DIPLOMARBEIT
(Diploma Thesis)

The Architecture of Stopping
(Diploma Thesis)

ausgeführt zum Zwecke der Erlangung des akademischen Grades Diplom-Ingenieur / Diplom-Ingenieurin eingereicht an der TU-Wien, Fakultät für Architektur und Raumplanung

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Submitted in satisfaction of the requirements for the degree of Diplom-Ingenieur / Diplom- Ingenieurin at the TU Wien, Faculty of Architecture and Planning

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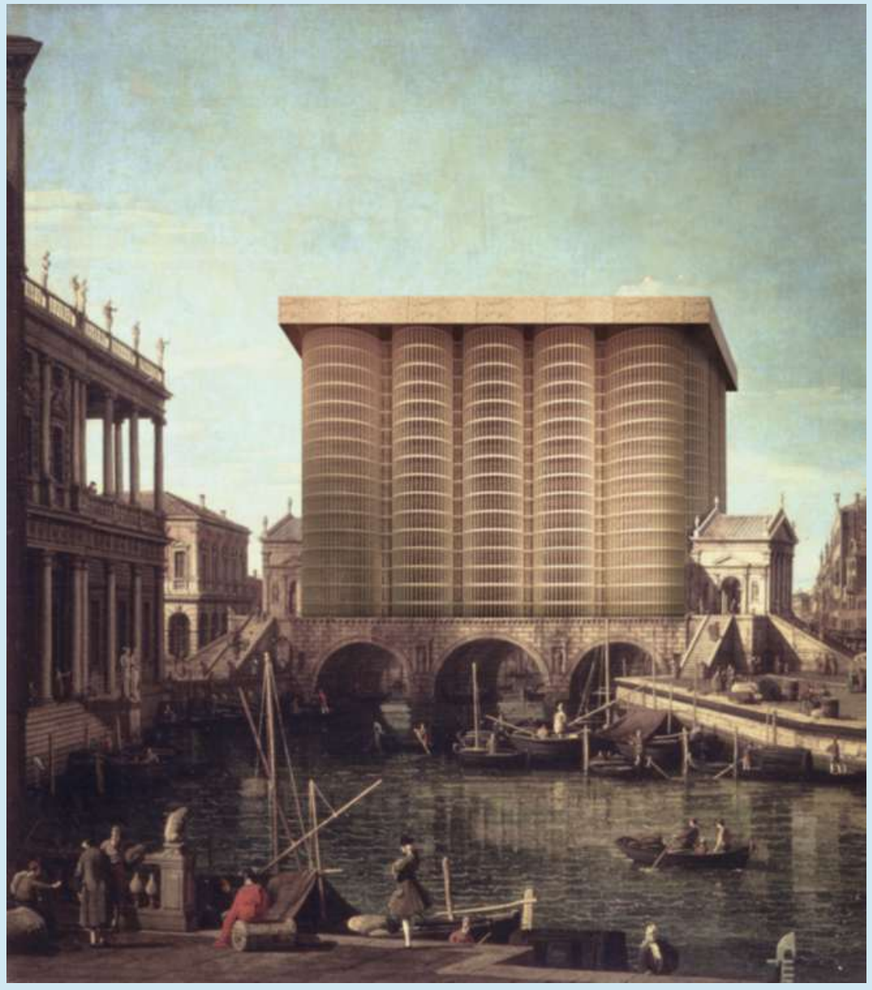
Abstract

The goal is to design a new typology for a charging and service station, inspired by the historic Autogrill-Pavesi bridges of the last century. Taking into account, that the majority of our personal mobility will change from internal combustion cars to batterie electric vehicles, what does that change for this new architectural concept. The opportunity is big, people spend 20-60 minutes instead of 5, which means they will spend more money. They might also pick their charging spot more wisely, which means the nicer space might win a lot of customers. There are different functions to be brought together, like parking space for cars and trucks, charging spaces, refueling spots, a shop, a restaurant and café, restrooms, meeting rooms as well as a place to shower and for hygiene. How do you shield from sun and wind? How do people feel safe at night? And even the question: is it still cool to sit above the autostrada and overlook daily traffic, like it was when these bridges first popped up in the 1950ies.

Inspiriert von den Autogrill-Pavesi Brücken des letzten Jahrhunderts, geht es darum eine neue Typologie für Tank- und Raststationen zu entwickeln. Was bedeutet es für dieses Projekt räumlich und architektonisch, dass sich unsere persönliche Mobilität in den nächsten Jahren vom Verbrennungsmotor hin zum Elektrofahrzeug entwickelt. Die wirtschaftliche Chance ist groß, wenn die Besucher in Zukunft statt 5 Minuten etwa 5 bis 10 Mal so viel Zeit an diesem Ort verbringen. Das Laden dauert länger als tanken, verbessert man das räumliche Angebot, suchen sich die Kunden potenziell gezielter ihre Raststationen aus und geben mehr Geld aus. Dieser Ort bringt einige Funktionen zusammen, Parkplätze für Trucks und Autos, Ladestationen, Tankstationen, einen Shop, Restaurant und Café und WC's, sowie Meetingräume und Hygieneeinrichtungen. Wie schützt man die Besucher vor Wind und Niederschlag? Wie fühlt man sich auch Nachts sicher? Alles startet mit der Frage: Kann es wieder cool sein über der Autobahn zu sitzen und sich den täglichen Verkehr anzusehen, so wie in den 1950er Jahren, als die Restaurants auf Brücken ein Zeichen für den Fortschritt waren.

The Architetcure of Stopping



The Letters ABCD
Volume 2, The Letter B,
Vienna 2023
Steiner Architecture f/f

(Fig. 1)

2. Capriccio Elettrico

When the Autogrill bridge died there were no mourners.

These paradigmatic pit stops fraught the Italian highways, and for decades their daring leap across the lanes expressed enthusiasm for the car with total candour. No trace in them of the guilt that would later hang over anything redolent of oil. They were true precincts of contemplation and merriment, harmless, like the sites of fête champêtres, now unenjoyable in a millennium when staring out a highway bridge feels like contemplating the end of the world.

Tired, the proprietors of these iconic Italian establishments asked themselves where else they might find commuters and other travellers to sell things to. They found them in airports and train stations. They became the barons of Duty Free.

Unreproachable—what was the future of the car then, except growing anxieties over how to fuel it? That is, until the advent of the electric-powered car. Which begs the question: what is different about pit-stopping in the era of the electric engine?

The answer is refuelling time: while a gas tank can be filled in minutes, an electric engine might take between 20 and 50 minutes to charge. In a sense, it's the gas station that changes, the refuelling establishment that devolves into an augmented Autogrill, rather than the Autogrill organically developing a second life.

And before the idea falls into the claws of philistine vulgarity it's the duty of conscientious petrolheads to ask themselves how to shape this transformation.

But will the revenant bridge over the highway look any different in the age of the lithium-ion battery? And what do you really do in 50 minutes?

It's the question of the old bridge-with-a-program: like the Ponte Vecchio in Florence, Pulteney Bridge in Bath, or Palladio's project for the Rialto Bridge in Venice, gloriously illustrated by Canaletto in his *Capriccio con edifici palladiani*.

The rhapsody of the electric car hasn't been written yet.

LEFT: The bridge over the Italian highway in the age of the electric car. Collage over Canaletto's *Capriccio con edifici palladiani* (1756–1759), Steiner Architecture ff, 2023. Reproduced with permission of the Galleria Nazionale Parma.

1. The Architecture of Stopping

When thinking of a place, where spending time at service stations is more fun, Italy immediately comes to mind. This has to do with good coffee, summer holiday emotions and mortadella sandwiches for sure, but not only. Particularly the Pavesi - Autogrill service stations, the ones that are built over and across the Autostrada, are on my mind. They are iconic. Designed as bridges over highways, they emphasize speed, progress and leisure. Maybe these bridges are the answer!

They exist in a few countries, but they were born and developed in Italy, and it is only here that you can find many of them and in different styles. They follow a clear typology, spanning from one site of the motorway to the other. Making it possible for travelers of both directions to meet in the middle and share the restaurant.
The parking is always situated around the entrances of bridge, almost always connected to a gas station. Often times, each of the two ground floors hosts a shop connected to the nearby fuel pumps.

These bridges come in all sorts of construction methods:
- Steel frame construction: for big column-free interiors
- Reinforced Concrete: used as the main structural component for piers, beams, and slabs
- Precast Concrete Panels: to allow for a reduced construction time
- Glass Curtain Walls: providing panoramic views
- Cantilever Construction: allowing for long spans.

You climb the bridges via staircases, mostly situated in a structural core. In the first floor, you find a big space that houses the restaurant, restrooms, kitchen, coffee bar, sometimes additional shops. A few of the structures even have two stories, making space for a hotel, conference rooms or similar additional functions.

While bridges were probably used by vendors and with market stalls forever, medieval Europe and the Renaissance have a few examples of bridges being the base of actual buildings, layering transportation, commerce, and residence within the same structure. The London Bridge is an interesting example, constantly evolving and being home to shops, residences, and a chapel. It became one of the defining building structures of London, all the way to 1761, when the houses on top of the bridge were demolished after a few hundred years of ever changing. (Fig. 2,3)

Back to Italy during the Renaissance, where Ponte Vecchio (Fig. 4) is crossing the river Arno in Florence at its narrowest point. The bridge has existed for hundreds of years before being built the way we know it today. It is 84 meters long and 32 meters wide. To both sides, the bridge is cluttered with little shops and apartments, the entrances always face the center of the bridge. The backsides of the buildings are overlapping the edges of the bridge, like balconies. In the very middle of the river, the bridge opens up with three arches towards both sides, creating a piazza and offering a beautiful view over the river and the city. One of the interesting features of Ponte Vecchio is that it continues flat into the city, no big stairs to overcome, just a plain surface. It is almost only when you reach the main square in the center of the bridge, that you realize you're on a bridge. The bridge sits on three segmental arches, and it feels as if the city has just grown onto the bridge.

Another famous Italian bridge is also home to a variety of shops, the Rialto Bridge (Fig. 6,7) in its heyday was a crucial commercial hub in Venice, and until today is one of the big tourist attractions of Venice. It is built from stone, and houses shops on both sides with a central walkway. Different to Ponte Vecchio in Florence, the Rialto Bridge asks you to climb a lot of steps. You are basically following the form of the stone arch. You can walk in the middle and on the outside of the bridge, making the shops accessible from both sides.

Bridges already come with the advantage of stacking transportation routes, e.g., waterway and crossing or two motorways crossing one another, but lifting buildings from the ground is not only a part of infrastructure or, in vernacular architecture, to make sure houses are secure from floods or animals, it is also famously part of Le Corbusiers 5 points of Architecture (1926).

- *Pilotis (columns)*
- *Free design of the floor plan*
- *Free design of the facade*
- *Horizontal windows #*
- *Roof garden.*[1]

He raises the house for a few reasons. To improve the circulation of light and air, to integrate the house into its environment, and to free up the ground level for gardens, walkways, or other public uses. We can see this in many different scales of his buildings, from big housing projects, such as Unité d'habitation, to private homes like Villa Savoye.
When thinking of public spaces, that are created by lifting up a building, Lina Bo Bardis Museum of Art, MASP in Sao Paulo comes to mind. Elevated 8 meters above the ground, this museum creates a vast open public space underneath. The structure is held up by two massive pre-stressed concrete beams that span 74 meters across the top of the building. (Fig. 22, 23) These beams sit above big concrete columns at both sides of the building. These massive beams hold up the weight of the museum in the middle and allow for a column free interior. (Fig. 25) The space below prolongs the public areas of the city and almost creates a new horizon, since the whole building also sits at a big change in topography within the city. (Fig. 23, 24) Inside the bridge, it offers views to both sides, overlooking the city. At least that is the way it was imagined, nowadays shutters keep you from admiring the building's party piece, while also making sure the displayed art is not destroyed. You win some, you lose some.
This reminds me a bit of how nowadays you have a facade full of shutters over most of the renovated Autogrills, taking away one of the party tricks, the view over the motorway and landscape.

The buildings are clearly focused on visibility. Their placement strategy is tightly integrated with market demands. Mostly located along the north-south axis, from Brenner to Rome, as well as Italy's economically strong North from Torino to Venice. There is almost no way you will miss them when travelling through Italy, also because they are almost as recognizable as the big yellow "M".

While the branding has changed over the years from Pavesi to Autogrill, the structures themselves feel like they are part of a brand IP.

Robert Venturi would probably place them somewhere between "Duck" and "Decorated Shed". In his book of 1972, "Learning from Las Vegas", he differentiates between the "duck", a building that, by its design and form, gives away its function and the "decorated shed", a simple and functional building that is reliant on its branding. These decorated sheds are situated mostly in suburban and commercial contexts. The Pavesi / Autogrill bridges however, are always placed next to the same companion: the motorway. [2]

1 LE CORBUSIER, Towards a New Architecture, Five Points of a New Architecture, New York (Dover Publications, Inc.), 1927

2 VENTURI, Robert, BROWN, Denise Scott, IZENOUR, Steven, Learning from Las Vegas, Revised Edition, Boston (The MIT Press), 1977

The automobile does plays a big role in the design, not only because the size of the building is related to the sizing of the motorway and therefore to the width of the car, but because you can clearly feel the cultural background, that gave birth to the idea. The ethos that allowed for such a bold design.

They stem from a time of progress and positivity from the late 1950ies through the 1970 that is closely linked to the massive increase of the number of cars. It is not surprising, given the fact that Italy was one of the biggest producers of cars in Europe. From mass products like FIAT or Lancia to Maserati, Lamborghini and Ferrari. The owner of FIAT, Gianni Agnelli, is even a sort of figurehead of Italy's capitalism. Being involved in the industrial comeback of Italy mainly with FIAT, owner of one of Italy's best football teams Juventus Turin, and even in being a counter figure during the revolution like protests of the late 1960ies. (Fig. 12)

The service station bridges feel like the perfect representation of these Italian post-war economic growth, industrial innovation and the cultural shift towards modern consumerism. The architecture was fueled by the boom spirit of the time.

Big structures spanning over the highways, where one could sit down and watch the whole country move. Back then, you would still be enjoying the benefits of a proper restaurant, like being served food at your table, flowers on the table, a big bar in the middle and so on.
This was a time where, unlike today, it would feel amazing to sit above cars blasting along, inhaling their fumes, where big bridge like structures were considered to be phenomenal, progressive, insane, and daring. Back then, you were experiencing new technologies within the architecture and the automobile. (Fig. 39)

In 1970, the theme of the World Show in Osaka was "Progress and Harmony for Mankind". Architecture tried to capture and provide a platform for a very genuine trust and confidence in industry and technology. (Fig. 11)

This is probably not, because the world felt like a safer place back then. Although climate change was not as big a topic as it is today, this is the time of the Cuban Missile Crisis and the nuclear doomsday. In the 1970ies, many people truly thought the end of the world was looming ahead. Nukes were the global warming of the late 1960ies and 1970ies.

This shows, that buildings and spaces are a product of their times.

1973 was the year of the oil crisis. Another 60 or so years later, much has changed.
We spend a lot of time in traffic, climate change is the topic of our times, and it might not be charming to sit above the autobahn anymore. 14 of the 16 bridges that were ever built above Italian motorways are left. Almost all of them restored to death, meaning they are still bridge structures, and you can still climb them from the side and have lunch, but they have lost most of their architectural charm.

In fact, Autogrill is symptomatic of a larger issue. Gas stations in Europe are expensive, uncomfortable, not very consumer-friendly, and more often than not even dirty. They are optimized to be as economically sufficient as possible but, in doing so, lost most of their attraction and all of their beauty. The quality of food and coffee is often terrible and there is almost always no space to rest, apart from inside the car.

At the same time, some of the status-quo is changing. We are going from internal combustion engines to battery electric vehicles – ICE to BEV.

Although range and charging time for electric vehicles are still improving massively, it will continue to take more time to charge one's electric car compared to refueling an ICE vehicle. In numbers, we are talking about an increase of 4 to 20 X.

Instead of refueling your car for 3,5 minutes, you will now spend between 20 minutes and 1 hour. This sounds like a big opportunity for change. Because when we spend much more time at a service station, we are probably also going to spend more money.

A big disadvantage of being close to service stations and motorways is the pollution. However, if we are mostly or even solely travelling with electric power, the chance of successfully creating more enjoyable and more beautiful service stations just becomes more realistic.

Innovation might make a change in how we perceive the car and its infrastructure again. Pessimism is not the right avenue to follow, and architecture has the power to lead the way.

2. The Architecture of Stopping

The goal is to design a new typology. There are many special needs to the service station, like parking space for cars and trucks, charging spaces, refueling spots, a shop, a restaurant and café, restrooms. Additionally, a modern area servicio could need office space, a place to do zoom meetings, maybe a place to shower and for hygiene. There should be space for solar panels. It should feel safe. Thus, ideally there is light and there are no blind spots. It needs a bit of shade and shelter from the elements, such as wind, extreme sunshine, or heavy rain. The business needs to attract customers in order to survive. Ideally, but that cannot be done solely through architecture it offers good, fresh food, as well as great coffee. So maybe the building should still be in Italy. Yet, needless to say, architecture cannot be made responsible for good coffee.

Since it would always be linked to the motorway, the building is placeless, but it can find its reference points in terms of size and placement through the motorway. It should be at a busy motorway, meaning we can narrow it down to 3 lanes in each direction.

It is a bridge with program again. I want the halo effect, you can see it from far away and that is essential when competing for customers. Obviously, the bridges are iconic because of the historical reference and for what they stand for.

Utilization of space becomes a big topic. Densification is the key. Austria for example, is losing its land at a rapid stage. This is not only due to a general negativity towards densification. Read more in "Will the future get you high?" on page 19.

Layering functions is economically and environmentally sound, plus it becomes easier to implement future service stations above the road, requiring less land besides the highway.

Additionally, the chances of one pausing on the way are inversely proportional to the speed at which they move. And thus, the chances of roadside commerce are inversely proportional to a vehicle's speed. At one end of the spectrum you have pedestrians. The footbridge. You'll find all over the world, street vendors popping up in footbridges. You see them in Rome selling touristy stuff on the bridges. At the other end of the spectrum you have the aero plane. There are no mid-air cafes. The bridge-with-program is the architectural answer to the question, of how do I get most people to stop at this pit stop rather than the next one.

Visiting one of the renovated bridges you find, that one of the big downsides is the hustle of walking up to the first floor. Since it is no longer new for us to watch cars and highways from above, the incentive is not big enough to walk up there. And the staircase is also not formulated exciting enough to make you walk. So, if the new service station is supposed to be a bridge building, it needs to provide a solution for this issue.

Ettore Sottsass said "Do you want a bed, or do you want to sleep?" and by asking this he was encouraging us to put the emotional and, in this case, the experimental outcome first. Like the visitors of the Autogrill, Sottsass is here to take a break. Therefore, our bridge needs to be entered by car. You need to drive into the building. Making it an experience to climb the ramp with the car, seeing the bridge come closer. The floor and walls of the ramp will be in red color, to highlight the entrances more.

Ryner Banham, a very influential architecture critic and historian turned his attention to Los Angeles at one point. (Fig. 14) There is a famous movie "Reyner Banham loves Los Angeles", where he is exploring the city. LA being LA, a lot of what you see is from within the car. The perspective changes, so does the speed, and the scale of things.[3]

Geoffrey Bawa's garage in his house in Colombo also comes to mind when thinking of cars entering buildings. His garage is an open space inside the house. What is good for the owner, is good for the car – not just because his car happens to be a Rolls Royce. [4] *(Fig. 17)*

Electric engines make cars clean machines that we can "invite" into our houses, as harmless as pets. This is new! It would mean we can "architetcuralize" the charging yard. So far, these areas have just been nondescript, kind of falling into place by the simple availability of space within the fuel stations. Making them a part of the experience and letting the user drive into the structure changes the whole approach. The building becomes the charging point, much like the gas station is built around the actual refilling station.

The bridge should be all about the experience, driving in from the busy motorway turning in, entering the aera servicio, you are either driving underneath to park the truck, or up the ramp towards the charging stations, the restaurant, and the work space. The entrance to the building feels as inherently part of the building, as climbing the concrete staircase in Lina Bo Bardis MASP. There, it leads up, through a big hole, into the big hanging part of the structure. Even the "door" is a piece of metal sliding over the opening horizontally. (Fig. 24)

Above the Autobahn the building is organized around the charging yard. 4 lanes of charging spots formulate a square. The building is designed, so that you could widen the space for the charging spots, making it a longer building, but losing none of its qualities.

Towards the outside, you will find 3 fuel pumps to each side, and the staircase plus a little shop in a cylinder that wraps itself from the ground floor up. The two sides that overlook the Autobahn each host a colorful, standalone building. The idea is to create a color code, so that the regular visitors will understand the function of these boxes just by seeing the colors, no matter which of the new stations they arrive to. The form gives it away also. The restaurant meets shop and café bar opens up to the outside with a big curved glass wall. At the same time, the box that houses work space shows various entrances and can be arranged modularly, fulfilling the needs of the actual place. Meaning between Rome and Florence you might need more showers, because it is a route that a lot of truckers use, while between Milano and Turin you find a lot of people that commute for work, and they might want to do a zoom meeting on their way home.

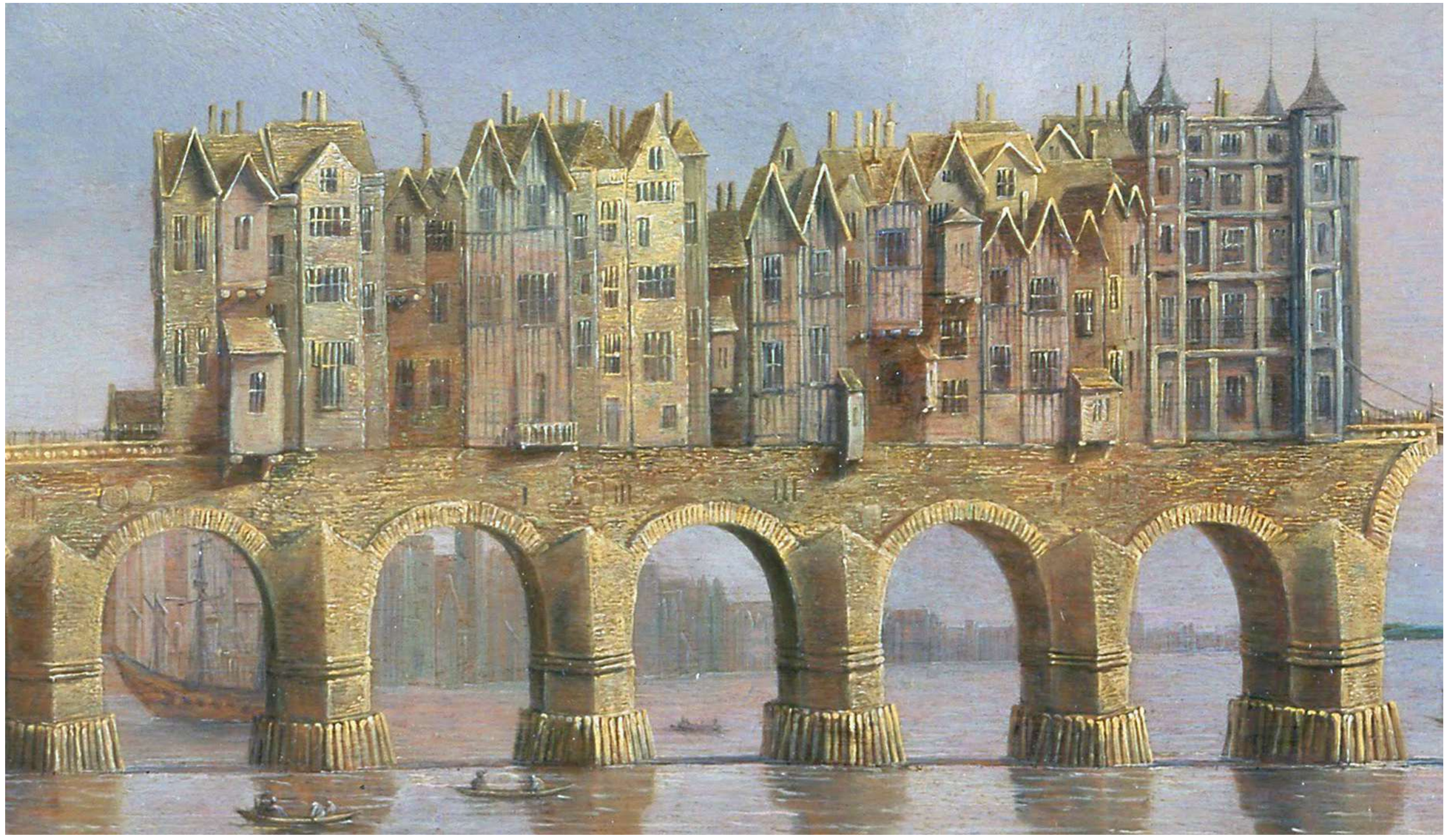
None of the closed boxes within the structure touch to roof, creating a clear hierarchy between the different parts, while making sure air and light can flow through.

3 COOPER Julian, Reyner Banham Loves Los Angeles, Flim, USAGBR 1972.

4 KAUSHALYA Kathireson, The Nature-Inspired Interior Designs uf Gorey Bawa, in: Men's World India 20 (2018)

Historical References (Figures)

It is clear that bridge and and buildings were not designed as one. First came the bridge, the buildings followed one by one.

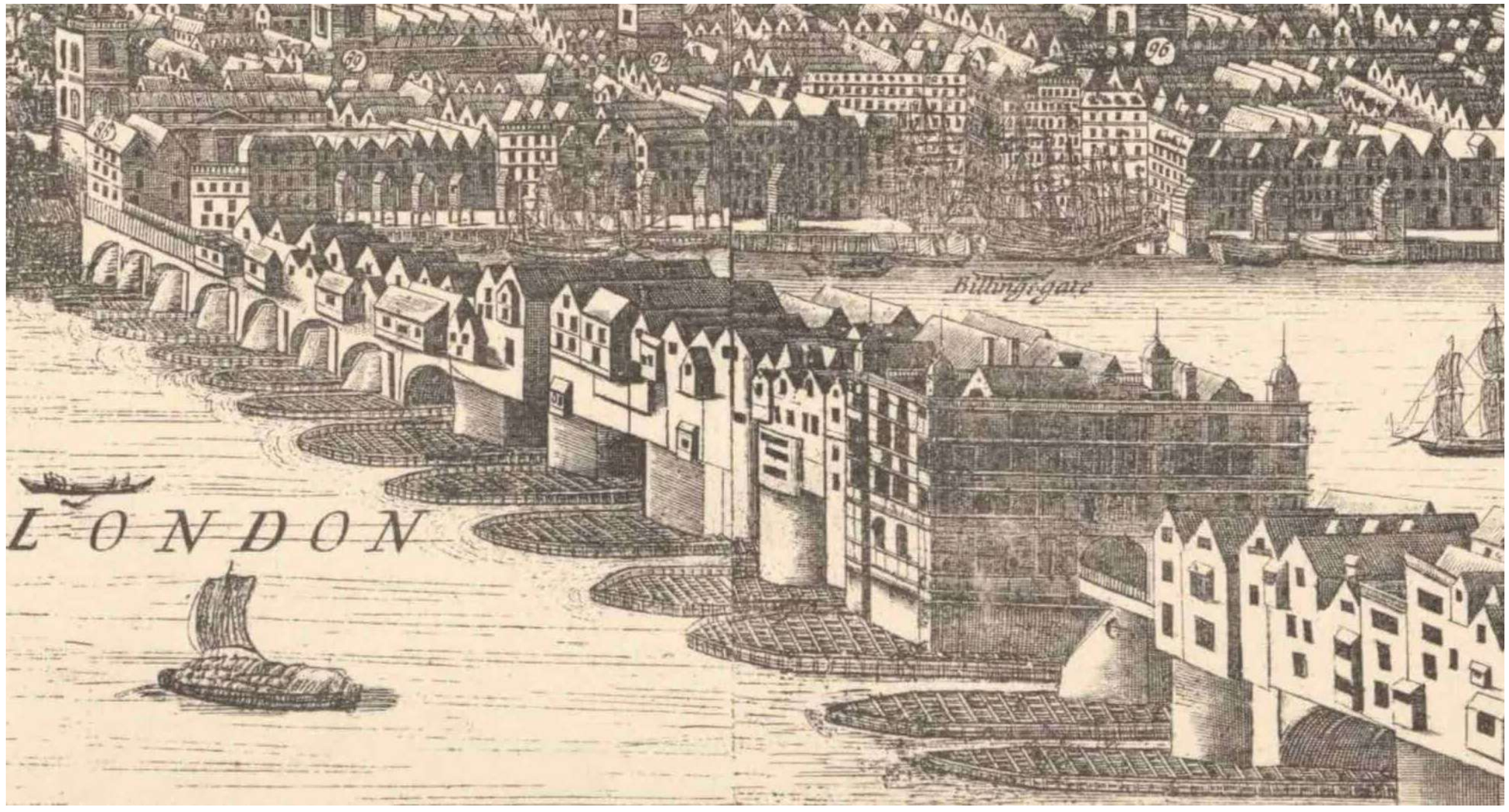


London Bridge
early 13th century

(Fig. 2)

DE JONGH, Claude, View of London Bridge, oil on panel, 1632, Yale Center for British Art

This bridge is not only part of the transportational infrastructure, it becomes it's own district.



London Bridge
early 13th century

(Fig. 3)

MORGAN, William, Drawing of London Bridge from a 1682 London Map, 1682, republished by London Topographical Society, London, 1904.

Ponte Vecchio connects two parts of Florence, while being the base for appartments, various shops and a specialized marketplace.

Ponte Vecchio
Taddeo Gaddi
Florence, 1345

(Fig. 4)

MEHLING, Ingo, Ponte Vecchio, Florence, from author, 12. 12. 2024

Palladios wooden bridge with a roof offers shelter from the elements.

Ponte degli Alpini, Andrea Palladio Bassano, 1569

(Fig. 5)

DENKER, Patrick, Ponte degli Alpini, Bassano, from author, 9 October 2024

Palladio envisions a bridge with multiple functions.

Project for Rialto Bridge
Andrea Palladio
Venice, 1554

(Fig. 6)

CANALETTO, Giovanni Antonio, Capriccio con edifici palladiani, 1756–1759, Galleria Nazionale, Parma

This is what the Rialto bridge looked like when Palladio was drawing his proposal.

Ponte Rialto, today one of the big tourist attractions of Venice. Much like Ponte Vecchio combines crossing the water with specialized shops, mostly jewlery. Two rows of shops can be entered from the middle of the bridge as well as from the outside.

Rialto Bridge
Venice circa 1550

(Fig. 7)

CARPACCIO, Vittore, The Miracle of the Cross at the Ponte di Rialto 1496, Gallerie dell'Accademia, Venice

The castle reflects in the water. It is overlooking the lake. It represents power and wealth. The added security of being surrounded by water is a positive side effect.

Château de Chenonceau Denis Courtin or Jean Bullant the bridge was built in 1555, Chenonceau

(Fig. 8)

BIBOLLET, Catherine, Le Château de Chenonceaux, Gamma-Rapho, 19. 4. 2018

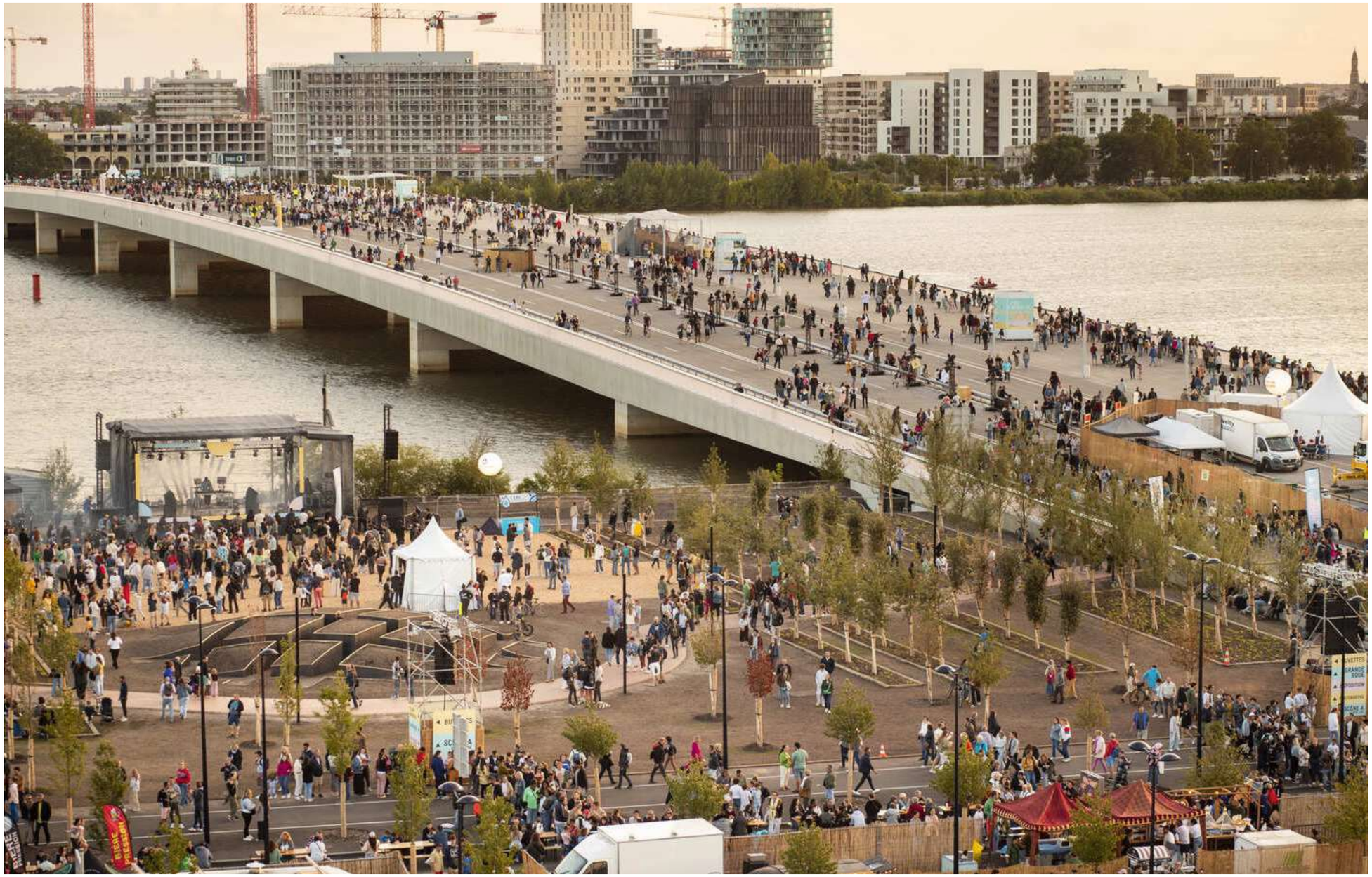
The power to represent is of course still relevant, here it is a museum and cultural institution. The approach to the building is interesting, offering spectacular views towards the building. This is relevant for my project as well, since it needs to attract as many travellers as possible. They all arrive, seeing the station from the perspective of the drivers seat.

LEGACY Bridge
Spacetravellers
China, 2010s

(Fig. 9)

SPACE TRAVELLERS, Legacy (Projekt), Visualisierungen: BONAVITA, Giuseppe, 2021, Mailand/Yongxin

"This bridge is for the people, not for connoisseurs. Rather than concentrating on form, the project focuses on performance. Instead of spending its budget on structural gymnastics, it doubles the width with a public space to serve and connect the two adjoining communities that so far have not developed a strong identify. On the model of bridges like the Rialto in Venice, this extra public space can be used for any purpose: popular, commercial, cultural, or political."
Rem Koolhaas, OMA



Simone-Veil Bridge
OMA
France, 2024

(Fig. 10)

MENGÈS, Jean-Baptiste, Simone-Veil-Brücke, Bordeaux, photograph by Bordeaux Métropole, 2024

In 1970 the theme of the World Show in Osaka was "Progress and Harmony for Mankind". Architecture tried to capture and provide a platform for a very genuine trust in industry and technology.
This is probably not, because the world felt like a safer place back then. Although climate change wasn't around, this is the time of the Cuban Missile Crisis and the nuclear doomsday. In the 70s many people truly thought the end of the world was around the corner. Nukes were the global warming of the late 60s and 70s.

Festival Tower
Kiyonori Kikutake
Japan 1970

(Fig. 11)

KIKUTAKE, Kiyonori, EXPO Tower, Expo '70, Osaka, photograph, photographer unknown, 1970.

Gianni Agnelli is one of the most important figures of Italian economy in the second half of the 21st century.

Gianni Agnelli
Lingotto Building
1970s, Italy

(Fig. 12)

GRASSO, Aldo, Gianni Agnelli, il ritratto affettuoso e il ricordo curioso di Platini, Corriere della Sera, 17. 3. 2023.

2. Will the future get you high?

Austrian urban sprawl is a fact, and a future where cities grow tall, not wide, seems the less likely outcome.

But place old towns on the psychoanalyst's couch and you will find this: Behind the fear of tall buildings lies not the phobia of things high but of things modern: flat roofs, posts and lintels, right angles and glass. The whole modernist alphabet.

Tall need not imply modern but it does. Why? Because a future where tall buildings aren't modern—God forfend!—is so radical, that it doesn't even occur to modernism's enemies.

Enter Bad Gastein. That Austrian oddity, shaped like an Alpine Sanaa. Unrepentantly monarchic, unilaterally loved by the crowds, built to challenge any notion that (i) mega-dense and (ii) aesthetically reactionary cannot share a bed.

But Bad Gastein is a product of the 19th Century, not the 20th, and it was not *aesthetically reactionary* when it was built. To draw from the past—nay, imitate the past—was not a crime then.

It is today.

Real felonies aside, conceiving new buildings to look like old ones is the ultimate architectural misconduct. Nothing will bring a designer such immediate isolation than refusing to be contemporary. And the countryside's demands for the continuity of old forms is regarded by designers as politically conservative at best. Xenophobic at worst.

According to this cruel logic Bad Gastein cannot be reproduced: density will be modern or it will not be at all.

Architects of course believe they negotiate with the crowd's ineducable taste for the picturesque: they respond with abstractions of past forms that they hope will be to be taken for historical continuity. They're not. They're enjoyed by other architects.

But the public wants Bad Gasteins. Not *interpretations* of Bad Gastein.

Will the future oblige them?

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Volume 1, The Letter A,
Vienna 2023
Steiner Architecture

(Fig. 13)

LEFT: Bad Gastein, Salzburg. Photo by Filipa Miguel Ferreira, 2016

RIGHT: Sanaa, Yemen. Photo by Dominic Sansoni, 2007

A 2023

MOYA, Max: "Will the future get you high?", in Steiner architecture the letters A-B-C-D, Wien 2023, *A/E, S. 9*

Banham was a very influential architecture critic. Towards the end of his life he turened his attention to LA. Which means he turned his attention to the car. He explores LA from the perspective of the car in the film: "Ryner Banham Loves Los Angeles"

Reyner Banham Loves Los Angeles
Film, 1972

(Fig. 14)

COOPER Julian, Reyner Banham Loves Los Angeles, Film, USA/GBR 1972.

Ettore Sottsass question: "Do you want a bed, or do you want to sleep?" is very interesting for the start of any design. It helps defining the actual goal. Is it about the best way to rest, the fastest way to charge, or the best coffee?

Ettore Sottsass
Do you want a bed, or do you want to sleep?
1976

(Fig. 15)

SOTTSASS, Ettore, Vuoi dormire..., Metaphors, 1976, Triennale Milano, Milan

"Parked on fine carpets, the car is a declaration that whatever is good for the automobile is good for the driver. They partake in the fun on an equal footing. "
Written by Steiner Architecture f/f, February 2022

Ice Race Pavillion
Steiner Architecture f/f
Zell am See, 2022 ff

(Fig. 16)

BAUER, Stefan, Steiner Architecture f/f, 2022 (from author)

Huminazation of the vehicle, ie. humans and cars sharing the same roofed space.

Garage Colombo House
Geoffrey Bawa
1958 ff, Sri Lanka

(Fig. 17)

Kaushalya Kathireson, The Nature-Inspired Interior Designs of Geoffrey Bawa, in: Men's World India 20 (2018) 4.

Dreaming in Lala Land
Steiner Architecture f/f
2024

(Fig. 18)

HEINZLE, Michael, Dreaming in Lala Land, Steiner Architecture f/f, (from author), 2023

Dreaming in Lala Land
Steiner Architecture f/f
2024

(Fig. 19)

HEINZLE, Michael, Dreaming in Lala Land, Steiner Architecture f/f, (from author), 2023

This is a building for the dead, a cemetery. All attention is directed towards hanging, not touching the ground.

Toku'un-ji Temple Ossuary
Kiyonori Kikutake
Japan, 1965

(Fig. 20)

GUEN-K, Toku'un-ji Temple Ossuary, Foto: Fukuoka 2008

A bridge, that is not so much about getting from one place to another, but more about the creation of a second horizon, the public space that opens up below the structure, and a secluded box perfectly suitable for a museum.

Lina Bo Bardi
Museu no litoral (not built)
Brazil 1951

(Fig. 21)

BO BARDI, Lina, 1951, Instituto Bardi, Sao Paulo

Next to a busy street the exhibition sits high above a public space. Two big concrete pieces clamp the 3 ceilings below. They only serve as construction support. The entrence sits between them on one side of the building.

Lina Bo Bardi
Museu de Arte De Sao Paulo
1968, Brazil

(Fig. 22)

FLIEG, Hans Günther, photograph, ca. 1967, Museum of Art of São Paulo (MASP Collection), São Paulo

When approaching the building it frames its surroundings below. On top you see two tall open floors, offering stunning views over the city.

Lina Bo Bardi
Museu de Arte De Sao Paulo
1968, Brazil

(Fig. 23)

BESSLER; Ilana, 2015 (from author)

From above, or when entering the building you dont even realize, that the downstairs excists. Beautifully using the topography of the site.
Two red staircases are leading to the lower part of the exhibition.

Underneath the building it seems like a space ship has landed. It offeres shadow in the warm climate of Sao Paulo. It becomes a heavily used public space, to cool down, to meet, to listen to music. City life flows through the building.

Lina Bo Bardi
Museu de Arte De Sao Paulo
1968, Brazil

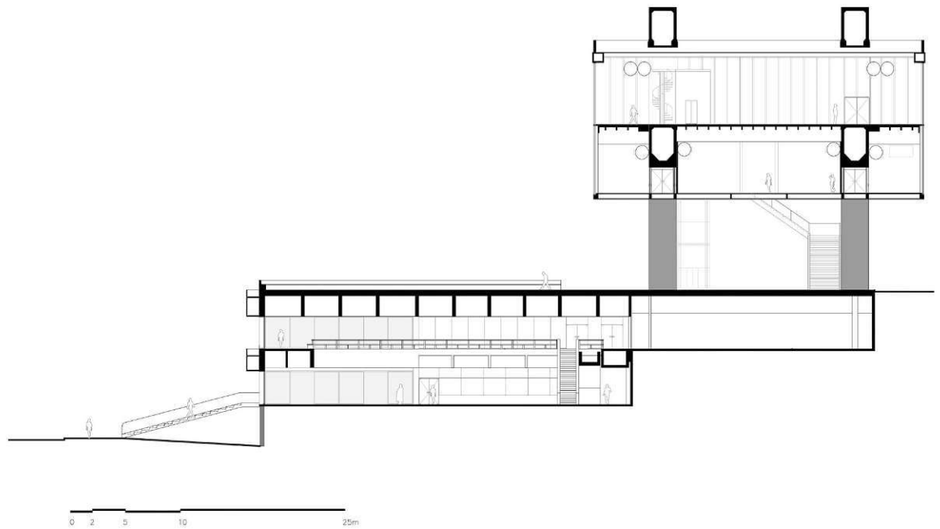
(Fig. 24)

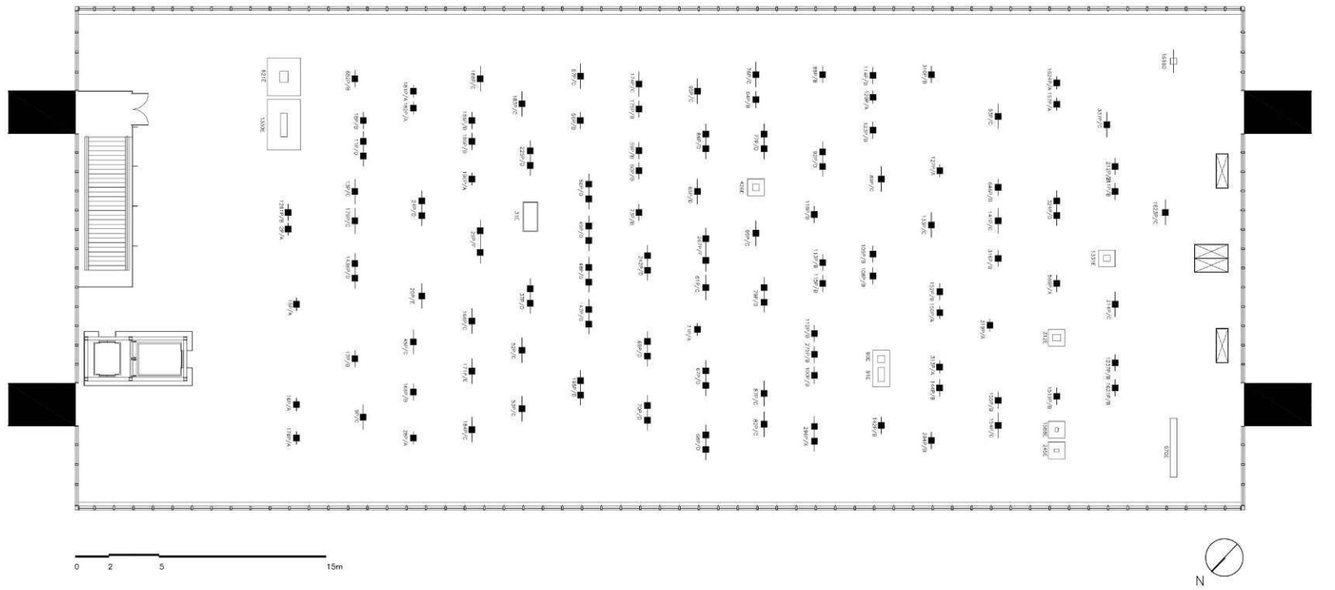
MASP, Arquivo Biblioteca e Centro de Documetacao do MASP, Sao Paulo, 1968

The topograohy of the site is very strong. The bridge opens up a new horizon from this upper level of the city. Half of two lower stories is buried in the ground.
The floorplan is wide open, offering lots of variaty for exhibitions.

Lina Bo Bardi
Museu de Arte De Sao Paulo
1968, Brazil

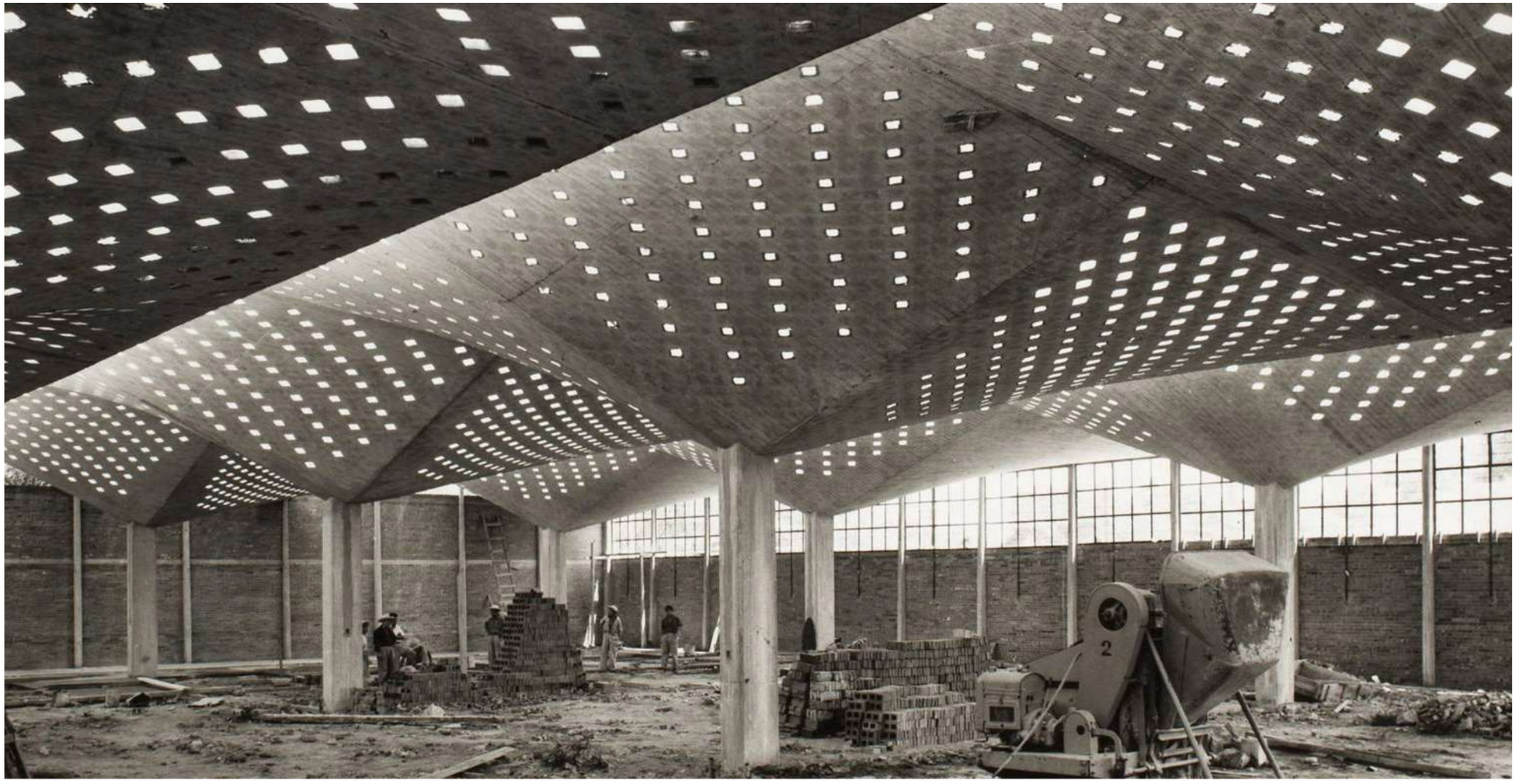
(Fig. 25)





BO BARDI, Lina, Instituto Bardi, 1963, Sao Paulo

The small openings in the concrete let in just enough light to create a beautiful atmosphere. The construction appears light and opens up the space almost mysthically.



High Life Textile Factory,
Coyoacán, Mexico
Felix Candela
1955

(Fig. 26)

CANDELA, Félix, High Life Textile Factory, Coyoacán, Mexico City, photograph by LANG, Erwin, 1958, Candela Archive, Princeton University

The concrete structures resemble mushrooms on the forrest floor. They let the light come throuh between them.

Johnson Wax Building
Frank Lloyd Wright
1939, USA

(Fig. 27)

SC JOHNSON, The Great Workroom, photograph, year unknown, photographer unknownlegacy.html, 01.12.2024

The levels of this parking garage blur into each other.
The safety barrier is set back by a few meters.

Bahrain Parking
Christian Kerez
2024, Bahrain

(Fig. 28)

KEREZ, Christian, Pearling Path Parking, Muharraq, Bahrain, photograph by DELVAUX, Maxime, published in El Croquis, 22 February 2024

The concrete columns are following the grid, while the concrete ceilings are shaped organically, offering beautiful views over the city.

Bahrain Parking
Christian Kerez
2024, Bahrain

(Fig. 29)

KEREZ, Christian, Pearling Path Parking, Muharraq, Bahrain, photograph by DELVAUX, Maxime, published in El Croquis, 22 February 2024

"A small apartment on the mezzanine level allows the collector to sleep amidst his cars. His bed is snugged into one of the glass-block lobes just like the cars below, declaring that whatever is good for the automobile is good for the human. Turned inwards towards the gallery, the living area becomes a viewing platform from where to admire, commend and command. And select. And then drive away". Written by Steiner Architecture f/f

Sports Car Museum
Steiner Architecture f/f
Vienna, 2023 ff

(Fig. 30)

HEINZLE, Michael, Sportcars Museum, STEINER Architecture f/f, (from author), 2023

Sports Car Museum
Steiner Architecture f/f
Vienna, 2023 ff

(Fig. 31)

HEINZLE, Michael, Sportcars Museum, STEINER Architecture f/f, (from author), 2023

Oscar Niemeyer is the master of ramps and curves.

An ever changing perspective on your way to the entrence. Underlined by the signal color, red.

Niterói Contemporary Art Museum
Oscar Niemeyer
Brazil, 1996

(Fig. 32)

FINOTTO, Leonardo, 2015, (from author)

It is all about the experience. How do I enter the building, what makes me want to walk up.

Architecture is a part of nature and the environment, so it is exciting to climb around on it. Nature is beautiful.

National Congress building
Oscar Niemeyer
Brazil, 1960

(Fig. 33)

MASCARDI, José, Exhibition Latin America in Construction 1955-1980, 2015, MoMA, New York

Corbusiers coming up with interesting and playful ways to move bewteen the spaces and climb to the next level.

Centrosoyuz Building
Le Corbusier
Russia, 1933

(Fig. 34)

EMDEN, Cemal, Divisare Journal, 09.02.2017, Rome

The Pavesi Autogrill

Analysis

History and Development

3 Analysis

3.1 History and Development

The Autogrill brand was developed in the 1940s by the Pavesi family of Novara, Italy. Mario Pavesi was the son of a baker and ran the business, selling and producing the Pavesi biscuits. It all started with a small shop next to the Milan-Turin motorway, close to Novara. It was meant to be an opportunity for the Pavesi family's business to grow, benefitting from the proximity to the autostrada. The first shop was by no means a bridge over the motorway. Rather, it was a small bar in the center of the rotonda (Rundbau) as well as a porch outside the bar to enjoy the sun, a few seats and tables, that were probably decorated with flowers. This is before most Italians lived in the big cities, and it was not yet common to own a car. Back then, there was one car for every hundred people. This is shortly after World War II came to an end, and a phase of economic development and prosperity was about to start. Europe had to be rebuilt, and the motorways and cars played a pivotal role in transporting goods from A to B. Cars and Trucks were needed and the motorway system was expanding fast. [5]

This allowed Mario Pavesi to expand the little family bar next to the Milan-Turin autostrada. He added a restaurant and the venue became a pit stop for drivers on the route. The Autogrill was born, but the boom had just begun. In the early 20th century, cars were a luxury. Yet, in the 1950s and 1960s, the motorization continued and the car became a mass product. Most countries that were in the business of building cars had a business model that was based on the idea that cars should be available and affordable for middle-class people. Thus, for example, in the United States of America, Henry Ford II (1863-1947) who had founded the Ford Motor Company in 1903, introduced, in 1908, the Ford T automobile which was the first car built on an assembly line and, therefore, revolutionized both transportation and American industry. Similarly, in Germany, the Volkswagen Beetle ("Käfer") was a small "people's car" which was suitable for a family. The Beetle became a great success: No car was sold in bigger quantities (overall 21,5 million Beetles were sold between 1938 and 2003) until, decades later, the Toyota Corolla, manufactured and marketed globally by the Japanese automaker Toyota Motor Corporation, became the best-selling compact car in the world, surpassing the Volkswagen Beetle, selling around 50 million Corollas between 1966 and 2001. In France, the Citroën 2CV sold over 3,8 million cars from 1948 til 1990. And before the FIAT Uno started to take over, the Italian record with the first car sold in 1983, the FIAT 500 and 600 were symbolic for the success of the motorcar in Italy. [6]

Against this backdrop, the need for refueling and rest areas along motorways grew significantly. Competition from new companies such as Motta-grill and Alemagna bars underscored that the competitors needed to distinguish themselves. The necessary differentiation was the result of innovative architecture. Radically new designs were pushing the structural limits and became a symbol for the post war transportation boom. The idea of a bridge-style restaurant spanning from one side of the motorway to the other was born. Even the advertisement was futuristic, the cars were UFOs and the Autogrill bridge their docking station. (Fig. 36, 37, 56)

Between 1959 and 1971, over a dozen bridge-style restaurants were created across the main traffic axes. Angelo Bianchetti designed the first one, located in Fiorenzuola d'Arda, Emilia Romagna, constructed from steel, with two big glass facades overlooking the motorway. [7] *(Fig. 39)*

Shortly thereafter, Motta Grill opened an even bigger bridge-restaurant on the Autostrada del Sole, connecting Bologna and Florence. Autogrill's website says: "Since then, everything changed for Italian motorists: the motorway was no longer just a connection, but a destination in itself." (Fig. 41)

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5 WOLLEN, Peter, KERR, Joe, Autopia: Cars and Culture, London (Reaktion Books), 2004

6 CURTIS, William J R, Modern Architecture Since 1900, New York (Phaidon Press), 1996

7 VENTURI, Robert, BROWN, Scott Denise, IZENOUR, Steven, Learning from Las Vegas, Cambridge (MIT Press), 1977

As all of this was new and exciting for visitors, it quickly became fashionable to go and have lunch at the Autogrill, overlooking the cars and the new fast world. The shops became a great business and people started to spend their money on goods and products of all kind. This led to advertisements on television which resulted in more consumption in the shops. Warhol started to make pop art to comment on the consumer society of the 1960s. A classic example of the new art form is Warhol's Campbell's Soup Cans. A definition of consumer society is "a society in which people often buy new goods, and that places a high value on owning things." [8] (Fig. 38)

The locations of the bridge-restaurants sprang up like mushrooms and the boom felt like it was limitless. In 1970, there were 200 rest areas around Italys 3900 km long motorway system.
And then, in 1973, OAPEC, the Organization of Arab Petroleum Exporting Countries, started an oil embargo against all countries supporting Israel in the Yom Kippur War. The price for oil had skyrocketed to nearly 300% and the business of the three big tavel-catering companies, Motta, Pavesi and Alemagna, was so much in danger that the State had to interfere, founding the state holding company IRI (Ricostruzione Industriale), which started to take over all three companies, merging them into a new entity, Autogrill S.p.A. (Fig. 35)

Fortunately, the crisis did not last very long. In the 1980s, the economy recovered and started growing again. Italians began to buy consumer goods again. Autogrill expanded into the urban centres and, by 1990, the motorway restaurants were ranking first in Europe again. However, the company had learned from its past and tried to reduce its dependency on just the motorways. The Benetton family took over in 1995 and a few years later they listed the company on the Italian Stock Exchange. The strategy was to expand the business into new markets, such as France, Spain, Austria and Germany. Later, even expanding towards other retail businesses that had a proximity to transportation, with the travel retail and duty free segment. Daring architecture, however, was not a part of their business anymore. Many of the bridges remain, but were renovated in a pragmatic way.

3.2. Aesthetics and Symbolism

The aesthetics of the bridge restaurants are shaped by a few aspects, in particular, the futuristic spirit of the time in which they were designed and built. It was not just about functionality, but also about the symbolism of forward-looking design. They represent the optimism that came with the new possibilities of new technology as well as a belief in progress that could be felt in society. The possibilities were the embodiment of a society on the move.
This is also reflected in the structural boldness and innovation of the bridge restaurants. Not only did they push the structural possibilities to the limits, but they also used a lot of glass and steel to emphasize lightness and transparency. They can be seen as a symbiosis of the speed and efficiency that came hand in hand with the mass distribution of cars. [9] (Fig. 44, 45)

Many times, the bridges follow modernist principles. Their structural approach can be read from the outside, clean lines and geometries reveal functions and, at the same time, create visually impressive structures. They are clearly different and offer a contrast to the heavy asphalt and the nimble vehicles. (Fig. 57-60, 63, 64)

Views were very important, not just the ones from within the car when arriving at the rest area, but also from within the building. Big glass facades as well as the absence of building material above the Autobahn, which also left space for the eye to see the horizon, created a sense of openness. Observing the traffic from above meant the visit to the restaurant was an experience in and of itself. (Fig. 41, 62)

8 BAUDRILLARD, Jean, The Consumer Society: Myths and Structures, Thousand Oaks (SAGE Publications Ltd), 2017
9 HITCHCOCK, Henry Russell, The International Style, New York (W.W. Norton & Company), 1997

Organization and Structure

Ergonimics and User Flow

This experience opened up a new world, it was a new intersection between leisure and mobility. These spaces were not just a part of one's journey, they were another reason to start the journey in the first place. Blending these two things into one building reflected the Zeitgeist of the post-war consumer culture.

And because the structures represent so well the times they were designed, they became cultural landmarks. The fact that you could see them from miles away and the bold design language made them iconic until today. Even the poorly designed refurbishments and renovations could not change that.

This was, of course, also the intention; these bridges were part of a big business opportunity for various companies. Therefore, their design meant to spark curiosity and excitement on the part of the consumers. The people were there to spend money and engage with the different products. The architecture was shaped to play a pivotal role in enhancing the shopping mood. Not only did the buildings connect customers and products, they also brought together people, by being open to travelers from both directions of the Autobahn, but also within their open floorplans. It had never been easier to travel the country, from the very south to the high north. These bridges can be seen as a symbol for communication and cultural exchange, connecting different regions with different historical backgrounds and personal perceptions,. The bridges did not just connect two places physically, but also metaphorically.

Until today, the bridge restaurants remain powerful landmarks and reminders of the transformative period after the World War II, and a symbol of all the power of design, commerce and aspiration that was felt in this era.

3.3. Organization and Structure

3.3.1. Ergonomics and User Flow

The Autogrill bridges are like big shopping centers, they are meant to target a very diverse group of people, basically everybody travelling by car or truck, ranging from families to long distance drivers and people that were travelling for work as well as tourists. Therefore, they had to be organized in a way, that would be easy to read and to maneuver. (Fig. 44)

The entry points were always positioned on both sides of the motorway, so that visitors from both directions could be targeted. (Fig. 49) Inside, there were dedicated areas for shopping, resting and dining. Mostly organized one after the other, so that the crowd would not stand on each other's feet, and to optimize movement.
This linear circulation is very typical for bridges in general, even if they do not offer any additional functions apart from connecting position A and B. This made the experience for the travelers very intuitive. It is clear that you can find certain functions in this building, e.g., a restaurant almost always comes with bathrooms; rest areas almost always come with shops. Therefore, you just needed to keep going to find what you were looking for along the way. A necessity for this were wide walkways and open layouts. These minimized bottlenecks during rush hours. The nature of the motorway is that there are peak hours during the day, so it was necessary to plan for this event.

Parking lots on both sides (Fig. 52) made sure, that visitors could park in proximity to the entrances. At the same time the signage and pedestrian pathways were almost always implemented at a later time, this became necessary with growing traffic.

The rest areas and restaurants were designed with two things in mind, comfort as well as quick turnovers. You could choose to sit in a more relaxed atmosphere next to the windows or the bar. Obviously, taking into consideration many possible sizes of groups, from the lonely traveler to the tourist group. The owners of the Autogrill stations were experts in the retail business, which meant the placement and portfolio of goods were tailored towards the travelers. Regional goods, travel essentials, water, everything was placed near exits to ensure last-minute purchases.

Organization and Structure

Spatial Perception and Orientation

Technological Developments, then and now

3.3.2. Spatial Perception and Orientation

Let us start at the arrival. The sense of scale and perspective is a tool to attract visitors. They drive down the highway and see the bridge already from afar, still with enough time to decide to stop and take a break, so even the ones who did not even think about stopping are automatically confronted with a possibility. The transparent and open design allows them to see bits and pieces of the inside. Once they arrived at the parking spot, they climb the stairs by foot and are greeted with a lot of natural light, flooding the interior. (Fig. 50, 71) This reduces the feeling of being in an enclosed space and it helps with orientation which is particularly important as most visitors are travelers and might not be familiar with the building. Apart from being a big part of the experience, seeing the autostrada below reinforces a sense of connection to their journey. The clear structures are easy to read and entry and exit points are easy to find. Signage helps to guide to the different areas as well as revealing what to find behind closed doors, e.g., conference space or restrooms.

The linear architecture makes wayfinding easy, especially practical since the visitors are 'bombarded' with products, other people and should feel comfortable at the same time. Reducing the difficulty of maneuvering through the space helps with that. Variations in ceiling heights or material on the floor helps the visitors to understand the space subconsciously. The symmetry of most bridges helps the customer to understand their whereabouts, almost all Autogrill bridges are symmetrical. (Fig. 44, 47, 49, 51, 70) Using the bridge as a center point might also help finding your car after lunch.

Overall, the design of the bridges was very user-friendly, which added to the success of the businesses. Open floorplans, lots of natural light, wide walkways, the link to the exterior and intuitive navigation around the building are just a few examples of how the architecture enabled this. Because smooth user flow, special perceptions, and a comfortable experiences made people want to come back, these environments were created to deliver on all these topics.

3.3.3. Technological Developments, then and now

As discussed, the 1940s to 1980s were a period of rapid growth, not just in commerce but also when it comes to technological innovation and experimentation in architecture. The bridges with a function show some of these innovations. They range from structural innovations to material, technical systems, and even futuristic advertising. The use of steel allowed for larger and larger spans, this allowed for the architecture to appear lighter and for structures to look daring.

Prefabrication techniques started to play a role in construction. This allowed to build way faster while maintaining quality. The prefabricated steel elements where assembled on site, and faster construction meant the traffic would not be disrupted for too long.

In 1959, Alastair Pilkington came up with the idea of Float Glass which did not only make glass more affordable than ever, it was also possible to build large glass facades. Thermal insulation also began with the use of double glazing, but this was still rudimentary compared to today's standards.[10]

Yet, the 1960s were also the start of air conditioning, which was the perfect answer to the sun heating up the buildings through their large glass facades. The indoor comfort was a given, no matter the weather outside. With consumerism on the rise, the advertising industry was also flourishing. The Autogrill stations are famous for big and bold signage, often illuminated they underlined the futuristic buildings.

Decades later, not only the possibilities within architecture, technology, and user needs changed fundamentally, but also society evolved, especially regarding the sensitivity towards climate and environmental issues.

10 DEPLAZES, Andrea, Constructing Architecture: Materials, Processes, Structures. A Handbook, Basel (Birkhäuser), 2013

Materials are much more high-tech nowadays, e.g., recycled steel and low-carbon concrete. Also, the glass has improved specifically in terms of energy efficiency, due to better insulation. Smart glass allows glass to adjust transparency and along with it reduce solar heat gain. Energy efficiency is the biggest topic, which is why most heating, ventilation and air conditioning systems are now smart, using sensors to adjust and optimize based on real time conditions. Obviously, LED lighting has replaced all traditional lighting, shining brighter while consuming way less energy.[11]

Consumers have changed also, sadly the level of personal service such as flowers on the table and table cloths are not standard anymore. Therefore, costumers can be attracted by flexible spaces, like co-working zones and wellness areas. The digital world plays a bigger role, so order and payment systems can create better user flow and streamline processes. After Covid, even adapted health and wellness offerings are demanded by many visitors, this includes sanitizers, well ventilated spaces, and, generally, more space per costumer.

The new generation, much like the offerings in very beginning of the Autogrill cafés, appreciates locally sourced products, since this generation is much more eco-conscious.
Where the original Autogrill bridges did not take energy efficiency into account, today's world demands this. Air conditioning was very energy-intensive, and the buildings insulation poorly executed. Climate-resillient architecture can withstand intense weather conditions such as heatwaves, and there are also passive heating and cooling strategies taking into account orientation of buildings, green roofs, or thermal mass.

All of this is accelerated in today's society. Sustainability is much more of a topic and is being demanded by law as well as customers. It is not a niche concern anymore. Ecological footprints are being traced for companies and they are responding by adopting as fast as possible. Sustainability is not the only part that is reflected in modern day architecture. Buildings have to be designed with inclusivity in mind. The bridges were not very strong when it comes to barrier free access or adaptive furniture.

The text "the architecture of stopping" at the beginning of this thesis is also about the change in perception within society when it comes to cars. Today they are not the new thing that connects us all, streets are not empty anymore and we know about the damages that come with the emission of CO2. At the same time, personal transportation still plays a major role within our infrastructure. Offerings change and electric cars as well as shared mobility are pushing into the market.

3.4 Preservation Efforts and their Effectiveness

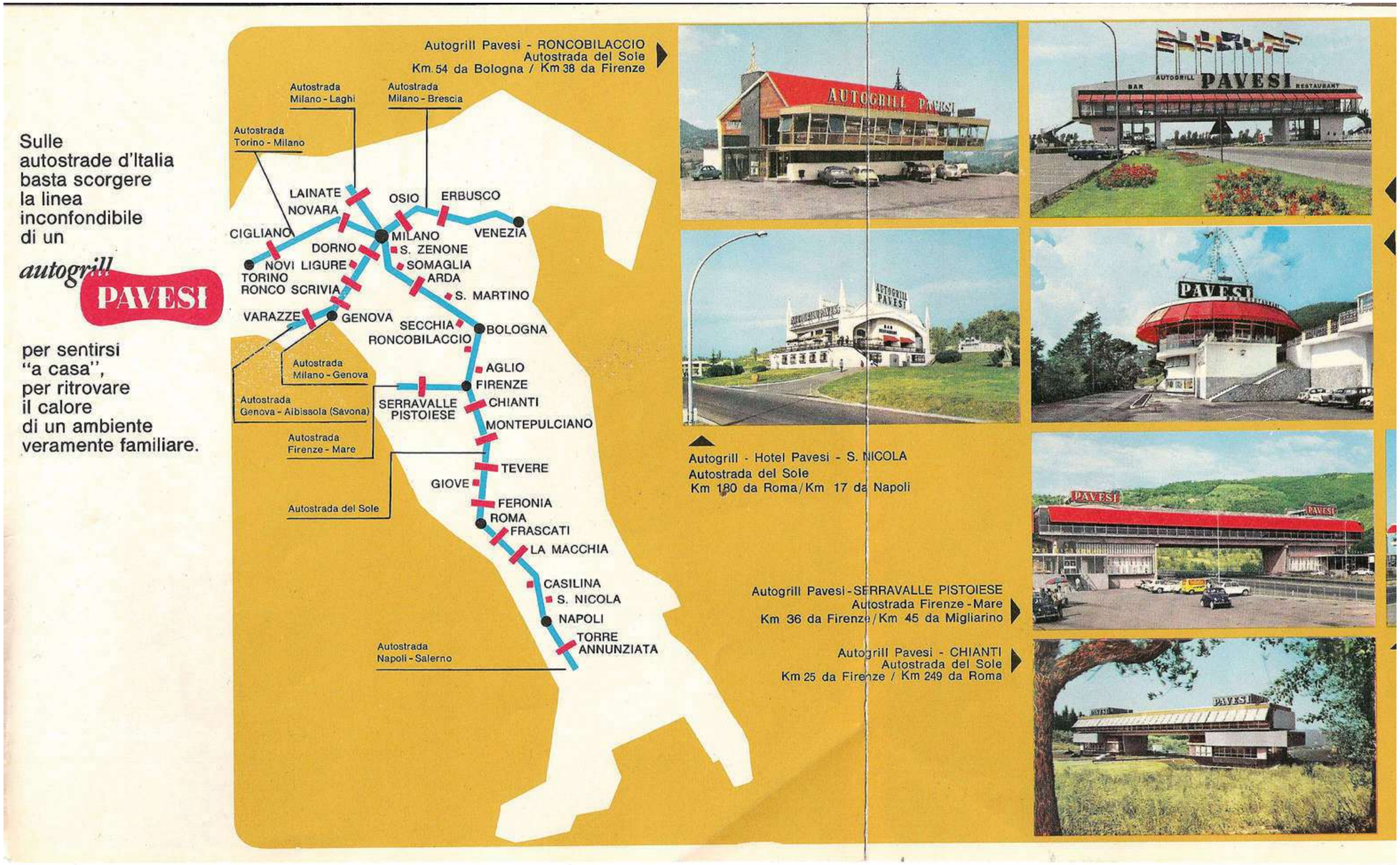
What happened to the bridges over time? It is now undisputed that the bridges were cultural landmarks, representing Italy's post-war economic boom as well as the rise of personal transportation and mobility by car. Arguably, the bridges did not receive the same level of preservation urgency as other forms of mid-century architecture. Although some bridges are still operational, many have been demolished and the ones that have been renovated have lost their initial design appeal. (Fig. 65-69)

Their renovation processes were mostly focused on functional and structural upgrades to make sure the business could stay operational. Their originality, aesthetic or symbolic character almost always played a secondary role, mostly taking away their unique features, such as the big glass facades, the bold signage, and the structural readability. Obviously, this was a very pragmatic and cost-effective solution, because it would have been very costly to renovate these large structures, with operators having to shut down for even longer periods.
The modern building codes for fire safety and accessibility, especially for public buildings make a renovation that preserves the original character of the buildings more difficult.

However, they have lost their modernist purity and now they look more like generic shopping centers or fast food outlets.

11 JODIDIO, Philip, Green Architecture Now! Vol. 1, Köln (TASCHEN), 2013

The Autogrills were positioned along the most travelled routes of Italy. from North to south and in the North, going from Torino to Venice.

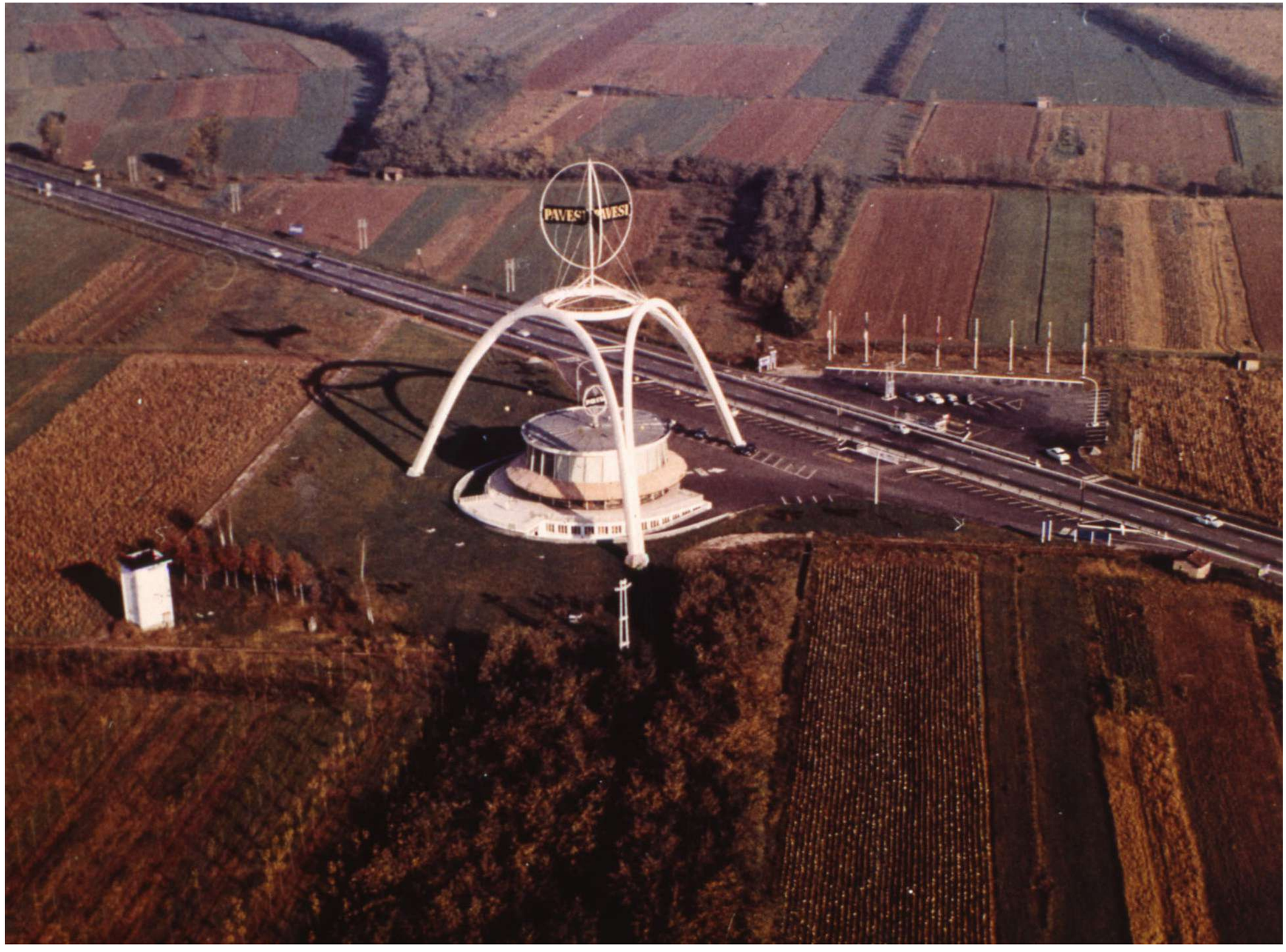


Map, Autogrill stations ca. 1960s, Italy

(Fig. 35)

AUTOGRILL S.p.A., 1960s-Autogrill Pavesi Map, autogrill.com, 2020, https://www.autogrill.com/en/node/3714, 08.07.2024

The Pit Stops were always designed with a focus on visibility to attract the customers.



Pavesi Autogrill Station
Italy

(Fig. 36)

BIANCHETTI, Jacopo, Lost icons of the 20th century: motorway service area by Angelo Bianchetti, Domusweb, 2020, Milan

An example of the advertisement used for the Pavesi Autogrill stations prior to the first bridge-with-a-programm Autogrill station.

Pavesi Advertisement

(Fig. 37)

BIANCHETTI, Jacopo, Lost icons of the 20th century: motorway service area by Angelo Bianchetti, Domusweb, 2020, Milan

A place of commerce, color and communication.

Pavesi Autogrill Station
Italy

(Fig. 38)

AUTOGRILL S.p.A., I only stop at Autogrill, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/, 22.11.2024

With the introduction of the bridge, the stations became more visible, and they were even more of a connector, because they would attract people from both sides.

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 39)

AUTOGRILL S.p.A., Our Story, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024

The Autogrills, designed as bridges over highways, emphasize speed, progress, and leisure.
This happened and was made possible in the context of Italy's post-war economic growth, industrial innovation, and the cultural shift towards modern consumerism.

Pavesi Autogrill Station
Italy

(Fig. 40)

AUTOGRILL S.p.A., Our Story, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024

Back then, you would still be enjoying the benefits of a proper restaurant, like being served food at your table, flowers on the table, a big bar in the middle and so on.
This was a time where, unlike today, it would feel amazing to sit above cars blasting along, inhaling their fumes, where big bridge like structures were considered to be phenomenal, progressive, insane, and daring. Back then, you were experiencing new technologies within the architecture and the automobile.

Flowers on the table

(Fig. 41)

AUTOGRILL S.p.A., Our Story, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024

Motta Grill, Cantagallo Italy 1961

(Fig. 42)

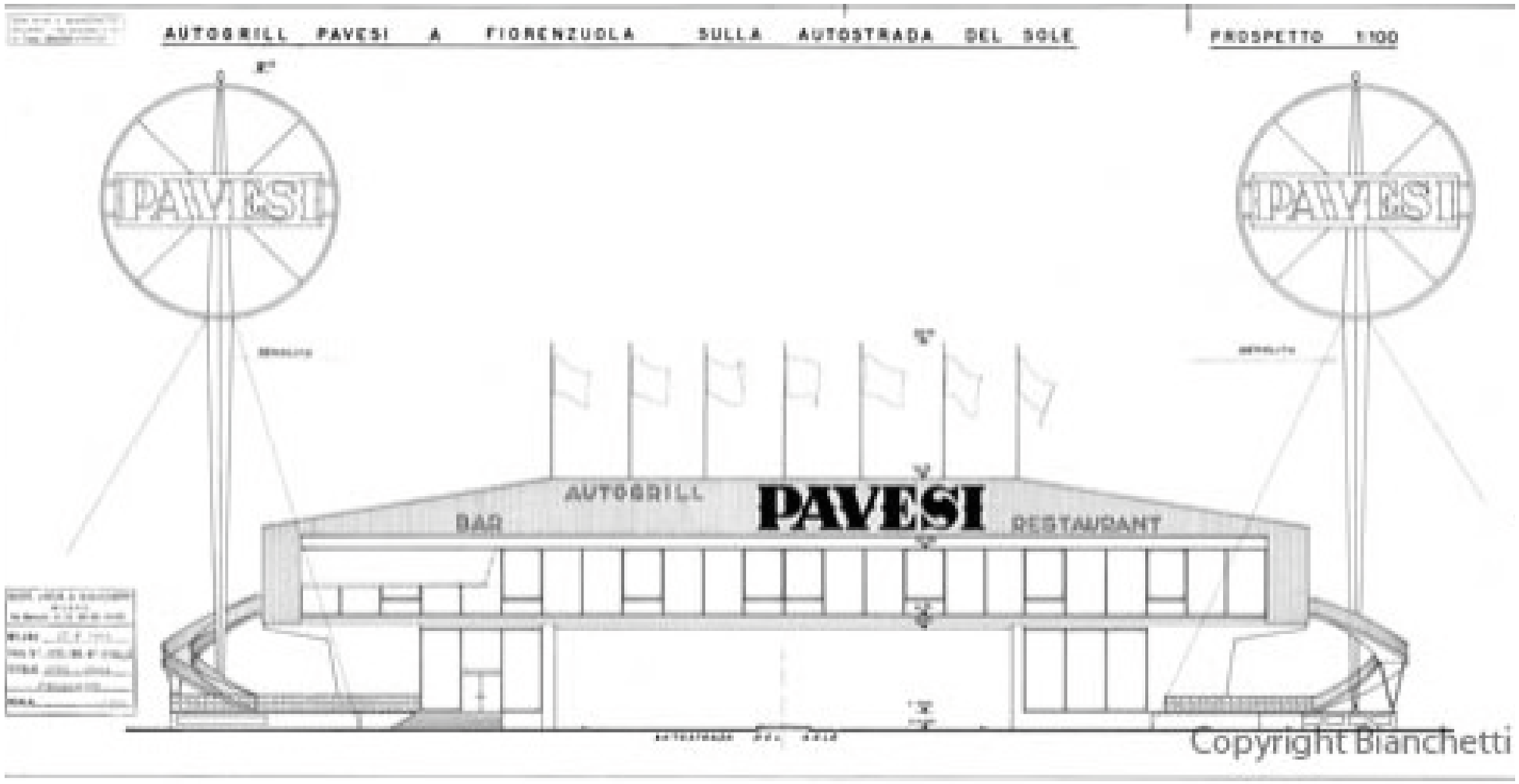
AUTOGRILL S.p.A., Our Story, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024

Angelo Bianchetti, Montepulciano, Italy 1968

(Fig. 43)

BIANCHETTI, Jacopo, The bridge-type autogrill, infrastructure and icon of the italian highways, Domusweb, 2020, Milan

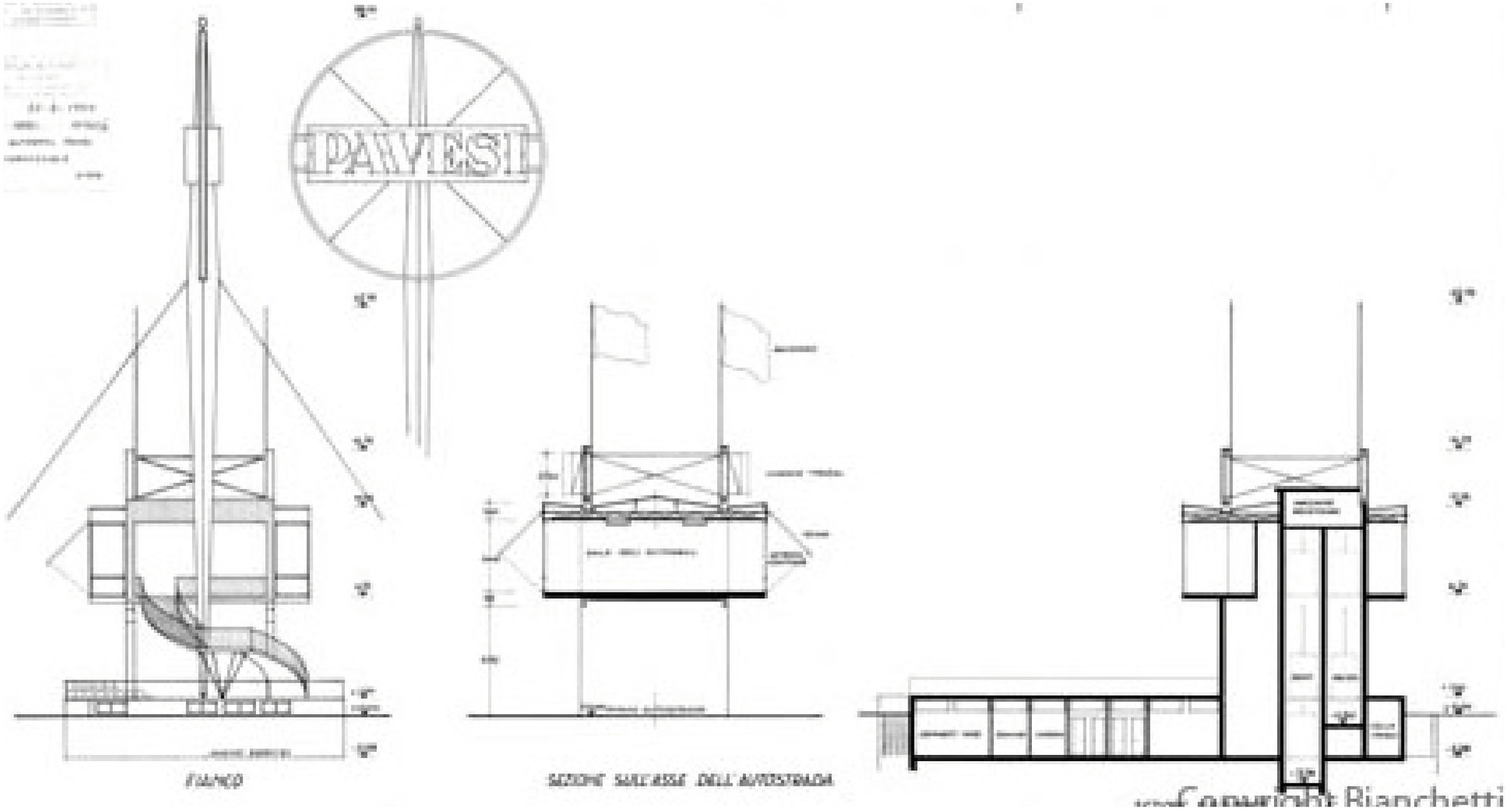
The parking would always be left and right of the Pavesi bridges, staircases are situated by the side.



Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 44)

AUTOGRILL S.p.A., Our History, autogrill.com, 2020, https://www.autogrill.com/en/about-us/our-history 17.11.2024



Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 45)

AUTOGRILL S.p.A., Our History, autogrill.com, 2020, https://www.autogrill.com/en/about-us/our-history 17.11.2024

The bridges came in all sorts of construction methods:

- Steel frame construction: for big column-free interiors

- Reinforced Concrete: often used as the main structural component for piers, beams, and slabs

- Precast Concrete Panels: to allow for a reduced construction time

- Glass Curtain Walls: providing panoramic views

- Cantilever Construction: allowing for long spans.

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 46)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 47)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

The parking is always situated around the entrances of bridge, almost always connected to a gas station. Often times, each of the two ground floors hosts a shop connected to the nearby fuel pumps.

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 48)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

The buildings are clearly focused on visibility. Their placement strategy is tightly integrated with market demands. Mostly located along the north-south axis, from Brenner to Rome, as well as Italy's economically strong North from Torino to Venice. There is almost no way you will miss them when travelling through Italy, also because they are almost as recognizable as the big yellow "M".

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 49)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Fiorenzuola d'Arda
Angelo Bianchetti
1959, Italy

(Fig. 50)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

The automobile does plays a big role in the design, not only because the size of the building is related to the sizing of the motorway and therefore to the width of the car, but because you can clearly feel the cultural background, that gave birth to the idea. The ethos that allowed for such a bold design.

Autogrill Ferionia
Angelo Bianchetti
1964, Italy

(Fig. 51)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Ferionia
Angelo Bianchetti
1964, Italy

(Fig. 52)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Ferionia
Angelo Bianchetti
1964, Italy

(Fig. 53)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Ferionia
Angelo Bianchetti
1964, Italy

(Fig. 54)

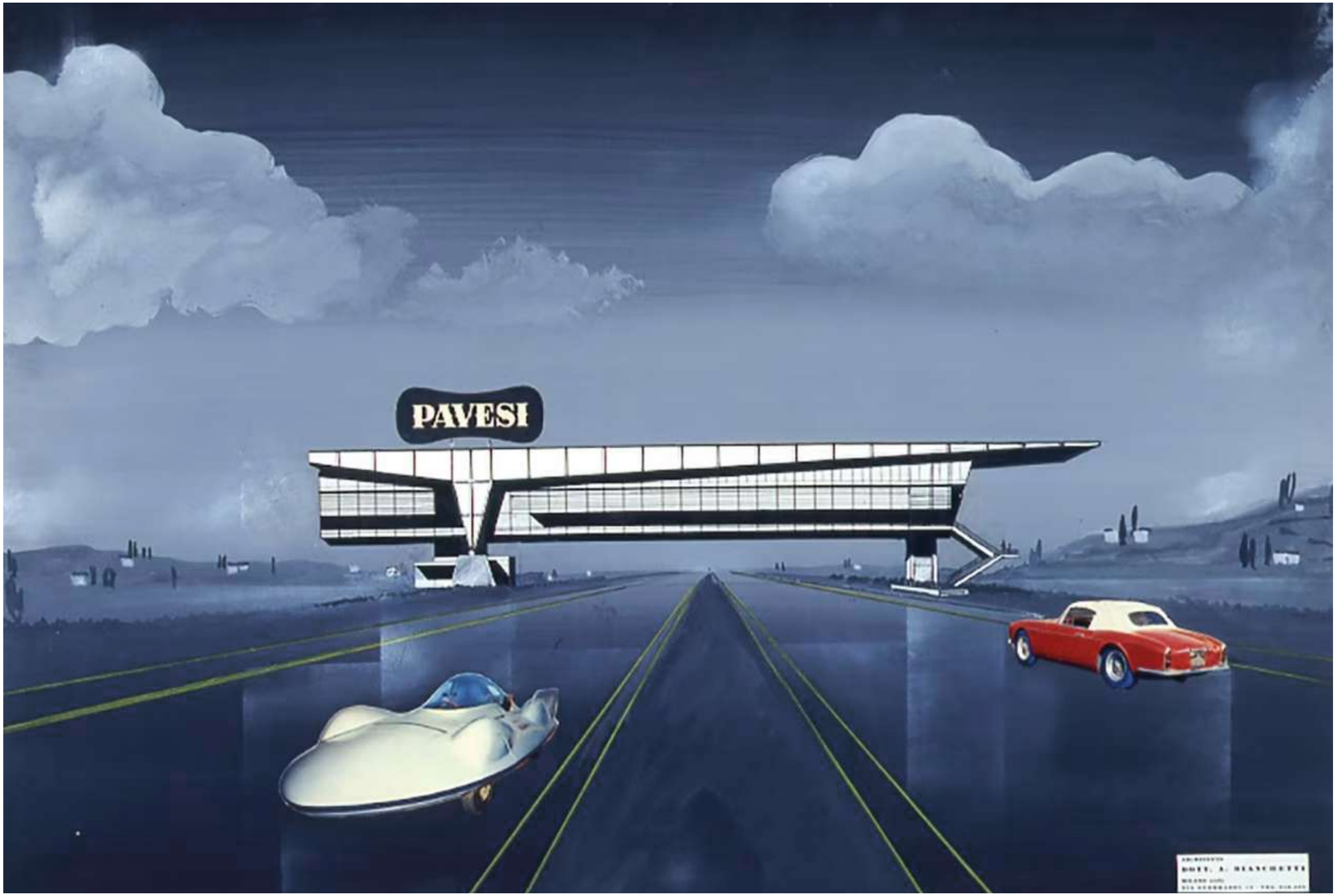
BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Ferionia
Angelo Bianchetti
1964, Italy

(Fig. 55)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

The future is exciting!
Cars are UFOs and the Pavesi Pit Stop looks like the docking station.



Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 56)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 57)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 58)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 59)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 60)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 61)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 62)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 63)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

Autogrill Montepulciano
Angelo Bianchetti
1967, Italy

(Fig. 64)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024

When it comes to the renovated stations, not much of the beauty is left.

Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 65)

own picture, 2024

Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 66)

own picture, 2024

Spaces for deliveries are situated by one side, the other side remains the main entrence. The glory of the old days is gone.

Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 67)

own picture, 2024

Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 68)

own picture, 2024

You enter through a shop area and make your way to the bridge over these steps.

Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 69)

own picture, 2024

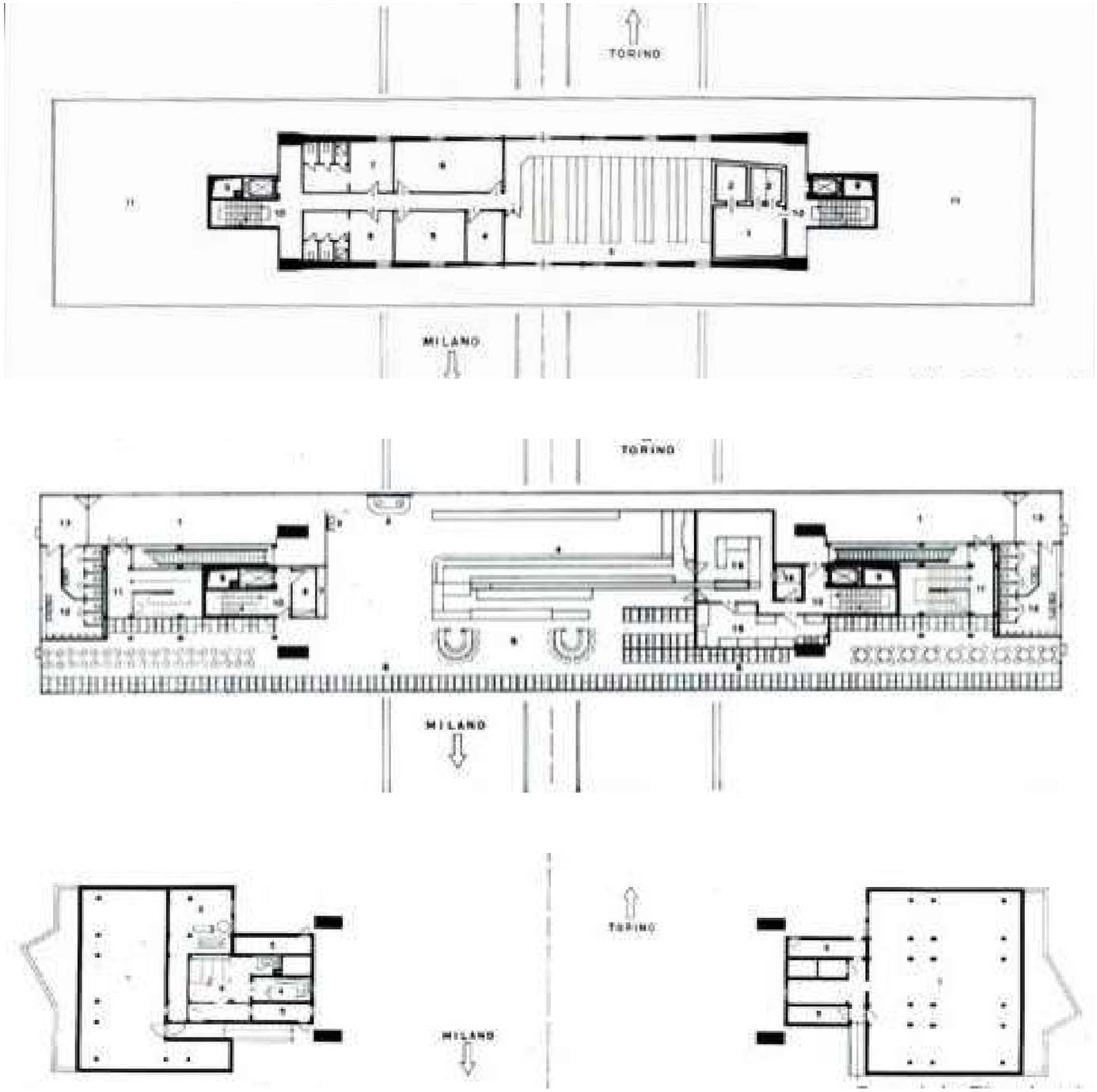
This is the same bridge when it was opened in 1962.

Autogrill Novara
Angelo Bianchetti
1962, Italy
Pre rennovation in 2017

(Fig. 70)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/novara-ponte.html 06.11.2024

The bridge sits above the motorway, 2 lanes in both directions.
-> Milano
-> Turino
The size of constructions is related to the width of the street. Circa 28 meters.
Two concrete cores host the stair cases. Thats how the two stories are connected with the outside.
The floorplan has approximately 50-70 meters in one direction, while the width of the building is around 15-20 meters.



Floor Plans
Autogrill Novara
Angelo Bianchetti
1962, Italy

(Fig. 71)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/novara-ponte.html 06.11.2024

Inside it used to feel like a beautiful restaurant in Milano or one of the other big cities.

Autogrill Novara
Angelo Bianchetti
1962, Italy
Pre rennovation in 2017

(Fig. 72)

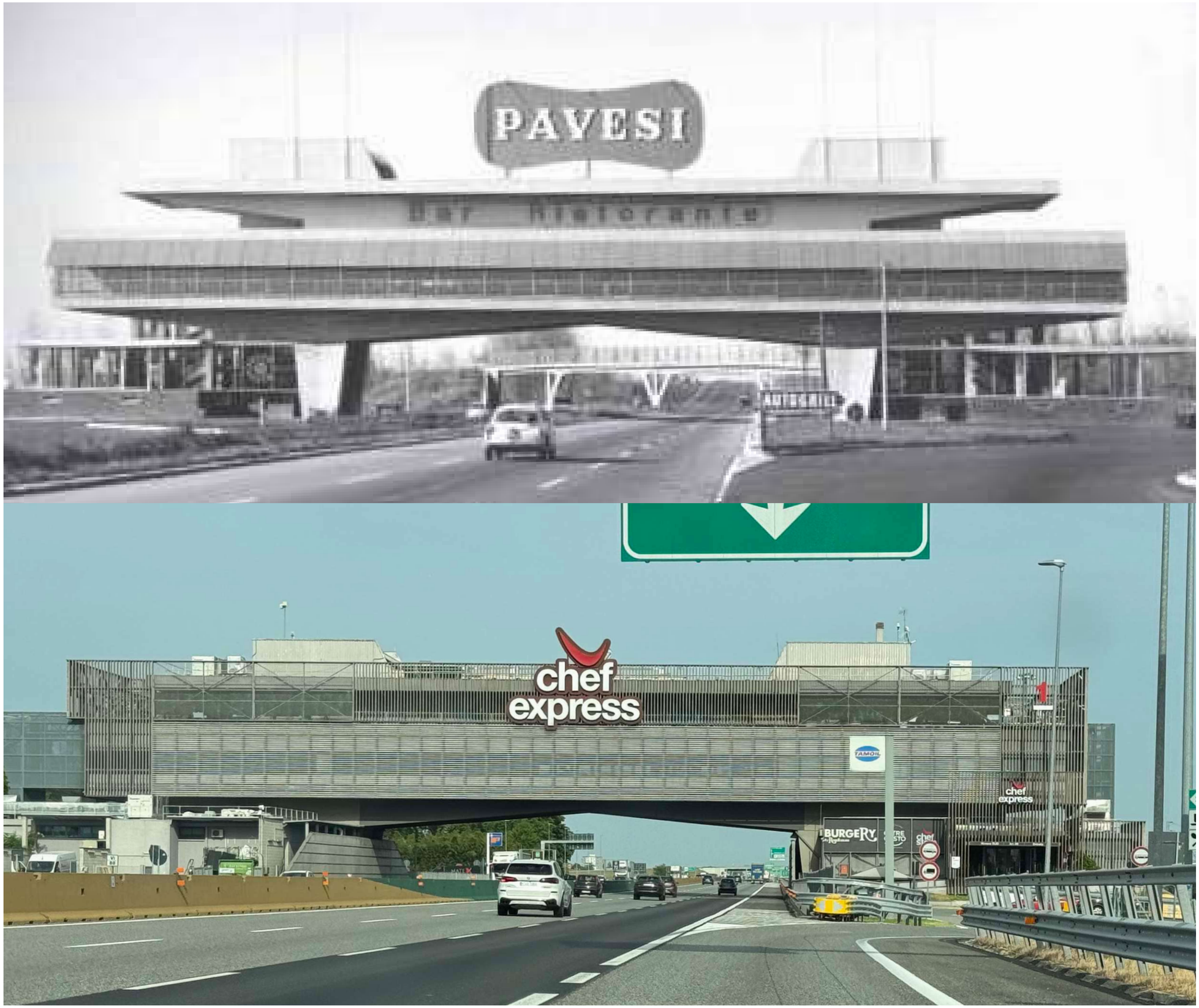
BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/novara-ponte.html 06.11.2024

Autogrill Novara
Angelo Bianchetti
1962, Italy
Pre rennovation in 2017

(Fig. 73)

BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/novara-ponte.html 06.11.2024

The direct comparison of old and new.



Autogrill Novara
Angelo Bianchetti
1962, Italy
Rennovated in 2017

(Fig. 74)

Gas Stations

Gas Stations

The Roof

4 The Roof

The roof plays a pivotal role in the design of gas stations, not only functionally but also symbolically. It is one of the defining elements of this typology, giving identity to the building. The primary purpose of the roof of gas stations is to provide shelter from rain, sun, snow and wind so that customers can refuel their cars comfortably. The size of the roof relates to the amount of refueling gas stations.

Often times, the roof is fitted with lighting systems. (Fig. 75) This has two purposes, on the one hand, it is to make the area safe, visible and welcoming, especially at night. On the other hand, it is used to let customers know which brand they are about to visit, and to catch the consumers eye from afar.

In modern day designes, the roof often serves as a space for solar panels, gathering additional energy for the station.

The roof is often visually prominent, visible from a great distance, and often shaped in a bold geometric design. (Fig. 76-78) Historically, similar to the Autogrill bridges, it symbolized progress and the rise of car culture. The roofs have, therefore, changed over time, early gas stations were designed solely to cover the pump and the attendant. With the rise of the number of cars and their significance within our transportation system, they became more expressive during the mid-20th century. Whereas, nowadays, the roofs have become more pragmatic, primarily hinting at the brand's identity as well as its main function of sheltering the visitors. They also got bigger and bigger over time, to give space to more refueling pumps and cars.

Often times, the roofs reflected the culture and local identity, e.g., desert regions saw gas station roofs take inspiration from traditional shading elements.

The roof of a gas station is more than just its functionality, it is its most defining architectural element, giving identity, defining the space, and symbolizing progress as well as brand identity.

The roof offers shelter to the gas station below while at the same time serving as a light feature, illuminating as a whole.

Supermerica Gas Station + Shop,
Unkown
ca. 1950s, USA

(Fig. 75)

Ohne Verfasser, Minneapolis SuperAmerica Gas Station, reddit.com, 2019, https://www.reddit.com/r/architecture/comments/18kis5m/super_america_gas_station_minneapolis_mn_1960s/, 08.12.2024

The roof again serves two purposes. Giving shelter and protecting from the sun and rain, while at the same time attracting drivers to stop here. While the actual shop is way lower and references the human size.

AGIP Gas Station
Unkown
ca. 1940s, Italy

(Fig. 76)

ZEIT ONLINE, Motoröl und Amaretto, zeit.de, 22.01.2010, https://www.zeit.de/auto/2010-01/bg-agip, 08.12.2024

Unknown Gas Station

(Fig. 77)

JAUJA, Zigmars, type of gas station, Daugavpils 47, 1965, NRJA, Riga

Unknown

(Fig. 78)

DIESTE, Eladio, Form und Konstruktion, Princeton (Architectural Press), 2004

The Project

Design

Design Intent

5 Design

5.1. Design Intent

The intent behind the design is to create a new version of the historic Autogrill bridges. This means taking inspiration from what the old bridges stood for within society as well as their design. To achieve that, it must be a project that screams positivity, that is a bold statement that excites people. It must be recognizable, combining different features and tailored towards the traveler's needs.

Electro mobility and shared mobility and the fact that the transportation industry needs to find ways to make personal mobility work without polluting our environment is reason to believe the way we drive will change a lot over the course of the next years. People will continue to use cars for certain journeys, and we already have a gigantic network of roads, so apart from the environmental challenges and the challenges of traffic, there is a need to rethink resting stations along highways. The goal is to design a building that can adapt to ever changing circumstances. Not just to a specific location, but also to transformations in what the customers need or the kind of vehicles we drive. This ultimately leads to this being more of a typology task than a specific building at a specific spot.

It is not easy to design a building without surroundings. As a general rule, we learn so much from the specific location. We can decide on a scale, we can choose the perfect material, we understand pedestrian flow, entrances and exits. Orientation plays a big role, since the sun brings light and brightness, but can also heat-up our buildings. Ventilation, neighboring structures, the ensemble in which a new building is embedded – many of these data points are not available to us. However, we do have one constant companion – the Autobahn. What may not sound like much is a good starting point nonetheless, we know how wide the lanes are, circa 3.5-4 meters. Usually there is a space in between the two directions has a width of another 4 meters. Towards the side, we can find the parking lane, with at least 2.5 meters' width. We know how the exits work, a range of how fast the cars are going, and that bridges need to have a certain height to make sure trucks can pass underneath, at least 4.50 m.

The project is supposed to combine and layer many functions. The Autogrill bridges have always done that: Transportation below and restaurant above. The building above the highway only has one big level, ensuring the projects size works well in the ensemble with the Autobahn. But also for easy readability for the users. Implementing big staircases could make way-finding complicated, and this should not happen, since many people will visit the building for the first, or maybe only for a single time.[12]

This project takes this further and also takes int o consideration the parking above the motorway. This is done for two reasons. The first reason is to densify, more functions above one another is a good thing, the extra space can be used for something else. Additionally, when looking for a location to build this new bridge, it will be easier, since less space is needed on both sides.

And the second reason is the customer. One of the downsides when using the bridges, especially the renovated ones that you can still visit nowadays is the fact that you have to walk upstairs. As described in "The Architecture of Stopping", sitting above the Autobahn and watching the cars drive below might still be a cool visual effect, but it is not the essence of what is modern and hip anymore. Driving up and entering the building with the car will make visitors and customers most excited. Because we do want to achieve what the historic Autogrills have done in the past, this is supposed to be an experience embedded in your travel from A to B.

12 KOOLHAAS, Rem, Delirious New York, Ein retroaktives Manifest für Manhatten, (The Monacalli Press), 1997

Design

Material Selection and Surface Design

Once the decision was made to have the cars within the bridge it becomes clear, that they should be situated in the middle. They are here to be refueled and charged, their drivers will go for a coffee, work, shop or just stroll around. These functions are going to be situated towards the outside of the building, so we can guarantee natural light and views.

All indoor spaces should be designed for a specific purpose. This way, the typology can be adapted depending on which additional functions are needed. Also, these boxes will be placed within the bigger structure, this enables change, should a function become irrelevant over time or should we need more space for one of the other functions, ensuring we learn from the terrible renovations of the historic Autogrill bridges that were necessary because the structures did not allow for adaptations. This means we will have a main structure and a more versatile part, that allows to be adopted and changed over time, without affecting the big structure.

Positioning the indoor spaces towards the outside means the parking and charging yard can vary in size depending on the location of the building. If the bridge is in a heavily frequented part of the Autobahn or even within a city, the building could grow in size in the direction of the motorway.

The parking, refueling and charging space comes with very specific measurements for parking and maneuverability of the cars, it is important to have signage lead the drivers to open spots as well as showing if there are empty spots at all at the entry to the ramp. In case the parking deck is full, there are additional parking spots along the way around the building. Underneath the structure there is space for big trucks to park. These are the vehicles that would be too big to drive up to the main area. All visitors parking on the ground can reach the top floor via two concrete tubes, one for each side. They house a spiral staircase and lift in the middle. Like the other interior spaces, these also do not connect to the roof. This is to show the hierarchy between the different objects and to increase readability of the building as a whole. This also allows for additions and changes later on. Most obviously, it creates beautiful free spaces above, a feeling of lightness and ways for the sun and nature to flow through.

5.2. Material Selection and Surface Design

The design aims to show the real materials that are used, e.g., exposed concrete and wooden interieur inside the boxes. Starting from big structure to small, the material of the main structure is reinforced concrete. This is in part due to the nature of the building, spanning quite a long distance and having to cope with a lot of weight from the cars. Additionally concrete comes with a few other advantages. The grey natural color can withstand the dirt and pollution of the motorway quite well, the material has a low thermal conductivity, and matches fire proof regulation as a result, whereas naked steel would need to be covered to achieve the same or at least similar results. Having said that, the concrete structure is designed in a way that feels light and airy. The load bearing columns are shaped into round arches, making sure the structure is as rugged as possible, while feeling flooded with light and being spacious. At the same time, the calming effect of this massive material gives the building strength and a beautiful texture.

The roof is designed to have the photovoltaic system on top producing as much energy as possible, to be used for recharging the cars. The system is installed on a layer of wooden beams that are arranged within the concrete structure. It does not shield from the rain, since the main parking area can be an outside space, but its offers protection from the sun and is supposed to create a beautiful atmosphere cutting the light into lots of bright stripes.

The restaurant and other interior functions such as workspace and shops are designed as wooden boxes, paneled with aluminum. They are literally built on top of the concrete ceiling ensuring they can be adapted if needed, and to make construction easier. This means the building physics requirements of the indoor space are strictly separated from the main structure.

Design

Structural Engineering, Construction,
Building Physics, High-Rise Construction

The aluminum panels have different colors hinting at each function, e.g., yellow for coffee and blue for workspace. The same idea goes for the four big ramps leading up to and down from the bridge. They are red to show they are the entry points and exit points to the building.

Inside the interior space materials have to be rugged to ensure durability. The workspaces have movable walls, so you can connect and disconnect the different rooms and create different sizes. These rooms are oriented clearly towards the outside, only being open to one side is supposed to help concentration and focus. The café and restaurant spaces, on the other hand, is open to all sides, overlooking the cars below and in the parking lot, seeing who arrives and leaves. This is the communicative center of the building.

5.3. Structural Engineering, Construction, Building Physics, High-Rise Construction

The goal is to create a modern-day variant of these architecturally significant bridges of the past century. They did not survive well the test of time. Therefore, this new project focuses on functionality and durability.

The design's main features are reinforced concrete skeleton systems, combining in-situ concrete and prefabricated elements to ensure structural integrity and efficiency.

The core structure must span more than 32 meters across the motorway, built with pre-stressed beams engineered with a height of 2.40 meters for the lower floor and 1.50 meters for the roof structure, both at a width of 1 meter. The ceiling between motorway and main floor incorporates a pre-stressed hollow-core slab, its height is 32 cm, it should withstand heavy vehicle loads while minimizing material used.

The beams for the ground floor are underlay and overlay systems, ensuring structural stability, and to match the intended design the two last beams to each side are overlayed and function as load bearing as well as the parapet, perpendicular to the direction of travel.

The columns supporting the structure are designed using cast-in-place concrete seamlessly to connect with one another. The four ramps leading up to the bridge consist of two cast-in-place concrete beams, the roadway is suspended between them.

The roof system is constructed in three parts: primary, secondary, and tertiary elements. The primary structures are constructed using cast-in-place concrete beams, while the secondary structure uses pre-fabricated concrete beams, since these are shorter beams it is possible to pre-fabricate them. The tertiary structure is made out of wood. The wooden beams are spaced 1.50 meters apart one another, with a span of 13 meters and dimensions of 20 cm x 50 cm they are lightweight but robust enough to support the photovoltaic system that is installed over the whole roof.

The bridge relies on a deep foundation system with bored piles. Obviously, these would vary depending on soil conditions and materials.

The design now assumes, the building sits in an environment with minimal snow loads, however, the dynamic loads from the traffic are accounted for in the design.

Most of the building has very little requirements in terms of building physics, since most of it is outdoor space.

Design

Sustainability

Connecting History and Future

5.4. Sustainability

Obviously, concrete is not the most environmentally friendly material when it comes to CO2 emissions while it is being produced, but the specific tasks of the building make the use of concrete at least for ceilings necessary. Having said that, concrete is very durable and, if maintained well, can last for a very long time. Since the design of the building is separating main structure and different functions already, the longevity is at the core of this design.

At the core of this is not the building itself, but the broader movement towards electrification of mobility, that this building aims to promote.

Besides the photovoltaic system, that is installed on the large roof, there are a few things to be done to make this as environmentally friendly as possible also in the short term.

Depending on the exact location, the building will use a heat pump system. The thermal insulation of the interior spaces can be maximized with triple glazed windows for minimized energy loss. The roof spans further than the boxes below, so they will be in the shadow of it for a long time of the day, making sure the sun does not heat-up the building too much.

The selection of materials prioritizes recycled and low-carbon materials, such as recycled steel, low carbon concrete and wood.

Smart building systems can help automate and analyze how to save energy based on real time data. This works with sensors measuring occupancy and environmental conditions.[13]

Additionally, the pre-fabrication of many of the pieces of the bridges, like the beams and lots of the wooden pieces for the boxes, help reduce waste and energy during construction.

6. Connecting History and Future

This is the attempt to revive an architectural concept that stood for many ideas, from the rise of personal mobility through cars to connecting people and even good espresso. Most importantly, though it stands for positivity and a future that is bright because humankind can build things, invent and innovate. It is a communicative center that is formulated in the most fitting way as a bridge, a structure connecting point A and with point B.
Many things that are relevant in modern architecture can be found within these bridges, such as layering multipurpose spaces with infrastructure and thus densifying our built environment.
To connect successfully the past and the present, the new bridge must also embody the optimism and cultural relevance of its predecessors, which can only be achieved by taking into account modern sensibility and the needs of today's users. While the Autogrill bridges of the last century symbolized the post-war economic boom, the rise of consumer culture, and the transformative power of infrastructure, the new bridge takes these values and aligns them with today's priorities of sustainability and inclusivity using the shift towards electric cars as a reason and chance to do so.

Therefore, some of the design principles of the past are used and put in a modern-day context and scale. [14]

13 McDONOUGH, William, Cradle to Cradle: Remaking the Way We Make Things, (North Point Press), 2002
14 BULLOCK, Nicholas, Building the Post-War World: Modern Architecture and Reconstruction in Britain, Milton Park (Taylor & Francis Ltd), 2003

The old Autogrill bridges focused primarily on drivers. This new typology should do more than that. Depending on where it would be placed, the bridge has the potential to be a true junction between commerce, infrastructure, and travel. People would spend more time there until their car is charged, so the stop can be wellness focused, it should reflect how we work nowadays with spaces to jump into video calls. It can go away from a fast-food oriented lunch break, with locally sourced goods and a proper restaurant.

Just like the original bridges served as a symbol of innovation and connection, the modern version should act as a hub for communication and resting. It should become a destination in itself. Much more than a regular traditional gas station with a few trees by the side of the motorway.

7. Conclusion

The new architectural typology reimagines a timeless concept, blending something historically significant with a future-forward concept. It should not only be a rest area but also a multifunctional hub that embodies sustainability, connectivity, and adaptability. It would work extremely well in an urban environment, like a motorway that runs through a city, where space is a rare good and the special efficiency of the bridge comes as an even bigger benefit.
By stacking driving, charging, dining, working and other amenities above one another, the design minimizes its footprint while maximizing utility. This would make it ideal for dense urban environments. Maybe, additionally to the above, connecting two city areas with one another, linking communities on either side of the motorway. The physical divide would be turned into an architectural opportunity.[15]

The bold design, rough surfaces, colors and multiple offerings create a destination that will attract (e-)motorists and local consumers, who come once again to connect at a place that stands for movement and connectivity.

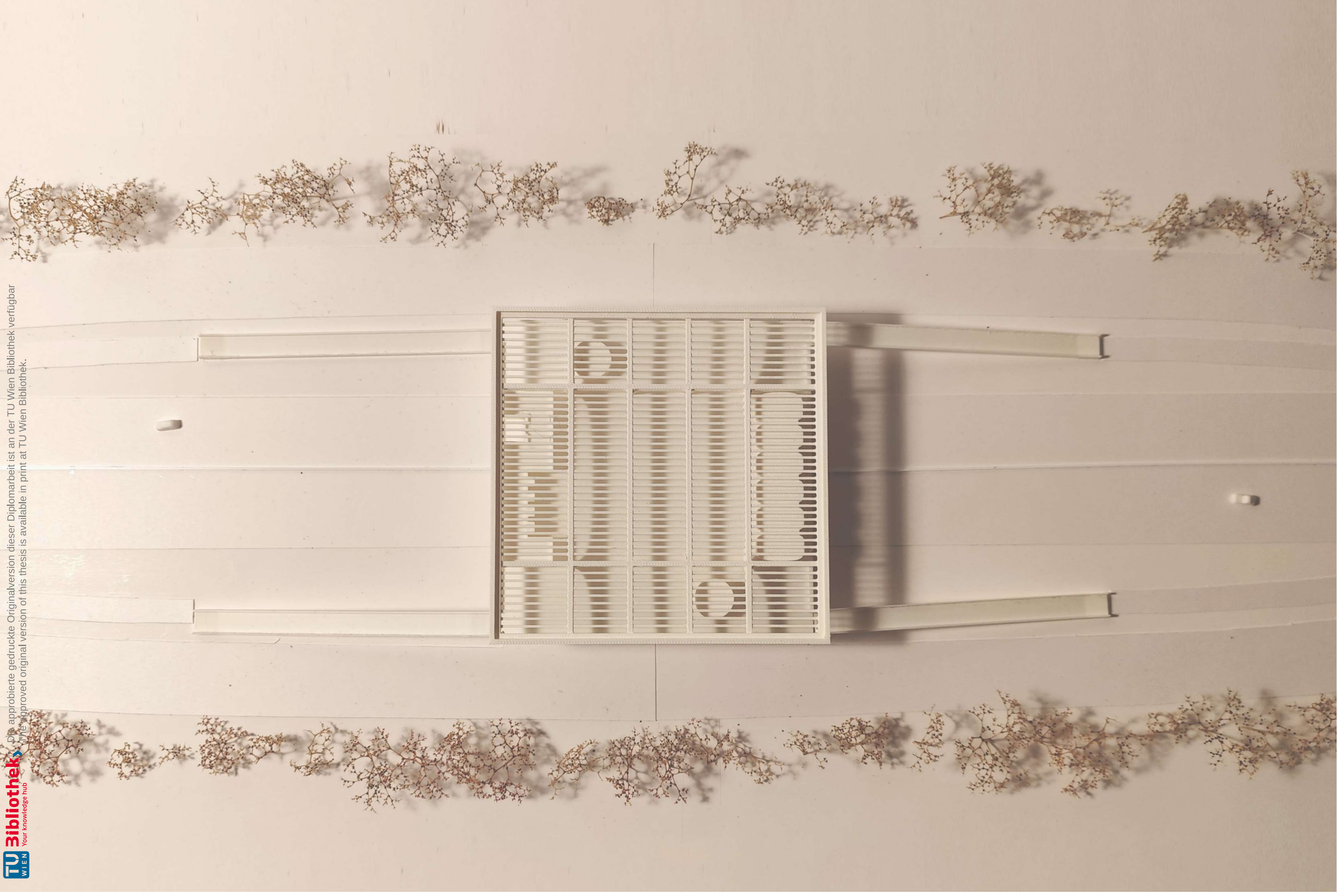
The design celebrates its historical roots as a symbol progress, travel and human connection. It strives to be more than just a bridge but more of a second layer above our infrastructure, adding functions that benefit not only the travelers and drivers.

Let us not forget the power of story-telling, this could be a chance to connect generations through a design that originated decades ago that symbolized an entire generation and the Zeitgeist of a society, not just in Italy but in all of Europe, and that has not taken care of well. The bridges that still exist do not speak the same language anymore, because they were hard to maintain or to bring into a modern context.

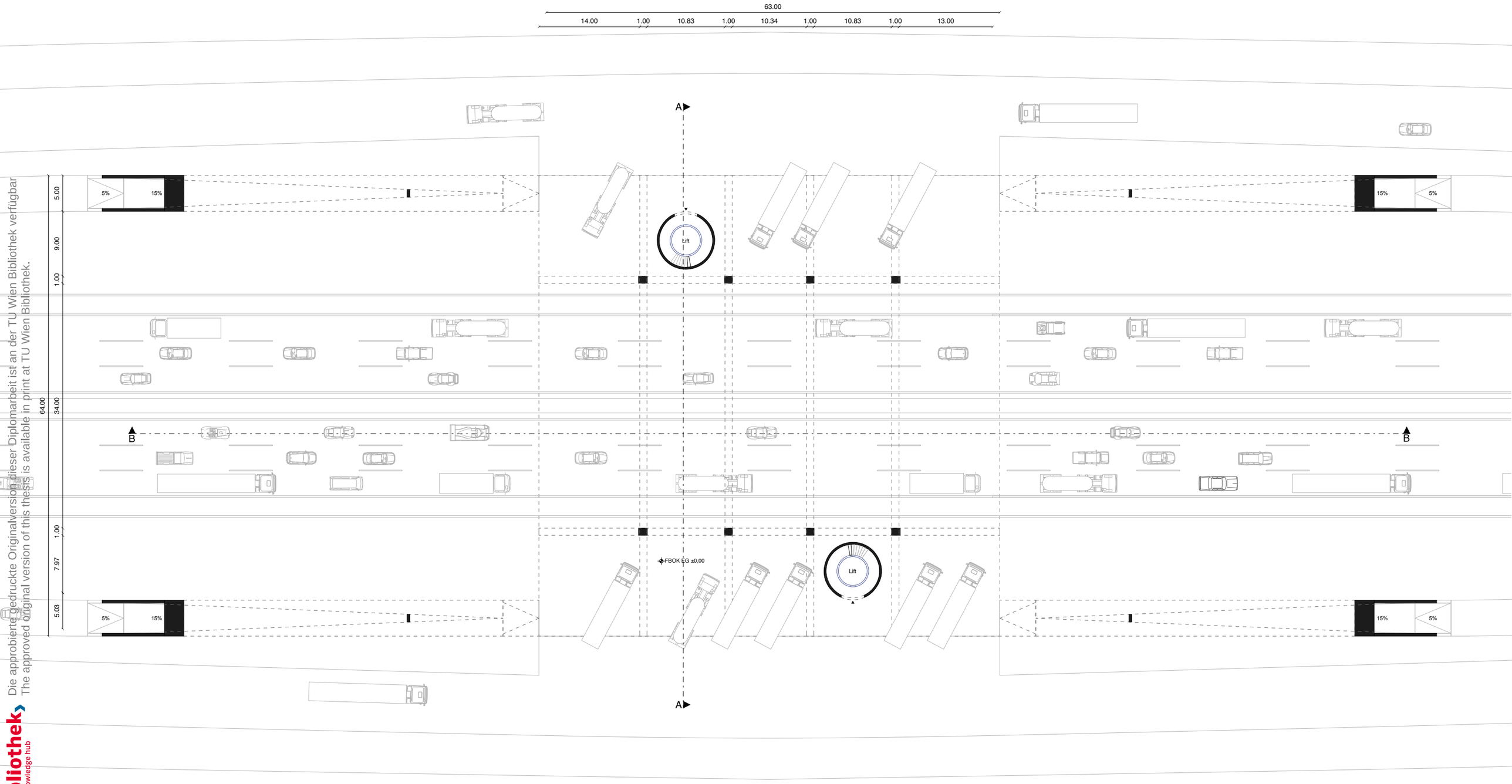
Taking something historic and bringing it into a modern-day context is very appealing because one gets the chance to experience something that has a history, that is embedded in our past. The new typology could, therefore, be very powerful since this is how luxury brands work with their history. Preserving it, learning from it, reinterpreting it, and, most importantly, bringing it into a modern context.

Who knows, maybe these bridges will not just have another typical roadside shop as a tenant, maybe it will be a fancy fragrance brand or clothing brand. Maybe this is how you pay for the gigantic costs of building a 64 x 64 meters bridge with multiple functions.

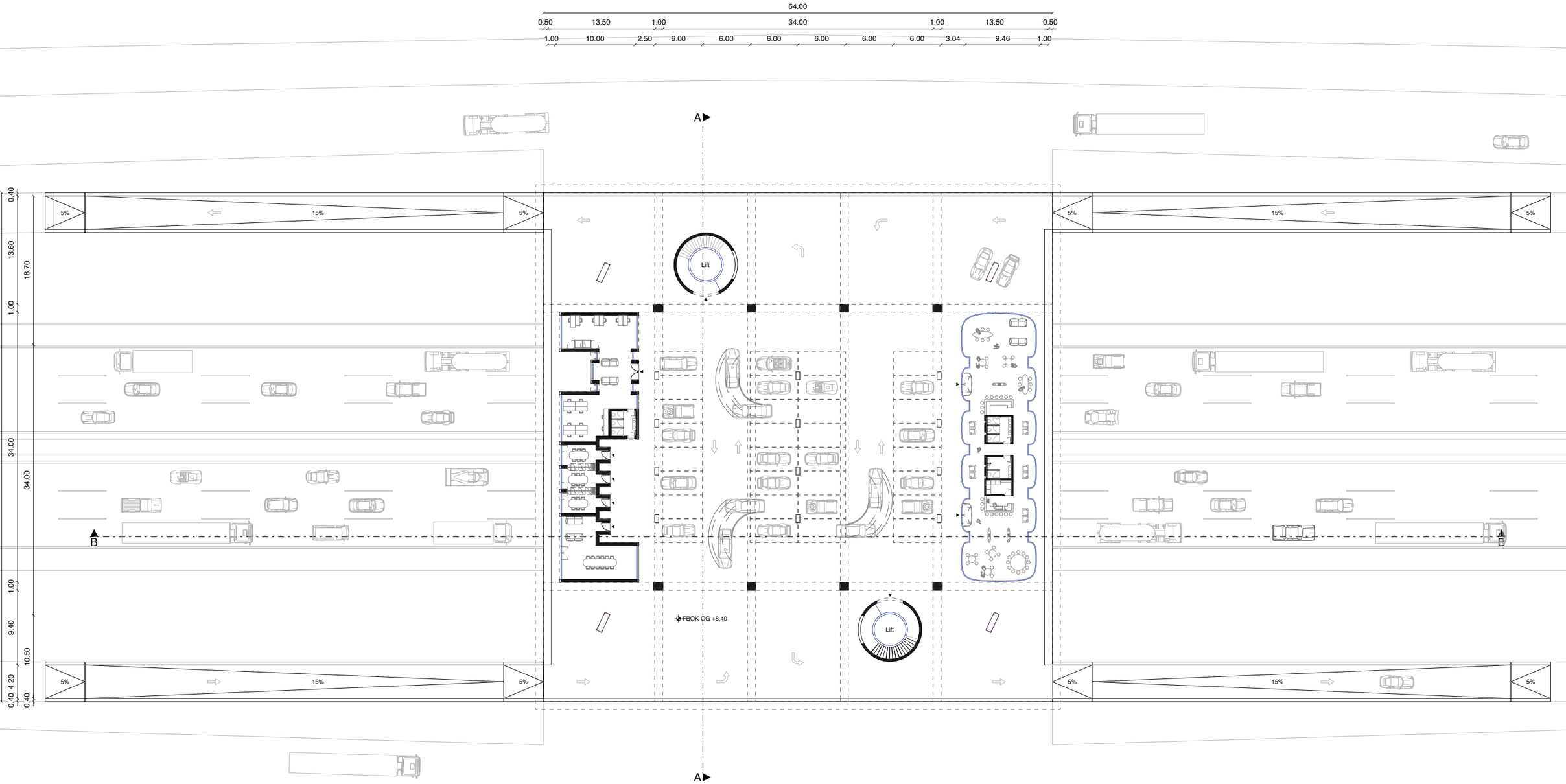
15 KOOLHAAS, Rem, Delirious New York, Ein retroaktives Manifest für Manhatten, (The Monacalli Press), 1997



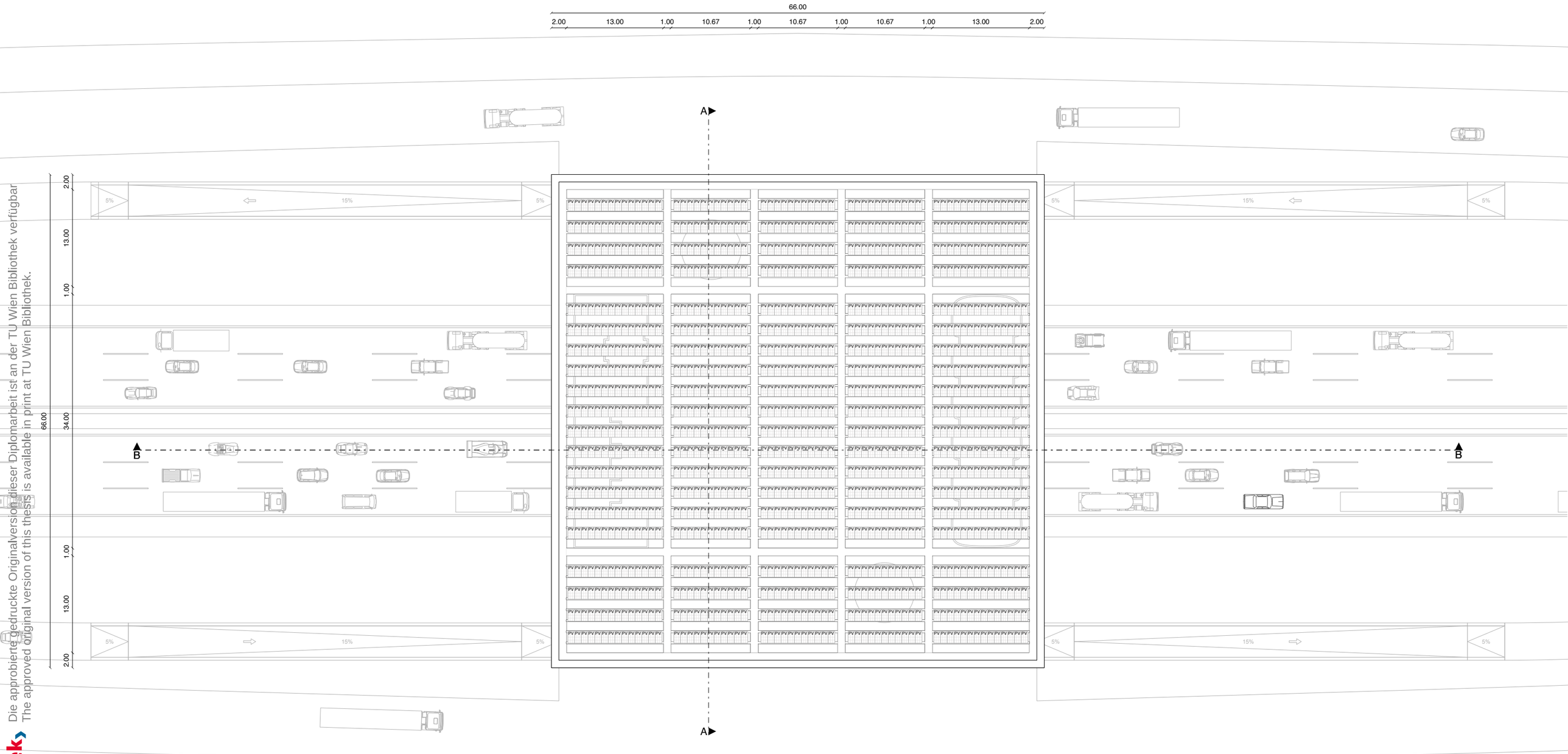
Ground Floor, M 1:500



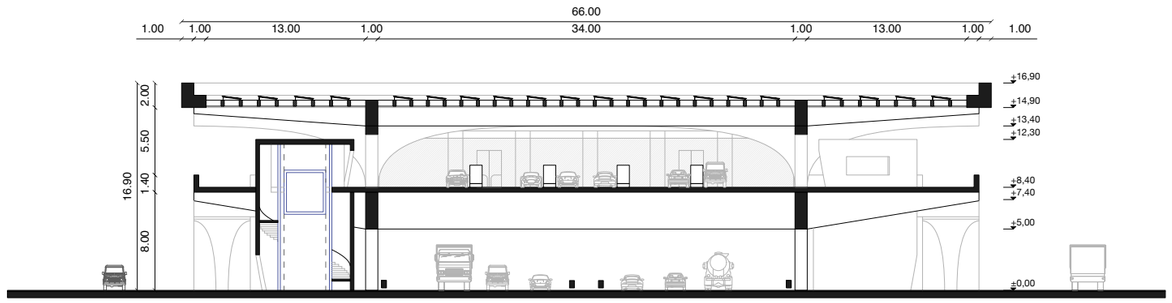
Parking Deck, M 1:500

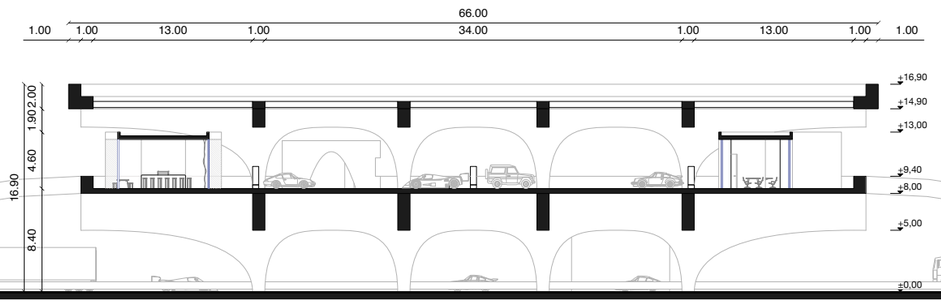


Roof, M 1:500

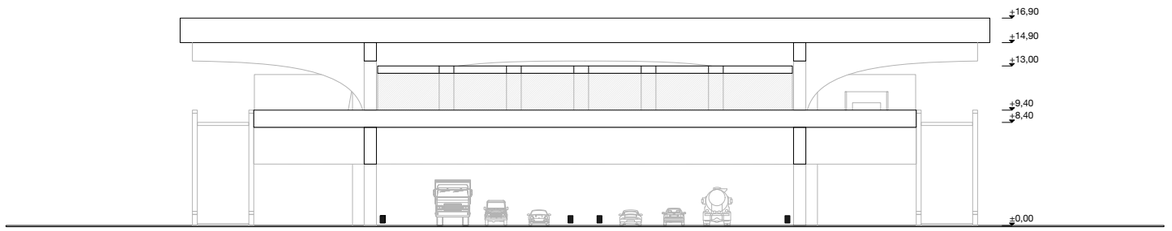


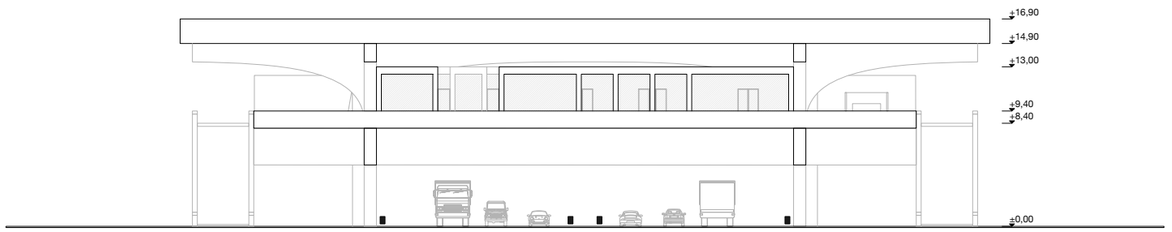
Section AA and BB, M 1:500



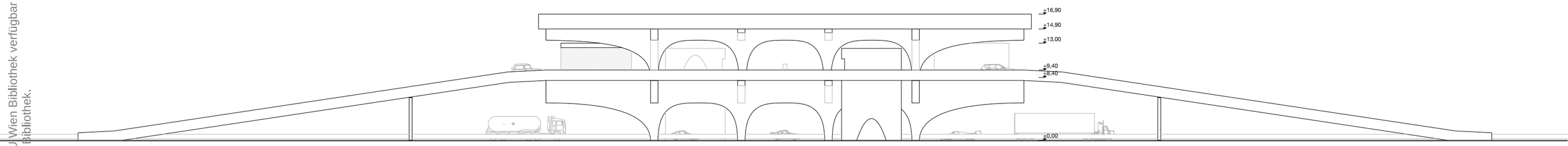


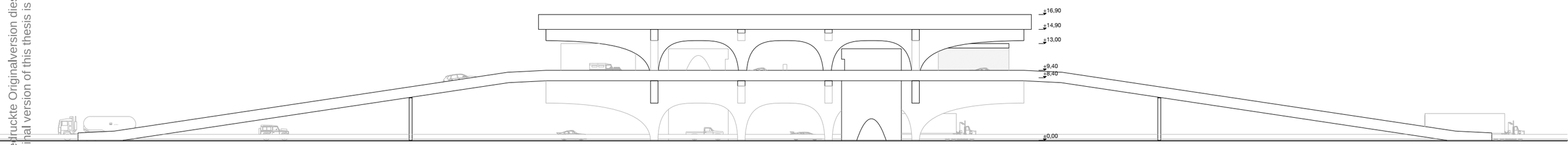
Elevation N-S, M 1:500



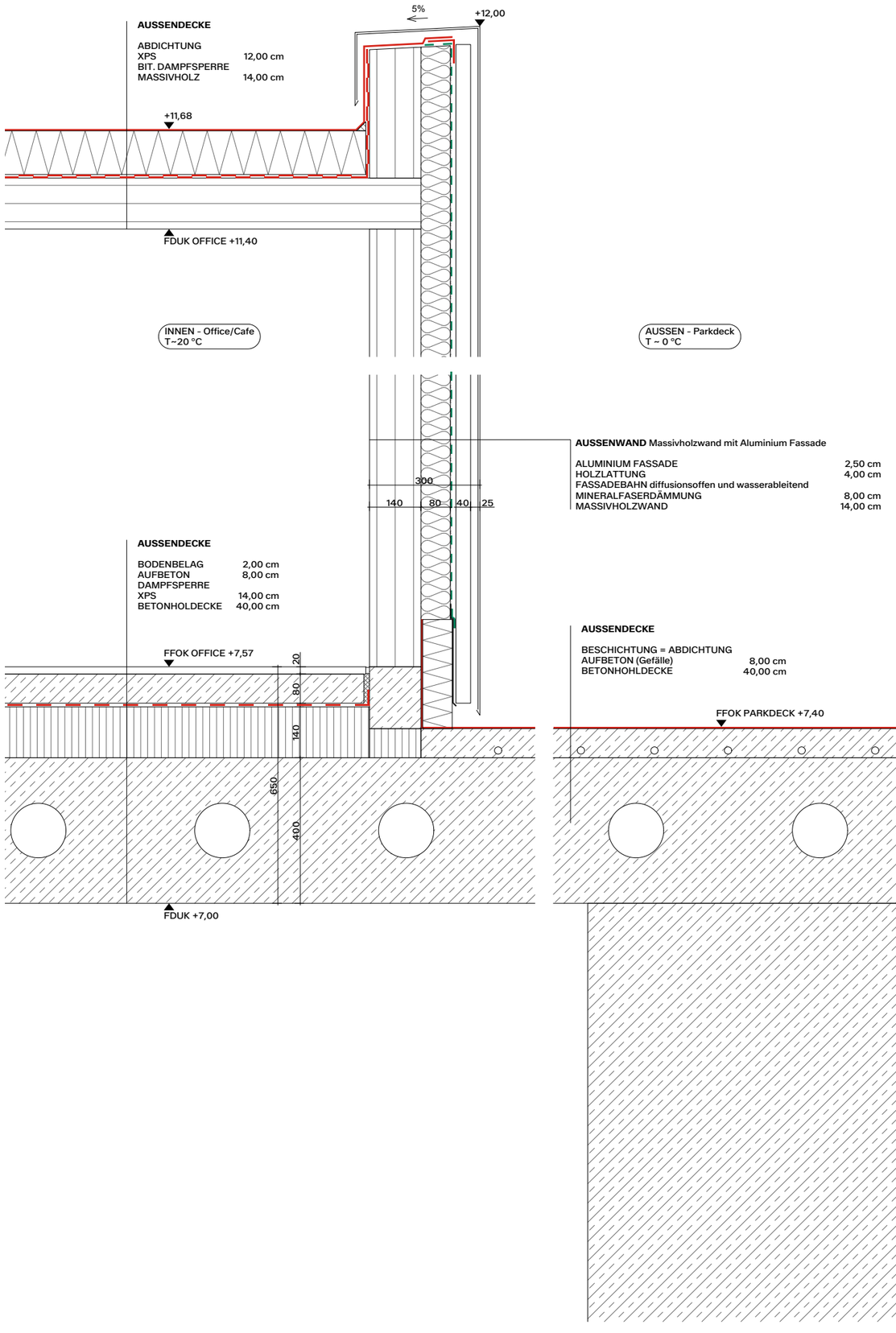


Elevation E-W, M 1:500





Detail Restaurant Building on Parking Deck



Structrual Considerations

Reinforced Concrete Skeleton Construction:

This structure combines cast-in-place concrete and prefabricated elements. The primary and secondary supporting structures consist of on-site prestressed beams. The ceiling above the ground floor (spanning over the motorway) features a prestressed hollow-core slab, designed to withstand heavy vehicular traffic. The slab has a height of 32 cm and spans approximately 10-12 meters. Columns are constructed from in-situ concrete.

The ramp structures are made of prestressed cast-in-place concrete beams, with the roadway suspended between them. Parapets perpendicular to the direction of travel are designed as alternating beams to absorb the loads from the overlays of the driveways. The ground floor ceiling combines underlay and overlay systems, a principle repeated on the first floor. The vertical structural elements are also in-situ concrete.

Roof Structure:

The roof consists of primary, secondary, and tertiary components. The primary and secondary structures are prestressed in-situ concrete beams, while the tertiary structure is wooden. This tertiary structure supports the photovoltaic (PV) system.

Foundation:

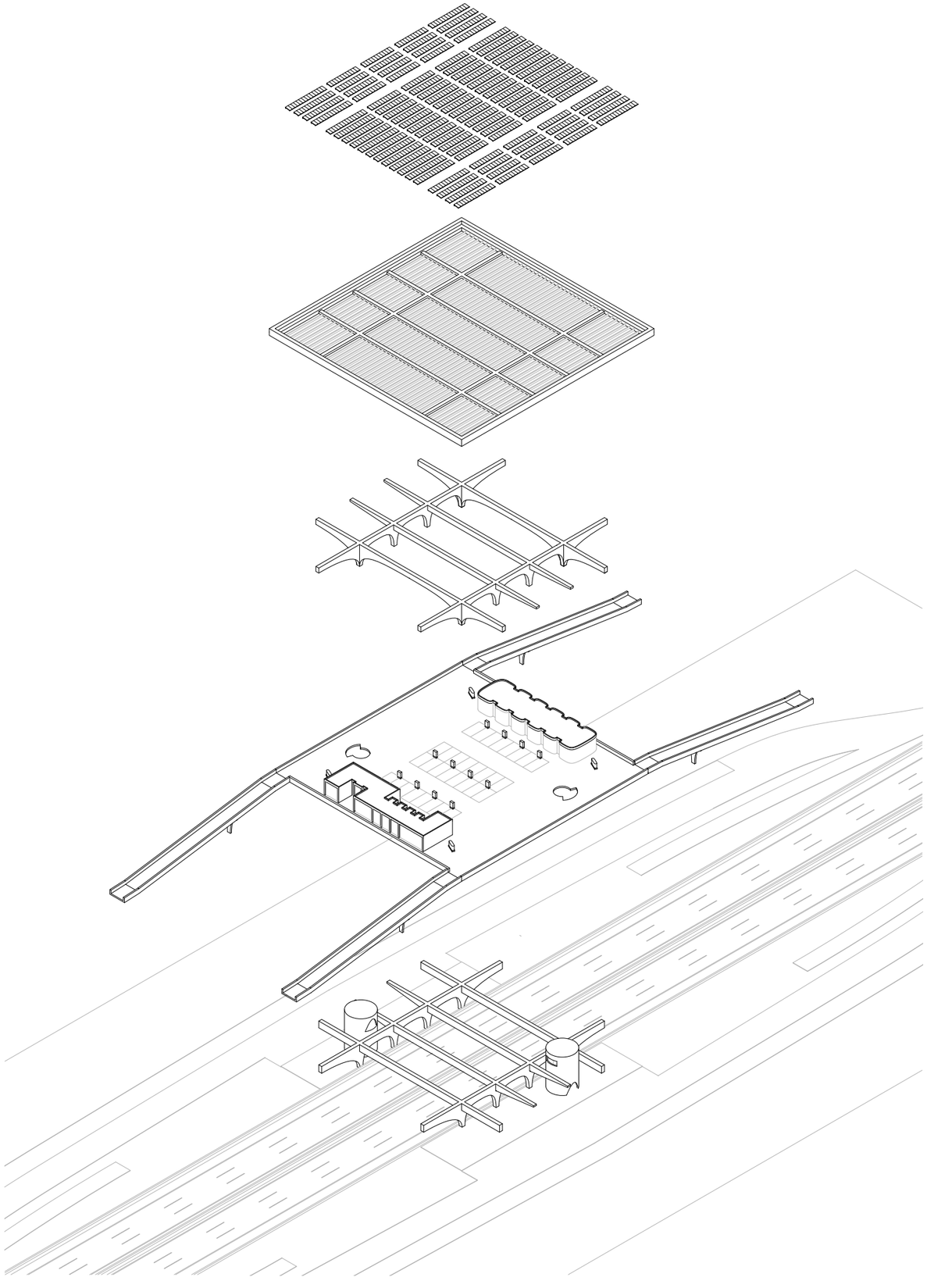
The building features a deep foundation with bored piles. Less-stressed sections use shallow foundations, including strip foundations and base plates for the "tower" elements.

Specific Design Features:

Motorway Spanning: A span of 30 meters over the motorway.
Main beam height: 2.10 meters, width: 1 meter (upper sections).
Beams in the 'groud floor' are set at a height of 3 meters.

Load Considerations: Minimal snow load.

Wooden Beam Dimensions (tertiary structure of the roof):
Spacing: 1.50 meters
Span: 13 meters
Beam Dimensions: 20 cm x 50 cm



Bibliography:

BAUDRILLARD, Jean, The Consumer Society: Myths and Structures, Thousand Oaks (SAGE Publications Ltd), 2017
BANHAM, Reyner, Megastructure, Urban futures of the recent past, London (Thames and Hudson), 1976
BENETTI, Alessandro, The bridge-type autogrill, infrastructure and icon of the italian highways, Milan (Domusweb), 2020
BIANCHETTI, Angelo, Le oasi dell'autostrada (highway oasis), in "Quattroruote", n.1, 1960
BIANCHETTI, Angelo, I ponti non convengono più (bridges are not convenient anymore), in "Modo", n.18, 1979
BILLINGTON, David P., Tower and the Bridge, The New Art of Structural Engineering, New Jersey (Princeton University Press), 1985
BULLOCK, Nicholas, Building the Post-War World: Modern Architecture and Reconstruction in Britain, Milton Park (Taylor & Francis Ltd), 2003
CANESTRINO, Giuseppe, L'evoluzione dei servizi di assistenza nelle strategie d'impresa. Il caso di Autogrill SpA, Architetture Lungo Le Autostrade, Venezia (Transporti e cultura), 4/4, 2020
CURTIS, William J R, Modern Architecture Since 1900, New York (Phaidon Press), 1996
DEPLAZES, Andrea, Constructing Architecture: Materials, Processes, Structures. A Handbook, Basel (Birkhäuser), 2013
DUPRE, Judith, A history of the World's Most Famous and Important Spans, New York (Black Dog & Leventhal Publishers), 1997
HITCHCOCK, Henry Russell, The International Style, New York (W.W. Norton & Company), 1997
https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024
JODIDIO, Philip, Green Architecture Now! Vol. 1, Köln (TASCHEN), 2013
KOOLHAAS, Rem, Delirious New York, Ein retroaktives Manifest für Manhatten, (The Monacalli Press), 1997
LE CORBUSIER: "Five Points of a New Architectcure", Towards a New Architecture, New York (Dover Publications, Inc.), 1927
McDONOUGH, William, Cradle to Cradle: Remaking the Way We Make Things, (North Point Press), 2002
MONICA, Luca, The Architecture of Pavesi Autogrills, Parma (Archivo Storico Barilla), 2018
MOYA, Max: "Capriccio Elettrico", in Steiner architecture the letters A-B-C-D, Wien 2023, B/E, S. 7
MOYA, Max: "Will the future get you high?", in Steiner architecture the letters A-B-C-D, Wien 2023, A/E, S. 9
VENTURI, Robert, BROWN, Denise Scott, IZENOUR, Steven, Learning from Las Vegas, Revised Edition, Boston (The MIT Press), 1977
WOLLEN, Peter, KERR, Joe, Autopia: Cars and Culture, London (Reaktion Books), 2004

Image directory:

Fig. 1: MOYA, Max: "Capriccio Elettrico", in Steiner architecture the letters A-B-C-D, Wien 2023, B/E, S. 7
Fig. 2: DE JONGH, Claude, View of London Bridge, oil on panel, 1632, Yale Center for British Art
Fig. 3: MORGAN, William, Drawing of London Bridge from a 1682 London Map, 1682, republished by London Topographical Society, London, 1904.Page 10: MEHLING, Ingo, 12.12.2024 (from author)
Fig. 4: MEHLING, Ingo, Ponte Vecchio, Florence, from author, 12. 12. 2024MEHLING, 2024
Fig. 5: DENKER, Patrick, Ponte degli Alpini, Bassano, from author, 9 October 2024
Fig. 6: CANALETTO, Giovanni Antonio, Capriccio con edifici palladiani, 1756–1759, Galleria Nazionale, Parma
Fig. 7: CARPACCIO, Vittore, The Miracle of the Cross at the Ponte di Rialto 1496, Gallerie dell'Accademia, Venice
Fig. 8: BIBOLLET, Catherine, Le Château de Chenonceaux, Gamma-Rapho, 19. 4. 2018
Fig. 9: SPACE TRAVELLERS, Legacy (Projekt), Visualisierungen: BONAVITA, Giuseppe, 2021, Mailand/Yongxin
Fig. 10: MENGÈS, Jean-Baptiste, Simone-Veil-Brücke, Bordeaux, photograph by Bordeaux Métropole, 2024
Fig. 11: KIKUTAKE, Kiyonori, EXPO Tower, Expo '70, Osaka, photograph, photographer unknown, 1970.
Fig. 12: GRASSO, Aldo, Gianni Agnelli, il ritratto affettuoso e il ricordo curioso di Platini, Corriere della Sera, 17. 3. 2023.
Fig. 13: MOYA, Max: "Will the future get you high?", in Steiner architecture the letters A-B-C-D, Wien 2023, A/E, S. 9
Fig. 14: COOPER Julian, Reyner Banham Loves Los Angeles, Film, USA/GBR 1972.
Fig. 15: SOTTSASS, Ettore, Vuoi dormire..., Metaphors, 1976, Triennale Milano, Milan
Fig. 16: BAUER, Stefan, Steiner Architecture f/f, 2022 (from author)
Fig. 17: KAUSHALYA Kathireson, The Nature-Inspired Interior Designs of Geoffrey Bawa, in: Men's World India 20 (2018) 4.
Fig. 18,19: HEINZLE, Michael, Dreaming in Lala Land, Steiner Architecture f/f, (from author), 2023
Fig. 20: GUEN-K, Toku'un-ji Temple Ossuary, Foto: Fukuoka 2008
Fig. 21: BO BARDI, Lina, 1951, Instituto Bardi, Sao Paulo
Fig. 22: FLIEG, Hans Günther, photograph, ca. 1967, Museum of Art of São Paulo (MASP Collection), São Paulo
Fig. 23: BESSLER; Ilana, 2015 (from author)
Fig. 24: MASP, Arquivo Biblioteca e Centro de Documetacao do MASP, Sao Paulo, 1968
Fig. 25: BO BARDI, Lina, Instituto Bardi, 1963, Sao Paulo
Fig. 26: CANDELA, Félix, High Life Textile Factory, Coyoacán, Mexico City, photograph by LANG, Erwin, 1958, Candela Archive, Princeton University
Fig. 27: SC JOHNSON, The Great Workroom, photograph, year unknown, photographer unknown
Fig. 28,29: KEREZ, Christian, Pearling Path Parking, Muharraq, Bahrain, photograph by DELVAUX, Maxime, published in El Croquis, 22 February 2024
Fig. 30,31: HEINZLE, Michael, Sportcars Museum, STEINER Architecture f/f, (from author), 2023
Fig. 32: FINOTTO, Leonardo, 2015, (from author)
Fig. 33: MASCARDI, José, Exhibition Latin America in Construction 1955-1980, 2015, MoMA, New York
Fig. 34: EMDEN, Cemal, Divisare Journal, 09.02.2017, Rome

Image directory: :

Fig. 35: AUTOGRILL S.p.A., 1960s-Autogrill Pavesi Map, autogrill.com, 2020, https://www.autogrill.com/en/node/3714, 08.07.2024
Fig. 36,37: BIANCHETTI, Jacopo, Lost icons of the 20th century: motorway service area by Angelo Bianchetti, Domusweb, 2020, Milan
Fig. 38: AUTOGRILL S.p.A., I only stop at Autogrill, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/, 22.11.2024
Fig. 39-42: AUTOGRILL S.p.A., Our Story, autogrill.com, 2023, https://www.autogrill.it/en/who-we-are/our-story/, 06.11.2024
Fig. 43: BIANCHETTI, Jacopo, The bridge-type autogrill, infrastructure and icon of the italian highways, Domusweb, 2020, Milan
Fig. 44,45: AUTOGRILL S.p.A., Our History, autogrill.com, 2020, https://www.autogrill.com/en/about-us/our-history 17.11.2024
Fig. 46-64: BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/autogrill-fiorenzuola.html, 06.11.2024
Fig.65-69: own pictures, 2024
Fig. 70-74: BIANCHETTI, Angelo, Architetto Angelo Bianchetti, autogrillpavesi.eu, 2019, https://www.autogrillpavesi.eu/autogrill-pavesi/novara-ponte.html 06.11.2024
Fig. 74: own picture, 2024
Fig. 75: Ohne Verfasser, Minneapolis SuperAmerica Gas Station, reddit.com, 2019, https://www.reddit.com/r/architecture/comments/18kis5m/super_america_gas_station_minneapolis_mn_1960s/, 08.12.2024
Fig. 76: ZEIT ONLINE, Motoröl und Amaretto, zeit.de, 22.01.2010, https://www.zeit.de/auto/2010-01/bg-agip, 08.12.2024
Fig. 77: JAUJA, Zigmars, type of gas station, Daugavpils 47, 1965, NRJA, Riga
Fig. 78: DIESTE, Eladio, Form und Konstruktion, Princeton (Architectural Press), 2004