

“Natural Light: Promoting wellness in adaptation and reuse.”

Design Project Design ARCH8030_27913.

Project 03: Argument.

Adelina Corigliano (R00187524).

Year 04; Semester 01.

BSc. Interior Architecture 2023/2024.

Lecturer: Garrett O’Sullivan.

Word Count: 4,875

Date: 06/12/2023.

Dyslexic student.



Table of Contents:

Section One - Introduction.

1.0. Introduction.....	08
1.1. Research background and justification.....	08
1.2. Methodology.....	09
1.2.1. Aims and objectives.....	09
1.2.2 Source materials.....	11
1.2.3. Sample selection.....	12
1.2.4. Data evaluation.....	12
1.3. Guide to research report.....	13
1.4. Conclusion.....	13

Section Two - Literature review.

2.0. Introduction.....	14
2.1. The History and Culture of Natural Light and Wellness.....	14
2.2. Exploration of Lighting Technology.....	15
2.3. The Design Principles of Natural Light and Wellness.....	15
2.4. Conclusion.....	15

Section Three – Thematic Concentrations

3.1. The History and Culture of Natural Light and Wellness.

3.1.1. Introduction.....	16
3.1.2. The history of natural light.....	17
3.1.3. Natural light: appreciating its role in wellness.....	17
3.1.4. Conclusion.....	17

3.2. Natural light using lighting technologies.

3.2.1. Introduction.....	18
3.2.2. Lighting technologies.....	18
3.2.3. Measurement of Dialux.....	19
3.2.4. Conclusion.....	19

3.3. The Principles of Wellness.

3.3.1. Introduction.....	20
3.3.2. Design principles of wellness.....	20
3.3.3. The importance of natural light for the user's wellness.....	21
3.3.4. Conclusion.....	21

Section Four - Case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

4.0. Introduction.....	22
4.1. Historical background of the old corn mill, Killeagh county Cork.....	22
4.2. Design development.....	23
4.3. Critical analysis of the natural light incorporation.....	24
4.4. Conclusion.....	26

Section Five - Conclusions and recommendations.

5.0. Introduction.....	27
5.1. Conclusions.....	27
5.2. Recommendations to industry.....	28
5.3. Recommendations for further research.....	28
5.4. Conclusion.....	28

Tables:

1.0. Entire Table of contents introduction.....07

Section One – Introduction.

1.1. Introduction table.....08
1.2. Methodology table.....09
1.3. Aims & Objectives table.....10

Section Two – Literature review.

2.1. Literature Review Table.....14

Section Three – Thematic conservations.

3.0. Thematic conservation introduction..... 16

The history and culture of natural light and wellness.

3.1. The history and culture of natural light and wellness table..... 16

Natural light using lighting technologies.

3.2. Natural light using lighting technologies table..... 18

The Principles of Wellness.

3.3. The principles of wellness table.....20

Section Four - Case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

4.1. Case Study table.....22

Section Five – Conclusions and recommendations.

5.1. Conclusions and recommendations table.....27

Table of Plates:

Section One – Introduction.

1.1. MTU library multiseach.....	11
1.2. The national inventory of architectural heritage.....	12
1.3. Dialux software.....	12
1.4. NVivo software.....	12

Section Four - Case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

4.1. 1960’s Aerial view image prior to last fire.....	23
4.2. 1970’s Aerial view image after the fire.....	24
4.3. Image of the site context within Killeagh county Cork.....	24
4.4. Southeast perspective image of the structure.....	24
4.5. East elevation image of the structure.....	24
4.6. Light radiating through the woodlands through negative and positive analysis.....	24
4.7. The natural light hitting the cobbled wall through negative and positive analysis.....	24
4.8. South elevation of windows for lighting integration.....	24
4.9. West elevation of windows for lighting integration.....	24
4.10. North elevation of windows for lighting integration.....	25
4.11. East elevation of windows for lighting integration.....	25
4.12. – 4.19. Analysis of the natural light through the months of the year 2023, January to August.....	25
4.20. – 4.23. Analysis of the natural light through the months of the year 2023, September to December.....	26

“Natural light: Promoting wellness in adaptation and reuse.”

Author: Adelina Paulina Corigliano (R00187524).

Department: Department of architecture.

Introduction.

The aim of this argument project is to argue for the proposed structural content of the fourth coming research project entitled: *“Natural light: Promoting wellness in adaptation and reuse,”* which will be completed within the second semester. This project is divided up into five sections, section one explores the proposed introduction, in doing this it will argue for the structure and content to be included throughout. Section two will focus on the literature review, it addresses equally the proposed structure and content, section three focuses on the thematic concentrations, section four evaluates the case study of “The old corn mill, Killeagh county Cork”. The final section five provides a series of conclusions and recommendations for the readers' benefit.

To provide a navigational aid to the reader on the proposed structure of this fourth coming research project, this following table of contents will provide aid:

Table 1.0.
Table of Contents:
Section One - Introduction.
1.0. Introduction.
1.1. Research background and justification.
1.2. Methodology.
1.2.1. Aims and objectives.
1.2.2 Source materials.
1.2.3. Sample selection.
1.2.4. Data evaluation.
1.3. Guide to research report.
1.4. Conclusion
Section Two - Literature review.
2.0. Introduction.
2.1. The History and Culture of Natural Light and Wellness.
2.2. Natural light using lighting technologies.
2.3. The principles of wellness.
2.4. Conclusion.

<p>Section Three – Thematic conservations.</p> <p>3.1. The History and Culture of Natural Light and Wellness.</p> <p>3.1.1. Introduction.</p> <p>3.1.2. The history of natural light.</p> <p>3.1.3. Natural light: appreciating its role in wellness.</p> <p>3.1.4. Conclusion.</p> <p>3.2. Natural light using lighting technologies.</p> <p>3.2.1. Introduction.</p> <p>3.2.2. Lighting technologies.</p> <p>3.2.3. Measurement of Dialux.</p> <p>3.2.4. Conclusion.</p> <p>3.3. The Principles of Wellness.</p> <p>3.3.1. Introduction.</p> <p>3.3.2. Design principles of wellness.</p> <p>3.3.3. The importance of natural light for the user's wellness.</p> <p>3.3.4. Conclusion.</p>
<p>Section Four - Case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.</p> <p>4.0. Introduction.</p> <p>4.1. Historical background of the old corn mill, Killeagh county Cork.</p> <p>4.2. Design development.</p> <p>4.3. Critical analysis of the natural light incorporation.</p> <p>4.4. Conclusion.</p>
<p>Section Five - Conclusions and recommendations.</p> <p>5.0. Introduction.</p> <p>5.1. Conclusions.</p> <p>5.2. Recommendations to industry.</p> <p>5.3. Recommendations for further research.</p> <p>5.4. Conclusion.</p>

The above table of contents will provide an exceptional navigational for the reader as it's well defined and sectioned to ensure clarity on the structural framework of this research report.

Section One – Introduction.

The focus of this section is to argue for the structural content of the thesis. The introduction section within this report is vital to the success of this thesis as it'll become chapter one of my final research thesis.

To introduce this section of the report a structural table of contents below will prove aid for the reader's favor:

Table 1.1.
1.0. Introduction.
1.1. Research background and justification.
1.2. Methodology.
1.2.1. Aims and objectives.
1.2.2 Source materials.
1.2.3. Sample selection.
1.2.4. Data evaluation.
1.3. Guide to research report.
1.4. Conclusion

1.0. Introduction.

Section one will encourage the reader to analyze the report by clarifying the content within the topic titled “*natural light: Promoting wellness in adaptation and reuse*”. The research thesis is to gain concentration on the research background and justification while documenting the findings within this report. The introduction section holds great importance to the success of this research project, it will inform the reader of the topic background and justify the investigation.

1.1. Research background and justification.

The background of the research thesis discusses and justifies the reasons for the research gathered. The gathered information gives a vital insight into the thematic chapters within this document. Once all the information is stated a detailed account of the research can be discussed, the reader of this thesis can then understand the investigation into the informative chapters.

To support the readers understanding of the rational of the research of natural light and wellness, it is fundamental that the research is offered a detailed insight into background and justification. It is important that the background will concentrate on the origination of the natural light systems and their fusion of

wellness awareness. Drawing from “Guzowski,2018” the infusion of architectural daylighting is a fundamental factor in the success of a structure’s success, “Guzowski, Mary. *The Art of Architectural Daylighting: Design + Technology*. London, Laurence King Publishing, 2018.” The rational is thought we will argue for the benefit of such research going forward this information and focus emphasis will support the reader in their interpretation going forward it'll see fit in content and offered justification in its execution.

The research will justify the importance of natural light within the wellness environment, it will provide evidence of the benefits and justify findings of natural light technologies while fusing wellness into the user's life.

1.2. Methodology.

Methodology is a vital section; it holds complex information regarding the topic “*natural light: promoting wellness in adaptation and reuse*”. The design of the methodological framework is a core part in the success, as it'll gain interest from the reader. The research of numerous thesis templates exposes numerous options to choose from such as “Naoum, S G. *Dissertation Research and Writing for Built Environment Students*. Abingdon, Oxon; New York, Ny, Routledge, 2019”. The methodological framework is most valuable for the justification of this research project. A series of subheadings have been provided to allow the reader a better understanding of the contents provided:

Table 1.2.
1.2.1. Aims and objectives.
1.2.2. Source materials.
1.2.3. Sample selection.
1.2.4. Data evaluation.

1.2.1. Aims and objectives.

The aims and objectives within this report investigate the thesis title “*natural light: promoting wellness in adaptation and reuse*,” the introduction of these aims and objectives are to indicate the path of investigation within this report. The aims within are to describe what this report is aiming to achieve while the objectives are there to propose an explanation of how the report plans to accomplish this. The report will successfully examine the source materials, sample selections, and data evaluation while inevitably proposing a guide to this report.

The research statement for this thesis provides the reader with an informative piece of literature, *“natural light plays a pivotal role in interior architecture as it contributes towards both the occupant and structure, when people interact with natural light it impacts both the physical and mental health. The consideration of natural light is a critical factor in design, when regarding the end user's wellness”*. This report will tackle questions that have been raised within society such as *“is natural light considered to be more effective to human interaction within building adaptation and could lighting technologies be plumed through to aid in wellness?”* and produce an effective hypothesis that backs up this topics research of *“natural light can create a positive environment for human interaction when accompanied with wellness ideology.”*

To progress with ease a divided table has been produced to show clearly the aims and objectives within this report:

Table 1.3.	
Aims:	Objectives:
Explore the history and culture behind natural light and wellness through research using various resources such as Literature, internet, national database, official publications, achieves etc.	Investigate the history and culture of natural light and wellness through research using resources such as Literature, internet, national database, official publications, achieves etc.
Inspect the use of natural light using lighting technologies.	Construct a detailed analysis of lighting technologies and software's that utilizes natural lighting design.
Construct a detailed review of the principles of Wellness.	Gather adequate information on the principles of wellness.
Evaluate and investigate the case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.	Evaluate the caste study: The Killeagh corn mill though field exercise, controlled interviews, observation, surveys and governmental funding.
Formulate conclusions and recommendations that will support the investigation of natural light and wellness.	Create conclusions and recommendations which support my investigation of natural light and wellness.

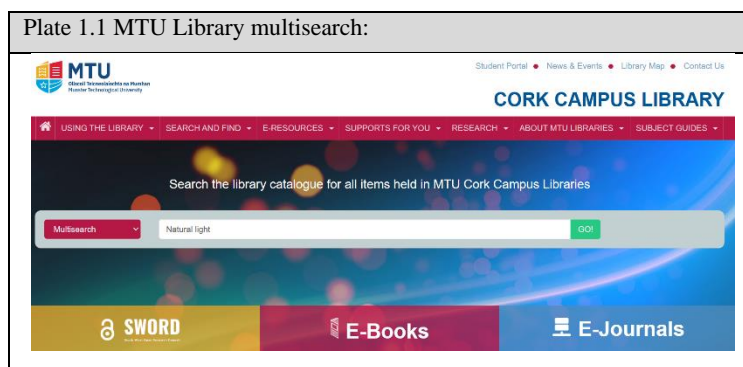
The aims and objectives are powerful impactful keys within this thesis and will provide a key insight into the report in the fourth coming semester. The aims within this report allow for the analysis of the thematic conversations, the aim of the case study is to draw the fusion of each thematic conservation within the space to provide a successful naturally lit structure for the user’s wellness. While composing a critically observed variety of conclusions and recommendations to the industry and for the reader’s further research. The objectives are vital as they create a sense of the steps to completion for each analyzed key section.

1.2.2 Source materials.

The source materials are composed of primary and secondary sources, seminal and supporting, these are utilized to create the research project. These sources are used throughout the research to gain insight into the project. The comparison of these sources' aids in the knowledge of their accuracy and provides a detailed research project.

Secondary Sources:

The secondary source materials provide a broad variety of information regarding this topic title but are less important than the seminal works found. The types of secondary sources identified range from drawing on literature books from authors such as “Guzowski, Mary 2018, Thursfeild, P. and R vd Ven 2022, Pritchard, D.C 1999 and Jukanovic, Admir 2018”, internet, national database, official publications, achieves, architectural research thesis etc., these sources are preferred as the documented literature provided is full of clear concise research. The database on the MTU Library multisearch aided this investigation as their search engine provided useful information on a variety of sections using multipole source types.

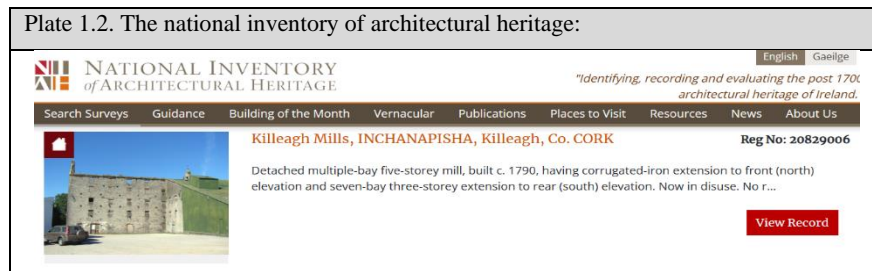


Primary sources:

The primary source materials are gathered by conducting interviews, questionnaires and observations. As this project progresses a documented primary source interview will be completed with William Duggan Lighting Ltd. Kilkenny who has been briefly contacted and has verbally agreed to an interview. While questionnaires will be divided out to staff and students within the MTU campus to provide an insight into natural lights benefits into the benefits of wellness.

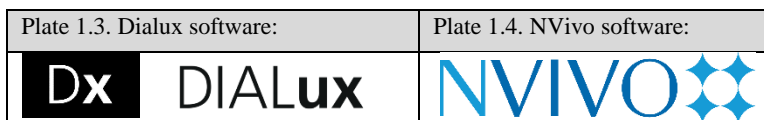
1.2.3. Sample selection.

This report details the non-probability choice of sampling which is evident in section four – Case study, this research coincides with the “*Design studio analysis ARCH8018_24158*” module. The selection of this building was based upon the criteria of an old derelict pre 19 century structure along with the databases that provide in-depth knowledge regarding it, such as the national inventory of architectural heritage and the cork county council planning department. Drawing extensively from “*Naoum, S G. Dissertation Research and Writing for Built Environment Students. Abingdon, Oxon; New York, Ny, Routledge, 2019*”. The research of various sampling models occurred before consulting on one final criterion. The research gathered disputes the history, original design, extension design, function, current conditions and site context.



1.2.4. Data evaluation.

During the research of this project the data collected will aid in the final report. While designing the methodological framework the international best practice looked at various topics and templates from intellects internationally. The balance of the complex methodological design within this research project at the early stages reports the contexts of the literature, as it is also a tool. The data evaluation will uncover the interviewees' answers from the future documented session with William Duggan lighting ltd. Dialux is used to promote the scientific method of lighting while the humanistic method of testing is surveyed through the questioners, NVivo will be a tool to analyze this mode of testing.



1.3. Guide to research report.

The research project is divided into five sections and is laid out in a thread to allow the reader a clear communicated guide to this research report. Section 1.0 dissects the introduction to this thesis, section 2.0 provides a complex report of the literature review, the section 3.0. details the thematic concentrations, section 4.0 is where the case study is referenced and lastly in section 5.0 the report concludes with a series of conclusions and recommendations.

1.4. Conclusion.

Overall, this section plays a significant role within the research project as the sources and information gathered are a valuable entity within the report. The analysis of the aims and objectives while corresponding with the source materials, sample selection and data evaluation, plays a vital role in the success of thesis.

Section Two - Literature review.

The literature structural content of the fourth coming research project is discussed within section two of this report. A literature review is an in-depth series of research that focuses on a multiple of sources based upon a specific interest of topics. In designing the literature review there are numerous templates to consider for example, chronological and thematic, the thematic template was seen to be most fitting due to its structured approach to the thematic conservations.

The instrument of research is a very complex instrument, appreciating this will inform the most appropriate approach towards this research. The research that was undertaken for the literature review looked at the chronological order without a framework. The approach to this section will provide an adequate informational guide.

To provide an accessible route of information towards this section a navigational aid has been provided for the readers benefit below:

Table 2.1.
2.0. Introduction.
2.1. The history and culture of natural light and wellness.
2.2. Natural light using lighting technologies.
2.3. The principles of wellness.
2.4. Conclusion.

2.0. Introduction.

The aim of this introduction section will be to critically review the literature relating to the topic title “*Natural Light: Promoting wellness in adaptation and reuse,*” the literature gathered will critically analyze this information. The discussion involving the thematic sections will be communicated while reviewing and separating into their suggested sections.

2.1. The History and Culture of Natural Light and Wellness.

As the first of thematic concentrations, this section will provide an introduction into the phenomenal contributions to the progression of natural light within architectural wellness to date. Through decades and centuries of work, the research documented draws from valued global literature such as “*Pritchard D.C. 1989,*” drawing extensively on the use of lighting, though the real shift in wellness and

natural light became evident in the late twentieth century period. To provide a clear understanding relating to this thematic title it is critical to analyze the importance of the 1960s shift and the literature that accompanies this topic.

2.2. Natural light using lighting technologies.

As the second thematic section, the literature regarding the lighting technologies and their importance to the natural light contribution will be discussed. The plumbing in of lighting technologies can be drawn from “*Jukanovic, 2018*” which distributes lighting technologies through the book of “*Jukanovic, Admir, Architectural Lighting Design – a practical guide. The Crowood Press, 30 Nov. 2018.* This will be detailed within section 3.2. The humanistic method and scientific method research are applied in structures, but both have an importance in the communication of natural light. Focusing on the seminal studies will attain the fundamentals, while supporting works will help in the researched theme.

2.3. The Principles of Wellness.

The final thematic section within this report concentrates on the principles of wellness in relation to the users benefit within the architectural impact of natural light. When considering the design principles of wellness, the report fuses the literature from “*Thursfeild, P. and R vd Ven. 2022*” it is important to offer details regarding the key principles of wellness and how the environment can vary the wellness of the user, “*Thursfeild, P. and R vd Ven. Research gate – design principles for natural lighting, IOP Conf. Ser: Eart Environ. Sci 1099 012033, 2022*”. The principles are described with the seminal and supporting works documented in section 3.3.

2.4. Conclusion.

The literature review uses both seminal and supporting, primary and secondary works throughout each section of this report. The seminal data collected within this thesis titled “*natural light: promoting wellness in adaptation and reuse,*” was gathered and dissected, and will remain a valuable gauge of information for more research to come. It is vital to reference the various literature found, as it allows for the growth of knowledge in this thesis. There are multiple sources of information across various platforms, such as the MTU library/Multisearch, libraries, internet, research thesis and businesses. These aided in the critical review of “*Natural Light: Promoting Wellness in adaptation and Reuse.*”

Section Three – Thematic concentrations.

Thematic conservations play a vital role is the success of the research project, the thematic conservations within this report documents three sections, a guide to these conservations are provided below to aid the reader in their navigation throughout this section:

Table 3.0
3.1.1. Introduction.
3.1.2. The history of natural light.
3.1.3. Natural light: appreciating its role in wellness.
3.1.4. Conclusion.
3.2. Natural light using lighting technologies.
3.2.1. Introduction.
3.2.2. Lighting technologies.
3.2.3. Measurement of Dialux.
3.2.4. Conclusion.
3.3. The Principles of Wellness.
3.3.1. Introduction.
3.3.2. Design principles of wellness.
3.3.3. The importance of natural light for the user's wellness.
3.3.4. Conclusion.

3.1. The History and Culture of Natural Light and Wellness.

The thematic conservations play a definite role in the success of the research report, the theme of history and culture of natural light and wellness will document valuable research to educate the reader within this report.

Thematic table of contents is provided below to provide a complex thread of information that'll ensure that the reader can follow the literature clearly and concisely before inviting them to within the case study involvement of the thematic conservations:

Table 3.1.
3.1.1. Introduction.
3.1.2. The history of natural light.
3.1.3. Natural light: appreciating its role in wellness.
3.1.4. Conclusion.

3.1.1. Introduction.

Thematic section 3.1. will address the history and culture of natural light and wellness, this area will provide an overview of the historic and cultural impact to the late twentieth century has on the natural lighting incorporation into wellness ideology.

3.1.2. The history of natural light.

The history of natural light has dated back to the beginning of time and has evolved through each periotic era in life, this section will focus on the shift of the importance of natural light in relation to the user's wellness within the 1960s period to date. "*Guzowski, 2018*" draws on impact of the history of natural light globally, "*The art of architectural daylighting, 2018, Mary Guzowski*". Interestingly, the modern master of light advocates the focus of the influence of architecture and design while incorporating light. The gathering of research produces a critical path of development from this period to the current twenty-first century and how the natural light development aids in the functional success of this research project.

3.1.3. Natural light: appreciating its role in wellness.

The analyzation of the role of wellness with natural light has diverted the attention onto the role of wellness within a space and how the attachment of natural light benefits this further. A series of documentation and literature will allow for extensive knowledge to be withdrew to create the evidence for this research report, "*Guzowski, 2018*" draws on their work of the art of architectural daylighting, the fusion of role of natural light within a structure draws extensively on a series of physical and mental health benefits for the user to obtain, "*Guzowski, Mary. The Art of Architectural Daylighting: Design + Technology. London, Laurence King Publishing, 2018*". This will be surveyed and communicated further in the fourth coming semester research project.

3.1.4. Conclusion.

To conclude this section before the in-depth account within the fourth coming second semester research project, the impact of the post 1960s lighting design incorporation has developed the architectural guides seen today. The researched historic culture behind the shift of design provides the reader with an In-depth knowledge of the importance wellness has within the structural success of a building.

3.2. Natural light using lighting technologies.

The incorporation of natural light using lighting technologies is vital to the production of wellness within a space, through the production of literature and software. An evident thread of communication can clarify the ultimate success of the plumbing of natural light.

The thematic section will dissect the importance and uniqueness of the variety of techniques and software. The production of an adequate account of the humanistic and scientific methods of investigation. To aid the reader within this chapter a thematic guide to the section four has been provided below:

Table 3.2.
3.2.1. Introduction.
3.2.2. Lighting technologies.
3.2.3. Measurement of dialux.
3.2.4. Conclusion.

3.2.1. Introduction.

Section 3.2. introduces the thematic section of natural light using lighting technologies, the discussion of the various types of lighting technologies and software's will be discussed within this section to aid in the readers understanding of the role they play within the architectural framework of a structure.

3.2.2. Lighting technologies.

This section investigates the various lighting technologies and assesses their importance in the incorporation of natural light within the proposed structures. The researched literature and articles have identified numerous plumbing techniques to incorporate beneficial technologies seamlessly this will successfully recognize the research gathered and follow the engineered natural light while disputing it around the structural framework. “*Where is the north 2022*” focuses on a series of beneficial unique lighting technologies such as roof lights, glass blocks, prismatic glazing etc. and are a great example of the use of technological engineering to create natural light within the space “*WTN. (2022). 7 Best ways to Incorporate Natural Light in Your Building Design in Architecture. [online] Available at: <https://whereisthenorth.com/5-best-daylighting-techniques-for-building-in>.” “*Jukanovic, 2018*” draws on the exploration of the idea that natural*

light has both quantitative and qualitative dimensions which aids in the critical analysis of their work.

3.2.3. Measurement of Dialux.

Drawing extensively from the seminal and supporting works, the use of dialux within this research project will aid in the development of knowledge and provide a gauge of communication between software and statistics. Dialux produces a series of natural light lumions and effectively produces the structural lighting integrity in the case study within section 4.0. Drawing extensively from the CIBSE “*D.C. Pritchard, May 1986, Interior lighting design sixth edition, BSc C.Eng., MIEE., FCIBSE*” exposes the focus on the dialux levels of interior lighting. Drawing from the work of *D.C. Pritchard 1986*, the discussion of dialux is evident in the world of lighting technologies.

3.2.4. Conclusion.

This thematic section referred to the main subsections within this report section, lighting technologies and the measurement of dialux. The researched documentation provides clear insight into the fourth coming thematic chapter four, with the fundamental values and contributions of each topic while focusing on the production of natural light in unique and innovated methods. This section communicates the prospected discussion for chapter four of the design reach project.

3.3. The Principles of Wellness.

The thematic conservation of the principles of wellness are essential to focus on the production of wellness within the space to ensure the full potential of wellness occurs. The documentation of this thematic section will provide the reader with the in-depth account of a series of subdivided sections to aid in the knowledge of wellness in correspondence with natural light.

To analyze this section a clearly documented table of subdivided thematic conservations have been provided to ensure clarity for the reader:

Table 3.3.
3.3.1. Introduction.
3.3.2. Design principles of wellness.
3.3.3. The importance of natural light for the user's wellness.
3.3.4. Conclusion.

3.3.1. Introduction.

Drawing extensivity from the seminal and supporting works is vital for the reader to understand the key principles of wellness. Section 3.3. addresses these principles and provides the reader with a detailed account of research design principles of wellness with the thematic concentration while highlighting the importance of natural light incoordinate with the user's wellness.

3.3.2. Design principles of wellness.

The opportunity to gather information on the design principles of wellness speaks of the in-depth functions and benefits that coincide within this thematic conservation. This section dissects the series of principles that provide knowledge from documented literature gathered and critically analyzed. Wellness is tied to natural light when communicating with a structure to allow for the user to gain maximum benefits from the proposed principles. The research project draws extensively from the importance of wellness and how the trio of natural light, fresh air and nature is vital to both the mental and physical health of an individual, “*Design principles for natural lighting, P Thursfield and R vd Ven 2022,*” this connects the case study proposal as the structure is located with the environment and has a proposed function of wellness.

3.3.3. The importance of natural light for the user's wellness.

Thematic section 3.3. concentrates on the design principles of wellness, while the importance of natural light for the user's benefit has been researched. The fusion drawn between natural light and wellness is a successful pairing and once adequately applied can aid the extensive success of a structure. Natural light has been scientifically proven to decrease seasonal depression in Ireland, theoretically in the winter months the citizens of this country get limited daylight exposes, ideally if natural light can be plumed within a structure the benefits can be reaped by the user.

3.3.4. Conclusion.

The researched thesis documents thematic conservation of the principles of wellness to aid in the progression of this project, the research gathered will provoke the user into complying with the design principles with full benefits being reaped. The importance of natural light in wellness adaptation and reuse is shown within the case study section 4.0. This reference the importance of the evidence obtained from the revised literature that was analyzed throughout this project, effectively the design principles of natural light create a huge impact with the design development of a structure as the users' benefits are a key factor of success.

Section Four - Case study: The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

The case study section emulates the thematic conservations seen in section 3.0. and incorporates each section within the design development of the old corn mill, Killeagh county Cork. The Killeagh mill is rich with history and culture as it is the heart of the town, the lighting technologies and wellness principles are essential to produce a series of natural daylighting incorporation within the space for the users benefit within the proposed wellness centre.

To provide a useful guide to move through this section will be documented below within a table, which should aid the reader when navigation section four:

Table 4.1.
4.0. Introduction.
4.1. Historical background of the old corn mill, Killeagh county Cork.
4.2. design development.
4.3. Critical analysis of the natural light incorporation.
4.4. Conclusion.



4.0. Introduction.

The case study section plays a vital fundamental role within the final research report of this coming fourth semester. This report will theoretically place this case study within the suggested researched analysis to test the response of wellness and natural light. This section examines the outlined aims and objectives which were previously mentioned in 1.2. Methodology. The case study will evaluate the incorporation of natural light with respect to the protected structure Reg: 20829006 placed in the national inventory of architectural heritage located in the old corn mill, Killeagh county Cork.

4.1. Historical background of the old corn mill, Killeagh county Cork.

Killeagh County Cork is rich with historic backgrounds which provides the community with a rich heritage. This section will detail the site location, context, historic background, past functions and its community involvement through the years. This structure holds exceptional relevance to the village of Killeagh and is the heart of the village's agricultural history.

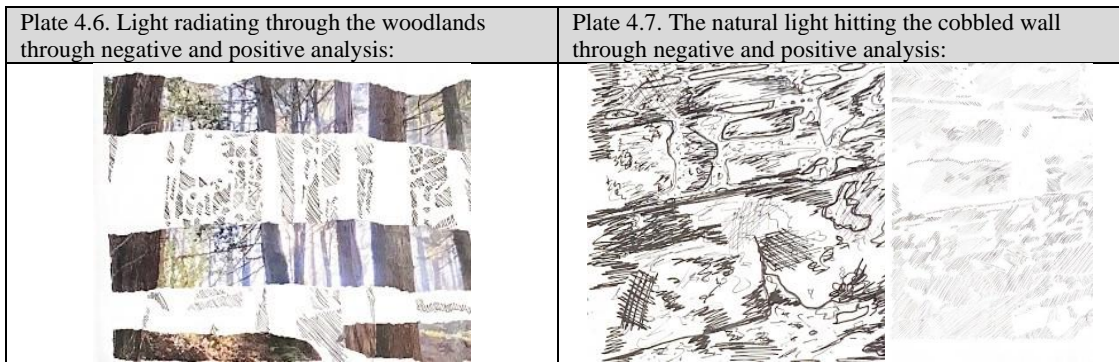
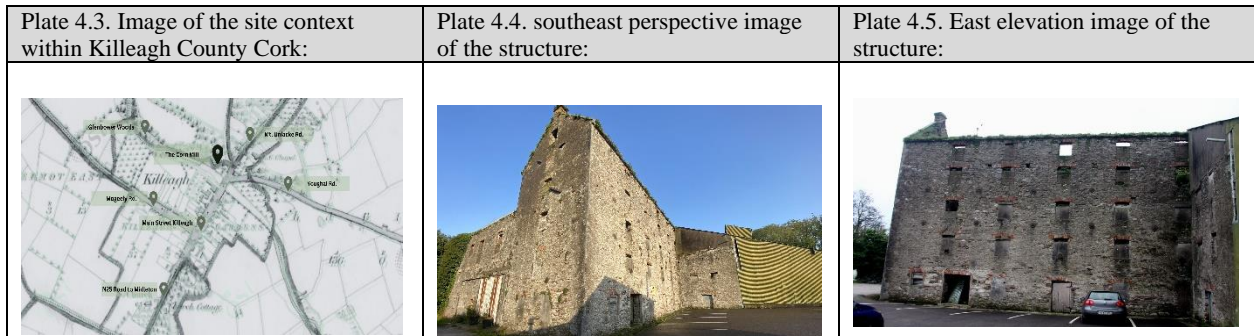
The village exposes its relevance to the protected structure that stands tall within the entrance to the infamous glenbower woodland trail. The building has stood within the site during the period of four centuries, this aids in the rich history and culture behind the walls of the architectural frame. The building has been documented from 1766 to the present, and has seen two extensions, various owners and a series of fires. A detailed account of the history and background research will be presented within the final thesis report in the fourth coming semester within chapter 06 – case study.

Images taken from the 2008 archeological and architectural impact report by John Cronin and associates:	Images taken from the 2008 archeological and architectural impact report by John Cronin and associates:
Plate 4.1. 1960's Aerial view image prior to the last fire:	Plate 4.2. 1970's Aerial view image after the fire:
	

4.2. Design development.

The design development within this section will communicate the design development, design decisions, the proposed functions, interventions, conceptualization and master planning. The visualization of the proposed design and how this incorporated the proposed topic title *“Natural light: promoting wellness in adaptation and reuse.”* Considering the environment surrounding the structure, the informative reflection produces the conceptual process within the design development.

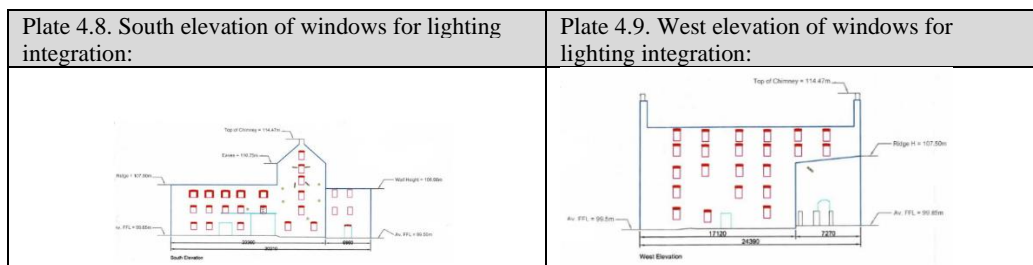
The design emulates the outer environment and imitates the surroundings through biophilic design. The proposed functions of this structure will reflect the literature behind the design process fusing knowledge, community, sustainability and innovation while composing a multifunctional wellness centre for the inner and outer community. The structure is parallel to the proposed greenway path and will accompany the village integrating a tourism line direct to the structural for maximum success.

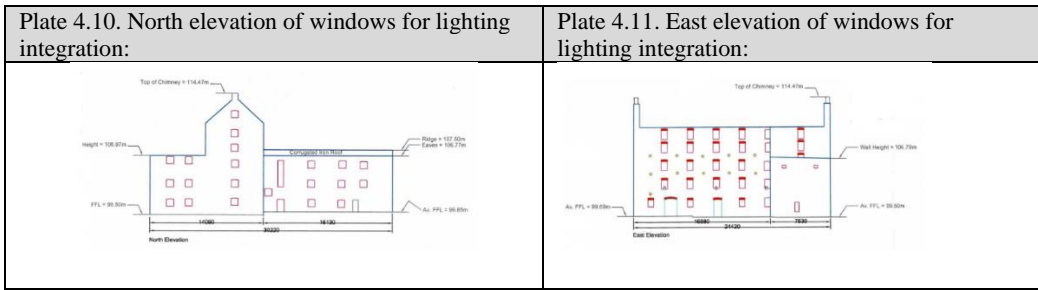


4.3. Critical analysis of the natural light incorporation.

The critical analysis of the incorporation of natural light is investigated throughout the development of the case study within “*design studio analysis module arch8018_24158*”. The research and evaluation of literature will provide insights into various lighting incorporation tactics to produce maximum lighting features within the space while respecting the protected structure, the technologies discussed in the thematic conservations section 3.2. will aid in the incorporation.

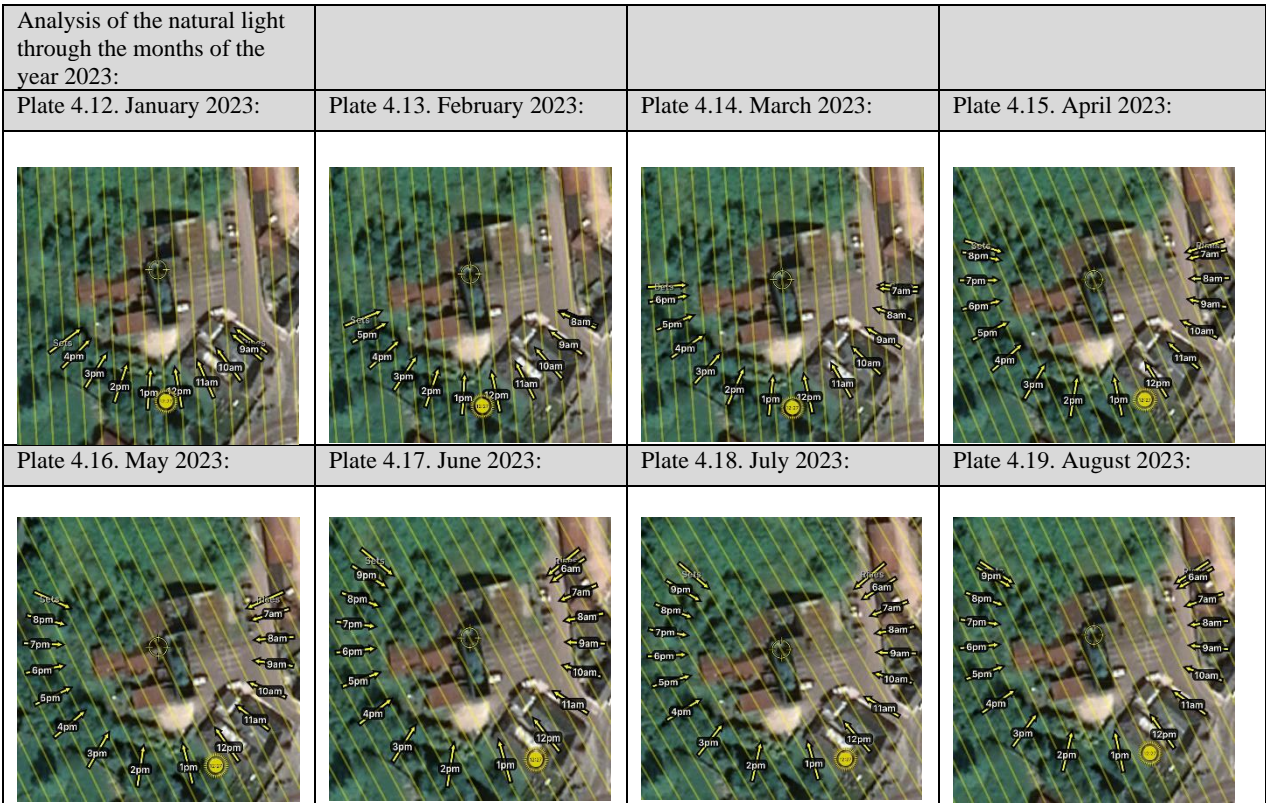
A series of planned aids of elevations showing the existing window infrastructure within the Killeagh mill, these outline the promise of natural light incorporation:

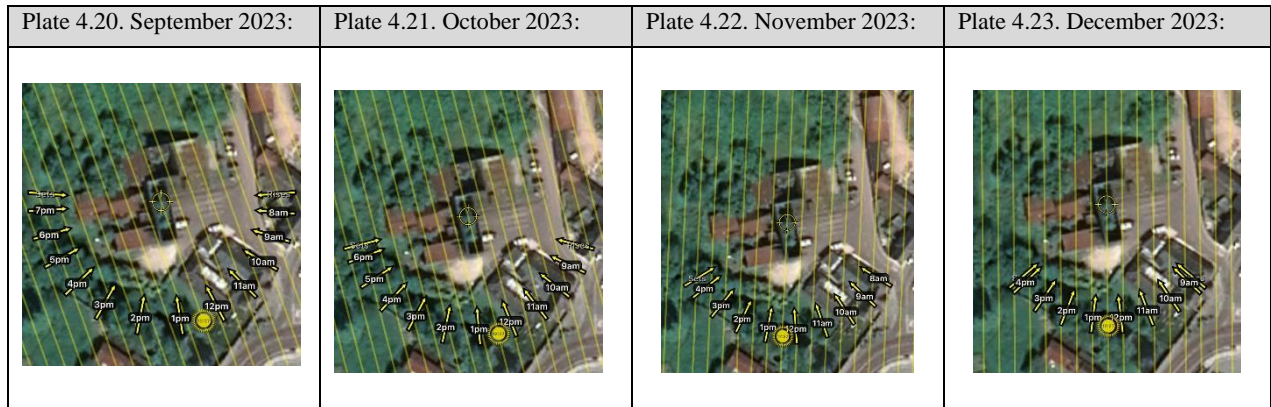




4.3. will schematically analyze the case study, a theoretical comparison of the integration of lighting technologies will plum natural light throughout in addition to windows, glazing and void spaces. The section 4.3. will layout the use of technologies and software’s such as dialux, lighting technologies and sun seeker.

Drawing from dialux this will provide extensive detailed knowledge to accompany the research project during the development of the case study, the fusion between self-documentation and national data documentation will provide an in-depth knowledge of the natural light production within the year to expose the maximum capacity of light integrating within the structure, a series software's were recommended by the lighting design lecturer Marc O’Riain within MTU, Dialux and Sun Seeker which can be found on the internet and the apple app store.





4.4. Conclusion.

The case study section references all research and analysis made in relation to the old mill Killeagh. When the evaluation of the site and its history a progressed into the conceptual design development process this research can be identified and incorporated in relation to the topic title “*natural light: promoting wellness in adaptation and reuse.*” The incorporation of wellness principles and lighting technologies will aid in the users benefit within the structural framework of the original protected mill building. Therefore, a successful adaptation and reuse of a derelict structure will promote wellness through the exploration of natural light.

Section Five - Conclusions and recommendations.

The conclusions and recommendations will aid the reader and insight them upon their own journey of research will providing In-depth knowledge of the topic title “*Natural light: Promoting wellness in adaptation and reuse,*” this section concludes this report and provides recommendations the industry and recommendations for further research.

To aid the reader within this section, a navigational aid has been produced below, this will provide the reader with a clear clarified guide of this section:

Table 5.1.
5.0. Introduction.
5.1. Conclusions.
5.2. Recommendations to industry.
5.3. Recommendations for further research.
5.4. Conclusion.

5.0. Introduction.

The conclusions and recommendations section provides a series of brief closures from the research report that'll identify the recommendations for the industry and further research for development of this thesis. Further analyses of the sections will conclude within the fourth coming research project, the goal of this section is to allow the reader to progress with researched developed literature along with a taste of invitation to accompany the progress and development of more insights to each section within the next semesters project.

5.1. Conclusions.

The conclusions identify the methodology, aims and objectives, research statement, research question and research hypothesis. The conclusions will provide the reader with insights to aid in their own research journey progression. The conclusions will briefly enable any questions the readers may have acquired throughout their time within the report, while directing the questions into the fourth coming research project within semester two.

5.2. Recommendations to industry.

Based on emerging research the recommendations to the industry will communicate a planned proposal to the professional practice world of interdisciplinary collaboration. The recommendations to the industry apply to the government, designers and educators to insure they improve the knowledge of natural light and wellness into the architectural curriculum within the professional world. The recommendations for the research project are to allow for a thread of wellness to be incorporated into the structures across the county to peak the benefits, the recommendations for this proposal are placed below:

Table 5.2.	
1.	The incorporation of natural light using lighting Technologies within a space.
2.	The implantation of wellness principles to aid in the structural users benefit within the space occupied.
3.	The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

5.3. Recommendations for further research.

The recommendations for further research will provide an in-depth thread of knowledge for further investigation into the promotion of wellness through adaptation and reuse in correspondence with natural light. The research project combines designers and engineers to ensure the plumbing of natural light will provide successful benefits to the end users wellness. Though this is an early-stage investigation, and in the fourth coming project in semester two will combine a series of documented literature, surveys, interviews and case studies to produce a definite wave of effective research.

5.4. Conclusion.

To conclude this section the address of the final thoughts and opinions which the reader may have contacted should have been briefly addressed during the treatment of each section throughout the report, a further in-depth account will be discussed within the fourth coming semesters research project. Once the reader has completed their study of this report, a brief understanding of the thesis topic titled “*Natural light: Promoting wellness in adaptation and reuse,*” should have been filled with clarity. This research project should clarify the additional further research to be completed in the fourth coming project in the second semester.

Conclusion:

To conclude this report, the essence of work that needs to be completed during the four-week intervention of the college year must be discussed. Before embarking into the second semester of fourth year, a series of work needs to be completed. While breaking down the curriculum the evident key factors that can be touched upon within the break, is the development of design interviews and their questions, the communication with William Duggan will aid in the second semester and prepare the interview section substantially. The documentation and analysis of literature can also be complete throughout the four weeks. The collection of surveys and sources would aid in the fourth coming final research project before completing a draft response to next semester's thematic chapters will aid in the research project handover.

Bibliography:

This design report has used references throughout each section, the Harvard referencing style has accompanied the referenced literature, books, articles, interviews, internet, national database, official publications and achieves.

- *Naoum, S G. Dissertation Research and Writing for Built Environment Students. Abingdon, Oxon; New York, Ny, Routledge, 2019.*
- *WTN. (2022). 7 Best ways to Incorporate Natural Light in Your Building Design in Architecture. [online] Available at: <https://whereisthenorth.com/5-best-daylighting-techniques-for-building-in> [Accessed 6 Dec. 2023].*
- *Jukanovic, Admir. Architectural Lighting Design – a practical guide. The Crowood Press, 30 Nov. 2018.*
- *Pritchard, D.C. Lighting. Sixth edition, Routledge, 1999.*
- *Pritchard, D.C., FCIBSE, MIEE, Interior lighting design, sixth edition, BSc C.Eng., May 1986.*
- *Thursfeild, P. and R vd Ven. Research gate – design principles for natural lighting, IOP Conf. Ser: Eart Environ. Sci 1099 012033, 2022.*
- *Guzowski, Mary. The Art of Architectural Daylighting: Design + Technology. London, Laurence King Publishing, 2018.*