



D2 TOWER  
LA DÉFENSE  
BUSINESS DISTRICT

ANTHONY BECHU  
TOM SHEEHAN  
ARCHITECTS

PRESS PACK  
2015



# CONTACTS

## OWNER INVESTOR

### **SOGECAP**

Contact: Valérie Loizillon  
50, Avenue du Général de Gaulle  
F-92093 La Défense Cedex  
T: +33 1 46 93 12 77

## ARCHITECTS

### **AABTS**

Atelier d'Architecture  
Anthony Bechu - Tom Sheehan

## CO-AUTHORS

### **ANTHONY BECHU**

at AGENCE  
D'ARCHITECTURE  
A. BECHU  
Contact: Clémence Bechu  
82 Rue Lecourbe  
F-75015 Paris  
T: +33 1 47 34 97 91  
clemence.bechu@aaa-bechu.fr

### **TOM SHEEHAN**

at ATELIER  
TOM SHEEHAN  
& PARTENAIRES  
Contact: Stéphanie Porchet  
12 rue Raymond Aron  
F-75013 Paris  
M: +33 6 88 26 78 67  
stephanie.porchet@atsp.eu

## PRESS AGENTS

### **AGENCE D'ARCHITECTURE ANTHONY BECHU**

Contact : Clémence Bechu  
82 Rue Lecourbe  
75015 Paris  
T: +33 1 47 34 97 91  
clemence.bechu@aaa-bechu.fr

### **ATELIER TOM SHEEHAN & PARTENAIRES FE CONSULTING**

Contact : Fatma Erhalac  
43 rue de la Mare  
75020 Paris  
M: + 33 6 01 48 26 24  
contact@fatmaerhalac.com

# THE ARCHITECTS

## ANTHONY BECHU & TOM SHEEHAN



### ANTHONY BECHU

*«Since the beginning of time, humanity has built to protect itself from nature. More recently, it has done the opposite to protect nature and thus itself. Our role as architects is to propose methods to reconcile both these elements through new solutions that reveal and favour osmosis between humankind and the natural world. By articulating fractals and local cultures, we anticipate a resilient approach to projects for tomorrow's world.»*

Anthony Bechu is the 3<sup>rd</sup> generation of a well-established family of architects in Paris. He studied architecture at *Ecole Nationale Supérieure des Beaux-Arts* where he graduated in 1976. In 1981, he obtained a Masters Degree in "History and in Conservation of Historical Monuments" at *Ecole de Chaillot*. Member of the Academy of Architecture of Paris, and of the National Heritage Architects Association, he taught at the *Ecole Supérieure des Travaux Publics*, and is the Director of the American Arts Schools of Fontainebleau. He is also a member of the National Academy of Technologies. In 2014, he was given the state title of *Chevalier des Arts et des Lettres*.

With his passion for history and the deep identity of places, his proper research is the testing out of contemporary architectural writing and grammar that draws on his sources in analysing the culture, the morphology and the history of the subjects to tackle, with a key objective of intertwining histories. And, at the same time, implementing project methods and strategies that respond to contemporary issues in order to "give roots back into people and places that have lost them", in order to build eco-responsible projects.

It's in this way and through its numerous trips, that the architect has been developing « Agence d'Architecture A. Bechu », an expert and multidisciplinary team that is able to answer to architectural, interior design, urbanistic and landscaping problematics, to bring thoughts and realizations into several projects at different scales in France, in Europe, and all over the world (China, Russia, Africa, Morocco, Middle-East, UAE, Saudi Arabia...).

In 2014, following the renewed bilateral agreement signed between the French and the Chinese Ministry of Foreign Trade, Anthony Bechu is officially nominated to be in charge of the master design of the ecocity of Shenyang in China, 10 km<sup>2</sup> within 10 years. The same year, the Shangaiese municipality gave him an award for "Best Global Smart Cities Practices".

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



## TOM SHEEHAN

*«The sketch is the inevitable Architect's tool of communication; it is to the point, time-proof and speaks all languages. Ask me any question, but give me a pencil to answer.»*

Tom was born in San Francisco to an Architect father. His up-bringing in this fertile environment developed his imagination from an early age and produced in him the ambition to design tomorrow's buildings. With the encouragement of his elder brother, also an architect, he enrolled at the Fontainebleau's American School of Arts in 1985 and won the first prize, thus starting a long history with France.

He began a permanent career in France in 1989.

While employed by Aymeric Zubléna, Tom developed his interest in the design of sports buildings. He became the Design Architect of the Stade de France, a project that gave him the Silver Prize of the Académie d'Architecture of Paris. Having worked on many stadiums and sports complexes, he is now recognised as a specialist in the field and Tom is regularly invited to judge his peers' work.

A certain number of associations in France and abroad alike gave birth to internationally renowned projects. It includes the China Executive Leadership Academy in Pudong and the D2 Tower in La Défense, Paris, in association with Agence d'Architecture A. Béchu & Associates as mandataire.

In 2005, Tom founded Atelier Tom Sheehan & Partenaires with Salah Saïdoune. The studio is devoted to designing places to live, work and entertain. It has delivered important sports complexes, remarkable offices and vast social housing programs.

Tom puts his heart into encouraging his teams giving them the time and support necessary to excel. Every project the Atelier works on is important to him. He favours the human approach and makes sure each team member can develop his or her potential to the full. Tom is an inveterate scribbler and is also famous for his sketches book.

<http://www.tomsheehan-blog.com/>

**1963** Born

**1982-1988** Architectural studies

**1985** Fontainebleau's American School of Art

**1986** Bronze medal from the Académie d'Architecture de France

**1988** Prize & Exhibition « 30 Designer under 30 », New York

**1989** Settles in France permanently

**1997** Silver medal from the Académie d'Architecture for his role on the Stade de France

**1998** Founds his first practice

**2001** Meets and befriends Salah-Eddine Saïdoune

**2005** Founds Atelier Tom Sheehan & Partenaires

**2010** Antoine-Nicolas Bailly » prize in architecture from the Académie des Beaux-Arts, Institut de France

**2015** Associate Member of the Académie d'Architecture (on going)

# INTERVIEW WITH ANTHONY BECHU

**D2 tower is neither the biggest nor the tallest building in La Défense. How would you describe it?**

D2 tower is the only living green building in the forest of La Défense. Tom Sheehan, with whom I worked on this project, and I, had drawn a project in Monaco. It was the extension of the city on the waterfront. There we used maritime life - fish, shrimps, and all the other organisms of the sea - as an inspiration. Also, we looked at how the fishermen catch fish and that's where we encountered the fish trap. It is fascinating from a constructive point of view. That's when we started thinking about using the fish trap as a model for the structure of a building.

**Why did you decide to use the fish trap as a model for D2 tower?**

The fish trap consists of rhombic forms; you could also call them diamonds. Because I like to think of our building as a jewel, we imitated that diamond, using steel cantilevers that form the letter «V». Two «V» joint at the open side make up one diamond. This is the pattern on which the exostructure of the tower is based. But the diamond also acts as a fractal structure. Repeating itself, it repeats the overall structure of the building. By the same token, you could say that the overall structure of the building repeats the fractal structure. Mathematicians call this self-similarity.

**Why is the idea of fractal structure important to you?**

I am convinced that the idea of fractal structures opens completely new ways of thinking and planning. 20th century urbanism and architecture were based on Cartesian mathematics. This is a one-dimensional way of thinking. With fractal mathematics, our thinking becomes multi-dimensional. It focuses on the interdependence that exists between the small parts that make up a system and the system as a whole. In that way, it also shows the interdependence between the individual and society, possibly even giving us a new sense of being. In my opinion, fractal mathematics is the starting point for planning the ecocity that we are talking about these days.

**What role did the idea of sustainability plays for D2 tower?**

From the beginning it was part of our architectural concept to create a building that complies with the French green building standards HQE. It was also the investor's wish. And we succeeded. Thanks to our design of the exostructure and the choice of materials, steel and concrete, we were able to reduce material consumption by 30 percent. This is in comparison to other towers the same size. And as you know, less material also means less carbon emissions.

**In what way D2 provides an answer to the sustainability demand of the market?**

Sustainability has become an important issue within the global real estate industry, and D2 tower provides a perfect answer to this trend. I just mentioned the aspect of material consumption. Energy consumption plays a role, too. For example, the building's light concept makes use of LEDs which save resources. But sustainability is not only about saving resources. To my way of thinking it has also a social aspect. This shows up in the interior of the building and the atmosphere it has. For us, this aspect was quite important.

**Earlier you said the tower can be compared to a tree. Is that what you are referring to?**

Exactly. If the core of the building resembles the trunk of a tree with its exposed concrete made as if it was bark, its exostructure made of steel cantilevers and glass evokes branches and their foliage. The glass walls in the corridors symbolize the sap. When you look up from the «Clouds' garden» to the dome on the top, you can see the sky through the structure. It's as if you were located in the canopy of the tree.

**The tree is part of the organic forms you employed. What is the reason for that?**

Straight and rigid forms do not make people happy. Rounded forms are far more pleasing to the eye, they are the female element in architecture. With its elliptic form, the tower gives La Défense a

silhouette and makes the sky line more charming. Most importantly, however, rounded forms catch the light differently. No matter what time of the day or the night it is or what angle the light comes from, it

will always break itself on the glass of the exostructure that does not reflect its neighbourhood. on the opposite it reflects itself in all the surrounding towers giving them some freshness modernity.

**You like to stress that buildings should connect with their surroundings. How did you solve this challenge with D2? It sits on a comparatively small area. Was that a particular challenge?**

Yes, it was. All these other towers of different sizes surround D2. Plus, there is a boulevard right next to it. We wanted to make a connection between the people that work in the tower and La Défense. That's one of the reasons why we decided to create a double lobby with an upper entrance, on the level of La Défense, and a lower entrance on the level of the boulevard, so people can enter easily the building from wherever they come from. To make it particularly inviting, we also created arcades on this level, where there will be also a brasserie open to the public.

**How would you define great architecture?**

Regardless of its size or function, every building has its specific identity. You could compare it to a personality. In the case of D2 tower, this identity arises from its rhombic structure and the way it employs light. I believe that this identity creates a story, a narrative that has an impact on the people that work there. To sum it up, good architecture is derived from the building's identity. If the building lacks identity, it won't make an impact.

**What does this imply for the role of the architect?**

In the first place, architects should be modest. They shouldn't aim to build monuments. Monuments belong to cemeteries. I believe that our job is quite different. With our designs we should give people a place where they like to live or work, where they enjoy being. In short, a place with which they identify. Every place has its specific history. As an architect, you need to understand this history before you start planning. This understanding is the basis on which to create a design that connects with this history.

**When you talk about the grammar of architecture, are you referring to this understanding?**

Absolutely. Every building is unique. It has to correspond to its surroundings, to the history of the place where it stands, and the history of the region in question. When you work in Russia, the design should be different to the one for a building in Mumbai or in La Défense. At the end of the day, there is only one thing that matters: «how do the people using the building feel about it ?» If they say: «This building belongs to me» the architect is truly successful. And that is really the main challenge we face as architects: to create an architecture that caters to people.

**Interview by Hélène Conrady on behalf of Future magazine  
Building for people  
Anthony Bechu and his grammar of architecture**



# INTERVIEW WITH TOM SHEEHAN

## **What were the Client's goals?**

Foremost, was the necessity to participate in the global renewal of the Paris La Défense's district by increasing the denser, erasing the existing gap between the esplanade and the city of Courbevoie and turn the ring road into a pacified urban boulevard. Another goal was to help improving urban mobility through visually and physically connecting the boulevard with the esplanade. Finally, the new constructions were to animate the skyline with buildings of different heights and remarkable architectural treatments.

The Client had high environmental ambitions. The tower has both a BREEAM and HQE label which represent an energy-consumption 30% below the RT2012 current French standard. The carbon footprint and performance targets were extremely bold. The tower has been designed to be as flexible and accommodating as possible to welcome a vast diversity of users and to anticipate the future needs of the office market.

## **Why did you go for a steel exoskeleton?**

The building had to be very compact and the shape of the tower was rapidly defined to fit its surroundings. A rectangular shape would have been very difficult to fit within the cramped plot. Moreover, I wanted a soft and rounded shape around which that would fit into the dense context. I also knew opting for an exostructure skin would allow for better structural stability and reduce the section of the structure and core. One can then wonder about the open diamond shapes at its base.

## **It looks like a well-known tower in London, Sir Norman Foster's 30 St Mary Axe, the Londoners nicknamed the Gherkin. Why choose that?**

This structural shape has already been used, I agree. It is a natural structural paradigm. It has the advantage of reducing the use of interior columns and offers a great transparency at the base of the tower. Above all, it presents a highly flexible interior space for its users. The real originality is the summit where the exostructure skin becomes a thin lattice dome coiffing a floating garden.

## **Why would you say it's a new generation type of tower?**

First of all, it consumes very little energy, but not only that. The benefit of the French HQE certification is the invitation to innovate and look for the best possible answer. It takes the checklist approach much further. The certification has few set rules and necessitates research and testing that leads to the design and construction of a quality building. HQE tackles not only the carbon footprint of a building but also user concerns such as air quality, acoustics, light quality and aesthetics. I like the philosophy that thinks that a useful and pleasant building has value and is therefore sustainable. The way the quality of concrete was controlled is also very innovative. Tiny chip-like aggregates were mixed to the concrete. They allowed us checking the quality of the concrete in three dimensions and check on the armatures. It was a first for the contractors to use this Lafarge process and it proved to save time and was a voucher of quality construction.

## **What comfort do you bring to the users?**

Having large working spaces without free of columns maximize the number of possible floor layouts. At Club level, on 34th floor, the ceiling height is higher and will accommodate a VIP restaurant, a boardroom, meeting spaces, lounges, etc. The "garden in the clouds" is linked to the Club and has a 50sqm putting green, a "zen" promenade within trees and vegetation and above all, an exceptional view over the capital.

Some levels are designed as trading floors and can support a higher occupancy. Another floor has a fitness room. The tower has its own concierge service, like in hotels, three catering floors, a coffee shop and a brasserie on the plaza at boulevard level. All in all, we wanted the tower to have all the necessary commodities to make it pleasant to use and be sure it could house the capital's top companies. The external lighting is another asset. A LED beacon is positioned at each external diamond crossing of the structure. Benoît Lalloz, lighting designer, imagined with us the white and amber signals that animate the façade according to the lunar cycle giving a subtle cosmic connection to a very terrestrial object and site.

### **What difficulties did you meet during construction?**

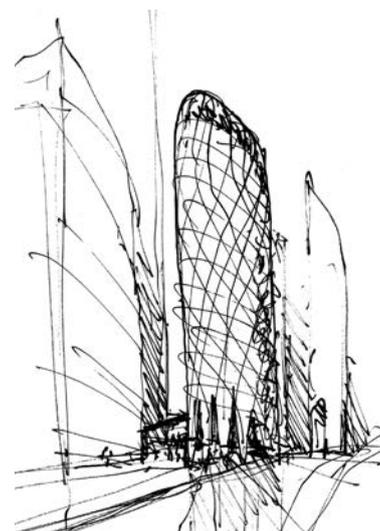
The design and construction phases went on very smoothly. During the design of the building, the Client waited a little before submitting for permits. It was for us a year to polish the details of the project. Thanks to this additional time, we were able to check the details of the project. We also had a lengthy time during bidding to adjust the project with the contractor, GTM Bâtiment, and anticipate possible construction problems. Undoubtedly, this was how we achieved delivering the D2 within budget and on program.

On the other hand, the plot we had to work with was very difficult due to its size and proportion. We had to create a platform over the boulevard. This allowed us to assemble the various structural elements on site. Construction lasted 33 months in total. We built a floor a week thanks to a sliding formwork and the prefabrication of the structural steel elements.

To conclude, I'd like to add a few words about the context I've been working with for the last 25 years in France. As an architect of American origin, I have noticed the way the city is considered is very different. In the US, that's the private sector that shapes the city. Go to New York: the Trump Tower, the Chrysler Building, the Rockefeller Center... were all built by successful private companies. The prosperous private sector shapes the US identity as it has always done. In France, this is different. Most of the time, the public authorities build the cities and have since the time of the kings! They are at the origin of emblematic buildings and spaces that characterize the city and society.

In what context should I understand the D2 tower? How does the public model differ from the private? The difference I can see is in the way to get there. In La Défense, as in most every territory in France, the administrative framework and planning for a building is the result of a vast dialogue fed with social, economical and urban ambitions. It's only after the establishment of this framework the private client can express their needs and desires. I rediscover stratification like Pierre Charles L'Enfant's alive and kicking. In France, despite the crisis, public and private development works.

**Interview by Emmanuelle Graffin**  
**Excerpt from L'esprit du Lieu – Architecture**  
**Archibooks – la tour D2**





# D2 TOWER TECHNICAL DATA

## ADDRESS

17 Bis Place des Reflets, La Défense - F-92400 Courbevoie

## MILESTONES

**Building Permit:** November 2010

**Veritas Tower demolition:** June – September 2011

**Foundation stone:** October 2012

**Shuttering completed:** October 2012

**Steel structure's construction beginning:**  
November 2012

**Structure completion:** march 2014

**Delivery:** october 2014

## KEY FIGURES

**Plot area:** 3 457 sqm

**Surface area:** 54 000 sqm net area  
including 48 710 sqm usable surface

**Height:** 171m over 40 levels including 3 underground levels and a garden in the clouds

**Number of floors:** 37

**Capacity:** 4 200 people

**Building materials:**

5 500 T of steel for the structure and façade

3 000 T of beams for the tower's exo-structure

12 000 m<sup>3</sup> of ready-to-use self-placing concrete

Glass

Each steel diamond shape span (over 6 floors) is composed of 2 x 14 ton-"V"  
assembled on site

# CONSTRUCTION OF THE TOWER

A 3 YEAR-DURATION  
OBJECTIVE





SITQ

# PRISMA

YOUR BUSINESS CLASS

**UN IMMEUBLE  
INDÉPENDANT  
DE 24 000 M<sup>2</sup>**

01 47 59 23 21 01 40 15 23 23 01 53 64 00 00



50

NO PARKING

Blue directional sign with arrows and text

02

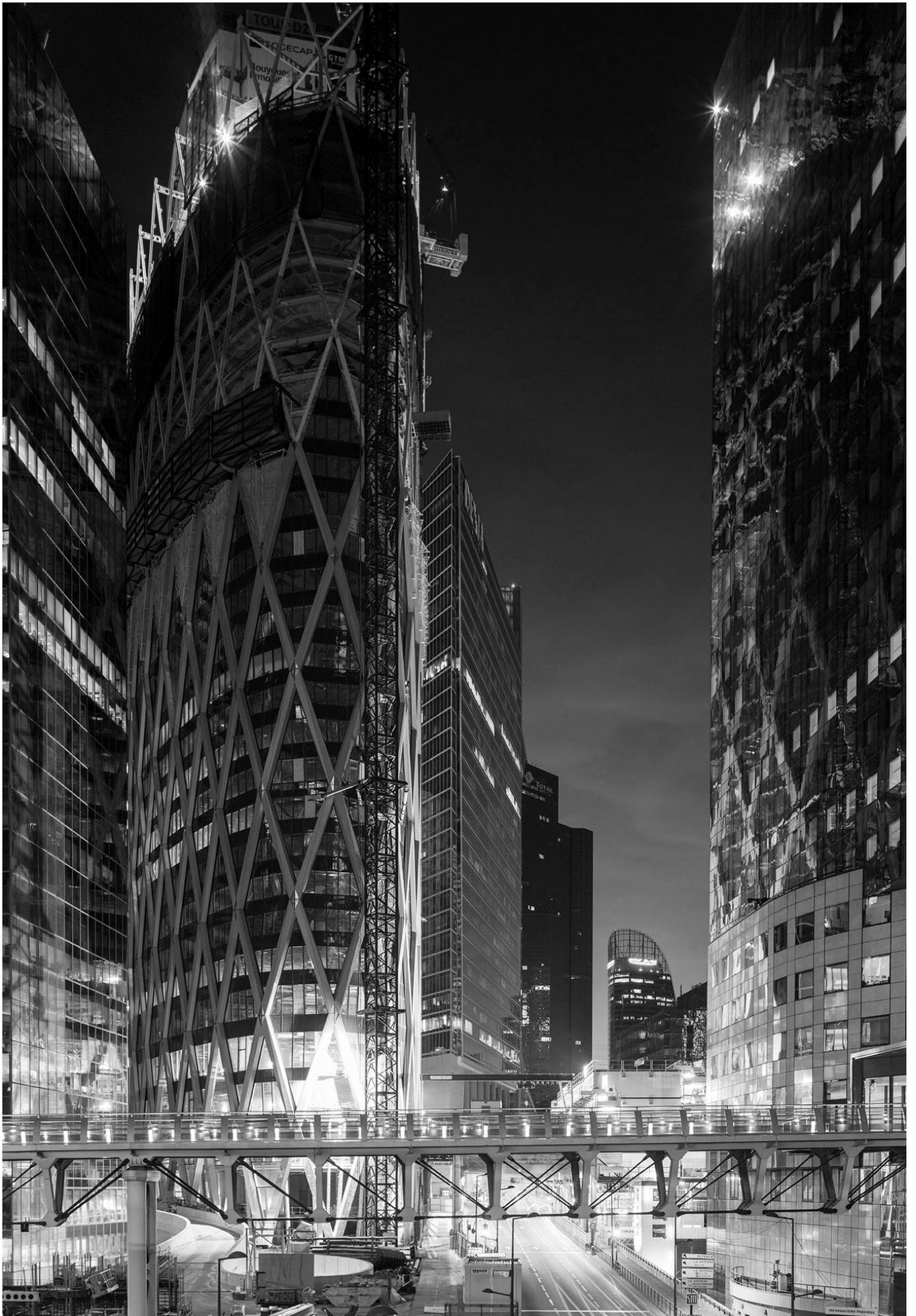
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Tour D2 - Anthony Bechu/Tom Sheehan - Some specific building techniques including the use of jib cranes

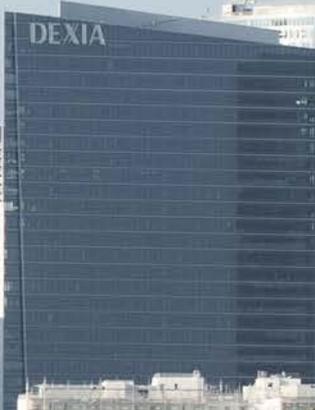




Tour D2 - Anthony Bechu/Tom Sheehan - *The top culminates at 171m and elegantly covers the 37 levels and the tower's Garden in the Clouds*

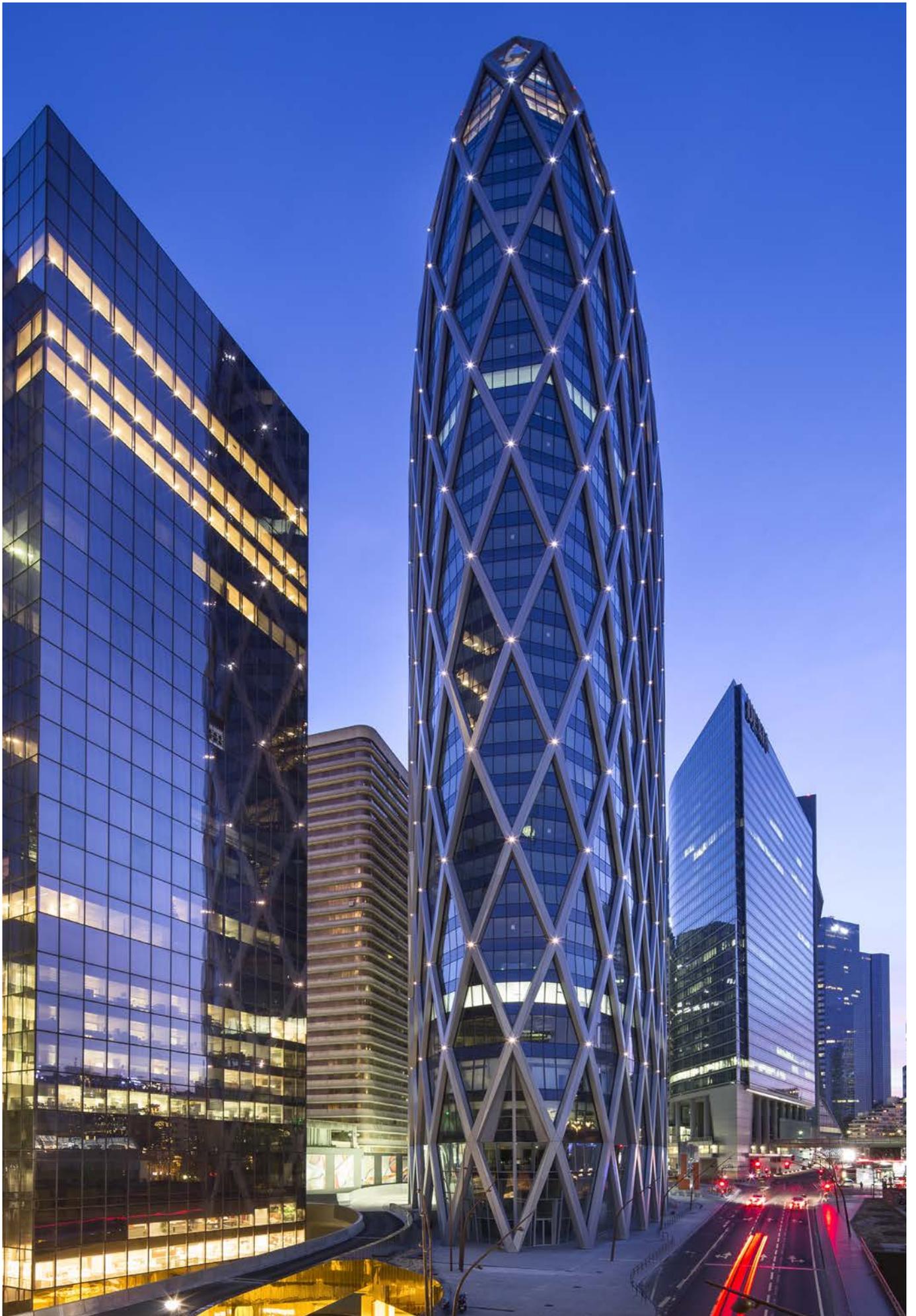
# THE TOWER FAÇADE THE EXOSKELETON



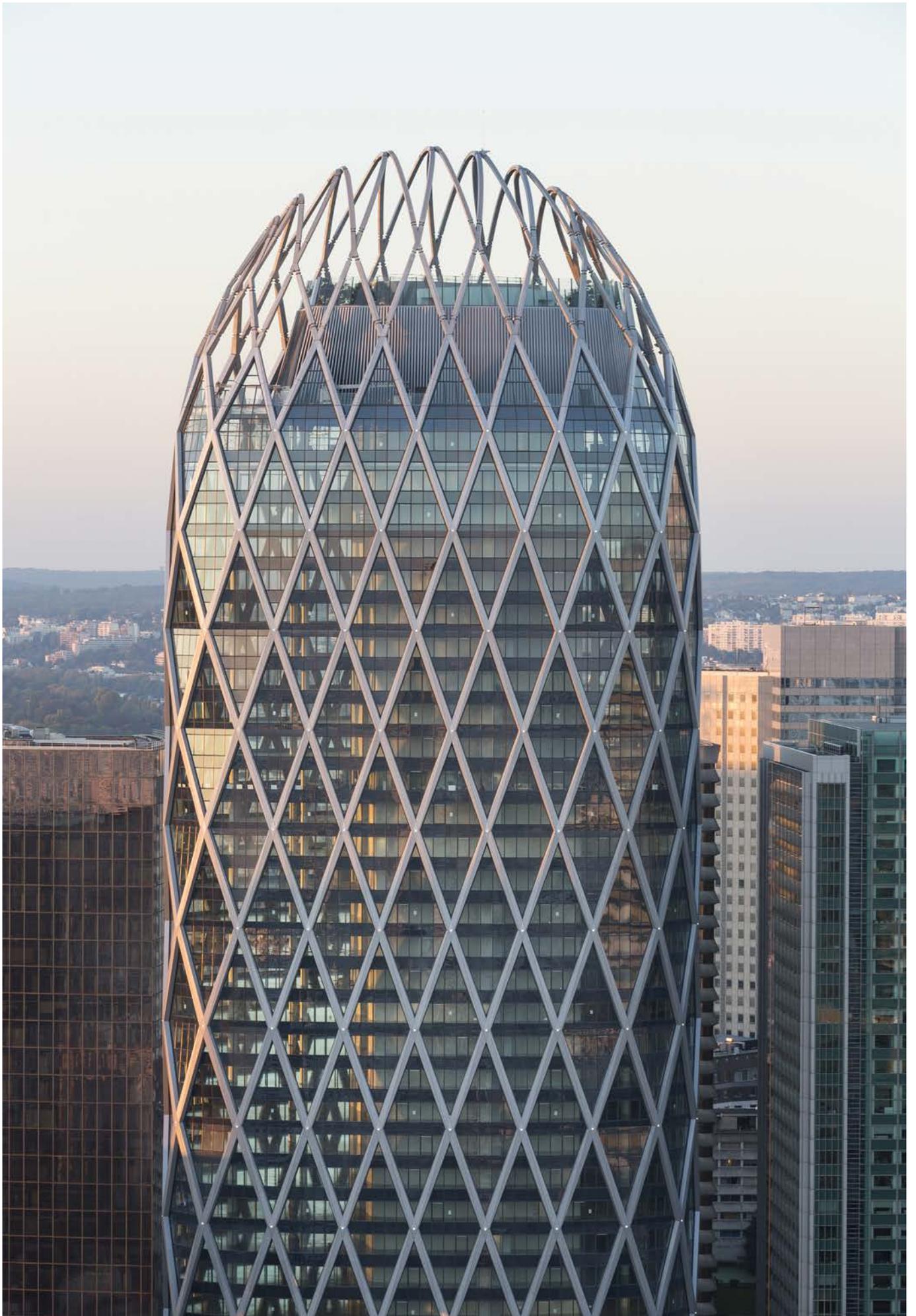


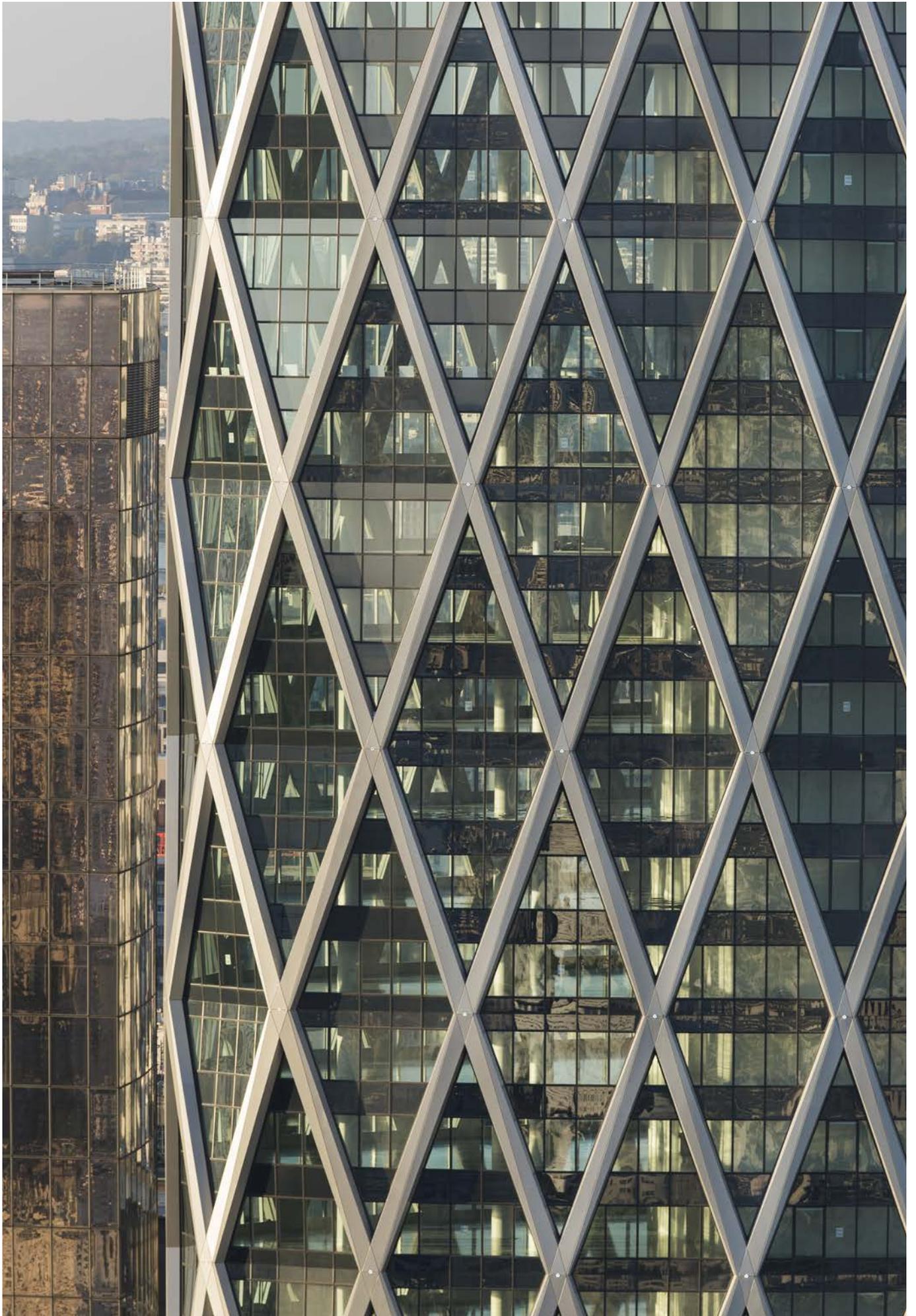
Directional sign: A 104

Directional sign: BRUYLLY V SEINE, COLOMBES, PARIS, CHAMPERRET









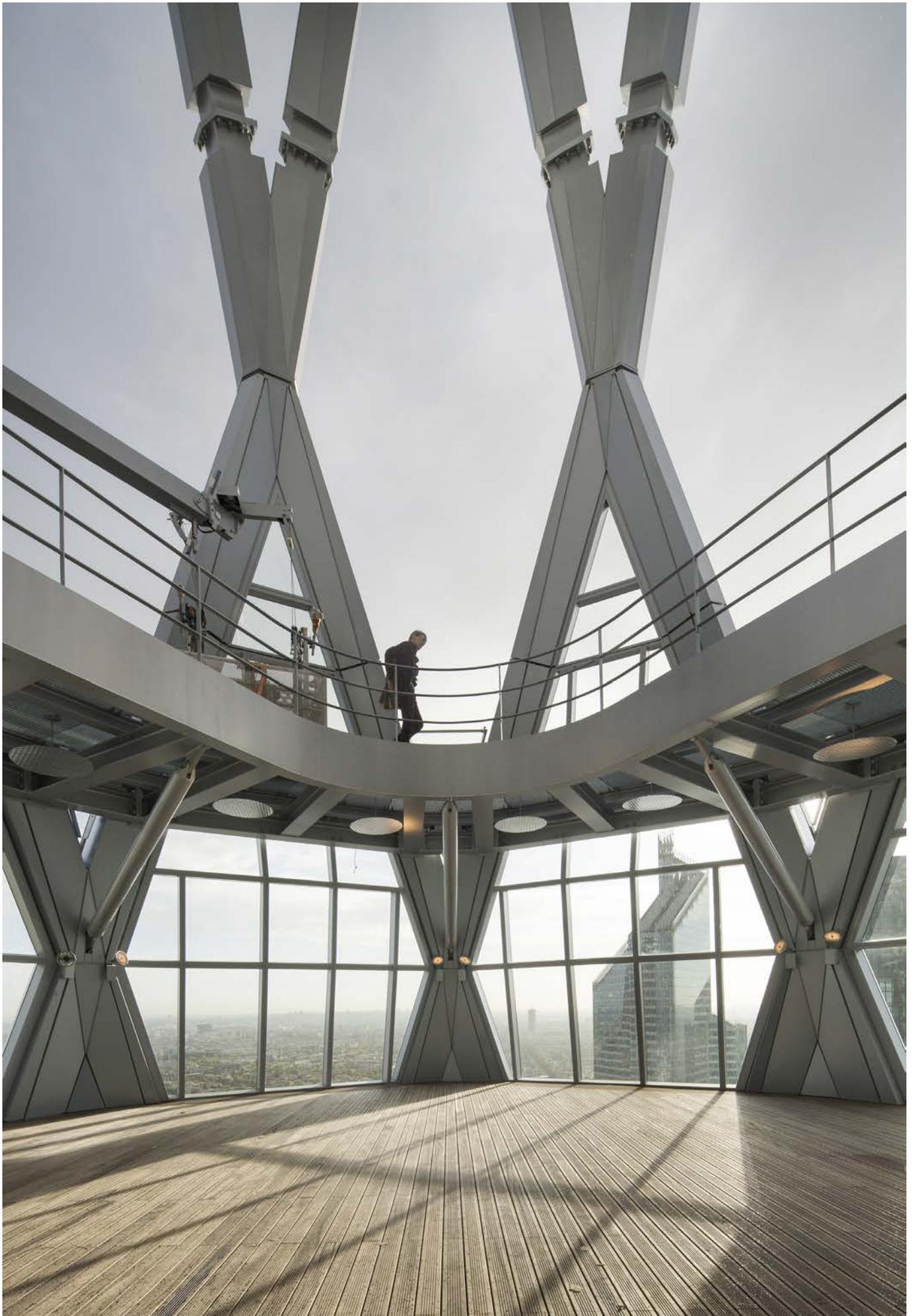




Tour D2 - Anthony Bechu/Tom Sheehan - D2 reflects itself in every building around without reflecting any







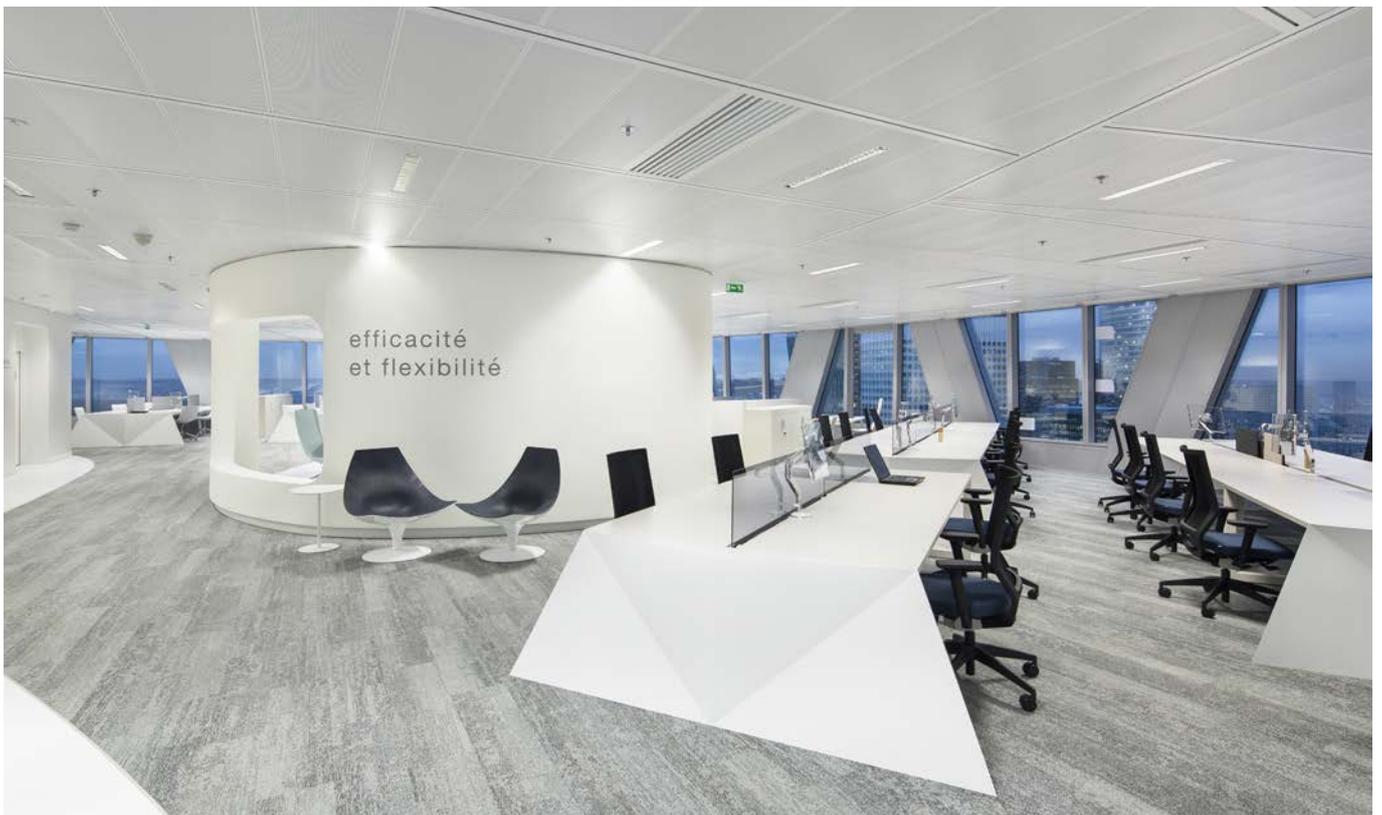
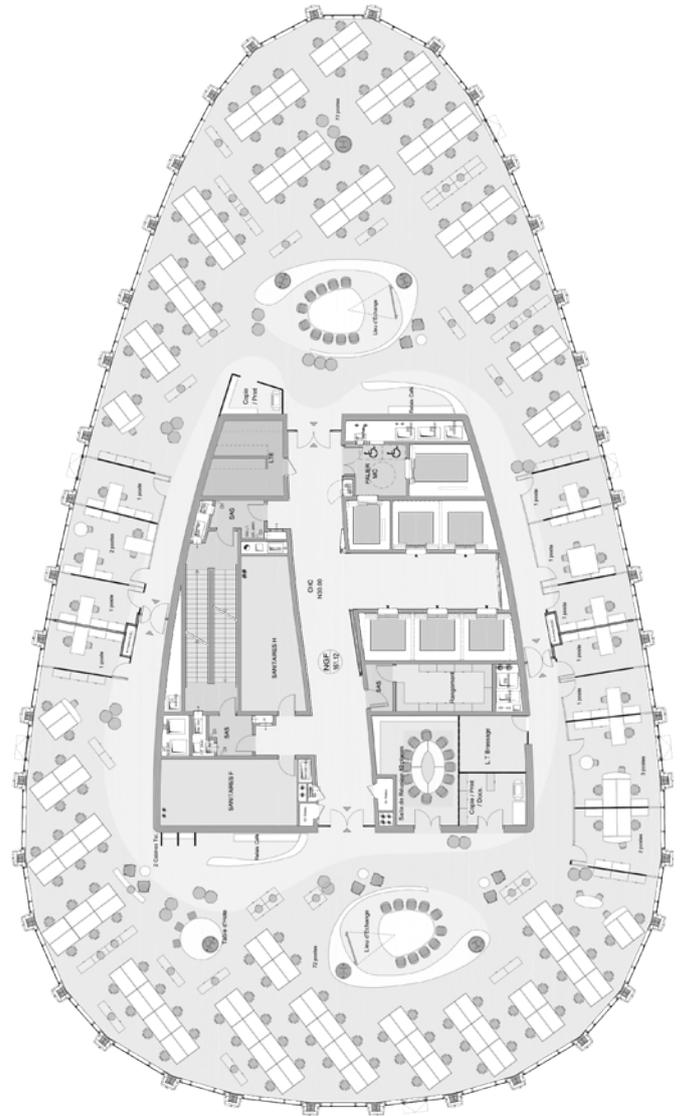
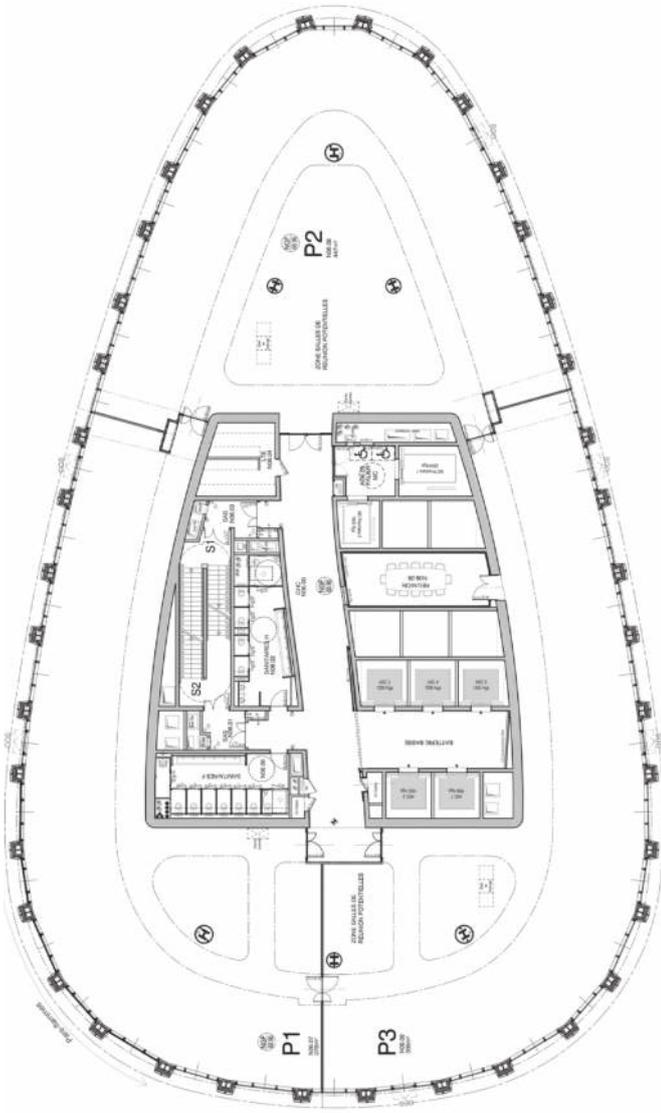


**THE TOWER**  
**OFFICE LAYOUTS**  
COMFORTABLE  
AND FLEXIBLE  
OPEN SPACES



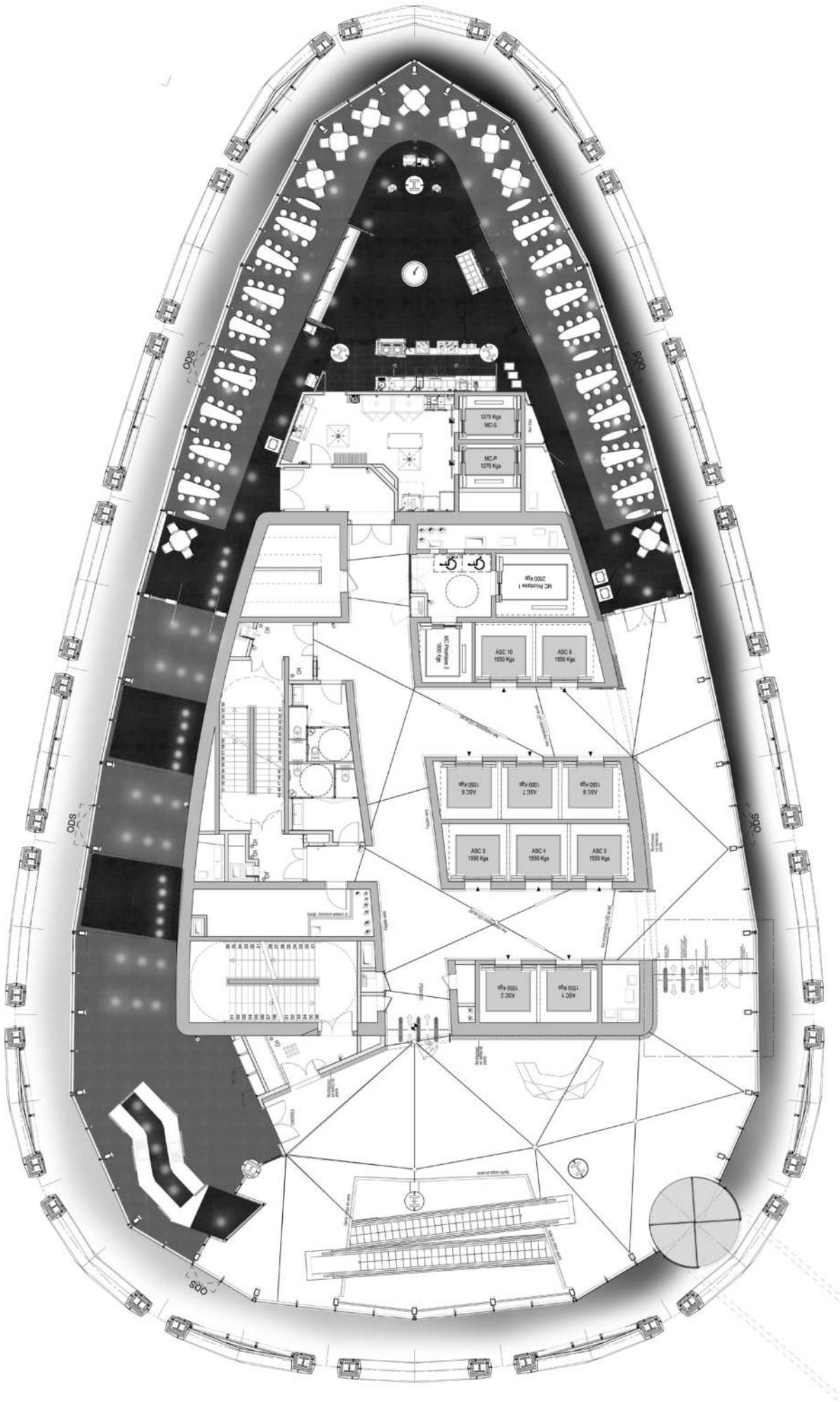


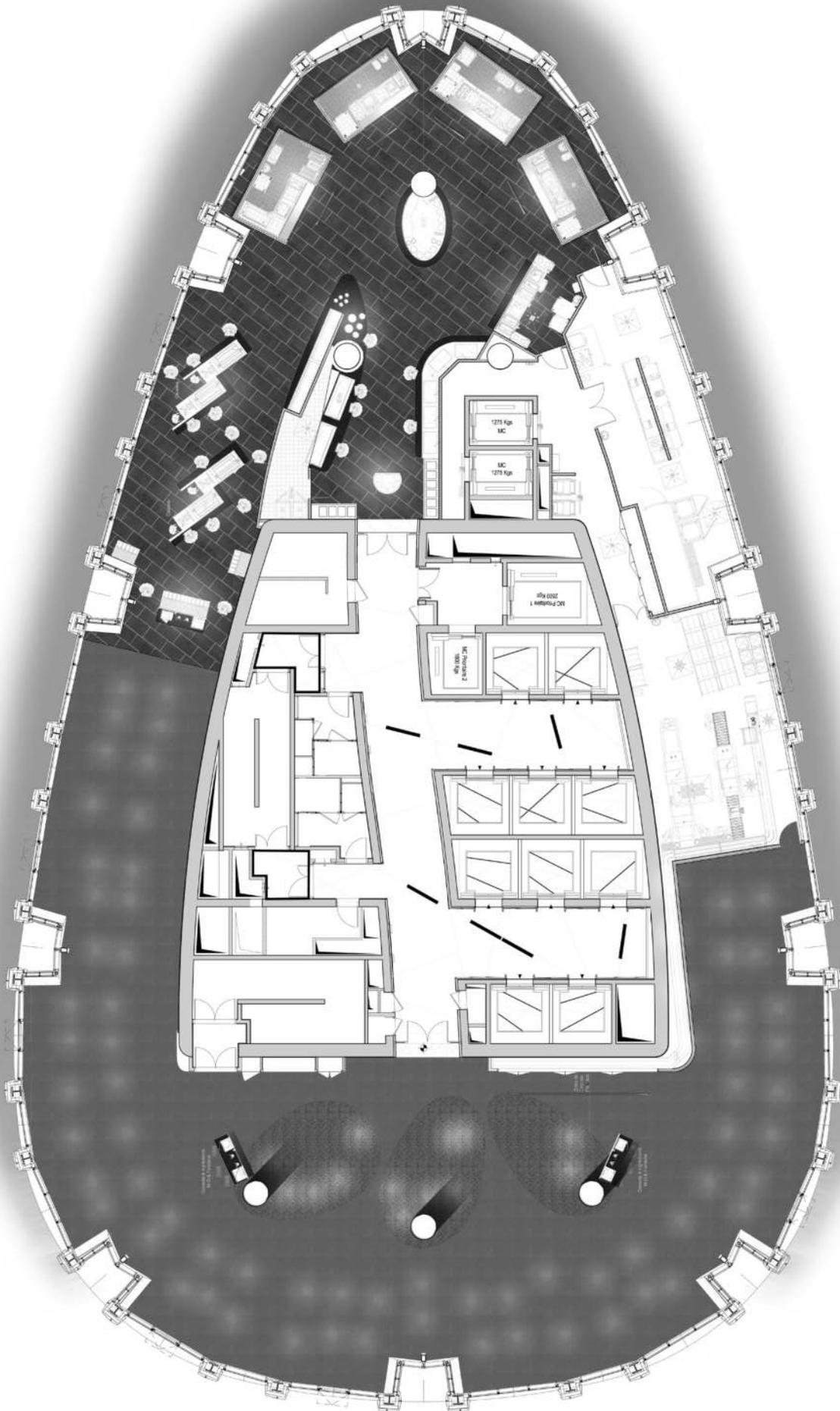






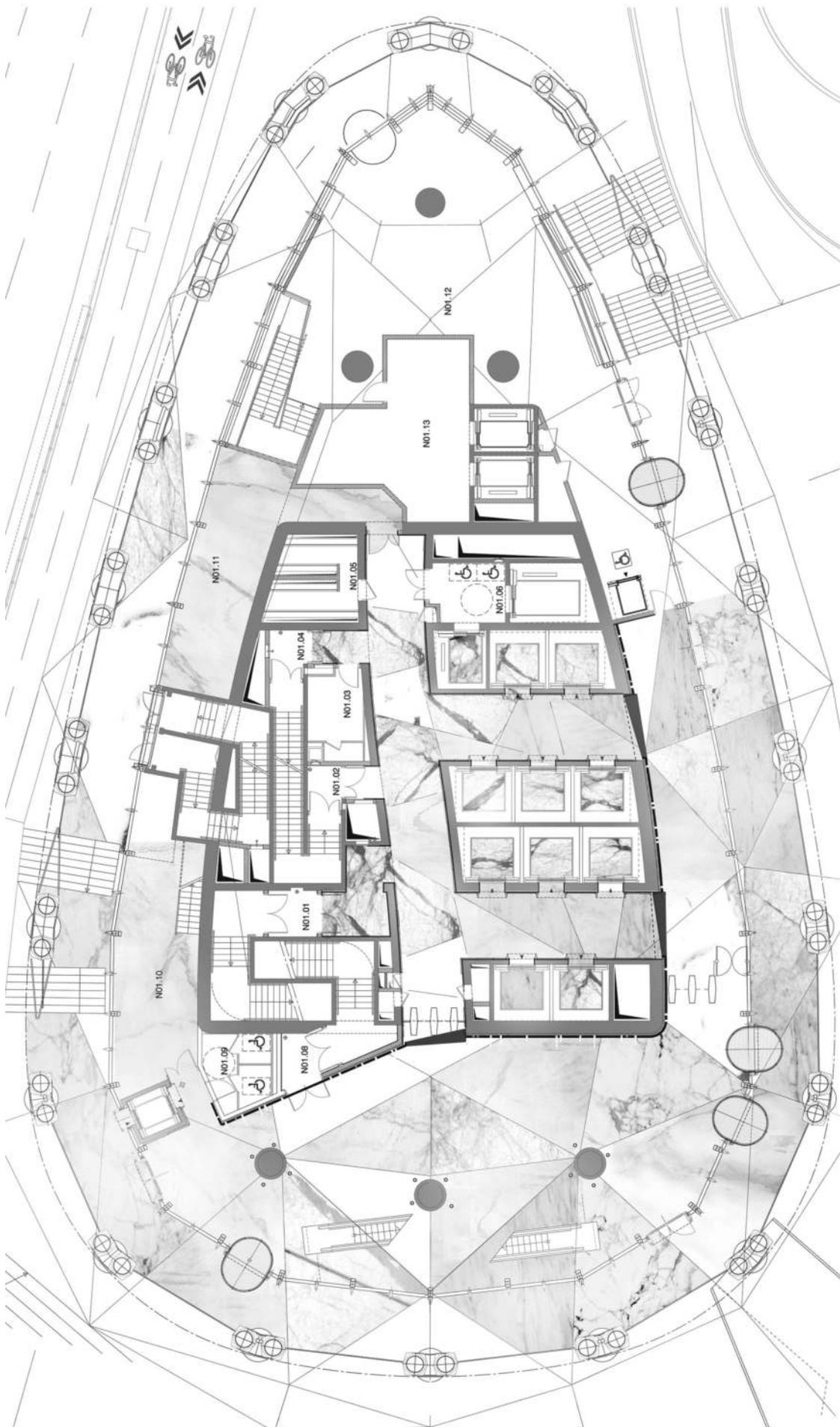






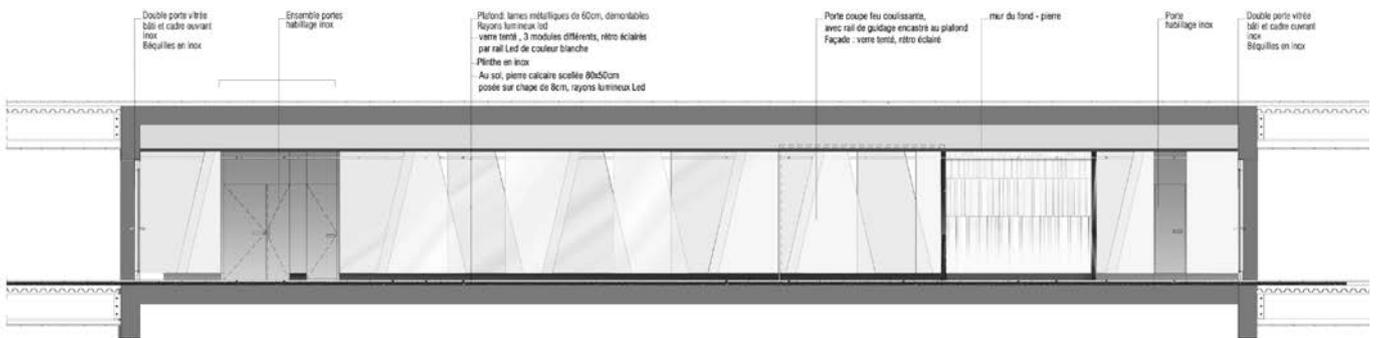
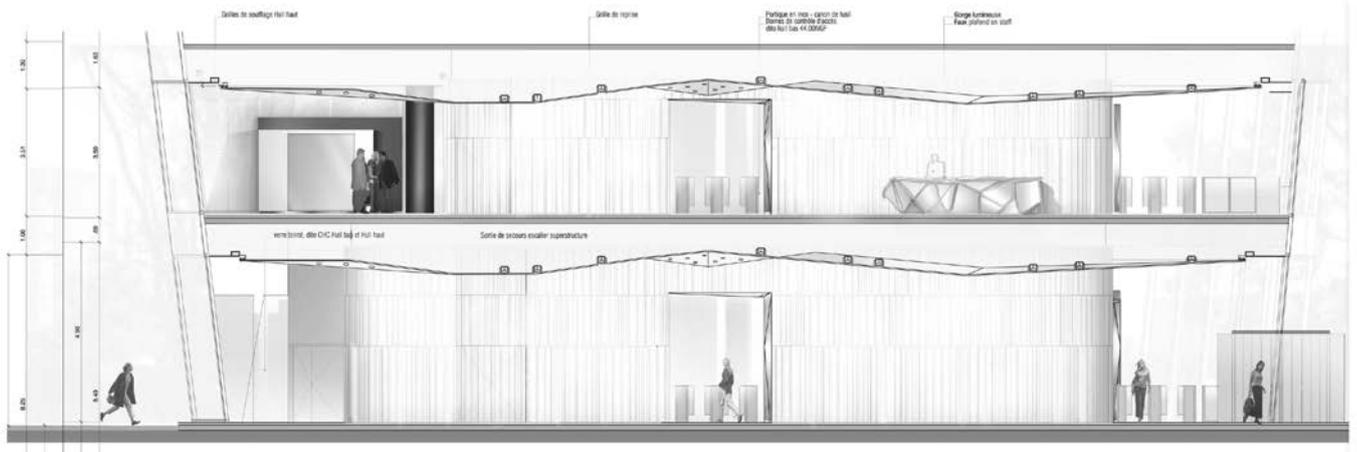


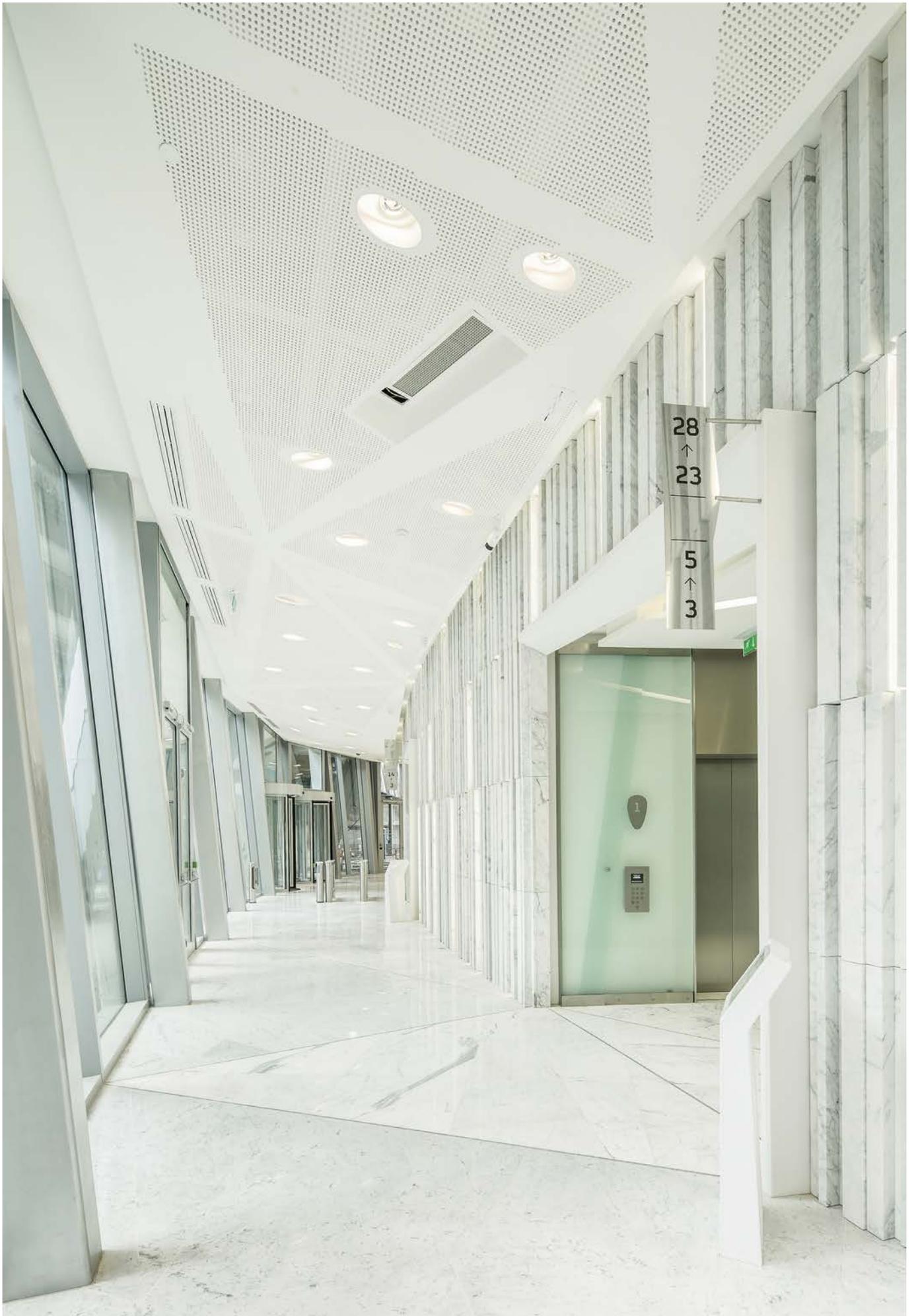






Tour D2 - Anthony Bechu/Tom Sheehan - *The entrance, over two levels, has been designed with Volume ABC*





Tour D2 - Anthony Bechu/Tom Sheehan - *The TWIN lifts allow 2 cars to move separately within the same shaft*

**THE TOWER TOP**  
A SUSPENDED  
GARDEN: THE  
GARDEN IN THE  
CLOUDS













# PARTNERS

**Architects:** Anthony Bechu - Tom Sheehan

**and their teams:** Régis Lassausse, chef de projet

Xavier Alfonsi, Heiner Babon, Jean-Louis Baczynski, Hugo Blanc, Aurélie Boutard,

Daniel Bouthors, Christian Canonico, Marco De la Vallée, Eugenio Euzebio,

Marie Gasparini, Karim Khelifa, Dominique Lim, Jean-Michel Meunier,

Abdelaziz Nacer, Monia Onis, Christian Seddiki

**Engineer Architect:** DWD (Daniel Vaniche)

**Interior Designer:** Volume ABC (Anne Charlet, Aliénor Blond)

**Owner investor:** Sogecap

**Co-promoters :** Sogeprom et Bouygues Immobilier

**Design coordination & Project Management:** EGIS Management

**Landscape:** COLOCO + Silva Landscaping

**Façade lighting:** Benoit Laloz

**Tower top lighting:** Benoit Laloz

**HQE :** Etamine

**Floor sample designer:** Majorelle

## TECHNICAL & ENGINEERING PARTNERS

**Structure:** SETEC TPI

**Façades:** DWD

**Plumber:** SETEC Bâtiment

**Plumbing Sprinklage :** BERIM

**Lifts:** EGIS Bâtiments

**HQE:** Etamine

**Lighting:** Benoit Laloz

**Kitchen:** CERES

**Acoustics:** CAPRI

**Fire & Security:** APEX

**Fire & Security consultant:** SSI Consulting

**Consultant:** Bureau Veritas

**SPS consultant:** Bureau Veritas

## CONTRACTORS

**General contractor:**

GTM, DUMEZ & BATEG

**Foundations:** SOLETANCHE BACHY

**Steel structure:** IEMANTS

**Glass façades:** KYOTEC

**CFo, Cfa, SSI, Gr. électrogènes :**

SPIE/SNEF

**CVC :** AXIMA

**Plumbing:** BALAS

**Elevators:** THYSSEN

**Cherry picker:** TRACTEL

**Dividing walls:** SPCI 95

**Layout:**

FABER SYSTEM, PIERREDEPLAN

**Plating:** CTF

**Ironmongering:** PORTAFEU

**Ironmongering:** SOMEN

**Ironmongering:** VULCAIN

**Suspended metallic ceilings:** LINDNER

**Mineral suspended ceilings:** MPB

**Ceilings :** SOFRASYL

**Hard surfacing:** EGPR-CARLA

**Marble working:** ILDEI

**Elevated floors:** DENCO

**Soft flooring:** EGPR-CARLA

**Painting:** SENECHAL

**Garden:** GROUPE VOISIN

**Kitchen equipment:** MRG

**Signage:** SINIO

## MAIN MANUFACTURERS

**Coffrage autogrimpant :** HARSCO

**Béton autoplaçant :** LAFARGE

**Poutres et Poteaux Métalliques :**

ARCELOR

**Capotage façade :** CUHADAROGLU

**Peintures extérieures :** AKZO NOBEL

**Verres :** SAINT-GOBAIN

**Isolation extérieure :** SAINT-GOBAIN

**Toiles de store :** FERRAR

**Doublage/Cloison :** KNAUF

**Habillage :** SIGNATURE MURALE

**Marbre :** LANDI GROUP CARRARE

**Carrelages :** CAESAR CERAMICHE

**Parquet :** EPI GROUP

**Revêtement thermocollé :** TARKETT

**Sols coulés :** BANGUI

**Moquette :** INTERFACE

**Placages :** FORMICA, POLYREY

**Peintures intérieures :** UNIKALO

**Portes coupe-feu :** JANSEN, PORTAFEU

**Portes :** MALLERBA

**Béquilles :** EUXOS, NORMBAU

**Ferme-portes :** DORMA

**Sanitaires :** LAUFEN, PIERREDEPLAN

**Robinetterie :** GROHE

**Cuisine :**

LESOUHAITIER, COMEND, ALVENE, HALTON

**Chauffage, Climatisation, Ventilation :**

CIAT, FLAKTWOOD

**Luminaire :**

THORN, PHILIPS, ZUMTOBEL

**Blocs de secours :** BEHAR

**Groupes Electrogènes :** SEGUIN FOLLET

**Ascenseur :** THYSSEN

**Escalator, :** THYSSEN

**Monte-charges :** THYSSEN

**Sécurité incendie :** ALCEA, DEF, CASTELL

**Sécurité intrusion :** FASTLANE

**Téléphonie :** AVAYA

**Onduleurs :** S2S

**Gestion Technique Bâtiment :**

KIEBACK & PETER

**Tambour d'accès :** KABA

**Nacelles de maintenance :**

SECALT, EASY LIFT

# CREDITS

## Photos

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## Construction photos

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## Interview with Anthony Bechu

Hélène Conrady on behalf of *Future* magazine

Construire pour les hommes

Anthony Bechu et sa grammaire de l'architecture

## Interview with Tom Sheehan

Emmanuelle Graffin

Extrait du livre Collection L'esprit du lieu – Architecture

*Archibooks – La tour D2*

## Communication

FE Consulting, Fatma Erhalac

## Graphisme

Pascaline Minella

# ARCHITECTS CONTACTS

## AGENCE D'ARCHITECTURE A. BECHU

82, rue Lecourbe

75015 Paris

France

T: +33 1 47 34 97 91

F: +33 1 47 83 38 20

abechu@anthonybechu.com

www.anthonybechu.com

## ATELIER TOM SHEEHAN & PARTENAIRES

12, rue Raymond Aron

75013 Paris

France

T: +33 1 45 89 43 46

F: +33 1 73 72 98 79

developpement@atasp.eu

www.atasp.eu

