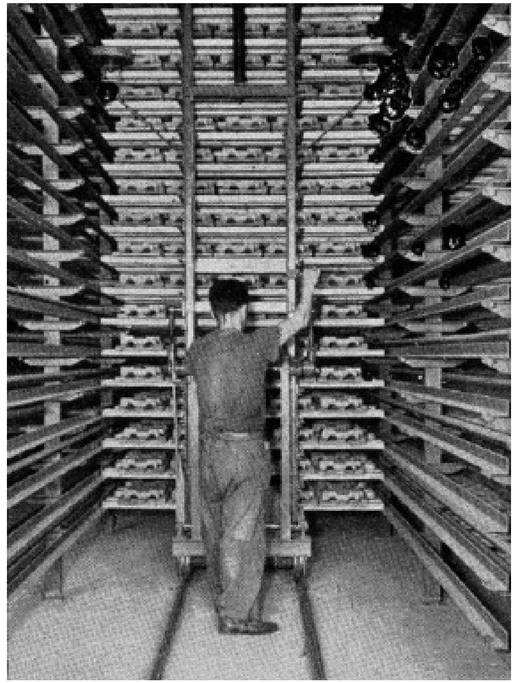
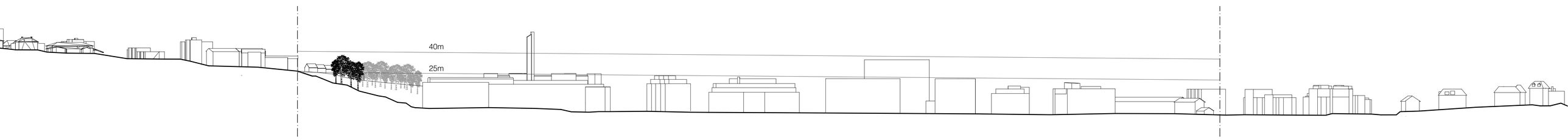
DAUERHAFTIGKEIT VON ERDE

MASTER-ARBEIT, HS 2021
STUDIO BOLTSHAUSER

Romana Duttweiler





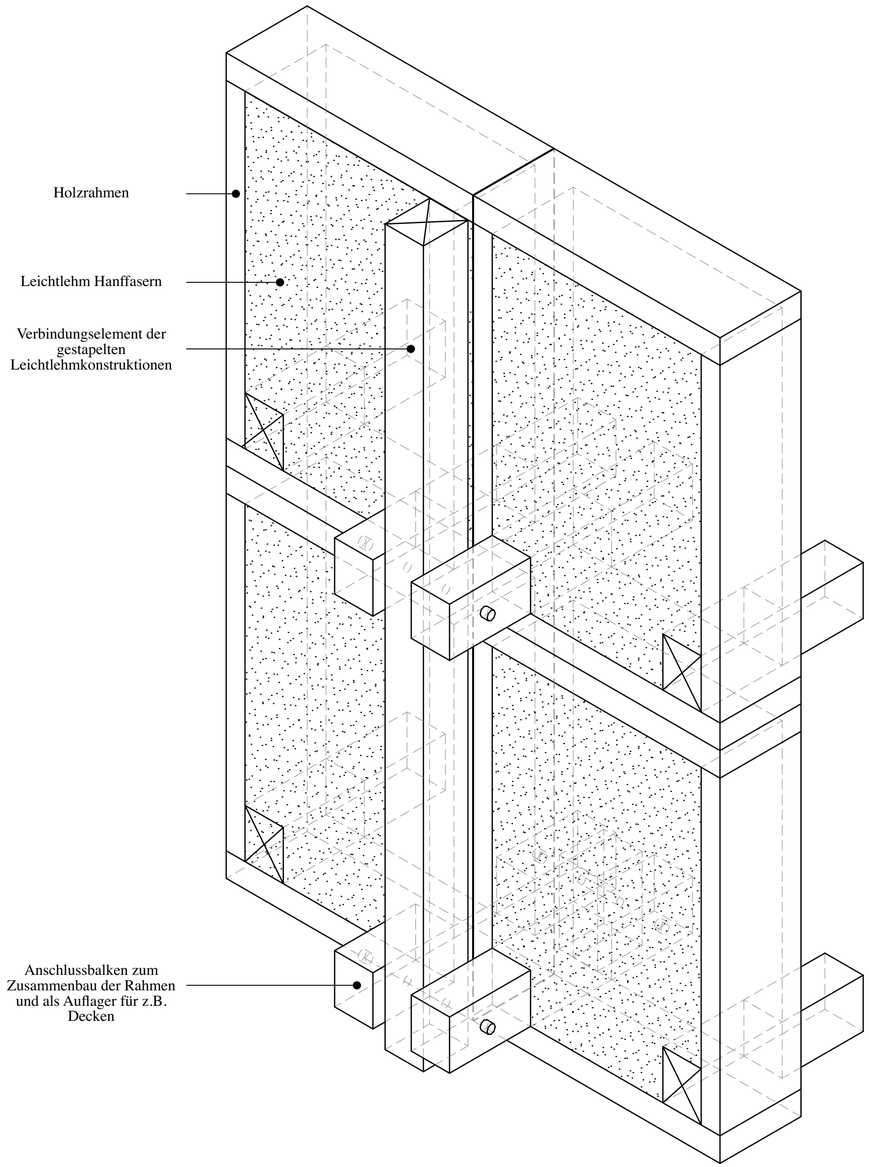
Transformation von der Lehmgrube zum Industrieareal

VORBEREITUNGSPHASE

Mischungen Leichtlehm

Nr.	Mischung		Bemerkung	Druckfestigkeit
Mix 1	500g Wasser / 500g Binz Lehm			
Mix 1.1	+ 125g	Hanffasern		-
Mix 1.2	+ 150g	Hanffasern		-
Mix 1.3	+ 187.5g	Hanffasern	kaum Schwindung	-
Mix 1.4	+ 102g	Zellulose	grosse Schwindung	-
Mix 1.5	+ 153g	Zellulose		
Mix 1.6	+ 125g	Holzspäne	Verfärbung nach Trocknung	-
Mix 1.7	+ 150g	Holzspäne	Verfärbung nach Trocknung	-
Mix 1.8	+ 187.5g	Holzspäne	Verfärbung nach Trocknung	-
Mix 1.9	+ 215g	Hanffasern		-
Mix 1.10	+ 300g	Perlit		
Mix 1.11	+ 350g	Lecca		
Mix 1.12	+ 100g	Strohfasern		-
Mix 1.13	+ 150g	Strohfasern		-
Mix 1.14	+ 200g	Strohfasern		-
Mix 1.15	+ 150g	Hanffasern / 100g Lecca		-

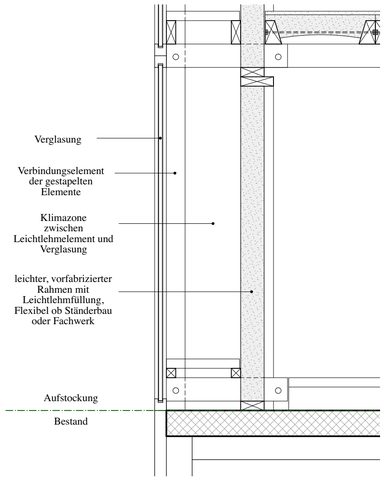
Leichtlehmmischungen können keine Druckkräfte aufnehmen
-> es braucht eine primäre Tragstruktur

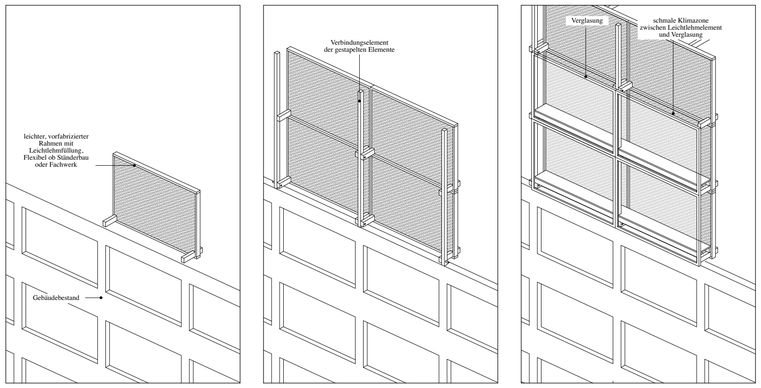


Mockup

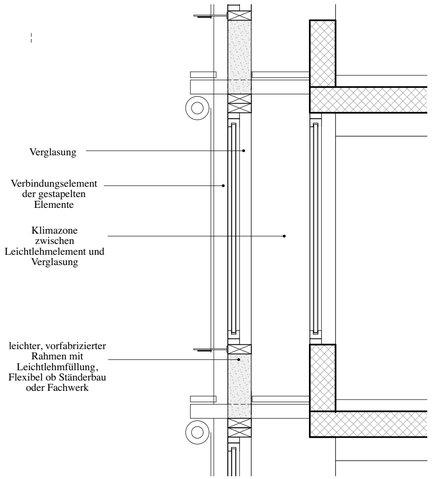
VORBEREITUNGSPHASE

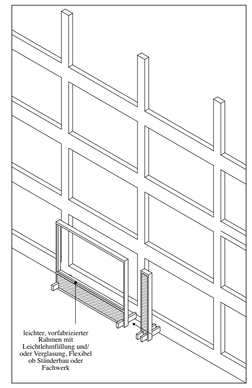
						Wärmeleitfähigkeit					U-Wert Neubau gemäss SIA 380 = 0.17 W/(m²·K)
Nr.	Fasern	Binz	Lehm	Sand 630	Sand 2000	NaHMP (disp)	MgO (Coag)	Wasser	Becher Lehm	Becher Faser	Wärmeleitfähigkeit **Wandstärke monolitisch**
W											
2.1	Hanffasern	612	262	918	3.06	3.06	428	1.5 x 45g	3 x 18g	0.113 W/(m·K)	**65 cm**
2.2	Hanffassern	612	262	918	3.06	3.06	428	2 x 45g	2 x 18g	0.077 W/(m·K)	**44 cm**
2.3	Stroh	612	262	918	3.06	3.06	490	1.5 x 42g	3 x16g	0.336 W/(m·K)	**192 cm**
2.4	Stroh	612	262	918	3.06	3.06	490	2 x 42g	2 x 16g	0.231 W/(m·K)	**132 cm**
2.5	Maisfasern	612	262	918	3.06	3.06	490	1.5 x 42g	3 x 16g	0.414 W/(m·K)	**236 cm**
2.6	Maisfasern	612	262	918	3.06	3.06	490	2 x 42g	2 x 16g	0.211 W/(m·K)	**120 cm**

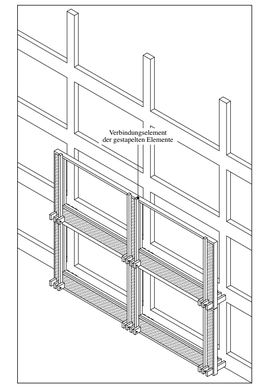


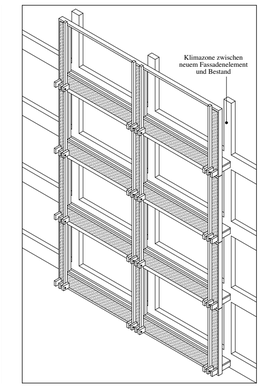


Aufstockung



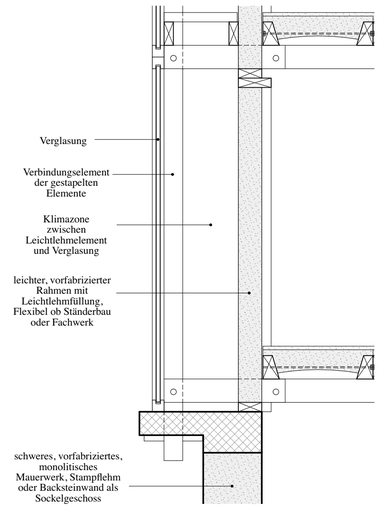


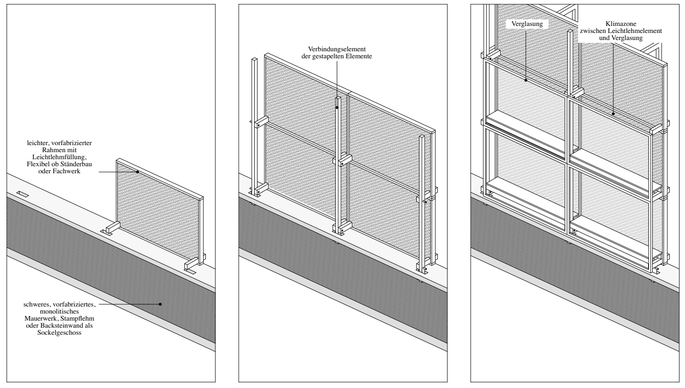




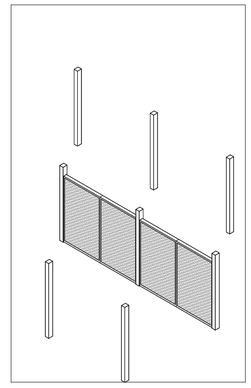
Fassadensanierung

Neubau





Trennwand



Leichtlehmkonstruktion

VORBEREITUNGSPHASE

Kaltluftvolumenstrom (m^3/s), 4 Uhr

Klimaanalysekarte, Lufttemperatur, 4 Uhr

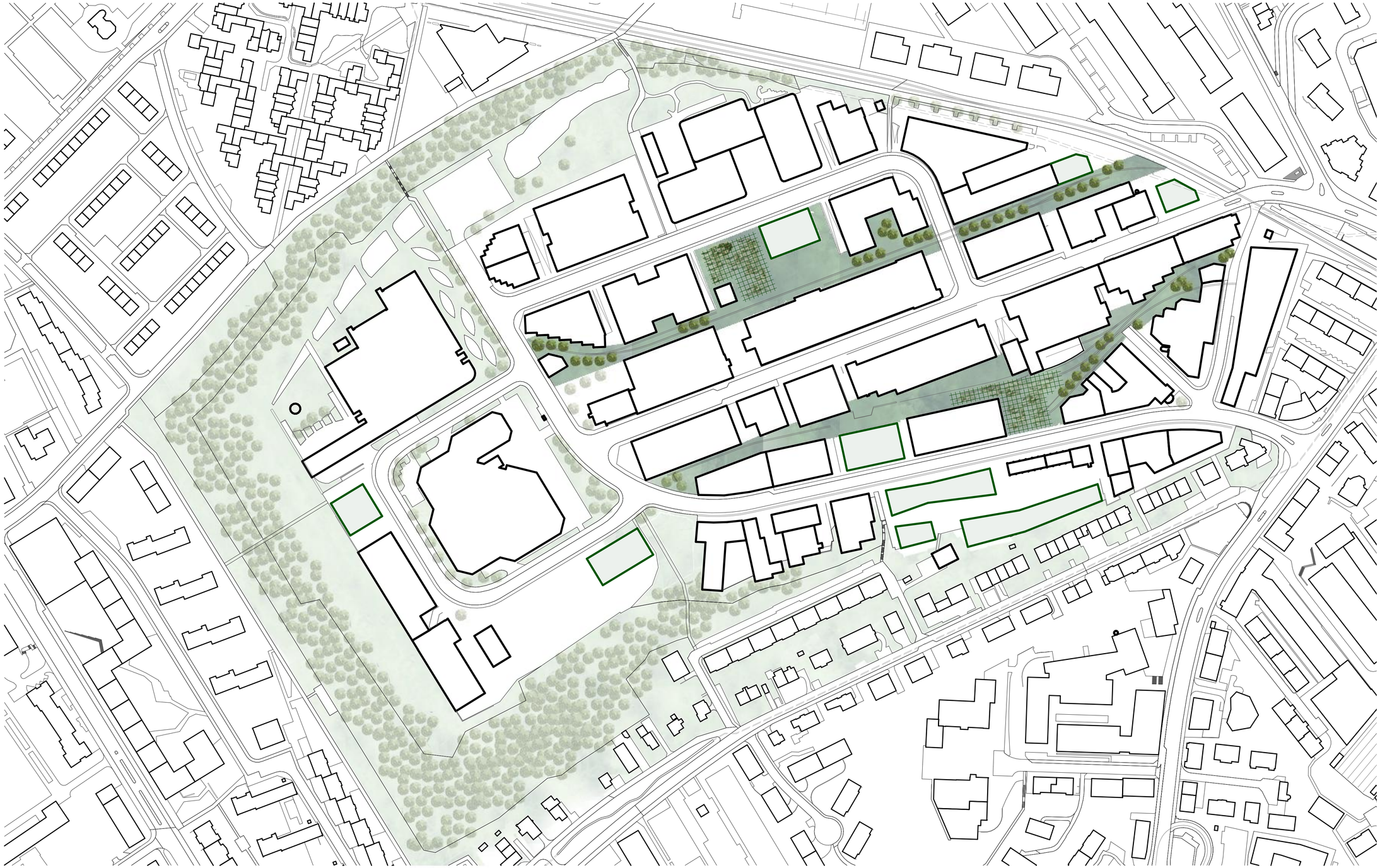
Kaltluft, Lufttemperatur

versiegelte Flächen - schwarz - **bestehend**

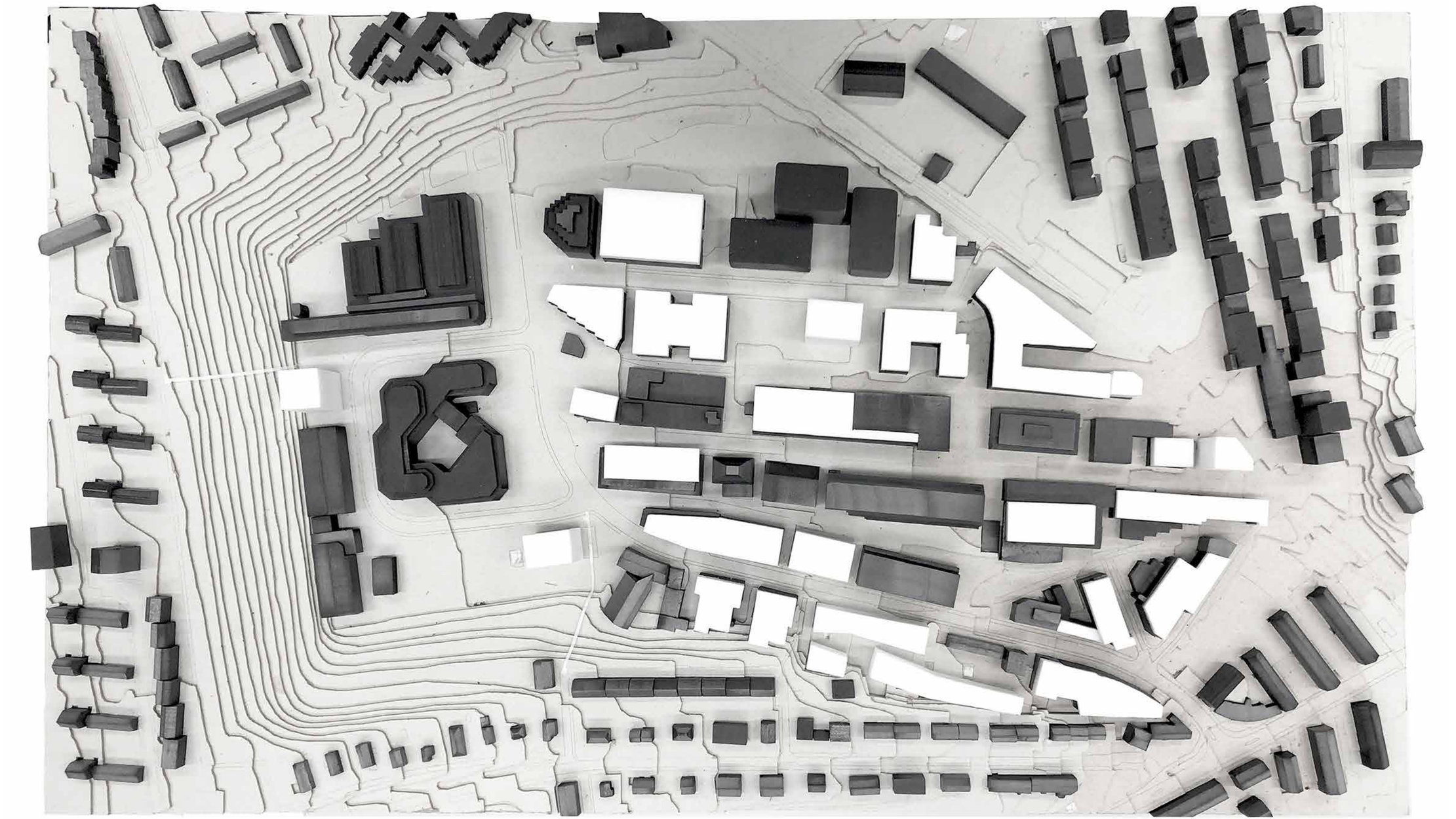
versiegelte Flächen - schwarz - **neu**

Entsiegeln

VORBEREITUNGSPHASE



Konzeptplan



Masterplan Modell

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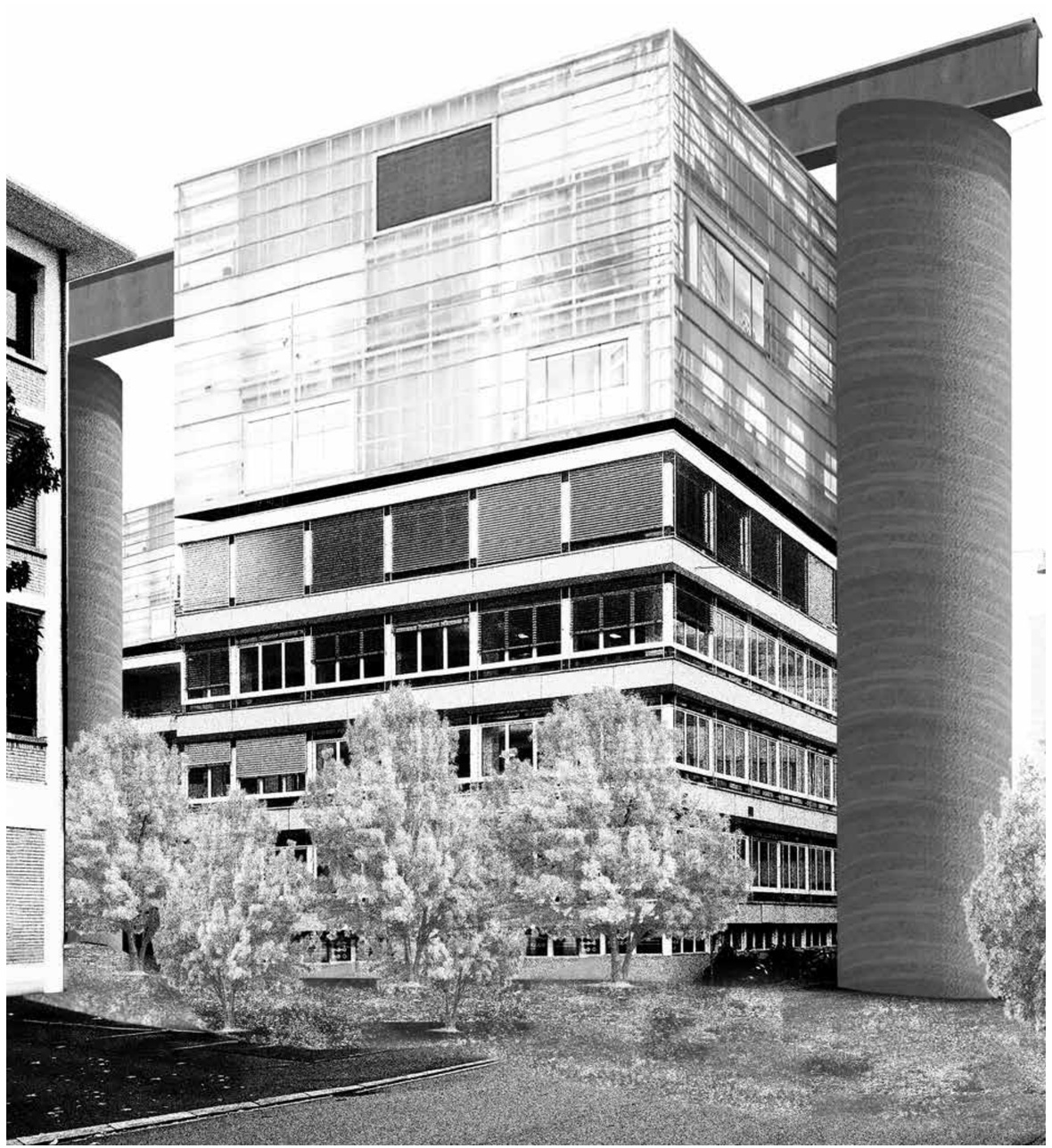

Collage

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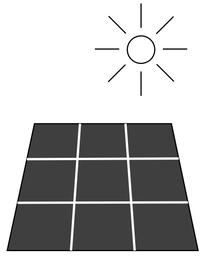

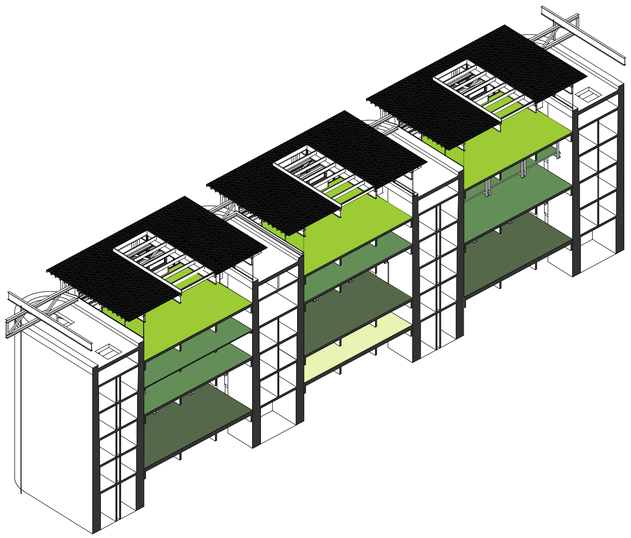

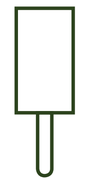

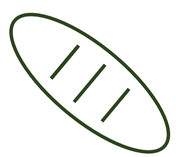

Nutzungsdiagramm

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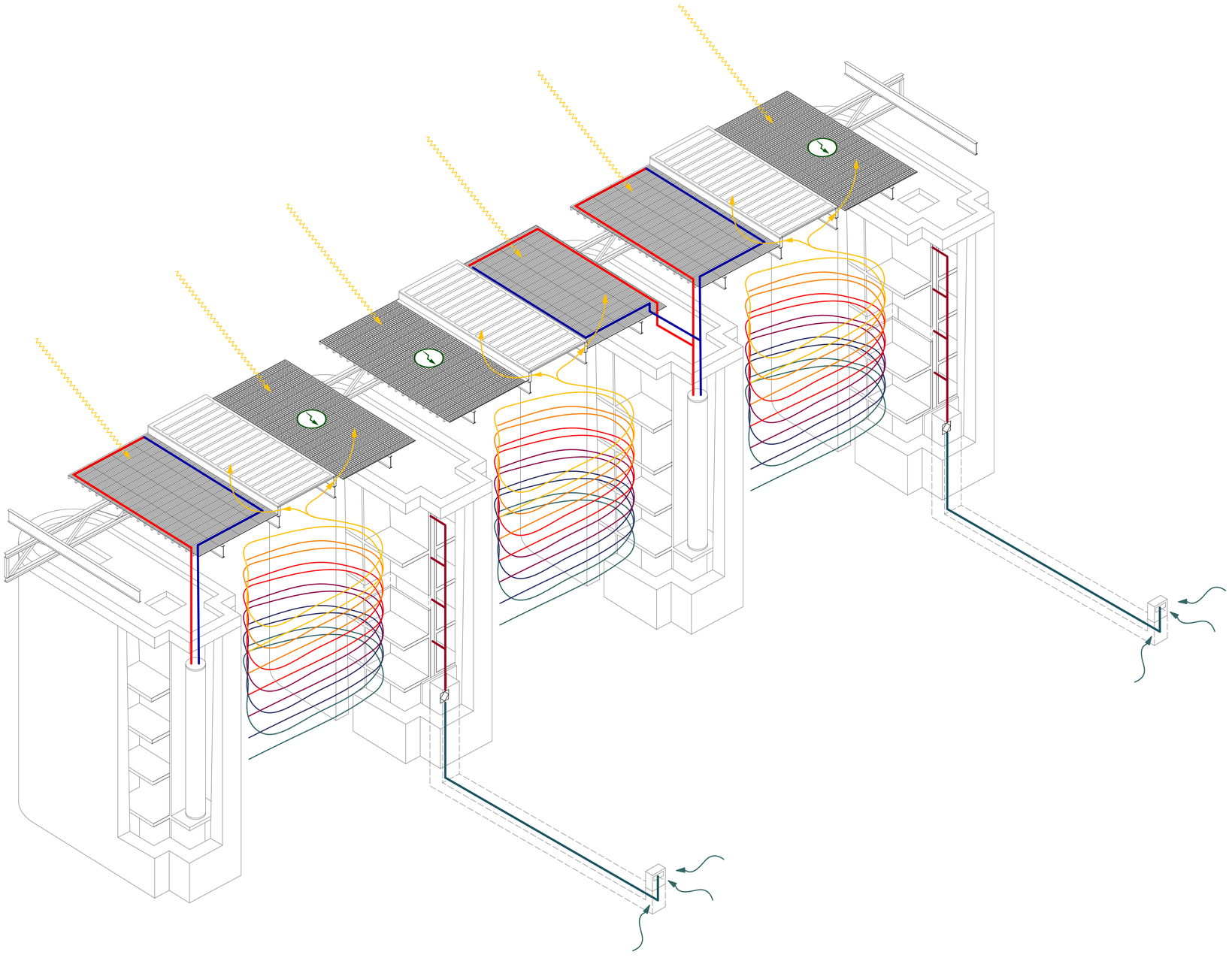

Energiekonzept

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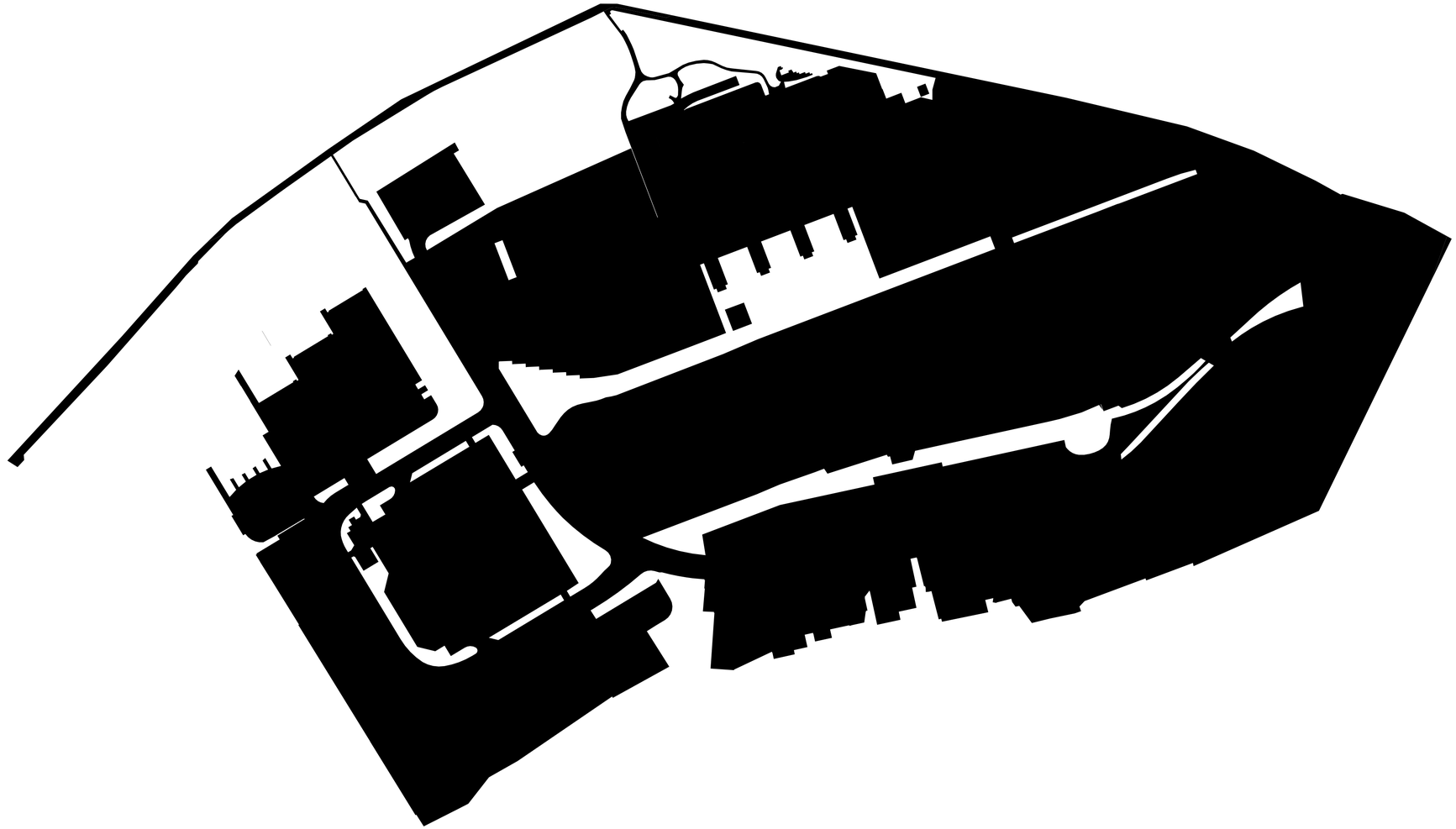

entsiegeln und aktivieren

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Situation

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Geländeschnitt

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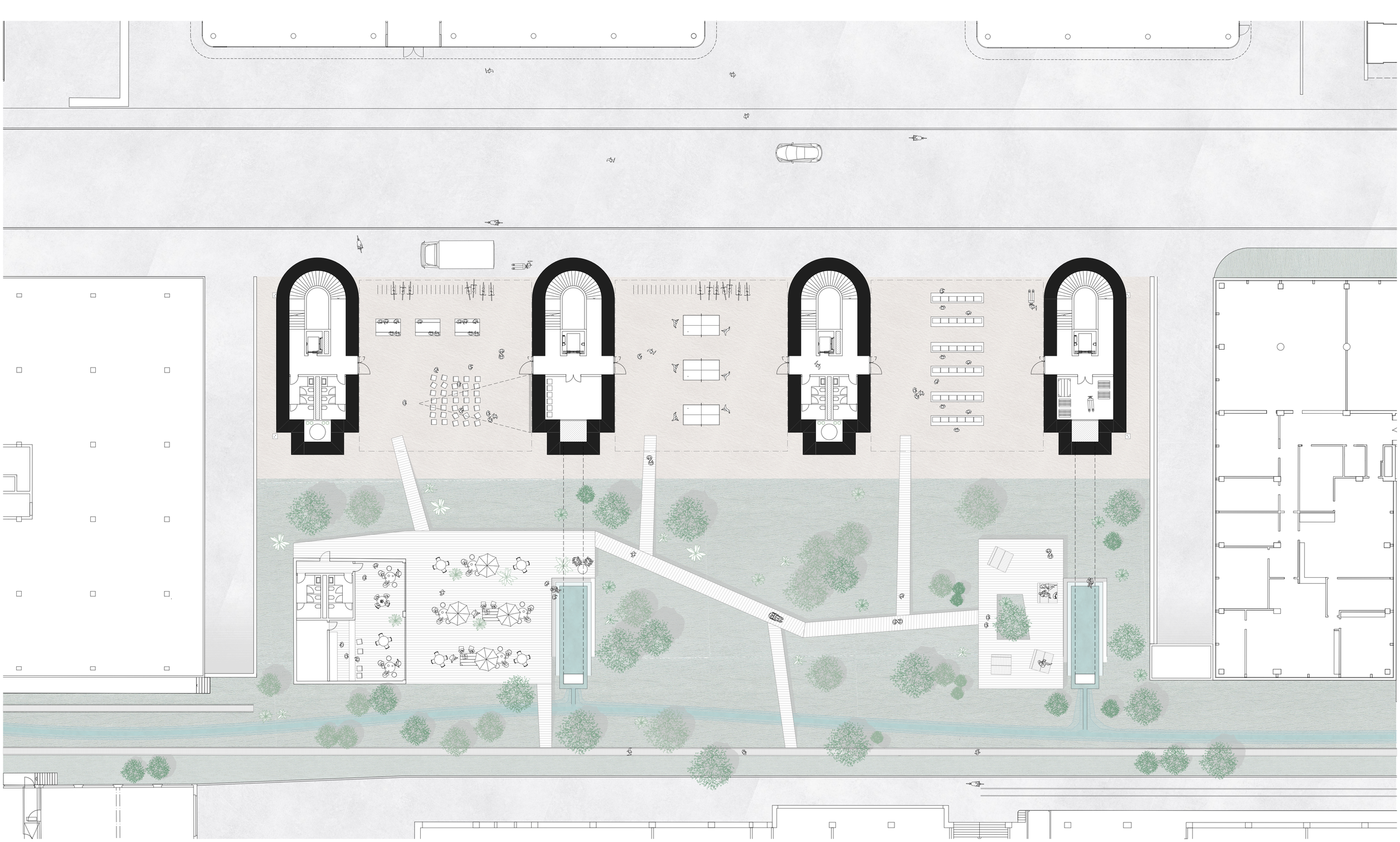

Erdgeschoss

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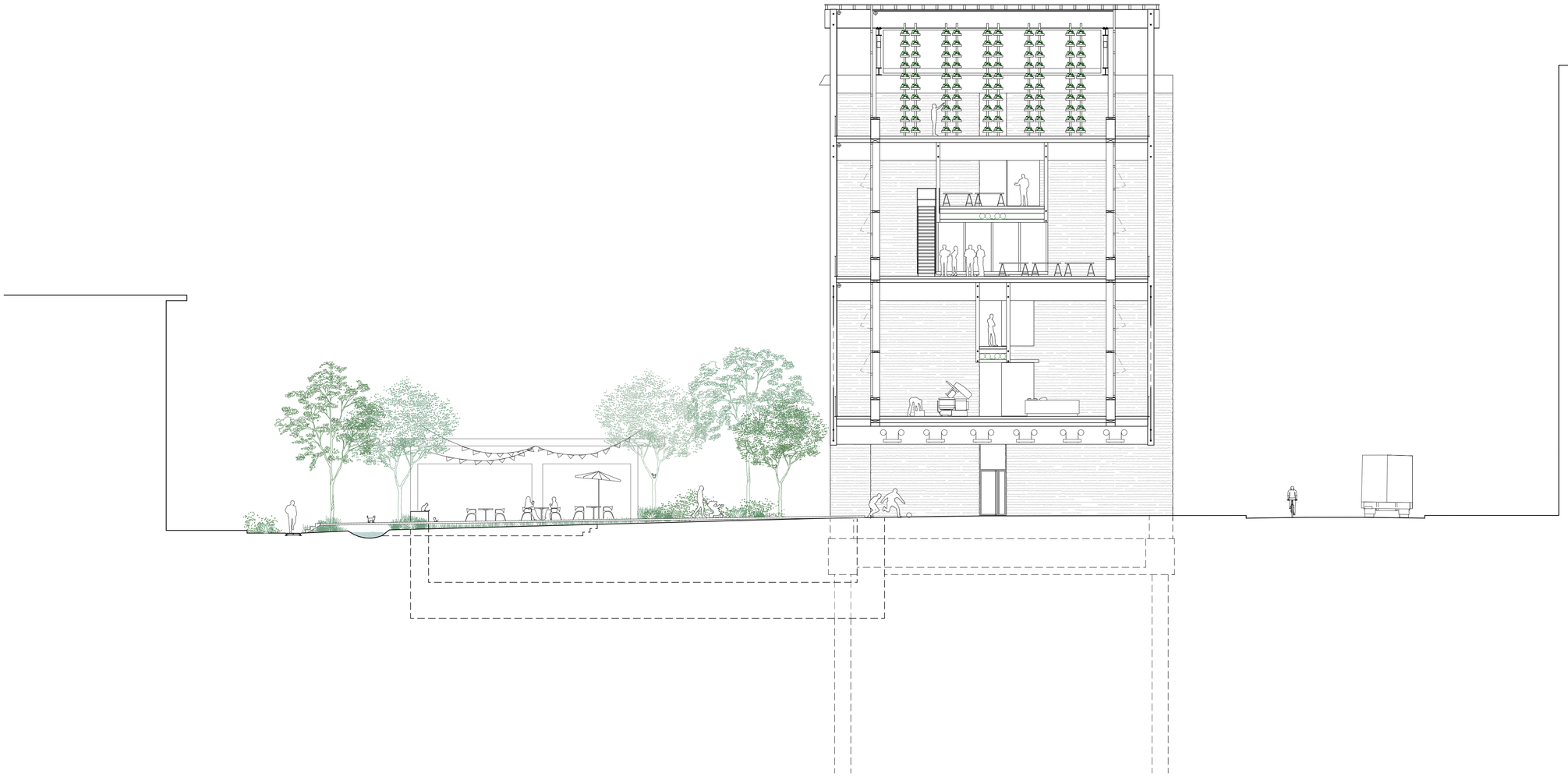

Querschnitt

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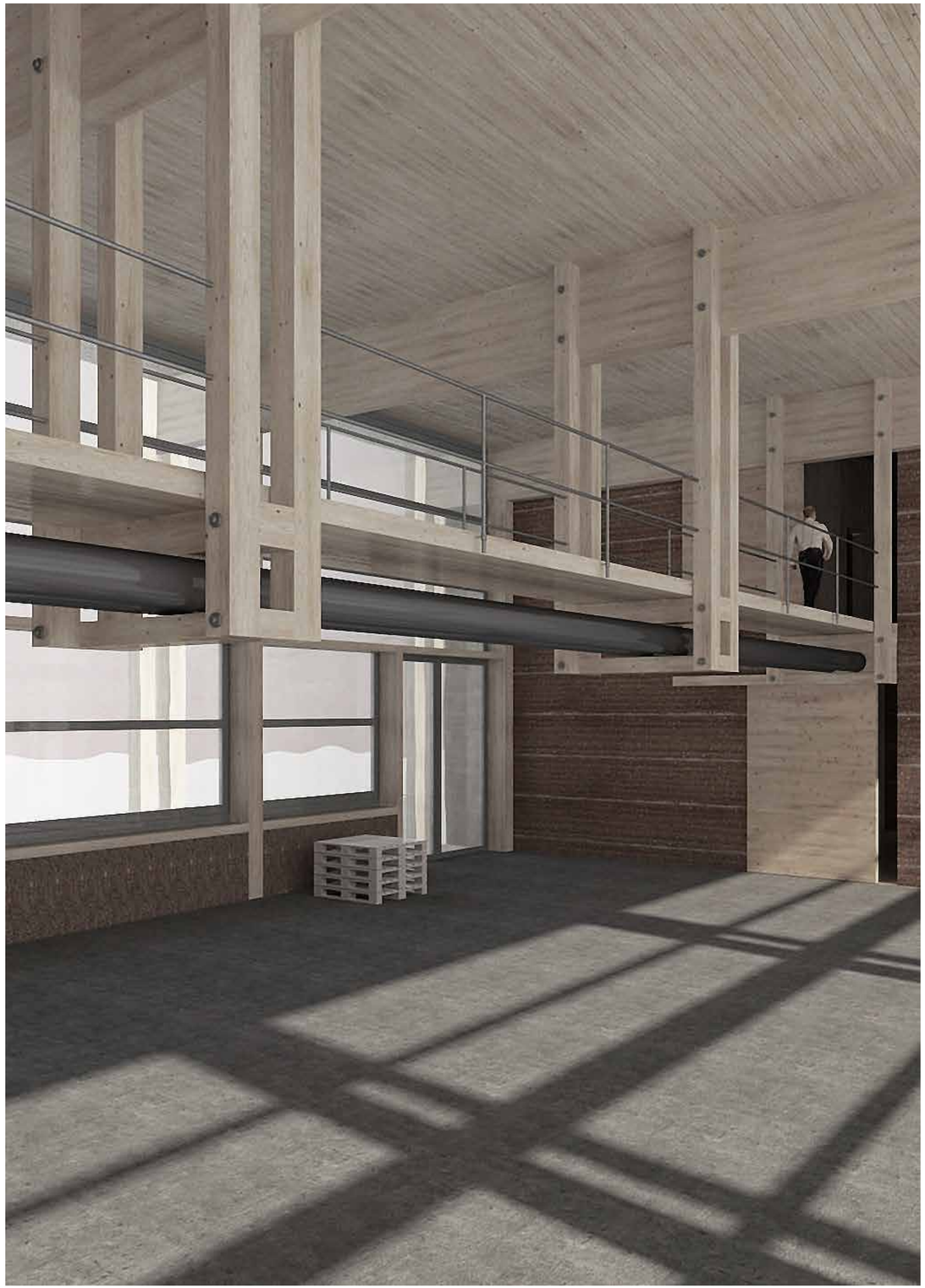

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Hofansicht

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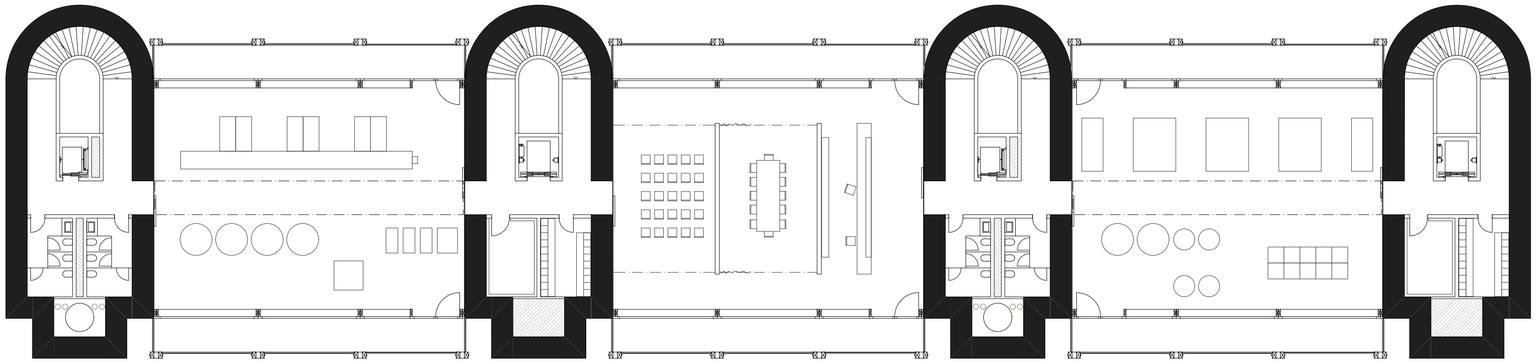
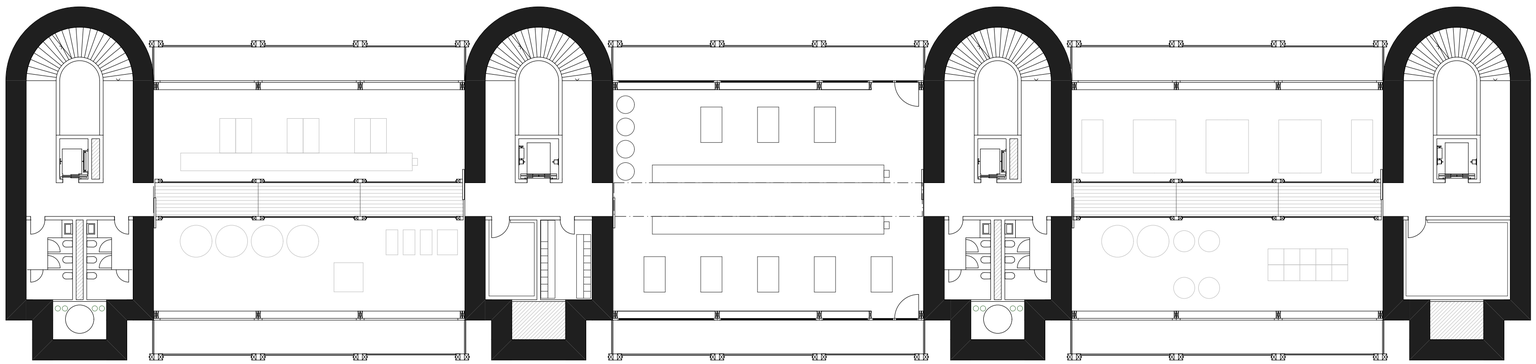


1. Obergeschoss



2. Obergeschoss

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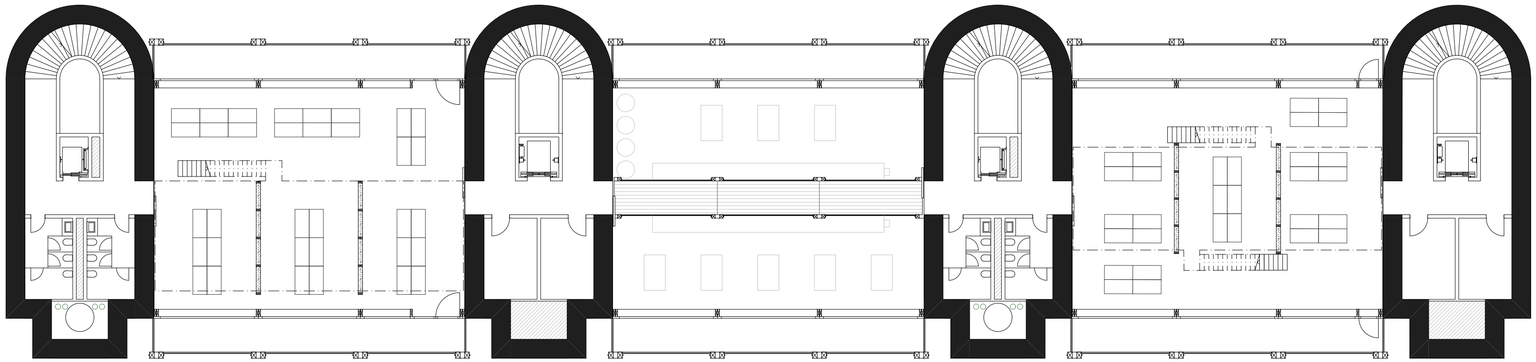
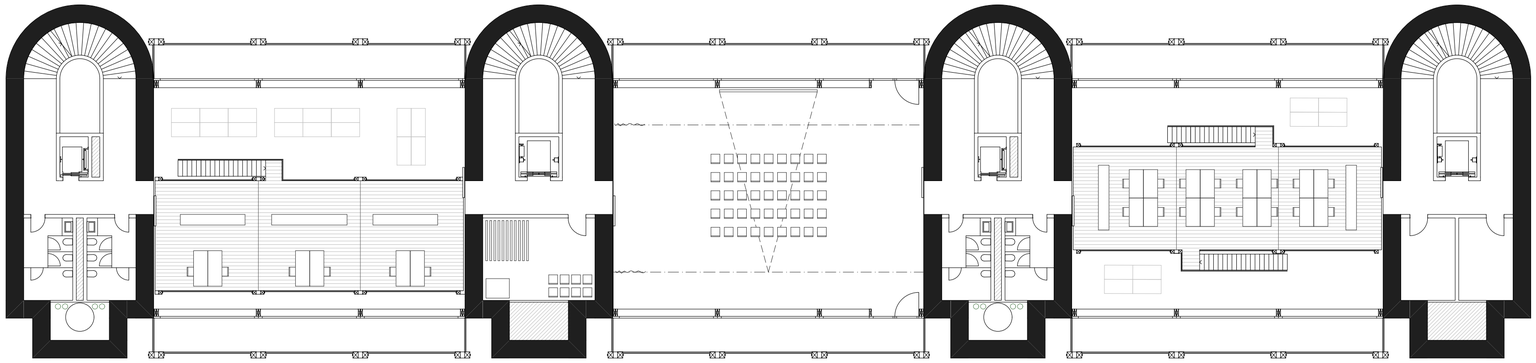


3. Obergeschoss



4. Obergeschoss

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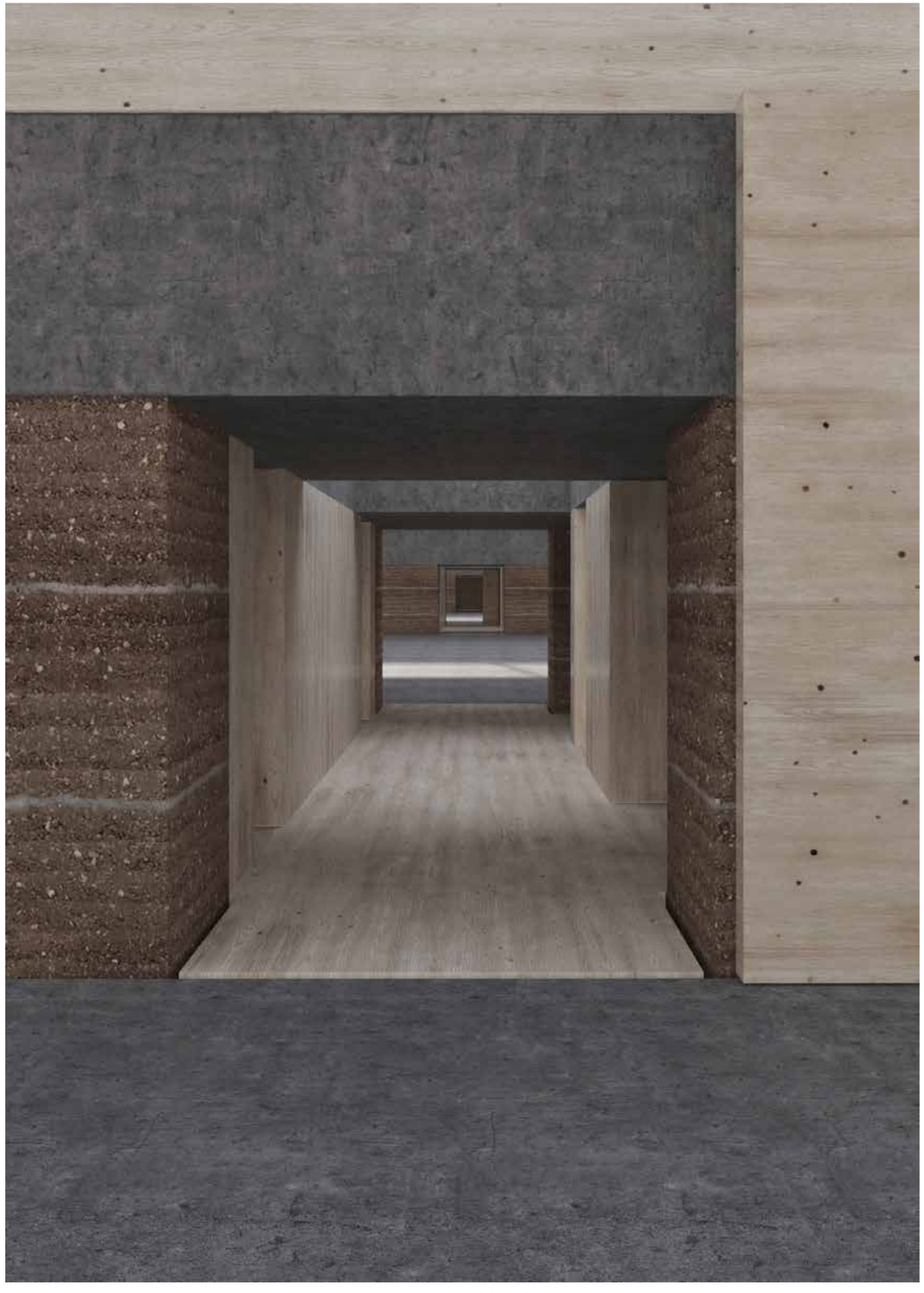

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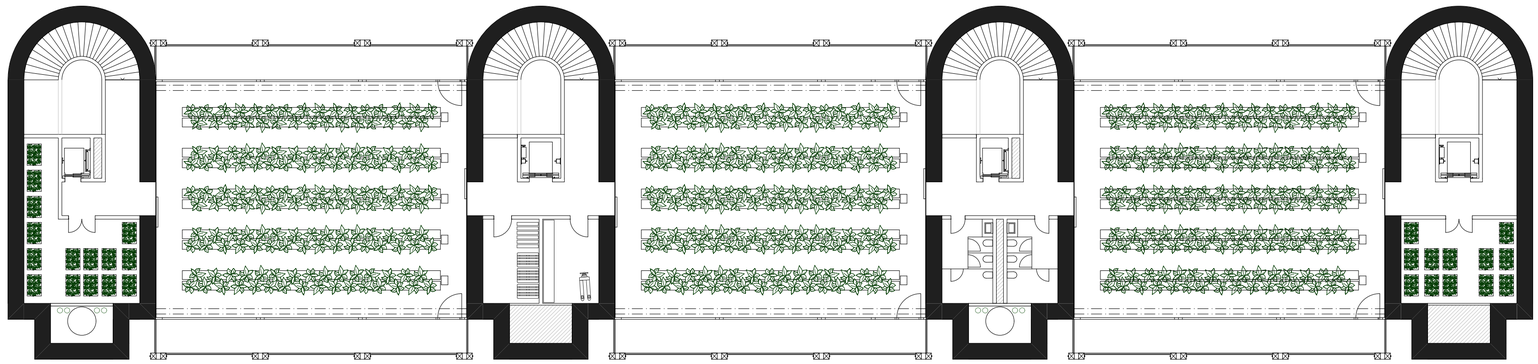
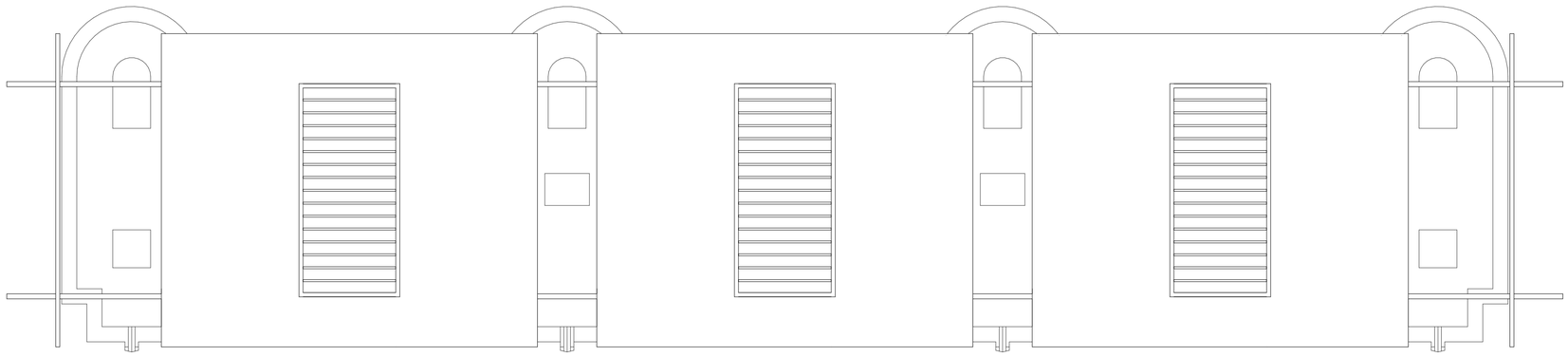


5. Obergeschoss



Dachaufsicht

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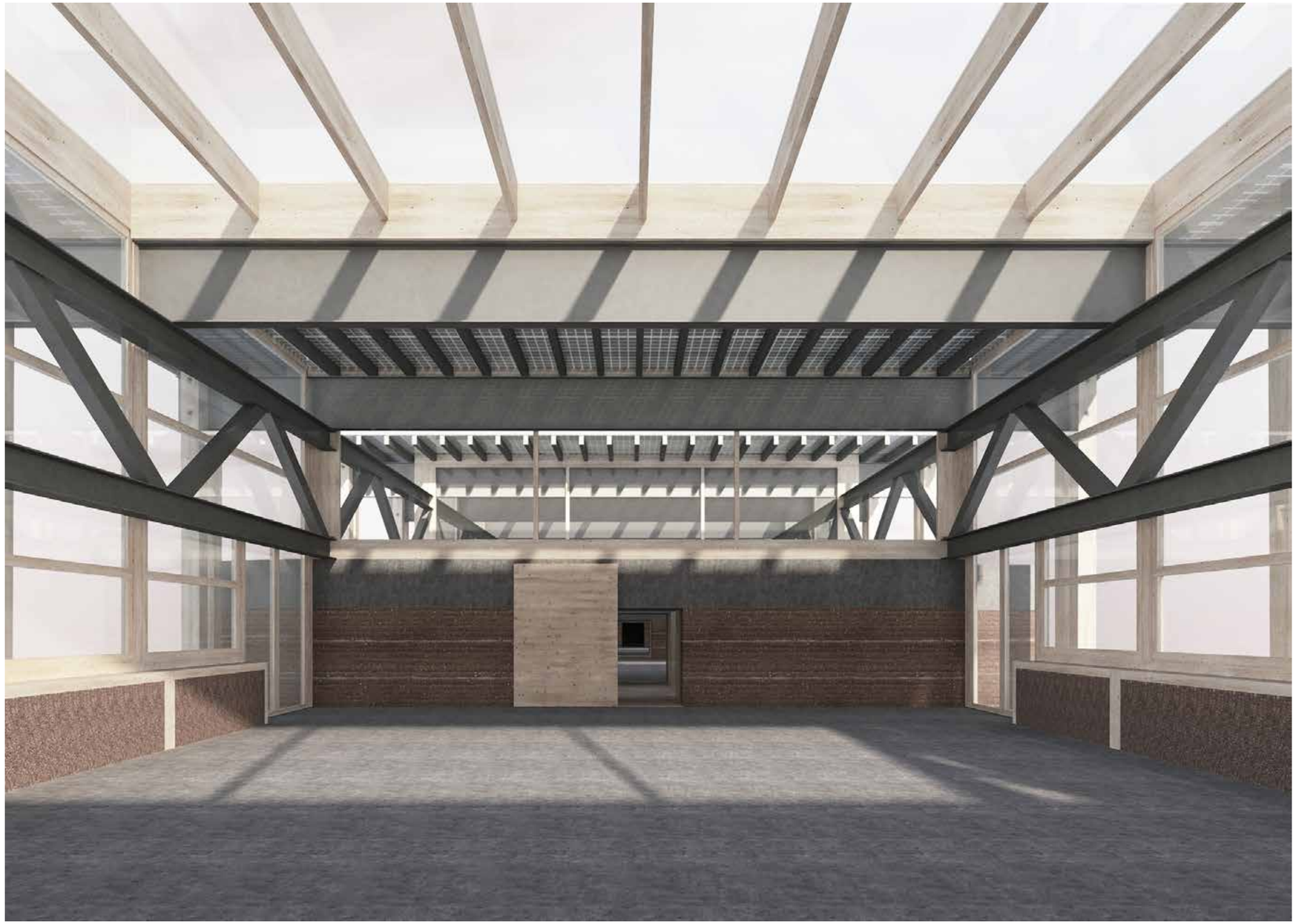

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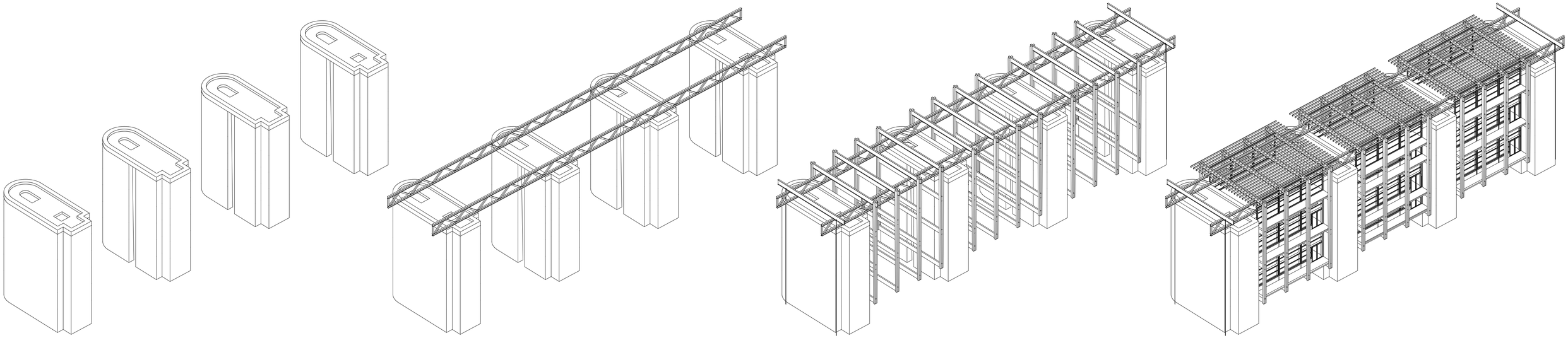

Tragwerkskonzept

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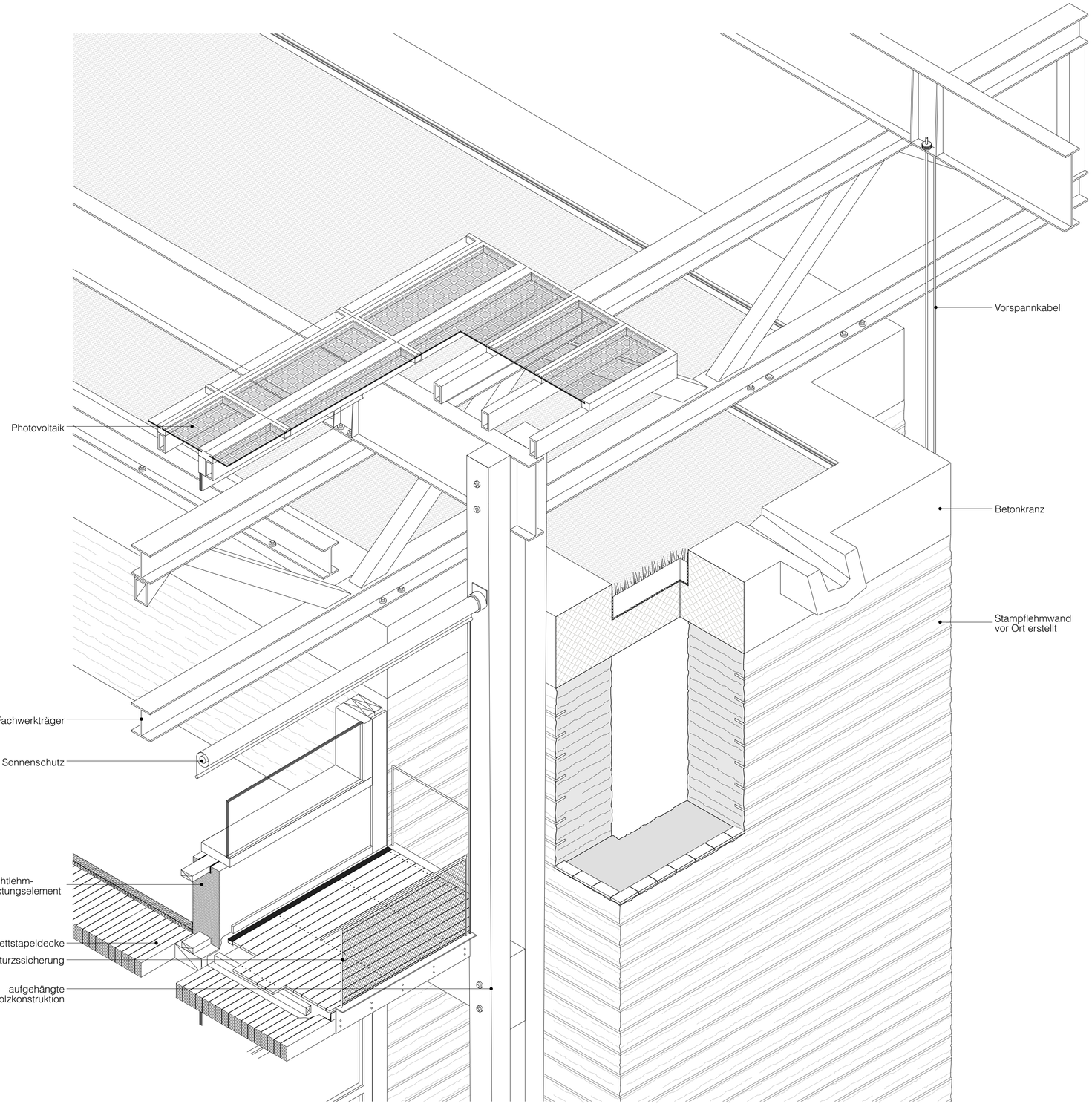

Detailaxonometrie

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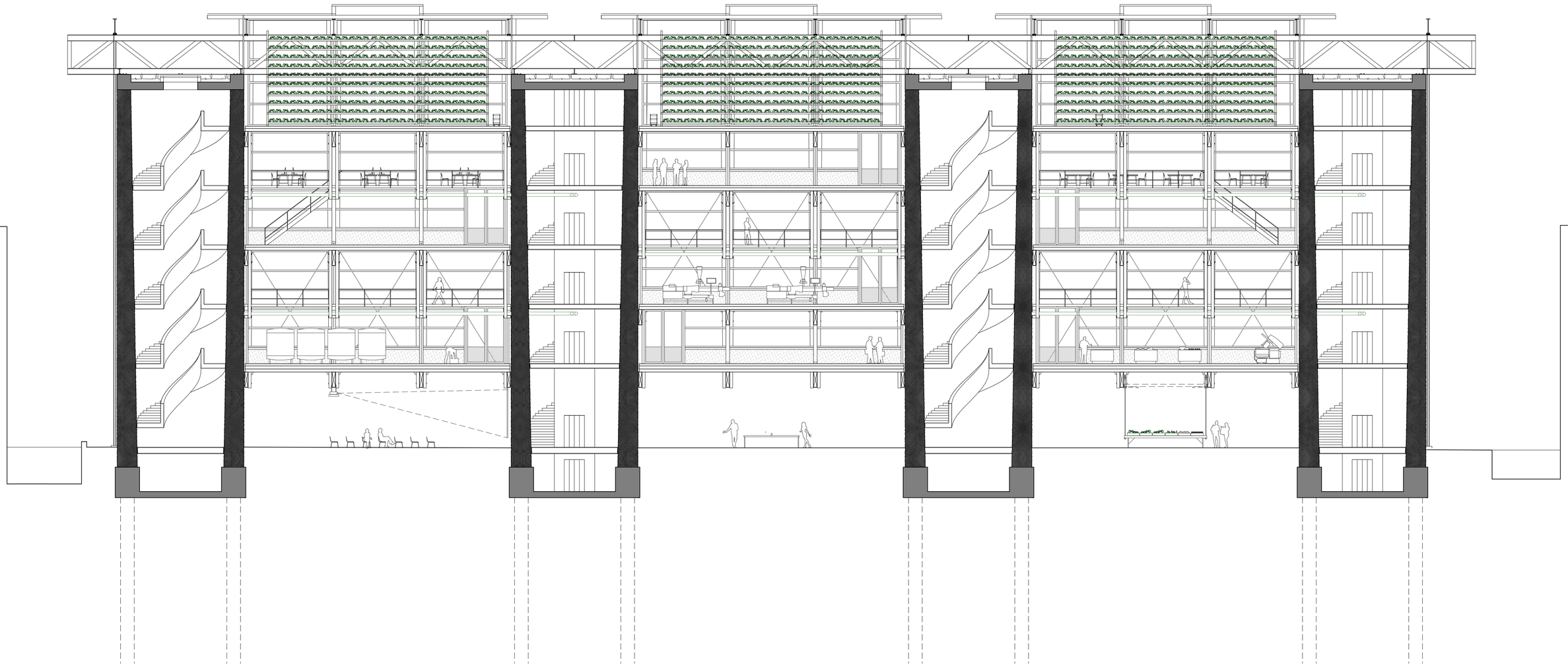

Längsschnitt

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