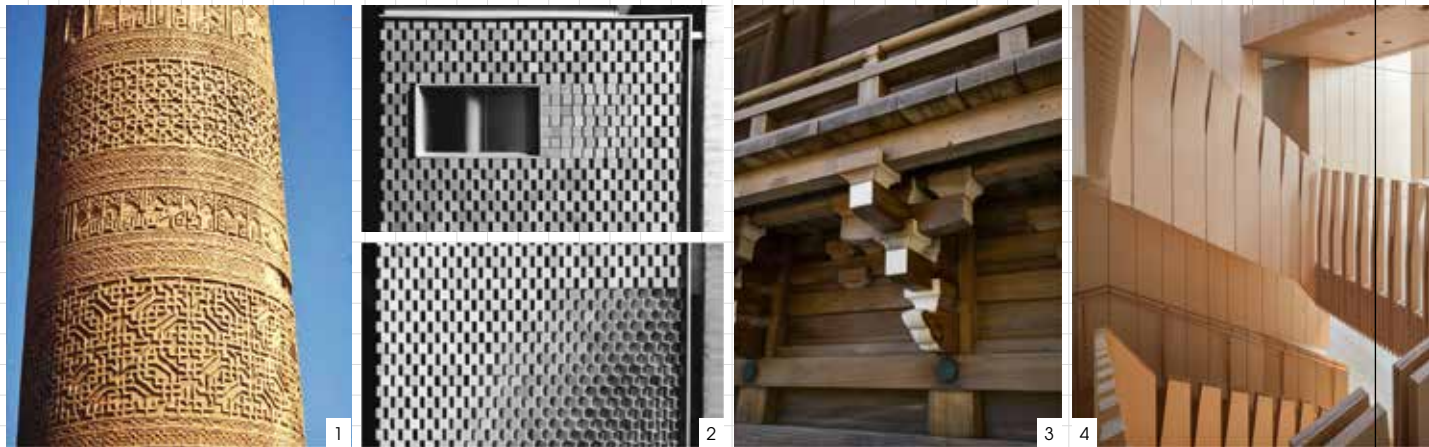


A Disaggregated Manifesto:

THOUGHTS on the ARCHITECTURAL MEDIUM and its REALM of INSTRUMENTALITY

EDITORIAL CRITIQUE



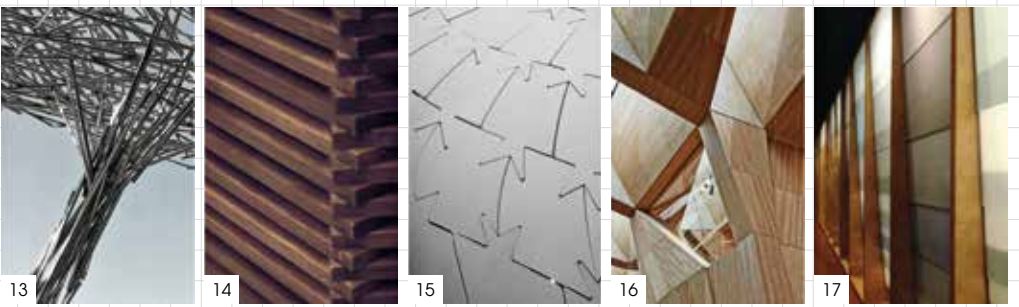
Nader Tehrani



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- 1- MINARET OF SAVEH, IRAN - © P&J GRIMSHAW
- 2- CASA LA ROCA, OFFICE DA CARACAS VENEZUELA, 1995
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- 4- ROCK CREEK HOUSE, NADAAA WASHINGTON DC, USA, 2015 © JOHN HORNER
- 5- PETRIFIED WATER SPOUT AT ROYAL SALTWORKS CLAUDE-NICOLAS LEDOUX ARC-ET-SENANS, FRANCE © INGREATERTDETAIL.TUMBLR.COM
- 6- HEYDAR ALIYEV CENTER ZAHA HADID ARCHITECTS, BAKU, AZERBAIJAN, 2012 © HÉLÈNE BINET



Preface

The idea of an architectural manifesto seems somewhat monocular in its focus - this, in a time when the complexities of the architectural discipline are anything but singular. At the same time, the idea of a call to arms is also mired in a mentality of urgency that characterizes the many texts that pro-actively build crises first, if only to qualify their response. Of course, this is not to say that the clarity of vision that both necessitate is not required, and furthermore that there are not real urgencies to which the architectural discipline cannot speak. Thus, rather than rely on the crutch of pandemonium, *Zeitgeist*, or vision, this text is dedicated to a disaggregated series of conversations with the *longue durée* of architectural debates, both historic and contemporary in nature, but thematically motivated, if only to help better position the disciplinary investments we might advocate to advance architectural agency today. Critical to these conversations, however, is the predicament that we are experiencing a shift in disciplinary focus; as collaborations abound, the architect is also being impacted by a barrage of expertise from other fields, in effect becoming the recipient of others' foundations of knowledge. While this has expanded the domain in which the architect is practicing, it has also curbed the architect's reach, often marginalizing their involvement, compartmentalizing, or fragmenting it. In great part, this is also due to the idea that as generalists of breadth, architects can only delve so deeply into different disciplines. **The predicament they face, thus, is how to reconstitute the political agency of the architect by re-engaging the means and methods of processes - which are ever expanding by the day - if only to reconnect with the very protocols of making that provide for the instrumentality of the designer's intellectual craft.** Structured as short reflections, these notes and speculations can be considered as *amuse bouche* - or if anything, a table of contents for a broader research already underway.

The Part to Whole Equation

The idea of an architecture that establishes a relationship between part-to-whole can be cited back to antiquity, with the various formulations of the Classical language as the manifestation of reciprocities between architectural elements when they speak to each other in materiality, proportion, function and expression. This is certainly not reducible to the Classical tradition, as we can see articulate evidence of this in both Near and Far Eastern architectures also. Consider the masonry work at the Minaret of Saveh of the Seljuk Period, or the timber construction of Kamakura's Goryo-jinja Shrine; both examples advance an idea about the singularity of a material technology that is able to advance the structural, spatial and organizational framework

of an architectural enterprise. Maybe what is equally remarkable about these examples is the degree to which they are stubborn about the disciplining of constraints that guide the rigors of their respective tectonic make up. The bonding pattern of brick walls, the stacking of timber members, and the refusal to escape from their material medium is but one way of demonstrating the degree of versatility that the process of aggregation requires in an act of construction.

That the principle of aggregation should serve to advance this argument is also a central part of a historic architectural debate. There are those buildings whose form, space and detailing is altogether independent of the medium in which they are built. In the context of the Classical temple, the transposition of a wood medium onto stone demonstrates a critical function of the architectural discipline in its ability to create a dialogue between structure and ornament - whereby the elements of architecture can display the effects of weight through the regime of representation. The triglyphs, for instance, are just one instance where the surface treatment of the stone serves to mirror a deep structure that is embedded into the construction of the temple, even though the aggregation of the element is playing a tectonic game, between fact and fiction. With the advent of Architecture Parlante, where the vocal elements of its architecture are called on to speak against the grain of the stone from which they are carved - for instance Ledoux's petrified water spout in the Saltworks project - we witness an explicit renunciation of the ethic of reciprocity between form and content, that is, the way in which the aggregation of a medium could reinforce its expression.

In more contemporary debates, this very same issue arises in the context of buildings whose main trope is the continuous surface, where the purported seamlessness between floors and walls are called on to challenge our perception of architectural conventions. Since seamlessness is more of a rhetorical device, and not actually aligned with the ways in which things are built, the construction seam actually takes on a more charged role in establishing the very part to whole relationship that gives shape to buildings. By way of example, Zaha Hadid's Heydar Aliyev Center adopts a generic construction unit that is, in fact, parametrically malleable - and thus subservient to the formal flourishes at work. In effect, the unit is indifferent to the form. Instead, the Tel Aviv Museum of Art by Preston Scott Cohen, displays the struggle between the configuration of the panel types and the geometry of the figure of the building, demonstrating the tension between the generic and eccentric. In effect, the building's figure is in negotiation with the very block types adopted in forming it - as it turns out, the result of optimization in the manufacturing process. A slightly different approach is displayed in Tagliabue's Spanish Pavilion at the Shanghai Expo, where the generic wicker panels are organized with a shingling process that offers a geometric tolerance such that they are able to navigate compound curvatures without the need for a

consistent dimensional resolution at their connections. **In all cases the persistence of aggregation is the measure of the architectural challenge in gauging continuity where the actuality of construction limits are the ultimate constraint.**

Today, there are explorations in 3-D printed buildings, and certainly this will bring radical changes to the discussion on this topic. If the eradication of the seam is made a possibility through this new set of protocols, then the corollary challenges will be to address questions of expansion and contraction, insulation, water-proofing and all those aspects which tend to draw the advent of purity back into complexity - and hence the need to think of the relation between the part and whole.

Figuration and Configuration

The part to whole equation as displayed in the process of aggregation is broadly related to a phenomenon that is somehow always at work in the design process: namely, the tension between figurative and configurative processes. In this context, figuration deals with those aspects of buildings that describe their most salient formal attributes. If in sculpture the power of figuration was born in the project of mimesis - for instance, the vicissitudes in the description of the human body from the Egyptians to the Greeks and the Romans, in architecture, figuration found its voice through the evolution of building types as they are described through broad formal strokes. Building types such as the basilica, rotunda, or stoa can all be described by irreducible qualities; the Tempietto in Rome, the Baptistery in Pisa and even the Guggenheim in New York City can be described as rotundas, all sharing the circular organization that broadly characterizes their figure. However, as we inspect their tectonic make-up, the discreet planimetric differences and the grain of their material variations, we come to understand that their configurational differences are formidable. The configuration of buildings, thus, is composed of the fine grain systems that are the precondition for the organization of its parts: the cadence and pairing of columns, the structure to vault relationships, the bonding of masonry, and the pattern of windows; all these emerge from a process of aggregation, patterning and weaving of elements from which rules or systems can be extrapolated. **If the figure is a top-down description, then the configuration is a bottom-up one. The figure instantly defines the shape of things, while the configuration suspends the formal endgame with the comfort of uncertainty - if only to offer many possible variations in the results.** The play involved

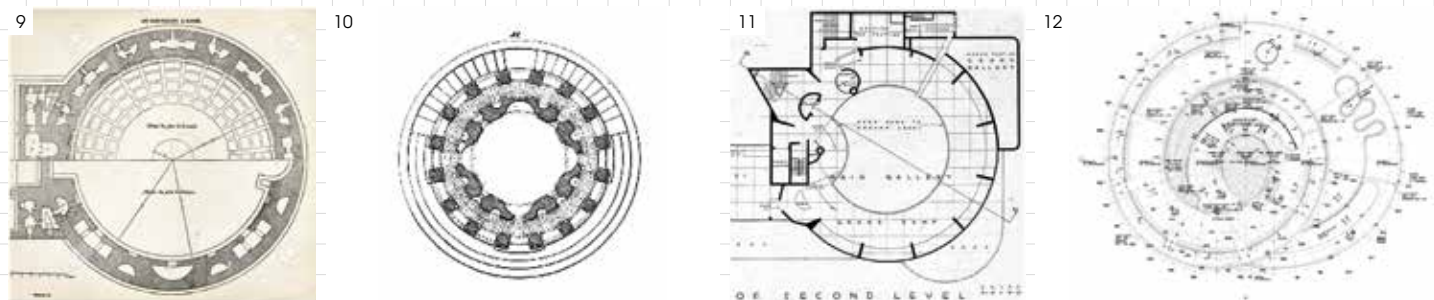
in the gaming of systems is part of the configurative act.

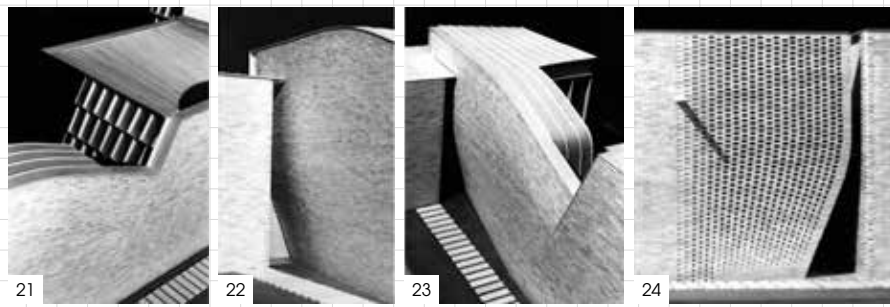
Consider the five points of Le Corbusier and the way in which they can be deployed in a variety of ways between the Villa Savoye and Chandigarh Parliament - identical as systems, but distinct in final description, this the result of the configurative play of parts. Alternatively, consider the overt play of figural manifestations in Ledoux's Water Inspector's House, where the *a priori* formal gesture gives bias to the semantic play of the hydrological passage, rather than the breakdown of discreet parts. If Architecture Parlante provoked the power of signification, in later years, it was also reinforced by a more inclusive theoretical landscape as is evident with Venturi's essay on the duck and the decorated shed. However, its more recent deployment in buildings such as the Basket by NBBJ suggests a crisis that is latent in the mission of figuration: namely that once architecture is stripped of the layering of its multiple narratives, it is then summarily reduced to a one liner - prevented from releasing further readings, engagement, or performance of any kind. Such was the legacy of the more figural works of post-modernism, where the overt references to iconic tropes were reducible to empty quotations and desperate attempts at historical legitimation. However, the re-emergence of the figural bias seems to have rekindled as of late and the manifestations of the diagram on the skylines of various cities remind us of the danger of the literal that lurks in the figure.

What is clear though, whether architectural form is the result of disciplinary mandates by way of typology or the envelope of legal limits based on zoning restrictions, the idea of the figure as an *a priori* inheritance is as much a force to contend with, as are its sub-systems of deployment, be they structural, mechanical, or circulatory. And somehow, it is the tension produced by these two modalities of design play that come into battle and confluence in the site of a project. Consider the West 57th Building by BIG, and the way in which the "courtscraper" is seen as the offspring of two typologies, in negotiation with the zoning ordinances. If the mandates of housing are quite strict in the formulation of net-to-gross efficiencies in such circumstances, then that level of optimization is not mandated for all building types, leaving room for play. Architectural play comes more often in the loose fit between the constituencies of the configurative and the shape of the figure: the relation between the hand and glove, as it were.

Reciprocity and the Predicament of Fit

If the configurative speaks to the infrastructural make up of systems, and the figure to the envelope, then the idea of reciprocity comes to bear on the interface between the two: how the inside and outside speak to each other. **If a certain ethic presumes that the architectural figure is the manifestation of its**





- 7- TEL AVIV MUSEUM OF ART, PRESTON SCOTT COHEN, ISRAEL, 2011 © HUFTON + CROW
- 8- SPANISH PAVILION, EXPO 2010 SHANGHAI CHINA, MIRALLES TAGLIABUE EMBT © SHEN ZHONGHAI/ KDE
- 9- PANTHEON, ROME
- 10- TEMPIETTO OF SAN PIETRO IN MONTORIO, DONATO BRAMANTE ROME, ITALY
- 11- SOLOMON R. GUGGENHEIM MUSEUM, FRANK LLOYD WRIGHT NEW YORK, USA
- 12- DENMARK PAVILION, EXPO 2010 SHANGHAI CHINA, BIG © BIG
- 13- GWANGJU PAVILION, GWANGJU DESIGN BIENNALE 2011 NADAAA
- 14- MANTRA RESTAURANT, OFFICE DA, BOSTON, USA, 2001 © JOHN HORNER

inner organization, then it also comes with a certain morality about the reconciliation of the entire building as an organic whole.

Of course, sometimes this requires a bit of stagecraft to ensure a tight fit. Consider the double enclosures of the Duomo in Florence, where by the double dome is a prerequisite for the means and methods of its construction; if that is overly reliant on a structural alibi, then consider the way in which the displaced symmetries of Palazzo Massimo in Rome is a classic example of an architectural struggle to reconcile the inner and outer missions of a building - the reconciliation of a medieval fabric within and a monumental façade outside to make something larger than the sum of the building's parts. Here, the reciprocities are reconciled room-by-room, window-by-window, and pilaster-by-pilaster. Even in modern construction, we witness the figural display of the bathtub as it is indexed in the Villa Stein.

However, with the advent of the steel and concrete frame, the liberation of the tight fit becomes not so much accidental, but a direct part of its theoretical appeal. The free façade, the curtain wall, the decorated shed - these are all intellectual manifestations of a loose fit that is part and parcel of an architecture where the inevitable tolerance between the configuration of the interior and the figure of the exterior enjoy a measure of freedom, if only as a rule. In more recent speculations, we have spoken of the "shrink-wrap" as an architectural device to calibrate this tension between inside and outside. If So-il's gallery in Seoul is a more literal wrapping of a rigid framework, then NADAAA's Tongxian Art project still calculates the tensions that are latent between architectural elements - stairs, roofs, and entryways - and their expression as a whole.

Materiality and the Tectonic Grain

From a conventional standpoint, the role of materiality can be cited as the eventual hurdle a project must overcome as it becomes slated for reality - that is, in the transitional moment from abstract to specification. Of course, this also presumes a methodological bias that establishes a design process that represses specification as a point of departure. Recognizing "buildings" as the basis of speculations, one could also see how their very materiality might pro-actively offer the basis for critique, challenge and speculation. It also offers a way to imagine leap-frogging over the "representational" moment in the design process, or alternatively to redefine the idea of representation. If the traditional notion of representation offers a pictorial - or illustrative - bias, then in architectural projection, there is always a more instrumental role between drawing, geometry, and the idea of building. Here the aggregation of lines can amount to an act of construction: to build a drawing as a proof of a theorem. I am reminded of the Weston House sidewall, where the corrugated

metal curtain wall accepts its figural shaping in accordance with the limits of a ruled surface. The relationship between corrugation and drawing is demonstrative here in that the vertical lines that define the ribs of the corrugation also form the vertices that help define a developable surface. That the length of the straight upper line of corrugation is the same length as the undulating line at the bottom is a demonstration that drawing is already an act of construction. In turn, the grain that is produced by corrugation is also a manifestation of the agency of materiality, in particular the way in which a skin is able to produce spatiality. Thus, the "sine wave" of corrugation is also indelibly connected to the larger instrumentality of architectural potentials it imparts.

Charles and Ray Eames's research on plywood is another exemplary piece of work that has informed a range of other subsequent contemporary experiments ranging from Gehry's furniture to the Patkau Skating Shelters. In each case, the formal behavior of wood becomes a direct medium through which formal malleability is gauged. In the case of the Eames leg splints, the negotiation between the grain of the wood, on the one hand, and the formal alignment of the splint with the leg, on the other, produces a tension that results in particular incisions, gaps and lap joints that reconcile the two modalities of programming in the design. Here, the tell-tale detail is borrowed from the sartorial trade; a dart is introduced, if only to enable some form of mediation between the figure of the leg and the configuration of the wood pieces.

The Detail as Generative Seed

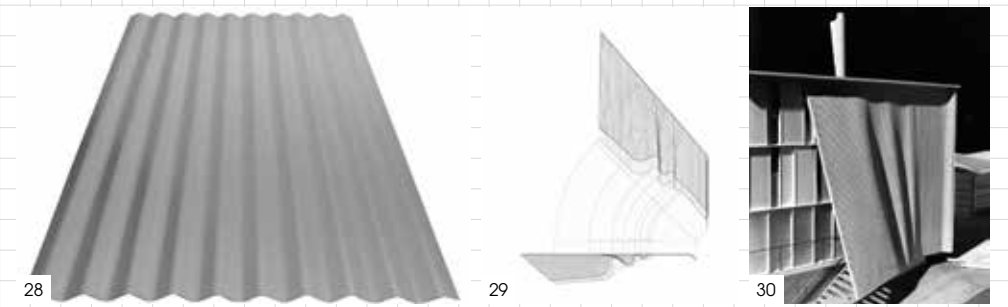
Traditionally, just like the act of specification, the detail is seen as the confirmation of an architectural idea, where everything comes together from the macro scale to the molecular. It is also seen as the site of reconciliation, where different forms, materials and conditions require resolution. The problem, of course, is that the detail is then also always viewed as the site of exceptionality, anomaly, or extraordinariness. For this reason, it is also important to imagine an alternative: that the detail can be seen not so much as the endgame of a process, but the generator of a system. As argued eloquently by Greg Lynn in his foreword *On Intricacy*, the detail can be seen as omnipresent, pervasive and malleable enough to play many roles - indeed a critical precondition for the spatial and formal potentials of an architecture yet to be determined.

The three-way weave joint of Buckminster Fuller can be seen as the critical detail from which his domes are formed. The size of plywood, the lap joint of each module, and the degree of overlap between each sheet offers parameters by which different geometries may be calibrated. As such, precisely because of the suppleness of the detail,



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- 16- MELBOURNE SCHOOL OF DESIGN, NADAAA, AUSTRALIA, 2014 - © JOHN HORNER
- 17- INTERFAITH CHAPEL, OFFICE DA, BOSTON USA, 1999 © DAN BIBB
- 18- WATER INSPECTOR'S HOUSE PROJECT FOR THE IDEAL CITY OF CHAUX CLAUDE NICOLAS LEDOUX
- 19- LONGBERGER CORPORATE HEADQUARTERS, NBBJ, NEWARK, USA, 1997
- 20- KUKJE GALLERY - K3, SO-IL, SEOUL SOUTH KOREA, 2012 © IWAN BAAN

- 21/24- TONGXIAN ART CENTER OFFICE DA, BEIJING, CHINA, 2003
- 25- NEW HAMPSHIRE RETREAT, NADAAA, USA, 2014
- 26- TONGXIAN GATEHOUSE, OFFICE DA BEIJING, CHINA, 2003 © DAN BIBB
- 27- HOUSE IN NEW ENGLAND, OFFICE DA, USA, 2003 © JOHN HORNER
- 28/30- WESTON HOUSE, OFFICE DA, WESTON, USA, 1998
- 31- LEG SPLINT, CHARLES EAMES, 1942 © EATTARANTULA.BLOGSPOT.COM
- 32- CROSS CHECK CHAIR, FRANK O. GEHRY, KNOLL 1990 - COURTESY KNOLL
- 33- WINNIPEG SKATING SHELTERS, PATKAU ARCHITECTS, CANADA, 2011



one can imagine many other forms beyond the eventuality of the figure of the dome. The Immaterial/Ultramaterial Installation was a precise commentary on this possibility, not only transforming the plywood dart detail as the trigger for the project, but also broader geometry of the form which is responsive to the circumstances of its context.

If the detail is seen not so much as the epilogue of the design process - but rather its generative seed - then it also sets the vocabulary for the kit of parts of a given project. This sets in motion a broader commitment to a syntax between the parts - a system if you will - by which part and whole relationships can be evaluated. To this end, as an intellectual project, one can see the way in which interactions with different material media play out in the context of varied authorships - for example, that of SANAA and Kengo Kuma. If the material consistency of the body of work of SANAA brings focus to their emphasis on a common language between projects, they also find ways in which to dematerialize common materials, if only to underline the importance of perception in the subtleties of their architectural games. Conversely, Kuma plays boldly with different materials and their requisite modes of aggregation, yielding a wide array of vocabularies; while defying a common language between projects, he develops a thematic project in the body of his work where the role of materiality and the tell-tale detail become a major precondition of the research at large. Thus, his play with brick, wood, concrete, glass and bamboo all yield quite different formal, spatial and experiential results, if only to delay the possibility of alternative outcomes.

Overcoming the Tectonic Dialectic

The generative detail also sets in motion an idea about architectural ethics that challenges traditional notions about tectonics. Gottfried Semper helps to theorize the *Four Elements of Architecture* in a categorization of the hearth, the roof, the enclosure and the mound; in doing so, he identifies each element with a function they serve, locking them into typological or categorical differences. **If the innate differences between structure, enclosure, or foundations are not evidently clear, then essentializing them becomes a liability if seen from the perspective of producing new forms of knowledge from within the discipline.**

For this reason, we come to learn something quite unique from the work of Sigurd Lewerentz, especially in the Church of St Peters in Klippan, where the articulation of the floor, walls, and ceiling are all stubbornly fabricated from brick - but with the imperative to endow each with unique qualities that speak to their respective "duties", whether functional, structural, or spatial. If the mono-material strategy may seem limiting, it is, in fact, conversely a liberating tactic to radicalize what a single material unit can achieve when forced to

take on varied tectonic tasks - not through difference, but sameness. As a corollary to this, Lewerentz implicates the mortar between the brick, not so much as a static reveal, but rather as an animate space of articulation, whereby the extended dimension of certain voids can act to bring in light, frame the space of the floor and challenge the primacy of brick as the dominant protagonist.

Research and the Production of New Forms of Knowledge

If the Lewerentz Church suggests innovations within brick technologies, it is important to imagine how that medium has evolved over time. In tandem with this, there is a larger question about the role of architecture as an instrument of social relevance, and the degree to which these technological transformations can reverberate beyond the medium itself. Within this context, it might be important to reconstruct genealogies of certain unexpected histories, and how they advance culture at large in ways that produce new forms of knowledge, however incrementally. For instance, the serpentine walls of the University of Virginia have a salient connection with the undulating brick surfaces of the Atlántida Church by Eladio Dieste, and the figurative link between them is immediate and obvious. However, beyond the fact that both enjoy reinforced lateral stability due to the active surface geometries at work, the subtle differences in geometry due to the differences in Jefferson's extrusions versus Dieste's ruled surfaces makes for a significant transformation of knowledge from one generation to the next. Our own adaption of this wall in Casa La Roca, adopts the geometrical tactics of Dieste, while absorbing the bonding potentials of Lewerentz as a hybrid strategy. By folding the wall through a series of creases, we offer lateral stability, but by expanding and contracting the brisk bonding pattern, we also demonstrate the elastic potential of the binding system to draw in light and air in what would otherwise be an inactive wall. Further instantiations of this wall system can also be seen in the work of Gramazio and Kohler, where the introduction of the robot for the deployment of brick distribution creates from mass-produced elements a mass-customized effect that radically alters our control over the medium, underlining the diminution of tolerances, the radicalization of geometric malleability and the dynamic ability to orchestrate systemic changes with other disciplines in the process of both design and fabrication as integrative practices. **This very chain of historic events, though not immediately linear in any way, inform each other in the cycle where the imperative of architectural research not only builds on itself in the iteration of each experiment in its own right, but also builds on others' experiments to imagine a commitment to the production of new**

- 34- ORO BOOKSHELF OFFICE DA, 2000
- 35- PLYDOME, PLYWOOD GEODESIC DOME PROTOTYPE, JOHN SEBASTIAN © JOHN SEBASTIAN SCRATCHDAILY.BLOGSPOT.COM
- 36- IMMATERIAL/ ULTRAMATERIAL INSTALLATION NADER TEHRANI IN COLLABORATION WITH HARVARD UNIVERSITY, 2001
- 37- SUNNYHILLS CAKE SHOP KENGO KUMA & ASSOCIATES, TOKYO, JAPAN, 2013 © KEN LEE/FICKR.COM
- 38- GLASS PAVILION, TOLEDO MUSEUM OF ART SANAA, OHIO, USA, 2006 - © IWAN BAAN
- 39- CEILING OF THE ST MARK'S CHURCH, SIGURD LEWERENTZ, STOCKHOLM, SWEDEN, 1960 © JUSTINE BELL.ELEVATORDREAMING.TUMBLR.COM





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- 40/41- ST PETERS CHURCH, SIGURD LEWERENTZ
KLIPPAN, SWEDEN, 1966
- 40- FLOOR, © SELER+SELER/FICKR.COM
- 41- WINDOW, © WWW.TAKTETTO.COM
- 42- SERPENTINE WALL AT THE UNIVERSITY OF VIRGINIA, USA
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- 43- CHURCH OF CHRIST THE WORKER, ELADIO DIESTE
ESTACIÓN ATLÁNTIDA, URUGUAY, 1960
© VICENTE DEL AMO HERNÁNDEZ
- 44- CASA LA ROCA, OFFICE DA
CARACAS, VENEZUELA, 1995
- 45- STRUCTURAL OSCILLATIONS INSTALLATION
GRAMAZIO KOHLER RESEARCH
AND FEDERAL INSTITUTE OF TECHNOLOGY ZÜRICH
11TH VENICE ARCHITECTURAL BIENNALE, 2008

forms of knowledge as an ethic of the discipline.

To this end, there has been a paradigmatic shift in the evolution of architectural agency, and the production of knowledge has also been the result of key evolutions in the advance of sciences, technologies and media - among other disciplines. Consider the role of geometry, methods of projection and the invention of perspective in the Renaissance; not only is the form of architecture impacted by these techniques, but the architect's agency is equally defined by their ability to control a reality that is otherwise inaccessible to others. Curiously, the reign of the representational regime lasted several hundred years, if only to be challenged by a range of new protocols that is the result of the digital age. Not only has the digital platform profoundly impacted processes of visualization as in previous generations, but it has offered methods of simulation that enhance the agency of the architect to measure and calibrate architecture within a shift from form to performance. This digital platform has also offered an escape from the traditional dichotomy between the designer and builder, by reincorporating the shop drawing process within the software of the architect, and thereby giving them the potential power to regain control over the means and methods of fabrication - something that has been lost for a long period. By extension, the computational realm has offered code and rule-based functions that not only create an escape from visual composition, but also produce systemic variations that can proliferate options while absorbing a great deal of complexities. If this were not enough of a shift in emphasis in such a short period of time, we have also seen the way in which biology and material sciences among other disciplines have introduced other forms of research to expand the terrain on which architecture may speculate. With disciplinary boundaries being challenged, there is also a new distribution of power, responsibilities and reach; thus, research is no longer an academic or theoretical imperative, but the mainstay of critical practices as they extend the instrumentality of the architect.

Beyond the Hippocratic Oath, the Necessity of Agenda

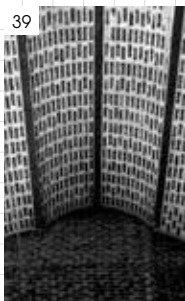
As we revisit the agency of the architect, we may be reminded of the responsibility that comes with this title. No doubt, the current historical moment is bringing with it unprecedented challenges, among them, environmental disasters at a global scale, economic crises beyond national boundaries, mass migrations the result of wars and natural disasters, and many more circumstances that force us to think whether we have the right tools to take on the difficulties of such magnitude. If anything, with all the varied positions that we may hold, it may be easy to agree on a Hippocratic Oath that asks us to do no harm; and yet we also come to understand that even with all the right intentions, there is something insubstantial to an architecture without an agenda. That agenda is what I would call a necessary surplus to questions of responsibility, problem solving, and determinacy - all of

which may play factors, but that remain somehow pale if not paired with a motivation that demonstrates the instrumentality of a discipline - that is, the ability of a certain area of scholarship to speak to society with its tools, questions, and ways of seeing.

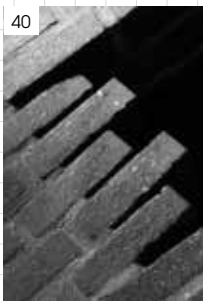
The idea of social responsibility has re-emerged as a critical factor in recent years, a reminder that the architect, as cultural actor, wears many hats: as designer, activist, ambassador, translator, mediator, builder, researcher, among a range of other roles. However, in the rhetoric of social responsibility, there has also been a general oversight of what the architect actually does in ways that others do not: those aspects that are irreducibly linked to the instrumentality of the architect's intellectual craft. Insofar as that intellectual craft is linked with the generative, representational and fabricational aspects of the environment, they are also the result of the unique quality of a pedagogy of a discipline whose power comes in the ability to direct, orchestrate and reconcile many divergent streams of expertise such that a project is always something much larger than the sum of its parts. The crisis (and potential) of today is the result of the fact that many areas of study that are impacting architecture emerge from territories that are not germane to traditional forms of representation within the discipline. Among them, nano-technology, geographic information systems, biology, computation, and material sciences are just a few disciplines that have offered systems of both generation, representation and analysis that have not only expanded the lens through which we see architecture, but are also expanding the discipline as an epistemology. In part, the scale of architecture begins with the micro-section of a wall, but also expands beyond the urban territory to the scale of the cosmos, and if that sounds like an exaggeration, then it may be no secret that, for instance the insular qualities of a mere wall and the effects of global warming might be part of the same equation; however, unlike ever before, we do have ways of connecting phenomena across scales, to see them side by side and to imagine consequentiality across disciplines. **The**

challenge then, in great part, is how to internalize techniques, methodologies of inquiry and modes of speculation such that they have the power to serve as potent reminders that the medium of architecture is dynamic and with the malleable ability to absorb many new forms of projection, to see things from other perspectives. More importantly, if we are able to see how

specification, making, and an engagement with material agency have served as important speculative tools as a central part of expanding new forms of knowledge, then we can also see how the expansion of that terrain through the incorporation of new disciplinary tools may yet radicalize our redefinition of the architect.



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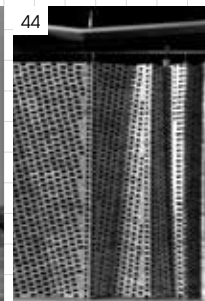
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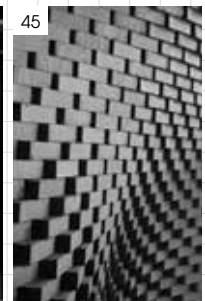
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