

# The Power of Light In Darkness

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**Introduction:**

How does light in architecture ameliorate the human condition? This essay, more than a traditional academic piece, explores the methods employed by Alvar Aalto used to alter the perception of light in space from the lens of a practicing architect trained and working in North America. I aim to depart from traditional academic discourse to discuss Aalto's theories on light by citing examples of his work as well as the relevance of his inventive lighting techniques on contemporary architectural practice. In the context of this conference, I wish to discuss this impact by describing my own experiences in practice.

**Why Aalto's Work:**

Throughout my academic and professional career I have been drawn to nordic sensibilities Alvar Aalto consistently demonstrated in his portfolio of work. Qualities such as the honest expression of material, the user-centered design, and the connection of form to site context altered the nordic urban environment as well as the public perception of architecture in ways that rarely resonate in North America. I admire the ways in which Aalto used building materials in the manners they are intended. The ability of wood to bend and the expression of brick as a compressive material are examples of physical properties he so often employed that are now rarely considered as our modern library of facades and veneers provide infinite opportunity to conceal the structural integrity of our buildings.

It is Aalto's accurate representation of material combined with his empathetic treatment of the site that I find most captivating about his work. His ability to integrate architecture and landscape, exploiting even the most subtle aspects of any site provides the premise of his work, is worthy of continued analysis, and most importantly speaks to his relevancy in contemporary practice.

I find this to be the case given North America's face-paced, commercially minded contemporary architectural practice. A practice driven by mechanical solutions that as an effect, perpetuate a design cycle that does not encourage an understanding of site context. Buildings are all too often built as an appendage to a site as opposed to an extension of the landscape and while technology has provided extraordinary methods for providing efficiency, we benefit from incorporating site specificity by decreasing energy loads, creating more legible uses of space, and providing building inhabitants a more positive association with their regional environment.

The challenge remains our largely disconnected relationship to the natural landscape and a hubristic approach toward the environment which results in cities that are indistinguishable from one another despite distinct regional and climatic differences. It is this idea that we must overturn and it is through the work of Aalto that we find insight for contextually empathetic design solutions for creating better built environments.

### **Light in Aalto's Work:**

While Aalto's work is revered for its tectonic qualities, I've chosen to specifically explore his techniques regarding natural light because of my fascination for his ability to capture the ephemeral qualities of site. Aalto consistently prioritized the exploitation of natural light as a driving force in his work much more than his peers, who followed a paradigm of control in architectural form justified through the use of artificial lighting. Aalto's work was differentiated from his peers because while architects were using artificial lighting technologies to justify architectonic relationships in their work he consistently prioritized integration of natural lighting concepts early in the design and programming of his work in ways that were always appropriate for the users' activities; artificial lighting was used only to complement the natural condition.

Aalto's work continues to resonate today because it preempted current trends in architectural practice. For example, his user-centered thinking on the benefits of natural light showed foresights that have re-emerged in our current evidenced based design trends, as will be discussed later. His practices can be repurposed in this new context.

### **Methods**

The following sections will serve to highlight specific examples in Aalto's work that portray his abilities to manipulate and enhance architecture through the natural qualities of light. The interventions are presented here by scale, from small design elements to urban design solutions, representing different techniques for capturing and transcending qualities of natural light. As an additional theoretical support, I have employed the classifications of light defined by the influential North American lighting designer, Richard Kelly, who describes three qualities of light, focal glow, ambient luminescence, and a play of brilliants (Kelly, 1952). In each section, the type of light is defined using Kelly's examples, along with an analogous example from Aalto's work. Implications for my own work are further discussed to conclude each example.

### **Case Study 1: Focal glow - Light Reflector, Town Hall, Säynätsalo, Finland.**

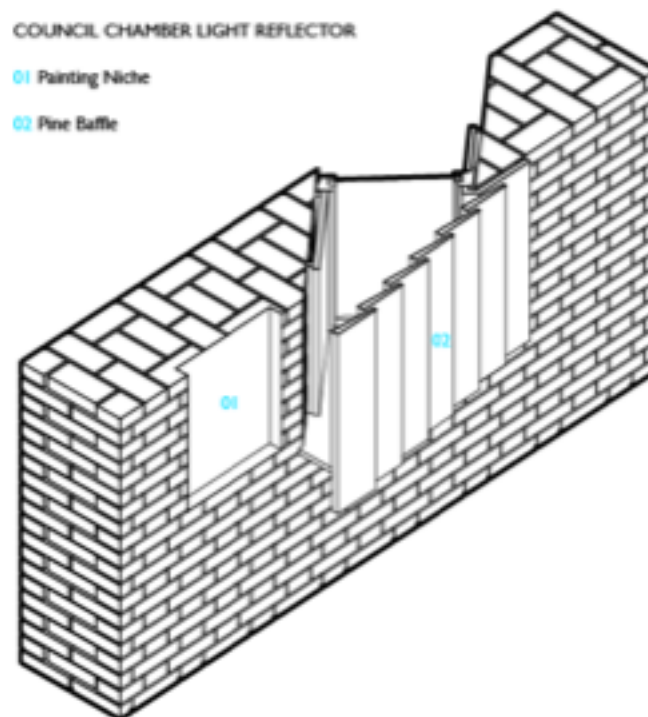
Focal glow, as Kelly describes it:

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"The follow spot on the modern stage. It is the pool of light at your favorite reading chair. It...draws attention, pulls together diverse parts, sells merchandise, separates the important from the unimportant, helps people see. Focal glow sometimes becomes multiple foci desirably producing a significant composition of attention" (*ibid.*, p. 25)

Focal glow provides the area of recognition, or emphasis within a space that clearly highlights what a visitor is experiencing, should be aware of, or drawn to. The analogy of a theatrical spotlight is pertinent to Aalto's example.

The first example of Aalto's work presented here is his Saynatsalo Town Hall, and it is the smallest scale of work we will discuss. In this Town Hall, Aalto uses focal glow to provide natural illumination and emphasis on a wall niche in the brick designed to receive the artwork of painter Fernand Leger, a friend of Aalto's from Paris (Weston., p 18) This particular detail is unique because the qualities of focal glow as Kelly describes, are typically harnessed through the use of artificial lighting; however Aalto was able to capture an indirect source of natural light by way of an oblique cut through the exposed brickwork of the council chamber tower wall. Aalto dissipated this light through a series of tapered vertical wood slats offset from the window opening to reflect and diffuse light towards the niche provided for the painting.



Light Reflector, Saynatsalo Town Hall (Image Credit: Author)



Council Chamber, Saynatsalo Town Hall (Image Credit: Alvar Aalto Museum)

Moving to contemporary practice, the use of a similar natural light to provide focal glow could span a number of applications in my work. It could be particularly useful in providing efficient wayfinding for users, a tool for providing spatial clarity, helping those trying to navigate a space the knowledge of their location, their desired location, and the route to reach that destination.

My work on the transit systems across New York City would benefit greatly from the incorporation of focal glow techniques providing the use of environmental graphics, or the multidisciplinary integration of wayfinding techniques that provide a consistent language for reading space (Roux., 2013), to orient transit riders within our underground stations where wayfinding sometimes lacks intuitive or universal clarity for transit riders in larger stations. Focal glow could provide hierarchy of space used to help passengers find train connections, egress paths, or highlight areas to receive important information. It could be integrated in our stations through the use of light wells emanating from our streets and sidewalks, an underground lighting technique that has historic precedent in some of our New York City neighborhoods. The Soho neighborhood's famous glass sidewalks let light into underground vaults.







(Image Credit: Author)

Besides the spatial benefits of focal glow, natural light can bring temporal benefits. The integration of these naturally lit light wells could also provide frames of reference for the time of day in transit spaces that have little to no connection to the exterior environment. Focal glow could provide the dynamism to our stations that is lacking due to our overabundant use of artificial lighting and strict adherence to the building code lighting requirements that result in increased energy loads. Similar to the applications used by Aalto, passive lighting techniques could be used to at least complement the artificial environment, which typically have no natural light.

### **Case Study 2. Ambient Luminescence - Paimio Sanatorium**

Ambient luminescence, in the words of Kelly:

"Produces shadowless illumination. It minimizes form and bulk. It minimizes the importance of all things and people. It suggests the freedom of space and can suggest infinity. It is usually reassuring. It quiets the nerves and is restful" (*ibid.*, p. 25)

Ambient luminescence provides the architect a foreground for form and an opportunity for programming that would benefit from a type of light without contrast.

The next example is from Aalto's iconic Sanatorium in Paimio, Finland, where ambient luminescence was used to great advantage. Aalto's considerations for natural light play a significant role in the underlying concepts behind and programming of space throughout the building. While direct sunlight plays a key role in the orientation of key wings of the building,

Aalto's considerations to exploit ambient luminescence on the site is notable as it facilitated the type of lighting appropriate for the use of the space. For example, Aalto's positioning of the common areas, such dining and reading rooms were positioned so that they face in different directions to give as much psychological variety as possible; they are also orientated so that at

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The orientation of the common areas on the site allowed the rooms to be filled with northern light that had further been diffused among the layers of pine trees on the site. The ambient luminescence, or shadowless illumination is appropriate for these uses because of the absence of glare, contrast, and shadow in spaces where people will spend long periods of time and where less strain on the eye is highly desirable. For example, it is easier to read and eat without being interrupted with eye fatigue caused by glare. The presence of ambient luminescence was also used extensively on staircases, which is especially important for patient safety in this healthcare setting. Again, the absence of shadow and glare increases the ability to differentiate materials and prevent tripping hazards for all patients, especially those with vision troubles or disorientation. Lastly, and even more important to the benefit of patients, patient rooms were focused on the person rather than on the medication and treatment (i.e. the light was part of the medication). This was accomplished through the geometry of the room and the placement of windows. Views from the bed and enticements for outdoor activity were capitalized on by considerations for better patient care such as the integration of viewing angles to the outside from the patient bed.

Aalto's early considerations for a patient-centered design resonate in our contemporary healthcare settings. In North American healthcare practice today, we struggle with the desire to medicate rather than heal patients (citation in preparation). However, this is not a patient-centered approach. Through research, we know that hospital stays are risky for patients (Creditor, 1993) and that their continued mobility is an important component in our recovery (ibid., p 5). The preponderance of control and artificial light in North American hospitals is working against these goals.

### **Case Study 3. "Play of Brilliants" - Helsinki City Center**

The third and last type of light described by Kelly is the "Play of Brilliants". This type of light

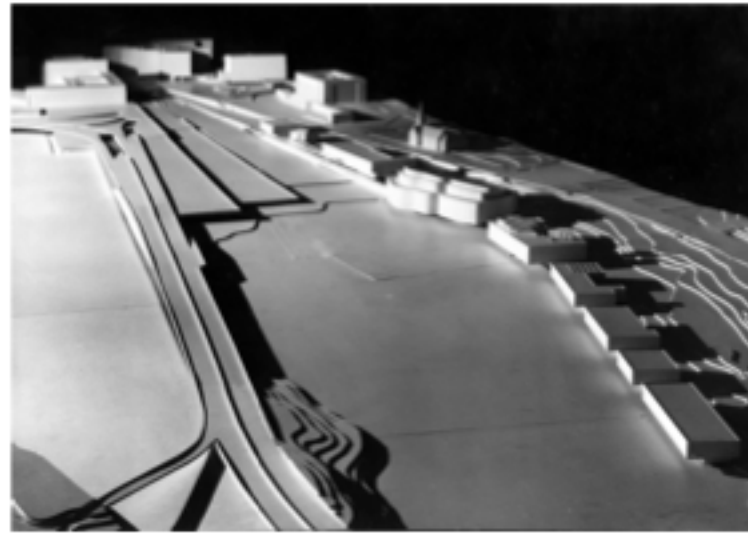
"excites the optic nerves, and in turn stimulates the body and spirit, quickens the appetite, awakens curiosity, sharpens the wit. It is distracting or entertaining." (ibid., p. 25)

A play of brilliants provides the opportunity to perceive and create lighting in a holistic, playful and creative way, constituting a vibrant composition at a large scale.





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(Image Credit: Alvar Aalto Museum)



Finlandia Hall (Image Credit: Author)

This technique can be represented in a third and final example of the New Center in Helsinki, Finland, a largely unfinished urban plan by Aalto "consisting of a series of monumental cultural buildings lined up along the Töölö Bay, including a concert hall, municipal library and art museum" (Schildt., p.34) The use of the bay, the material and shape of the building provided the framework for a diverse vocabulary of light. The buildings themselves, meant to be clad in white stone were, for the center of a capital city, somewhat modest in scale. However, the importance of these buildings would have been perceived through the reflection of the white stone in the bay. Combined with their radiant interior illumination and exterior light qualities the

considerations for these themes would provide the integration the existing landscape and the urban fabric had always needed, as described by Fleig (1990):

"There are two kinds of 'scenery' involved, the so-called 'urban scenery' and the 'original scenery'. The former is the core of the classical urban center, whereas the latter is a product of the last century, which has not resulted in a tightly integrated urban layout. In

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"There are two kinds of 'scenery' involved, the so-called 'urban scenery' and the 'original scenery'. The former is the core of the classical urban center, whereas the latter is a product of the last century, which has not resulted in a tightly integrated urban layout. In the case of Helsinki, for example, the design of the Hesperia Park and Lake Toolo have no doubt resulted in a sentimentally-preserved landscaping, but not in a satisfactory solution. It is rather comical to set in the midst of a heavily built up urban center the unfortunate copy of a Karelian forest lake" (Volume II, p. 30).

Aalto used his new city center plan to mitigate the contrast between the new Center City of Helsinki and the original landscape. He planned to successfully integrate a play of brilliants in lighting techniques to provide a more appropriate lightscape sympathetic to the park with the added difficulty of integrating it into the existing urban fabric.

In my experience working on large scale infrastructure projects it is often a struggle to integrate contemporary design into the existing, and sometimes historic fabric of North American cities. At the Grand Central Terminal in Midtown Manhattan that serves as a multi-modal transit hub, for example, new construction methods and developments in lighting technology have evolved over the past century to the point that finding a scheme to balance the old and the new is a challenge we face in all aspects of design. Our challenge is integrating new architecture at the adjacent One Vanderbilt Tower and its associated new transportation connections to this context. Creating work that is neither a simulacrum of the existing, or an erasure of the characteristics of the districts is analogous to the balance between the urban and original landscape defined by Fleig. Finding this middle ground, as Aalto did in his City Center plan inspires us to test, explore and invent new strategies so that we embrace contemporary practice with a reverence for existing conditions that characterize parts of our cities.

## Conclusions

In this essay, we have discussed the three types of light proposed by Richard Kelly: focal glow, ambient luminescence and a "play of brilliants". Each of these types of light was explored with an Aalto and contemporary example. Kelly further suggests that together these three types of light can contribute to visual beauty, which is:

"perceived by an interplay of all three kinds of light, though one is usually dominant. It is, therefore, of first importance to plan lighting, whether you are creating a new structure to

interpret an idea of house and home, whether you are altering an old structure to meet new needs, or whether you are making-do with existing conditions as an interim in someone's longer term program" (*ibid*, p.25).

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My admiration for Aalto, especially under the lens of these three combined light effects, guides my own work. I am further drawn to his work, because despite practicing in a region with profound periods of darkness he was able to take incredible strides in innovative lighting techniques that are still relevant to contemporary practice. As a practitioner, and not a scholar on the work of Aalto I find his ability to find creative solutions out of the constraints of the site a constant reminder that it are the challenges of the site that provide opportunity to exploit its unique characteristics, allowing the architecture to come alive.

The work of Alvar Aalto offers architects a number of unique insights that resonate with challenges of contemporary practice. While his contributions to architecture cover a range of topics, those pertaining to the domain of light are especially relevant because despite Aalto's work in a time of profound technological innovation he managed to maintain a mindfulness for the natural condition and the unique characteristics of various sites. It is this aspect of his work that highlights his relevance to contemporary practice, which all too often ignores a sense of place and compromises our connection to both the built and natural environment. Given our current sustainability crisis and his techniques for integrating natural light should be the standard for our practice.

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