

Nuova serie / New series n. 10 - 2023

# ARCHALP

Rivista internazionale di architettura e paesaggio alpino / Revue internationale d'architecture et de paysage dans les Alpes / Internationale Zeitschrift für Alpine Architektur und Landschaft / Revija za alpsko arhitekturo in pokrajino / International journal of alpine architecture and landscape

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## Le altre montagne

Les autres montagnes / Die anderen Berge  
/ Druge gore / The other mountains



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## 2. PAESAGGI







# Chilean mountain architecture

In Chile, the word mountain requires further disambiguation, otherwise it will not define a specific landscape or climate condition. Unlike other mountainous conglomerates, climatically it is as highly diverse as it can be expected when covering such different latitudes.

With the arrival of mountain sports in the first decades of the last century, a number of first Refugios were explored in several valleys primarily in central Chile, where altitude, precipitation, temperature and population density overlapped with the will and power of the first pioneers, many of them carrying their own dreams and knowledge from Europe.

These settlements, together with a handful of new villages further south, constitute the bulk of study, to which we at DRAA (Del Rio Arquitectos Asociados) have been mostly invited, aiming to provide a sensible approach to the changing needs of the mountain in a diverse array of topographic and climatic situations, such as those described.

Mountain design has influenced the way we have understood architecture, regardless of context; the limited use of space, energy efficiency and context pertinence have been key issues to address. At present, with the Farellones Mountain Museum and other museums, housing and refuge projects underway, we aim to convey our view of architecture.

## **Nicolas Del Rio**

Growing up in the Andes foothills, he combined his passion for mountain building with vernacular experiences in Farellones where his grandfather built his Tyrolean chalet, and several seasons in Kitzbühel in the Alps at his family's refuge. He leads the award-winning DRAA practice based in Patagonia and Santiago and collaborates with MAG design in Europe. He is a professor at USS Patagonia and lectures at several other Universities.

## **Keywords**

*Contemporary architecture, mountain architecture, Chile, Andes.*

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**Opening picture**

La Dacha Mountain Refuge, Las Trancas, Architects Nicolas del Rio and Felipe Camus (photo Felipe Camus).

**Fig. 1**

View of the Farellones ski area.

**Context**

With an average height of 1,840 metres, Chile ranks 8th among the highest countries in the world, with a mountain coverage of nearly 64% of its territory. By and large, the Chilean Andes are a vast, empty, jagged, heterogeneous territory about 6,000 km long, forming the southern stretch of the longest mountain ridge on the planet.

In Chile, the word mountain requires further disambiguation, otherwise it will not define a specific landscape or climate condition. Unlike other mountainous conglomerates, climatically it is as highly diverse as it can be expected when covering such different latitudes. Generally speaking, the southern it runs, the lower and wetter it gets, effectively “sinking” to about 42° South, leaving only the highest part and peaks protrude above water level, whereas the valleys become fjords that continue to descend southwards until they disappear in the last islands south of Tierra del Fuego.

Technically, mountain architecture in Chile can be realised on a dry 4,000-meter-high plateau in northern Chile, on a steep, snow-covered, treeless rocky corner in the central Andes, on lush wooded hills towered by snow-capped volcanoes in the lake district, on a rain battered island in Patagonia, or on a sandy Mediterranean balcony overlooking the Pacific.

Historically, human developments in the Andes have been scarce, as pre-Hispanic cultures favoured settlements in the fertile valleys over the sloping mountain sides; only a few Pucarás (fortress) belonging to the southern stretch of the Inca Empire are found in northern Chile.

Other settlements are related to mining explorations with remarkable examples such as the village of Sewell, an Andes Fitzcarraldo, which aimed to provide full accommodation and support for miners and their families in steeply sloping conditions, including schools, offices and a football pitch. North American technology brought prefab timber balloon frame systems to be applied in several topographic situations, in contrast to early architecture attempts that relied on the stones available on site.

With the arrival of mountain sports in the first decades of the last century, a number of first *Refugios* were explored in several valleys primarily in central Chile, where altitude, precipitation, temperature and population density overlapped with the will and power of the first pioneers, many of them carrying their own dreams and knowledge from Europe.

One example is Farellones, about 40 km east and 2,000 metres above the capital Santiago, an interesting case study with several waves of architecture attempts over nearly a century.

Farellones has both benefited and suffered from its proximity to a large city, being close enough to have raised interest of mountain lovers in the weekends, yet too close, making overnight sleepovers optional since most people return to the city for a more comfortable and airy rest.

Nevertheless, perhaps due to the stark contrast with the Mediterranean climate of the valleys, at least 3 mountain villages have sprouted in the last decades: La Parva, Valle Nevado and El Colorado, the latter an extension of the original and lower (now dryer) Farellones.

These settlements, together with a handful of new villages further south, constitute the bulk of study, to which we at DRAA have been mostly invited, aiming to provide a sensible approach to the changing needs of the mountain in a diverse array of topographic and climatic situations, such as those described.

### Vernacular and Contemporary

As a start and due to family reasons, our firm initiated its first commission in Farellones some 20 years ago. First the renovation of a 50-year-old Tyrolean chalet, which provided groundwork for an interesting approach to the more technical aspects of mountain architecture. One of the visible struggles in Farellones was the desire to replicate mountain styles without having the same supplies or climate. Whilst flagstone was abundant, wood was non-existent in the treeless heights of Farellones (literally stone cliffs). Stone therefore became the primary source, and although it was possible to ship timber, it was clear that air dryness would strain the fibre, causing big log cabins to collapse and split. Due to the relatively high latitude of 34°S, the sun is also hazardous for some structures, especially during the long, dry summer months. The weather is either sunny or snowy; rain only rarely occurs, making steep roofs unnecessary. Builders learned that flat roofs did not leak and a permanent snowpack on top provided extra insulation in times where it was scarce, if any at all. Other interesting vernacular lessons, such as the addition of the *chiflonera*, an “air-lock room” designed to passively minimize temperature loss whilst challenging the traditional use and shape of house entrances. Ventilated ladders protruding from the south (shaded) façades replaced refrigerators, keeping the ideal temperature all year round.

**Figs. 2-3**  
Skibox, Portillo,  
Architects Nicolas  
del Rio and Max  
Nuñez.



Our Los Canteros Refuge was a young and literal contemporary response to these findings, where we aimed to provide a new standard for the very same needs. For this reason, the *chiflonera* is violently detached from its adjacent floorplan position, and is now placed on top where it also becomes a beacon for the entrance. The stone cladding expressively manifests its non-structural function with perpendicular patterns added to the façade.

We adopted a similar approach for The Skibox in Portillo, a resort with a cruise-like feeling stemming from its shape and solitude, standing alone in the Andes as the only viable option for skiing on the slopes at the foot of the Mt. Aconcagua, the highest in the Himalayas. We proposed a three material-layered structure, with local stone at the base to absorb





snowdrifts, a gap of strip transparency in the middle to illuminate the interior, and contemporary steel plates left exposed. As can be seen onsite, the base of the pole on which the flags of the 1966 FIS Alpine World Championships had been installed was well preserved from the elements, with just a thin layer of rust due to air dryness and non-saline components, a colour and sturdiness we wanted to emulate. The same concept was applied to two partially underground chalets on the ski slopes, to which we re-

sponded with a single façade exposed to the sun and the lake view.

Among the architectural styles of Farellones, the A-frames became quite popular for peculiar reasons. In itself, efficient and structural prefabricated system had a big impact on 1960s houses, when the hard labor and questionable results of stone projects seemed less attractive and more expensive. The easiness and lofty interiors proved quite successful for A-frames, even though this kind of roof

5



**Fig. 4**

Los Canteros Mountain Refuge, Farellones, Architects Nicolas del Rio and Max Nuñez (photo Felipe Camus).

**Fig. 5**

La Leonera Mountain Refuge, Farellones, Architects Nicolas del Rio and Felipe Camus (photo Felipe Camus).

has no direct use in the snow-prone central Andes. We were faced with such a commission and our response was La Leonera refuge, our first building with deeply inclined roofs.

The proposal incorporates a number of vernacular features as in the previous projects, but we found fertile ground for the positioning of the prism, for which we propose some detachment from the ground floor. The A-frame thus appears as a secondary object, a slimmer version that finds greater expression in Carlo Mollino's Casa Capriata, with a single pillar supporting the entire structure, yet opening the discussion to a full grasp of an A shaped house. The refuge assumes different shapes whether you see it from the front or from the back, where the ground floor is actually underground, and the prism stands alone.

#### **A different snow**

After a number of projects in the central Andes, where altitude is mandatory for snow, we were com-

missioned a new series of work further south, where the colder latitude compensates for the lower altitude, bringing a new landscape where woodland plays a big part, snow can fall in greater quantities, but rain is also present.

The Shangri La Refuge is a 45 m<sup>2</sup> cabin in Las Trancas located amidst a high native forest of Lenga, a local tree from Patagonia, in the extreme South of Chile, but also found specifically in this much closer valley. Here a delicate soil mixed with volcanic remains and the search for light inspired a spiral design, in which the owners, a couple of climbers, found their place and encouraged the pursue for verticality. The cabin is elevated 3 metres above the ground to ensure plenty of light underneath, whilst preventing the refuge from being covered by snow. A complete enclosed SIP 212 mm system provides insulation, and as many other parts made by the owners themselves, the pine cladding was partially burned onsite, mimicking





**Fig. 6**  
Shangri-La Cabin,  
Las Trancas,  
Architects Nicolas  
del Rio, Felipe  
Camus and  
Magdalena Besomi  
(photo Felipe  
Camus).

**Figs. 7-8**  
La Dacha Mountain  
Refuge, Las Trancas,  
Architects Nicolas  
del Rio and Felipe  
Camus (photos  
Felipe Camus).





**Figs. 9-10**  
Venado Cabin,  
Frutillar, Architect  
Nicolas del Rio  
(photos Felipe  
Camus).

**Fig. 11**  
Wedge Refuge,  
Pucon, Architects  
Nicolas del Rio and  
Felipe Camus.

the old Japanese *yakisugi* tradition of protecting wood with charcoal.

In the same woodland, La Dacha Mountain Refuge is a thin building organized around solar path and heat conservation. The house brief called for a sustainable approach without leaving thermal comfort behind; thus, a passive design scheme was chosen. With fossil fuels out of the picture, a bespoke masonry stove was designed to produce and maintain heat in the ground floor thermal mass, which was fundamental for the layout priorities. A highly insulated fabric completed the requirements, combined with sun-seeking windows that matched the volcano views. The slim V shaped floorplan blends carefully into the forest and volcanic remains, with minimal impact on the site.

The Wedge Refuge is located in a National Park near the Villarrica Volcano, an area prone to summer fires, being lower in altitude. The owners commissioned a place where they could move in and work whilst feeling protected from potential heat waves and which could resist to winter snow. Par-

ticularly, we highlighted the contained patio, a reference to Aalto's Muuratsalo experimental house, as a private part of wood amidst the vast extension where it is located. The inclined slope alters the profile of the house, resulting in a sensible stone-clad building, with tongue-and-groove wood interior cladding for warmth and insulation.

On a very similar scale but with a different approach, the Venado Cabin in Frutillar allowed us to investigate reclaimed wood and complete out of the grid strategies. This refuge, with views of the Llanquihue Lake and Lake district volcanoes, responds to a very different design approach: designing with pre-existing pieces that must be put together as if a puzzle could find a different shape from its original cut-out. Mountain design has influenced the way we have understood architecture, regardless of context; the limited use of space, energy efficiency and context pertinence have been key issues to address. At present, with the Farellones Mountain Museum and other museums, housing and refuge projects underway, we aim to convey our view of architecture. ■

