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Design decisions:

The initial concept arrived through an investigation into the existing urban fabric and form. Massing and volumes were studied in the precinct and these led to the exploration of forms and mass that may enhance a building on the chosen location.

Simple diagrammatic sketches aided in finding an optimum solution for the site. These diagrams are crucial in the illustration of how the spaces and forms were chosen for the project. These exploration sketches are shown in Figures 2, 3 & 4.

On an *urban design level*, a few constraints need addressing, namely:

- The fact that this is a stately precinct due to the City Hall and museum buildings, there is an urban frame that surrounds the City Hall building and this line has to be respected in the precinct, refer to Figure 1, the image defines the frame surrounding the public space in front of City Hall and also Figures 9 & 10.
- All neighbouring buildings to the City Hall are formal and do not compete with the image of the City Hall. This gives reason to adopt the same strategy in the

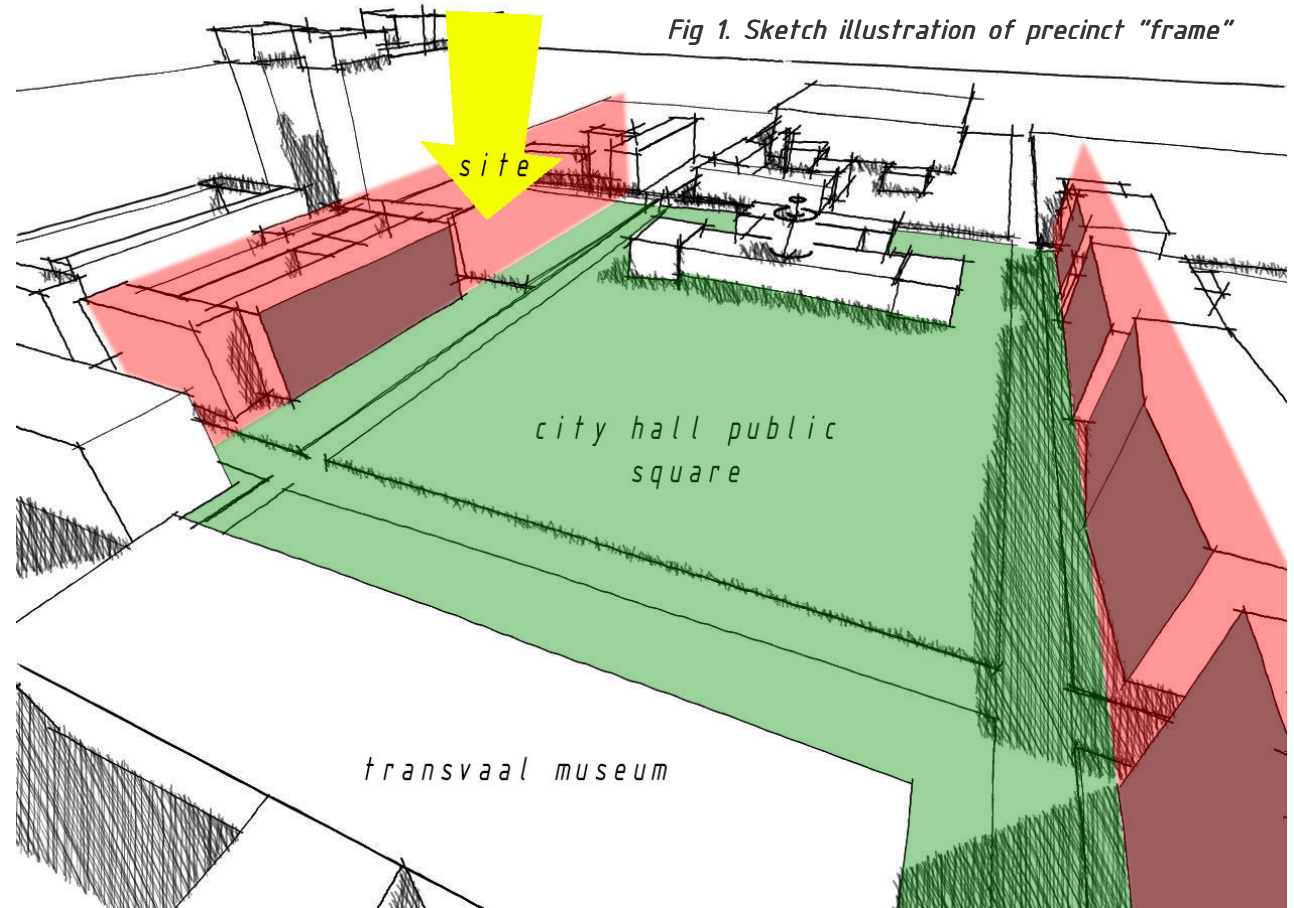
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a featured building part of the design. The function of the building follows under the heading – Precinct considerations.

concept for the design centre. An explanation of the surrounding buildings is dealt with in chapter 4, a discussion follows in “Precinct considerations”

- The old Spoornet building located on the premises becomes

Fig 1. Sketch illustration of precinct “frame”



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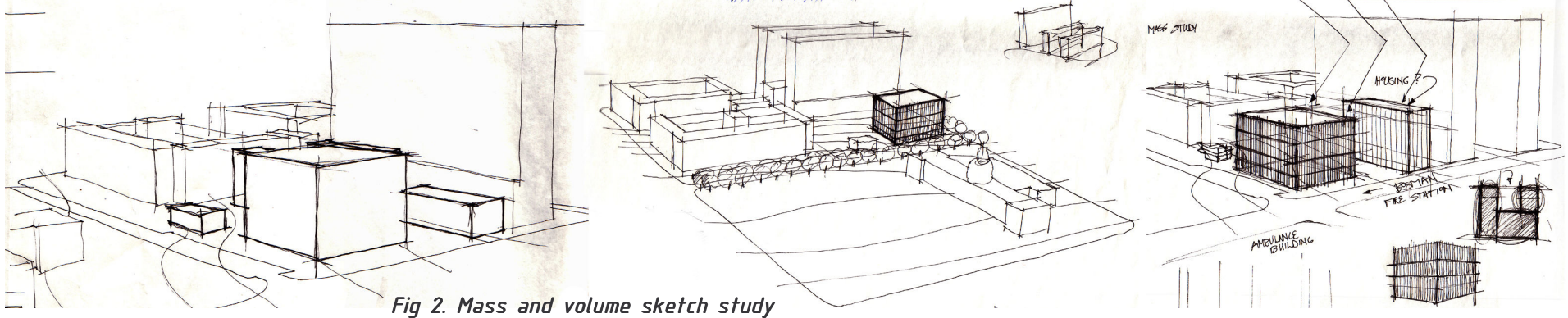


Fig 2. Mass and volume sketch study

The exploration brought about an understanding of the way that buildings are massed in the area. Diagrams in Figures 2, 3 and 4 clearly define the route followed to finalise an urban scale and mass suitable for the precinct.

If the design proposal is to become an icon within the precinct, the location would be incorrect to a certain degree because the site is hidden behind the City Hall. The most important driving factor in proposing a volume for this urban room within the precinct is to create a link between the City Hall

gardens public space and the campus environment of the design centre.

The final resolution for the building became visible in sketch form in Figure 4. This sketch is very elementary and makes a clear illustration of the mass and volume of the design centre.

Fig 3. Further sketch study

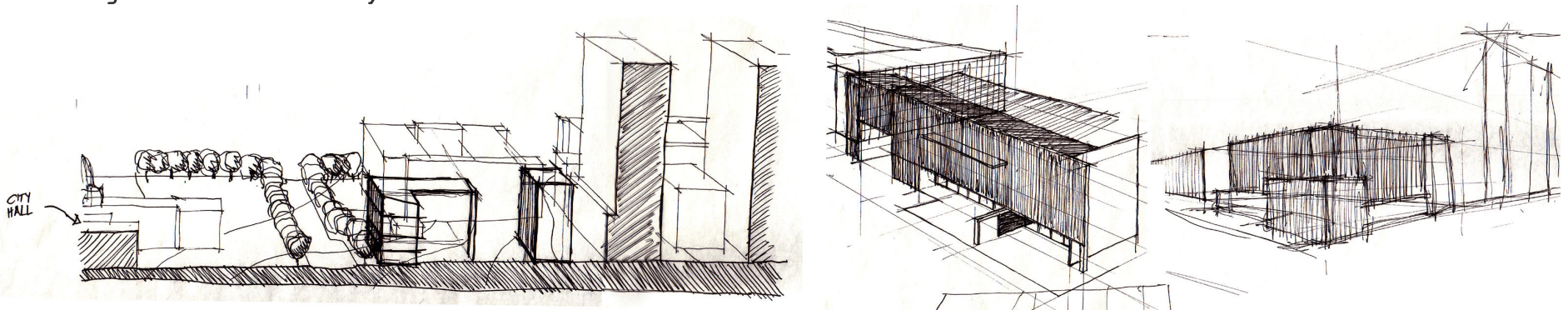
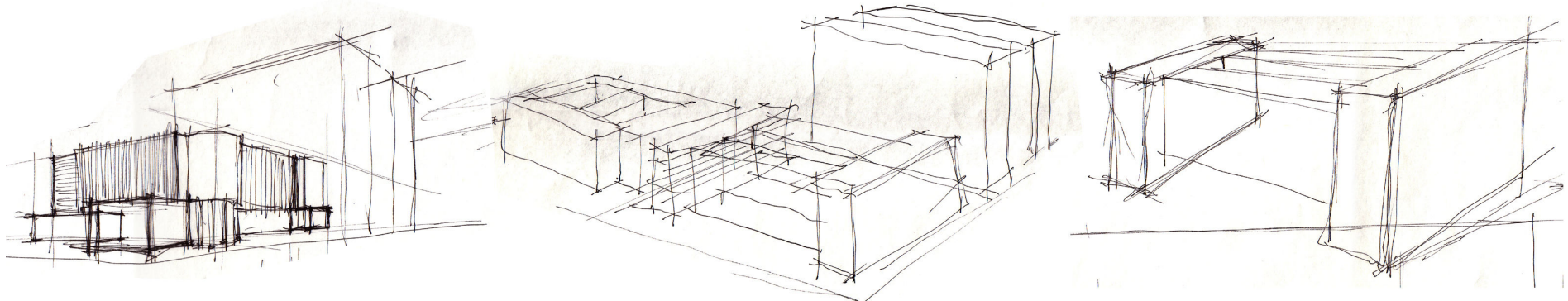


Fig 4. Progress sketches of final building resolution

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Having looked at car design as an example of product design, the building follows certain principles named

previously to fulfil form and function. The final appearance and working of the building becomes symbolic of car

and product design in that it resembles a working machine adaptable to the fourth dimension, namely: time. With time, the building is adaptable and can take on new appearances and forms outside of the main structural system and layout.

Envelope of a building:

Time is very important in the framework of the city of Pretoria, leading to the decision to design a design centre that may not necessarily change functionality, but may remain as a design school perhaps in different disciplines in the future. Designed to adapt purely to improved technologies, the structure of the building lends itself to different envelope conditions. It is possible to accept that future improvements and modifications may comprise lighter and more effective solutions to the current and near-future envelope skins that are designed.

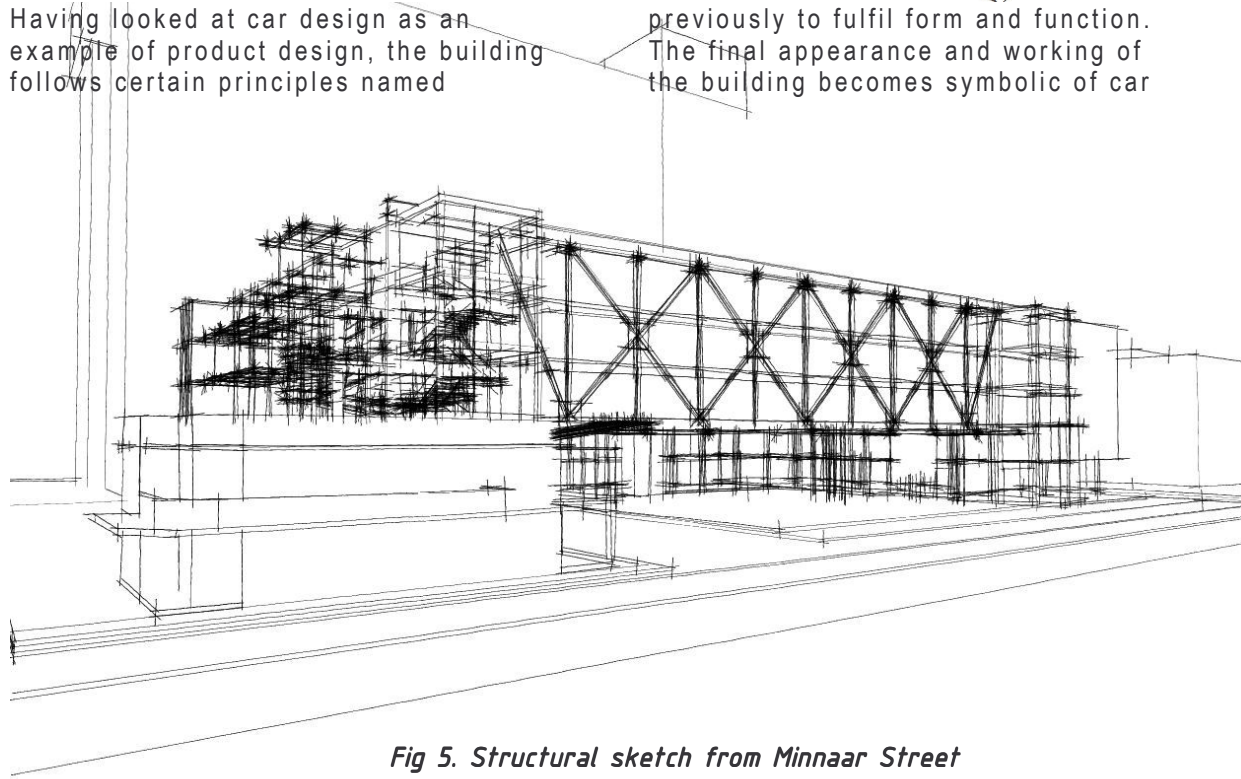


Fig 5. Structural sketch from Minnaar Street

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This makes the design of the building adaptable for the use of in-house designed products and therefore inspires the use of the building as a design school and centre for young people.

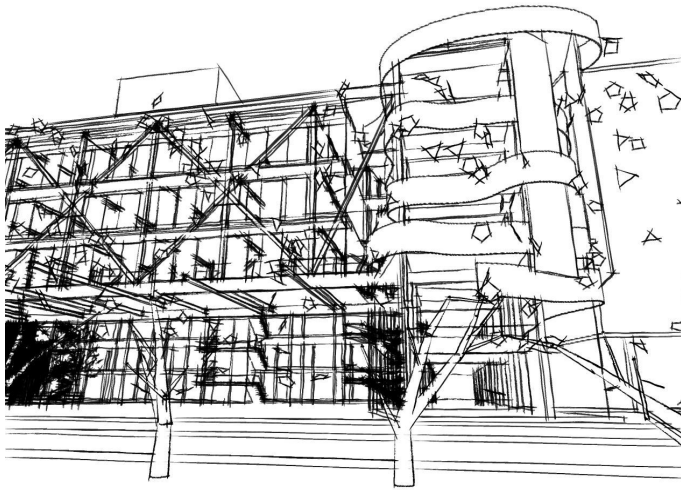


Fig 6. View of possible envelope

A structural system designed to accommodate change on the surface of the building exists with flexibility in mind, the structure offers flexible spatial layouts and arrangements. This is created by using masonry infill work. The infill panels are composite panels of polyurethane bonded to either steel or aluminium. This material is dealt with in the technical investigation.

Suspended Studios:

The suspended floors (Figures 5 & 7) of the main design studios are a product of creating an uninterrupted linkage between the design centre's courtyard and the public square in front of the City Hall. It uses a space-frame truss structure that supports the floors of the



Fig 7. View from north

studios and hangs between two circulation wings. This structure consists of steel and concrete; the steel frame structure is external to the studios and visible from the outside. With this exposed structural system, the working forces in suspension are illustrated and this allows people to view the structure as a product of design and engineering.

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Fusion between design and purpose is crucial to the success of the building. A design centre does not necessarily have to be a creative building but may require simplicity to stimulate creative minds.

The detailing and finishing of the building and its systems are relatively

simple and remain visible. A bicycle consists of many working parts; these are exposed but refined in detail to appear simple and aerodynamic. Thus, this building too has details and parts that are not clad or hidden, but refined and calculated to fulfil their functions and attract interest.

The suspended studio section appears to float and in so doing, may lure the

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attention of passers by and users of the building. This is an important decision for the design of the building, to create a structure that visually communicates its function in the city. When approaching or passing the building a sense of inquisitiveness must be invoked and the final design in its completion achieves this goal without seeming to be an icon within the precinct.

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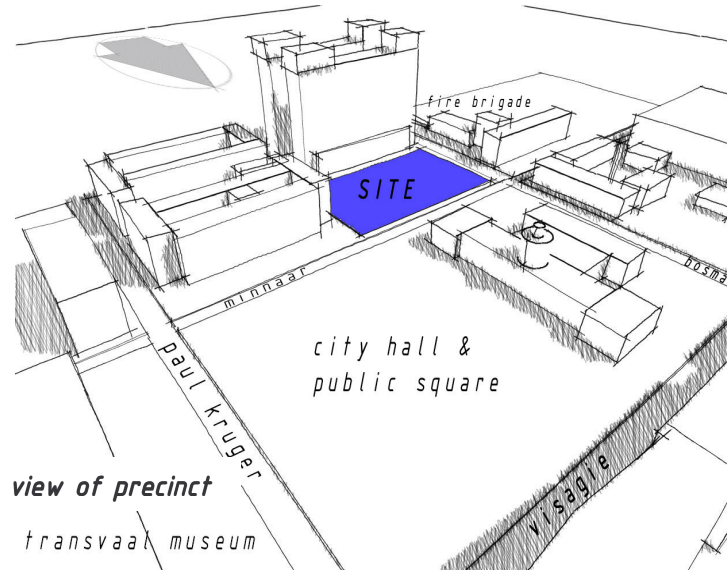


Fig 8. Aerial view of precinct

Precinct considerations:

City Hall is a stately icon in the precinct and one of the main constraints was to not disregard the status of the City Hall building (refer to Figures 4 & 5). To create a building that fits within the precinct, does not become an icon, and does not dissolve into the existing buildings is an important contradiction to consider.

Removing the existing railway building on the premises (refer to Figure 6) was considered, but due to

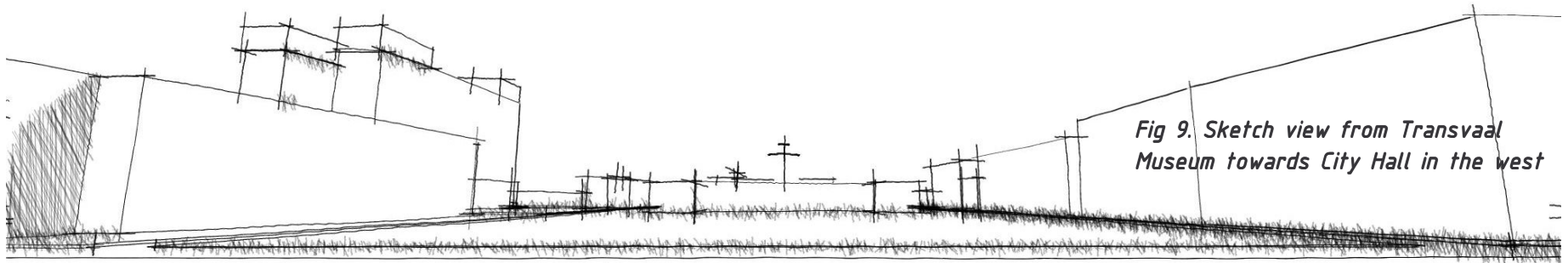


Fig 9. Sketch view from Transvaal Museum towards City Hall in the west



Fig 10. View from Transvaal Museum towards City Hall in the west

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numerous discussions and decisions, the conservation of the building became an integral part of the design and its theories. This railway building (architect and date of construction unknown) was built as part of the NZASM railway infrastructure and remains part of the history of Pretoria as a good example of modernism in the earlier part of the 20th century in South Africa. Trains are a product of the Industrial Revolution and an important example of mass-produced artefacts and how design evolution has transformed them into the high-speed passenger land bound transportation system, as we know them today.

To make the railway building an integral part of the design project became important as a reminder of the history of design and its influences. Adding



Fig 11. Old railway building on premises

this building into the design programme also allows the design to enhance the tourist route that exists on the precinct by creating a museum for industrial design.

Another important building within the museum park precinct is the Museum of Cultural History. This building has a permanent exhibition of product design

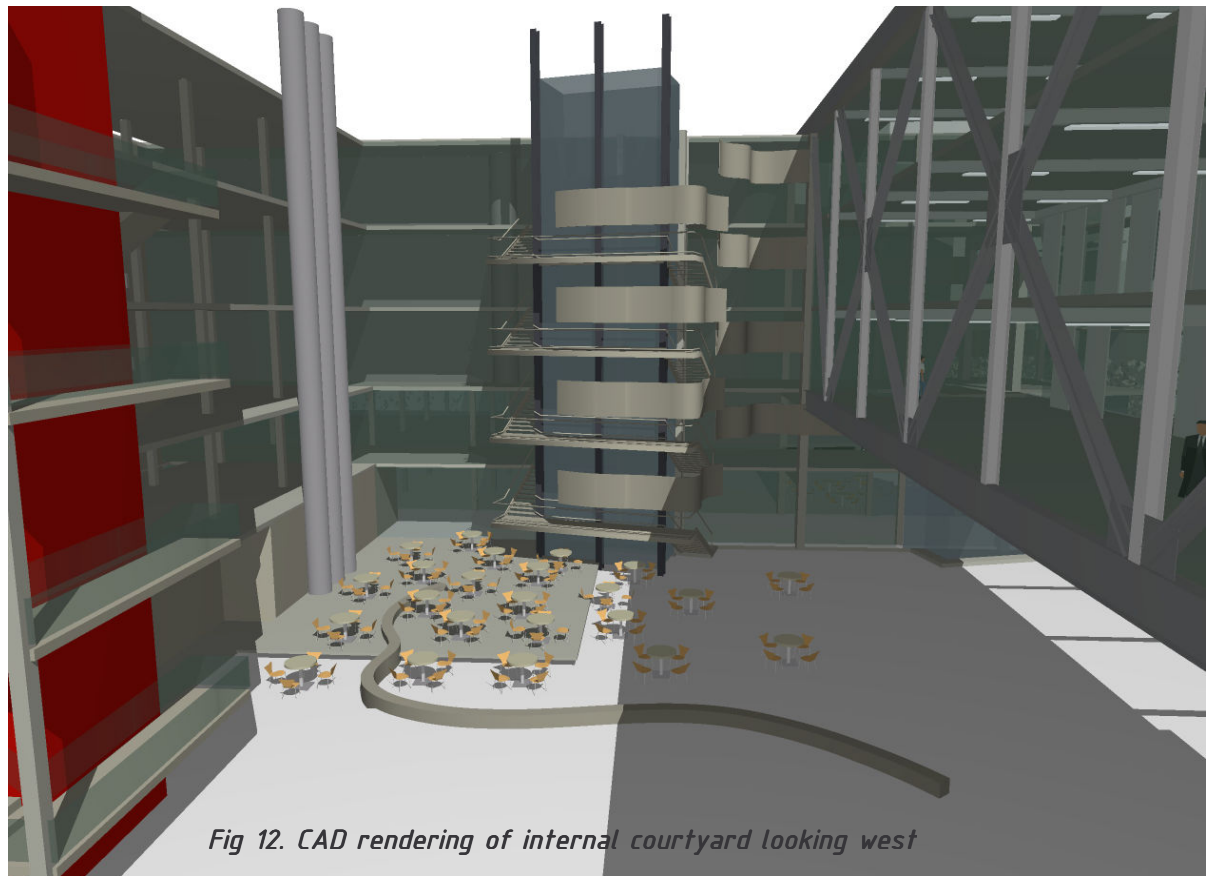


Fig 12. CAD rendering of internal courtyard looking west

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and can form an integral part of the design centre

Courtyard:

A link has been established between the City Hall public open space and the internal space of the design centre. This courtyard becomes a focal point

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within the structure of the design centre, with all the functions and activities within the centre spilling over into the courtyard. The space is articulated with many functions and activities.

Safety is of primary concern and the open courtyard design comes as a result of policing found within the precinct as discussed in the

introduction

Circulation:

Two vertical circulation routes (refer to Figure 12) are designed within the courtyard space which in turn animate the space with vertical movement. These circulation cores exist in

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collaboration with two large horizontal circulation stacks. A west and an east circulation stack provide the two wings on opposite sides to the studio bridge. Doubling in use (Figure 13), the circulation wings function as exhibition space for the centre.

On the western side of the building are spaces provided for numerous functions, all multi-functional to accommodate various activities and spaces. The main functions of the western wing are machine workshops, training spaces and wet services. These spaces are dedicated spaces and are adaptable if space needs revising.

Fig 13. Interior sketch of eastern circulation and exposition wing

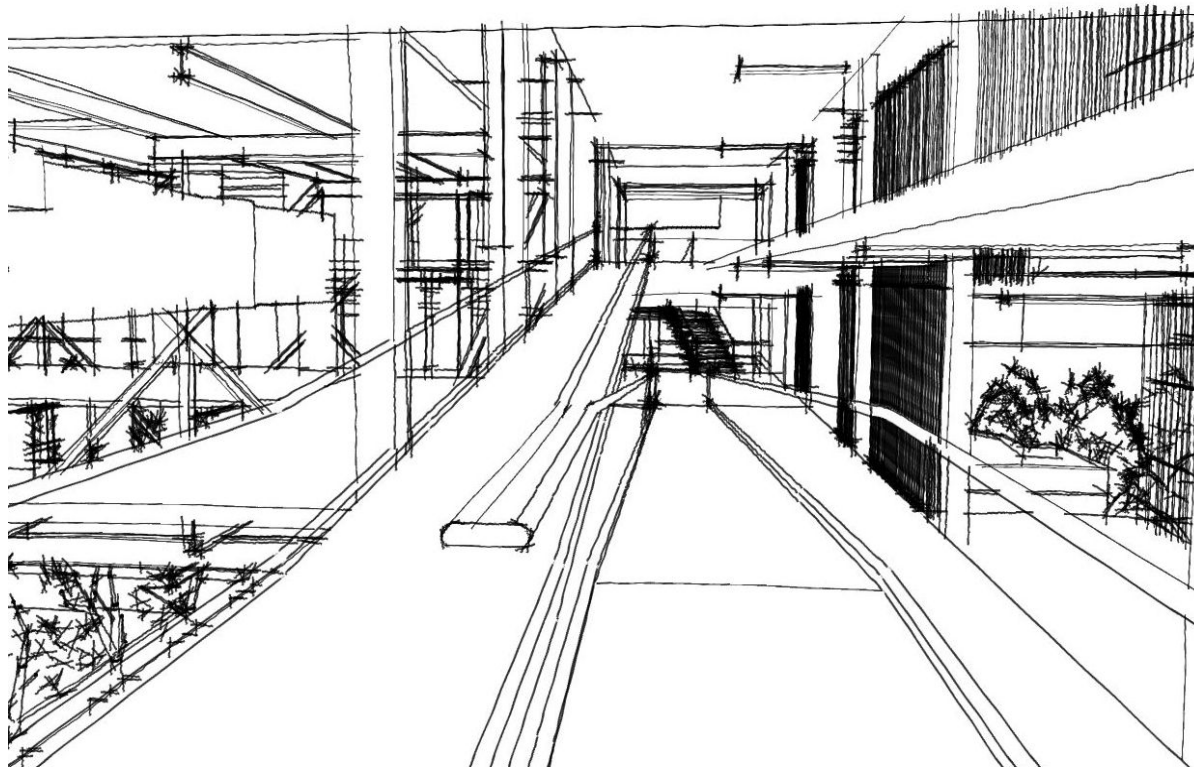
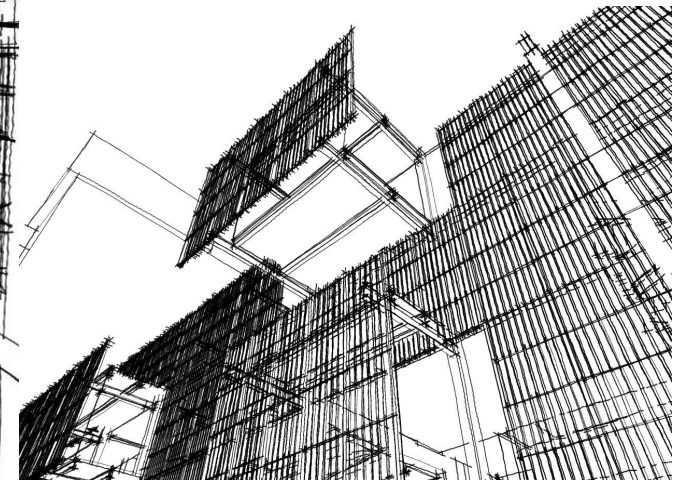


Fig 14. Sketch impression of exhibition pods with sun shade device attached on eastern side of eastern wing



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Exhibition pods:

A further decision to create exhibition pods on each side of the eastern wing was introduced. These pods act as “clip-on” boxes that are attached to the main structural frame of the building. Each exhibition pod (Figure 14) can accommodate various exhibitions that can be arranged to the exhibitor’s requirements.

Auditorium design:

An auditorium is crucial for the design centre as presentations and conferences are often hosted and the space must be available at all times. The design of the auditorium follows standard practice and the exterior responds to the immediate context:

Across Bosman Street on the west of the site is the fire station and the building that is placed on the concerned corner resembles modern architecture as in Figure 15. The auditorium responds to the fire station’s

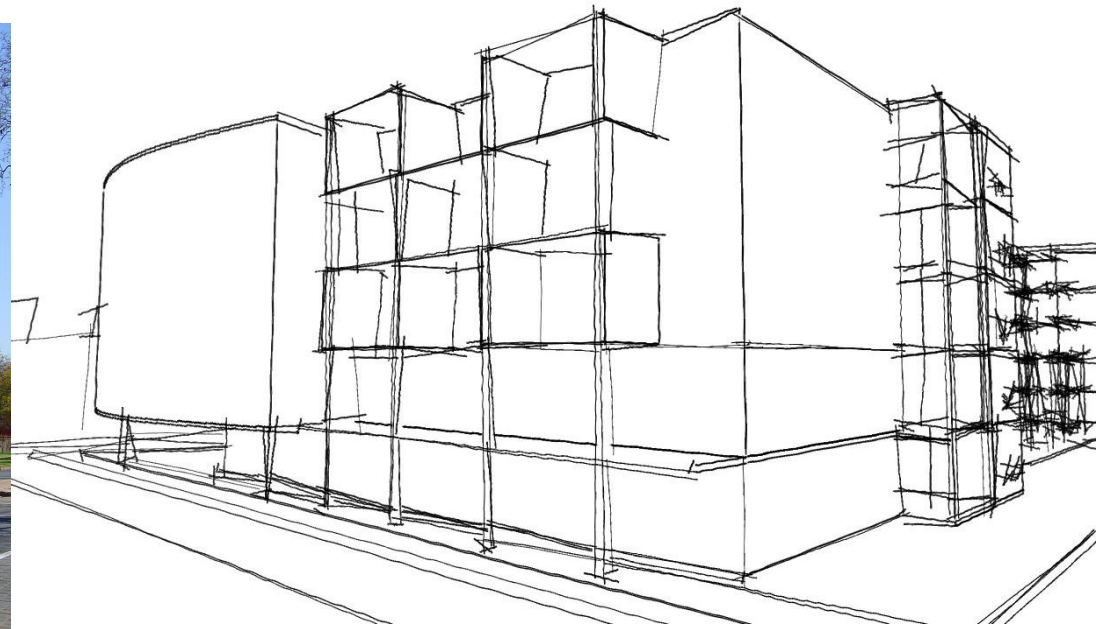
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form and articulation to create a responsive dialogue across the street in terms of design, this leads to the solid façade of the auditorium with no openings (figure 16).

Fig 15. View of fire station across Bosman Street



Fig 16. Sketch of the western façade showing auditorium form



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Design studio interior:

Being the most important space within the building, the design studios need to be designed to maximise occupational comfort. The studios are already an important feature within the design of the building because it is suspended over the internal courtyard (Figure 17).

Creating design studios for a young group of individuals means that the spaces have to be as flexible and adaptable as possible. The spaces are clear and uncluttered from the structural system thus allowing the space to be arranged and occupied in any possible manner that is suitable for design studios.

The northern side of the studios have been designed as a dedicated movement and display space allowing this space to heat up in winter and circulate through the rest of the studios with the aid of mechanical ventilation (figure 19). There are sliding presentation panels that define the movement passage on the northern side, these panels can be moved sideways and act as a visual buffer for excessive glare coming from the windows on the northern side of the design studios.

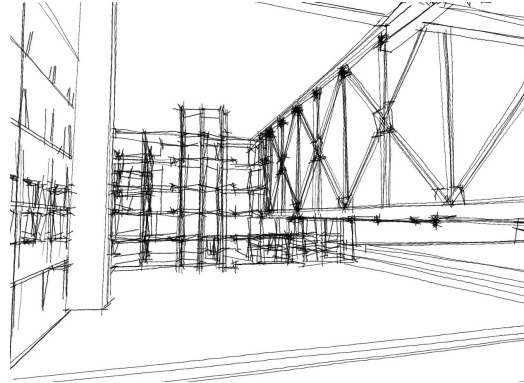
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Fig 17. View of design studio bridge over courtyard

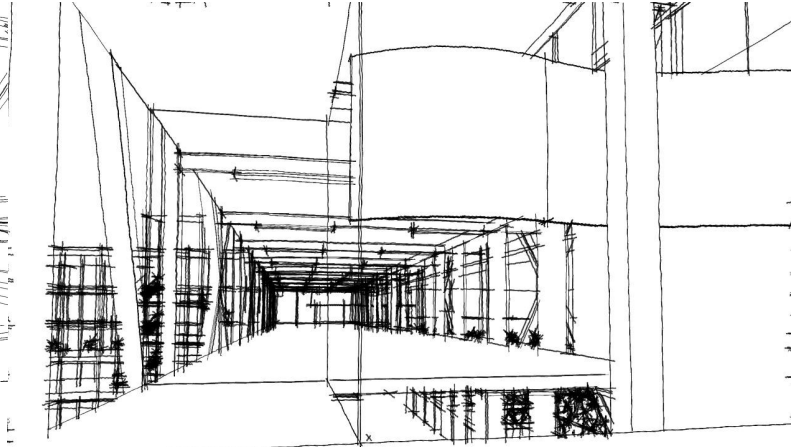


Fig 18. Sketch impression of entrance into the design studios



Fig 19. Sketch perspective of design studio with display panels defining movement and display space on the northern side of the studio space