

LA MAISON DE VERRE

(Myth of Transparency/Translucency and Light)

Sohrab Ahmed Marri¹, Waqas Ahmed Mahar^{1*}, Naveed Ur Rehman Anwar¹, Kahina Labdaoui², Shehroze Shah¹

¹ Department of Architecture, Balochistan University of Information Technology, Engineering and Management Sciences (BUIITEMS), Takatu Campus, Airport Road, Baleli, Quetta 87300, Pakistan

² Laboratory of Architecture and Urban Planning, Department of Architecture, University of Badji Mokhtar, Annaba 23000, Algeria

"Modernity has been haunted, as we know very well, by a myth of transparency"[1].

"I was never really interested in just transparency. In fact, I was always suspicious of it. The zone I feel very comfortable in is the distance between the translucent and the opaque"[2].

"In order to raise our culture to a higher level, we are forced, whether we like it or not, to change our architecture. And this will only be possible if we free the rooms in which we live from their enclosed character. This, however, we can only do by introducing a glass architecture which admits the light of the sun, of the moon and of the stars, not only through a few windows but through as many walls as feasible, these to consist entirely of glass - of coloured glass"[3].

I. ABSTRACT

Historically transparency/translucency and light of glass material in architecture have different meanings and myths. In this paper, the authors will focus on these three words, transparency/translucency and light, which are the most prominent features of Modern Architecture discourse. One should not be confused with these three words because these are interrelated to each other, possessing the character of glass material in architecture. La Maison de Verre, "House of Glass" in Paris, built between 1928-32, is one of the earliest examples of modern architecture which exhibits the application of glass material in a unique way. An examination of this structure in terms of transparency/translucency and light effects will be more interesting.

Keywords: Paris, Glasshouse, Modern architecture, Modernism, France, Pierre Chareau

II. GENERAL OVERVIEW

The "La Maison de Verre: House of Glass" in Paris, built between 1928-32, was designed by Pierre Chareau and his partner Bernard Bijvoet. It was commissioned by Dr. Jean Dalsace and his wife, An-

nie Dalsace. They bought the site located at 31 Rue Saint-Guillaume, Paris 75007, France. It is difficult to introduce Pierre Chareau; is he an ornamentalist? Interior decorator? Or simply an architect, but his creative thoughts can be seen in this house. Dr. Dalsace and his wife wanted to demolish the old building and construct a new building. An elderly tenant living on the top floor refused to leave this house. Thus, it was decided to demolish below two floors leaving the top floor and constructing a new house underneath it. It was a difficult task for Pierre Chareau to design a house on the one hand, in a closed courtyard where you have a minimal light source; on the other hand, leaving the top floor. First, Pierre Chareau, with the help of Louis Dalbet (A craftsman - metal worker), used steel as a structural member to support the top floor and to do the rest of the construction underneath it. The house was then constructed as a modern glass house using Nevada solid glass blocks, which glow at night (Figure 1) and in daytime illuminate the interior when natural light passes through it. The gynaecology practice was designed on the ground floor for Dr. Dalsace, and the family home was built above.

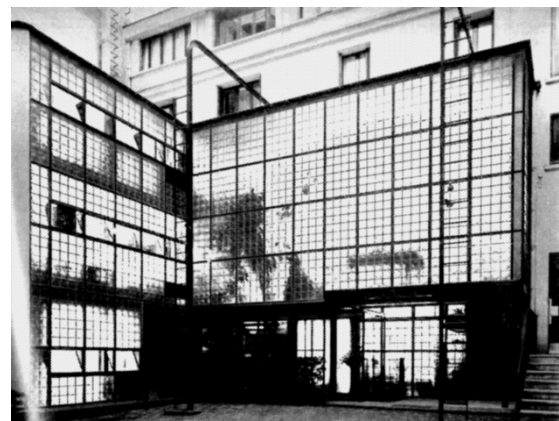


Figure 1. Maison de Verre translucent facade glowing at night

According to Herman, this house presents a unique space. It posits articulation of spaces that amalgamate and overlay a plane on top of each other, with no visible divisions representing a whole new experience. With its acoustic transparency, the house

entrance makes every corner of the house audible. The light filtered through the glass blocks and diffused the silent indirect light, creating an extraordinarily calm and airy atmosphere[4].

In the history and theory of Modern Architecture, 'La Maison de Verre' for a long time is not discovered, but after the writing of Frampton in *Perspecta* article of 1969, its importance raised. The Maison de Verre has become an iconic Glasshouse architecture in modern architecture. The building has been recognised as a modernist icon for its use of prefabricated glass block walls and its open floor plan design with custom built-ins and sophisticated appliances. At the same time, it caused quite a stir during its construction[5].

The Maison de Verre shell was constructed with blocks of translucent glass to illuminate the interior and maintain the privacy of the house. According to Walter Benjamin, living in a glass house is a revolutionary virtue par excellence. It is also a frenzy, moral exhibitionism that we desperately need. The discretion of its existence, once an aristocratic virtue, has become more and more the business of the petty bourgeoisie[6]. Pierre Chareau thus successfully designed the house for the bourgeois family in which privacy of family life is respected.



Figure 2. Transparent glass at the Main entrance of Maison de Verre

In modern architecture, glass is used for openness, clarity and light. These things are carefully adopted in a free plan surrounded by a solid glass block. La Maison de Verre's outer shell is mainly composed of translucent solid blocks. Still, in some places, transparent glass is used for different functions, like in the waiting area where the waiters can see the natural beauty of the back garden and in the servant quarter, which enables the servant to guard the

house, etc. In the early twentieth century, glass function openness and clarity, "*Expounds transparent glass as an invisible plane opening the interior to light and air – revolutionary for the domestic setting*" [7].

Pierre Chareau has developed a unique concept to design 'La Maison de Verre'. This house was constructed between two partition walls, and the plans were developed for dividing space according to the modern way of living.

The design of houses is made entirely of translucent facades to receive maximum light. For ventilation, the windows were adopted in a unique way, like small openings for security purposes. Pierre Chareau's main idea was to abandon the idea of using large blocks of glass, which, once assembled, could create unlimited surfaces without creating the gaping holes of large glass slabs. To this end, he thought of new materials for such a modernist experiment. Therefore, he selected Nevada-type glass lenses, which he felt best suited the conditions of the problem[8].

Some writers argue that the use of glass and steel structure in 'La Maison de Verre' is linked to the technological advancement of that time as interior decorator Pierre Chareau was fully aware of modern materials and their applications.



Figure 3. The Grand Salon

According to C.C Zillich, the development of transparency in architecture has always been associated with innovation, as conceived by theoretical polarisation. What connects them, or is a potential blind spot for both? Its potential is to take away what architecture can also do, like the global stimulation of our senses and the rich experience of built environments[9].

Inside, one can see the unique dilemma of transparency/translucency and light effects. The open steel frame is an essential aspect of the interior, empha-

sised by the dark orange colour and the floating slab panels. It is illuminated by natural sunlight falling through a thin skin of translucent solid glass block. Light penetrating the blocks of glass from floor to ceiling in the office of Dr. Jean Dalsace (Figure 4). It gives a feeling of supremacy which can be felt in the interior of the cathedral and palace. In the middle of two floors, one can feel sharp light coming from below and up. This impact of translucent light can be seen in the large salon living room. This large salon, which takes care of social life, is directly connected to the main staircase, surrounded by transparent glass, welcoming guests of couples.

It is well illustrated in the texts of Emma: *"This repeating vertical glass surface is soft in shape but thin and brittle. It oscillates between part and whole, fragmenting and veiling the visitor in every faceted translucency. The visitor, it seems, never fully enters the house but is stopped at or in the glass facade. Leaving his narcissistic gaze on the transparent glass above and below this large space, his body is transformed back into stage parts in front of the mirror, scattered corporeal fragments pressed into the transparency of each gob of glass"*[10].



Figure 4. Dr. Jean Dalsace's office

This paper aims to uncover the ideas and vision of Pierre Chareau in terms of transparency/translucency and lighting effects in Maison de Verre. Thus taking a journey to explore the thoughts of some prominent theorists of glass. Historically,

glass has been accompanied by different meanings in relation to transparency, translucency and light effects. In order to understand it more precisely, it would be better to discuss them separately:

III. TRANSPARENCY

"No term is more important to modern architecture than 'transparency'"[11].

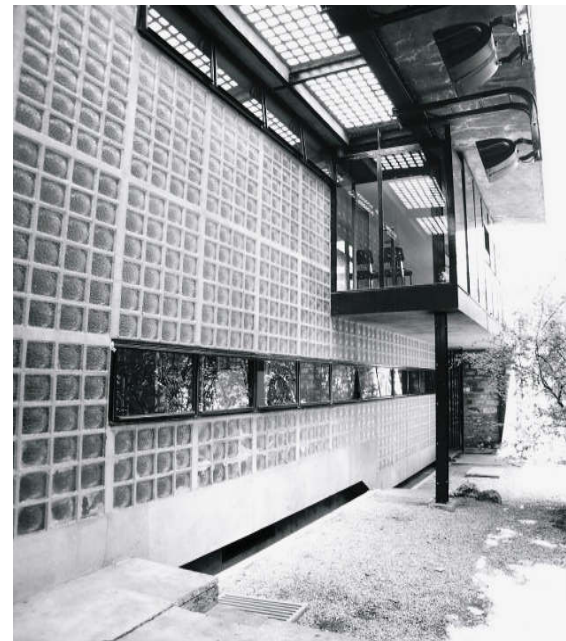


Figure 5. Combination of translucent and transparent glass at the back side of the house toward garden

In modern discourse, transparency has different meanings and ideas. Some influential theorists of glass architecture are Rowe and Slutsky. They said: *"Transparency may be an inherent quality of substance-as in a wire mesh or glass curtain wall, or it may be an inherent quality of organisation"* [12]. They have further discussed and distinguished transparency into two senses: literal transparency (real transparency) and phenomenal transparency (seeming transparency). In this article, Rowe and Slutsky discussed the Kepes, Moholy and cubist painting ideas about transparency. For example, they debated Villa Garches of Le Corbusier and Bauhaus of Gropius, in which they argued Villa Garches as phenomenal transparency and Bauhaus as literal transparency. Bauhaus's glass curtain shows material transparency that doesn't distract the viewer. One can see the glass and frames and even the space behind them. The regular glass panels with frames are simple and definite. However, contrary to Villa at Garches, its facade shows irregularity with some broken grids. There is positive and negative space in facade with opaque and transparent irregular depth volume; thus, it is confusing, conceived and indefinite what Rowe and Slutsky are trying to elaborate. Maison de Verre's facade is

composed of translucent glass on the front courtyard side, but in the back, having some combination of transparent and translucent glass may suggest phenomenal transparency.

The front façade is not open to any optical ambiguity or multiple readings. When one concentrates on the front façade, Maison de Verre has all the 'bad' monotony and 'orthodox modernity' that Rowe and Slutsky criticised in non-phenomenal transparency. On the other hand, when one concentrates on the internal volume, one may argue that planes within the volume's complex play suggest phenomenal transparency, as in Villa Garches. However, this play of volumes cannot be appreciated by looking at the object from the outside with a single viewpoint[13].

According to Adrian Forty, transparency has three senses literal transparency, phenomenal transparency and transparency of meaning. The literal and phenomenal transparency is already discussed. We are now exploring the third sense, which is the transparency of meaning. Regarding transparency of meaning, Adrian Forty states, "*it is never codified so precisely*"[14]. He tries to convey the messages of Susan Sontag, Neumeyer and Anthony Vidler to get the definition of "transparency of meaning". Sontag states it should be clear what it is, there should have no ambiguity between form and contents, and the truth of material must exhibit its character. Vidler says modernist pioneers didn't think transparency leads to aesthetic results that are organic forms and translucency as reflecting surface having much more concern about aesthetic rather than its functions which leads to complexity[14].

Well, if we see Maison de Verre tendering the vision of Pierre Chareau as a translucent surface acting as a wall, a transparent surface acting as a window, things playing their role in its limits. In other words, every element is performing its role completely and clearly distinguished. But at night, the luminosity of translucent light can also be said to be the architect's choice of aesthetic as well. The architect is more concerned with illuminating interior space using natural light, which he could not achieve with opaque walls. The trick played here is much more about illumination but also possessing other wall characteristics, such as privacy and shelter. In another sense using translucent glass material in the façade of the building. Transparency in the meaning of physical character Direct, clarity and purity may be contrary to the idea of 'transparency of meaning', which Neumeyer states "clarity and purity reflects the material original beauty"[14].

IV. TRANSLUCENCY

Translucency is derived from the Greek words trans (through) and lux (light). While in transparency, the light passes as well as one can see through it, but in translucent material, you cannot see clearly as it has a blurry surface. Thus, it becomes "through light". However, transparency and translucency can be found in glass, but it is not necessary. The same impact can be seen in other materials, i.e., plastic, wood, or steel mesh and the same behaviours. Our discussion is more focused on the glass translucency of subjective characters than on objective.



Figure 6. Translucent Glass blocks

The ambiguity between the two realms is often the primary area of investigation through subtle manipulations of visual perception. In translucent constructions, the separation is usually acknowledged directly instead of a wondrous continuity between outside and inside. The interruption of the flow of space across the perimeter is accompanied by a disruption in the revelation of the building's spaces and physical structure on its outer surface. Terence Riley characterised this separation as a veil created by a perceptual delay imposed between the viewer and the space behind it: a "triggered subjectivity"[15].

Anthony Vidler made a crucial and insightful distinction between two types of translucencies. The first exploits the deliberate manipulation of reflection on glass or polished surfaces and does not represent a paradigm opposed to modernist transparency, but instead its inherent other. As an unavoidable physical feature of glass, reflection disrupts the essential function of the transparent construction to reveal. Vidler's second definition of translucency is situated in a critical and postmodern modality. Here the building is conceived as an enigmatic volume, luminous in the use of light played on many types of translucent materials. The search for transparency is abandoned altogether; from the outset, this work embraces what is completely impenetrable, illegible, and inaccessible. Rather than the intrinsic

companion of modernist transparency, its dark twin, this sense of translucency is its "complex critique. Vidler's second sense of transparency, at least in its physical description, is much closer to the Maison de Verre[16].

According to Frampton comments: "Frampton's comments on Pierre Chareau Maison de Verre which ran completely against the grain of modern rationalist thought it was sheathed in layers of transparent and translucent materials which alternately obscures and revealed a sequence of views"[16].

In Maison de Verre, Pierre Chareau's well-crafted translucent façade's curtain wall was much more against the transparency concepts of early 20th century modernist pioneers. "For architects, it represents the road not taken: a lyrical machine whose theatricality is the antithesis of the dry functionalist aesthetic that reigned through much of the 20th century"[17]. Ousaroff words are much more powerful, but Maison de Verre's translucent skin was utterly a new vision in complex settings.

The development of transparency to translucency and light in present times can be well illustrated by Joan Ockman, "*The development of architectural glass going back several hundred years was directed up until about the first quarter of [the twentieth] century toward transparency, toward the perfection of an ever larger plate of glass to a point of perfect clarity, now that transparency as a see-through characteristic has been technologically mastered, it's hardly surprising to find that it is no longer the issue. The mastery of the transparent glass pane makes way for more complex and interesting uses of this marvellous material*"[18].

Maison de Verre is the earliest example of manipulating glass with mastery and craft workmanship according to desire. Ockman's interesting use of this marvellous material is a definitely crystalline and translucent character of glass and lighting impacts. Although it is much more concerned about functionality, aesthetic characters could not be ignored.

Light-transmitting building skins can have both practical and poetic reasons, such as maximising natural light during the day and illuminating the exterior of the building at night. Murray discusses that a transparent surface becomes a translucent material with depth and presence. It provides privacy to create a meditative effect or a calming atmosphere, adding a sense of mystery and ambiguity[19].

Murray's argument explains the shift in meaning and conception of material from transparency to

translucency. The light streaming in through the translucent glass creates a meditative environment. Thus, it was Pierre Chareau's concept to provide both practical and poetic by constructing the translucent skin of a building.

V. LIGHT

The relation between light and glass is the poetry of aesthetics and more than it. It purifies the light when it passes through it. The impact of light also tells us a different story when understanding it with the translucent/transparent features of Maison de Verre.

"Light is as material as a stone, and there can be no architecture without it. Architecture without light is like music without air"[20].

Light has always played an essential role in defining architectural forms. The silent presence of light materialises volume and dematerialises space.

One of the masters of using glass in architecture is Paul Scheerbarth. In 1914, he was impressed by Architect Bruno Taut's Glasshouse at the Werkbund Exhibition of 1914. He wrote poetry on glass architecture which revolutionised the use of glass in architecture. The idea of Paul Scheerbarth glass as new architecture and the play of light colours and its crystalline property is much more mythic and poetic.

The interpretation of Paul Scheerbarth's ideas can be well illustrated in the text. *Paul Scheerbarth viewed glass architecture as instead offering the possibility for a new cosmopolitan spirituality and a transcendent connection to nature. Glass, for Scheerbarth, embodied the metaphoric potentiality of colour and light, and the crystal was the natural form that symbolised these ideals. In Glass Architecture, he dreamt of anti monumental buildings, constantly changing, never the same*"[21].



Figure 7. Light piercing from the main translucent façade in the interior of the Grand Salon

Paul Scheerbart's ideas are more mythic and poetic. Still, Maison de Verre also inherits some qualities of glass and light that diffuse from translucent crystalline glass and create a dynamic spiritual environment. But some glass critics have also criticised using the glass material.

According to Ludwig Hilberseimer, 1929: *"it obliterated the old opposition of light and shadow which had formed the proportion of past architecture. It made a space of evenly distributed brightness and a room of shadowless light"* [16].

One can observe it in the grand salon of Maison de Verre. When light penetrates the solid glass block wall having both functions of transparency/translucency and creating a unique environment that is contrary to Hilberseimer's room of shadowless light.

The concepts of using transparency and translucency senses are linked with the phenomenon of light. Historically luminous energy has influenced architecture design for centuries. Early examples of translucent building skins can also be found in the soaring stained-glass walls of Gothic cathedrals, like the radiant Sainte Chappelle (1248) in Paris and the Choir at Aachen Cathedral (1414). This usage of translucent glass and light impact mostly have spiritual characters [19].

Pierre Chareau may have got his inspiration from historical buildings. The idea of translucent glass in terms of lighting effects has direct connections to gothic cathedrals and some modern needs. In the interior of Maison de Verre, the light penetration

looks like a series of modern artificial lights, as shown in Figure 7.

There are two senses exposing its characters. One is a poetic, meditative character, as one can feel in a Gothic cathedral. Another is an attempt to create a continuous natural lamp to benefit from natural light. The creation of double height grand salon and Dr Jean Dalsace's office is not only to get light from the translucent wall but also to have much more poetic characters, as stated by Steven Holl, *"an attention to phenomenal properties of the transmission of light through the material can present poetic tools for making spaces of exhilarating perceptions"* (Steven Holl) [19].

An appreciative remark by Dr. Dalsace *"Chareau has performed the extraordinary feat of building three floors full of light"* [19].

VI. CONCLUSION

To conclude, these myths of transparency/translucency and light effects in the interpretation of Maison de Verre have been discussed so far. The transparency translucency and lights effects have great impact on the subjective and objective definition of Maison de Verre when taking into account the writings of some renowned theorists of glass. The Maison de Verre exhibits a mysterious dilemma between these three words, whether from exterior or interior. There are still many things to discuss in Maison de Verre as it is also considered a machine for living and many other modernist ideas embedded in it. To uncover these layers need a much lengthier paper to discuss.

Its lighting effects become more attractive at night. At night the consistently glowing surface becomes like a lamp. One can see the silhouettes of human figures and furniture beyond the exterior translucent light. It is more than a mysterious perception. This lighting sensation through translucent glass has become an inspiration for contemporary architects. At present, we mostly see such a kind of impact in most contemporary architects' work, like Nouvel's Institut du Monde Arabe, Paris. Chareau was fully aware of its importance; thus, he put exterior flood lights to glow wall invertedly.

Kenneth Frampton lauded the significance of Chareau's innovative facade design. He writes, *"The more or less continuous translucent covering of the Maison de Verre at one stroke does away with the counterpoint between solid and void which one finds in all architecture including the Modern Movement"* [19].

Further light has many interesting ideologies regarding the sun's and buildings' orientation. According to Alberto Campo, *"There are many kinds of light. Horizontal light Vertical light, and light Diagonal. According to its quality, solid light and*

diffused light. When the ancients needed to take the light of atop, what I call vertical light...premonition of the achievement of the vertical light. Thus, throughout the history of architecture, light... horizontally - the wall - as it was logical. As the rays of the Sun falling on us are diagonal, much of the history of architecture can be read as an attempt to transform the light from Horizontal or Diagonal into light that seems to be Vertical. So did the Gothic, which must be read not only as the desire for a greater amount of light but primarily as they get a

qualitatively more vertical light, in this case, Diagonal"[22].

In the interior of Maison de Verre, one can find horizontal and diagonal lights but also feel vertical light. The Vertical lights can be observed in the grand salon, where sharp light penetrates in both directions, upward and downward. These ideologies about light are very interesting and were most prevalent in gothic churches. Chareau well translates these ideas in Maison de Verre.

REFERENCES

- [1] Vidler, A., "The Architecture Uncanny". London: MIT Press, p. 217, 1992.
- [2] Holl, S., "The Nelson-Atkins Museum of Art: The Technical Visual and Spatial Effects of Glass". New York: Princeton Architectural Press, p. 97, 2009.
- [3] Scheerbart, P., "Glasarchitektur, Translated by C.C. & Gr. Collins". Berlin: Verlag der Sturm, p. 11, 1914.
- [4] Herzberger, H., "Lições de Arquitetura", p. 238, 1996.
- [5] Borden, I. and Rendel, J., "Intersections: Architecture Histories and Critical Theories". London: Routledge, p. 92, 2000.
- [6] Benjamin, W., 'Surrealism,' in "Reflections: Essays, Aphorisms, Autobiographical Writings". New York: Schocken Books, p. 180, 1986.
- [7] Giedion, S., "Building in France, building in Iron, Building in Ferroconcrete", *The Getty Center Publication Programs*, p. 90, 1995.
- [8] Une Maison de Verre, "Glace et Verre". No. 17, p. 19-20, 1930.
- [9] Zillich, C.C., "Specific Transparencies". *Leibniz University*, Hanover, Germany, 2006.
- [10] Cheatle, E., "Recording the Absent inside the Maison de Verre", *IDEA Journal*, p. 98-111, 2012.
- [11] Foster, H., "The ABCs of Contemporary Design", p. 194, 2002.
- [12] Rowe, C., and Slutsky, R., "Transparency: literal and Phenomenal", p. 161, 1963.
- [13] Akcan, E., "Glass Symbolism, Experiential Transparency and Privacy in Maison de Verre", *88th ACSA Annual Meeting Proceedings, Heterotopolis*, Columbia University, p. 549-550, 2000.
- [14] Forty, A., "Words and Buildings: A Vocabulary of Modern Architecture", Thames & Hudson, p. 288, 2004.
- [15] Fierro, A., "The Glass State: The Technology of the Spectacle", Paris, 1981-1998, United States: The MIT Press, p. 99-100, 2006.
- [16] Riley, T., "Light Construction", New York: The Museum of Modern Art, 2004.
- [17] Ousaroff, N., "The Best House in Paris", *The New York Times*, 2007.
- [18] Ockman, J. "Light Construction Symposium", New York: Monacelli Press, p. 66, 1995.
- [19] Murray, S., "Translucent Building Skins: Material Innovations in Modern and Contemporary Architecture", United States: Routledge, 2013.
- [20] Alberto, C.B., "Architectura Sine Luce Nulla Architectura Est: On the material nature of light, on light as matter and material", Paris: Cosa Mentale, 2010
- [21] McElheny, J., "The Light Club: On Paul Scheerbart The Light Club of Batavia", Chicago: University of Chicago Press, p. 7, 2010.
- [22] Alberto, C.B., "Principia Architectonica: Piercing Translucency", Madrid: Arcadia Mediática, 2017.