

# TECNO MAGAZINE

by TECNOPOL

## The future of construction sector after COVID-19



Despite the state of alarm decreed by the Government has modified our industrial activity, from TECNOPOL we continue working every day to continue developing, producing and shipping our products around the world.

Complying with the indications of the Ministry of Health, and in order to ensure the integrity and security of our whole team, we have changed our working methodology adapting it to the new situation.

Our customer service, administration, marketing and sales teams are working remotely to continue assisting you as usual.

**Tecnopol**

[www.wedevelopvalue.com](http://www.wedevelopvalue.com)

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# THE CONSTRUCTION SECTOR IN SPAIN: A TESTING TIME AHEAD



por:

**JOSEP RAMÓN FONTANA**

Euroconstruct Delegate in Spain. Prospective  
Manager for the Catalonia Institute of  
Construction Technology (ITeC)

The ramifications of the coronavirus crisis are still unknown, but forecasts have already emerged (FMI, Bank of Spain, Funcas) which predict a fall in the GDP of between 7 and 9% for 2020 and resurges of between 4.5% and 6% over 2021. Until more specific data is available in regard to the construction sector, we can only refer to the evidence from previous

crises, which have shown that construction is capable of growing faster than GDP when the economy is buoyant but also offering less resistance when there is a downturn in the cycle. Applying this principle, one cannot discount a double-digit slump in the construction sector in 2020.

However, one cannot necessarily conclude from these precedents that construction will suffer worse from the economic crisis than the rest of the economy. There are some factors which indicate this scenario, but others which differ and additional circumstances which we cannot yet interpret:

### HIGH RISK

For a while, public spending will need to prioritize assistance and subsidies to reduce permanent damage to the productive framework. Although public investment in construction could be used as an instrument to sustain the economy and employment, it is hard to actually imagine a significant surge of public works within Spain.

### MODERATE RISK

Over recent years, the construction sector has been very careful to scale production according to demand. The result is that stock levels (both housing and non-residential property) are reasonably affordable, provided the health crisis does not persist. In all events, it is nothing compared with the dramatic building boom which resulted in the creation of SAEB in 2012.

On the other hand, the total shutdown of construction has been limited to two-weeks. Bearing in mind that health

considerations could easily have led to an extension of the "hibernation" period, a large part of the sector has managed to avoid the full impact of this inactivity.

### UNCERTAINTIES

People's patterns of behaviour are going to change. A population less inclined to travel will result in reduced leisure-based construction and fewer holiday residences and properties designed for those seeking to retire abroad. But it is also possible that some families will look at repairs and extension work on their houses that they have identified during their confinement.

Lastly, we should look closely at the property market indicators. Experts in this sector are predicting a relatively active reaction (financing will still be available, unlike the previous economic crisis), although it may be uneven (the security of 'prime' assets will again be a factor). It will be essential to the construction sector that property demand does not collapse, as shown in 2014-2015, and the building industry will not recover until the real estate sector does.

This situation, in which worrying signs exist alongside other more benign indicators, is not ideal for confronting the new challenges faced by the sector. In all events, precious experience in how to deal with adverse times and a proven capacity for resistance will be invaluable.



# RESILIENCE & BUILDING FOR TOMORROW

According to ONU-HÁBITAT the concept of resilience describes the ability of an urban system to maintain continuity after damaging impacts or catastrophes, while contributing positively to adaptation and transformation.



At Tecnopol there are a number of facets to our concept of resilience; firstly, from the perspective of the construction materials used and our role as the manufacturers and designers of construction solutions which have a clear and positive impact on the maintenance of all types of buildings and infrastructures. Secondly, from the standpoint of social responsibility and a global commitment to sustainability and the diversity of existing communities. And finally, from the business perspective in the face of the growing threats of climate change and Covid 19, and their impact on our lives and economy. In regards to all these issues, Tecnopol plays an active part in the resilience of our cities, places high value on the importance of the construction industry and contributes to global solutions that are sustainable and eco-efficient.

To facilitate this form of working, it is essential to promote digitalization as a tool to promote communication between the players. This challenge, alongside others defined under the "Construction 2050" initiative represents the new built environment which will require the following:

- More jobs, safer and more secure, which will attract new employees with the right profile and qualifications.
- Decarbonization, which contributes towards the Sustainable Development Objectives (SDO) and the halting of climate change. Sustainable industry in which construction and demolition (C&D) waste are reduced and a circular economic strategy is promoted.

*The construction ecosystem imposes a method of collaborative working in which cooperation and codependence between all the players involved is key.*

Recently 17 major European construction bodies, subsequently joined by a further 33 organizations, asked the EU Commission to reinforce the construction industry with a new vision for the built environment, through the "Construction 2050: Building Tomorrow's Europe Today" initiative.

Although this is a European initiative, it is clearly transposable to the rest of the planet and largely encapsulates the Tecnopol commitment in the face of the changes we are experiencing: today, the construction ecosystem imposes a method of collaborative working, in which cooperation and codependence between all the players involved is key.

- Digital transformation with a more innovative sector as a result of support for research and technology.
- Research and innovation.
- Maintenance and investment in infrastructures.
- Ensuring equal conditions throughout the EU and internationally.
- Urban development and smart cities.



**DANIEL ARIAS ARANDA**

## **CHEMICAL-BASED COMPANIES WILL NOW BECOME COMPANIES OF STRATEGIC PRIORITY**

They will be the pillar on which the economies will be based to confront this and future crises that may arise.

**In these "Strange Days" we are living, which advice would you give to companies to be resilient?**

We are living in times of great uncertainty. The time for business decisions has been getting shorter for years. Consumers' tastes and wishes change very quickly at the same time technology evolves. Companies have been adapting to these changes rapidly for decades.

However, this unexpected turn of events with the Covid19 crisis has left companies without the capacity to respond in a short term. Events

have been changing day by day, challenging even the most advanced decision support systems. There will be a paradigm change from this year on we are already living during these "Strange Days".

Companies, from now on, will have to be much more flexible and have rapid protocol responses already prepared in advance. The key is supply chain management. When the chain fails, losses are sometimes unmanageable. We are experiencing this first-hand with healthcare supplies.



A protocolized emergency strategy involves intermediate warehouses with medical equipment prepared for quick logistic delivery in case of a humanitarian disaster.

Spain had never previously prepared for this, like many other countries, and currently a reactive rather than proactive strategy is being implemented, which makes the virus go ahead of us.

This case is applicable to the business field soon. Logistics is the key to being prepared for future crisis scenarios.

**Climate change is increasingly affecting our lives. What can we do from an economic perspective to make cities more sustainable?**

There are two factors that affect sustainability. The first is the development of new technologies, and the second is the effective implementation of those technologies linked to the changes in citizens' lifestyles.

In large cities, the major sources of pollution come from fuel burning (mainly vehicles and old oil-fired boilers). The implementation of quality public transport for particularly vulnerable groups, as well as the increase in energy efficiency, become fundamental actions for sustainability.

However, citizens need to be aware that the old mobility paradigms will change. In this case, if there is one positive thing about the Covid19 crisis is that it will redesign the way we move around.

Teleworking, whenever possible, avoids unnecessary travel and

therefore CO2 emissions. The social distancing to which we will be subjected in the coming months will limit the demand for commuting and perhaps we will consider, whenever possible, the option of walking more.

On the other hand, economies of proximity (purchase of food or supplies from nearby suppliers or even the growth of urban gardens) will increase mainly because of the uncertainty created. Cities will tend towards sustainability out of necessity.

**In a sector such as construction, increasingly aware of the implementation of sustainable criteria, what systems or processes should be applied in order to become more eco-efficient?**

There are urban concepts such as the Passiv Haus that will necessarily have to be developed and increasingly applied. Materials engineering will play a leading role in designing lighter and more resistant materials at a lower cost.

In this context, circular economy will be progressively incorporated into the strategic plans of companies. Of course, energy efficiency aimed at self-sufficiency will develop to the extent that people will not want to depend on low-resilience production systems.

All these concepts are the basis of Industry 4.0 that we will see implemented quickly after this crisis.

BIO

**Daniel Arias Aranda**

Professor of Business Organisation at the Faculty of Economics and Business Studies at the University of Granada

He has published more than one hundred scientific publications on Operations and Business Management.

He is a member of the Board Council of the Innovation and Development Agency (IDEA) of the Andalusian Regional Government and a researcher for the European Union's project H2020 on "Supply Chain Resilience in Emergency Situations" with the University of Wuhan.

He also contributes to Santiago Camacho's "Strange Days" (Días Extraños) podcast with the "Strange Economy" section.



*The adaptation capacity of the different companies and markets will set the guidelines to follow.*



**From the perspective of the Production and Operations Management, a subject you are an expert of, what can a company such as Tecnopol improve, when distributing its products in the five continents?**

Chemical-based companies will now become companies of strategic priority. They will be the pillar on which the economies will be based to confront this and future crises that may arise.

In order to be resilient, companies will obviously have to implement a continuous and intense policy in R&D together with a logistic capacity of fast response with a very close collaboration with suppliers in systems based on Lean Management.

R&D management will be based on the generation of large "innovation libraries" together with a closer collaboration with other companies and research entities (universities, research centers, ...) in order to promote the implementation of different innovations for different applications, and all of this, within a short period of time. One thing we are learning in this crisis is the value of time, especially in the chemistry and biotechnology areas.

**How will markets respond to the health emergency created by Covid19 and the climate emergency decreed by multiple institutions?**

The lack of contingency plans has created numerous speculative markets, especially in the health field, where supply and demand pricing are ahead of human lives.

If a virus with a mortality rate under the 3% (according to the different age ranges) has caused chaos even in the financial markets, what would have happened with higher mortality and infection rates?

Clearly, we will recover from this crisis with a cost that is difficult to calculate at this time. There will be economic sectors that will emerge strengthened, such as health, biotechnology, chemicals and other sectors that rely their current activity on the digital economy.

But there will be others that will even have to reinvent themselves such as the tourism sector.

I foresee in this sector greater difficulties for big tourist and hotel companies, but a boost for rural tourism, as a result of the social distancing that will be imposed on us in this and the following phases of this crisis. Other sectors such as the agri-food sector may also be

reinforced. The adaptation capacity of the different companies and markets will set the guidelines to follow.

**When and how do you expect the construction market to recover?**

It's very difficult to make predictions at this point. Logically, economic crises have a very negative impact on the construction market. The effort we will have to make is going to be considerable before returning to the economic situations we had before Covid19.

**¿In which projects or ideas are you working on currently?**

My research team efforts are currently focused, on the one hand, on the REMESH EU H2020 project about Supply Chain Resilience in Emergency Situations in which we work together with universities from Germany, United Kingdom, Ireland, Sweden, Thailand, Vietnam and especially Wuhan University, with whom we are in constant contact.

The other line of research is focused on the Erasmus+ project from the UE called AGROS in which we work on innovation and knowledge management for the development of sustainable agriculture together with our partners from Greece, Cyprus, Serbia, Croatia and Lithuania.

# A new MEMBRANE is currently in the FINAL PHASE of DEVELOPMENT

Our R+D team is currently working on an **easy application polyurethane waterproofing membrane** with some unique properties.

Details available very soon on our website and the social networks. **Follow us!**

[www.wedevelopvalue.com](http://www.wedevelopvalue.com)



# TECNOCOAT P-2049 OBTAINS 2 NEW CERTIFICATIONS.

TECNOCOAT P-2049 has recently received recognition from the leading construction authorities in France and Hong Kong as **the first polyurea to obtain the AVIS TECHNIQUE and GREEN LABEL standards respectively.**

**tecnocoat**  
HOT SPRAY COATINGS

# CSTB

## Avis Technique n°5.2/19-2665\_V1



The Avis Technique is a technical information document relating to the suitability of a product, material, part or component used in innovative construction.

Following the CSTB evaluation of the **TECNOCOAT P-2049** waterproofing system, it received a favorable valuation and has been certified as a **product suitable for use in its sphere of application**, namely “Waterproofing products and processes for roofs and terraces, subterranean walls and floorings”, specifically categorized as a “Liquid waterproofing system, with a resin base, prepared on-site for inaccessible roofs, technical flooring, garden floors and those accessible to pedestrian traffic”.

**TECNOCOAT P-2049 is the first polyurea to obtain this certification.**

### Document Technique d'Application

Référence Avis Technique **5.2/19-2665\_V1**

*Système d'étanchéité liquide de toitures inaccessibles, techniques, et accessibles piétons à base de résine élaboré in situ*  
*In situ resin-based liquid waterproofing system for inaccessible roofs, technical roofs and roofs accessible to pedestrians*

### Tecnocoat P-2049

Objet de l'Évaluation Technique Européenne

**ETE-11/0357**

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**Groupe Spécialisé n° 5.2**  
Produits et procédés d'étanchéité de toitures-terrasses, de parois enterrées et couvage

Publié le 14 avril 2020



Commission chargée de formuler les Avis Techniques et Documents Techniques d'Application (arrêté du 21 mars 2012)

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# CIC GREEN



## PLATINUM product approval

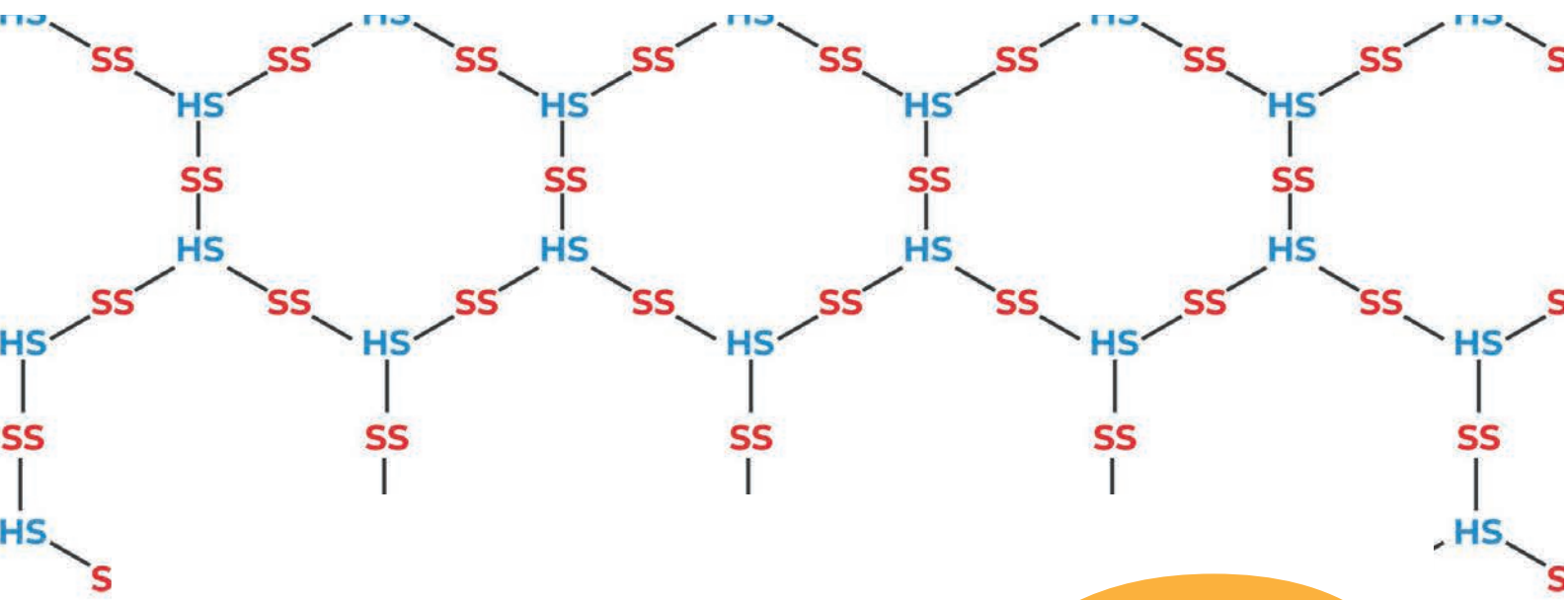
The new CIC plan for “Ecological products certification” aims to transform Hong Kong into an eco-friendlier built environment by providing a certification platform for construction products and materials.

**TECNOCOAT P-2049 has obtained the highest certification with the “platinum seal”.**

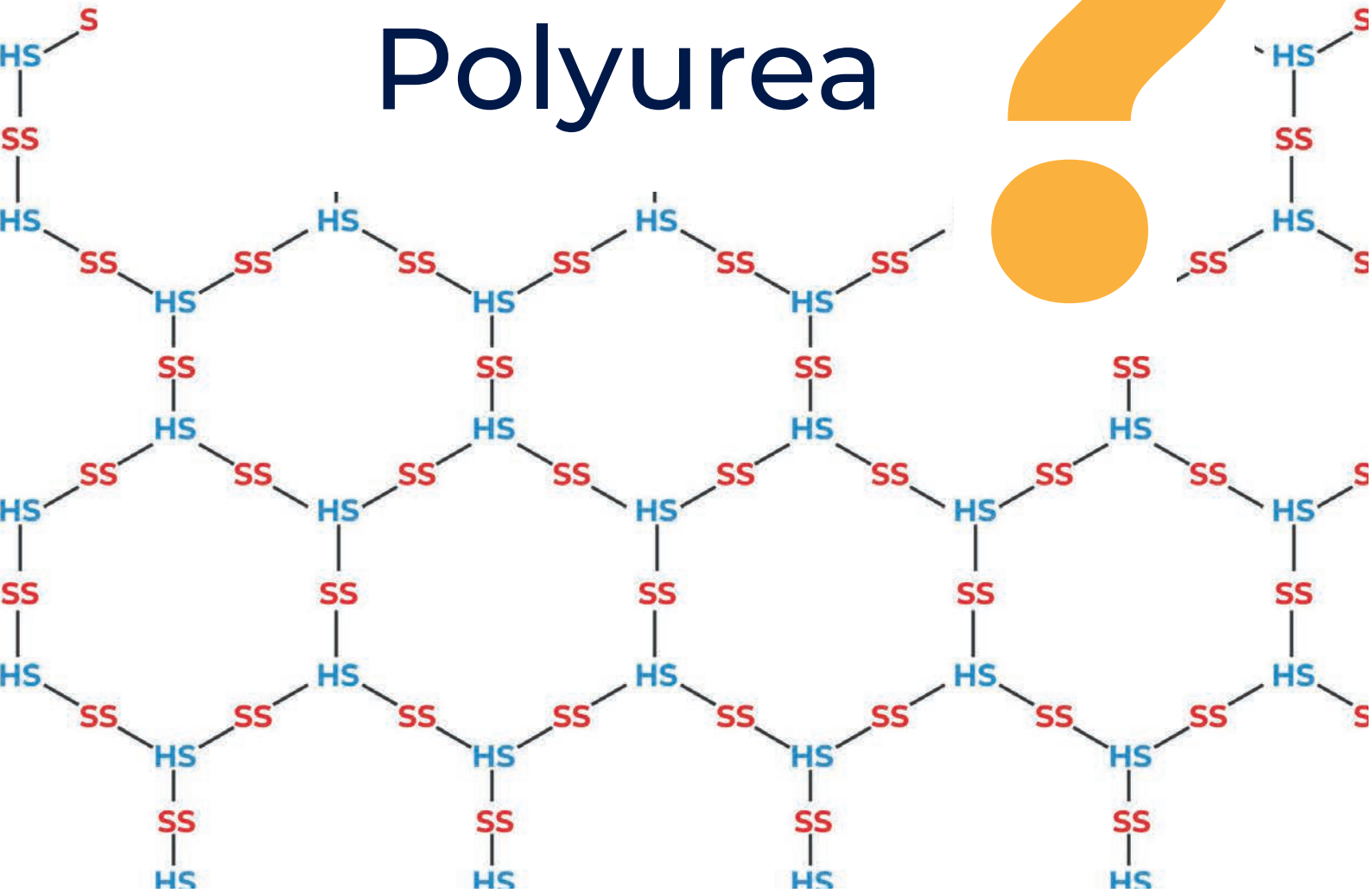
The certification criteria include the carbon footprint, environmental management systems, efficiency, performance, toxicity for humans, impact on the ecosystem and consumption of resources.

**The plan identifies products which have significantly reduced their impact on the environment.**





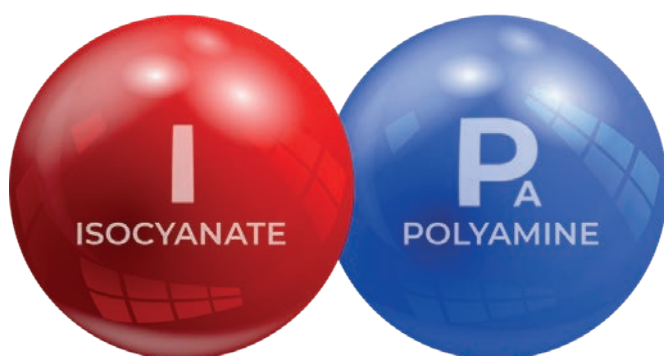
# What is Polyurea ?



Polyurea is a synthetic polymer obtained from the reaction of a diamine with a diisocyanate. This polymerization reaction is very similar to that of polyurethane, but in the case of polyurea the resulting link is of the "urea" type, which is why it is called polyurea.

With this link we achieve that from the molecular structure an insensitivity to humidity is generated, which converts the POLYUREA, as long as it is pure, into the best waterproof membrane that exists.

We say "as long as it is pure" because there are "hybrid" polyureas on the market, which are a mixture of polyurea and polyurethane. These membranes, although they are excellent options for waterproofing, do not achieve the high mechanical and physical properties of pure polyurea in terms of elongation, abrasion resistance, etc.



## Pure polyurea

Molecular structure completely insensitive to moisture. Pure polyurea does not react with water making it the best waterproofing material.

## Hybrid polyurea

A polyol participates in the molecular structure of the hybrids, which gives it properties halfway between pure polyurea and polyurethane.



## Polyurethane

Polyurethane needs a catalyst in its structure which adds an extra molecular bond. Excellent waterproofing material but with lower mechanical properties than polyureas.

# Aromatic pure polyurea

Aromatic hydrocarbons are derived from benzene (toluene, xylene, ...) and receive this name because many of them have an intense but generally pleasant smell.

In organic chemistry, the aromaticity of hydrocarbons results in more stable molecules because electrons can circulate from one bond to another through the aromatic rings.

In the field of waterproof membranes such as polyurea, the fact that they are aromatic means that, although they are of the highest quality and have excellent properties, they are more affordable.

It also means that they can be affected by UV radiation, so they normally need to be protected.

## Polyurea Application

The application of the polyurea is normally performed using a high pressure and hot spraying two components equipment. That equipment must be able to supply a pressure of 2.700 psi at a temperature of 70°C.

Hot applied polyurea dries in only 3 or 4 seconds.



*TC-2049: equipment able to supply a pressure of 2,700 psi at a temperature of 70°C.*

## Advantages and Properties of Polyurea

There are many advantages and properties of the polyurea membrane, we detail those most important and that differentiate it from other waterproofing solutions.

- ✔ Seamless, overlap-free membrane with maximum flexibility
- ✔ Elongation of up to 600%.
- ✔ Dries in 4 seconds, put into service in less than 24 hours.
- ✔ Coating of any existing irregular geometry or shape with fully adhesion.
- ✔ Maximum adherence on any support.
- ✔ Insensitivity to water and humidity.
- ✔ Applicable on any type of substrate.
- ✔ 100% solids (VOC's zero)
- ✔ High density and watertightness.





## Polyurea uses

Polyurea properties make it a product for applications where waterproofing, protection and durability are fundamental. The endless possibilities for polyurea coloration are a clear advantage in those applications where the aesthetic aspect plays an important role. The adaptability and adhesion of the polyurea allow use in almost any application requirement waterproofing, coating and / or protection can include: waterproofing and corrosion protection on steel, concrete and many other supports.

- ✓ Resistant to abrasion, compression, tearing.
- ✓ Resistant to U.V. rays.
- ✓ Resistant to acid or alkaline media and various chemical agents.
- ✓ Resistant to the effects of weather.
- ✓ Offers excellent protection against corrosion.
- ✓ Chemical resistance.
- ✓ Anti-root.
- ✓ Working temperature range from -40°C to +180°C.
- ✓ Solvent-free.
- ✓ Excellent stability during storage, stable at cold temperatures.
- ✓ Applicable in damp support conditions.

Protective coating of any construction element, whatever its geometry.

Buried walls and foundations.

Waterproofing of roofs, terraces, balconies, overhangs, ...

Industrial and production facilities.

Stainless steel, galvanised, sheet metal, zinc, pre-lacquered and fibre cement roofs for encapsulation.

Energy, recycling and waste treatment plants and storage facilities.

Water tanks waterproofing (with certificates of non-migration to drinking water / ethanol).

Fish farms, purification and petrochemical plants.

Coating of bridges (under asphalt) and civil sector elements.

Areas with anti-static flooring.

Fire protection (pavements and coatings).

Pavements and roofs of car parks with road traffic.

Naval sector.

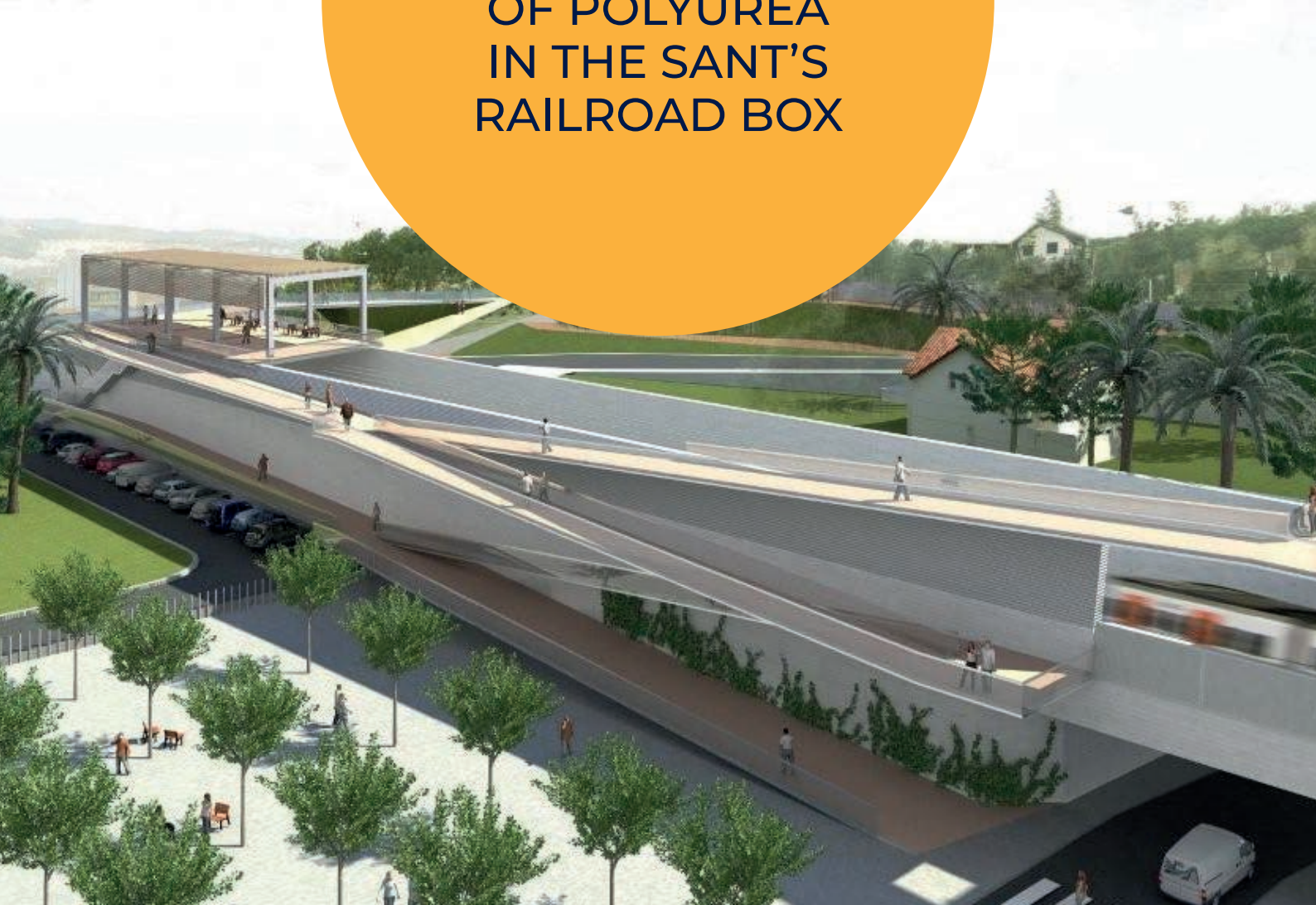
Vehicle coating.

Thematization of parks, fairs and exhibitions.

Garden roofs and facades



**CASE STUDY**  
**THE IMPORTANCE**  
**OF POLYUREA**  
**IN THE SANT'S**  
**RAILROAD BOX**





The SANTS central railway station is the most important train station in the city of Barcelona. It was inaugurated in 1979 after long works that were agreed at the end of the 1960s. It is the second one station train in Spain, after Madrid-Atocha with a volume of travelers close to the 30 million per year of which more than 18 million correspond with the local area traffic.

The station has 14 tracks, 6 of international width and 8 in width Iberian (Spain and Portugal local width). Until the year 2007 the tracks that happened in direction southwest respect to the station crossed the Sants quarter creating a insurmountable artificial barrier.

With the construction of a big concrete block to cover the train railway that have historically divided the neighborhood, has given rise to a large garden of 800 meters long that has become a meeting point what until now was border. This garden is the only elevated in the city, with up to 12 meters high in some points.

It is a project of high importance for the people of the area because gives the citizen an area for take a walk, relaxation and internal communication, gained to an area that until now was only an infrastructure external of connection . This fact unites the area, transforming the two adjacent neighborhoods into a more comfortable and relaxed areas for urban living.

### PROJECT MAIN DATA

#### PROJECT

WATERPROOFING OF THE TRAIN ACCES  
COVERAGE TO THE SANTS STATION

#### LOCATION

BARCELONA (SPAIN)

#### SCOPE

21.375,25 m<sup>2</sup>

#### OWNER

BARCELONA DE INFRAESTRUCTURAS - BIMSA

#### WATERPROOFING SYSTEM

PRIMER PU-1050 + TECNOCOAT P-2049

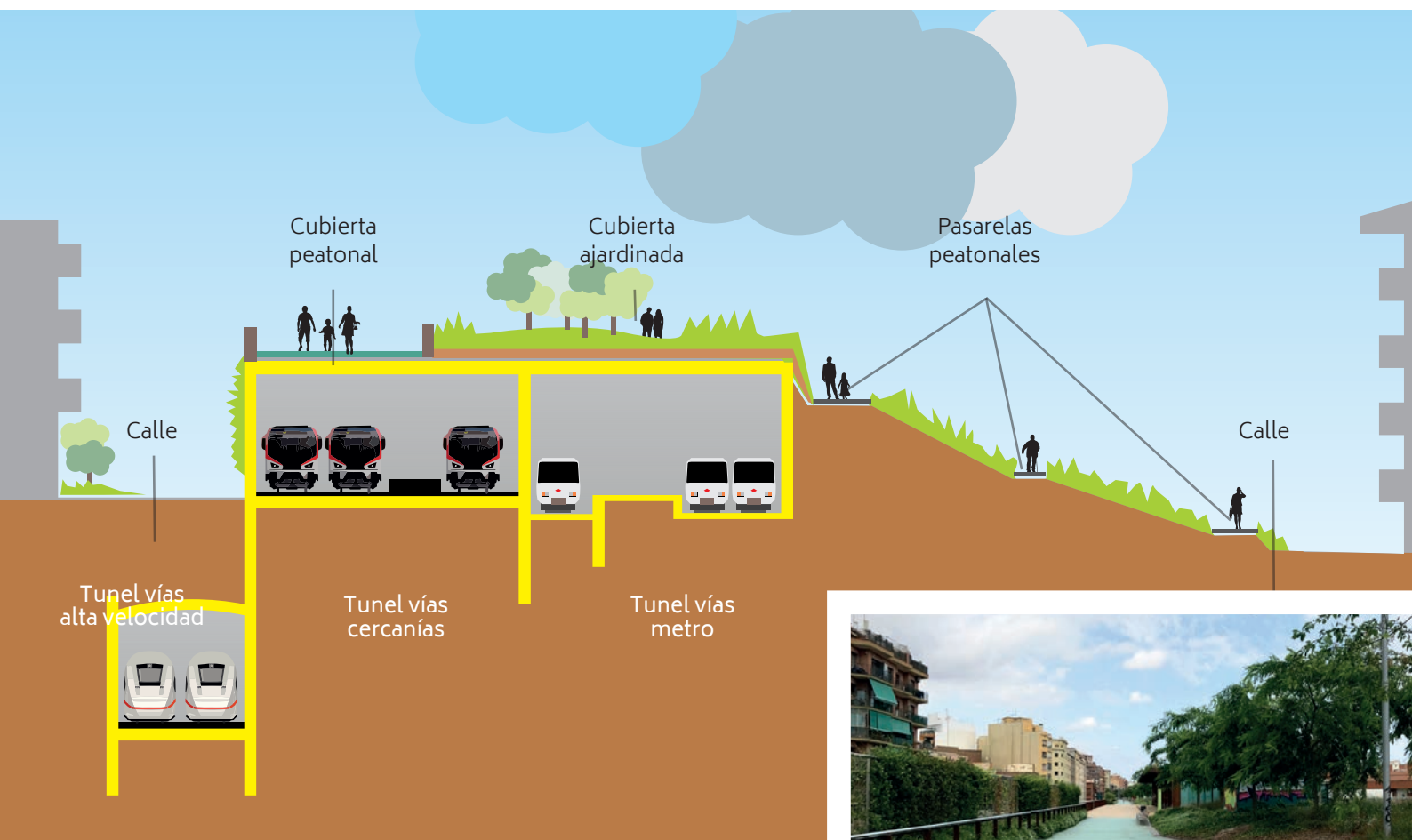
### REQUIREMENTS OF THE PROJECT

- Complete sealing of the concrete slab
- Reduced overall execution time
- Possibility of re-waterproofing afterworks carried out, without risk and with easily execution

In the waterproofing project, the complete tightness of the top concrete slab was required.

The project specifies the main uses for the upper floor: for community general use, green areas, landscaped and several electrical and communication pipelines installations.

As you can see in the pictures, at the end of this technical document, in many cases, were waterproofed concrete pipes after the first main layer on the surface.





## ENVIRONMENTAL CONDITIONS

The project was carried out during the year 2015 and most of the application was realized in the spring and summer months therefore the climatological conditions were favorable to the preparation, application and drying of the products involved.

## WATERPROOFING SYSTEM

### 1. SURFACE PREPARATION

Concrete milling / polishing using a special polishing equipment to do a finish of the Concrete Surface Profile CSP-2 scale.

Perform this action for surface preparation, and apply our resin as a primer, facilitated the application of the polyurea membrane by avoiding the appearance of "pinholes", this action made the spraying faster, so, they reduce costs, and provided greater security to the tightness of the project.

### 2. PRIMING USING POLYURETHANE RESIN PRIMER PU-1050:

Two cross-linked layers of 100% solids polyurethane resin PRIMER PU-1050, with a total consumption of about 350 g / m<sup>2</sup> were applied using a short hair roll

The dry time between layers was reduced to 1 hour due to the temperatures in the time of application

### 3. WATERPROOFING USING TECNOCOAT P-2049 PURE POLYUREA

Application of pure polyurea membrane TECNOCOAT P-2049, with an average thickness of 2 mm.

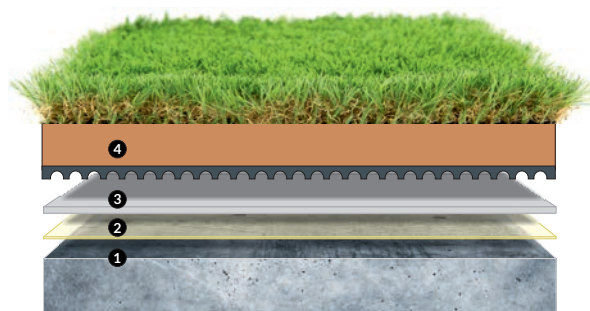
Mix two components (isocyanates and amines), and continuous hot spray application on the surface, using a special hot spray machine

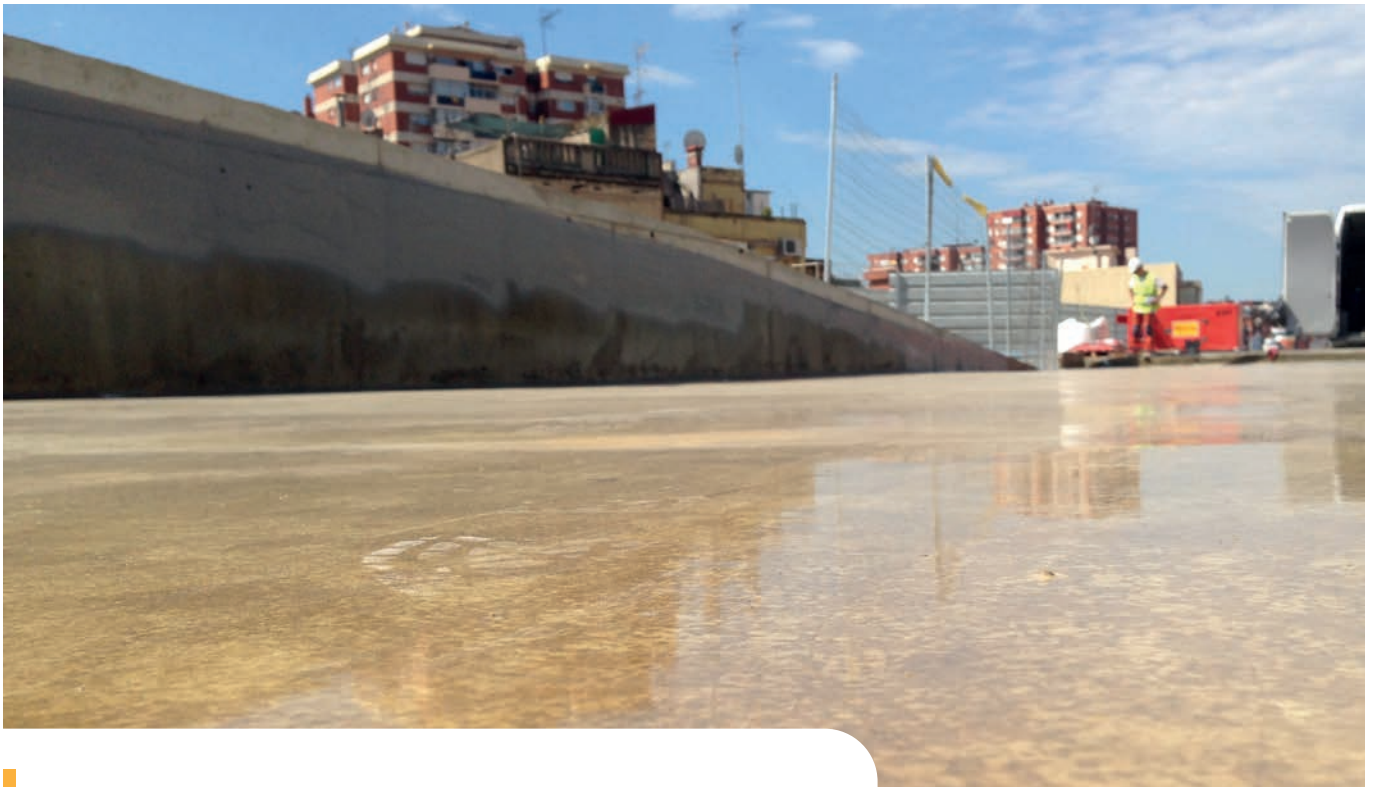
General applications were made to the surface of the concrete slab, and other specific applications in areas near sidewalls, pipes or concrete covers, build up after the execution for passage of installations.

### 4. MULTIPLE FINISHES

In this case the membrane was completely covered by floors and gardens so, without exposure to UV rays.

Due to the great magnitude of the project, there were different finishes: ceramic pavements, granites, mortars, children play areas, green gardens, etc ...





PRIMING PROCESS WITH PRIMER PU-1050





WATERPROOFING PROCESS WITH  
TECNOCOAT P-2049





### TIGHTNESS PROOF

The tightness test is performed as an internal quality control of the execution. The technical direction of the project (architect director and engineer), they plan in a statistically the areas throughout the entire execution where will make and check the waterproofing of the waterproofed area. Everything is subscribed under the Quality Control Program of the project manufacturing, reception and commissioning of the materials involved.

The tightness test consists in filling these zones with a height of water around 5 cms, during 48 hours in continuous immersion, and a posterior verification of the not existence of leakage through the applied membrane.







URBANIZATION



## ADVANTAGES OVER TRADITIONAL SYSTEMS



1 Supports heavy traffic and directly storage of materials from the jobsite on, without affecting or damaging the watertightness of the applied polyurea membrane. It helps the he carrying out of other masonry works.



2 Tecnocoat P-2049 has a good adhesion directly of the mortar and other cementitious materials presents on the jobsite.



3 Easy reparation or waterproofing in case or posterior masonry works



4 Waterproofing of complex surfaces, even with multiple insertion points.





BIO

**SERGI GODIA**

**Graduated from the Higher Technical School of Architecture of Barcelona in 1970.**

He has carried out numerous architectural works focused on public facilities: Schools, Health Centres, Sports Facilities, Libraries, Hotels and Administrative and Office Buildings.

In 1992 he participated in the construction of the Olympic Village in Barcelona with the building of a set of housing, health center and offices with 50,000m<sup>2</sup> built.

It has built several parks in the Barcelona area: Parque de la Solidaridad, Parque de las Planes, Paseo Marítimo and Parque Litoral de Sant Adrià, etc.

Together with J. A. Acebillo, he has carried out several urban development plans in European cities: Master Plan for the Forum 2004 in Barcelona, Singuidunum-Belgrade in 2010, Hellinikon-Athens in 2011, Varna-Bulgaria, Oostende-Belgium, etc.

**SERGI GODIA**

**ELEVATED GARDENS OF SANTS IN BARCELONA**

Throughout the past century, the line of train and metro tracks through the district of Sants (Barcelona) has been an open wound in its urban fabric, dividing the district into two virtually unconnected parts along an 800-metre section, from Plaza de Sants to calle Riera Blanca, creating the resulting urban dysfunctions in terms of acoustic pollution and deterioration of the surroundings.

In the year 2002 the city's administration decided to start up an urban renewal project for the Sants railway corridor. Having ruled out the option of putting it underground, it was decided to confine it inside a lightweight, transparent box for a good part of the section, with the roof being turned into an 800-metre-long raised and landscaped boulevard which would later be extended along the neighbouring municipalities as far as Cornellà, giving rise to a 5-km-long "green corridor".

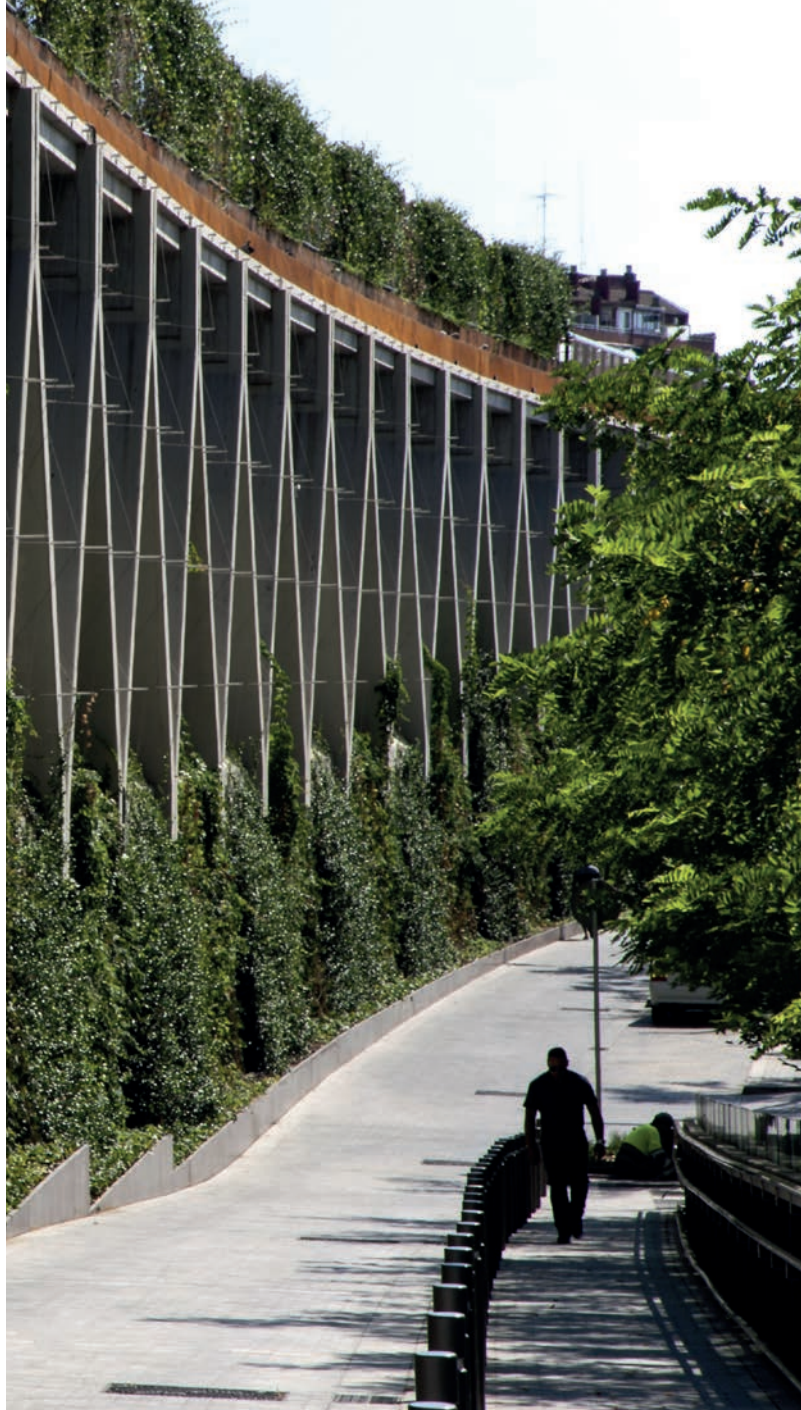
The structure that holds up the building/container is comprised of prefab concrete parts in a sequence on a diagonal which adopts the shape of a great Warren beam evoking the old railway bridges, leaving large empty triangles that lend themselves to glazing them over to allow a view of the train passing through the city, reducing its acoustic impact to a minimum. Not fully glazing the building allowed three great green inclines to be built which rise from the lowest levels right up to roof level. These embankments "anchor" the building into its setting, allow the roof vegetation to spill down to the lateral streets and support



pedestrian ramps that provide a "natural" access to the roof.


The building's roof dominates the surrounding streets in heights of between 4 and 12 metres and in consequence its gardens have been turned into a vantage point over the city. They start with a great umbraculum acting as a gateway into the gardens, which are structured along two linear routes: one in the north side of the roof, with a great deal of shade provided by the trees, and another one on the south side, which is permanently in sunlight. The intermediate space between the two routes is configured as the backbone of the gardens, based on the configuration of a complex artificial topography with high density of trees and rich plantings of shrubs and ground cover, chosen according to a highly selective colour palette. The elevations present in the topography, reinforced by the density and the strategic position of the tree groves, favour the creation of spaces in which the passers-by lose the feeling of being in a city and are immersed in a natural environment.

The most widely used types of trees are Tipuanas, Sophoras, Koelreuterias and Malus 'Evereste', characterised by their yellow and white flowers. The shrubs and ground cover have been distributed around the lawns, with Bulbine, red salvia, wild roses and Hedera Helix in the sunniest parts and Hedera Helix, Vinca, Gaura and Lantana in the more shaded areas.



# Tecnopol and the Sustanaible Construction





According to the report, 'Emissions from Building and Infrastructure Consumption', published by C40 Cities, Arup and the University of Leeds, the construction industry could reduce emissions in a 44% by 2050, and for this reason six key areas are carried through reduce the climate impact of construction in cities.

However, from Tecnopol we have been working on different aspects for some time now. The company manages the waste internally, by separating recyclable materials, the need for water during the manufacturing processes is minimal, and the water needed is reused through a closed circuit.

But where our commitment to make construction more sustainable globally can really be seen is in the achieved characteristics in two of our main products, Tecnofoam and Tecnocoat:

**Tecnofoam Aislamiento Térmico**, use of polyurethane foams for thermal insulation without greenhouse gases, using water as an expansive agent, without negative effects on the environment. What this generates is that they are completely stable and inert once applied, without emission of particles during their useful life. Moreover, at the time of removal, it is recyclable material without the need for special actions.

**Tecnocoat Pure Polyurea membrane**, solvent free, zero VOC. (With zero emissions of dangerous substances to the atmosphere). Green Label certified system in Singapore and in process in other locations.

In conclusion, it is rewarding to create sustainable products; we all need to check in which areas and aspects we can improve and adapt us to reduce the climate impact of construction.

**DAVID PONT**

**Technical Manager TecnoPol**

**THE CONCEPT OF “ENVIRONMENTAL  
SUSTAINABILITY” IS GOING TO INFLUENCE THE  
APPEARANCE OF NEW PRODUCTS AND THE WAY  
AND MANNER OF BUILDING**

It is necessary to be able to offer the public and final user of buildings, a product where the relationship between “cost, quality and sustainability” is optimal.





### **How is Tecnopol's technical service structured?**

It is proposed as a consultation service to architects, applicators and in general, to any agent involved in the process of design, planification and execution of construction projects,

who would be interested in the systems and products that we develop and manufacture.

Our main objective is to support the prescriber in all phases, from our laboratory, in the office and on site.

Thanks to my previous experience, I try to visualize and involve myself in each project globally and not only in the aspects related to waterproofing; the key is to always seek to help the prescriber in the sustainability of the project.

### **The technical service gets involved from the initial phase of the projects?**

Yes, whenever they require our collaboration. The appearance of the Tecnopol brand in the project specifications is an added guarantee for all those who are part of the evolution of the project and its subsequent maintenance. This has allowed us to be present in important private projects in countries such as Chile, Argentina or the Dominican Republic, as well as in other public projects in India (Metropolitan train project in Delhi, civil infrastructure works in Vietnam, Grand Memorial of Bharatratna Dr. Babasaheb Ambedkar...). Providing knowledge of the properties and application of

our liquid waterproofing systems and, at the same time, give solutions to different finishing possibilities and aesthetic definitions, are key elements for achieving an optimum final result and optimising costs, correctly applying the appropriate quantities of each product.

The choice of construction solutions is normally defined in the consulting phase during the design of the project and from the R+D department, we always try to give the appropriate answer to each request made to us.

### **Training for Applicators is also an important issue. Is it difficult to apply Tecnopol products?**

They're not difficult to apply at all. It is simply necessary to understand simple chemical processes and at the same time, be careful with the maintenance of the different application equipment. It is essential to provide, for our entire team, initial and ongoing training in the application processes of our solutions and the products that make them up. All of this complemented by the service to all kinds of specific queries that reach us from anywhere in the globe thanks to the Internet and messaging systems.

## BIO

**David Pont is technical architect since 1997**, year in which he graduated and started his profession, as a project manager and facultative direction of different projects.

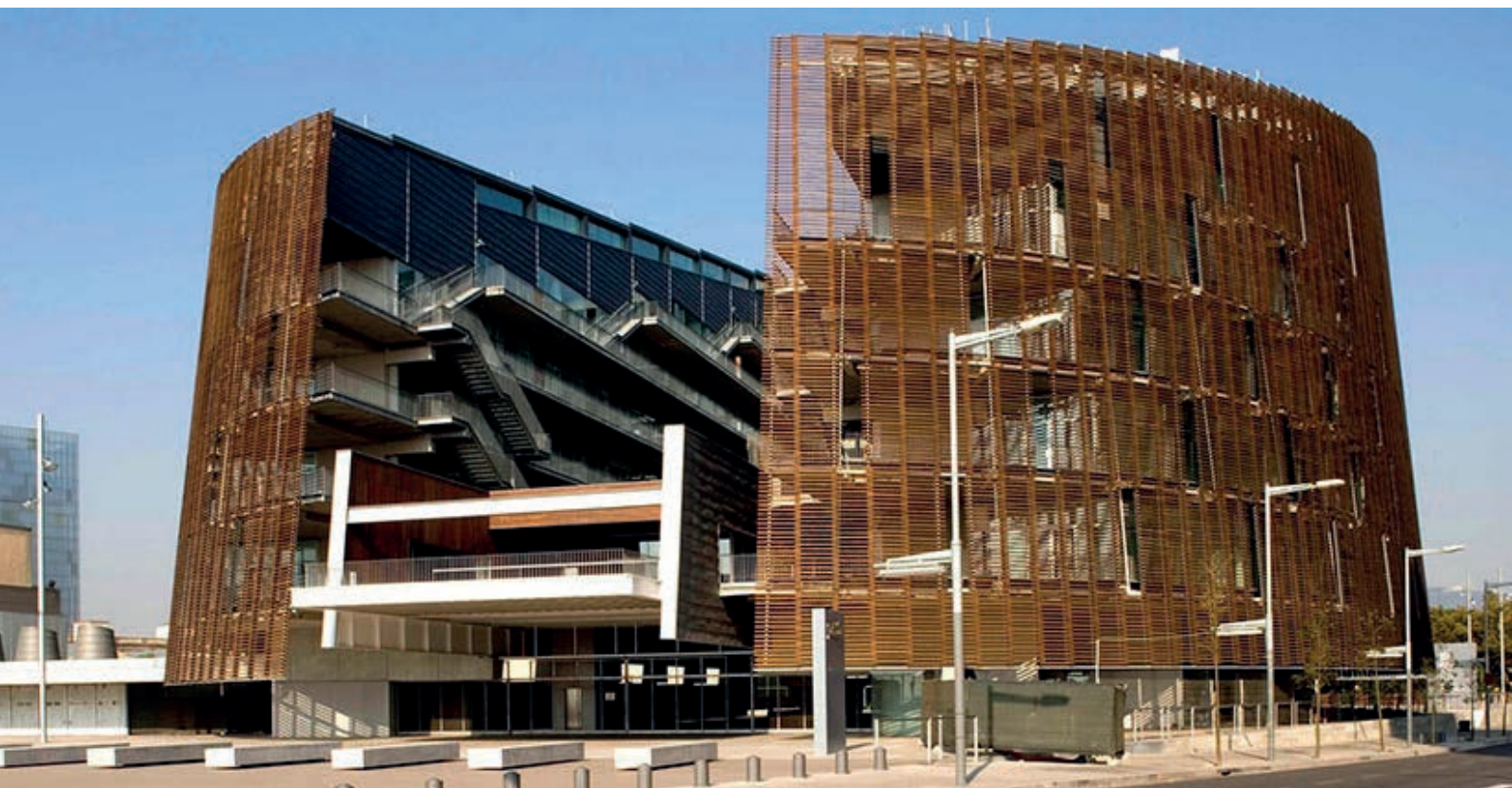
Since 2011 he brings his experience to Tecnopol, being his technical director and the maximum responsible of a vital department for the evolution and the daily activity of the benchmark company in the manufacture of Polyurea in Europe, with an important presence worldwide, and which also stands out as a producer of other products, like Polyurethane and Industrial Pavements.

**Your systems and products are used in all kind of building and projects. Is it different the advice requested if it comes from an architect, engineer or applicator?**

It is clear that each agent involved in the construction process has different visions, needs and interests regarding the same concept, and in this field of waterproofing is no different. Doubts that may arise in the project phase don't need to be the same as during the implementation phase. In this sense, all the technical department team know how to proceed in each case.

carried out can be analogous to those of other countries of different continents.

Therefore, we have more than 100 certifications, tests or approvals worldwide (ETE, BBA, AVIS TECHNIQUE, ASTM, Green Label ...). All of this added to our territorial implantation in more than 50 countries all over the world gives us the capacity to cover the needs of local homologation and in this way, to be able to access the public and private tenders of projects in competition. Specifically, and in order to offer some data that may be representative of this, we are



**Standards and certifications change, depending on the country. How do you cope with the dispersal of requirements?**

Important question. Globalization has allowed us to have presence very fast in international markets, and as there is no other way, constructive tradition, meteorology or simply each country's culture makes the national and local building regulation different. This is why, in many countries the certifications or tests

a reference company with homologated waterproofing and thermal insulation systems in public tenders in some Middle East countries or in important oil corporations in the global area.

In the case of Europe, a great deal of harmonization has been done since the creation of the "EOTA" organization, institution creator of the standards that affect construction at a European level, and the CE



*It is essential to provide an initial and ongoing training in the application processes of our solutions and the products that make them up.*



marking standard. Even so, there are local certifications that are restrictive to the standards issued by EOTA.

**In addition, the territories affected by earthquakes, volcanoes, hurricanes, and more recently by the effects of climate change, force to take more and more factors into account. How does all this affect their work?**

Climate change has a clear reflection, without going any further, in the Mediterranean area where we are located, it has affected meteorology with the appearance of precipitations of less predictable rains, more intense and located in a shorter temporal space. Consequently, waterproofing has to be optimised taking these new factors into consideration. In other areas of the globe, effects such as El Niño or La Niña (I am thinking about the American continent), represent important tests for our systems, which demonstrate day by day, and in front of each new challenge their effectiveness and watertightness.

**Does your work have a direct impact on the economic and environmental sustainability of the projects in which you collaborate?**

Taking into account the properties of some of our systems, especially in the field of thermal insulation, yes. Continuous systems with these types of properties have a direct impact on the daily energy consumption of industrial, commercial or residential buildings. The use on the other hand of materials (such as Tecnofoam polyurethanes) without fluorinated gas content, a source of the greenhouse effect and the effect on the ozone layer, are an important asset and their choice is an important criterion when prescribing a thermal insulation system.

**How do you imagine the future of construction?**

No doubt, the inclusion of the concept of "environmental sustainability" is going to influence

the appearance of new products and therefore in the way and manner of building, in fact, it is already doing so: the way they are manufactured, how they positively affect the reduction of energy consumption of buildings, and the affectation or necessary recycling processes at the time of being withdrawn are parameters that are going to affect the way of understanding the construction, its execution and its particular use.

It is necessary to be able to offer the public and final user of buildings, a product where the relationship between "cost, quality and sustainability" is optimal, due to the impact that the processes of implementation, use and after-sales can have on the climate change of the planet. Consequently, all of us will have to adapt and be able to offer products under new and different standards from those learned in universities or already applied and prescribed according to our previous experience.

# SOLUTIONS AND CONSTRUCTION SYSTEMS OF TECNOPOL

The best way to help all types of prescribers and projects is providing our knowledge through the systems we have developed for all types of requirements and phases of a work.

The liquid systems for continuous waterproofing and for covering all types of building and industrial elements developed by Tecnopol have been widely tested, so their use provides safety and overall protection to professionals working on all types of works.

The different systems are divided in four different areas, waterproofing, protection, insulation and paving.



## WATERPROOFING SYSTEMS

- New construction roof
- Rehabilitation of passable roofs
- Rehabilitation of sloping roofs
- Tanks and cisterns
- Civil Engineering
- Swimming pools, fountains and water parks
- Bridges and tunnels
- Industrial applications



## PROTECTION SYSTEMS

- Industrial
- Mining
- Bed liners (vehicles)
- Marine
- Armor and defense



## FLOORING SYSTEMS

- Parking lots
- Industrial and commercial areas
- White rooms



## INSULATION SYSTEMS

- Walls and facades
- Industrial deposits
- Walkable floors
- Roofs, rooftops and decks
- Tubes and pipes

# DO YOU KNOW THE TECNOPOL YouTube CHANNEL?

If you haven't visited, what are you waiting for?



















[www.youtube.com/c/Tecnopolgroup](http://www.youtube.com/c/Tecnopolgroup)

There, you will be able to see how the different systems, products and examples of works they serve as a reference are applied.

As they say, a picture is worth more than a hundred words and in Tecnopol we try to make everything around our activity to be known. Moreover, if you subscribe to our channel you will be able to receive notifications of our new videos.



Subidas REPRODUCIR TODO ORDENAR POR

 <p><b>TECNOCOAT P-2049 políurea pura, test de elongación y...</b> 175 visualizaciones • Hace 5 meses</p>	 <p><b>Rehabilitación de una piscina con Poliurea - Tecnocoat P-2049 de Tecnopol</b> 828 visualizaciones • Hace 6 meses</p>	 <p><b>Impermeabilización completa de una piscina con Poliurea</b> 829 visualizaciones • Hace 1 año</p>	 <p><b>Video sobre "Desmoplus", aditivo especial para la aplicación de...</b> 788 visualizaciones • Hace 2 años</p>	 <p><b>Revestimiento completamente transparente...</b> 2044 visualizaciones • Hace 2 años</p>	 <p><b>DESMOPOL - MEMBRANA DE POLIURETANO SOBRE...</b> 4325 visualizaciones • Hace 2 años</p>
 <p><b>POLIUREA TECNOCOAT - CASO PRÁCTICO CAJÓN D...</b> 1714 visualizaciones • Hace 2 años</p>	 <p><b>PISTOLA PROMIX I - GUÍA DE DEENSAMBLAJE</b> 371 visualizaciones • Hace 2 años</p>	 <p><b>TECNOPOL - Fabricante de poliurea y poliuretano</b> 1854 visualizaciones • Hace 2 años</p>	 <p><b>PRIMER WET - Imprímación para soportes húmedos...</b> 1836 visualizaciones • Hace 2 años</p>	 <p><b>TECNOTOP 1C - TOP COAT ALIFÁTICO PARA...</b> 1341 visualizaciones • Hace 2 años</p>	 <p><b>Cubierta de aparcamiento impermeabilizada con...</b> 25.363 visualizaciones • Hace 2 años</p>
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# TECNOPOL, global distribution

Tecnopol is a company founded in 1996 and focused on the development, formulation and manufacture of high technology and quality construction products. Our constant evolution and innovation have let us become one of the European leaders in the manufacture of liquid membranes for waterproofing.

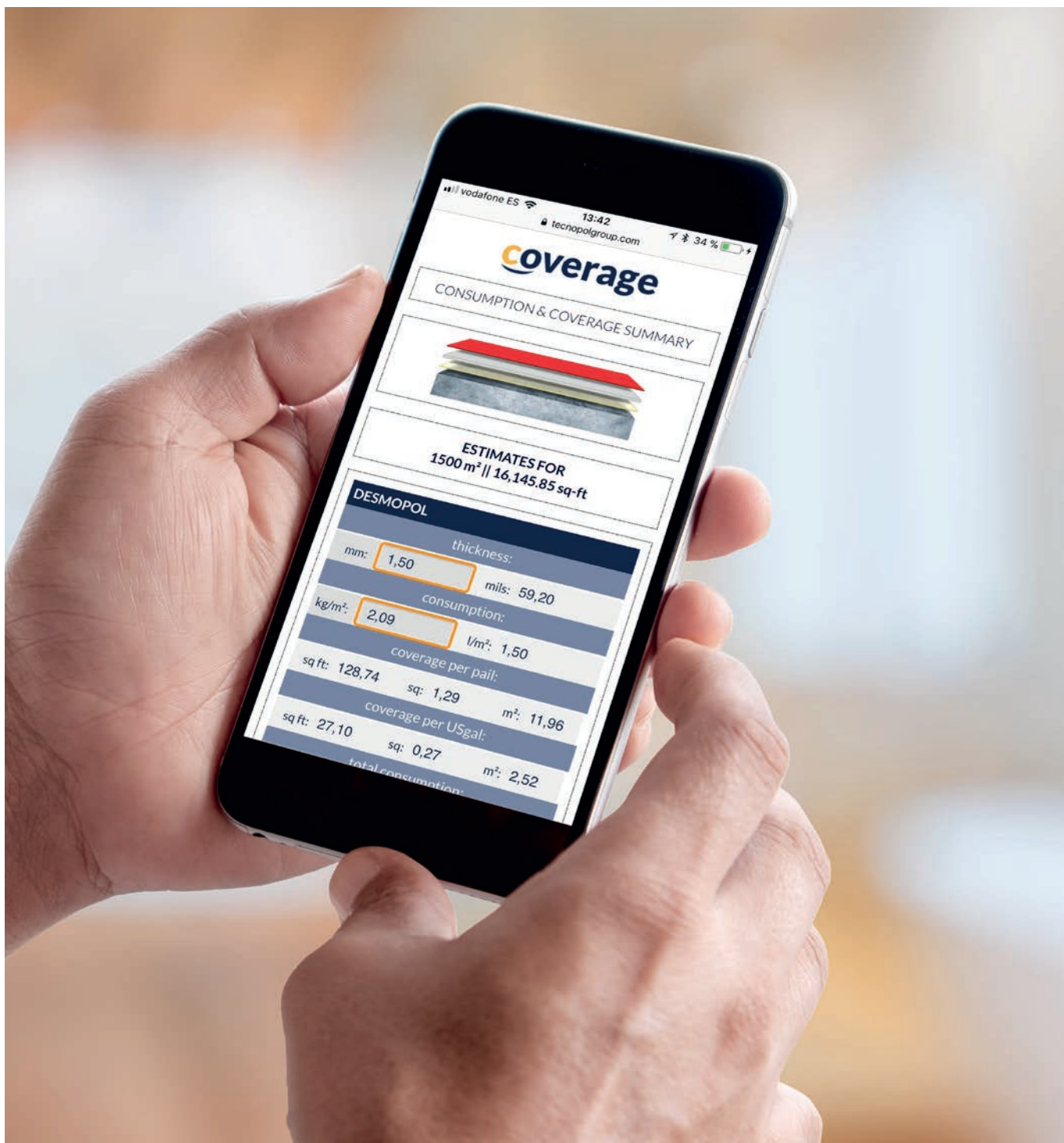
Tecnopol Sistemas, S.L.U with headquarters in Spain and branches in France, Romania and Poland offers service and coverage throughout Europe, the Middle East and much of the American continent. It also has representation in more than 21 countries around the world.

In addition, we have an important presence in many events and fairs that are held in the five continents, both to publicize our products and to support our distributors and train new professionals and companies interested in the universe of Tecnopol waterproofing.

If you want to show and let us help you to spread the works in which our products or systems have been used, do not hesitate to contact us: [info@tecnopol.es](mailto:info@tecnopol.es)



ALGERIA | ARABIA SAUDITA | ARGENTINA | AUSTRIA | BAHREIN | BELGIUM | BANGLADESH | BRASIL | COLOMBIA | CHILE | CANADÁ | AMERÚN | BULGARIA | REPÚBLICA CHECA | REPUBLICA DOMINICANA | ECUADOR | ESTONIA | FINLAND | FRENCH POLYNESIA | GEORGIA | GERMANY | GUADALUPE | HUNGARY | GUATEMALA | INDIA | IRLANDA | ITALY | ISRAEL | KENYA | KUWAIT | LATVIA | LUXEMBOURG | MALAYSIA | MADAGASCAR | MARTINICA | MALT | MEXICO | MAURITIUS | LEBANON | MOLDAVIA | MOROCCO | NETHERLANDS | NEW CALEDONIA | NORWAY | OMAN | PANAMA | PARAGUAY | PERU | PHILIPPINES | POLAND | PORTUGAL | QATAR | ROMANIA | SINGAPORE | SOUTH AFRICA | SLOVAKIA | SWEDEN | TUNISIA | TURKEY | UNITED KINGDOM | URUGUAY | UKRAINE | UNITED ARAB EMIRATES | RUSSIA



# coverage

The new web application of TECNOPOL that will help you to make the calculations of consumption and performance.



discover it in [www.tecnopolgroup.com/coverage](http://www.tecnopolgroup.com/coverage)



Tecnopol

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# TECNO MAGAZINE

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