RYNENKO

GALERIIA

Portfolio

Architecture, reconstruction, steel and concrete heritage preservation, urban development

VALERIIA HRYNENKO

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As a recent Master of Architecture graduate from Taubman College, I focus on creating design responses that address social needs while balancing stakeholder priorities. My work integrates functional clarity with long-term sustainability, while building expertise to support revitalization and future-ready development.

Education

Master of Architecture
Taubman College of Architecture and Planning, University of Michigan | Ann Arbor, MI
05/2025

- Merit Scholarship Recipient (GPA 3.4/4)
- Bridge for Students Scholarship

Bachelor of Arts in Architectural And Building Technology
Kyiv National University of Construction and Architecture | Kyiv, Ukraine
06/2021

- Full Tuition Scholarship and Higher Scholarship Recipient
- Graduated with honors (GPA 3.9/4)

Work Experience

Creator Architect
Archimatika | Kyiv, Ukraine
12/2020 - 04/2021

- Urban Analysis: Conducted comprehensive site analysis, evaluating transportation networks, underground features, and land use potential to inform a master planning strategy for the residential complex in Kyiv
- Strategic Design Thinking: Developed a strategic design proposal that optimized land use and enhanced site integration, achieved stakeholder approval.
- Space Planning: Designed architectural layouts for 20+ apartment units in Odesa, maximized functionality and spatial efficiency
- Technical Drafting: Delivered detailed technical drawings for architectural extensions, adhered to budget and material constraints
- Visual Communication: Created oral and schematic presentations for project proposals that effectively communicated project designs, which resulted in securing stakeholder approval
- Team Collaboration: Optimized cooperation between creating department, team leader and landscape team

Skills

Design and Technical Software:
- Advanced: Revit 2025, Photoshop, InDesign,
- Intermediate: Excel, Dynamo, Rhino, Enscape,
- Basic: SketchUp, Energy Plus,

Design and Drawing Skills:
- Conceptual visualization (styled and collaged)
- Schematic design and spase planning,
- Precise technical drafting

Analytical:
- Site and environmental analysis, space planning,
- Historical and cultural research, community engagement,
- Building life cycle and material analysis, and structural analysis

Interpersonal:
- Creative problem-solving with structured thinking
- Active listening, empathy, and collaborative communication
- Systemic creativity,
- Consistent detail delivery,
- Efficient resource and time management, adherence to deadlines.

Languages: Ukrainian (native), English (C1- IELTS 7.0 Band 04/2023)

Competitions

REbuild Ukraine Competition
Canada and Ukraine | 08/2023
- *Modular Design Thinking:* Proposed a post-war mass housing solution using prefabricated systems focused on adaptability, speed, and cost-efficiency.
- *Material Research:* Explored sustainable materials for environmentally conscious housing solutions.
- *Urban Strategy:* Addressed urban integration, community needs, and scalability to ensure functional and inclusive design.

She Builds Ukraine Hackathon
Canada, Ukraine | 06/2023
- *Team Leadership and Coordination:* Led a team of 4 undergraduate students in designing an AI-powered debris sorting system, emphasizing sustainable reconstruction practices.
- *Awards:* Secured 7th place out of 40 for optimized resource use and environmental impact reduction in post-conflict reconstruction.

STEELFREEDOM National Competition
Mariupol, Ukraine | 11/2020
- *Leadership:* Led a team of 4 in designing a stadium.
- *Awards:* Achieved a top 10 finalist position out of 60 teams for innovative use of steel tree-columns, structural clarity, and efficient land use.

Additional Experience

Fundraiser
Office of Development, University of Michigan Telefund | Ann Arbor, MI
01/2024 - 04/2025
- *Negotiation and Consistency:* fundraised over $15,000 for UofM funds, regularly contributing 10–30% of shift campaign totals through persistent and respectful outreach.
- *Trust and Autonomy:* Promoted to Authorized Fundraiser within one semester for consistently high performance, trusted to confirm pledges and process transactions without managerial oversight.

Car Creative Photographer
AutoFocus | Austin, TX
03/2023 – 07/2023
- *Workflow Efficiency:* Photographed 15-20 cars daily, ensuring on-time update to the company website.
- *Attention to Detail:* Promoted from Chevrolet to Infinity photography within 2 months, reflecting consistent performance and attention to detail.

Youth Camp Manager/Tutor
Plast, Ukrainian Scouts | Valencia, Spain
07/2022 - 08/2022
- *Adaptability and Leadership:* Managed logistics and activity planning in a fast-paced camp environment; tutored displaced children with empathy and structure.

Humanitarian Aid Coordinator
Plast | Valencia, Spain
02/2022 - 04/2022
- *Process Optimization:* Transformed sorting and packaging of humanitarian aid into a conveyer-line process.

English Tutor
AIESEC | Levico Terme, Italy
07/2019 - 08/2019
- *Curriculum Design:* Led educational sessions for underserved youth across two locations, independently planning and delivering age-appropriate English activities.

Environmental Conservation Assistant
“Extremal” Camp | Korostyshiv, Ukraine
15/10/2019
- *Environmental Stewardship:* Cleaned the are of 50m2 of forest at the Quarry of Korostyshev to facilitate a site for outdoor mountaineering activities.

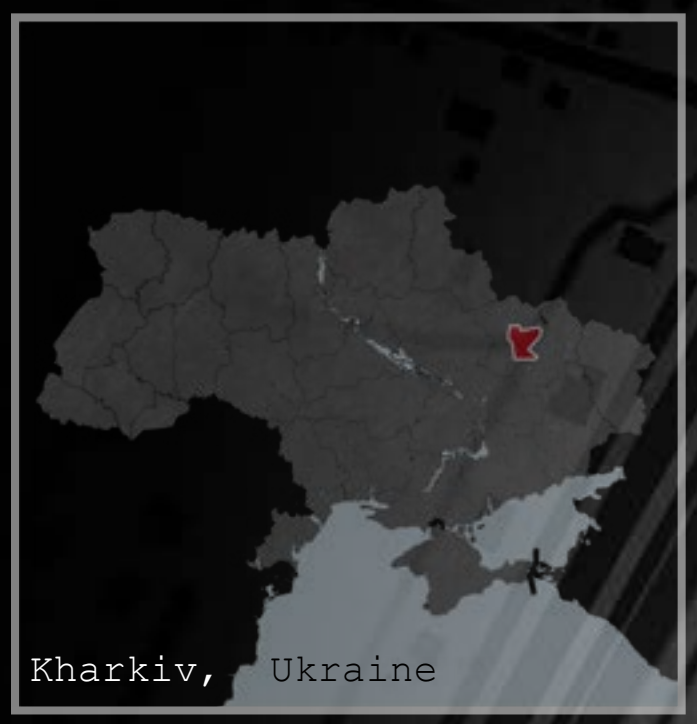
“Work and Travel” Program
Server,Dave & Buster’s | Jacksonville, FL
05/2018 - 08/2018
Gained experience in customer service, time management, and multitasking in a high-pressure setting.

Publication: BUILD MASTER CLASS Conferance | Kyiv, Ukraine
10/2017
Presented paper “The Manipulation of the ‘Kyivan Rus’ Narrative in Politics Through Architecture”.

Contents

01 Reconstruction of Panel Housing

Microregion Analysis



grocery store

Nataliі Uzhviі St

98% of bu

10 MIN

5 MIN

school

kindergarden

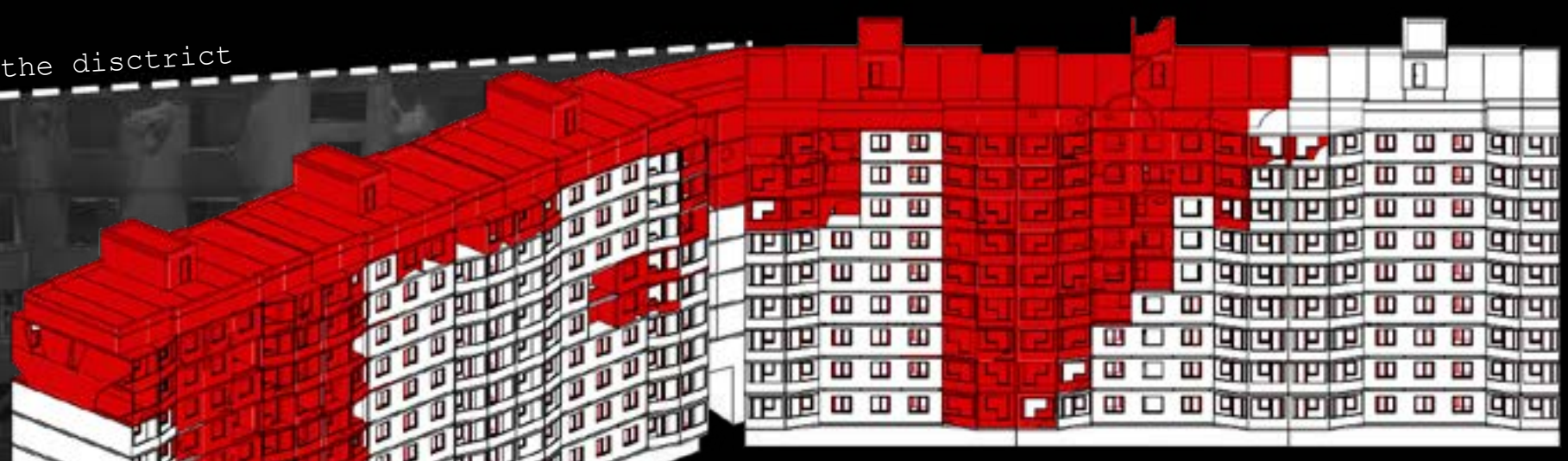
Metrobudivnykiv St

Manzhosivka

01 Reconstruction

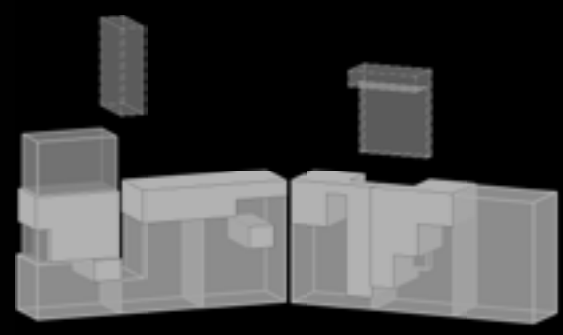
The competition was centered around the integration of **prefabricated modules** into standardized grid of series 11-7 to experiment with **silhouette and program rethinking under streamlined restoration**

uildings are damaged in the disctrict



Damage done to a residential 9 story building.
Address:78 Uzhviy St, Kharkiv

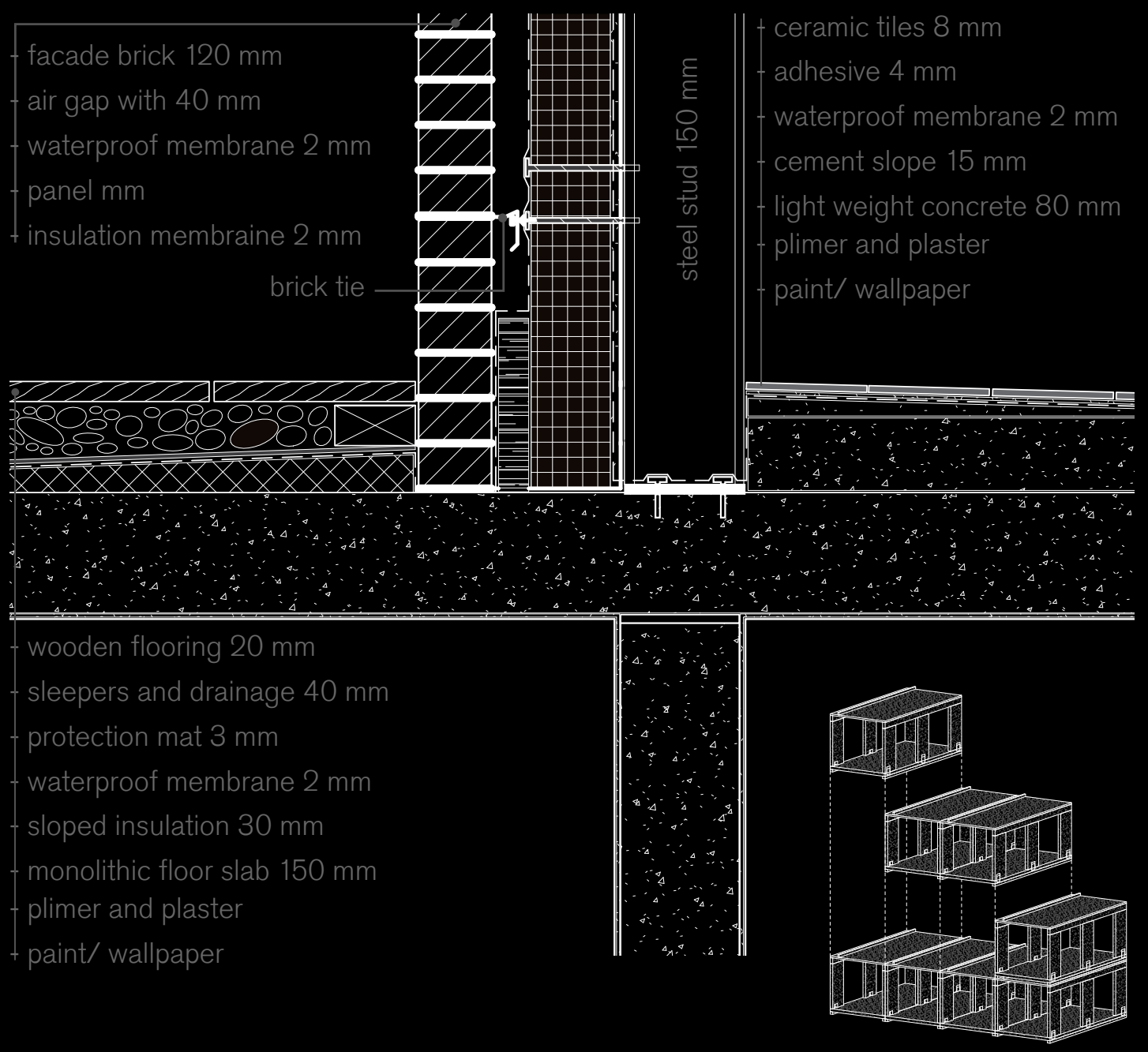
1. Seizure unreliable panels

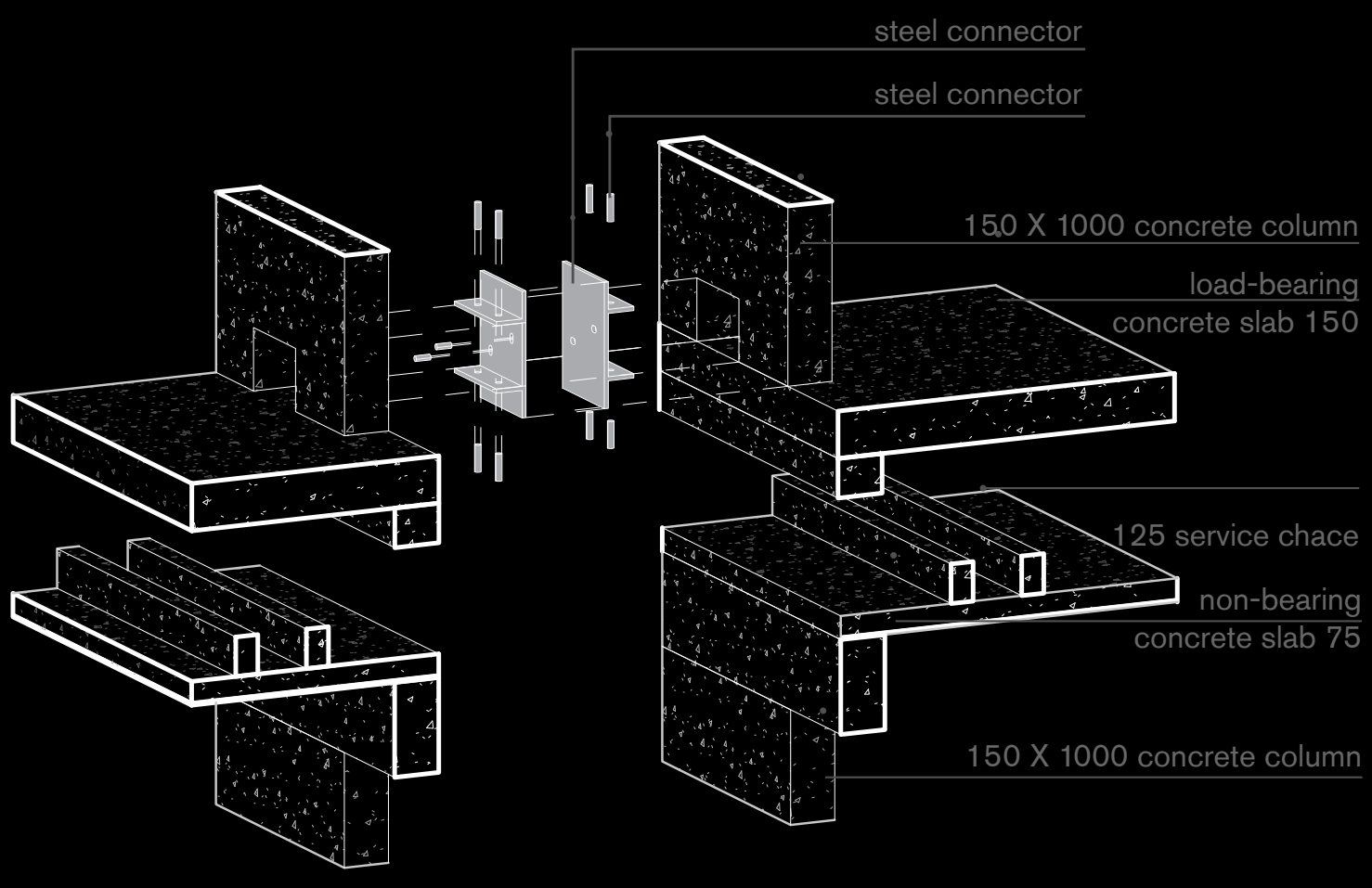


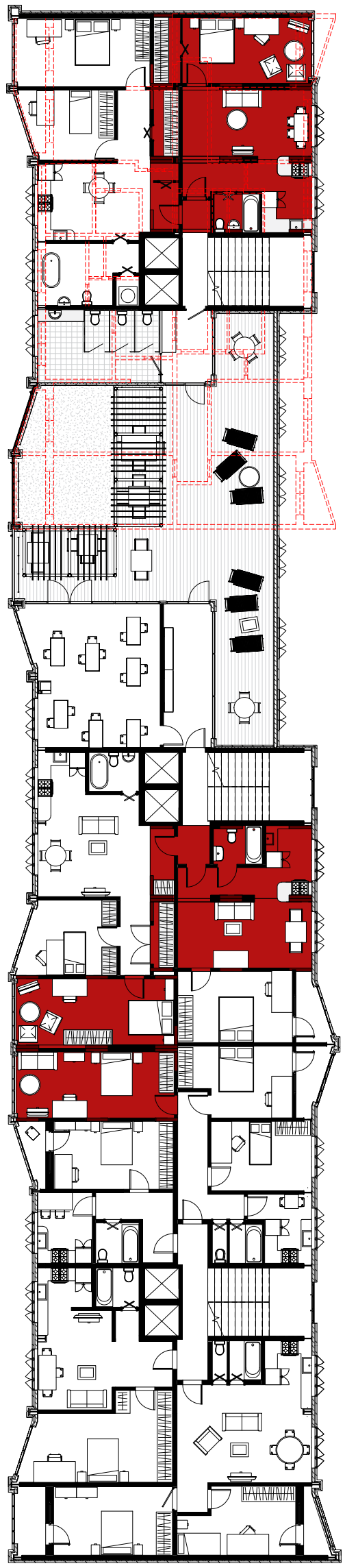
2. Defining mass blocks

3. Adding gymanics to the shilluette

01 Reconstruction of Panel Housing
Structural Details





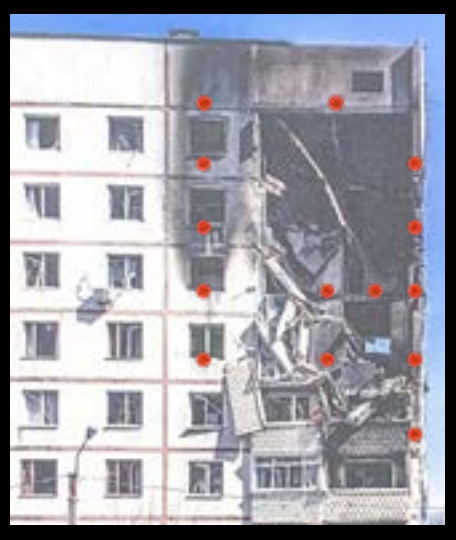


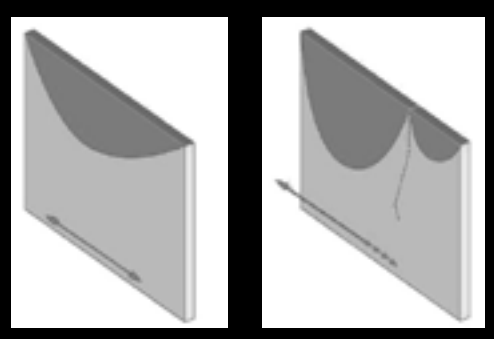
Apartments originally: 216
After reconstruction: 176 units, social hall, playground, barbecue deck, and sun deck on a rooftop terrace.

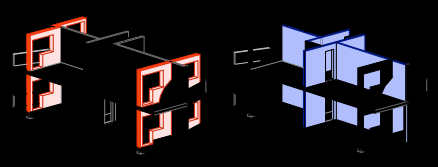
1. Panel Damage

This table collects information about 134 panels in 14 parameters of damage in flaking, cracking and burn. As a pioneering sample, it relies on images.

This information allows to categorize structural integrity issues and expedite assesment process.







Several pictures were chosen to take a look at damage caused to non-bearing facade panels and structural longitudinal and transverse panels.

#	Panel Type	Location	Load-bearing	Openings	Series	missing panel	Crack Size	Crack Pattern	Crack Location	Crack Depth	Flaking Level	Flaking Area	Rebar Rust	Exposed Rebar	Seams	Fire Effect	Fire Ef Area	Fire: Rebar
2	facade	exterior	self-bearing	window	1-464	diagonal	-	-	-	-	medium	edge, window	-	-	-	-	-	-
3	facade	exterior	self-bearing	window	1-464	side	-	-	-	-	surface	edge, window	-	-	-	-	-	-
4	facade	exterior	self-bearing	window	1-464	side, bottom	-	-	-	-	medium	edge, window	-	-	side panel missing	-	-	-
5	facade	exterior	self-bearing	window	1-464	-	medium	diagonal	opening	structural	surface	edge, window	-	-	-	-	-	-
6	facade	exterior	self-bearing	window	1-464	side	medium	diagonal	bottom	structural	medium	edge, window	-	-	side panel missing	-	-	-
7	facade	exterior	self-bearing	window	1-464	-	short	diagonal	bottom corner	surface	surface	corner	-	-	-	-	-	-
8	facade	exterior	self-bearing	window	1-464	side	medium	horizontal	opening	structural	deep	all	n/a	yes	side panel missing	-	-	-
9	facade	exterior	self-bearing	window	1-464	-	short	random	all	surface	surface	all	-	-	-	-	-	-
10	facade	exterior	self-bearing	window	1-464	-	short	random	all	surface	surface	all	-	-	-	-	-	-
11	facade	exterior	self-bearing	window	1-464	-	short	horizontal	bottom	medium	surface	all	-	-	bottom loose	-	-	-
12	facade	exterior	self-bearing	balcony (w+d)	1-464	-	-	-	-	-	-	-	-	-	-	-	-	-
13	facade	exterior	self-bearing	window	1-464	side, bottom	-	-	-	-	surface	bottom	-	-	side panel missing	-	-	-
14	facade	exterior	self-bearing	window	1-464	-	-	-	-	-	-	-	-	-	-	-	-	-
15	facade	exterior	self-bearing	balcony (w+d)	1-464	-	-	-	-	-	surface	all	-	-	-	-	-	-
16	facade	exterior	self-bearing	window	1-464	side	long	random	all	structural	deep	all	yes	yes	side panel missing	-	-	-
17	facade	exterior	self-bearing	window	1-464	-	-	-	-	-	surface	all	-	-	-	-	-	-
18	facade	exterior	self-bearing	balcony (w+d)	1-464	-	-	-	-	-	-	-	-	-	-	-	-	-
19	facade	exterior	self-bearing	window	1-464	side	-	-	-	-	surface	all	-	-	side panel missing	-	-	-
20	facade	exterior	self-bearing	window	1-464	-	-	-	-	-	surface	all	-	-	-	-	-	-
21	facade	exterior	self-bearing	balcony (w+d)	1-464	-	-	-	-	-	surface	all	-	-	-	-	-	-
22	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	surface	perimeter	-	-	side panel missing	dehydration	-	-
23	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	surface	perimeter	-	-	side panel missing	dehydration	all	-
24	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	surface	perimeter	-	-	side panel missing	soot	top	-
25	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	-	-	-	-	side panel missing	-	-	-
26	longitudinal	interior	yes	balcony (w+d)	11-57	side, top	-	-	-	-	-	-	-	-	side panel missing	soot	side	-
27	longitudinal	interior	yes	balcony (w+d)	11-57	top	-	-	-	-	-	-	-	-	top panel missng	soot	side	yes
28	longitudinal	interior	yes	balcony (w+d)	11-57	-	n/a	-	-	-	-	-	-	-	-	shelling	all	-
29	facade	exterior	self-bearing	-	11-57	diagonal botttom	-	-	-	-	-	-	-	-	-	dehydration	all	-
30	facade	exterior	self-bearing	window	11-57	bottom	-	-	-	-	surface	bottom perimeter	-	-	-	soot	all	-
31	transverse	butt	yes	-	11-57	corner	-	-	n/a	-	-	-	-	-	-	-	-	-
32	transverse	butt	yes	-	11-57	corner	medium	random	corner	structural	deep	perimeter	n/a	yes	corner panel missing	n/a	-	yes
33	transverse	butt	yes	-	11-57	corner	medium	random	corner	structural	deep	perimeter	n/a	yes	corner panel missing	n/a	-	yes
34	transverse	butt	yes	-	11-57	corner	medium	horizontal	corner	medium	medium	perimeter	n/a	yes	corner panel missing	n/a	-	yes
35	transverse	butt	yes	-	11-57	corner	long	random	corner	structural	medium	perimeter	n/a	yes	corner panel missing	n/a	-	yes
36	longitudinal	interior	yes	-	11-57	side, corner	medium	vertical	corner	medium	deep	corner	-	yes	bottom loose	-	-	-
37	longitudinal	interior	yes	-	11-57	side, corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
38	longitudinal	interior	yes	-	11-57	side, corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
39	longitudinal	interior	yes	-	11-57	side, corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
40	longitudinal	interior	yes	door	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
41	longitudinal	interior	yes	door	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
42	longitudinal	interior	yes	door	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
43	longitudinal	interior	yes	door	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
44	longitudinal	interior	yes	door	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
45	longitudinal	interior	yes	-	11-57	side, corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
46	longitudinal	interior	yes	-	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
47	longitudinal	interior	yes	-	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
48	longitudinal	interior	yes	-	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
49	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
50	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
51	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
52	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
53	longitudinal	interior	yes	-	11-57	corner, top	-	-	-	-	surface	perimeter	n/a	yes	corner panel missing	-	-	-
54	longitudinal	interior	yes	-	11-57	corner	-	-	-	-	surface	perimeter	n/a	-	corner panel missing	-	-	-
55	longitudinal	interior	yes	-	11-57	corner	long	vertical	center	structural	deep	all	n/a	yes	corner panel missing	-	-	-
56	transverse	butt	yes	-	11-57	top	-	-	-	-	surface	top corner	-	-	top panel missng	-	-	-
57	transverse	butt	yes	-	11-57	-	-	-	-	-	-	-	-	-	bottom loose	-	-	-
58	transverse	butt	yes	-	11-57	-	-	-	-	-	-	-	-	-	bottom loose	-	-	-
59	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	bottom loose	-	-	-
60	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
61	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
62	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
63	longitudinal	interior	yes	door	11-57	corner	short	diagonal	top	surface	surface	tob, bottom	-	-	top and bottom loose	-	-	-
64	longitudinal	interior	yes	door	11-57	corner	medium	vertical	opening	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
65	longitudinal	interior	yes	door	11-57	corner	medium	diagonal	top corner	structural	surface	tob, bottom	-	-	top and bottom loose	-	-	-
66	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
67	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top panel missng	-	-	-
68	longitudinal	interior	yes	door	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	top and bottom loose	-	-	-
69	transverse	interior	yes	-	11-57	corner, top	-	-	-	-	-	tob, bottom	-	-	top panel missng	-	-	-
70	transverse	interior	yes	-	11-57	corner	medium	vertical	top corner	surface	surface	tob, bottom	-	-	corner panel missing	-	-	-
71	transverse	interior	yes	-	11-57	corner	-	-	-	-	surface	tob, bottom	-	-	corner panel missing	-	-	-
72	longitudinal	interior	yes	-	11-57	side, top	long	random	n/a	structural	deep	corner	n/a	yes	top and bottom loose	-	-	-
73	longitudinal	interior	yes	-	11-57	side, corner	long	diagonal	top corner	structural	surface	tob, bottom	n/a	yes	top and bottom loose	-	-	-
74	longitudinal	interior	yes	-	11-57	side, corner	medium	diagonal	bottom corner	structural	surface	perimeter	n/a	yes	side panel missing	-	-	-
75	longitudinal	interior	yes	-	11-57	corner	medium	diagonal	top corner	structural	surface	perimeter	n/a	yes	side panel missing	-	-	-
76	longitudinal	interior	yes	-	11-57	side, corner	long	vertical	all	structural	surface	perimeter	n/a	yes	side panel missing	-	-	-
77	transverse	interior	yes	-	11-57	corner	-	-	-	-	surface	tob, bottom	n/a	-	corner panel missing	-	-	-
78	facade	exterior	self-bearing	balcony (w+d)	11-57	top	-	-	-	-	medium	edge, window	-	-	top panel missng	-	-	-
79	facade	exterior	self-bearing	balcony (w+d)	11-57	corner	-	-	-	-	medium	all	-	-	side loose	-	-	-
80	facade	exterior	self-bearing	balcony (w+d)	11-57	corner	-	-	-	-	medium	all	-	-	-	soot	all	-
81	facade	exterior	self-bearing	balcony (w+d)	11-57	corner	-	-	-	-	-	-	-	-	-	shelling	all	-
82	facade	exterior	self-bearing	balcony (w+d)	11-57	corner	-	-	-	-	-	-	-	-	-	-	top	-
83	facade	exterior	self-bearing	balcony (w+d)	11-57	side, top	-	-	-	-	medium	edge, window	-	-	top panel missng	soot	all	-
84	facade	exterior	self-bearing	balcony (w+d)	11-57	diagonal	medium	vertical	bottom center	medium	medium	edge, window	-	-	top and bottom loose	soot	all	-
85	facade	exterior	self-bearing	balcony (w+d)	11-57	-	medium	vertical	all	medium	surface	all	n/a	yes	top and bottom loose	shelling	top	yes
86	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	medium	all	-	-	top and bottom loose	-	side	-
87	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	-	-	-	-	-	soot	top	-
88	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	surface	edge, window	-	-	-	soot	top	-
89	facade	exterior	self-bearing	window	11-57	side, top	-	-	-	-	medium	top corner	-	-	top panel missng	soot	all	-
90	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	medium	all	-	-	top and bottom loose	soot	all	-
91	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	medium	edge, window	-	-	-	shelling	top	-
92	facade	exterior	self-bearing	window	11-57	side	-	-	-	-	medium	all	-	-	-	-	-	-
93	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
94	facade	exterior	self-bearing	window	11-57	-	long	vertical	center	medium	surface	all	-	-	-	-	-	-
95	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
96	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
97	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	all	-	-	-	-	-	-
98	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	bottom	-	-	-	-	-	-
99	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
100	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
101	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
102	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
103	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
104	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	all	-	-	-	-	-	-
105	facade	exterior	self-bearing	window	11-57	-	long	horizontal	opening	medium	surface	all	-	-	-	shelling	side	-
106	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	edge, window	-	-	-	shelling	top	-
107	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	bottom	-	-	-	soot	all	-
108	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
109	facade	exterior	self-bearing	window	11-57	-	long	vertical	opening	medium	medium	edge, window	n/a	yes	-	soot	all	yes
110	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	yes	bottom loose	-	-	yes
111	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	-	-	n/a	-	side loose	dehydration	all	-
112	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	-	-	n/a	-	-	dehydration	side	-
113	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	surface	all	-	yes	-	shelling	all	yes
114	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	medium	edge, window	n/a	yes	-	-	-	yes
115	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	medium	edge, window	n/a	yes	-	-	-	yes
116	facade	exterior	self-bearing	balcony (w+d)	11-57	-	-	-	-	-	medium	edge, window	n/a	yes	side loose	-	-	yes
117	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	shelling	all	-
118111	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	n/a	yes	-	shelling	all	yes
119	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
120	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
121	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	n/a	yes	-	soot	all	yes
122	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	edge, window	n/a	yes	-	soot	all	yes
123	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	all	-	-	-	-	-	-
124	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
125	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
126	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
127	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
128	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	-	-	-
129	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	n/a	yes	-	dehydration	all	yes
130	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	n/a	yes	-	soot	all	yes
131	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	n/a	yes	-	shelling	all	yes
132	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	surface	edge, window	n/a	yes	-	shelling	all	yes
133	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	-	-	-	-	-	soot	all	-
134	facade	exterior	self-bearing	window	11-57	-	-	-	-	-	medium	edge, window	n/a	yes	-	soot	all	yes

cracked

flacked

burnt

Several pictures were chosen to take a look at damage caused to non-bearing facade panels and structural longitudinal and transverse panels.

Several pictures were chosen to take a look at damage caused to non-bearing facade panels and structural

2. Dimentions Range

Several pictures were chosen to take a look at damage caused to non-bearing facade panels and structural longitudinal and transverse panels.

	range	1-464 (A)	1-480	1-447	I-438	II-57	Series 96
external walls	**[0.32; 0,64]**	0 .35 m	ceramic brick 0.35/0,38/0.4/0.45/0,51	**brick** 0,51/0,53 / 0,55/ 0,64	brick 0,51 / 0,52	0,32 panel	0,35/0,38 panel (mounted)
internal walls	**[0.12; 0.38]**	0.12 m / 0.14	0,18 / 0,22 m	brick	0,38	0,16	0,16 panel
load-bearing walls	**[l, t]**	**transverse** and longitudinal	Longitudinal (three)	3 longitudinal and transverse 0,38	longitudinal	transv and longitud	tr and long inside walls
floor slabs	**[0.1; 0.22]**	0.1 m	0,22 / 0,25 m	0,22 (prestressed)	multi-hollow reinforced	0,14 panel	0,16 panel
ceiling	**[2.48; 2.75]**	2,50 m / 2.55	2,48m	2,48 / 2.64	2,50 / 2.48 / 2,60	2,64	2,64
bays	**[2.6; 3.6]**	2.6 m / 3.2 m	2,6 / **3,2**	2,6 / 3,2	variable / 3,6	3,2	3,0 / 3,3/ 3,6
span width	**[4.9; 6.6]**	4.9 / **5.74** /5.76	4,8 / **5,2**	6.0 m	6,0	4,9	5,1, / 5,7 / 6,6
floors	**[5; 25]**	5/ 9/ 12	5 / 9	9 /	3 / 4 / 5 / 9	17 /	9 / 10
age	40-60			50+	60+	50+	40+

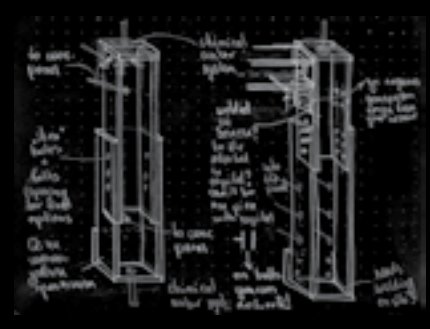
02 Optim

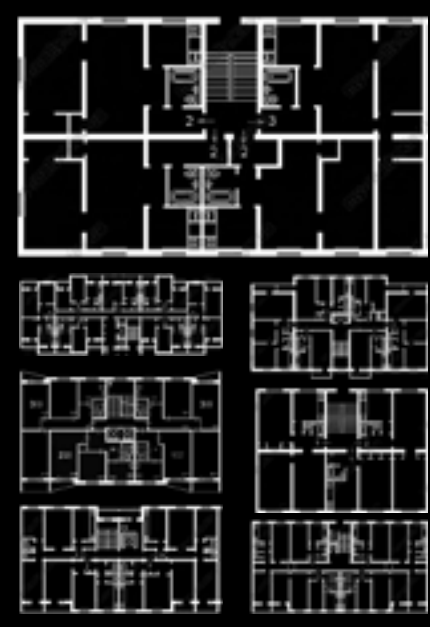
My thesis explores optimization methods for panel housing reconstruction, focusing on developing ***an adaptable steel system (kit)*** for damaged panel structures.

Using images for damage description, I identified defect patterns that were most consistent among buildings. This sample of data set provides insight for trends and offers a structure of analysis that can be utilized as training material for machine learning models, enabling automated damage detection through drone-based scanning.

Dynamo allows to link Revit BIM model with the database of assesed panels.

This workflow will accelerate post-war reconstruction, reduce manual inspection time, and support strategized decision-making in large-scale housing restoration.

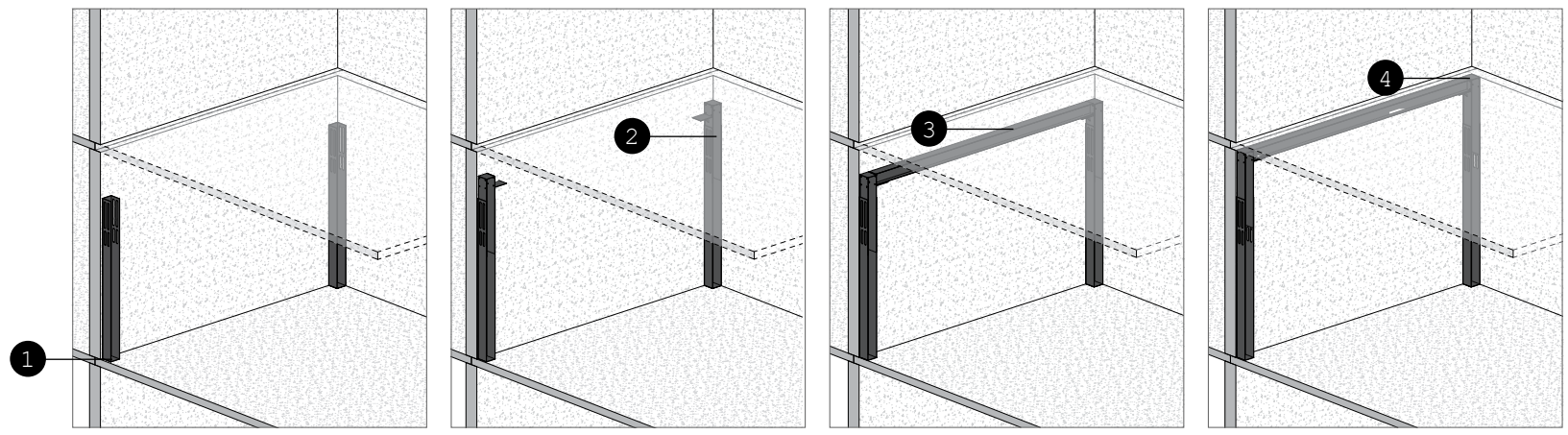




nization




3. Adaptive Prototype



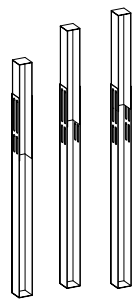
1. Base permanently secured to the floor panel with chemical anchors.

2. Capitel temporarily secured at lowest position.

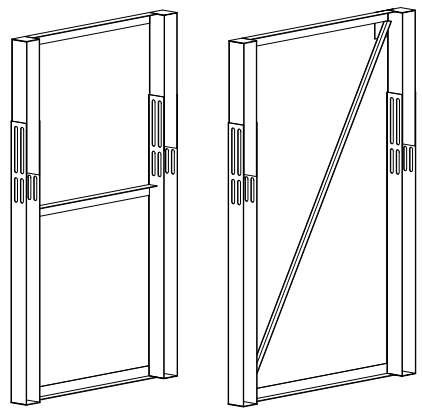
3. Beam placed and secured in beam seat.

4. Extending the frame, permanently attaching the capitel to the top floor panel (anchors) and verticals welded.

4. Scaling



For various damage scenarios, different systems were developed. Starting with an adjustable vertical element, I designed a bracing and beam system that together form a coherent family of modular components. These elements are engineered to be combined in various configurations, tailored to the specific structural reinforcement needs.



With precise information on the components required for each building, reconstruction efforts and budgeting can be accurately visualized.

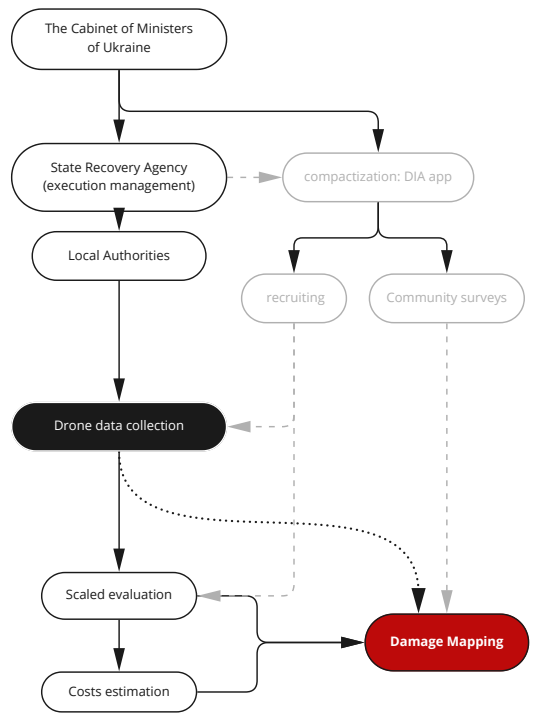
5. Integration

Phase 1 aims to oversee efforts for information collection and accommodate decision making in Phase 2. It begins with top-down coordination from the Cabinet of Ministers of Ukraine, legally delegating execution management to the State Recovery Agency.

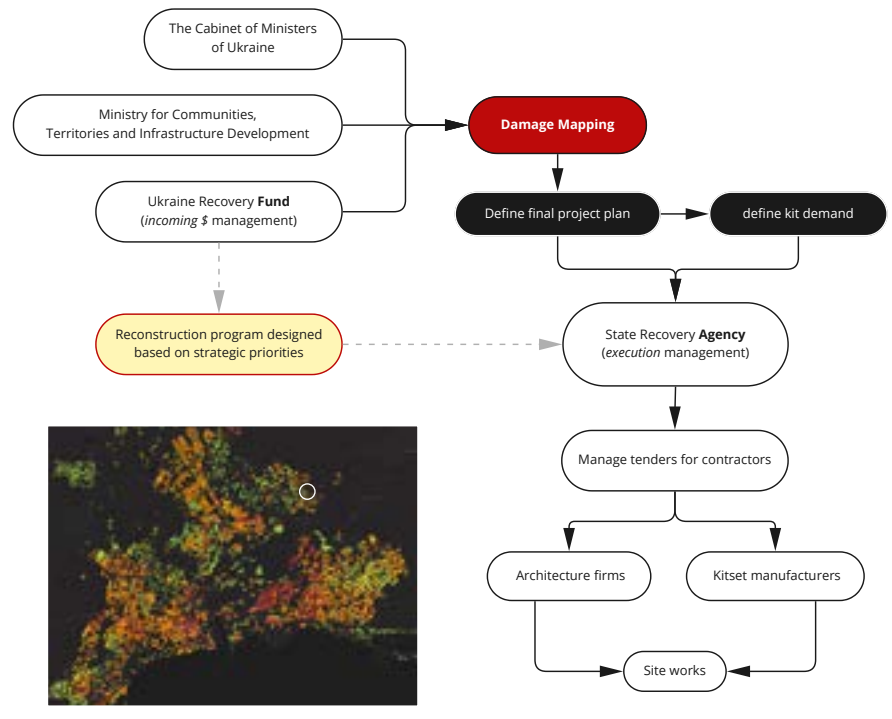
Local authorities then initiate on-ground operations, starting with drone-based scans. The gathered information feeds into a centralized mapping and budgeting platform, enabling a scalable understanding of financial needs from individual buildings to entire cities.

Phase 2 focuses on the translation of mapped damage data into coordinated reconstruction execution. After the direction has been set, it solidifies in Reconstruction program, which guides the Recovery Agency in desctributing production and initiating tenders.

Phase_1: Scanning



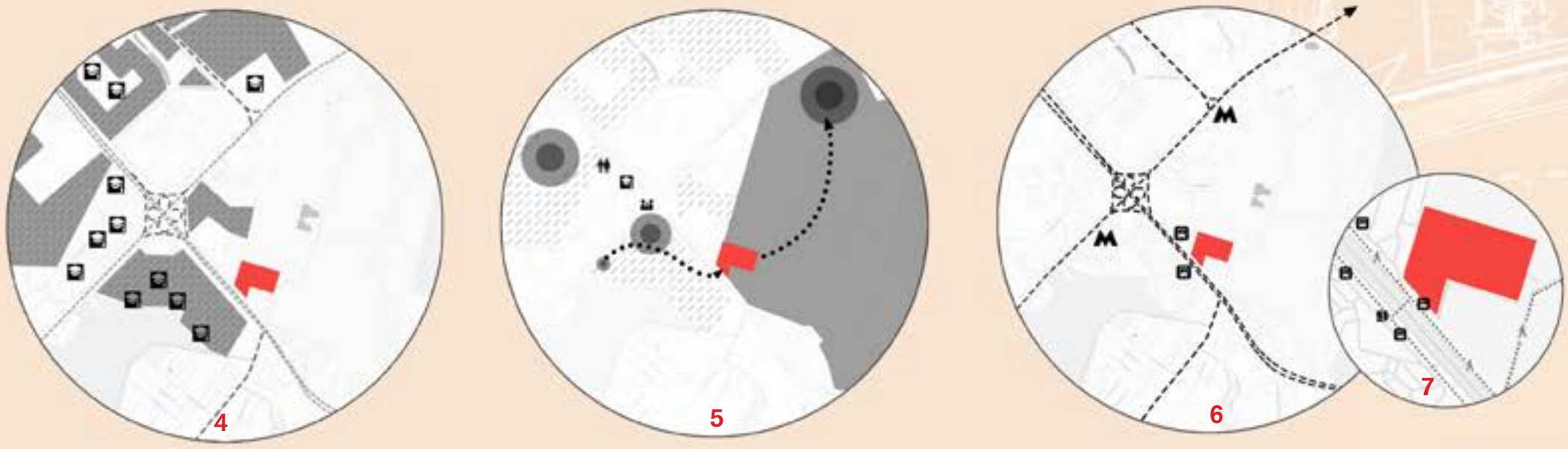
Phase_2: Decision Making



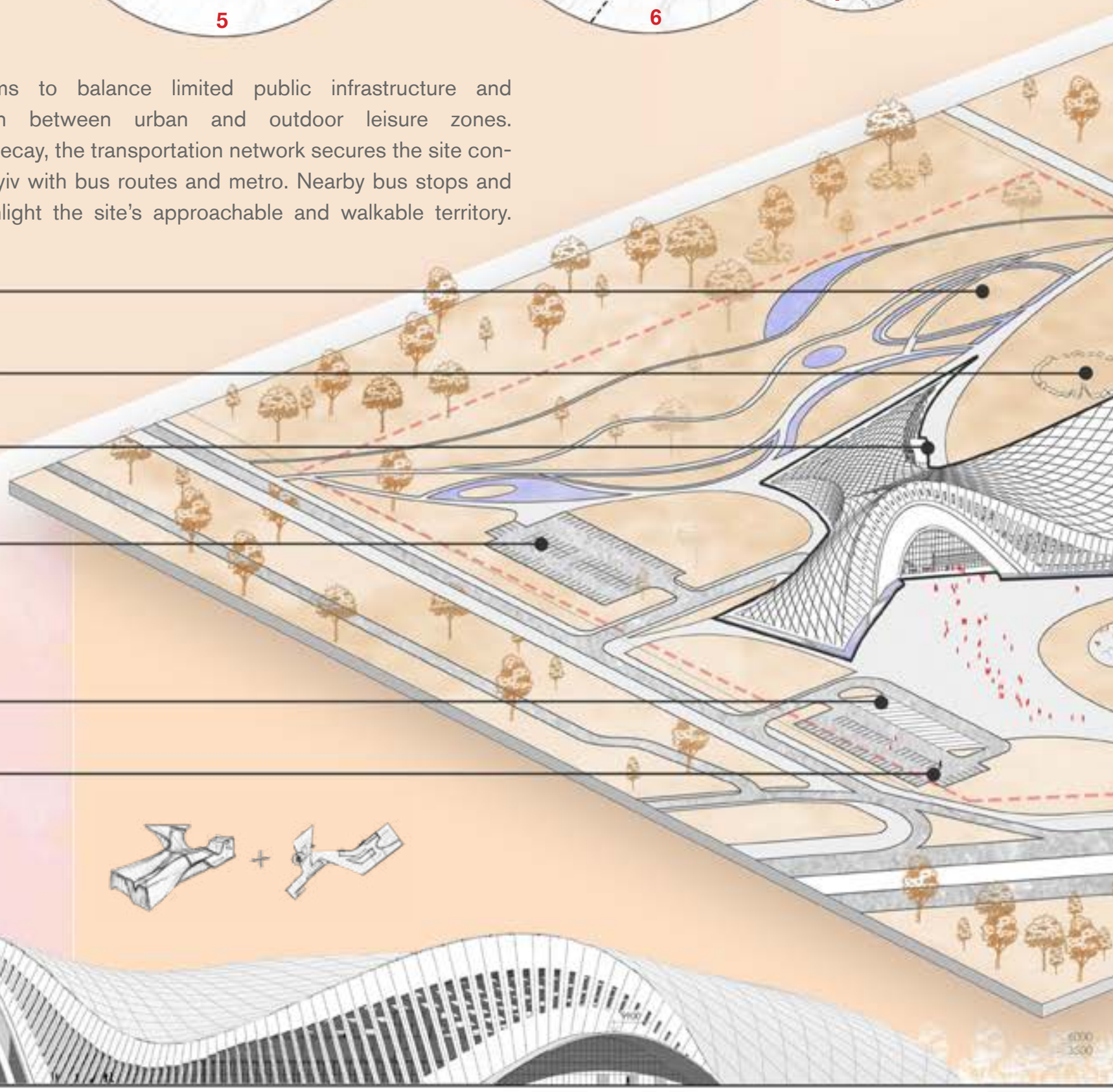
02 Nature and Science Museum

Site Analysis

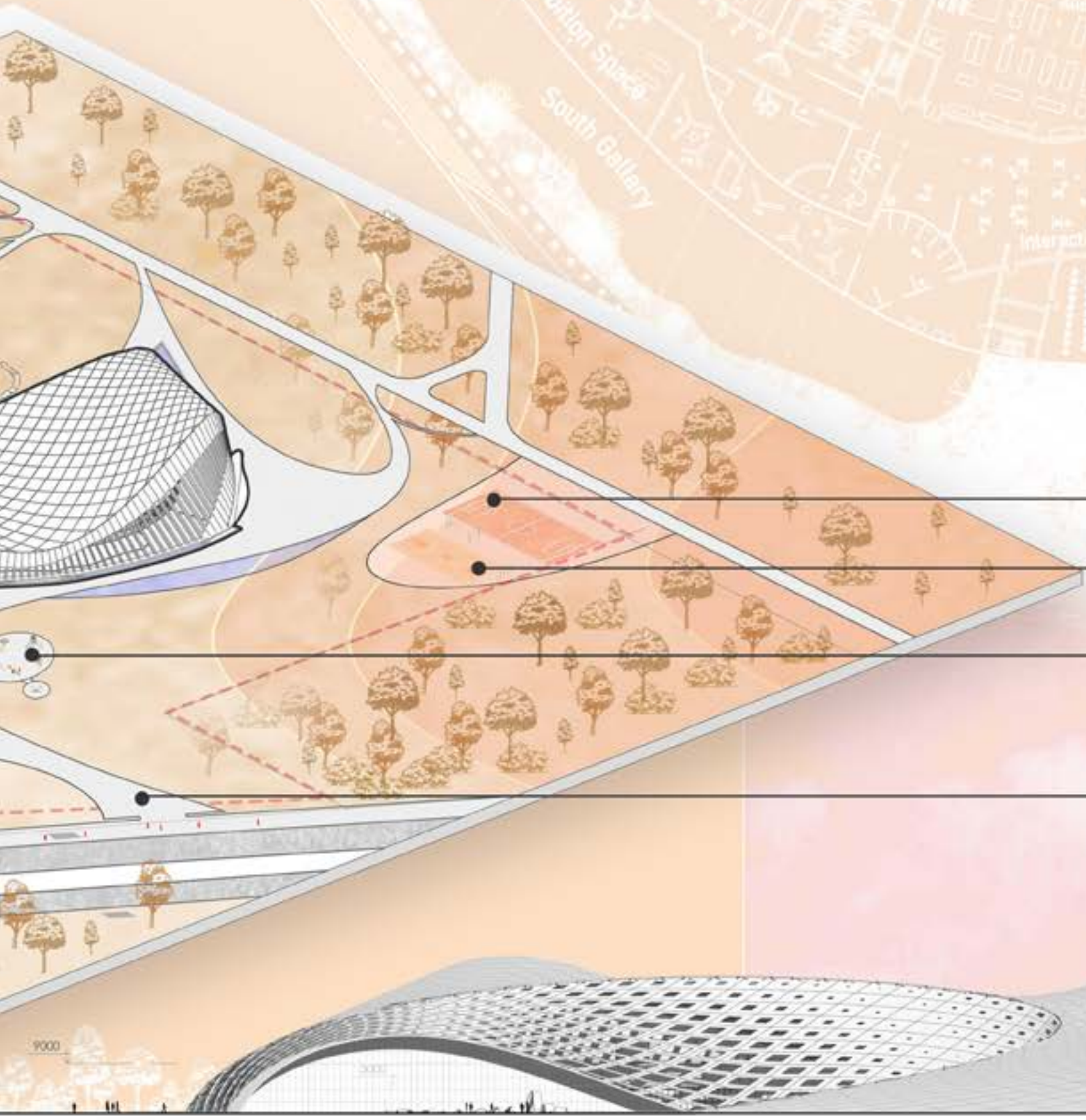
[1]The capital of Ukraine is facing a transitional period reflecting historic political and economic changes. [2] In the peripheral district of Kyiv, [3] the site lies within a large area registered as state property and includes an underused Soviet-era exhibition complex surrounded by forest. [4] Soviet housing defines the area's higher population density and identifies families and students as the primary users.



[5] The proposal aims to balance limited public infrastructure and [6] offer a transition between urban and outdoor leisure zones. [7] Despite mild urban decay, the transportation network secures the site connection to the rest of Kyiv with bus routes and metro. Nearby bus stops and pedestrian access highlight the site's approachable and walkable territory.

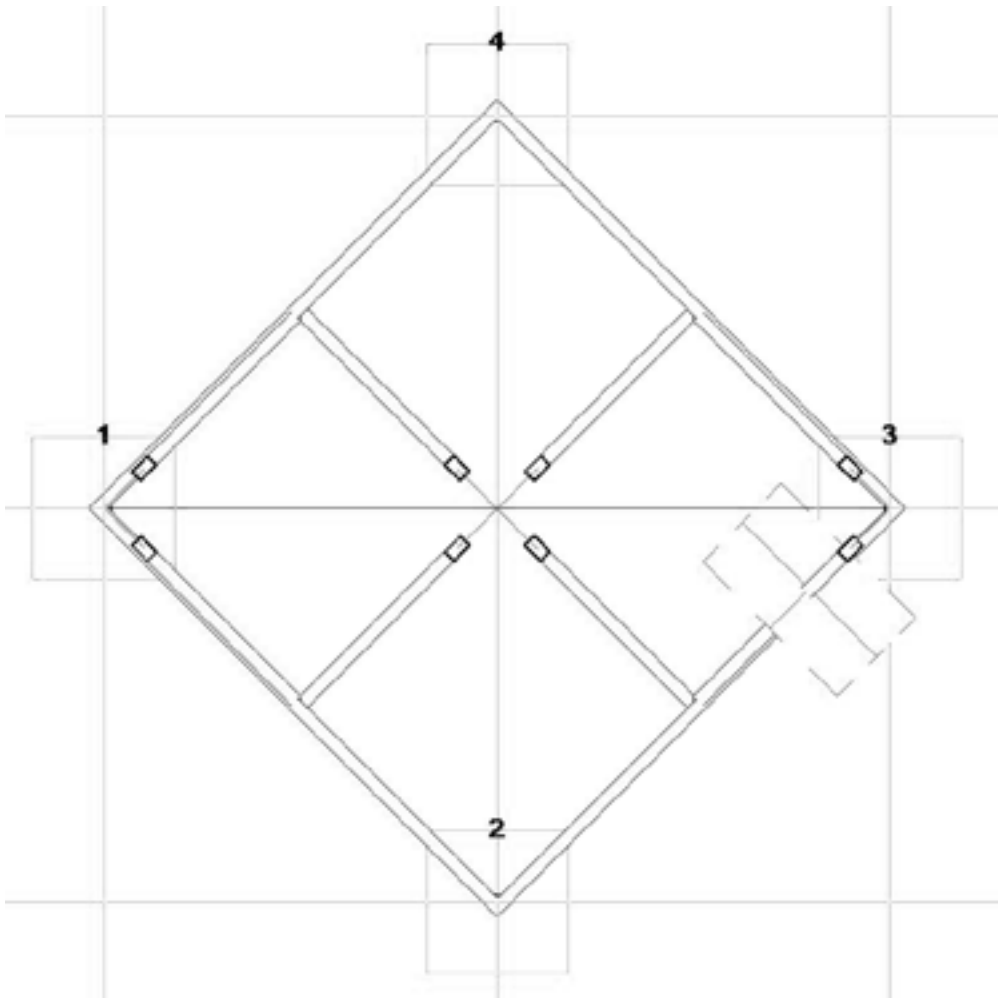


03 MUSEUM

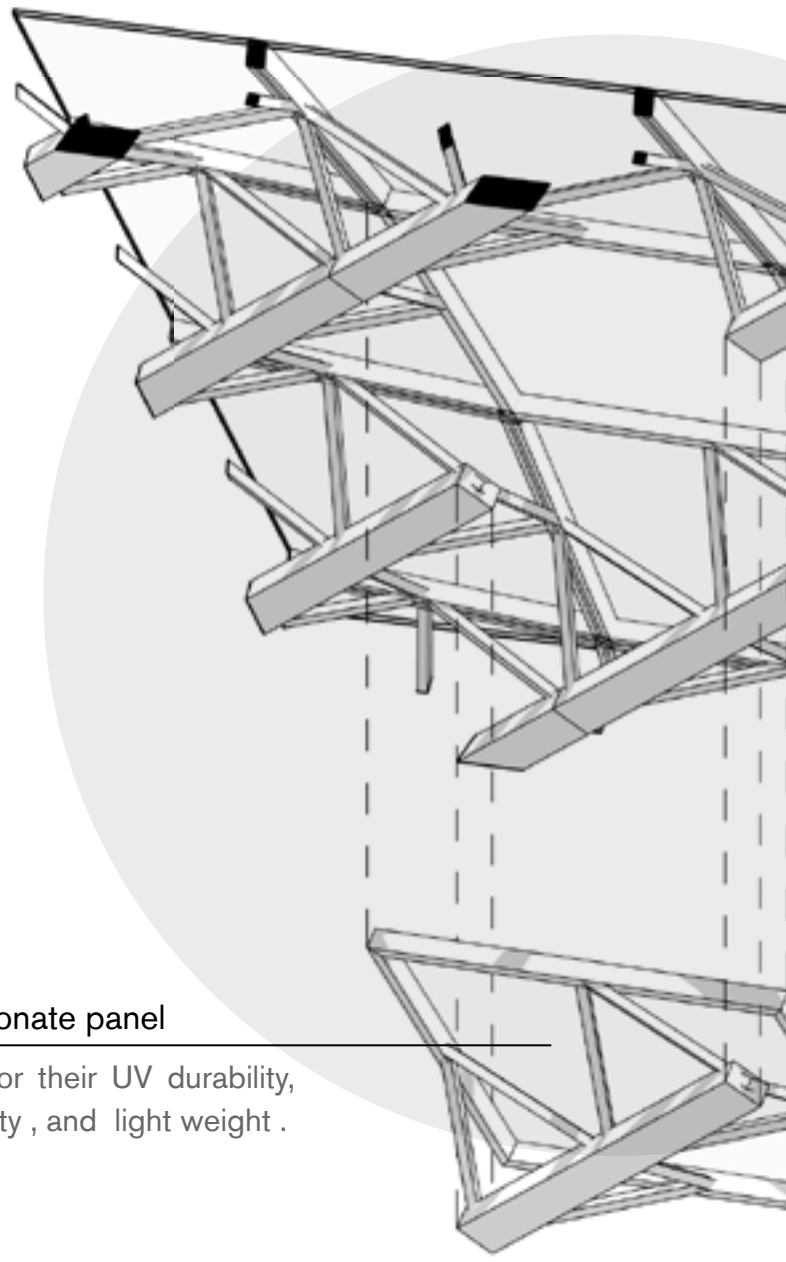

football pitch
basketball pitch
playground
main enterance

01 Reconstruction of Panel Housing

Envelope

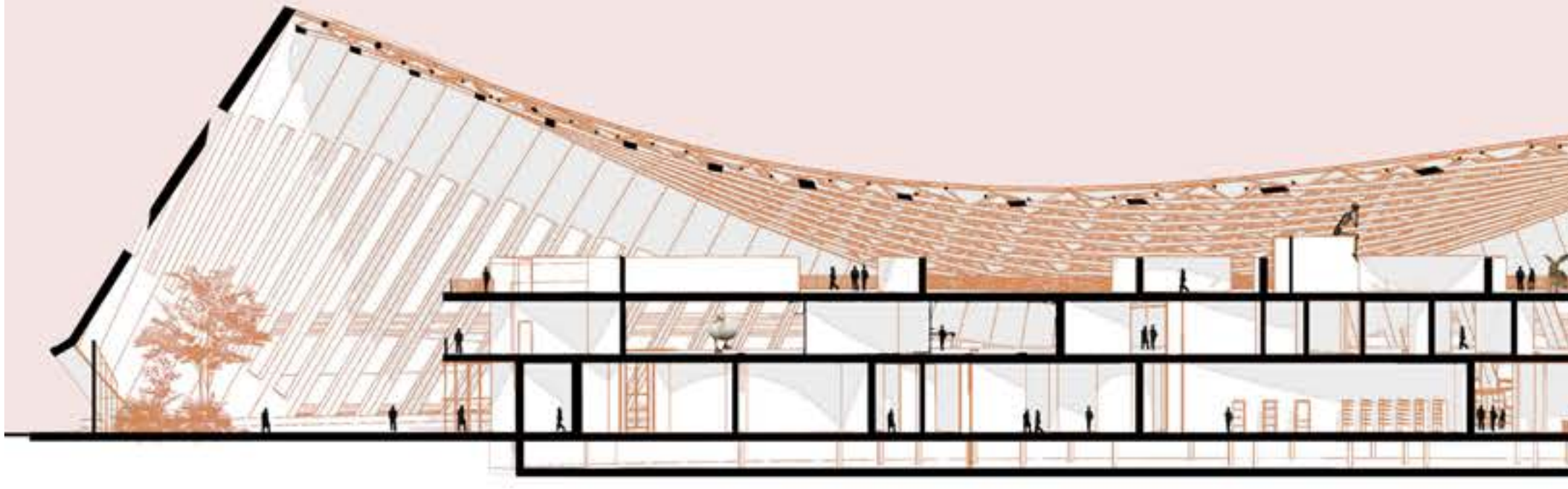


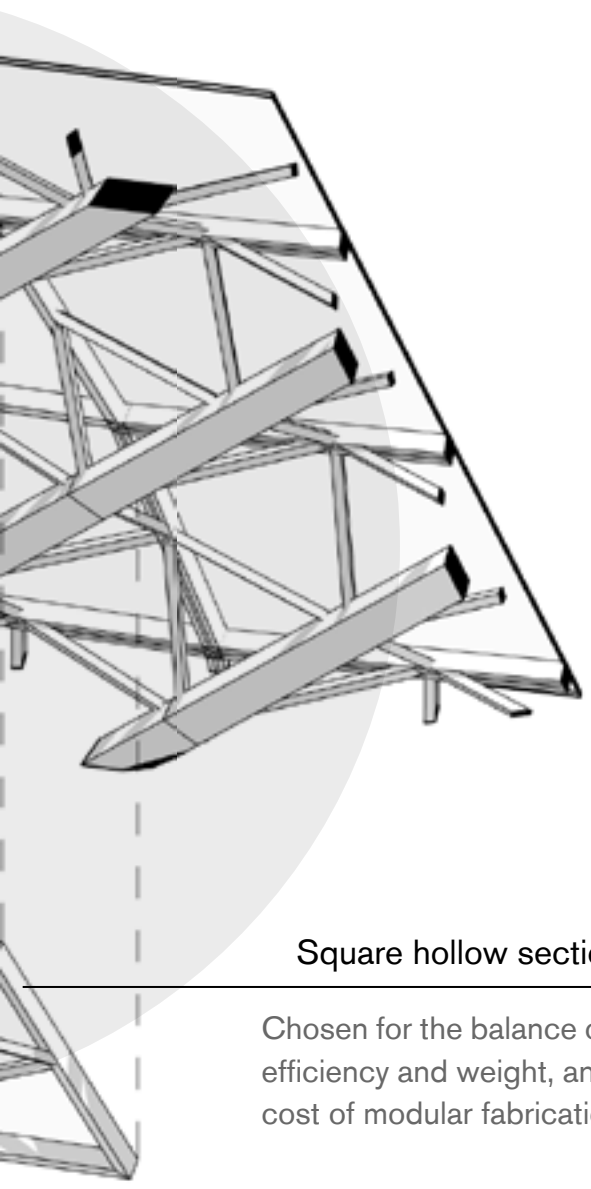
The parametric dome spans several independent volumes, including a museum, library, and restaurant, each containing their own support spaces. The voids between these structures act as transitional zones that generate much-needed third spaces. The envelope, constructed from adaptive lightweight steel modules with polycarbonate panels, provides high light transmission while keeping the need for stabilizing interior temperatures. Modules are prefabricated off-site and assembled on-site using bolted connections and lightweight cranes.



Polycarbonate panel

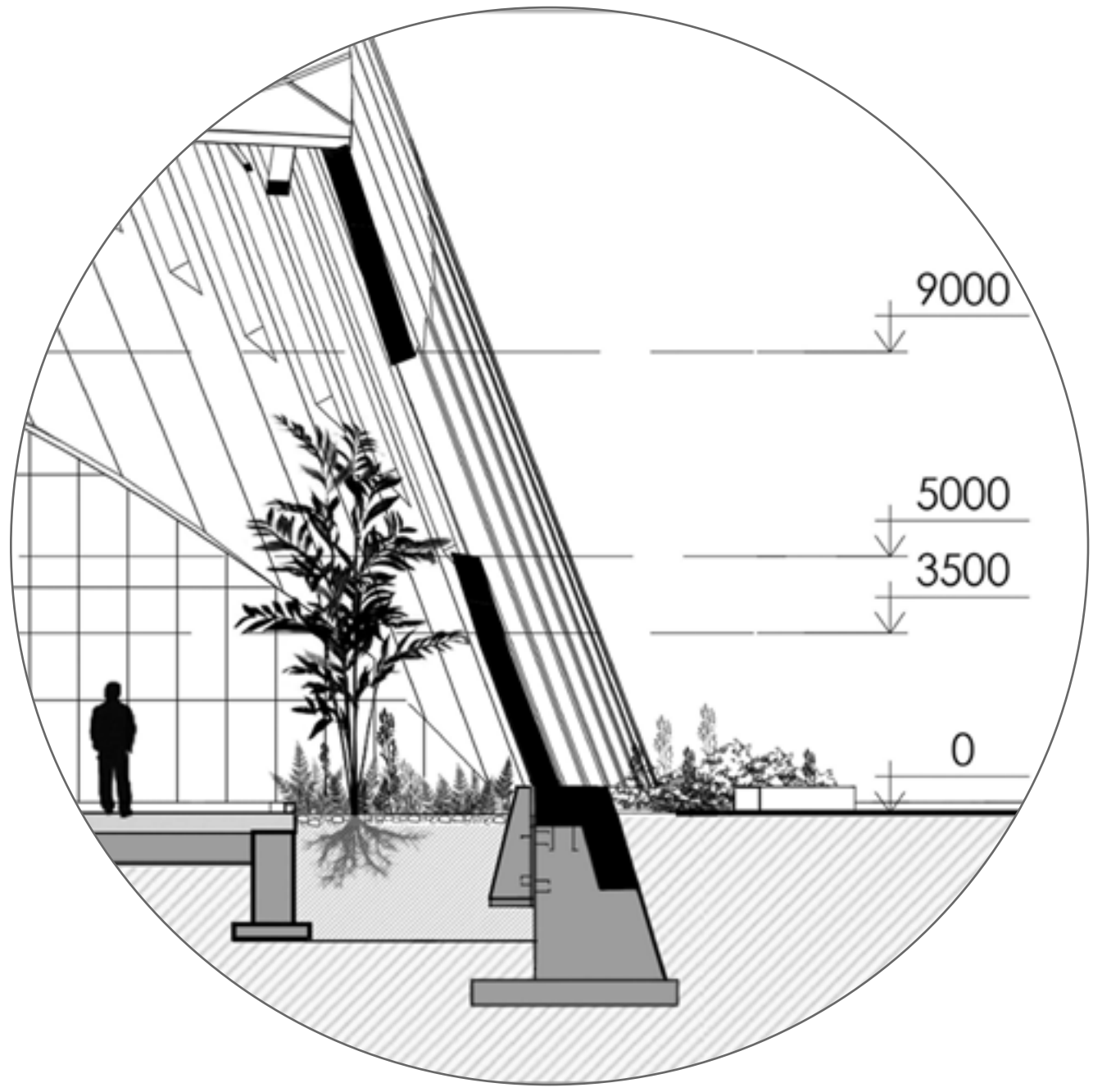
Chosen for their UV durability, affordability , and light weight .

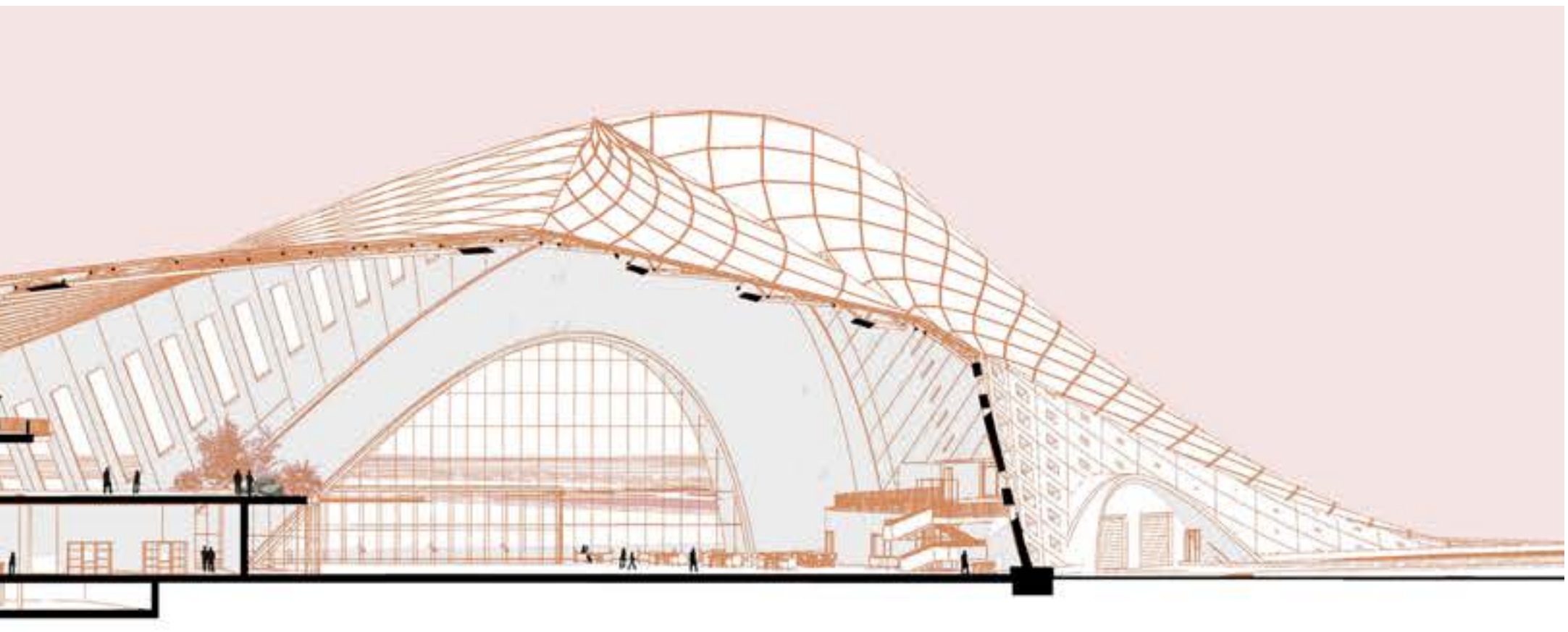




Square hollow sections (SHS)

Chosen for the balance of structural efficiency and weight, and ease and cost of modular fabrication

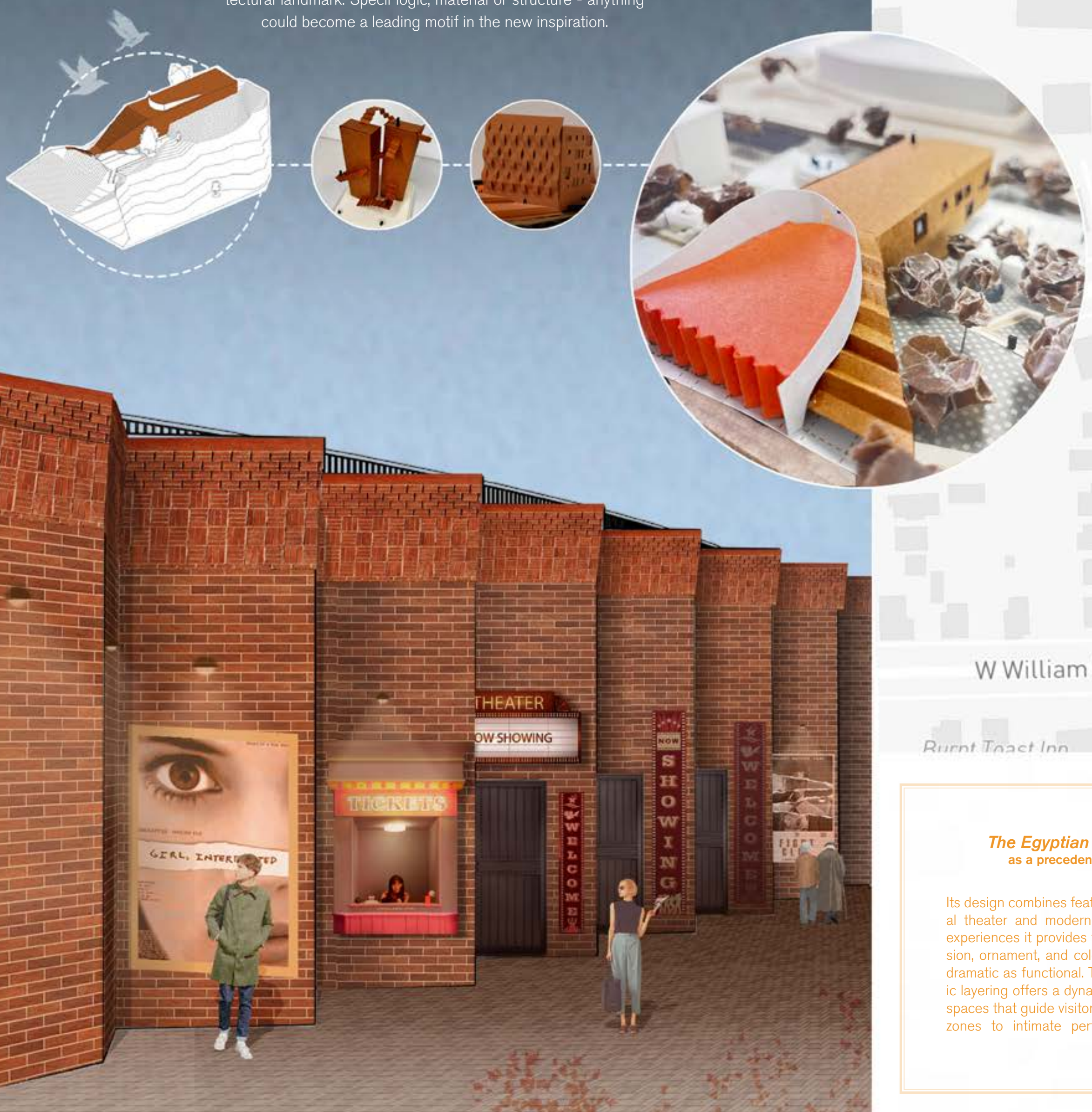




03 KinoStep
Architectural Sequel

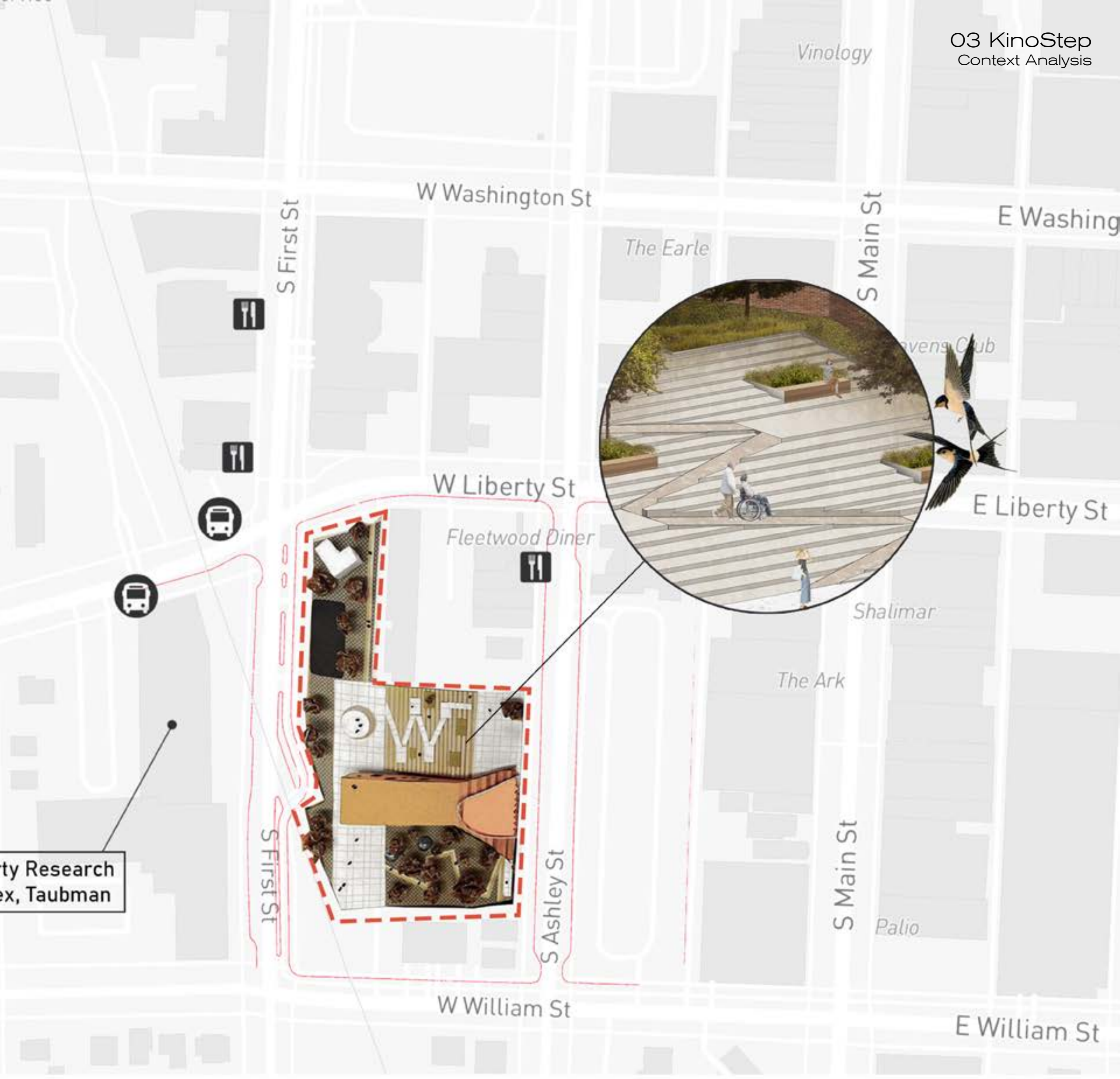
04 Casa Malaparte to KinoStep

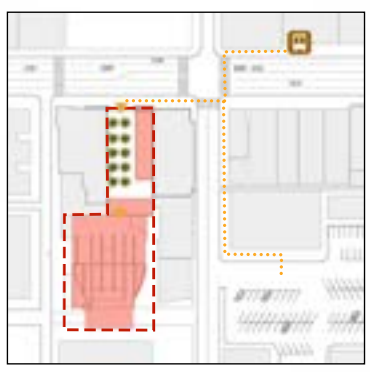
Sequel Studio challenged me to design a conceptual continuation to an existing architectural landmark. Specil logic, material or structure - anything could become a leading motif in the new inspiration.



The Egyptian Theatre
as a precedent study

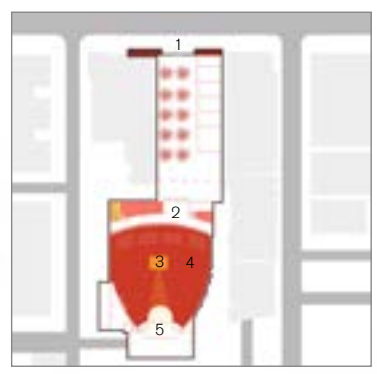
Its design combines features of traditio
al theater and modern cinema. Spa
experiences it provides through form i
sion, ornament, and color stands out
dramatic as functional. The programm
ic layering offers a dynamic sequence
spaces that guide visitors from gatheri
zones to intimate performance are





Site accessability

Spatial massing



Program

1- enterance, 2- foyer, 3 - booth,
4 - auditorium, 5 - screen.

Spatial hierarchy

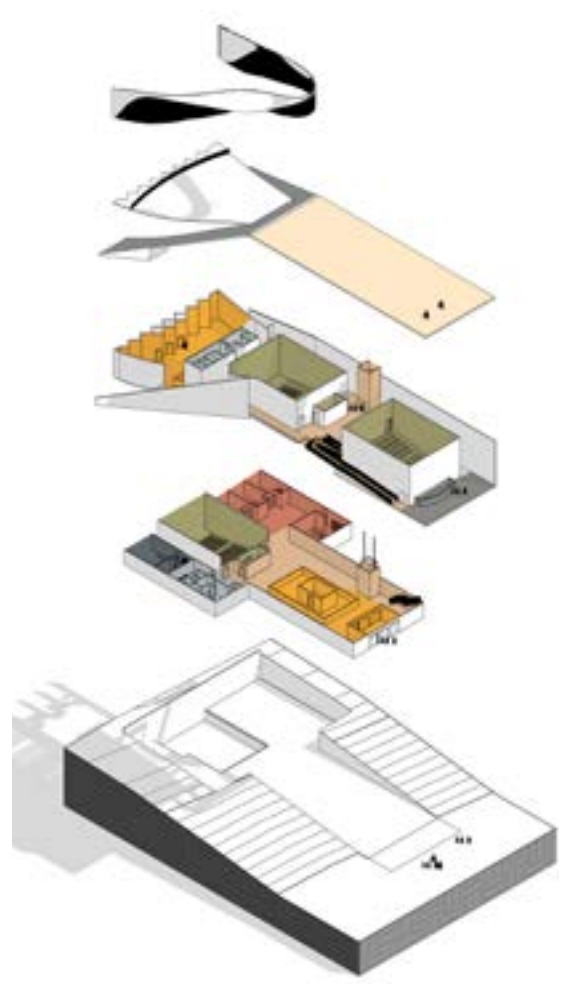
Interior

04 KinoStep
Section

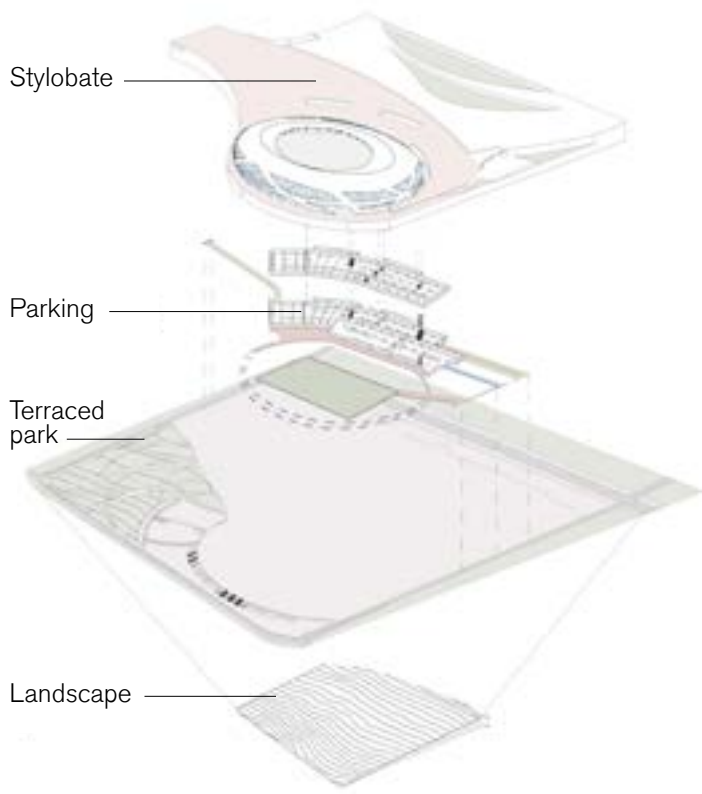
The KinoStep building creates two distinct architectural expressions on each side. A great **console** extends above a spacious plaza observing the transitional space below. On the other side, the **dynamic facade** continoues the existing rythm of street view.

Program legend:

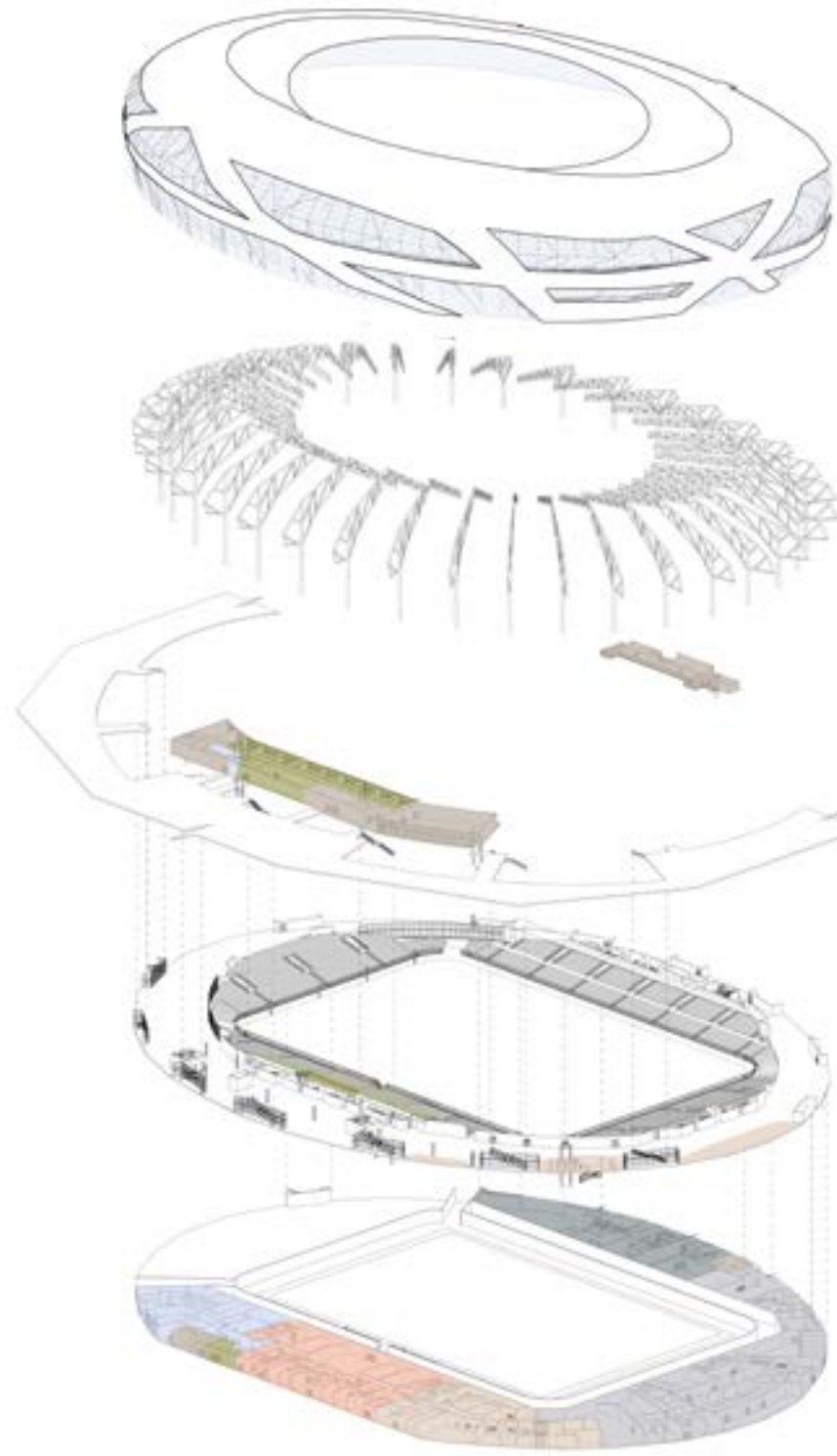
- Observation deck
- Lobby
- Circulation
- Retail
- Auditorium
- Screening rooms
- Bar
- Office, storage
- Restrooms



05 Mariupol Stadium
Site and Structure Concept

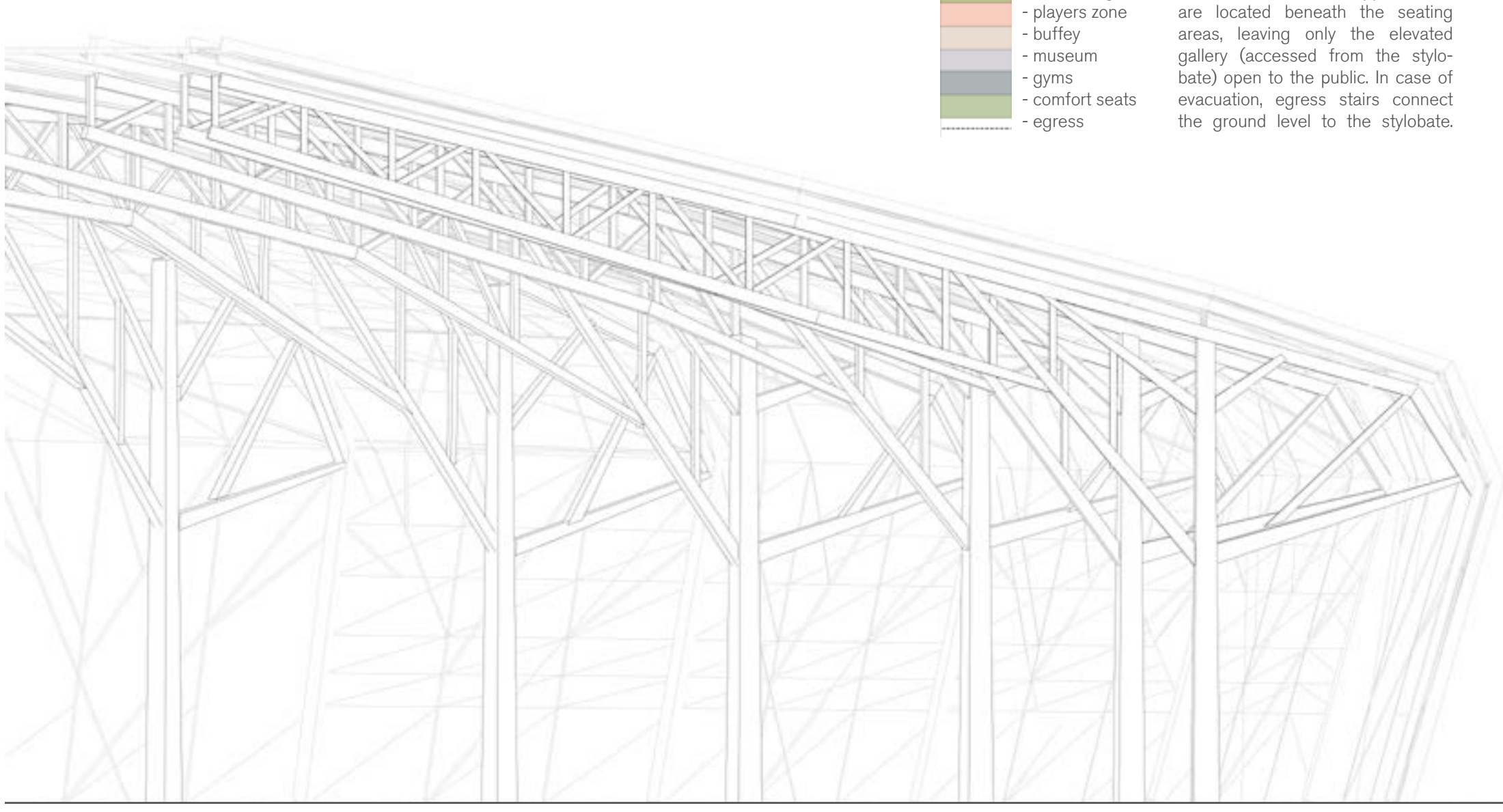


The site features an 11-meter-high slope, which accommodates an underground parking covered with a stylobate. The parking is connected to the road on both sides of the site. This creates a spacious public square above while concealing the parking below.



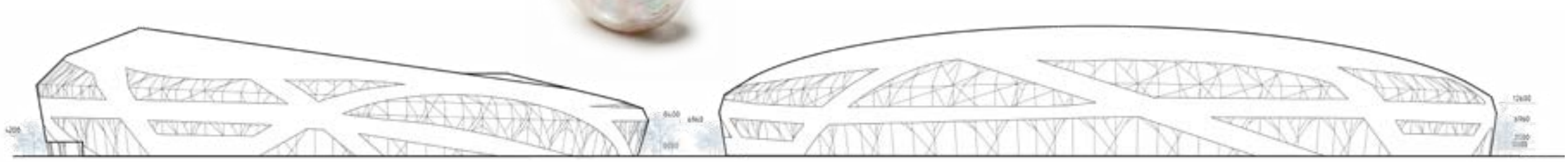
- kitchen zone
- press
- business guests
- players zone
- buffey
- museum
- gyms
- comfort seats
- egress

The perimeter ring of leaning tree-trusses supports the glass facade. All service and support zones are located beneath the seating areas, leaving only the elevated gallery (accessed from the stylobate) open to the public. In case of evacuation, egress stairs connect the ground level to the stylobate.

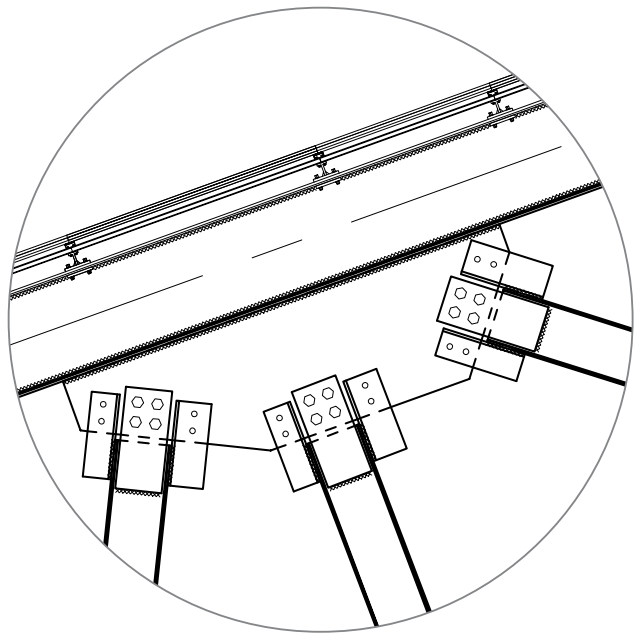


05 Mariupol Stadium

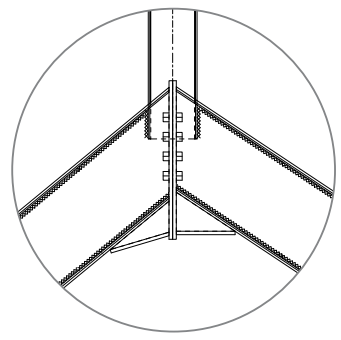
The stadium competition was part of **Mariupol's** ambitious urban development in **2020**, led by the **city as the client**. Located in a neglected yet expansive **parkland along the Azov Sea** in Mariupol, the project aimed to transform a previously unwelcoming area into a vibrant urban destination and a seamless urban connector. The silhouette of the main structure draws inspiration from an asymmetrical pearl. Its flowing curves create a rhythmic presence in the master plan, while the entire composition appears to merge into the surrounding "sea" of trees.



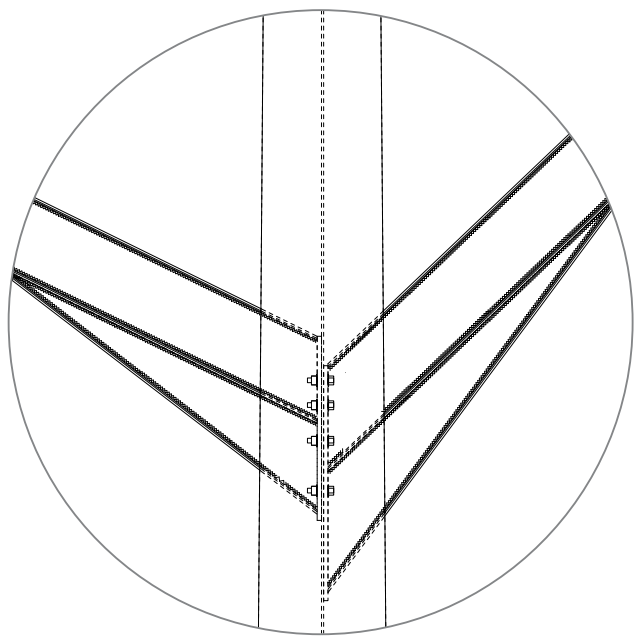
05 Mariupol Stadium
Structural Detail



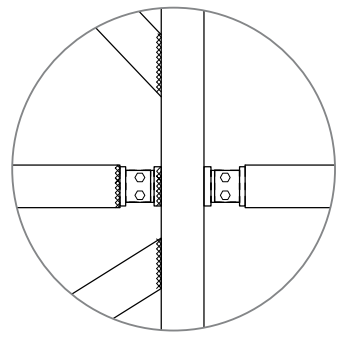
1



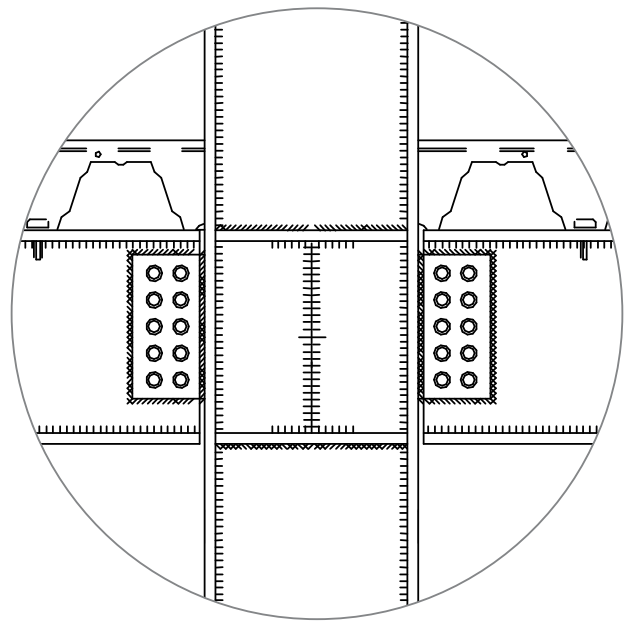
2



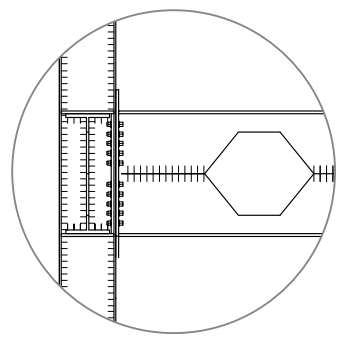
3



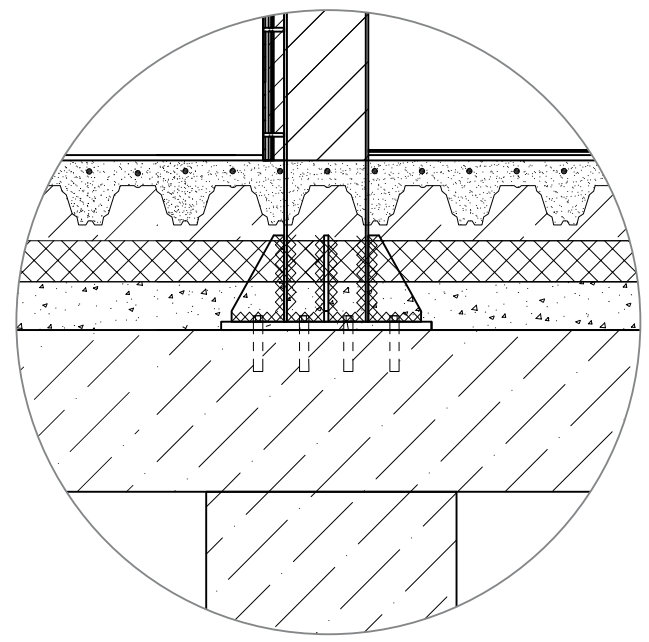
4



5

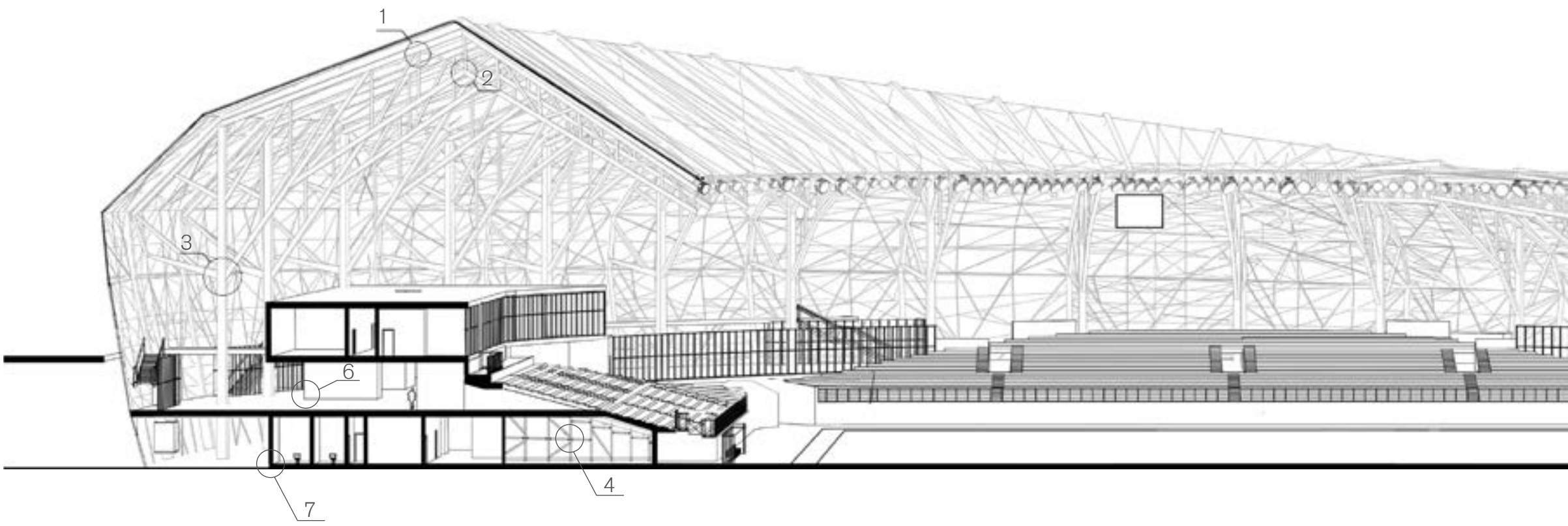


6

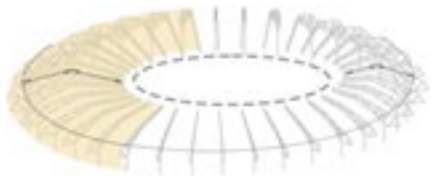


7

[1] Thee webs join where the tree column transitions into the truss, distributing vertical loads into horizontal chords. **[2]** Two bottom chords meet at a central bearing joint for direct axial load transfer. **[3]** First-level branches bolted to the web of the H-trud trunk. Triangular gusset plates are inserted for additional support. **[4]** Shear connection where two tubular webs meet at a central vertical plate. For the indoor structure, **[5]** in the primary framing, the vertical plates on either side of the stud transfer both axial and bending forces between the built-up beam segments. **[6]** To reduce the weight, secondary beams are also built-up and have voids. **[7]** A steel column base is secured to the reinforced concrete foundation with embedded anchor bolts.



05 Mariupol Stadium
Gallery Plan



This structure uses a ring-supported system where each leaning tree-truss transfers its load to the central compression ring; when pressure is applied from all sides, the forces counterbalance, creating a stable, self-supporting stadium roof.