



## 1 Background & Justification:

**Background:**

- The gathered information gives a vital insight into the thematic concentrations. Once all the information is gathered and stated a detailed account of the research can be discussed.
- To support the readers understanding of the rationale 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.

**Justification:**

- 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 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.
- The rationale is thought to argue for the benefit of the research, this information will focus the reader in their interpretation going forward. It’ll fit in content and offer justification in its execution.

## 2 Methodology:

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

**Research Statement:** “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.”

**Research Question:** “Is natural light considered to be more effective to human interaction within building adaptation or could artificial lighting be plumed through to aid in wellness.”

**Research Hypothesis:** “Natural Light can create a positive environment for human interaction when accompanied with wellness ideology” Agree or Disagree.

**Aims:**

- 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.
- Inspect the use of natural light using lighting technologies.
- Construct a detailed review of 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”.
- Formulate conclusions and recommendations that will support the investigation of natural light and wellness.

**Objectives:**

- Investigate the history and culture of natural light and wellness through research using resources such as Literature, internet, national database, official publications, achieves etc.
- Construct a detailed analysis of lighting technologies and software’s that utilizes natural lighting design.
- Gather adequate information on the principles of wellness.
- Evaluate the case study: The Killeagh corn mill through field exercise, controlled interviews, observation, surveys and governmental funding.
- Create conclusions and recommendations which support my investigation of natural light and wellness.

**Source Materials:**

- Secondary Sources:
  - Online articles.
  - Published articles.
  - E-books.
  - Internet.
  - The national database.
  - Official publications.
  - Achieves.
  - Architectural research thesis.
  - Published literature.
  - MTU Library multisearch.
- Primary Sources:
  - Unstructured interviews.
  - Questionnaires.
  - Structured professional field interview with William Duggan.
  - Observations.

**Sample Selection:**

- Pre 19 century mill structure in Killeagh, County Cork.
- Sampling from the national inventory of architectural heritage and the cork county council planning department.
- Drawing extensively from “Naoum, S G. 2019”. The research gathered disputes the history, original design, extension design, function, current conditions and site context.

**Data Evaluation:**

- The international best practice looked at various topics and templates from intellects internationally.
- The data will uncover the answers from the structured interview with William Duggan lighting ltd.
- A peer questionnaire will be provided to gain insight into the modern generational outlook on the thesis topic.
- Dialux is used to promote the scientific method of lighting while the humanistic method of testing is surveyed through the peer questioner.
- NVivo will be a tool to analyze and organize this mode of testing and will support a multitude of methods of research.
- The Janet Wall 9 step model is used to analyze works.

 Plate 1.1. DIALux logo.  
 Plate 1.2. William Duggan logo.  
 Plate 1.3. NVIVO logo.



## 3 Case study:

The Killeagh corn mill, County Cork, Ireland, P36 CA27:

**Historical Background:**

- The building has stood within the site during the period of four centuries.
- 1766 to the present.
- Two extensions, various owners and a series of fires.

**Recommendations?**

Natural light integration with respect to the protected structure 20829006. The integrated light will provide benefit to both the structural design and the wellness of the metal and physical health of the end user.

**Analysis:**

- Lighting incorporation will produce features, while respecting the structure and aiding in the production of wellness ideology.
- The integration of lighting technologies will plum natural light throughout with windows, glazing and voids using materiality, techniques and technologies.

**Who?**

- Inner and outer community.
- Greenway path users.
- Tourists.
- Elderly.
- Youth.

**Where?**

Killeagh, county Cork, Ireland, P36 Ca27.

**What?**

Wellness community center.
 

- Café.
- Hostel.
- Community stage.
- Bar.
- Bike rental/repair.

**How?**

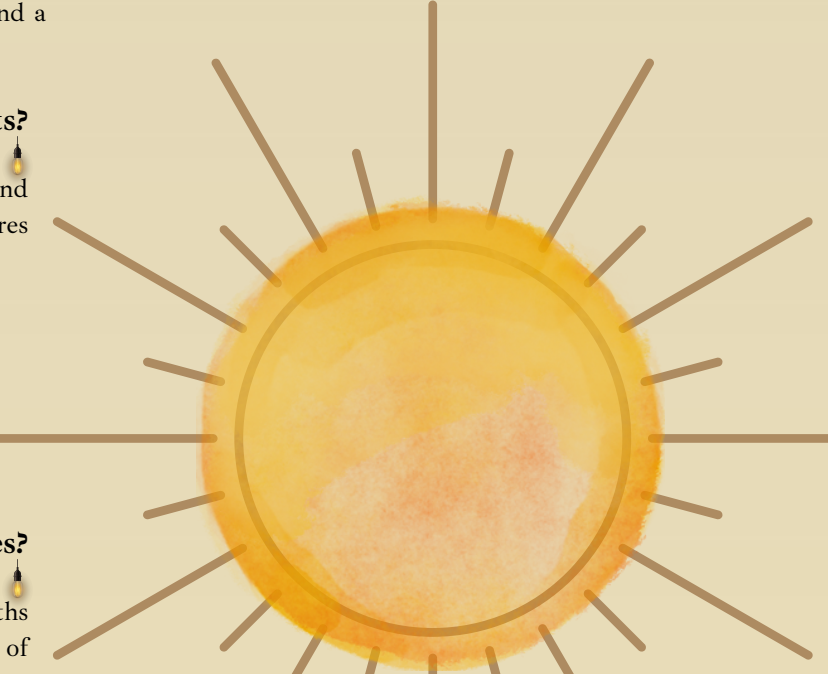
Lighting technologies and wellness principles need to be fused together to ensure the maximum effect and benefit is being produced.

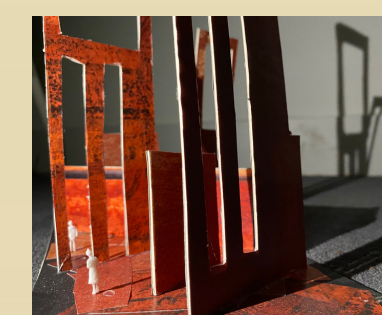






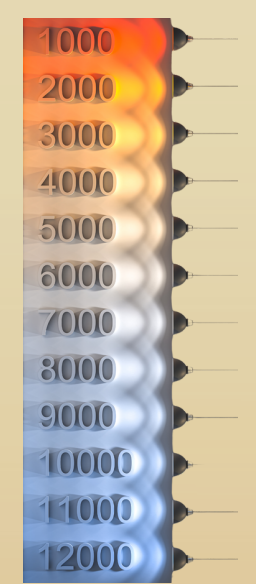
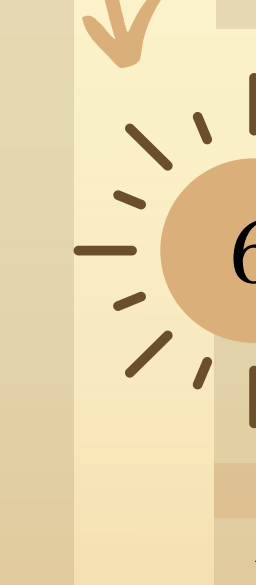
**Variables?**

The daylight throughout the months and year dictates the amount of light that penetrates the structure. The natural light that engages with the building changes through the day as the sun travels with time, indicating the importance of lighting technologies.

**Results?**

Maximum benefits for the end users wellness and the structures adaptation and reuse.



 Plate 1.4. Light & shadows of concept model.  
 Plate 1.7. Aerial view of the mill.  
 Plate 1.8. East elevation exposing each window glazing.  
 Plate 1.5. Light & shadows of concept model.  
 Plate 1.6. Glazing to introduce natural light.  
 Plate 1.9. Glazing combined with materiality lighting techniques to emphasize the light intake.  
 Plate 1.10. Aerial view of void in roof plan.  
 Plate 1.11. Kelvin lighting scale.  
 Plate 1.12. Kelvin lighting scale.

## 4 Conclusions:

**Conclusions:**

- The conclusion 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.
- The goal of this research is to allow the reader to progress with developed literature along with a taste of invitation to accompany the progress.
- Natural light within wellness in adaptation and reuse has been researched through the various months with contributions from both the seminal and supporting works.
- The conclusion identify the methodology, aims and objectives, research statement, research question and research hypothesis.
- The conclusion will provide the reader with insights to aid in their own research journey progression.
- To aid in the installation of lighting techniques the use of lighting technologies such as Dialux should be used to calculate the lux levels of light both natural and artificial. The interview with William Duggan will aid in the knowledge of this software.
- To conclude a further in-depth account will be discussed within the fourth coming research project.

## 5 Recommendations:

**Recommendation's to Industry:**

- 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.
- To allow for a thread of wellness to be incorporated into the structures across the county to reap the benefits.
- The incorporation of natural light using lighting Technologies within a space to ensure wellness ideology is being produced through natural lighting technologies..
- The implantation of wellness principles to aid in the structural users benefit within the space occupied.
- The incorporation of natural light with respect to the protected structure, “The old corn mill, Killeagh county Cork”.

**Recommendation's for further research:**

- A thread of knowledge needs to be provided for a further investigation into the promotion of wellness through the adaptation and reuse of natural light to correspond with wellness principles and lighting technologies.
- Combine both designers and engineers to create a plumbing strategy of natural light, this should successfully benefit the end users wellness ideology.

## 6 References:

**References:**

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### Images of the sun trail of the Killeagh mill, county Cork from January to December 2023:

