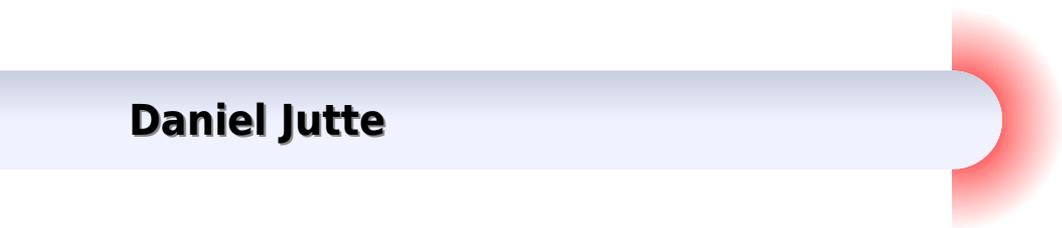


Engineered  
Transparency—  
The Technical,  
Visual, and  
Spatial Effects  
of Glass

Michael Bell and  
Jeannie Kim, editors

# Engineered Transparency The Technical Visual And Spatial Effects Of Glass

**Daniel Jutte**



## **Engineered Transparency The Technical Visual And Spatial Effects Of Glass:**

**Engineered Transparency** Michael Bell, Jeannie Kim, 2008-11-04 Glass is one of the most ubiquitous and extensively researched building materials. Despite the critical role it has played in modern architecture in the last century, we have yet to fully comprehend the cultural and technological effects of this complex and sophisticated building material. Engineered Transparency brings together an extraordinary multidisciplinary group of international architects, engineers, manufacturers, and critics to collectively reconsider glass within the context of recent engineering and structural achievements. In light of these advancements, glass has reemerged as a novel architectural material offering new and previously unimaginable modes of visual pleasure and spatial experience. Engineered Transparency presents a portfolio of projects featuring cutting edge glass designs by today's most innovative architects, including SANAA's acclaimed Glass Pavilion at the Toledo Museum of Art, Yoshio Taniguchi's MoMA expansion in New York City, and Steven Holl's Nelson Atkins Museum in Kansas City. With contributions by foremost thinkers in the field of architecture and design, including historians Kenneth Frampton, Antoine Picon, and Detlef Mertins; cultural critics Beatriz Colomina, Joan Ockman, and Reinhold Martin; engineers Werner Sobek, Guy Nordenson, and Richard Tomasetti; and architects Kazuyo Sejima, Steve Holl, and Elizabeth Diller, Engineered Transparency redefines glass as a 21st century building material and challenges our assumptions about its aesthetic, structural, and spatial potential. [Engineered transparency](#), 2009

**Blurred Transparencies in Contemporary Glass Architecture** Aki Ishida, 2020-04-22 Blurred Transparencies in Contemporary Glass Architecture brings to light complex readings of transparent glass through close observations of six pivotal works of architecture. Written from the perspectives of a practitioner, the six essays challenge assumptions about fragility and visual transparency of glass. A material imbued with idealism and utopic vision, glass has captured architects' imagination, and glass's fragility and difficulties in thermal control continue to present technical challenges. In recent decades, architecture has witnessed an emergence of technological advancements in chemical coating, structural engineering, and fabrication methods that resulted in new kinds of glass transparencies. Buildings examined in the book include a sanatorium with expansive windows delivering light and air to recovering tuberculosis patients; a pavilion with a crystal clear glass plenum circulating air for heating and cooling; a glass monument symbolizing the screen of personal devices that shortened the distance between machines and humans; and a glass building symbolizing the social and material intertwining in the glass ceiling metaphor. Connecting material glass to broader cultural and social contexts, Blurred Transparencies in Contemporary Glass Architecture enlightens students and practitioners of architecture as well as the general public with interest in design. The author demonstrates how glass is rarely crystal clear but is blurred both materially and metaphysically, revealing complex readings of ideas for which glass continues to stand.

**Translucent Building Skins** Scott Murray, 2013-05-07 Exploring the design of innovative building enclosure systems or skins in contemporary architecture and their precedents in earlier twentieth century modern architecture, this

book examines the tectonics the history and the influence of translucency as a defining characteristic in architecture Highly illustrated throughout with drawings and full colour photographs the book shows that translucency has been and continues to be a fertile ground for architectural experimentation Each chapter presents a comparative analysis of two primary buildings a recent project paired with a historical precedent highlighting how architects in different eras have realized the distinctive effects of translucency The included buildings span a variety of program types ranging from a single family residence to a factory to a synagogue Whether it is Pierre Chareau s glass lens curtain wall at the Maison de Verre Frank Lloyd Wright s wall of stacked glass tubes at the Johnson Wax Research Tower or Peter Zumthor s use of acid etched glass in a double skin envelope at the Kunsthhaus Bregenz the included projects each offer an exemplary case study of innovations in materiality and fabrication techniques Today among many contemporary architects there is an engagement with new technologies new material assemblies and new priorities such as sustainability and energy efficiency A resurgent interest in translucency as a defining quality in buildings has been an important part of this recent dialogue and this book makes essential reading for any architect looking to incorporate aspects of translucency into their buildings

*The Routledge Companion to Critical Approaches to Contemporary Architecture* Swati Chattopadhyay,Jeremy White,2019-08-01 The Routledge Companion to Critical Approaches to Contemporary Architecture convenes a wide array of critical voices from architecture art history urbanism geography anthropology media and performance studies computer science bio engineering environmental studies and sociology that help us understand the meaning and significance of global architecture of the twenty first century New chapters by 36 contributors illustrated with over 140 black and white images are assembled in six parts concerning both real and virtual spaces design materiality alterity technologies cityscapes and practice

*Reading Architecture and Culture* Adam Sharr,2012-11-12 Architecture displays the values involved in its inhabitation construction procurement and design It traces the thinking of the individuals who have participated in it their relationships and their involvement in the cultures where they lived and worked In this way buildings their details and the documents used to make them can be read closely for cultural insights Introducing the idea of reading buildings as cultural artefacts this book presents perceptive readings by eminent writers which demonstrate the power of this approach The chapters show that close readings of architecture and its materials can test commonplace assumptions help architects to appreciate the contexts in which they work and indicate ways to think more astutely about design The readings collected in this innovative and accessible book address buildings specifications and photographs They range in time from the fifteenth century examining the only surviving drawing made by Leon Battista Alberti to the recent past projects completed by Norman Foster in 2006 and Herzog and De Meuron in 2008 They range geographically from France to Puerto Rico to Kazakhstan and they range in fame from buildings celebrated by critics to house extensions and motorway service areas Taken together these essays demonstrate important research methods which yield powerful insights for designers critics and historians and lessons for

students **Designing Retail Experience in the 21st Century** D.J. Huppertz, 2025-04-03 Covering 2001 to today

Designing Retail Experience in the 21st Century presents readers with a critical cross disciplinary perspective on retail design bringing together scholarship from design architecture branding cultural studies and social studies Our retail experience has changed profoundly over the past two decades largely due to the impact of digital technologies While the rise of smartphones and online commerce threatened to displace bricks and mortar stores physical shopping has survived and in some cases thrived Today the most successful brands design experiences that engage customers both within the physical store and in the digital realm In this book D J Huppertz analyses how corporations design these experiences how we interact with them and how they align with broader social cultural and economic changes Eight case studies reveal how some of the largest global retail chains including Apple Amazon Nike Zara IKEA and LEGO and smaller chains such as Aesop and Gentle Monster utilize design to create engaging experiences Unlike in the past such corporations consider design in a continuum that extends from architecture and interiors to product and service design and from website and digital interactions to social media At the intersection of design and cultural studies this book provides a critical survey and understanding of design and retail experience in the 21st century

Glass in Building Bernhard Weller, 2009 Glass in Building opens up a whole range of fascinating design possibilities for the planning architect Glass has long served as a translucent room closing element but its range of possible uses is actually much wider It not only offers protection against the external world for example noise or fire despite its apparent fragility it can even take on load bearing functions in supporting structures In combination with various different finishing methods materials and coatings it also satisfies exacting structural physical standards Glass in Building offers a clear compact and illustrated overview of the material appropriate use of this varied and versatile material in building construction and provides information that goes far beyond the basics on designing with glass and producing and using specialized glass products as well as on the building and planning regulations that must be taken into account when constructing with glass A selection of exemplary realized projects rounds out the theoretical section Das Bauen mit Glas eröffnet dem planenden Architekten faszinierende gestalterische Möglichkeiten Schon lange dient es als lichtdurchlässiger Raumabschluss ist aber weitaus vielfältiger einsetzbar Glas bietet nicht nur Schutz vor der Aussenwelt etwa gegen Lärm oder Feuer sondern kann trotz seiner vermeintlichen Zerbrechlichkeit sogar lastabtragende Funktionen innerhalb eines Tragwerks übernehmen In Kombination mit verschiedenen Veredelungsmethoden Materialien und Beschichtungen erfüllt es auch hohe bauphysikalische Anforderungen Detail Practice Konstruktiver Glasbau liefert einen kompakten anschaulichen Überblick über den materialgerechten Einsatz dieses facettenreichen Baustoffs in der Baukonstruktion und vermittelt weit über die Grundlagen hinausreichende Informationen zum Entwerfen mit Glas zur Herstellung und Anwendung spezieller Glasprodukte sowie zu den baurechtlichen Regelungen die im Glasbau zu berücksichtigen sind Eine Auswahl beispielhafter realisierter Projekte rundet den theoretischen Teil ab

*X-Ray Architecture* Beatriz Colomina, 2019 This book explores the

impact of medical discourse and diagnostic technologies on the formation representation and reception of modern architecture It challenges the normal understanding of modern architecture by proposing that the architecture of the early twentieth century was shaped by the dominant medical obsession of its time tuberculosis and its primary diagnostic tool the X ray If architectural discourse has from its beginning associated building and body the body that it describes is the medical body reconstructed by each new theory of health Modern architects presented their architecture as a kind of medical instrument for protecting and enhancing the body X ray technology and modern architecture were born around the same time and evolved in parallel While the X ray exposed the inside of the body to the public eye the modern building unveiled its interior inverting the relationship between private and public Colomina suggests that if we want to talk about the state of the art in buildings we should look to the dominant obsessions about illness and the latest techniques of imaging the body and ask what effects they may have on the way we conceive architecture *The New Structuralism* Rivka Oxman, Robert Oxman, 2010-08-23 Today the convergence of design engineering and architectural technologies is breeding a new material practice in experimental architecture The significant emphasis on the structuring logic of tectonics is resulting in a new structuralism in design In this pioneering publication this important shift is fully defined as a highly dynamic synthesis of emerging principles of spatial structural and material ordering integrated through the application of materialisation and fabrication technologies Providing the foundations for a new theory of structuring in architecture the new structuralism has broad implications for the way we both conceive and undertake architectural design as its impact starts to emanate not only across education internationally but also through architectural research and practice Features premier research and design oriented engineering practices Bollinger Grohmann Buro Happold Hanif Kara AKT Werner Sobek Focuses on design and fabrication technologies in the recent work of Martin Bechthold Barkow Leibinger EMBT Enric Miralles Benedetta Tagliabue Gramazio Kohler Fabian Scheurer designtoproduction Yves Weinand and Markus Hudert Contributors include John Chilton Dominik Holzer and Steven Downing Neri Oxman Helmut Pottmann Nina Rappaport *Casabella*, 2009 The British National Bibliography Arthur James Wells, 2009 □□□□□, 1991 Engineered Transparency 2021 Bernhard Weller, Jens Schneider, 2021-07-06 This book contains more than 70 articles and presents international trends in structural glazing and facade construction Renowned authors from all over the world report on current research results and innovative construction projects *Revealing Transparency: Exploring the Design Potential to Effect Visual Perception* Marla J. Longshore, 2010 Transparency has been a subject of architectural discourse since the early twentieth century As the use of glass in architecture developed formally the understanding of how to design with this transparent material evolved As glass technology improved and new applications were conceived the implications of literal and phenomenal transparency grew How one perceived of the effects that transparency had on space was subject to the ability of one's awareness of that which was perceived This thesis contributes to the discussion of how glass and its current technological state contribute to new and

alternative ways to experience and understand space It is not a discussion of every way that glass can be used but rather how its transparency combined with its innate material qualities gives way to phenomena Today there are a variety of materials that possess the quality of transparency glass plastic fabrics etc Those materials also have different material properties that contribute to the production of other phenomenal effects By focusing on the manipulation of one's perception of these phenomena a new experience of space is produced The theories studied in this thesis are exercised in the creation of an Urban Sanctuary in downtown Cincinnati Glass has a long standing tie to religious architecture making it a fitting material choice This coupled with the notion of phenomenal transparency will invert the introspective and reflective nature of the sanctuary revealing the functions to the community By using glass to push the boundary of this idea it is possible to create a new vocabulary for the materials use and the privacy and publicity it may achieve The juxtaposition of transparency with the monastic typology creates a vibration that exploits that which is perceived

Blurred Transparencies in Contemporary Glass Architecture Aki Ishida, 2020-04-22 Blurred Transparencies in Contemporary Glass Architecture brings to light complex readings of transparent glass through close observations of six pivotal works of architecture Written from the perspectives of a practitioner the six essays challenge assumptions about fragility and visual transparency of glass A material imbued with idealism and utopic vision glass has captured architects' imagination and glass's fragility and difficulties in thermal control continue to present technical challenges In recent decades architecture has witnessed an emergence of technological advancements in chemical coating structural engineering and fabrication methods that resulted in new kinds of glass transparencies Buildings examined in the book include a sanatorium with expansive windows delivering light and air to recovering tuberculosis patients a pavilion with a crystal clear glass plenum circulating air for heating and cooling a glass monument symbolizing the screen of personal devices that shortened the distance between machines and humans and a glass building symbolizing the social and material intertwining in the glass ceiling metaphor Connecting material glass to broader cultural and social contexts Blurred Transparencies in Contemporary Glass Architecture enlightens students and practitioners of architecture as well as the general public with interest in design The author demonstrates how glass is rarely crystal clear but is blurred both materially and metaphysically revealing complex readings of ideas for which glass continues to stand

**Engineered Transparency 2018** Bernhard Weller, Jens Schneider, 2018-10-17 *Towards a New Transparency* Chikara Inamura, 2017 Optically transparent and structurally sound glass has played a significant role in the evolution of product and architectural design across scales and disciplines and throughout the ages Glass processing methods such as blowing pressing and forming have aimed at achieving increased glass performance and functionality Nonetheless techniques and technologies enabling controlled tunability of its optical and mechanical properties at high spatial manufacturing resolution have remained an end without a means This thesis presents GLASS II a high fidelity large scale additive manufacturing technology for optically transparent glass combined with demonstrations of novelty through a

construction of fully transparent glass structures at architectural scale The enabling technology builds upon previous research conducted at the Mediated Matter Group and introduces a fundamental restructuring of the platform s architecture and process control informed by the material properties and behaviors of silicate glass The new manufacturing technology provides a digitally integrated thermal control system across the entire glass forming processes combined with a novel 4 axis motion control system enabling a high fidelity manufacturing process capable of producing glass structures with tunable yet predictable mechanical and optical properties The material fundamentally drives how the machine is used and in return the machine can change how the glass is formed and used In order to evaluate the full capability of this new manufacturing technology a series of three meter tall glass column structures were designed engineered manufactured and constructed Harnessing its optical transparency in conjunction with the spatial tunability of the material deposition across the full length of the column geometry of each column is topologically optimized under the material constrains of the viscoelastic filament such that the result provides highly efficient structural performance as free standing columns while each layer of the printed glass acts as a lens and transforms the incoming light into spatial interactions of kaleidoscopic caustics This large scale multifunctional 3D printed glass structure embodying a new mode of transparency in architecture was exhibited in Italy for the first time during the Milan Design Week in April 2017 Best of Detail Christian Schittich,2014 This publication is based on articles published in the journal Detail between 2007 and 2013 T p verso *Transparency* Daniel Jutte,2023-03-28 A wide ranging illustrated history of transparency as told through the evolution of the glass window Transparency is a mantra of our day It is key to the Western understanding of a liberal society We expect transparency from for instance political institutions corporations and the media But how did it become such a powerful and global idea From ancient glass to Apple s corporate headquarters this book is the first to probe how Western people have experienced conceptualized and evaluated transparency Daniel J tte argues that the experience of transparency has been inextricably linked to one element of Western architecture the glass window Windows are meant to be unnoticed Yet a historical perspective reveals the role that glass has played in shaping how we see and interpret the world A seemingly pure material glass has been endowed throughout history with political social and cultural meaning in manifold and sometimes conflicting ways At the same time J tte raises questions about the future of vitreous transparency its costs in terms of visual privacy but also its ecological price tag in an age of accelerating climate change

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wire to the fdr fan delay relay terminal 3 that relay is what is determining whether or not the motor is getting power the circuit board determines whether or not the relay is open or closed if the relay is closed the fan should be on

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