

**PLAT 8.0** *Simplicity*

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# Contents

<i>Janet Ni</i>	<b>0</b>	Janet in Mexico	On Off-squares	<b>178</b>	<i>Ajay Manthripragada</i>
<i>Jack Murphy &amp; Tiffany Xu</i>	<b>10</b>	What We Talk About When We Talk About <i>Simplicity</i>	Is Minimalism Simple?	<b>182</b>	<i>Kyle Chayka</i>
<i>Wonne Ickx/PRODUCTORA</i>	<b>12</b>	In Conversation	Designing for Breakfast: Eileen Gray's E1027 Table and the Architecture of the Domestic	<b>186</b>	<i>Emma MacDonald</i>
<i>Nicholas Elliott</i>	<b>20</b>	The Building Speaks: The Architecture of Arno Brandlhuber	Polyvalent Play	<b>192</b>	<i>Tithi Sanyal</i>
<i>Carla Juaçaba &amp; Fernanda Carlovich</i>	<b>28</b>	The Imminence of an Event: In Conversation	Simplicity is Dead	<b>204</b>	<i>Davis Richardson</i>
<i>Luigiemanuele Amabile</i>	<b>34</b>	A Body and a Soul: A Generation of Architects and the Construction of Modern Milan	The Neoliberal Simplification of Architecture	<b>210</b>	<i>Mario Matamoros</i>
<i>Lauren Dean &amp; Daniel Lazo</i>	<b>44</b>	Economical & Elegant	An Urbanism of Crisis is Doomed to Repeat Itself: In Conversation	<b>220</b>	<i>Albert Pope</i>
<i>Frida Escobedo &amp; Jesús Vassallo</i>	<b>54</b>	In Conversation	In Conversation	<b>232</b>	<i>Mary McLeod</i>
<i>Jimmy Carter</i>	<b>64</b>	Double Trouble	Trials and Virtues: The Armstrong Rubber Company Headquarters	<b>244</b>	<i>Monica Hutton</i>
<i>Liz Gálvez</i>	<b>68</b>	Spec-ulative Specification Or: Reimagining the Architectural Instruction	A Simple Gesture, or the Mathematics of the Ideal Line	<b>254</b>	<i>Galo Canizares</i>
<i>Davies Toews</i>	<b>76</b>	Sheetrock, Notes 1–20	Plasticity and Influence in 1950s Brazilian Art and Architecture	<b>260</b>	<i>Leticia Wouk Almino</i>
<i>Yasmin Vobis &amp; Aaron Forrest/ Ultramoderne</i>	<b>88</b>	Post Typical	In Conversation	<b>270</b>	<i>Thomas Daniell</i>
<i>Fala Atelier</i>	<b>102</b>	Notes Towards the Definition of Naïveté...	My Neighbor the Hoarder	<b>280</b>	<i>Dylan Krueger</i>
<i>Anne Lacaton &amp; Jean Philippe Vassal</i>	<b>112</b>	<i>Il fera beau demain</i>	Architecture Revisits the Nude	<b>284</b>	<i>James Amicone</i>
<i>John Capen Brough</i>	<b>150</b>	Green and Blue and White All Over	A Deeper Style: From Mattes to Mashups	<b>292</b>	<i>Suzanne Lettieri</i>
<i>Chris Norton Riley</i>	<b>158</b>	Two Kinds of Economy: On the Recent Monographs of OFFICE & Valerio Olgiati	Everything that Rises: Balloonfest '86	<b>304</b>	<i>David Nunes Solomon</i>
<i>APRDELESP</i>	<b>164</b>	Four Principles For an Architecture of <i>Do Easy</i>	Anything But	<b>310</b>	<i>Sarah Whiting</i>
<i>Amelyn Ng</i>	<b>170</b>	Unnatural Ease: Revit Interface in Three Acts	Colophon	<b>312</b>	
			Andy in Mexico	<b>314</b>	<i>Anderson Todd</i>

## Economical & Elegant

Lauren Dean & Daniel Lazo

Recently the work of Chilean architects has received international attention and recognition. Alejandro Aravena's 2016 Pritzker Prize and his direction of the 15th Venice Biennale that same year may be the most recent examples, but in the past dozen years, prizes to Chilean architects have included the 2014 Mies Crown Hall Americas Prize for Emerging Architecture (Pezo von Ellrichausen), the Silver Lion for the Chilean Pavilion at the 2014 Venice Biennale (Pedro Alonso and Hugo Palmarola), the 2014 Serpentine Pavilion commission (Smiljan Radic), and the 2007 and 2009 *Architectural Record* Emerging Architects Award (FAR: Frohn & Rojas and Alberto Mozó Studio, respectively).

Many works of contemporary Chilean architecture have been described as "austere," a characterization of the formal minimalism, environmental exposure, and raw materiality of a set of buildings by various architects currently practicing in the country. In this case, the aesthetics of austerity have little to do with current economic recessions or design trends. Instead, in this context, it arises from Chile's history. It could be assumed that limited construction resources result in mediocre buildings that are not interesting within a global context, but, as this article will demonstrate, it is precisely adaptations *within* this economy of means that have given Chilean architects a competitive edge. While countries with limited resources are often expected to rely on ideas of simplicity when it comes to architecture—principally, that a building should be economical—in Chile, this expectation has resulted in a design aesthetic that also captures a second idea of simplicity—that a building can be elegant.

### Limited Resources: History and Geography

While economists currently classify Chile as a high-income country, this was not the case until recently. Chile joined the Organization for Economic Cooperation and Development in 2010 with an economy that was growing at 5% annually for the past two decades.<sup>1</sup> Housing and infrastructure ventures have increased with the country's rapid development.

<sup>1</sup> "Chile signs up as first OECD member in South America," Organization for Economic Co-operation and Development, January 11, 2010, <http://www.oecd.org/chile/chilesignsupasfirstoecd-memberinsouthamerica.htm>.

For the last three years, nationwide spending for private and public projects combined remained around \$26 billion USD.<sup>2</sup> However, funding for individual works often remains humble. According to 2017 building permit data, the average cost per square foot for housing construction was \$74 USD, including private houses and multi-unit buildings.<sup>3</sup>

For Chilean architects, modest funding for new buildings is met with limited resources in other areas. There are shortages of both building materials and skilled workers in the country. In addition, architects themselves rarely specialize in type or phase of building and typically carry out all parts of a project without hiring a consultant with concentrated knowledge in a particular aspect of construction—facades or lighting, for example. There are a few reasons for these shortages: historically low-quality, expensive, or otherwise inaccessible education and training, limited local manufacturing, and a small market geographically distant from other economically well-off countries.

First, historically low-quality or expensive education and training results in shortages of both skilled construction workers and specialized architects. In both cases, even when people are trained in a field, modest construction funding means they may not specialize but instead need to do whatever is required to carry out a job. For architects, this need to execute all tasks on a jobsite is both a cause and consequence of having few specialized professionals available. The shortage of skilled laborers is related to policies established under Chile's right-wing dictatorship (1973–1990) for how workers receive training. Following this precedent, it is the responsibility of employers to procure vocational training for employees (rather than a provision enforced by trade unions, for example). While tax credits and other benefits exist for this arrangement, formal training is usually limited to employees considered to be a good investment such as those who already have skills or education.<sup>4</sup> There are no programs for laborers to learn specialized trades before beginning work.<sup>5</sup> Construction workers, including foremen and other construction managers, are often trained on the jobsite.

Second, limited local manufacturing and relative isolation from other economically well-off countries have resulted in restricted availability of heavy machinery, building materials, and equipment in Chile. According to the United States Department of Commerce, "Chile manufactures very limited and basic types of construction equipment, mostly for use in the mining sector," and the majority of equipment is imported.<sup>6</sup> In addition, most products come from outside the region, particularly the US, but also from China, Germany, and Japan. This contributes to both high costs and long lead times. Given the

<sup>2</sup> "Inversión en Construcción," *Camara Chilena de la Construcción*, accessed January 9, 2019, <http://www.cchc.cl/>.

<sup>3</sup> Ibid. Conversions to square feet and USD calculated by the authors.

<sup>4</sup> Kirsten Schnbruch, *The Chilean Labor Market: A Key to Understanding Latin American Labor Markets* (New York, NY: Palgrave Macmillan, 2006), chapter 7.

<sup>5</sup> Recent formal training programs set up by the Chilean Chamber of Construction offer certification to laborers who are already working. See: <https://escuelacchc.cl/quienes-somos>.

<sup>6</sup> US Dept. of Commerce, last modified October 24, 2018, <https://www.export.gov/article?id=Chile-Construction>.

## PLAT 8.0

costs of importation, many materials are ordered on demand, but the wait for these materials can render them unavailable because construction must proceed to meet deadlines.

Finally, when repeated through time, these factors have affected how architects do business. In response to unskilled workers, foremen, and other site managers, architects have adapted by producing drawings that anyone can read. Product unavailability has contributed to the practice of architects designing simple details that require fewer parts, or repurposing technical solutions across building types. Product scarcity also results in situations where it is more feasible to modify and use what is currently available than to wait for a product to arrive, which often occur in impromptu manners during the course of a project. Modestly funded projects mean that architects make parts play multiple functional roles and leave assemblies exposed in order to lower costs. These adaptations have become processes that can be taught within the local context of architecture; as a result they are not as ad hoc as they may seem.

Below, top: Figure 1, Casa Un Patio, Polidura + Talhouk Arquitectos, 2012. © Polidura + Talhouk Arquitectos.

Below, bottom: Figure 2, Iron Mountain, Polidura + Talhouk Arquitectos, 2011. © Aryeh Kornfeld.



### Simplified Processes

In line with the factors previously outlined, three architectural processes of simplification are utilized by Chilean architects to realize their work: variation, detailing, and drawing.

*Simplified variation* is the process of creatively repurposing technology, meaning that technical solutions standardized for one building type are applied to another. Two works from Polidura + Talhouk are examples of this strategy: Casa Un Patio (Figure 1), a house, and Iron Mountain (Figure 2), a dining hall for workers at a data management company. In both buildings, the architects use a truss to create similar outcomes for different programs. The repeating element allows the structures to achieve a column-free first floor, which in the house serves as patio and living space and in the dining hall works as a multi-purpose room. The same solution is applied at different scales and in different ways to achieve variation.

*Simplified detailing* is another process that emerges from limited resources. A construction detail typically explains how a series of elements come together. In the purposeful work of many Chilean architects, there are few elements to join and therefore few details. In addition, architects customize parts on the jobsite to create these details. One example of this can be seen in the Zupe House (2017) in Santiago by Iván Bravo and Bruno Gilberto. The windows of the house appear frameless. However, given the unavailability of frameless win-



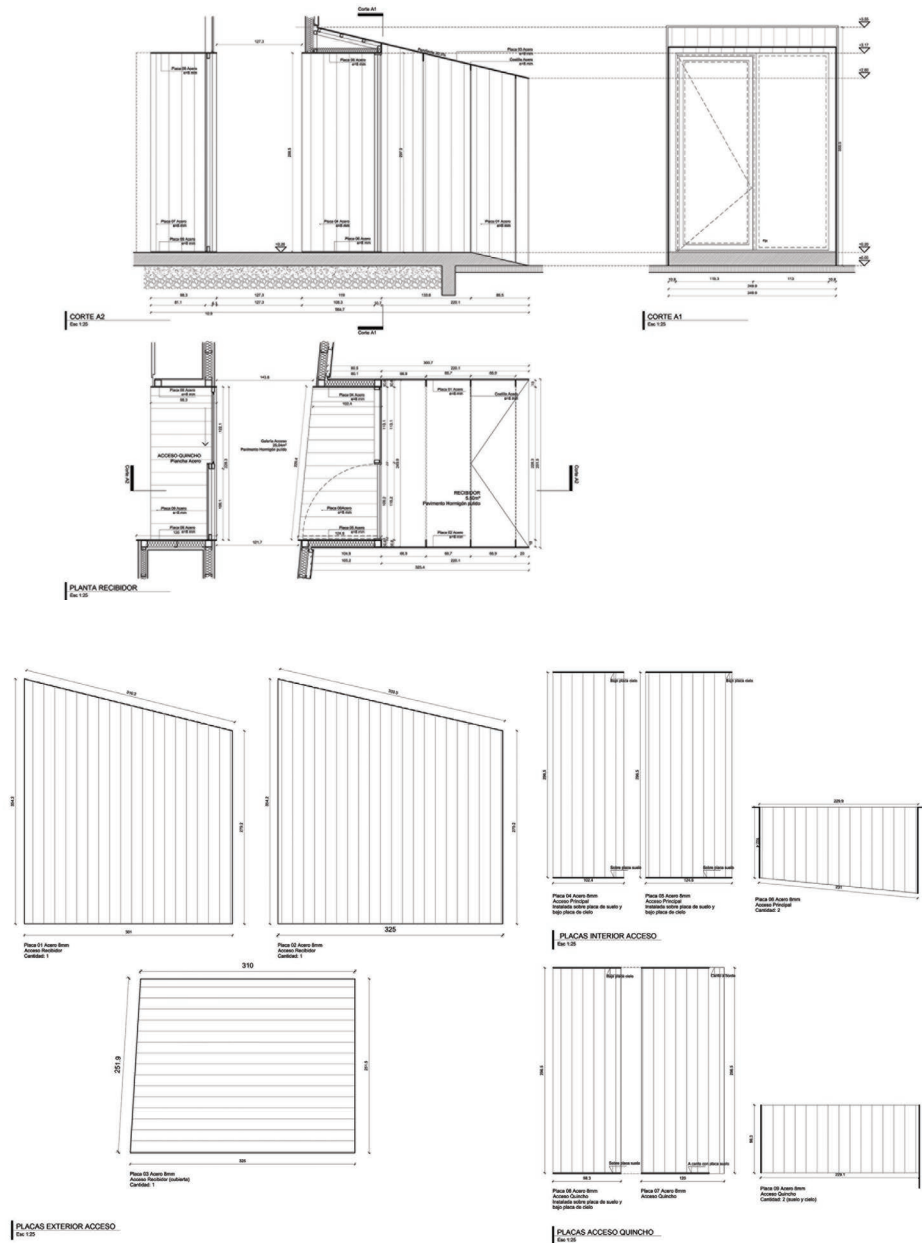
dow systems and specialists to design and manufacture them, the architects achieved this look in two separate ways. In some cases, the plate glass is glued to small metal angle profiles attached to the outer structure, creating a literally frameless window (Figure 3). In cases where the windows slide open, the glazing was framed but the house's cladding was elongated slightly to cover the frame, creating a frameless look from both the inside and outside (Figure 4).

Finally, *simplified drawing* allows accurate communication to anyone, including workers unfamiliar with the typical representational language of construction drawings. One example of this is a drawing by Daniel Lazo, one of this essay's authors, of a steel-plated access porch from Studio Cáceres Lazo's GZ House (2014), located just outside Santiago. While providing traditional architectural drawings (plan, section, and elevation), the architects delivered another set of drawings, breaking the porch down into its different pieces, like paper cutouts, for ease of communication (Figures 5 & 6, respectively). In Chile, drawings remain the main communication tool between architects and builders, as Building Information Modeling (BIM) technology is not widely implemented for projects with average budgets. While these types of drawings are a typical component of contemporary Chilean architectural processes, *simplified detailing* as defined above facilitates this uncomplicated mode of communication. Since both aspects of visual representation and construction assembly are reduced in complexity, the movement between designing, drawing, and building is more direct and efficient.



Above, top: Figure 3, Zupe House, 2017. © Iván Bravo.

Above, bottom: Figure 4, Zupe House, 2017. © Iván Bravo.



Above, top: Figure 5, Traditional architectural drawings, GZ House, Daniel Lazo, 2015. © Daniel Lazo.

Above, bottom: Figure 6, "Fabrication Templates," GZ House, Daniel Lazo, 2015. © Daniel Lazo.

### Economical Design Solutions

The last aspect of the philosophy under consideration is that parts play multiple functional roles in a building and may be left exposed, as covering them would require additional resources. This point is important because it marks the convergence of the idea that simplicity can be both economical and elegant with regard to overall visual appearance of a building. This tactic is about going back to basics and the creative double use of materials.

The Faculty of Sciences Building (2012) at Universidad Austral in Valdivia, Chile, by Albert Tidy Arquitectos with associated architect Daniel Lazo is a useful example (Figure 7). The building, located on the university's Teja Island campus, reuses the fire-ravaged skeleton of the original sciences building. The project sits next to a botanical garden where the architects proposed a bridge to connect the garden to an interior public space. The bridge is composed of two steel trusses, connected horizontally by short steel beams, with a grated floor to allow a view of the garden below. It is wrapped in zinc-aluminum cladding usually used for roofing that is perforated to decrease wind resistance.

The bridge extends out from the interior plaza on the building's second floor, and thus required stairs to connect it to the ground-level garden. Because of its height, a column was needed to both bear the load of the bridge and provide seismic lateral resistance. These needs were met by using an angled pier that does multiple jobs at once: a concrete member was built at the same incline as the stairs, supporting the steps and holding up the bridge, while providing earthquake resistance. The column is exposed, but it disappears behind the stairs; it reads more like a central stringer than a major structural element.

The stair railing is made of industrial grates. Because they are self-supporting, they were welded directly to the steel stringer of the stairs without requiring any additional structure. The grating plate was expensive and the contractor's first reaction was to find an alternative. However, when budgeted, it came out cheaper than other solutions, given that it uses fewer components and is less work to install.

This example brings together various factors. The concrete column is an inventive solution that plays multiple functional roles. The placement of the column also conceals its existence behind the steps without any additional materials to conceal or clad it. The zinc-aluminum bridge panels exemplify the process of *simplified variation* outlined above, where a piece usually used for roofing is repurposed for cladding. It is also notable that the trusses used here are the same as in the example of Polidura + Talhouk's work, since these elements



Figure 7, Faculty of Sciences, Universidad Austral, Albert Tidy Arquitectos, 2012. © Pablo Casals-Aguirre.

are readily available for construction in Chile. Lastly, the stair railing is an example of *simplified detailing* in which the architects customized a part on the jobsite; in doing so, their design required few components and easy installation. While these solutions are prefaced on economy in the sense of cost, they end up being doubly economical in the sense of fabrication efficiency as well. This type of economy incorporates simplicity, as fewer people are involved—as compared to a system of task specialization—and fewer materials are used. This last point contributes to another kind of simplicity that is present in the buildings under consideration in this text: elegance.

### Elegant Buildings

We suggest that Chilean architecture has a particular aesthetic, but that this aesthetic did not arise from solely aesthetic concerns of appearance. Instead, it is the outcome of widespread processes in design and construction that are impacted by sociopolitical events, economic tences, and limited access to resources. These factors solidified over time to become a building culture. While these processes may have begun provisionally in response to historical conditions of resource scarcity, the normalizing of this scarcity has led to institutionalization of these processes. The circumstances have given rise to a methodology that is practiced and taught by contemporary architects in an effort to make the most of the resources available. One could describe the contemporary "Chilean School," as an architecture of simplified process that lead to elegant appearances, where economy of means does not lead to low-quality buildings. Instead, the outcome is a collection of architectural works united by their clean lines, minimal details, and visible technical solutions.

"Elegance" as a quality is deployed here in the scientific

ic sense of precision, neatness, and parsimony, not in terms of beauty. Elegance, in the sense of conciseness, has become an important quality in the evaluation of architecture generally, and this contributes in part to the recent recognition of Chilean architects. Christopher Hawthorne, former *Los Angeles Times* architecture critic and the city's current first Chief Design Officer, recently wrote in favor of boring architecture "that is spare, solid[,] and unhurried" as the latest aesthetic trend in the field.<sup>7</sup> He describes "Euclidean shapes dredged from the long memory of the field" and that the work "sometimes relies on modules or grids. It's often monochromatic. It's post-digital, which means it rejects the compulsion to push form-making to its absolute limits."<sup>8</sup> He goes on to say that such work "occasionally slips past the spare into the plain or the generic, and from there to the intentionally or ironically banal."<sup>9</sup> While this is a general statement, his comments align with architecture produced in Chile over the last two decades. Among the practitioners he cites to illustrate his point are the prolific Chilean-Argentinian duo Pezo von Ellrichshausen. In their essay "Naïve Intentions," they write about the "anonymous arbitrariness of the architectural project" as a means to release the practice of architecture from its assumed supreme authority over architectural production, similar to architect Peter Eisenman's longstanding interest in architectural autonomy.<sup>10</sup> This anonymous arbitrariness, they argue,

can reside in concrete conditions, among them: the expressionless emptiness, and neutrality of the proposed structure; repetition, serialization, and mechanization that erode the grandeur of the single gesture; the democratic regularity of radial or rectangular frames; that abstract form completely devoid of any reference, symbolism or quote; simple general layouts, straightforward and unpretentious; the use of basic, common, and discreet architectural elements; or the placement of small emphasis, unjustified details, or singular additions and detours.<sup>11</sup>

Their argument, while certainly theorizing their own architectural productions, also describes the aesthetic methods present in most of the well-known work of other Chilean architects.

The buildings of Smiljan Radic are another strong example of the contemporary Chilean aesthetic and this methodology. One theme that repeats in his work is the idea of a basic shelter, with regular allusions to a circus tent. This is accomplished in various ways. The tent appears in fabric form in the residence Casa del Fin del Mundo (1996), topping a single-room wooden cabin among the trees on the island of Chiloé. It also appears in the performance and art space

7 Christopher Hawthorne, "Boring Architecture? Yes, Please," *Los Angeles Times*, November 16, 2017, <https://www.latimes.com/entertainment/arts/la-ca-cm-building-type-boring-buildings-20171119-htmlstory.html>.

8 Ibid.

9 Ibid.

10 Mauricio Pezo and Sofia von Ellrichshausen, "Intención Ingenua," in *Intención Ingenua* (Barcelona: Editorial Gustavo Gili, 2017), 23. Author translation.

11 Ibid.



Above, top: Figure 8, NAVE, Smiljan Radic, 2015. Photo courtesy Lauren Dean.

Above, bottom: Figure 9, Serpentine Pavilion, Smiljan Radic, 2014. Photo courtesy Lauren Dean.

Opposite: Figure 10, Bio Bio Regional Theater, Smiljan Radic, 2018. © John Miller.

12 Nicholas Korody, "Architecture at the limits of instability: an interview with Smiljan Radic," *Architect*, August 20, 2015, <https://architect.com/features/article/13465300/architecture-at-the-limits-of-instability-an-interview-with-smiljan-radi>. Radic discusses his working methods and issues of construction at length in this feature.

13 Fred A. Bernstein, "Bio Bio Regional Theater by Smiljan Radic," *Architectural Record*, April 5, 2018, <https://www.architecturalrecord.com/articles/13316-bio-bio-regional-theater-by-smiljan-radic?>

14 Ibid.

NAVE (2015), where a literal circus tent creates an upper floor on the roof of the building, a century-old urban palace in downtown Santiago (Figure 8). Of this project, Radic says: "It's really fragile, you have to throw it in the trash in five years because the material is not really strong, but [it only] costs about \$6,000. It's nothing and then you have four hundred square meters for \$6,000."<sup>12</sup> Previously, he exhibited an extreme version of the tent/cover concept in his Serpentine Pavilion (2014), a one-piece fiberglass shell with nothing underneath—the cover was the building (Figure 9). The tent is a conceptual strategy that requires few resources, can be repeated across building types using varying available materials, and is the most basic cover for a building. These themes that underlie Radic's work are found throughout contemporary Chilean architecture.

Radic's Bio Bio Regional Theater completed in 2018 in Concepción, Chile, shows the development of the Chilean aesthetic from processes that occurred within the context of limited resources to a methodology practiced or philosophy espoused even within a project of greater fiscal means (Figure 10). In this project, as with the Serpentine Pavilion, he utilized a fiberglass cover, noting that the material is not normally used for institutional buildings "because it seems impermanent, like a circus tent."<sup>13</sup>

There are a couple items of interest here. First, with a \$33 million budget—one that allows him to import the fiberglass, among other items, from abroad—he still relies on the idea of the circus tent, the basic cover, from earlier buildings. Second, the building has examples of both simplified variation and detailing. In the former, he repurposes a material not normally used for this building type, although he has the resources to choose appropriate materials. The latter technique can be seen in the interior of the space, with its exposed concrete columns and an unadorned structure that almost looks unfinished. Radic is a well-known architect in Chile and even with the resources to design a highly detailed project, he deploys a philosophy of basics and a methodology of economical simplicity to arrive to a building that is simple-looking and, therefore, elegant. It is easy to visually understand the mechanistic processes of the building's construction. When asked about his next buildings, Radic remarked, "I don't think they have to be the same and the same and the same."<sup>14</sup> And he is right, in a sense, as his buildings do not follow a consistent look. It is fair to say that Radic's buildings don't follow a consistent style but rather a consistent method, one that will likely be applied to future works, unconsciously or with intention, and probably with similar elegant results.



### Towards Economic Elegance

After the global economic crisis in 2008, architectural trends moved away from the excess of the prior decades and towards simplicity, in all its definitions. Chilean architects were already building in this way, leading to timely international appreciation of their work. A recent feature in the *New York Times Style Magazine* noted that Chilean architecture, specifically the houses, "share[s] an impulse for simplicity and transparency, for rigorous patterns and radical reduction."<sup>15</sup> The examples shown here showcase the practices and processes hidden beneath these "impulses"—methods that are likely to remain in use even as the Chilean economy keeps growing. Through devices of simplicity, Chilean architecture has moved beyond an aesthetic of mere economy to achieve an aesthetic of economic elegance.

15 Michael Snyder, "In Chile, Homes as Extreme as the Landscape Itself," *New York Times Style Magazine*, March 19, 2019, <https://www.nytimes.com/2019/03/19/t-magazine/chile-architecture.html>.

# PLAT 8.0 *Simplicity*

PLAT is an independent architecture journal produced by students at Rice Architecture. Its purpose is to stimulate relationships between design, production, and theory. It operates in a call-and-response format by curating architectural work into an open and evolving dialogue that varies from issue to issue. PLAT is a speculative catalyst for architectural discourse, a student-run platform on which the important issues in architecture today can be addressed and advanced.

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