Site

The site is made up by a number of sites consolidated into one. The consolidated sites are currently residential sites and one small ground floor level parking/ car wash shelter. The stand numbers of sites as they stand currently are: R/156; 2/156; 1/156; 1/157; R/157 and 1/158.
Figure 1: Ref: Tshwane municipality

Wind

Ref:B.R Schulz 235 – 236; 237 – 238

Materials

The building is mainly put together through the use of locally sourced and manufactured materials. Most of these materials have embodied thermal properties which are created from the early stages of the products manufacturing process. These materials are well suited for the South African (Gauteng) weather.

Skin of the building: The wall covering of the building is mainly composed of three materials; clay brick, concrete and glass.

Roof of the building: the roof of the building is made up of a combination of both IBR roof sheeting and concrete flat roof.

- Clay brick:

This is a locally found and produced material. This material has been created to withstand the different weather conditions that take place within the different parts of the country. Due to its good thermal properties, this material allows for comfortable internal living conditions. It also has good properties when it comes to acoustic insulation. The product being good in both the thermal and acoustic insulation, it reduces the application of extra materials as a result reduces the building cost. Using the method of wall cavity when building in brick, increases thermal and acoustic properties of the built structure.

Brick allows for different ways of treatment ranging from plastering it, living it in a face brick state as well as creating a variety of patterns out of it. Clay brick has good fire resistance properties these are further tested and ensured by the different manufacturing companies.

Due to the fact that brick is a partly recyclable material, it makes it a good choice to build with.

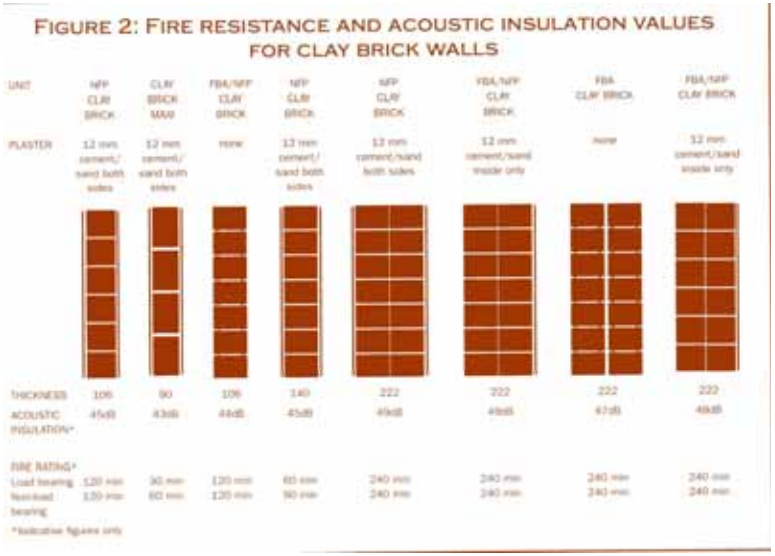


Figure 2: Ref: Clay Masonry technical guide: pg 13

Due to a huge number of different projects which have been built in the Republic of South Africa using clay brick as a means of construction, the country has created a substantial amount of experienced and skilled brick laying professionals. This therefore creates an opportunity of locally sourcing the labour and creating job opportunities for many within the country.

The use and application of clay brick has been used in a range of building types in this country (R.S.A) ranging from residential to commercial building. Being a robust material clay brick has found itself being used in a lot of buildings regarded as public buildings.

Figure 3: Brickfield and Legae (Johannesburg)
Ref: Phumlani

Figure4: Metro Mall (Johannesburg)
Ref: Phumlani

Figure 5: Hector Peterson Museum (Johannesburg)
Ref: Phumlani

Above are images showing some of the successfully designed and constructed clay brick buildings. These buildings are also heavily occupied by general public.

- Concrete

Concrete is also a locally found material and due to its plasticity it allows for different types of shapes and forms to be created out of it. It also has thermal properties. Due to concrete being a robust material, it becomes a good material to build with when building public buildings.

The structural columns in the structure of the African Dialogue Centre are built with the use of concrete. The free standing columns which people and vehicles move around have been left in a circular form. The columns which are bound within the wall structures have been created in a square form. This makes connection between the column structure and the wall infill easy.

Concrete has also been used on the flat sections of the roof. This gives an allowance for easy placement of some of the mechanical plants that help with the comfort of the building. When well water proofed, the use of concrete on the flat sections of the roof makes it easy to control rain water.

The plastic properties of concrete allow for flexibility in design. When taking advantage of the plastic properties, elements can be designed to be multi functional. An example of such features is the courtyard façade covering the library section of the building. The wall has extended to being both a seating bench as well as a desk on the top level.

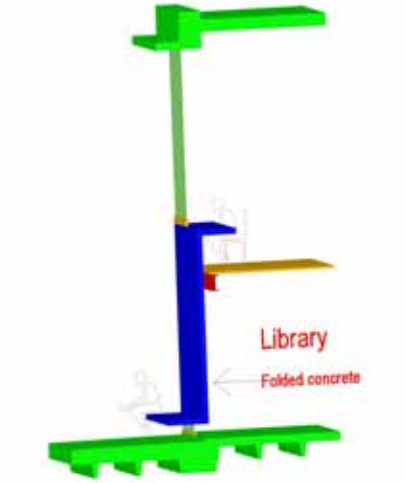


Figure6:
Ref:Phumlani.

- Glass

Due to the intentions of allowing maximum light into the building and the least use of electricity during the day, a huge amount of glass has been applied into the design of the African Dialogue Centre on the Southern Facade. To allow light into the building and control the amount of heat that enters, vertical and horizontal sun screening louvers have been applied on the Western, Eastern and Northern façades. In an attempt to have good thermal control, double glazing has been used.

Distribution of services

All the services in the building have been distributed in such a way that they are easily located by everyone using the building. Fire escapes have been evenly distributed through out the building. All building blocks have fire escapes on either side. Almost all the fire escapes spill out to the open courtyard, allowing for easy and safe escape. All the distances between the different fire escapes have been designed to meet SABS standards.

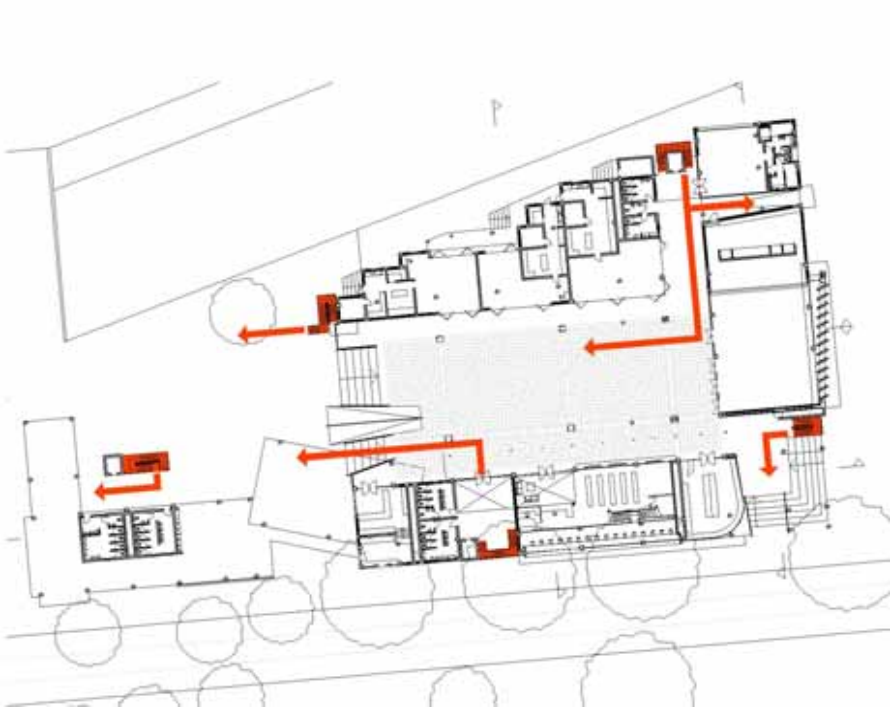


Figure 7

In most cases, fire escapes have been designed to double up as vertical circulation in the African Dialogue Centre. All the vertical circulation nodes have been located at the entry points leading towards the main courtyard. This way it makes it easy for the different occupants to find their way around the building. For easy access and identity, both the vertical circulations and the ablutions have been located in close proximity of each other. Ablutions have been located in such a way that they are easily accessible by occupants on either side of the courtyard within the complex.

Figure 8

The courtyard layout has been designed in such a way that it allows communal engagement, easy through movement by passers by and good protection against bad weather and heavy sun.

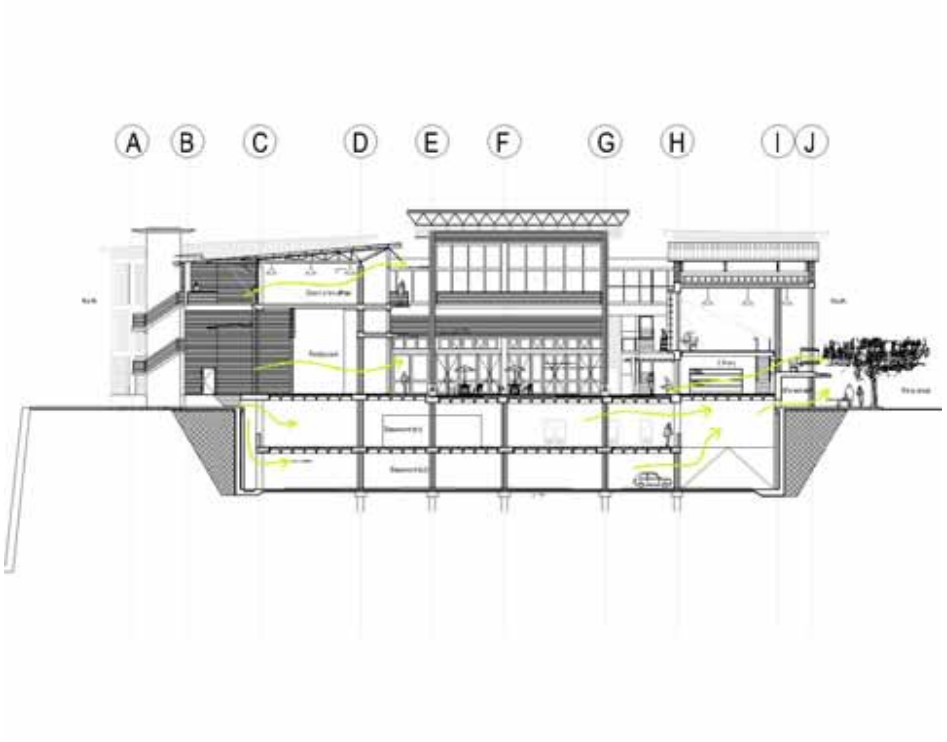


Figure 9

In an attempt to save on the electrical energy used by the building through mechanical cooling and ventilation the architecture has been kept as naturally ventilated as possible. This refers to both the human occupied spaces in the building as well as in the parking basement. In places where mechanical ventilation and cooling has been installed, it is only there as a back up system.

Structure and supporting services

Figure 10:

The structural grid has been designed to accommodate maximum and comfortable car parking in the basement area. It has also been structured to allow for flexible design of occupational spaces and free public circulation on ground level and above.

Concrete elements which have been designed to enclose internal spaces are also used as structural bracing members.

Due to the high live load that is imposed by vehicles on the structure, the basement floor levels have been designed using coffer slabs. By using this system, the depth of the structure is reduced. This means that less concrete is used as a result the structural dead load is also reduced. This allows for the minimum width of structural columns to be used.

Due to the fact that human live load is less than that of the vehicles, beam and flat slab system has been used above ground level. To help reduce the depth of beams and slabs, column spacing has been kept to a maximum of 8000mm.

Figure 11:

All the vertical circulation structures have been designed to be higher than most of the building. This allows for the public to easily locate them. While in some specific areas vertical circulation structures have been used as structural bracing members.

Figure 12:

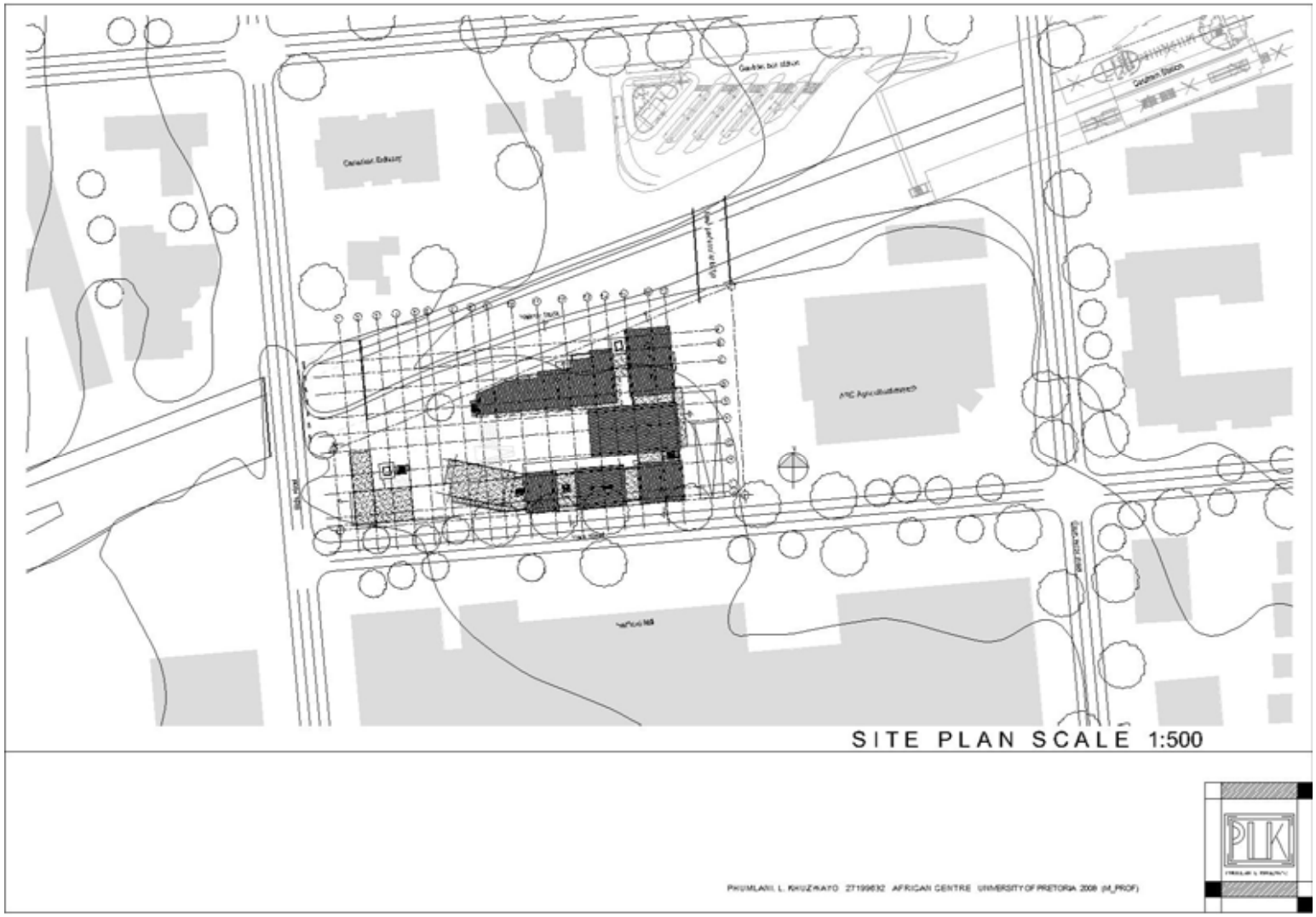
The application of sun screening louvers on the eastern, western and northern façade, help reduce excessive running of mechanical cooling systems.

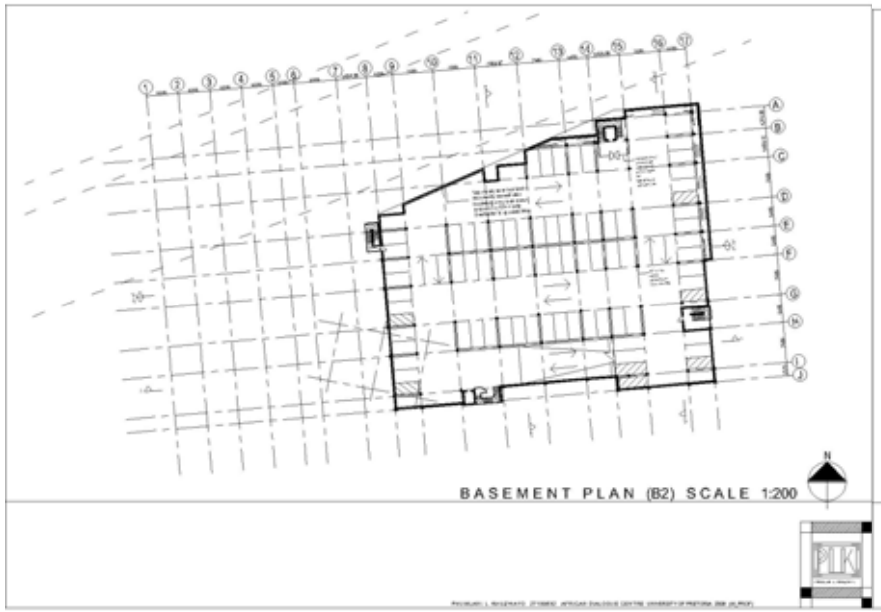
To help control the climate inside the building, air-conditioning systems have been allowed for in the design. The audiovisual area as well as the library will share the air-condition plant located on the flat roof above the library main entrance. While the conference rooms, performance area as well as the delegate entertainment area get to share the air-conditioning plant on the flat roof next to the eastern fire escape. The restaurants get to use the slip unit air-conditioning system.

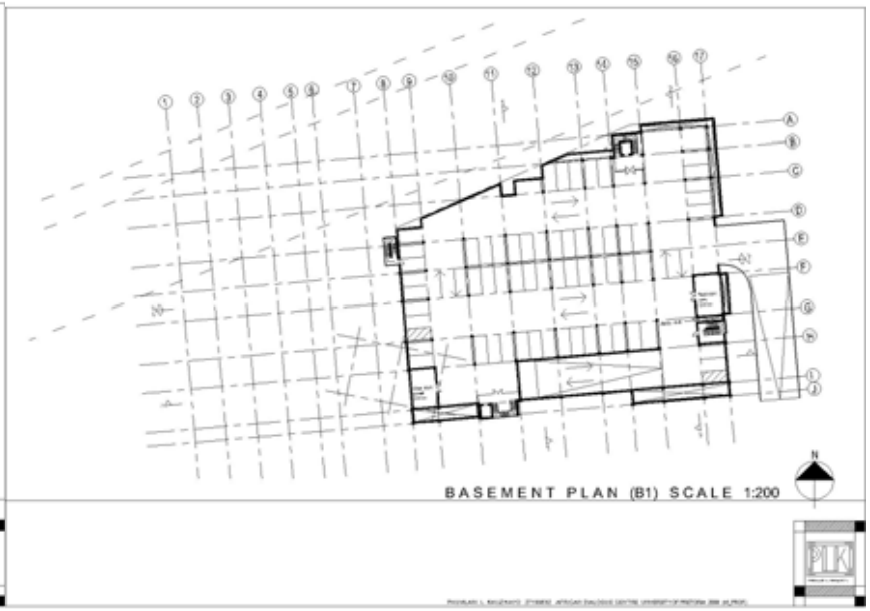
For easy access, cleaning and less disturbance on people visiting the building the refuse area has been allocated behind the restaurants.

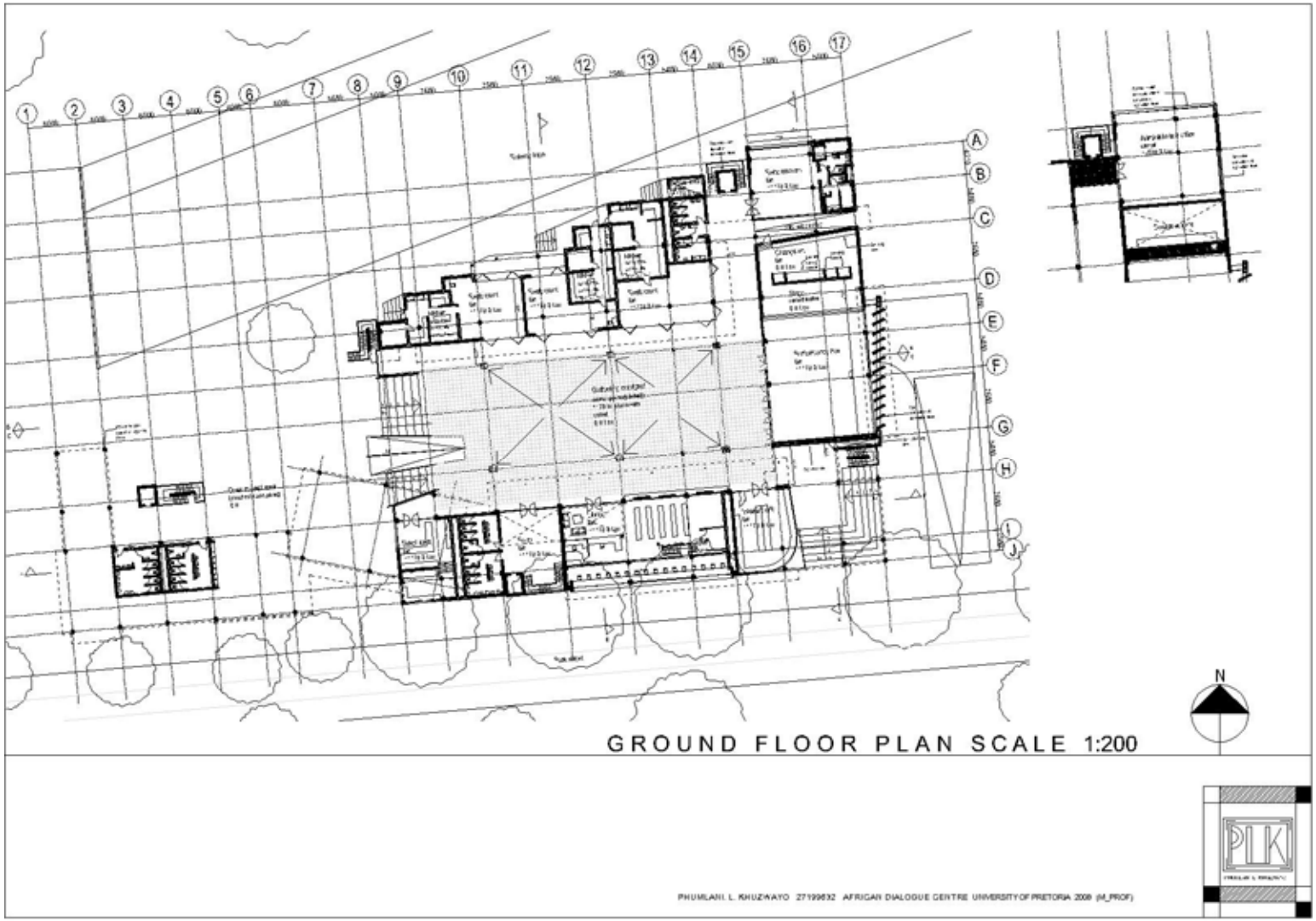
Ablutions have been allocated on the northern and southern edges in order to take advantage of the municipality sewer lines which are positioned which are positioned on those sides.

All the rain water from the roof as well as the courtyard will be discharge to the municipality storm water system.


SITE PLAN SCALE 1:500


BASEMENT PLAN (B2) SCALE 1:200


BASEMENT PLAN (B1) SCALE 1:200


GROUND FLOOR PLAN SCALE 1:200
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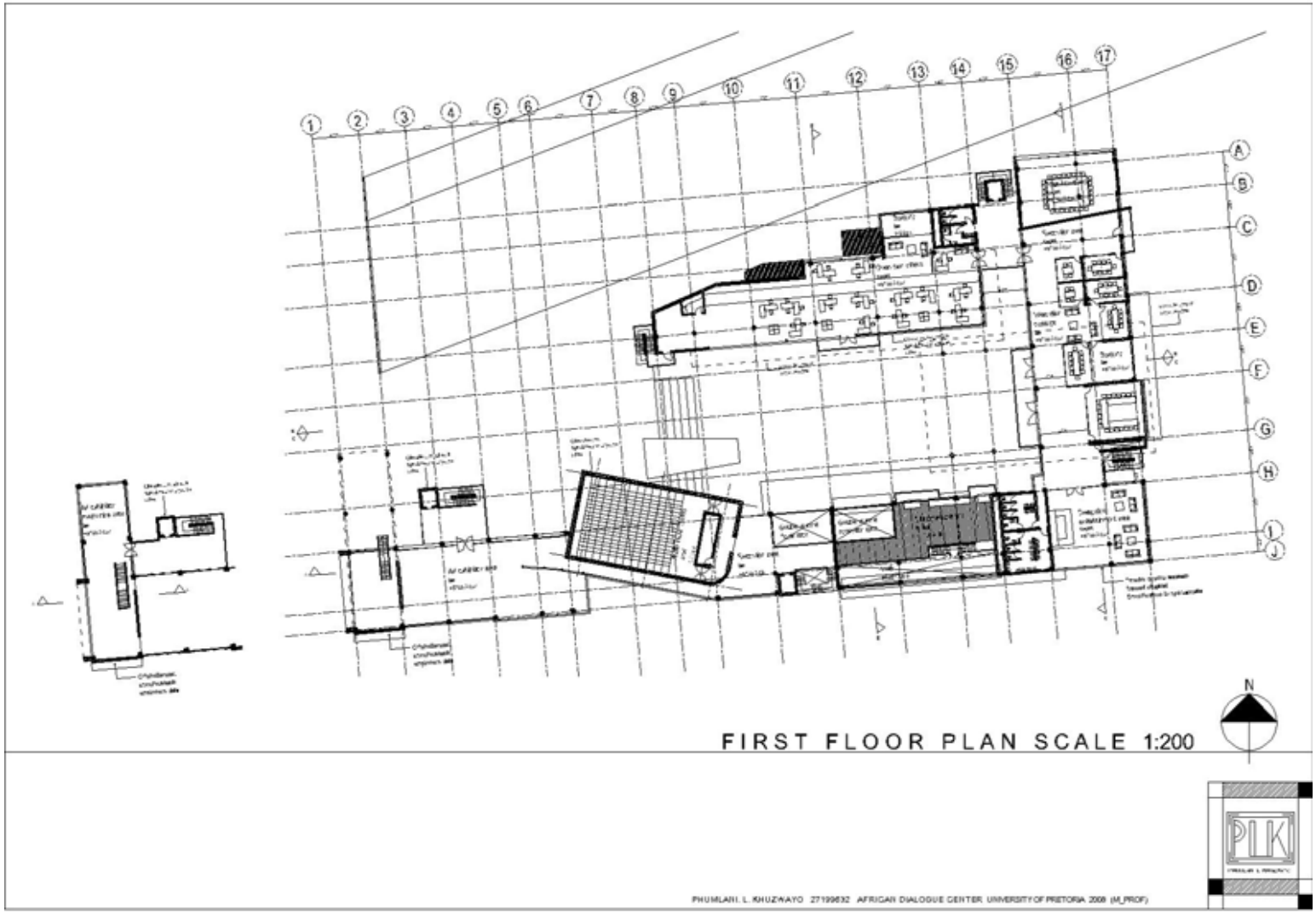
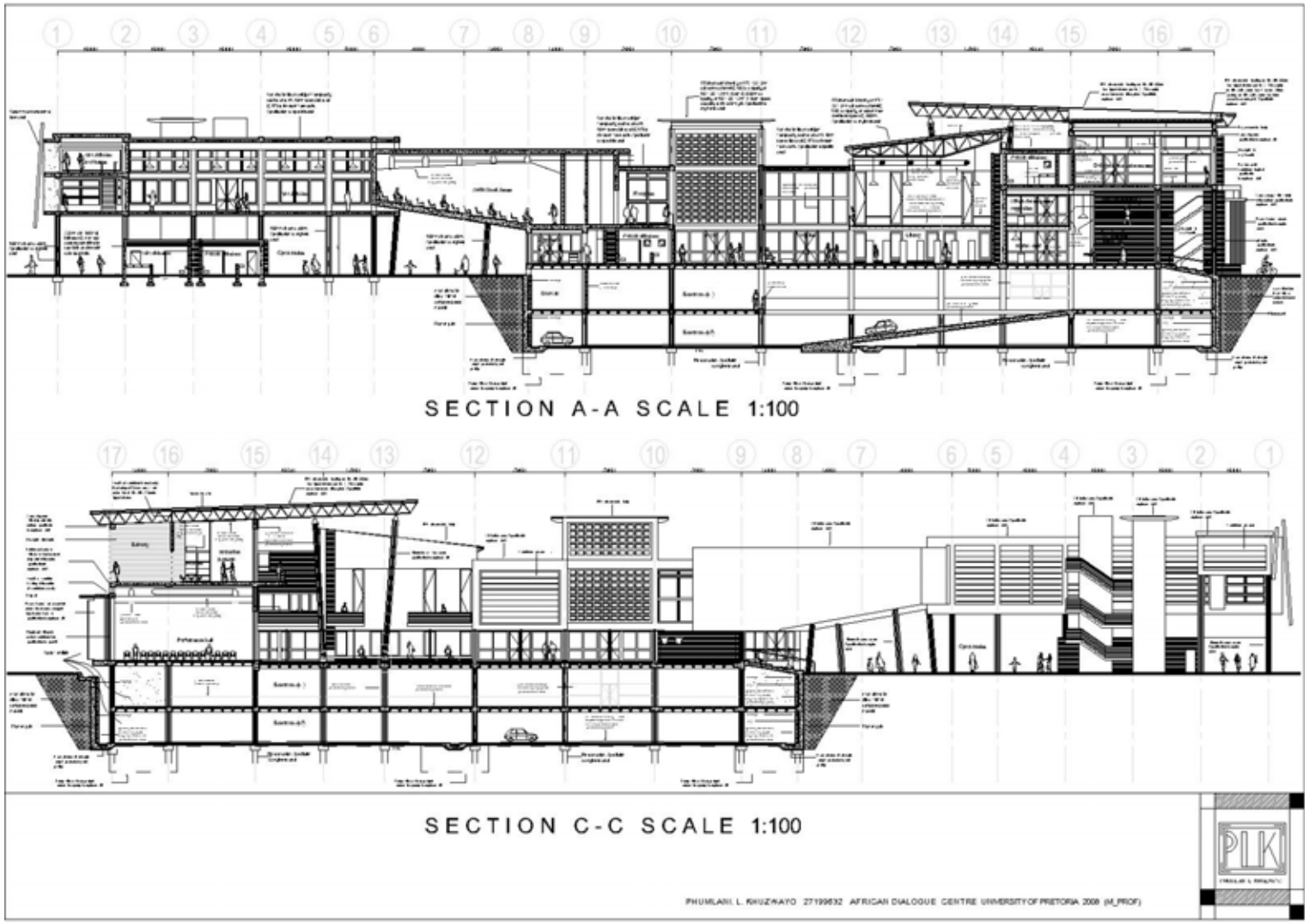

FIRST FLOOR PLAN SCALE 1:200
N
PLK


SECTION A-A SCALE 1:100
SECTION C-C SCALE 1:100
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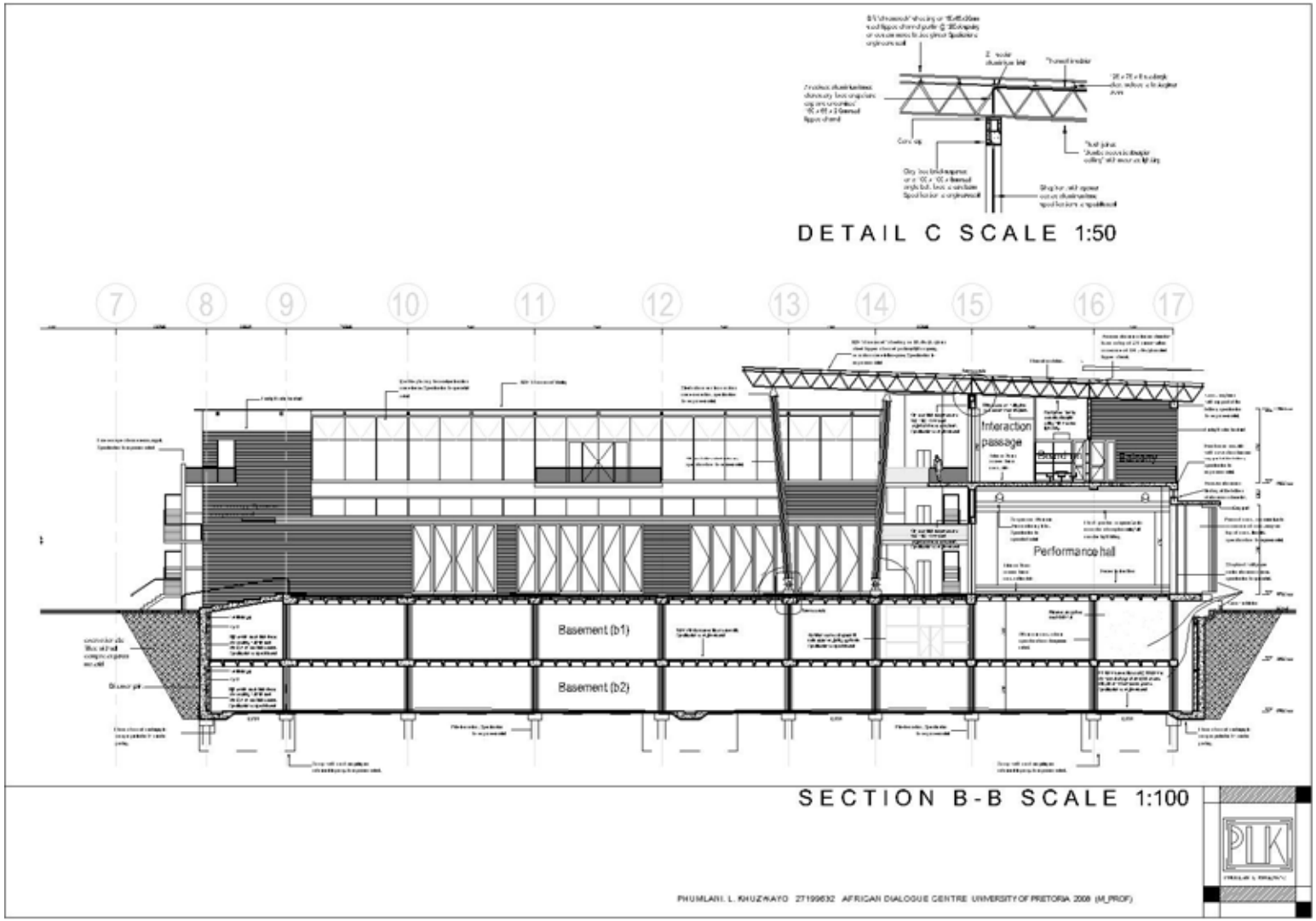
DETAIL C SCALE 1:50
7
8
9
10
11
12
13
14
15
16
17
Interaction passage
Balcony
Performance hall
Basement (b1)
Basement (b2)
SECTION B-B SCALE 1:100
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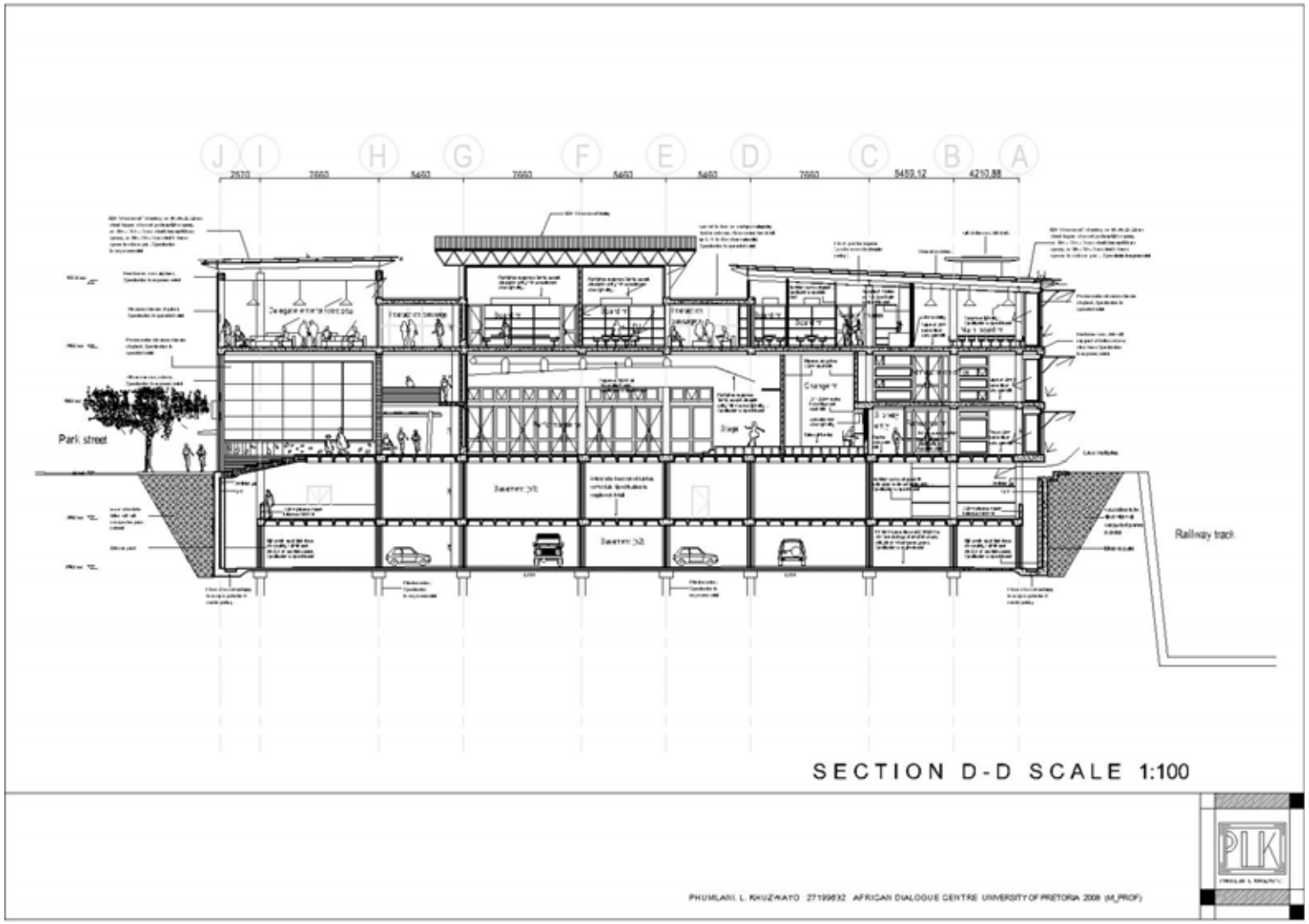
J I H G F E D C B A
2570
7660
5460
7660
5460
5460
7660
5460.12
4210.88
Park street
Railway track
SECTION D-D SCALE 1:100
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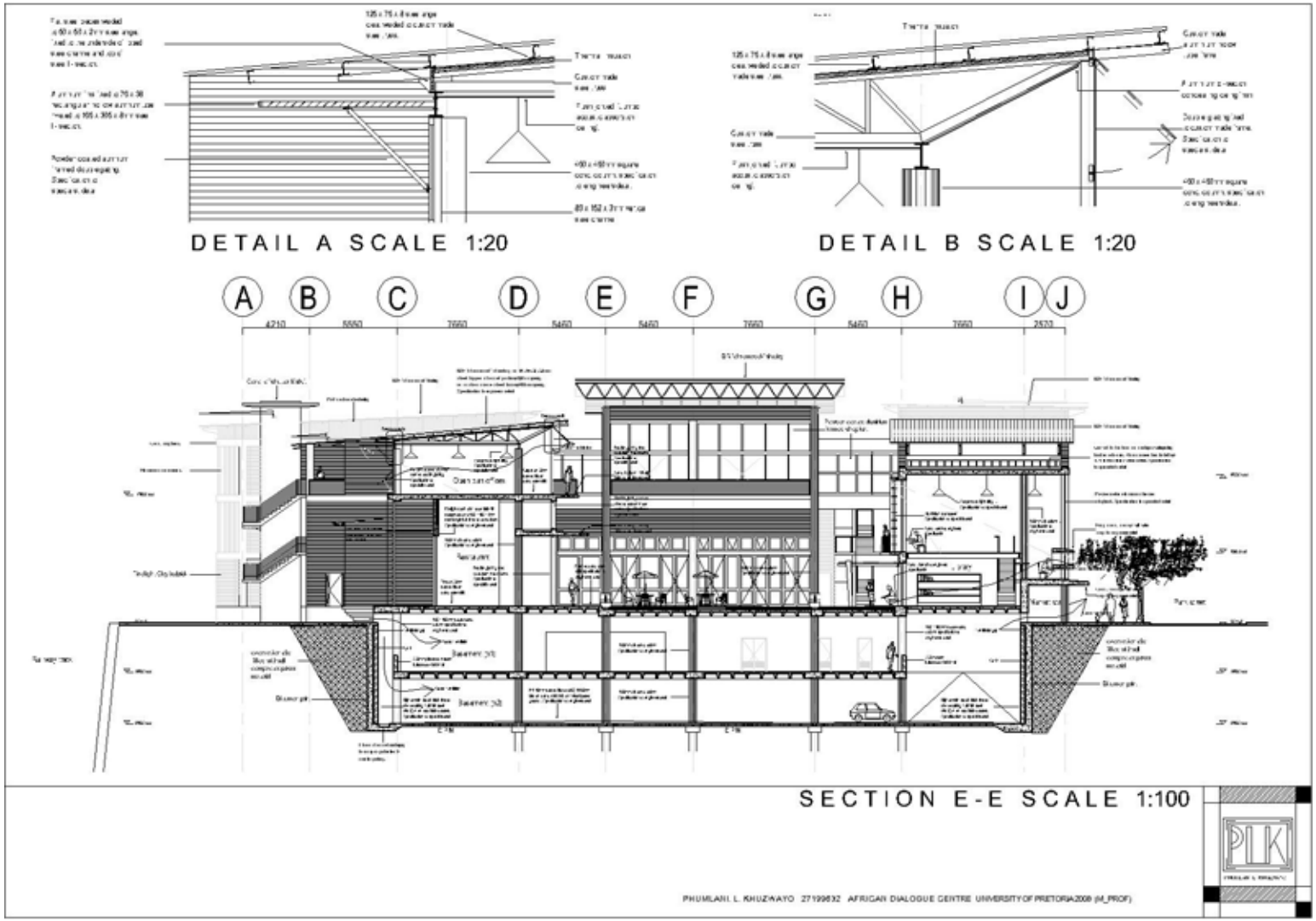
DETAIL A SCALE 1:20
DETAIL B SCALE 1:20
A B C D E F G H I J
SECTION E-E SCALE 1:100
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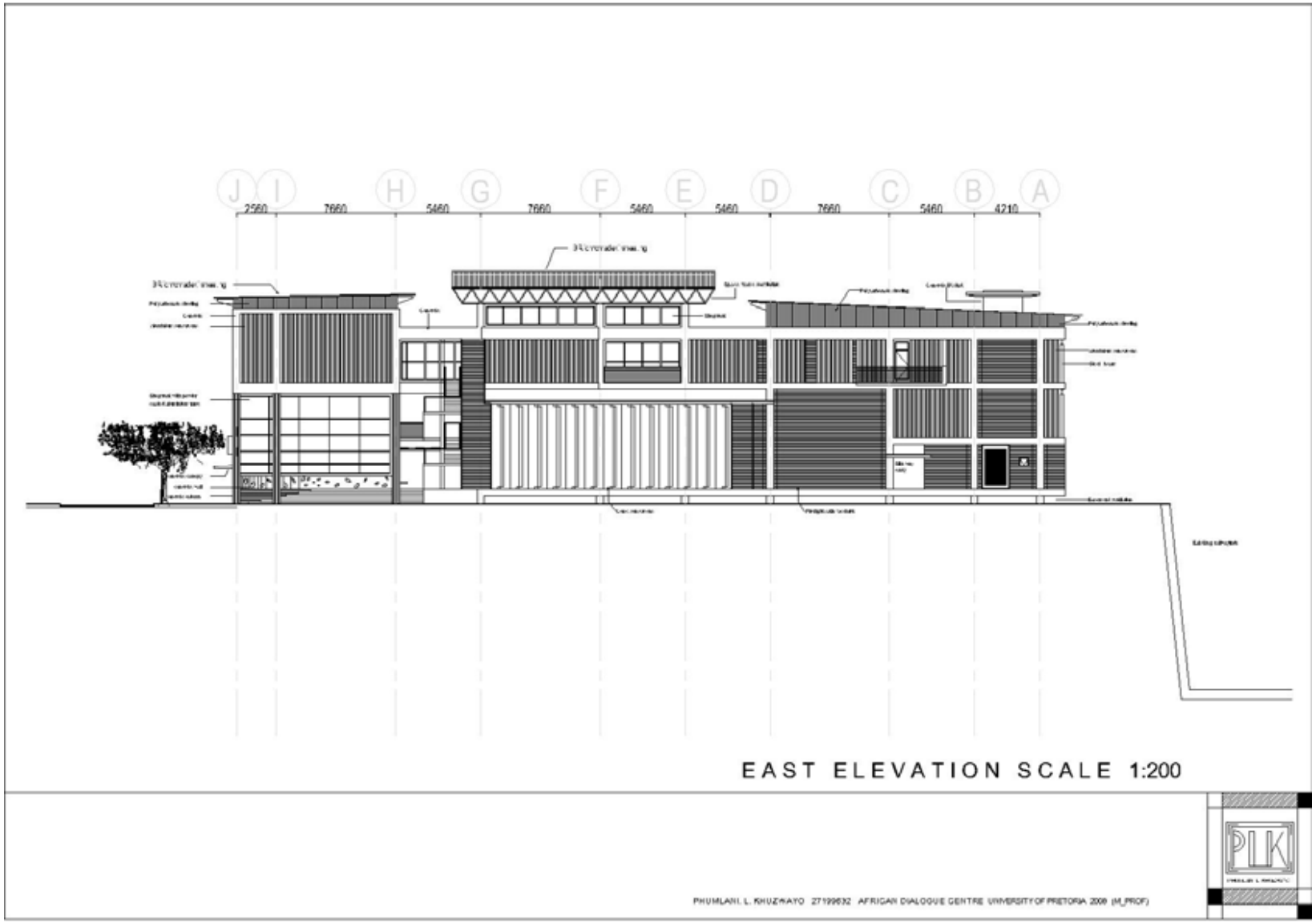
J I H G F E D C B A
2560 7660 5460 7660 5460 5460 7660 5460 4210
EAST ELEVATION SCALE 1:200
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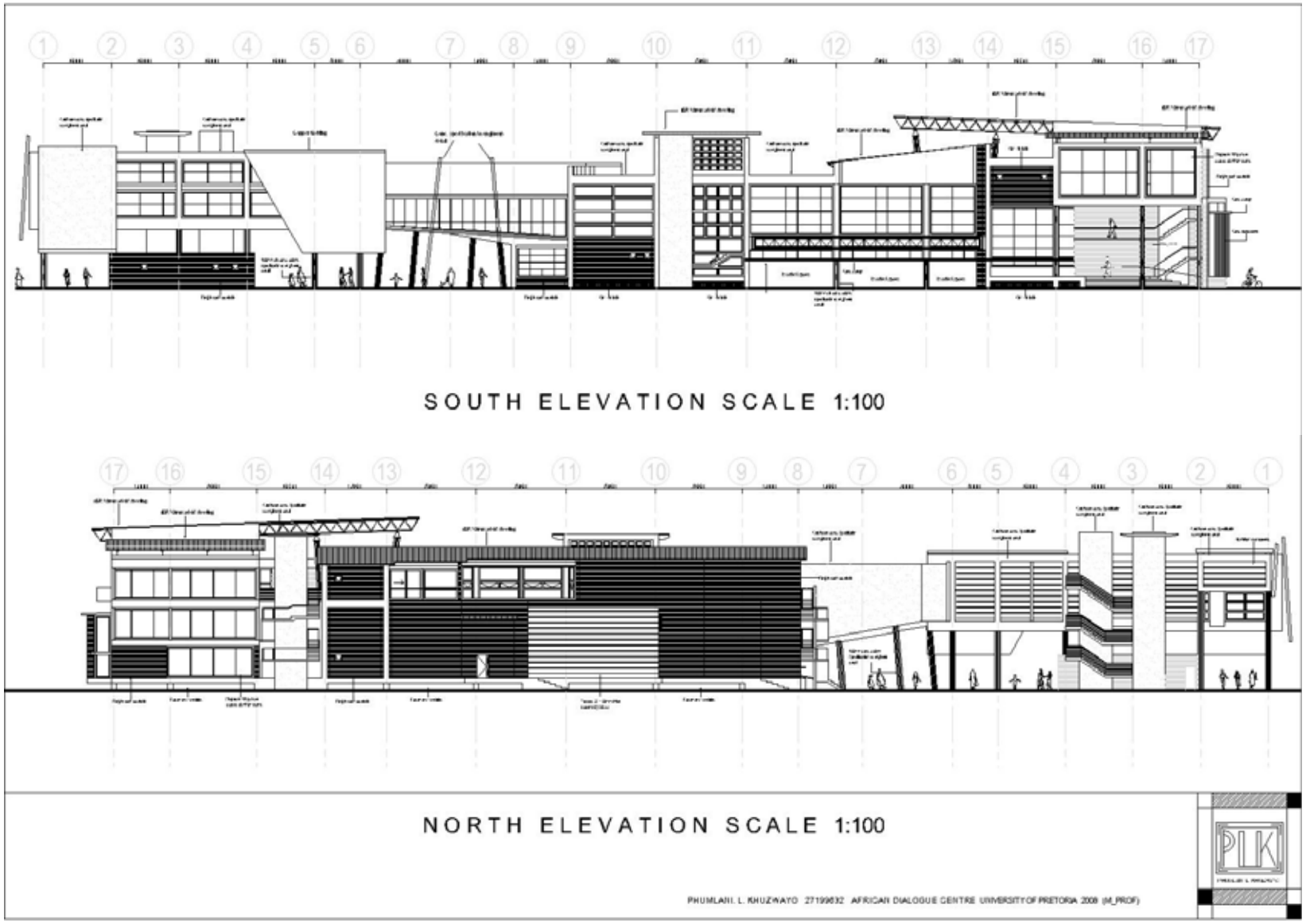
SOUTH ELEVATION SCALE 1:100
NORTH ELEVATION SCALE 1:100
PHUMLANI L. KHUZWAYO 27199932 AFRICAN DIALOGUE CENTRE UNIVERSITY OF PRETORIA 2008 (M_PROF)