during the current crisis in Ukraine. As form, building aims to follow the wind and sun exposure, and lifting the ground level up, hence creating a park on top of and around the structure.

Building technologies and urban integration involves various prototype trials, to create the perfect pedestrian flow. Structure in its` essence depends on the abandoned Britanika`s load bearing towers, by keeping the terrace part of the building creates an envelope with a panoramic view, inviting residents and travellers alike to enjoy the view, which was determined by the view analysis. By using the old Soviet era structure as a vertical connector, structure aims to recreate a modern side, by using unitized panelling systems, which would enable modifications throughout the years. By doing so, structure becomes eternal, hence aims to solve the abandonment problem of the area.

Santrauka

Šiuo straipsniu siekiama apskritai išspręsti apleidimo problemą. Vėliau siekiama ištirti gilesnius tyrimo metu kylančius klausimus, galimybes ir išskylančias problemas. Tyrimo duomenų analizei ir pritaikymui atvejo analizės projekto teritorija pasirinktas apleistas viešbutis Kaune/Lietuva. Darbą sudaro trys pagrindiniai skyriai, pirmasis skyrius skirtas gilintis į architektūros, sociologijos ir statybos technologijų istoriją bei ištraukti geruosius pavyzdžius, siekiant tinkamai juos kritikuoti. Šis ištraukimas sukuria teorinių žinių ir kompetencijos produktą, todėl naudojant šią ištrauktą išvadą antrajame skyriuje siekiama geriau pažvelgti į vietą, miestą, atvejo tyrimo srities kontekstą, kad būtų galima atspindėti teorines išvadas, išbandant jas realiame gyvenime. scenarijai.

Britanika, apleista Kauno miesto „vaiduoklis“ nuo septintojo dešimtmečio, turėjo neaiškią kelionę „naujamiesčio“ miesto dalyje. Naujamiestį sudaro daugybė modernių ir prasto skonio pastatų bei kai kurie tarpukario laikų pastatai, taip pat neo Bizantijos karinė bažnyčia, kuri buvo pastatyta valdant miestui. Nors tai yra skausmingas istorijos laikotarpis, šiuo metu jis išlaiko savo vietą horizonte kaip orientyras. Tačiau Britanika vis dar lieka apleista.

Šiame skyriuje buvo atlikti keli socialiniai tyrimai ir erdvinė analizė, siekiant sudaryti tris reikalavimus, turinčius įtakos kitam skyriui, kuris yra tikrasis projektavimo projektas, pirmiausia forma, nauja forma ir transformacijos strategija turėtų būti nuspręsta naudojant aplinkos duomenis, įskaitant saulės šviesą, vėjas, skysčio poveikis ir matomumas / vaizdas. Antras svarbus reikalavimas – pastato programa, siekiant apsispręsti buvo išanalizuoti keli statistiniai straipsniai, tokie kaip migracija, turizmas, taip pat atlikta keletas tyrimų Lietuvoje. Trečias ir paskutinis svarbus reikalavimas yra statybos technologijos su urbanistine integracija.

Apibendrinant, trečioje dalyje pateikiamos dizaino idėjos, eksperimentinė kelionė link idealo buvo skirta kiekvienam dizaino aspektui, o ne laikytis ortodoksinio dizaino technikų. Dizainas siekia patenkinti visuomenės poreikius, kartu sutelkiant dėmesį į artėjančią pabėgėlių srautą, kurio tikėjosi valdžios institucijos dėl įvairių konfliktų, klimato kaitos ir socialinės ir ekonominės globalios situacijos konjunktūros. Projekte su savo programa siekiama apgyvendinti 200 pabėgėlių ir studentų, kaip paaiškėjo apklausose, taip pat buvo suplanuotos įvairios bendro darbo erdvės ir komercinės erdvės, kad būtų sukurtas tiesioginis srautas iš Laisvės prospekto Kęstučio gatvės link. Prie šios programos pridedama pietinė sklypo riba, įtraukiant bendruomenės centrą su lanksčia programa ir 400 žmonių auditorija. Daugiafunkcia sale taip pat siekiama į Kauną perkelti įvairius karo zonose esančius muziejus ir jų inventorių, taip sukuriant saugią erdvę meno prieglobsčiui, ypač dabartinės Ukrainos krizės metu. Kaip forma, pastatas siekia sekti vėjo ir saulės spindulių poveikį ir pakelti žemę aukštyne, taip sukuriant parką ant konstrukcijos viršaus ir aplink jį.

Statybos technologijos ir miesto integracija apima įvairius prototipų bandymus, kad būtų sukurtas tobulas pėsčiųjų srautas. Konstrukcija savo esme priklauso nuo apleistų Britanikos laikančiųjų bokštų, išlaikant terasinę pastato dalį sukuria ir apgaubia panoraminis vaizdas, kviečiantis gyventojus ir keliautojus mėgautis vaizdu, o tai buvo nustatyta atlikus vaizdo analizę. Naudojant seną sovietmečio struktūrą kaip vertikalią jungtį, konstrukcijoje siekiama atkurti šiuolaikišką pusę, naudojant vienetines dailylentės sistemas, kurios leistų modifikuoti ištisus metus. Taip darant struktūra tampa amžina, todėl siekiama išspręsti teritorijos apleistumo problemą.

Introduction

„*F*or me exploring abandoned buildings isn't about reveling in their collapse at all. The architecture of these buildings is present and potent. With their uncertain existence, these spaces thrum with potential. An art gallery? A party space? Though my teenage mind couldn't quite stretch this far, off in the hazy distance were bigger ideas: reintegration into the city, reinterpretation, and re-use, It's not the ruins themselves, but the unscripted architecture that produces the frisson.“ (Barasch, D. (2019). *Ruin and redemption in architecture* / Dan Barasch. Phaidon Press.)

Designing a building is exploring the possibilities rather than creating them. Often in times, architecture is perceived as pure creation, building a building, an incomparable storytelling medium... Although especially after the 19th century, with the industrialization of the urban spaces and getting past two world wars, architecture got more involved in solving the problems, repairing the past misdeeds, hence the creation of the narratives for the buildings became even more relatable to the public need. Yet again architecture held significant messages, political and philosophical, It evolved. It kept the form giving aspect of its own and also transcended into an overall problem-solving platform. Rapid urbanization after the second world war brought the need for cheap and affordable housing, architects and builders took that as a challenge, the need for hospitals, parks, cultural centers, schools, and many more, was rising. Architecture became more about functionalism rather than a media outlet. Even though also was shaped by the ideologies of the time, this sometimes lead to differences in scale, missing the needs of the public but in its essence kept the functionalist origin.

Marcus Vitruvius Pollio, an architect who lived during the 1st century BC, originated the idea that all buildings should have three attributes: “*firmitas, utilitas and venustas.*“, meaning strength, utility and beauty, In his book „*De arhitectura.*“ These principles were widely adopted in Roman architecture and also affected many renaissance painters and artists. Later on renaissance painter and designer, Leonardo Da Vinci made the drawing of the „*Vitruvian Man*“, creating the human form with its proportions. This was a clear message that, there is a reasoning behind the design of the human, which can be perceived as the smallest scale element of the design process, this idea brought the functionalism to its core.

Later on the history repeated itself and architect Louis Sullivan quoted the famous quote, „*Form follows function*“ in his article, “*The Tall Office Building Artistically Considered*“. Which would be adopted by many architects to come in the 20th and 21st century.

The way architecture is being built has changed, the mentality behind, has been evolving as well, but never too far from the original idea that there must be a connection between form and function. In the late 20th century and 21st century is built upon the idea of globalization, rapid urbanization and also sustainability while doing so. Which raises the question of wether designers should be discussing the connection between form and fuction or the old and the new. It is possible to speculate that following the function means creation of a new form from scratch, but also It may mean that following an existing form to functionalize, this can be the answer to the need of sustainability hence following the form may also mean to follow the function. Form follows function follows form can be an endless loop that architectural designers adopt.

Instead of building new buildings and creating new development areas even though there is possibility that current building stocks may get reutilized, reimagined, and revitalized shall hold the true answer to the abandonment issue in the built environment, revitalizing may also fit the functionalism idea, that contemporary architecture adopted. Reimagining abandoned architecture could lead to a modernism with the localization of the ideas, instead of thinking globally and acting locally architects can think locally and act globally to represent local architectural reimagination, to the global architecture market. After all, designing a building is exploring the possibilities, it may be suggested that the possibilities of the abandoned building stock can be in the creative thinking process of architectural designers and builders.

This research aims to explore the possibilities of the ways that abandoned buildings and territories can be used. For starters, the birth of each movement in architecture should be reviewed in the literature. Hence creating a perception of causality for each strategy would help understanding the necessities of each notion.

By analyzing the examples of architectural transformation projects, a new design model can be suggested. To create a better design model for a sustainable future in architecture and integrate these abandoned buildings with their surrounding territories, which stay idle over time, first of all, a literature analysis should be made. By exploring the strategies that have been tried over time and critically analyzing their flaws and strengths, concluding whether their goals have been achieved or not; only then a more suitable design model for the future can be created. With the technological advancements in the built environment, an algorithmic thinking process can be implemented to assess building quality, find design solutions using artificial intelligence, optimize spaces according to today's needs and standards.

Finally, a new design method shall be created to bring out an argument which would be the basis of the aforementioned new design model to tackle the issue of abandoned buildings and territories also their integration into the city, moreover by putting the suggested model into test by critically analyzing methods and outputs of the strategy, hence sorting out the methods for an update on the offered model. This way the creation process of the model would enable the analytical thinking before the design process begins therefore minimizing the trial-and-error method that has been often used in the architectural design process. It could be argued that the application of the to be suggested model can not be completely foreseen before it gets the chance to be applied and observed. Although in terms of goals and evaluation of reaching those design goals, can be evaluated, hence a possible reevaluation after the design process can be more systemized, therefore minimizing the time needed for a critical analysis to correct certain flaws in the proposed project later on.

This analytical paper also aims to create a basis for a new design method and overhaul design strategy that would eventually create an empirical model, which the design model, to tackle the issue of transforming abandoned buildings and territories, will be built upon.

Prologue : A soviet monument, need for housing and elasticity

In 2019, the crude immigration rate stood at 14.3 (in 2018, 10.3). Last year, there were 7.3 citizens of the Republic of Lithuania per 1,000 population who returned to Lithuania, and 7 foreigners per

*1,000 population who immigrated to Lithuania (in 2018, 5.9 and 4.4 respectively).
<https://osp.stat.gov.lt> › tarptautine-migracija, 2022)*

Rising tensions in Europe with the Covid pandemic and later on the immigration crisis between Lithuania with Belarus caused residential and office rent prices to slowly rise. Which eventually skyrocketed with the current conflict between Russia and Ukraine. War has caused the immigration rates to double, which eventually started to flame the ongoing inflation, create a real estate bubble which would inflate constantly due to rising demand and low supply. According to the research part, residents of Kaunas would like to see a social centre, an arts and performance center instead of Britanika, also residents would like to see a park-like building with large open spaces. Also the need for student housing and hotels in the city centre has been detected

Therefore, Britanika, a soviet era monumental building, should be used to best of its advantages and transformed into a mixed-use project to create a complex structure that serves the different needs of the residents and potential immigration. Each floor can be independently designed and phased into parts, where the tower structures of the Britanika can be used as a vertical connector.

1. Historical Context: evaluation of the terminologies in Architectural Theory and Practice

In Britanika encyclopedia architecture is defined as *art and practice of designing buildings*. Both the art part and the practical part of architecture has always been interchangeable. Throughout the history, architecture has always been adapted to various changes in the course of history. Hence It can be argued that architecture itself, in definition, has been evolving. Avoiding strict definitions. Which raises the question of “how to comprehensively describe architecture?”

1.1. Architectural principles and evolution of sustainability in architectural theory

Architecture has had various principles from different perspectives and eras, in 58-60 BC Vitruvius defined architecture with three main qualities; *firmness, commodity and beauty*, (Vitruvius, 2002), which required architects to be equipped with a varied tools of learning and knowledge from many branches. However, in 1851, Gottfried Semper, a German architect, wrote the book “*the four elements of architecture*”, arguing that four basic elements of architecture are *hearth, roof, enclosure, and mound*. Hence approaching the basic elements of architecture from an anthropological world of view, to create a more realistic, physical perspective.

Moreover, in 1849, English art critic and theorist John Ruskin`s essay “*The Seven Lamps of Architecture*” suggested seven principles to explain the Gothic revival architecture and its` essence. He named these demands to achieve good architecture as the “*Lamps*”.

“*Sacrifice` , dedication of man's craft to God, as visible proofs of man's love and obedience, Truth – handcrafted and honest display of materials and structure, Power – buildings should be thought of in terms of their massing and reach towards the sublimity of nature by the action of the human mind upon them and the organization of physical effort in constructing buildings. Beauty – aspiration towards God expressed in ornamentation drawn from nature, his creation, Life – buildings should be made by human hands, so that the joy of masons and stone carvers is associated with the expressive freedom given them, Memory – buildings should respect the culture from which they have developed, Obedience – no originality for its own sake, but conforming to the finest among existing English values, in particular, expressed through the "English Early Decorated" Gothic as the safest choice of style.*” These principles were not close to practical observations depending on quantifiable data nor were they close to objective assessment values, but more about the theories, narratives, ethics and sermons to explain the shape the architectural style has taken. In 1999 Cornelis J. Baljon investigated Ruskin`s work in his essay “*Interpreting Ruskin*”.

“*It rather narrowly focuses on empirical observations and practical recommendations, though. Study of "ethical, religious and historical theories woven around architecture in his writings"*

It can be argued that *the* aforementioned essay and Ruskin`s original writing, may reflect the differences in perception, according to advancements in critical thinking over time. Ruskin reflects a more romanticized time of architecture and art, while the interpretation points the lack of empirical observations and practical recommendations.

In 2012, freelance architect, and writer Ruth Slavid, published the book “*10 principles of Architecture*” in which she suggested a more organized way of describing the basic principles of

architecture; starting with *'place'* as the first principle, the writer showed reverence to designer Elio Saarinen in a way, Saarinen once stated, "*Always design a thing by considering it in its next larger context – a chair in a room, a room in a house, a house in an environment, an environment in a city plan.*" It could be argued that the parameters that location brings into the design process have even more value in terms of decision-making for an objective architectural design. One may argue that location has always been an important parameter, yet only in terms of building technologies and logistics. Therefore, the vernacular architecture varies depending on the climate hence It shapes the materials which can be used and finally leads to a variety of building techniques. It can be observed in history as well as today, architecture adapts to the environment it is located in. However, due to globalization, and especially after the industrial revolution, mass production facilities created the opportunity to be able to build almost with any material, anywhere. Hence the location as an input parameter for designing a building has a more direct effect on the form-giving process as well as the material selection and choosing a particular building technique.

The other principle that was stated in the book is *structure*, which has always been an important part of the architectural design process. This also includes the building techniques, materiality, technology, and capabilities of a certain group of designers. The third principle was stated as *'function and flexibility'*, which hints at the functionalism of contemporary architecture yet also adds flexibility into the equation; to underline the importance of interchangeability in the built environment, resilience to the changing needs of the time, and flexible programming in the architectural planning phase. This suggests that using space more efficiently became more important in the 20th and 21st centuries.

The fourth principle is *comfort*, which required a trial-and-error process to determine the comfort for the specific user, it can be argued that user needs and feedback started to become more relevant in the design process to create a comfortable space for the inhabitants of that place. The fifth principle in the book is *'sustainability'*. This shows the changing arguments in terms of *'firmitas'* or durability that Vitruvius suggested earlier. Sustainability still includes durability but also expands the term by adding the time factor, self-sufficiency and adaptability, hence suggesting a more inclusive argument. Sustainability will be further investigated in the later chapters of the analytical paper.

The sixth principle is legibility, which became more important with the advancements in urban study theories, after the 18th century. "*Architectural legibility is the degree to which the designed features of the environment aid people in creating an effective mental image, or "cognitive map" of the spatial relationships within a building, and the subsequent ease of wayfinding within the environment.*" (O'Neill, 1991) Certain literature has been written on the importance of legibility in the built environment. Mostly originated from and related to principles of behavioral psychology, legibility became a quantifiable parameter of contemporary architectural design.

The remaining principles are less about the notional terms and more about the physical inputs and materials that architecture uses. Principles such as; light, sound, surface, and details are the main elements that designers use in the architectural design process. Even though these may be suggested as different principles, in essence, these elements, which have a direct physical impact on the user and the building, can be considered as a part of sustainability. It can be argued that to achieve sustainability, the light should be used efficiently, a building should be designed according to acoustic

needs, surfaces and surface materials should be durable, adaptable and aesthetically pleasing, also comfortable for the possible users.

The last principle, `Details` however is important to compare amongst architectural styles, eras, and locations which these styles were born and being followed. In the history of settlements and architecture, a certain level and perception of details were adopted. From the very basic and functional, purposeful buildings in ancient civilizations, to godly, artistic, and expressional, ornamented architecture and finally to “*ornament is a crime*” (Loos, 2019) mentality, show how perception on detailing has changed over time.

Even though these examples of setting principles in architecture can not be compared due to their different circumstances, they can reflect the conditions of the time that they were originated in. It can be argued that in ancient times, during the architectural design, properties of a structure was not as important, function a building serves was the main focus, later on with the advancements in civilization, the built environment took a more artistic shape with architecture, the assessment of architecture was depending more on subjective opinions like beauty, firmness, or commodity, and in time, perception shifted into a more physical, objective and quantifiable or observable manner such as sustainability, light, sound, etc.

Moreover, to have a better understanding of the origin and the true meaning behind the terms; modernism, sustainability, and functionalism, some of the key historical events, which has had affected their description, should be investigated. These events can be argued to be the milestones in the history of architecture that have changed the perception in design, hence creating movements that would shape the way architecture has been created in the 21st century.

1.1.1. Bauhaus movement and contemporary architecture

Bauhaus was an art school located in Germany, founded by architect Walter Gropius. The idea behind the school, in its` essence, was to create a `gesamtkunstwerk`



Fig. 1 Bauhaus School Dessau, designed by W.Gropius. (*Das Bauhaus, Dessau, DDR May 1990, 2010*)

a comprehensive artwork that would absorb all the art forms, creating a form of hybridization of different techniques and practices to achieve a connected, related artistic movement.

After the first world war, Germany suffered a painful defeat in the political and diplomatic arena as well as on the battlefield. Which led to despair in society and created another form of war, an oppressive climate which was born amidst chaotic turbulence in the history of Europe. Even though many German left-wingers were influenced by the post-revolutionary, experimental artistic movements such as constructivism, Gropius was determined to keep Bauhaus apolitical. Their idea was purely inclusive for the time being, the main idea was to create an internationalism that would unify designers, in terms of practicality, despite the polarisation in the global political scene. The artists and designers who influenced Bauhaus were behind the idea of functionalism. Art being relatable to human need, the design being connected to the requirements of a users` approval, hence increasing the importance of the function of a design was an important revolution in terms of creative practices.

Walter Gropius was deeply influenced by the British textile designer and artist, William Morris and arts and crafts movement. Also, as an idealist architect and scholar, Gropius intended to create a new academy that would bring creators, designers, and artists closer. He stated his goal as *"to create a new guild of craftsmen, without the class distinctions which raise an arrogant barrier between craftsman and artist."* (Haddad & Rifkind, 2016) This was a revolutionary milestone for the design world which would evolve the creative process by connecting applied craftsmanship, experimental problem solving, prototyping with the theoretical, philosophical side of design thinking, and finally feeding the architectural design process with the offspring of this mixture. In a way It can be argued that Gropius intended to bring back the stonemasonry system of the Gothic era, where technology met with artistic expression and authentic craftsmanship to enable the potential that architectural design at the time could possibly achieve.

The influence of Bauhaus changed the education system of architects and designers subsequently. Goal of Bauhaus was to connect engineering, technology, arts, and crafts under one roof. Hence this enabled designers to embrace the latest technological advancements, also use and invent new technologies depending on the creative needs of the practices. After the second world war, architects used this basis to reconstruct many destroyed cities, created rapid development projects hence appropriating the architectural design and building techniques closer into the future. Bauhaus was influenced by the modernism of the late 1800s, although modernism required a more systematic approach, with the Bauhaus movement, the design world achieved this systematicity. The cumulative evolution of architecture created many horizons to tackle the problems of the world in the future rather than focusing on the problems that are already happening. With the connection between creative practices, craftsmanship, and technology growing stronger, designers became more aware of the problems which the world may potentially suffer from ahead of time. Problems such as non functionality, lack of affordability, inelasticity, and, in some forms, lack of sustainability in the built environment were recognized as obstacles to tackle.

1.1.2. Modernism to Post-Modernism, Generation 56 and CIAM, first traces of using high technology for a more sustainable architecture

The Congrès Internationaux d'architecture moderne (CIAM), or in English, International Congresses of Modern Architecture, was an organization, founded by a group of 28 distinguished architects from Europe, such as Le Corbusier, Karl Moser, Hendrik Berlage. Later, many architects like Aalvar Alto

and Walter Gropius also joined as a member. CIAM has been a great influence among the world of architecture and urbanism, not only CIAM members intend to formalize the principles of modern architecture, but they also realize that architecture and urban planning, is an economic and political tool that could eventually ameliorate the living standards hence improving the world through structural design, urban planning, and architecture.

The unification idea behind Bauhaus is also visible in CIAM, although more in a practice manner rather than educational and experimental. CIAM united and intended to influence all the practices which were believed to be the main domains of architecture at the time. These were urbanism, landscape, industrial design, and many other arts and crafts mediums.

“Jerzy Soltan presented a flexible pavilion system for hot climates notable for passive cooling strategies familiar again in today’s ‘sustainable design’.” (Haddad & Rifkind, 2016)



Fig. 2 The last CIAM meeting in Otterlo, Holland, 1959. (Het Nieuwe Instituut, 2011)

In 1933 CIAM was about to hold a meeting in Moscow, although the recent events which occurred right before the meeting was held, changed the organizations` plans. In July 1931, an international competition for a new building called `Soviet Palace`. A book *Maria Kostyuk* published in 2019 reveals that even though Le Corbusier`s entry was praised by the national and international press, also seen as the best entry by professionals, it was denied by the jury by using the justification as vague as stated. “Jury was completely against American skyscraperism, Gothic, and Corbusian architecture.” Which led CIAM to declare that Soviet architecture was falling apart from CIAM`s ideology of functionalism, rationalism and its` belief in architecture which were based on the power of knowledge and objectivity. Later, CIAM meetings brought out an immense collaboration among theorists and practitioners, artists and craftsmen. Which led to many conceptual advancements in terms of building techniques which would eventually lead to a more sustainable architecture.

Architectural historian Eric Mumford`s book on the subject; *“The CIAM Discourse on Urbanism, 1928–1960”* was published in 2000. Revealing the advancements that were achieved by CIAM more in detail. In 1933 the fourth CIAM meeting was going to be held which would change a great deal in architecture in terms of sustainability. After realising the deterioration of the political situation in Soviet Union, CIAM decided to hold the meeting in a boat heading to Athens from Marseilles. Which later was named as `Athens Charter`. This event would eventually lead to a revolution in urbanism and architecture after the second world war. The idea of the `functionalist city` was dominating and

influencing CIAM since the meeting in Zurich was held in 1931. It was a brave argument into a knowledge-based architecture in terms of sustainability and technology.

“At a meeting in Zürich in 1931, CIAM members Le Corbusier, Walter Gropius, Siegfried Giedion, Rudolf Steiger and Werner M. Moser discussed with Cornelis van Eesteren the importance of solar orientation in governing the directional positioning of low-cost housing on a given site.” (Honhart, 2002)

This would eventually lead to the importance of place, which was mentioned in the introduction chapter of this paper, the importance of the place, not only in terms of logistics but as a direct input in the design process, with an analytical background with quantifiable data. *“Van Eesteren had been the chief architect of Amsterdam's Urban Development Section since 1929 and the group asked him to prepare a number of analytical studies of cities ready for the next main CIAM meeting planned to be in Moscow in 1933.”* (Honhart, 2002) CIAM as an organization and member architects individually would influence the future of the built environment. Later on in 1931 when the fourth CIAM meeting was held, the core goals of the Functionalist City which was stated by Le Corbusier in Zurich would be expanded. Even though they could not agree upon the single manifesto and textbook to tackle urban issues, due to lack of synchronization in terms of owning scientific data, they agreed to publish two separate texts of the meeting.

The observations of the studies of 33 cities were later used to set the guidelines of the site planning of type residential architecture. *“CIAM demanded that housing districts should occupy the best sites, and a minimum amount of solar exposure should be required in all dwellings. For hygienic reasons, buildings should not be built along transportation routes, and modern techniques should be used to construct high apartment building spaces widely apart, to free the soil for large green parks.”* (Merkel, 2011) Even though the idea sounded similar to the Garden City movement, the usage of scientific data and orientation of the sun depending on the location of any project would create a difference in terms of decision making. Creating surveys for various cities brought up the accumulation of scientific data to support the decisive planning process of the architectural creation phase. Outtakes of the Functionalist City and Radiant City experiments of Le Corbusier gave him an edge as a designer in the architectural transformation of the cities, especially after World War II, and in the '50s Corbusier developed various buildings in France using the baseline of his previous endeavors with CIAM. Starting from 1946 he proposed several buildings and concepts, supporting monumentality as well as functionalism. Yet these projects were not built. He achieved more in terms of building and realizing projects in Marseilles where he proposed and later on built, Unité d'Habitation which would improve the flexibility of use in terms of architectural programming and space planning.

Corbusier's radiant city concept and later the functionalist city concept that he developed with CIAM, came to fruition in a sense, with his buildings in Paris and Marseilles in 1940s and 1950s. Arguably one of the biggest influential buildings was Unité d'habitation, which was built as a north-south oriented single block that would contain several public and private uses. Block was 18 floors high, and It was made as if it was a whole neighborhood compressed in a single building. Block consisted of several shops on 7th and 8th floors, which were connected with corridors labelled as 'streets in the sky'. A concept which influenced many upcoming architects later in the 70s and 80s like Ricardo Boffill. On the roof of the building there was a nursery school, a running track and a pool. Building was praised by many writers with its distinctive style, clean interiors, mixed use concept and appropriability.

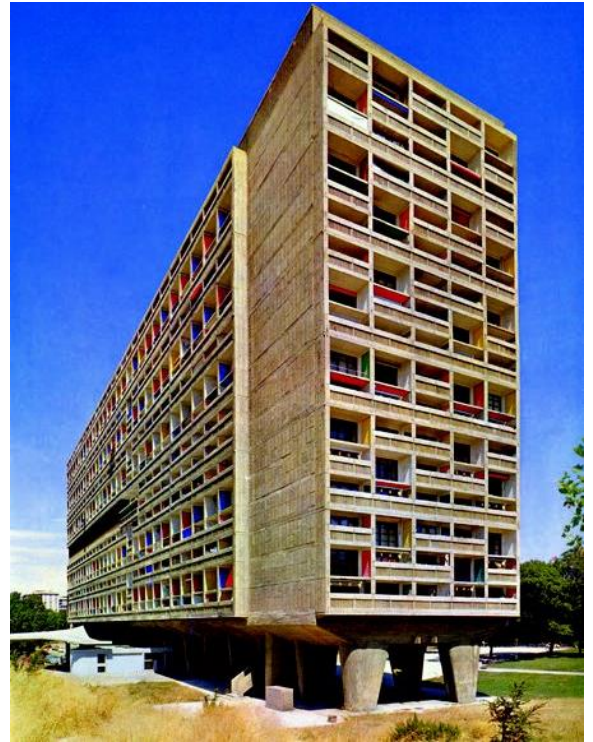


Fig. 3 Unité d'habitation in Marseilles, France
(archsociety.com, nd.)

1.1.3. From Neo-Regionalism amidst Globalization and Post Modernism to High Tech Architecture: the Impact of sustainability

After the CIAM movement took place, which was disbanded in 1959, and the intention of creating an international style for architecture was stated clearly which would eventually mean architecture without architects, a series of reactions in terms of architectural style emerged. Based on data and internationally recognized techniques and materials, this movement took up many questions about whether architecture should reject the past or the local context. Architects started to question the need for historical referencing in design and local autonomy in architectural styles. The design world suddenly found itself in a dilemma of the mainstreamness of modernism and meaninglessness of the globalization in architectural standards. As a reaction to this, by the end of the '70s, neo-realism and neo-rationalism took place as a critique of functionalism. Up until the '90s and the generic city movement, a resolution was going to be made by architects for the future of architecture. On one hand, there were many recognized problems with functionalism, which later on would create the 'Generic City' movement by Rem Koolhaas. Even though there were reactions to functionalism such as this, transformation in the cities did not completely adopt these ideas. Neither historicism nor generic city prevailed, hence this created an equilibrium globally. This era would later be seen as the balance struggle of design mentalities, between historicism and globalization. Also, some unique designers would emerge to defend the localization, local values, and unique styles in architecture.

Many architects, region by region, adopted the idea of using time, location, and purpose of usage, even though international style was pushing architects' hands locally and globally, some architects created unique inputs by using locality and also establishing their own style in the meantime.



Fig. 4 Santa Caterina Market, Barcelona, Spain., ((*Mercado de Santa Caterina*, 2006))

One of them is a transformation project of Santa Caterina Market in 1997 by Enric Miralles and Benedetta Tagliabue. Using the climate as a reference, and creating a local style, Santa Caterina Market was an excellent example of naturalism, contemporaneity, and also a mixture of high-tech techniques with the existing structures.

It may be argued that High Tech architecture has been following the modernist and functionalist movement the closest, compared to other styles which emerged after. High Tech was the pique point of knowledge-based architecture, it has emerged as a combination of craftsmanship, artistry, and technology. Which CIAM and first modernists, have been trying to achieve for years. High Tech architecture was born after and amidst industrialization and globalization, glorifying modernism and staying faithful to the functionalist manifesto, high tech architecture was a brave stance of showcasing material, construction techniques, and technological innovation. Moreover, high tech intended to use the architect as a decision-maker, problem-solver, and innovator, rather than a mere visual artist. It may be argued that high-tech architecture was a love child of innovation, technology, modernism, and arts and crafts movement in the background. It was an expected and glorious reaction to all the advancements of the 20th century. Architects such as Buckminster Fuller, Frei Otto, Charles, Ray Eames, and Jean Prouvé, pioneered the style and created an image of an architect as a leader and coordinator to achieve new, more sustainable architecture which would be daring, hence pushing the construction technologies even further into the future. The style was promoted and glorified by many critiques and architectural theorists at the time and by historians later on.

High Tech architecture possesses prototyping, experimenting, and creating small fractions of working parts for a greater machine. Hence this encouraged architects to work closely with manufacturers, craftsmen, engineers, and specialists. By embracing the advancements in other industries and not only building industry, creating a machinelike building with advanced technologies, is an argument Le Corbusier and many modernists like Gropius would agree. Even though the inspiration for the style came from early modernism, the aim was to distinctively move past the many rules of modernism and create a style that would embrace knowledge to enable technological advancements in buildings. Therefore, the style was seen by the architectural historian

Banham, as *“the only style that has the chance to endure”* This chance of course comes from the adaptability of the architectural philosophy. It may be argued that this style would evolve as technology advances, hence creating a futuristic goal to keep architecture involved in technology which would make the style immortal in terms of advancing towards the future.



Fig. 5 Detail of Pompidou Center, Paris, France (photoeverywhere.co.uk, nd.)

High tech architecture was not only an artistic expression of the technologies but a complete working, machine as a building. Which would enable the bettering of air quality, lighting, and space planning within the structure. Hence establishing the key points of a resilient, sustainable building that would adapt. The difference was that It did not try to hide the details, on the contrary, the high-tech style glorified the technological solution It has adopted hence making the building an open electronics fair.

Most If not all, of the examples in high tech architecture, was inspired by the avant-garde architecture group formed in the 1960s, Archigram. Archigram was a neo-futuristic and radical movement aimed to falsify the heroic and pro consumerist philosophy and change the course of architecture into a more futuristic perspective by gathering complete inspiration from the technology. *Formed out of Architectural Association in London, the founding members of the organization were Peter Cook, Warren Chalk, Ron Herron, Dennis Crompton, Michael Webb, and David Greene.* (Sadler, 2005) In 1964 Peter Cook proposed the radical harmony of technology and urbanism with his `Plug-in City` which suggested that cities do not need buildings to exist. Hence by creating a mega machine-like structure, Cook aimed to speculate that If cities can be interchangeable. Archigram released Archigram I to represent their projects and establish credit for their ideas.



Fig. 6 Archigram`s Plug-in City Drawing. (megastructure-reloaded.org, nd.)

Printed as a brochure, it was an influential and radical manifesto. Using lightweight, steel and glass, mega structure projects, Archigram mostly focused on technology and futurism, yet the group was behind on solutions for social and environmental issues. Archigram, experimented with modular technology, mobility through the environment, space capsules, and mass-consumer imaging. Their paintings presented an enticing image of a glamorous future machine era, but they ignored social and environmental realities which would later be pointed out by their successors such as Richard Rogers and Foster pioneering in high-tech architecture style. Archigram's work was influenced by Antonio Sant'Elia's works and had a neofuturistic bent. Buckminster Fuller and Yona Friedman were other big influences. Archigram's work influenced later projects such as Richard Rogers and Renzo Piano's high-tech "Pompidou Centre" in 1971, early Norman Foster works, Gianfranco Franchini, and Future Systems. The group's tactics had shifted significantly by the early 1970s, where they took their input of technology towards the nature in a more subtle way. Although their approach seemed as absurd by some critiques, It can be argued that It was completely necessary to push the boundaries of imagination, in order to create a technological advancement which futurists intended to do.

One of the founding members of Archigram, in 1960s Michael Webb stated the radical idea of bowellism. Which indicated that the service elements of the building could be thrown out to the exterior of the structure, hence creating a larger interior space. Which would use the hidden parts of the building as its main façade element. *“Webb coined the term in response to a comment on his design by Sir Nikolaus Pevsner in a 1961 lecture, in which he recalled hearing the words: "within the schools there are some disturbing trends; I saw the other day a design for a building that looked like a series of stomachs sitting on a plate. Or bowels, connected by bits of bristle.”* (Sadler, 2005)

Bowellism was mostly associated with Richard Rogers, a British-Italian architect famous with his buildings in high tech style. In 1978 an architectural design competition for the Lloyds Building was incorporated which attracted Foster Associates, I.M. Pei and Arup. Richard Rogers and his team won the competition with their radical proposal which followed high tech style with the `inside out` architectural composition. Building was completed in 1989 and made Its` remark in high tech architecture.



Fig. 7 Lloyd`s Building, London, UK. (David Wright, 1989)

It is necessary to explain why architects took such radical decisions in its` design. Building was brought up by the idea of being inside out and using advanced technologies while showcasing them for the public to admire. High tech architects believed that new ornamentation was to represent the intellectuality and the advancement of technologies with its` complete magnificence. Also, buildings would have a larger



Fig. 8 Pompidou Center,Paris,France. (Jean-Pierre Dalbéra, 2008)

interior space, cleansed from all the necessary services which would be hidden inside the building. Moreover, being inside out, extended the life span of the building, by enabling repair works to be conducted easily from the façade of the building. It may be argued that a machine is easier to repair If all the necessary parts are reachable by an exterior repair attempt. Since the building was a business center, It would be difficult to make repairs, or require users to be relocated If it was designed as a

traditional office building with services inside. Later on another example of the same style was proposed for the Pompidou Center. It was designed by Richard Rogers and Renzo Piano with a team of professionals. Building expanded the horizon of high technology and created a social centre which would serve as a complex structure, designed inside out. Mechanical systems and circulation was expanded into the façade and created a mechanical expressionist building naturally. Design of the Pompidou revolutionized the way museums were perceived.

1.1.4. Deconstructivism to CAD: most recent technological advancements towards sustainable architecture

By 1980`s a new form of architectural philosophy started to emerge. Architects like Rem Koolhaas, Frank Gehry, Zaha Hadid and Peter Eisenman pioneered the fragmentation of the architectural objects and investigation of the form through bringing these parts together in an expressionistic way by staying loyal to the modernism roots. Even though this style may not completely represent and label the works of aforementioned architects and many more involved, it categorizes the sense of form-giving by analysing the non-conformist radicalism behind each of their buildings. In 1988, The Museum of Modern Art in New York held a "Deconstructivist Architecture" exhibition. In contemporary architecture, the word Deconstructivism refers to a movement that opposes the ordered logic of Modernism and Postmodernism. Deconstructivism advocated a confrontational approach to architectural history, claiming that It could take it apart piece by piece and bring back together without the rules of the past applied completely.



Fig. 9 Seattle Central Library, Rem Koolhaas, USA. (Nicola Delfino, nd.)

Deconstructivist architecture was also quite related in many ways to high-tech architecture. It extended the boundaries of the use of technology in architectural designs, created controlled climate within the buildings and established solutions for engineering problems while increasing the level of complexity in buildings, pioneered the use of CAD, computer aided design. First examples of the style were done without the usage of computers although documentation process of such complex projects often became too laborious for team of individuals to handle. Projects moved towards such complexity that new tools to contain information were necessary. Computer aided design changed great deal in the architectural design process. It automated tasks which could only be done by hundreds of drafters in days. With decreasing the time and labour needed for design and documentation, architecture started to evolve into a more ideal form, which would eliminate the rules and restrictions of the humankind. Usage of computers decreased the time needed for design

and brought up new ways to optimize designs to the actual needs and desires of the public and designer.



Fig. 10 General Motors Technical Center in Warren Michigan. (*Before Autocad*, n.d.)

With the innovations in personalized computers and software engineering, computer aided design started to become main tool of the architecture firms. Frank Gehry and associates was one of the firms which pioneered in complex geometric shapes and daring solutions in architectural work. Gehry started to expand his horizon by creating a personalized software which was used in aeroplane design at the time. With the expanding toolset, limits of creative imagination began to be pushed.

In order to understand how CAD changed the limits of imagination, architect Frank Gehry can be analyzed. It can be argued that when his early works and latter works are compared, visible change in complexity can be observed. His buildings over time, became much more diversified, complex and liberal. As the technology evolved, he was able to catch a movement in his style, which simultenaously pushed the boundaries of structural design technologies.

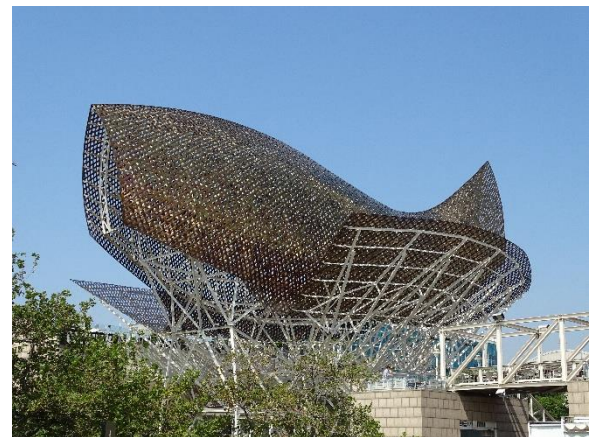


Fig. 11 Side by side comparison of Gehry`s first commission David Cabin 1957, and his Peix D`or pavilion in Barcelona 1982.

It can be argued that Gehry was influenced along the way, but also the work of Gehry changed in correlation with the information technologies. One of his earlier works Santa Monica Place and latter works are almost toe to toe different. CAD enabled a master like Gehry to make more expressionist and daring, also complex projects. During his practice, Gehry has had discovered many ways to improve the software to give his architectural visions more room to be creative. His

intentions of creating extraordinary shapes, required him to invest in the technology. Later Gehry and associates created a new department to work on the software. Which eventually detached itself from the original software, CATIA, into Digital Projects, an optimized software for complex projects of Frank Gehry. His design style and complexity swiftly changed with Catia. In an interview Gehry stated how It minimised the required paperwork and decreased the amount of time needed to make corrections afterwards.



Fig. 12 Walt Disney Concert Hall, Frank Gehry. (Szekely, 2011)

The level of complexity that was achieved in Walt Disney concert hall and Gugenheim Museum, revolutionized how form can be altered in architecture, influenced many structural design solutions. With the complexity level of the projects, importance of the information modelling has significantly grew. Started from the 70`s and established as a widely used term in the early 2000s, BIM, Building Information Modelling started to be used in architecture and construction.

In ISO 19650:2019, BIM is defined as: *“Use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions.”*

The US National Building Information Model Standard Project Committee has the following definition: *“Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.”*. (Frequently Asked Questions About the National BIM Standard-United States | National BIM Standard - United States, n.d.)

With the usage of BIM and CAD, advanced geometries and complex programmes can be solved, documented, and experimented. Moreover, with the total control on information of the design, making optimizations to increase sustainability, monitor transformation projects and analyse user behavior needs and foresee problems became possible. This enables architects to take less intuitive and more knowledge based decisions. Hence increasing efficiency in the built environment and establishing clear goals which can be quantifiable and be measured. With the information systems and advanced technologies, architecture became a vital problem solver in nature, hence unlike any previous eras, late 20th, and 21st century became a golden age for naturalism in architecture. Green architecture concepts grew importance as public became more and more aware of the possible solutions, therefore architects embraced the green architecture to overcome

challenges to recover the impact of industrialization in the nature. The pursuit of a functional and tectonic order was at the heart of early green architecture's modernist roots, but postmodern theory liberated the rigid functional rules of performance-based design and repositioned them to reflection, interpretation, and spontaneous expression of coterminous meaning inherent to a specific place or living vernacular.

Samuel Mockbee founded the Rural Studio in western Alabama in the early 1990`s to address environmental issues in the context of social involvement. Mockbee and his Auburn University students developed creative, low-cost residences and communal structures for a mostly underprivileged audience, typically incorporating recovered waste materials and passive solar systems. In Masons Bend, Alabama, for example, The Glass Chapel (2000) used repurposed police car windshields for its roof glazing system and rammed earth walls.



Fig. 13 Glass Chapel, Rural Studio. (Brown, 2008)

Yestermorrow's mission, which began in 1980 in Waitsfield, Vermont, was to promote emerging sustainable technology and local materials. eco-technology: the 1990`s Green design encompasses new and improved environmental technologies that boldly expressed and blended into contemporary architecture. The proclamation of this time was that architecture should naturally be designed sustainably and normalized within the characteristic constraints and parameters of a given project. The emerging green architecture tended towards larger and more varied building typologies that required inherent “load-dominated” energy design measures and “eco-centric” technologies for reduction of unwanted heat gains from solar radiation and internal sources, such as artificial lighting, equipment and people, mechanical ventilation, elevators, and modern air conditioning systems. Aim of reducing the footprint and creating more independtly working buildings architects used information systems and energy production, also updated the water harvesting systems, although all these experiments were dependent on the building itself, in order to create a complete sustainability in the built environment, need of infrastructural integration was necessary, this could only be achieved by being connected to a well structured city system.

1.1.5. Parametricism and futuristic Architecture

The term parametrisicm first brought up by the partner of Zaha Hadid, Patrick Schumaer. He believed that information modelling has been overtaking architectural design process by simply enabling

decision makers to create parameters rather than repeating the manual work over and over again in every new project. Even though the term was new, It was used to describe many examples of deconstructivist and high-tech architecture projects before It was mentioned.

One of the earliest examples was in the 1950s Frei Otto, a German architect conducted several researches in order to achieve lightweight structures which could overtake the traditional building design methods and techniques. His physical models proposed an analog way of optimised geometries in the built environment, which would often be tensile structures. In 1972 Frei Otto designed Olympic Stadium in Munich, Germany. It was an unusual method of building, textile-like tensile structure spanned around the stadium in order to create an immersive and inclusive innovation.

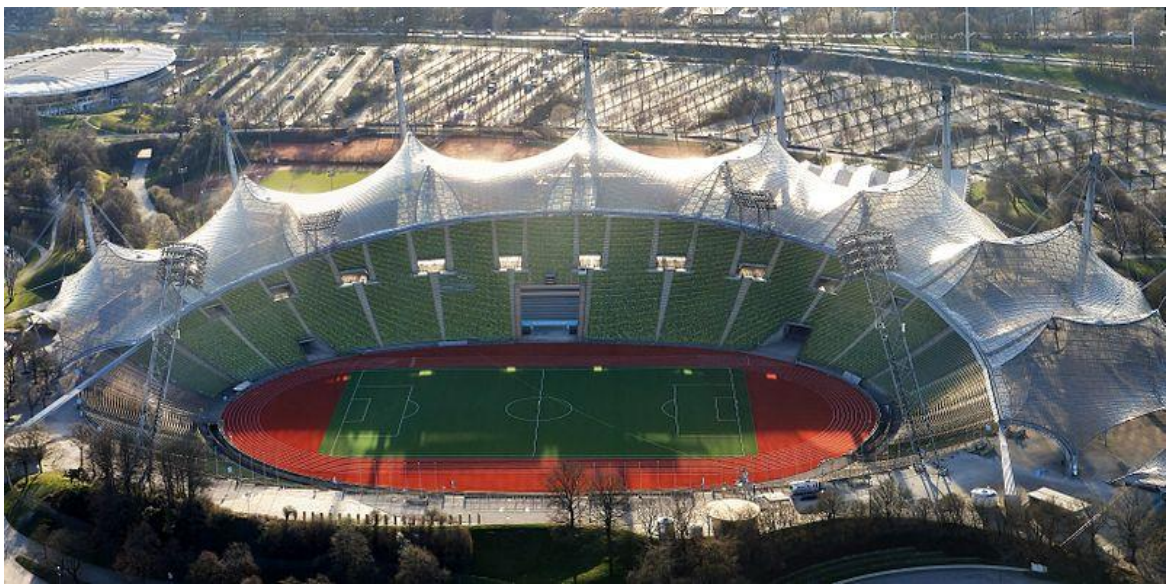


Fig. 14 Olympic Stadium, Otto Frei (2014 *Olympiastadion Munich*, 2014)

Early examples of parametricism were based on analog systems which would work as experiments after experiments to enhance building methods with advanced manufacturing, hence creating customized structures rather than generic, rapid architecture. Even though, architecture was becoming more and more unique, information which was used to create such geometries were accumulating, hence creating a scientific documentation which could be altered and used in different ways in projects to come. From 1990`s to 2020`s, parametricism has been enriched by various architects. One of the most important examples was Zaha Hadid, who created many buildings which was close to become deconstructivist.

Early creations of Zaha Hadid were closer to sharp forms and clear functions. Although as the technology evolved, as the design possibilities increased. In 2015 Zaha created `one thousand museum` which was a revolutionary building in terms of structural integrity and building quality. Structure was designed as an external shell which enabled interior space to grow larger since large columns were not needed. External shell worked as a load bearing elements, which would also cover the entire building and create the language of the façade.

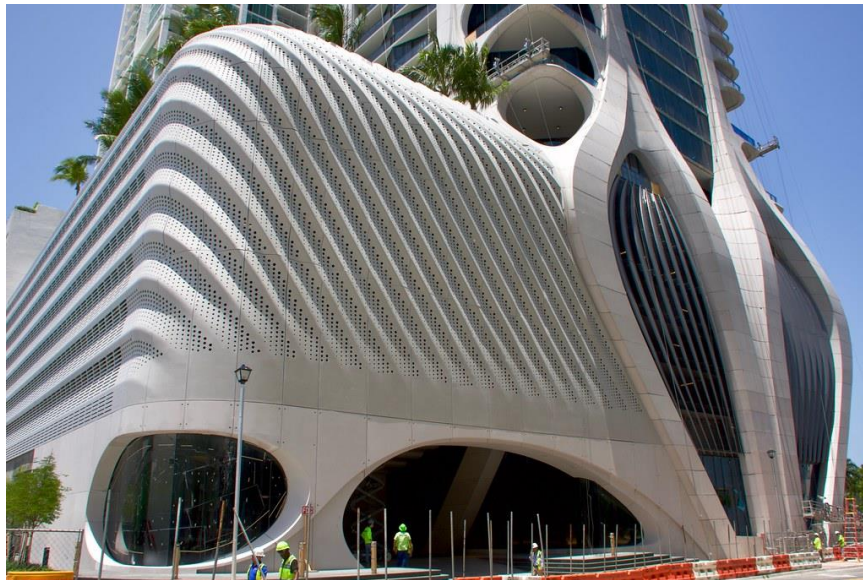


Fig. 15 One thousand museum by Zha Architects. (ucumari photography, 2019)

It can be argued that this building took its` roots from high-tech architecture as well as the deconstructivism. Although the mass customizability and multi level computational systems allowed this type of architecture to grow beyond certain architectural styles.

In a 2014 talk about between Michael Hansmeyer and Patrik Schumacher of ZHA, portion of "The Modern How" , Schumacher presented "Parametricism 2.0", the "updated" and presently completely developed "*Parametricism with parameters that matter*". Schumacher emphasized that after two decades of total build-up of information and encounter, Parametricism is presently completely arranged to "*go mainstream*", satisfying the total array of the societal assignments of engineering within the "organization and enunciation" of the built environment, counting structural verbalization and natural adjustment. According to designers like Schumaer, parametricism has been and will be used systematically to achieve ideal optimizations in the built environment hence creating a complete dominion over analog tools when it comes to decision making.

2. Sustainable cities through architecture

‘What is sustainability?’

The name sustainability is derived from the Latin *sustinere* (tenere, to hold; sub, under). Sustain can mean "maintain", "support", "uphold" or "endure." According to the online etymology dictionary. Sustainability as a word, holds a few important meanings, there is a sense of maintenance or preservation, also there is a parameter of time, or timelessness. Since it was first introduced, sustainability absorbed many other meanings within itself hence creating an uncertainty, even losing its significance as the meaning became more and more generalized. Therefore, becoming a blurry and defacto concept that would oftenly be used, although not taken seriously.

Sustainability was defined for the very first time in 1987 in the United Nations Brundtland report. In 1987, Report of the World Commission on Environment and Development: Our Common Future, was published. Report stated a definition for the sustainability and sustainable development, hence declared a concept which world desperately needed. The United Nations Brundtland Commission defined sustainability as “*meeting the needs of the present without compromising the ability of future generations to meet their own needs*”. (Kuhlman & Farrington, 2010) In its essence, sustainability is about conserving resources for the future without abrupting or disregarding the need of advancing and development. Since the UN has taken the responsibility of chiefery for the matter, over 140 countries became a part of this goal, with its successes and failures, sustainability became an essential part of policy making, economical growth, industrial development, education, agriculture and architecture. Sustainability in architecture, however, has a more physical reflection. Although the phenomenon has always been an essential part of materiality, buildability, and resilience; sustainability in architecture became vital especially after the globalization of the policy making methods. Since UN standards started to shape the quality parameters of a sustainable building, also the need for reducing footprints of the built environment has been dramatically increased, sustainability in architecture became an undeniable parameter in assessing the building quality. Main principles of sustainable architecture can be speculated in four categories; economic, ecological, political and cultural.

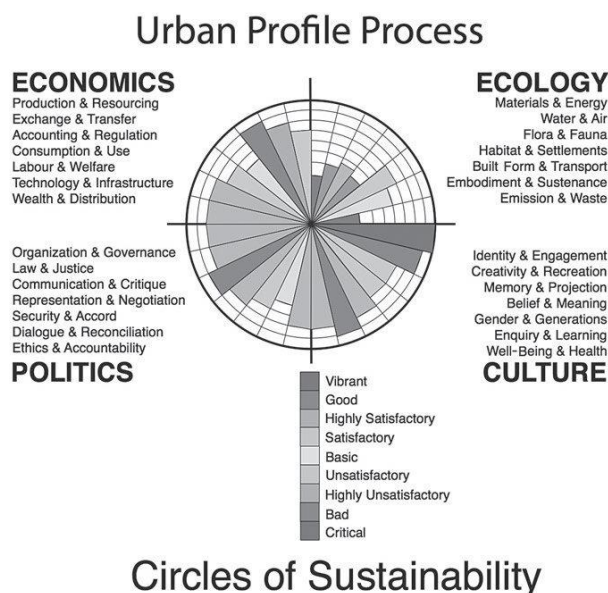


Fig. 16 Circles of Sustainability: Urban Profile Process

2.1.1. Sustainable architecture through new development

There are several ways to achieve a more sustainable building and built environment. One of which is through new development areas and projects. Mostly started in Asian countries, sustainability through new development can cut both ways. It has advantages yet also attracted a lot of criticism over time. To analyse whether it is more advantageous to achieve sustainability through new development, a few examples should be critically analyzed. There are some tools that can be used to achieve sustainability in a new building design. These include the different aspects that has been tried to create a more sustainable building model.

First aspect is sustainable energy use, which requires efficiency in use of energy in a building. This can be achieved in several ways ;

- Basic : Orientation and Form
- Mechanical : Heating, Ventilation and Cooling
- Electronical : Renewable Energy

In history and today, architects have always tried to use energy in the building. Buildings being static also effects the idea behind a consumerist point of view. Buildings are meant to be static, they can be repaired and altered but when they are built, It is usually for a use for a longer period of time comparing to other products. Energy becomes an important issue in this manner. One way of achieving efficient energy use in a building is to orient it according to its location. In the north hemisphere It is important to create the program orienting towards south, because day light will be invited into the structure with windows and openings. Also, It is important to adjust roof and windows according to the sunlight in order to minimize the need for artificial light fixtures and decrease the need of electricity for lighting and heating purposes.

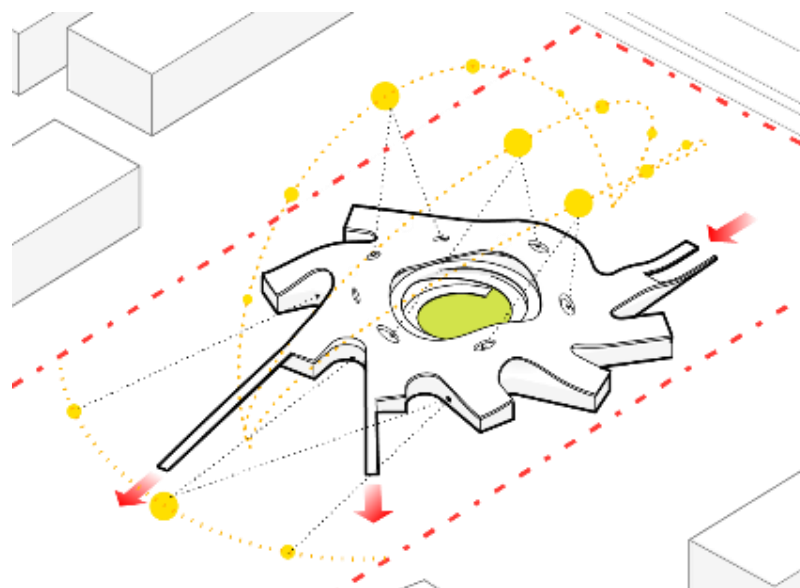


Fig. 17 Diagram of a Kindergarten orientation by the author

There can also be some mechanical appropriations and alterations to a new design or an existing building. By using the mechanical formation of the building, natural ventilation, passive cooling and heating can be achieved. This is also related to the orientation. If it needs to be achieved without any equipments and fixtures. Services of a building can be designed by using information modelling to achieve maximum efficiency in energy usage. Energy production via solar photovoltaic panels is a viable option in order to achieve energy efficiency. Solar panels can be used in two ways, one way is to design for the PV panels hence customizing the design during the earlier phases of the project.

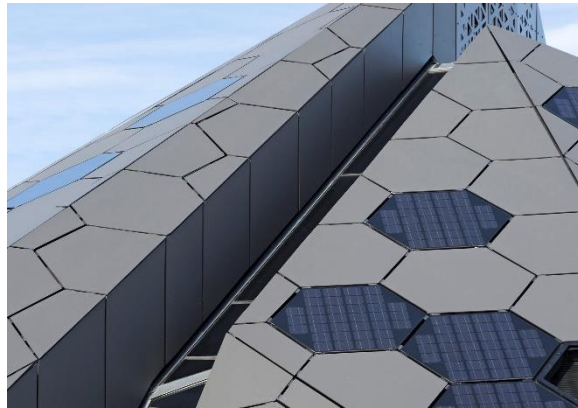


Fig. 18 Photovoltaic Panels by Onyx Solar on Science Pyramid by BURKETTDESIGN. (<http://us.archello.com>, n.d.)

Another option is to install the premade panels, made for residential or commercial use, to the building surfaces which take the most sunlight. This being usually the roof covers and roof facades of the buildings. Even though it is useful for the private residential blocks, instalment costs are higher for the larger projects and complexes.



Fig. 19 Photovoltaic Panel installation by evergreen solar.

3. Abandonment in the built environment

The term abandoned building can be considered as the vacancy as a state of the building. Various countries have several laws in terms of describing abandonment in the built environment in legal terms. For example in New Jersey, USA, an abandoned building is a building which was not used for at least 6 months. Abandonment can be caused by various reasons varied from legal, social, infrastructural problems also another reason of a building to be abandoned can be due to a reason in the production process hence building may not get completed. In this case building can be considered as unfinished, hence vacant due to non completion.

3.1.1. Possible problems caused by abandoned buildings and territories

Abandonment can be a temporary issue although in many cases abandoned buildings stay frozen in time without any progress to transform or value them. In this case they can affect the environment in a negative way. Some of these possible problems can be;

- Increased crime rates, blight, and insecurity

Abandoned lots, buildings and territories may attract crime although It is not certain that demolition of these building would reduce crime rates. If the problem is deeper than the abandoned building or territory, It may not have the proper correlation. According to a recent study made in Kansas University, demolition of the vacant houses did not reduce the crime rates in American cities.

- Possible accidents, arson, and fires

Since the abandoned lots and buildings are not being maintained properly, they may cause hazardous events to the public life. These may cause fires or bad air quality If some chemical binded in the building materials such as asbestos get released.

- Pet Displacement

According to some examples, people may abandon their unwanted pets, or animals that live on the streets can find the abandoned buildings as a safezone and create a habitat there. Which would eventually lead to various unsanitary complexions.

- Drop on the property values

A study shows that value around the abandoned buildings drop rapidly.

Figure shows the results of a study in Usa, reflecting the fact that plots and properties near an abandoned building, lost their value by 4 to 10 thousand dollars according to their distance to the area.

3.1.2. Methods and strategies of transformation for abandoned buildings and territories

Abandonment is an undeniable issue, especially if the abandoned building is located within the city center in context. In order to tackle the issues, it is important to establish an inclusive diagnosis for the environment of the subjected area. In the past, several countries dealt with this issue in various ways. Distinctive cities in numerous nations bargain with deserted regions in several conduct, concurring to their circumstances. Solutions and methods may vary from city to city as well as the country to country. In Switzerland, urban planners and policy makers put their concentration into the idea of `developing the city inwards` hence establishing a preventive solution to the possible problem.

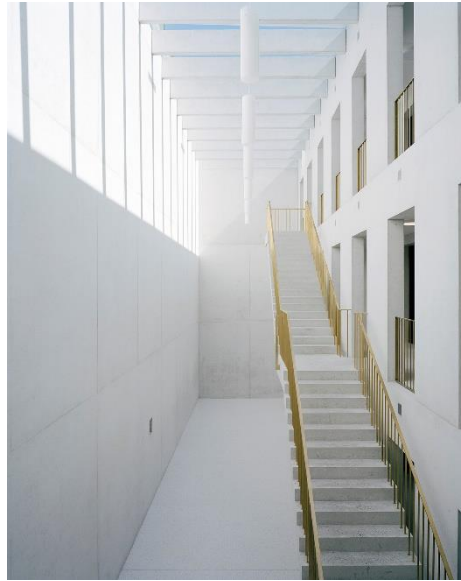


Fig. 20 Federal Criminal Court Interior / Durisch + Noll Architects + Bearth & Deplazes Architekten (Aguilar, 2021)

Planners deliberately stop cities from growing and expanding, hence enforcing contractors to repurpose the existing building stock. Cities are constrained to seek for arrive inside the existing urban zones and center on purge spaces and buildings. There are two alternative solutions for this particular strategy; one is to demolish the buildings which can not be used due to their sizes or condition, hence creating yet another empty plot within the city, second is to transform the building or area, with or without alteration.



Fig. 21 Federal Criminal Court Exterior / Durisch + Noll Architects + Bearth & Deplazes Architekten (Aguilar, 2021)



Fig. 22 Lukas Church Conversion into housing, Heinrich Boll Architects. (Sánchez, 2021)

Germany however takes a firmer stance on the subject. By declaring many abandoned factory buildings heritage, they intend to enforce transformation projects rather than demolition. On some occasions they transformed old military barracks into housing projects. *“Built in 1961, the Lukas Church has not been used by any congregation since 2008. The new owner opted for a mixed-use of the building offering a daycare center, doctors offices and apartments.”* (Lukas



Fig. 23 Lukas Church Conversion into housing, Heinrich Boll Architects. (Sánchez, 2021)

Church Conversion by Heinrich Böll Architekt - Architizer, n.d.) Abandoned territories and buildings in urbanized areas offer opportunities as well as disadvantages, it is a observable that the cities can get denser, hence stopping the expansion of urban growth therefore protecting the wildlife alongside the cities periphery is imminent. Minimizing cost of transportation and with an integrated urban planning and design solutions, abandoned areas can offer a relief for the city growth. In the long run, building on built areas can minimize the footprint, enhance the integration of the city and create a well working city infrastructure.

4. Analogue projects and critical analysis of their transformation methods

This research aims to dig deeper into the possible solutions to abandoned buildings and their transformation. How a building can be transformed and repurposed can vary from scenario to scenario although there are some strategies which has been working over the time, in the book `Ruin and Redemption in Architecture` Dan Barasch explains abandoned buildings and their journeys in a critical point of view. He argues that building transformation projects can be viewed in number of cathegories, these make the chapters of the book where each project is explained through their architectural properties as well as their historical context. Chapters represent how each method transform the existing building and plot.

- Lost; A building which has been either demolished and erased or lost due to its eradication over time.
- Forgotten; buildings which are still vacant and, in his expression, `hanging in time as frozen`
- Reimagined; buildings and territories that has been reimagined by architects according to a certain vision to recreate their narratives.
- Transformation: buildings which undertook a more radical change, which also recreated the narrative of the building and also added or changed the course of the story.

To understand the different ways of integration for the abandoned buildings and territories, several analogue projects were chosen. Project were chosen due to several aspects that they represent.

4.1. Example 1: Prussian Navy Bunker Transformation into Trilateral Wadden Sea World Heritage Partnership Center, Dorte Mandrup Arkitekter

Project was chosen as an example of transformation with altering the original structure and using it as a main defining element in the structural design process of the proposed building. Unlike many, this project does not aim to renovate the old bunker, although It also does not ignore the buildings` existence. Donte Mandrup caught a fine balance between interpretation and preservation.

4.1.1. Historical context of the project

The Navy Bunker was built in 1853 by the Prussian Navy, It was used in World War II to create a protected space. After the bombing of the city and its` surroundings, it was one of the last buildings to remain. By the 20th century, the Wadden Sea area gained importance due to its wetland properties. Natural preservation was necessary for the environment and also it was imminent to transform the area in order to relieved the pressure of becoming a wasteland instead of a natural wetland. In 2009 Unesco declared the area as a heritage site in order to create a protection over it. And later in 2017 local government launched a preservation project for the Wadden Sea area. For that same reason an open, international competition was launched and the Danish architect`s proposal was chosen due to several reasons, one of which was the creation intended to make minimal difference yet expected the maximum change possible to rehabilitate the structure and its surroundings.



Fig. 24 Prussian Navy Bunker at Wilhelmshaven, Germany. (Block, 2021)

4.1.2. Goals and aims of the project

Architects intended to achieve several goals for this project, main goal was to create a balance between preservation and a proposed vision.

A. Creating a balance between design and preservation:

Project was made as a cover and used old navy bunker as the core of its` structure. In order to emphasize the layers, they decided to go with a transparent outer layer, which would only hide enough of the building to create a modern space but also show that the past is in its` essence. By creating the layered structural system, they denied the usage of bearing walls and hanged the building on the core structure and main columns, panelling with steel structural system which surrounds the building.

B. Creation of the light and durable structural system:

Steel frames and curtain panels were used to create integrity between layers, a complete overhaul of external bearing elements were designed in order to achieve the maximum space in the interior, also creating a level of guidance through the old into the new, architects aimed to make the building as light and transparent as possible.

C. Making a layered and legible structure :

Architects used double glazing glass panels to cover the building and in some forms attached the In order to create a lighthouse like form, they intended to use the layers of old and the new in harmony.

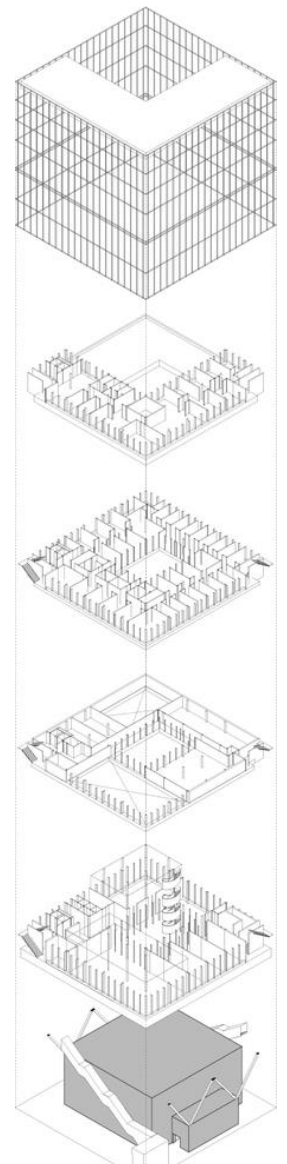


Fig. 25 Structural Diagram by Dorte Mandrup (Block, 2021)

4.1.3. Critical analysis of the project

The four-storey addition for the new proposal was 8 meters high and separated into two floors. After creating a meaningful ground floor space to welcome the users, architects aimed to invest the functional properties of the building by creating the architectural programme areas on the second and third floor. They created a semi-transparent façade to vitrify the working areas, there are 2 meeting halls and several working areas on these floors.



Fig. 26 Heritage Center by Dorte Mondrup (Block, 2021)

The landscape which surrounds the bunker was transformed with a series of organic rain harvesting pools and aided the idea of the wetland and its ecological properties yet also created a hard-surfaced gathering space. It can be argued that the project failed to be as ecological as possible although due to the average rain intake of the area, possible flood scenarios were inevitable. If not interpreted earlier in the design stage.

The architectural idea in its` essence was about creating a transparent volume that would act as if it was a gloom of the area by creating a series of light reflections through the surfaces of the building and the surfaces of the water pools around it. Moreover, the goal was to repurpose the area without many alterations hence to create a sense of safety in the large landscape, the building was used as a light source, creating sort of a surreal experience amidst the natural wetland habitat.

4.2. Example 2: Grain Silo Complex, Cape Town South Africa transformation into Zeitz Museum of Contemporary Art Africa, Heatherwick Studio, 2017

This project was analysed as a way of interpretation within the urban area. The structure was an important part of the city silhouette and skyline, hence to investigate the methods and strategies for such conditions, this project was chosen as an analogue project.



Fig. 27 Grain Silo Complex before transformation, Capetown, South Africa. (*The Grain Silo in Cape Town*, n.d.)

4.2.1. The historical context of the project

In 1921 on Victoria and Albert of Cape Town, a new grain silo building was about to be built. After the industrial revolution and the need to minimize the logistic routes, the grain silo building became the tallest building in the region. Extending to almost 60m high, the structure was used to store and grain maze. It was abandoned in 2001 almost eighty years after its` emergence.

Since it was the most visited area in Cape Town, possible reuse was argued by the owners and government for years although until a large, comprehensive plan took over, there were no changes. Up until 2013 and when it was decided to create a transformation masterplan for the area, Heatherwick studio, a London-based architecture firm took the contract. Heatherwick Studio was known for its unusual and radical projects, which used parametricism and advanced technologies to carve out parts from the original silos which are 4.5m tall, hence creating a large open space for the museum of African contemporary arts.

4.2.2. Goals and aims of the project

Several things were aimed to transform the building and create a new vision for the cityscape of Capetown.



Fig. 28 Zeitz MOCAA by Heatherwick Studio (Dobbins, 2018)

A. Integration to the existing structure

Architects aimed to create a new vision for this industrial ruin. Since the existing building was not made for a museum usage, architects had to creatively alter the existing structure by eliminating walls, opening spaces, and creating carvings through the old silos. This enabled them to alter the building by using new technologies and creating new forms which are unusual in the design methodology.



Fig. 29 Zeitz MOCAA by Heatherwick Studio. (Dobbins, 2018)

B. Keeping the original feeling

Designers could have ignored the existing structure, yet they chose not to. It was imminent to keep the heritage part for the social habits` sake. Users of the area are used to the building and in time they have bonded with the existence of such structure. It made its` way in the public mind and memory, hence becoming a part of history for the population of Capetown. In order to create a complete connection with the public, the proposed structure should have made remarks on the existing structure and also glorify its memory.

C. Creating sustainability through natural light and ventilation

The building was designed as an open space, which invited natural light. It used existing silos to create carvings to invite natural ventilation and sunlight. By creating such shafts architects aimed to break the opaque properties of the industrial, concrete structure.



Fig. 30 Zeitz MOCAA Interior Atrium by Heatherwick Studio. (Dobbins, 2018)

Heatherwick studio aimed to create a grand atrium on the first floor, they have designed a cutout feeling in the silos hence recognizing the existing structure also delivering a more sustainable narrative with natural light and ventilation on the background. This created a diverse feeling of being in ruin and also feeling the modernity of the space. This duality between old and new has been successfully achieved by the designers.

5. Creating a new hypothetical model for architectural transformation in abandoned buildings and territories

The increasing numbers of the building stock in the cities, pushes architects to take a new stance in terms of preservation and transformation. Architects and urbanists urge to make use of the abandoned areas and building within the cityscape, Creation of a denser city may be the ultimate solution to put a stop to limitless expansion of the urbanized areas.

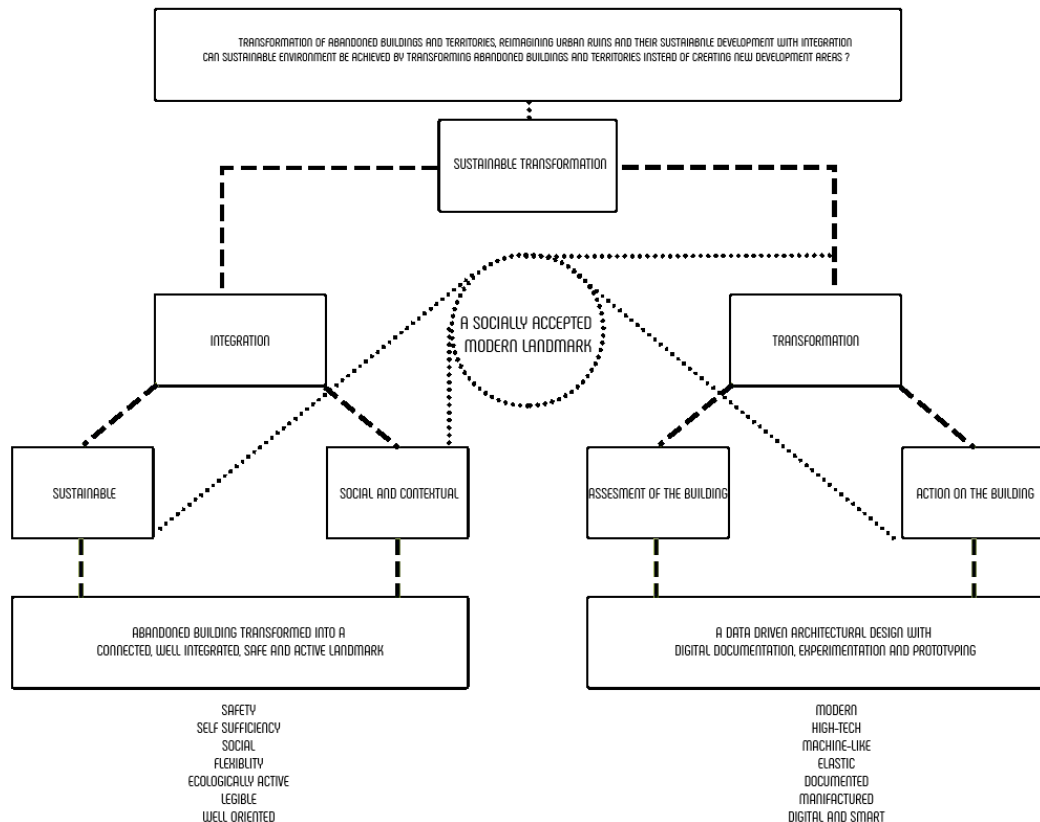


Fig. 31 Hypothetical Model for urban transformation, by the author

5.1. Principles of the new transformation model for architectural design

According to the research there should be an argument of setting a set of new principles reflecting the old methods, using the current methods and trending technologies, a new style which takes its roots from high-tech architecture and contemporary modernism yet also connects the mixture of these styles with the digital necessities, flexibility and transparency can be created in the urban ruins of the close history. In addition to the 10 principles of modern architecture, Information modeling, and digital flexibility can be also added as principles.

5.1.1. Principles for the assessment of the current building

Building quality should be assessed to get the most out of the existing structure to be transformed. This requires inventory making and creating digital models for the whole or parts of the structure. Structural elements shall be investigated and assessed, sizes and dimensions should be critically analyzed according to the today's standards. Moreover, It can be argued that since abandoned

buildings were mostly built some time ago, they may or may not have used digital methods and scientific data for their design process. Architects may have built the building the way it was built due to their intuition at the time, political or economical climate of the era, and technological capabilities. Hence a set of analysis methods can be applied to the existing structure to achieve a better understanding of the task at hand.

These analysis methods include.

- Structural Surveys and Inventories
- Solar Analysis
- Wind analysis
- View analysis
- Walkability analysis
- Transportation Analysis
- Density and footprint survey
- Orientation and Climate survey
- Social experiments and surveys

Moreover, to use the analysis data later on during the design process, a digital model can be prepared. If the existing structure can be moved to the digital environment, this digital model can be used with CAD tools to create an immersive solution, easy documentation, and complete reporting on results. Also, by creating a digital model, prototypes can be tested on the existing building, in real-time and various simulations can be applied to repeat the analysis process on the design sketches, in order to get accurate feedback and make corrections on the project.

5.1.2. Principles for the design of transformation projects

With the current technological advancements and conceptual approaches in architecture in today's design climate, a set of new principles should be made for design process of the transformation projects. To achieve a high efficiency in sustainability and social integration, creative decisions should be made by the guidance of knowledge and data. By investigating the evolution of contemporary architecture, causality is obviously emerged with the technological advancements. With the industrial revolution, mass production became a mainstream meta. Hence architects pushed towards the internationalism, a common style to follow around the world. Although time has proved that it was not an efficient way to build, in terms of social acceptance, ecological standards and requirements of the location. Hence it can be argued from the successful projects are;

- Innovative yet connected to the context
- Elastic in terms of use
- Modern and unique
- Socially accepted and based on the needs of the public
- Used prototyping in design process and made inputs for the actual building
- Experimented and corrected according to the feedbacks and secondary analysis
- Well documented

Conclusions

Conclusions from the first chapter of the paper

First chapter of the paper aims to re narrate the evolution of architecture and in the meantime aims to make conclusions out of trends and methods that has been tried. By investigation of the causality behind each architectural strategy, it can be argued that a conclusive solution for the upcoming architectural challenges can be stated. According to the findings of the paper, it is visible that architecture has always been evolving, hence a definitive description to architecture, or a simple general perscription to issues in the built environment is not possible. This chapter lays the foundation of the theoretical basis of the evolution of architectural ideas, styles, and the changing built environment alongside it. It may be argued that even though architecture started as a need for functional use, soon after it evolved into a medium for representation, narrating and reflecting the ideology of the societies that they originated in. Architecture from time to time took the public responsibility as becoming the media of identity of the societies, also their dogmas and beliefs. Paper presents various ideological changes in architecture from Vitruvius to High Tech Architecture, and argues that architectural design process became more and more functionalist, objective and pragmatic. Architecture as it has always been followed technology although recently architecture took the responsibility of pushing technologies further and taking advantage of the advancements as fully as it can.

Conclusions from the second chapter of the paper

It is possible to make a stance with valid data to back the design decisions up. Such as the difference between other architectural styles and high-tech architecture, when compared it is visible that high-tech architecture is still, after almost 30 years of its origin, alive and well used. This resilience in style was caused by following the technolocial trends, prototyping and experimenting. Also, documentation of the results of each project, created an accumulated background for the scientific thinking behind parametricist, neo-modernist architecture. In the second chapter of the paper, It is clear to observe that in order to achieve the ideal sustainability in the built environment, maximum efficiency is a necessity. This can only be possible with a comprehensive planning, detailed documentation and by taking advantage of the technological achievements.

Conclusions from the third chapter of the paper

Third chapter focuses on the abandoned buildings, abandonment as an issue and the ways and strategies in solving this issue. Abandonement is an undeniable issue in the built environment, which can affect the future of the cities. Yet also, it can be an opportunity for the new visions within the urban area. Projects can transform an existing area into a new vision, where architectural methods can be experimented, prototyped, and tested. Abandoned buildings and territories offer a connection between old and the new. Sustainability makes a building landmark, to create a building which would be integrated and accepted, social and physical dynamics should be evaluated and well thought in design process. Inclusive decision making and taking every recourse into consideration may be the cure for the abandonment issue.

6. Empirical Research

For the empirical research, a reflection of the theoretical part of the paper to the real-world examples is deemed necessary. Therefore, a case study area was chosen to further test the research and create a transformation model for the specific case study area. In Lithuania general, it may be argued that abandonment in the built environment is an ongoing issue. Hence there are various examples of abandoned buildings and territories, especially from the soviet era buildings. Some of these projects were not completed and currently it may be argued that they are perceived as “the ghosts of the fallen union.” There are several reasons why these objects were disregarded and left to rot, some of these reasons are economical, buildings being too burdensome to demolish and astronomically expensive to rehabilitate and upkeep. In a 2015 news article and research published by Bbc showcases this issue clearly. *“Former industrial plants are also falling into ruin, and psychiatric hospitals have been closed down. No-one looks after them and there's no money for their upkeep - it would be too expensive to preserve them.”* (“The Abandoned Buildings of the Eastern Bloc,” 2015) In the research reporter travels around the eastern bloc to look for the abandoned buildings in order to document the current state of these “ghosts”. The abandonment issue became so obvious that currently there is a form of tourism being formed around this idea called the “urban exploration of the ussr.”

Another reason for these buildings to be left as they are the sociological factor. Many of the abandoned buildings, especially in the post Soviet countries, are in the countries which declared their independence and struggled against a regime after years of oppression. Hence it can be argued that public generally are sceptical about these reminders of the past. In this case it makes it almost impossible to get the public vote for the rehabilitation or renovation projects aimed at these troubled objects.

This part of the paper aims to investigate the chosen abandoned building and its surrounding in social and physical aspects. The case study should cover the social surveys, investigate the public opinion, also represent the facts as data to create a basis for the upcoming design process during the graduation project.

6.1. Empirical Research Program

Research consists of three major parts to investigate the building and the territory. These are sociological, contextual, and spatial investigations. To systematically investigate the building, various hypotheses were made. Research will test and prove or disprove each hypothesis.

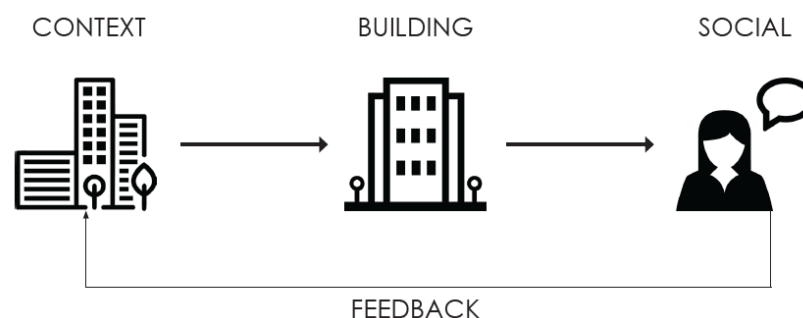


Fig. 32 Empirical Research Diagram, by the author

HYPOTHESES	OBJECTS	GOALS	TASKS	METHODS
Kaunas city can be analysed in order to understand the public behavior in different uses. Projects which is being used by the citizens can reflect the possibilities of what works and what doesn't in Lithuanian cities.	<ul style="list-style-type: none"> Kaunas City Center Zalgiris Arena Kaunas V Plaza Akropolis Shopping center Kaunas Picture Gallery, MK C Art Museum 	<ul style="list-style-type: none"> Comparison of the activities and uses by reflecting behavior into data representation Creating a quantifiable comparison to determine the behavioral map of Kaunas City. 	<ul style="list-style-type: none"> Photographing the case areas in different times Creating a database of uses and activities in each landmark Public Survey 	<ol style="list-style-type: none"> Photographing Surveying
Abandoned buildings and territories have negative economical and emotional impacts on the residents and public owned real estate in the city.	<ul style="list-style-type: none"> Kaunas Metropolitan Area Kestucio Street 	<ul style="list-style-type: none"> Create a quantifiable comparison in areas close to abandoned buildings and territories in relation with the real estate 	<ul style="list-style-type: none"> Making surveys and workshops Interviewing professionals Interviewing tourists 	<ol style="list-style-type: none"> Public survey Interviews with the professional architects, urbanists and designers Cognitive mapping experiments
Parametric systems should be designed to adapt any abandoned structure. Building forms, facades, windows, balconies, roof structures should be adjusted and parametric systems should be designed as prototypes apart from a structure to be implemented later on, these prototypes should be tested and reanalyzed.	<ul style="list-style-type: none"> Abandoned Britanika Hotel 	<ul style="list-style-type: none"> Create prototype parametric systems for building form and elements and put these on test again to document the results. 	<ul style="list-style-type: none"> Creating building element systems which would address the challenges come from climatic factors, such as wind, sun, orientation, temperature. 	<ol style="list-style-type: none"> Grasshopper, space syntax and ladybug BIM Modeling Parametric analysis tools

HYPOTHESES	OBJECTS	GOALS	TASKS	METHODS
Kaunas city can be analysed in order to understand the public behavior in different uses. Projects which is being used by the citizens can reflect the possibilities of what works and what doesn't in Lithuanian cities.	<ul style="list-style-type: none"> Kaunas City Center Zalgiris Arena Kaunas V Plaza Akropolis Shopping center Kaunas Picture Gallery, MK C Art Museum 	<ul style="list-style-type: none"> Comparison of the activities and uses by reflecting behavior into data representation Creating a quantifiable comparison to determine the behavioral map of Kaunas City. 	<ul style="list-style-type: none"> Photographing the case areas in different times Creating a database of uses and activities in each landmark Public Survey 	<ol style="list-style-type: none"> Photographing Surveying
Abandoned buildings and territories have negative economical and emotional impacts on the residents and public owned real estate in the city.	<ul style="list-style-type: none"> Kaunas Metropolitan Area Kestucio Street 	<ul style="list-style-type: none"> Create a quantifiable comparison in areas close to abandoned buildings and territories in relation with the real estate 	<ul style="list-style-type: none"> Making surveys and workshops Interviewing professionals Interviewing tourists 	<ol style="list-style-type: none"> Public survey Interviews with the professional architects, urbanists and designers Cognitive mapping experiments
Parametric systems should be designed to adapt any abandoned structure. Building forms, facades, windows, balconies, roof structures should be adjusted and parametric systems should be designed as prototypes apart from a structure to be implemented later on, these prototypes should be tested and reanalyzed.	<ul style="list-style-type: none"> Abandoned Britanika Hotel 	<ul style="list-style-type: none"> Create prototype parametric systems for building form and elements and put these on test again to document the results. 	<ul style="list-style-type: none"> Creating building element systems which would address the challenges come from climatic factors, such as wind, sun, orientation, temperature. 	<ol style="list-style-type: none"> Grasshopper, space syntax and ladybug BIM Modeling Parametric analysis tools

HYPOTHESES	OBJECTS	GOALS	TASKS	METHODS
Kaunas city can be analysed in order to understand the public behavior in different uses. Projects which is being used by the citizens can reflect the possibilities of what works and what doesn't in Lithuanian cities.	<ul style="list-style-type: none"> Kaunas City Center Zalgiris Arena Kaunas V Plaza Akropolis Shopping center Kaunas Picture Gallery, MK C Art Museum 	<ul style="list-style-type: none"> Comparison of the activities and uses by reflecting behavior into data representation Creating a quantifiable comparison to determine the behavioral map of Kaunas City. 	<ul style="list-style-type: none"> Photographing the case areas in different times Creating a database of uses and activities in each landmark Public Survey 	<ol style="list-style-type: none"> Photographing Surveying
Abandoned buildings and territories have negative economical and emotional impacts on the residents and public owned real estate in the city.	<ul style="list-style-type: none"> Kaunas Metropolitan Area Kestucio Street 	<ul style="list-style-type: none"> Create a quantifiable comparison in areas close to abandoned buildings and territories in relation with the real estate 	<ul style="list-style-type: none"> Making surveys and workshops Interviewing professionals Interviewing tourists 	<ol style="list-style-type: none"> Public survey Interviews with the professional architects, urbanists and designers Cognitive mapping experiments
Parametric systems should be designed to adapt any abandoned structure. Building forms, facades, windows, balconies, roof structures should be adjusted and parametric systems should be designed as prototypes apart from a structure to be implemented later on, these prototypes should be tested and reanalyzed.	<ul style="list-style-type: none"> Abandoned Britanika Hotel 	<ul style="list-style-type: none"> Create prototype parametric systems for building form and elements and put these on test again to document the results. 	<ul style="list-style-type: none"> Creating building element systems which would address the challenges come from climatic factors, such as wind, sun, orientation, temperature. 	<ol style="list-style-type: none"> Grasshopper, space syntax and ladybug BIM Modeling Parametric analysis tools

Fig. 33 Empirical Research Program Table, by the author

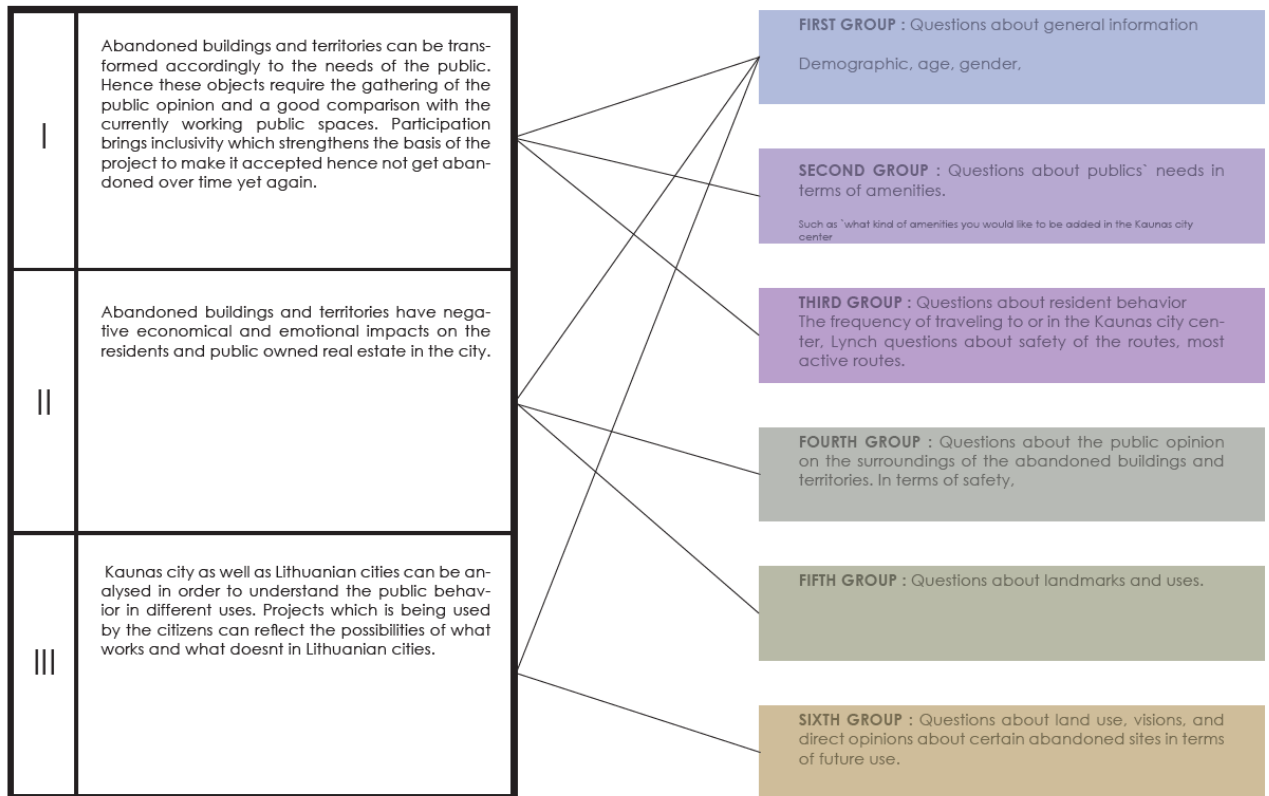


Fig. 34 Public Survey Program

6.2. Case Study: Abandoned Hotel Britanika, Kestucio Street 26. / Kaunas – Lithuania

Abandonment in the built environment is a present issue in Lithuania just as it is in many Eastern European countries. Especially in the major cities such as Kaunas and Vilnius, some of the buildings from the Soviet Era have been neglected, turned into ghosts in the modern cities. “According to the list of Kaunas city Council of 2013, there are 46 abandoned buildings in Kaunas city.” (Sinkevičiūtė & Januškevičiūtė, n.d.)



Fig. 35 Abandoned buildings by location in Kaunas City (Sinkevičiūtė & Januškevičiūtė, n.d.)

Even though there are many abandoned buildings, municipality and the central government are yet to come up with a comprehensive model to rehabilitate, demolish or renovate these buildings, transform and introduce these ghost lands into modern life. The aforementioned research which was made to investigate the abandoned buildings in Kaunas reflects the current state of these buildings and the issues that they cause. To underline the current necessity for addressing this issue following part of the research should be noted.

“Improper maintenance and necessity of liquidation of abandoned buildings are some of the major problems that should be noted currently. The main factors causing urgent liquidation and clearing of abandoned buildings are the threat for people, their life and health, and also damage for landscape.” (Sinkevičiūtė & Januškevičiūtė, n.d.)

According to the research, it can be argued that abandoned buildings should be addressed according to their current conditions. If the building is threatening the landscape and the public safety, and the building is worn out, and urgent demolition should be done. Although in order to categorize the buildings according to their use, importance and state, several inquiries should be made beforehand.

6.2.1. History and Context of the Abandoned Building and its` territory

The development of high-rise hotels in Soviet Lithuania was an unusual public-architecture phenomena. Understandably, these items may be viewed not just in terms of their utilitarian use, but also as one of the ways that regimes compete during the cold war in terms of representation of their prestige. At the end of 1980`s, the need for an iconic hotel building for the major cities of Lithuania was voiced by the Soviet authorities and the local government entities. It may be argued that Kaunas is geographically in an advantageous location. So as Vilnius, the centralized location of these cities within Europe, attracted many passengers travelling across the continent and using these cities as a waypoint. Hence *“the new detailed layout project of the central part of the city (1977, chief architect A. Steponavičius), among other redevelopment works of the central part of Kaunas, provided for the construction of two large scale hotels.”* (Petruelis, Vaidas, autc.lt, Britanikos“ Viešbutis Kaune, 2018)



Fig. 36 Abandoned Building:
Hotel Britanika, photo by author

According to Vaidas Petruelis, a scholar, Britanika Hotel on Kestucio str. was prepared in the Kaunas branch of the Urban Construction Design Institute. Several variants of the project were presented, as an expressive monolithic volume in the form of a wave and a technologically advanced and aesthetically expressive design of suspended structures, which would have been a unique project in Lithuania. As the architect recalls, due to technical complexity, these ideas were abandoned, eventually a simpler design option was accepted. Currently hotel is still vacant, yet to be completed. One of the reasons behind its` incompletion is economical problems. Building became too large to complete for the current state of the Soviet government, and later completely abandoned.



Fig. 37 Propositions for the Britanika Hotel, in order from left to right, (*Britanikos Viesbutis, n.d.*)

During its` design process several propositions for the building were made by the architect.

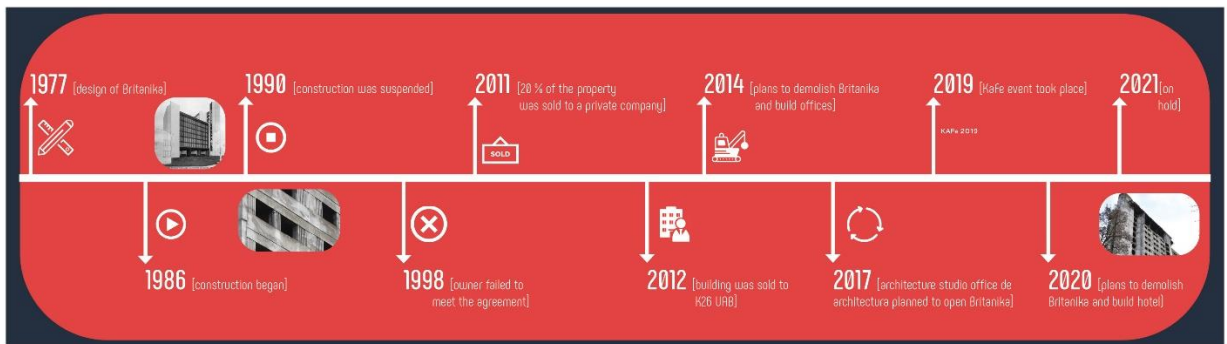


Fig. 38 Timeline of the project, by the author

Construction started in 1986, as the largest building in Kaunas center, to represent the glorious architecture and the monumentality of the Soviet regime, also showcase the new technologies and capabilities of the builders. Although later, company which was obligated to finish the construction bailed, due to overbudget and economical reasons. In 2011, 20 percent and later in 2012 completely, a private company purchased the building and the territory. In 2014 several plans to demolish the building altogether were announced, the plan was to transform the area completely by building offices in its` stead. Although in 2019 latest owners of the building, K26 UAB, offered a new hotel project as a transformation, according to their plans the unfinished building was to be demolished and a new, modern hotel building would be built. Although municipality and the city council revoked the proposition. Currently building is still on hold and remains abandoned.

6.2.2. Media coverage of the building and ongoing legal issues

Over the years abandoned hotel Britanika, received substantial amounts of criticism. Whether from the city council or the public, there is a consensus on how the abandonment issue effects the area negatively. To grasp the impact of the building on the city, a media and legal investigation is needed to be made.

In 2020, a young man who was troubled with mental issues, entered the abandoned building in order to commit suicide. Perpetrator intended to jump from the roof of the twelve-story building although fell on an officer in duty, ended up injuring the officer. Later on officer was taken to hospital for

treatment and the purpator could not been saved. This is one of the many examples on how this abandoned building is being used illegally by the public.



Fig. 39 Kauno Diena news website, translated by the author.

While illegal entries and suicide attempts has been taking place in the building, municipality has revoked yet another attempt to start a transformation project on the area. In January 2020, Kaunas Municipality did not approve another reconstruction project in order to demolish the current Britanika building and build a new hotel project. Later on architect of the proposed project implied that municipality did not indicate specific reasons for reovoking the project proposal. Although the municipality argues that plans were not detailed enough for the project and also the height of the building is no being approved by the municipality and the city council.

“G. Natkevičius has also mentioned that the abandoned Britanikos hotel on the 0.57 ha plot is planned to be demolished, but the possibility of using its` basement and ground floor structures is being considered.”

There is an issue in terms of transformation of the building and its` territory. However, it would be unjust to suggest that a new model for the project area can not be implemented due to economical reasons or the ownership issues. It may be argued that the city council and the municipality have worries about the proposed building being out of scale comparing to its` surroundings. Which raises the question If the building should stay the way it is, abandoned and neglected or any form of action to tackle this issue of abandonment in the heart of Kaunas is better than taking no action. The building and its` territory is affecting the health of the public, psychologically and physically. By providing a shelter for illegal activities and creating a visual pollution, abandoned hotel Britanika is still an issue waiting to be solved. However, negative the situation may seem, there are some creative endavours which tried to be implemented in its` place.

The experimental project of “Opening of the Britanika Hotel”: 48 hours of legal panorama

“Opening of the “Britanika” hotel is a project of turning an invisible concrete ghost to a most desired landmark for 2 days.” (futurearchitectureplatform.org, 2019)

In 2019 a group of architects and designers, decided to create an event, to open or `reopen` the hotel “legally” to its` visitors. Britanika being the most famous abandoned building in the center of Kaunas, many people around the country wanted to see the panoramic view from its` roof.



Fig. 41 Photos from the KaFe event (Office de Archit n.d.)

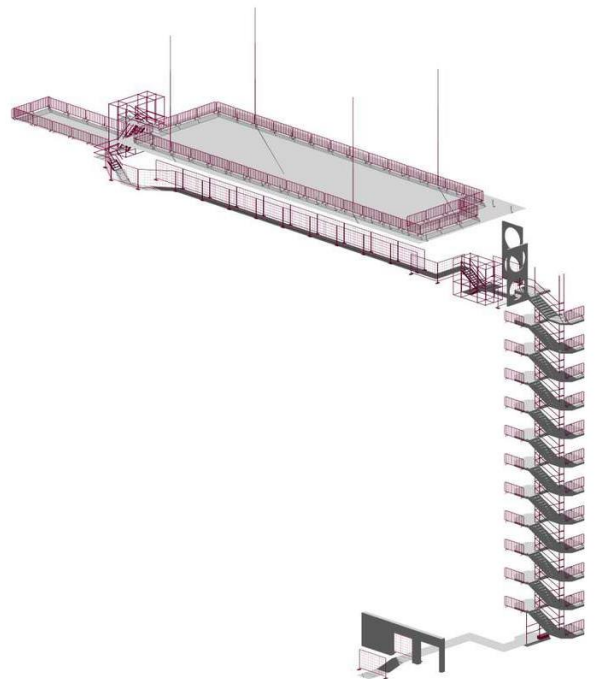


Fig. 40 Axonometric drawing of the intervention (Office de Architectura, n.d.)

Architects Jautra Bernotaitė, Andrius Ropolas, Paulius Vaitiekūnas from `Office de Architectura` intended to create an external temporary structure to create a vertical connection, from the ground floor to the top of the building. For the Kaunas Architecture Festival `KaFe`, architects implemented their intervention to the restrictions which are keeping the building away from its` potential visitors and vice versa.

During the two days of the festival. 1500 people visited the building, which shows the attention of the public to the opportunity of seeing the city panoramically. As architects stated,

“It was first and probably last time it was open - a demolition awaits. But until then, it lives its invisible life, undoubtedly creating new stories.”

6.2.3. Public Surveys

To create a perfect vision for a new transformation model, the opinion of the public on the abandoned building, was necessary to gather. Public surveys aimed to gather the information and represent these opinions as data to create a viable input for the design process. Especially for the architectural programming and planning phase of the transformation project.

Your Age
42 responses

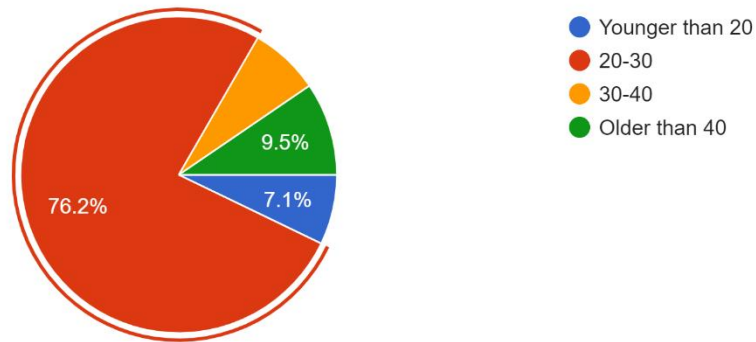


Fig. 42 Public Surveys - Participants by age

76.9 percent of the participants are between the age 20 and 30, It can be argued that most of the participants are university students, or new graduates. Considering the differences between the age groups, it is safe to say that survey represents the young generation mostly.

Your Gender
42 responses

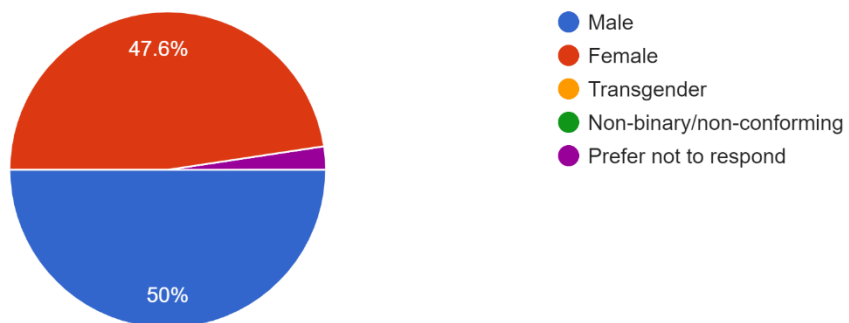


Fig. 43 Public Surveys - Participants by gender

As can be seen on the graphic, gender of the participants is perfectly balanced. Half of the participants are female, and the other half is male. Which makes the survey acceptable for the representation of genders.

Do you live in Lithuania ?

42 responses

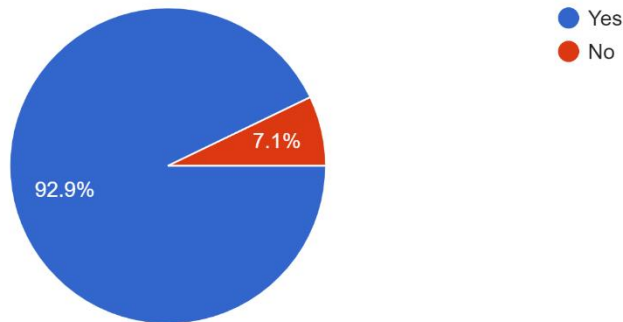


Fig. 44 Public Surveys – Do you live in Lithuania?

Almost 98 percent of the participants live in Lithuania, hence this survey mostly cover the residents of Kaunas City rather than tourists and travellers.

Do you live in Kaunas ?

39 responses

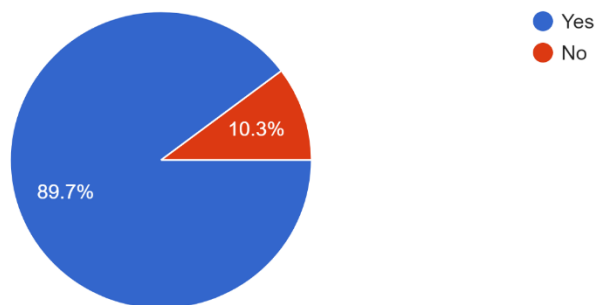


Fig. 45 Public Surveys – Do you live in Kaunas?

Almost 90 percent of the participants live in Kaunas. Hence the survey focuses on the residents of Kaunas. Which may suggest that there needs to be a further investigation focused on travellers and tourists who are visiting Kaunas. Although due to the limitations of the current situation, for this phase survey focuses on the Kaunas residents.

If you live in Kaunas, which neighborhood do you live in ?

38 responses

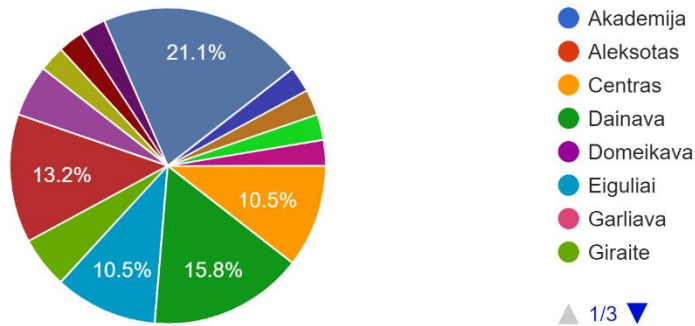


Fig. 46 Public Survey - Which neighborhood do you live in?

Participants are quite diversified in terms of neighborhood, which can reflect as various opinions differentiating from the distance to the location of the building and density of usage.

What kind of activities do you participate in your free time, when you travel in Kaunas city ?

41 responses

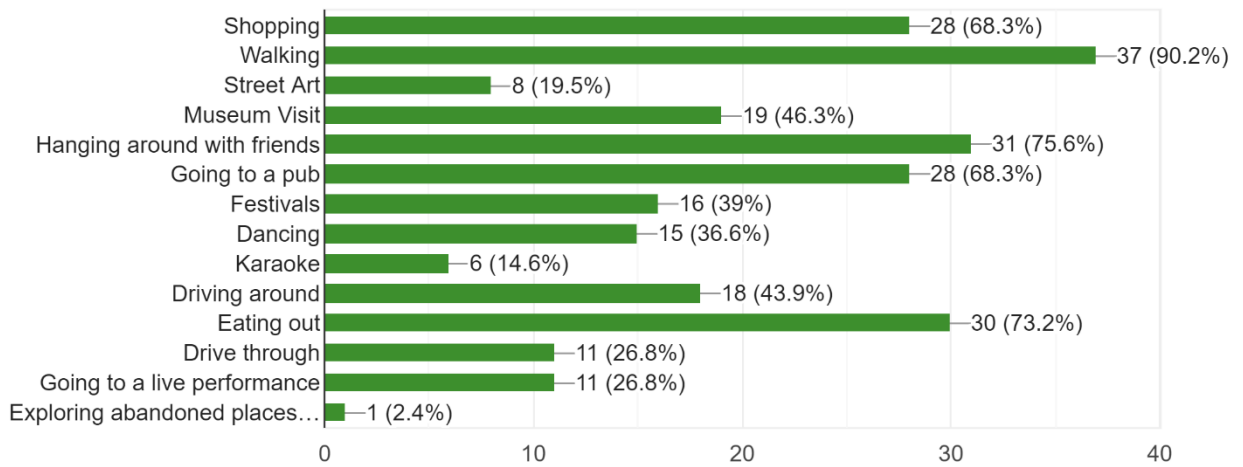


Fig. 47 Public Survey - What kind of activities do you participate in your free time ?

According to the survey most of the participants choose to have a walk around the city, eat out with friends and participate in retail related activities such as shopping and socializing informally while enjoying a dinner or a lunch. This shows that the people of Kaunas enjoy open air activities and traveling around the town.

What do you think is missing in the city center or located far away to the city center ?

42 responses

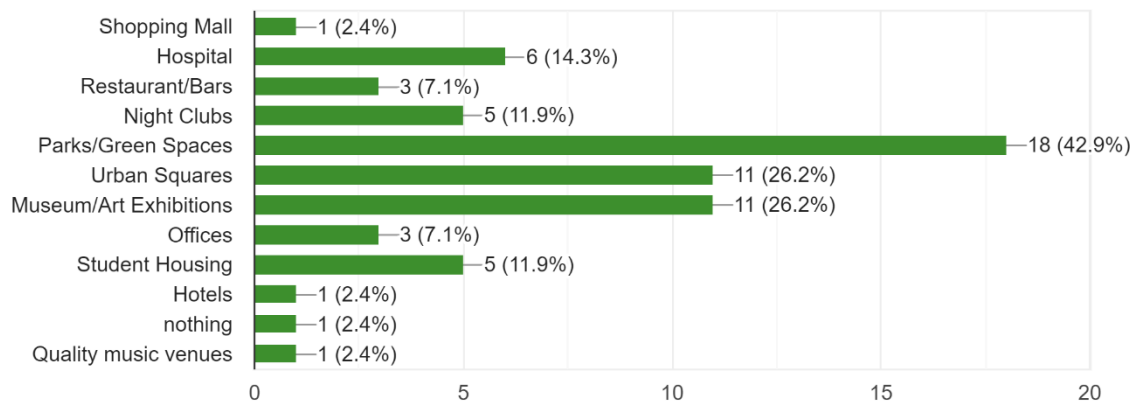


Fig. 48 Public Survey - What is missing in the city center?

This question aims to investigate the opinions of the users, whether they feel that the city center lacks a certain amenity. The answers left open to choose and also participants were able to add their own responses. As the chart above suggests, mostly people feel that there are not enough green spaces and parks in the city center. Combining this response with urban squares and museums, public opinion suggests that there are not many non-retail related activities close by.

Do you know the "Kestucio Street" in Kaunas ?

41 responses

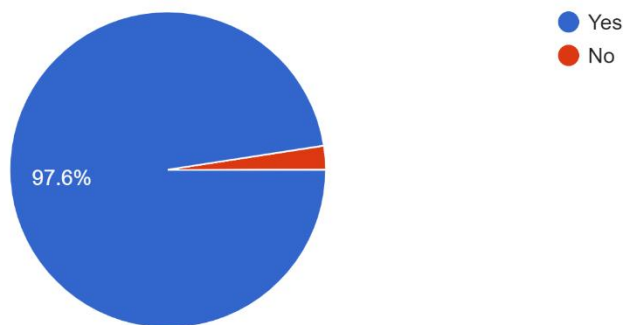


Fig. 49 Public Survey - Do you know the Kestucio Street?

To investigate the quality of Kestucio Street, a few questions will be asked to the participants later. Hence to filter out the participants who aren't familiar with the street shall be culled out.

How safe do you feel walking on "Kestucio Street"?

42 responses

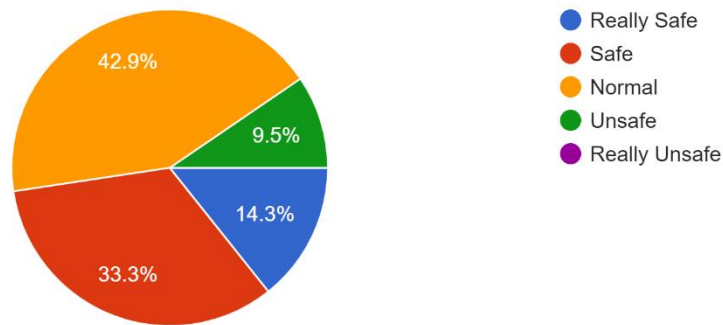


Fig. 50 Public Survey - How safe do you feel walking on Kestucio Street?

According to the survey almost 43 percent of the participants feel regular, or normal while walking on Kestucio Street. Only 9.5 percent of them consider Kestucio Street as `unsafe`. Which indicates most of the participants consider walking on Kestucio Street as `safe`.

What do you think is a negative experience you can expect, as a pedestrian at "Kestucio Street" ?

37 responses

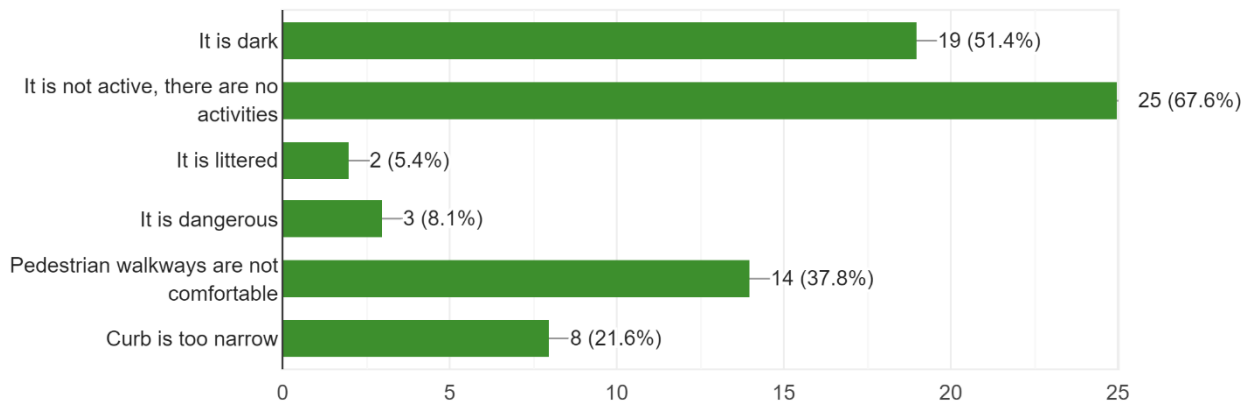


Fig. 51 Public Survey - Negative experiences as a pedestrian on Kestucio Street?

Most of the participants complain about the lack of activities on Kestucio Street. Comparing to Laisves Avenue, Kestucio Street, which is located one block south parallel to the avenue, is usually being chosen as an alternative route rather than an active space. More than half of the participants argued that the street is dark and pedestrian walkways are not comfortable. Some of them as seen in the previous question said that it is not safe and littered. Although the issues activities and darkness can be solved with the transformation of the abandoned building, which could be used to connect Laisves Avenue and Kestucio Street as a landmark.

If you were to choose, what kind of action do you think fits to this building ?

41 responses

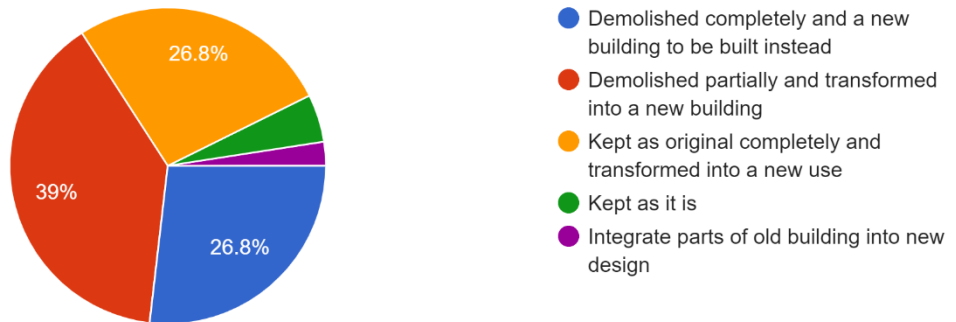


Fig. 52 Public Survey - If you were to choose, what kind of action do you think fits this building?

In terms of understanding the public opinion on taking actions for the abandoned building, this question was addressed to the participants. Participants can be perceived in three categories. Equal parts of the participants would choose to either demolish the building completely and build a new building, kept as original a transform into a new use or most of the participants chose to demolish the building partially and transform into a new building. It is safe to suggest that participants wanted a transformation rather than renovating or keeping the building as originally created.

:::

How would you consider the building as a part of history in Kaunas ?

1 2 3 4 5

Not an important part at all Quite an important part

How would you consider the building as a part of silhouette of Kaunas ?

1 2 3 4 5

Not an important part at all Quite an important part

Fig. 53 Public Survey - Scaling of importance of the building in the public eye

These two questions intended to understand the public opinion on the heritage aspects of the abandoned building. Scaling from 1 to 5, 1 being not at all and 5 being quite an important part, this intended to scale the consideration of the public and how they see the building, whether part of the history in Kaunas and its` silhouette or not.

How would you consider the building as a part of history in Kaunas ?

42 responses

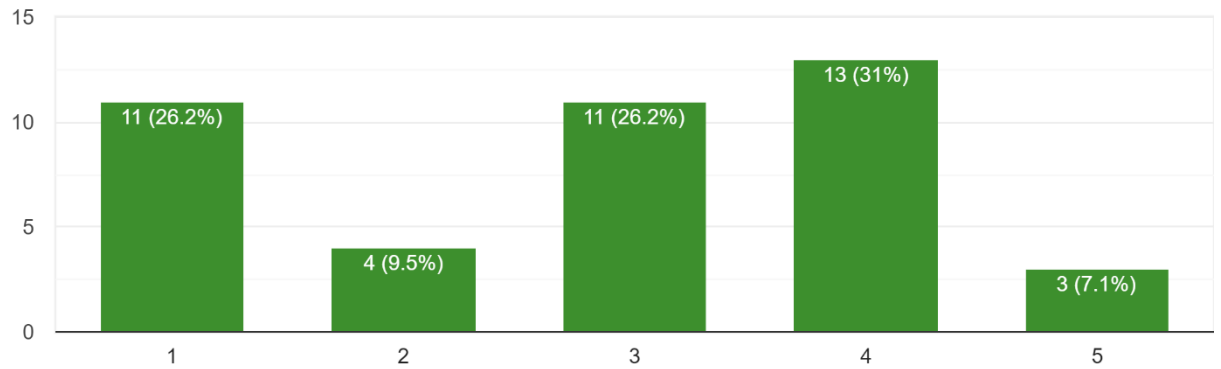


Fig. 54 Public Survey - How would you consider the building as a part of history in Kaunas?

As we analyse the responses, people mostly think the building is an important part of the history of Kaunas, this may be perceived as people experienced the building throughout their lives. It has always been in the background of their day to day lives, hence it created its` own stories and memories in the collective memory of the residents, even though it was vacant and abandoned.

How would you consider the building as a part of silhouette of Kaunas ?

41 responses

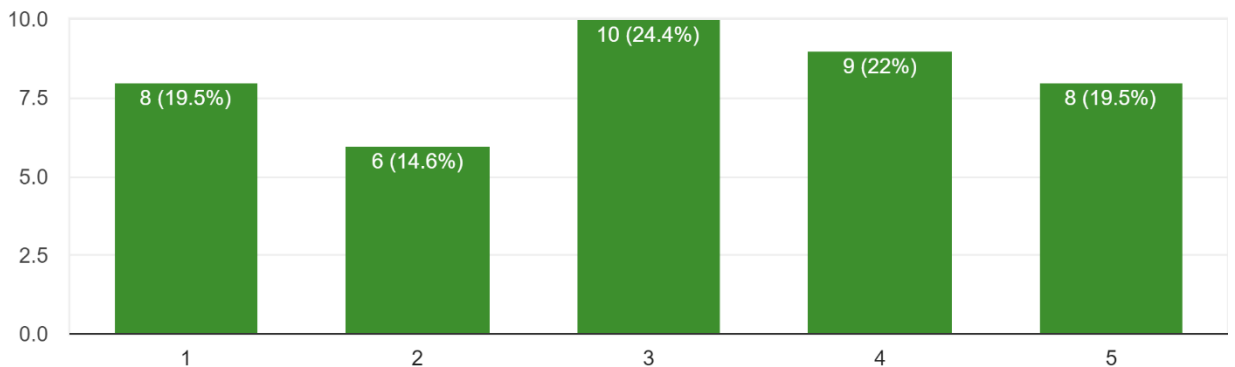


Fig. 55 Public Survey - How would you consider the building as a part of silhouette of Kaunas?

Responses suggest that people see the building as a vital part of the city silhouette. This may be perceived as either people enjoy and use the building which is not the case as stated in the paper in the previous chapters, or people got used to seeing the building as it is taller than the building around while being famously abandoned. Several illegal or legal uses have been developed over the years in the building such as graffiti, murals and various methods of self-expression by especially the young residents of the city. Also many urban explorers visit the building without permission to explore.

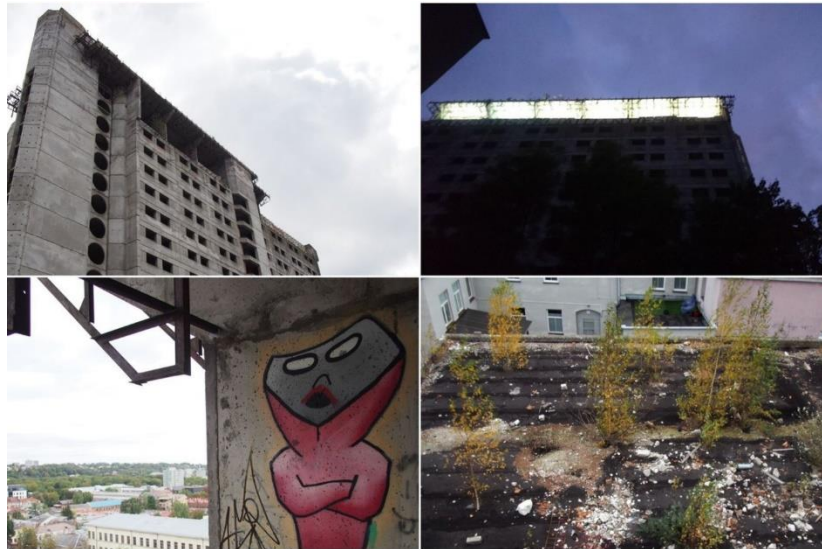


Fig. 56 Graffitis and greenery of the abandoned building

As can be seen in fig.56, photos taken by Almantas Bruzas, published in lrytas.lt, and were taken from pilotas.lt, 17:59, photos represent the different uses and organic formations which have been developed over the years.

What kind of activities would you prefer to have in the location of the abandoned Britanika building ?

42 responses

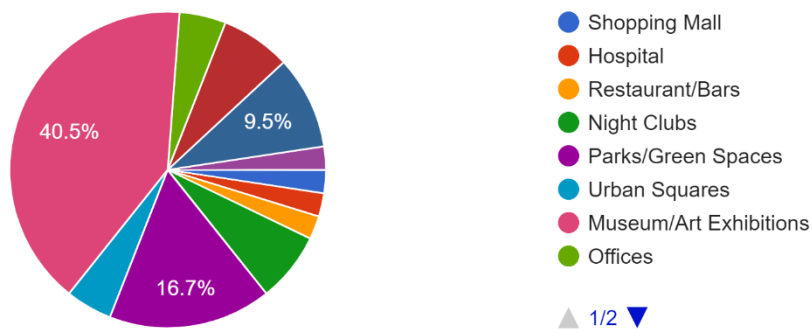


Fig. 57 Public Survey - What kind of activities would you prefer to have in this location?

If the responses from lack of activities in the city center question and fig.57 are compared, it is possible to see the differences and similarities between the responses by the participants. Most of the participants replied as 'parks' and 'urban squares' for the question "what kind of activities are absent in the city center?", although with this question the public wants to see a museum instead of the abandoned building. This may be related to the mass and scale of the building, also it can hint at what kind of activities, people would like to travel to since the participants vary from neighborhood to neighborhood. The second choice of the participants is parks and green spaces, and the third one is hotels and dormitories. Later on, the research aims to cross-check these responses with spatial analysis.

7. Contextual Spatial Analyses for the design project

The contextual analysis aims to cross-check the previous part which aimed to investigate the public opinion. With the contextual analysis, needs within the city center can be analyzed thoroughly and data can prove or disprove the public opinion. For instance, participants of the public survey wanted to see a museum instead of the abandoned building, although data may show that there are enough museums within the walkable area from each residential and hotel unit. This may increase the correlation between the input data and the design, furthermore, assure the decision-making process would be conducted objectively.

In this part of the research, several methods have been followed to understand the reachability, need of amenities in the city center, and gravity of the landmark within the city. The first type of analysis is “*Reach Analysis — Reach Index shows the cumulative opportunities that are accessible within a given radius. For the higher the reach index, the more destination value around each origin.*” (Woo & Lee, 2020) This method takes a route from each of the origin points to the designated destination points and measures the distances, accumulatively hence calculates the number of amenities within the walkable distance. To make the analysis clear and understandable, 500 meters and 1500 meters were designated as comfortable walking and medium-range walking/cycling distance. Further analyses will be made based on these distance factors.

7.1. Numeric Network Analysis from origin points to Britanika as destination

Residential units to Britanika

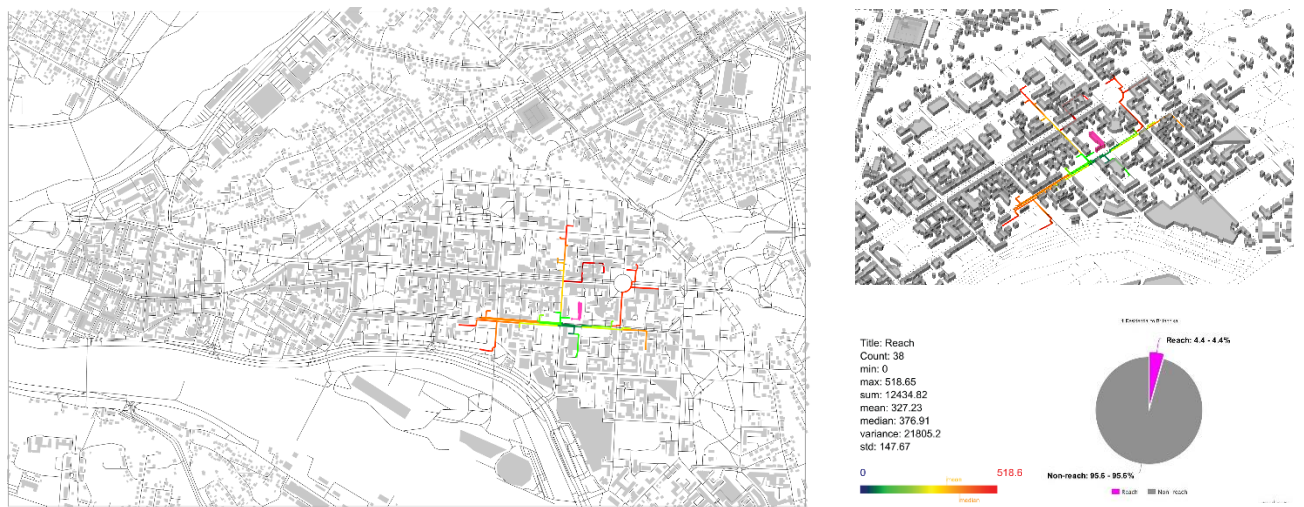


Fig. 58 Nna - 1 - residential to Britanika, within 500m

The first analysis aims to calculate the cumulative distance between each residential unit in the city center to Britanika, as can be seen in fig 58. Map, each residential building is colored grey. According to the analysis, only 4 percent of the residential units are within 500m walking distance to the project area. This may suggest that Britanika wouldn't be used for day-to-day activities by the residents. These activities may include grocery shopping, health-related travels by the elderly, schools, and educational activities. Although building can be a vocational landmark for social and retail-related activities.



Fig. 59 Nna - 1 - residential to Britanika, within 1500m

Hotels to Britanika

In 500m, there is only one hotel which is within the walking distance of Britanika, which indicates that there should be more hotel projects to sustain the tourism. This figure also shows that Britanika may not be a touristic attraction landmark or day to day activity space for tourism related activities. Although this may be an error in perception since the city center should always be open to touristic activities.



Fig. 60 Nna -2- hotel to Britanika, within 500m

In 500m, there is only one hotel which is within the walking distance of Britanika, which indicates that there should be more hotel projects to sustain the tourism. This figure also shows that Britanika may not be a touristic attraction landmark or day-to-day activity space for tourism-related activities. Although this may be an error in perception since the city center should always be open to tourist activities.

In 1500m, reachability for the hotels is better, although it is still clear that Kaunas needs a hotel project to sustain ongoing tourism, in the city center there are not many hotels located. It may be argued that for the abandoned site, a hotel project can be implemented due to need. Also, a use that would be in day-to-day connection with the hotels would not be viable.

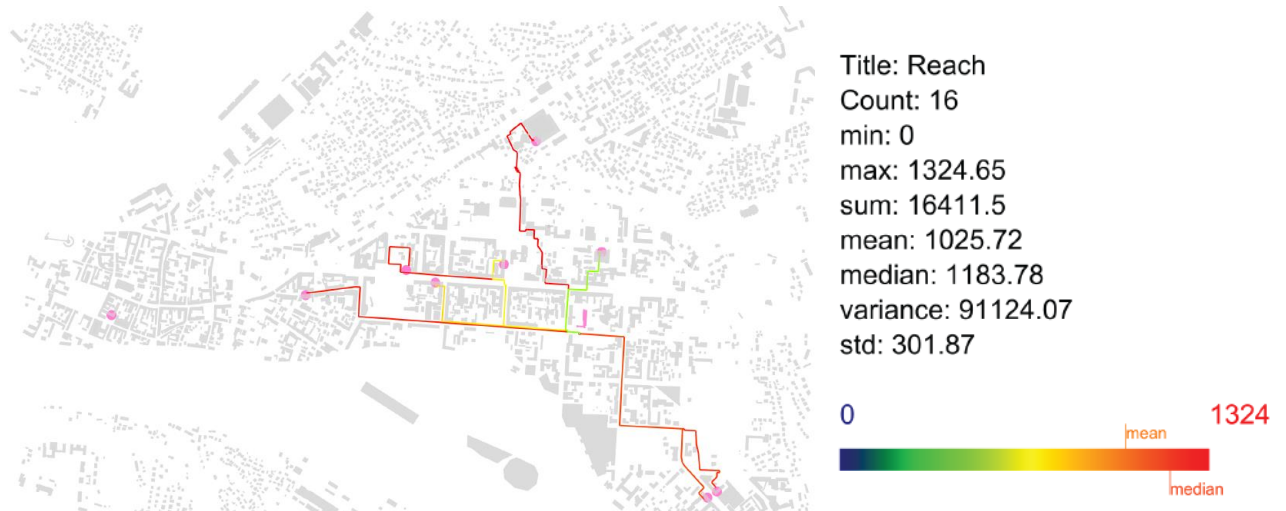


Fig. 61 Nna -2- hotel to Britanika, within 1500m

Public Transportation Stops to Britanika

There are 4 public transport stops within 500m walking area near Britanika, It may be argued that abandoned building can be transformed into a landmark which people from around the town periphery would use regularly and would be willing to use public transport for it. It may be argued that a museum, library, plaza, or park would be a viable attraction for residents to be drawn into the building.



Fig. 62 Nna -2- Public transport to Britanika, within 500m

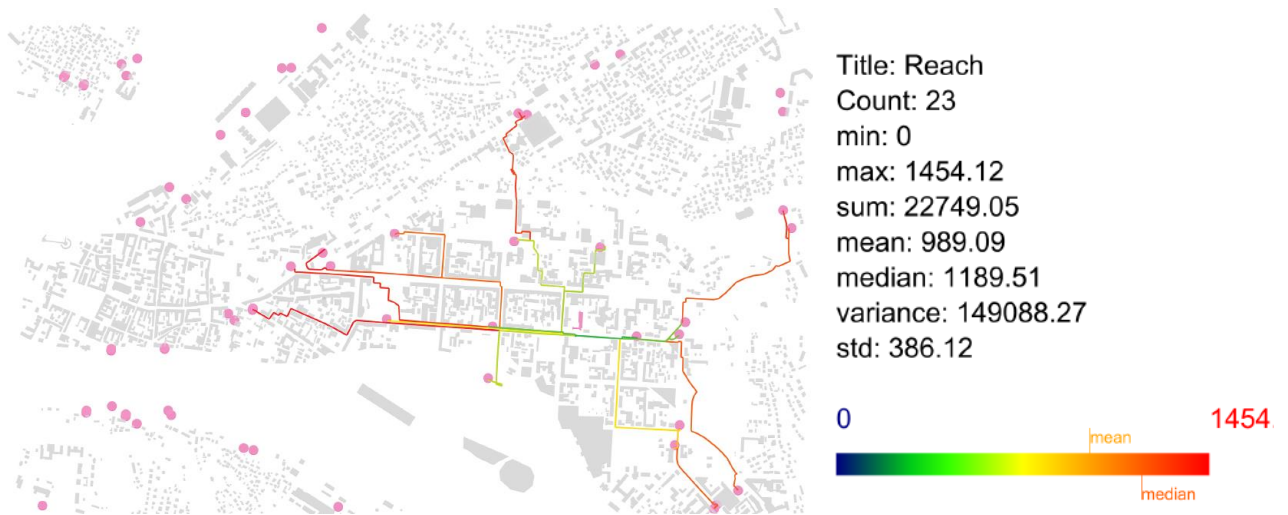


Fig. 63 Nna -2- Public transport to Britanika, within 1500m

There are 23 public transport stops within 1500m walking area, near Britanika, It may be argued that people who use their bicycles to travel and people who are using the new building after its` transformation as a public gathering area, can take public transport and are willing to walk the distances. Fig 63 shows how central the project area which also hints at the potential value of the abandoned building and its` plot.

7.2. Numeric Network Analysis from various origin points to various destination points

Residential and hotel units to Parks

To cross-check the results of the survey, several iterations were made for the reach analysis. In this part of the research, the algorithm will measure the distances between various uses. First of which is the reachability between residential units and hotels to the public parks and green spaces in the city center. This would give an estimated picture of the situation, whether the public have access to parks in the city center within the walkable distance.

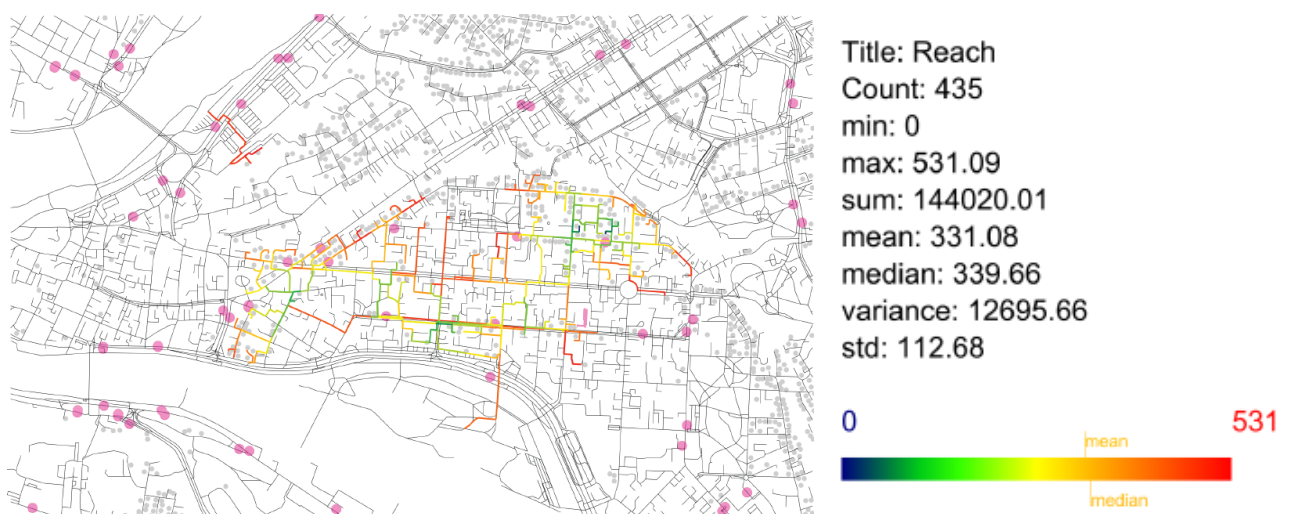


Fig. 64 Nna -2- Residential, hotels to parks, within 500m

In this analysis, the riverbed and the confluence were not taken into account as `designed green spaces, parks mentioned in this analysis were mostly about a designed space with activities, such as pocket parks, urban parks, and city squares. It can be argued that there is a slight necessity in terms of parks in the city center although the situation is not causing such discomfort.

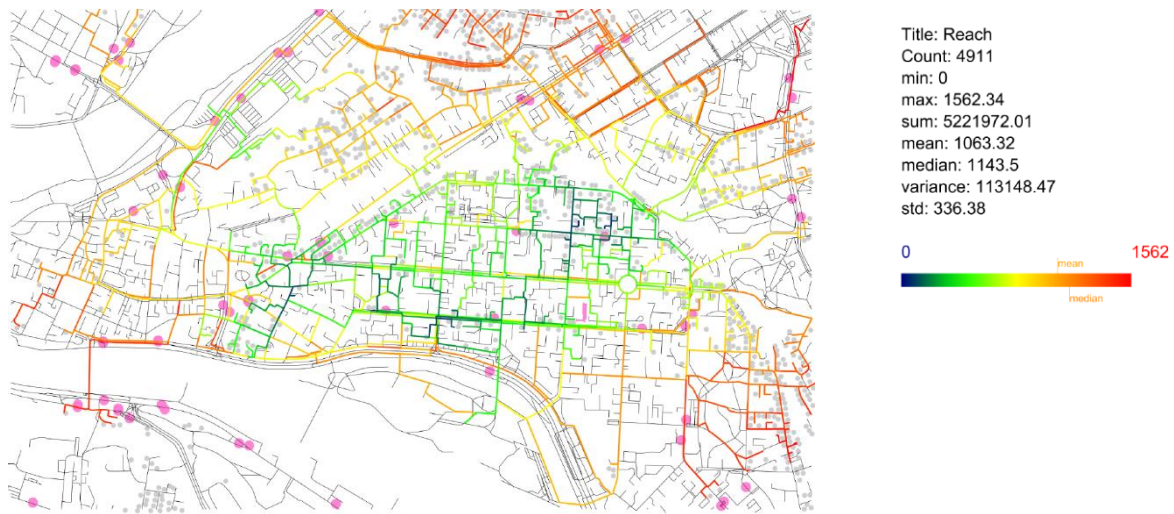


Fig. 65 Nna -2- Residential, hotels to parks, within 1500m

Residential and hotel units to Museums

According to the analysis, in the city center more than half of the residential units and hotels can reach a museum and an art gallery with only a 500m walk. This may hint that there is no need for another museum or a gallery in the city center. Also shows how socially active the city center is, which holds the potential to create an active city with the right strategies and marketing.



Fig. 66 Nna -2- Residential, hotels to museums, within 500m



Fig. 67 Nna -2- Residential, hotels to museums, within 1500m

Within 1500m, more than 60 percent of the residential units and hotels can reach at least one museum and/or an art gallery, which shows how walkable and social the city center is. This may hint that transformation of Britanika, the program may not need to include a museum, although this may hint that the building is located in an active area hence it can boost the retail activities by becoming a landmark.

Residential and hotel units to hospitals

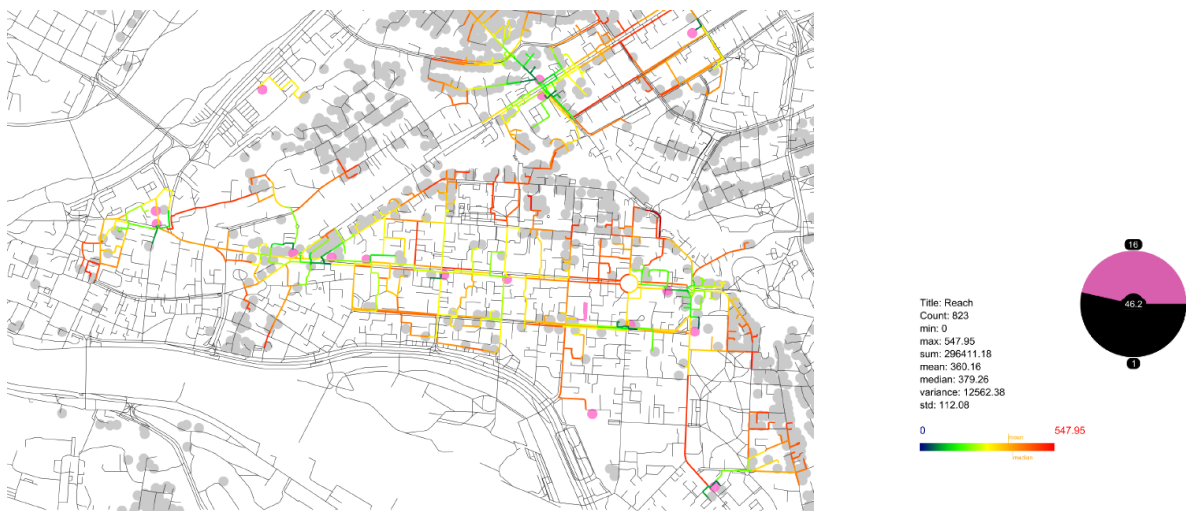


Fig. 68 Nna -2- Residential, hotels to hospitals, within 500m

According to the analysis, in the city, almost half of the residential units can reach a hospital or a clinic within 500m walking distance. Although as can be seen, around Britanika, almost every residential unit can reach a hospital by a short walk. In 1500m, analysis shows in fig.69 that there is no need for an additional hospital or clinic in the city center.

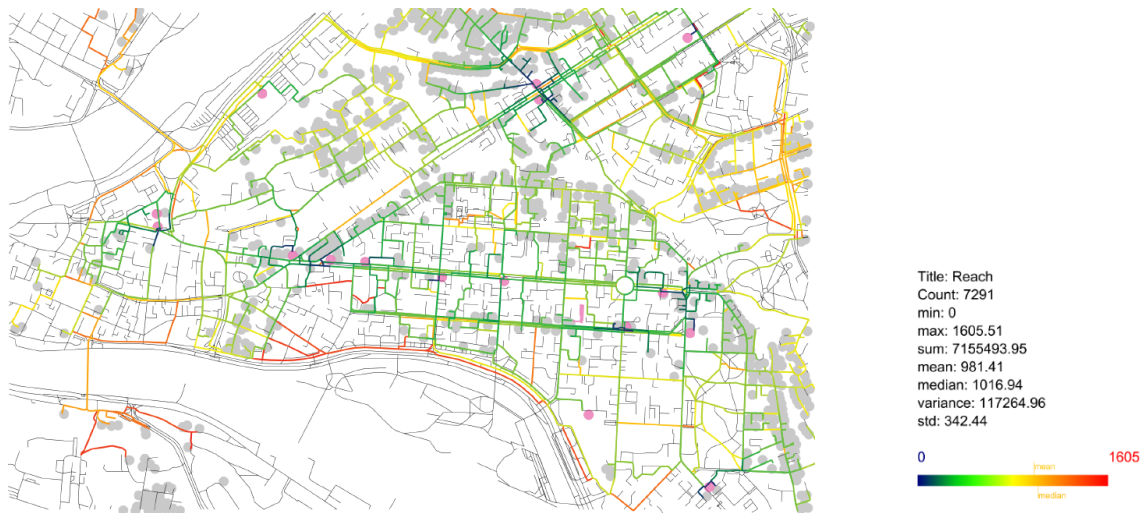


Fig. 69 Nna -2- Residential, hotels to hospitals, within 1500m

Residential and hotel units to shops

As can be seen in fig.70, most of the shops, restaurants, and pubs are located in Laisves Avenue, which is the main artery between the historical part of town to the modern part. Two urban squares which are the Town Hall square and the Soboras square, are connected with a series of activities.



Fig. 70 Nna -2- Residential, hotels to shops, within 500m

Analysis shows that around the Britanika, a need for a large shop may not be necessary. Although a retail activity can sustain the pedestrian flow and increase the activeness of the parallel Kestucio Street hence creates an alternative route for the users.

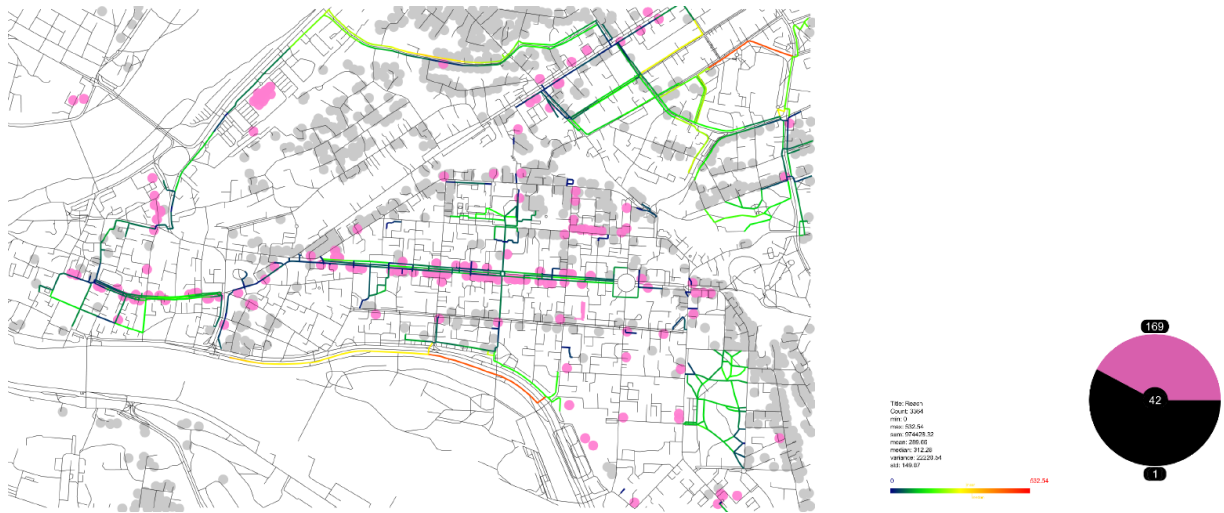


Fig. 71 Nna -2- Residential, hotels to shops, within 1500m

In 1500m walking distance, results seem not to change dramatically. Hence It shows that the city center holds great importance for social retail-related activities that residents choose to participate in.

Residential and hotel units to schools

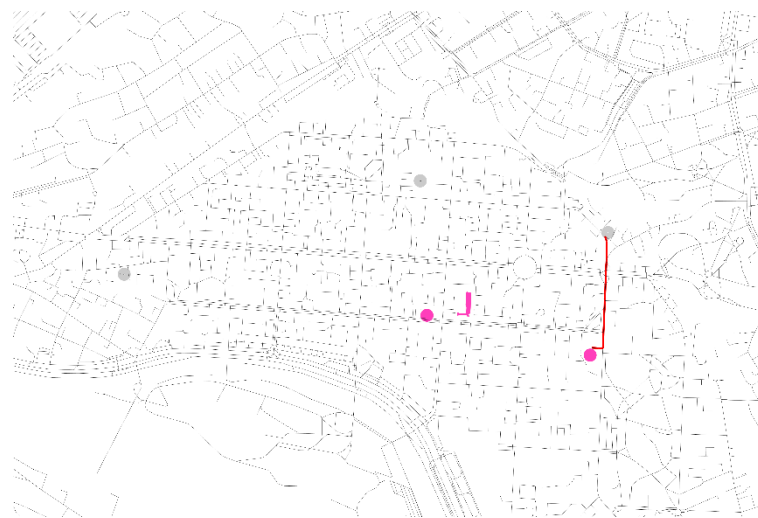


Fig. 72 Nna -2- Dormitories to schools, within 500m

One of the most dramatic results of this series of analyses shows the need for dormitories and student housing, most of the universities and schools do not have a dormitory within reach of 500m walking. This may hint that for the transformation of the Britanika hotel, a student housing project may be a correct decision for the residents.

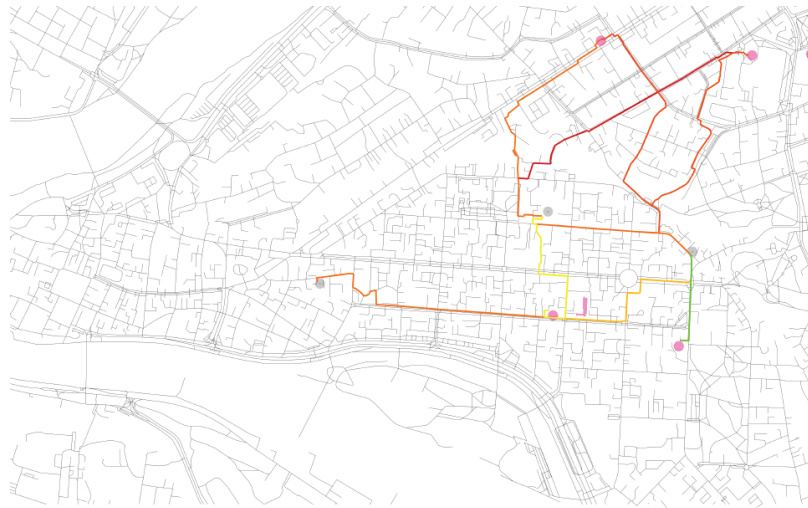


Fig. 73 Nna -2- Dormitories to schools, within 1500m

According to the analysis in 1500m. every university is within reach of a dormitory. Although not every student is willing to take a 1500m trip hence it may be advantageous to propose student housing for the transformation project of the abandoned site.

Conclusions

This part of the research aims to provide the cross-check into the public survey and back it up with several spatial investigations.

What kind of activities would you prefer to have in the location of the abandoned Britanika building ?

42 responses

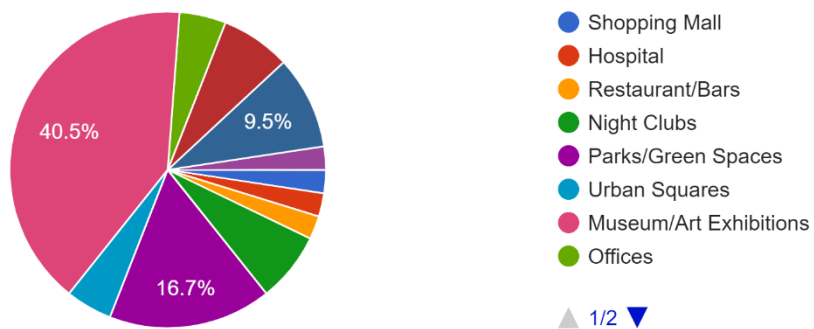


Fig. 74 Social Survey - What kind of activities would you prefer to have instead of Britanika ?

Museums/Art Galleries: % 40.5

According to the analysis, despite the public interest in seeing a museum in the location, the need for a new museum is low. Although this may hint that there may be a public attention to a new social center, hence the building should contain a public activity, or project should aim to attract the residents to a new social experience.

Parks/Green Spaces: % 16.7

According to the analysis the need for a new park is low, although since there are not many pocket parks around Britanika, transformation should include a park that would serve the site and its surroundings.

Hotels: % 9.5

According to the analysis, a new hotel project serving the city center is necessary, If the hotel project can be integrated into office spaces, transformed Britanika can serve the traveling professionals, also around Europe, it can attract travelers for work-related purposes.

Student Housing: % 7.1

The analysis clearly shows the need for new dormitory and student housing projects within the city center, it would be a correct interpretation of the abandoned building. The new project should include a student housing project and since the government does not have an affordable housing project, the site holds the potential for becoming an affordable housing space for students and new graduates.

7.3. Spatial Analyses

To assess the building quality, several spatial analyses were made which focus mostly on the building and its surroundings. Spatial analyses consist of climatic surveys, which assesses the radiation intake, visibility analysis to assess viewshed to and from the building.

Sunlight and wind analysis

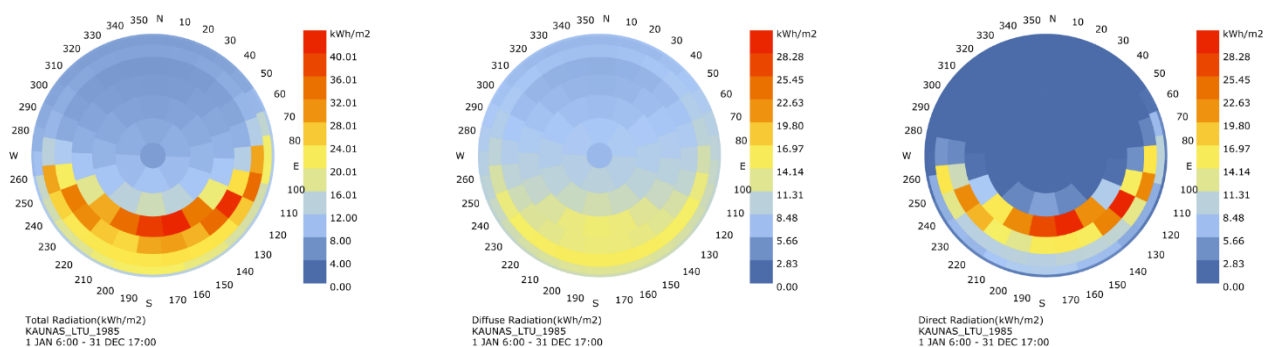


Fig. 75 Spatial Analysis - Sun dome created for Kaunas

As can be seen in fig.78, Kaunas city receives most sunlight from the south and east, also peripheral openness is important in terms of solar radiation to heat the buildings.

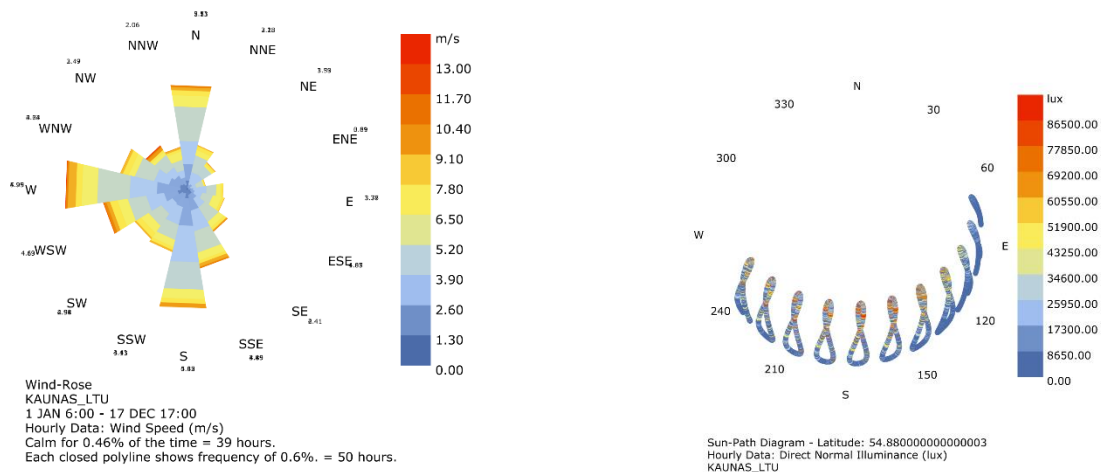


Fig. 76 Spatial Analysis - Wind Rose and Sun path diagram created for Kaunas

According to the analysis, the dominant wind direction in Kaunas is west following the fact that frequency is almost 6m/s average in a year. Analysis was made to calculate every hour from January to December. According to the analysis, the building can be covered by different design options from north, west, and south. Although if the sunlight analysis and wind analysis are compared, it can be argued that southern winds are warmer than north and west. Although building form was designed as the opposite of the ideal. Building form blocks the east and south, hence creating the open space exposed to the north and the west.

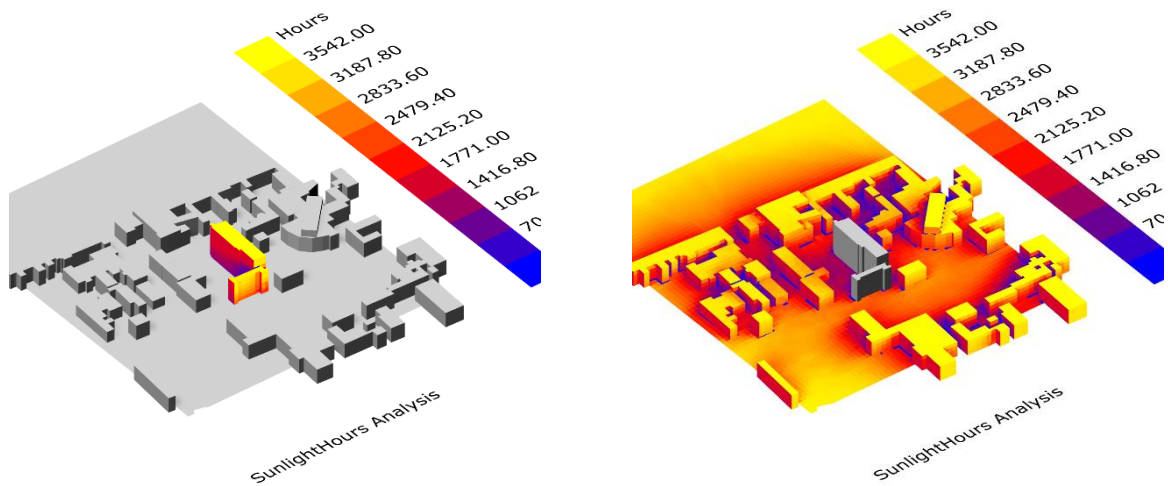


Fig. 77 Spatial Analysis – Sunlight Hours Analysis

According to the sunlight analysis, it is observed that the building form was designed to cover the east and south which are the dominant sun exposure direction. For the building to heat with natural light and create a warm open space, it should block north and west while creating an opening for the south and east. As can be seen in fig.80, open space in the site receives less than a thousand hours of sunlight yearly. Also, the roof of the building receives more than three thousand hours of sunlight

hence creating a potential for the usage of the sun for energy production purposes. Also, the building has a negative impact on its` surrounding blocks, which can be observed that Britanika shades the buildings around it.

View analysis

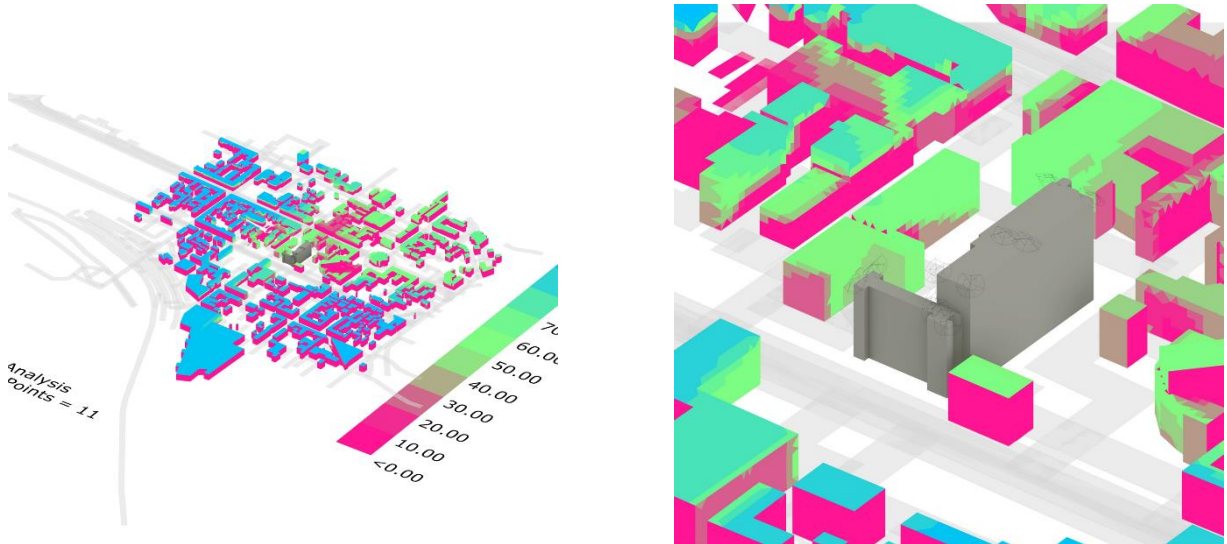


Fig. 78 Spatial Analysis - View Analysis from the roof of the building

According to the viewshed analysis, it can be argued that the building has a panoramic view around the city. Which represents the potential the building holds as a potential landmark. The roof of the building can be utilized into becoming a public open space, also a retail function can be implemented which would serve the public and add value to the property.



Fig. 79 photos of the building around the city center, by the author

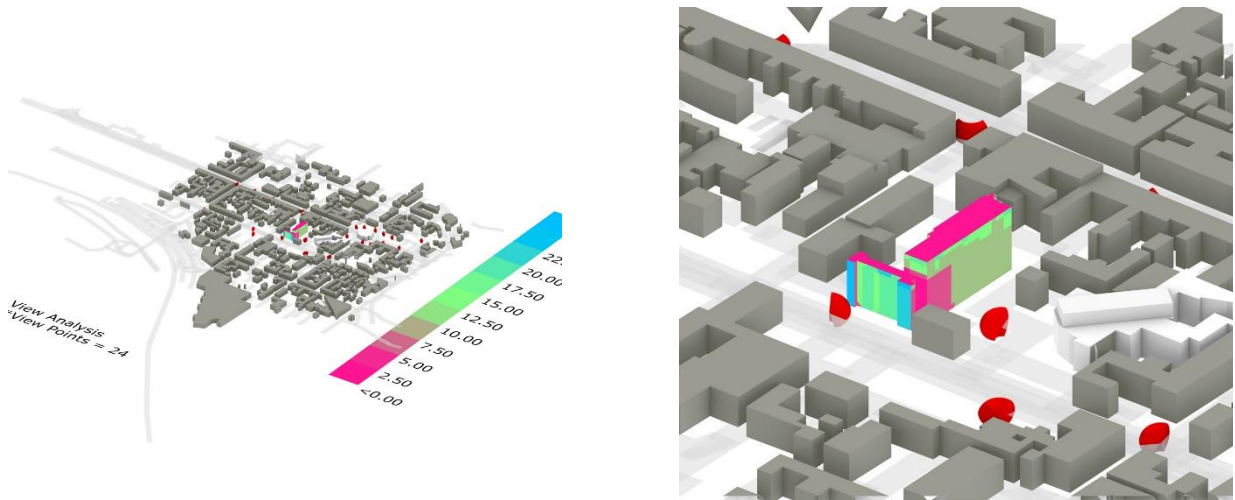


Fig. 80 Spatial Analysis - View Analysis from city towards the building

The building is visible throughout the central portion of the city; this shows the iconic aspect of the building and the potential of it becoming an important visual landmark in the city legibility.



Fig. 81 photos of the building around the city center, by G.Bitvinsko, and Office De Architectura

7.3. Empirical Research Results and Conclusions

Empirical research showcases the potential of the building, expectations of the residents and checks these expectations with the spatial data to prove or disprove these opinions, to create a viable input for the design process. Survey and spatial data would affect the decision-making process in terms of architectural programming and spatial data which focuses on the building would be an important input to determine the ideal form for the building.

1- Inputs for the architectural programming and decision making of the transformation project

It has been observed that the city centre needs hotels and student housing projects, it was confirmed by spatial data that there are not enough hotel projects located close to the city centre. To keep the city active for touristic flow and work-related visits, shared offices integrated with amenities like libraries, conference halls, hotels, and dormitory projects can be implemented into the building after its transformation.

2- Public interest in the building and the territory

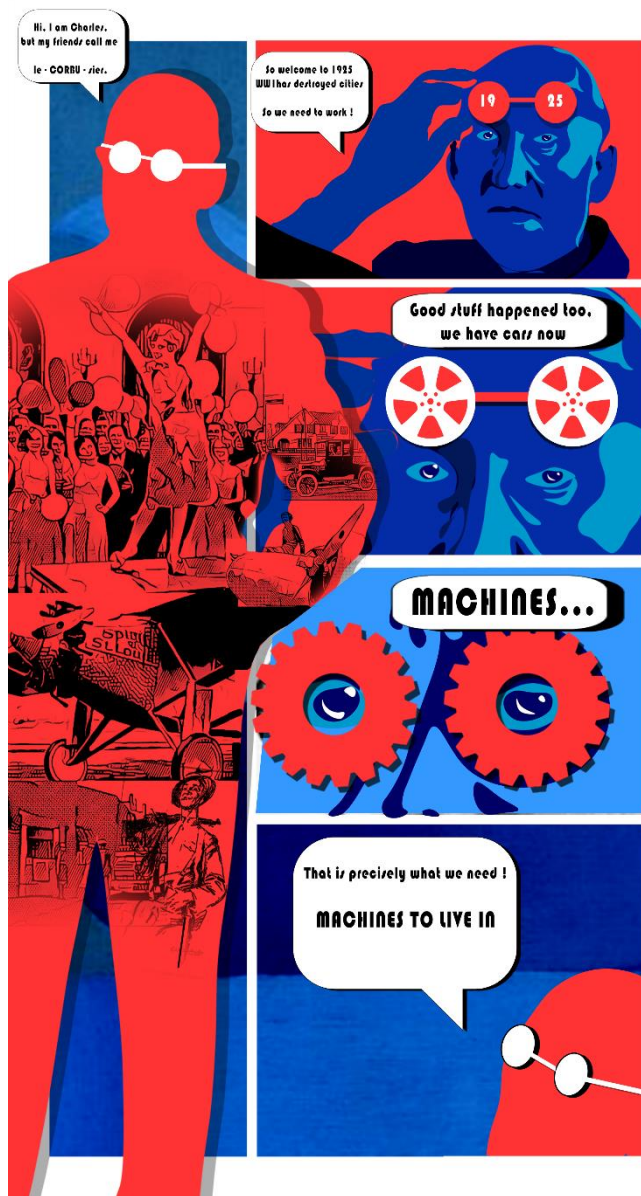
The building is seen as a public attraction point, a landmark without a use, due to its` scale and location. Since the building became a part of the silhouette, a transformation project should be done accordingly. The need for representation of the modern Kaunas image should be reflected on the project which would be made to redeem the past and make an iconic attraction zone for the future. Most of the survey participants established that they would like to see a museum in the area, this may hint that the building should contain a social aspect that would be used by the public. This would strengthen the relationship between the public and the building hence preventing yet another abandonment in the future.

3- Form of the building

It may be argued that according to the spatial analysis focused on the existing building, the structural design of the building is unique to the city. However, the orientation of the building does not meet the necessities that come with the climate of Kaunas. The building covers east sun and south winds, and the open space building creates with its` form is exposed to cold winds of the west and the north. Also building shades this open space, leaving it with minimum sun exposure.

The roof and the south façade of the building however hold the potential for sun-related activities, such as open spaces, terraces, and harvesting sunlight to use it for energy. Building requires a different approach in terms of form and massing and/or requires a design that would prevent the downsides of these aspects and use these to its` advantage.

8. Design Project : Superpositions



2019 just like 1925 has been a stage for a pandemic. 1925's Spanish flu took the lives of millions in the world, just as the Covid 19 took. People had to go through quarantines, social distancing, zoom meetings and new ways to communicate. During this time having a comfortable home has been understood to be precious, people have seen that they need to socialize and get out of their homes to embrace the nature. Quite similar to Le Corbusier's golden years, 2021 just like 1920s, has been a stage for yet another war in Europe. Similar events from the 1920's and a hundred years later 2020's were interesting to observe.

During all the chaos of the war and the pandemic, many architects, including Le Corbusier, started working on new ways to accommodate people, with more open spaces, taller floor heights, so people would enjoy being at their homes as well being outside.

Fast forward to 2022, It is time to investigate the design of the human habitat within the cities, for the future.

Superpositions aims to follow the scientific research and social surveys for Britanika and Kaunas, and explore the new possibilities for a Mixed use project, a vertical, horizontal city, programs that are super positioned within, alongside each other. Superposition is the ability of a quantum system to be in multiple states at the same time until it is measured. Just like this principle, residential areas and cultural infrastructure of the city can be overlaid, uses can be in different positions, configurations, a space does not have to be static, It can welcome different users, in different timeframes. Depending on the need coworking spaces and housing can be built around the abandoned monuments remaining parts which would enable the change in use over time, and prevent abandonment to ever reoccur.

8.1. Context of the project idea

Design project focuses on how to transform the building as well as the site, with a holistic approach. Currently building and the site is in deep need of a holistic approach, from urban planning scale to the building details, transformation of Britanika and its` surroundings should be taken as a one mixed use, living space. Such large area should be taken into consideration with a systematic workflow, step by step from massing to landscape ideas, every strategy should be complimenting the continuity of the form, space and functionality.

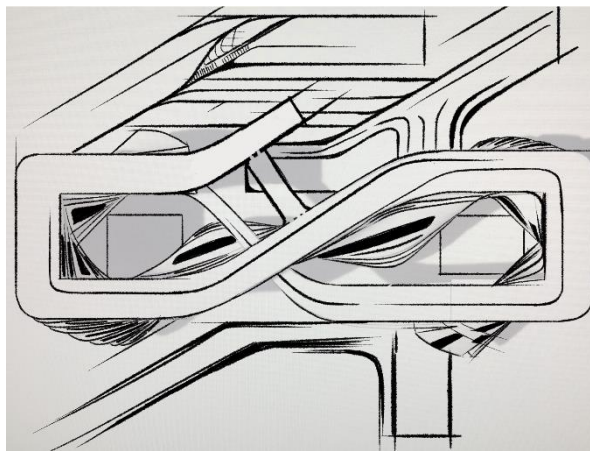


Fig. 82 Sketch, by the author

8.2. Site Analysis and Digital documentation of the building and its` surrounding

Site is close to the city centre of Kaunas, various interwar era buildings are located close to the building site and with the abandoned hotel Britanika, it remains as an empty, unused space, therefore it requires a documentation of buildings and the area to create a base project model, which would eventually inherit the design ideas.



Fig. 83 Site Location, by the author

Since there is not a decent basemap to use for the project design phase, a site map with the necessary information should be created first. This would require a laser scanning of the site or a drone scanning to receive the site information into the computer, and later on clean it to make it readable. If this basemap can be created as a model, It can be useful for analysis and prototyping phase as well as the design phase.

8.2.1. Digital survey of the Site, from 3d scanning into building information model (BIM)

Site and the abandoned building is documented in Revit BIM with the help of 3d scanning made by the smart city centre at KTU. Scanning introduced the point clouds, by cleaning the point clouds, usable, flat surfaces and clean 3d objects were created upon this data.

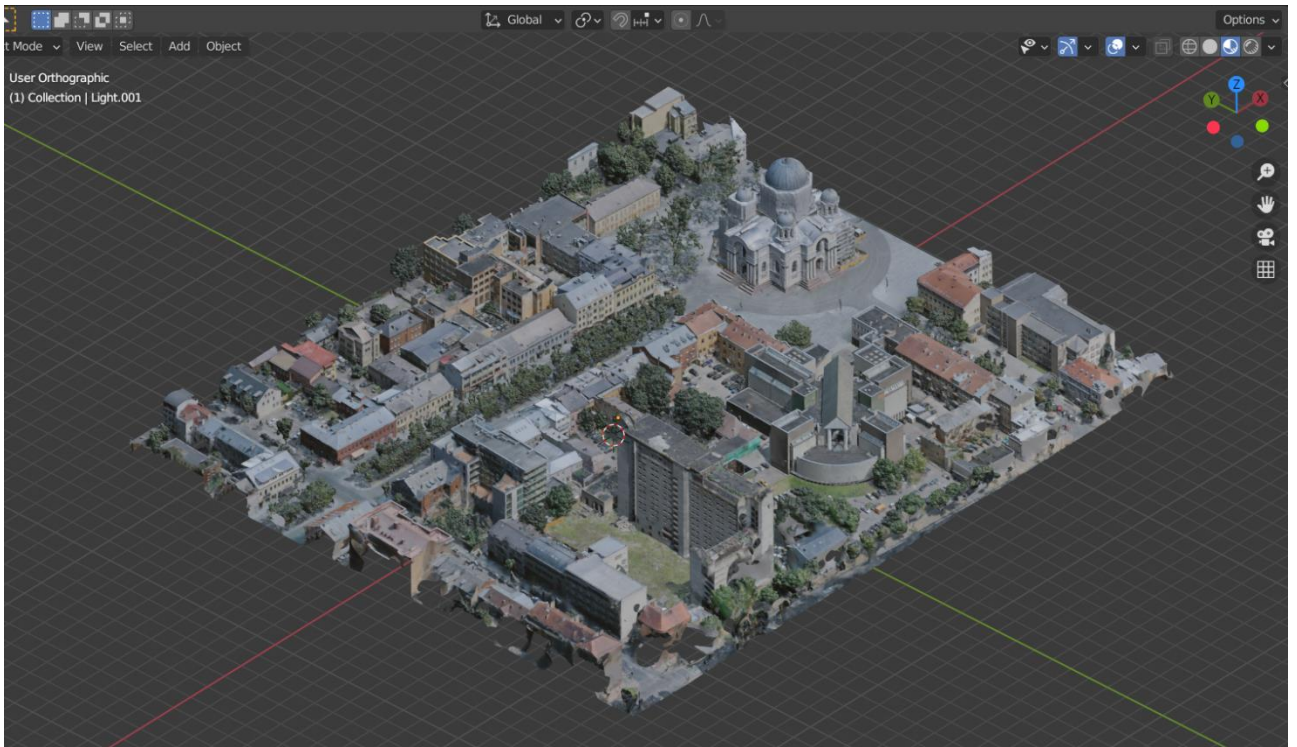


Fig. 84 Scanned Site scanned by Smart city centre, image by the author

To create the 3d model and BIM documentation, a 3d scan of the site was used, this enabled the creation of a clean base model. The model came as a point cloud hence It needed a compilation process to convert it into a 3d object.

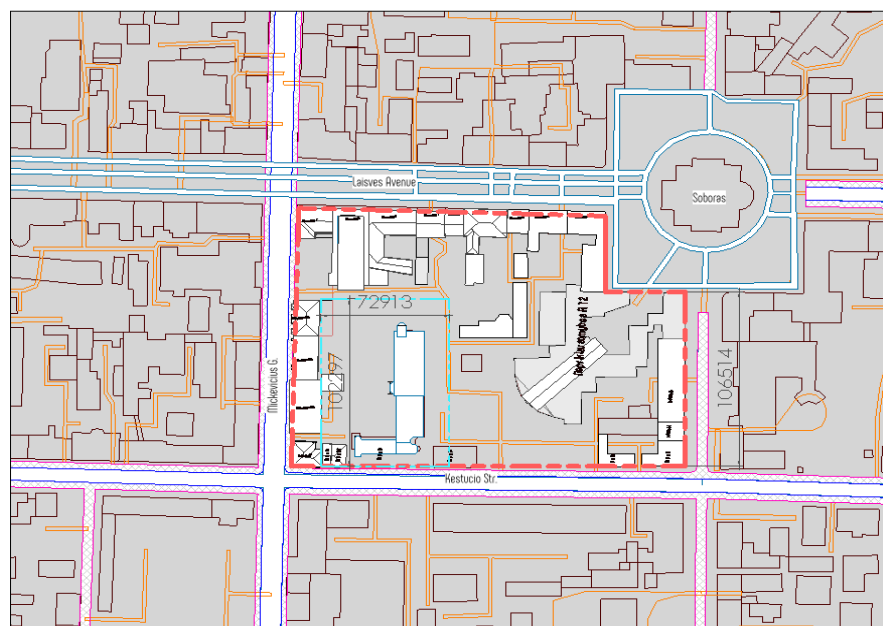


Fig. 84 Site Survey in BIM by the author

Site is located between the Laisves Avenue and Kestucio Street, adjacent to the Mickevicius Street. Being close to the city centre, It was necessary to think about the urban pattern as well as the landmarks around the site. It was necessary to see this area as a whole, and therefore, project consisted of several plots merged into one complex.

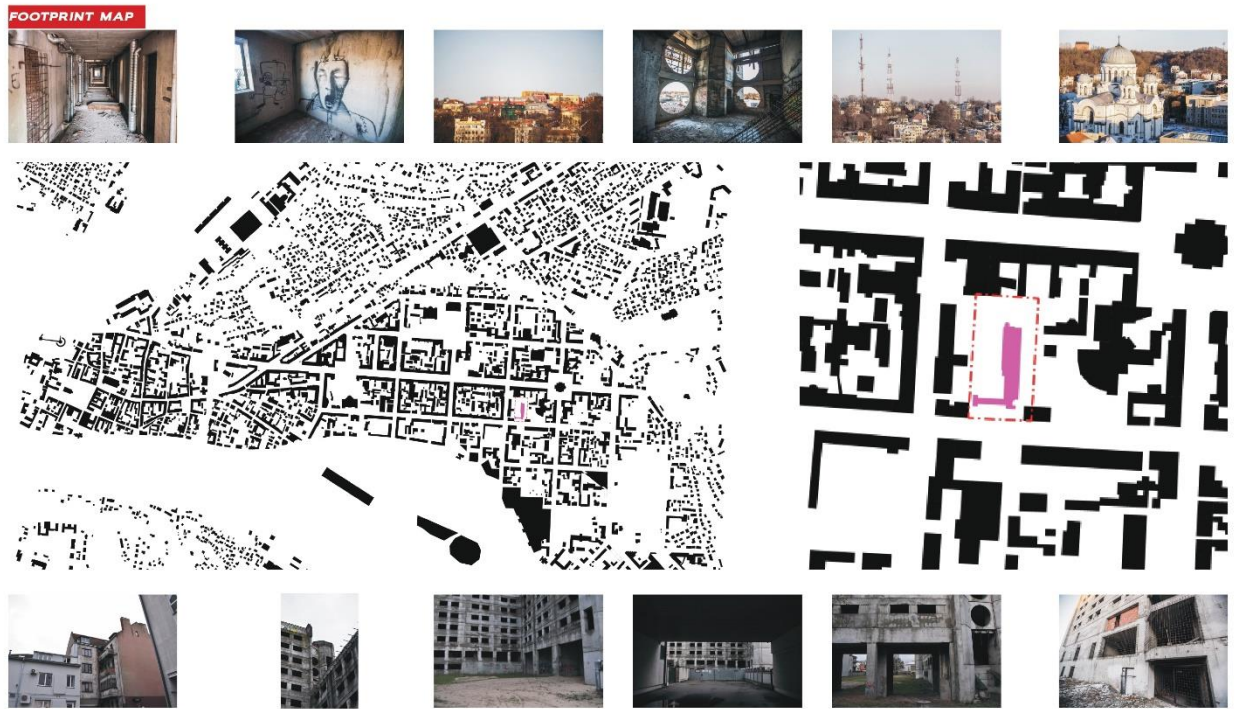


Fig. 85 Urban Pattern footprint

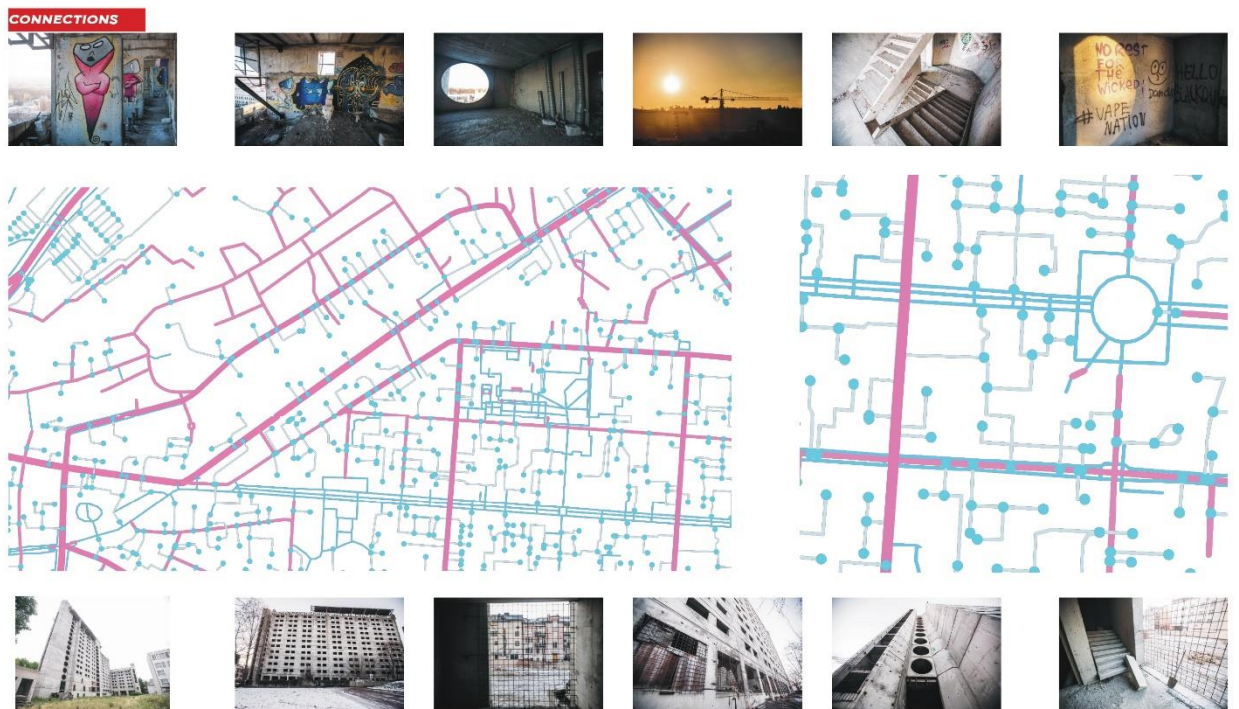


Fig. 86 Urban Mapping

To create a detailed model of the building, in and around the building was visited, surveyed and documented. Building has a panoramic view of the city, city centre and various landmarks of Kaunas is visible from the building's windows, and the terrace.

ISOMETRIC

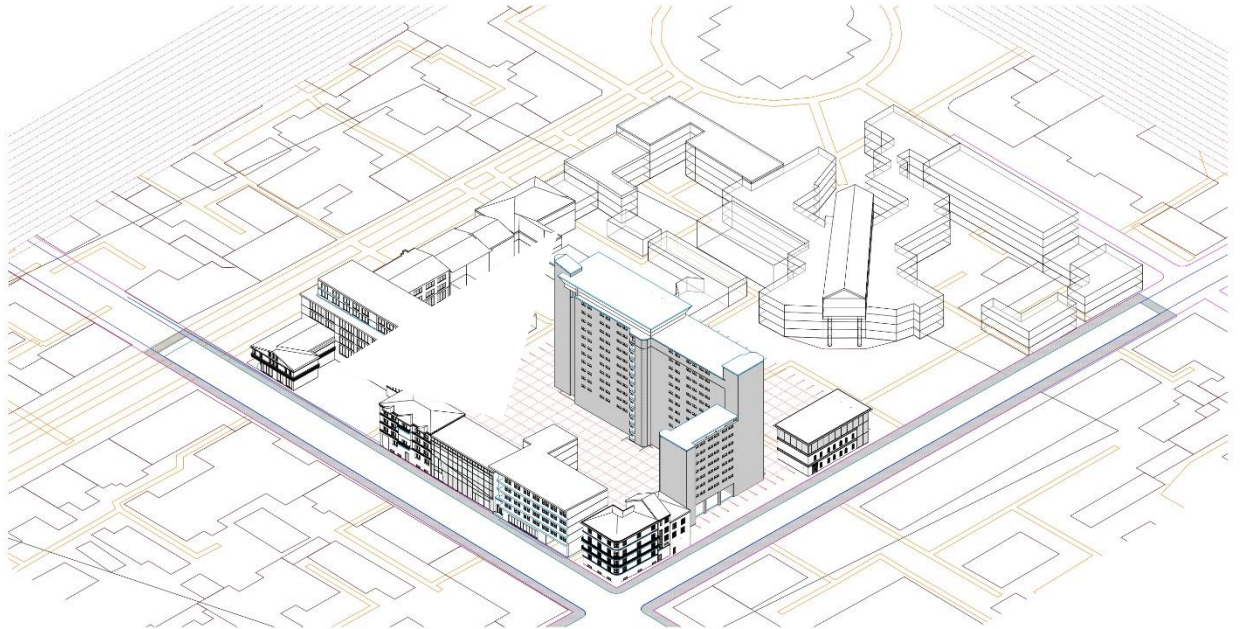


Fig. 87 Isometric view of the 3d Model, by the author

Buildings adjacent to the Britanika site, and building which would be used, demolished or altered are detailed, and the rest of the building in the block are modelled as masses to give an approximate idea of the surrounding landscape and limitations.

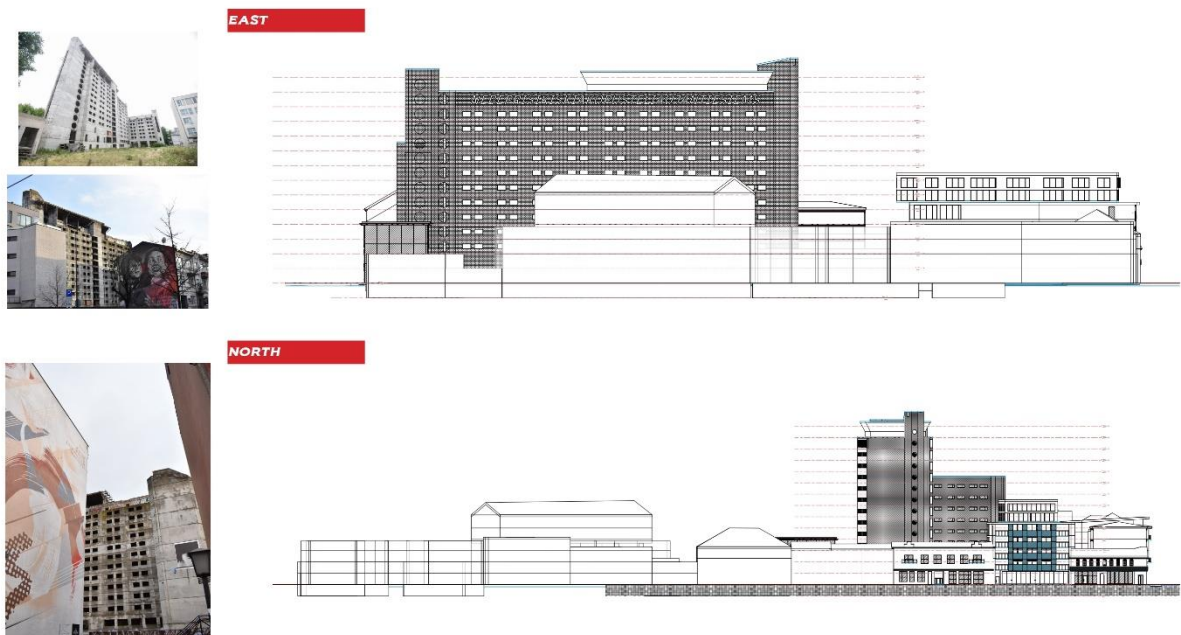


Fig. 88 Isometric view of the 3d Model, by the author

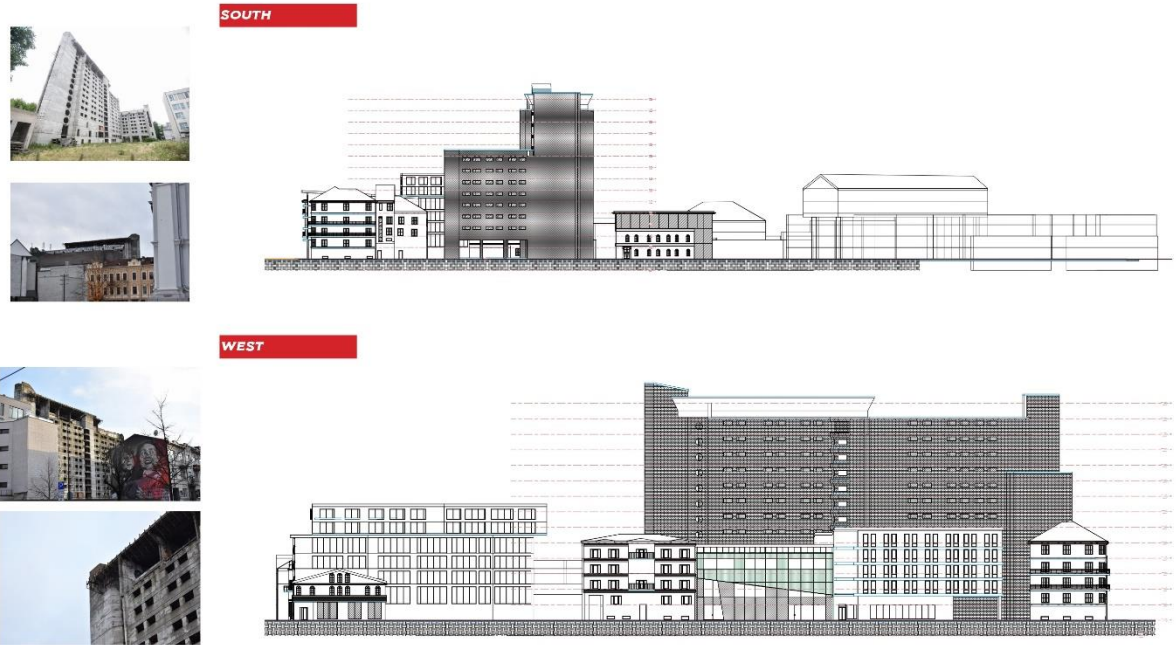


Fig. 89 Elevations of the site, by the author

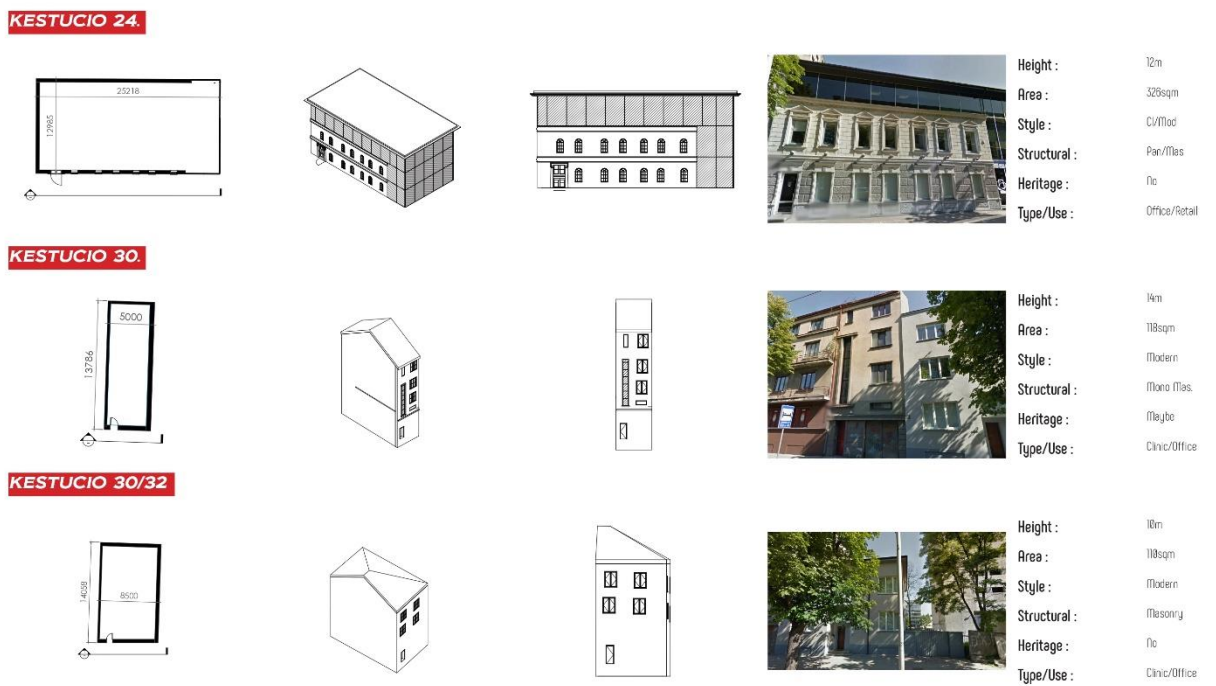
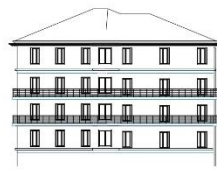
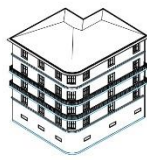
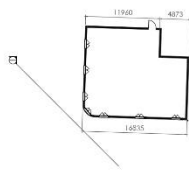


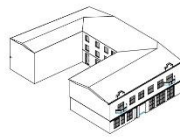
Fig. 90 Documentation of the surrounding building, by the author

KESTUCIO 32.



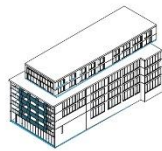
Height : 18m
 Area : 225sqm
 Style : Interwar
 Structural : Mono/Mas
 Heritage : Yes
 Type/Use : Retail/Office

LAISVES 33.



Height : 11m
 Area : 641sqm
 Style : Neoclassical
 Structural : Masonry
 Heritage : Maybe
 Type/Use : Retail/Unit

LAISVES 35.



Height : 22m
 Area : 926sqm
 Style : Contemp.
 Structural : Mas/Cast
 Heritage : No
 Type/Use : Retail/Office

Fig. 91 Documentation of the surrounding building, by the author

The buildings in the city block

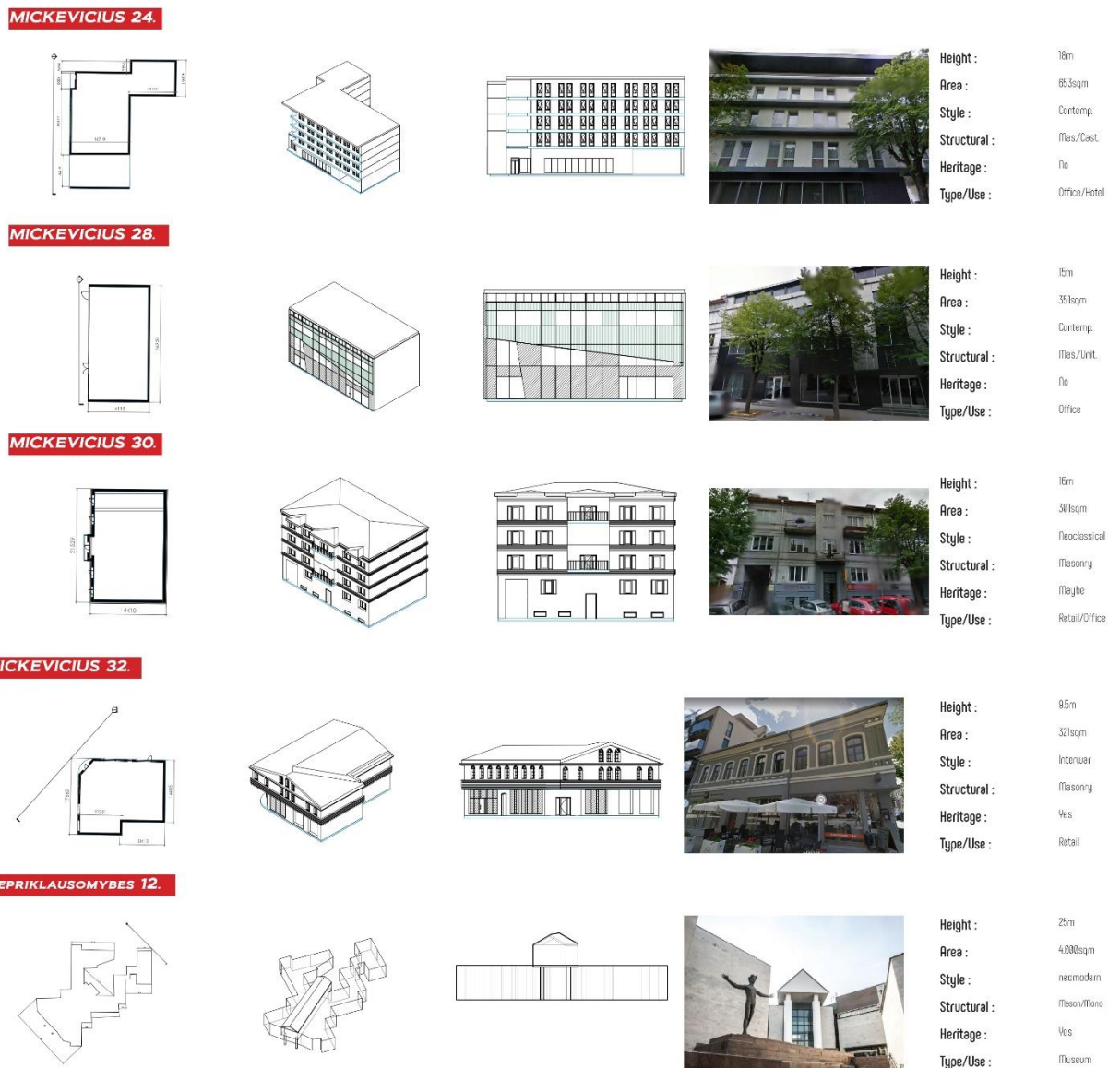


Fig. 92 Documentation of the surrounding building, by the author

On the block at the intersection of Mickevicius Street and Kestucio Street, a detailed survey was made, all the buildings were modelled in 3d BIM, environment and photos were linked to the models, also the information about their heritage were assigned. According to the heritage database out of 16 buildings adjacent, only two of them are protected.

Buildings addresses and their location data with the current floor heights are modelled accordingly to get correct outcome with the analyses in the later stages.

8.2.2. Digital Survey and Documentation of Britanika

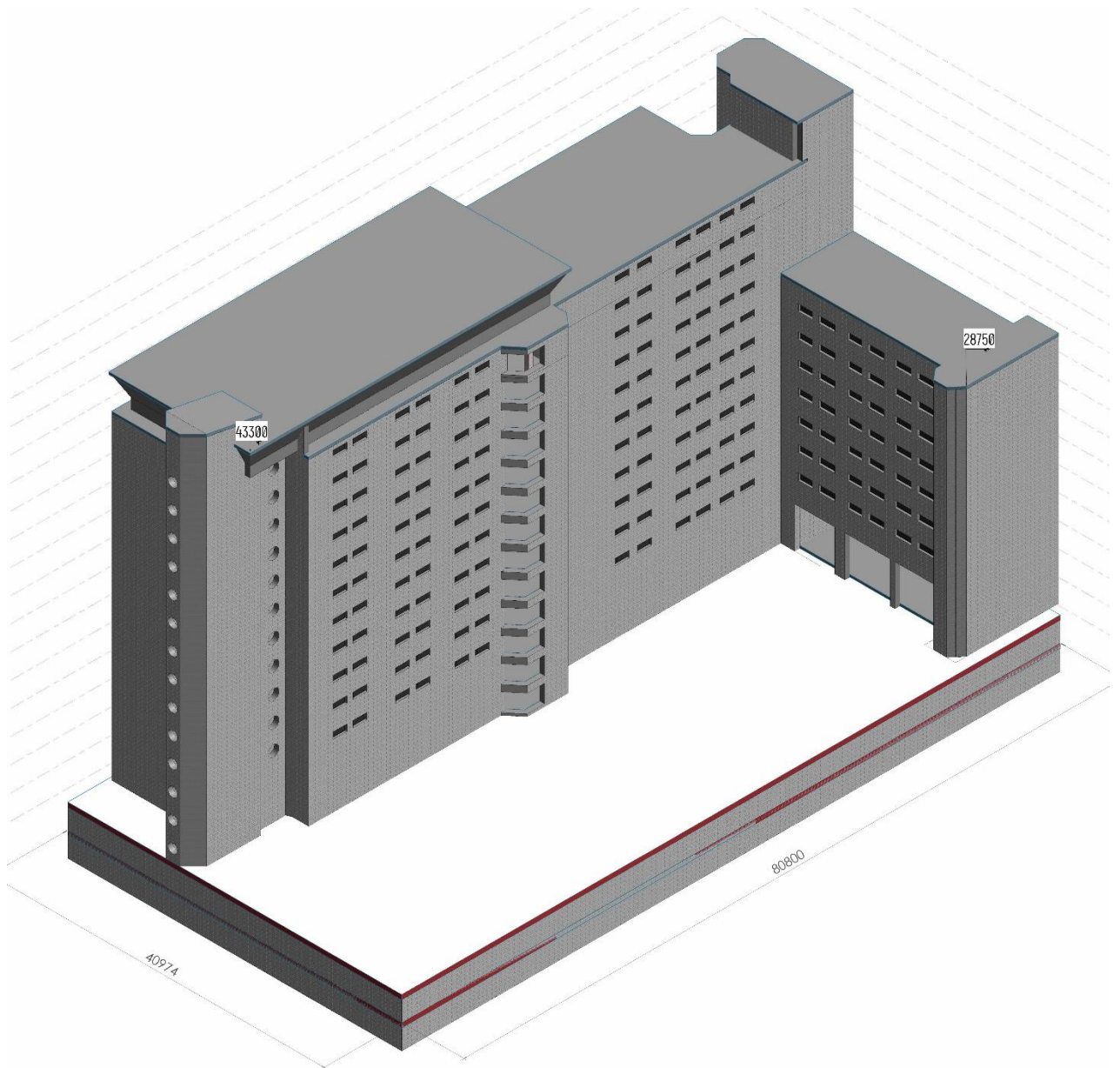


Fig. 93 BIM Model of the Britanika, by the author

Building consists of four towers and 3 main masses, Its structural integrity is being designed as a monolithic structure, therefore, load bearing walls are important for the rigidity.

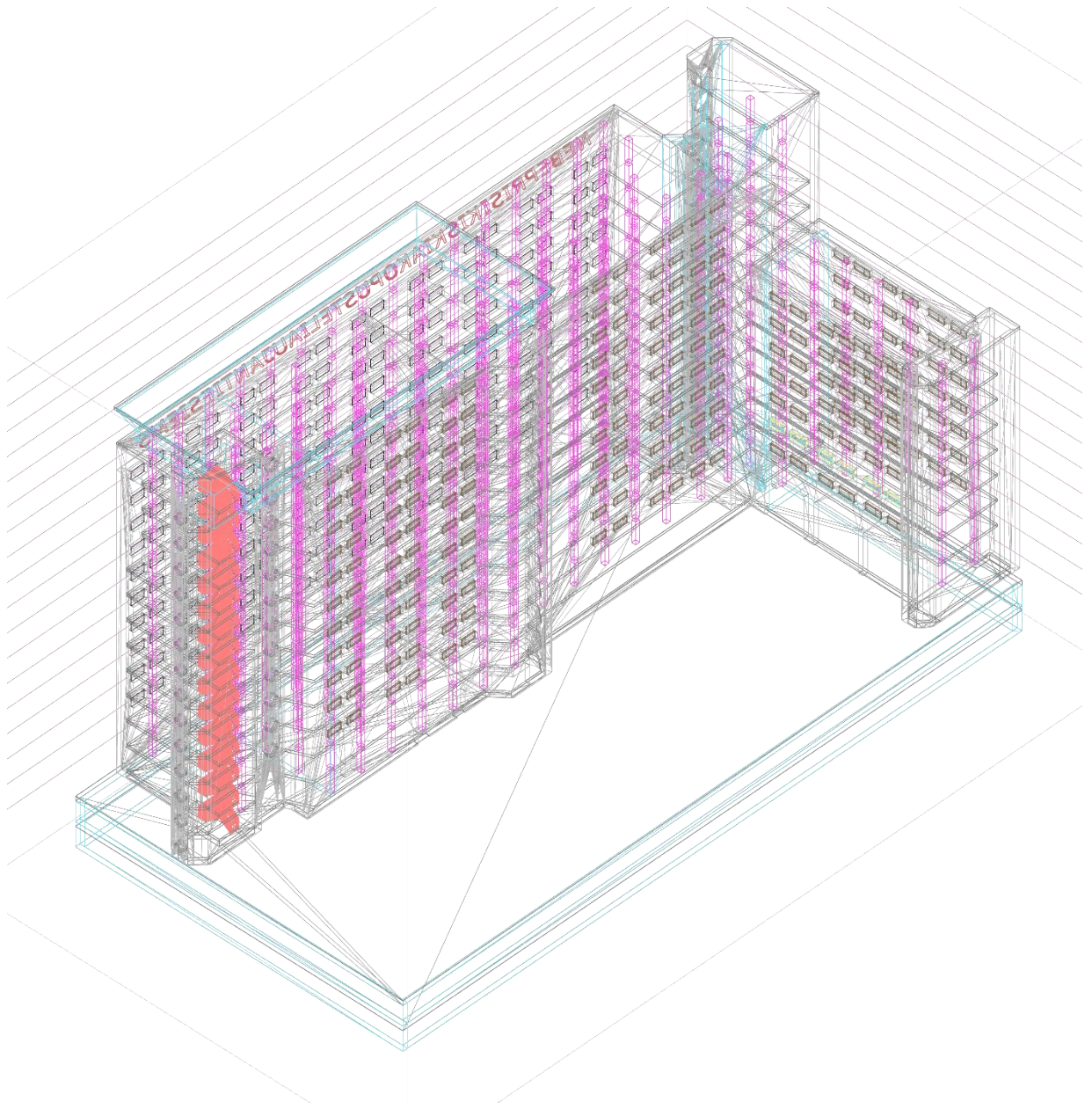


Fig. 94 Structural Model of the Britanika, by the author

Building has 15 + 4 floors, each storey is 2.8 meters high and the thickness of slabs are 300 mm. Concrete columns as observed are 50 x 50 steel reinforced concrete columns placed in grid by 5m apart from each other.

Britanika is a monolithic building with masonry mass structure. It creates a solid and rigid structure, although less flexible and with its size, It blocks the surroundings with its unified block concrete view.

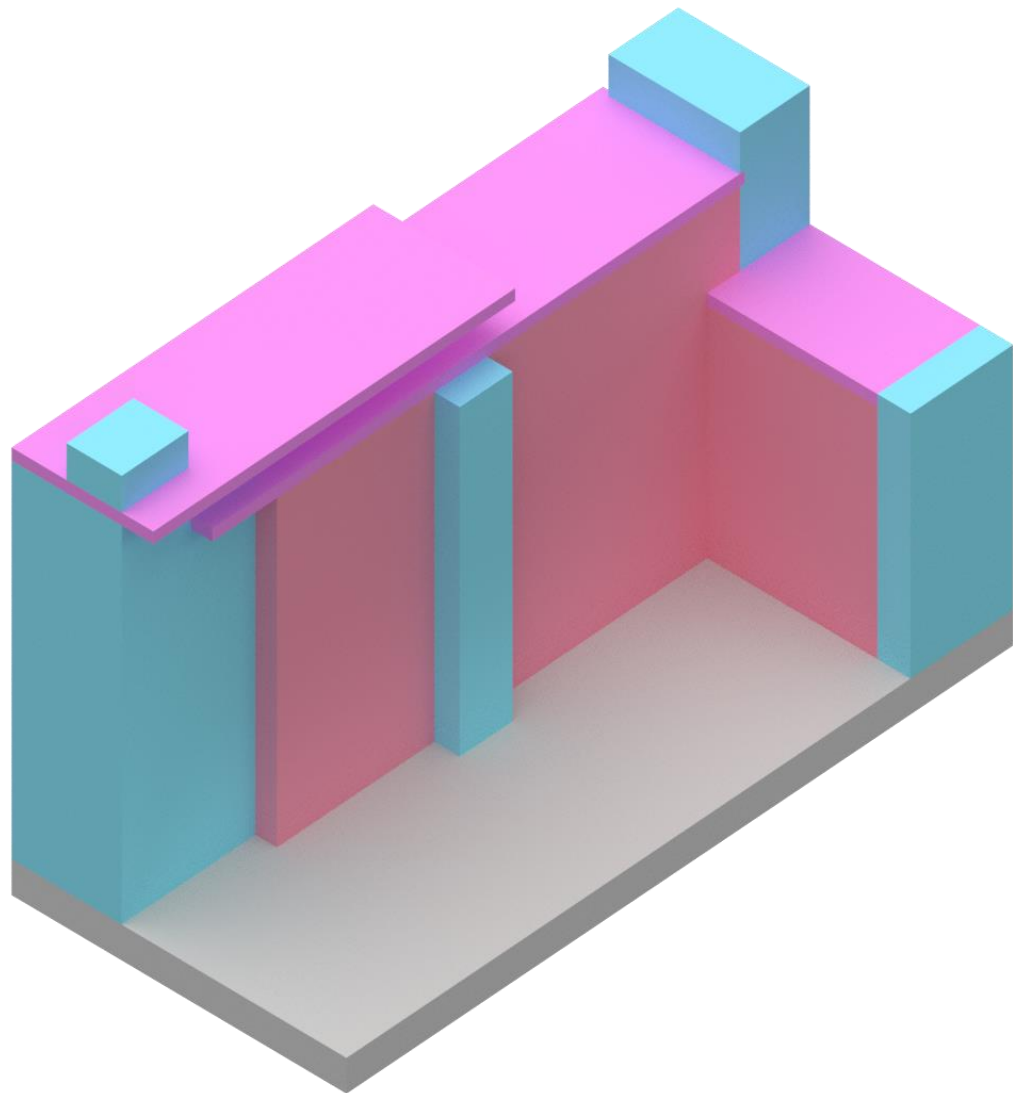
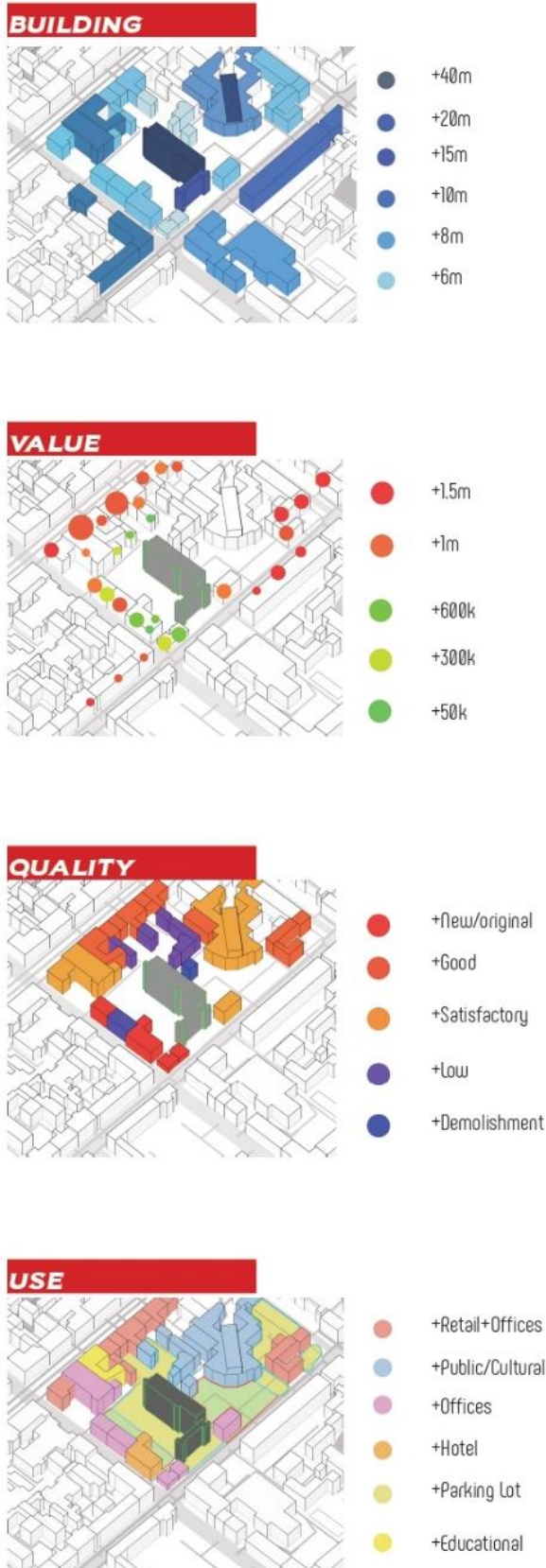


Fig. 95 Building Transformation Strategy, by the author

In its essence building consists of 3 vital elements, towers that have load bearing walls and columns, terraces which have panoramic views of the city and concrete mass which was planned as a hotel.

8.2.3. Site analysis

8.2.3.1. Building Surveys



Surrounding of the building mostly consists of 15 to 20m high buildings, Average height is 15m. Britanika however rises as a tall building relatively to the cityscape.

Building value according to several real estate websites, shows that property values drop dramatically as they get closer to Britanika. This may be because of the abandonment issue, also the height of the building blocks the sunlight and view.

Buildings were evaluated according to their quality. According to the evaluation based on buildings integral parts such as exterior finishing, structural elements etc.

Largest area of use in the block is open parking lots for cars. This creates a large carbon footprint and also lowers the visual quality of the block.

Fig. 96 Plot Surveys

8.2.3.2. Climate Analysis

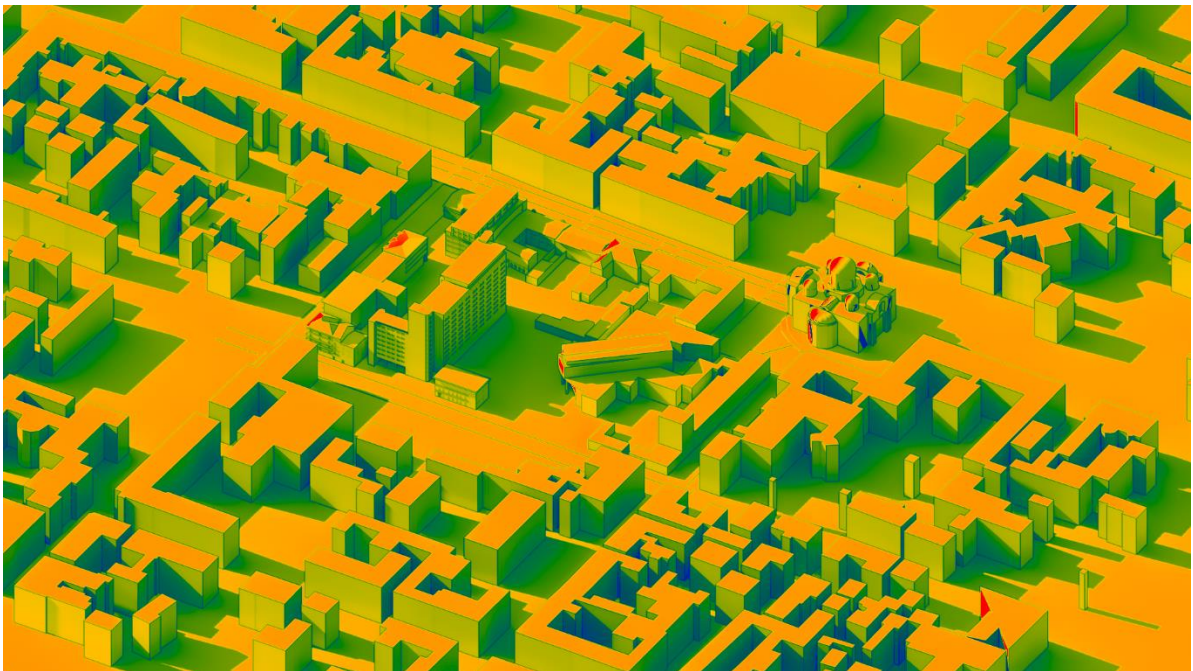


Fig. 97 Sunlight Radiation Analysis, by the author

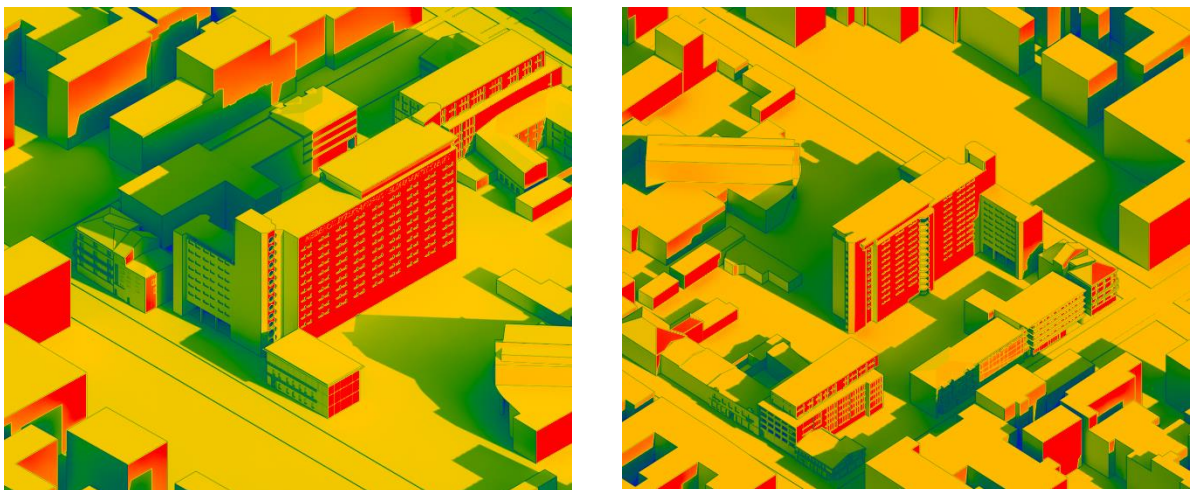


Fig. 98 Britanika Radiation Analysis, by the author

Design aims to transform the block and create a flexible site design, which would add value to the city, create an alternative and modern space for the residents. During the research phase, several uses has been established as lacking in Kaunas, which are Temporary housing/Hotels, Coworking spaces, Open Spaces and Parks, Cultural centres.

9. Final Design Project

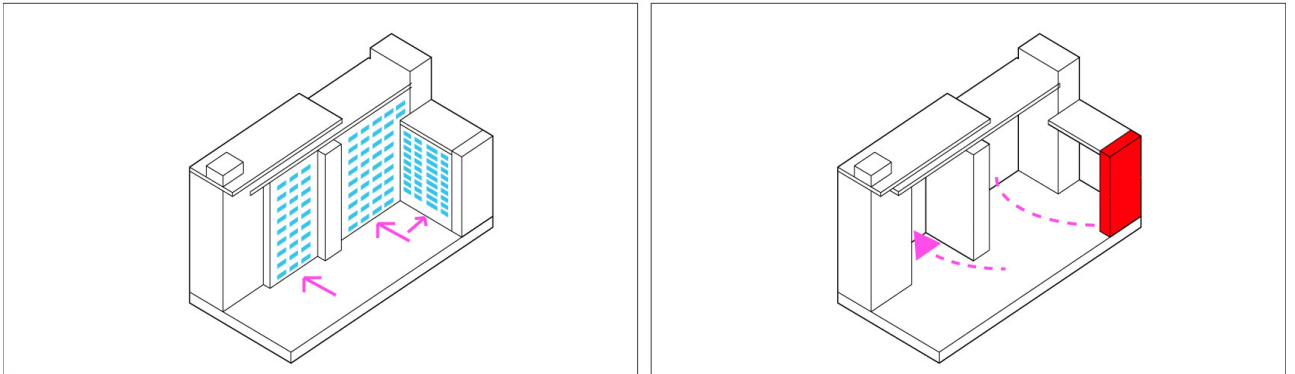


Fig. 99 Britanika Transformation Strategy Building Scale, by the author

New design should create a more flexible, open, breathing buildings and spaces in Britanika's place. Therefore, two massive concrete walls of Britanika should be demolished, and only the taller towers and the large open terrace should be kept creating a flexible and open landmark space. During the research the advantages of the abandoned hotel was deemed as the panoramic view around the city and the structural integrity of the tower parts.

Creation of openings in the ground level is necessary to create an open, integrated transformation, with the usage of the remaining parts of the hotel. Ground floor should be risen from the level zero with green roofs to create an open space which can receive sun inside the city block.

By using Britanika's towers, new built structure can grow around the remainings of the abandoned building, and complete the narrative in time, structural integrity can be built around the towers and from time to time new designs can emerge, and removed, changed and integrated,

Space should be designed to be resistant to abandonment.

9.1. Urban Design and Planning Phase

By default, the main idea is to transform the abandoned hotel Britanika and its` surroundings, by changing the design language of the interior urban block, creating meaningful connections and eliminating the blocking behaviour of Britanika and many soviet era buildings, hence creating a flexible, well connected and active space which would enable the pedestrian movement, adventure seeking nature of a tourist and also achieving a more green and sustainable urban landscape.

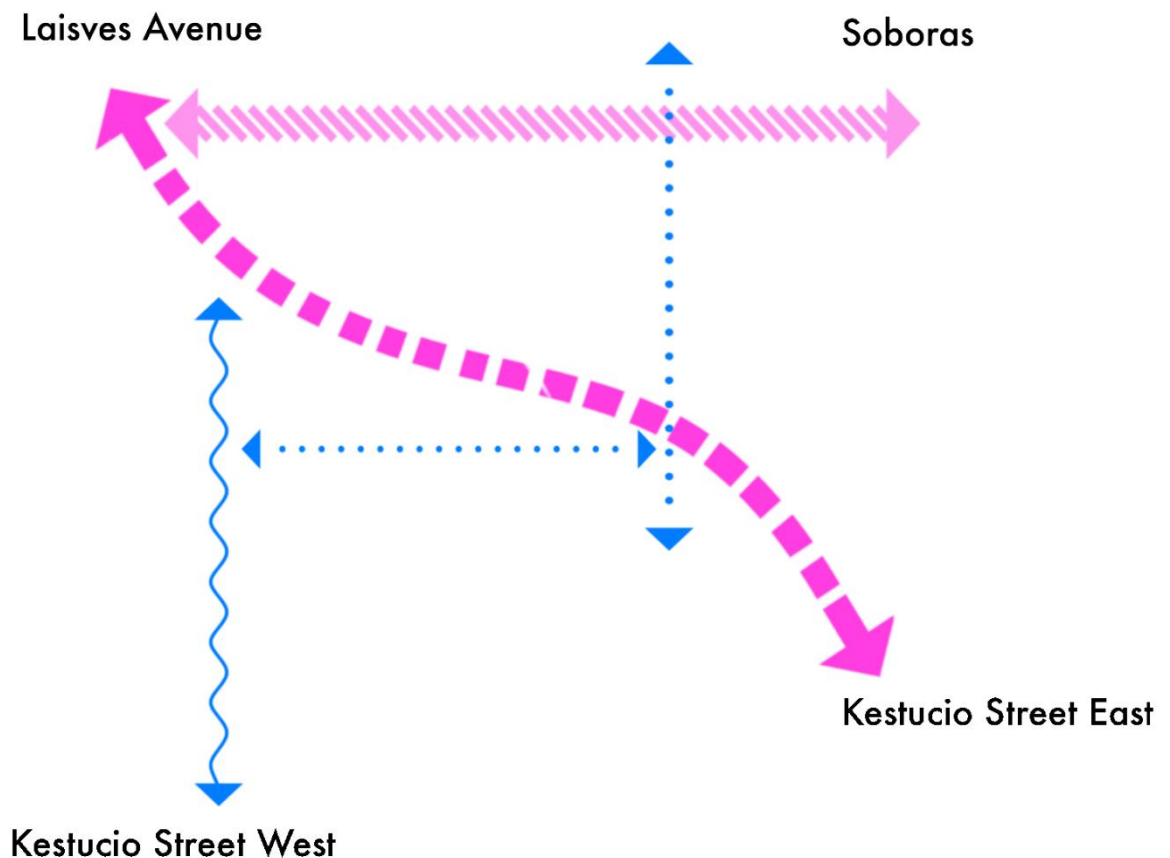


Fig. 105 Urban Connection Strategy, by the author

Most important part is to create an alternative route to the Laives Avenue routine in the social pedestrian landscape. Even though this avenue is important for the city, It also is limited. Especially during special occasions, when crowds flood into the Avenue, many people seek for an alternative route and social space. This project aims to create the backdoor connection in the most active, modern and playful way possible.

9.1.1. Site Approach

Site is located relatively close to the new town centre and the new business district by the River Nemunas. Kestucio Street being the alternative route to the Laisves Avenue makes this intersection of two a majorly important connection, transition space. This is the reason the project area consists the former abandoned hotel Britanika`s plot and a greater series of courtyards, also the rising need of an extension to Mykolas Zilinskas Museum enabled an extension building design, which integrates and merges with the proposal and completes the composition of the space in the east border of the greater project area.

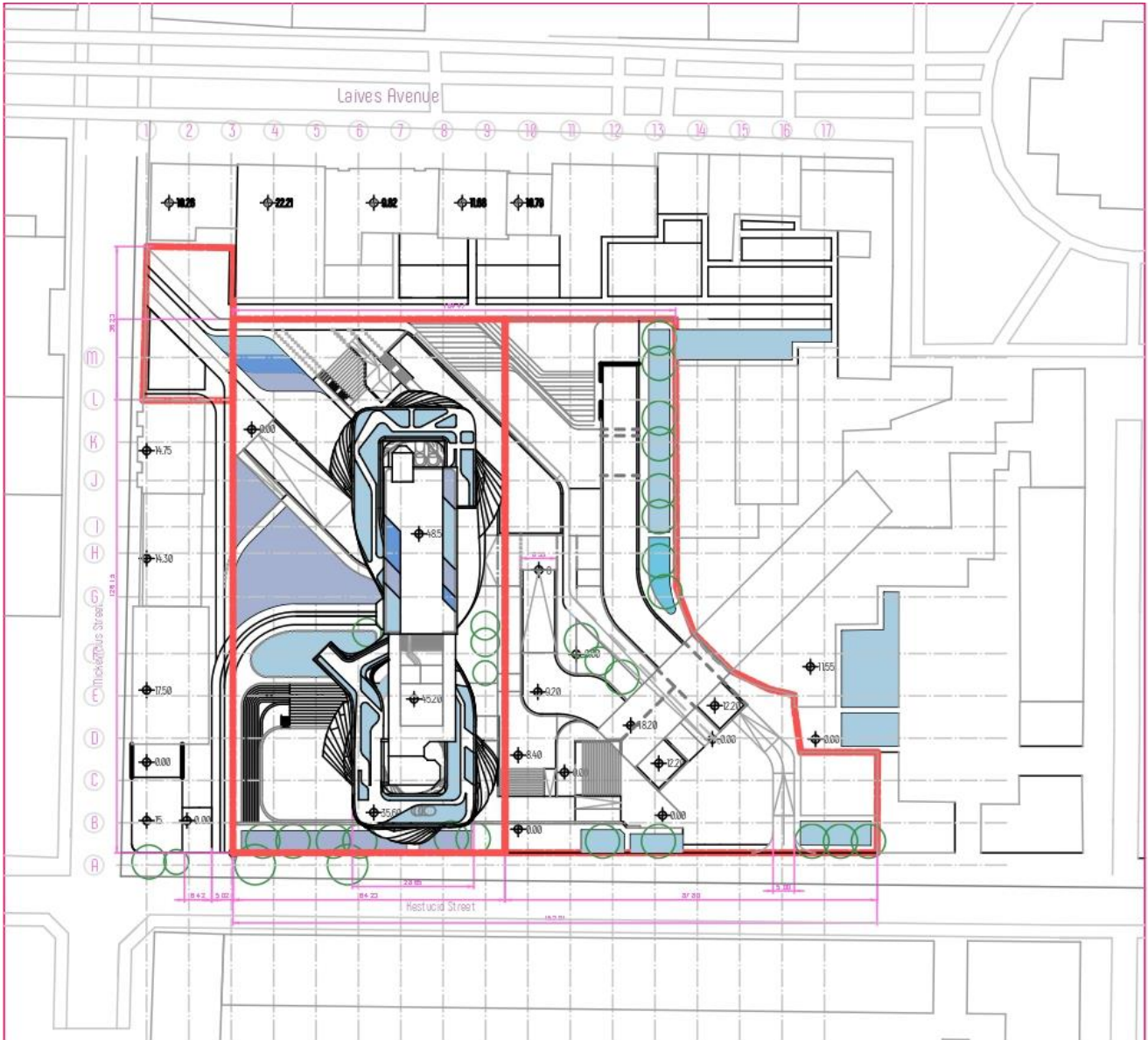


Fig. 106 Site Plan , by the author

9.1.2. Green Infrastructure Design

Green space was designed purposefully adjacent to the building forms and also by turning the grid 45 degrees, site enabled the sunlight and warm winds to pass through. Landscape is completely integrated with the ground floor plaza, seamlessly merging with the structure to raise the ground base to the upper levels, hence increasing the sunlight exposure on these landscape green surfaces.

This enables water management to be integrated with the buildings` high technology features. Landscape connects with its` surrounding to harvest the rainwater, and create a green corridor between Laives Avenue and Kestucio Street. Housing units rising above also have various vertical

landscape elements, balconies and terraces which integrates with the Britanika structure, Britanika`s terrace was used as a gathering place, multipurpose hall which serves as a vertical park.



Fig. 107 Green Spaces, by the author

75 % of the surface area which radiate are made of green roof covers, this way carbon footprint of the complex would be minimized.

By using the sloped green roofs, water harvesting was distributed across the building tops towards the ground landscape.



Fig. 108 Green Roof water purification system, zinco-gmbh

Roof structure contain a thick membrane and creates a green barrier between exterior and interior of the building complexes, edge of the corner slab, water purification system connects the roof surface to the ground landscape hence create a infrastructural system which would be acting as a machine altogether.

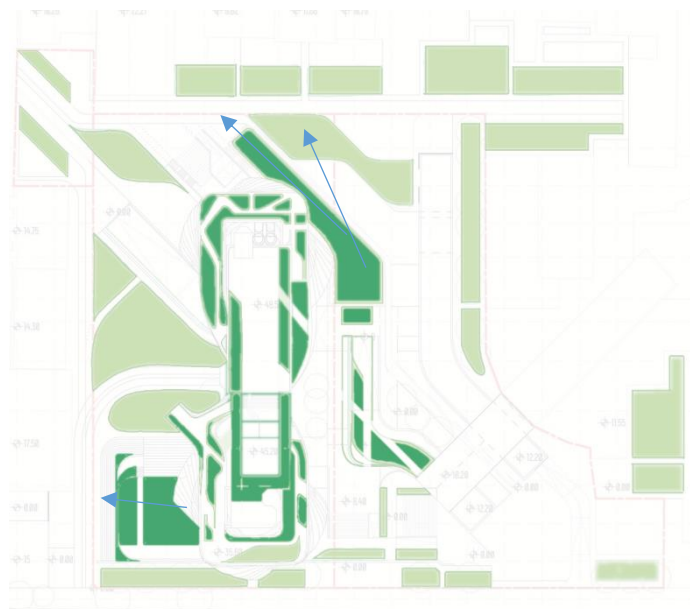


Fig. 108 Green Roofs, by the author

9.1.3. Pedestrian Connections and Activities

Project aims to follow the basic gestalt rules for design and combine them with the flow of the intended pedestrian motion. Softly guiding the visitors into an adventurous experience, creating gathering spaces and moving the gathering spaces in, on and through the built pieces of the machinelike site design.

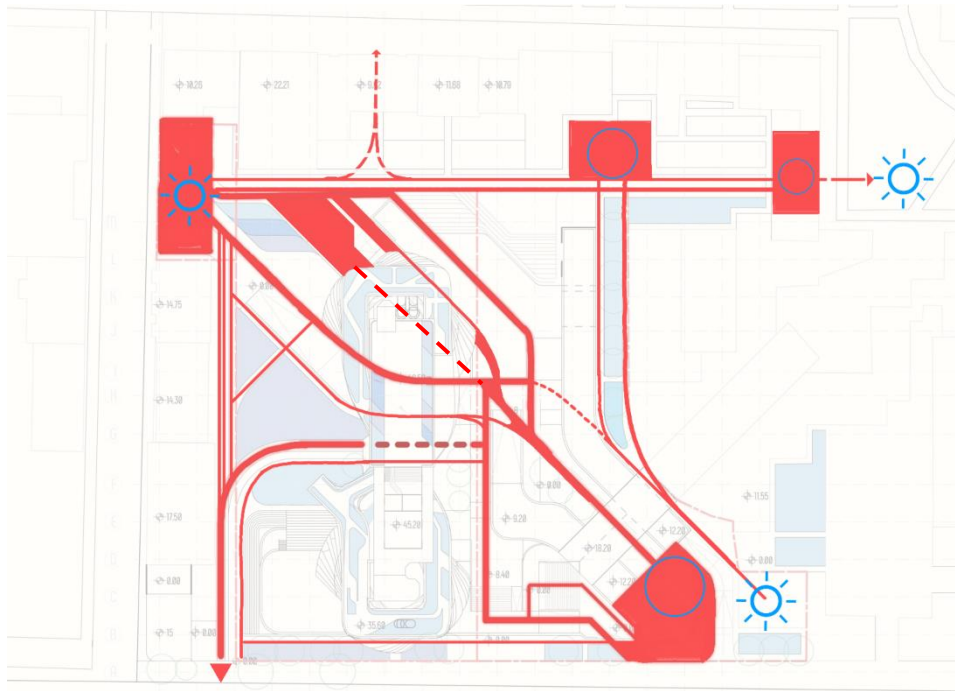


Fig. 109 Pedestrian/Bike Connections, by the author

9.2. Architectural Design

Architectural configuration of the project aims to solve each section of the project independently, the cultural part and the office/commercial part is solved in the ground plaza and takes advantage of the abandoned Britanika`s towers, above them is created a green roof plaza/park which would be connected via vertical connections to the terrace which is overlooking at the city panoramically. Between this vertical green web lies the housing units each is designed around the towers as an independent floor plan. Housing part investigates the temporariness of the housing and adapts the changing needs of housing during the times of pandemic, immigration or various crises that cant be foreseen but may happen in the future which ends with the rise in demand for affordable housing.

9.2.1. Ground Floor Plan

Ground floor consists of two main uses, located on the south of the area is the community/social centre and museum extension. On the north side, retail and office/co working spaces are located. Project aims to replicate the various destroyed towns, business centres and museums in Kharkiv/ Ukraine during the war and tries to anticipate the brain drain and immigration of skilled workers/businesses into Kaunas. Programmes are designed to be flexible, by using the old Britanika`s tower structures as staircase shafts/ technical HVAC shafts, Architectural design aims to welcome various users, exhibitions and retail/office functions to enable an interchangeable usage over the years to prevent the complex to be abandoned in the far future.



Fig. 110 Ground Floor Plan, by the author

9.2.1.1. Social Centre

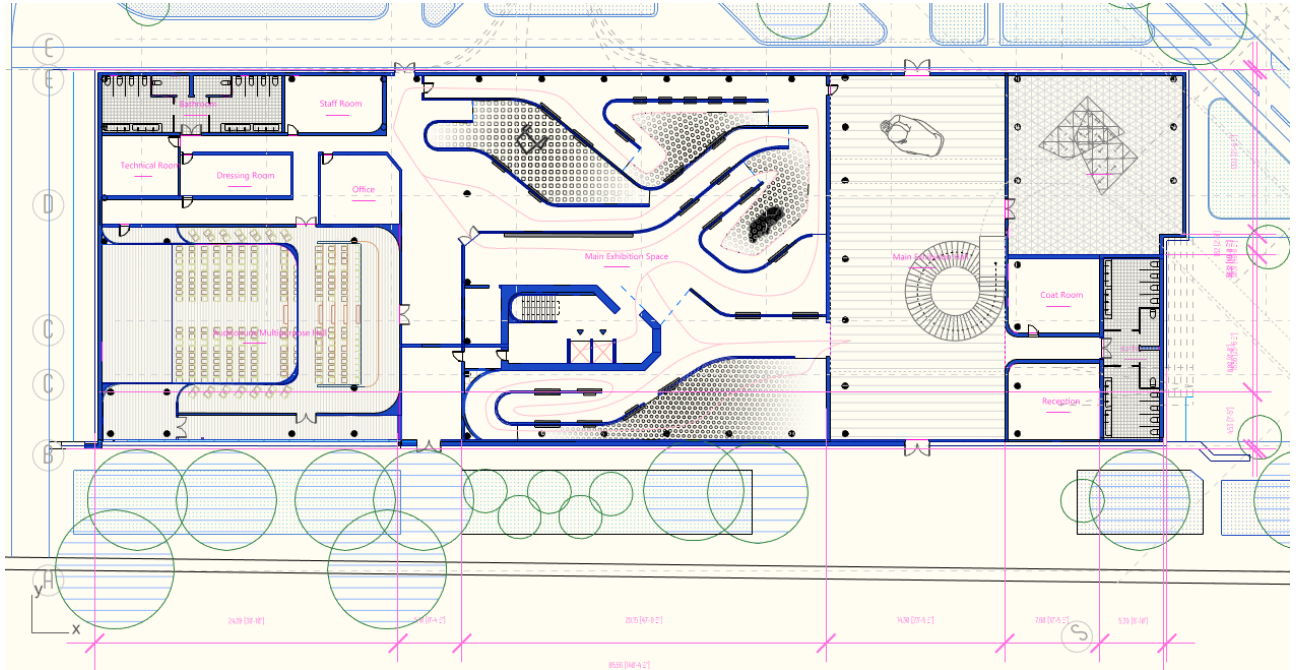


Fig. 111 Community Centre/ Museum Extension, by the author

Research part of the project established with surveys and NNA analyses that the transformation project would include a social centre/arts and performance centre. Hence the architectural program aimed to create a community centre, which would not only serve to the needs of the community in the housing parts of the complex, but also to the city in general, especially with the current situation of immigration, It is needed to establish a `reflection` of the immigrants` own countries, their own universities and create a community centre which could act a university/ high school building, as much as an art gallery, or a performance arts centre.

Program of the building consists of :

- 1- Auditorium : 1000 sqm
- 2- Main Multipurpose Hall (Exhibition Configuration on the floor plan) : 993 sqm
- 3- Main entrance hall : 406 sqm
- 4- Administration offices : 200 sqm in total
- 5- Other : 40 sqm

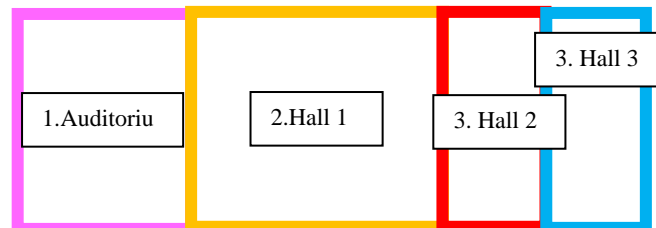


Fig. 112 Elastic program of the halls, by the author



Fig. 113 Community Centre Program, by the author

9.2.1.2. Commercial/Coworking Space

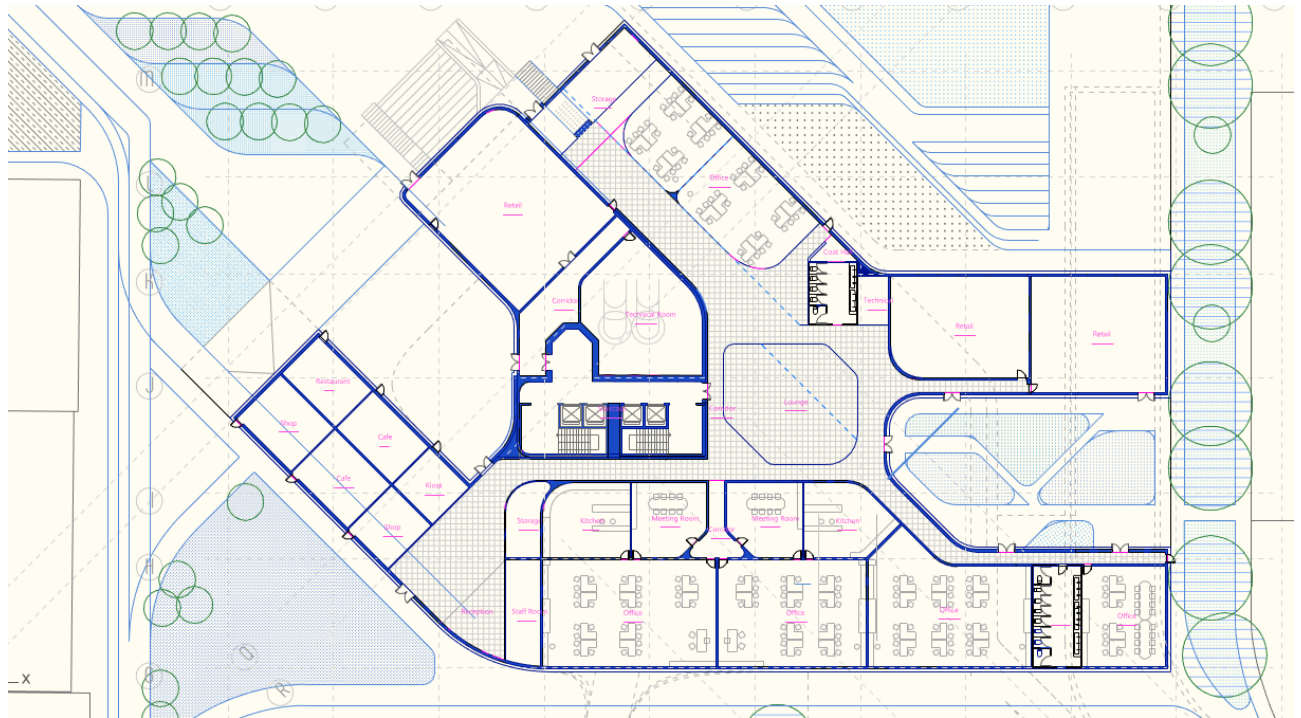


Fig. 114 Commercial Plaza Close Up, by the author

Coworking spaces include various office spaces for start ups and mid small businesses, focuses mostly white-collar immigrants and/or students working in the creative and tech sector. These coworking spaces can be rented for a period to relocate the businesses, which aims to create a safe haven for mixed mobilized working structures. As the Covid pandemic since 2019 showed us that many businesses do not require a permanent office space anymore. Companies from the various conflict zones have been aiming to relocate to countries such as Latvia, Estonia, Denmark, Netherlands, and project predicts that with its` background in high tech industry and centralized location, Lithuania can be one of the countries which receive creative brain drain, temporary or

permanent relocation of businesses and scholars, hence project aims to address the growing need for affordable housing and shared workspace.

Besides the offices, to create an active mixed-use space, some of the modular units have been assigned and designed as retail. During the lunchtimes, and day to day shopping, users may not like to be going into Laisves Avenue which is usually more crowded than other streets of Kaunas, during the research part of the paper, some of the surveyors responded the question ``Why do you use Kestucio street mostly?`` with the ``It is a good alternative to Laisves Avenue when it is crowded.`` This may indicate the growing need for an alternative social space. Currently alternatives are mostly Old Town which has been under construction for over a year and shopping malls. This creates a discomfort to socialize in ``backyards of cities`` to run away from the city life at least for a short period of time.



Fig. 115 Co-working Plaza Program, by the author



Fig. 116 Rotating the masses to receive more afternoon sun from the west, by the author

9.2.2. First Floor Plan

First floor consists of two unified parts which blended into each other, coworking spaces for the creative industries are integrated with the art gallery and the museum extension of Mykolas Zilinskas Art Gallery. Auditorium is connected to the complex from the south west ground floor, and Britanika towers are bridging it vertically to the rest of the building.

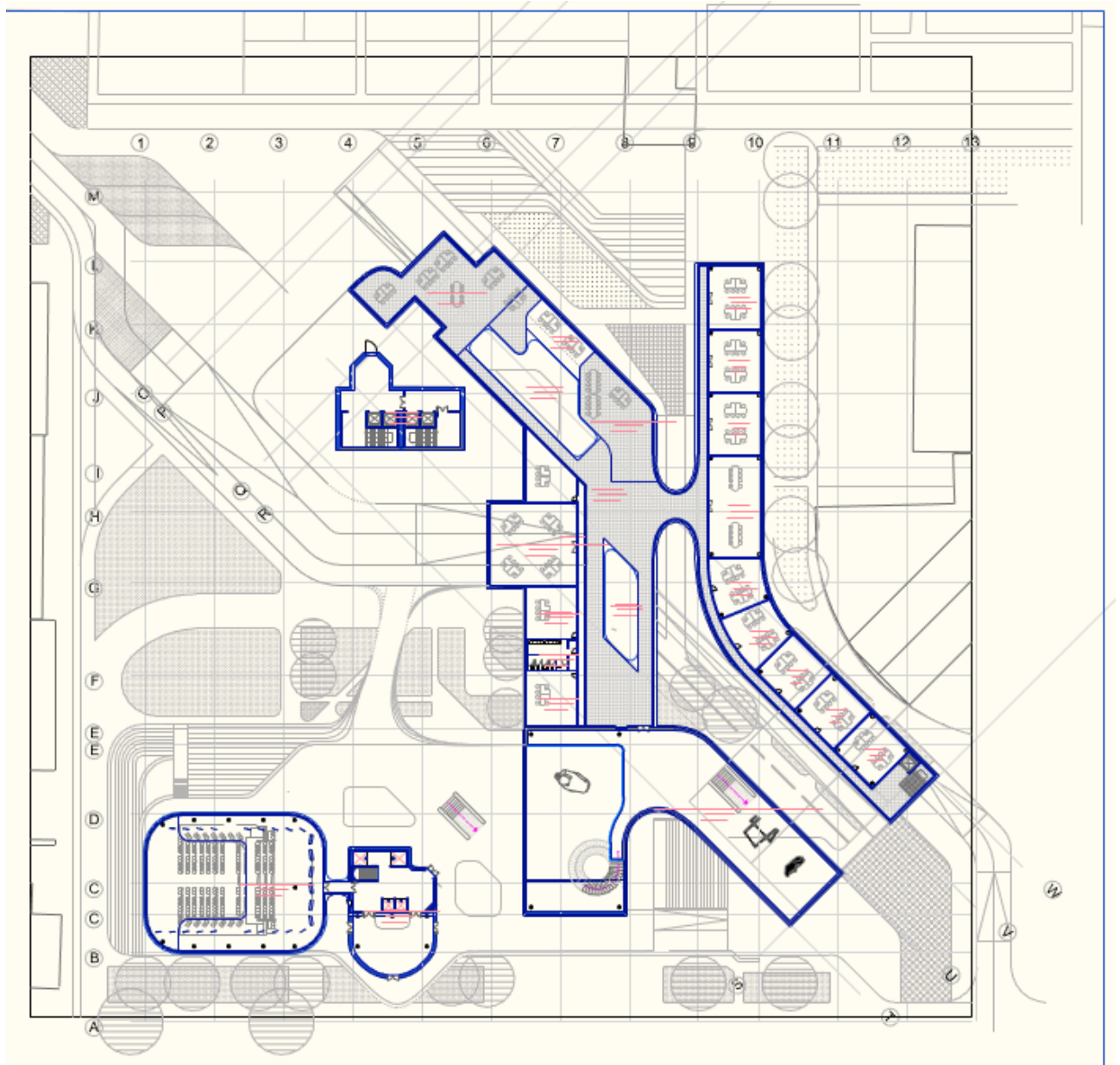


Fig. 117. 9m Elevation Floor Plan, by the author

This part of the structure aims to provide coworking spaces for potential immigrants, students and Lithuanian entrepreneurs who need a temporary office space, this would help the structure to be

Southern part of the floor is an entrance to the apartment complex and also to the auditorium from the second floor. These two parts work independently although connected by an overhanging plaza.

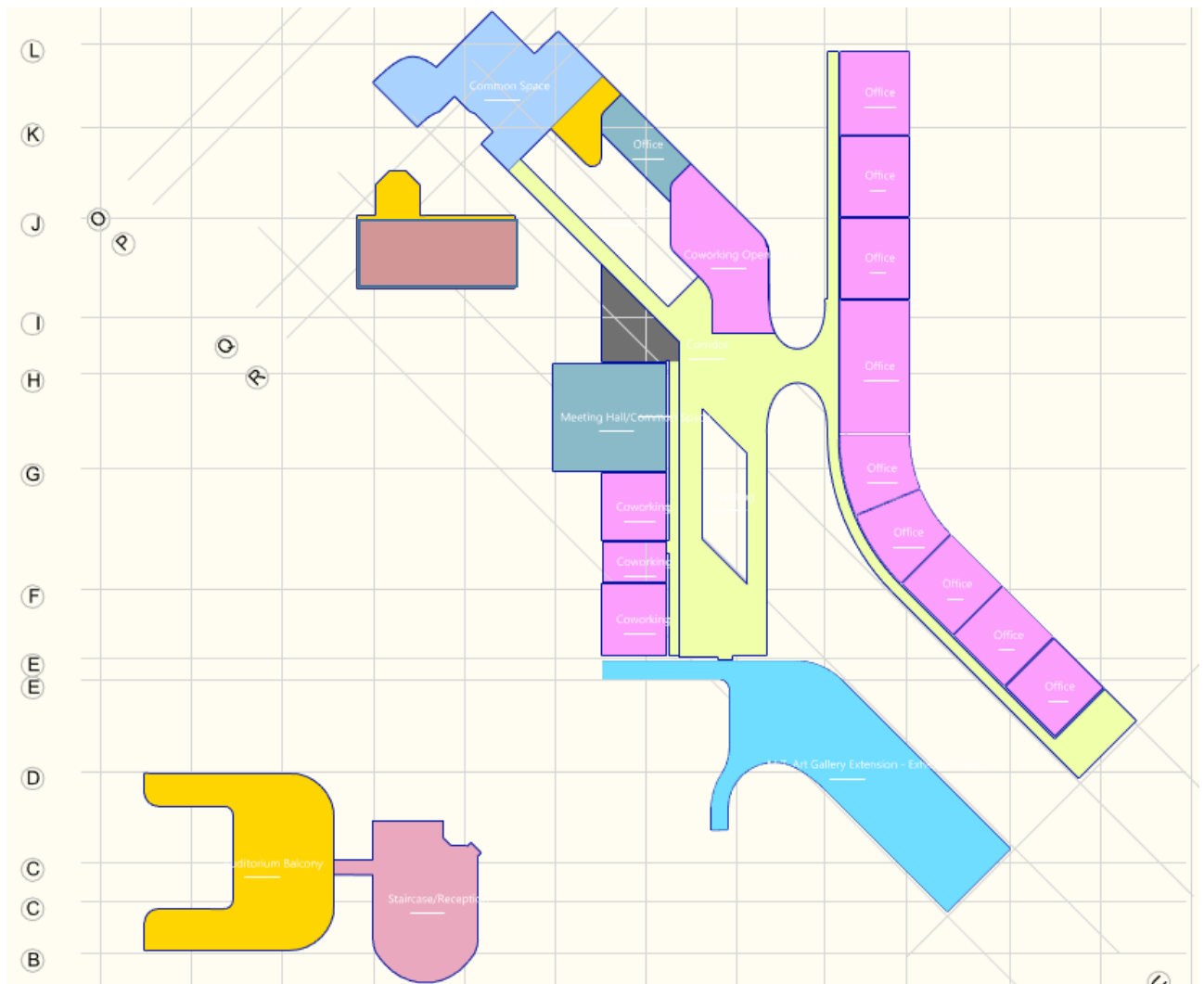


Fig. 118. 9m Elevation Floor Plan, by the author

9.2.3. 13m height Floor Plan

Housing part of the building is designed as two block connected with a vertical garden as bridges, instead of designing units with individual balconies, housing speculates a way to create common open spaces and aims to phase out the different parts of the structure.

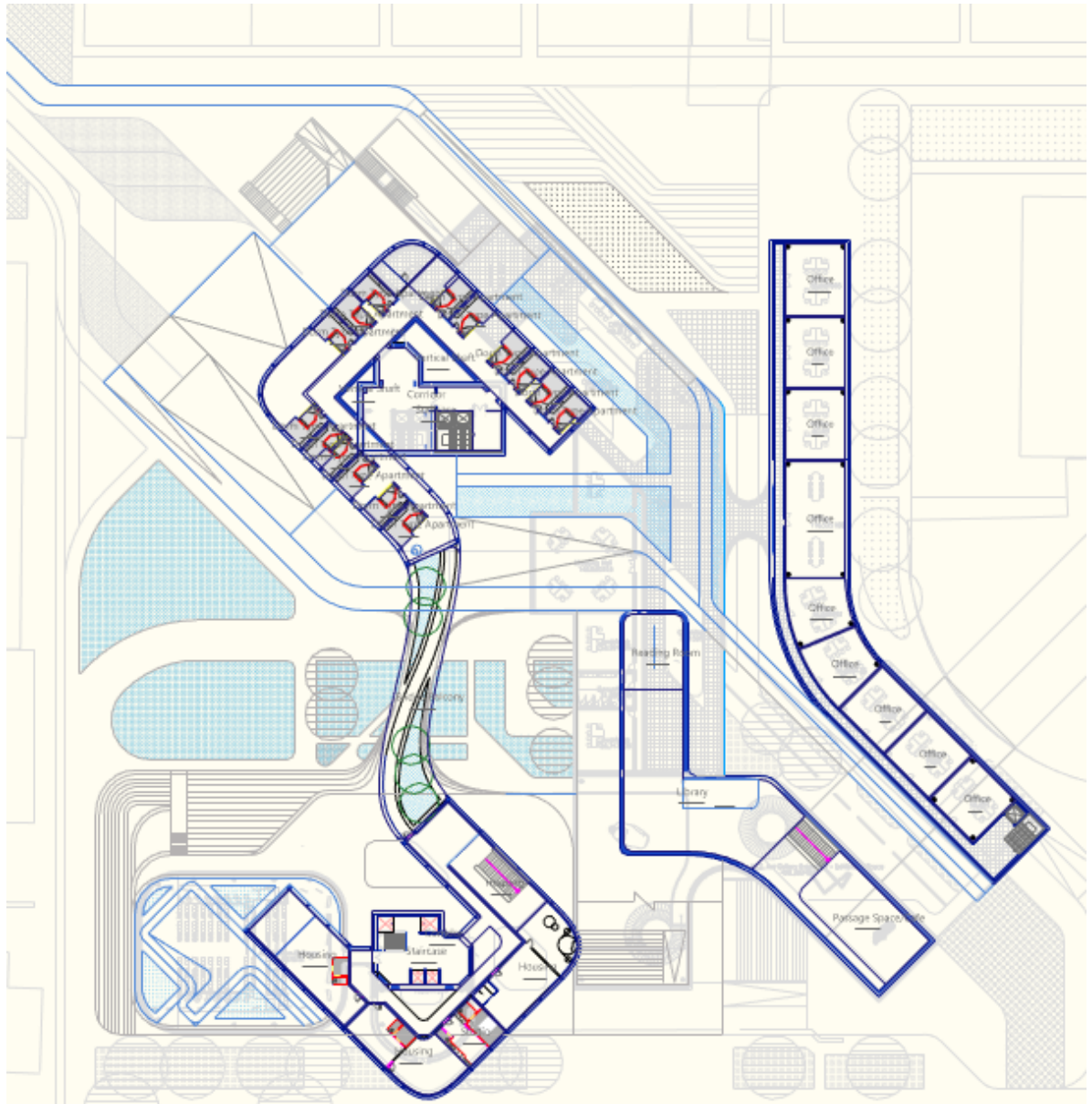


Fig. 119. 13m Elevation Floor Plan, by the author

Housing overlooks to the green roof and the landscape, also towards the library and coworking spaces. Hence creating a complete mixed use project which would serve the residents of the city as well as the office workers and housing residents.

Housing grows around the existing towers of Britanika and connects with a bridge in the centre of the building.

The green bridge connects and creates an open common space for the residents, on the east side of the complex, a library and coworking spaces are located which would emerge from the landscape like ground floor plaza

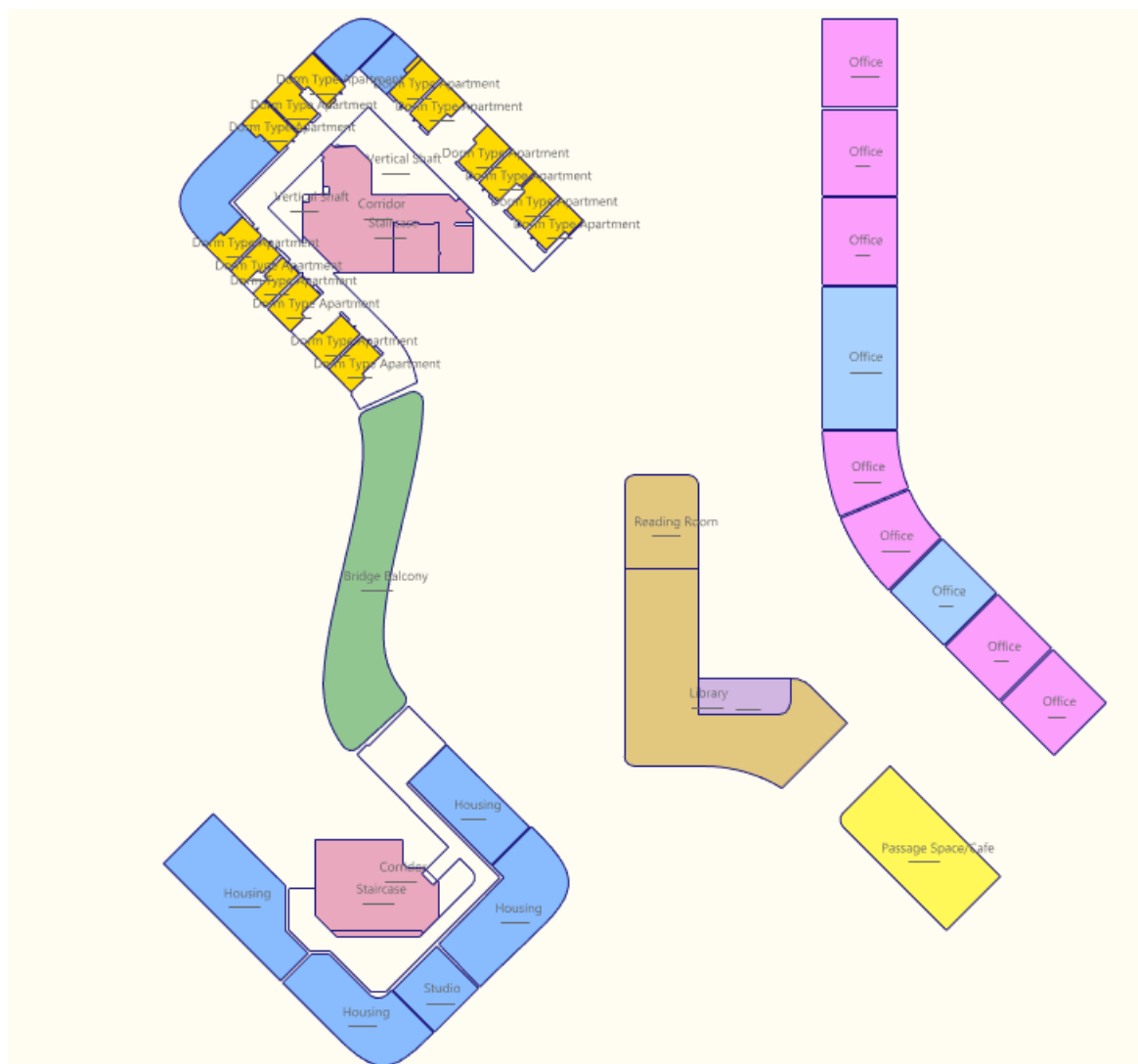


Fig. 120. 13m Elevation Program Plan, by the author

9.3. Presentation Boards

a

10. Conclusions

Research indicated that the public view of the building is divided between two opinions. Half of the participants thought that Britanika is a ghost building, an abomination and should be removed from the skyline by being demolished, and another part of the participants voted that even though it is vacant, unfinished, and abandoned, Britanika became a public symbol, a landmark, a place full of memories. Hence project design aimed to balance between these thoughts and the factor of sustainability. Most of the participants wanted to see a museum/art gallery or a public building where people of all ages can come together, socialize. Hence project aimed to recreate this area as a refreshment. It was necessary to investigate the idea of being a social space, a park, and a housing/coworking habitat which was decided by using the numeric network analysis, research showed that Kaunas city centre is desperately in need of a new hotel and student housing project, although during the project design phase, an unexpected conflict happened in the heart of Europe. This caused a surge in immigration to Lithuania like never seen in history. Therefore, project turned its' aim towards housing the potential immigrants. Since the project needed to be elastic, in order to prevent an abandonment issue in the future, structural design was designed using modular methods, advanced digital documentation and aimed to create a soft, active, creative space with the possibility of being changed, adapted to the needs of the current. Therefore, a system of modular, prefabricated slabs and unitized facades were designed to keep the structure interchangeable. Programs of the social spaces, including a museum, art gallery, auditorium and a multipurpose hall, was created by using the demolished buildings in Ukraine. The complete destruction may not be the ultimate solution, hence building aimed to use the necessary parts of the Britanika and build the space around it.

To fit the wind and sun radiation analyses, design started by lifting the ground up by 5 meters first and later on another 4 meters were added to enable high ceilings for some parts of the complex. Later on the green roof was designed as if the whole area was a park, an open space where there are no obstacles, trees, plants and pedestrian walk routes, this part was created by using, and sometimes defying the city pattern. The Mk Curlionis art gallery nearby influenced the project since it also fits with the ideal rotation of the grid to enable more sun exposure. A rotation of 38 degrees were decided by using the sunlight analysis as well as the city pattern and surrounding building. Whole composition is guided by pedestrian movements and wind blows to create natural ventilation.

Surrounding the two remaining towers of Britanika, the habitat grows as if it flows through the cracks of the old chunk of concrete. By creating large bridges, open common balconies, structure enables public interaction. Rather than designing a completely separate units with large individual balconies which would never be used in Lithuania and usually get covered and becomes an indoor space, project aims to unite habitants with common balconies, this minimizes the heat loss and maximizes the energy sustainability.

Overall project aimed to grasp the needs of the city and combined it with an artistic, expressionist form, hence proved that a modular structure can be sustainable, and may inherit the unorthodox forms to recreate the architectural style of the city. Design aims to superposition different uses, different people, different plants, languages and more. After all, isn't that what architecture is? Art of creating spaces smartly and creatively. Project reached its` goals and fulfilled the necessities of the prementioned research.

List of references for figures and images

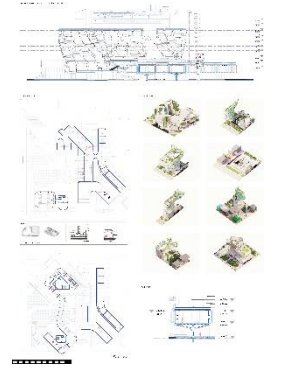
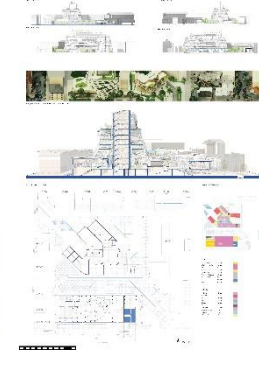
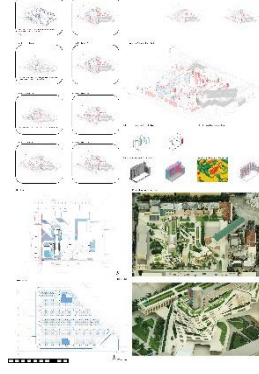
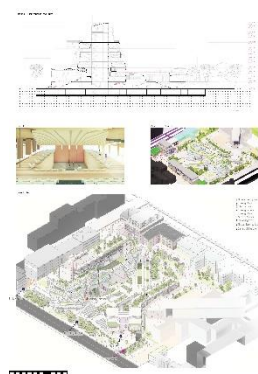
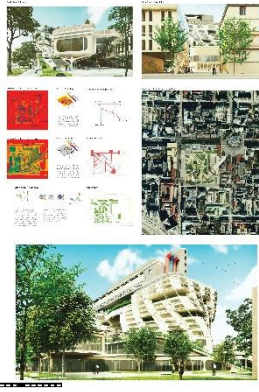
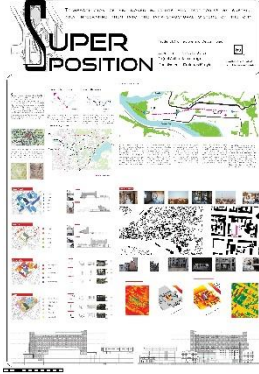
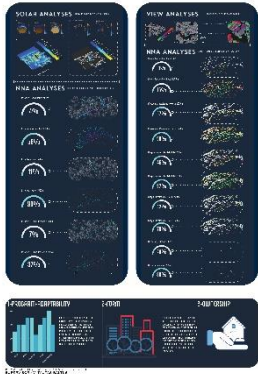
- Szekely, P. S. (2011, January 7). Walt Disney Concert Hall, Los Angeles [Photograph]. <https://Flickr.Com.https://flickr.com/photos/pedrosz/5592139283/in/photostream>
- Brown, D. B. (2008, December 31). Glass Chapel [Photography]. https://Www.Flickr.Com.https://www.flickr.com/photos/d_brown/3215926510/
- 2014 Olympiastadion Munich. (2014, April 20). [Photograph]. https://De.Wikipedia.Org.https://de.wikipedia.org/wiki/Datei:2014_Olympiastadion_Munich.jpg
- ucumari photography. (2019, June 21). One Thousand Museum [Photograph]. <https://Www.Flickr.Com.https://www.flickr.com/photos/ucumari/48140819681>
- <http://us.archello.com>. (n.d.). An architect's guide to: Photovoltaics [Photograph]. <http://us.archello.com/en/project/denver-botanic-gardens-science-pyramid>
- Aguilar, C. (2021, October 7). Federal Criminal Court / Durisch + Nolli Architetti + Bearth & Deplazes Architekten. ArchDaily. <https://www.archdaily.com/536921/federal-criminal-court-durisch-nolli-architetti-bearth-and-deplazes-architekten>
- Sánchez, D. (2021, March 3). Lukas Church Conversion / Heinrich Böll Architekt. ArchDaily. <https://www.archdaily.com/453326/lukas-church-conversion-heinrich-boll-architects>
- Block, I. (2021, May 25). Dorte Mandrup to wrap heritage centre around second-world-war bunker. Dezeen. <https://www.dezeen.com/2018/02/14/dorte-mandrup-trilateral-wadden-sea-world-heritage-partner-centre-architecture-second-world-war-bunker/>
- Dobbins, T. (2018, June 20). Why Heatherwick Studio's Zeitz MOCAA Is "A Call to Arms" For African Museums. ArchDaily. <https://www.archdaily.com/896395/why-heatherwick-studios-zeitz-mocaa-is-a-call-to-arms-for-african-museums>
- Sinkevičiūtė, V., & Januškevičiūtė, I. (n.d.). PROBLEMS OF ABANDONED BUILDINGS USE IN KAUNAS CITY. 6.
- Britanikos viesbutis*. (n.d.). Autc.Lt. http://www.autc.lt/lt/architekturos-objektai/1045/#_ftn2
- Office de Architectura. (n.d.). Opening of the Britanika hotel | Office De Architectura. <https://Dearch.Lt>. Retrieved January 15, 2022, from <https://dearch.lt/projects/opening-of-the-Britanika-hotel/>
- Downloads / Famous Buildings AutoCAD Drawing / Unité d'Habitation - Le Corbusier - ArchSociety. (n.d.). <http://Www.Archsociety.Com>. Retrieved January 16, 2022, from http://www.archsociety.com/e107_plugins/download/download.php?view.82
- Het Nieuwe Instituut. (2011, September 8). Congres Team 10 in Otterlo | Team 10 Meeting in Otterlo. Flickr. Retrieved January 16, 2022, from https://www.flickr.com/photos/nai_collection/6142993887/
- Das Bauhaus, Dessau, DDR May 1990. (2010, December 24). Flickr. Retrieved January 16, 2022, from <https://www.flickr.com/photos/sludgeulper/5288787560/>
- Mercado de Santa Caterina. (2006, September 16). Flickr. Retrieved January 16, 2022, from <https://www.flickr.com/photos/25658898@N00/252728658>
- Pompidou Centre. (n.d.). <http://Photoeverywhere.Co.Uk>. Retrieved January 16, 2022, from http://photoeverywhere.co.uk/west/paris/slides/pompidou_centre2966.JPG_orig.htm
- Cities of the Future | The Mobile City. (2012, February 14). <http://Themobilecity.Nl>. Retrieved January 16, 2022, from <http://themobilecity.nl/2012/02/14/cities-of-the-future/>
- Wright, D. (n.d.). New Lloyd's Building - 1989. <https://Www.Geograph.Org.Uk>. Retrieved January 16, 2022, from <https://www.geograph.org.uk/photo/54306>

Le Centre Georges Pompidou (Paris). (n.d.). Flickr. Retrieved January 16, 2022, from <https://www.flickr.com/photos/dalbera/2496569412/>

Delfino, N. (n.d.). Central Library, 2002-present, The Seattle Public Library. HistoryLink. Retrieved January 16, 2022, from <https://www.historylink.org/File/4303>

Before Autocad. (n.d.). <https://inf.news>. Retrieved January 16, 2022, from <https://inf.news/en/design/ca395f6a06e3b21c67ee9856f5992598.html>

Woo, J. H., & Lee, N. N. (2020, November 28). Numeric network analysis V2. basic. Medium. Retrieved January 14, 2022, from <https://axuplatform.medium.com/numeric-network-analysis-v2-basic-febcf8f84f2>



Bibliography and references for the research

1. Vitruvius. (2002). *Ten books on architecture / Vitruvius*; translation by Ingrid D. Rowland. University Press.
2. Hvattum, M. (2004). *Gottfried Semper and the Problem of Historicism*. University Press. <https://doi.org/10.1017/CBO9780511497711>
3. Slavid, Ruth. 2012. *10 Principles of Architecture / Ruth Slavid*. London]: Vivays Publishing.
4. Ruskin, J. (2000). *Seven Lamps of Architecture*. Electric Book Company.
5. Baljon, C. J. (1997). Interpreting Ruskin: The Argument of the Seven Lamps of Architecture and the Stones of Venice. *The Journal of Aesthetics and Art Criticism*, 55(4), 401–414. <https://doi.org/10.2307/430927>
6. O’Neill, M. J. (1991). Evaluation of a Conceptual Model of Architectural Legibility. *Environment and Behavior*, 23(3), 259–284. <https://doi.org/10.1177/0013916591233001>
7. Haddad, E. G., & Rifkind, D. (2016). *A Critical History of Contemporary Architecture* (0 ed.). Routledge. <https://doi.org/10.4324/9781315263953>
8. Merkel, J. (2011). Eric Mumford .*Defining Urban Design: CIAM Architects and the Formation of a Discipline, 1937–69*. New Haven: Yale University Press, 2009, 272 pp., 15 color, 91 b/w illus. \$55, ISBN 9780300138887. *Journal of the Society of Architectural Historians*, 70(1), 123–124. <https://doi.org/10.1525/jsah.2011.70.1.123>
9. Honhart, M. (2002). Eric Mumford. *The CIAM Discourse on Urbanism, 1928–1960*. Cambridge: MIT Press. 2000. pp. xv, 375. \$45.00. *The American Historical Review*, 107(3), 850–851. <https://doi.org/10.1086/ahr/107.3.850>
10. Kostyuk, M., De Magistris, A., Patti, F., & Zheludkova, E. I. (2019). *Boris Iofan: Architect behind the Palace of the Soviets*.
11. Hardingham, S., & Greene, D. (2008). *The Disreputable Projects of David Greene*. Architectural Association.
12. Sadler, S. (2005). *Archigram: Architecture without architecture*. MIT Press.
13. British Standards Institution (2019) *BS EN ISO 19650: Organisation and digitisation of information about buildings and civil engineering works, including building information modelling - Information management using building information modelling*, London: BSI
14. *Frequently Asked Questions About the National BIM Standard-United States | National BIM Standard—United States*. (n.d.). Retrieved October 24, 2021
15. Baljon, C. J. (1997). Interpreting Ruskin: The Argument of the Seven Lamps of Architecture and the Stones of Venice. *The Journal of Aesthetics and Art Criticism*, 55(4), 401–414. <https://doi.org/10.2307/430927>
16. Dogan, H. A. (2018). Is ornament a crime? Ornament usage in the modern movement and its impact on society’s perception: case study of Kaunas / Huriye Armağan Doğan. *Journal of Architecture and Life*, 3(1), 113–127. <https://doi.org/10.26835/my.351351>
17. O’Neill, M. J. (1991a). Evaluation of a Conceptual Model of Architectural Legibility. *Environment and Behavior*, 23(3), 259–284. <https://doi.org/10.1177/0013916591233001>
18. Tang, L. (2011b). *In Search of an Architectural Legibility: Human Movement Behavior and Wayfinding for Pattern Design [University of Cincinnati / OhioLINK]*. http://rave.ohiolink.edu/etdc/view?acc_num=ucin1307441877

19. Research for Democracy. 2001. "Blight Free Philadelphia: A Public-Private Strategy to Create and Enhance Neighborhood Value." Philadelphia, Pennsylvania: Eastern Pennsylvania Organizing Project and Temple University Center for Public Policy.
20. Lami, I. M., & Mecca, B. (2021). Assessing Social Sustainability for Achieving Sustainable Architecture. *Sustainability*, 13(1), 142. <https://doi.org/10.3390/su13010142>
21. 1-s2.0-S2590332220303638-main.pdf. (n.d.).
22. Abedini, A., & Khalili, A. (2019). Determining the capacity infill development in growing metropolitans: A case study of Urmia city. *Journal of Urban Management*, 8(2), 316–327. <https://doi.org/10.1016/j.jum.2019.04.001>
23. Akande, O. K., Odeleye, D., Coday, A., & JimenezBescos, C. (2016). Performance evaluation of operational energy use in refurbishment, reuse, and conservation of heritage buildings for optimum sustainability. *Frontiers of Architectural Research*, 5(3), 371–382. <https://doi.org/10.1016/j.foar.2016.06.002>
24. Almonaitytė-Navickienė, V. (2018a). Architekto Alfredo Paulausko kūryba. Lietuvos architektų sąjungos Kauno skyrius.
25. Almonaitytė-Navickienė, V. (2018b). Biografijos eskizas. In Architekto Alfredo Paulausko kūryba/sudarytoja Vaida Almonaitytė-Navickienė (pp. 7–13). Lietuvos architektų sąjungos Kauno skyrius.
26. Architecture sustainability | Mendeley. (n.d.). Retrieved September 24, 2021, from <https://www.mendeley.com/search/?page=1&query=architecture%20sustainability&sortBy=relevance>
27. Banaei, M., Ahmadi, A., & Yazdanfar, A. (2017). Application of AI methods in the clustering of architecture interior forms. *Frontiers of Architectural Research*, 6(3), 360–373. <https://doi.org/10.1016/j.foar.2017.05.002>
28. Barasch, D. (2019). *Ruin and redemption in architecture* / Dan Barasch. Phaidon Press.
29. Brand, S. (1995). *How Buildings Learn: What Happens After They're Built*. Penguin.
30. Buildings-GSR-2020_Report_24-03-21_0.pdf. (n.d.).
31. Cascone, S., & Sciuto, G. (2018). Recovery and reuse of abandoned buildings for student housing: A case study in Catania, Italy. *Frontiers of Architectural Research*, 7(4), 510–520. <https://doi.org/10.1016/j.foar.2018.08.004>
32. Charytonowicz, J., & Falcão, C. (2019). *Advances in Human Factors in Architecture, Sustainable Urban Planning and Infrastructure: Proceedings of the AHFE 2019 International Conference on Human Factors in Architecture, Sustainable Urban Planning and Infrastructure, July 24-28, 2019, Washington D. C., USA*. Springer International Publishing AG.
33. Chronis, A., Liapi, K. A., & Sibetheros, I. (2012). A parametric approach to the bioclimatic design of large scale projects: The case of a student housing complex. *Automation in Construction*, 22, 24–35. <https://doi.org/10.1016/j.autcon.2011.09.007>
34. Csoknyai, T., Hrabovszky-Horváth, S., Georgiev, Z., Jovanovic-Popovic, M., Stankovic, B., Villatoro, O., & Szendrő, G. (2016). Building stock characteristics and energy performance of residential buildings in Eastern-European countries. *Energy and Buildings*, 132, 39–52. <https://doi.org/10.1016/j.enbuild.2016.06.062>
35. Daugėlaitė, A. (2018). Urban acupuncture in historic environment: Research of analogues. *Journal of Sustainable Architecture and Civil Engineering*, 23(2), 5–15. <https://doi.org/10.5755/j01.sace.23.2.21434>

36. Daugėlaitė, A. (2020). Aesthetics of sustainability and architecture: An overview. *Architecture and Urban Planning*, 16(1), 48–55. <https://doi.org/10.2478/aup-2020-0008>
37. Daugėlaitė, A. (2021). The relationship between ethics and aesthetics in sustainable architecture of the Baltic sea region. *Sustainability*, 13(4:2259), 1–15. <https://doi.org/10.3390/su13042259>
38. Farahat, B. I., & Osman, K. A. (2018). Toward a new vision to design a museum in historical places. *HBRC Journal*, 14(1), 66–78. <https://doi.org/10.1016/j.hbrcj.2016.01.004>
39. George, A. (2020). Sustainable Architecture, Alternative Concepts and Waste Reduction. In S. Hashmi & I. A. Choudhury (Eds.), *Encyclopedia of Renewable and Sustainable Materials* (pp. 232–243). Elsevier. <https://doi.org/10.1016/B978-0-12-803581-8.10700-3>
40. Gražulevičiūtė-Vilenišké, I. (2021). The role of aesthetics in building sustainability assessment. *Spatium*, 79–89. <https://doi.org/10.2298/SPAT2145079G>
41. Grazuleviciute-Vileniske, I., & Urbonas, V. (2014). Urban regeneration in the context of post-Soviet transformation: Lithuanian experience. *Journal of Cultural Heritage*, 15(6), 637–643. <https://doi.org/10.1016/j.culher.2014.01.002>
42. Grunskis, T., & Šiupšinskas, M. (2012). POST-SOVIET TRANSFORMATIONS OF PUBLIC SPACES IN LITHUANIA: CASES OF ŽIRMŪNAI AND LAZDYNAI RESIDENTIAL DISTRICTS / TARYBINIO LAIKOTARPIO VIEŠŪJŲ ERDVIŲ TRANSFORMACIJOS LIETUVOJE. VILNIAUS ŽIRMŪNŲ IR LAZDYNŲ ATVEJIS. *Journal of Architecture and Urbanism*, 36(3), 209–221. <https://doi.org/10.3846/20297955.2012.732492>
43. Guo, P., Zheng, L., Sun, X., He, M., Wang, Y., & Shang, J. (2018). Sustainability evaluation model of geothermal resources in abandoned coal mine. *Applied Thermal Engineering*, 144, 804–811. <https://doi.org/10.1016/j.applthermaleng.2018.06.070>
44. Huseynov, E. F. oglu. (2011). Planning of sustainable cities in view of green architecture. *Procedia Engineering*, 21, 534–542. <https://doi.org/10.1016/j.proeng.2011.11.2048>
45. III, R. S., & Austin, S. (2016). *Adaptable Architecture: Theory and practice*. Routledge.
46. Jelinek, C. (2021). Turning a “Socialist” Policy into a “Capitalist” One: Urban Rehabilitation in Hungary during the Long Transformation of 1989. *Journal of Urban History*, 47(3), 511–525. <https://doi.org/10.1177/0096144220908880>
47. Jokilehto, J. (2011). *A history of architectural conservation (Repr)*. Routledge.
48. Krivý, M. (2021). “Post-Apocalyptic Wasteland” or “Digital Ecosystem”? Postsocialist Ecological Imaginaries in Tallinn, Estonia. *Geoforum*, 126, 233–243. <https://doi.org/10.1016/j.geoforum.2021.07.007>
49. Kšivickaitė, J. (2008). SOVIETMEČIO MODERNIZMO ARCHITEKTŪROS PRARADIMAI LIETUVOJE/LOSSES OF THE SOVIET PERIOD MODERNISTIC ARCHITECTURE IN LITHUANIA. *Journal of Architecture and Urbanism*, 32(3), 173–182. <https://doi.org/10.3846/13921630.2008.32.173-182>
50. Kuhlman, J. W., & Farrington, J. (2010). What is sustainability? *Sustainability (Basel, Switzerland)*, 2(11), 3436–3448. <https://doi.org/10.3390/su2113436>
51. Kuhlman, T., & Farrington, J. (2010). What is Sustainability? *Sustainability*, 2(11), 3436–3448. <https://doi.org/10.3390/su2113436>
52. Lami, I. M., & Mecca, B. (2021). Assessing Social Sustainability for Achieving Sustainable Architecture. *Sustainability*, 13(1), 142. <https://doi.org/10.3390/su13010142>

53. Lehmann, S. (2013). Low carbon construction systems using prefabricated engineered solid wood panels for urban infill to significantly reduce greenhouse gas emissions. *Sustainable Cities and Society*, 6, 57–67. <https://doi.org/10.1016/j.scs.2012.08.004>
54. Liaučius, M. (n.d.). *Britanika and Respublikos Hotels*. 43.
55. Lifschutz, A. (2017). Long Life, Loose Fit, Low Energy. *Architectural Design*, 87(5), 6–17. <https://doi.org/10.1002/ad.2210>
56. Mahdiraji, H. A., Arzaghi, S., Stauskis, G., & Zavadskas, E. K. (2018). A Hybrid Fuzzy BWM-COPRAS Method for Analyzing Key Factors of Sustainable Architecture. *Sustainability*, 10(5), 1626. <https://doi.org/10.3390/su10051626>
57. Martínez-Molina, A., Tort-Ausina, I., Cho, S., & Vivancos, J.-L. (2016). Energy efficiency and thermal comfort in historic buildings: A review. *Renewable and Sustainable Energy Reviews*, 61, 70–85. <https://doi.org/10.1016/j.rser.2016.03.018>
58. Medvedevienė, D. (2012). THE TRANSFORMATION OF LITHUANIAN HERITAGE PRESERVATION SYSTEM IN 1987–1995 YEARS: BETWEEN VISION AND REALITY / 1987–1995 M. PAVELDOSAUGOS TRANSFORMACIJOS: TARP VIZIJOS IR TIKROVĖS. *Journal of Architecture and Urbanism*, 36(1), 33–37. <https://doi.org/10.3846/20297955.2012.679785>
59. Mizrokhi, E. (2021). Living in anachronistic space: Temporalities of displacement in Moscow’s Soviet-era standardised housing. *Political Geography*, 91, 102495. <https://doi.org/10.1016/j.polgeo.2021.102495>
60. Mlinkauskienė, A. (2019). Investigation of heritage building information modeling possibilities in Lithuania. *Architecture and Urban Planning*, 15(1), 54–58. <https://doi.org/10.2478/aup-2019-0007>
61. Molanaei, S., & Soleimani, S. (2016). Insight into the valuable elements of Sistan local architecture in relation to climatic factors of sustainable architecture. *Bagh-E Nazar*, 13(41), 63–74.
62. Nguyen, A. T., Truong, N. S. H., Rockwood, D., & Le, A. D. T. (2019). Studies on sustainable features of vernacular architecture in different regions across the world: A comprehensive synthesis and evaluation. *Frontiers of Architectural Research*, 8(4), 535–548. <https://doi.org/10.1016/j.foar.2019.07.006>
63. Nguyen, A. T., Truong, N. S. H., Rockwood, D., & Tran Le, A. D. (2019). Studies on sustainable features of vernacular architecture in different regions across the world: A comprehensive synthesis and evaluation. *Frontiers of Architectural Research*, 8(4), 535–548. <https://doi.org/10.1016/j.foar.2019.07.006>
64. Nicol, J. F., & Humphreys, M. A. (2002). Adaptive thermal comfort and sustainable thermal standards for buildings. *Energy and Buildings*, 34(6), 563–572. [https://doi.org/10.1016/S0378-7788\(02\)00006-3](https://doi.org/10.1016/S0378-7788(02)00006-3)
65. Pickard, Q. (Ed.). (2002a). *The architects’ handbook*. Blackwell Science.
66. Pickard, Q. (Ed.). (2002b). *The architects’ handbook*. Blackwell Science.
67. Pratt, A. C. (2009). Urban Regeneration: From the Arts “Feel Good” Factor to the Cultural Economy: A Case Study of Hoxton, London. *Urban Studies (Edinburgh, Scotland)*, 46(5/6), 1041–1061. <https://doi.org/10.1177/0042098009103854>

68. ResearchGate. (n.d.). ResearchGate. Retrieved September 19, 2021, from <https://www.researchgate.net/search.Search.html?type=publication&query=urban%20transformation>
69. Reshetnikova, T. S. (2019). Reconstruction of the remembrance: Palace of Culture in Slantsy. *Frontiers of Architectural Research*, 8(4), 572–590. <https://doi.org/10.1016/j.foar.2019.06.004>
70. Reychler, L. (2008). Sustainable Peace-Building Architecture. In L. Kurtz (Ed.), *Encyclopedia of Violence, Peace, & Conflict* (Second Edition) (pp. 2027–2043). Academic Press. <https://doi.org/10.1016/B978-012373985-8.00229-4>
71. Samdanis, M., & Lee, S. H. (2017). White space and digital remediation of design practice in architecture: A case study of Frank O. Gehry. *Information and Organization*, 27(2), 73–86. <https://doi.org/10.1016/j.infoandorg.2017.02.001>
72. Sara González. (2011). Bilbao and Barcelona “in Motion”. How Urban Regeneration “Models” Travel and Mutate in the Global Flows of Policy Tourism. *Urban Studies* (Edinburgh, Scotland), 48(7), 1397–1418. <https://doi.org/10.1177/0042098010374510>
73. SCHWENKEL, C. (2013). POST/SOCIALIST AFFECT: Ruination and Reconstruction of the Nation in Urban Vietnam. *Cultural Anthropology*, 28(2), 252–277. <https://doi.org/10.1111/cuan.12003>
74. Šeduikytė, L. (2006). Results of the renovation works in Lithuanian school buildings: Evaluation of energy savings and alterations in indoor environment. *Cold Climate HVAC 2006 : The 5th International Conference on Cold Climate Heating, Ventilation and Air-Conditioning*, May 21–24, 2006, Moscow, Russia : Abstracts, 73.
75. Sirtautaitė, V. (2016). Naujų pastatų integravimo istoriniame miestovaizdyje principai. Kauno technologijos universitetas Prieiga per eLABa – nacionalinė Lietuvos akademinė elektroninė biblioteka.
76. Stangl, P. (2006). Restoring Berlin’s Unter den Linden: Ideology, world view, place and space. *Journal of Historical Geography*, 32(2), 352–376. <https://doi.org/10.1016/j.jhg.2005.08.003>
77. Šukaitytė, G., Bistrickaitė, R., Vaičiulionienė, L., Visockis, D., & Bartkus, A. (2014). “Ekolaviškis—The five farmstead village”—Creation of sustainable architecture. *Advanced Construction 2014 : Proceedings of the 4th International Conference*, 9–10 October, 2014, Kaunas, Lithuania, 56–60.
78. Szuta, A. F., & Szczepański, J. (2020). Striking elements – A lifebelt or a fad? Searching for an effective way of adapting abandoned churches. *Frontiers of Architectural Research*, 9(2), 277–286. <https://doi.org/10.1016/j.foar.2019.12.007>
79. Tabb, P. J., & Deviren, A. S. (2014). *The greening of architecture: A critical history and survey of contemporary sustainable architecture and urban design*. Ashgate Publishing Ltd. <https://doi.org/10.4324/9781315239293>
80. Thirumaran, K., Balaji, G., & Prasad, N. D. (2021). *Sustainable Urban Architecture: Select Proceedings of VALUE 2020*. Springer Singapore Pte Limited.
81. *Urban regeneration: A handbook* / edited by Peter Roberts, Hugh Sykes. (2000). Sage Publications.
82. Valančius, K., & Mikučionienė, R. (2020). Solar energy as a tool of renovating soviet-type multi apartment buildings. *Solar Energy*, 198, 93–100. <https://doi.org/10.1016/j.solener.2020.01.046>

83. van Ellen, L. A., Bridgens, B. N., Burford, N., & Heidrich, O. (2021). Rhythmic Buildings- a framework for sustainable adaptable architecture. *Building and Environment*, 203, 108068. <https://doi.org/10.1016/j.buildenv.2021.108068>
84. Virtual Library of KTU - what is sustainability. (n.d.). Retrieved September 26, 2021, from https://vb.ktu.edu/primo-explore/search?forceUtf8=%E2%98%91&vid=KTU&tab=default_tab&search_scope=KTU&lang=en_US&mode=Basic&displayMode=full&displayField=all&highlight=true&dum=true&pcAvailabilityMode=false&query=any,contains,what%20is%20sustainability&queryTemp=what%20is%20sustainability
85. Widera, B. (2016). Architecture as Hybrid of Technology and Nature. *Sgem 2016, Bk 4: Arts, Performing Arts, Architecture and Design Conference Proceedings, Vol Ii*, 81–88. <https://www.webofscience.com/wos/woscc/summary/9389ff8a-e141-4f38-981b-cace9cf84a56-0a13932c/relevance/1>
86. Yang, Y., Hobbie, S. E., Hernandez, R. R., Fargione, J., Grodsky, S. M., Tilman, D., Zhu, Y.-G., Luo, Y., Smith, T. M., Jungers, J. M., Yang, M., & Chen, W.-Q. (2020). Restoring Abandoned Farmland to Mitigate Climate Change on a Full Earth. *One Earth*, 3(2), 176–186. <https://doi.org/10.1016/j.oneear.2020.07.019>
87. Zhang, Y., Zhang, G., & Guo, P. (2021). Regeneration path of abandoned industrial buildings: The moderating role of the goodness of regeneration mode. *Journal of Cleaner Production*, 297, 126668. <https://doi.org/10.1016/j.jclepro.2021.126668>
88. Zhong, W., Schröder, T., & Bekkering, J. (2021). Biophilic design in architecture and its contributions to health, well-being, and sustainability: A critical review. *Frontiers of Architectural Research*. <https://doi.org/10.1016/j.foar.2021.07.006>
89. Ziemeļniece, A. (2016). Transformation of the historical territory under the impact of the urban load. Jelgava example. *Journal of Architecture and Urbanism*, 40(4), 295–302. <https://doi.org/10.3846/20297955.2016.1247950>
90. Woo, J. H., & Lee, N. N. (2020, November 28). Numeric network analysis V2. basic. Medium. Retrieved January 14, 2022, from <https://axuplatform.medium.com/numeric-network-analysis-v2-basic-febcf8f84f2>
91. <https://www.archiexpo.com/prod/zinco-gmbh/product-66390-384272.html>