21/04/2017

Giulio Mariano

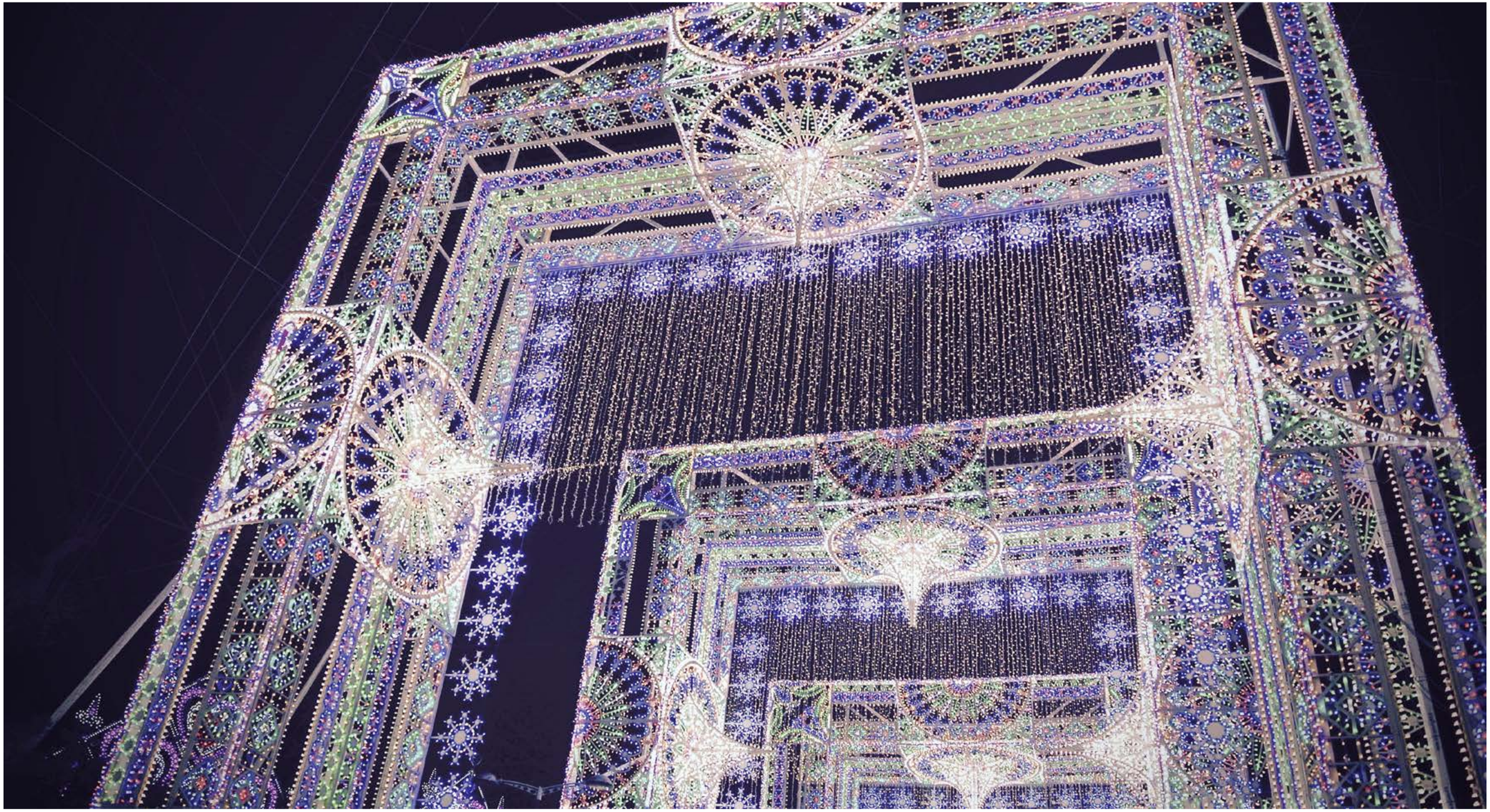
1 _ FASCINATION

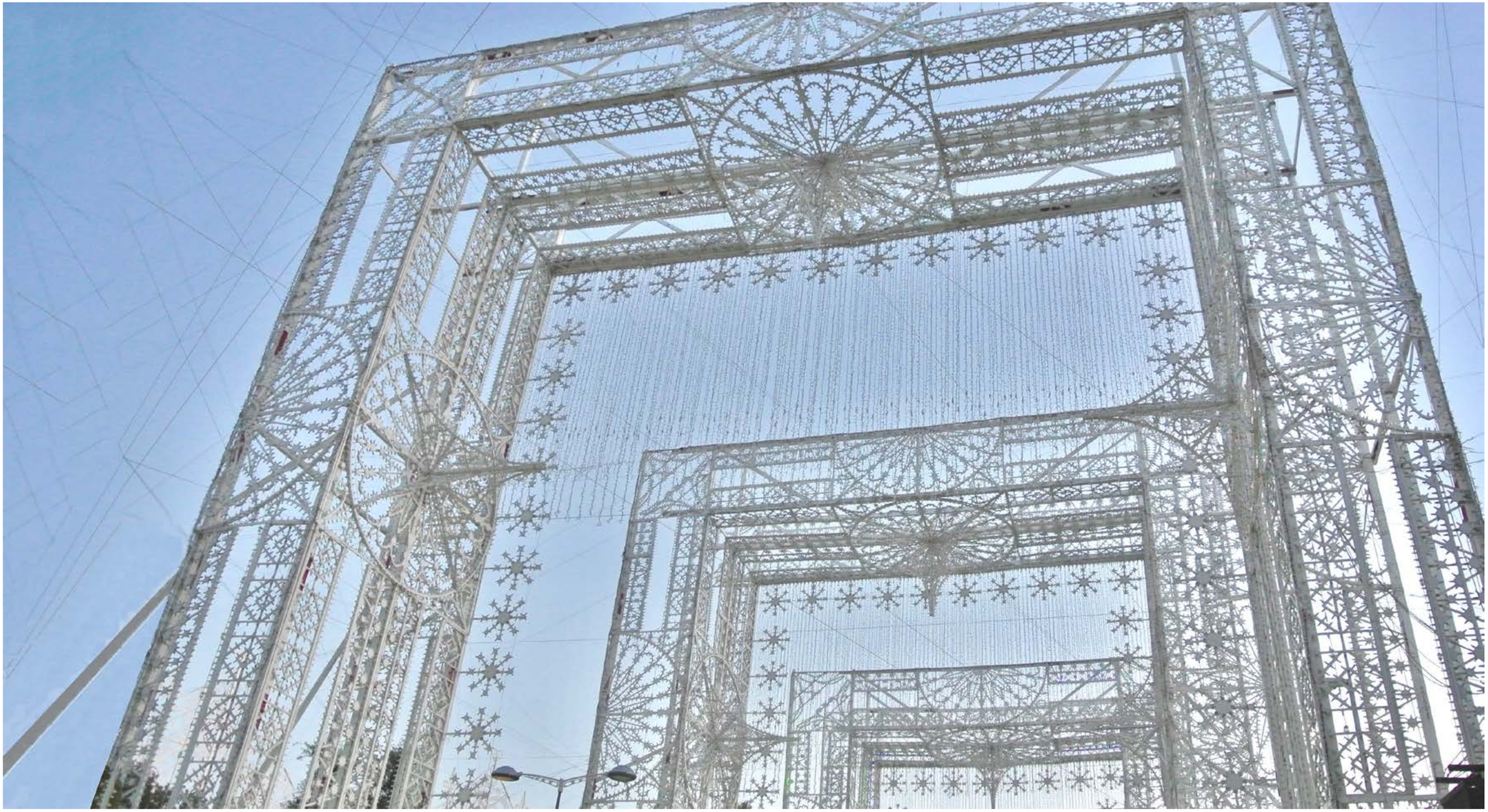
2 _ RESEARCH

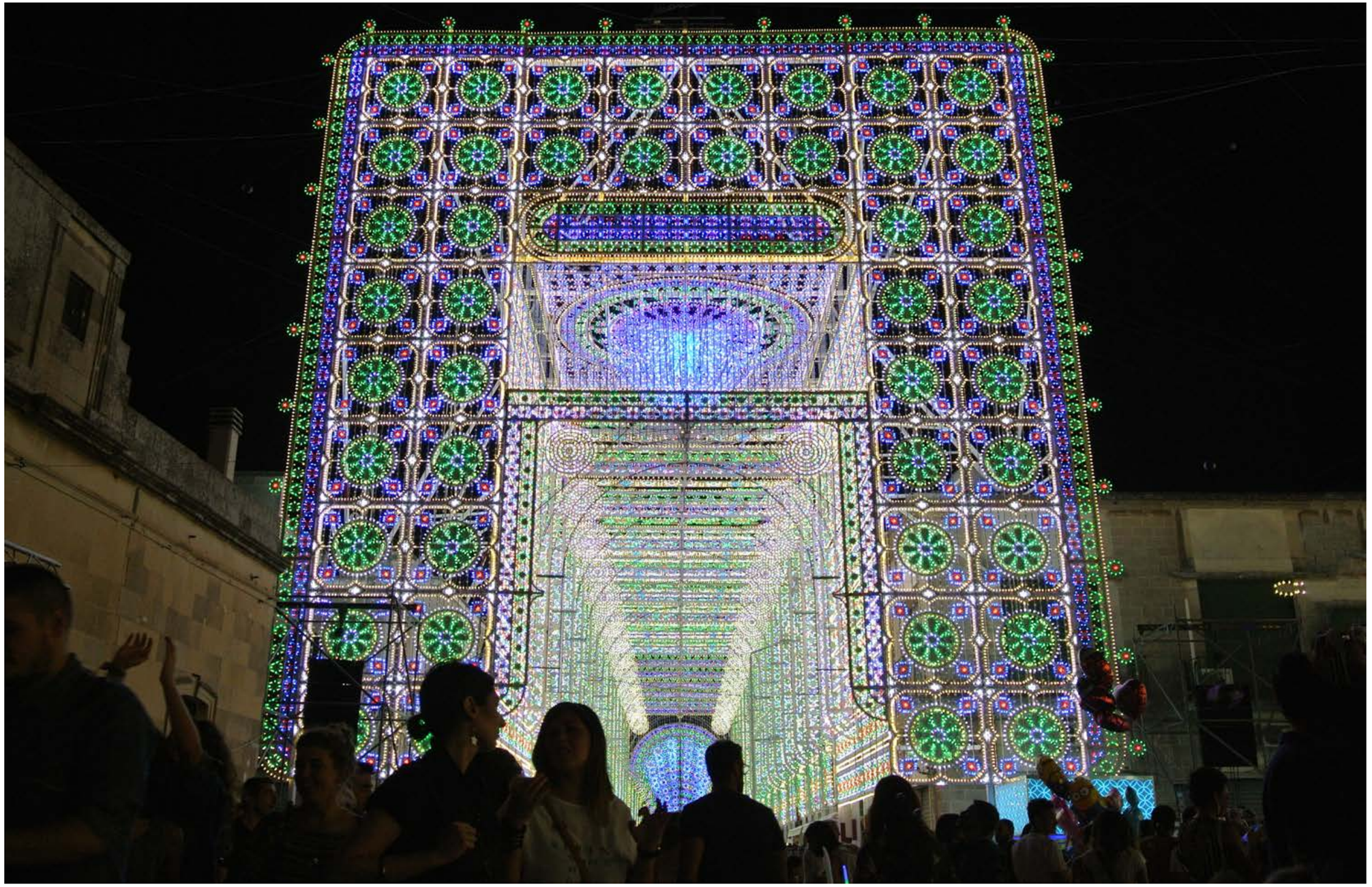
3 _ CONTEXT

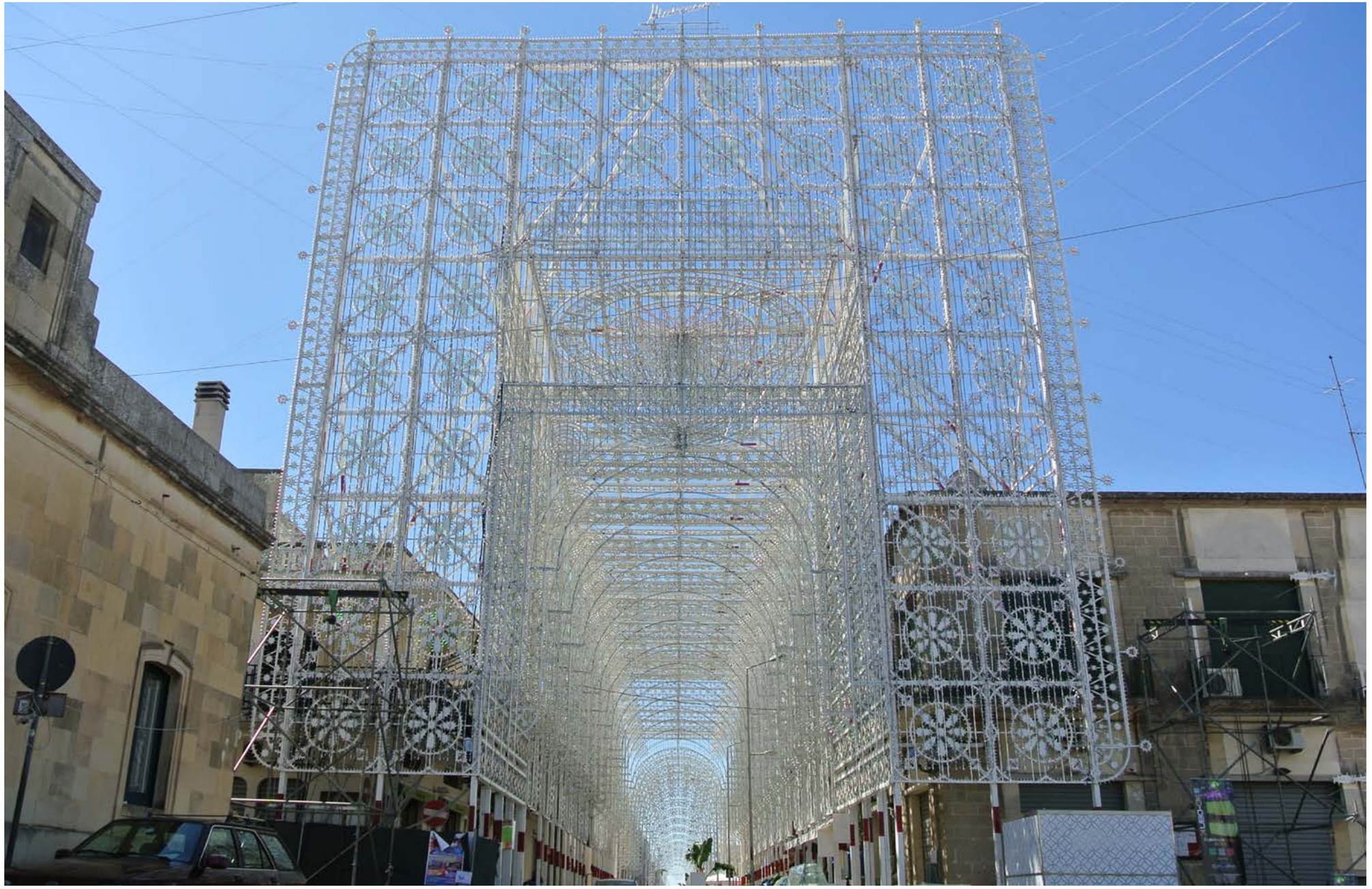
4 _ ARCHITECTURE

5_REFLECTION



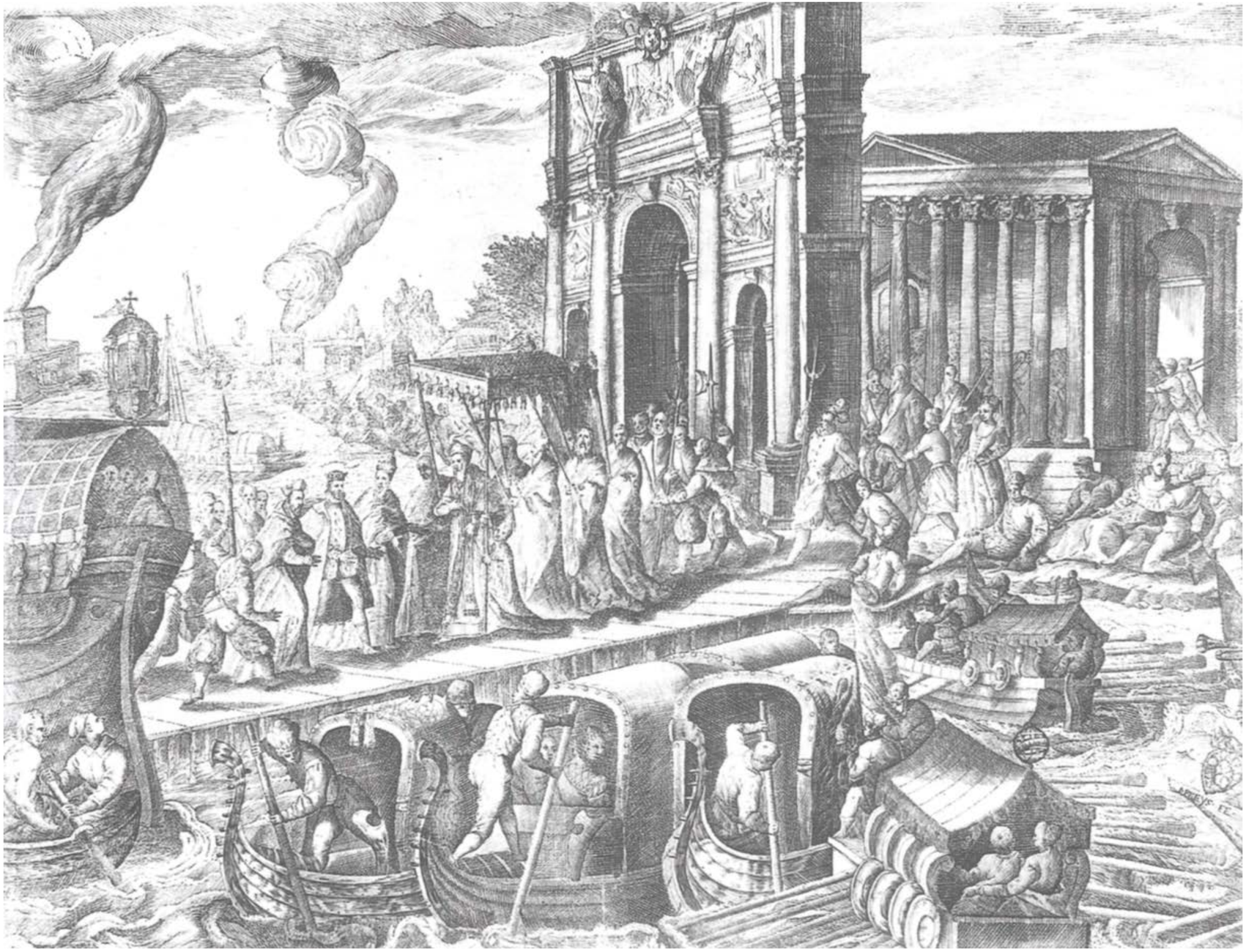


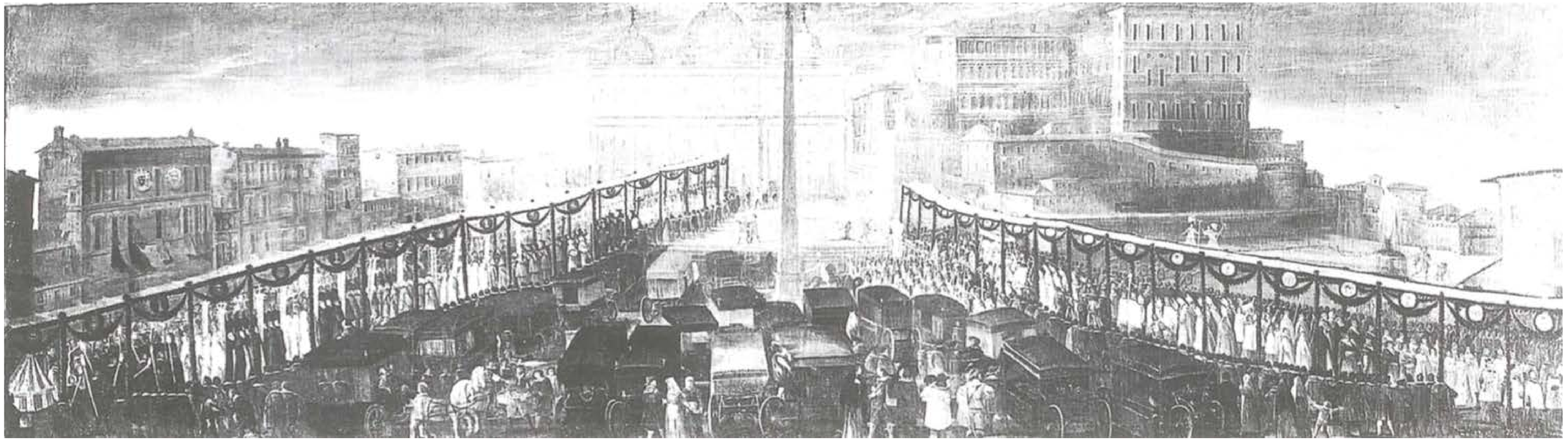


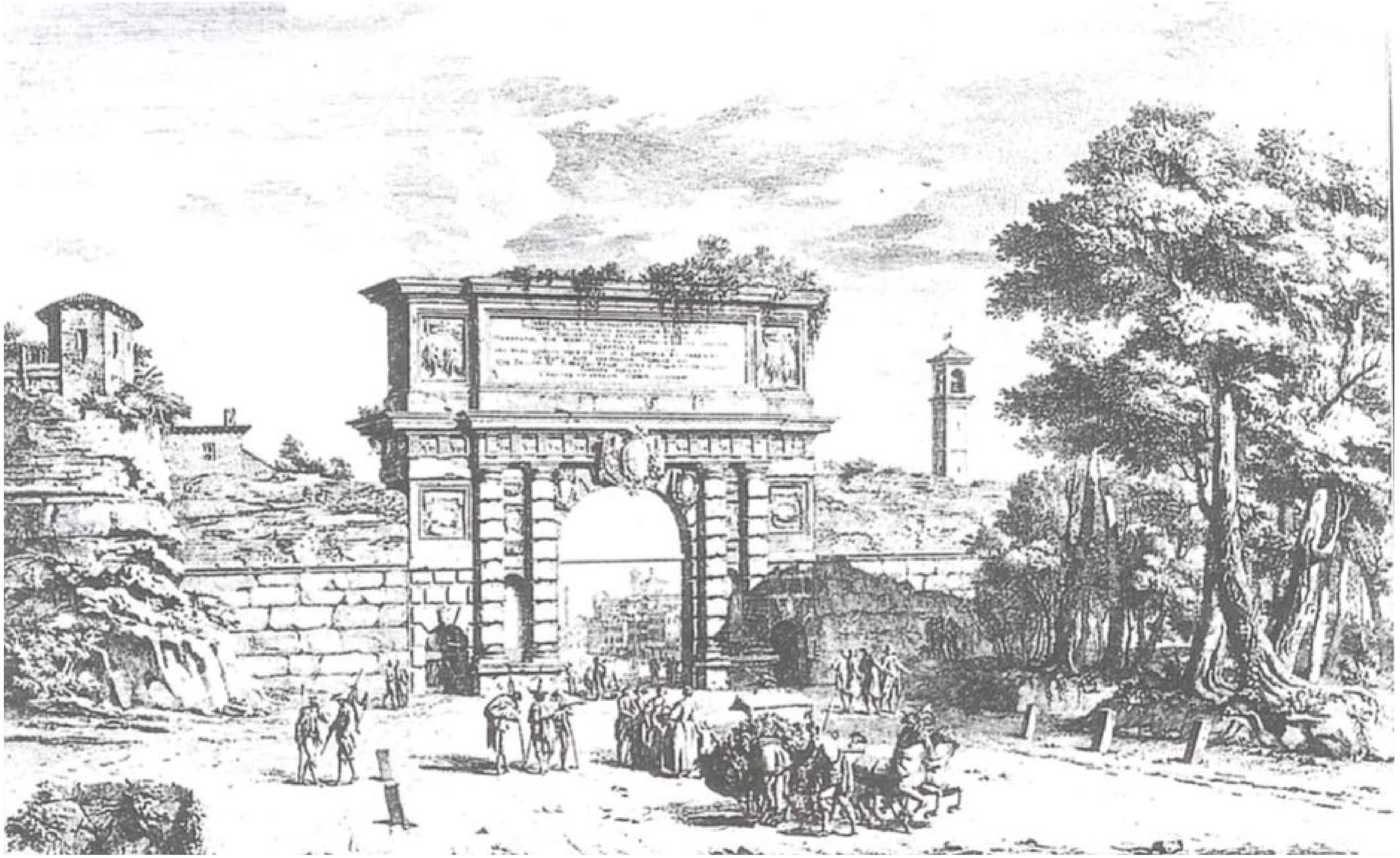


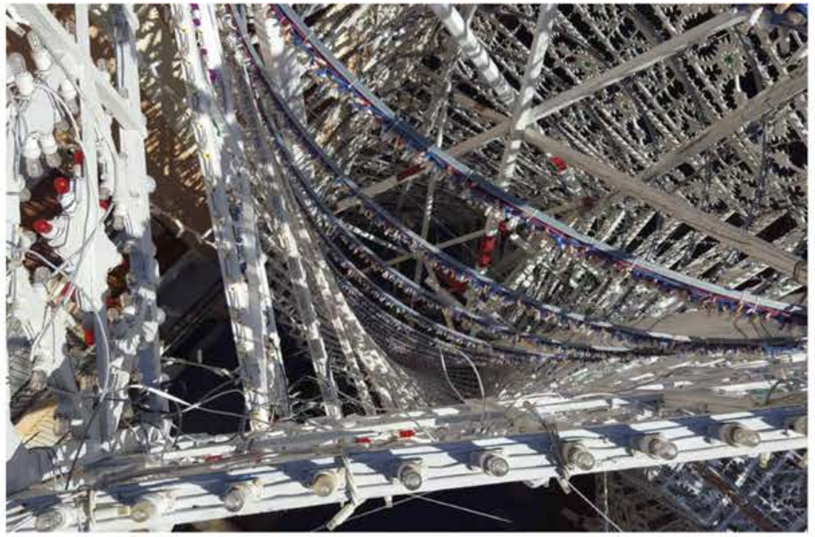

REGISTRO IMPRESE STORICHE
Le imprese che hanno fatto la storia d'Italia
Mariano Light Srl - 1898
Lecce, 18 aprile 2012
IL PRESIDENTE
UNIONCAMERE NAZIONALE
Ferruccio Dardanello
UNIONCAMERE
CAMERE DI COMMERCIO D'ITALIA
Camera di Commercio
Lecce
1862-2012
IL PRESIDENTE
CCIAA LECCE
Alfredo Prete


Strada Principale di S. Cesaria
Festa del 13 e del 14 Settembre
FINE OTTOCENTO










Positive features

Flexibility

Fast, easy assembling
& dismantling

Easy transportation

Low footprint &
low costs

Negative aspects

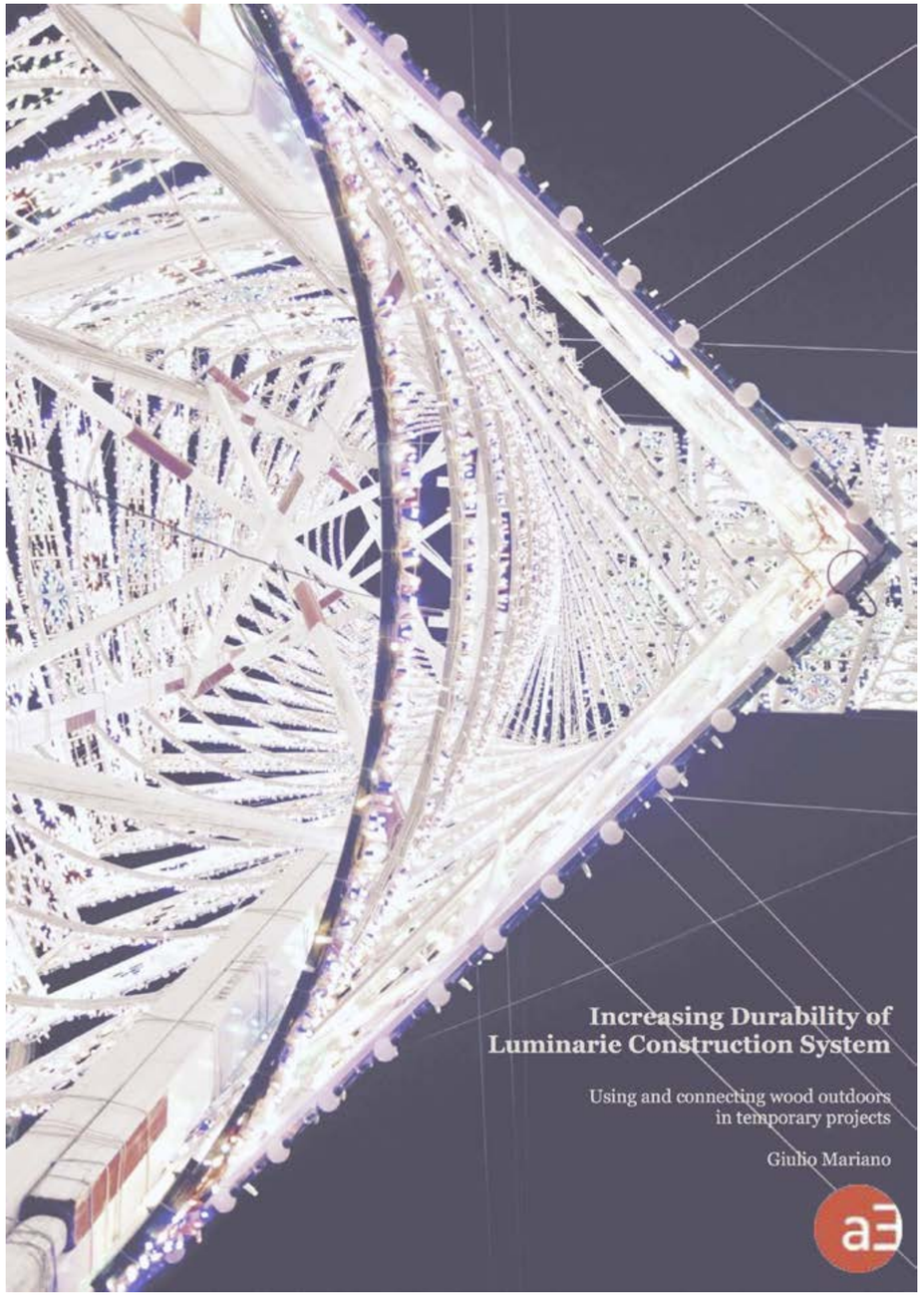
Requires artisanal experience

Not regulated by law

Subject to weather stresses

Low durability

?


Increasing Durability of
Luminarie Construction System
Using and connecting wood outdoors
in temporary projects
Giulio Mariano

Research question

What are the most efficient, resilient, weather-proof devices
to improve the use of a wood temporary construction system wih no foundations,
when exposed to prolonged and/or harsh weather stresses?

Objective

Improve existing temporary construction system: efficiency, durability, reusability, regulated.

Integral protection

Pressure treatment
Acq for poles
Pcp for modules

Coating
sealer instead of
filling undercoat

Independent protection

Metal flashing

Shielding end grain

Overhangs and
Cantilevers

Building orientation

Corrosion prevention

If Carbon steel
must be hot dip galvanised

Avoid contact area
with other materials
or different metals

Use Poliethilene membrane

Connections

Ground
Baseplate

Aboveground
custom designed
with requirements:

-fast and easy
assembly and dismantling

-durability under weather stresses

-high flexiblity

-modularity

-no damage to wood

-regulated by law

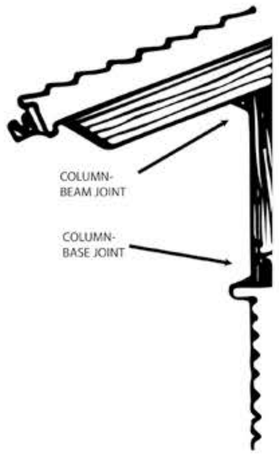
USE CLASS	1	2	3	4	5
GENERAL SERVICE	above ground, covered and dry	above ground, covered with risk of wetting	above ground, not covered	in contact with ground or fresh water	in salt water
EXPOSURE TO WET	none	occasional	frequent	permanent	permanent

Standardized use	Preservative	Solvent characteristics	Surface/handling restrictions	Color	Odor	Fastener corrosion
All uses	Creosote	Oil-type	Oily, not for frequent human contact	Dark brown	Strong, lasting	No worse than untreated
All uses	Ammoniacal copper zinc arsenate	Water	Dry, but contains arsenic	Brown, possible blue areas	Mild, short term	Worse than untreated wood
All uses	Chromated copper arsenate	Water	Dry, but uses are restricted by the EPA*	Greenish brown, weathers to gray	None	Similar to untreated wood
All uses (except in seawater)	Pentachlorophenol in heavy oil	No. 2 fuel oil	Oily, not for frequent human contact	Dark brown	Strong, lasting	No worse than untreated wood
All uses (except in seawater)	Copper naphthenate	No. 2 fuel oil	Oily, not for frequent human contact	Green, weathers to brownish gray	Strong, lasting	No worse than untreated wood
All uses (except in seawater)	Alkaline copper quat	Water	Dry, okay for human contact	Greenish brown, weathers to gray	Mild, short term	Worse than untreated wood
All uses (except in seawater)	Copper azole	Water	Dry, okay for human contact	Greenish brown, weathers to gray	Mild, short term	Worse than untreated wood
Aboveground, fully exposed	Pentachlorophenol in light oil	Mineral spirits	Dry, okay for human contact if coated	Light brown, weathers to gray	Mild, short term	No worse than untreated wood
Aboveground, fully exposed	Oxine copper	Mineral spirits	Dry, okay for human contact	Greenish brown, weathers to gray	Mild, short term	No worse than untreated wood
Aboveground, partially protected (such as millwork)	IPBC + permethrin	Mineral spirits	Dry, okay for human contact	Colorless	Mild, short term	No worse than untreated wood
Indoors (usually for insect protection)	Borates	Water	Dry, okay for human contact	Colorless, blue dye often added	None	No worse than untreated wood

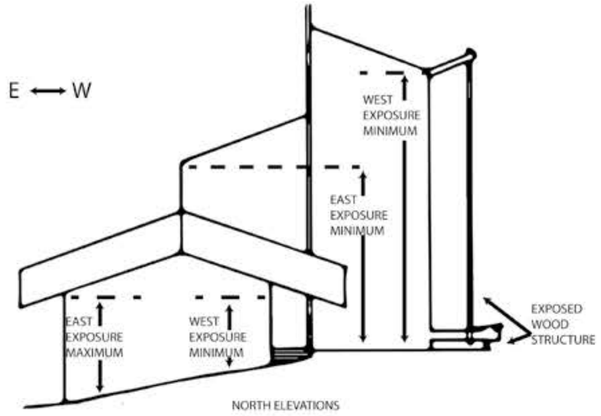
Current

Improvement

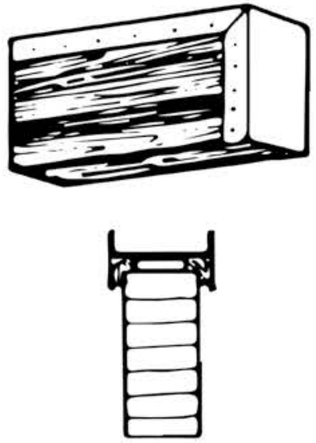
Overhangs & Cantilever



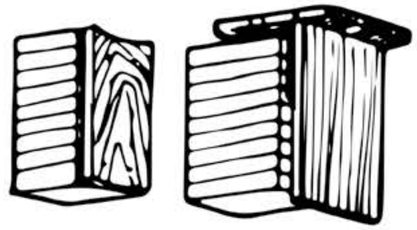
Building Orientation



Flashing



Shielding



Type of w-preservative

ACQ - corrosive

PCP - not corrosive

Type of steel

Carbon steel
subject to corrosion if not treated

Stainless steel resistant to corrosion
even untreated

Type of s-treatment

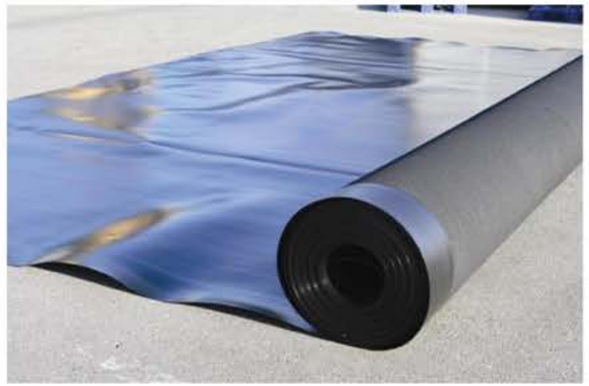
Zinc spray & brush
not effectivo against corrosion

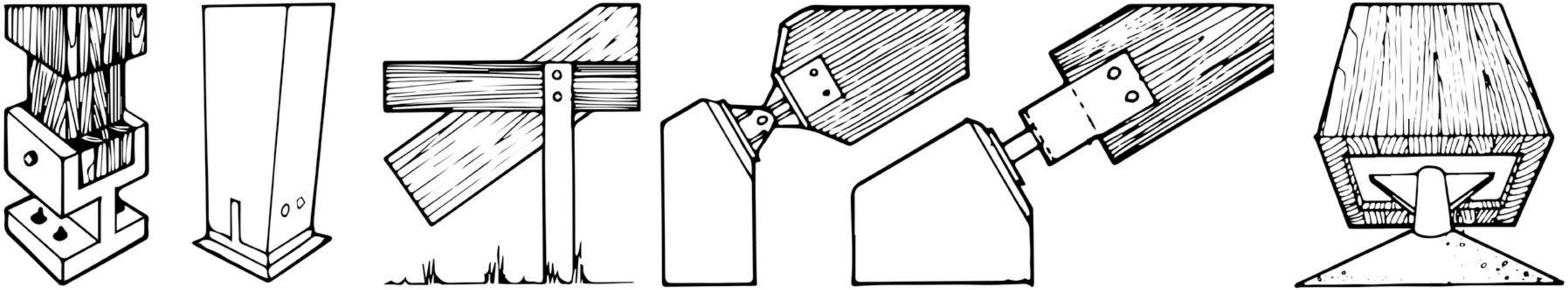
Hot dip galvanised zinc
effective against corrosion

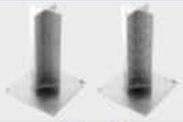
Contact area

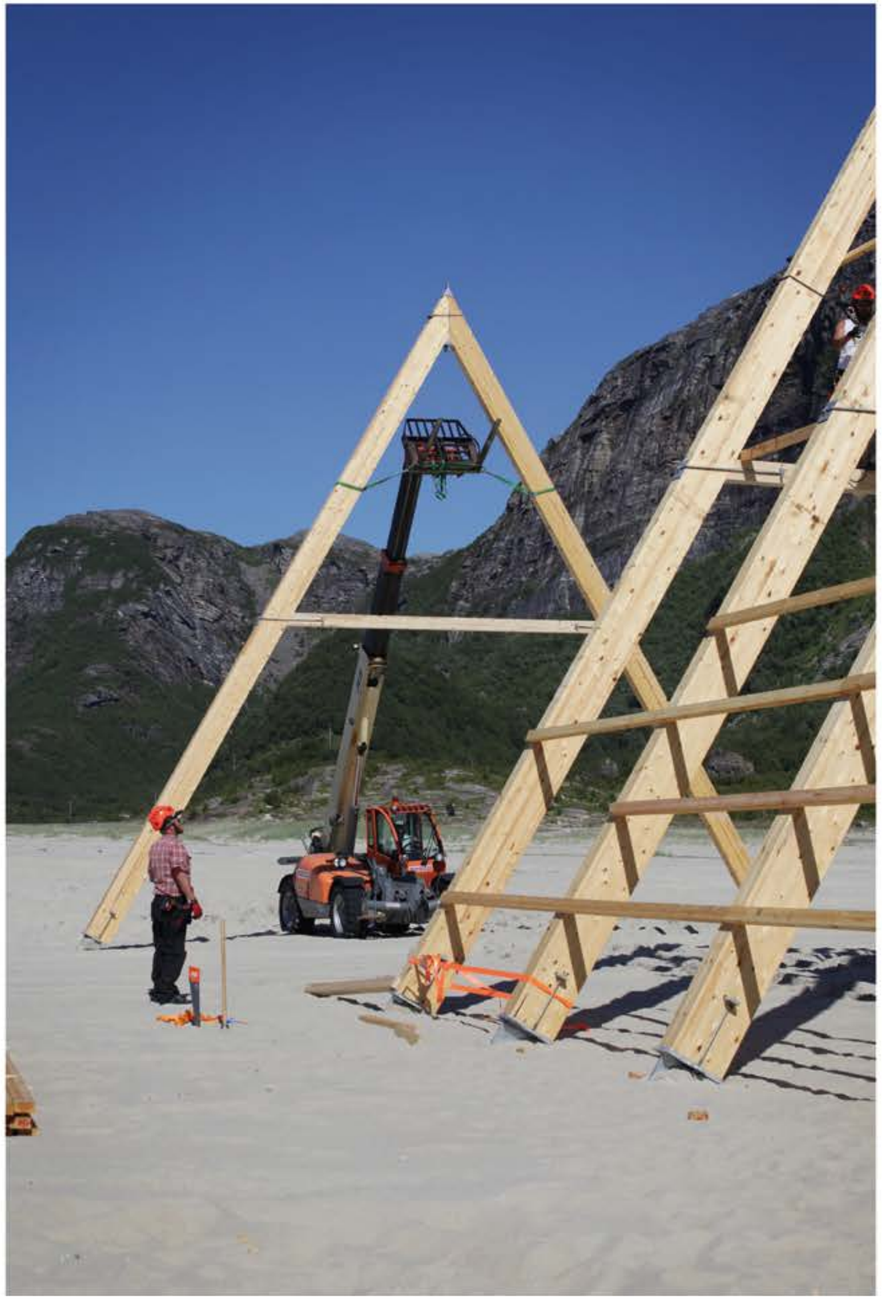
Use Poliethilene membrane

Avoid two kinds of metal





ADJUSTABLE	 **R10** pag. 8	 **R20** pag. 8	 **R30** pag. 9	 **R40 r** pag. 9		
	 **RI40** pag. 10	 **R40 q** pag. 10	 **R70** pag. 10	 **R90** pag. 10		
FIXED	 **X10** pag. 12	 **F70** pag. 13	 **F51** pag. 13	 **F12** pag. 14	 **F11** pag. 14	 **FI11** pag. 15
	 **F10** pag. 15	 **FI10** pag. 15	 **FB10** pag. 15	 **F20** pag. 16	 **F50** pag. 16	 **FI50** pag. 16
	 **FB50** pag. 16	 **M10** pag. 17	 **M20** pag. 17	 **M30** pag. 17	 **S40** pag. 17	 **M51** pag. 18
	 **M52** pag. 18	 **R70** pag. 19	 **M50** pag. 19	 **M60** pag. 19	 **M70 q** pag. 20	 **M70 t** pag. 20
FIXED - DOUBLE	 **FD10** pag. 22	 **FD20** pag. 22	 **FD30** pag. 22	 **FD40** pag. 22		
	 **FD50** pag. 23	 **FDB50** pag. 23	 **FD60** pag. 23	 **FDB60** pag. 23		



Demountable joint requirements

Strong

Easy, fast assembling
& dismantling

Durable to weather stresses

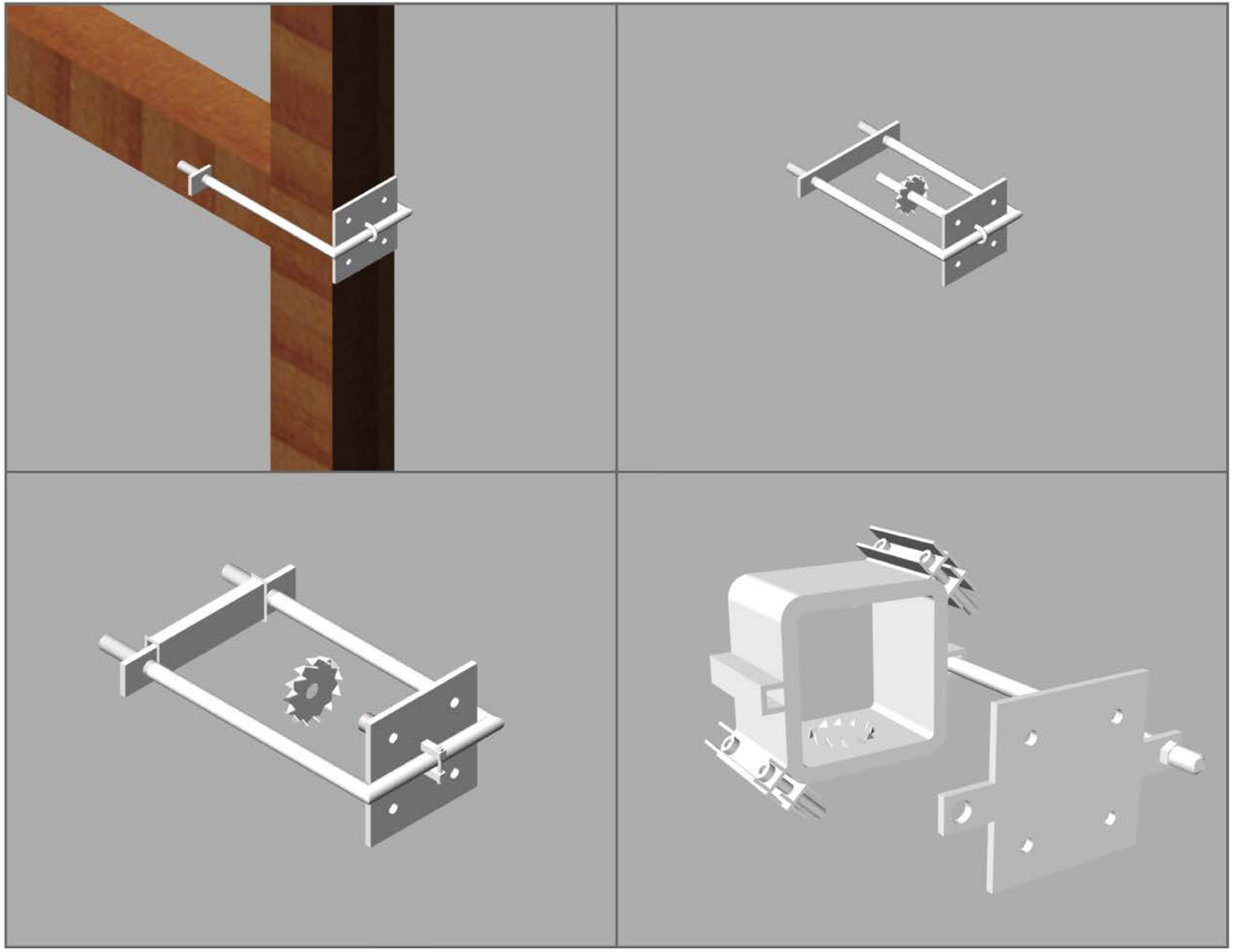
Flexible

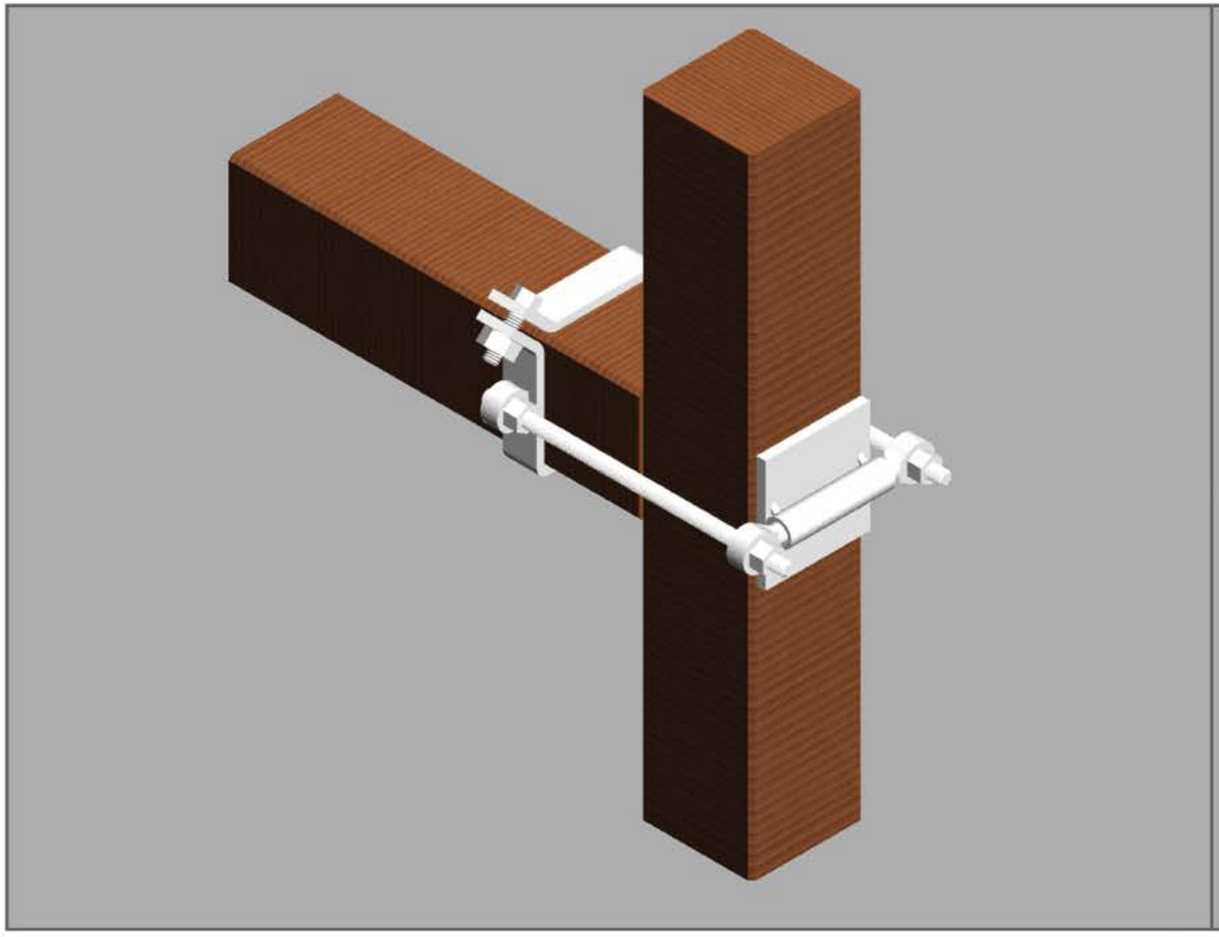
Modular

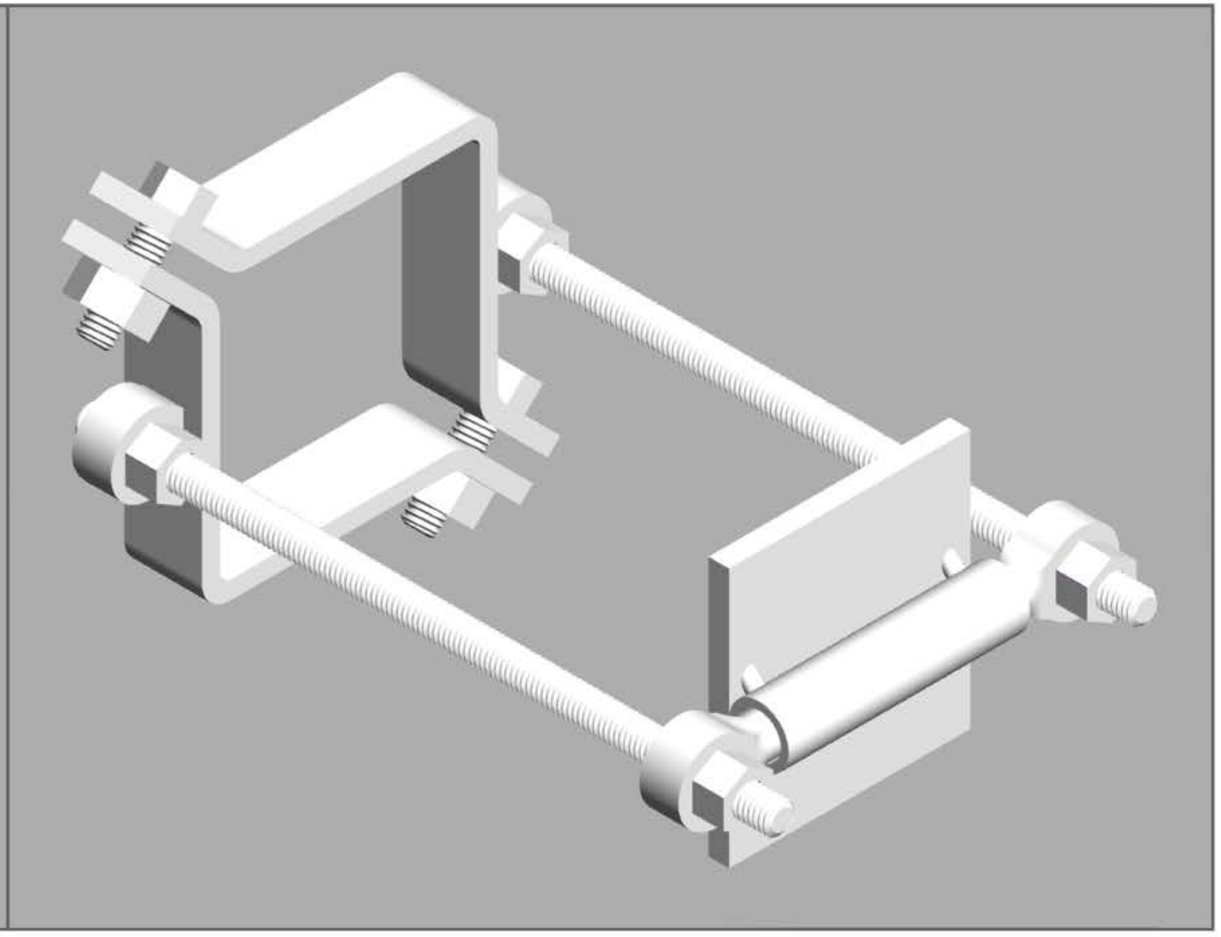
Regulated by law

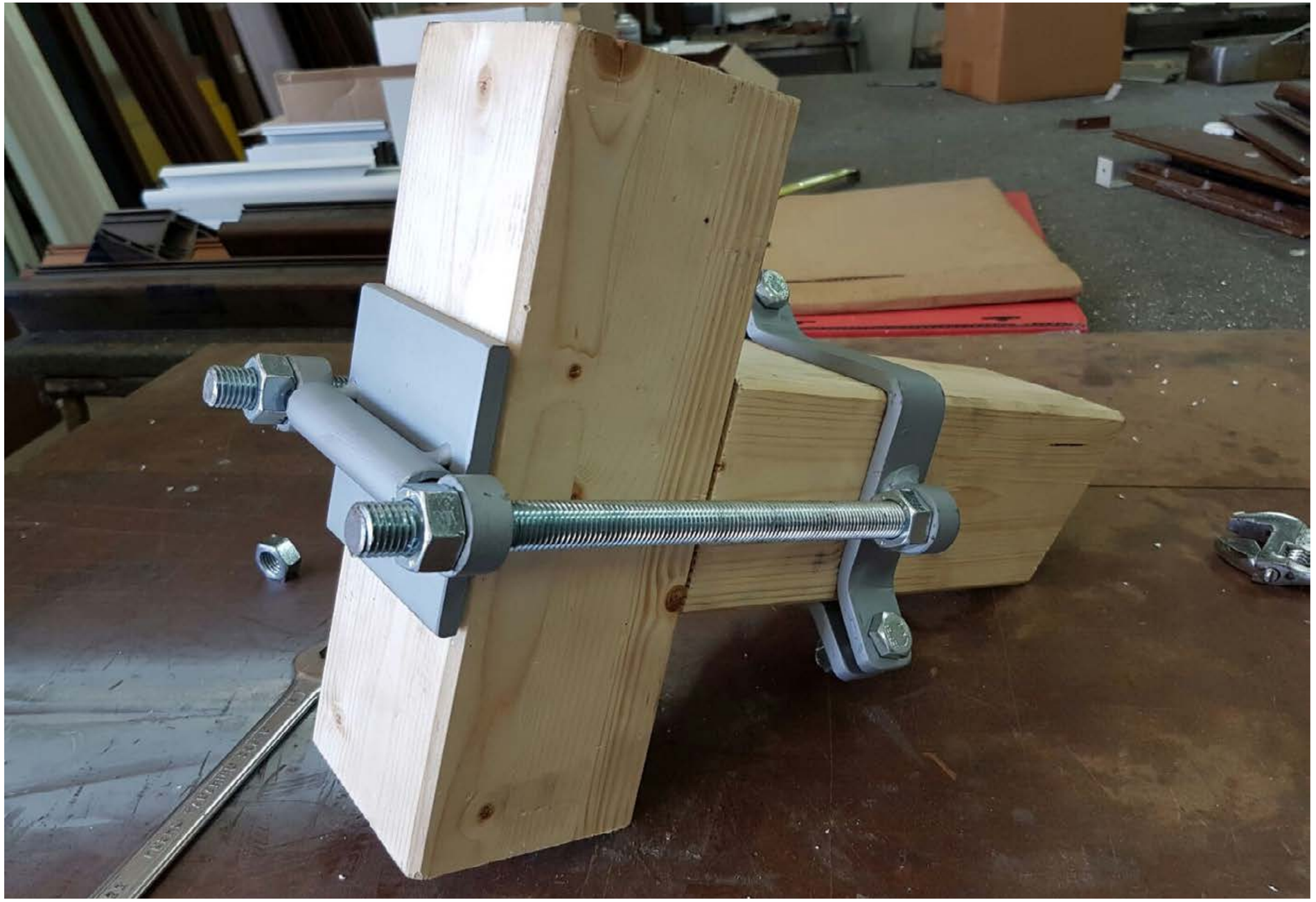
Not damage wood

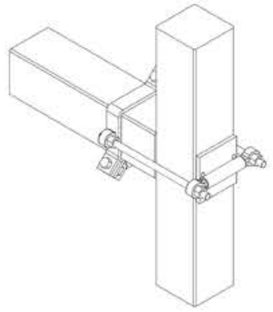
Respond to hygroscopicity of wood

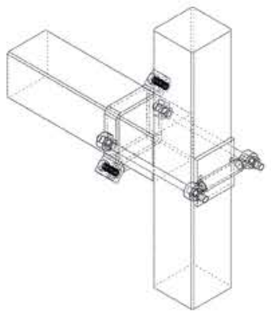


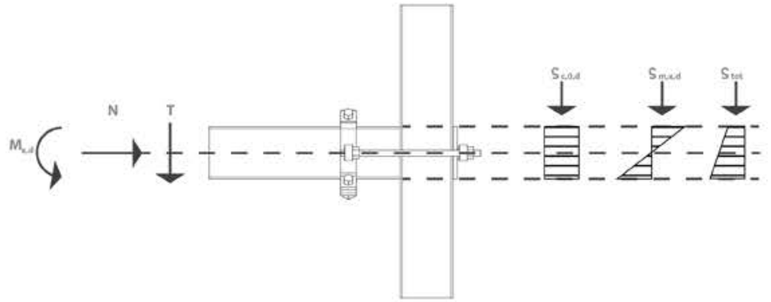












RESISTANCE CALCULATIONS REGULATED BY NTC 08 (ITA)

N = INDUCED PRECOMPRESSION STRESS

$M_{x,d}$ = EXTERNAL MOMENT = 1,285,900 Nmm

T = CONSIDERED ASSIMILATED BY THE CONTACT FRICTIONS

CONSTANTS ARE OF GLULAM SPRUCE ACCORDING TO EN14080

COMPRESSIVE AND BENDING STRESS TEST (PAR 4.4.8.1.8 NTC)

$$\left(\frac{S_{c,0,d}}{f_{c,0,d}}\right)^2 + \frac{S_{m,x,d}}{f_{m,x,d}} \leq 1$$

$$S_{c,0,d} = \frac{N}{A} \qquad f_{c,0,d} = \frac{k_{mod} \cdot f_{c,0,k}}{\gamma_M}$$

$$S_{m,x,d} = \frac{M_{x,d}}{W_x} \qquad f_{m,x,d} = \frac{k_{mod} \cdot f_{m,k}}{\gamma_M} \cdot k_n$$

$$S_{c,0,d} = \frac{5000N}{10^4\,mm^2} = 0.5\ N/mm^2$$

$$f_{c,0,d} = \frac{0.6 \cdot 18\ N/mm^2}{1.5} = 7.2\ N/mm^2$$

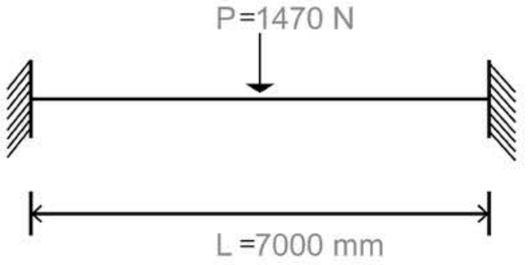
$$S_{m,x,d} = \frac{1,285,900}{167,000} = 7.2\ N/mm^2 \qquad W_x = \frac{100^3}{6} = 167,000\ mm$$

$$f_{m,x,d} = \frac{0.6 \cdot 18\ N/mm^3}{1.5} \cdot 1.08 = 7.78\ N/mm^2$$

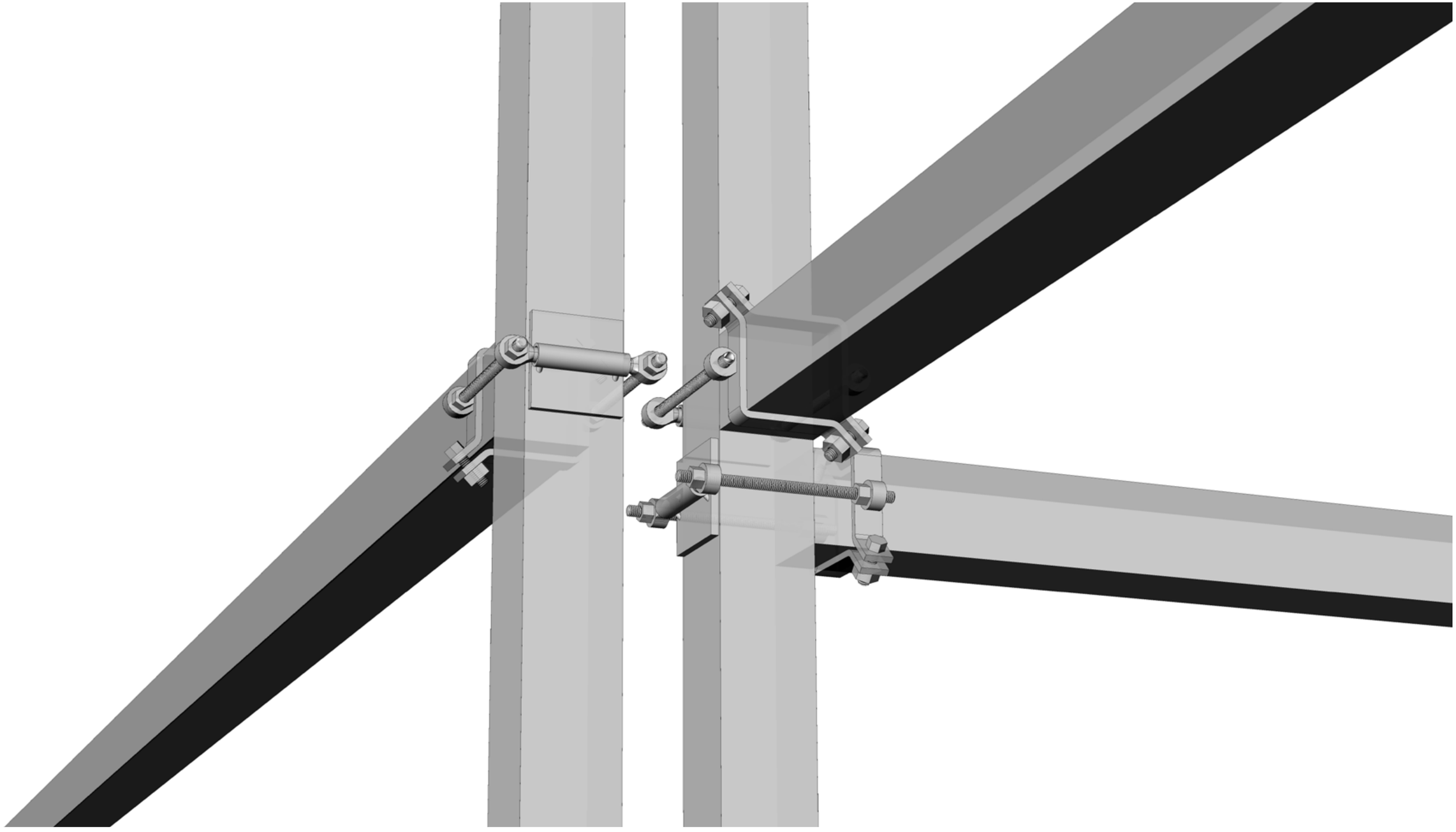
$$\left(\frac{0.5}{7.2}\right)^2 + \frac{7.70}{7.78} = 0.99 < 1$$

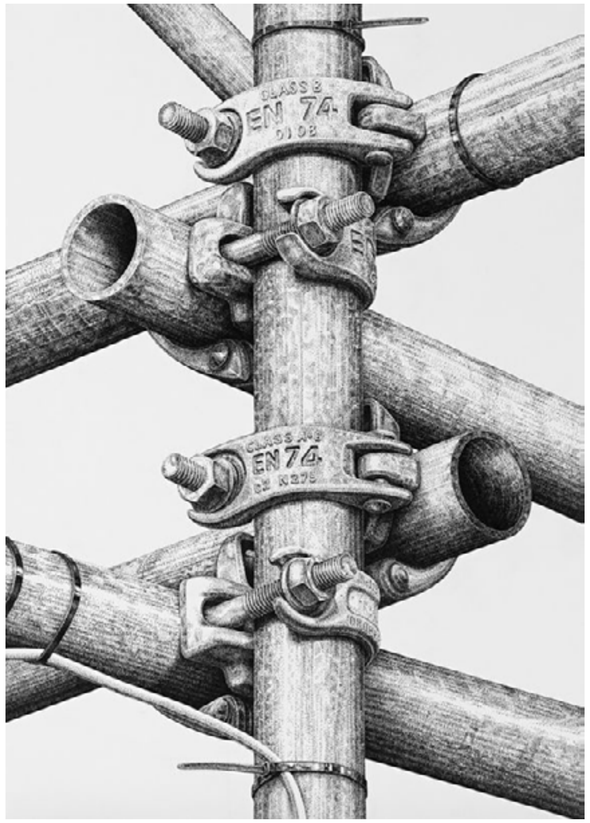
$$M_{x,d} = 1,285,900\ Nmm$$

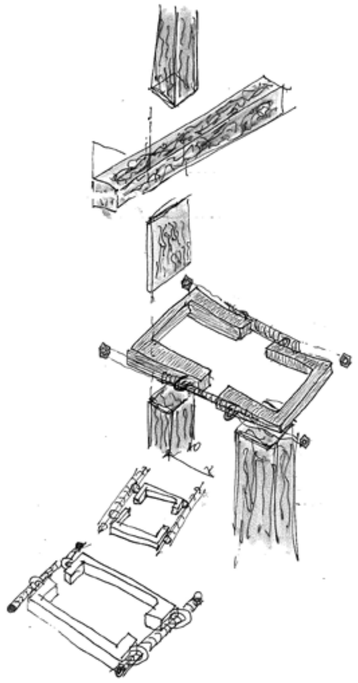
IT COULD DERIVE FROM A BEAM OF 7m LENGHT WITH CONCENTRATED WEIGHT OF 147 Kg IN THE MIDDLE (approximation of 1,286,250)

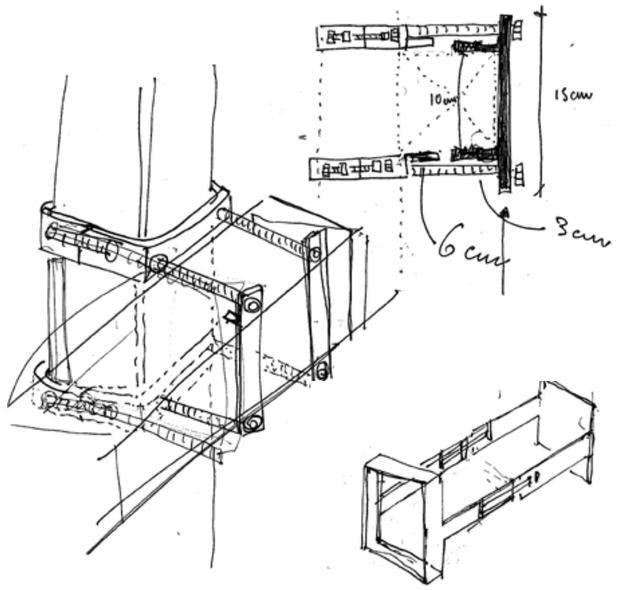


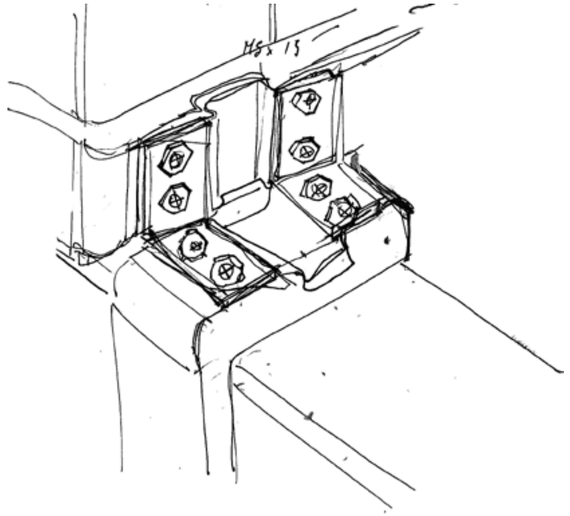
$$M_{x,d} = \frac{1}{8} PL$$

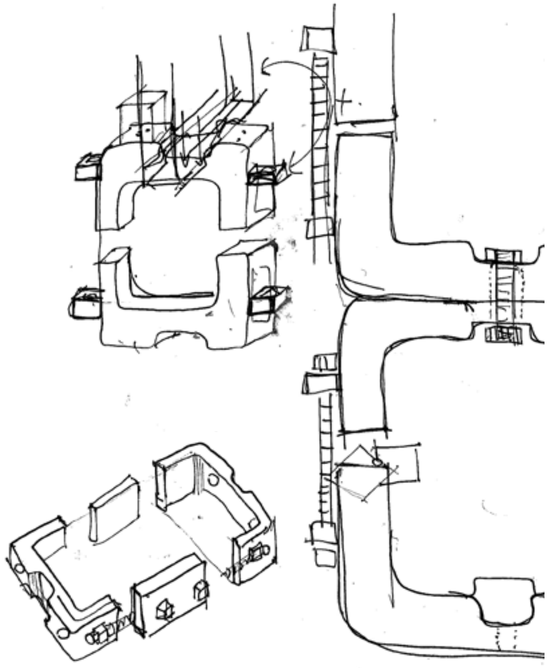


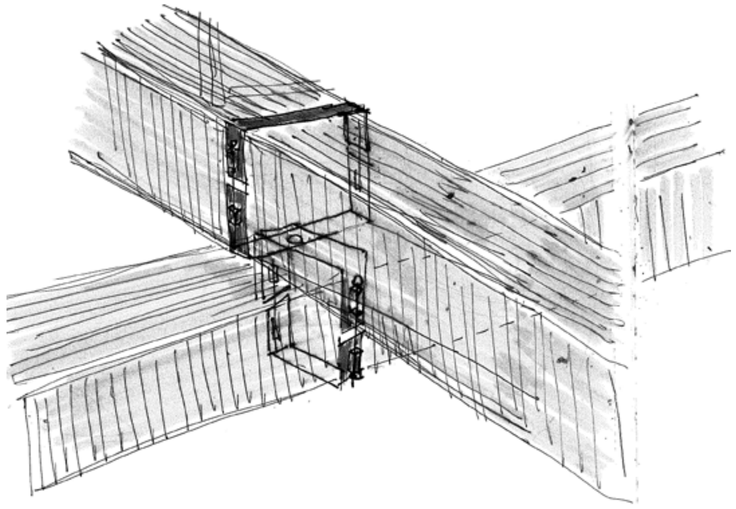

EN 74
EN 74

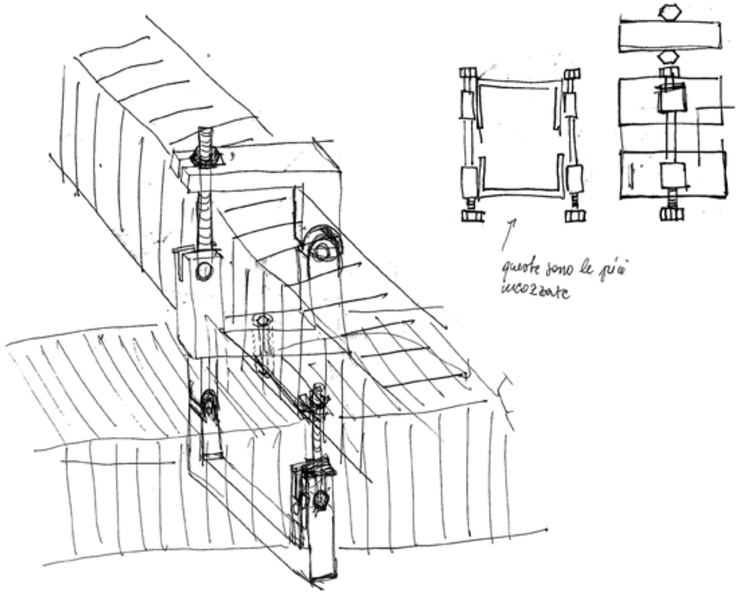


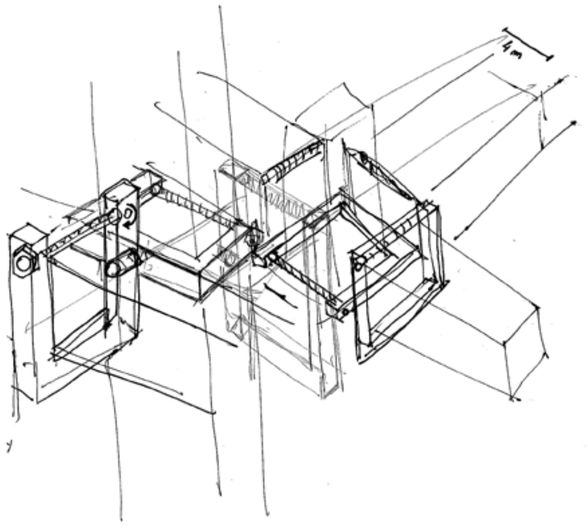

15cm
10cm
6 cm
3cm

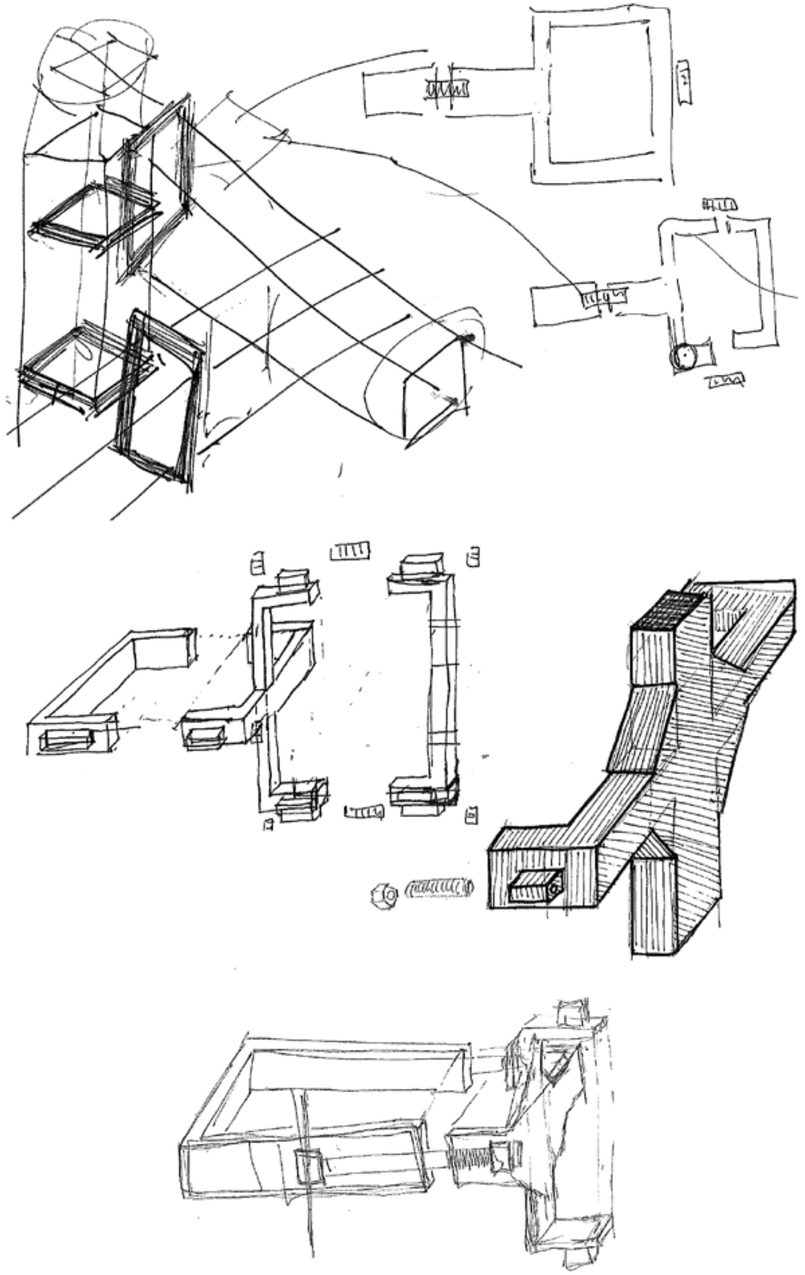


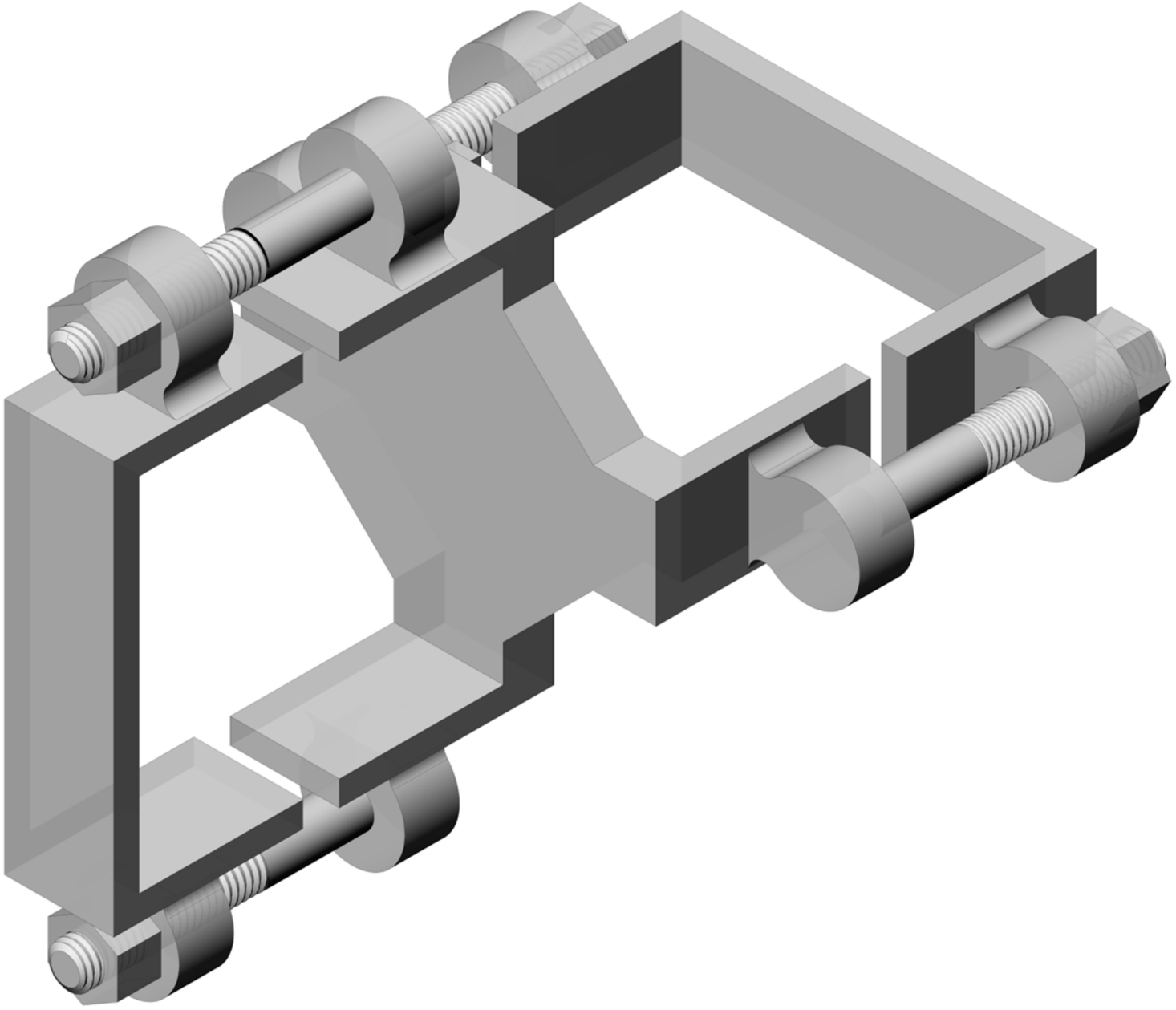


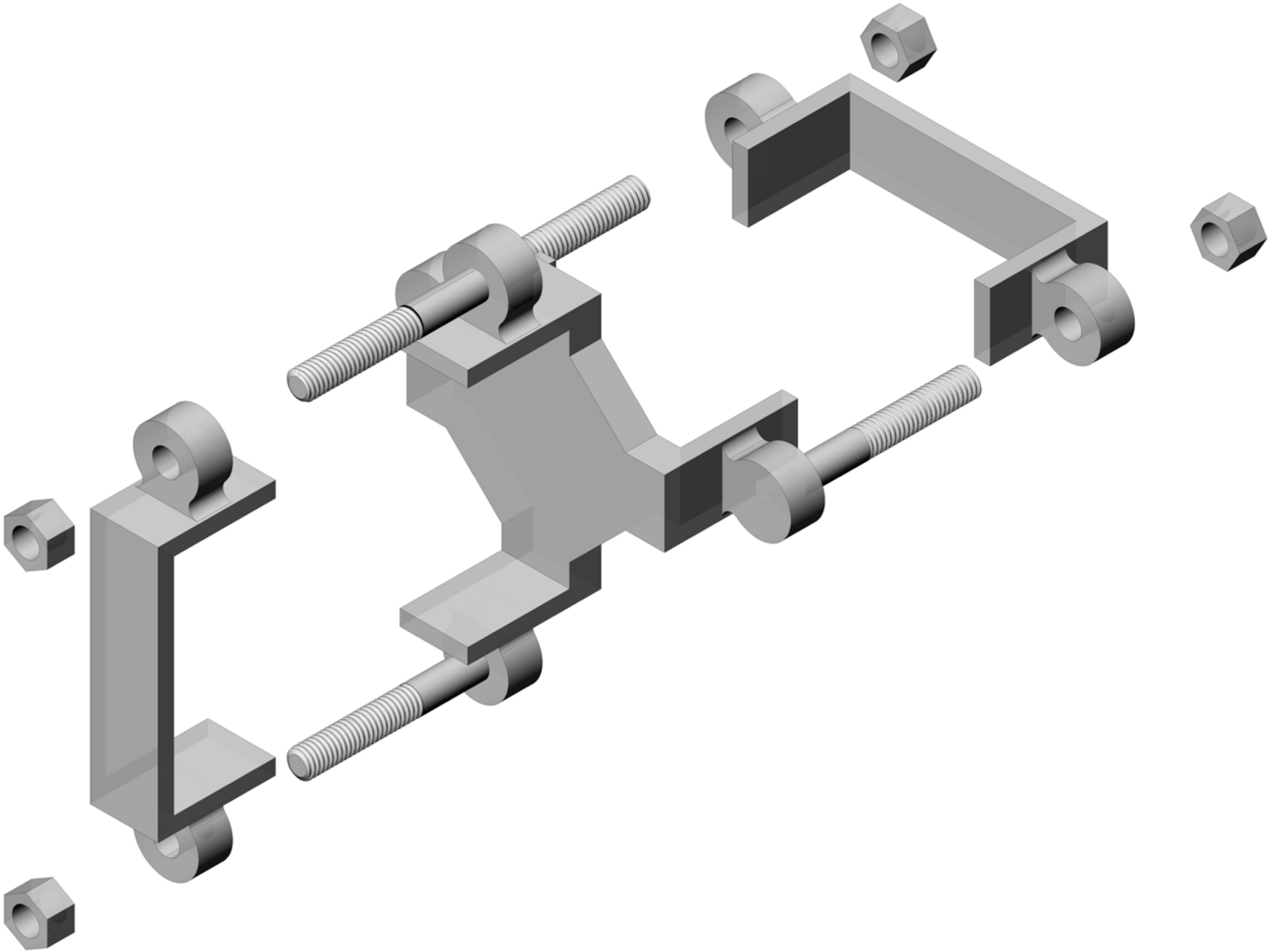


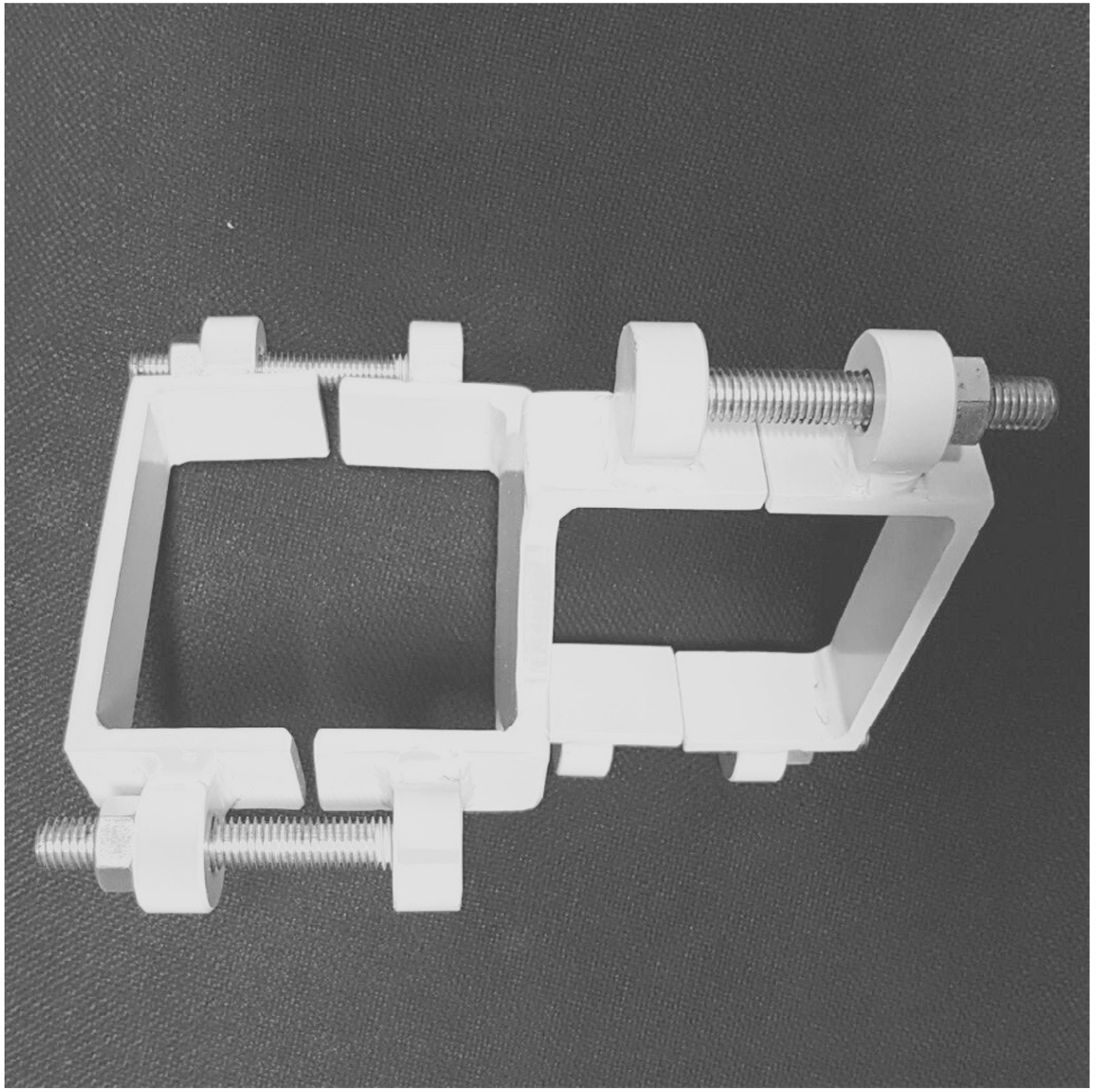

queste sono le più
incazzate

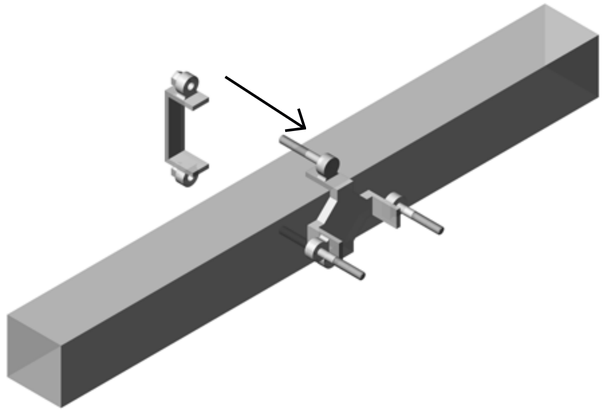
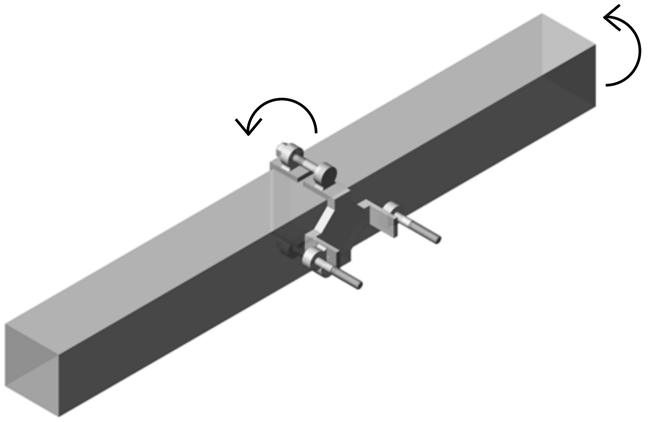
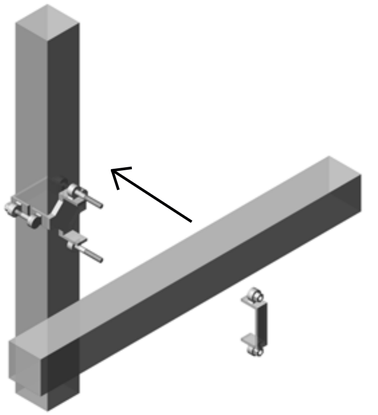
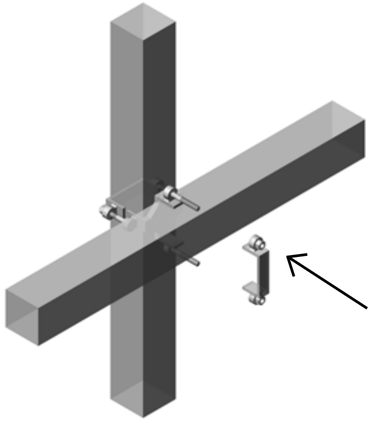
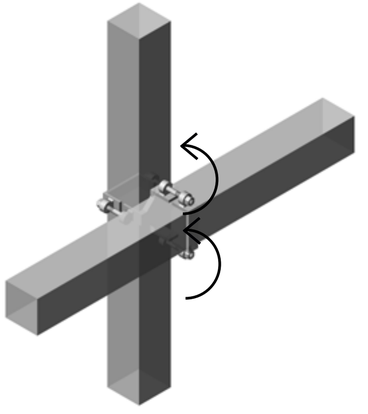
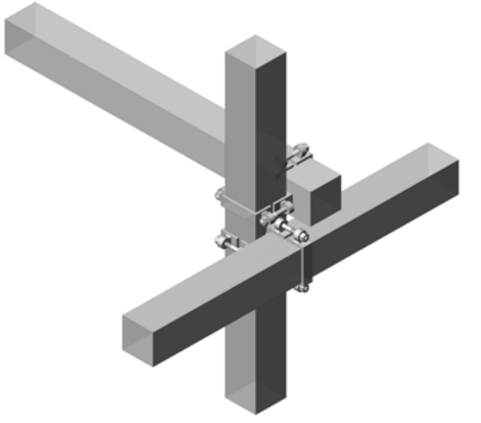
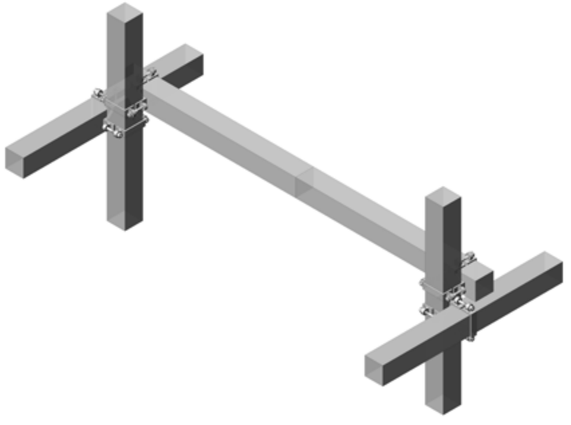
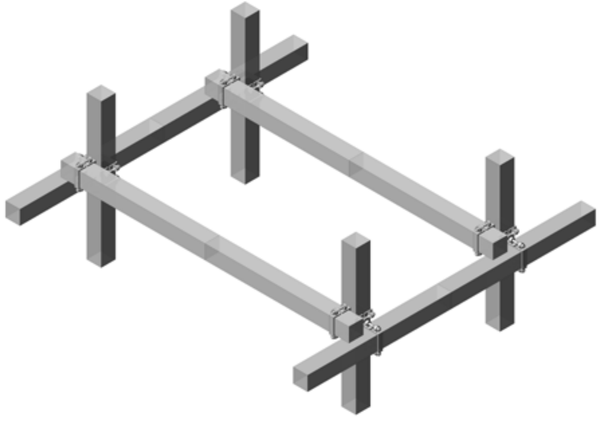
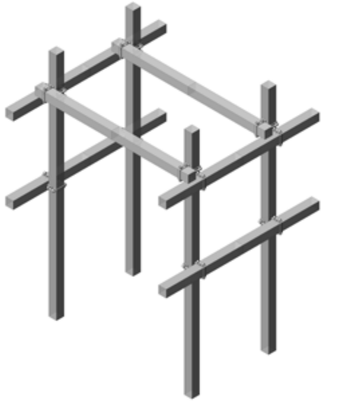


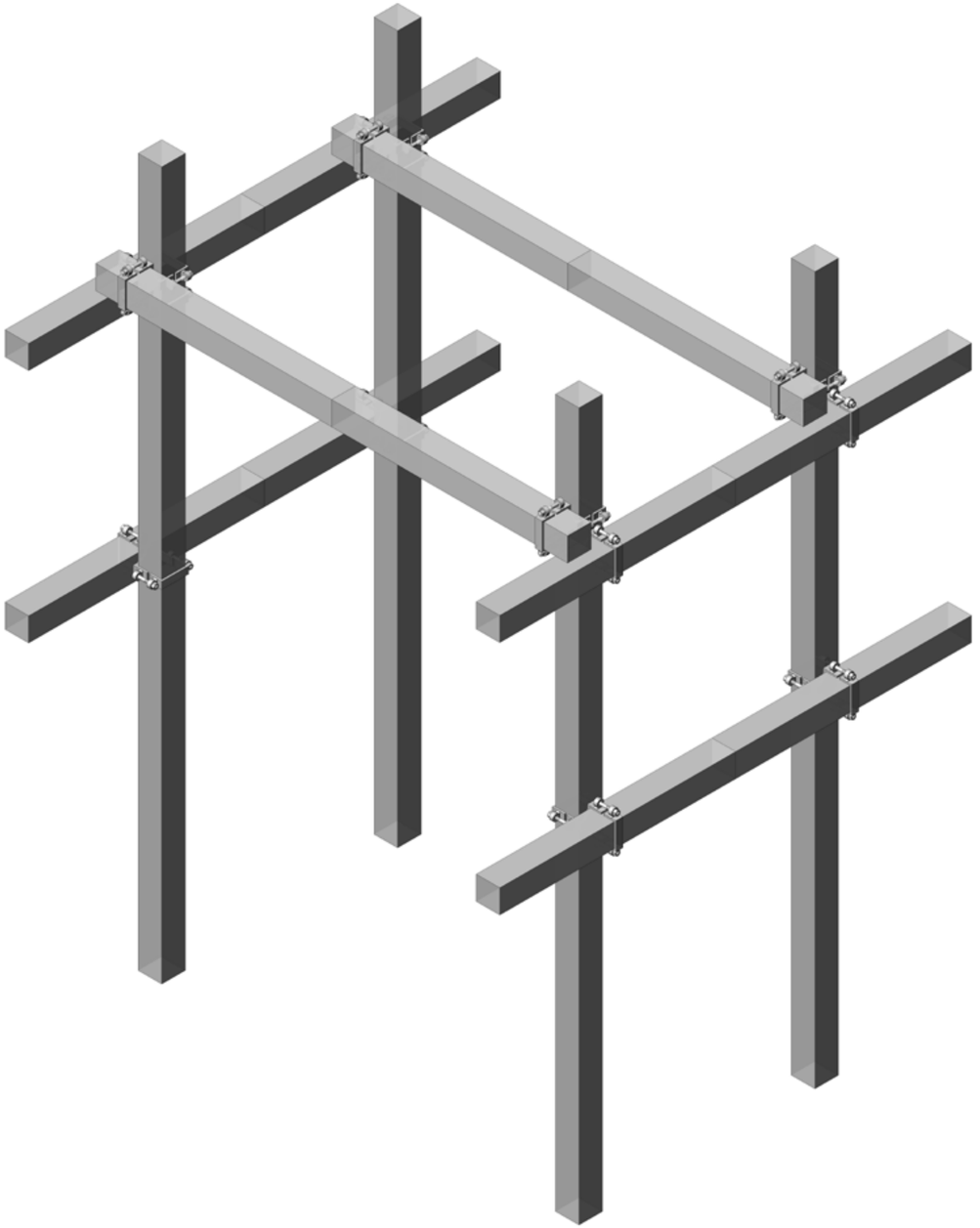


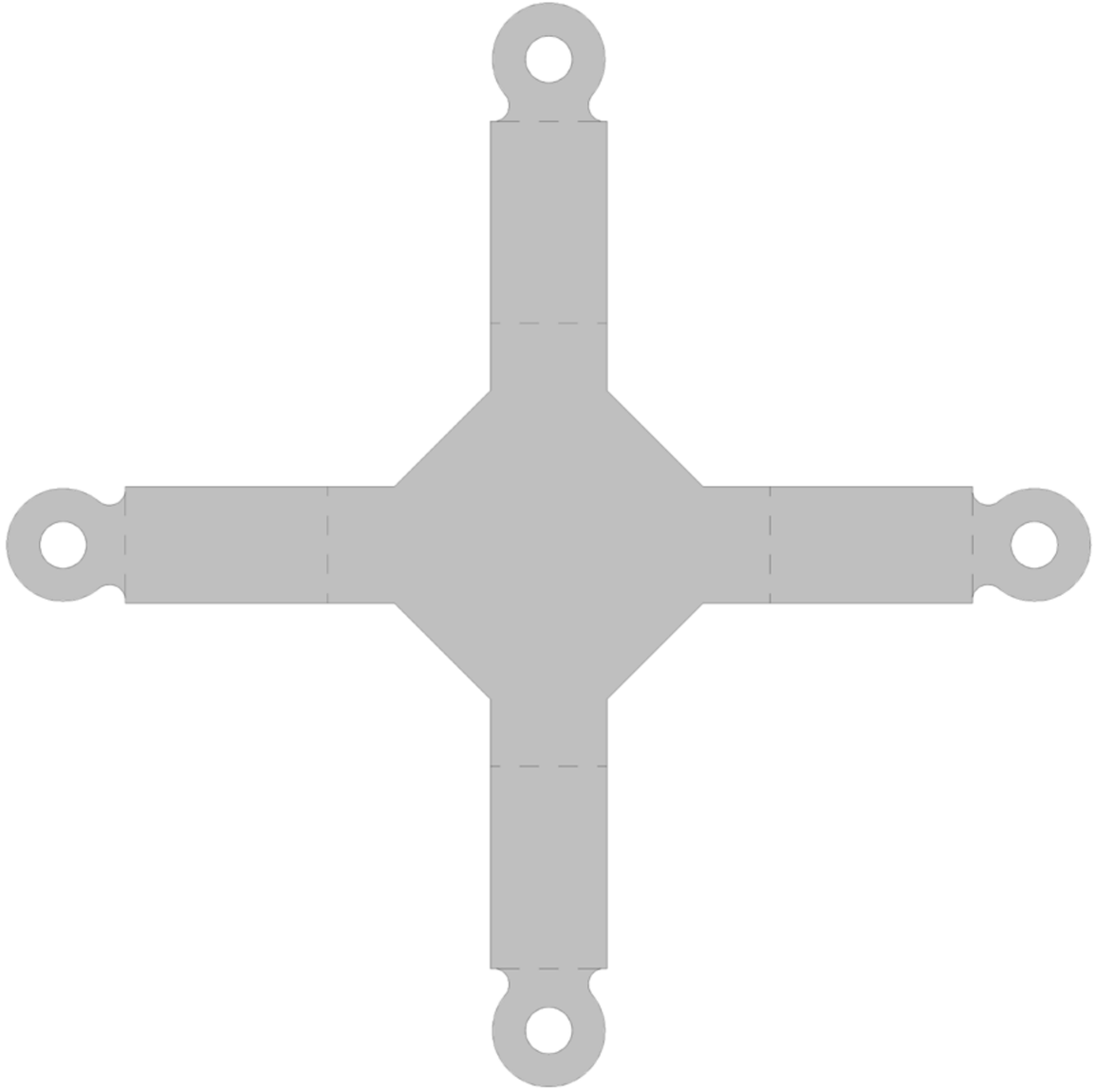










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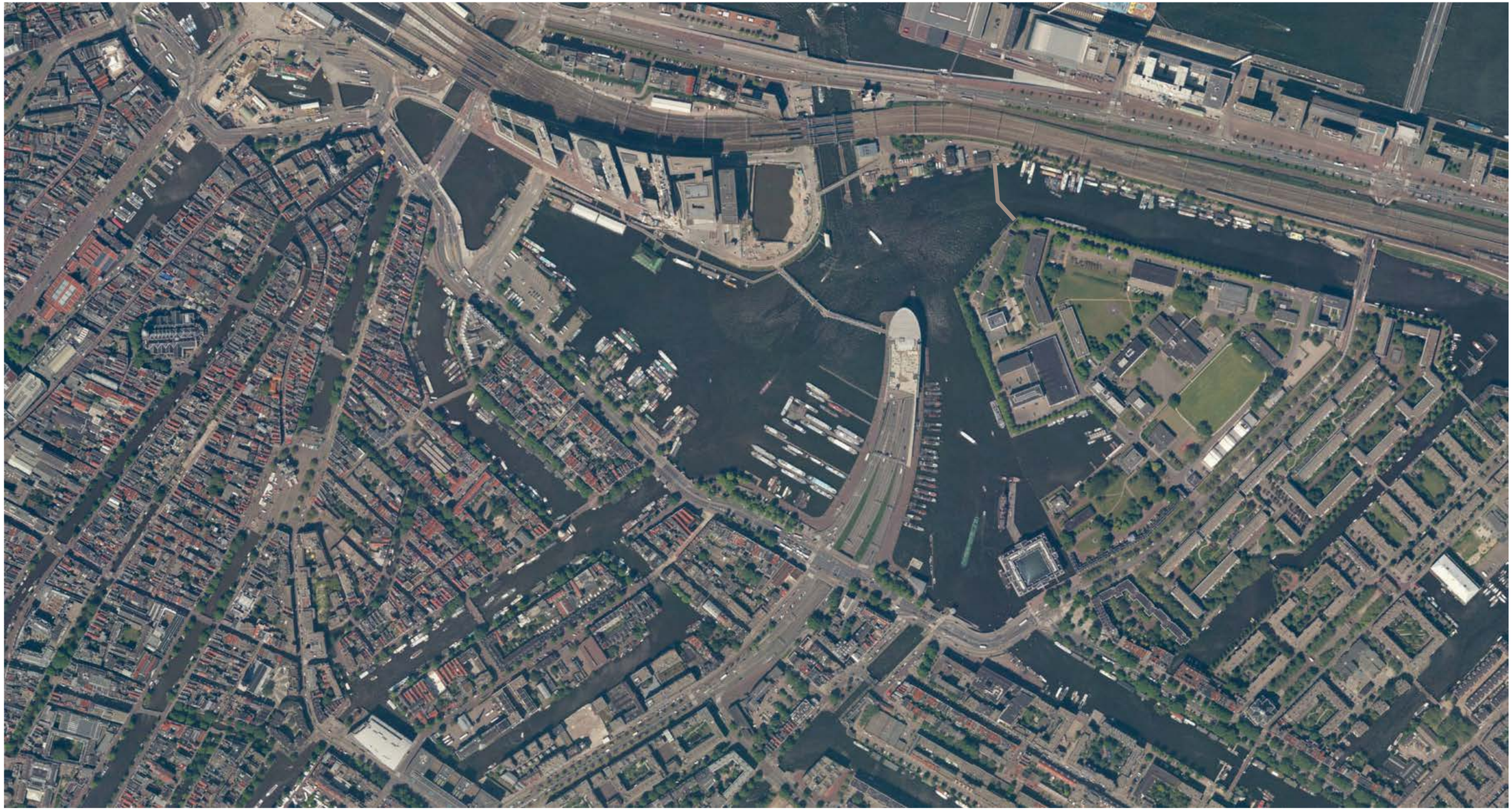
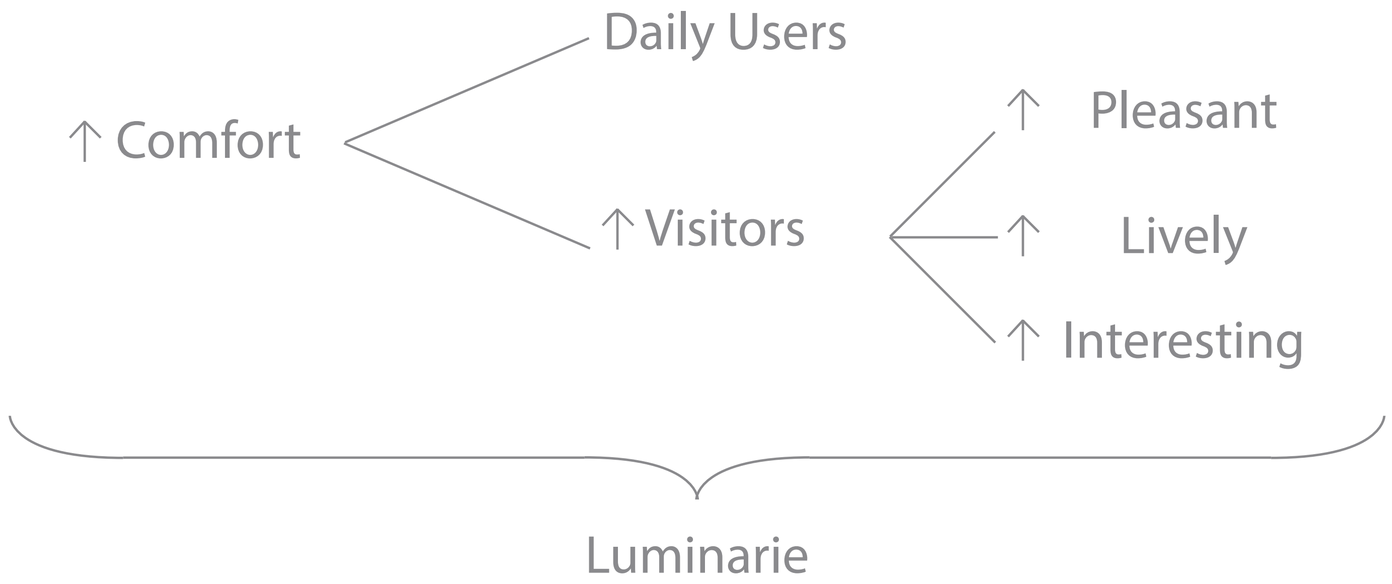


Startup of functions - 2013 -2017

Transformation - 2017 -2027

Beyond Transformation - after 2027

View	Approach	Values & Themes
	Research and Respect	Innovation
	Led by Values & Themes	Connection
	Careful Picking Tenants	Focus
Controlled Organic Development →	No Irreversible Interventions →	Technology
	Agile	Sustainability
	Participate in Projects	Sports & Community
		Water


↑ Comfort
Daily Users
↑ Visitors
↑ Pleasant
↑ Lively
↑ Interesting
Luminarie

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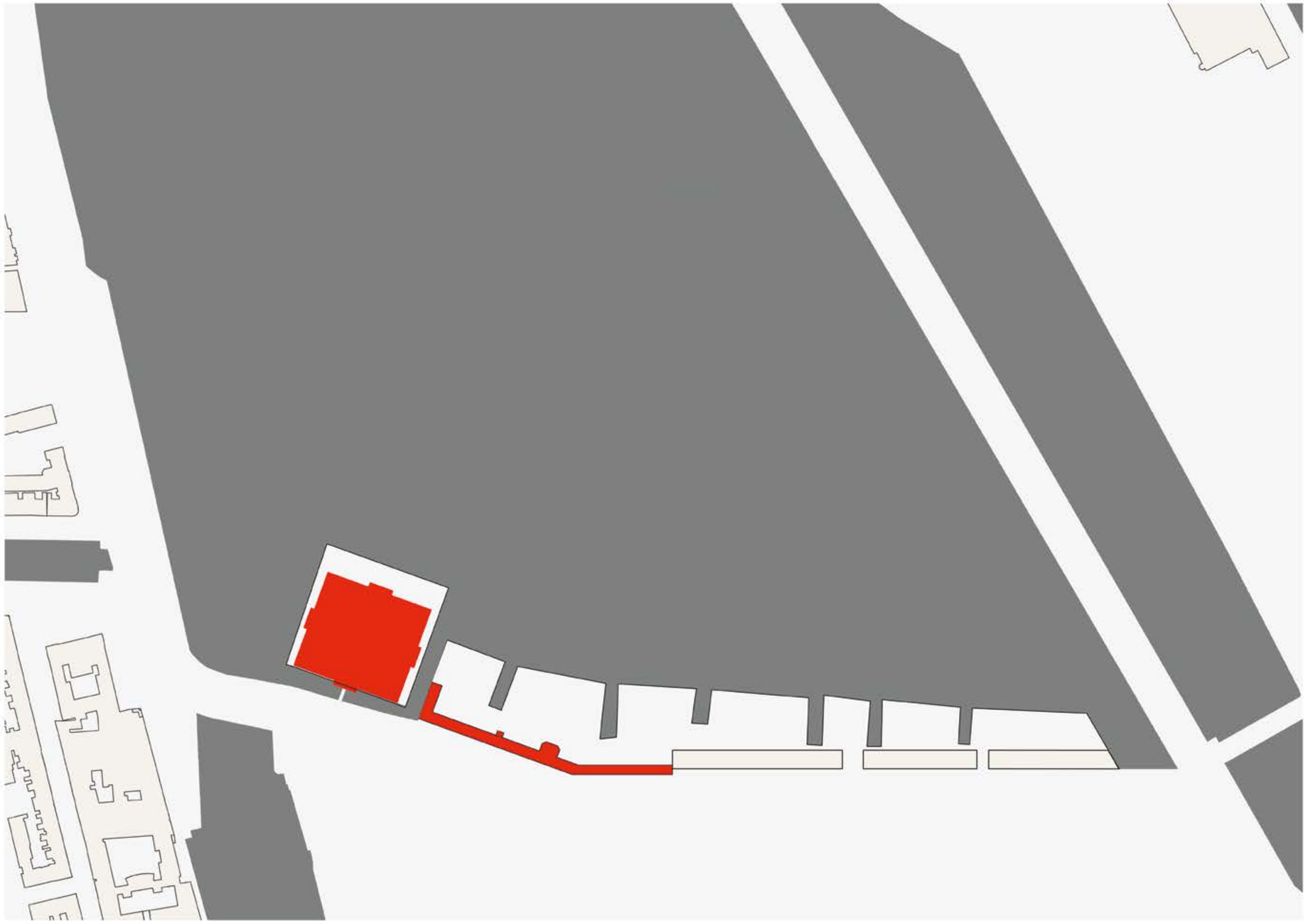
1662



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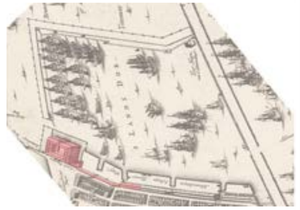
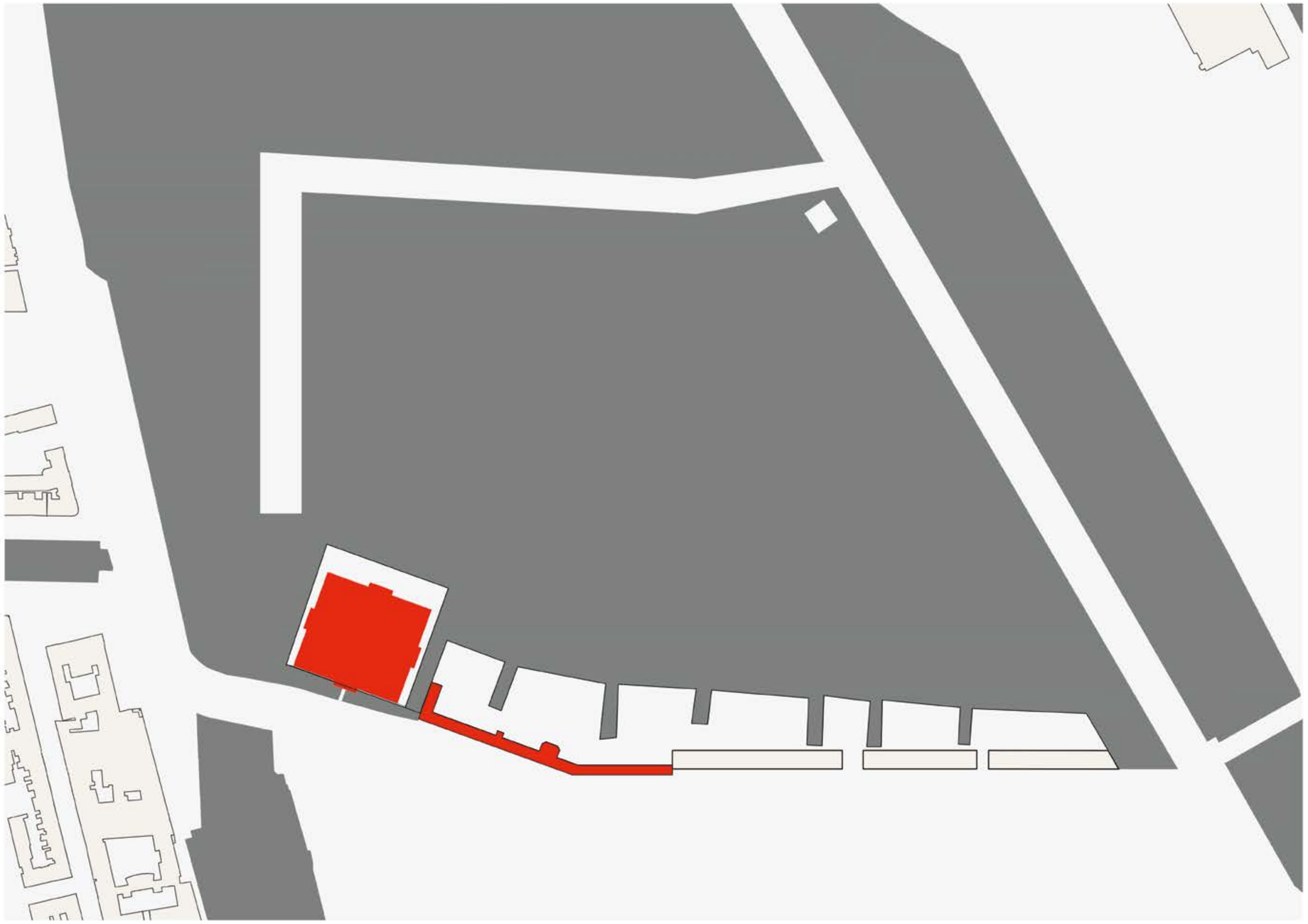
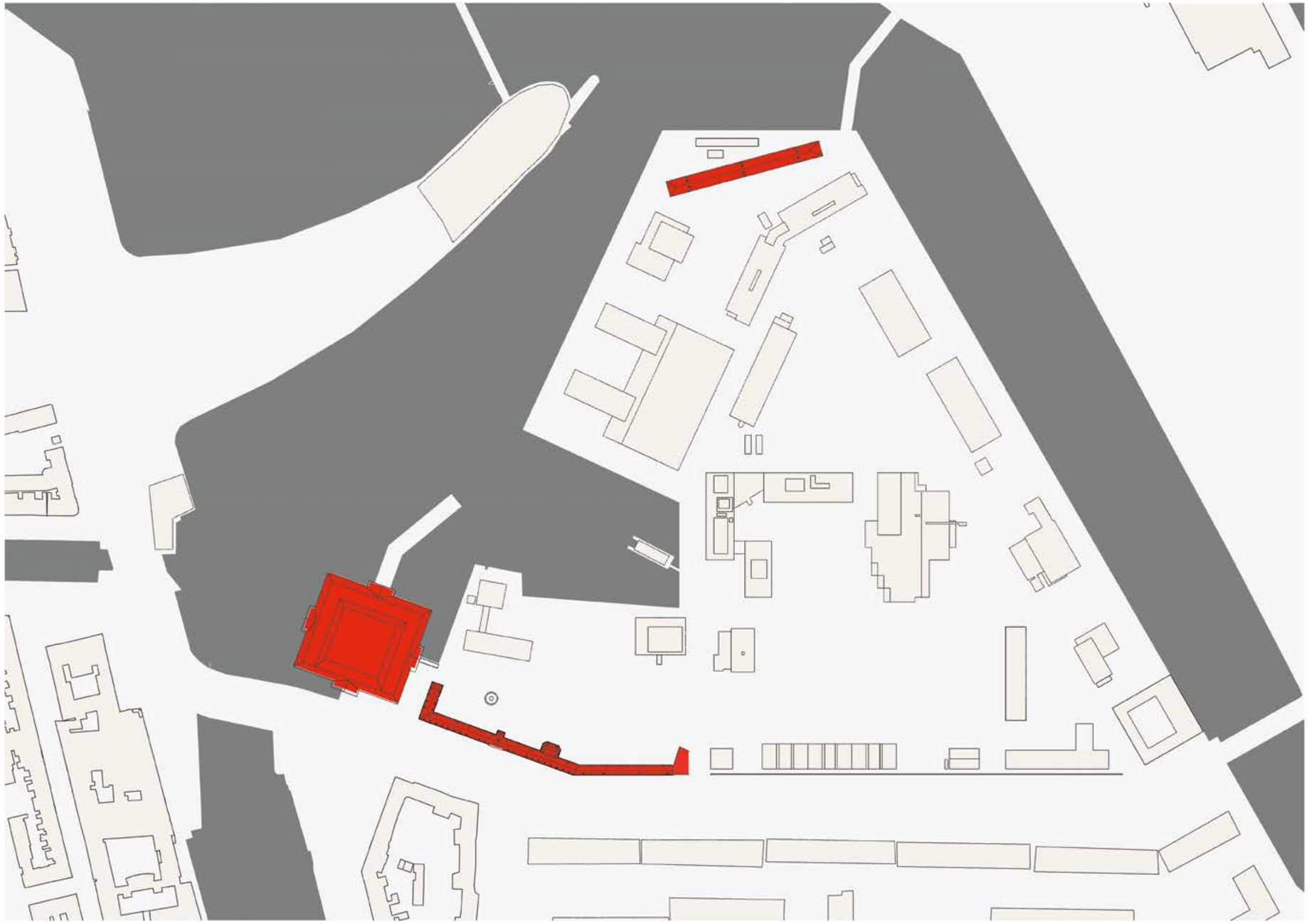
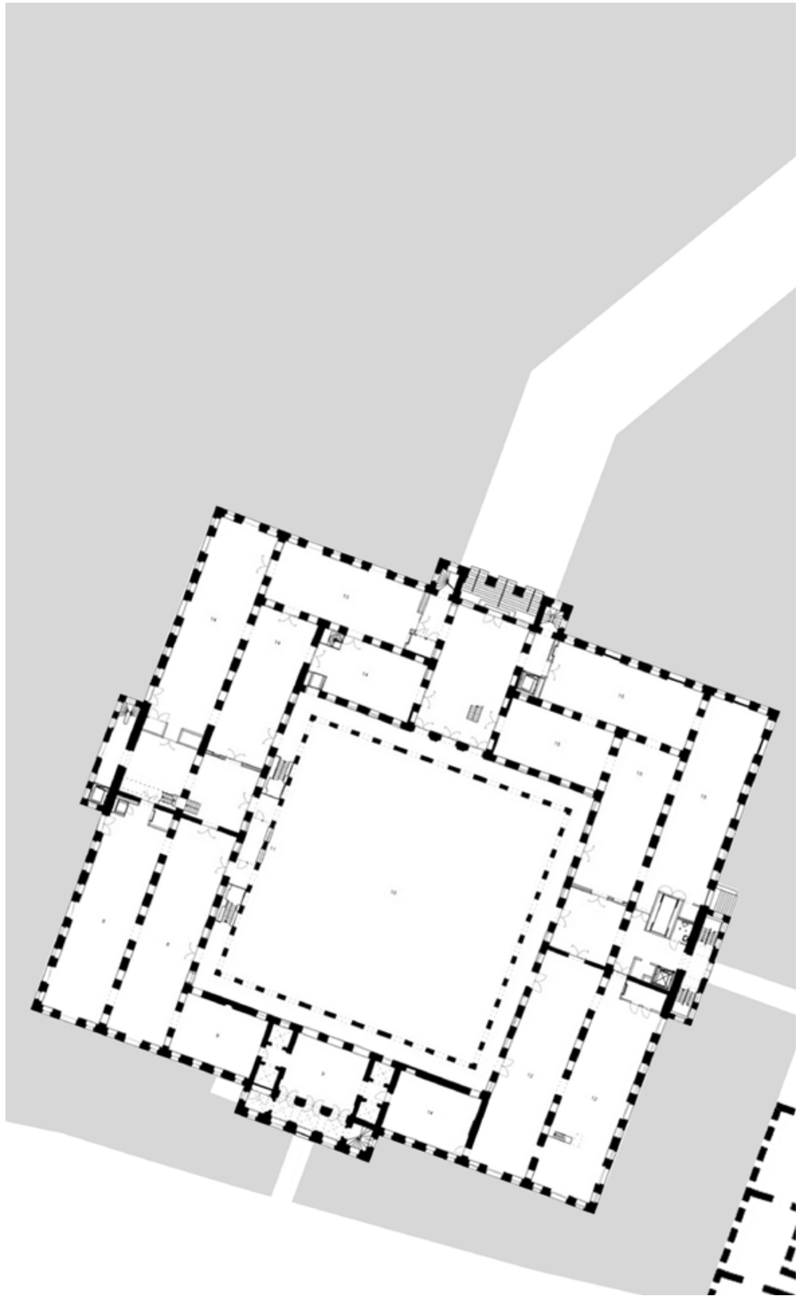


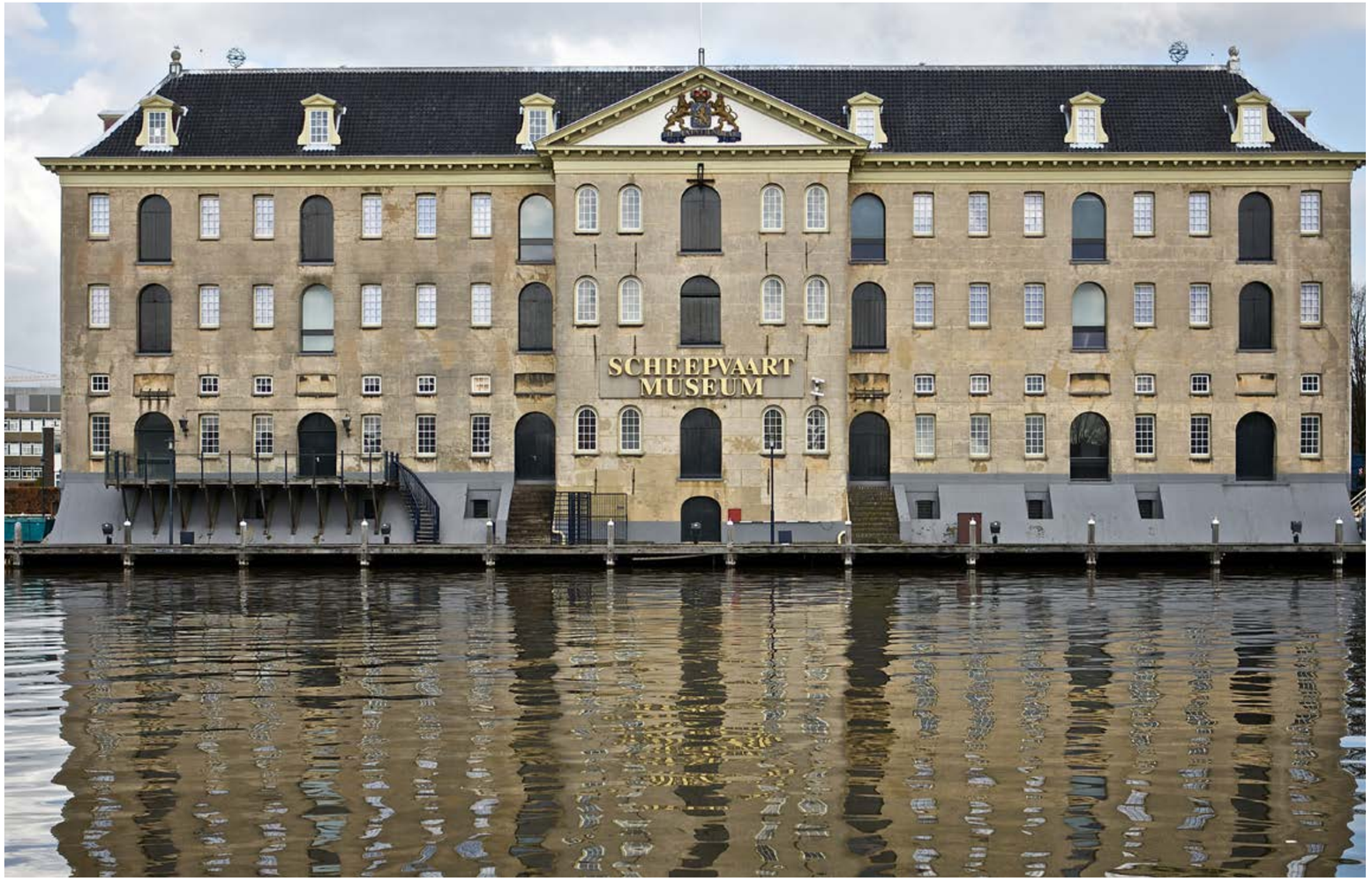


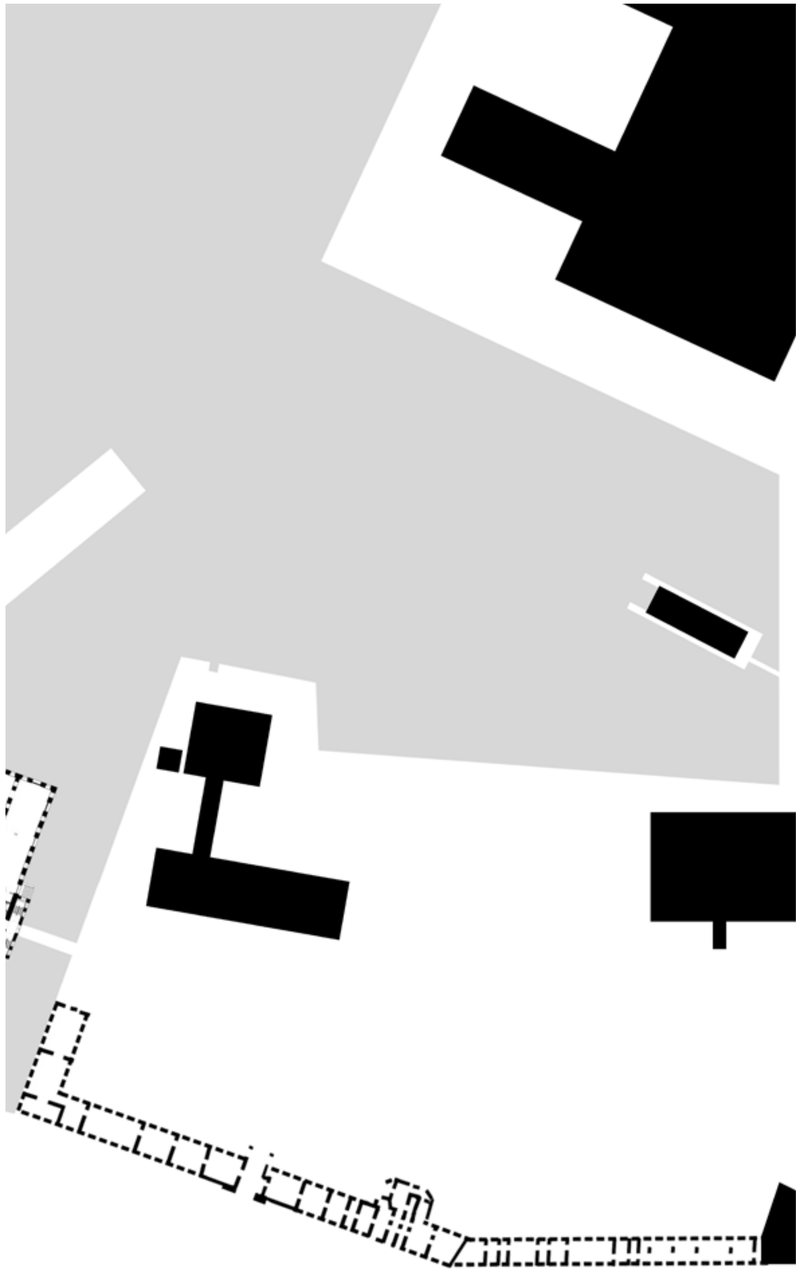
1875

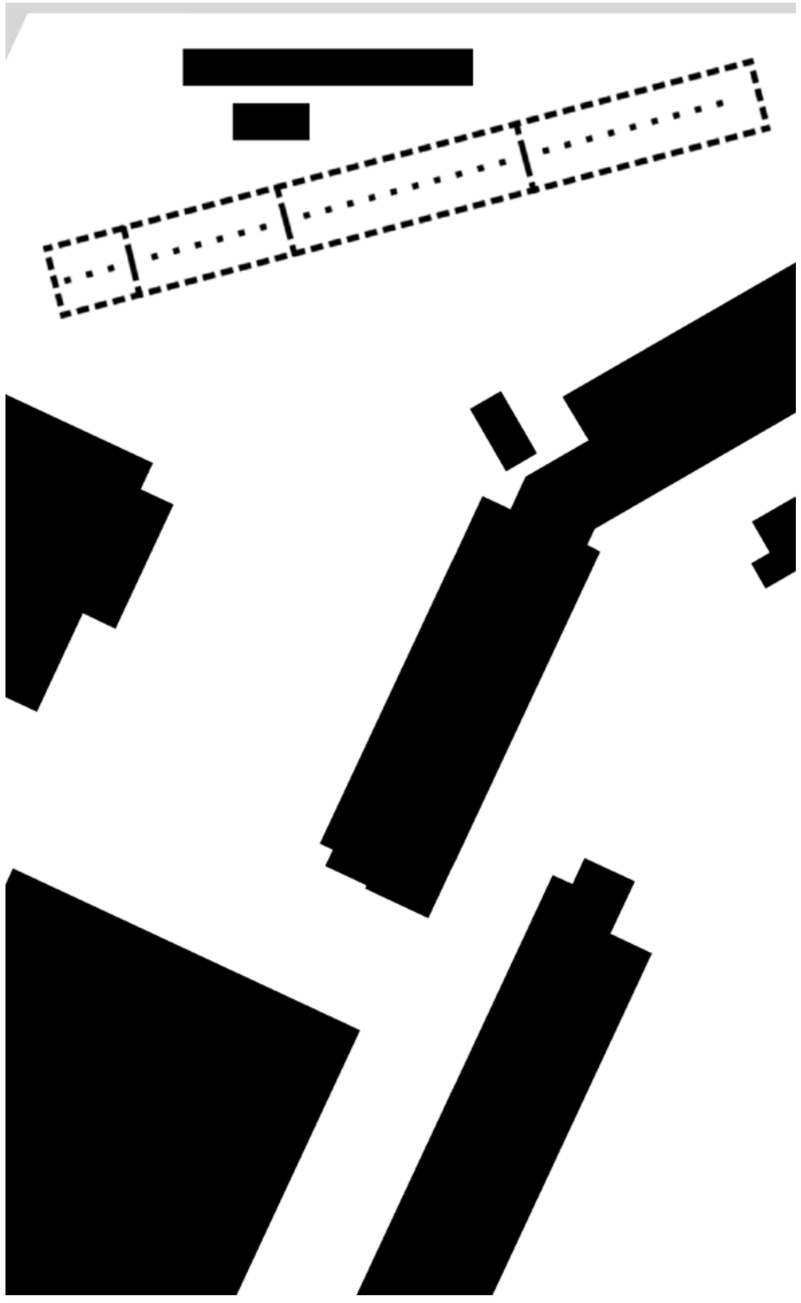
1968 -2017






SCHEEPVAART
MUSEUM





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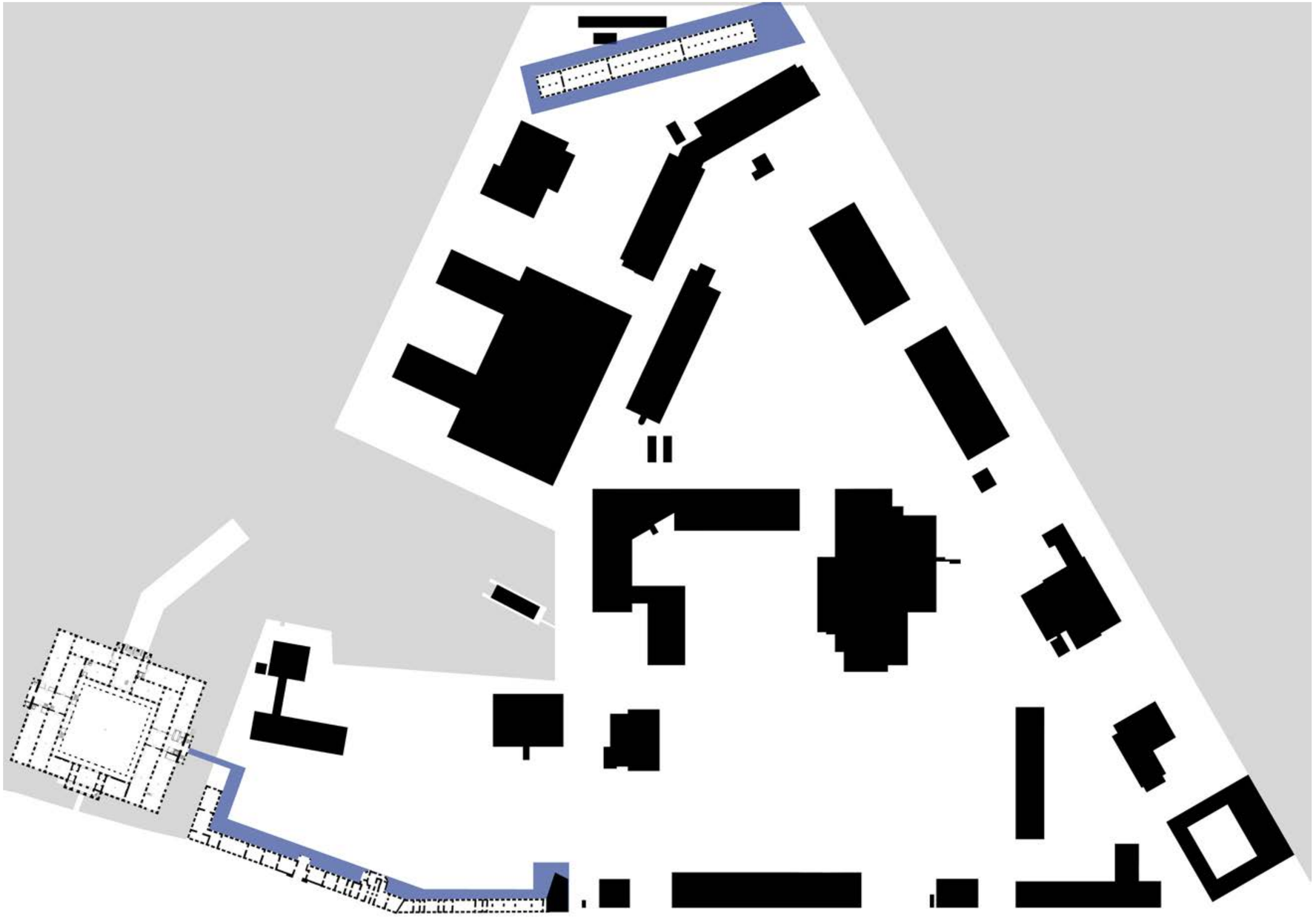

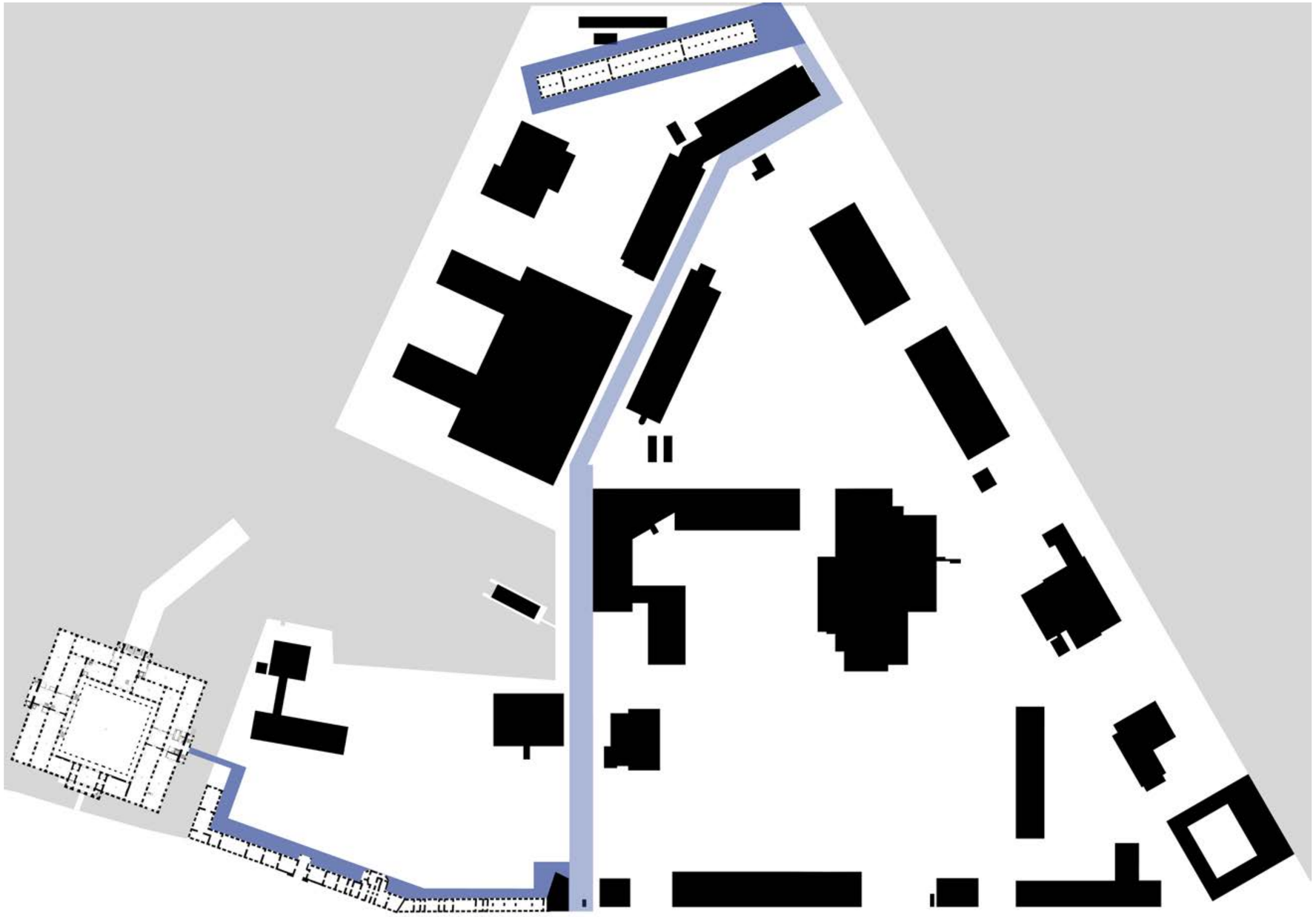

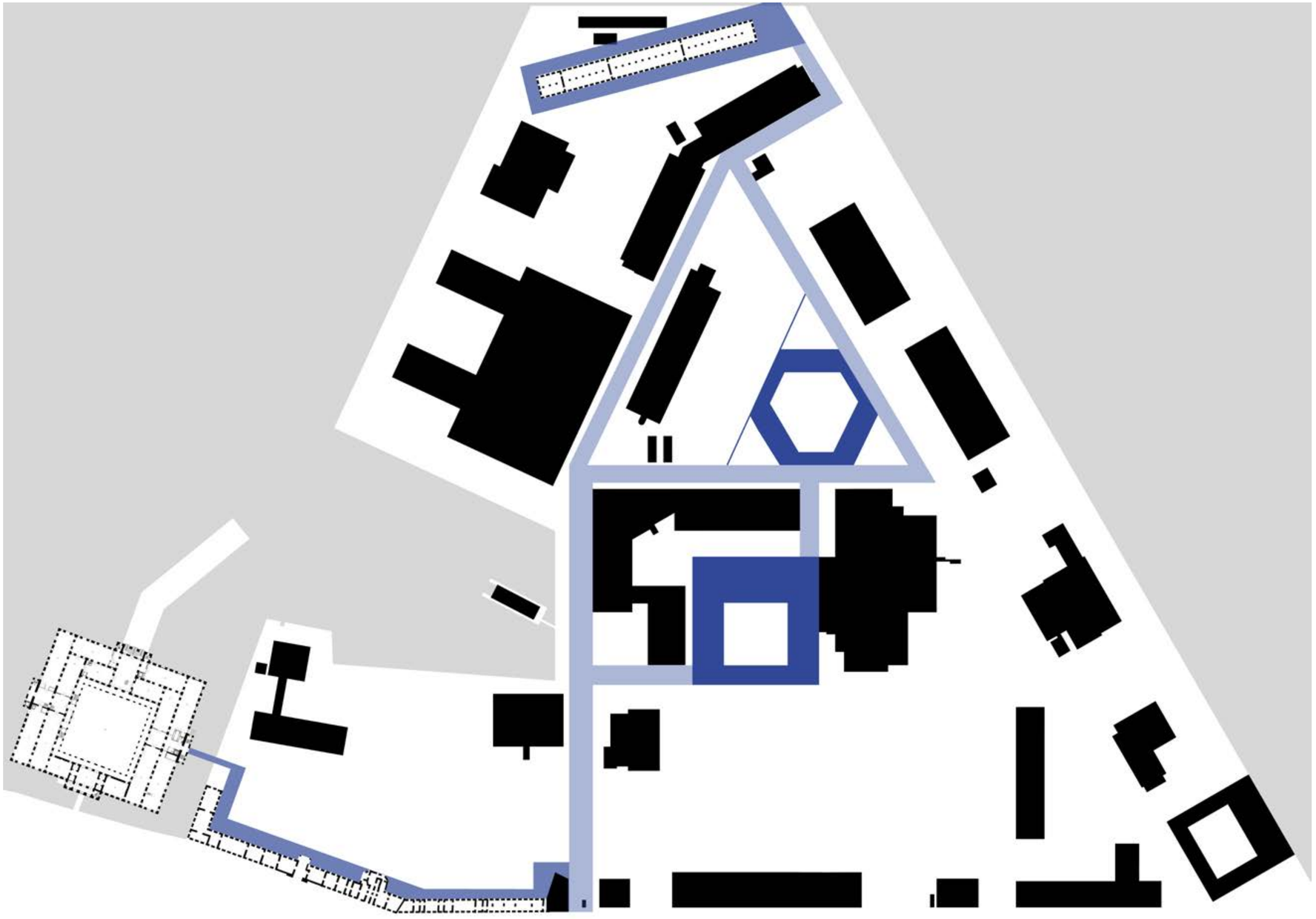

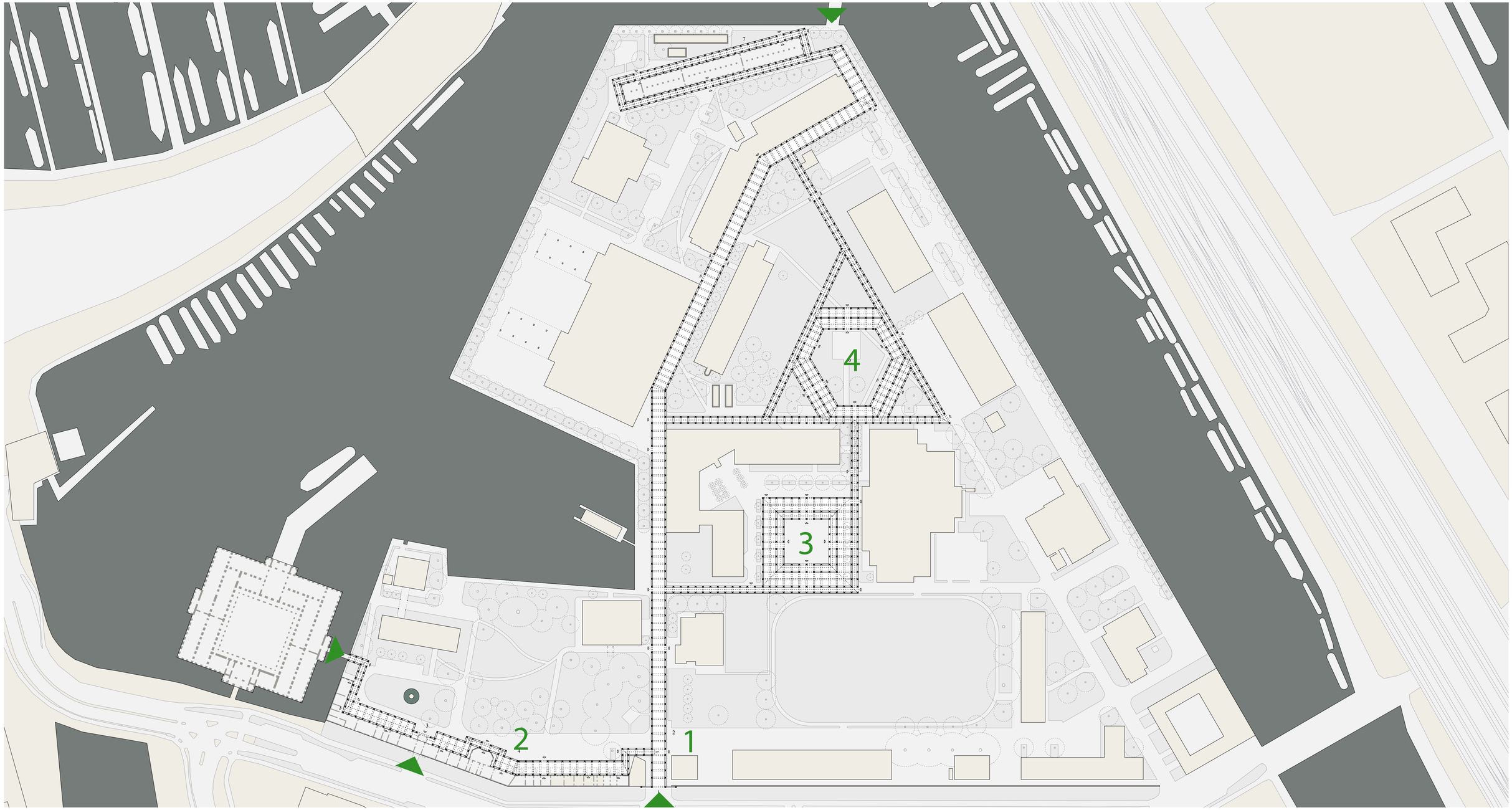
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