

REUSED AND REUSABLE

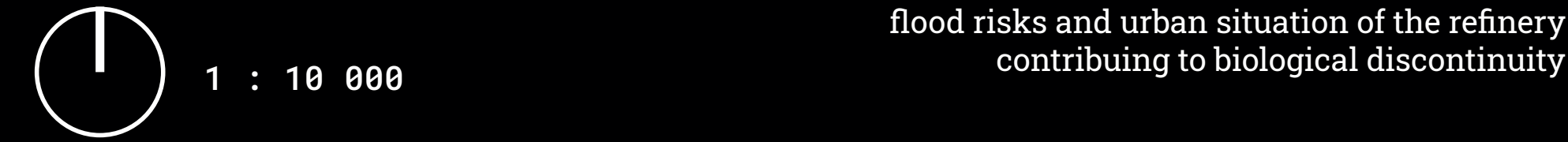
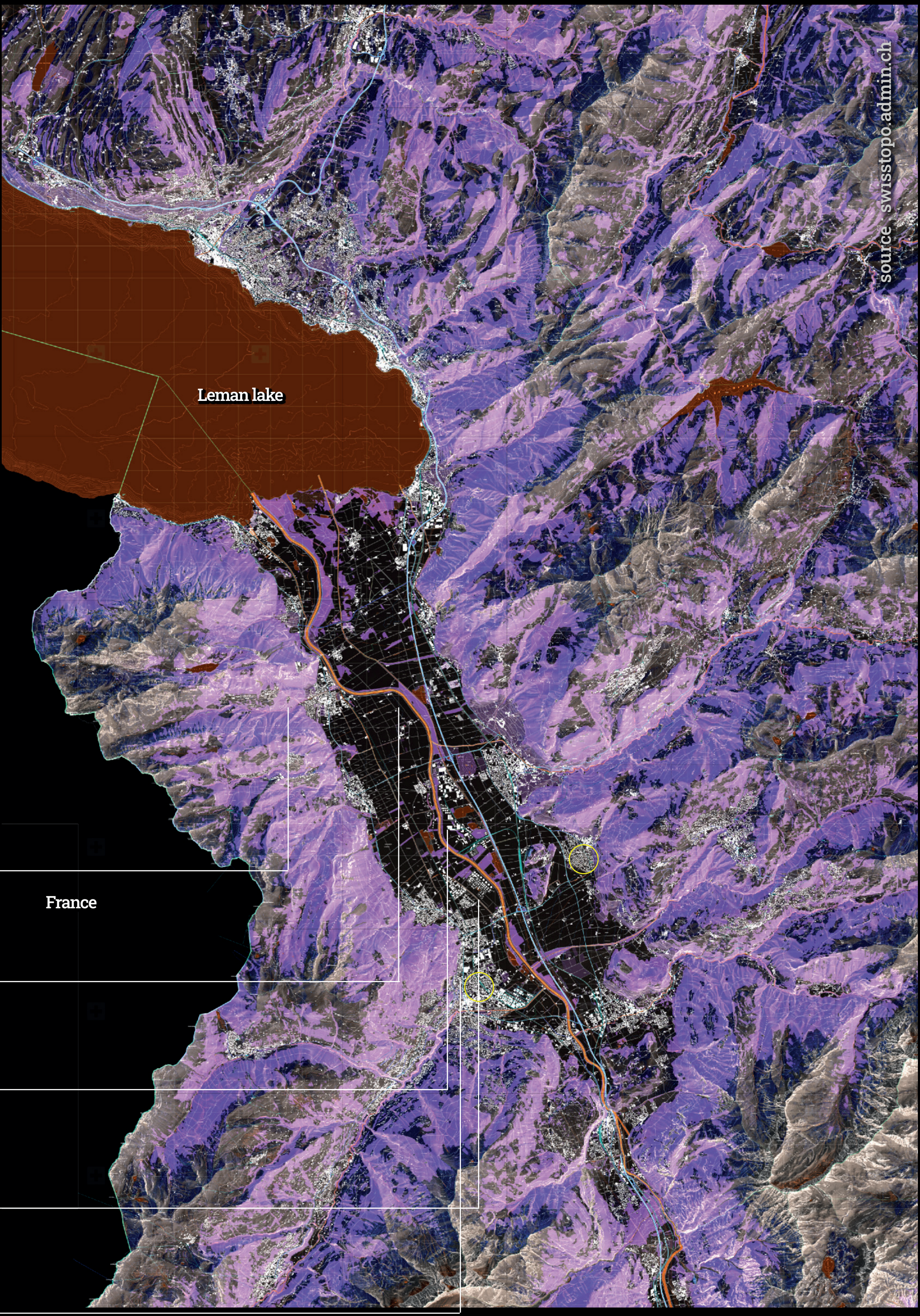
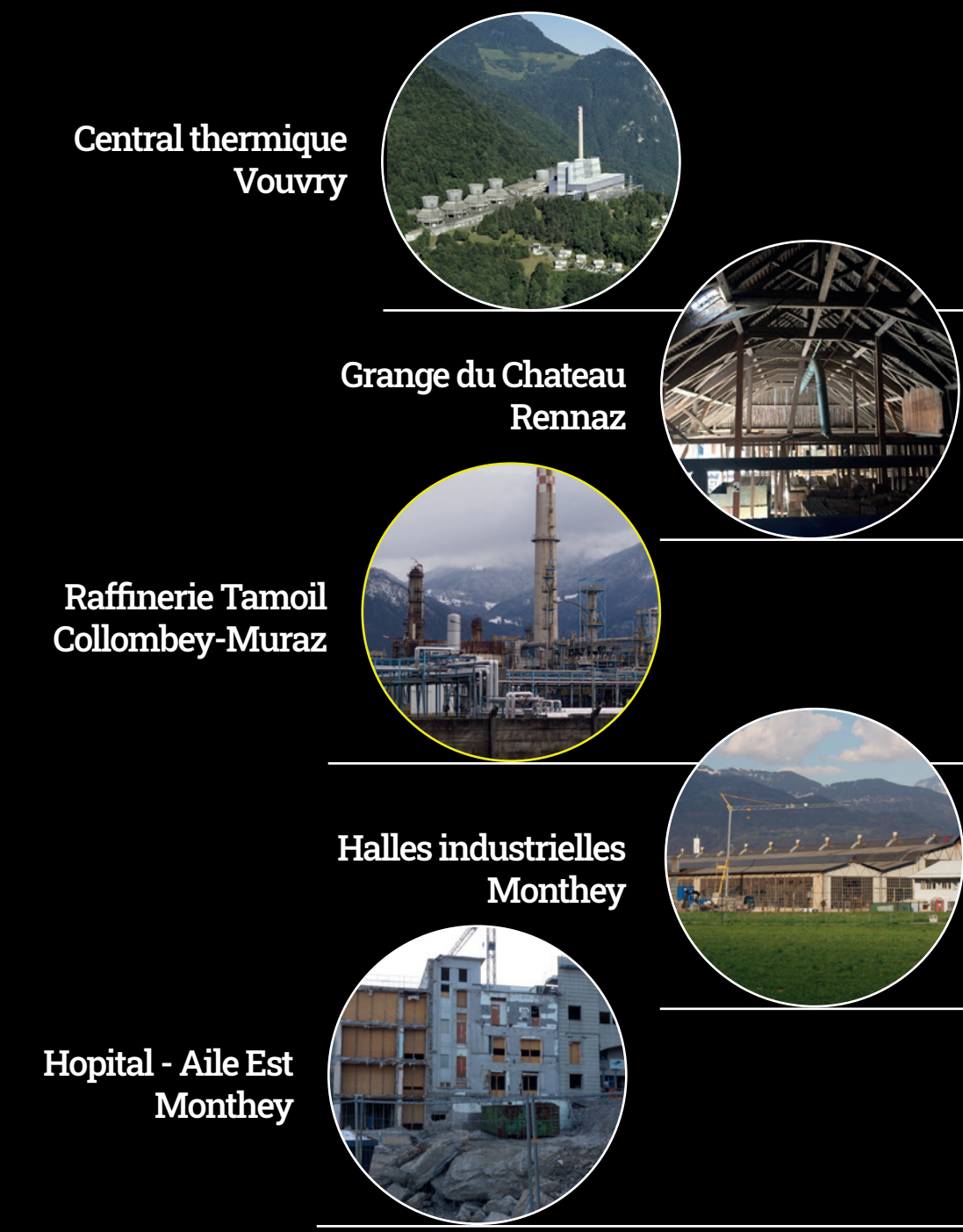
new life cycles for the components of an oil refinery in Switzerland

In a built environment deemed rigid, the frequent shifts in needs and uses are causing many buildings to become obsolete, even though their components retain most of their intrinsic value. One visible consequence of this lack of adaptability is embodied through the massive and decaying Tamoil refinery in Valais, which perpetrates heavy physical, social and environmental footprints for the local population.

By envisioning new lives for the refinery's components through the conception of versatile and reversible projects, the proposed 2nd and 3rd cycles are redefining the built environment as capable of adapting to new conditions and beyond a foreseeable future.

Carefully embracing reusable materials as a basis for the projects, the architecture of the recipient buildings acquires expressiveness through the structural and tectonic celebration of non-destructive strategies, thus fostering the development of a tangible image of adaptability for architecture.

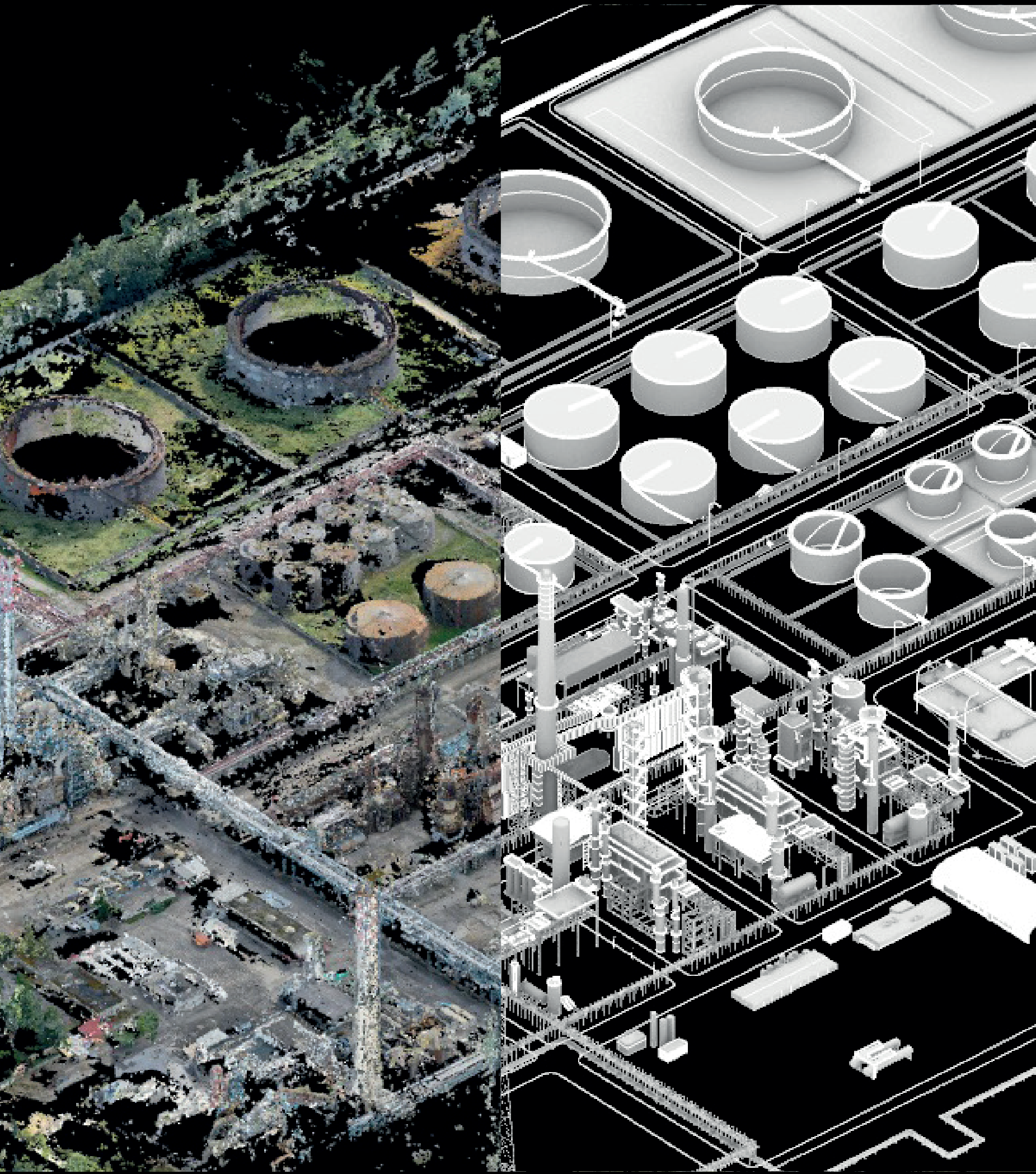
Master Project 2021 - Maxence Grangeot
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Teacher : Prof. Dr. Vincent Kaufmann
Assistant : PhD Candidate Célia Küpfer



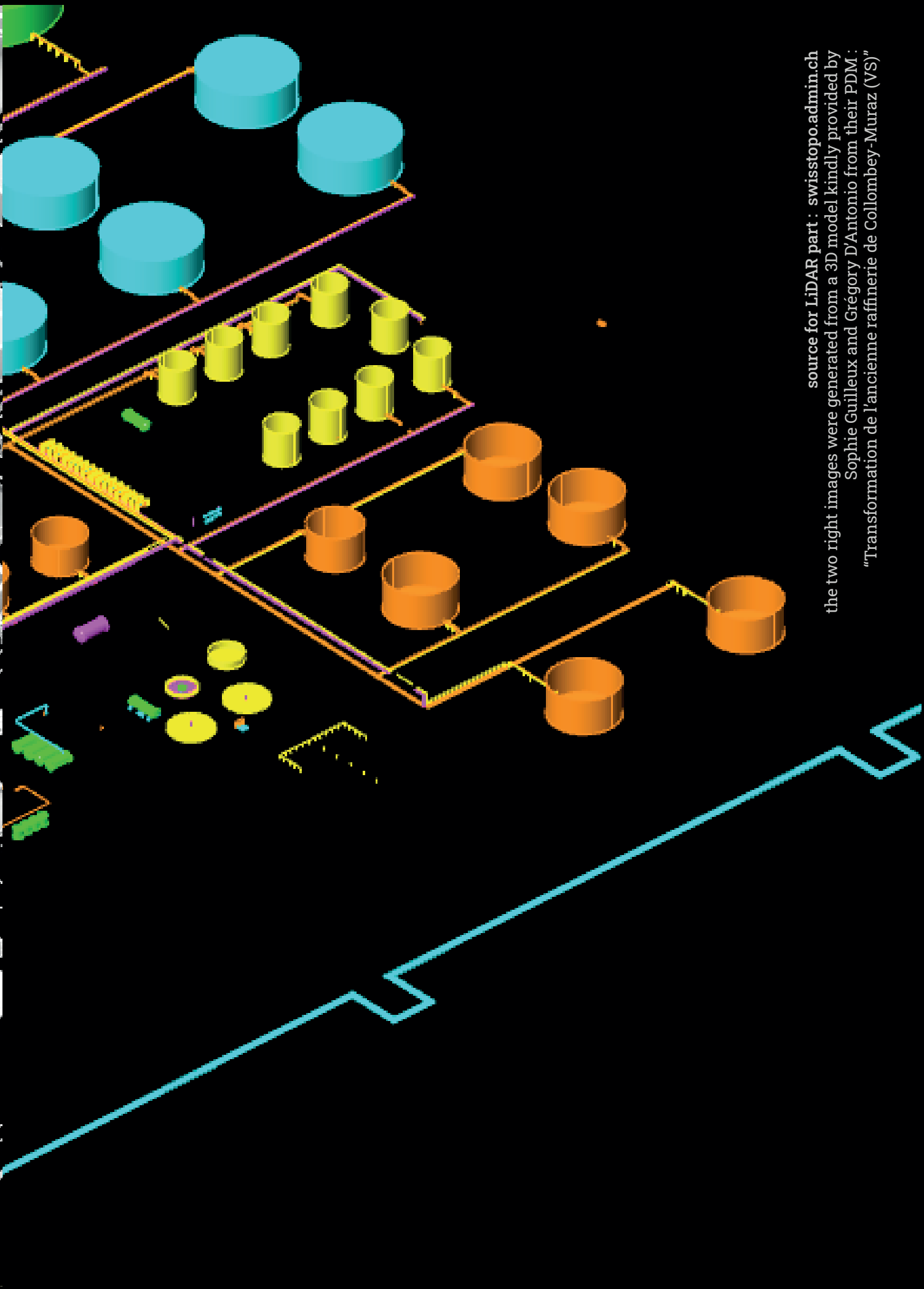
discarded architecture as open pit mines for building components



aerial LiDAR



drone photogrammetry



RANSAC shape detection + segmentation

the two right images were generated by the software "CloudCompare" (v2.12.0) using the "RANSAC" algorithm to detect and segment cylinders in the point cloud data.

Transformation de l'ancienne raffinerie de Collombey-Muraz (VS)

	diameter (m)	total length (m)	units	av. u. length (m)
tanks	55	85	20	4.3
	59	138	6	23.0
	33.5	368	24	15.0
	24	169	13	13.0
	12	253	25	10.1
	9.5	11	10	1.1
tanks + towers	8	126	6	21.0
	6.5	5	5	1.0
	6	52	7	7.4
	4.5	13	15	0.9
	4	331	24	13.8
	3.5	42	22	1.9
	3	70	30	2.3
	2.5	146	141	1.0
	2	16	8	2.0
	1.75	36	27	1.3
pipelines	1.5	6	6	1.0
	1.3	88	19	4.2
	1.15	58	13	4.5
	1	101	16	6.3
	0.8	67	18	3.7
	0.7	98	14	7.0
	0.6	482	61	7.9
	0.5	33	20	1.7
pipes	0.4	1114	113	9.9
	0.3	4847	296	16.4
	0.25	78	60	1.3
	0.20	12777	888	15.8
	0.15	19328	687	31.8
	0.13	116	71	1.6
	0.10	12739	3538	3.6
	0.08	434	132	3.3
	0.08	237	73	3.2
	0.07	989	248	4.0
	0.06	243	89	2.7
	0.05	16173	480	33.7

dimensional properties of 80% of the available cylindrical stock

resource diagnostic



the refinery before dismantling



54 tanks - some thermally insulated



pipelines : 250 km of steel - 90 km pending dismantlement - preserved with azote



ventilation: metallic plates of various sizes



deconstruction of the east wing of Monthey hospital, providing re-used insulation and concrete



prominent landmark of the landscape



chimneys : 2x bricks 100m + 1 x steel + steel torch ("without smoke")



support structure : IPE steel - 30 000 tons + concrete pillars & beams



administrative buildings + technical buildings : prefab + cast concrete



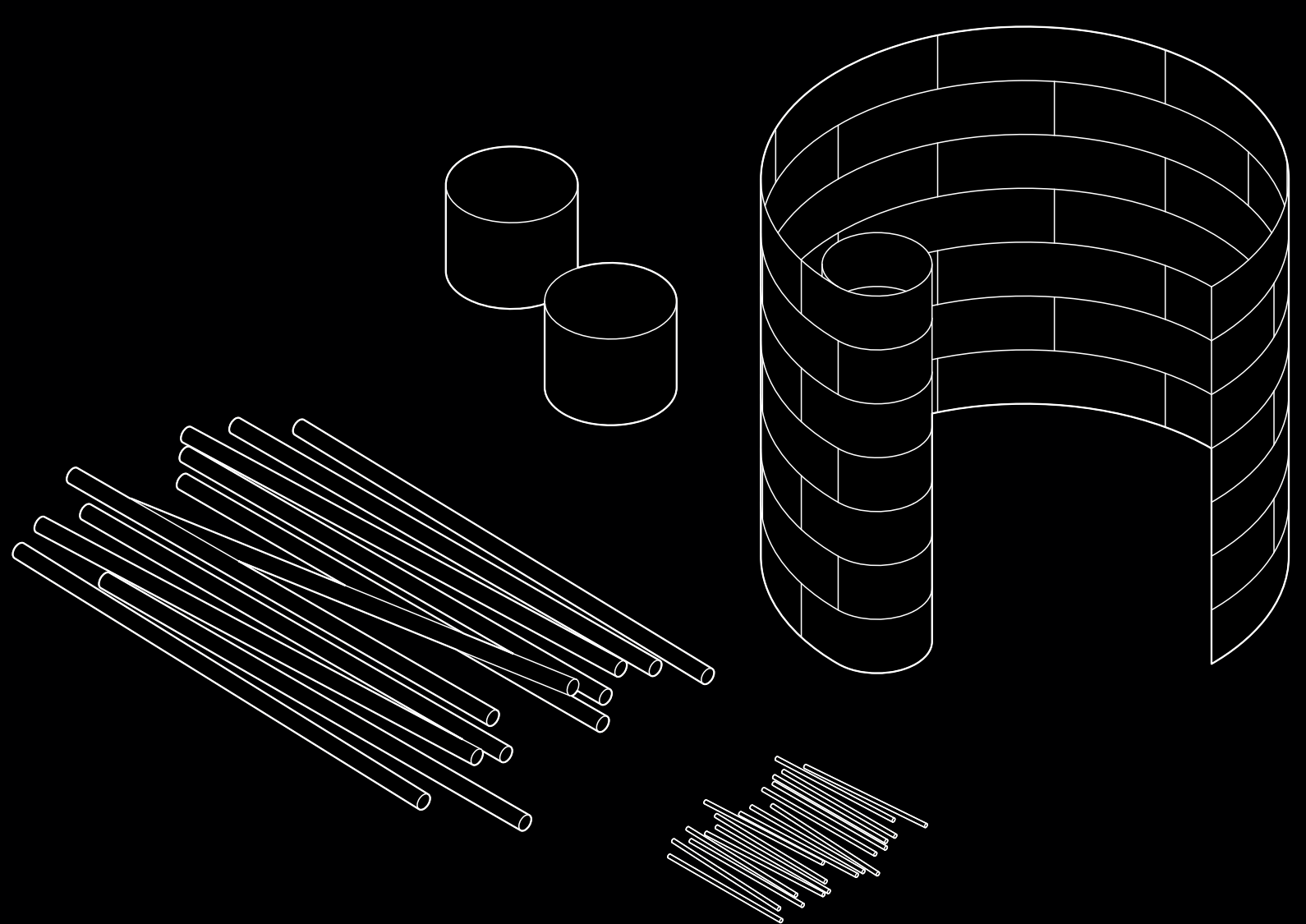
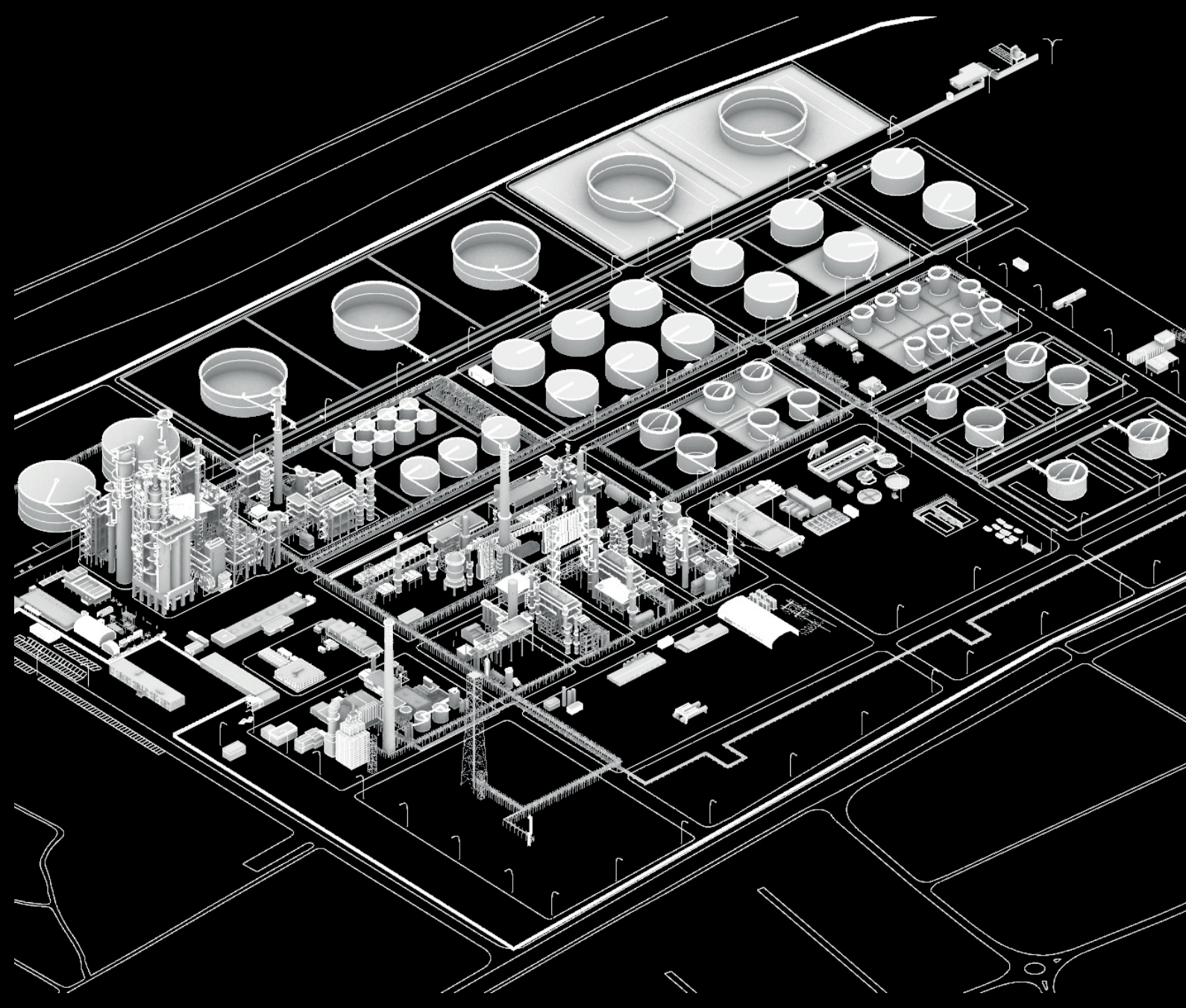
deconstruction of industrial sheds in Monthey, providing corrugated metallic and transparent PVC plates

1ST CYCLE OF COMPONENTS

dismantlement of an oil refinery in

Collombey-Muraz

46°17'11.2"N 6°56'53.4"E



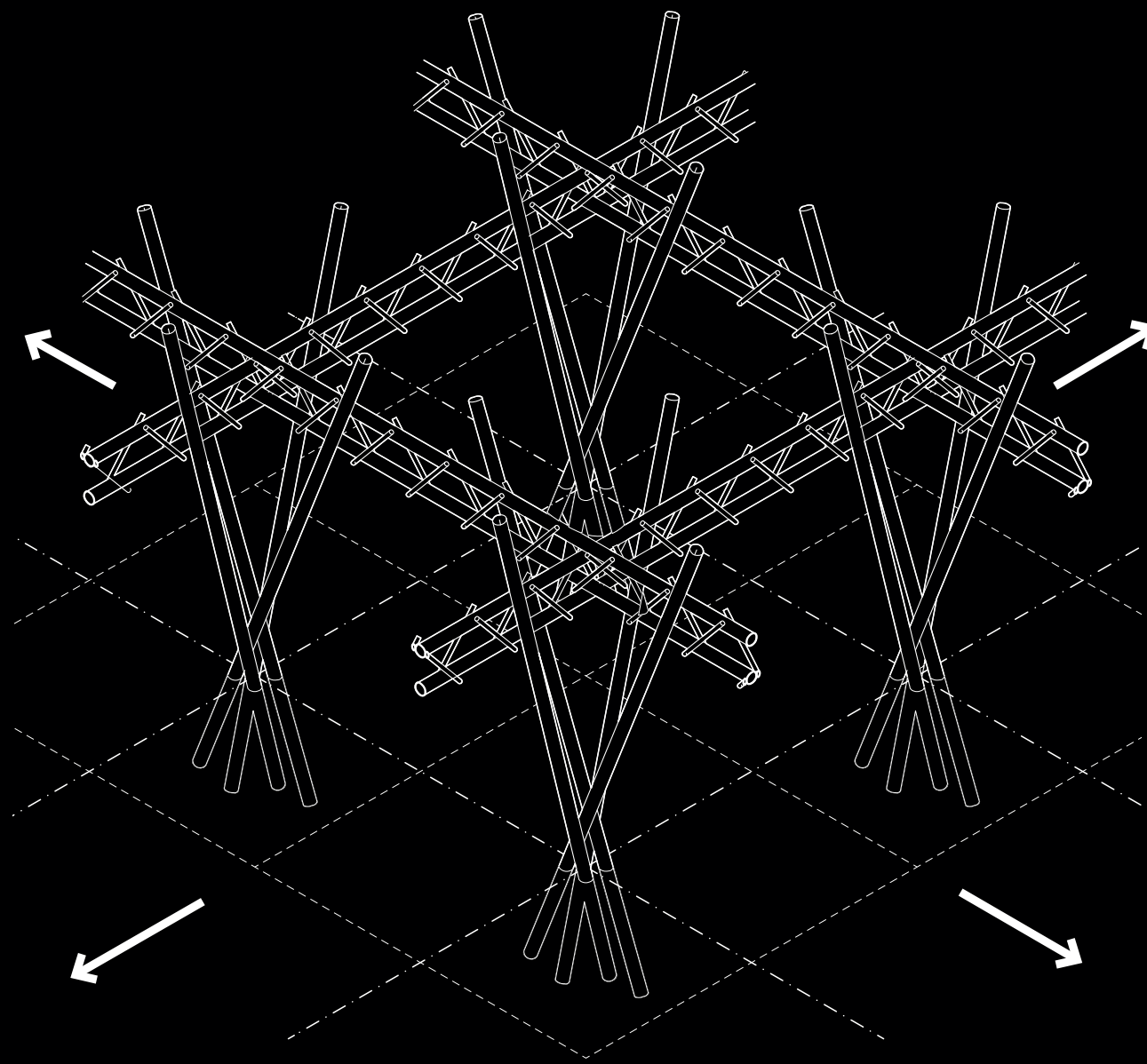
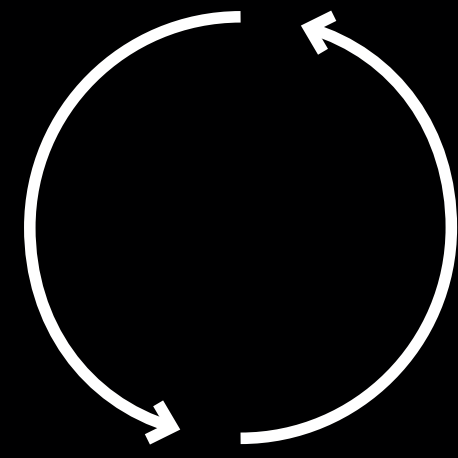
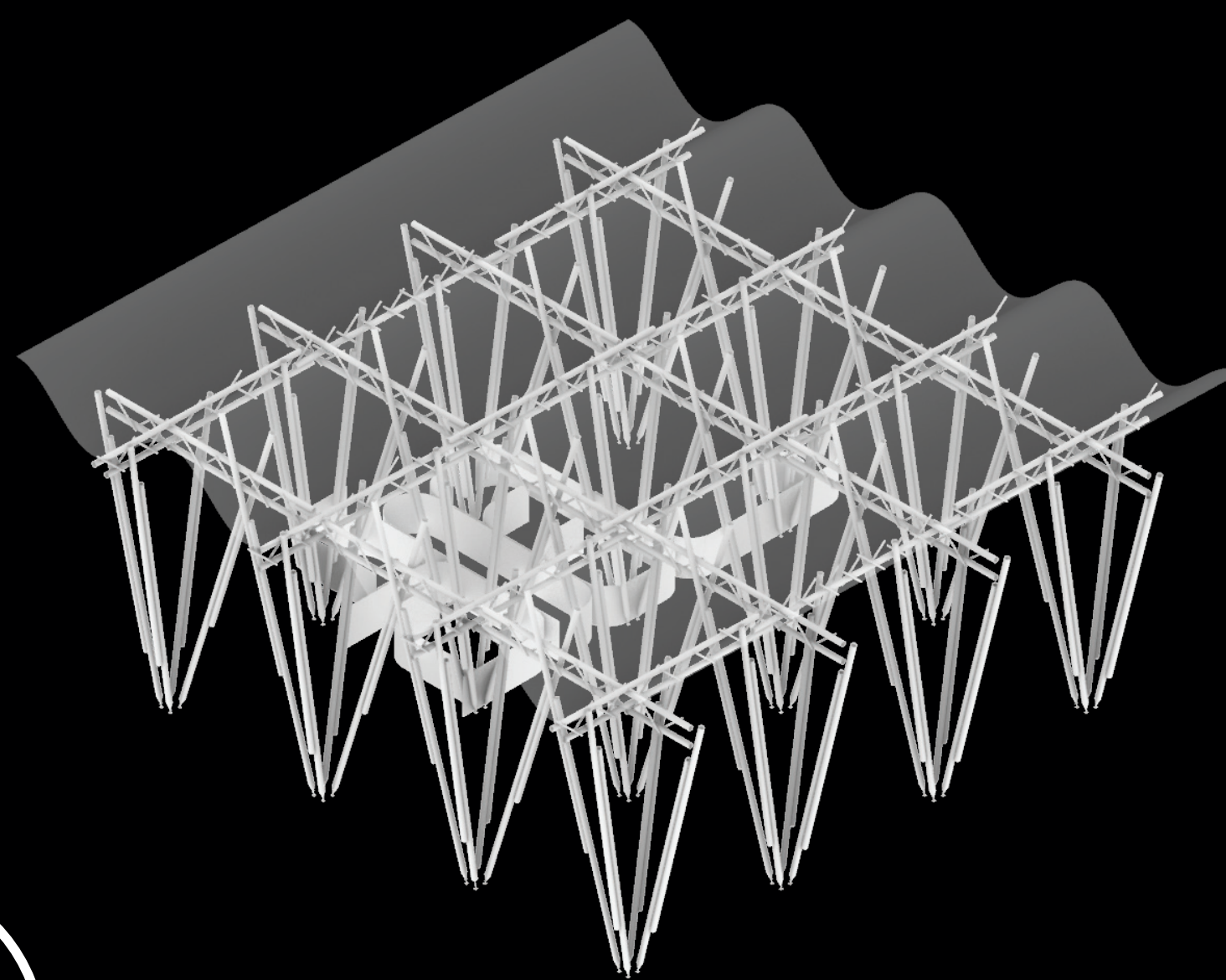
dismanteled kit of parts

2ND CYCLE OF COMPONENTS

through an versatile and reversible event hall in

Monthey

46°15'16.729"N 6°57'2.952"E



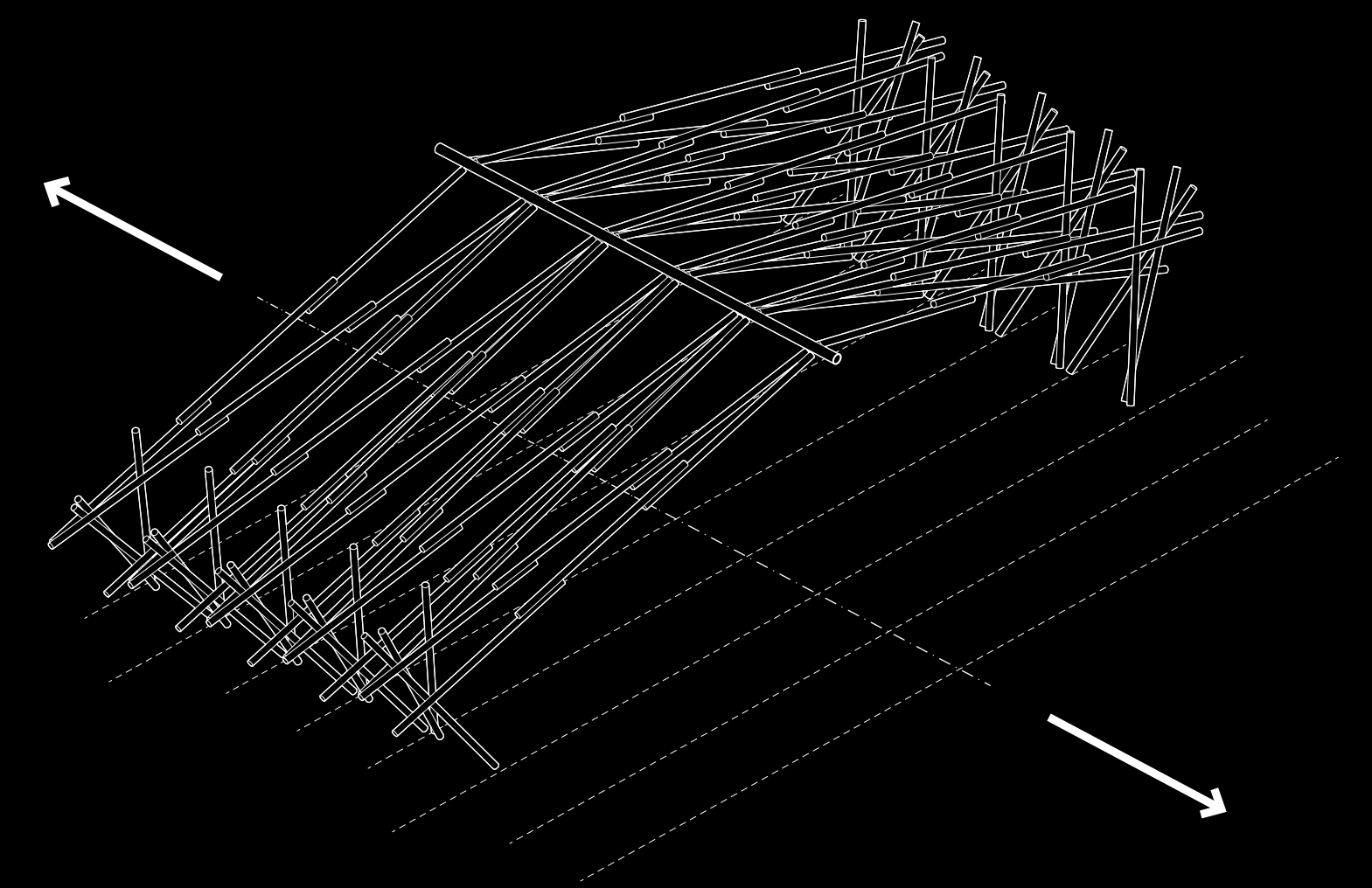
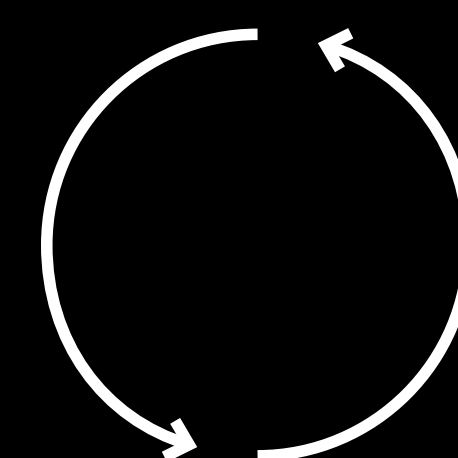
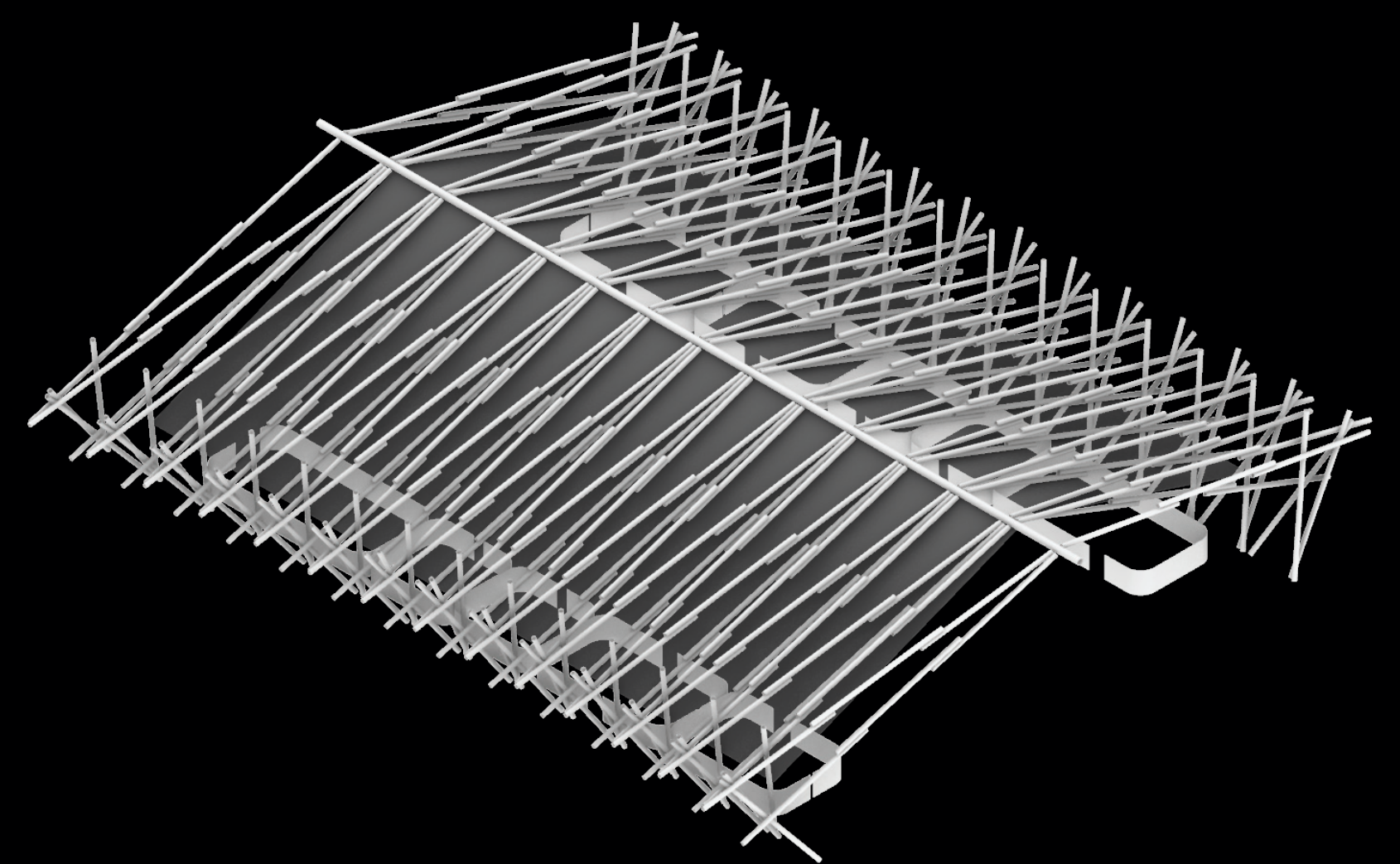
versatility, reversibility, design from reuse and design for disassembly

3RD CYCLE OF COMPONENTS

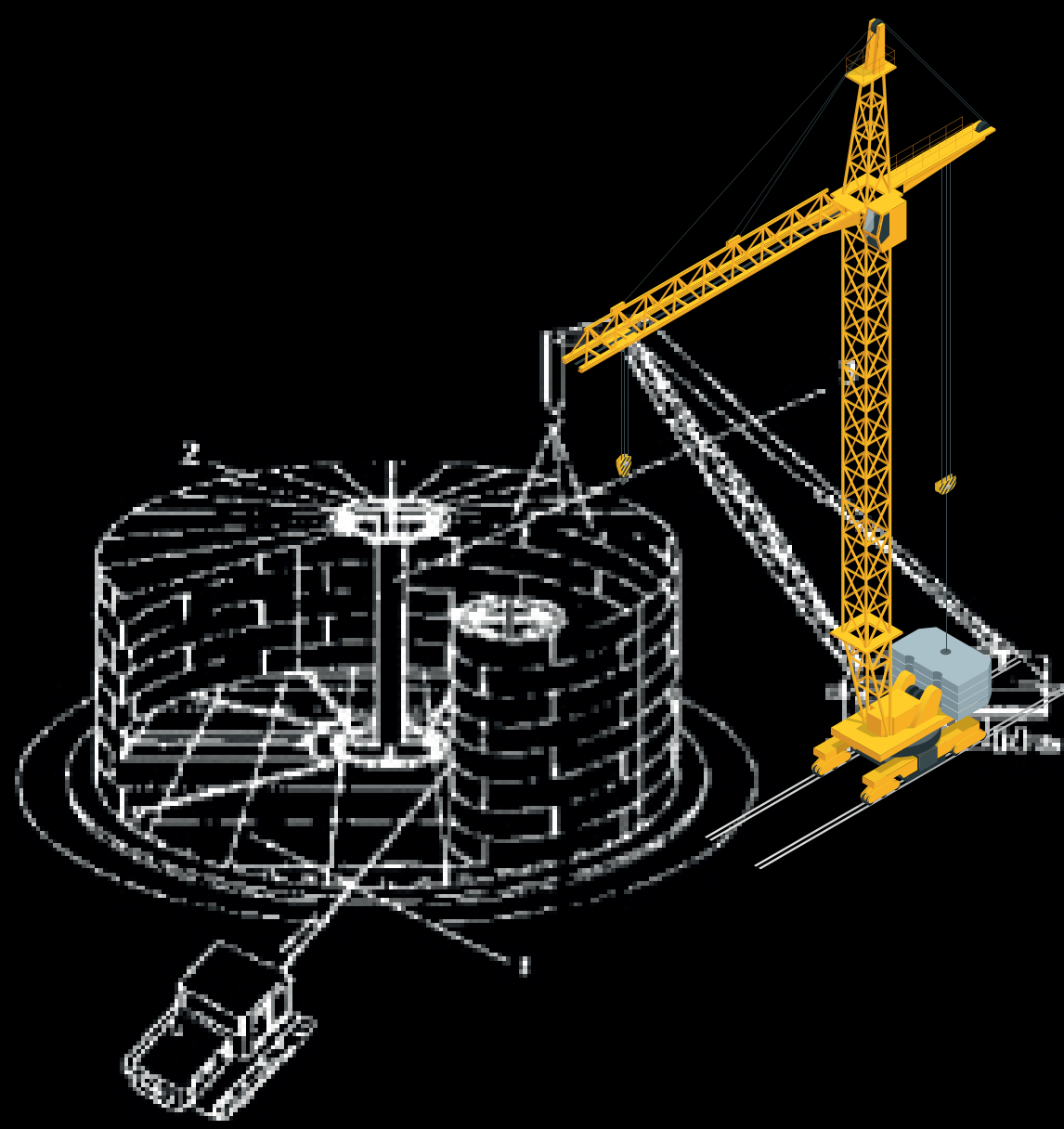
through a versatile and reversible sport center in

Villars-sur-Ollon

46°18'6.072"N 7°13'9.036"E

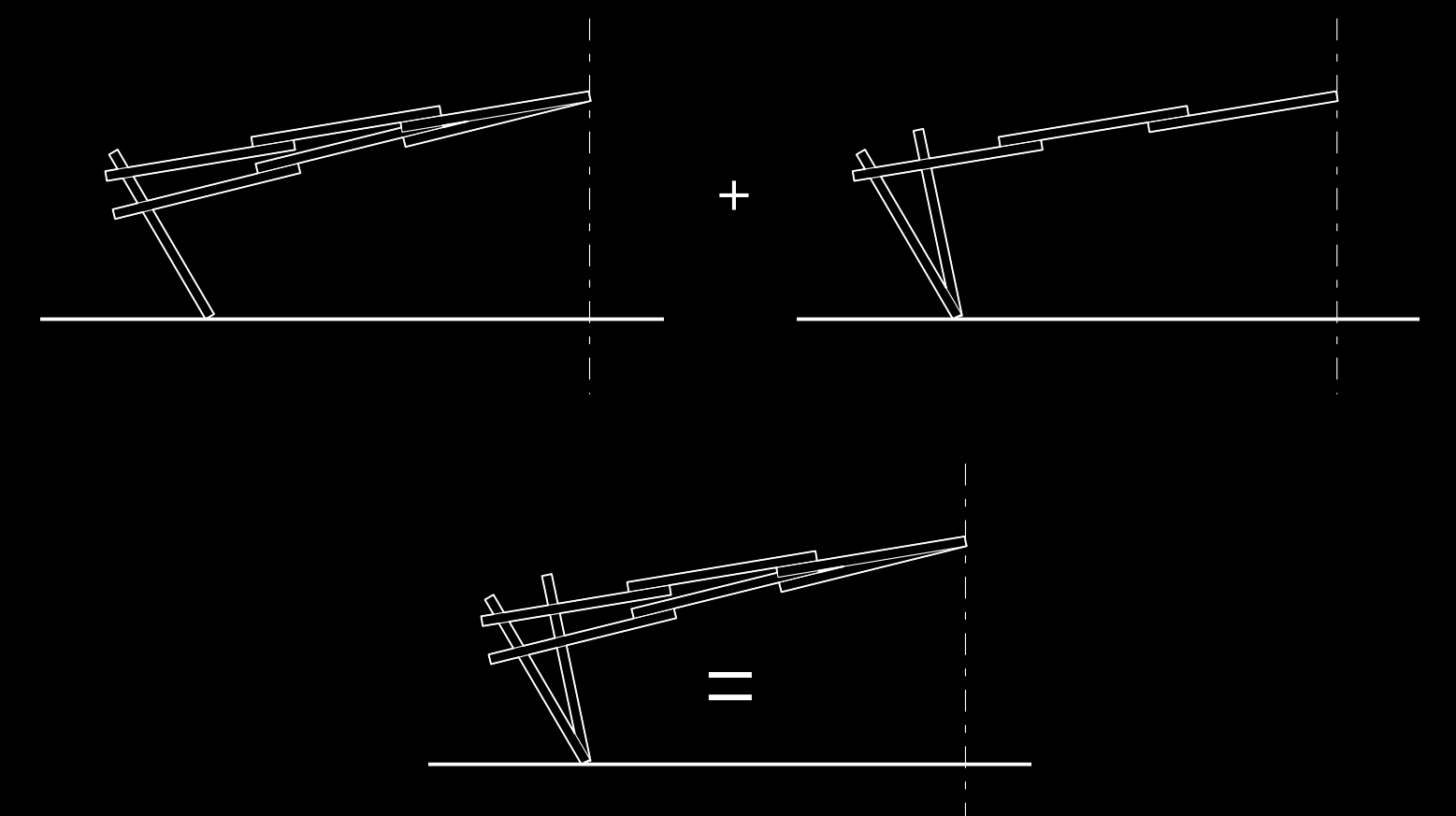
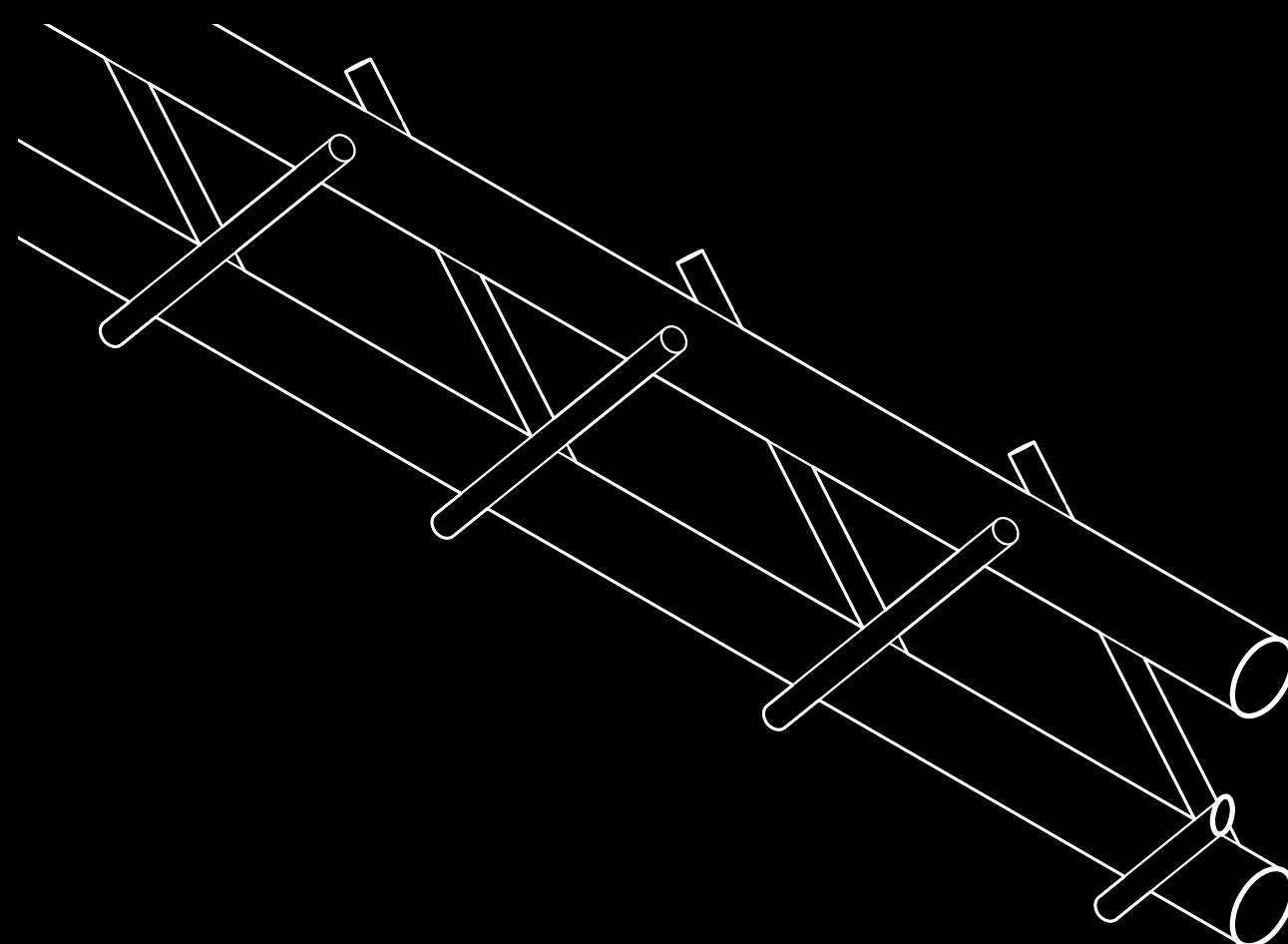


how to dismantle an oil refinery
to value its components

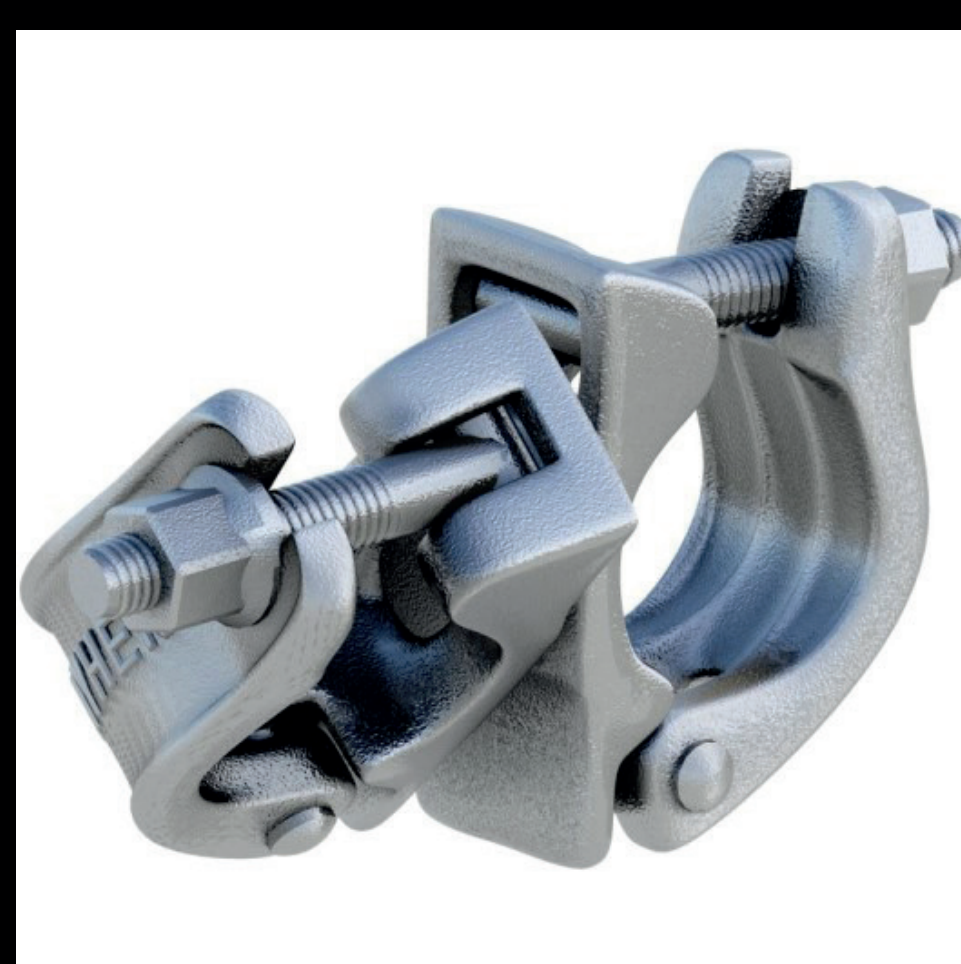
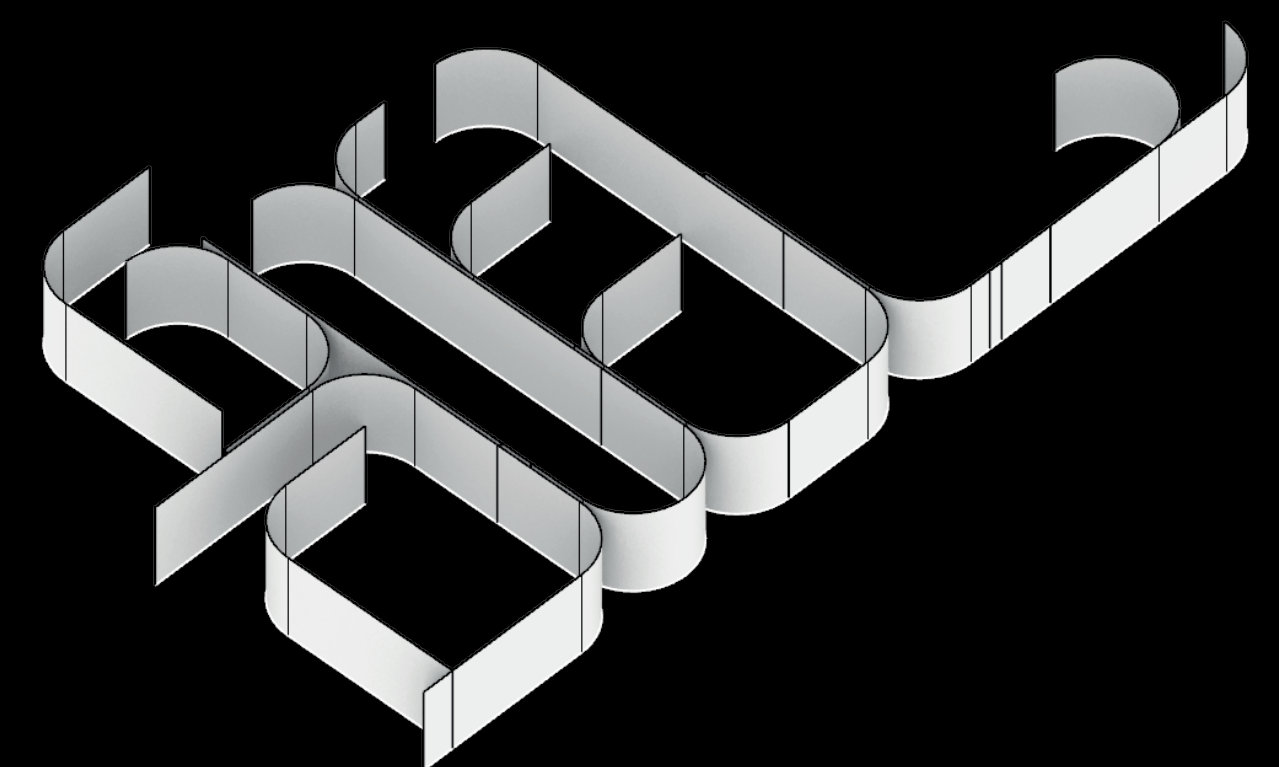
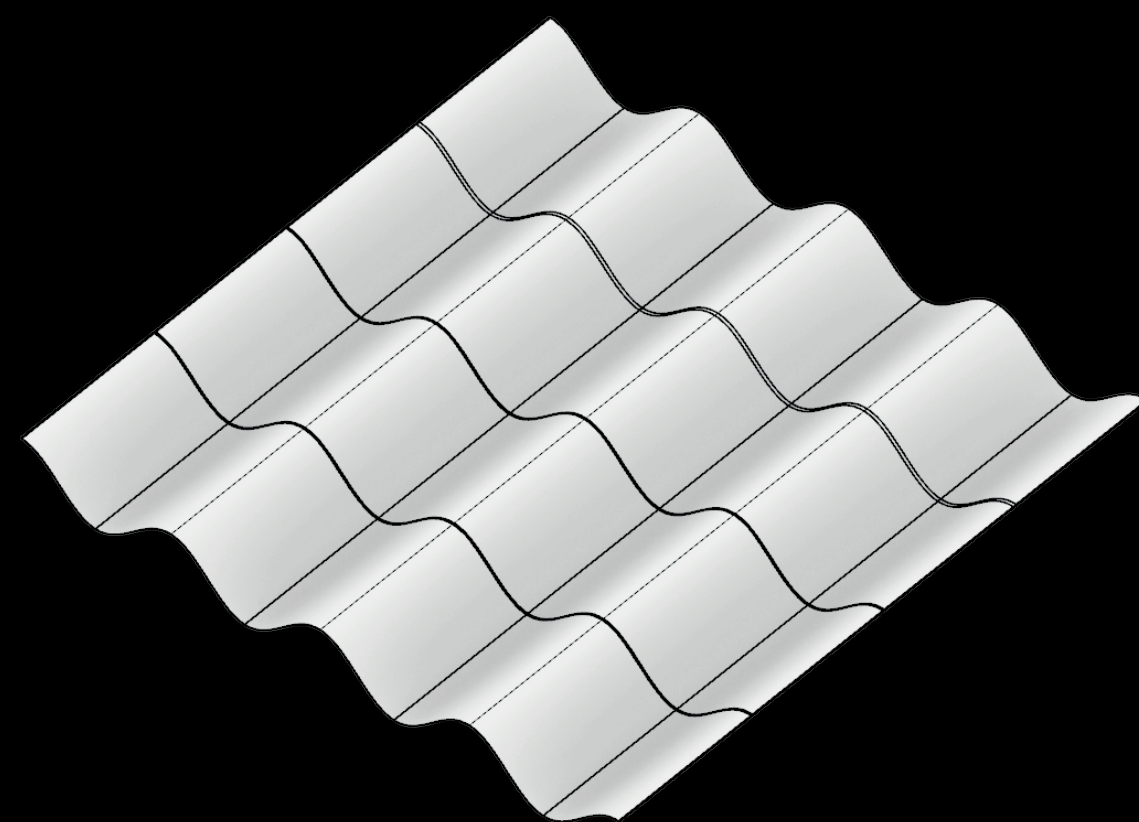


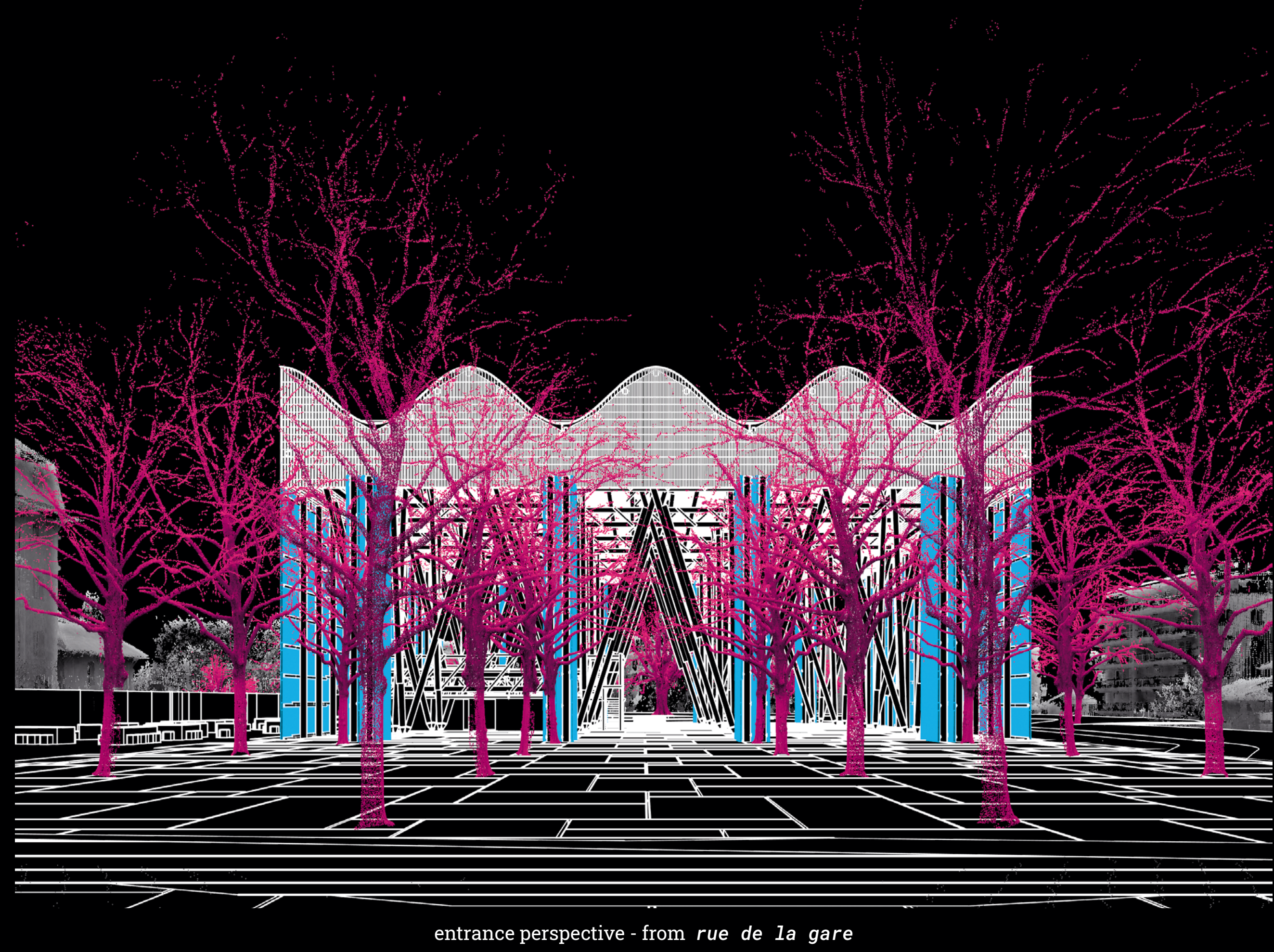
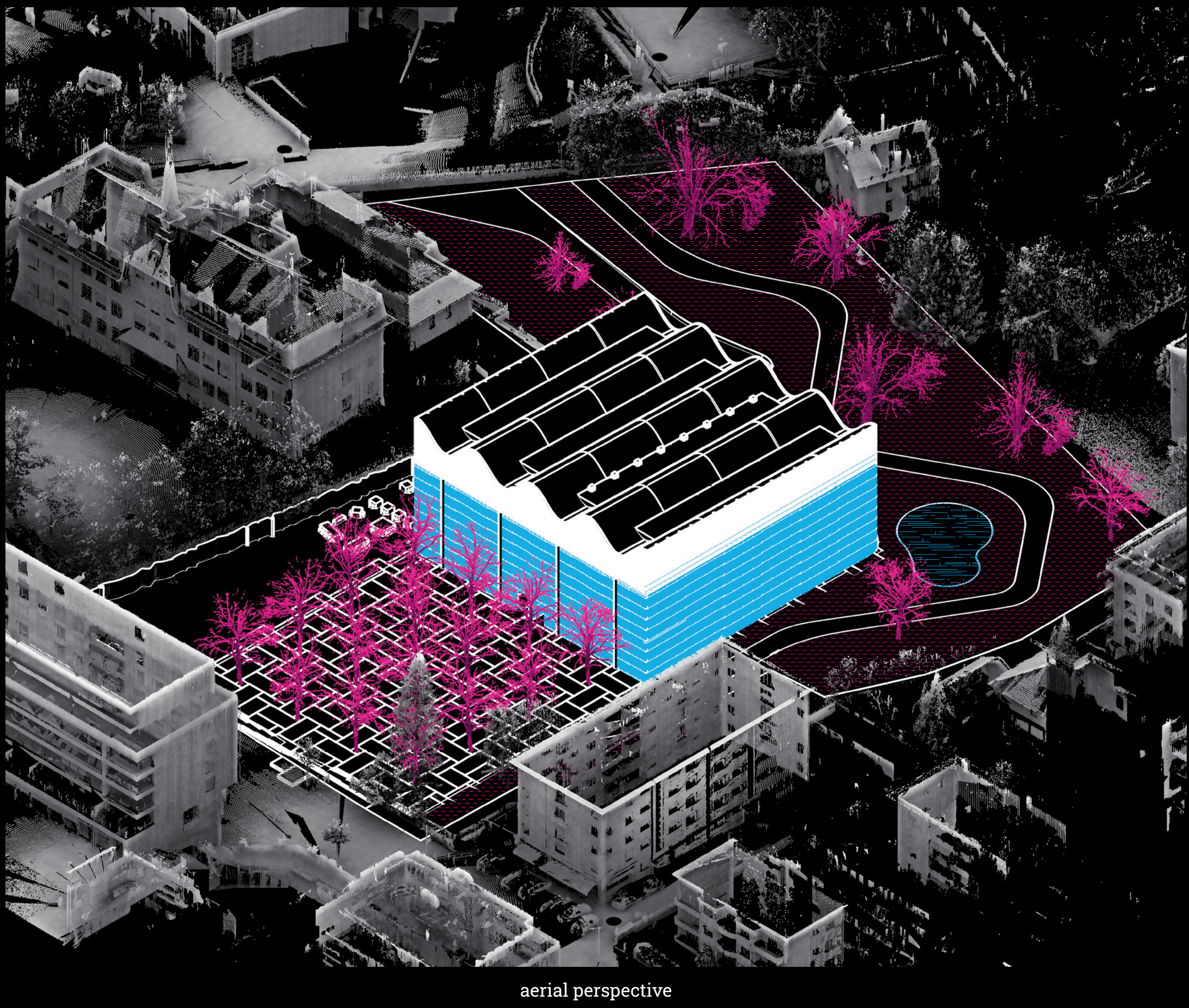
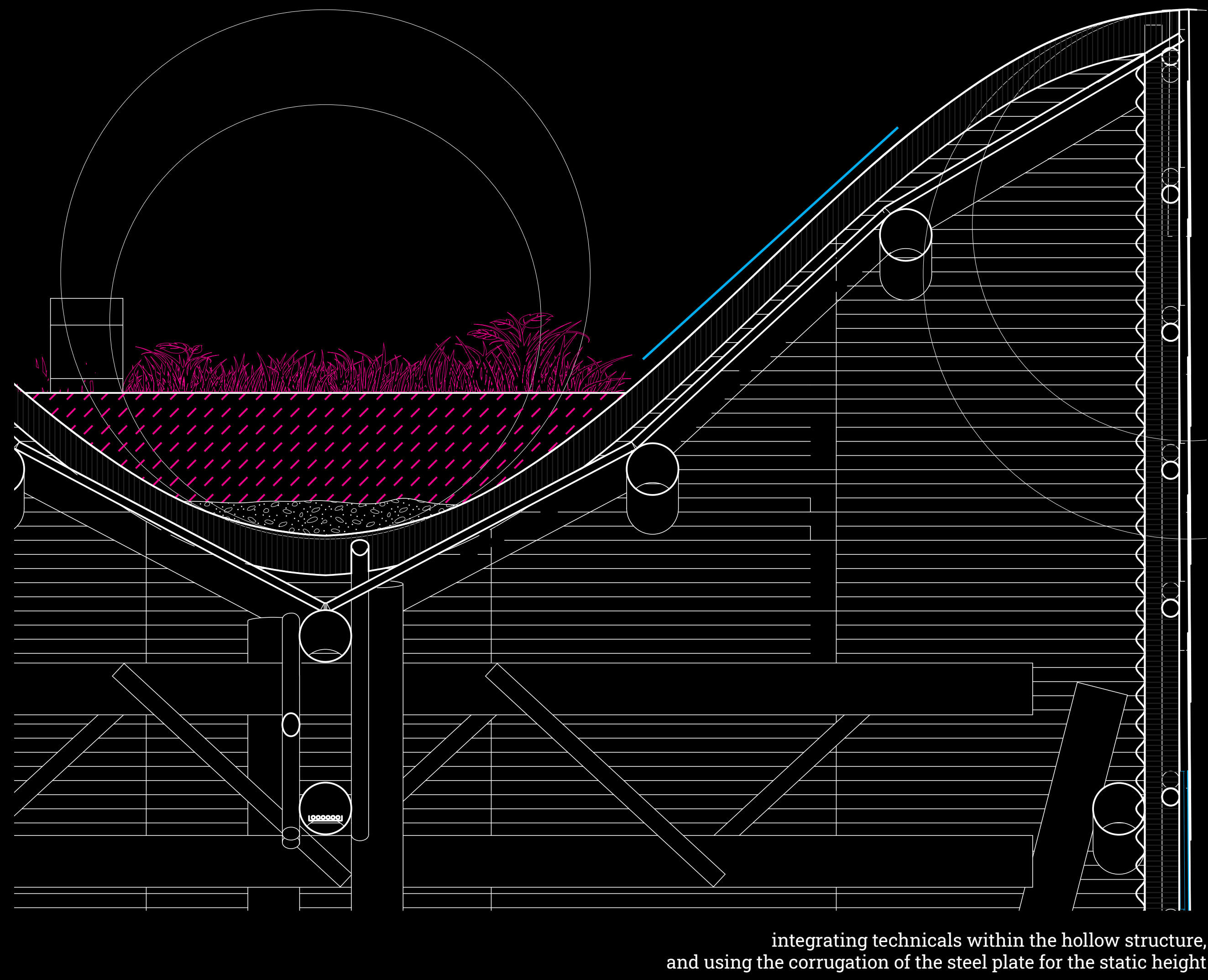
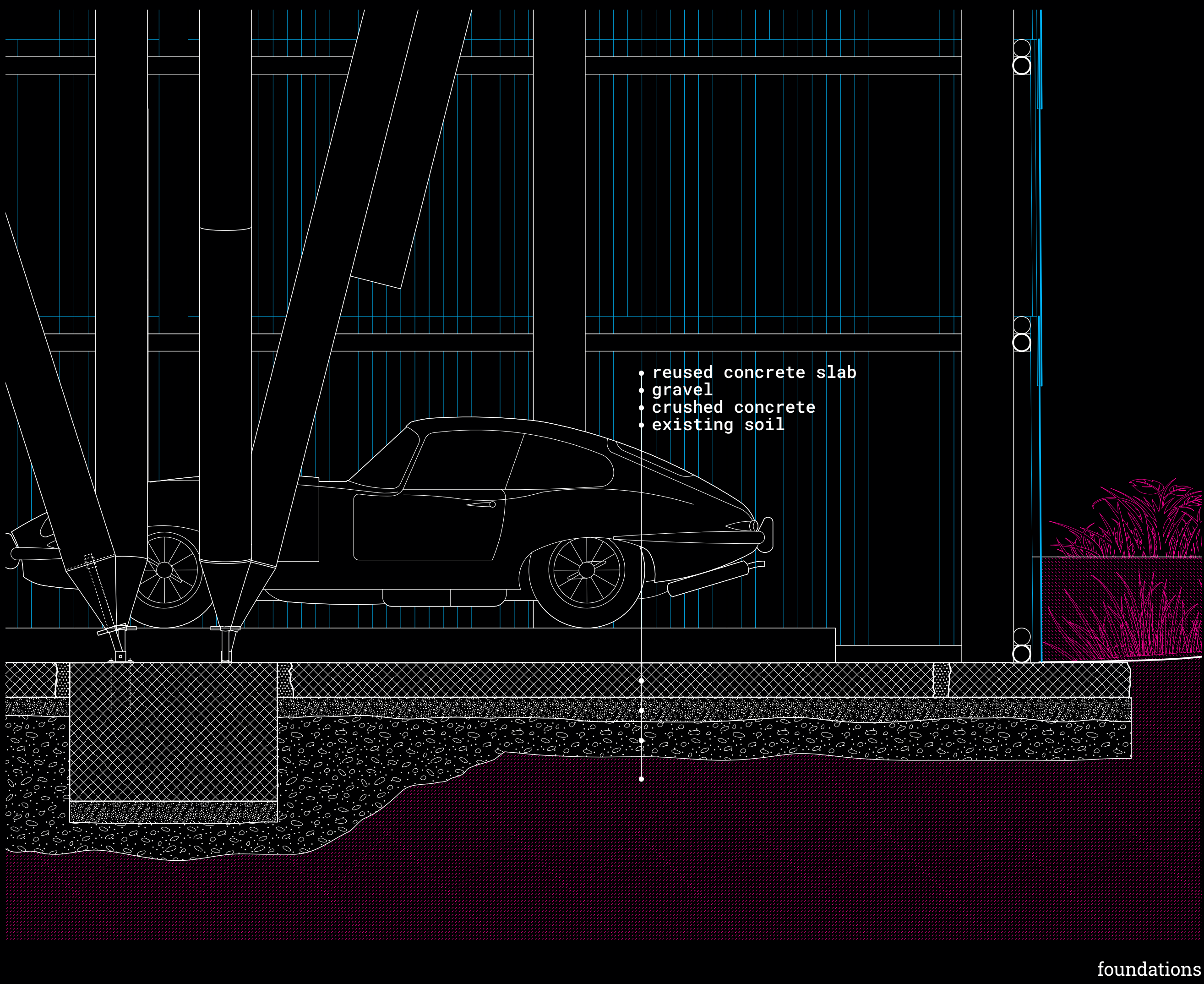
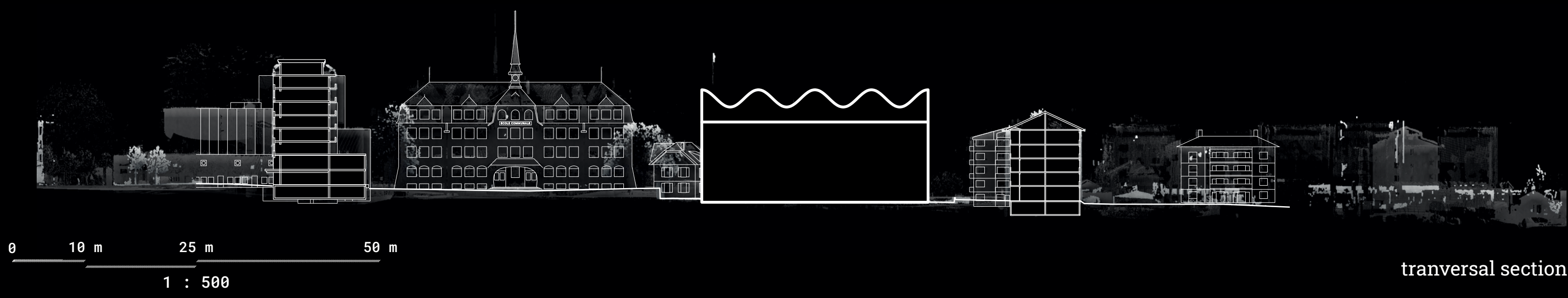
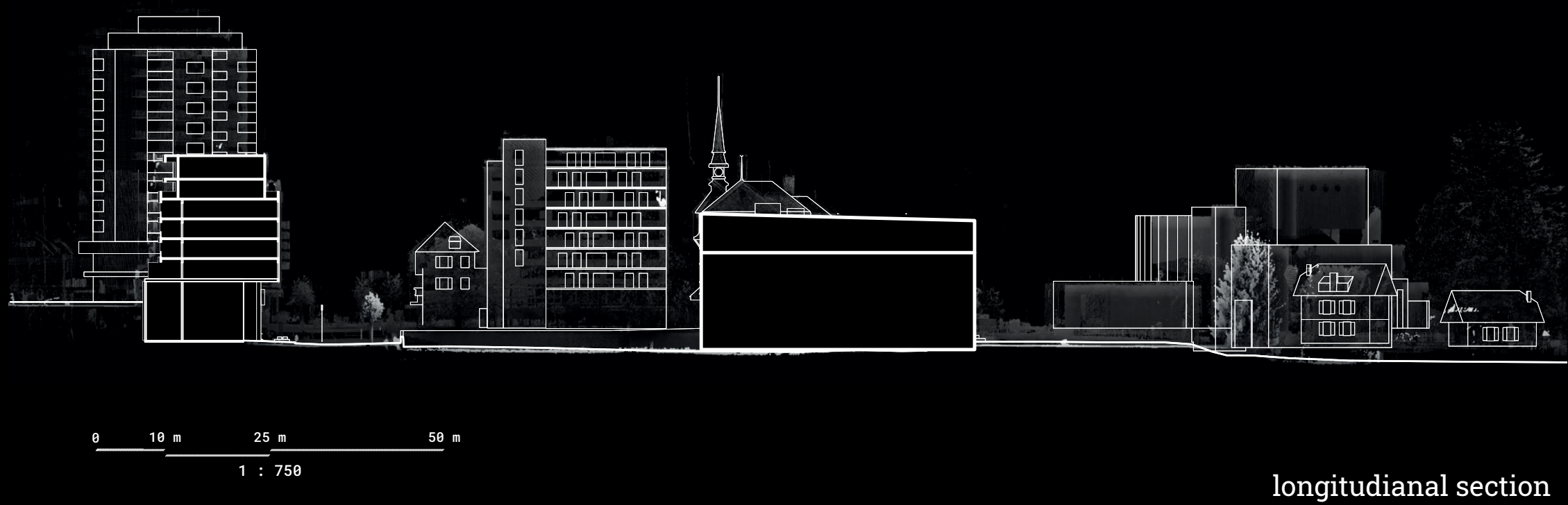
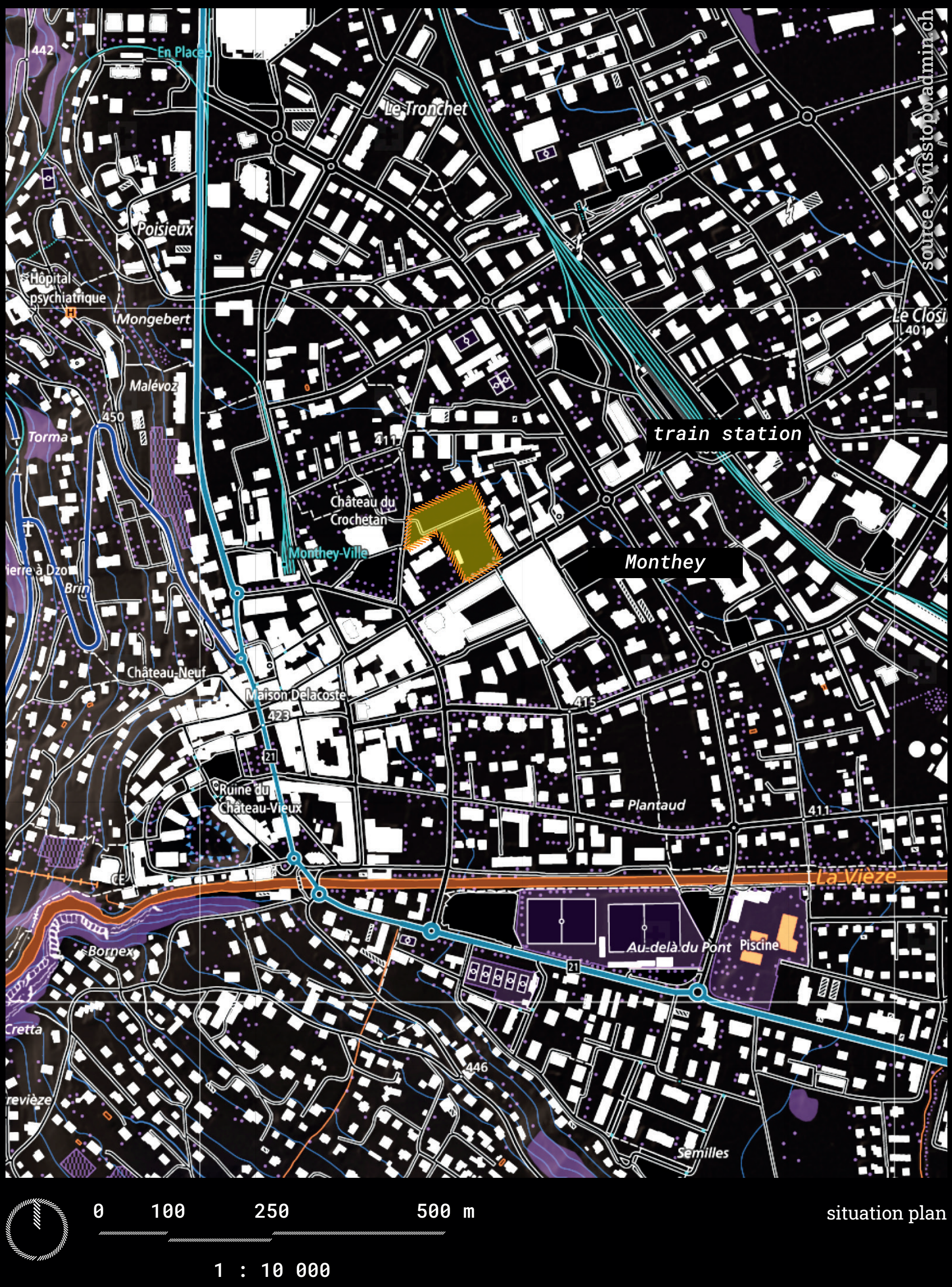
transport optimisation to avoid downcycling : re-coiling tanks, packing

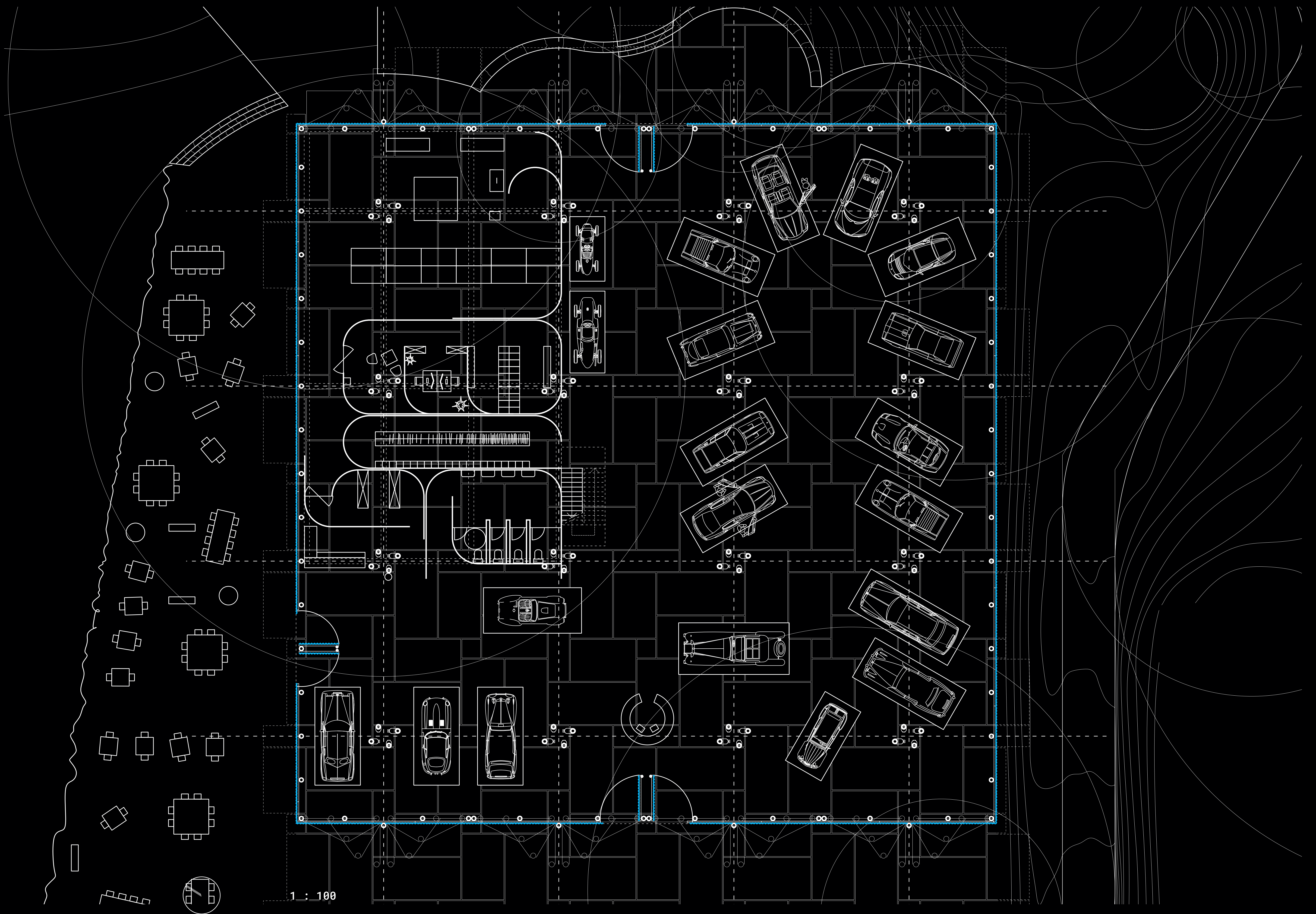
how to reuse pipes to be reusable ?
truss + 3 pin frame



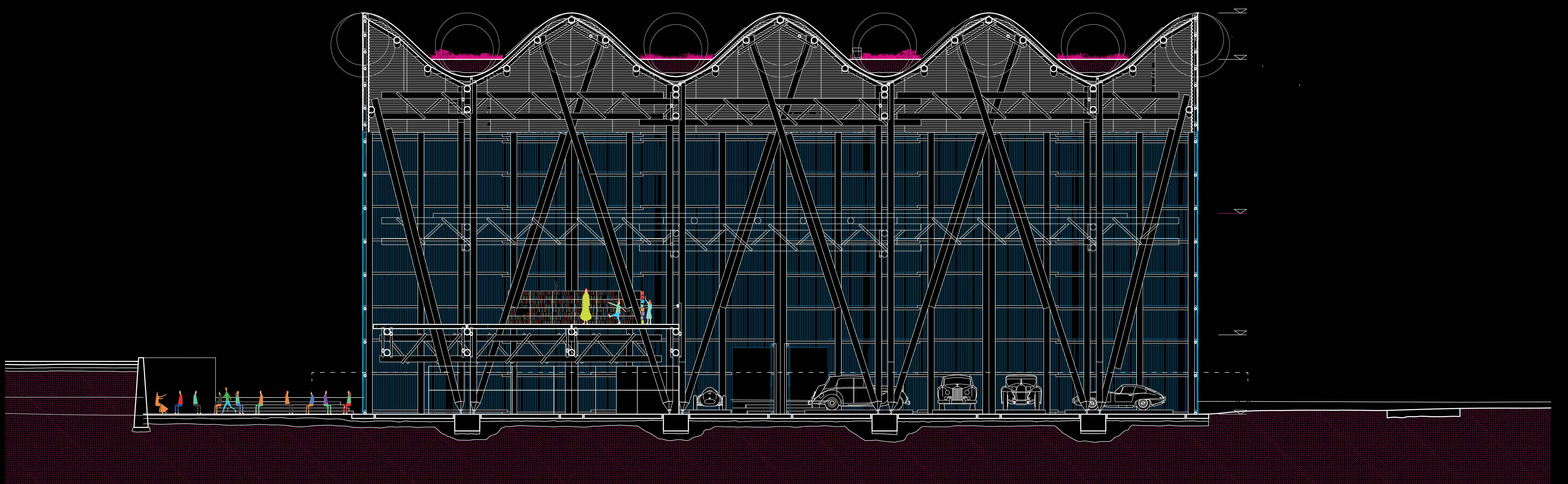
how to reuse tanks to be reusable?
as partitions and roof



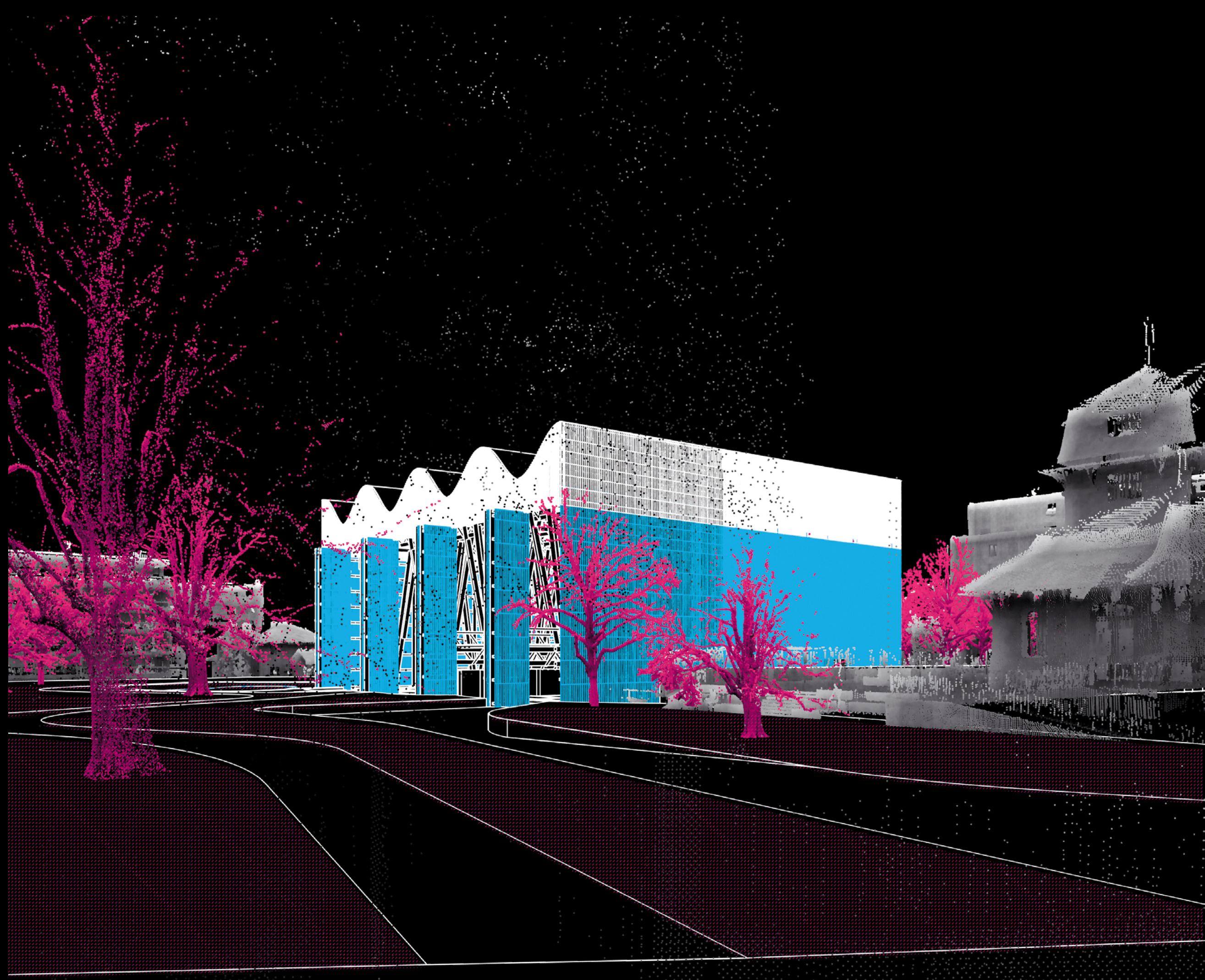




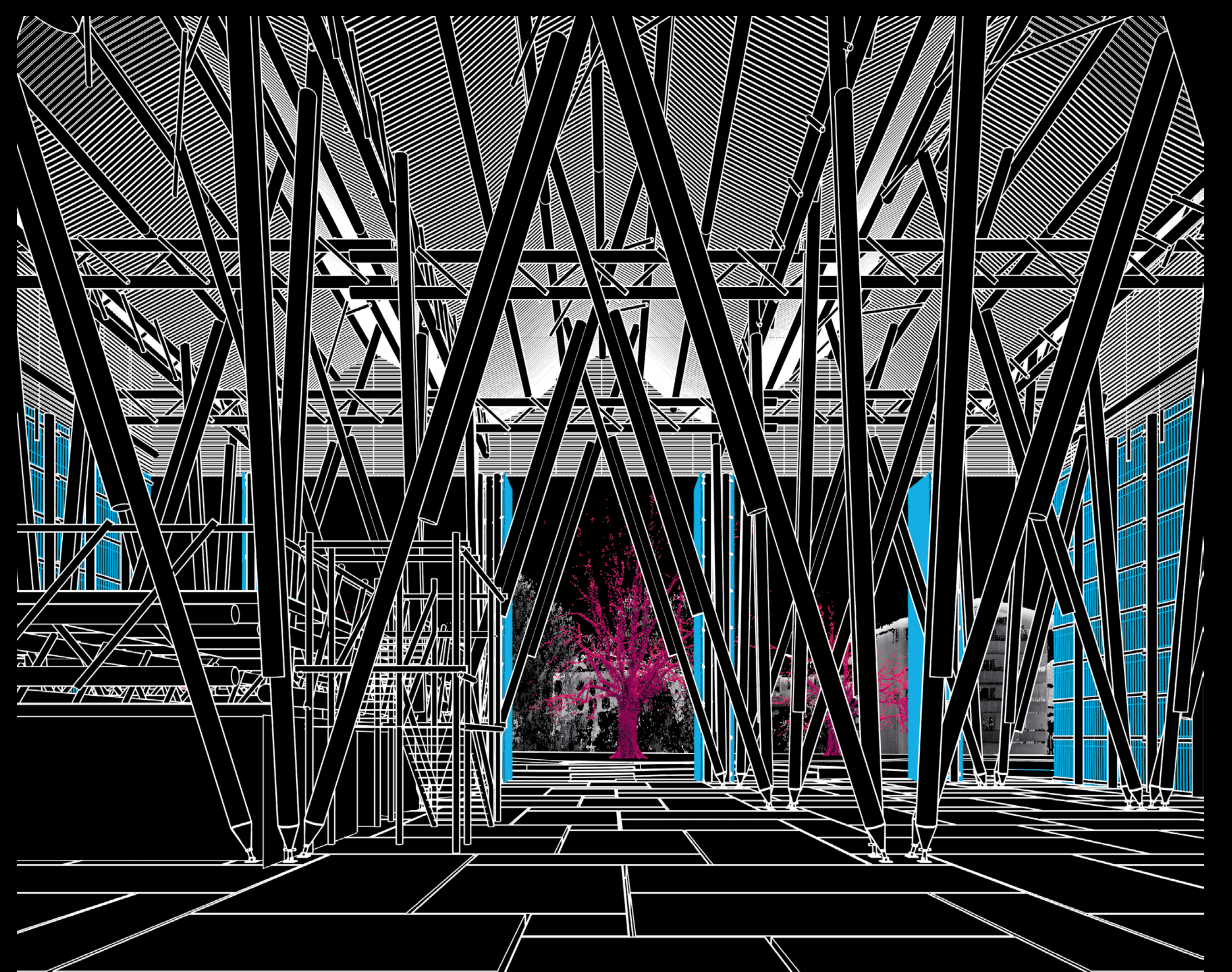
ground floor plan - h = 2 m - 1:100



transversal section - 1:100



perspective from the park entrance



interior perspective