

WOOD MADE

STORIES

ISSUE 2

MAY 2020

SONAE ARAUCO WORLD STORIES



CHANGE AND FUTURE

How we are transforming talent management, customer experience, logistics and connectivity within our plants

RAW MATERIAL AND INSPIRATION

Wood as the foundation for a sustainable value chain, based on the circular bioeconomy

ALEJANDRO ARAVENA

The Chilean architect and winner of the Pritzker Prize talks about the role of architecture in responding to major global challenges

TRENDS

Using tradition to reinvent the future

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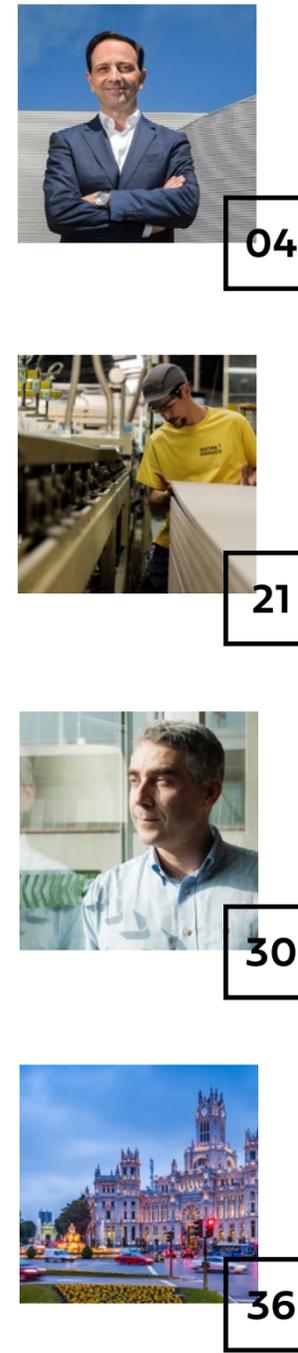
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Table of contents



04
Editorial
Sostenibilidad en la estrategia de Sonae Arauco

Refresh

06
Overview
Year in review: what we have done and where we have invested

10
Featured Photography
Reforestation initiative in Oliveira do Hospital, Portugal

12
Interview
Wood as a raw material, inspiration and future

Wood Made Stories

21
In-depth Report
Change as the seed of the future

30
Profile
José António Rocha
More than just a boss

36
Destination
Madrid: a trip to the largest city in Spain

Future Made

40
Guest
Alejandro Aravena
Architecture and major global challenges

49
Trends
Using tradition to reinvent the future

Editorial

Sustainability in Sonae Arauco's strategy: reinforcing our commitment to the future

Rui Correia,
CEO Sonae Arauco

Our brand, Sonae Arauco, is celebrating its third anniversary and this magazine is dedicated to each and every one of our people. All of you were crucial for the development of our company and this magazine is both a way to celebrate the date and give stage to the work that has been done for over 365 – challenging – days. It is also a way to thank you for the energy, effort and contribution. The level of commitment, professionalism and ethics delivered is clearly aligned with our Company's values. Thank you all.

Our Wood Made Stories magazine aims, as well, to make us think. Sonae Arauco is one of the world's largest producers of wood solutions, a truly sustainable raw material - a reality that all of us must acknowledge and leverage. This is the inspiration behind the theme of the magazine: the Future.

In 2017, Sonae Arauco defined a new business strategy with the goal of positioning itself as the company of choice - the first choice - for customers, employees and suppliers, as well as for all entities with whom we interact.

This strategy was based on three fundamental pillars: the first was focused on the development of differentiating decorative solutions with added value, which would allow us to be seen as much more than just a panel supplier; the second was the strengthening of partnerships with our industrial customers; and the third the focus on our construction system. These pillars were supported by a greater use of wood as a renewable, reusable and recyclable material - capable of being continuously incorporated into the industrial process - and which stores CO₂.

At that time, we had chosen our goal to be a global reference in a context of greater demand for sustainable solutions, in which wood was (and still is) a great alternative to other materials.

In three years, environmental concerns have grown - in the eyes of citizens, governments and companies - and have given way to a collective awareness of climate emergence. Consequently, our role must also evolve. We want to be more active and relevant in this global challenge and more than being agents of change, we want to lead it.

Until now, Sustainability was implicit in our Vision: to create wood-based solutions for a better life, a better future and a better planet. From now on, it integrates our strategy explicitly. This will be reflected in the way we show the market the contribution of our

05



Photography: Pedro Granadeiro

“Changing mindsets and collective behaviours is one of the biggest challenges faced by the society and this is the path we want to take”

activity to fight climate change, increasing the visibility of our solutions and products. Additionally, it will be portrayed by how we will strengthen our role as ambassadors of our raw material, a fundamental step in our response towards the challenges that our planet is facing. As a company, we are convinced of the value of wood in people's lives and that it is also up to us to drive the paradigm shift.

We will also adjust the second axis of the strategy to make it broader, focusing on the value of long-term partnerships with

all our *stakeholders*. We need everyone to progressively embark on this journey. We want to strengthen our relationships with partners who believe in what we do and who will work side by side with us. Changing *mindsets* and collective behaviours is one of the biggest challenges faced by the society and this is the path we want to take with the right partners.

We will continue to optimize our industrial processes - also taking advantage of our know-how in terms of industry 4.0 -, increasing our units' production capacity

and improving our products' distribution model. We believe in continuous improvement. We want to improve the quality of our products and our service to customers and simplify our processes. We will continue to invest in our people and keep a clear commitment to their safety – always our first priority.

Together, we will take Sonae Arauco - and the world - further. After all, it is for the future that we work every day.

Refresh

Overview

WHAT WE HAVE DONE

A new and surprising Innovus collection

The launch of the new Innovus collection is the result of a major investment in Research & Development and represents an important step in upholding Sonae Arauco's position as one of the world's leading companies of wood solutions for furniture and interior design.

40%

Renewal rate of decorative products

200

Decoratives

260

Combinations with different finishes, including the new Stucco, Cosmos, Flow, Fusion and Spirit

54

Presentations of the collection at fairs and other events

"Portugal Calls. For you. For everyone." Initiative

Through the Sonae Arauco, Sonae MC and Worten brands, in 2019, the Sonae Group joined the Portuguese Government's initiative to warn against risk behaviours, which are the cause of 60% of forest fires.

16 588

Employees participated in the campaign

2,8M

Direct customers impacted by the campaign (in stores and group representatives)

1 674 673

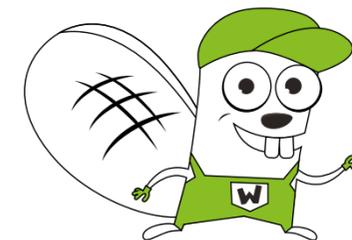
Interactions registered on social networks

Ariba

A new integrated management model

SAP Ariba is a cloud solution based on a modern digital platform, which will allow us to manage all of our procurement processes in one place and in accordance with the company's procurement policy. Having started in Sonae Arauco in February 2019, it will include all product categories, except for wood and logistical processes. The Ariba strategic supply modules, Sourcing and Contracts, have been available since October. This innovative technological tool will make it possible to:

1. Automate the company's maintenance and supply chain management processes;
2. Reinforce the activities of procurement professionals through the strategic use of data and integration of purchasing processes in the business;
3. Create a solid information database on our suppliers' transaction history;
4. Establish a collaborative environment where buyers and sellers can find more business opportunities that benefit them.



Woody, Sonae Arauco's Ambassador for Environmental Education

In Portugal, we launched a pilot project for the company's Environmental Education Program, designed to raise awareness amongst children in the primary cycle (6 to 10 years) towards the importance of sustainable forest management and the use of natural wood as a 100% recyclable alternative. To make this happen, we rely on the help of Woody, this friendly beaver.

Training as a pillar of development

We have positioned ourselves as a reference in the training field with the Sonae Arauco Knowledge Academy (SAKA), which we created to identify, compile and standardise our company's knowledge. The launch of SAKA in November 2019 was the culmination of work that spanned a year and a half.



In numbers

The training modules and manuals, available in diverse fields, allow this knowledge to be shared and promoted through innovative and digital learning methods in order to:

- Increase the level of specialization of employees to prepare teams for new market demands;
- Create a forward-looking knowledge center that integrates the teachings and experience of the company's oldest employees.

Years of preparation	2
Employees involved in the production of the manuals and training modules	140
Manuals created	7
Teaching modules	11
Training hours	9 010

AGILE Works

Over the course of 2019, 35 employees worked in projects from different fields under the AGILE mindset.

Be AGILE. But what does that mean?

- | | |
|--|--|
| <p>1. Deliver value more quickly to the customer and do not wait for perfection</p> <p>FASTER TIME TO MARKET</p> | <p>2. Be flexible and accept changing requirements openly</p> <p>ADAPTATIVE TEAMS</p> |
| <p>3. Incorporate the customer into the project cycle and accept their feedback as new requirements</p> <p>FEEDBACK LOOPS</p> | <p>4. Focus on outcomes, not outputs</p> <p>CUSTOMER ORIENTED</p> |

AGILE Projects:

- **Customer Portal** with order status, real-time information, sample orders and notification system;
- **Connected Factory** - Information to the minute of melamine impregnation lines at the Oliveira do Hospital plant, integrating artificial intelligence models in some cases;
- **Access control at EuroResinas** (Health and Safety) - Platform for registering suppliers and e-learning in security, with access validation.

Social Media

With everyone's involvement, we are becoming increasingly connected

In 2019, we consolidated our presence on **LinkedIn**: we exceeded **9 thousand followers**. Amongst these followers there are **500 employees**, some of whom agreed to participate in our employer branding video project and shared their experience of working at Sonae Arauco: Michelle Quintão, Marketing Director, Octávio Correia, Internal Auditor, and Arman Fatunz, Plant Manager.

Other channels where you can find us:



Facebook

1 642 followers

Instagram

1 112 followers

YouTube

Creation of a video channel

Anniversary

30 years of the Mangualde industrial unit



All employees of the factory attended the celebration and the managers of each field made brief presentations. We would like to thank everyone who has taken part in this journey over the years.

Awards

Sonae Arauco, Best Digital Transformation Enterprise

Distinction awarded by the DES (Digital Enterprise Show) as part of the European Digital Mindset Awards, for Sonae Arauco's strategy in implementing its transition from the traditional business model to the digital one.

This award consolidates the strategy defined for the progressive and increasingly complete integration of digital transformation into the company's business model, which focuses on the connected factory, the customer experience and talent management within the company.

Improvement Awards

The Executive Commission of Sonae Arauco acknowledged and rewarded the teams that stood out for the improvements they have made during the year. The ceremony, organized by the IOW Team in Portugal, awarded the following categories:

Quality

Oliveira do Hospital:
MFC Difference of Tonality

Productivity

Beeskow:
MDF Steam Injection

Costs Savings

White River:
First-Off/Last-Off

Team Involvement

Linares:
5S at PBE

Service to Customer

Impaper:
Multipalettes

Innovation

Nettgau:
Woodyard Digitalization

Safety

EuroResinas: Digital Work Permit

We have joined FSC® International

In November, Sonae Arauco became a member of the *Forest Stewardship Council International*® (FSC®), taking another important step in its mission to create a sustainable forest value chain.

3DF: Intelligent and innovative material and design

3DF - three-dimensional fibreboard - is a thermoformable wood board that under the action of temperature and pressure can be shaped in endless formats, allowing deep structures and high radius capabilities on a very fast and productive way.

3DF is produced in our MDF factories and is the ideal option for those who want to implement complex designs with maximum flexibility and minimum effort. Achievements:

TTJ Timber Innovation Award 2019. The jury highlighted that the product created a new market for MDF, increasing its potential and allowing it to compete with other products and materials.

Interzum Award, in the "High Product Quality" category. The jury recognized the product as one of the best and most versatile for the international furniture industry.



Wood Made Stories, best publication for employees

Issue #1 of this publication – **Wood Made Stories magazine, Sonae Arauco World Stories** – was distinguished with several awards. Thank you all for your collaboration!

- **International Business Awards 2019**
Gold Stevie, Best House Organ for Employees category
- **Lusophone Creativity Awards**
Editorial Design category
- **"Meios e Publicidade" Awards**
Best Institutional Publication and Internal Communication

OUR INVESTMENTS

€150M

In the past two years, Sonae Arauco has made significant investments in its industrial units; aimed at increasing production capacity and operational efficiency, diversifying the offer of greater added value panels and ensuring consistent product quality. The installation of a set of state-of-the-art equipments that will reinforce the long-term sustainability of the business and the company's commitment to the planet's sustainability is still underway.

BEESKOW and MEPPEN, Germany,
MANGUALDE, Portugal

Treatment of Emissions from Dryers

€22,7M

Biological exhaust air cleaning systems are being installed to enable to go beyond the compliance with emissions. The Bio-washers ("BIOCAT-DUO") from Wessel will further increase the removal of fibers, formaldehyde and VOCs from the exhaust air coming from the dryers.

BEESKOW
Germany

€53M

Continuous Particle Board (PB)
Production Line

under the Beeskow 50+ project, that celebrates 54 years of the first press installed in this unit

The new state-of-the-art PB production line will be extremely competitive regarding products specification and quality, and cost of production. It will bring significant gains in terms of production efficiency - allowing us, for example, to produce a lighter product with a more homogeneous surface by reducing the sanding process; as well as allowing us to extend the thickness of the boards from 6 to 40 mm and the width up to 2,800 mm - responding to the market needs and boosting our growth through attracting new customers and retaining existing ones. It will also reduce carbon emissions in the production process (in line with IED requirements).

This investment will also make it possible to use the total capacity of the dryer, as well as fully feed the existing Melamine Line.

MANGUALDE
Portugal

€29M

Continuous MDF
Production Line

Replacement of the old plate press line with a state-of-the-art model: a new production line for MDF panels designed for a wide thickness range - from 37 mm to 2 mm - highly flexible, efficient, more productive and with the added capability to expand the range of products.

€5M Chipper and Dryer

Installation of new chipper and fiber dryer, doubling the production capacity of the previous ones. The dryer has a further improved drying capacity, ensuring an excellent moisture control and allowing maximum use of the production capacity of the new MDF line.

€50M Biomass cogeneration plant

The construction of a new biomass boiler by Sonae Capital will bring greater production stability and ensure an improvement in the fiber preparation process.

WHITE RIVER
South Africa

€12M

Melamine Paper
Press Line

This equipment, which will be installed near the existing Melamine Line, increasing the automation in the handling of raw paper and cardboard, will make Sonae Arauco's unit the best equipped in the African continent, allowing us to respond to current and future market needs.

The new line will double the current capacity of melamine paper coating, allowing to make products of higher quality more efficiently. This improvement will allow us to expand the offer of decorative products at this industrial unit, while simultaneously reducing production costs through an increase in productivity.

The investment will create new qualified jobs.

30 years is the minimum estimated lifetime for this new equipment

Featured
Photography



This small strawberry tree, with about 70 cm high, is one of more than 1100 trees that were planted in Oliveira do Hospital, in March 2019. The area was one of the most affected in Portugal during the great fires of 2017.

The intervention, the first of several that Soneae Arauco intends to organize as part of its Corporate Social Responsibility strategy, is aimed at contributing to a better managed landscape with greater diversity and improved fire resistance.

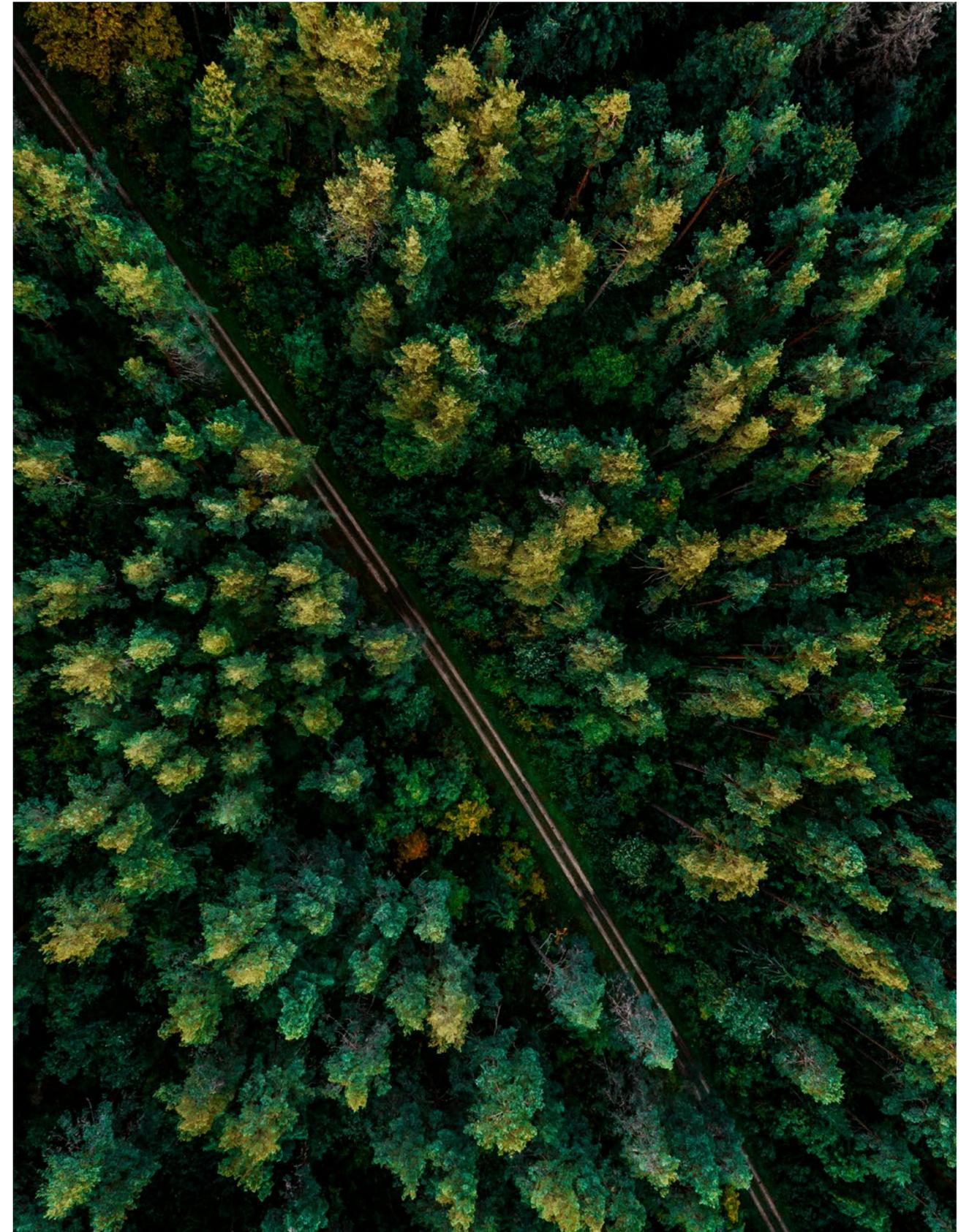
The company gathered close to 200 volunteers, including its employees and those from other Soneae group companies, as well as their families. The action was focused on a forest area of more than three hectares and included the planting of oak trees as well.

Interview

Wood as a raw material, inspiration and future: nothing is lost, everything is transformed

At Sonae Arauco, we work to create sustainable solutions that contribute to a better life, future and planet. Therefore, sustainability is transversally integrated into our business strategy – and we were pioneers in doing so.

We invest in a value chain starting with the use of raw materials from a sustainable origin, which incorporates by-products from the wood industry and that, in a circular approach, closes the cycle with the reuse and recycling of these residues. They are also used in the preparation of wood-based panels or, when this is not possible, as a source of energy for factories. We spoke with some of our people who are responsible for these areas, in order to better understand the company's position and its focus on sustainability





Nuno Calado



15



Eduardo Botín

Nuno Calado

Wood Regulation & Sustainability Manager

How is sustainability reflected in Sonae Arauco's business and how is it expected to evolve?

Sustainability is integrated into our strategy transversely. We depend on a raw material coming from the forest, which is why we ensure the use of wood from sustainably managed and carefully controlled sources. The circular economy is key in this context and we were the precursors of the trend in the 1990s. We implemented recycling circuits that allowed us to increase the use of wood that would otherwise end up in landfills. This strategy is reflected

in the products we place on the market. The challenge now is to put them – and their contribution to a green economy – in the spotlight to leverage their use in the construction industry and interior design. It is important to note that wood is a great alternative to materials of fossil origin typically used in construction, such as cement or metal. In order to enhance the characteristics of the business and reinforce our commitment in this matter, sustainability will become explicit in our strategy this year.

To what extent does a sustainability-oriented strategy impact the business?

Sustainability and the way companies get involved in society and contribute to the common benefit are growing in relevance, with increasing pressure from the market and more demanding consumers. The

integration of sustainability into the company's strategy is therefore key for the future of any business.

How does the company contribute to active forest management?

We do this in several areas, namely through the promotion of forest certification in all locations we operate. In the case of Portugal and given the serious problems associated with wildfires, through the activity that we develop at the Pinus Center (Portuguese Association for the Enhancement of the Pine Forest), with communicational, promotional and technical dissemination initiatives. Another way is through ForestWISE, a collaborative laboratory that brings together companies and universities and is focused on doing research and sharing knowledge around integrated forest and fire management. As

“The circular economy is key in this context and we were the precursors of the trend in the 1990s”

part of a partnership with our shareholder Arauco and its extensive experience and knowledge in management and forestry R&D, we intend to test in Portugal the Pinus-radiata (a species that already exists in Portugal) which results from the genetic improvement program and has a much higher productivity potential.

Sonae Arauco will lead and promote a Sonae project to mitigate the carbon emissions of the group's employees' travels by car. What can you tell us about this?

“Sonae Forests” aims to offset emissions from the vehicles associated with employees of all companies of the group. Due to the proximity of Sonae Arauco's activity to the forest, and given the knowledge we have, we will ensure the management of this forest area. It is a large and very challenging project: we estimate to plant around 845 hectares by 2030, which is equivalent to planting over 1 million trees. We intend these areas to act as Forest-Labs for demonstration actions and for raising awareness towards good forestry practices for producers.

Eduardo Botín

Iberia Recycled Wood Manager

How important is recycled wood in the production process of Sonae Arauco?

In the past five years, recycled wood has become our main source of raw material, representing more than half of all wood consumed. This process was progressive and complex, requiring significant investments and profound changes in the equipment, processes and logistics of our industrial units.

What is the environmental impact of using recycled wood?

When a tree dies in the forest or wood waste

is sent to landfill, the material decomposes and releases all carbon dioxide that has absorbed throughout its life. If we reuse it, we prevent that from happening by keeping the carbon sequestered. There is no limit to the number of times that wood can be recycled – and at the end of the cycle it can be used as an energy source, just as we do in our factories.

And for business?

The use of recycled wood has become an important competitive factor for producers of wood-based panels: it helps to diversify the supply of wood; it is available all year round; it is a rational approach regarding the consumption of natural capital; it is a perfect example of the circular economy and relieves competition from industries such as paper and cellulose, pellets or biomass energy generation, reducing energy consumption.

What percentage of recycled wood is currently used by Sonae Arauco?

After last year's investments in increasing the cleaning capacity of recycled wood in units that produce PB, Linares is at 65% and Oliveira do Hospital at 55%. We have an ambitious strategy to raise these percentages to 70% in both units over the next 3–4 years.

How does the circuit in the Iberian Peninsula operate to promote the use of recycled materials?

Through our subsidiaries Ecociclo in Portugal and Tecmasa in Spain, we operate a network of nine recycling points (Madrid, Lisbon, Barcelona, Porto, Seville, Valladolid and Coimbra), where we receive wood waste from hundreds of customers from all sectors of the economy, and we have more than 600 containers available for direct collection at their premises. Once discharged, the waste is sorted and cleaned to remove contaminants, chipped and sent to our factories.

“There is no limit to the number of times that wood can be recycled – and at the end of the cycle it can be used as an energy source”

Inês Costa Luz



Inês Costa Luz

CdR & Forestation Coordinator

What is the importance of forest certification?

It is an alternative to improve forest management globally and combat deforestation. This is a voluntary adherence process, which results in issuing a certificate that attests the forests management compliance with the environmental, economic and social requirements pre-established by internationally recognized systems, as it is the case of the FSC® (Forest Stewardship Council®) and PEFC™ (Program for the Endorsement of Forest Certification™), in whose development Sonae Arauco (at the time Sonae Indústria) participated in Portugal.

What impact does certification have on the business?

On the one hand, the commitment to the sustainability of resources: by being in the middle of the value chain, we promote an improvement of the management that is practiced by forest producers, with recognized environmental, social and economic gains. On the other hand, certification is currently a determining factor in accessing markets.

How important is our membership to the FSC® International?

It allows us to actively participate in forest certification work. It is essential to be present so that the particular characteristics of local contexts are served on a global scale. Therefore, having privileged access to information and the possibility to vote on decisions made by members is crucial.

17



Martin Loebis



Martin Loebis

Head of Wood Procurement NEE

The wood processing business is facing major challenges. What is Sonae Arauco doing in this regard?

Many forests are dying due to climate change. If we do not change our behaviour, in a few years we will face a decline in the supply of wood. The variety of tree species that we have at our disposal today allows us, for example, to meet requirements for low VOC (volatile organic compounds) emissions – but this may soon become more difficult. For this reason, Sonae Arauco is constantly on the lookout for more flexible solutions that allow us to use other species in production. At the same time, we maintain the commitment





18

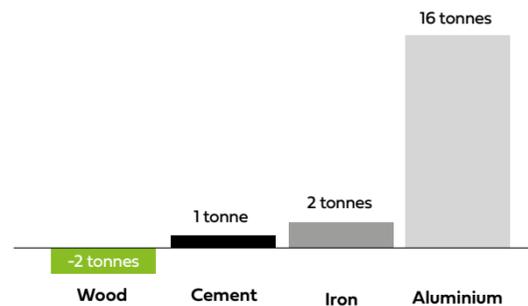
of having recycling as the main line of the supply chain and we are currently carrying out feasibility studies to expand the offer of recycled products from the brand beyond wooden panels. We also favour the use of wood with FSC® or PEFC™ forest certification.

How is Sonae Arauco ensuring the responsible supply of wood?

We use a renewable resource, but this is only sustainable if we plant as much as we harvest. This is a German tradition that is over 300 years old (Carl vs. Carlowitz, 1713) and is regulated by law. In addition, in some regions we only purchase FSC® or PEFC™ -certified wood and check the entire value chain. With regard to the recycling process of our wood, we have modern cleaning equipment that allows us to comply with strict legal requirements, attested by analysis.

Key numbers

Each ton of wood saves 2 tonnes of CO₂ from the atmosphere. The production of the same amount of other materials of fossil origin used in construction emits very high values of carbon dioxide:



innovus[®]
Decorative Products

Matching life.



In-depth Report

Talent, Customers,
Logistics and Technology:

CHANGE AS THE SEED OF THE FUTURE

Sonae Arauco is driven by its ambition to become a reference company for all its stakeholders. It is therefore reinventing the way it operates in the modern world. This transformation includes Talent Management, the Customer Journey, Logistics and the Connected Factory. The company wants to stay at the forefront, guaranteeing its sustainability and its place in a society that is governed by ethical and responsible behaviour to ensure that its legacy, like wood, will last.

Talent Management

Training for the future

Sonae Arauco considers people its main competitive advantage – they are the ones who enable the strategy to be implemented successfully and sustainably. This is why our employees are one of the key elements in this moment of transformation, in building the future. “To achieve this, the Human Resources area must be intrinsically connected with the global strategy, anticipating its needs and supporting it to bring the right skills and people together,” explains Rita Monteiro, Europe Talent Management & SWE HR Director.

And just how is that done? Through a team dedicated to promoting the development of all employees, a continuous, long-term commitment to training and an effective recruitment policy.

“The challenge for the Human Resources area is to create an organizational culture of talent management that is flexible enough to respond to the different challenges that companies face and, at the same time, to the specifics of the geographical contexts in which we operate. However, people’s management is a shared responsibility – all employees who manage teams have to represent and convey the values and culture of the company while also monitoring each element, ensuring continuous feedback, maintaining clear and effective communication and enhancing their development,” she says.

In the talent management and retention area, Sonae Arauco is aligned with good international practices. Some of the

ways it does so: by placing equal value on careers that grow hierarchically and those that grow through the acquisition and development of technical know-how; encouraging mobility between its industrial, commercial and central structures; allowing employees to develop an international career; promoting projects leadership; it is multicultural, integrating employees from 28 nationalities; and favouring the balance between work and family life.

Training and skills development – “to fill the identified gaps and to anticipate needs” – is intended as an attraction for prospective employees, an asset for those who already are (as well as an argument to make them stay) and an engine of change, essential in a company that is constantly evolving, as well as to ensure the sustainability of the business in the long term. This effort has been materializing itself in several initiatives.

The launch of the Learning module in 4People and the creation of the Sonae Arauco Knowledge Academy (SAKA), endorsed by Edite Barbosa, Chief Corporate Development Officer, to identify, compile and standardize the company’s knowledge, are some good examples.

Elvira Cardoso, Group Training & SAKA Manager, lists the five main areas of activity for this year: developing skills that support the implementation of technologies in Industry 4.0; aligning the skills of plant managers across all regions; investing in training and



Rita Monteiro
Europe Talent Management & SWE HR Director



23



retraining in the fields of maintenance and operation; developing specialized technical training in Sonae Arauco’s business areas and structuring the company’s core knowledge. “All of these programs will be fully adapted to our reality, will allow maximum flexibility to ensure their effectiveness and will reference international standards,” she adds, concluding with what she considers the most ambitious, yet most important objective: “We want to change mindsets. It is our intention to evolve the way our employees view training, from one-off actions to a routine – as a habit for life.”

“Training and skills development is intended as an attraction for prospective employees, an asset for those who already are and an engine of change, essential in a company that is constantly evolving”



Elvira Cardoso
Group Training & SAKA Manager



The thematic modules of our training

- Onboarding**
Company, Products, Internal Policies, Duties & Rights
- Product and Applications**
MDF, PB, Decoratives
- Production and Technical Equipment**
Woodyard
- Market**
MDF, PB
- Sourcing**
Wood
- Safety, Environment and Risk Management**
Six Life-Saving Rules



Logistics

Optimizing the path to the customer

It is since 2017 that the Supply Chain department has been in transformation. The team, led by Marco Moura, Group Supply Chain Director, began the task with some 'key measures' as the 'basis' for what he wanted to build. Marco started with the organizational chart: he reorganized the department, centralizing some processes, creating functions that he considered to be essential for Sonae Arauco's supply chain proper functioning, such as Supply Planning or Demand Planning, and reinforcing the team with new talent.

Then, priority was given to training and certification: "It was very important to standardize knowledge within the group: we underwent training and certification based on the APICS/ASCM (North American supply chain association, a world leader in the topic) concepts," he says. Another important measure was to review key performance indicators (KPI) for the Supply Chain and Customer Service departments. "I stand by the motto 'What can't be measured, can't be improved'." Regarding the Organization and Processes portfolio, the manager also introduced improvements to planning processes through the use of new tools (namely Sales and Operations Planning [S&OP], IBP, SAP).

Amongst the initiatives to improve the service, the manager also highlights the implementation of a transport management system (TMS); the creation of distribution



Marco Moura
Group Supply Chain Director

centers in Madrid, Spain, and Souselas, Portugal; the development of a new warehouse layout at the Linares plant, in Spain, and a new board picking service, in Souselas.

"The new transport management software will help us to improve distribution routes, allowing for a greater number of round trips with recycled wood and reducing the number of empty kilometres travelled. In addition, given that it enables scheduling in hourly windows, waiting times for loading and unloading should be reduced, increasing our reliability," explains Marco Moura, adding that the data the software will require from teams will boost efficiency, for example, by increasing

"Amongst the initiatives to improve the service, the manager also highlights the implementation of a transport management system (TMS); the creation of distribution centers in Madrid, Spain, and Souselas, Portugal; the development of a new warehouse layout at the Linares plant, in Spain, and a new board picking service, in Souselas."

25

occupancy/weight loaded by truck, and, of course, from an environmental point of view. "We are going to remove a lot of unnecessary kilometres from the equation and put a higher percentage of recycled wood in our route. This measure has a direct positive impact on the environment."

According to Marco Moura, the new Distribution Centers have had a very positive impact on the business: "They have added storage space that we did not have in the factories, especially in the case of Souselas, and this allowed us to increase the availability of express stock and provide a better service to customers, with shorter deadlines and greater reliability."

The same happened with the creation of the Madrid Distribution Center. "In a single warehouse, we have products that were previously scattered across several factories. We are able to ship smaller quantities without worrying about the profitability of the shipping – the logistics operator can combine our products with other deliveries in the same area."

The ongoing changes to the warehouse layout at the Linares industrial unit, which will be applied in other Sonae Arauco warehouses, were motivated by a change in purchasing trends. "Customers are buying increasingly less per order, with more references and a desire for shorter time frames. This greatly increases the logistics complexity," says the manager. Sonae Arauco has invested in new machines, storage structures (cantilevers) and systems. "These changes should allow the trucks to be loaded with greater efficiency and fewer movements. The space, which is prepared to respond to 300 product references so far, will be able to provide 1200 references," – a tremendous step to the customer.

The customer journey

Taking good care to be the first choice

In a market environment strongly characterized by standardization, there is one element that stands out as an ally to companies – especially those that, like Sonae Arauco, want to define market standards and maintain a leading position – to differentiate themselves from the rest: the customer journey.

“In order to become a true partner for those we wish to work with, we have to place the customer, one of the organization’s strategic pillars, at the center of our actions and decisions,” says Sílvia Saraiva, Customer 360° Manager. The name of the function provides a clue to explain the course of action: “Sonae

Arauco is committed to a global strategic plan. 360° means that we want to ensure that each customer’s interaction with our company is the best and the most adequate for their needs, providing them the best possible experience – we want our customers to feel that we will take good care of them,” she explains.

The Customer 360° Plan was launched in 2017. It has been analysing all customer touchpoints and the processes inherent to these interactions. The objective of this approach is to identify difficulties and areas for improvement and, as such, has given way to multidisciplinary and cross-cutting projects in various



Sílvia Saraiva
Customer 360° Manager

business areas. Sílvia Saraiva points out that important goals have already been achieved: “We have managed to build and make available [an initial version of the Customer Portal](#)” to a selected group of customers. This is currently being tested (and simultaneously reviewed). We have also introduced a new work methodology in the company – Service Design – which helps us to live out the customer’s shopping experience more fully,” she describes.

Although the projects are distinct, they have one very relevant feature in common. “The projects were not from any specific team or department,

“The major goal is to change work methodologies and constantly and automatically ask the following question: “And if we were the customer, how would we like to be taken care of?”

but something from all of us to our customers. This is the philosophy of the 360° initiative projects that we want to incorporate into Sonae Arauco’s DNA, in the way we interact and work with everyone.”

The manager highlights another important achievement of this instrument of change: the participation of the customers themselves. “We gathered their opinions, tested solutions and included them in design workshops for order management journeys. We will also adopt the same methodology to improve the management of complaints. Based on the customers’ feedback, we

have adjusted and improved the solutions designed. It would not make sense to do otherwise.”

Although she identifies several areas for improvement in the project, Sílvia Saraiva emphasizes that it should not exist forever. The major goal, she says, is to “change work methodologies” and constantly and automatically ask the following question: “And if we were the customer, how would we like to be taken care of?”

* **Sonae Arauco’s new portal is a system that contains real-time information and includes:**

Status of the order book;

Orders for marketing materials and monitoring of their status;

Billing information (pending documents and six months of historical information);

Product information (including technical documents);

Notification system.



The connected factory

Industrial soul, digital heart

For Sonae Arauco, digital transformation is “essential” and “entails more than just technology”, says Hugo Gonçalves, Information Technology Director. This transformation “involves the company’s strategy, its business processes and people”. After all, the objective is very ambitious: to increasingly integrate digital into business growth and to reinvent the way the company operates in the modern world – and to do so at the forefront. To achieve this purpose, the company created and has in progress a route that touches on all areas mentioned above – Talent Management, Customer Journey and Logistics – and which also includes the **Connected Factory**™.



Hugo Gonçalves
Information Technology Director



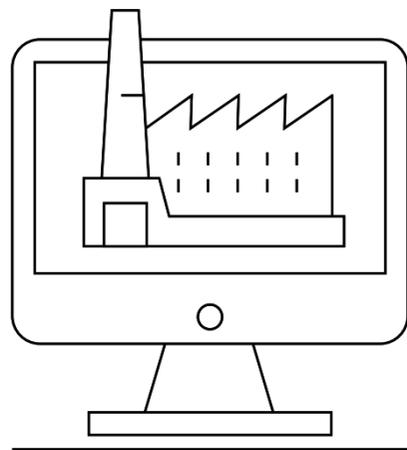
Angel Garcia Bombin
Business Data Analytics Project Manager

* **How we created our Connected Factory model**

The starting point was to define a model that took into account:

User experience: adaptable, simple and humanized software;

Digital factory: a digital representation of all units and their assets to maximize automatic processes and minimize human interaction with systems;



Cloud services: to be able to monitor and manage the physical world remotely, combining data from different sources and locations;

Performance and security: improving business at the units through more effective systems and networks, improving time to market for products, mitigating security risks;

IT governance/operational technology (OT): having processes, tools and responsibilities to ensure alignment with the global security objective, robust architecture and a clear definition of who owns each system.

29



“Today it is possible to know, by the minute, the performance of each unit, acting quickly and effectively in the event of any deviation.”

“We have equipped our machines and our processes with cutting-edge technological tools on a global level – as is done, for example, in renowned units of the automotive industry – that allow us to observe with transparency, detail and speed the way we work (in terms of production, maintenance, quality, logistics and management) so that we can increase our efficiency and productivity, and even develop disruptive business models,” explains Angel Garcia Bombin, Business Data Analytics Project Manager.

The pilot project was carried out at the Valladolid plant between 2016 and 2017 and, starting in mid-2017, began its implementation in the remaining units. The first step was to build a ‘digital twin’ of all production lines. Each digital production line is linked to the cloud and business management systems to share essential information for objective fulfilment in real time, with the right people and without interfering with the tasks in progress. “This ‘digital twin’ allows us to perform simulations to evaluate and predict alternative scenarios, improving support for operational and strategic decisions,” says the manager.

In practice, Angel Garcia Bombin explains, “Today it is possible to know, by the minute, the performance of each unit, acting quickly and effectively in the event of any deviation (a set of warnings are available and activate the help chain automatically) and you can even predict future errors! By integrating this model

into our continuous improvement cycle, we transform this data into concrete changes – and all units, in all markets, are benefiting from this vision and this investment.”

Partnering with universities and research centers is another key factor in the project’s success. According to the manager, these relationships allow for “more insights, more knowledge and more experimentation” and create differentiating value proposals for the company. The MDF dryer predictive control in operation at the Valladolid unit is a good example: it was developed by Sonae Arauco in cooperation with the Department of Automation of the University of Valladolid. Another partnership is now underway with the European Institute of Innovation and Technology (EIT), aimed at achieving zero defects at the Oliveira do Hospital plant. “The company is also working on a proposal with researchers from Portugal’s University of Minho for a project on data-based decision-making (in a factory floor context), augmented reality to support equipment maintenance and cybersecurity,” says Hugo Gonçalves.

Angel Garcia Bombin expresses a positive view of the work that has been done, and stresses that the most important thing is to keep an eye on the future: “We started out ahead of our competitors, but we have to keep pace if we want to remain in a leading position.”

José António Pires da Rocha is 43 years old and our Group HSE & Risk Management Director Industrial Operations. His role involves defining and monitoring the Company's Risk Management, Safety and Environmental programs.



Profile

José António Rocha

More than just a boss

He's an empathic man, a good listener and very humane at managing the teams. A workaholic, he has a prodigious memory, and is a constant learner: learning from everybody he comes across. When he first joined the group, he was convinced that the project was going to be "temporary" - almost two decades have passed since then. Now, he is our Group HSE & Risk Management Director Industrial Operations.

José António had only one certainty when, in March 2001, he joined the Sonae Group and walked into the room where he would have a job interview for the safety officer role at the Sonae Indústria plant in Mangualde: he wasn't going to accept the job offer. The young engineer was completely unaware of the appointment. Everything had been handled - arranged - by his former teacher and current manager, the owner of the Health and Safety consulting company where he worked. "He told me about the opportunity and I said I wasn't interested."

I didn't even know where Mangualde was and when I travelled there, I realized it was more than 200 kilometres away from my home in Braga, which made the idea seem even worse," he recalls. "I only went out of respect for him." In that day he was waiting for him in the parking lot. On his way out, José António was blunt: "I'm not staying." It was his family who convinced him to consider it. The young man eventually accepted - he was attracted to the idea of being able to develop a department almost from scratch in an industrial unit of that size. However, he thought this was going to be "a short-term project".

Instead, almost two decades passed and he held this position until 2009, always with responsibilities in the areas of Risk, Safety and Environment. José António is today Sonae Arauco's Group HSE & Risk Management Director Industrial Operations. He's one of the leading figures of the BeST (Behavioural Safety Transformation) program, aiming for zero occupational accidents. How did this happen? "The journey made sense, just like in a relationship. Or like when you plant a tree - it grows and then you can't move it," he explains.

A boss who's always more than that

José António's team - which has grown since September 2019 from two to five people and whose work capacity keeps him "surprised on a daily basis" - is spread between Portugal and Germany. So, his schedule is always very busy dealing with different time zones - and can be turned upside down at anytime if an accident occurs in one of the factories. "The day is never over. I'm available 24/7," he says. Even when he's not travelling, it's hard to find the boss sitting at his desk in Maia's

open space. During meetings he takes handwritten notes in a notebook or uses his computer. In many cases, he doesn't need to check them again - or he only does it to confirm that his memory didn't fail. It rarely does. Daniel Prinsloo, Corporate Risk Management Coordinator, says that the boss "can remember in detail decisions made in a meeting months ago". The team mentions another strength: the ability to listen regardless of the speaker's position in the organization's hierarchy. "He considers all proposals in the same way", he adds. Mário Martins, Corporate HSE & Risk Management and the longest member of the team agrees: "We're always open to questioning". José António considers this to be a key feature in a workplace environment, but not the only one. The willingness to learn is also critical. "One of the mottos I hold most dear is from the Indian activist Mahatma Gandhi: "Live as if you were to die tomorrow. Learn as if you were to live forever." Knowledge is fundamental. And I learn from everyone," he says.

The colleagues describe José António as an optimistic *workaholic*, focused on the solution and an expert in keeping his good temper; but he assures us that this only happens at work. "My family wouldn't say I'm like that," he jokes, adding that "reacting in the heat of the moment isn't the best option." The team says he's determined, recognizes and praises when the work is well done and manages correctly the flaws of each one: "He doesn't rebuke. He always focuses on pointing out what could be improved," says Mário Martins. Mike Nilsson, H&S Coordinator NEE, considers that this attitude has to do with his ability to "create empathy". This is why adds Patrícia Martinez, Corporate

Environment Coordinator, he mobilises his teams so effectively: "He is very good at understanding people's needs. He's always present and so involved that he doesn't need to insist on requests; we want to go beyond what he asks". At the top of the list of qualities is his "human side". José António is more than just a boss - he quickly becomes part of the family. Days before joining the company, Susana Cunha, H&S Coordinator SWE, received at home a handwritten card welcoming her to the team. In mid-December 2018, while still working at the Linares plant in Spain, Daniel Prinsloo received a call: "He wasn't even my manager yet but knowing that my family and I wouldn't be spending Christmas at home in South Africa, he considered it unacceptable for us to be alone. So we travelled to Braga and spent the festive season with his family."

Despite his prodigious memory, his colleagues say he can also be quite distracted: the cafeteria held a raffle for a Christmas basket and he only realized he had the winning ticket weeks later, when a second draw had already been made because the initial winner didn't come forward. In his spare time, he spends time with his family - "an important pillar" - and plays football. He's not a keen football follower, but he roots for Sporting and Braga. He likes model airplanes but admits his planes haven't flown in a few years. From a very young age he kept a passion for fixing things; he even won a bet with his grandmother: "When I was about 13, I stubbornly said I was going to fix the engine of a small agricultural machine. I wasn't sure of what I was doing but for me mechanics and electronics were always very easy to understand," he recalls. Nowadays he still is the first person that his relatives turn to for a quick fix.



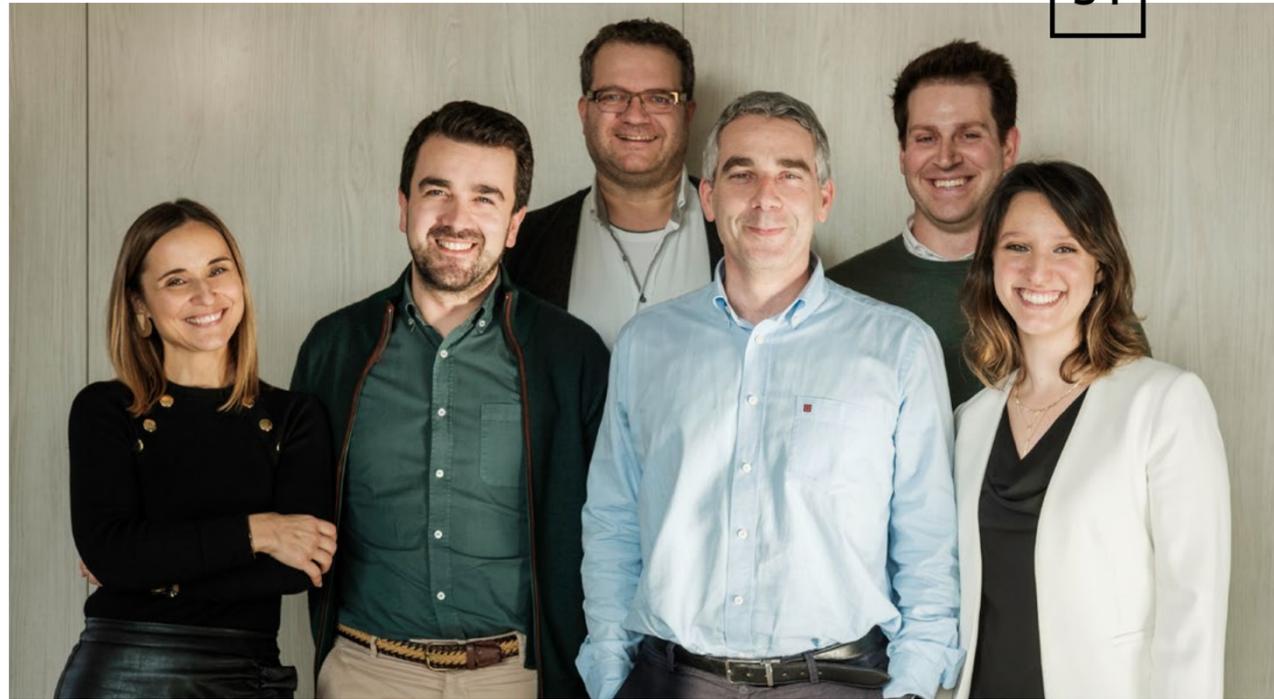
Goal: zero occupational accidents

The areas for which José António is responsible have changed a lot in the past 20 years, especially related with Safety, which is a priority for Sonae Arauco. He says the differences in practice are huge. The changes were promoted by the company, but also by the evolution of legislation. "There are examples of small changes - such as the use of the reflective vest which was rare 20 years ago - along with examples of deeper changes such

as ending the practice of working near moving machines. Now, such a thing is unthinkable". The company has also evolved to investigate whenever an accident occurs and promote prevention measures, share good examples and invest in training. In this context, José António says changing mentalities is the greatest challenge of his role - he considers it fundamental to achieve the goal of zero occupational accidents (see box). "The first sentence of my contract documents mentions PEOPLE. We keep making a

great effort in the organization, but that is the easy part. What is difficult is to change behaviours. The procedures we implemented are only effective when they are followed".

José António doesn't recognize himself in his colleagues' praise. He admits he's "genuinely" concerned about others and confesses that there are obstacles in this task that are insurmountable: fatal accidents. "The company always responds with concrete actions and the necessary



investments to make sure that nothing like this will ever happen again. But it's very hard to understand the emotions colleagues have gone through when directly witnessing this kind of events. I try to be supportive, but I know that although these scars will fade over time, they will never go away."

Even so, he concludes that it is in this commitment to ensure that employees arrive home safe and sound after each day's work that he finds the greatest motivation: "This is what moves me and makes me feel truly fulfilled".

The manager wants all employees at Sonae Arauco to comply with the premises:

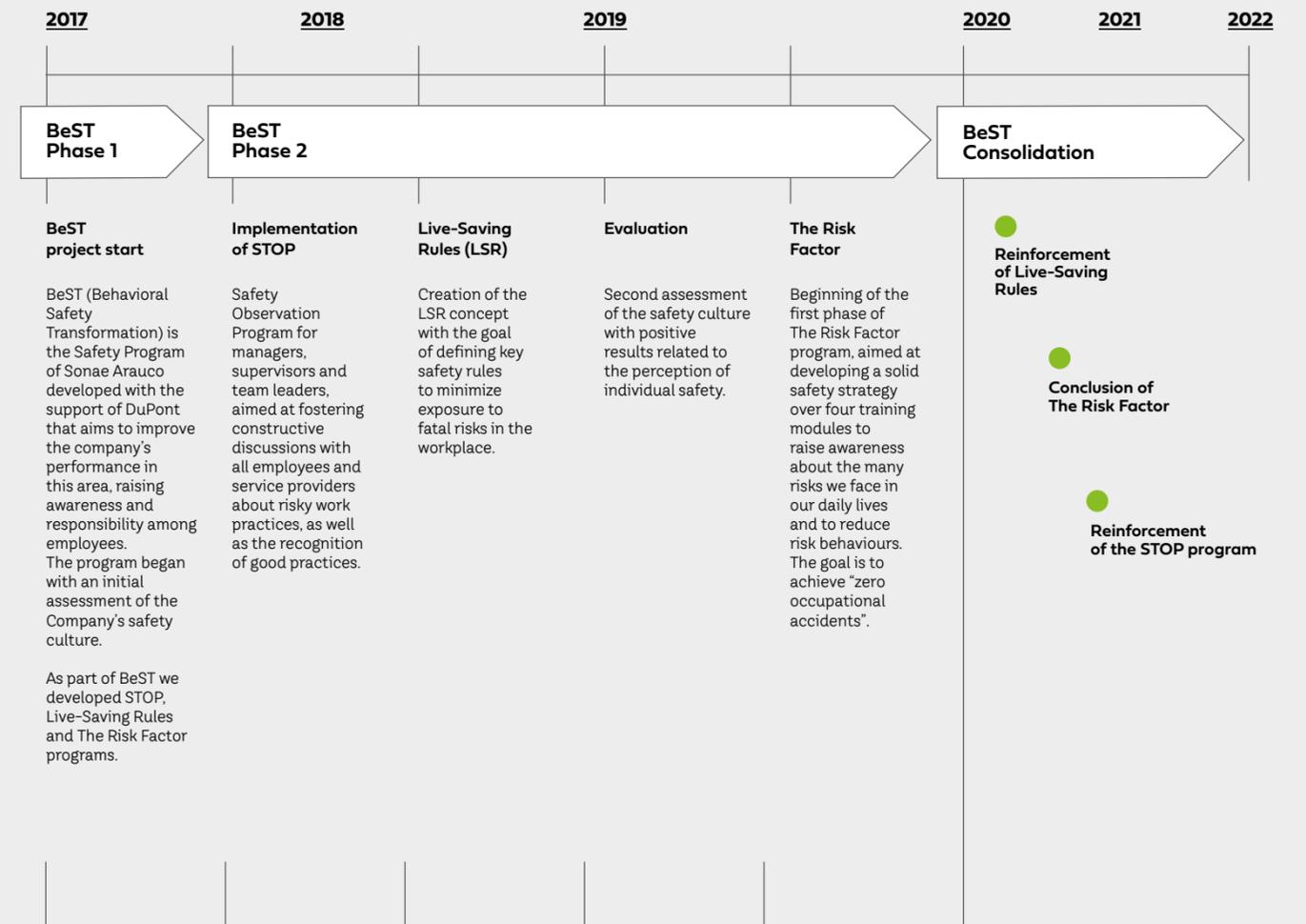
- 1. "I take care of myself"**
To make everyone aware of the risks they face and what they can do to avoid them;
- 2. "I take care of others"**
To act whenever risk behaviour is observed even when dealing with a manager;
- 3. "I let others take care of myself"**
To accept colleagues' comments and appreciate them in order to encourage a culture of safety in the company.

The team

From left to right

- Susana Cunha**
H&S Coordinator SWE
- Mário Martins**
Corporate HSE & Risk Management
- Mike Nilsson**
H&S Coordinator NEE
- José António Rocha**
Group HSE & Risk Management Director Industrial Operations
- Daniel Prinsloo**
Corporate Risk Management Coordinator
- Patrícia Martinez**
Corporate Environment Coordinator

Safety at Sonae Arauco 2020-2022



Based on the results of the Safety strategy implemented, we aim to adapt and implement a macro model for Corporate Management and Health & Safety at Sonae Arauco by the end of the year.

Destination

Madrid

a trip to the largest city in Spain



Madrid

Capital of Spain - and headquarters of Sonae Arauco -, Madrid is the largest city in the country and the second largest in the European Union, with a population of more than 3 million. It is famous for its collections of pictorial art, with art works by Goya, Velázquez and other Spanish painters at the Prado Museum, the Museo Nacional Centro de Arte Reina Sofía or the Thyssen-Bornemisza - and this is where we travel to in this edition, guided by the suggestions of our employees.

Sonae Arauco in Spain

Around 500 employees
Offices: Madrid
Industrial Units:
Valladolid, Linares and Cuéllar

The Sonae Arauco team that took part in this article:



Victoria Lasala
Administrative & Local Accounts Manager

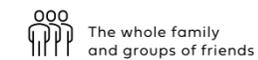


Enrique Quirós Domínguez
Specification & Contracting Manager SWE

Where to go?

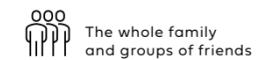
Barrio de las Letras

Home of great writers, such as Cervantes, Lope de Vega and Quevedo, it is now known for its wide range of bars, tapas restaurants and terraces that are a meeting point for friends and families in late afternoons and weekends. Plaza de Santa Ana is one of the biggest attractions in the neighbourhood.



Descalzas Reales

Located in the city centre, this monastery has an impressive collection of paintings, tapestry and religious art, which tells the story of the noble ladies who surrendered to seclusion, occupying their days with manual and artistic works - which explains the valuable collections that many monasteries still retain to this day.



Puerta del Sol

Starting point for all major Spanish roads. In this square, the heart of the city's bustle, you can find the symbol of Madrid, the sculpture "El oso y el madroño".



Moncloa Lighthouse

Close to Palacio de la Moncloa, you can climb the transmission tower of Plaza de Moncloa and, at almost 100 meters of altitude, enjoy the superb view over the city.



What to do?

El Rastro

One of the must do activities in Madrid on a Sunday morning is a visit to the city's most famous street market, the colourful and vibrant El Rastro, with over 400 years of history and many curiosities. Situated between the Plaza de Cascorro and Ribera de Curtidores, it lies in the heart of the colourful neighbourhood of La Latina.



Groups of friends



Real Jardín Botánico

This botanical garden gathers more than 30,000 species of plants. Watch the sunset from Parque del Oeste and climb the Temple of Debod, an Egyptian monument from the 2nd century BC, to enjoy the panoramic view. Be sure to visit Jardim das Rosas (Rose Garden).



The whole family



Golden Triangle

This is the name given to the three main museums in the city: Thyssen-Bornemisza Museum, Prado Museum and Reina Sofia Museum. Book an afternoon to embark on a journey through Art History, from the Renaissance to the 21st century, with works by artists such as Caravaggio, Goya, Pollack or Dalí.



Couples (or two travelers)



Royal Palace of Madrid

Official residence of the King of Spain - although not inhabited by the royal family, who lives in the Zarzuela Palace -, this is the largest royal palace in Europe. In addition to the view, you can watch the changing of the guard every Wednesday, from October to July, at 11am.



The whole family



Where to eat?

La Bola e Lhardy

The typical dish of Madrid is a stew of chickpeas and meat and this is one of the best restaurants to try the traditional recipe, cooked according to the tradition. Located next to Puerta del Sol, it stands out for the quality of its cuisine and the aristocratic atmosphere of the 19th century.



Couples (or two travelers)



El Paraguas

For an unforgettable dining experience, head to Jorge Juan street. For a late afternoon around snacks and beers or a long dinner, here you will find the real Spanish tapas, served in a sophisticated yet unpretentious environment.



Groups of friends



Los Gallos

To relive the atmosphere of the old Madrid taverns, where tapas were served in the form of thin slices of bread or meat that covered the sherry glasses between sips, this restaurant (with its extensive list of chopping options) is a must. It is ideal for a late lunch or a family snack.



Groups of friends



Casa Gerardo

Do not be fooled by the sign at the entrance, which says "Almacén de Vinos". You are in the right place. With more than 80 years of history, this old wine warehouse, whose menu is made of traditional Spanish homemade food, is off the tourist routes, but unmissable. It is said to have the best Asturian rice pudding.



Couples (or two travelers)



Where to stay?

VP Jardín de Recoletos

Recently renovated, this five-star hotel is located a few meters from El Retiro Park, Puerta de Alcalá and the National Library of Madrid, which makes it an excellent option for those who are looking to stay in the city center. It has a garden with a terrace, perfect for sunny days.



The whole family



Tótem Hotel

Occupying a historic building near the Salamanca neighbourhood, surrounded by gardens, restaurants and exclusive shops, this *boutique hotel* offers a modern and comfortable atmosphere at very competitive prices, considering its central location. Classic on the outside and urban on the inside, it is the right retreat for a few relaxing days in the city.



Couples (or two travelers)

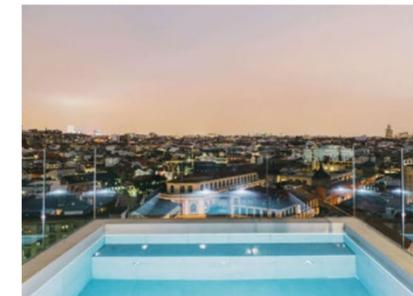


Dear Hotel Madrid

Urban, bold and elegant. This hotel is on the busiest street in the city, Gran Vía, and offers a 360° view of the city. In addition to the spacious and comfortable rooms, it has a panoramic pool and a cocktail bar at the top of the building.



Groups of friends



Only You Hotel Atocha

Modern, comfortable and with an inspiring architecture and decor, this *boutique hotel* has a *premium* location, between Parque del Retiro and Atocha station. A rooftop bar called Sép7ima is located in the terrace, where the modern and the traditional meet.



Couples (or two travelers)



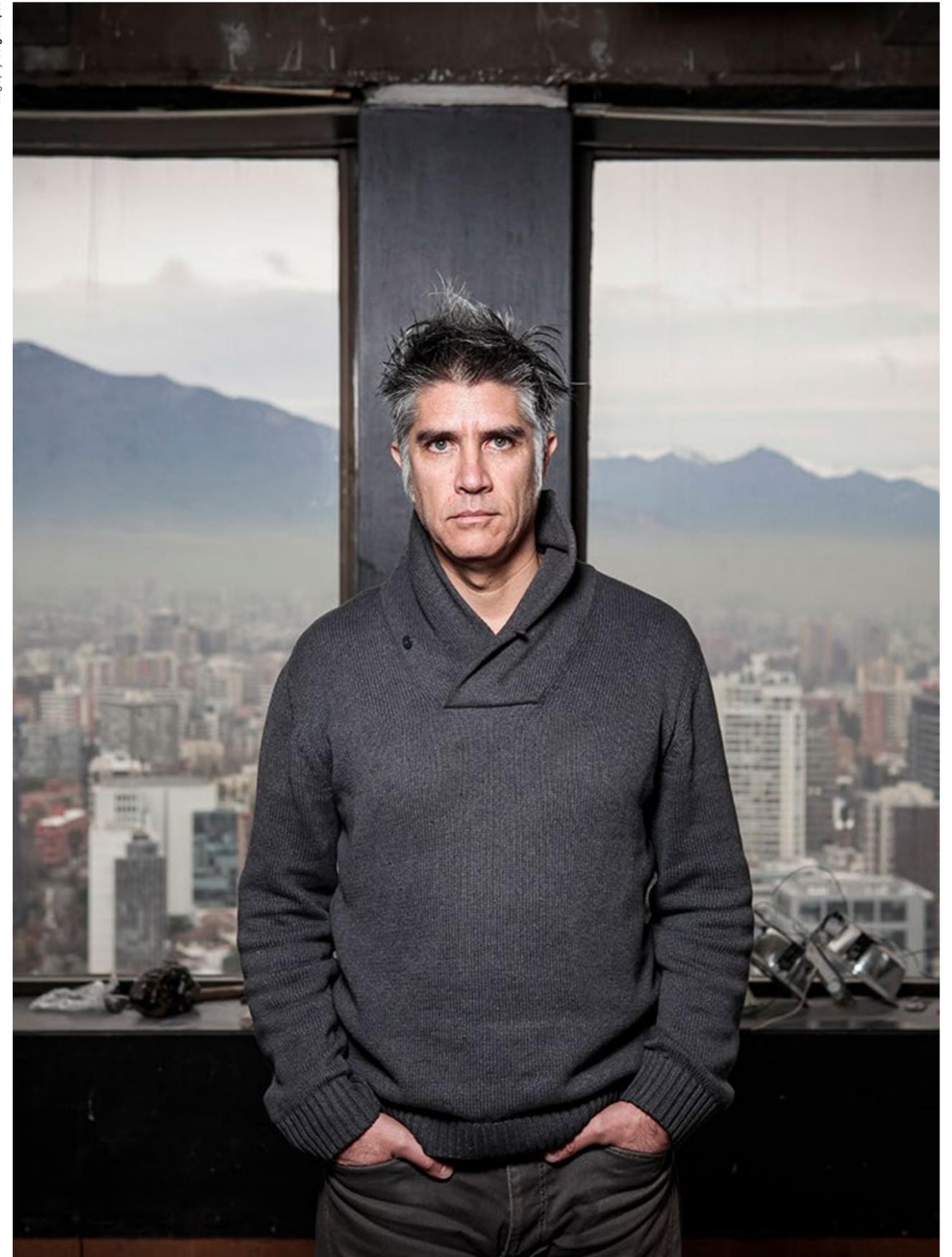
Guest

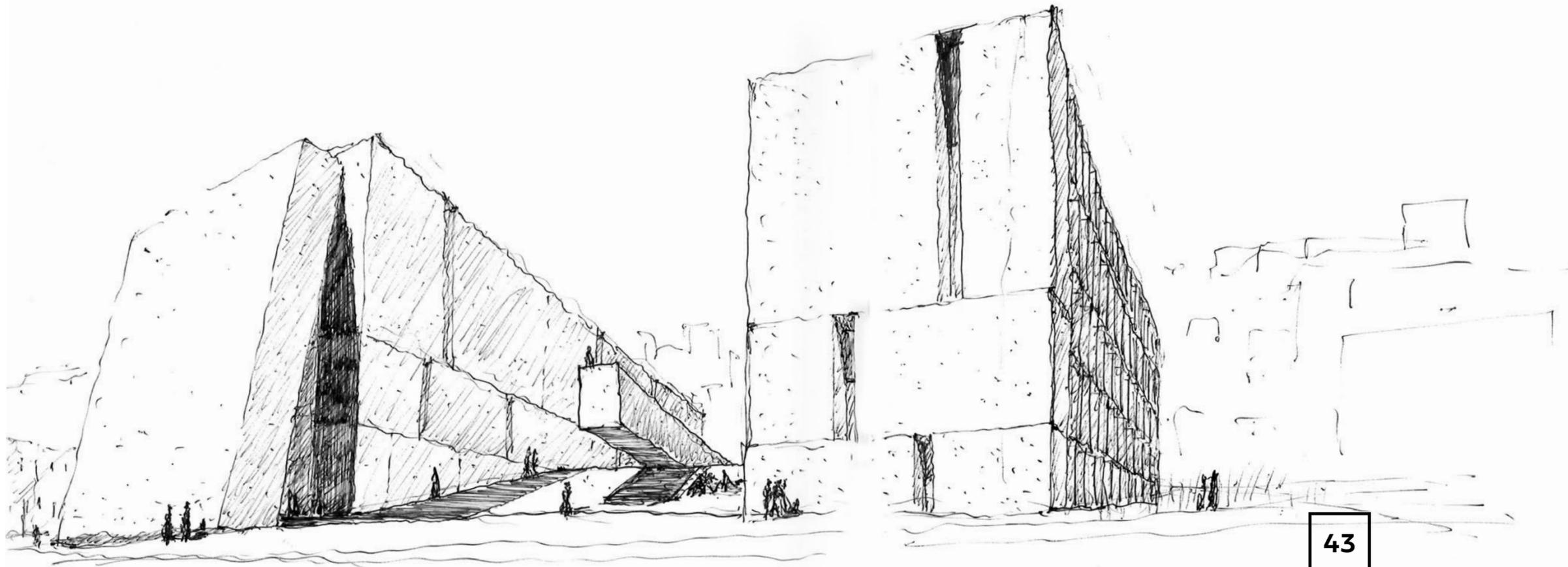
“When choosing materials, diversity is key”

Alejandro Aravena

Alejandro Aravena, the first Chilean to be awarded the Pritzker Prize, recently designed a new building in Lisbon for the Portuguese energy company EDP; which will have its interior covered with Sonae Arauco's wood solutions. In a conversation from Chile, he highlights the role that architecture plays in responding to global challenges such as population growth, scarcity of natural resources and climate change and speaks of sustainability as a rigorous use of common sense. Regarding the choice of materials, Aravena argues that diversity is key and considers wood an extraordinary resource and a counterpoint to concrete.

Photography: Sergio Lopez





EDP Project.
Credits: Elemental S.A.

43

In your opinion, what role does architecture play in responding to the global challenges we face, namely population growth, scarcity of natural resources and climate change?

I believe that architecture can make an important contribution, for example, in responding to challenges of urbanization. It is a fact that people are moving to the cities, and that is good news: it has been proven that people live better in cities. But there is a problem that I call the “3S” threat: Scale, Speed and Scarcity of Means. We will have to respond to this phenomenon, which has no precedent in our history. Of the three billion people currently living in cities, one billion are

below the poverty line. In 2030, of the five billion that will be living in cities, two billion will be below the poverty line. This means that we will have to build a city for one million people a week, with \$10,000 per family, for the next 15 years.

This is a problem that is no longer unique to developing countries.

It is now a challenge that Europe is also facing, under pressure from the refugee and migrant crises. If we don't solve this equation, people won't stop coming to cities. They'll come anyway, but they'll live in terrible conditions: in slums and in informal housing. That will be a

humanitarian and health problem; as well as a security problem, one of growing social and political pressure.

How is it resolved?

There is not yet enough knowledge to answer that question, but I have a clue. Until now, in some countries it was the government that resolved the housing shortage; in others, it was the private sector. In the context of scarcity of resources, I believe that even with both working together there will be no answer. The key may be to integrate a third source of resources - such as capacity, energy and creativity - the people. Creating what I

call Public-Private-People's Partnerships, bringing together States, Markets and People. We will not solve the million-person-a-week equation unless we use the building capacity of the people themselves. With this - and with the right design, planning and security and durability guarantees - slums may not be a problem, but the possible solution. We provide the structure and from there families take over. In the case of Europe, I believe that it is a victim of its own success. There are laws that prevent the quick response required by this rapidly changing context in which we live in.

You have been using this strategy for almost two decades.

Our first project was in Iquique, in northern Chile, in 2004. We were asked to house 100 families who had been illegally occupying half a hectare in the city center, using a \$10,000 grant with which we had to buy the land, provide the infrastructure and build houses that, at best, would have about 40 square meters, when we knew that a middle class family lives reasonably well with 80 square meters. We decided to include families in the process. We started a participatory design process and began testing what was available on the market. The solution was to, instead of thinking of 40 square meters as a small house, consider them as a half of a good house. We've done with public money the half

Biography

The militant architect

Alejandro Aravena was born on June 22, 1967, in Santiago, Chile. He is an Architecture graduate and in 2016 became the first Chilean to be awarded the Pritzker Prize, having previously been a member of its jury between 2009 and 2015. That same year, he was the director of the Venice Architecture Biennale.

Aravena is known worldwide for designing projects: not just housing, but also buildings and public spaces and infrastructure - that address environmental and social concerns, reducing the impact of urbanization and economic inequality in cities.

His leading architecture office - ELEMENTAL - focuses on projects of public interest and social impact, including Housing, Public Space, Infrastructure and Transport.

He collaborated with our shareholder Arauco, namely in the project Plan de Vivienda para Trabajadores (Housing Plan for Workers), whose aim was to provide access to quality housing for employees, suppliers and people in the community, and which, in five years, built 1,200 houses.

He has created major works in Chile (including in the reconstruction of the city of Constitución after the 2010 earthquake and tsunami), the United States, Mexico, China and Switzerland.

The architect has been, since 2011, a director of the Cities Program at the London School of Economics and of the Regional Advisory Council for Latin American Studies at the David Rockefeller Center; and, since 2013, he is part of the management team of the Holcim Foundation.

He is the author of several books, such as *Los Hechos de la Arquitectura* (1999), *El Lugar de la Arquitectura* (2002) and *Material de Arquitectura* (2003), published in more than 50 countries.



45

“In the house of the future - as in the city of the future - the most important thing will be what we do not build, the void we leave the margin for what is to be built.”

that families can't do individually. We identified five design conditions that belonged to the main half of a house, and we spoke to families again to do two things: join forces and divide tasks. Our design was kind of between a building and a house. As a building, it could take advantage of expensive, well-located land and, as a house, it could expand. If, in the process of not being expelled to the periphery while they got a house, families kept their network and jobs, we knew that the expansion would start immediately. Therefore, what started as an initial social housing unit has turned into a middle class unit achieved by the families themselves after a few weeks. So, when you can't do everything on day one, you need to design in such a way that you can grow the house over time, and involve people in the process, so that they can continue the project.

What role do new building materials play in the 'house of the future', in responding to these challenges, namely that of environmental sustainability?

Sustainability results from a strict use of common sense. In relation to materials, diversity is key, as with cultures: the strongest are those that mix races. It is necessary to seek a balance: accept that materials are not expected to fulfill a

function for which they are not the most suitable; to balance their environmental footprint and their purpose, taking into account the time we need the material to last. It is crucial to make the best use of different materials. Wood, for example, is light, resistant, durable and flexible - used in the structure of a house, it allows it to be an evolutionary and changeable space; used in the interior, it is a great complement, a counterpoint to the coldness of the concrete normally used in the exterior - it reinforces the comfort of a space while allowing it to maintain a sense of sobriety. I also believe that it is important to mix solutions with a lot of technology and no technology - *high tech* and *hand tech*; that consider both cultural and emotional components.

How does this happen in the house of the future?

In the house of the future - as in the city of the future - the most important thing will be what we do not build, the void we leave (the street, the square, the coast) the margin for what is to be built. This is what will define quality of life. In order to move towards the future, we have to move from the *less is more* concept, to the *more or less* concept, that is, to make projects a space for negotiation, with participation and space for people to change opinions.

For me, the house of the future is *more or less*, designed so that it can grow and change when people change their minds, a space for negotiation. Whether it's the power of self-construction, the power of common sense, or the power of nature, they all need to be translated into form. That shape is not cement, bricks or wood. It is life itself. The power of synthesis of "design" is just an attempt to put the power of life into the inner core of architecture.

You designed the new EDP building in Lisbon, which will be coordinated by Portuguese architect Carrilho da Graça. What can you tell us about the development process for this project?

We spent a lot of time looking for the right question to start drawing. It is very important to find the right question! That was: what will be the shape of this building? Here the context was very important. The building, which will receive about 800 people, will be located next to the Tagus River, next to the headquarters of Avenida 24 de Julho, where there is a height building limitation. So we needed at the same time several buildings in just one building. We created two large, communicating and relatively low blocks, covered in grey concrete, perpendicular

to the Tagus river. The interior coverings include recycled materials and wood, namely products from Sonae Arauco. In order to guarantee physical and climatic resistance, we designed an opaque facade (the one facing the river) and a glass facade protected by a brise soleil. We wanted to guarantee both high durability and also low maintenance in the building, to keep it sustainable. We were also

concerned about the public space: between the two blocks there is an open access slope and a viewpoint to allow people to see the river.

46



Innovus Coloured MDF from Sonae Arauco in the new EDP building in Lisbon

The building, which should be completed in 2022, will have a gross construction area of 23,800 m² and a useful area for services of 11,400 m², in addition to four parking floors with 257 spaces, of which 97 will be open for public use.

Sonae Arauco's Innovus Coloured MDF solutions will be widely used as interior cladding, in a total area of about 4,000 m², including bathrooms, with a hydrophobic MDF solution. The following references will be used:

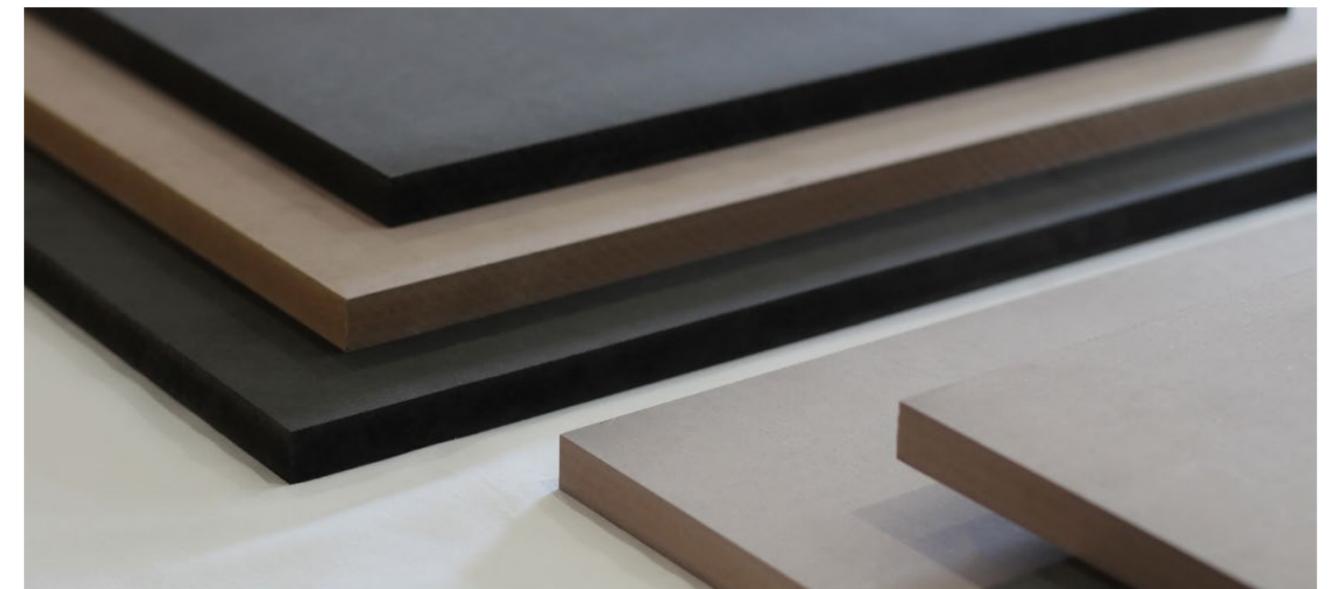
- Coloured MDF Black
 - 25mm
 - 19mm
 - 16mm
 - 10mm
- Coloured MDF Sand Grey 16mm

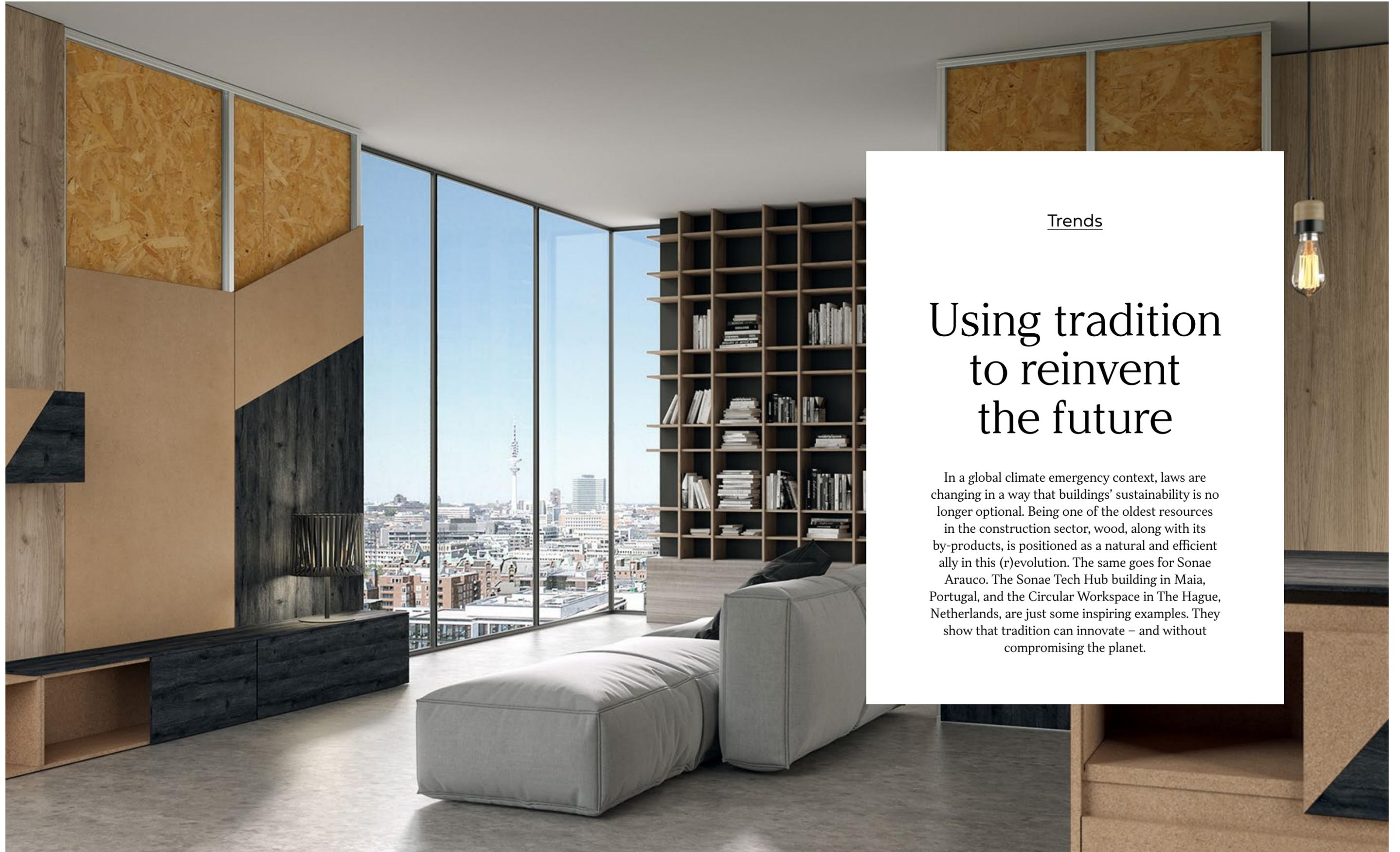
These materials will help fulfil EDP's objective of stimulating greater engagement among employees

through Brand Architecture, the concept of redesigning the interior of company buildings: instead of four work areas typically made available to employees and visitors (open space, offices, meeting rooms and pantry), spaces such as these now exist in the same area: focus/concentration area, informal meeting area, spaces for writing and spontaneous communication, lounge areas, work cafe, speed meeting area, stand up meeting area and closed meeting space, in order to guarantee different approaches.

“The Coloured MDF solution is an efficient option and a guarantee of space sustainability. Besides having a low carbon footprint associated, since it has an embedded colour, it is wear resistant and requires little maintenance. Time plays in favour of this material and not against it.”

Alejandro Aravena





Trends

Using tradition to reinvent the future

In a global climate emergency context, laws are changing in a way that buildings' sustainability is no longer optional. Being one of the oldest resources in the construction sector, wood, along with its by-products, is positioned as a natural and efficient ally in this (r)evolution. The same goes for Sonae Arauco. The Sonae Tech Hub building in Maia, Portugal, and the Circular Workspace in The Hague, Netherlands, are just some inspiring examples. They show that tradition can innovate – and without compromising the planet.

In 2050, the Earth's inhabitants will be 9.7 billion. The world, where 7.7 billion people live today, will be home to another 2 billion individuals over the next 30 years, according to estimates by the United Nations. This growth is forcing the pace of construction to increase both inside and outside cities. If we do not adapt our response to this challenge in a rapid paradigm shift, we will not be able to guarantee the future of the planet. In addition, the climate emergency has moved from discourse to law. Europe has the goal of becoming the first climate-neutral continent by 2050. To do so, it launched the *Green Deal*, a European Ecological Pact that includes a package of measures aimed at enabling European companies and citizens to enjoy a sustainable ecological transition. In the very short term, European laws will become more stringent, for example, requiring that all new buildings have an energy balance close to zero regarding their CO₂ emissions.

The first piece of good news is that one of the key materials for this challenge is also one of the most traditional used in construction and design: wood. The second is that, over the past decade, the industry has invested substantially in innovation, developed new products, and increasingly adapted to market needs and consumer demands without compromising on natural resources, versatility and creativity – and it is ready to be part of this transition.

Wood-based solutions are a valuable alternative to solid wood. Their dimensional flexibility allows the manufacture of versatile products, with different shapes and sizes, tailored to the required needs, and with an easy and quick installation, ensuring homogeneity between parts and high resistance; they have a positive effect on global warming by improving energy efficiency; they have a carbon storage function, helping to

mitigate CO₂ emissions; and at the end of their useful life, they can be recycled and transformed into new products to re-enter a continuous recycling cycle.

A major contribution to sustainable buildings – and with the LEED® certification

Sonae Arauco has invested in the development of **new construction and decorative solutions(*) that, while adapting to a range of different technical requirements, contribute significantly to projects receiving LEED®** (Leadership in Energy and Environment Design) certification – an international seal of sustainability for buildings, dealing with factors from planning to construction and maintenance –, namely in the “Materials and Resources” and “Indoor Air Quality” categories.

Through the ECOBOARD brand, for example, Sonae Arauco markets PB, MDF and OSB panels made using formaldehyde-free resins. The latter – OSB ECOBOARD – are panels especially suited for multipurpose industrial packaging applications, commercial spaces or for exhibitions, and, above all, in the construction industry, namely on roofs, wall and floor coverings – in these areas, the product's characteristics make this contribution a significant asset to projects. In addition, the product supports virtually all types of roofing, including bitumen, bricks and tiles, while its natural wood pattern, easy varnishing and adoption of other textures, allow it to offer a wide range of decorative options.

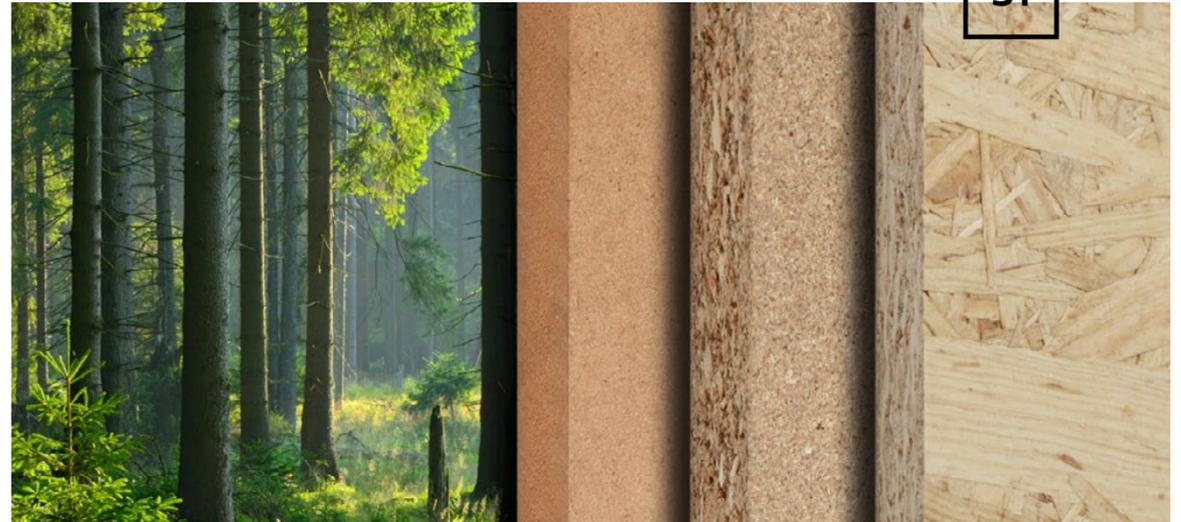
ECOBOARD also brings an additional competitive advantage to Sonae Arauco, which has arisen as the only player worldwide to offer a range of solutions with formaldehyde-free resins across the three major product families: PB, MDF and OSB.

AGEPAN® SYSTEM: functionality, safety, healthy living

The AGEPAN® SYSTEM from Sonae Arauco is also able to play a key role in wood products asserting itself as an alternative to materials from fossil sources in construction projects. AGEPAN® SYSTEM is based on an integrated system of solutions for construction using high quality insulating fibreboards, DWD boards and OSB ECOBOARD, functionality and reliability for use on roofs, walls, floors and ceilings. Along with the environmental advantage, these solutions have a positive impact on the economy, since construction is moving at a fast pace, the financing period for builders is shorter; homes built with the AGEPAN® SYSTEM offer excellent insulation values even with thin wall thickness, thus creating additional space. Tested sound and fire protection constructions provide security and comfort.

The importance of the first step

There is a path forward to enhance the use of wood and allow it to reach its maximum potential in this context. It requires continued research on materials to evolve in design and production, and on the behaviour of wood in terms of fire safety, soil dynamics, robustness and durability. But the challenges are becoming increasingly greater and more urgent, and this material, which adds arguments of technical performance to ecological credentials, has numerous possibilities to positively respond.



*** The entire Core & Technical portfolio at Sonae Arauco – PB, MDF and OSB – meets requirements that contribute to the LEED® certification.**

- The **ECOBOARD** portfolio comprises a complete range of OSB, PB and MDF products that use formaldehyde-free resins;
- The **FIRE X (FR)** range features PB and MDF products whose fireproof characteristics and lower flammability help reduce combustion and heat in addition to reducing or delaying the spread of fires;
- Sonae Arauco developed the **HYDRO X (MR)** range for spaces with a higher level of humidity. It includes products resistant to moisture, with very low swelling values and excellent dimensional stability;
- The **SUPERLAC** PB and MDF solutions, specially developed for demanding finishing techniques, are the best option when, for example, lacquering is required;
- **NOVOLAC** MDF is a very versatile product that is ideal for designers and manufacturers. Taking advantage of its optimized density profile and use of finer fibres, it enables deep machining while keeping the surface stable and smooth, making the product suitable for manufacturing furniture, decorations, wall cladding, doors and other high-level interior applications.

In addition, all Sonae Arauco products comply with the rules of the EU **REACH** legislation (REACH: Registration, Evaluation, Authorization and Restriction of Chemicals), which is aimed at protecting human health and the environment. The company is also certified by the **PEFC™** chain of custody (*Programme for the Endorsement of Forest Certification™*) and **FSC®** (*Forest Stewardship Council®*), ensuring the use of raw wood materials from responsible sources.

Green construction with Sonae Arauco's products

Circular Workspace, The Hague, Netherlands

Contractor: Colliers International
Interior architect: Christa Vermeeren
Interior design: Formmoore Interior Design

Sonae Arauco's products: Innovus wood visuals.



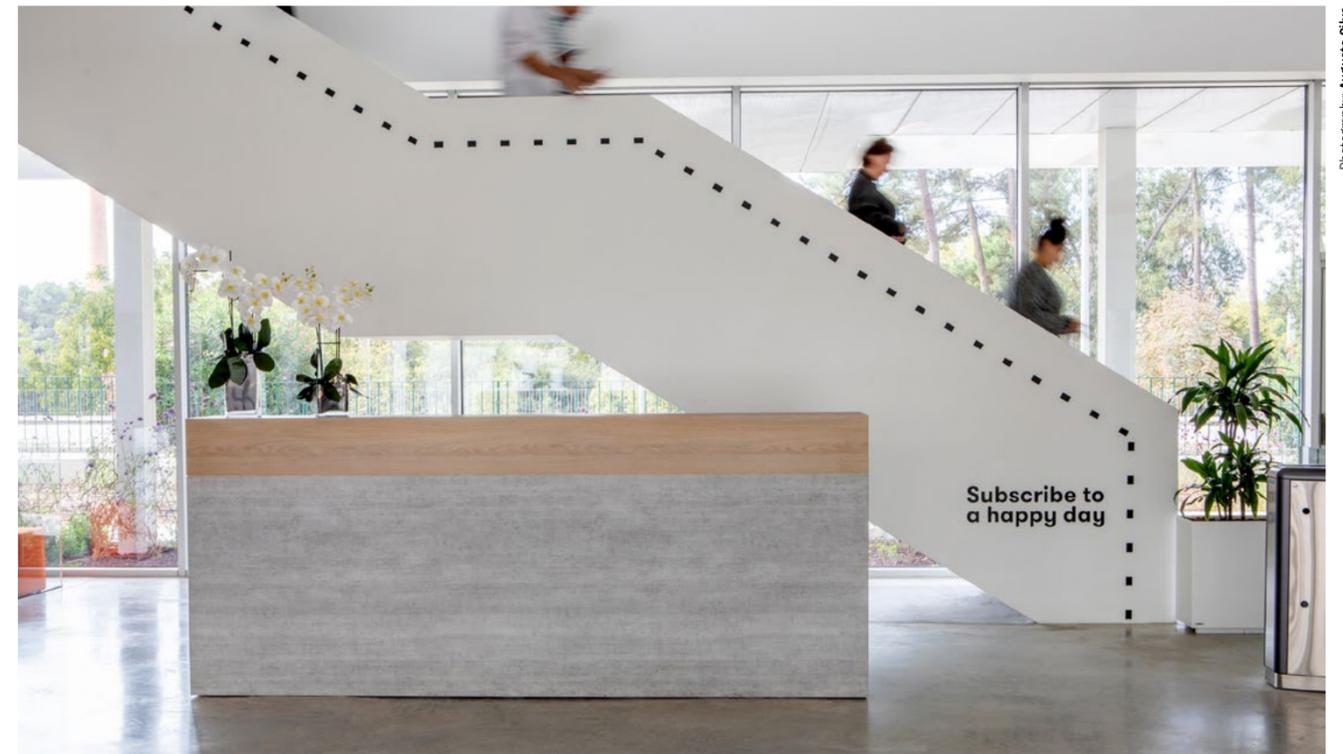
Photography: Leon van der Velden



Sonae Tech Hub, Maia, Portugal

Architect:
Miguel Pimenta, Barbosa & Guimarães Arquitectos

Sonae Arauco's products: the decoratives from the Innovus collection were used to coat the interior walls of the space, on the counter and pillars of the reception and on the conference tables and tabletops, with wood visuals, single-coloured and new Stucco, Spirit and Flow finishes. The ceilings on the ground floor use OSB.



Photography: Augusto Silva



CORE & TECHNICAL
Products

WHERE
EVERYTHING
BEGINS

PB | MDF | OSB

