Chapter _07
Design & Technical Development

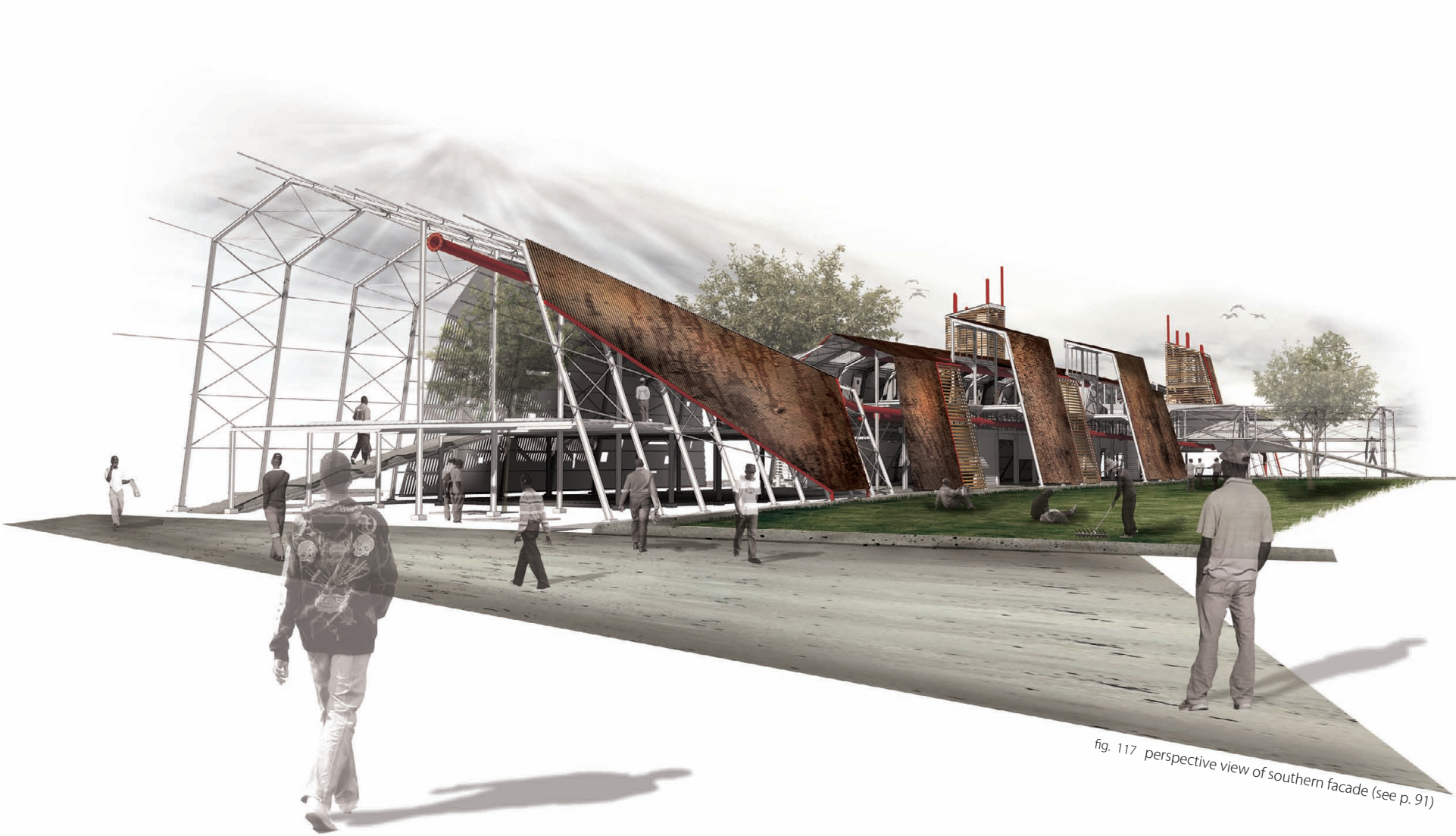


fig. 117 perspective view of southern facade *(see p. 91)*

Site development

With reference to p. 97

Geometry / Axis

A strong linear axis is currently evident on site (determined by the existing five warehouses). This axis should inform the design to a large extend.
The proposed access route between the bridge (Southwest) and the taxi-stop (Northeast) imposes a new axis over the existing warehouses (fig. 118).

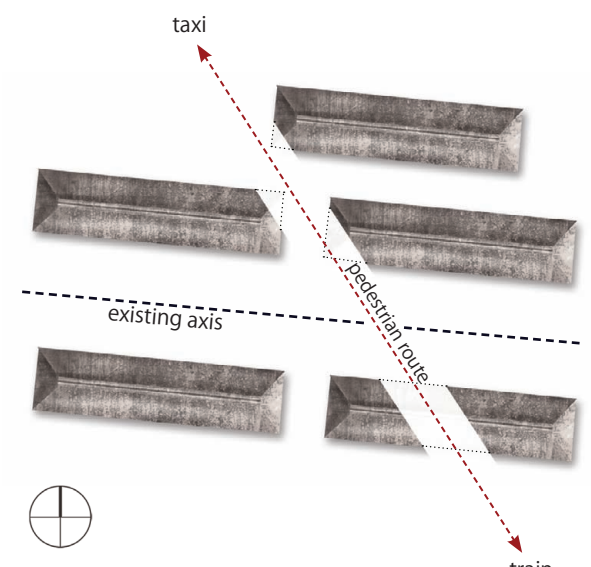


fig. 118 new axis over existing warehouses

Ground Works

In a response to the concept, most of the existing concrete foundations are left unaltered (except for the new pedestrian route). The existing foundations are in a good condition and are appropriate for structural purposes.

Boundaries

The only physical boundary of the intervention is the wall between the proposed retail market and the Department of Water Affairs on the western side of the intervention.

Grid

The design is based on a 3-meter grid running perpendicular to the linear geometry of the existing warehouses.

Concrete Works

Based on the 3-meter grid and the geometry of the existing; concrete footings are cast in close proximity to the existing foundations. These structural footings host the portable frames (rail tracks). The footings should be considered as the most permanent aspect of the design, and would be left unchanged if the building were to be disassembled in future.

Contours

The site is relatively flat, with an irrelevant fall from East to West, and a fall of 1:150 from South to North.

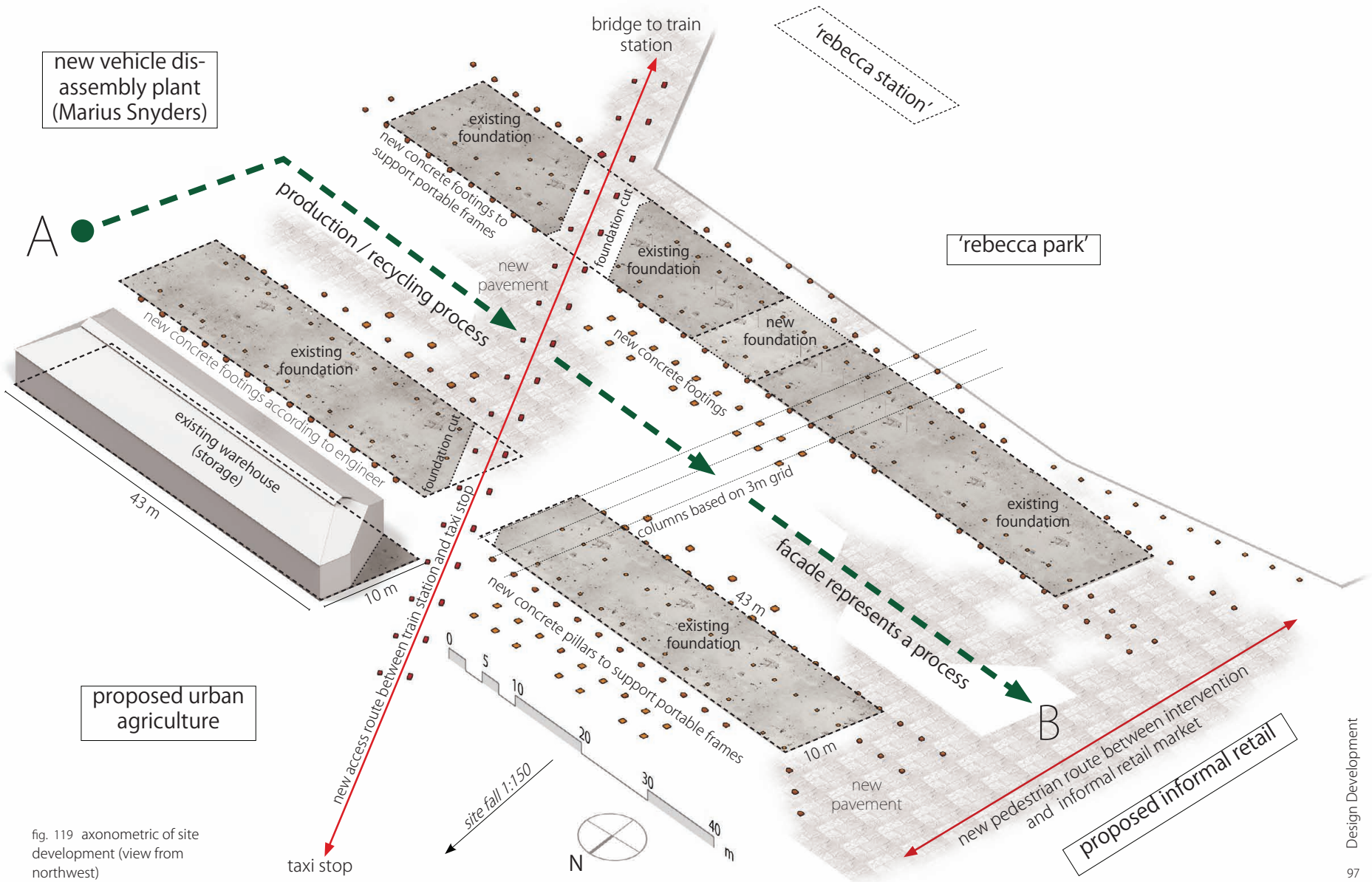


fig. 119 axonometric of site development (view from northwest)

Structure _ *'Portable Frame'*

With reference to p. 99

Portable Frame (Rail tracks)

The portable frames are imposed on the 3-meter grid (perpendicular to the linear existing axis). The frames are fixed to the concrete footings adjacent to the existing concrete foundations (see p.97).

Measurement & Possible Growth

The form and scale of the proposed design are subjected to the quantity of rail tracks available (measured at the redundant shunting yard). This pending/ unfinished design state is evident in the appearance of the building, and allows for further extension (see p. 95)

Dimensions

Angles and dimensions of each element in a 'portable frame' are subjected and determined by the measurements of the existing warehouses. Thus, the form and appearance of the past (old warehouses) will be evident in the future (proposed intervention).

Assembly & Disassembly

The primary benefits of a 'portable-frame' structure are the erection time and simplicity in construction technique. The frames are bolted at each joint, allowing for rapid assembly / disassembly.

fig. 120 Metro-Rail employee assisting author to cut a rail track

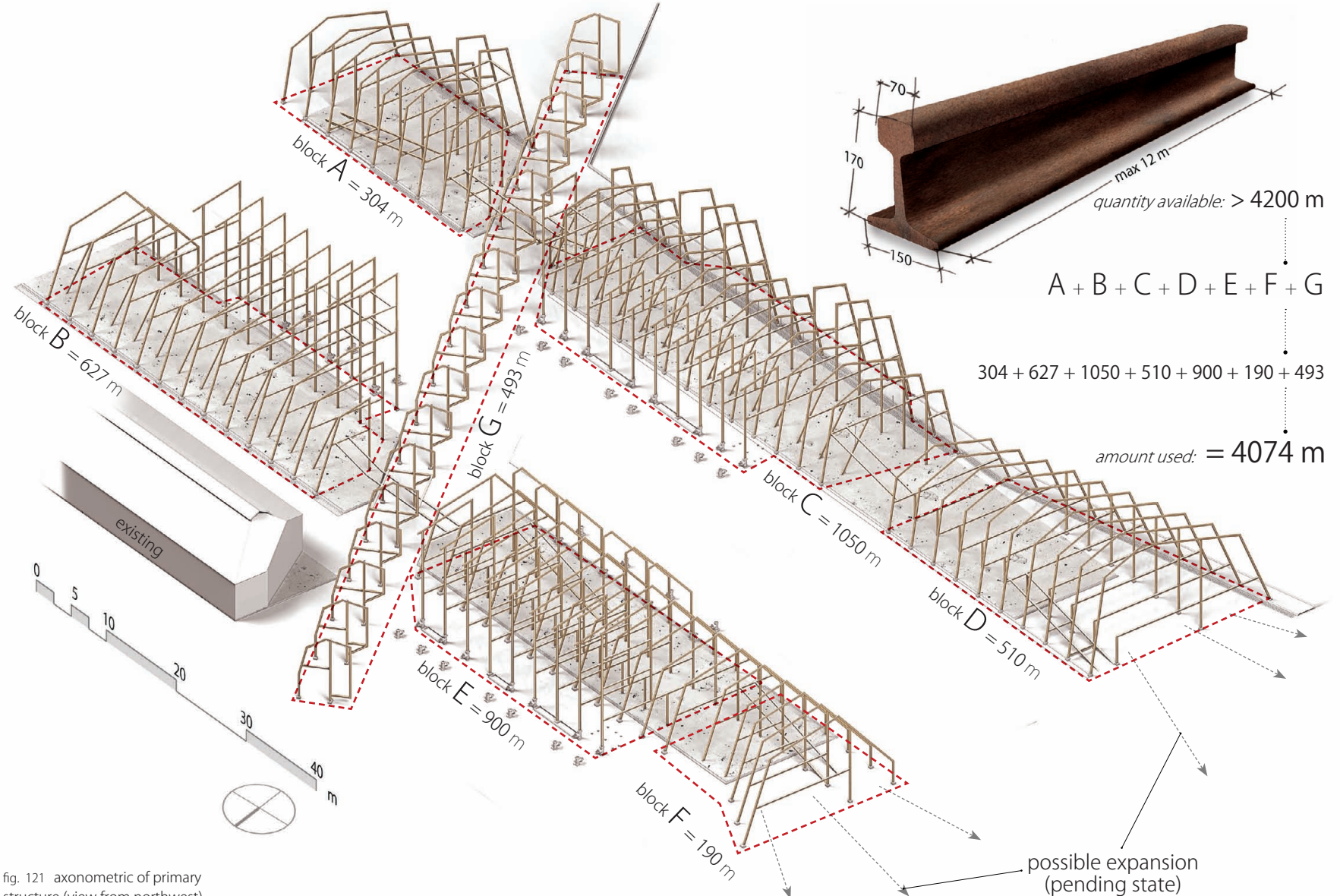


fig. 121 axonometric of primary structure (view from northwest)

Circulation, Flooring & Access

With reference to p. 101

Ground Floor

Circulation

The intention of the design is to maximise public exposure to the production process, allowing pedestrians to meander through the intervention and experience the process of production firsthand (workshops). The separation of the 'blocks' (see p. 101) encourages movement and diminishes a psychological threat of passing through the building.

First floor

Circulation *(Pre-cast concrete panels)*

The hollow-core concrete panels installed in the building indicate the movement route throughout the intervention. These walkways allow users / pedestrians to access the housing units and 'flexible' spaces in a linear fashion. Even though these routes are integrated within the building, it should still be considered as a semi-public entity.

'Flexible' space *(Rail Sleepers)*

The Rhodesian Teak timber sleepers (recycled from shunting yard) used for flooring, indicate the 'flexible' space on first-floor level. Panels are light (considering pre-cast concrete) and offer the building's users the opportunity to move these panes to different locations. Thus, allowing the user to determine the geometry and layout of spaces according to personal needs. These 'flexible' spaces are provided with services throughout the intervention, allowing for various different programs in a response to ever changing social needs.

Vertical Access

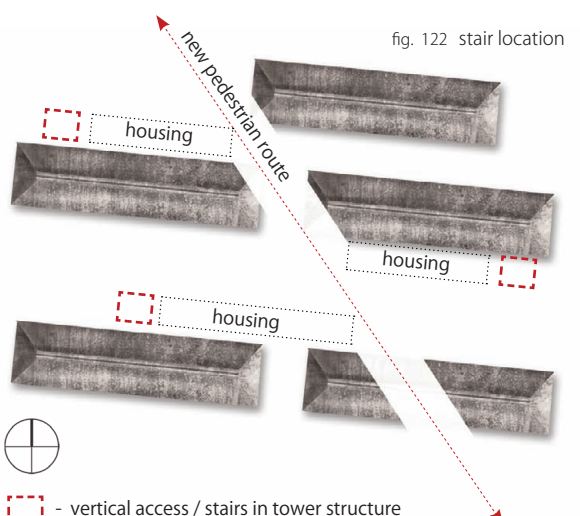


fig. 122 stair location

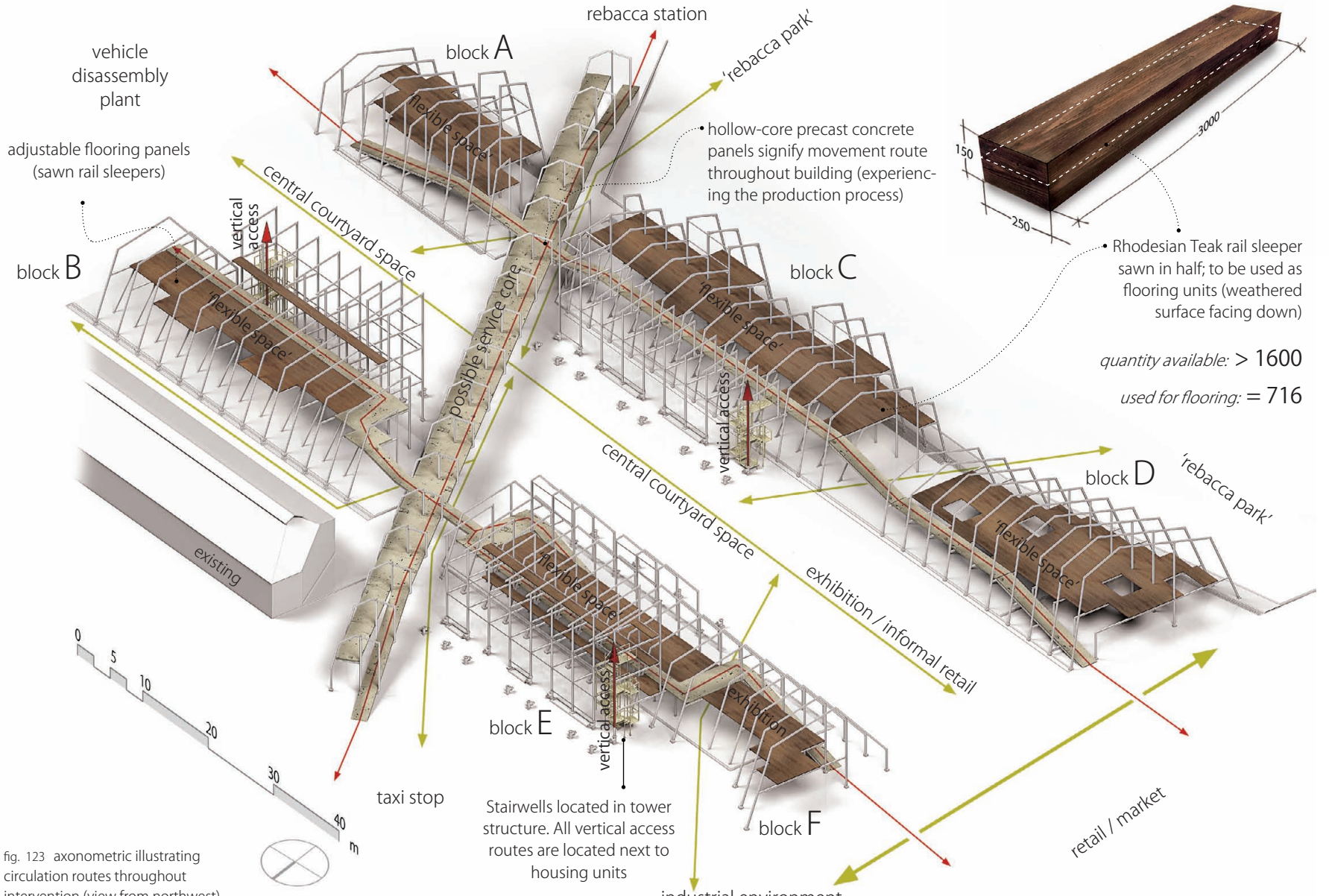


fig. 123 axonometric illustrating circulation routes throughout intervention (view from northwest)

Services & Environmental response

With reference to p. 103

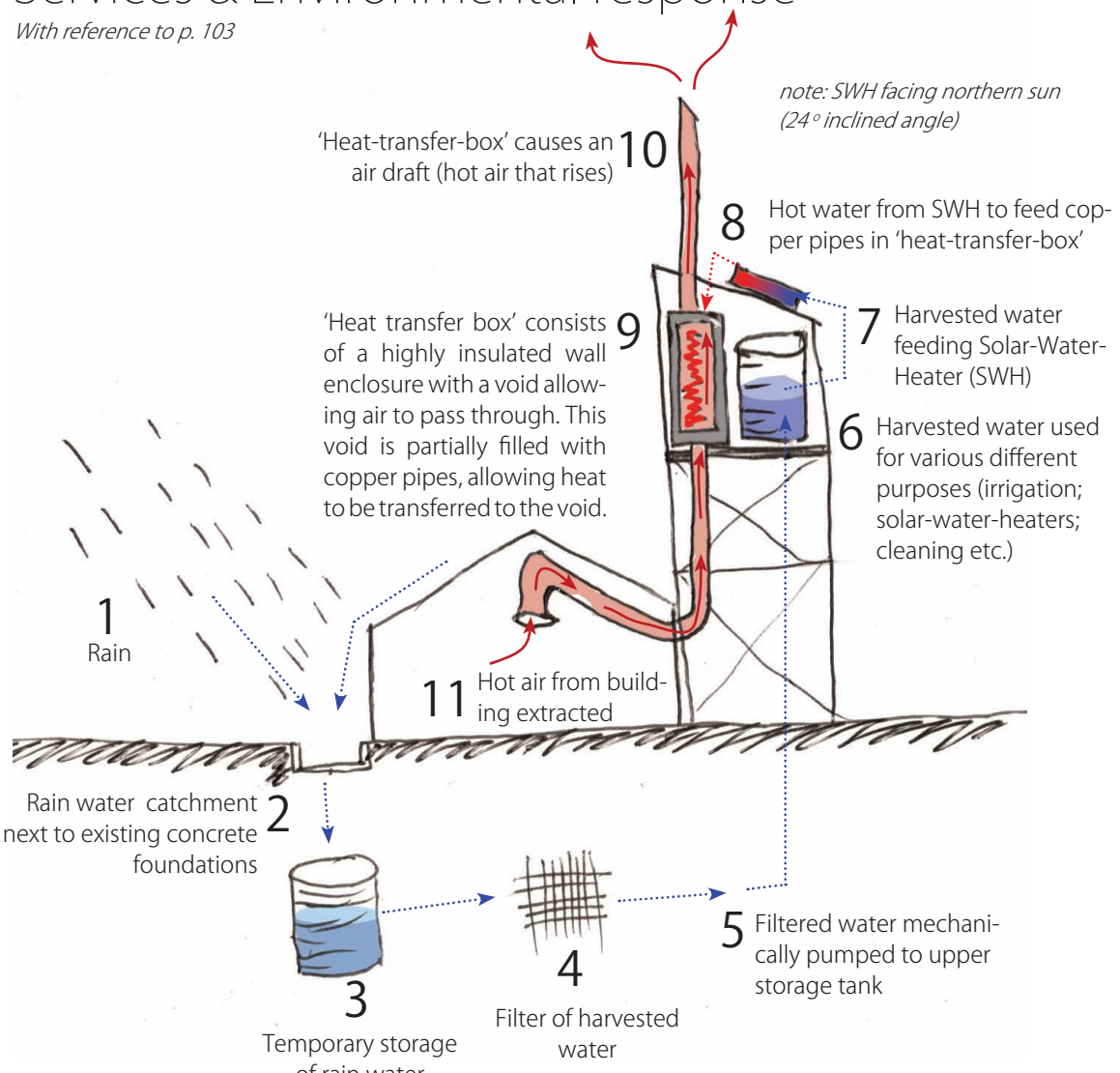


fig. 124 heat extraction concept

A Similar Process

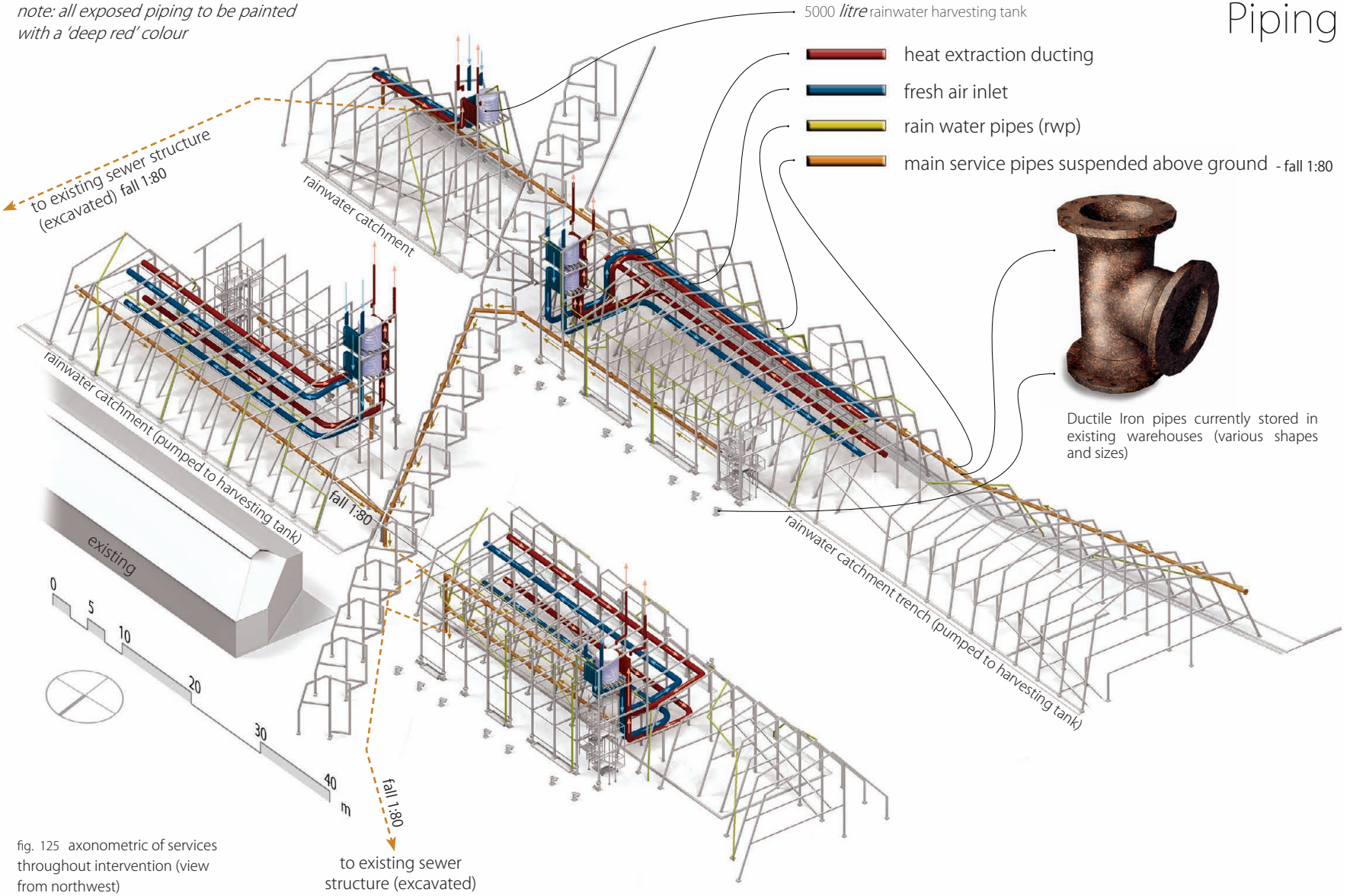
As with the illustrated heat extraction method, the concept of providing the building with fresh cool air works on a similar fashion. However, instead of the copper pipes being filled with warm water (from SWH); the pipes will be filled with a cold liquid / gas. This causes an air draft moving down (cold air falls)

Exposed Services *(see p. 103)*

Main service pipes are exposed above ground level allowing for easy access. These pipes host various services (electricity, water, sewage etc.)
The exposed service pipes allow for easy adaptation and forms a vital part of the architectural language. These services are located throughout the entire intervention, allowing for programme alterations.

Piping

note: all exposed piping to be painted with a 'deep red' colour



Ductile Iron pipes currently stored in existing warehouses (various shapes and sizes)

fig. 125 axonometric of services throughout intervention (view from northwest)

Housing & Structure

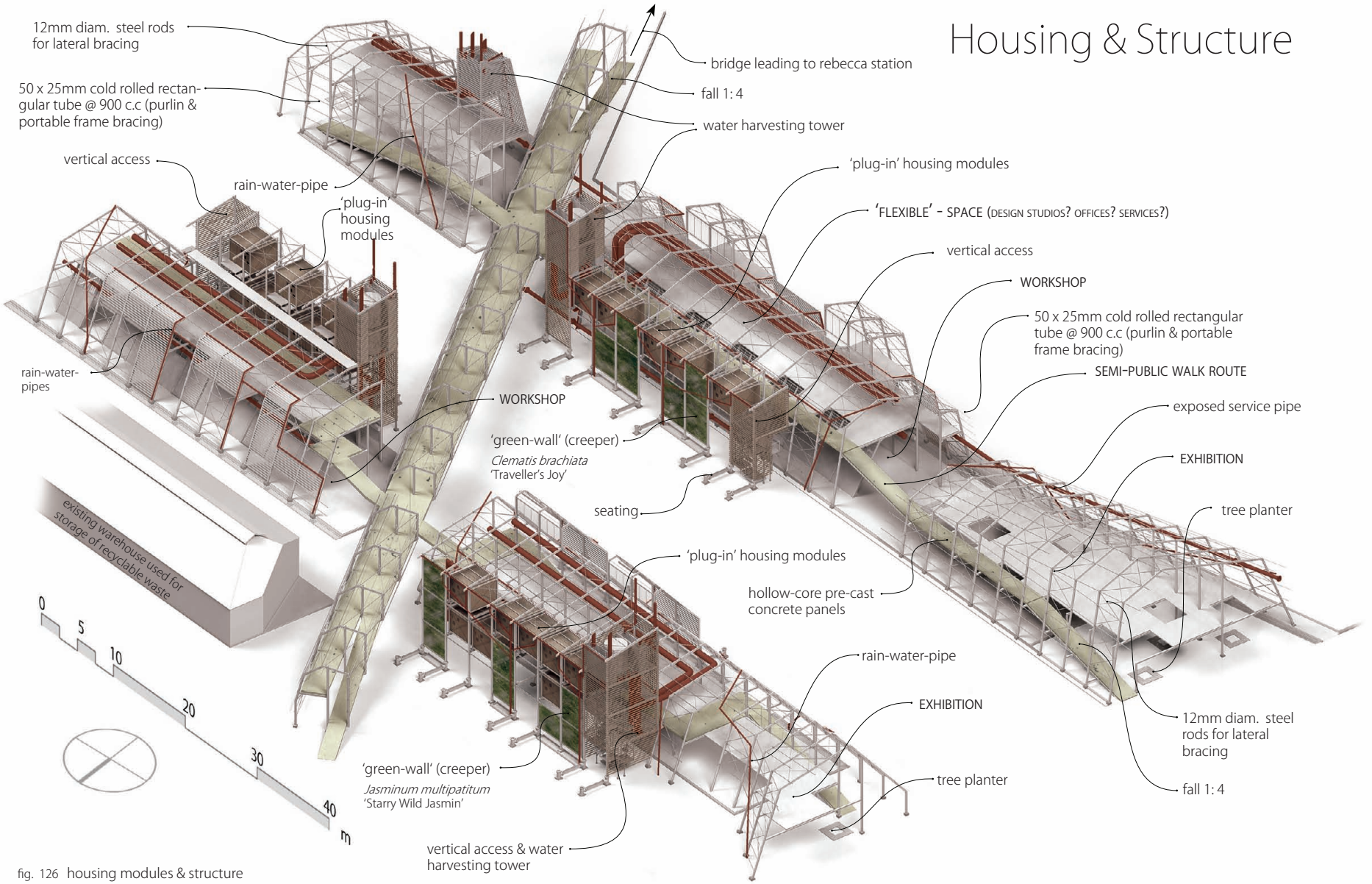


fig. 126 housing modules & structure

Skin

Steel sheeting from existing warehouses:

quantity available: 4 x 903 m²

= 3612 m²

A + B + C + D + E + F + G

= 283 + 611 + 764 + 508 + 581 + 220+ 645

= 3612 m²

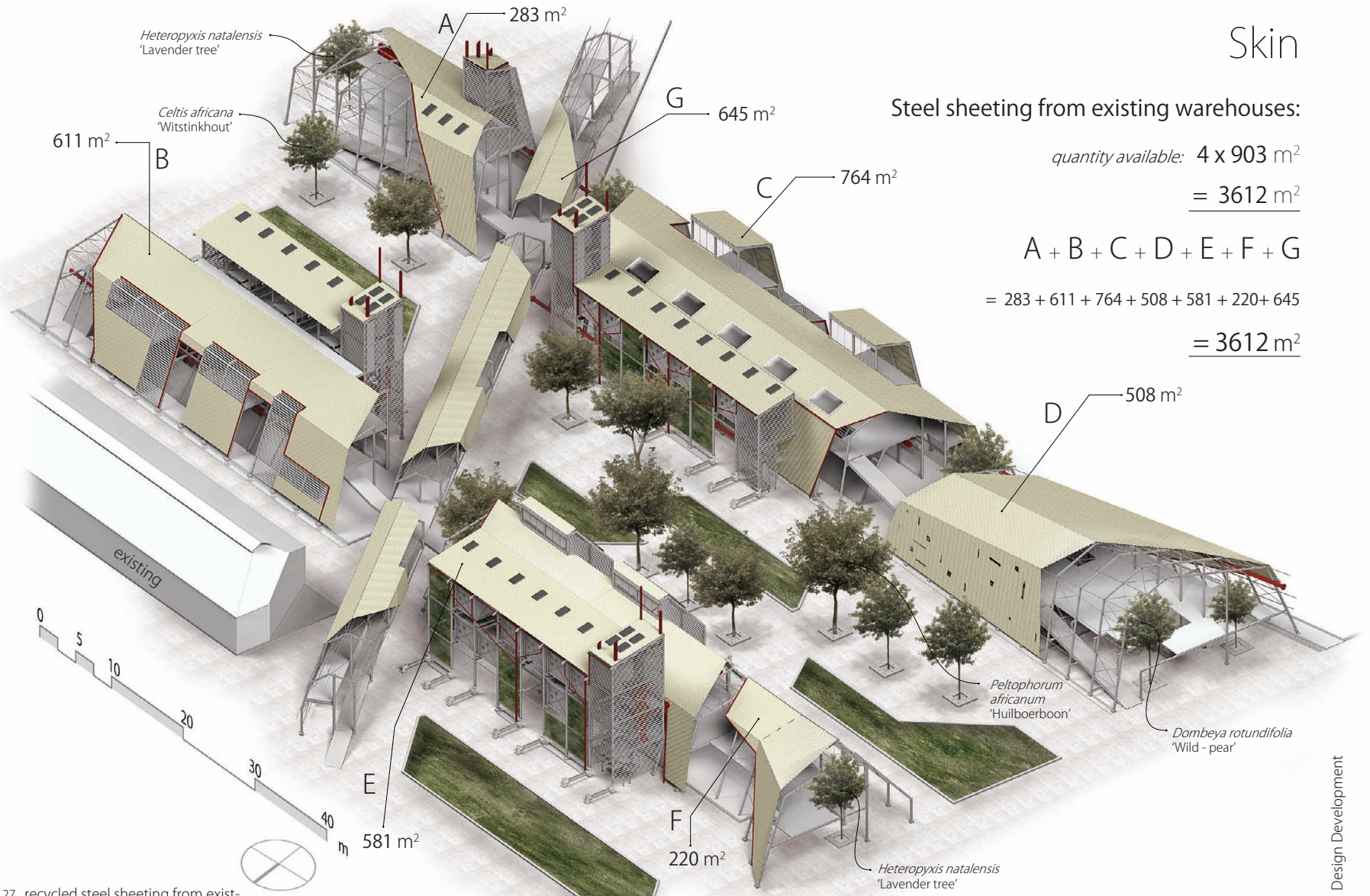


fig. 127 recycled steel sheeting from existing warehouses (view from northwest)