



mark caruana

the metabolic periphery

towards socially, economically and ecologically productive operational landscapes in madrid's periphery

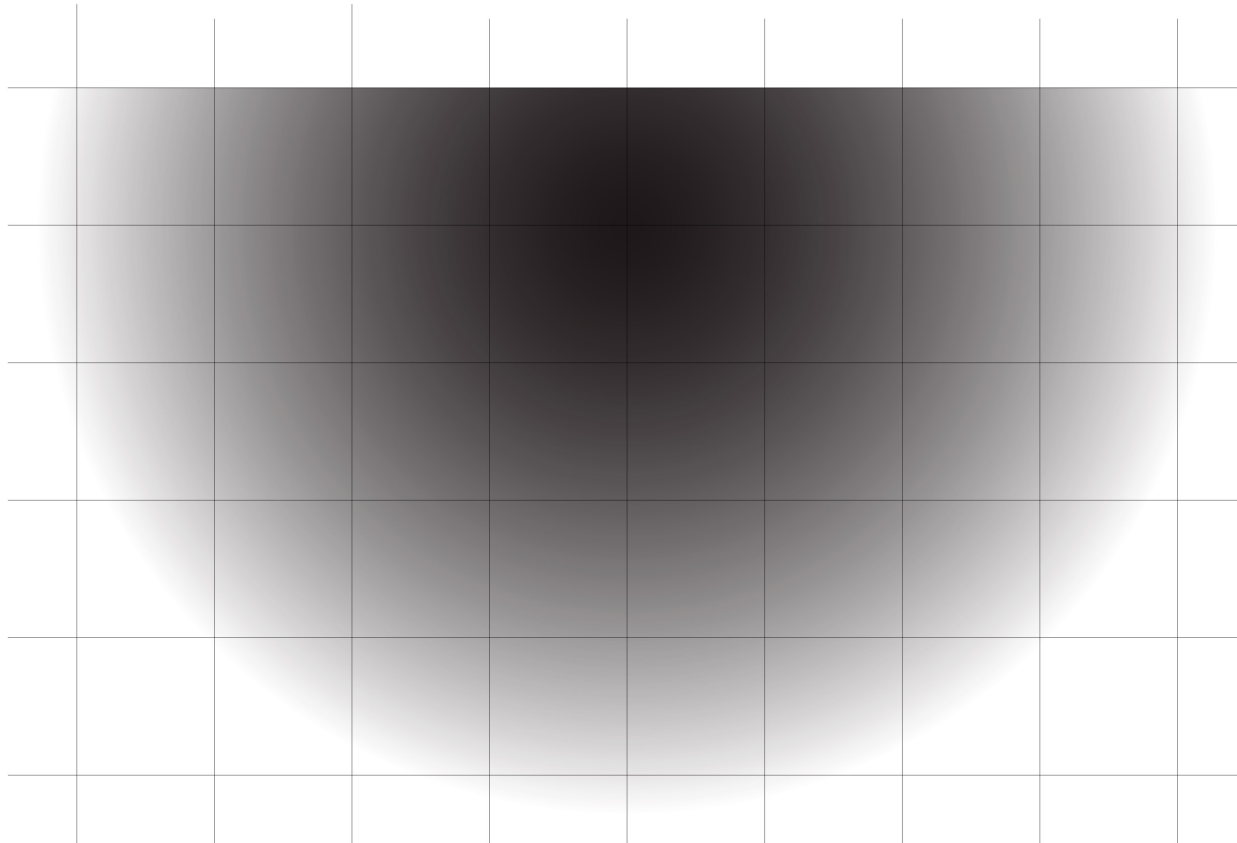
graduation



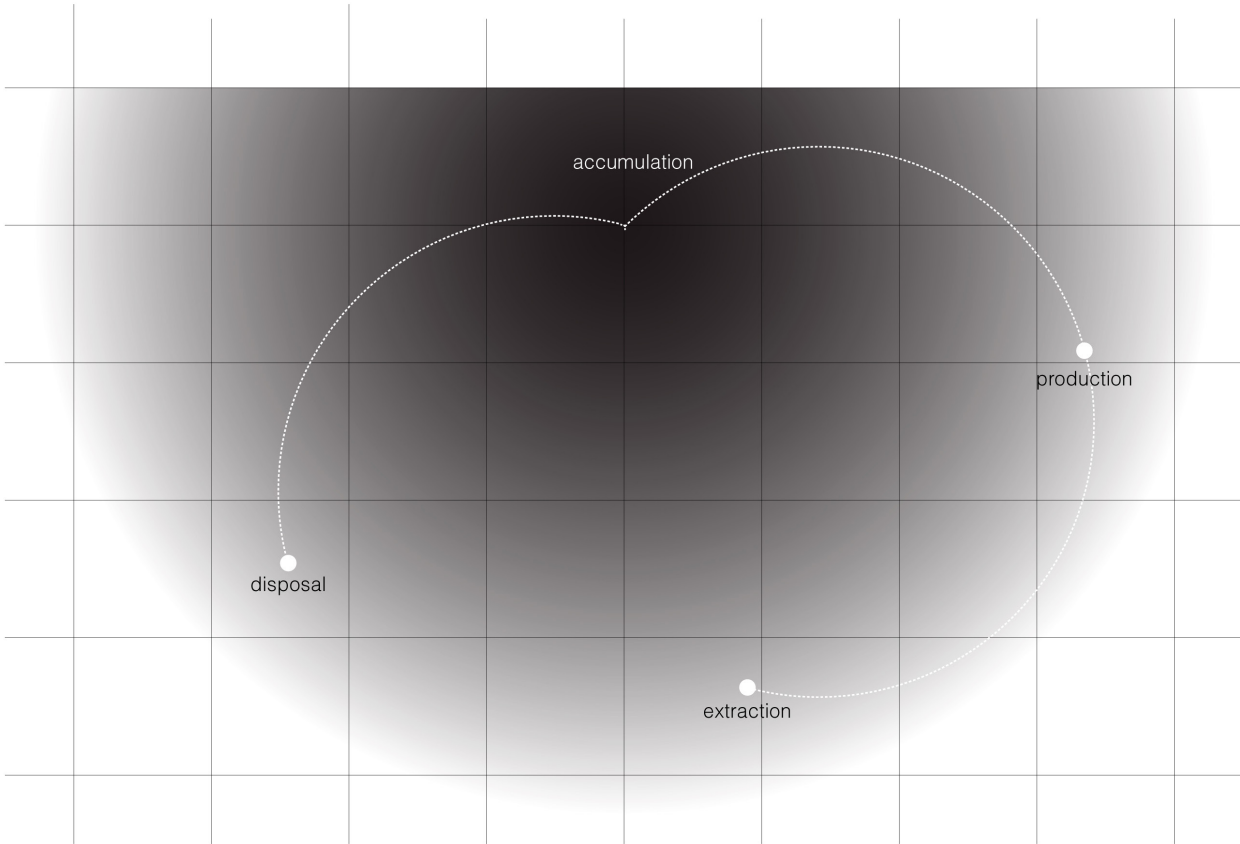
An aerial photograph of a vast construction site, likely for a new urban development or industrial park. The landscape is mostly flat and cleared, with some low-lying vegetation and small trees in the foreground. Several tall construction cranes are visible, indicating active building work. A network of roads and pathways is laid out across the site. In the background, a city skyline is visible under a cloudy sky. The text 'operation growth waste inequality' is superimposed in large, white, sans-serif font over the center of the image.

operation
growth
waste
inequality

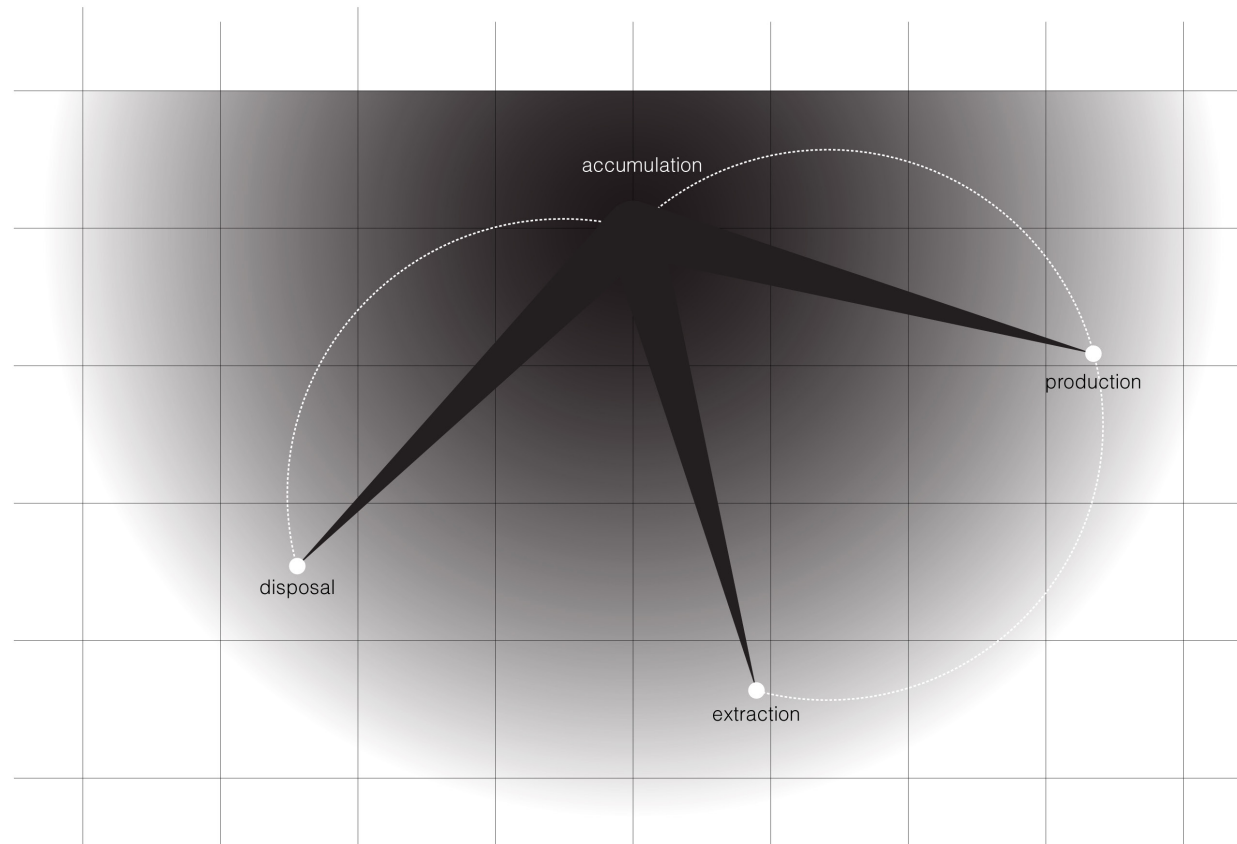
the operationalised periphery



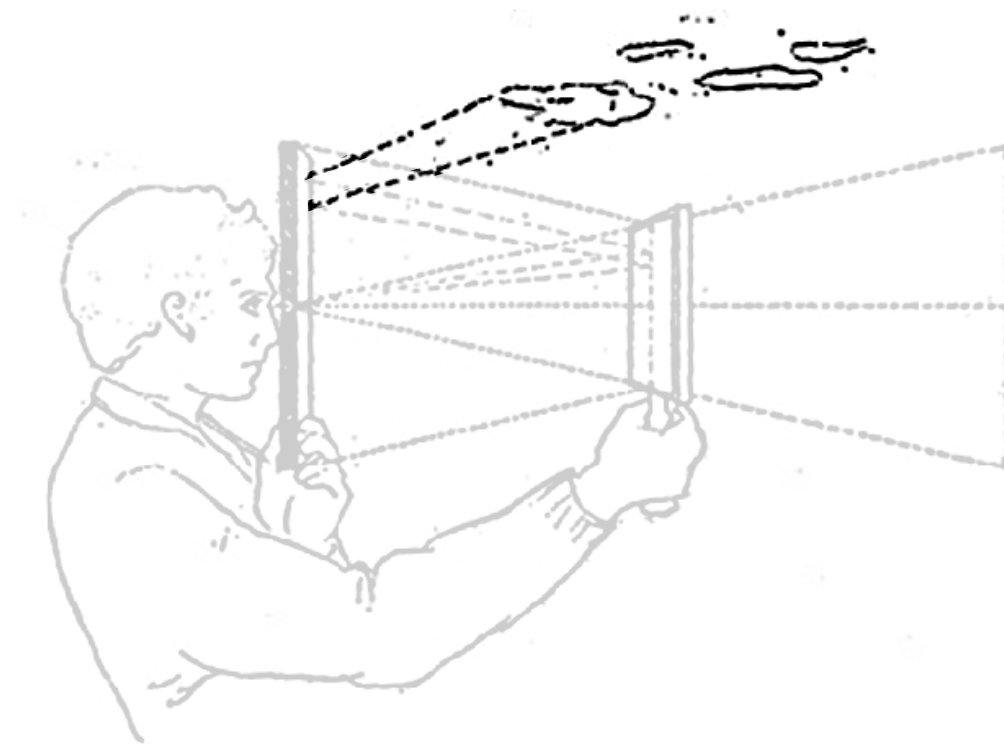
the operationalised periphery



the operationalised periphery



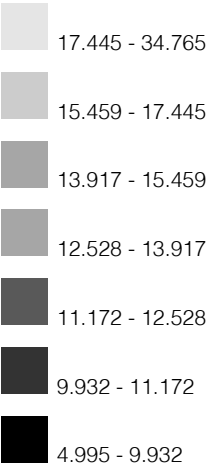
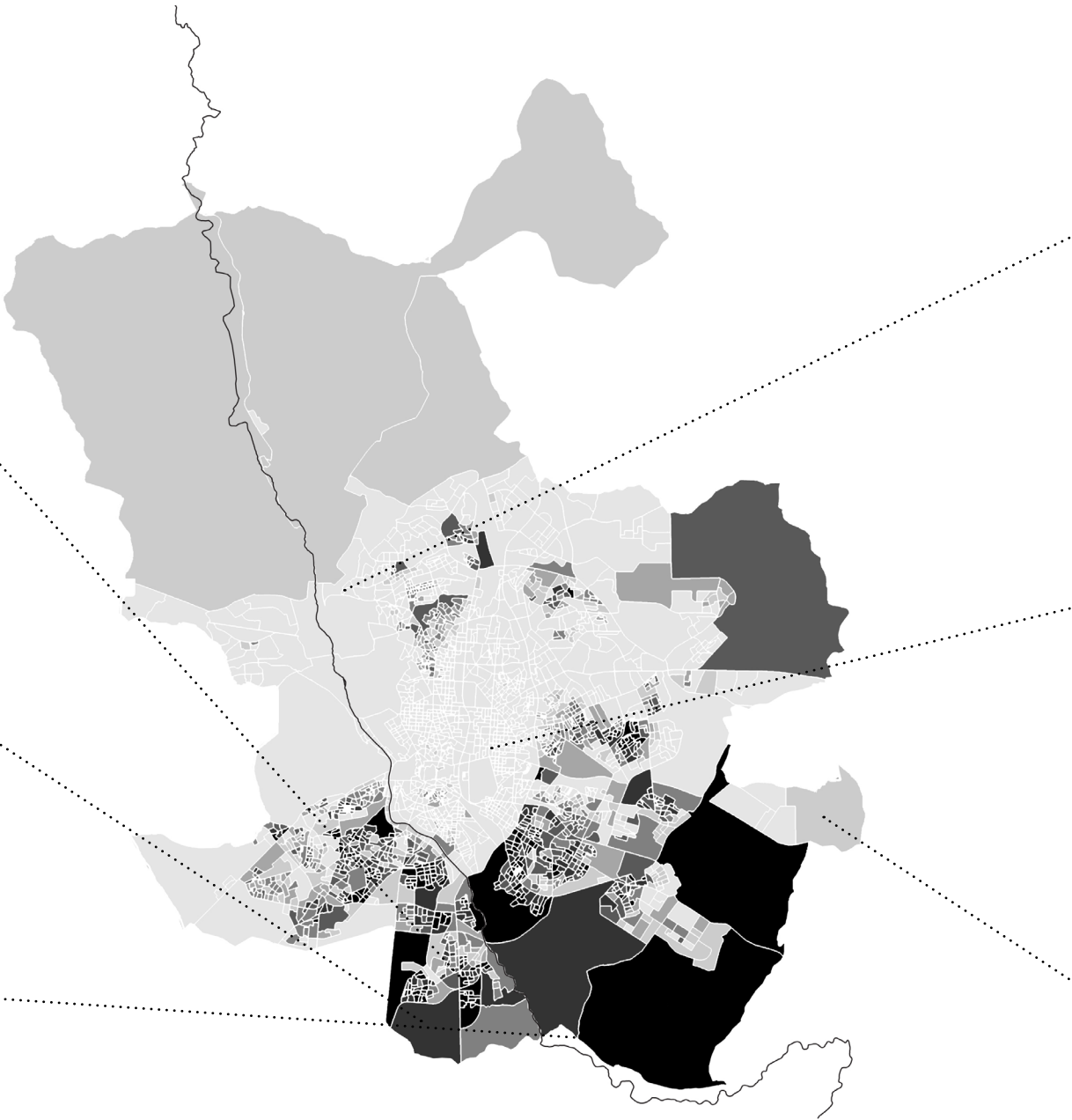
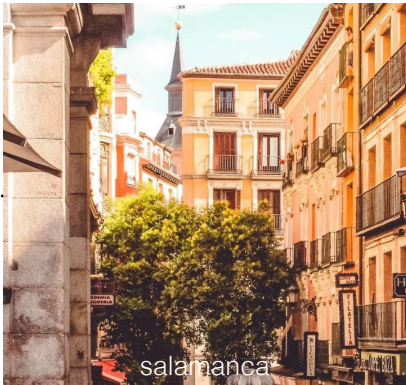
the operationalised periphery



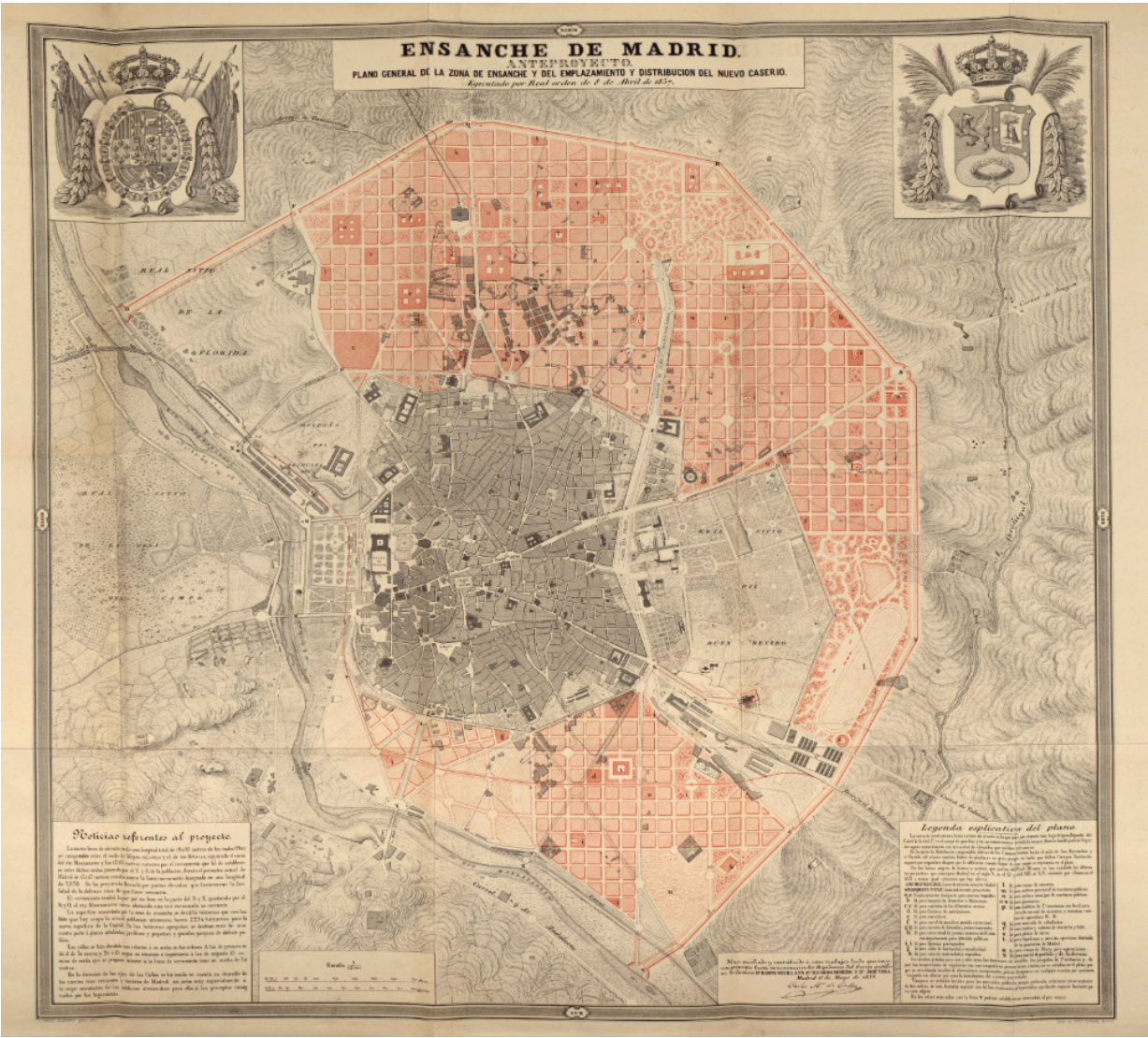
the operationalised periphery



inequality in madrid

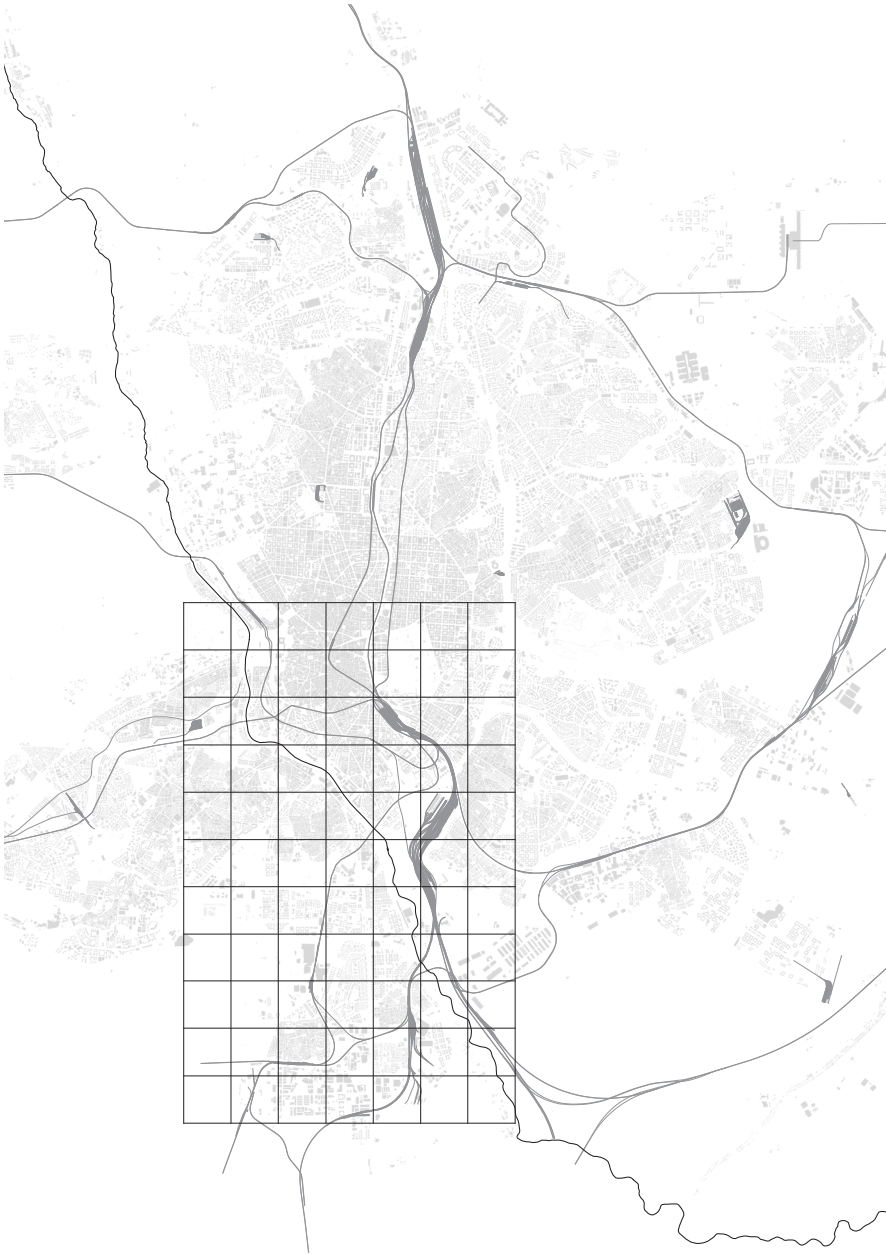


the periphery as grounds for growth



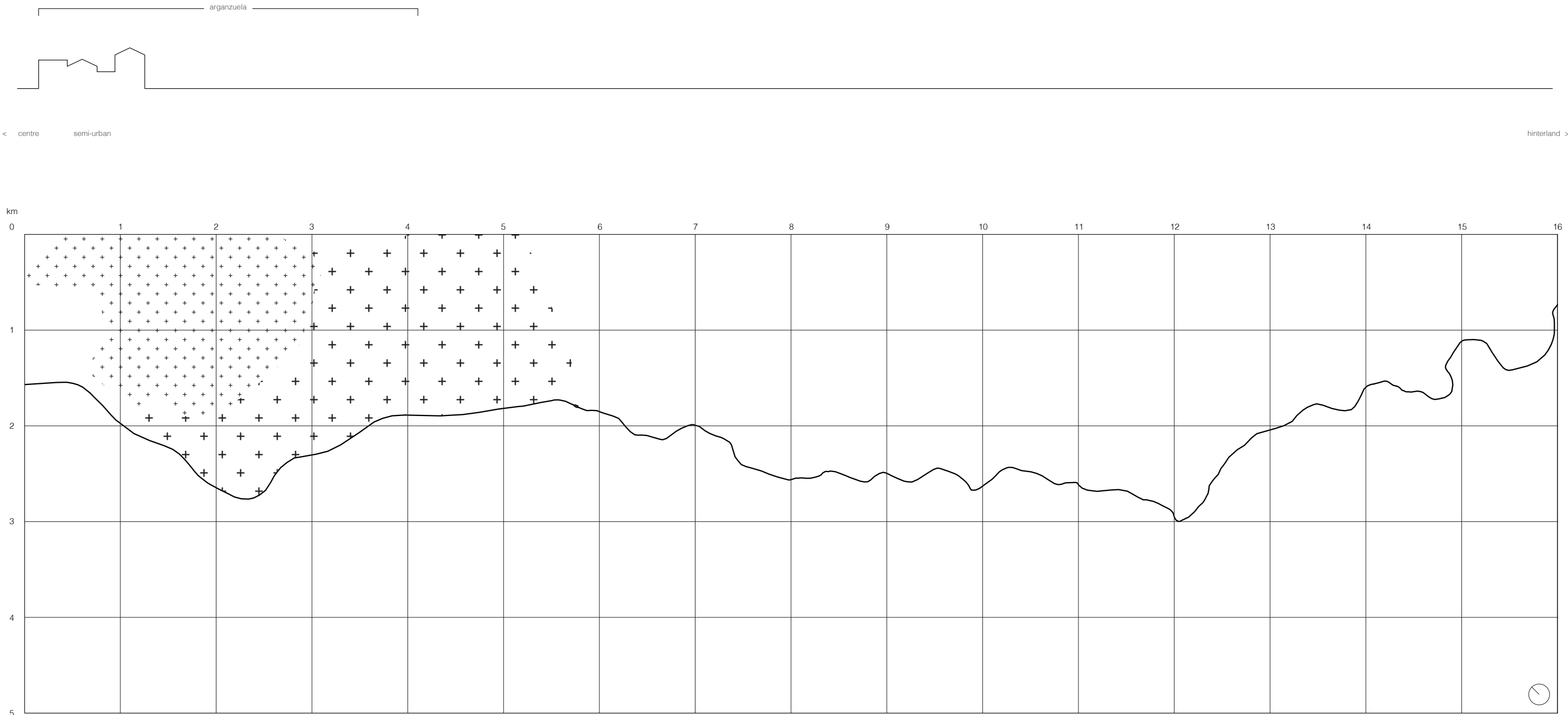
expansion plan for madrid, 1860

the periphery as grounds for growth

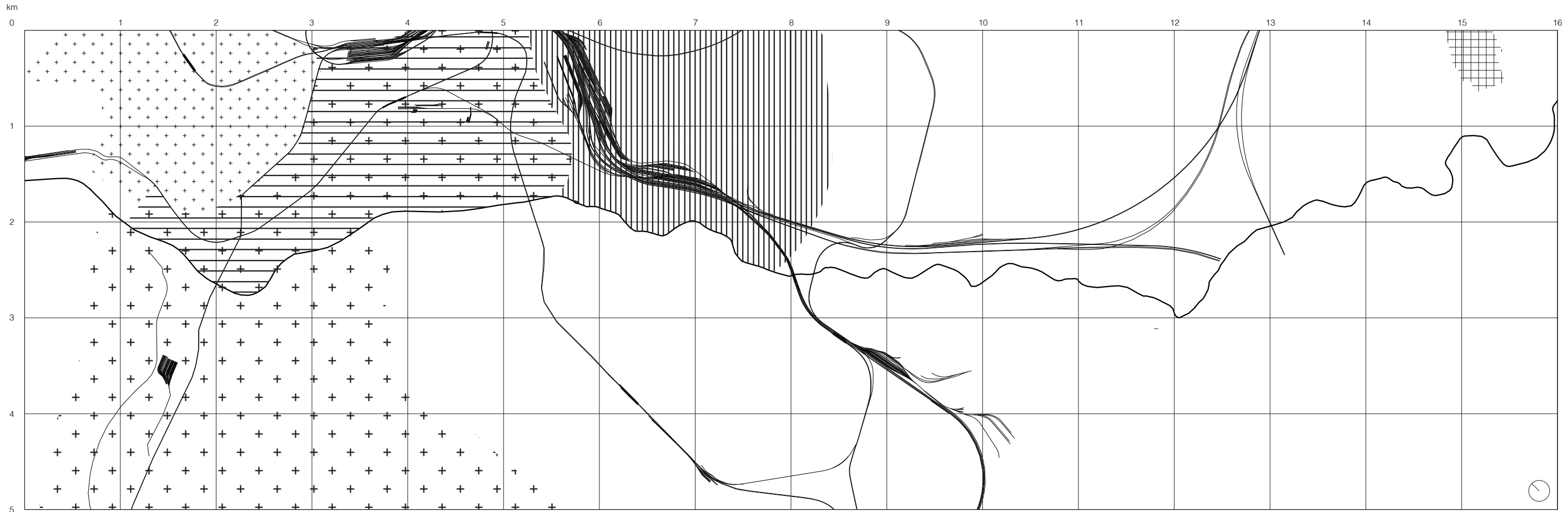
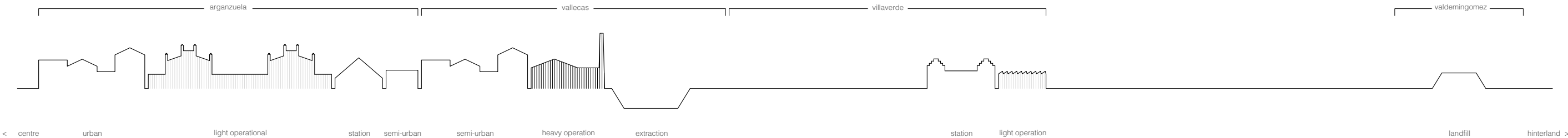


the operational territory

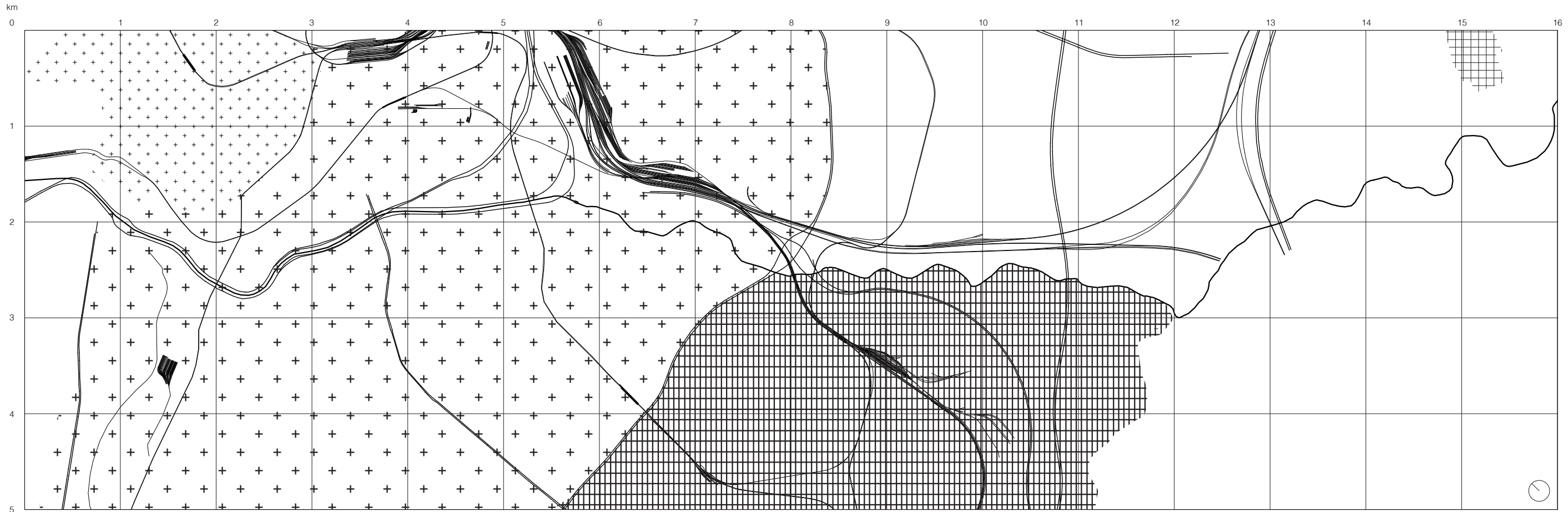
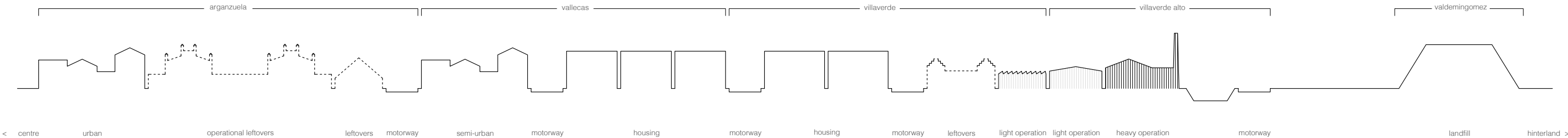
the periphery as grounds for growth



the periphery as grounds for growth



the periphery as grounds for growth



symbiosis of processes



segregation of processes



segregation of processes



layers of wasteful urban development



layers of wasteful urban development

source of contamination during its operation

demolition and disposal of built fabric

reliance on extractive and productive processes for new construction



the future replacement - a real estate commodity - aimed at generating profit but socially, economically and ecologically unproductive

an alternative model



what could an alternative model of urban growth look like?



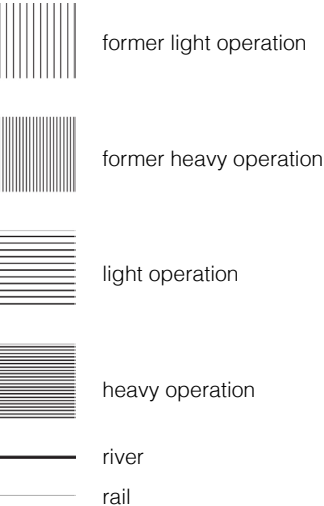
what if social and operational processes supported each other, offering a productive, rather than disruptive form of operation?



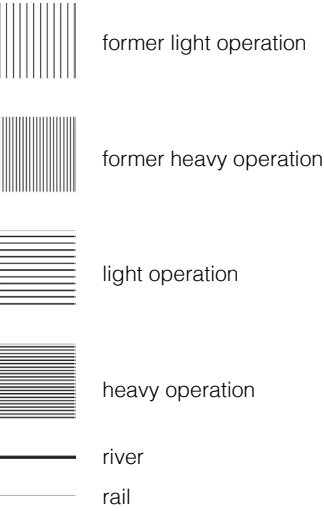
what if existing processes and infrastructures were the starting point of development rather than an obstacle to clear?



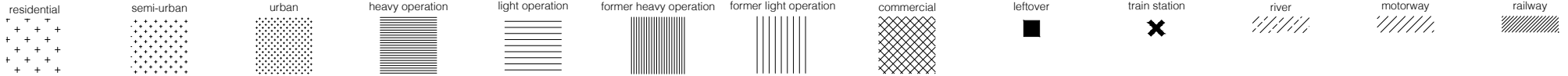
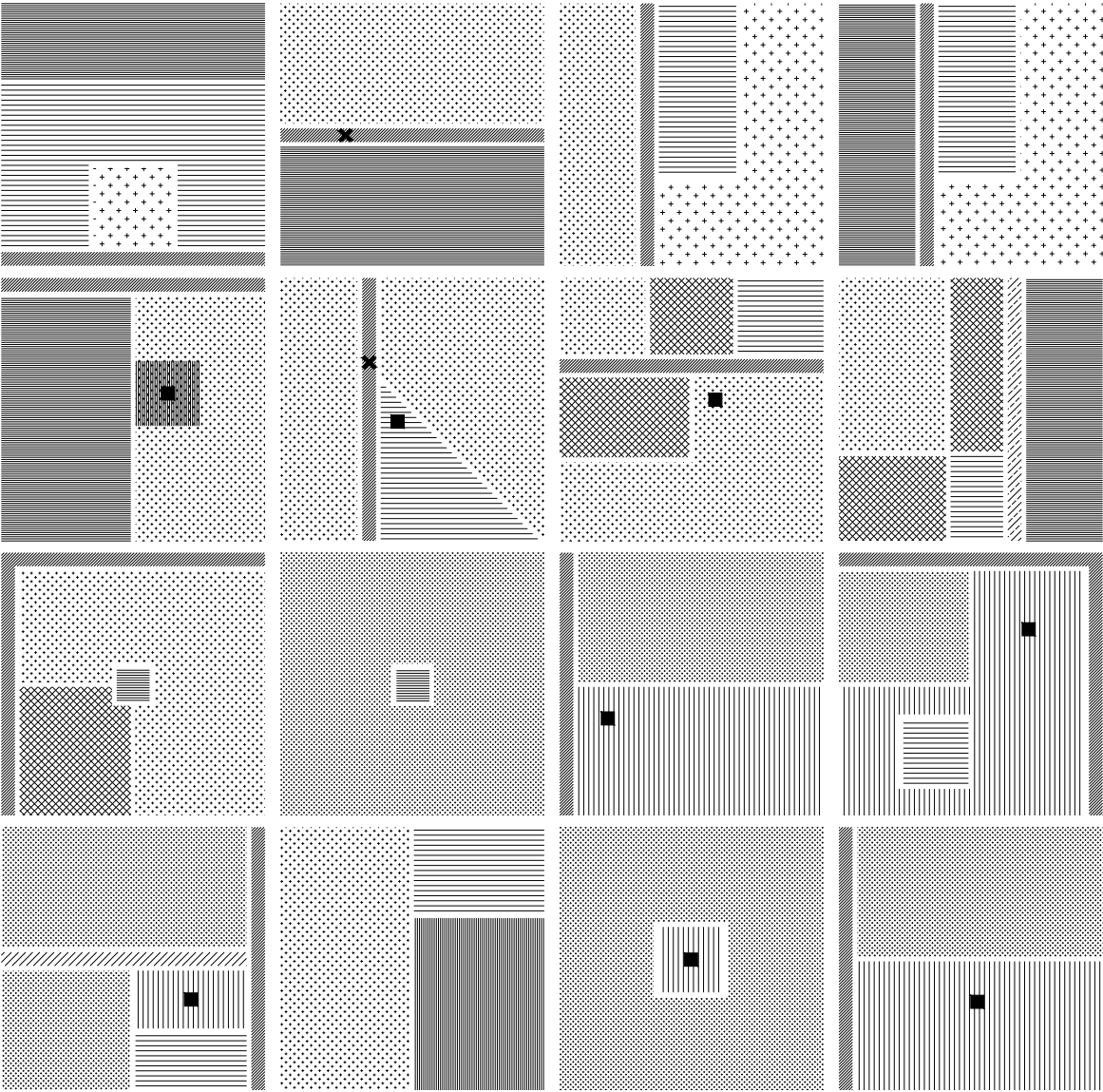
site of intervention



site of intervention

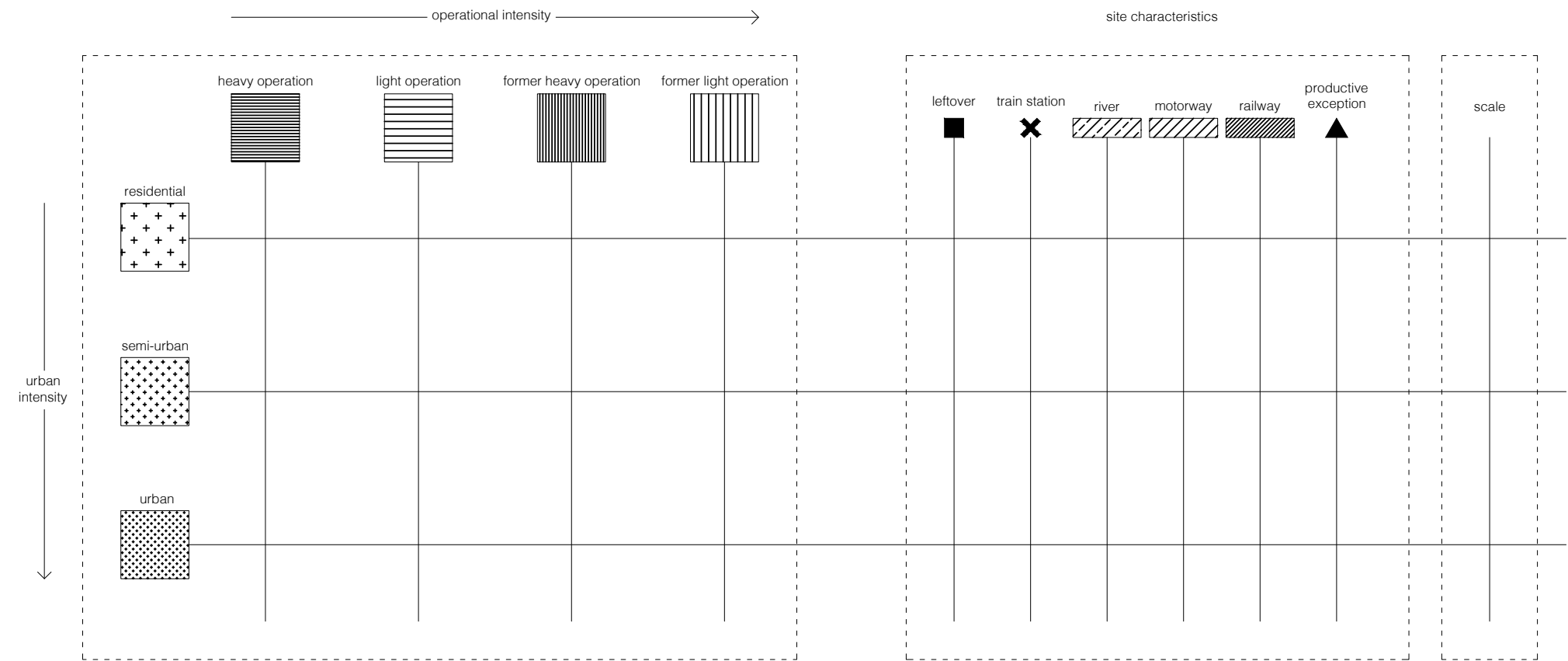


site of intervention

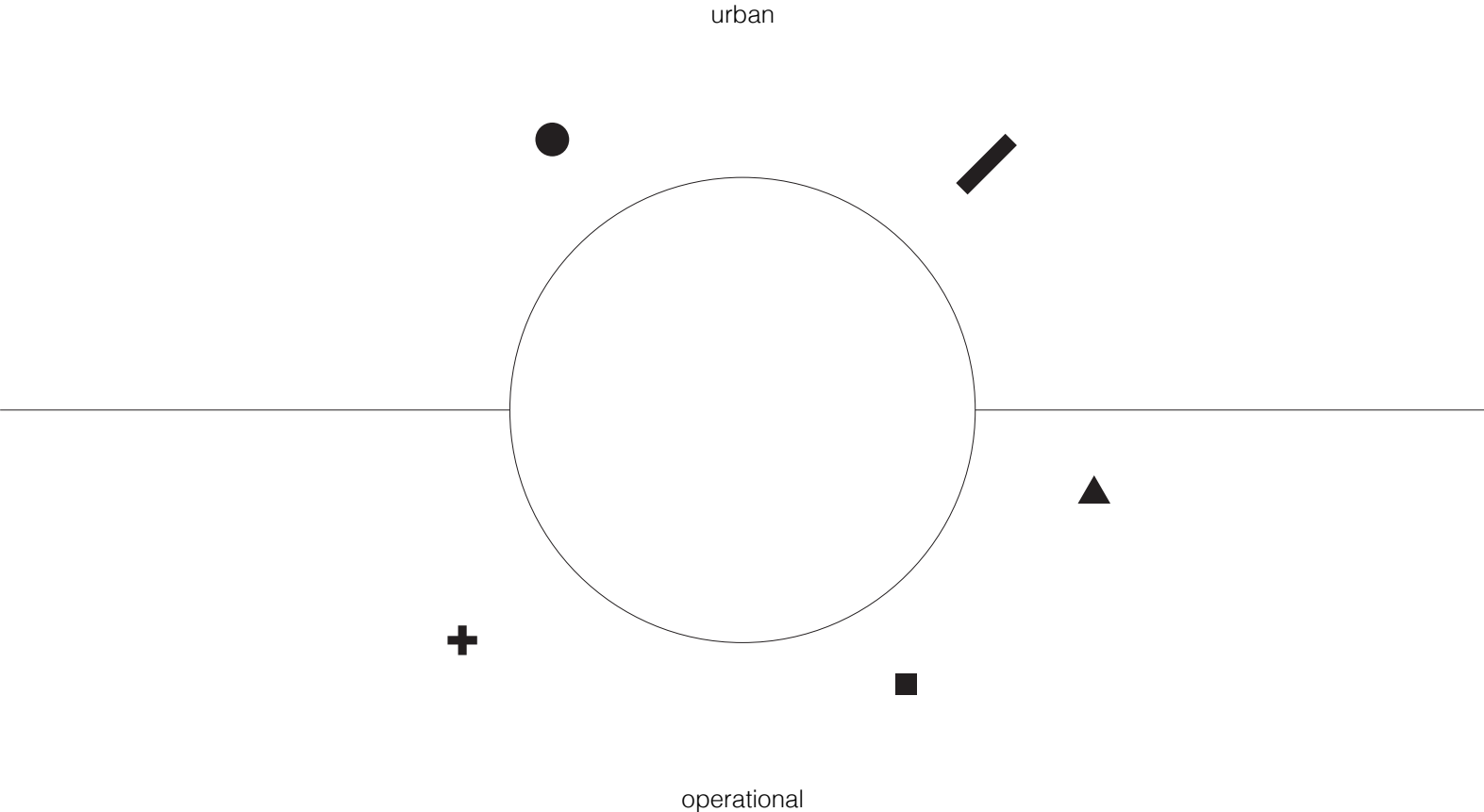


analysis and comparison of sites

site of intervention

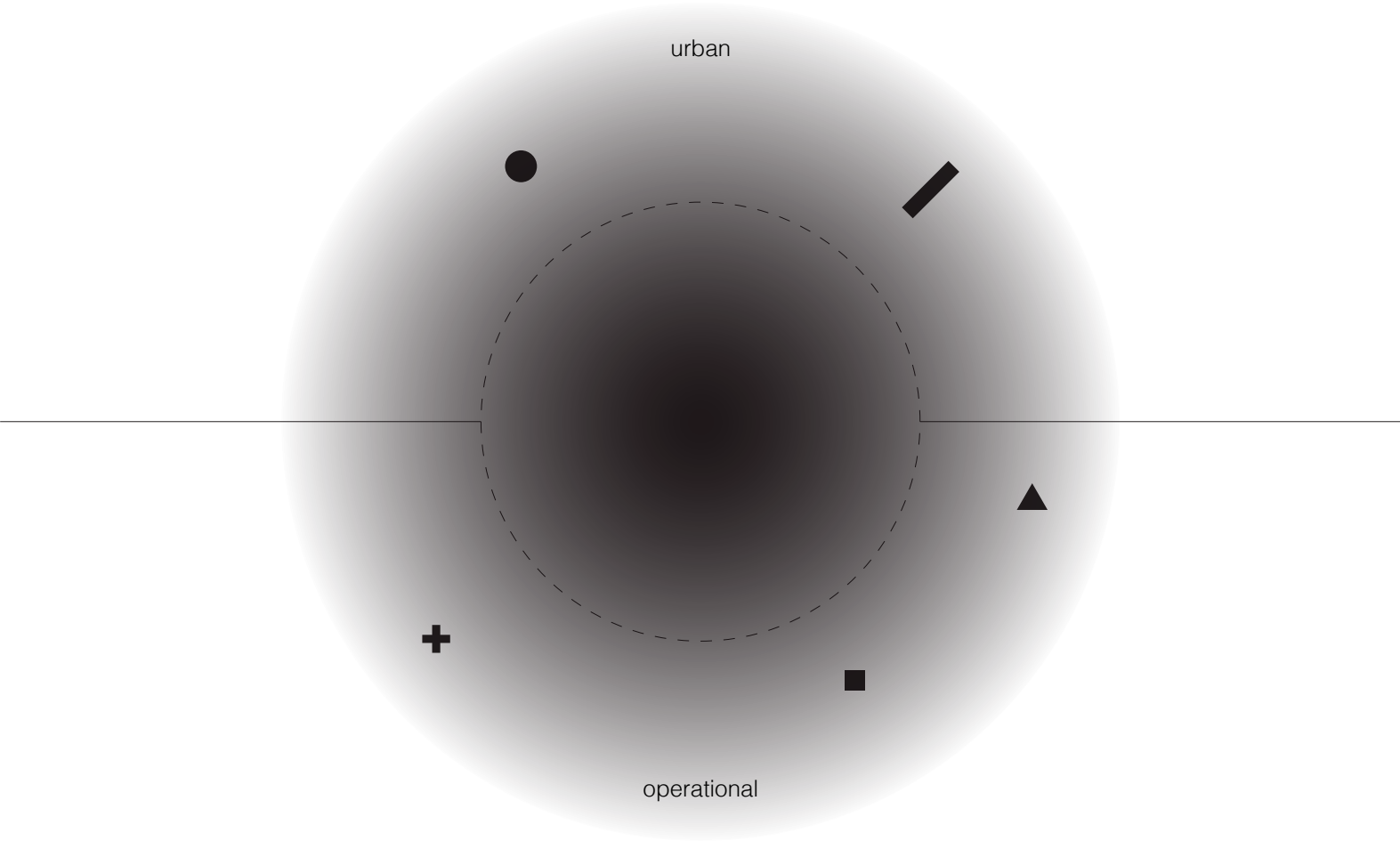


intervention strategy



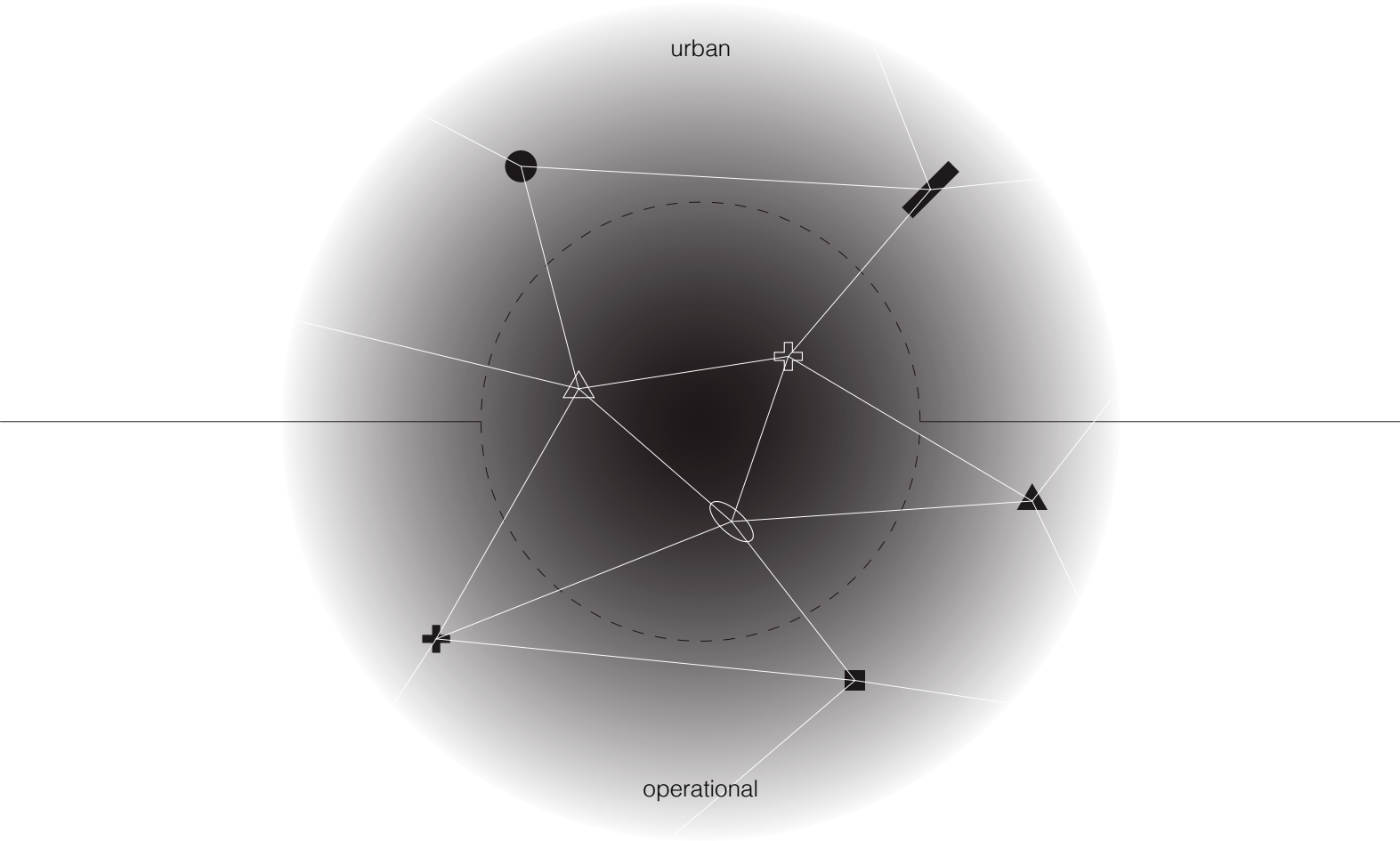
unlocked site between the urban and operational

intervention strategy

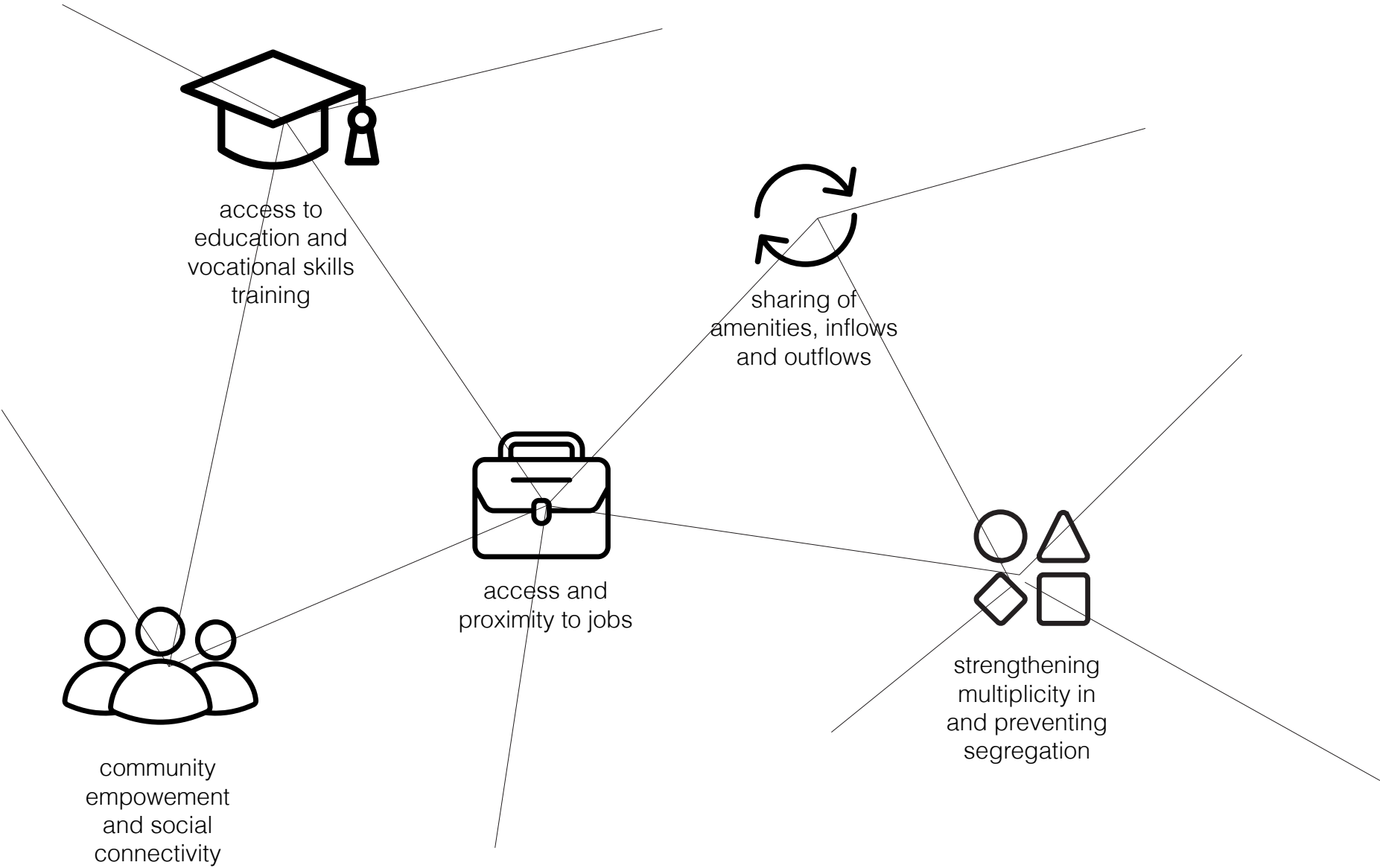


gradient of interactions

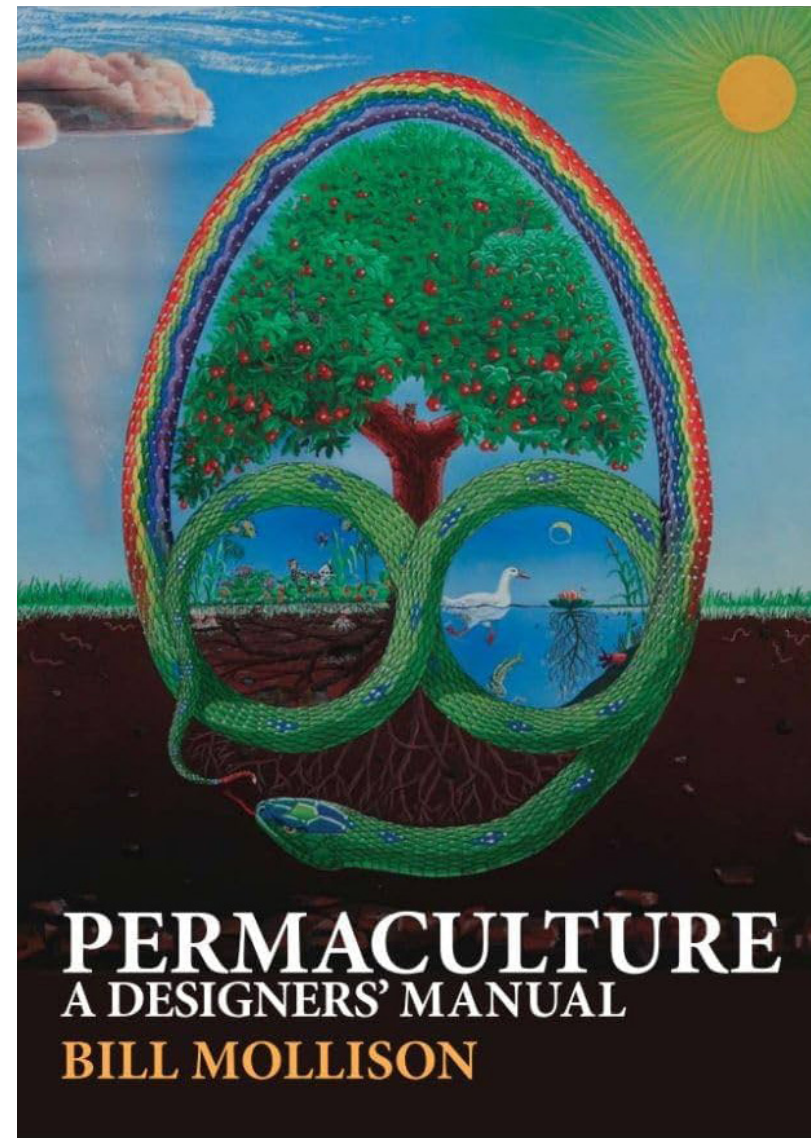
intervention strategy



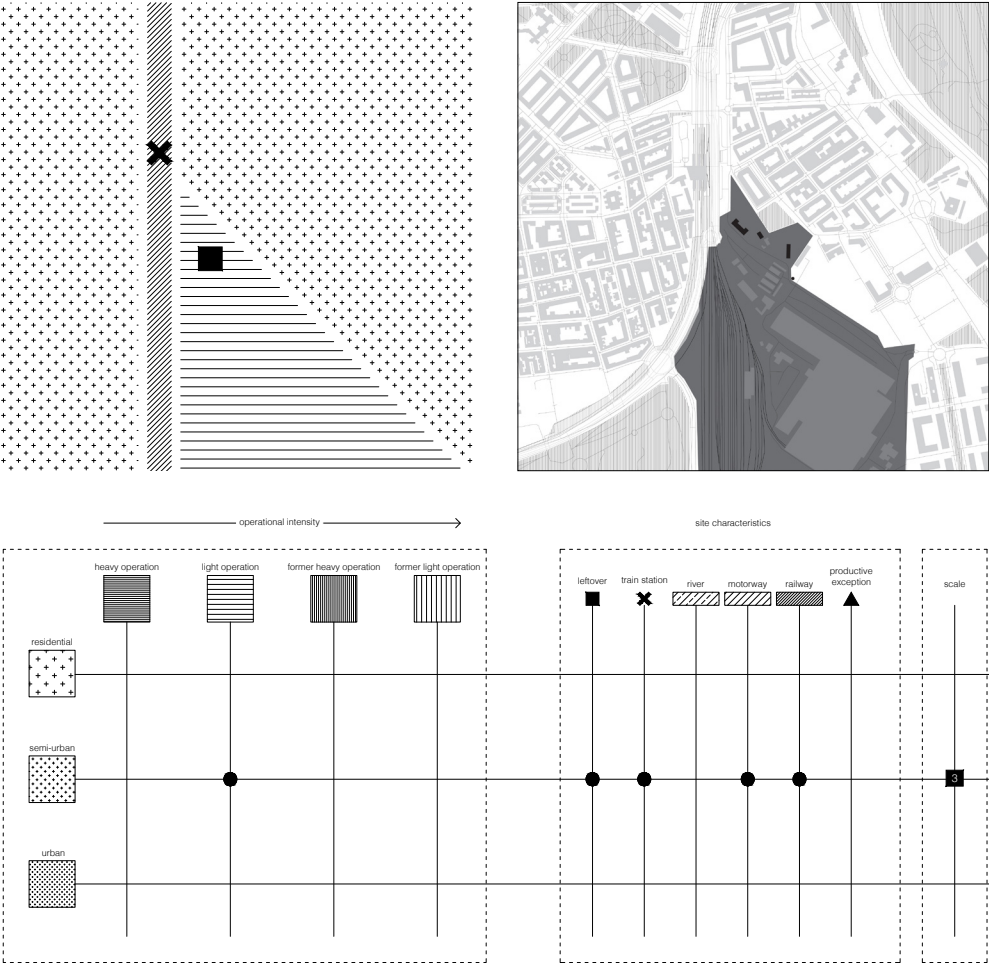
network of proccesses



intervention strategy



villaverde bajo itervention site



location of intervention site

villaverde bajo intervention site



villaverde bajo itervention site



villaverde bajo intervention site



operational leftovers

villaverde bajo itervention site

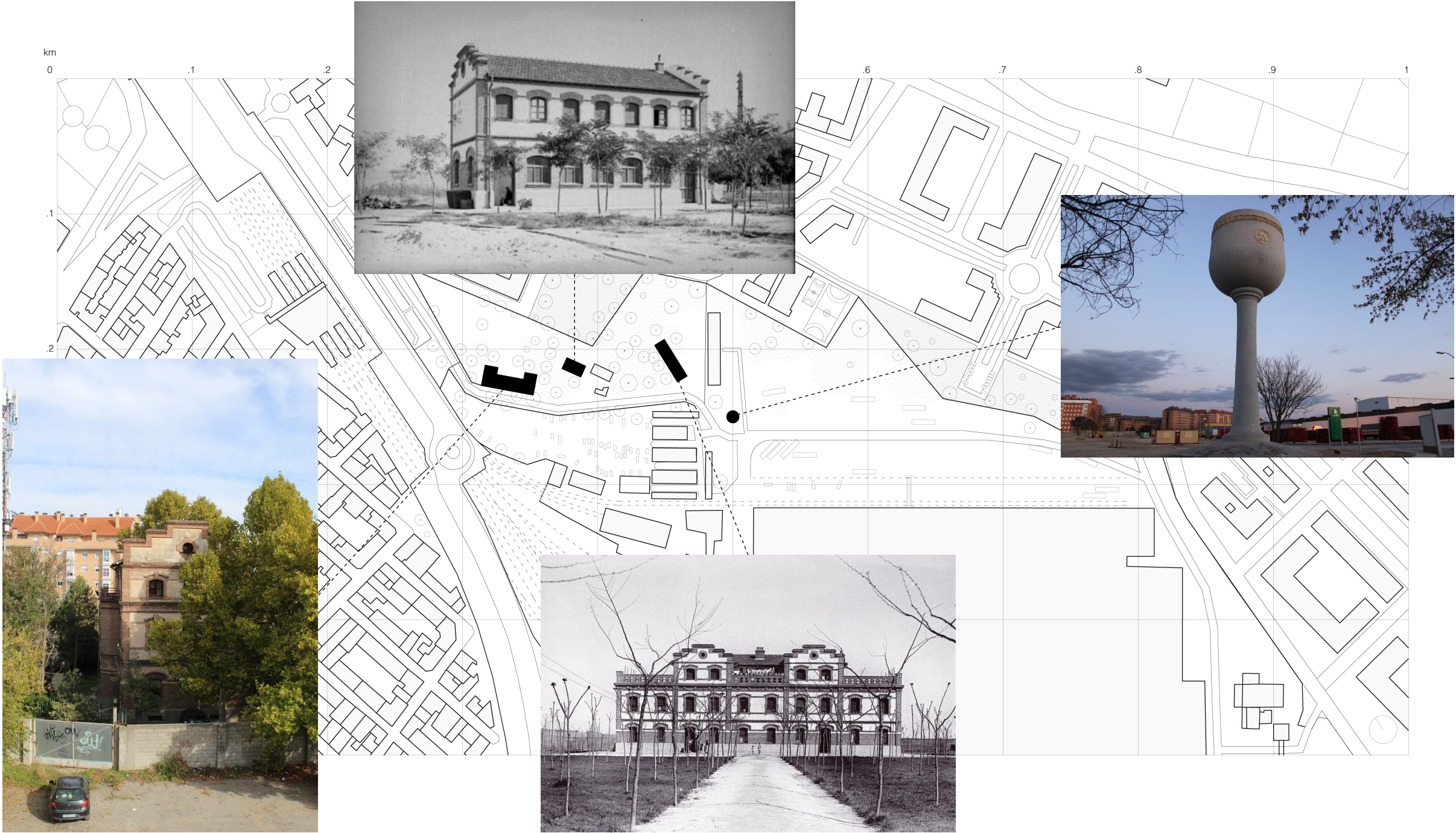


existing condition

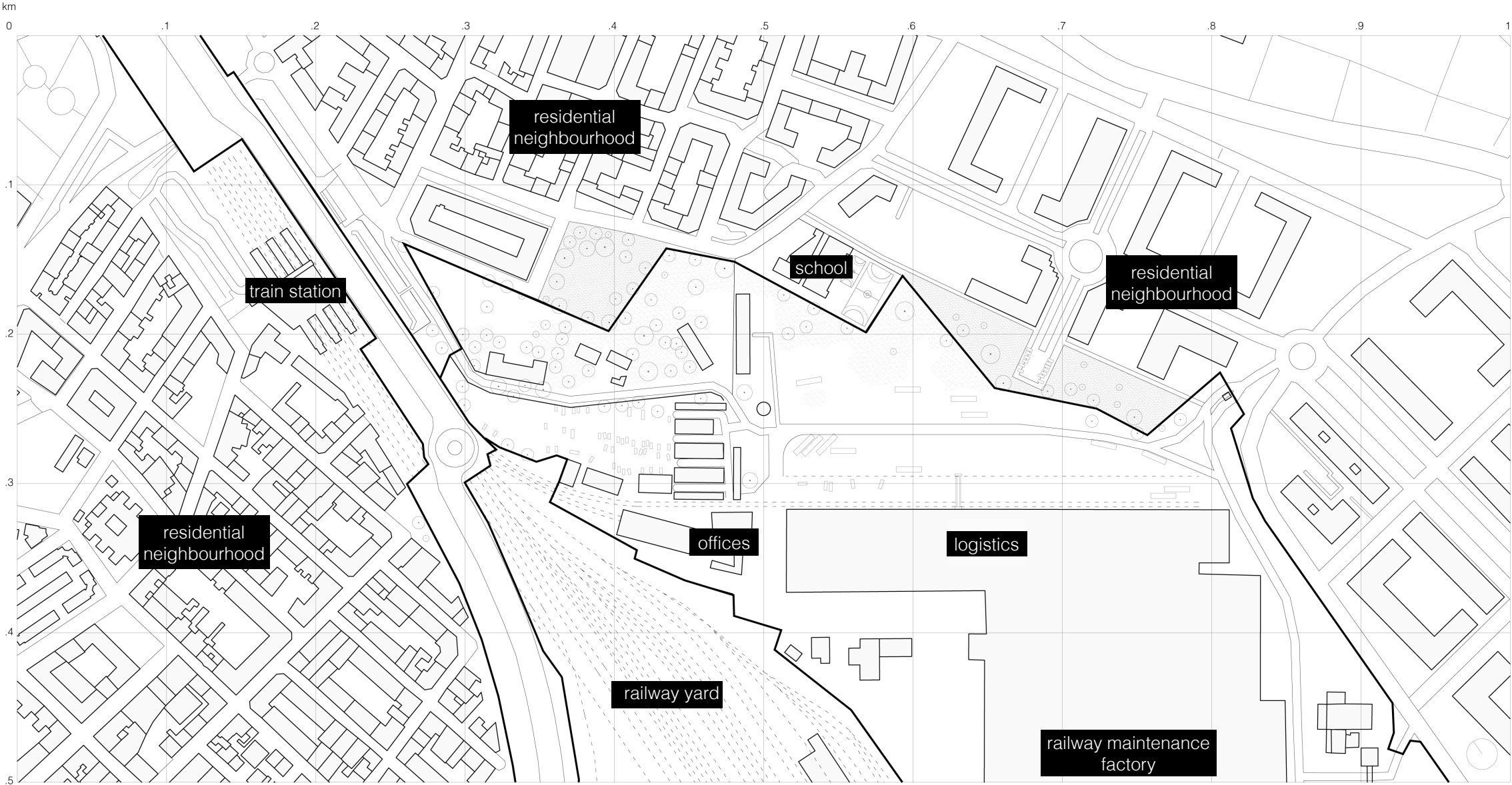
villaverde bajo intervention site



villaverde bajo itervention site



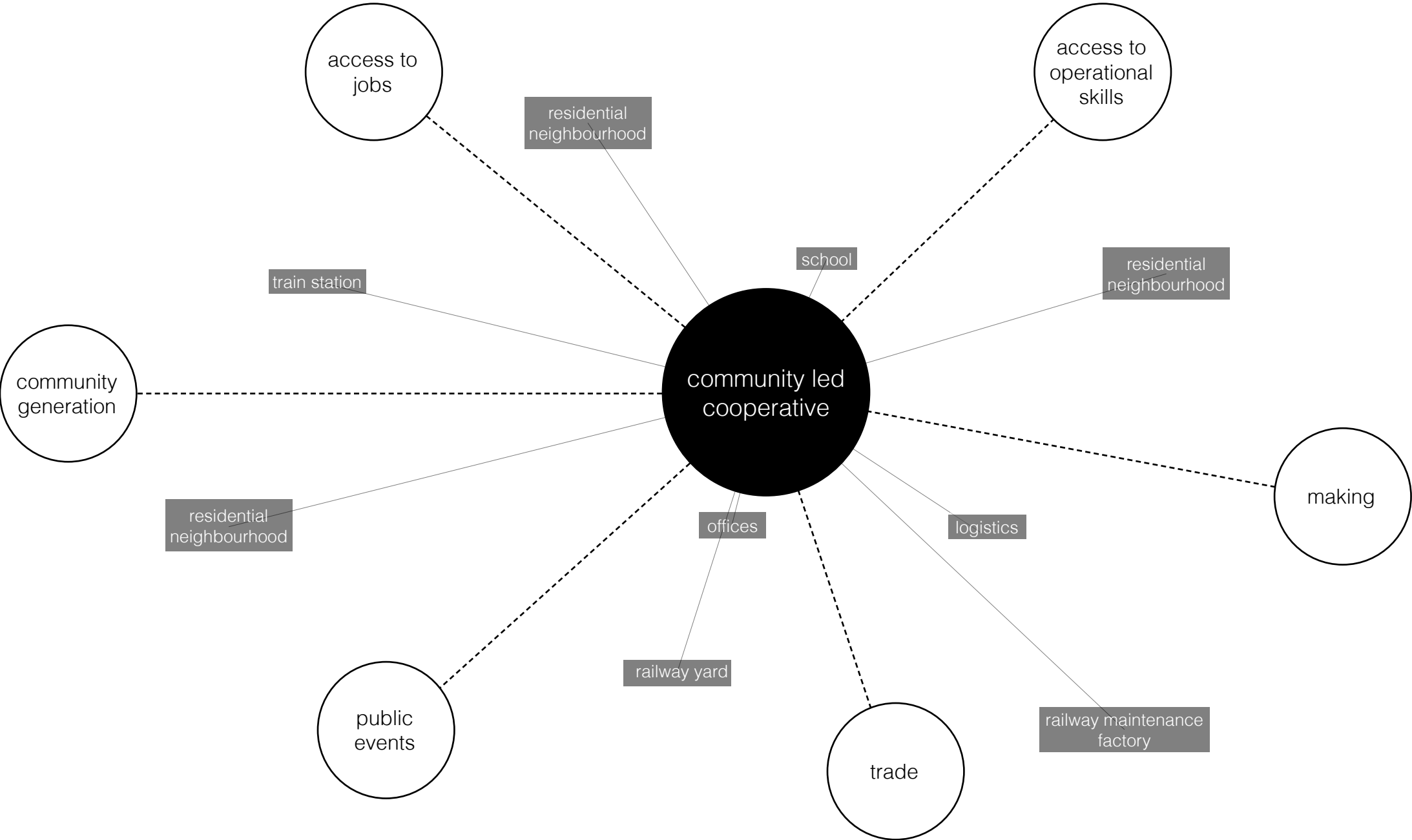
villaverde bajo itervention site



site program



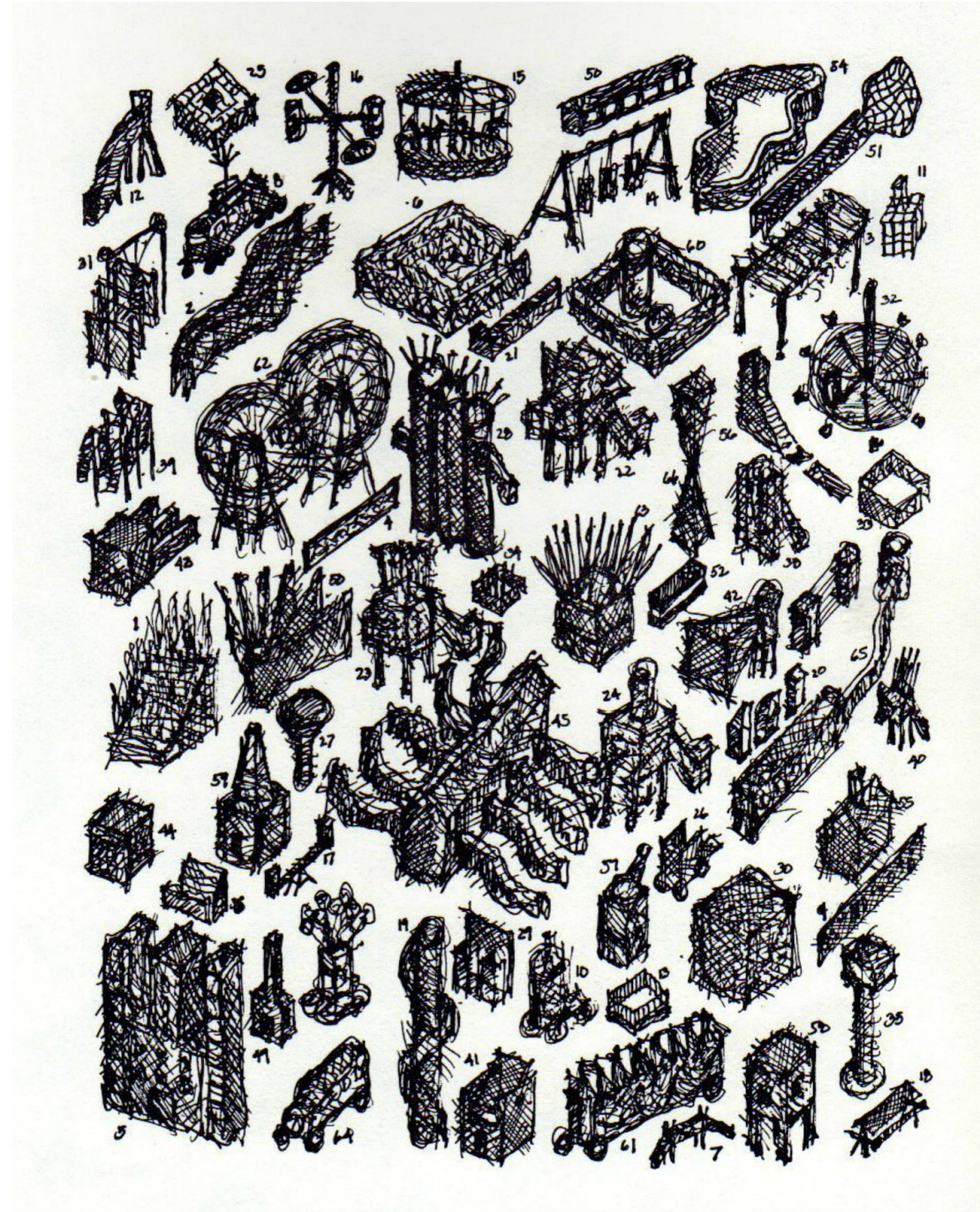
process input



site program



the ensemble



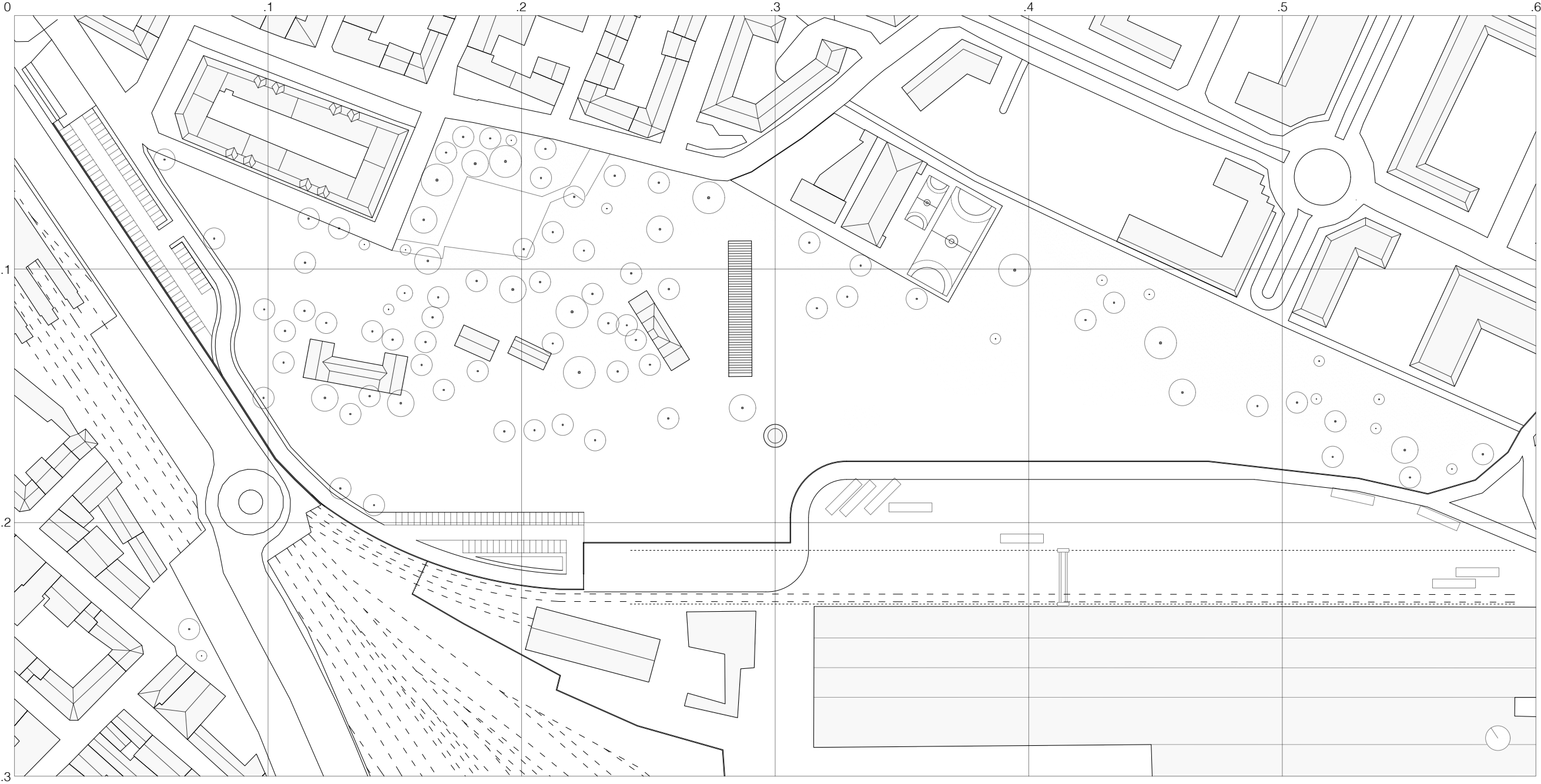
inspiration from john hejduk's victims project, 1984

the ensemble



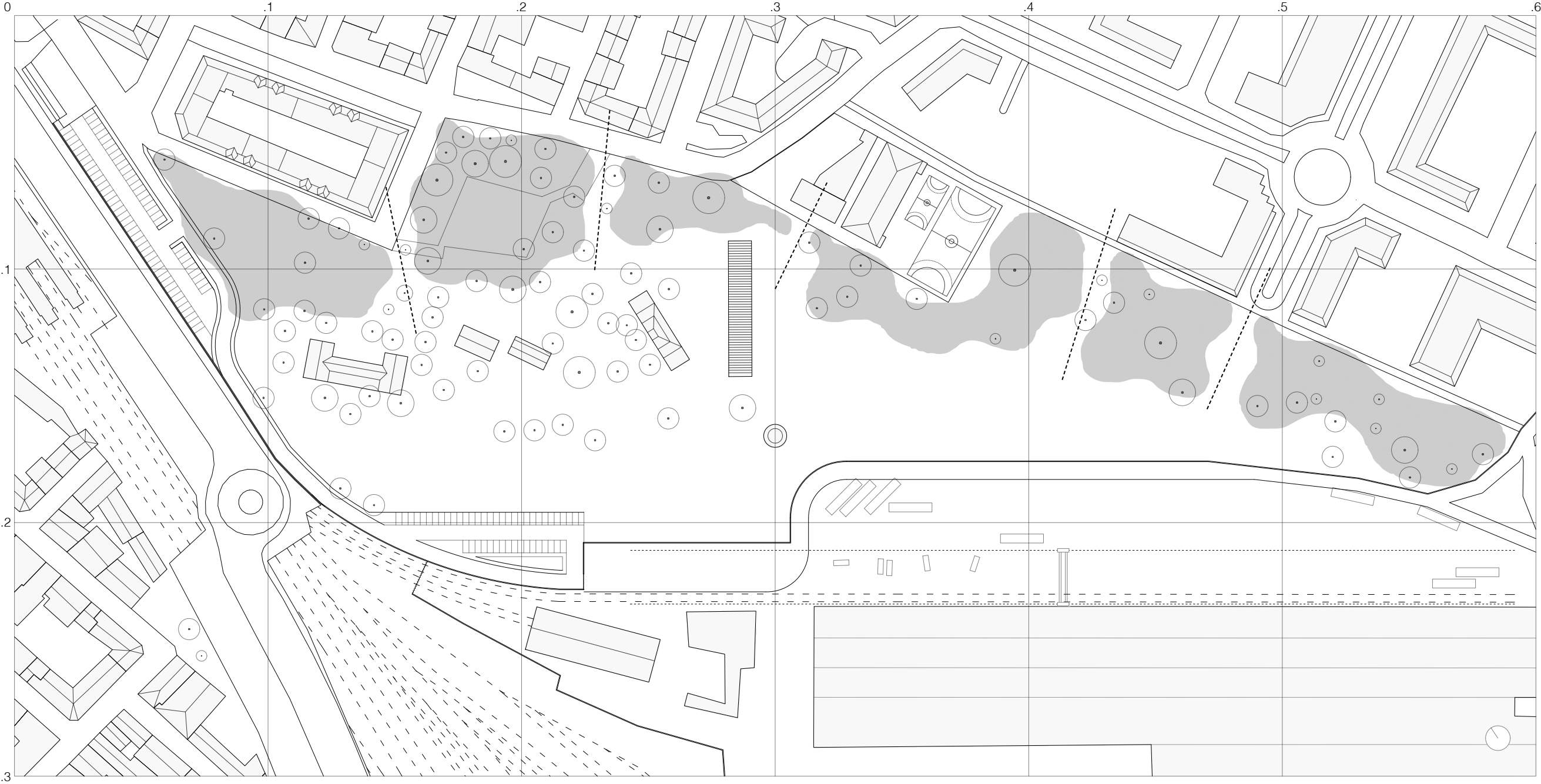
existing site

the ensemble



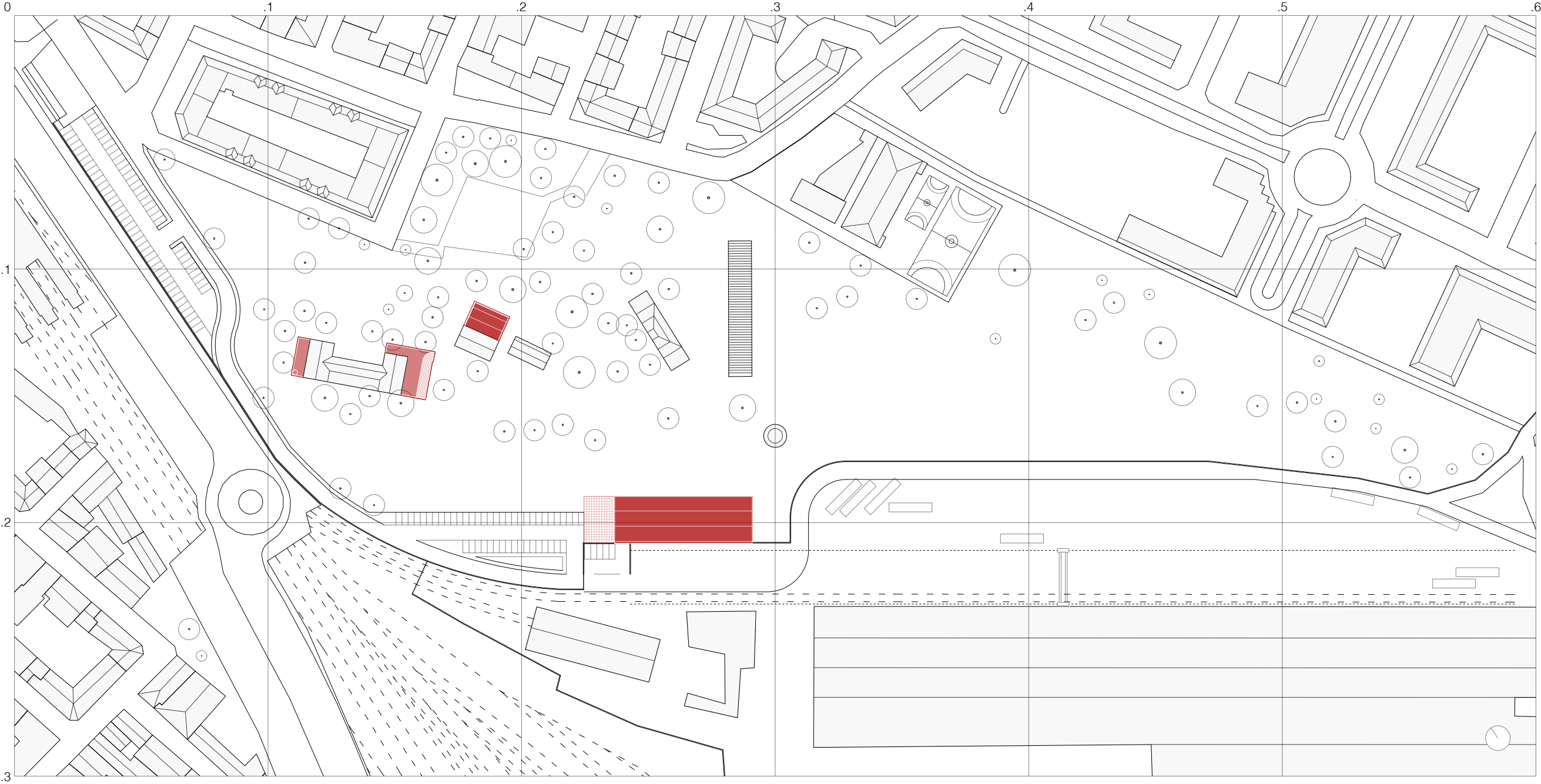
opened site

the ensemble



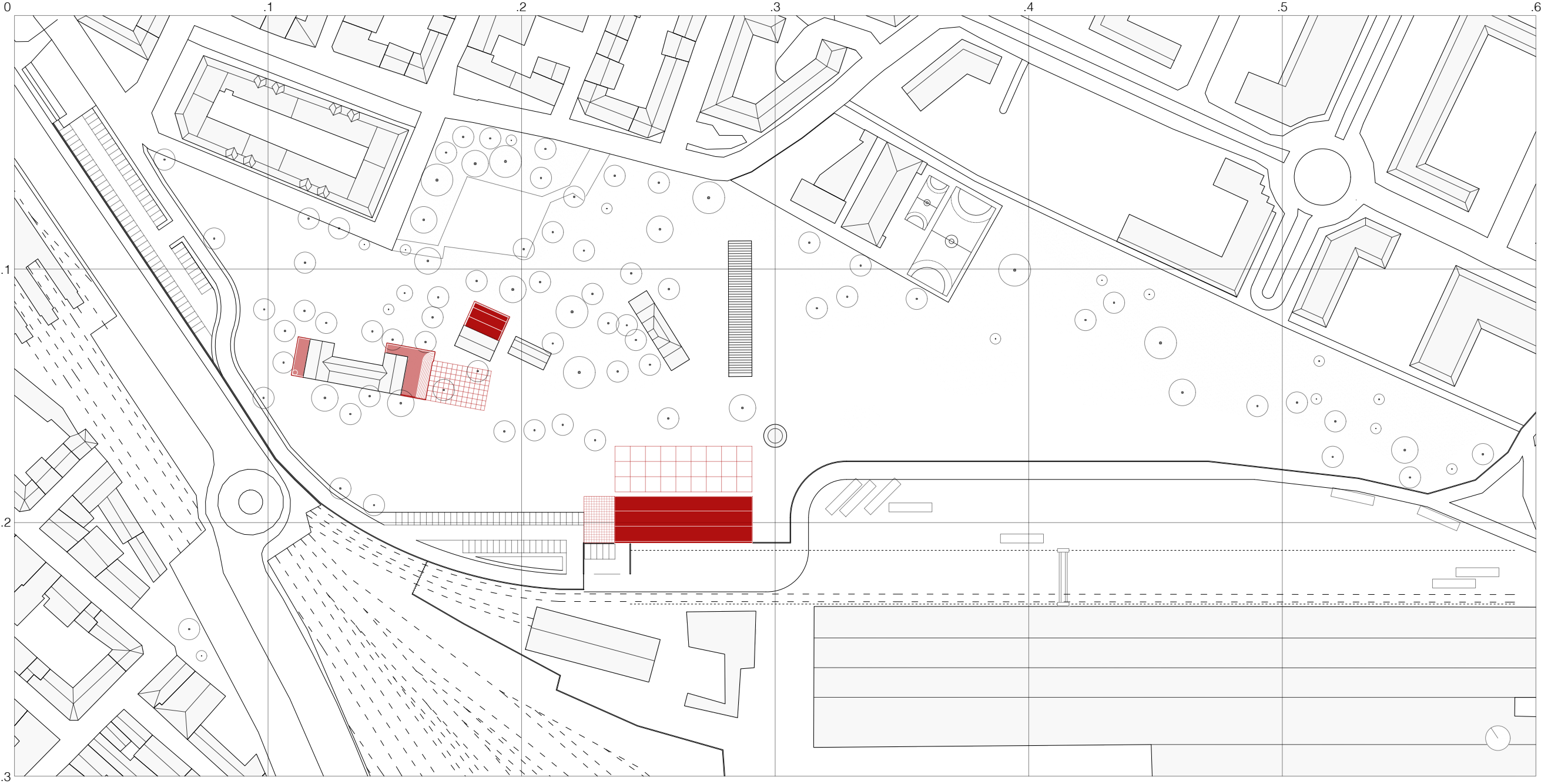
green transition zone

the ensemble



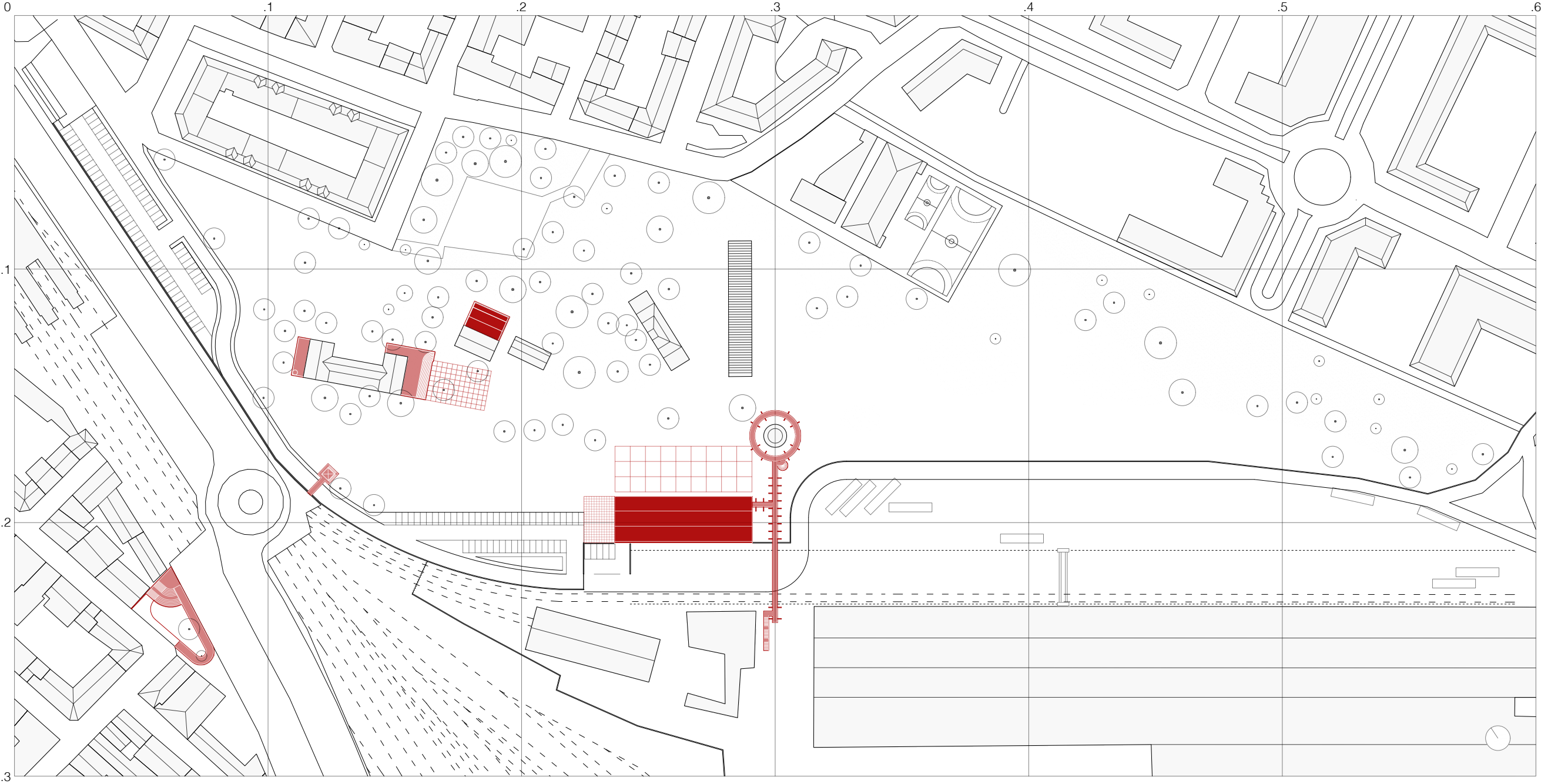
utilities

the ensemble

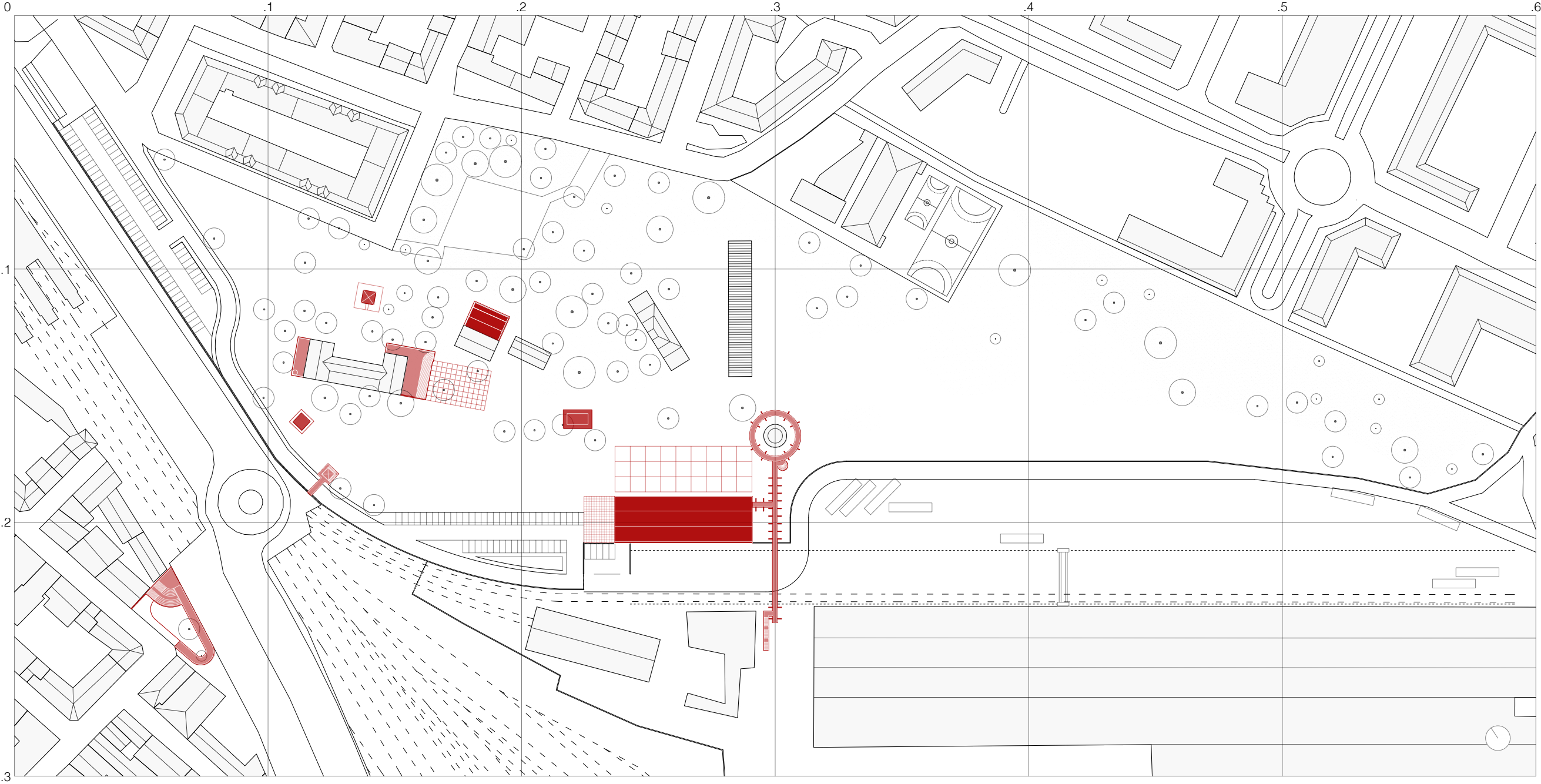


community appropriation zones

the ensemble

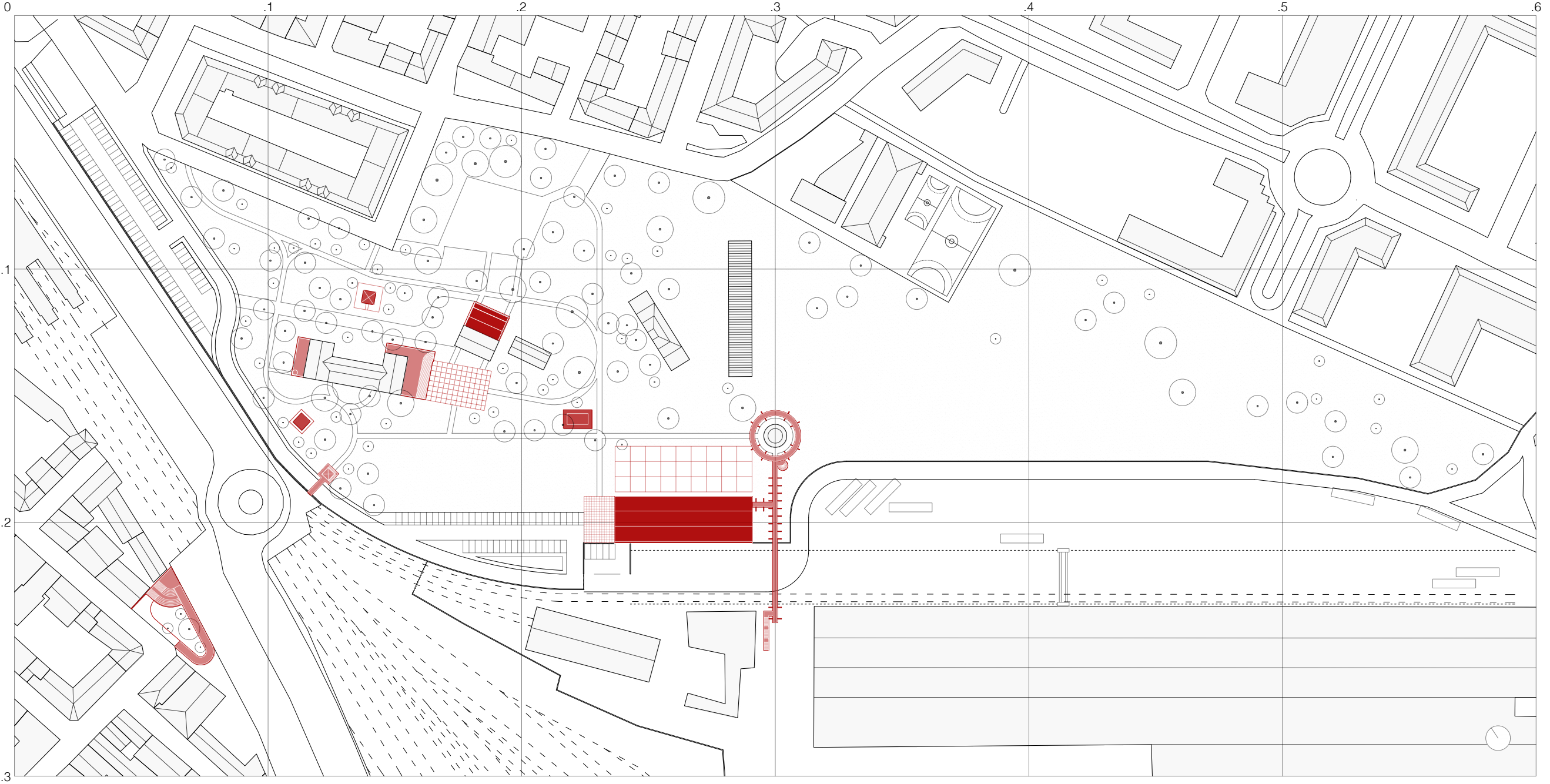


the ensemble



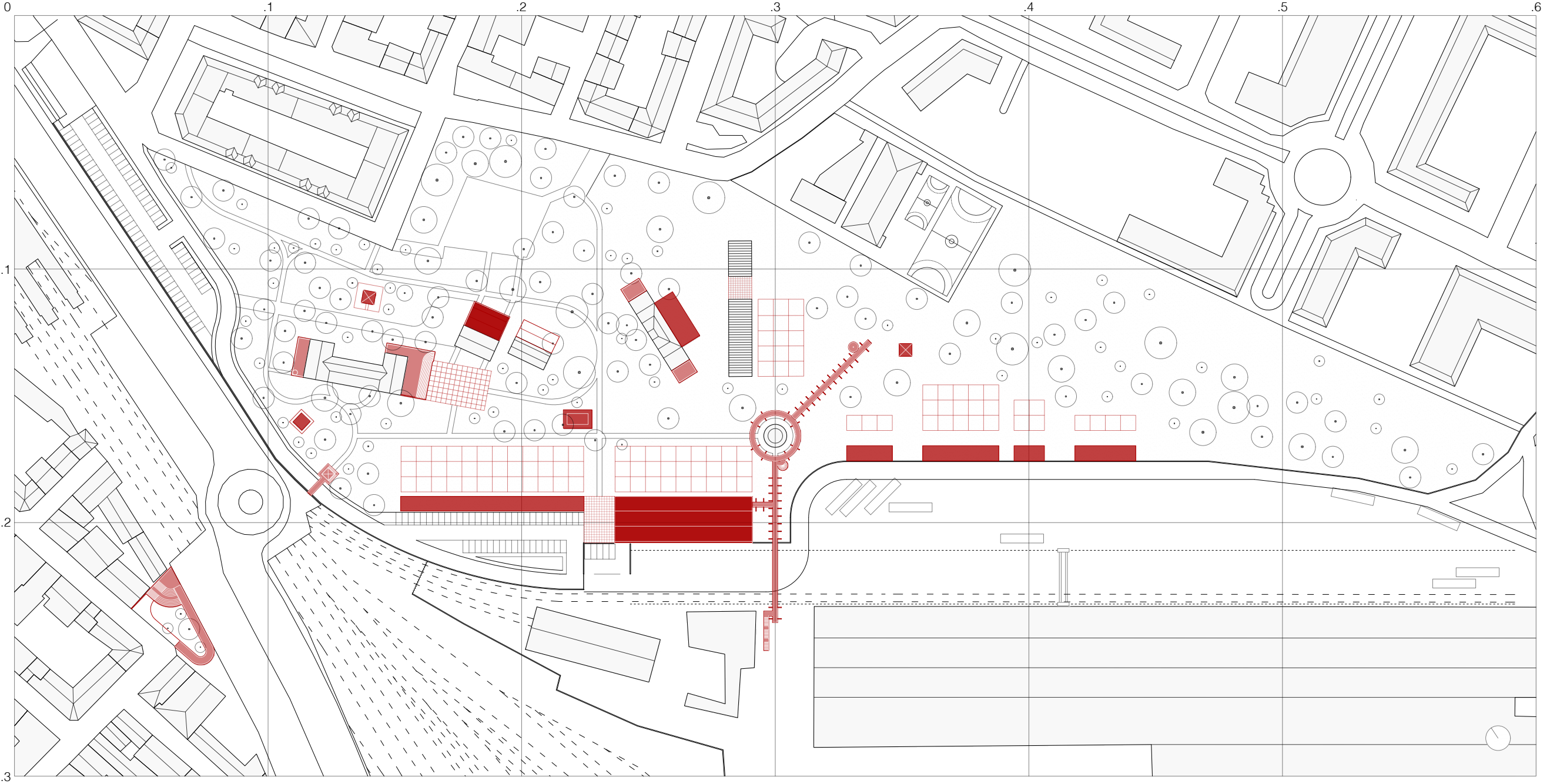
flow exchange points

the ensemble

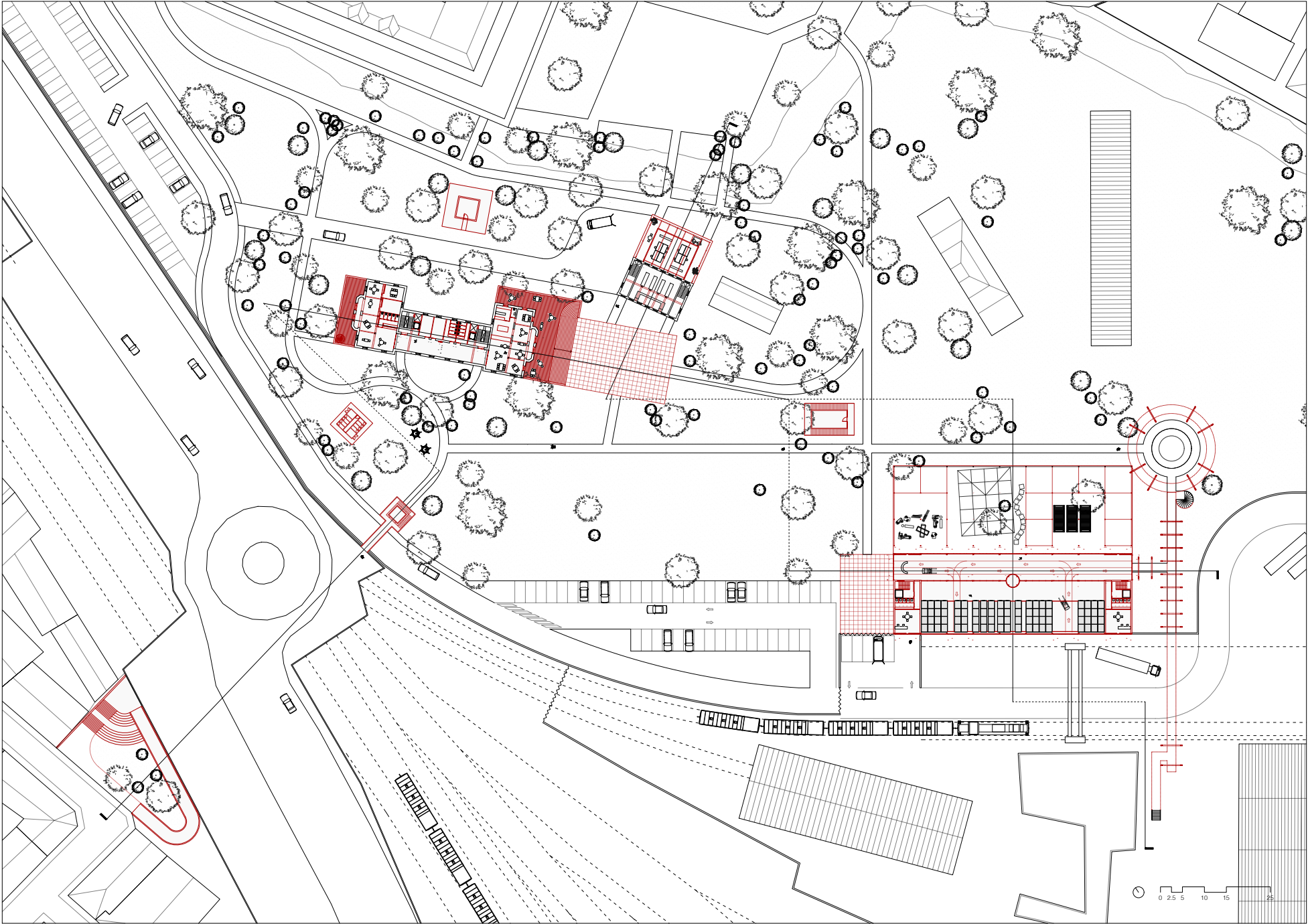


park

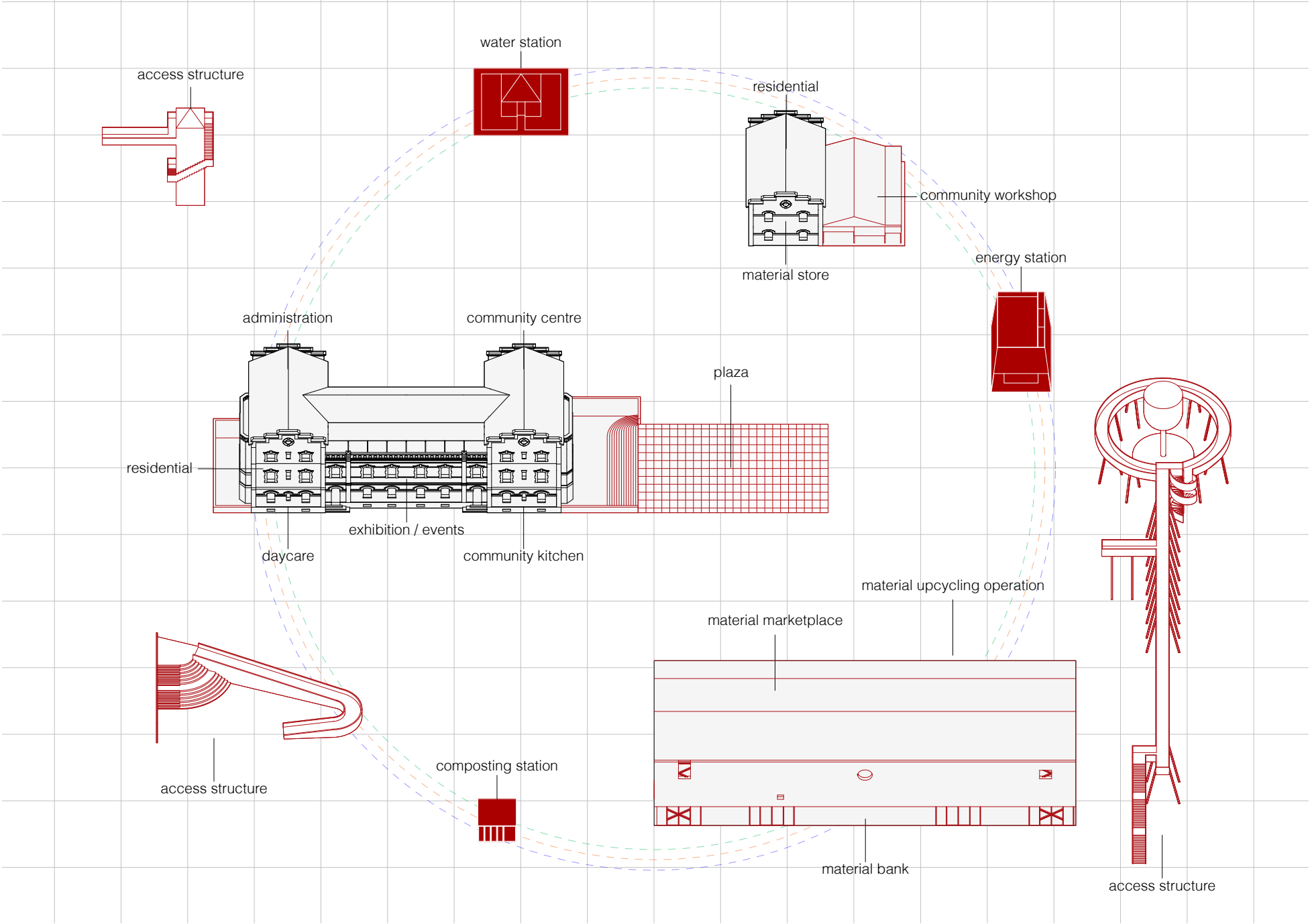
the ensemble



future scenario



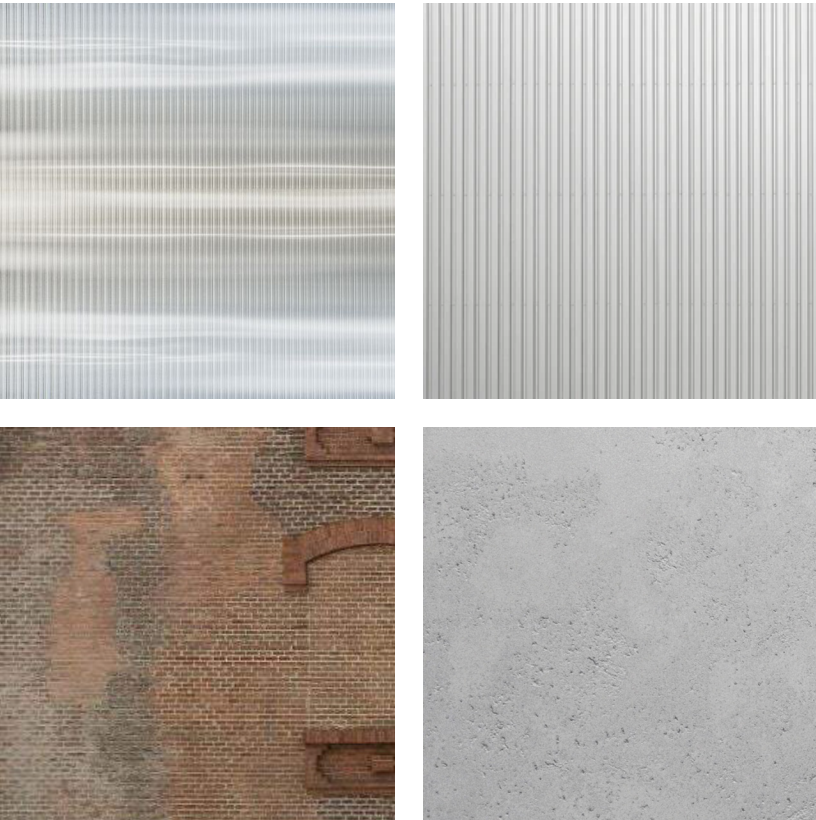
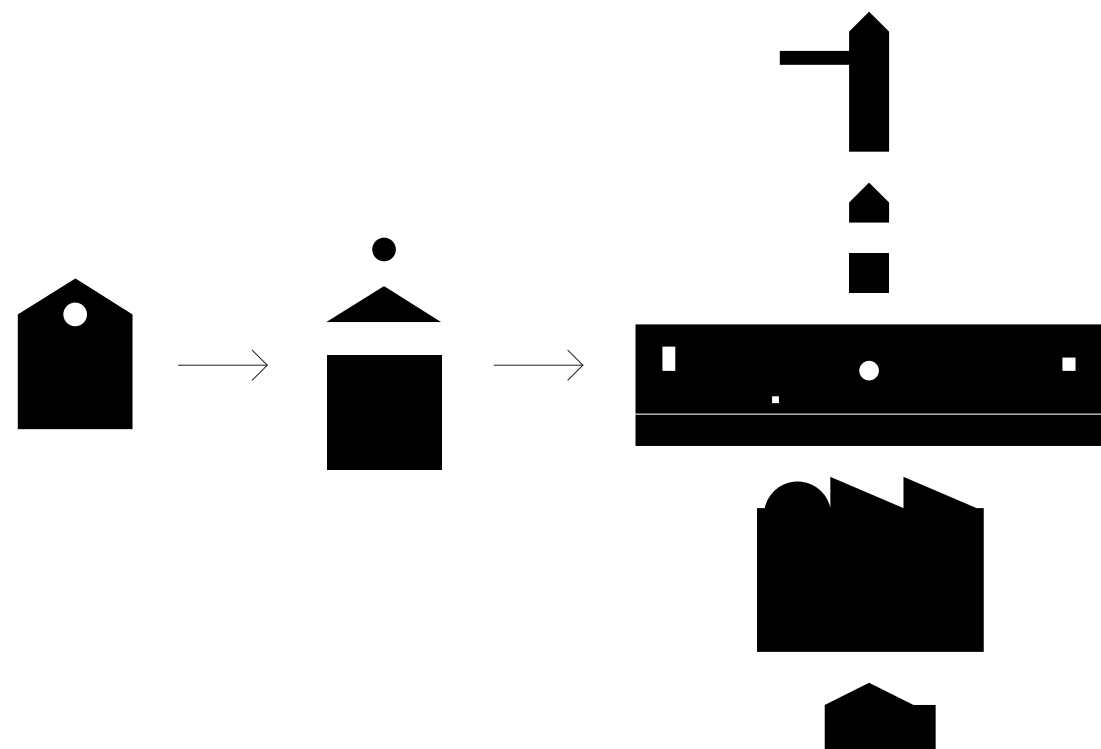
the ensemble



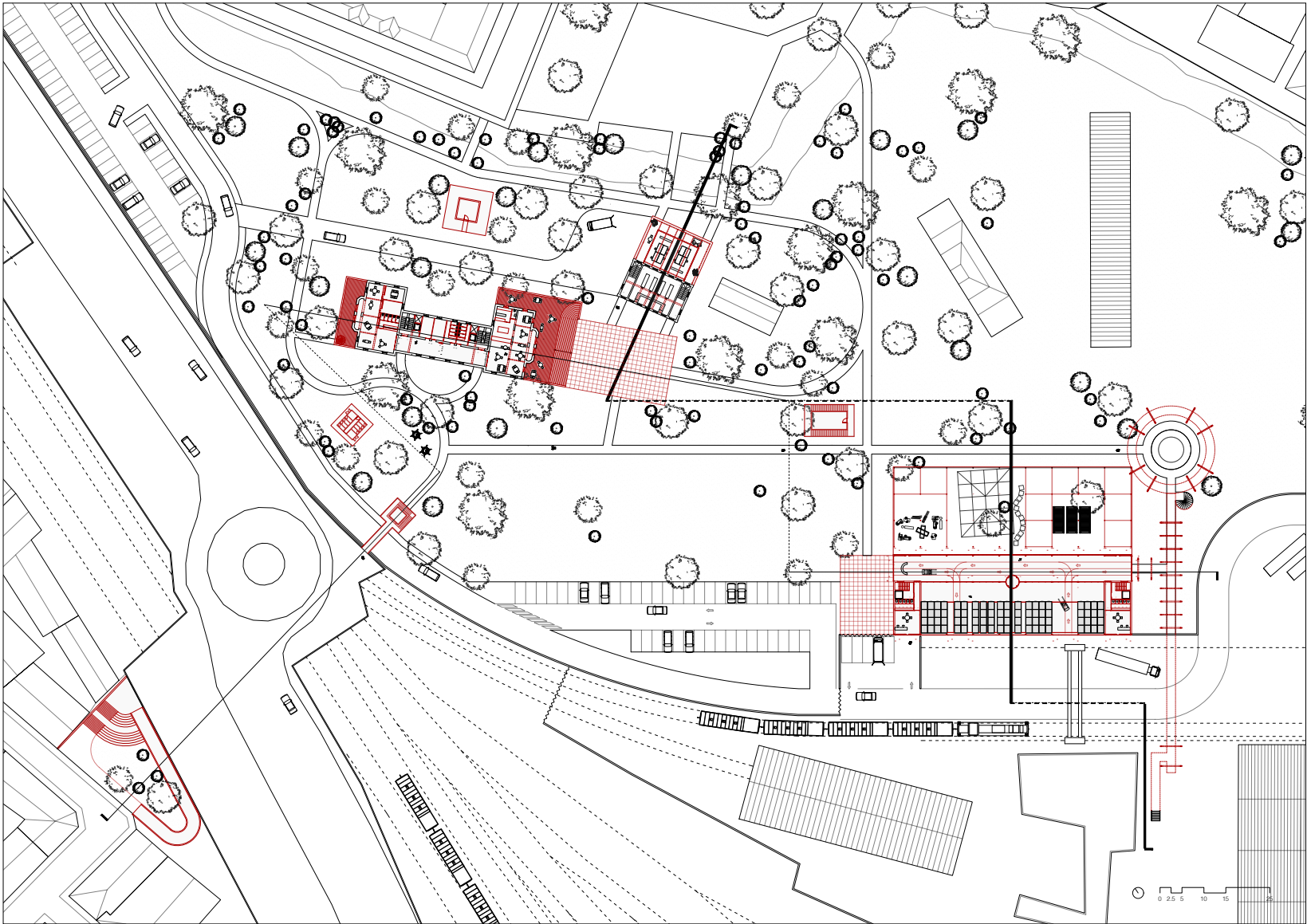
site program

material and design principles



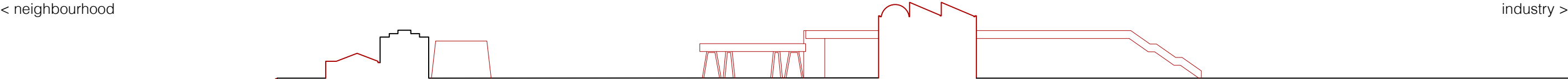


section a-a: urban - operational gradient

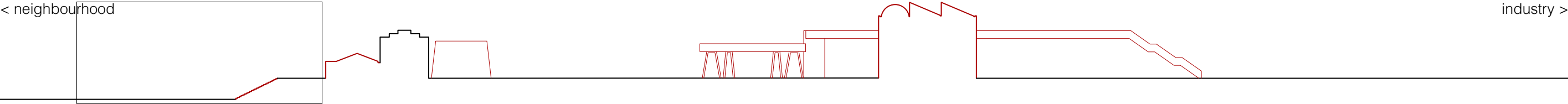
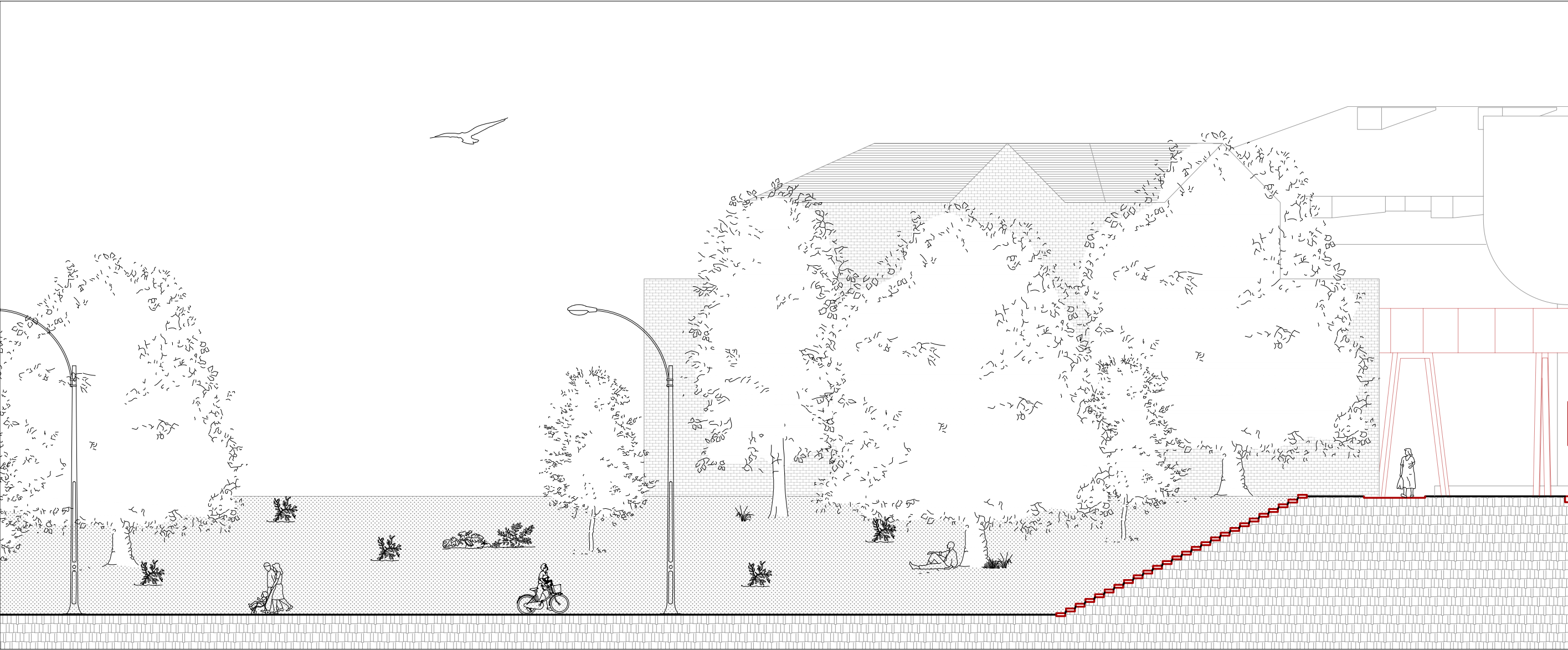


< neighbourhood

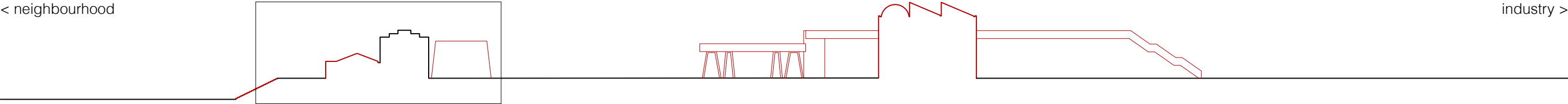
industry >

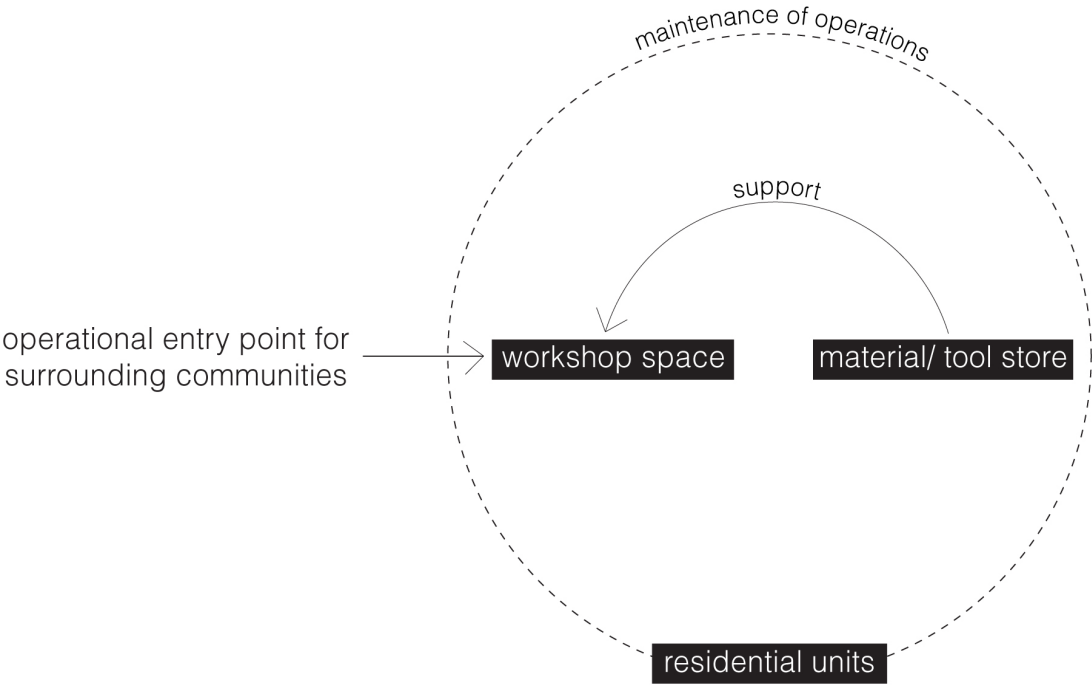


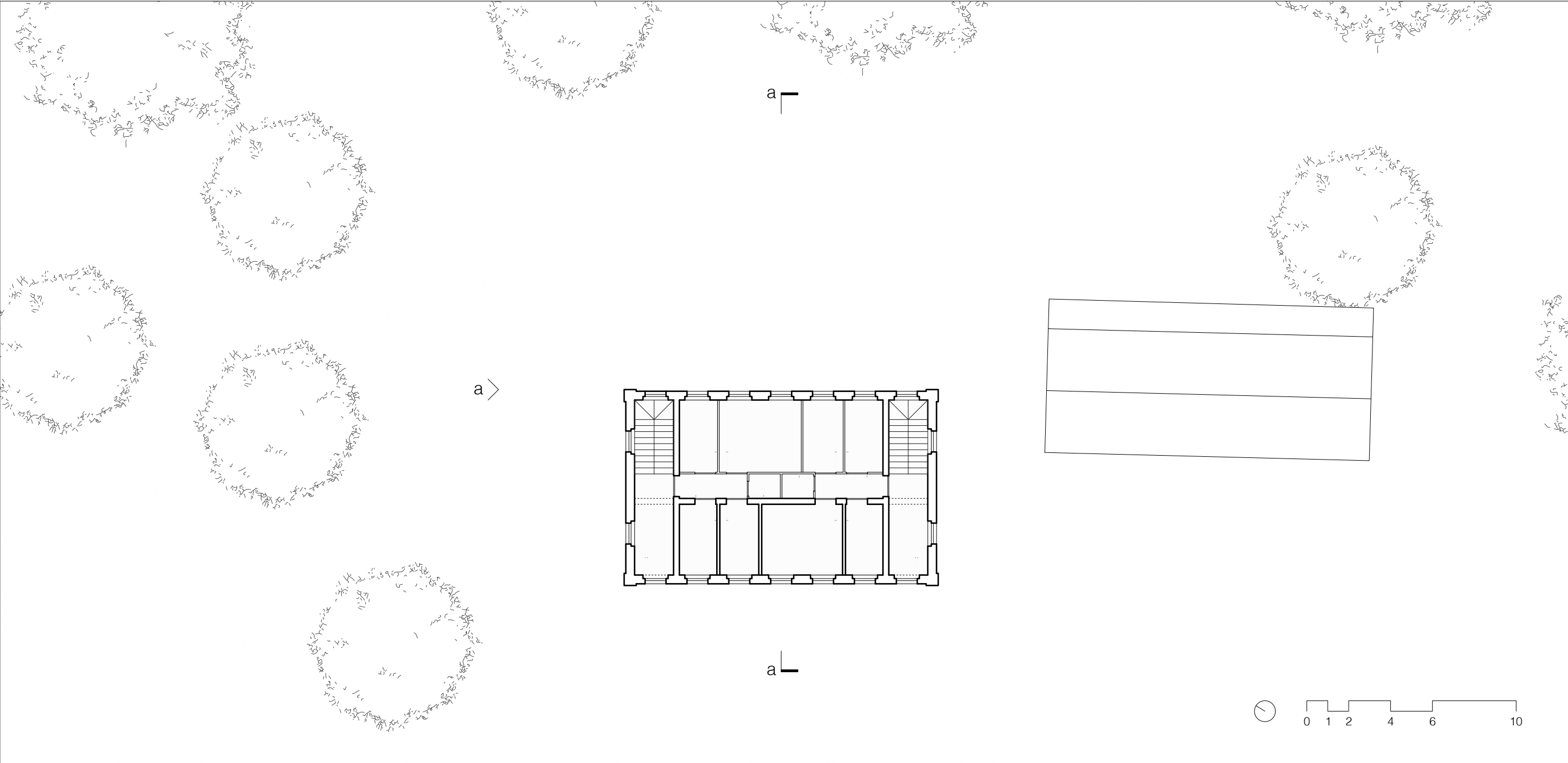
section a-a: urban - operational gradient

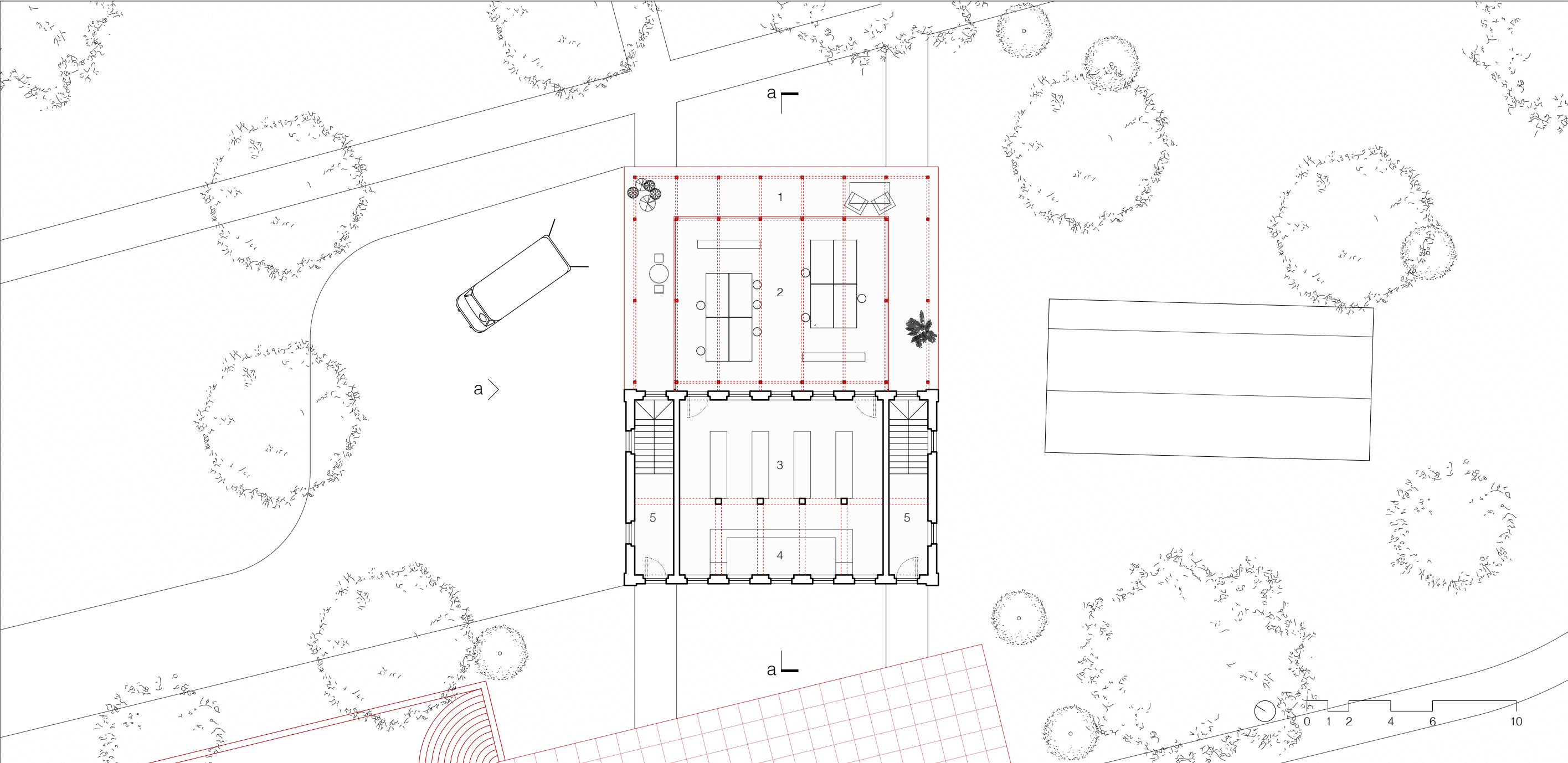


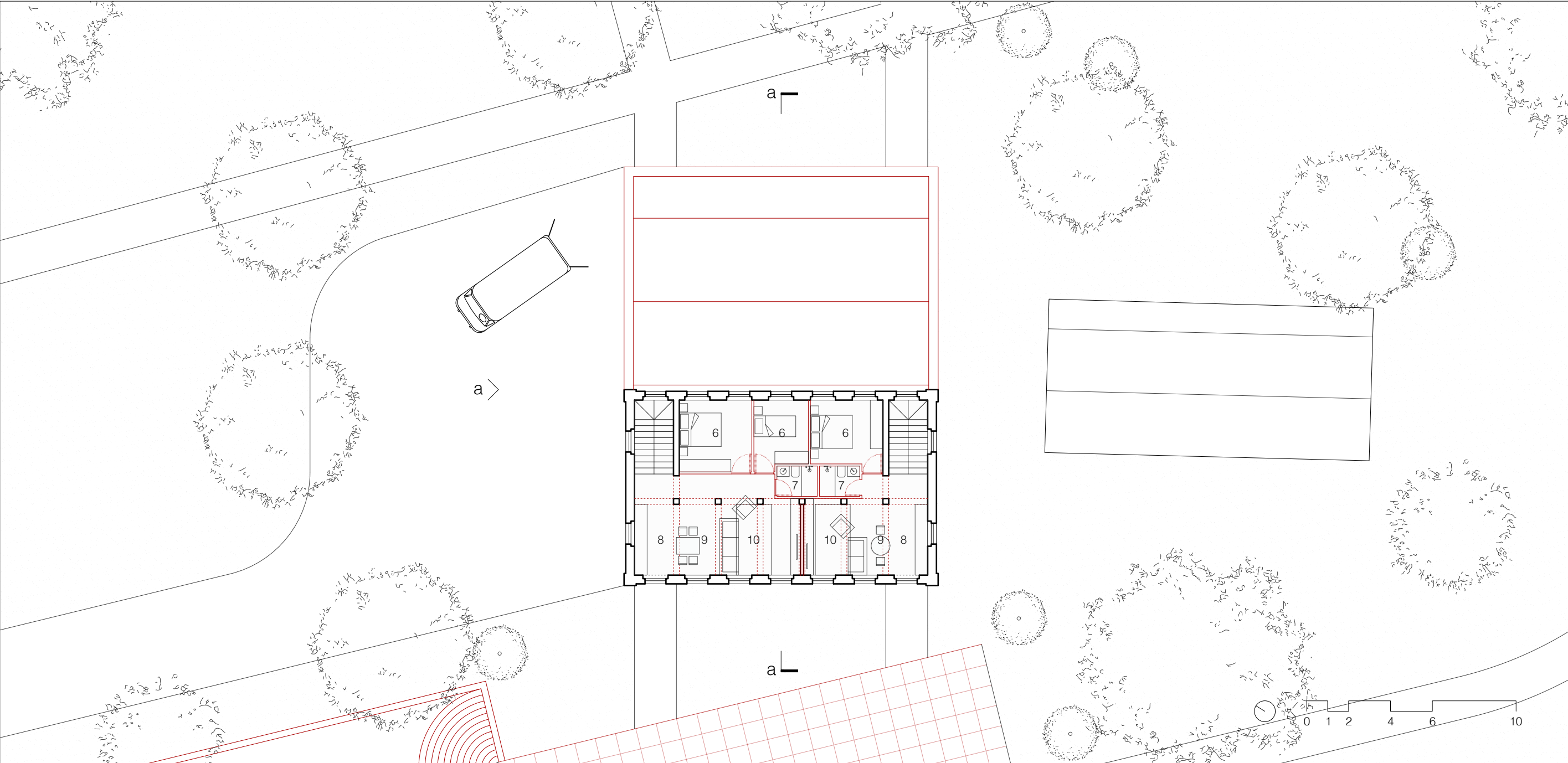
section a-a: urban - operational gradient





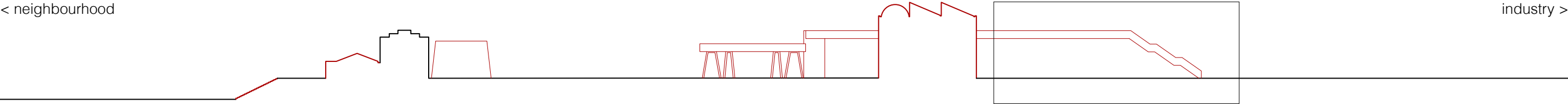
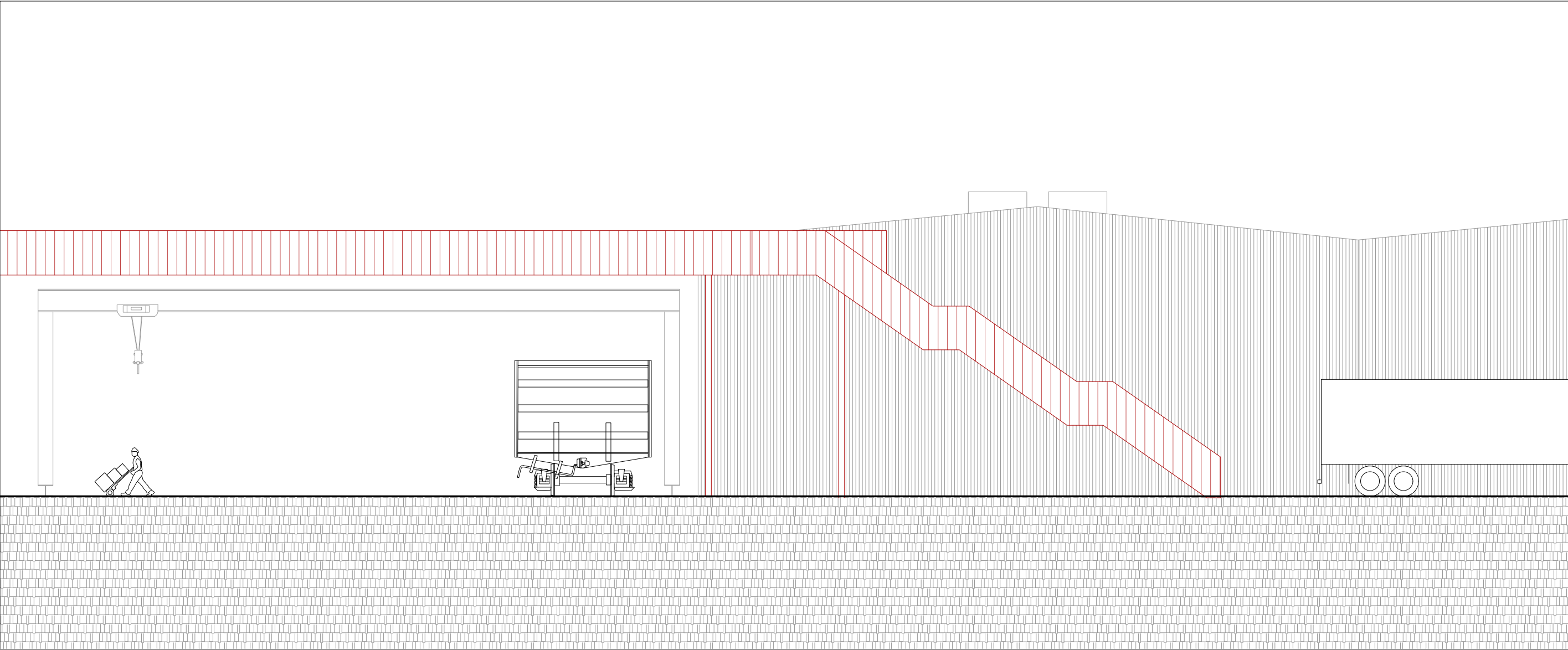




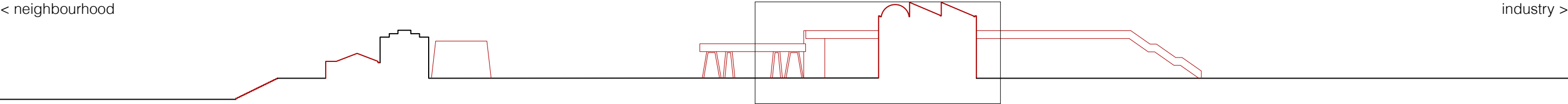
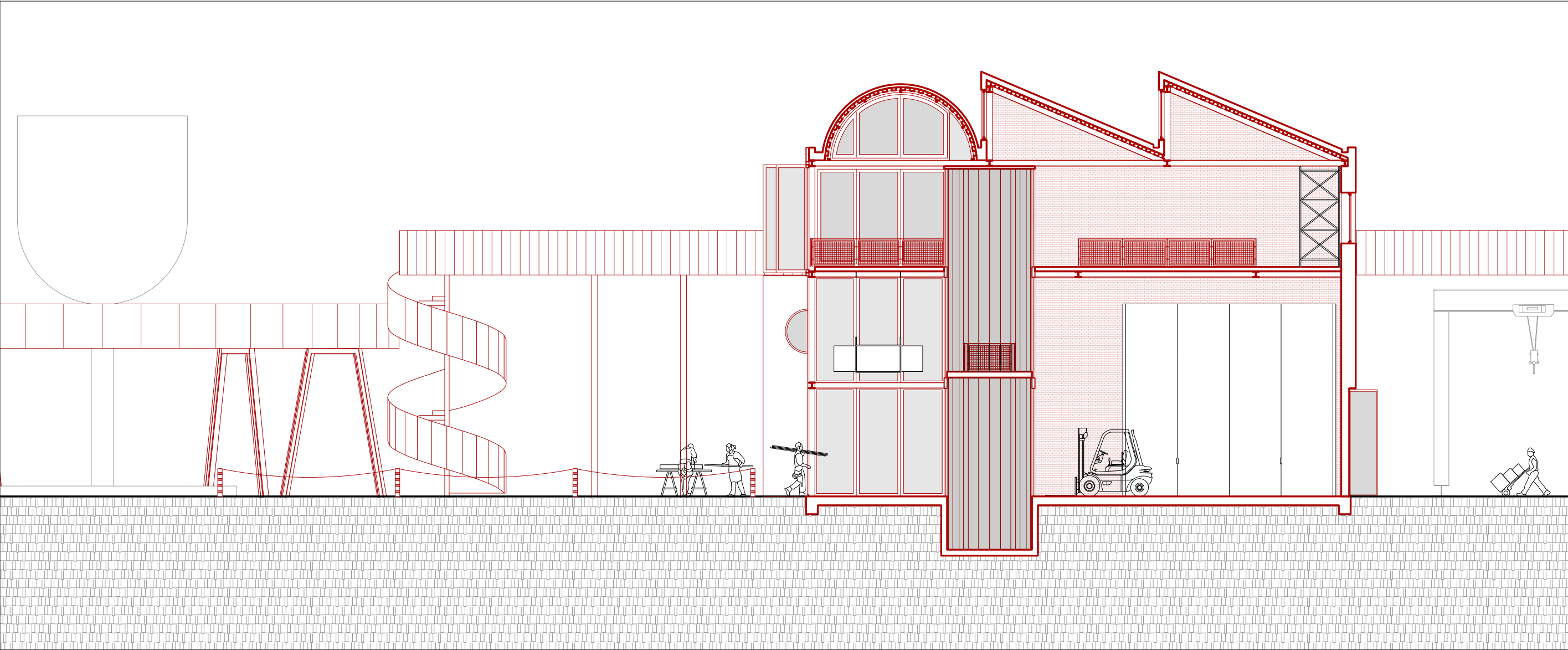




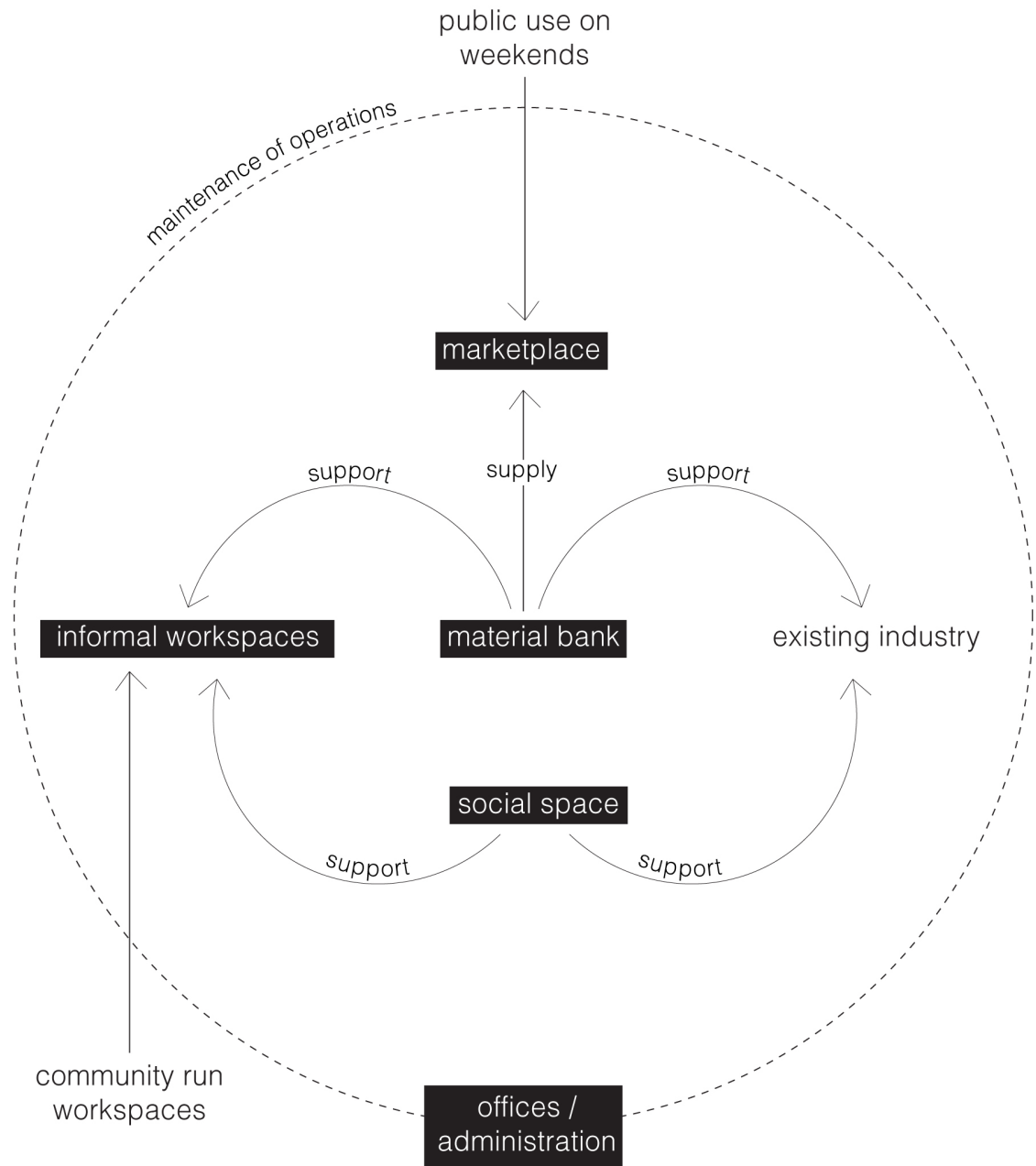
section a-a: urban - operational gradient

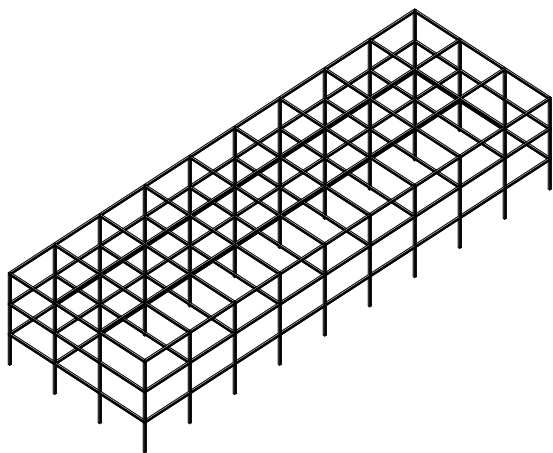


section a-a: urban - operational gradient

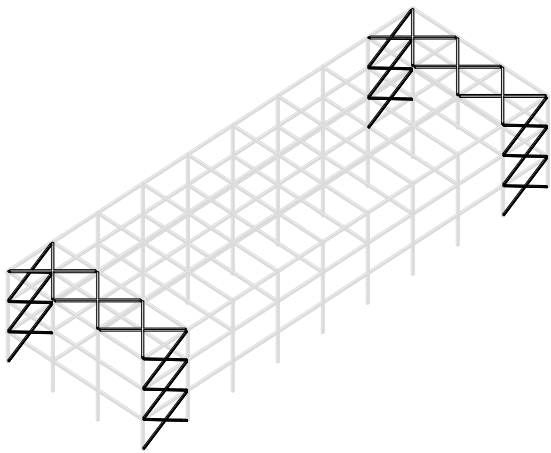


utility 02 - operational base

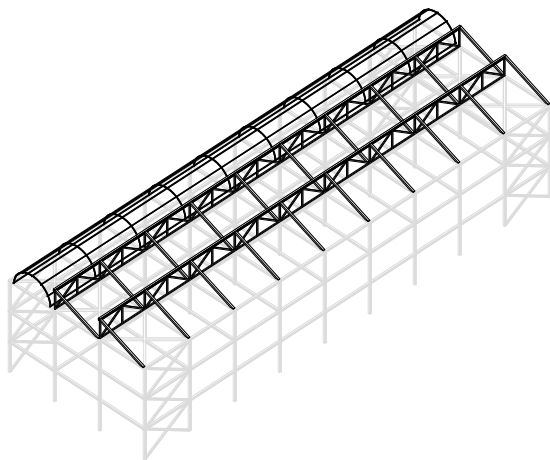




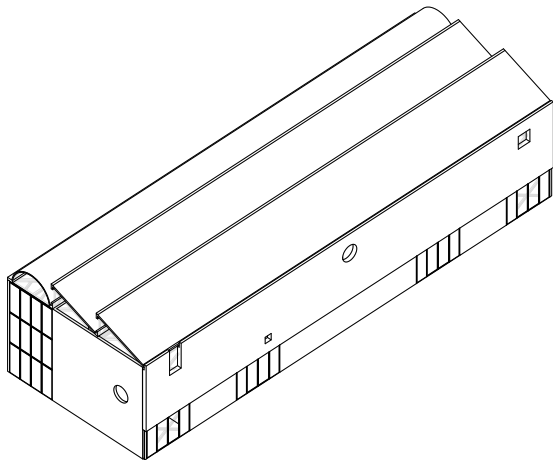
frame structure



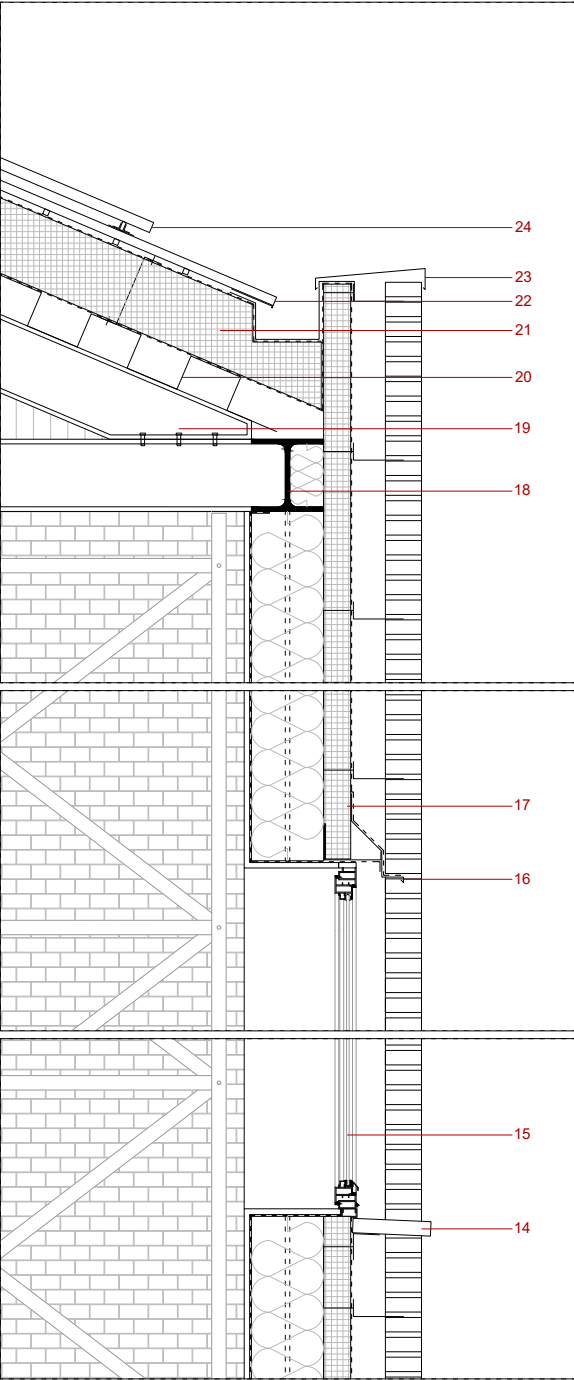
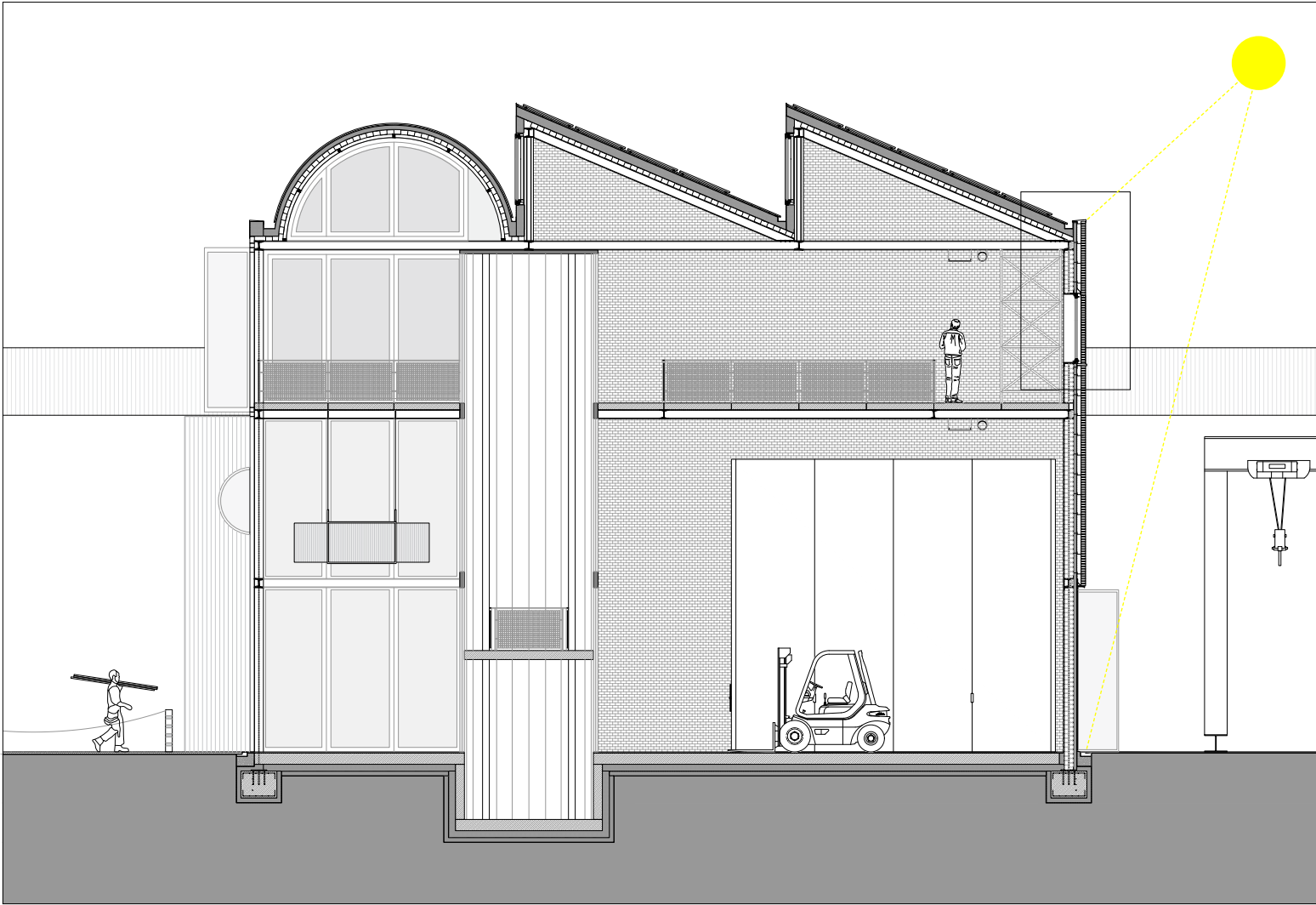
vertical and horizontal bracing

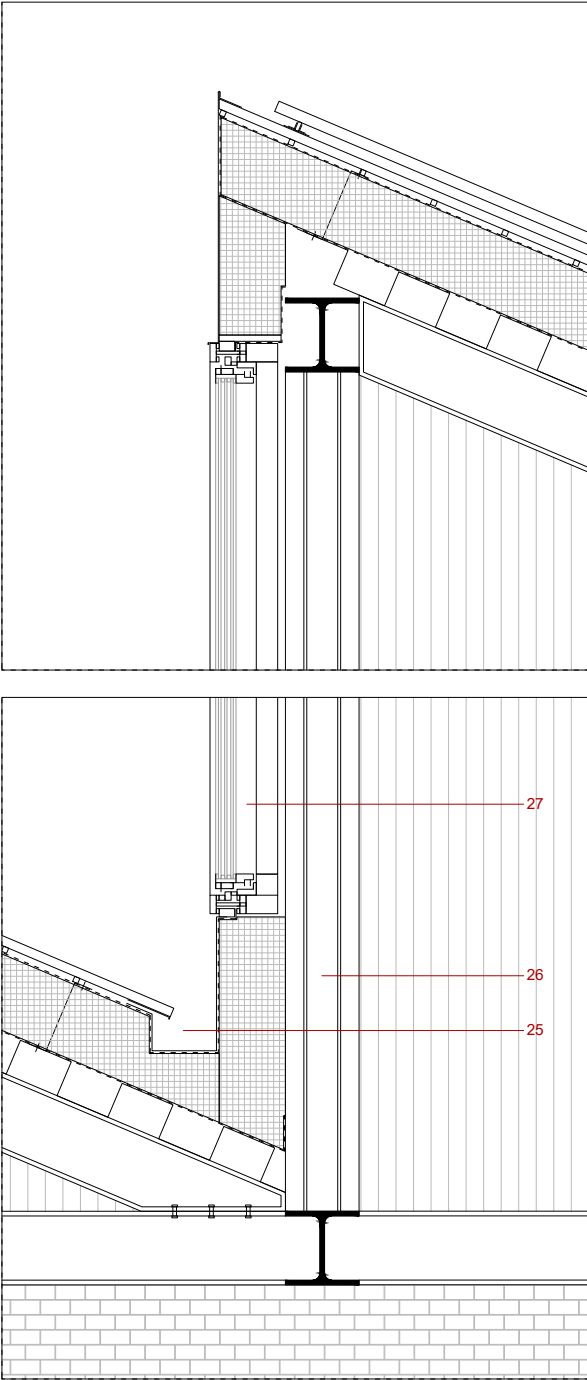
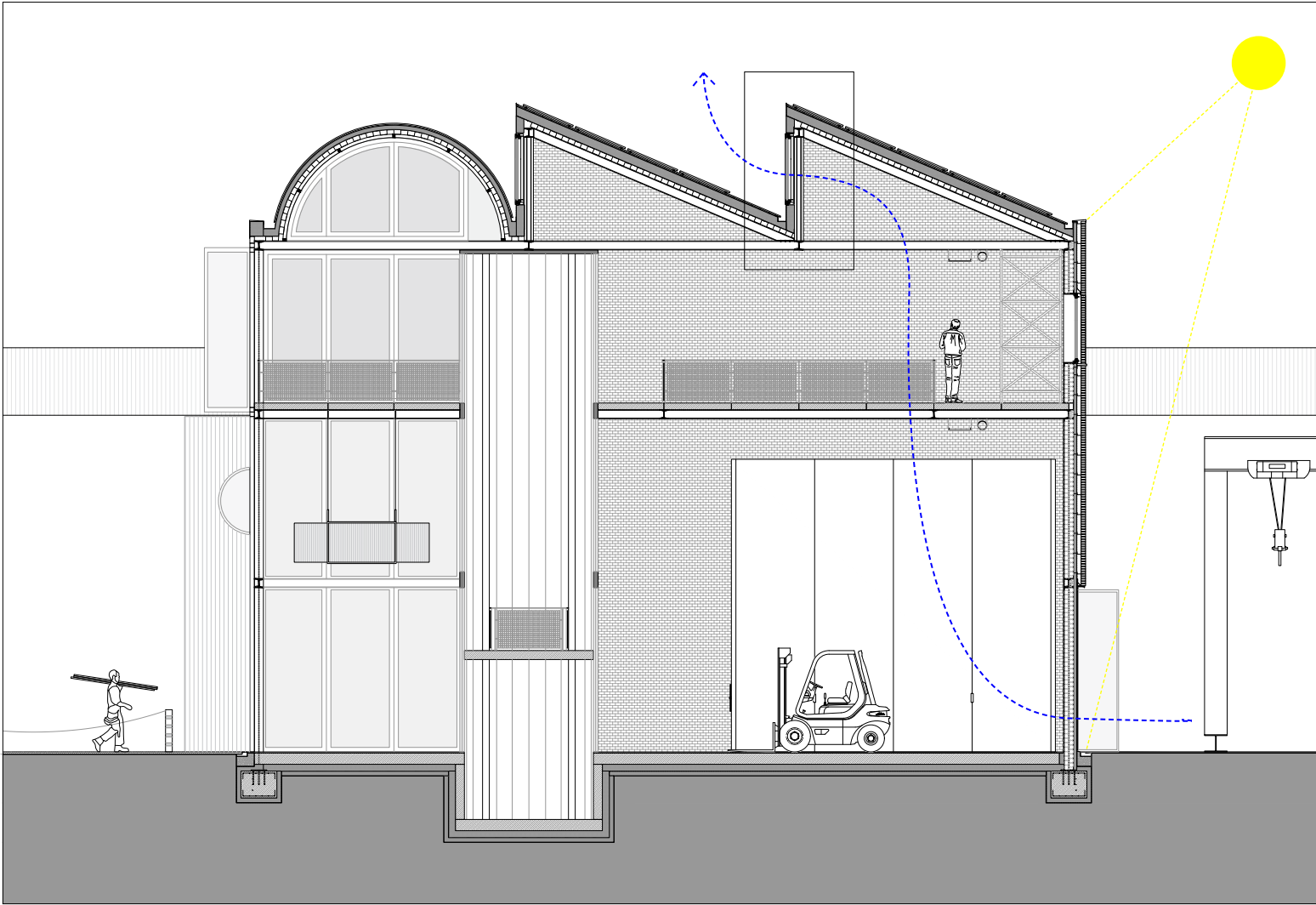


roof structure



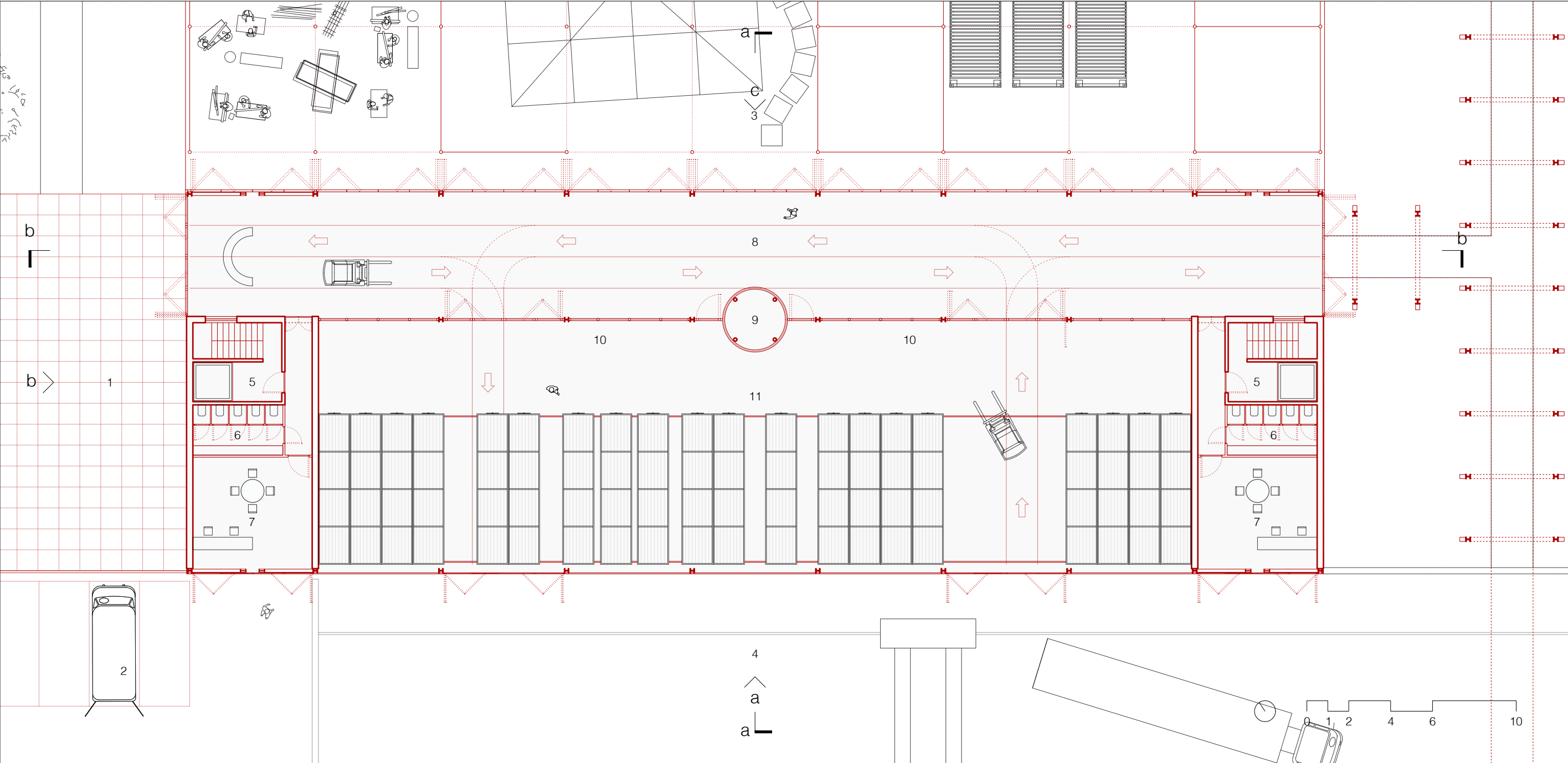
skin

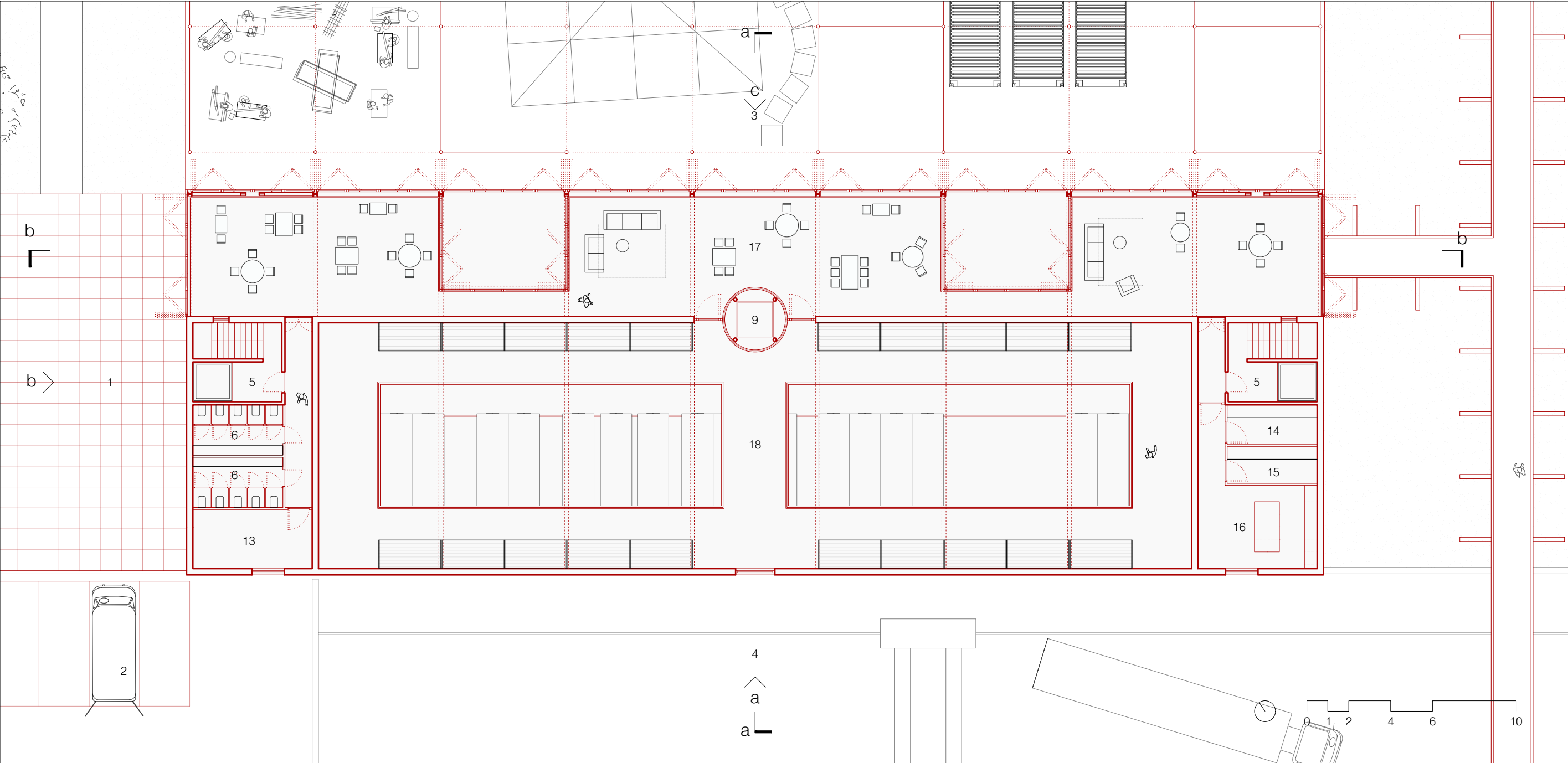


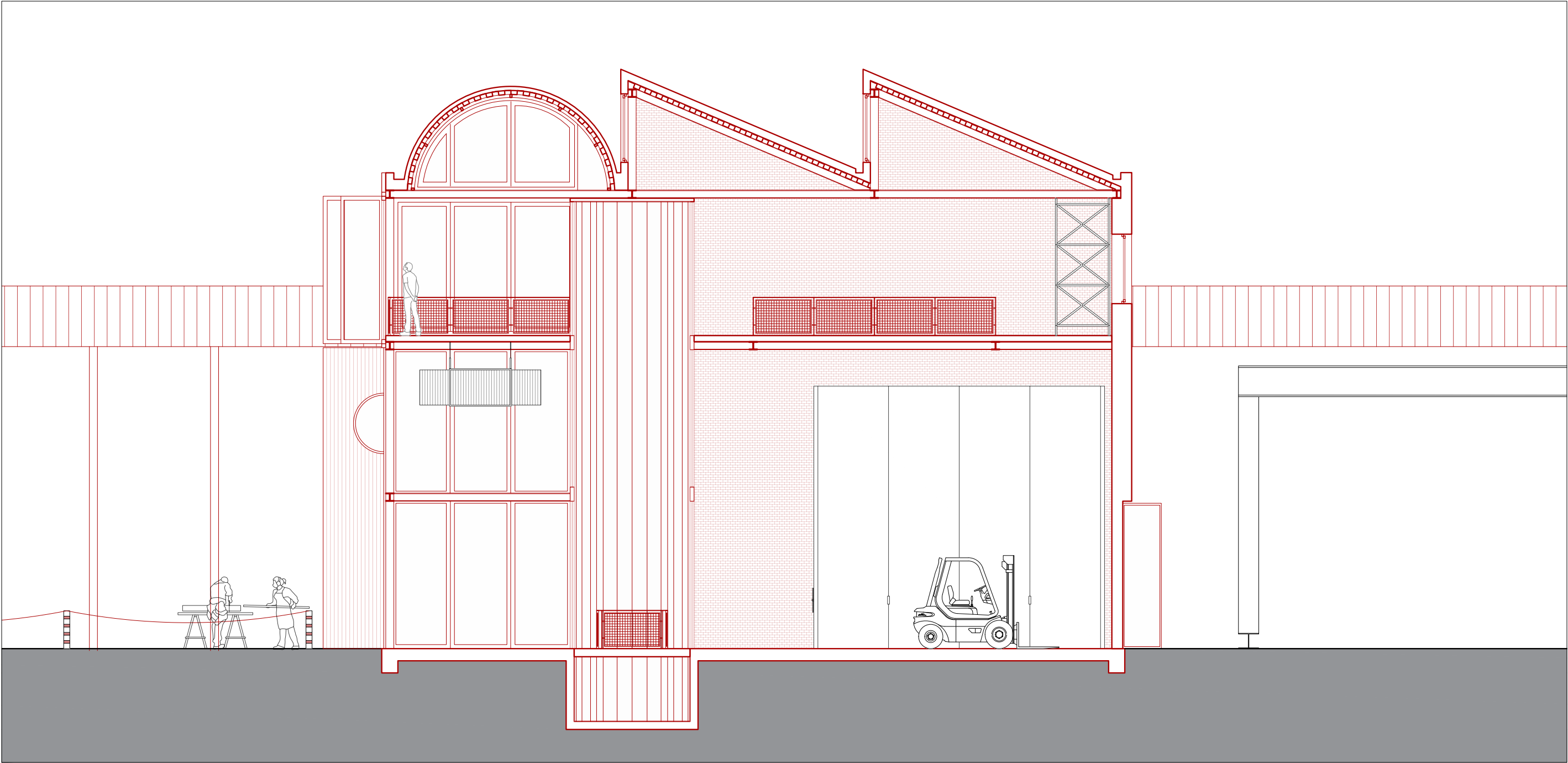




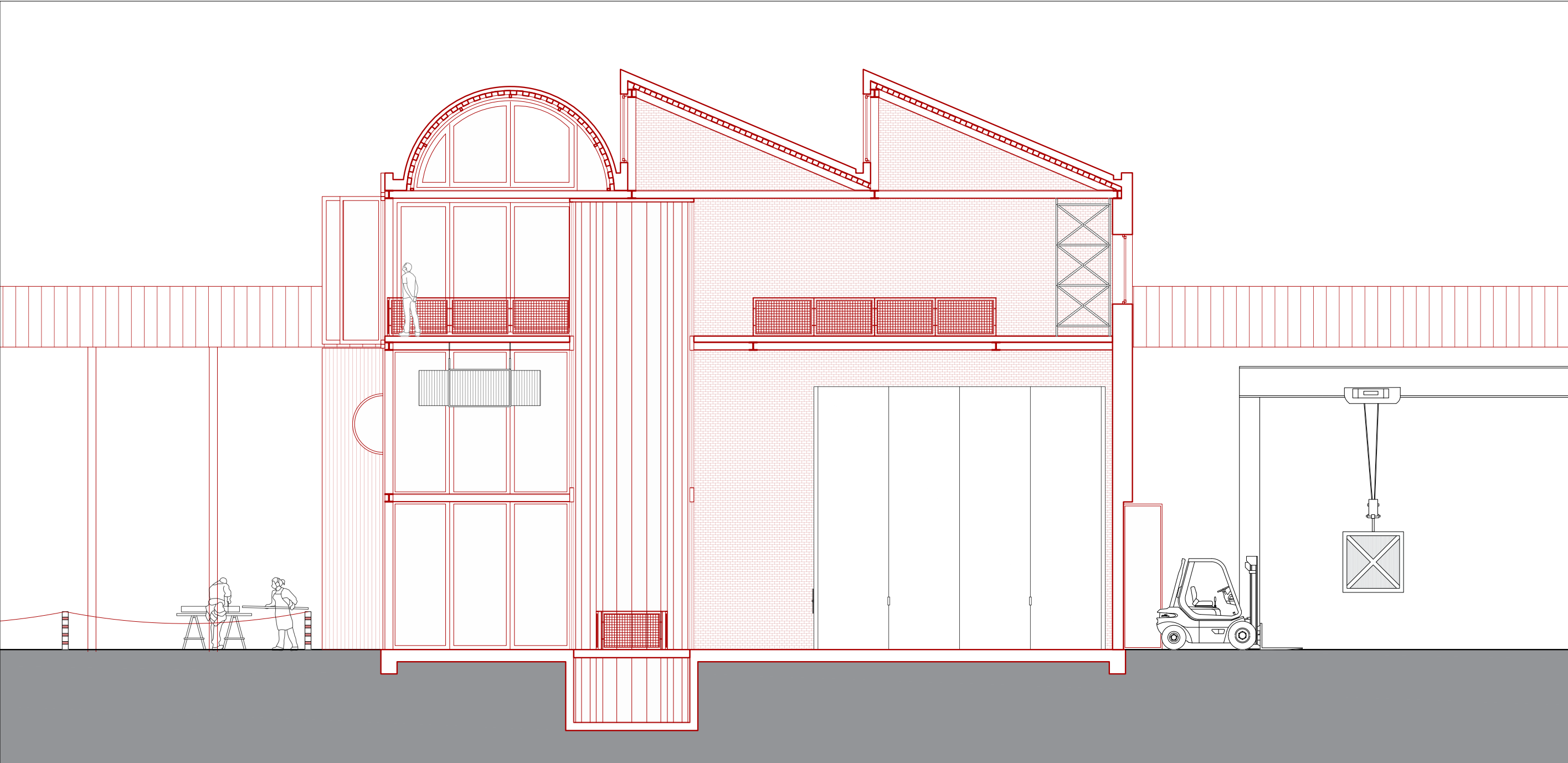
utility 02 - operational base

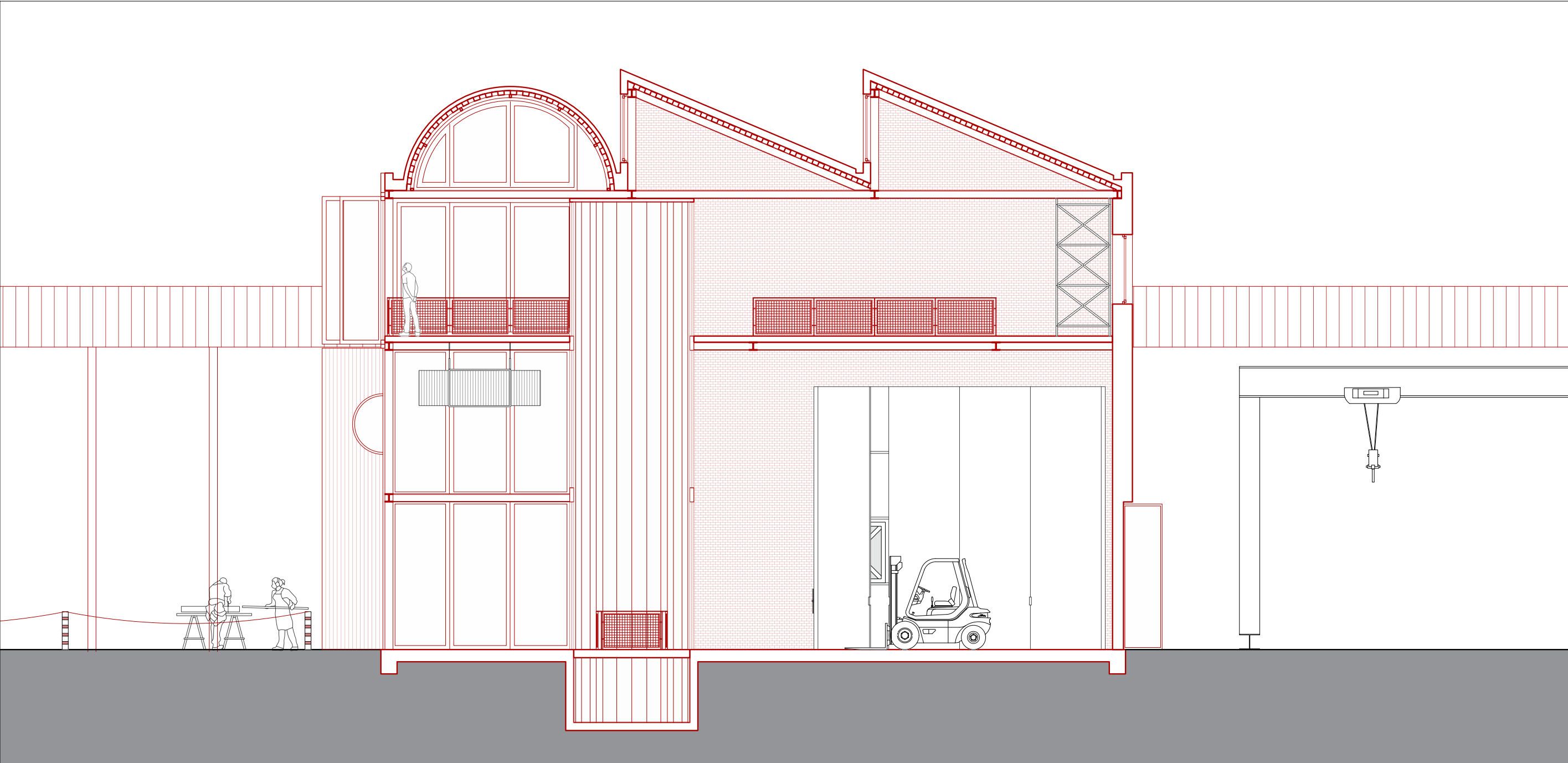


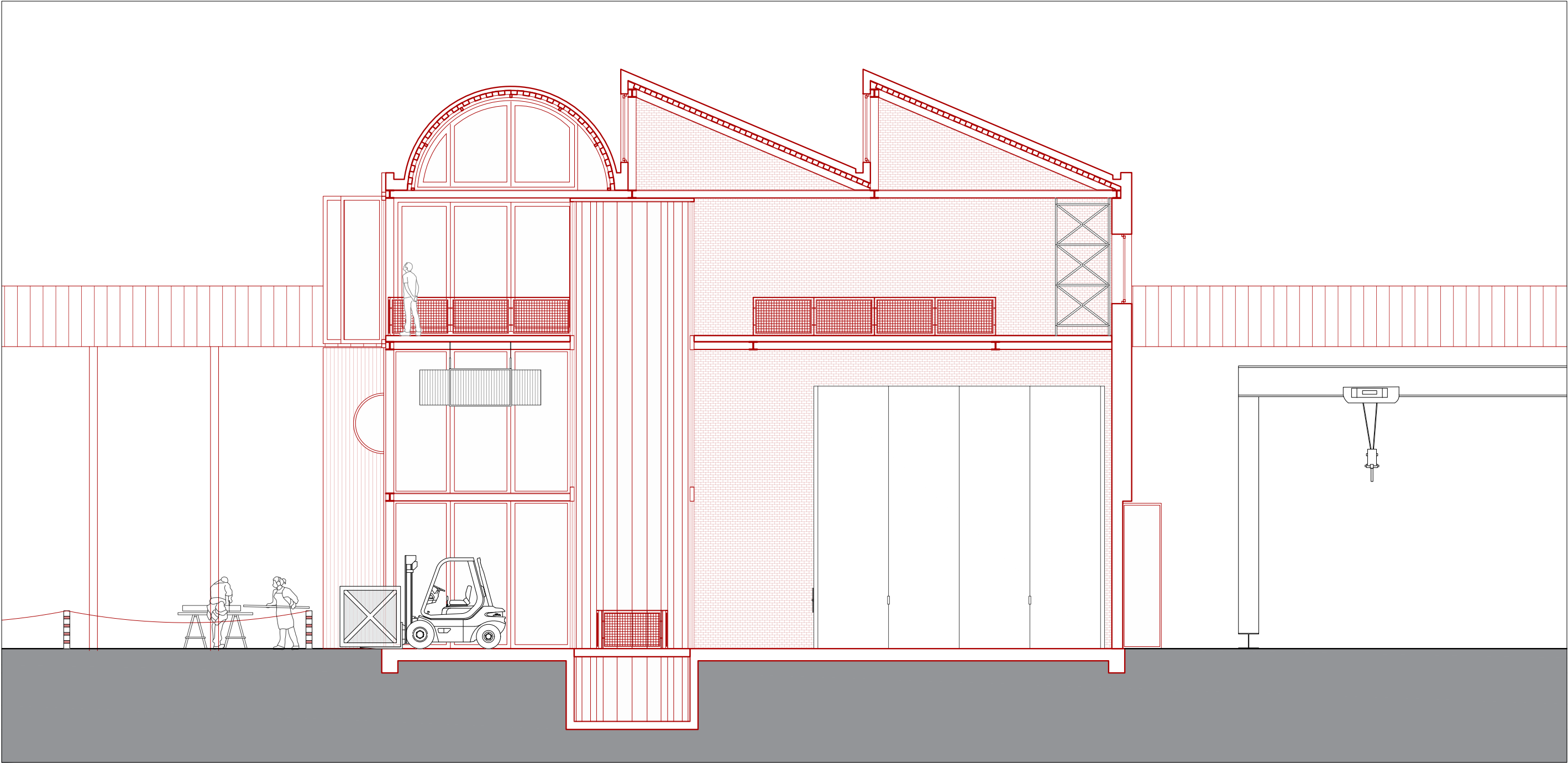


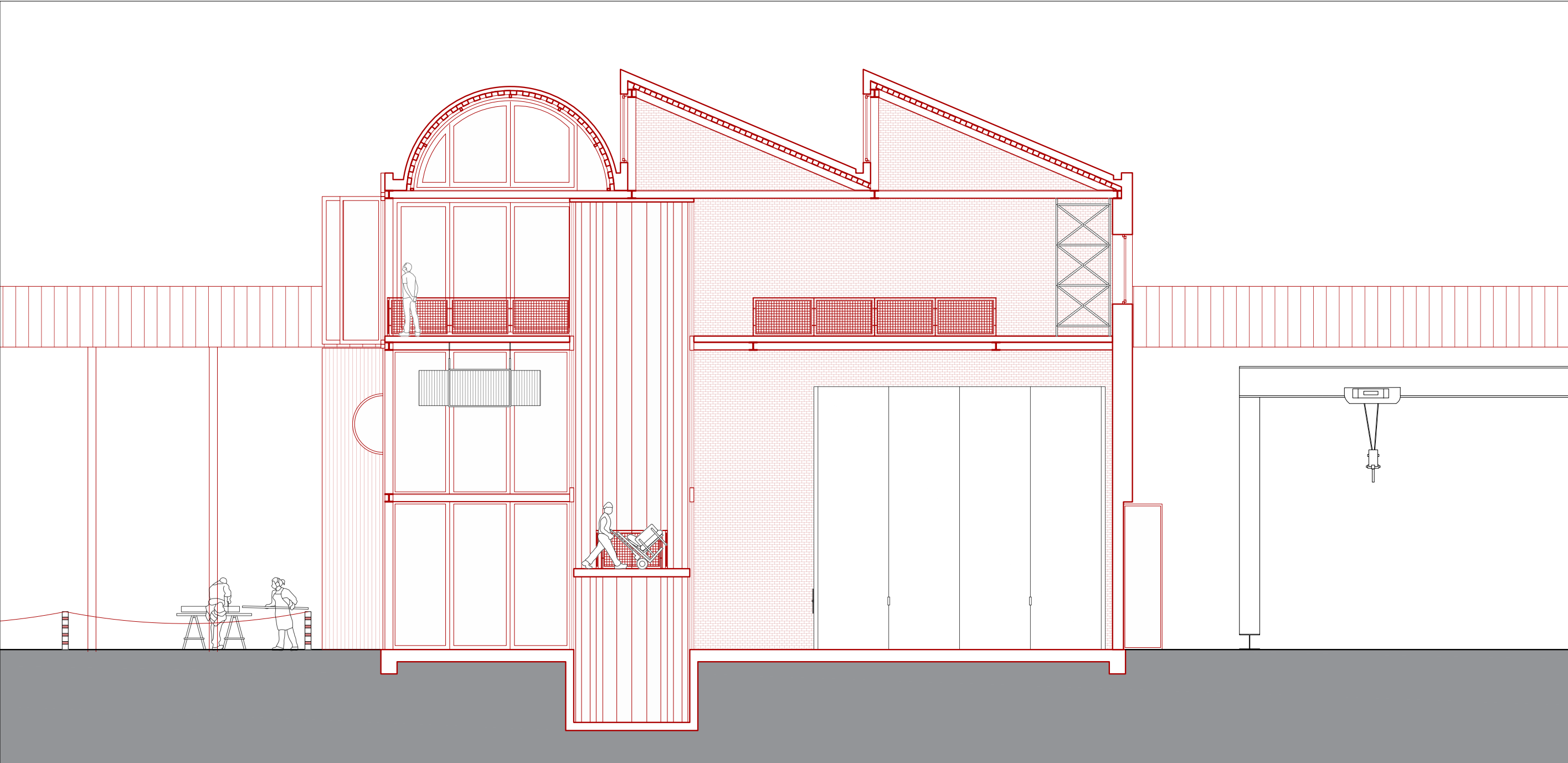


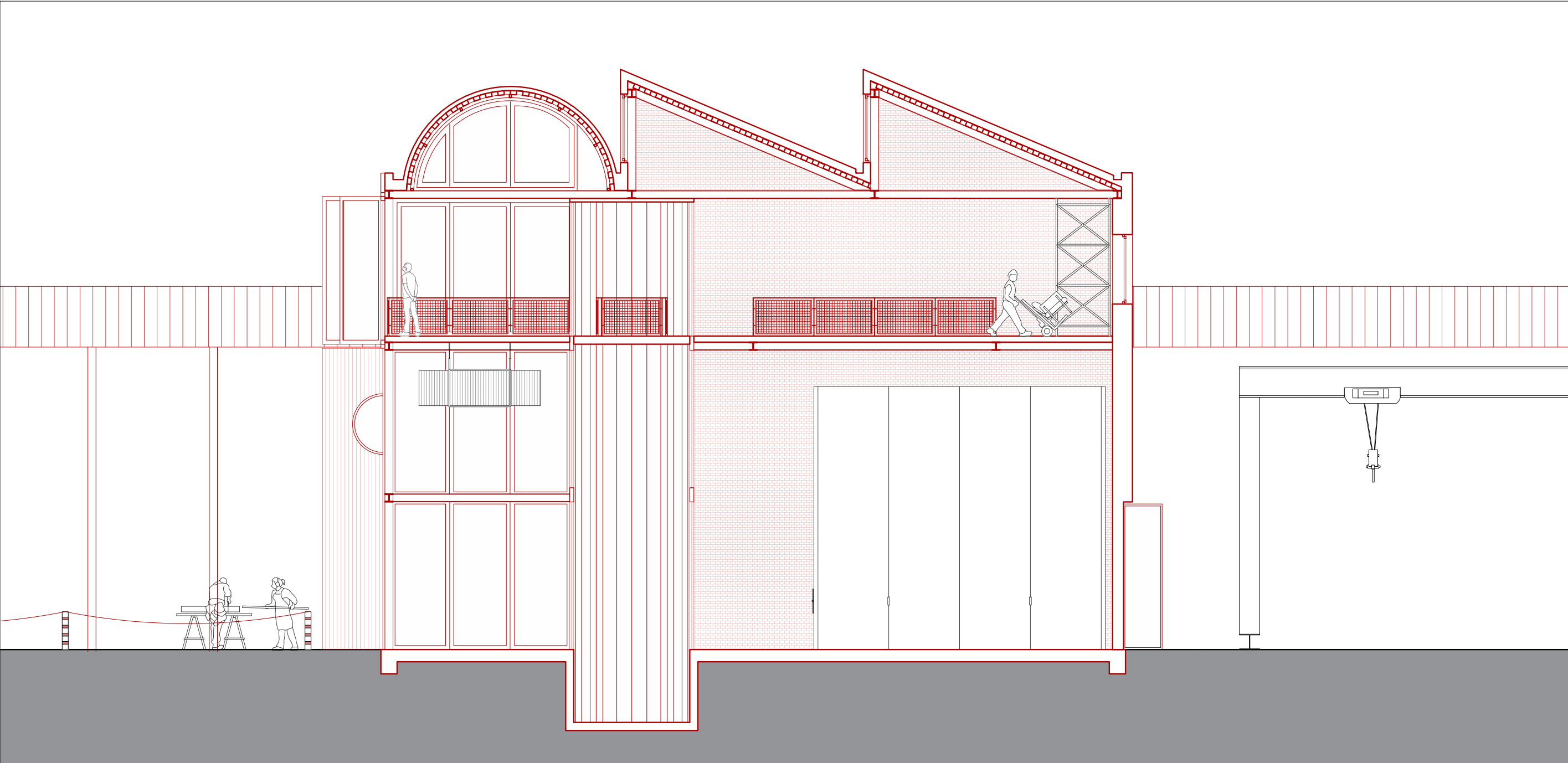
flow of materials

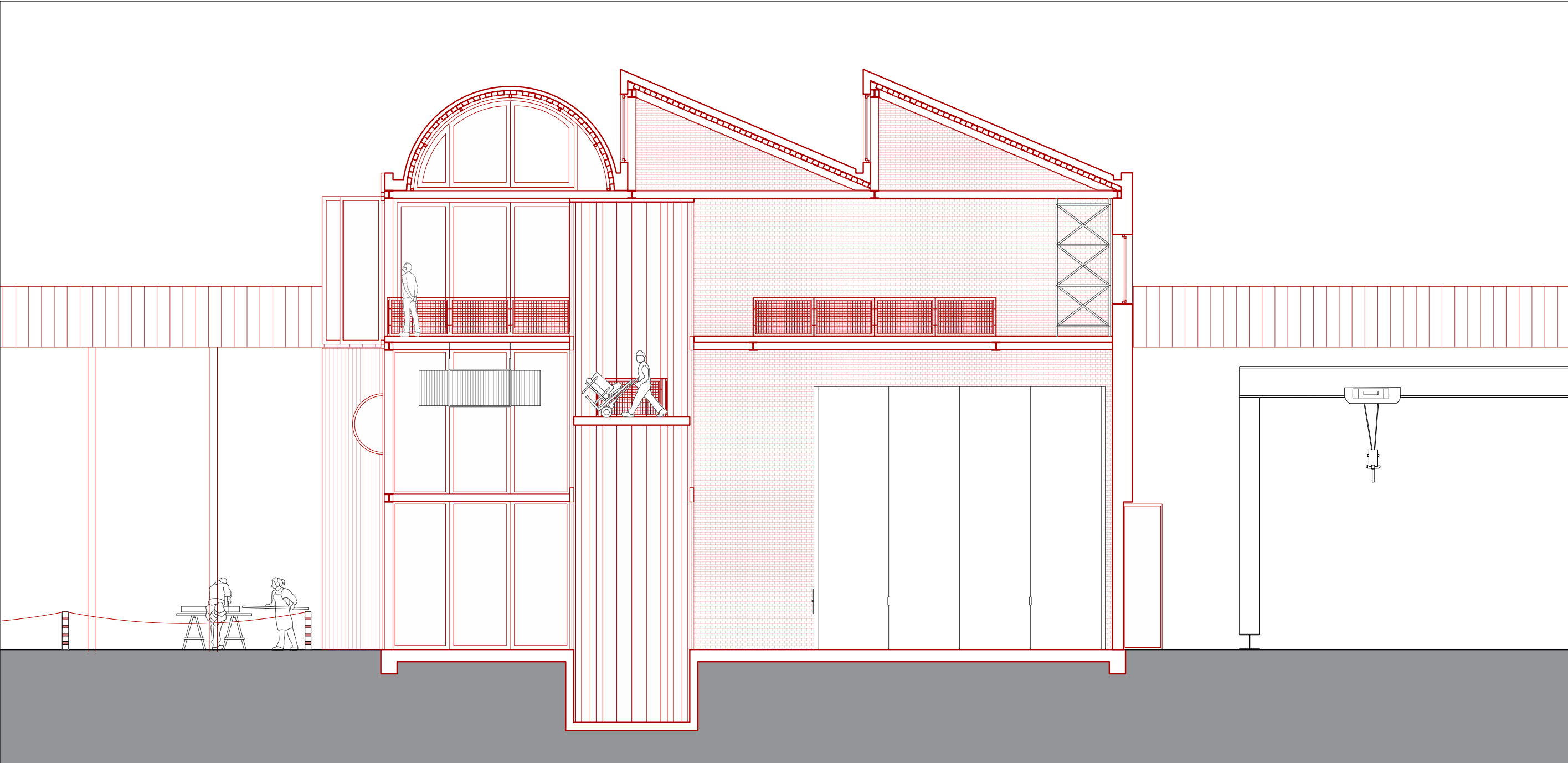


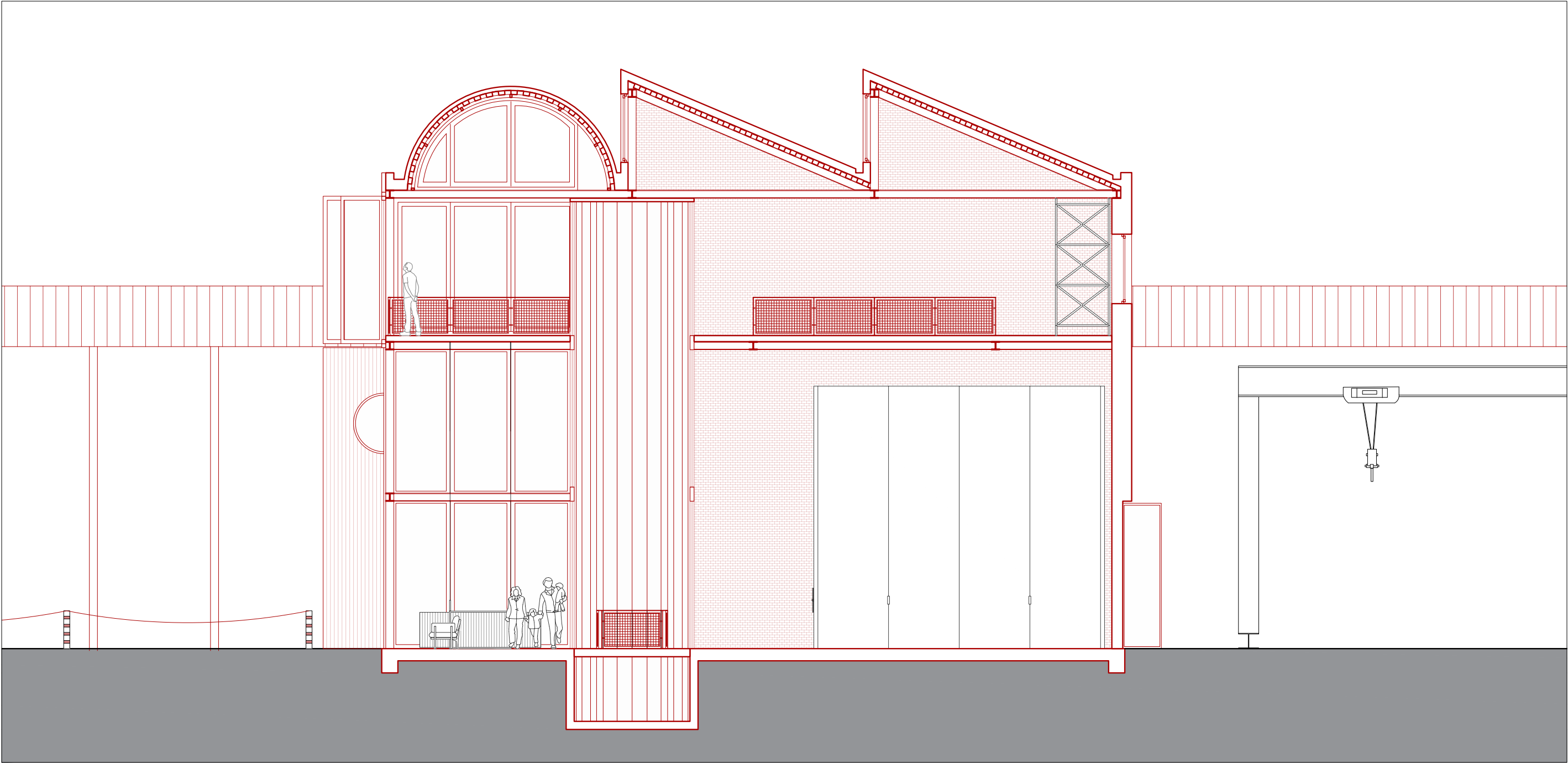






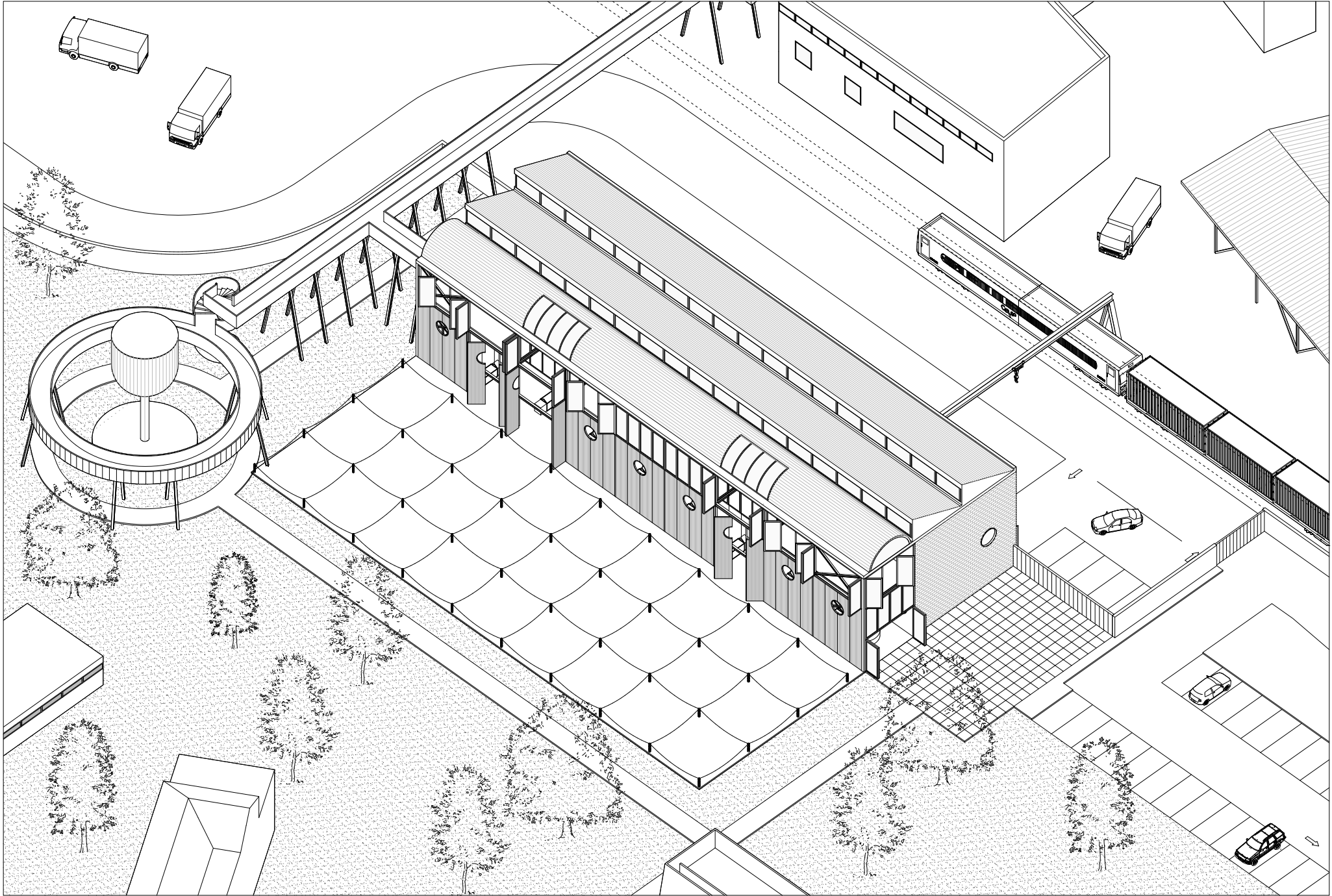




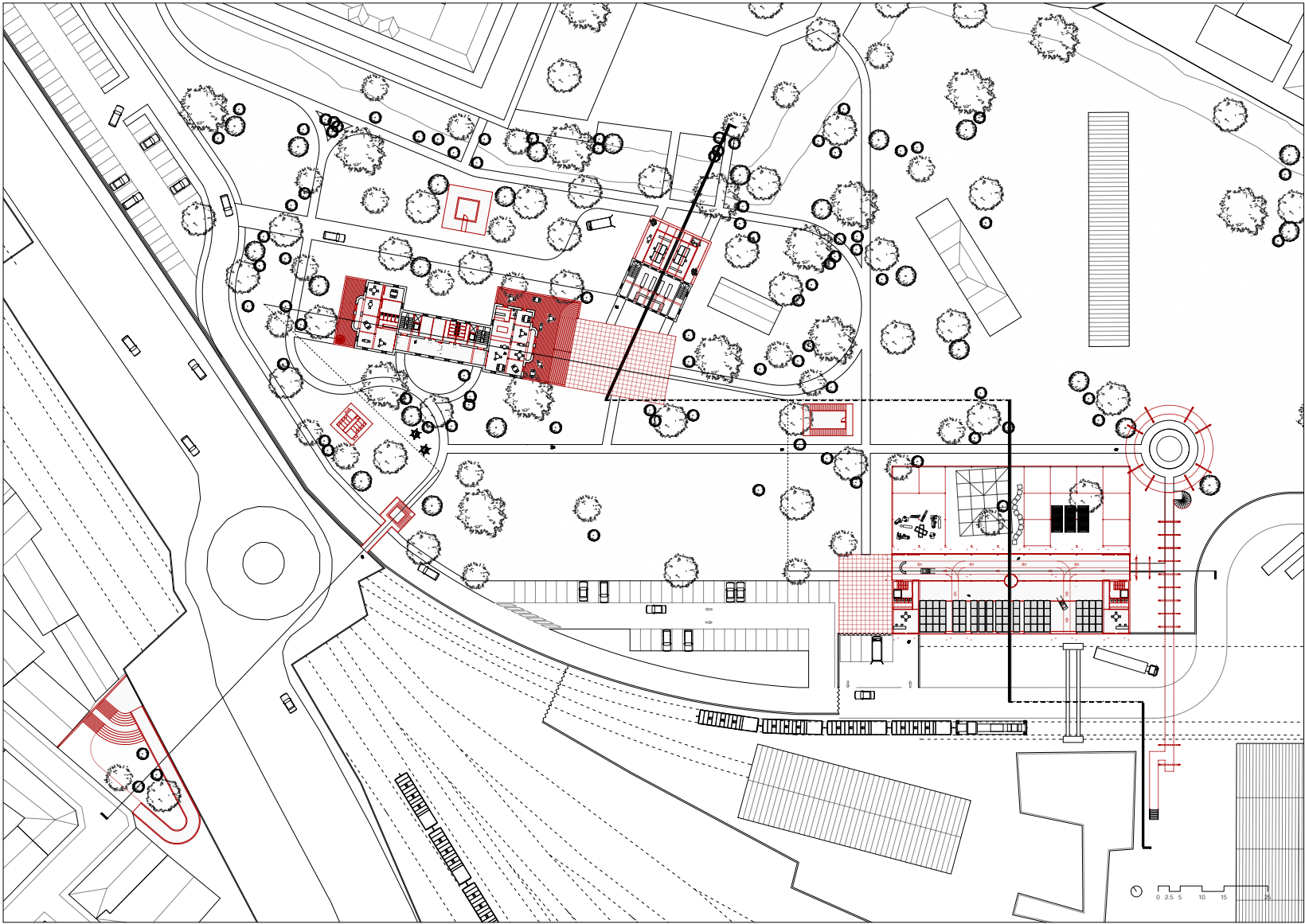


utility 02 - operational base



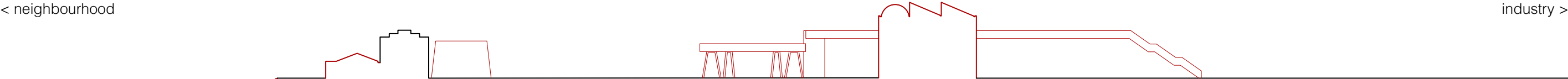


section a-a: urban - operational gradient

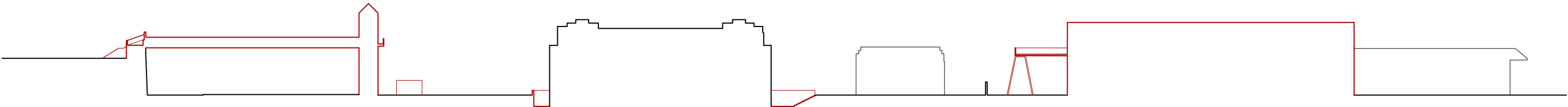
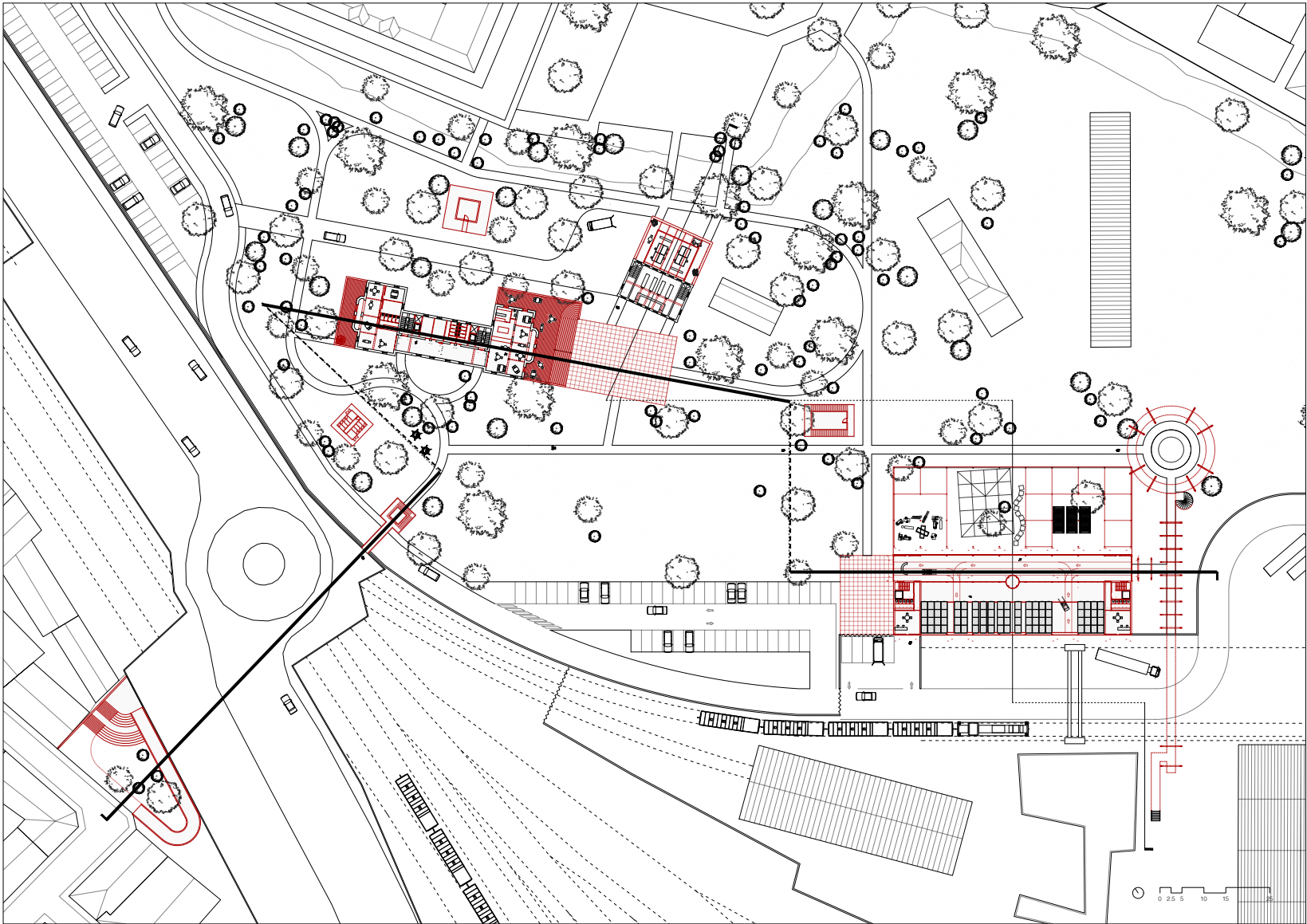


< neighbourhood

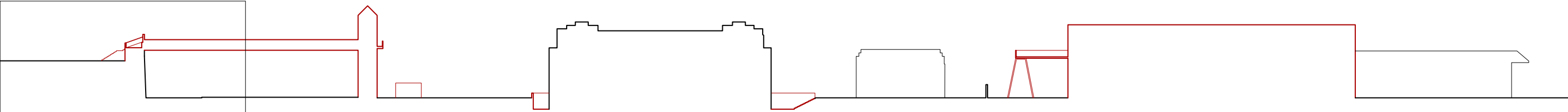
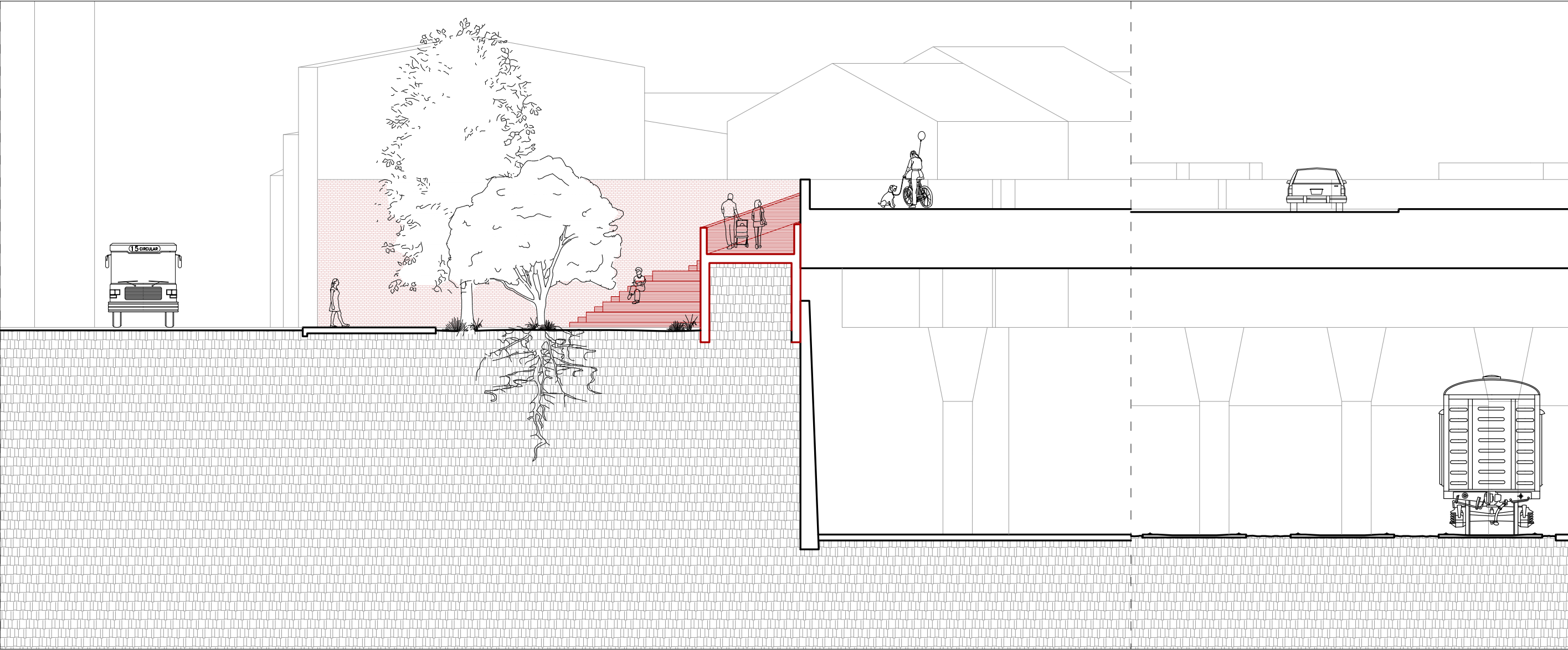
industry >



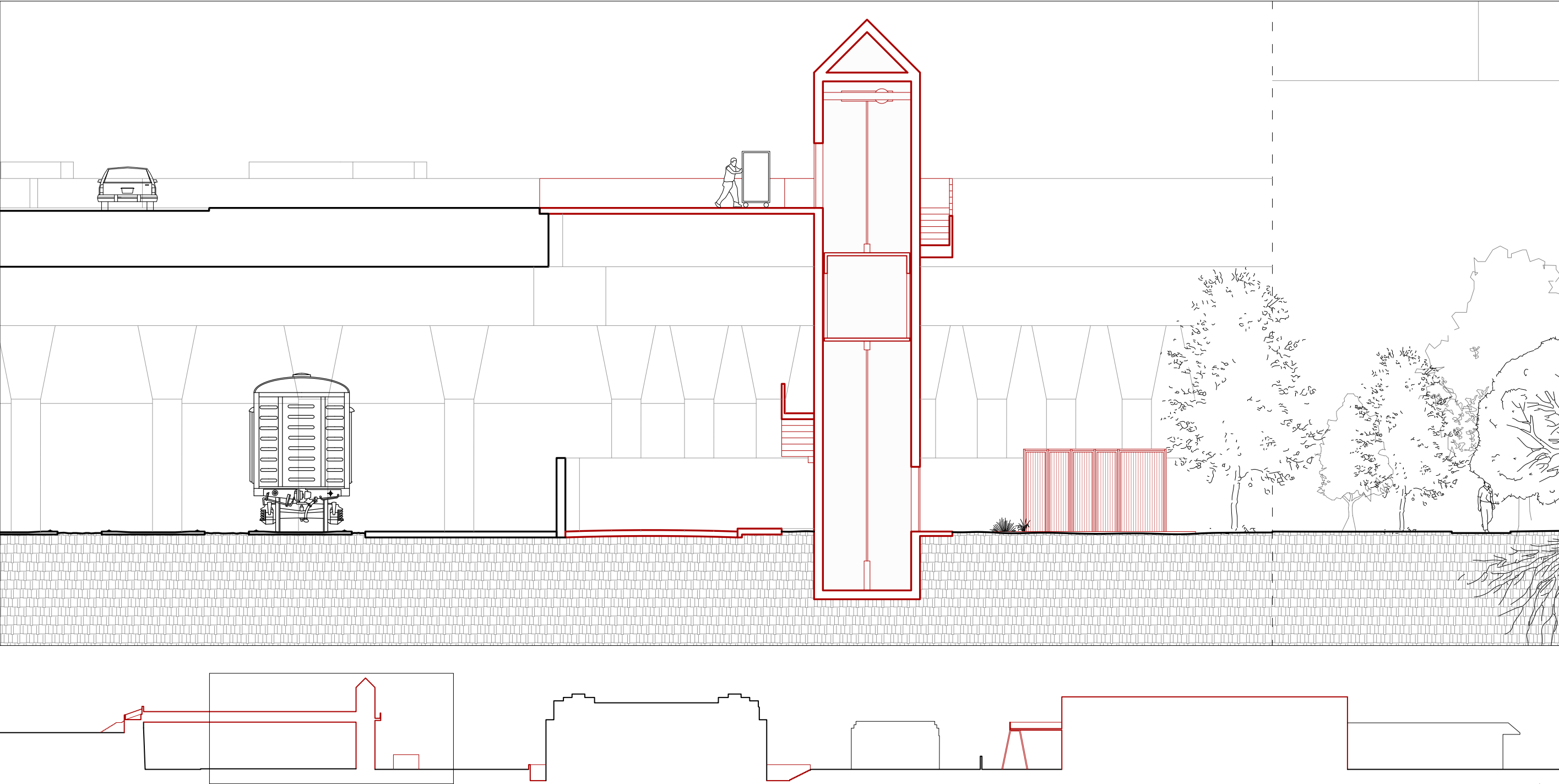
section b-b: social and public engagement



section b-b: social and public engagement



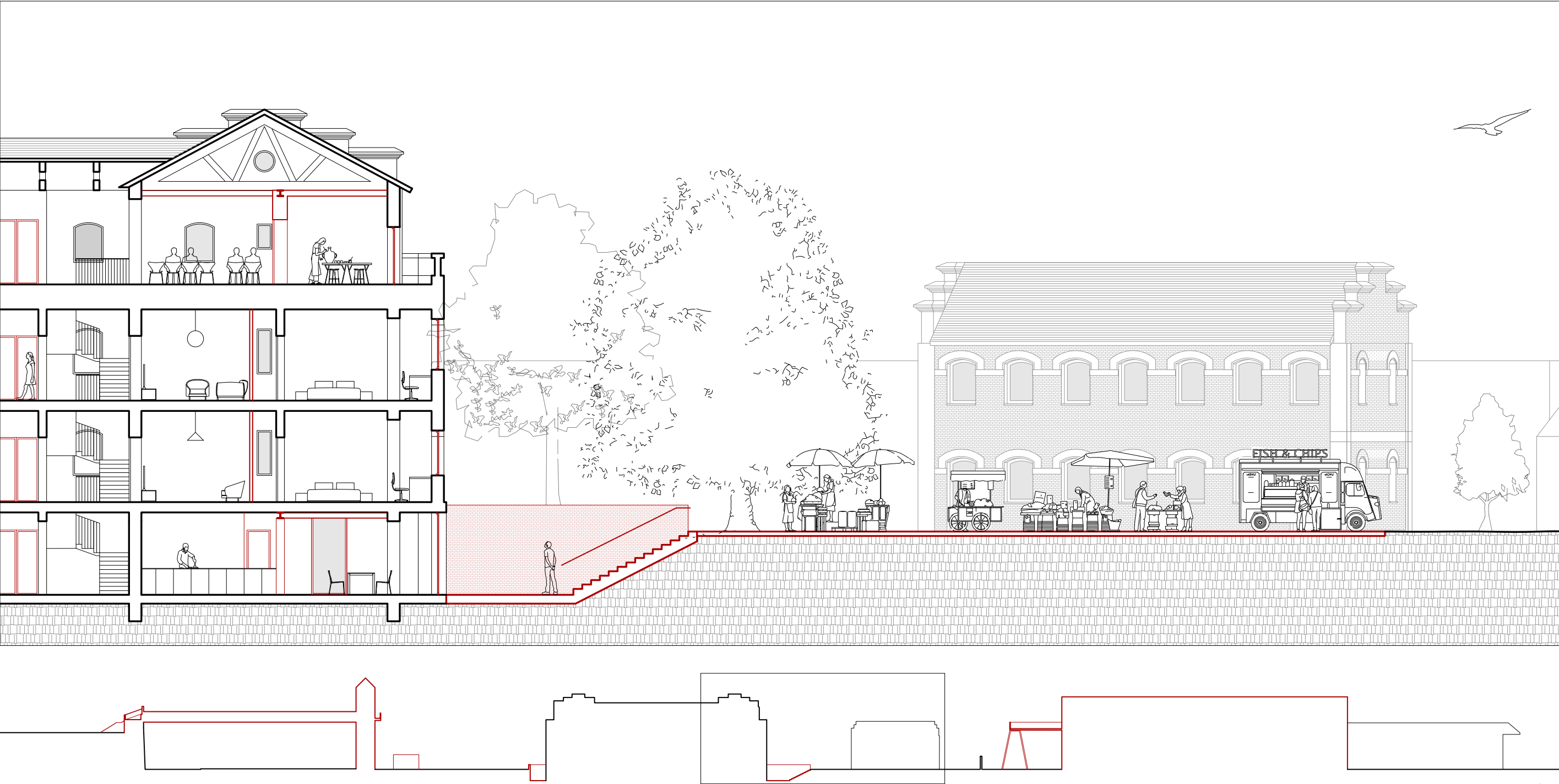
section b-b: social and public engagement



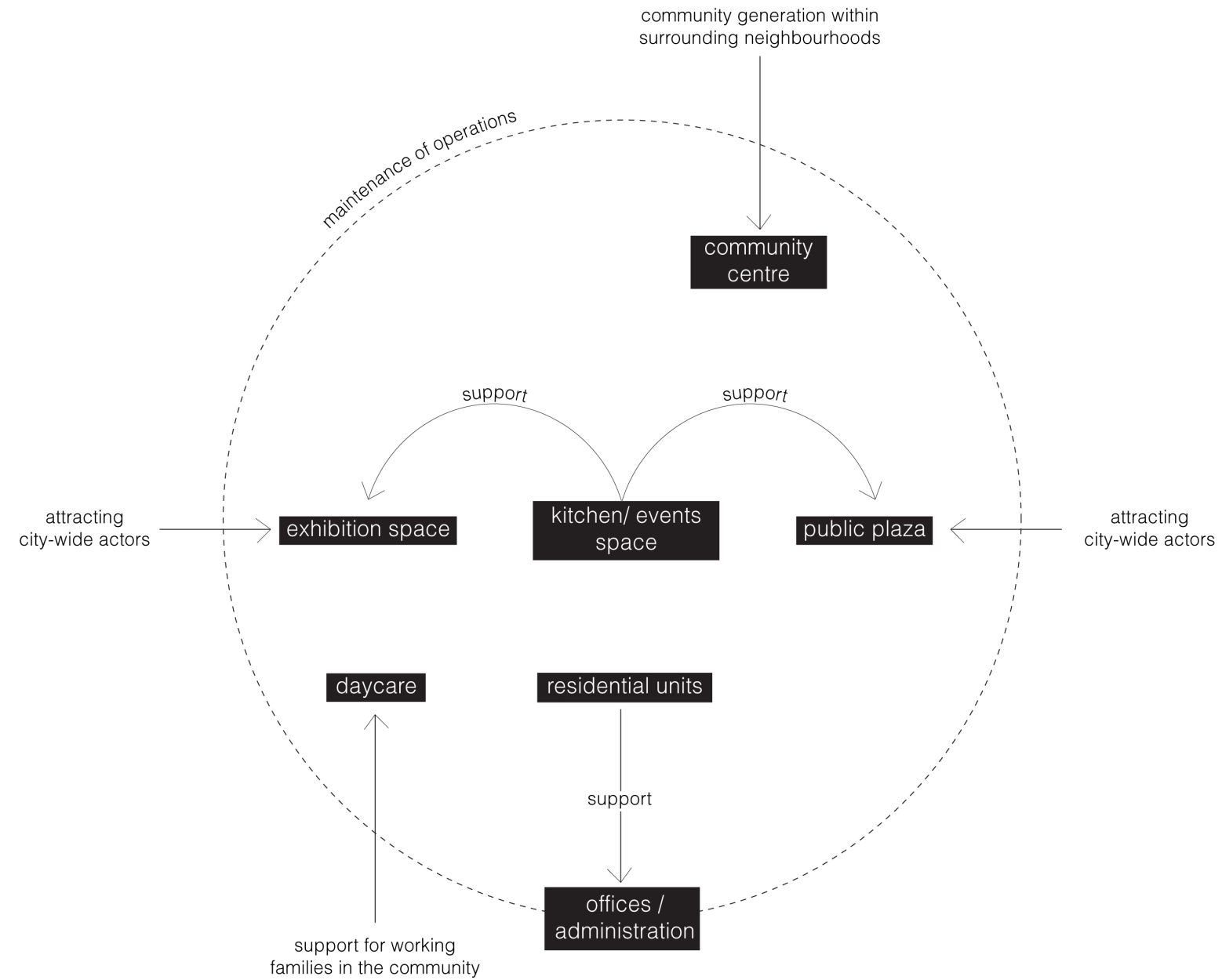
section b-b: social and public engagement



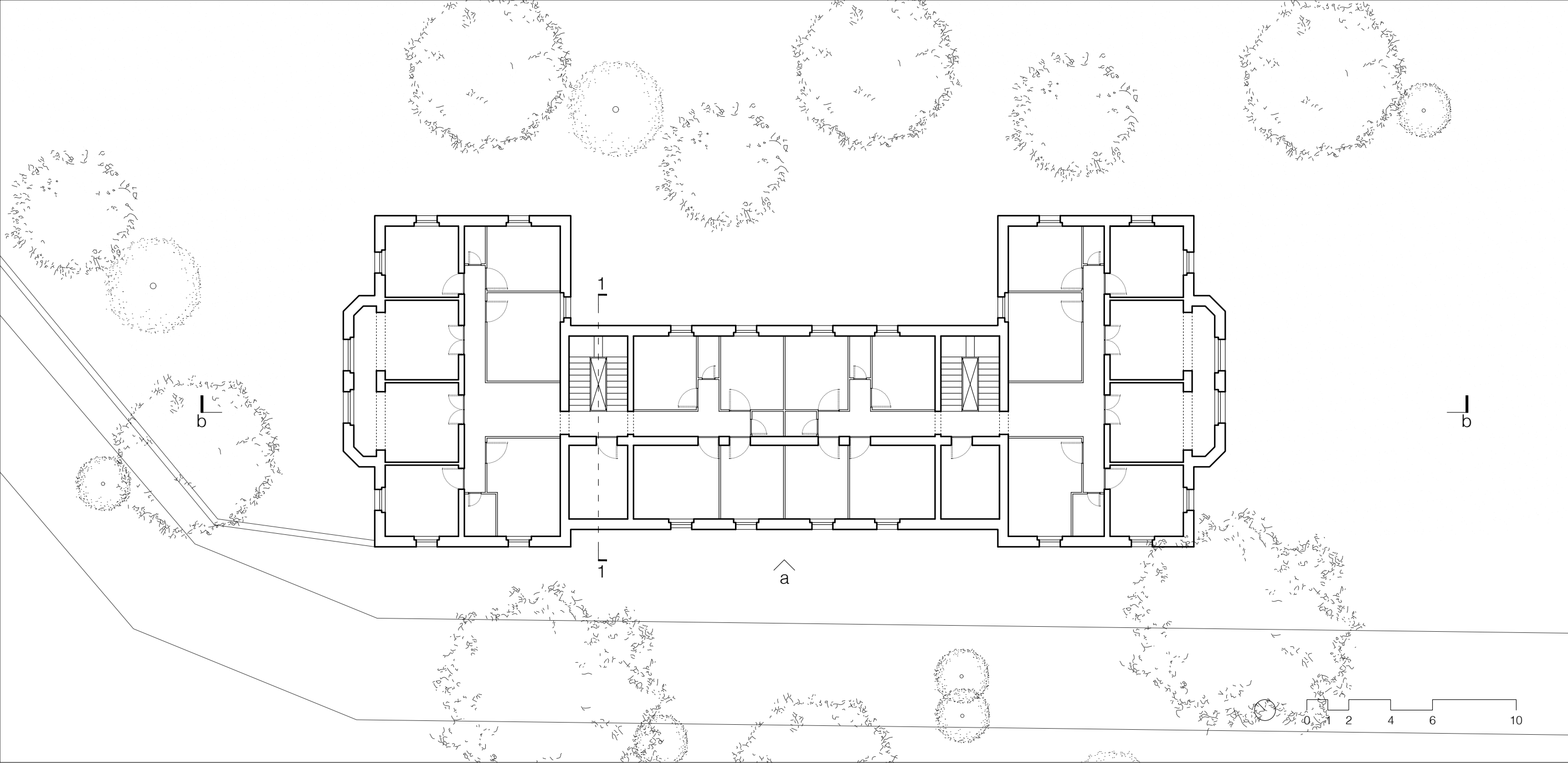
section b-b: social and public engagement

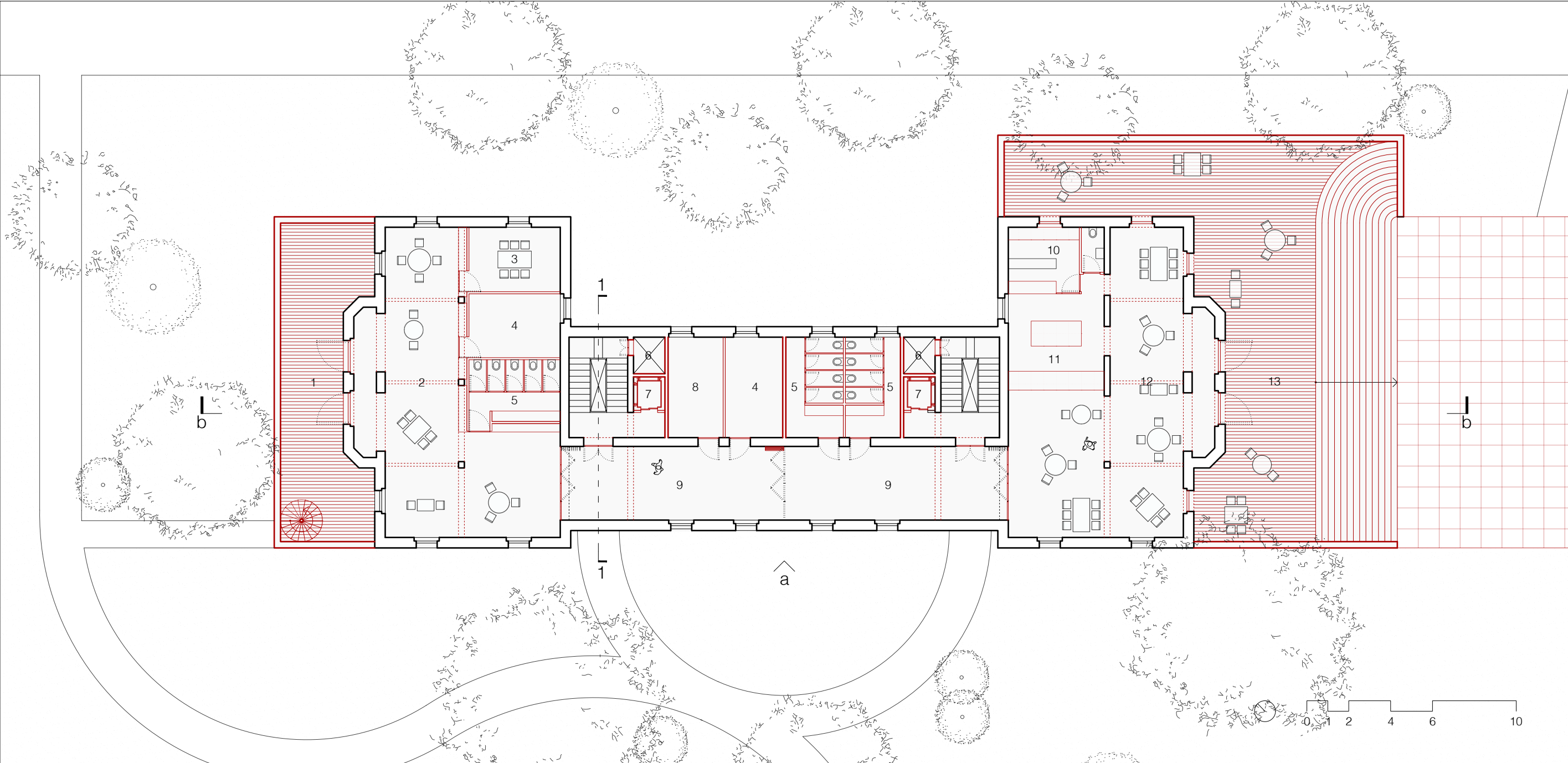


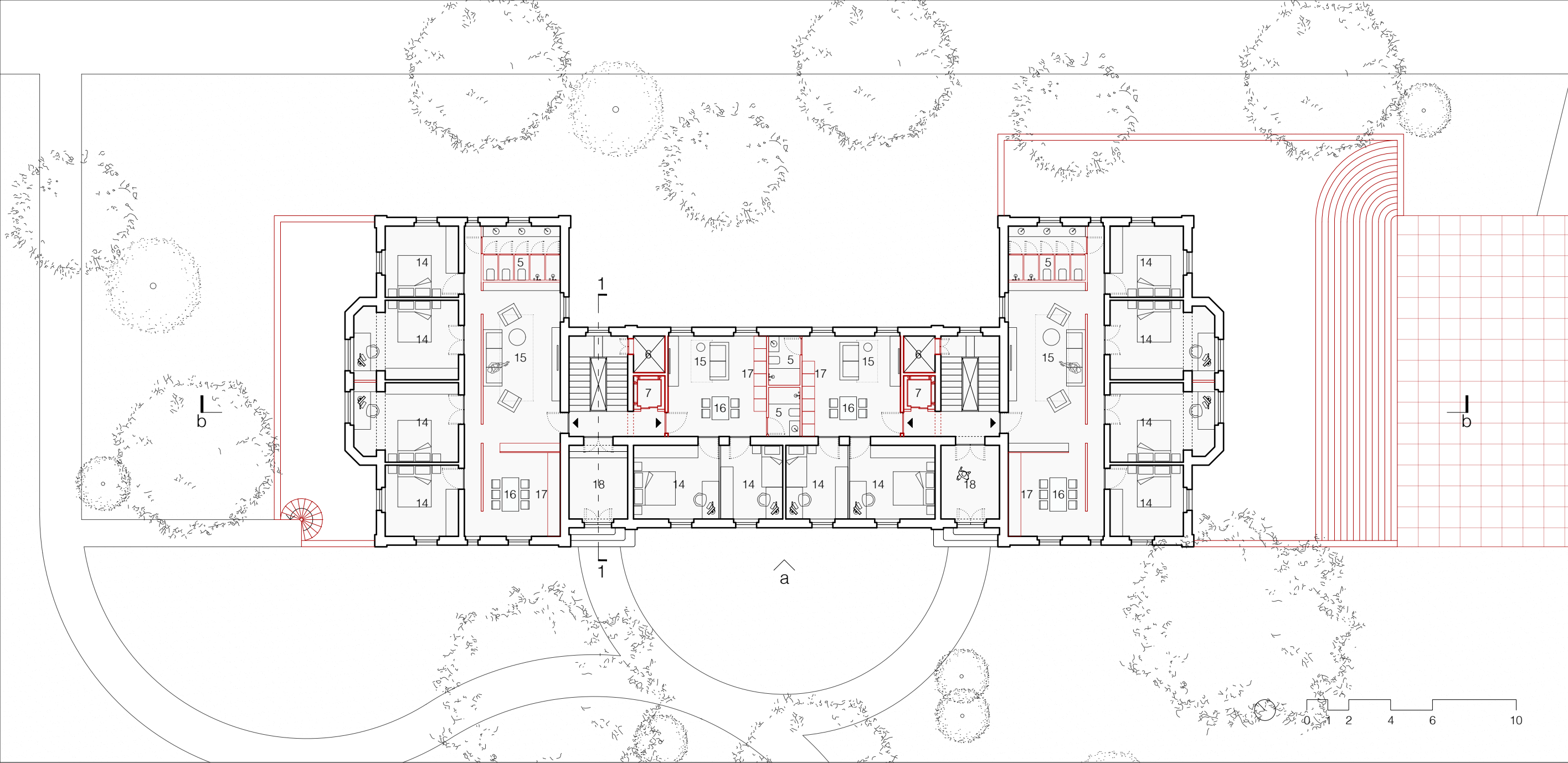
utility 03: community base

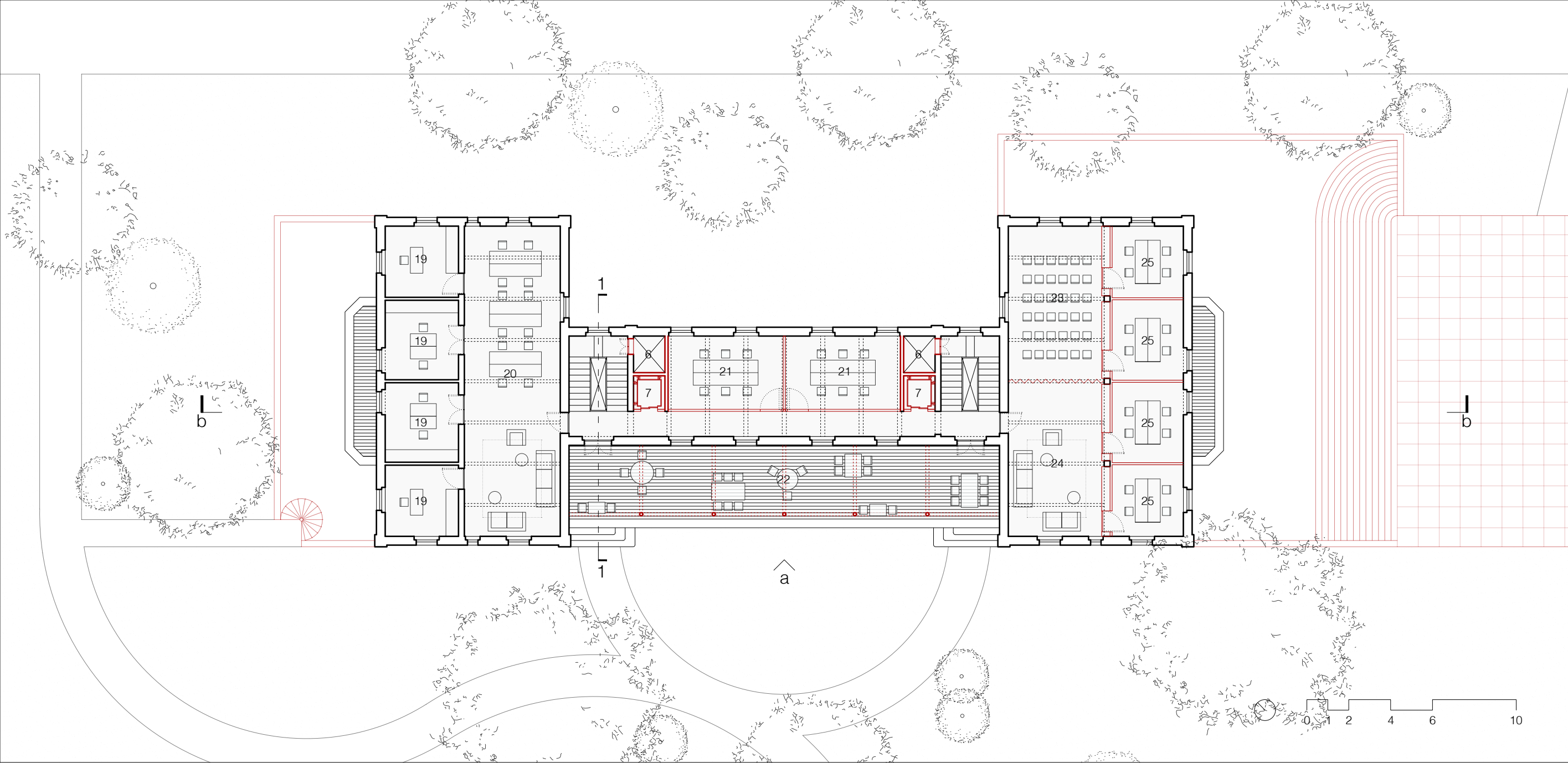








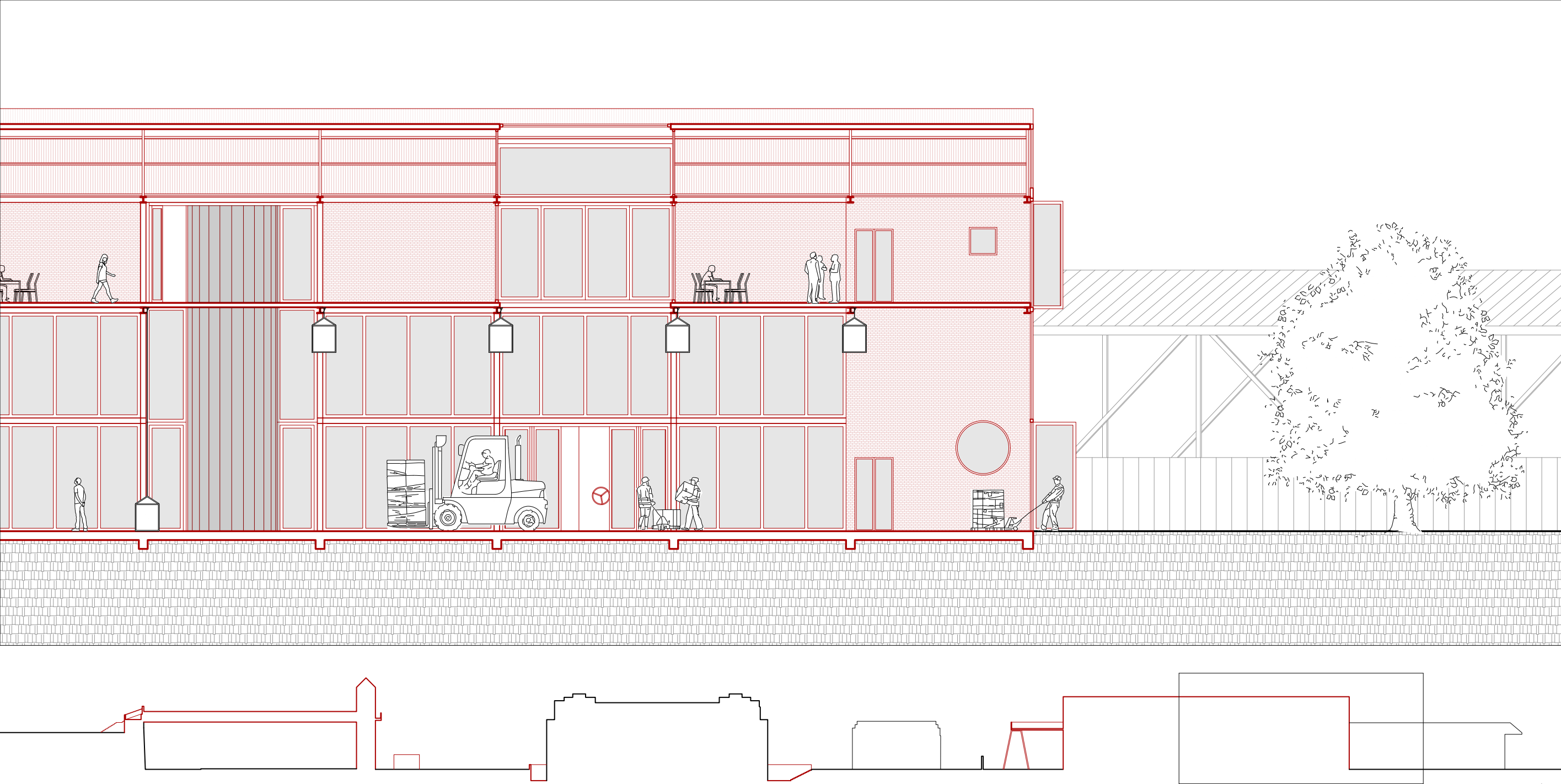




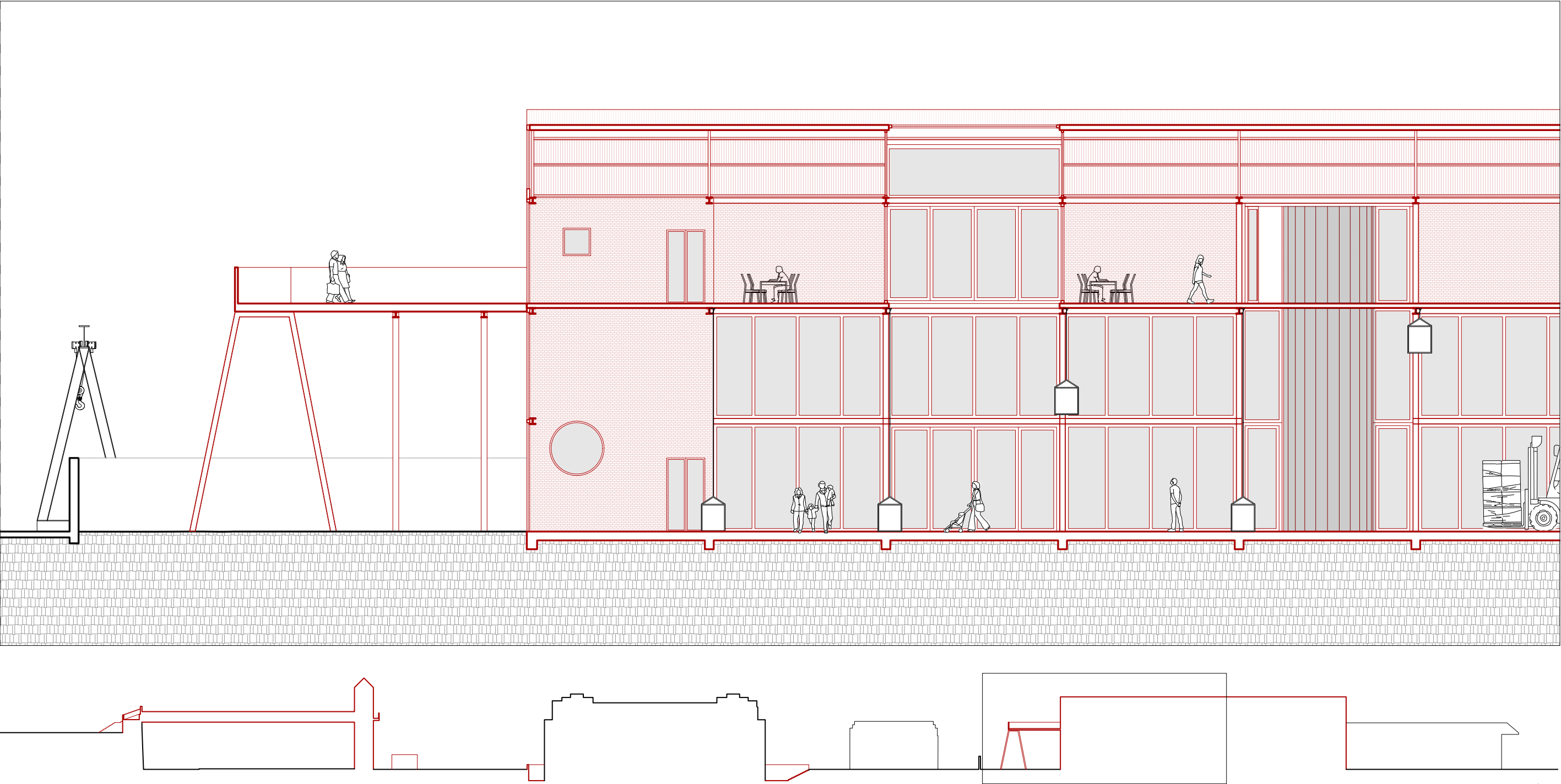




section b-b: social and public engagement



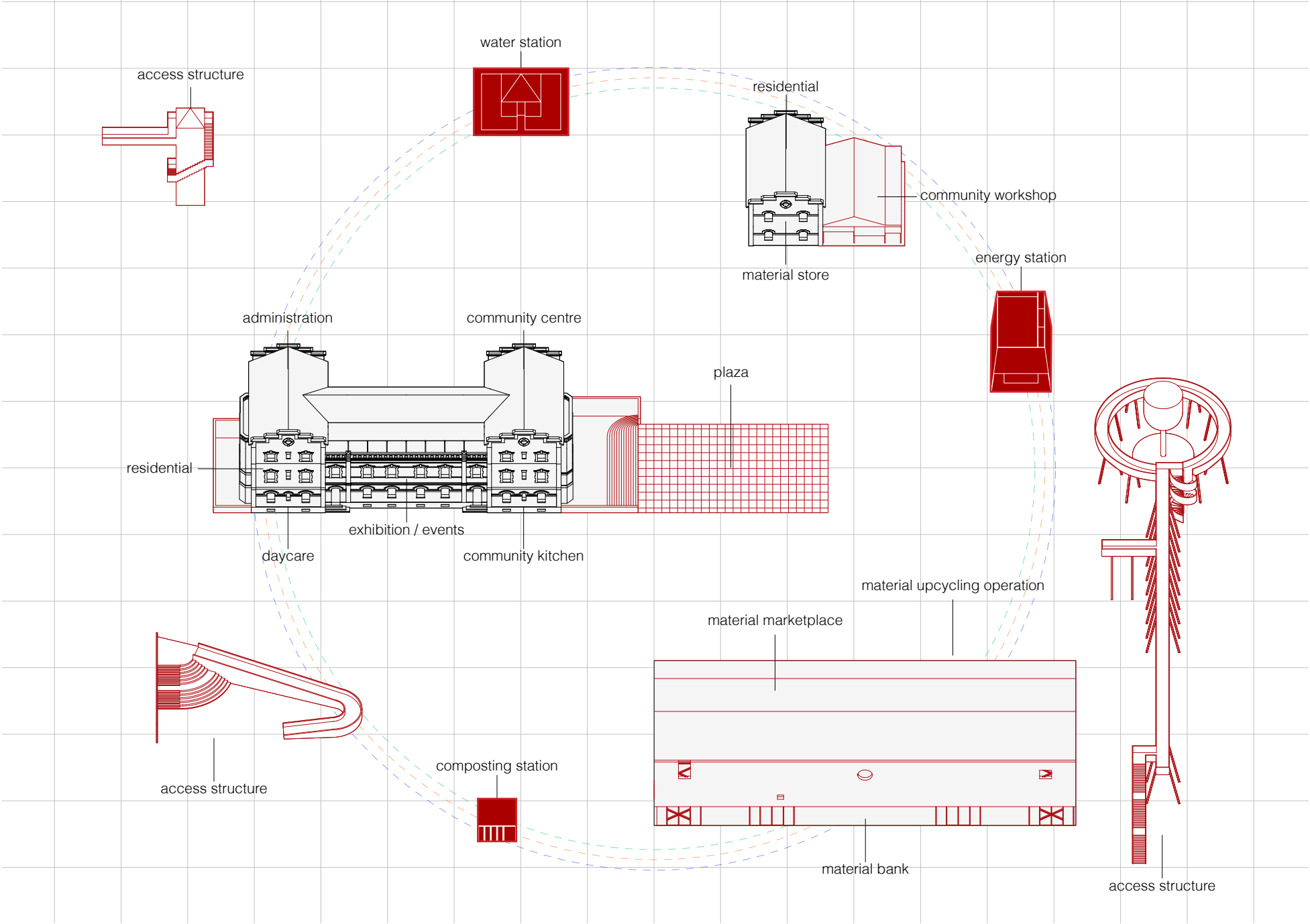
section b-b: social and public engagement



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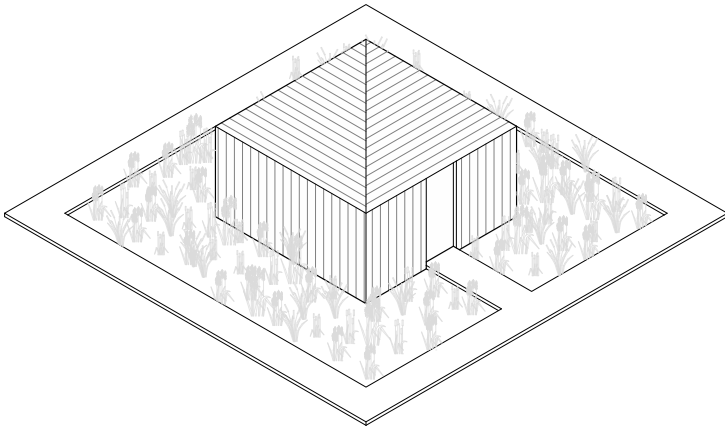
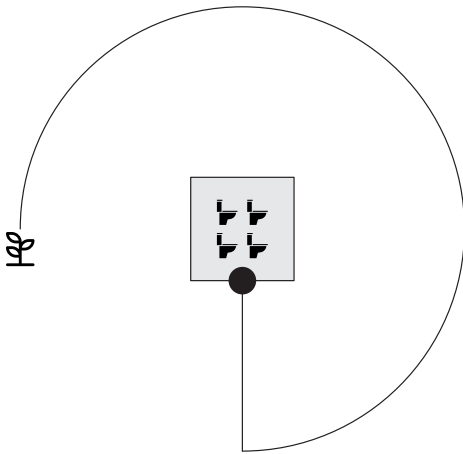
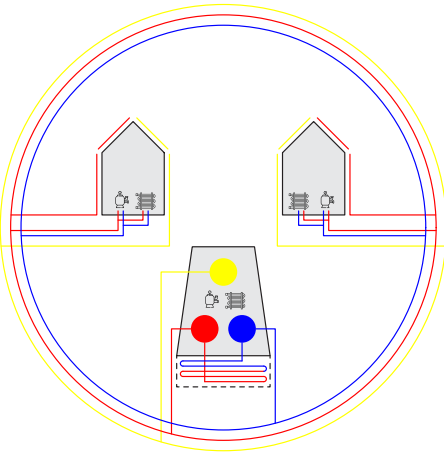
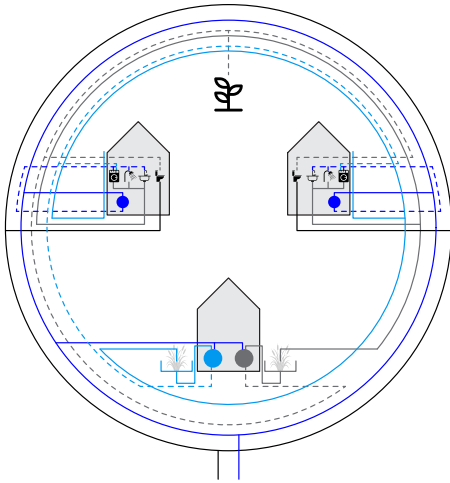


flow exchange and climatisation

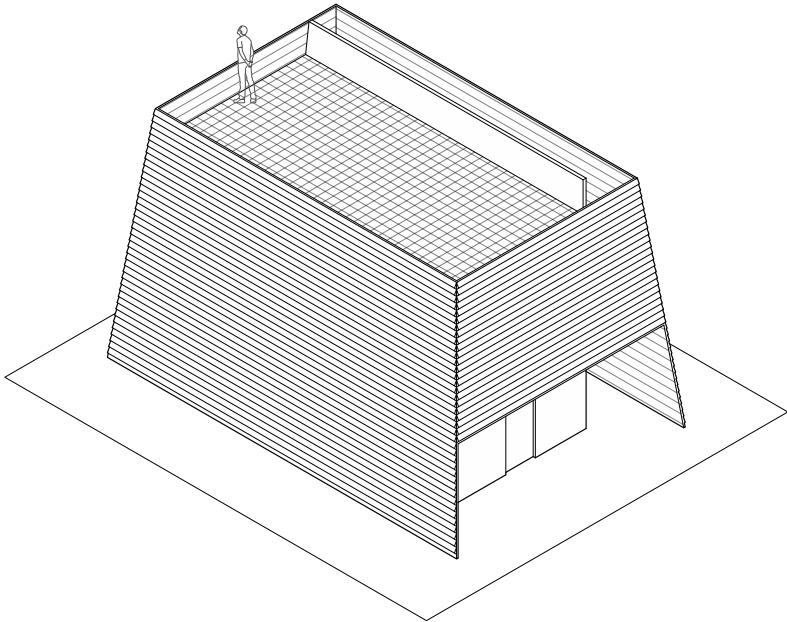


flow exchange stations

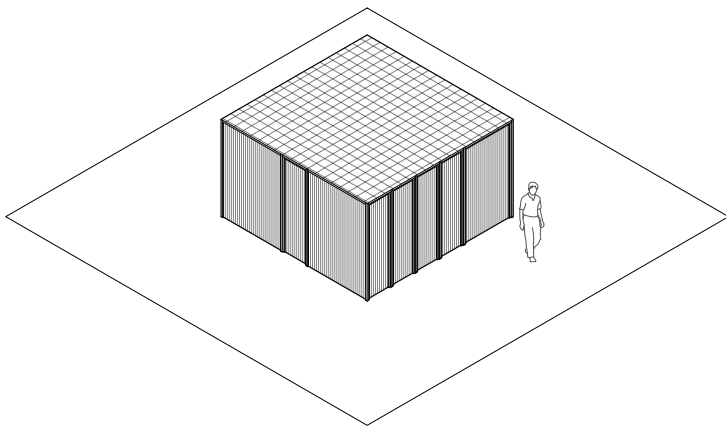
flow exchange and climatisation



water station



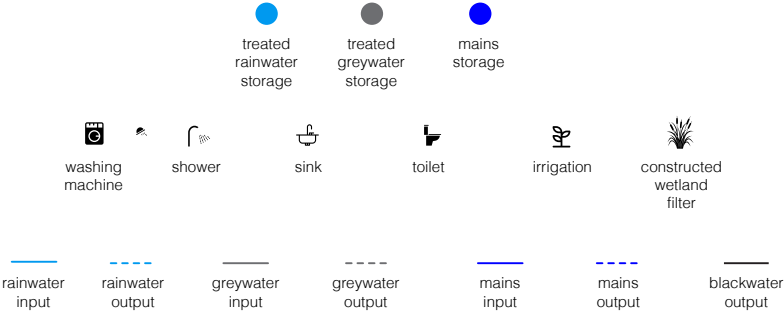
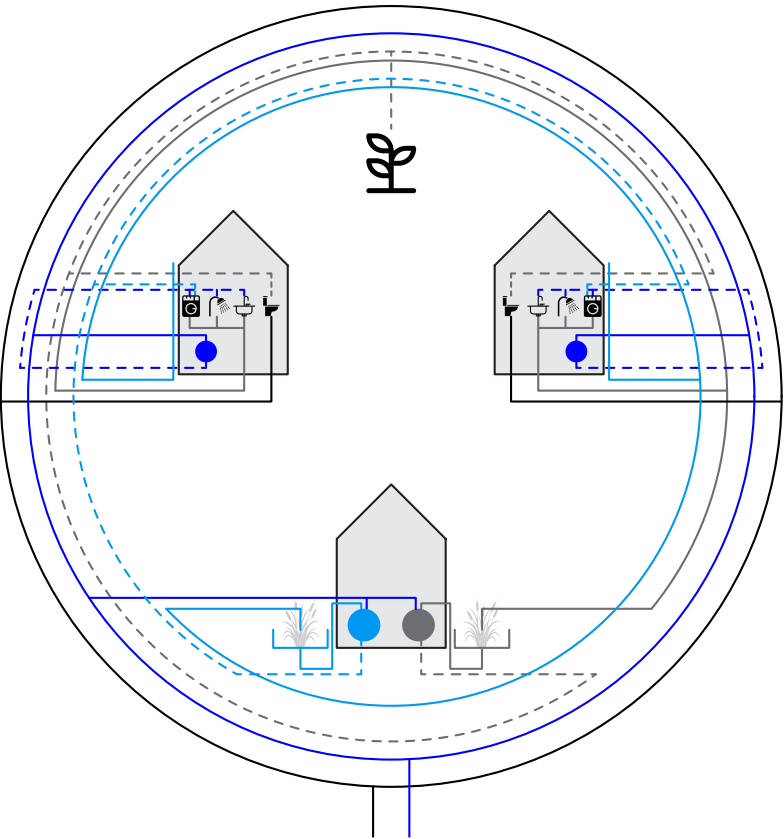
energy station



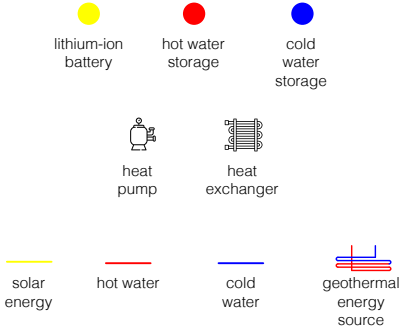
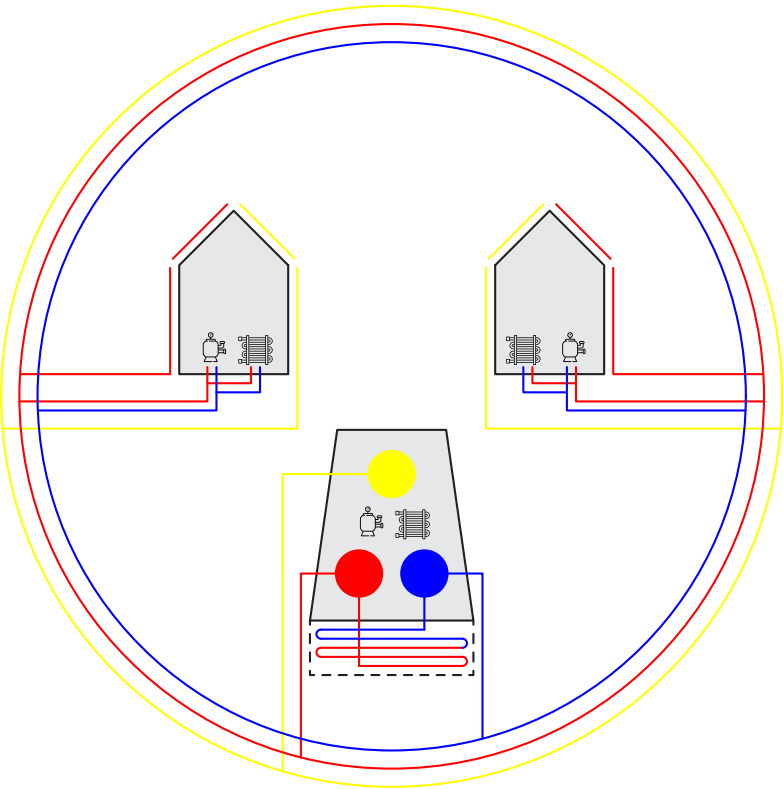
compost station

flow exchange stations

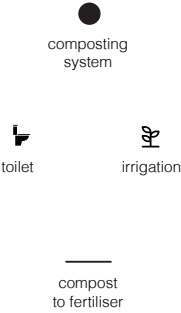
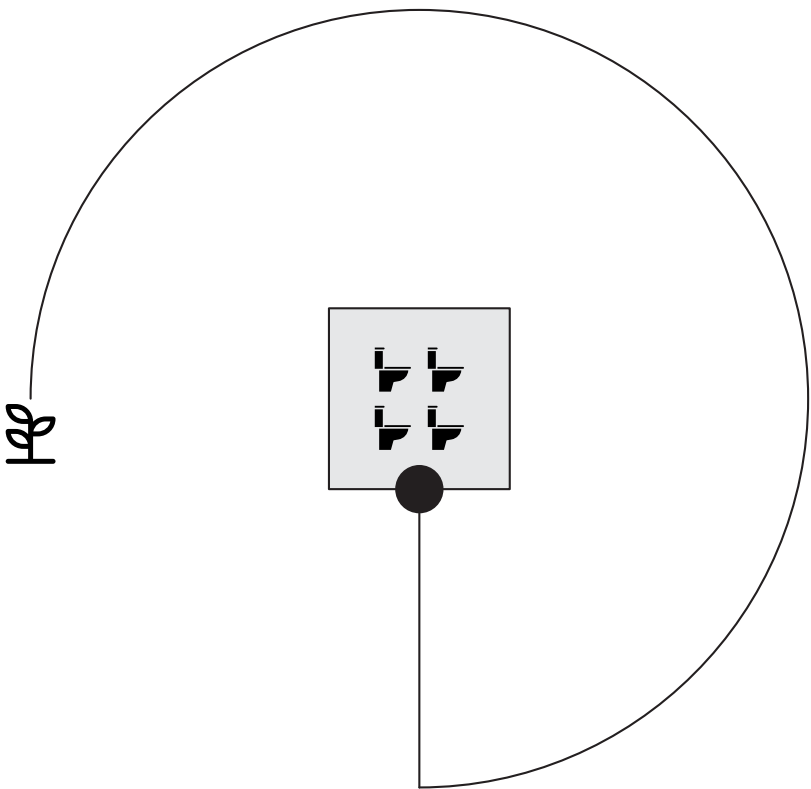
flow exchange and climatisation



rainwater + greywater filtration and redistribution system

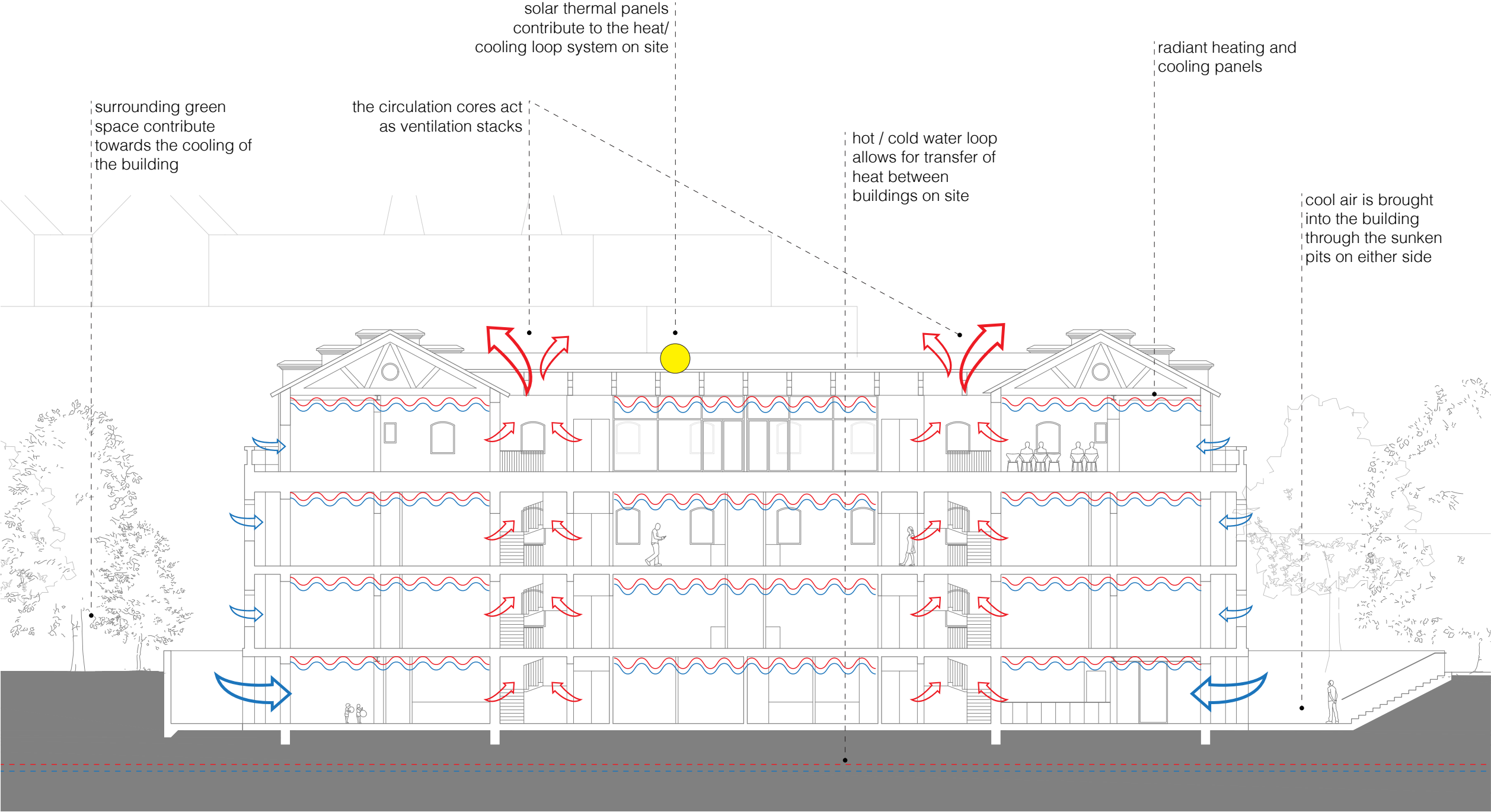


heating and cooling exchange loop

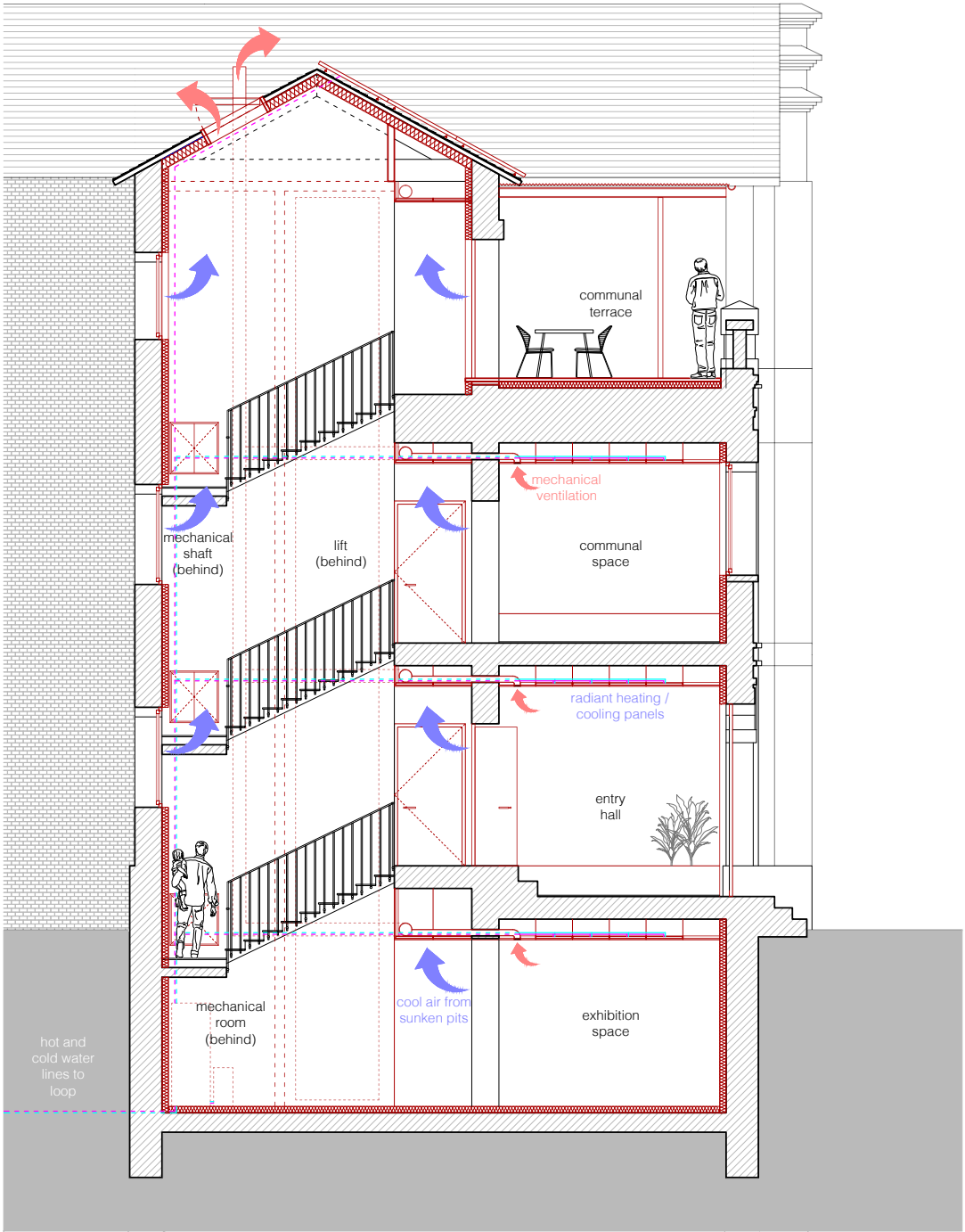


composting system

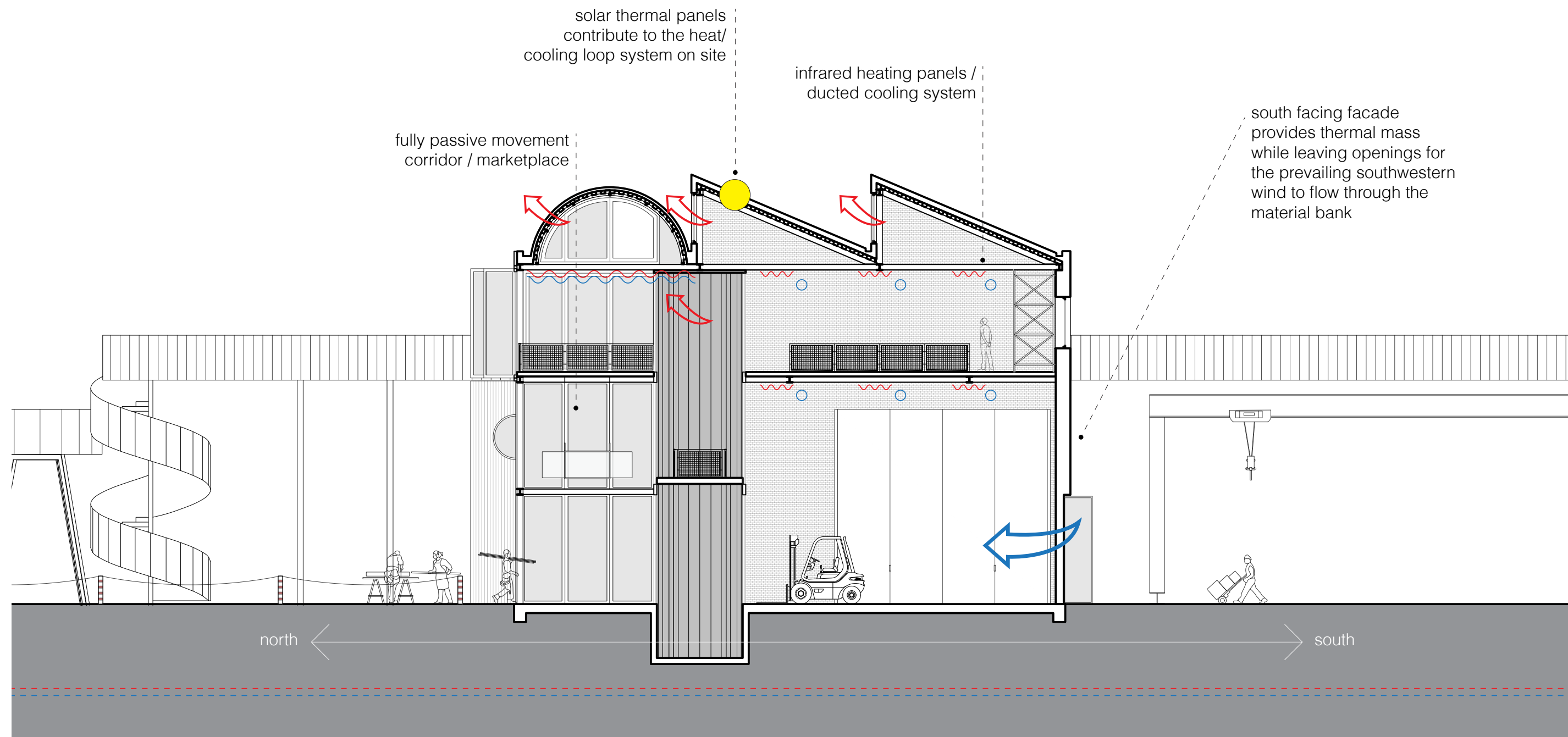
flow exchange and climatisation



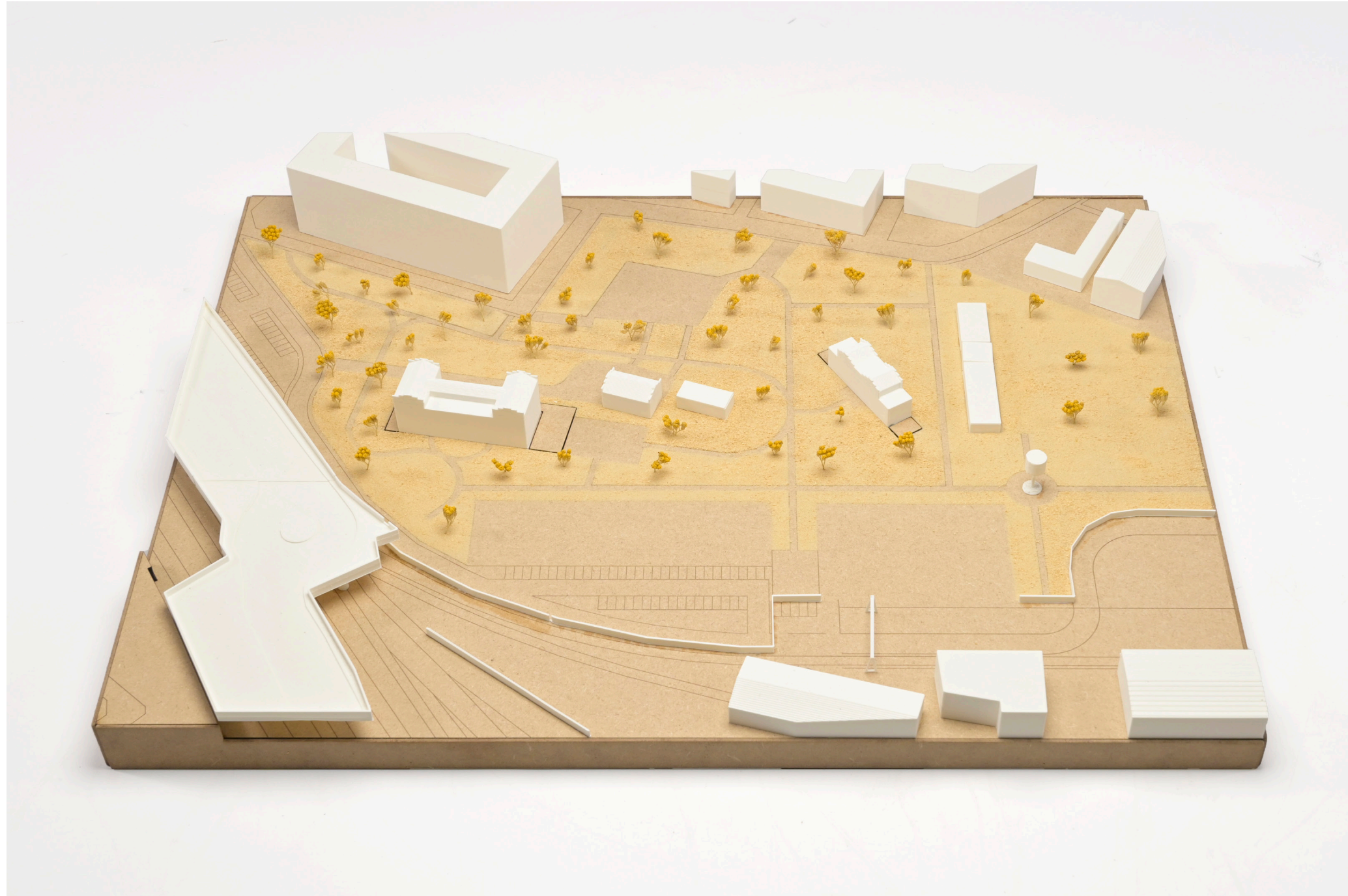
flow exchange and climatisation



flow exchange and climatisation

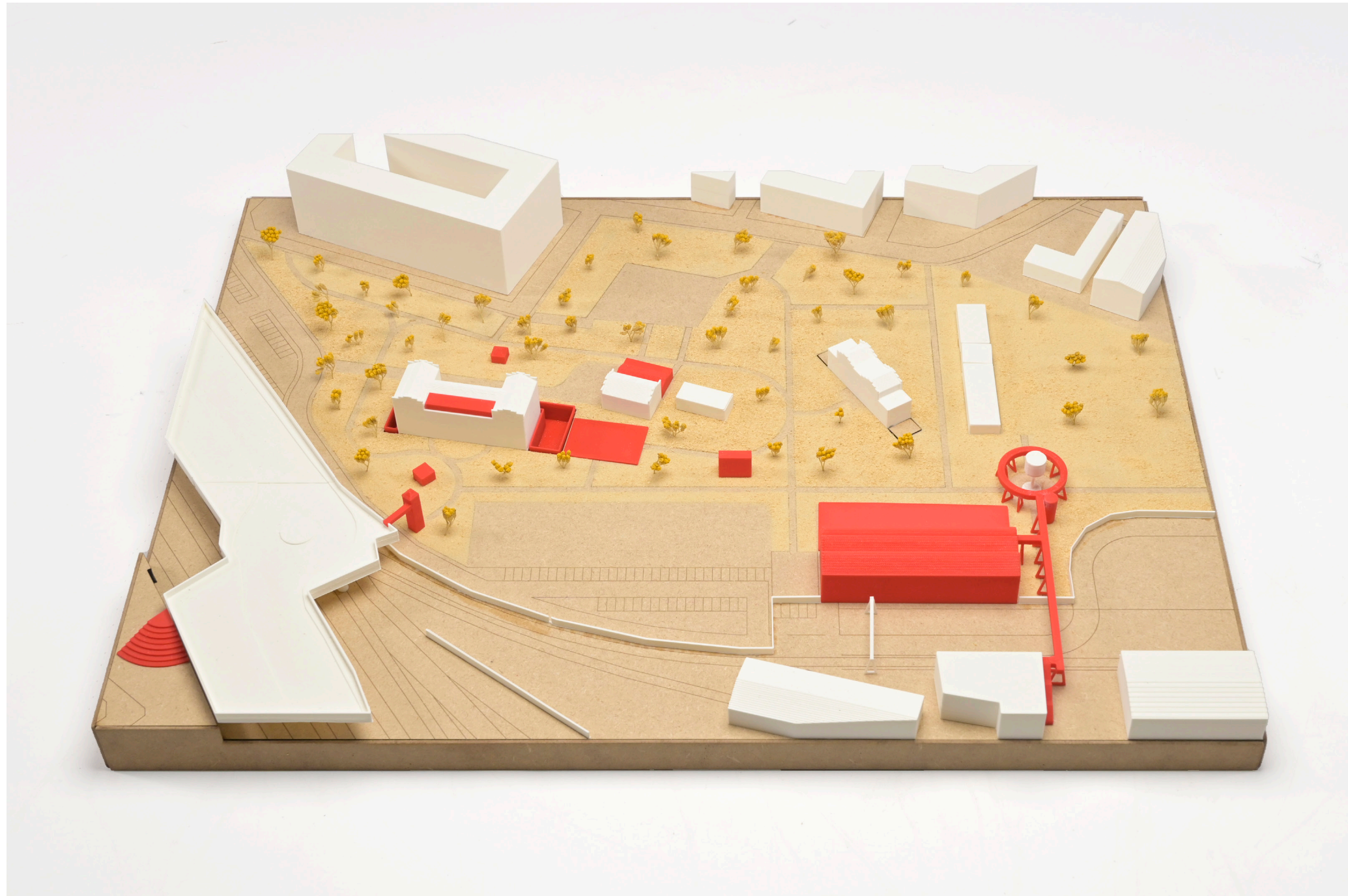


the ensemble



opened site

the ensemble



completion of the first phase

the ensemble



potential future scenario

future site development

