MARITIME TERMINAL
SALERNO, ITALY
WWW.STAZIONEMARITTIMSALERNO.EU

ZHA project architect:
Paola Cattarin

client:
Comune di Salerno

construction period:
2008 - 2016

total built area:
4,500 m²

SEGUENDO LA METAFORA DI UN'OSTRICA, DURA E ASIMMETRICA, LA STAZIONE PROTEGGE I PASSEGGERI DAL SOLE DEL MEDITERRANEO E CUSTODISCE AL SUO INTERNO ELEMENTI PIÙ MORBIDI E SPAZI DINAMICI E FLUIDI.

Il progetto per la Stazione Marittima di Salerno, inaugurato il 25 aprile 2016, rappresenta una tappa importante, "storica", nella carriera di Zaha Hadid poiché, insieme al MAXXI e al Phaeno Center di Wolfsburg, fa parte di quegli edifici che, a cavallo tra la fine degli anni '90 e il 2000, hanno contribuito a far crescere la notorietà della sua ricerca, del suo "stile" audace, originale e innovativo (ben oltre i confini del mondo dell'architettura), dando l'avvio ai molti progetti successivi e alla crescita dello studio ZHA. Arketipo si è già occupato di questo edificio nel 2013,

TEXT
MATTEO RUTA

PHOTOS
HÉLÈNE BINET
TANOPRESS - FRANCESCO PECORARO

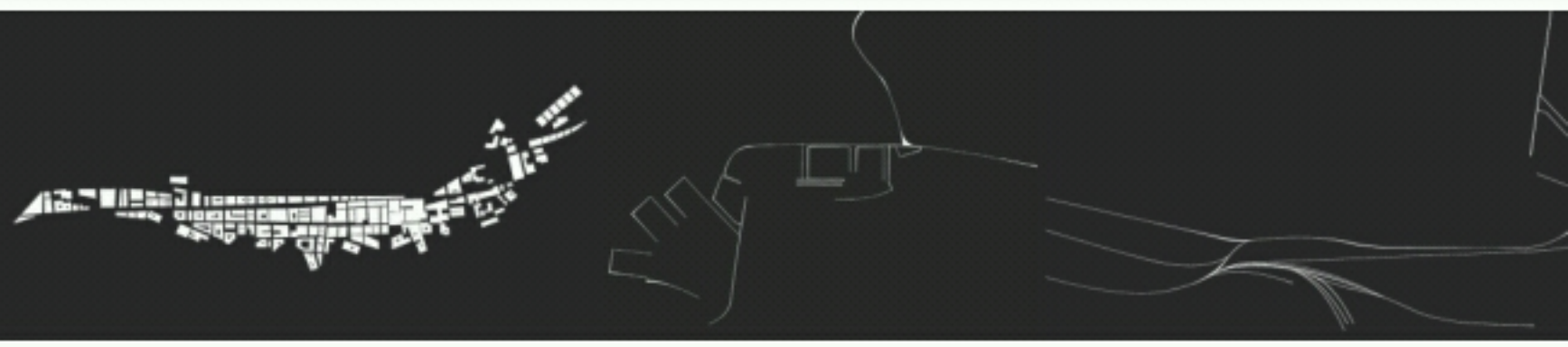
tanopress - Francesco Pecoraro

Schizzi concettuali
Conceptual sketches

Studi della morfologia urbana
Urban morphology studies

Studi urbani su masse costruite, margini sull'acqua e viabilità parallela e perpendicolare al mare

Urban studies on form massing, water boundaries, parallel to water and perpendicular water road system



Planimetria. Scala 1:10.000
Site Plan. Scale 1:10,000

Studi dei percorsi interni
Interior circulation studies

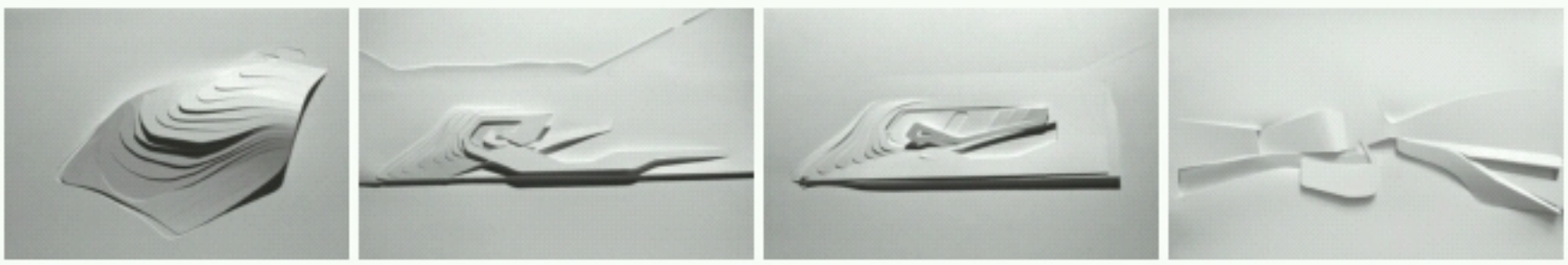
con un articolo che ne commentava le fasi di costruzione con immagini di cantiere e informazioni tecniche; oggi completiamo la trattazione illustrandone il risultato finale.

La allegra e affollatissima festa popolare che ha accompagnato l'inaugurazione della Stazione e l'ampia partecipazione della cittadinanza testimoniano la vitalità e i risultati sempre più visibili della radicale trasformazione della città di Salerno, avviata proprio in quegli anni e supportata da una forte volontà politica e da un ambizioso piano urbanistico disegnato nel 1993 dallo studio MBM di Barcellona. Un progetto che si sta realizzando progressivamente, con l'adiacente lungomare Trieste, la contigua spiaggia di Santa Teresa e la Piazza della Libertà, e ora anche una Stazione Marittima, che permette ai turisti appena arrivati in nave di raggiungere velocemente, a piedi, il centro storico e i nuovi spazi pubblici.

Situata sul Molo Manfredi, essa vuole continuare il rapporto tra la città e il mare stabilendo nuovi collegamenti: con le ricche tradizioni marittime cittadine, il suo tessuto storico urbano e di là per le colline che incorniciano la città, ma anche come transizione tra terra e mare, tra solido e liquido. L'edificio vuole rappresentare, dal punto di vista sia percettivo che funzionale, un elemento di mediazione tra la

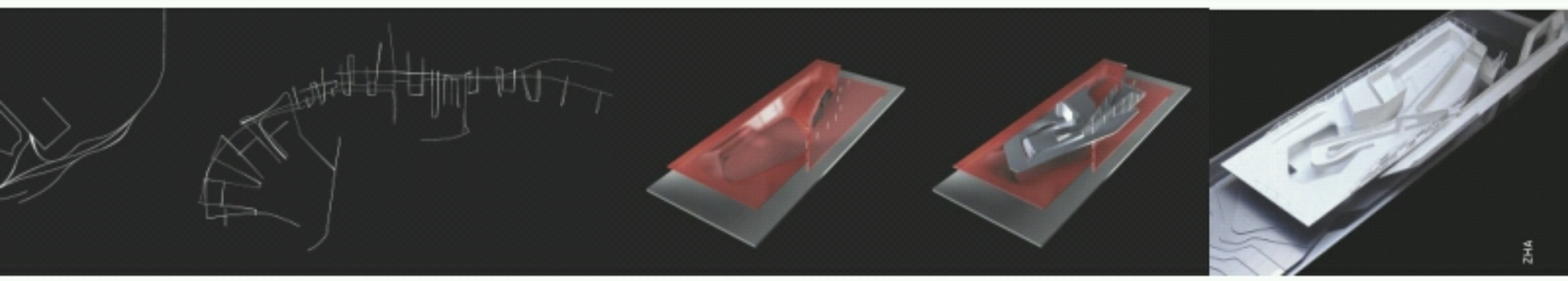
Studio prospettico dei volumi

Perspective studies



Studi su: forma della copertura, sulla sopraelevazione del molo e sui volumi interni del primo livello

Roof's form, quay rising and upper level perspective studies



La Stazione Marittima vista dal Lungomare Trieste

The maritime terminal seen from the Trieste sea promenade

solidità terrestre e la liquidità del mare.
Il progetto finale dell'area, prevedrà l'allungamento e il ridisegno del molo, lo scavo per l'abbassamento del bacino portuale e l'ampliamento dell'ingresso al porto per l'attracco delle grandi navi da crociera, oltre al potenziamento dei porti turistici circostanti. Per questo motivo, sul lato nord, il terreno è stato modellato a forma di ampia e dolce altura, raccordando la Stazione, ora più alta, alla quota originaria del molo con una morbida scalinata a grandi pedate in due toni di grigio alternati, da 2,5 a 1,4 metri sul livello del mare, permettendo l'agevole accesso al terminal per chi arriva dalla città.

La Stazione, seguendo la metafora di un'ostrica dura, asimmetrica, protegge i passeggeri dal forte sole del Mediterraneo e custodisce al suo interno elementi più morbidi, spazi dinamici e fluidi. Copertura e muri piegati a asse inclinato, entrambi di calcestruzzo faccia-vista, sono intesi come due valve di un'ostrica nell'atto di aprirsi. L'analogia è rafforzata dalla differenza della superficie interna della copertura, di calcestruzzo a vista levigato e compatto, con quella esterna rivestita in ceramica. Nella zona di separazione tra i due gusci vi è una fascia vetrata costituita da elementi ruotati di altezza variabile che segue l'andamento degli stessi.
Tutto l'edificio è stato pensato per rappresentare un'e-

DESIGNERS

Localizzazione / Location: Salerno, Italy

Progetto architettonico / Architectural design: Zaha Hadid Architects - Zaha Hadid and Patrik Schumacher

Capoprogetto / Project architect: Paola Cattarin

Gruppo di lavoro / Design team: Vincenzo Barliari, Andrea Parenti, Anja Simons, Giovanna Sylos Labini, Cedric Libert, Filippo Innocenti, Paolo Zilli, Lorenzo Grifantini, Electra Mikelides, Eric Tong

Gruppo di lavoro fase di concorso / Competition team: Paola Cattarin, Sonia Villaseca, Christos Passas, Chris Dopheide

Cliente / Client: Comune di Salerno

Responsabile procedimento / Client project manager: Giovanni Micillo

Architetto locale esecutivo / Local executive architect: Interplan Seconda - Alessandro Gubitosi

Progetto strutturale / Structural engineers: Ingeco - Francesco Sylos Labini, ARUP - Sophie Le Bourva

Progetto impianti meccanici / M&E engineers: Macchiaroli and Partners - Roberto Macchiaroli, Itaca - Felice Marotta, ARUP

Contabilità / Costing building consulting: Pasquale Miele

Ingegnerizzazione marittima / Maritime transport engineering: ARUP - Greg Heigh

Illuminazione / Lighting: Equation Lighting Design - Mark Hensmann

Periodo di progetto / Design period: 2000 - 2008

Periodo di costruzione / Construction period: 2008 - 2016

Area costruita / Built area: 4,500 m²

CONTRACTORS

Impresa principale / Main contractor: Passarelli

Direttore dei lavori / Clerk of works: Gaetano Di Maio

Direttore operativo architettura / Supervisor architecture: Paola Cattarin

Direttore operativo strutture / Supervisor structure: Giampiero Martuscelli

Direttore operativo impianti / Supervisor MEP: Roberto Macchiaroli

Amministrazione / Administration: Pasquale Miele

Responsabile sicurezza / Health & safety: Alessandro Gubitosi

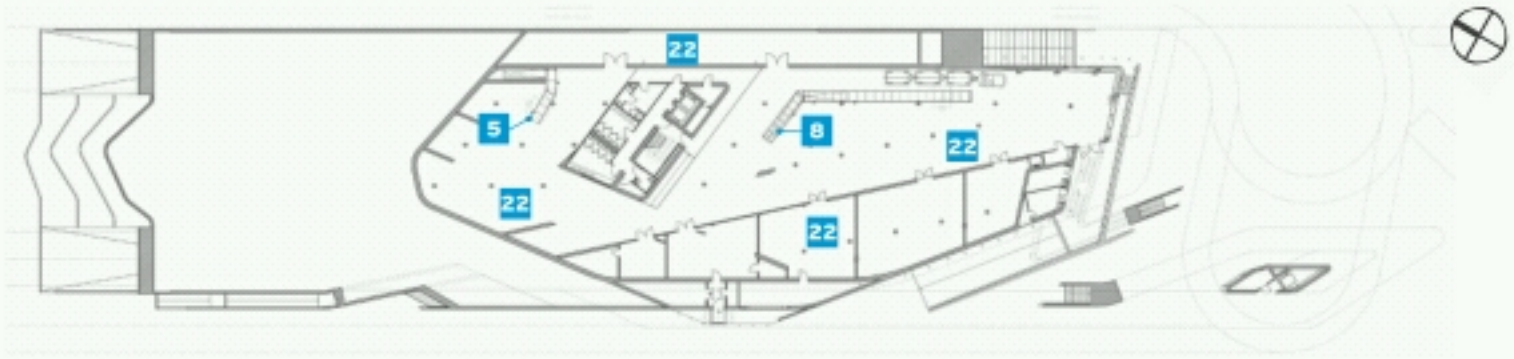
SUPPLIERS

Calcestruzzo / Concrete: Marinelli

Rivestimento ceramico in copertura / Roof ceramic cladding: Marazzi

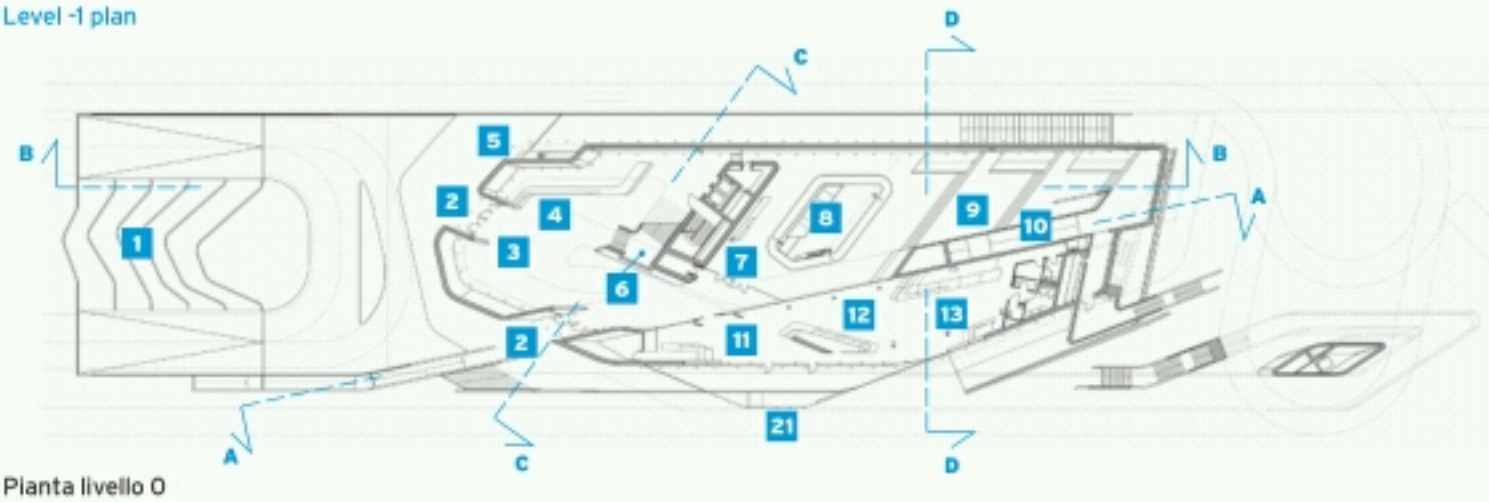
Carpenterie metalliche e serramenti / Metal structural work and windows: Corni, Slia

Cassaforme in multistrato con film fenolico / Form made of plywood with phenolic film: Alpi



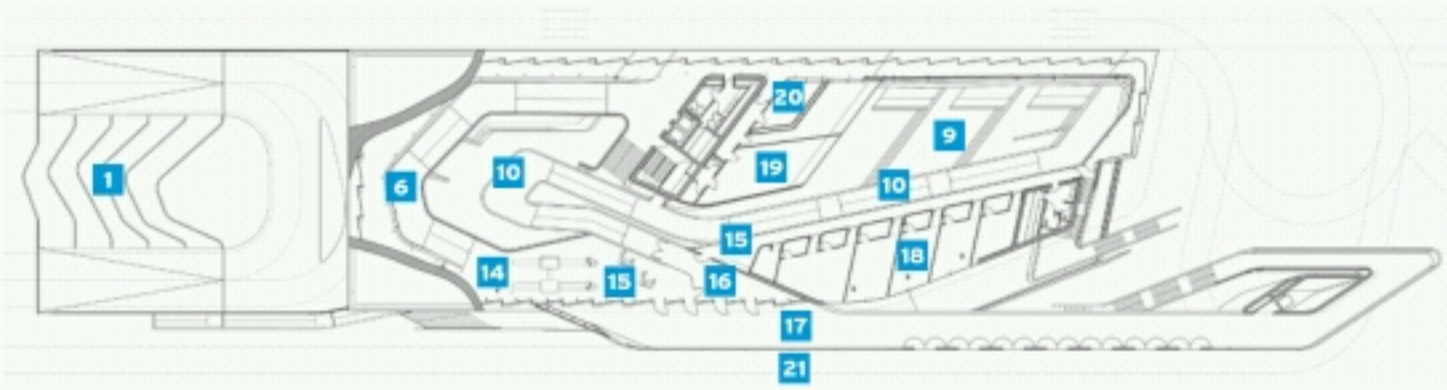
Pianta livello -1

Level -1 plan



Pianta livello 0

Level 0 plan



Pianta livello 1

Level 1 plan

Scala 1:1000

Scale 1:1000

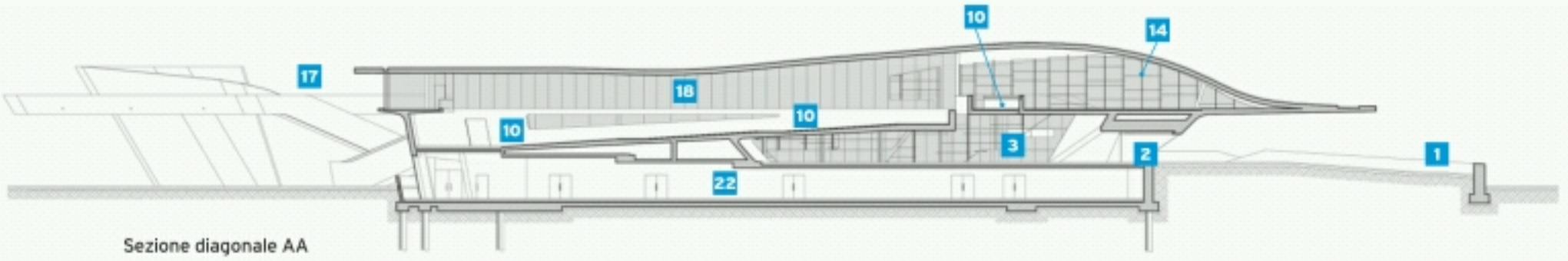
sperienza unica per il passeggero, sia esso in arrivo o in partenza, poiché il suo percorso avviene in una serie di spazi dinamici, organizzati intorno a punti focali, quali la caffetteria, gli atrii e le sale d'attesa, con un'organizzazione interna che crea spazi ed esperienze differenziati, fornendo un chiaro orientamento. Il tradizionale rapporto tra spazi serviti ed elementi di connessione viene trasformato così in un'esperienza, dando la percezione di un unico spazio continuo e rendendo visibili le tensioni e le attrazioni tra le diverse attività.

Lo spazio è un unico volume delimitato da un involucro con all'interno due lunghe rampe contrapposte, arrivi e partenze, che si inseguono, in movimento, garantendo una facilità di accesso e una chiara direzionalità a chi le percorre, attraverso curve che permettono, in modo intuitivo, di raggiungere i punti di arrivo previsti da determinati punti di partenza. Le rampe, lungi da essere una mera soluzione al problema dell'accessibilità per connettere livelli a quote diverse, sottolineano la vera vocazione di questo spazio trasformando la Stazione in un'esperienza che modifica l'idea di "approdo". Il contatto con la terra non è immediato ma graduale: nave, passerella, ponte, rampe sospese sino alla gradonata sono tappe fondamentali per raggiungere la terraferma. Grazie a un fluido passaggio tra spazi e funzioni diverse, il percorrere le rampe diventa l'occasione per scoprire scorci prospettici della città di Salerno. Infatti, dalle sue vetrate, la Stazione offre una vista spettacolare della Costiera Amalfitana, il Golfo di Salerno e del Cilento.

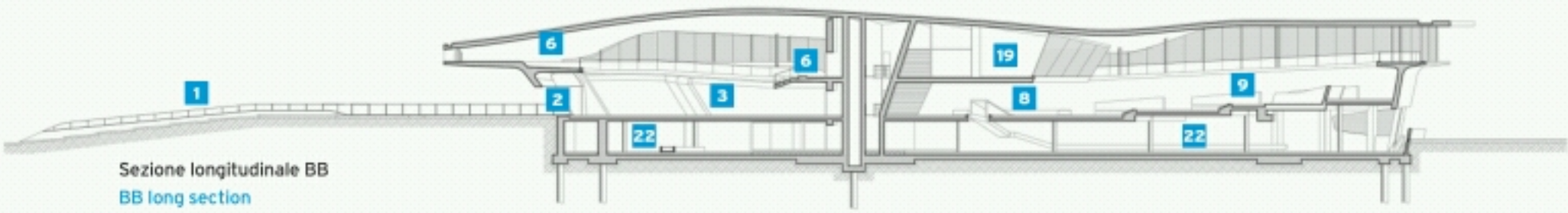
Infine, l'illuminazione gioca un ruolo fondamentale nel rendere suggestivo l'edificio, non solo grazie alle luci interne che guidano il passeggero, ma soprattutto per le luci esterne, tra cui le "stelle" in copertura che ne enfatizzano i punti di maggiore fluidità, che lo trasformano in un faro per il porto, una nuova traccia simbolica sul già complesso tracciato cittadino normanno e saraceno.

REFERENCES

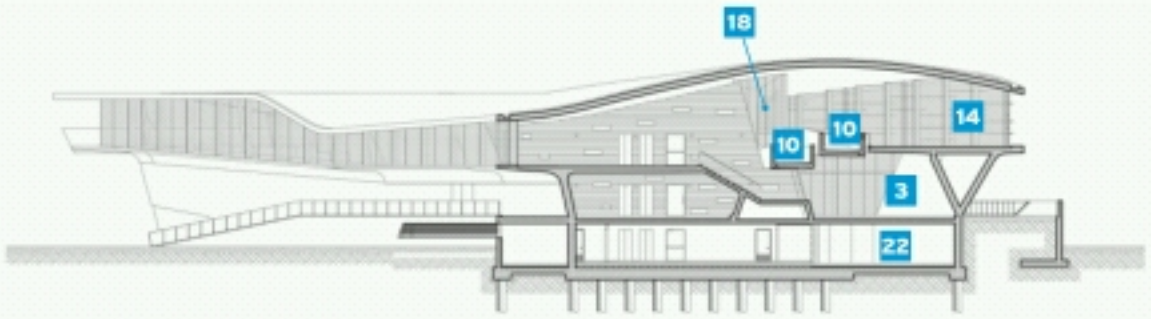
• M. BRASCA, M. RUTA, **CANTIERE: STAZIONE MARITTIMA, MOLO MANFREDI SALERNO ZAHA HADID ARCHITECTS**, IN ARKETIPO 79 "INFRASTRUTTURE – INFRASTRUCTURES", GRUPPO24ORE EDIZIONI, DECEMBER 2013, MILANO, ITALY



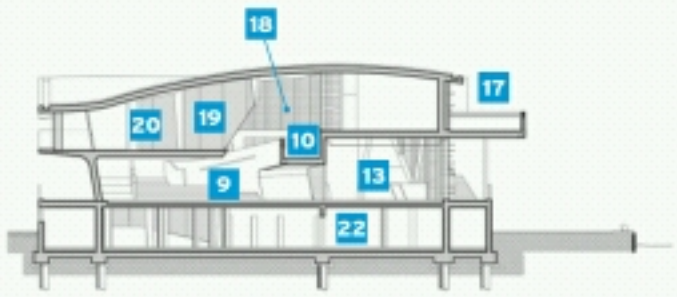
Sezione diagonale AA
AA diagonal section



Sezione longitudinale BB
BB long section



Sezione diagonale CC
CC diagonal section



Sezione trasversale DD
DD cross section

ZHA

Scala 1:600
Scale 1:600

1. scalinata e rampa di accesso
2. entrata
3. sala partenze
4. check-in
5. nastro trasportatore check-in
6. rampa partenze
7. dogana
8. nastro trasportatore arrivi
9. sala arrivi
10. rampa arrivi
11. biglietteria
12. banco informazioni
13. bar
14. vestibolo partenze
15. controllo passaporti
16. vestibolo arrivi
17. ponte d'imbarco
18. uffici
19. infermeria
20. sala di controllo
21. banchina di ormeggio
22. locali impianti

1. staircase and access ramp
2. entrance
3. departures lounge
4. check in
5. conveyor belt-check in
6. departures ramp
7. custom
8. conveyor belt-arrivals
9. arrivals lounge
10. arrivals ramp
11. ticketing
12. informations
13. bar
14. departures hall
15. passport control
16. arrivals hall
17. boarding bridge
18. offices
19. surgery
20. control room
21. mooring quay
22. plant rooms

Vista della Stazione Marittima per chi arriva dalla città

View of the maritime terminal to those coming from the city

Hélène Binet

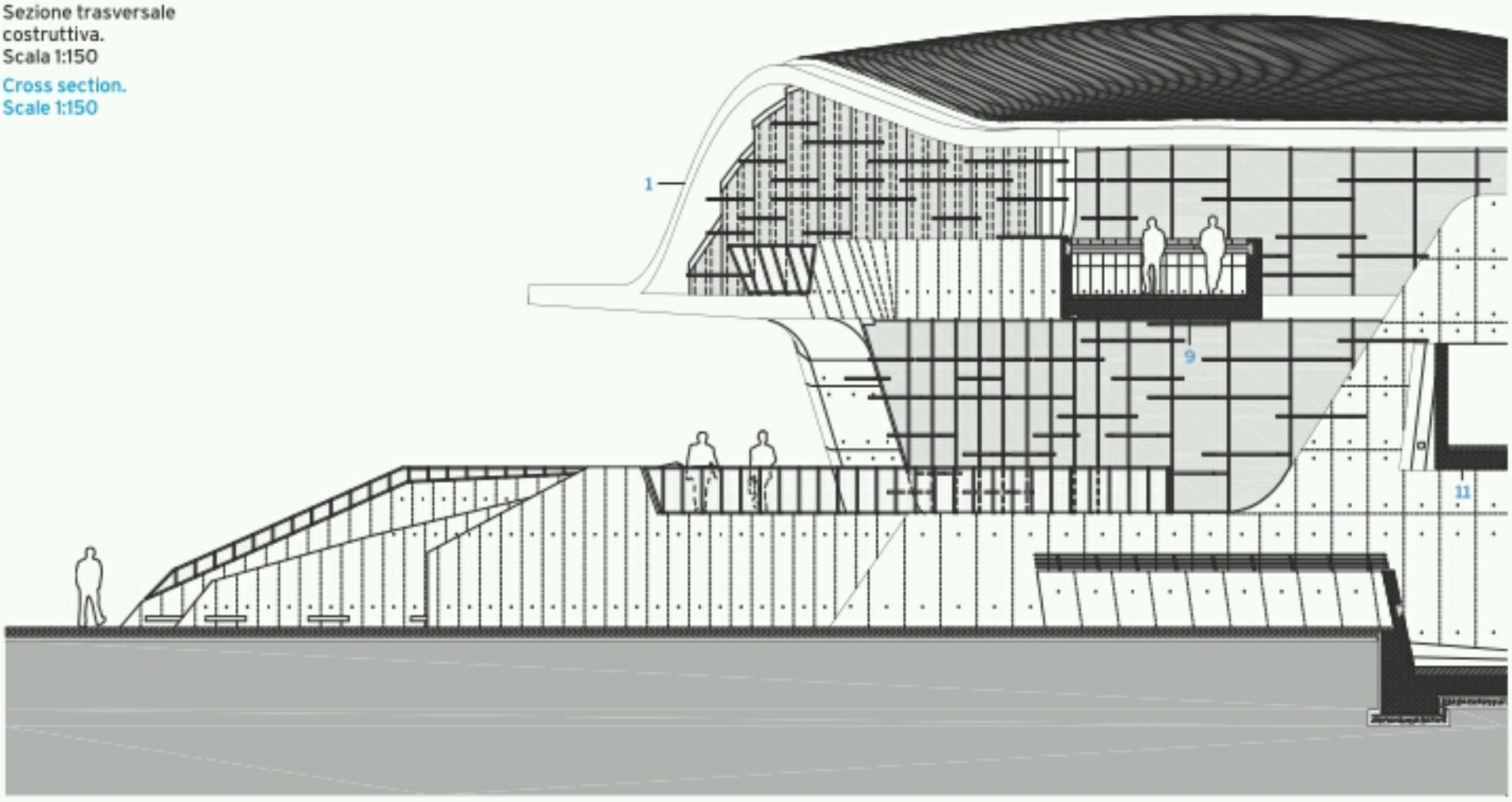
ZOOM 1

STRUTTURE COME VALVE DI UN'OSTRICA: COPERTURA E MURI INCLINATI RICURVI

La geometria dell'edificio, in particolare la copertura e i percorsi perimetrali, fornisce un contributo fondamentale al suo comportamento strutturale. La copertura, è sorretta da colonne di acciaio ad asse inclinato variabile sui vari fronti da 5° a 30° rispetto alla verticale, due nuclei verticali e un muro a forma di ferro di cavallo.
La sua sezione trasversale tipica vede una campata centrale di circa 22 m con due sbalzi alle estremità di 2 e 3 m di luce sui due fronti, fatta eccezione per un angolo in cui le colonne arretrano dal perimetro e lo sbalzo raggiunge i 7 m di luce.
Nel realizzarla, si è preferito optare per una soletta piena di calcestruzzo armato rispetto ad altre opzioni tecnologiche, essenzialmente per questioni architettoniche, di rapporto costo/complessità realizzativa, di inerzia termica e di protezione al fuoco.
Essa deriva la propria capacità di resistenza e rigidezza dalla particolare conformazione ed è gettata in opera su una cassaforma a doppia curvatura realizzata con elementi di polistirene tagliati a macchina.
Le colonne metalliche sono incernierate e non forniscono, quindi, vincoli orizzontali, per cui le forze nel piano di copertura vengono assorbite nel piano stesso o trasferite ai nuclei.
I nuclei irrigidenti interni le garantiscono sia la stabilità laterale sia lo sviluppo di azioni interne di diaframma avvengano solo nel piano.
La parte ovest lavora come un guscio e, in questo caso, la spinta orizzontale è assorbita da una trave ad anello sul bordo del setto a forma di ferro di cavallo.
La parte est ha una piega che, di conseguenza, lavora come una trave.
La campata interna, grazie ai due nuclei scale, si riduce a 22 m.
Per ottenere la forma architettonica finale desiderata, è stata data una "contro-monta" alla forma del getto, in modo da controbilanciare le deformazioni viscose previste a lungo termine, calcolate come variabili tra i 200 e i 250 mm.

Sezione trasversale costruttiva.
Scala 1:150

Cross section.
Scale 1:150

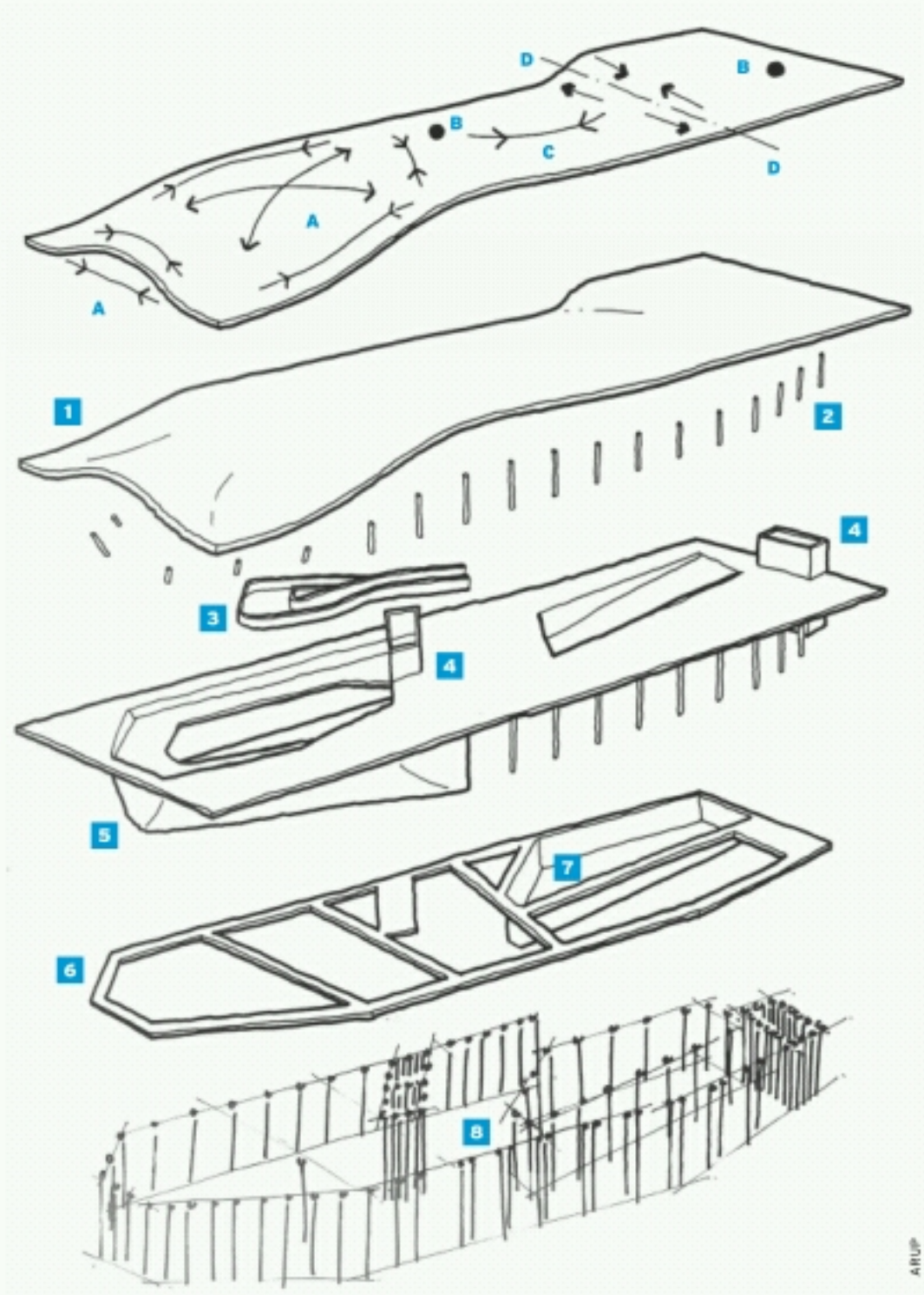


Schizzo assonometrico degli elementi strutturali e del funzionamento della copertura

A. effetto guscio e trave ad anello
B. nuclei
C. effetto catenaria
D. effetto trave

Axonometric sketch of the structural elements and of the functioning of the roof

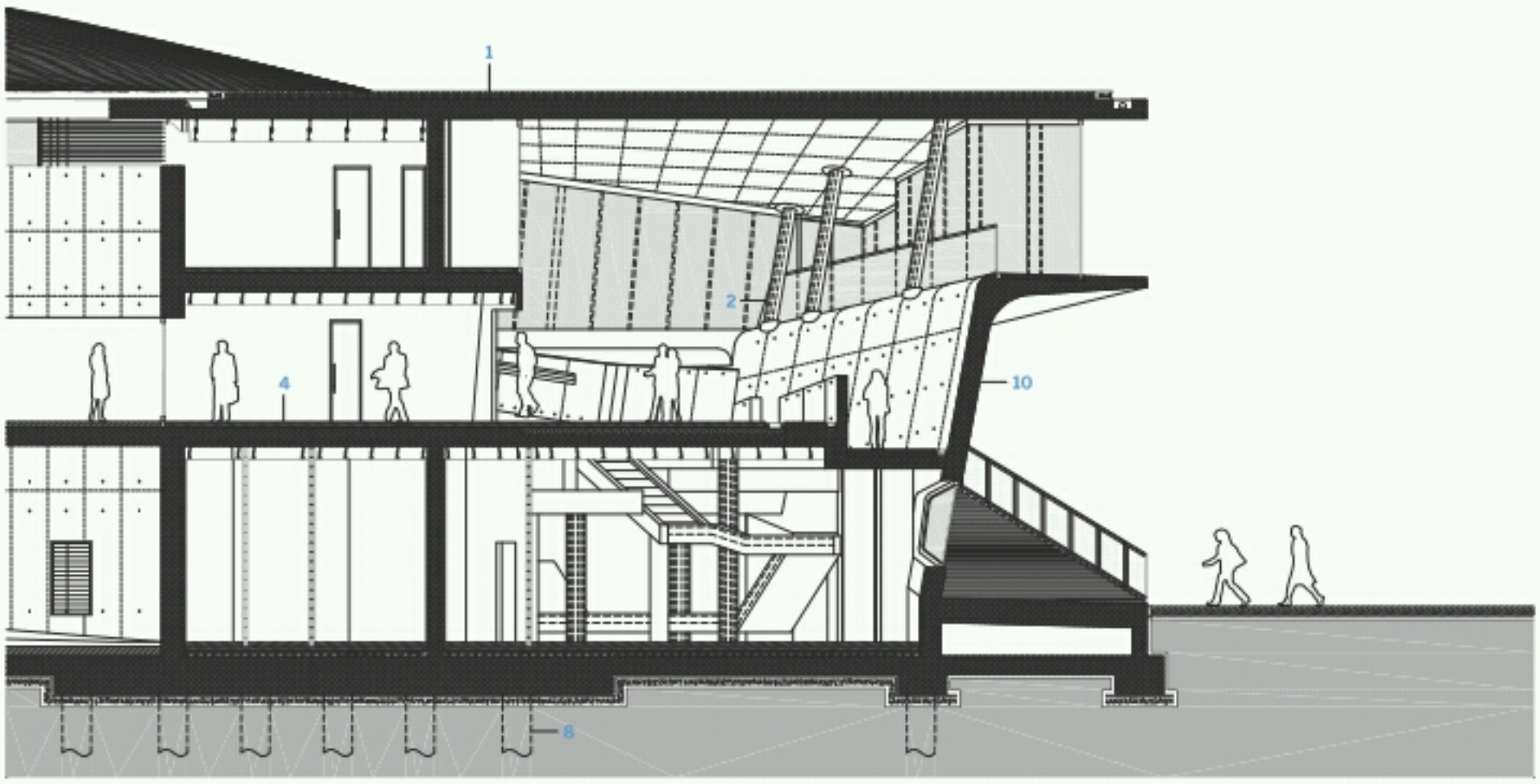
A. shell action and ring beam
B. cores
C. catenary action
D. beam action



ARUP

1. **copertura in calcestruzzo** (400 mm)
2. **colonne cave di acciaio** ad asse inclinato riempiti con malta cementizia (Ø 273 mm, 40 mm)
3. **rampa di calcestruzzo**
4. **solette e nuclei di calcestruzzo**
5. **muro ad asse inclinato** con pianta di ferro di cavallo
6. **travi a piano terra**
7. **interrato di calcestruzzo**
8. **fondazioni su pali**
9. **trave a ponte a C rovesciata** di calcestruzzo armato
10. **muri inclinati** con risvolto verso l'esterno a sbalzo
11. **scala esterna a sbalzo** di calcestruzzo armato

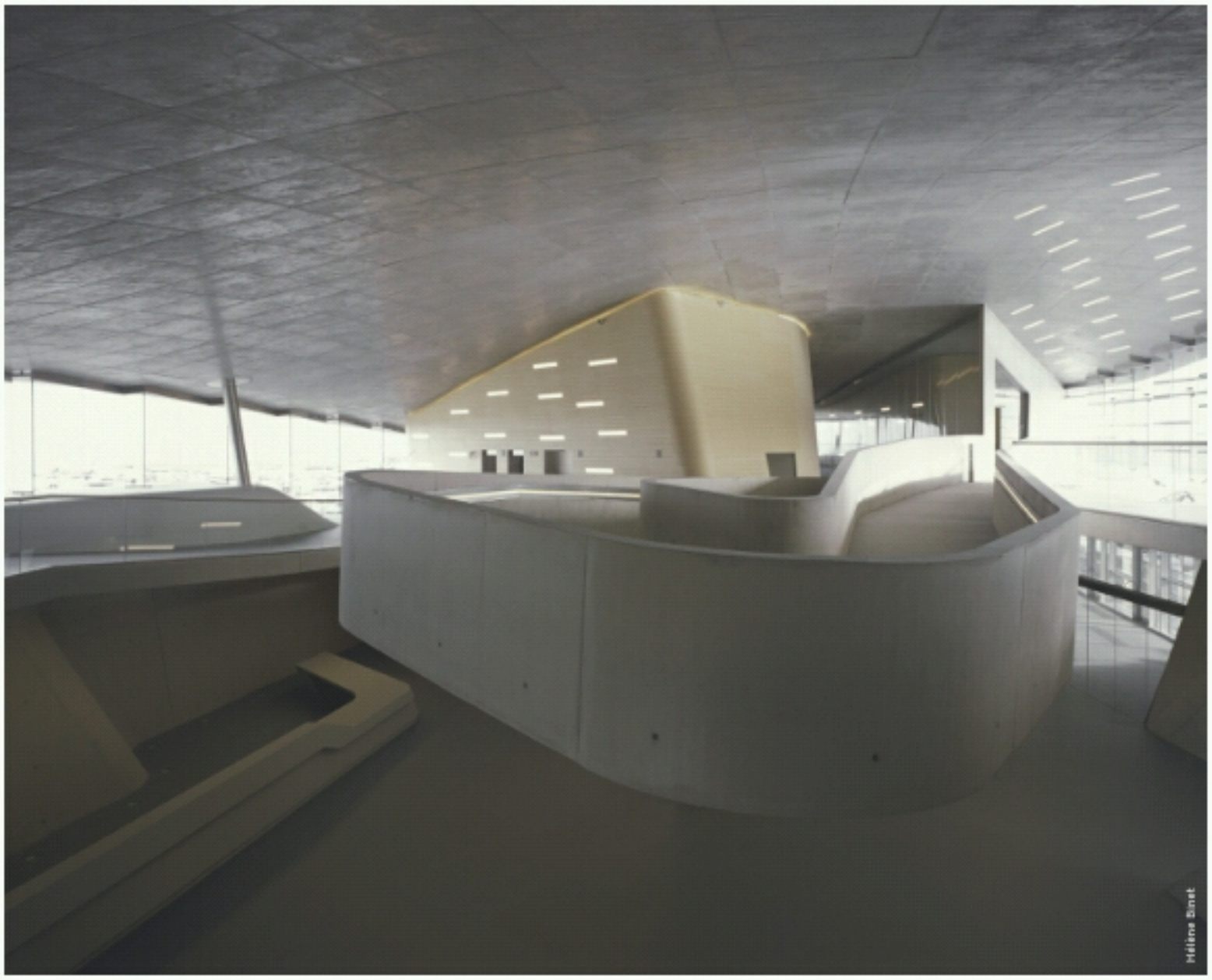
1. **concrete roof slab** (400 mm)
2. **inclined steel columns** filled with concrete mortar (Ø 273 mm, 40 mm)
3. **concrete ramp**
4. **concrete filoplates and cores**
5. **inclined horse-shoe wall**
6. **ground beams**
7. **concrete basement**
8. **piled foundations**
9. **reinforced concrete C beam**
10. **sloping walls** with flaps outward cantilever
11. **external cantilevered staircase** of reinforced concrete



Stefano Ravasio

La sinuosa rampa degli arrivi a sbalzo, immersa al centro dello spazio sotto la grande copertura

The cantilever winding ramp of the arrivals immersed in the centre of the space under the large roof



La plasticità della rampa, sospesa sopra all'atrio delle partenze

The plasticity of the ramp, suspended above the departures atrium

Schizzi sul funzionamento strutturale della rampa degli arrivi

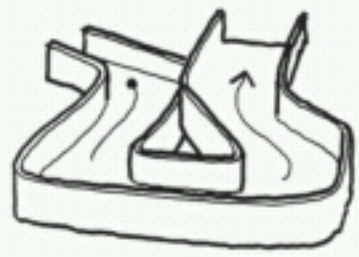
Sketches of the structural behaviour of the arrivals ramp

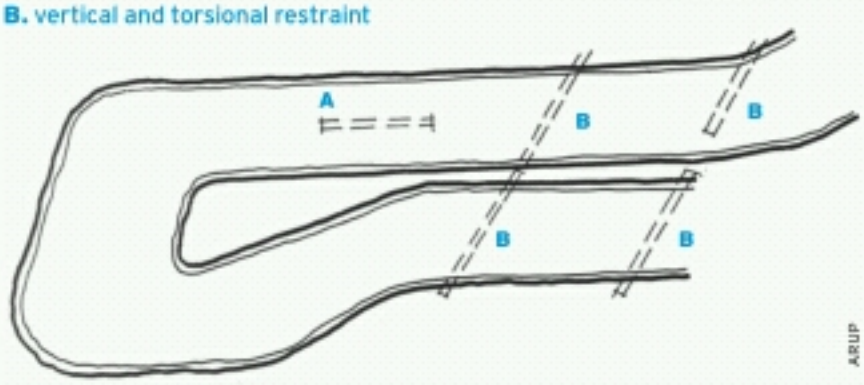
A. vincolo verticale

B. vincolo verticale e torsionale

A. vertical restraint

B. vertical and torsional restraint





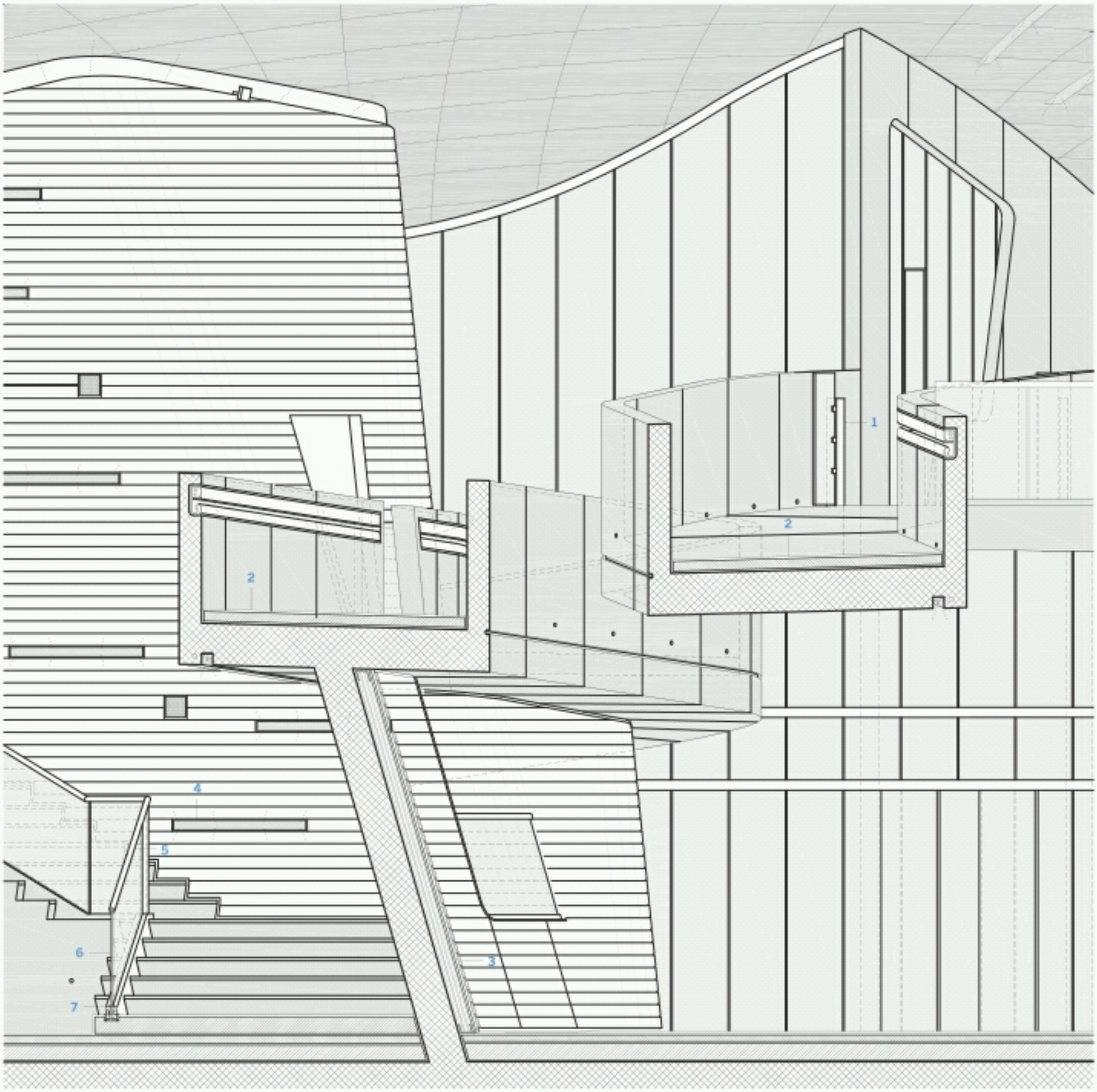
ARUP

Sezione sull'atrio delle partenze. Scala 1:50

Section across the departures atrium. Scale 1:50

1. **colonnina cancello di ingresso** di acciaio inox con anta di vetro extrachiaro stratificato
2. **pavimento continuo:** cemento e quarzo con finitura antigraffio
3. **rivestimento:** doghe di legno d'acero a giunti maschiati (20 mm, passo 97 mm)
4. **lampade incassate** a filo rivestimento
5. **corrimano:** profilo di acciaio inox (Ø 40 mm)
6. **parapetto:** vetro stratificato con doppio strato di PVB trasparente (10+1,52+10 mm)
7. **profilo di alluminio estruso incassato** (101x200 mm)

1. **stainless steel entrance gate posts** with stratified extra clear glass door
2. **continuous flooring:** cement and quartz with anti-scratch finish
3. **maple wood finished** with male joints (20 mm, distance 97 mm)
4. **lamps** inserted in line with the finish
5. **stainless steel handrail** (Ø 40 mm)
6. **parapet:** stratified glass with double transparent pvb layer (10+1.52+10 mm)
7. **sunk-in extruded aluminium profile** (101x200 mm)



Stefano Ravasio

ZOOM 2

UN NASTRO DI CALCESTRUZZO

La scenografica rampa dell'area arrivi, dimensionata per condizioni di carico estremo, come l'effetto di una folla compatta che corre, si innesta in adiacenza al nucleo del lato est e prosegue fino a raggiungere il livello del piano uffici. Il primo tratto è sorretto da setti che emergono dalla soletta del piano terra, la parte intermedia aggetta dai muri sottostanti verso il nucleo centrale, mentre la parte finale è a sbalzo con una luce di 12 m, tornando indietro su se stessa e collegandosi alla soletta del piano uffici. La sua sezione trasversale è a forma di canale di calcestruzzo, con larghezza variabile da 2,5 a 4 m, uno spessore di soletta di 40 cm e due parapetti laterali da 20 cm.
Il dimensionamento deriva da quello della sua parte più sollecitata, quella da cui parte lo sbalzo e dove ci sono anche le vibrazioni maggiori.
I vincoli per questa parte di rampa sono costituiti, sia verticalmente, che torsionalmente, dalle pareti disposte come mostrato nello schema nella pagina precedente. Per quanto riguarda il condizionamento, la gran parte della Stazione è stata prevista come spazio con sola ventilazione naturale al fine di ottenere condizioni simili o migliori rispetto all'esterno, presupponendo che queste siano accettabili per dei passeggeri che non sosteranno per lunghi periodi all'interno dell'edificio. Il movimento dell'aria è facilitato dalla differenza di quota delle aperture tra gli ingressi a piano terra e le porzioni vetrate aperte al piano superiore. Inoltre, vi è un effetto di raffrescamento dovuto alle ampie superfici di calcestruzzo esposte che rimangono fresche durante il giorno per il ritardo di fase. Vi sono però anche aree, come gli uffici, la biglietteria e la caffetteria, delimitate da elementi chiusi in cui è presente il condizionamento meccanico.

Piante e sezioni della vetrata strutturale lato nord-est. Scala 1:10, 1:20

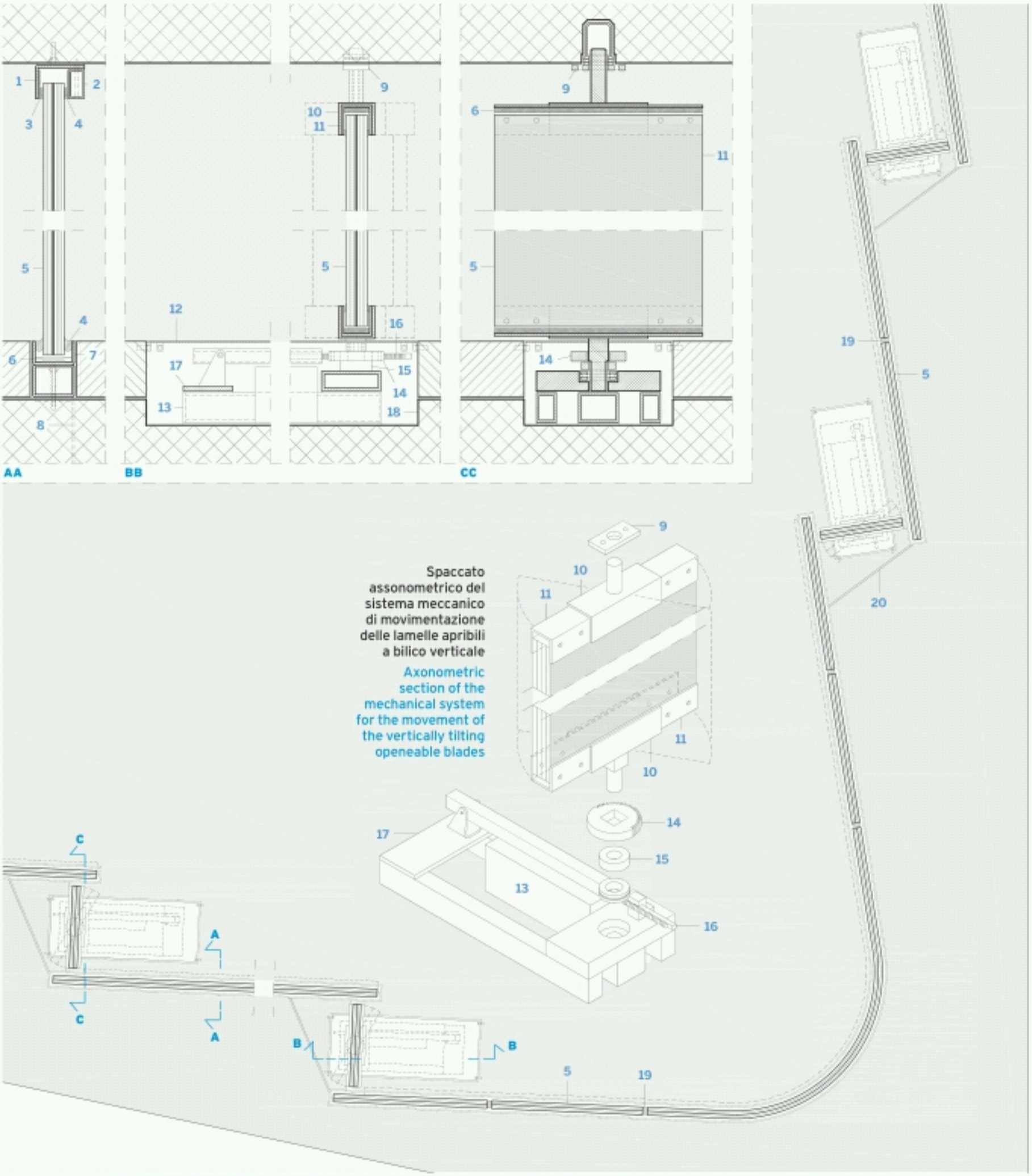
Detailed plans and sections, north-east side structural glazed facade. Scale 1:10, 1:20

A sinistra, panoramica del fronte in punta al molo, con l'intreccio plastico dei percorsi aerei.
A destra, dettagli delle scalinate e della facciata orientale

On the left, panoramic view of the pier's front with the plastic interconnection of the aerial pathways. On the right, details of the staircases and of the east facade

1. **angolare a L di acciaio inox pressopiegato** (94x64x4 mm) fissato con tasselli chimici
2. **fermavetro:** profilo estruso d'acciaio inox (90x30x3 mm)
3. **guarnizione** fustellata di scorrimento (20x6 mm)
4. **guarnizioni e sigillature** di silicone neutro
5. **vetro stratificato** in lastre temprate con interposto doppio PVB (19+1,52+19 mm)
6. **elemento di neoprene**
7. **profilo a C** di acciaio inox pressopiegato incassato a pavimento (78x44x4 mm) fissato con tasselli chimici
8. **zanca di inghisaggio**
9. **piastra di acciaio inox** (50x100x10 mm)
10. **profilo a C di acciaio inox pressopiegato** (70x65x5 mm)
11. **profilo a C di acciaio inox pressopiegato** (60x60x5 mm)
12. **coperchio in lamiera d'acciaio** inox (10/10 mm)
13. **motore elettrico**
14. **ruota dentata**
15. **cuscinetto assiale**
16. **braccetto**
17. **piastra di acciaio inox** (100x250x10 mm)
18. **vano incassato a pavimento** (750x300x160 mm)
19. **giunto di silicone strutturale**
20. **listello paracqua** di acciaio inox

1. **L-shaped stainless steel profile** (94x64x4 mm) connected with chemical plugs
2. **glass stop:** stainless steel extruded profile (90x30x3 mm)
3. **sliding gasket** (20x6 mm)
4. **gaskets and seals** made of neutral silicon
5. **stratified glass** made of toughened sheets with double PVB (19+1.52+19 mm)
6. **neoprene element**
7. **C-shaped profile** made of stainless steel sunk in the floor (78x44x4 mm) fastened with chemical plugs
8. **connecting clasp**
9. **stainless steel plate** (50x100x10 mm)
10. **C-shaped stainless steel profile** (70x65x5 mm)
11. **C-shaped steel profile** (60x60x5 mm)
12. **stainless steel lid** (10/10 mm)
13. **electric engine**
14. **toothed wheel**
15. **axial mat**
16. **bracket**
17. **stainless steel plate** (100x250x10 mm)
18. **flooring void** (750x300x160 mm)
19. **structural silicon joint**
20. **stainless steel water protection strip**



Spaccato assonometrico del sistema meccanico di movimentazione delle lamelle apribili a bilico verticale

Axonometric section of the mechanical system for the movement of the vertically tilting openeable blades

Stefano Ravasio

Matteo Ricci

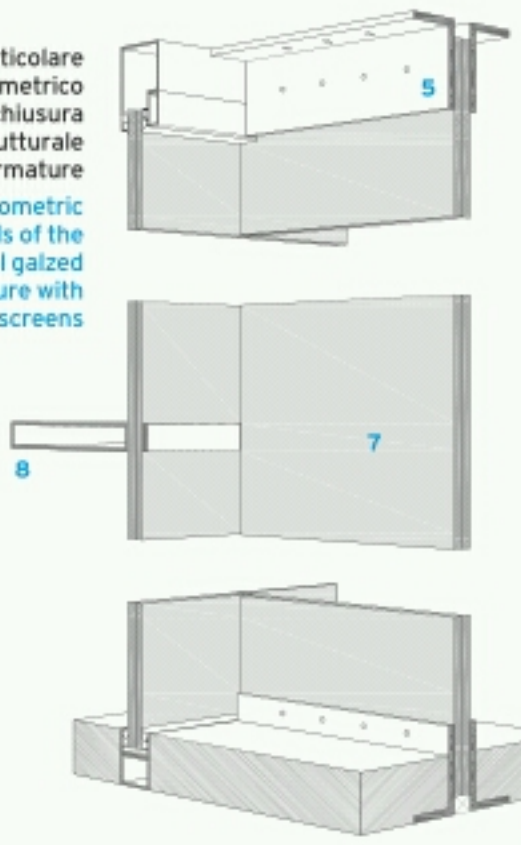
Matteo Ricci

La suggestiva illuminazione notturna della stazione, la trasforma in una lanterna per il porto e rende trasparente l'articolazione degli spazi interni

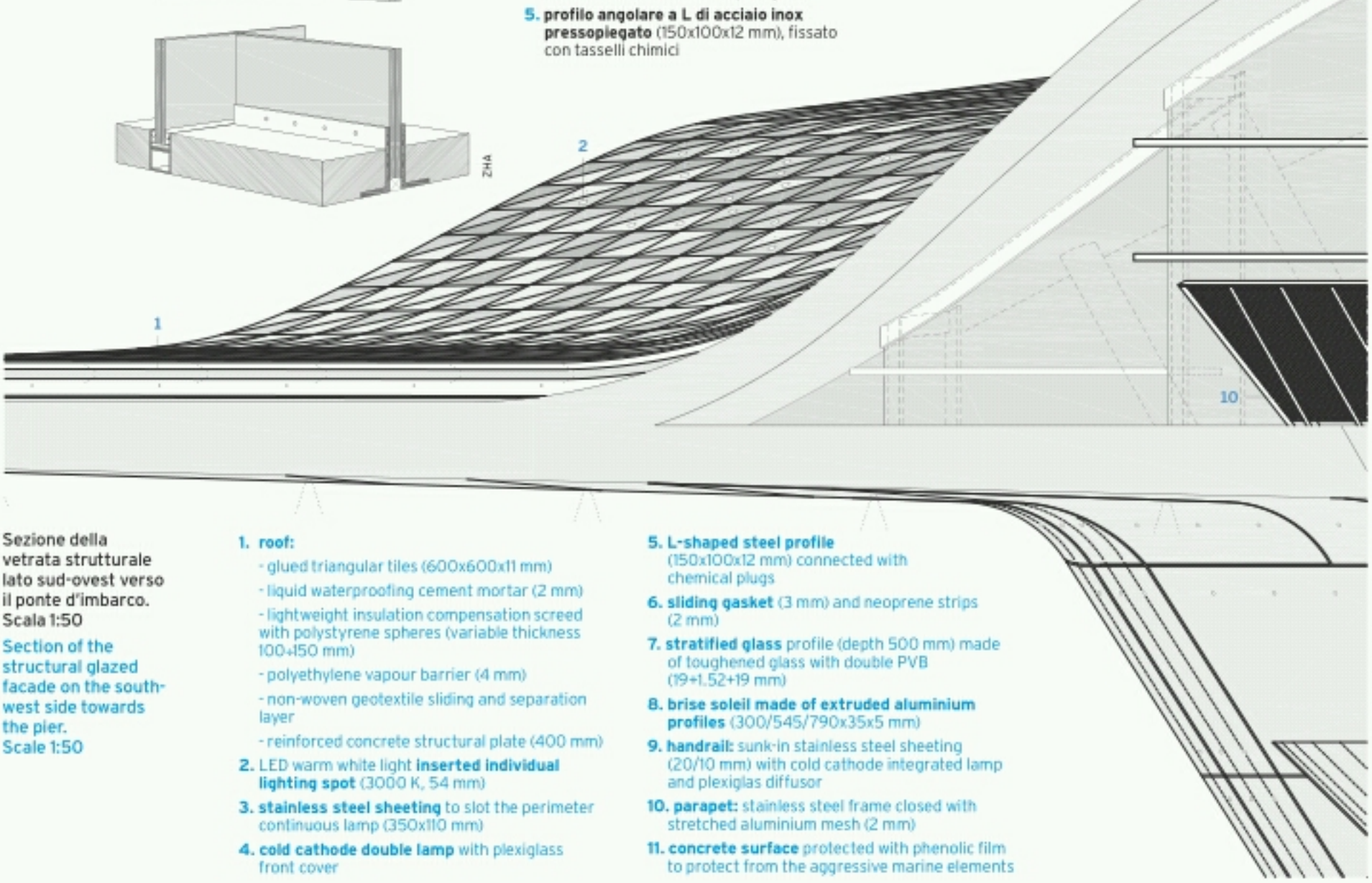
The spectacular night lighting of the terminal transforms it into a lighthouse for the port and makes it transparent to the articulation of the internal spaces

Particolare assonometrico della chiusura vetrata strutturale con schermature

Axonometric details of the structural galzed enclosure with screens



1. **copertura:**
   - piastrelle triangolari incollate di grès porcellanato (600x600x11 mm)
   - malta cementizia impermeabilizzante liquida (2 mm)
   - massetto di compensazione termoisolante alleggerito con sfere di polistirene (spessore variabile 100÷150 mm)
   - barriera al vapore di polietilene (4 mm)
   - strato di separazione e scorrimento di geotessile tessuto non tessuto
   - piastra strutturale di calcestruzzo armato (400 mm)
2. **corpo illuminante puntuale incassato**, LED a luce bianca calda (3000 K, 54 mm)
3. **lamiera di acciaio inox** per alloggiamento lampada continua perimetrale (350x110 mm)
4. **doppia lampada a catodo freddo** con frontalino diffusore di plexiglass
5. **profilo angolare a L di acciaio inox pressopiegato** (150x100x12 mm), fissato con tasselli chimici
6. **giunto in guarnizione** fustellata di scorrimento (3 mm) e strisce di neoprene (2 mm)
7. **costola di vetro stratificato** (profondità 500 mm) di lastre temprate con interposto doppio PVB (19+1,52+19 mm)
8. **frangisole in profili estrusi di alluminio** (300/545/790x35x5 mm)
9. **corrimano**: lamiera d'acciaio inox incassata (20/10 mm) con integrata lampada a catodo freddo e diffusore in plexiglas
10. **parapetto**: telaio d'acciaio inox tamponato con fogli di rete stirata d'alluminio (2 mm)
11. **superficie di calcestruzzo** trattata con film fenolico di protezione agli agenti aggressivi marini



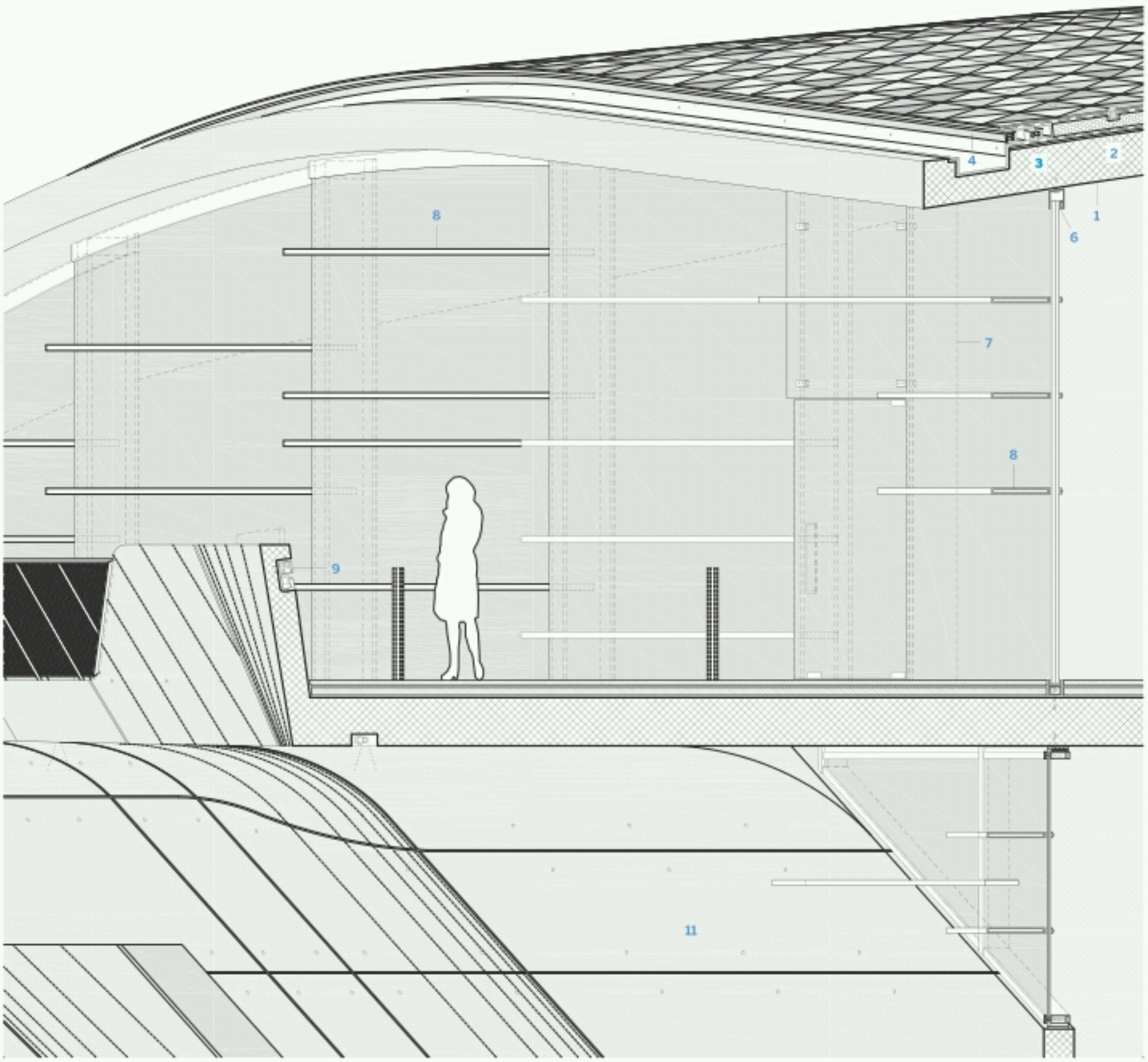
Sezione della vetrata strutturale lato sud-ovest verso il ponte d'imbarco. Scala 1:50

Section of the structural glazed facade on the south-west side towards the pier. Scale 1:50

1. **roof:**
   - glued triangular tiles (600x600x11 mm)
   - liquid waterproofing cement mortar (2 mm)
   - lightweight insulation compensation screed with polystyrene spheres (variable thickness 100÷150 mm)
   - polyethylene vapour barrier (4 mm)
   - non-woven geotextile sliding and separation layer
   - reinforced concrete structural plate (400 mm)
2. LED warm white light **inserted individual lighting spot** (3000 K, 54 mm)
3. **stainless steel sheeting** to slot the perimeter continuous lamp (350x110 mm)
4. **cold cathode double lamp** with plexiglass front cover
5. **L-shaped steel profile** (150x100x12 mm) connected with chemical plugs
6. **sliding gasket** (3 mm) and neoprene strips (2 mm)
7. **stratified glass** profile (depth 500 mm) made of toughened glass with double PVB (19+1.52+19 mm)
8. **brise soleil made of extruded aluminium profiles** (300/545/790x35x5 mm)
9. **handrail:** sunk-in stainless steel sheeting (20/10 mm) with cold cathode integrated lamp and plexiglas diffusor
10. **parapet:** stainless steel frame closed with stretched aluminium mesh (2 mm)
11. **concrete surface** protected with phenolic film to protect from the aggressive marine elements

Dettagli delle vetrate a "zig-zag": a sinistra il fronte sud, con le schermature e a destra il fronte nord, con le lamelle rotanti

Details of the zig-zag glazed facades: on the left the south facade with the screens and on the right the north facade with the rotating blades



ZAHA HADID

RUBRICHE
INDEX

PROGETTI
PROJECTS


020

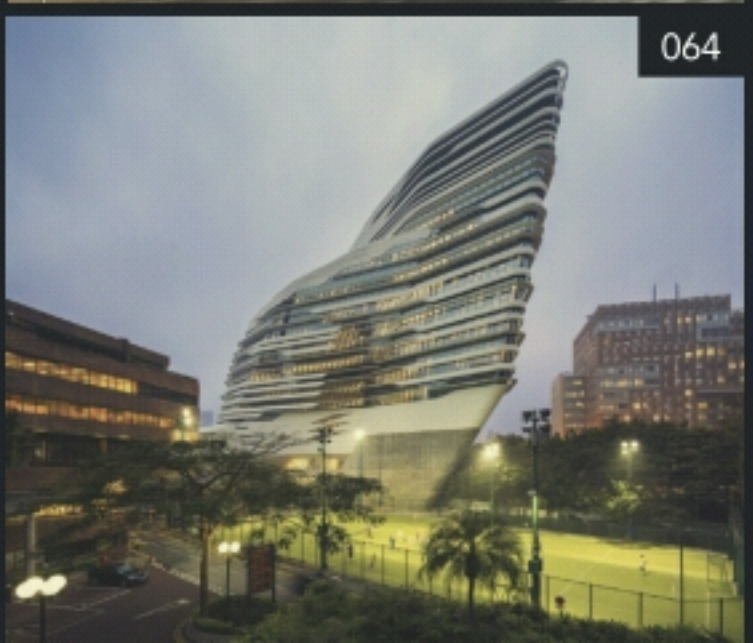

042


010


050

PROGETTI IN DETTAGLIO
PROJECTS IN DETAIL

MATERIA
MATERIALS AND SYSTEMS



AN ARCHITECTURE OF INCLUSIVITY

Brigitte Lacombe

Architecture is ultimately about wellbeing; the creation of pleasant environments for all aspects of life. But it is also important to create environments that uplift, enthuse and inspire. Architecture can carry within it an inherent sense of vitality and optimism; the ability to connect communities and build their futures. Ecological sustainability and social disparity are the defining challenges of our generation, and the architecture of inclusivity offers solutions to these key challenges.

The complexities and dynamism of contemporary life cannot easily be cast into the simple orthogonal grids and blocks of the 20th Century architecture of Henry Ford's era. Therefore, we must move beyond this architecture of separation and compartmentalization, towards an architecture for the 21st Century that addresses the richness, complexity and interconnectivity of contemporary lives.

Over 50% of the world's growing population now lives in cities, and this figure is constantly increasing. Cities today are much more diverse and must now cater for a whole range of people with different cultures, experiences and influences. As an architect, your client is no longer a single person or type of person, your client is everyone. This has been really exciting and adds to the richness of civic space.

All buildings should have a civic component. Even a commercial high-rise building should offer a civic program – public spaces in which people can connect with each other and use as their own. Developers in both the public and private sectors must invest in these public spaces. They are a vital component of a rich urban life and cityscape – they unite the city, tie the urban fabric together. An arts centre, opera house or a dance school, sports centre or public park, by the very nature of their cultural and civic importance, these spaces are accessible to everybody – which eliminates the segregation and divisions in our cities.

There has been a move in many of the world's cities over the past years towards walled, private spaces. As architects, we must react to this. Over many centuries, architects have been trying to liberate the city, to open it up, to make our cities more porous and accessible. Building these gated communities within the city, like mini Kremlins, is a huge step backwards; it is a very archaic way of living.

Part of architecture's job is to make people feel good in the spaces where we live, go to school or where we work - so we must be committed to raising standards. Having a home is a crucial issue – not only in terms of a shelter and the basics – but also for wellbeing, for a better life. There's enough total wealth today that all people should have a good home - not just the very rich. Social housing, schools, hospitals and other vital infrastructure has always been based on the concept of minimal existence – that shouldn't be the case today. Architects now have the skills and tools to address these critical issues – and many communities around the world are committed to resolving them.

Architecture can also assist in the reorganization of living patterns in a meaningful way so that everyone can contribute to a more ecologically and socially sustainable society. Huge advances in design technology are enabling architects to rethink form and space, using new construction methods and materials in development such as sophisticated architectural facades that can take almost any shape and have the structural, weatherproofing, and insulation properties compressed into a single layer and can be easily fabricated and assembled anywhere. 3D Printing is also opening many new possibilities for the construction industry.

We can now create buildings that optimize their environment to suit the needs of their users and changing weather patterns at any given moment. We are also researching new materials, design techniques and construction methods that also bring significant environmental benefits. As these different clusters of development - sustainability and the applicability of the materials - come together, we are beginning to find significant solutions to urgent ecological challenges we face today. Our task as architects is to continue this progress.

We must marry these new concepts of accessibility and integration with the incredible advances in ecologically sound materials and construction practices. We must not look at the disparate parts, but understand them as a whole, working together to create integrated communities that present solutions to the defining ecological and social challenges of our time. It is only through an architecture of inclusivity that we will create a truly sustainable society.

Zaha Hadid

UN'ARCHITETTURA DELL'INCLUSIVITÀ

L'architettura, in ultima analisi, si occupa del benessere, della creazione di ambienti gradevoli per tutti gli aspetti della vita. Ma è anche importante creare ambienti che diano arricchimento, entusiasmo e ispirazione. L'architettura può portare con sé un senso intrinseco di vitalità e di ottimismo, la capacità di mettere in contatto le comunità e di costruire il loro futuro. La sostenibilità ambientale e la disparità sociale sono le sfide decisive della nostra generazione e l'architettura dell'inclusività offre soluzioni per queste sfide fondamentali.
La complessità e il dinamismo della vita contemporanea non possono essere facilmente inquadrati nei semplici blocchi e nelle griglie ortogonali dell'architettura del XX secolo tipiche dell'era di Henry Ford. Quindi dobbiamo andare oltre questa architettura di separazione e compartimentazione, verso un'architettura per il XXI secolo che tenga conto della ricchezza, della complessità e dell'interconnettività della vita contemporanea.
Attualmente più del 50% della crescente popolazione mondiale vive in città e questa cifra è in costante aumento. Oggi le città sono molto più varie e devono far fronte alle esigenze di una pluralità di persone che hanno culture, influenze ed esperienze differenti. Come architetto, il tuo cliente oggi non è più una singola persona o un solo tipo di persona, il tuo cliente è la pluralità delle persone. Questo è un fatto molto emozionante e accresce la ricchezza dello spazio pubblico.
Tutti gli edifici dovrebbero avere una componente pubblica. Anche un edificio a torre commerciale dovrebbe offrire un programma civico - spazi pubblici in cui le persone possano mettersi in contatto tra di loro e utilizzandoli come fossero propri. Gli operatori immobiliari, sia nel settore pubblico che in quello privato, devono investire in questi spazi pubblici. Essi sono una componente vitale per la ricchezza della vita e del paesaggio urbano: uniscono la città, legano il tessuto urbano. Un centro per l'arte, un teatro d'opera o una scuola di danza, un centro sportivo o un parco pubblico, per la natura stessa della loro importanza culturale e civica, sono spazi accessibili a tutti e questo elimina la segregazione e le divisioni all'interno delle nostre città.
Negli ultimi anni in molte città del mondo ci si è orientati verso spazi privati, con barriere opache. Come architetti, dobbiamo reagire a questa tendenza.
Nel corso di molti secoli gli architetti hanno tentato di liberare la città, di aprirla, di rendere le nostre città più permeabili ed accessibili. Costruire queste comunità recintate all'interno della città, come dei piccoli Cremlini, è un enorme passo indietro; è un modo di vivere molto arcaico.

Parte del lavoro che l'architettura deve compiere è far sì che le persone si sentano a proprio agio negli spazi in cui vivono, vanno a scuola o lavorano, per cui dobbiamo impegnarci per elevare gli standard. Avere una casa è una questione cruciale non solo per avere un riparo e soddisfare i bisogni di base, ma anche per star bene, per avere una vita migliore. Oggi, nel complesso, ci sono ricchezze sufficienti perché tutti possano avere una buona casa, non solo chi è molto ricco. Il social housing, le scuole, gli ospedali e altre infrastrutture vitali sono sempre state basate sul concetto di soddisfare il minimo necessario: oggi non dovrebbe essere così. Ora gli architetti possiedono le competenze e gli strumenti per affrontare queste problematiche critiche e molte comunità nel mondo si impegnano per risolverle.
Inoltre l'architettura può contribuire in maniera significativa alla riorganizzazione dei modelli di vita, così che ognuno possa contribuire a una società più ecologica e socialmente sostenibile. I forti progressi compiuti nelle tecnologie per la progettazione stanno consentendo agli architetti di ripensare forme e spazi, usando nuove modalità costruttive e materiali in fase di sviluppo, come sofisticate facciate architettoniche che possono assumere praticamente ogni forma, che concentrano le caratteristiche strutturali, di impermeabilità e di isolamento in un unico strato e possono essere facilmente fabbricate e assemblate ovunque. Anche la stampa 3D sta aprendo molte nuove possibilità per l'industria delle costruzioni.
Oggi noi possiamo creare edifici che ottimizzano il loro ambiente in modo da soddisfare le esigenze dei loro utenti e adeguarsi in qualsiasi momento alle mutevoli condizioni climatiche. Inoltre stiamo ricercando nuovi materiali, tecniche progettuali e metodi costruttivi che daranno significativi benefici ambientali. Con il congiungersi di questi diversi agglomerati di sviluppo - la sostenibilità e l'applicabilità dei materiali - stiamo iniziando a trovare soluzioni significative per le sfide urgenti che oggi dobbiamo affrontare in campo ambientale.
Il nostro compito di architetti è quello di portare avanti questo progresso. Dobbiamo coniugare questi nuovi concetti di accessibilità e di integrazione con gli incredibili progressi riguardanti le procedure costruttive e i materiali ecologicamente migliori. Non dobbiamo guardare alle singole parti, ma dobbiamo comprenderle come un tutt'uno, lavorando insieme per creare comunità integrate che presentino soluzioni per le decisive sfide ambientali e sociali del nostro tempo. è solo con un'architettura dell'inclusività che creeremo una società veramente sostenibile.

Zaha Hadid

FORMALISM AND FORMAL RESEARCH

BY PATRIK SCHUMACHER

'Formalism' and its derivative 'formalist' (as noun or adjective) remain potent derogatory terms within architectural discourse. It is taken for granted that the creative investment into the elaboration of forms detracts from the concern for function. A moment's reflection reveals that all concern for a design's functioning must be achieved by working on its form. My formula for this truism: *Form delivers Function.*
My comprehensive theory of architecture – the theory of architectural autopoiesis[1] – identifies the distinction of form and function as the lead distinction of architecture, whereby form is the discipline's *internal reference*, i.e. our immediate responsibility, and function is the discipline's *external reference*, i.e. our ultimate responsibility to society mediated via our production of forms. My theory further emphasizes that the functionality designers (in constrast to engineers) should be concerned with is social (rather than technical) functionality. In most general terms the societal function of architecture and the design disciplines is the spatio-morphological ordering and framing of all social interaction processes.

Aggressive Formalism - A Productive Provocation

Since the designers' immediate work is inevitably always concerned with forms, the charge of formalism must be elaborated as follows: The "formalist" works on the form for the *form's sake, without regard to its function*, concerned *only* with formal characteristics and matters of visual appearance. If this concern with formal characteristics is exclusive and entails the rejection of functional concerns then this formalist stance might be hard to defend. According to my theoretical reconstruction of our discipline's rationality (AoA, Vol.1) architecture is operationally encoded by the double code of utility (functionality) and beauty (formal resolution) and a one-sided insistence on formal aspects only is accordingly indeed an anomaly. However, there have been protagonists within architecture who have explicitly taken this stance. Most notable Peter Eisenman and Jeff Kipnis. Peter Eisenman's notorious 1976 article "Post-functionalism" argues that architecture lags behind abstract art and absolute music and must cast aside its concern with function to emancipate itself and become truly modern. In the early 1990s Jeff Kipnis turned the maledictum "Formalism" into his primary positive headline slogan for his AA Graduate Design Group. His investment into formal research and innovation was also posited as exclusive, claiming to represent the discipline's true essence. However, we should not allow ourselves to get distracted by the (ultimately questionable) exclusiveness of these protagonist's investments and ask if the attention to formal-compositional properties like symmetry, proportion, repetition, rhythm, syncopation, dynamic equilibrium etc. makes sense and can be defended at all, and on which grounds.
Although we must certainly reject the proposition that the exclusive concern with formal characteristics is or should become the discipline's true stance and calling, I will argue for the necessity of investing in formal research and innovation. This also entails the necessity of the elaboration of formal concepts and an attendant terminology for formal analysis. Jeff Kipnis together with Greg Lynn – building on prior protagonists like Robert Venturi, Colin Rowe, Peter Eisenman and Bernard Tschumi – have made a crucial contribution to both the innovation of our formal repertoires and to the elaboration of an attendant conceptual repertoire and terminology for tracking and guiding these formal innovations. Key concepts proposed by Kipnis and Lynn include e.g. 'intensive coherence' (Kipnis) and 'multiple affiliation' (Lynn). We might also add here Stan Allen's concept of 'field'. Key concepts from the earlier protagonists mentioned include 'difficult whole' (Venturi), 'phenomenal transparency' (Rowe), 'space of becoming' (Eisenman) and 'super-imposition' (Tschumi). All these protagonists and concepts have had their precursors: Giedion, Moholy, Kepes etc.

A Productive Division of Labour

My defense of this (largely American) formalist tradition rests on the recognition that formal repertoires are ultimately functional problem solving repertoires and that design choices benefit from the explicit reflection on formal possibilities. Therefore formal research and innovation can be looked at as a partial contribution to the discipline's problem solving capacity and we can posit a division of labour between formal analysis and repertoire expansion on the one hand and the analysis of contemporary programmatic/functional requirements (with programme innovations) on the other side, together enhancing the innovative, ultimately functionally oriented instrumentalisation forms.

My defense of formalism even goes so far as to concede the rationality of exclusive concentration on formal and formal-conceptual innovation as a rather useful (if not absolutely necessary) aspect of an effective division of labour. The overall research effort aiming at innovative forms delivering innovative functional capacities must be divided and phased. Formal research should not always already be burdened with immediate functional concerns. Research should be modelled on the evolutionary dialectic of variation (mutation, recombination) and selection (testing). Variation must come first and should not be too tightly pre-constrained by preconceived functionality criteria. Here resides the implicit rationality of the exclusiveness of the formalists pursuit. Their rejection of function is ultimately false – and suicidal if generalised across the discipline – but it is an important protective stance that protects the crucial zone of formal research against overly impatient functionalists. I have therefore theorized Eisenman's and Kipnis' aggressively formalist polemical position as a 'necessary false consciousness'. There is another aspect that feeds into the tendency of disciplinary division of labour to become exclusive and overly myopic. Not everybody has a comprehensive set of talents or commands the fully comprehensive range intellectual resources to intellectually encompass the overall scope

PATRIK SCHUMACHER

È entrato a far parte dello studio Zaha Hadid Architects come progettista nel 1998. Attualmente è senior partner dello studio e coautore a project partner dei principali e più noti progetti dello studio come il MAXXI: Museo Nazionale delle Arti del XXI Secolo a Roma, l'Edificio Centrale della BMW a Lipsia, la Opera House a Guangzhou in Cina e il Dongdaemun Design Plaza a Seul. Patrik ha studiato architettura all'Università di Stoccarda e alla Southbank University di Londra. Nel 1999 ha conseguito il dottorato di ricerca presso il Dipartimento di Scienze Culturali dell'Università di Klagenfurt. Patrik è codirettore del Laboratorio di Ricerca di Progettazione (DRL) della Architectural Association di Londra. Ha condiviso con Zaha Hadid le cattedre presso la Illinois University di Chicago, Yale, la Columbia nonché presso la Scuola di Design di Harvard. Nel 2010 e 2012 ha pubblicato in due volumi la sua opera magna teorica dal titolo "L'Autopoiesi dell'Architettura".

He joined Zaha Hadid Architects as a designer in 1988. He is the senior office partner and designer of the practice as well as a co-author and project partner on seminal projects such as the MAXXI: National Museum of 21st Century Arts in Rome, the BMW Central Building in Leipzig, the Guangzhou Opera House in China and the Dongdaemun Design Plaza in Seoul. Patrik studied architecture at the University of Stuttgart and at the Southbank University in London. In 1999 he received his doctoral degree Dr.Phil. from the Institute for Cultural Sciences at the University of Klagenfurt.
Patrik is a co-director of the Design Research Laboratory (DRL) at the Architectural Association School of Architecture. He has co-taught with Zaha Hadid at the University of Illinois - Chicago, Yale, Columbia and at the Graduate School of Design at Harvard University. In 2010 and 2012 he published the two Volumes of his theoretical opus magnum 'The Autopoiesis of Architecture'.

of the discipline's task. Exclusive focus is therefore not only often a virtue but an inevitable limitation. This is still viable, if the distributed collective effort covers the full scope of the task and some generalists step up and offer synthesis within a unified theory.

Two Analogies: Mathematics and Syntax

The following analogies might help to clarify the role of formal research with its often formalist outlook: We should learn to respect our purely formalist protagonists in analogy to the respect we grant to the protagonists of pure mathematics, some of whom might conceive of their field's essence as indeed untethered from the mundane concerns of mathematic's pragmatic utilisation. This myopic and ultimately indefensible self-conception might nevertheless be conducive towards mathematical creativity which might eventually, via more pragmatically grounded colleagues, find its way into unexpected utilisations. Once more: Formal Repertoires are Problem Solving Repertoires. Another analogy that might be helpful here is the division of labour in linguistics between the subfields of syntax, semantics and pragmatics. There is no doubt that language evolution is ultimately pragmatically driven. It is equally beyond doubt that its communicative potency depends on the systemic intricacy of its formal structures which are being investigated in the theory of syntax in abstraction from its semantic and pragmatic dimensions. Investment into formal research and architectural formalism might thus be seen in analogy to the linguists' research investment into syntactic structures.

Synthesis: Confronting the Formal Apparatus with a Catalogue of Functional Tasks

What is lacking in the formalist tradition is the explicit attempt to confront the well elaborated formal repertoire (together with its conceptual-terminological apparatus) with a relevantly abstracted descriptive apparatus elaborating the functional task domain. There have been no systematic attempts to map formal repertoires (solution-types) onto functional problem registers (problem-types). Within individual professional design projects, functional problems search for formal solutions and in academic design research projects the inverse procedure is often attempted: initially formalistically generated formal structures and possibilities are searching problem domains and tasks where they might be productively put to work. This is important and necessary. Both routes will lead to the sought after new, productive form-function correlations that constitute the endgame of design and design research. However, this is intuitive design work without systematic reflection. A systematic theoretical confrontation and mapping would provide a useful guide to the search efforts in either direction. So far however, the teaching of composition has remained isolated from any functional concerns. The division of labour has been too perfect, leading to hermetic specialist discourses and even sub-disciplines, taught in separate classes by separate professors, e.g. the teaching of architectural composition as purely formal discipline. However, if we go back to the beginning of our discipline in the Renaissance we find clues about how compositional issues are tied in instrumentally with functional issues. From Alberti we learn how the composition of the city-form relates to the order of the polis and how the composition of the house relates to the social order of the household. From Palladio we learn how the rules of symmetry and proportion codify structural and environmental logics. The only attempt at systematically mapping a formal register onto a catalogue of functional effects I have come across so far is Alejandro Zaera-Polo's attempt to systematically correlate a formal classification of basic building forms with a set of functional micro-political effects in his article 'The Politics of the Envelope'[ii].
My own account of a similar system of form-function correlations with respect to building forms and another attempt at correlating a typology of distinct city geometries with distinctive social ordering capacities or biases can be found in Vol.2 of my treatise 'The Autopoiesis of Architecture'[iii].
However, these attempts only deliver a tentative beginning and signal the possibility and importance of a task yet to be accomplished. However, with respect to the ground breaking formal innovations of the 1980s and 1990s alluded to above I have been emphasizing their functional rationality and historical pertinence for more than 20 years. 'Superimposition' (spatial overlap or interpenetration) lines up with the interpenetration of social domains like overlapping departmental responsibilities or interpenetrating domains of competency and interdisciplinary teams in contemporary corporate organisations. Continuously differentiated 'field conditions' with 'gradients' or 'morphing trajectories' align with increasing economies of scope and the proliferation of hybrid in-between conditions, as well as with the blurring of a corporation's boundaries within collaborative networks as well as with the blurring of departmental boundaries within corporations as becomes manifest in open, differentiated office –landscapes. The concept of a 'space of becoming'

relates to the condition of field transformations but also to the related concept of 'phenomenal transparency' which aligns with the condition of multiple audiences with multiple perspectives and respectively divergent readings of the same space. The concept of 'multiple affiliation' aligns with the complexity of urban synergetic social and programmatic networks, where a particular functional offering relates and ties in with multiple different complementary urban offerings and their users. These alignments of the new innovative set of formal tropes and compositional registers with new social-functional tendencies and requirements is crucial for the effective utilisation and thus validation of the formal research and innovations in question. The founding of the Design Research Laboratory (AAADRL) at the Architectural Association School of Architecture in 1996 was explicitly geared towards this task of socio-functional validation of the recent formal innovations that had captured the imagination of the field at that time, while also continuing the formal research via new computational tools, albeit always guided by this sense of productive historical pertinence with respect to the socio-functional requirements and opportunities of the new era of post-fordism[iv].

The Functional Rationality of Zaha Hadid's Radical Formal Innovations

The formal innovations from the 1980s and 1990s owe much to the radical formal iconoclast innovations delivered by the early work of Zaha Hadid. What were the major expansionary moves that Zaha gifted to our discipline? We can identify and distinguish four wholly original and empowering 'discoveries': Explosion, Calligraphy, Distortion, and Landscape.

The design moves indicated by these concepts were so radical that they seemed utterly surreal or absurd at first. (I guess that's why nobody else had ever hit upon them before.) They are formal repertoire expansions, and thus might initially viewed as artistic moves, and indeed they first showed up in Zaha's often conceptual, rather obscure, seemingly utterly abstract drawings and paintings. However, in the hands of a designing architect a formal repertoire is always also a problem solving repertoire, addressing the problems of spatial organisation and morphological articulation in the service of the prospective building's social and technical functioning. An expanded formal repertoire thus delivers an enriched problem solving tool box. So we need to grasp and discuss the new moves together with their empowering affordances, affordances that are indeed congenial to the requirements and desires of our time, and are thus potentially able to deliver momentous advantages. Of course, we should not expect these advantages to become fully manifest in the early explorations, but they have started to become manifest in our major mature works of recent years (and I argue they promise further compelling manifestations):

Explosion: The surreal move to treat explosion as a compositional move soon reveals its power when a plan is no longer a closed and rigid array of nested boxes but a centrifugal force-field that is eminently permeable, varied, yet ordered through the directed and progressive expansion of all fragments in relation to the implied point of origin. This dynamic and lawful fragmentation of the plan was a decisive step forward from the random, disordered fragmentation proposed by deconstructivism. However, the explosion delivers more order than just random fragmentation. It delivers a lawfully differentiated field where the fragments' directionality points back to the shared origin and where the increasing spacing of fragments also indicates the relative position in the field.

Calligraphy: The surreal move of translating the dynamism of rapid calligraphic sketching literally (by hard-lining them with the use of an expansive range of 'French curves' or 'ship curves') into an architectural drawing that is then read as an intended geometry to be built, rather than treating the pulsing curvature of a rapid sketch as a rough accidental indication of an ideal geometric form meant to be rationalized into straight lines and arcs. Zaha's intricately variegated curves offer more adaptive versatility to push into irregular sites or bulge to give room to internal requirements where needed. Further, as a function of the changing centrifugal force of the rapid hand's/pen's acceleration and deceleration, the curves and curvelinear compositions display lawful and coherent trajectories that we can recognize as coherent and legible figures, each with its own poise, dynamism or degree of fluidity. This increases legibility and navigability in the face of unavoidable programmatic diversity and complexity.

Distortion: The surreal move of using perspectival projection not to depict regular forms but to create and posit distorted forms. Zaha built up pictorial spaces within which multiple perspective constructions were fused into a seamless dynamic texture. One way to understand these images is as attempts to emulate the experience of moving through an architectural composition revealing a succession of rather different points of view. Another, more radical way of reading these canvasses is to abstract from the implied views and to read the distorted forms as a peculiar

architectural world in its own right with its own characteristic forms, compositional laws and spatial effects. Usually these compositions are poly-central and multi-directional. All these features are the result of the use of multiple, interpenetrating perspective projections. Often the dynamic intensity of the overall field is increased by using curved instead of straight projection lines. The projective geometry allows us to bring an arbitrarily large and diverse set of elements under its cohering law of diminution and distortion. The resultant graphic space very much anticipates the later (and still very much current) concepts of *field* and *swarm*. The effect achieved is very much like the effects later pursuit with digitally simulated "gravitational fields" that distort a mesh or grip, align, orient and thus integrate a set of elements or particles within the digital model.

Landscape: Instead of dissecting and ordering space by walls the landscape analogy suggests a continuously flowing space where transitions are soft, where zones are gradually differentiated and bleed into each other, where a smooth topographic ground relief rather than hard edges structure spatial relations.

This opens up a whole new ontology of spatial and territorial definition, no longer premised on outline but on a modulated internal texture. We are talking of fields rather than spaces. In contrast to (empty) spaces, fields (like a forest) are full, filled with a modulated medium, i.e. structured via continuously differentiated field conditions and thus navigation can follow various vectors of gradual field transformation like density or directionality, rather than only orienting by tracking boundary crossings. Zaha's painterly techniques like color modulations, fading effects and pointillism techniques also reinforce this new ontology of blurred boundaries and soft transitions, which is congenial to the contemporary social life and institutions where the formerly strict distinction of social classes and arenas are blurred and where domains of competency interpenetrate and bleed into each other.

Through these congenial and empowering repertoire expansions a new language of architecture with a much increased versatility (and thus problem solving capacity), and with a much richer, more expressive and more communicative repertoire of organisation and articulation (and thus ordering capacity) was born. The writings of the American formalists (Kipnis, Lynn etc.) delivered a congenial terminology for the verbal articulation of our work.

This explicit conceptual articulation is important as it focusses attention and directs the further innovative thrust. The relationship between theory and creative practice is a progressive dialectical back and forth rather than a hierarchical sequence.

From Composition to Communication: Organisation, Articulation, Signification

The general insight that formal repertoires are problem solving repertoires is valid with respect to the problem domains of both technical and social functionality. The dimension of social functionality poses three distinct task dimensions: organisation, articulation and signification, as elaborated in my theory of architectural autopoiesis[v]. Organisation is concerned with functional lay-out: the spatial distribution of programme domains concerned with physical distances, adjacencies and connections. The traditional term 'composition' entails this organisational effort. However, composition has always implied more than mere adjacency arrangements. It was and is understood as an "artistic" effort regulated by aesthetic criteria, i.e. it is concerned with the visual appearance of a spatial arrangement. I am putting the phrase artistic in quotation marks here because I am distinguishing design sharply from art and insist – also with respect to composition – that the design effort (in distinction to contemporary art) is ultimately always instrumental according to pragmatic criteria. We must grasp the instrumentality of visual appearance. Mere organisation is not enough to secure the ordering of social processes (social functionality). A building functions only if its organisation is legible and navigable to its users. Adjacencies, connections and programmatic designations work only if they are recognized. In complex urban scenes and arrangements this is not trivial. Users must be able to perceptually decompose the scene into units of interaction. They need to recognize what belongs and works together. This is facilitated by composition in the second, "artistic" sense. It is the attempt to articulate the spatial organisation into a perceptually tractable scene, to ascertain that the massing emphasizes the functional hierarchy of elements and their relation, that it remains legible from different perspectives, that important features like primary entrances become conspicuous etc. For instance, the concern that a composition be balanced, positing dynamic equilibrium as formal-compositional value, entails the effort to unify an asymmetric arrangement (like the Dessau Bauhaus) by allowing us to locate a 'centre of gravity' around which an asymmetric ensemble can unify into a figure rather than falling apart or disappearing into an amorphous background context. Composition in

this sense is about the visual clarification of significant functional relations. This task demands that the forms we select are not only selected according to their physical functioning but also with respect to their visual functioning, i.e. we must orchestrate the formal problem solving choices according to the criteria of overall articulation. This implies that we must bring all functional features under a ruthless project-specific formal-compositional system or formal regime. We must try to turn structurally necessary features into characterizing features or else suppress them (lest they distract), while we must accentuate features that must be easily recognisable for the smooth social functioning of the building. The imposition of a formal regime for the sake of the design's communicative capacity does not have to interfere with the physical functioning of the design. The technical and formal choices available today are rich enough to allow for two sets of criteria to be at play in constraining the selection of functioning forms. An expanded repertoire makes this easier. In my theory this visual aspect of the task of composition is termed 'phenomenological articulation' and in order to clarify this dimension I am distinguishing the 'phenomenological project' from the 'organisational project'. The architectural project further comprises the semiological project which further articulates the design with respect to social communications beyond the mere identification of figures and their relations. The task of semiological articulation (signification) leads as beyond the scope of the compositional stance and demands that the design of a building (or complex of buildings) is conceived as the design of a system of signification positing information-rich visual communication.

Once more this semiological project – just like the organisational and the phenomenological project must resort to forms. To what else could it resort?

And once more we must construct and impose a rich formal system or formal regime to deliver this project. And again, with a third set of constraining criteria at play the expanse and richness of the underlying formal repertoire is a crucial factor for the chances of success of the project. In this context it is important to remind ourselves of the evident fact that parametricism offers a much richer and versatile formal repertoire than all the prior styles put together.

The built environment's social functionality resides in its communicative capacity. The elaboration of spatial complexes as systems-of-signification is the key to upgrading architecture's core competency.

The semiological project implies that the design project systematizes all form-function correlations into a coherent system of signification, designed as a network of similitudes and contrasts, organized via a spatio-visual grammar. On the basis of the formal research and repertoire of parametricism the design of semiological systems-of-significations with a much enhanced information-richness and communicative capacity becomes possible.[vi]

[i] *Patrik Schumacher,* ***The Autopoiesis of Architecture****, Volume 1, A New Framework for Architecture, published by John Wiley & Sons, 2010*

[ii] *Alejandro Zaera-Polo,* ***'The Politics of the Envelope – A Political Critique of Materialism'****, in: Volume, Archis, 2008, #17, pp 77–105.*

[iii] *Patrik Schumacher,* ***The Autopoiesis of Architecture****, Volume 2, A New Agenda for Architecture, published by John Wiley & Sons, March 2012, 6.1.5 Problem-types vs Solution-types*

[iv] *See the author's publications from this time:*
Patrik Schumacher, ***Productive Patterns****, Published In: architect's bulletin, Operativity, Volume 135 - 136, Slovenia and in: architect's bulletin, Volume 137 - 138, Slovenia, German:* ***Produktive Ordnungen****, Published In: ARCH+ 136,* ***Your Office Is Where You Are****, Berlin, 1997*
Patrik Schumacher, ***Business - Research – Architecture****, Published In: Daidalos 69/70, Deutsche Ausgabe: Wirtschaft Forschung Architektur, 1999*
Patrik Schumacher, ***The AA Design Research Lab - Premises, Agenda, Methods****, Paper delivered at Conference: Research and Practise in Architectutre, at Alvar Aalto Academy, Published in:* ***Research and Practise in Architecture****. Edis: E.Laksonen, T.Simons, A.Vartola, Building Information Ltd., 2000*

[v] *Patrik Schumacher,* ***The Autopoiesis of Architecture****, Volume 2, A New Agenda for Architecture, published by John Wiley & Sons, March 2012, 6.2 Order via Organisation and Articulation*

[vi] *See: Patrik Schumacher,* ***Advancing Social Functionality via Agent Based Parametric Semiology***
Published in: AD Parametricism 2.0 – Rethinking Architecture's Agenda for the 21st Century, Editor: H. Castle, Guest-edited by Patrik Schumacher, AD Profile #240, March/April 2016, and:
Patrik Schumacher, ***Parametric Semiology – The Design of Information Rich Environments***
Published in: Architecture In Formation – On the Nature of Information in Digital Architecture, edited by Pablo Lorenzo-Eiroa and Aaron Sprecher, Routledge, Taylor and Francis, New York, 2013

OPERE COSTRUITE BUILT PROJECTS

24 Cathcart Rd, London, UK, 1986
Moonsoon Restaurant (Interior), Sapporo, Japan, 1990
Vitra Fire Station, Weil am Rhein, Germany, 1993
IBA Housing, Berlin, Germany, 1993
Blueprint Pavilion Interbuild 95, Birmingham, UK, 1995
Land Formation One / Landesgartenschau, Weil am Rhein, Germany, 1999
Mind Zone in the Millenium Dome, London, UK, 1999
Car Park and Terminus Hoenheim-Nord, Strasbourg, France, 2001
Bergisel Ski Jump, Innsbruck, Austria, 2002
Lois & Richard Rosenthal Center for Contemporary Art, Cincinnati, USA, 2003
BMW Central Building, Leipzig, Germany, 2005
Phaeno Science Center, Wolfsburg, Germany, 2005
Hotel Puerta America (Interior – first floor), Madrid, Spain, 2005 (in **Arketipo** n. 22/2008, pp. 90, 96-99)
Ordrupgaard Museum Extension, Copenhagen, Denmark, 2005
Spittelau Viaducts Housing, Vienna, Austria, 2006
BMW Showroom Spittel, Leipzig, Germany, 2006
Maggie's Fife Cancer Centre, Kircaldy, UK, 2006
R Lopez de Heredia Wine Pavilion, Haro, Spain, 2006
Nordpark Cable Railway Stations, Innsbruck, Austria, 2007
Mobile Art: Chanel Contemporary Art Container, Hong Kong/Tokyo/New York/Paris, China/Japan/USA/France, 2008-2011
Zaragoza Bridge Pavilion, Zaragoza, Spain, 2008
Neil Barrett Flagship Store, Tokyo, Japan, 2008
Home House Club (Interior), London, UK, 2008
JS Bach Chamber Music Hall, Manchester, UK, 2009
Burnham Pavilion, Chicago, USA, 2009
MAXXI: National Museum of XXI Century Arts, Rome, Italy, 2009 (in **Arketipo** n. 44/2010, pp. 88-103)
Shanghai Expo 2010 Egypt Pavillion, Shanghai, China, 2010
Evelyn Grace Academy, London, UK, 2010 (in **Arketipo** n. 64/2012, pp. 60-73)
Sheikh Zayed Bridge, Abu Dhabi, UAE, 2010
Guangzhou Opera House, Guangzhou, China, 2010 (in **Arketipo** n. 59/2011, pp. 74-89)
Glasgow Riverside Museum of Transport, Glasgow, UK, 2011
London Aquatic Centre, London, UK, 2011 (in **Arketipo** supplemento n. 13/2012, pp. 10-14, 50-55)
Roca London Gallery, London, UK, 2011
CMA CGM Head Office Tower, Marseille, France, 2011
Pierresvives Archive & Library, Montpellier, France, 2012 (in **Arketipo** n. 74/2013, pp. 48-61)
The Eli & Edythe Broad Art Museum, East Lansing, USA, 2012
Galaxy Soho Beijing, China, 2012
Stuart Weitzman Boutique, Milan, Italy, 2013
Serpentine Sackler Gallery London UK 2013 (in **Arketipo** n. 104/2016, pp. 92-103)
Library & Learning Centre, Vienna, Austria, 2013
Heydar Aliyev Center, Baku, Azerbaijan, 2013 (in **Arketipo** n. 89/2014, pp. 40-55)
Jockey Club Innovation Tower, Hong Kong Polytechnic **University**, Hong Kong, China, 2014 (in **Arketipo** n. 104/2016, pp. 64-77)
Dongdaemun Design Plaza, Seoul, Korea 2014 (in **Arketipo** n. 104/2016, pp. 78-91)
Stuart Weitzman Boutique, Hong Kong, China, 2014)
City Life Residences Milan Italy 2014 (in **Arketipo** n. 96/2015, pp. 38-45)
Nuremberg Messe Nuremberg, Germany, 2014
Issam Fares Institute, American University of Beirut, Beirut, **Lebanon 2014** (in **Arketipo** n. 104/2016, pp. 28-35)
Wangjing Soho, Beijing, China 2014 (in **Arketipo** n. 104/2016, pp. 42-47)
d'Leedon Apartments Singapore, Singapore, 2014
Sky Soho, Shanghai, China, 2014
Fraunhofer ISC Technikum III, Würzburg, Germany, 2014
Investcorp Building for Oxford University at St Antony's College, Oxford, UK, 2015 (in **Arketipo** n. 104/2016, pp. 20-25)
Messner Mountain Museum, Corones South Tyrol, Italy 2015 (in **Arketipo** n. 100/2016, pp. 94-105)
Dominion Office Building, Moscow, Russia, 2015 (**in Arketipo** n. 104/2016, pp. 36-41)
Salerno Maritime Terminal, Salerno, Italy, 2016 (in **Arketipo** n. 79/2013, pp. 31-37 and in **Arketipo** n. 104/2016, pp. 50-63)

OPERE IN COSTRUZIONE PROJECTS UNDER CONSTRUCTION

Port House Headquarters, Antwerp, Belgium, 2016
King Abdullah Petroleum Research, Centre Riyadh, Saudi Arabia, 2016
Mathematics Gallery at the Science Museum, London, UK, 2016
Nanjing Culture and Conference Centre, Nanjing, China, 2017
City of Dreams Hotel & Resort, Macau, China, 2017
520 West 28th Street, New York City, USA, 2017
City Life Tower, Milan, Italy (in **Arketipo** n. 104/2016, pp. 104-111)
Napoli-Afragola High Speed Train Station, Naples, Italy
Capital Hill Residence, Moscow, Russia
Changsha Meishihu International Cultural Centre, Changsha, China
1000 Museum Residential Tower, Miami, USA
Esfera City Center, Monterrey, Mexico
Beijing New Airport Terminal Building Daxing, Beijing, China
King Abdullah Financial District Metro Station, Riyadh, Saudi Arabia
Nuremberg Messe, Phase Two, Nuremberg, Germany
The Opus Tower, Dubai, UAE
Sberbank Technopark, Moscow, Russia
Masaryk Railway Station Central Business District, Prague, Czech Republic
One-North Masterplan, Singapore, Singapore
Eleftheria Square, Nicosia, Cyprus
TSG Beirut Department Store, Beirut, Lebanon
Leeza Soho, Beijing, China
Grand Theatre de Rabat, Rabat, Morocco
Argos Residences, Graz, Austria
Zorrozaure Masterplan, Bilbao, Spain
Al Wakrah Stadium, Al Wakrah, Qatar

PREMI PRINCIPALI MAIN AWARDS

Mies van der Rohe Award (Car Park and Terminus Hoenheim North), 2003
RIBA Worldwide Award (Rosenthal Centre for Contemporary Art), 2004
Pritzker Architecture Prize - Zaha Hadid, 2004
RIBA Medal, European Commercial Building of the Year (BMW Central Building), 2005
RIBA Stirling Prize (MAXXI, National Museum of XXI Century Arts), 2010
Commandeur de l'Ordre des Arts et des Lettres, 2010
WAF World Building of the Year (MAXXI, National Museum of XXI Century Arts), 2010
RIBA Stirling Prize, (Evelyn Grace Academy), 2011
RIBA Award (Guangzhou Opera House), 2011
Dame Commander of the Order of the British Empire (DBE), 2012
London Building Excellence Award 2015 (Serpentine Sackler Gallery)
AJ 120 International Practice of the Year 2015 (Zaha Hadid Architects)
RIBA 2016 Gold Medal