让我们共同打造气候中和的未来
Building a climate-neutral future together

中华人民共和国
住房和城乡建设部

IBE 环能科技

中国建筑节能协会

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skat Swiss Resource Centre and Consultancies for Development

中瑞零碳建筑研讨会——循环建造-瑞士最佳实践

ZEB Talk – Circular Building - best practice in Switzerland

2025年7月23日

July 23th 2025

Barbara Buser，建筑师 苏黎世联邦理工学院/瑞士工程师与建筑师协会

Barbara Buser, architect ETH/SIA

Barbara Buser, introduction

A pioneering Swiss architect, urban planner, and leader in circular construction, Buser is the founder of architectural practice Baubüro in situ, urban development firm Denkstatt Sàrl, and circular technology enterprise Zirkular. A former visiting professor at ETH Zurich, she champions low-carbon transformation through adaptive reuse, minimizing demolition and maximizing material recycling. Her landmark project K.118—a paradigm of resource-efficient urban regeneration—won the 2021 Global Gold Award from the Holcim Foundation for Sustainable Construction.

- Buser’s visionary approach has reshaped Europe’s built environment, earning her the 2020 Swiss Grand Prix Art/Prix Meret Oppenheim and the 2024 Honorary Membership of the Swiss Society of Engineers and Architects (SIA). Bridging academia, industry, and community engagement, her work exemplifies scalable strategies for climate-conscious urban futures.

瑞士先锋建筑师、城市规划师与循环建造领袖Barbara Buser是Baubüro in situ建筑事务所、Denkstatt Sàrl城市发展公司与Zirkular循环技术企业的创始人。这位苏黎世联邦理工学院（ETH Zurich）客座教授，始终倡导通过适应性再利用推动低碳转型，最大限度减少拆除工程并提升材料循环利用率。其标志性项目K.118作为资源高效型城市更新的典范，荣获2021年霍尔希姆可持续建筑基金会全球金奖。

Barbara Buser的远见卓识重塑了欧洲建筑环境，使其相继斩获2020年瑞士艺术大奖/梅雷特·奥本海姆奖，以及2024年瑞士工程师与建筑师协会（SIA）荣誉会员称号。她的实践完美融合学术研究、产业创新与社区参与，为气候友好型城市发展提供了可复制的系统性解决方案。

Introduction 介绍

- I do not know China, I have never been there, but I admire the creative power of the Chinese people
- I do not want to give you any advice, i can just tell you my story
- And my story is deeply embossed by working ten years in Africa and by my condition and enrootment in the Swiss culture
- My Father taught me to think independently, to believe only what I can see with my own eyes and touch with my own hands, to believe only what I think is logic and plausible after a thorough analysis – and that's what made me do what I did in the forty years of my working life

- 我虽未曾踏足中国，也不谙熟那里的一切，但我始终钦佩中国人民的创造力
- 我无意提供任何建议，只能讲述自己的故事
- 一个被非洲十年工作经历深刻镌刻的故事，一个根植于瑞士文化土壤的故事。
- 父亲教导我独立思考，只相信亲眼所见、亲手所触之物，只认同经彻底剖析后逻辑自洽的真理——正是这样的信念，铸就了我四十年职业生涯的每一步轨迹。

Zero emission buildings? 零碳建筑？

40% of CO2 emissions come from the construction industry.

Go for circular construction is a must, but it is not the solution!

And always ask, how much energy it needs to construct a zero emission building!

The question is: Does the saving of operational energy over the 20, 60, 80 years of existence compensate for the energy used to make the building?

建筑业贡献了全球40%的碳排放。

推行循环建造势在必行，但这并非终极解决方案！

更需追问：建造一栋零排放建筑本身需要消耗多少能源?

核心矛盾在于：建筑在20年、60年乃至80年使用周期内节约的运行能耗，能否抵消其建造过程中的能源代价?

1954 my name is Barbara Buser

I finished my studies at ETH Zürich in 1979

我于1979年完成了在苏黎世联邦理工学院（ETH Zürich）的学业

1980 built hand dug water wells in Southern Sudan until the war started again

1980年在南苏丹修建手工挖掘的水井，直到战争再次爆发

1986 Rebuild the Maintenance Department at the University of Dar es Salaam in Tanzania

1986年重建坦桑尼亚达累斯萨拉姆大学的维修部门

1992 back to Basel I became a captain of the Basel ferry boats

1992年回到巴塞尔，我成为了巴塞尔渡船的船长

1995 I founded an virtual platform on internet and

1995年，我在互联网上创立了一个虚拟平台

physical store for the systematic reuse of construction elements and materials

和用于建筑元素和材料系统化再利用的实体店

BAU
TEIL
BÖRSE

The reuse of buildings in their entirety and their com-ponents can significantly reduce carbon emissions
建筑整体及其构件的再利用可显著降低碳排放

Together with my team we have developed a low-carbon model of building renovation over the past 30 years:

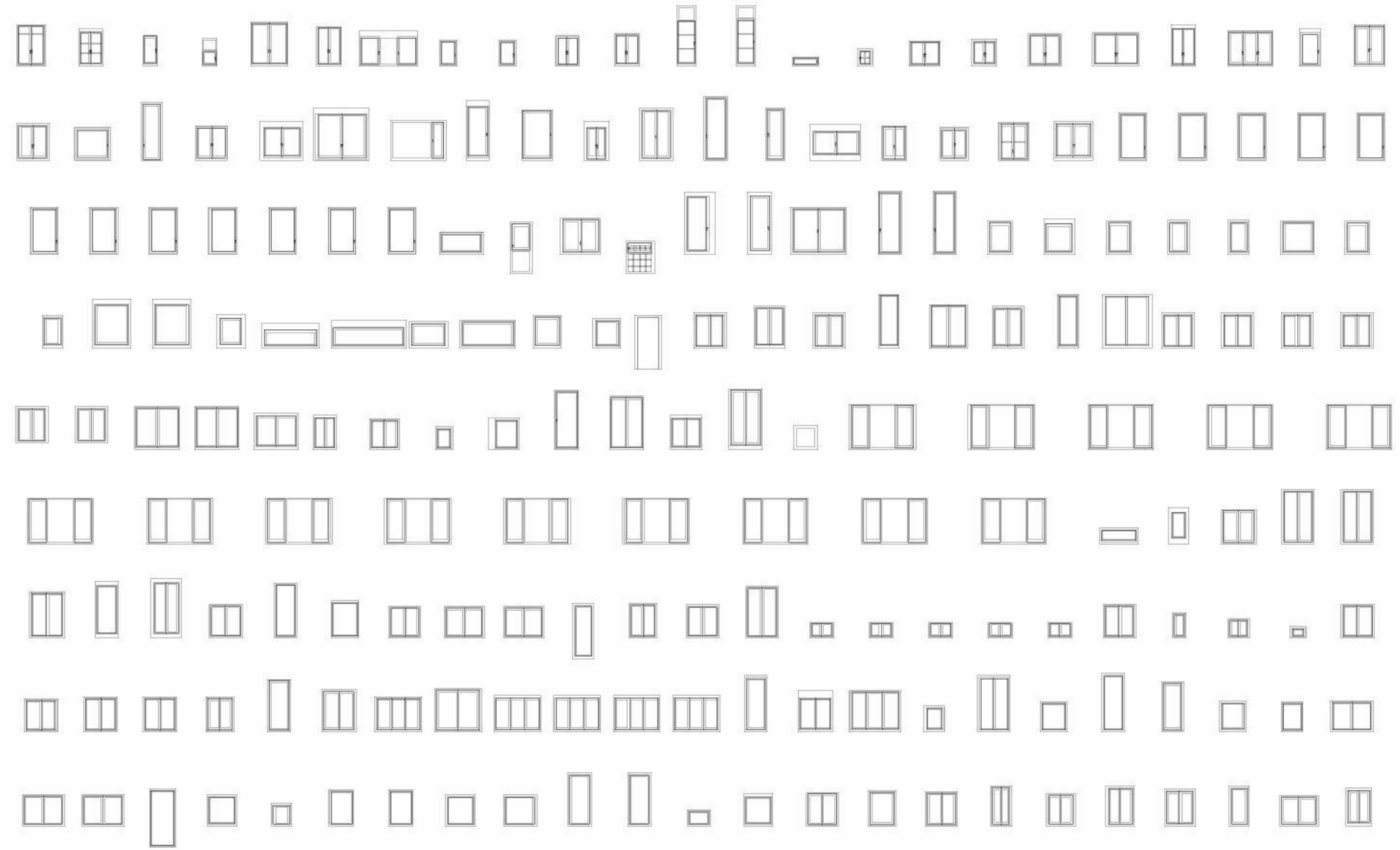
- **reusing existing buildings** with minimal intervention through spatial matching,
- **maximising the use of existing materials** and components through construction tolerances, and
- **making circular construction** feasible through the creation of professional platforms to connect various stakeholders in the construction industry.

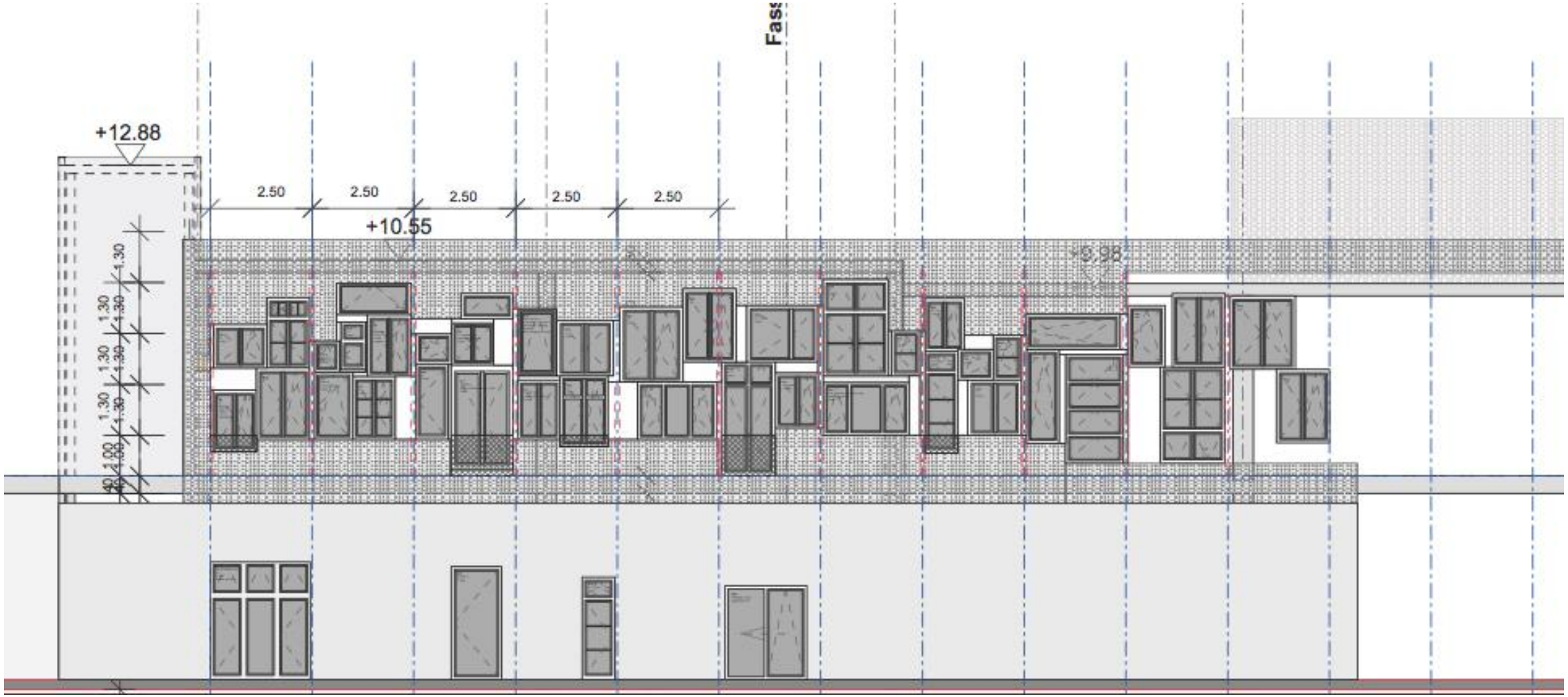
过去三十年间，我与团队共同研发出一套低碳建筑改造模式：

- **通过空间适配实现最小干预式既有建筑再利用**
- **利用施工公差最大化既有材料与构件的使用效率**
- **搭建专业平台联通建筑业各方主体，使循环建造切实可行**

2017 ELYS, a new façade for an existing building

2017 ELYS，为现有建筑设计的新外立面

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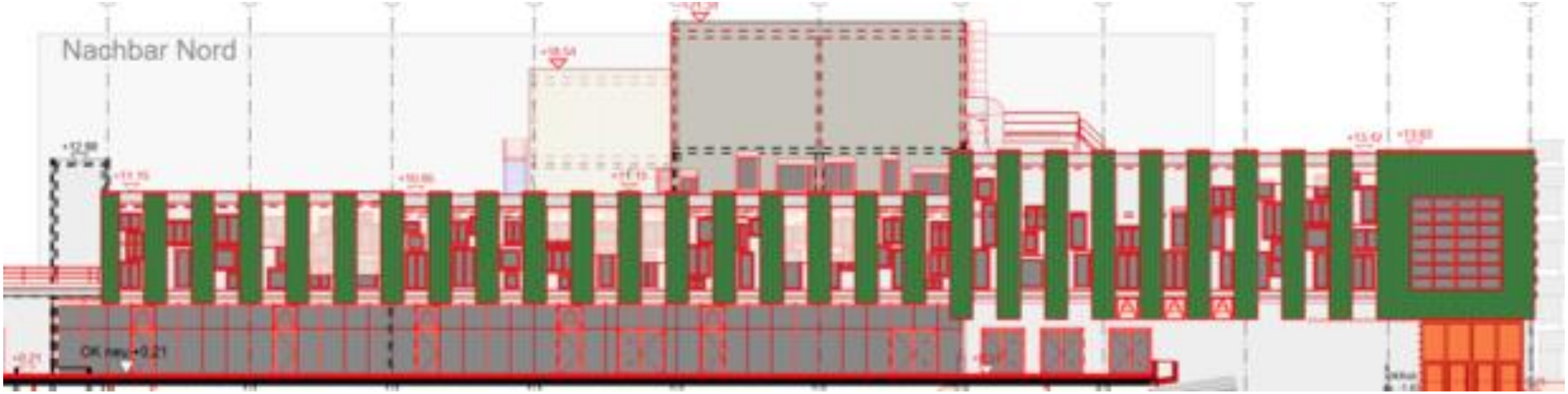
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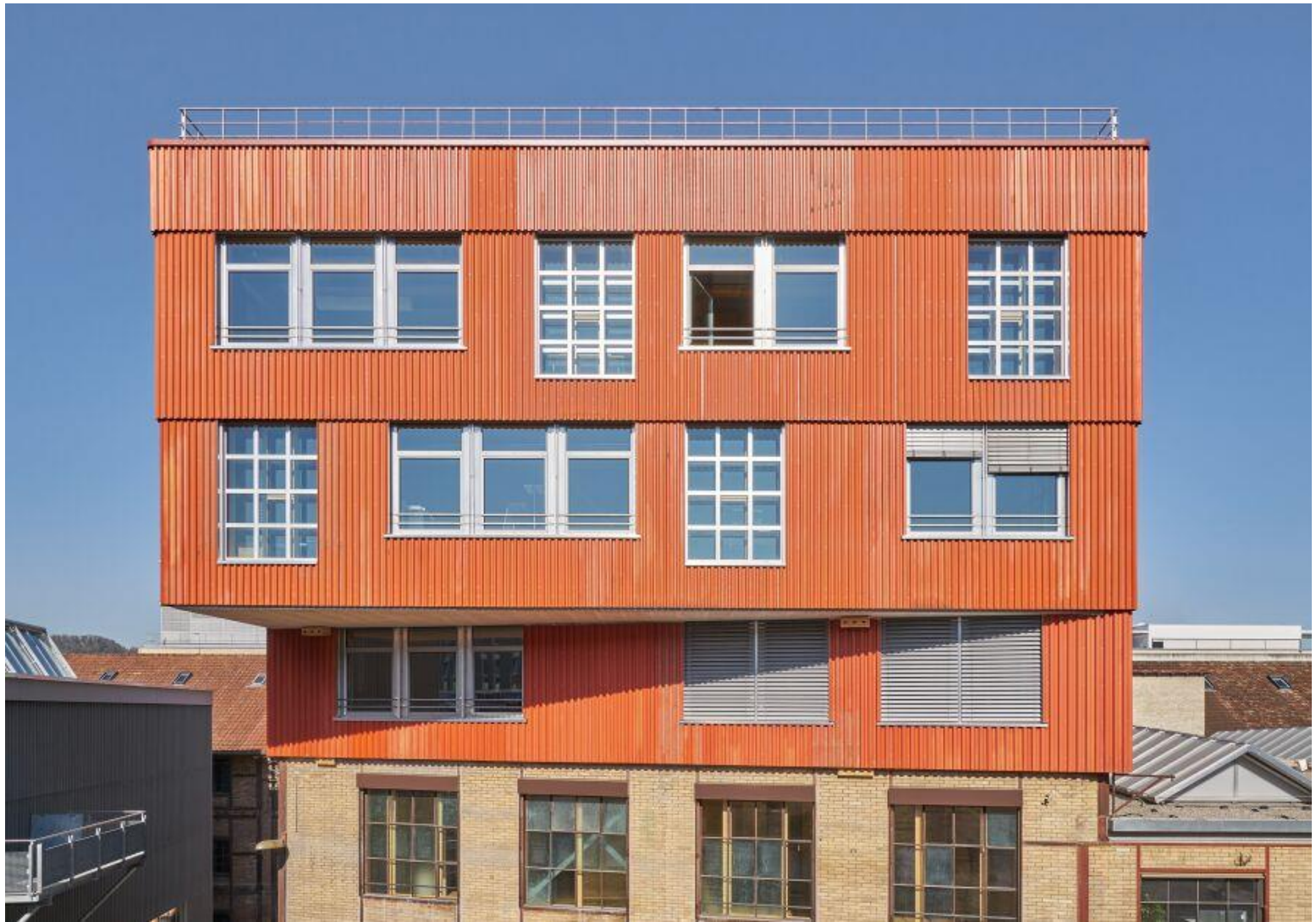
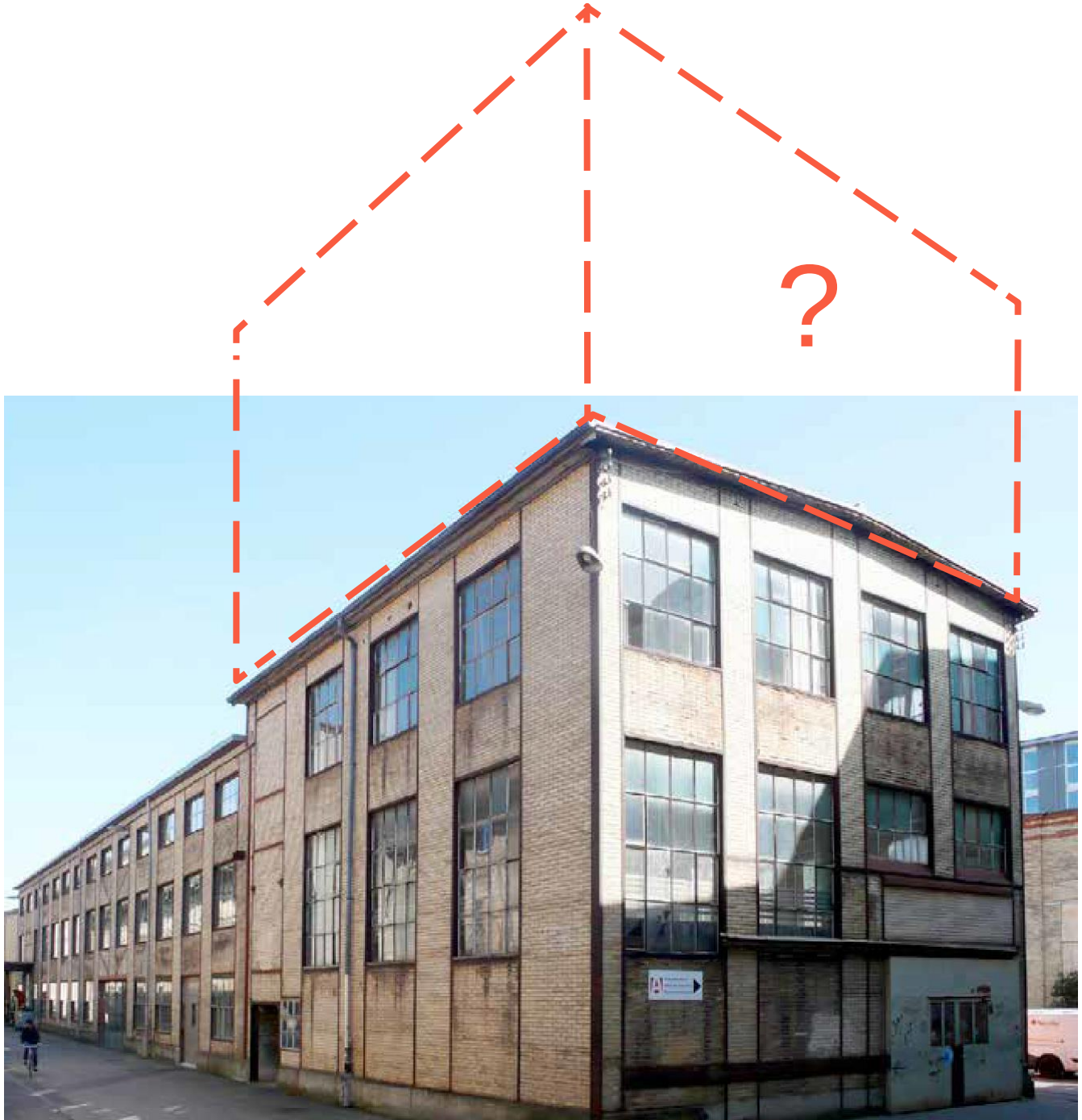
Lysbüchel | Laufend

Lysbüchel | Laufend

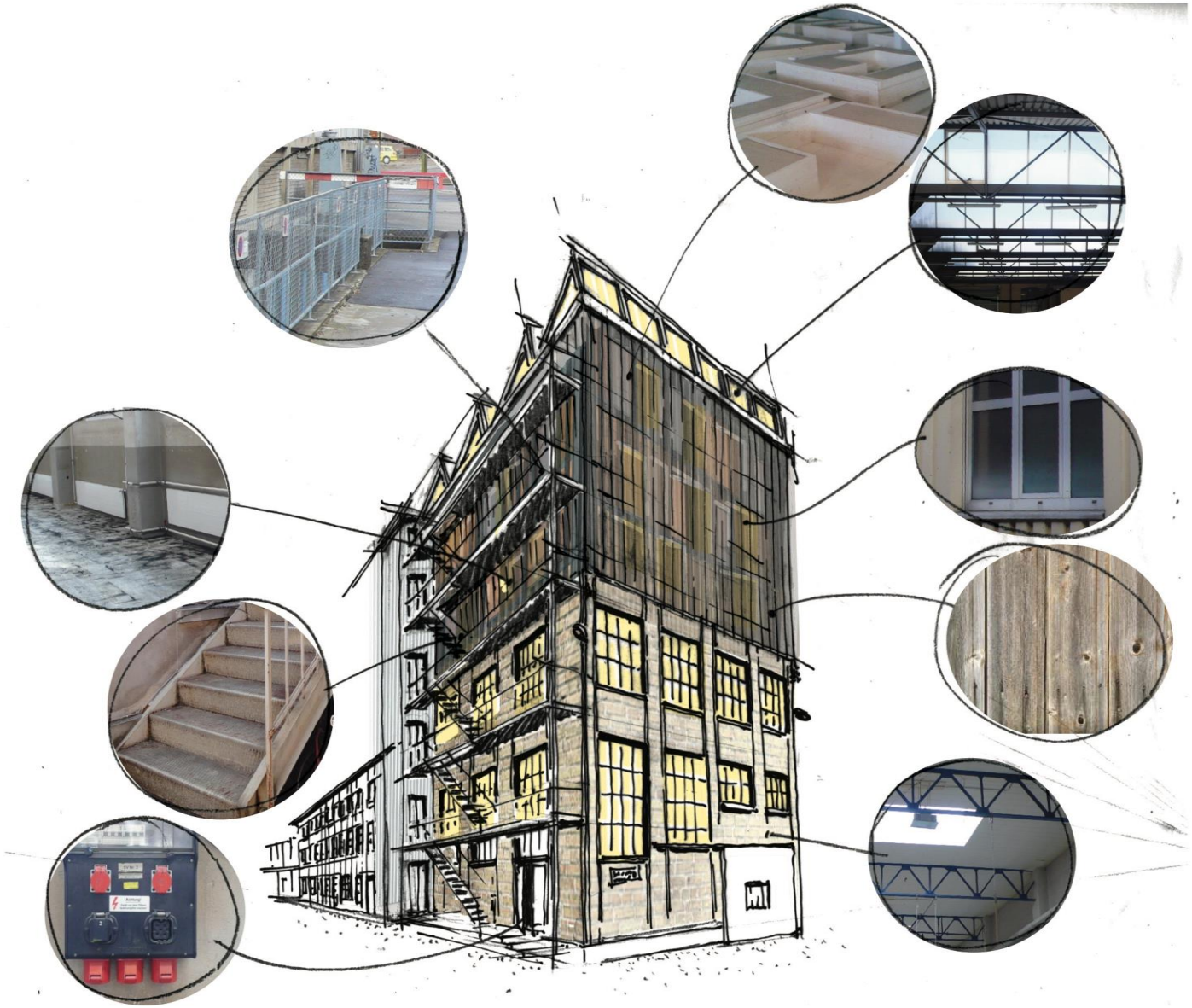
2018 Lagerplatz Winterthur K.118

2018 年 温特图尔仓库 K.118





feasability study 1
可行性研究 1



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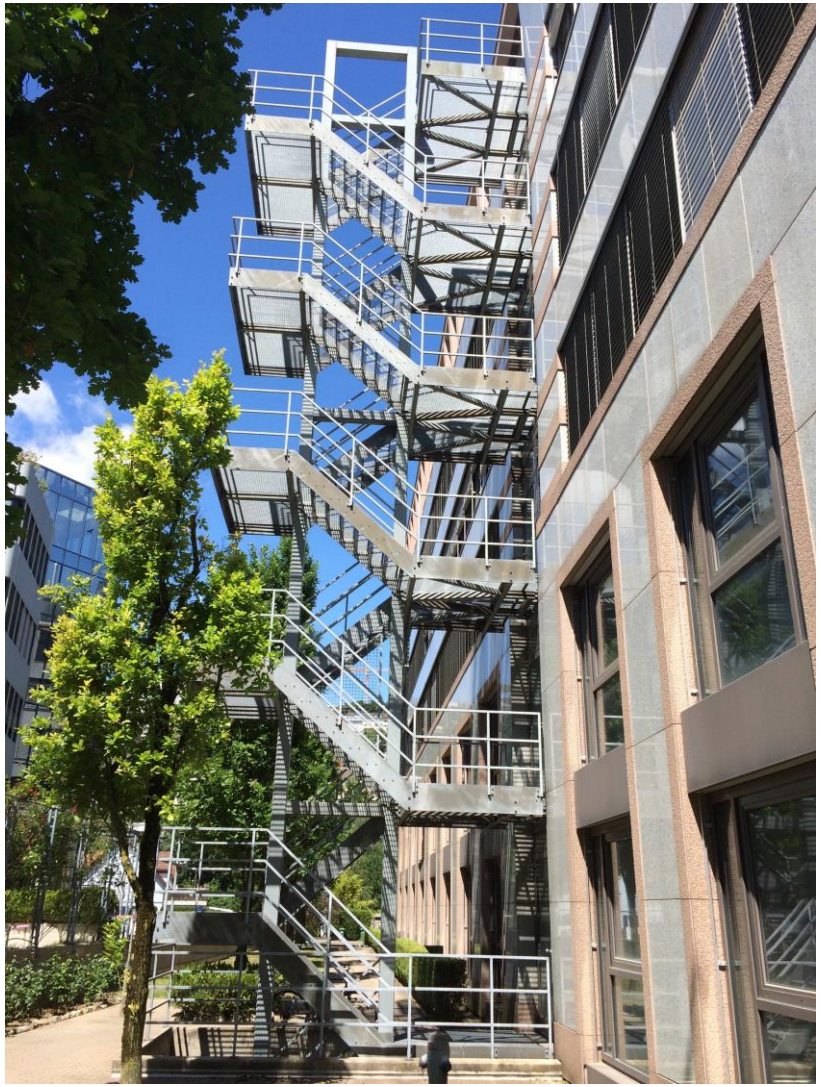

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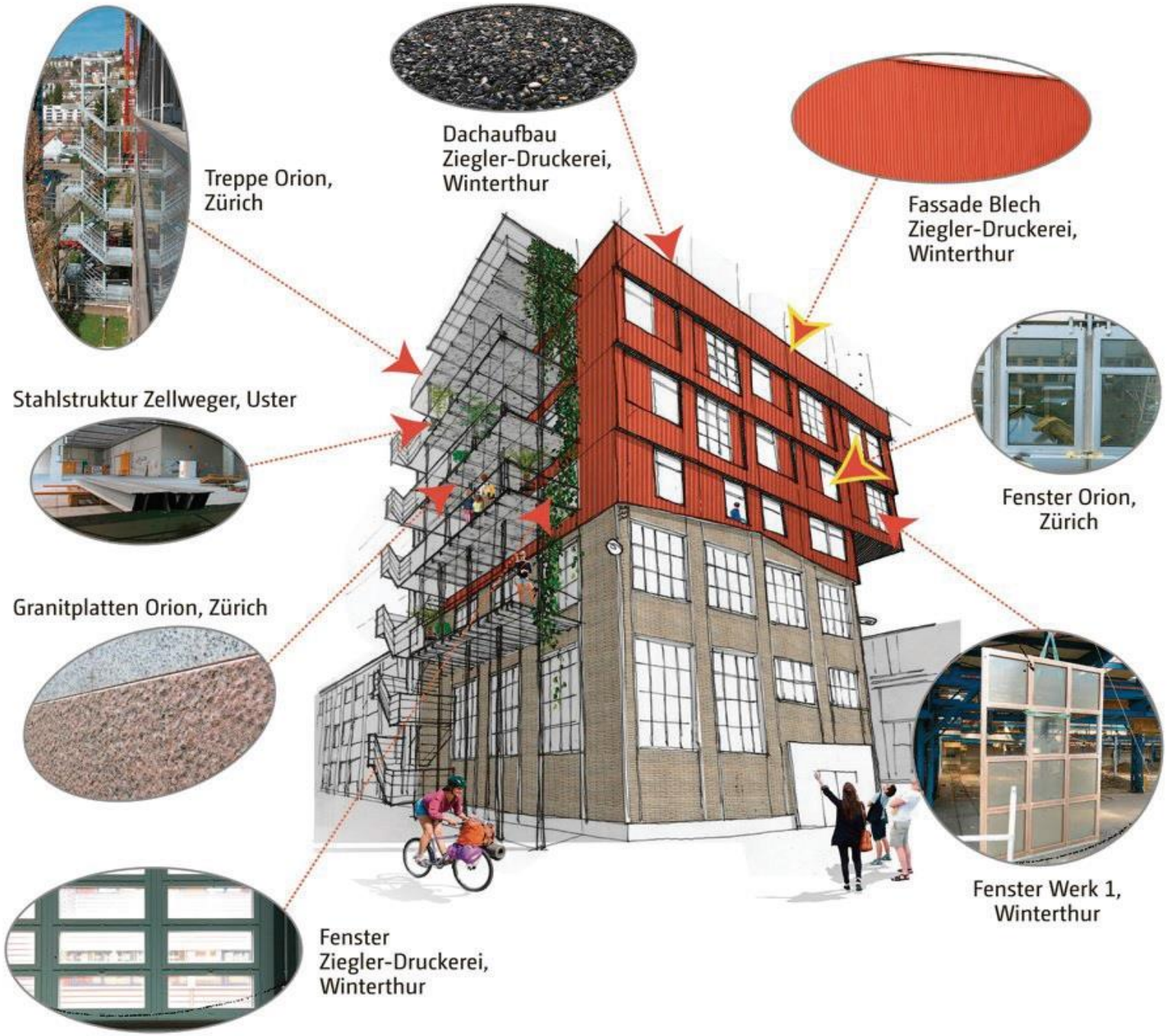
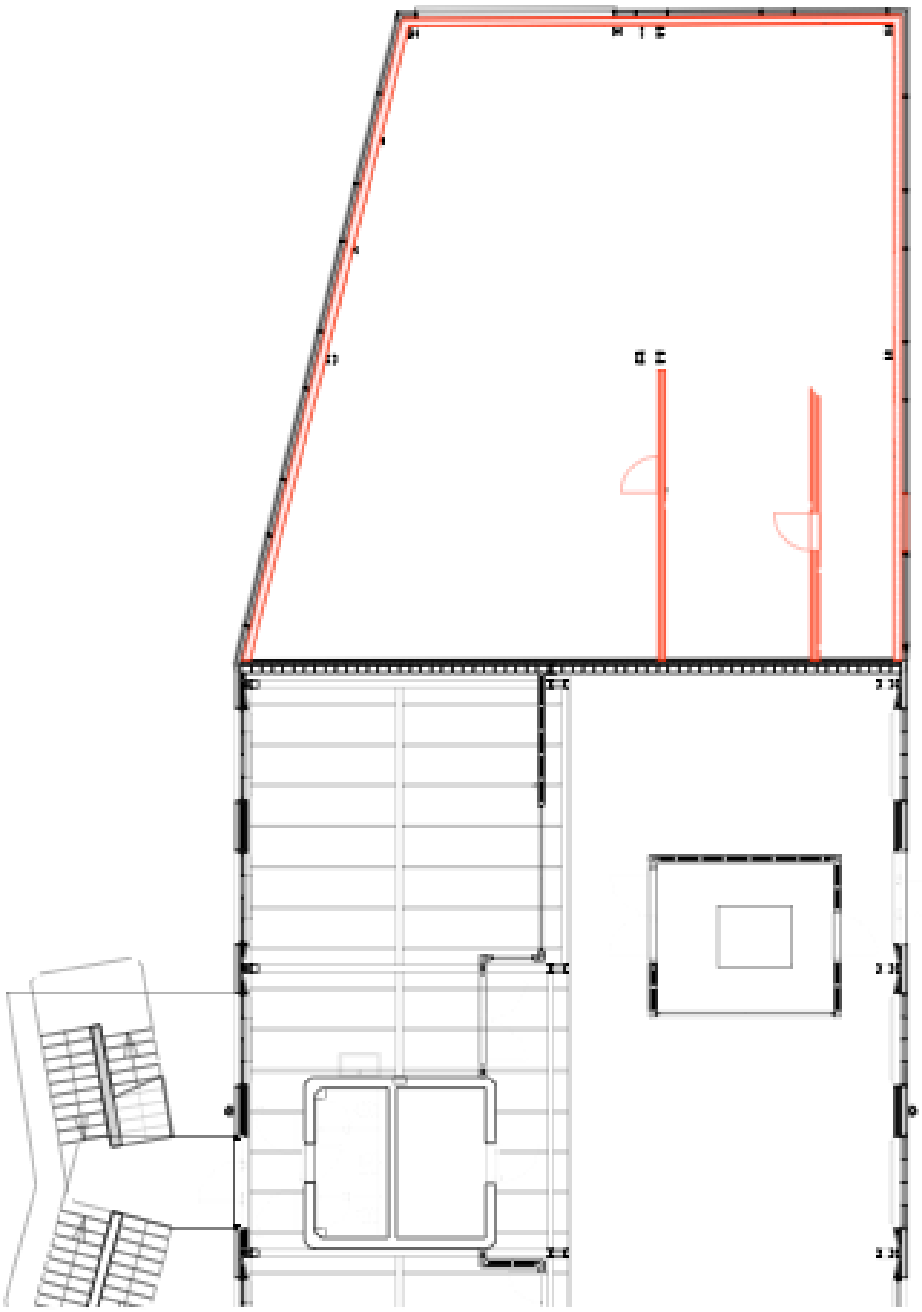
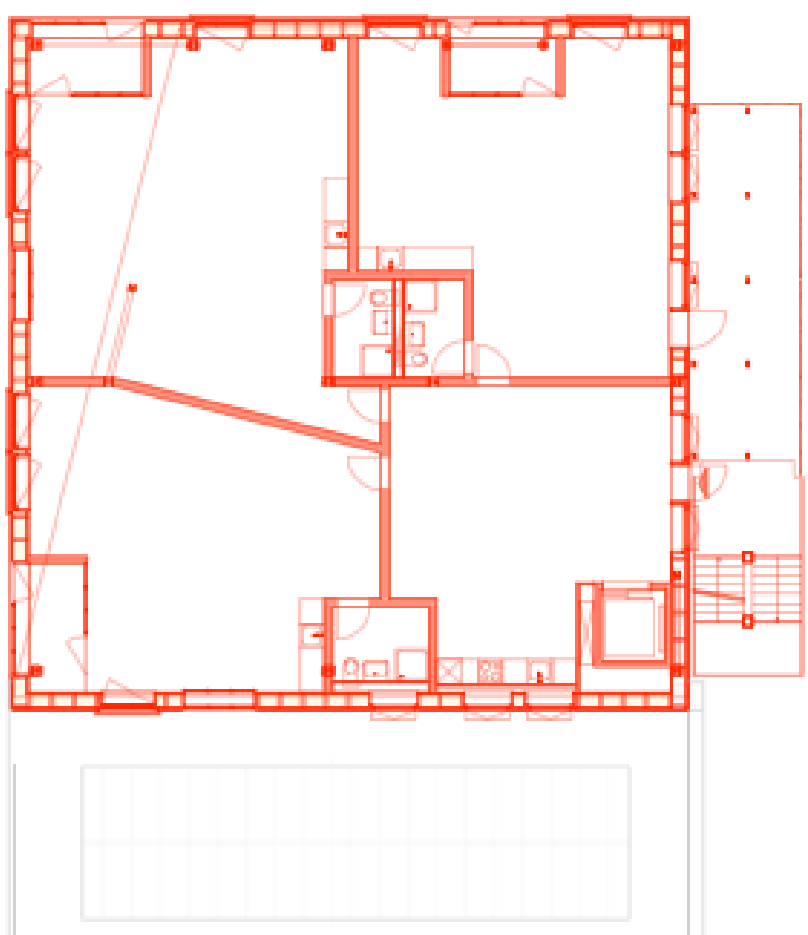
Feasability study 2
可行性研究 2







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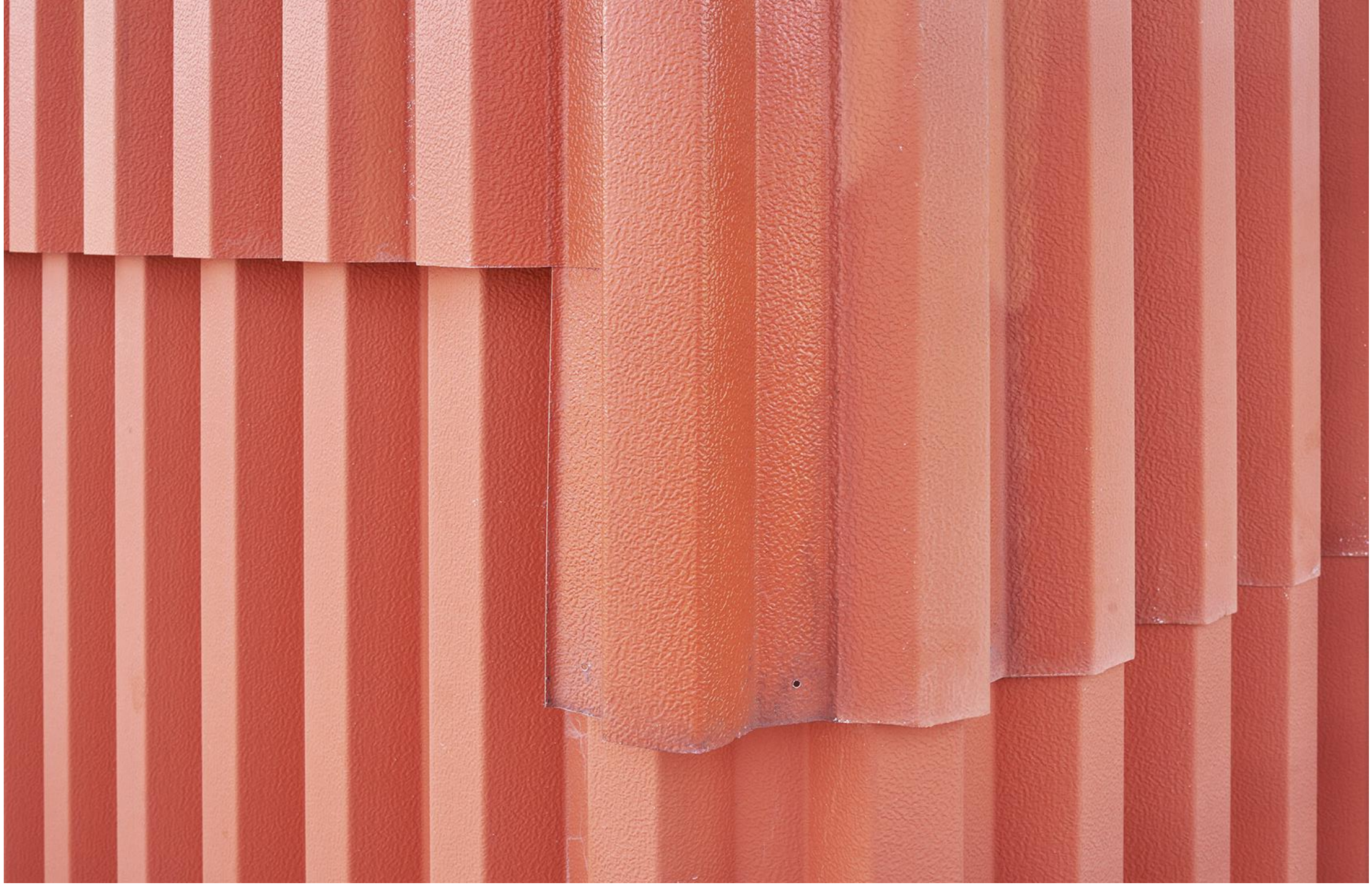

Holcim Award
for Sustainable
Construction
European & Global Gold Winner
Prix
Acier
2021

Bauteile wiederverwenden

Hrsg.:
Institut Konstruktives Entwerfen
ZHAW Departement Architektur, Gestaltung und Bauingenieurwesen
Eva Stricker, Guido Brandi, Andreas Sonderegger

Baubüro in situ AG und Zirkular GmbH
Marc Angst, Barbara Buser, Michel Massmünster

Ein Kompendium zum zirkulären Bauen

PARK BOOKS

zh aw Architektur, Gestaltung und Bauingenieurwesen
Institut Konstruktives Entwerfen

baubüro in situ ag
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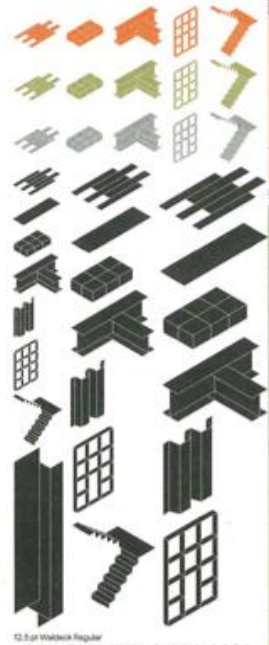

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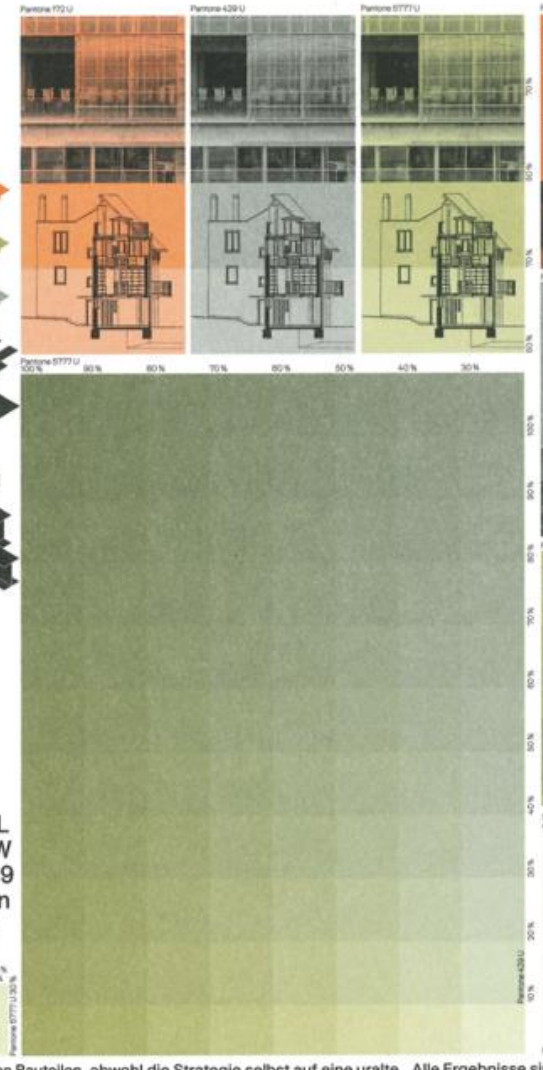

Das Bauen mit wiederverwendeten Bauteilen ist heute eines der meistbeachteten Phänomene der europäischen Architekturdiskussion, das aber nur zögerlich Eingang in die Alltagspraxis von Architektinnen und Architekten findet. Wenn Bauelemente, die noch jahrzehntelang halten, nicht zerstört, sondern für neue Bauten wiederverwendet werden, spart das nicht nur Ressourcen. Es reduziert auch drastisch den Energieverbrauch und die Treibhausgasemissionen in der Erstellungsphase von Bauten. Dieses sogenannte zirkuläre Bauen bringt eine Vielzahl ganz unterschiedlicher Fragen mit sich – von technischen und energetischen bis hin zu rechtlichen Aspekten. Dies gilt in der Gegenwart noch vermehrt, obwohl die Strategie selbst auf eine uralte Traditionslinie zurückblickt.

Dieses Buch bietet ein umfassendes Kompendium, das neben theoretischen Beiträgen auch den praktischen Fragen zur Wiederverwendung von Bauteilen im Detail nachgeht. Sie werden anhand eines konkreten Beispiels durchgespielt: dem Kopfbau K.118 im Winterthurer Sulzer Areal, das bislang grösste Gebäude der Schweiz, das mehrheitlich aus wiederverwendeten Bauteilen besteht. Seit 2018 wird dieses einmalige Pilotprojekt im Rahmen eines interdisziplinären Forschungsprojekts hinsichtlich architektonisch-konstruktiver, energetischer, ökonomischer, prozessualer und rechtlicher Fragen ausgewertet. Alle Ergebnisse sind in diesem Buch versammelt und inhaltlich wie visuell auf höchst anschauliche Weise aufbereitet.

Mit Text- und Gesprächsbeiträgen von Andreas Abegg, Marc Angst, Oya Atalay Franck, Guido Brandi, Barbara Buser, Michael Eidenbenz, Nathanea Elte, Deborah Fehlmann, Patric Fischli-Boson, Michaël Ghyoot, Pascal Hentschel, Meinrad Huser, Christian Kohler, Marc Loeliger, Michel Massmünster, Annatina Menn, Ákos Moravánszky, Kerstin Müller, Andreas Oefner, Katrin Pfäffli, Michael Pöll, Tina Puffert, François Renaud, Barbara Rentsch, Alexis Ringli, Andreas Sonderegger, Eva Stricker, Arne Vande Capelle, Cyrille Veron, Barbara Zeleny

2022 in between: Action Windows for Ukraine

2022年：其间行动——为乌克兰而设的“窗户行动”

- Windows that are thrown away in Switzerland are badly needed in Ukraine
- Transport CH – Kijv is only 20% of embodied grey energy CO2
- 52 lorries with app. 6000 windows sent to the war torn country within 2 years

→ Reuse should become pa of the strategy for the reconstruction of Ukraine

- 在瑞士被丢弃的窗户，在乌克兰却是急需之物。
- 从瑞士运送到基辅的运输过程，仅占窗户灰色隐含碳排放的20%。
- 两年内，共有52辆卡车运送了大约6000扇窗户到这个饱受战争摧残的国家。

→ 再利用应成为乌克兰重建战略的一部分。

RE WIN

Polish Colleagues doing excactly the same!

波兰同事也在做完全相同的事情!

POETICS OF NECESSITY
Polish Pavilion
at London Design Biennale
01–25 June 2023

SBB Reparaturwerkstätte Hohlstrasse 400 Zürich

瑞士联邦铁路维修车间（SBB维修车间）苏黎世霍尔街400号

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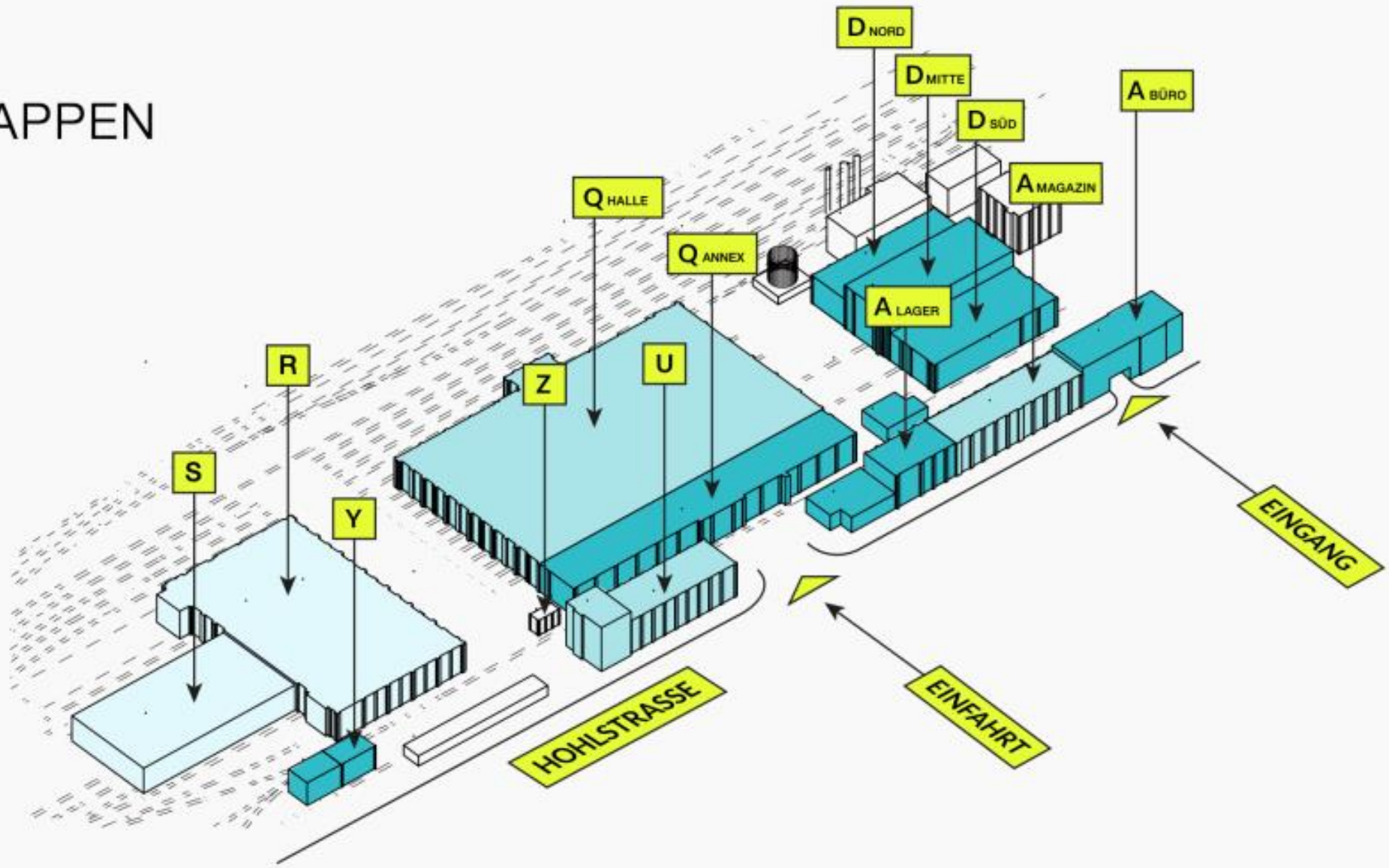

KURZFRISTIG | MITTELFRISTIG | LANGFRISTIG (NACH 2025)

2018 — 2025

2022 SBB Reparaturwerkstätte Gebäude A

2022年 瑞士联邦铁路维修车间 A栋

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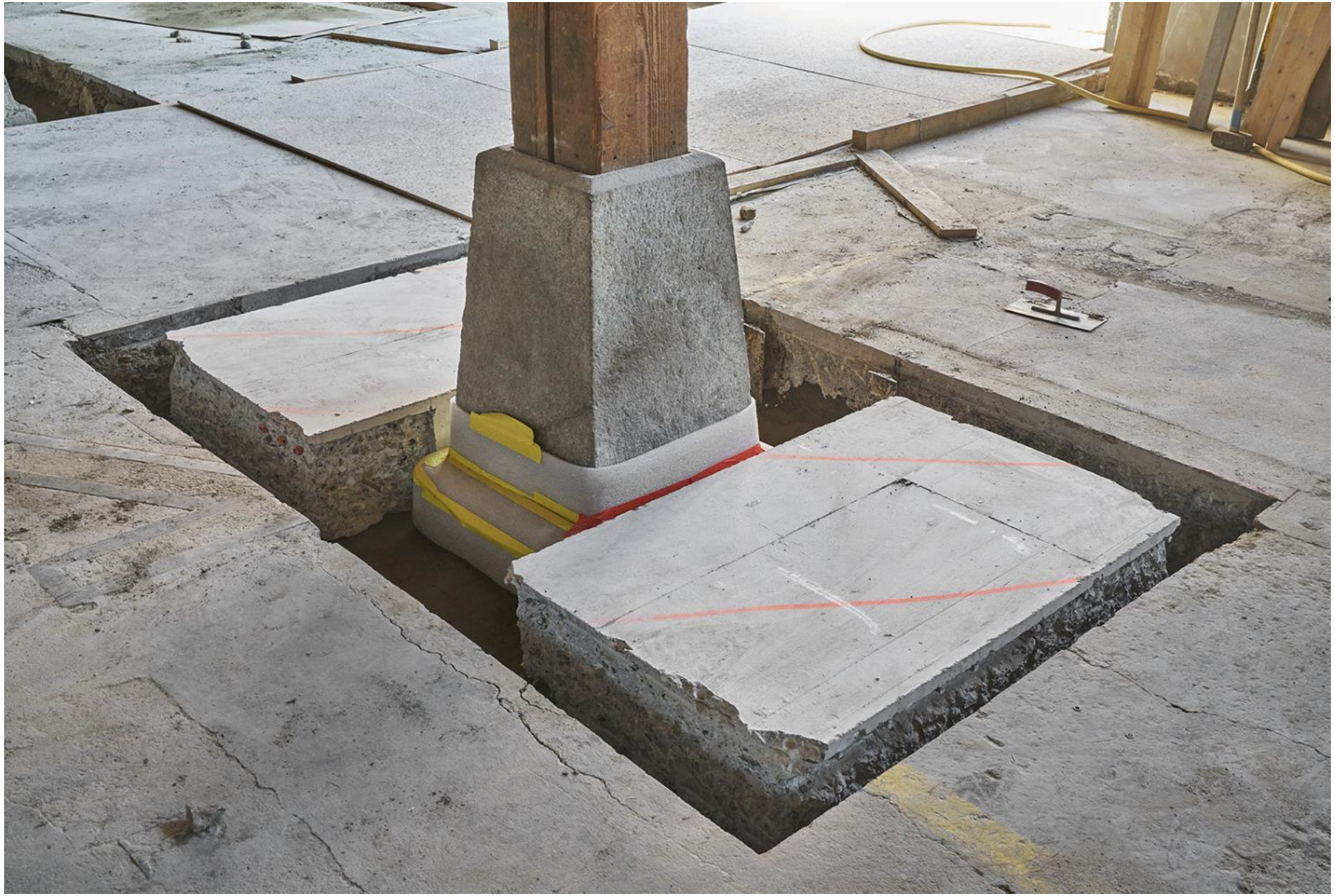

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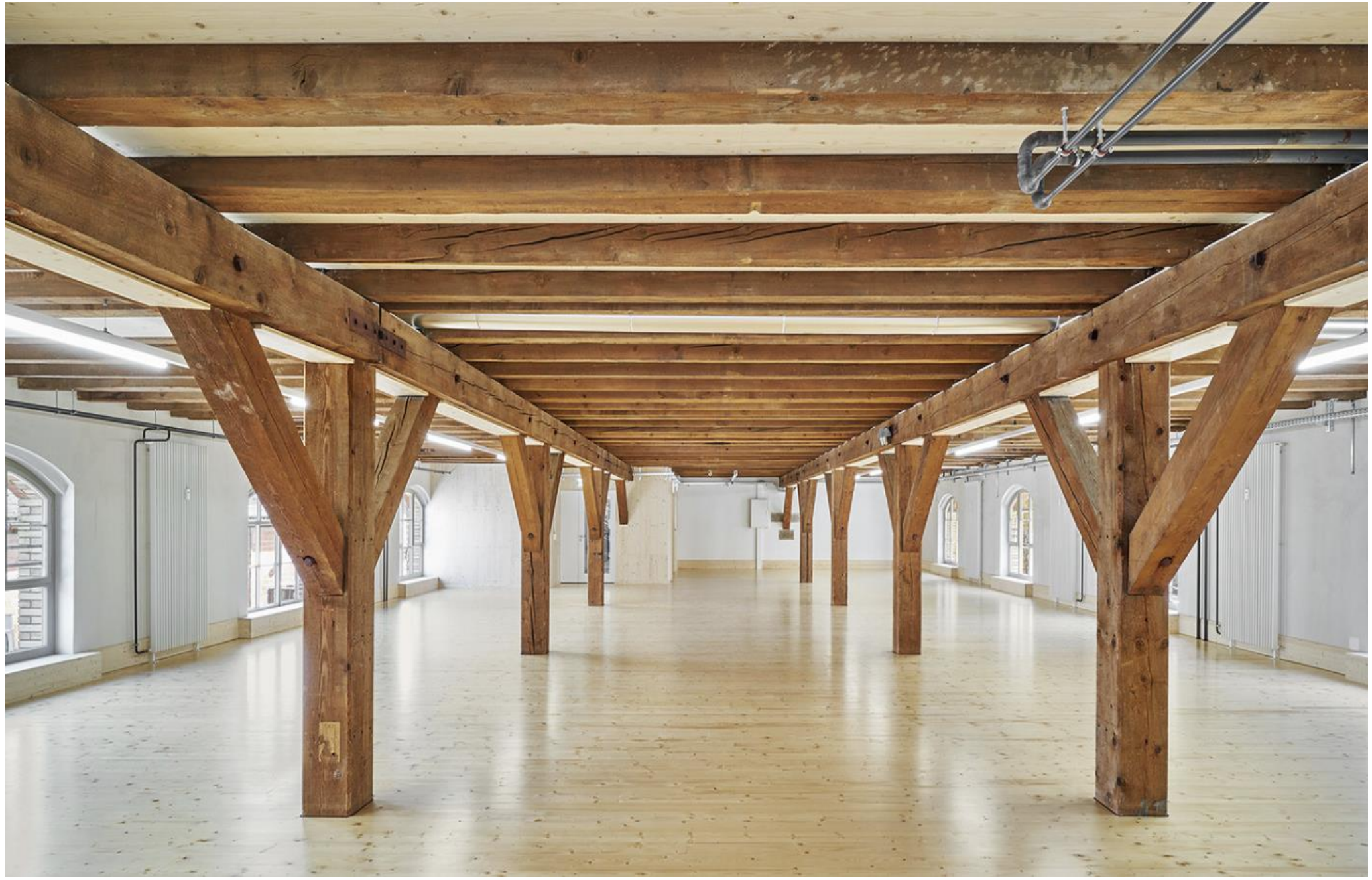
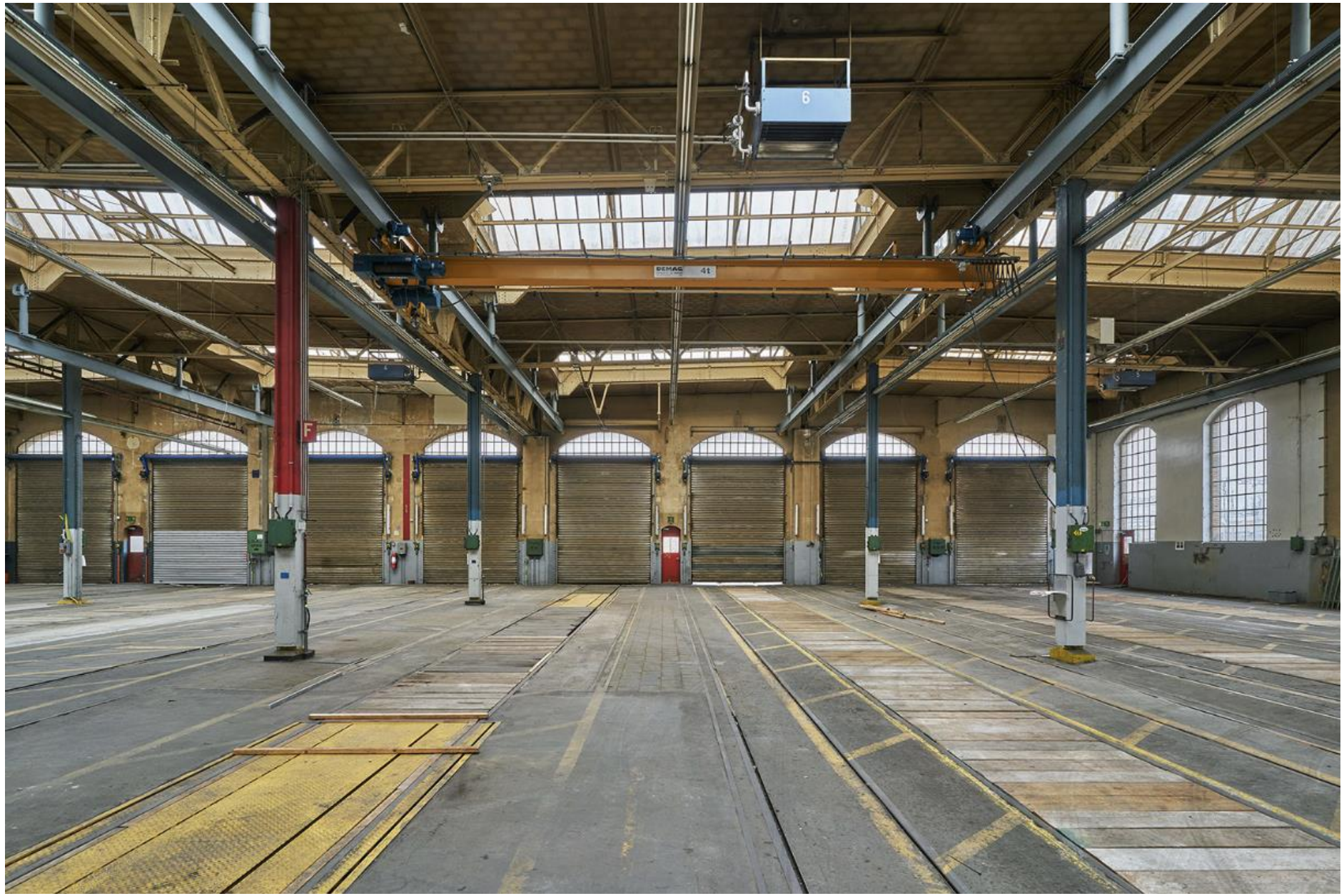


2024 SBB Reparaturwerkstätte Halle Q

2024年 瑞士联邦铁路维修车间 Halle Q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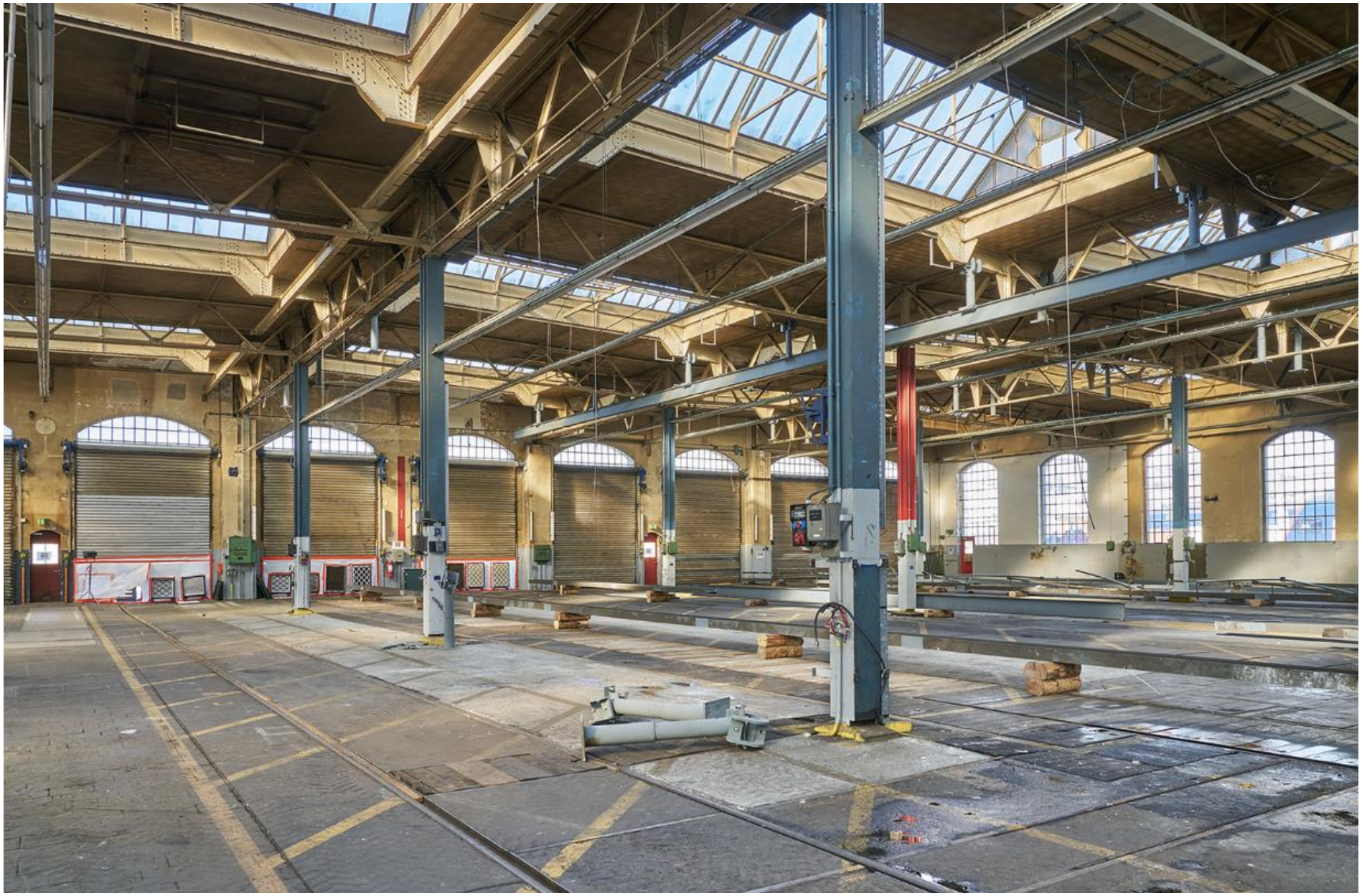

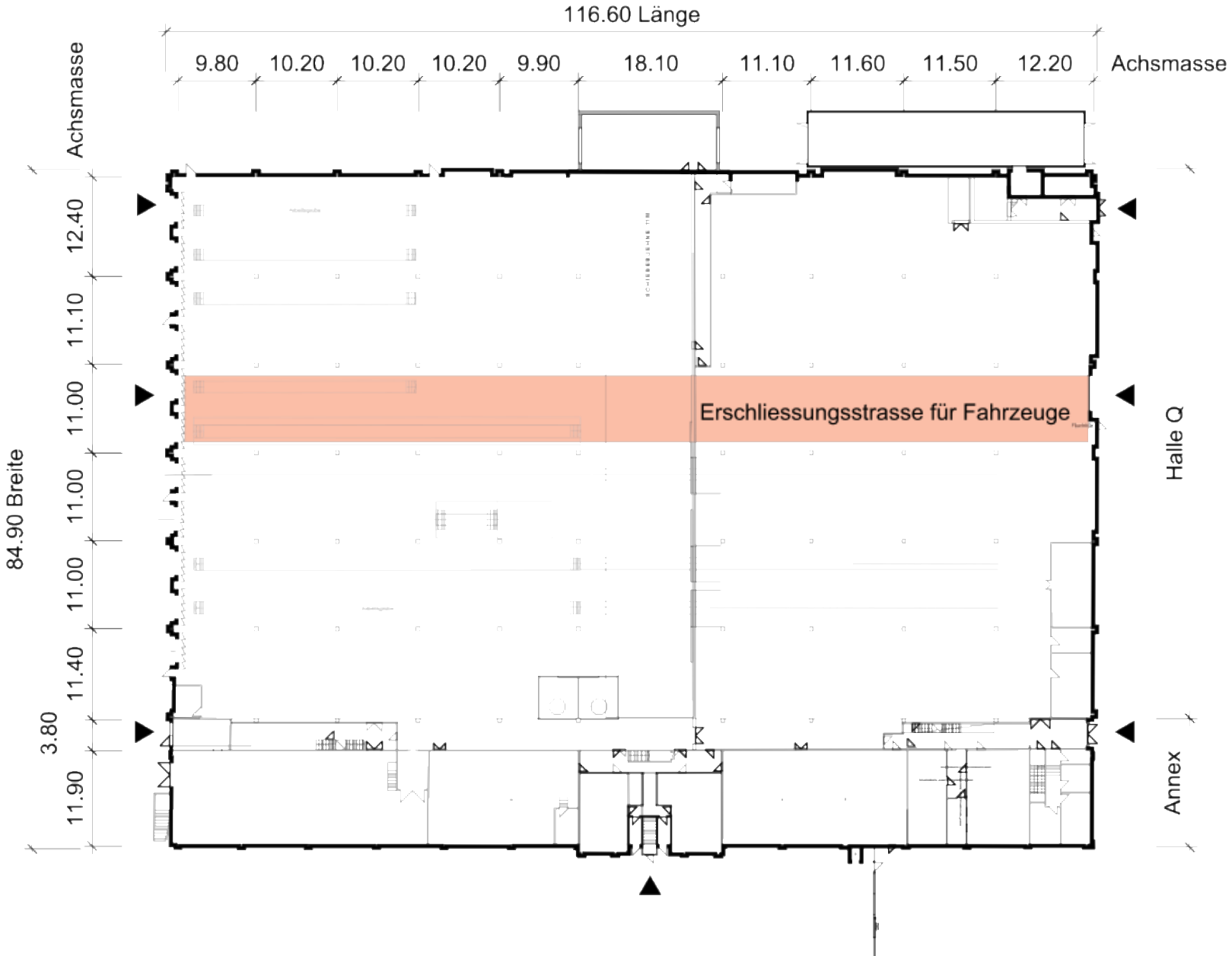
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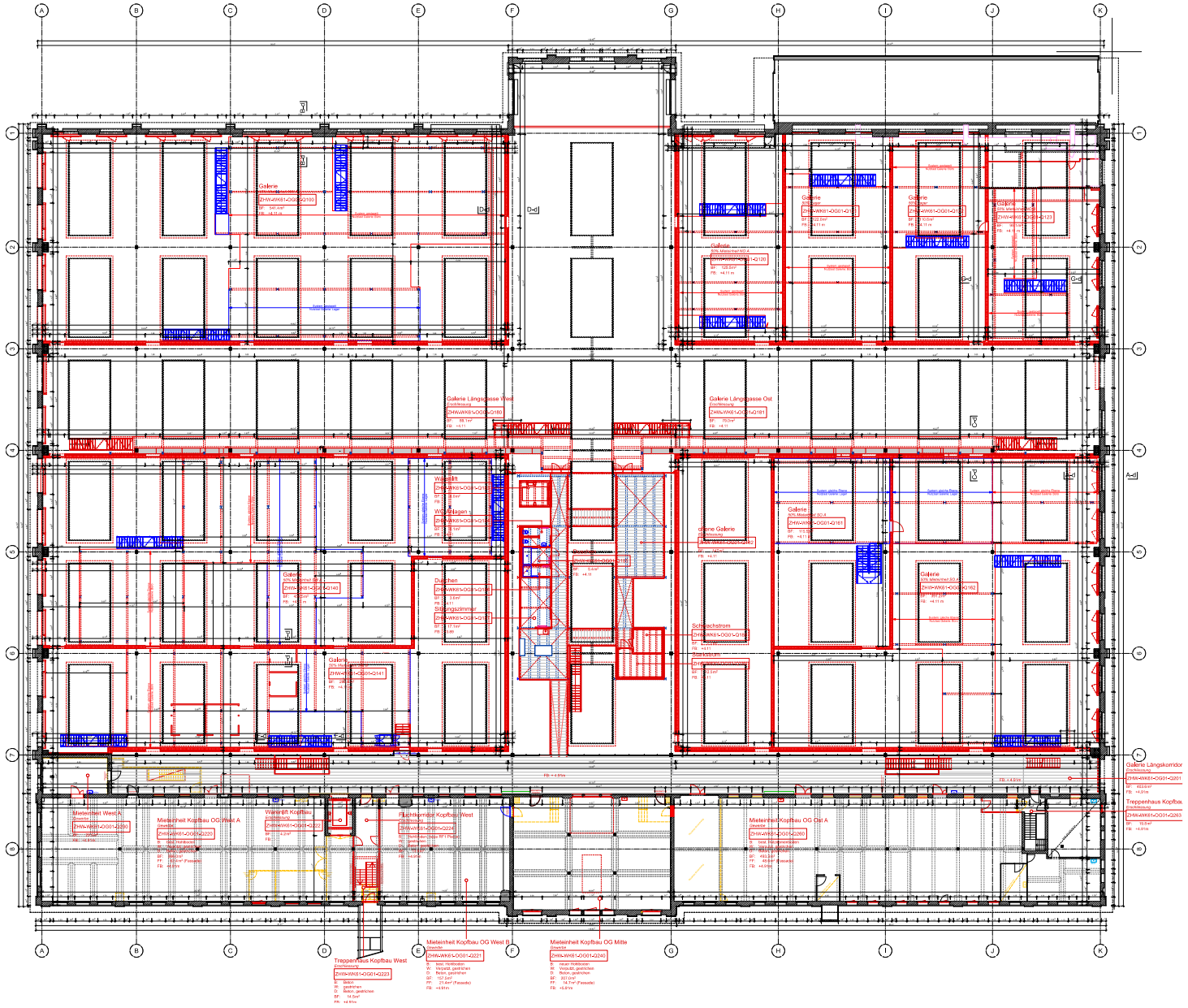
Annex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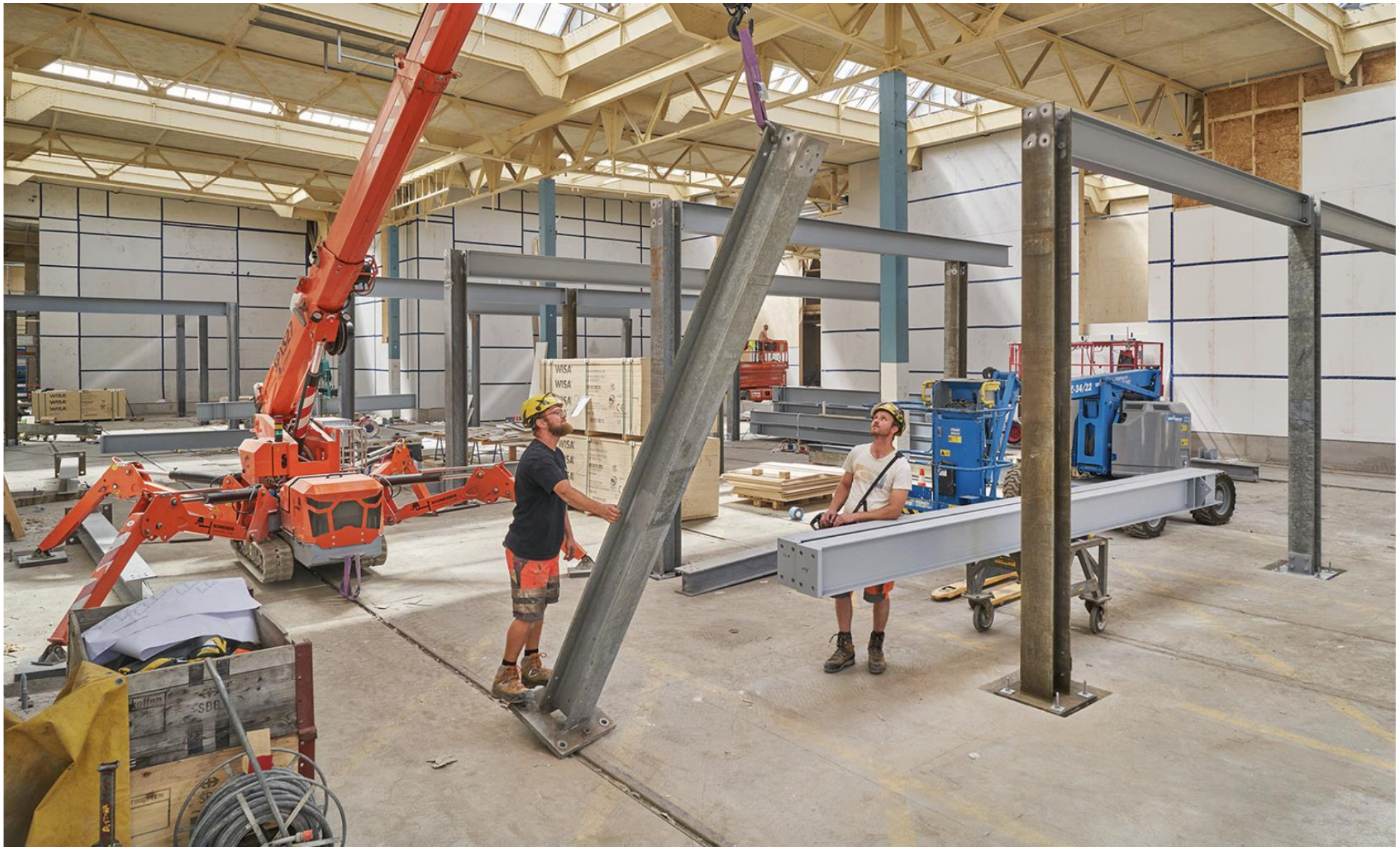
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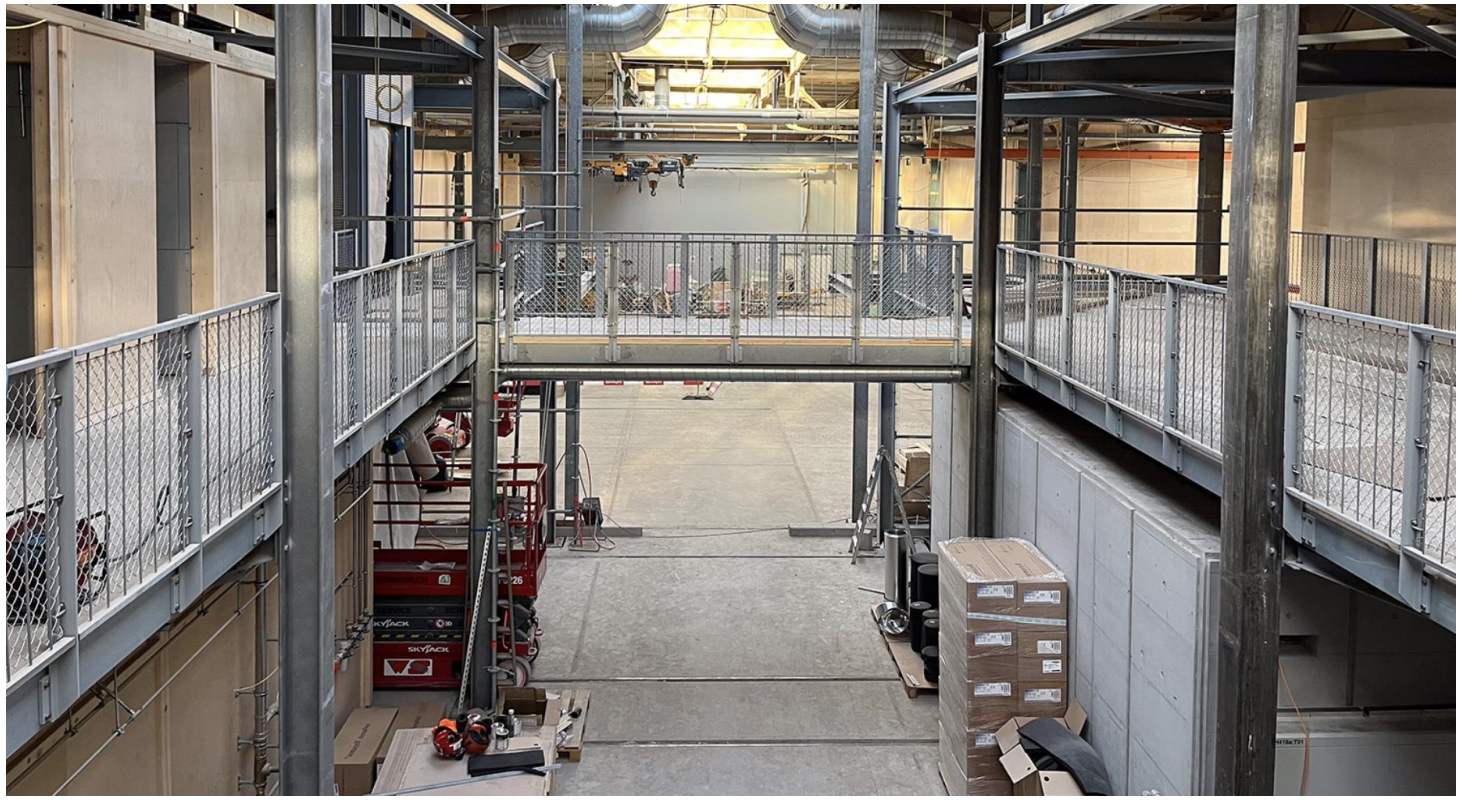
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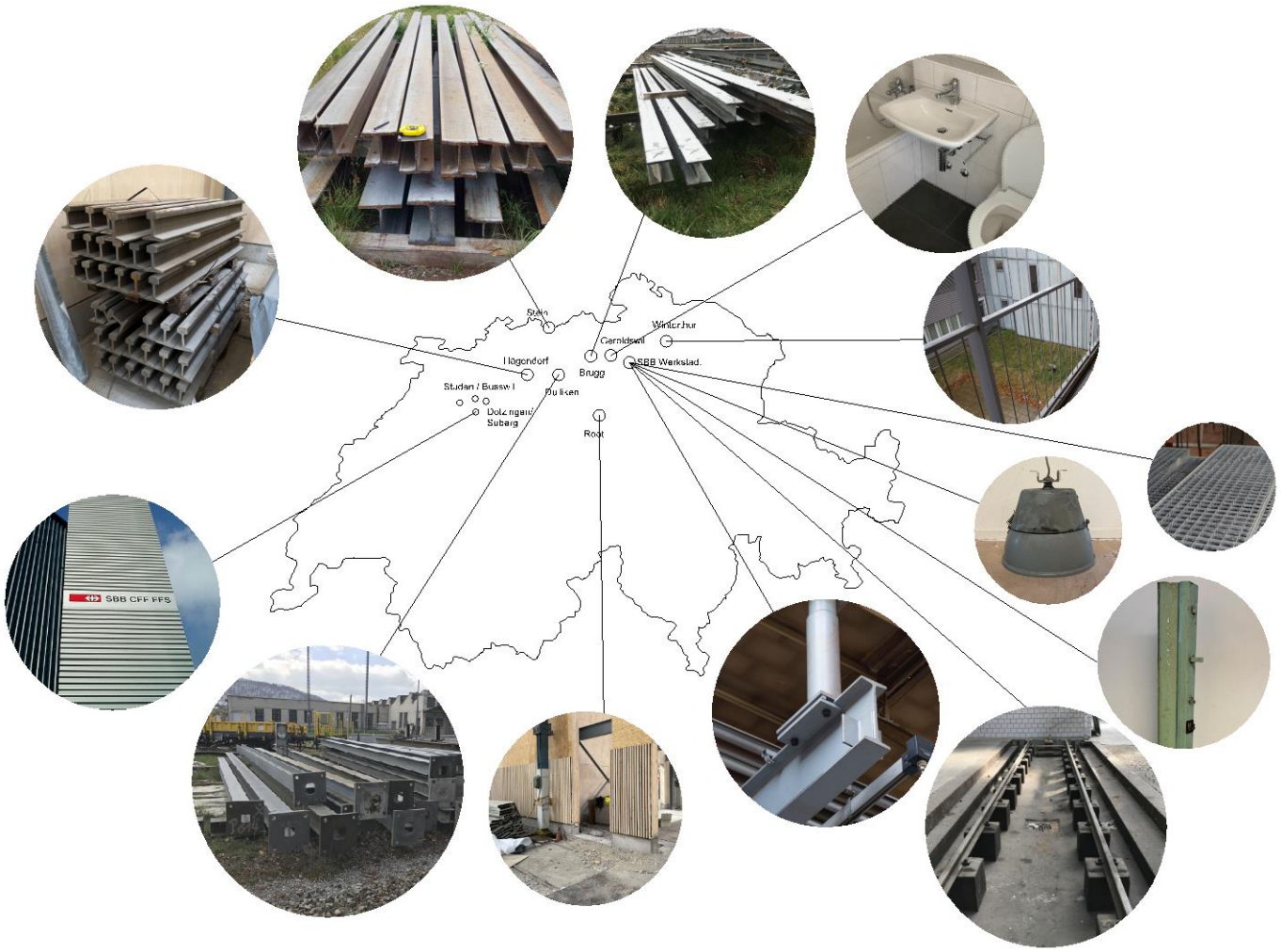
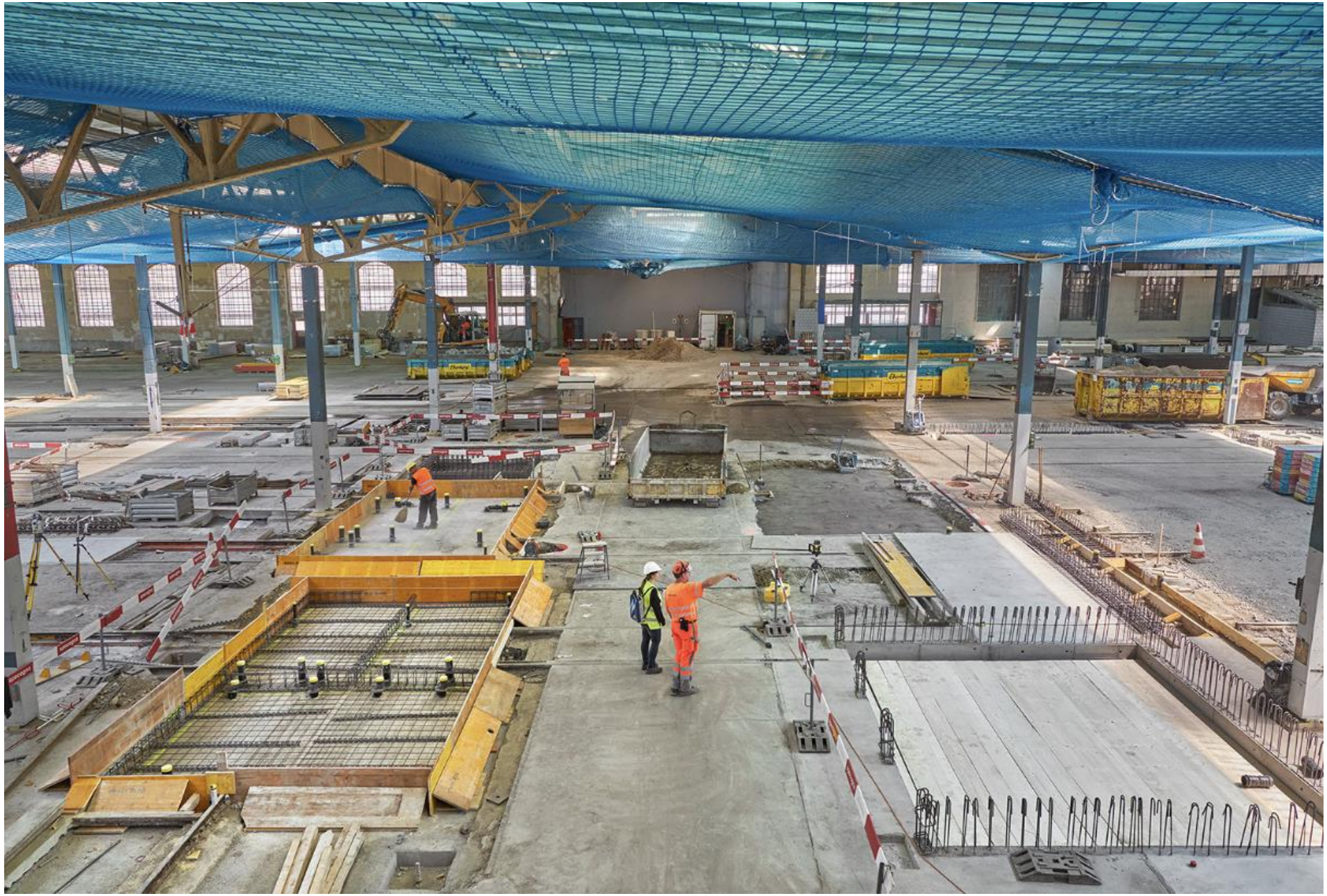
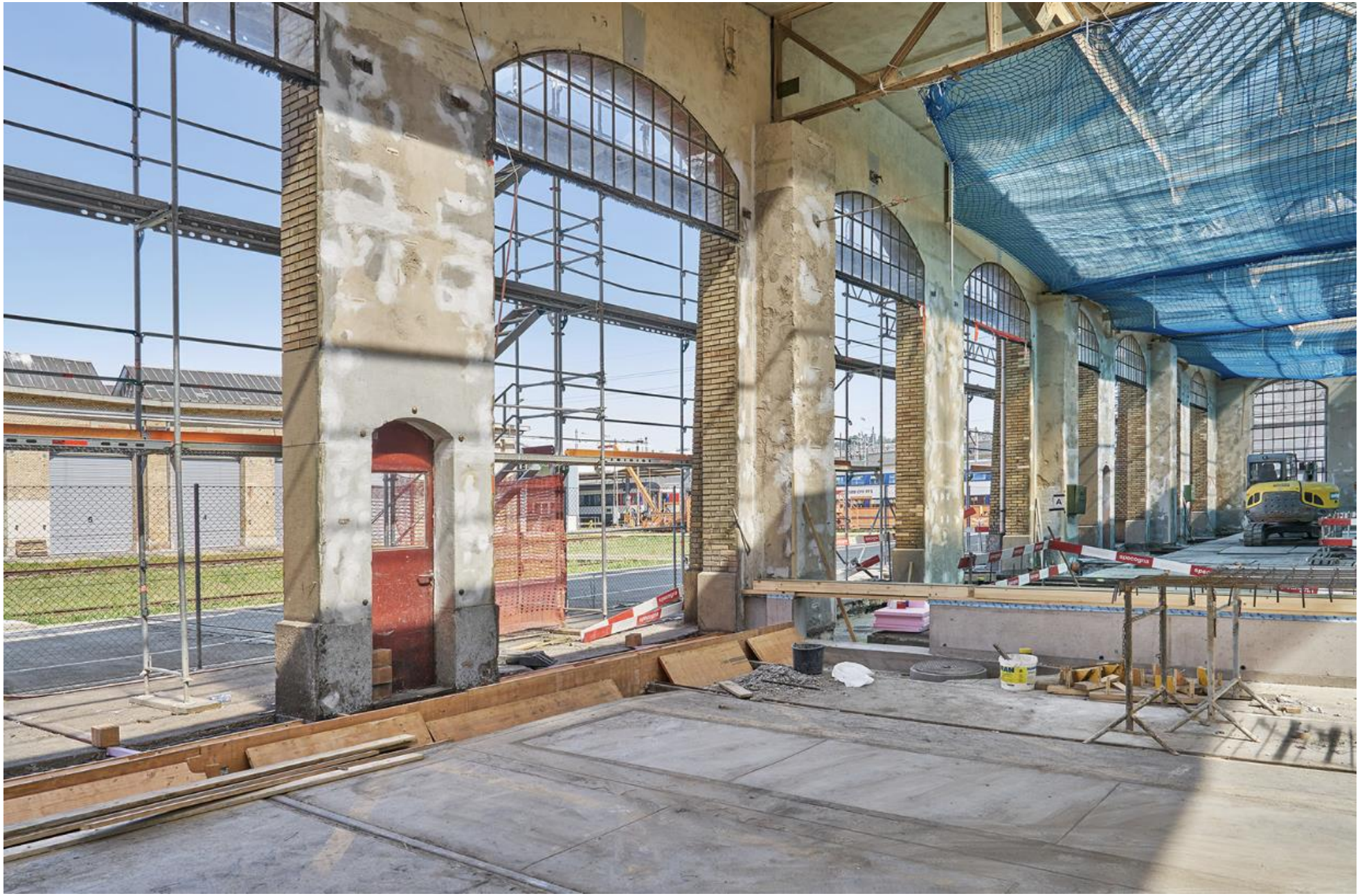
Reused construction elements Halle Q

再利用的建筑构件 —— Halle Q







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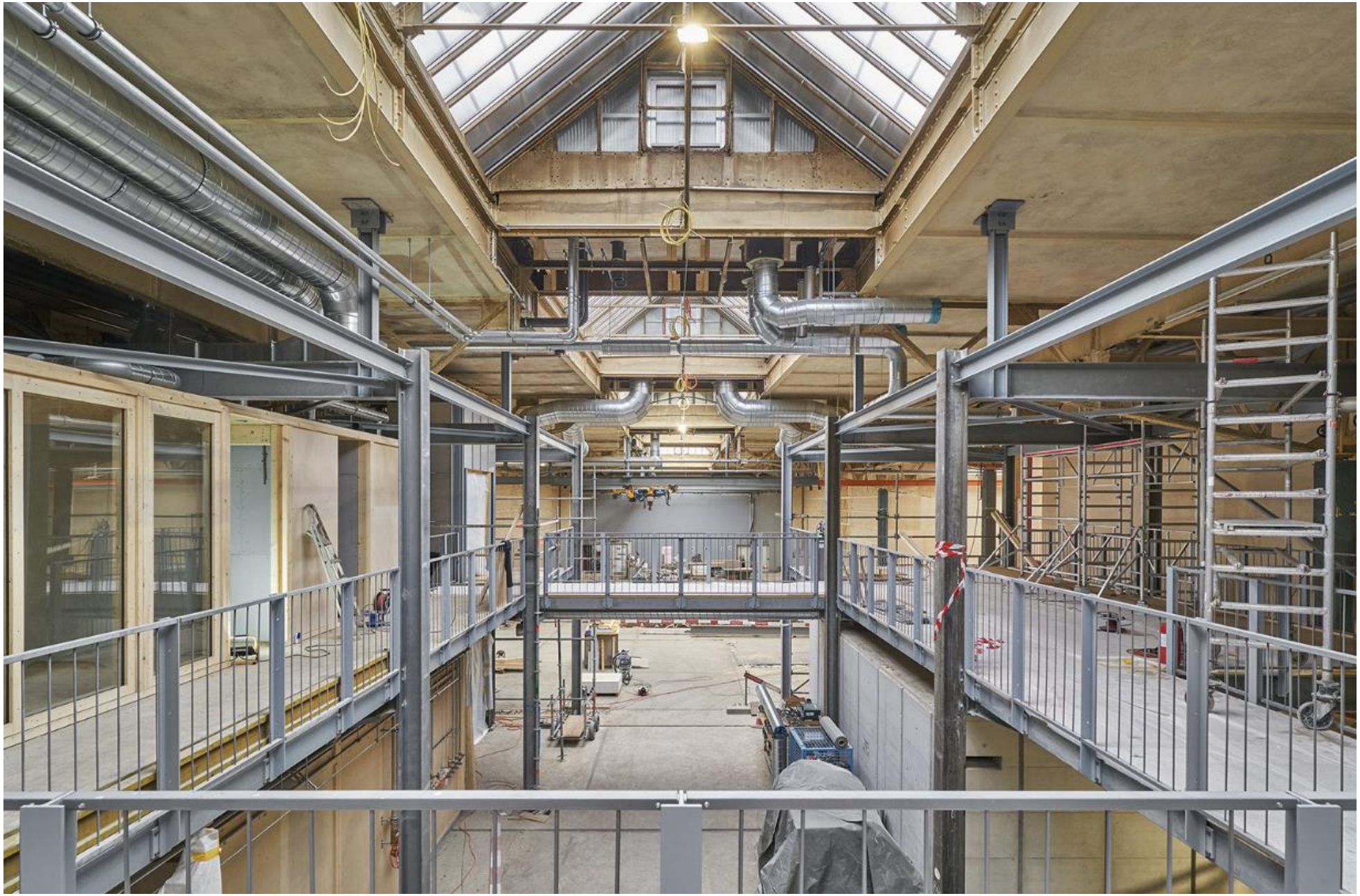

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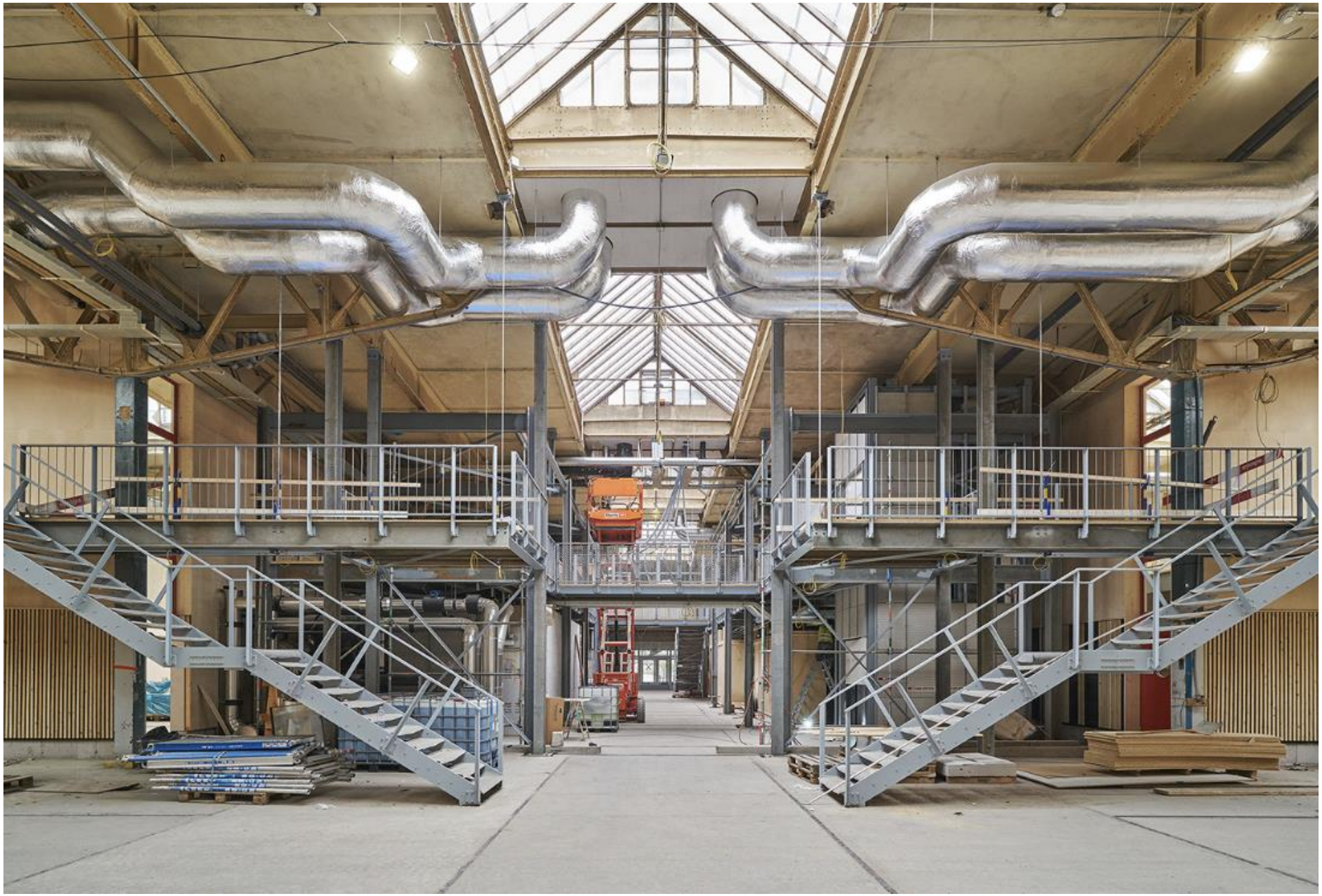

Conclusions: How to build carbon neutral?
结论：如何实现碳中和建筑？

1. Never demolish!
永远不要拆除！

2. Build circular: design for disassembly
建设循环型建筑：为可拆卸而设计

3. Supplement reuse with renewable materials
在重复利用的基础上，补充使用可再生材料

感谢您的关注!

THANK YOU!

提问环节

YOUR QUESTIONS?