

[7]

[chapter 7] design development

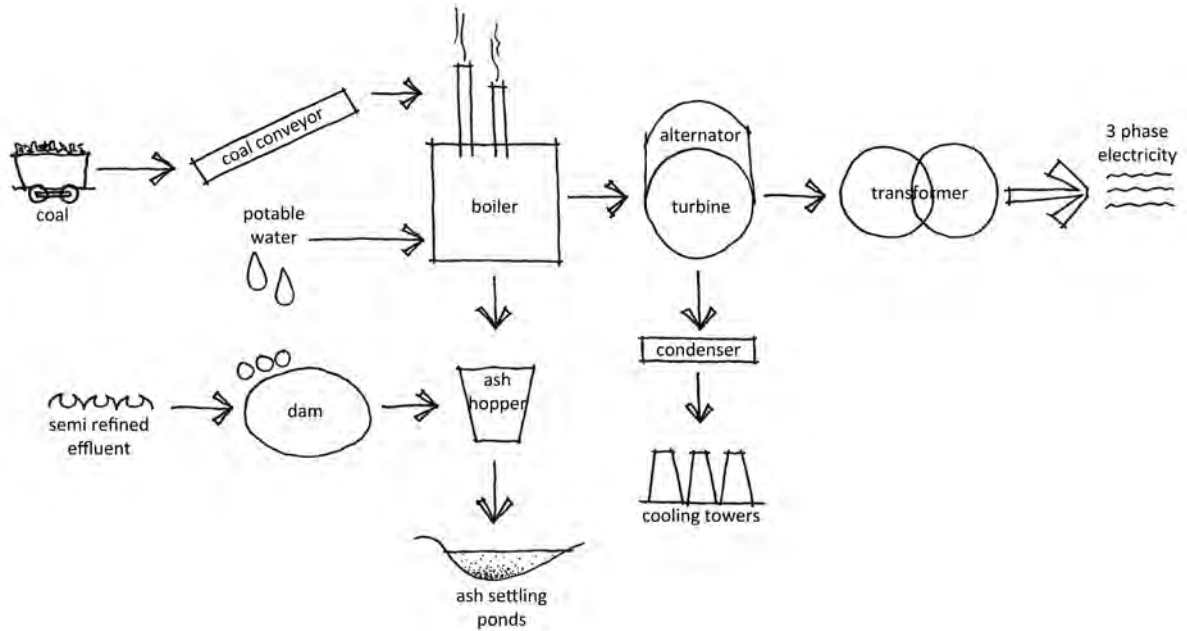
concept development

Progress is the most important driver for the concept of this scheme. This idea is inspired on an urban scale by the intentions of the Vision for Pretoria West and the Development Framework for The Old Power Plant that promote the development of the Old Power Plant as a catalyst to encourage **progress throughout Pretoria West**, and ultimately the CBD. In terms of the old Turbine Hall, the idea of progress is inspired by the way in which the spatial requirements expanded over time, hence the **progressive expansion of the building over time**.

The general character of Pretoria West is that of production with the power plant's function being the **production of electricity**. While the power plant will eventually not be able to produce electricity when its technology becomes obsolete, the framework proposes that, whatever new functions the power plant buildings are adapted for, the **focus on production** should remain. Other buildings within the framework will be adapted for light industrial functions that are a literal reference to the **essence of production** while the Turbine Hall will aspire to accommodate the **production of entrepreneurs** and encourage **progress for people** by means of economic upliftment.

[Fig. 125] Showing the three main phases of progressive construction of the old Turbine Hall



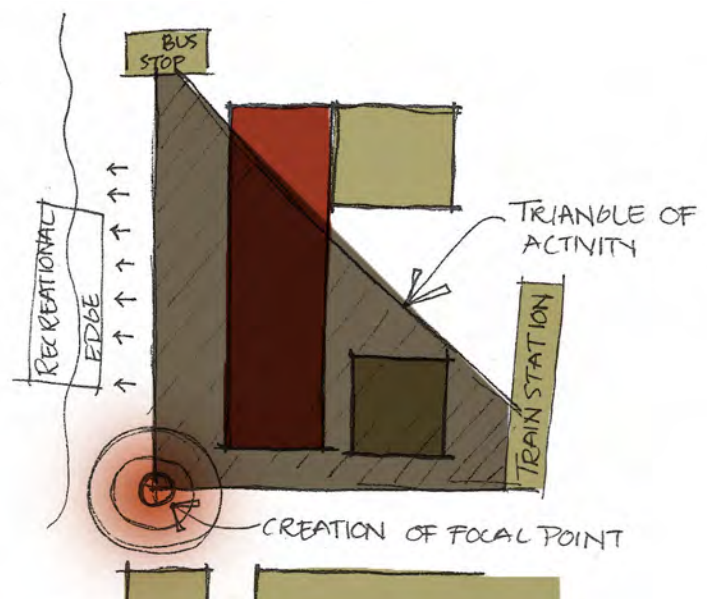


[Fig. 126] Process of electricity production at the Power Plant

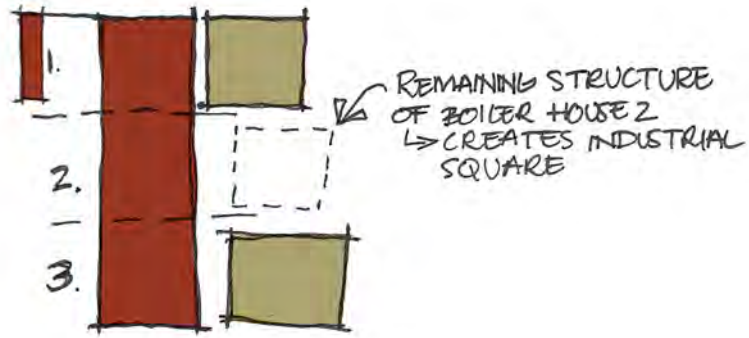
These ideas on **progress and production** inspire the proposed architectural language of which the main informants are:

- that the Old **Turbine Hall** was **progressively built over the years** – its construction occurred in three phases over a period of three decades which correspond to that of the three boiler houses. This suggests that new work should express these three key phases;
- derived from the site analysis, the site entrances and pedestrian movement patterns would occur between the train station and the bus stop: by connecting these points by a route around the existing buildings, a **triangle of activity** is identified. This triangle suggests which part of the building would emulate the highest activity and therefore, the public zones; and

[Fig. 127] triangle of activity



[Fig. 128] Diagram showing the three sections of the turbine hall



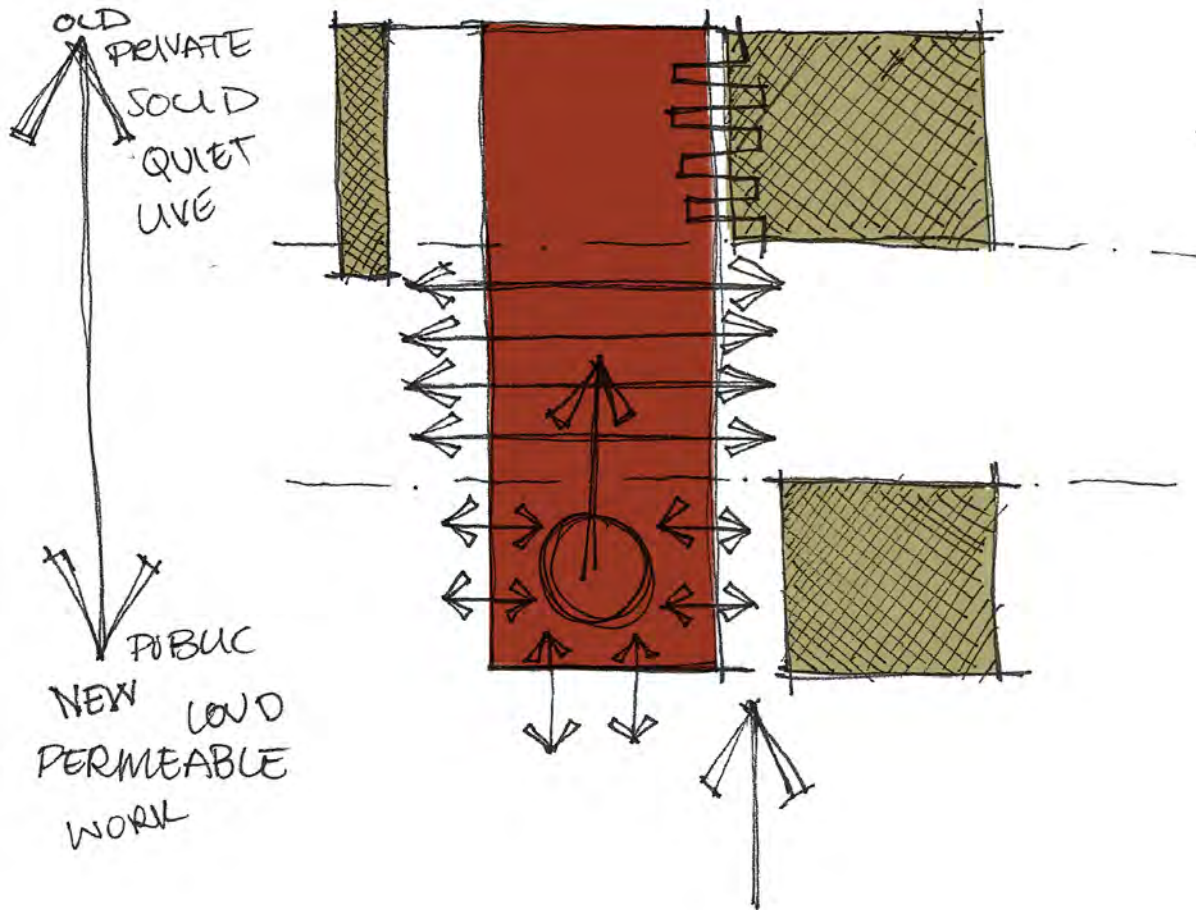
- the **Turbine Hall as a heritage building** is the most important factor to consider when developing an approach to new construction. This means all new work needs to be easily identifiable and the existing character and important spatial qualities need to be preserved.

The concept for this scheme is derived from these three factors which indicate, the more recent the construction to the Turbine Hall, the more public that part should be. The progression from the northern part to the southern part of the building (the oldest to the newest part of the building) also implicates the progress in the use and zoning of the building, namely, from the private to the public. The architectural language and modes of intervention could then be used to demonstrate this progression as well as emphasise the three main phases of construction.

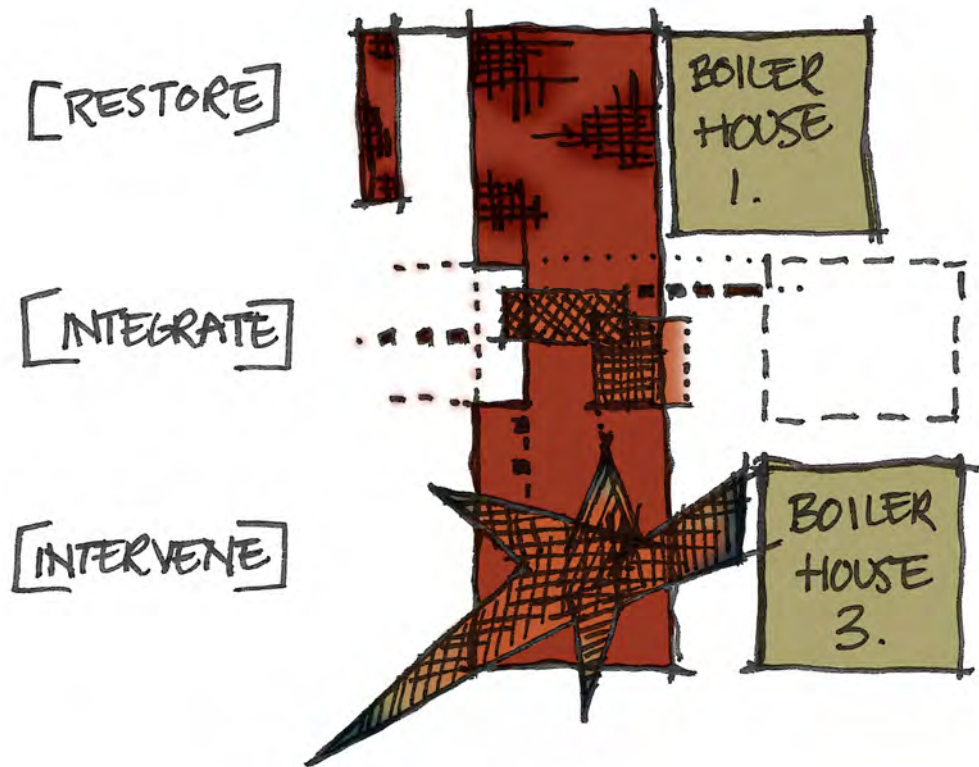
It then becomes logical that the older quieter third should have the most sensitive and least drastic approach to adapting a heritage building and that this approach should become progressively more bold as the building opens up to a more public environment. Then taking reference from the precedent study and the three different approaches to adapting heritage buildings that it identifies this then derives the concept for this scheme, namely “**Restore, Integrate and Intervene**”.

development of form

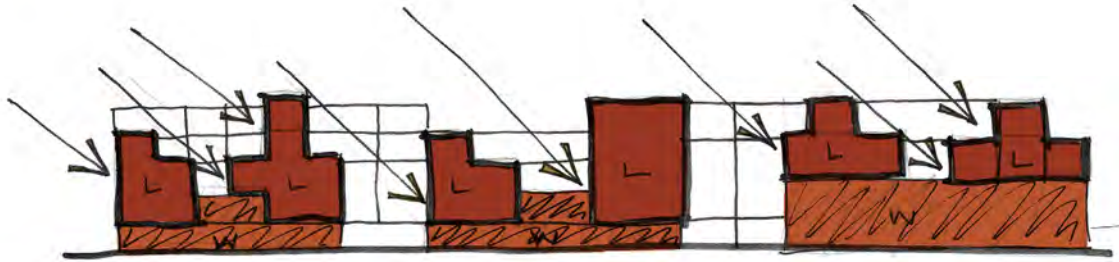
The division of the building into three parts; each with the different architectural language, is the most important informant of the proposed redevelopment, however, the east-west orientation of the building impacts the articulation of the new architecture. The Turbine Hall’s main facade faces west and is the most important within the context of the Power Plant as a whole. Sun control of the western facade, together with the problem of the short northern facade, which does not allow enough direct winter sunlight into the building, have to be addressed in the proposed design solutions to the new residential and recreational spaces.



[Fig. 129] Conceptual diagram demonstrating degrees of permeability, public access and progression



[Fig. 130] Conceptual diagram demonstrating different approaches to new architecture

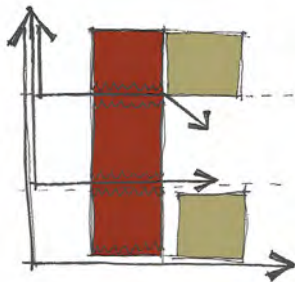


[Fig. 131] Diagram demonstrating harvesting northern light by cutting courtyards into the building, suggests which spaces could be appropriate for living and for working

Northern sunlight can be harvested into the building when parts of the existing roof sheeting are removed, thereby creating interior courtyards. This will not only allow natural sunlight into the building, it will accentuate the volumnicity of the industrial space.

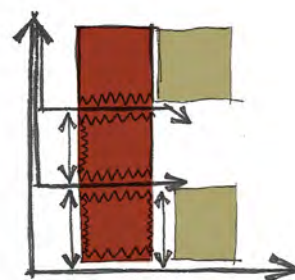
programmatic rationale

Having defined three progressive 'levels' in terms of public exposure and access (and in terms of the building's history – the three construction phases of the building and its additions), it makes sense that each of these sections should house different supporting and interrelated functions to form a new whole. These sections could be viewed as follows:



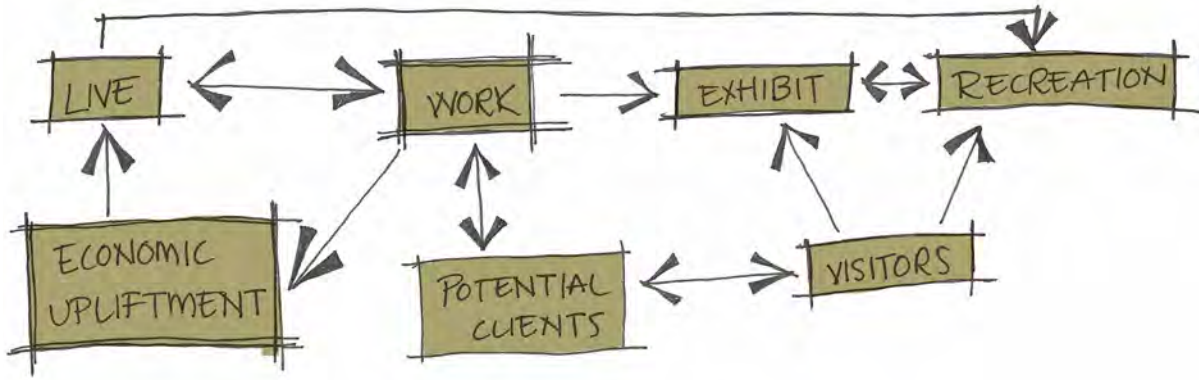
Restore

The northern part of the building will be the quieter part, and thus would allow the most privacy. The benefit of direct exposure to northern sun adds to the belief that it would be the best location for the affordable housing component with the supporting functions such as a crèche and a small library. This would promote learning and provide a safe environment for children while the adult residents are at work in a different part of the Turbine Hall or those parents who commune across the site on a daily basis.

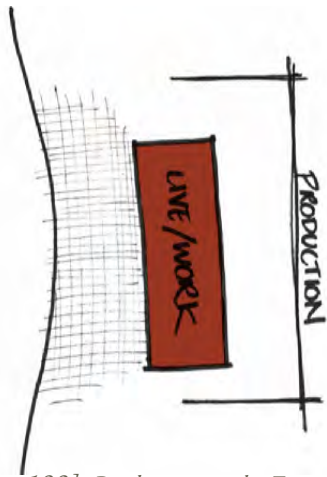


Integrate

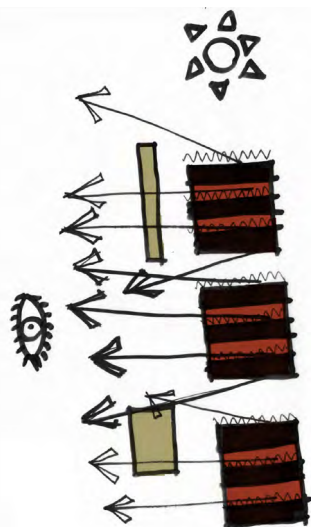
This middle section is the mediator between the most public and most private ends of the building which suggests the accommodation of semi-public activities such as a learning centre for acquiring business, arts and crafts skills. This section will also house small rentable workshops from which entrepreneurs can run their small businesses. The general use of these workshops will pick up on the theme of production



[Fig. 132] Diagram outlining how different function support each other



[Fig. 133] Production to the East and recreation to the West



[Fig. 134] North sun vs. view to the west

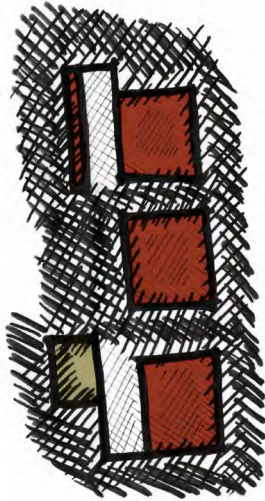
that emanates from the site development framework. This section of the facility's focus will be on creating material output such as pottery, beadwork, carving, metal work and other arts and crafts. Workshops located towards the public side of the building might be used as shops for trading arts and crafts on behalf of informal traders, while the workshops on the quieter side of this section might be appropriated as small studios for businesses such as small design firms and artists.

The residential component ('Restore' section) will overlap with the mediating section ('Integrate') as a few residential units will be located on the uppermost floors. A restaurant introduces a recreational aspect to the building which overlaps and creates a gradual transition to the most public 'Intervene' section.

Intervene

An arts and crafts gallery and a large artists' studio will be accommodated in this southern part of the Turbine Hall. The functioning and design of the studio will be informed and inspired by the BAT centre (as discussed in the precedent study earlier). The intention for this part of the building to be a place where emerging artists rent a small place to work from and promote their skills. By opening the studio for permanent public access, it encourages interest and awareness of the artists and their facilities and thereby encouraging a platform for trade. Creating an 'artist' working environment might encourage mutual support and allow learning opportunities. As artists' skills develop they can share their knowledge and pass on the skills of their trade. The gallery on the other hand, could also be the platform for a variety of artistic and performing arts events and exhibitions, which would draw more visitors on a regular basis.

To get a clearer picture of the personal interactions and transactions, the following scenario might suggest the most likely occupants and residents of Turbine Hall:

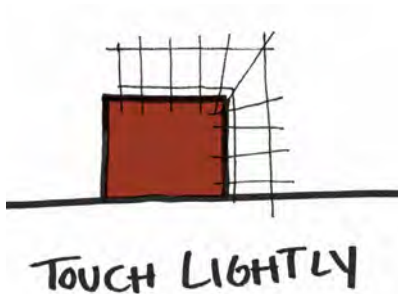


[Fig. 135] *Hierarchy of spaces*

a) The struggling artist,

who has the talent, but also lacks the knowledge and skill of promoting him or herself. The artist can start off by renting a table in the artists' studio. He or she can work from the same place that they sell his/her work. Moreover, the communal facilities will allow greater opportunity for interaction with other artists who will inspire and offer support. As he/she sells more works, he/she will be able to afford a larger working space within the studio.

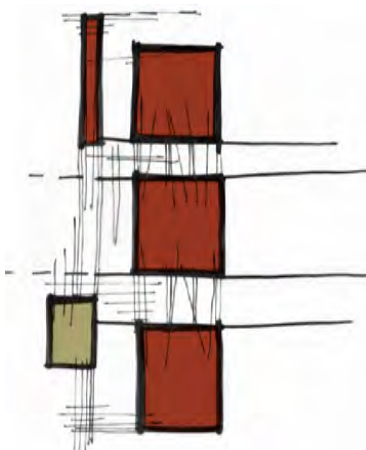
These artists aspire to having their work displayed in the gallery and work hard to reach that goal to increase their chances of being the next hot local talent discovery. As they become more experienced, they start teaching classes in the studio and at the learning centre to encourage other artists.



[Fig. 136] *diagram demonstrating approach to new interventions in section*

b) The Entrepreneur

has good ideas, but lacks the 'know-how' to materialise them. Entrepreneurs could attend classes at the learning centre and business centre respectively, where they would acquire the necessary business skills and receive valuable advice on acquiring the necessary start-up funding for their own businesses. They could even rent workshops to run their small businesses from. The opportunities arise for employing people and renting apartments in the Turbine Hall. These opportunities would allow them to live and work in the same environment and hence saving on travelling and public transport expenses and time away from their family.



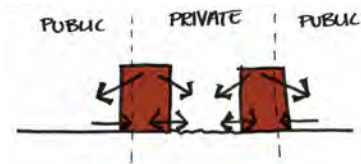
[Fig. 137] *diagram demonstrating approach to new interventions in plan*

c) The Commuter

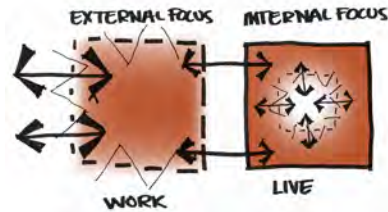
is someone who commutes to and from work by train. This person may need access to print something important on the way to work, or want to access the internet on their way home. The necessary facilities in the Turbine Hall would be accessible to them in the business centre. They may be dissatisfied with their current job and want to create more opportunity for themselves by furthering their education with evening classes at the learning centre, or catch supper with a friend at the restaurant before they head off into their different directions. On a lovely evening, they may enjoy wandering around the Turbine Hall to peruse the activities in the studio and workshops and to browse through the gallery.

d) The Family

who lives in one of the apartments, have moved closer to the city. Their savings on travelling expenses pays for their rent.



[Fig. 138] Diagram demonstrating the use of courtyards and height to create public and private spaces



[Fig. 139] Conceptual diagram demonstrating the external focus of working environments and the internal focus of living environments

Furthermore, their proximity to the different potential job opportunities on the site increase their likelihood of obtaining better life conditions. Since the crèche is located close to home where the youngest child is cared for, the eldest daughter's school work has improved; she goes to the library after school where she has access to books, the internet and learning assistants to help with her homework. The neighbours are also there to keep an eye on them.

e) The recreational visitor,

this is someone who would visit the Power Plant after work or on weekends. The success of the new Turbine Hall is to a large extent dependent on the visitors' economic input into the Turbine Hall. Commuters who visit the site and take classes at the learning centre will be familiar with the place and may be inclined to visit the site again after hours. Hosting events is another excellent way to draw people to the Turbine Hall. Drawing on the precedent of the BAT centre which hosts weekly jazz evenings, this creates a regular following of people who return to the venue and offer a solid client base for the artists and entrepreneurs.

architectural approach

Restore

The architectural approach to new architecture in this section of the building focuses on restoring the existing and preserving the original aesthetic of the old building, while new work on the exterior of the building should be identifiable it should be discreet and added sparingly. Emphasis on the old.



[Fig. 140] Restore

Integrate

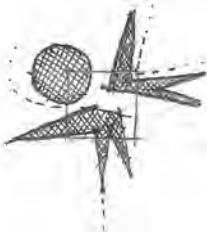
New work in this part of the building takes reference from the old and where existing infill is removed the structure remains to preserve the memory of the old building. Emphasis on the connection between the old and new.



[Fig. 141] Integrate

Intervene

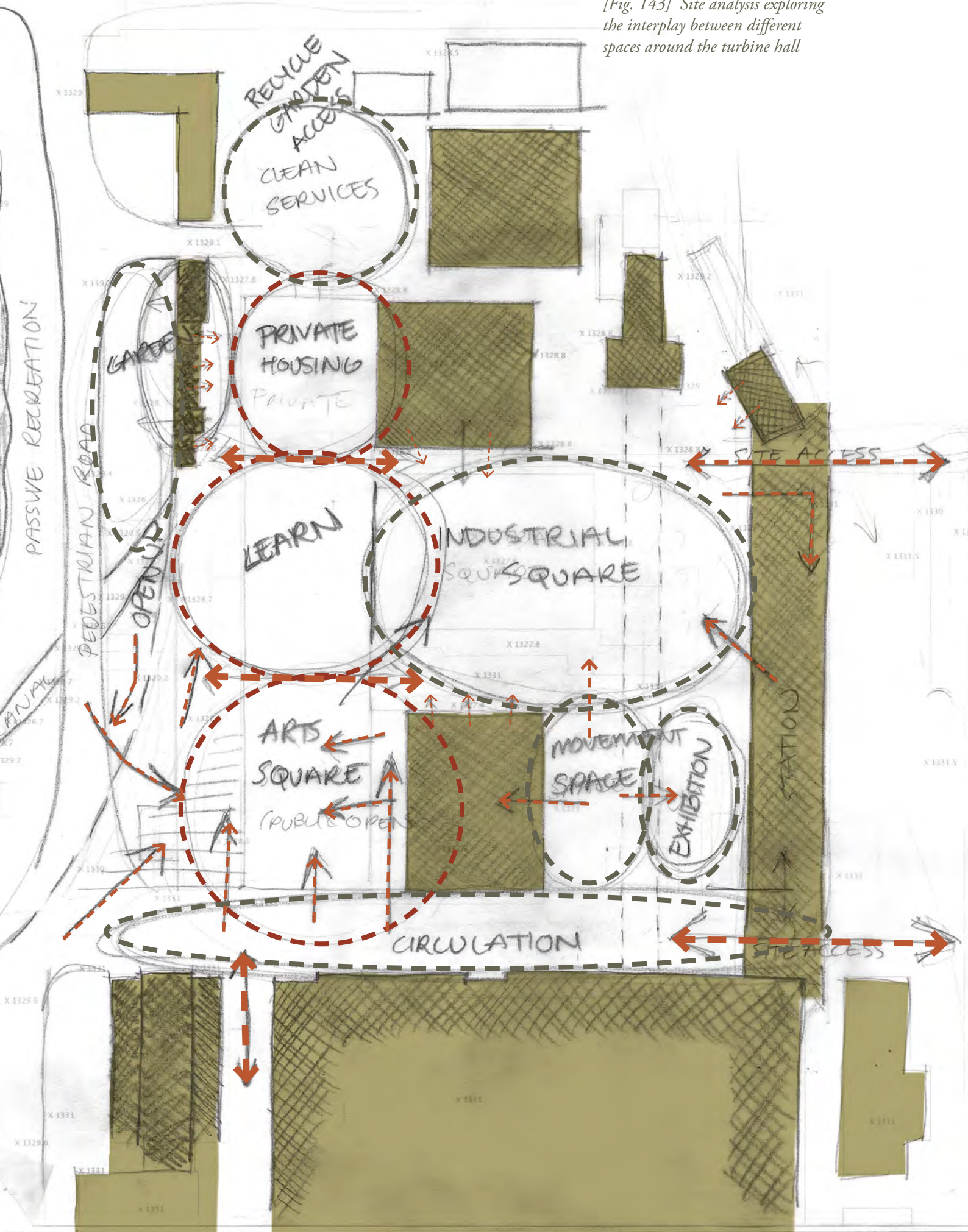
This section of the building has the opportunity for bold new intervention. Materials must contrast strongly with the old. New forms need only take abstract inspiration from the old building or its new functions. Emphasis on the new.

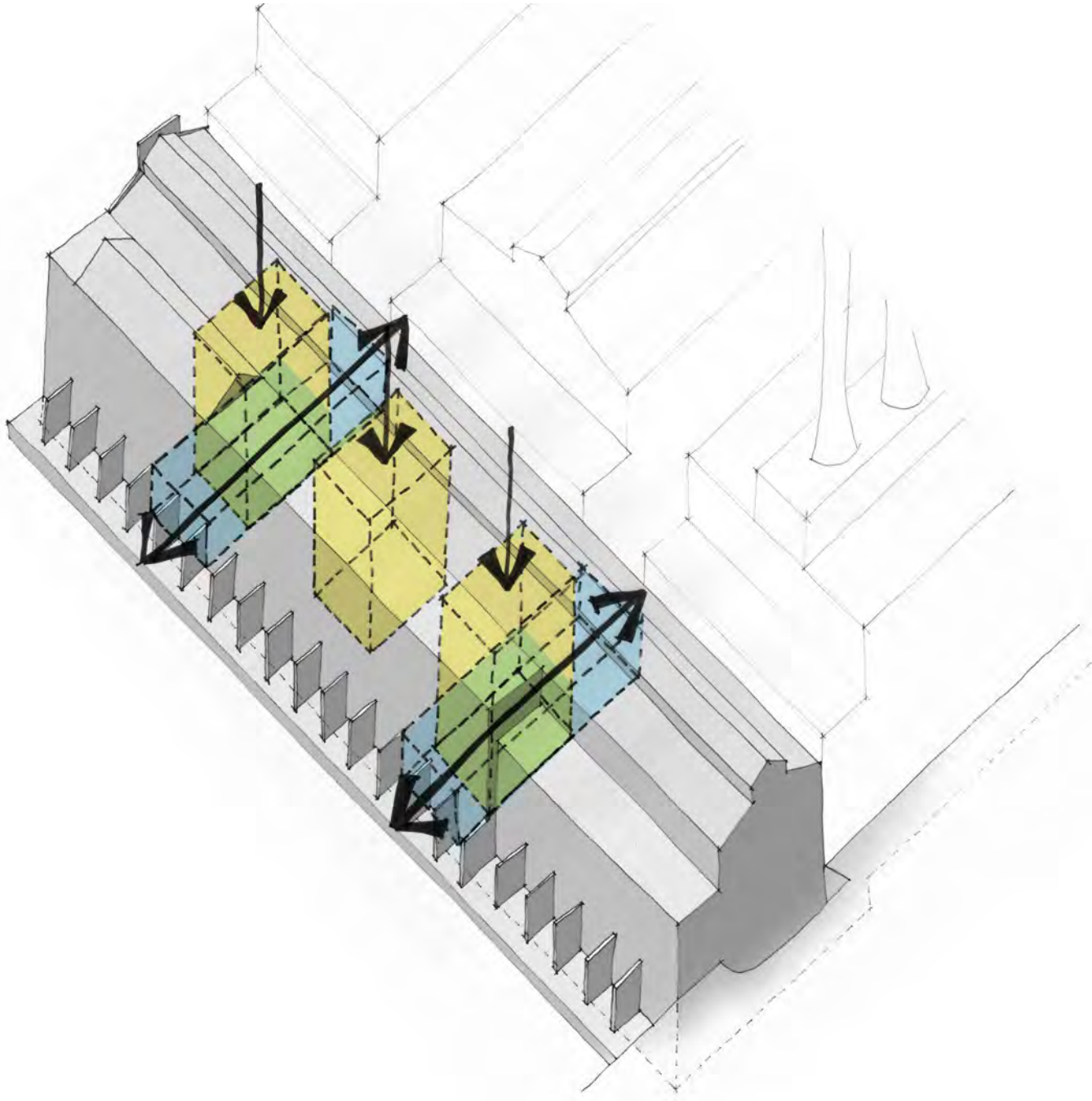


[Fig. 142] Intervene



[Fig. 143] Site analysis exploring the interplay between different spaces around the turbine hall





[Fig. 144] Axonometric exploring where circulation and light penetrate the existing mass



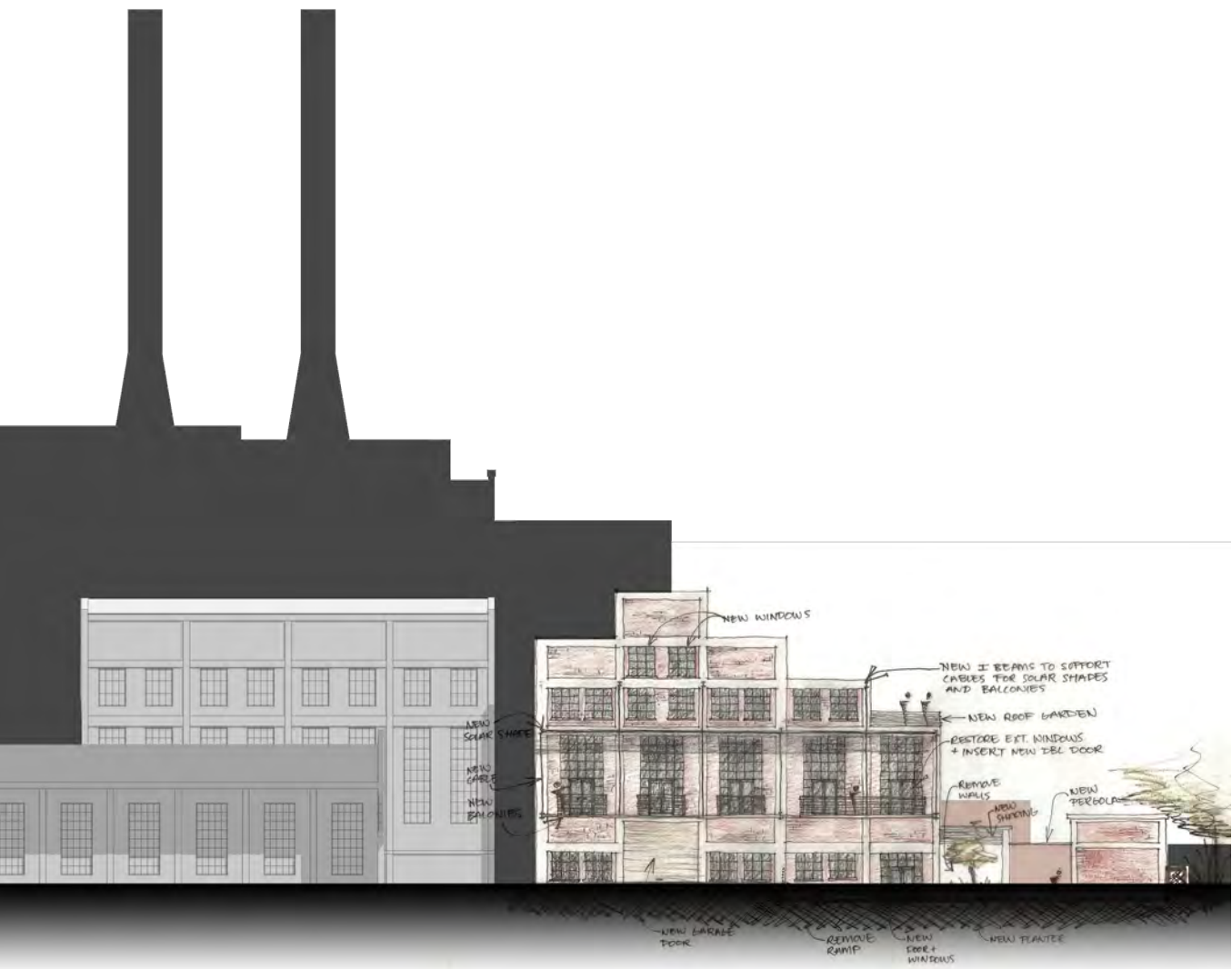
[sketch design]



[west elevation]

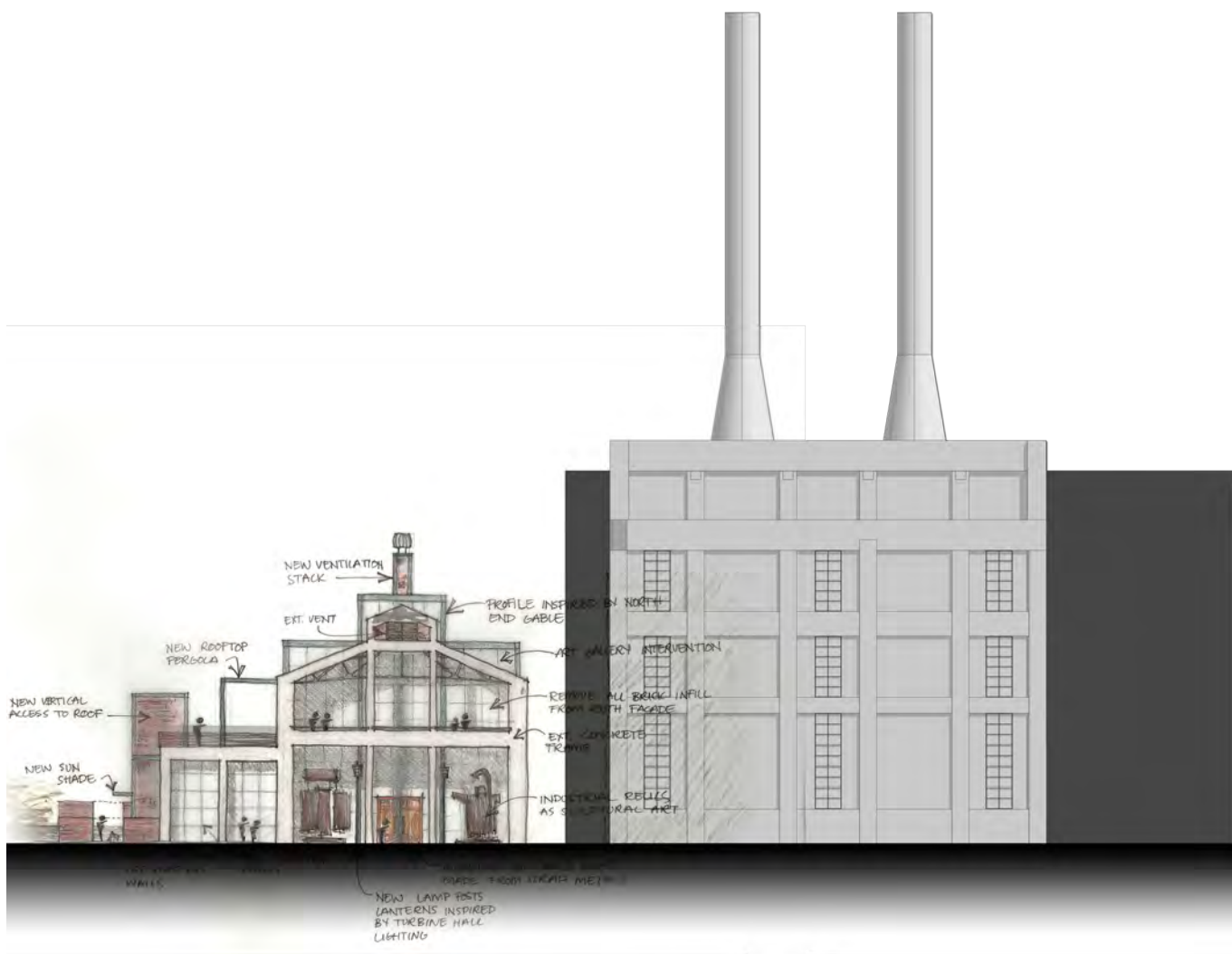
[Fig. 145] West Elevation (not to scale)





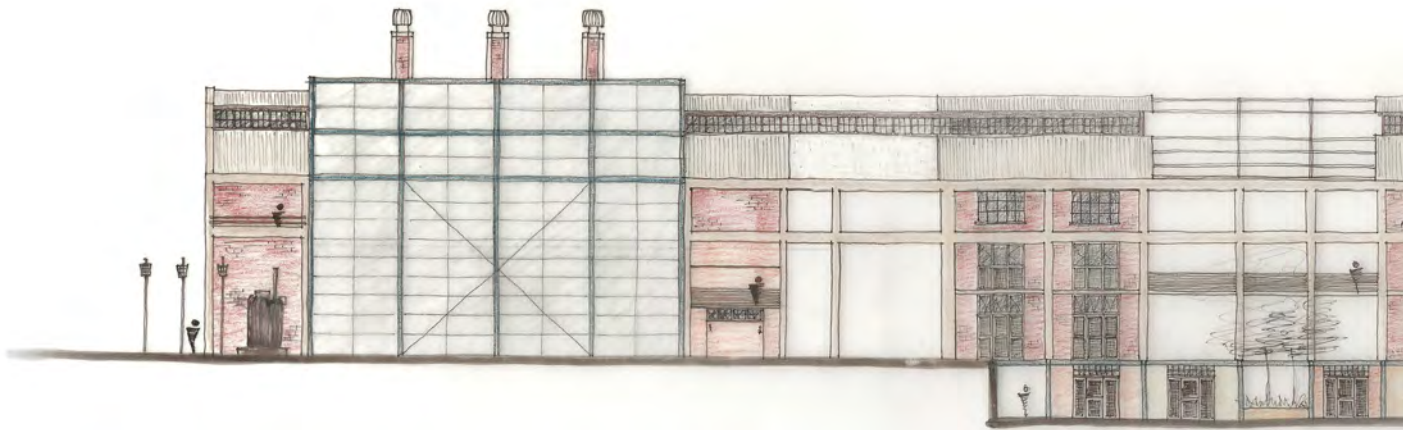
[north elevation]

[Fig. 146] North Elevation (not to scale)



[south elevation]

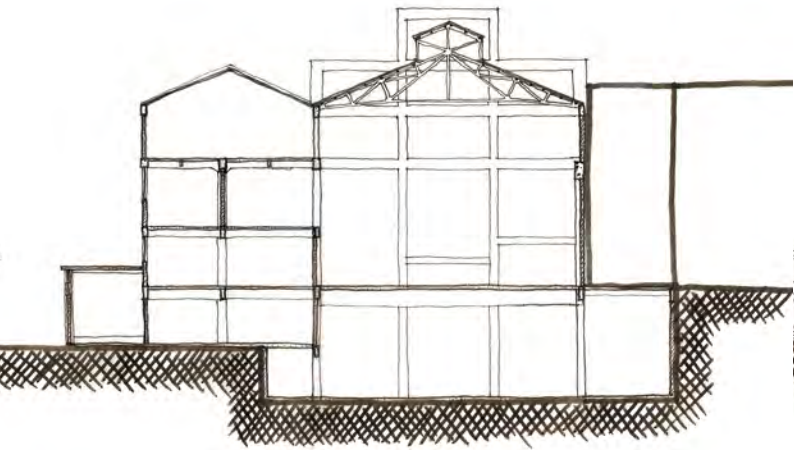
[Fig. 147] South Elevation (not to scale)



[east elevation]

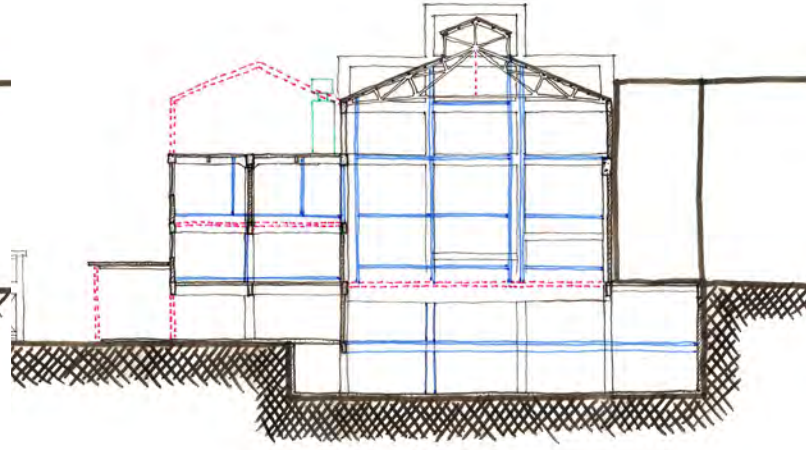
[Fig. 148] East Elevation (not to scale)





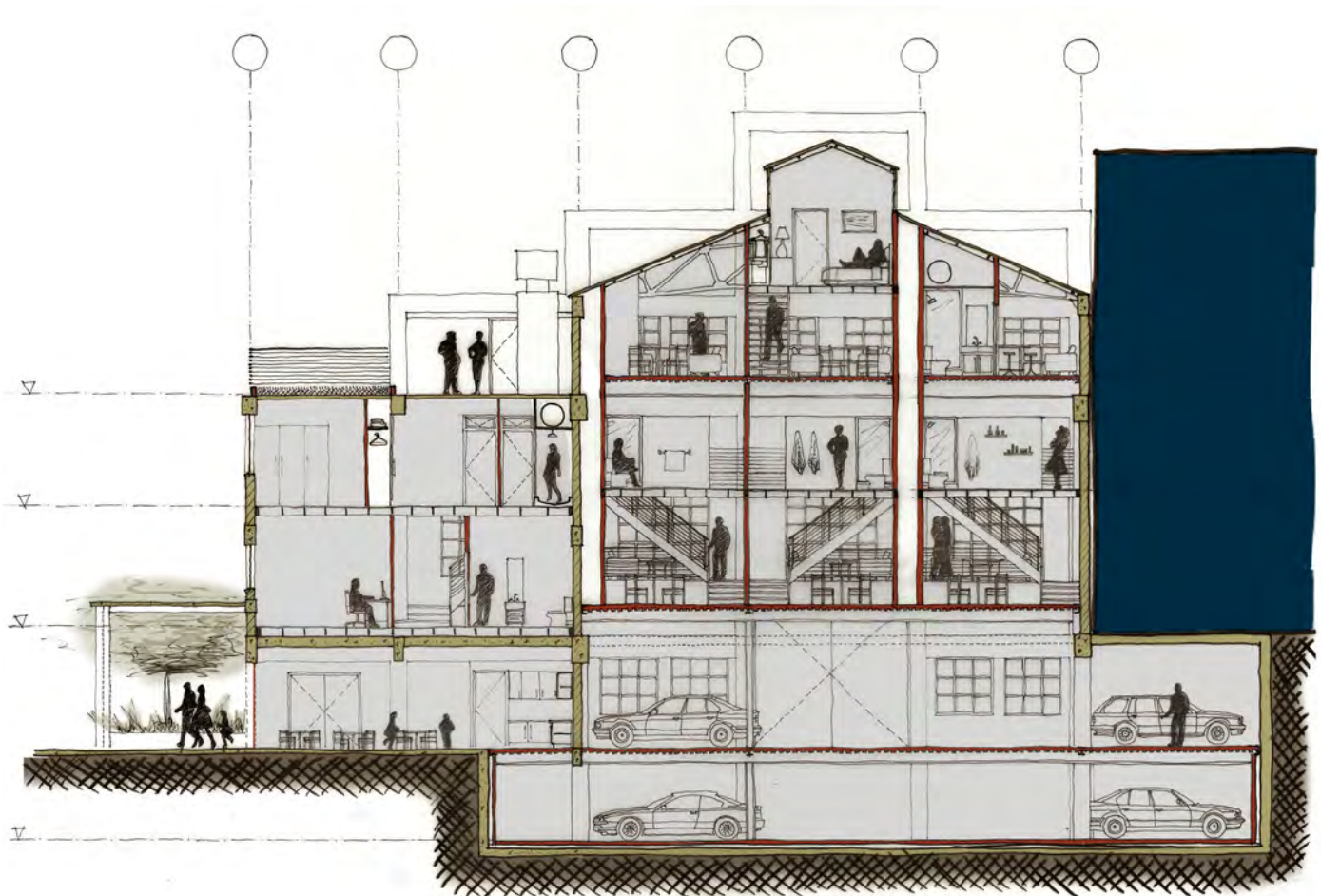
[existing section]

[Fig. 149] B1 - B1 section through existing building



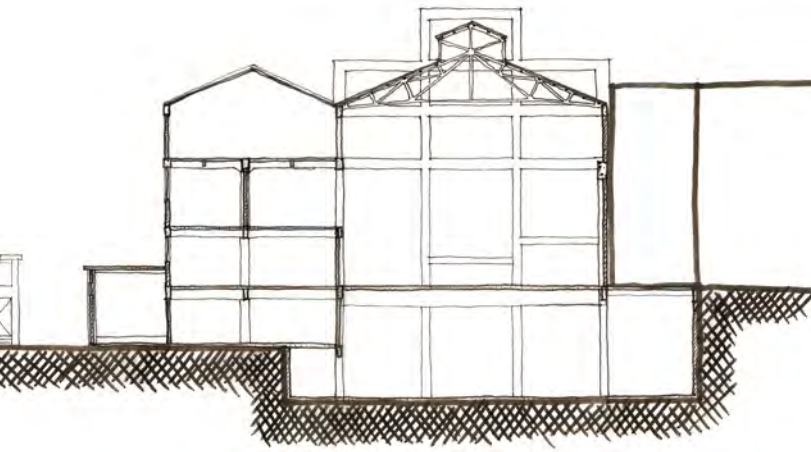
blue [new] red [demolished]

[Fig. 150] B1 - B1 section showing new and demolished work



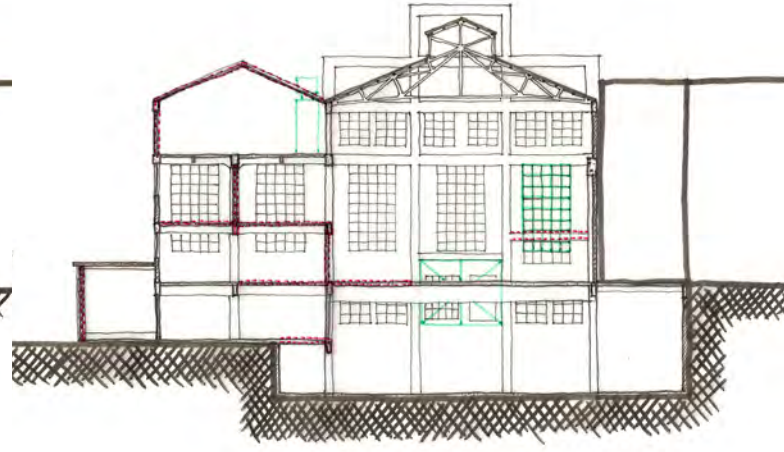
[B1 - B1] section

[Fig. 151] B1 - B1 Section (not to scale)



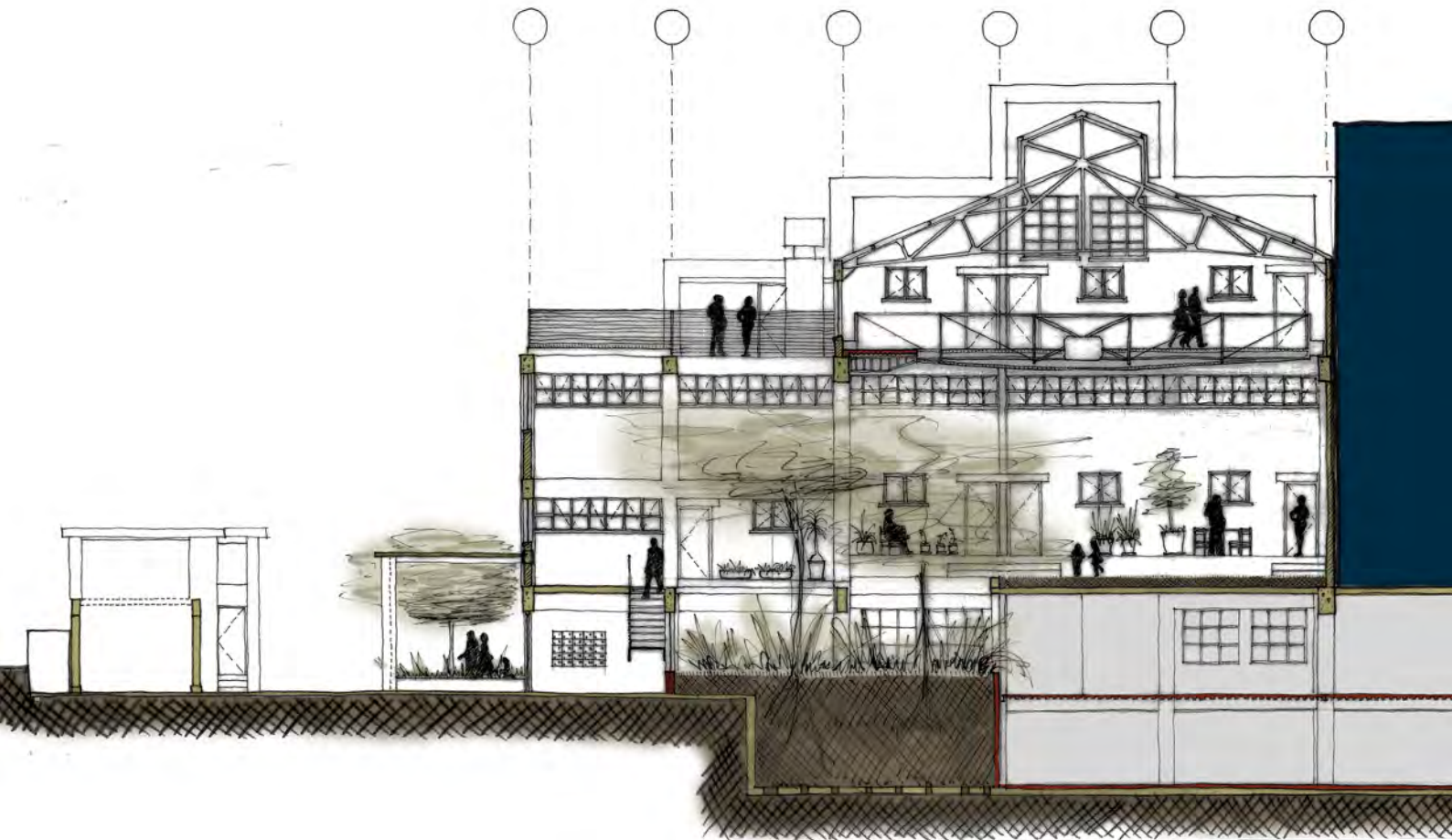
[existing section]

[Fig. 152] B2 - B2 section through existing building



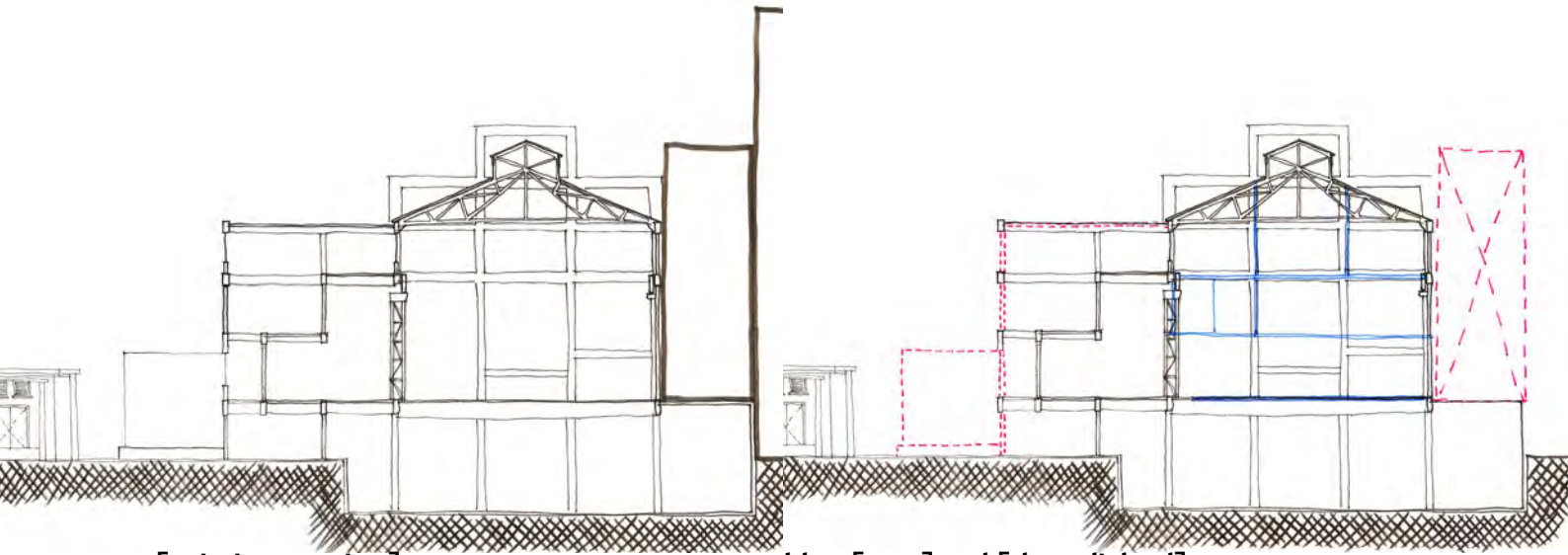
red [demolished]

[Fig. 153] B2 - B2 section showing new and demolished work



[B2 - B2] section

[Fig. 154] B2 - B2 Section (not to scale)

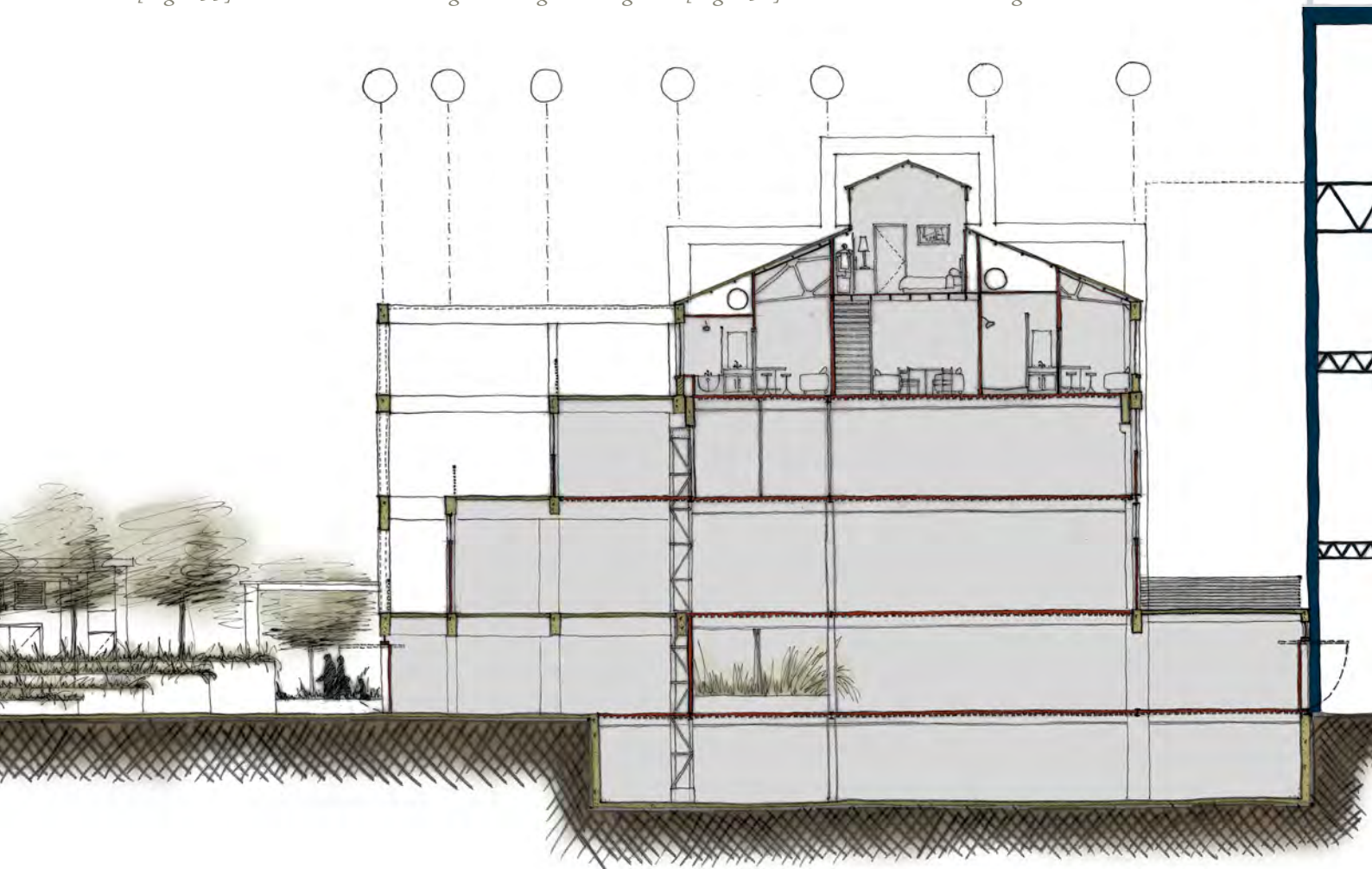


[existing section]

[Fig. 155] C1 - C1 section through existing building

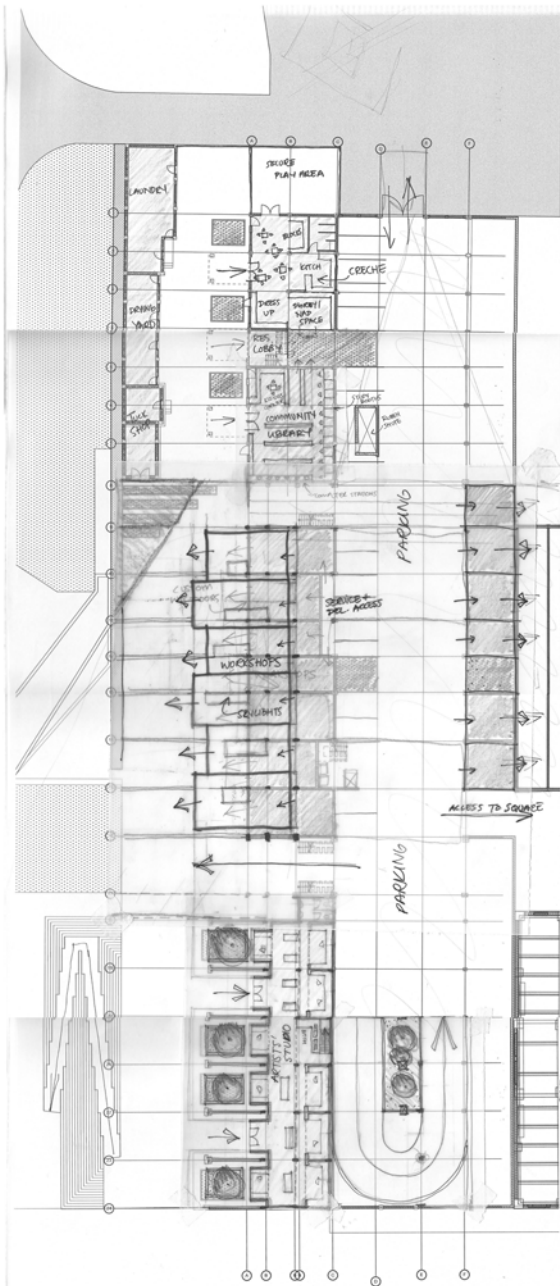
blue [new] red [demolished]

[Fig. 156] C1 - C1 section showing new and demolished work

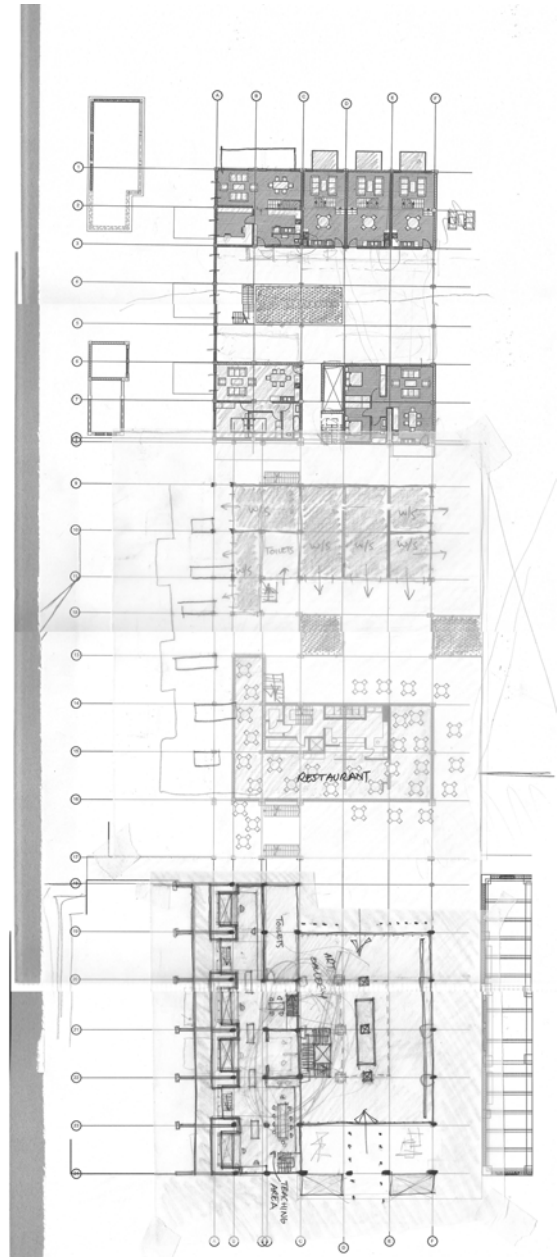


[C1 - C1] section

[Fig. 157] C1 - C1 Section (not to scale)



[ground]



[first]

[Fig. 158] Diagrammatic ground floor plan (not to scale) [Fig. 159] Diagrammatic first floor plan (not to scale)



[3d perspective view]

[Fig. 160] 3D perspective view (not to scale)

